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Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
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Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Jan. 19, 1982. *Commissioner of Patents and Trademarks.*

Board of Appeals Decisions Rendered in the Month of Apr. 1982

Affirmed	166
Affirmed in Part	22
Reversed	80
Total	268

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,188,177, Re. S.N. 354,015, Filed Mar. 2, 1982, Cl. 425/005, SYSTEM FOR FABRICATION OF SEMICONDUCTOR BODIES, Jack S. Kilby, Owner of Record: *Texas Instruments, Inc., Dallas, Tex.,* Attorney or Agent: D. Carl Richards, et al., Ex. Gp.: 147

4,304,578, Re. S.N. 351,945, Filed Feb. 24, 1982, Cl. 55/189, WATER SEPARATOR FOR A GAS ANALYZER, Matti A. Hakala, et al., Owner of Record: *Instucmentarium Oy, Helsinki, Finland,* Attorney or Agent: Elwin A. Andrus, et al., Ex. Gp.: 176

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b).

3,982,419, Reexam. No. 90/000,193, Requested: Apr. 28, 1982, Cl. 73/13G, APPARATUS FOR AND METHOD OF DETERMINING ROTATIONAL AND LINEAR STIFFNESS, John T. Boys, Owner of Record: *Requester,* Attorney or Agent: Aaron Nerenberg, Ex. Gp.: 240, Requester: SPS Technologies, Inc., Jenkintown, Pa.

4,073,296, Reexam. No. 90/000,195, Requested: May 4, 1982, Cl. 128/329, APPARATUS FOR ACUPRESSURE TREATMENT, Francis J. McCall, Owner of Record: *Inventor,* Attorney or Agent: Alter & Weiss, Ex. Gp.: 330, Requester: Acu-Thin Weight Control, Inc., Pampano, Fla.

4,082,484, Reexam. No. 90/000,194, Requested: Apr. 30, 1982, Cl. 418/55, SCROLL-TYPE APPARATUS WITH FIXED THROW CRANK DRIVE MECHANISM, John E. McCullough, Owner of Record: *Arthur D. Little, Inc., Cambridge, Mass.,* Attorney or Agent: Bessie A. Lepper, Ex. Gp.: 343, Requester: Martin P. Hoffman, Arlington, Va.

4,294,764, Reexam. No. 90/000,191, Requested: Apr. 21, 1982, Cl. 260/340.909, N-(OPTIONALLY SUBSTITUTED 1,3 DIOXOLAN OR DIOXAN-2-YLMETHYL)-N-ALKYL, ALKENYL, OR ALKNYL 1-2,2-DICHLOROACETAMIDES, Jay K. Rinehart, Owner of Record: *PPG Industries, Inc., Pittsburgh, Pa.,* Attorney or Agent: Edward J. Whitfield, Ex. Gp.: 120, Requester: Stauffer Chemical Co., Westport, Conn.

Examiner Education Program

The U.S. Patent and Trademark Office and Intellectual Property Owners, Inc. are jointly instituting an education program for patent examiners to increase their awareness of industrial technology, particularly in rapidly advancing industrial fields. The program is expected to benefit the patent system and its users by improving the quality of patent examining, resulting, in turn, in the issuance of higher quality patents.

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GERALD J. MOSSINGHOFF,
Apr. 27, 1982. *Commissioner of Patents and Trademarks.*

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by agencies of the U.S. Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally funded research and development. Foreign patents are filed on selected inventions to extend market coverage for U.S. companies and may also be available for licensing.

Technical and licensing information on specific inventions may be obtained by writing to:

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U.S. Department of Commerce
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Springfield, Va. 22151

Please cite the number and title of inventions of interest.

DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

SN 6-140,063. N-SULFONYL AMINE-MEDIATED SULFAMATION OF AMINES. Filed Apr. 19, 1980 by Dept. of HHS. Inventor: *Grant E. Dubois.*

SN 6-140,064. SULFAMO DIHYDROCHALCONE SWEETNERS. Filed Apr. 14, 1980 by Dept. of HHS. Inventor: *Grant E. Dubois.*

SN 6-148,491. APPARATUS AND METHOD FOR CONTINUOUS COUNTERCURRENT EXTRACTION AND PARTICLE SEPARATION. Filed May 9, 1980 by Dept. of HHS. Patent 4,324,661 issued Apr. 13, 1982. Inventor: *Dr. Yoichiro Ito.*

SN 6-330,020. SELF-CONTAINED LYSIS-FILTRATION BLOOD CULTURE CHAMBER. Filed Dec. 11, 1981 by Dept. of HHS. Inventor: *Dr. Charles H. Zierdt.*

SN 6-349,313. MODIFIED SILVER STAIN FOR PROTEINS IN POLYACRYLAMIDE GELS. Filed Feb. 16, 1982 by Dept. of HHS. Inventor: *James H. Morrissey.*

SN 6-363,480. NEISSERIA GONORRHOEAE VACCINE. Filed Mar. 30, 1982 by Dept. of HHS. Inventor: *Buchanan, et al.*

Trademark Suits

Notices under 15 U.S.C. 1116;
Trademark Act of July 5, 1946.

Reg. No. **85,423** (KODAK), Eastman Kodak Co.; Reg. No. **928,095** (KODAK AND DESIGN), **same, filed** Feb. 9, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-0586, *Eastman Kodak Co.* v. *Alfred J. Krahetz, et al.*

Reg. No. **223,725** (SIMULATED OILCLOTH LABEL), Levi Strauss & Co.; Reg. No. **404,248** (ARCUATE DESIGN), **same;** Reg. No. **849,437** (LEVI'S AND DESIGN), **same;** Reg. No. **989,435** (ARCUATE DESIGN), **same;** Reg. No. **1,139,254** (ARCUATE AND DESIGN), **same, filed** Apr. 2, 1982, D.C., M.D.N.C. (Greensboro), Doc. C-82-376-G, *Blue Bell, Inc.* v. *Levi Strauss & Co.*

Reg. No. **236,079** (MAXIMENT), Set Products, Inc.; Reg. No. **854,955** (MAXIRON), **same, filed** Sept. 10, 1981, D.C., N.D. Tex. (Dallas), Doc. CA3-81-1652-H, *Set Products, Inc.* v. *Surface Bonding Systems, Inc., et al.* Notice of Dismissal without prejudice filed Mar. 10, 1982.

Reg. No. **297,594** ("VL" AND DESIGN), Louis Vuitton S.A., **filed** Feb. 5, 1982, D.C. Md. (Baltimore), Doc. H-82-291, *Louis Vuitton S.A.* v. *Sun J. Kim, t/a Best Handbag Co.* **Same, filed** July 21, 1981, D.C., S.D.N.Y., Doc. 81-Civ-4516, *Louis Vuitton* v. *Stephen Clark.* Defendants are permanently enjoined from further infringing Plaintiff's trademark. Filed Apr. 1, 1982.

Reg. No. 404,248. (See Reg. No. 223,725.)

Reg. No. **410,701** (CARTIER), Cartier, Inc.; Reg. No. **411,239, same;** Reg. No. **411,240, same;** Reg. No. **411,975, same;** Reg. No. **414,433, same;** Reg. No. **414,434, same;** Reg. No. **752,301, same;** Reg. No. **759,201, same, filed** Feb. 9, 1982, D.C., S.D.N.Y., Doc. 82-Civ-0826 KTD, *Cartier, Inc., et al.* v. *Cartier Packaging, Inc.* Defendant is permanently enjoined and restrained from further infringing Plaintiff's trademarks. Filed Mar. 22, 1982.

Reg. No. **411,239** (CARTIER), Cartier, Inc.; Reg. No. **411,240, same;** Reg. No. **411,975, same;** Reg. No. **759,201, same, filed** Apr. 10, 1981, D.C., N.D. Ga. (Atlanta), Doc. C81-654A, *Cartier, Inc., et al.* v. *Richard Haggart.* Defendant is enjoined and restrained from further infringing Plaintiff's trademarks. Filed Feb. 9, 1982.

Reg. No. **411,239** (CARTIER), Cartier, Inc.; Reg. No. **411,240, same;** Reg. No. **411,975, same;** Reg. No. **759,201, same;** Reg. No. **925,672** (C DESIGN), **same, filed** Feb. 18, 1982, D.C., N.D. Tex. (Dallas), Doc. CA3-82-0254G, *Cartier, Inc., et al.* v. *Bunny Thompson, et al.*

Reg. No. **411,239** (CARTIER), Cartier, Inc.; Reg. No. **411,240, same;** Reg. No. **411,975, same;** Reg. No. **414,604, same;** Reg. No. **758,858, same;** Reg. No. **759,201, same;** Reg. No. **897,507, same;** Reg. No. **897,537, same;** Reg. No. **925,672** (C DESIGN), **same;** Reg. No. **1,071,823** (INTERLOCKING C DESIGN), **same, filed** Mar. 12, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82-1249 RMT, *Cartier, Inc., et al.* v. *Sheila & Robin Creations.*

Reg. No. 411,239. (See Reg. No. 410,701.)

Reg. No. 411,240. (See Reg. Nos. 410,701 and 411,239.)

Reg. No. **411,975** (CARTIER), Cartier, Inc.; Reg. No. **759,201, same;** Reg. No. **925,672** (C DESIGN), **same;** Reg. No. **1,071,823** (INTERLOCKING C DESIGN), **same, filed** Feb. 22, 1982, D.C., N.D. Ga. (Atlanta), Doc. C82-341A, *Cartier, Inc., et al.* v. *Bags 'N' Things, Inc.*

Reg. No. **411,975** (CARTIER), Cartier, Inc.; Reg. No. **759,201, same;** Reg. No. **925,672** (C DESIGN), **same, filed** Dec. 18, 1981, D.C., S.D.N.Y., Doc. 81-Civ-7893 KTD, *Cartier, Inc., et al.* v. *Jose Varcarcel.* Defendent is permanently enjoined and restrained from further infringing Plaintiff's trademarks. Filed Feb. 24, 1982.

Reg. No. 411,975. (See Reg. Nos. 410,701 and 411,239.)

Reg. No. 414,433. (See Reg. No. 410,701.)

Reg. No. 414,434. (See Reg. No. 410,701.)

Reg. No. 414,604. (See Reg. No. 411,239.)

Reg. No. **530,111** (SHOP SMITH), Shopsmith, Inc., **filed** Feb. 3, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82-0492-R, *Shopsmith, Inc.* v. *Tool Stores, Inc.*

Reg. No. **538,298** (LOVE), Joseph Love, Inc.; Reg. No. **765,981** (LOVELAND AND DESIGN), **same;** Reg. No. **765,982** (IT MUST BE LOVE AND DESIGN), **same;** Reg. No. **767,630** (LOVE), **same;** Reg. No. **929,198** (LOVE AND DESIGN), **same;** Reg. No. **1,129,316** (LOVELAND), **same;** Reg. No. **1,130,488** (TRUE LOVE), **same;** Reg. No. **1,157,421** (LOVERALLS), **same, filed** Feb. 16, 1982, D.C., S.D.N.Y., Doc. 82-Civ-0927, *Joseph Love, Inc.* v. *Recycled Paper Products, Inc.*

Reg. No. **544,380** (GAME-TIME), Game Time, Inc.; Reg. No. **979,743** (GAME TIME), **same, filed** Feb. 19, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 1018, *Game Time, Inc.* v. *General Consumer Electronics Corp.*

Reg. No. **585,718** (IMPERIAL SLACKS AND DESIGN), Haggar Co., **filed** Feb. 11, 1982, D.C., S.D.N.Y., Doc. 82-Civ-0895, *Haggar Co.* v. *Slaks Fifth Ave., Inc., et al.*

Reg. No. **616,873** (THE DOW JONES AVERAGES), Dow Jones & Co., Inc., **filed** Mar. 31, 1982, D.C., S.D.N.Y., Doc. 82-Civ-2023, *Dow Jones & Co., Inc.* v. *Board of Trade of the City of Chicago.*

Reg. No. **695,545** (NUTRIPET), Nutrilite Products, Inc., **filed** Mar. 26, 1982, D.C., N.D. Ga. (Atlanta), Doc. C82-638A, *Nutrilite Products, Inc.* v. *Nutri-Pet, Inc.*

Reg. No. **701,253** (SER-AP-ES), Ciba-Geigy Corp., **filed** Mar. 4, 1982, D.C.N.J. (Newark), Doc. 87-671, *Ciba-Geigy Corp.* v. *Zenith Laboratories, Inc., et al.*

Reg. No. **709,460** (FOUR WINDS), Four Winds Travel, Inc., **filed** Mar. 30, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1992 CLB, *Four Winds Travel (A N.Y. Corp.)* v. *Four Winds Travel (A Mo. Corp.).*

Reg. No. **743,572** (McDONALD'S), McDonald's Corp.; Reg. No. **804,365, same;** Reg. No. **1,113,227, same;** Reg. No. **1,114,138, same;** Reg. No. **1,155,956** (NOBODY CAN DO IT LIKE McDONALD'S CAN), **same;** Reg. No. **1,155,957** (NOBODY CAN DO IT LIKE McDONALD'S), **same, filed** Sept. 3, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 5020, *McDonald's Corp.* v. *AMP Records, et al.*

Reg. No. **749,501** (REMY MARTIN), E. Remy Martin & Co., S.A.; Reg. No. **1,052,023** (ST. REMY), **same;** Reg. No. **1,181,432** (REMY AND DESIGN), **same, filed** Feb. 24, 1982, D.C.N.J. (Newark), Doc. 82-541, *E. Remy Martin & Co., S.A.* v. *Hoffman Import & Distributing Co.*

Reg. No. 752,301. (See Reg. No. 410,701.)

Reg. No. 758,858. (See Reg. No. 411,239.)

Reg. No. 759,201. (See Reg. Nos. 410,701, 411,239 and 411,975.)

Reg. No. 765,981. (See Reg. No. 538,298.)

Reg. No. 765,982. (See Reg. No. 538,298.)

Reg. No. 767,630. (See Reg. No. 538,298.)

Reg. No. **781,522** (KOA AND EMBLEM), Kampgrounds of America, Inc.; Reg. No. **933,590** (KOA AND DESIGN), **same;** Reg. No. **934,757** (KOA AND DESIGN), **same;** Reg. No. **936,413** (KOA AND DESIGN), **same;** Reg. No. **940,884** (KOA AND DESIGN), **same;** Reg. No. **941,046** (KOA AND DESIGN), **same;** Reg. No. **943,643** (KOA AND DESIGN), **same;** Reg. No. **1,003,508** (KOA), **same, filed** Sept. 25, 1980, D.C. Nev. (Reno), Doc. CV-R-80-217-ECR, *Kampgrounds of America, Inc.* v. *Morris Gallagher, et al.* Permanent injunction entered in favor of plaintiff against the defendants, enjoining them from use or false designation of any of Plaintiff's registered trademarks and servicemarks. Filed Feb. 11, 1982.

Reg. No. **782,130** (JACK WINTER), Jack Winter Apparel, Inc.; Reg. No. **1,012,607** (WENDY WINTER), **same, filed** Nov. 20, 1981, D.C., S.D.N.Y., Doc. 81-Civ-7847, *Jack Winter Apparel, Inc.* v. *Yesterday's News, Inc.*

Reg. No. **783,232** (CHROMATIC), Chromatic Corp., **filed** June 11, 1981, D.C., S.D.N.Y., Doc. 81-Civ-3645 CBM, *Chromatic Corp.* v. *Erwin Pearl.* Action discontinued with leave to reopen in 30 days if settlement is not concluded. Filed Mar. 1, 1982.

Reg. No. 804,365. (See Reg. No. 743,572.)

Reg. No. **823,663** (DELACORTE PRESS), Dell Publishing Co., Inc., **filed** Nov. 24, 1981, D.C., S.D.N.Y., Doc. 81-Civ-7350 JMC, *Dell Publishing Co., Inc.* v. *DellaCorte Publications, Inc.* Plaintiff is the owner of Reg. No. 823,663. Defendants will discontinue the use of the names "DellaCorte Publications, Inc.", "DellaCorte, Inc." or "DellaCorte" as a trademark, trade name, service mark or trade style throughout the world. Filed Mar. 22, 1982.

Reg. No. 849,437. (See Reg. No. 223,725.)

Reg. No. 854,955. (See Reg. No. 236,079.)

Reg. No. **873,775** (PROXABRUSH), John O. Butler Co.; Reg. No. **1,191,119, same, filed** July 17, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 4064, *John O. Butler Co.* v. *Block Drug Co., Inc.*

Reg. No. **879,410** (BATTERIES UNLIMITED AND DESIGN), Batteries Unlimited, Inc.; Reg. No. **954,943** (BATTERIES UNLIMITED), **same, filed** Oct. 26, 1981, D.C., E.D. Mo. (St. Louis), Doc. 81-1344C(2), *Batteries Unlimited, Inc.* v. *Batteries Unlimited, Inc.* Defendants are perpetually enjoined and restrained from using the term "BATTERIES UNLIMITED" or any mark or term similar thereto in connection with any business, including but not limited to the distribution or sale of storage batteries and related products. Filed Feb. 18, 1982.

Reg. No. 897,507. (See Reg. No. 411,239.)

Reg. No. 897,537. (See Reg. No. 411,239.)

Reg. No. 925,672. (See Reg. Nos. 411,239 and 411,975.)

Reg. No. 928,095. (See Reg. No. 85,423.)

Reg. No. 929,198. (See Reg. No. 538,298.)

Reg. No. 933,590. (See Reg. No. 781,522.)

Reg. No. 934,757. (See Reg. No. 781,522.)

Reg. No. 936,413. (See Reg. No. 781,522.)

Reg. No. 940,884. (See Reg. No. 781,522.)

Reg. No. 941,046. (See Reg. No. 781,522.)

Reg. No. 943,643. (See Reg. No. 781,522.)

Reg. No. 954,943. (See Reg. No. 879,410.)

Reg. No. **977,437** (GAYELORD HAUSER AND DESIGN), Modern Products, Inc., **filed** Oct. 19, 1981, D.C., N.D. Ind. (South Bend), Doc. S81-360, *Modern Products, Inc., et al.* v. *Beautymasters, Inc., et al.* Defendants are permanently enjoined from printing, publishing, or permitting to be published on their behalf, any material containing all or any part of the name GAYELORD HAUSER. Filed Mar. 10, 1982.

Reg. No. 979,743. (See Reg. No. 544,380.)

Reg. No. 989,435. (See Reg. No. 223,725.)

Reg. No. 1,003,508. (See Reg. No. 781,522.)

Reg. No. 1,012,607. (See Reg. No. 782,130.)

Reg. No. **1,020,660** (DESIGN MISCELLANEOUS), Golden Harvest Seeds, Inc., **filed** Jan. 22, 1982, D.C. Neb. (Omaha), Doc. 82-0-24, *Golden Harvest Seeds, Inc.* v. *Stauffer Chemical Co., et al.*

Reg. No. **1,037,231** (PERMATHENE-12), Alleghany Pharmacal Corp., **filed** Sept. 10, 1980, D.C., S.D.N.Y., Doc. 80-Civ-5142 RJW, *Alleghany Pharmacal Corp.* v. *Lee Pharmaceuticals.* Action dismissed with prejudice and without costs or attorneys' fee on Oct. 23, 1980.

Reg. No. 1,052,023. (See Reg. No. 749,501.)

Reg. No. **1,059,349** (BON JOUR), Bonjour Paris Fashions, Inc. **filed** Feb. 17, 1982, D.C., S.D.N.Y., Doc. 82-Civ-0954, *Bon Jour International Ltd.* v. *Ahead By A Length, Inc., et al.*

Reg. No. **1,068,167** (J. G. HOOK AND DESIGN), J. G. Hook, Inc., **filed** Mar. 29, 1982, D.C., E.D. Pa.

(Philadelphia), Doc. 82-1418, *J. G. Hook, Inc.* v. *Hartog of California, Inc.*

Reg. No. 1,071,823. (See Reg. Nos. 411,239 and 411,975.)

Reg. No. **1,086,041** (CALVIN KLEIN), Calvin Klein Co., **filed** Nov. 30, 1981, D.C., S.D. Fla. (Miami), Doc. 81-2676-CIV-EPS, *Calvin Klein Co., et al.* v. *Gee Zee Industries, Inc., et al.* **Same, filed** Mar. 10, 1982, D.C., M.D. Fla. (Tampa), Doc. 82-0230 CIV T H, *Calvin Klein Co., et al.* v. *J. C. Griffin Corp., et al.* **Same, filed** Dec. 11, 1981, D.C., S.D.N.Y., Doc. 81-Civ-7714-JMC, *Calvin Klein Co., et ano.* v. *Gotham Tops, Co. etc., et ano.* Plantiffs are the owner and exclusive licensee of the trademark CALVIN KLEIN. Said trademark is valid and subsisting. Defendants are permanently enjoined from selling, buying, holding, etc. the trademark CALVIN KLEIN or other symbol or designation confusingly similar thereto. Filed Mar. 16, 1982. **Same, filed** Mar. 24, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1857, *Calvin Klein Co., Inc.* v. *Calvin Line Co.*

Reg. No. **1,102,347** (SHARKHEAD AND SWIMMER DESIGN), Universal City Studios, Inc.; Reg. No. **1,103,605** (JAWS, SHARKHEAD, AND SWIMMER DESIGN), **same, filed** Mar. 1, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82-1033 KN (K), *Universal City Studios, Inc., et al.* v. *Film Ventures International, Inc., et al.*

Reg. No. 1,103,605. (See Reg. No. 1,102,347.)

Reg. No. **1,105,850** (DESIGN MISCELLANEOUS), Binney & Smith, Inc., **filed** Mar. 22, 1982, D.C., N.D. Tex. (Dallas), Doc. CA3-82-0434R, *Binney & Smith, Inc.* v. *Alfred W. Zlogar, et al.*

Reg. No. 1,113,227. (See Reg. No. 743,572.)

Reg. No. 1,114,138. (See Reg. No. 743,572.)

Reg. No. **1,121,659** (PLURAL COMPONENT SYSTEMS), Plural Component Systems, **filed** May 17, 1977, D.C., S.D. Fla. (Fort Lauderdale), Doc. 77-6216-Civ-NCR, *Plural Component Systems* v. *Plural Component Systems, Inc., et al.* Verdict that Defendants have exclusive right to use of the name Plural Component System in the State of Florida filed Feb. 1, 1980.

Reg. No. **1,122,403** (VENT), Corona Hair Net Corp., **filed** Mar. 8, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 1141 WMB, *Corona Hair Net Corp.* v. *Devon, et al.*

Reg. No. **1,124,979** (CO-JACK), Farmer's Pride Cheese, Inc., **filed** Dec. 29, 1981, D.C., W.D. Wis. (Madison), Doc. 81-C-1010, *Farmer's Pride Cheese, Inc.* v. *Francis Green Heck, doing business as Nelson Cheese Co.*

Reg. No. **1,126,621** (DESIGN OF A FIST WITH RAISED GREEN THUMB), Lawn Doctor, Inc., **filed** Mar. 1, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-0911, *Lawn Doctor, Inc.* v. *Neal Katz, et al.*

Reg. No. **1,126,773** (TRI-STATE AND DESIGN), Tri-State Breeders Cooperative, **filed** Feb. 10, 1982, D.C., W.D. Wis. (Madison), Doc. 82-C-90, *Tri-State Breeders Cooperative* v. *Tri-State de Costa Rica, S.A.*

Reg. No. 1,129,316. (See Reg. No. 538,298.)

Reg. No. 1,130,488. (See Reg. No. 538,298.)

Reg. No. **1,137,810** (KERO-SUN, INC. AND DESIGN), Kero-Sun, Inc.; Reg. No. **1,176,027** (KERO-SUN), **same, filed** Feb. 19, 1982, D.C., W.D. Pa. (Pittsburgh), Doc. 82-271, *Kero-Sun, Inc.* v. *Robert J. Tutoki, et al.*

Reg. No. 1,139,254. (See Reg. No. 223,725.)

Reg. No. **1,149,522** (WATER SEAL), E. A. Thompson Co., Inc., **filed** Feb. 19, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 0821R, *E. A. Thompson Co., Inc.* v. *Jasco Chemical Corp.* **Same, filed** Mar. 19, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 1368, *Jasco Chemical Corp.* v. *E. A. Thompson Co., Inc.*

Reg. No. 1,155,956. (See Reg. No. 743,572.)

Reg. No. 1,155,957. (See Reg. No. 743,572.)

Reg. No. 1,157,421. (See Reg. No. 538,298.)

Reg. No. **1,159,134** (SILHOUETTE), Gulf & Western Corp.; Reg. No. **1,170,161** (SILHOUETTE ROMANCE AND DESIGN), **same, filed** Mar. 26, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1910, *Gulf & Western Corp.* v. *Sharon Publications, Inc., et al.*

Reg. No. **1,162,524** (VIDEOLA), Magnasync/Moviola Corp., **filed** Oct. 5, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 5198 WMB, *Magnasync/Moviola Corp.* v. *Sony Corp. of America.* Stipulation of Dismissal of action filed Mar. 19, 1982.

Reg. No. 1,170,161. (See Reg. No. 1,159,134.)

Reg. No. 1,176,027. (See Reg. No. 1,137,810.)

Reg. No. **1,181,061** (RUNNER'S WORLD), World Publications, Inc., **filed** Jan. 9, 1979, D.C., S.D.N.Y., Doc. 79-Civ-0112, *World Publications, Inc.* v. *Runner World, Inc., et al.* Stipulation and Order of Dismissal filed Sept. 10, 1979.

Reg. No. 1,181,432. (See Reg. No. 749,501.)

Reg. No. **1,181,441** (PRISM), Deltacom, Inc., **filed** Mar. 13, 1981, D.C., S.D.N.Y., Doc. 82-Civ-1529, *Deltacom, Inc.* v. *Synergetics Corp., et al.*

Reg. No. **1,183,634** (WOODCHIEF AND DESIGN), Suburban Mfg. Co., **filed** Dec. 2, 1980, D.C., E.D. Tenn. (Chattanooga), Doc. 1-80-412, *Suburban Mfg. Co.* v. *Hevac Mfg. Ltd., et al.*

Reg. No. **1,186,017** (CHICKEN GEORGE AND DESIGN), Joloj Industries, Inc., **filed** May 13, 1981, D.C., E.D. Pa. (Philadelphia), Doc. 81-2013, *Joloj Industries, Inc., et al.* v. *Marvin Gordon, et al.*

Reg. No. **1,188,641** (WINDOW QUILT), Appropriate Technology Corp., **filed** Mar. 29, 1982, D.C. Conn. (Hartford), Doc. H-82-323, *Appropriate Technology Corp.* v. *Energy Savings Marketplace, Inc., et al.*

Reg. No. 1,191,119. (See Reg. No. 873,775.)

PATENT NOTICES

Certificates of Correction for the Week of June 1, 1982

D. 263,490	4,295,866	4,309,888	4,315,209
3,959,715	4,296,075	4,310,011	4,315,279
4,053,464	4,298,104	4,310,179	4,315,421
4,114,947	4,298,550	4,310,856	4,315,896
4,143,990	4,298,606	4,310,862	4,316,491
4,152,315	4,298,806	4,311,262	4,316,522
4,216,712	4,298,869	4,311,297	4,316,550
4,226,796	4,299,512	4,311,414	4,316,857
4,235,774	4,299,673	4,311,708	4,316,915
4,237,598	4,300,219	4,311,719	4,317,081
4,243,222	4,301,325	4,311,793	4,317,126
4,246,574	4,301,902	4,311,974	4,317,342
4,265,205	4,302,325	4,312,218	4,317,457
4,265,980	4,302,427	4,312,404	4,317,964
4,266,467	4,303,691	4,312,414	4,318,097
4,269,618	4,303,735	4,312,448	4,318,135
4,272,242	4,304,648	4,313,085	4,318,415
4,273,560	4,305,553	4,313,216	4,318,613
4,274,457	4,305,792	4,313,223	4,318,673
4,275,817	4,305,937	4,313,310	4,318,984
4,277,040	4,306,018	4,313,509	4,319,107
4,278,442	4,306,080	4,313,675	4,319,373
4,279,350	4,306,351	4,313,719	4,319,400
4,281,115	4,306,395	4,313,750	4,319,513
4,282,306	4,306,715	4,313,779	4,319,694
4,282,879	4,306,809	4,313,782	4,319,916
4,283,518	4,306,965	4,313,830	4,320,116
4,284,969	4,307,004	4,313,944	4,320,163
4,285,020	4,307,244	4,313,996	4,320,217
4,286,009	4,307,323	4,314,096	4,320,312
4,286,330	4,307,692	4,314,139	4,320,746
4,289,718	4,308,251	4,314,293	4,320,814
4,289,766	4,308,316	4,314,332	4,321,189
4,289,778	4,308,327	4,314,383	4,321,296
4,291,115	4,308,370	4,314,469	4,321,688
4,291,257	4,308,418	4,314,477	4,322,264
4,291,452	4,308,524	4,314,603	4,322,794
4,292,399	4,308,722	4,314,716	4,322,812
4,293,547	4,309,006	4,314,981	4,323,235
4,294,506	4,309,026	4,315,012	4,323,543
4,294,675	4,309,477	4,315,032	4,323,734
4,294,929	4,309,529	4,315,149	4,323,738

Disclaimer

3,342,231.—*Thomas W. Waldrop,* Ronks, Pa. FORAGE HARVESTER. Patent dated Sept. 19, 1967. Disclaimer filed June 8, 1981, by the assignee, *Sperry Corp.*

Hereby enters this disclaimer to claims 4 and 5 of said patent.

Dedication

4,105,637.—*Michael Semanchik,* Lebanon and *David M. Braunstein,* Fanwood, N.J. PROCESS FOR PRODUCING A POLYACETAL POLYMER. Patent dated Aug. 8, 1978. Dedication filed Mar. 5, 1982, by the assignee, *Celanese Corp.*

Hereby dedicates said patent to the Public.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 573-5152 Ext. 222
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF April 3, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-04-80
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-04-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-16-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-08-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	8-26-80
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	8-05-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	5-05-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	5-15-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	8-11-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	10-01-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	5-29-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	7-17-80

Expiration of patents: The patents within the range of numbers indicated below expire during April 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,176,314 to 3,181,174, inclusive

Plant Patents ..... Numbers 2,490 to 2,501 inclusive

REEXAMINATIONS

JUNE 1, 1982

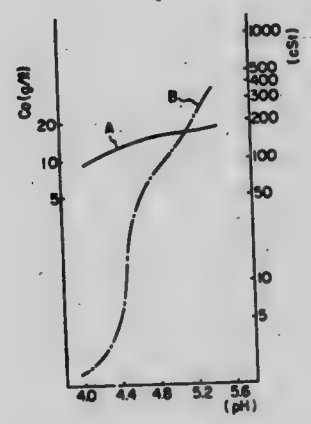
Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination

B1 4,246,240

PROCESS FOR SEPARATING COBALT AND NICKEL FROM A SOLUTION CONTAINING COBALT AND NICKEL

Takashi Ogata, Shoichiro Namihisa and Tsumoru Fujii, all of Hitachi, Japan, assignors to Nippon Mining Co., Ltd., Tokyo, Japan

Reexamination Request No. 90/000,071, Sep. 17, 1981.
Reexamination Certificate for Patent No. 4,246,240, issued Jan. 20, 1981, Ser. No. 52,736, Jun. 28, 1979.
U.S. Cl. 423/139 Int. Cl.³ C01G 51/00



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–6 is confirmed.

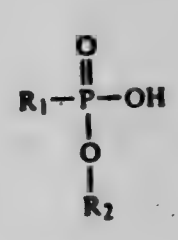
1. A process for separating cobalt and nickel from a solution containing cobalt and nickel by selective liquid-liquid extraction of cobalt into an organic phase, an acid solution containing cobalt and nickel being contacted with an organic extraction medium containing an extractant, and stripping the cobalt with an acid solution, wherein the improvement comprises:

said acid solution being contacted with the organic extraction medium in two or more stages,

a first contact stage being controlled to a pH value not exceeding 5,

a second contact stage and any further contact stages being controlled to a pH value of from 5.5 to 7.0, and

alkyl phosphonic acid monoalkyl ester represented by the formula:



wherein R_1 and R_2 denote alkyl group having 8 to 10 carbon atoms and R_1 may be the same as or different from R_2 being used as the extractant.

DEFENSIVE PUBLICATIONS

PUBLISHED JUNE 1, 1982

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T101,901
AMMONIUM POLYPHOSPHATE SULFATE FERTILIZERS FROM WET-PROCESS PHOSPHORIC ACID

Frank P. Achorn, Box 176, Killen, Ala. 35645, and Kenneth E. McGill, Rte. 1, Box 163, Virginia Shores, Sheffield, Ala. 35660

Filed Jul. 20, 1981, Ser. No. 285,213
Int. Cl.[3] C05B *7/00*
U.S. Cl. 71—36
2 Sheets Drawing. 29 Pages Specification

A process for the production of fluid fertilizers (suspensions and/or solution type) made from merchant-grade phosphoric acid (50-58 percent P_2O_5), sulfuric acid, liquid anhydrous ammonia, and water, wherein liquid ammonia is heated in heat exchange means juxtaposed hot fertilizer product to form gaseous ammonia, which gaseous ammonia, along with phosphoric acid and sulfuric acid, is fed to a pipe-cross reactor wherein a melt of ammonium polyphosphate sulfate is formed, which melt is subsequently mixed with cooled recycled product to produce a fluid fertilizer with $N:P_2O_5$ weight ratios ranging from about 0.3 to 1, which contains from about 10 to 60 percent of its P_2O_5 values in the form of polyphosphates and 3 to 8 percent by weight sulfur. About 45 percent of the P_2O_5 as polyphosphate is easily attainable in the product with ambient acid feed temperatures, i.e., about 50° F. to 100° F., versus prior-art teachings of only about 15 percent poly formation with preheat of the feed acids. It is a solution when it is produced, and when diluted with 10 percent by weight water, it can be stored at 40° F. without the formation of troublesome crystals. When gelling clay is added, it stores well as a suspension and remains fluid at temperatures as low as −25° F.

T101,902
PESTICIDAL COMPOSITION AND METHOD FOR TREATING SEEDS PRIOR TO PLANTING

Terrance M. Cannan, 10828 Stone Canyon Rd., Apt. #2327, Dallas, Tex. 75230, and Lloyd A. McDonald, 612 W. Center St., Medina, N.Y. 14103

Filed Mar. 25, 1981, Ser. No. 247,655
Int. Cl.[3] A01N *43/08*
U.S. Cl. 424—81
No Drawing. 28 Pages Specification

A seed treater composition is disclosed for use in application as an aqueous slurry to plant seeds to protect seeds and seedlings against plant pests, which composition comprises 15% to 50% by weight of 2,3-dihydro-2,2-dimethylbenzofuran-7-yl methylcarbamate pest control agent, 0.5% to 15% by weight of 2-ethylhexyl acrylate copolymer emulsion adhesive sticker having a high solids content of 60% to 70% and a viscosity of 0.5 to 4.0 Pa.s at 25° C., and, to 100%, one or more suspending agents and surface active agents, water, and, optionally, other diluents, adjuvants, or other additives as desired.

Disclosed also is a method of protecting plant seeds and seedlings against crop pests, which comprises applying to the seeds the disclosed seed treater composition, and drying the treated seeds to remove excess liquid and to form an adherent coating on the seeds, the pest control agent being dispersed in the adherent coating.

Plant seed, for example wheat, barley, or corn seed, which has been protected against crop pests by an adherent coating containing 2,3-dihydro-2,2-dimethylbenzofuranyl-7-yl methylcarbamate pest control agent, which pest control agent comprises 0.1% to 6% by weight of the protected seed, is also disclosed.

T101,903
FREE RADICAL PROMOTER FOR CURING POLYESTER COMPOSITIONS

John R. Dombroski, 2608 Brighton Ct., Kingsport, Tenn. 37660

Filed Apr. 24, 1981, Ser. No. 257,448
Int. Cl.[3] C08L *67/06*
U.S. Cl. 525—17
No Drawing. 20 Pages Specification

Free radical promoters for use in curing resin compositions comprising an unsaturated polyester and an ethylenically unsaturated copolymerizable monomer are disclosed for use with conventional initiators. The free radical promoters comprise ferrocene or ferrocene substituted on one or both cyclopentadienyl rings with an alkyl, alkoxy, hydroxyl, carboxyl, carboxaldehyde, hydroxyalkyl, amino, halo, cycloalkyl, or aryl radical.

REISSUES

JUNE 1, 1982

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,950

FOLDED TIE LINER

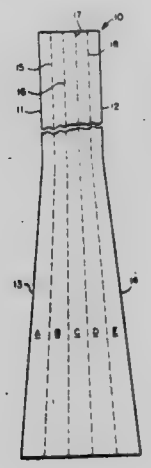
Myron H. Ackerman, 2691 S. Course Dr., Bldg. 19, Pompano Beach, Fla. 33060

Original No. 4,123,802, dated Nov. 7, 1978, Ser. No. 831,368, Sep. 8, 1977. Application for reissue Jul. 7, 1980, Ser. No. 166,539

Int. Cl.[3] A41D *25/16*

U.S. Cl. 2—144

7 Claims



1. A four-in-hand necktie, comprising

an elongate fabric casing having therethrough an elongate central opening, and adapted to be tied intermediate its ends into a knot, when the necktie is in use, and

a [pre-folded, like-weight] *folded, light-weight* fabric liner positioned in the central opening in said casing to improve the body and feel of the necktie,

said liner comprising an elongate piece of fabric folded about a plurality of longitudinally extending fold lines to position at least three longitudinally extending portions of the liner in superposed, substantially registering relation in said casing,

said superposed portions of said liner extending continuously through said casing from at least a point adjacent one end of said opening in the casing at least to a point adjacent the opposite end of said opening, whereby said superposed portions extend beyond opposite sides, respectively, of the knot formed in said casing, when the necktie is in use, and

each of said superposed portions of the folded liner having at least two longitudinal edges thereof movable relative to the adjacent superposed portions of the liner.

Re. 30,951

THERMOPLASTIC STRIPS FOR SLIDING CLASP FASTENERS

Eric E. Cuckson, Vaucluse, and Arthur L. Jones, Glenbrook, both of Australia, assignors to Scovill Inc., Waterbury, Conn.

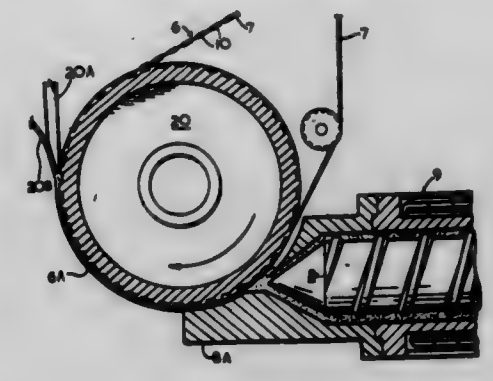
Original No. 3,414,948, dated Dec. 10, 1968, Ser. No. 582,918, Sep. 29, 1966. Application for reissue Mar. 16, 1979, Ser. No. 21,001

Int. Cl.[3] A44B *19/00*

U.S. Cl. 24—205.13 R

7 Claims

1. A strip for use in the production of a stringer of a sliding fastener, comprising a row of transversely extending discrete strip-like thermoplastic elements, each element including an enlarged central portion, and opposed leg portions extending transversely from said central portion and defining respective sides of the strip; and two cords extending longitudinally along opposite sides of the strips, each transverse element including enlargements on the ends of the leg portions, the cords extending through the [enlargement] *respective enlargements* and being embedded therein, said enlargements extending from the leg portion longitudinally along the [cord] *respective cords* such that the enlargements of adjacent strips are spaced from one another, whereby said cords provide the sole interconnection between the elements, *the cords being offset from the center of the respective enlargements so that when the strip is folded in U-shape, the cords are disposed close to the confronting surfaces of the respective enlargements.*



Re. 30,952

PERCUSSION DRILL BIT

Kenneth M. White, Calgary, Canada, assignor to Western Rock Bit Company Limited, Calgary, Canada

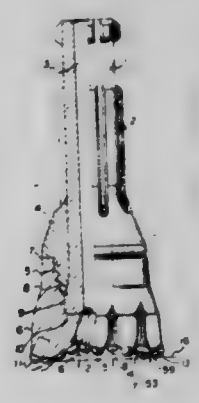
Original No. 4,051,912, dated Oct. 4, 1977, Ser. No. 679,662, Apr. 23, 1976. Application for reissue Jun. 19, 1979, Ser. No. 49,968

Claims priority, application Canada, Feb. 3, 1976, 244910

Int. Cl.[3] E21B *10/56*

U.S. Cl. 175—410

9 Claims



8. A percussion drill bit having an anvil portion and a head portion having a plurality of cutting inserts arranged on the cutting end thereof, and connecting means therebetween to transmit simultaneously torsional and percussive axial forces from said anvil portion to said head portion, said connecting means comprising a lock nut with an external thread mating with a corresponding internal thread on the head portion, internal splines mating directly with corresponding external splines on the anvil portion, torsional forces being transmitted through said splines, and directly mating abutment surfaces on the anvil portion and head portion, to transmit axial percussive forces without loading said threads, said lock nut when fully threaded into said head portion holding said mating abutment surfaces on the anvil portion and head portion together.

Re. 30,953

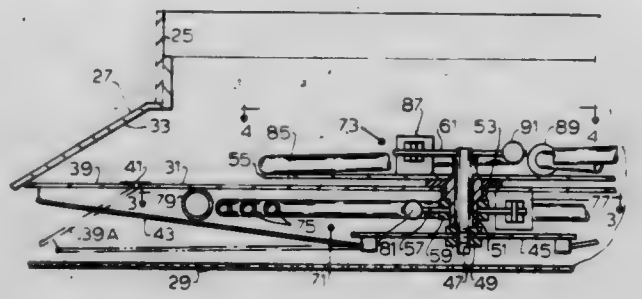
THERMALLY ACTUATED DIFFUSER

Robert L. Vance, Cupertino, and Robert W. Noll, Santa Rosa, both of Calif., assignors to Acutherm, Inc., Novato, Calif.

Original No. 4,231,513, dated Nov. 4, 1980, Ser. No. 887,936, Mar. 17, 1978. Application for reissue Jan. 29, 1981, Ser. No. 229,627

Int. Cl.³ F24F *7/00*

U.S. Cl. 236—49 4 Claims



1. A diffuser of a kind used to regulate the volume flow of conditioned air from a duct to a room or other space comprising,

(a) flow control means for varying the size of an opening in the diffuser to regulate the volume flow of conditioned air from the duct through the diffuser and to the room or other space, and

(b) sensor actuator means operatively associated with the flow control means and responsive to both room air temperature and to duct air temperature for

(1) modulating the flow control means in a normally closed to open mode of operation in response to changes in room air temperature when cooling air is supplied through the duct, and

(2) modulating the flow control means in a normally opened to close mode of operation when warm air is supplied through the duct

said sensor actuator means including a first sensor actuator positioned to sense only room air temperature and a second sensor actuator positioned to sense only duct air temperature,

said flow control means including a [rotatable] *movable* control element, and

wherein the first sensor actuator is connected to [rotate] *move* the control element in one direction in response to increasing room air temperature and the second sensor actuator is connected to [rotate] *move* the control element in an opposite direction in response to increasing duct air temperatures.

Re. 30,954

WHEELCHAIRS

Royal Smith, 4646 Dover St., NE., St. Petersburg, Fla. 33703, and Edward H. D. Carson, 200 Country Club Dr., Largo, Fla. 33540

Original No. 4,046,418, dated Sep. 6, 1977, Ser. No. 707,203, Jul. 21, 1976. Application for reissue Sep. 5, 1979, Ser. No. 72,641

Int. Cl.³ A47C *13/00, 1/035*

U.S. Cl. 297—118 10 Claims

6. A wheelchair convertible into a wheeled stretcher, comprising:

a pair of wheeled support frame members, horizontally spaced from one another, each having a corresponding rearwardly positioned first pivot, and a forwardly positioned second pivot at substantially the same elevation;

a pair of first lever means, each having a first length and pivotally mounted on a respective one of said first pivots;

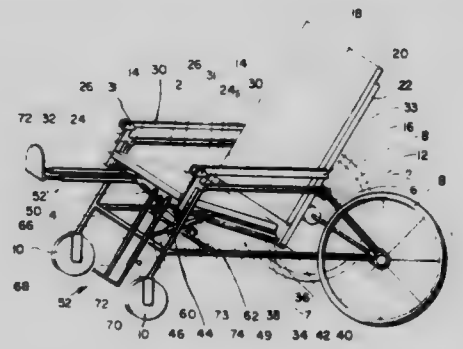
a chair back support having two lateral sides, each proximate to a respective one of said support frame members and each rigidly mounted to the free end of a corresponding one of said first lever means;

a pair of second lever means, each having substantially said first length and pivotally mounted on a respective one of said second pivots;

a pair of front arm members, each rigidly mounted at an intermediate point to the free end of a respective one of said second lever means;

a pair of linkages, each having a first end pivotally connected to one of said front arm members at a point a second length above said intermediate point and a second end pivotally connected to a corresponding one of said lateral sides of said back support at substantially said second length above said mounting point for the corresponding one of said first lever means;

a pair of seat support members, pivot means connecting one end of said pair of seat support members to said chair back support at a third length below said mounting point for the corresponding one of said first lever means, the opposite end of said pair of seat support members being supported by the lower portion of said front arm members at a fourth length below said intermediate point, said third length being greater than said fourth length to thereby position said seat support at an angle θ to the horizontal; and lost motion means operatively connected between said opposite end of said seat support members and the lower portion of said front arm members; the chair back support, the front arm members, the linkages and associated pivot points to said front arm members and said back support, the seat support members and associated pivot means on said chair back and lost motion means on said front arm members, all being substantially horizontally coplanar when the chair is folded to a stretcher position,



whereby a chair seat supported by said pair of seat support members will assume a comfortable angle with respect to the horizontal when the chair is in a seating position, and will assume a horizontal position coplanar with the back of the chair when the chair is in a stretcher position.

Re. 30,955

FIBROUS PRODUCT

Harold P. Stanistreet, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England

Original No. 4,068,036, dated Jan. 10, 1978, Ser. No. 673,547, Apr. 5, 1976. Application for reissue May 16, 1979, Ser. No. 39,748

Claims priority, application United Kingdom, Apr. 11, 1975, 14962/75

Int. Cl.³ C09J *5/00*

U.S. Cl. 156—308.2 5 Claims

1. In a method for the production of a low-density, high porosity, resilient, thermally bonded, non-woven fibrous batt having a substantially uniform density across its thickness by the steps of forming a lofty fibrous batt from at least 20% by weight of conjugated staple fibres having a length of 0.5 to 6 inches and being selected from the group consisting of crimped and potentially crimpable fibres, the conjugate fibres being composed of at least two fibre forming polymeric components arranged in distinct zones across the cross-section of the fibre and substantially continuous along the length thereof, one of the components having a softening temperature significantly lower than the softening temperature of a second component and being located so as to form at least a portion of the periph-

eral surface of the fibre, subjecting said batt to a heat treatment to heat the batt to a temperature in excess of the softening temperature of the component having the lower softening temperature but below the softening temperature of the second component to effect inter-fibre bonding, and then causing [or permitting] the batt to cool, the improvement comprising heating the batt by passing a heated gas upwardly through the batt, the gas having a temperature sufficient to effect thermal bonding of the conjugate fibres and having a velocity such that the batt is supported by the gas in a high-porosity condition without disintegrating the batt therein *and causing the batt to cool by an upward passage of cooling air through the batt to quench the fibres and permit them to rapidly redevelop their modulus,* whereby the resulting batt has substantially uniform density across its thickness.

Re. 30,956

WELDING MACHINE FOR THERMOPLASTIC WEB

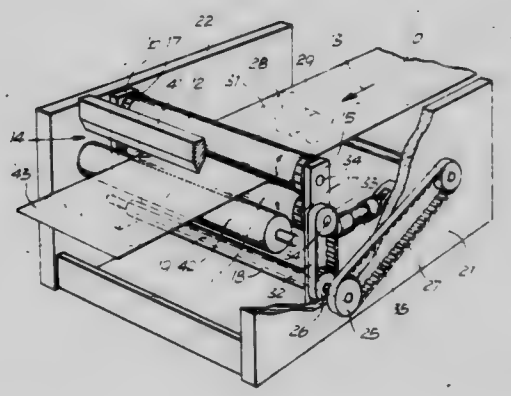
Ehrhart Schulze, Stuttgart, Fed. Rep. of Germany, assignor to Karl Heinz Steigler, Stuttgart, Fed. Rep. of Germany

Original No. 4,207,136, dated Jun. 10, 1980, Ser. No. 968,203, Dec. 11, 1978. Application for reissue Dec. 22, 1980, Ser. No. 218,656

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1977, 2755860

Int. Cl.³ B30B *15/34;* B32B *31/00*

U.S. Cl. 156—515 **10 Claims**



1. Machine for producing welds on a thermoplastic web comprising an intermittently operating feed mechanism for feeding said web in successive feeding steps; a welding station effective during standstill of said web between two feeding steps to weld said web and separate it from its end which is advanced beyond the welding station and means for displacing said feed mechanism and the web therein [in] *against* the feeding direction between a first position and a second position.

Re. 30,957

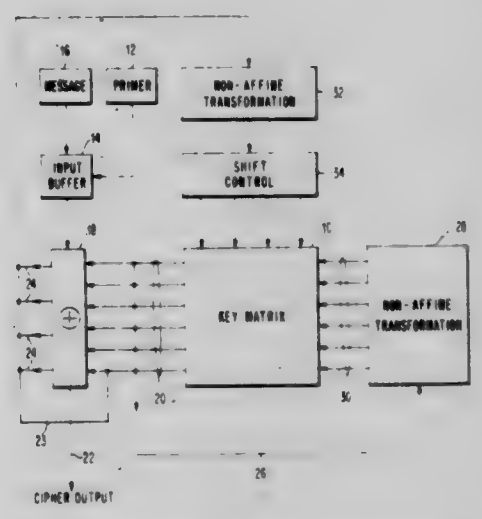
VARIANT KEY MATRIX CIPHER SYSTEM

Horst Feistel, Lexington, Mass., assignor to International Business Machines Corporation, Armonk, N.Y.

Original No. 4,195,196, dated Mar. 25, 1980, Ser. No. 406,728, Oct. 15, 1973. Application for reissue Jun. 30, 1980, Ser. No. 164,402

Int. Cl.³ H04L *9/00*

U.S. Cl. 178—22.17 **11 Claims**



10. A variant key cryptographic system comprising:

means for introducing a plurality of electrical signals in binary form as message information to be enciphered or deciphered;

priming means for presenting a plurality of random binary signals to said input means to initialize the system prior to introducing message information thereto,

means for storing and rearranging a cipher key,

a plurality of modulo-two adders interconnected with each other for adding selected elements from said storage means with binary signals obtained from said input means;

feedback means connected to said plurality of modulo-two adders;

non-affine transformation means connected to said feedback means for transforming the feedback signals present on the lines contained in said feedback means;

control means connected to said non-affine transformation means for rearranging selected elements within said storage means.

PLANT PATENTS

GRANTED JUNE 1, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,853

ROSE PLANT

Dorothy J. S. Bailey, Bakersfield, Calif., assignor to San Joaquin Rose Co., McFarland, Calif.

Filed Sep. 8, 1980, Ser. No. 185,249
Int. Cl.[3] A01H 5/00
U.S. Cl. Plt.—11 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by high centered, flowers of good exhibition form and cadmium yellow petals with orange red petal edges borne primarily singly to a stem.

4,854

ROSE PLANT

Dorothy J. S. Bailey, Bakersfield, Calif., assignor to San Joaquin Rose Co., McFarland, Calif.

Filed Sep. 8, 1980, Ser. No. 185,373
Int. Cl.[3] A01H 5/00
U.S. Cl. Plt.—22 1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described, characterized particularly by very pointed Chinese yellow buds which open to orange red and yellow flowers borne singly and in sprays on a vigorous plant with abundant foliage.

PATENTS

GRANTED JUN. 1, 1982

ERRATA

For CLASS	See PATENT NO.
441–001	4,332,048
441–080	4,332,049
464–109	4,332,147
464–102	4,332,148
374–130	4,332,168
251–240	4,332,285
403–006	4,332,495
415–015	4,332,527
523–220	4,332,620
376–253	4,332,639
376–264	4,332,640
524–539	4,332,701
524–178	4,332,702
524–068	4,332,703
523–203	4,332,704
523–206	4,332,705
523–450	4,332,706
524–476	4,332,707
524–376	4,332,708
523–416	4,332,709
524–591	4,332,710
523–402	4,332,711
524–650	4,332,712
156–328	4,332,713
524–141	4,332,714
524–265	4,332,715
521–137	4,332,716
548–444	4,332,723
548–533	4,332,725
548–533	4,332,726
548–501	4,332,727
548–519	4,332,728
549–229	4,332,729
549–302	4,332,730
549–334	4,332,731
549–332	4,332,732
549–240	4,332,733
549–253	4,332,734

PATENTS

GRANTED JUN. 1, 1982

ERRATA—Continued

For CLASS	See PATENT NO.
549–496	4,332,735
562–512	4,332,743
524–504	4,332,919
524–650	4,332,926
542–417	4,332,948
372–046	4,333,061
346–001	4,333,083
346–017	4,333,084
346–076	4,333,085
346–140	4,333,086
346–140	4,333,087
346–140	4,333,088

PATENTS

GRANTED JUNE 1, 1982

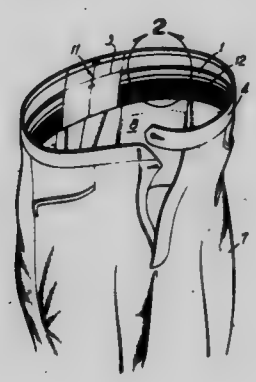
GENERAL AND MECHANICAL

4,332,033
ADJUSTABLE DRESS
Jonathan M. Frank, Chicago, Ill., assignor to Uniforms To You & Co., Chicago, Ill.
Filed Jul. 7, 1980, Ser. No. 165,973
Int. Cl.³ A41D *1/22*
U.S. Cl. 2—105 **12 Claims**



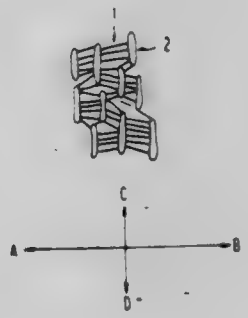
1. An adjustable dress capable of fitting different size women within a selected range of measurements which correspond to at least four consecutive dress sizes, said dress comprising: shoulder portions dimensioned for fitting the shoulders measurement of the largest woman within said selected range, arm holes dimensioned for fitting the arms measurement of the largest woman within said range, a neck opening dimensioned for fitting the neck measurement of the largest woman within said range, upper front portion means dimensioned for fitting the bust measurement of the largest woman within said range, a skirt portion dimensioned for fitting the hips measurement of the largest woman within said range, a midriff portion fixedly secured to and located between said skirt portion and said upper front portions and being of a length for fitting around part of the waist of the smallest woman within said range, said upper front portions, said midriff portion and said skirt portion cooperating to form the front of said dress, back means forming part of the back of said dress and connected to and cooperating with said front for fitting the measurement of the largest woman within said range and waist tightening means operatively associated with said midriff portion for relocating excess body fabric from the front to the back to adjust the garment fit of said dress to any size woman within said range.

4,332,034
GARMENT WAISTBAND STRUCTURES
Ralph F. Muse, Bremen, Ga., assignor to Hubbard Company, Bremen, Ga.
Filed Jul. 1, 1980, Ser. No. 165,137
Int. Cl.³ A41F *9/02*
U.S. Cl. 2—237 **12 Claims**



1. A waistband structure for use in garments comprising:
(a) a two-part elastic band having an upper belt portion offering greater resistance to elongation and a lower skirt portion offering lesser resistance to elongation;
(b) a reinforcement strip attached by a first securing means to the outer face of the elastic band such that the upper linear edge of the reinforcement strip is substantially even with the belt portion edge of the elastic band and the lower linear edge depends freely from the elastic band; and
(c) a waistband fabric web attached along one linear edge thereof by a second securing means to the inside face of the elastic band proximate the belt portion edge thereof.
6. In combination, a garment comprising:
(a) a garment waistband structure comprising:
(i) a two-part elastic band having an upper belt portion offering greater resistance to elongation and a lower skirt portion offering lesser resistance to elongation;
(ii) a reinforcement strip attached by first securing means to the outer face of the elastic band such that the upper linear edge of the reinforcement strip is substantially even with the belt portion edge of the elastic band and the lower linear edge depends freely from the elastic band; and
(iii) a waistband fabric web attached along a first linear edge thereof by a second securing means to the inside face of the elastic band proximate the belt portion edge thereof; and
(b) a garment body attached proximate the upper linear edge thereof by third securing means to the second linear edge of the waistband fabric web and to the lower linear edge of the reinforcement strip by fourth securing means.

4,332,035
POROUS STRUCTURE OF POLYTETRAFLUOROETHYLENE AND PROCESS FOR PRODUCTION THEREOF
Hiroshi Mano, Osaka, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Nov. 28, 1979, Ser. No. 98,283
Claims priority, application Japan, Nov. 30, 1978, 53/148928; Nov. 30, 1978, 53/148929
Int. Cl.³ D02G *3/00*
U.S. Cl. 3—1.4 **9 Claims**



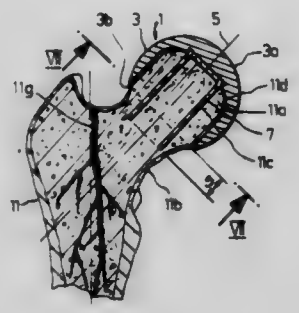
1. A unitary porous structure of polytetrafluoroethylene having a microfibrous structure composed of fibers and nodes connected to one another by these fibers, said microfibrous structure having at one surface a strong orientation in one direction and at another surface a strong orientation in a direction at right angles to the aforesaid direction, the orientation of said microfibrous structure progressively changing from one surface to the other, wherein said structure has a tear strength in a first direction of at least 480 g/ply, and a tear strength in a direction at right angles to said first direction of at least 1,190 g/ply.

4,332,036

UNIVERSAL JOINT PROSTHESIS WITH CAP

Franz Sutter, Niederdorf, and Fritz Straumann, Waldenburg, both of Switzerland, assignors to Institut Straumann AG, Switzerland

Filed Jun. 6, 1980, Ser. No. 157,285
Claims priority, application Switzerland, Dec. 22, 1979, 11400/79
Int. Cl.[3] A61F *1/24*
U.S. Cl. 3—1.91 16 Claims



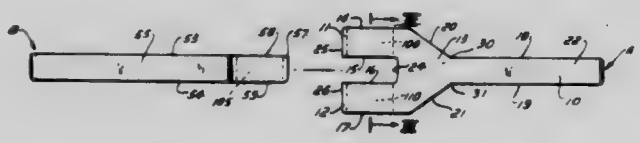
1. A universal joint prosthesis for engaging the head portion of a bone end while retaining the major portion thereof, comprising a cap having a calotte-shaped outer surface terminating in a free edge, an inner surface extending from said free edge symmetrical about a central longitudinal axis and having an osculating surface and defining a concavity in which a bone or the like may be received, the concavity being sufficiently large to contain a major portion of cancellous bone end of the joint, a sleeve member extending in said concavity and at least partly beyond said edge having a wall coaxial to said axis, said sleeve member having a bore extending therethrough from an open first end to a closed second end rigidly connected to the innermost portion of said inner surface, said sleeve member including a plurality of macroscopic holes extending through said wall and wherein an internal diameter of the sleeve member is at least 25% of an internal diameter of a widest portion of the osculating surface of the inner surface of said cap.

4,332,037

ARTIFICIAL JOINT

Ira Esformes, New York, N.Y., and Frederick J. Kummer, Hackensack, N.J., assignors to Hospital for Joint Disease Orthopaedic Institute, New York, N.Y.

Filed Dec. 15, 1980, Ser. No. 216,114
Int. Cl.[3] A61F *1/24*
U.S. Cl. 3—1.91 17 Claims



1. An artificial joint for implantation into a living body comprising:

(A) a first component, and

(B) a second component which cooperatively engages said first component, forming a point of engagement having a pivotal axis about which said two components pivot in a primary direction of movement, and (C) a magnet positioned in at least one of said two components with the magnetic lines of force flowing substantially along said pivotal axis and transversely across said primary direction in which said two components pivot

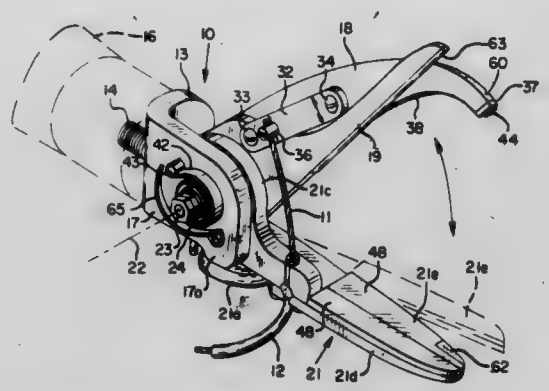
so that said two components are attracted to one another when cooperatively engaged.

4,332,038

ARTIFICIAL HAND

John L. Freeland, 280 Pennsylvania, Apt. 1, San Francisco, Calif. 94107

Filed Dec. 19, 1980, Ser. No. 218,186
Int. Cl.[3] A61F *1/06*
U.S. Cl. 3—12.6 28 Claims



21. An artificial hand, comprising:

a support base for connecting to the arm of a user;

a wrist connected to the base, with a pivot axis in the wrist;

a pivotal main finger connected along the pivot axis to the wrist, and having a downwardly angled finger tip at its end;

a thumb extending from the wrist and positioned to be contacted by the fingers in its downward, closed position;

means associated with the main finger and the thumb for enabling grasping of rounded objects between them;

a control cable and cable housing adapted for connection to harness apparatus worn on the body of the user;

means connecting a forward end of the cable housing to the thumb and means connecting a forward end of the cable, extending from the housing, to the main finger such that retraction of the cable in the housing pulls the finger toward the thumb to contact the finger tip with the thumb;

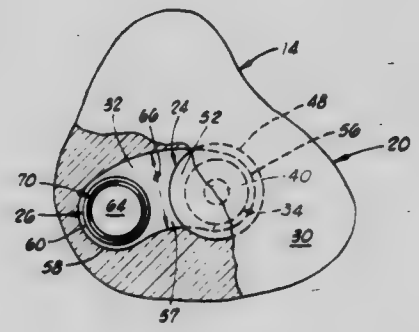
means biasing the main finger away from the thumb toward its normal open position.

4,332,039

OCULAR PROSTHESIS WHICH SIMULATES CHANGE IN PUPIL DIAMETER

Henry LaFuente, 608 Stanton L. Young Blvd., Oklahoma City, Okla. 73104

Filed Oct. 31, 1980, Ser. No. 202,699
Int. Cl.[3] A61F *1/16*
U.S. Cl. 3—13 12 Claims



1. An improved ocular prosthesis comprising:

a body portion having an anterior surface, a spatially disposed posterior surface, and a channel formed therebetween;

iris forming means disposed on the anterior surface of the body portion, the iris forming means having a transparent central portion, an outer iris colored portion, and a pupil colored area selectively positioned in the transparent central portion, the transparent central portion substan-

tially corresponding in size to a pupil of a natural eye when same is exposed to indirect light, the pupil colored area substantially corresponding in size to the pupil of the natural eye when same is exposed to direct light;

pupil colored surface forming means disposed within the body portion between the posterior surface of the body portion and the channel such that the pupil colored surface forming means is substantially adjacent the channel and at least a portion of the pupil colored surface forming area is aligned with the transparent central portion of the iris forming means; and

an iris colored member positioned within the channel of the body portion and selectively movable between a first position and a second position, in the first position the iris colored member being in a non-interposing relationship between the transparent central portion of the iris forming means and the pupil colored surface forming means, in the second position the iris colored member being interposed between the transparent central portion of the iris forming means and the pupil colored surface forming means.

4,332,040

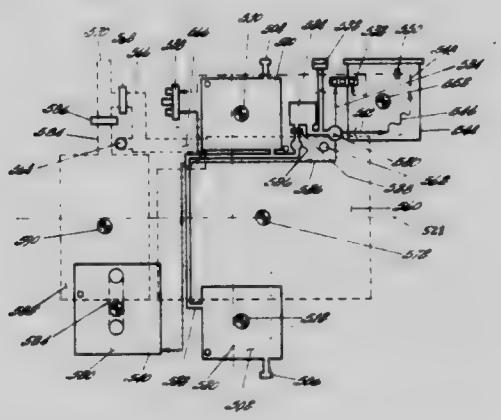
SELF-CONTAINED, COMPACT TOWABLE FACILITY HAVING MAXIMIZED BALANCED WATER STORAGE DRAIN WATER COLLECTION AND WASTE WATER ISOLATION SYSTEMS

William A. Palmer, P.O. Box 1184, Somis, Calif. 93066

Filed Mar. 10, 1980, Ser. No. 129,180

Int. Cl.[3] B60R *15/00*; A47K *4/00*; E03D *7/00*

U.S. Cl. 4—300 16 Claims



1. A compact self-contained towable facility having a minimum size and weight while maximizing the volume of water carried thereby comprising

a rigid frame having a tow bar extending from the front end thereof and being adapted to be coupled to a towing vehicle;

a plurality of wheels including an axle suspended from said frame and positioned slightly rearward of the lateral centerline of the frame;

a multi-stage potable water storage and drain and waste water collection and isolation system including

a potable water storage system having a predetermined volume and adapted to be filled externally of the facility, said potable water storage system being attached to said frame and having a geometrical shape to enable the collective center of gravity thereof to be located at approximately the centerline of the axle independent of the volume of potable water stored in the potable water system and the amount of potable water withdrawn therefrom;

a grey water collection system having a predetermined volume and adapted to receive and collect drain water having a low impurity content, said grey water collection system being attached to said frame between the wheels defining said axle and under said potable water storage system; and

a black water isolation system having a predetermined volume and adapted to receive and isolate waste water having a high impurity content, said black water isolation system being attached to said frame and adjacent to the grey water collection system;

said grey water collection system and black water isolation system having geometrical shapes to enable the collective center of gravity thereof to be located at approximately the same location as the collective center of gravity of the potable water storage system independent of the volume of grey water and black water collected in the grey water collection system and black water isolation system and the amount of grey water and black water deposited therein;

means operatively coupled to the potable water storage system and adapted to be connected to an external source of potable water for transporting potable water from at least one of the potable water storage system and external potable water source to at least one grey water usage device which produces drain water having a low impurity content during usage thereof, and to at least one black water usage device which produces waste water having a high impurity content during use thereof; and

water system distribution means operatively coupled to said grey water usage device to selectively transport grey water therefrom to said grey water collection system and including means operatively coupled to said black water usage device to selectively transport black water therefrom to said black water isolation system, said multi-stage potable water storage and drain and waste water collection and isolation systems' collective centers of gravity remaining at substantially the same location independent of the volume and amount of water deposited and stored in and between the potable water storage system, the grey water collection system and the black water isolation system wherein the rigid frame and multi-stage potable water storage and drain and waste water collection and isolation systems enable the towable facility to have a minimum size and weight while maximizing the volume of water carried thereby while also minimizing variations of the force applied by the tow bar on the towing vehicle over a selected limited force range.

4,332,041

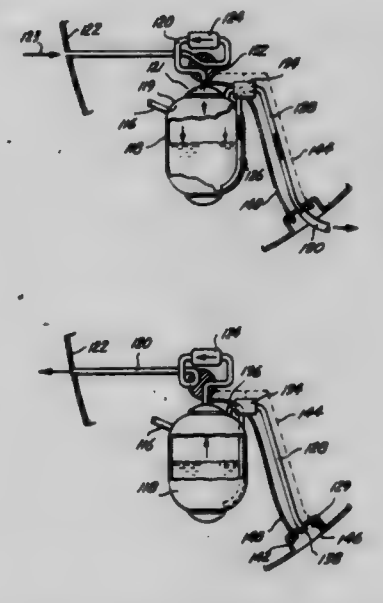
PRESSURIZED DRAIN FOR TOILET WASTE TANK

Bjorn R. Kristoffersen, Kirkland, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Nov. 24, 1980, Ser. No. 209,716

Int. Cl.[3] E03D *5/016, 11/00*; B64D *11/02*

U.S. Cl. 4—316 9 Claims



1. In a vacuum flush toilet system, an apparatus for draining waste from the system, said apparatus comprising:

a waste holding tank for receiving waste from the toilet, said tank having an upper portion and a lower portion and

having a pressurization port and a waste drain opening formed in said upper portion;

pressurization/vent means coupled to said pressurization port for pressurizing the interior of said tank in a first position of operation and to vent said tank in a selectively second position of operation; and

an internal drain conduit having a first and second end, said first end being located adjacent the bottom of said waste holding tank below the normal level of waste within said tank and said second end coupled to said waste drain opening.

8. In an aircraft lavatory system of the type providing a vacuum flushing capability wherein said vacuum for flushing said lavatory system is provided by a blower which vents air from a waste holding tank to the exterior of the aircraft, the improvement comprising:

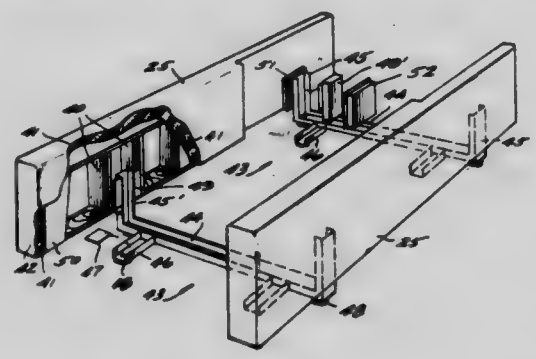
directional flow control means coupled to said blower means and said waste holding tank and selectively operable to direct the flow of air from said blower into said tank in a first position of operation, thereby pressurizing said tank to aid in the removal of waste material from said waste holding tank and to direct air from the tank to the blower to the open atmosphere in a second position of operation:

4,332,042

GERIATRIC ENVIRONMENTAL SYSTEMING

Joseph A. Koncelik, Worthington, Ohio, assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Mar. 31, 1980, Ser. No. 136,095
Int. Cl.³ A47C *19/22*; A61G *7/00*; A47C *21/00*
U.S. Cl. 5—424 **15 Claims**



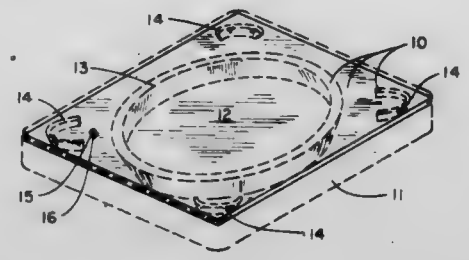
1. A bed assembly comprising: a mattress; a frame supporting said mattress; a pair of flat-topped bolsters elongated in parallel directions of elongation; bolster mounting means distinct from said mattress frame for readily removably mounting said bolsters so that one is readily removably disposed on either side of said mattress, covering substantially the entire height and length of the mattress and mattress frame, and exterior of and distinct from said mattress frame; each bolster being formed of material of sufficient hardness so that a person may sit thereon without significantly deforming the same to facilitate in-bed and out-of-bed transfers, each bolster providing more support than a mattress edge, yet each bolster being soft enough so that a person falling so as to impact a side of the bed will impact a bolster and will have their fall cushioned by the bolster so as to minimize the chance of injury; and said bolster mounting means comprising means for mounting said bolsters with respect to said mattress so that the flat top surface of each of said bolsters may be substantially even with the top of said mattress and so that a person impacting the bed assembly along the sides will impact a bolster.

4,332,043

WATERBED MATTRESS

Lynn D. Larson, Rural Route, Walton, Nebr. 68461

Filed Jan. 14, 1980, Ser. No. 111,594
Int. Cl.³ A47C *27/08*
U.S. Cl. 5—450 **6 Claims**



1. An improved waterbed mattress of a type having a flexible water-filled bladder in which said bladder has a recloseable opening for adding and removing water and air from said bladder wherein the improvement comprises:

(a) at least one bouyant, flexible, foam, horizontal plate member, located inside said bladder and unattached to any surface of said bladder;

(b) appendages depending from the lower surface of said horizontal plate member, wherein said appendages comprise plates having vertically inclined faces extending to a depth of at least half the distance to the bottom wall of said bladder; and

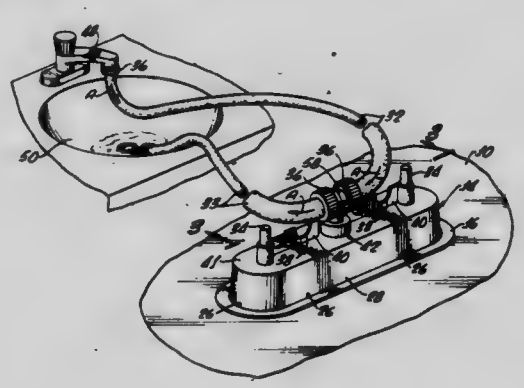
(c) attachment means for attaching said appendages to said horizontal plate member.

4,332,044

ASSEMBLY FOR FILLING AND EMPTYING A WATER BED

Leroy M. Houk, Jr., 3908 Calle Andalucia, San Clemente, Calif. 92672

Filed Apr. 18, 1980, Ser. No. 141,338
Int. Cl.³ A47C *27/00*
U.S. Cl. 5—453 **10 Claims**



1. In a mattress of a type having a flexible, hollow, collapsible shell adapted for filling with liquid to provide buoyant shape-conforming support for the user thereof, the improvement comprising:

a venturi pump of the type having an inlet side, an outlet side, and a suction conduit, for emptying liquid from said mattress;

a pair of flexible hoses adapted for detachable fluid communication with the inlet side and the outlet side of said pump, said hoses being sufficiently radially nonrigid to be collapsed into coils having substantially flat cross sections for storage; and

a housing disposed in said shell, said housing having a cross sectional area and depth sufficient to store said pump and hose coils without any portion thereof extending beyond the outer surface of said shell when the mattress is filled with liquid.

4,332,045

METHOD AND APPARATUS FOR ECONOMICALLY MAINTAINING AND BREEDING BEES IN A BEE COMPOUND UNIT

Matthias Schmidt, Mosbach, Fed. Rep. of Germany, assignor to imka Forschungsgesellschaft fur Bienenzucht mbH, Stuttgart, Fed. Rep. of Germany

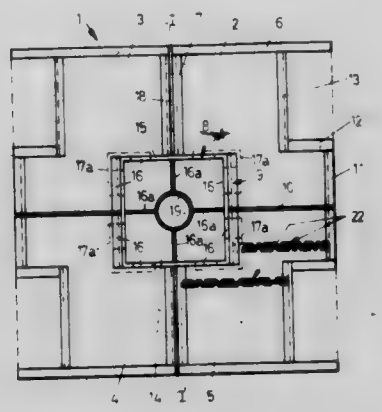
Filed Sep. 3, 1980, Ser. No. 183,845

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1979, 2935934

Int. Cl.³ A01K *47/06, 57/00*

U.S. Cl. 6—1

22 Claims



2. Apparatus for economically maintaining and breeding bees comprising: a bee compound unit subdivided into a plurality of separate, adjacent compartments, each of said compartments adapted to house a queen bee and nursing bees; a central assembly and feeding chamber having a plurality of passages respectively connected to the compartments and arranged so that said nursing bees positioned in each of said compartments can move indirectly to any other of said compartments via the assembly and feeding chamber; means for preventing each queen bee in a given compartment from moving into another compartment; and walls between the adjacent compartments for preventing bees in one compartment from moving directly to another compartment, whereby only one compartment is used to treat bees from all of the compartments by removing swarming bees from said one compartment.

4,332,046

COMBINED HAMMER AND LEVEL

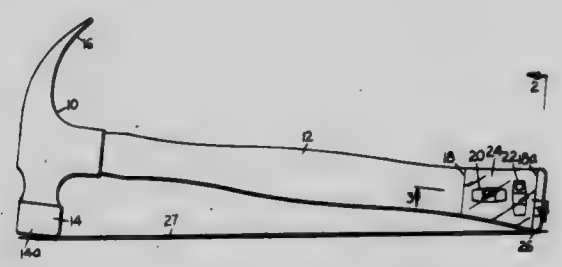
Clifford T. Foley, 22131 NE. Garner Rd., Yacolt, Wash. 98675, and Carl W. Brandenfels, P.O. Box 1208, St. Helens, Oreg. 97051

Continuation-in-part of Ser. No. 45,785, Jun. 5, 1979, abandoned. This application Aug. 11, 1980, Ser. No. 176,667

Int. Cl.³ B25F *1/00*

U.S. Cl. 7—146

5 Claims



1. A hammer construction comprising

(a) a head having a striking surface and side surfaces,

(b) a handle having opposite end portions one of which is secured to said head and the other of which comprises a hand grip end,

(c) a recess in said hand grip end of said handle having a bottom wall,

(d) a pair of spirit levels supported on said bottom wall of said recess disposed at right angles to each other for determining the plane of surfaces in a direction longitudinally of said bottom wall and also in a direction laterally of said bottom wall,

(e) a bullseye level also supported on said bottom wall for determining the plane of a surface in directions longitudinally and laterally of said bottom wall as well as all directions therebetween,

(f) and a transparent plastic filler securely embedding all of said level means,

(g) said plastic filler being flush with the surrounding surface of said handle whereby said plastic filler serves as a grip portion of said handle,

(h) said pair of spirit levels and said bullseye level being secured in place in said filler on said bottom wall,

(i) said hammer having surface engaging points specifically related to the plane of said recess bottom wall whereby upon engaging said surface engaging points on a surface, the plane of a surface can be determined in said longitudinal and lateral directions and all directions therebetween.

4,332,047

METHOD FOR EXTRACTING WATER FROM LAUNDRY

Rudolf Küttelwesch, Niedernhausen, Fed. Rep. of Germany, assignor to Mewa Mechanische Weberei Altstadt GmbH, Wiesbaden, Fed. Rep. of Germany

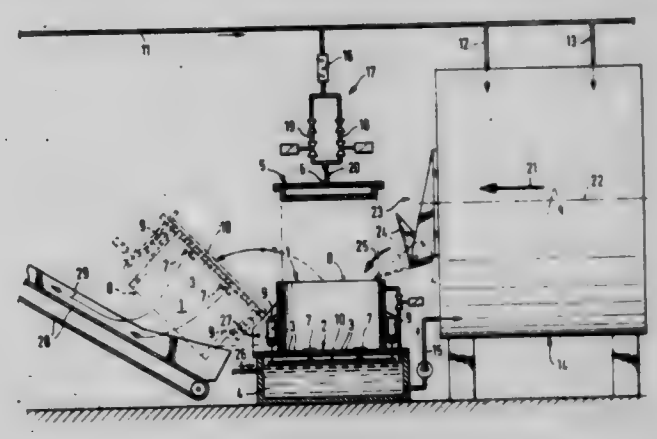
Filed Sep. 22, 1980, Ser. No. 188,993

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1979, 2940217

Int. Cl.³ D06F *31/00, 39/08*

U.S. Cl. 8—158

4 Claims



1. In a laundering process which includes providing steam at high pressure, directly blowing the steam into fresh water in order to heat the water, and washing and rinsing laundry using the heated fresh water, the improvement wherein said step of directly blowing comprises delivering at least part of the steam into the fresh water by directing that steam through laundry which has been rinsed while subjecting the steam to a pressure reduction in a manner to cause the steam to extract rinse water from the laundry which has been rinsed; and conducting the steam and the extracted rinse water into the fresh water in order to heat the fresh water with accompanying condensation of the steam.

4,332,048

LOCKABLE SUPPORT FLOAT

Roger C. Eddy, 3101 Fernwood La., New Castle, Pa. 16105

Filed Mar. 3, 1980, Ser. No. 126,250

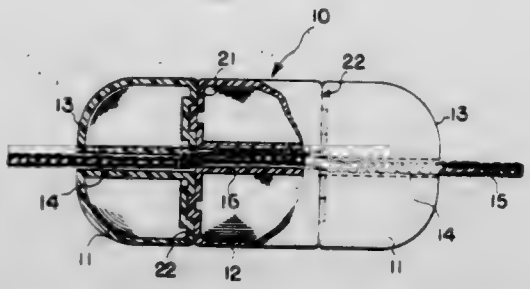
Int. Cl.³ B63B *21/52, 51/02*

U.S. Cl. 441—1

10 Claims

1. A lockable support float comprising at least a first and second float member each of which includes at least one end having rotatable connecting means, each of said members including an opening therethrough eccentrically positioned with respect to the centerline of said support float and alignable with each other; said connecting means of said first member comprising a concentric annular groove having at least two projections extending across a portion of said groove; and

said connecting means of said second member comprising a concentric annular extension having an annular flange at the



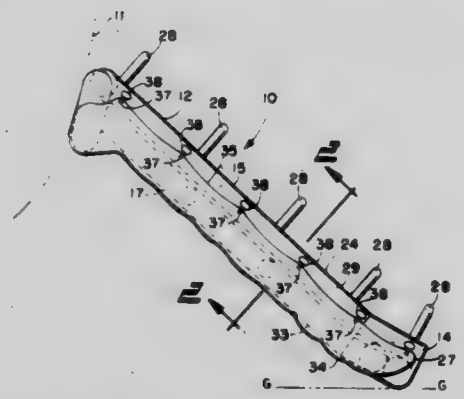
outer edge thereof adapted to engage the projections of said groove, said extension being of substantially the same inner and outer diameter and width as said annular groove.

4,332,049

ESCAPE SLIDE AND PROTECTIVE SHIELD

John M. Fisher, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Feb. 19, 1980, Ser. No. 122,391
Int. Cl.³ B61G *9/00*; B64D *25/14*
U.S. Cl. 441—80 **3 Claims**



1. An escape slide adapted to be inflated and extend from an upper end at an elevated position to a lower end at a lower surface comprising a slide portion including an upper surface on which persons are transported, side portions at each edge of said side portions, and a protective shield of flexible sheet material covering said bottom portion and at least a part of said side portions, wherein said protective shield is divided into at least two longitudinally extending sections having center edges releasably fastened together so that said sections may be detached and positioned over said upper surface as a canopy to protect persons using said escape slide as a life raft.

4,332,050

SELF-PROPELLED RECORD CLEANER

Tadanobu Okuda, Toyonaka, Japan, assignor to Kyushu Hitachi Maxell, Ltd., Fukuoka, Japan

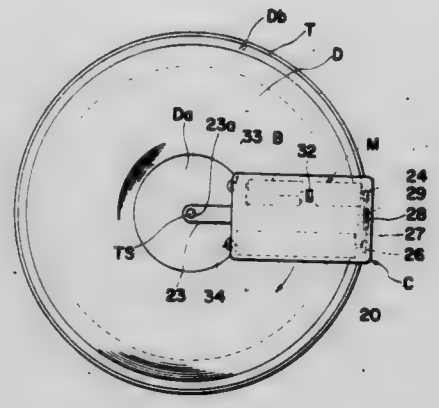
Filed Nov. 26, 1980, Ser. No. 210,815
Claims priority, application Japan, Nov. 27, 1979, 54-164454[U]
Int. Cl.³ B08B *11/00*; G11B *3/58*
U.S. Cl. 15—246 **4 Claims**

1. A self-propelled record cleaner for cleaning a disc record having a center opening, a non-grooved area coaxial with the center opening, a grooved area coaxial with the center opening and positioned on one side of the non-grooved area opposite to the center opening and an outer peripheral margin, all being defined on at least one surface of the disc record, said disc record being mounted on a support having a spindle which, when the disc record is so mounted with said at least one surface thereof facing in a direction opposite to the support, projects through the center opening, said self-propelled record cleaner comprising, in combination:

a generally elongated casing having a dust collecting chamber defined therein;

a generally cylindrical cleaning element supported in the casing so as to extend in a radial direction of the disc record when the record cleaner is mounted on the support with the disc record held between the support and the record cleaner;

means carried by the casing for engagement with the spindle to enable the casing to rotate around the spindle;



means for defining a passage for guiding dusts being removed from the disc record by the cleaning element into the dust collecting chamber;

a drive wheel adapted to run on the disc record and rotatably carried by the casing; and

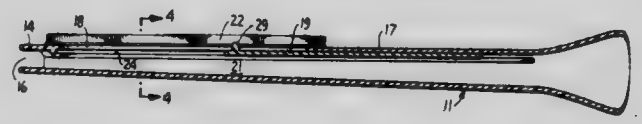
means for driving said drive wheel and said cylindrical cleaning element in opposite directions with each other.

4,332,051

ATTACHMENT TOOL FOR A VACUUM CLEANER HOSE

Salvatore LaMonte, 920 Ward Ave., #8F, Honolulu, Hi. 96814

Filed Oct. 6, 1980, Ser. No. 194,672
Int. Cl.³ A47L *9/06*
U.S. Cl. 15—328 **10 Claims**



9. An attachment tool for a vacuum cleaner hose, comprising

an elongated hollow housing having a cylindrical open end formed for releasable attachment to a vacuum cleaner hose,

said housing tapering and flattening from said cylindrical open end to an opposite end providing a flattened intake port for cleaning crevices,

said housing being formed to provide an elongated intake opening adjacent to said opposite end,

an elongated closure member slidably mounted on said housing for selective movement between advanced and retracted positions covering and uncovering said elongated intake opening,

and first and second strip brushes mounted on said housing alongside the longer opposite sides of said elongated opening,

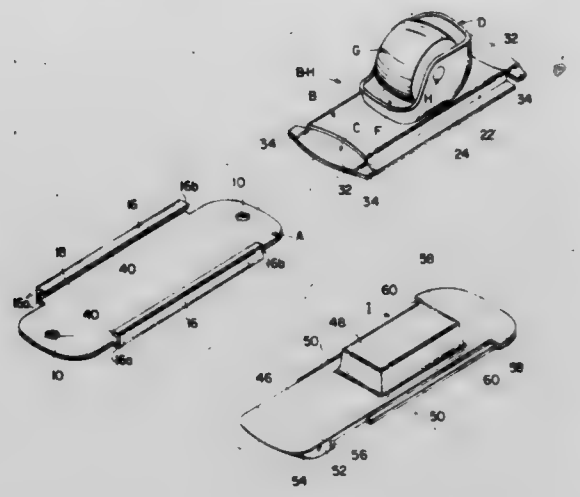
said strip brushes having bristles projecting away from said housing a minimal distance whereby with said closure member in said retracted position said tool is insertable between slats of a venetian blind.

4,332,052

SUPPORT ASSEMBLY FOR LUGGAGE

Richard C. Remington, Pompton Plains, N.J., assignor to Presto Lock Company, Division of Walter Kidde & Company, Inc., Garfield, N.J.

Filed Jun. 13, 1978, Ser. No. 915,266
Int. Cl.[3] B60B *33/00*; A47B *91/06*
U.S. Cl. 16—30 20 Claims



1. A support assembly comprising a base plate adapted to be attached to an object to be supported and having a pair of parallel channels with open ends, a support unit adapted to be removably attached to the base plate, the support unit including a frame plate having substantially planar opposite edge portions adapted to be retained by the channels upon lengthwise insertion of the frame plate into the channels, releasable latch means at a leading end of the frame plate, said latch means being adapted to flex in a direction substantially perpendicular to the plane of said edge portions to permit lengthwise insertion of the frame plate into said channels from one end of the channels, the latch means being further adapted to emerge from the opposite end of said channels and return to an unflexed condition upon continued insertion of the frame plate, abutment means on said base member for engaging said latch means upon emergence of the latch means from the channels and return of the latch means to the unflexed condition, said abutment means preventing unintentional withdrawal of the frame plate from the channels, and cooperative stop means on the frame plate and base plate for limiting insertion of the frame plate into the channels and substantially preventing lengthwise movement of the frame plate relative to the base plate when said latch means is in engagement with said abutment means, the latch means being disengageable from the abutment means for withdrawal of the frame plate from the base plate by flexure of the latch means in said direction.

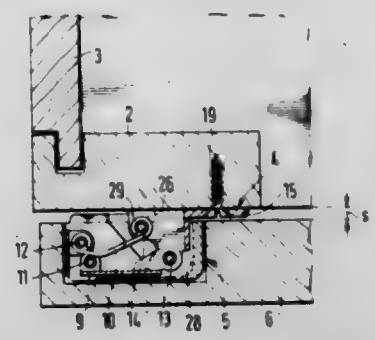
4,332,053

CONCEALED HINGE FOR DOORS, FLAPS, OR THE LIKE

Luciano Salice, Carimate, Italy, assignor to Deutsche Salice GmbH, Freiberg, Fed. Rep. of Germany

Filed Mar. 3, 1980, Ser. No. 126,299
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1979, 2912627
Int. Cl.[3] E05D *3/06*
U.S. Cl. 16—370 51 Claims

1. A concealed hinge for doors, flaps or the like comprising a stationary hinge portion and a pivotable cup-shaped hinge portion which is provided with a securing flange, said hinge portions being pivotally interconnected by two links to form a four-bar linkage, characterised in that the stationary hinge portion (4, 30) consists of a flat securing plate (15) with two parallel bearing flanges (20, 21) perpendicular thereto, that the pivot pins (13, 14) for the two links (9, 10) are secured at such a height in the bearing flanges (20, 21) that, in the closed position of the hinge (1), they project into the cup-shaped hinge portion to at least under the top of the securing flange (8), and that the securing flange (8) consists of at least one flat plate-like



member which, in the closed position, lies adjacent the securing plate (15) in the plane thereof.

4,332,054

BLOCK AND TACKLE WINDOW SASH BALANCE AND INSTALLATION METHOD

H. Palmer Paist, Broomall, and Barry M. Jones, Berwyn, both of Pa., assignors to Quaker City Manufacturing Company, Sharon Hill, Pa.

Filed Jun. 9, 1980, Ser. No. 157,858
Int. Cl.[3] E05D *13/12*
U.S. Cl. 16—197 8 Claims



1. In a window sash balance comprising an elongated tubular housing frame, a helical spring, a block and tackle assembly, and a foot member adapted for engagement with the under edge of a window sash when aligned in a bridging position at the lower end of the frame housing; and in which said spring and said block and tackle assembly are positioned within wall portions of the housing frame; one end of the spring is anchored relative to the housing frame; one pulley block is anchored to the housing frame at a point separated from the spring anchor point; the other pulley block is connected to the unanchored spring end; the tackle cord is secured to one of the pulley blocks and is sequentially trained over the pulley block sheaves terminating in engagement with the foot member which bridges the lower end of the housing frame; the length of the tackle cord being such that the foot member will be held against the lower end of the housing frame end by biasing action of the spring when the foot member is aligned in a bridging position relative to the walls of the frame, the improvement characterized in that a lanyard is secured to the foot member, said lanyard being of a length that it will extend outwardly from the end of the housing frame when the foot

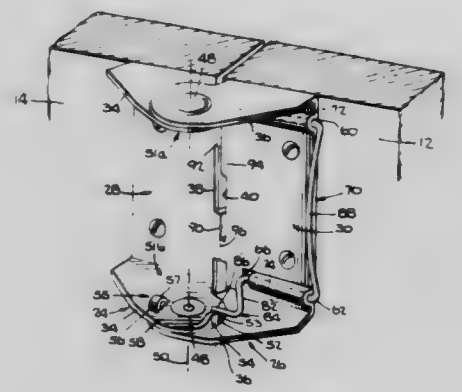
member has been disengaged from its bridging position and is retracted within the housing frame.

4,332,055

HINGE WITH A SPRING ARM CATCH

Jack Z. Rudnick, 242 E. 19th St., New York, N.Y. 10003; Edward B. Okonski, 61-53 75th Rd., Middle Village, N.Y. 11379, and John J. Rottenkolber, 3522 Sagamore Trail, Mohegan Lake, N.Y. 10547

Filed Apr. 24, 1980, Ser. No. 143,501
Int. Cl.³ E05D *11/08*
U.S. Cl. 16—335 **15 Claims**



1. A hinge comprising a pair of elements, means for pivotally connecting said elements to one another at a common pivot axis, a first one of said elements having an undulate cam surface which extends about said pivot axis, the second one of said elements defining a generally planar base surface and an elongated groove open to said base surface, and a spring including a generally straight leg releasably received in said groove and an arm extending from a first end of said leg to a free end which is remote from the axis of said leg, said spring being constructed and arranged to bias said arm pivotally about the axis of said leg to urge the free end of said arm towards said cam surface, whereby the free end of said arm will engage said cam surface and said spring and said cam surface will cooperatively yieldably resist relative pivotal motion of said elements, said elements being adapted for attachment to respective ones of the structures which the hinge is to connect in service so that, during such attachment said base surface will overlie a surface of the one of such structures associated with said second element and that surface will retain said leg in said groove.

4,332,056

INFINITE POSITION DOOR HOLD-OPEN

Henry W. Griffin, Birmingham, and Arthur W. Hollar, Jr., Grosse Pointe, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 8, 1980, Ser. No. 176,414
Int. Cl.³ E05D *11/08, 11/10*
U.S. Cl. 16—341 **3 Claims**

1. In combination with a vehicle having a door, an infinite position door hold-open comprising,

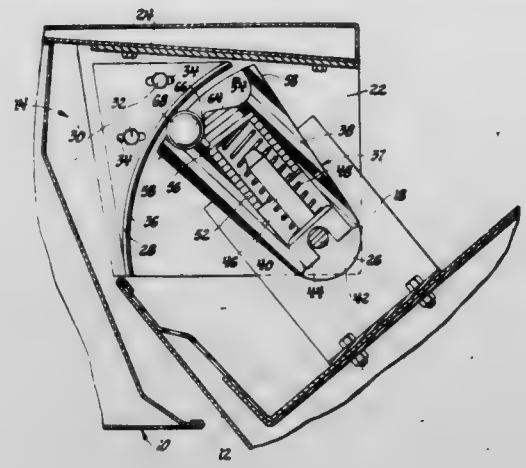
a pair of hinge members rotatable relative to another for mounting the door on the vehicle body for movement between open and closed positions,

one hinge member including an arcuate friction layer radially disposed about the axis of the hinge members,

the other hinge member including therein a cavity which opens to the friction layer and includes a spaced pair of roller retention surfaces,

a roller which rolls in the cavity along the friction layer from engagement with one retention surface to the other during door opening and closing movement,

and resilient biasing means included on the other hinge member and including a wedging member face resiliently wedging the roller against the friction layer and one of the retention surfaces as the door is initially moved in a closing direction from the fully open position to provide a hold-open.

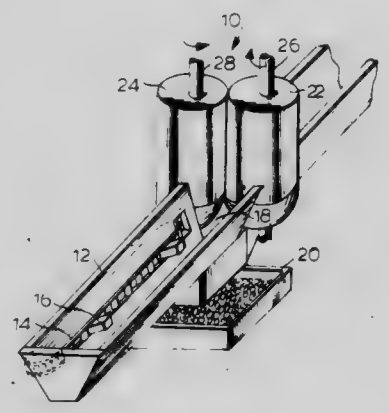


4,332,057

APPARATUS FOR MECHANICALLY EXTRACTING FISH ROE

Charles M. Smith, Box 957, Cordova, Ak. 99574

Filed Jun. 20, 1980, Ser. No. 161,372
Int. Cl.³ A22C *25/00*
U.S. Cl. 17—55 **5 Claims**



1. A device for removing the roe from a fish after head removal introduced tail-first and belly-up into said device comprising:

at least one V-shaped trough, each said trough for maintaining the fish in the proper position before extraction of the eggs;

a compressing means for applying inwardly directed force along a vertical plane on each side of the fish, extracting roe from the head end of the fish as the fish passes through said compressing means, said compressing means connected to each said trough;

said compressing means includes a pair of driven resilient rollers, each roller rotatable about a vertical axis and in substantially tangential relation;

said pair of resilient rollers for pressibly contacting each side of the fish fed therebetween to urge the roe out of the fish body opening resulting from said prior head removal;

each said vertical axis aligned substantially perpendicular to the longitudinal dimension of said trough;

a feeding means for transporting the fish through said trough, said feeding means operatively connected to said trough;

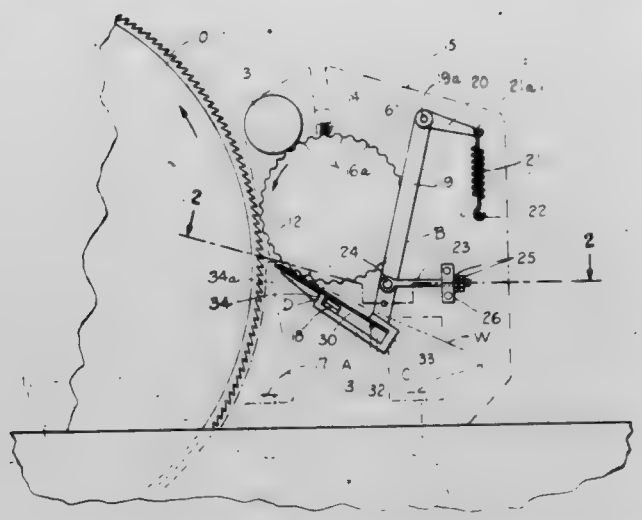
each said trough having an aperture adjacent said compressing means for allowing passage of the extracted roe.

4,332,058

WEB DOFFING APPARATUS

William A. Warnock, Lyman, S.C., assignor to John D. Hollingsworth on Wheels, Inc., Greenville, S.C.

Filed Apr. 28, 1980, Ser. No. 144,597
Int. Cl.[3] D01G *15/46*
U.S. Cl. 19—106 R 4 Claims



1. An apparatus for removing a fibrous web from a rotatable web carrying member utilizing a rotatable roll adjacent said member and a flexible blade in tangential contact with said roll forming an entrance opening for the web adjacent a free end of the blade, a blade support comprising:

an elongated support member;

pivoted linkage means releasably mounting said support member in predetermined aligned relation with said rotatable roll;

receiving means carried adjacent one edge of said support member remote from said roll into which a portion of said blade opposite said free end may be inserted and removably retained;

a projecting portion carried adjacent the other edge of said support member urging said blade into resilient engagement with said roll;

resilient means urging said linkage means toward said predetermined position, and

stop means retaining said linkage means in said predetermined position against the action of said resilient means;

whereby said support member may be released from said aligned relation with said roll to facilitate removal of said blade for servicing.

4,332,059

DRIVE FOR DRAFTING ARRANGEMENT ROLLS OF LONG SPINNING MACHINES

Juerg Bischofberger, Neftenbach, and Arthur Wuermli, Winterthur, both of Switzerland, assignors to Rieter Machine Works Limited, Winterthur, Switzerland

PCT No. PCT/EP79/00068, § 371 Date May 29, 1980, § 102(e) Date May 19, 1980, PCT Pub. No. WO80/00717, PCT Pub. Date Apr. 17, 1980
PCT Filed Sep. 3, 1979, Ser. No. 196,912
Claims priority, application Switzerland, Sep. 29, 1978, 10175/78
Int. Cl.[3] D01H *1/22, 13/14*
U.S. Cl. 19—244 5 Claims

1. A drive for the driven drafting rolls of a drafting arrangement of long spinning machines, wherein the drafting rolls extend over an appreciable part of the length of the machine, especially for ring spinning machines, the driven drafting rolls of the drafting arrangement being arranged at the same longitudinal side of the spinning machine, comprising:

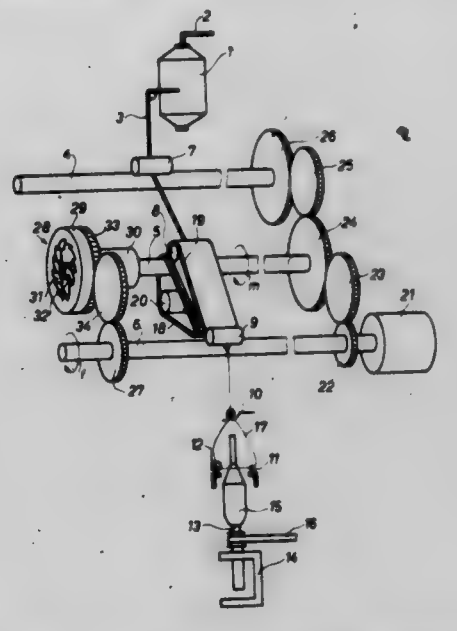
said driven drafting rolls defining a main drafting zone for a fiber sliver which is to be drafted and containing a faster running roll and a slower running roll;

said drafting rolls having opposed ends;

first substantially slippage-free transmission elements for mutually connecting said drafting rolls at their one opposed ends and for effectuating a ratio of rotational speeds of said drafting rolls in order to determine a predetermined draft ratio for said fiber sliver;

second substantially slippage-free transmission elements provided for the other opposed ends of the drafting rolls defining said main drafting zone;

said second slippage-free transmission elements containing a freewheel clutch;



said second slippage-free transmission elements having a rotational speed ratio lower than the ratio of the rotational speeds determining said draft ratio;

said second slippage-free transmission elements, during normal operation of the spinning machine, selectively allowing either the faster running one of the drafting rolls of the main drafting zone to lag or the slower running drafting roll of the main drafting zone to lead; and

said freewheel clutch during standstill of the faster running roll effecting a slippage-free connection between the slower running roll and the faster running roll via the said second slippage-free transmission elements.

4,332,060

SPRING CLIP FOR HOLDING SHEETS OF PAPER OR THE LIKE

Hisao Sato, 10, Toyotamaminami-3-chome, Nerima-ku, Tokyo, Japan

Filed Apr. 21, 1980, Ser. No. 142,714
Claims priority, application Japan, Apr. 28, 1979, 54-57827[U]
Int. Cl.[3] B42F *1/02;* A44B *21/00*
U.S. Cl. 24—67.9 16 Claims



1. A spring clip for holding sheets of paper or the like, comprising a pair of cooperating confronting holding members, each said holding member having opposite side edges, a free continuous leading end portion, including a leading edge, a rear portion opposite said leading end portion and joining means for resiliently joining said holding members together at their respective rear portions such that said leading end por-

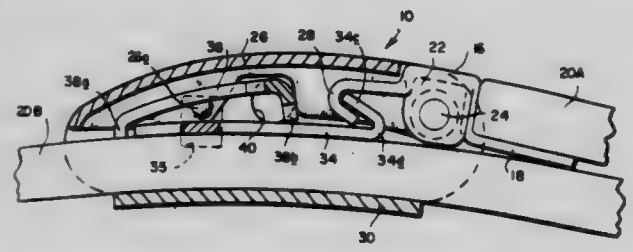
tions are normally resiliently biased against each other with a predetermined clamping force, the joining means having no means for diverging said holding members, at least one of the side edges of one of the holding members corresponding to one of the side edges of the other said holding member, an ear-like projection for diverging said holding members extending a predetermined amount from each of said corresponding side edges and having portions spaced from each other to permit insertion of a spreader member between said ear-like projections in removable relationship for exertion of a separating force by said spreader member against each of said ear-like projections to cause divergence of said holding members and separation of said leading end portions whereby said sheets of paper or the like can be disposed between said holding members to be gripped by said leading end portions when said ear-like projections are disassociated from said spreader member, no portion of said ear-like projections being in contact with each other at the leading edge of each said holding member, and wherein said ear-like projections are stepped away from said side edges.

4,332,061

ADJUSTABLE BRACELET CLASP

Kurt A. Rieth, Warwick, and Stephen F. Bert, W. Warwick, both of R.I., assignors to Textron, Inc., Providence, R.I.

Filed May 12, 1980, Ser. No. 148,988
Int. Cl.³ A44B *11/25*
U.S. Cl. 24—343 **7 Claims**



1. An adjustable clasp for interconnecting two sections of a bracelet, including in combination a coupling assembly secured to the end of one bracelet section, and a clamp assembly detachably fixable at selected locations along the length of the other bracelet section and being engageable with said coupling assembly, said clamp assembly comprising:

a bottom wall with opposed side walls extending substantially normal thereto;

a resilient pressure plate supported by said side walls, said pressure plate being arcuate in side elevation with a given radius of curvature in the unstressed or relaxed condition and with oppositely facing concave and convex sides, said concave side cooperating with said bottom wall to define a space therebetween; and

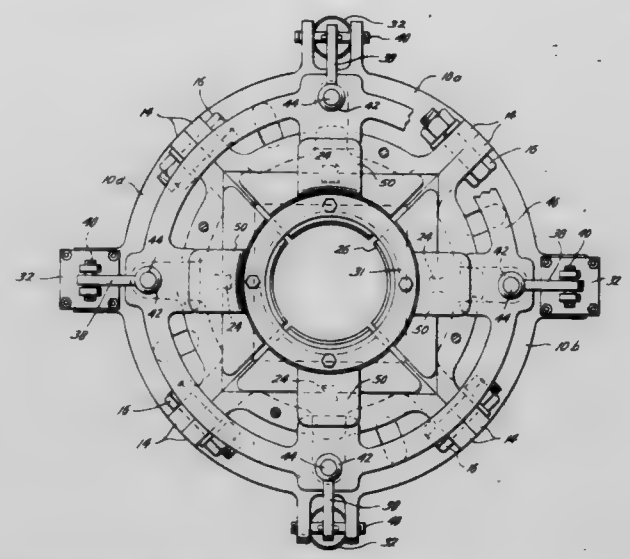
a rigid clamping member supported by said side walls on the convex side of said pressure plate, said clamping member being adjustable between an open position permitting limited movement of said pressure plate relative to said bottom wall in order to accommodate slidable movement of the said other bracelet section through said space, and a closed position contacting said convex side and resiliently deflecting said pressure plate to increase its radius of curvature and to positively grip the said other bracelet section between the concave side of said pressure plate and said bottom wall.

4,332,062

BOWL STRUCTURE

Joseph H. Byrne, Jr., Houston, Tex., assignor to Bowen Tools, Inc., Houston, Tex.

Filed Feb. 19, 1980, Ser. No. 122,420
Int. Cl.³ F16I *7/00*
U.S. Cl. 24—263 DA **6 Claims**



1. Improved well bowl, comprising:

(a) a well bowl with an opening extending through the bowl, at least a portion of which is formed in the shape of a pyramidal frustum, the bowl being formed in a plurality of sections, each section including no more than one side of the pyramid-shaped opening, and means for connecting the sections together,

(b) a plurality of slips movable along the pyramidal surfaces and together defining an inner opening, the slip surfaces which define the inner opening being adapted to engage and hold the outer surface of a length of drill pipe when the slips are moved toward the smaller end of the bowl opening and to be disengaged from the drill pipe when the slips are moved away from the smaller end of the bowl opening, the slips further having outer surfaces shaped to engage at least a portion of the surfaces which define the bowl opening when the slips move between their engaging and disengaging positions,

(c) guide means for guiding the slips along the surfaces which define the bowl and maintaining the slip surfaces which engage the pipe oriented in their pipe engaging positions when they move along the bowl surfaces, and

(d) means for simultaneously moving the slips between their engaging and disengaging positions.

4,332,063

FABRIC SINGER BURNER AND MANIFOLD ASSEMBLY

Henry S. Ehrhardt, Clemson, S.C., assignor to Industrial Heat Engineering, Mauldin, S.C.

Filed Oct. 6, 1980, Ser. No. 194,562
Int. Cl.³ D06C *9/02*
U.S. Cl. 26—3 **3 Claims**

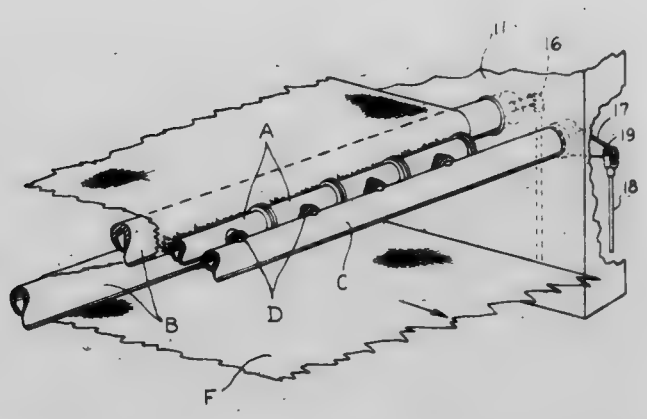
1. A burner and manifold assembly for use in a fabric singer having fluid cooled fabric backup rolls about which the fabric moves in open width for opening the interstices of the fabric for accessibility to flame therealong from a burner having a fuel supply manifold extending in substantial alignment therewith, and having means for bring about a cessation of impingement of the flame upon the fabric when fabric movement is discontinued comprising:

a tubular cast iron burner carried horizontally transversely of the machine in substantial alignment with each of the backup rolls for delivering a sheet of flame therealong for impinging directly upon the opened fabric moving about the backup rolls;

a tubular manifold behind each said tubular cast iron burner, remote from said flame so as to maintain a lower tempera-

ture during operation than does said cast iron burner, constructed from a material possessing a coefficient of expansion resulting in expansion substantially compatible with the expansion of the cast iron at operating temperatures;

an end pass-through connector adjacent each end of said burner and said manifold providing fuel and heat flow between said cast iron burner and said manifold; and



a plurality of additional spaced connector means between said end connectors forming the burner and manifold assembly;

whereby heat and fuel are uniformly transferred between said burner and said manifold along the length thereof to minimize the bow of the assembly through even heat distribution as well as to facilitate a uniform flame along the assembly.

4,332,064

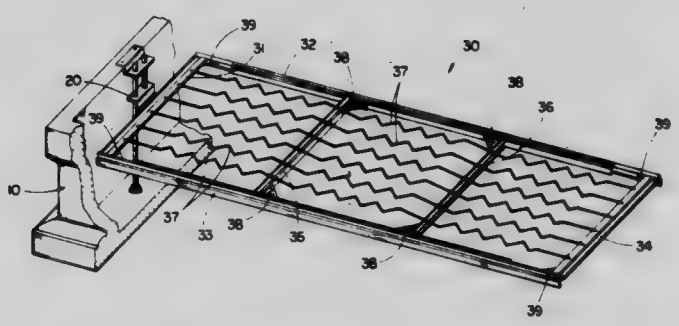
BODY SUPPORT FRAME FOR A CASKET

Robert K. Foust, 301 Mary Kay, Connersville, Ind. 47331

Filed Feb. 4, 1981, Ser. No. 231,374

Int. Cl.³ A61G *17/00*

U.S. Cl. 27—12 **19 Claims**



1. A body support frame for a casket comprising:

(a) two longitudinal side frame members, said side frame members each including a generally "N" shaped rail of cold rolled steel,

(b) transverse support members, including transverse head frame and foot frame members, said transverse support members connecting said longitudinal side frame members at said vertical sections of said "N" shaped rails, and

(c) spring suspension means, said spring suspension means extending between said transverse head frame and said foot frame members.

4,332,065

THREAD WINDING MACHINE

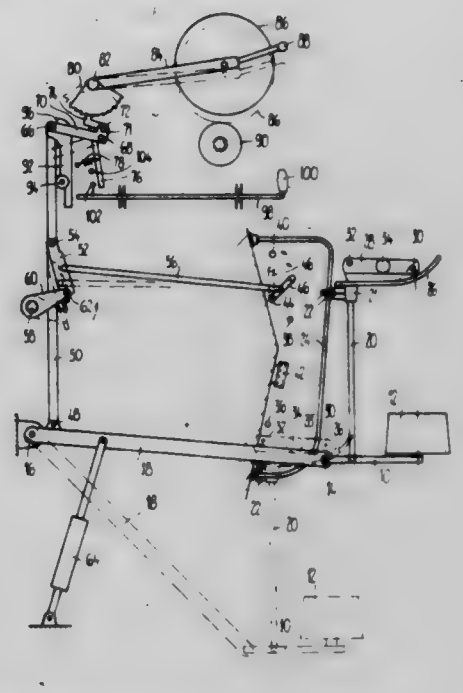
Tobias Hauri, Zug, Switzerland, assignor to Aktiengesellschaft Fr. Mettler's Söhne Maschinenfabrik, Arth, Switzerland

Filed Sep. 15, 1980, Ser. No. 187,625

Claims priority, application Switzerland, Sep. 28, 1979, 8778/79

Int. Cl.³ D02J *3/16*; B65H *63/02*

U.S. Cl. 28—225 **14 Claims**



1. A thread winding machine comprising:

a winding bobbin;

drive means for driving said winding bobbin;

a feed bobbin for supplying thread to said winding bobbin;

a moveable carrier for supporting said feed bobbin;

means for moveably mounting said carrier;

means defining a thread path between said feed bobbin and said winding bobbin;

means for monitoring the passage of the thread along the thread path;

said thread monitoring means serving for disconnecting the drive means from the winding bobbin in the event of thread breakage; and

means responsive to the action of said thread monitoring means for moving the feed bobbin carrier towards the winding bobbin upon occurrence of thread breakage.

4,332,066

COMPLIANCE MECHANISM

Samuel I. Hailey, Fort Worth, and George M. Kaler, Jr., Tarrant, both of Tex., assignors to General Dynamics Corporation, Fort Worth, Tex.

Filed Jan. 7, 1980, Ser. No. 109,855

Int. Cl.³ B23B *39/14*

U.S. Cl. 29—26 R **1 Claim**

1. An apparatus for drilling holes in a workpiece using a self-feeding drill of the type that will simultaneously rotate and advance a drill bit from a retracted position to an extended position, the workpiece having a template secured to it that has guide holes, the apparatus comprising in combination:

an inner guide member having an axial aperture for rigidly carrying a drill for movement therewith, the inner guide member having an annular outer surface that is convex in cross-section;

an outer guide member having an annular inner surface that is concave in cross-section for slidingly receiving the outer surface of the inner guide member, the outer guide member having an annular outer surface, the outer guide member having a plurality of cavities in its inner surface;

a plurality of resilient disks secured to the outer surface of

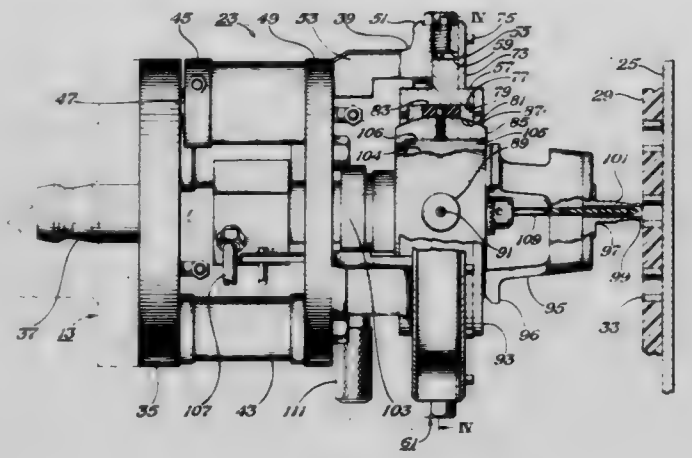
the inner guide member and dimensioned for close reception in the cavities;

a frame having an aperture for receiving and carrying the outer guide member;

a plurality of radially oriented and inwardly biased pins secured to the frame and bearing against the outer surface of the outer guide member;

a sleeve rigidly secured to the forward side of the inner guide member and adapted to receive the drill bit;

a carriage having connection means for securing to a control



arm means for aligning the sleeve with a selected guide hole, the carriage carrying the frame by a linear bearing; and

power means for selectively moving the frame forwardly with respect to the carriage to insert the sleeve into one of the guide holes, the disks allowing a limited amount of angular movement of the sleeve with respect to the carriage, and the pins allowing a limited amount of parallel movement of the sleeve with respect to the carriage to allow insertion even though the control arm means may have slidingly misaligned the sleeve.

4,332,067

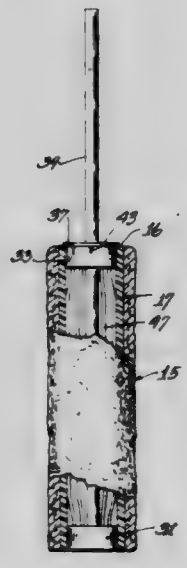
PAINT ROLLERS

John W. Pearce, 413 Broadway SE., Warren, Ohio 44483

Filed Dec. 7, 1979, Ser. No. 101,230

Int. Cl.³ B05C *17/02*

U.S. Cl. 29—116 R **4 Claims**



1. For use with a paint roller having a cylindrical inner tube of rigid material and an exterior paint-absorbent cover about the exterior of said tube and fixed thereto, the improvement comprising a skeleton frame adapted to fit within said tube, including,

a rectilinear shaft,

a pair of cylindrical heads on said shaft, one head at one end of said shaft and another spaced inwardly of said shaft end an amount substantially equal to the length of said inner tube, at least one head having a pinned connection with said shaft for rotation therewith,

each head having an outside diameter of a size to closely and frictionally fit within said inner tube, said heads being formed of plastic material, such as polypropylene and the like, each of said heads being cup-shaped and said heads being disposed in facing relation, the cup shape of a head providing a skirt wall,

a plurality of rigid wires extending between said heads and a circular wire at each end of said plurality of wires and rigidly connected thereto to hold said wires in peripherally-spaced relation to form a wire cage, each circular wire being of a slightly larger diameter than the inside diameter of a respective skirt wall to frictionally fit within such wall, said wire cage maintaining said heads in spaced relation and connecting said heads so that both rotate with said shaft,

said shaft being adapted to be clamped in the chuck of an electric motor so that the skeleton frame and the paint roller may be rapidly rotated to expel paint from said cover by centrifugal action.

4,332,068

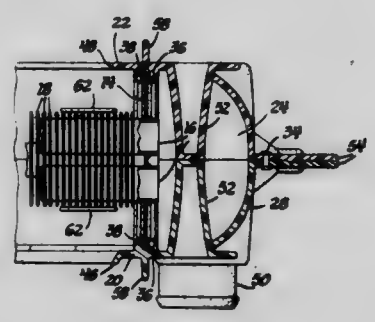
HEAT EXCHANGER ASSEMBLY

William Melnyk, Lathrup Village, Mich., assignor to McCord Corporation, Detroit, Mich.

Division of Ser. No. 970,483, Dec. 18, 1978, Pat. No. 4,300,628. This application Jul. 14, 1980, Ser. No. 168,478

Int. Cl.³ B23P *15/26*

U.S. Cl. 29—157.3 R **3 Claims**



1. A method of making a heat exchanger having a heat exchanging core with spaced headsheets with a tank associated with each headsheet including the steps of; disposing a first radiator component in engagement with a portion of the periphery of both of said headsheets, disposing a second radiator component in engagement with the remaining portion of the periphery of both of said headsheets and in engagement with said first radiator component to form a tank adjacent each of said headsheets and connecting said components together to form a fluid seal between said components and between said components and said one headsheet whereby fluid may flow between said tanks through said core.

4,332,069

MAKING HEAT EXCHANGERS

Richard W. Kritzer, 400 E. Randolph, Chicago, Ill. 60601

Filed Nov. 10, 1980, Ser. No. 205,795

Int. Cl.³ B21D *53/02*; B23P *15/26*

U.S. Cl. 29—157.3 A **8 Claims**

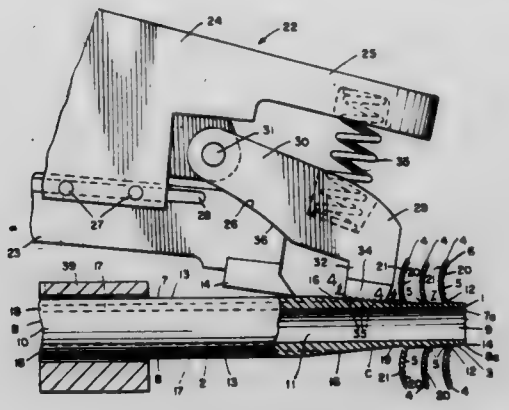
1. The method of forming fins on the surface of a heat exchange element wherein at least one face of each fin has a roughened surface thereon, which comprises the steps of,

(a) feeding an elongated tubular body member longitudinally past a cutter,

(b) reciprocating said cutter forwardly and rearwardly toward and away from the surface of said element at an acute angle and cutting into said surface during the forward movement thereof in a skiving action, thereby to

form an upstanding fin, one side of which is integral with said body, and

(c) forming a plurality of indentations in the surface of said body in the area from which the next succeeding fin is to



be cut, during the rearward movement of said cutter, whereby,

(d) when the cutter moyes forwardly for the next cut, the cutter-remote face on the fin produced thereby will have a roughened surface.

4,332,070

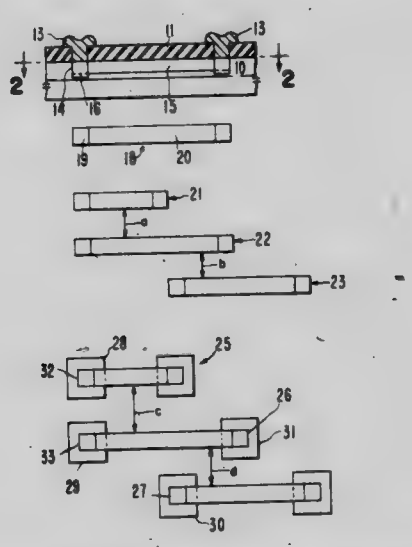
METHOD FOR FORMING A HEADLESS RESISTOR UTILIZING SELECTIVE DIFFUSION AND SPECIAL CONTACT FORMATION

Rajni Kant, San Jose, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Continuation of Ser. No. 71,804, Sep. 4, 1979, abandoned, which is a division of Ser. No. 914,637, Jun. 12, 1978, Pat. No. 4,191,964, which is a continuation of Ser. No. 760,593, Jan. 19, 1977, abandoned. This application Dec. 15, 1980, Ser. No. 216,401

Int. Cl.[3] **H01L** *21/283, 21/38*

U.S. Cl. 29—578 **2 Claims**



1. A method for forming a resistor in a semiconductor body, said semiconductor body having an impurity concentration of less than 10^{17} ohms per cubic centimeter and said semiconductor body including a resistor diffusion formed adjacent a surface of said body on which an overlying insulator has been formed, said process comprising:

removing first and second non-adjacent portions of said insulation over said resistor diffusion;

introducing an impurity through said openings in said insulating layer to thereby form two contact diffusions in portions of the resistor diffusion, said contact diffusions being substantially coincident with the shape of said resistor diffusion and adjacent said body of semiconductor material at the locations at which each of the contacts is made, said contact diffusion of such concentration to form an ohmic contact to a Schottky contact forming material; and

forming ohmic contacts of a Schottky contact forming material for ohmically contacting each of said contact diffusions, said formation occuring at a temperature of less than 520° C., to thereby create a Schottky diode between any portion of said ohmic connections which is formed in contact with any portion of said semiconductor body.

4,332,071

METHOD OF AND APPARATUS FOR ATTACHING END STOPS TO SLIDE FASTENER STRINGER TAPES

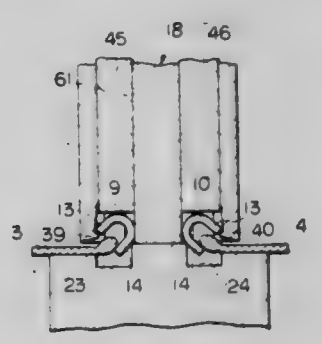
Kihei Takahashi, Uozu, Japan, assignor to Yoshida Kogyo, K.K., Tokyo, Japan

Filed Oct. 2, 1979, Ser. No. 81,117

Claims priority, application Japan, Oct. 5, 1978, 53-122961

Int. Cl.[3] **B21D** *53/56;* **B23P** *19/04*

U.S. Cl. 29—408 **14 Claims**



1. A method of attaching a pair of U-shaped end stops each having a pair of clinching legs to the respective longitudinal marginal edge portions of a pair of slide fastener stringer tapes, said method comprising the steps of:

(a) intermittently advancing the slide fastener stringer tapes lengthwise along a path of travel;

(b) delivering end stops toward the stringer tapes individually in a direction substantially normal to said path of travel with the end stop legs directed toward said path of travel;

(c) stopping the individual end stops short of said stringer tapes and retaining one of the legs of each end stop as an axis for rotation of the end stop;

(d) turning the individual end stops about one of its legs so as to place the legs of each end stop one over and the other below the longitudinal marginal edge portion of the stringer tape with spaces left between both the legs and the longitudinal marginal edge portion; and

(e) clinching the legs about the longitudinal marginal edge portions while the stringer tapes are at rest.

4,332,072

METHOD AND DEVICE FOR SPACING CONTINUOUSLY MANUFACTURED ZIP FASTENERS IN WHICH THE CONNECTION ELEMENTS ARE CONSTITUTED BY A MONOFILAMENT OF MEANDER OR SPIRAL FORM

Giuseppe Isella, San Damiano, Italy, assignor to Brevetti Motta s.a.s, Milan, Italy

Filed Feb. 21, 1980, Ser. No. 123,430

Claims priority, application Italy, Feb. 27, 1979, 20593 A/79

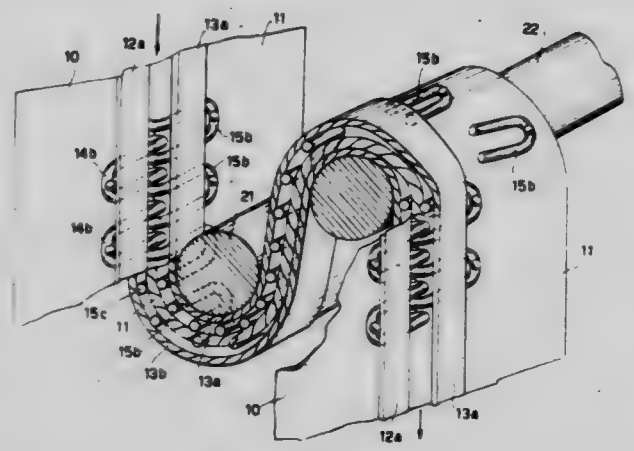
Int. Cl.[3] **B29D** *5/00;* **A41H** *37/06;* **B23P** *19/04*

U.S. Cl. 29—408 **11 Claims**

1. A method for spacing continuously manufactured zip fasteners in which the connection elements are constituted by a monofilament of meander or spiral form rigid with the edges of support tapes, comprising removing the central part of the connection elements of the two continuous coupled tapes by cutting over the required spacing length, and then removing the open lateral loops of the meanders or spirals by longitudinally passing under tension that zone of the coupled tapes in

extended form from which the central part of the connection elements has previously been removed, over at least one deviation member in such a manner that the tapes partly wrap around said deviation member with the result that the open lateral loops are urged laterally outwardly and are expelled from the tapes, said tension being of such a magnitude that material of the coupled tapes is the sole means for causing said loops to be expelled.

4. A device for spacing a zip fastener of the kind comprising two support tapes coupled together by connection elements in the form of monofilaments of meander or spiral form rigid with the edges of the support tapes, said device comprising a blade-shaped punch for removing the central part of the connection



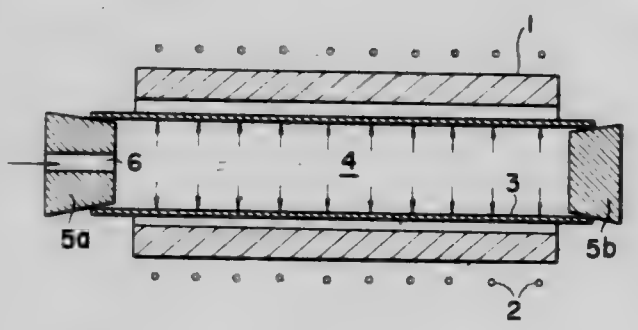
elements, and means for removing the open lateral loops, said means including at least one deviation member of length at least equal to the total width of the two support tapes coupled by the relative connection elements, guide means for the coupled tapes to keep them in contact with part of the surface of the deviation member, said traction means acting on the coupled tapes to make them move longitudinally under tension in contact with said part of the surface of the deviation member so that the tapes partly wrap around the deviation member with the result that the open lateral loops are expelled laterally from the tapes, said traction means applying said tension at such a magnitude that the material of the coupled tapes is the sole means for causing the loops to be expelled.

4,332,073

METHOD OF PRODUCING MULTIPLE-WALL COMPOSITE PIPES

Toshio Yoshida, and Shigetomo Matsui, both of Kobe, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed Feb. 25, 1980, Ser. No. 124,215
Claims priority, application Japan, Feb. 28, 1979, 54-23075; Feb. 28, 1979, 54-23076; Feb. 28, 1979, 54-23077
Int. Cl.³ B23P *17/00*
U.S. Cl. 29—421 R **8 Claims**



1. A method of producing a multiple walled composite metal pipe, said pipe being formed of an outer pipe and an inner pipe inserted therein, said respective pipes being initially disposed in radially spaced apart relationship to establish a clearance therebetween, including the steps of:

(a) heating said outer pipe to an average temperature in excess of that of said inner pipe to establish a temperature differential between the pipes, while maintaining said clearance which causes a small coefficient of heat transfer between the pipes, to thermally expand the outer pipe thereby to increase the clearance;

(b) introducing fluid pressure into said interior surfaces of said inner pipe and urging said inner pipe to plastically expand into contact with said outer pipe with a designated temperature differential; and

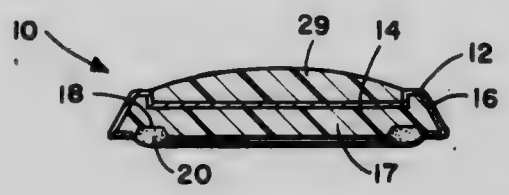
(c) decreasing the temperature of said outer pipe to cause contraction of the same and decreasing said fluid pressure applied to said inner pipe for urging the inner pipe into compression, permitting each of said pipes to be joined into a composite pipe with a tight fit.

4,332,074

METHOD FOR MAKING DECORATIVE EMBLEMS

David L. Auld, and Robert E. Waugh, both of Columbus, Ohio, assignors to The D. L. Auld Company, Columbus, Ohio

Division of Ser. No. 968,280, Dec. 11, 1978, abandoned. This application Jun. 12, 1980, Ser. No. 158,956
Int. Cl.³ B29D *11/00*
U.S. Cl. 29—527.4 **4 Claims**



1. A method for producing decorative emblems comprising:

(a) printing a decorative design on the upper surface of a foil substrate,

(b) forming said foil substrate into an emblem shape with an integral bezel peripherally around said decorative design,

(c) casting a fluent plastic material directly onto said upper surface of said foil so that it completely covers said decorative design and forms a meniscus-shaped lens cap contiguous with said peripheral bezel, and

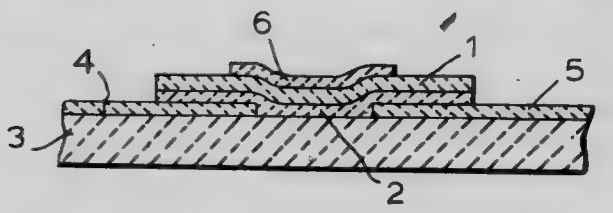
(d) curing said fluent plastic so that it gives a lens effect to said decorative design beneath it.

4,332,075

METHOD OF PRODUCING THIN FILM TRANSISTOR ARRAY

Isao Ota, Osaka; Haruhiro Shirazawa, Daito; Toshio Tatsumichi, Ando; Hiroshi Kawarada, Hirakata, and Tetsuro Ohtsuka, Takatsuki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 22, 1979, Ser. No. 41,507
Claims priority, application Japan, May 26, 1978, 53-63598
Int. Cl.³ H01L *21/04, 21/12*
U.S. Cl. 29—571 **10 Claims**



1. A method producing a thin film transistor comprising: uniformly forming a first electrode layer over an insulating substrate; forming electrodes for at least one of source, drain, and interconnecting lines with desired patterns by photoetching said first electrode layer; forming a uniform semiconducting layer on a surface of the substrate having said patterned electrodes; successively forming a uniform insulating layer over said uniform semiconducting layer; photoetching said

uniform insulating layer into a desired pattern; photoetching said uniform semiconducting layer into the same pattern as said patterned insulating layer; forming a second electrode uniformly over the surface having said patterned electrode and insulating layer; and photoetching said uniformly deposited second electrode into a desired pattern.

4,332,076

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

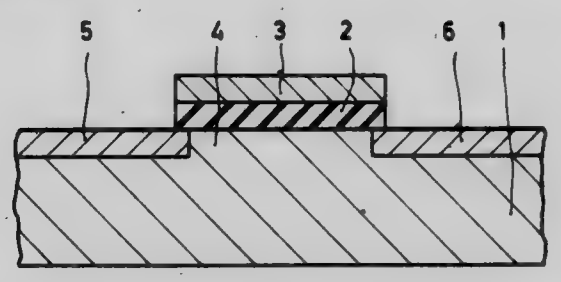
Jose Solo de Zaldivar, Wädenswill, Switzerland, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 943,234, Sep. 18, 1978, abandoned. This application Aug. 15, 1980, Ser. No. 178,644

Claims priority, application Netherlands, Sep. 29, 1977, 7710635

Int. Cl.³ H01L *21/225*

U.S. Cl. 29—571 **4 Claims**



1. A method of manufacturing a boron-doped polysilicon gate semiconductor device having a silicon body and at least one insulated gate field effect transistor having a source region, of drain region and a channel region in the body, which comprises:

forming a silicon dioxide gate insulation layer on said silicon body;

depositing a polysilicon gate electrode layer on said silicon dioxide gate insulation layer and over said channel region in a low-pressure process;

forming a boron source of substantially uniform thickness and reproducible boron concentration in the polysilicon gate electrode layer by boron doping the electrode layer by ion implantation; and

then accurately controlling the threshold voltage of the device by subjecting the device to a thermal treatment in an atmosphere containing hydrogen to indiffuse the boron from the electrode layer, through the gate insulation layer and into the channel region of the field effect transistor underlying the electrode layer.

4,332,077

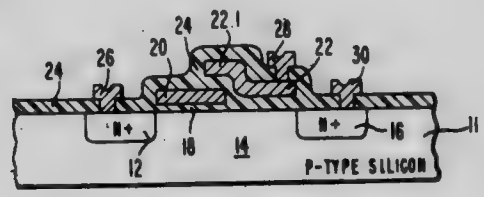
METHOD OF MAKING ELECTRICALLY PROGRAMMABLE CONTROL GATE INJECTED FLOATING GATE SOLID STATE MEMORY TRANSISTOR

Sheng T. Hsu, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 65,436, Aug. 10, 1979, Pat. No. 4,297,719. This application Jul. 16, 1981, Ser. No. 284,106

Int. Cl.³ H01L *21/26*

U.S. Cl. 29—571 **6 Claims**



1. A method of forming a non-volatile memory structure comprising the steps of:

forming a first layer of insulating material on a surface of a body of semiconductor material of a first conductivity type;

forming a polycrystalline silicon floating gate member over the layer of insulating material, the floating gate member having a leading edge and a trailing edge, the region of the body of semiconductor material underlying the floating gate member representing the channel region;

forming a second layer of insulating material over the floating gate member;

forming a polycrystalline silicon control gate member having a leading edge and a trailing edge over the second layer of insulating material, the trailing edge thereof overlapping a portion of the leading edge of the floating gate member;

forming source and drain regions of an opposite conductivity type in the body of semiconductor material with the trailing edge of the floating gate member aligned with the junction of the source and channel regions and the leading edge of the control gate member aligned with the junction of the drain and channel regions.

4,332,078

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

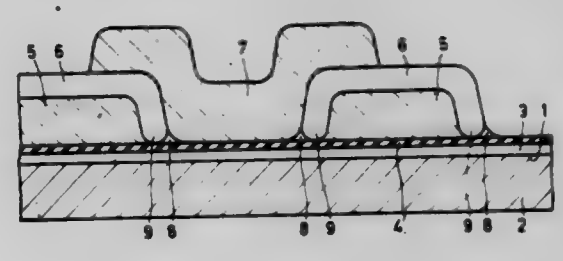
Hermanus L. Peek, Eindhoven, Netherlands, and Marnix G. Collet, Sunnyvale, Calif., assignors to U.S. Philips Corporation, Tarrytown, N.Y.

Filed Sep. 26, 1980, Ser. No. 191,101

Claims priority, application Netherlands, Oct. 8, 1979, 7907434

Int. Cl.³ H01L *21/28*

U.S. Cl. 29—580 **10 Claims**



1. A method of manufacturing a semiconductor device in which a surface of a semiconductor body is provided with a first insulating layer having a dielectric thickness which is homogeneous throughout the surface, on which a first conductor pattern of polycrystalline silicon is provided, on which first conductor pattern a second insulating layer is formed by oxidation of said pattern in such manner that the dielectric thickness of the first insulating layer remains approximately constant, after which a second conductor pattern is provided on and beside the second insulating layer, characterized in that insulating paths are formed between the formation of the second insulating layer and the provision of the second conductor pattern while avoiding an alignment step and while using successive deposition and etching steps, which paths fill substantially only spaces below edges of the second insulating layer, during which deposition step a temporary layer is deposited to a thickness exceeding half the height of the space and during which etching step the temporary layer is removed from the second insulating layer.

4,332,079

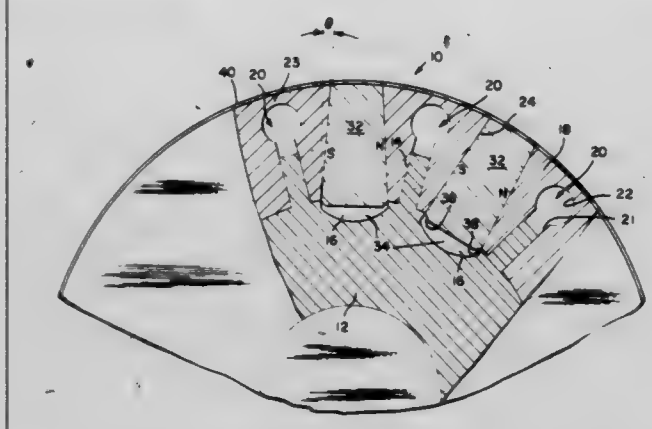
METHOD OF MAKING ROTOR RECTANGULARLY SHAPED TONGUES

Alexander Silver, Tarzana, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 973,344, Dec. 26, 1978, Pat. No. 4,260,921. This application Apr. 7, 1980, Ser. No. 138,017

Int. Cl.³ H02K *15/02*

U.S. Cl. 29—598 **3 Claims**



1. A method of forming a rotor for a permanent magnet machine, comprising the steps of:

forming a rotor hub having a plurality of equally spaced, radially extending, elongated parallel sided tongues;

bonding an inwardly converging, wedge-shaped support member, having an elongated, inwardly disposed parallel sided slot, over each radially extending, elongated parallel sided tongue to form a plurality of outwardly converging, wedge-shaped slots therebetween;

inserting a plurality of wedge-shaped permanent magnets having outwardly converging sides, individual magnets disposed in individual outwardly converging wedge-shaped slots between support members; and

rotating the rotor to wedge the outwardly converging permanent magnets into the outwardly converging slots to compress the sides of the support member slots on the tongues.

4,332,080

METHOD OF PRODUCING A HEATER OR HEAT EXCHANGE ELEMENT

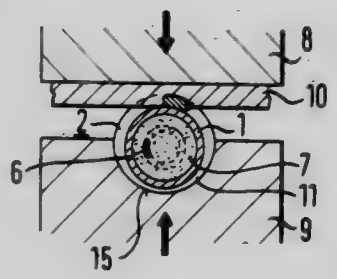
Ingo Bleckmann, Ignaz-Rieder-Kai 11, A-5020 Salzburg, Austria

Filed Jan. 6, 1981, Ser. No. 223,014

Claims priority, application European Pat. Off., Jan. 8, 1980, 80100081.1

Int. Cl.³ B23K *21/00*

U.S. Cl. 29—611 **14 Claims**



1. A method of producing an assembly comprising a pipe adapted to perform a thermal function and a support means to which the pipe is secured for transfer of heat therebetween, wherein wire is wound in a pre-stressed condition and in a coil configuration around the pipe, whereby the turns of the wire coil form projections on the surface of the pipe, the hardness of the material forming the pipe being greater than the hardness of the material forming the wire; wherein the resulting assembly of pipe and wire coil is pressed on to the support means, the hardness of the material of the support means being less than that of the material of the pipe and the material of the wire, the pressing force being adapted to the hardness of the material of the support means whereby said projections are caused to penetrate into the support means and material of the support means flows around said projections thereby anchoring the assembly of pipe and coil to the support means; and wherein, at a location remote from the support means relative to the pipe, the wire is at least partially flattened in cross-section so that the edges of portions of wire which are thus flattened come at least substantially into contact with each other.

4,332,081

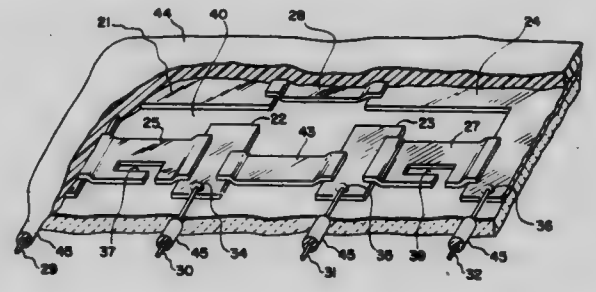
TEMPERATURE SENSOR

Gaylord L. Francis, Califon, N.J., assignor to North American Philips Corporation, New York, N.Y.

Division of Ser. No. 917,977, Jun. 22, 1978, abandoned. This application Jul. 10, 1980, Ser. No. 168,842

Int. Cl.³ H01C *7/02*

U.S. Cl. 29—612 **1 Claim**



1. A method of adjusting the resistance of a temperature sensor comprising:

printing a plurality of first resistive material films, at least one second resistive material film forming a thermistor and a plurality of conductive termination films on the surface of a non-conductive substrate in a partially overlapping pattern to provide an electrical network;

firing said substrate to bond said films to said substrate and fix their properties;

immersing said substrate having said fired, formed films in a liquid bath maintained at a precise temperature, said temperature being the exact temperature at which said temperature sensor is to be responsive;

measuring the resistance through each of said resistive films while said films are in said bath;

removing said substrate from said bath;

trimming the resistance of at least one of said first resistive films to a precise resistance value.

4,332,082

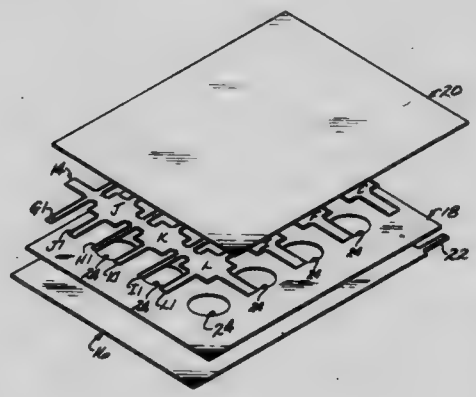
KEYBOARD APPARATUS AND METHOD FOR MAKING SAME

Larry K. Johnson, North Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 3, 1979, Ser. No. 99,440

Int. Cl.³ H01R *9/00*

U.S. Cl. 29—622 **7 Claims**



1. A method for assembling a keyboard comprising the steps

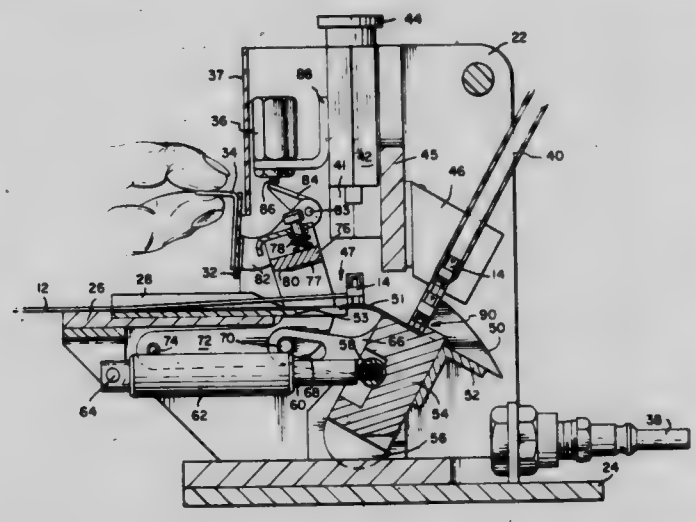
of providing first and second strips of electrically conductive material, and a strip of electrically insulative material, delineating a plurality of switching areas on one of the conductive strips, removing material from the said one conductive strip leaving the switching areas and a plurality of conductive paths emanating from each switching area, the conductive paths connecting the switching areas to each other and to provide output leads, forming a plurality of apertures in the insulative layer, the apertures being spaced so that each aperture can be aligned with a respective switching area, forming the other strip of conductive material into a selected circuit configuration and disposing the insulative strip between the first and second strips and laminating the strips together with the switching areas and the conductive paths lying in the same plane and with the apertures in the insulative strip aligned with the switching areas on said one conductive strip.

4,332,083

TERMINATING APPARATUS FOR FLAT CABLE

Keith Johnson, Jr., Manheim; Robert A. Long, Harrisburg, and William R. Over, Harrisburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 15, 1980, Ser. No. 150,372
Int. Cl.³ B23P *19/00*
U.S. Cl. 29—749 **3 Claims**



1. An apparatus for terminating flat multi-conductor cable to a connector having a cover partially assembled to a housing preloaded with terminals comprises

a terminating station where said cable is inserted between said cover and said housing and said cover is fully assembled to said housing by press means operative at said terminating station to fully assemble said cover to said housing,

a delivery station where connectors are received from a magazine,

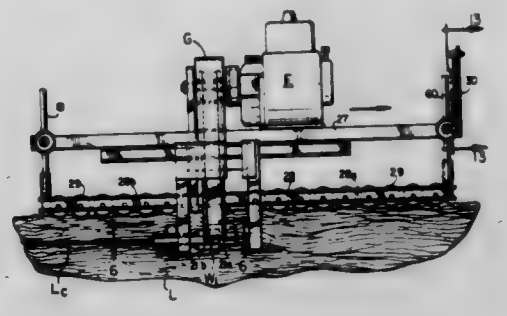
transport means for transporting said connector from said delivery station to said terminating station from a direction opposite that of cable insertion, said transport means comprising an escapement which reciprocates transversely of said magazine, said escapement being profiled to receive a single connector from said magazine, said escapement reciprocating between said delivery station and said terminating station, said transport means further having impounding means which prevent a connector from discharging from the magazine except when said escapement is at said delivery station.

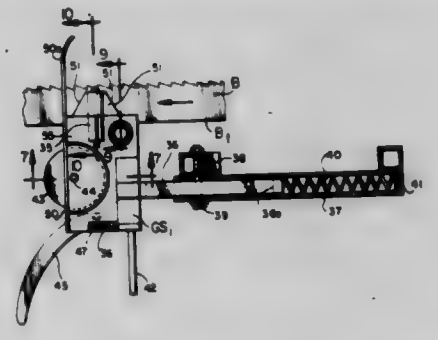
4,332,084

PORTABLE BOARD MILL

Joseph R. Lovas, East Stroudsburg, Pa.; Paul J. Lovas, Blairstown, N.J., and Carl F. Koelmel, East Stroudsburg, Pa., assignors to Cyloflex, Inc., East Stroudsburg, Pa.

Division of Ser. No. 94,433, Nov. 15, 1979, Pat. No. 4,276,693.
This application Mar. 18, 1981, Ser. No. 245,038
Int. Cl.³ B27B *15/02*
U.S. Cl. 30—380 **4 Claims**





1. In a portable mill for cutting lumber from a log, including a frame adapted to be disposed transverse to the log, a pair of wheels mounted for rotation in a vertical plane in said frame, a band saw blade trained around said wheels, means for rotating at least one of said wheels to cause the blade to form a cut in the log, and a carriage carried by said frame to afford movement of the frame along the log as the blade advances to cut the log lengthwise, the improvement comprising: guide means carried by said frame on the trailing side of said cutting blade for slidably receiving the blade on opposite sides of the zone of cutting of the blade, means mounting said guide means for movement along the blade toward and away from the log, and means biasing said guide means into engagement with the sides of the log, whereby the guide means advances closely along opposite sides of the log to guide the blade in the zone of cutting.

4,332,085

ROPE HELIX GAGE

John Jacko, Hamilton Township, Mercer County, N.J., and William F. Stack, Middletown Township, Bucks County, Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Jul. 10, 1980, Ser. No. 168,229
Int. Cl.³ G01B *5/02*
U.S. Cl. 33—143 R **12 Claims**

1. Apparatus for determining the helix height of a length of a helically wound member having a plurality of longitudinally spaced crowns comprising:

(a) an elongated seat for receiving the material to be gaged;

(b) a movable beam superposed above said seat in substantial parallel relation thereto;

(c) longitudinally adjustable sensor assemblies adapted to contact each of the respective crowns slidably attached to said beam;

(d) a scale fixed with respect to said seat;

(e) means for parallelly moving said beam with respect to said seat for placing said sensor assemblies in engagement with each of the respective crowns including:

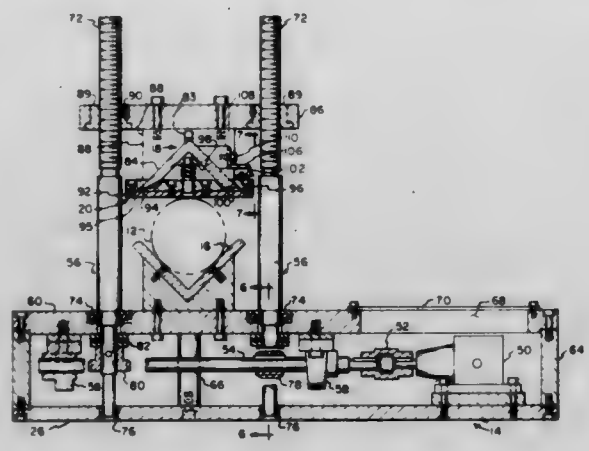
(i) support means attaching said beam adjacent opposite ends thereof;

(ii) internally threaded nut means in said support;

(iii) externally threaded lift screws engaging the respective of said nut means; and

(iv) means for rotatably driving said lift screws;

(f) independently actuable signal means on each of said sensor assemblies for indicating contact of the associated assembly with the adjacent crown; and



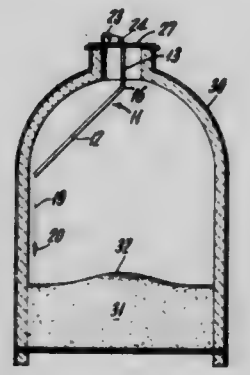
(g) an index fixedly connected to said beam in operative relation to said scale to permit direct readout of the helix height of said member when all of said signal means have been actuated.

4,332,086

CATALYST BED LEVEL MEASURING DEVICE

Gary L. Chapman, Port Arthur, and William H. Cummins, Nederland, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Oct. 6, 1980, Ser. No. 194,106
Int. Cl.³ G01F *23/04*
U.S. Cl. 33—126.5 **6 Claims**



1. Catalyst bed level measuring device for use in a reactor or the like, comprising

an angled tubular member comprising a pair of segments joined at one end of each and adapted for insertion at the top of said reactor,

a line extending through both said segments of said tubular member and having a free end,

a weight attached to said free end of said line,

means for winding said line to adjust the vertical position of said weight relative to said tubular member,

said winding means being mounted adjacent to a free end of one of said segments,

one of said segments having a predetermined length less than the height of said reactor top above the maximum level of said catalyst bed,

the other of said segments having a shorter predetermined length,

a transverse member adjacent to the free end of said shorter segment, and

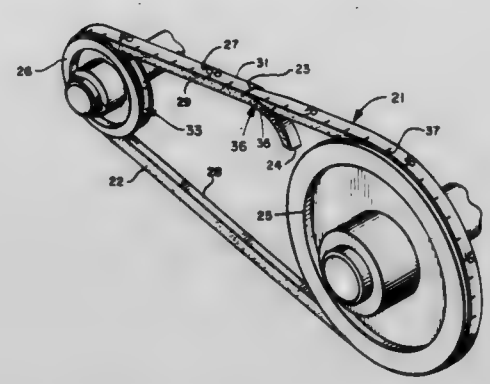
said shorter segment having a length such that when said transverse member is horizontal the free end of said one segment has a vertical displacement equal to the length of said one segment.

4,332,087

V-BELT MEASURING DEVICE

John T. Ellis, Chicago, Ill., assignor to Illinois Tube Company, Skokie, Ill.

Filed Jun. 23, 1980, Ser. No. 161,677
Int. Cl.³ G01B *3/02*
U.S. Cl. 33—137 R **2 Claims**



1. A V-belt measurement device for accurately determining the length required for a replacement belt for a belt-drive system, comprising:

a flexible elongated body member having an origin end and a termination end, said body member having sufficient flexibility and length for winding about said system with a segment of said body member between said origin end and a point of divergence along said body member overlapping a portion of said body member;

said body member having a generally truncated V-shaped cross-section substantially corresponding to the cross-section of the replacement belt, and including an outside surface, an inside surface narrower than said outside surface, and two generally opposing tapering side surfaces joining said outside and inside surfaces, said side surfaces tapering toward each other in the direction of said inside surface;

said segment of said body member having a ramp surface extending substantially from said outside surface at said origin end to said inside surface of said body member at said point of divergence whereby said outside surface of said body member and said outside surface of said segment are substantially contiguous at said origin end, when said segment is positioned to overlap said portion of said body member; and

size indicia along the length of said outside surface such that the point of overlap of said body member by said segment at said origin end indicates replacement belt length.

4,332,088

STUD LOCATER

Joel V. Cowman, 475 E. Lakeshore Dr., Sunrise Beach, Tex. 78643

Filed Nov. 17, 1980, Ser. No. 207,715
Int. Cl.³ G01B *5/18*
U.S. Cl. 33—169 R **9 Claims**

1. An apparatus for measuring and displaying the distance between a concealed structural member and a hole through a planar panel adjacent to and concealing the structural member, comprising

a surface plate having an opening therethrough alignable with the hole when said plate is placed against the panel;

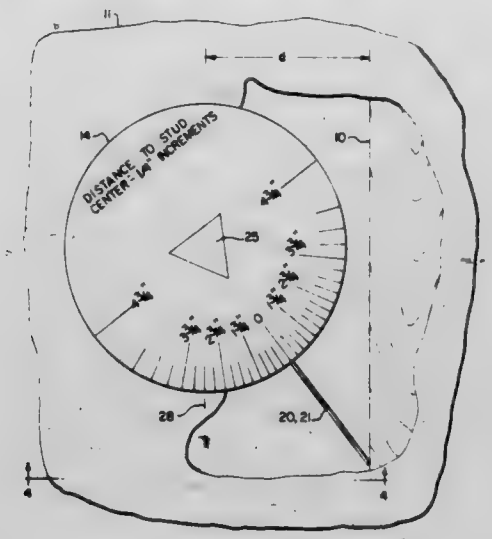
an elongated, generally L-shaped probe member having one leg of fixed length significantly longer than the other leg and a diameter smaller than the hole,

said longer leg being insertable through said opening in said surface plate and through the hole and being turnable until the shorter leg is substantially coaxial with the hole and said longer leg is generally parallel with the panel;

means attached to the distal end of said shorter leg for per-

mitting manipulation of said probe member from the front of said plate;

indicia on said surface plate for indicating the amount of angular sweep of said longer leg while said longer leg



remains generally parallel with the panel from a starting position to a position in which the distal end of said longer leg contacts said structural member; and

index means on said probe member for rotationally orienting said probe member relative to said indicia.

4,332,089

VARIABLE INDEXING PEGS

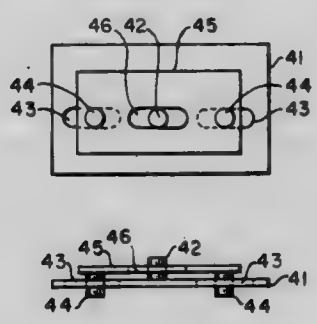
LeRoy M. Denning, 5925 Creekview Dr., Clarence Center, N.Y. 14032

Continuation-in-part of Ser. No. 888,465, Jun. 21, 1977, Pat. No. 4,188,728. This application Feb. 15, 1980, Ser. No. 121,986

The portion of the term of this patent subsequent to Feb. 19, 1997, has been disclaimed.

Int. Cl.³ B41B *1/00*

U.S. Cl. 33—184.5 **12 Claims**



1. A method for accurately and variably positioning an indexing carrier pin in an indexing peg for indexed registering devices comprising forming a variable indexing peg having an anchor registering pin plate with anchor registering pins thereon corresponding in size, shape and distance therebetween to selected holes of an indexed registering device, providing a means for attachment of an indexing carrier pin at variable positions along the length of said plate and attaching said carrier pin at a point along the length of said plate.

4,332,090

DIRECTIONAL TWO AXIS OPTICAL INCLINOMETER

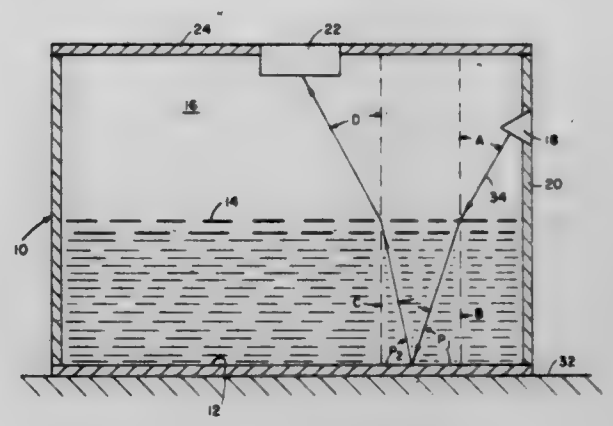
Escar L. Bailey, Athens, and Clifford G. Walker, Huntsville, both of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 7, 1980, Ser. No. 119,275

Int. Cl.³ G01C *9/06*

U.S. Cl. 33—366 **3 Claims**

1. A directional two-axis optical inclinometer comprising a container having a top cover mounted at the top thereof and a transparent liquid therein, a bottom of said container having a reflective surface, a collimated light source mounted on said container above the level of said liquid in said container and directing collimated light toward the surface of said liquid and to said reflective surface, said light entering and leaving said liquid at a variable angle with respect to the surface of said liquid in response to the tilt of said container, said container having a transparent gas medium over said liquid, and a solid



state quadrant type detector mounted on said top cover and adapted for receiving reflected light reflected off said reflective surface from said light source and producing output signals, a read-out indicator connected to the output signals from said detector and providing readout indication which is proportional to the intensity of the light energy reflected onto the detector and indicating the tilt angle and the direction of the tilt of the container.

4,332,091

MICROWAVE DRYING DEVICE FOR DRYING PRODUCTS IN FORM OF GRAINS

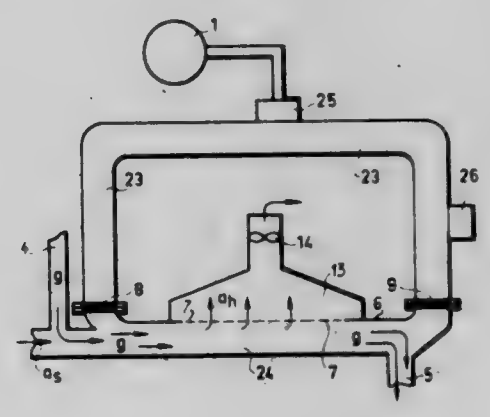
Andre Bensussan, and Guy Azam, both of Buc, France, assignors to C. G. R. MeV, Buc, France

Filed Jun. 4, 1980, Ser. No. 156,465

Claims priority, application France, Jun. 8, 1979, 79 14723

Int. Cl.³ F26B *23/08*

U.S. Cl. 34—1 **8 Claims**



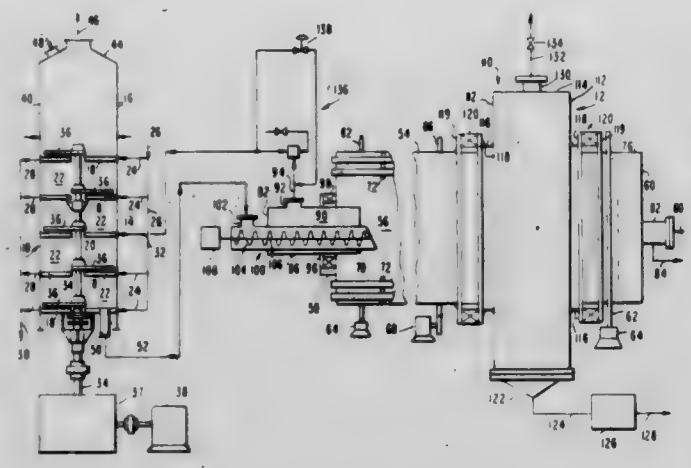
1. A microwave drying device for drying products in the form of grains, comprising a microwave source, at least one waveguide coupled electromagnetically to the microwave source, means for injecting into this waveguide the product to be treated, means for driving this product in the waveguide, means for causing a forced circulation of dry air in the waveguide, means for discharging the air charged with the humidity given up by the product to be treated, and means for collecting the dried product in this waveguide, wherein the waveguide is closed on itself so as to form a ring, and coupled to said source by directional coupler for injecting radiation so as to cause recirculation in one direction around said closed loop, a part of this waveguide forming a channel through the product to be treated may pass, said channel being connected at its ends to pipes for feeding thereinto and removing therefrom the product, these pipes forming cut-off waveguides.

4,332,092

PROCESS AND APPARATUS FOR DESOLVENTIZING AND DRYING SOLVENT WET MATERIALS

Roger J. Hansotte, Butler, Pa., assignor to Dravco Corporation, Butler, Pa.

Filed Sep. 24, 1980, Ser. No. 190,428
Int. Cl.[3] F26B *3/14*
U.S. Cl. 34—27 11 Claims



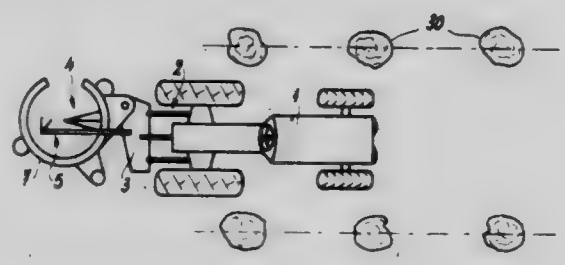
1. A process for desolventizing a solvent extracted material to improved solvent recovery which comprises:
(a) introducing said material into desolventizer zone maintained at a desolventizing temperature;
(b) introducing a vapor stream including steam and solvent vapors into said desolventizer zone for direct contact with said material to effect desolventizing of said material with concomitant increase in the moisture content thereof;
(c) withdrawing a vapor including vaporized solvent from said desolventizer zone;
(d) withdrawing desolventized material from said desolventizer zone;
(e) introducing said desolventized material into a drying zone for heating said desolventized material in the absence of air to a temperature sufficient to reduce the moisture and solvent content thereof;
(f) withdrawing dried solid material from said drying zone; and
(g) withdrawing and compressing a vapor stream from said drying zone, said compressed vapor stream constituting at least a portion of said vapor stream of step (b).

4,332,093

APPARATUS FOR UPROOTING SHRUBS AND THE LIKE

Pierre Berthollet, La Bouviere, Saint Sulpice (Savoie), France

Filed Jul. 10, 1980, Ser. No. 168,273
Claims priority, application France, Jul. 11, 1979, 79 18511
Int. Cl.[3] A01G *23/06*
U.S. Cl. 37—2 R 4 Claims



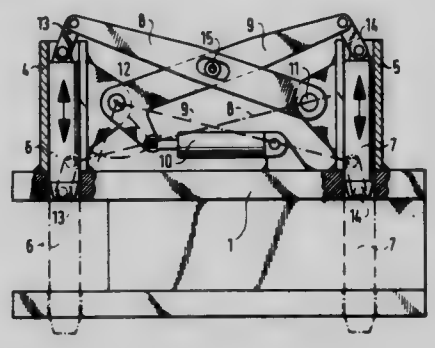
1. An apparatus for uprooting shrubs or the like with an intact root ball, comprising:
a support;
a tractor provided with hitch means for raising and lowering said support and for advancing said support horizontally;
a C-shaped ring mounted on said support and not rotatable about its axis;
a blade mounted on said C-shaped ring and adapted to be drawn beneath a shrub by the lowering and horizontal displacement of said support;
means for rotating said blade through 360° about a vertical axis of said C-shaped ring substantially coinciding with that of a shrub beneath which said blade has been drawn;
a pivot connecting said C-shaped ring with said support to enable said C-shaped ring to be swung between a position in line with said tractor and a position wherein said C-shaped ring lies laterally of the path of the tractor;
an arm engageable with said shrub and pivotally mounted on said support;
means for displacing said arm in a vertical plane and laterally to enable said arm to lift a shrub and its root ball from the ground after said root ball has been detached from the surrounding soil by said blade, said C-shaped ring having an opening, said means for rotating said blade including a movable ring slidably guided on said fixed ring and having an opening registering with the opening of said C-shaped ring whereby said rings can be drawn around said shrub upon horizontal movement of said support; and
cylinder means for swinging said rings between said positions.

4,332,094

HYDRAULIC LOCKING OF THE BOOM TO THE SWIVEL ARM OF AN EXCAVATOR, CRANE OR THE LIKE

Rolf Mieger, Heimstrasse 7, 7951 Kirchdorf, Iller, Fed. Rep. of Germany

Filed Dec. 31, 1979, Ser. No. 108,658
Claims priority, application Fed. Rep. of Germany, Jan. 18, 1979, 2901923
Int. Cl.[3] E02F *5/02*
U.S. Cl. 37—103 11 Claims



1. A hydraulic device for locking the boom to the swivel arm of an excavator, crane or the like by means of locking pins, characterized in that two non-coaxial locking pins (6 and 7) can be guided transversely through the swivel arm (1) and boom by two levers (8 or 9) which are pivoted to the pins and are drivable by a hydraulic cylinder (10), the hydraulic cylinder (10) being hinged to one of the levers (8) by its piston and to the other lever (9) by its piston rod.

4,332,095

PICTURE HOLDER

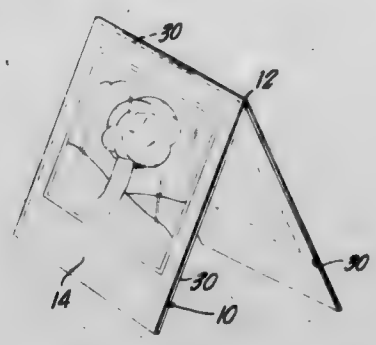
Oliver M. Tanney, Englewood, N.J., assignor to Goodren Products Corp., Englewood, N.J.

Filed Apr. 28, 1980, Ser. No. 144,262
Int. Cl.[3] G09F *1/12*
U.S. Cl. 40—158 R 1 Claim

1. A holder for photographs and the like, comprising,
a sheet of transparent material adapted to be folded along a transverse line to retain a permanent crease, said transparent material being of sufficient rigidity to enable said sheet, when folded, to stand upright in an inverted —V— position, with edges remote from the fold forming the bottom edges of the upright holder,
an opaque layer on one surface of said sheet, said layer

extending on both sides of said transverse fold line and having at least one opening therein,

means for mounting a photograph or the like against one side of said sheet over said opening such that only the portion of photograph desired to be exposed to view would be visible from the other side of said sheet,



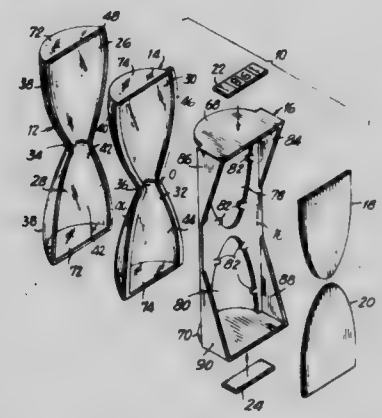
said mounting means comprising an adhesive on said sheet outside of said opening and limited to locations proximate a bottom edge, and a strip of sheet material normally covering said adhesive and adapted to be readily removed to expose said adhesive to enable the photograph to be secured to said sheet.

4,332,096

GRAVITY FLOW DISPLAY DEVICE

Michael Kohner, Parsippany, and Frank Kohner, Englewood, both of N.J., assignors to The Michael Kohner Corp., Parsippany, N.J.

Filed Jun. 1, 1981, Ser. No. 268,892
Int. Cl.³ G09F *19/00*
U.S. Cl. 40—486 15 Claims



1. A gravity flow display device comprising:

(A) a first transparent front hourglass-shaped portion with a forwardly convex front face that tapers widthwise to a first constricted waist and with a matching concave rear face, the portion thereby comprising two half-hourglass segments connected to one another by said first constricted waist;

(B) a second transparent rear hourglass-shaped portion substantially similar in shape to and slightly smaller than said front hourglass-shaped portion, said second portion also comprising two different half-hourglass segments connected to one another by a second constricted waist;

(C) means for attaching said first and said second portions such that said second portion nestingly fits into the rear of said first portion such that the front of the rear face of said second portion is positioned behind and spaced a small distance away from the front face of said first portion to create a thin space between said two attached portions;

(D) means to clip the top and bottom of said thin space;

(E) said first and said second hourglass portions when attached comprising two thin half-hourglass-shaped compartments connected by a constricted open passageway, each of said two compartments being configured to taper inwardly width-wise toward the constricted open passageway and each of said two compartments having a front face and a rear face;

(F) non-transparent flowable means in said space being capable of reversibly flowing from one thin half-hourglass compartment to the other thin half-hourglass compartment through the constricted open passageway in response to gravitational force, said flowable means being of a quantity sufficient only to almost completely fill whichever of said two compartments it is contained within;

(G) means for detachably attaching different displays, each different display being attachable adjacent to and in back of a different one of said two hourglass portions proximate the rear face of each; and

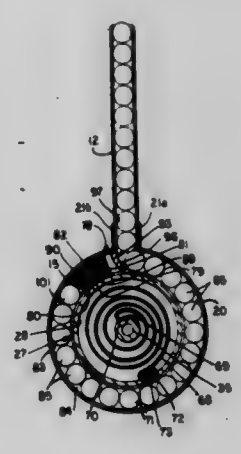
(H) whereby each attached display is made visible through one of said transparent hourglass compartments while the other attached display is visually blocked by said non-transparent means and vice versa by the alternate filling and emptying of said flowable means into and from said hourglass compartments.

4,332,097

DRUM MAGAZINE FOR AUTOMATIC PISTOL OR THE LIKE

William J. Taylor, Jr., 828 Sycamore Dr., Decatur, Ga. 30030

Filed Oct. 1, 1979, Ser. No. 80,709
Int. Cl.³ F41C *25/10*
U.S. Cl. 42—50 9 Claims



1. Drum magazine apparatus for supplying cartridges to a firearm, comprising:

means defining a cylindrical housing;

a rotor concentrically mounted within said housing to define an annular channel for receiving a plurality of cartridges;

extension means connected to said housing and defining a cartridge feeding channel in communication with said annular channel, said extension means being configured to fit within a magazine receptacle of a firearm so as to define a path of cartridge movement from said annular channel to the firearm;

guide means located adjacent the communication between said annular channel and said extension means to guide cartridges moving from said annular channel to said cartridge feeding channel;

a pair of covers disposed on respective ends of said cylindrical housing to enclose said housing;

said rotor having means defining an inwardly facing surface in proximate relation to said covers; and

each of said covers including means operative to slidingly fit within said inwardly facing surface of said rotor so as to position said rotor in predetermined location within said cylindrical housing.

4,332,098

ELECTRIC CONTROL WEAPON, OPERATION AND AMMUNITION THEREFOR

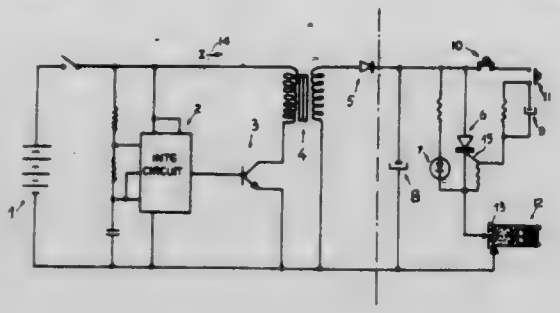
Serge Estenevy, Saint Just-Saint Rambert, France, assignor to Centre Stephanois de Recherches Mecaniques Hydromecanique et Frottement, France

Filed Aug. 13, 1979, Ser. No. 66,057

Claims priority, application France, Aug. 11, 1978, 78 24227; Jun. 28, 1979, 79 17409

Int. Cl.[3] F41C *19/12;* F42B *5/08*

U.S. Cl. 42—84 29 Claims



1. An electrically controlled weapon having at least one barrel comprising:

a cartridge receivable in the barrel, said cartridge having a powder charge and a resistive element disposed proximate said powder charge;

generator means for generating a high voltage DC current;

at least one capacitor charged by said high voltage DC current;

an electronic switch connected between said capacitor and the resistive element of said cartridge; and

a mechanical switch for generating an electrical signal activating said electronic switch to discharge said at least one capacitor through said resistive element, volatilizing said resistive element and igniting said powder charge.

4,332,099

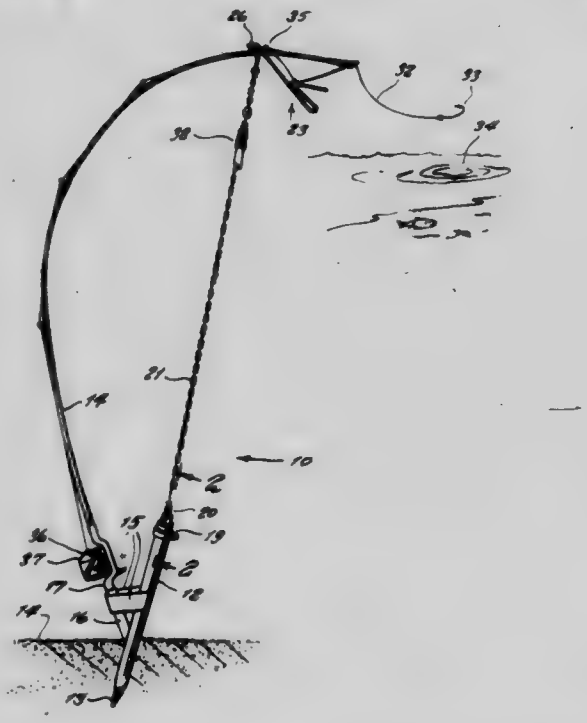
CAT CATCHER (FISHING DEVICE)

Enoch W. Morehead, 600 Robinson Ter., Texarkana, Tex. 75501

Filed Sep. 2, 1980, Ser. No. 183,082

Int. Cl.[3] A01K *91/06*

U.S. Cl. 43—15 1 Claim



1. A cat catcher fishing device, comprising, in combination, a tubular post, a lower end of said post being flattened for easy insertion into the ground, a holder for a fishing rod handle being angularly secured to a side of said post by means of braces therebetween, a plug-like core inserted in the top of said post, a hose-type clamp around said post securing said core inside said post, a tethering line secured at its one end to said core, and a triggering device attached to an opposite end of said tethering line; said triggering device comprising a stiff wire bent into a straight first leg and a straight second leg at right angles to each other, a loop on an outer end of said first leg for securement to said tethering line; a double U-shaped bend at a junction of said legs forming a relatively short extension and offset of said second leg; a one hundred and eighty degree bend at an opposite outer end of said second leg, and a short terminal leg formed at an end of said outer bend being generally parallel to said second leg, a terminal spur formed on an end of said terminal leg extending angularly therefrom.

4,332,100

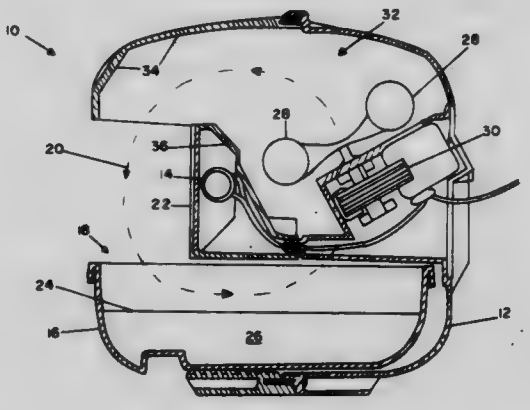
FLYING INSECT TRAP

William A. Schneider, Lancaster, Pa., assignor to Pestolite, Inc., Lancaster, Pa.

Continuation of Ser. No. 76,735, Sep. 18, 1979, abandoned. This application Jan. 28, 1981, Ser. No. 229,723

Int. Cl.[3] A01M *1/08*

U.S. Cl. 43—113 9 Claims



1. A trap for flying insects comprising:

a frame;

a radiation source of tubular cylindrical configuration mounted within and held by the frame in an orientation such that the axis of the radiation source is essentially horizontal;

air circulating means attached to and mounted within the frame and oriented so that all of the air flowing into it is moved across the surface of a liquid contained within a reservoir within the frame prior to entry into the air circulating means, to remove particulate matter from the air;

air flow directing means attached within the frame and shaped to direct an air flow generated by the air circulating means in a recirculating non-turbulent flow pattern within the frame and around the radiation source so that the flow pattern approximates a horizontal cylinder coaxial to the radiation source;

said reservoir having a dimension parallel to the axis of the radiation source which approximates the axial length of the radiation source, removably mounted within the frame so that the top of the reservoir is located in proximity to and tangent with the lowest portion of the air flow path; and

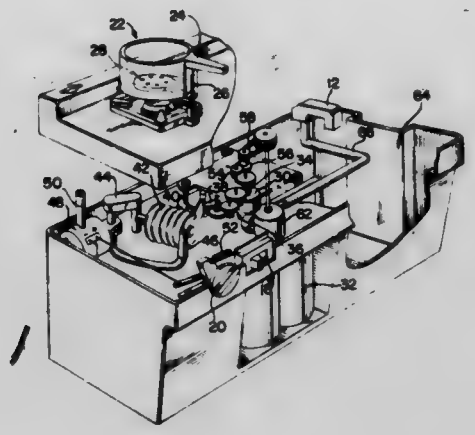
said liquid contained in the reservoir to trap insects diverted onto the liquid surface by the air flow generated by the air circulating means.

4,332,101

TOY KITCHEN ASSEMBLY

Tohru Tomita, Tokyo, Japan, assignor to Takara Co., Ltd., Tokyo, Japan

Filed Jan. 26, 1981, Ser. No. 228,478
Claims priority, application Japan, Jan. 30, 1980, 55-10080
Int. Cl.[3] A63H *33/28, 3/52*
U.S. Cl. 46—9 22 Claims



1. A toy stove assembly capable of simulating the cooking of food comprising:

a housing member configured to simulate a stove and a kitchen sink;

first means in the housing member to simulate at least one area for placing a cooking vessel, said first means including means for introducing pressurized air into the cooking vessel to simulate boiling of a liquid substance in the cooking vessel;

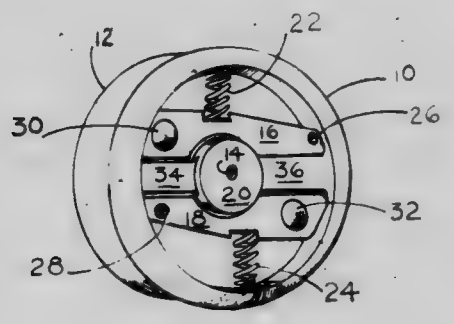
a member attached to the housing member and configured to simulate a faucet, and means in said housing for pumping a liquid such as water into the faucet simulating member wherefrom the liquid pours into the sink, the means for pumping also including means connected thereto in said housing for continuously circulating the liquid from the sink into the faucet.

4,332,102

SUPERIOR PERFORMANCE YO-YO

Michael S. Caffrey, 1801 S. Kevin Dr., Tucson, Ariz. 85710

Filed Oct. 27, 1980, Ser. No. 201,160
Int. Cl.[3] A63H *27/12*
U.S. Cl. 46—61 12 Claims



1. A superior performance yo-yo exhibiting an increased spinning time for performing tricks comprising:

a first and second spaced apart opposed complimentary circular disks;

an axle attached at opposite ends to said spaced apart disks, said axle transverse to said disks at their centers;

a bearing means situated around said axle between said disks;

a clutch mechanism operably attached to said second of said spaced apart disks, said clutch mechanism adapted to act upon said bearing means; and

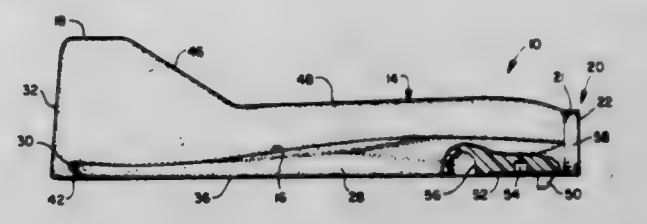
a string attached to said bearing means whereby when the yo-yo is thrown, it tends to spin about the bearing at the end of the string.

4,332,103

MODEL AIRCRAFT GLIDER

Leon Shulman, Metuchen, N.J., assignor to Life-Like Products, Inc., Baltimore, Md.

Filed Jun. 27, 1980, Ser. No. 163,426
Int. Cl.[3] A63H *27/14*
U.S. Cl. 46—81 14 Claims



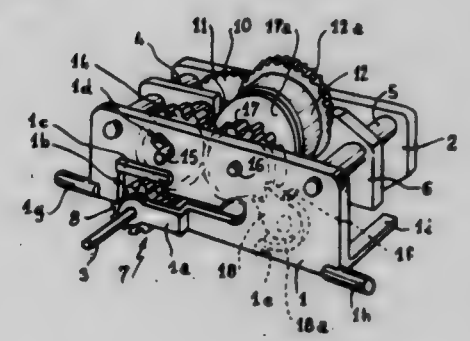
1. A model aircraft glider comprising a delta wing and a fuselage, the fuselage being centrally positioned on an upper surface of the wing and the fuselage and the wing being substantially of the same dimension longitudinally, the glider having a finger-receiving recess centrally located on its underside near the forward end of the fuselage, an impact-absorbing bumper attached to the forward end of the fuselage, the bumper having a substantially flat frontal portion, and having sides which extend beyond the forward end of the fuselage and the wing, the sides providing grasping surfaces, said surfaces and said recess being positioned sufficiently closely to each other to provide means for gripping the glider for hand launching.

4,332,104

CLOCKWORK MOTORS FOR TOY VEHICLES

Jean-Louis Ribas, Saint Priest, and Jean-Paul Raharinosy, Caluire, both of France, assignors to Societe Anonyme "Majorette", Caluire, France

Filed Jan. 30, 1980, Ser. No. 116,725
Int. Cl.[3] A63H *17/00*
U.S. Cl. 46—206 11 Claims



1. A clockwork motor for driving a toy vehicle having axle supported drive wheels for rolling on a surface, comprising:

(a) a frame including a pair of spaced side members, the axle passing transversely therethrough and being journaled in a first one of said side members and resiliently supported in the second of said side members so that when the vehicle is pressed toward said surface the second end of the axle can be displaced upwardly in said second side member;

(b) first and second gears fixed on the axle;

(c) a casing journaled for rotation on a shaft extending between said side members, and a gear train connected between said first axle gear and said casing for transmitting rotational drive therebetween;

(d) a wind-up wheel having teeth therearound, the wheel being journaled on said shaft and having a hub entering said casing;

(e) a spiral spring in said casing and coupled at opposite ends respectively with said casing and with said hub of the wind-up wheel;

(f) means for limiting rotation of the wind-up wheel to dis-

placement in a direction which winds the spring tighter; and

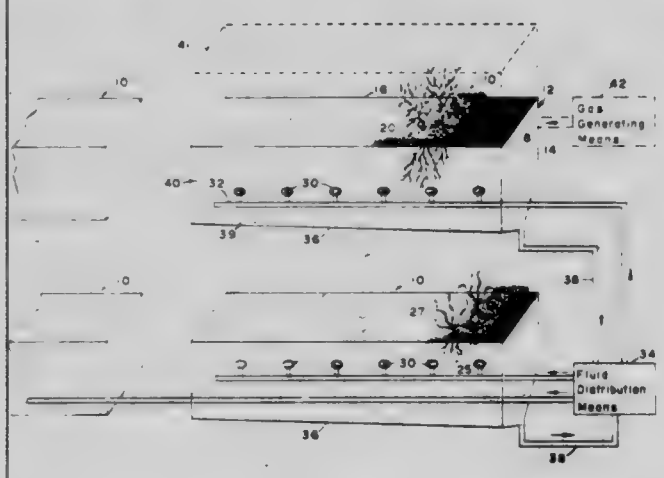
(g) pinion means having pivots supported by the frame and shiftable toward and away from the wind-up wheel, the pinion means being engaged by the second axle gear when the vehicle is pressed toward the surface and being moved into engagement with the wind-up wheel teeth when the vehicle is rolled in the forward direction but retracted therefrom when the vehicle is rolled backward.

4,332,105

APPARATUS AND METHOD FOR PLANT GROWTH IN AEROPONIC CONDITIONS

Isaac Nir, Mazkeret Batya, Israel, assignor to ADI-Aeroponics Growth Ltd.

Continuation-in-part of Ser. No. 814,980, Jul. 12, 1977, abandoned. This application Oct. 10, 1978, Ser. No. 950,261
Claims priority, application Israel, Jul. 26, 1976, 50126; Oct. 10, 1977, 53084
Int. Cl.³ A01G *11/00, 27/00, 31/00*
U.S. Cl. 47—1 R **4 Claims**



1. Apparatus for growth and development of plants comprising at least one plant development unit including:

an enclosure for enclosing the root portions of plants including substantially humidity retaining side and bottom walls;

a plant support member defining a generally flat top surface of said enclosure and including a layer of web material having apertures formed therein to receive plants above the root portions thereof without the provision of an intermediate element which surrounds a portion of the plant;

said plant support member being characterized in that it exposes substantially all of the root portions of the plants to the atmosphere contained within said enclosure;

nutrient spraying means for providing a nutrient mist enclosure, said nutrient comprising water and dissolved nitrogen and potassium fertilizers;

nutrient collection and recirculation means defined in part by a bottom surface of said enclosure;

control means for determining the timing of mist provision;

environmental sensor means for determining conditions affecting plant transpiration including temperature and humidity inside said enclosure;

means for heating said nutrient; and

control means for determining the timing of mist provision, said control means being responsive to the outputs of said environmental sensor means indicating temperature and humidity for maintaining a desired temperature and humidity within said enclosure;

wherein said spraying means comprises a centrally powered pneumatic system which draws liquid nutrient by venturi action; and

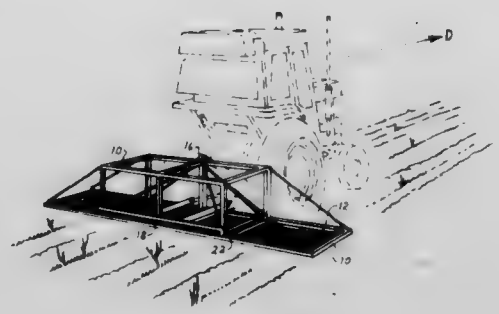
wherein the nutrient collection and recirculation means of each plant development unit is isolated from each other plant development unit.

4,332,106

WET ROPE WEED KILLER

Joseph J. Barton, IV, and Bobby G. Boyd, both of Box 341, Hale Center, Tex. 79041

Filed Oct. 16, 1978, Ser. No. 951,448
Int. Cl.³ A01N *5/00*
U.S. Cl. 47—1.5 **10 Claims**



1. In a wet rope applicator for applying herbicides to weeds comprising in combination:

a. a reservoir of liquid herbicide,

b. a pair of spaced apart tubes below the reservoir fluidly connected to the reservoir,

c. support means for supporting the reservoir,

d. a loose woven synthetic rope having two ends with one end in one tube and the other end in the other tube,

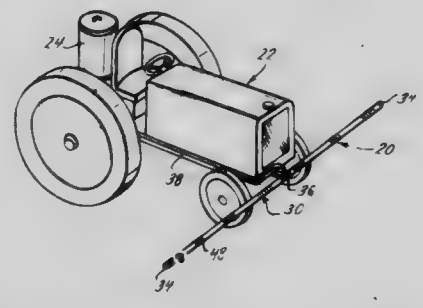
e. so that liquid herbicide is pressure fed into each end of the rope.

4,332,107

WIPER BAR SYSTEM

Roger W. Reed, Rte. 5, Hillsboro, Mo. 63050

Continuation-in-part of Ser. No. 83,603, Oct. 11, 1979, abandoned. This application Sep. 4, 1980, Ser. No. 184,125
Int. Cl.³ A01M *21/00*
U.S. Cl. 47—1.5 **16 Claims**



1. A wiper bar for applying a liquid to a stand of vegetation in a field, said wiper bar comprising an elongated tube, means for feeding liquid outwardly through a portion of the tube, a wick means wrapped at least partially around the a portion of the tube to receive the liquid fed outwardly through the tube, a shield wrapped at least partially around the lower portion of the wick means and positioned directly outwardly from said wick means so that the wick extends from between the shield and the tube, and an absorbent covering wrapped at least partially around the shield and covering at least a portion of the wick extending from between the shield and tube.

4,332,108

COLLAPSIBLE REVOLVING DOOR

Horst Appelmann, Pickering, Canada, assignor to C. J. Rush Limited, Scarborough, Canada

Filed Dec. 3, 1979, Ser. No. 99,809
Int. Cl.³ E05D *15/02*
U.S. Cl. 49—44 **11 Claims**

1. A collapsible revolving door comprising:

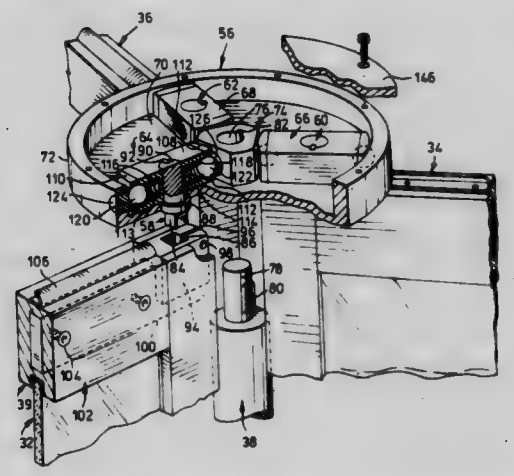
a plurality of door leaves normally extending radially outwardly from a generally vertical axis in angularly spaced positions;

upper and lower bearing means mounting the leaves in a doorway for rotation about said axis; and,

upper and lower latching mechanisms interposed between said leaves and the respective bearing means and adapted to normally maintain the leaves in said radial positions but to permit pivotal movement of each leaf about a generally vertical axis disposed adjacent the inner end of the leaf, between said normal radial position and a collapsed position in the event that the leaf is subjected to abnormal forces;

each said latching mechanism comprising:

a housing coupled to the relevant one of said bearing means for rotation about said axis; a plurality of coupling pins each coupling one of said leaves to said housing, each said pin being mounted to turn in the housing about the pivot axis of the associated leaf while being restrained against



movement laterally of said leaf pivot axis; a plurality of latch members disposed in said housing and each coupled to one of said coupling pins so that pivotal movement of the leaf between its normal radial position and said collapsed position causes concomitant pivotal movement of the associated latch member; each latch member being coupled at a position generally centrally of its length to the associated coupling pin whereby respective end portions of each latch member are defined on opposite sides of said pin and detent means acting between each said end portion of each latch member and the housing, said detent means being adapted to retain said latch members in said normal positions but to permit release of any latch member in the event that abnormally high forces are applied to the associated leaf so that the leaf can move to its collapsed position.

4,332,109

GRINDING APPARATUS FOR A FLANK OF AN END MILL POINT

Toshiaki Hosoi, 9-10-5, Kamiminami, Hirano-ku, Osaka, 546, Japan

PCT No. PCT/JP79/00198, § 371 Date Apr. 4, 1980, § 102(e) Date Jan. 16, 1980, PCT Pub. No. WO80/00323, PCT Pub. Date Mar. 6, 1980

PCT Filed Jul. 27, 1979, Ser. No. 196,045

Claims priority, application Japan, Aug. 4, 1978, 53/95753

Int. Cl.³ B24B *19/00*

U.S. Cl. 51—127 **1 Claim**

1. A grinding apparatus for a flank of an end mill point comprising:

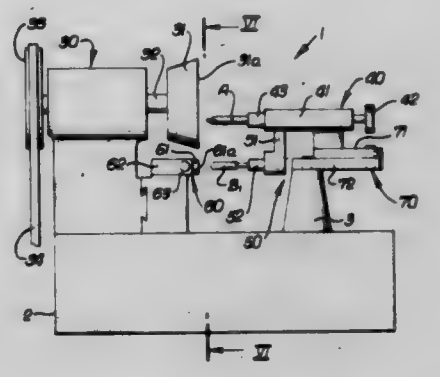
a grinding means having a grinding wheel which has a grinding face;

a model guide having a guide face flush with the grinding face of the grinding wheel and provided subjacent the grinding face of the grinding wheel;

a cutter support for supporting an end mill cutter horizontally in a support housing;

a model support for holding a model, said model support comprising a cylindrical arm hanging from the support housing of the cutter support at substantially the same height as the model guide such that an axial line of the model is located parallel with the axial line of the cutter and the model contacts with the model guide when the cutter contacts with the grind face of the grinding wheel;

a shift means for shifting the cutter support and the model support together toward the grinding wheel and for rotating the cutter and model support together through an angle substantially equal to 90° from a position substantially perpendicular to said grinding face to a position substantially parallel to said grinding face; and



a model is provided in said model support in a same positional relationship as said and mill cutter, said model comprising a cylindrical body having a spherical point hving a same outer peripheral surface as a rotary contour outline of a cutter to be ground in the required position and a groove provided on an outer periphery surface such that a model line is formed corresponding to the required cutting edge of the cutter.

4,332,110

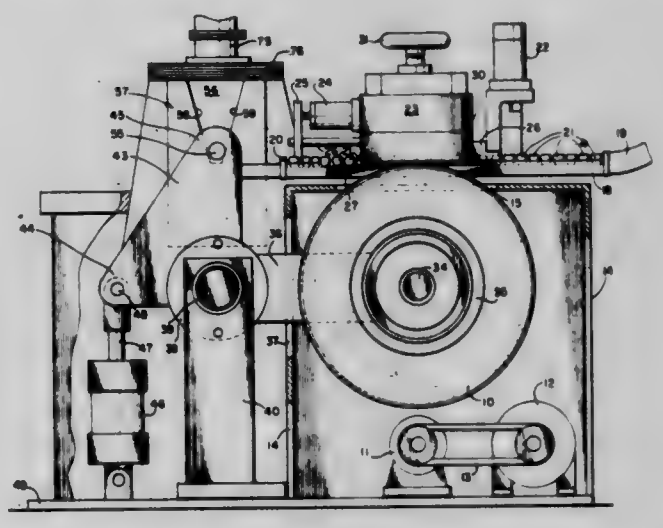
AUTOMATICALLY ADJUSTABLE GRINDING WHEEL

Donald E. Flinchbaugh, deceased, late of York, Pa. (by Anna M. Flinchbaugh, executrix), assignor to Weldon Hydraulics, Inc., York, Pa.

Filed May 5, 1980, Ser. No. 146,490

Int. Cl.³ B24B *49/00*

U.S. Cl. 51—165.78 **9 Claims**



1. In a grinding machine having workpiece retaining means, a rotatable grinding wheel, wheel support means for disposing the periphery of the grinding wheel in workpiece grinding position relative to the retaining means and grinding wheel dressing means, means for dressing the grinding wheel during operation of the grinding machine comprising

(a) a pivotal support having a distal end rotatably supporting the grinding wheel,

(b) actuating means connected to the support and operable to pivot the support to retract the grinding wheel to dressing position relative to the dressing means and to return the grinding wheel to workpiece grinding position,

(c) a cam disposed adjacent the pivotal support, said cam

having a V-shaped notch defined by a pair of opposing and converging cam surfaces,

(d) a stop affixed to the pivotal support for limiting both the extent to which the grinding wheel is retracted to dressing position and the extent of return of the grinding wheel to workpiece grinding position, said stop being oscillatable within the cam notch when the support is pivoted, the amplitude of oscillation of the stop being limited by the opposing cam surfaces, and

(e) cam actuating means connected to the cam and operable to adjust the location of the V-shaped cam notch relative to the stop to increase progressively the amplitude of oscillation of the stop within the notch and thereby increase incrementally the extent of each retraction of the grinding wheel to dressing position while increasing incrementally the extent of return of the grinding wheel to workpiece grinding position in proportion to the reduction of the periphery of the wheel by the dressing means.

4,332,111

FIREPROOF WINDOWPANE AND MOUNTING FRAME THEREFOR

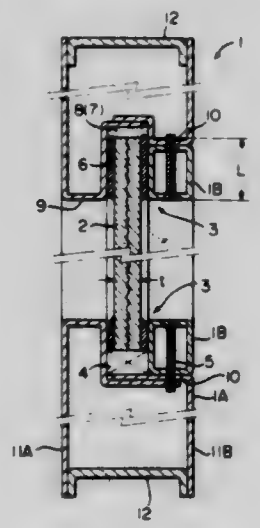
Kenzi Terashima, Nishinomiya, Japan, assignor to Nippon Sheet Glass Co., Ltd., Osaka, Japan

Filed Mar. 5, 1980, Ser. No. 127,520

Claims priority, application Japan, Mar. 9, 1979, 54-30082[U]; Mar. 10, 1979, 54-31158[U]

Int. Cl.³ E04H 9/00; E06B 7/12

U.S. Cl. 52—1 **7 Claims**



1. A fireproof windowpane containing structure comprising:

a metallic wire-containing glass plate;

a metal mounting frame means having a main body extending around and defining an opening to be covered by said glass plate, said main body having a surface facing into said opening, a groove defining projecting portion projecting from said surface into said opening around the entire periphery of said opening, an inwardly facing portion on said surface spaced in the direction of the thickness of said frame means from said projecting portion, at least the portion of said surface along the portion of said frame means which is to be at the top of the frame when the structure is in use having a recess therein between said projecting portion and said inwardly facing portion, and a groove defining member on said inwardly facing portion extending inwardly into said opening from said surface and having the inner end flush with the inner end of said projecting portion, said groove defining member, inwardly projecting portion and said recess defining a groove;

said glass plate being mounted in said frame means with the edges of said glass plate extending into said groove, at least the part of the edge of the glass plate which is to be at the top of the frame means when the structure is in use extending into said groove a distance at least 1.6 times the thickness of the glass plate; and

an incombustible filler material between at least the surfaces along the edge of the glass plate and the surfaces of said groove defining member and said projecting portion defining groove.

4,332,112

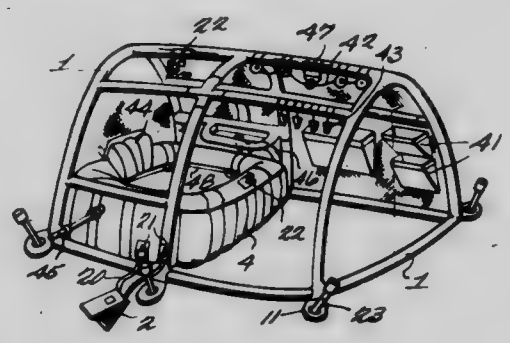
MULTIPURPOSE AIR FILLING TENT

Yun T. Hsu, 3rd Fl., No. 4, Nong 6, La. 906, Min Sheng E. Rd., Taipei, Taiwan

Filed Mar. 14, 1980, Ser. No. 130,339

Int. Cl.³ E04B 1/34

U.S. Cl. 52—2 **3 Claims**



1. A tent, comprising:

an air-post frame having a plurality of substantially vertically oriented portions and a plurality of substantially horizontally oriented portions;

means for inflating and deflating said air-post frame;

a tent surface integrally formed with said air-post frame;

an air mattress bed integrally formed with said air-post frame and having an extended periphery and wave-shaped bottom for isolating a sleeping surface thereof from rain water;

a storage bag formed integrally with an interior portion of the tent surface;

a zipper-closure closet formed in an inner wall space of the interior of said tent surface including a garment rack rope hung on at least one horizontally oriented portion of said air-post superstructure;

a storage shelf integrally formed with said air-post frame;

a zipper-closure tent door formed in a portion of said tent surface; and

a canopy, integrally formed with said tent surface and said air-post frame, sheltering an area immediately outside said tent at said tent door.

4,332,113

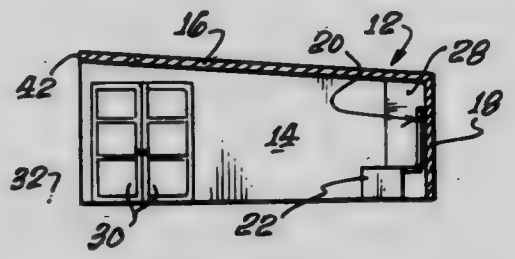
VIDEO ROOM

Leslie T. Moore, 22749 Happy Hollow Rd., Diamond Bar, Calif. 91765

Filed Feb. 29, 1980, Ser. No. 126,038

Int. Cl.³ E04H 3/22

U.S. Cl. 52—6 **4 Claims**



1. A video room addition structure comprising two vertically oriented side walls each tapering in elevation correspondingly, and placed such that they approach each other in horizontal separation as their elevation decreases; an end wall, of rectangular shape, vertically oriented, enclosing the narrow,

lowest elevation ends of the said side walls, and rigidly affixed to each of said side walls; a planar roof, supported by trusses spanning the area between the side walls; and an integrally combined large screen projection television system, such that the components thereof are built into the structure, with the viewing screen placed as part of the interior of the said end wall; the entire structure being constructed in place and rigidly affixed to an existing residential structure, with appropriate ingress and egress, and utilities interconnections provided as necessary.

4,332,114

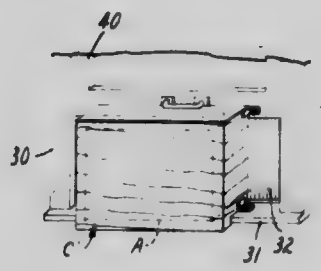
COVER

Virgil E. Goebel, Hutchinson, and Raymond R. Dreier, Glencoe, both of Minn.

Continuation of Ser. No. 12,957, Feb. 16, 1979, abandoned. This application Jun. 9, 1980, Ser. No. 157,362

Int. Cl.[3] **A47B** *47/04;* **A47H** *33/00*

U.S. Cl. 52—36 **28 Claims**



1. A cover for wall mounted air conditioners and the like comprising first wall means,

said first wall means having a peripheral edge,

and second wall means attached to said first wall means adjacent said peripheral edge and extending therefrom in non-parallel relationship therewith, and wherein said first wall means is a first wall unit rectangular in plan view,

said second wall means comprising a second wall unit connected with each edge of said first wall unit,

said second wall units also being rectangular in plan view,

each of said wall units comprising spaced apart wall panels,

insulating material between said wall panels,

a sheet of flexible material attached to one side of said first and second wall units and forming a flexible joint therebetween,

said second wall units being adapted to move relative to said first wall unit from a co-planar position therewith to a substantially perpendicular position with respect thereto,

means for holding said second wall units in said perpendicular position,

and wherein the contiguous ends of said second wall units mate together in a mitered joint and adhesive means are applied to the mitered surfaces to hold said second wall units against movement,

and including weatherstripping applied to the outer peripheral edges of said second wall units,

and wherein said flexible sheet is a plastic material having a wood grain appearance,

and including a clip for mounting said cover on supporting structure, said clip including pointed means for penetrating said wall means and thereby fastening said clip to said wall means, said clip also including an opening for receiving a fastener adapted to fasten said clip to said supporting structure, and

wherein said clip includes a first body portion adapted to be placed against said supporting structure,

said opening comprising a slot extending inwardly from an edge of said first body portion,

a second body portion extending from said first body portion at substantially right angles thereto,

said pointed means extending at substantially right angles to said second body portion and substantially parallel to said first body portion, and

wherein said pointed means comprising a pair of elements which have pointed distal ends and which are substantially semi-circular in cross-section, and

wherein said wall panels are formed of wood, and

wherein said insulating means is a styrofoam material, and

wherein said flexible material is vinyl, and

wherein said weather stripping means is an elongate strip attached to the exterior peripheral edge of said second wall means and effectively forming an extension thereof, said strip being adapted to directly engage a wall surface and seal the interior of said cover, and

wherein said weather stripping is a resilient foam material.

4,332,115

FOLDING CARAVAN

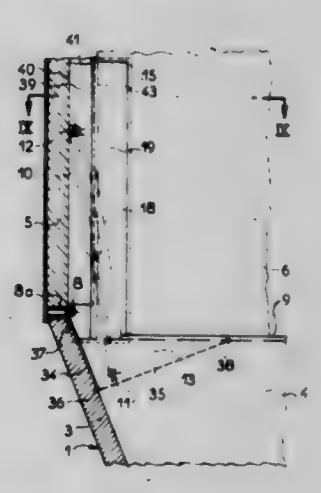
Michel Dufrancatel, Bois Guillaume, France, assignor to Societe Anonyme: Esterel Caravanes, Le Houlme, France

Filed Nov. 28, 1979, Ser. No. 97,990

Claims priority, application France, Nov. 28, 1978, 78 33584; May 15, 1979, 79 12273

Int. Cl.[3] **E04B** *1/346*

U.S. Cl. 52—66 **14 Claims**



1. Folding rigid caravan with assisted erection comprising a base carried by a chassis defined by a floor and four lower panels, each having an upper horizontal edge, two upper end panels and two upper side wall panels pivotal about horizontal axes and disposed respectively, either substantially horizontally within the upper opening of the base or substantially vertically as extensions of the corresponding lower panel when the caravan is folded or erected, each upper panel having a thickness, side edges, and two faces defining said thickness, a roof resting horizontally either on the base, or on the upper panels respectively when the caravan is folded or fully erected, movaly associated with the upper panels by rollers engaging in guideways; at least one unidirectional extensible erecting element, each connected to the base and to an upper panel to urge said upper panel to pivot permanently in the caravan unfolding direction, characterized by the fact that each erecting element is disposed permanently at least partly within the thickness of the panels defining the caravan, concealed from the outside and inside, each erecting element in the erected condition being within a space defined by an upper horizontal edge of a lower panel, a side edge of the upper panel perpendicular to the lower panel and the two faces of the upper panel parallel to the lower panel when the caravan is erected.

4,332,116

PREFABRICATED BUILDING STRUCTURE

Howard A. Buchanan, 1014 Dent La., Cumberland, Md. 21502

Filed May 12, 1980, Ser. No. 148,592

Int. Cl.[3] **E04B** *7/00, 1/343*

U.S. Cl. 52—82 **3 Claims**

1. A building structure formed from prefabricated building components, the plan view of which is a polygon having

a central support column;

a plurality of floor components with each floor component having the shape of an isosceles triangle, and wherein each floor component is fastened to the center support column at the point where the two equal sides of the isosceles triangle are joined, and wherein the floor components are sequentially assembled and fastened to said center support columm, the sum of the angles incorporated between the two equal sides of each isosceles triangle of the assembled floor components totaling 360°;

a plurality of roof components with each roof component having the shape of an isosceles triangle, and wherein each roof component is fastened to the center support column at the point where the two equal sides of the isosceles triangle are joined, and wherein the roof components are sequentially assembled and fastened to said center support column, the sum of the angles incorporated between the two equal sides of each isosceles triangle of the assembled roof components totaling 360°;

a plurality of vertically adjustable columns supporting and connecting said floor components at the perimeter of the polygon;

wherein the improvement comprises:

a. said triangle-shaped floor components are each formed from two wood stringers of equal lengths joined together at one end and having at least one cross joist;

b. said triangle-shaped roof components are each formed from two wood stringers of equal lengths joined together at one end and having at least one cross joist;



c. said wood stringers each have a notched end so that a slot is formed at the point of each triangle-shaped component where said stringers are joined;

d. said wood stringers are gained;

e. each triangle-shaped floor component and each triangle-shaped roof component have a steel plate with a single aperture, said steel plate positioned between said two gained wood stringers;

f. said central support column has a first support plate welded thereto and a first vertical flange projecting from said first support plate and circularly disposed about said central support column, said first vertical flange having a plurality of evenly spaced apertures along the circumference of said flange;

g. said central support column has a second support plate welded thereto and a second vertical flange projecting from said second support plate and circularly disposed about said central support column, said second vertical flange having a plurality of evenly spaced apertures along the circumference of said flange;

h. said triangle-shaped floor components are supported by and integrally fastened to said first support plate by means of a bolt positioned through the single aperture in said steel plate and through the slot formed by said joined stringers and through one of the plurality of apertures in said first vertical flange; and

said triangle-shaped roof components are supported by means of a bolt positioned through the single aperture in said steel plate and through the slot formed by said joined stringers and through one of the plurality of apertures in said second vertical flange.

4,332,117

VERGE AND SOAKER SYSTEMS

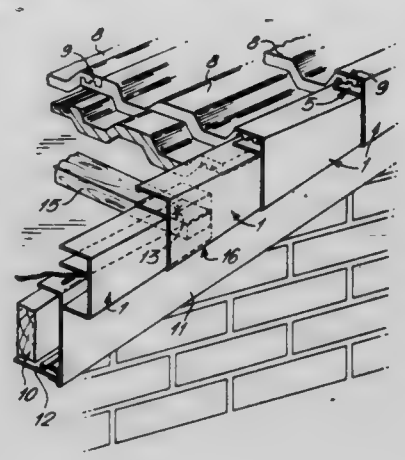
Geoffrey C. Quinnell, Pembury, England, assignor to Marley Tile A.G., Zug, Switzerland

Continuation of Ser. No. 955,756, Oct. 30, 1978, abandoned. This application Oct. 29, 1979, Ser. No. 89,233

Claims priority, application United Kingdom, Oct. 31, 1977, 45245/77

Int. Cl.³ E04D *13/15*

U.S. Cl. 52—94 **12 Claims**



1. A pitched roof having a plurality of longitudinally overlapping individual roofing units, each of which has interlocking regions extending adjacent both lateral edges thereof, the roofing units over the major part of the roof being laterally interlocked along both edges by means of said interlocking regions, and there being a part of said roof where a longitudinal row of roofing units have one edge interlocked with laterally adjacent units and one free edge, the free edges being capped by a plurality of overlapping individual capping members each provided with a channel capping the upper and lower faces of a respective roofing unit, the channel being defined between a pair of short rigid flanges which extend only over the unused interlocking region adjacent the free edge of the respective roofing unit.

4,332,118

METHOD AND SUPPORT FOR ANGULARLY ADJUSTING A BUILDING ELEMENT

Stefan Westberg, Växjö, Sweden, assignor to A-Betong AB, Växjö, Sweden

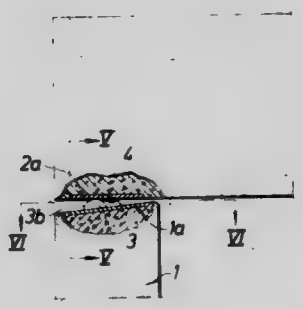
PCT No. PCT/SE79/00177, § 371 Date Apr. 29, 1980, § 102(e) Date Apr. 8, 1980, PCT Pub. No. WO80/00464, PCT Pub. Date Mar. 20, 1980

PCT Filed Aug. 28, 1979, Ser. No. 193,576

Claims priority, application Sweden, Aug. 29, 1978, 7809101

Int. Cl.³ E04B *1/00*

U.S. Cl. 52—263 **10 Claims**



1. A method of angularly adjusting a building element on a support element, such as a beam on a pillar, there being inserted between said elements an insert through which pressure from the building element is transmitted to the support element via an upper surface in engagement with a lower support surface on the building element and a lower surface in engage-

ment with an upper support surface on the support element, comprising; forming the upper and lower support surfaces and the upper and lower engagement surfaces so that at the location of use:

(a) two of the surfaces are planar and mutually parallel;

(b) one surface is planar but not parallel with the surfaces recited in (a); and

(c) one surface is a curved surface which is generated by a straight line and which is brought into abutment with the non-parallel planar surface; and

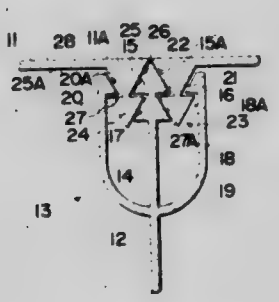
rotating the insert about an axis extending perpendicularly to one of the planar surfaces so that the desired angular position of the building element to the support element is obtained through line abutment of the curved surface with an adjacent planar surface.

4,332,119

WALL OR PANEL CONNECTOR AND PANELS THEREFOR

Norman J. Toews, Box 220, Steinbach, Manitoba, Canada

Filed Mar. 3, 1980, Ser. No. 126,641
Claims priority, application Canada, Mar. 5, 1979, 332762
Int. Cl.[3] E04B *2/00*
U.S. Cl. 52—772 11 Claims



1. Connector means for securing adjacent panels together in spaced apart relationship in which said panels are substantially rectangular and are provided with web engaging means along a pair of opposing edges; said connector web comprising in combination a panel edge engaging claw assembly on each end of said web, the web engaging means on the associated panel snap engaging within said claw assembly, and a web extending between said panel edge engaging claw assemblies, said claw assembly including a central jaw portion and an outer jaw portion situated on each side of said central portion, at least said outer jaw portions being resilient whereby said outer jaw portions are normally urged towards said central jaw portion.

4,332,120

NUCLEAR FUEL PELLET LOADING APPARATUS

John Haynes, and Thomas B. Huggins, Sr., both of Columbia, S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 5, 1980, Ser. No. 127,271
Int. Cl.[3] B65B *5/10, 3/28*
U.S. Cl. 53—245 1 Claim

1. Pellet loading apparatus comprising:

a stationary base supporting a housing having a container therein arranged to receive nuclear fuel pellets from a pellet discharge mechanism;

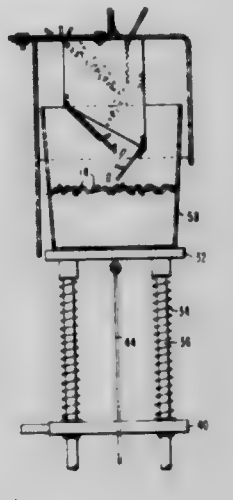
a chute attached to the upper part of said housing, the inlet to said chute being positioned immediately beneath an opening which discharges pellets from the pellet discharge mechanism into the chute inlet, said chute defining a gravity feed flow path consisting of vertically disposed zig-zag plates extending from the chute inlet to its outlet;

a mechanism positioned below said chute to receive pellets discharged from the chute outlet;

said mechanism including the stationary base which supports the housing;

multiple guide arms extending vertically through said stationary base and terminating at their upper ends in a horizontal disposed platform, said arms being mounted for sliding movement vertically in said base, and biasing springs on each of said arms between the base and platform for constantly biasing the platform in an upward direction;

a removable pellet container adapted to be positioned on said platform, said container having a size and configuration such that it encloses substantially the complete chute when empty and biased to an uppermost position, and stops on said arms which limit platform movement upwardly;



said springs having constants such that when the container is placed on the platform and gradually loaded with pellets, pellet weight therein causes the springs to gradually compress and thus always maintain the level of pellets in the container at substantially the same distance beneath the outlet of said chute during the filling operation, to thereby limit the falling distance of pellets into the container; and

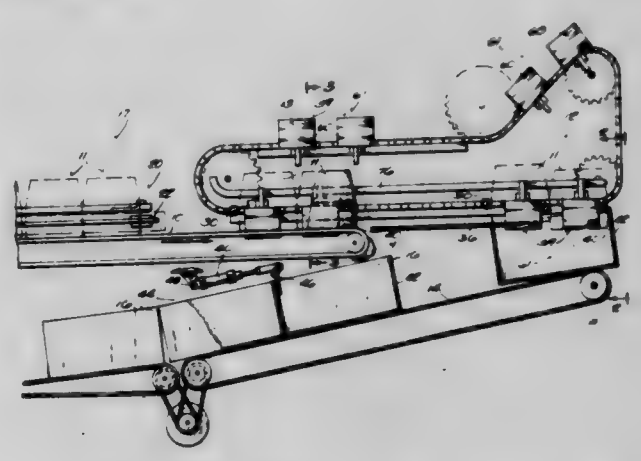
actuation means beneath said base connected with said platform for moving the platform vertically against the normal bias of said springs to permit placing and removing the container on said platform.

4,332,121

LOADING BLADES FOR PACKAGING APPARATUS

Biagio J. Nigrelli, Kiel, Wis., assignor to Nigrelli Corporation, Kiel, Wis.

Filed Jan. 16, 1980, Ser. No. 112,589
Int. Cl.[3] B65B *39/14, 5/04*
U.S. Cl. 53—251 3 Claims



1. In a case loader having an article conveyor and a case conveyor located beneath the article conveyor and in which the case conveyor path merges into the conveying path of the article conveyor from below, the improvement for guiding the articles into the cases comprising a plurality of article loading plates arranged in pairs, with one member of each pair located on opposite sides of the conveying path, means for supporting and moving the loading plates alongside the conveyed articles, and means for pivotally supporting said plates for movement laterally inwardly and outwardly with respect to the convey-

ing path about pivotal axes parallel to said conveying path and means for moving said guide plates between advanced and retracted positions with respect to the conveying path to enable the articles to move generally horizontally along the conveying path in between the retracted plates, with the loading plates engaging the sides of the cartons in the advanced position to guide the articles into the carton and in a retracted position, the plates being free of the articles, and wherein said means for supporting and moving said guide plates comprises spaced chains and brackets connected to the chains and said loading plates being pivotally connected to said brackets for movement about axes generally parallel with the axis of movement of the articles along the conveyor, and wherein said means for moving the guide plates between advanced and retracted positions includes arms pivotally connected to said brackets, spring means associated with said plates and said brackets to bias said plates against the articles, and cam rails on opposite sides of said conveying path and running generally parallel with said conveying path and engageable with said arms to displace the plates laterally outwardly against said spring bias when required to afford registry and interfitting of the plates with the articles therebetween and to release the articles from said plates.

4,332,122

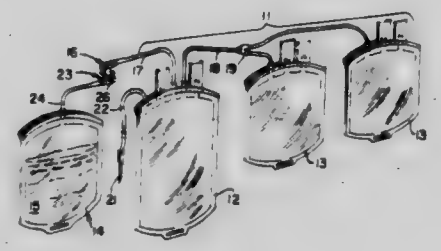
METHOD OF MAKING AND FILLING LIQUID-CONTAINING STERILE PACKAGES SUCH AS BLOOD BAGS

Ronald A. Williams, Mundelein, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Division of Ser. No. 927,342, Jul. 24, 1978, Pat. No. 4,223,675. This application Jun. 23, 1980, Ser. No. 161,975

Int. Cl.³ B65B *55/02*

U.S. Cl. 53—425 **11 Claims**



1. A method of preparing liquid-containing sterile packages comprising the steps of:

fabricating a package which has a normally empty fluid chamber and which can be effectively sterilized only by dry-sterilization techniques;

fabricating a dispensing container which has a normally empty fluid chamber and which can be effectively sterilized by wet-sterilization techniques;

sterilizing said package by a dry-sterilization technique with its fluid chamber empty;

introducing a liquid into the fluid chamber of said dispensing container;

sterilizing by a wet-sterilization technique said dispensing container and the liquid contained within its fluid chamber;

providing a sterile flow path between the fluid chambers of said wet-sterilized dispensing container and said dry-sterilized package;

transporting through said sterile flow path a premeasured unit of said sterilized liquid from out of the fluid chamber of said wet-sterilized dispensing container and into the fluid chamber of said dry-sterilized package;

sealing said sterile flow path; and

severing said wet-sterilized dispensing container from said now filled, dry-sterilized package.

4,332,123

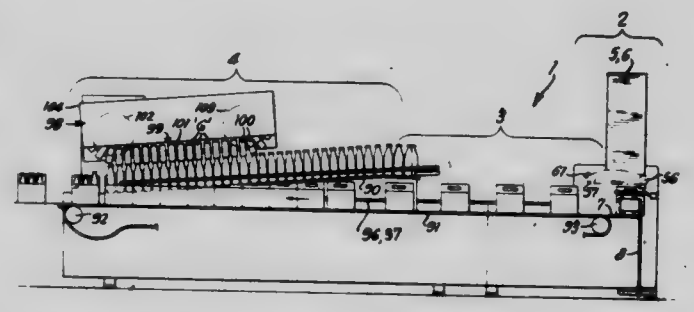
PACKAGING MACHINE AND METHOD

Rodney K. Calvert, Dunwoody, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Jun. 23, 1980, Ser. No. 161,799

Int. Cl.³ B65B *21/04, 21/12*

U.S. Cl. 53—475 **9 Claims**



1. A method of loading bottles into bottle carriers comprising continuously feeding a succession of bottles carried by a downwardly inclined suspension feed line through a loading zone and feeding a succession of bottle carriers by means of a substantially horizontal carrier feed line in the same direction through said loading zone and below the suspension feed line, timing the feed of both said lines such that each bottle arrives at a position directly above a carrier when the convergence of said feed lines has brought the bottle and carrier into close proximity, characterized by controlling the attitude of the bottle so that it enters the carrier at a finite angle with respect to the vertical by gripping the bottle adjacent its top by means of gripping elements provided by said suspension feed line and by engaging the bottle adjacent its heel by means of guide elements located intermediate said suspension feed line and said carrier feed line, and detaching the bottle from said suspension feed line in said loading zone so that the bottle is deposited in the carrier.

4,332,124

DEVICE FOR DELIVERING AND PACKAGING FOLDED BOXES RECEIVED FROM A FOLDER-GLUER

Jean-Philippe Jaton, Chapelle, Switzerland, assignor to Bobst, S.A., Switzerland

Filed May 14, 1980, Ser. No. 149,714

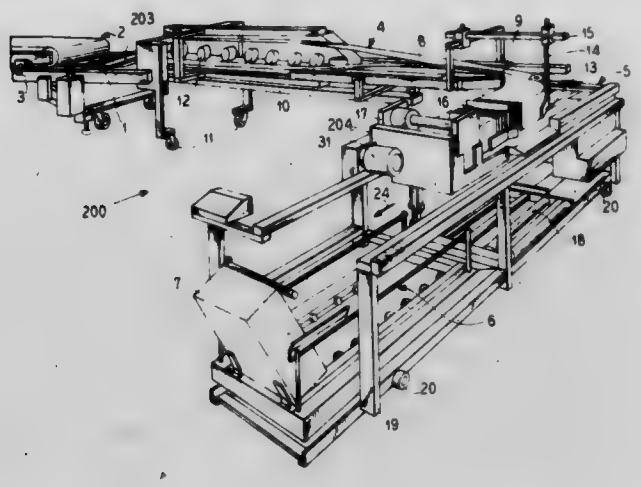
Claims priority, application Switzerland, May 18, 1979, 4633/79

Int. Cl.³ B65B *5/10*

U.S. Cl. 53—540 **12 Claims**

1. A device for delivering and packaging folded boxes which are folded and glued in a folder-gluer, said device comprising a frame, first means for conveying the folded boxes from the delivery station of the folder-gluer, said first means including a first helical conveyor receiving a flow of folded boxes in an overlapping shingled relationship from the delivery station and conveying said flow of boxes without changing any lateral position of the boxes in said flow; means mounted on said frame for converting the direction of movement of a flow to a stacked-like flow of boxes moving in a direction perpendicular to the plane of the folded boxes; second means for receiving the stack of moving boxes from the means for converting and conveying the stack in a direction extending transverse to the direction of flow of boxes in the first means, said second means including a second conveyor arranged in the frame to extend transverse to the first helical conveyor and from the means for converting, said second conveyor termination in means for filling the folded boxes into a packaging container and coact-

ing intermittently driven roll; means for introducing and conveying packaging containers comprising a roller conveyor, means mounting the roller conveyor in the frame beneath the second conveyor, said means for mounting enabling the roller conveyor to move both transverse and along the direction of



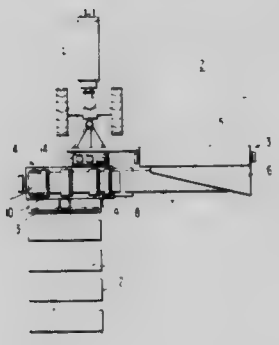
conveying of the second conveyor and vertically toward and away from the second conveyor; and means for removing the filled packaging containers comprising a second roller conveyor, means mounting said second roller conveyor in said frame for movement between a level position to a slant position to enable ejecting filled containers from the device by gravity.

4,332,125

APPARATUS AND METHOD FOR PRODUCING HIGHLY NUTRITIVE STORAGE STABLE FORAGE PLANT MATERIAL

Richard D. Holdren, 5384 Co. Rd. 1, West Liberty, Ohio 43357

Filed Aug. 19, 1980, Ser. No. 179,465
Int. Cl.³ A01D *61/00*
U.S. Cl. 56—1 **14 Claims**



1. A method of producing a highly nutritive, storage-stable forage plant material in mat configuration having a moisture content of 20% by weight or less and being readily recoverable from a field without substantial tearing or breaking, said method comprising the steps of:

(a) cutting standing forage crops at a point near the ground so as to provide freshly cut forage and to leave a stubble of cut stems on the field;

(b) fiberizing said freshly cut forage to produce fiberized forage in which fibers of the forage are exposed and at least partially separated, and substantially all of the cells of the forage are ruptured, to release and express natural juices from within the cells;

(c) subjecting said fiberized forage to pressure to further express natural juices therefrom, and to compress and compact said fiberized forage to cause said fibers to interlock and intertwine with each other to form a cohesive and shape-sustaining mat having a moisture content no greater than 75% by weight;

(d) collecting said natural juices expressed from said freshly cut forage to provide a reservoir of collected natural juices;

(e) separating said mat into cohesive and shape-sustaining mat sections and laying said mat sections sequentially onto said stubble so that said mat sections are supported off the ground by said stubble;

(f) applying at least a portion of said collected natural juices to an upper surface of each of said cohesive and shape-sustaining mat sections on the stubble to produce a treated mat section having a nutritive value substantially equivalent to that said freshly cut forage prior to expressing said natural juices, said applying of said natural juices to said upper surface of said cohesive and shape-sustaining mat sections facilitating ready moisture evaporation and rapid drying of said treated mat sections while on said stubble;

(g) exposing said treated mat sections to natural solar radiation and to the passage of air over both the upper and under sides of said treated mat sections sufficiently to dry said treated mat sections to a moisture content of 20% by weight or less, to produce dried mat sections which are cohesive and shape-sustaining and capable of being collected without substantial tearing or breaking; and

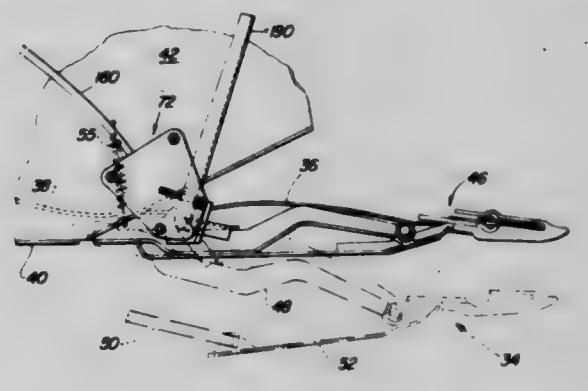
(h) collecting said dried mat sections from said stubble.

4,332,126

AUTOMATIC HEIGHT CONTROL FOR A HARVESTER HEADER

James M. Van Auwelaer, Coal Valley; Eugene B. Hutchinson, and Jerome A. Braet, both of East Moline, all of Ill., assignors to Deere & Company, Moline, Ill.

Filed Sep. 11, 1980, Ser. No. 186,073
Int. Cl.³ A01D *67/00*
U.S. Cl. 56—10.2 **25 Claims**



1. In a crop harvester having a mobile body with an operator station and a source of electrical power and carrying a transversely extending crop gatherer vertically adjustable relative to the body and including a frame and a plurality of field surface engaging feeler elements pivotally carried by the frame and power lift means including raise and lower portions responsive to an electrical signal and operative respectively to raise and lower the gatherer relative to the body, a gatherer height control system for cooperating with the power lift means and automatically maintaining the gatherer in a selected height range relative to the field surface comprising:

a sensor switch body supported in fixed relation to the gatherer frame and having a wall;

a plurality of switch contacts mounted on the wall including a common input contact connectable to the electric power source and a plurality of substantially side-by-side spaced output contacts;

a wiper arm mechanically coupled to the feeler elements for rotational movement responsive to the movement of at least one of the feeler elements relative to the frame and carrying a connecting brush assembly, the wiper arm being operatively associated with the switch body and disposed so that as the arm moves, the connecting brush assembly while maintaining continuous engagement with the common input contact, successively connects it electrically to one or more of the output contacts; and

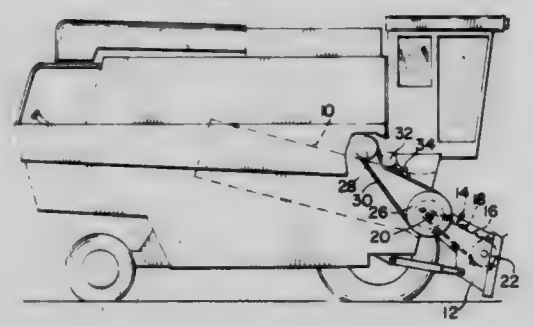
switching means for selectively making electrically connectable at least one first output contact to the raise portion of the power lift means so as to signal it to raise the gatherer and at least one second contact to the lower portion of the power lift means so as to signal it to lower the header so as to define an operating height set point corresponding to a predetermined position of the wiper arm relative to the sensor switch body and hence of at least one of the feeler elements to the gatherer frame and relationship of the gatherer to the field surface.

4,332,127

COMBINE FEEDER DRIVE CONTROL

Richard W. Staiert, Geneseo, and Eugene J. Krukow, Cordova, both of Ill., assignors to International Harvester Co., Chicago, Ill.

Filed Oct. 14, 1980, Ser. No. 196,993
Int. Cl.³ A01D *75/18*
U.S. Cl. 56—10.2 **7 Claims**



1. In a combine for harvesting and threshing a crop; comprising:

a feeder for feeding crop material into the combine, said feeder including a conveyor having a drive shaft;

a drive system for the feeder including a belt drive to said drive shaft and an idler pulley movable to engage or disengage power drive to said drive shaft;

means for moving said idler pulley between drive engaging and disengaging positions including a hydraulic cylinder operably connected to said idler pulley and a control valve for selectively actuating said cylinder;

and electronic control means for sensing the rotational speed of said drive shaft, comparing the rotational speed to a predetermined reference speed, and generating a signal to actuate said control valve when the rotational speed becomes less than said reference speed whereby power drive to the feeder is stopped to protect the feeder under extraordinary loads.

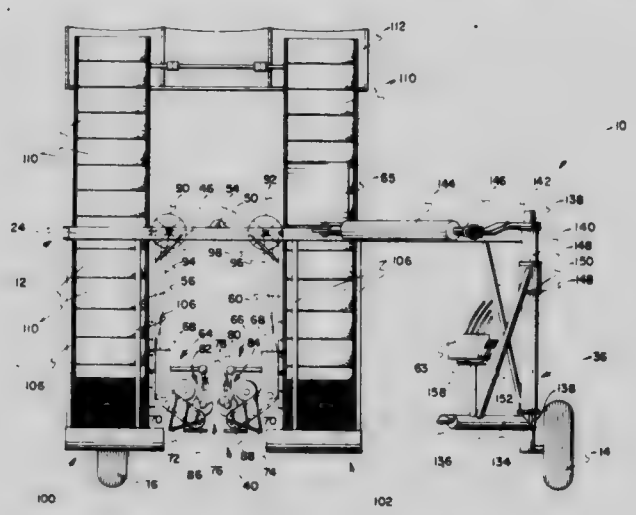
4,332,128

PULL TYPE AUTOMATIC TOBACCO HARVESTER

Arvin W. Prince, Whiteville, N.C., assignor to Harrington Manufacturing Company, Lewiston, N.C.

Filed Jul. 1, 1976, Ser. No. 701,791
Int. Cl.³ A01D *45/16, 45/00, 73/00*
U.S. Cl. 56—27.5 **22 Claims**

1. A pull type automatic tobacco harvester adapted to be connected to a tractor and pulled through a tobacco field where a plurality of two or more laterally spaced tobacco rows are provided on at least one side of a tractor passing lane in said tobacco field and wherein said pull type automatic tobacco harvester is adapted to harvest each of at least the two rows of said plurality of rows adjacent said tractor passing lane, said pull type automatic tobacco harvester comprising: a ground engaging mobile main frame adapted to be pulled through said tobacco field during the tobacco harvesting operation; leaf defoliating means carried by said mobile main frame for defoliating tobacco leaves from respective tobacco stalks as said pull type automatic tobacco harvester is pulled through said tobacco field; conveying means operatively carried by said mobile main frame for receiving leaves defoliated by said leaf defoliating means and for conveying said leaves to an area where the leaves are collected; and row alignment control means operatively associated with said tobacco harvester for simultaneously and together laterally adjusting the trailing position of both said harvester's main frame and said defoliating means with respect to said tractor when said harvester is connected thereto for aligning said mobile main frame and said defoliating means carried thereby with at least one of said plurality of laterally spaced rows, such that any particular row aligned with can be harvested by pulling said pull type automatic harvester along that row and row alignment can continuously be maintained by simultaneously adjusting the lateral trailing position of both said harvester's main frame and said defoliating means such that said defoliating means continues to



be properly aligned with at least one row during the harvesting operation, said row alignment control means including sleeve means fixed to said mobile main frame; a vertically disposed shaft rotatively journaled within said sleeve means; a radius arm fixed to said vertically disposed shaft and extending therefrom; a hydraulic cylinder operatively connected between said mobile main frame and said radius arm for selectively rotating said vertically disposed shaft rotatively journaled within said sleeve means; and a connecting tongue fixed to said vertically disposed shaft and rotatable therewith, said tongue being adapted to pivotably connect to said tractor such that the actuation of said hydraulic cylinder results in the trailing position of said mobile main frame being laterally adjusted with respect to said tractor.

4,332,129

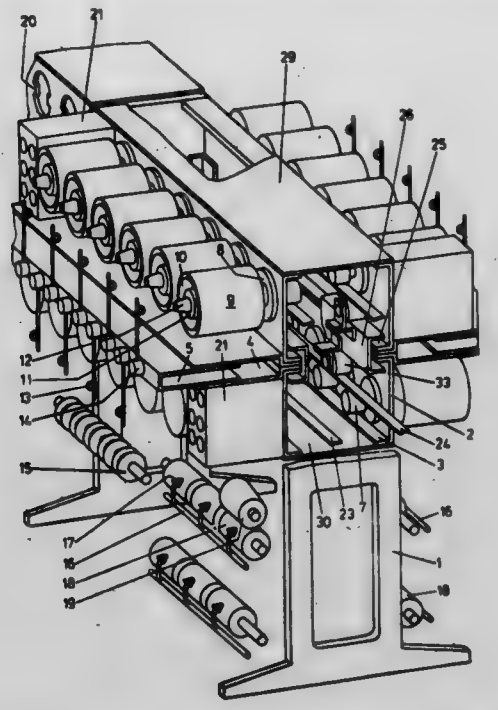
MULTI-SPINDLE DOUBLE TWIST TWISTING MACHINE

Heinz Schipper; Wolfgang Hartig; Klaus Weber, all of Remscheid-Lennep; Josef Blumberg, Hückeswagen, and Bernd Wessolowski, Remscheid, all of Fed. Rep. of Germany, assignors to Barmag Barmer Maschinenfabrik AG, Remscheid, Fed. Rep. of Germany

Filed Jun. 20, 1980, Ser. No. 161,392
Claims priority, application Fed. Rep. of Germany, Jun. 23, 1979, 2925458; Jun. 23, 1979, 2925459; Jun. 23, 1979, 2925460; Aug. 4, 1979, 2931716
Int. Cl.³ D01H *1/20, 1/241*
U.S. Cl. 57—105 **23 Claims**

1. In a multi-spindle double twist twisting machine of the type in which spindle assemblies are mounted with whorls aligned in at least one longitudinal row, a belt drive assembly for driving said whorls comprising a drive belt extending longitudinally adjacent said whorl row, belt supporting and guiding elements for guiding said belt in contact with said

whorls, means for supporting said belt guiding elements, said support means being mounted in said machine independent of



the mounting of said spindle assemblies, and means for driving said belt.

4,332,130

APPARATUS FOR INFEEDING TEXTILE BAND MATERIAL TO A CONSUMER

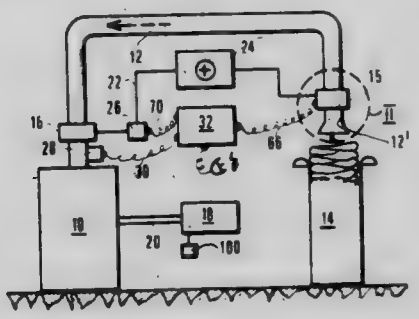
Hermann Gasser, Zurich; Paolo di Benedetto, Uster, and Johann W. Ferri, Greifensee, all of Switzerland, assignors to Luwa AG, Zurich, Switzerland

Filed Jun. 30, 1980, Ser. No. 164,292

Claims priority, application Switzerland, Jul. 10, 1979, 6417/79

Int. Cl.[3] **D01H** *15/00;* **B65H** *17/32, 51/16;* **D01H** *13/04*

U.S. Cl. 57—279 **22 Claims**



1. An apparatus for infeeding textile band material to a consumer, especially for infeeding a sliver deposited in a can to a spinning machine, comprising:

means defining a sliver feed location;

a consumer for processing the sliver;

a transport tube extending between said feed location and said consumer;

means for generating within the transport tube an air infeed current which flows in the direction of the consumer;

said transport tube having an inlet opening;

holder means operatively associated with said inlet opening of said transport tube;

said holder means in conjunction with the action of the air infeed current enabling seizing of a starting portion of said sliver; and

said holder means serving for retaining the starting portion of the sliver in a preparatory position from which it can be seized by the air infeed current.

4,332,131

APPARATUS AND PROCESS OF MANUFACTURING A METAL CORD

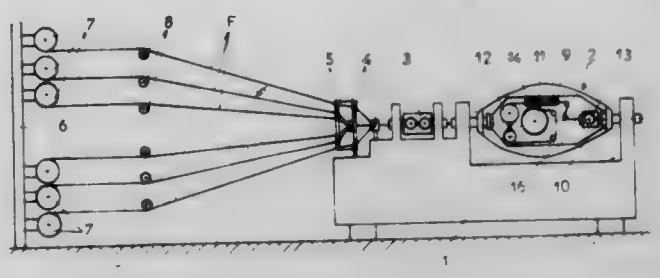
Alain Palsky, Savonnieres, and Guy Vella, Bar le Duc, both of France, assignors to Rhone Poulenc Textile, Lyons, France

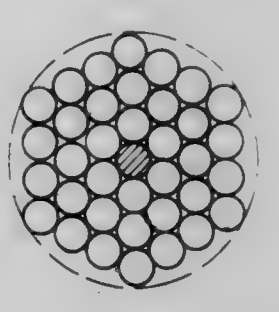
Continuation of Ser. No. 68,720, Aug. 22, 1979, abandoned. This application Jun. 10, 1981, Ser. No. 272,345

Claims priority, application France, Aug. 22, 1978, 78 24532

Int. Cl.[3] **D07B** *1/06, 3/00;* **D02G** *3/48*

U.S. Cl. 57—213 **9 Claims**





1. A single strand steel cord for reinforcing rubber articles such as tires, said cord comprising from nine to 52 single steel wires of the same diameter, twisted together in the same direction and with the same pitch, said twisted wires having a cross-sectional shape of a compact stack of polygonal contour, said cross-sectional shape being uniform along the entire length of the cord, said wires being disposed in at least one concentric layer of outer wires arranged around a central basic structure of 1, 2, 3 or 4 inner wires, all of the wires of said central basic structure and of each concentric layer, except the outer most concentric layer, tangentially contacting six adjacent wires, the wires in the outer most concentric layer, between the wires forming the corners of said polygonal contour, tangentially contacting four adjacent wires, and the wires forming said corners tangentially contacting three adjacent wires, whereby the mechanical properties of said cord, including breaking load, rigidity and fatigue, are uniform in the lengthwise direction.

4,332,132

FALSE-TWIST APPARATUS

Christian Bru, Renaison, and Jean-Claude Dupeuble, Roanne, both of France, assignors to ASA S.A., France

Filed Jun. 23, 1980, Ser. No. 162,322

Claims priority, application France, Jun. 25, 1979, 79 17259

Int. Cl.[3] **D02G** *1/02*

U.S. Cl. 57—280 **11 Claims**

1. A yarn texturizing machine comprising a plurality of treatment positions, each said position comprising, in operational sequence:

a supply (1) for the yarn (2) to be processed;

a first yarn feeder (3);

a heating device (4);

a cooling zone (5) for the heated yarn;

a false-twist spindle (6);

a second yarn feeder (7);

a wind-up device (8);

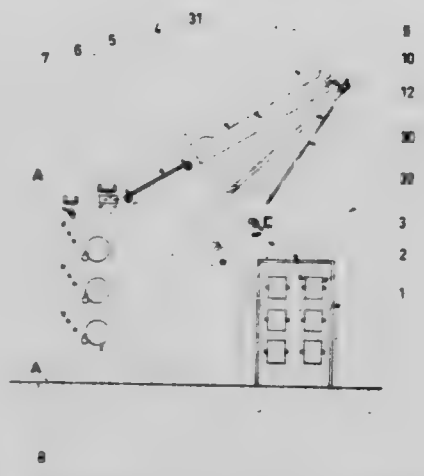
said machine defining a central frame on either side of which are arranged symmetrically the treatment positions and

defining between the yarn supply and the wind-up device, a service zone for the personnel;

the heating device (4), the cooling zone (5) and the point where the yarn enters the false-twist spindle (6) being in substantially straight alignment and arranged at least in part above the service zone; and

the heating device (4) being situated upstream of spindle (6) in the machine upper part and being an open heater;

said machine further including means for launching and guiding the yarn between the first yarn feeder (3) to the point of entry (9) of the heating device (4), said means for



launching and guiding comprising a mobile lacing-up device (10) on a fixed ramp (12) extending from a point proximate the point of entry (9) of the heater (4); said launching device (10) being associated with a yarn deflecting element whose purpose is to distribute the twist communicated by the spindle in such a way that, when launching, the majority of the twist backs up to the level of the first yarn feeder (3) and that, during normal operation, a minor part of the twist backs up to the first yarn feeder (3), the majority of the twist remaining in the heating device (4).

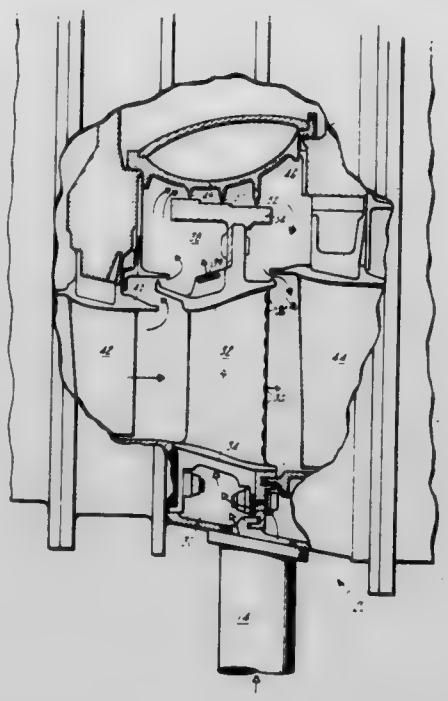
4,332,133

COMPRESSOR BLEED SYSTEM FOR COOLING AND CLEARANCE CONTROL

Frederick M. Schwarz, Glastonbury; James G. Griffin, West Hartford, and Vytautis P. Gudaitus, Bristol, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Nov. 14, 1979, Ser. No. 94,251
Int. Cl.³ F02C *3/06, 7/18, 7/28*
U.S. Cl. 60—39.75 **6 Claims**

1. A system for cooling turbine section rotation and stationary components contained in an engine casing and maintaining seal clearance between the rotating and stationary components at a minimum for a gas turbine engine having a compressor section, said seal having a portion connected to the stationary components and another portion connected to the rotational components and there being a gap therebetween, at least two separate ducts externally of said engine casing interconnecting the compressor section from a common source and turbine section whose components are intended to be expanded or contracted to maintain a minimum gap, valve means operable to a closed and opened position in one of said ducts and the other of said ducts having continuous feed at a restrictive capacity during the closure of said valve means whereby when minimum compressor air is required to maintain minimum



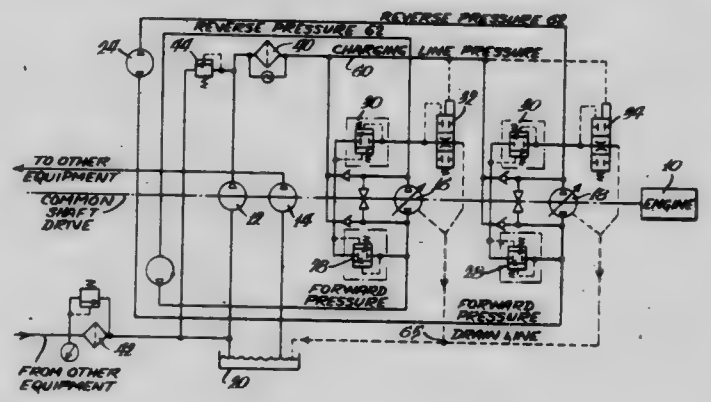
clearance of said gap, said valve means is operated at the closed position.

4,332,134

HYDROSTATIC TRANSMISSION BLEED-OFF VALVE

Gary L. Cochran, and Donald J. Parquet, both of Burlington, Iowa, assignors to J. I. Case Company, Racine, Wis.

Filed Dec. 3, 1979, Ser. No. 99,316
Int. Cl.³ F16K *31/12*
U.S. Cl. 60—464 **12 Claims**



5. A bleed-off valve for a hydrostatic transmission having a closed hydraulic operating loop including high and low pressure sides, a drain line to which said bleed valve responsively meters hydraulic fluid from one of the sides of said closed loop, and a charging line for replenishing fluid in said closed loop, comprising:

a housing disposed in fluid flow communication with said one side of said closed loop and said drain line having a passage communicating between said one side and said drain line, and

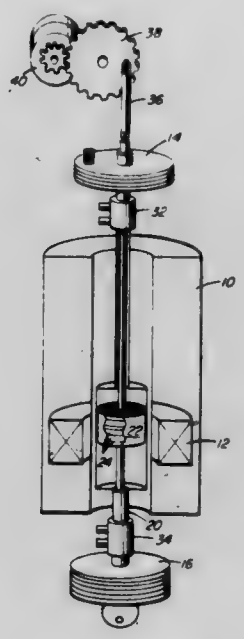
poppet valve means disposed within said housing passage and including means responsive to the fluid pressure within said one side of said closed loop and means responsive to the fluid pressure in said charging line whereby metered flow of hydraulic fluid from said closed loop to said drain line is shut off when fluid pressure in said charging line is lower than a predetermined fluid pressure for said closed loop.

4,332,135

ACTIVE MAGNETIC REGENERATOR

John A. Barclay, and William A. Steyert, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 27, 1981, Ser. No. 228,836
Int. Cl.³ F25B *21/02*
U.S. Cl. 62—3 23 Claims



1. A method of refrigeration approximating a Stirling Cycle from an initial state of partial magnetization and utilizing two, two-phase external heat transfer fluids at temperatures about T_C and about T_H, the method comprising the steps of

(a) magnetizing a body comprising one or more porous magnetic materials near but above their Curie temperatures, each at a temperature between about T_C and about T_H, flowing an internal heat transfer fluid at an initial temperature substantially T_C through the porous material during a relatively higher magnetization of the body, any temperature increase caused by magnetization being compensated by temperature decrease due to thermal wave movement through the material, causing the internal heat transfer fluid to exit the body at a temperature slightly above about T_H, which approximates isothermal magnetization;

(b) continuing the internal heat transfer fluid flow into the body at about T_C and decreasing the magnetic field slightly as average temperature within the body decreases, magnetization remaining essentially constant, approximating an isomagnetization temperature decrease within the body, the internal heat exchange fluid exiting the body at slightly above about T_H;

(c) reversing the flow of the internal heat exchange fluid at about T_H through the body as demagnetization is compensated by temperature increase due to thermal wave motion in the body, the fluid exiting the body at slightly less than about T_C, approximating isothermal demagnetization; and

(d) continuing the reverse flow of internal heat exchange fluid through the body and increasing slightly the magnetic field therein to maintain constant magnetization as the average temperature of the body increases, the fluid exiting at slightly less than about T_C, approximating an isomagnetization temperature increase; and

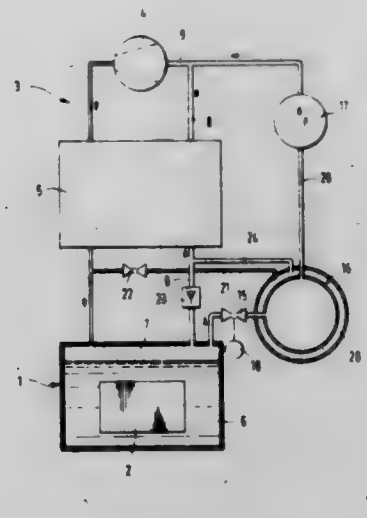
(e) transferring heat from the internal heat exchange fluid to the two, two-phase external heat exchange fluids appropriately during the cycle to accomplish refrigeration.

4,332,136

REFRIGERATING APPARATUS

Hans Quack, Pfaffikon, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed Apr. 22, 1981, Ser. No. 256,403
Claims priority, application Switzerland, Apr. 29, 1980, 3296/80
Int. Cl.³ F17C *13/00*
U.S. Cl. 62—54 10 Claims



1. A refrigerating apparatus comprising

a housing for a refrigerant bath, said housing having a chamber for receiving vaporized refrigerant;

a refrigerating circuit including a compressor having an intake connected to said chamber for receiving and compressing a flow of vaporized refrigerant from said chamber and an outlet connected to at least one cooling stage for at least partial liquefaction of the compressed refrigerant delivered from said compressor and an outlet leading from said cooling stage for delivery of said at least partially liquefied refrigerant to said chamber;

a buffer tank connected to said chamber for receiving vaporized refrigerant therefrom;

a valve between said housing chamber and said buffer tank for controlling a flow of vaporized refrigerant from said chamber to said tank; and

a vacuum pump communicating said buffer tank with said compressor intake to deliver vaporized refrigerant from said tank to said compressor.

4,332,137

HEAT EXCHANGE APPARATUS AND METHOD HAVING TWO REFRIGERATION CIRCUITS

Richmond S. Hayes, Jr., Fayetteville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 22, 1979, Ser. No. 87,599
Int. Cl.³ F25B *41/00*
U.S. Cl. 62—81 11 Claims

10. A method of controlling an air conditioning system having multiple refrigeration circuits including an outdoor heat exchanger for each circuit and a fan for circulating air serially through the outdoor heat exchangers, a compressor for each circuit, an indoor heat exchanger for each circuit for conditioning air of an enclosure which comprises the steps of

selectively energizing the compressors to transfer heat energy between the outdoor heat exchanger and the indoor heat exchanger of each circuit;

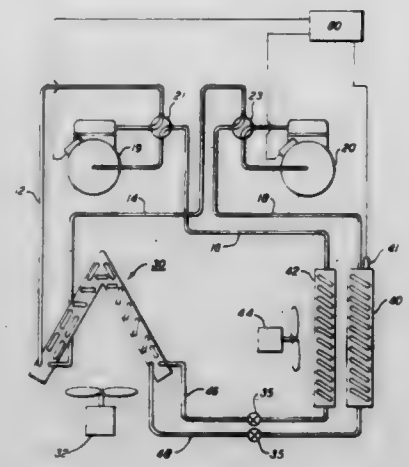
energizing the fan to circulate a heat transfer medium in heat exchange relation with the outdoor heat exchangers,

generating a defrost signal for commencing defrost of at least one outdoor heat exchanger,

conducting relatively hot refrigerant to at least one of the outdoor heat exchangers upon the generation of a defrost signal, and

modifying the step of energizing the fan upon the generation

of a defrost signal such that the heat transfer medium flows in heat exchange relation with the outdoor heat exchanger rejecting heat energy, absorbs a portion of said heat energy and then flows into heat exchange relation



with the outdoor heat exchanger to be defrosted, the heat transfer medium rejecting heat energy to the outdoor heat exchanger to be defrosted to melt the frost accumulated thereon.

4,332,138

REFRIGERATING APPARATUS

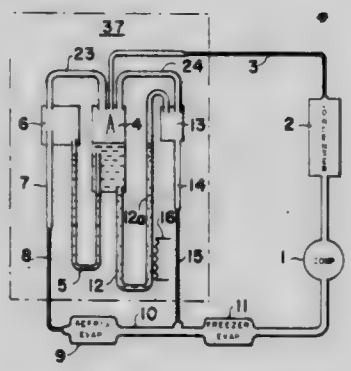
Noboru Nakagawa, Osaka; Toshiyuki Oonishi, Takatsuki; Masato Tsutsumi, Osaka, and Akira Kawamoto, Takatsuki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed May 29, 1980, Ser. No. 154,464

Claims priority, application Japan, Aug. 8, 1979, 54-101087; Aug. 8, 1979, 54-101088

Int. Cl.³ F25B *5/00*

U.S. Cl. 62—199 **8 Claims**



1. In refrigerating apparatus including a compressor, a plurality of compartments to be controlled to different temperatures, each compartment being thermally insulated from ambient temperature by insulation wall members and being provided with a refrigerant evaporator; and feed control means for controlling refrigerant flow caused by said compressor to at least one of said evaporators; the improvement wherein

said feed control means includes a vapor bubble pump positioned within one of said insulation wall members adjacent one of said compartments, and wherein said vapor bubble pump is mounted on a surface spaced from the outer surface said adjacent compartment a distance L for maintaining the temperature of said bubble pump lower than the ambient temperature of said one of said insulation wall members.

4,332,139

METHOD FOR STORAGE AND RECOVERY OF THERMAL ENERGY

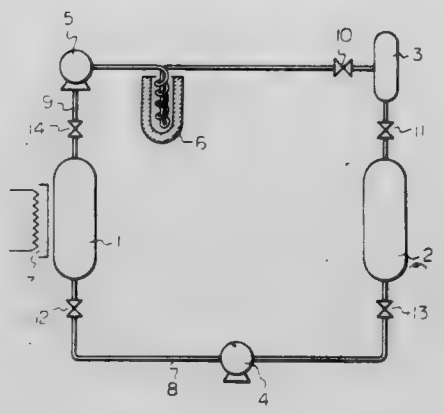
Ichiro Fujiwara, Tokyo, and Totaro Goto, Hachioji, both of Japan, assignors to The Director-General of the Agency of Industrial Science and Technology, Tokyo, Japan

Filed Aug. 9, 1979, Ser. No. 65,331

Claims priority, application Japan, Dec. 27, 1978, 53/163371

Int. Cl.³ F25B *15/00*

U.S. Cl. 62—101 **5 Claims**



1. A method for storage and recovery of thermal energy which comprises the steps of

(a) supplying thermal energy to a liquid complex of sodium iodide and ammonia initially at a first ammonia equilibrium pressure while simultaneously decreasing the pressure to a second equilibrium pressure to liberate ammonia from the liquid complex thereby storing the thermal energy as latent heat of combination of the ammonia and the complex, and subsequently,

(b) recovering the thermal energy by subjecting the liquid complex with the thus decreased content of ammonia and at the second equilibrium pressure, to ammonia at the first equilibrium pressure to regenerate the liquid complex to the initial content of ammonia before the absorption of the thermal energy to thereby convert the latent heat of combination of the ammonia and the complex to sensible heat.

4,332,140

COUNTER CURRENT CRYSTALLIZER

Henricus A. C. Thijssen, Son, and Bernardus G. M. van der Malen, Hagestein, both of Netherlands, assignors to Douwe Egberts Koninklijke Tabaksfabriek, Koffiebranderijin en Theehandel B.V., Utrecht, Netherlands

Division of Ser. No. 866,169, Dec. 30, 1977, Pat. No. 4,188,797. This application Jun. 7, 1979, Ser. No. 46,318

Claims priority, application United Kingdom, Jan. 12, 1977, 1086/77

Int. Cl.³ B01D *9/04*

U.S. Cl. 62—123 **4 Claims**

1. Apparatus for the continuous thickening washing of an ice slurry, comprising in combination the following cooperating elements:

(a′) enclosure means defining a cylindrical space;

(b′) rotatable axle coaxial with the enclosure means mentioned under (a′), said axle and said enclosure means defining together an annular cylindrical space;

(c′) means to feed in the feed slurry to the space mentioned under (b′);

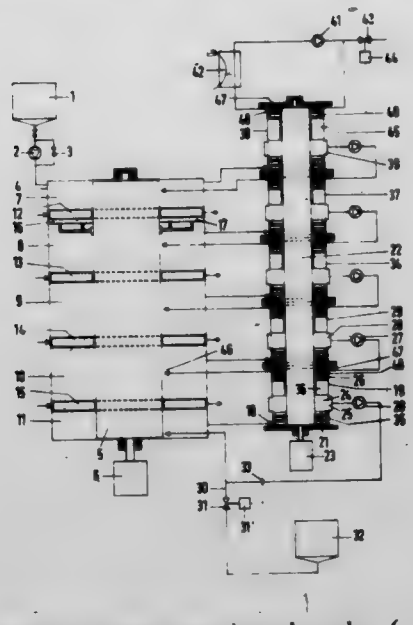
(d′) filter means in said space, adapted to drain fluid from the slurry whilst retaining ice crystals, present in that slurry;

(e′) means, adapted to feed out the thickened slurry;

(f′) means adapted to feed out the fluid drained out by the filter means mentioned under (d′);

(g′) means adapted to maintain a pressure difference between

the feed in slurry and the drained out fluid such as to ensure a stream of fluid through the filter means;



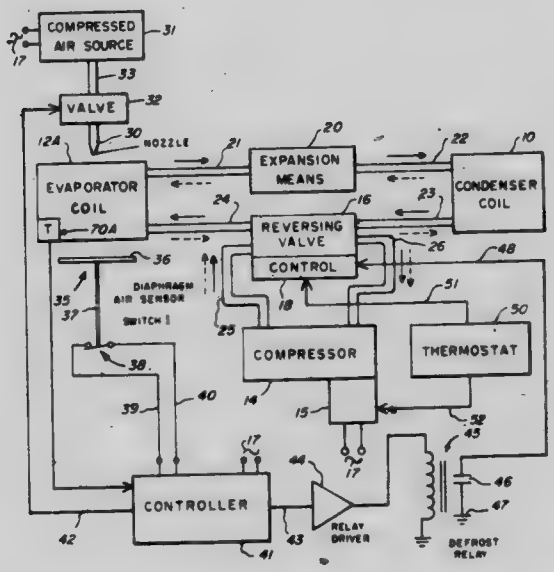
(h') between the means mentioned under (c') and (d') mechanical means adapted to push a mass of ice crystals to the feed out for the thickened slurry mentioned under (e').

4,332,141

DEFROST CONTROL SYSTEM FOR REFRIGERATION SYSTEM

Dale A. Mueller, St. Paul; Robert T. Ruminsky, Bloomington; Stephen L. Serber, New Hope, and Rodger C. Wolfgram, Burnsville, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 25, 1980, Ser. No. 181,265
Int. Cl.³ F25D *21/02*
U.S. Cl. 62—140 **2 Claims**



1. An evaporator coil defrost control system (hereinafter "defrost control system") for a refrigeration system (hereinafter "system") wherein said refrigeration system comprises refrigerant compression means, a condenser coil, an evaporator coil, and refrigerant conduit means connecting said coils, said defrost control system comprising:

a nozzle element positioned adjacent to one side of said evaporator coil at a point where frost may build on said evaporator coil;

compressed air means connected to said nozzle via valve means controllable to selectively permit air to be discharged from said nozzle element against said coil;

an air flow sensor positioned on the other side of said evaporator coil in register with said nozzle, said sensor including switch means adapted to be actuated upon said sensor being impacted by a stream of air; and

controller means having operative connections to said system, said sensor switch means, and to said valve means, said controller means being adapted to periodically actuate said valve means so as to cause periodic pulses of air to flow from said nozzle through said evaporator coil, and said controller further functioning to place said system into a defrost mode of operation upon said sensor switch

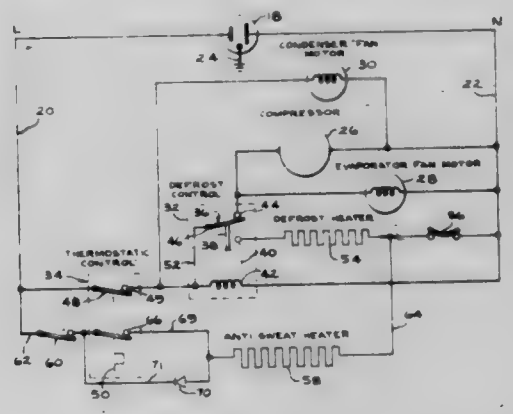
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4,332,142

HOUSEHOLD REFRIGERATOR INCLUDING ANTI-SWEAT HEATER CONTROL CIRCUIT

Luis E. Prada, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 14, 1980, Ser. No. 196,802
Int. Cl.³ F25D *21/06*
U.S. Cl. 62—152 **7 Claims**



1. A refrigerator comprising a cabinet including a storage compartment, an electrical anti-sweat heating means for warming a portion of said cabinet, refrigerating means including a compressor and an evaporator for cooling said compartment, temperature sensing means to energize the compressor at one predetermined temperature and deenergize the compressor at a second lower temperature; and

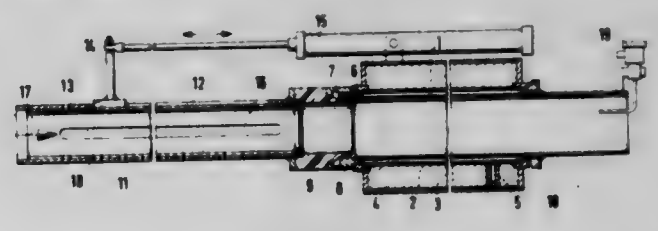
switch means associated with the temperature sensing means to apply full electrical power to the electrical anti-sweat heating means when the compressor is energized and apply half electrical power to the electrical anti-sweat heating means when the compressor is not energized.

4,332,143

DEVICE FOR COOLING A GAS TO BELOW ITS DEW POINT

Erhard Soecknick, Erkrath, and Jürgen Busse, Mönchengladbach, both of Fed. Rep. of Germany, assignors to Messer Griesheim GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Jan. 22, 1980, Ser. No. 114,269
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 7902672[U]
Int. Cl.³ F25D *21/06*
U.S. Cl. 62—284 **3 Claims**



1. In a device for cooling a gas to below its dew point by heat exchange with a low-boiling liquefied gas wherein said device includes an inner pipe, an outer pipe surrounding said inner pipe and spaced therefrom to form an annular space therebetween, means for feeding the liquefied gas into the annular space for cooling the gas flowing through the inner pipe, an annular nozzle connected to said inner pipe in flow communication therewith, said annular nozzle and said inner pipe having substantially the same inner diameter, and means for feeding the gas through said nozzle and into said inner pipe

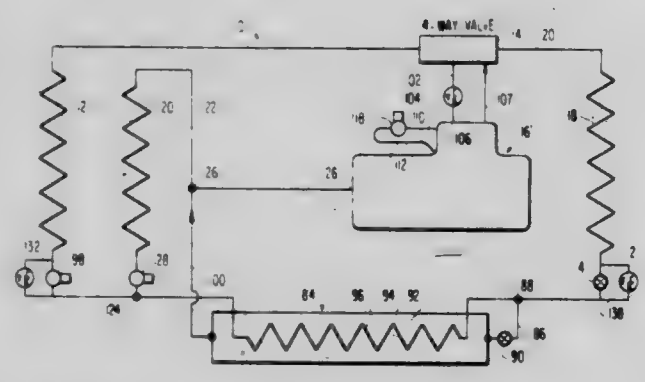
for cooling the gas before it is discharged from said inner pipe, the improvement being a drain passage leading from said annular space to said inner pipe in the general area of the connection of said nozzle to said inner pipe whereby evaporated liquefied gas may be drained from said annular space and mixed with the gas flowing through said nozzle to further cool the gas, scraper means located in said nozzle at said area of connection with said inner pipe, said scraper means being positioned against the inner surface of said nozzle, and means for reciprocating said scraper means in a longitudinal direction back and forth across the outlet of said drain passage to prevent the build-up of ice thereat.

4,332,144

BOTTOMING CYCLE REFRIGERANT SCAVENGING FOR POSITIVE DISPLACEMENT COMPRESSOR, REFRIGERATION AND HEAT PUMP SYSTEMS

David N. Shaw, 33 Silversmith Rd., Unionville, Conn. 06085

Filed Mar. 26, 1981, Ser. No. 247,968
Int. Cl.[3] F25B *13/00*
U.S. Cl. 62—324.1 11 Claims



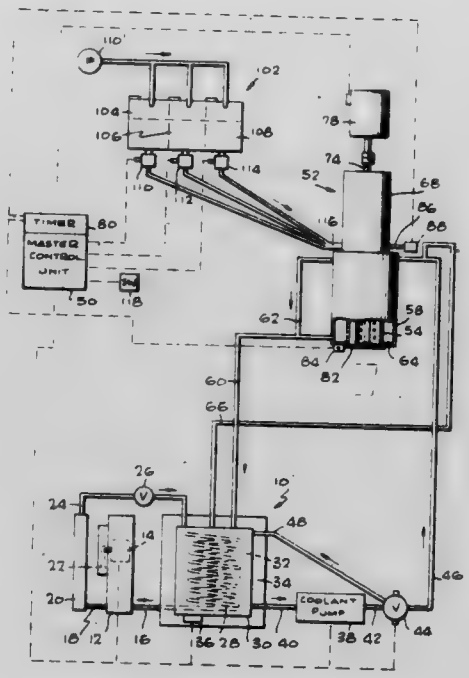
1. A closed loop refrigeration system comprising:
first and second coils,
a positive displacement compressor having a compressor working chamber,
conduit means bearing a refrigerant and forming a refrigeration cycle closed loop and connecting said first and second coils and said compressor in closed loop series,
said first and second coils functioning as condenser and evaporator for said closed loop system,
expansion means provided upstream of the coil functioning as system evaporator,
the improvement comprising:
a scavenge vapor generator within said closed loop, downstream of the coil functioning as the condenser and upstream of the coil functioning as the evaporator for recovery of heat from the hot liquid refrigerant passing from the condenser to the evaporator and including means for vaporizing a portion of said warm liquid refrigerant bled from the closed loop in heat exchange with the remaining portion of said liquid refrigerant passing to said evaporator,
means for selective delivery of scavenge refrigerant vapor from the scavenge vapor generator to said working chamber at the end of the compressor working chamber intake at a pressure higher than the suction pressure of the compressor working chamber, and
unloading means for selectively returning scavenged vapor to the compressor suction inlet for entry commonly with the suction gas returning from the coil functioning as the system evaporator during full compressor intake.

4,332,145

SYSTEM FOR MAKING FROZEN FOOD ARTICLE

Joseph M. Yuhasz, 6356 Busch Dr., Malibu, Calif. 90265, and Sean A. O'Brien, 1959 Selby Ave., Los Angeles, Calif. 90025

Filed Feb. 9, 1981, Ser. No. 232,645
Int. Cl.[3] A23G *9/00*
U.S. Cl. 62—342 7 Claims



1. A system for making a frozen food article,
said system comprising:
a cooler for providing a quantity of chilled liquid coolant and for circulating the coolant;
a freezer having a freezing chamber and a liquid coolant jacket extending around at least part of said freezing chamber, said coolant jacket being positioned above said cooler;
the thermal capacity of said cooler being larger than the thermal capacity of said freezer;
means for selectively directing liquid coolant from said cooler into said cooling jacket on said freezer;
said cooler having a closed coolant tank;
an airbleed line connected from adjacent the top of said jacket to bleed air from said jacket during filling of said jacket with liquid coolant so that said jacket quickly fills with liquid coolant, said bleed line being connected to discharge air from said jacket to said coolant tank; and
means for introducing liquid food product into said chamber for freezing in said chamber and means for beating said food material in said freezing chamber so that a beaten frozen food article is formed in said chamber.

4,332,146

DRIVE FORCE TRANSMITTING DEVICE FOR ICE-MAKING TRAY OF AUTOMATIC ICE-MAKING MACHINE

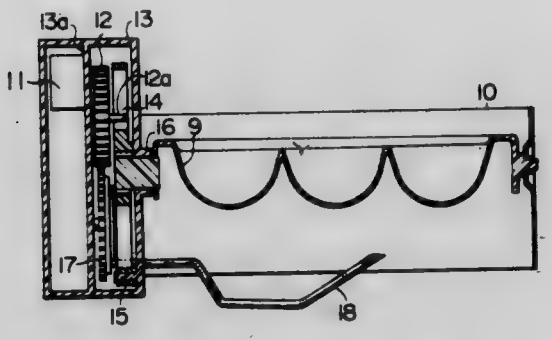
Susumu Yamazaki; Yoshinari Nagoya, both of Ohiramachi, and Masajiro Shimizu, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 24, 1980, Ser. No. 209,660
Int. Cl.[3] F25C *5/06*
U.S. Cl. 62—353 5 Claims

1. A device for transmitting a drive force to an ice-making tray for an automatic ice-making machine comprising:
a drive motor rotating in one direction only;
a drive gear connected to and rotatably supported by the drive motor;
a cam gear meshing with the drive gear and supported for rotation, said cam gear including an actuating pin extending axially thereof;
a slider pivotally supported at one end portion and formed at the other end portion opposite said one end portion with a guide groove for receiving said actuating pin and a gear

portion disposed midway between said one end portion and said guide groove, said slider being moved in pivotal movement both clockwise and counterclockwise by said guide groove cooperating with said actuating pin as the actuating pin moves in rotational movement; and

an ice-making tray having a gear directly connected thereto and meshing with the gear portion of said slider, said ice-making tray being supported for rotation through a predetermined range of angles, wherein said cam gear, said drive gear, said slider and said gear directly connected to the ice-making tray are formed of self-lubricating acetal resin by injection molding, and wherein said



actuating pin is formed integrally with said cam gear when the latter is formed by injection molding and disposed in the vicinity of an outer peripheral portion of the cam gear, and wherein said slider comprises a main body of a substantially triangular shape pivotally supported at one apex portion, and a projecting portion extending outwardly from a side opposite said one apex portion, said main body being formed with an opening defined by a plurality of sides and said gear portion at one of said plurality of sides, said guide groove being disposed in said projecting portion and extending substantially straightforwardly.

4,332,147

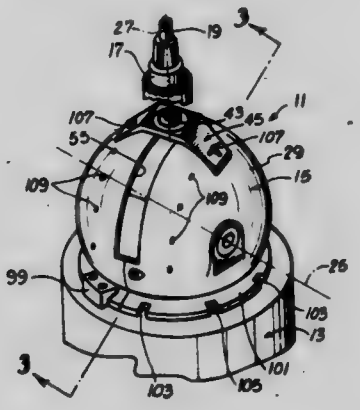
ADJUSTABLE POWER TRANSMITTING DEVICE

Leonard Grech, P.O. Box 2774, Capistrano Beach, Calif. 92624

Filed Mar. 17, 1980, Ser. No. 130,832

Int. Cl.³ F16D *3/32*

U.S. Cl. 464—109 **16 Claims**



1. An adjustable power transmitting device for rotary motion comprising:

a rotary input shaft;

means for mounting the input shaft for rotation about a first rotational axis;

a rotary output shaft;

means for mounting the output shaft for rotation about a second rotational axis;

second means for mounting the output shaft for pivotal movement about at least two non-parallel adjustment axes whereby the position of the output shaft can be adjusted;

means for fixing said output shaft in any one of a plurality of positions about said adjustment axes;

means for drivingly coupling the input shaft to the output shaft whereby the input shaft can rotate the output shaft in all positions of the output shaft about the two adjustment axes;

said coupling means includes an input gear coupled to said input shaft, an output gear coupled to said output shaft and an intermediate gear drivingly engaging said input gear and said output gear, and means for mounting said intermediate gear for rotation; and

said intermediate gear being a first intermediate gear and said coupling means includes a second intermediate gear drivingly engaging said input gear and said output gear, means for mounting said second intermediate gear for rotation, a first of said adjustment axes being perpendicular to said first rotational axis, and said two intermediate gears holding the output shaft against pivotal movement about said first adjustment axis.

4,332,148

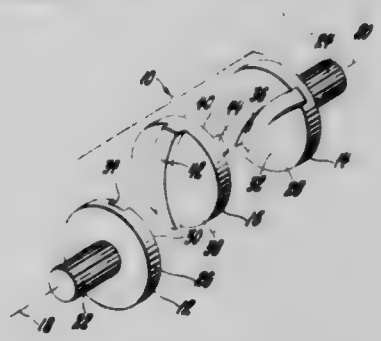
CYCLIC PHASE-CHANGE COUPLING

Emil R. Maki, Rochester, Mich., and Ferdinand Freudenstein, Riverdale, N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 4, 1980, Ser. No. 156,321

Int. Cl.³ F16D *3/04*

U.S. Cl. 464—102 **3 Claims**



1. A cyclic phase-change coupling for connecting two bodies for rotation at equal cyclic speeds but providing a phase angle variation during each cycle, said coupling comprising:

first and second members rotatable on offset parallel axes and having opposed ends

an intermediate member axially aligned with the ends,

first arcuate guide means connecting said intermediate member with said first member for limiting their relative lateral motion to a first arcuate curved path, and

second arcuate guide means connecting said intermediate member with said second member for limiting their relative lateral motion to a second arcuate curved path,

said first and second curved paths, as projected axially upon a common transverse plane, intersecting at a point within the lateral boundaries of said intermediate member, the relative angle and curvature of said paths being such as to cause in operation oscillation of said intermediate member relative to each of said first and second members to thereby cause a predetermined cyclic variation in phase angle between said first and second members.

4,332,149

NEEDLE BAR ADJUSTMENT MECHANISM FOR WARP KNITTING MACHINES

Ingo Mayer, Obertshausen, Fed. Rep. of Germany, assignor to Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Fed. Rep. of Germany

Filed Jul. 1, 1980, Ser. No. 165,018

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927335

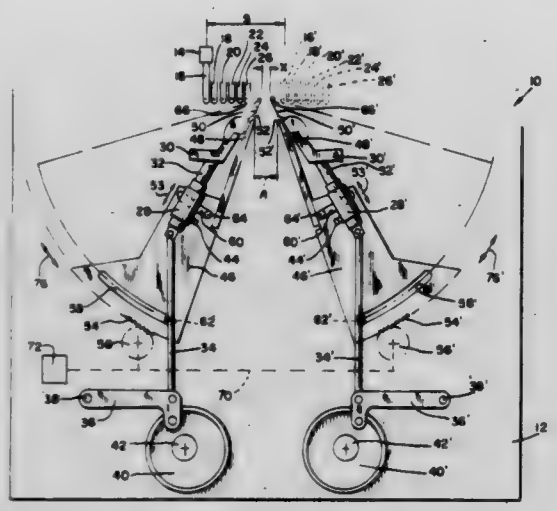
Int. Cl.³ D04B *23/02*

U.S. Cl. 66—87 **6 Claims**

1. A needle bar adjustment mechanism to alter the separation between knockover points on a warp knitting machine having a frame, a pair of needle bars with a plurality of needles affixed

thereon, a trick plate cooperating with each said needle bar, a plurality of guide bars having a plurality of guides affixed thereon and a driving power source operatively coupled to said needle bars and said guide bars, comprising, in combination:

(a) a pair of support members, each said support member having the guiding means for one of said needle bars and said associate trick plate affixed thereon; and



(b) means for simultaneously moving said support members apart to increase the separation between said trick plates, while maintaining essentially constant the distance between said needles on one of said pair of needle bars with respect to the needles on the other needle bar at their uppermost deadpoint of travel.

4,332,150

SYSTEM FOR CONTROLLING KNITTING OR WEAVING MACHINES FOR THE PRODUCTION OF RANDOMLY PATTERNED FABRIC

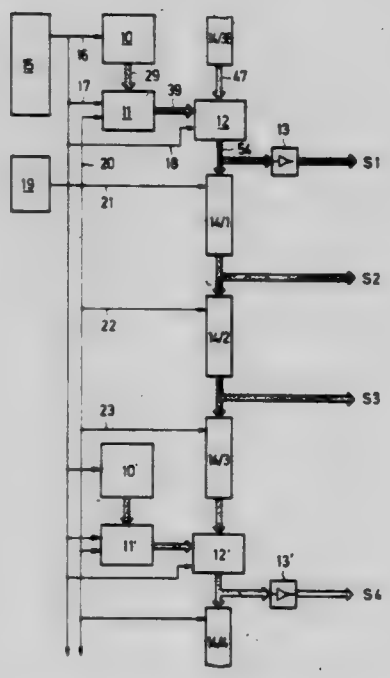
Gerhard Grözinger, Spaichingen, Fed. Rep. of Germany, assignor to SIPRA Patententwicklungs-und Beteiligungsgesellschaft mbH, Stuttgart, Fed. Rep. of Germany

Filed May 30, 1979, Ser. No. 44,756

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1978, 2824486

Int. Cl.³ D04B *15/78*

U.S. Cl. 66—232 **12 Claims**



1. In combination with a fabric-producing machine of the type provided with patterning means responsive to pattern-control signals, a patterning system which implements a non-repeating pattern, the patterning system comprising means generating pattern-control signals randomly and comprising a plurality of means each randomly generating pattern-control signals for a different part of the fabric produced and operating independently of one another and each comprising a respective multi-state signal storage means and a respective pulse generator controlling the storage means, the pulse generators operating independently of one another.

4,332,151

APPARATUS FOR HEAT TREATMENT OF SYNTHETIC YARNS AND FIBERS

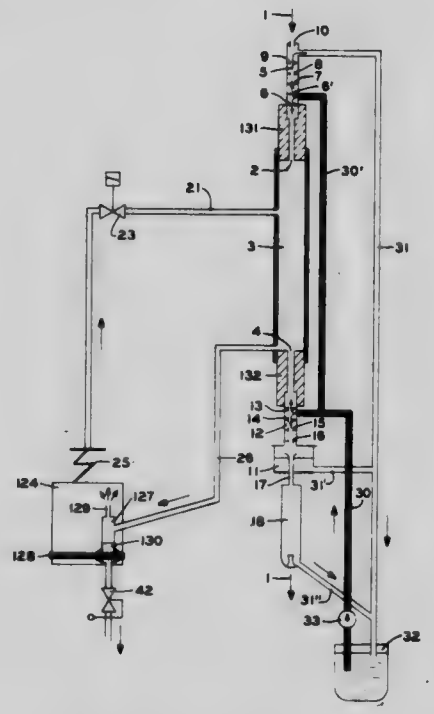
Max Brossmer, Hanau, and Manfred Boerner, Offenbach, both of Fed. Rep. of Germany, assignors to D.I.E.N.E.S Apparatebau GmbH, Muehlheim, Fed. Rep. of Germany

Filed Dec. 5, 1980, Ser. No. 213,264

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1980, 3033409

Int. Cl.³ D06B *23/18*

U.S. Cl. 68—5 E **9 Claims**



1. Apparatus for heat treatment of continuously moving synthetic yarns or fibers, characterized as follows:

at least one elongated thermally isolated upright vessel connected to a steam generator having at its upper end an inlet opening and at its lower end an outlet opening for the yarn;

a tube located at each corresponding end of said vessel and outside of said openings and having a corresponding hole therein for allowing said yarn to pass therethrough and through said vessel;

each of said tubes having several apertures in series along the travel path of the yarn;

the space between the inlet opening and one of the first two apertures of one of said tubes and between the outlet opening and one of the first two apertures of said other tube is connected to a blocking liquid supply pipe;

the space between said hole and one of said apertures in each tube being connected to a blocking liquid return pipe which ports into a liquid collector tank;

a pump inserted between said collector tank and said blocking liquid supply pipe; and,

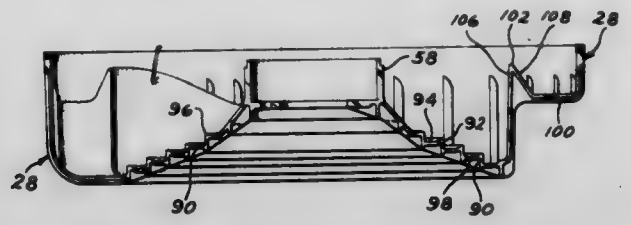
said apertures serving to reduce the pressure of the supplied blocking liquid to almost atmospheric pressure at said holes which allow the yarn to enter and to leave the apparatus.

4,332,152

WASHING MACHINE

John Bochan, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 14, 1980, Ser. No. 196,803
Int. Cl.[3] D06F *21/06*
U.S. Cl. 68—171 9 Claims



1. In a washing machine for fabric articles comprising a receptacle having a central axis and arranged to receive a washing liquid and a fabric article load to be washed by the liquid, said receptacle including a bottom wall and a side wall, drive means operatively connected to said receptacle, said drive means being constructed and arranged to move said receptacle so that said central axis moves in an orbital path, the improvement comprising:

(a) a plurality of circumferentially spaced ramps extending inwardly from said side wall;

(b) each of said ramps having a surface inclined upwardly in a direction opposite to the direction of orbiting movement of said receptacle; and

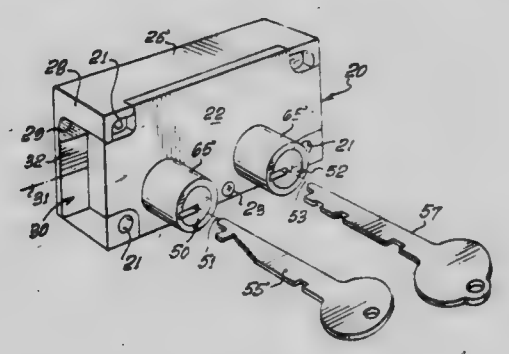
(c) a wall at the inner edge of each of said ramps, said wall extending above said surface.

4,332,153

DUAL KEY LOCKS WITH MULTI-FUNCTION TUMBLERS

James M. Miles, 1511 E. Edinger, Santa Ana, Calif. 92705

Filed Jun. 4, 1979, Ser. No. 45,124
Int. Cl.[3] E05B *35/12*
U.S. Cl. 70—339 16 Claims



1. A lock which includes bolt means movable along a bolt axis between a locking position and a releasing position and including fence means, at least one set of flat tumblers, means for mounting the tumblers for independent movement transversely of the bolt axis, a gated blocking edge on each tumbler for cooperation with the fence means to normally block bolt movement toward releasing position, and key receiving means for controlling said tumbler movement to align the gates and unblock the bolt movement; said lock being further characterized in that

at least a plurality of said tumblers include a second gated blocking edge facing oppositely to the first said edge,

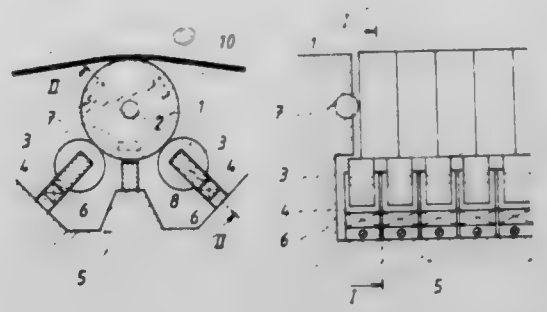
and said plurality of tumblers have such form that they are receivable by said mounting means in two alternative orientations with a different one of the blocking edges in position in each of the orientations to cooperate with the fence means under key control.

4,332,154

DEFLECTOR ROLL

Jan O. Nordvall, Vesteras, Sweden, assignor to ASEA Aktiebolag, Västerås, Sweden

Filed Jan. 30, 1980, Ser. No. 116,998
Claims priority, application Sweden, Feb. 1, 1980, 7900869
Int. Cl.[3] B21C *51/00*; B21B *37/04, 37/06*
U.S. Cl. 72—31 2 Claims



1. A deflector roll assembly for measuring the distribution of tension across the width of a strip passing through a strip mill, the assembly including

a deflector roll over which said strip passes, said deflector roll being formed by a plurality of roll sections rotatably mounted about a relatively weak central shaft and axially positioned in abutting side-by-side relationship,

a foundation means, and

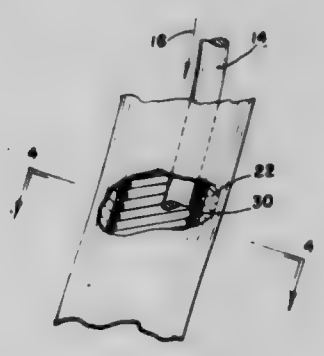
a multiplicity of support means, two of said support means being associated with each roll section and each of said support means, except the two axially outermost ones, supporting two of the abutting roll sections, each support means including two supporting rollers positioned on opposite lower sides of the roll sections to be supported and separate holders stationarily attached to the foundation means to rotatably mount the associated supporting roller, each holder including a magnetostrictive transducer for measuring the forces applied to the respective holder through the respective support roller.

4,332,155

ROLLING MILL LAYING PIPE

David L. Pariseau, Southbridge, Mass., assignor to Morgan Construction Company, Worcester, Mass.

Filed Dec. 18, 1980, Ser. No. 217,892
Int. Cl.[3] B21D *11/00*
U.S. Cl. 72—66 8 Claims



1. In a rolling mill, a rotatable laying pipe for forming a hot rolled mill product moving longitudinally at high mill delivery speeds into a series of interconnected rings, said laying pipe comprising:

a rigid tube having an entry end through which the product is received and an exit end through which the product is discharged, with an intermediate portion of said tube between said entry and exit ends having a three-dimensionally curved configuration;

a helical spring axially received in said tube, said spring

being relatively tightly wound and having an inside diameter appropriately dimensioned to accommodate passage therethrough of said product, the entire length of said spring being confined against radial movement by the inside diameter of said tube; and

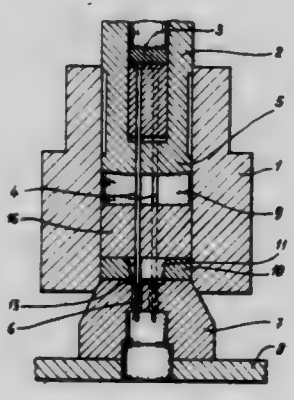
retainer means at the entry and exit ends of said tube for axially confining said spring therebetween.

4,332,156

METHOD FOR THE MANUFACTURE OF PIPES BY MEANS OF EXTRUSION AS WELL AS FOR PROVIDING ONE FLANGE ON AT LEAST TWO PIPES, AND DEVICE TO CARRY OUT THE SAID METHOD

Johannus J. Broodman, Breskens, Netherlands, assignor to B. V. Koninklijke Maatschappij "de Schelde", Vlissingen, Netherlands

Filed Sep. 19, 1979, Ser. No. 76,833
Claims priority, application Netherlands, Sep. 28, 1978, 7809825
Int. Cl.³ B21C *23/14, 27/00, 23/08*
U.S. Cl. 72—264 **3 Claims**



1. Method for making a flanged pipe construction by extrusion, in which there are formed simultaneously at least three pipes integrally connected to a common flange near the center of said flange, by extruding a blank placed in an extrusion space ultimately reaching the volume corresponding to said flange and said extrusion space having openings for said pipes, in which mandrels extend through said extrusion space and said openings for said pipes for forming the interior pipe space and the adjoining flange bores, in which upon extrusion the blank material in the extrusion space is forced to flow from a predetermined distance before reaching said openings for said pipes, axially and radially into and through a transient space located between the beginning of said openings for said pipes and said extrusion space and having a smaller cross section than said extrusion space, such that at the beginning of said openings for said pipes within said transient space all blank material between and around the mandrels is forced to flow mainly in axial direction in a uniform stream towards said openings for said pipes, in which the height of said transient space expressed in millimeters is at least equal to the ratio

$$\frac{80}{(\text{pitch}) - (\text{mandrel diameter})},$$

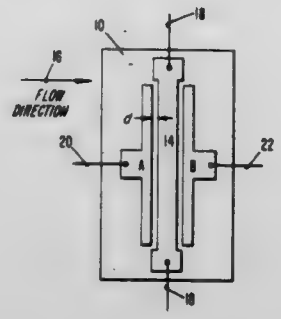
but not under 5 millimeters and in which the distance between the side wall of said transient space and the most near mandrel surface is at least equal to the wall thickness of said pipes to be extruded.

4,332,157

PYROELECTRIC ANEMOMETER

Jay N. Zemel, Jenkintown, and Hamid Rahnamai, Philadelphia, both of Pa., assignors to Trustees of the University of Pennsylvania, Philadelphia, Pa.

Filed Aug. 29, 1980, Ser. No. 182,683
Int. Cl.³ G01F *1/68;* G01N *25/18*
U.S. Cl. 73—26 **17 Claims**



1. A fluid flow rate indicator comprising:

a pyroelectric substrate having at least one surface;

means for applying a fluctuating heat input to said substrate, said input causing a fluctuating surface charge distribution in response to temperature fluctuations of said substrate; and

electrode means on said surface for sensing a fluctuating surface charge on said surface, said charge fluctuations comprising said fluid flow rate indication.

10. A thermal conductivity indicator comprising:

a pyroelectric substrate having at least one surface;

means for applying a fluctuating heat input to said substrate, said input causing a fluctuating surface charge distribution in response to temperature fluctuations of said substrate; and

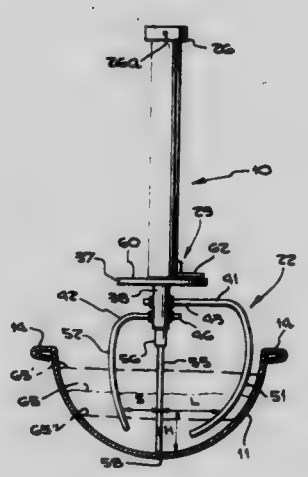
electrode means on said surface for sensing a fluctuating surface charge on said surface, said charge fluctuations comprising said thermal conductivity indication.

4,332,158

SLUMP TESTING DEVICE

Howard S. Osborne, 1965 Rainbow Ridge, P.O. Box 1691, Corona, Calif. 91720

Filed May 9, 1980, Ser. No. 148,541
Int. Cl.³ G01N *11/14*
U.S. Cl. 73—59 **17 Claims**



1. A manually held device for measuring and indicating slump of flowing concrete being discharged from a concrete mixer along a discharge chute, comprising in combination:

an elongated housing;

an elongated torque responsive member within said housing, one end of said responsive member being fixed to said housing;

a sensing assembly connected to the other end of said torque responsive member within said housing for rotation about

the axis of said torque responsive member and extending beyond said housing;

said sensing assembly beyond said housing including at least two diametrically opposite sensing members of different size adapted to produce torque forces of different direction and magnitude when said sensing assembly is inserted into said flowing concrete, the resultant of said forces being transmitted to said torque responsive member;

an indicator element on said housing;

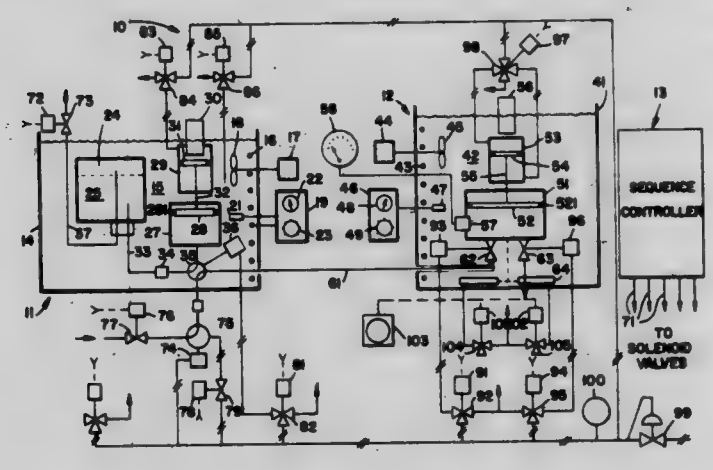
and indicia associated with said sensing assembly and movable relative to said indicator element in response to the resultant of said forces to show measurement of slump.

4,332,159

REID VAPOR PRESSURE TESTER

Thomas G. Chin, and Arthur Alston, both of El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Aug. 29, 1980, Ser. No. 182,365
Int. Cl.³ G01N *7/16*
U.S. Cl. 73—64.2 **20 Claims**



1. An apparatus for determining the Reid Vapor Pressure of normally liquid hydrocarbon materials comprising:

(a) a first compartment maintained at a substantially fixed temperature in the range of 32° F. to 40° F.,

(b) a second compartment maintained at a substantially fixed temperature of 100° F.,

(c) a sample storage container and a sample cylinder within said first compartment, and means connecting said storage container and said sample cylinder for transferring a sample of said liquid hydrocarbon material from said storage container to said sample cylinder,

(d) a measuring cylinder within said second compartment, and means connecting said measuring cylinder to said sample cylinder in said first compartment for transferring a metered quantity of said sample of said liquid hydrocarbon from said sample cylinder to said measuring cylinder,

(e) pressure sensor means associated with said measuring cylinder for measuring the pressure within said measuring cylinder,

(f) and means for displaying said measured pressure as the vapor pressure of said sample of liquid hydrocarbon fuel.

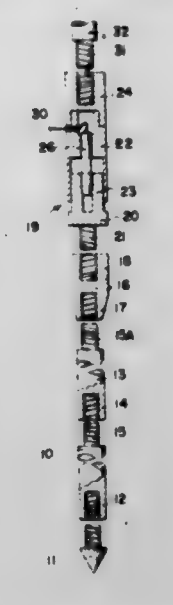
4,332,160

PENETROMETER

Harold A. Baragar, 311 Wascana Rd. SE., and Kenneth S. Toovey, 5947 Dalhousie Dr. NW., both of Calgary, Alberta, Canada

Filed Apr. 7, 1980, Ser. No. 137,985
Claims priority, application Australia, Apr. 19, 1979, PD8473
Int. Cl.³ G01N *3/00*
U.S. Cl. 73—84 **19 Claims**

18. A load cell component for use with a penetrometer assembly comprising in combination a housing and a strain gauged stud mounted therein for activation by tension or compression forces acting thereon, said housing including an upper end portion, a central sleeve portion connected to the lower end of said upper end portion and a separate, independent lower end portion slidably engageable within the lower



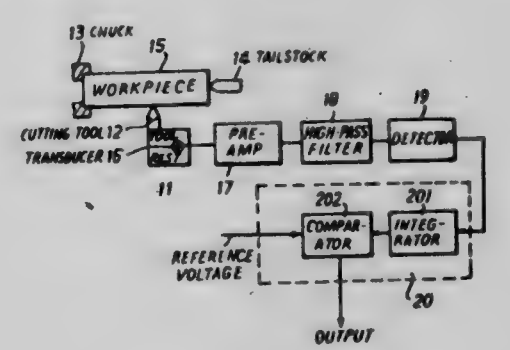
end of said central sleeve portion, said strain gauged stud being operatively connected between said central sleeve portion and said lower end portion.

4,332,161

ACOUSTIC DETECTION OF TOOL WEAR AND FRACTURE

Yoshiaki Kakino, Kyoto, Japan, assignor to NL Circuit Design Block Co., Ltd., Japan

Filed Jan. 29, 1980, Ser. No. 116,509
Claims priority, application Japan, Jan. 31, 1979, 54-010107
Int. Cl.³ G01N *19/00*
U.S. Cl. 73—104 **4 Claims**



4. An acoustic emission monitoring system, for detecting brittle fracture and wear of a tip of a cutting tool, comprising:

(i) means for converting acoustic emission into an electric signal;

(ii) a high-pass filter for rejecting frequency components in said signal lower than a frequency selected in the range 50 kHz to 300 kHz inclusive,

(iii) means for detecting the amplitude of said signal after rejecting said frequency components,

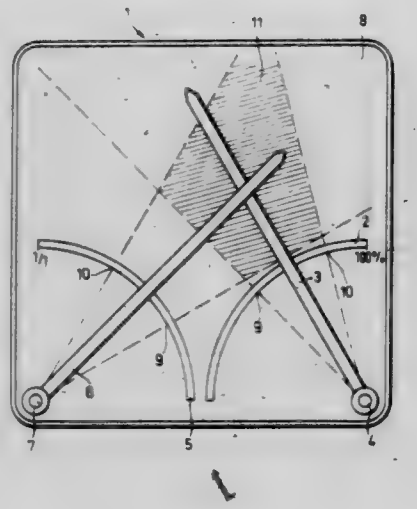
(iv) means for integrating the detected amplitude, and

(v) means for comparing the integrated amplitude with a predetermined reference amplitude.

4,332,162
DEVICE FOR INDICATING THE ECONOMICAL OPERATING RANGE OF AN ENGINE

Hellmut Garthe, Cologne, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Aug. 26, 1980, Ser. No. 181,627
Claims priority, application Fed. Rep. of Germany, Aug. 29, 1979, 2934839
Int. Cl.[3] G01M *15/00*; G01L *5/13*
U.S. Cl. 73—117.3 1 Claim



1. A device for indicating the economical operating range of an internal combustion engine, said device comprising in combination:

a housing;

a first indicating element, in said housing, for indicating the speed of said internal combustion engine at any given moment;

a second indicating element, in said housing, for indicating the load condition of said internal combustion engine at any given moment;

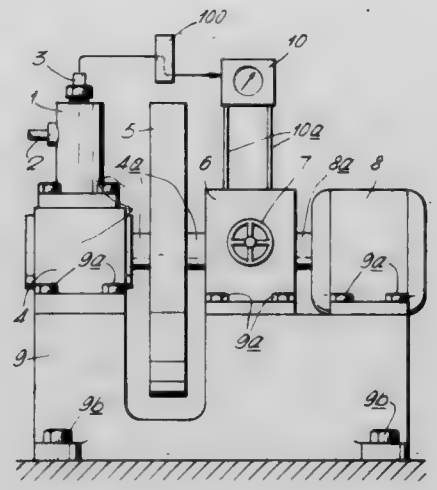
a respective measured-value scale for each of said indicating elements, said scales being located in a common plane and each having a lower limit value and an upper limit value indicated thereon, said limit values being dependent upon the characteristic of the internal combustion engine being measured, said limit values defining the economical operating range of said internal combustion engine as a function of the parameter being measured; and

a respective indicator needle for each of said indicating elements, each needle being rotatable about a respective pivot axis for movement over an associated measured-value scale, said economical operating range being a common tolerance field comprising a surface beyond said measured-value scales, and being defined by straight lines which extend from said pivot axes of said needles through the associated lower and upper limit values on the respective measured-value scale, said needles being of such a length, and being arranged at such a height, that they intersect in said economical operating range readily monitored in common so that said needles, cross each other in a common tolerance field to eliminate need to monitor and read two indicators and two separate scales, said economical operating range having a predetermined color which differs from that of said common plane of said scales and that of said indicator needles so as to be set off therefrom, only one glance being required to determine whether both needles are located within the tolerance field associated therewith and to observe whether both needles cross each other in the field which is distinguished by the predetermined color.

4,332,163
CAM BOX ASSEMBLY

Reginald S. Emerson, Buckingham, England, assignor to Leslie Hartridge Limited, Buckingham, England

Filed Jun. 24, 1980, Ser. No. 162,664
Claims priority, application United Kingdom, Jun. 29, 1979, 7922651
Int. Cl.[3] G01M *19/00*
U.S. Cl. 73—119 A 3 Claims

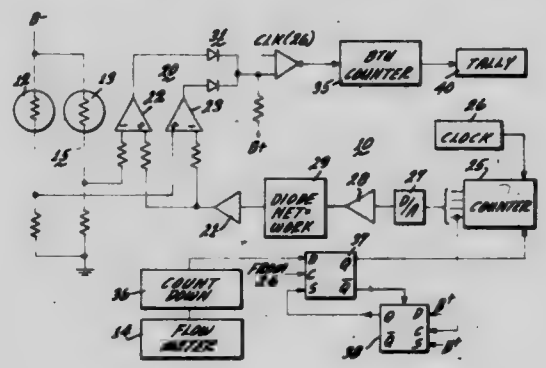


1. A cam box assembly, especially for use with machines for testing fuel injection pumps, comprising a cam box, a cam shaft in said cam box, drive transmission means connected to said cam shaft, a first rotatable shaft drivingly connected to said drive transmission means, a second rotatable shaft drivingly connected to said drive transmission means, a first flywheel mounted on said first shaft, and a second flywheel mounted on said second shaft and of identical mass to said first flywheel, said two shafts being co-axial with each other and being arranged to rotate in opposite directions by reason of their connection with said drive transmission means whereby said flywheels likewise rotate in opposite directions, and said drive transmission means comprising a slow-speed output formed by a crown wheel and two higher-speed inputs formed by opposing, spaced-apart, coaxial bevel pinions arranged to rotate in opposite directions and carried on said two contra-rotating shafts.

4,332,164
BTU METER

Robert J. Schlesinger, 18645 W. Hatteras, Tarzana, Calif. 91356, and Patrick J. Keegan, 8711 Haskell St., Sepulveda, Calif. 91343

Filed Oct. 29, 1979, Ser. No. 89,528
Int. Cl.[3] G01K *17/16*
U.S. Cl. 73—193 R 5 Claims



1. A BTU meter for measuring the amount of energy absorbed or dissipated by a device for any length of time, said device having a collector, the collector being flown through by fluid, said meter comprising:

first temperature-sensing means disposed and connected to

provide a first signal representing the temperature of the fluid flow into the device;

second temperature-sensing means disposed and connected to provide a second signal representing the temperature of the fluid flow out of the device;

flow-sensing means disposed to provide a pulse each time a particular quantity of fluid as flown through a flow path which includes the device;

a ramp generator providing a sweep signal and being connected for being triggered by each of said pulses;

first and second comparators, both being connected to the ramp generator to receive therefrom the sweep signal as a reference signal and said first and second comparators further connected respectively to said first and second temperature-sensing means;

logic gate means connected for combining outputs of the first and second comparators as produced by them to generate an enabling signal for a period of time in which the sweep signal sweeps through levels representing temperatures between said temperatures, respectively represented by the first and second signals;

clock-pulse-generating and providing means; and

means connected to the clock pulse means and to the logic gate means, to count clock pulses during each enabling signal and to, cumulatively, tally the result of the counting.

4,332,165

GAS FLOW MEASURING DEVICE

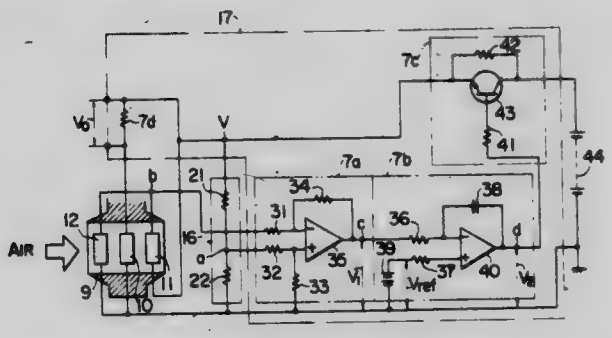
Hisasi Kawai, Toyohashi; Tsuneyuki Egami, Aichi; Tokio Kohama, Nishio, and Hideki Obayashi, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Nov. 7, 1979, Ser. No. 92,024

Claims priority, application Japan, Nov. 10, 1978, 53-139142; Nov. 13, 1978, 53-140186

Int. Cl.³ G01F *1/68*

U.S. Cl. 73—204 **3 Claims**



1. A gas flow measuring device comprising:

a flow rate measuring pipe disposed within a conduit for a gas whose flow rate is to be measured, said flow rate measuring pipe defining a single gas passage extending in the axial direction of said conduit;

a first temperature dependent resistor, and electric heater and a second temperature dependent resistor disposed within the single gas passage defined by said flow rate measuring pipe and along the flow of the gas within said single gas passage, said electric heater being located between said first and second temperature dependent resistors; and

a measuring circuit connected to said first and second temperature dependent resistors and to said electric heater to generate an output voltage indicative of the flow rate of the gas depending on the resistance values of said first and second temperature dependent resistors;

said measuring circuit including a first reference resistor and a second reference resistor constituting a bridge circuit together with said first and second temperature dependent resistors; a first differential amplifier circuit connected to said bridge circuit for the amplification of the potential difference between the potentials at the diagonal points of said bridge circuit; a second differential amplifier circuit connected to said first differential amplifier circuit for the amplification of the difference between the amplified output voltage of said first differential amplifier circuit and a predetermined reference voltage; a power amplifier connected to said second differential amplifier circuit for the power amplification of the amplified output voltage of said second differential amplifier circuit; an output resistor connected to said power amplifier and to said electric heater to provide thereacross said output voltage the third power of which is proportional to the flow rate of the gas subjected to the flow rate measurement; and a heat circuit connected to said electric heater, to said output resistor and to said power amplifier to disable said power amplifier depending on the resistance value of said electric heater.

4,332,166

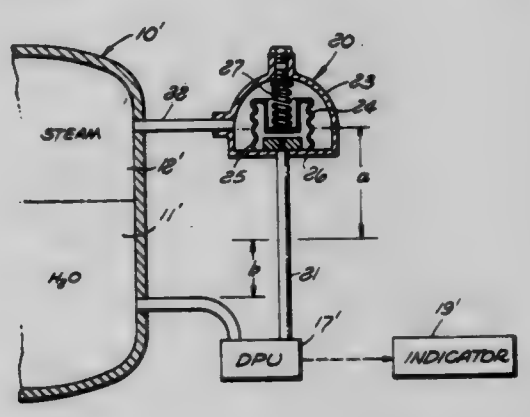
TEMPERATURE COMPENSATION APPARATUS FOR A LIQUID FILLED CONDUIT

Victor N. Lawford, Pasadena, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Aug. 8, 1980, Ser. No. 176,466

Int. Cl.³ G01F *23/14*

U.S. Cl. 73—299 **17 Claims**



1. A temperature compensated fluid link comprising: fluid tight housing means providing a chamber, said housing means having an inlet to admit fluid under pressure to the interior of said chamber, said housing means having one wall and an opening extending through said one wall; a conduit having first and second ends, said first end of said conduit being sealed through said opening in a liquid tight manner; a bellows having a free end and a lip at an opposite end, said lip being sealed to a side of said one wall inside said chamber around and spaced from said chamber opening; a spring supported in said chamber in a manner to apply a force to said bellows free end as a function of the expansion and contraction of said bellows relative to said opening; pressure sensitive means providing a liquid tight closure of said second conduit end; and an incompressible liquid filling said bellows and said conduit, said incompressible liquid having an expansion which is a predetermined function of temperature, said spring having a force constant of a magnitude sufficient to cause the pressure in said conduit at said pressure sensitive means to be constant not only when the pressure outside said bellows but inside said chamber is constant, but also when the temperature of said liquid varies a predetermined extent anywhere within a predetermined range.

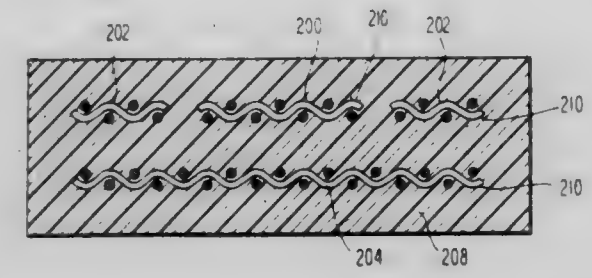
4,332,167
METHOD OF MAKING AN RF ADMITTANCE MEASURING PROBE AND PRODUCT THEREOF

Robert J. Sun, Bala Cynwyd, and Frederick L. Maltby, Jenkintown, both of Pa., assignors to Drexelbrook Controls, Inc., Horsham, Pa.

Continuation of Ser. No. 635,595, Nov. 28, 1975, abandoned, which is a continuation-in-part of Ser. No. 532,208, Dec. 12, 1974, Pat. No. 4,064,753. This application Mar. 21, 1979, Ser. No. 22,456

Int. Cl.[3] B29C *27/30;* B29D *3/00;* G01F *23/26*

U.S. Cl. 73—304 C 14 Claims



1. An RF probe for measuring liquid levels made by an improved method comprising the following steps:

applying sheets of thermoplastic insulation material to the exterior of a probe electrode comprising a wire mesh having a plurality of openings extending therethrough such that said sheets extend substantially laterally outwardly beyond the lateralmost extremities of said probe electrode and beyond the end of said probe electrode;

locating the sheets and electrode within an air tight chamber having a diaphragm pressing member;

substantially evacuating said chamber of air including any air present between said sheets and within said openings and beyond said lateralmost extremities before applying uniform pressure to said sheets;

subsequently applying uniform pressure through said diaphragm to said sheets after said air has been evacuated from between said sheets; and

heating said insulation material to at least its melting point so as to form a fusion bond between said sheets through said openings and beyond said lateralmost extremities whereby substantial compressive forces are applied to said probe electrode over the surface area thereof upon cooling, the insulation material forming a continuum through said openings and said lateralmost extremities.

4,332,168
RADIOMETER

Claus Aberle, Mannheim; James F. Ruger, Hoffenheim, and Klaus-Peter Schulz, Heidelberg, all of Fed. Rep. of Germany, assignors to Eltro GmbH, Heidelberg, Fed. Rep. of Germany

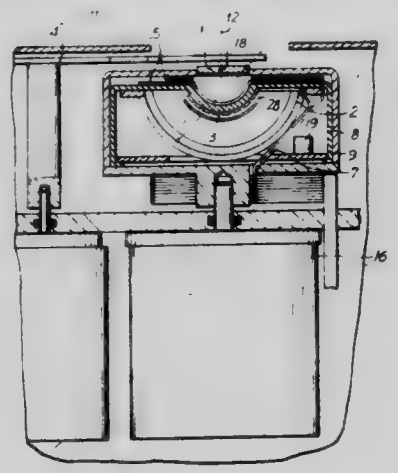
Filed Apr. 16, 1980, Ser. No. 140,796

Claims priority, application Fed. Rep. of Germany, Apr. 20, 1979, 2915971

Int. Cl.[3] G01J *1/56*

U.S. Cl. 374—130 2 Claims

1. A radiometer for measuring heat radiating from a defined spacial area, comprising a hollow mirror shaped to resemble a segment of a sphere and mounted for turning movement about its optical axis; a plurality of photoelectric convertors mechanically coupled with said mirror and arranged in the path of rays reflected by the same; a turntable interruptor disk interposed ahead of said mirror in the path of incident radiation and having a reflecting side facing towards the mirror; means for producing a reference signal which is coupled in phase-locked relationship with the rotation of said disk; heating means for heating said convertors; a housing surrounding said mirror, said convertors and said heating means and having a wall located ahead of said mirror and provided with an incident-light window located on said optical axis inwardly of said interruptor disk and arranged on the center of curvature of said mirror; and circuit means comprising amplifiers connected to receive signals from said convertors, a rectifier circuit including a phase-detector circuit controlled by said reference signal and a low-pass filter circuit receiving signals from said rectifier circuit, threshold value comparators and a multiplexer operative to sequentially supply the rectified signals to said threshold value comparators; said reference-signal producing means comprising an auxiliary disk coupled in phase-locked relationship with said interrupter disk and provided with reference indicia, and a detector responding to said reference indicia by producing said reference signal; said interrupter disk including a drive having a rotary drive shaft, and said auxiliary disk being mounted on said drive shaft for rotation therewith; said auxiliary disk being of transparent material and said indicia



being constituted by opaque portions of said auxiliary disk for coding, said detector having an electric eye circuit a light beam of which is interrupted by said opaque portions during turning of the auxiliary disk; an amplifier/limiter and a demodulator connected in circuit subsequent to said detector so as to produce a pure sine-wave reference signal of substantially constant amplitude; and wherein said phase-detector circuit comprises a plurality of multipliers; said reference signal having a defined phase position and a frequency corresponding to that of said interrupter disk; coding on the said auxiliary disk being arranged so that the demodulated signal has a pure sine-wave shape, said auxiliary disk being rigidly connected for rotation with said interrupter disk for predetermining the phase position of the reference signal relative to the phase position of the signal produced at the converters.

4,332,169
SPEED NUT FOR A WHEEL BALANCER

Robert J. Stuart, Murfreesboro, Tenn., assignor to Hennessy Industries, Inc., Elk Grove Village, Ill.

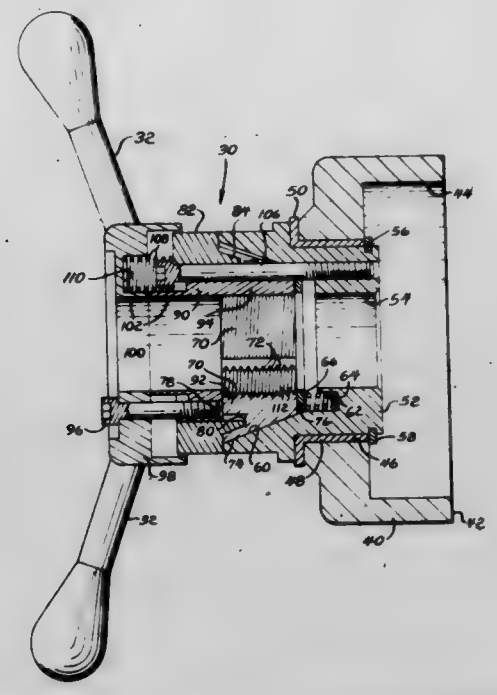
Filed Jun. 16, 1980, Ser. No. 159,816

Int. Cl.[3] G01M *1/02*

U.S. Cl. 73—487 5 Claims

1. A wheel balancer including: a threaded shaft having a free end for receiving a wheel to be balanced; means for rotating the shaft with a wheel secured thereon so as to enable the obtaining of data relative to unbalance of the wheel as the wheel rotates; a locating device for engaging a wheel on the shaft and for locating the wheel on the shaft; and nut means receivable on said shaft for holding a wheel thereon and against said locating device, said nut means including nut threads for engagement with the threads on said shaft, means for selectively moving said nut threads radially inwardly into engagement with said shaft threads and outwardly out of engagement with said shaft threads, whereby said nut means may be rapidly advanced on or removed from said shaft without rotation when said nut threads are out of engagement with said shaft threads, said selective moving means comprising means normally moving said nut threads radially outwardly and cam means operable to move said nut threads radially inwardly; said locating device being biased twoard said free

end and said cam means including a ramp-like surface slidably receiving said nut threads and at an angle to the axis of said shaft less than the angle of the faces of said threads to a plane



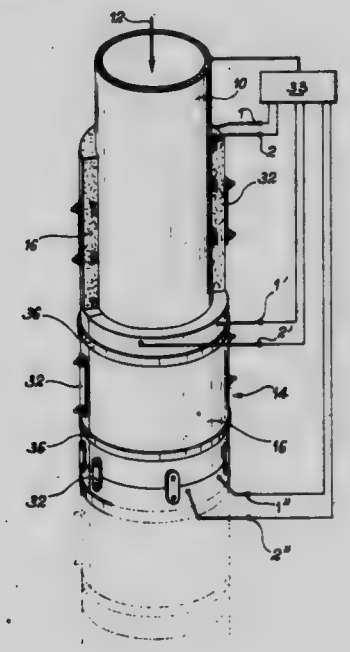
at right angles to said axis; and manual means for sliding said nut thread on said surface to cause the same to be cammed radially inwardly.

4,332,170

SUB-ASSEMBLY FOR DETECTING LEAKS OF A LIQUID METAL

Michel Belval, Volx; Chantal Casselman, Manosque; Jean-Claude Malet, Venelles; Christian Prats, Versailles, and Jean Meneret, Sevres, all of France, assignors to Commissariat a l'Energie Atomique, Paris and Carbonisation Entreprise et Ceramique (C.E.C.), Montrouge, both of, France

Filed Apr. 29, 1980, Ser. No. 144,915
Claims priority, application France, May 3, 1979, 79 11142
Int. Cl.³ G01M *3/08*
U.S. Cl. 73—40.5 R **15 Claims**



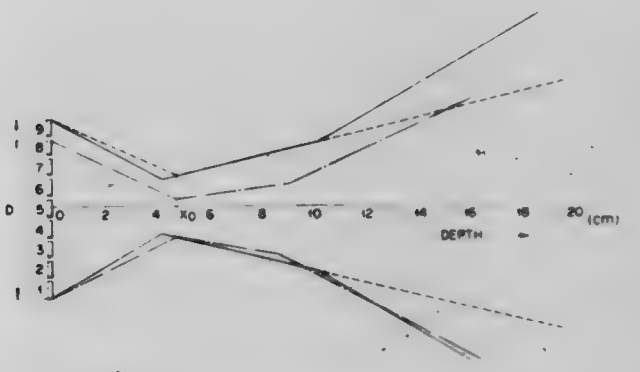
1. A sub-assembly for detecting leaks of a liquid metal contained in a component, comprising electrically conductive elements (22) arranged inside an electrically insulating material, wherein said insulating material consists of a rigid shell (18) the inner surface of which is adapted to the outer surface of said component (10), whilst open grooves (20) are formed on the inner surface of the shell for receiving said electrically conductive elements (22), the grooves (20) having a widened portion (26) remote from the inner surface of the shell, receiving the electrically conductive elements, and a portion of reduced width (24) located between the widened portion and the inner surface of the shell and maintaining the electrically conductive elements (22) at a spacing from said inner surface.

4,332,171

ULTRASONIC DIAGNOSIS APPARATUS

Taketoshi Iida; Kazuyoshi Saito; Toshio Shrasaka, and Yasuhiko Takemura, all of Tochigi, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jul. 3, 1980, Ser. No. 165,622
Claims priority, application Japan, Jul. 11, 1979, 54-86866
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—626 **5 Claims**



1. An ultrasonic diagnosis apparatus comprising:
a plurality of transducer elements arranged at least in a row,
means for generating a system pulse signal,
means for controlling the number of simultaneously driven transducer elements,
said controlling means including means for storing delay time data for said simultaneously driven transducer elements to maintain the minimum width position of ultransonic beams which said simultaneously driven transducer elements transmit toward and receive from an object under examination substantially constant irrespective of the change of the number of said simultaneously driven transducer elements, electronic focusing means including delay elements for adjusting the focal point of the ultransonic beams in accordance with the delay time data read out from said storing means in order for the minimum width position of the ultrsonic beams to be substantially constant,
means for providing said simultaneously driven transducer elements with an output of said electronic focusing means,
means for detecting the ultrasonic beams received by said simultaneously driven transducer elements, and
means for displaying the detected ultrasonic beams in response to the system pulse.

4,332,172

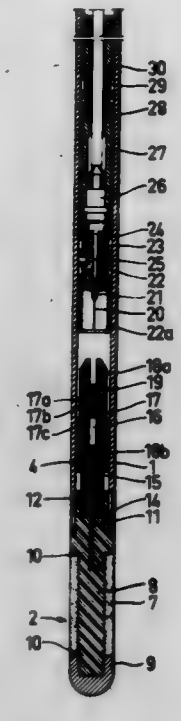
DEVICE FOR DETERMINING THE PORE WATER PRESSURE IN A SOIL

Bengt-Arne Torstensson, 34 Höjdvägen, Vallentuna, Sweden (S-186 00)

PCT No. PCT/SE79/00117, § 371 Date Jan. 7, 1980, § 102(e) Date Jan. 7, 1980, PCT Pub. No. WO79/01099, PCT Pub. Date Dec. 13, 1979
PCT Filed May 22, 1979, Ser. No. 177,761
Claims priority, application Sweden, May 22, 1978, 7805815
Int. Cl.³ G01L *11/00*
U.S. Cl. 73—707 **11 Claims**

1. A device for determining the pore water pressure in a soil comprising a water-filled tube, a pore pressure sound at the bottom end of the tube having a filter, a measuring device with a pressure meter, means for connecting the measuring device to the pore pressure sound, cable means for connecting the measuring device to a recording means, the means for connecting the measuring device to the pore pressure sound comprises

a hypodermic needle and a member of a resilient material, whereby to record a reading of the pore water pressure the hypodermic needle penetrates said member of resilient material, and damping means arranged on the pore pressure sound



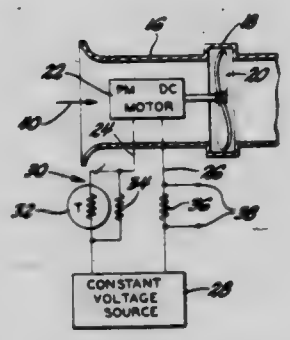
below said member for absorbing the effects of a momentary volume change in the pore pressure sound occurring during penetration of the needle through the resilient member, said damping means including a confined gas.

4,332,173

FAN TYPE MASS AIRFLOW METER

Daniel C. MacManus, Owosso, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 9, 1980, Ser. No. 157,391
Int. Cl.[3] G01F *1/78*
U.S. Cl. 73—861.89 6 Claims



1. A mass airflow meter for measuring the mass airflow through a duct comprising

a fan in the duct,

a permanent magnet D.C. motor coupled to the fan for driving the fan,

supply means for supplying a substantially constant voltage to the motor for operation of the motor at a speed depending on the mass airflow, wherein the motor current varies substantially inversely with fan speed, and

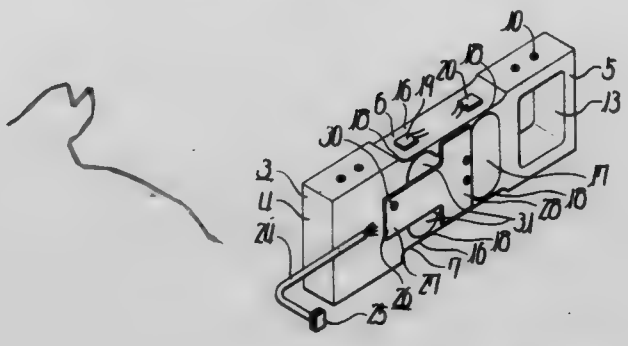
current sensing means connected to the supply means for providing an output signal proportional to the motor current to provide a substantially linear measure of mass airflow.

4,332,174

LOAD-CELL BALANCE

Seiji Suzuki; Kohichiro Sakamoto, and Tohru Kitagawa, all of Shizuoka, Japan, assignors to Tokyo Electric Company, Limited, Meguro, Japan

Filed Apr. 14, 1980, Ser. No. 139,644
Claims priority, application Japan, Apr. 19, 1979, 54-47243; Apr. 20, 1979, 54-53784[U]
Int. Cl.[3] G01L *1/22*
U.S. Cl. 73—862.65 8 Claims



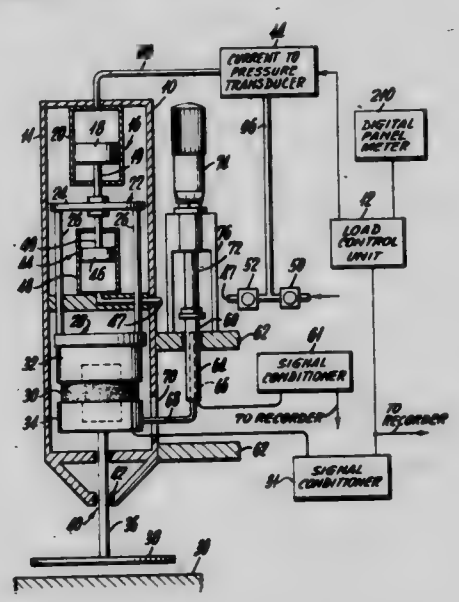
1. A load-cell balance comprising: a parallelogram beam including a stationary portion fixed to a base, a movable portion to which a load support is coupled and a pair of parallel arms through which said stationary and movable portions are connected to each other at their upper and lower ends, said arms having flexible portions; strain gauges adhered to said flexible portions; and a printed circuit board to which a wiring pattern for said strain gauges is adhered, said printed circuit board extending along the length of said beam and being fixed at one end to said stationary portion.

4,332,175

COUNTERBALANCE LOADING DEVICE

Theodore J. Krainski, Jr., Old Bridge, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed May 12, 1980, Ser. No. 149,221
Int. Cl.[3] G01N *3/10*
U.S. Cl. 73—825 7 Claims



1. Apparatus for applying a load to a test sample comprising:

a housing;

a first cylinder rigidly affixed inside said housing and adapted to receive a first supply of fluid under pressure;

a first piston slidably mounted in said first cylinder and moveable in response to said first pressurized fluid supply;

a first piston rod connected to said first piston to transmit the force supplied to said first piston out of said first cylinder;

a load transfer assembly disposed within said housing having a first end rigidly affixed to said first piston rod and having a second end affixed to an output shaft so that said output shaft will move together with said first piston;

a counterbalance cylinder rigidly affixed within said housing

and adapted to receive a second supply of fluid under pressure and having a piston slidably mounted therewithin and moveable in response to said second pressurized fluid supply in a direction opposite to the motion of said first piston;

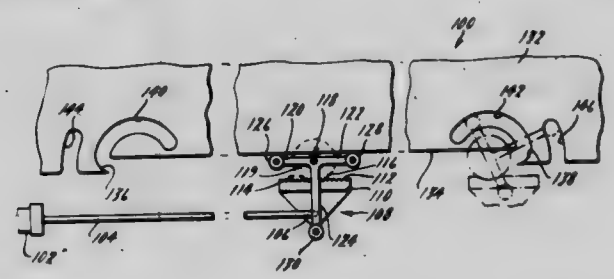
a counterbalance piston rod having a first end connected to said counterbalance piston and a second end connected to said load transfer assembly to transmit the force applied to said counterbalance piston to said load transfer assembly to counterbalance the weight of said first piston rod, said first piston, said load transfer assembly and said output shaft.

4,332,176

MECHANICAL MOTION CONTROL APPARATUS

Norbert Rust, St. Clair Shores, Mich., assignor to Expert Automation, Inc., Sterling Heights, Mich.

Division of Ser. No. 868,889, Jan. 12, 1978, Pat. No. 4,224,830.
This application Feb. 7, 1980, Ser. No. 119,307
Int. Cl.³ F16H *25/00*
U.S. Cl. 74—110 **6 Claims**



1. Mechanical motion control apparatus comprising:

drive means;

driven means driven by said drive means, said driven means including a gear; and

movement control means including cam follower means secured to said gear and engageable with a camming surface, said cammng surface being contoured so as to allow a period of pure rotational movement of said driven means, a period of decelerating rotational and simultaneous accelerating linear movement of said driven means and a period of constant velocity linear movement of said driven means relative to said drive means while said drive means continuously moves at a substantially constant velocity.

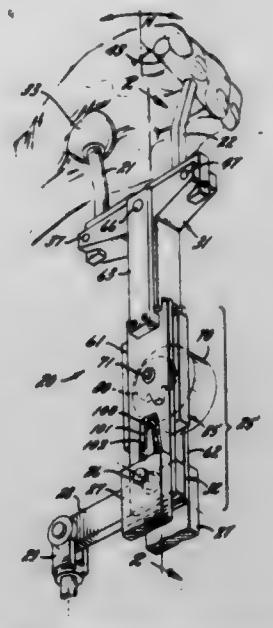
4,332,177

CONTROL SYSTEM HAVING SQUEEZE TYPE MANUAL ACTUATOR

Herman J. Andresen, 712 Carriage Hill, Glenview, Ill. 60025

Filed May 30, 1980, Ser. No. 154,802
Int. Cl.³ G05G *9/04*; H01C *10/00*
U.S. Cl. 74—491 **29 Claims**

1. In a control system, a squeeze type manual controller comprising, in combination, a control arm, a mount providing a movable connection therefor, a pair of hand grips extending longitudinally from the upper end of the arm, the hand grips being pivoted to the arm for rocking movement about parallel axes, the hand grips having respective pads at their outer ends and having a normal spacing in which the pads are engageable by the palm and fingertips of one hand, a central plunger mounted for reciprocating movement in said arm and having a return spring, means for coupling both of the hand grips to the plunger so that squeezing of the hand grips together causes the plunger to move downwardly against the force of the return spring, means at the lower end of the plunger and coupled thereto for producing a first output signal in accordance with plunger displacement, and means for producing a second out-



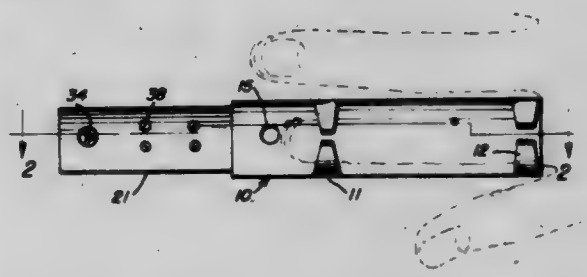
put signal in accordance with the displacement of the arm with respect to the movable connection.

4,332,178

EXTENDIBLE FINGER WRENCH

John Vukich, 6500 E. 88th Ave. #186, Henderson, Colo. 80640

Filed Aug. 21, 1980, Ser. No. 180,049
Int. Cl.³ B25B *15/00*
U.S. Cl. 81—439 **7 Claims**

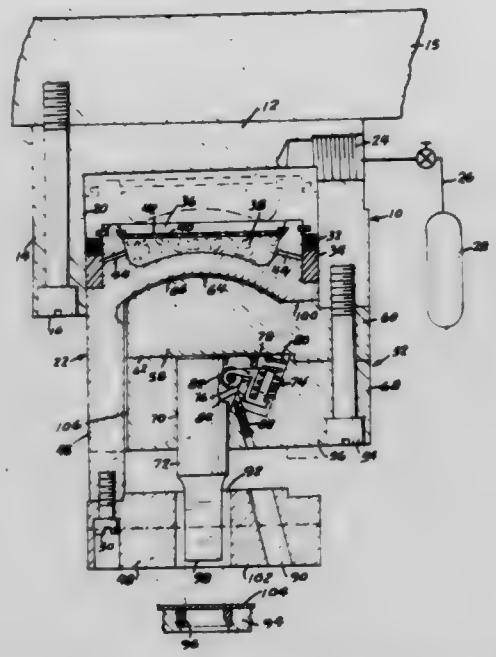


1. A tool set adapted to be used for removing and replacing connections in areas of limited accessibility comprising an elongated transversely arcuate rigid base member with side channels extending along both elongated edges, first stop means on the base member near its forward end, and a set of interchangeable tool carrying members each adapted to be carried individually on the said base member and comprising an elongated rigid member concentrically arcuate with the base member so as to be able to slide onto the base member with the side edges of the tool carrying member slideably engaged within the said side channels, a second cooperating stop means near the back end of the tool carrying member, a different tool element mounted at the forward end of each tool carrying member, the said first stop means and the said second stop means adapted to abut when the base member and the tool carrying member are at their maximum extension, frictional gripping means on the base member to hold the tool carrying member at any point along the length of the base member so as to provide a tool of optionally varying length, said frictional gripping means comprising a bowed tension spring extending parallel to the length of the base member and secured to it at each of its ends, said spring having an opening at one end to allow room for the flattening of the spring when the tool carrying member rides over it.

4,332,179
COMBINED PUNCH RETAINER AND FLUID-ACTUATED STRIPPER

Bernard J. Wallis, 25200 Trowbridge Ave., Dearborn, Mich. 48124

Filed Oct. 8, 1980, Ser. No. 194,996
Int. Cl.[1] B21D *45/08*
U.S. Cl. 83—137 2 Claims



1. A combined punch retainer and fluid-actuated stripper comprising a fluid cylinder adapted to be mounted on a vertically reciprocating die member for movement therewith, said cylinder having a vertical bore therein, said bore being open at its lower end and having an inlet port adjacent its upper end, a piston arranged for vertical reciprocation in said bore, a punch retainer at the lower open end of said cylinder, said punch retainer having a plurality of circumferentially spaced, radially outwardly extending fingers, the outer ends of which register circumferentially with the lower end of said cylinder, screws extending upwardly through the outer ends of said fingers and into the lower end of the cylinder and fixedly securing the punch retainer on the lower end of the cylinder, said piston having a plurality of integrally formed legs thereon extending downwardly between and beyond the radially extending fingers on the punch retainer, said punch retainer having a downwardly opening bore therein for receiving a punch, a stripper plate transversely spanning the lower ends of said legs and having an opening therein for accommodating said punch and screws extending upwardly through the outer peripheral portion of said stripper plate and into the lower ends of said legs for fixedly mounting the stripper plate on said legs, said fingers and legs being interengaged to prevent relative rotation between the stripper plate and the punch.

4,332,180
RESAW APPARATUS

Allard R. Johnson, 909 W. Birch, Shelton, Wash. 98584

Filed Nov. 9, 1979, Ser. No. 93,006
Int. Cl.[3] B27B *5/00*
U.S. Cl. 83—872 1 Claim

1. Resaw apparatus comprising:

an elongated horizontal conveyor in the form of an endless belt for receiving and supporting boards in a horizontal position lengthways of said belt with a broad side of each board down,

means for supporting said endless belt to position its upper face at a predetermined reference level, said supporting means comprising an elongated beam member immediately adjacent and underneath the upper reach of said endless belt along which the upper reach of said belt slides for establishing the reference level of said belt,

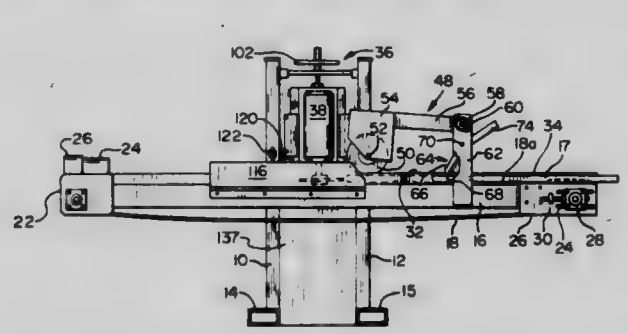
said beam being provided with a pair of stationary and substantially planar side guards positioned in upstanding, parallel, facing relation on either side of said belt to form a board receiving channel together with said beam and said belt within which boards are received,

a circular saw located along said belt,

and means for moving said belt in a longitudinal direction for moving said boards lengthways into said circular saw,

said circular saw having a blade extending transversely above the upper reach of said endless belt, said blade being positioned at a level for cutting a board transversely with respect to the upper face of said belt as a reference level while said belt urges said board lengthways within said channel into said saw blade beginning with one end of said board, said blade extending completely across said channel with each of said side guards having an aperture in alignment with said blade for receiving said blade adapting a board to slidably engage one of said side guards while being cut,

and a gravity operated wheel proximate the position of said saw for bearing on the top surface of a board as received in said channel for holding said board in a direction downwardly toward the upper face of said belt,



said apparatus including a substantially upstanding arbor for supporting said saw blade and power means for rotating said arbor, said power means comprising a motor positioned above the level of the upper reach of said belt and having a shaft extending downwardly to which said arbor is secured,

said apparatus further including a base plate to which said motor is attached and a tiltable mounting plate slidably receiving said base plate in vertically adjustable position for adjusting the depth of cut of said saw relative to said belt,

said apparatus having a frame,

said mounting plate being provided with pivoting means proximate the lower end thereof journaled for pivoting said mounting plate upon said frame about an axis parallel to said board receiving channel and disposing said mounting plate and said base plate in generally parallel relation to said board receiving channel,

and means on said frame above said pivoting means for releasably securing said mounting plate in a selected angular position for disposing said saw blade in selected angular position for making angular cuts in boards received in said channel.

4,332,181
ELECTRONIC MUSICAL INSTRUMENT WITH MEANS FOR SELECTING TONE CLOCK NUMBERS

Toshio Kashio, Tokyo, Japan, assignor to Casio Computer, Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 863,409, Dec. 22, 1977, abandoned.
This application Dec. 13, 1979, Ser. No. 103,037
Claims priority, application Japan, Dec. 24, 1976, 51-155121
Int. Cl.[3] G10H *5/07*
U.S. Cl. 84—1.01 5 Claims

1. Apparatus for use in an electronic musical instrument for selecting one of a plurality of tone clock numbers, comprising:

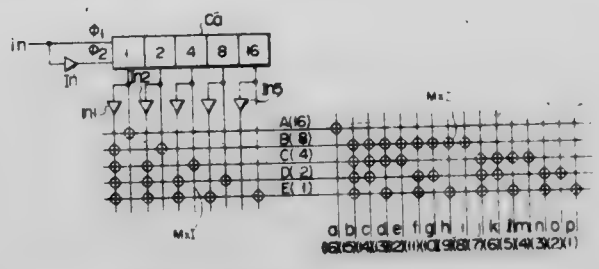
means for generating reference clock signals;

binary counting means coupled to said clock signal generating means and including a plurality of stages for binary-

counting the reference clock signals from said clock signal generating means;

a plurality of output lines;

means for delivering on each of said plurality of output lines a respective output signal representing the logical product of a signal from a respective stage of said binary counting means and an inverted signal from each stage of lower order than said respective stage;



tone clock number selection means coupled to said output lines for selecting at least one of said output lines to obtain an output clock number corresponding to one of twelve different tone clock frequency signals respectively representing twelve different tones, any two adjacent tone clock frequency signals having a frequency difference of substantially $\sqrt[12]{2}$.

4,332,182

APPARATUS FOR TRANSPOSING PASSAGES IN ELECTRONIC MUSICAL INSTRUMENTS

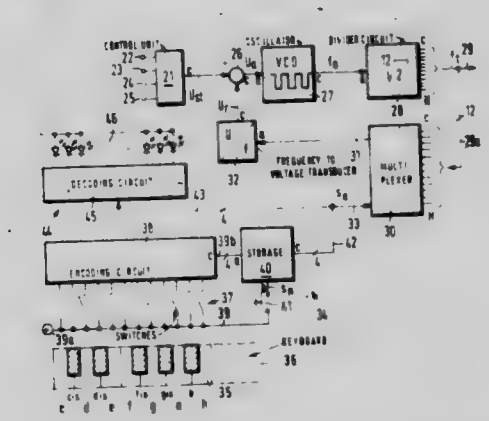
Reinhard Franz, Tulpenstrasse 15, D-5401 Emmelshausen, Fed. Rep. of Germany, and Wilfried Dittmar, Halsenbach, Fed. Rep. of Germany, assignors to Reinhard Franz, Emmelshausen, Fed. Rep. of Germany

Filed Jan. 6, 1981, Ser. No. 222,895

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1980, 3000704

Int. Cl.³ G10H *1/20, 5/06*

U.S. Cl. 84—1.01 **28 Claims**



1. In an electronic musical instrument, a transposing apparatus comprising a voltage-regulated main generator having input means for regulating signals and output means for transmission of high-frequency signals; a divider circuit having input means connected with said output means and output means arranged to transmit tone frequency signals; an electronic switching unit having output means for transmission of regulating signals to the input means of said main generator, said switching unit having a plurality of inputs; and an addressing unit for transmitting addressing signals to the inputs of said switching unit, said addressing unit including a keyboard having a plurality of keys actuatable by the player of the instrument to effect the generation of addressing signals, one for each input of said switching unit.

4,332,183

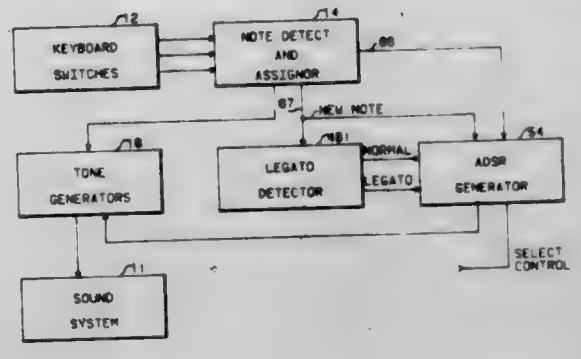
AUTOMATIC LEGATO KEYING FOR A KEYBOARD ELECTRONIC MUSICAL INSTRUMENT

Ralph Deutsch, Sherman Oaks, Calif., assignor to Kawai Musical Instrument Mfg. Co., Ltd., Hamamatsu, Japan

Filed Sep. 8, 1980, Ser. No. 184,707

Int. Cl.³ G10H *1/02*

U.S. Cl. 84—1.26 **10 Claims**



1. In combination with a keyboard operated electronic musical instrument having keying means comprising an array of keyswitches operable between actuated and released states, apparatus for producing musical tones having tone envelopes responsive to the time intervals between successive actuated states of the keyswitches comprising:

a detection means for detecting state changes of said keying means,

a plurality of tone generators for providing musical waveshape signals,

an assignor means responsive to said detection means for selecting members of said plurality of tone generators,

an interval measuring means responsive to said detected state changes, whereby a time interval number is generated corresponding to the elapsed time between successive actuated states of keyswitches in said array of keyswitches,

an interval detection means responsive to said time interval number wherein a plurality of control signals are generated,

an envelope function generator responsive to said plurality of control signals for generating tone envelope functions, and

a multiplier means wherein said musical waveshapes provided by said selected members of said plurality of tone generators are multiplied by said tone envelope function.

4,332,184

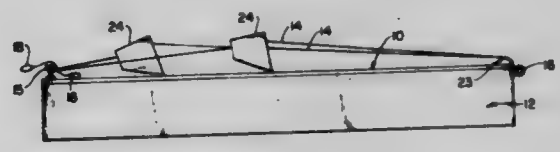
STRINGED MUSICAL INSTRUMENT HAVING A BRIDGE SECURED TO AND TRANSLATABLE ALONG A STRING

Peter Phillips, 189 Sackett St., Brooklyn, N.Y. 11231

Filed Nov. 18, 1980, Ser. No. 207,943

Int. Cl.³ G10D *1/00, 3/04*

U.S. Cl. 84—173 **7 Claims**



1. A stringed musical instrument having a string, a sounding box including a sounding board, means for anchoring the ends of said string, means for providing tension in said string, a self-supporting bridge resting on said sounding board for engaging with and supporting said string, said bridge translatable along said string, and said bridge provided with two edges meeting to form a corner, and wherein said bridge contacts said sounding board through the bridge corner only.

4,332,185

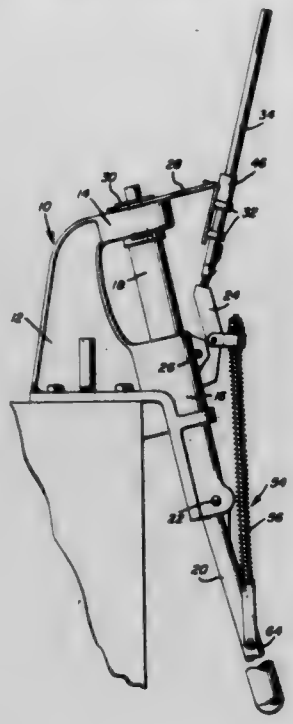
RELOADING PRESS PRIMING ARM LOADER AND ACTUATOR

Jasper E. Hargrove, 2012 Alice St., Waycross, Ga. 31501

Filed Apr. 22, 1980, Ser. No. 142,768

Int. Cl.³ F42B *33/10*

U.S. Cl. 86—36 **8 Claims**



1. In combination with a reloading press of the type including a base and a shell holder reciprocal relative to the base between a first die sizing position and a second primer press position, a handle oscillatable relative to the base between first and second positions and connected to the shell holder for movement of the shell holder to the first and second positions thereof responsive to movement of the handle to its first and second positions, respectively, a primer arm oscillatable relative to the base between a first primer pickup position and a second primer positioning position, a primer tube supported from the base for feeding successive primers to said primer arm as said arm is successively moved to the first position thereof, yieldable lost motion connecting means operatively connecting said handle to said primer arm for swinging the latter to its first and second positions responsive to movement of said handle to its first and second positions, respectively.

4,332,186

HYDRAULIC ACTUATOR FOR LATHE CHUCK

Günter H. Röhm, Heinrich-Röhm-Str. 50, 7927 Sontheim, Fed. Rep. of Germany

Filed Nov. 20, 1980, Ser. No. 208,772

Claims priority, application Fed. Rep. of Germany, Nov. 21, 1979, 7932853[U]

Int. Cl.³ F01B *31/12*; F15B *13/02*; B23B *31/24*

U.S. Cl. 91—1 **10 Claims**

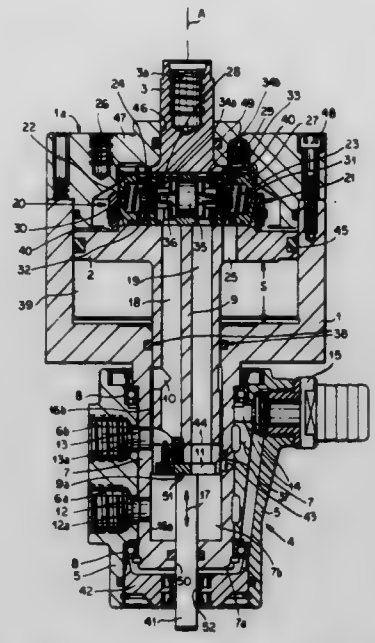
1. An actuator for a power chuck, said actuator comprising:

a hollow actuator housing having a rearwardly extending housing tube centered on an axis and having a closed rear end, said tube being formed with a pair of axially spaced and radially inwardly open grooves both having axial lengths equal at least to a predetermined axial distance, said tube further being formed at said grooves with respective radially throughgoing apertures;

a piston subdividing the interior of said housing into a pair of compartments and having a stem extending axially rearwardly in said tube, said piston being axially displaceable in said housing through an axial stroke at most as long as said distance, said piston being formed with a pair of throughgoing passages each having one end opening at said stem into a respective one of said grooves and another end opening into a respective one of said compartments;

means in said piston including a pair of check valves in said passages for prohibiting flow between said ends of said passages except when either of said passages is pressurized from the respective one end; and

a collar surrounding said tube and rotatable thereon about



said axis, said collar being formed with a pair of annular inwardly open grooves respectively aligned with said apertures and being provided with a pair of connections respectively opening into said inwardly open grooves of said tube.

4,332,187

AIR INTAKE HOUSING

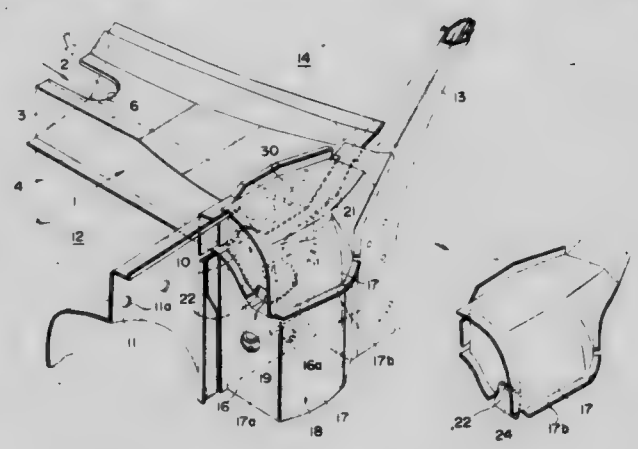
Eiji Imai, Yokohama, and Kazuaki Omote, Fujisawa, both of Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed May 14, 1980, Ser. No. 149,872

Claims priority, application Japan, May 16, 1979, 54/65064[U]

Int. Cl.³ B60H *1/28*

U.S. Cl. 98—2.17 **9 Claims**



9. In a motor vehicle having an engine compartment separated from a passenger compartment by a dash lower panel joined to a dash upper panel, with one side of said engine compartment being defined by a hood ledge panel arranged contiguously with a dash side panel on the same side of said passenger compartment, an air intake housing and associated harness arrangement comprising: a cowl upper panel cooperating with said dash upper panel to define a cowl box into which fresh air is admitted via an intake port; an air box panel cooperating with said dash side panel to define an air box communicating with said cowl box, said air box providing a fresh air path leading from said inlet port to a delivery port in said dash side panel; and a harness for providing an electrical connection between said engine and passenger compartments, said harness

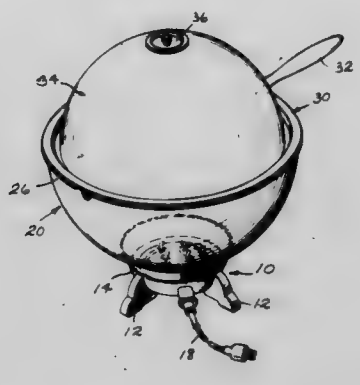
being arranged to bypass said dash lower panel by being threaded from said passenger compartment into said air box through an opening in said dash side panel, and from said air box into said engine compartment through additional openings in said air box panel and said hood ledge panel.

4,332,188

COMBINATION COOKER

Frances Y. Rhear, 1102 Lions Park Dr., St. Joseph, Mich. 49085

Filed Sep. 29, 1977, Ser. No. 837,736
Int. Cl.³ A47J *37/04;* A23L *1/18*
U.S. Cl. 99—323.5 **4 Claims**



1. A combination cooker for popcorn, pizza, shish kebabs, and deep-frying comprising a base having an upwardly extending annular rim supported for positioning upon a table and including a heating element, a bowl-shaped body having an opening in its bottom wall and terminating in an upper annular rim, said body removably seated upon said base within said annular rim thereof with said body opening positioned over said heating element, and angular planar sheet means for supporting food items during cooking, said heat means seated removably upon said body with the rim of said body supporting the sheet means in a generally horizontal plane, said sheet means spanning said body at its rim and overlying said heating element, a removable cover positioned over said sheet means, said cover including a lower angular edge supportingly contacting such sheet means, said body rim having diametrically opposed slots formed therein, basket means for holding food items, said basket means having an impervious base and a perforated top, a shaft extending through said basket means and including opposite ended portions extending from each side of the basket means, said basket means fitting with clearance within said body when said cover and sheet means are removed and having said shaft end portions fitting within said body slots to support said basket means within said body above said heating element.

4,332,189

APPARATUS FOR PREPARATION OF FOODSTUFFS, PARTICULARLY SAUSAGES AND BUNS

Robert M. Stuck, Clover, S.C., assignor to Marshall Air Systems, Inc., Charlotte, N.C.

Filed May 16, 1980, Ser. No. 150,680
Int. Cl.³ A47J *27/10, 27/12*
U.S. Cl. 99—339 **6 Claims**

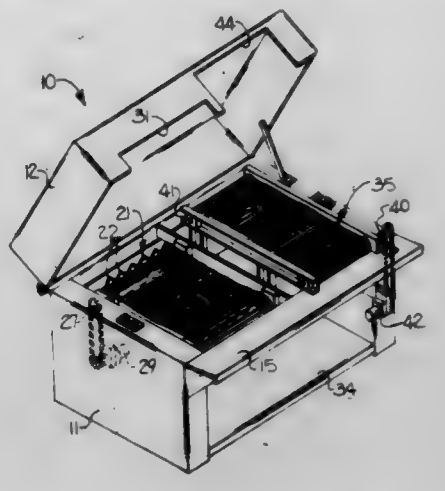
1. Apparatus for preparing foodstuffs and particularly sausages and buns such as hot dogs and comprising:

housing means defining a foodstuff heating chamber having an inlet and an outlet for the introduction and discharge of foodstuffs;

shared heating means for heating said chamber and both sausages and buns passing therethrough and including reservoir means within said housing means for containing water and means for heating water contained in said reservoir means to an elevated temperature less than boiling;

sausage conveyor means mounted in said housing means for immersing sausages in heated water contained in said reservoir means and for maintaining immersed sausages submerged while moving immersed sausages through heated water so as to heat the sausages to a predetermined internal temperature; and

bun conveyor means mounted in said housing means overlying said reservoir means and adjacent and to one side of said sausage conveyor means for engaging buns and for subjecting engaged buns to moist heat including heated



vapor from heated water contained in said reservoir means so as to heat the buns to a predetermined internal temperature;

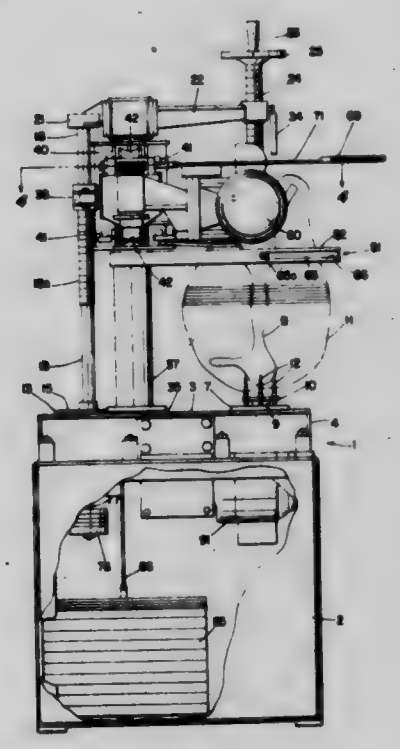
said conveyor means being arranged relative to said inlet and said outlet for receiving foodstuffs introduced thereinto and for discharging heated foodstuffs therefrom.

4,332,190

SPIRAL MEAT SLICER

Clyde D. Mart, Beachwood, Ohio, assignor to First National Supermarkets, Inc., Maple Heights, Ohio

Filed Jun. 3, 1980, Ser. No. 156,254
Int. Cl.³ A23N *7/00;* B23D *19/00*
U.S. Cl. 99—538 **4 Claims**



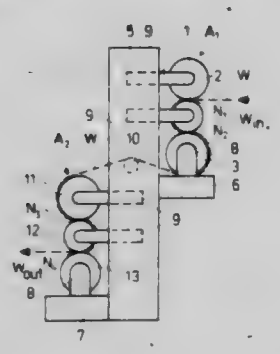
1. In a spiral meat slicer of the character described, means for mounting a whole ham having a central bone structure in a substantially vertical position, means for rotating said ham about the axis of said bone structure, a slicer or cutter unit, means for moving said cutter unit vertically relatively to the ham, said unit comprising: a carriage frame, a circular cutting blade, means for rotating said blade, a hollow circular housing or guard in which said blade is enclosed, a portion of said circular housing or guard being removed to provide an opening in the side of the guard through which a portion of said

cutting blade projects, an inner guard or door which is concentric with said housing and is rotatable within said housing to close said opening in the guard to avoid exposure of said blade through said opening, a handle for moving said inner guard manually to expose said blade through said opening when the cutter unit is in use and to close said opening when the cutter unit is not in use, means for maintaining said inner guard or door closed, when the cutter unit is not in use, said last-named means comprising a gravity-actuated weight operatively connected to said inner guard or door and an arm on said inner guard or door having a follower roll mounted thereon, said follower roll bears against the periphery of the ham for the purpose of maintaining the inner guard or door open during the slicing operation.

4,332,191
CALENDER

Matti Kankaanpaa, Espoo, Finland, assignor to Valmet Oy, Finland

Filed Sep. 29, 1980, Ser. No. 192,027
Claims priority, application Finland, Oct. 15, 1979, 793200
Int. Cl.³ B30B *3/04*
U.S. Cl. 100—162 R **14 Claims**

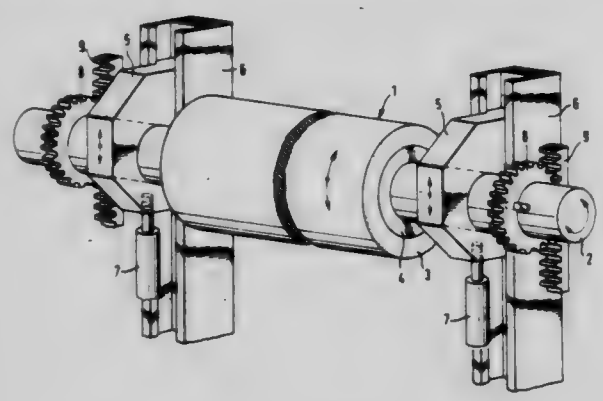


1. Calender apparatus adapted to be directly associated with a paper machine or the like or calendering a web and comprising a plurality of hard rolls with at least one soft roll defining nips, comprising: at least two separate calender units mounted on a unitary frame and spaced from one another, each of said calender units including at least one intermediate roll and two hard end rolls defining a respective pair of nips with said intermediate roll at substantially diametrically opposed sides thereof, and wherein the intermediate roll of at least one of said calender units comprises a soft roll defining a respective pair of soft nips with the two hard end rolls of said calender unit, whereby the web travels through and is treated by said calender units sequentially.

4,332,192
ROLL NIP ARRANGEMENT

Jukka Joutsjoki, Järvenpää, Finland, assignor to Oy Wartsila AB, Helsinki, Finland

Filed Dec. 15, 1980, Ser. No. 216,771
Claims priority, application Finland, Dec. 17, 1979, 793957
Int. Cl.³ B30B *3/04*
U.S. Cl. 100—168 **3 Claims**

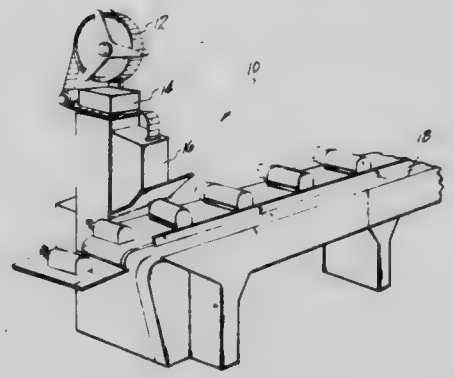


1. A paper web treatment apparatus or the like including a nip forming roll pair, at least one of the rolls in said roll pair being radially movable and having a mantle portion rotatable on a central shaft portion, said movable roll being connected to a device for moving it in a radial direction for disengagement from the other roll of said roll pair, said device comprising means for producing a mechanically guided rotary motion at both ends of said shaft portion simultaneously with said radial motion, said shaft portion forming a rigid member mechanically interconnecting said rotary motions at both ends of said movable roll, thereby synchronizing said radial motions of both ends of said movable roll for obtaining parallel disengagement of said movable roll from the other roll of said roll pair.

4,332,193
THERMAL LINE PRINTER

Billy P. Noyes, 104 E. Rock Rd., Norwalk, Conn. 06851

Filed Apr. 14, 1980, Ser. No. 139,954
Int. Cl.³ B41J *3/50;* B65B *61/00*
U.S. Cl. 101—93.01 **4 Claims**



1. A process for coding and packaging merchandise in a bag comprising the steps of:

(a) providing a plurality of closure tabs having a sensitive surface selected from the group consisting essentially of thermal sensitive and electro sensitive means, each of said closure tabs being divided into N adjacent areas corresponding to the number of character lines being printed;

(b) providing a plurality of bags containing merchandise;

(c) providing a printer having N print heads selected from the group consisting essentially of thermal print heads and electrostatic print heads arranged in series wherein N corresponds to the number of character lines to be printed;

(d) providing logic circuit means for feeding a plurality of closure tabs to said thermal printer such that the N_1 area on N_1 closure tab is associated with N_1 print head, N_2 area on N_2 closure tab is associated with N_2 print head, etc.;

(e) providing logic circuit means for sensing when said N_1 area on said N_1 closure tab is associated with said N_1 print head, said N_2 area on said N_2 closure tab is associated with said N_2 print head, etc. and simultaneously bringing said print heads associated with said area on said closure tabs in contact with said areas for printing a character line on each of said closure tabs;

(f) providing logic circuit means for simultaneously retracting said print heads and advancing said closure tabs such that N_3 area on said N_2 closure tab is associated with N_3 print head, N_2 area on N_1 closure tab is associated with said N_2 print head, N_1 area on N_0 closure tab is associated with said N_1 print head, etc.;

(g) providing logic circuit means for sensing when said N_3 area on said N_2 closure tab is associated with said N_3 print head, said N_2 area on said N_1 closure tab is associated with said N_2 print head, said N_1 area on said N_0 closure tab is associated with said N_1 print head, etc. and simultaneously bringing said print head associated with said areas on said closure tabs in contact with said areas for printing a character line on each of said closure tabs;

(h) repeating said feeding and printing until all of said plurality of closure tabs are coded with N character lines;

(i) feeding said coded closure tabs to a bag closing apparatus; and

(j) applying said tabs to said bags containing said merchandise using said bag closing apparatus thereby closing same.

4,332,194

ARRANGEMENT FOR REDUCING VIBRATION OF CYLINDERS IN PRINTING PRESS

Valentin Gensheimer, Muhlheim am Main, Fed. Rep. of Germany, assignor to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Fed. Rep. of Germany

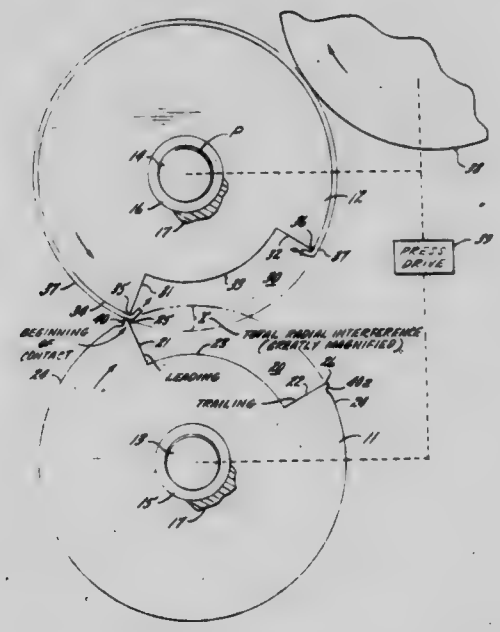
Continuation-in-part of Ser. No. 205,123, Nov. 10, 1980, abandoned. This application Jan. 15, 1981, Ser. No. 225,419

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945280

Int. Cl.³ B41F *7/02, 13/08*

U.S. Cl. 101—216

8 Claims



1. A rotary printing press including a frame, first and second cylinders journaled in the frame in rolling engagement and biased against one another to produce a force at an operating level, each of the cylinders having a longitudinal groove defining a gap in the cylinder surface, means for driving the cylinder so that the gaps are rotated in opposed synchronism with one another, the first cylinder being rigid and the second cylinder being resiliently covered, the groove in the first cylinder defining leading and trailing end walls oriented in a generally radial direction as well as a bottom wall, with the end walls terminating at lips at the cylinder surface, the lips on the end walls each having a bead projection which extends longitudinally therealong and which projects a small distance outwardly from the nominal radial dimension of the cylinder thereby causing the lip on the leading end wall of the first cylinder to engage the surface of the second cylinder earlier than it would in the absence of a bead and causing the lip on the trailing end wall to separate from the surface of the second cylinder later than it would in the absence of a bead thereby to enlarge the pressure build-up and pressure drop-off angles of the cylinders and to cause a more gradual build-up of pressure between them to the operating level as well as a more gradual decrease from the operating level.

4,332,195

VARIABLE-AMPLITUDE VIBRATOR FOR INKING ROLLERS IN PRINTING PRESSES

Shizuo Mizumura, Fussa, Japan, assignor to Kabushiki Kaisha Tokyo Kikai Seisakusho, Tokyo, Japan

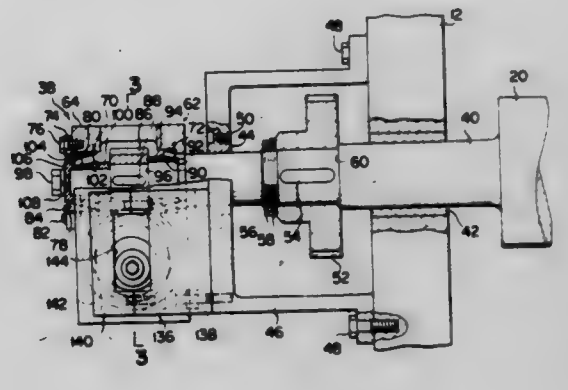
Filed Nov. 14, 1980, Ser. No. 207,200

Claims priority, application Japan, Nov. 19, 1979, 54/148807

Int. Cl.³ B41F *31/14*; B41L *27/16*

U.S. Cl. 101—349

7 Claims



1. In a rotary-type printing press, in combination:

(a) at least one inking roller having a trunnion;

(b) support means supporting the trunnion so as to permit both rotary motion and endwise vibration of the inking roller;

(c) a reciprocator rotatably mounted on the trunnion and restrained from displacement in the axial direction of the trunnion for simultaneous vibratory motion therewith;

(d) a worm fixedly mounted on the trunnion;

(e) a worm wheel meshing with the worm and rotatably supported by the reciprocator, the worm wheel being adapted for simultaneous vibratory motion with the reciprocator;

(f) an eccentric shaft supported eccentrically by the worm wheel for simultaneous rotation therewith about the axis of the latter, the eccentric shaft being capable of angular displacement about its own axis relative to the worm wheel;

(g) the eccentric shaft having an offset extension projecting eccentrically from at least one of its opposite ends;

(h) an amplitude adjustment mechanism for adjustably varying the distance between the axis of the worm wheel and the axis of the offset extension of the eccentric shaft, the amplitude adjustment mechanism permitting the eccentric shaft to be angularly displaced about its own axis relative to the worm wheel and rigidly coupled thereto in a desired angular position; and

(i) guide means, mounted in fixed relationship to the support means, providing a guideway extending perpendicular to the axis of the trunnion, the offset extension of the eccentric shaft being engaged in the guideway for rectilinear reciprocation therealong;

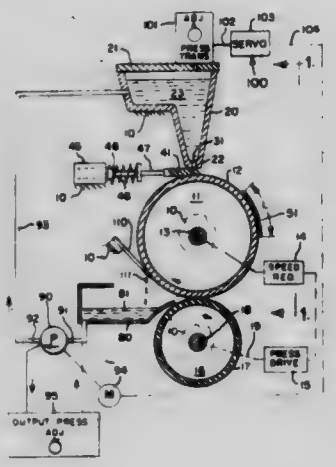
(j) whereby upon rotation of the trunnion the eccentric shaft with its offset extension functions to translate the rotation of the worm wheel into the endwise vibratory motion of the inking roller via the reciprocator, the amplitude of the vibratory motion being adjustably varied by the amplitude adjustment mechanism.

4,332,196

PRESSURIZED ARRANGEMENT INCLUDING TIMERS FOR METERING INK ON THE FOUNTAIN ROLLER OF A PRINTING PRESS

Rolf Braun, Offenbach am Main, Fed. Rep. of Germany, assignor to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 213,865, Dec. 8, 1980, abandoned. This application Feb. 20, 1981, Ser. No. 236,146
Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951651
Int. Cl.³ B41F *31/08*; B41L *27/10*
U.S. Cl. 101—365 **9 Claims**



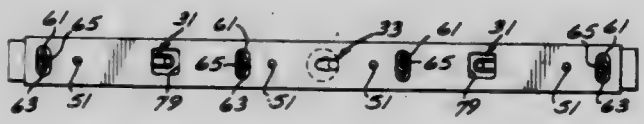
1. An ink fountain comprising, in combination, a frame, a fountain roller journaled with respect to the frame and extending the length thereof, drive means for slowly rotating the fountain roller, an acceptor roller in engagement with the fountain roller, a plurality of nozzles having narrow axially extending openings and arranged in general alignment with one another closely side by side to define respective zonal positions, each nozzle being connected to a source of viscous ink under predetermined pressure, reciprocable slides arranged side by side respectively interposed between the nozzles and the surface of the fountain roller, each slide having a reference position for normally blocking off ink flow from the associated nozzle and being retractable transaxially therefrom to open the nozzle for depositing of ink on the surface of the fountain roller, means including an individual power actuator interposed between each slide and the frame for forcibly and temporarily retracting the slide from its reference blocking position as long as the power actuator is energized, each power actuator having a biasing spring for restoring the slide to its reference blocking position when the power actuator is deenergized, and an individually adjustable control device associated with each actuator for cyclically activating such actuator for pre-set intervals of time which correspond to the ink requirement in the respective zonal position.

4,332,197

SELF-TENSIONING PRINTING CYLINDER LOCK

David L. Dulin, Fullerton, Calif., assignor to Beach Manufacturing Corp., Huntington Beach, Calif.

Filed May 22, 1980, Ser. No. 152,526
Int. Cl.³ B41F *1/28*
U.S. Cl. 101—415.1 **4 Claims**



1. A printing press clamping apparatus mounted in a longitudinal groove formed by a printing cylinder apparatus and comprising:

an elongated tensioning bar disposed longitudinally in said groove for translation laterally therein from a medial position to oppositely disposed first and second retracted positions and formed with top and bottom sides, as well as lateral sides, formed with a centrally disposed bore opening downwardly into said bottom side:

a base plate in the form of a bar interposed between said tensioning bar and the bottom of said groove;

a pair of spring pockets formed in one of said bars at locations spaced equidistant on opposite longitudinal sides of said bore;

a pair of spring anchors projecting into said respective pockets and mounted with the other of said bars;

a pair of dual acting spring means disposed in said respective pockets and interposed between said spring anchors and said one of said bars to urge said tensioning bar to said tensioning medial position, said spring means having substantially equal spring rates to urge the opposite extremities of said tensioning bar to said medial position with substantially equal force;

said base bar being formed with an elongated follower receiving slot disposed at the open end of said bore and formed on its opposite sides with oppositely disposed detents;

fastening means for fastening said clamping apparatus to said cylinder apparatus; and

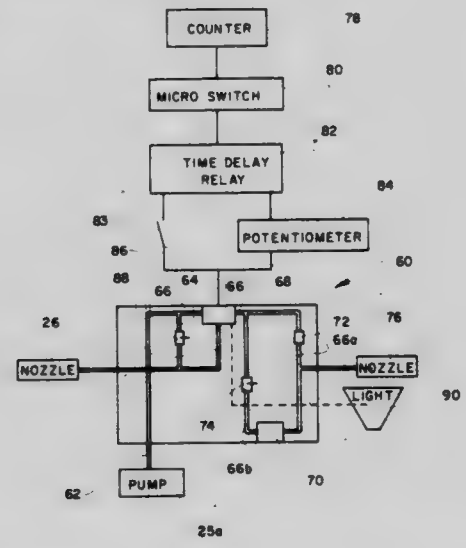
a retractor formed with a cylindrical body received freely rotatable in said bore and including an eccentrically disposed follower projecting longitudinally from said bore into said slot, said actuator being rotatable in said bore to orbit said follower to one lateral side to engage one side of said slot and, upon further rotation of said actuation, positively push said tensioning bar to the opposite lateral side to said first retracted position and to register said follower with one said detent to releasably lock said bar in said first retracted position, and said retractor being further rotatable to disengage said follower from said detent and to orbit it to engage the opposite side of said slot and upon further orbiting, to positively push said bar to said second retracted position.

4,332,198

PRINTING PRESS WITH AN AIR ASSIST SHEET DELIVERY AND POWDERING SYSTEM

Duane A. Schmoeger, 149-B Jones Franklin Rd., Raleigh, N.C. 27606

Filed Jun. 23, 1980, Ser. No. 162,163
Int. Cl.³ B41F *23/04, 23/06*
U.S. Cl. 101—416 B **11 Claims**



1. In a printing machine having printing means for transferring printing matter onto respective paper sheets passing through the printing machine and including a delivery end for receiving the printed sheets wherein within the delivering end there is provided a stacking area where the printed sheets can

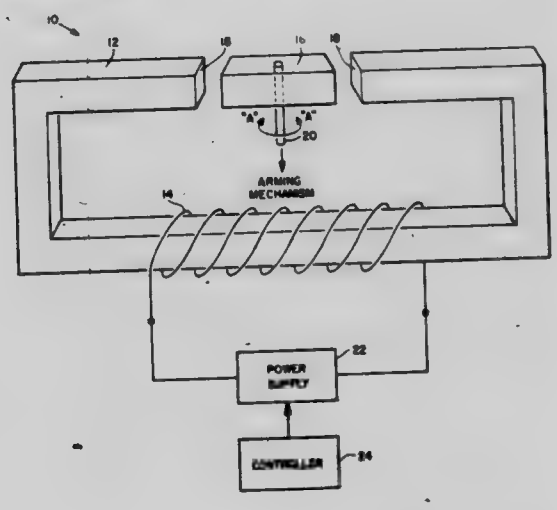
be stacked one on top of another, the improvement comprising an air and powder dispersion system for separately dispersing powder on respective sheets prior to stacking and prior to another sheet being stacked thereon and for separately directing air against respective sheets after powdering as they are stacked so as to assist in the neat and orderly stacking thereof, said air and powder dispersion system comprising: a source of compressed air; nozzle support means adjustably mounted about said delivery end generally above the sheet stacking areas; air dispersing nozzle means secured to said nozzle support means and communicatively connected to said source of compressed air for receiving air therefrom and for directing the air downwardly therefrom onto the respective sheets being stacked; a time controlled on-off powdering system including a source of powder communicatively connected to an air source means; powder dispersing means separate and independent of said air dispersing nozzle means and communicatively connected to said source of powder and generally disposed about the delivery end of said printing machine for dispersing powder onto respective sheets being directed to the stacking area prior to the sheets reaching said stacking area and prior to coming into operative contact with air being dispersed by said air dispersing nozzle means, wherein once stacked the powder generally serves to separate the respective stacked sheets and facilitates movement of the sheets during the delivery and stacking process; and control means for controlling the air dispersed by said air dispersing nozzle means and the powder dispensed by said powder dispersing means and for further controlling the time duration of powder dispensing in accordance with the movement of each respective sheet prior to stacking, said control means including on-off powder dispensing control means for sensing the presence of an oncoming sheet and for actuating said powdering system for a selected time interval while the sheet passes under said powder dispersing means such that powder is only dispersed while the sheet is passing under the powder dispersing means.

4,332,199

ELECTROMAGNETIC ARMING RATE REGULATOR

James E. Means, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 9, 1980, Ser. No. 157,723
Int. Cl.³ F42C *9/00*
U.S. Cl. 102—276 **14 Claims**



1. A device for adjusting the arming time of a projectile having an arming mechanism for arming the projectile at a predetermined rate comprising:

a pallet made of magnetically susceptable material and supported for repetitive movement, the pallet being connected to the arming mechanism for corresponding movement therewith and driven for movement by the arming mechanism while arming;

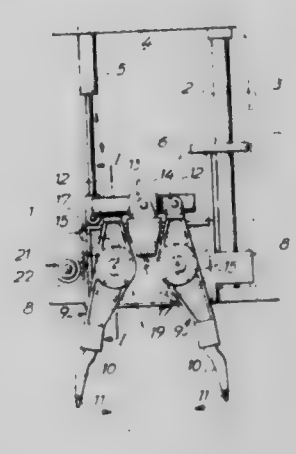
electromagnetic means for generating a magnetic field; and means for adjustably inducing the magnetic field within the pallet for retarding movement of the pallet thereby changing the rate of arming to a rate slower than the predetermined rate.

4,332,200

TAMPING DEVICE FOR RAILWAY TAMPING MACHINE

Jorg Ganz, Etoy, Switzerland, assignor to Sig Societe Industrielle Suisse, Switzerland

Filed Jul. 17, 1980, Ser. No. 169,802
Claims priority, application Switzerland, Aug. 3, 1979, 714379
Int. Cl.³ E01B *27/16*
U.S. Cl. 104—12 **8 Claims**



1. A tamping device for railway track tampers, comprising:

(a) a vertically movable housing;

(b) at least two parallel shafts rotatably mounted in said housing, each of said shafts having at least one end portion extending out of said housing, said end portion being eccentric;

(c) at least two pivoting substantially rectilinear lever-shaped tamping tools, each having an end blade at its lower end, each of said tamping tools being respectively and pivotally mounted on said outer eccentric end portion of one of said shafts;

(d) two double acting jacking assembly means extending in a substantially horizontal direction and respectively articulated to said housing and to said tamping tools for pivoting said two tamping tools in phase opposition;

(e) an inertia flywheel fastened on each of said shafts inside said housing; and

(f) motor means for driving said shafts into rotation, whereby a vibration of elliptical trajectory is imparted to the end blade of each tamping tool.

4,332,201

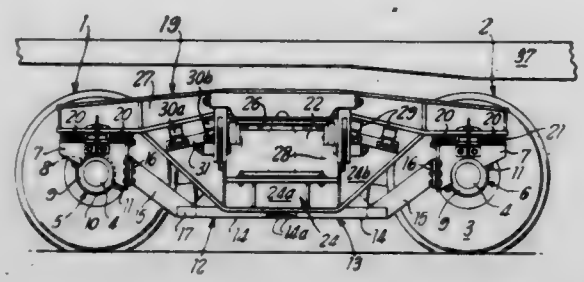
STEERING RAILWAY VEHICLE TRUCKS

Maurice G. Pollard, Mickleover, and Allan Sutton, Duffield, both of England, assignors to British Railways Board, London, England

Filed May 21, 1979, Ser. No. 41,169
Claims priority, application United Kingdom, May 26, 1978, 23576/78
Int. Cl.³ B61F *3/08, 5/36, 5/38, 5/52*
U.S. Cl. 105—167 **8 Claims**

1. In a railway vehicle, a truck having side frames, a bolster, and at least two wheel-sets, each wheel-set being a live axle mounted in a respective pair of axle bearings, at least one axle bearing of one wheel-set being elastically interconnected with at least one axle bearing of the other wheel-set through bracing means providing bracing between the wheel-sets, said bracing means comprising a frame structure for each wheel-set which extends transversely of the vehicle and is connected between axle boxes housing said axle bearings of each respective wheel-set, the improvement wherein each said frame structure comprises a first frame member which is transversely arranged and extends substantially horizontally, and a pair of second frame

members rigidly connected one at each outer end of said first frame member, said second frame members extending upwardly and being rigidly connected at their upper ends to respective axle boxes of their wheel-set, said first frame members being connected intermediately via an elastic connection at a level well below said live axles, on said side frames between the wheel-sets and within and above the space defined by construction of said frame structures, said first frame members passing freely beneath said bolster.

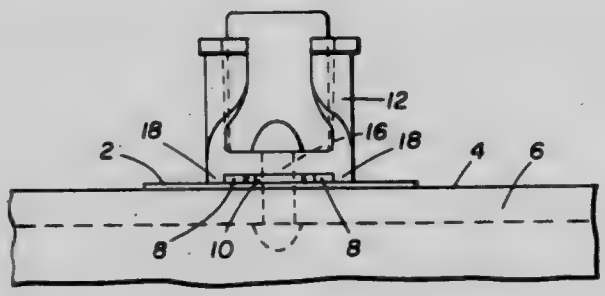


4,332,202

SIDE BEARING CAGE ASSEMBLY

Harvey E. Amwake, West Falls, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 853,652, Nov. 21, 1977, abandoned. This application Jun. 24, 1980, Ser. No. 162,474
Int. Cl.[3] B61F *5/14, 5/24;* F16C *17/04*
U.S. Cl. 105—199 CB 6 Claims



1. In a railway car truck bolster having an upper surface with a substantially centrally located side bearing means near ends of the bolster, the improvement comprising a plurality of vertically extending pads disposed on the upper surface of the bolster near the ends for cooperation with a side bearing cage to match only specific cage bearing portions as required by the pads to locate the side bearing cage to effect transfer of the lateral and longitudinal car body loads to the bolster.

4,332,203

RAILWAY CAR FLOOR ASSEMBLY APPARATUS

Robert Flowers, 519 N. Dawson St., Thomasville, Ga. 37192

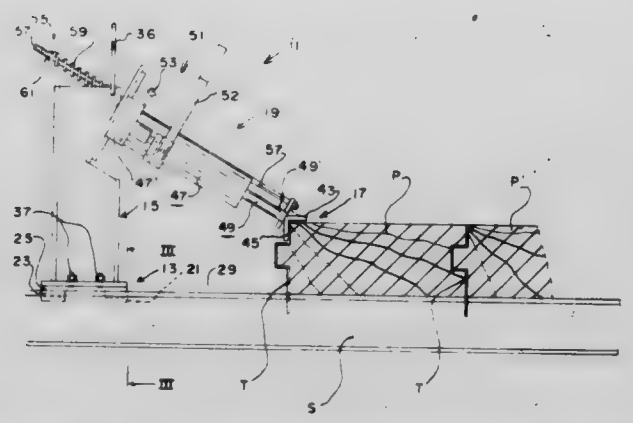
Continuation-in-part of Ser. No. 861,715, Dec. 19, 1977, abandoned. This application Jul. 5, 1979, Ser. No. 54,801
Int. Cl.[3] B23Q *13/00;* B25C *7/00;* B61D *17/10;* B66F *13/00*
U.S. Cl. 105—422 22 Claims

1. An apparatus for properly positioning a railroad car deck plank on a floor beam of a railroad car against a stop means prior to said deck plank being attached to said floor beam with clip-like tie means, said apparatus comprising, in combination:

(a) anchor means for being readily and removably applied to said floor beam adjacent said plank, said anchor means including hook means for positive engagement with a downwardly facing surface of said floor beam and for easily and removably mounting said anchor means on said floor beam;

(b) a post attached to and extending upward from said anchor means, said post having a first end for being attached to said anchor means and having a second end for being located above said floor beam when said anchor means is applied to said floor beam;

(c) engagement means for engaging a portion of said plank, said engagement means including a first portion for contacting the top of said plank and including a second portion for contacting the side of said plank, said first and second portions of said engagement means being positioned substantially at right angles to one another; and



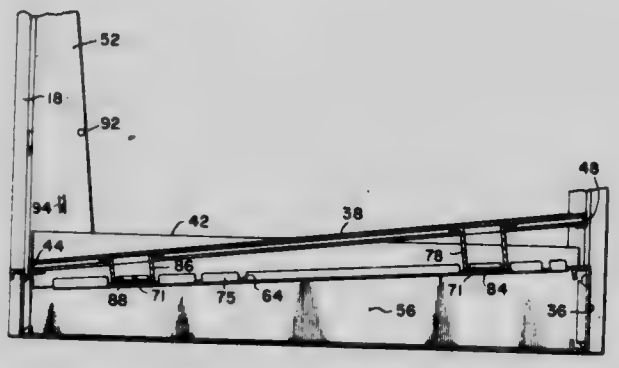
(d) jack means for selectively causing said engagement means to force said plank downwards against said floor beam and sidewards against said stop means, said jack means having a first end being attachable to said second end of said post for downward inclination and having a second end for being attached to said engagement means, said jack means inclining downwardly with respect to said floor beam to exert a downward and sideward force through said first and second members of said engagement means on said plank.

4,332,204

MERCHANDISING DISPLAY STAND

Gerald M. Hewell, Dewy Rose, Ga., assignor to The Mead Corporation, Atlanta, Ga.

Filed May 19, 1980, Ser. No. 151,376
Int. Cl.[3] A47F *5/12*
U.S. Cl. 108—1 3 Claims



1. A merchandising display stand comprising:

a base having a front and rear and shelf means having first and second opposite edges, the shelf means being removably mountable on the base and providing a substantially flat article-supporting surface, characterized by means on the base for supporting the shelf means, and means on the shelf means cooperable with the means on the base, for positioning the article-supporting surface in a first plane when the shelf means is mounted on the base with its first edge toward the front of the base, and for positioning the article-supporting surface in a second plane which intersects said first plane when the shelf means is mounted on the base with its first edge toward the rear of the base;

in which said base comprises a pair of side panels, in which the means on the base for supporting the shelf means comprises coplanar flange means formed on each side panel and projecting toward the other side panel, the

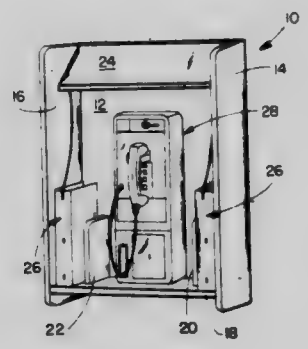
flange means on each panel providing an upwardly facing supporting area disposed in an oblique plane, and in which the means on the shelf means cooperable with the means on the base comprises first and second U-shaped reinforcing channels extending in directions parallel to said first and second edges of the shelf, and secured to the underside of the shelf in spaced relationship to each other and on opposite sides of the midline between said first and second edges, the U-shaped channels having coplanar web sections disposed in a plane oblique with respect to the article-supporting surface, the ends of the coplanar web sections providing downwardly facing contact areas underneath the shelf means and adjacent the opposite side edges of the shelf means, each downwardly facing contact area being positioned for engagement with one of the flange means when the shelf means is mounted on the base with its first edge toward the front of the base, and with the other of said flange means when the shelf means is mounted with its first edge toward the rear of the base; and having tabs fixed to and projecting upwardly from the flange means on each panel, and slot means formed in said downwardly facing contact areas, said slot means being arranged to receive said tabs and thereby lock the shelf against forward and rearward movement with respect to the base.

4,332,205

INTERLOCKING FURNITURE ASSEMBLY AND METHOD

Robert W. Corl, Jr., Grand Rapids, Mich., assignor to Modular Systems, Inc., Fruitport, Mich.

Filed Sep. 13, 1979, Ser. No. 75,311
Int. Cl.³ A47B *5/02*
U.S. Cl. 108—60 **22 Claims**



1. A furniture assembly comprising:

first, second, third and fourth panels; said first panel being secured to said second panel; said third panel being removeably secured to said first panel; said fourth panel being secured to said second panel and removeably secured to said third panel;

first fastening means for slidably securing said first and third panels together and for allowing sliding movement of said third panel between a partially assembled position and a fully assembled position; said third panel having access means on at least two surfaces for allowing access to said first fastening means from each of said two surfaces to facilitate assembly and disassembly of said third panel with other panels;

second fastening means for securing one portion of said fourth panel on said second panel;

third fastening means for slidably securing another portion of said fourth panel to said third panel;

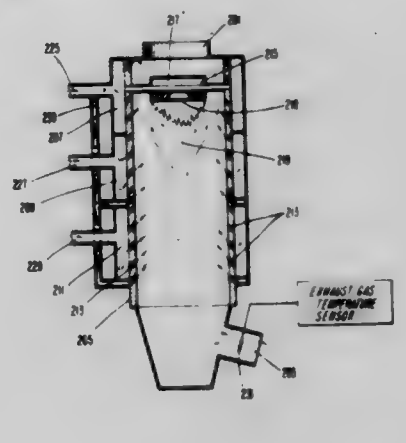
said third fastening means being aligned for securement when said first fastening means is in said partially assembled position and fully secured to lock said fourth panel to said second and third panels when said third panel is moved to said fully assembled position whereby said first, second and third fastening means prevent removal of said fourth panel from said second and third panels until said third panel is in said partially assembled position.

4,332,206

AFTERBURNER FOR COMBUSTION OF STARVED-AIR COMBUSTOR FUEL GAS CONTAINING SUSPENDED SOLID FUEL AND FLY ASH

Gordon H. Tucker, Enumclaw, and Robert E. Fitch, Kent, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 9, 1980, Ser. No. 148,361
Int. Cl.³ F23J *15/00*
U.S. Cl. 110—203 **9 Claims**



1. A starved-air combustor comprising:

a primary combustion chamber having an inlet end for receiving fuel, said primary combustion chamber for combusting said received fuel to produce hot, combustion gases and combustion residue, said primary combustion chamber further including an outlet end for discharging said hot, combustion gases;

a secondary combustion chamber having an inlet end for receiving said hot, combustion gases and an outlet end, said secondary combustion chamber for reacting said hot, combustion gases with selective amounts of air at a significant velocity to combust further any combustible material suspended in said received hot combustion gases to produce secondary hot combustion gases and for discharging said secondary hot combustion gases through said outlet end of said secondary combustion chamber, said secondary combustion chamber including at least first and second air supply zones, each said air supply zone comprising a plenum located adjacent to said secondary combustion chamber, an air supply into said plenum, and at least one air passageway for enabling the flow of air from said plenum into said secondary combustion chamber; and

means for controlling the supply of said reaction air to said secondary combustion chamber according to the temperature of said secondary combustion gases discharged from said outlet end of said secondary combustion chamber.

4,332,207

METHOD OF IMPROVING LOAD RESPONSE ON COAL-FIRED BOILERS

Henry J. Blaskowski, Avon, and David Palchik, Bloomfield, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

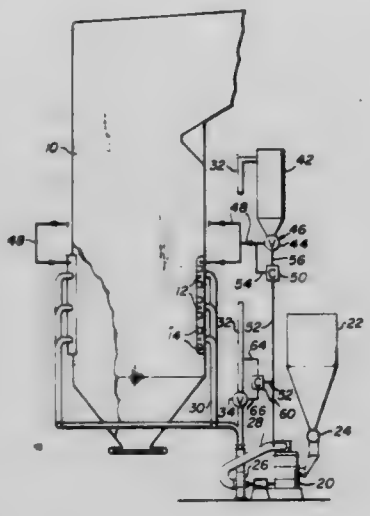
Filed Oct. 30, 1980, Ser. No. 202,264
Int. Cl.³ F23D *1/00*
U.S. Cl. 110—347 **4 Claims**

1. A method of rapidly increasing the amount of pulverized coal supplied to a coal-fired furnace equipped with a coal pulverizer from a first steady-state level to a second steady-state level in response to an increase in the operating load demand of the furnace, comprising the steps of:

a. causing a step increase in the rate of input of raw coal to the pulverizer from a first rate corresponding to a pulverizer output commensurate with said first steady-state level

to a second rate corresponding to a pulverizer output commensurate with said second steady-state level;

b simultaneously with causing a step increase in the rate of input of raw coal to the pulverizer, establishing an additional supply of pulverized coal to the furnace from a source independent of the pulverizer, said additional supply of pulverized coal being initially established at an amount sufficient to cause a step increase in the amount of pulverized coal supplied to the furnace from said first steady-state level to said second steady-state level;



c. as the pulverizer output gradually increases in response to the step increase in rate of input of raw coal to the pulverizer, controllably decreasing the amount of pulverized coal supplied to the furnace in said additional supply so that the total amount of pulverized coal supplied to the furnace by means of the pulverizer and said additional supply together remains constant at said second steady-state level; and

d simultaneously with the pulverizer output stabilizing at said second steady-state level, terminating said additional supply of pulverized coal to the furnace from said independent source.

4,332,208

SEWING MACHINE SPEED CONTROL CIRCUIT

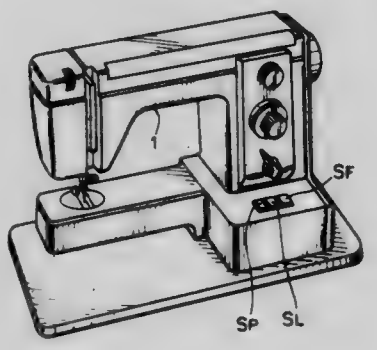
Toshiaki Watasue, Tokyo, and Hachiro Makabe, Hachioji, both of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed May 29, 1979, Ser. No. 43,223

Claims priority, application Japan, Jun. 1, 1978, 53-64936

Int. Cl.[3] D05B *69/18*

U.S. Cl. 112—277 11 Claims



1. A control circuit for use with electric motors and the like, particularly with electric motors in sewing machines, the circuit allowing a user to select a desired operating speed from a plurality of available operating speeds, and to vary such selected speed at will, the control circuit automatically causing the motor to maintain such desired operating speed until a user varies it comprising:

a manually operable programmer producing a digital code signal which represents a desired operating speed, the programmer operating in a manner that the code signal produced can be varied to provide a plurality of codes corresponding to a plurality of available operating speeds and any code provided will be maintained until changed by a user;

a clock pulse generator producing clock pulses of constant frequency;

a clocked and programmable counter, the counter being connected to the programmer in order to be programmed thereby and being connected to the clock pulse generator in order to be clocked thereby and operating in a manner that when the counter is programmed with a code signal it will count one count away from the code signal each time the counter receives a clock pulse and will cease to count after counting to a predetermined number, the counter generating a digital drive signal, the drive signal having a first value when and only when the counter is counting and having a second value when and only when the counter has ceased to count, the counter further operating in a manner that it can always be reprogrammed with a code signal to begin counting again;

a buffer responsive to the drive signal and producing an analog control signal, the control signal increasing when the drive signal has its second value and decreasing when the drive signal has its first value;

a switch circuit in series with the motor, whereby the motor is turned on when the switch circuit is closed and whereby the motor is turned off when the switch circuit is opened;

a switch control responsive to the analog signal and cooperating with the switch circuit in a manner that the switch circuit is closed and opened in response to changes of the analog signal; and

a reprogram pulse generator responsive to position of the motor and cooperating with the counter, the reprogram pulse generator generating a reprogram pulse every time the motor rotates through a predetermined angle, whereby the counter is periodically reprogrammed with the code maintained by the programmer when such reprogramming occurs.

4,332,209

THREAD TRIMMING MECHANISM FOR SEWING MACHINES

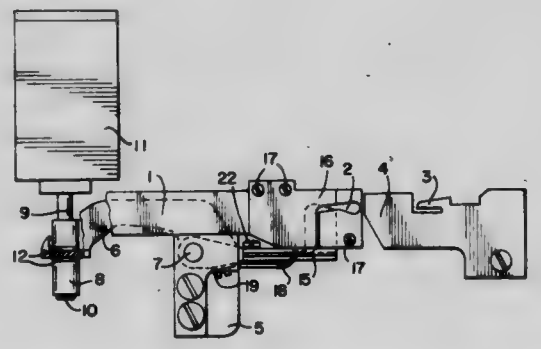
Hermann Gauch, Moglingen, Fed. Rep. of Germany, assignor to Union Special G.m.b.H., Stuttgart, Fed. Rep. of Germany

Filed Jul. 9, 1980, Ser. No. 167,087

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1979, 2928270

Int. Cl.[3] D05B *65/06*

U.S. Cl. 112—287 10 Claims



1. A sewing machine thread cutting mechanism comprising:

fixed knife means mounted adjacent the stitch forming area of the sewing machine;

resiliently biased reciprocal knife means having a blade portion adapted to cooperate with said fixed knife means, said reciprocal knife means being arranged such that said blade portion is normally and continually biased against said fixed knife means under a first low contact pressure

and is adapted to cooperate with said fixed knife means under a second higher contact pressure when a thread chain is introduced between the fixed and reciprocal knife means.

4,332,210

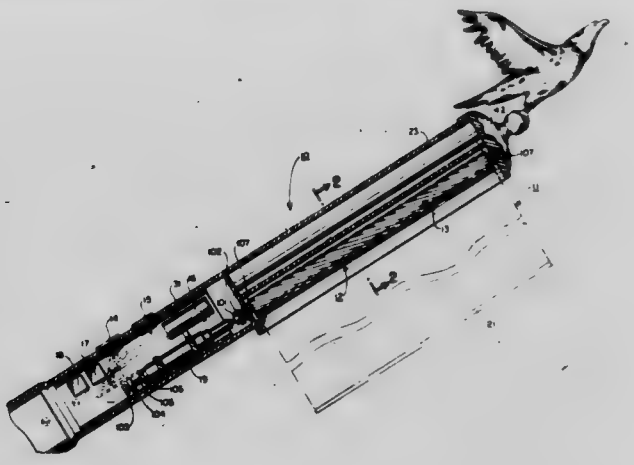
AUTOMATIC FLAG SYSTEM

William S. Lambert, 52 Tokalon Pl., Metairie, La. 70001

Filed Apr. 9, 1980, Ser. No. 138,535

Int. Cl.³ G09F *17/00*

U.S. Cl. 116—173 **11 Claims**



1. An automatic flag display system, comprising:

a flexible sheet of material upon which flag-like display indicia is disposed;

extended hollow flag storage compartment means which is at least generally impervious to the weather elements for storing said sheet in a flat, loosely furled form, the interior end of said sheet being fixedly attached in the interior of said storage compartment means;

a longitudinally extended bottom opening in said storage compartment through which the exterior end of said sheet projects; and

longitudinally extended drive means associated and aligned with said bottom opening for furling and unfurling said sheet, said sheet in its furled disposition being loosely stored flat with folds parallel to the direction of the longitudinal expanse of both said opening and said drive means and loosely folded in the direction normal to said longitudinal expanse within said storage hollow compartment means.

4,332,211

GRANULE PRODUCING APPARATUS

Susumu Nioh, Tokyo; Hiroshi Hirayama; Tetsuzo Honda, both of Funabashi; Takashi Nagahama, Mobara; Masaki Naruo, Mobara; Teruo Yoshida, Mobara; Gisaburo Siotu, Kawasaki; Yoshinori Sato, Funabashi, and Kenji Toyama, Kamaya, all of Japan, assignors to Toyo Engineering Corporation; Mitsui Toatsu Chemicals, Inc. and Tsukishima Kikai Co., Ltd., all of Tokyo, Japan, a part interest to each

Filed Aug. 4, 1980, Ser. No. 175,214

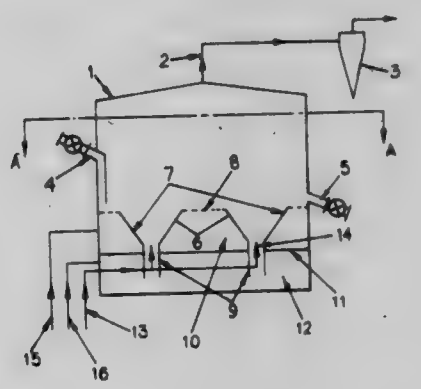
Claims priority, application Japan, Aug. 6, 1979, 54-100131

Int. Cl.³ B05C *5/00*

U.S. Cl. 118—62 **6 Claims**

1. An apparatus for enlarging the sizes of granules, comprising:

an upright container having a sidewall, a top wall and a bottom wall, said container having a horizontal, perforate, first wall extending thereacross and dividing the interior of said container into an upper portion and a lower portion, said upper portion being adapted to contain a bed of the granules, said container having a horizontal, imperforate, second wall extending across said lower portion of said container, said imperforate second wall being spaced downwardly from said perforate first wall and spaced upwardly from said bottom wall, the space between said first wall and said second wall defining a first, air stream supply chamber, the space between said second wall and said bottom wall defining a second, air stream supply chamber; a plurality of parallel, upright, spaced apart, imperforate funnels extending downwardly from said first wall to said second wall, each funnel comprising an upper section in the form of a vacant, inverted truncated cone whose wide upper end opens into said upper portion of said container and whose narrow lower end is located close to said second wall, and a cylindrical pipe coaxial with and extending downwardly from the lower end of said cone and penetrating through said second wall and opening into said second air stream supply chamber, said inverted truncated cone being adapted to be substantially filled with granules; nozzle means disposed in each of said cylindrical pipes for spraying droplets of liquid into said cylindrical pipes; first air supply means connected to said



first air stream supply chamber for supplying pressurized air thereto which air flows upwardly through the perforations in said first wall to form a fluidized bed of granules above said first wall; second air supply means connected to said second air stream supply chamber for supplying pressurized air thereto which latter air flows upwardly in the form of jet streams through said pipes to entrain said droplets therein and thence through said funnels so that the granules in said funnels are coated by the liquid and are circulated in toroidal flow above said funnels; feed means for supplying feed granules into said upper portion of said container; discharge means attached to the sidewall of said container above and close to said first wall for discharging granules of enlarged size; and means for exhausting gas from the upper end of the upper portion of said container.

4,332,212

APPLICATOR FOR NORMALLY VISCOUS SUBSTANCES

Philip O. Jesme, South St. Paul, Minn., assignor to The Smead Manufacturing Company, Hastings, Minn.

Filed Sep. 26, 1980, Ser. No. 191,170

Int. Cl.³ B05C *1/02*; B67D *5/00*

U.S. Cl. 118—202 **7 Claims**

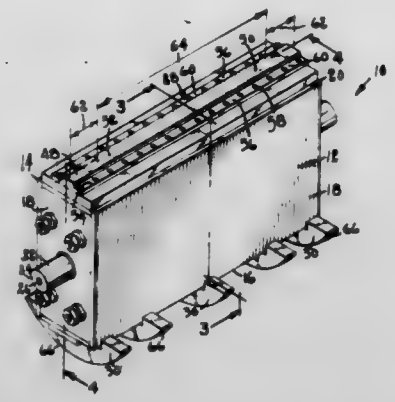
1. Apparatus for applying a normally highly viscous substance to article surfaces, comprising:

(a) an applicator having a chamber formed therein, an application surface, and a multiplicity of perforations providing communication between said chamber and said surface, said applicator disposed for revolution about an axis;

(b) a substance reservoir spaced radially inward from said applicator and disposed for movement with said applicator about said axis;

(c) conduit means providing radial communication between said reservoir and said chamber;

(d) at least one heat imparting element positioned proximate said conduit means; and



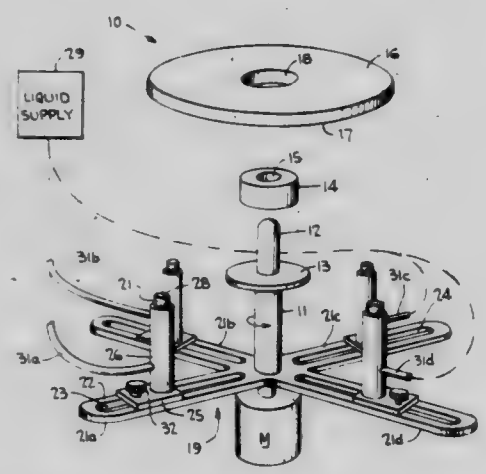
(e) a fluid filled plenum enclosing both said conduit means and said at least one heat imparting element.

4,332,213

WORKPIECE COATING APPARATUS

Frank C. Marino, Newington, Conn., assignor to Loctite Corporation, Newington, Conn.

Filed Jul. 28, 1980, Ser. No. 173,204
Int. Cl.³ B05C *1/02*
U.S. Cl. 118—211 **5 Claims**



1. An apparatus for applying a liquid coating along at least one predetermined path to the surface of a workpiece, comprising a spindle rotatable about a central axis thereof for supporting and rotating the workpiece to be coated, a stationary support member mounted on said spindle and lying perpendicular to said central axis, said support member including at least one track element extending radially outwardly of said axis, at least one wick jacket mounted on said track element at a distance from said spindle for describing said predetermined path, a wick applicator disposed within said jacket and extending outwardly of the upper end of said jacket, a vertically elongated slot in said jacket, means engaging said wick applicator through said slot for axially shifting same relative to said jacket, and means for supplying the liquid to said wick applicator for wetting the tip end thereof, whereby different contours of workpiece surfaces can be coated upon workpiece rotation.

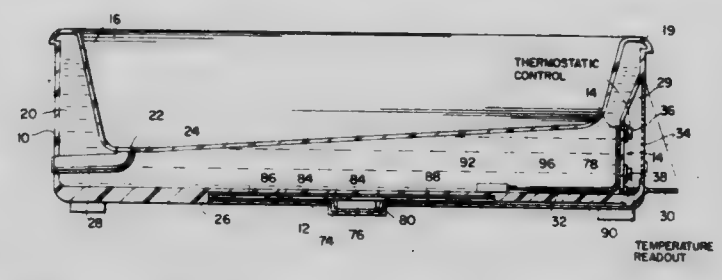
4,332,214

HEATED BED FOR ANIMALS

Lee Cunningham, Drawer YY, Incline Village, Nev. 89450

Continuation-in-part of Ser. No. 807,216, Jun. 16, 1977, abandoned. This application Oct. 22, 1979, Ser. No. 87,142
Int. Cl.³ A01K *1/035*
U.S. Cl. 119—1 **2 Claims**

1. A heated bed for animals such as dogs and cats comprising a shell means comprising an outer shell and a complementary inner shell, said outer shell providing an enclosure and having a base and substantially vertical walls, said complementary inner shell being of substantially rigid plastic and having a concave surface adapted to support and partially surround such animals, said outer and inner shells having spaced apart walls and bases adapted to receive liquid, said outer and inner shells being joined at their upper edges in the form of a curved lip to provide a narrow, enclosed, liquid reservoir for said liquid which is in direct thermal contact with the base and relatively vertical walls of said inner shell, the base of said inner shell being sloped from one end to the other, said shell means being provided with a fill port for said liquid reservoir, means in the bottom of said outer shell means providing a centrally located area for a selectively controlled electrical



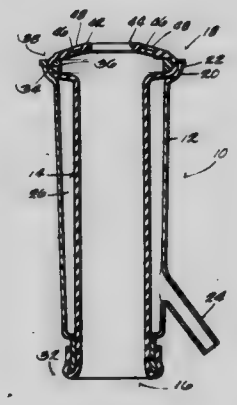
heating assembly laminate, a selectively controlled electrical heating assembly laminate mounted in said area, said laminate comprising a heating element sandwiched between an upper metal plate and a lower metal foil, said metal plate contacting the outer shell, and a safety thermocouple below said metal foil covered with a layer of insulation, a plastic cover for said area, means providing a recessed opening in one of the vertical walls of the outer shell, a control means in said recessed opening electrically connected to said heating element, and a temperature sensing means mounted on the top surface of the base of said outer shell and electrically connected to said heating element.

4,332,215

MILKING INFLATION

Leigh R. Larson, Johnson Creek, Wis., assignor to Hi-Life Rubber, Inc., Johnson Creek, Wis.

Filed Oct. 1, 1980, Ser. No. 192,897
Int. Cl.³ A01J *5/04*
U.S. Cl. 119—14.49 **3 Claims**



1. An expansion ring type inflation for a teat cup assembly of a milking machine including a rigid, generally cylindrical, outer shell having an enlarged peripheral ledge at one end, said inflation being formed as a generally cylindrical, tubular member from an elastomeric material and including a main body portion, a tapered upper end portion formed integrally with said main body portion, said upper end being adapted to seat against the shell ledge after insertion of a rigid expansion ring and characterized by:

(a) an inner wall of decreasing inside diameter and terminating in a thickened rounded bead which defines a circular central mouth for receiving a teat of a cow when the expansion ring is inserted;

(b) an annular expansion ring-receiving portion adjacent the

juncture of said upper end portion with said main body portion and having a wall thickness substantially the same as said main body portion;

(c) an annular web section of reduced wall thickness formed integrally with said bead and extending longitudinally therefrom toward said expansion ring-receiving portion, said web section having a substantially uniform wall thickness which is about 25 to about 65% of the wall thickness of said main body portion; and

(d) a plurality of circumferentially-spaced ribs formed integrally with and extending longitudinally between said expansion ring-receiving portion and said bead and also formed integrally with and projecting radially outwardly from said web section.

4,332,216

PROCEDURE AND ARRANGEMENT FOR KEEPING LIVESTOCK

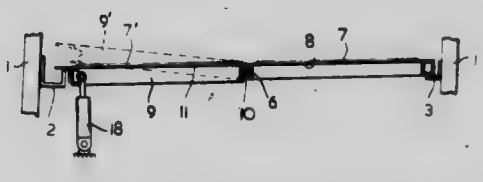
Wilhelmus G. H. Valkenburg, Stalbergweg 8, Venlo, Netherlands

Filed Jul. 3, 1980, Ser. No. 165,688

Claims priority, application Netherlands, Jul. 13, 1979, 7905474; Jan. 30, 1980, 8000563

Int. Cl.³ A01K *31/04*

U.S. Cl. 119—22 **6 Claims**



1. Arrangement for sanitarily housing livestock in a number of cages mounted adjacent one another comprising:

(a) a frame horizontally supporting said number of cages;

(b) an animal waste interceptor device operatively mounted in said frame and below said number of cages, said device including a support comprising a plurality of rollers and platelike sections alternatively disposed along the length of said support, at least a portion of said rollers and platelike sections being swinglike mounted between a substantially horizontal position and a sloping position, means for swinging said portion of said rollers and platelike sections from said sloping position to said substantially horizontal position, and a belt designed to rest on said support and to unwind from a stock reel mounted at one end of said frame and to be wound on a take-up reel mounted at the other end of said frame;

(c) a liquid waste discharge device mounted lengthwise in said frame and along one edge of said belt; and

(d) a receptacle for solid waste mounted in said frame transverse to said liquid waste discharge device and adjacent said take-up reel for said belt,

whereby liquid animal waste is continuously being discharged from said animal waste interceptor device into said liquid waste discharge device, with at least a portion of said belt resting on said portion of said rollers and platelike sections being in said sloping position, and solid animal waste being removed at periodic intervals from said animal waste interceptor device into said receptacle, with said portion of said rollers and platelike sections being swung into said substantially horizontal position by said means, and with said belt unwinding from said stock reel onto said take-up reel.

4,332,217

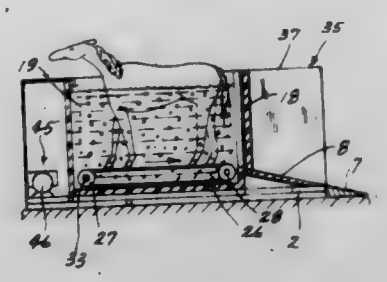
CONTROLLED RATE EXERCISER AND METHOD OF CONDITIONING

Grover M. Davis, Audubon, Iowa, assignor to Talbot-Carlson, Inc., Audubon, Iowa

Filed Aug. 11, 1980, Ser. No. 177,279

Int. Cl.³ A61D *11/00*

U.S. Cl. 119—29 **3 Claims**



1. An animal exercising apparatus comprising:

a frame;

treadmill means for providing a moving supported surface for an animal for allowing the animal to run in place, said treadmill means including a first roller; a second roller; a supporting means disposed between said first and second rollers; an endless belt disposed around said first and second rollers and said supporting means; and belt moving means for causing said endless belt to move around said first and second rollers;

container means disposed around and above said treadmill means for sealingly receiving a liquid whereby an animal supported by said treadmill means will be standing in the liquid within said container, said container means including a door means on one end thereof for allowing an animal to enter said container means;

filling means for filling said container means with a liquid;

draining means for draining a liquid out of said container means;

liquid holding tank means connected to said filling means and to said drainage means for holding a liquid for reuse when it is drained from said container;

means for producing massaging turbulence within said container means;

a centrifuge means for cleaning solids from the liquid;

liquid heating means connected to said liquid holding tank for heating the liquid to a desired temperature;

air inlet means connected upstream of said filling means for aeration of said container means and said liquid holding tank means; and

a transparent observation window means disposed in the lower portion of said container means for observing the legs of the animal while said treadmill means is in use.

4,332,218

SUPPORT SYSTEM FOR A FLUIDIZED BED

Robert D. Stewart, Verona, and Robert L. Gamble, Wayne, both of N.J., assignors to Foster Wheeler Energy Corporation, Livingston, N.J.

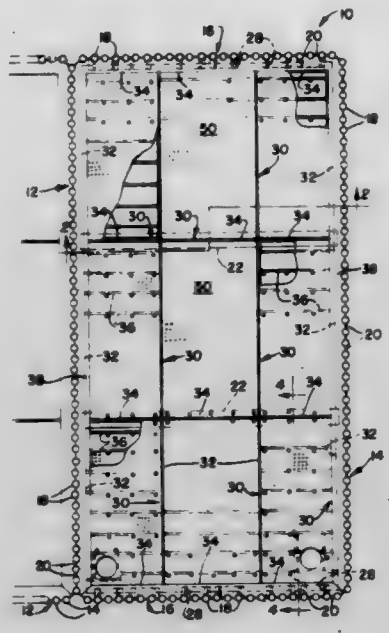
Continuation of Ser. No. 158,496, Jun. 11, 1980, abandoned, which is a continuation of Ser. No. 948,130, Oct. 3, 1978, abandoned. This application Feb. 11, 1981, Ser. No. 233,499

Int. Cl.³ F22B *1/02*

U.S. Cl. 122—4 D **15 Claims**

1. A system for supporting a fluidized bed in a boiler, said system comprising a plurality of support frames, means for supporting said support frames in an abutting relationship with one another, first attaching means attaching at least a portion of said frames to each other and to said supporting means and permitting limited relative movement between said frames and

between each frame and said supporting means, a plurality of grids, each grid supported entirely by one of said support



frames, and second attaching means attaching each grid to its respective support frame.

4,332,219

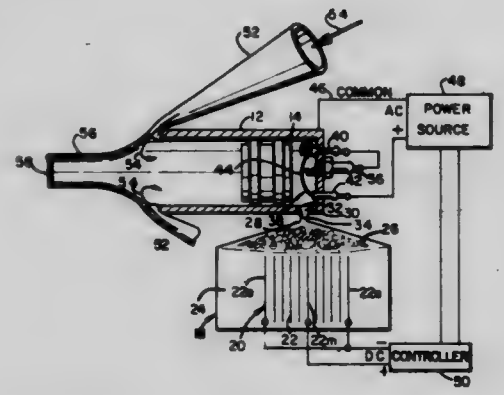
ELECTROCOMBUSTION ENGINE

Ernesto Gonzalez, c/o Howard, Brawner & Lovett, 131 Oade Savings Bldg., 119 E. Flagler St., Miami, Fla. 33131

Filed Nov. 18, 1980, Ser. No. 207,938

Int. Cl.³ F02B *43/10*

U.S. Cl. 123—3 **12 Claims**



1. An electrocombustion engine, comprising:

a cylinder having a combustion chamber at one end, the combustion chamber being sealed except for a combined input/output port;

a piston slideably and sealably disposed in the cylinder;

means for supplying only a combustible mixture of hydrogen and oxygen gases to the combustion chamber of the cylinder;

funnel-shaped valve means, having a restricted aperture at one end forming an apex directly connected to the supplying means and an unrestricted substantially larger aperture at an opposite end directly connected to the cylinder and forming at least part of a conduit between the supplying means and the input/output port, for controlling gas and fluid flow into and out of the cylinder; and,

means for igniting the combustible mixture of hydrogen and oxygen gases in the combustion chamber of the cylinder, the gases explosively recombining into a trace amount of water of such smaller volume as to form a decreasing pressure in the cylinder, the piston being first pushed outwardly by a pressure force caused by the exploding gas mixture, the funnel-shaped valve means effectively preventing dissipation of the explosive pressure force through the input/output port due to constrictive flow occurring at the apex while permitting water to be exhausted therethrough at substantially top dead center, and immediately afterward, being pulled back by the decreasing pressure formed when the exploded gas mixture recombines into the trace amount of water occupying a much smaller volume than that of the combustion chamber and that portion of the cylinder swept out by the piston, the funnel-shaped valve means with the restricted aperture effectively confining the decreasing pressure in the cylinder by permitting only enough of the combustible mixture to flow into the combustion chamber to provide a subsequent explosive charge, whereby a single charge of the combustible mixture of hydrogen and oxygen gases moves the piston in both directions.

4,332,220

POWER TOOL, ESPECIALLY POWER SAW

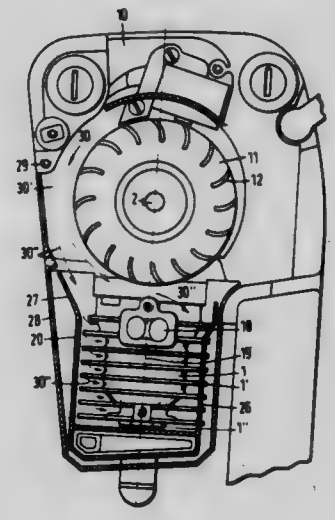
Gerd Itzrodt, Stuttgart, Fed. Rep. of Germany, assignor to Andreas Stihl, Waiblingen, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,259

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911497

Int. Cl.³ F01P *1/02*

U.S. Cl. 123—41.7 **23 Claims**



5. A power tool, especially power saw, comprising:

an internal combustion engine including a cylinder, a cylinder chamber, and a piston reciprocatingly arranged in said cylinder chamber, said piston being adapted to be operated at an angle to the vertical;

a muffler, having walls and including an exhaust gas inlet, operatively connectible to said internal combustion engine to be able to receive exhaust gases from said combustion chamber; and

means, including cooling air guide walls, for moving cooling air from a source thereof to said internal combustion engine, with at least part of those walls of said muffler which are subjected to exhaust gas emanating from said cylinder chamber being arranged, when viewed in the direction of flow of cooling air, before said cylinder, and being adapted to present guide surfaces for a stream of cooling air, said muffler being a cup-shaped part having a first wall adapted to form a bottom, a first side wall for guiding cooling air, a second side wall for guiding cooling air, and further comprising:

a first exhaust gas inlet chamber;

a second exhaust gas chamber in communication with said first chamber; and

an exhaust gas outlet in communication with said second chamber, with said exhaust gas inlet of said muffler, when viewed in the direction of flow of cooling air, being arranged to extend in a direction transverse to the direction of flow of cooling air, between said first and second side walls of said muffler, and in communication with said first chamber, with said first chamber having a greater cross

section than said second chamber, a partition between said first chamber and second chamber for deflecting exhaust gas through substantially 180°, said first chamber and said second chamber including a wall provided at least in part by said first side wall and a wall provided at least in part by said second side wall with the pertaining walls of said chambers being arranged in the vicinity of said exhaust gas inlet so as to present approximately outwardly tapered wall portions near the pertaining cooling ribs of said cylinder to form a widened receiving opening for a stream of cooling air.

4,332,221

COOLING SYSTEM FOR, AND METHOD OF COOLING AN INTERNAL COMBUSTION ENGINE

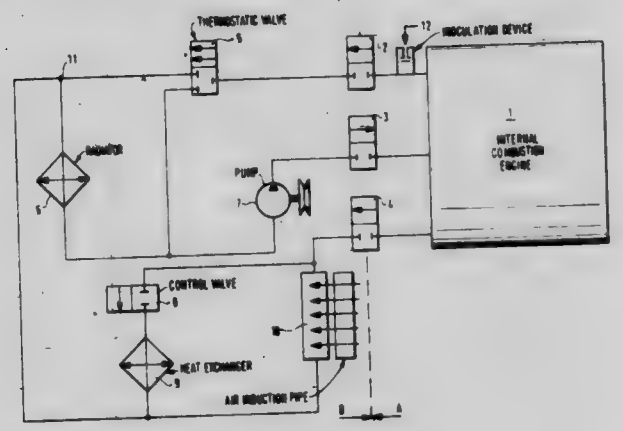
Ernst Imhof, Münchingen, and Günther Schmid, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 18, 1980, Ser. No. 113,256

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1979, 2907353

Int. Cl.³ F01P *7/00*

U.S. Cl. 123—41.08 **8 Claims**



1. A method for cooling an internal combustion engine, in which the engine is formed with an engine cooling space, and the engine further has a coolant circuit including

a radiator (6), a coolant pump (7), valves (2, 3, 4), and cooling medium conduit means connecting the valves, the radiator, and the coolant pump,

and a super-coolable cooling medium capable of retaining heat of fusion is located within said cooling circuit;

said method comprising

arranging at least two of said valves (2, 3) for hermetically isolating the engine cooling space from said coolant circuit;

providing an inoculating device (12) for imparting to said super-coolant a seed crystal;

closing two of said valves prior to a cold start of the engine and isolating the engine cooling space from said coolant circuit;

injecting a seed crystal by means of said inoculating device;

and opening said two of said valves after the temperature of the coolant in said space has risen to a temperature above the melting point thereof.

4,332,222

CAMSHAFT FOR AN INTERNAL COMBUSTION ENGINE

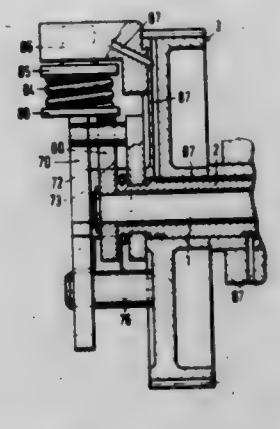
Stanislav Papez, Wolfsburg, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Filed May 10, 1979, Ser. No. 37,697

Claims priority, application Fed. Rep. of Germany, May 20, 1978, 2822147

Int. Cl.³ F01L *1/34*

U.S. Cl. 123—90.17 **16 Claims**



1. In a camshaft for a drive, preferably an internal combustion engine, having a hollow shaft carrying at least one of a cam and a partial cam for rotation therewith, an inner shaft disposed within the hollow shaft and rotatable relative to the hollow shaft, the inner shaft having at least one of a cam and a partial cam disposed outside the hollow shaft attached for rotation with the inner shaft through at least one clearance in the hollow shaft, and a drive gear for driving the camshaft, the improvement comprising means on said drive gear responsive to a parameter characteristic of operating conditions of the drive for adjusting the rotational position of at least one of said inner shaft and said hollow shaft relative to the said drive gear, the adjusting means including a radially extending guide means on said drive gear, an adjustment cam having a cam surface thereon and mounted on the guide means to be radially displaceable with respect to the drive gear therealong, wherein said cam surface extends generally radially to produce, upon radial displacement of said adjustment cam, lateral adjustment of a cam follower means which bears on said cam surface, means arranged between said drive gear and said adjustment cam, responsive to said parameter, for varying the radial displacement of said adjustment cam, cam follower means including a cam follower which bears on said cam surface, thereby to be laterally displaceable by said surface in response to radial movement of said adjustment cam, and biasing means for urging said cam follower against said cam surface, and means for coupling the cam follower means to one of said inner shaft and said hollow shaft for adjusting the relative rotational position of said one shaft.

4,332,223

PLASMA FUEL IGNITORS

James M. Dalton, 253 Elm St., Salt Lake City, Utah 84107

Filed Aug. 29, 1980, Ser. No. 182,687

Int. Cl.³ F02B *19/10*; F02P *23/00*; F02B *23/00*

U.S. Cl. 123—253 **20 Claims**

1. A plasma ignitor for use with a primary combustion chamber having means for introducing a fuel/air mixture therein, said plasma ignitor comprising:

a plasma-generating chamber;

means for introducing a fuel into said plasma-generating chamber comprising:

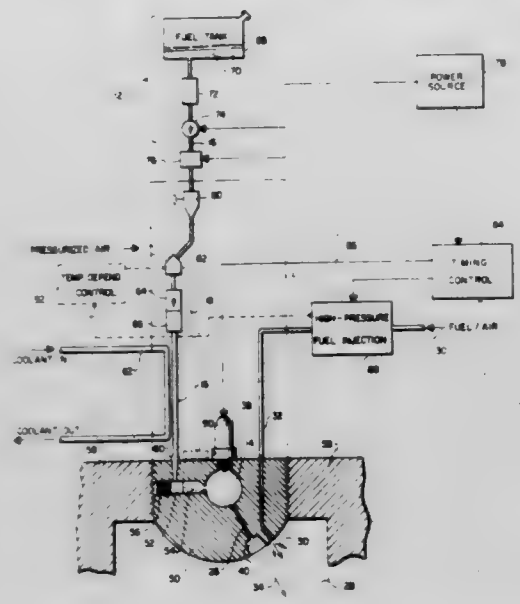
a source of pressurized fuel,

a fuel line connecting said source of pressurized fuel with said plasma-generating chamber, and

backflow restriction means interposed in said fuel line for opposing reverse flow action of said fuel therethrough

and allowing said fuel to seep forwardly therethrough at a rate being generally proportional to the pressure imposed on said fuel;

gas ionization means in contact with said plasma-generating chamber for converting said fuel within said plasma-



generating chamber into a hot ionized gas at controlled time intervals; and

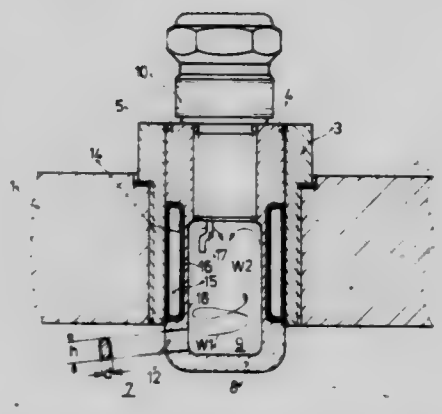
discharge nozzle means for jetting said hot ionized gas into the primary combustion chamber, said hot ionized gas serving to ignite and efficiently burn said fuel/air mixture contained in said primary combustion chamber.

4,332,224

INTERNAL COMBUSTION ENGINE WITH A MAIN COMBUSTION CHAMBER AND AN IGNITION CHAMBER

Reinhard Latsch, Vaihingen, and Hans Schlembach, Mühlacker, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 894,966, Apr. 10, 1978, abandoned.
This application Apr. 18, 1980, Ser. No. 141,506
Claims priority, application Fed. Rep. of Germany, Apr. 9, 1977, 2715943
Int. Cl.³ F02F *1/00*
U.S. Cl. 123—254 **19 Claims**



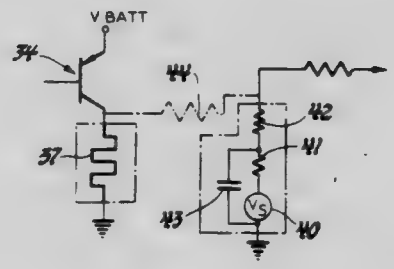
1. An internal combustion engine provided with combustion chambers, comprising a main combustion chamber and an ignition chamber, the latter being connected to the main combustion chamber by at least one spill port, further wherein the ignition chamber constitutes an elongated closed cylinder with a plane front wall and cylindrical wall only a small portion of said cylindrical wall extends into the main combustion chamber between a wall confining the ignition chamber and the adjacent cooled parts of the internal combustion engine surrounding the ignition chamber, at least one hollow space having a capillary structure within inner walls formed in said ignition chamber with capillary spaces filled with a vapourable medium and which are enabling by their capillary forces, condensated parts of said medium to be transported from cooler parts of said hollow space to hotter parts of said hollow space, said cylindrical wall further being penetrated by at least one spill port which extends essentially in a plane perpendicular to an axis of said closed cylinder and tangentially relative to the circumference of said cylindrical wall, this spill port being arranged to branch off toward the main combustion chamber, so as to be adequate for positioning said spill port to optimally provide for introduction of a flame jet exiting through said spill port into the remnant charge in said main combustion chamber, said ignition chamber further being arranged to receive a spark ignition means comprising a first electrode spaced adjacent to and insulated from said ignition chamber, the cylindrical wall-thereof forming a second electrode of said ignition means defining a spark gap between said first electrode and said cylindrical wall.

4,332,225

INTERNAL COMBUSTION ENGINE WITH OXYGEN SENSOR HEATER CONTROL

Francis G. Cox, Grand Blanc, Mich., and William J. Ricketts, Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 2, 1980, Ser. No. 192,990
Int. Cl.³ F02B *3/00*; F02M *7/00*
U.S. Cl. 123—440 **2 Claims**



1. In combination:

an internal combustion engine having fuel supply and exhaust means;

an oxygen sensor in said exhaust means, said sensor being effective to generate an output voltage in response to engine exhaust content, said sensor further being characterized by an associated internal capacitance and including a separate resistive heater element with a leakage current path between the heater element and sensor stray capacitance;

closed loop control means effective to periodically sample the oxygen sensor output voltage at predetermined times and generate therefrom a fuel control signal for application to the fuel supply means;

electric power supply means characterized by an output supply voltage and effective to provide electric current to the resistive heater element during received heater control signal pulses with consequent charging of the sensor internal capacitance through the leakage current path; and

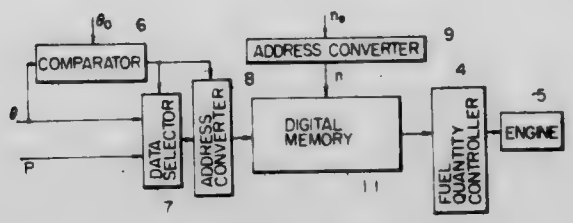
means effective to generate the heater control signal pulses, each pulse beginning shortly after a sampling of the oxygen sensor output voltage and ending at least a predetermined minimum time before the next sampling of the oxygen sensor output voltage, whereby the charge on the oxygen sensor internal capacitance due the leakage current from the heater element during each heater control signal pulse may discharge prior to the subsequent sampling of the oxygen sensor output voltage and thus not adversely affect the sampled voltage.

4,332,226

ENGINE CONTROL SYSTEM

Toshio Nomura, Shiki, and Isao Kobayashi, Tokyo, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 28, 1980, Ser. No. 210,918
Claims priority, application Japan, Dec. 28, 1979, 54/170417
Int. Cl.³ F02M *5/02*
U.S. Cl. 123—494 18 Claims



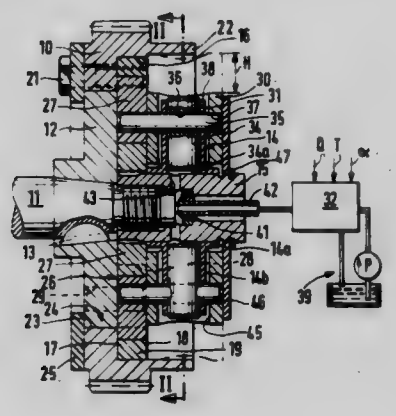
1. An engine control system comprising;
means for storing engine control data with the parameters throttle valve opening angle for regulating the quantity of air to be taken into an engine, the intake manifold depression and the engine speed,
means for reading-out said engine control data with the parameters of intake manifold depression and engine speed in light load condition and with the parameters of throttle valve opening angle and engine speed in heavy load condition, and
means for controlling the engine using the read-out data.

4,332,227

INJECTION TIMING DEVICE FOR INTERNAL COMBUSTION ENGINES

Otto Bauer, Munich; Leonhard Eberl, Unterschleissheim; Gerhard Geyer, Munich, and Max Straubel, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 48,554, Jun. 14, 1979, abandoned. This application Apr. 27, 1981, Ser. No. 258,095
Claims priority, application Fed. Rep. of Germany, Jun. 19, 1978, 2826800
Int. Cl.³ F02M *59/20, 59/32*
U.S. Cl. 123—502 13 Claims



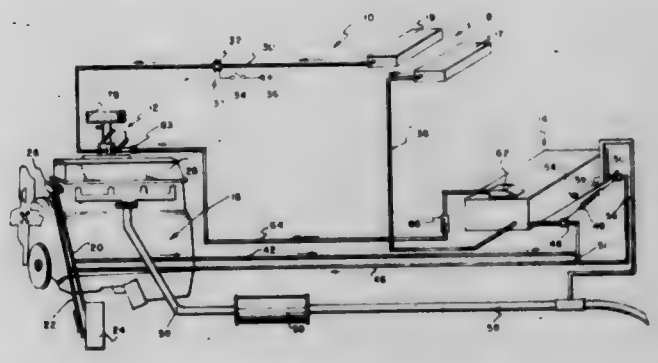
1. Injection timing device for diesel combustion engines provided with flyweights which operate in dependence on the engine speed against the force of resetting springs, said device further including an adjusting gear system for connecting an input shaft with an output shaft, said shafts further having a mutually variable rotary position, each said flyweight being directly coupled with one hydraulically operable control element, and said control element arranged to directly change the position of said flyweight, under the force of the pressure of the hydraulic medium which is variable in dependence on at least one operating parameter of the engine, further wherein said hydraulic control elements are mounted within said timing device perpendicular to the longitudinal axis of said input shaft so that they directly engage the flyweights and act radially outwardly resulting from increasing pressure on said control elements and further wherein said control elements move simultaneously with said flyweights to modify the position of said flyweights to correct the instant of injection.

4,332,228

FUEL DEVICE FOR A GASOLINE ENGINE

James J. Lehar, 1915 W. MacArthur, Lot #188, Wichita, Kans. 67217

Continuation-in-part of Ser. No. 847,836, Nov. 2, 1977, Pat. No. 4,196,710. This application Feb. 19, 1980, Ser. No. 122,423
Int. Cl.³ F02M *31/00*
U.S. Cl. 123—557 15 Claims



1. A fuel device for a gasoline engine having an exhaust system means, the device communicably connected to the engine's intake manifold, the engine fuel means, and the engine's cooling system, the device comprising:
a throttle housing mounted on top of the engine and communicably connected to the intake manifold, said throttle housing having an air intake port for receiving air, said air intake port having an air intake control valve mounted therein, said air intake control valve connected to an accelerator means of the engine, said air intake control valve attached to means extending outwardly from said air intake port with an air intake control means mounted thereon, said housing further including an air fuel intake port for receiving an air fuel mixture, said air fuel intake port having an air fuel control valve mounted therein, said air fuel control valve pivotally connected to said air intake control valve and responsive to the movement of said air intake control valve;
a reactor housing for supplying the air fuel mixture to the engine, said reactor housing communicably connected to the fuel means for supplying fuel to said reactor housing;
an air fuel supply line connected to said reactor housing and said air fuel intake port for supplying the air fuel mixture to said throttle housing;
a hot aqueous supply line and a hot aqueous return line connected to the engine's cooling system, said supply and return lines connected to an aqueous fluid circulating means mounted in the bottom of said reactor housing for heating the fuel in said reactor housing; and
a diverter exhaust conduit means interconnecting said reactor housing and said exhaust system means for conducting exhaust fumes from said exhaust system means into said reactor housing to pick-up said fuel and mix with water vapor from the exhaust system means and increase mileage while making said reactor housing non-explosive, said air fuel control valve is operatively mounted on means extending outwardly from said air fuel intake port and attached to an air fuel intake control means, said air fuel intake control means connected to one end of a connecting means, the other end of said connecting means connected to said air intake control means so that when said air intake control valve is opened said air fuel intake control valve in turn is opened, said reactor housing including heating means disposed therein and connected to an electrical power supply means of said engine; and said air intake control means and said air fuel intake control means include means for adjusting the movement of said air

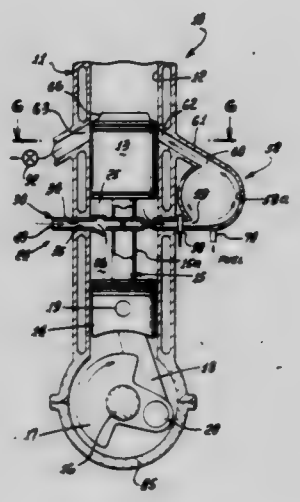
intake control valve in relation to the movement of the air fuel intake control valve for regulating the amount of air received through said air intake port in relationship to the amount of air fuel mixture received through said air fuel intake port.

4,332,229

DOUBLE INTAKE, SUPERCHARGING I.C. ENGINE

Johannes Schuit, 1433 Camino Trillado, Carpenteria, Calif. 93013

Filed Jun. 23, 1980, Ser. No. 162,117
Int. Cl.³ F02B *33/10*
U.S. Cl. 123—65 B **18 Claims**



18. In an I.C. engine having a block, the engine forming a bore and having a crankshaft, the combination comprising

(a) first and second pistons that reciprocate in said bore,

(b) connection means interconnecting said pistons, the pistons operatively connected to the crankshaft,

(c) valve casing structure operatively coupled to the block, there being a first zone in the bore between the casing structure and one piston, and a second zone between the casing structure and the other piston,

(d) the valves associated with the casing structure adapted to pass intake air into one of said zones and to exhaust compressed air out of the other of said zones in response to piston movement in one direction, and adapted to pass intake air into the other of said zones and to exhaust compressed air from said one zone in response to piston movement in the opposite direction,

(e) one of said pistons compressing the air fuel mixture in an engine combustion chamber for combustion, and including means to cool said one piston,

(f) said connection means including inner and outer elongated tubular members extending between said pistons, and said means to cool said one piston including coolant circulation passages in said members.

4,332,230

DYNAMIC ACTION HIGH POWER SLINGSHOT

Leroy P. Lozier, 1934 Highland Ave., Las Cruces, N. Mex. 88001

Filed May 5, 1980, Ser. No. 146,432
Int. Cl.³ F41B *7/00*
U.S. Cl. 124—20 R **11 Claims**

1. A slingshot comprising:

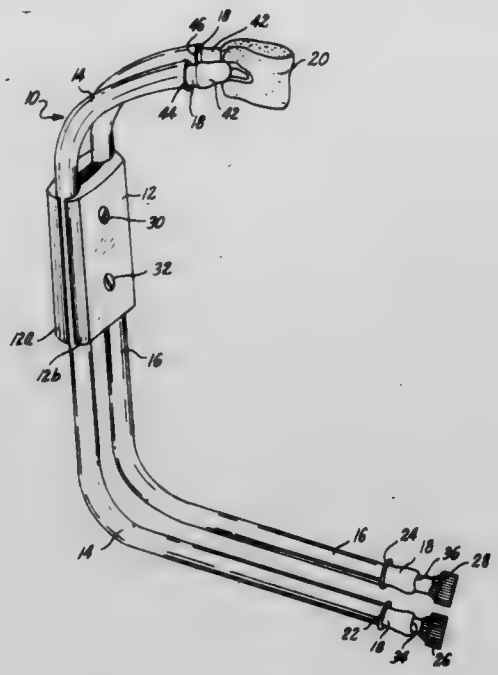
(a) hand grip means for holding the slingshot;

(b) two separate and laterally spaced, hollow yokes, disposed so as to permit parallel planes to pass therethrough throughout their lengths and defining channels therewithin and supported by said hand grip means, each of said yokes extending upwardly and rearwardly, and downwardly from said hand grip means;

(c) elastic means for projecting a projectile, said elastic means extending through said channels;

(d) pouch means connected to the other end of said elastic means for receiving a projectile; and

(e) said hand grip means being secured to said yokes and



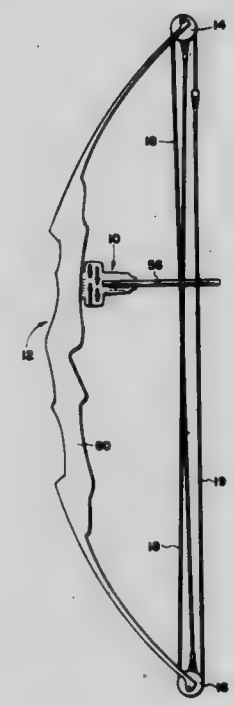
being disposed intermediate the ends of said yokes so as to provide said slingshot with a requisite high degree of balance and stability during a shooting operation of a projectile.

4,332,231

COMBINED BOW WITH A UNITARY SIGHT AND CABLE GUARD

Loyd S. Napier, 515 E. Dewey, Sapulpa, Okla. 74066, and Jim L. Pollard, Sapulpa, Okla., assignors to Loyd S. Napier, Sapulpa, Okla.

Filed May 12, 1980, Ser. No. 148,985
Int. Cl.³ F41B *5/00*
U.S. Cl. 124—24 R **7 Claims**



1. In combination an archery bow having a bow string and cable, cable guard, sighting means for sighting on a target, said combination further including a substantially flat body member having a first portion for being secured to the bow, a second portion conterminous with the first portion and having a plurality of apertures therein for receiving said sighting means, a third portion conterminous with the second portion and extending outwardly therefrom in a direction toward the bow

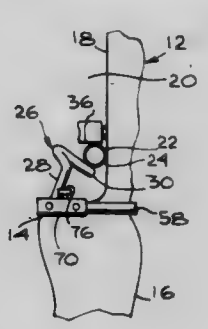
string when the first portion is secured to the bow, recess means provided on the third portion, elongated rod means adjustably secured in said recess means and having the outer end thereof extending beyond the bow string, said rod means engagable with the cable for holding the cable away from the plane of the bow string during use of the bow.

4,332,232

ARCHERY BOW WITH SPRING-BIASED ARROW REST

Fernando Troncoso, Jr., 1851 S. Orange Ave., Monterey Park, Calif. 91754

Filed Oct. 7, 1980, Ser. No. 194,824
Int. Cl.³ F41B *5/00*
U.S. Cl. 124—24 R **6 Claims**



1. An improved archery bow assembly, particularly adapted for hunting, said assembly comprising in combination:

a. an archery bow having an arrow shelf and sidewall defining an arrow window;

b. an archery arrow having an arrow shaft; and,

c. an improved arrow rest disposed in said window and supporting said arrow in said window for shooting from said bow, said rest including

i. arrow spring biasing means secured to said bow,

ii. a holder comprising a hook the forward end of which contacts the bottom and outer margins of the shaft of said arrow, the inner margin of said forward end of said hook being spaced from said sidewall a distance less than the diameter of said shaft, said holder being biased by said spring biasing means into an arrow supporting position, to prevent inadvertant roll off or drop through of said arrow from said rest before shooting thereof,

iii. a side support secured to the sidewall of said bow, contacting the inner margin of said shaft and resiliently biasing said arrow in said window away from said sidewall, for improved arrow vane clearance, and,

iiii. a connector means adjustably positioning said holder in said window and connecting said holder to said bow, said arrow being releasably locked by said connector means to said bow by being trapped and held in place by said holder, said sidewall and the underside of said side support, and said shaft being spring biased by said hook's forward end upwardly against the underside of said side support.

4,332,233

BOW-STRING RELEASE DEVICE

Herman W. Knoble, 40 Moraine Rd., Pittsburgh, Pa. 15239

Filed Jun. 9, 1980, Ser. No. 157,212
Int. Cl.³ A41B *5/00*
U.S. Cl. 124—35 A **5 Claims**

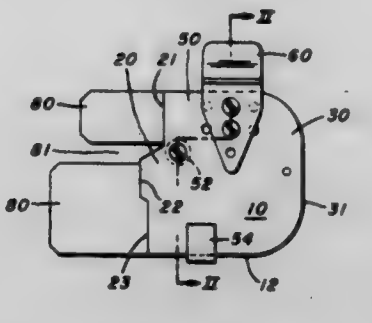
1. An archer's hand plate device adapted to be worn on an archer's hand when drawing and releasing a bow string and arrow, the device designed to increase accuracy and reproducibility in groups of shots, the device comprising:

(a) a base plate designed to fit in the palm of the archer's hand and to keep the back of said hand substantially flat and in line with fingers of the hand up to the first joint thereof, thereby maintaining knuckles of said fingers in line, the base plate being substantially flat and having,

(i) a leading edge,

(ii) a rear portion,

(iii) a top portion, said top portion connecting the leading edge and the rear portion, the leading edge having a first portion and a second portion, said first portion of the leading edge of the base plate located rearward of said second portion of the leading edge, said first and second portion of the leading edge extending to about



the first joint of the index and middle of fingers of said hand to make at least the index finger and middle finger of said hand bend at the first joint of said fingers when the hand is closed about said base plate, the rear portion of said plate adapted to fit against the heel of said hand when the hand is closed about said base plate, and

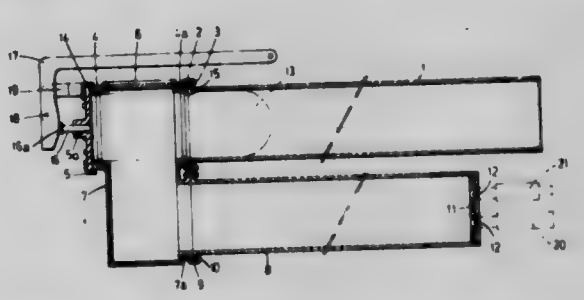
(b) a finger spacer mounted on said base plate to fit between said index finger and said middle finger.

4,332,234

GUN SYSTEM WITH BARREL OPENING SEALED OFF BY PROJECTILE

Roger F. Allen, Bex, Switzerland, assignor to Plumettaz S.A., Bex, Switzerland

Filed Mar. 30, 1981, Ser. No. 249,335
Claims priority, application European Pat. Off., Apr. 11, 1980, 80810123.2
Int. Cl.³ F41F *1/04*
U.S. Cl. 124—73 **9 Claims**



1. A gun system of the type comprising apparatus capable of propelling a useful load towards its place of intended use and a projectile for holding said useful load, said apparatus including a barrel having a sidewall, wherein the improvement comprises:

an enclosure disposed adjacent to said barrel and designed to contain compressed air at full pressure prior to the firing of the projectile,

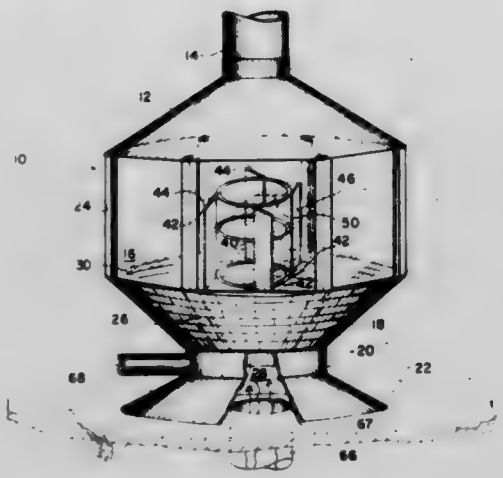
at least one opening made in said sidewall of said barrel, said enclosure communicating with said barrel through said opening, and said opening being sealed off by said projectile when said projectile is in firing position and substantially the full pressure of the compressed air in said enclosure is bearing against the side of said projectile, and

a firing mechanism, powered by a second mechanism independent of the compressed air in said enclosure, capable of moving said projectile within said barrel by a distance sufficient to uncover said opening whereupon said full pressure substantially immediately bears upon said projectile at the rear thereof to fire the same.

4,332,235
ROTATING AIR DRAFT FIREPLACE

Harold W. Hannebaum, P.O. Box H, Shoshone, Id. 83352

Continuation-in-part of Ser. No. 943,842, Sep. 19, 1978, Pat. No. 4,273,096, which is a continuation-in-part of Ser. No. 843,827, Oct. 20, 1977, Pat. No. 4,181,117, which is a continuation-in-part of Ser. No. 762,014, Jan. 24, 1977, abandoned. This application Mar. 24, 1980, Ser. No. 133,210
Int. Cl.³ F24B 1/18
U.S. Cl. 126—120 7 Claims



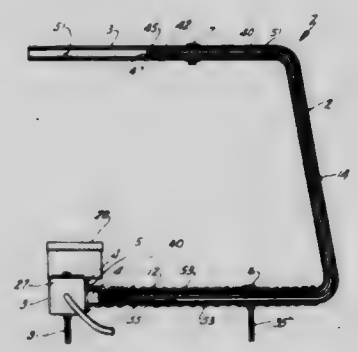
1. An enclosed fireplace in which a fire chamber, fitted with means to introduce intake air into said chamber, is formed by vertical walls fitted with first non-moveable means to impart a rotational movement in the fire chamber, to intake air entering the fire chamber, with said fireplace fitted with second non-moveable means to impart a further rotational movement, in the same direction, to the air already in the fire chamber that approaches a central location of the fire chamber in which a supply of fuel may be located, so as to cause a rotating draft of intake air about burning fuel located in said central location of the fire chamber,

in which the first said non-moveable means comprise a plurality of vertical tubes mounted in the fire chamber adjacent to the vertical walls of the chamber, with each tube joined at its base to a duct leading to a supply of intake air, and with a vertical exit slit extending substantially the length of each tube and located so as orient air exiting from said slit in a common circular direction in the fire chamber.

4,332,236
FIREPLACE HEAT EXCHANGER

Richard A. Stora, 434 Hill Lake Ave., Wayland, Mich. 49348, and Edward J. Chase, Jr., 1400 11 Mile Rd., NE., Comstock Part, Mich. 49321

Filed Feb. 25, 1980, Ser. No. 124,520
Int. Cl.³ F24B 7/00; F24F 3/14
U.S. Cl. 126—121 19 Claims



1. A fireplace heat exhanger, comprising:

a plurality of laterally spaced apart heat transfer tubes, each having a body shaped for placement in a firebox, and including a lower end thereof shaped to draw cool room air into the tubes, a medial portion adapted for positioning adjacent a source of heat and transferring heat to the cool air, and an upper end shaped to expel the heated air into the room;

a plurality of mounting plates, each being connected with a different one of said tubes at the lower end thereof;

a header extending along the lower end of each of said tubes and communicating therewith for flowing air into the heat exchanger;

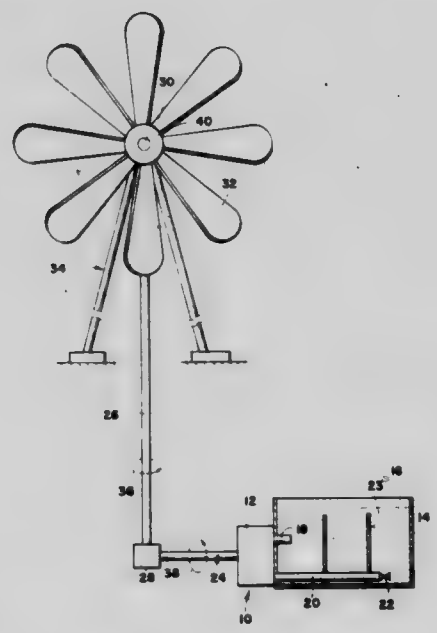
removable fastener means for individually connecting each of said mounting plates to said header; and

at least one bracket detachably interconnecting each of said tubes, and being disposed at a position spaced apart from said header, whereby a damaged heat transfer tube can be easily removed from said heat exchanger and replaced by disassembling said bracket, loosening the fastener means associated with the damaged tube, and detaching the associated mounting plate from said header.

4,332,237
HEAT GENERATOR APPARATUS

Paul G. Kelsey, Rte. 2, Box 876, Claremore, Okla. 74017

Filed May 1, 1980, Ser. No. 145,450
Int. Cl.³ F24C 9/00; F22B 9/06
U.S. Cl. 126—247 1 Claim



1. In combination with a windmill having adjustable rotatable blades, a heat generator apparatus comprising pump means operably connected with the windmill for actuation thereby and having fluid inlet and fluid outlet means, a fluid reservoir having a fluid supply in simultaneous communication with both the fluid inlet and fluid outlet means of the pump means whereby the fluid is continuously circulated from the reservoir and through the pump means and back to the reservoir during actuation of the pump means, and restrictive valve means provided in the fluid outlet means for heating of the fluid discharging from the pump means whereby the temperature conditions in the fluid reservoir may be increased to an optimum heating of the fluid for use in a heating operation, the pump means is provided with drive shaft means, and coupling drive means is interposed between the drive shaft means and the windmill to rotate the drive shaft means for actuation of the pump means, and wherein the coupling drive means comprises a substantially vertical rotatable shaft having one end operably connected with the rotatable blades for rotation of the vertical shaft about its own longitudinal axis, and coupling means interconnected between the vertical shaft and the drive shaft for transmitting rotation to the drive shaft for actuation of the pump means, the fluid reservoir includes housing means for containing the fluid therein whereby the level of the fluid encompasses both the fluid inlet and fluid outlet means and

baffle means provided in said housing means for controlling the flow of the fluid during the circulation thereof through the fluid reservoir.

4,332,238

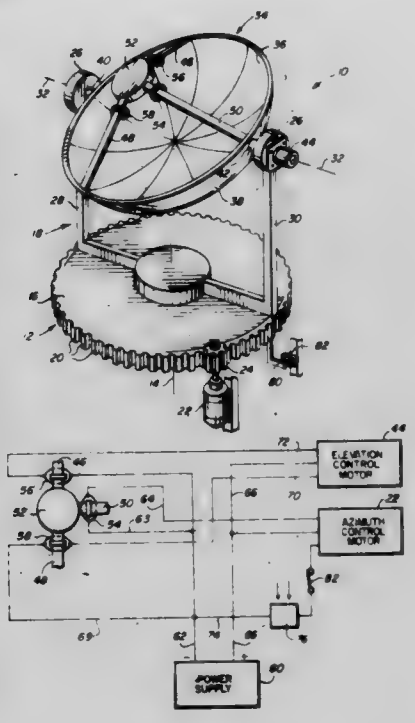
SOLAR TRACKING SYSTEM

Raul Garcia, Jr., 6244 S. 41st Ave., Phoenix, Ariz. 85041

Filed Mar. 27, 1980, Ser. No. 134,542

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—425 **4 Claims**



1. A sun tracking solar energy collector comprising:
(a) an azimuth frame mounted for rotation about a vertical axis;
(b) a first reversible motor coupled to rotatably drive said azimuth frame;
(c) frame means on said azimuth frame for rotation therewith, said frame means defining a horizontal axis;
(d) a reflector carried on said frame means for rotation about the horizontal axis, said reflector adapted to reflectingly concentrate solar radiation into a focal point;
(e) a second reversible motor coupled to rotatably drive said reflector about the horizontal axis;
(f) a solar energy absorber mounted at the principal radiation focal point produced by said reflector;
(g) a first heat sensor means proximate and laterally spaced from said absorber and coupled to said first motor, said first heat sensor means for sensing the heat present at the radiation focal point to detect movement of the radiation focal point away from said absorber as a result of the azimuthal movement of the sun and responding thereto by enabling operation of said first motor to drive said azimuth frame and thereby said reflector in one direction an amount necessary to move the focal point back onto said absorber;
(h) second and third heat sensor means coupled to said second motor proximate and spacedly mounted on opposite sides of said absorber for sensing the heat present at the radiation focal point to detect movements of the radiation focal point away from said absorber due to elevational changes in the sun's movement path and responding thereto by enabling operation of said second motor to drive said reflector in the direction and in the amount needed to move the radiation focal point back onto said absorber; and
(i) sensor means in the form of a light sensitive device in the circuit which supplies power for operating said first reversible motor in the opposite direction, said sensor means having a first state which opens the circuit in which it is mounted upon sensing the presence of light and having a second state which completes that circuit when the absence of light is sensed upon completion of the diurnal cycles to enable said first reversible motor to drive said azimuth frame and thereby said reflector to a position which faces the starting point of subsequent diurnal cycles of the sun.

4,332,239

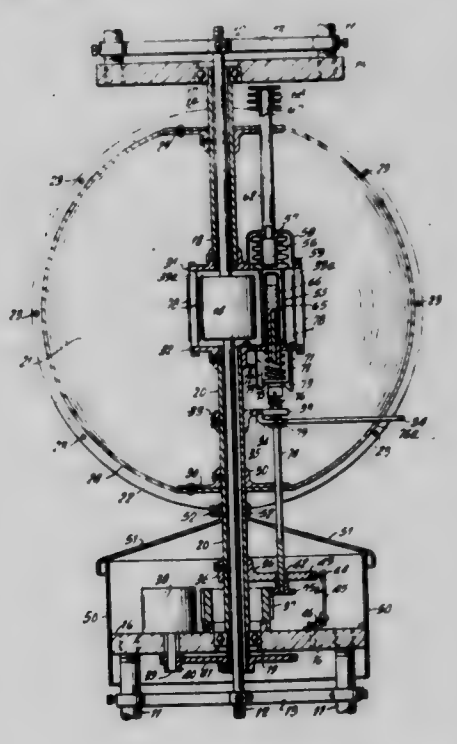
SUN POWERED AUTOMATIC SUN FOLLOWING REFLECTOR

William Hotine, Box 216, Albion, Calif. 95410

Filed Oct. 27, 1980, Ser. No. 201,080

Int. Cl.³ F24J *3/02*; G05D *11/00*; G01J *1/20*

U.S. Cl. 126—425 **6 Claims**



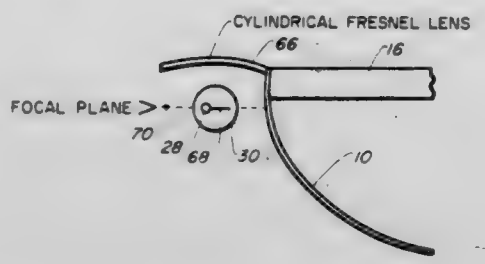
1. A solar powered sun following reflector comprising:
(a) a substantially rigid frame,
(b) spaced bearings carried by the frame,
(c) a first and a second elongated trunnion tube rotatably carried at each outer end in the spaced bearings and disposed along a common equatorial axis, said trunnion tubes being spaced from each other at their unsupported inner ends,
(d) a reflector having a substantially hemispherical shape diametrically secured to the trunnion tubes,
(e) a first and a second fluid conduit secured at their outer ends to the frame, extending inwardly toward the center of the reflector and spaced from each other at their inner ends,
(f) a heat exchanger operatively coupled between the inner ends of the first and second fluid conduits and disposed at the focal point of the reflector,
(g) reflector drive means carried by the trunnion tubes, positioned in the focal plane of the reflector and laterally of the heat exchanger,
(h) ratchet means operatively coupled between the drive means and the reflector whereby solar energy directed upon the drive means by the reflector when the solar rays are displaced from the heat exchanger will return the reflector to its optimum position with respect to the heat exchanger.

4,332,240

SOLAR-ENERGY-POWERED SUN TRACKER

Carter J. Ward, 604 Sunfish Way, Port Hueneme, Calif. 93041

Division of Ser. No. 69,665, Aug. 24, 1979, Pat. No. 4,262,654.
This application Dec. 29, 1980, Ser. No. 220,675
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—425 **8 Claims**



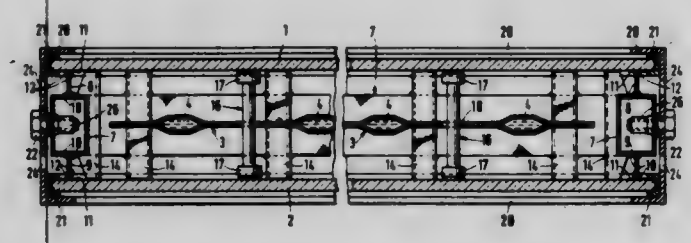
1. A solar-powered sun-tracking apparatus comprising:
a. fluidic sensing means responsive to rays of radiant energy for producing a fluidic pressure;
b. means for translating said fluidic pressure into a mechanical force;
c. means for focusing rays of radiant energy on said fluidic sensing means when said rays have a predetermined range of angles of incidence relative to said focusing means; and
d. means responsive to said mechanical force for positioning said sun-tracking apparatus so that said means for focusing is maintained at a predetermined position relative to the angle of incidence of said rays;
e. said means for focusing rays of radiant energy including:
a fresnel lens disposed between said rays and said fluidic sensing means; and
a thermally-conductive fin coupled to said fluidic sensing means, said fresnel lens focusing the rays of radiant energy onto said fluidic sensing means when said rays have said predetermined range of angles of incidence and onto said thermally conductive fin for angles of incidence larger than said predetermined range.

4,332,241

SOLAR ENERGY COLLECTOR PANEL

Rolf Dalstein; Johann Spies; Hans-Dieter Greif, all of Stuhr; Günter Termath; Jürgen Unbescheid, both of Gelsenkirchen-Buer, and Hans-Werner Nowoczyn, Aachen, all of Fed. Rep. of Germany, assignors to Erno Raumfahrttechnik GmbH, Bremen, Fed. Rep. of Germany

Filed Dec. 22, 1980, Ser. No. 218,550
Claims priority, application Fed. Rep. of Germany, Dec. 20, 1979, 2951362
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—450 **14 Claims**



1. A solar energy collector panel, comprising:
a first and second prestressed silicate glass plate;
a spacing frame for supporting the glass plates in spaced-apart relationship, the spacing frame including
(i) a warp-resisting frame portion;
(ii) yielding and deformable, upstanding metal bars soldered to said frame portion and to metalized portions of the glass plates, for sealing an interior space as defined by and between said glass plates and said frame;

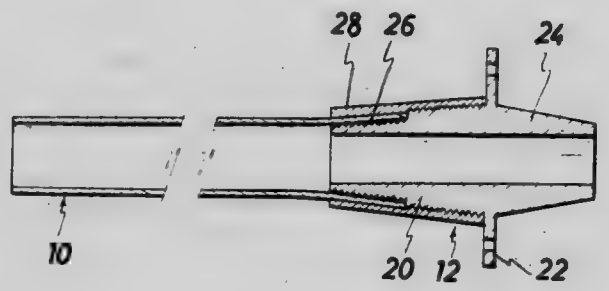
and an absorption means disposed in said space.

4,332,242

GUIDE TUBE ASSEMBLY

Toshio Chikama, Tokyo, Japan, assignor to Machida Endoscope Co., Ltd., Tokyo, Japan

Filed Mar. 31, 1980, Ser. No. 135,995
Int. Cl.³ A61B *1/00*
U.S. Cl. 128—3 **1 Claim**



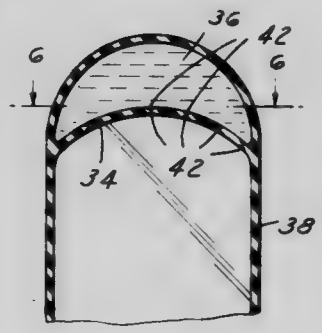
1. In combination, an endoscope and a guide tube assembly, said guide tube assembly comprising a tube, said tube being made of a porous fluoric resin and a fluorocarbon elastomer coated on said porous fluoric resin as a sealing material, said guide tube further comprising a mouthpiece which is formed as a surface of revolution comprising a connector portion for holding the tube, an extended portion which spreads from the connector portion and a mouthpiece portion, and at least one suction aperture being provided at the extended portion of the mouthpiece, wherein the surface of the mouthpiece portion is tapered, said endoscope passing through said tube, said tube formed of an inner surface of low friction.

4,332,243

DEVICES AND METHODS FOR THE PREVENTION OF TRANSMISSION OF VENEREAL DISEASE AND NON-GONOCOCCAL GENITAL INFECTIONS

Morton Gutnick, 8329 Fairview Rd., Elkins Park, Pa. 19117

Filed Apr. 4, 1980, Ser. No. 137,306
Int. Cl.³ A61F *13/00*
U.S. Cl. 128—132 R **8 Claims**



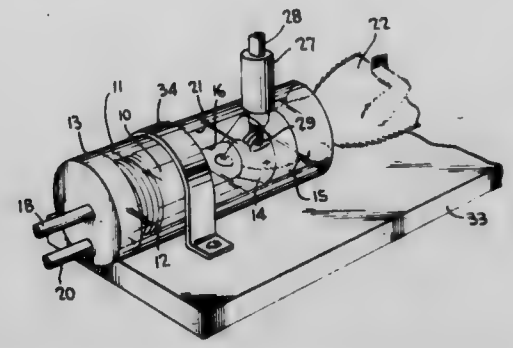
1. A method of treating and preventing venereal disease and providing birth control which comprises encapsulating a liquid venereal disease preventing medication in the distal end of a condom, providing an easily burstable wall in the encapsulation, and causing release of said medication by rupture of the burstable wall of the encapsulation during intercourse to protect the participants.

4,332,244

MASK FOR THE SAFE DELIVERY OF INHALATION GASES TO SMALL LABORATORY ANIMALS

David E. Levy; Alfred Zwies, both of New York, and Thomas E. Duffy, Mamaroneck, all of N.Y., assignors to The Government of the United States as represented by the Secretary of Department of Health and Human Services, Washington, D.C.

Filed Oct. 8, 1980, Ser. No. 195,188
Int. Cl.[3] A61M *16/00*
U.S. Cl. 128—205.25 7 Claims



1. A mask for delivering anesthetic gas under pressure for inhalation by a laboratory animal, said mask comprising:

first and second hollow tubes, each having first and second ends, wherein said first tube is secured within said second tube in spaced relation from said second tube to define an aspiration chamber between the tubes, said first end of said first tube being longitudinally recessed from the first end of said second tube, said first tube having a snout-receiving means at its first end for receiving a snout of said laboratory animal in a loose fitting engagement, said snout-receiving means being surrounded by said aspiration chamber;

means for supplying said anesthetic gas under pressure to said snout-receiving means of said first tube; and

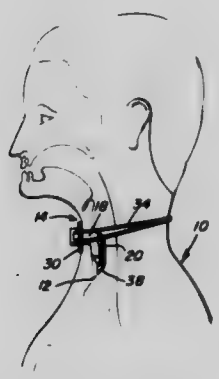
means for aspirating gas from said aspiration chamber to prevent anesthetic gas which is not inhaled by said laboratory animal from leaking into the ambient environment.

4,332,245

EMERGENCY TRACHEA AIRWAY

Frank J. Boone, Sr., 312 N. 12th St., Murray, Ky. 42071

Filed Aug. 19, 1980, Ser. No. 179,931
Int. Cl.[3] A61M *25/02, 25/00*
U.S. Cl. 128—207.17 7 Claims



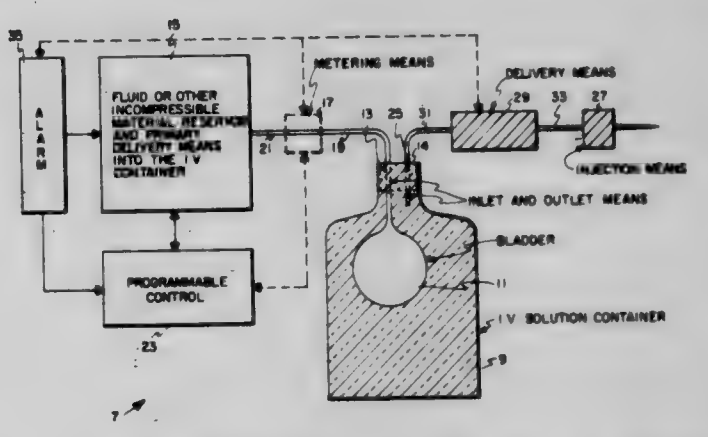
1. An emergency trachea airway, said airway including an inverted generally L-shaped tubular body including generally right angularly disposed tube sections intersecting at one pair of ends thereof, a first end of one tube section remote from the other tube section including a beveled diametrically reduced terminal end beveled toward the first end and to the side of the one tube section opposite the side thereof from which the other tube section projects, said other tube section including an enlarged abutment flange thereon intermediate said one tube section and the free end of the other tube section, said diametrically reduced terminal end being eccentrically positioned relative to the longitudinal center line of the second end of said one tube section toward the side of said second end of said one tube section remote from the side of said one tube section from which the other tube section projects, the side of said diametrically reduced terminal end corresponding to the side of the second end of the one tube section from which the other tube section projects being inwardly offset from the corresponding side of the second end of said one tube section, the wall portion of said tubular body connecting the inwardly offset side of the terminal end with the corresponding side of said second end of said one tube section being outwardly inclined from said inwardly offset side toward said other tube section.

4,332,246

POSITIVE DISPLACEMENT INTRAVENOUS INFUSION PUMP DEVICE AND METHOD

Thomas H. Thomson, Boulder, Colo., assignor to Staodynamics, Inc., Longmont, Colo.

Filed Jun. 30, 1980, Ser. No. 164,105
Int. Cl.[3] A61M *5/14*
U.S. Cl. 128—214 F 25 Claims



1. In a positive displacement infusion device for injecting a solution from a container through a discharge means into a patient, delivery means for introducing an incompressible material into said container to cause said solution stored therein to be displaced from said container through said discharge means in an amount proportional to the amount of incompressible material introduced into said container, said delivery means including control means for controlling introduction of said incompressible material into said container whereby solution is discharged from said container through said discharge means in a predetermined manner.

4,332,247

ADMINISTRATION SET INCLUDING BURETTE WITH PIVOTABLE AIR VALVE

Herbert Mittleman, Deerfield, and Gordon P. Boland, Lake Zurich, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation of Ser. No. 938,063, Aug. 30, 1978, abandoned. This application Jul. 21, 1980, Ser. No. 170,399
Int. Cl.[3] A61M *5/14*
U.S. Cl. 128—214 C 9 Claims

1. In an administration set including a burette having a burette chamber and a main liquid inlet, an injection site and an air valve communicating with said chamber, and a drip chamber connected downstream of the burette chamber, the improvement comprising, in combination:

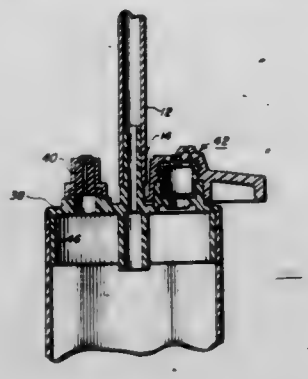
said air valve comprising a stationary port extending from a top portion of said burette chamber and defining a bore therethrough;

said port including a fitting shaped to define an open internal portion, a top portion of said fitting shaped to define a passageway, said fitting closing said port except for said passageway, with said passageway being substantially smaller than said open internal portion;

a pivotable closure overlying said port and being pivotally

connected therewith, said pivotable closure shaped to define an opening for communication with said passageway when said closure is pivoted to a predetermined open position; and

means for segregating said closure opening and said passageway when said closure is not in said predetermined open position; and a filter member located transverse said bore



and directly underlying said passageway, said segregating means comprising a resilient member movable with the pivoting movement of said closure, to close and seal said passageway when the closure is not in said predetermined open position,

said resilient member comprising a ball carried by said closure and spaced from said opening defined by said closure.

4,332,248

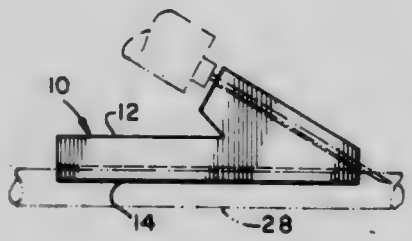
MEDICAL APPARATUS

Thomas N. DeVitis, 803 Adams Dr., Brookhaven, Pa. 19015

Filed Jul. 31, 1980, Ser. No. 174,167

Int. Cl.[3] A61M *05/00*

U.S. Cl. 128—214 R 4 Claims



1. A device for laterally restraining a fluid conduit comprising:

first and second legs spaced apart from each other; and

body means having a longitudinal axis and connecting said legs at a distance from their distal ends, said body means including:

a space along its longitudinal axis for receiving a fluid conduit therein;

upper and lower horizontal surface parallel to each other and to the longitudinal axis of said body means;

a third surface inclined to the axis of said body means and connecting the upper and lower surfaces of said body means, said inclined surface having a V-shaped groove formed therein, said groove terminating in said first and second legs; and

a second inclined surface orthogonal to said first inclined surface and connecting said first inclined surface with the upper surface of said body means.

4,332,249

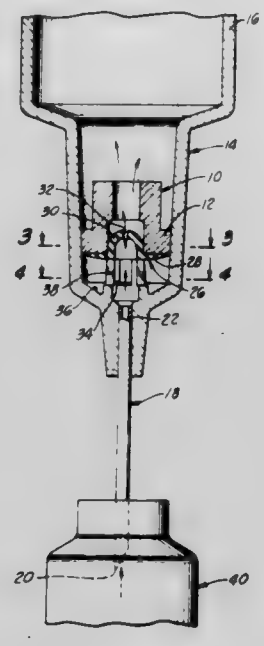
FILTER AND VALVE ASSEMBLY FOR HYPODERMIC SYRINGE

Joel A. Joslin, Sunset Hills, Mo., assignor to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Aug. 1, 1980, Ser. No. 174,548

Int. Cl.[3] A61M *5/00*

U.S. Cl. 128—218 NV 10 Claims



1. In an apparatus for injecting filtered medicinal fluids; said apparatus including a generally tubular member having a chamber therein and a filter element disposed within said chamber; said filter element having a proximal end, a distal end and a central unobstructed passage extending longitudinally therethrough; and valve means operatively associated with said filter element; the improvement comprising:

said valve means being responsive to increased pressure on the distal end of said filter element to open and permit the flow of medicinal fluid through said central unobstructed passage of said filter element; said valve means being responsive to increased pressure on the proximal side of said filter element to block said central passage of said filter element, thereby requiring medicinal fluid under pressure at the proximal end of said filter element to flow through said filter element and be filtered thereby.

4,332,250

EQUINE SANITATION APPARATUS AND METHOD

Charles A. Behney, P. O. Box 4337, Bisbee, Ariz. 85603

Filed Jul. 7, 1980, Ser. No. 164,785

Int. Cl.[3] A61M *3/00*

U.S. Cl. 128—239 19 Claims

1. Equine sanitation apparatus which comprises, in combination,

a supply tube having distal and proximal ends,

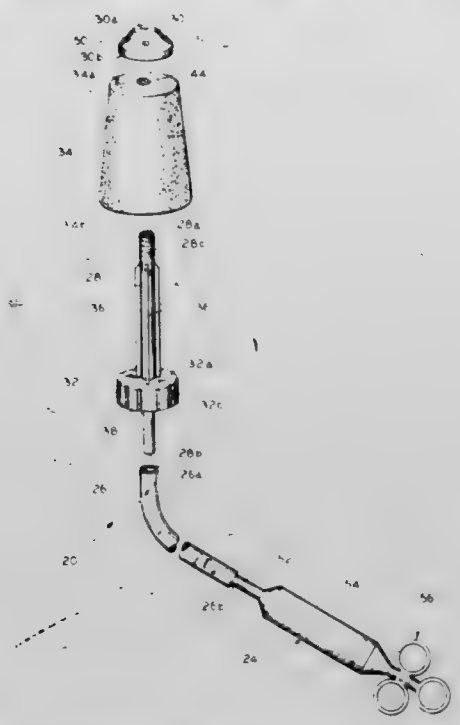
nozzle means on the distal end of said tube and defining discharge openings therein,

manipulating means on said tube and spaced apart longitudinally from said nozzle means in the direction of the proximal end of the tube, and

a sponge on said tube between said nozzle means and said manipulating means,

whereby said manipulating means may be manually operated to insert said nozzle means and said sponge into an equine sheath cavity and manipulate the sponge therein, and a liquid may be supplied to and exhausted from the cavity

via said tube and said nozzle means so as to flush the cavity through said discharge openings and thereby



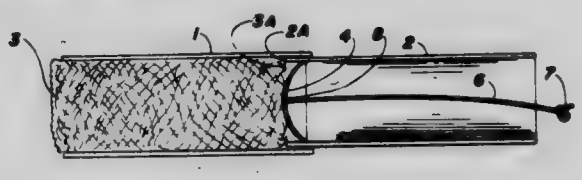
loosen smegma in the cavity and remove the smegma therefrom through the discharge openings.

4,332,251

INSERTION DEVICE

James Thompson, Harrods Creek, Ky. 40027

Filed Nov. 14, 1980, Ser. No. 206,721
Int. Cl.[3] A61F *15/00*
U.S. Cl. 128—263 1 Claim



1. An insertion device for insertion of a soft deformable tampon made of resilient deformable material where the insertion device includes a pair of telescoping elements including a first tube and a second tube of lesser diameter to be received in the first tube where a portion of the tampon is received in compressed condition within the first tube with an end of the second tube, bearing on the innermost end of the tampon and a generally planar flexible, deformable stop means carried by a string means and movable therealong where one end of the string is attached to the innermost end of the tampon, second stop means provided at the opposite end of the string means to prevent release of the first stop means from the string and the first stop means is adapted to be received in flexed condition within the tube means.

4,332,252

DRAINAGE RECEPTACLE WITH SUPPORT MEMBER

Rebecca S. Taylor, Palatine, Ill., assignor to The Kendall Company, Boston, Mass.

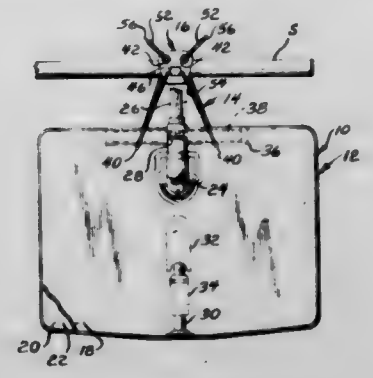
Filed Jul. 11, 1980, Ser. No. 167,492
Int. Cl.[3] A61F *5/44*
U.S. Cl. 128—275 8 Claims

1. A drainage receptacle, comprising:

a container having a chamber for receiving body fluids and a pair of spaced apertures adjacent an upper portion of the container;

a support member having a pair of spaced openings and a hook; and

an elongated cord passing through said apertures with an end portion extending from each of the apertures and a central portion extending between said apertures, said end portions of the cord being received in said openings of the support member and said cord central portion being received on said hook, said support member having means



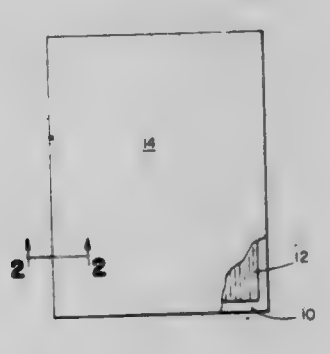
for frictionally engaging and slidably receiving said end portions of the cord in said openings such that said end portions may be adjusted in said openings and such that the height of the receptacle may be adjusted during the time the receptacle is being filled.

4,332,253

DISPOSABLE DIAPER AND TOP SHEET THEREFOR

Peter J. Schoots, Walpole, Mass., assignor to The Kendall Company, Boston, Mass.

Filed Apr. 15, 1980, Ser. No. 140,616
Int. Cl.[3] A61F *13/16*
U.S. Cl. 128—287 8 Claims



1. In a disposable diaper having a water-resistant backing sheet, a layer of absorbent material, and a top sheet arranged to be placed in contact with the skin, the improvement comprising a top sheet having a fibrous textile web impregnated with a polymeric binder in which at least 1% by weight of the binder consists of combined 2-ethyl hexyl acrylate.

4,332,254

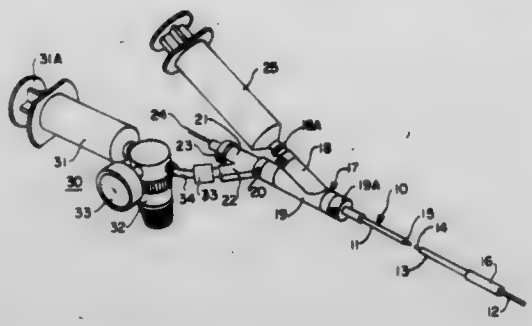
SYSTEM FOR FILLING AND INFLATING AND DEFLATING A VASCULAR DILATING CATHETHER ASSEMBLY

Ingemar Lundquist, Oakland, Calif., assignor to Advanced Catheter Systems, Inc., Palo Alto, Calif.

Filed Nov. 17, 1980, Ser. No. 207,732
Int. Cl.[3] A61M *29/02, 25/00*
U.S. Cl. 128—344 21 Claims

1. In apparatus for the rapid inflation and deflation of a balloon-type dilating catheter assembly, a pistol grip housing adapted to be held in one hand and having spring loading actuator means mounted thereon adapted to be operated by a portion of said hand holding said housing between a released, balloon deflated position and an actuated balloon inflated position; pump means at least partly carried by said housing coupled to said actuator means to be actuated thereby, said pump means including a pump chamber adapted to be connected to said catheter assembly and piston means coupled to said actuator means for altering the fluid holding volume of

said pump chamber; latching means carried on said housing for holding said actuating means in a catheter fill position intermediate said released, balloon deflation position and an actuated, balloon inflation position; and fill port means carried on said pump chamber for filling said pump chamber and said catheter assembly with a relatively incompressible fluid when said



actuator means is latched in said catheter fill position, whereby a balloon deflating vacuum is automatically produced in said pump chamber when said actuator means is in said released position and a balloon inflating pressure is produced in said pump chamber when said actuator is operated to an actuated, balloon inflation position.

4,332,255

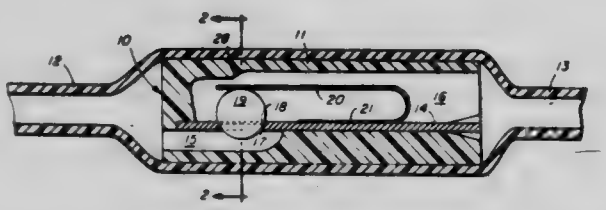
SHUNT VALVE

Salomon Hakim, Bogota, Colombia, and Carlos A. Hakim, Fort Lauderdale, Fla., assignors to Hakim Company Limited, Saint Vincent, British West Indies

Continuation-in-part of Ser. No. 2,354, Jan. 10, 1979, abandoned. This application Sep. 23, 1980, Ser. No. 190,018

Int. Cl.³ A61M *27/00*

U.S. Cl. 128—350 V **7 Claims**



1. In a surgically implantable shunt system in which cerebrospinal fluid is vented from a cerebroventricular catheter to a drainage catheter, a valve for presenting a precisely controllable back pressure to the ventricles, said valve comprising:

an elongate, holiow valve body;

a flat plate partitioning said valve body so as to form an inlet chamber and an outlet chamber, said ventricular catheter being coupled so said inlet chamber and said drainage catheter being coupled to said outlet chamber, said plate being provided with a circular aperture connecting said inlet and outlet chambers;

a spherical ball of diameter larger than said aperture for controllably restricting flow through said aperture; and

a spring including a cantilevered flat portion overlying said ball and biasing it against the circular periphery of said aperture whereby a circular seal is selectively effected between said ball and said plate, providing a precisely defined back pressure with low hysteresis and low susceptibility to bridging by debris.

4,332,256

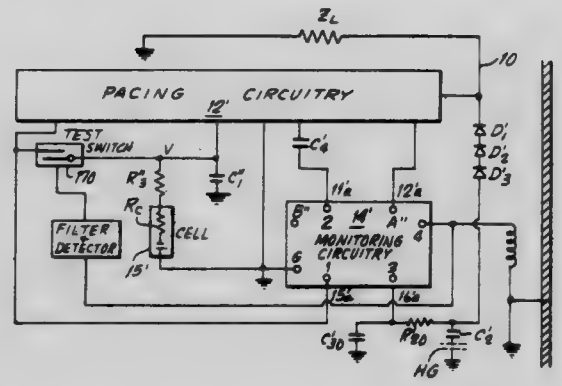
SYSTEM FOR MONITORING HERMETIC INTEGRITY, PACING PULSE AND LOAD IMPEDANCE IN CARDIAC PACERS

Robert R. Brownlee, State College, Pa.; G. Frank Tyers, Galveston, Tex., and Paul H. Neff, Bellefonte, Pa., assignors to Research Corporation, New York, N.Y.

Division of Ser. No. 927,005, Jul. 24, 1978, abandoned, which is a continuation-in-part of Ser. No. 736,491, Oct. 28, 1976, Pat. No. 4,142,533. This application Mar, 12, 1980, Ser. No. 129,427

Int. Cl.³ A61N *1/36*

U.S. Cl. 128—419 PT **11 Claims**



1. A cardiac pacemaker comprising:

an hermetically sealed casing;

electrode means extending out of said casing for conducting electrical signals including cardiac R-wave signals from and cardiac pacing pulses to the heart of a patient;

pacing circuitry means in said casing and connected to said electrode means for producing said pacing pulses;

telemetry means in said casing for telemetering electrical signals out of said casing indicative of electrical inputs thereto; and

means in said casing for producing an electrical input to said telemetery means indicative of the hermetic integrity of said casing.

7. In a pacemaker system comprising:

casing means for implantation in a patient;

electrode means connected to said casing means for conducting electrical signals including cardiac pacing pulses to the heart of a patient;

pacing circuitry means in said casing means and connected to said electrode means for producing said pacing pulses;

telemetry means in said casing means for telemetering out of said casing means electrical signals indicative of electrical inputs thereto; and

power source means in said casing means for powering said pacing circuitry means and said telemetry means; the improvement comprising:

integrating means in said casing means and connected to said pacing circuitry means and between said power source means and said telemetry means for sensing and integrating the current pulse from said power source means upon the production of each pacing pulse and providing an indicative electrical input to said telemetry means.

4,332,257

MEDICAL CLIP AND ELECTRODE CONSTRUCTIONS

George E. Ayer, Naperville, Ill., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Feb. 11, 1980, Ser. No. 120,422

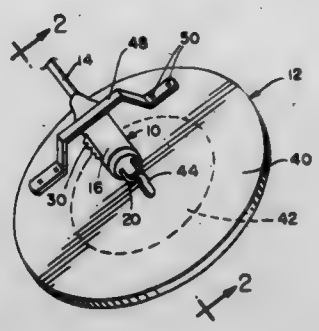
Int. Cl.³ A61B *5/04*

U.S. Cl. 128—640 **25 Claims**

1. A terminal clip and electrode set for use with instruments such as medical monitoring instruments or the like, comprising:

a terminal clip including a support member, and a conductive member mounted on the support member and adapted for engaging terminal means of an electrode; and

an electrode adapted for attachment to an anatomical body member of a patient, said electrode including terminal means for engaging said conductive member of said terminal clip, and means remote from said terminal means for



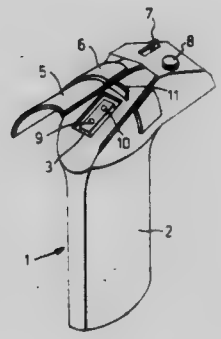
engaging said support member of said terminal clip to hold said terminal clip in position with said conductive member in engagement with said terminal means of the electrode and to prevent relative movement therebetween.

4,332,258

PORTABLE PULSE METER

Asajiro Arai, and Yasuo Ugai, both c/o Kabushiki Kaisha Yamaoka Seisakusho, 93, Yokomichi, Hirakawa, Joyo, Kyoto, Japan

Filed Sep. 29, 1980, Ser. No. 191,706
Int. Cl.³ A61B *5/02*
U.S. Cl. 128—666 **6 Claims**



1. A portable physiological pulse meter comprising a rigid body, a detector plate provided with a light source and a photoelectric element for detecting the light from said source as reflected by a blood stream in a blood vessel in a portion of human anatomy brought into proximity with said detector plate, and means for resiliently mounting said detector plate on said rigid body so that said detector plate is omnidirectionally movable relative to said body so as to minimize relative movement between said detector plate and said portion of said human anatomy, thereby minimizing measurement noise.

4,332,259

INTRAVENOUS CHANNEL CARDIAC ELECTRODE AND LEAD ASSEMBLY AND METHOD

Charles E. McCorkle, Jr., 1427 E. Bayview Dr., Tempe, Ariz. 85283

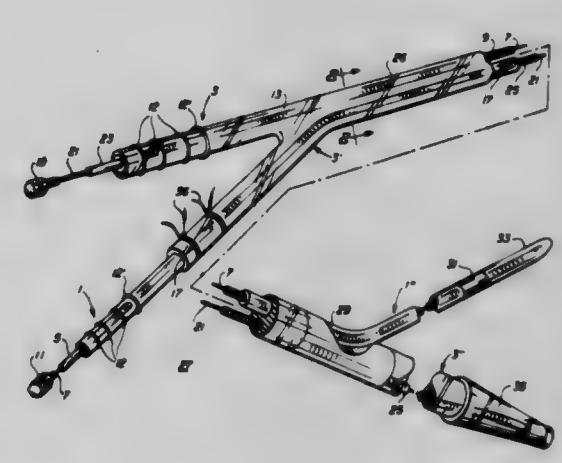
Filed Sep. 19, 1979, Ser. No. 76,910
Int. Cl.³ A61N *1/04*
U.S. Cl. 128—786 **16 Claims**

1. A lead assembly for intravenously conducting electrical signals to or from a patient's heart, the lead assembly comprising in combination:

a. a core lead having first and second ends, said core lead including
   i. first flexible sleeve means;
   ii. a first conductor surrounded by material of said first flexible sleeve means, said first conductor extending approximately between the first and second ends of said core lead;
   iii. first electrode means attached to said first flexible sleeve means approximately at the first end of said core lead, said first electrode means being electrically connected to said first conductor;

b. a first removable stylet extending through said first flexible sleeve means to facilitate control of said core lead, said core lead being preformed to tend to assume a straight configuration when said first stylet is removed from said core lead;

c. a channel lead having first and second ends, said channel lead including
   i. second flexible sleeve means, said second flexible sleeve means having an elongated channel for receiving said core lead, said channel extending through a major portion of the length of said channel lead, said channel extending from a first opening in said channel lead to a second opening in said channel lead, said first opening being located at said first end of said channel lead, said second opening being a side port opening located a first predetermined distance from said second end of said channel lead;
   ii. a second conductor surrounded by material of said second flexible sleeve means, said second conductor being disposed outside of said channel and extending approximately between the first and second ends of said second flexible sleeve means;



   iii. second electrode means attached to said second flexible sleeve means approximately at the first end of said channel lead, said second electrode means being electrically connected to said second conductor; and

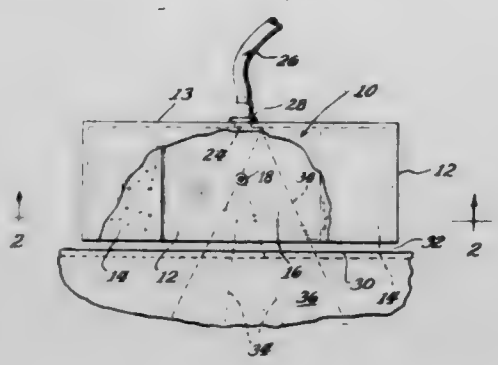
d. a second removable stylet extending through said second flexible sleeve means to facilitate control of said channel lead, said core lead being disposed in said channel of said channel lead, the first end of said core lead extending from said first opening and the second end of said core lead extending from said second opening, said first opening being located within the patient's heart when said channel lead is positioned to conduct the electrical signals to a predetermined portion of the patient's heart, said channel lead being performed to tend to assume a bent, J-shaped configuration located approximately at the location of said side port opening to cause said second end of said channel lead to move into the atrial appendage of the patient's heart when said second stylet is removed, said side port opening being located near the lowest portion of said bent, J-shaped configuration when the second end of said channel lead is in the highest or superior portion of the atrial appendage, said core lead extending through said side port opening deep into the right ventricle of the patient's heart.

4,332,260

EXTERNAL MICROWAVE APPLICATOR AND METHOD

James I. Bicher, 2623 Worchester, West Bloomfield, Mich. 48033; Taljit S. Sandhu, 1350 W. Bethune, Apt. 1106, Detroit, Mich. 48202, and Fred W. Hetzel, 19324 Addison, Southfield, Mich. 48075

Filed Jun. 17, 1980, Ser. No. 160,216
Int. Cl.[3] A61N *1/40*
U.S. Cl. 128—804 11 Claims



1. The method of irradiating the skin surface of a patient with microwaves of a frequency of 250 to 353 MHz for treating tumors, which comprises:

overlaying, in spaced relation, the skin surface to be treated with a conductive metal housing having an open bottom overlaying said skin and having closed walls on all other sides, the interior of said housing carrying a pair of opposed slabs of dielectric material having a dielectric constant of more than 4 and defining a space therebetween;

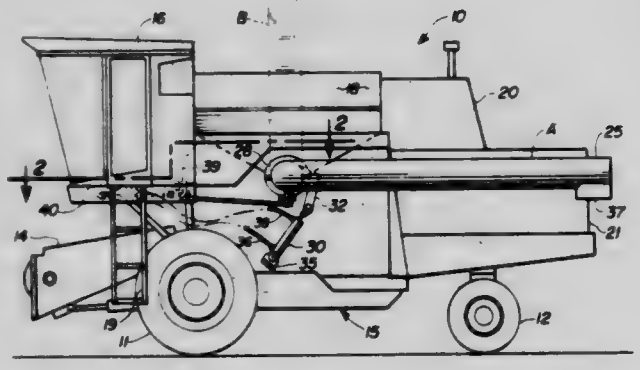
radiating microwaves of said frequency from a microwave antenna projecting through a wall of said housing into said space, said antenna being generally parallel to said open bottom, said slabs being of sufficient thickness to provide generally uniform electric and magnetic field intensities throughout said space; and simultaneously blowing air into said space through an aperture in a wall of said housing to cool the skin.

4,332,261

AUTOMATIC HYDRAULIC NEUTRALIZING MECHANISM

E. Graham Webster, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Sep. 24, 1980, Ser. No. 190,152
Int. Cl.[3] A01D *90/10*
U.S. Cl. 130—27 R 1 Claim



1. In a harvesting and threshing machine for harvesting crop material from the field, said machine having an operator station, the improvement comprising:

a movable control arm in the operator's station;

a plate movably connected to the machine, said arm fixedly connected to said plate;

a fluid directional control valve connected to the machine;

a first member interconnecting said plate and said valve;

an auger tube including an unloading auger, said auger tube being movably connected to said machine via a stationary auger ring;

a tab pivotally connected to said ring;

a second member interconnecting said plate and said tab;

a first stop connected to said auger tube;

a second stop connected to said auger tube; and

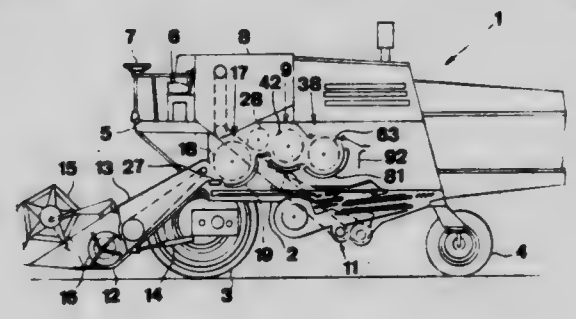
means for moving said auger tube and said stops into contact with said tab, said means being a fluid powered cylinder interconnected between said valve and said auger tube.

4,332,262

COMBINE HARVESTER

Cyriel R. J. De Busscher, Damme, Belgium, assignor to Sperry Corporation, New Holland, Pa.

Filed Nov. 13, 1980, Ser. No. 206,739
Claims priority, application United Kingdom, Nov. 14, 1979, 7939370
Int. Cl.[3] A01D *45/00*
U.S. Cl. 130—27 P 28 Claims



1. A combine harvester comprising:

a transversely extending threshing mechanism having a threshing cylinder cooperable with a threshing concave for threshing a layer of crop material fed therebetween;

a separating mechanism having a separator rotor cooperable with a separator housing including a separator concave and disposed parallel to the threshing mechanism;

crop layer dividing means on the separator rotor for dividing the layer of crop material received from the threshing mechanism into two portions and separator means extending lengthwise of the rotor and arranged spirally to convey said portions of the crop layer received from the threshing mechanism around said rotor in opposite directions to the opposite ends of the separating mechanism while submitting the crop material to a separating action;

the crop layer dividing means being formed by crop layer divider blades disposed in pairs around the circumference of the separator rotor and at opposed angles relative to the direction of rotation in a manner defining V-shapes having their apexes facing in the direction of rotation; and

the leading edges as seen in the direction of rotation of the rotor of each pair of crop layer divider blades are transversely spaced apart.

4,332,263

MANICURE EASEL

John V. Kitrell, 4639 Holdrege, Lincoln, Nebr. 68503

Filed May 12, 1980, Ser. No. 148,770
Int. Cl.[3] A45D *29/00*
U.S. Cl. 132—73 2 Claims

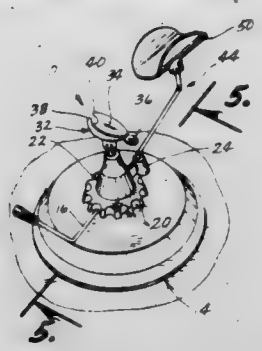
1. A manicure easel for selectively supporting one hand of a person in a manicure position and for supporting the other hand of the person in a position to enable the said other hand to perform manicure operations on the said one hand, comprising,

a first support means adapted to be positioned on a horizontal supporting surface,

a finger support on said first support means for supporting the tip portion of the finger to be manicured,

and a hand rest secured to said first support means and extending laterally therefrom for supporting the said other hand,

said hand rest comprising interchangeable first and second hand rest members, said first hand rest member dwelling in a vertical plane below said second hand rest member to



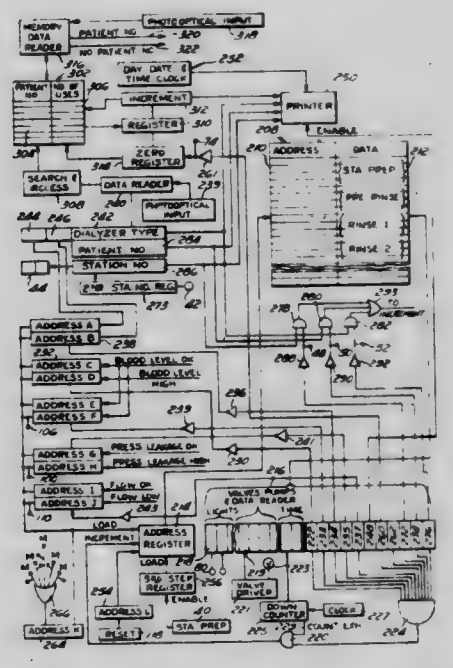
permit the said other hand to be selectively positioned below and above the finger in said finger support respectively.

4,332,264

AUTOMATED CLEANING SYSTEM FOR DIALYZERS

Norman Gortz, Irvine; Andrew S. Huson, Tustin, and Robert M. MacIntyre, Anaheim, all of Calif., assignors to United Healthcare Association, Newport Beach, Calif.

Filed Mar. 3, 1980, Ser. No. 126,522
Int. Cl.[3] B08B 3/04, 9/00
U.S. Cl. 134—57 R 12 Claims



1. A system for cleaning a dialyzer having a blood side and a dialysate side separated by a membrane comprising:

means for storing a first predetermined sequence of cleaning procedures, said first storing means providing first control signals;

means for storing a second predetermined sequence of cleaning procedures, said second storing means providing second control signals;

means for regulating the flow of a plurality of blood cleaning reagents through the dialysate and blood sides of the dialyzer;

means responsive to said first control signals for automatically controlling said regulating means to provide said cleaning procedures in said first predetermined sequence;

means for monitoring the condition of said dialyzer during said first predetermined sequence of cleaning procedures; and

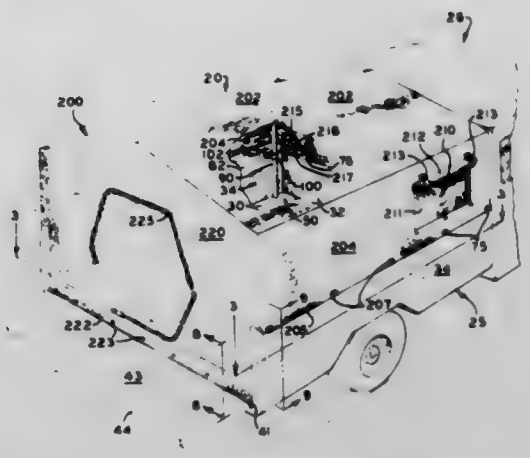
means responsive to said monitoring means for selectively controlling the sequencing of the cleaning procedures in said second predetermined sequence in response to the condition of said dialyzer to prohibit the use of defective dialyzers.

4,332,265

COLLAPSIBLE TENT FOR TRUCK BEDS

Robert L. Baker, 4815 E. Santa Ana, Fresno, Calif. 93726

Filed May 27, 1980, Ser. No. 153,158
Int. Cl.[3] B60P 3/34
U.S. Cl. 135—3 A 4 Claims



1. A collapsible tent adapted to be erected on a truck bed or the like comprising:

A. an articulated frame including a plurality of rigid, elongated elements adapted to be assembled to define a chamber and disassembled for compact stowage;

B. stud and socket means releasably engageable to interconnect the elements in chamber defining assembly and releasable by outward movement relative to the chamber to free the elements from assembled relation; and

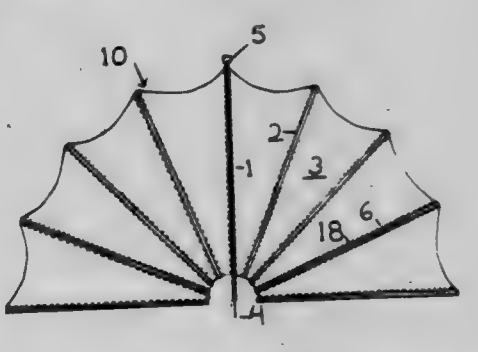
C. a cover of flexible sheet material fitted downwardly over the frame having a lower edge adapted for connection to such a bed to tension the cover downwardly against the frame releasably to hold the stud and socket means in engagement against outward movement relative to the chamber.

4,332,266

PORTABLE BLIND AND SHELTER

Tevis R. Wageley, R.F.D. No. 4, Box 428, Martinsburg, W. Va. 25401

Filed Aug. 22, 1980, Ser. No. 180,460
Int. Cl.[3] E04F 10/02
U.S. Cl. 135—5 R 20 Claims



1. A structure for use as a blind or shelter to obscure or conceal the position of the user comprising a single supporting mast having a ground penetrating portion, a light weight, flexible, substantially planar semi-circular screen, said mast being secured thereto along a radius thereof and ribs or rod members secured to said screen portion along other radii thereof, said ground penetrating portion of said mast extending beyond a straight diametral edge of said screen, one end of each of said ribs or rod members terminating substantially adjacent to the end of the top of the ground penetrating portion and the others ends of said ribs or rod members terminating at the semi-circular edge portion at the circumference of the screen.

4,332,267

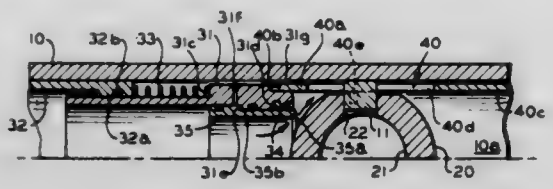
BALL VALVE ASSEMBLY

Robert W. Evans, Houston, Tex., assignor to Baker International Corporation, Orange, Calif.

Division of Ser. No. 42,257, May 24, 1979. This application Apr. 18, 1980, Ser. No. 141,523

Int. Cl.³ E03B *1/00*

U.S. Cl. 137—1 **2 Claims**



1. The method for opening a rotary valve of the type having an apertured ball journalled for rotational movement in a fluid passage and, in its closed position, being sealingly engaged by a pair of concentric annular sealing members, one of said sealing members being formed from an elastomeric material, comprising the steps of: (a) axially shifting the one annular sealing member relative to the ball to disengage from the ball while the ball is in its closed position and the other annular sealing member remains in fully sealed engagement with the ball; (b) then axially shifting the other of the annular sealing elements relative to the ball to disengage from the ball so that rotation of the ball is resisted solely by the fluid stream in the passage; and (c) rotating the ball to an open position wherein the ball aperture is aligned with the fluid passage.

4,332,268

ATMOSPHERIC PRESSURE COMPENSATION DEVICE

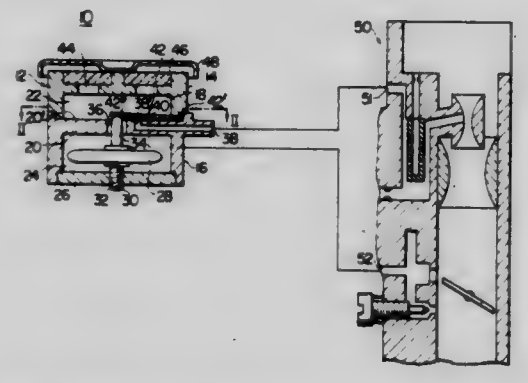
Junjiro Yoshimura, Okazaki; Akira Furukawa, Anjo, and Takehiro Ando, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Sep. 4, 1979, Ser. No. 72,296

Claims priority, application Japan, Jan. 16, 1979, 54/4416[U]; Mar. 8, 1979, 54/29805[U]

Int. Cl.³ F16K *17/36*

U.S. Cl. 137—81.1 **1 Claim**



1. An atmospheric pressure compensation device for use with a carburetor, comprising:

a housing having an air inlet and at least one air outlet;

a filter element covering said air inlet;

means in said housing defining a planar surface in which at least one opening is formed, said opening leading to said air outlet, the portion of said surface around said opening providing a substantially flat valve seat;

a flat valve member formed of resilient sheet metal having an end portion fixed to said surface in spaced relation to said opening, said valve member having a free portion having a substantially flat valve surface urged by the resiliency of said sheet metal to be brought into sealing engagement with said valve seat; and

a bellow means having rod means extending through another opening in said surface and operatively engaged with said free portion of said valve member and being responsive to variation in the atmospheric pressure to vary the angular position of said free portion of said valve member relative to said valve seat, said valve seat being positioned between said fixed end portion of said valve member and the engagement therewith of said rod means.

4,332,269

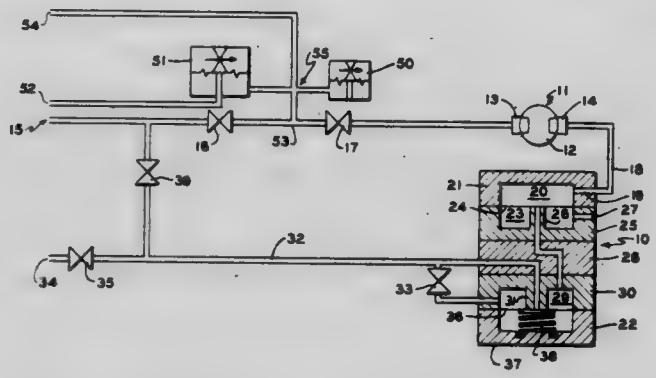
SLOPED NOZZLE PNEUMATIC DEVICE

Ronald L. Martin, Bristol, Wis., and Mario M. V. Orrico, Chicago, Ill., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Sep. 29, 1980, Ser. No. 191,615

Int. Cl.³ G05D *16/00*

U.S. Cl. 137—84 **11 Claims**



1. A pneumatic device having a sloped nozzle for reducing positive feedback comprising:

a housing having an input for receiving an input pressure and an output for providing an output pressure;

control chamber means connected to said input and having a pressure therein dependent upon said input pressure;

diaphragm means defining said control chamber means; and,

a nozzle within said control chamber means, connected to said output, and operatively associated with said diaphragm means, the position of said diaphragm means with respect to said nozzle controlling said output pressure, said nozzle being sloped for substantially reducing positive feedback resulting from bleeding of said output pressure from said nozzle into said control chamber means.

4,332,270

FLOW CONTROL AND ACCUMULATOR CHARGING VALVE

Ludwig Budecker, Frankfurt, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jul. 26, 1979, Ser. No. 60,946

Claims priority, application Fed. Rep. of Germany, Aug. 23, 1978, 2836816

Int. Cl.³ G05D *15/00*

U.S. Cl. 137—101 **27 Claims**

1. A valve device comprising;

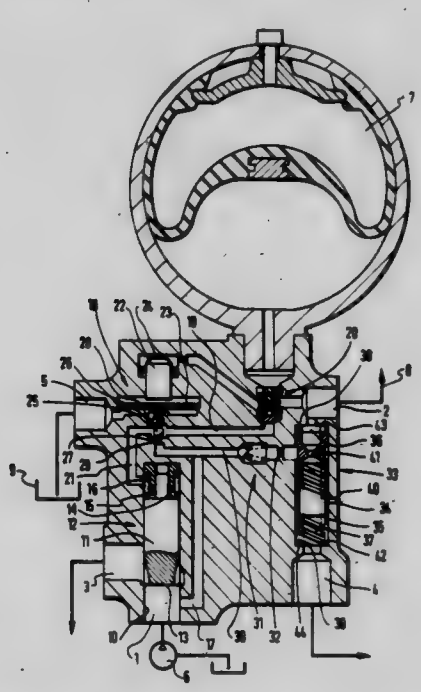
a pressure port connected to a pump;

a first user port in communication with a pressure accumulator and a first user component, said first user port connected to said pressure port through a first conduit having a first throttle and a first check valve disposed therein;

a second user port in communication with a second user component and connected with said pressure port through a by-pass valve including a by-pass piston having a first effective surface adjacent said pressure port subjected to pressure at said pressure port in the opening direction of said by-pass valve and a second effective surface spaced from said first effective surface subjected to pressure from said pressure port in the closing direction of said by-pass valve; said second effective surface being disposed in a control chamber, said control chamber connected to said pressure port through said first throttle and an accumulator-pressure-responsive pilot valve when the pressure of said accumulator is below a predetermined limit and to a

return line when the pressure of said accumulator reaches said predetermined limit;

a third user port in communication with a third user component requiring a large amount of pressure transmitting fluid and connected with said pressure port through a control valve, said control valve including an operating piston spring loaded in the closing direction of said control valve and having a third effective surface subjected to the pressure at said first user port in the opening direction of said control valve and a fourth effective surface subjected to the pressure at said third user port in the closing direction of said control valve, said third user port connected to said first user port through a second throttle, said operating piston is axially slidable in a cylindrical bore and subdivides said cylindrical bore into first and second chambers, said first chamber connected to said



first user port and said second chamber connected to said third user port, the end surface of said operating piston adjacent said first chamber is said third effective surface and the end surface of said operating piston adjacent said second chamber is said fourth effective surface, said operating piston is a hollow piston including an axial bore therethrough having a portion thereof dimensioned to provide said second throttle; the axial stroke of said operating piston is limited by spaced stops provided in said cylindrical bore; and

a second conduit connected to said pressure port opens radially into said cylindrical bore, said second conduit being open in one end position of said operating piston and being closed by the circumferential surface of said operating piston in the other end position of said operating piston.

4,332,271

THROTTLING DEVICE FOR PIPE CONDUITS

Eduard Rohr, Maegenwil, Switzerland, assignor to Eduard Rohr AG, Maegenwil, Switzerland

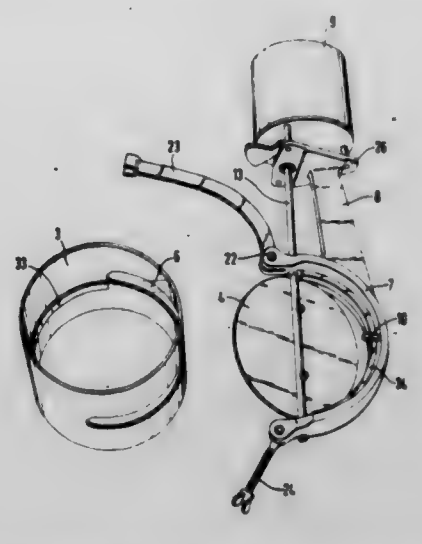
Filed Jul. 28, 1980, Ser. No. 172,989

Claims priority, application Switzerland, Aug. 8, 1979, 7266/79

Int. Cl.³ F16K *51/00*; F16L *55/10*

U.S. Cl. 137—315 **10 Claims**

1. A throttling apparatus for a conduit, comprising a pipe section connectable to said conduit, flap means in said pipe section, adjustment means operatively connected to said flap means, said pipe section comprising a substantially radially extending slot and for inserting said flap means through said slot, ring section means operatively arranged to cover said slot, bearing means in said ring section means for supporting said flap means in said ring section means, and securing means operatively securing said ring section means to said pipe section for removing said flap means through said slot when the flap means is in a pipe closed position to provide access to said pipe section, said securing means comprising bail means, pivoting means connecting said bail means to one end of said ring section means, releasable means connecting said bail means to the other end of said ring section means, said bail means bridging said pipe section substantially opposite said slot.



4,332,272

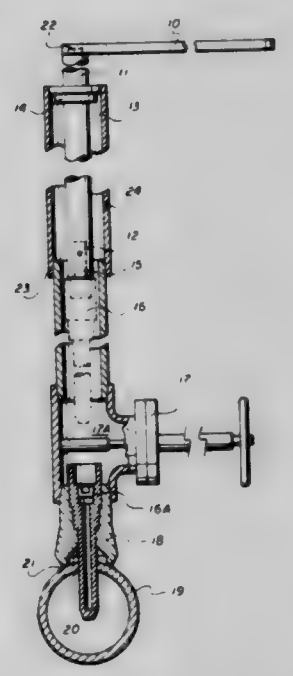
HOT TAP APPARATUS AND METHOD

David E. Wendell, 118 Warwick Dr., #58, Benicia, Calif. 94510

Filed Aug. 8, 1979, Ser. No. 64,772

Int. Cl.³ F16K *43/00*

U.S. Cl. 137—318 **6 Claims**



1. A hot tap adapter comprising a body having circular cross section and generally cylindrical shape and having (1) a single internal conduit extending therethrough along the central axis thereof, (2) a first end adapted to be welded onto to a pipe or other member said first end having an externally bevelled surface thereabout the internal conduit, said internal conduit extending inwardly from the first end having an enlarged portion and frusto-conical section inwardly thereof, said frusto-conical section communicating with a tapered section, which has a first bevelled surface toward said frusto-conical section, said tapered section having internal threads thereabout for forming a metal to metal seal with an inserted device, said taper being toward said first bevelled surface, said tapered section connecting at its larger end to an upper chamber said body terminating concurrently with said upper chamber which has a larger cross section than said tapered section

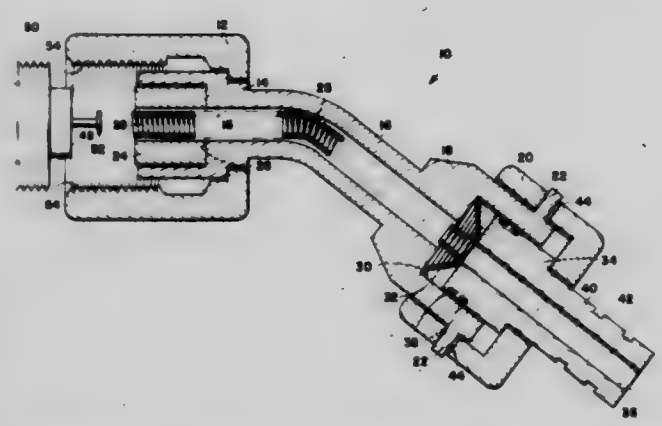
and having a second bevelled surface adjoining said tapered section and (3) means located on the exterior of the second end of said body about the upper chamber for attachment to a valve wherein when said device, having an elongated configuration, an upper portion, an intermediate portion having threads thereon and a lower portion, is seated in said adapter, the intermediate portion is engaged with the threads of the tapered section, said upper portion generally extends from said second end of said body and the lower portion generally extends from said first end of said body.

4,332,273

LEAKPROOF REFRIGERANT CONNECTOR

Harold L. Boyce, 7826 E. King St., Tulsa, Okla. 74115

Filed Dec. 10, 1979, Ser. No. 101,876
Int. Cl.³ F25B *45/00*
U.S. Cl. 137—322 **4 Claims**



1. A coupling for safely opening a normally closed Schrader-type valve which is connected to the refrigerant fluid of a compressor-type air conditioning system, the valve having a valve stem, the coupling comprising:

a first connector body a first end of which is attachable to the exterior of said valve, a second end including an opening therein;

a conduit retained at one end by said first connector body and sealed to said valve, and extending outwardly through said second end opening at an angle off-set from the axis of said opening, the other end of said conduit including an enlarged portion, said enlarged portion including a cylinder space which is in communication with said conduit;

a piston, having a bore axially therethrough in communication with said cylinder space and said conduit, said piston sealably reciprocable within said cylinder;

a second connector body interconnected with said enlarged portion of said conduit and retaining said piston in said cylinder;

an elongated resilient conduit like member extending from the end of said piston in said cylinder through said conduit into contiguous relationship to the valve stem; and

means to advance said piston against said resilient member, thereby forcing said member against said stem to open said valve.

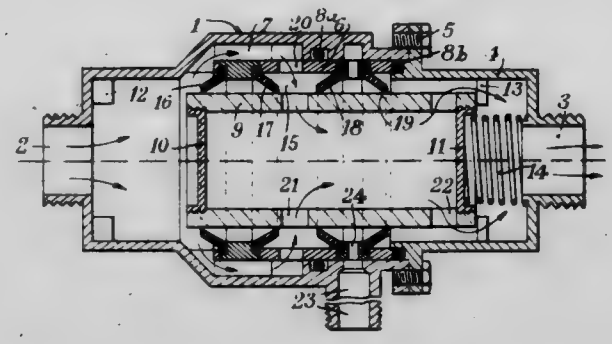
4,332,274

DISCONNECTOR FOR DRINKING WATER DISTRIBUTION SYSTEM

Maurice Frisquet, Esbly, France, assignor to Anciens Etablissements M. Frisquet, France

Filed Nov. 14, 1980, Ser. No. 206,987
Claims priority, application France, Nov. 12, 1979, 79 27779
Int. Cl.³ F16K *15/02*
U.S. Cl. 137—496 **5 Claims**

1. In a disconnector for a drinking water distribution system comprising a hollow cylindrical body with aligned upstream inlet and down stream outlet, a central chamber having a discharge outlet to the drain for the feedback water, and a hollow piston which the drinking water must pass through to go from the inlet to the outlet of the hollow body, said piston being axially slidable in the hollow body, between two end stops, in one direction under the action of the upstream pressure of the drinking water and in the other under that of an antagonistic spring which is added to the downstream pressure of feedback water, said hollow piston is closed at both its ends and it comprises in its cylindrical wall upstream apertures allowing the drinking water arriving from upstream to penetrate into the hollow piston and downstream apertures allowing this water to leave the hollow piston to reach the outlet of the disconnector, in the case of normal operation, in combination with circular lipped seals applied to the external cylindrical surface of the hollow piston, preventing the pénetration of drinking water coming from upstream into said hollow piston, as well as that of the feedback water coming from downstream in the case of a downstream overpressure, while allowing leaks of feedback water to be discharged to the drain.

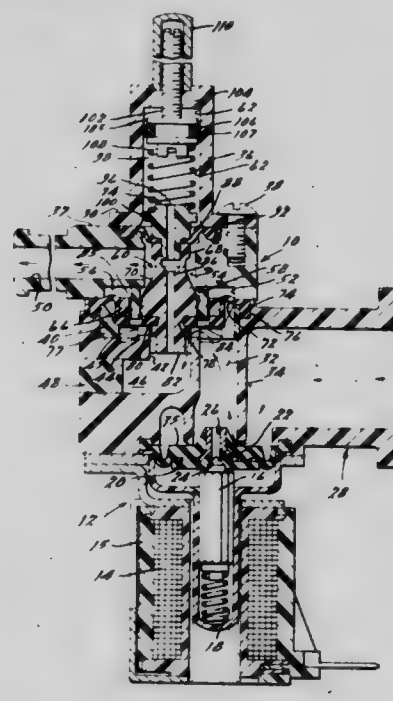


4,332,275

PRECISION FLOW CONTROL DEVICE

Wade R. Brown, St. Charles, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Nov. 20, 1980, Ser. No. 208,606
Int. Cl.³ G05D *7/01*
U.S. Cl. 137—504 **16 Claims**



1. A flow control device, said device comprising:

(a) housing means, said housing means including structure defining,

(i) a fluid inlet,

(ii) a fluid outlet,

(iii) a fluid chamber in fluid communication with said inlet and said outlet,

(iv) a pressure compensating chamber,

(v) a flow control orifice in the path of fluid flow from said fluid chamber to said fluid outlet;

(b) pressure responsive means movable in said fluid cham-

ber, said pressure responsive means including an elongated valve member having,

(i) an upstream side and downstream side including at least one flow restricting passageway therethrough for permitting fluid flow from the upstream side thereof to the downstream side thereof such that a pressure differential is developed thereacross which tends to move said valve member in a downstream direction;

(ii) a valve surface movable toward and away from said control orifice;

(iii) a surface portion in fluid communication with said pressure compensating chamber;

(c) means defining a passage for communicating fluid pressure from said upstream side of said valve member to said compensating chamber;

(d) means for biasing said valve member away from said control orifice; and

(e) said valve member movable in response to the net force of fluid pressure differentials thereacross and the force developed by said biasing means such that said valve surface is positioned relative to said control orifice for controlling flow therethrough to a predetermined rate.

4,332,276

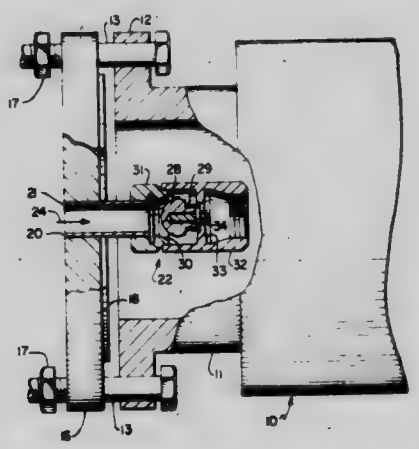
FUEL HOSE DRAINAGE APPARATUS

Donald H. Spring, One Fathom La., Wareham, Mass. 02571

Filed Nov. 6, 1980, Ser. No. 204,547

Int. Cl.³ F16L *55/10*

U.S. Cl. 137—526 **4 Claims**



1. An apparatus for use in combination with a fuel delivery hose of the type used in marine fuel transfer, comprising

a cover plate having means for securing said cover plate over a metal end fitting on one end of a marine fuel transfer hose to close the end fitting preventing flow of fuel therethrough and means defining an opening through said cover plate; and a valve coupled to said opening on the inner surface of said cover plate, said valve including

a housing having a fluid flow passage therethrough and having means defining a valve seat along said passage,

a valve member,

means carried by said housing for supporting said valve member for movement toward and away from said valve seat to respectively close and open said passage to fluid flow, and

spring means for urging said valve member toward said valve seat,

said valve member being movable away from said seat by air pressure outside of said hose which exceeds the pressure within said hose by a predeterminable amount;

whereby said valve member normally remains closed to prevent the escape of fuel from said one end of said hose and said valve member is openable in response to differential pressure across said valve between the inside and outside of said hose to allow air to enter and to allow fuel contained in said hose to drain therefrom.

4,332,277

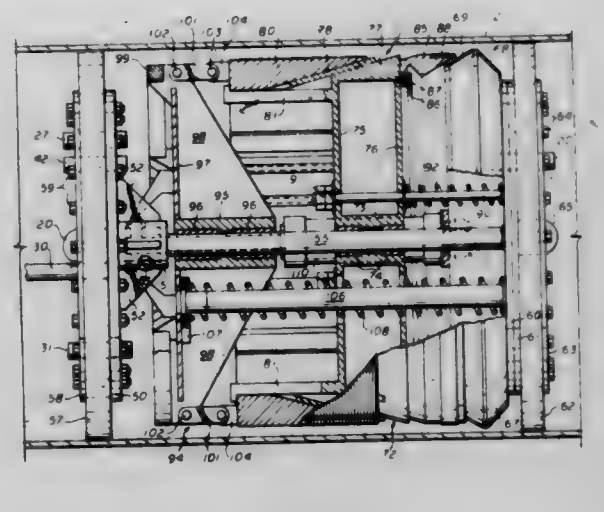
PIPELINE PIGGING PLUG

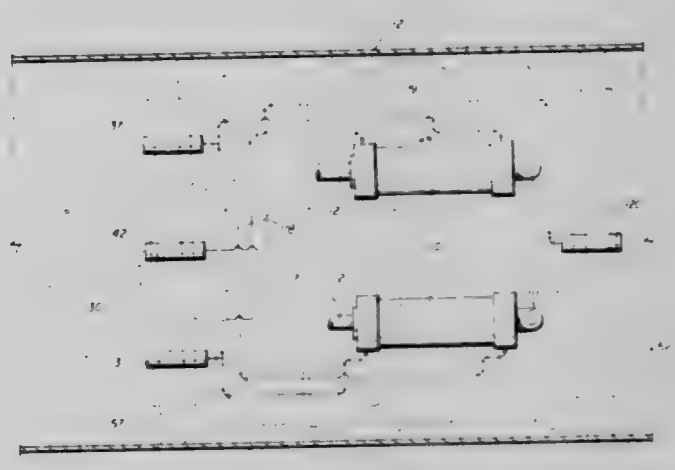
David E. Adkins; Arthur H. T. Chin; Ronnie E. Haws, and Robert H. Wittman, all of Houston, Tex., assignors to Hughes Undersea Coupling, Inc., Houston, Tex.

Filed Sep. 3, 1980, Ser. No. 183,828

Int. Cl.³ F16L *55/10*

U.S. Cl. 138—89 **6 Claims**





1. In a fluid-propelled pipeline pigging plug adapted for plugging a pipeline at a selected location therein, the combination comprising:

a body member having elastomeric means for sealingly and slidingly engaging the inside circumferential surface of said pipeline and supporting said body member in said pipeline, said body member being adapted for propulsion through said pipeline by the application of fluid pressure to said pipeline and against said body member;

a slip support assembly connected to said body member;

a plurality of axially movable slips, supported by said support assembly and adapted for wedging into locking engagement with the inside surface of said pipeline in response to axial movement thereof relative to said support assembly;

second seal means for making a fluid-tight seal between said plug and said pipeline while said slips are engaged with said pipeline;

said second seal means including an annular seal supported between said support assembly and said body number, said annular seal has a lip portion adapted for sealing engagement with said pipeline and including an elastomeric ring of different durometer rating embedded in the outside surface of said lip portion;

and means for moving said slips said into locking engagement with said pipeline;

whereby said plug may be inerted into said pipeline and pushed axially by fluid pressure along the inside thereof and set in fluid-tight sealing relationship therewith upon actuation thereof.

4,332,278

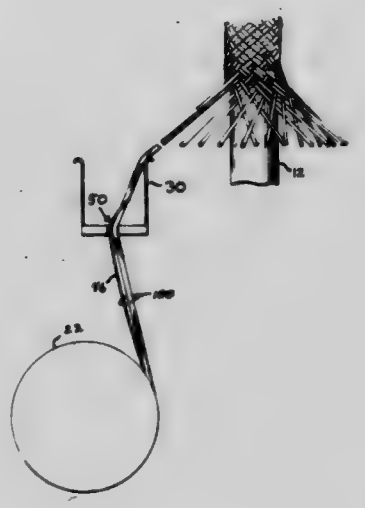
BRAIDED-WIRE SHEATHING HAVING BUNDLED STRANDS TWISTED TO EQUALIZE TENSION

James M. Lalikos, Springfield, and Harold K. Waite, East Longmeadow, both of Mass., assignors to Titeflex Corporation, Springfield, Mass.

Continuation of Ser. No. 861,264, Dec. 16, 1977, abandoned, which is a division of Ser. No. 676,940, Apr. 14, 1976, Pat. No. 4,092,897. This application Aug. 6, 1979, Ser. No. 63,798

Int. Cl.[3] F16L *11/08*

U.S. Cl. 138—127 3 Claims



1. High pressure hose comprising a braided sheath woven over a hollow tubular core, said sheath comprising interwoven bundles of high tensile strength wire, eacn of said bundles comprising a plurality of continuous wires of differing lengths, each of said wires being a continuous strand from one end of said bundle to the other, the longer wires in each of said bundles being twisted about the shorter wires such that all of the wires in each of said bundles are woven about said core under equal tension.

4,332,279

CONNECTING ROD BETWEEN THE HEDDLE FRAME OF A WEAVING MACHINE AND THE HEDDLE FRAME ACTUATING DEVICE OF THE SHED-FORMING MACHINE WHICH CONTROLS SAME

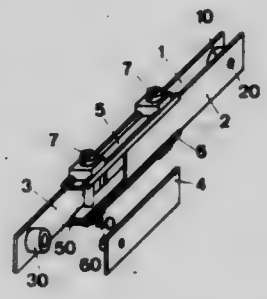
Rudolf Schwarz, Horgen-Zuerich, Switzerland, assignor to Staeubli Ltd., Horgen-Zuerich, Switzerland

Filed Jan. 3, 1980, Ser. No. 109,431

Claims priority, application Sweden, Jan. 9, 1979, 79162

Int. Cl.[3] D03C *1/14, 11/00*

U.S. Cl. 139—82 9 Claims



1. In an elongated connecting device extending between a heddle frame of a weaving machine and a heddle frame actuating lever of a shed-forming machine, at least one of said heddle frame and actuating lever having an opening therein and said connecting device having a pair of spaced plates and having pivot means on said plates releasably engageable with said opening for effecting a pivotal connection of said connecting device to said one of said heddle frame and said actuating lever, the axis of said pivot means extending transversely of said connecting device and said pivot means including two pivot bolt parts which engage one another, each said bolt part being secured to a respective said plate, the improvement comprising two clamping rails arranged opposite one another and spaced from one another a distance substantially equal to the width of a said plate and clamping means cooperable with said clamping rails for urging said clamping rails toward one another, each said clamping rail having adjacent each longitudinal edge thereof a groove and said plates being arranged between said clamping rails, each said groove in each said clamping rail engaging a respective edge of a respective said plate.

4,332,280

AIR SUPPLY SYSTEM FOR A PNEUMATIC LOOM

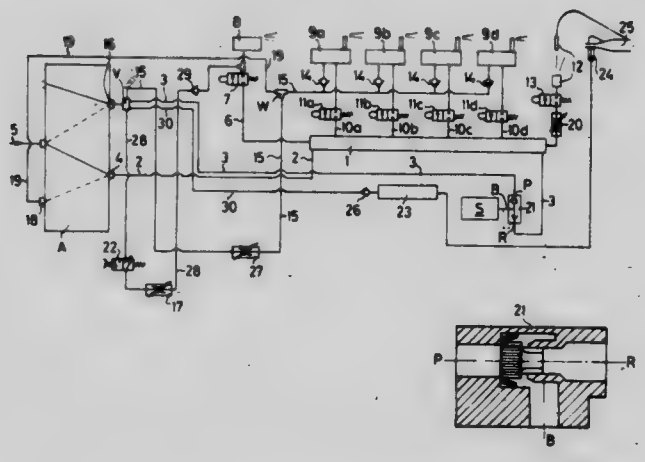
Petrus G. J. Manders, Eindhoven, Netherlands, assignor to Ruti-Te Strake B.V., Deurne, Netherlands

Filed Nov. 28, 1980, Ser. No. 211,102

Claims priority, application Switzerland, Dec. 21, 1979, 11392/79

Int. Cl.[3] D03D *47/30*

U.S. Cl. 139—435 4 Claims



1. An air supply system for a pneumatic loom, comprising:
a compressed air container;
a primary control valve;
a pressure line;
said primary control valve connecting said pressure line with said compressed air container;
a primary blower nozzle and a number of auxiliary blower nozzles;
control valve means for operatively connecting said auxiliary blower nozzles with said compressed air container; and
compressed air storage means which, during standstill of the loom, is connected with the pressure line and during the starting phase of the loom is connected forwardly of the compressed air container.

4,332,281

METHOD AND APPARATUS FOR SPREADING A POLYURETHANE FOAMABLE COMPOSITION

Morimitsu Baba, Yame, Japan, assignor to Asahi Glass Company, Ltd., Yame and Baba Seisakusho Co., Ltd., Fukuoka, both of, Japan

PCT No. PCT/JP79/00054, § 371 Date Sep. 26, 1979, § 102(e) Date Sep. 26, 1979, PCT Pub. No. WO79/00734, PCT Pub. Date Oct. 4, 1979

PCT Filed Mar. 7, 1979, Ser. No. 185,911

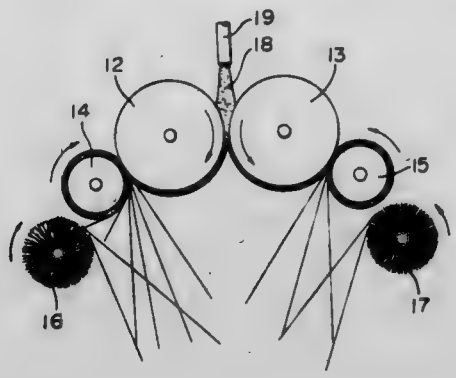
Claims priority, application Japan, Mar. 10, 1978, 53-26633; Sep. 9, 1978, 53-110223

Int. Cl.[3] B05B *3/02;* B65B *3/04*

U.S. Cl. 141—1 3 Claims

1. In a method for spreading a foamable composition for a polyurethane foam on surfaces which are relatively moved, an improvement characterized by premixing the ingredients needed to form said foamable composition, feeding and spreading said foamable composition on a first moving surface, and

then, scattering said foamable composition at the time being further foamable in a form of fine particles from said first surface on a second surface which is relatively moved, and wherein the step of scattering said foamable composition on said first surface in a form of fine particles is carried out by



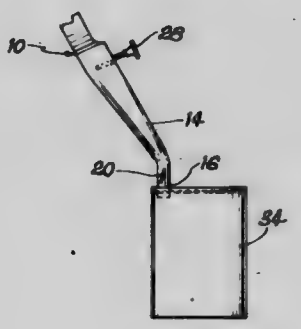
using a first roll having a fibrous layer which is rotated under contacting with said first surface, and wherein additional scattering is carried out by using a second rotating roll, located below said first roll having a fibrous layer, but out of contact with said first roll.

4,332,282

MEANS AND METHOD OF RECLAIMING CRANKCASE OIL

Roger W. Strange, 11510 Poblado, San Diego, Calif. 92127

Filed Sep. 12, 1980, Ser. No. 186,678
Int. Cl.[3] B65B *3/04*
U.S. Cl. 141—1 6 Claims



3. A method for reclaiming crankcase oil comprising the following steps:
(a) draining the used oil from the crankcase into a container;
(b) cutting a hole in a sufficient number of fresh oil cans to fill the crankcase;
(c) pouring fresh oil from said cans into said crankcase;
(d) pouring used oil from said container into said cans; and
(e) plugging the holes in said cans.

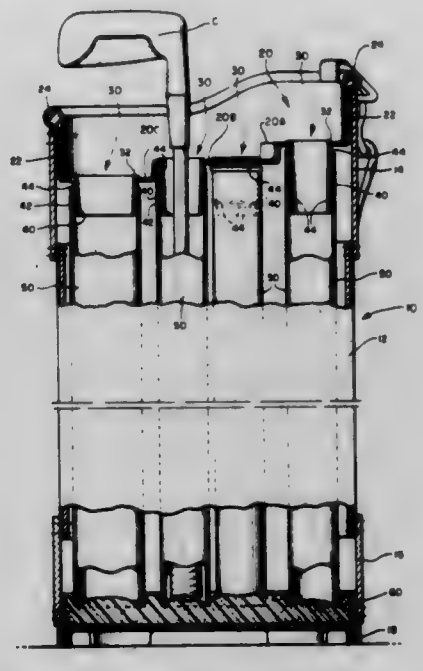
4,332,283

DEVICE FOR SUPPORTING AND PROTECTING GOLF CLUBS

Richard S. Rader, Chatsworth, Calif., assignor to Ajay Enterprises, Inc., Delavan, Wis.

Filed Aug. 18, 1980, Ser. No. 179,196
Int. Cl.[3] A63B *55/00*
U.S. Cl. 150—1.5 R 15 Claims

1. A golf club protective device for use with a golf bag and club-receiving tubes comprising;
a plate member having a selected external configuration for being positioned and retained with a golf bag across the bag opening;
a plurality of apertures within said plate member each dimensioned to receive the shaft of a golf club and spaced laterally on said plate member to separate clubs in adjacent apertures a selected distance;
a boss portion integrally formed with said plate member adjacent and substantially aligned with each aperture and extending downwardly from said plate member a selected distance from the associated aperture and having a downwardly converging external configuration adapted to engage with the inside of the top portion of an elongate club-receiving tube positioned within the golf bag below said plate member,



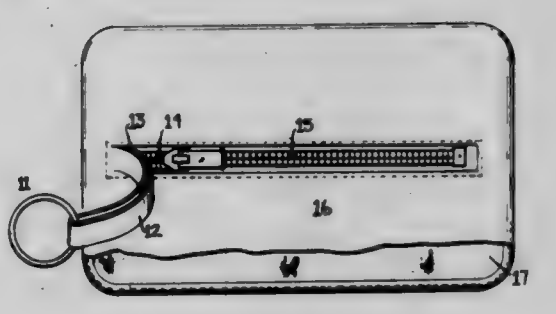
whereby said protective device will firmly retain said tubes in selected positions within said golf bag and allow individual clubs to be inserted into said tubes for protection without potentially damaging engagement between the top portion of said tubes and the golf club.

4,332,284

KEY CHAIN WALLET

Christopher N. Pallis, 3741 81st SE., Mercer Island, Wash. 98040

Filed Jul. 14, 1980, Ser. No. 167,925
Int. Cl.[3] A45C *11/32*
U.S. Cl. 150—35 2 Claims



1. An accessory case designed to be carried in a pocket or purse comprising:
a first exterior wall made of a flexible material and including a closeable opening passing through the wall,
a second exterior wall made of a flexible material and including a closeable opening passing through the wall,
a third wall intermediate the two exterior walls, means securing the three walls together about the periphery thereof whereby a divided case capable of being opened from either side is formed,
a strip of material has been cut from the midsection of the first exterior wall with one end of this strip remaining intact and where the cut end is secured to the opposite uncut end of the first exterior wall forming a loop from which a key ring is attached.

4,332,285

TRACTOR POWER LIFT MECHANISMS

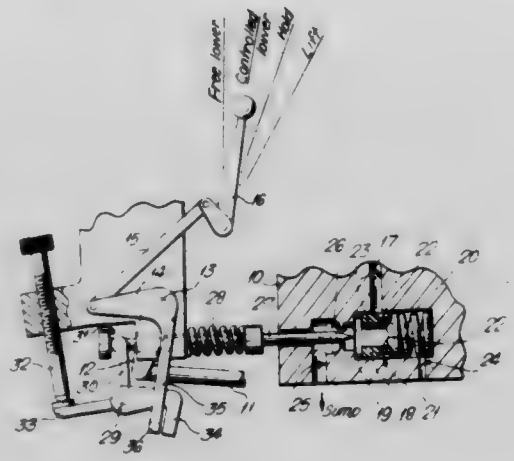
Harry Horsfall, Huddersfield, England, assignor to David Brown Tractors, Ltd., Huddersfield, England

Filed Jun. 9, 1980, Ser. No. 157,769

Claims priority, application United Kingdom, Jun. 12, 1979, 7920311

Int. Cl.³ F16K *31/44*

U.S. Cl. 251—240 4 Claims



1. A hydraulic power lift mechanism, for an agricultural tractor or the like, having flow control means with associated adjustment means for variably throttling the flow to enable different implements to be lowered at appropriate rates and with means for overriding said adjustment means so as fully to open said flow control means and thereby enable an implement to be lowered at the maximum possible rate when desired

said flow control means including an axially slideable needle valve;

said adjustment means comprising a spring urging the needle valve in the closing direction, a lever fixed on a spindle and capable of moving said valve in the opening direction against the action of said spring, and means for enabling the angular position of said lever about the axis of said spindle to be varied;

said lever being a bell-crank lever one arm of which contacts a shoulder on the needle valve, and the means for enabling the position of said lever to be varied comprising a manually rotatable adjusting screw which contacts the other arm of said lever.

4,332,286

HEAVY DUTY PNEUMATIC TIRE TREAD

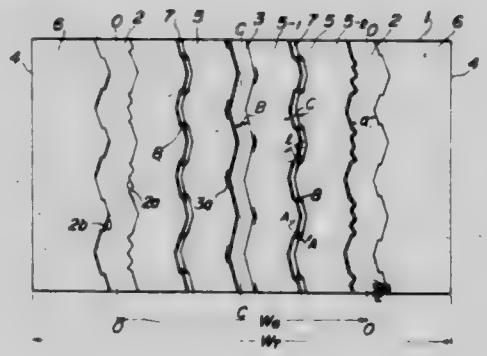
Hiroyoshi Takigawa, Kodaira, and Nobuhiro Miyamura, Higashimurayama, both of Japan, assignors to Bridgestone Tire Company, Limited, Tokyo, Japan

Continuation of Ser. No. 39,730, May 19, 1979, abandoned. This application Jan. 16, 1981, Ser. No. 225,817

Claims priority, application Japan, May 26, 1978, 53-62943

Int. Cl.³ B60C *11/06*

U.S. Cl. 152—209 R 5 Claims



1. In a heavy duty pneumatic radial tire having high drainage including a tread in a crown of a tire body reinforced by a toroidal carcass extending between a pair of annular bead cores, the improvement comprising; said tread being formed with a pair of main wide grooves extending circumferentially on both sides of a central circumferential line; a wide subgroove extending along said central circumferential line and in parallel with said main wide grooves to form first ribs bounded by said wide subgroove and said main wide grooves and second ribs mounted by said main grooves and tread edges; said main wide grooves and said subgroove being devoid of transverse grooves; a distance between center lines of said pair of main wide grooves being approximately six-tenths of the tread width of the tire and a width of said main wide grooves being at least equal to a width of said wide subgroove; said first ribs each being formed with a single narrow groove extending circumferentially so as to divide the first rib into two substantially equal parts, said narrow groove having a substantially constant width and being circumferentially continuously zigzagging along a center line of said first rib, said narrow groove including means to bring both opposite sidewalls of the narrow groove into contact with each other intermittently in a circumferential direction in the zone load when the tire is loaded; and a width of said narrow groove being within 0.5–2.0% of the tread width of the tire.

4,332,287

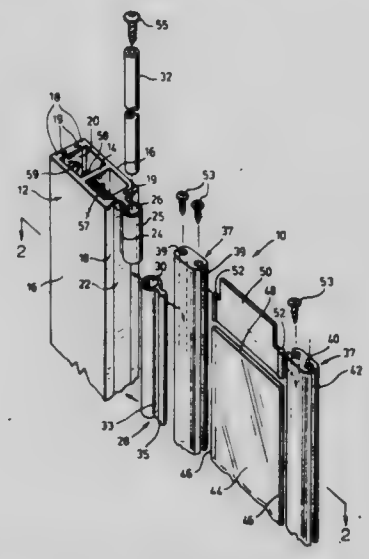
ROLLING SAFETY DOORS

Rudolf Stolpe, Chomedy Laval, Canada, assignor to Dynaflair Corporation Canada, Inc., Canada

Filed May 13, 1980, Ser. No. 149,528

Int. Cl.³ E06B *9/08*

U.S. Cl. 160—133 7 Claims



1. A rolling door construction comprising:

a plurality of spaced-apart elongated members, each member having opposed longitudinal slots, each slot in section having an enlarged internal portion and a neck portion narrower than said internal portion,

a plurality of light-transmitting panels of uniform thickness, each panel having opposing side edges and opposing end edges, the two opposing side edges of each panel being received in the slots in two adjacent elongated members,

a plurality of spacer plate member, each spacer plate member having opposed edge beads received in the internal portions of two slots, the beads being too large to be withdrawn through the neck portions of the slots, the spacer plate members being arranged so that two of them are adjacent the end edges of each panel,

and means for restraining movement of the panels and the plate members longitudinally of the elongated members.

4,332,288

PULL CARRIER FOR VERTICALLY LOUVERED VENETIAN BLIND

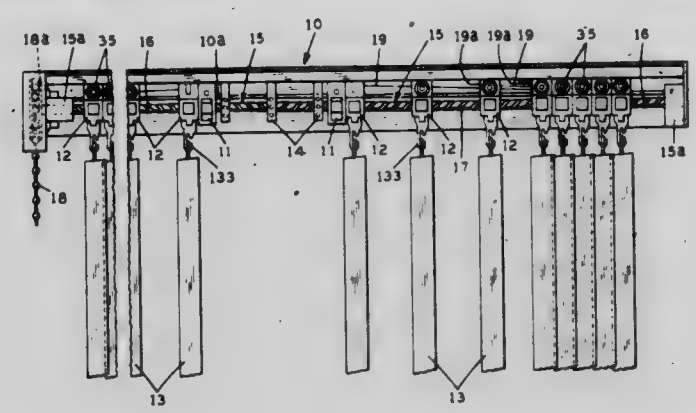
Kurt H. Frentzel, Zevenhoven, and Herman Oskam, Bergambacht, both of Netherlands, assignors to Hunter Douglas Internation, N.V., Curacao, Netherlands

Filed Apr. 3, 1980, Ser. No. 136,951

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1979, 2913887

Int. Cl.³ E06B *9/26*

U.S. Cl. 160—176 R **7 Claims**



1. In a louvered venetian blind having a headrail, a plurality of louver carriers mounted in said headrail for movement therealong, a plurality of vertically disposed louvers each supported from one of said louver carriers, a pull carrier for moving the louver carriers along said headrail, drive means for rotating said louvers about their vertical axes and for moving said pull carrier and said louver carriers along said headrail, the improvement comprising said louvers being rotatable about their axes in either direction, stop means for stopping said rotation of said louvers in each direction, a free wheel mechanism carried by said pull carrier driven by said drive means, means for moving said pull carrier along said headrail after said stop means has stopped the rotation of said louvers about their vertical axes in one of said directions, and means for disconnecting said free wheel mechanism from said drive means to prevent movement of said pull carrier along said headrail during all times when said louvers are being rotated about their vertical axes.

4,332,289

STARTER BAR HEAD TO BE USED FOR CASTING METAL IN A CONTINUOUS CASTING MOULD OF A CONTINUOUS CASTING PLANT

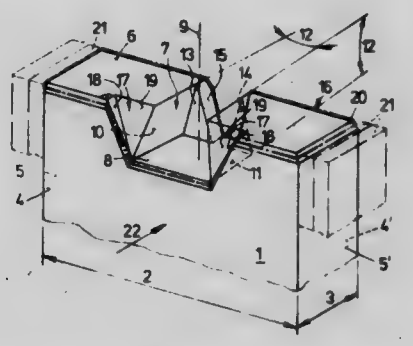
Gerhard Reithner; Peter Wagner, both of Linz, and Franz Kagerhuber, Hörsching, all of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Aug. 29, 1980, Ser. No. 182,765

Claims priority, application Austria, Oct. 8, 1979, 6546/79

Int. Cl.³ B22D *11/08*

U.S. Cl. 164—446 **3 Claims**



1. In a starter bar head to be used for casting metal in a continuous casting mould of a continuous casting plant, in particular a continuous casting plant for steel slabs, and of the type including side faces directed to and sealed relative to the walls of the continuous casting mould, a front face closing the continuous casting mould, at least one anchoring recess for the hot strand departing from one of said side faces, at least partly penetrating said front face of said starter bar head and to be filled up by the metal to be cast, which anchoring recess possesses a bottom face and is designed so as to widen from said front face to said bottom face and further has at least two side walls arranged symmetrically to the longitudinal axis of said starter bar head and directed to said bottom face, a further recess provided in said starter bar head, said two side walls of said at least one anchoring recess passing over into said further recess, and which further recess includes a surface bordering at the mould side walls to be sealed off and directed upwardly to said front face of said starter bar head, the improvement which is characterized in that said further recess passes over into the side face of said starter bar head from which said anchoring recess departs with a surface enclosing an approximately right angle with the respective side face.

4,332,290

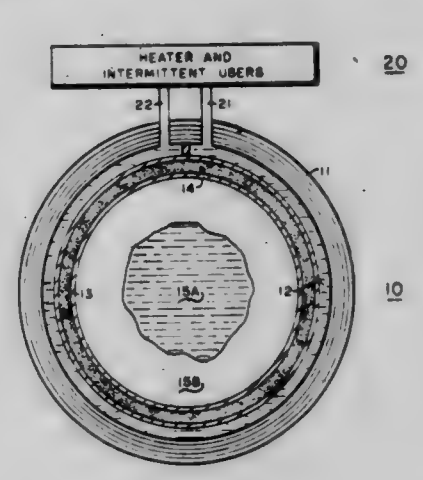
APPARATUS FOR RAPID HEAT TRANSFER AND EFFICIENT HEAT STORAGE

Stephen F. Skala, 3839 S. Wenonah Ave., Berwyn, Ill. 60402

Continuation-in-part of Ser. No. 756,392, Jan. 3, 1977, Pat. No. 4,164,253, which is a continuation-in-part of Ser. No. 30,997, Apr. 18, 1979, abandoned. This application Jun. 9, 1980, Ser. No. 157,480

Int. Cl.³ F24D *11/00*; F28D *17/00*

U.S. Cl. 165—10 **2 Claims**



1. Apparatus for storing and releasing heat, comprising a plurality greater than two of nested layers of latent heat storing material, each said layer separated at most by a thermal conductor, and each said layer having a higher phase transition temperature than an adjacent outer layer whereby heat is transferred to charge the outer layer from the inner layer to reduce thermal impedence of said apparatus.

2. A system for storing and using heat, comprising:

an intermittent user having a maximum operating temperature and having a plurality of operating periods separated by idle periods,

a first latent heat storing material having a phase transition temperature to a crystalline phase above the maximum operating temperature of the user and having short thermal paths to a heat transfer fluid which heat transfer fluid is in a heat exchange relationship with the user during the operating periods,

a second latent heat storing material having a substantially larger thermal capacity, a substantially larger thermal energy density, and a higher phase transition temperature than the first latent heat storing material, and

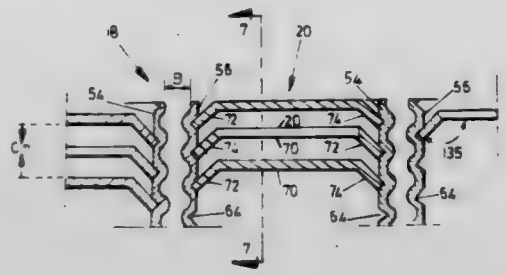
means for exchanging heat between the first and the second latent heat storing materials whereby the first latent heat storing material is recharged by discharging the second latent heat storing material.

4,332,291

HEAT EXCHANGER WITH SLOTTED FIN STRIPS

Desmond Mulock-Bentley, Johannesburg, South Africa, assignor to D. Mulock-Bentley and Associates (Proprietary) Limited, Johannesburg, South Africa

Filed Dec. 21, 1979, Ser. No. 106,020
Int. Cl.[3] F28D *1/04*
U.S. Cl. 165—76 8 Claims



7. A heat exchanger comprising a series of conduits for a gas or a liquid that are spaced apart and define a series of substantially parallel planes, and fin elements in the form of transversely slotted strips arranged in a stacked formation in the spaces between the conduits and adapted to be traversed by a gas, each fin element extending between one conduit and an adjacent conduit and having at one end a relatively wide transverse edge zone and at the other end a relatively narrow transverse edge zone, alternate fins being arranged opposite ways round in the stacked formation so that the slots in each fin are staggered relatively to those in its immediate neighbours, but aligned with the slots in similarly positioned fins both in the direction of the intended gas flow past the fin elements and also in a direction extending transversely to the direction of intended gas flow past the fin elements in a plane parallel to the planes defined by the conduits, said heat exchanger further having a length L of the cross-section of a fin element between the slots measured in the intended direction of gas flow past the fins, a distance Cn in millimeters between similarly positioned fin elements measured transversely to the direction of intended gas flow past the fin elements in a plane parallel to the planes defined by the conduits, and a width Cp in millimeters of the slots in the fins measured in the direction of the intended gas flow past the fin elements, where:

L is in the range 2 to 10 mm;

Cn/L is in the range 0.25 to 2; and

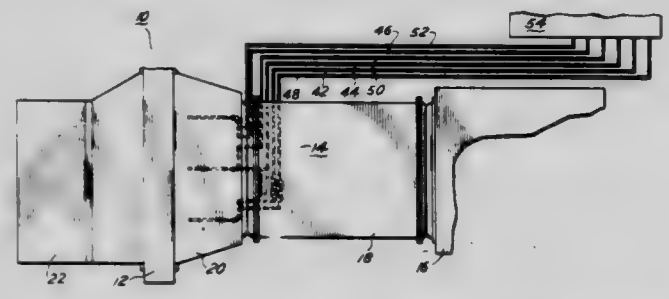
Cp/L is in the range 0.75 to 4.

4,332,292

COIL CLEANING DEVICE AND SYSTEM

Thayne K. Garberick, 3506 S. Michigan St., South Bend, Ind. 46614

Filed May 9, 1980, Ser. No. 148,196
Int. Cl.[3] F28G *1/16*
U.S. Cl. 165—95 8 Claims



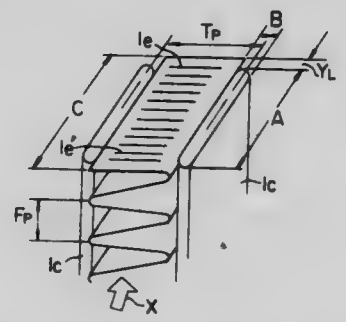
1. In combination with a heat recovery apparatus having a heat exchanger coil for recovering heat from exhaust gases discharged through a stack or flue, a system for cleaning an area of the coil, comprising an elongated flexible member forming a passageway for directing a pressurized cleaning medium against the area of the coil on the upstream side of the coil, one end of said flexible member being secured in a relatively stationary manner and the other end of said member being unsupported, a nozzle disposed in said unsupported end of said member providing a restricted exit from said member, a supply source for providing the pressurized cleaning medium to said member under sufficient pressure to dislodge dirt, soot, and other contaminants from the coil and to cause the contaminants to pass through the coil, and supply lines connecting said supply source to the stationary end of said member.

4,332,293

CORRUGATED FIN TYPE HEAT EXCHANGER

Michio Hiramatsu, Kariya, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed May 29, 1980, Ser. No. 154,458
Claims priority, application Japan, Apr. 30, 1980, 55-58385
Int. Cl.[3] F28F *1/22*
U.S. Cl. 165—153 23 Claims



1. A corrugated fin type heat exchanger comprising a plurality of equally spaced parallel tubes arranged in a single row and defining therein a first series of passages for a first fluid and a corrugated strip defining fins disposed between and thermally connected to each pair of adjacent tubes to cooperate therewith to define a second series of passages for a second fluid, each of said tubes being of the same substantially rectangular cross-section and arranged such that the longitudinal axis of said rectangular cross-section is substantially parallel to the direction of the flow of the second fluid passing through said second series of passages, means defining an inlet chamber for the first fluid operative to distribute the first fluid to said tubes, and means defining an outlet chamber operative to gather flows of the first fluid from said tubes, characterized by:

the dimension of each of said fins as measured in the direction of the flow of the second fluid is within the range of from 12 mm to 23 mm;

the pitch of the corrugations of said corrugated strip defining said fins is within the range of from 1.5 mm to 3.3 mm;

said fins are louvered to provide vanes and openings, said vanes of each fin being arranged in at least two successive groups in the direction of the flow of the second fluid with the vanes in each group being inclined with respect to the general plane of the corresponding fin at an angle opposite to that of the vanes of adjacent groups;

the width of each vane is within the range of from 0.7 mm to 1.2 mm; and

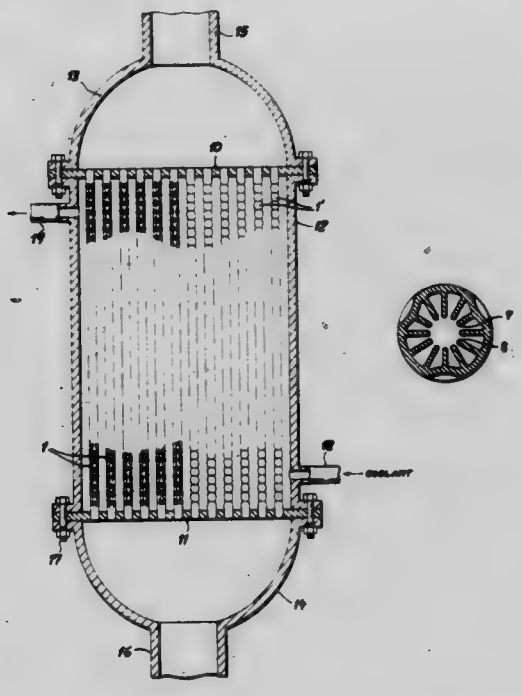
each vane is inclined at an angle of from 18° to 32°.

4,332,294

GAS COOLER WITH MULTIPLY DEFORMED LEAD TUBES

Klaus Drefahl, Hanau, and Helmut Gilles, Frankfurt am Main, both of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 4, 1979, Ser. No. 26,893
Claims priority, application Fed. Rep. of Germany, Apr. 6, 1978, 2814828
Int. Cl.[3] F28F *1/06*
U.S. Cl. 165—157 2 Claims



1. An apparatus for cooling a gas containing sulphur dioxide, comprising:

a heat-exchanger housing adapted to receive a liquid coolant under a pressure greater than that of said gas and provided with a pair of parallel spaced-apart tube sheets;

a bundle of mutually parallel but transversely separated extruded lead tubes of substantially constant wall thickness perpendicularly spanning said tube sheets and defining between them a space for said coolant, each of said tubes being internally formed with a plurality of radially inwardly extending longitudinally fins and being deformed inwardly at axially spaced-apart locations, with formation of sets of peripherally spaced-apart indentations of spherically segmental curvature, to prevent collapse of the tubes under a pressure gradient developed thereacross between said coolant and said gas, adjacent sets of indentations being relatively angularly offset;

first conduit means connected to said housing for passing said coolant through said space; and

second conduit means communicating with said tubes for passing said gas therethrough.

4,332,295

COMPOSITE CERAMIC HEAT EXCHANGE TUBE

Paul G. LaHaye; John W. Bjerklie, and Robert A. Penty, all of Cape Elizabeth, Me., assignors to Hague International, South Portland, Me.

Filed May 19, 1980, Ser. No. 150,888
Int. Cl.[3] F28F *21/04*
U.S. Cl. 165—178 15 Claims

1. A composite heat exchange tube comprising;

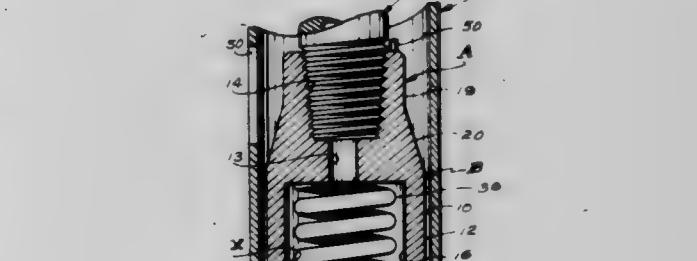
a main tube body of a high temperature resistant material,

and an inner tube means disposed within the main tube body and having end means disposed within the main tube body and having end means forming a sealing joint at opposite ends of the tube,

said end means capable of being highly polished to form a high pressure sealing surface,

said main tube body being constructed of a somewhat porous thermal shock resistant ceramic,

and said inner tube means being constructed of a more dense material than the main tube body and less porous than the main tube body,



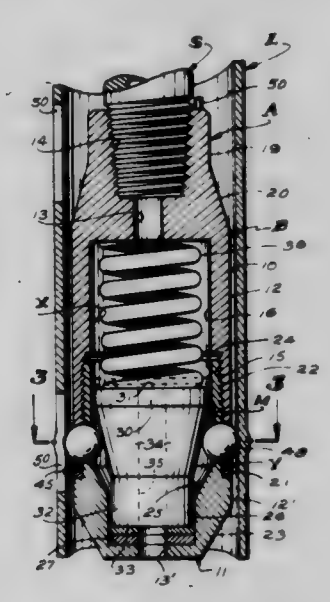
said inner tube means is constructed of a ceramic material having a density greater than that of the main tube body and substantially impervious to fluids up to at least 500 p.s.i. within the tube.

4,332,296

WELL CLEANING TOOL

Newell E. Wayt, 2272 Dominguez St., Torrance, Calif. 90501

Filed Aug. 1, 1980, Ser. No. 174,676
Int. Cl.[3] B08B *9/02;* E21B *37/02*
U.S. Cl. 166—171 8 Claims



1. A liner cleaning tool comprising an elongate vertically extending cylindrical body, coupling means at the upper end of the body to connect with a fluid conducting run-in pipe string, a central longitudinal flow passage in the body communicating with the pipe string and opening downwardly, an enlarged, central, axially extending cylindrical chamber in the body between the upper and lower end portions of the flow passage, a plurality of circumferentially spaced ball receiving openings in the body communicating between the exterior of the body and the chamber, an elongate axially shiftable mandrel with a downward and radially inwardly convergent conical surface slidably engaged in the chamber and having a central longitudinal fluid conducting opening, a helical compression spring in the chamber above the mandrel and engaging and normally yieldingly urging the mandrel downwardly and a ball rotatably and axially shiftably arranged in each opening and having an outer liner engaging portion projecting radially outwardly from the body and an inner portion projecting radially inwardly into the chamber and engaging the mandrel.

4,332,297

SELECTIVELY CONTROLLING FLUID FLOW THROUGH THE HIGHER PERMEABILITY ZONES OF SUBTERRANEAN RESERVOIRS

Burton B. Sandiford, Placentia, Calif., assignor to Union Oil Company of California, Brea, Calif.

Filed Aug. 18, 1980, Ser. No. 178,911
Int. Cl.³ E21B *33/138, 43/22*
U.S. Cl. 166—270 29 Claims

1. A method for reducing the permeability of the medium to high permeability strata or channels of a subterranean reservoir having heterogeneous permeability penetrated by a well comprising injecting through said well and into said reservoir:

(a) about 1 to 100 barrels per vertical foot of strata to be treated of a first composition consisting essentially of an aqueous solution or dispersion of a water-soluble relatively high molecular weight polymer selected from the group consisting of acrylic acid-acrylamide copolymers, terpolymers of acrylamides and substituted acrylamides, polyacrylamides, partially hydrolyzed polyacrylamides, polyalkyleneoxides and heteropolysaccharides obtained by the fermentation of starch-derived sugar, and

(b) about 1 to 100 barrels per vertical foot of strata to be treated of a second composition consisting essentially of an aqueous solution or dispersion of an alkali metal silicate,

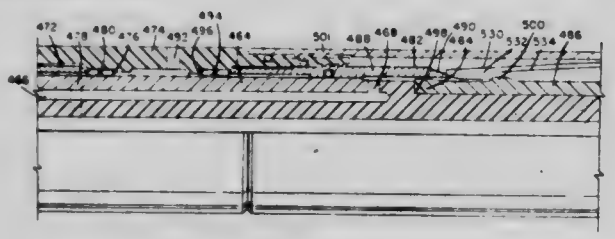
such aqueous solutions or dispersions being injected in a manner such that they are mixed in the reservoir.

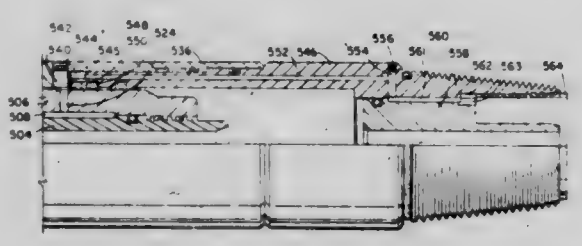
4,332,298

VALVE ASSEMBLY FOR AN INFLATABLE PACKER SYSTEM

Felix Kuus, Huntington Beach, and Gerald C. Eckmann, La Puente, both of Calif., assignors to BJ-Hughes Inc., Long Beach, Calif.

Filed Feb. 11, 1980, Ser. No. 120,180
Int. Cl.³ E21B *34/10*
U.S. Cl. 166—319 11 Claims





1. A valve assembly, intended for use in a well testing tool to be used in testing a zone of interest in a well having an annulus, for controlling the flow of inflation fluid to inflatable elements and the deflation thereof and adapted to be responsive to flow of inflation fluid and weight set-down and lifting on the testing tool comprising:

an outer valve member adapted to be fixed against rotation and up-down movement;

an inner valve member adapted for up-down movement with respect to said outer valve member; and

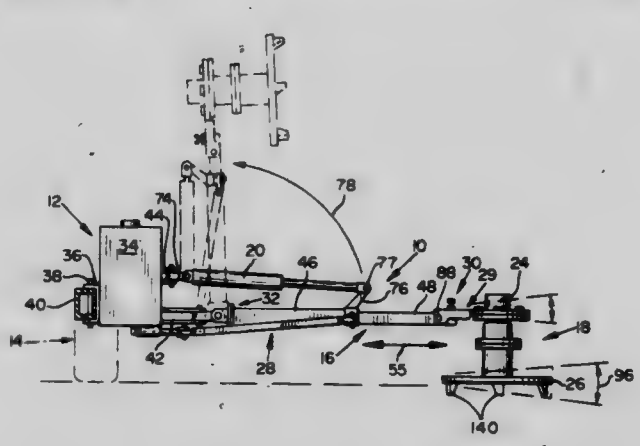
shifting sleeve means in said valve assembly between said inner and outer valve members adapted to be shifted longitudinally downwardly with respect to said outer valve member upon initial flow of inflation fluid in said valve assembly to establish an inflation fluid passageway through said valve assembly.

4,332,299

CULTIVATOR DEVICE FOR A VEHICLE

Alvin L. Parks, and W. D. McAlexander, both of Milton-Freewater, Oreg., assignors to Eldon K. Chinn, Milton-Freewater, Oreg.

Filed Jun. 19, 1980, Ser. No. 161,064
Int. Cl.³ A01B *33/06, 39/08, 39/16*
U.S. Cl. 172—98 8 Claims



1. A cultivator attachment comprising:

mounting means for connection to the side of a vehicle;

a boom assembly including first and second elongated boom sections with the second boom section telescopingly connected to said first boom section for extension and retraction;

boom connector means for pivotally connecting said first boom section to said mounting means such that the outer end of said boom assembly is movable upwardly and downwardly and projects outwardly from the side of a vehicle in a direction generally normal to the longitudinal axis of the vehicle;

cultivator head means mounted to the free end of said second boom section, said cultivator head means including a cultivator member mounted for rotation about the axis of the cultivator head;

first hydraulic cylinder means for moving the outer end of the boom assembly upwardly and downwardly;

second hydraulic cylinder means for extending and retracting said second boom section;

hydraulic motor means mounted to said cultivator head means for rotating said cultivator member to cultivate soil;

side tilt means for tilting the axis of the cultivator head in a plane containing such axis and the longitudinal axis of the boom to move the cultivator member away from or toward the vehicle to control the discharge of material from the cultivator head;

fore-and-aft tilt means for moving the cultivator head orbitally about the longitudinal axis of the boom to move the cultivator member forwardly or rearwardly;

said side tilt means and said fore-and-aft tilt means at least partially controlling the discharge of material from the cultivator head during cultivation;

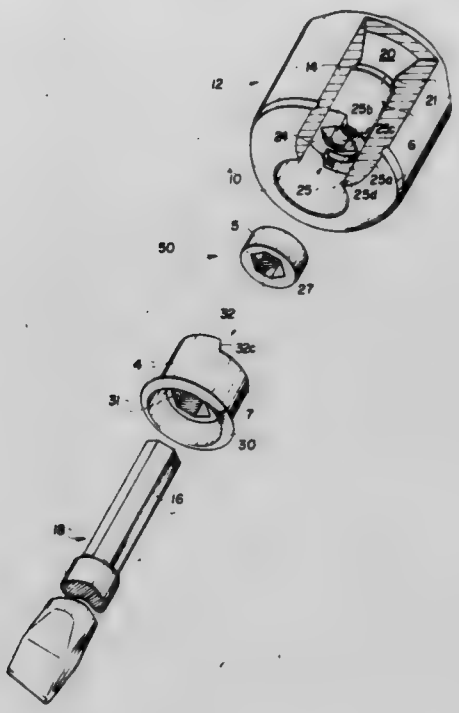
said boom connector means pivoting said first boom section to said mounting means for motion forwardly and rearwardly in a plane normal to the plane of upward and downward movement of the boom section, and said attachment including shock absorbing link means extending from said boom assembly to said mounting means for absorbing energy resulting from impact between said boom assembly or cultivator head and a solid object.

4,332,300

PNEUMATIC HAMMER NOZZLE SEAL

Henry A. Scarton, Troy, N.Y., and Warren C. Kennedy, Pittsburgh, Pa., assignors to Rensselear Polytechnic Institute, Troy, N.Y.

Filed Jun. 14, 1979, Ser. No. 48,392
Int. Cl.³ B25D *17/08*; B23B *31/20*
U.S. Cl. 173—104 **14 Claims**



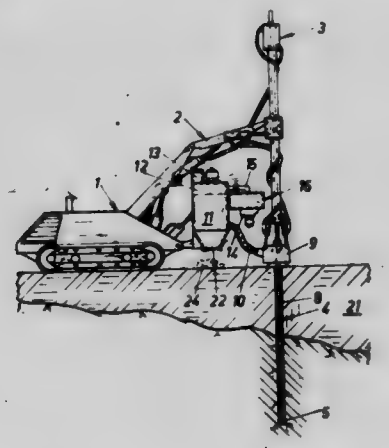
6. In a pneumatic hammer, having a nozzle hole with a tool shank movable therein, the improvement comprising, a bushing/retainer member having a bore therethrough for movably receiving the tool shank, which bushing/retaining member being fixedly mounted within the nozzle hole, said bushing/retainer member having a recess therein, and a seal member disposed in the nozzle hole in said bushing/retainer member recess, said seal member having a bore therethrough for receiving and closely fitting around the tool shank, said recess being of a size at least slightly larger than said seal member, whereby pressurized pneumatic fluid produced by the pneumatic hammer is substantially restricted from leaking out through the nozzle hole.

4,332,301

METHOD AND A MACHINE OF OBTAINING SAMPLES FROM THE GROUND TO DETERMINE ITS COMPOSITION

Per-Olof Jonell, Engelbrektsgatan 24, S-411 37 Göteborg, Sweden

Filed Apr. 21, 1980, Ser. No. 142,409
Claims priority, application Sweden, Apr. 27, 1979, 7903737
Int. Cl.³ E21B *44/00*
U.S. Cl. 175—50 **4 Claims**



1. An improved method of obtaining samples from the ground to determine the presence therein of certain substances, during a drilling operation comprising driving a drill bit by means of a drilling machine into the section of the ground to be prospected, and forcing cooling air through the drill bit down into the drill hole during the drilling operation, the improvement comprising the steps of

collecting the air and entrained duct and drill cuttings escaping from the drill hole

passing through a filter web at least a portion of the collected air and entrained dust and drill cuttings during the drilling operation, to remove at least a portion of the entrained particles from the collected air,

advancing said filter web continuously at a rate which is proportional to the drilling rate so that the removed particles will be segregated into areas relative to the depth from which they are taken, and

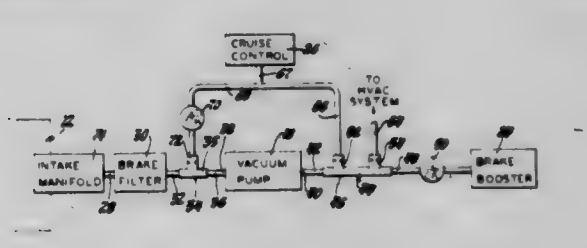
analysing dust particles collected on said filter web.

4,332,302

VEHICLE VACUUM SUPPLY SYSTEM

Thomas J. Kosmanski, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 28, 1980, Ser. No. 172,707
Int. Cl.³ B60T *13/48*
U.S. Cl. 180—54 R **6 Claims**



1. A vacuum supply system for a vehicle having a plurality of vacuum powered accessories including a primary accessory, said system comprising

an engine having an air intake system in which vacuum is developed that may be inadequate for operating such vacuum powered accessories under at least some engine operating conditions,

a primary conduit communicating the primary accessory with the engine intake to provide some operating vacuum,

a vacuum pump connected in the primary conduit between the primary accessory and engine intake to supplement the operating vacuum provided,

at least one secondary conduit connecting an additional accessory to the primary conduit at a junction, and

flow restriction means in the secondary conduit at the junction and operative to limit air flow through the secondary conduit to a volume sufficiently less than the capacity of the vacuum supply system to assure the provision of vacuum in the primary conduit for operating the primary accessory even in the event the secondary conduit is opened to atmosphere.

4,332,303

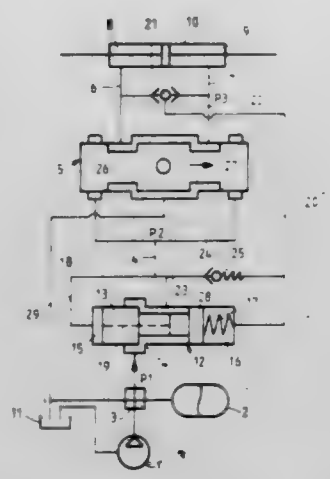
AUXILIARY POWER STEERING

Winfried de Maight, Mutlangen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, AG, Friedrichshafen, Fed. Rep. of Germany

Filed Aug. 4, 1980, Ser. No. 174,932
Int. Cl.³ B62D *5/08*
U.S. Cl. 180—132 **9 Claims**

1. In an auxiliary power steering system for motor vehicles having a pump (1), a pressure storage reservoir (2) charged with fluid by the pump, a manually operable steering control valve (5) that is closed in neutral position thereof, at least one piston servomotor (10) provided with two pressure spaces (8, 9) to which fluid is conducted under an operating pressure from the control valve, and a return tank (11) connected to one of the pressure spaces by the control valve when displaced

from said neutral position, the improvement residing in pressure reducing valve means (12, 30) operatively connected between the pressure storage reservoir and the steering control valve for supplying fluid under a regulated pressure to the steering control valve, said pressure reducing valve means having opposed sides, a spring (17) acting on one of said sides



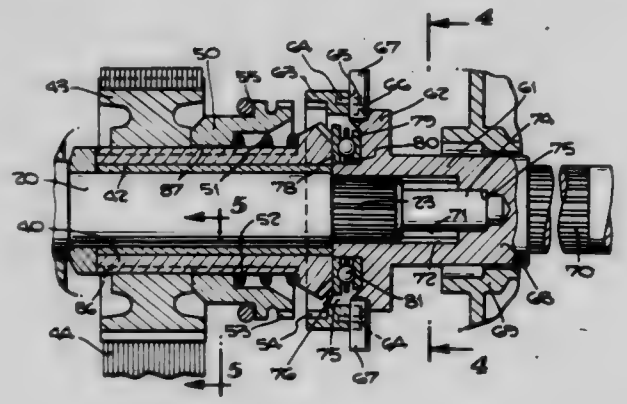
(28) to exert a bias thereon, feedback means having at least one connecting line (20) extending from the pressure spaces of the servomotor for augmenting the bias of the spring with fluid under said operating pressure, and pressure balancing means for supplying the fluid under said regulated pressure to the other of said sides of the pressure reducing valve means to act thereon in opposition to the spring.

4,332,304

TRANSFER CASE CONVERSION KIT

Charles A. Barnow, 11599 Newcastle Ave., Granada Hills, Calif. 91344

Filed Dec. 7, 1979, Ser. No. 101,156
Int. Cl.³ B60K *17/34, 23/08*
U.S. Cl. 180—233 **13 Claims**



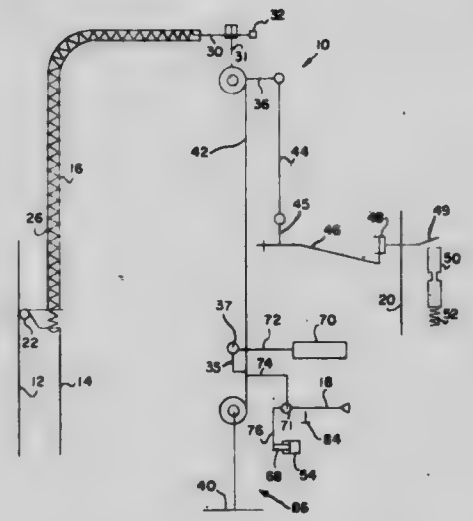
1. A transfer conversion mechanism for use in a transfer case through which engine power of a vehicle is transferred to respectively a drive attachment for a forward pair of wheels and a drive attachment for a rear pair of wheels, and wherein there is a differential carrier assembly comprising first and second carrier members in separable engagement with each other providing a chamber therebetween and a drive shaft therefor, the differential carrier assembly including a slider member having an axially shiftable and non-rotatable mounting relative to one of said drive attachments, non-rotatable engagement means adapted to releasably interconnect the slider member and said first carrier member, said slider member having a path of movement between positions of interconnection and release of said slider member with said first carrier member, a plurality of bevel gear elements held in operating position in said chamber during engagement of said first and second carrier members with each other and in driven relationship with said drive shaft, first and second output shaft members located one on each side of said plurality of bevel gear elements, each output shaft member having a single bevel gear element in engagement with said plurality of bevel gear elements, each of said first and second output shaft members being in operative relationship with one of said drive attachments, said conversion mechanism comprising a conversion shaft component for replacement of one of said output shaft members said conversion shaft component having means providing a driven engagement with said drive shaft, a direct drive connection means for connection to the respective drive attachment and an assembly bracket including attachment means for attachment to said first carrier member upon removal of the other carrier member the plurality of bevel gear elements and the respective output shaft member.

4,332,305

AUTOMATIC GEAR SHIFT SAFETY SYSTEM

Mike Kocolowski, 712 Thornwood Dr., South Holland, Ill. 60473

Continuation-in-part of Ser. No. 968,463, Dec. 11, 1978. This application Sep. 5, 1980, Ser. No. 184,274
Int. Cl.³ B60R *24/02*
U.S. Cl. 180—271 **10 Claims**



1. An apparatus for use in a motor powered vehicle equipped with (1) a transmission having a plurality of settings including a park setting in which said vehicle is positively restrained from moving; (2) at least one door to permit entrance to and egress from said vehicle by the operator of said vehicle; and (3) a gear shift handle in communication with said transmission, said handle having a plurality of positions corresponding to said plurality of transmission settings, said handle being moveable by said operator to select a transmission setting from among the plurality of such settings as desired, said apparatus comprising; connecting spring rod means associated with said door, said transmission and said handle and being capable of acting to cause said transmission to move into said park setting and said handle to move into said corresponding park position in response to the opening of said door.

4,332,306

SAFETY SYSTEM FOR A MOTOR VEHICLE STEERING LOCK

Mario Turatti, Via XXV Aprile 46, Nichelino, Turin, Italy

Filed Feb. 28, 1980, Ser. No. 125,316
Claims priority, application Italy, Mar. 5, 1979, 67468 A/79
Int. Cl.³ B60R *25/02*
U.S. Cl. 180—287 **10 Claims**

1. In a motor vehicle anti-theft steering lock device of the type incorporated with the motor vehicle ignition switch having a key operated ignition switch lock including a rotatable cylinder, said steering lock including a steering lock bolt displaceable between an extended position in which it engages the steering column of the vehicle and a retracted position in which it is spaced from the steering column,

resilient biasing means urging said steering lock bolt towards said extended position,

a rotatable cam rigidly connected to said rotatable cylinder of said ignition switch lock holding said steering lock bolt in said retracted position against the action of said resilient biasing means when said key is in position in said ignition switch lock,

safety means operable to allow displacement of said steering lock bolt from said retracted position to said extended position thereof only upon withdrawal of said key from said ignition switch lock when said rotatable cylinder thereof is in a position where the ignition switch is turned off,

further safety means comprising:

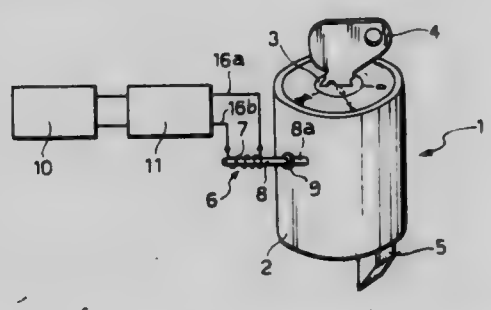
detector means for sensing whether the vehicle is in motion or is stationary, said detector means operating to provide a first output electrical signal when the vehicle is in motion and a second output electrical signal when the vehicle is stationary,

an electronic circuit connected to the output of said detector means and operating in response to said first and second output signals to provide at its output a control voltage when the vehicle is in motion, and

electromagnetic locking means connected to the output of said electronic circuit and operating in response to said control voltage to prevent the displacement of said steering lock bolt from said retracted position thereof to said extended position thereof whenever the vehicle is in motion,

wherein the said electronic circuit comprises:

an input terminal,



a capacitor connected between said input terminal of said circuit and ground,

a voltage source,

an electrolytic capacitor connected between said voltage source and ground,

a Zener diode connected by one terminal to said voltage source and by the other terminal to ground,

a first NOR gate having two inputs, which are both connected to said input terminal of said circuit,

a second NOR gate having two inputs one of which is connected through an RC unit, constituted by a capacitor and a grounded resistor, to the output of said first NOR gate,

a third NOR gate having two inputs which are connected together and to a capacitor which is connected to the output of said second NOR gate, the output of said third NOR gate being connected to the other input of said second NOR gate,

a resistor connected between the input of said third NOR gate and the non-grounded terminal of said Zener diode,

a fourth NOR gate having two inputs one of which is connected, through a unit constituted by a diode in parallel with a resistor, to the output of said second NOR gate, and the other of which is connected to a junction point between two resistors one of which is grounded and the other of which is connected to control terminal of the circuit,

an electrolytic capacitor connected between said one input of said fourth NOR gate and the non-grounded terminal of said Zener diode, and

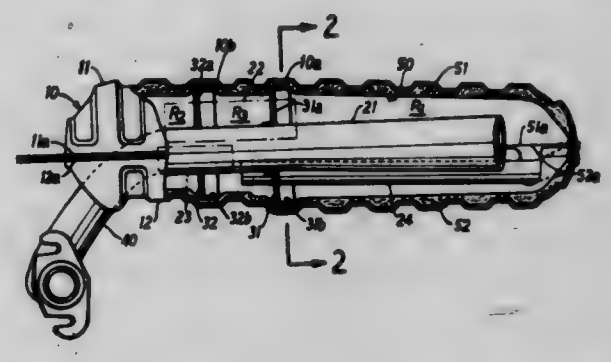
a transistor the base of which is connected through a resistor to the output of said fourth NOR gate, the emittor of which is connected to ground, and the collector of which is connected to said voltage source through a diode, said collector constituting the output of said circuit.

4,332,307

EXHAUST MUFFLER

Hiroshi Ito, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Oct. 29, 1980, Ser. No. 201,774
Claims priority, application Japan, Oct. 31, 1979, 54-140586
Int. Cl.³ F01N *1/24, 1/08, 7/00*
U.S. Cl. 181—256 **6 Claims**



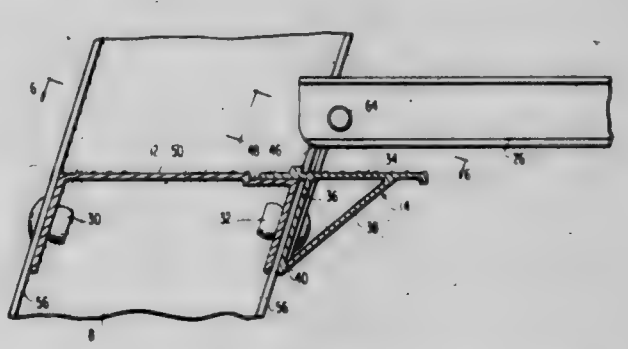
1. An exhaust muffler comprising: a tubular outer shell comprised of two pieces, each having an inner wall, said pieces being joined together at a pair of longitudinal seams, and together forming an inside space; a tubular sound absorbing member comprised of two elements having inner and outer surfaces, said outer surfaces being shaped to conform to, and abut against said inner walls of said outer shell, said inner surfaces of said sound absorbing member forming a cavity; a partition dividing said cavity into a plurality of compartments; a diffuser pipe interconnecting said compartments; exhaust inlet means to one of said compartments, and exhaust outlet means from the other of said compartments; a peripheral groove in said inside surface of said elements; a peripheral flange on said partition seated in said peripheral groove and having a substantial area of contact with said inner surfaces of said elements, thereby being restrained against substantial movement of said partition longitudinally in said groove in said sound absorbing element.

4,332,308

SAFETY STEPLADDERS

Clayton E. Larson, Brooklyn, N.Y., assignor to White Metal Rolling & Stamping Corp., Brooklyn, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,294
Int. Cl.³ E06C *1/16, 7/08*
U.S. Cl. 182—120 **9 Claims**



1. In a ladder of the pivoted prop type comprising a front step section having a pair of side rails and a plurality of flat tread steps carried by said side rails, the improvement of a step extender that comprises:

a flat tread portion,

a first web member depending integrally from said tread portion,

a second web member depending integrally from said tread portion at an acute angle to said first web portion, said first and second web portions being joined together at their point of intersection,

an integral lug extending laterally from each end of said first web member, each lug having a hole there through,

a minor section of said tread portion overlapping the upper, rear edge of one of the steps of said ladder,

said step extender being fixed to said ladder side rails by having the rivets that hold said one of the steps upon the ladder side rails pass through said holes in said lugs.

4,332,309

APPARATUS FOR THE ATOMIZATION OF OIL IN A COMPRESSED AIR LINE

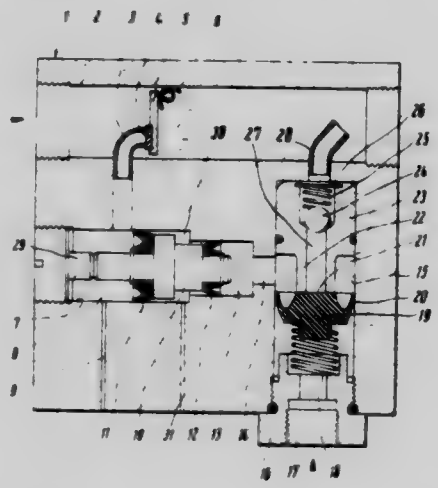
Arnold Bereit, Holbeinstrasse 68, 1000 Berlin 45, Fed. Rep. of Germany

Filed Aug. 13, 1980, Ser. No. 178,078

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1979, 2935657

Int. Cl.³ F01M *1/06*; F16N *13/16*

U.S. Cl. 184—7 D **4 Claims**



1. Apparatus for the atomization of oil in a line for supplying compressed air to compressed air units, in which apparatus oil, which is fed to a metering chamber via an inlet, can be delivered by a metering piston, which can be pressure-actuated, into the compressed air line, a control line serving to admit pressure to the metering piston, the end of the said control line which leads into the compressed air line being closable by a closing element which, under the effects of the air stream in the compressed air line, is moved out of its closed position into an open position, and a non-return valve, which moves into its open position when the metering piston is actuated, being fitted in the compressed air line between the metering chamber and the oil outlet, characterised in that there is provided between the metering chamber (13) and the inlet (17) a further valve (18, 19, 20) through which pressure is admitted intermittently to the metering chamber (13) and which comprises, in addition to a sleeve forming a second non-return valve (20), a valve body (19) which, when the metering piston (10) is not delivering pressure, is pressed by a spring (18) against an opening of a bore (27) leading to the first non-return valve (24, 25) and to the outlet (28).

4,332,310

DEVICE FOR PREVENTING INTRUSION OF WATER, DUST, ETC. INTO DRUM BRAKE

Kazuhiro Iwai, Iruma, and Hiroshi Enomoto, Higashikurume, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 28, 1980, Ser. No. 144,348

Claims priority, application Japan, Jan. 5, 1979, 54-58328

Int. Cl.³ F16J *15/54*; F16D *65/10*

U.S. Cl. 188—218 A **1 Claim**

1. In a drum brake of an automotive vehicle, a preventive device against instrusion of water, dust, etc. which comprises in combination:

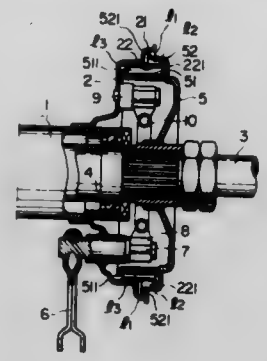
(a) an axle tube connected to a vehicle body;

(b) a wheel axle supported in said axle tube;

(c) a brake panel fixedly secured on said axle tube;

(d) a brake drum fixedly secured on said wheel axle; and

(e) axially extending, annular partition walls provided in a space at a fitting portion between the outer peripheral surface of said brake panel and the outer peripheral sur-



face of said brake drum in parallel with the respective outer peripheral surfaces thereof to form a plurality of labyrinthine grooves, radially inwardly successive of said labyrinthine grooves being sequentially broader in breadth, or longer in length, or both, and all the edges of said partition walls, of said brake panel, and of said brake drum forming the labyrinth being bent radially outwardly for effective prevention of dust, etc. from entering into the brake drum.

4,332,311

SHOE HOLD-DOWN DEVICE IN A DRUM BRAKE

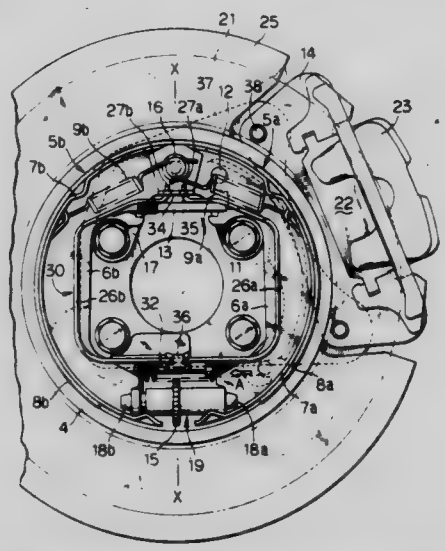
Yoshihisa Nomura, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 14, 1980, Ser. No. 149,749

Claims priority, application Japan, Jun. 12, 1979, 54/80075[U]; Jun. 16, 1979, 54/82590[U]

Int. Cl.³ F16D *65/09*

U.S. Cl. 188—340 **11 Claims**



1. In a drum brake wherein a pair of shoes of arcuate shape retained by a stationary backing plate are expanded by actuating means for being slidably abutted onto an internal surface of a rotatable drum so as to restrain the rotation of said drum, a shoe hold-down device for preventing said pair of shoes from rising up from said backing plate, and shoe hold-down device comprising:

a spring of an elastic wire member made into nearly circled-shape symmetrical to an axis, with both ends being adjacent to each other;

retaining means for retaining said spring in a substantially not hampering state from swinging about said axis, said

retaining means consisting of a first retainer which retains both ends of the spring and a second retainer which retains the central portion of the spring, and said first retainer and said second retainer being respectively secured to said backing plate in the vicinity of one of a first position where each one end of the pair of shoe webs are mutually neighboring and a second position where each the other end of the pair of shoe webs are mutually neighboring;

said spring being allowed to urge each web of said pair of shoes toward said backing plate with equal resilient urging force, at a pair of farthest distant symmetrical positions from said axis and by acting on said each web of said pair of shoes on a surface not facing said backing plate.

4,332,312

REVERSE SPEED SHIFT DEVICE FOR A MOTOR VEHICLE CHANGE-SPEED GEARBOX

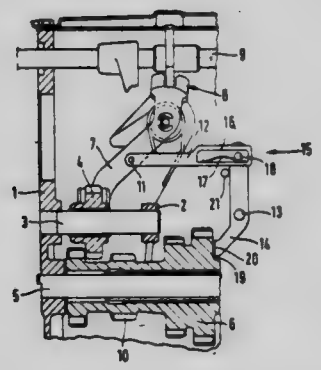
Gustav Sabel, and Horst Schellens, both of Cologne, Fed. Rep. of Germany, assignors to Ford Motor Company, Dearborn, Mich.

Filed May 19, 1980, Ser. No. 151,027

Claims priority, application Fed. Rep. of Germany, May 28, 1979, 2921581

Int. Cl.³ B60K *41/26*

U.S. Cl. 192—4 C **7 Claims**



1. A brake device for stopping an after-running transmission gearwheel comprising:

a first gear journalled on a shaft for rotation and axial displacement thereon, being engageable with a second gear formed on the gearwheel as said first gear is moved axially;

a pivotably mounted selector lever adapted to cause axial displacement of said first gear as said selector lever pivots;

a pivotably mounted brake lever having a surface that is forced into and released from frictional contact with a surface on the after-running gearwheel as said brake lever pivots; and

a connecting arm joined to said selector lever and having a removable resilient connection to said brake lever whereby said brake lever applies a braking force to the gearwheel upon pivoting of said selector lever.

4,332,313

BICYCLE BRAKE

Theodore F. Bell, 26 Twin River Dr., Ormond Beach, Fla. 32074

Filed Jul. 25, 1980, Ser. No. 172,137

Int. Cl.³ B62L *5/10*

U.S. Cl. 192—5 **16 Claims**

1. In a bicycle comprising a frame having a hub in which pedal cranks are rotatably mounted, a bicycle brake comprising

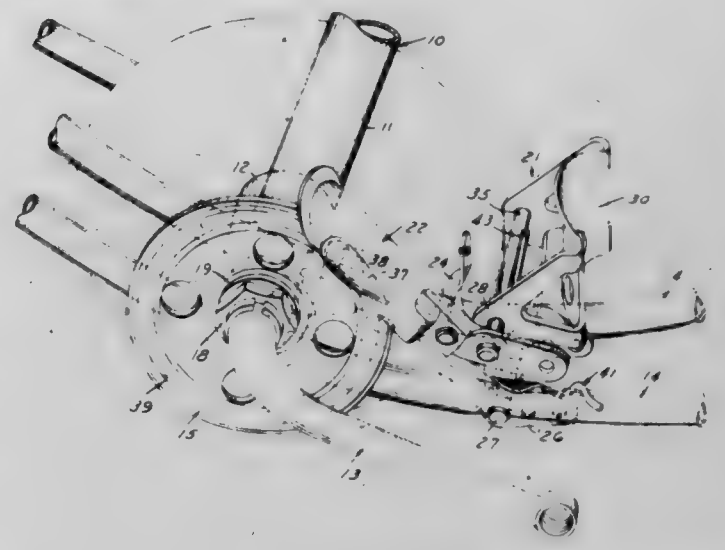
a disc rotatably mounted on said hub for rotation with said crank,

a brake shoe pivoted to said frame and extending upwardly along the front of the rear tire of the bicycle and having a surface for engaging the tire upon actuation of the brake,

a ball clutch arm pivoted on said shoe and extending upwardly and forwardly toward the periphery of said disc,

said arm having opposed walls between which the periphery of the disc extends,

said walls having inwardly facing grooves that taper transversely and longitudinally in a rearward direction such that they become narrower and shallower in a rearward direction,



a pair of balls in each of said grooves between said disc and the respective wall,

and means yieldingly urging said shoe away from said tire such that when the pedal cranks are pedaled rearwardly, said balls travel rearwardly along said grooves to pivot said ball clutch arm and, in turn, the brake shoe bringing the brake shoe surface into frictional contact with the surface of the rear tire.

4,332,314

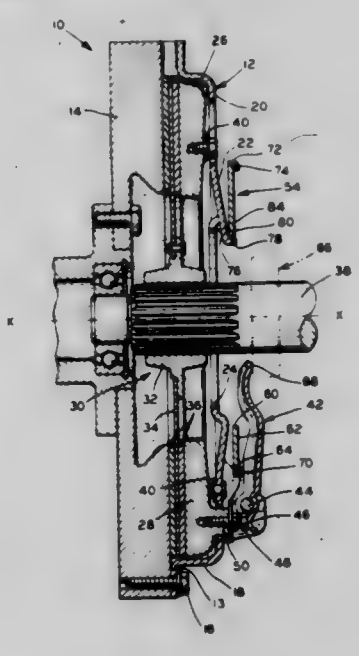
SPRING CLUTCH

Richard A. Flotow, Fort Wayne, Ind., assignor to Dana Corporation, Toledo, Ohio

Filed Sep. 8, 1980, Ser. No. 185,056

Int. Cl.³ F16D *13/44*

U.S. Cl. 192—89 B **12 Claims**



1. In a friction clutch adapted to drivingly connect rotatable drive and driven members, said clutch having a central axis about which said drive and driven members are rotatable, said clutch comprising:

a cover secured to said drive member for rotation therewith,

a pressure plate connected to said cover for rotation therewith and for limited axial movement relative thereto,

a pivotable lever disposed outside of said cover for moving

said pressure plate axially relative to said cover into and out of engagement with said driven member and

an annular spring compressed between said cover and said lever;

a improvement comprising

spring restraint means attached to said cover, and

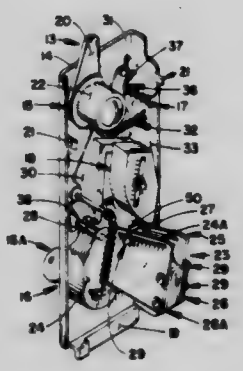
positioning means attached to said spring, said positioning means engaging said spring restraint means to locate said spring about said clutch axis and prevent relative rotational movement between said spring and said cover.

4,332,315

COIN OPERATED LOCK MECHANISM

Joseph O. Ward, 4835 Galendo St., Woodland Hills, Calif. 91364

Filed Jun. 16, 1980, Ser. No. 159,961
Int. Cl.³ G07F *1/04*
U.S. Cl. 194—1 G **9 Claims**



1. A coin operated lock mechanism including a supporting front plate with a vertically sloping aperture for depositing coins, a coin channel normally in communication with said aperture to receive and stack a given complement of deposited coins, a means to provide rotational movement of said coin channel once said coin channel has stored the required complement of coins, a locking latch rotatably supported by said front plate for locking a door in a closed position, wherein said coin channel comprises:

a support base rotatably supported by said rotation means;

a coin support wall adjustably mounted to said support base;

a coded shim set;

a depth roller; and

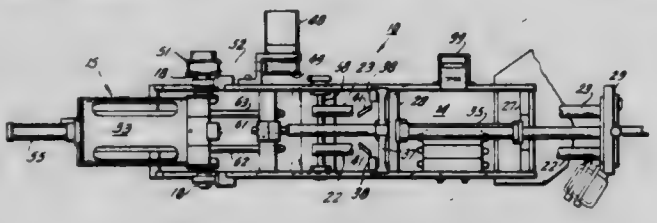
a plurality of mounting hardware.

4,332,316

CUP-STACK DELIVERY MECHANISM

John P. Skrypek, Mahwah; Robert Williams, Randolph, and James W. Dominico, West Paterson, all of N.J., assignors to Sun Chemical Corporation, New York, N.Y.

Filed Mar. 21, 1980, Ser. No. 132,514
Int. Cl.³ B65G *57/28*
U.S. Cl. 198—425 **7 Claims**



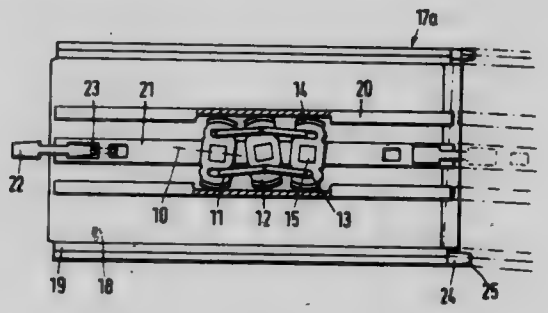
1. A takeoff-delivery mechanism for cup-like containers, said mechanism including an accumulator wherein a horizontal supply stack of nested containers is replenished by adding containers to such supply stack at its rear end; a delivery device disposed forward of said accumulator; a transfer device for delivering removed stacks, each containing a predetermined number of containers, from a supply stack in said accumulator to said delivery device; said delivery device receiving each removed stack in a horizontal position and being operable to discharge removed stacks therefrom in a vertical position into a receiving means; said delivery device receiving a removed stack through the rear end of the delivery device; said delivery device being generally horizontal when receiving removed stacks and being generally vertical when discharging removed stacks; said delivery device having the front end thereof raised to discharge removed stacks through the rear end of the delivery device.

4,332,317

SCRAPER CHAIN CONVEYOR

Karl Bähre, Gladbeck; Werner Böer, Castrop-Rauxel; Jörg Richter, Wattenscheid; Gerald Seebacher, Recklinghausen, and Hans Warnke, Herne, all of Fed. Rep. of Germany, assignors to Kloeckner-Werke AG, Duisburg, Fed. Rep. of Germany

Filed Jun. 20, 1980, Ser. No. 162,032
Claims priority, application Fed. Rep. of Germany, Jul. 3, 1979, 2926798
Int. Cl.³ B65G *19/24, 19/28*
U.S. Cl. 198—734 **14 Claims**



1. A scraper chain conveyor comprising a supporting trough defining a bottom plate, side walls and intermediate guides provided on said bottom plate, a conveying chain assembled of ring-shaped chain elements arranged substantially perpendicularly to the bottom plate, flat chain elements arranged substantially parallel to said bottom plate, and of scraping elements, said flat chain elements being guided between said intermediate guides and being linked to said ring-shaped elements with a play sufficient to permit sliding motion of respective chain elements in the longitudinal direction of the chain, said scraping elements being shaped to enclose with a predetermined play the contour of the adjoining flat chain elements, and at least one driving unit arranged between said side walls of said trough and including a chain wheel drivingly engaging said flat chain elements, said conveyor chain being a double chain having two parallel sets of said ring-shaped chain elements connected by said flat chain elements with a play sufficient to permit said longitudinal sliding motion without any self-locking effect, said flat chain elements being provided in the range of said ring-shaped chain elements with oblong holes for accommodating the latter and with a central hole for engaging said chain wheel.

4,332,318

STORAGE VIAL FOR SOFT CONTACT LENSES

Michael A. Feldman, 864 Glenridge Ave., North Woodmere, N.Y. 11598

Filed Jan. 28, 1980, Ser. No. 115,711
Int. Cl.³ A61F *9/00*; B65D *85/00*
U.S. Cl. 206—5.1 **11 Claims**

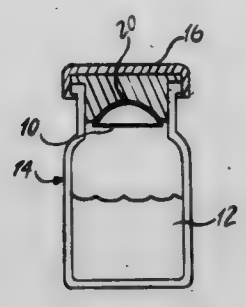
1. In combination, a soft-contact lens and a vial for storing said soft-contact lens permitting easy retrieval of the stored lens, said lens having a substantially spherical shape, said vial comprising

a generally cylindrical bottle containing a solution in which said lens is stored at the bottom of said bottle,

a closure adapted to close said bottle in fluid tight relationship,

seating means provided in said closure, said seating means having a curvature substantially similar to the curvature of said lens,

said seating means comprising a concave surface with the concavity facing to the bottom of the bottle, said concave surface substantially conforming to the shape of said soft-contact lens, said closure closing said bottle in said fluid-tight relationship, the closure and the bottom of said bottle



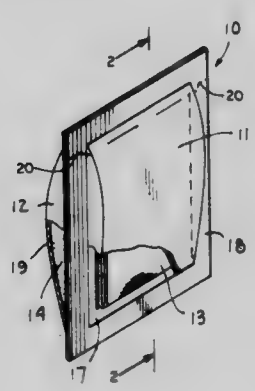
being spaced apart by a distance greater than the diameter of said lens so that said bottle has a depth sufficient to permit said lens to descend from the bottom to said closure, convex surface first, to be seated on said seating means when said bottle is turned upside down, said lens adhering to said seating surface by capillary attraction when said vial is returned right-side up which enables the lens to be retrieved easily from said closure when removed from said bottle.

4,332,319

HYGIENIC COMFORT PRODUCT

David L. Hurwood, 26 E. 93rd St., New York, N.Y. 10028

Filed Jun. 25, 1980, Ser. No. 162,853
Int. Cl.³ B65D *81/22, 81/32;* A45D *40/00*
U.S. Cl. 206—210 4 Claims



1. A hygienic product for cleaning, soothing and comforting the rectal area of the human body, comprising

(a) a napkin moistened with a liquid capable of cleaning the rectal area of the body without irritating the skin of that area, said liquid containing a germicidal agent not harmful to said skin,

(b) a first air-tight compartment containing the napkin,

(c) a quantity of powder capable of absorbing moisture and non-irritating to the skin of the rectal area, and

(d) a second air-tight compartment containing the powder.

4,332,320

PENDANT DISPLAY CARD

Jeffrey A. Feibelman, Cranston, R.I., assignor to A & H Mfg. Co., Johnston, R.I.

Filed Oct. 27, 1980, Ser. No. 201,170
Int. Cl.³ B65D *85/56, 85/58*
U.S. Cl. 206—45.14 9 Claims

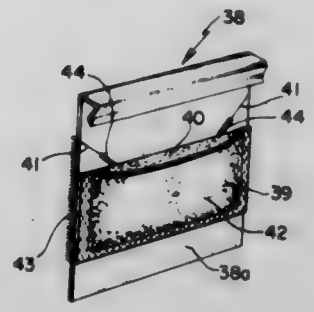
1. A jewelry display card comprising:

A. a cellulosic card;

B. means for suspending said cellulosic card from a support;

C. a flexible synthetic foam sheet located on one surface of said card with at least a portion of the perimeter thereof bonded to said surface forming an enclosure;

D. access means for permitting entry to said enclosure; and



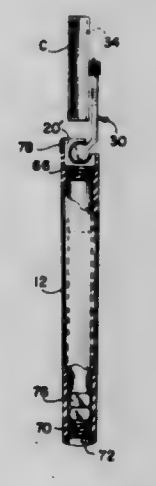
E. said cellulosic card having slits formed therein that are directed inwardly from opposite edges of said card adapted to receive and retain therein a jewelry chain or the like mounted on said card, the remaining portion of the chain on said one surface being receivable within said enclosure.

4,332,321

SHAVING KIT

Otto Wratschko, 4117 N. Broadway, Chicago, Ill. 60613

Continuation-in-part of Ser. No. 68,861, Dec. 12, 1979. This application Oct. 31, 1980, Ser. No. 202,720
Int. Cl.³ A45C *11/00;* B26B *19/38*
U.S. Cl. 206—228 4 Claims



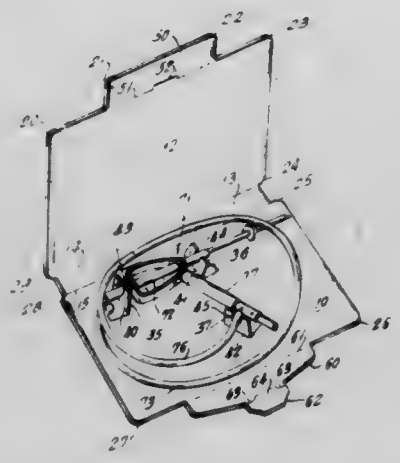
1. A shaving kit comprising an elongated handle member defining a gripping axis and having a socket opening at one end, an elongated support arm having a socket member at one end disposed in and movably captured by said socket opening, position defining means between said socket member and said handle member for defining first and second angular positions of the axis of said support arm respectively generally aligned with said gripping axis of said handle member and angularly related to said gripping axis, and an elongated blade support pivotally supported on an outer end of said elongated support arm and pivotable between a first stored position generally aligned with said axis of said elongated support arm and a second operative position extending generally perpendicular to said elongated support arm, the length of said support arm and the angle of said second angular position configured to place said blade support substantially away from said gripping axis, whereby a blade inserted in said blade support is positionable to facilitate case ease of shaving.

4,332,322

FOLDER TO HOLD COIL OF PLASTIC TUBING WITH CLAMP AND FITTINGS

Harold R. Jaeschke, Milwaukee; Alan Linder, Wauwatosa, and Daniel J. Boyle, Hartland, all of Wis., assignors to Champion International Corporation, Stamford, Conn.

Filed Sep. 2, 1980, Ser. No. 182,854
Int. Cl.[3] B65D *83/10, 5/50*
U.S. Cl. 206—364 4 Claims



1. A folder-container for securing a sterile coiled tube having at least one fitting attached to one end thereof, said folder-container comprising:

a substantially rectangular side wall;

a bottom wall foldably connected to a first edge of said side wall and disposed perpendicular to said side wall;

a top wall foldably connected to a second edge of said side wall, said second edge of said side wall being opposite said first edge thereof, said top wall being perpendicular to said side wall and parallel to and in register with said bottom wall;

at least two fitting holding tabs foldably connected to said bottom wall and located equidistant from said side wall, the plane of each said fitting holding tab being perpendicular to both said bottom wall and said side wall, each said fitting holding tab having a notch formed in the end thereof opposite said bottom wall for securing said fitting; and

at least one tube holding tab foldably connected to and perpendicular to said bottom wall, each said tube holding tab having a notch formed in the end thereof opposite said bottom wall for holding said tube, each said tube holding tab being substantially aligned with a radius of curvature of said coil whereby insertion of said fitting in said fitting holding tabs and insertion of said tube in said tube holding tab retains said coiled tube in a coiled arrangement within said folder-container.

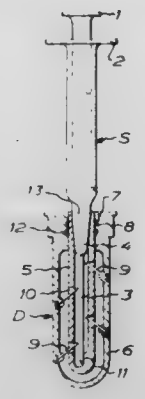
4,332,323

DESTRUCTION DEVICE FOR INJECTION NEEDLES

Erik G. B. Reenstierna, Bjärred, Sweden, assignor to Konsivenior AB, Sweden

PCT No. PCT/SE78/0064, § 371 Date Jun. 26, 1979, § 102(e) Date Jun. 22, 1979, PCT Pub. No. WO79/00239, PCT Pub. Date May 3, 1979
PCT Filed Oct. 26, 1978, Ser. No. 261,198
Claims priority, application Sweden, Oct. 26, 1977, 772041
Int. Cl.[3] B65D *85/00;* A61M *5/32;* B02C *19/12;* B21D *7/00*
U.S. Cl. 206—365 8 Claims

1. Device for the destruction of the injection needle of an injection syringe, characterized by a sleeve (6; 14) in which the injection needle (3) may be inserted and which is provided, in its interior, with spaced apart elements (9; 17) in the longitudinal direction of the sleeve and projecting from opposite directions towards the intended path of movement of the needle in the sleeve, and members (5; 16) movable with respect to the sleeve in the longitudinal direction thereof and disposed, during their movement, to influence at least one of said elements in



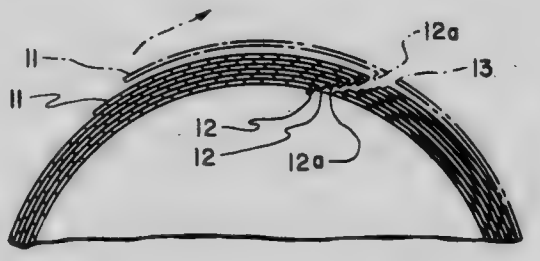
such a manner that this moves towards and into the path of movement of the needle.

4,332,324

MANUFACTURE OF ROLLS OF FIBROUS WEB MATERIAL

Thomas B. Howard, and Gerald H. Puissant, both of Green Bay, Wis., assignors to American Can Company, Greenwich, Conn.

Filed Feb. 6, 1980, Ser. No. 119,162
Int. Cl.[3] B65D *85/67, 85/671*
U.S. Cl. 206—389 2 Claims



1. In a roll of fibrous web material, means securing its tail comprising a series of generally triangular tabs in linear array extending across said web, and cut from layers of said material to form aligned generally triangular openings in successive underlying layers, said tabs folded into, and frictionally retained within, said aligned openings along sides thereof closer to said tail and substantially parallel to the axis of said roll, said tabs presented in the direction of presentation of said tail.

4,332,325

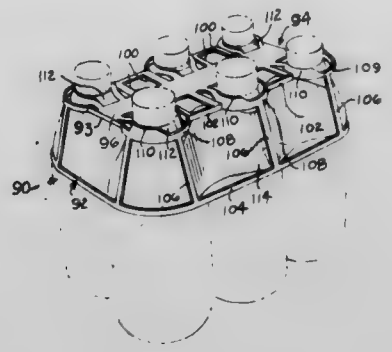
BOTTLE PACKAGE WITH PROMOTIONAL CARD INSERT

Guelfo A. Manizza, Blauvelt, N.Y., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Continuation-in-part of Ser. No. 184,639, Oct. 8, 1980. This application Mar. 23, 1981, Ser. No. 243,061
Int. Cl.[3] B65D *75/54, 77/24*
U.S. Cl. 206—216 5 Claims

1. An article package comprising a group of articles having the general form of relatively short neck bottles with cap type closures, which articles are arranged in double row transversely paired relation and held in group arrangement by a shroud formed of a continuous plastic which is at least semi-transparent and which is shaped or otherwise formed so as to provide a top wall forming panel and a depending sidewall formation extending about the perimeter of the top wall forming panel, said top wall forming panel engaging portions of the cap closures, said sidewall formation extending downwardly in tightly gripping relation to top portions of the articles and having a depth which extends below at least to the bottom of the neck forming portions of the articles with a peripherial dimension which results in tightly gripping outboard portions of the surfaces of the corner articles in the group, and a promo-

tional display card of bendable sheet material trapped between the shroud and the top portions of the articles, which display card has a center panel extending transversely relative to the articles, said center panel having spaced apertures adapted to accommodate the neck portions of the middle row of articles and panel formations at opposite ends of the center panel



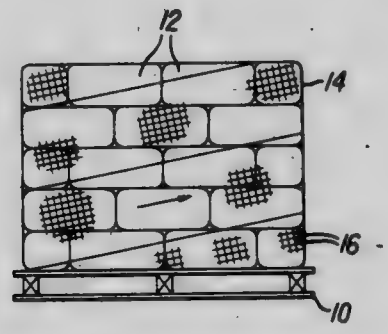
which extend downwardly along at least a portion of the sidewall formation and which lie in close proximity to the inner face of the sidewall formation so that display material on the surface is visible through the shroud material, said panel formations having a dimension formation greater than the dimension of said center panel relative to the sidewall formation.

4,332,326

PLASTIC NETTING FOR LOAD UNITIZATION

Michael G. Kelly, Blaine, and Eugene R. Pastien, Moundsview, both of Minn., assignors to Conwed Corporation, St. Paul, Minn.

Continuation-in-part of Ser. No. 35,851, May 4, 1979, Pat. No. 4,208,457. This application Apr. 10, 1980, Ser. No. 139,131
The portion of the term of this patent subsequent to Jun. 17, 1997, has been disclaimed.
Int. Cl.³ B65D *77/08, 19/00, 85/62, 6/08*
U.S. Cl. 206—497 **16 Claims**



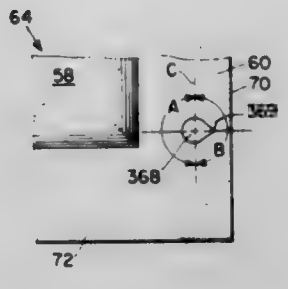
1. In a palletized load utilizing a plastic net material as the pallet wrap, the improvement comprising said plastic net when it is wrapped about said palletized load being composed of a plurality of sets of spaced strands, the strands of at least one set being substantially parallel and being in the longitudinal direction of the net, said one set of strands being stretch-oriented to a sufficient degree so that it is incapable of being stretched further by more than about 15% in said stretch-oriented direction when stressed under the tension to which normal palletized loads are subjected at temperatures up to about 180° F.

4,332,327

ACCURATELY PLACED STRESS CONCENTRATING APERTURE IN FLEXIBLE PACKAGES

Arthur E. Frohwerk, Harrison, Ohio, and David E. Enting, Americas, Ga., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed May 6, 1980, Ser. No. 147,018
Int. Cl.³ B65D *65/26*
U.S. Cl. 206—604 **7 Claims**



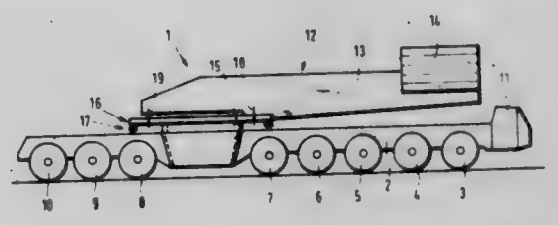
1. In a filled and sealed flexible pouch having a body portion and at least one stress concentrating aperture in a seal area thereof, said aperture being located adjacent an edge of said pouch to provide easy opening of said pouch by manual tearing, the improvement wherein said aperture includes at least one localized stress concentrating feature to preferentially initiate a tear generally in the direction of said adjacent edge of said pouch when stress is applied to the seal area containing said aperture, said localized stress concentrating feature in said aperture being located within that portion of said seal area which extends from the point of coincidence with the maximum dimension of said aperture, as measured in a direction substantially parallel to said adjacent edge of said pouch, to said adjacent edge of said pouch.

4,332,328

MOBILE CRANE

Günter Otto, Hilden, and Peter Eiler, Düsseldorf, both of Fed. Rep. of Germany, assignors to Firma Leo Gottwald KG, Duesseldorf-Holthausen, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,330
Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844819
Int. Cl.³ B66C *23/84, 13/00*
U.S. Cl. 212—180 **15 Claims**



1. In a mobile crane including a carriage, an upper chassis, means for rotatably supporting said upper chassis on said carriage, said means including rotational connection means for affording rotational movement about a first circle having an upright axis, the improvement comprising that said rotatably supporting means further includes an intermediate frame located between said upper chassis and said carriage and additional means in addition to said rotational connections means for connecting said upper chassis rotatably to said carriage, said additional means being operative to accommodate high loads which exceed the maximum load which said rotational connection means is constructed to withstand, and to distribute said high loads to said carriage, said additional means and said rotational connection means rotatably mounting said intermediate frame on said carriage between said carriage and said upper chassis with said additional means providing for rotational movement about a second circle coaxial with and spaced outwardly from the first circle, said intermediate frame span-

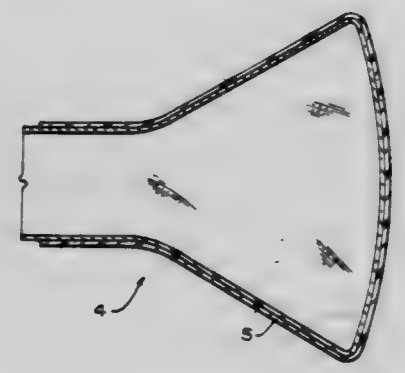
ning from the first circle to the second circle on opposite sides of the first circle and means detachably fixing said upper chassis to said intermediate frame so that said upper chassis can be removed as a unit from said intermediate frame and carriage.

4,332,329

IMPLOSION COATINGS

Roger L. Scriven, and Wen-Hsuan Chang, both of Gibsonia, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 25, 1977, Ser. No. 845,103
Int. Cl.³ H01J *61/35*
U.S. Cl. 220—2.1 A **11 Claims**



1. An implosion protected evacuated glass enclosure which comprises in combination:

(A) a sealed evacuated glass enclosure having exterior and interior surfaces, through at least a portion of said surfaces light is transmitted; and

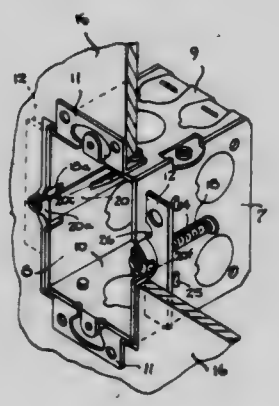
(B) a transparent, non-tacky, scratch-resistant, polyurethane film on the exposed exterior surface of said glass enclosure having a low degree of adhesion to the exterior surface of said sealed evacuated glass enclosure, said low degree of adhesion being such that said polyurethane film adheres to said glass surface with a 90° peel strength of less than about 20 pounds per lineal inch and the mechanical properties of the polyurethane film are such that when a free film of approximately 1 to 2.5 mils is subjected to tensile testing according to ASTM D-638-72, the film exhibits a tensile strength of from about 1000 to 15,000 pounds per square inch and a corresponding elongation of from about 150 to 1500 percent.

4,332,330

ELECTRICAL CUT-IN BOX

Alan C. Lockwood, Rosemead, Calif., assignor to Norris Industries, Inc., Los Angeles, Calif.

Filed Dec. 7, 1977, Ser. No. 858,437
Int. Cl.³ H02G *3/14*
U.S. Cl. 220—3.5 **4 Claims**



1. In an open ended electrical box having a pair of opposite side walls with elongated slots formed therein and a strap bridging the ends of said slots, means for clamping said box between the inside and outside surfaces of a wall, comprising:

a bracket fitted in each of slots, each of said brackets including a flat strip, a tab at each end of said strip extending substantially perpendicularly therefrom, said tabs having apertures formed therein, one of said tabs having a hook thereon, said hook extending in a direction substantially parallel to said flat strip and substantially normal to said tabs, the flat strips of the brackets having prongs extending outwardly therefrom at an acute angle relative thereto, said slots having widened portions through which the prongs can be forced, said prongs preventing the brackets from separating from the box once they are forced through the widened slot portions,

a screw mounted on each of said brackets with the shank thereof fitted through the apertures in said tabs, the head of said screw being adjacent to said one of said tabs having a hook thereon,

a cleat in the form of a flat plate threadably engaged by each of said screws,

said hooks being slipped over and loosely engaging said straps thereby maintaining the screws alongside the side walls of the box while said screws are being tightened, said box having lips extending outwardly from the edges thereof,

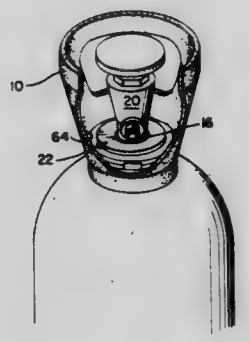
whereby when said screws are tightened, the cleats are drawn towards the inside surface of the wall to clamp the wall between the cleats and the lips of the box.

4,332,331

ROTATABLE VALVE PROTECTOR FOR COMPRESSED GAS CYLINDER

Norman C. Fawley, 255 Rafael Walk, Long Beach, Calif. 90803

Filed Jun. 3, 1980, Ser. No. 156,181
Int. Cl.³ B65D *25/00*
U.S. Cl. 220—85 P **10 Claims**



1. A device for protecting a valve mounted in a neck of a compressed gas cylinder and for serving as a handle for the cylinder, comprising:

a neck ring affixed to the cylinder in concentric relationship with the neck of the cylinder, said neck ring having external threads;

a hollow valve protector having open ends, a lateral opening between the open ends, and an annular inwardly directed flange at one open end, said flange having mutually orthogonal bearing surfaces; and

a locking collar having internal threads mating with the external threads of the neck ring and an outwardly directed flange overlapping the inwardly directed flange of the valve protector, the locking collar having a vertical bearing surface and the outwardly directed flange having a horizontal bearing surface which engage the mutually orthogonal bearing surfaces of the valve protector,

the locking collar further including a sleeve extending beyond the internal threads of the locking collar in the direction of the cylinder for frictional engagement with the cylinder,

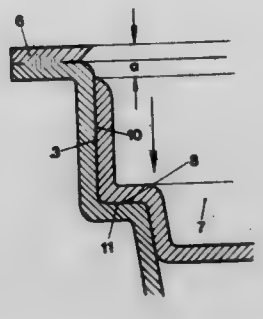
whereby the valve protector is freely rotatable around the neck of the cylinder, even under heavy loading.

4,332,332

CONTAINER AND CLOSURE HAVING FRANGIBLE OPENING MEANS

Ole Ingemann, Svendborg, Denmark, assignor to A/S Haustrup Plastic, Langeskov, Denmark

Filed Nov. 28, 1980, Ser. No. 210,896
Claims priority, application Sweden, Dec. 17, 1979, 7910362
Int. Cl.³ B65D 17/40
U.S. Cl. 220—276 8 Claims



1. In a container (4) with an opening facing upwards in the top surface and with a closure (15) for said opening consisting of a fastener (6) and a lid (1) which are joined together all the way round by a failure zone (2), said closure being inserted into the opening and forming a seal with the container, and in which the lid is broken open and is torn along the failure zone by a locally applied force, preferably under pressure, whereby force applied in an inward direction will cause the lid to move inwards to a point at which, having moved over a distance a, it will on the one hand make contact with a surface (8) located on the lid running parallel with the top surface, and will on the other hand make any further opening difficult, and in which the lid is also provided with a gripping device for removing the fully or partly loosened lid, the improvement wherein the failure zone (2) of the lid (1) is located at the point at which the internal surface (3) of the opening meets the top surface of the opening, whereby a flange (5) on the container (4) is bonded to the attachment ring (6) of the closure (15), the lid (1) within the failure zone (2) on the other hand supporting the gripping device (9) with which the container is opened, and on the other hand is dished inwards in such a way that the dishing (7) at its outer edge forms a guide (10) against the essentially cylindrical internal surface (3), whereby the surface (8) parallel with the top surface is connected to the guide (10), said surface (8) after the lid (1) has been torn open and if applicable after the lid has moved inwards over the distance a making contact with a ledge (11) located inside the container (4) and forcing the guide (10) against the wall of the container (12).

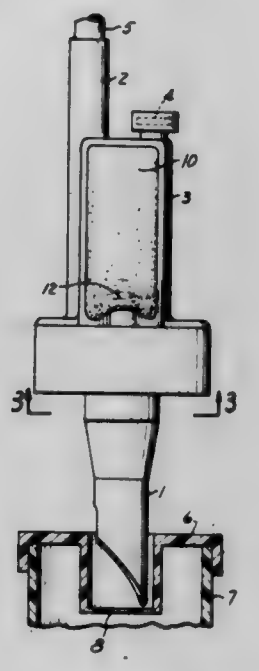
4,332,333

PUNCTURE SPIKE HANDLE

Mark Linsey, Anaheim, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Jul. 21, 1980, Ser. No. 170,502
Int. Cl.³ B67B 7/24
U.S. Cl. 222—83 1 Claim

1. A handle in combination with and for axial and rotational manipulation of a puncture spike that extends forwardly from the handle, said handle comprises: a body having a longitudinal axis and having a pair of passages extending longitudinally through the body and through the spike; a pair of opposed gripping surfaces; each of said gripping surfaces having a forward end and a rearward end and at least a portion that is substantially flatter in a transverse direction than a circular path generated by rotating the handle about said longitudinal axis; the gripping surfaces diverge outwardly in a forward direction to provide a greater angle between the gripping surfaces adjacent the forward ends than adjacent the rearward ends; wherein the gripping surfaces are generally concave in the longitudinal direction but are generally flat in a lateral direction, the gripping surfaces are approximately parallel adjacent their rearward ends and diverge outwardly by an angle greater than 90 degrees adjacent their forward ends, each of said gripping surfaces extends around less than one half of the handle's transverse perimeter and has a roughened texture; the handle has a penetration stop that extends beyond and is connected to forward end portions of the gripping surfaces, wherein the penetration stop is a skirt, said skirt having a top end portion and a bottom end portion; the bottom end portion of the spike engages an item being punctured, the skirt surrounds the puncture spike, the spike having a downstream end which extends outwardly from the skirt, the gripping surfaces



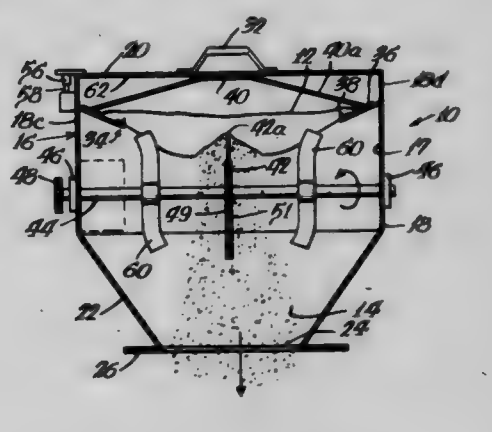
have the forward end portions on laterally protruding members, the laterally protruding members having outer edges that are transversely concave for gripping to gain additional leverage for rotating the handle and the spike, the protruding members extend laterally outward from the skirt and are connected to the top end portion of the skirt and are spaced rearwardly from the bottom end portion so that the protruding members are always spaced from the item being punctured, the gripping surfaces are on opposite sides of the pair of passages extending through the body.

4,332,334

DUSTLESS BAG BREAKER

Thomas T. Mian, 701 Huntington Commons, Unit 412, Mount Prospect, Ill. 60056

Filed May 22, 1980, Ser. No. 152,378
Int. Cl.³ B67B 7/24
U.S. Cl. 222—83.5 19 Claims



1. A dispenser for dispensing dusty material from a bag, comprising:

a container for receiving a bag and defining a discharge outlet for dispensing said dusty material;

bag holding means for holding said bag in a generally horizontal position within said container;

a rotatable cutter for cutting said bag within said container; and

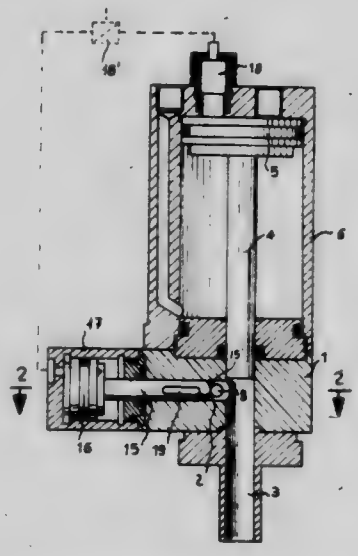
at least one rotatable flapper positioned about a common axis of rotation with said cutter within said container for beating said bag after said bag is cut to enhance discharge of said dusty material from said bag.

4,332,335

HEAD FOR MIXING AND EJECTING INTERACTING LIQUID COMPONENTS, FOR MOLDING PLASTIC MATERIALS

Carlo Fiorentini, Saronno, Italy, assignor to Afros S.r.l., Varese, Italy

Continuation of Ser. No. 961,853, Nov. 17, 1978, abandoned.
This application Sep. 16, 1980, Ser. No. 187,826
Claims priority, application Italy, Mar. 9, 1978, 21022 A/78
Int. Cl.³ B67D *5/60*
U.S. Cl. 222—145 **9 Claims**



1. A head for continuously mixing and ejecting interacting liquid components into a mold for molding articles made of plastic material, comprising in combination: a body defining a mixing chamber for the components; a discharge duct having an outlet; at least a first and a second infeed duct for injecting individual components into said mixing chamber for a predetermined time period; exit port means for establishing fluid communication between said infeed ducts and said discharge duct, said infeed ducts being provided with outlet orifices that open into said mixing chamber close to said exit port means; and piston means for controlling fluid communication between said infeed ducts and said discharge duct outlet so that fluid communication is established therebetween during substantially the entire predetermined time period when said infeed ducts are injecting components into said mixing chamber so that injected components flow continuously out of said mixing chamber through said discharge duct and are thoroughly mixed during their passage through said discharge duct, said mixing chamber forming an angle of substantially 90° with said discharge duct and having a length shorter than and a volume less than that of said discharge duct so that components injected into said mixing chamber mix with each other and overflow into said discharge duct in a swirling flow.

4,332,336

SPREADING APPARATUS FOR MIXED DENSITY MATERIALS

Edward P. Novacek, Cedar Rapids, Nebr., assignor to International Minerals & Chemical Corp., Terre Haute, Ind.

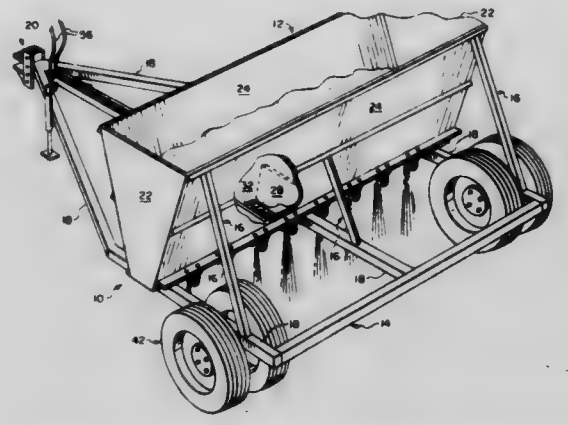
Filed Jul. 3, 1980, Ser. No. 165,915
Int. Cl.³ B65D *17/34*
U.S. Cl. 222—269 **10 Claims**

1. A spreading apparatus for uniformly spreading a blended granular product containing ingredients of different specific gravities, said apparatus comprising:

(a) a large hopper for receiving a blended granular product, said hopper having an open top, side walls, end walls and a bottom portion;

(b) a plurality of smaller hoppers disposed at uniform intervals across the bottom portion of said large hopper, each of said smaller hoppers having a bottom portion with a discharge opening therein, said smaller hoppers each being adapted to receive equal portions of the granular product loaded in said large hopper by gravity flow;

(c) a plurality of auger-type conveyors, one of said auger-type conveyors being horizontally disposed in the bottom portion of each of said smaller hoppers on an axis parallel



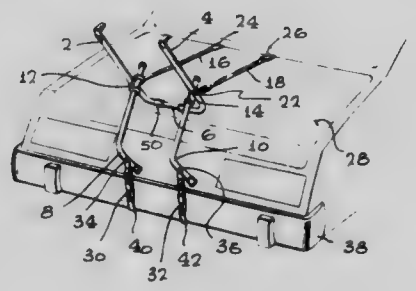
to the direction of travel of the apparatus during spreading, each of said auger-type conveyors being adapted to receive granular product by gravity flow and to discharge metered amounts of said granular product through the associated discharge opening at the same rate in cooperation with all the other discharge means of said spreading apparatus to thereby obtain uniform spreading of said granular product.

4,332,337

FOLDABLE BICYCLE CARRIER

Irving W. Kosecoff, 3201 Butler Ave., Los Angeles, Calif. 90066

Filed Jan. 22, 1981, Ser. No. 227,517
Int. Cl.³ B60R *9/10*
U.S. Cl. 224—42.03 B **11 Claims**



1. A foldable carrier for being mounted on motor vehicles, said carrier comprising:

a U-shaped hanger member formed to have a pair of carrier bars each joined at one end thereof by a support bar;

a pair of L-shaped leg members having a short portion and a long portion;

locking means for movably attaching each of said leg members to a different one of said carrier bars, said locking means including a pair of locking mechanisms each including:

a leg bracket slideably mounted on a leg member;

a locking bracket mounted on a carrier bar;

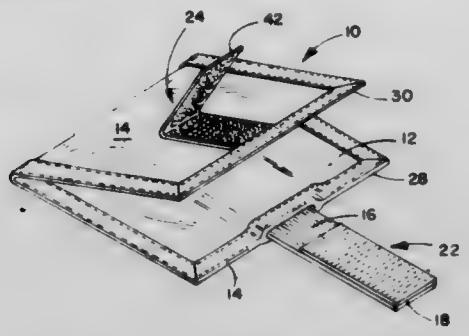
a retention bolt extending through said carrier bar, said locking bracket and said leg bracket to form a pivot;

a positioning member mounted on said leg member for engaging said locking bracket and said leg bracket when said carrier is locked in an extended operative configuration with said long portion of said leg members being parallel to each other and transverse to said carrier bars and the short portion of said leg members being tilted away from each other.

4,332,338
WALLET WITH ELASTIC STRAP

James S. Christiansen, 5288 Austin Rd., Santa Barbara, Calif. 92111

Filed Nov. 24, 1980, Ser. No. 209,759
Int. Cl.³ A45C *1/06*
U.S. Cl. 224—222 3 Claims

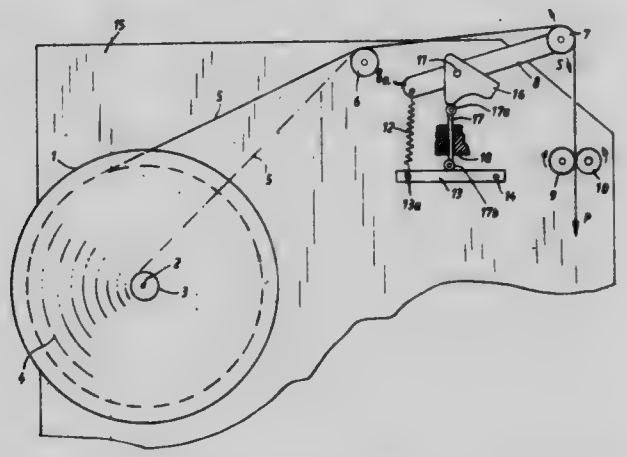


1. A wallet formed of inner and outer sheets of flexible material both having opposite longitudinal edges and opposite transverse edges, and said inner and outer sheets are permanently secured together at one longitudinal edge and both opposite transverse edges to define a currency receiving pocket open at the unsecured longitudinal edges of said inner and outer sheets, a pocket liner located between said inner and outer sheets and having opposite longitudinal and opposite transverse edges, and said pocket liner is permanently secured to said outer sheet of flexible material, an elongate elastic strap having one free end and one anchored end secured to said outer sheet of material and said strap passes freely behind said currency receiving pocket internally between said outer sheet of material and said pocket liner so that the portion thereof behind said currency receiving pocket is freely stretchable and retractable, and said free end of said strap protrudes from between said outer sheet of material and said pocket liner between locations at which said pocket liner and said outer sheet of material are secured together, and mating pads, one of which bears a multiplicity of minute hooks projecting therefrom and the other of which bears a fine, looped pile releasably engageable with said hooks, and one of said pads is secured to said free end of said elongate strap, and the other of said pads is secured to said outer sheet of flexible material.

4,332,339
WEB-ADVANCING APPARATUS

Heinz Lüedemann, and Klaus Schneider, both of Munich, Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Filed Jun. 20, 1980, Ser. No. 162,035
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1979, 2929611
Int. Cl.³ B65H *23/16, 77/00*
U.S. Cl. 226—195 6 Claims

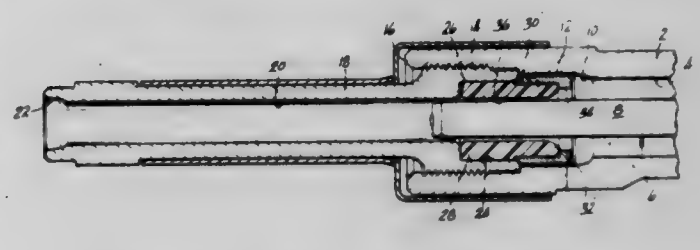


1. In an apparatus for advancing webs, particularly webs of photographic material, from a supply roll to a pull-off device, a combination comprising a member turnable about an axis intermediate the supply roll and the pull-off device to any of a plurality of angularly displaced positions, said member being formed as a tilt arm having first and second end portions; guide means on said member for guiding the web towards the pull-off device and including a roller turnably mounted on said first end portion of said tilt arm, the pull exerted by the pull-off device causing said member to become angularly displaced about said axis; first means for resiliently resisting such angular displacement and including a biasing spring; and second means for varying the resisting force exerted by said first means as a function of the angular position assumed by said member, said second means including a motion-transmitting element movable in response to angular displacement of said arm and varying said resisting force as a function of its movement to respective different positions, and a pivotable control arm, said spring being connected between said control arm and said second end portion of said tilt arm, said motion-transmitting element acting upon and determining the position of said pivotable control arm relative to said second end portion.

4,332,340
PISTON TOOL BUFFER ASSEMBLY

Frederick J. Harris, Clinton, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed May 15, 1980, Ser. No. 150,125
Int. Cl.³ B25C *1/14, 1/18*
U.S. Cl. 227—10 5 Claims



1. In combination a piston buffer assembly and a powder-actuated piston-type fastener driving tool said tool having a barrel with a bore and a piston reciprocally slidably mounted in said barrel bore, said buffer assembly comprising:

(a) an annular elastomeric member disposed in said tool in a muzzleward area thereof, said elastomeric member having a bore through which a stem part of said piston extends;

(b) first means in said barrel radially and axially closely confining a muzzleward end portion of said elastomeric member;

(c) second means in said barrel closely radially confining a breechward end portion of said elastomeric member, said means allowing axial expansion of said member in a breechward direction;

(d) means for permitting a portion of said piston having a larger diameter than said stem part to enter said bore of said elastomeric member when said piston is driven in said tool whereby said elastomeric member expands only axially in a breechward direction; and

(e) fixed means in said barrel bore for limiting the extent of breechward expansion of said elastomeric member.

4,332,341
FABRICATION OF CIRCUIT PACKAGES USING SOLID PHASE SOLDER BONDING

Richard H. Minetti, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 26, 1979, Ser. No. 107,326
Int. Cl.³ H01L *21/603*
U.S. Cl. 228—180 A 13 Claims

1. In the fabrication of circuit packages, a method for bonding solid solder preforms, 13, to the contact members, 12, of an

electronic component CHARACTERIZED IN THAT the preforms are heated to a temperature below the melting point



of the solder while sufficient force is applied to the preforms to produce a bond while the solder is kept in a solid phase.

4,332,342

METHOD OF SOLDERING COMPONENTS TO A THICK-FILM SUBSTRATE

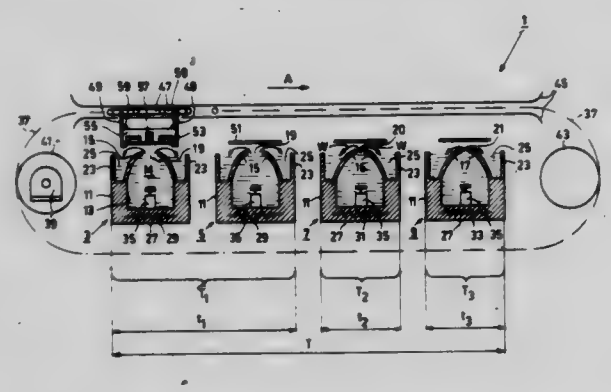
Henricus C. A. van Der Put, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 39,716, May 17, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,525

Claims priority, application Netherlands, May 29, 1978, 7805800

Int. Cl.³ B23K *1/02*

U.S. Cl. 228—180 A **4 Claims**



1. In the method of soldering components to a thick film substrate comprising:

(1) heating an assembly of said substrate with said components locally provided with a layer of solder between said components and said substrate in a preheating phase to a temperature below the melting point of said solder;

(2) heating said assembly to a temperature sufficiently high to cause the solder to melt and flow during a soldering phase and

(3) subjecting said assembly to a temperature during a cooling phase to a temperature below the melting point of said solder;

the improvement wherein through each of said phases the substrate bearing the layer of solder and the components positioned therein is contacted with a heated molten metal heat transfer medium and during the cooling phase the substrate is cooled at a rate sufficiently effective to cool said substrate below 150° C. within 2 seconds.

4,332,343

PROCESS FOR IN-SITU MODIFICATION OF SOLDER COMOPSITION

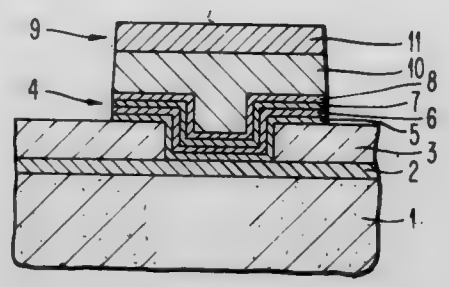
Nicholas G. Koopman, Hopewell Junction; Vincent C. Marcotte, La Grangeville, and Stephen Teed, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

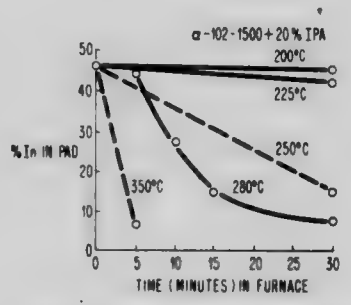
Continuation of Ser. No. 944,224, Sep. 20, 1978, abandoned. This application Apr. 10, 1980, Ser. No. 139,076

Int. Cl.³ B23K *1/00, 35/26, 35/362*

U.S. Cl. 228—231 **6 Claims**

1. A method for in-situ altering the composition of solder alloys containing wetting agents selected from the group of tin and indium comprising fluxing a said solder alloy in its molten form for sufficient time with at least one acid selected from the monocarboxylic acids of alkylated hydrophenanthrene nuclei having the empirical formula $C_{19}H_{29}COOH$, to remove said





EFFECT OF TIME AT TEMPERATURE ON In LEACHING BY α-102 FLUX

wetting agents from said molten solder and to materially reduce to less than 90% of the original content of said wetting agents in said molten solder.

4,332,344

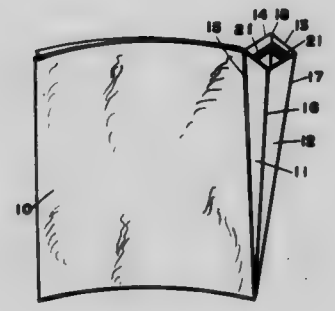
RESEALABLE PACKAGE

Glenn G. Strodthoff, 4808 W. Custer St., Manitowoc, Wis. 54220

Filed Feb. 8, 1980, Ser. No. 119,985

Int. Cl.³ B65D *33/24, 33/38*

U.S. Cl. 229—62 **3 Claims**



1. A packaging container for liquid or for granular solids and incorporating a re-closable pouring spout formed by pleat folded sections of the package well being disposed to lie in face-to-face contact when infolded and to provide an open mouthed pouring spout when outwardly folded, an improvement to render the package repeatedly resealable comprising

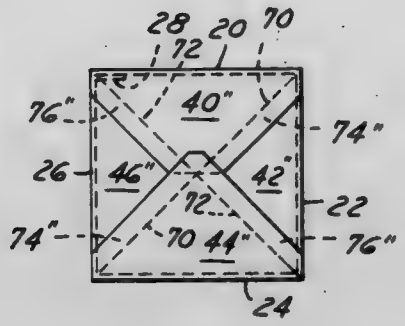
elongated rib means disposed on the inner faces of said folded sections, protruding from said faces and disposed on members of said facing sections which infold, in staggered alignment with those on sections next adjacent thereto to mutually intermesh as tongue and groove when said sections are placed in contacting facing adjacency operably to close said spout, said rib means being of plastomeric material and configured with enlarged bead-like edges to provide a leak proof seal when operably engaged.

4,332,345

CONTAINER WITH INFOLDED BOTTOM CLOSURE

John P. Moran, Pleasant Ridge, Mich., assignor to Ex-Cell-O Corporation, Troy, Mich.

Filed Mar. 20, 1980, Ser. No. 132,014
Int. Cl.[3] B65D *5/08*
U.S. Cl. 229—37 R 7 Claims



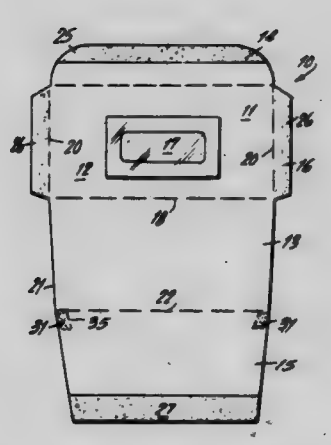
1. A container of paperboard or the like having an overall surface of thermoplastic material that becomes adhesive when subjected to heat, said container comprising four substantially equal width side panels, first and second pairs of opposed bottom closure panels alternately connected to said side panels as extensions thereof and connected one to the other by score lines along their sides for a (predetermined) partial portion of their heights, each bottom closure panel having free cut edges extending at (a predetermined) an angle intermediate the end of said score lines and the centerline of said bottom closure panel and terminating at a point such that the heights of two oppositely disposed panels are each equal to approximately one half the width of a side panel, and the height of at least one other bottom closure panel is (a predetermined amount) greater than one half the width of a side panel, said two oppositely disposed panels each including a pair of diagonal score lines for forming triangular panels whose apices touch one another on the inside of the container, at least a portion of each of said free cut edges being substantially parallel to each respective adjacent diagonal score line, and the end portion of said one other bottom closure panel overlapping the end portion of the fourth bottom closure panel on the outside of the container.

4,332,346

TWO-WAY ENVELOPE

Albert F. Kronman, Locust Valley, N.Y., assignor to 21st Century Envelope Co. Inc., Deer Park, N.Y.

Filed Feb. 12, 1981, Ser. No. 233,979
Int. Cl.[3] B65D *27/06*
U.S. Cl. 229—73 6 Claims



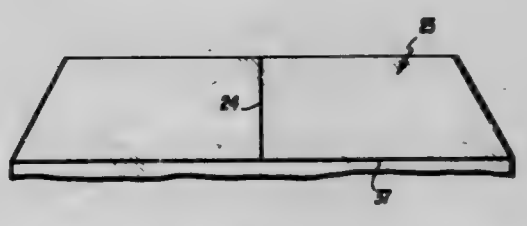
1. An envelope for two-way mailing formed from a one piece blank having substantially rectangular front and rear panels interconnected along three edges to provide a pocket, and an insert opening for said pocket between the unconnected panel edges of the pocket comprising a first sealing flap carried by and integral with one of said unconnected edges, a second, return sealing flap carried by and integral with the other unconnected edge, said second return sealing flap being folded inwardly along the unconnected panel edge of its supporting panel to extend within the pocket and overlie said supporting panel and a spot of adhesive disposed between a portion of the return sealing flap and its supporting panel adjacent their common fold line at each outer end of said fold line whereby a portion of the return sealing flap is secured to its supporting panel at the outer ends thereof.

4,332,347

PLASTIC BAG HAVING UNIQUE TUCK FLAP CONSTRUCTION

William J. Clayton, Fairport, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 15, 1980, Ser. No. 216,352
Int. Cl.[3] B65D *33/24*
U.S. Cl. 229—62 4 Claims



1. A plastic bag comprising front and back walls interconnected to one another at their side and bottom edges and defining between them a top opening, a fold-over cuff provided adjacent said top opening for folding over and closing said top opening, said fold-over cuff being formed by a first cuff wall extending along a top portion of said front wall and attached to said front wall at the side and top edges thereof to form a bottom opening between said cuff wall and said front wall at a front side of said bag, and, in tuck-in cuff extending from said back wall in a manner which allows it to be tucked in over an object placed in said bag prior to the closing of said top opening by said fold-over cuff, said tuck-in cuff being formed by a second cuff wall extending along a portion of said back wall which extends beyond said top opening, said second cuff wall being attached at the top and side edges thereof and along at least one vertical line intermediate its side edges to said back wall portion to form a plurality of bottom opening pockets between said back wall and second cuff wall on the back side of said bag.

4,332,348

CURRENCY RECEPTION AND STORAGE DEVICE

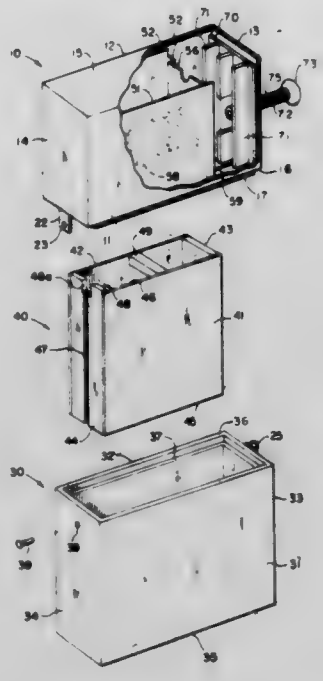
Richard M. Nordin, 1109 N. Puente St., Brea, Calif. 92621

Filed Jan. 4, 1980, Ser. No. 109,656
Int. Cl.[3] B65G *57/03*
U.S. Cl. 232—43.3 5 Claims

1. A device for collecting currency or the like, comprising:
(a) an exterior housing having a slot adapted to receive currency;
(b) a bill receptacle, disposed within the interior of said housing, having an opening at one end thereof;
(c) at least two opposed flange members secured to said open end spaced apart a distance less than the horizontal dimension of a vertically supported bill;
(d) a first plate member disposed within the interior of said bill receptacle;
(e) means for biasing said first plate member against said flange members;
(f) a bill receiving chamber proximate said open end adapted to receive a bill from the slot through said exterior housing;
(g) means for supporting received bills upon at least a minor portion of a lateral edge thereof within said bill receiving chamber;
(h) means for engaging a major portion of the vertical di-

mension of a received bill from an engagement position proximate the supported lateral edge of said bill;

(i) means for articulating said bill-engagement means from a first home position proximate one side of said bill-receiving chamber opposite said open end across said chamber



and through said open end past said flange members and back into said home position whereby to carry a bill from said bill-receiving chamber into said bill receptacle; and

(j) a coin token receptacle subjacent said bill support means and communicating through said bill receiving chamber with the slot of said exterior housing.

4,332,349

CENTRIFUGE

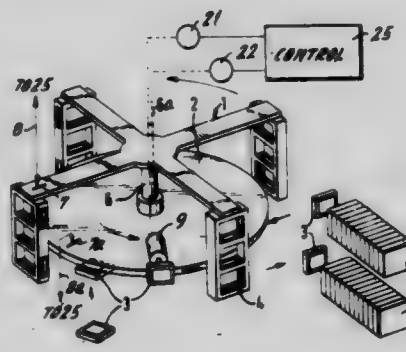
Jürgen Dietrich, Lilienthal; Hansjörg Klotz, Sottrum, and Bernd Hofer, Lemwerder, all of Fed. Rep. of Germany, assignors to Erno Raumfahrttechnick GmbH, Bremen, Fed. Rep. of Germany

Filed Aug. 13, 1980, Ser. No. 178,155

Claims priority, application Fed. Rep. of Germany, Aug. 14, 1979, 2932849

Int. Cl.³ B04B *9/10, 11/00*

U.S. Cl. 233—1 R **7 Claims**



1. In a centrifuge having a first rotor for receiving carrier and holder units containing, e.g., biological specimens, the rotor having a shaft, the improvement comprising:

at least one additional rotor mounted concentrically to said shaft, but being independently rotatable, the additional rotor being provided with means for holding a carrier and holder unit;

means for driving the additional rotor independently from the centrifuge rotor; and

control means connected to the means for driving for synchronizing the rotoational speeds of the rotor and the additional rotor, to permit transfer of a carrier and holder unit from one to the other.

4,332,350

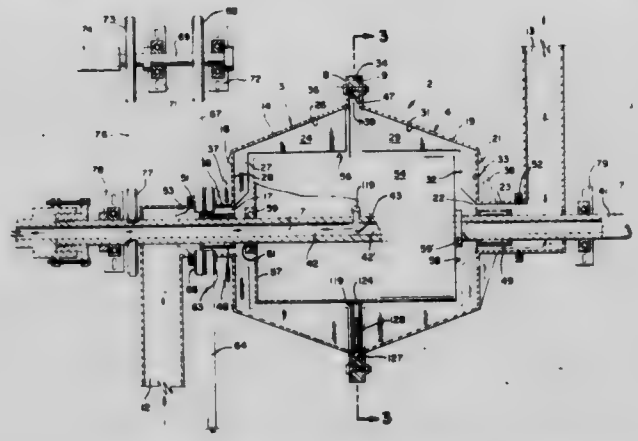
CENTRIFUGE APPARATUS FOR SEPARATING ENTRAINED SOLIDS FROM INDUSTRIAL WASTE WATER

Jack A. McClellan, 15285 Charmeran Ave., San Jose, Calif. 95124

Filed Jul. 30, 1980, Ser. No. 173,736

Int. Cl.³ B04B *11/081, 1/00*

U.S. Cl. 233—7 **16 Claims**



1. In a centrifuge apparatus for separating entrained solids from industrial waste water, the combination comprising:

(a) a housing assembly rotatable about a central axis and having inlet and outlet passageways for the admission of industrial waste water containing a high proportion of entrained solids and for the discharge of such industrial waste water after a large proportion of the solids have been removed therefrom, said housing assembly including rotatable inner and rotatable outer housing shells defining therebetween a passageway for said industrial waste water between said inlet and outlet passageways;

(b) a collection chamber for collecting said solids within said housing assembly;

(c) rotatable shaft means on which said housing assembly is rotatably mounted, at least one portion of said shaft means having a central bore therethrough for the discharge of solid material extracted from said industrial waste water stream; and

(d) dredge means mounted within said housing assembly on said rotatable shaft means and movable through said collection chamber for picking up segregated solids extracted from said industrial waste water stream and transporting said solids to the exterior of said housing through said hollow shaft means.

4,332,351

BLOOD FRACTION EXTRACTING CENTRIFUGE

Robert M. Kellogg, and Victor R. Kruger, both of Washington Crossing, Pa., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,409

Int. Cl.³ B04B *1/04, 11/06*

U.S. Cl. 233—38 **4 Claims**

1. A blood separation centrifuge for providing a plurality of plasma samples from a sample volume of whole blood, comprising, in combination,

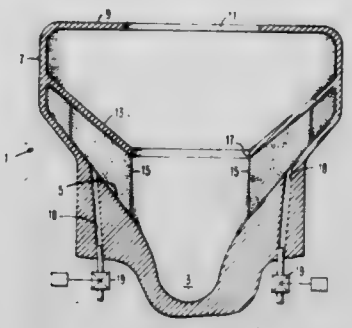
a centrifuge rotor element

a central sample well in said rotor element

a plurality of radially oriented sample chambers in said rotor element, each adapted to receive blood from said well in response to centrifugal force exerted on the blood in said well, said chambers being at least partially defined by a plurality of septa extending radially from a first locus disposed near the axis of the centrifuge to a second locus near the outer wall of the centrifuge and spaced from said

outer wall to provide a communicating channel for said chambers, and

a corresponding plurality of extraction ports, one for each sample chamber, for draining plasma from the associated



chamber after the plasma has been separated by centrifugal force, said ports being spaced radially inward from the wall of the centrifuge by a predetermined distance representing the location of the plasma after its separation.

4,332,352

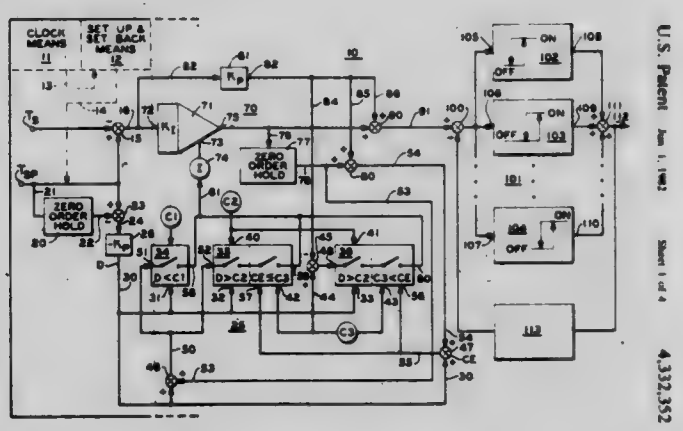
MULTISTAGE THERMOSTAT USING INTEGRAL INITIATION CHANGE MEANS

Thomas S. Jaeger, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 30, 1981, Ser. No. 229,690

Int. Cl.³ G05D *23/12;* F23N *5/20;* F25B *29/00*

U.S. Cl. 236—1 E **10 Claims**



1. A multistage thermostat adapted to operate a heating plant having primary heating means and secondary heating means, including: temperature sensing means having an output signal responsive to an ambient temperature to be controlled by the operation of said heating plant; variable temperature setpoint means having an output signal to set said thermostat to control said ambient temperature by the operation of said heating plant; clock means to provide a continuous series of timed intervals; first summing means having inputs connected to receive said sensing means signal and to receive said setpoint means signal with said summing means including output means having a signal representative of a current temperature error; previous temperature setpoint means having an output signal equal to said setpoint output signal at an interval of time prior to a current interval of time; second summing means having inputs connected to receive said two setpoint output signals to provide a difference output signal from said two setpoint means for each successive interval of time; signal processing means including integrator means being initiated with a stored integral value and having an integral reset output means, and further having previous integral reset output means; said signal processing means further including proportional constant means having an output proportional to its input; said signal processing means having an input connected to said first summing means to receive said current temperature error signal; said signal processing means having output means providing a continuous composite error signal, a previous integral reset output signal, and a current error output signal; comparator means having input means connected to compare said output signals from said second summing means, said previous integral reset output means, and said current error output signal from said signal processing means; said comparator means having output means connected to said integrator means to reinitiate the stored integral value of said integrator means upon said comparator means measuring a predetermined level of change between said temperature setpoint output signal and said temperature sensing means output signal; and multistage cycler means having input and output means; said multistage cycler input means connected to receive said continuous composite error signal; said cycler output means adapted to be connected to said heating plant and having a staged output signal responsive to said continuous composite error signal from said signal processing means to progressively stage said primary heating means and said secondary heating means of said heating plant.

4,332,353

PROCEDURE FOR MECHANICALLY RAISING THE WOOD CONTENT IN WOOD CHIPS

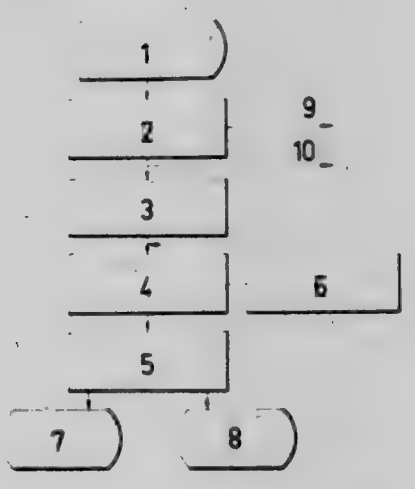
Heikki Lario, Lahti, and Matti Haimila, Kartano, both of Finland, assignors to Kone Osakeyhito, Helsinki, Finland

Filed Dec. 20, 1979, Ser. No. 105,542

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2856020

Int. Cl.³ B02C *17/00*

U.S. Cl. 241—14 **3 Claims**



1. An improved process for mechanically raising wood content of wood chips in a dry state, including the steps of: initially screening dry wood material in a disk sieve for removing oversize bodies therefrom; introducing said material into a grinder drum having grinder bodies, such as balls; rotating said drum with said dry wood material to thereby detach bark and green matter therefrom to yield dry wood chips; comminuting said bark and green matter; screening of said dry chips by thickness sorting; directing excessively thick chips to a disk chopper for crushing and subsequent thickness sorting; directing dry chips passing through said subsequent thickness sorting to a separation sifter; and further separating said dry chips from said bark and green matter by additional screening.

4,332,354

PROCESS FOR PREPARING TRANSPARENT IRON OXIDE PIGMENT DISPERSIONS

Francis G. deMonterey, Hopkins; Bharat J. Adhia, and David M. Johnson, both of Holland, all of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Jan. 2, 1981, Ser. No. 221,969
Int. Cl.[3] B02C *17/14*; C03C *3/00, 3/08, 3/10*
U.S. Cl. 241—16 10 Claims

1. A process for preparing transparent iron oxide dispersions comprising

milling a mixture of iron oxide pigment and liquid vehicle in a bead mill containing glass beads having a diameter of 0.1 millimeter to 2.0 millimeters, and a density of 2.50 to 4.00 g/cc, wherein said glass beads consist essentially of

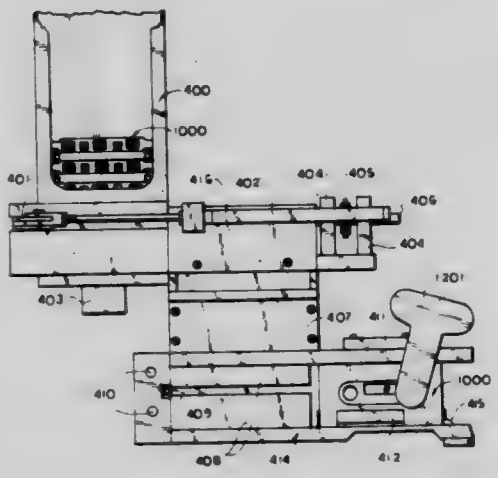
A. 58 percent to 70 percent by weight of SiO_2,
B. 0 percent to 25 percent by weight of PbO,
C. 5 percent to 9 percent by weight of K_2O,
D. 4 percent to 11 percent by weight of Na_2O,
E. 2 percent to 3 percent by weight of B_2O_3,
F. 0 percent to 5 percent by weight of BaO,
G. 0 percent to 5 percent by weight of CaO,
H. 0 percent to 2 percent by weight of Al_2O_3, and
I. 0 percent to 2 percent by weight of trace elements.

4,332,355

METHOD AND APPARATUS FOR AUTOMATICALLY LOADING TAPE CARTRIDGES WITH SUPPLY TAPE

Rainer K. Zopfy, Ronkonkoma; Robert F. Nolan, Manorville, and Carl J. Stapf, Shirley, all of N.Y., assignors to Raikon Research Corporation, Ronkonkoma, N.Y.

Filed Jun. 26, 1980, Ser. No. 163,318
Int. Cl.[3] B65H *19/20, 19/16*
U.S. Cl. 242—56 R 25 Claims



1. Apparatus for loading supply tape into tape cartridges of the type having two internal hubs and a tape member initially connected at its ends to said hubs, said apparatus comprising:

first and second winding assemblies each adapted to receive and releasably hold a cartridge;

a cartridge positioning assembly for receiving cartridges fed thereto from a cartridge supply, said positioning assembly comprising a support seat for said cartridge, means for selectively aligning said cartridge with said first or second winding assembly and means for positioning a cartridge into said first or second winding assembly;

tape support means adapted to support and selectively align the tape member of a cartridge positioned in either of said first or second winding assemblies with said supply tape;

extractor means for extracting a portion of the respective tape members from the cartridges positioned in either of said first or second winding assemblies and positioning said extracted portion on said tape support means;

cutting means for cutting the supply tape and the respectively extracted tape members supported and aligned on said tape support means;

splicing means for joining aligned ends of said supply tape and at least one of said extracted tape members;

drive means for rotating the hub of at least one of the cartridges positioned in said first or second winding assembly to wind said supply tape thereon; and

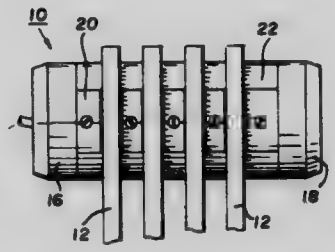
means for removing a loaded cartridge from its respective winding assembly.

4,332,356

CHUCK FOR SIMULTANEOUSLY WINDING A PLURALITY OF NARROW PRODUCT STRIPS ON CORES

Lawrence R. Damour, 16 Chesler Sq., Succasunna, N.J. 07876

Filed Feb. 23, 1981, Ser. No. 236,673
Int. Cl.[3] B65H *75/18*
U.S. Cl. 242—72 B 15 Claims



1. A chuck for winding strip material of narrow width on narrow cores carried and rotated by said chuck with the build-up of said strip windings on the core accommodated by slip provided by the chuck, said chuck being expanded locally by pressurized air or fluid means, the assembly of this chuck including:

(a) an inner support member having and providing an outer support surface;

(b) front and rear end caps and means for retaining said caps to the inner support member;

(c) a plurality of fixed separators adjacent to and carried by the inner support member and extending between said end caps providing thereby a minimum diameter over and along which the narrow cores may be slid;

(d) a plurality of movable leaf members interposed between the fixed supports, said leaf member in the retracted condition and position having an outward diameter providing a minimum diameter over and along which the narrow cores may be slid and positioned;

(e) a plurality of grooves of determined width and depth formed in the movable leaf member, and when said leaf members are moved to an outward condition each groove provides restraining shoulders sufficient to prevent unwanted movement of a narrow core along the chuck;

(f) cooperative means formed on the fixed separators and the movable leaf members to limit the outward movement of said movable leaf members;

(g) a plurality of tube retaining grooves formed in the inner support member with at least one groove disposed below each movable leaf member and positioned adjacent and outwardly from the groove formed in the movable leaf member;

(h) a resilient tube carried in each retaining groove, said resilient tube adapted for expansion to determined limits by an input of pressurized air or fluid;

(i) a plurality of saddle members carried in each tube retaining groove and movable outwardly and inwardly with the expansion and contraction of said tube;

(j) at least one drive member carried by each saddle member and movable with said saddle member so as to move the drive member into engagement with the inner diameter of a narrow core;

(k) spacing means to provide guide segments carried by each movable leaf member and to provide retaining guides for the saddle members, and

(l) inlet means providing a conductor for carrying pressurized air or fluid to and from the resilient tubes, whereby the pressurized air or fluid is fed to said resilient tube so that the movable leaf members and drive members carried therewith are moved outwardly to provide restraining shoulders and drive means for each narrow core, reduction and release of the pressure on said resilient tube allows the leaf members and drive members to move to a condition and position whereat each narrow core may be removed from the chuck and replaced.

4,332,357

STRIP FEEDING

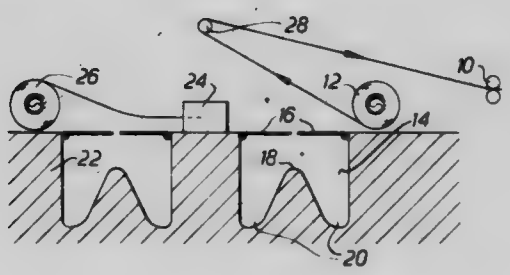
David A. Armstrong, Swansea, Wales, assignor to British Steel Corporation, England

Filed Aug. 25, 1980, Ser. No. 180,620

Claims priority, application United Kingdom, Aug. 21, 1979, 7929076

Int. Cl.³ B21C *47/02*; B65H *19/08, 19/18*

U.S. Cl. 242—78.1 **10 Claims**



1. A method for producing continuous feed of strip from finite lengths comprising producing a plurality of coils by winding each strip on to a mandrel having at least two portions separated by a gap between which the strip is located and completing a series of cycles, each cycle comprising unwinding one of said coils to feed the head thereof into apparatus requiring said continuous feed and to feed the tail-end thereof to a fixed station whilst storing the balance of the tail end of said coil in a first accumulator, and unwinding another of said coils to feed the head thereof to the fixed station for attachment to the tail end of said one coil whereby to maintain a continuous feed; the tail end of said other coil subsequently being fed to said fixed station whilst the balance of its tail end is stored in a second accumulator.

4,332,358

SPIN CASTING TYPE FISHING REEL WITH IMPROVED DUAL CRANK BEARING RETENTION MEANS

Henry L. Neufeld, Tulsa, Okla., assignor to Brunswick Corporation, Skokie, Ill.

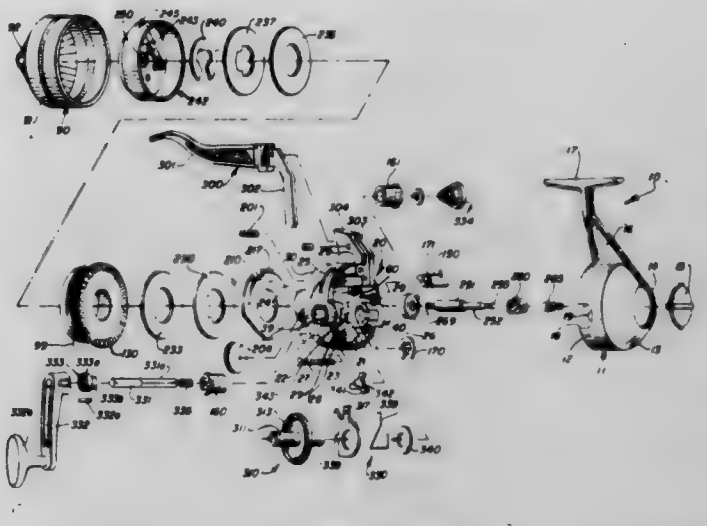
Filed Dec. 22, 1980, Ser. No. 218,925

Int. Cl.³ A01K *89/01*

U.S. Cl. 242—84.2 A **5 Claims**

1. In a spin casting style fishing reel (10) of the type which has a cylindrical reel body (20) with a transverse deck plate (21) and circumferential forward (22) and rearward (23) body portions which extend, respectively, fore and aft of said deck plate (21) and have external (23*a*) and internal (23*b*) surfaces, a pair of integral, hollow bosses (39 and 40) at opposite sides of the rearward reel body portion (23), said bosses being axially aligned with one another and having respective outer projections (41 and 42) extending outwardly of said external surface (23*a*) and respective inner projections (43 and 44) extending inwardly of said internal surface (23*b*), a crank bearing sleeve means (160 and 161) in each of said hollow bosses (39 and 40), each of said sleeve means being axially slidably mounted in a boss, gear crank assembly means (310) journalled in the crank bearing sleeve means (160 and 161), a back housing (11) for said reel which has a cylindrical cover (12) mating with the periphery of the rearward circumferential body portion (23), and means (27) detachably securing said back housing (11) to said cylindrical body (20), the improvement comprising, in combination:

transversely extending interengaging means (45, 46 and 164) on each of said hollow bosses (39 and 40) and crank bearing sleeve means (160 and 161) which fix the rotational orientation of the bearing sleeve means (160 and 161) in the bosses, and abutting surfaces (46, 47 and 165) on said bosses and said sleeve means which limit inward movement of said sleeve means in said bosses;



an inwardly facing surface (51 or 52) on a rearward part of each hollow boss (39 or 40) and an outwardly facing surface (167) on a rearward part of each sleeve means (160 or 161), each of said inwardly (51 or 52) and outwardly (167) facing surfaces forming the outer and inner sides, respectively, of a rearwardly open recess;

and a forwardly projecting means (19) at each side of the back housing (11), each said forwardly projecting means (19) extending into one of said recesses to restrict lateral outward movement of one of the crank bearing sleeve means (160 or 161).

4,332,359

TENSIONING MEANS FOR REEL-TO-REEL TAPE TRANSPORTS

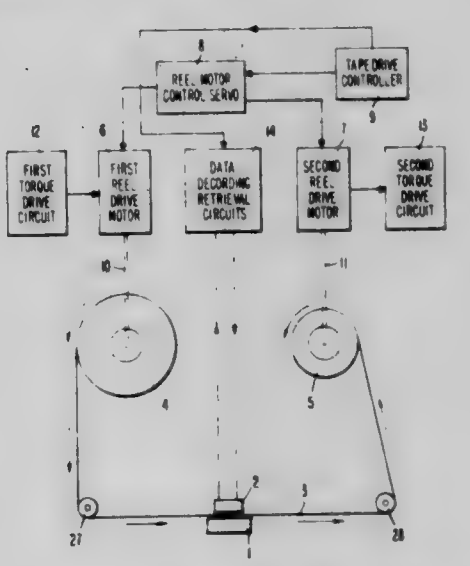
Eugenio Berti, Falkland, Scotland, assignor to Burroughs Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 91,440, Nov. 5, 1979, abandoned. This application Jan. 12, 1981, Ser. No. 223,961

Claims priority, application United Kingdom, Nov. 28, 1978, 46352/78

Int. Cl.³ G03B *1/04*; G11B *15/32*

U.S. Cl. 242—203 **4 Claims**



1. A reel-to-reel tape drive system for driving payout and takeup reels comprising:

first and second reel driving means mechanically coupled to

said payout and takeup reels respectively for driving said payout and takeup reels;

a reel driving means control circuit for applying primary control signals to said first and second reel driving means and for generating secondary control signals;

a first torque driving circuit responsive to said secondary control signals for continuously providing a first tensioning control signal to said first reel driving means, said first tensioning control signal being insufficient in magnitude when compared to said primary control signals to substantially affect the movement of said payout reel when said first reel driving means is receiving primary control signals but sufficient in magnitude to activate said first reel driving means to take up slack and provide tension in said tape when said first reel driving means is not receiving primary control signals; and

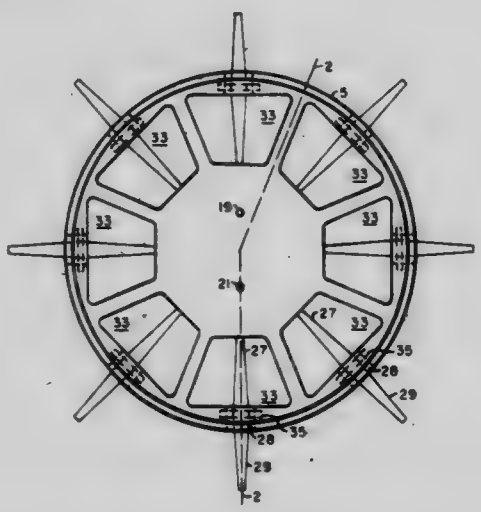
a second torque driving circuit responsive to said secondary control signals for continuously providing a second tensioning control signal to said second reel driving means, said second tensioning control signal being insufficient in magnitude to when compared to said primary control signals to substantially affect the movement of said takeup reel when said second reel driving means is receiving primary control signals but sufficient in magnitude to activate said second reel driving means to take up slack and provide tension in said tape when said second reel driving means is not receiving primary control signals.

4,332,360

AUTOMATICALLY DEPLOYED SHELL FINS

Roger O. Topliffe, Amherst, N.H., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 21, 1980, Ser. No. 170,341
Int. Cl.³ F42B *13/32*
U.S. Cl. 244—3.27 **5 Claims**



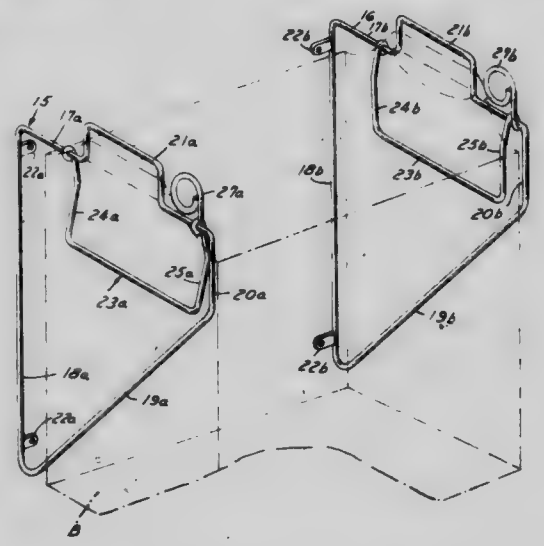
1. A guided artillery shell having automatically deployed tail fins, comprising, a generally cylindrical fin support frame attached to the aft end of said shell's body, said frame having a plurality of large, equally spaced pressure equalizing ports in its aft end and an equal plurality of fin slots equally spaced around the periphery of said frame, said frame further comprising a central rod extending from the center of its aft end to the center of the aft end of said shell's body, a piston with a central hole slidably mounted on said central rod and held, prior to muzzle exit, against said aft end of said frame by means of a shear pin passing through a shoulder on said piston and said central rod, said piston including a pressure chamber formed by a recess therein and the inside of said aft end of said frame, a plurality of small pressure control holes in said aft end of said frame communicating with said pressure chamber, a set of tail fins pivoted near one edge of their inboard ends on pins mounted in said frame, the opposite edge of said inboard ends of said fins having a projection thereon which, prior to muzzle exit, is latched under a flange on the outside of said piston, the fins completely stowed inside said frame prior to launch, whereby upon firing of said shell, the gun chamber gases will pressurize said piston pressure chamber through said pressure control holes and upon muzzle exit the pressure therein will force the piston forward, breaking said shear pin and unlatching said stowed tail fins which will then pivot around said pins to the deployed position, passing through said fin slots, with the projections thereon stopping against the forward edge of said fin slots.

4,332,361

BAG HOLDER SUPPORT SYSTEM

Thomas A. McClellan, 8888 Riverside Dr. East, Windsor, Ontario, Canada (N8S 1H2)

Filed Dec. 31, 1980, Ser. No. 221,535
Int. Cl.³ B65B *67/12*
U.S. Cl. 248—95 **15 Claims**



1. A bag holder support system for a bag having spaced oppositely extending walls with a handle portion formed by an opening in the walls comprising

a pair of brackets,

said brackets being adapted to be mounted on a wall, door or the like,

each bracket having a horizontal portion with a central upwardly extending portion for receiving the handle opening of one side of a bag,

said horizontal portion of each bracket extending horizontally away from the upwardly extending portion of each bracket thereby suspending one wall of the bag,

and bag holding means on each said bracket movable into position after a bag is suspended on the bracket to hold the wall of the bag in position and maintain the wall so that the bag is held open,

means for locking said bag holding means in bag holding position,

said bag holding means comprising a second bracket,

said locking means comprising a portion of said second bracket cooperating with the upstanding portion of the first mentioned bracket.

4,332,362

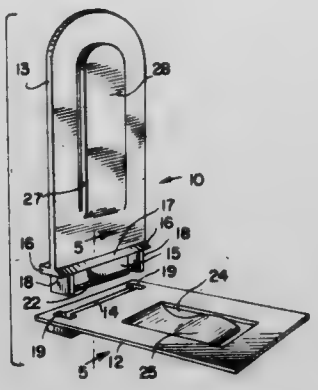
TELEPHONE NOTE CLIP

Norbert Leopold, Chicago, Ill., assignor to The Cloverline Inc., Chicago, Ill.

Filed Mar. 10, 1980, Ser. No. 128,734
Int. Cl.³ G09F *3/00*; A44B *21/00*
U.S. Cl. 248—226.5 **2 Claims**

1. A telephone note clip comprised of a base portion and an upright portion, said base portion having a fastening device for removably securing the note clip to a telephone set, said upright portion having a note retaining member on a face thereof directed toward the telephone, said fastening device and said retaining member being integral with said base portion and

upright portion respectively, said base portion and said upright portion being made from a molded plastic material and comprise separately molded parts, said separately molded parts being secured together by a snap-fit, said snap-fit including an open slot in one of the parts and a tongue on the other part



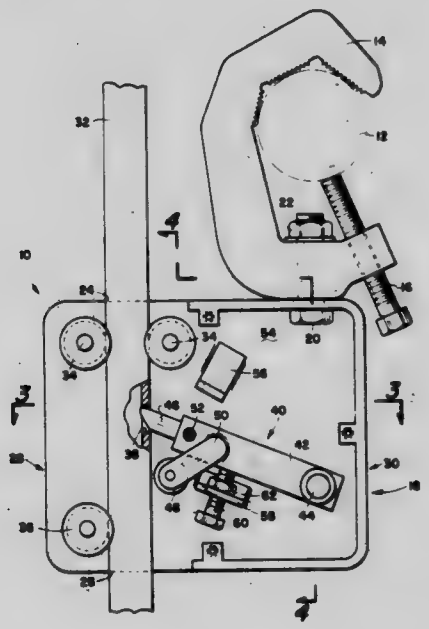
entered into said slot, and oppositly projecting edges on the tongue in opposed relation to opposite edges of the slot to prevent withdrawal of the tongue, said tongue being provided with vertical end walls disposed perpendicular to the tongue and said slot includes end portions correspondingly shaped to receive said end walls.

4,332,363

ADJUSTABLE LIGHT HANGER

Don E. Ware, 4963 E. 26th Pl., Tulsa, Okla. 74114

Filed Feb. 4, 1980, Ser. No. 118,542
Int. Cl.[3] F16L *3/12*; F21S *1/02*
U.S. Cl. 248—321 **6 Claims**



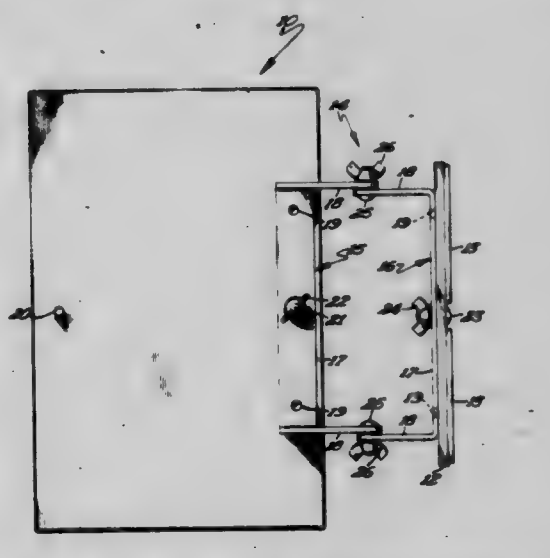
1. An adjustable support device for appliances comprising a housing having a first and second side and with top and bottom aligned openings therethrough, said housing having clamp means for removable attachment to a support member; an elongated support means having a first and second side passing through said openings in said housing, said elongated support means having a plurality of aligned openings therein on a first side thereof; a plurality of opposed rollers mounted within said housing adjacent said top openings therein, one of said rollers being in contact with said first side of said elongated support means and a second of said rollers being in contact with said second side of said elongated support means; a lower roller mounted within said housing below said second of said rollers and adjacent said bottom opening therein and being in contact with said second side of said elongated support means; locking means pivotally mounted within said housing and co-operable with said openings in said elongated support means, said locking means having a guide means extending therefrom and in contact with said first side of said support means whereby when said elongated support means is in the aligned vertical position said locking means permits upward vertical movement and prevents downward vertical movement and when said elongated support means being canted from the vertical position towards said locking means, said guide means displaces said locking means to allow upward and downward vertical movement.

4,332,364

EASEL

Gerald S. Beskin, Minneapolis, Minn., assignor to Therapac Div., Krelitz Industries, Inc., Minneapolis, Minn.

Filed Jan. 7, 1980, Ser. No. 109,836
Int. Cl.[3] B41J *11/02*
U.S. Cl. 248—442.2 **6 Claims**



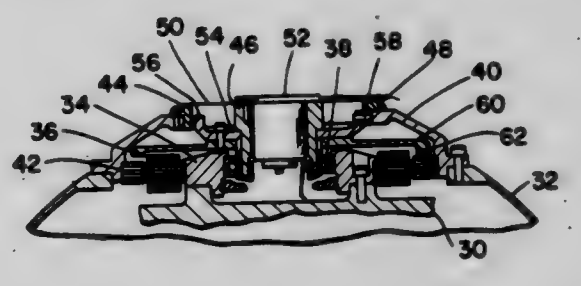
1. In an easel of the type having generally planar material prop means and means supporting said prop means at an attitude, the improvement wherein said supporting means comprises plate means adapted to be affixed to a surface and hinge means formed of first and second members each having a base and extending legs, the base of said first and second members being secured to a different one of said prop means and plate means by means for allowing a selective relative rotational movement between said member bases and said prop means and plate means about axes generally perpendicular to the associated one of said prop means and plate means, said legs being secured to each other by means for allowing a selective relative pivoting movement of said first and second members about an axis spaced from said bases, said selective relative movements providing prop means attitude reorientation.

4,332,365

FLEXURE MOUNTED GIMBAL SUPPORT ASSEMBLY

Edmund C. Berk, Danvers, Mass., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 12, 1979, Ser. No. 84,274
Int. Cl.[3] G01C *19/18*
U.S. Cl. 248—544 **5 Claims**



1. In a gimbal support system of the type including a stable

platform for holding inertial components, a torque motor for providing driving torque between the gimbals, the rotor of the torque motor fixed relative to the stable platform and energized by brushes which are not fixed relative to said platform, and a slip ring assembly for enabling external electrical connection to said brushes and inertial components, the improvement being apparatus for rotatably coupling said stable platform to said gimbal, said apparatus minimizing the effects of friction on rotating parts, which comprises:

(a) an antifriction ball bearing having an inner race and an outer race, the outer race of said bearing being rigidly coupled to the inner surface of said rotor and said stable platform;

(b) an inner ring having its outer surface rigidly coupled to the inner race of said bearing and to said brushes, the aperture of said inner ring being adapted for rotatably supporting said slip ring assembly therein;

(c) an outer ring concentric with said inner ring having its outer surface rigidly coupled to said gimbal;

(d) a plurality of flexure elements coupled between the outer surface of said inner ring and the inner surface of said outer ring, said flexure elements allowing relative rotational movement between said inner ring and said outer ring; and

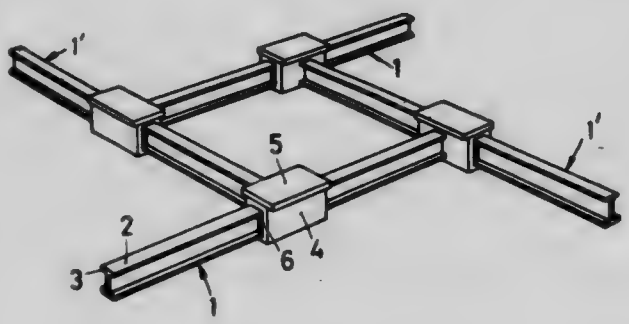
(e) the resistance to rotational motion provided by said flexure elements being less than the resistance to said motion provided by said bearing for a preselected angle of rotation and less than the resistance to said motion provided by said slip ring assembly for said preselected angle of rotation, whereby there is no relative motion between the brushes and the rotor, between the slip ring assembly and the inner ring, and between the inner race and outer race of the bearing for rotational motion within the preselected angle, thereby minimizing effects of friction for rotational motion within said preselected angle.

4,332,366

ADJUSTABLE QUADRANGULAR BASE FOR FRAMEWORK ASSEMBLING MACHINES

Buenaventura Descals Munt, Estacion St. 6, Sallent (Barcelona), Spain

Filed Apr. 2, 1980, Ser. No. 136,626
Claims priority, application Spain, Apr. 2, 1979, 479.998
Int. Cl.³ F16M 7/00
U.S. Cl. 248—670 **2 Claims**



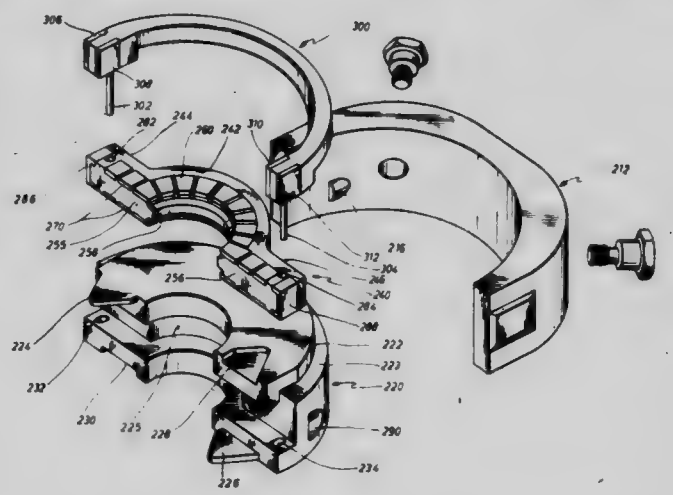
1. Improvements in an adjustable quadrangular base, such as for a framework assembling machine, comprising a group of four rigid elongated elements each having finished planar surfaces on the upper and lateral sides thereof, a rigid box-like member fixed to one end of each said elongated element, each said box-like member having an upper plate which defines thereon an upper surface which is coplanar with the upper surfaces defined on each other said box-like member, each said boxlike member having an opening extending therethrough in a direction which is parallel with said upper surface and perpendicular to the elongated direction of said element to which said box-like member is fixed, each said box-like member rotatably supporting thereon a plurality of cylindrical rollers including a pair of horizontally disposed rollers positioned adjacent the upper and lower sides of the opening for rollingly supportingly engaging the upper and lower sides of a said elongated element, said plurality of cylindrical rollers also including a pair of vertically disposed rollers positioned adjacent the opposite sides of the opening for rollingly supportingly engaging the opposite lateral sides of said latter elongated element, each said elongated element being rollingly and longitudinally movably supported within and projecting through a said box-like member which is fixed to a remaining one of the elongated elements so that there is defined a quadrangular arrangement whereby two said elongated elements define a first parallel pair which extends perpendicular to a second parallel pair as defined by the remaining two elongated elements, whereby the elongated elements can be movably longitudinally displaced through the box-like members to vary the size and shape of the rectangular arrangement defined by the upper surfaces of the four box-like members.

4,332,367

BLOWOUT PREVENTER HAVING A VARIABLE RAM SEAL

Norman A. Nelson, Houston, Tex., assignor to NL Industries, Inc., New York, N.Y.

Filed May 2, 1980, Ser. No. 146,077
Int. Cl.³ E21B 33/06
U.S. Cl. 251—1 A **12 Claims**



1. A blowout preventer, comprising:

a body member including a well bore for the reception of a drill string and having a plurality of ram chambers in a plane essentially perpendicular to the well bore;

a ram assembly in each of the ram chambers, each ram assembly includng a holder, a ram block releasably secured to the holder, and a compressible ram seal element carried by the ram block, the holder, block and seal being movable as a unit in a respective chamber essentially perpendicular to the well bore, the seal element being capable of use with a variety of pipe sizes and including:

an essentially semicircular section comprised of a resilient, compressible material and including an inward radial projection to seal against a pipe, a plurality of rigid support elements each of which includes a pair of essentially parallel support sections that are positioned on opposed sides of the semicircular section and that are interconnected by an integral web embedded in the compressible material, the web being essentially rectangular in cross section so that it includes a pair of major axis, the support elements being arranged such that the parallel sections and one of the axes of the interconnected integral webs of all the support elements are positioned essentially on a radius with respect to the axis of the semicircular section in their normal uncompressed position and such that the support section of each support element is spaced from the next adjacent support element by a distance sufficient to accommodate compression of the semicircular section, so that the resilient compressible material and the support elements move essentially radially upon the application of radial inward compressible forces, in order to seal around

various sized pipes, whereupon during the essentially radial movement of the support elements the parallel sections and integral webs essentially maintain their position on a radius, and

radial flange sections extending outwardly from diametrically opposed positions on the semicircular section, each flange section being integral with the essentially semicircular section and including at least one rigid support element in addition to the support elements of the semicircular section, which additional support element includes a pair of essentially parallel sections on opposed sides of the flange and which include an integral web embedded in the compressible material and rigidly interconnected with both the parallel sections.

4,332,368

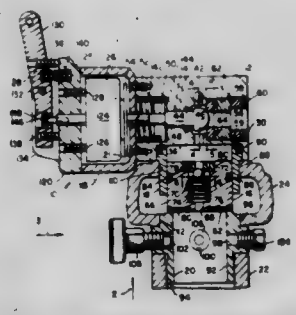
VALVE

Orest Woloszczuk, Warren, Mich., assignor to Crown Systems Company, Madison Heights, Mich.

Filed Aug. 21, 1978, Ser. No. 935,352

Int. Cl.³ F16K *31/02*

U.S. Cl. 251—30 **16 Claims**



1. Valve structure comprising a valve body, a pilot valve within the valve body, a poppet valve having an axis along which it operates positioned exterior of and operably associated with the valve body and pilot valve for actuation along its axis in response to actuation of the pilot valve and having check valve means positioned axially therein through which a container to which the valve structure is secured is filled with a material in a direction from the pilot valve and through the poppet valve for sealing the poppet valve means forming a pressure chamber between the poppet valve and pilot valve in conjunction with the valve body to receive said material for sealing the poppet valve, separate means for securing the valve structure to a container to be evacuated on actuation of the poppet valve including a valve seat for receiving the poppet valve to seal the container, a poppet valve guide sleeve mounted between the poppet valve and valve body for slight pivotal movement about one end relative to the valve body receiving the poppet valve and guiding its movement between the separate means for securing the valve structure to the container and the valve body to ensure proper seating of the poppet valve on the valve seat, a separate manifold surrounding the poppet valve receiving the sleeve in one end thereof at the valve body and receiving the securing means in the other end thereof through which material from the container is discharged on opening of the poppet valve by opening the pilot valve and expelling the material in said pressure chamber through said pilot valve, means securing the separate valve body, guide sleeve, poppet valve, securing means and manifold together and means for actuating the pilot valve operably associated with the pilot valve.

4,332,369

ADJUSTABLE IN-LINE INTRAVENOUS VALVE WITH LOCKING MECHANISM

Marvin Gordon, East Windsor, and Joseph Lichtenstein, Colonia, both of N.J., assignors to Whitman Medical Corporation, Clark, N.J.

Filed Jul. 14, 1980, Ser. No. 168,722

Int. Cl.³ F16K *35/02*

U.S. Cl. 251—114 **8 Claims**

1. A valve for controlling fluid flow through intravenous supply tubing, comprising:

a body member having a horizontal passage extending therethrough and means for connecting said passage in series with said intravenous tubing said body member including a first mating element;

selectively movable valving means, including a valve member disposed in said passage, for adjustably blocking flow through said passage by moving said member within said passage, said valving means including a movable actuator for said valve member at least partially received within said body member, and means securing said actuator to said body member; and



locking means formed as an integral part of said body member, separate from said actuator and selectively pivotable independently of said actuator between open and closed positions, said locking means including a bearing surface which in said closed position bears against said actuator to prevent inadvertent movement of said valve member, said locking means in said open position being out of contact with said actuator to permit movement of said valve member said locking means further including a second mating element which engages said first mating element in said closed position.

4,332,370

FLUID FLOW CONTROL VALVE, PRINCIPALLY OF THE BALL OR PLUG TYPE

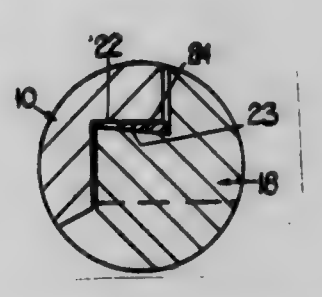
William F. Williams, Newport, England, assignor to Serck Industries, Limited, Birmingham, England

Filed Jul. 24, 1980, Ser. No. 172,022

Claims priority, application United Kingdom, Aug. 10, 1979, 7927912

Int. Cl.³ F16K *31/44*

U.S. Cl. 251—214 **9 Claims**



1. A firesafe fluid control valve comprising a body made of firesafe material and having both a fluid passage therethrough and a stepped opening therein, a valve member mounted in said body for movement between a first position in which said valve member permits fluid flow through the fluid passage and a second position in which said valve member prevents fluid flow through the fluid passage, a stem made of firesafe material connected to said valve member and rotatably extending through said stepped opening in said body for rotation about a rotation axis, means on said body for defining a first shoulder facing the fluid passage, said defining means comprising said stepped opening, means on said stem for defining a second shoulder facing said first shoulder, said second shoulder including an outer periphery, and sealing means interposed between said first and second shoulders, said first shoulder having an outer periphery, said first and second shoulders normally being spaced apart by said sealing means, said first shoulder comprising means spaced inwardly from said first shoulder outer periphery for contacting said second shoulder only at said outer periphery of said second shoulder upon failure of said sealing means.

4,332,371

CARPET REMOVING APPARATUS AND METHOD

Dwain C. Bell, 1400 Marshall St., NE., Minneapolis, Minn. 55413, and Lloyd E. Anderson, 6408 - 74th Ave. North, Minneapolis, Minn. 55428

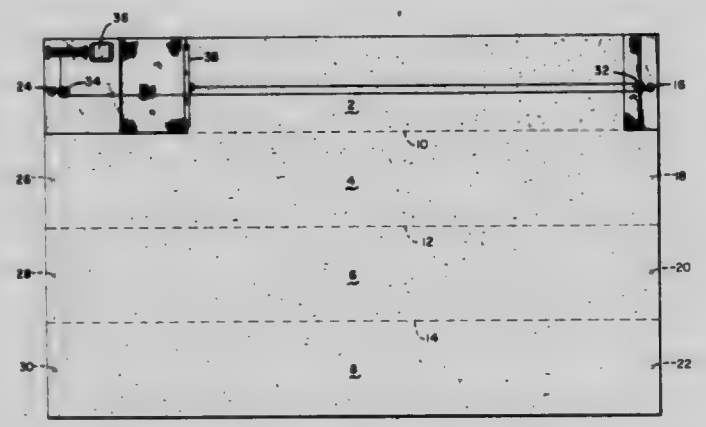
Filed Oct. 6, 1980, Ser. No. 194,597
Int. Cl.[3] B66D *1/00*
U.S. Cl. 254—203 2 Claims

1. A method of stripping a floor covering from a floor surface to which said floor covering had been adhesively bonded, comprising the steps of:

(a) loosening opposing first and second edges of said floor covering from the floor surface inwardly for a relatively short predetermined distance from each end thereof to expose the underlying floor surface;

(b) anchoring first and second pulleys to the floor surfaces so exposed;

(c) routing a rope or cable from a power winch through said first pulley, across the floor covering to be removed,



through said second pulley and back to said first edge of said floor covering proximate said first pulley;

(d) clamping said first edge of said floor covering proximate said first pulley along a predetermined width thereof in an elongated clamping means;

(e) fastening said cable or rope to said clamping means; and

(f) energizing said power driven winch to apply a pulling force to said first edge of said floor covering to thereby peel the floor covering from said floor surface in a direction away from said first pulley until said clamping means is proximte said second pulley.

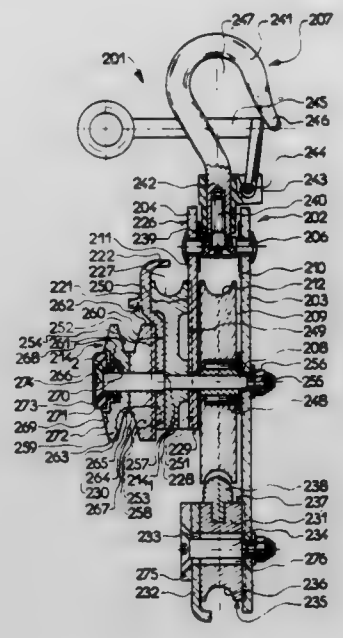
4,332,372

HOISTING DEVICE

Edouard Singer, 53, rue de Mulhouse, 68790 Morschwiller-Le-Bas, France

Continuation-in-part of Ser. No. 927,364, Jul. 24, 1978, Pat. No. 4,264,056. This application Feb. 18, 1981, Ser. No. 235,552
Claims priority, application France, Jul. 27, 1977, 77 2369o
Int. Cl.[3] B66D *3/04*
U.S. Cl. 254—391 10 Claims

1. A hoisting device, in particular a block, comprising a case having spaced first and second sides, means at the top of said case for suspending said case from a support, a shaft extending between said sides of said case and projecting beyond said first side thereof, a rotatable sheave disposed between said sides of said case and rotatably supported by said shaft, a first non-rotatable sheave fixed on said shaft against an outer face of said first side of said case, a second non-rotatable sheave fixed on said shaft against an outer face of said first non-rotatable sheave, a brake shoe mounted for vertical movement on an inner face of said second side of said case below said rotatable sheave, said brake shoe having on its lower face a rope-receiving groove and having on its upper face a convex portion for engagement with the groove of said rotatable sheave, said brake shoe being movable between an upper position in which it engages said rotatable sheave and a lower position in which it is disengaged from said rotatable sheave, and a rope which in hoisting condition passes over said rotatable sheave, in lowering condition passes from said rotatable sheave down under said brake shoe, then up over said first non-rotatable sheave and in locked



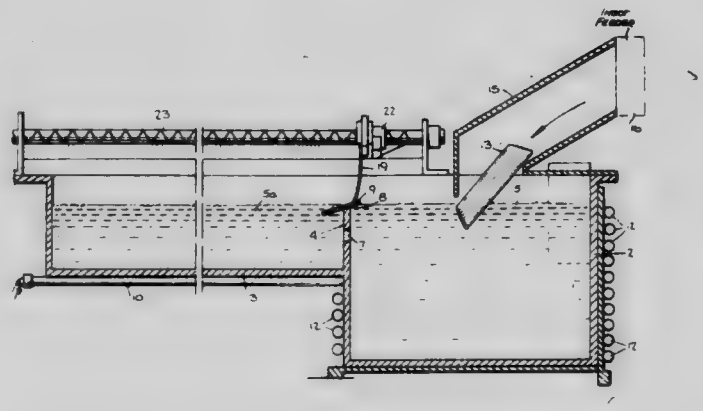
condition further passes around said second non-rotatable sheave.

4,332,373

SOLDER POT WITH REPLENISHER AND SKIMMER

Robert D. Huppunen, Cos Cob, and Theodore J. Morin, New Canaan, both of Conn., assignors to Thermatool Corp., Stamford, Conn.

Filed May 14, 1980, Ser. No. 149,767
Int. Cl.[3] C21B *3/04*
U.S. Cl. 266—228 21 Claims



1. Molten metal bath apparatus comprising:

a tank comprising a first section for molten metal and a second section for molten metal separated from said first section by a wall common to the first section and the second section and extending to the bottom of each section, said wall having an upper end and having at least one opening therein, the area of the opening or openings being small compared to the area of said wall so as to restrict the flow of heat between said first section and said second section but having a size which permits the flow of molten metal therethrough from said second section to said first section, whereby the temperature of the metal in said first section may differ from the temperature of the metal in said second section, said opening or openings being spaced from and below said upper end and being above the bottom of each section to provide a portion of said wall below the opening or openings which prevents the flow of molten metal between said first section and said second section except at the opening or openings and above said wall, whereby said first section and said second section may be filled with molten metal to a level above the opening or openings and below said upper end;

first heating means for heating metal in said first section to at least its melting temperature and including means for maintaining the temperature thereof substantially at a predetermined temperature; and

second heating means for heating metal in said second section to at least its melting temperature, said second heating means being operable independently of the level of molten metal in said first section and separately from said first heating means to permit rapid melting of solid metal inserted in said second section without increasing the heating by said first heating means.

4,332,374

PROFILOMETER MOUNTING TECHNIQUE AND APPARATUS

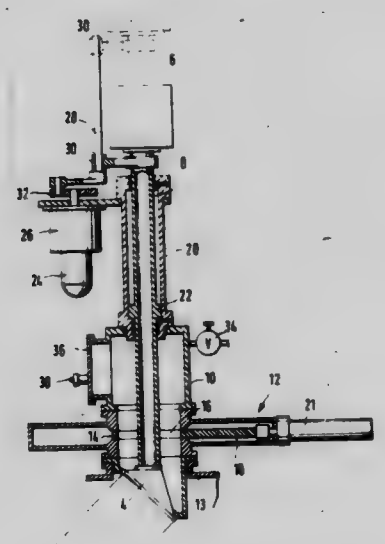
Victor Kremer, Luxembourg, Luxembourg, assignor to Paul Wurth S.A., Luxembourg

Filed Dec. 5, 1979, Ser. No. 100,499

Claims priority, application Luxembourg, Apr. 13, 1979, 81158

Int. Cl.[3] **C21B** *7/24*

U.S. Cl. 266—99 **13 Claims**



1. Apparatus for measuring the profile of the material deposited on the hearth of a pressurized shaft furnace, the furnace having a wall which is provided with an aperture therethrough, said apparatus comprising:

signal emitter means, said signal emitter means including the antenna means for directing a beam of radiant energy toward the furnace hearth;

housing means, said housing means defining an internal chamber of sufficient volumn and shape to accomodate said signal emitter means antenna means, said housing means having an opening through one side thereof and being mounted on the exterior of the furnace wall with the said opening therein in registration with the furnace wall aperture;

a moveable elongated tubular support member, said support member having an axis and extending into said internal chamber through a second side of said housing means, said signal emitter means antenna means being mounted on said support member for movement therewith;

means for imparting longitudinal movement along said axis to said support member whereby said antenna means may selectively be retracted into said housing means or extended out of said housing means through said opening to enable the beam of radiant energy to be directed to and reflected from the material on the furnace hearth;

means for imparting oscillatory motion about said axis to said support member to cause the beam of radiant energy to be scanned; and

valve means cooperating with said housing means opening to hermetically seal the interior of said housing from the interior of the furnace when said antenna means is in the retracted position.

4,332,375

COPY SHEET-FEEDING APPARATUS

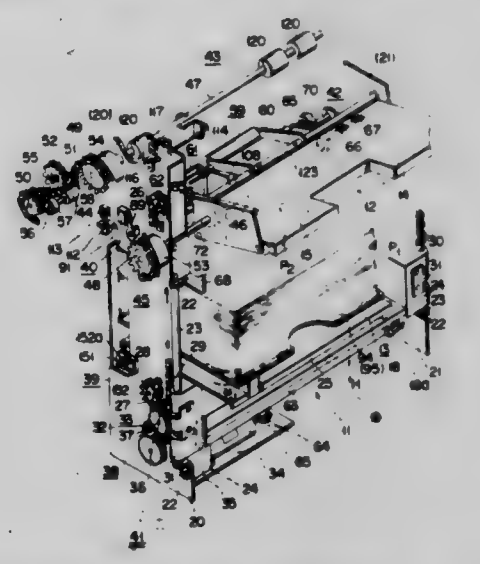
Shuzo Tsubo, Kawasaki, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed May 1, 1980, Ser. No. 145,878

Claims priority, application Japan, May 10, 1979, 54-57406; May 10, 1979, 54-57407; May 10, 1979, 54-57408; May 10, 1979, 54-57411; May 10, 1979, 54-57412; May 10, 1979, 54-57416

Int. Cl.[3] **B65H** *1/04, 1/12, 1/14, 3/44*

U.S. Cl. 271—9 **6 Claims**



1. A sheet feeding apparatus comprising:

first sheet-holding means having a sheet rest for supporting a stack of sheets which sheet rest is movable up and down between a sheet replenishing position and a sheet supply position;

second sheet-holding means having a cassette for supporting a stack of sheets and which is movable between a sheet replenishing position and a sheet supply position;

a sheet cover movable between a closed position at which it covers both the first and second sheet-holding means and an open position at which both of said first and second sheet-holding means are exposed;

a first drive mechanism for driving the first sheet-holding means between the sheet replenishing position and the sheet supply position;

a detection mechanism for detecting the open position and the closed position of the cover and for supplying to the first drive mechanism an open signal when the cover is open and a closed signal when the cover is closed, the first drive mechanism causing the sheet rest to (a) move from the sheet supply position to the sheet replenishing position in response to the open signal and (b) move from the sheet-replenishing position to the sheet supply position in response to the closed signal; and

a second drive mechanism for causing the cassette to (a) move from the sheet supply position to the sheet replenishing position in response to the movement of the sheet rest from its sheet supply position to its sheet replenishing position and (b) move from the sheet replenishing position to the sheet supply position in response to the movement of the sheet rest from its sheet replenishing position to its supply position.

4,332,376

MECHANISM FOR STACKING SEQUENTIALLY RECEIVED SHEETS

Richard L. Volpe, Hopedale, Mass., assignor to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Mar. 20, 1980, Ser. No. 132,317

Int. Cl.[3] **B65H** *31/10, 31/20*

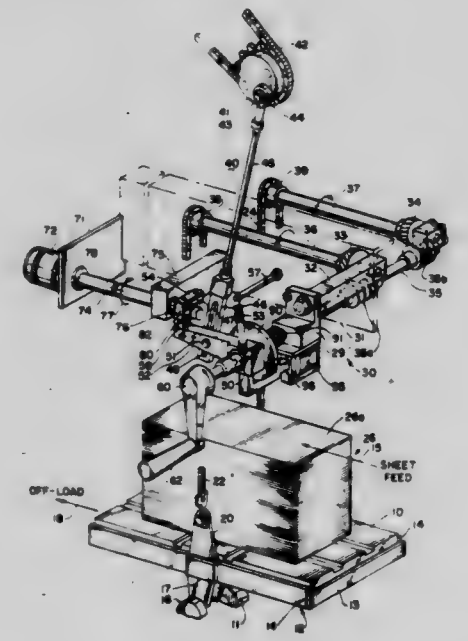
U.S. Cl. 271—217 **9 Claims**

1. A sheet stacking apparatus comprising:

a sheet-receiving table connected to a spindle means, rotation of the spindle means on its longitudinal axis causing vertical movement of the table;

reciprocating drive means for rotating the spindle means in a first direction by a predetermined amount less than a complete revolution for each reciprocation cycle of the drive means to incrementally lower the table, the drive means including a one-way ratchet-action clutch journaled on the spindle means and a reciprocating lever arm fixed to the clutch and extending radially from the axis of revolution of the spindle means, the clutch translating reciprocating movement of the lever arm into one-way incremental rotational movement of the spindle means;

means for raising the table from a lower position to a higher position; and



an adjustment mechanism for establishing the predetermined amount of incremental table lowering, the adjustment mechanism including a cam surface constituted by at least a portion of the outer periphery of at least a partially rotatable cam element and a cam follower means connected to the reciprocating drive means and continuously biased toward the cam surface, rotation of the element varying via the clutch the degree of motion transfer between the reciprocating drive means and the rotating spindle, the throw of the reciprocating drive means being generally constant.

4,332,377

COMPACT SORTER

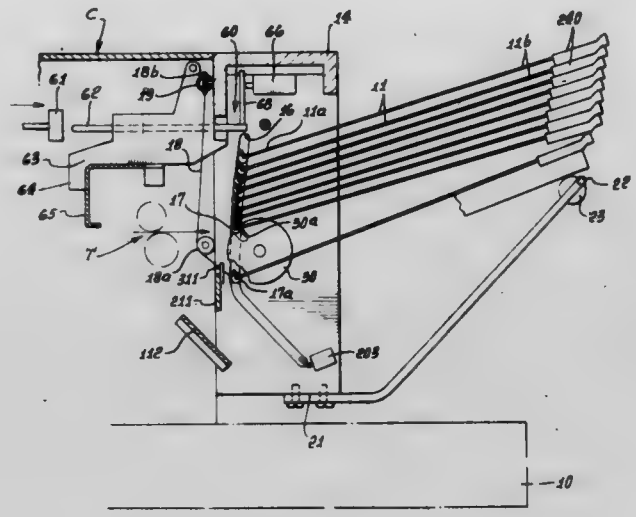
R. Clark DuBois, Fairfield, and John C. Hamma, Bridgeport, both of Conn., assignors to Gradco/Dendoki, Inc., Santa Ana, Calif.

Continuation-in-part of Ser. No. 98,546, Nov. 29, 1979. This application Jan. 27, 1981, Ser. No. 228,980

Int. Cl.³ B65H *39/11*

U.S. Cl. 271—293 **4 Claims**

1. In an improved sorting apparatus of the shiftable bin type including a frame structure having means for mounting the sorting apparatus on a copying machine at the sheet outlet fron the copying machine, sorting bins shiftable relative to one another to provide a wide sheet entry between bins at said outlet, and means for shifting the bins, said bins having ends remote from said outlet pivotally and longitudinally shiftably mounted one on the other and ends adjacent said outlet mounted for shifting movement past said outlet, said means for shifting said bins engaging successive bins at said ends adjacent to said outlet to move the latter successively pivotally from one side of said outlet to the other and causing relative longitudinal sliding movement of the bins, and including control means to intermittently effect operation of said shifting means following passage into successive bins from the copying machine of a selected number of sheets; the improvement wherein bearing means are provided on said ends remote from said outlet for increasing the space between said latter ends respon-



sive to longitudinal movement of said bins in one direction and allowing movement of said latter ends towards one another responsive to longitudinal movement of said bins in the other direction.

4,332,378

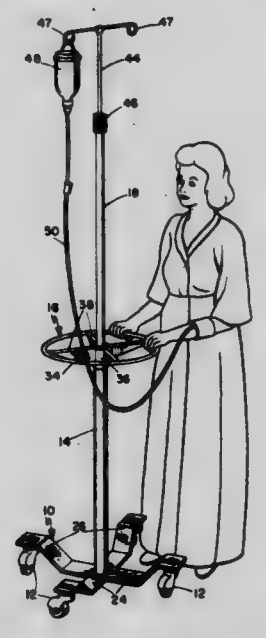
AMBULATORY PATIENT SUPPORT STAND

John W. Pryor, 420 N. Cedros, Solana Beach, Calif. 92075

Filed Apr. 15, 1980, Ser. No. 140,603

Int. Cl.³ A61H *3/04*

U.S. Cl. 272—70.3 **19 Claims**



1. An ambulatory patient support stand comprising:

a wheeled base having a central axis and adapted to move over a supporting surface;

an elongated vertical support member extending upwardly from said base on said axis;

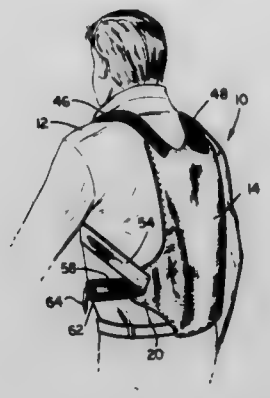
a push grip mounted to and radially spaced from said support member, said grip at least partially surrounding and being substantially concentric with said support member, said grip being vertically spaced from said base and being positioned intermediate the ends of said support member at approximately hip height for a person in erect position; and

additional support means associated with and extending from said support member to removably retain external devices.

4,332,379
COLLAPSIBLE EXERCISE BACK PACK

Clifford R. Bannister, 2801 Treehouse Pkwy., Norcross, Ga. 30093

Filed Jul. 28, 1980, Ser. No. 172,814
Int. Cl.³ A63B *21/12*
U.S. Cl. 272—119 6 Claims

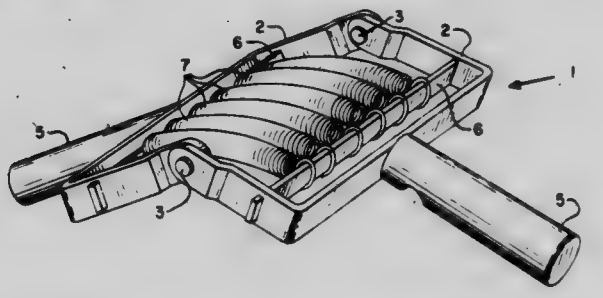


1. A collapsible physical training device to be worn by a person during physical exercise, said device comprising:
a flexible weight carrying member defining a first compartment, said member being adapted to be worn on said person's back, said weight carrying member further defining at least one opening into said first compartment and positioned at the bottom thereof;
means for closing said opening into said first compartment;
means for securing said weight carrying member about the shoulders of said person;
means for securing said weight carrying member about the waist of said person;
a flexible weight member defining a second compartment for containing a flexible and disposable weighting material, said weight member being adapted to be received within said first compartment, said weight member further defining at least one opening into said second compartment;
means for closing said opening into said second compartment; and
means for dividing said second compartment into two or more communicating chambers.

4,332,380
MUSCLE BUILDING APPARATUS FOR DEVELOPING BENDING STRENGTH

Pierre J. Cardin, 3272 Top View Ct., West Linn, Oreg. 97068

Filed Oct. 3, 1980, Ser. No. 193,640
Int. Cl.³ A63B *21/02*
U.S. Cl. 272—137 7 Claims

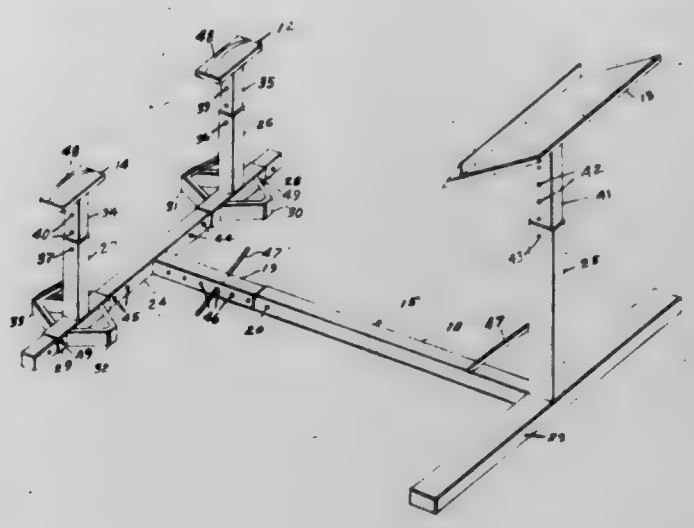


1. A muscle building flexing apparatus for developing bending strength comprising:
(a) a substantially O-shaped frame hinged at its midpoint so as to form two generally U-shaped members that face each other and are pivotally connected to one another;
(b) each U-shaped member having a handle rigidly connected thereto and a retainer means for releasably retaining one end of at least one of a multiplicity of lengths of fairly rigid, yet resilient material; and
(c) said handles lying generally in a common plane and along a common axis prior to flexing the ends of the resilient material toward each other.

4,332,381
EXERCISING DEVICE

Sanford D. Lyons, 2152 S. Shore Dr., Erie, Pa. 16506

Filed Oct. 12, 1979, Ser. No. 84,415
Int. Cl.³ A63B *23/02*
U.S. Cl. 272—144 13 Claims



1. An exercising device comprising a main frame comprising a main bar having a first end and a second end, a first end bar having a first end and a second end and an intermediate part,
said intermediate part of said first end bar being fixed to said second end of said first main bar, and extending laterally therefrom,
a first post, a second post, and a third post,
each said post having a first end and a second end, said first end of said first post being supported on said first end of said first end bar,
said first end of said second post being supported on said second end of said first end bar,
said first end of said third post being fixed to said first end of said main bar,
said posts extending upwardly from above said main bar, (a platform, a first pad, and a second pad,)
a platform, a first pad, and a second pad,
said platform being supported on said second end of said third post,
said first pad being supported on said second end of said first post,
said second pad being supported on said second end of said second post,
each of said pads has a hand engaging strap fixed to the sides thereof and extending across to receive the hands of a user between said strap and said pad,
whereby a user may rest his hands on said pads and rest his feet on said platform and do push-ups moving his center of gravity to the shoulder blades.

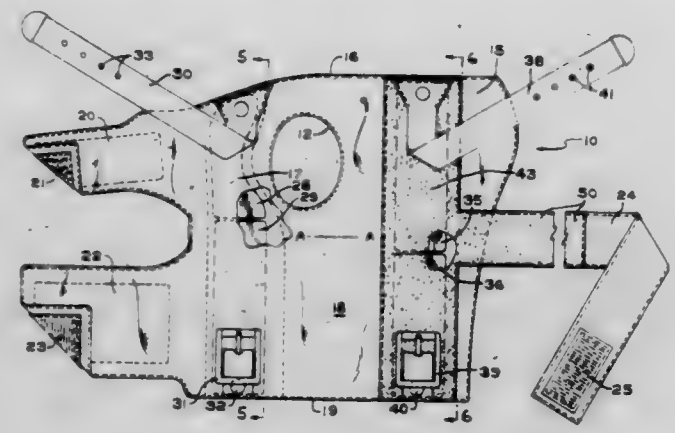
4,332,382
BOWLING AID

Eugene P. Smith, 1818 Sheffield Dr., Akron, Ohio 44320

Filed Mar. 16, 1981, Ser. No. 244,204
Int. Cl.³ A63B *69/00*
U.S. Cl. 273—54 B 8 Claims

5. A bowling aid for supporting a bowler's hand and wrist comprising: a strip member of flexible material for wrapping around the hand and wrist of a bowler; means for securing said strip member in an oval shape around the wrist and hand; said member having an upper edge extending along the upper palm and the back of the hand; said member having a lower edge extending around the wrist; said member having a thumb hole for receiving the thumb of a bowler; a first and a second rigid member aligned end to end on one side of said thumb hole

extending along said palm and wrist from said upper edge to said lower edge; a third and a fourth rigid member aligned end to end on the opposite side of said thumb hole extending from said upper edge to said lower edge; said first and said second members having a gap therebetween to allow pivoting of said first member relative to said second member; said fourth and said third member having a gap therebetween to allow pivoting of said third member relative to said fourth member; adjustable strap means overlying said first and said second aligned rigid members; adjustable strap means overlying said third and said fourth rigid members; and said adjustable strap means operative to hold said first and said second rigid members along with said third and said fourth rigid members in preselected angles.



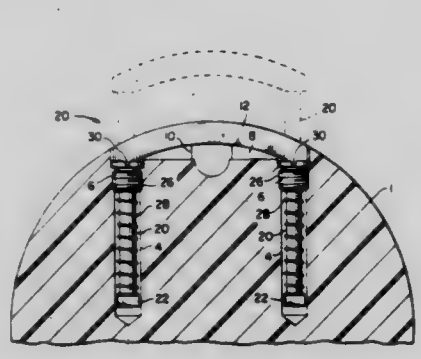
4,332,383

BOWLING BALL WITH RETRACTABLE HANDLE

Morton Milden, West Orange, and Anthony V. Falzarano, Montville, both of N.J., assignors to Maddak, Inc., Pequannock, N.J.

Filed Jan. 12, 1981, Ser. No. 224,220
Int. Cl.³ A63B *43/02*
U.S. Cl. 273—64 **6 Claims**





1. For use with a ball of the type including a pair of substantially parallel, partially threaded bores extending in spaced relation partially through the ball and connected by a recess in the ball surface having a centrally disposed widened and deepened portion, handle means for the ball, comprising:

a substantially arcuate member having a contour corresponding to that of the ball;

a pair of bushing members;

a pair of posts, each of which slides through a corresponding bushing member and terminates in a head on one of its ends;

a pair of resilient members, each of which surrounds a corresponding post between the bushing member and post head;

means associated with the ends of the posts opposite the head ends and associated with the arcuate member for removably supporting each of the posts near an end of the arcuate member substantially normal thereto;

means associated with each of the bushing members and associated with the bores for removably supporting each of the bushing members in a corresponding bore, with the corresponding posts and surrounding resilient members sliding into the bores;

the arcuate handle member being received in the connecting recess when the resilient members are extended; and

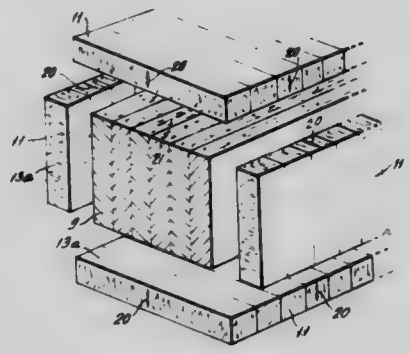
a user inserting at least one finger in the widened and deepened central portion of the recess to lift the arcuate member therefrom, whereupon the ball is lifted and the resilient members are compressed by the weight of the ball.

4,332,384

WOODEN RACKET FRAME

Noriyoshi Hasegawa, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Filed May 23, 1979, Ser. No. 41,830
Claims priority, application Japan, May 25, 1978, 53-070625[U]; Jun. 13, 1978, 53-071096; Aug. 23, 1978, 53-102527
Int. Cl.³ A63B *49/02*
U.S. Cl. 273—73 F **22 Claims**



1. An improved wooden racket frame, comprising:

a playing face, an elongated core block extending around said playing face and comprising a plurality of thin wood layers having large side surfaces and which are combined with each other along their large side surfaces and each said wood layer being provided with grains running in the longitudinal direction of said core block, and

at least one wooden shell layer affixed to at least one surface of said core block, said shell layer comprising a plurality of distinct laminations which are juxtaposed and bonded to each other and each having grains and the respective grains of said shell layer laminations running in the thickness direction of said shell layer and thereby running toward the said core block surface to which said shell layer is affixed.

4,332,385

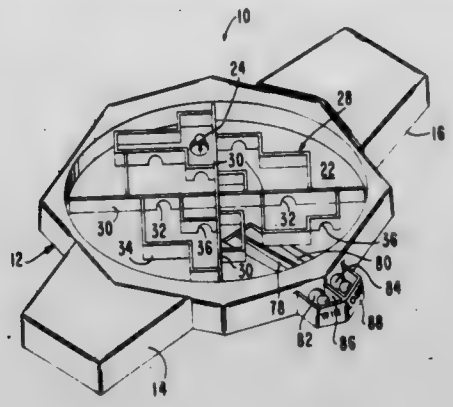
GAME WITH MOVEABLE MAZE ON GAME BOARD

Robert E. McCaslin, 1227 Coldwater Canyon, Beverly Hills, Calif. 90210

Filed Jan. 8, 1981, Ser. No. 223,518
Int. Cl.³ A63F *7/24, 7/38*
U.S. Cl. 273—113 **10 Claims**

1. Game apparatus comprising: a support having an upper surface over which a player piece is moveable; means above the surface for defining therewith a maze of passages for the player piece as it moves from a first location to a second location on said surface; means carried by said support for mount-

ing said maze defining means for rotation relative to said surface; means adjacent to said mounting means for rotating said maze defining means relative to said surface, said base having



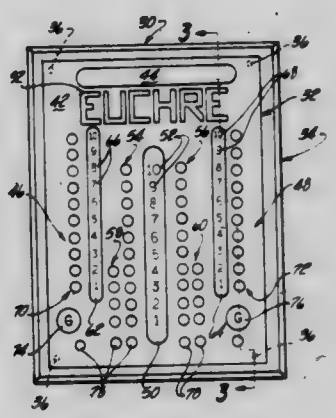
a recess in said surface at said second location for receiving said player piece after the latter has been moved from said first location by the maze defining means and as the base is handheld and manipulated.

4,332,386

EUCHRE SCORE BOARD

Richard J. Townsend, 49357 Au Lac Dr. East, Bay 8, Mt. Clemens, Mich. 48045

Filed Sep. 2, 1980, Ser. No. 183,104
Int. Cl.[3] A63F *1/18*
U.S. Cl. 273—148 A 12 Claims



1. A euchre score board comprising:

a body portion defining a substantially planar playing surface subdivided into two, discrete spaced, substantially mirror image result tabulation areas, each said tabulation area comprising:

a column of only N peg receiving holes for tabulating the number of points acquired by a playing entity in the course of a single game, where N equals the number of points required to win said single game, said holes coacting to define a first uni-directional line of progression;

a column of only ½ N−1 peg receiving holes for tabulating the number of "euchres" scored by said playing entity in the course of said game, said euchre scoring holes coacting to define a second uni-directional line of progression substantially parallel to said first line of progression;

a peg associated with each said column operable for serial progression along said associated column during the course of said game; and

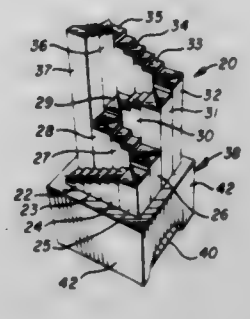
a column of score indicating numerals in simultaneous intermediate register with both said columns of N peg receiving holes and both said columns of ½ N−1 peg receiving holes.

4,332,387

PUZZLE COMPRISING BLOCKS WITH RABBETED ENDS

John W. Mullen, III, 5365 Montrose, Dallas, Tex. 75209

Filed Mar. 16, 1981, Ser. No. 243,992
Int. Cl.[3] A63F *9/12*
U.S. Cl. 273—156 14 Claims



1. A puzzle comprising:

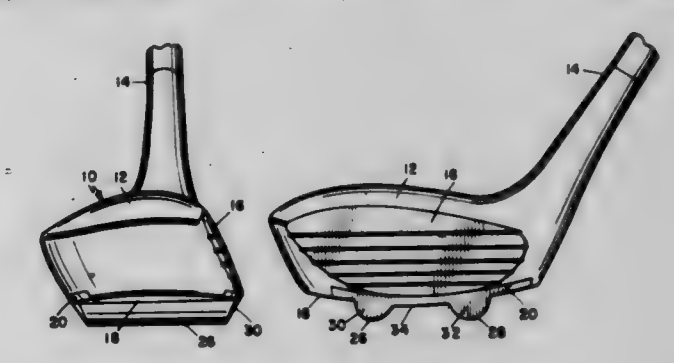
a plurality of elongated blocks, each having a rectangular cross section and a first end rabbeted along a diagonal to form two turning treads separated by a riser and a second end rabbeted to form two straight treads separated by a riser, said blocks being arrangeable in a side-by-side relation to define a desired configuration.

4,332,388

GOLF CLUB HEAD

Thomas L. Crow, La Jolla, Calif., assignor to Cobra Golf, Inc. II, San Diego, Calif.

Continuation of Ser. No. 919,424, Jun. 26, 1978, abandoned.
This application Feb. 21, 1980, Ser. No. 123,493
Int. Cl.[3] A63B *53/04*
U.S. Cl. 273—172 3 Claims



1. A golf club head comprising:

a wood body having a front striking face; a lower sole with a toe portion and a heel portion, and means for attachment to a shaft;

a metal sole plate fixed to said sole and having a pair of substantially semi-circular in cross section spaced parallel runners projecting downwardly therefrom and extending from front to rear across the entire sole plate;

said sole plate having a leading edge surface below said striking face;

said runners having flat end surfaces comprising leading faces, which flat end surfaces incline downwardly and rearwardly from said leading edge at an angle of approximately 55 degrees to the longitudinal front to rear lower surface of the respective runners;

said sole plate leading edge surface is parallel with and mates with said leading faces of said runners forming a continuous substantially flat surface;

each of said runners having the same cross-sectional area and the same longitudinal semi-circular configuration, which cross-sectional area and semi-circular configuration are the same throughout the length of each of the runners from the front edge of the sole plate to the rear edge of the sole plate;

said sole plate extends over a major portion of said sole and

constitutes approximately 55 percent of the total weight of the head;

said sole plate having slotted openings on each side thereof that extend to the respective sides of said runners;

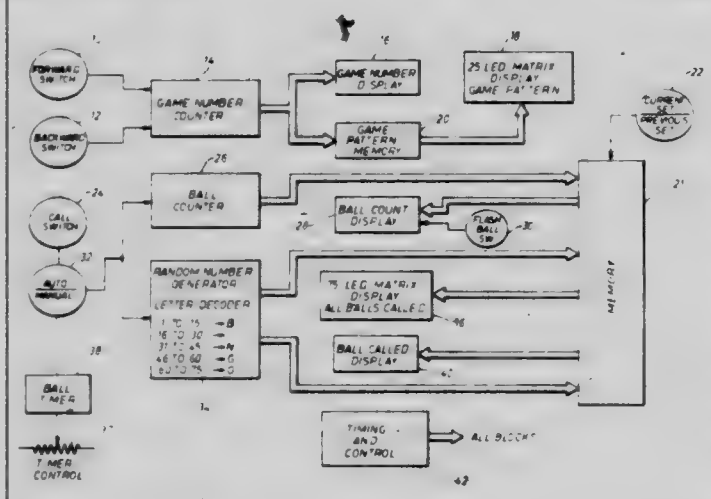
and portions of the sole of the wood body fitting in said slots and against the respective sides of said runners.

4,332,389

ELECTRONIC BINGO GAME

Comer C. Loyd, Jr., 5813 Mackinaw Rd., Houston, Tex. 77053, and James D. Benner, Houston, Tex., assignors to Comer C. Loyd, Jr., Houston, Tex.

Filed Jun. 23, 1980, Ser. No. 162,405
Int. Cl.³ A63F *3/06*
U.S. Cl. 273—237 **7 Claims**



1. An electronic bingo game played as a series of sets with each set consisting of one or more bingo games played as a series of called bingo numbers, each set initiated under command of a bingo caller, and where a bingo winner is determined by completing a predetermined bingo card pattern, the game comprising:

(a) a variable timer, for automatically timing the interval between bingo number selections in a set to give the game players a constant rate of bingo numbers called, the timer interval selectively variable over a predetermined range, said timer including means for manual setting of the timer inverval;

(b) a pattern storing means, for storing for a predetermined number of sets, the bingo pattern for each game in each set, said pattern storing means outputting for display at the start of each game the pattern for the next game to be played;

(c) a game counter responsive to initiation of a next game, for counting and displaying the number of games played;

(d) a number counter responsive to said timer, for counting and displaying the number of bingo numbers called in the set, said counter being reset at the start of each new set;

(e) a random number generator responsive to said timer, for randomly selecting the bingo numbers for each set played, each bingo number having an equal probability of selection; and

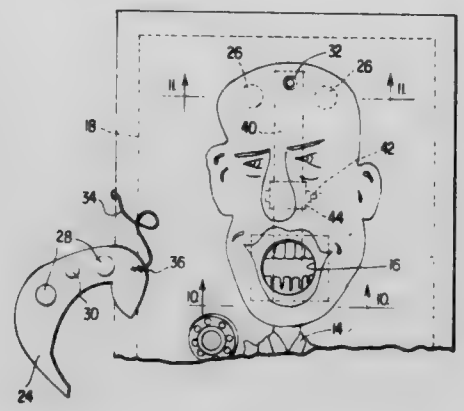
(f) a means responsive to said random number generator and said timer, for storing and displaying the bingo number called in a set, said means for storing the bingo numbers automatically retaining and outputting upon request from the caller the bingo numbers selected from the previous set, including the last ball called and the number of balls called in the previous set, until the start of the next set, said random number generator, said number counter and said timer cooperating together to select and display bingo numbers until terminated by the caller when a bingo winner is found.

4,332,390

TARGET WITH MAGNETICALLY-HELD, DISLODGEABLE INDICATOR

Joe Bury, Box 524, Buffalo, Wyo. 82834

Filed Sep. 16, 1980, Ser. No. 187,651
Int. Cl.³ F41J *5/00*
U.S. Cl. 273—389 **9 Claims**



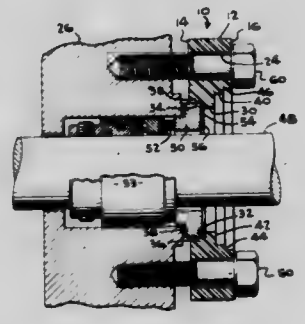
1. An amusement device comprising a generally flat target figure having a dislodgeable portion and a first opening defining a bull's-eye, means releasably holding said dislodgeable portion on the target figure until a projectile enters said first opening, and means for dislodging said portion including an arm pivotally mounted behind said target figure, said arm having one end disposed immediately behind said first opening, means for biasing said one end toward the rear of the target figure, and means on the other end of the arm arranged to pass through a second opening in the target figure so as to strike and completely dislodge said portion from the target figure when the said one end of the arm is moved by the force of impact of a projectile, wherein said target figure is a comic representation of a human and said dislodgeable portion is a toupee which, when removed from the target figure, leaves the human bald, and wherein said means releasably holding said toupee comprises a pair of magnets secured to the rear of said target figure on opposite sides of said second opening, said toupee having magnetic metal plates secured to its rear surface and spaced to overlie and be held by said magnets.

4,332,391

UNIVERSAL MECHANICAL SEAL GLAND

William A. Arnold, 15 Long Boat Pl., Savannah, Ga. 31410

Division of Ser. No. 142,139, Apr. 16, 1980, Pat. No. 4,256,313.
This application Nov. 17, 1980, Ser. No. 208,061
The portion of the term of this patent subsequent to Mar. 17, 1998, has been disclaimed.
Int. Cl.³ F16J *15/34*
U.S. Cl. 277—11 **7 Claims**



1. A universal mechanical seal gland for positioning an annular seal against a shaft housing and a rotary seal member on a shaft, said seal gland comprising a solid body member formed of plastic and having front and rear parallel planar face surfaces, an aperture extending through said body member concentrically oriented with respect to a main axis perpendicular to said front and rear parallel planar face surfaces, said aperture being defined by a plurality of coaxial cylindrical

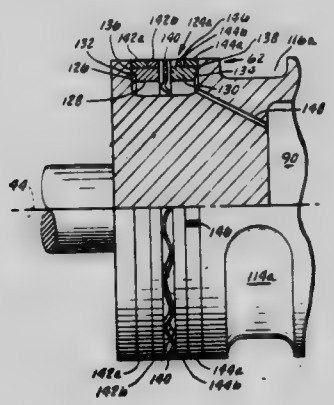
surfaces of different diameters with adjacent ones of said cylindrical surfaces being connected by planar sealing surfaces oriented perpendicularly to the axis of said coaxial cylindrical surfaces wherein said coaxial cylindrical surfaces include a central cylindrical surface of smaller diameter than the other cylindrical surfaces and a second cylindrical surface positioned adjacent said central cylindrical surface, a third cylindrical surface positioned adjacent and between said second cylindrical surface and said front planar face surface, a fourth cylindrical surface positioned adjacent and between said central cylindrical surface and a fifth cylindrical surface positioned adjacent the rear planar face surface.

4,332,392

DUAL SEALING RING SEAL WITH HYDRAULIC EXPANSION

Wilfred E. Boehringer, Fullerton, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Division of Ser. No. 933,558, Aug. 14, 1978, Pat. No. 4,286,927.
This application May 26, 1981, Ser. No. 266,799
Int. Cl.³ F16J *9/08, 15/38, 15/48;* F04B *1/16*
U.S. Cl. 277—27 **10 Claims**



1. A seal for use in a cylindrical groove in a cylindrical item positioned in a cylinder wherein said seal is subjected to reciprocating forces as the item and the cylinder rotate with respect to each other, the seal including:

two adjacent pairs of sealing rings having outer cylindrical surface portions whose outer cylindrical surface portions form the outer cylindrical surface of said seal, each pair having a side surface positioned to engage an adjacent side wall of the groove;

a pair of backup rings which are positioned to bear outwardly on said two adjacent pairs of sealing rings, each having a side surface positioned to engage the groove side wall; and

bias means positioned to force said side wall engaging surfaces of said sealing rings and said backup rings into engagement with the side walls.

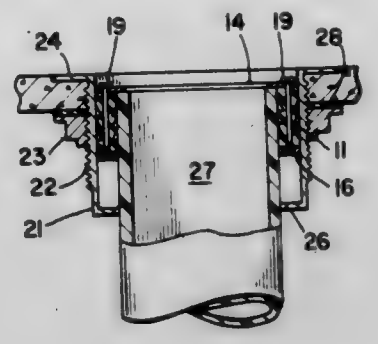
4,332,393

SELF CONTAINED SEAL FOR DRAINS

Casper Cuschera, 1047 77th Ave., Oakland, Calif. 94621

Filed Sep. 26, 1980, Ser. No. 190,919
Int. Cl.³ F16L *21/04;* E03C *1/26*
U.S. Cl. 277—112 **2 Claims**

1. A self-contained gasket sealing assembly for a pipe end portion received within a pipe fitting with an annular space therebetween, comprising; a cylindrical, sleeve-like gasket received about said pipe and disposed within said annular space, a plurality of holes extending longitudinally through said gasket parallel to the axis thereof, a pair of compression rings disposed at opposed ends of said gasket, one of said rings having an inner diameter sufficient to receive said pipe end portion and an outer diameter less than the diameter of said annular space, said one ring including a like plurality of tapped holes, the other of said rings having an inner diameter less than sufficient to receive said pipe end portion and adapted to abut the end surface thereof, said other ring including a like plurality of screw holes therethrough, and screw means for extending through said holes of said other ring and gasket and engaging said tapped holes of said one ring for compressing said



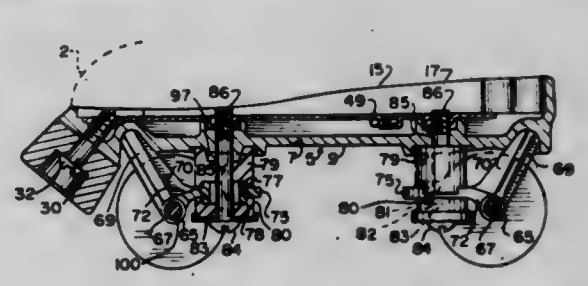
gasket longitudinally to effect radial expansion of said gasket and a sealing engagement of said gasket with the outer surface of said pipe and the inner surface of said pipe fitting.

4,332,394

ROLLER SKATE

Ronald R. Klawitter, Hermann, Mo., assignor to Steven Manufacturing Company, Hermann, Mo.

Filed Jun. 16, 1980, Ser. No. 159,776
Int. Cl.³ A63C *17/02*
U.S. Cl. 280—11.27 **3 Claims**



1. In a steerable roller skate sole plate and wheel truck assembly, the improvement comprising a one-piece elongated sole plate having a shoe-engaging part and a pair of support shaft bosses spaced along the long direction of said sole plate, each lying below the level of said shoe-engaging part and defining an open-ended substantially vertical support-shaft bolt-receiving passage, an elongated steel shape having internally threaded bolt-receiving spuds spaced along its length complementarily to said bosses and positioned to be coaxial with said boss openings and shaft bolts, for mounting wheel trucks, said bolts being threaded at their upper ends and extending through said boss passages and into threaded engagement with said spuds, said shape lying entirely below the level of said shoe-engaging part.

4,332,395

SELF-PROPELLED LANDSAILER

Leonard E. Zech, 202 E. 37th St., Suite 9, Boise, Id. 83704

Filed Jul. 18, 1980, Ser. No. 170,012
Int. Cl.³ B62B *15/00*
U.S. Cl. 280—213 **4 Claims**

1. A motorless land vehicle comprising, in combination, a generally triangularly configured frame,

said frame formed of a plurality of elongated members,

said frame including a fork means substantially rigidly secured at the forward end of said frame to carry a rotatable forward wheel,

said frame including a longitudinal axis centrally configured within said frame from fore and aft,

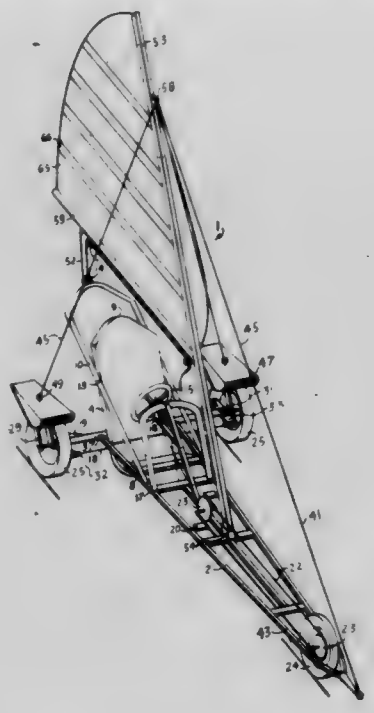
a rear axle support substantially rigidly secured to said frame and transversely oriented with respect to the longitudinal axis of said frame,

a pair of wheel forks pivotally secured about a generally

vertical axis to the outer opposite ends of said rear axle support,

said wheel forks including the attachment of wheel-carrying stub axles,

a rear steering means including, in combination, a steering unit, a steering linkage, said wheel forks, said wheel-carrying stub axles, a steering lever, a clevis and pin, and a steering lever slot wherein movement of said steering unit



causes said clevis and pin to slide in said steering lever slot for the purpose of causing each of said wheel-carrying stub axles to turn generally different accounts at the same time with respect to the longitudinal axis of said frame,

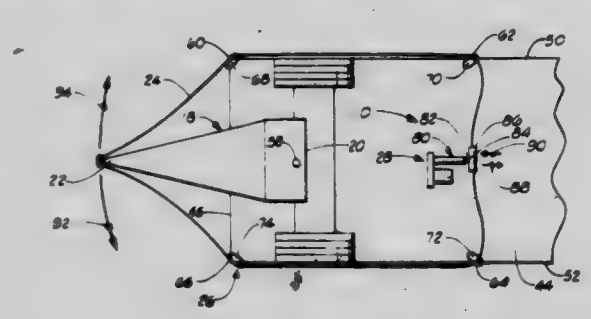
a seat secured to said frame suitable for a rider, said seat including means for adjustment, said seat including a roll-bar portion, said frame including rider operable drive means.

4,332,396

BACKING STABILIZER

George M. Ashby, Jr., 520 E. Hazel, Ponca City, Okla. 74601

Filed Jul. 28, 1980, Ser. No. 172,570
Int. Cl.[3] B60D *1/00*
U.S. Cl. 280—474 13 Claims



1. A backing stabilizer adapted for use with a vehicle having a vehicle body with a first end, a second end, a first side and a second side, and a tongue having a first end pivotally connected to the vehicle body generally near the first end of the vehicle body and a second end, the tongue extending a distance from the first end of the vehicle body, comprising:

a continuous cable having a predetermined length, a portion of the cable being connected to the tongue generally near the second end of the tongue;

means movably connecting a portion of the cable to the vehicle body generally near the first side of the vehicle body and movably connecting another portion of the cable to the vehicle body generally near the second side of the vehicle body for supporting a portion of the cable from the vehicle body; and

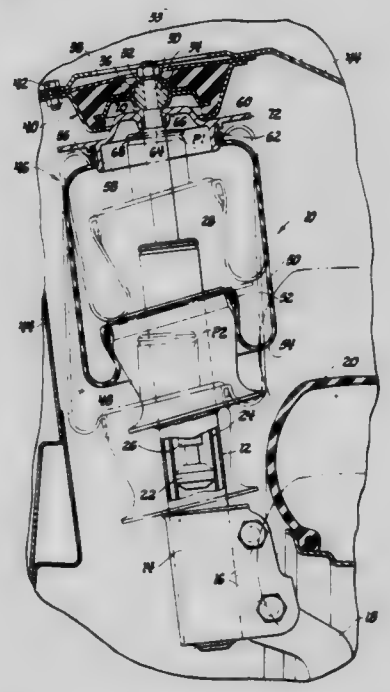
means connected to the cable generally near the portion of the cable between the portion of the cable movably connected to the vehicle body generally near the first side of the vehicle body and the portion of the cable movably connected to the vehicle body generally near the second side of the vehicle body for moving the cable to a slack condition wherein the tongue is pivotally movable and for moving the cable to a taut condition wherein the tongue substantially is held in a nonpivotable condition by the cable.

4,332,397

STEERABLE SUSPENSION STRUT WITH PNEUMATIC SPRING

Charles B. Steger, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 7, 1980, Ser. No. 166,564
Int. Cl.[3] B60G *15/12*
U.S. Cl. 280—693 3 Claims



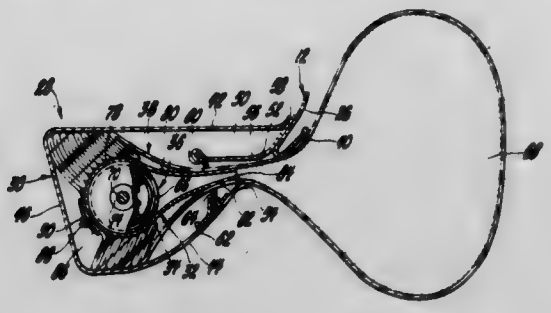
1. A suspension strut for steerably mounting a road wheel assembly to a vehicle body and for pneumatically suspending the body with respect to said road wheel, comprising an elongated tubular support having one end connected to said steerable road wheel assembly and extending upwardly therefrom, shock absorber means operatively mounted in said support including an oil filled cylinder tube operatively mounted in said support, a piston mounted for reciprocal movement in said cylinder tube having a piston rod extending upwardly therefrom, an upper cap member through which said piston rod slidably extends for closing said tubular support, a boot end cap secured to said piston rod adjacent the upper end thereof, a pneumatic spring including a tubular flexible boot, mounting means for securing the lower end of said boot to said tubular support, said boot extending from said mounting means, a boot end cap having an opening through which said piston rod extends, static fluid seal means operatively mounted by said boot end cap and disposed around said piston rod to provide an air-tight seal for said pneumatic spring, an upper mount including universal ball joint means with a ball mounted on said piston rod above said boot end cap for pivotably mounting said piston rod to said vehicle body to permit said piston rod to turn with said pneumatic spring when said steerable road wheel assembly is turned and nut means threaded onto the upper end of said piston rod means and above said ball joint means to secure said ball of said ball joint means and said boot end cap to said piston rod.

4,332,398

INFLATABLE RESTRAINT SYSTEM

George R. Smith, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 11, 1980, Ser. No. 167,410
Int. Cl.[3] B60R *21/08*
U.S. Cl. 280—732 3 Claims



1. An inflatable restraint system for a motor vehicle comprising, in combination: a support housing adapted to be fixedly secured to said motor vehicle; a diffuser mounted in said support housing and having a plurality of slots formed therein; an inflator positioned in said diffuser for providing a pressurized gas which is adapted to flow through said slots in said diffuser; and opening formed in said support housing; a pair of retarder members mounted in said support housing adjacent said opening; a flow-control device for receiving said gas flowing through said slots in said diffuser and having a body portion terminating with an elongated nozzle which extends between said pair of retarder members and registers with said opening; and a restraint cushion made of a flexible material enclosing said diffuser and said flow-control device, with a major portion of said restraint cushion being folded to one side of said pair of retarder members and with portions of said restraint cushion being pressed into engagement with said body portion of said flow-control device by said pair of retarder members so that initially the gas flow emanating from said diffuser during inflation is directed by said nozzle against a small portion of the total restraint cushion and thereby causes said major portion of said restraint cushion to be gradually deployed through said opening in said support housing.

4,332,399

SKI POLE

Wilson E. Kepple, 121 15th St., New Florence, Pa.

Filed Jul. 9, 1980, Ser. No. 167,112
Int. Cl.[3] A63C *11/22*
U.S. Cl. 280—819 4 Claims



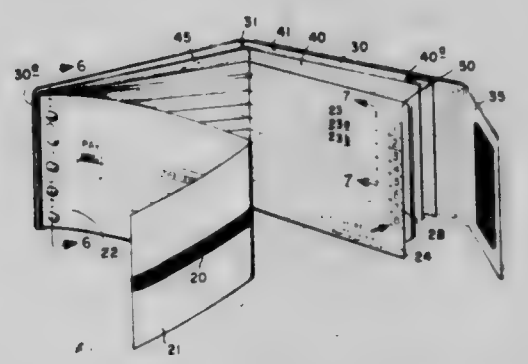
1. A ski pole having an upper cylindrical portion and a lower cylindrical portion, a coil spring having ends, readily detachable means for detachably securing said ends to said upper and lower cylindrical portions, said coil spring being the sole interconnecting means between said detachable means and being of a diameter substantially that of said upper and lower cylindrical portions and of such stiffness as not to compress longitudinally during normal operations of the ski pole but which will bend in a lateral direction substantially beyond the normal outer limit of said upper cylindrical portion upon the application of an abnormal bending force on the ski pole.

4,332,400

POCKET-SIZE ONE-WRITE CHECKBOOK

Eric R. Hayman, Maple Glen, Pa., assignor to Safeguard Business Systems, Inc., Fort Washington, Pa.

Filed Apr. 7, 1980, Ser. No. 137,918
Int. Cl.[3] B41L *1/20, 3/00*
U.S. Cl. 282—3 A 25 Claims



1. A device for use in producing a field record of data entered on a check, comprising:

means providing a portable writing surface,

an elongated data sheet overlying said writing surface,

a plurality of removable data receiving record strips carried on said data sheet in parallel relation,

means for releasably securing said record strips to said data sheet,

at least one check having a pressure-sensitive ink-transfer strip on its underside adapted to be placed on top of said data sheet, and

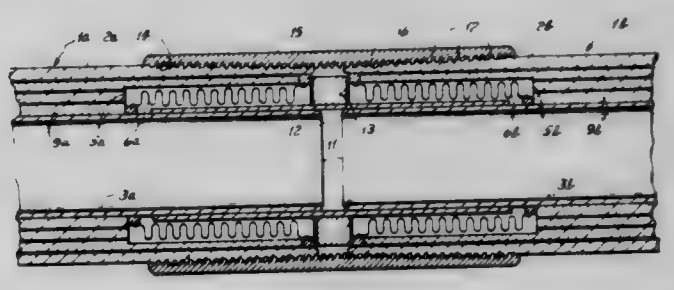
means extending along a margin of said writing surface for releasably mounting said check on said data sheet with the pressure-sensitive ink-transfer strip of the check overlying one of said data-receiving record strips, whereby data placed on the check is transferred simultaneously onto the underlying record strip which can be subsequently removed from the record sheet.

4,332,401

INSULATED CASING ASSEMBLY

Edgar O. Stephenson, W. Tacoma; John M. Kohl, Tacoma, and Charles R. Cunningham, S. Seattle, all of Wash., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 20, 1979, Ser. No. 105,667
Int. Cl.[3] F16L *59/14*
U.S. Cl. 285—47 19 Claims



1. An insulated casing assembly comprising;

(a) a pair of coaxially arranged casings, each casing compris-

ing radially spaced inner and outer tubular sections defining an annular space therebetween, and expandible sealing means extending from a point spaced inward from the end of each said inner tubular section in an axial direction to said outer tubular section thereby forming an axially extending cavity around each said inner tubular section;

(b) a sleeve tightly fitting over the opposed ends of the inner tubular sections and extending into said axially extending cavities;

(c) a filler ring fitted on said sleeve and disposed between the opposed ends of said casings; and

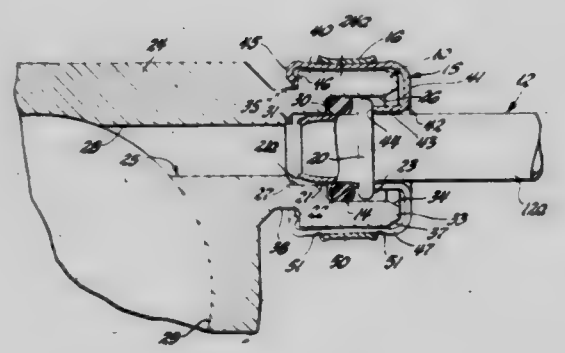
(d) means for coupling said outer tubular sections.

4,332,402

QUICK CONNECT HYDRAULIC COUPLING ASSEMBLY

Ronald L. Shellhause, Vandalia, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 30, 1980, Ser. No. 202,128
Int. Cl.³ F16L *21/08*
U.S. Cl. 285—86 **3 Claims**



1. A quick connect conduit coupling comprising a socket member having a tube receiving socket aperture at one end thereof interconnected by a radial inward extending shoulder to a flow passage means therein; said socket member having an external annular flange thereon spaced from said one end of said socket member; a tube having an upstanding annular bead thereon with a pilot tube portion extending therefrom; an annular seal encircling said pilot tube portion adjacent one side of said annular bead; said pilot tube portion and said bead with said seal on said pilot tube portion being adapted to be sealingly slidably received in said socket aperture; an annular, resilient split retainer having radially inward extending first return bent portions at one end thereof terminating in first abutment surfaces of an unstressed internal diameter less than the outer diameter of said flange whereby it is adapted to be slidably received over said annular flange of said socket member and a radially inward extending second return bent portion at its opposite end terminating in a second abutment surface of an unstressed internal diameter less than the maximum diameter of said annular bead whereby it is adapted to be slidably received over said annular bead so that said second abutment surface can be positioned to engage against the opposite side of said annular bead; and, an annular collar adapted to encircle said split retainer intermediate the ends thereof whereby to bias said first return bent portions radially inward so as to effect locking engagement of said first abutment surfaces against said annular flange whereby to effect retention of said tube in said socket member.

4,332,403

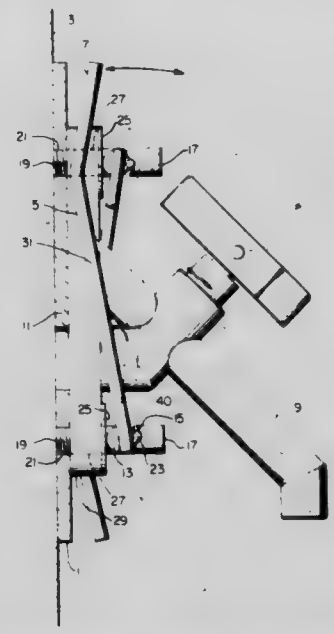
CAM LOCK FOR A SPIGOT

Joseph F. Auriemma, Point Pleasant, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Sep. 12, 1980, Ser. No. 186,560
Int. Cl.³ F16L *5/00*
U.S. Cl. 285—189 **5 Claims**

1. A securing assembly for use in securing a press plate spigot to a base member on a filter press, said securing assembly comprising:

lug means attached to the base member for receiving said spigot thereon, said lug means extending through openings in a base plate of said spigot and out the side of said base plate away from the base member and said lug means having cut out portions which extend transversely and are downwardly inclined and facing said spigot adjacent said side of said base plate away from said base member; and



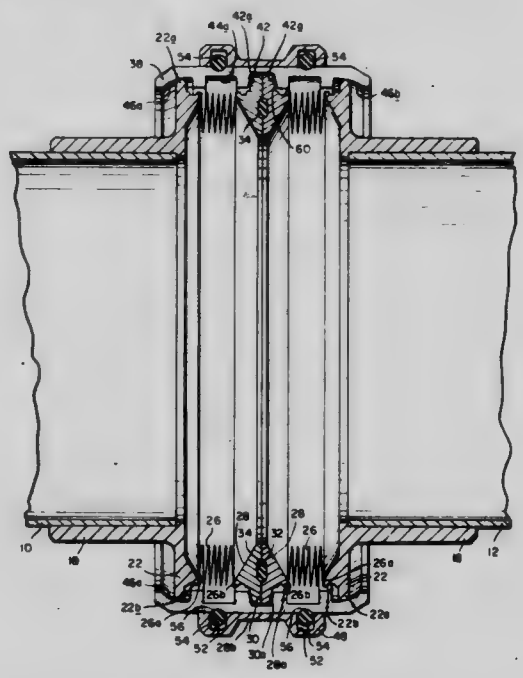
urging means for urging and holding said spigot against said base member, said urging means including a lever having at one end a crank arm comprising a cam surface on one side and an engaging projection on the other side, said engaging projection being received in said cut out portions and said cam surface being for urging said spigot against said base member as said lever is rotated about an arc, said crank arm locking in said lug means when said engaging projection is rotated past the vertical plane which is parallel to said lug means.

4,332,404

FLEXIBLE TUBING COUPLING

John Huffman, Chatsworth, Calif., assignor to Metal Bellows Corporation, Sharon, Mass.

Filed Aug. 27, 1980, Ser. No. 181,815
Int. Cl.³ F16L *27/00*
U.S. Cl. 285—223 **13 Claims**



1. In a flexible tubing coupling for joining first and second

tubing ends while permitting relative motion between said ends, the combination of

A. first and second flanged ferrules for positioning at the respective tubing ends,

B. first and second metal bellows secured at one of their ends respectively to said first and second ferrules,

C. first and second end fittings secured to the respective opposite ends of said bellows, said first and second end fittings having opposing faces which when compressed axially coact to comprise a static fluid-tight seal, and

D. a retainer assembly comprising

1. a pair of identical semicircular retainer halves aligned together end to end to form a ring encircling said end fittings and ferrule flanges, said retainer halves and end fittings having opposing surfaces which wedge together so as to axially compress the end fittings when the retainer halves encircle the end fittings, and

2. a rigid ring for snugly encircling and capturing the retainer halves so as to maintain them in encircling engagement on said end fittings.

4,332,405

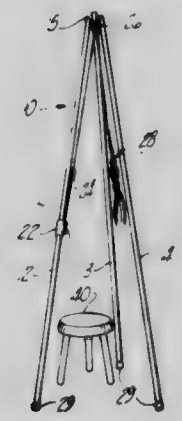
ADJUSTABLE FRAME FOR SUPPORTING MACRAME

Robert E. Lawrason, Sr., 3418 Proctor, Flint, Mich. 48504

Filed Jul. 3, 1978, Ser. No. 921,254

Int. Cl.³ B65H *69/04*

U.S. Cl. 289—16.5 **2 Claims**



1. An adjustable frame for supporting macrame comprising:

at least three legs, each having a transverse through bore at one end,

an annular ring loosely received in said through bores to hold said one ends of said legs together while at the same time permitting the opposite ends of said legs to be selectively pivoted about said ring to vary the height of said frame and to be selectively circumferentially displaced from one another around the ring whereby each said leg can be simultaneously pivoted and circumferentially displaced or merely pivoted or merely circumferentially displaced,

a pulley supported by one of said legs near said ring, support means extending over said pulley and having one end adapted for receiving and supporting the macrame while the macrame is being formed;

means carried by one of said legs and adjustably movable therealong;

an end of said support means opposite said macrame being attached to said adjustable means whereby movement of said adjustment means along said leg varies the position of the macrame.

4,332,406

LOCK CATCH FOR DOORS

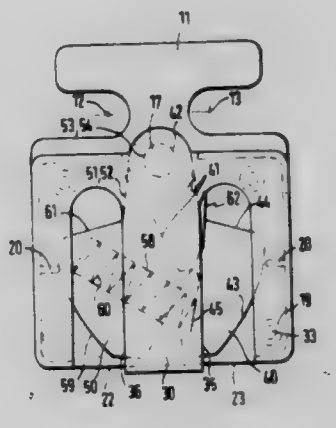
Wolfgang Ehrmann, Ruppichteroth, and Claus Winter, Hamburg, both of Fed. Rep. of Germany, assignors to Firma Hafele KG, Ruppichteroth, Fed. Rep. of Germany

Filed Oct. 11, 1979, Ser. No. 83,857

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1978, 2845110

Int. Cl.³ E05C *3/12*

U.S. Cl. 292—18 **12 Claims**



1. A lock catch for at least one door having at least one holding element thereon comprising:

a housing formed with a first and a second door-mounted holding element receiving slot therein;

a first and second locking lever pivotably mounted within said catch housing about a common pivot axis;

spring means positioned within said catch housing to normally bias said locking levers to project into a respective one of said holding element-receiving slots;

a first bevelled surface formed on each of said locking levers engageable by the associated holding element on the door upon the closing of same so as to effect pivotal movement of the locking lever in a first direction and permit entrance of the holding element into an inner end region of said slot inwardly of the locking lever;

a second bevelled surface formed on each of said locking levers engageable by the associated holding element of the door upon withdrawal of same from said inner end region of the slot to effect pivotal movement of the locking lever in a second and different direction and permit withdrawal of the holding element from said slot;

the first of said locking levers having a blocking shoulder formed thereon and normally extending into the inner end region of the slot associated with the second locking lever such that reception of the holding element into the inner end region of said second slot prevents pivotal movement of said first locking lever by engagement with said blocking shoulder;

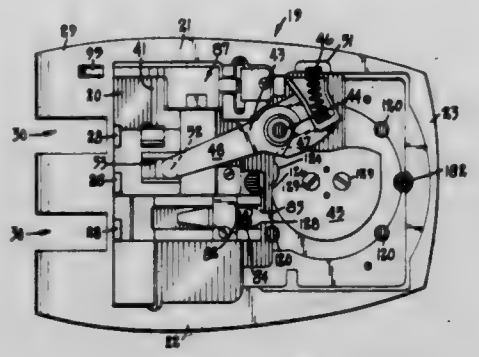
said spring means being positioned relative to the pivot axis of the locking levers and said bevelled surfaces thereof such that the effective lever arm of the locking lever when the first bevelled surface is engaged by the holding element entering said slot is greater than the effective lever arm of the spring acting on said locking lever and the effective lever arm of the spring acting on the locking lever is greater than the effective lever arm of the locking lever when said second bevelled surface is engaged by the holding element during withdrawal of the holding element from said inner end region of the slot.

4,332,407

AUTOMATICALLY LOCKING CROSSBOLT DEADLOCK

Russell W. Waldo, St. Paul, and George L. Engstrom, Minneapolis, both of Minn., assignors to Ideal Security Hardware Corporation, St. Paul, Minn.

Filed Dec. 12, 1979, Ser. No. 103,068
Int. Cl.³ E05C 3/10
U.S. Cl. 292—161 8 Claims



1. An automatically locking crossbolt deadlock suited for attachment to a door, wherein the deadlock is of the type having a crossbolt movable between an unlocked position and a locked position in which the crossbolt engages a strike, a lock button movable between a first position in which the lock button positively holds the crossbolt in its locked position, a second position in which the crossbolt is free to move between its locked and unlocked positions, and a third position in which the lock button positively holds the crossbolt in its unlocked position to prevent automatic relocking of the crossbolt upon closing of the door, and means for moving the crossbolt between its locked and unlocked positions, wherein the moving means includes a rotatable handle, and wherein the improvement relates to the lock button and comprises:

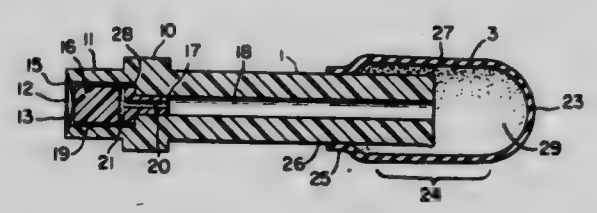
means for moving the lock button from its first to its second position upon rotation of the handle, whereby movement of the lock button is automatically effected upon rotation of the handle to allow unlocking of the crossbolt without the need for first manually moving the lock button from its first to its second position, and for moving the lock button from its second to its third position upon further rotation of the handle such that the lock button is placed into its third position when the handle is rotated to unlock the crossbolt.

4,332,408

DEVICE FOR REMOVING AND REPLACING SOFT CONTACT LENSES WORN ON THE HUMAN EYE

Delma M. Cointment, 914 Pontalba St., New Orleans, La. 70124

Division of Ser. No. 950,555, Oct. 12, 1978, Pat. No. 4,238,134, which is a continuation of Ser. No. 773,473, Mar. 2, 1977, abandoned. This application Aug. 18, 1980, Ser. No. 179,409
Int. Cl.³ A61F 9/00
U.S. Cl. 294—1 CA 5 Claims



1. A device for handling and inserting soft contact lenses comprising in combination:

a. a tubular body member formed with a lumen or axial hole extending from a first end to a second end thereof;

b. a suction bulb of flexible material with an opening through which said tubular body member extends adjacent said first end of said tubular body member; and

c. a plug disposed within said tubular body member adjacent said second end of said tubular body member;

wherein said lumen is formed with an enlarged portion adjacent said second end of said tubular body member; said plug includes a main body portion and a stem portion with said main body portion being slightly smaller in diameter than and extending substantially coaxially within said enlarged portion, thus forming an annular passage therebetween; said stem portion extends axially inwardly beyond said enlarged portion of said lumen and is in snug contact with a smaller diameter, axially inward part of said lumen; and said plug is formed with an axial passage in said stem portion and a diametrically extending passage in said main body portion intersected by said axial passage whereby fluid communication is established between the interior of said suction bulb and said lumen at said section end by way of said lumen at said first end, said axial passage, said diametrically extending passage, and said annular passage.

4,332,409

COMBINATION FORK

Edward Stachowicz, Philadelphia, Pa., assignor to BMS Roasting Equipment Corporation, Philadelphia, Pa.

Filed Jul. 10, 1980, Ser. No. 167,574
Int. Cl.³ A47J 43/28
U.S. Cl. 294—2 6 Claims



1. A fork comprising a handle, an elongated shaft, and tines, for cooking food morsels impaled on the tines over an open source of heat, wherein the handle includes at the butt end thereof an open bore, and a smaller fork force-fit into said bore and being extractable from said bore to remove the cooked food morsel from the tines of the larger fork.

4,332,410

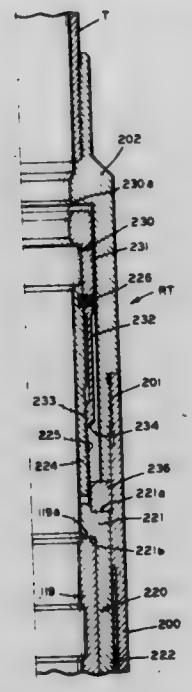
RETRIEVING TOOL FOR WELL PACKER

John R. Baker, Houston, Tex., assignor to Baker International Corporation, Orange, Calif.

Filed Jul. 21, 1980, Ser. No. 170,493
Int. Cl.³ E21B 31/00
U.S. Cl. 294—86.18 3 Claims

1. A retrieving tool for a packer having an upstanding nipple with a downwardly facing, upwardly inclined shoulder comprising: a housing structure having an upper end attachable to a tubing string and a lower end dimensioned to surround the packer nipple; a locking member mounted within said housing structure for limited axial movement relative to the housing structure, said locking member having an upper ring portion and a plurality of peripherally spaced, downwardly projecting

locking fingers constructed and arranged to snap radially inwardly into engagement with the nipple shoulder; an internally projecting locking shoulder on said housing structure movable upwardly by retrieving motion of the tubing string to engage said locking fingers and hold same in engagement with said nipple shoulder to apply upward force to the packer; a stop member mounted within said housing structure for limited downward movement relative to said housing structure; shearable means preventing relative movement of said housing



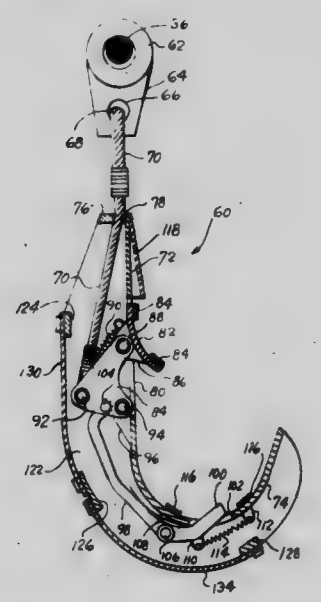
structure and said stop member; means on the upper end of said stop member for reception of downward forces, thereby shearing said shearable means and advancing said stop member downwardly relative to said housing structure; and an internally projecting abutment in said housing structure engageable with said stop member by upward retrieval movement of the housing structure prior to engagement of said housing locking shoulder with said locking fingers, thereby permitting retrieval of the retrieving tool.

4,332,411

OIL WELL PIPE PICKUP AND LAYDOWN APPARATUS

Rex B. Ellzey, Laurel, Miss., assignor to Benton Casing Service, Inc., Houma, La.

Filed Jul. 2, 1979, Ser. No. 53,832
Int. Cl.³ B66C *1/44*
U.S. Cl. 294—104 **19 Claims**



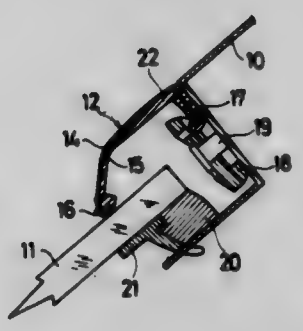
1. A clamping tool for use in lifting, lowering and moving drill pipes, casings, tubes and the like, comprising a rigid member to be clamped to a pipe for supporting the same, pad means secured to said member by a first pivot means for turning movements to clampingly engage or disengage against a surface of a pipe, and connecting means secured to said member by a second pivot means for connecting the tool to a handling device such as a pickup and lay down machine, said rigid member, connecting means and first and second pivot means being so shaped and arranged with respect to one another that the weight of a pipe exerted on the tool will cause the pad means automatically to turn and lockingly clamp the pipe, and lifting the pipe slightly to remove its weight from the tool will cause said pad means automatically to release its clamping engagement with the pipe, said rigid member being J-shaped in cross section so as to receive a pipe end in its curved base, said pad means being secured by said first pivot means to one corner of a triangular plate having a second corner secured to the stem of the J-shaped member by a third pivot means, said connecting means being secured by said second pivot means to the third corner of said triangular plate.

4,332,412

ACCESSORY MOLDING STRIP

Takaaki Nakazawa, Toyota; Takenori Nagata, Chiryu; Yasuo Kuroda, Kariya, and Toshio Suzuki, Okazaki, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Continuation of Ser. No. 27,293, Apr. 5, 1979, abandoned, and a continuation of Ser. No. 852,934, Nov. 18, 1977, abandoned, which is a continuation of Ser. No. 675,914, Apr. 12, 1976, abandoned. This application Jul. 14, 1980, Ser. No. 168,485
Claims priority, application Japan, Apr. 25, 1975, 50-51126
Int. Cl.³ B62D *27/00*
U.S. Cl. 296—29 **2 Claims**



1. An accessory molding strip for a motor vehicle window comprising:

an elongated wrapping member made of stainless steel of about 0.2 mm in thickness for extending at least along one side of the window and bridging between the window and the body of the vehicle, an edge of said member for positioning adjacent said window being curved inwardly for resting against the window, the opposite edge for positioning adjacent the vehicle body having a portion bent approximately 90° from the main body portion of the wrapping member for substantially parallelling the body of the vehicle; and

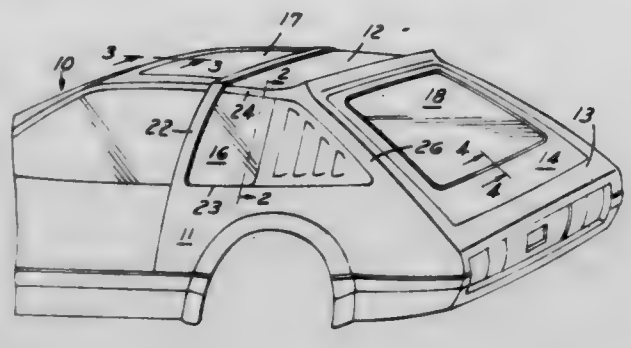
a plastic reinforcing member permanently affixed to the rear surface of said wrapping member, said reinforcing member extending around said curved edge and forming a cushion between said curved edge and the window, and extending around the free edge of said bent portion and along the front surface of said bent portion, forming a protective cushion between the front surface of said bent portion and the body of the vehicle, said wrapping member and said reinforcing member being self-supporting between said curved edge and said bent portion.

4,332,413

WINDOW ASSEMBLY

Jeffrey A. Erion, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Aug. 15, 1980, Ser. No. 178,649
Int. Cl.³ B60J *1/02*
U.S. Cl. 296—84 R **4 Claims**



1. In combination, a vehicle body panel having an aperture of predetermined size and shape therein;

and a window assembly for altering the appearance of the vehicle body panel in the area of the aperture;

the window assembly comprising a glass fiber reinforced, substantially opaque, polyester panel contoured for external attachment to the vehicle body panel in position to conceal the aperture;

the polyester panel having a plurality of openings of smaller and different configurations than the body aperture and being formed with substantially peripherally extending rabbets around each of its openings;

inserts complementary in shape to respective ones of the polyester panel openings positioned in the latter adjacent the rabbet thereof;

one of said inserts being a window panel and a second one of said inserts being a lamp housing;

and an injection moldable elastomeric material molded around the peripheral edge of each insert in cohesive relationship to the latter and to the polyester panel rabbet adjacent thereto;

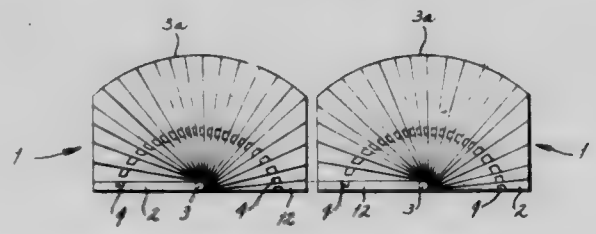
the elastomeric material integrally interlocking the periphery of each insert to its adjacent rabbet.

4,332,414

AUTOMOBILE WINDOW SHADE DEVICE AND METHODS OF MAKING AND USING THE SAME

Robert J. Surtin, 10266 Halls Ferry Rd., St. Louis, Mo. 63136

Continuation-in-part of Ser. No. 888,192, Mar. 20, 1978, abandoned, and a continuation-in-part of Ser. No. 126,302, Mar. 3, 1980. This application Mar. 31, 1980, Ser. No. 135,885
Int. Cl.³ B60J *3/00*
U.S. Cl. 296—97 D **2 Claims**



1. An automobile window shade comprising:

a. bracket means for positioning said shade between the windshield and the dash of said automobile,

b. a plurality of substantially flat elongated members pivotally mounted to said bracket means proximate one end of said members, said members disposed in stacked relationship to each other, said flat elongated members having essentially uniform width and being manually openable to about 180° to form a shade having about one-half circle in shape, said members each being provided with a series of lengthwise slots located intermediate the pivoted end and a free end,

c. a joinder tape operably mounted to said members and secured thereto and disposed within said apertures in said members to provide means for fanning said members into an open position and for retaining said members in overlapped open position,

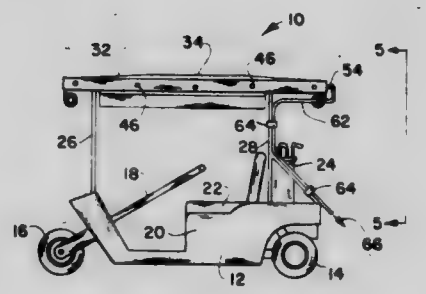
d. each said member being provided with four apertures, the first three apertures being equally spaced in a group adjacent to one longitudinal edge of the member and the fourth is spaced from the group across the width of the member, all of said apertures being disposed in a row across the width of the member and said joinder tape is disposed in said apertures such that said joinder tape passes from a first side of said member, through the fourth aperture to the second side of said member, through the next adjacent aperture to the first side and then skipping the next successive aperture through the first aperture to the second side and then through the second aperture to the first side and through the third aperture to the second side and to the first side of the next adjacent elongated member.

4,332,415

OPEN CART ROOF STRUCTURE

Thomas P. Williams, Apt. 703, Regency House, 435 S. Gulfstream Ave., Sarasota, Fla. 33577

Filed Oct. 12, 1978, Ser. No. 950,836
Int. Cl.³ B60J *7/02*
U.S. Cl. 296—213 **2 Claims**



1. An improved cover for a motorized golf cart, comprising in combination:

a dome-shaped roof structure contoured to drain water away from the central area of said dome-shaped roof structure to the periphery thereof;

said dome-shaped roof structure including a recess fromed integrally with said dome-shaped roof structure and extending about the entire periphery of said dome-shaped roof structure for collecting water flowing from said central area of said dome-shaped roof structure;

a gutter wall connected to said recess about the entire periphery of said dome-shaped roof structure;

the bottom of said recess being positioned lower than the lowermost portion of the contour of said dome-shaped roof structure enabling the runofff water to collect in said recess;

a plurality of upstanding members connected to said motorized golf cart for supporting said dome-shaped roof structure over said motorized golf cart;

a drain including a conduit means;

means for connecting said conduit means to the portion of said gutter wall disposed about the rear area of said roof structure with respect to the direction of travel of said motorized golf cart; and

said conduit means being disposed along one of said upstanding members.

4,332,416

VEHICLE ROOF

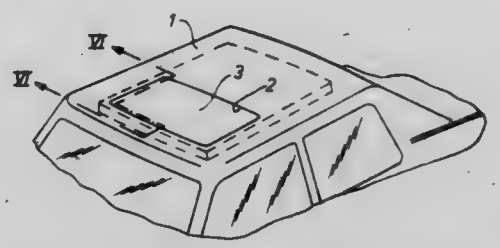
Alfons Lutz, Emmering; Walter Schätzler, Aufhausen; Hans Jardin, Inning; Werner Sielk, Erftstadt-Lechenich, and Julius Frank, Cologne, all of Fed. Rep. of Germany, assignors to Webasto-Werk W. Baier GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Apr. 11, 1980, Ser. No. 139,263

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2914855

Int. Cl.³ B60J *7/10*

U.S. Cl. 296—216 29 Claims



1. A vehicle roof with a roof aperture, a frame mounted to said roof and surrounding said aperture, a displaceable closure panel for opening and closing said aperture, and a pre-assembled installation unit which is attachable to said frame and upon which said closure panel is mountable, said installation unit comprising longitudinal guides, a cross-piece interconnecting said guides at a forward end thereof, closure panel support means slideable along said guides for supporting said closure panel for pivotal displacement about a transverse axis and for longitudinal displacement along said guides, cable drive means connected between said cross-piece and said support means for producing said displacement, and a rear gutter mounted for longitudinal displacement along said guides with said support means, all of which are operationally associated with each other in a manner enabling complete testing of said cable drive means without attachment of said installation unit to said frame.

4,332,417

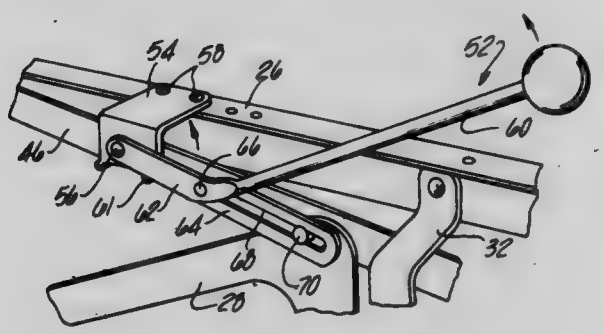
RECLINING ACTUATOR FOR A RECLINER CHAIR

Ned W. Mizelle, Lexington, Ky., assignor to Hoover Universal, Inc., Ann Arbor, Mich.

Filed Dec. 6, 1979, Ser. No. 100,951

Int. Cl.³ A47C *1/023*

U.S. Cl. 297—329 8 Claims



1. In a recliner chair having a stationary chair frame with spaced apart side frame portions, and a seat structure, the improvement comprising linkage means mounting said seat structure on said chair frame between the side portions thereof for movement between a normal seating position and a reclining position, said linkage means including a frame plate attached to said frame and a seat plate attached to said seat, lever means pivotally connecting said plates, actuator means operable when manually actuated to move said seat structure between said seating and reclining positions, said actuator means including a handle pivotally connected to one of said plates and a connector link pivotally connected to said handle and to the other of said plates so that movement of said handle in one direction causes relative movement of said plates to in turn cause movement of said seat structure from a normal seating position to a reclining position, said actuator means being located on one side of said chair between said seat structure and a corresponding one of said chair frame side portions.

4,332,418

ADJUSTABLE HINGE MOUNT FOR SEATS HAVING RECLINABLE BACKREST, PARTICULARLY MOTOR VEHICLE SEATS

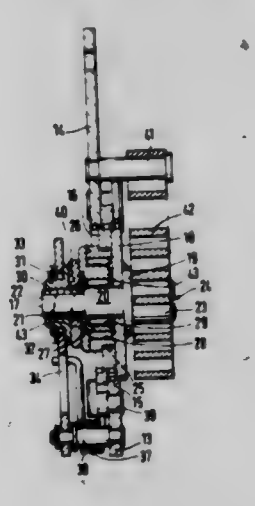
Willibald Strowik, Remscheid-Lennep, Fed. Rep. of Germany, assignor to Keiper Automobiltechnik GmbH & Co. KG, Remscheid, Fed. Rep. of Germany

Filed Dec. 12, 1979, Ser. No. 102,943

Claims priority, application Fed. Rep. of Germany, Dec. 18, 1978, 2854636

Int. Cl.³ A47C *1/025, 1/027*

U.S. Cl. 297—362 12 Claims



1. An adjustable hinge mount for seats having a seat part and a reclinable backrest, comprising: a fixed hinge mount member attached to the seat part and a tiltable hinge mount member attached to the backrest; a pivot axle rigidly connected to one of said hinge mount members; an eccentric disk support for rotation on said axle; a wobble gear assembly including an inner gear formed on the hinge mount member and a spur gear formed on the other hingemount member and being in mesh with said spur gear; a sleeve having an outer surface coaxially splined to said spur gear, and an inner surface supported for rotation on said eccentric disk; and means for selectively locking said eccentric disk to said sleeve and said sleeve to said axle to arrest said reclinable backrest in an adjusted angular position relative to said seat part.

4,332,419

SEAT

Ignaz Vogel, Kleinsteinbacher Str. 42-44, Karlsruhe 41-Stu, Fed. Rep. of Germany (7500)

Filed Jan. 21, 1980, Ser. No. 113,619

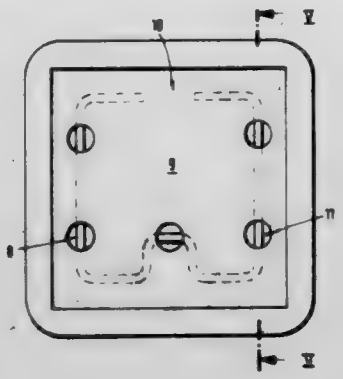
Claims priority, application Fed. Rep. of Germany, Jan. 23, 1979, 2902386

Int. Cl.³ A47C *4/02, 27/05*

U.S. Cl. 297—443 6 Claims

1. A seat, especially a vehicle passenger seat, comprising: a support structure; seating and backrest members removably mounted on said support structure, each consisting of a molded plastic foam member; with a reinforcement and support frame of rigid wire foamed in a predetermined pattern into said molded plastic foam member so as to be integral therewith; and support means associated with said support structure and projecting therefrom, each of said molded plastic foam members having spaced openings extending into said foam member and arranged in a pattern corresponding to the pattern of the reinforcement and support frame therein such that the rigid wire of said support frame intersects, and is exposed in, said openings

and said support means being arranged in the same pattern and having mounting clips extending into said openings and catch-



ingly engaging and supporting said exposed wire therein for releasably supporting said seating and backrest members.

4,332,420

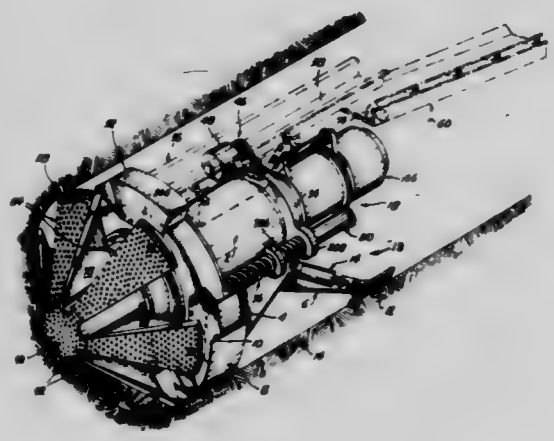
RECIPROCABLY SUPPORTED DUAL DRIVE MEMBER AND FEATURES THEREOF

William D. Coski, 3061-69th SE., Mercer Island, Wash. 98040

Filed Jan. 11, 1980, Ser. No. 111,322

Int. Cl.³ E21D *9/10, 9/12*

U.S. Cl. 299—31 **98 Claims**



1. In combination, a moveably supported member, a support for reciprocably mounting the member, stroke shifting means which are operable to determine the location of the stroke of the member on said support along the axis of reciprocation of the member, so that points on the member and the support are spaced apart from one another a first distance when the member is at the limit of its stroke in one direction of reciprocation thereof, and whereby the location of the stroke can be shifted along the axis without substantially changing the length of the stroke, to relocate the points in closer proximity than said first distance to one another when the member is at the limit of its stroke relative to the support in the one direction of reciprocation thereof.

4,332,421

COUPLING DEVICES FOR CONNECTING A MINERAL MINING MACHINE TO A DRIVE CHAIN

Gerhard Merten, Lünen; Oswald Breuer, Dortmund-Husen, and Bernd Steinkuhl, Lünen, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Lünen, Fed. Rep. of Germany

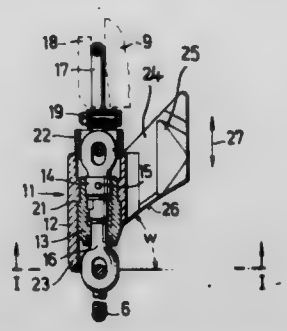
Filed Mar. 3, 1980, Ser. No. 125,933

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1979, 2908828

Int. Cl.³ E21C *35/08, 27/34*

U.S. Cl. 299—34 **12 Claims**

1. In or for a mineral mining installation comprising a winning machine movable back and forth along a guide means of a drive chain located in a guide channel in the guide, said guide being arranged on the mineral face side of a longwall conveyor and having a slot leading from said guide channel and opening towards the mineral face, an improved coupling device for connecting the drive chain to the machine, comprising: a casing provided with shackle means for connection both to the



machine and to the chain to allow swivelling motion therebetween, a lateral projection on the casing extending through said slot towards the mineral face, and a shaped region forming a nose at the end of the device adjacent the chain which cooperates with said lateral projection to remove material accumulating in the guide channel out through said slot.

4,332,422

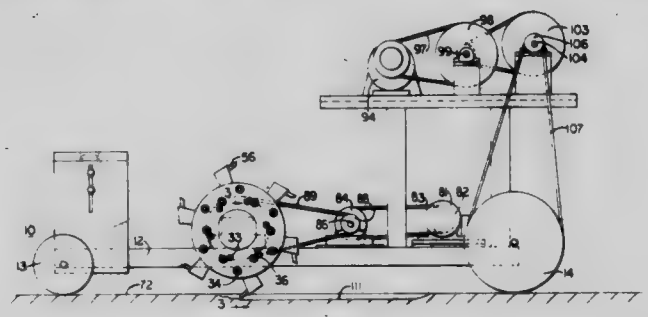
PAVEMENT PLANING DEVICE

Howard H. Hilshorst, c/o Hiott Corp., 2401 Bobmyer Rd., Fairfield, Ohio 45014

Filed Aug. 14, 1975, Ser. No. 604,601

Int. Cl.³ E01C *23/12*

U.S. Cl. 299—39 **2 Claims**



1. A device for removing a part of a surface which comprises a wheel, means for rotating the wheel about a transverse axis, a cutter holder member pivotally mounted on the wheel, the axis of mounting of the cutter holder member being spaced from and parallel to the axis of rotation of the wheel, an elongated cutting tool mounted in a transverse opening in the cutter holder member with a head end portion of the tool extending outwardly of the transverse opening and projecting to one side of the cutter holder member, walls of the transverse opening converging, an L-shaped wedge member mounted in the transverse opening with faces of one arm of the wedge member engaging a face of the tool and one of the converging walls of the transverse opening in wedging relation and the other arm of the wedge member bearing on an end of the tool remote from the head end portion to hold the tool in the transverse opening, a restraining stop member mounted on the wheel and engageable by the cutter holder member as the cutter holder member swings outwardly as the wheel is rotated to position the cutter holder member with the tool in position to make an impact on the surface, and a retraction stop member mounted on the wheel and engageable by the cutter holder member as the cutter holder member swings backwardly following impact with the surface, the retraction stop member having line contact with the cutter holder member at the instants of contact and separation, the cutter holder member being arranged to rebound from the retraction stop member so that the tool makes a second impact on the surface.

4,332,423

TWO-CIRCUIT PRESSURE CONTROL UNIT

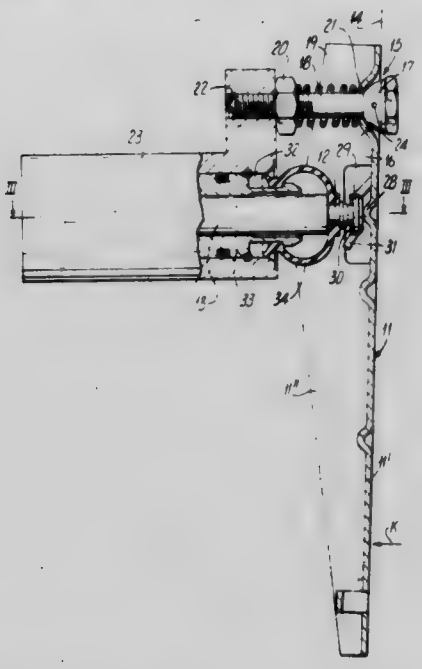
Bernd Schopper, Frankfurt am Main, and Peter Tandler, Falkenstein, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,523

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927423

Int. Cl.³ B60T *8/02, 8/18*

U.S. Cl. 303—22 R **36 Claims**



1. A two-circuit pressure control unit having a change-over point which is externally adjusted, said unit being employed in a two-circuit hydraulic brake system comprising:

a housing containing two blind end bores having parallel longitudinal axes, each of said bores containing therein a control piston having an actuating pin projecting therefrom out of an associated one of said bores, each of said control pistons being associated with a different one of said two brake circuits; and

a common control lever having a control force acting on one end thereof directly acting on both of said actuating pins for even distribution of said control force to said control pistons, said control lever being supported by said housing at a point spaced from said actuating pins to enable tilting of said control lever about a first axis corresponding to its longitudinal axis and a second axis perpendicular to said first axis at said point.

4,332,424

LOW DISTURBANCE TRACK CLEAT AND ICE CALK STRUCTURE FOR FIRM OR ICY SNOW

James A. Thompson, Logan, Utah, assignor to De Lorean Manufacturing Company, Bloomfield Hills, Mich.

Continuation of Ser. No. 892,710, Apr. 3, 1978, Pat. No. 4,218,101. This application Nov. 15, 1979, Ser. No. 94,383

Int. Cl.³ B62D *55/24, 55/28*

U.S. Cl. 305—35 EB **3 Claims**



2. A vehicle crawler track, comprising endless track means; and a plurality of track cleats secured at intervals along said track means transversely thereof, each of said cleats comprising an elongated plate member extending transversely of said track means and transversely formed to provide an elongated, generally triangulated, oval, substantially closed cross section having a base and leading and trailing portions the full length of said member, the leading and trailing portions of the plate member of each cleat both including an edge, the trailing portion of said plate member being curled generally toward the leading portion thereof, and the lowermost extension of said trailing portion being curled sharply to meet the leading portion substantially normal thereto, the edge of said leading portion extending further from the base portion of said plate member than the edge of the trailing portion thereof.

4,332,425

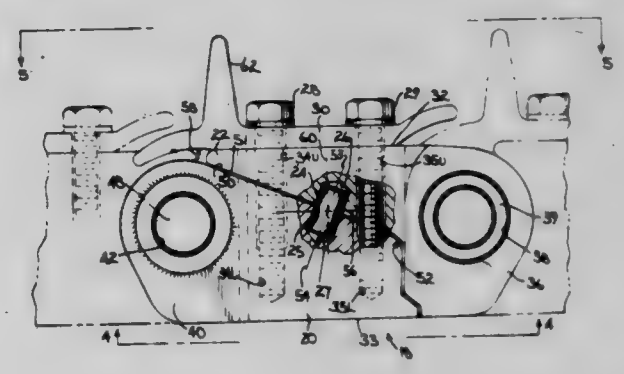
MASTER TRACK LINK ASSEMBLY

John M. Baylor, Bettendorf, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Dec. 31, 1980, Ser. No. 221,836

Int. Cl.³ B62D *55/20;* B67D *55/28*

U.S. Cl. 305—54 **4 Claims**



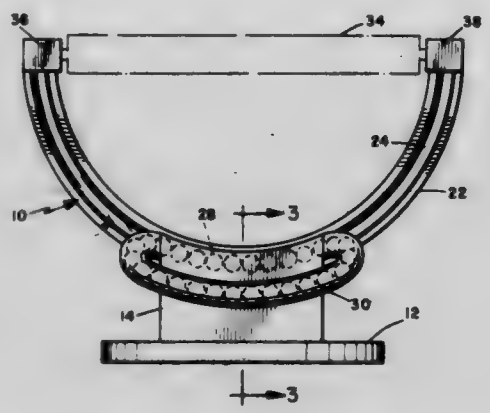
1. A master track link having an outer surface for receiving a track shoe and a transversely spaced opposite inner surface, comprising: two separable link parts with end portions defining longitudinally spaced apart pin connection means and bushing connection means respectively, the interface between said link parts substantially lying along a diagonal flat plane, each of the two diagonal flat surfaces forming said interface defining a cavity, said cavities combining together to define a common hollow space whose axis is generally perpendicular to said two diagonal flat surfaces, said cavities having a first interior wall in one link part the surface of which is disposed away from said flat surfaces and towards said inner surface and having a second interior wall in the other link part the surface of which is disposed away from said flat surfaces and toward said outer surface, that link part having said outer surface is defined as the outer link part and the other link part is defined as the inner link part, one end of the diagonal flat surface on said outer link part converges with the outer surface, the opposite end of the diagonal flat surface on said outer part is located between said outer surface and said inner surface, insertable pin means, complementary to said hollow space, for interlocking together said link parts, whereby said pin means is placed in shear whenever said link parts are pulled apart longitudinally, transversely and laterally; a track shoe displaced along said outer surface; and a bolt means, extending at least partially through said link parts and disposed generally perpendicular to said outer surface, for removably retaining said track shoe in place, whereby link parts are freely separable when said bolt means is removed and one link part is moved away from the other link part along a path generally to said first interior wall or said second interior wall.

4,332,426

RECIRCULATION BEARING FOR ROLLING ARC GIMBAL

John M. Speicher, Upland, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

Filed Oct. 27, 1980, Ser. No. 200,658
Int. Cl.[3] F16C *11/00;* F16M *11/12*
U.S. Cl. 308—2 R 12 Claims



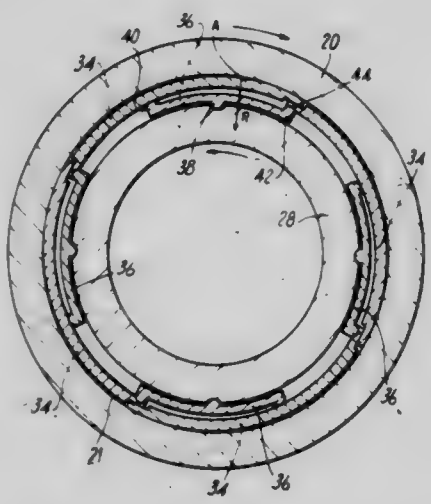
1. A rolling arc gimbal mount comprising:
a base adapted to be supported by a supporting structure;
an arcuate substantially semicircular yoke supported by recirculating bearing means in said base for rotation about its axis, said bearing means including rolling elements guided in a closed path having loaded and unloaded portions, said loaded portion being substantially arcuate; and
a platform pivotally mounted in said yoke for rotation about an axis orthogonal to the axis of rotation of the yoke.

4,332,427

AIR BEARING FOR USE WITH CONCENTRIC ROTARY SHAFTS IN MACHINES

Raymond F. Sargent, and John M. Hall, both of Bristol, England, assignors to Rolls-Royce Limited, London, England

Filed Jul. 14, 1980, Ser. No. 167,732
Claims priority, application United Kingdom, Aug. 4, 1979, 7927265
Int. Cl.[3] F16C *32/06*
U.S. Cl. 308—9 7 Claims



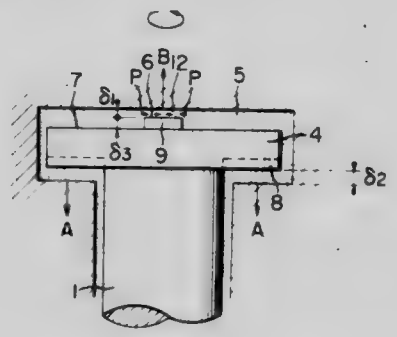
1. A machine having first and second concentric rotating shafts and including a fluid bearing comprising a plurality of resilient shells mounted on one of the shafts for rotation therewith and defining a plurality of surfaces confronting the other one of the shafts and spaced therefrom to define a tapering gap in which, in operation, a fluid film is formed, each of the resilient shells being of a thickness which, relative to its other dimensions is such as to prevent the shell from locally deflecting at unsupported positions in response to increases in the pressure of said fluid film, and load reacting members being mounted between each of the shells and the shaft on which they are mounted to provide, in response to increases in pressure in the fluid film, reaction loads at two locations on a shell on opposite sides of the resultant of the pressure in said film to bend each of the shells in the manner of a stiff beam to modify the shapes of the shells so that the bearing surfaces on the shells conform more closely to the surface of the shaft which they confront in the regions of minimum fluid film thickness, and wherein the shells are mounted on a portion of said one of the shafts which lies radially inwardly of said other one of the shafts and the bearing surfaces of the shells are formed on convex surfaces thereof to confront the internal surface of said other one of the two shafts.

4,332,428

ROTARY MECHANISM WITH AXIAL BEARINGS

Teruo Maruyama, Neyagawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 4, 1980, Ser. No. 109,491
Claims priority, application Japan, Jan. 16, 1979, 54-3701; Mar. 14, 1979, 54-30343; Jul. 31, 1979, 54-98217
Int. Cl.[3] F16C *39/06*
U.S. Cl. 308—10 8 Claims



1. A rotary mechanism with axial bearing means characterized by the provision of
(a) a shaft having at least one free end;
(b) a housing rotatably fitted over said shaft with a lubricant interposed therebetween;
(c) a first axial position control means comprising a first thrust axial bearing means comprising
a projection extended from the free end of said shaft or from the opposing bearing surface of said housing in opposed relationship with said free end of said shaft and functioning in such a manner that the clearance between the end face of said projection and its opposing bearing surface tends to be increased, and grooves formed from the radially inner side to the radially outer side in said end face of said projection or said opposing bearing surface of said housing; and
(d) a second axial position control means which is so designed and constructed that the force may be produced which tends to reduce the clearance between said projection and its opposing bearing surface.

4,332,429

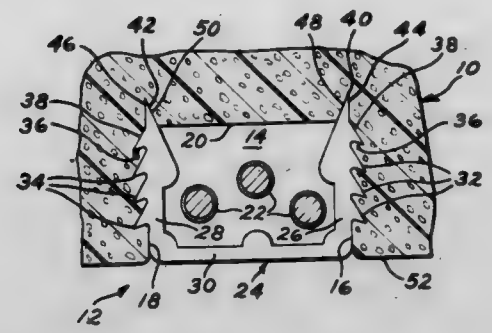
HOUSEHOLD REFRIGERATOR AND METHOD OF CONSTRUCTION

William C. Frick, Louisville, Ky., and John M. Powell, Charlestown, Ind., assignors to General Electric Company, Louisville, Ky.

Filed Dec. 3, 1979, Ser. No. 99,286
Int. Cl.[3] A47B *77/08;* H02G *3/00;* F25D *23/08*
U.S. Cl. 312—236 13 Claims

6. In a refrigerator cabinet having a rigid plastic foam member, an electrical wiring assembly comprising:
an open channel having opposite side walls and a bottom wall in the rigid plastic foam member;
electrical wires in the channel; and
at least one clip secured within the channel, said clip having two spaced legs with projections formed thereon and

gripping respectively the opposite side walls of the channel and a body member depending from the legs spanning



the open channel remote from the bottom wall and spaced from the electrical wires to confine and allow longitudinal movement of the wires within the channel.

4,332,430

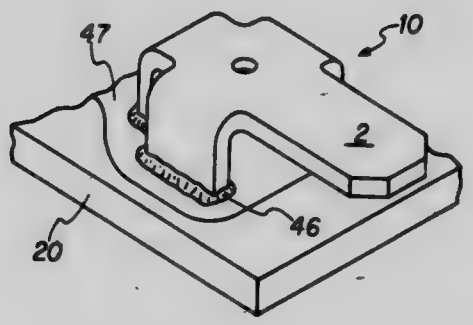
PRINTED CIRCUIT BOARD CONNECTOR

Paul R. Clark, Cedar Rapids, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Continuation of Ser. No. 88,739, Oct. 26, 1979, abandoned. This application Jan. 14, 1981, Ser. No. 225,080

Int. Cl.³ H01R *13/04*

U.S. Cl. 339—17 C **2 Claims**



1. A circuit board connector for mounting on a printed circuit board comprising:

a terminal means having a flat surface for mounting on a printed circuit board;

first and second mounting legs bent perpendicular to the flat surface and positioned in parallel alignment with each other;

an extension for receipt at a female spade terminal, the extension being positioned at right angles to the first and second mounting legs extending outward from the flat surface and, when mounted, positionable in parallel alignment with the printed circuit board, at an acute angle with the circuit board, or perpendicular with the printed circuit board;

stabilizing mounting leg means having the same shape as the first and second mounting legs for stabilizing the circuit board connector, and positioned on the opposite side of the terminal means from the extension; and

mounting means for mounting the terminal means directly above the printed circuit board and spaced sufficiently from the printed circuit board for the extension (when positioned in parallel alignment with the printed circuit board) to receive the female spade terminal; the mounting means includes on each of the first and second mounting legs and the stabilizing mounting leg means a mounting shoulder and a feed-through extension extending outward from the mounting shoulder, whereby, when the circuit board connector is mounted on the circuit board, the mounting shoulder will support the terminal means in parallel alignment with the circuit board, and separate it therefrom by a distance established by the mounting shoulders.

4,332,431

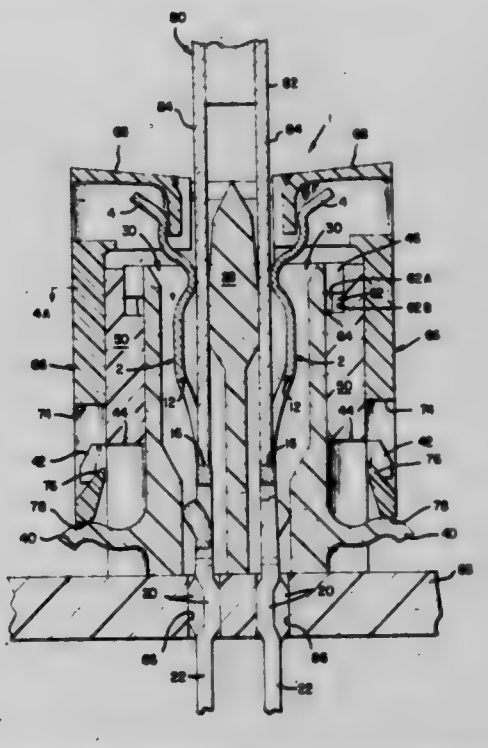
PREASSEMBLED ELECTRICAL CONNECTOR

Clifford F. Bobb, Carlisle, and Robert F. Cobaugh, Elizabethtown, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation of Ser. No. 105,046, Dec. 18, 1979, abandoned. This application May 26, 1981, Ser. No. 267,098

Int. Cl.³ H01R *13/62*

U.S. Cl. 339—74 R **12 Claims**



1. A preassembled electrical connector, comprising:

a rigid dielectric housing having one or more rows of cavities,

a row of elongated leaf spring terminals lockingly retained in each said row of cavities,

said housing provided with one or more receptacle openings into which circuit path conductors are pluggably inserted and into which the terminals project for frictional and electrical engagement with said conductors,

fulcrum means on said housing,

a dielectric shroud pivotally connected to said fulcrum means,

means for pivoting said shroud about said fulcrum means,

said shroud being hooked over a corresponding row of said terminals, and, upon pivoting about said fulcrum means, resiliently deflecting said terminals away from said one or more receptacle openings, permitting insertion of said conductors into said openings with reduced frictional engagement by said terminals, and

resilient means on said housing for urging said shroud into pivotal engagement with said fulcrum means.

4,332,432

LOW INSERTION FORCE CONNECTOR ASSEMBLY

Stephen A. Colleran, Plainfield, Ill., assignor to Molex Incorporated, Lisle, Ill.

Continuation of Ser. No. 966,897, Dec. 6, 1978, abandoned. This application Jan. 25, 1980, Ser. No. 115,332

Int. Cl.³ H01R *13/629*

U.S. Cl. 339—75 M **9 Claims**

1. In a connector assembly including

a first housing,

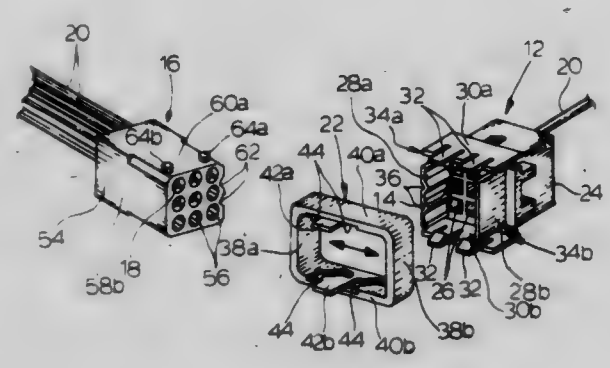
a second housing received within said first housing and moveable in a first direction toward and away therefrom between an initial position and a fully inserted position, and

at least one pair of terminals, one being mounted in the first housing and the other terminal being mounted in the second housing, said pair of terminals having aligned longitudinal axes, each terminal having a mating portion

engaging the mating portion of the other terminal when said terminals of said pair are axially moved toward each other in response to movement of the housings to the fully inserted position, the improvement comprising:

an actuator member mounted on one of the housings for reciprocal and linear movement in a second direction generally transverse to said first direction between an unlocked position and a locked position; and

interengaging cam means associated between the other of said housings and said actuator member, said cam means including inclined cam slot means defined between two spaced apart opposed surfaces and cam follower means



receivable and moveable within said slot means, the cam follower means and one of the surfaces exerting a force against each other when the actuator is moved from the unlocked to the locked positions, the cam follower means and the other of said surfaces exerting a force against each other when the actuator is moved from the locked to the unlocked position, whereby said housings are moved between said initial and inserted positions when said actuator member is moved between the unlocked and locked positions, said cam means including a locking portion to prevent the housings from moving from the inserted position to the initial position except by movement of the actuator member from the locked position.

4,332,433

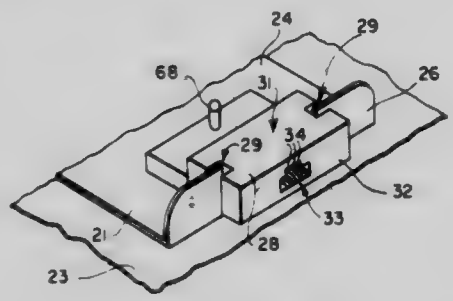
TERMINATION OF FLAT FLEXIBLE CABLES

John W. Balde, Flemington, N.J.; Robert A. Spencer, Indianapolis, and Richard K. Thompson, Jr., Carmel, both of Ind., assignors to Western Electric Co., Inc., New York, N.Y. and Bell Telephone Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 928,930, Jul. 28, 1978, abandoned. This application Mar. 31, 1980, Ser. No. 135,401

Int. Cl.³ H01R *13/38*

U.S. Cl. 339—99 R **8 Claims**



1. A connector for use in an undercarpet telephone wiring system for interconnecting one of a plurality of contacts of a plug with one of the conductors of one or more flat flexible cables, the number of cables and the interconnection pattern between the plug contacts and the flat cable conductors being determined in accordance with a desired system configuration, the system including a floor plate having a substantially flat, first face suitable for attachment to a floor and an oppositely-facing, parallel, flat second face for supporting the connector, the second face having an upstanding wall with a recess therein for receiving a portion of the connector, which connector comprises:

(a) a dielectric, plug-receiving housing having front and rear faces, spaced sidewalls extending between the front and rear faces and a plug-receiving recess extending inwardly from the front surface and having a shape complimentary to that of the plug, the sidewalls having opposed notches formed therein intermediate the front and rear faces to thereby define a necked region of the housing, the width of the necked region being less than the width of the recess of the floor plate upstanding wall so that the necked region may be received within the recess, the width between the sidewalls of the housing immediately adjacent to the notches being greater than that of the recess so that portions of the upstanding wall on either side of the recess may be captured within the notches when the connector is supported on the floor plate to thereby prevent substantial inward or outward movement of the connector;

(b) a plurality of jack contacts mounted within the plug-receiving recess, the jack contacts being adapted to engage and make electrical contact with respective ones of the plug contacts;

(c) a dielectric, support member extending rearwardly from the rear face of the housing and connected thereto and having a flat upper surface for receiving a flat flexible cable and a spaced lower surface; and

(d) a plurality of conductive terminals equal in number to the number of jack contacts and having first and second ends, the terminals being mounted in the support member such that they are normally electrically isolated from the jack contacts and such that their respective first ends extend upwardly from the upper surface of the support member and their second ends extend downwardly from the lower surface thereof, the first ends of the terminals being adapted to engage and make electrical contact with respective conductors of a flat cable, the second ends of the terminals being adapted to engage and make electrical contact with means for connecting the second ends to respective ones of the jack contacts in a pattern determined by the desired system configuration.

4,332,434

ELECTRIC TERMINAL AND ASSEMBLY CONTAINING SAME

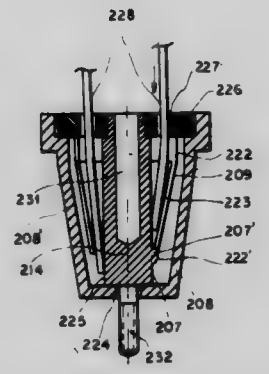
Rudolf Neidecker, Basel, Switzerland, and Bernd Rüsing, Heiligenhaus, Fed. Rep. of Germany, assignors to Multi-Contact AG, Allschwil, Switzerland

Filed Jan. 9, 1980, Ser. No. 110,602

Claims priority, application Fed. Rep. of Germany, Jan. 13, 1979, 2901201

Int. Cl.³ H01R *9/12*

U.S. Cl. 339—258 R **8 Claims**



1. An electrical terminal for a multiplicity of conductors, especially for breadboarding and the like comprising means forming an annular groove adapted to accommodate a plurality of conductors and having an inner and outer wall, and including an annular spring member constituted of electrically conductive material and provided with a plurality of elements adapted to resiliently engage said conductors, said elements

bearing on one of said walls, said outer wall generally being cup-shaped and said inner wall being formed as a post disposed centrally in the cup formed by the outer wall, said post being unitary with an insulating support forming said cup and being provided with a head having an undercut engaging an edge of said spring member.

4,332,435

GLASS FIBRE CABLE JUNCTION BOX

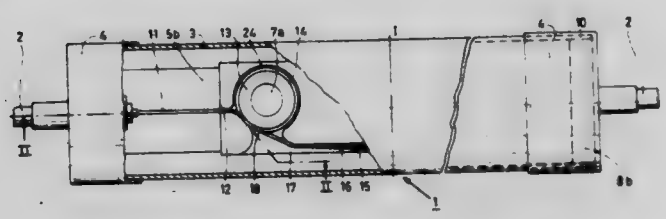
Jan Post, Nieuwegein, Netherlands, assignor to N.K.F. Groep B.V., Netherlands

Filed Dec. 14, 1979, Ser. No. 103,656

Claims priority, application Netherlands, Jan. 19, 1979, 7900432

Int. Cl.³ G02B 7/26

U.S. Cl. 350—96.20 **4 Claims**



1. A junction box for connecting the ends of two optical cables, each cable comprising at least one optical fiber for conducting light signals, said junction box having space for storing spare lengths of optical fiber and having a guide for accommodating a splice of the ends of two optical fibers, characterized in that the junction box comprises an assembly of stacked, elongate, flat holders, one holder for the ends of each pair of optical fibers to be coupled, said holders each comprising:

a recess for accommodating a splice between the fibers to be coupled; and

two storage spaces, one on either side of the recess, each space for loosely accommodating a spare length of an optical fiber, said storage spaces each having an inner diameter at least equal to twice the minimum radius of curvature of the optical fibers to be spliced.

4,332,436

METHOD AND APPARATUS FOR CONSTRUCTING AN OPTICAL FIBER CABLE WHICH IS RESISTANT TO HIGH TEMPERATURES AND IS PERFECTLY WATERTIGHT, AND CABLE PRODUCED BY SUCH PROCESS

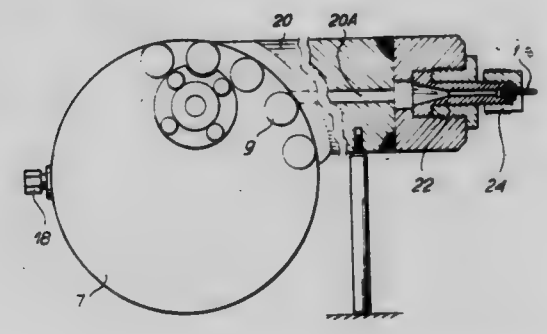
Napoleone Adorni, and Pier L. Pizzolati, both of Milan, Italy, assignors to Cise S.p.A., Milan, Italy

Filed Jan. 8, 1980, Ser. No. 110,367

Claims priority, application Italy, Jan. 8, 1979, 9310 A/79

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.23 **12 Claims**



1. A process for the production of a sheathed optical fiber cable comprising the steps of:

providing a metallic tube to form the sheath of said cable, said tube being of a length corresponding to the desired cable length;

holding said tube;

positioning a first portion of said optical fiber within a first portion of said tube; and

providing a flow of fluid around said optical fiber and within said tube to exert a progressive entrainment of the optical fiber within said tube.

11. The optical fiber cable produced by the process of claim 1.

4,332,437

RETROREFLECTIVE MARKING TAPE

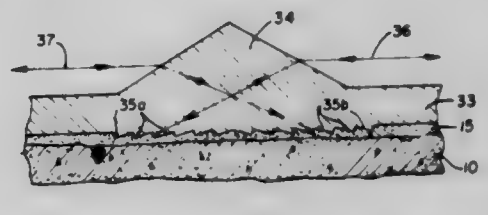
Charles E. Searight, Jackson, Miss., and James H. Heasley, Shaker Heights, Ohio, assignors to Ferro Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 812,851, Jul. 5, 1977, Pat. No. 4,182,548. This application Jul. 30, 1979, Ser. No. 61,617

The portion of the term of this patent subsequent to Jan. 8, 1997, has been disclaimed.

Int. Cl.³ G02B 5/124

U.S. Cl. 350—103 **12 Claims**



1. A retroreflective marking material, effective whether wet or dry, comprising a light-transmitting sheet having one side adapted to be exposed to and refract incident light and an opposite side adapted to be directly adhered to a support or the like, said opposite side having a plurality of trihedral light-reflecting units having three mutually perpendicular facets, said units comprising triangular-based pyramids having their optical axes disposed within 15 degrees of the direction of the light refracted by said one side, said one side being adapted to direct said refracted, incident light through said sheet to said pyramidal units, and said units being adapted to retroreflect said light back through said sheet and away from said one side in a direction substantially parallel to said original incident light.

4,332,438

LENS ELEMENT

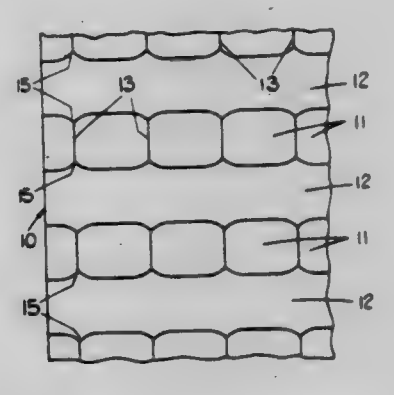
Stanley Green, Warley, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Mar. 7, 1980, Ser. No. 128,226

Claims priority, application United Kingdom, Mar. 23, 1979, 7910325

Int. Cl.³ G02B 3/08; F21V 5/04

U.S. Cl. 350—167 **7 Claims**



1. A lens element in the form of a moulded body, a plurality of parallel rows of projections on one face of said moulded body and a plurality of ribs on said one face of said body, said ribs being parallel to said parallel rows of projections, each of said projections having the form of part of a body of revolution or having a cylindrical mid-region and end regions which each

have the form of part of the body of revolution of a transverse section of the mid-region, the length of each said rib being greater than the corresponding dimension of each said projection, and at least one of said ribs being disposed between at least one pair of adjacent rows of said projections.

4,332,439

METHOD OF PRODUCING A LIGHT CONDUCTOR

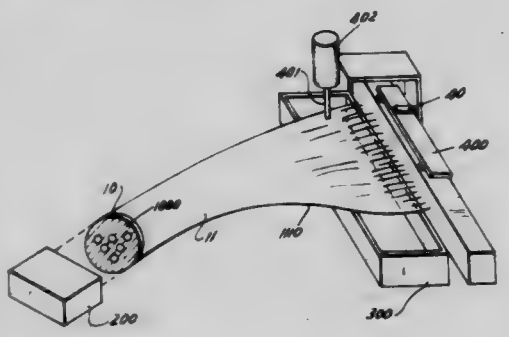
Dietrich W. Lübbers, Dortmund, and Friedbert Hannebauer, Bochum, both of Fed. Rep. of Germany, assignors to Max Planck Gesellschaft zur Förderung der Wissenschaften e.V., Goettingen, Fed. Rep. of Germany

Filed Jul. 26, 1979, Ser. No. 60,846

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832880

Int. Cl.³ G02B *5/14, 5/17*

U.S. Cl. 350—320 **3 Claims**



1. A method for the production of a light conductor having opposite ends and composed of a plurality of thin fibers, wherein at least one of said ends is divided into a plurality of strands and wherein each strand of said one end comprises fibers of a specific one of a plurality of regions at the other end arranged in any desired pattern, said method comprising the steps of producing at said other end an illuminated pattern of any desired outline so that some of the fibers will be light carrying fibers and the other non-light carrying fibers; displacing said light carrying fibers and said non-light carrying fibers with respect to each other by a photoelectric control rod punch, and connecting said light carrying fibers, respectively said non-light carrying fibers into said separate strands.

4,332,440

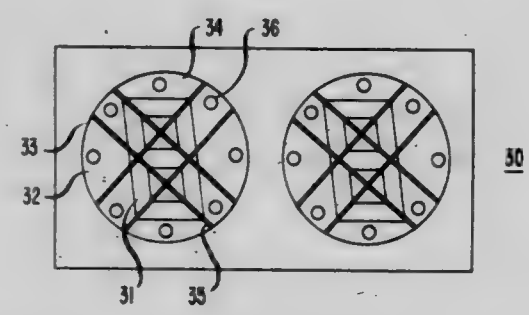
STRUCTURE OF DISPLAY DEVICES

Mauro DiDomenico, Jr., Bernardsville; Shobha Singh, Summit, and LeGrand G. Van Uitert, Morristown, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 17, 1980, Ser. No. 131,080

Int. Cl.³ G02F *1/17*

U.S. Cl. 350—357 **9 Claims**



1. A display device comprising electrodes comprising transparent conducting material, display elements forming at least one character electrolyte comprising organic solvent and dissolved salt and active material, in which the active material changes color in response to an electrical signal and the active material consists essentially of at least one organic quinone selected from the group consisting of 2-tertiary butylanthraquinone, 2-ethylanthraquinone and benz[α]anthracene-7,12 dione characterized in that the electrolyte in said at least one character of the display device is separated into a plurality of separate cells by electrical insulator material so that electrical signal originating in one cell remains in that cell.

4,332,441

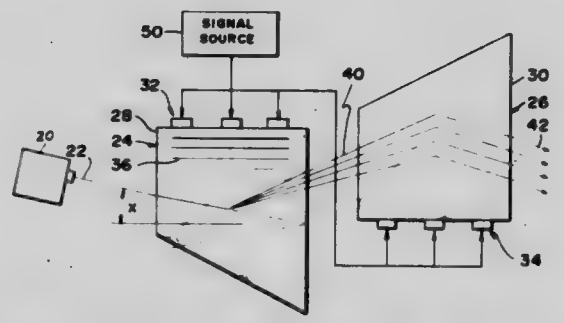
COHERENTLY PULSED LASER SOURCE

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Jack S. Margolis, Pasadena, Calif.

Filed May 15, 1980, Ser. No. 150,040

Int. Cl.³ G02F *1/32*

U.S. Cl. 350—358 **7 Claims**



1. Apparatus for generating modulated optical radiation comprising:

a source of continuous coherent optical radiation;

first and second diffraction devices, each device including an optical element which is transparent to the passage of optical radiation from said source, and each device also including a sound transducer coupled to the optical element to pass sound waves therethrough; and

a signal source which generates signals of a plurality of frequencies, said signal source coupled to said transducers to energize each of them with the same signals;

said source and diffraction devices positioned so that radiation from said source passes into said first device and the radiation emanating from said first device passes into said second device.

4,332,442

REPRODUCING OBJECTIVE FOR VIDEO DISKS

Kaneyas Ookawa, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

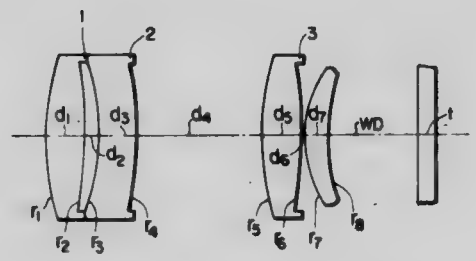
Filed Apr. 23, 1980, Ser. No. 143,123

Claims priority, application Japan, May 4, 1979, 54-55019

The portion of the term of this patent subsequent to Mar. 24, 1998, has been disclaimed.

Int. Cl.³ G02B *9/34*

U.S. Cl. 350—469 **15 Claims**



1. A reproducing objective for video disks comprising a first, second, third and fourth lenses in the order from the reproducing light source side to the video disk side, said first lens being a positive lens, said second lens being a negative meniscus lens, said third lens being a positive lens, said fourth lens being a positive meniscus lens, at least one of said lenses being ar-

ranged as a plastic lens, said reproducing objective for video disks fulfilling the following conditions:

(1) $2.1f<f_1<3.2f$
(2) $-55f<f_2<-3.9f$
(3) $1.3f<f_4<2.4f$
(4) $f<r_8<2.3f$
(5) $d_2<0.1f$
(6) $0.5f<d_4$

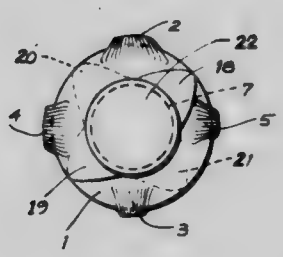
wherein reference symbols f_1, f_2 and f_4 respectively represent focal lengths of the first, second and fourth lenses, reference symbol r_8 represents the radius of curvature of surface on the video disk side of the fourth lens, reference symbol d_2 represents the airspace between the first and second lenses, reference symbol d_4 represents the airspace between the second and third lenses, and reference symbol f represents the focal length of the lens system as a whole.

4,332,443

CONTACT LENSES

Penrhyn F. Thomas, 5 N. Arm Rd., Middle Cove, New South Wales, 2068, Australia

Continuation of Ser. No. 24,787, Mar. 29, 1979, abandoned. This application Feb. 4, 1981, Ser. No. 231,544
Int. Cl.³ G02C *7/04*
U.S. Cl. 351—160 H **4 Claims**



1. A soft hydrophilic plastic corneal contact lens consisting essentially of a substantially circular optical correction zone which is shaped for the correction of astigmatism,

said lens being soft enough to tend to conform to the shape of the cornea when placed on an eye with corneal astigmatism,

at least one discrete lug or flange extending from the periphery of said correction zone, said lug being composed of said soft hydrophilic plastic,

said lug having a radial width measured from the periphery of said correction zone which is less than the radius of said correction zone,

said lug having a limited dimension around the circumference of the lens to engage only that portion of the sclera of the eye adjacent to the cornea at one of the depressions on the eyeball formed between the four rectus muscles attached to the sclera of the eye to thereby prevent rotation of the lens to maintain the required astigmatism correction.

4,332,444

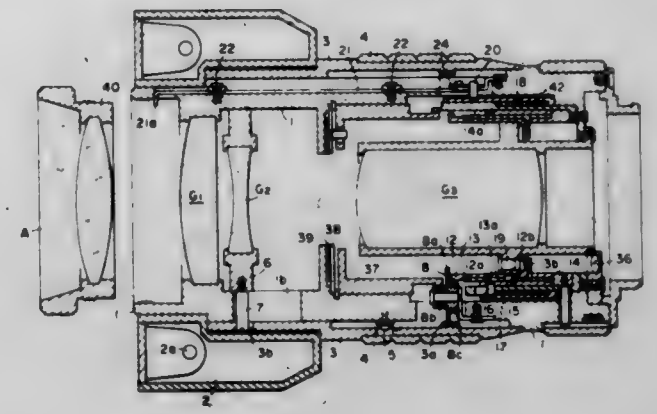
PHOTOGRAPHIC LENS CAPABLE OF PHOTOGRAPHING THE MAGNIFICATIONS

Hideyo Nozawa, Ohmiya, and Hideshi Naito, Tokyo, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Jun. 17, 1980, Ser. No. 160,161
Claims priority, application Japan, Jun. 29, 1979, 54/82187
Int. Cl.³ G03B *17/48, 17/00*
U.S. Cl. 354—79 **6 Claims**

1. In a photographic lens having a main image forming optical system including operating means and focusing means operated thereby to be moved in the direction of the optical axis so that magnification of an object image formed by the main image forming optical system may be varied; the lens being capable of mounting in association therewith another optical system including optical means for converting magnification of said image, the improvement comprising:

(a) display means selectively having a first display mode in which magnification of said image attained by said main image forming optical system is displayed in response to variation in the magnification, and a second display mode in which magnification of said image attained in combination of said other optical system with said main image forming optical system is displayed in response to variation in the magnification;



(b) means for detecting the mounting of said other optical system on the main image forming optical system; and

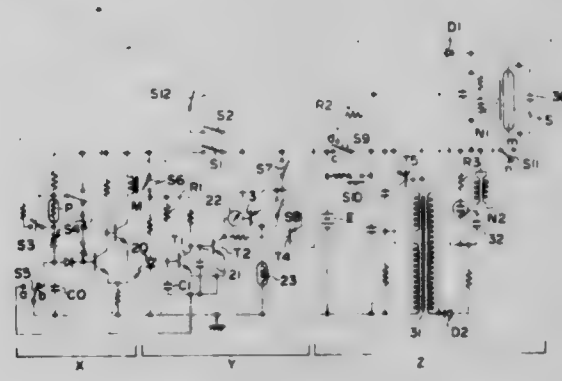
(c) means for replacing said display modes in response to the detecting means.

4,332,445

FLASH LIGHT DISCHARGE TUBE CONTROL DEVICE

Tsutomu Hosono, Tokyo, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan

Continuation of Ser. No. 788,465, Apr. 18, 1977, abandoned. This application Sep. 8, 1978, Ser. No. 940,615
Claims priority, application Japan, Apr. 16, 1976, 51-43317
Int. Cl.³ G03B *17/24, 15/05*
U.S. Cl. 354—106 **5 Claims**

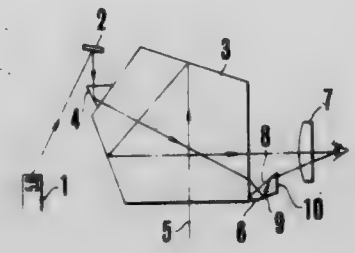


1. In a photographic camera provided with an electronic flash light device including a capacitor used for discharging an electronic flash light tube, and an oscillator for charging the capacitor and an additional electrically operated data printing device wherein a single power source is commonly used for energizing the electronic flash light device and the data printing device; the combination including a device for controlling the flash light tube comprising means for turning off the oscillator to stop the charging of the capacitor at least for the period from the discharging of the flash light tube to the completion of the operation of said data printing device.

4,332,446
VIEW FINDER FOR CAMERA

Yoshichi Okuno, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 24, 1980, Ser. No. 162,490
Claims priority, application Japan, Jun. 29, 1979, 54-82276
Int. Cl.³ G03B *13/08, 17/20*
U.S. Cl. 354—155 2 Claims

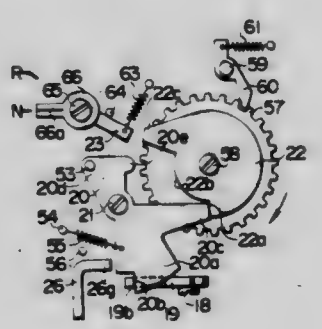


1. A viewfinder for a camera, comprising an eye piece, an optical system having an optical axis for reflecting light from within a certain viewfield toward said eye piece, means for directing light from outside said certain viewfield through said optical system at a given angle relative to said optical axis, a sub prism arranged relative to said optical system and outside a path of the light from within a certain viewfield toward said eye piece for directing the light from outside said certain viewfield which passes through said optical system at said given angle toward said eye piece, said sub prism having a light incident plane, a light reflecting plane and a light emitting plane arranged so that the light from outside the viewfield which passes through said optical system enters said sub prism through said light incident plane and is reflected from said light reflecting plane toward said light incident plane to be substantially totally reflected by said light incident plane toward said light emitting plane to leave said sub prism.

4,332,447
ELECTROMAGNETIC SHUTTER APPARATUS FOR CAMERA

Katsuhiko Tsunefuji, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

Division of Ser. No. 892,732, Apr. 3, 1978, Pat. No. 4,171,156.
This application Sep. 4, 1979, Ser. No. 72,019
Claims priority, application Japan, Apr. 4, 1977, 52-39242; Apr. 20, 1977, 52-45567; Apr. 20, 1977, 52-45568; Apr. 20, 1977, 52-45569
Int. Cl.³ G03B *19/02*
U.S. Cl. 354—209 6 Claims

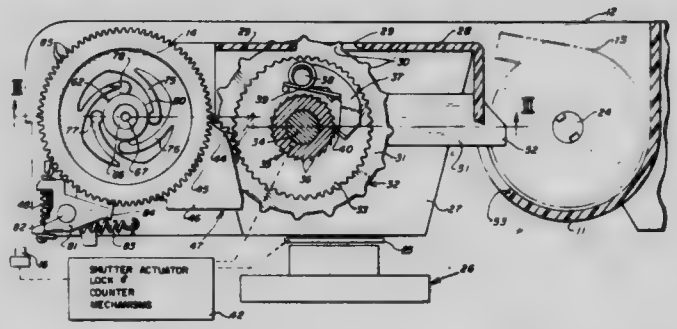


1. A multiple exposure apparatus for an electromagnetic shutter apparatus for camera including a shutter drive and control circuit which energizes a shutter drive coil in response to a shutter release operation to open a shutter by the electromagnetic interaction between the coil and a permanent magnet and in which an exposure period is automatically controlled by a time constant circuit including a photometric, light receiving element; the multiple exposure apparatus comprising a shutter drive member including the shutter drive coil and adapted to oscillate in response to the electromagnetic interaction between the coil and the permanent magnet to open the shutter, a detent member normally preventing a film winding operation by an associated film winding mechanism and becoming operative as the drive member opens the shutter to permit a film winding operation and to prevent a subsequent shutter release operation, a constraining member engageable with the detent member by an external operation to prevent the detent member from permitting a film winding operation, and a returning member interlocked with a film winding mechanism to return the detent member to its initial position upon termination of a film winding operation.

4,332,448
FILM WINDING SAFETY MECHANISM

Arthur Zawodny, Budd Lake, N.J., assignor to Keystone Camera Corporation, Clifton, N.J.

Filed Nov. 17, 1980, Ser. No. 207,672
Int. Cl.³ G03B *1/00, 17/26*
U.S. Cl. 354—213 8 Claims



8. In a camera including lens means for projecting an image to an image area, shutter means for controlling projection of said image to said image area, film supply means, film take-up means, and film advancing means coupled to said take-up means and operable for advancing film through said image area from said supply means to said take-up means, a sprocket wheel engageable with the film and rotatable by the film during operation of said film advancing means, a one-way clutch, a rotatable metering element coupled to said sprocket wheel through said one-way clutch and operative to allow rotation of said sprocket wheel through only a predetermined angle in response to operation of said film advancing means, said one-way clutch being operable to a disengaged condition to allow rotation of said sprocket wheel in a reverse direction during film rewind, and safety means coupled to said metering element and to said shutter means for allowing operation of said shutter means only after actuation of said film metering means by said film through said sprocket wheel and said one-way clutch.

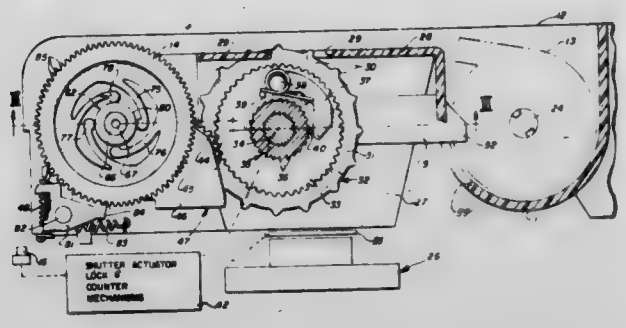
4,332,449
FILM ADVANCE AND REWIND MECHANISM

Arthur Zawodny, Budd Lake, and Jerzy Krysicki, Passaic, both of N.J., assignors to Keystone Camera Corporation, Clifton, N.J.

Filed Nov. 17, 1980, Ser. No. 207,671
Int. Cl.³ G03B *1/00, 17/26*
U.S. Cl. 354—214 7 Claims

7. In a camera including means for journalling supply and take-up spool means, film advance means for driving said take-up spool means to move film in an advancing direction from said supply spool means to said take-up spool means, and film rewind means for driving said supply spool means to move film back in a rewind direction from said take-up spool means to said supply spool means, said film-advance means comprising: engagement means comprising a wheel having a peripheral surface for engagement by a finger of a user to effect rotation thereof in one direction, and coupling means between said engagement means and said take-up spool means, said coupling means being normally in a first condition in which

said take-up spool means is decoupled from said engagement means for allowing movement of the film in said rewind direction, and said coupling means being operable to a second condition in response to operation of said engagement means to rotate said take-up spool means and to move the film in said



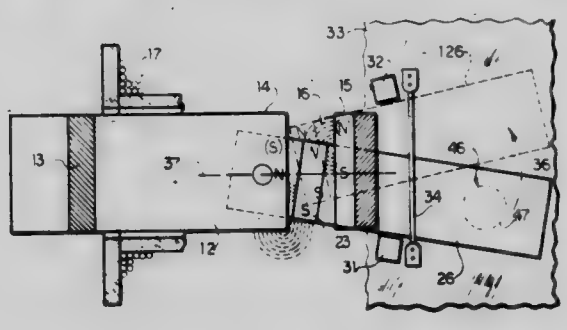
advancing direction, means for limiting rotation of said engagement wheel in a direction opposite said one direction, shutter actuating means, and one-way clutch means coupling said take-up spool means to said shutter actuating means for operation of said shutter means in response to rotation of said take-up spool means in a film-advancing direction.

4,332,450

MAGNETIC ACTUATION METHODS AND APPARATUS

Gerald W. Griffith, Tustin, Calif., assignor to James Dole Corporation, Fountain Valley, Calif.

Filed Sep. 15, 1980, Ser. No. 187,272
Int. Cl.³ G03B *9/10*; H01F *7/14*
U.S. Cl. 354—234 **31 Claims**



1. In a magnetic actuation method, the improvement comprising in combination the steps of:

providing a first magnetic field in an air gap;

providing in said air gap a magnet having a second magnetic field at an angle to and interacting with said first magnetic field;

locating a pivot axis for said magnet laterally and entirely outside of said air gap;

distorting said air gap at a boundary thereof for imposing a unidirectional retention force on said magnet; and

displacing with said interacting first and second magnetic fields said magnet in said air gap about said laterally located pivot axis.

4,332,451

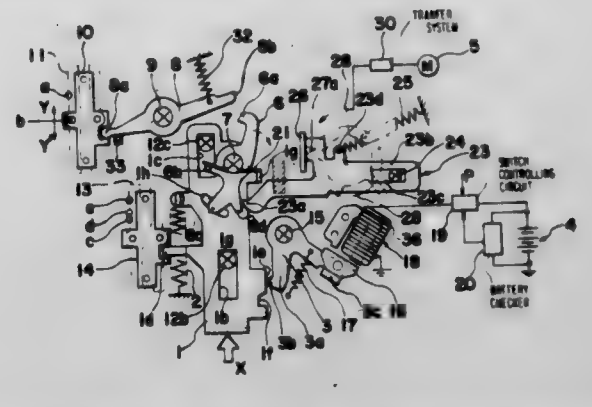
RELEASE SAFETY SHUTTER INTERLOCK FOR BATTERY POWERED CAMERA

Hirokazu Ichii, Iwatsuki, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 27, 1980, Ser. No. 200,656
Claims priority, application Japan, Oct. 30, 1979, 54-140792
Int. Cl.³ G03B *9/08, 17/38, 19/02*
U.S. Cl. 354—234 **9 Claims**

1. A shutter release controlling apparatus for a self-developing instant camera provided with a shutter means including a manually operable shutter button for regulating the exposure of a self-developing film unit having treating liquid, and a motor means energizable by a battery for driving a spreader means to spread the treating liquid across the film unit for development subsequent to the exposure, and for ejecting the self-developed film unit out of the camera, said apparatus comprising in combination:

a releasing member means responsive to shutter button movement for actuating the shutter means,



a first means for preventing the releasing member means from actuating the shutter means when the battery voltage is insufficient to drive the motor means, and

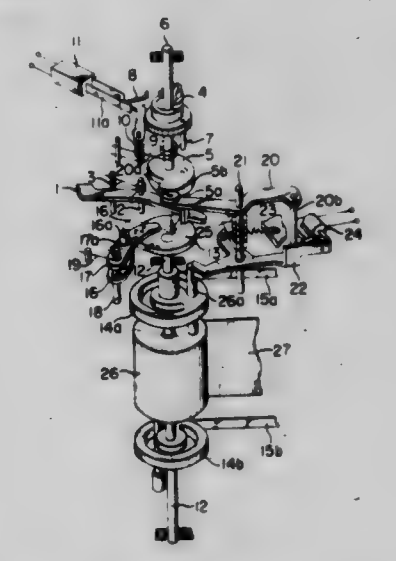
a second means for preventing the releasing member means from actuating the shutter means during the driving operation of the motor means for the spreader means.

4,332,452

ELECTRIC SHUTTER FOR CAMERA

Yoshiyuki Nakano, and Etsuo Tanaka, both of Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Dec. 11, 1980, Ser. No. 215,343
Claims priority, application Japan, Dec. 20, 1979, 54-164700
Int. Cl.³ G03B *9/32, 9/62*
U.S. Cl. 354—234 **6 Claims**



1. An electric shutter control device for a camera operable selectively with manual control mode in which the shutter time is set manually or with automatic exposure control mode in which a proper shutter time is set automatically, said electric shutter control device comprising:

a member for opening the shutter in response to a shutter releasing operation;

a member for closing the shutter;

a control cam adapted to start moving in accordance with the shutter releasing operation and which is composed of, at least, a first cam area, a second cam area and a third cam area;

means for latching the closing member and so disposed as to come into contact with said first area, second area and third area of said cam;

an electromagnetic device for attracting said latching means to prevent the contact between said control cam and latching means; and

said electromagnetic device controlling said latching means in such manner that when the manual control mode is

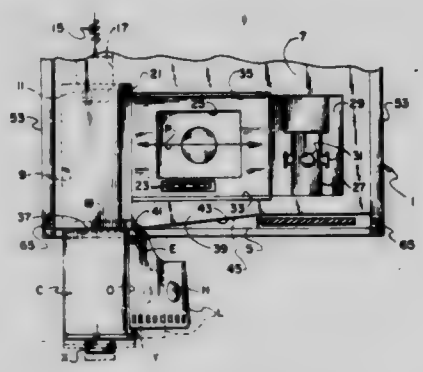
selected and the highest speed shutter time is set, then said latching means is brought into contact with said third cam area after contacted with said first cam area to release the closing member at the highest speed shutter time and that when the manual control mode is selected and a shutter time other than said highest speed shutter time is set or when the automatic exposure control mode is selected, then said latching means is brought into contact with only the third cam area of said cam to release the closing member at the set shutter time and if the proper shutter time set by the automatic control mode is shorter than a certain shortest limit shutter time which is shorter than said highest speed shutter time, then said latching means is firstly brought into contact with said second cam area of said cam and then continuously contacted with said third cam area to release the closing member at said shortest limit shutter time.

4,332,453

FILM LOADING APPARATUS

Neil G. Seely, Rochester, and David C. Smart, Penfield, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 6, 1981, Ser. No. 260,875
Int. Cl.³ G03B *17/02, 1/00*
U.S. Cl. 354—288 **10 Claims**



1. In photographic apparatus adapted to receive a film container supporting a filmstrip having a normally curled leader extending from the container, the improvement comprising:

means defining a film passageway adapted to receive a substantially uncurled film leader longitudinal edge first as a film container is moved into said photographic apparatus; and

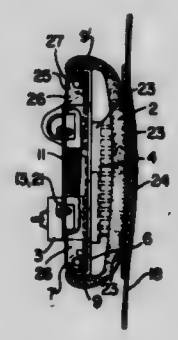
means, effective upon movement of the film container into said photographic apparatus, for substantially uncurling the film leader and for guiding the uncurled leader longitudinal edge first toward said passageway.

4,332,454

ASSEMBLY FOR PROCESSING A PHOTOSENSITIVE MATERIAL

Roy Hensel, Cranbury; Leonhard F. Biller, Basking Ridge, and Russell J. Danson, Millington, all of N.J., assignors to American Hoechst Corporation, Somerville, N.J.

Filed Jan. 9, 1981, Ser. No. 223,610
Int. Cl.³ G03B *5/06*
U.S. Cl. 354—317 **9 Claims**



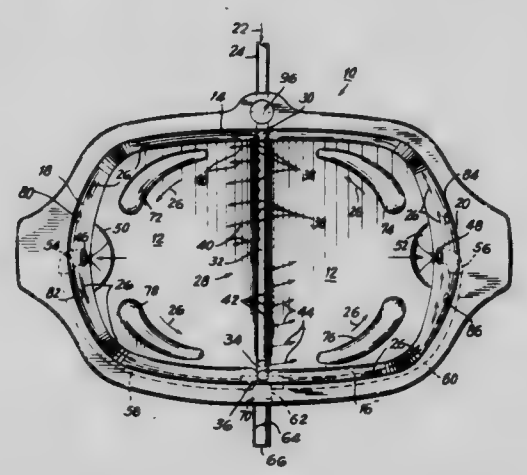
1. An applicator assembly for processing a photosensitive material with a developer liquid, having an oscillating applicator supporting and contacting an open-celled scrubber pad, said applicator being provided with perforations through which the developer liquid under pressure is directed outwardly to penetrate said scrubber pad to wet and to process a photosensitive layer of a photosensitive material, which is inserted between a transport belt and an outer surface of the scrubber pad, said applicator assembly comprising: pad holder rods around which longitudinal edges of the scrubber pad are wrapped; said pad holder rods having shouldered rod ends in operative connection with rod holders to clamp the scrubber pad between the pad holder rods and angular longitudinal edges of a channel sub-assembly of the applicator; and means for providing an additional contact attachment between the applicator and the scrubber pad to prevent a tightening of the scrubber pad during the oscillating movement of the applicator assembly transverse to the guide motion of the photosensitive material advanced by the transport belt.

4,332,455

ARCHIVAL PRINT AND FILM WASHER

Louis J. Stettner, 172 W. 79th St., New York, N.Y. 10024

Filed May 12, 1980, Ser. No. 148,956
Int. Cl.³ G03D *3/02*
U.S. Cl. 354—324 **20 Claims**



1. A washer for washing photographic sheet material, comprising:

(a) a basin having an interior compartment for containing the photographic material to be washed, said interior compartment being bounded by an inner circumferential surface surrounding the photographic material,

(b) washer liquid supply means for introducing a continuous stream of washer liquid under pressure to the interior compartment of the basin, to generate therein a hydrodynamic, generally horizontal, circumferentially-extending, generally laminar liquid flow,

said washer liquid supply means including liquid inlet means in fluid communication with the interior compartment of the basin, and operative for continuously admitting washer liquid therein in a generally circumferential direction for washing the photographic material, said washer liquid supply means further including a continuous foraminous pipe which extends centrally in the interior compartment generally transverse to a portion of the inner surface, one half of the pipe having foramina which face generally horizontally in one direction, and the other half of the pipe having foramina which face generally horizontally in a direction opposite to the one direction, ech half of the pipe having a continuous generally horizontal component and a generally vertical component, and

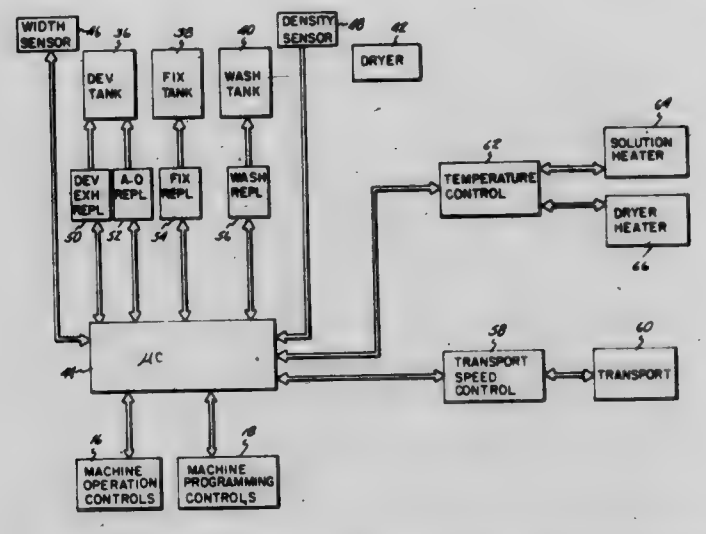
(c) washer liquid discharge means for discharging spent washer liquid from the interior compartment of the basin.

4,332,456

GRAPHIC ARTS PROCESSOR HAVING SWITCH SELECTABLE REPLENISHMENT CONTROL INFORMATION MATRICES

Kenneth M. Kaufmann, Minneapolis, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Jul. 14, 1980, Ser. No. 167,834
Int. Cl.[3] G03D *3/00*
U.S. Cl. 354—298 15 Claims



1. In a processor of photosensitive material, an improvement comprising:

storage means for storing a plurality of information matrices for a plurality of different photosensitive materials, each information matrix including replenishment control information, and an indication of whether the photosensitive material is film or paper;

select means for selecting one of the information matrices; and

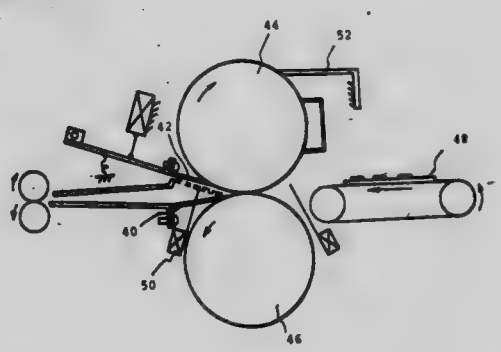
replenishment control means for providing replenishment of processor fluid as a function of the replenishment control information from the selected information matrix and the indication of whether the photosensitive material is film or paper.

4,332,457

FIXING DEVICE FOR FIXING IMAGES OF AN ORIGINAL DOCUMENT ON PLAIN PAPER COPY SHEETS

Akira Mitsuyama; Tadaaki Kawano, both of Nara; Tutomu Kato, Yamatokoriyama; Masanobu Deguchi, Yamatotakada, and Ituro Katoh, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 897,704, Apr. 19, 1978, abandoned. This application Jul. 2, 1980, Ser. No. 165,340
Claims priority, application Japan, Apr. 22, 1977, 52/47038
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—3 FU 5 Claims



2. In an electrostatic plain paper copier wherein charging and light exposure is carried through onto a light-sensitive member to form an electrostatic latent image being developed in the form of a toner image through a developing station including a magnetic brush, said toner image being transferred onto a plain copy sheet and fixed to said plain paper copy sheet via a fixing device and further comprising:

toner used as a developing agent in said developing station comprising a flowable, pressure-fixable dry powder containing magnetite and having a resistance value greater than or equal to 10^{13} ohm/cm;

said fixing device comprising a pair of pressure roller means for firmly pressing said imaged toner onto the plain copy sheet thereby fixedly securing said toner to said plain paper copy sheet;

a copy sheet stripping device for scraping the plain paper copy sheet adhered to the fixing device; and

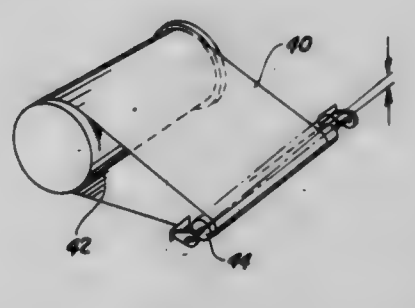
means for pressing said copy sheet stripping device against said fixing device only in synchronization with an output from a first sensing means for sensing the approach of a plain paper copy sheet towards the fixing device and for scraping said plain paper copy sheet from said fixing device when said toner image is transferred to said plain paper copy sheet and for spacing said copy sheet stripping device apart from said fixing device in synchronization with an output from a second sensing means for sensing the completion of the scraping of said plain paper copy sheet from said fixing device and during periods of time when no copy sheet is being processed through said fixing device.

4,332,458

TABLE TOP COPY MACHINE

Lionel B. Hoffman, Wykoff, N.J., assignor to Pitney Bowes Inc., Stamford, Conn.

Continuation of Ser. No. 947,873, Oct. 2, 1978, abandoned. This application Jul. 7, 1980, Ser. No. 165,998
Int. Cl.[3] G03G *15/00*; B65H *17/12*
U.S. Cl. 355—3 BE 8 Claims



6. In an electrophotocopy machine for reproducing a copy of an original document onto a copy sheet by transferring a toner image from a photoreceptor to said copy sheet, the improvement comprising

a first roller,

a second roller having a diameter smaller than said first roller,

a photoreceptor belt movably mounted on said rollers for traveling in a predetermined path, and said rollers having their axes continuously angularly displaced relative to one another during copying operation, thereby urging the photoreceptor belt to move laterally in a predetermined direction toward one end of said rollers as the photoreceptor belt moves along its predetermined path.

4,332,459

PLATE MAKING ATTACHMENT FOR GRAPHIC ART CAMERAS

Manfred R. Kuehnle, Lexington, Mass., assignor to Coulter Systems Corporation, Bedford, Mass.

Continuation of Ser. No. 964,203, Nov. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 802,572, Jun. 1, 1977, abandoned. This application Sep. 10, 1980, Ser. No. 185,687
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—3 BE 36 Claims

15. A printing plate making attachment for use operably

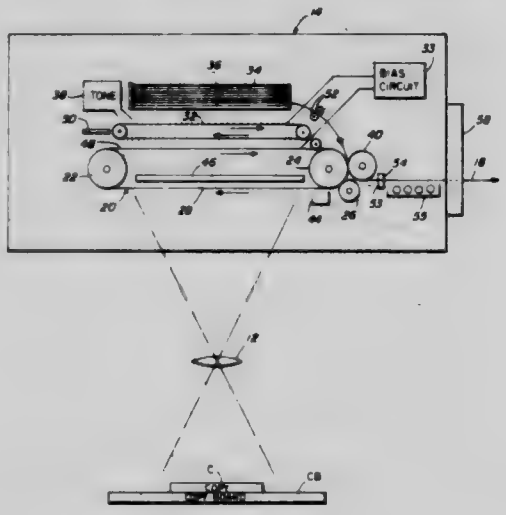
coupled as a unit to a graphic art camera that has structure for projecting a light image to an image plane at the rear of the camera and exposing such plane to such image for a predetermined period of time, said attachment comprising:

a. a rotatable endless electrophotographic belt comprising an outwardly facing electrophotographic portion having film and defining a first planar reach and proximate the image plane and a second planar reach disposed in a plane generally parallel to the first planar reach and juxtaposed thereover;

b. means for controlled rotation of the endless belt through one full revolution for completion of one cycle at least including charging, toning and transfer for each full revolution;

c. means proximate said first reach for charging said electrophotographic surface portion;

d. platen means disposed along the first reach between said reaches and having a surface exactly in the image plane conforming thereto and having means accurately to locate



the electrophotographic surface portion at a location along said first reach exactly in the image plane and to hold the said surface portion at said location securely in said plane for exposure, said platen means further including means positively urging said endless belt from said plane after exposure is completed to permit subsequent rotation of said belt with same carrying a latent image carried by said electrophotographic surface portion toward the second reach;

e. toner supply and dispensing means for applying toner to the surface portion after it passes through the first reach toward the said second reach for toning the latent image for subsequent transfer from the belt; and

f. transfer means for bringing plate material from a supply into close proximity with said toned image on the electrophotographic surface portion at a location at the terminal end of the second reach subsequent to the location whereat toner is applied whereby transfer of the toned image to said plate material is effected.

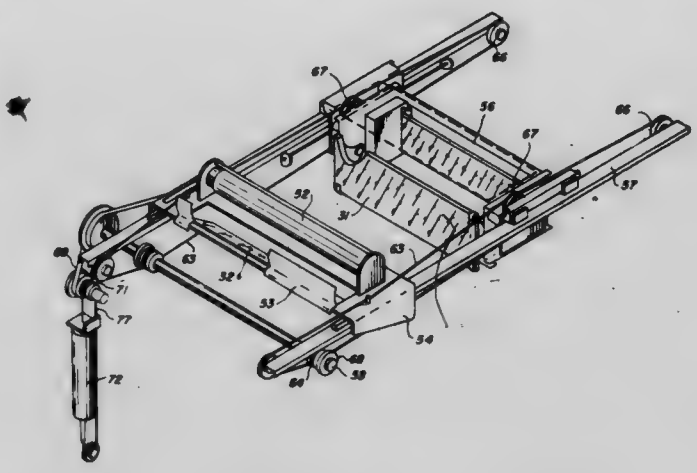
4,332,460

OPTICAL SCANNING CARRIAGE

Daniel W. Costanza, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 2, 1980, Ser. No. 155,869
Int. Cl.³ G03G *15/28*; F16F *9/48*
U.S. Cl. 355—8 **7 Claims**

1. An optical scanning carriage, including drive means to move said carriage in a scanning direction and means to rapidly move said carriage in a rescan direction back to the start of scan position, dashpot means to decelerate the rate of return of the scanning carriage to the start of scan position, said dashpot comprising a cylinder having an end plate at one end, said end plate having a fixed size orifice therein, a piston slidably movable within the cylinder from a start of scan position adjacent the end plate to an end of scan position away from the end plate, the piston having a tapered metering pin mounted on its end, said metering pin being engagable with the orifice in the cylinder end plate, the end of said metering pin being spaced from the cylinder end plate when said carriage is in the end of scan position and being inserted in the orifice of said end plate when said carriage is in the start of scan position, said metering pin having a first portion of constant cross sectional shape and area and a second portion tapering from said constant cross sectional shape and area to a point at its end, said



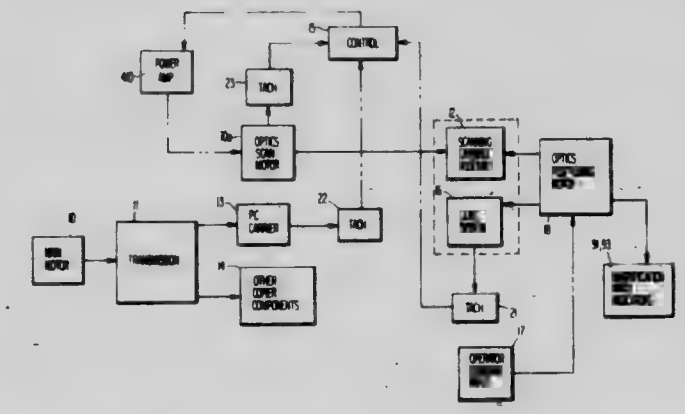
orifice having a shape and area slightly larger than the shape and area of said first portion of said metering pin whereby when said piston moves in the rescan direction said dashpot provides a triple mode of operation comprising a first maximum flyback velocity by the action of the piston and the orifice only, a second deceleration profile as the tapered metering pin enters the orifice in the end plate and a third minimum constant velocity when the constant shape and area portion of the metering pin enters the orifice in the end plate.

4,332,461

ELECTRICAL DRIVE FOR SCANNING OPTICS IN A CONTINUOUSLY VARIABLE REDUCTION COPIER

Norman Cail, Longmont; Raymond A. Daniels, Boulder; John B. Eggerling, Lyons, and Gerald B. Lammers, Boulder, all of Colo., assignors to IBM Corporation, Armonk, N.Y.

Filed Dec. 6, 1979, Ser. No. 100,775
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 R **26 Claims**



21. A document copier capable of substantially continuously variable reduction ratio with scanning carriage means driven in servo relationship to image carrier means including:

a motor,

image carrier means driven by said motor for recording an image thereon,

scanning carriage means for scanning a document to be copied,

servo motor means for driving said scanning carriage means for scanning movement in synchronism with the motion of said image carrier means,

wherein said servo motor means includes:

deceleration means for decelerating said servo motor means when enabled,

means responsive to position of a scanning carriage in said scanning carriage means for disabling said deceleration means, and

position error means enabled on disablement of said deceleration means for driving said servo motor means in accordance with scanning carriage position error.

4,332,462

FEED CONTROL DEVICE

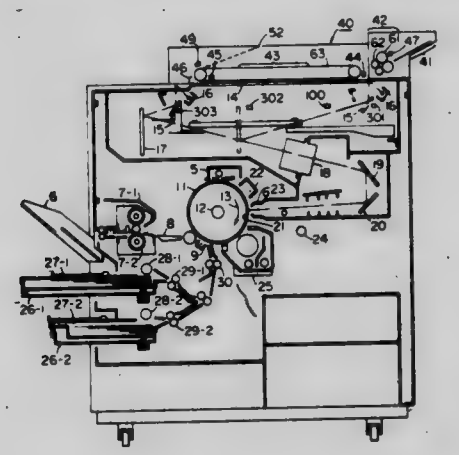
Toshiaki Yagasaki, Hino; Shunichi Masuda, Tokyo; Katsuichi Shimizu, Kunitachi, and Hisashi Sakamaki, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 20, 1980, Ser. No. 151,677

Claims priority, application Japan, May 25, 1979, 54-64808; May 25, 1979, 54-64809

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—14 R **15 Claims**



1. A copying apparatus comprising

means for feeding originals;

means for exposing a fed original to light to copy said original;

optical detector means for detecting said original and for providing an output signal to control the copying operation; and

means for controlling the output signal from said detector means in response to a predetermined time signal to prevent the detector signal from being influenced by light from said exposure means which reaches said detector means.

4,332,463

NON-SYNCHRONOUS OPERATION OF AN ELECTRONIC COPIER

Ronald R. Firth, Fairport, and Lee N. Davy, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 20, 1980, Ser. No. 161,543

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—14 R **18 Claims**

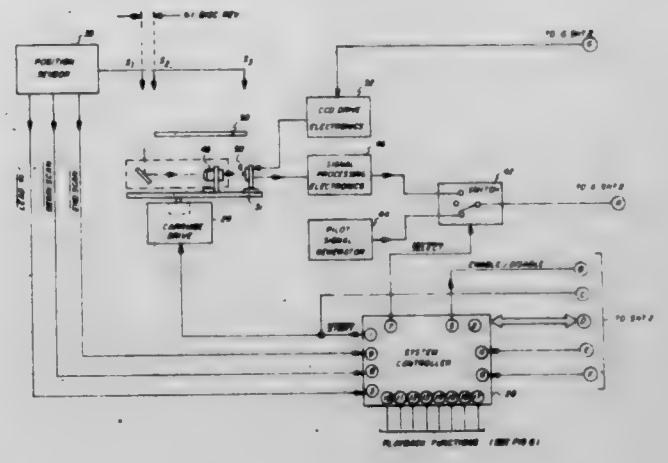
9. Apparatus for use with a memory device and a printer of a type that produces a visible representation of a document information signal on a copy, said apparatus comprising:

(a) means for producing a plurality of composite information signals corresponding to respective documents wherein each of said composite information signals is comprised of a pilot signal followed by a document information signal, and wherein the respective durations of said pilot signals are not equal for all composite information signals;

(b) means for recording said composite information signals on said memory device;

(c) playback means for playing back from said memory device a selected one of said composite information signals; and

(d) means, cooperative with said playback means, for adjusting the registration of document information on said copy by controlling printer operation in response to the termination of the pilot signal of the played composite information signal.



4,332,464

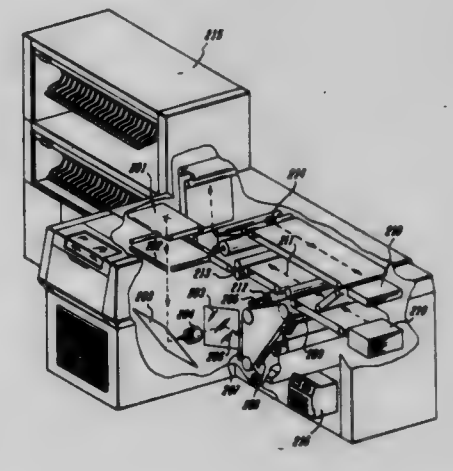
INTERACTIVE USER-MACHINE INTERFACE METHOD AND APPARATUS FOR COPIER/DUPLICATOR

Michael V. Bartulis, Torrance; Edwin J. Smura, Los Alamitos; Richard P. Dunn, Van Nuys; Herbert B. Bebb; Anthony J. Ciuffini, both of Palos Verdes Estates, and Lionel W. Mosing, Huntington Beach, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 22, 1980, Ser. No. 189,441

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—14 C **9 Claims**



1. A system for controlling a copying or printing system comprising:

video means for displaying orthographic and imaginal displays to the operator,

pointing means under operator control for determining a selected point on said video means, and for generating electrical signals which are a function of the location of said point on said video means,

sensors in said system to sense the system status,

drivers in said system to drive the system to a selected status,

means for generating displays on said video means in response to said signals and the system status sensed by said sensors and for commanding said drivers in response to said pointing means electrical signals and the system status sensed by said sensors,

wherein said means for generating is a computer comprising programs,

said system sensors include a measuring means for determining the size of the paper loaded in the paper tray, and

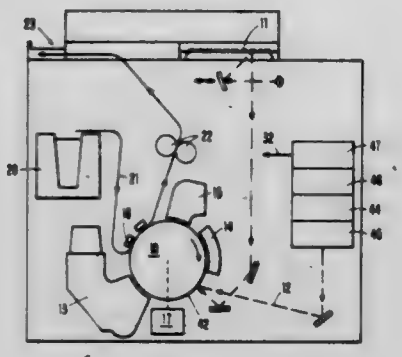
said means for generating, in response to said measuring means, produces a display for said video means to indicate the copy paper size.

4,332,465

BALANCED PHOTOCONDUCTOR USAGE CONTROL SYSTEM

Thomas D. Steury, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 23, 1980, Ser. No. 189,874
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—14 R 16 Claims



1. A balanced photoconductor usage control system for an electrophotographic copier/printer having a page buffer and an endless run of photoconductor containing thereon a plurality of page image areas, comprising:

memory means for designating a page image area as last-used in a print operation;

identification means for determining which page image area is immediately available for printing; and

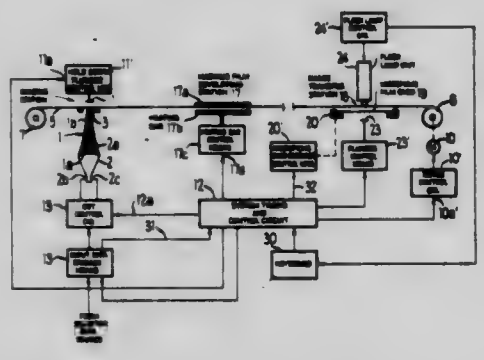
control means jointly responsive to a full page condition in said page buffer, said memory means and said identification means to effect skipping of an immediately available page image area when it is last-used, and to effect printing of a next page using the immediately available page when it is not last-used.

4,332,466

APPARATUS FOR PRODUCING MICROFORM RECORDS AT HIGH SPEED FROM COMPUTER OR OTHER ELECTRICAL DATA SIGNAL SOURCES

Richard Flasck, Rochester, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed Jan. 21, 1980, Ser. No, 113,579
Int. Cl.[3] G03B *27/32, 27/52*
U.S. Cl. 355—27 10 Claims



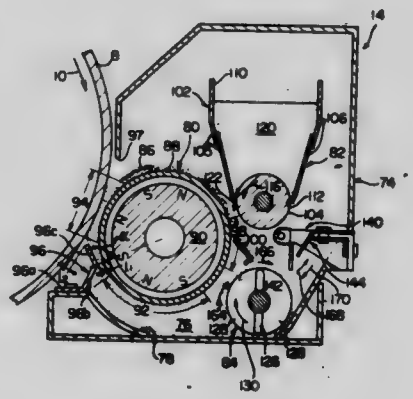
1. In apparatus for producing records of data and including an imaging station, means for sequentially providing light images representing different pages of recorded data to be recorded, a film strip having spaced frame areas which are to be initially imaged by said light images at said imaging station, said film strip also requiring development to bring out an image projected thereon, a developing station including developing means for developing said film strip in incremental degrees depending upon the time of application thereof to said film strip, the improvement comprising: means supporting said film strip between supply and take-up means, said film strip between said supply and take-up means extending past said imaging station and developing station; image projection means at said imaging station which projects said light images upon successive frame area of said film strip with exposure times substantially less than the developing time required to develop an image on said film strip; control means for simultaneously effecting the projection of one of said light images through said projection means upon a frame area of said film strip at said imaging station while a previously exposed frame area of said film strip is being developed at said developing station; and means for moving said film strip between said supply and take-up means in step-by-step fashion simultaneously to bring a previously unexposed frame area of said film strip to said imaging station and an exposed but undeveloped frame areas of said film strip to said developing station at a speed wherein the time duration between successive stepping operations is substantially less than that required to develop said film strip at the developing station, said developing means at said developing station having a length encompassing a sufficient number of frame areas of said film strip that the film strip is exposed to said developing means for a sufficient time fully to develop the image therein during successive imaging and developing operations applied to said film strip.

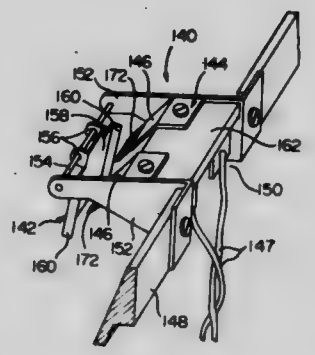
4,332,467

DEVELOPING DEVICE IN ELECTROSTATIC COPYING APPARATUS

Hiroshi Kimura, Neyagawa; Toshikazu Matsui, Kishiwada; Masahiko Hisajima, Osaka; Yutaka Shigemura, Takarazuka; Yoichiro Irie, Suita, and Kiyoshi Morimoto, Osaka, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Jun. 27, 1980, Ser. No. 163,775
Claims priority, application Japan, Feb. 27, 1980, 55-22699
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—14 D 18 Claims





1. A developing device for an electrostatic copying apparatus, said developing device comprising: a developer container; a developer applicator for holding on its surface a part of a developer present in said developer container for applying toner particles to a latent electrostatic image to be developed; a rotary agitating member in said developer container for agitating the developer for causing it to move in a flow; a toner particle dispenser for dispensing toner particles therein into said developer container, said toner particle dispenser being controlled for performing a toner particle dispensing action in response to the performance of a copying process of the elec-

trostatic copying apparatus; a toner particle dispensing inhibitor connected with said toner particle dispenser for causing said toner particle dispenser to remain inoperative when said toner particle inhibitor supplies a signal thereto, and a detecting means connected to said toner particle inhibitor and having an electrical switch unit having a fixed member in said developer container and a movable member oscillatably mounted in said developer container and movable between a position in which it is in contact with said fixed member and a position in which it is out of contact with said fixed member, said movable member being positioned to be acted on by the flow of developer for moving said movable member from one position to the other when the amount of developer in said container is sufficient, and means for producing a signal for said toner particle dispensing inhibitor in response to the said switch unit being in said other position.

4,332,468

OPTOELECTRONIC PROXIMITY SENSOR

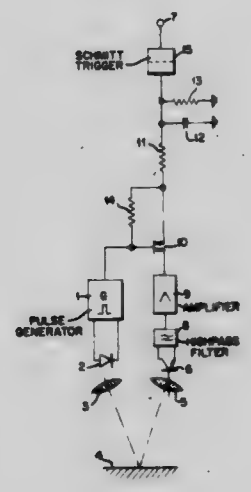
Dietmar Stützle, Lauf, Fed. Rep. of Germany, assignor to Firma Diehl, Nuremberg, Fed. Rep. of Germany

Filed Feb. 17, 1977, Ser. No. 769,893

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1976, 2608066

Int. Cl.³ G01C *3/08*; F42C *13/02*

U.S. Cl. 356—5 **5 Claims**



1. An optoelectronic proximity sensor comprising:

(a) means for emitting directed optical pulses towards a surface;

(b) a pulse generator connected to said emitting means for causing the same to emit the optical pulses at a given pulse repetition frequency;

(c) means oriented toward the point at which the optical pulses emitted by said emitting means impinge on the surface for receiving a portion of the optical pulses which are scattered back from the surface; and

(d) means for evaluating the pulses received by said receiving means, said evaluating means comprising

(1) a highpass filter connected to said receiving means, said highpass filter having a limit frequency which is somewhat below that of the pulse repetition frequency of said pulse generator;

(2) a memory circuit connected to the output of said highpass filter for storing a series of pulses received by said receiving means;

(3) means for enabling said memory circuit to store the received pulses at the beat of said pulse repetition frequency of said pulse generator;

(4) a control circuit connected to the output of said memory circuit for putting out an actuation signal when said memory circuit has received a predetermined number of pulses;

(5) said memory circuit comprising a digital memory in the form of a shift register having a clock pulse input which is connected to said pulse generator, in consequence of which said shift register is controlled by the pulse repetition frequency of said pulse generator and the sensor senses the proximity from the surface.

4,332,469

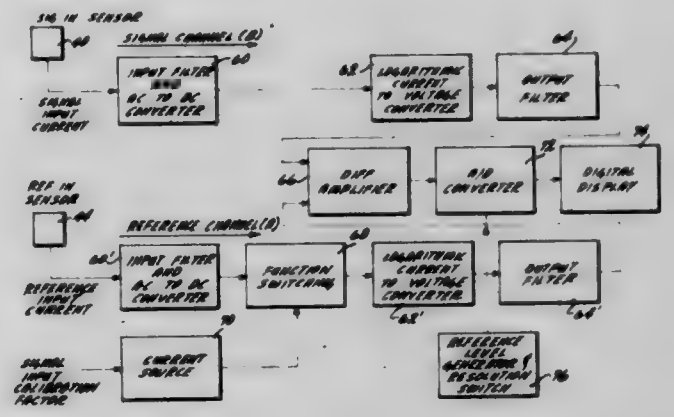
OPTICAL MULTIMETER

Paul H. Wendland, Los Angeles, Calif., assignor to Photodyne, Inc., Newbury Park, Calif.

Filed Mar. 14, 1980, Ser. No. 130,463

Int. Cl.³ G01J *1/42*; G01N *21/01*

U.S. Cl. 356—222 **18 Claims**



1. An optical radiant power measuring device comprising in combination:

(1) means adapted to receive a first photo detector sensor head, the sensor head generating an electrical current related to the intensity of radiant power impinging upon it;

(2) a logarithmic current to voltage amplifier for providing a voltage signal, including a semiconductor feedback loop, said amplifier coupled to said means; and

(3) comparison means coupled to the output of said amplifier and to a reference current source representative of a reference radiant power level, whereby said comparison means provide an output signal corresponding to and representative of the ratio of radiant power impinging upon the photo detector sensor head to that of the reference radiant power level, expressed in decibel units of optical power.

4,332,470

SPECTROPHOTOMETER SYSTEM HAVING POWER LINE SYNCHRONIZATION

Morteza M. Chamran, Elmhurst, Ill.; Larkin B. Scott, Fort Worth, Tex.; Paul B. Williams, Lombard, Ill., and Michael A. Ford, Maidenhead, England, assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Mar. 7, 1980, Ser. No. 128,289

Int. Cl.³ G01J *3/08, 3/42*

U.S. Cl. 356—325 **16 Claims**

1. A spectrophotometer comprising:

monochromator means for providing monochromatic light at a sequence of wavelengths over a predetermined spectral range;

a sample cell;

a light measuring device;

means for directing said monochromatic light through said sample cell onto said light measuring device;

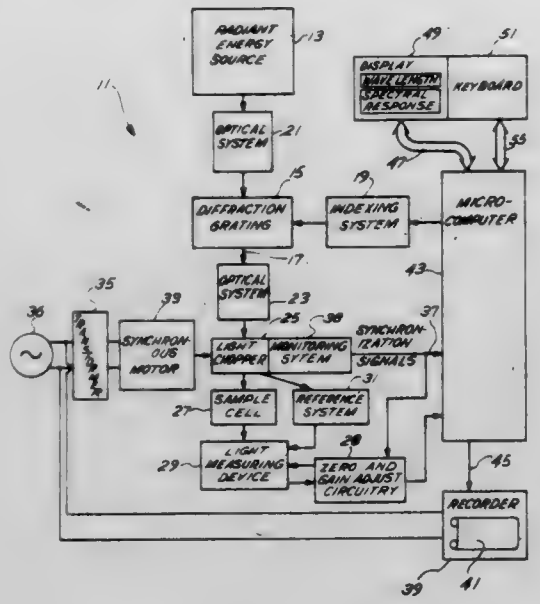
light chopper means for alternately directing monochromatic light to said sample cell and along a second reference path;

motor means connectable to an A.C. power source for controlling the frequency of chopping by said chopper means in proportion to the line frequency of the power source;

recorder means for recording at a line synchronous rate an indication of the spectral response of said measuring device;

monitoring means for monitoring the line frequency of the power source and generating an output digital signal at a

frequency proportional to line frequency; said monitoring means including damping means; and



microcomputer means for receiving output data as a digital sample signal from said measuring device and presenting data converted at a line synchronous rate to said recorder means.

4,332,471

CUVETTE WITH TUB-SHAPED BOTTOM FOR THE OPTICAL EXAMINATION OF LIQUIDS

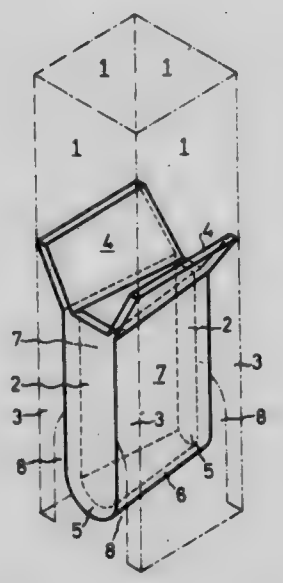
Jürgen Gross, Hofheim am Taunus, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed May 29, 1980, Ser. No. 154,321

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1979, 2922697

Int. Cl.³ G01N *21/03*

U.S. Cl. 356—246 **6 Claims**



1. A cuvette for the optical examination of small amounts of liquids comprising

front and back parallel flat transparent walls whose outer surfaces are a defined distance from one another;

two side walls separated by a distance less than said defined distance and extending between said front and back walls, and ending in a bottom joining the two side walls; and

ribs coplanar with outer faces of the front and back walls, extending outwardly from said inner walls, and being joined thereto above said bottom to define respective recesses extending above the bottom;

wherein said front and back walls end in semicircular surfaces at said bottom, and said bottom includes a surface of rotation joining said front and back semicircular surfaces so that said bottom is tub shaped.

4,332,472

AUTOMATIC CATAPHORESIS APPARATUS

Yutaka Kato, Tama; Hirohiko Tokitoh, Hachioji; Tomohiro Kitahara, Hachioji, and Hiromi Ito, Hachioji, all of Japan, assignors to Olympus Optical Company Ltd., Tokyo, Japan

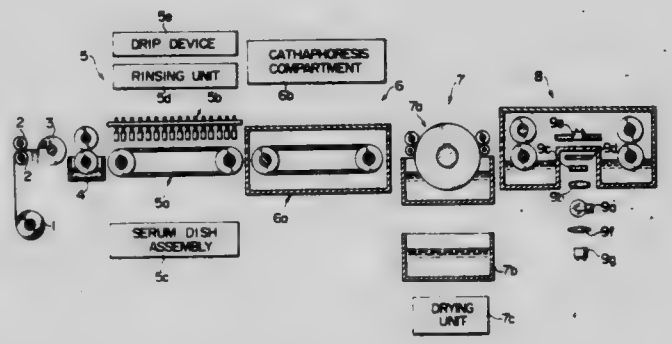
Division of Ser. No. 829,957, Sep. 1, 1977, Pat. No. 4,204,767.

This application Aug. 23, 1979, Ser. No. 69,157

Claims priority, application Japan, Sep. 6, 1976, 51/105719

Int. Cl.³ B05C *1/16*

U.S. Cl. 356—344 **1 Claim**

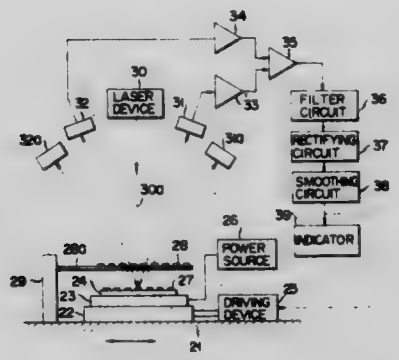


1. An apparatus for automatic examination of blood serum by cataphoretic process, comprising a supply of a serum bearing film in the form of a roll and including means to deliver a continuous length of the film; a cutter for cutting the film to a given length; a buffer solution supply unit for wetting the film with a buffer solution; a serum applicator including a vertically movable guide member, a serum application member movable along the guide member, and feed means for carrying the film into alignment with the application member, the applicator being associated with a serum dish assembly, an application abutment, a rinsing vessel and a drip device to apply blood serum contained in the assembly to the film, to rinse it with a rinsing liquid in the vessel and drip it; a cataphoresis compartment including conveyor belt means for conveying the film with applied serum to a given position and vertically movable receiver means which raise the film away from the belt means for energization thereof to form fractionated patterns thereon; dyeing, decolorizing and drying means including a rotatable drum, a first vessel containing a dyeing solution, a second vessel containing a decolorizing solution and a drying unit each located side by side below the drum and adapted to be sequentially raised have the film immersed in the dyeing solution and then in the decolorizing solution and dried by the drying unit while the film is held attached to the drum; and a densitometer including a feeding mechanism formed by a plurality of rollers, one of which is disposed for immersion into a clearing liquid, and also including a light source and a detector located to be movable in a direction perpendicular to the direction of movement of the film by the feeding mechanism, the film which is dyed, decolorized and dried being cleared before moving into the path between the light source and the detector, whereupon the movement of the film is interrupted to conduct a colorimetric determination of specimens on the film while integrally moving the light source and the detector.

4,332,473
APPARATUS FOR DETECTING A MUTUAL POSITIONAL RELATIONSHIP OF TWO SAMPLE MEMBERS

Akira Ono, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jan. 22, 1980, Ser. No. 114,354
Claims priority, application Japan, Jan. 31, 1979, 54-10080; Mar. 31, 1979, 54-38614
Int. Cl.³ G01B 9/02
U.S. Cl. 356—356 13 Claims



1. An apparatus for detecting a mutual positional relationship of two sample members, comprising:

first and second diffraction gratings, one attached to each of said two sample members, respectively, said first and second gratings being parallel to and facing each other, said first and second diffraction gratings having the same pitch and being separated by an average distance d;

a light source for radiating a coherent light vertically toward the first and second diffraction gratings, said light having a frequency λ;

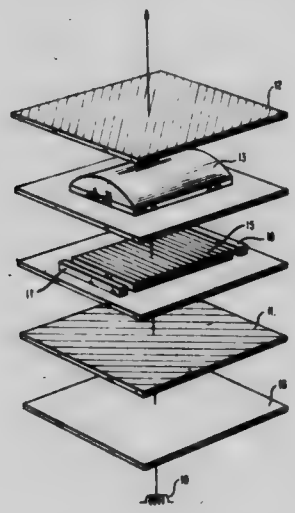
modulating means for modulating one of d and λ; and

detecting means for receiving a first interference beam resulting from those +n-order diffracted beams included in said diffracted beams and a second interference beam resulting from those −n-order diffracted beams included in said diffracted beams and calculating the difference between the intensities of the first and second interference beams thereby detecting a mutual positional displacement between the first and second diffraction grating.

4,332,474
METHOD AND APPARATUS FOR TESTING THE ORIENTATION OF CRYSTAL PLATES

Anton J. Miller, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 11, 1980, Ser. No. 158,400
Int. Cl.³ G01J 4/00
U.S. Cl. 356—366 13 Claims

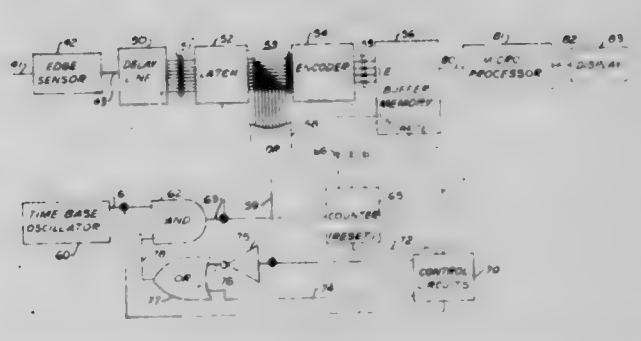


1. A method for testing the crystallographic orientation angle (α) of a stack (15) of birefringent crystal plates characterized in the steps of: placing the stack between a first polarizing element (11) and a second polarizing element (12) where there is also included a cylindrical lens (13) between the stack and second polarizing element; including with said stack a pair of reference plates (17, 18) having crystallographic orientations at the extremes of a desired orientation range for the plates in the stack; shining light onto one major surface of said stack and reference plates through said first polarizing element so that light emerging from the opposite surface will be focused by the lens and upon emerging from the second polarizing element will form an interference pattern comprising a series of essentially linear, parallel light and dark bands (30) with variations in the position of portions (31) along each band being a function of the orientation angle of a plate corresponding to that portion; and comparing the positions of the center of the portions along at least one band with a particular band (32, 33) of the interference pattern produced by each reference plate to determine if the portions fall within the reference bands.

4,332,475
EDGE TIMING IN AN OPTICAL MEASURING APPARATUS

Frank C. Demarest, Killingworth, Conn., assignor to Zygo Corporation, Middlefield, Conn.

Filed Jun. 3, 1980, Ser. No. 156,050
Int. Cl.³ G01B 11/10
U.S. Cl. 356—386 2 Claims



1. In a device for measuring the size of an object by scanning a beam of radiant energy past the object into a photosensor, and the time between the passage of the beam from one edge of the object to the next is measured by the number of pulses from a fixed period time base elapsing during said passage, the improvement which comprises providing: (1) an electrical edge pulse produced by an edge sensor; (2) a fixed frequency time base; (3) means for generating a multiplicity of pulses from the edge pulse, each successive pulse being delayed by an additional identical fraction of the period of the time base; and (4) means for indicating which delayed pulse occurs immediately before the next transition of the time base.

4,332,476
METHOD AND APPARATUS FOR STUDYING SURFACE PROPERTIES

Johan E. Stenberg, Hedelundsragën 5, S-41743 Göteborg; Lars B. Stiblert, Övre Besvärsgatan 4, S-411 29 Göteborg, and Erland T. Sandström, Jungmansgaton 53, S-413 11 Göteborg, all of Sweden

Filed Apr. 16, 1980, Ser. No. 140,881
Claims priority, application Sweden, Apr. 17, 1979, 7903311
Int. Cl.³ G01N 21/21; G01J 4/00
U.S. Cl. 356—369 19 Claims

1. In a method of studying physical properties of a testpiece surface to obtain a direct point-to-point comparison between the testpiece surface and a reference surface having known properties, said method comprising the steps of:

(a) transmitting electromagnetic radiation toward the testpiece surface to be studied;

(b) polarizing said electromagnetic radiation prior to its reaching said testpiece surface to produce polarized radiation;

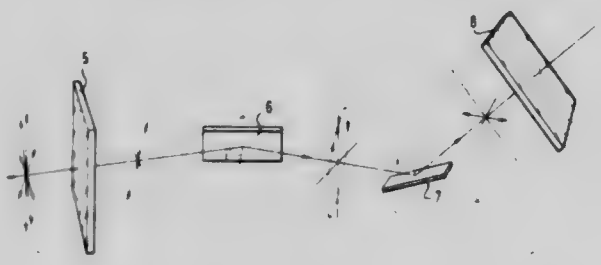
(c) reflecting said polarized electromagnetic radiation from said testpiece surface so as to produce polarized reflected radiation; and

(d) analyzing said polarized reflected radiation so as to extinguish said polarized reflected radiation;

the improvement comprising the additional reflecting step, between steps (b) and (d), of additionally reflecting said polarized radiation at said reference surface having known surface properties, thereby providing further polarization;

wherein said reflecting step (c) and said additional reflecting step comprises reflecting at the same angle of incidence;

wherein said reflecting step (c) and said additional reflecting step are accomplished by respective reflecting surfaces,



and wherein the radiation reflected at one of said respective reflecting surfaces has a polarization component which, being parallel to the plane of incidence at said one surface, is perpendicular to the plane of incidence at the other of said respective reflecting surfaces;

wherein said additional reflecting step enables said direct point-to-point comparison between the reference surface and the testpiece surface to be made, while at the same time providing phase-shift compensation, by means of said further polarization; and

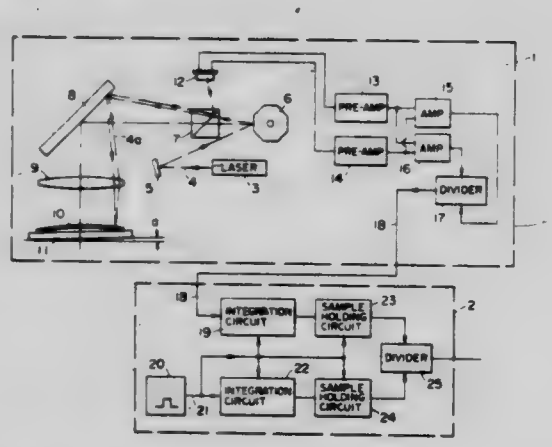
wherein said analyzing step (d) comprises extinguishing radiation of the same state of polarization as exists before the first one of said reflecting step (c) and said additional reflecting step to be executed.

4,332,477

FLATNESS MEASURING APPARATUS

Masatoshi Sato, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 107,939, Dec. 28, 1979, abandoned. This application Dec. 11, 1980, Ser. No. 215,341
Claims priority, application Japan, Jan. 9, 1979, 54-1959
Int. Cl.³ G01B *11/30, 11/24;* G01C *25/00*
U.S. Cl. 356—371 **1 Claim**



1. A flatness measuring apparatus, comprising:

a scanning optical system for scanning a tested surface with a constant incident angle;

a position detector for detecting the normal reflection angle from said tested surface;

time-axis generating means for generating a square-wave output during a measuring time corresponding to the width of measurement;

inclination signal generating means for generating a signal corresponding to the inclination of said tested surface with respect to a standard position thereof, and

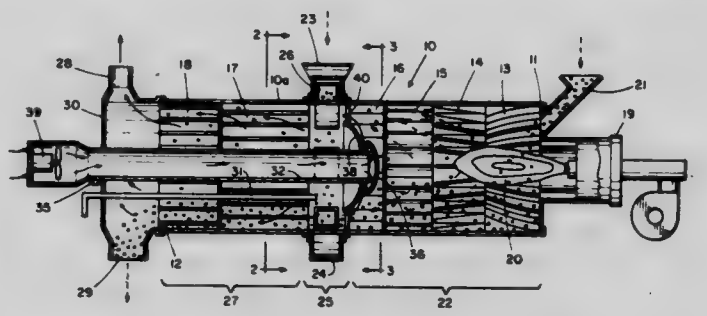
ratio calculating means for providing a ratio between the signal from said inclination signal generating means and a signal obtained by electrically integrating, with respect to time, the signal provided by said time-axis generating means.

4,332,478

METHOD AND APPARATUS FOR REDUCING SMOKE EMISSIONS IN AN ASPHALT DRUM MIXER

Lee V. Binz, Hamshire, Ill., assignor to Barber-Greene Company, Aurora, Ill.

Filed May 16, 1979, Ser. No. 39,383
Int. Cl.³ B28C *5/46*
U.S. Cl. 366—4 **22 Claims**



1. A method of controlling smoke emissions from a drum mixer of the type having an inlet end and an outlet end and adapted for making paving material, such method comprising the steps of:

(a) introducing aggregate into said drum adjacent the inlet end thereof;

(b) heating said aggregate in a first heating zone by a heating means located in the drum adjacent the inlet end thereof;

(c) conveying said aggregate downstream from the inlet end of the drum to the outlet end thereof;

(d) introducing asphaltic material into said drum at a second zone therein which adjoins the first zone downstream of the latter;

(e) cooling the hot gases in the drum by controllably contacting such gases with a non-liquid cooling medium which is introduced in the drum in a substantially uniform pattern transversely thereof and in an area adjacent to and upstream of the second zone;

(f) mixing the aggregate and the asphaltic material in the drum in a third mixing zone which adjoins the second zone downstream of the latter; and,

(g) discharging the resulting mixture from the outlet end of the drum.

4,332,479

APPARATUS FOR CONTROLLED MIXING IN A HIGH INTENSITY MIXER

Zenas Crocker, Westmount, and Ved P. Gupta, La Salle, both of Canada, assignors to Carlew Chemicals Limited, Montreal, Canada

Division of Ser. No. 962,778, Nov. 21, 1978, Pat. No. 4,230,615. This application Mar. 27, 1980, Ser. No. 134,416
Int. Cl.³ B01F *15/02;* B29B *1/06*
U.S. Cl. 366—77 **5 Claims**

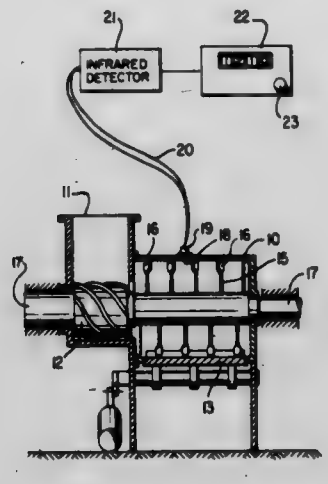
1. An apparatus for controlled mixing of a thermoplastic or thermosetting mixable material comprising:

a high intensity batch mixer with a chamber for agitating a batch of the thermoplastic or thermosetting material,

blade means having high tip speeds for agitating the material in the chamber of the high intensity mixer,

infrared radiation detecting means for monitoring infrared radiation produce by the batch of the material in the chamber of the high intensity mixer to determine the instantaneous temperature of the batch in the mixer sepa-

rately from mixer temperature, the infrared radiation detecting means including a protective window at the mixer and an optical fiber system attached to the protective window and



means responsive to the batch temperature to discharge the batch from the mixer with a minimum time lag when the batch temperature reaches a final predetermined level so as to produce uniform batches of mixed material having short heat histories, optimum processing and physical property characteristics.

4,332,480

KNEADING AND MIXING MACHINE

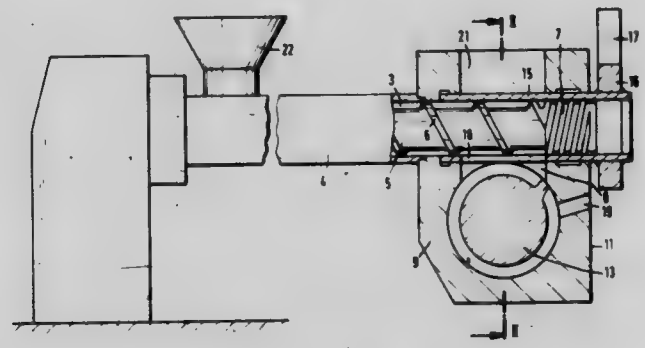
Dietmar Anders, Hanover, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hannover Kleefeld, Fed. Rep. of Germany

Filed May 23, 1980, Ser. No. 152,834

Claims priority, application Fed. Rep. of Germany, Jun. 8, 1979, 2913219

Int. Cl.³ B28C *7/16*

U.S. Cl. 366—77 **4 Claims**



1. A continuously operable kneading and mixing machine for thermoplastic synthetic materials, comprising:

(a) housing means formed with an inlet for the material and an outlet aperture for discharging plasticized material from the housing;

(b) a mixing rotor rotatable in said housing means, said rotor including a screw conveying portion which extends over and thus covers said outlet aperture;

(c) a throttling member in the form of a cylindrical sleeve mounted in said housing means adjacent the outlet end thereof and adapted to be selectively independently rotated relative to said rotor, said cylindrical sleeve extending closely but rotatably around at least the region of said screw conveying portion of said rotor which covers said outlet aperture, wherein the internal diameter of said cylindrical sleeve is the same as the internal diameter of said housing means surrounding said rotor thereby providing a continuous surface closely around said rotor for effecting the desired plasticizing of said material, said cylindrical sleeve being formed with a circumferentially limiting discharge orifice adapted to be longitudinally aligned with said outlet aperture, and

(d) means for rotating said cylindrical sleeve so as to selectively align, partially align or disalign said discharge orifice with said outlet aperture, whereby the plasticized material can respectively freely pass through said outlet aperture, pass with restriction through said outlet aperture thereby increasing the retention time of and consequently the shear energy applied to the material, or be blocked altogether from passage through said outlet aperture.

4,332,481

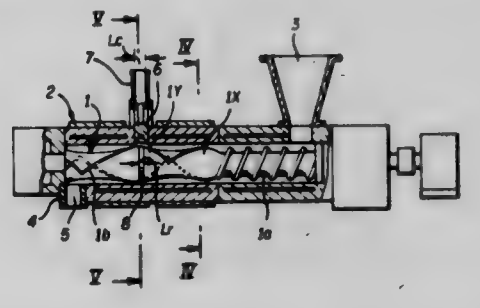
CONTINUOUS MIXING MACHINE

Kimio Inoue, Kobe; Katsumi Ogawa, Amagasaki; Tsugushi Fukui, Miki; Toshihiro Asai, and Shinji Hashizume, both of Kobe, all of Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Mar. 27, 1980, Ser. No. 134,655

Int. Cl.³ B29B *1/10*

U.S. Cl. 366—84 **12 Claims**



1. A continuous mixing machine for mixing a material fed at one end thereof and discharging the mixed material through a discharge orifice at an opposite end in a continuous operation comprising:

a plurality of rotors each provided with mixing blade means;

a mixing chamber encircling said mixing blade means;

a throttle member hermetically sealed in a wall portion of said mixing chamber defining a part of said mixing chamber at a position facing said blade means; and

means for moving said throttle means in a direction normal to the axes of said blade means toward and away from the blade means so as to vary the tangential clearance with respect to outer surfaces of said blade means, thereby controlling the space within said mixing chamber.

4,332,482

FLUID MIXER

Kevin G. Engler, 13102 Puget Sound Blvd., Edmonds, Wash. 98020

Filed Jul. 21, 1980, Ser. No. 170,808

Int. Cl.³ B01F *3/10*

U.S. Cl. 366—130 **9 Claims**

1. A fluid mixer for insertion into a container having the fluid to be mixed comprising:

(a) a flexible, nominally flat insertion member:

being configurable into a tubular shape approximating the shape of the container;

when inserted into the container, said insertion member pressing against the interior of the container;

and when inserted into the container, said insertion member having an open top and bottom and a perimeter substantially similar to the interior of the container; and

(b) a plurality of mixing blades carried on the insertion member extending inwardly toward the vertical axis of the container with the mixing blades being carried around the perimeter of

the insertion member from the top of the insertion member to the bottom thereof to urge the fluid upwardly or downwardly upon reciprocal rotation of the container about its vertical axis.



4,332,483

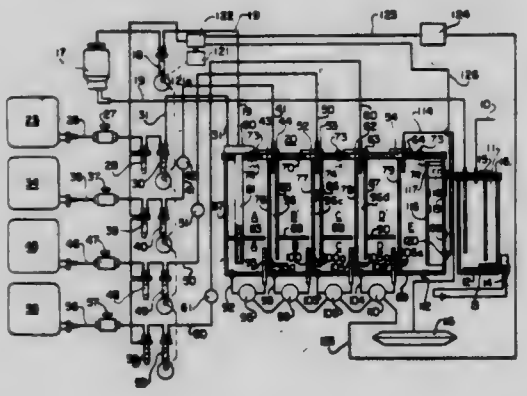
MIXING APPARATUS

Henry F. Hope, and Stephen F. Hope, both of 2421 Wyandotte Rd., Willow Grove, Pa. 19090

Continuation-in-part of Ser. No. 76,172, Sep. 17, 1979. This application Feb. 8, 1980, Ser. No. 119,759

Int. Cl.[3] B01F *5/12, 15/02;* **G05D** *11/02*

U.S. Cl. 366—132 **15 Claims**



1. Mixing apparatus for fluent materials comprising

tank means having a plurality of vertical compartments and a bottom wall portion,

each of said compartments having a downwardly directed fluid delivery member extending downwardly to a location in spaced relation to the bottom wall portion,

a horizontal partition intermediate the top and bottom of said fluid delivery member and separating said compartments into an upper storage space and a lower space with fluid access therebetween,

a supply connection for a first supply of liquid,

means for intermittently delivering a measured quantity of liquid from said first supply connection through said fluid delivery member to said lower space,

a supply connection for a second supply of liquid,

means for intermittently delivering a measured quantity of liquid from said second supply connection through said fluid delivery member to said lower space,

means comprising a pump externally disposed with respect to said lower space and having inlet and delivery connections connected to said lower space for continuously agitating the liquid in said lower space, and

liquid storage means for the reception of liquid from said receptacle,

the intermittent supplying of said measured quantities of said liquids advancing the liquid through said tank means.

4,332,484

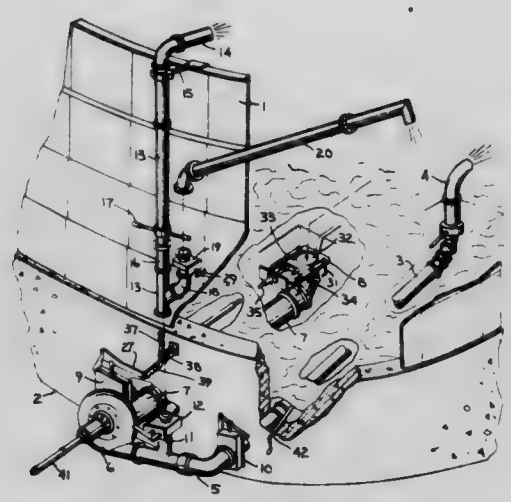
AGITATION SYSTEM FOR MANURE SLURRY

Anthony J. Peters, Mt. Prospect, Ill., assignor to A. O. Smith Harvestore Products, Inc., Arlington Heights, Ill.

Continuation of Ser. No. 139,204, Apr. 11, 1980, abandoned, which is a continuation of Ser. No. 951,748, Oct. 16, 1978, abandoned. This application May 18, 1981, Ser. No. 264,567

Int. Cl.[3] B01F *15/02*

U.S. Cl. 366—137 **13 Claims**



1. An agitation system for agitating animal manure slurry stored in a tank to mix and blend solids, fibers and liquid into a homogenized mass for easy handling which comprises, a rotatable nozzle type agitator generally centrally located on the floor of the tank and mounted to rotate about a vertical axis, a valve located inside the bottom of the tank and connected by a piping system leading to the nozzle type agitator, as well as to a discharge outside the tank and to the top of the tank, the said valve being opened and closed from outside of the tank, a pump connected to the piping system to upon actuation pump manure slurry from the tank through the valve when the valve is open and flow it through the piping system for discharge into the tank through the nozzle type agitator, and a plurality of flow control valve means located in the piping system and adjustable selectively to control the flow of the manure slurry from the valve through the pump and piping system to the nozzle type agitator or to a discharge opening outside the tank or into the top of the stored slurry to break the crust thereon.

4,332,485

PORTABLE FREEZER HAVING MECHANICAL MEANS PROVIDING VISUAL INDICATION OF FIRMNESS OF CONTENTS

Robert C. Woodman, Hattiesburg, Miss., assignor to Sunbeam Corporation, Chicago, Ill.

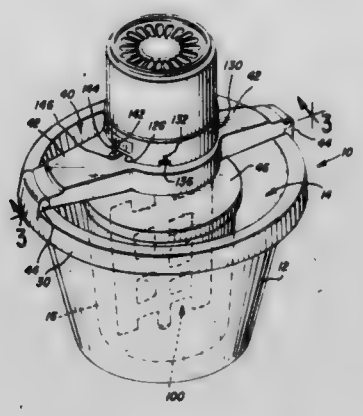
Continuation of Ser. No. 69,016, Aug. 22, 1979, abandoned. This application Apr. 30, 1981, Ser. No. 258,865

Int. Cl.[3] A23G *9/10*

U.S. Cl. 366—142 **5 Claims**

1. In a portable freezer for preparation of sherbet, ice cream, and other frozen confections, of a type comprising a stationary bucket, which has an open top and is adapted to hold ice, salt, and brine, a removable can, which is adapted to hold confections being frozen, and which is seated within the bucket so as to be rotatable about a vertical axis, a removable head, which comprises horizontal arms bridging the open top of the bucket and a cover covering the can and its contents, a motor, which is arranged to rotate the can within the bucket about said vertical axis in one rotational sense, and which may be deenergized manually if it is desired to do so before the motor begins to stall, and a dasher, which is mounted within the can and beneath the cover so as to remain relatively stationary as the can is rotated, an improvement wherein the dasher is journalled so as to be rotatable about said vertical axis, wherein the

dasher is restrained by resilient means permitting a range of limited rotation of the dasher about said vertical axis and biasing the dasher so as to oppose such rotation of the dasher in said rotational sense, and wherein a horizontal arm is coupled mechanically to the dasher so as to rotate with the dasher and is extended outside an external surface of the head so as to provide progressive visual indication of such rotation of the



dasher, and wherein there is no need for a user to calibrate any components for different recipes, whereby progressive visual indication of the firmness of the contents of the can is provided so that when desired firmness is indicated, the user may disable the motor before the motor begins to stall, so as to be able to prepare soft confections, as well as firm confections, of a variety of different recipes yielding optimum results at different firmnesses.

4,332,486

ROTARY PULSATION APPARATUS

Abdusalam A. Mutalibov, ulitsa Shpilkova, 28; Oleg D. Murashov, ulitsa Navoi, 22, kv. 5; Takhir M. Makhmudov, ulitsa Ivlieva, 26; Leonid M. Shvartsman, TS-13, 20, kv. 18, all of Tashkent; Alexei D. Deminov, Starokonjushenny pereulok, 32, kv. 8, Moscow; Valentina A. Podlesnykh, ulitsa B. Galushkina, 17, kv. 426, Moscow, and Lev A. Spirin, ulitsa Novinki, 6, korpus 1, kv. 10, Moscow, all of U.S.S.R.

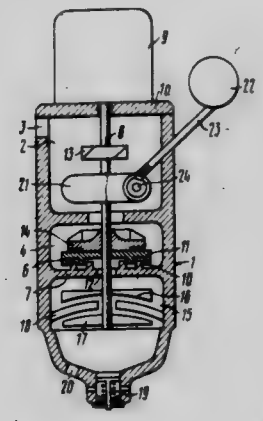
PCT No. PCT/SU79/00082, § 371 Date May 27, 1980, § 102(e) Date May 23, 1980, PCT Pub. No. WO80/00798, PCT Pub. Date May 1, 1980

PCT Filed Sep. 19, 1979, Ser. No. 196,046

Claims priority, application U.S.S.R., Sep. 26, 1978, 2662187; Sep. 26, 1978, 2662188

Int. Cl.³ B01F *15/06*

U.S. Cl. 366—146 **6 Claims**



1. A rotary pulsation apparatus having a casing with walls defining a premixing chamber having an inlet to admit emulsions and/or suspensions into the apparatus, and a mixing chamber communicating with the premixing chamber, having an outlet and accommodating a rotor and a stator to provide a variable resistance to a flow of emulsions and/or suspensions with the rotor rotating, wherein an improvement comprises a reservoir accommodated in the premixing chamber, having walls provided with a multiplicity of perforations and communicating with a source of at least one additional ingredient of a mixture to be obtained.

4,332,487

SOLID INK CARTRIDGE FOR A NON-IMPACT PRINTER

Michele Bovio, Brosso; Aquilino Barbero, Pavone; Walter Gillone, Ivrea, and Pierangelo Berruti, Chivasso, all of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

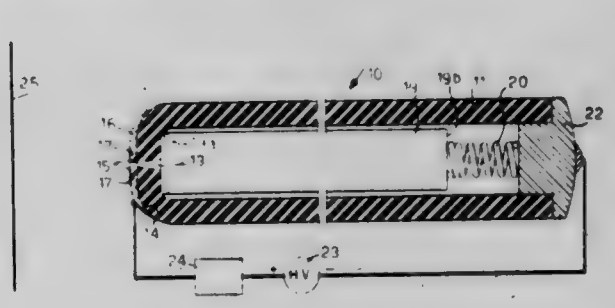
Continuation of Ser. No. 972,267, Dec. 22, 1978, Pat. No. 4,238,807. This application Jul. 30, 1980, Ser. No. 173,823

Claims priority, application Italy, Dec. 28, 1977, 69927 A/77

The portion of the term of this patent subsequent to Dec. 9, 1997, has been disclaimed.

Int. Cl.³ G01D *15/18*

U.S. Cl. 400—126 **23 Claims**



1. A solid ink cartridge for use in a non-impact printer, including a rod of electrically conductive solid ink formed by a mixture of pigmented particles and a binder, a substantially tubular housing of electrically non conductive material, one end of said housing being closed by an integral wall having a nozzle to allowing the emission of ink particles, a closure element of electrically conductive material for closing the other end of said housing, said element being electrically connected to said rod, and spring means located inside said housing for urging said rod toward said wall.

4,332,488

DEVICE FOR THE CONTROL OF THE POSITION OF THE TYPE CARRYING ELEMENT IN TYPEWRITERS

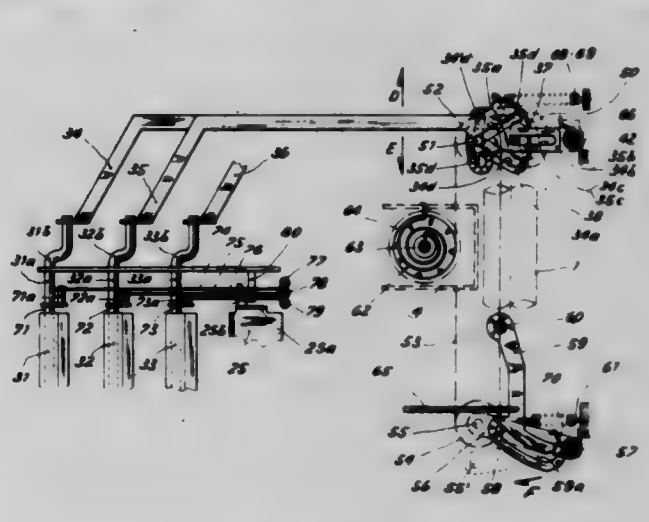
Gian P. Barozzi, and Giancarlo Horeschi, both of Tokyo, Japan, assignors to Xelavis S.A., Panama City, Panama

Filed Jul. 10, 1980, Ser. No. 168,386

Claims priority, application Italy, Jul. 11, 1979, 24281 A/79

Int. Cl.³ B41J *1/60*

U.S. Cl. 400—161.5 **6 Claims**



1. In a printing machine having a platen, a single-element type carrier juxtaposed with said platen and provided with typefaces for applying corresponding characters to a paper lying against said platen, a keyboard provided with keys associated with said characters and actuatable to selectively position respective typefaces at a printing location, and a mechanism for operatively coupling said keys with said element for

positioning same, the improvement wherein said mechanism comprises:

a respective slidable interposer actuatable by each key and formed with a coded contour representing the selected key;

cam means on said machine operable upon actuation of each key for displacing the respective interposer;

a plurality of rods each provided with formations selectively engageable with the coded contours of said interposers for selective angular displacement to selective angular extents in accordance with the selected typefaces;

respective bars eccentrically connected to said rods and shiftable by said rods with displacements determined by the angular displacements of said rods by said coded contours, each of said bars having a slot inclined to its direction of displacement;

a respective shaft received in each slot and carrying a respective pulley, each of said shafts being guided for displacement in a direction disaligned from that of the respective slot whereby displacement of each bar causes the respective slot to cam the respective shaft directly into a position determined by the contour of an interposer of an actuated key; and

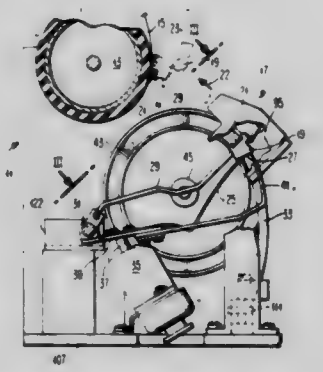
a respective wire operatively connected with said element and passing around each pulley whereby movement of each pulley deflects said element in a respective sense so as to dispose the typeface associated with each actuated key at said location.

4,332,489

PRINT HAMMER ACTUATING DEVICE

William L. Dollenmayer, Versailles, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 24, 1980, Ser. No. 209,364
Int. Cl.[3] B41J *1/02*
U.S. Cl. 400—172 16 Claims



1. In an impact printer having a platen, a print hammer, and a cartridge provided with a plurality of type chips, the improvement comprising:

a drive motor;

energy storage means for storing print hammer driving energy derived from motion of said motor;

type chip positioning means responsive to said motion of said motor to transfer a selected type chip to a preprinting loaded position on said print hammer from said cartridge;

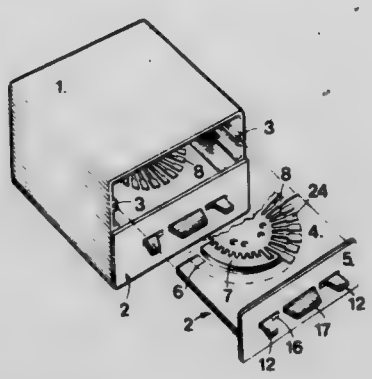
means responsive to the positioning of a selected type chip on said print hammer to release said energy storage means for accelerating said print hammer towards said platen whereby said type chip impacts said platen.

4,332,490

LINING-UP ASSEMBLY FOR A PRINTING DISC

Giulio Tschudi, Yverdon, Switzerland, assignor to Hermes Precisa International S.A., Yverdon, Switzerland

Filed Jun. 18, 1980, Ser. No. 160,592
Claims priority, application Switzerland, Jul. 3, 1979, 6184/79
Int. Cl.[3] B41J *1/26;* B65D *85/02;* B41J *29/16*
U.S. Cl. 400—175 5 Claims



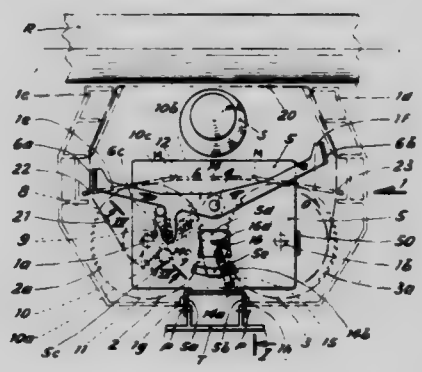
1. A lining-up assembly for a printing disc for use in a typewriter, said disc including a hub, radial arms on said hub, the free ends of said arms provided with relief characters, said assembly comprising a casing, guides in said casing, at least one movable drawer slidable in said guides, means for securing the hub to the drawer, said means comprising a manipulating tool for handling the printing disc, said drawer comprising a front plate and a support plate slidable in said guides of said casing, said support plate having a cut-out area in the form of a circular segment, the edge of which surrounds said hub on a portion of its periphery, said manipulating tool attached to the support plate and releasably secured to said hub to permit securing the hub to the drawer and for handling the disc when it is connected to and disconnected from said typewriter.

4,332,491

DEVICE FOR THE FEED AND MOTION REVERSAL OF THE RIBBON FOR TYPEWRITER CARTRIDGES AND CARTRIDGE THEREFORE

Gian P. Barozzi, and Giancarlo Horeschi, both of Tokyo, Japan, assignors to Xelavis S.A., Panama City, Panama

Filed Jul. 10, 1980, Ser. No. 168,463
Claims priority, application Italy, Jul. 25, 1979, 24667 A/79
Int. Cl.[3] B41J *35/28, 33/50*
U.S. Cl. 400—208 4 Claims



1. In a printing device having a platen, a type element juxtaposed with said platen and actuatable to imprint a character upon a paper disposed against said platen, a ribbon-feed mechanism for advancing a ribbon between said element and said device having a rotatable shaft, the improvement wherein said ribbon-feed mechanism comprises:

a ribbon cartridge, said cartridge including:

a cartridge housing formed with a pair of ribbon guides straddling said element,

a pair of ribbon spools for unwinding and winding up a ribbon passing between said guides, said guides holding

said ribbon between said element and said platen, said spools having toothed peripheries lying in a common plane, said housing having a bottom formed with a window between said toothed peripheries,

a pair of deflectable wings traversed by said ribbon between each spool and a respective guide, and

respective rings fixed to said ribbon toward opposite ends thereof whereby engagement of each ring with a respective one of said wings deflects the engaged wing outwardly;

a support plate pivotally mounted on said device for upward and downward rocking movement, said support plate being provided with means for positioning said cartridge thereon, whereby a rocking movement of said support plate lifts and lowers a stretch of said ribbon spanning said guide between said element and said platen;

a balance lever pivotally mounted on said support plate and having a pair of opposite arms each juxtaposed with one of said wings whereby, upon unwinding of ribbon from each spool, the engagement of a respective ring with a respective one of said wings deflects the same to swing said lever in a respective sense;

cam means on said shaft and cam follower means on said plate for alternately raising and lowering said plate;

a stepping pawl lever on said plate having a formation extending through said window and selectively directly engageable with the toothed peripheries of either of said spools, said stepping pawl lever being engageable with said cam means for stepping the toothed periphery of the spool with which it is engaged;

means including an intermediate lever connecting said balance lever with said stepping pawl lever for deflecting said stepping pawl lever from engagement with the toothed periphery of one of said spools into engagement with the toothed periphery of the other of said spools; and

a formation on said intermediate lever engageable with said spools for preventing reverse rotation thereof during the stepping of each spool by said stepping pawl lever.

4,332,492

DEVICE FOR CONTROLLING THE CARRIAGE MOVEMENT IN A PRINTER

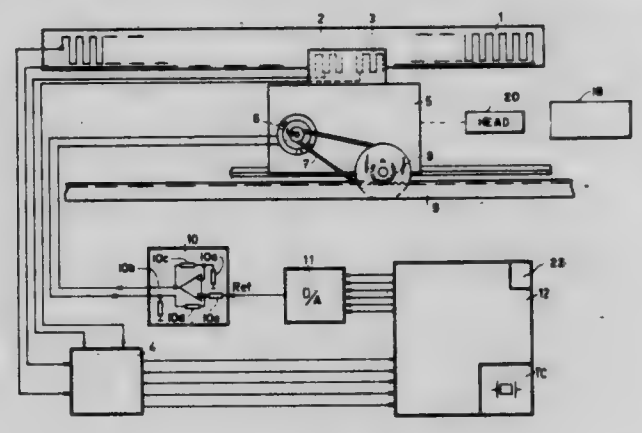
Rolf A. B. Thern, and Peter Dahlberg, both of Järfälla, Sweden, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 19, 1979, Ser. No. 76,875

Claims priority, application Sweden, Sep. 20, 1978, 7809895; Aug. 29, 1979, 7907196

Int. Cl.³ B41J *19/00*

U.S. Cl. 400—320 **2 Claims**



1. A device for controlling carriage movement in a printer comprising a carriage, the carriage being movable along an associated record carrier, a direct current motor for moving the carriage, and a drive unit for generating a drive signal to the direct current motor, in which the drive unit compensates for load variations during carriage movement, characterized in that the device further comprises a carriage position indicator, a microprocessor, a digital-to-analog converter, means for pulse shaping and a timing circuit for sensing the position of the carriage in relation to a position reference point at two occasions which are determined by said timing circuit, a signal processing circuit for analog-to-digital conversion of the carriage position values which are obtained and for the supply of said values to said microprocessor, said microprocessor being arranged so as to calculate therefrom an actual carriage speed between said occasions and to compare this speed and an optimal carriage speed, which is stored in the microprocessor, and to calculate on the basis of this comparison, a compensation factor for a reference signal value which is generated by the microprocessor and supplied to the drive unit via said digital-to-analog converter during the next carriage movement, said carriage position indicator comprising a Meander-indicator comprising an element which is fixedly mounted in the printer and being extended in the movement direction of the carriage and having a length which corresponds to the printing width of the printer, and two further Meander elements supported by the carriage and arranged close to and along the fixed element in order to secure a good inductive coupling between cooperating Meander elements, said two further Meander elements being provided on the carriage at a mutual distance which is such that the loop structures thereof will have a mutual displacement equal to ¼ period of the loop structure relative to the fixed element, and further comprising a sinus generator and a cosinus generator for supplying each respective one of said further Meander elements on the carriage with sinus type signals of the same frequency and having a mutual phase deviation of 90°, thereby generating inductively in said fixed element an output signal of the same frequency and having a phase deviation relative to the supplied sinus signal which is a measure of the carriage displacement within a period of the Meander-loop structure, said device having means for the conversion of said phase deviation to a digital value which comprises a counter having the cycle length of A bits, which is advanced at a frequency equal to A times the frequency of the sinus signal and in synchronism therewith, and a latch circuit to which is supplied a binary number having A bits from said counter and the value of which is consequently changed step-wise and periodically from 0 to the maximum value of the A bits number, and in that the sinus output signal from the fixed indicator element, after having been pulse-shaped by said means for pulse shaping to a rectangular wave with frequency and phase unchanged, is supplied to said latch circuit as a clock signal, thereby locking the latch circuit synchronously with the output signal of the fixed indicator element to binary numbers providing at each occasion a binary representation of said phase deviation within a period of the Meander-loop structure.

4,332,493

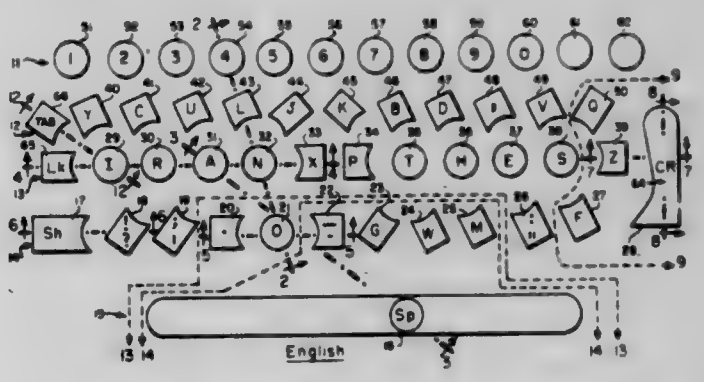
TEN-FINGER TYPEWRITER KEYBOARDS

Harvey Einbinder, 308 W. 97 St., New York, N.Y. 10025

Filed Jun. 12, 1980, Ser. No. 158,944

Int. Cl.³ B41J *5/10*

U.S. Cl. 400—484 **12 Claims**



1. An English language keyboard for typewriters, CRT terminals, and word processing equipment, comprising a plurality of character keys arranged in straight parallel key rows transversely oriented with respect to the operator:

wherein a number key row is situated at the greatest distance from the operator, an upper letter key row is situated between the number key row and the operator, a home key row is situated between the upper letter key row and the operator, and a lower letter key row is situated between the home key row and the operator;

wherein character keys in each key row are designated in serial order from the left hand side of the keyboard to the right hand side of the keyboard as viewed by the operator, with the character key at the left hand end of a given key row being designated as the first key, and the character key at the right hand end of a given key row being designated as the highest numbered key in the said key row, as viewed by the operator;

wherein upper and lower case forms of a letter are assigned to the same character key;

wherein letters are assigned to the said character keys in key rows from left to right as viewed by the operator as follows:

in the lower letter key row: O assigned to the fourth key; and

in the home key row: I assigned to the first key, R assigned to the second key, A assigned to the third key, N assigned to the fourth key, T assigned to the seventh key, H assigned to the eighth key, E assigned to the ninth key, and S assigned to the tenth key.

4,332,494

ADJUSTABLE COSMETIC WIPER

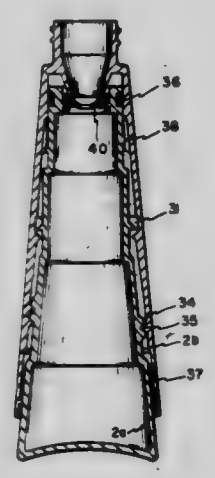
Ted I. Kingsford, Memphis, Tenn., assignor to Plough, Inc., Memphis, Tenn.

Continuation-in-part of Ser. No. 857,074, Dec. 5, 1977, Pat. No. 4,194,848. This application Nov. 21, 1979, Ser. No. 96,710

Claims priority, application European Pat. Off., Nov. 30, 1978, 78200323.0

Int. Cl.³ A46B *11/04*

U.S. Cl. 401—5 **21 Claims**



1. A package comprising:

a. a container comprising a reservoir and a cover overlapping at least a portion of the side of said reservoir wherein said cover contains the container neck, said reservoir having fluent material therein;

b. a container closure;

c. a wiper having an orifice means defining a single continuous wiping surface adapted to wipe excess material from the applicator;

d. an applicator attached to said closure by a shaft and adapted to be passed through said wiper orifice and immersed in said fluent material when said closure is attached to said container;

e. a calibrated adjusting means to vary the cross sectional area of said orifice; said adjusting means comprising an abutting means positioned adjacent to said wiper orifice and a guide means adapted to control the amount of pressure exerted on said wiper by said abutting means, said adjusting means permitting a user to reproduce a previous result.

4,332,495

WOODEN FRAMES OR THE LIKE HAVING TWO FRAME PARTS ADAPTED TO BE CONNECTED BY A CLAMPING-ECCENTRIC CONNECTOR

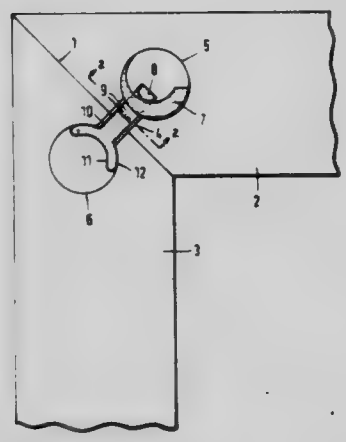
August Bürgers, Erkelenz-Gerderath, Fed. Rep. of Germany, assignor to Europatent S.A., Luxembourg, Luxembourg

Filed Oct. 27, 1980, Ser. No. 200,692

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1980, 8011691[U]

Int. Cl.³ F16B *2/18*

U.S. Cl. 403—6 **6 Claims**



1. In a frame having two frame parts abutting at a joint interface and having a tensioning-eccentric connector, the two frame parts each having a borehole which extends perpendicularly to the joint interface and each having a preferably round recess at the end of its borehole, the boreholes being substantially aligned, the tensioning-eccentric connector comprising a round tensioning eccentric being adapted to be inserted turnably into one of the recesses of one of the frame parts and a tension bolt being adapted to be introduced into the boreholes, a clamping end of the tension bolt engaging into the tensioning eccentric and a fastening end of the tension bolt being held fast in the other recess of the other frame part by means of a holder, the improvement wherein

the holder comprises an abutment stop part which is fixed on the fastening end of the tension bolt, said other recess receives said abutment stop part therein, the length of said abutment stop part in a circumferential direction of the other recess is greater than the diameter of the borehole in said other frame part, said abutment stop part has an abutment surface which substantially corresponds to the shape of a corresponding circumferential wall of said other recess, and said other recess has an inner dimension in an axial direction of the borehole corresponding approximately to the length of the tension bolt including that of said abutment stop part, and said tension bolt is inserted into the boreholes from said other recess.

4,332,496

BOW PENCIL

John K. Branch, 2003 Maine Ave., Kenner, La. 70062

Filed May 11, 1981, Ser. No. 262,484

Int. Cl.³ B43K *29/00*

U.S. Cl. 401—52 **6 Claims**



1. A bow pencil comprising:

a. a bow pencil shaft, said shft being threaded and adopted to

be attached to the bow frog portion of a viol bow, replacing the bow screw;

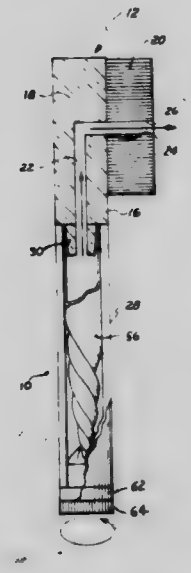
b. a means attached to said bow shaft for marking on a surface, said pencil shaft and said means being attached to said bow at the gripping end portion thereof, replacing the bow screw, rotation of said means and attached shaft effecting an adjustment of the viol bow hair.

4,332,497

COMBINATION TOOTHBRUSH AND TOOTHPASTE DISPENSER

Gonzalo C. Rodriguez, Avenida Los Naranjos 3, La Florida, Caracas, Venezuela

Filed Feb. 22, 1980, Ser. No. 123,882
Int. Cl.³ A46B *11/04*
U.S. Cl. 401—154 **5 Claims**



1. A combination fountain toothbrush and toothpaste reservoir comprising:

a fountain toothbrush having a brush head portion and a stem means having a male coupling means;

a hollow handle having a first end and a second end and having female coupling means on said first end to engage the male coupling means of said stem means;

a conduit means extending through said fountain toothbrush, communicating with said hollow handle;

an elongated flexible tube reservoir means having a first open end for discharging toothpaste to said brush head and a second open end for receiving toothpaste to fill said reservoir, wherein said reservoir means is disposed in said hollow handle, said first open end being secured to said first end of said hollow handle; and

twisting means, connectable to said second end of said hollow handle, for twisting said flexible tube reservoir means to dispense toothpaste therefrom, said twisting means comprising a rotatable knob and a clamping means for clamping the second end of said flexible tube reservoir means to said rotatable knob;

wherein said female coupling means of said hollow handle includes at least one pair of downwardly facing flexible flap means for clamping the first end of said flexible tube reservoir means between said flap means and the internal wall of said hollow handle when said male coupling means is inserted into said female coupling means.

4,332,498

SEALANT APPLICATOR

William R. Lewis, P.O. Box 82684, Oklahoma City, Okla. 73148

Filed Nov. 17, 1980, Ser. No. 207,415
Int. Cl.³ B43K *5/02*
U.S. Cl. 401—188 R **14 Claims**

1. A sealant applicator for applying an elastomeric sealant made by mixing a first and a second component, comprising:

a frame;

a first component supply for storing a quantity of the first component being disposed on the frame;

a second component supply for storing a quantity of the second component being disposed on the frame;

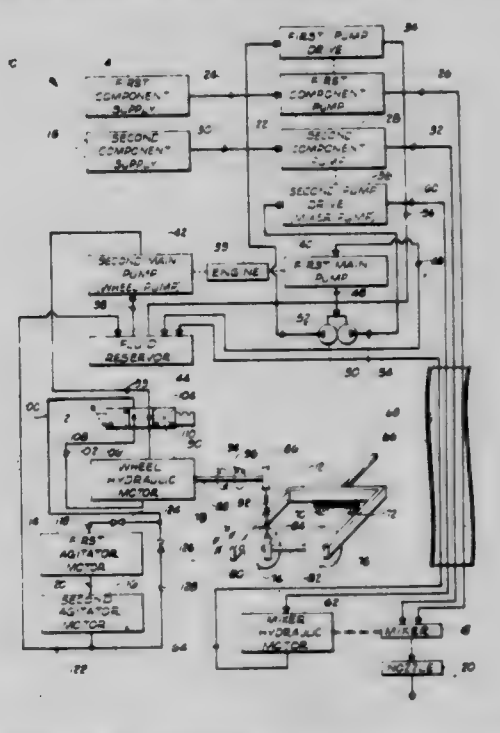
a first component pump fluidically connected to the first component supply for receiving the first component and for pumping the first component out a pump discharge;

a second component pump fluidically connected to the second component supply for receiving the second component and for pumping the second component out a pump discharge;

a first component conduit having opposite ends with one end being connected to the pump discharge of the first component pump, the first component pump pumping the first component from the first component supply through the first component conduit;

a second component conduit having opposite ends with one end being connected to the pump discharge of the second component pump, the second component pump pumping the second component from the second component supply through the second component conduit;

a mixer, the end of the first component conduit opposite the end connected to the first component pump being connected to the mixer and the end of the second component conduit opposite the end connected to the second compo-



nent pump being connected to the mixer, the mixer receiving the first and the second components flowing through the first and the second component conduits and mixing the first and the second components to form the elastomeric sealant when being driven;

a nozzle connected to the mixer for receiving the elastomeric sealant and for dispensing the received elastomeric sealant;

a mixer hydraulic motor connected to the mixer for driving the mixer;

a first hydraulic conduit having opposite ends with one end being connected to the mixer hydraulic motor for delivering hydraulic fluid to the mixer hydraulic motor;

a second hydraulic conduit having opposite ends with one end being connected to the mixer hydraulic motor for receiving hydraulic fluid from the mixer hydraulic motor, the first and the second component conduits and the first and the second hydraulic conduits each extending a distance from the frame for disposing the mixer, the mixer hydraulic motor and the nozzle at a position remote from the frame;

a fluid reservoir for storing a quantity of hydraulic fluid, the end of the second hydraulic conduit opposite the end connected to the mixer hydraulic motor being connected to the fluid reservoir;

a mixer pump connected to the fluid reservoir and to the end

of the first hydraulic conduit opposite the end connected to the mixer hydraulic motor for pumping hydraulic fluid through the first hydraulic conduit to the mixer hydraulic motor;

a flexible tube having an opening extending therethrough, a substantial portion of the first and the second component conduits and the first and second hydraulic conduits extending through the opening in the flexible conduit, the flexible conduit maintaining the first and the second component conduits and the first and the second hydraulic conduits in close proximity during the operation of the sealant applicator so the heat from the first and the second hydraulic conduits heats the first and the second components flowing through the first and the second component conduits;

a wheel shaft, having opposite ends;

means for journally connecting the wheel shaft to the frame;

a first wheel connected to the wheel shaft generally near one end of the wheel shaft;

a second wheel connected to the wheel shaft generally near the other end of the wheel shaft;

a wheel hydraulic motor supported on the frame having an output shaft, the wheel hydraulic motor rotatingly driving the output shaft in a forward direction in forward driven condition and rotating driving the output shaft in a reverse direction in a reverse driven condition;

a wheel pump fluidically connected to the wheel hydraulic pump for pumping fluid to the wheel hydraulic motor;

means interposed between the wheel hydraulic motor and the wheel pump for fluidically connecting the wheel hydraulic motor and the wheel pump in a forward driven condition so the wheel hydraulic motor rotatingly drives the output shaft in the forward direction and for fluidically connecting the wheel hydraulic motor and the wheel pump in a reverse driven condition so the wheel hydraulic motor rotatingly drives the output shaft in the reverse direction; and

means connecting the wheel hydraulic motor output shaft to the wheel shaft for rotatingly driving the wheel shaft and the first and the second wheels in a forward direction when the wheel hydraulic motor output shaft is driven in the forward direction and for rotatingly driving the wheel shaft and the first and the second wheels in a reverse direction when the wheel hydraulic motor output shaft is driven in the reverse direction.

4,332,499

JOINT

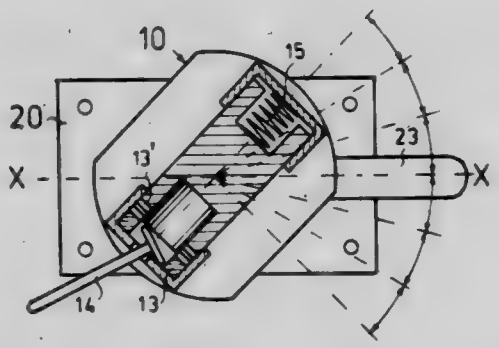
Edwin Stücheli, In den Reben 379, CH-5105 Auenstein, Switzerland

Filed Sep. 11, 1980, Ser. No. 186,247

Claims priority, application Switzerland, Sep. 11, 1979, 8188/79

Int. Cl.³ F16B *7/10*; F16C *11/00*; F16D *1/12*

U.S. Cl. 403—53 **6 Claims**



1. A joint comprising a base plate having two bearings secured thereto for supporting a T-shaped joint component so as to render it tiltable about its cross beam and lockable in different positions, characterized in that said base plate **(10)** is maintained on a support plate **(20)** in a pivotable condition by means of a pin **(16)**, the median line (y—y) of said pin **(16)** perpendicularly intersecting the pivot axis (x—x) of said cross beam, said base plate **(10)** being lockable in different positions.

4,332,500

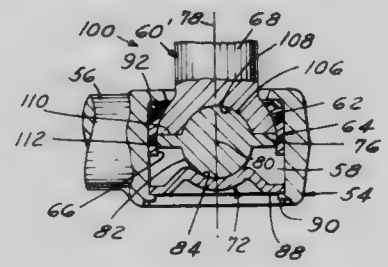
TIE ROD BALL JOINT CONSTRUCTION

Joseph E. Smith, Jr., Birmingham, and William H. Trudeau, Brighton, both of Mich., assignors to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Mar. 2, 1979, Ser. No. 16,917

Int. Cl.³ F16C *11/06*

U.S. Cl. 403—114 **17 Claims**



1. A joint comprising a socket member having a cavity therein opening to the exterior thereof, a stud member having a ball portion received in said cavity and a stud projecting generally axially therefrom to the exterior of said socket member, said ball having a semi-spherical bearing surface, an abutment means on said ball portion in the equatorial area of said semispherical bearing surface, a bearing seat ring received in said cavity and having a semi-spherical surface complimentary to and bearing on at least a portion of said semi-spherical surface of said ball, and a restraining pin disposed in said cavity, journaled for rotation in said socket member, and constructed and arranged to bear on said abutment means to essentially prevent pivoting of said members relative to each other in one plane containing the longitudinal axis of said stud member while permitting pivoting of said members relative to each other in a plane at a right angle to said one plane and containing said longitudinal axis of said stud member and permitting said stud member and ball portion to rotate in unison on its longitudinal axis relative to said socket member.

4,332,501

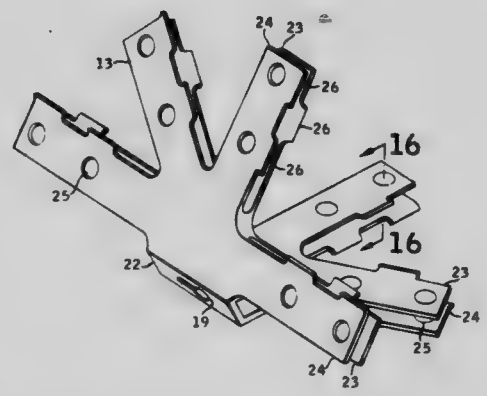
STRUCTURAL NODE FOR LARGE SPACE STRUCTURES

Paul Slysh, San Diego, Calif., assignor to General Dynamics Corporation, San Diego, Calif.

Continuation of Ser. No. 99,263, Dec. 3, 1979, Pat. No. 4,308,699, which is a division of Ser. No. 930,823, Aug. 3, 1978. This application Jan. 16, 1981, Ser. No. 225,549

Int. Cl.³ E04H *12/00*

U.S. Cl. 403—219 **1 Claim**



1. A structural node adapted to being stored in a stacked array and to being removed therefrom and connected to plural structural strut members which comprises:

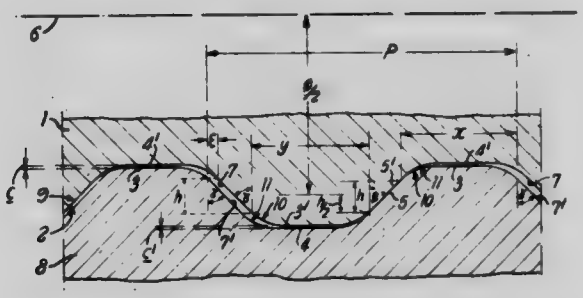
a hub including a keyway adapted to accept a dog for retaining said hub in a stacked stored position and for selectively releasing said hub;
at least two elongated spring legs extending out from said hub;
each of said legs having an end and two sides and comprising first and second parallel spring leaves;
at least one pin fixed to each first leaf and extending toward the corresponding second leaf and into a hole in said second leaf; and
outwardly flared tabs along at least a portion of juxtaposed edges of said first and second leaves, which edges extend outwardly from said hub;
whereby flat strut ends having holes corresponding in diameter to said pins may be inserted between each set of first and second leaves from the sides of said legs.

4,332,502

APPARATUS FOR USE IN DRILLING

Philip J. Wormald, and Raymond J. Clemmow, both of Dronfield, England, assignors to Padley & Venables Limited, Yorkshire, England

Filed Dec. 19, 1977, Ser. No. 861,678
Claims priority, application United Kingdom, Jan. 11, 1977, 926/77; Mar. 29, 1977, 13114/77; Mar. 30, 1977, 13386/77
Int. Cl.³ E21B *17/02*
U.S. Cl. 403—343 **19 Claims**



1. A drill element of the kind specified in which the screw thread has a root and a crest which are interconnected through a main flank, an effective diameter selected from the range 25 millimeters to 65 millimeters and a pitch angle α and in which, in a section of the screw thread taken on the longitudinal axis thereof, the main flank is flat or substantially flat and is inclined at a flank angle β to a plane which is normal to the longitudinal axis and wherein α is determined, or substantially so, from the formula

$$\text{Sin } 2\alpha = \frac{-0.4 \text{ Cos } \beta \left(\frac{TU}{TC} - 1 \right)}{(0.04 + \text{Cos}^2 \beta) \left(\frac{TU}{TC} + 1 \right)}$$

where TU is the uncoupling torque, TC is the coupling torque, TU/TC is in the range 0.36 to 0.46; β is in the range of 30° to 65°, and α as determined is not greater than 9.5°.

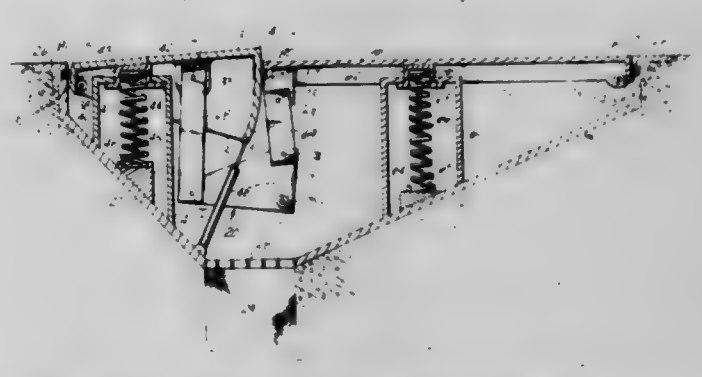
4,332,503

APPARATUS FOR SIGNALING DIRECTION OF TRAVEL ON A ROAD BED

George H. Hurst, Jr., 16491 Harbour La., Huntington Beach, Calif. 92649

Filed Jun. 10, 1977, Ser. No. 805,296
Int. Cl.³ E01F *13/00*
U.S. Cl. 404—11 **18 Claims**

7. A road device for detecting direction of travel on a road bed, the device comprising:
a ramp having first and second ends;
means for mounting the ramp in the road bed so its first end pivots about its second end, the first end of the ramp being pivotable between a raised position substantially above the surface of the road bed and a depressed position substantially flush with the surface of the road bed;
a platform having first and second ends;
means for mounting the platform in the road bed so its first end pivots about its second end and is adjacent to the first end of the ramp, the first end of the platform being pivotable between an upper position substantially flush with the surface of the road bed and a lower position below the surface of the road bed;
spring means for biasing the first end of the ramp to an intermediate position between its raised and depressed positions and applying a return force to the first end of the



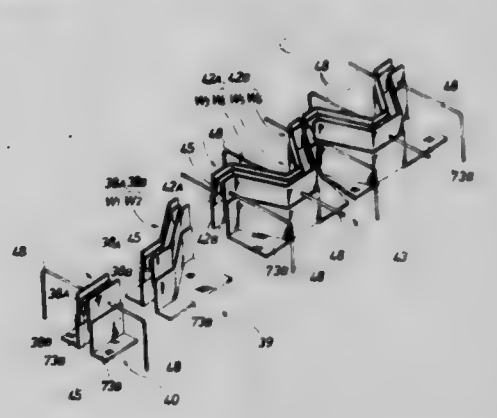
ramp when it pivots from the intermediate position to the depressed position;
spring means for biasing the first end of the platform to its upper position and applying a return force to the first end of the platform when it pivots from its upper position to its lower position; and
means interconnecting the ramp and the platform for pivoting the first end of the ramp to its raised position when the first end of the platform pivots to its lower position and for locking the first end of the platform in its upper position while the first end of the ramp is in its depressed position.

4,332,504

EXPANSION JOINTS FOR ROADS

Motonosuke Arai, 12-go, 4-ban, Iwazone-cho, Ashiya City, Hyogo Prefecture, Japan

Filed Nov. 5, 1979, Ser. No. 91,356
Int. Cl.³ E01C *11/04*
U.S. Cl. 404—68 **11 Claims**



1. An expansion joint for a roadway comprising:
first and second opposed upper wavy face plates forming a substantially regular wavy gap therebetween;
an elastic seal bonded between said first and second opposed upper wavy face plates;
a first lower wavy face plate partly overlapping and extending a substantial distance below a bottom portion of said first upper wavy face plate;
a second lower wavy face plate partly overlapping and extending substantially below a bottom portion of said second upper wavy face plate;
said first and second lower wavy face plates forming a substantially regular gap therebetween;

means for supporting said first and second lower wavy face plates an interval above a horizontal support surface;

said first and second upper wavy face plates being displaceable up and down with respect to said first and second lower wavy face plates whereby different thicknesses of roadway can be accommodated;

means for joining said first upper and first lower wavy face plates and for joining said second upper and said second lower wavy face plate; and

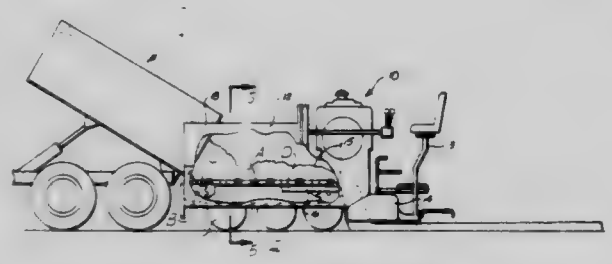
reinforcing materials affixed to said first and second upper wavy face plates and effective to maintain said expansion joint in position in said roadway in preparation for placing concrete behind first and second upper and first and second lower wavy face plates.

4,332,505

PAVER ATTACHMENT

Herbert N. Mauldin, Rte. 7, Viewmont Dr., Greenville, S.C. 29609

Filed Feb. 19, 1981, Ser. No. 236,284
Int. Cl.³ E01C *19/18*
U.S. Cl. 404—108 **2 Claims**



1. A paver having a hopper and means for feeding asphalt and the like rearwardly of the hopper by a flight chain assembly having transverse flight bars between spaced drive chains comprising:

a unitary frame carrying said flight chain;

a pair of longitudinally spaced shafts carried adjacent end portions of said frame;

a sprocket carried by each end of said shafts engaging said spaced drive chains for carrying said flight chain;

means removably positioning said frame and the flight chain carried thereby within the hopper;

removable covers carried by said hopper partially overlying said flight chain on each side thereof; and

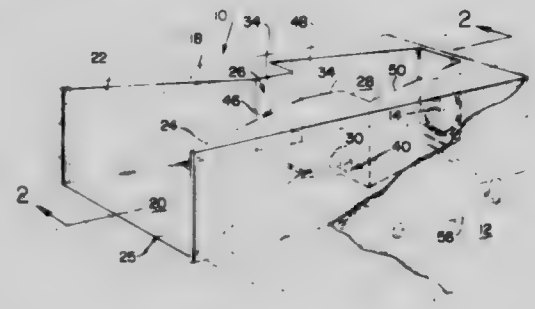
means for driving said flight chain.

4,332,506

WAVE-AND-TIDE-PUMP APPARATUS AND METHOD THEREOF

Ottie H. Andrews, 1562 W. Katella Ave., Anaheim, Calif. 92802

Filed Jun. 26, 1980, Ser. No. 163,301
Int. Cl.³ E02B *9/08, 7/44*
U.S. Cl. 405—77 **5 Claims**



1. A wave-and-tide pump for installation along the shore line of a first body of water affected by wave-and-tidal action, to provide a constant flow of water to a second but smaller body of water which includes an inlet mouth, said pump and said inlet mouth being oppositely disposed to each other, said wave-and-tide pump comprising:

a housing structure having a funnel-like-inlet-mouth portion and a discharge opening oppositely disposed thereto, said inlet mouth being positioned to accept incoming water flow by means of tidal changes and wave action;

said mouth portion including a pair of inwardly converging side walls, and an inclined bottom floor extending inwardly and upwardly, providing an angular displacement substantially equal to or greater than the angle of the shore line of said first body of water;

a throated neck portion contiguously positioned aft of said mouth portion, whereby water is funneled from said mouth portion thereof to said neck portion, said throated neck portion being defined by oppositely disposed parallel side walls, and a rearward downwardly sloping bottom wall;

a reservoir chamber contiguously associated with said throated neck portion to receive water therefrom, said reservoir chamber being defined by a bottom wall having oppositely disposed side walls converging rearwardly and terminating inwardly at said discharge opening;

a unilateral flow-control means interposed between said inlet mouth and said throated neck, said means being operated by said waves entering said inlet mouth thereof;

wherein said unilateral flow-control means comprises:

a valvular-control gate hinged in the bottom of said throated neck portion; and

a floatation member attached to said gate, whereby said gate never drops below the level of the tide;

stop means mounted in said neck portion to limit the movement in one direction of said unilateral flow-control means; and

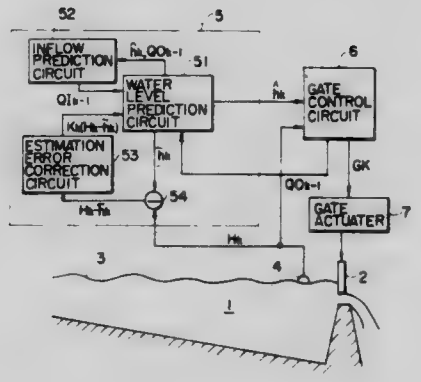
an interconnecting conduit connected between said discharge opening and said second body of water, whereby a continuous flow of water is transferred from the first body of water to the second body of water, and wherein a current flow is established within said second body of water, so that the water passes out through the inlet mouth thereof.

4,332,507

WATER LEVEL CONTROL SYSTEM FOR A RESERVOIR

Fumio Wakamori, Machida; Motohisa Funabashi, Kanagawa; Mamoru Kata; Takazo Hirano, both of Hitachi, and Mikihiko Onari, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 28, 1979, Ser. No. 98,234
Claims priority, application Japan, Dec. 6, 1978, 53-149945
Int. Cl.³ E02B *7/20*
U.S. Cl. 405—92 **15 Claims**



1. A method for controlling the water level of a reservoir comprising the steps of:

a first step of determining the actual water level, the inflow rate and the outflow rate of the reservoir at each of a plurality of successive predetermined moments of time;

a second step of determining an estimated water level corresponding to a stored amount of water in the reservoir at each of said predetermined moments of time; and

a third step of controlling the outflow rate from each of said

successive moments of time until the next moment of time based upon the estimated water level and a target water level for each moment of time; and

wherein said second step includes determining the estimated water level corresponding to the stored amount of water at a given moment of time, based upon a change of the amount of water stored in the reservoir from the previous moment of time next preceding said given moment of time until said given moment of time, on the basis of said estimated water level determined at the previous moment of time, and further based upon a correction amount which is proportional to the difference between the sum of said change and said estimated water level at the previous moment of time and the actual water level detected at said given moment of time;

said change in the amount of water stored in the reservoir being detected from the difference between the inflow rate and the outflow rate at the previous moment of time and the water surface area of the reservoir.

4,332,508

SHIELD FOR TUNNELING AND MINING

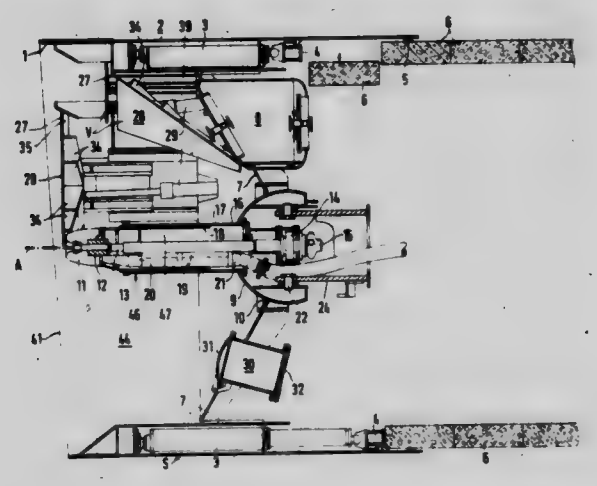
Wilfried Krabbe, Dreieich-Buchschlag, Fed. Rep. of Germany, assignor to Philipp Holzmann Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,216

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1979, 2907768

Int. Cl.³ E21D *9/06*

U.S. Cl. 405—144 **18 Claims**



1. A shield for tunneling and mining, comprising means for forming a work chamber having an open front which in use is located at the work face from which material is to be removed; means in said work chamber for removing material from the work face; means for admitting into the work chamber a pressure medium which supports the work face against crumbling and collapse; and work face supporting elements comprising rack elements interiorly supported and positioned within said work chamber in spaced relation to said work face, said elements being movable within said work chamber so as to engage and be supported against said work face; said elements having a first and a second part, said first part, when in the interiorly supported position, being positioned transverse to the longitudinal axis of the cylindrical shield and said first part longitudinally displaceable relative to said shield axis; said second part being pivotable relative to said first part said elements being selectively movable into and out of an operative position in which they support the work face in at least parallel replacement of the support afforded by said pressure medium.

4,332,509

RISER PIPE SYSTEM FOR COLLECTING AND RAISING PETROLEUM PRODUCED FROM AN UNDERWATER DEPOSIT

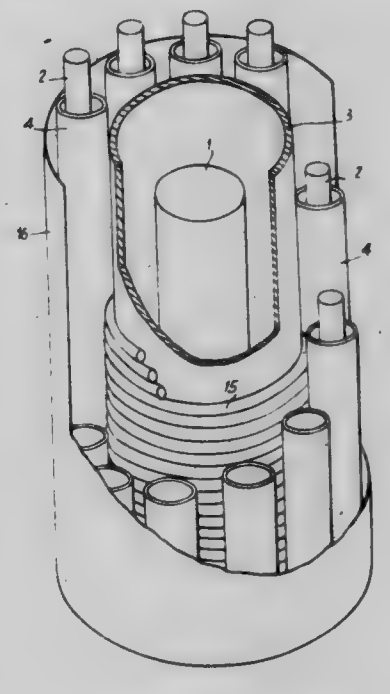
Remi Reynard, Neuilly-sur-Seine; Christian Athe, Le Mee, and Jean-Paul Aubert, Puteaux, all of France, assignors to Coflexip, Rueill Malmaison, France

Filed Jun. 10, 1980, Ser. No. 158,261

Claims priority, application France, Jun. 18, 1979, 79 15525

Int. Cl.³ E21B *17/01*; F16L *11/00*

U.S. Cl. 405—168 **6 Claims**



1. System for the collection and raising of petroleum produced from an underwater deposit, said system being of the type including a plurality of flexible pipes, and comprising a plurality of tubular sections, rigidly connected together and having essentially zero buoyancy, each section having internal conduits of a diameter to allow the passage of the flexible pipes, at least one of the said internal conduits comprising a tube having a reinforcing sheathing able to sustain the effects of longitudinal traction.

4,332,510

METHOD AND APPARATUS FOR RECOVERING A LENGTH OF AN ELONGATED BODY, SUBMERGED IN WATER

Antonio Ferrentino, Monza, Italy, assignor to Industrie Pirelli Societa per Azioni, Milan, Italy

Filed Apr. 1, 1980, Ser. No. 136,323

Claims priority, application Italy, Apr. 5, 1979, 21604 A/79

Int. Cl.³ F16L *1/04*

U.S. Cl. 405—171 **37 Claims**

1. Method for recovering a length of an elongated body from substantial depths below the free surface of a body of water, said method comprising:

lowering in said water a first unit having a float detachably secured to means for gripping said length and having a flexible, extensible element interconnecting the float and said means;

controlling the descent of said unit by applying a balancing force substantially equal to and opposing the force exerted by the weight of said unit, said balancing force being exerted by said float;

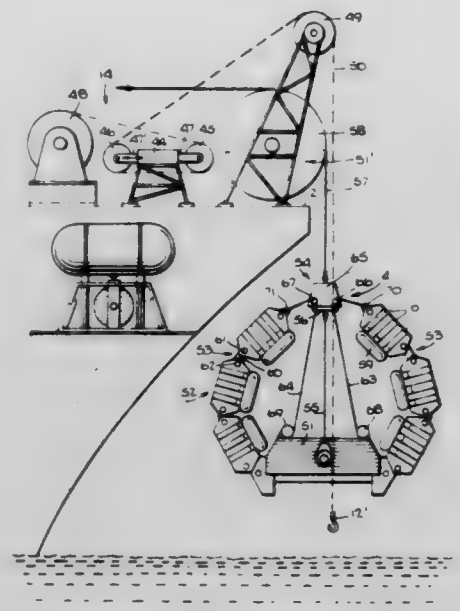
guiding and positioning said unit over said length;

detaching said float from said means while leaving them interconnected by said element, whereby said float ascends to said surface and extends said element;

operating said gripping means to cause it to grip said length;

with said first unit still in place with its gripping means gripping said length, lowering a second unit along said element to said first unit, said second unit also having

gripping means for gripping said length and said second unit being lowered along said element to a position such that said last-mentioned gripping means can grip said length;



operating said last-mentioned gripping means to cause it to grip said length; and

raising both said first unit and said second unit with said length gripped thereby.

4,332,511

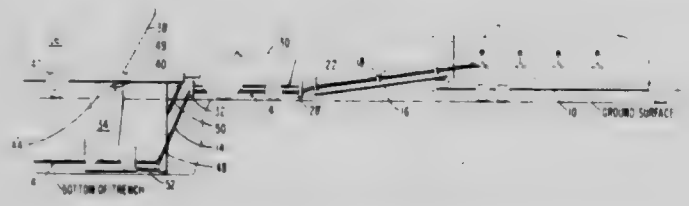
CABLE BURYING APPARATUS

Dennis K. Bradley, 3900 E. 15th St., Casper, Wyo. 82601; Harold R. Brewbaker, 6117 Becker La., Loveland, Colo. 80537, and Vern W. West, 3810 N. Taft Hill Rd., Fort Collins, Colo. 80524

Filed Apr. 9, 1980, Ser. No. 138,596

Int. Cl.³ F16L *1/02*

U.S. Cl. 405—178 **4 Claims**



1. Apparatus for burying a plurality of cables in a previously excavated trench in a predetermined spatial relationship to each other surrounded by an initial backfill material, the apparatus comprising:

a cable supply vehicle for transporting a plurality of reels of cable for emplacement in the previously excavated trench;

cable guide means for receiving the plurality of cables from the cable supply vehicle and for guiding those cables into a cable bundle;

a sanding sled positioned within the previously excavated trench for receiving the cable bundle from the cable guide means, the sanding sled including forward guide means having a plurality of guide members for receiving the individual cables of the cable bundle in a predetermined spatial relationship to each other and rear guide means positioned adjacent the rearward portion of the sanding sled, the rear guide means having a plurality of guide members in substantial alignment with the guide members of the forward guide means and being positioned for receiving the individual cables of the cable bundle from the forward guide means and for maintaining the individual cables of the cable bundle substantially parallel to but spaced away from the side walls and bottom of the previously excavated trench and in the same spatial relationship to each other as established by the forward guide means, the sanding sled further including a sand chute conveying the initial backfill material, the sand chute being positioned between the forward and rear guide means and over the plurality of individual cables extending therebetween, the sand chute being adapted to convey the initial backfill material for flow surrounding the plurality of individual cables that extend below the sand chute in the area between the forward and rear guide means, the sanding sled further including adjustable backfill levelling means positioned adjacent the rear guide means for permitting the backfill material to be deposited into the previously excavated trench to a predetermined depth surrounding the plurality of individual cables of the cable bundle in their predetermined spatial relationship to each other; and

tractor means coupled to the sanding sled for pulling the sanding sled along the trench.

4,332,512

ARRANGEMENT FOR ERECTING COLUMNAR SUPPORTING ELEMENTS FOR UNDERGROUND EXCAVATIONS

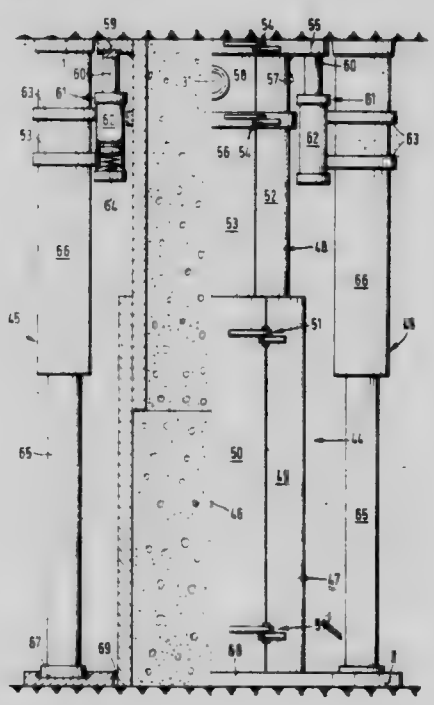
Peter Heintzmann, Bochum; Manfred Koppers, Duisburg, and Karlheinz Bohnes, Bochum, all of Fed. Rep. of Germany, assignors to Bochumer Eisenhuette Heintzmann GmbH & Co., Bochum, Fed. Rep. of Germany

Filed Apr. 30, 1980, Ser. No. 145,059

Claims priority, application Fed. Rep. of Germany, May 22, 1979, 2920645; May 22, 1979, 2920659

Int. Cl.³ E21D *15/18, 15/22*

U.S. Cl. 405—290 **29 Claims**



1. An arrangement for erecting a columnar supporting element of a hardenable flowable material, for a roof of an underground excavation such as a mine, the arrangement comprising

a hollow casing for filling a hardenable flowable material to be hardened therein so as to form a columnar supporting element, said casing having a longitudinal axis and including upper and lower coaxial casing portions which are tubular and telescopable in all axial directions, each of said casing portions being composed of two open-ended semicircular sections, said upper casing portion having an annular collar provided with a bracket;

a pit prop extending between a roof and the floor of the excavation adjacent to said casing and having a shoulder and an axially displaceable sleeve engaging with said bracket;

means for holding said upper casing portion in contact with

a roof of an underground excavation, said holding means being arranged adjacent to said casing and longitudinally variable, said holding means being resiliently yieldable and formed as a helical pressure spring located between said shoulder and said sleeve of said pit prop;

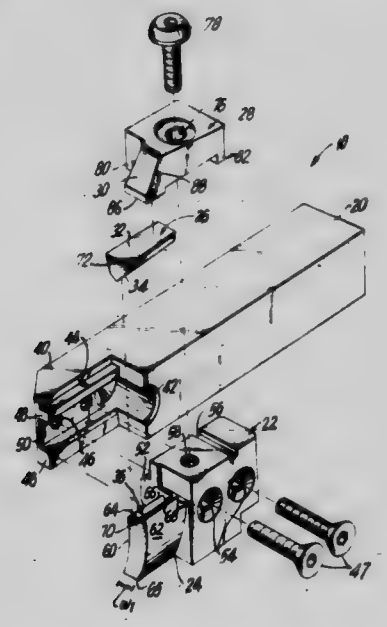
means for connecting the semi-circular sections of at least said lower casing portion with one another pivotally about a longitudinal pivot axis which is parallel to said longitudinal axis of said casing, and locking the same with one another.

4,332,513

FACE GROOVING TOOL

Thomas W. Gowanlock, Rochester, Mich., assignor to General Electric Company, Columbus, Ohio

Filed Jul. 24, 1980, Ser. No. 171,944
Int. Cl.³ B26D *3/06*
U.S. Cl. 407—101 **10 Claims**



1. A tool for machining circular grooves in a workpiece comprising:

an elongated shank member;

an arcuate support blade projecting axially outwardly from one end of said shank member, said support blade being defined by opposed radially inner and outer arcuate surfaces and opposed leading and trailing surfaces, with the longitudinal axes of said arcuate surfaces being parallel to the longitudinal axis of said shank member, said arcuate support blade having a radius of curvature substantially corresponding to the radius of curvature of the circular groove to be machined, and with the leading surface of said support blade including a V-shaped support groove defined by radially inner and outer planar sides coinciding in a vertex, with the radially outer planar side of said support groove being longer than the radially inner side, and with said vertex being disposed closer to said radially inner surface than to said radially outer surface of said support blade;

an elongated cutting insert having opposed leading and trailing surfaces, with the leading surface thereof being planar and with the trailing surface having a configuration substantially corresponding to the configuration of said V-shaped support groove of said support blade and being adapted to be received therein with one end of said insert projecting axially outwardly beyond said support blade; and

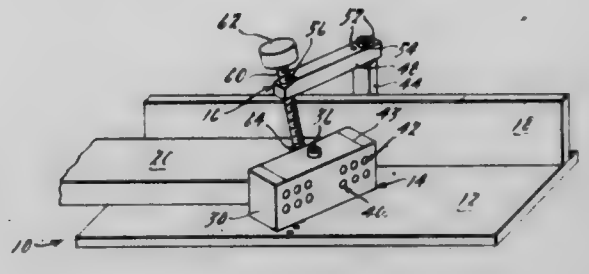
clamping means, removably connected to said shank member and having a bearing arm abutting the planar leading surface of said insert for maintaining said insert in said V-shaped support groove whereby in the operation of said tool the workpiece is rotated relative to said tool such that said projecting end of said insert machines a circular groove therein, with said arcuate support blade being adapted to fit within said machined groove thereby giving continuous support to said insert, and with said V-shaped groove functioning to give added support to the radially outermost portion of said insert.

4,332,514

DOWEL DRILL FIXTURE

Stephen J. Dergo, 7821 Timor St., Long Beach, Calif. 90808

Filed Dec. 5, 1979, Ser. No. 100,504
Int. Cl.³ B23B *47/28*
U.S. Cl. 408—103 **13 Claims**



1. An all-angle dowel drill fixture comprising:

a base plate;

a drill guide block having a vertical bore extending therethrough generally along the vertical axis thereof and further having at least one pair of horizontal bores each one of said pair adapted to guidingly receive a drill bit therethrough, each one of said pair being parallel to the other of said pair and each one of said pair being an equal distance from said vertical bore;

clamping means for positioning a workpiece against said drill guide block comprising a vertical post attached to, and extending upwardly from, said base plate, a horizontal member selectively pivotally attached to said vertical post and having an end portion spaced from said vertical post and with a threaded bore therein, said threaded bore extending generally downwardly canted toward said vertical post, and a rod threadably disposed in said threaded bore and having engaging means on the lower end thereof for engaging a workpiece and means on the upper end thereof for selectively rotating said rod to thereby move said engaging means toward and away from said workpiece; and

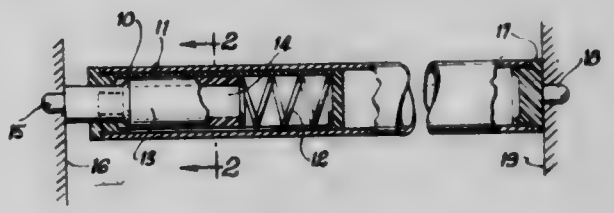
a fastener radially closely received in said vertical bore of said guide block and in an aperture fixedly associated with said base plate, said fastener pivotally connecting said block and said base plate on a selectively fixed pivotal axis.

4,332,515

CARGO SPRING BATTEN

Raymond B. Twyman, 669 Grey Cliffs Ave., La Puente, Calif. 91744

Filed Jul. 28, 1980, Ser. No. 172,858
Int. Cl.³ B60P *7/14*; B61D *45/00*; B63B *25/24*
U.S. Cl. 410—149 **6 Claims**



1. A cartridge-loaded cargo batten comprising:

(a) an elongated casing having a first and a second end;

(b) said first end defining an axially extended first nipple;

(c) said second end being open and said casing having a hollow portion entrant therefrom;

(d) a hollow cartridge inserted into said hollow portion, said cartridge comprising:

(i) an opening defined in said hollow cartridge one end thereof adjacent said second end of said casing and said cartridge having a second closed end;
(ii) an axially movable elongated plunger having a spring engaged end captured in said cartridge and mounting an elongated second nipple extending through said cartridge opening;
(iii) means between the spring engaged plunger end and said second closed end biasing said plunger axially relative to said cartridge out through said opening;
(iiii) means for releasibly engaging said casing and limiting the depth of insertion of the cartridge therein;
(e) whereby said cartridge is removable from said casing for repair or replacement.

4,332,516

METHOD AND APPARATUS FOR THROWING DOWN CONCRETE

Yasushi Nakahara, Hachioji; Tadasuke Ohtomo, Hino; Masahiro Yurugi; Takumi Naitoh, both of Tokyo, and Kenichi Kaiho, Hino, all of Japan, assignors to Kajima Corporation, Tokyo, Japan

Filed Apr. 23, 1980, Ser. No. 143,133
Claims priority, application Japan, Nov. 5, 1979, 54-142911
Int. Cl.³ B65G *11/10, 11/20, 65/40*
U.S. Cl. 414—288 **10 Claims**



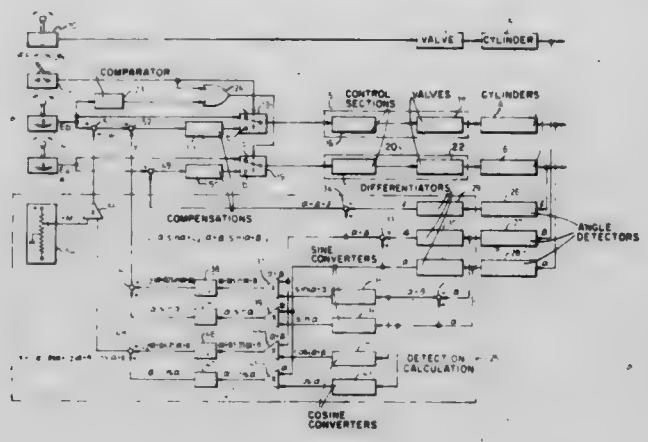
1. A method of transporting and passing concrete through a high head including a plurality of rigid pipes, at least one flexible collapsible tube, a hopper of wet concrete material, and an airtight valve, which comprises:
forming an airtight chute by fixing said rigid pipes along a path for transporting concrete such that said chute extends from a feeding level at the top of said high head to a discharge level near the bottom of said high head;
airtightly connecting said at least one flexible tube between adjacent rigid pipes in said chute;
airtightly connecting said hopper to said airtight valve;
airtightly connecting said airtight valve to the top of said chute at said feeding level such that said airtight valve is positioned between said hopper and said chute;
intermittently feeding discrete portions of wet concrete material from said hopper to said chute through said valve;
airtightly closing the top of said chute by said valve immediately after feeding each of said discrete portions of the concrete material to said chute; and
generating a negative pressure in said chute after passage of each of said discrete portions of the concrete material so that said tube is flattened between adjacent rigid pipes, thereby controlling the rate of descent of the concrete portions and maintaining the coherency of each portion.

4,332,517

CONTROL DEVICE FOR AN EARTHWORK MACHINE

Michiaki Igarashi, Yokosuka; Tetsuya Nakayama, Fujisawa, and Shigemi Yamano, Isehara, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Oct. 4, 1979, Ser. No. 81,886
Claims priority, application Japan, Oct. 6, 1978, 53-123775
Int. Cl.³ E02F *3/32*
U.S. Cl. 414—699 **8 Claims**



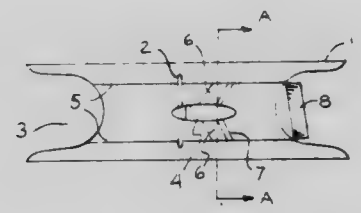
8. A control device for use in earthworking equipment of the type having a body, a boom which is pivotally secured to the body, an arm which is pivotally secured to the boom, a bucket pivotally secured to the arm, boom means for pivoting the boom with respect to the body, arm means for pivoting the arm with respect to the boom and bucket means for pivoting the bucket with respect to the arm, said control device comprising:
first control means for manually controlling one of the boom means, arm means and bucket means;
detection means for detecting the pivotal positions of the boom, arm and bucket;
arithmetic circuitry for determining, in response to the detected pivotal positions, the amount of movements of the two of the boom means, arm means and bucket means other than the manually controlled one necessary to move the edge of the bucket along a straight path; and
second control means for automatically controlling the two of the boom means, arm means and bucket means other than the manually controlled one in accordance with the output of the arithmetic circuitry.

4,332,518

MULTIFUNCTIONAL TARP ROTOR STRUT VANES

Alfred L. Weisbrich, 76 Mayflower Rd., Windsor, Conn. 06095

Continuation-in-part of Ser. No. 971,924, Dec. 21, 1978, Pat. No. 4,288,199. This application Jun. 12, 1981, Ser. No. 273,006
Int. Cl.³ F03D *1/02*
U.S. Cl. 415—2 R **10 Claims**



1. A power generating device comprising:
a fluid flow velocity augmentor structure means being substantially the shape of a concentric interior section of a hollow toroid of general arbitrary cross-section in both a vertical and horizontal planes, meaning that in both a vertical and horizontal plane cross-sections may not be limited to circular arc and circular sections respectively, providing thereby open peripheral fluid flow channel means and defining augmented flow velocity regions about the exterior periphery of said fluid flow augmentor

structure wherein a plurality of interconnected fluid impact impellers are mounted within said peripheral fluid flow channel;

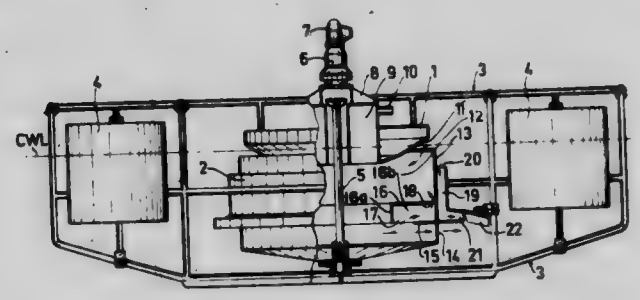
plural multi-functional support strut vane means, mounted between the fluid flow augmentor structure and peripheral fluid impact impeller system assembly for support and attachment of said fluid impact impeller system to said fluid flow augmentor structure, and as a fluid dynamic impeller system yaw positioning, stabilizer and control means, and as a flow channeling means of augmented flow about the peripheral fluid flow augmentor channel means.

4,332,519

OIL COLLECTING APPARATUS

Gösta Walin, L. Montörsgatan 3, Västra Frölunda, Sweden (S-421 68)

Division of Ser. No. 898,079, Apr. 20, 1978, Pat. No. 4,186,095.
This application Jan. 29, 1980, Ser. No. 116,648
Claims priority, application Sweden, Apr. 27, 1977, 7704814
Int. Cl.³ F04D *29/18*
U.S. Cl. 415—52 **4 Claims**



1. A hollow vortex-producing and maintaining rotor adapted for rotation in an apparatus for separating and collecting floating pollution from a surface-contaminated liquid, the rotor comprising:

a sidewall substantially enclosing the interior of the rotor;

an open upper end defining an inlet to said rotor interior;

lower outlet means for discharging liquid from said rotor interior; and

vaned inner pump means in said rotor interior comprising a plurality of annularly arranged pumping chambers attached to the inside of said sidewall for recirculating a portion of the liquid near the bottom of the rotor back toward said inlet to suppot the liquid vortex, wherein said pumping chambers are defined by spaced annular upper and lower plates attached to said sidewall above said outlets, an inner plate joined to the inner edges of said upper and lower plates, and a plurality of upstanding annularly spaced radial vanes dividing the annular space between said sidewall and said plates into chambers having an outlet in said upper plate adjacent to said sidewall and an inlet in said lower plate adjacent to said inner plate.

4,332,520

VELOCITY PUMP REACTION TURBINE

Palmer A. House, Walnut Creek, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Nov. 29, 1979, Ser. No. 98,450
Int. Cl.³ F01D *1/18*
U.S. Cl. 415—63 **6 Claims**

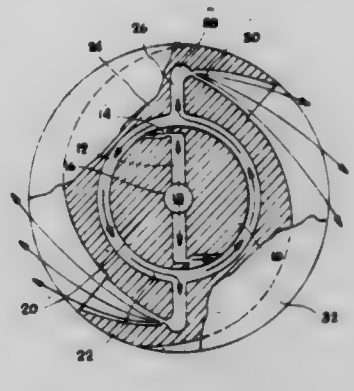
1. A velocity pump reaction turbine having the operating characteristic of maximum efficiency at finite speed, for converting thermal energy from a hot liquid at or above its saturation pressure, comprising:

a first shaft;

an inner velocity pump rotor connected to the first shaft and rotating therewith, the velocity pump rotor having an inlet port at the center, a plurality of first radial passageways extending from the inlet port, and a plurality of first liquid nozzles located on the periphery of the pump rotor at outer ends of the first radial passageways;

a second shaft;

an outer reaction turbine rotor connected to the second shaft and rotating therewith, and positioned concentrically around the velocity pump rotor, the reaction turbine rotor having a plurality of second radial passageways extending from an inner surface of the reaction turbine rotor, and a plurality of second nozzles located on the periphery of the turbine rotor at outer ends of the second radial passageways;



a housing enclosing the pump rotor and concentric turbine rotor, and defining therewith an annular space therebetween; and

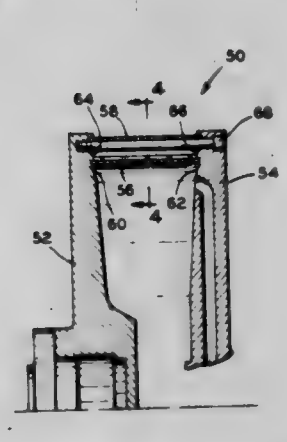
interconnecting drive means between the first and second shafts to drive the pump rotor from the turbine rotor in the same direction as the turbine rotor and at a speed at which hot liquid at or above its saturation pressure which is flowed into the inlet port of the pump rotor is pumped through the first radial passageways and first liquid nozzles into the annular space with a fluid velocity matching the tangential velocity of the outer turbine rotor at its inner surface.

4,332,521

HIGH SPEED JET ROTATING CASING APPARATUS

John W. Erickson, Huntington Beach, Calif., assignor to Kobe, Inc., City of Commerce, Calif.

Filed Feb. 11, 1980, Ser. No. 120,188
Int. Cl.³ F04D *1/12*
U.S. Cl. 415—189 **5 Claims**



1. In a pitot hydrodynamic device having a rotary casing mounted for rotation about an axis, a fluid supply inlet connected between the interior of the rotary casing and a source of fluid to be pressurized, a pressurized fluid discharge duct, and a pitot tube extending radially from the axis of rotation in the casing and having adjacent its outer end an inlet facing in a direction opposite to the direction of rotation of the rotary casing and in fluid communication through the pitot tube with the discharge duct, the rotary casing comprising: a plurality of spaced-apart tapered discs mounted for rotation about the axis and forming end walls of the casing; said discs tapering in cross-section to a minimum thickness at their respective peripheries; and a side wall extending between and attached to

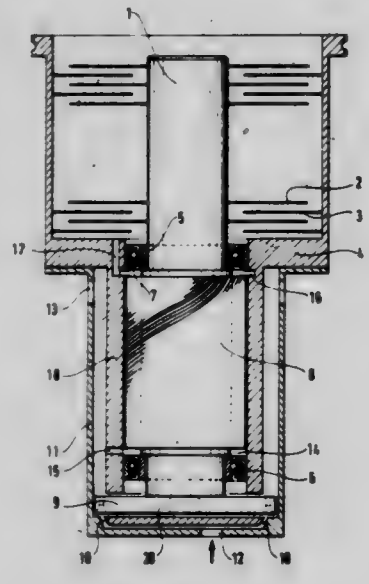
the peripheral portions of said tapered discs to enclose the pitot tube, said side wall being formed by a plurality of radially spaced concentric rings and being secured to said discs by a plurality of axially parallel bolts disposed between said concentric rings.

4,332,522

HARD VACUUM PUMP

Claude Saulgeot, Veyrier du Lac, France, assignor to Societe Anonyme dite Compagnie Industrielle des Telecommunications Cit-Alcatel, Paris, France

Filed Jan. 21, 1980, Ser. No. 114,141
Claims priority, application France, Jan. 19, 1979, 79 01317
Int. Cl.³ F01D *1/36*
U.S. Cl. 415—90 **3 Claims**



1. A hard vacuum rotary pump, said pump including a cylindrical pump body, said pump body including a cylindrical sleeve extending from one end thereof and coaxial therewith, a shaft rotatably mounted within said sleeve and including a portion extending axially beyond said sleeve within said pump body, a vacuum pump rotor (2) mounted to said shaft interiorly of said pump body, a motor (20) disposed on the outside of said pump body and connected to the pump rotor by said shaft, a grooved dynamic molecular seal (8) within said sleeve for sealing said shaft, the improvement wherein said shaft is supported firstly by an outer bearing (6) disposed on the outside of said pump body (4) within said sleeve, and at one end of said grooved dynamic molecular seal and secondly by an inner bearing (5) disposed inside the pump body (4) at the opposite end of said grooved dynamic molecular seal and in direct communication with the vacuum pressure prevailing inside said pump body and being lubricated with grease.

4,332,523

TURBINE SHROUD ASSEMBLY

Raymond Smith, Monclova, Ohio, assignor to Teledyne Industries, Inc., Los Angeles, Calif.

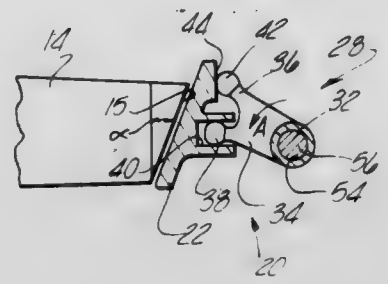
Filed May 25, 1979, Ser. No. 42,331
Int. Cl.³ F04D *29/08*
U.S. Cl. 415—126 **17 Claims**

1. A shroud assembly for use with an airfoil rotatably mounted in a housing, said shroud assembly comprising:

an annular shroud, the inner periphery of said shroud conforming to the outer periphery of the airfoil;

means for mounting said shroud to the housing coaxially around the spaced radially outwardly from the airfoil whereby a clearance is provided between the shroud and the airfoil; and

said mounting means comprising bell crank means pivotally mounted to said housing and responsive to thermal expansion of the shroud for moving said shroud in a first direction toward said airfoil to thereby reduce the clearance between said shroud and said airfoil.

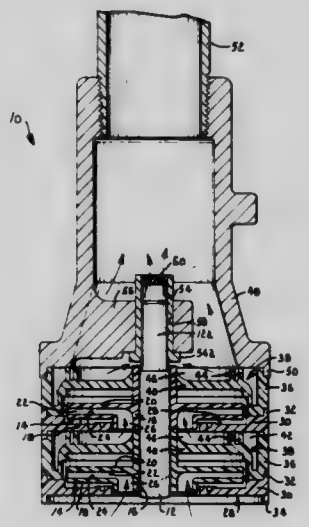


4,332,524

BEARING AND FILTER ARRANGEMENT FOR SUBMERSIBLE PUMPS

Roy Smith, Beatrice, Nebr., assignor to Dempster Industries, Inc., Beatrice, Nebr.

Filed Nov. 29, 1979, Ser. No. 98,597
Int. Cl.³ F01D *25/22*
U.S. Cl. 415—176 **4 Claims**



1. In a submersible pump having a housing with inlet and discharge ends and a fluid flow passage between said ends, a rotary drive shaft in the housing having an upper end, and an impeller mounted on said shaft for rotation therewith to pump fluid through said passage from the inlet end to the discharge end, the improvement comprising:

a hollow sleeve bearing supported on the housing and receiving the upper end of said shaft to assist in maintaining the alignment thereof, said shaft fitting loosely in said sleeve bearing to provide a clearance space communicating with said flow passage to permit fluid flow between said shaft and bearing for lubrication purposes; and

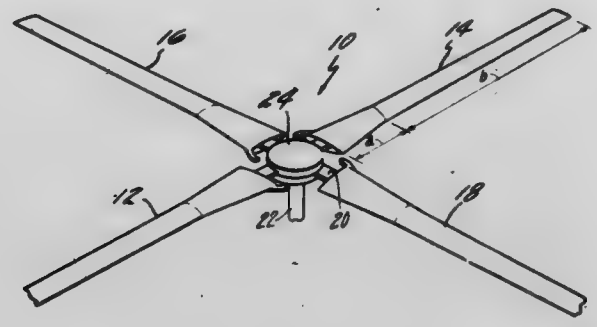
a filter element mounted in said sleeve bearing above the upper end of said drive shaft, said filter element being formed of a porous substance restricting fluid flow through said clearance space while permitting fluid flow therethrough in sufficient quantity to lubricate the shaft and bearing, said filter element substantially preventing abrasive materials in the fluid such as sand and the like from passing downwardly through said filter element into said clearance space.

4,332,525

MATCHED STIFFNESS ROTOR FLEXBEAM AND BLADE SYSTEM

Marvin C. Cheney, Jr., Glastonbury, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 3, 1979, Ser. No. 99,820
Int. Cl.[3] B64C *27/38*
U.S. Cl. 416—134 A 12 Claims



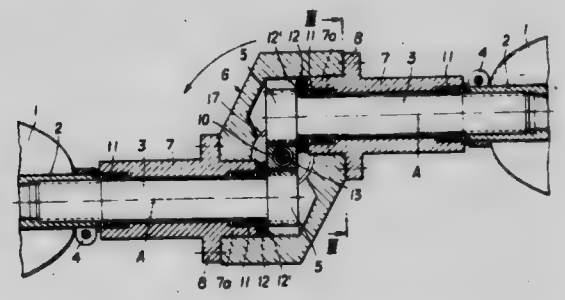
1. A rotary blade system comprising a composite flexbeam with in-plane and out-of-plane stiffnesses approximately equal extending between and connected to at least two rotor blades, the flexbeam having an essentially symmetrical cross-section and extending at least the entire length of the inboard portion of the blades and the blades securely affixed to the flexbeam at the outboard portion of the blades, the blade system having a primary in-plane frequency less than the primary rotor frequency.

4,332,526

VARIABLE PITCH PROPELLERS

Raimund Culk, Varenaweg 1, A 8043 Graz, Austria

Filed Sep. 14, 1978, Ser. No. 942,421
Claims priority, application Austria, Sep. 19, 1977, 6705/77
Int. Cl.[3] B64C *11/32*
U.S. Cl. 416—166 6 Claims



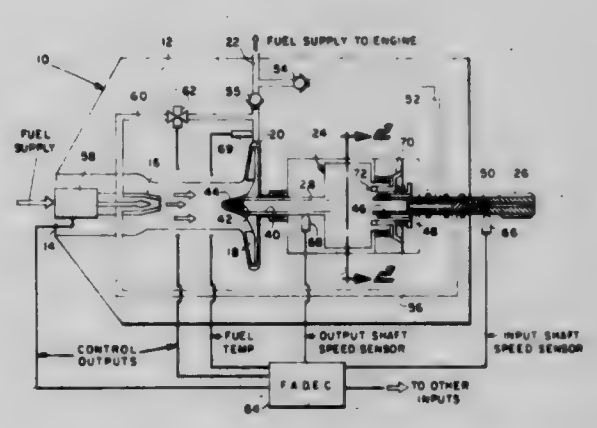
1. A variable pitch propeller comprising:
a hub;
an axially slidable tooth rack centrally mounted in said hub;
at least two blades mounted to said hub, each of said at least two blades having an inner end mounted adjacent to said axially slidable tooth rack and a longitudinal axis extending through said inner end;
a crown of peripheral teeth mounted on said inner ends of each of said at least two blades, said crown of peripheral teeth further being arranged at a right angle to said longitudinal axis of each of said at least two blades, said crown of peripheral teeth having tooth flanks meshing with said axially slidable tooth rack;
means for sliding said axially slidable tooth rack in said hub to rotate each of said at least two blades about said longitudinal axis to set the pitch of said at least two blades;
means for eccentrically displacing said crown of peripheral teeth of one of said at least two blades relative to said axially slidable tooth rack in order to adjust said tooth flanks of said crown of peripheral teeth relative to said axially slidable tooth rack for the adjustment of the play between said crown of peripheral teeth and said axially slidable tooth rack so that said at least two blades will maintain the set pitch of the variable pitch propeller; said means for eccentrically displacing further comprises a single, elongated tubular bearing bush mounted to each of said blades adjacent to each of said inner end of each of said at least two blades, said tubular bearing bush having a bore coaxially aligned with said longitudinal axis, said bearing bush further being rotatably adjustably mounted in said hub in order to adjust said crown relative to said rack; and
a thrust bearing having a terminal disc, said terminal disc having a diameter larger than said crown of peripheral teeth, each of said terminal discs on said blades further facing said crown of peripheral teeth and further forming a lateral guide for said tooth rack.

4,332,527

VARIABLE SPEED CENTRIFUGAL PUMP

Richard J. Moldovan, Avon, and Harold D. Davis, Ashland, both of Ohio, assignors to Lear Siegler, Inc., Elyria, Ohio

Filed Aug. 10, 1979, Ser. No. 65,527
Int. Cl.[3] F04B *49/00*
U.S. Cl. 417—15 24 Claims



1. A variable speed, variable output pump for an aircraft fuel system comprising a housing having a main inlet and a main outlet, a jet pump nozzle downstream of said main inlet, an impeller downstream of said jet nozzle and in fluid series therewith, positive displacement pump means for controllingly, drivingly connecting said impeller to the aircraft engine, the speed of said impeller relative to engine speed being variable in response to the discharge flow rate of said pump means, and valve means for controlling the discharge flow rate of said pump means thereby to vary impeller speed relative to the engine speed and for directing discharge flow of said pump means to said main outlet and to said jet nozzle to provide motive flow therefor.

4,332,528

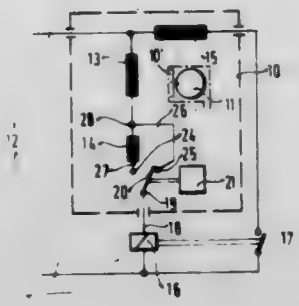
COMPRESSION TYPE REFRIGERATION DEVICE

Karl Hammele, Giengen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 7, 1980, Ser. No. 120,072
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1979, 2910966
Int. Cl.[3] F04B *49/06*
U.S. Cl. 417—45 5 Claims

1. A compression type refrigerating device including a compressor defining a pressure space, a hermetically sealed housing communicating with said pressure space, an asynchronous motor arranged in said housing and having a main field winding connectable to a power source for driving said compressor and an additional field winding, a pressure sensitive switch

arranged in said housing and operable for intermittently connecting said additional field winding in series with said main



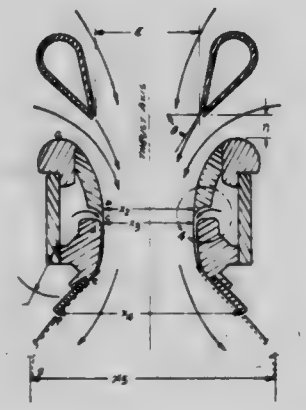
field winding in response to a predetermined pressure level in said housing.

4,332,529

JET DIFFUSER EJECTOR

Morton Alperin, 6000 Lockhurst Dr., Woodland Hills, Calif. 91364

Continuation of Ser. No. 603,361, Aug. 11, 1975, abandoned.
This application Jan. 28, 1980, Ser. No. 116,649
Int. Cl.[3] F04F *5/16, 5/44*
U.S. Cl. 417—54 20 Claims



1. An ejector for thrust augmentation including an ejector having a converging inlet section for mixing fluids and a diffusing section downstream from the inlet section for diffusing the mixed fluids,

primary injection nozzle means arranged in a preselected spaced relationship with the ejector inlet section of the ejector, and at an acute angular relationship with respect to the normal to the thrust axis of the ejector for directing a flow of pressurized fluid to flow into the ejector and permitting a flow of ambient fluid to be induced into the ejector through the space between the primary nozzle means and the inlet section and through the space between the primary nozzle means to be mixed with fluid injected into the ejector, the acute angle is θ and falls within the following limits: 60 degrees $>\theta>$20 degrees,

the preselected spacing being determined on the basis of the pressure and temperature of the preselected fluids to be mixed, and

means for supplying pressurized fluid to the primary injection nozzle means.

13. A method for operating an ejector for maximal thrust augmentation wherein the injection means comprises a pair of injection nozzles including the steps of providing an ejecting structure,

arranging injection means at a preselected spaced relationship with the sides of the inlet section of the ejecting structure and at a preselected acute angular relationship to the normal to the thrust axis of the ejector,

injecting a pressurized fluid into the ejecting structure through the injection means to cause the injected fluid to mix with the ambient fluid induced into the ejecting structure through the spaces between the injection nozzles and the ejecting structure;

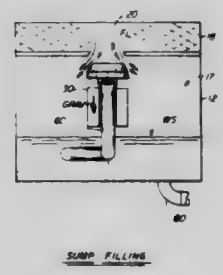
providing diffusing jet means for the ejecting structure downstream of the pair of injection nozzles for diffusing the mixed fluids and avoiding separation in the downstream ejecting structure diffusing section, and injecting a diffusing fluid into the diffusing jet means.

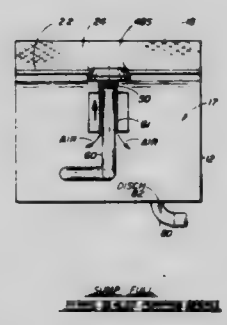
4,332,530

PRESSURIZED AIR PUMPING APPARATUS

Pat A. Laster, Opelousas, La. 70503

Filed Jan. 29, 1980, Ser. No. 116,611
Int. Cl.[3] F04F *1/06*
U.S. Cl. 417—130 19 Claims





1. A pressurized air pumping apparatus comprising:

a. a fluid receiving sump tank;

b. an inflow opening having a valve seat;

c. discharge conduit means for discharging fluid from said sump tank;

d. a source of compressed air for pressurizing said sump tank and connectable thereto;

e. conduit means for introducing pressurized air into the interior of said sump tank, said conduit means providing discharge port means for transmitting compressed air from said conduit means into said sump tank, said discharge port means being disposed within the confines of said tank;

f. valving member means movably mounted within said sump tank between said seat and said discharge port means for sequentially sealing said conduit means at said discharge port means during the filling of said tank, and said inflow opening at said valve seat during the discharge of fluids from said tank, said valving member means being movable within said sump tank between a first open flow position removed from said seat and said inflow opening allowing fluid flow into said tank, simultaneously sealing said discharge port means, and a second closed flow pumping position sealing said inflow opening but removed from said discharge port allowing compressed air to fill and pressurize said tank at said closed flow pumping position; and

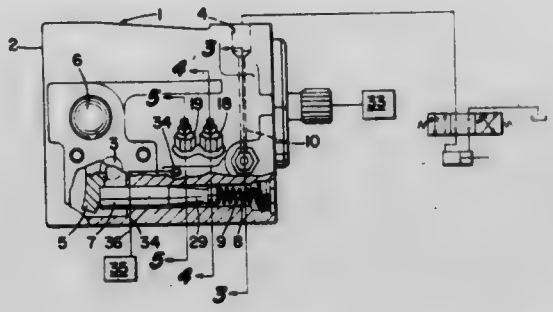
g. float means attached to said valving member means and moving therewithin for buoying said valving member responsive to the addition of fluid to be pumped to said sump tank, the buoying of said valving member urging said valving member toward said closed flow position.

4,332,531

VARIABLE DISPLACEMENT PUMP WITH TORQUE LIMITING CONTROL

Walter E. Marietta, Mentor, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Jan. 28, 1980, Ser. No. 116,330
Int. Cl.[3] F04B 49/00
U.S. Cl. 417—218 14 Claims



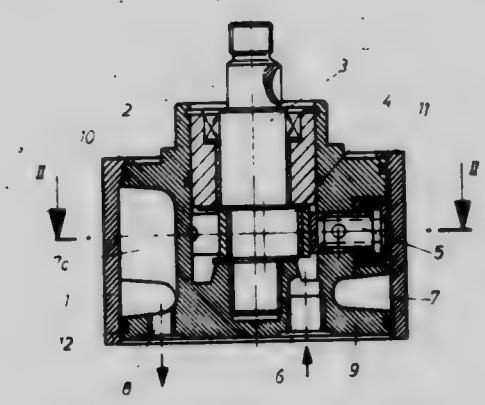
1. A variable displacement pump comprising pump means, high and low fluid pressure zones operatively associated with said pump means, displacement adjusting means including a fluid pressure operated member changing the displacement of said pump means in response to increase in fluid pressure in said high pressure zone, a modulator valve having means controlling fluid communication between said member and at least one of said pressure zones, said modulator valve defining a pressure chamber, means establishing metered fluid communication between said high pressure zone and said pressure chamber, compensating means operative, upon increase of fluid pressure in said pressure chamber to a predetermined value, to intercommunicate said pressure chamber and said low pressure zone for movement of said modulator valve and for movement of said member in a displacement decreasing direction, and said compensating means including means changing said predetermined value in response to changes in the rotational velocity of said pump means.

4,332,532

PISTON PUMP, ESPECIALLY RADIAL PISTON PUMP

Georg Liska, Zimmerbach, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, AG, Friedrichshafen, Fed. Rep. of Germany

Filed Oct. 30, 1979, Ser. No. 89,482
Claims priority, application Fed. Rep. of Germany, Nov. 10, 1978, 2848841
Int. Cl.[3] F04B 1/18
U.S. Cl. 417—273 4 Claims



1. In a multipiston pump having a hub encompassed by a housing and said hub having a plurality of angularly spaced pumps spaced around a central axis thereof;

the improvement which comprises;

said hub having a common pulsator chamber extending therearound connecting directly to said pumps and being recessed from the hub exterior into said hub;

said hub having additional pulsator chamber volumes recessed therein from the exterior thereof intermediate said pumps and merging with said common pulsator chamber to effect an increase in pulsator chamber volume;

said housing encompassing said hub and peripherally closing said common pulsator chamber and said additional pulsator chamber volumes;

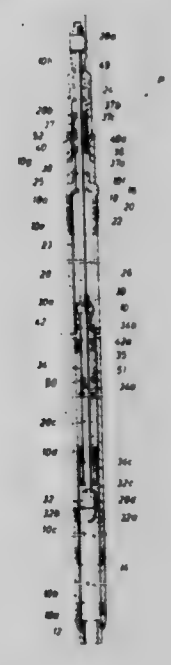
said hub having an inlet communicating with said pumps and an outlet communicating with said common pulsator chamber; said common pulsator chamber communicating with said additional pulsator chamber volumes and being located between said outlet and said pulsator chambers.

4,332,533

FLUID PUMP

Harry L. Spears, Houston, Tex., assignor to Watson International Resources, Ltd., Houston, Tex.

Filed Sep. 13, 1979, Ser. No. 75,318
Int. Cl.[3] F04B 7/00
U.S. Cl. 417—513 4 Claims



1. A fluid pump, comprising:

a generally cylindrical hollow housing, forming a generally cylindrical bore;

said housing having upper and lower sections and an interior section which divides said bore into top and bottom bore portions;

a solid rod extending through said top bore portion and into said bottom bore portion, said rod having upper and lower stops mounted with said rod and positioned in said bottom bore portion;

said rod adapted for connection to reciprocal power means to impart reciprocal motion including a rod upstroke and a rod downstroke;

lower cylindrical valve means mounted on said rod for slidable movement with respect to said rod within said bottom bore portion between said first and second stops;

said rod lower stop preventing said lower cylindrical valve means from moving past said lower stop and forming a seal therewith during said rod upstroke;

said rod upper stop preventing said lower cylindrical valve means from moving past said upper stop during said rod downstroke, said lower cylindrical valve means being separated from said lower rod stop during said downstroke and including means allowing fluid flow therethrough;

upper cylindrical valve means mounted with said rod for slidable movement with respect to said rod within said top bore portion; said slidable movement along said rod between up and down positions being in response to pressure above and below said upper cylindrical valve means in said top bore portion;

said upper housing section having outlet means for providing fluid communication outward of said housing positioned in said top bore portion, which outlet means is sealed by said upper cylindrical valve means in said down position during said rod downstroke and at least partially unsealed during a portion of said rod upstroke when said upper cylindrical valve means is in said up position;

said housing lower section having side inlet means for allowing fluid flow into said bottom bore portion;

said housing lower section terminating in a bottom inlet allowing fluid to flow into said bottom bore portion;

said lower cylindrical valve means being removed from said lower rod stop during said rod downstroke to cooperate with said bottom inlet to allow fluid to flow through said lower cylindrical valve means into said bottom bore portion above said lower cylindrical valve means, and said side inlet means being open near the end of said rod downstroke to further allow fluid to flow into said bottom bore portion above said lower cylindrical valve means;

said outlet means being cylindrically shaped holes in said upper housing section which holes are directly outwardly and upwardly; and

the total cross-sectional area of said cylindrically-shaped outlet holes is less than the cross-sectional area of said housing bore.

4,332,534

MEMBRANE PUMP WITH TILTABLE ROLLING PISTON PRESSING THE MEMBRANE

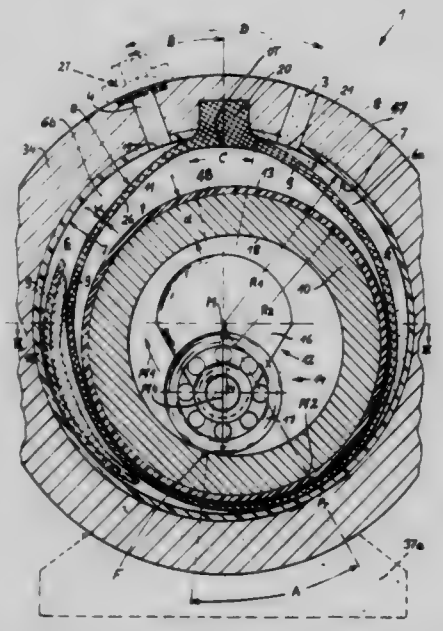
Erich Becker, Glöcklehofweg 13, 7812 Bad Krozingen, Fed. Rep. of Germany

Filed Dec. 12, 1979, Ser. No. 102,951

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2853916; Mar. 24, 1979, 2911609; Nov. 8, 1979, 2945042

Int. Cl.³ F04C *5/00*

U.S. Cl. 418—45 **35 Claims**



1. In a membrane pump, a combination comprising a housing having an axis and an inner annular surface extending about said axis; an annular membrane within said housing and having an outer surface defining with said inner surface of said housing an annular working space; and means rotatable in a predetermined direction for pressing the outer surface of said annular membrane at a revolving sealing region against said inner surface of said housing, said rotatable means comprising an annular rolling piston having an inner surface and rigid eccentric drive means engaging said inner surface of said rolling piston with a line contact, wherein in any radial plane including the axis of said housing and the respective line of contact the outer radius of said eccentric drive means plus the wall thickness of said annular piston plus the wall thickness of said membrane is slightly smaller than the radius of said inner surface of said housing so as to provide a small clearance between the outer surface of said membrane and said inner surface of said housing, whereby during rotation of said rotatable means said rolling piston will tilt with respect to said eccentric drive means and said inner surface of said housing to press a portion of said annular membrane angularly displaced from said line of contact and forming said sealing region against the inner surface of said housing.

4,332,535

SCROLL TYPE COMPRESSOR HAVING AN OIL SEPARATOR AND OIL SUMP IN THE SUCTION CHAMBER

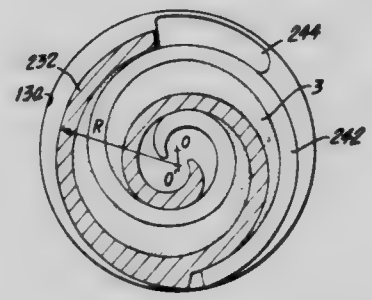
Kiyoshi Terauchi, and Masaharu Hiraga, both of Isesaki, Japan, assignors to Sankyo Electric Company Limited, Isesaki, Japan

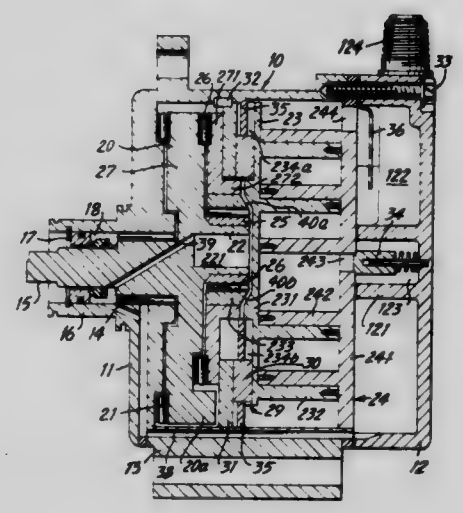
Filed Dec. 13, 1979, Ser. No. 103,393

Claims priority, application Japan, Dec. 16, 1978, 53-155198; Feb. 17, 1979, 54-16743

Int. Cl.³ F04C *18/02, 29/02*

U.S. Cl. 418—55 **7 Claims**





1. A scroll type compressor unit comprising:

a compressor housing having a fluid inlet port and a fluid outlet port, said housing includes a rear end plate, said rear end plate having a fluid suction chamber connected to said fluid inlet port and a fluid discharge chamber connected to said fluid outlet port, a fixed scroll member fixedly disposed within said compressor housing and having first end plate means lying in a substantially vertical direction to which first wrap means are affixed, a first chamber defined by the inner surface of said compressor housing and said first end plate means of said fixed scroll member and containing said first wrap means therein, an orbiting scroll member orbitally disposed within said first chamber and having second end plate means to which second wrap means are affixed, said first and second wrap means interfitting at an angular offset of 180° with a plurality of line contacts to define at least one sealed off fluid pocket which moves with a consequent reduction of volume thereof by the orbital motion of said orbiting scroll member, to thereby compress the fluid in the pocket, said first end plate means at an upper portion thereof being provided with a first hole outside said first wrap means and

adjacent to the outer terminal end of said second wrap means, a second hole at a position corresponding to the center of said first wrap means, said first hole being connected through said suction chamber to said fluid inlet port to thereby introduce the fluid from said inlet port into said first chamber so that a portion of the fluid enters the space between said outer terminal end portion of said second wrap means and the adjacent first wrap means to be compressed, with the other portion of said fluid flowing along said second wrap means into another space between the outer terminal end portion of said first wrap means and the adjacent second wrap means to be compressed, oil separator means disposed within said suction chamber to prevent said fluid from directly flowing into said first hole to thereby separate lubricating oil mixed in the fluid, an oil passageway connecting said first chamber and the lower portion of said suction chamber to return the separated oil into said first chamber, and said second hole being connected through said discharge chamber to said fluid outlet port so that the compressed fluid is discharged from said second hole and said outlet port.

4. A scroll type compressor unit comprising:

a compressor housing with a cylindrical inner surface, a fixed scroll member fixedly disposed within said compressor housing and having first end plate means to which first wrap means are affixed, the outer terminal end of said first wrap means extending on said first end plate means so that it engages the inner surface of said compressor housing, an orbiting scroll member orbitally disposed within said housing and having second end plate means to which second wrap means are affixed, said second wrap means having the same number of turns as said first wrap means with a portion thereof from its outer terminal end to a position so as to connect with the outer terminal end of said first wrap means having an outer contour of an arcuate curve of a radius equal to the length from its spiral center to the outer edge of its outer terminal end, first means for closing the gap between the outer peripheral end of said second end plate and said cylindrical inner surface of said compressor housing but permitting the orbital motion of said orbiting scroll member, said first and second wrap means interfitting at an angular offset of 180° with a plurality of line contacts to define at least one pair of sealed off fluid pockets which move with a consequent reduction of volume thereof by the oribital motion of said orbiting scroll member to thereby compress the fluid in the pocket.

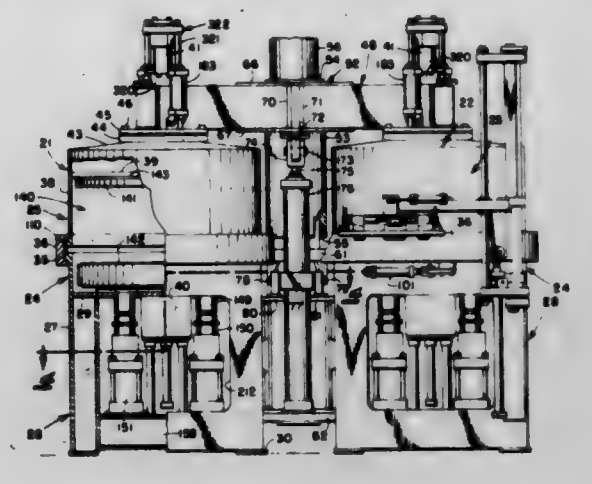
4,332,536

HYDRAULIC TIRE PRESS

Anand P. Singh, Youngstown, Ohio, and Daniel Schichman, Trumbull, Conn., assignors to NRM Corporation, Akron, Ohio

Filed Apr. 9, 1980, Ser. No. 138,589
Int. Cl.³ B29H *5/02, 5/08*
U.S. Cl. 425—33 **42 Claims**

1. A tire press comprising opposed heated mold parts, hydraulic fluid clamp means operative to maintain the mold parts together during cure, and cooling barrier means between the



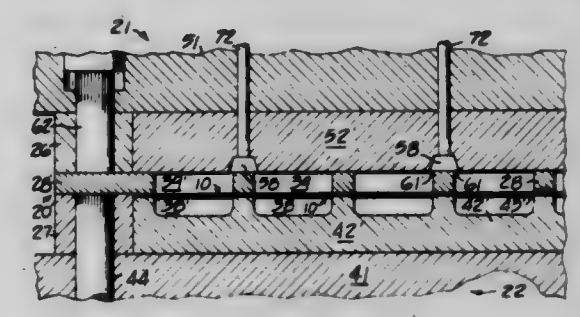
heated mold parts and the hydraulic fluid of said clamp means operative to protect such fluid from heat degradation.

4,332,537

ENCAPSULATION MOLD WITH REMOVABLE CAVITY PLATES

Dusan Slepcevic, 1240A Mountain View-Alviso Rd., Sunnyvale, Calif. 94086

Filed Jul. 17, 1978, Ser. No. 925,295
Int. Cl.³ B29C *1/00*; B29D *3/00, 31/00*
U.S. Cl. 425—121 **30 Claims**



1. Apparatus for encapsulating objects carried by a lead frame strip, said apparatus comprising:

first and second mold bases,

first and second opposed mold plates, said first mold plate being fixed to said first mold base and said second mold plate being fixed to said second mold base, said first and second opposed mold plates each having a generally planar mold surface thereon,

cavity plate means removably positionable between said first and second mold plates for holding a lead frame and said objects carried thereby in position relative to said mold plates and with said lead frame and objects all being completely spaced away from said first mold plate when said cavity plate means is positioned between said mold plates and flush against said mold surface of said first mold plate, said cavity plate means having spaced apart and generally planar outer surfaces, one of which is spaced away from the lead frame strip held by said cavity plate means and flush with the mold surface of said first mold plate and the other of which faces towards said mold surface of said second mold plate when said cavity plate means is positioned between said mold plates and said lead frame strip is held by said cavity plate means, said cavity plate means having openings therethrough from one outer surface thereof to the other surface thereof, said openings being in registration with said objects carried by said lead frame strip and held by said cavity plate means,

means forming an injection opening through said first mold plate to the mold surface thereof,

means for injecting fluid plastic through said injection opening to the mold surface of said first mold plate,

feed runner means formed into said mold surface of said first mold plate and gate means formed solely by and between said first mold plate and said cavity plate means for fluidly communicating said injection opening with all of said openings of said cavity plate means when said one outer surface of said cavity plate means is positioned against said mold surface of said first mold plate.

4,332,538

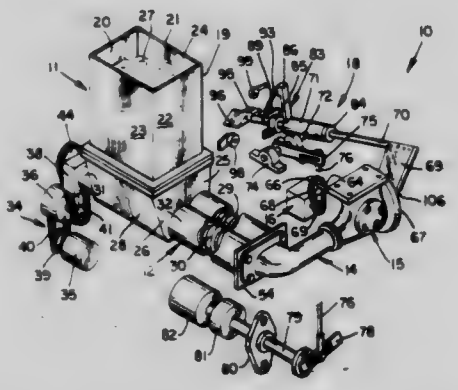
DOUGH DIVIDER

Sterret P. Campbell, 3095 Kingston Ct., Norcross, Ga. 30071

Filed Oct. 6, 1980, Ser. No. 194,066

Int. Cl.³ A21C *3/04, 11/10;* B29C *17/10*

U.S. Cl. 425—140 **7 Claims**



1. Apparatus for separating a viscous flowable paste material such as dough from a large mass of the material into smaller masses of predetermined volume comprising a material hopper, a metering means, a dispensing nozzle, conveyor means communicating at the bottom of said hopper with the material in said hopper for moving the material through said metering means and said dispensing nozzle, said metering means comprising means for measuring the volume of material moved through said metering means, and severing means responsive to said metering means for severing the material moved through said dispensing nozzle from the oncoming material, said severing means comprising a paddle shaft rotatable about its longitudinal axis, a paddle mounted on one end portion of said paddle shaft, means for pivoting said paddle shaft about an axis intermediate the ends of said paddle shaft with the paddle reciprocatable in a vertically extending arc adjacent said dispensing nozzle, and means for rotating said paddle shaft about its longitudinal axis to oscillate the lower edge portion of said paddle into juxtaposition with said dispensing nozzle as the paddle moves downwardly across the nozzle and to oscillate the lower edge portion of said paddle away from said dispensing nozzle as the paddle moves upwardly across the nozzle.

4,332,539

PASTA MACHINE

Gian M. Zani, Domodossola, Italy, assignor to R. Bialetti & C. S.p.A., Omegna, Italy

Filed Jun. 5, 1980, Ser. No. 156,607

Claims priority, application Italy, Jun. 7, 1979, 23335 A/79

Int. Cl.³ B01F *7/02*

U.S. Cl. 425—151 **16 Claims**

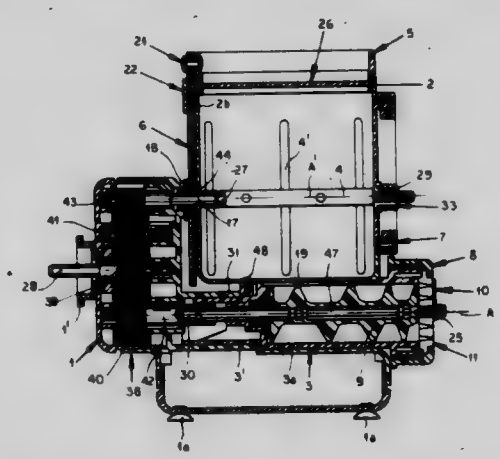
1. A pasta machine comprising:

a base formed with an extruder seat;

a gear transmission in said base and having an input projecting in one direction therefrom, a mixer output exposed in the opposite direction therefrom, and an extruder output also exposed in said opposite direction and provided at said extruder seat;

an extruder body having an extruder chamber provided internally with an auger element extending along and rotatable about an extruder axis, said body being formed with a window opening radially into said extruder chamber and with an axially open outlet;

a mixer body having a mixing chamber secured to said extruder body and communicating with said extruder chamber through said window, said mixer body being provided internally with a mixing rotor element extending along and rotatable about a mixer axis generally parallel to said extruder axis, and with a lid engageable over said mixer body and displaceable between an open position giving access to the interior of said mixing chamber and a closed position blocking such access, said lid having a pair of portions substantially closing said mixing chamber in said closed position and defining a narrow slot too narrow to pass a finger through, whereby fluent ingredients can be poured through said slot into said mixing chamber but a



user's finger cannot be inserted through said slot into said mixing chamber, said extruder body being releasably interfittable with said extruder seat with said auger element engaged with said extruder output and said mixing element being engaged with said mixer output; and

means for preventing said lid from moving from said closed into said open position when said extruder body is interfitted with said extruder seat, said means including a lever pivoted at one end on said lid and guided on said mixer body, said mixer body being formed at said mixer axis with a throughgoing hole through which said mixer output engages with said rotor element when said extruder body is fitted to said base, said lever extending across said hole and being formed with a throughgoing hole aligned therewith only in said closed position of said lid.

4,332,540

PRESS FOR MOULDING CONCRETE PRODUCTS

Yves H. Van de Caveye, Beauvais, France, assignor to Societe D'Exploitation des Etablissements Minato, France

Filed Jul. 1, 1980, Ser. No. 165,032

Claims priority, application France, Jul. 27, 1979, 79 19461

Int. Cl.³ B28B *1/08;* B29C *1/16;* B28B *3/02, 7/22*

U.S. Cl. 425—182 **9 Claims**

1. A press for moulding concrete products, said press comprising

a frame having a base;

a substantially horizontal vibrating table supported by a vertical action unidirectional vibrating device;

means for supplying boards, one by one, onto said table;

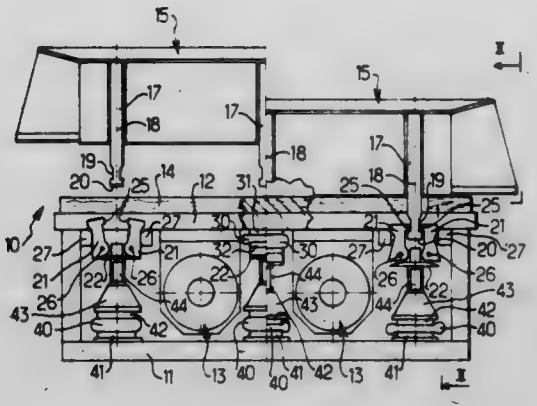
a mould movable vertically between a demoulding upper position and a moulding lower position in which said mould is pressed on one of said boards, said mould having lateral surfaces;

a concrete feeding means for feeding concrete to said mould;

connecting means for rigidly connecting said mould to said table during vibration of concrete in said mould, in a manner whereby said mould, said board and said table form a rigid unit assembly subjected to vibration; and

displacing means for moving said mould onto said table with a predetermined force, said displacing means being

mounted between said table and the base of said frame thereby preventing transmission of any vibration from said table to said frame during vibration or said concrete, said connecting means comprising fixing legs on said mould, extending toward said table and distributed on the lateral surfaces of said mould in a manner whereby said mould is uniformly moved to and seated on the entire surface of said table, clamping means for clamping the lower end of each of said fixing legs, said clamping means being supported by said displacing means, and actuating means for selective clamping and unclamping said clamping means.



4,332,541

FILTERING ARRANGEMENT FOR THERMOPLASTICS MATERIALS

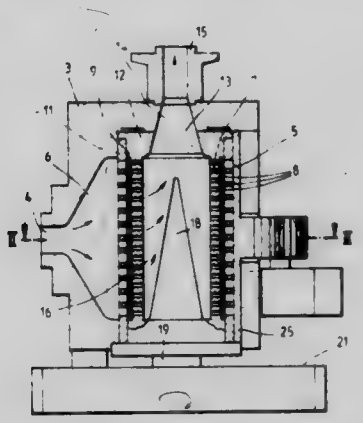
Dietmar Anders, Hanover, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hanover, Fed. Rep. of Germany

Filed Nov. 20, 1980, Ser. No. 208,640

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1979, 2947685

Int. Cl.³ B29B *5/02*

U.S. Cl. 425—197 **6 Claims**



1. Apparatus for extruding and filtering thermoplastic moulding materials, comprising:

(a) generally cylindrical casing means defining an inlet opening, an axially extending and radially projecting outlet aperture, and a central output opening;

(b) a cylindrical screen unit mounted in said casing means, said screen unit being substantially equal in axial length to said outlet aperture;

(c) drive means for continuously rotating said screen unit, and

(d) adjustment means for varying the effective width of said outlet aperture, whereby impurities adhering to said screen unit are ejected from said casing means by reverse flow of material through said rotating cylindrical screen unit during each revolution thereof, and outwardly through said outlet aperture.

4,332,542

ELECTRICALLY DRIVEN POTTER'S WHEEL

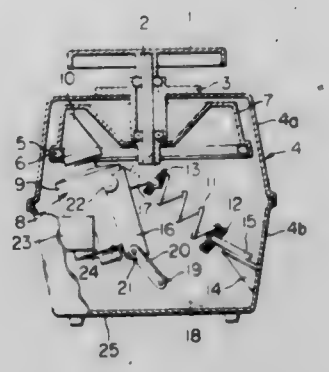
Norio Matsui, Kyoto, Japan, assignor to Shinpo Kogyo Kabushiki Kaisha, Kyoto, Japan

Filed Apr. 22, 1981, Ser. No. 256,573

Claims priority, application Japan, Apr. 23, 1980, 55-53989

Int. Cl.³ B29G *7/00*

U.S. Cl. 425—459 **2 Claims**



1. An electrically driven potter's wheel comprising:

a rotary molding table having a drive shaft,

a generally cup-shaped member being generally downwardly open and having a resilient ring along an inner surface of its lower edge, said member being rotatably mounted and fixed to said shaft,

an electric motor,

a conical roller directly coupled to said electric motor and arranged to frictionally engage said ring to drive said table, and

speed-changing means for moving said conical roller in a generally vertical direction relative to said ring to vary the effective contact radius of said roller.

4,332,543

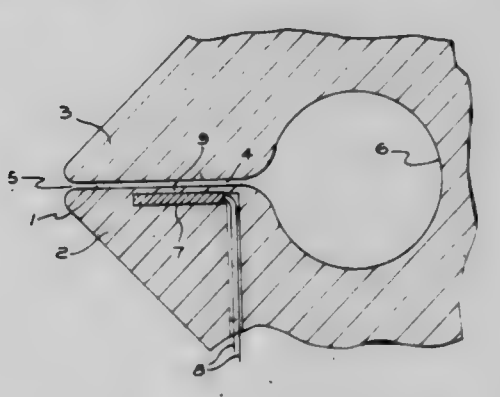
EXTRUSION DIE WITH MELT FLOW CONTROL

John L. Fulton, Northampton, and Harold H. Hopfe, Longmeadow, both of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Sep. 15, 1980, Ser. No. 187,105

Int. Cl.³ B29F *3/04, 3/08*

U.S. Cl. 425—461 **5 Claims**



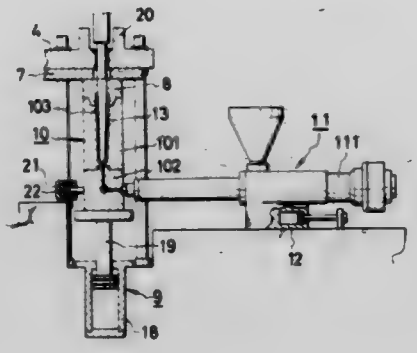
1. An extrusion die block having an extrusion passage defined by opposed surfaces, at least one of said surfaces being provided with heating means comprising a plurality of elongated heater elements located within the die block at a uniform distance, "d", of 1.5 to 10 mm. from the surface to be heated thereby, said elements being oriented in parallel, with the major axis of each in the direction of extrusion, the between centers spacing, "l", of adjacent heaters being from 2 to 10 cm. and the ratio of l to d being at least 8:1.

4,332,544

PARISON MOLDING APPARATUS IN AN INJECTION STRETCHING BLOW MOLDING MACHINE

Kutashi Aoki, 6037, Ohazaminamijo, Sakakimachi, Hanishinagun, Naganoken, Japan

Filed Feb. 8, 1980, Ser. No. 120,086
Claims priority, application Japan, Feb. 16, 1979, 54-19370[U]
Int. Cl.[3] B29C *17/07;* B29F *1/06*
U.S. Cl. 425—529 3 Claims



1. In an injection molding machine including a cavity mold which is movable for clamping said mold in a closed position for receiving injected material to be molded, said cavity mold having a gate at one side thereof and said machine including an injection device arranged to move toward and away from said gate in a direction generally perpendicular to the clamping movement of said cavity mold for applying a touching force to said gate during injection of said material, said motion of said injection device being provided by a fluid actuated device supplied with fluid from a pressure supply line; the improvement comprising:

a fluid actuated ram for applying a force to the side of said cavity mold opposite said gate, said force being equal and opposite to the touching force of said injection device, and said fluid actuated ram being arranged to operate in synchronism with the motion of said injection device by being in communication with said supply line.

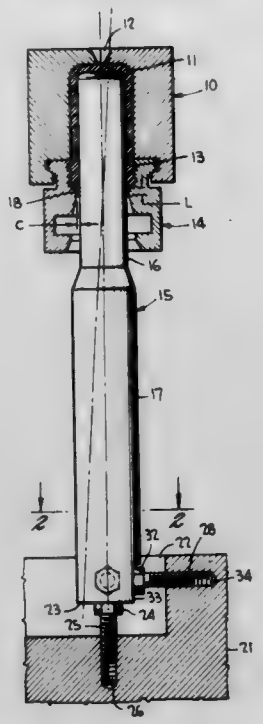
4,332,545

CORE PIN SUPPORT AND ADJUSTING ARRANGEMENT

Harry M. Cargile, Cheshire, Mass., assignor to Emhart Industries, Inc., Farmington, Conn.

Filed Dec. 23, 1977, Ser. No. 863,747
Int. Cl.[3] B29C *1/06, 1/022*
U.S. Cl. 425—577 23 Claims

1. Mounting apparatus for mounting a core pin relative to an associated parison mold for forming plastic containers, said mold having a substantially closed end and said core pin fitting into said mold so as to form a closed end on a parison, said core pin having X, Y, and Z axes, said mounting apparatus comprising a support unit, and adjusting means for selectively adjust-



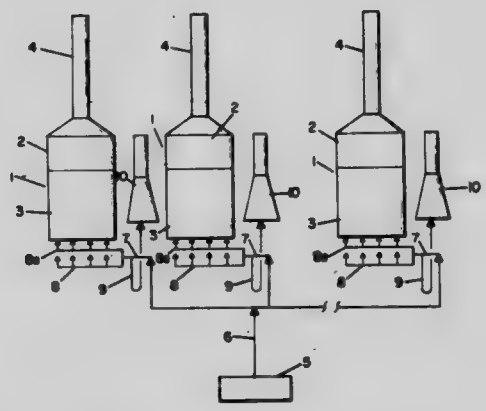
ing the position of said core pin in a respective plane of each of said axes relative to said support.

4,332,546

PROCESS AND APPARATUS FOR FURNACE OPERATION WITH GAS SEAL

George J. Bacsik, Fanwood, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed May 7, 1980, Ser. No. 147,396
Int. Cl.[3] F23J *15/00*
U.S. Cl. 431—5 25 Claims



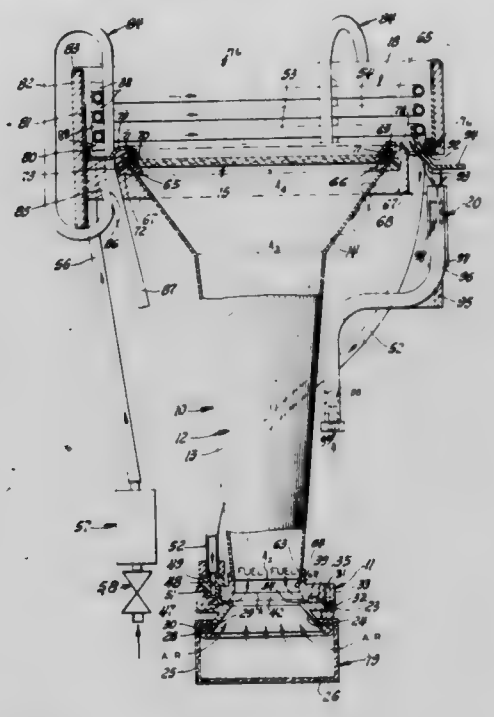
1. A method of operating a furnace in conjunction with a gas seal in which gas turbine exhaust containing oxygen (GTE) is used as preheated combustion air which comprises passing GTE in a duct to the furnace burners, operating evacuating means of the furnace including a damper to provide suction to remove flue gases and establish flow in the GTE duct, selecting a seal height of a leg in which GTE can come down from an outlet of said duct and plugging the leg below the GTE with colder atmospheric air of higher density than the GTE under the conditions of use to form a gas seal, by adjusting the setting of the furnace damper during operation to vary the duct pressure atop the seal within the range fixed by the selected seal height and the difference in density between the two gases; the gas seal being disrupted in case the flow of GTE is reduced, the atmospheric air then flowing to the burners under the suction controlled by the damper so that the furnace continues in operation.

4,332,547

THRUST AUGMENTER EJECTOR COMBUSTION DEVICE

James D. MacDonald, Jr., 4043 Harvest Hill, Apt. 2163, Dallas, Tex. 75234

Filed Oct. 1, 1979, Ser. No. 80,985
Int. Cl.[3] F23D *11/44*
U.S. Cl. 431—242 5 Claims



1. A combustion device for use with pressurized and zero pressure hot air appliances comprising:

(a) a fuel driven Coanda-type inlet nozzle including a primary nozzle having an inwardly converging wall portion which has an entrance end and an exit end;

(b) said inlet nozzle further including an annular fuel exit gap around the entrance end thereof, with said converging wall portion forming an outer annular boundary wall for said exit gap;

(c) a fuel supply means operatively connected to said inlet nozzle fuel exit gap for supplying fuel under pressure to said inlet nozzle;

(d) a diffuser having an exit end, and an entrance end operatively mounted on the exit end of said inlet nozzle;

(e) mounting bracket means secured to the diffuser at the exit end thereof;

(f) an annular flame-arrestor screen mounted in said diffuser at the exit end thereof:

(g) releasable attachment means for securing the flame-arrestor screen to said diffuser and said mounting bracket means;

(h) said fuel supply means including a preheater nozzle, and a fuel preheater means comprising a heat exchange coil;

(i) said fuel preheater means and preheater nozzle means being operatively mounted around the exit end of said diffuser;

(j) support bracket and rod means for mounting the fuel preheater means heat exchange coil around the exit end of said diffuser in a position spaced longitudinally and radially outward from the annular flame-arrestor screen;

(k) means for mounting said preheater nozzle means on said mounting bracket means, in a position around the outer side of said heat exchange coil and in a position spaced therefrom;

(l) said preheater nozzle means comprising a cylindrical tubular body which is covered on the inner face thereof by a liner having an outwardly curved exit end;

(m) a circular support ring mounted around the exit end of said diffuser and being secured to said mounting bracket means and having an integral, annular, arcuate inner peripheral portion which seats against the outer peripheral edge of the flame-arrestor screen and with the arcuate portion extending toward the exterior of the diffuser; and,

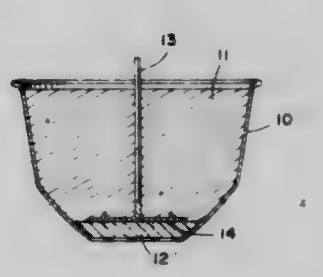
(n) whereby the expansion of fuel under pressure through said annular fuel exit gap around the primary nozzle inwardly converging wall portion forms a Coanda wall jet blowing of vaporized fuel around said primary nozzle converging wall portion for the induction of air down the center of the nozzle to maintain an attachment of the flow of vaporized fuel to the diffuser wall throughout the length thereof and produce a high entrainment ratio of air, and to maintain a fuel lean center flow of fuel and air to prevent a radiant flame form at, and directly above, the center of the flame-arrestor screen, so that said flows of mixed air and fuel are carried through the diffuser and through the flame-arrestor screen, and are ignited and burned exterior of the diffuser with the arcuate support ring functioning to direct the pattern of the flame radially outward into heat exchange relationship with the heat exchange coil, and said preheater nozzle liner functions as a flame stabilizer nozzle.

4,332,548

CANDLE SAFETY DISC AND CANDLE

Robert Linton, Midland Park, N.J.; Frank Asbury, Warwick, and Richard Artale, Middletown, both of N.Y., assignors to Avon Products, Inc., Suffern, N.Y.

Filed Sep. 24, 1979, Ser. No. 77,901
Int. Cl.[3] F23D *3/16;* C10L *5/00*
U.S. Cl. 431—289 4 Claims



1. A transparent candle comprising an upper transparent candle composition layer, a lower transparent safety layer, and a wick in at least said upper transparent candle composition layer, said upper transparent candle composition layer comprising a thermoplastic polyamide resin and a flammable solvent therefor, said transparent safety layer being substantially noncombustible and comprising a thermoplastic polyamide resin, a solvent for said polyamide resin which is also compatible with said transparent candle composition, said polyamide resin and solvent being present in amounts to give said transparent safety layer a higher viscosity and melt temperature than said transparent candle composition layer.

4,332,549

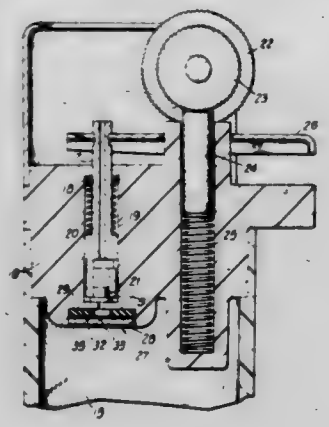
GAS PRESSURE REGULATOR FOR LIGHTERS

David L. Fuller, Atlanta, Ga., assignor to Scripto, Inc., Doraville, Ga.

Filed Oct. 4, 1978, Ser. No. 948,432
Int. Cl.[3] F15D *1/00;* F23Q *2/16*
U.S. Cl. 431—344 12 Claims

1. A gas pressure regulator for disposition in a housing member having a cavity including an end wall provided with a port comprising a pair of members of imprevious material disposed within the cavity in face to face opposed mating engagement, one of said members being firm, an elastomeric washer having a central aperture therein positioned under compression with said cavity for biasing said pair of members toward each other and presenting a flat compressive surface to said abutting members, one of said members having an aperture therethrough communicating with said port and being a thin plastic material having its mating surface textured and being

flexible across its width, said textured surface containing a multitude of extremely minute communicating interstices in the order of microns to fractional microns, thereby forming between said opposed mating surfaces an interstitial array of passages offering resistance to the gas flowing across the interface between said members, said gas flow being directed radially inward from the peripheries of said members to said firm member aperture, said elastomeric washer abutting said member with an aperture the central aperture of said elastomeric



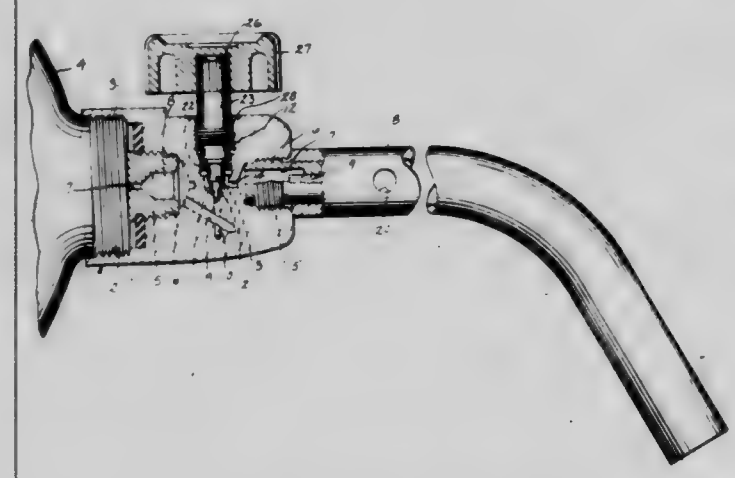
washer being larger in size than the aperture in said abutting member so that the degree of compression of said elastomeric washer that is transmitted to and hence by the compressed area of said thin flexible plastic member in turn controls the amount of mating surface area of said members that is under compression thereby determining the length of the gas flow path between, the mating compressed area of said members for regulating the gas pressure drop, and means providing a passageway for gas between the members and the housing.

4,332,550

GAS TORCH HAVING AN IMPROVED VALVE CONSTRUCTION

Richard S. Baumann, Glenbeulah, Wis., assignor to Western Industries, Inc., Milwaukee, Wis.

Filed Oct. 29, 1979, Ser. No. 89,192
Int. Cl.³ F23D *13/04*
U.S. Cl. 431—344 **1 Claim**



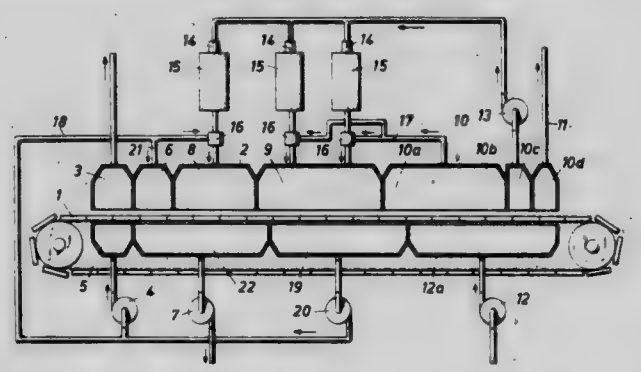
1. A gas torch construction comprising, a valve body to be connected to a container containing pressurized gas, an outlet tube connected to the valve body, passage means extending through the valve body and providing communication between the container and the outlet tube, whereby gas can flow from the container to the outlet tube, said valve body having an opening intersecting said passage means and having an internally threaded section, valve means for controlling the flow of fuel through said passage means and disposed within said opening, said valve means including a stem having an externally threaded section engaged with said internally threaded section, the outer end of said stem projecting outwardly of said valve body in a position to be manually rotated, the outer surface of the valve body bordering said opening having an annular uninterrupted depression, the portion of the valve body between the depression and said opening being depressed inwardly to deform the internal thread inwardly and prevent the external thread of the stem from being completely disengaged from said internal thread.

4,332,551

PROCESS AND EQUIPMENT FOR FIRING PELLETS

Johann Haslmayr, and Hannes Feichtner, both of Linz, Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Dec. 16, 1980, Ser. No. 217,134
Claims priority, application Austria, Jan. 23, 1980, 339/80
Int. Cl.³ F27D *7/00*
U.S. Cl. 432—19 **12 Claims**



1. In a process of firing pellets in equipment comprising a combustion chamber and a firing zone wherein the pellets are fired with heat-treating gases at a predetermined firing temperature, the steps of

(a) burning fuel in the combustion chamber to produce high-temperature gases at an elevated temperature exceeding the predetermined firing temperature and sufficient to convert ashes produced during the burning of the fuel into a liquid slag,

(b) removing the liquid slag from the combustion chamber, and

(c) admixing cooler gases to the high-temperature gases outside the combustion chamber before the gases are supplied to the pellets to cool the gases to the predetermined firing temperature.

4,332,552

MOLDATHERM INSULATED PACEMAKER FURNACE AND METHOD OF MANUFACTURE

Karl H. Seelandt, Spring Grove, Ill., assignor to General Signal Corporation, Stamford, Conn.

Filed Oct. 3, 1980, Ser. No. 193,609
Int. Cl.³ F27B *5/14*; F27D *1/00*; F23M *5/00*
U.S. Cl. 432—209 **10 Claims**

1. An insulated furnace assembly comprising:

a plurality of interconnected modular panels of fibrous material comprising alumina and slica fibers having interconnecting highly gas permeable air pockets formed therein, said panels exclusively forming a furnance chamber;

means for heating said furnace chamber to a temperature from 500° F. to 2000° F.;

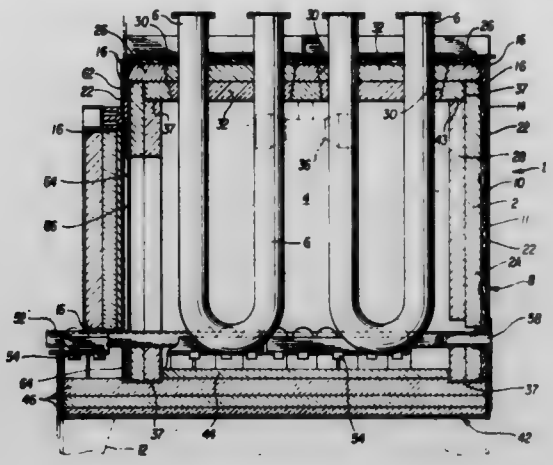
means for rapidly purging said furnace of residual air and water vapor wherein said purging means further comprises a furnace shell surrounding said fibrous material panels so as to form a space between said shell and said fibrous material panels;

means for circulating a first gas within said furnace chamber;

means for circulating a second gas within said space formed between said shell and said fibrous material panels such that said furnace chamber and said space are rapidly purged of said air and water vapor;

means for forcing said air and water vapor through said

fibrous material panels into said furnace chamber, wherein said forcing means further comprises means for pressurizing said first gas to a first pressure above atmospheric pressure and means for pressurizing said second gas to a second pressure equal to or greater than said first pressure



such that any portion of said air and water vapor which has migrated from said furnace chamber toward said space is forced back toward said furnace chamber;

frame means upon which said fibrous material panels are mounted; and

means for interconnecting said fibrous material panels.

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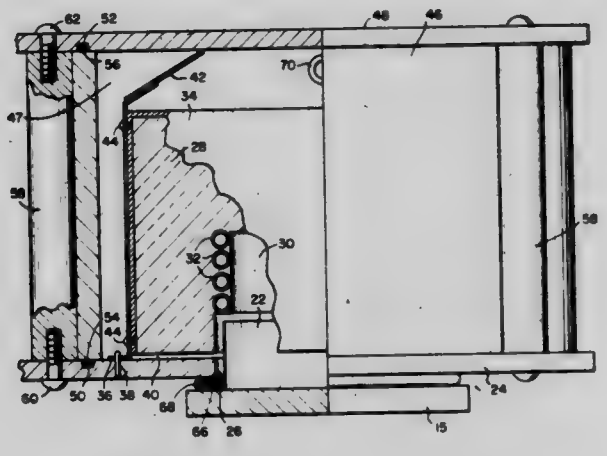
VACUUM FIRING PORCELAIN FURNACE

Roger W. Earle, and William J. Walsh, both of Dubuque, Iowa, assignors to Sybron Corporation, Rochester, N.Y.

Filed Jan. 30, 1981, Ser. No. 229,956

Int. Cl.³ F27B *5/04, 11/00*

U.S. Cl. 432—205 **11 Claims**



1. A vacuum firing porcelain furnace including a vacuum chamber and means for evacuating the chamber, said furnace comprising:

(a) a top plate, base plate and an upright side wall defining said vacuum chamber, said base plate having an opening therethrough;

(b) a muffle in said vacuum chamber, said muffle enclosing a firing chamber which communicates with said opening;

(c) locating means on said muffle and cooperating with said top and bottom plates for locating and holding said muffle in a preselected position against said base plate said locating means including

(i) an L-shaped bracket having a first leg fixed to the periphery of said muffle and a second leg extending outward from said muffle, said second leg having an opening therethrough, and

(ii) a locating pin on said base plate adapted to be received in said bracket opening for locating said muffle at a preselected position within said vacuum chamber;

(d) seal means carried by said base plate about the lower periphery of said opening, and

(e) a door supported by said furnace for movement upward against said seal means to close said opening.

4,332,554

SHAFT FURNACE HAVING COOLING PLATES

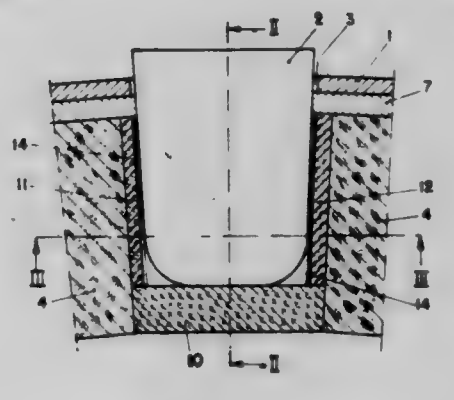
Jacobus van Laar, Santpoort; Jacob Felthuis, Oudorp, and Wilhelmus A. J. Kastelic, Ijmuiden, all of Netherlands, assignors to Hoogovens Ijmuiden B.V., Ijmuiden, Netherlands

Filed Jun. 20, 1980, Ser. No. 161,655

Claims priority, application Netherlands, Jun. 21, 1979, 7904848; Nov. 13, 1979, 790820

Int. Cl.³ F27D *1/12*; C21B *7/10*

U.S. Cl. 432—233 **13 Claims**



13. In a shaft furnace having a furnace armour

a refractory inner lining inside the armour and a plurality of cooling plates inserted through the armour into recesses in the lining, with the main faces of each plate facing respectively upwardly and downwardly, opposite side edges and a front edge which faces toward the interior of the furnace,

the improvement that

each recess is at least partly bounded by a plurality of shaped refractory members which serve to maintain the shape of the recess, said members comprising at each of the two sides of the recess, an elongate member which is disposed with its longitudinal direction substantially radial with respect to the furnace and has a surface of generally complementary shape with respect to an adjacent side edge of said cooling plate and, as the roof of the recess, a cover member which is supported on the said elongate members and has a surface of generally complementary shape with respect to an adjacent surface of said upwardly facing main face of said cooling plate.

4,332,555

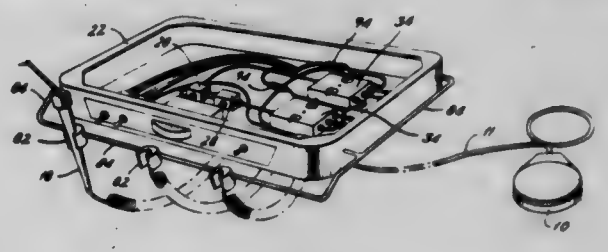
DENTAL DRILL CONTROL MECHANISM

Howard M. Richardson, Philadelphia, Pa., assignor to Dentrex Manufacturing Company, Philadelphia, Pa.

Filed Jan. 2, 1981, Ser. No. 221,961

Int. Cl.³ A61C *1/02*

U.S. Cl. 433—28 **16 Claims**



1. A dental drill control mechanism comprising:

a source of first fluid;

a source of second fluid;

means for conveying said first and second fluids from said

respective first and second fluid sources to said dental drill;

fluid activated means associated with said conveying means for controlling the passage of said first and second fluids to said dental drill;

means for supplying said first fluid at a reduced pressure directly to said fluid activated controlling means, said fluid presence operating said fluid activated controlling means to close off said first and second fluids to said dental drill; and

means for holding said dental drill, including valving means connected to said first fluid reduced pressure supply means for selectively releasing said first fluid supplied from said reduced pressure supply means and from said fluid activated controlling means, said releasing thereby opening said fluid activated controlling means passage of said first and second fluids said dental drill presence in said holding means operating said valving means to cause said first fluid pressure at said fluid activated controlling means.

4,332,556

ALIGNING ASSEMBLY FOR USE IN DENTISTRY

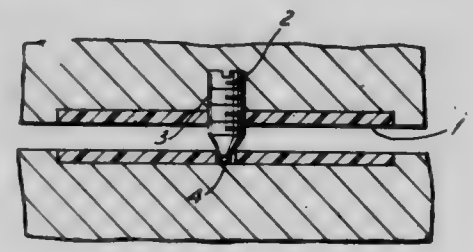
Karl Daiberl, Untersbergstrasse 4, 8000 München 90, DE, Fed. Rep. of Germany

Filed Mar. 27, 1978, Ser. No. 890,190

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1977, 7709769[U]

Int. Cl.³ A61C *19/04*

U.S. Cl. 433—69 **2 Claims**



1. A method of determining correct mandibular position, particularly in prosthodontic and orthodontic work, comprising the steps of providing two prefabricated flat, rigid plates of a standard shape exceeding the inner contour of the parient's gums, and made of plastic material, one of said plates having a projection thereon; marking said plates according to the inner contour of existent teeth; adjusting the edges of the plates by cutting off the portions thereof exceeding the marked contours; positioning the adjusted plates in the oral cavity to rest on the upper gum and the lower gum, respectively, whereby the projection abuts the other plate; having the patient move his jaws from opposite directions until the projection provides a centering mark on the other plate; removing at least the other plate from the oral cavity; forming a recess in the place of the centering mark; repositioning the other plate in the oral cavity; having the patient move his jaws until the projection partially enters the recess; and connecting the plates to each other to form a compact aligning assembly prior to the removal thereof from the oral cavity.

4,332,557

DENTAL OPERATORY SYSTEM

Tony Watanabe, Redondo Beach, Calif., assignor to Takara Company, New York, Inc., Somerset, N.J.

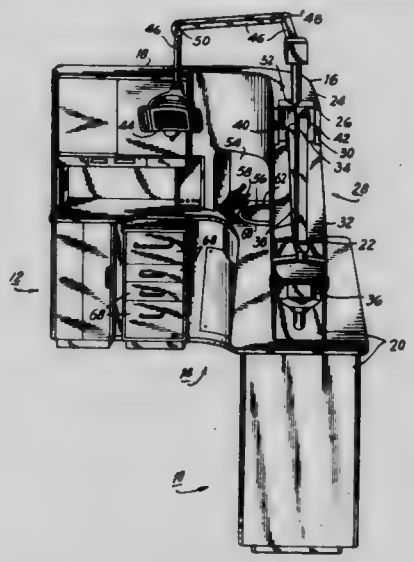
Continuation-in-part of Ser. No. 122,565, Feb. 19, 1980, abandoned. This application Oct. 22, 1980, Ser. No. 199,516

Int. Cl.³ A61C *1/14*

U.S. Cl. 433—77 **18 Claims**

1. A dental operatory system comprising:

a generally L-shaped first dental operatory unit, wherein the inside of the L defines an operatory work space for a first dental operator, and wherein the outside of one leg of the L provides an operatory work space for a second dental operator, said L leg outside comprising dental operatory implements for dental operations, and means to mount said implements for accessing into said second operatory work space for use by said second dental operator, said unit further comprising dental operatory means said dental operatory means comprising an X-ray unit, and means to mount said X-ray unit on said one leg of the L-shaped unit, and means to permit alternative use of said X-ray unit by said operators in the respective operatory work spaces, and further comprising an X-ray operatory control unit,



and means to mount said X-ray operatory control unit on the outside of the other leg of the L-shaped unit for use by the operators, and whereby a generally L-shaped second dental operatory unit, is spacedly positionable from and in registration with and performing the dental operatory functions as in said first unit with said one leg of said second L-shaped unit being substantially parallel to one leg of said first L-shaped unit, and the other leg of said second L-shaped unit being aligned substantially along a common rectilinear axis and in tandem with the other leg of said first L-shaped unit, so that L-shaped units may be incrementally added in registration with one another.

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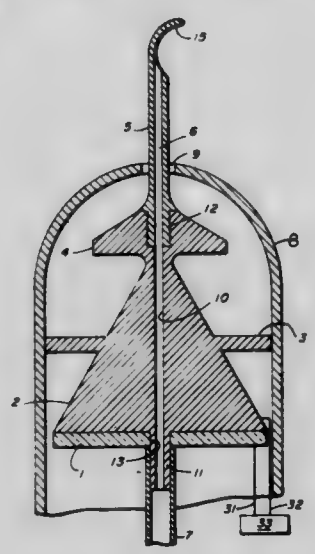
DENTAL SCALING APPARATUS

Leopold P. Lustig, 304 Greenwood St., Newton Centre, Mass. 02159

Filed May 20, 1980, Ser. No. 151,630

Int. Cl.³ A61C *1/07*

U.S. Cl. 433—86 **5 Claims**



1. Apparatus for scaling teeth comprising an elongated hollow tubular scaling tool having a working end formed for contacting the surface of a tooth to be cleaned of calculus, and a canal extending through the other end, means to introduce a

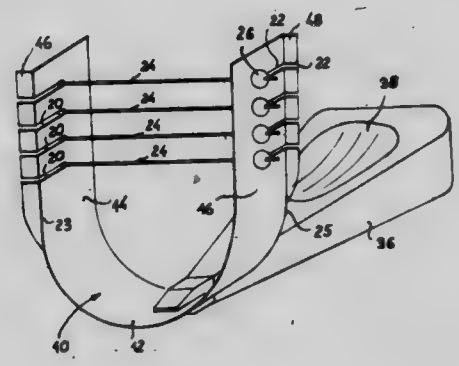
liquid via said other end of the tool for delivery to the working end, and drive means consisting essentially of an electromechanical oscillator and a mechanical coupling component which vibrates in a longitudinal mode fixed together at a first end of said coupling component, a bending-mode vibrator fixed and supported in an intermediate region of its vibrational mode to the second end of said coupling component, said tool being coupled at said other end to said bending-mode vibrator in a peripheral second region thereof which is remote from said intermediate region, so as to impose elastic wave oscillations on said tool for vibrating the working end at a frequency above the audible frequency range.

4,332,559

DENTAL FLOSS APPLICATOR AND METHOD OF ANCHORING DENTAL FLOSS UNITS AT A FRAME

Josef Dolinsky, Salzstrasse 4, D - 8960 Kempten, Fed. Rep. of Germany

Filed Dec. 3, 1980, Ser. No. 212,597
Int. Cl.³ A61C *15/00*
U.S. Cl. 132—91 **5 Claims**



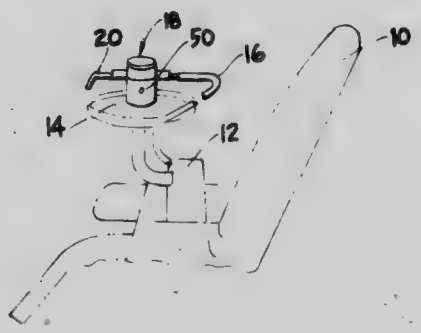
1. A dental floss applicator comprising a substantially U-shaped frame of resilient material having a pair of substantially parallel arms, each one of said arms provided with a slit for holding a unit length of dental floss provided with caps or beads at both ends of which, characterized in that a plurality of slits are provided in each one of the arms, the slits of each arm extend parallely with one another and angularly with respect to the longitudinal direction of the arm, the slits of each arm have their inlet openings at one of the longitudinal edges of each arm and extend substantially cross-wise and end at a middle region of the arm and the plurality of slits of both arms are spaced equally in order to hold a plurality of unit lengths of dental floss in parallel relationship forming a dental floss curtain.

4,332,560

PARTICLE COLLECTOR FOR USE WITH DENTAL SUCTION APPARATUS

Joseph M. Rait, 1100 Amherst St., Buffalo, N.Y. 14216

Filed Mar. 10, 1980, Ser. No. 128,631
Int. Cl.³ A61C *17/04*
U.S. Cl. 433—92 **3 Claims**



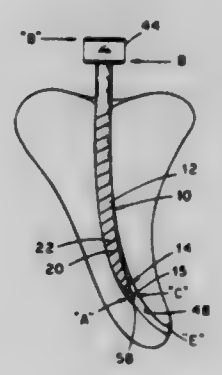
1. In a dental suction apparatus for cleaning debris and saliva from the mouth of a patient during a dental procedure which includes a vacuum source, a readily removable and replaceable pick up tube for insertion in a patient's mouth and a flexible conduit for connecting said pick up tube to said vacuum source, a fitting on said flexible conduit for retaining said pick up tube, a portable particle collector for separating and recovering waste particles of precious metals in a relatively clean condition adapted to be removably connected to the suction apparatus intermediate said pick up tube and said conduit comprising a reservoir and a removable closure cap for said reservoir; said closure cap having an inlet port and an outlet port, a first duct disposed in angular relationship to said inlet port and a second duct disposed in angular relationship to said outlet port, said first and second ducts being disposed to effect fluid communication between said reservoir and said inlet and outlet ports, respectively, a radially outward protruding nipple at said outlet port and a radially outwardly protruding nipple at said inlet port, said fitting having an outer surface engageable with said outlet port and an internal surface engageable with said pick up tube, said inlet port being also frictionally engageable with pick up tube whereby said pick up tube can be alternatively engaged with said fitting or said particle collector.

4,332,561

DENTAL FILE

John T. McSpadden, Johnson City, Tenn., assignor to Inventive Technology International, Inc., Johnson City, Tenn.

Continuation-in-part of Ser. No. 63,436, Aug. 3, 1979, Pat. No. 4,299,571. This application May 14, 1981, Ser. No. 263,406
Int. Cl.³ A61C *5/02*
U.S. Cl. 433—102 **4 Claims**



1. A set of dental files comprising individual files each having a shank tapered along at least part of its length, having cutting means formed in at least a portion of the tapered length of the shank, the files of the set having tapered shanks which incrementally increase in diameter from one file to the next larger file of the set, and each file of the set comprises a generally cylindrical smooth walled pilot having a generally non-cutting end formed at and projecting coaxially from the tapered end of the shank, the diameter of said pilot being substantially the same for all files of the set and corresponds to a pilot dimensioned for the smallest file of the set said pilot having a length from greater than about 1.0 mm to about 3.0 mm.

4,332,562

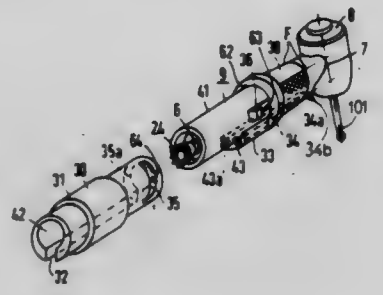
DENTAL HANDPIECE

Werner Schuss, Heppenheim, and Ernst-Otto Fleer, Bensheim, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 30, 1980, Ser. No. 202,137
Claims priority, application European Pat. Off., Nov. 29, 1979, 79104765
Int. Cl.³ A61C *1/08*
U.S. Cl. 433—126 **11 Claims**

1. A dental handpiece comprising at least a first handpiece part; a second handpiece part, each of said handpiece parts having a drive shaft with a gear at each end and a cooling line segment for at least one cooling agent; and connecting means

for releasably interconnecting the handpiece parts together with the gears of the drive shafts in driving engagement, said connecting means including means for preventing relative twisting between the handpiece parts and at least one catch element being provided on the first handpiece part coacting with a counter element arranged on the second handpiece part, said catch element and counter element being disengageable to enable disassembly of the connecting means, said means for preventing including a guide member arranged on one of said first and second handpiece parts and extending axially therefrom to be engaged in an axially extending guide slot in the



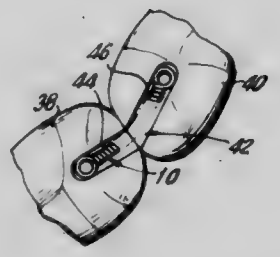
other of said first and second handpiece parts, said guide member supporting the cooling line segment of the one handpiece part with each segment opening on a surface of said guide member, the other handpiece part having a portion supporting each of its cooling line segments with the segments projecting from a surface of the portion into the guide slot and into said openings to form an axial connection with the segments of the guide member, and said connecting means including means for sealing the axial connection of the segments so that during connection of the two parts together, a sealed axial connection of the segments of the parts is formed.

4,332,563

FLEXIBLE DENTAL RETAINING SPLINT

Bernard Weissman, New York, N.Y., assignor to IPCO Corporation, White Plains, N.Y.

Filed Feb. 17, 1981, Ser. No. 234,857
Int. Cl.³ A61C *5/00*
U.S. Cl. 433—215 **15 Claims**



1. A flexible dental retaining splint disposable in a channel extending between adjacent teeth, said splint comprising body means for permitting said splint to be bent along its longitudinal length into a selected configuration, said body means including a wire core and a wire coil wound about said core, and wire loops being provided at opposite ends of said wire core, each of said wire loops defining a passageway through said splint, the passageways of said loops facing in the same direction, whereby said loops function to secure said splint in the channel when securing means pass through said passageways.

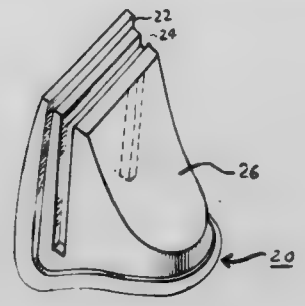
4,332,564

PREFABRICATED MODULAR CROWN SYSTEM

Raymond E. Lord, 418 Church St., North Adams, Mass. 01247

Filed Jan. 28, 1980, Ser. No. 116,091
Int. Cl.³ A61C *5/08*
U.S. Cl. 433—218 **5 Claims**

1. A prefabricated full crown system comprising two separate modules joined to form a unitary crown adapted to be mounted on and surround a prepared tooth stump to be capped, one of said modules is a functional module of metal and covers the mesial, distal, lingual, incisal or occlusal surfaces of the fully constructed unitary crown, the other of said modules is an esthetic module full cap having at least outer surfaces of plastic and covering all of the exposed surfaces of said prepared tooth stump when mounted thereon, said es-



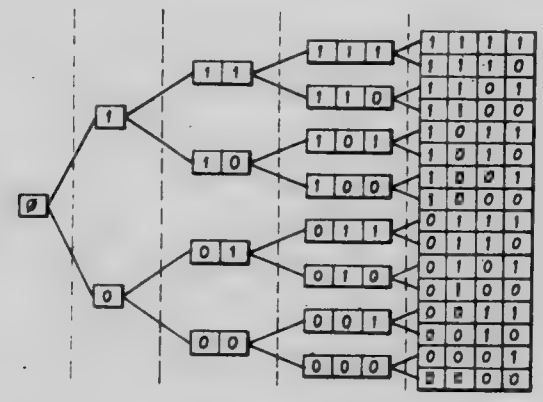
thetic module is fitted to said prepared tooth stump independently of said functional module and has prepared areas on at least one of the mesial, distal, lingual, incisal or occlusal surfaces to receive said functional module, the portion of said esthetic module underlying said functional module in said fully constructed unitary crown being thinner than the other surfaces of said esthetic module.

4,332,565

DISPLAY SYSTEM

Pierre F. Mialet, 56, rue Vieille du Temple, 75003 Paris, France

Filed Dec. 31, 1979, Ser. No. 108,962
Claims priority, application France, Jan. 3, 1979, 79 00070
Int. Cl.³ G09B *1/06, 1/16, 5/00, 23/02*
U.S. Cl. 434—118 **7 Claims**



1. Display device for the display of at least one indicia comprising a display surface provided with 99 display spaces distributed into five columns, the first column comprising one space, the second column comprising two spaces, located one above the other, the third column comprising 4 groups of two spaces, located above one another, the fourth column comprising 8 groups of 3 spaces located above one another, the fifth column comprising 16 groups of 4 spaces, said groups located one above another.

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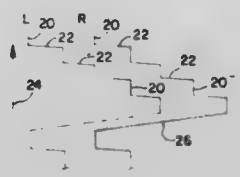
MONITORING ATTENTION AND COGNITION AND THE EFFECT OF SENSORY MOTOR, NUTRITIONAL, AND OTHER BIOCHEMICAL FACTORS THEREON

Conrad A. Mazeski, and Ken Candelaria, both of 201 W. Prospect Ave., Mount Prospect, Ill. 60056

Filed Sep. 4, 1979, Ser. No. 72,328
Int. Cl.³ G09B *5/00;* A61B *5/04*
U.S. Cl. 434—178 **15 Claims**

1. A method of analyzing and modifying the behavioral response of a test subject displaying learning disability and of

administering therapy for said disability, said method including the steps of monitoring the characteristic aplha brain wave pattern displayed by said subject during an attempt by said subject to attend to and understand written material, analyzing said pattern to determine the frequency of occurrence and duration of high amplitude alpha brain waves occurring in the subject, said high amplitude waves being those which are high in relation to the amplitude of alpha brain waves of a test



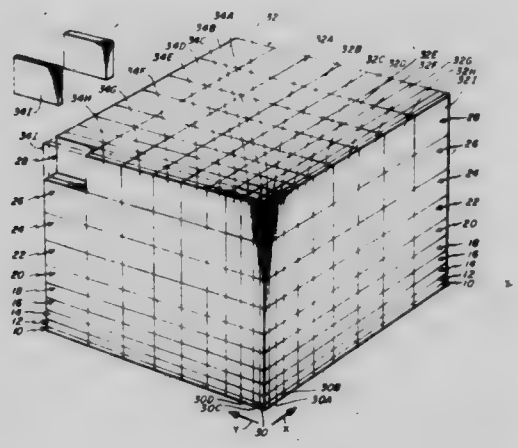
subject displaying good attention characteristics and not characterized by a learning disability, said method further including the step of administering at least one therapeutic method selected from the group of therapeutic methods which includes print size variation reading therapy, sensory motor therapy and nutritional therapy in order to reduce said frequency of occurrence and said duration of said high amplitude alpha brain waves.

4,332,567

MATHEMATICAL TEACHING APPARATUS

Pastora S. Nogues, c/o A. J. Zeoli, 270 Huntington Ave., Boston, Mass. 02115

Filed May 8, 1980, Ser. No. 148,177
Int. Cl.³ G09B *19/02*
U.S. Cl. 434—195 **3 Claims**



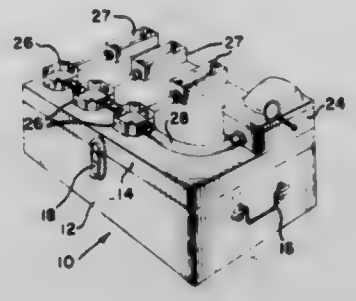
1. Mathematical teaching apparatus formed of a plurality of blocks arranged in a plurality of planar arrays, one overlying the other, and each of different predetermined height with a base array of unity height and each overlying array progressing by a unity increase in height from the base array, said base array formed of blocks in x and y rows commencing from a corner cube block of unity dimension with the x and y block rows progressing in length by an integer from the corner cube block, wherein in the x direction, blocks of the base array are arranged commencing from the corner unity block with integer increases in length 2, 3, 4, etc., in the y direction of the base array are arranged commencing from the corner unity block with integer increases in length 2, 3, 4 etc., and in the z direction of the blocks commencing from the corner unity block increases in integer length 2, 3, 4 etc.

4,332,568

CABINET WITH ELECTRICAL APPARATUS FOR USE IN TEACHING

Darryl E. Hyink, 10256 W. 151st St., Orland Park, Ill. 60462

Filed Oct. 19, 1977, Ser. No. 843,549
Int. Cl.³ G09B *23/18*
U.S. Cl. 434—224 **2 Claims**



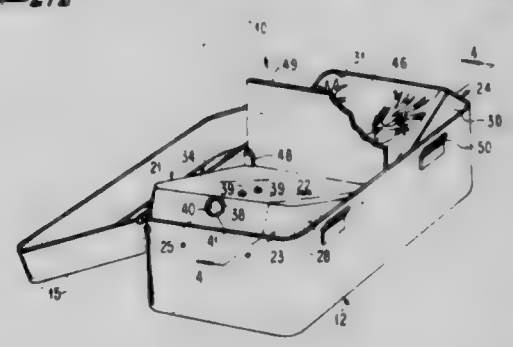
1. A portable, hand held teaching laboratory comprising:
a self-contained teaching and demonstrating device for use in schools with house wiring apparatus permanently affixed to a cabinet and having wiring devices in compartments;
said cabinet having a top cover and a lower unit;
said lower unit providing a receptacle with a plurality of various size compartments for carrying electrical items;
electrical apparatus comprising a plurality of electrical connector box means and a plurality of receptacle box means associated with each connector box means;
electrical conduit interconnecting the connector box means and the receptacle box means;
means permanently mounting the electrical apparatus to the outside of said top cover;
said compartments comprising a first elongated rectangular compartment extending the length of said lower unit for carrying and displaying electrical apparatus;
said compartments also including a plurality of second rectangular compartments positioned at right angles to the first rectangular compartment;
said cabinet having handle means for grasping and carrying the cabinet between locations;
hinge means interconnecting the top cover and the lower unit and including latch means for positioning the top cover and the attached electrical apparatus at an angle above a supporting surface;
said cabinet comprising wood means;
electrical items carried with said compartments; and
said electrical items including switch means and electrical outlet means.

4,332,569

INSTRUCTIONAL DEVICE FOR USE OF A BRONCHOSCOPE

Peter L. Burbank, Lexington, Ky., assignor to University of Kentucky Research Foundation, Lexington, Ky.

Filed Mar. 16, 1981, Ser. No. 244,203
Int. Cl.³ G09B *23/30*
U.S. Cl. 434—272 **10 Claims**



1. An instructional device for instructing a person in the use

of a bronchoscope in a tracheobronchial tree of a patient including:

a hollow body having the shape of a tracheobronchial tree including a plurality of segments;

support means to support said hollow body so that said tracheobronchial tree segments of said hollow body are hidden from view;

said hollow body having an entrance opening to receive a bronchoscope for insertion of a probe of the bronchoscope into one of said tracheobronchial tree segments by the person being instructed;

said hollow body having a plurality of openings located at various of said tracheobronchial tree segments;

display means of a tracheobronchial tree having at least the same plurality of segments as said tracheobronchial tree segments of said hollow body, said display means being supported by said support means;

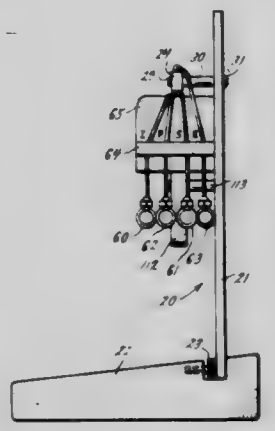
and separate fiber optic means extending from each of said openings in said hollow body to transmit light from a probe of a bronchoscope in said hollow body to the same corresponding location of the tracheobronchial tree of said display means to indicate on the tracheobronchial tree of said display means the location of the probe of the bronchoscope in said hollow body.

4,332,570

ANATOMICAL MODEL

Paul A. Getty, 2113 Glenwood Ave., Saginaw, Mich. 48601

Filed Sep. 8, 1976, Ser. No. 721,456
Int. Cl.³ G09B *23/32*
U.S. Cl. 434—274 **29 Claims**



1. An anatomical finger model comprising a base and simulated finger bones mounted thereon, including a proximal phalanx for pivoting about a horizontal axis when the model is upright, means pivotally supporting it at its proximal end onto the base, a middle phalanx with means pivotally connecting its proximal end to the distal end of the proximal phalanx; a first cord extending across the upper part of the middle phalanx, so that tension on the cord can pivot the middle phalanx about the proximal phalanx into extended positions; a second cord supported to be disposed at the lower part of the proximal phalanx, and then to extend alongside it toward the upper part thereof, and connections between the two cords having means causing tension on one of the cords to draw on the other cord.

4,332,571

WAVE MOTORS

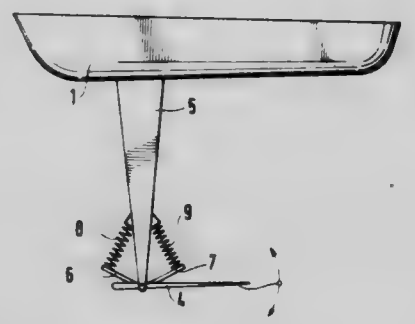
Einar Jakobsen, Roven, N-1920, Sorumsand, Norway

Filed Nov. 9, 1978, Ser. No. 959,293
Claims priority, application Norway, Nov. 11, 1977, 773849
Int. Cl.³ B63H *1/30, 5/00*
U.S. Cl. 440—9 **7 Claims**

1. A wave motor for propulsion of a water-bourne vessel influenced by wave action, comprising:

a. a support structure rigidly connected to the vessel and extending downwards therefrom to have a lower end thereof located at a distance beneath the hull of the vessel at a level at which the water is relatively calm in relation to water movements at the water surface because of wave action;

b. propulsion means comprising an essentially horizontally disposed, platelike tilting element which, at a forward portion thereof as viewed in the cruising direction, is rotatably connected about a horizontal axis to said lower end of said supporting structure, and is adapted to effect a tilting movement as a result of relative movement between said element and the surrounding water when said vessel



is rising and lowering due to wave action at the water surface; and

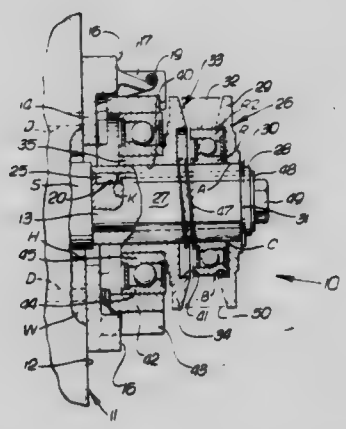
c. means causing said tilting element to be held in a substantially horizontal neutral position when no relative movement exists between the element and the surrounding water, said means comprising a force-exerting device connected between said supporting structure and said tilting element and exerting opposed, resilient returning forces on said tilting element upon angular displacement thereof, to bring it back to said neutral position.

4,332,572

REMOTELY MANUALLY CONTROLLABLE BELT DRIVE CLUTCH

Paul R. Carlson, and Richard L. Carlson, both of P.O. Box 290, San Bernardino, Calif. 92402

Continuation-in-part of Ser. No. 935,599, Aug. 21, 1978, abandoned. This application Jun. 19, 1980, Ser. No. 160,968
Int. Cl.³ F16H *55/52*
U.S. Cl. 474—38 **6 Claims**



1. In a belt drive clutch adapted to be mounted in a spline driven relation on a power output shaft of a small internal combustion engine, the combination of:

a sleeve slidably fitting over said power output shaft in a spline driven relation therewith, said sleeve having a hexagonal conformation externally;

an inwardly bevelled outer sheave disc fixed on the outer extremity of said sleeve;

means associated with said power output shaft to confine said sleeve in coextensively covering relation with said power output shaft;

a drive belt supporting annulus provided to be freely rotat-

able on said sleeve and to occupy a position thereon just inwardly from said outer sheave disc;

an oppositely bevelled inner sheave disc having a short hollow stub shaft extending inwardly from said inner sheave disc and integral therewith and having a hexagonal bore slidably fitting and spline matching the hexagonal external conformation on said sleeve;

a ball bearing means having substantially co-planar central and peripheral races and permanently assembled on said stub shaft by pressing the central race of said bearing means thereon;

a clutch control ring permanently assembled on said ball bearing means by pressing said control ring on said peripheral race of said ball bearing means; and

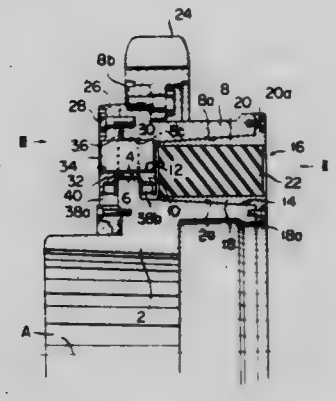
means for shifting said control ring axially, while an endless drive belt is trained about said annulus, to engage or disengage said belt by optionally constricting or expanding the space between said outer and inner sheave discs.

4,332,573

SPROCKET WHEELS OF AN ENDLESS TRACK-TYPE VEHICLE

Kanich Uchida, Tokyo, and Hitoshi Sawamura, Hirakata, both of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Apr. 18, 1980, Ser. No. 141,361
Claims priority, application Japan, Apr. 23, 1979, 54-49063
Int. Cl.³ B62D *55/12*
U.S. Cl. 474—94 **3 Claims**



1. A sprocket wheel of an endless track-type vehicle including a substantially annular-shaped inner part of a hub fixedly mounted on a sprocket wheel driving shaft, a substantially annular-shaped outer part of the hub arranged at the radially outside of said inner part so as to form an annular space therebetween, an outer peripheral surface of the inner part and an inner peripheral surface of the outer part being, respectively, formed of oppositely tapered surfaces, thereby defining said annular space as an annular conical-trapezoidal space, a plurality of deformable resilient block segments equispacedly and fixedly inserted into said annular space, and stopper means for preventing said deformable resilient block segments from their respective excessive deformation, the improvement wherein each of said deformable resilient block segments comprises:

(a) a radially inner member having at one end thereof a flange portion extending radially inwardly and fixedly secured through said flange portion to one end face of said inner part by means of bolts, the inner peripheral surface being formed in a tapered surface so as to adapt to that of said inner part;

(b) a radially outer member having at one end thereof a flange portion extending radially outwardly and fixedly secured through said flange portion to one end face of said outer part by means of bolts, the outer peripheral surface being formed in a tapered surface so as to adapt to that of said outer part; and

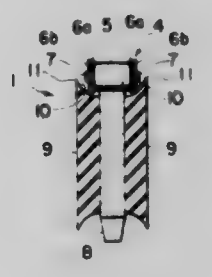
(c) a resilient member allowing the inner and outer peripheral surfaces thereof to fix in seizure to the radially outer surface of said inner member and the radially inner surface of said outer member, respectively.

4,332,574

MOTORCYCLE SPROCKET

Takahiko Aoyama, and Akira Nakaya, both of Akashi, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Hyogo, Japan

Filed Jan. 21, 1980, Ser. No. 113,889
Claims priority, application Japan, Jan. 29, 1979, 54-10204
Int. Cl.³ F16H *55/30*
U.S. Cl. 474—161 **8 Claims**



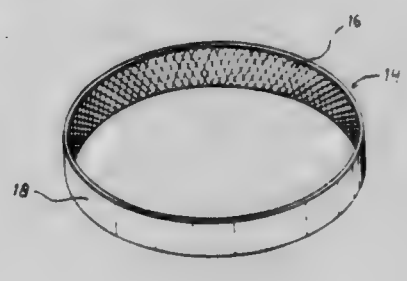
1. A sprocket for a motorcycle comprising: a metal sprocket body; and a pair of vibration preventing members made of an elastic material, each vibration preventing member having a bonding surface whose diameter is substantially equal to the effective diameter of said metal sprocket body, said pair of vibration preventing members being secured one on each side of said sprocket body through said bonding surfaces, each vibration preventing member being so shaped that the diameter thereof increases gradually toward the outside thereof in such a manner that when a load is applied to a chain running around said sprocket outside portions of said chain running over said sprocket are in contact with circumferential surfaces of said vibration preventing members for a plurality of load values so as to reduce wavelike vibrations in said chain and reduce noise.

4,332,575

COMPOSITE DRIVING BELT

Emery F. M. Hendriks, Heeze, Netherlands, assignor to Van Doorne's Transmissie B.V., Tilburg, Netherlands

Filed Jan. 29, 1980, Ser. No. 116,656
Claims priority, application Netherlands, Jan. 30, 1979, 7900707
Int. Cl.³ F16G *1/26*
U.S. Cl. 474—201 **6 Claims**

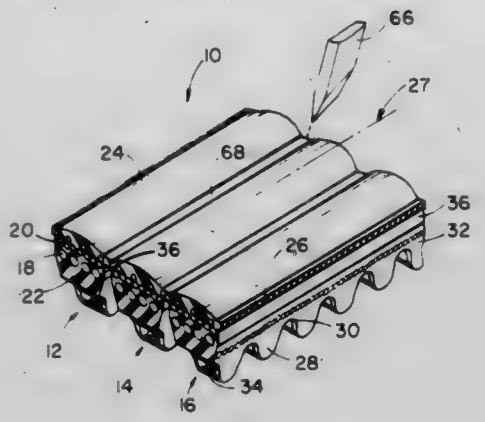


1. An endless flexible carrier for a driving belt of the kind having a plurality of plate-like elements slidably mounted on the carrier comprising a plurality of endless metal bands disposed radially around and in sliding contact with each other such that in use there is a mutual speed different between bands, at least one of said bands, at least at one side, being provided with a surface profiling which decreases friction between the bands.

4,332,576
V-BELT

Alfred L. Stecklein, and Jerome M. Daugherty, both of Littleton, Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed Jan. 11, 1980, Ser. No. 111,419
Int. Cl.³ F16G *5/00*; B29H *7/22*
U.S. Cl. 474—205 **12 Claims**



1 A molded notch elastomeric endless power transmission belt comprising:

a generally V-shaped trapezoidal body including a load carrying section sandwiched between a tension and a compression section, said body having driving sidewalls which are cut edged and mold formed;

molded notches formed in the compression section of the belt defining alternating notch depression surfaces and toothed projections;

at least one ply of a fabric material following the outer contour of the notches and integral therewith, said fabric extending transversely across substantially the full lateral extent of the toothed projections while extending laterally across only an intermediate, partial portion of the notch depression surfaces;

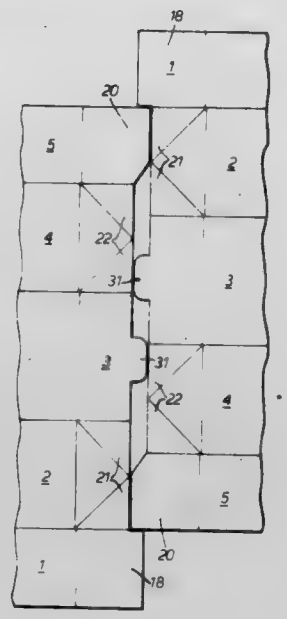
said at least one ply of fabric material being uniformly applied along the full outer contour of the notch depression surfaces and toothed projections, and serving as the sole fabric reinforcement along such full contour of the notch depression surfaces and toothed projections.

4,332,577
PACKAGING

Richard W. E. Mosse, London, England, assignor to Novus Corp. N.V., Curacao, Netherlands Antilles

Filed Oct. 15, 1979, Ser. No. 84,656
Claims priority, application United Kingdom, Oct. 13, 1978, 40547/78
Int. Cl.³ B31B *1/16*
U.S. Cl. 493—74 **6 Claims**

1. A method of producing carton blanks, comprising cutting from a sheet a first carton blank having a row of five panels of which alternate panels include respective projections at an edge of the first blank extending along said row, and cutting from said sheet a second carton blank having a parallel row of five panels of which the panels are offset along the row of said second blank relative to corresponding panels of the row of said first blank and of which alternate panels have at an edge of the second blank extending along the row of said second blank respective projections in an arrangement substantially identical to that of the first-mentioned projections and interdigitating with those projections, the projection of one of the panels of the first blank having a dimension along said row of said first blank significantly smaller than that of said one of the panels, and one of said projections of the second blank being at least

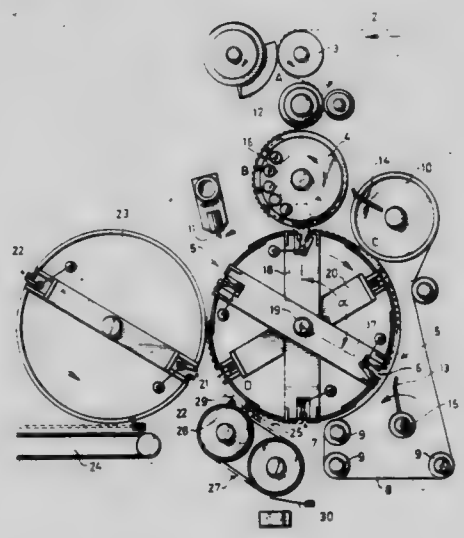


partly co-extensive along the rows with said one of the panels of the first blank.

4,332,578
APPARATUS FOR MAKING THERMOPLASTIC CARRIER BAGS

Leonard van der Meulen, Immeuble Saadi, Appt. 22A, Ariana, Tunisia

Filed Aug. 18, 1980, Ser. No. 179,170
Claims priority, application Netherlands, Aug. 21, 1979, 7906324
Int. Cl.³ B31B *1/16, 1/64, 1/86*
U.S. Cl. 493—197 **5 Claims**



1. Apparatus for making carrier bags of thermoplastic material starting from a continuous tubular strip of thermoplastic film, either side of which contains a gusset fold, said apparatus comprising a set of supply rollers, said supply rollers driven at a constant speed for advancing said strip to a cylindrical drum and a co-operating supporting belt, said drum being provided with heatsealing means mounted in the periphery of the drum housing and means for rotating said drum with a circumferential velocity exceeding the feeding speed of the supply rollers, said apparatus further comprising:

a. cutting means co-operating with the supply rollers for sequentially providing the tubular strip of thermoplastic film with a U-shape cut at spaced locations corresponding to the length of the carrier bags desired;

b. severing means for cutting off the strip transversely at a line, somewhat beyond the legs of the U-shape cut so as to obtain cut-off strip portions;

c. heat sealing means on the periphery of said drum for

sealing the ends of said cut-off strip portions, and means for urging the ends of the cut-off strip portions into operative sealing arrangement with said heatsealing means;

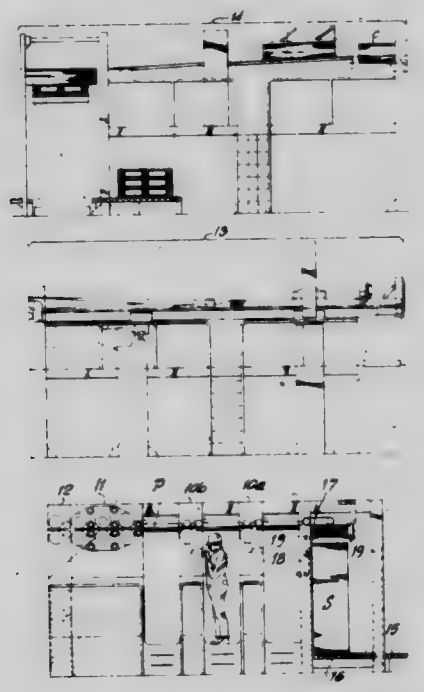
d. folding means along a describing line of the drum circumference, being positioned substantially half way of the length of the cut-off strip portion, and arranged for cooperation with folding tongs in an adjacent auxiliary drum for folding the cut-off strip portions.

4,332,579

PRODUCTION OF CASES

Frederick P. Johnson, Audenshaw, England, assignor to Simon Container Machinery Limited, Stockport, England

Filed Aug. 6, 1979, Ser. No. 63,690
Int. Cl.³ B31B *1/06*
U.S. Cl. 493—325 **3 Claims**



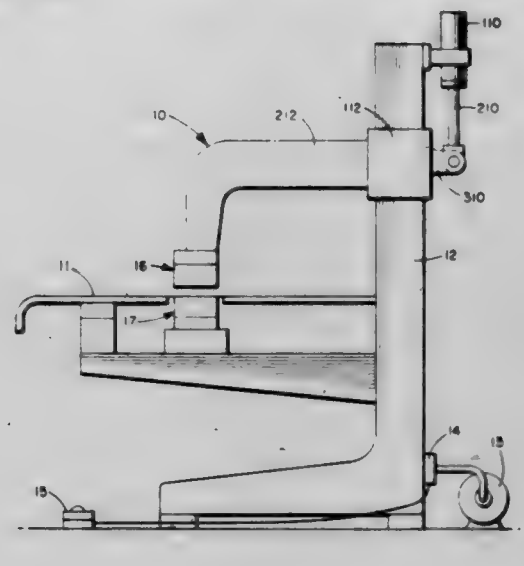
1. A method of converting box blanks into formed but collapsed cases in a system wherein tall vertical stacks of said blanks each of an appreciable height corresponding substantially to the height of a worker are successively conveyed from corrugating machinery to a line of casemaking machinery, comprising providing an elevated line of casemaking machinery, introducing at the commencement of the line one of said tall vertical stacks of box blanks arising from a support, said line having a working path extending at a level above the top of said stack, elevating the support to raise the stack continuously towards a suitable feed mechanism disposed at the level of said path which engages with the top blank of the stack, and actuating the feed mechanism to horizontally feed said blanks one at a time in timed sequence from the top of the rising stack individually and directly into the line of casemaking machinery, and wherein after the residual rising stack is depleted to a relatively short vertical dimension, said residual rising stack is separated from the support and temporarily supported and continues to be elevated by means which engage the bottom of the stack, returning the support down to its initial position and placing thereupon a further tall vertical stack of blanks of said appreciable height in the space below said short stack, elevating said support until the top blank of the further stack is at the base of said shorter stack and withdrawing said engaging means so that the short stack becomes supported by the rising further stack and both stacks are now continuously elevated as one towards the feeding mechanism, thereby to provide substantially uninterupted supply of blanks to said casemaking machinery.

4,332,580

PIECING MACHINE FOR NON-FABRIC RIBBONS

Massimo Macchi, Parabiago, Italy, assignor to Officine Savio S.p.A., Pordenone, Italy

Filed Feb. 8, 1980, Ser. No. 119,789
Claims priority, application Italy, Feb. 21, 1979, 83339 A/79
Int. Cl.³ B31F *5/00*
U.S. Cl. 493—346 **5 Claims**



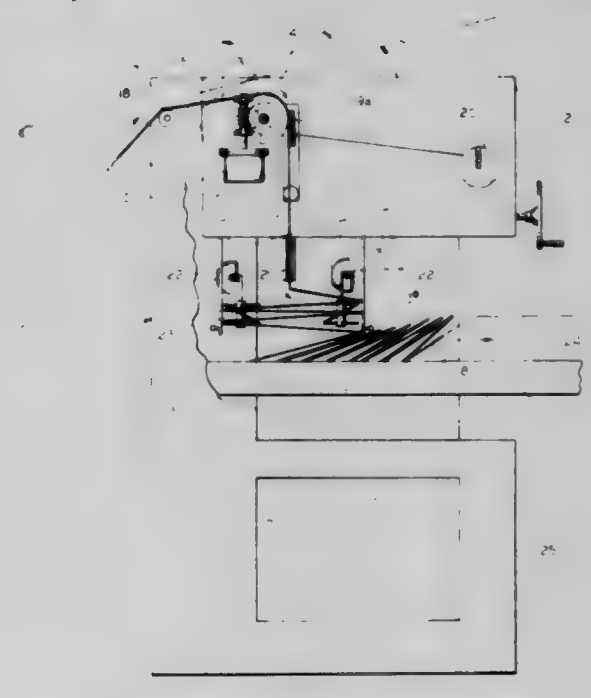
1. Piecing machine for non-fabric ribbons comprising upper and lower heads, at least one of said heads defining ports directed toward said other head for introducing jets of fluid between said heads, a source of fluid connected to said ports and a support plane for introducing said non-fabric ribbons between said heads to be acted upon by said jets, said head having ports has ribs extending between said ports.

4,332,581

ADJUSTABLE PAPER FOLDING APPARATUS

Doyle D. Thompson, Phoenix, Ariz., assignor to Form Flo Equipment Manufacturers Inc., Phoenix, Ariz.

Filed Feb. 15, 1980, Ser. No. 121,693
Int. Cl.³ B65H *45/20*
U.S. Cl. 493—413 **6 Claims**



1. A variable position spiral-type paper folding apparatus for fan-folding a variety of webbed paper products of different paper weights and lengths and thus various folding bulks, said apparatus comprising:

folding mechanism means for crimping and delivering a web of paper in a fan-folded configuration;

said folding mechanism means including crimping means for repeatedly crimping folds into said webbed paper prod-

ucts and spiral release means for advancing and releasing said folded webbed paper product within and from said folding mechanism means;

said folding mechanism means having adjustment means for crimping and delivering paper webs of varied fold lengths and widths;

delivery surface means which cooperates with the spiral release means of said folding mechanism means, said delivery surface means being positioned in a substantially horizontal relationship to said folding mechanism means for receiving said fan-folded web of paper therefrom;

folding head means operably connected to and including said folding mechanism means and which further includes input roller means through which said web of paper enters said folding head prior to guiding into said folding mechanism means, and chute means for initially directing said paper web to said folding mechanism means;

said folding head means of said apparatus being pivotable about an axis independent of the positioning of said adjustment means of said folding mechanism means, so as to simultaneously vary the position of said folding mechanism means relative to said delivery surface means infinitely within an angularly adjustable range;

position maintenance means for maintaining the angular position of said pivotable folding head means after said variation of said position;

said adjustable range permitting the unhampered folding of said web of paper of said different weights and lengths by accommodating said varying folding bulk of same by altering the operable position of said folding head means and in turn said folding mechanism means relative to said delivery surface means so as to reduce jams, tears and other problems associated with the paper folding operation.

4,332,582

ROTARY FOLDER WITH RESETTABLE RELEASE POINT

Klaus Hertrich, Göhrenz, German Democratic Rep., assignor to VEB Polygraph Leipzig Kombinat fuer Polygraphische Maschinen und Ausruestungen, Leipzig, German Democratic Rep.

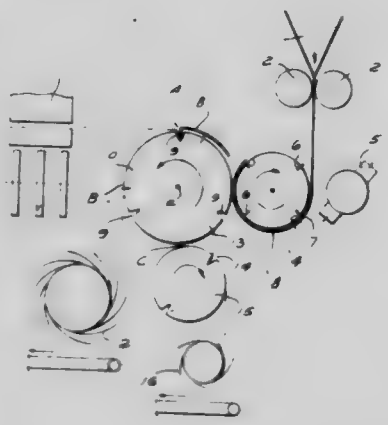
Continuation of Ser. No. 861,500, Dec. 16, 1977, abandoned.

This application May 7, 1979, Ser. No. 36,800

Claims priority, application German Democratic Rep., Dec. 23, 1976, 196577

Int. Cl.³ B65H *45/16*

U.S. Cl. 493—424 **3 Claims**



1. A folding apparatus comprising:

a fixed support;

a folding cylinder rotatable on said support about a cylinder axis;

at least one openable and closable gripper on said cylinder orbitable about said axis on rotation of said cylinder about said axis;

a cam follower on said cylinder connected to said gripper and radially displaceable to open and close same;

a plurality of cams carried on said support at said axis and each having a respective cam periphery adapted for controlling said cam follower and thus said gripper at a predetermined angular position of said cylinder;

means fixing said cams axially next to one another without freedom of relative motion in a pack;

means for axially displacing said pack through a plurality of positions in each of which a respective one of said peripheries is radially aligned and engageable with said follower; and

further comprising means for displacing said follower radially away from and out of engagement with said peripheries during axial displacement of said pack.

4,332,583

FOLDING APPARATUS FOR PREPARING A ZIGZAG WEB OF PAPER

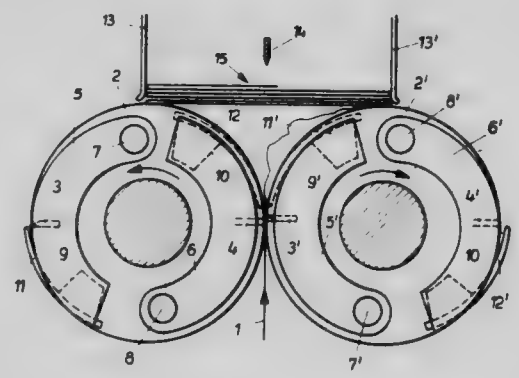
Kurt Stemmler, and Hartmut Kosche, both of Neuwied, Fed. Rep. of Germany, assignors to Winkler and Dunnebier Maschinenfabrik und Eisengiesserei GmbH & Co. KG, Neuwied, Fed. Rep. of Germany

Filed Mar. 4, 1980, Ser. No. 127,162

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1979, 2909006

Int. Cl.³ B65H *45/16*

U.S. Cl. 493—430 **7 Claims**



1. In a folding apparatus for preparing a zigzag-folded web of paper of the type having two oppositely-rotating folding rolls, each having at least one axially-extending and radially-projecting folding stick for producing zigzag folds in the web of paper, the improvement comprising:

guide means disposed adjacent to, but spaced from, said pair of folding rolls for receiving said zigzag-folded web or paper from said folding rolls in the form of a progressively-growing stack, the base of which lies closely adjacent to said folding rolls in a plane disposed generally tangentially to the circumference of said folding rolls; and

each folding roll having a circumferential surface in which is formed at least one row of suction orifices for effecting temporary retention of the web thereagainst immediately following scoring by a folding stick of the other roll, each folding roll also having at least one pair of guard guides, one of said pair for said folding stick and the other of said pair for said row of suction orifices, each guard guide having two ends and being pivotably mounted on said associated folding roll for movement between a retracted and extended position relative to the circumferential surface thereof, said one of said guard guides associated with said folding stick, in the extended position thereof, having one end spaced radially-outwardly beyond the folding stick so as to shield and hold the base of said stack of said zigzag-folded web away from the folding stick, and said other of said guard guides associated with said row of suction orifices, in the extended position thereof, having one end spaced generally above the row of suction orifices, so as to ensure that there is a space between the same and said base of said stack of said zigzag-folded web received in said guide means.

4,332,584

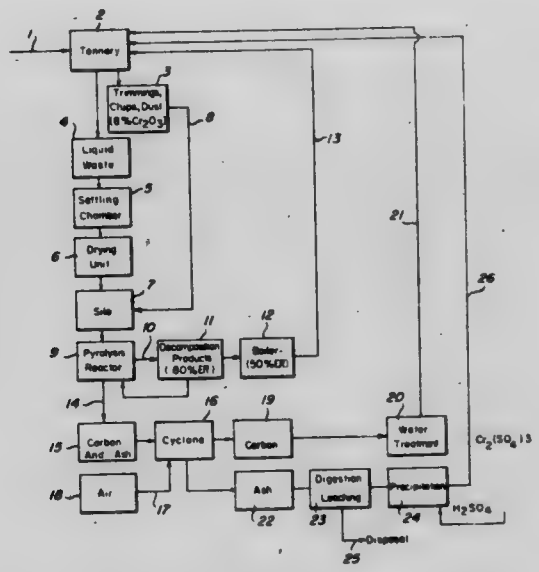
RECOVERY OF POTENTIAL ENERGY AND CHROMIUM VALUES FROM LEATHER TANNERY WASTES

H. S. Muralidhara, Fairfax, Va., assignor to Systems Consultants, Inc., D.C.

Continuation-in-part of Ser. No. 31,847, Apr. 20, 1979, abandoned. This application Feb. 3, 1981, Ser. No. 231,053

Int. Cl.[3] C01G *37/08*

U.S. Cl. 8—94.27 13 Claims



13. In a process for tanning leather with a chromium-containing compound whereby chromium compound containing liquid and solid leather waste materials are produced as by-products, the improvement comprising:

(a) de-watering and substantially drying said liquid tannery waste,

(b) combining said de-watered and dried liquid tannery waste with said solid tannery waste,

(c) pyrolyzing said combined wastes in a pyrolysis zone at a temperature of from about 500° F. to about 932° F. in the absence of an amount of gaseous oxygen substantially above about 10% to produce a burnable fuel product comprising gases and liquids and a substantially solid residue containing chromium in a +3 valence state as an organic chromium complex soluble in an about 1 M sulfuric acid solution,

(d) separating said burnable fuel product from said chromium-containing residue,

(e) recovering chromium from said residue by leaching with an about 1 M sulfuric acid solution,

(f) burning a portion of said burnable fuel product to supply heat to said pyrolysis zone,

(g) burning a portion of said burnable fuel product in a boiler to produce hot water and/or steam, and

(h) recycling said recovered chromium to said tanning step.

4,332,585

SYNTHETIC FUR AND PROCESS FOR PREPARATION THEREOF

Norihiro Minemura, Takatsuki; Manabu Toyao, Ibaraki; Tsukasa Kobayashi, and Mikio Tashiro, both of Matsuyama, all of Japan, assignors to Teijin Limited, Osaka, Japan

Division of Ser. No. 129,667, Mar. 12, 1980, Pat. No. 4,316,924. This application Aug. 20, 1980, Ser. No. 179,830

Claims priority, application Japan, Mar. 26, 1979, 54-34216; Aug. 20, 1979, 54-104936; Sep. 26, 1979, 54-122528; Oct. 15, 1979, 54-131782; Jan. 24, 1980, 55-6291; Jan. 28, 1980, 55-7715; Feb. 4, 1980, 55-11430

Int. Cl.[3] D06M *9/04;* D06Q *1/02*

U.S. Cl. 8—114.6 8 Claims

1. A process for preparing a synthetic fur comprising applying a viscous treating liquid containing a solvent or hydrolyzing agent and having a viscosity of 1,000 to 15,000 C.P. to a raised surface of a fabric comprising relatively thick raised synthetic fibers, each having a transverse cross-section wherein at least one constricted part is formed, and relatively fine raised synthetic fibers, each having a rate of dissolution in the solvent or of hydrolysis with the hydrolyzing agent higher than that of said relatively thick raised synthetic fibers, to produce raised fibers different in length.

4,332,586

NOVEL REACTANTS FOR CROSSLINKING TEXTILE FABRICS

Bernard F. North, Rock Hill, S.C., assignor to Sun Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 207,247, Nov. 17, 1980, Pat. No. 4,285,690, which is a continuation-in-part of Ser. No. 92,630, Nov. 8, 1979, abandoned. This application May 15, 1981, Ser. No. 264,017

Int. Cl.[3] D06M *13/34*

U.S. Cl. 8—186 5 Claims

1. A reactant for imparting permanent press properties to a textile containing cellulose fibers which comprises the alkylated product of the reaction of about 1.2–2.0 moles of glyoxal and about 1 mole of at least one cyclic urea.

4,332,587

COLORANT PREPARATIONS, A PROCESS FOR THEIR PRODUCTION AND THEIR USE FOR COLORING PLASTICS

Michael Kressner, Leichlingen; Joachim Kolbe, Leverkusen; Fritz Bremer, Leverkusen; Georg Pape, Leverkusen; Karlheinz Wolf, Leverkusen, and Ferdinand Kümmeler, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 28, 1981, Ser. No. 229,049

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1980, 3005908

Int. Cl.[3] D06P *3/00, 3/79;* C08K *5/10;* C08J *3/20*

U.S. Cl. 8—506 10 Claims

1. A colorant preparation comprising:

(A) a colorant which is sparingly soluble in water in an amount of 5–70% by weight;

(B) a plasticiser based on an ester in an amount of 30–95% by weight;

(C) an ethoxylated castor oil in the amount of 0.1–10% by weight, the weights of components (A), (B) and (C) being based upon the total quantity of components (A), (B) and (C).

8. Process for the production of a preparation according to claim 1, characterised in that a colorant which is sparingly soluble or insoluble in water, a plasticiser based on an ester, and a reaction product of a fatty acid ester of a polyhydric alcohol and ethylene oxide are mixed in wet comminution units in a manner known per se.

4,332,588

DISPERSE DYE STABLE TO DYEING, AND ITS USE FOR DYEING AND PRINTING SYNTHETIC AND SEMI-SYNTHETIC FIBRE MATERIALS

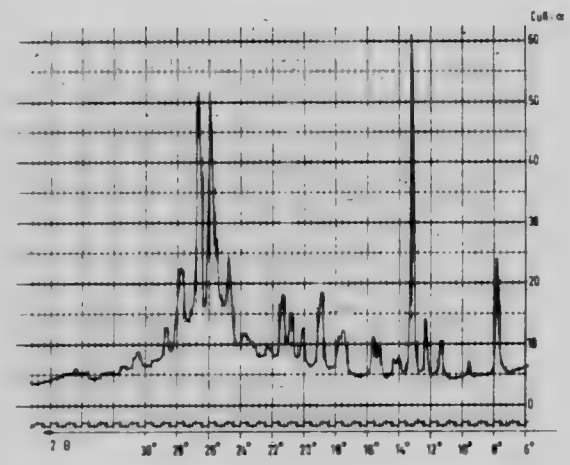
Peter Eugster, Arlesheim, and Stefan Koller, Ramlinsburg, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 31, 1980, Ser. No. 221,597

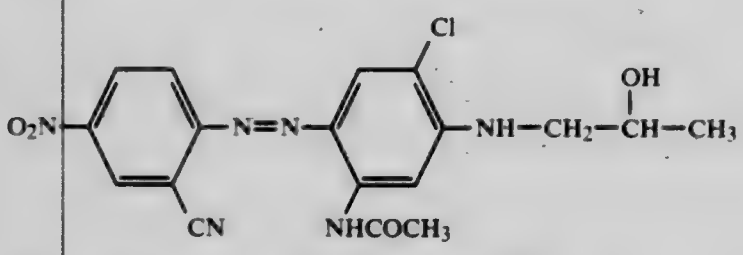
Claims priority, application Switzerland, Jan. 11, 1980, 212/80

Int. Cl.[3] D06P *67/02;* C09B *27/00*

U.S. Cl. 8—526 6 Claims



1. A modification of the dye of the formula



which modification is stable to dyeing and is characterised by the X-ray diffraction pattern (CuK-α-radiation) with the characteristic reflexes shown in FIG. 1, and by the d values of the interplanar spacings, calculated from the diffraction pattern:

d [A]: 11.5 (s), 6.8 (vs), 4.71 (s), 4.17 (s), 3.60 (s), 3.49 (s), 3.44 (vs), 3.34 (vs) and 3.21 (s).

4,332,589

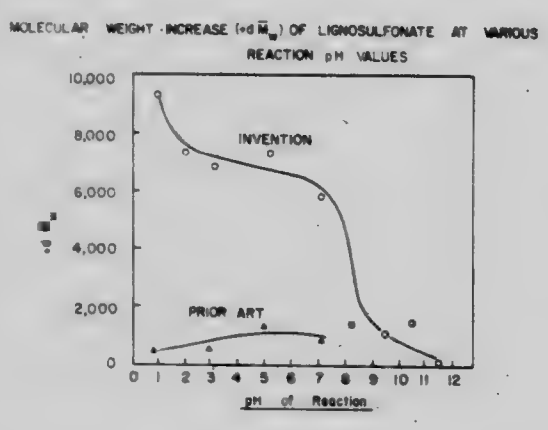
METHOD FOR POLYMERIZATION OF LIGNOSULFONATES

Stephen Y. Lin, Wausau, Wis., assignor to American Can Company, Greenwich, Conn.

Filed Nov. 24, 1980, Ser. No. 209,478

Int. Cl.[3] C09B *67/00;* C07G *1/00*

U.S. Cl. 8—557 20 Claims



1. A method for polymerizing lignosulfonate materials which comprises:

(1) reacting a mixture of a lignosulfonate and formaldehyde while maintaining said reaction mixture under alkaline conditions for a period sufficient to form a methylolated lignosulfonate; and

(2) effecting condensation of said methylolated lignosulfonate having a solids concentration from 10 to 55 percent under neutral or acidic conditions for a period sufficient to produce a fluid lignosulfonate of increased molecular weight.

4,332,590

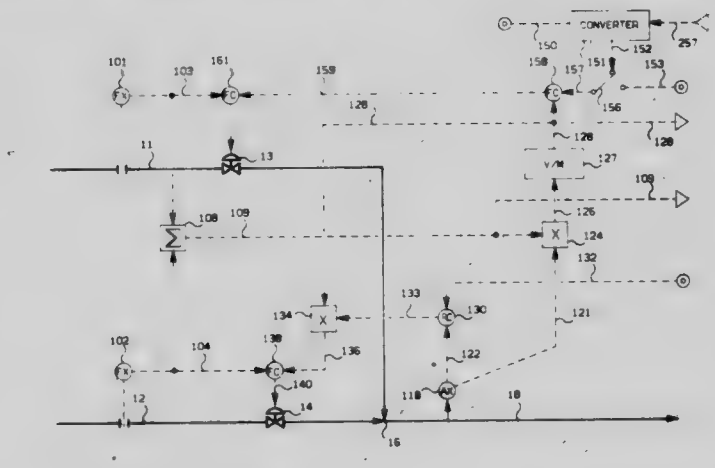
REACTOR CONTROL

Dexter E. Smith, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Feb. 20, 1981, Ser. No. 236,345

Int. Cl.[3] G05D *11/02;* C07B *1/00*

U.S. Cl. 23—230 A 16 Claims



9. A method comprising:

providing a first stream containing a first reactant material,

providing a second stream containing a second reactor material,

combining said first stream and said second stream to form a fresh feed stream,

delivering said fresh feed stream to a reactor system,

removing a product-containing stream from said reactor system,

generating a first analysis signal representative of the amount of said first reactant material in said fresh feed stream,

generating a second analysis signal representative of the amount of said first reactant material in said product-containing stream,

generating a fresh feed flow signal representative of the total combined flow of said first stream and said second stream,

generating a process conversion signal, representative of the proportion of said first reactor material converted to product within said reactor system, in response to said first analysis signal, said second analysis signal and said fresh feed flow signal

generating a first reactant flow signal, representative of the flow of said first reactor material to said reactor system, in response to said first analysis signal and said fresh feed flow signal, and

controlling the flow rate of said first stream in response to said process conversion signal, said first reactant flow signal and a production rate set point signal representative of a preselected rate at which product material is to be produced from said first and second reaction materials within said reactor system.

4,332,591

ANALYTICAL METHOD AND APPARATUS FOR THE DETERMINATION OF TOTAL NITROGEN CONTENTS IN AQUEOUS SYSTEMS

Naobumi Oi, Kyoto; Tadamasa Itoh, and Yoshiaki Yasumasa, both of Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

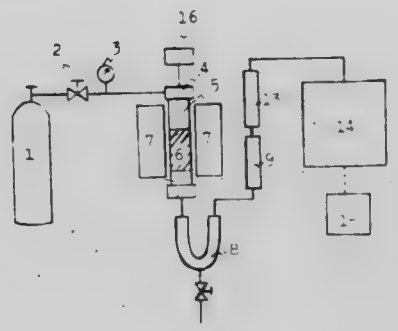
Filed Dec. 29, 1978, Ser. No. 974,540

Claims priority, application Japan, Jan. 19, 1978, 53/5066; Jan. 31, 1978, 53/10243

Int. Cl.³ G01N *31/12*

U.S. Cl. 23—230 PC

4 Claims



1. An analytical method for the determination of the total nitrogen content in an aqueous system, which comprises:

(1) introducing a sample aqueous solution together with an inert gas, containing substantially no nitrogen, and carbon monoxide as a carrier gas through a reaction tube, which is packed with a decomposition catalyst, and which is maintained at a temperature of 700° to 1200° C.;

(2) passing the resulting gaseous mixture through a condenser, thereby condensing and removing water contained in the gaseous mixture;

(3) passing the gaseous mixture through a moisture-absorbing tube;

(4) passing the resulting gas through a low temperature reaction tube, which is packed with an oxidizing agent or a reducing agent or both and which is maintained at a temperature of 300° to 700° C.;

(5) passing the obtained gas mixture through a carbon dioxide-absorbing tube;

(6) sending the gas mixture coming out of the carbon dioxide-absorbing tube to a mass spectrometer; and

(7) measuring the nitrogen content of the gas mixture with the mass spectrometer.

4,332,592

PROCESS FOR CONTINUOUS CRYSTALLIZATION

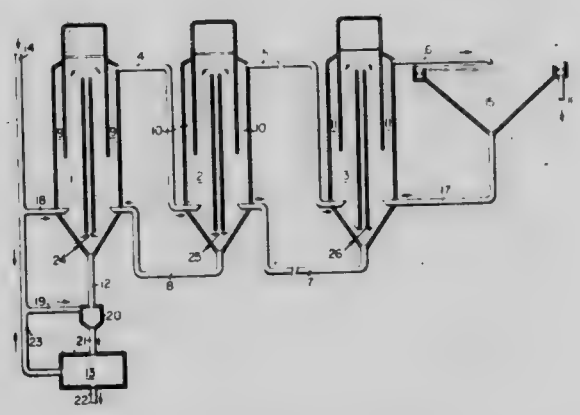
Tore B. Müller, Blomsterveien 30, Raelingen, 2000 Lillestrøm, Norway

Division of Ser. No. 852,514, Nov. 17, 1977, abandoned. This application May 8, 1979, Ser. No. 37,321

Int. Cl.³ B01D *9/02*

U.S. Cl. 23—301

7 Claims



1. A process for the continuous crystallization of at least one crystallizable material from a solution using a series of crystallization tanks, the process including the steps of

(a) feeding a feed solution containing at least one crystallizable material to a first crystallization tank in the series;

(b) initiating a partial crystallization of said feed solution in said first crystallization tank to form a suspension;

(c) classifying the suspension in said first tank to obtain a suspension fraction containing finer crystals and a suspension fraction containing a mixture of both finer and coarser crystals;

(d) passing said suspension fraction containing finer crystals to at least one additional crystallization tank in the series;

(e) initiating a further crystallization of said crystallizable material in the suspension in each of said additional crystallization tanks;

(f) classifying the suspension in each of said additional crystallization tanks to obtain a suspension fraction containing finer crystals and a suspension fraction containing a mixture of both finer and coarser crystals;

(g) recirculating the suspension fraction containing a mixture of both finer and coarser crystals from each of said additional crystallization tanks to the previous crystallization tank;

(h) passing the suspension fraction containing finer crystals from each additional crystallization tank but the last crystallization tank to a subsequent crystallization tank in the series;

(i) Passing said suspension fraction containing finer crystals from the last crystallization tank to a separator to obtain a mother liquor fraction as discharge and a recovered, concentrated fraction;

(j) returning said recovered, concentrated fraction to the last tank in the series;

(k) passing descending coarse crystals isolated by settling out from said suspension fraction containing a mixture of both finer and coarser crystals in said first crystallization tank in countercurrent to a liquid solution arriving from a separator system wherein coarse crystals are separated from a suspension to form product crystals leaving a residual solution which is mixed with at least a portion of the feed solution containing at least one crystallizable material to form said liquid solution and for recirculation to the separator system.

4,332,593

PROCESS FOR BENEFICIATING COAL

Lester E. Burgess, Springfield; Karl M. Fox, Swarthmore; Phillip E. McGarry, Palmerton, and David E. Herman, Jim Thorpe, all of Pa., assignors to Gulf & Western Industries, Inc., New York, N.Y.

Filed Jan. 22, 1980, Ser. No. 114,357

Int. Cl.³ C10L *1/32*

U.S. Cl. 44—51

11 Claims

1. In a process for beneficiation of coal which comprises chemically grafting a hydrophobic and oilophilic polymer surface onto pulverized coal in aqueous slurry and thereafter separating ash which remains preferentially water-wetted from the polymer surface treated coal particles by drawing off water-wetted ash phase and recovering the hydrophobic coal-oil phase: the improvement which comprises subjecting the recovered hydrophobic coal-oil phase to a high shear intermixing zone where the coal phase and a wash water phase are intermixed in a high shear zone and ejected under shearing pressures in intimate admixture of commingled droplets of coal-oil phase and wash water phase through and into impinging contacts with the surface and mass of a receiving mass of wash water, whereby ash particles priorly present in the coal-oil phase are forced into intimate contact with water; the preferentially water-wetted ash being thereby released into the water phase and removed with said water phase, the hydrophobic coal-oil mass floats upon and is separated from the water phase, physically held water is removed from the coal-

oil phase by mechanical means and a beneficiated "dry" coal-oil product recovered.

4,332,594

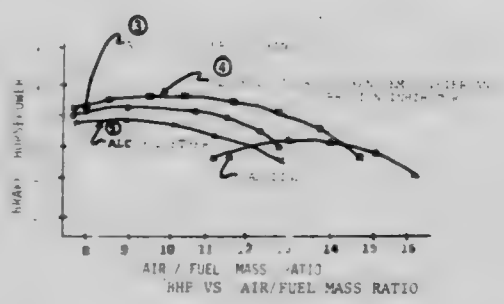
FUELS FOR INTERNAL COMBUSTION ENGINES

David M. Zimmerman, Detroit, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Continuation-in-part of Ser. No. 114,250, Jan. 22, 1980, abandoned. This application Apr. 13, 1981, Ser. No. 253,493

Int. Cl.³ C10L *1/18*

U.S. Cl. 44—53 **11 Claims**



1. An oxygenated hydrocarbon based fuel comprising a primary aliphatic alcohol, an ether of the formula ROR wherein R is an alkyl group containing up to about 8 carbon atoms, and a liquid silicone polymer.

4,332,595

ETHER AMINE DETERGENT AND MOTOR FUEL COMPOSITION CONTAINING SAME

Sheldon Herbstman, Spring Valley; Joseph B. Biasotti, Lagrangeville, both of N.Y., and Michael E. Brennan, Austin, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Dec. 5, 1980, Ser. No. 213,428

Int. Cl.³ C10L *1/22*

U.S. Cl. 44—72 **16 Claims**

1. A compound having the following formula:

$$R—[O—CH_2—CH(CH_3)]_y—NH—(CH_2)_3—NH_2$$

where R is a hydrocarbyl radical having from 8 to 18 carbon atoms and y is about 2 to 6.

4,332,596

ENERGY EFFICIENT SCRUBBING OF SULFUR COMPOUNDS FROM MOIST GASEOUS MIXTURES

Gerhard Ranke, Pöcking, and Friedrich Siegert, Wolfratshausen, both of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed Jun. 13, 1980, Ser. No. 159,311

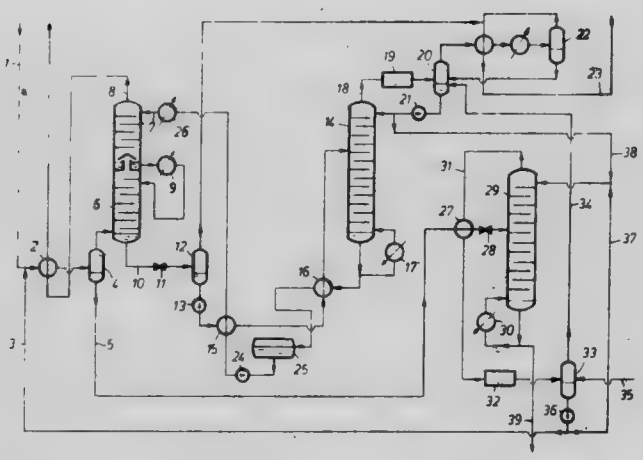
Claims priority, application Fed. Rep. of Germany, Jun. 15, 1979, 2924162

Int. Cl.³ B01D *53/14*

U.S. Cl. 55—18 **12 Claims**

1. In a process for the selective removal of a sulfur compound component comprising hydrogen sulfide from moist gaseous mixtures, the process comprising scrubbing the gaseous mixture at a temperature below 0° C., with a scrubbing liquid consisting essentially of toluene or xylene or other aromatics, prior to said scrubbing stage contacting the moist gaseous mixture with liquid methanol before the gaseous mixture is cooled to the scrubbing temperature, subjecting the scrubbing liquid containing absorbed sulfur compounds, after the scrubbing, to a thermal regeneration stage, and recycling resultant thermally regenerated scrubbing agent to the scrubbing stage, the improvement comprising: maintaining a methanol concentration of above 2% to about 30% by weight in the scrubbing liquid to be recycled from the thermal regeneration stage to the scrubbing stage.

11. In a process for the selective removal of a sulfur compound component comprising hydrogen sulfide from moist gaseous mixtures, the process comprising contacting the moist gaseous mixture with liquid methanol, subsequently scrubbing the gaseous mixture at a temperature below 0° C., with a scrubbing liquid consisting essentially of toluene, xylene or other aromatics, subjecting the scrubbing liquid containing absorbed sulfur compounds, after the scrubbing of the gaseous mixture, to a thermal regeneration stage, and recycling resultant thermally regenerated scrubbing agent to the scrubbing stage, the improvement comprising maintaining a methanol concentration of above 2% to about 30% by weight in the scrubbing



liquid to be recycled from the thermal regeneration stage to the scrubbing stage, said maintaining step comprising monitoring the methanol concentration of the regenerated scrubbing liquid withdrawn from said thermal regeneration stage, and adding make-up methanol when the concentration of methanol in the regenerated scrubbing liquid falls outside the specified concentration, whereby the thermal regeneration stage can be conducted with the sump thereof at a considerably lower temperature than with substantially pure aromatics, and with no substantial loss of selectivity of the scrubbing liquid to sulfur compounds in the scrubbing stage.

4,332,597

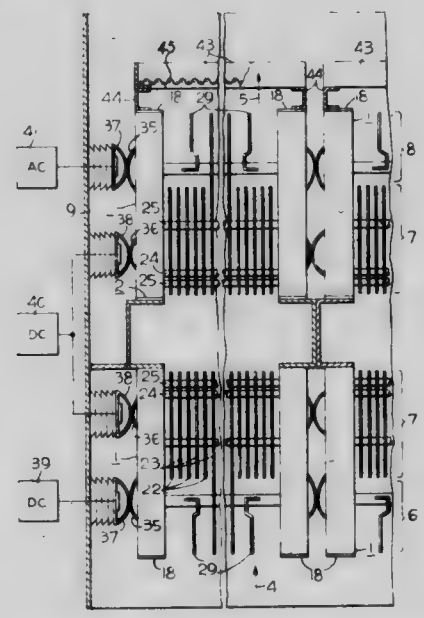
PLATE ELECTRODE ARRANGEMENT FOR AN ELECTROSTATIC PRECIPITATOR

James E. Wooldridge, Louisville, Ky., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jan. 2, 1981, Ser. No. 222,040

Int. Cl.³ B03C *3/08, 3/12*

U.S. Cl. 55—124 **7 Claims**



1. In an electrical precipitator having a housing including an upstream gas inlet and downstream gas outlet for removing particulate materials from a gas stream flowing through the housing, the improvement comprising:

mounting frame means secured across the housing between the inlet and outlet, said frame means including a pair of spaced support beams spanning the interior of the housing between the inlet and outlet to form an opening for the gas stream flowing through the housing;

first and second interchangeable essentially identical electrode plate assemblies;

each of said plate assemblies including a discharge zone and a collector zone, a plurality of spaced discharge plates disposed in the collector zone, a set of collecting plates alternately arranged with said spaced plates in the collector zone and having portions extending into the discharge zone, spaced discharge electrode members alternately disposed in the discharge zone with those portions of the collecting plates extending into the discharge zone, and means supporting the discharge plates, collecting plates and electrode members in electrically insulated relationship with one another;

said plate assemblies being supported in registry with said opening by said beams, said first plate assembly being supported on the one side of said beams and said second plate assembly being supported in an opposing fashion on the other side of said beams whereby the discharge zone of said first plate assembly is on the one side of the plate assemblies and the discharge zone of said second plate assembly is on the other side of the plate assemblies;

and

means for energizing said plate assemblies including a first DC source connected to the discharge electrode members of said first plate assembly, a second DC source connected to the discharge plates of both of said first and second plate assemblies, and an AC source connected to the discharge electrode members of said second plate assembly.

4,332,598

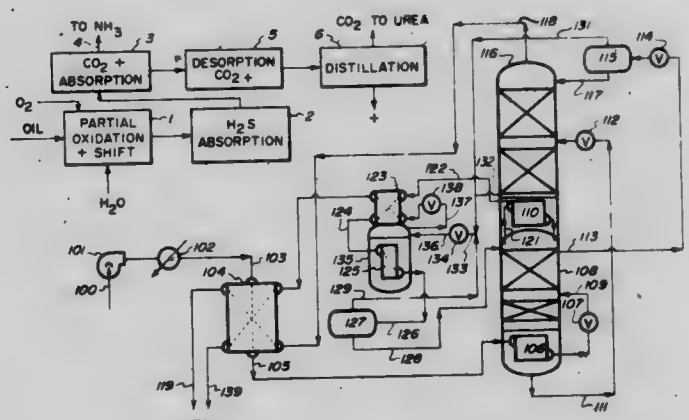
PROCESS FOR TREATING INDUSTRIAL GAS STREAM

Ioannis A. Antonas, Gillingham; Rodney J. Allam, Guildford, both of England, and William P. Hegarty, Wescosville, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Nov. 13, 1980, Ser. No. 206,731

Int. Cl.³ F25J *3/02*

U.S. Cl. 62—17 **8 Claims**



1. A method for producing a hydrogen stream suitable for use in ammonia synthesis and a carbon dioxide stream for use in urea synthesis from a gas feedstock containing in mole percent from 45–70% hydrogen, 25–45% carbon dioxide, 0.5–1.5% hydrogen sulfide, 0.001–0.5% carbonyl sulfide and the balance comprising carbon monoxide, argon, methane and nitrogen which comprises the steps:

(a) physically scrubbing said gas feedstock with a carbon dioxide laden solvent in an initial scrubbing zone under conditions effective for removing substantially all of the hydrogen sulfide from said feedstock but insufficient for absorbing more than 70% of the carbonyl sulfide component thereby forming a first treated feedstock stream substantially free of hydrogen sulfide and an absorbent stream rich in hydrogen sulfide;

(b) physically scrubbing said first treated feedstock stream substantially free of hydrogen sulfide in a second scrubbing zone under conditions effective for removing substantially all of the carbon dioxide and carbonyl sulfide therefrom thereby forming a hydrogen stream suitable for ammonia synthesis, and an absorbent stream laden with carbon dioxide and containing the major proportion of the residual carbonyl sulfide;

(c) desorbing the absorbent stream laden with carbon dioxide under conditions for forming a gas stream of carbon dioxide, contaminated with methane, carbon monoxide, hydrogen, carbonyl sulfide and hydrogen sulfide; and

(d) fractionating the carbon dioxide stream containing hydrogen, carbon monoxide, methane, carbonyl sulfide and residual amounts of hydrogen sulfide under conditions for removing substantially all of said residual amounts of hydrogen, carbon monoxide and methane to provide a carbon dioxide stream containing carbonyl sulfide and reduced amounts of hydrogen, carbon monoxide and methane.

4,332,599

CONTINUOUS PACKED BED WASH COLUMN

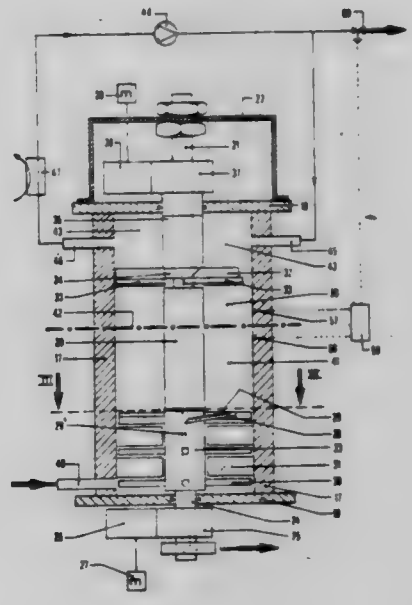
Henricus A. C. Thijssen, Son, and Bernardus G. M. van der Malen, Hagestein, both of Netherlands, assignors to Douwe Egberts Koninklijke, Tabaksfabriek-Koffiebranderijen - Theehandel B.V., Utrecht, Netherlands

Continuation-in-part of Ser. No. 866,169, Dec. 30, 1977. This application Jun. 8, 1979, Ser. No. 46,758

Claims priority, application United Kingdom, Jan. 12, 1977, 1086/77; Jun. 23, 1978, 27792/78

Int. Cl.³ B01D *9/02*

U.S. Cl. 62—542 **4 Claims**



1. A process for separating the ice crystals contained in a slurry of an aqueous solution and ice crystals from said aqueous solution comprising the steps of:

continuously introducing said slurry into a first annular space of an apparatus;

continuously withdrawing part of said solution through perforations in the surface of tilted vanes attached to a shaft coaxial with said first annular space of said apparatus to produce a packed bed of ice crystals having a homogeneous porosity throughout its cross section;

rotating said vanes to cause said packed bed to move continuously through a second annular space, said second space containing a stagnant layer of said aqueous solution in a first section and a substantially stagnant layer of wash liquid in a second section contiguous to said first section, thus creating a static washfront lying in a straight plane

perpendicular to translatory movement of said packed bed of ice crystals; and

continuously disintegrating said continuously advancing packed bed and feeding out the product of that disintegration.

4,332,600

METHOD FOR MAKING SILICA FIBERS

Arno Wegerhoff, Wörth am Main; Hans Zengel, Kleinwallstadt; Walter Brodowski, Amorbach; Heinz Beck, Düren; Ernst Seeberger, Düren; Gerhard Steenken, Düren, and Karlheinz Hillermeider, Wuppertal, all of Fed. Rep. of Germany, assignors to Akzo N.V., Arnhem, Netherlands

Filed Jan. 7, 1980, Ser. No. 110,002

Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2900990; Jan. 12, 1979, 2900991; Nov. 7, 1979, 2944864

Int. Cl.[3] **C03C** *25/06, 15/00;* **B44C** *1/22*

U.S. Cl. 65—2 **23 Claims**

1. In a process for the production of silica fibers of the type in which alkali water glass is dry spun into water-containing alkali silicate fibers which are then contacted with solutions containing hydrogen ions for transforming into silica fibers, the improvement comprising dry-spinning alkali water glass free from non-alkaline compounds, having a molar ratio of alkaline oxide to silicon dioxide of from about 1:3 to 1:1.9 and a viscosity of about 10 to 700 Pa measured at 30° C., at about 10° to 50° C. in a drying funnel of a temperature of more than 100° C. at a discharge velocity of minimum 5 m/min; and contacting the water-containing alkali silicate fibers with acid and/or salt solutions containing hydrogen ions for transforming the alkali silicate fibers into silica fibers.

4,332,601

METHOD FOR MAKING SILICA FIBERS

Arno Wegerhoff, Wörth am Main; Hans Zengel, Kleinwallstadt; Walter Brodowski, Amorbach; Heinz Beck, Düren; Ernst Seeberger, Düren; Gerhard Steenken, Düren, and Karlheinz Hillermeider, Wuppertal, all of Fed. Rep. of Germany, assignors to Akzo N.V., Arnhem, Netherlands

Division of Ser. No. 110,002, Jan. 7, 1980. This application Jun. 23, 1980, Ser. No. 162,400

Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2900990; Jan. 12, 1979, 2900991; Nov. 7, 1979, 2944864

Int. Cl.[3] **C03C** *25/06, 15/00;* **B44C** *1/22*

U.S. Cl. 65—2 **10 Claims**

1. In a process for the production of water-containing water glass fibers of the type in which alkali water glass is dry spun into water-containing fibers, the improvement comprising dry-spinning water glass free from non-alkaline compounds, having a molar ratio of alkaline oxide to silicon dioxide of from about 1:3 to 1:1.9 and a viscosity of about 10 to 700 Pa measured at 30° C., at about 10° to 50° C. in a drying funnel of a temperature of more than 100° C., at a discharge velocity of minimum 5 m/min.

4,332,602

FIN COOLER FOR GLASS FIBER FORMER

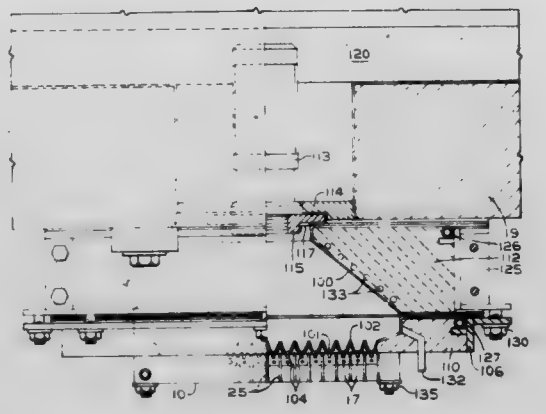
Thomas H. Jensen, Murrysville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 2, 1980, Ser. No. 193,195

Int. Cl.[3] **C03B** *37/025*

U.S. Cl. 65—12 **6 Claims**

1. A fin cooler for a bushing used in a glass fiber forming assembly in which the bushing is provided with a tip plate having a plurality of glass fibers forming orifices, the orifices being arranged in a spaced array, said fin cooler being positionable below the bushing to cool the glass fibers emanating from the orifices of the bushing; said fin cooler comprising at least a first manifold, a plurality of spaced elongated cooling fins, each cooling fin having a first end secured to said manifold and extending away from said manifold, said cooling fins being parallel to each other and adjacent said glass fiber forming tips when said fin cooler is positioned adjacent the bushing; a conduit in said manifold for flowing liquid coolant through said manifold to remove heat from said fins; a coolant gas distribution chamber in said manifold, said chamber being provided with a plurality of openings along its length, said



openings being positioned so that gas fed to said chamber flows from the chamber through the orifices to the parallel fins and means on said fins for contacting the tip plate of the bushing to support said tip plate.

4,332,603

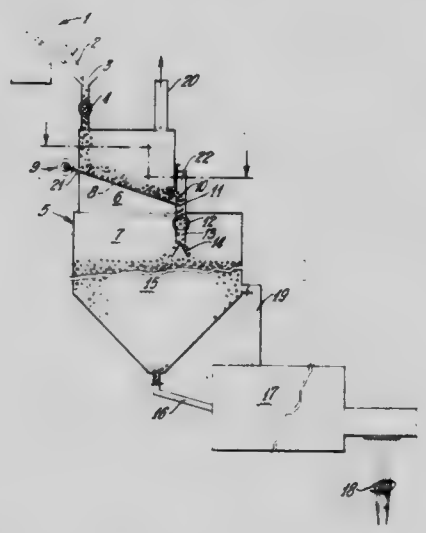
METHOD FOR PREDRYING PELLETIZED MATERIAL

Charles M. Hohman, Granville; Mark A. Propster, Gahanna, and Stephen Seng, Frazeysburg, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 15, 1980, Ser. No. 216,465

Int. Cl.[3] **C03B** *3/00, 5/00*

U.S. Cl. 65—27 **6 Claims**



1. A method of producing molten glass which comprises:

a. passing wet pellets into a predrying zone;

b. passing said pellets angularly downward across said predrying zone with an oscillating motion and contacting said pellets with a gas stream to predry said pellets;

c. passing the predried pellets into a preheating zone and contacting said pellets with said gas stream to preheat said pellets; and,

d. melting the preheated pellets to form molten glass.

4,332,604

STRENGTH IMPROVEMENT OF GLASS BATCH PELLETS

Mark A. Propster, Gahanna, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 22, 1980, Ser. No. 219,411

Int. Cl.[3] **C03B** *1/00*

U.S. Cl. 65—27 **9 Claims**

1. A method of processing glass batch which comprises:

(a) contacting particulate glass batch comprising uncalcined

colemanite with an aqueous solution containing an additive selected from the group consisting of sodium carbonate, boric acid and sodium hydroxide and pelletizing said batch to produce wet pellets having said additive incorporated therein in an amount effective to present the disintegration of said pellets at 1100° F. (593° C.); and,

(b) drying the wet pellets at a temperature above 770° F. (410° C.).

4,332,605

THERMALLY TREATING ARTICLES WITH PARTICULATE MATERIAL AND APPARATUS THEREFOR

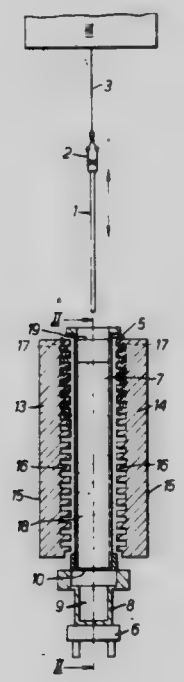
Donald C. Wright, and Gordon T. Simpkin, both of Lancashire, England, assignors to Pilkington Brothers Limited, England

Filed Oct. 20, 1980, Ser. No. 198,617

Claims priority, application United Kingdom, Oct. 23, 1979, 7936683

Int. Cl.³ C03B *27/00*

U.S. Cl. 65—114 **17 Claims**



1. A method of thermally toughening a glass sheet, comprising:

(a) employing linear induction means to generate in a treatment space a travelling electromagnetic field which travels linearly through the treatment space,

(b) subjecting a particulate material consisting of or containing permanently magnetized particles to the influence of said travelling electromagnetic field which is effective to sustain an agitated dispersion of said particulate material in said treatment space,

(c) heating a glass sheet to a temperature above its strain point,

(d) maintaining said dispersion of particulate material at a temperature such that the hot glass sheet is toughened when quenched in the dispersion, and

(e) quenching the hot glass sheet in the dispersion to toughen the sheet.

12. Apparatus for treating an article including means defining a treatment space for containing a particulate material, means for advancing the article into the treatment space, and linear induction means mounted so as to generate a travelling electromagnetic field which travels linearly through the treatment space and is of sufficient intensity to sustain in the treatment space an agitated dispersion of the particulate material which consists of or contains permanently magnetised particles.

4,332,606

WARE IDENTIFYING APPARATUS FOR GLASSWARE MACHINES AND THE LIKE

Edward B. Gardner, Bloomfield, Conn., assignor to Emhart Industries, Inc., Farmington, Conn.

Filed Oct. 27, 1980, Ser. No. 200,939

Int. Cl.³ C03B *9/40*

U.S. Cl. 65—158 **32 Claims**



1. In a ware forming machine having multiple sections producing a plurality of articles such as glass bottles or the like from a plurality of molds during each cycle of machine operation, all of the sections depositing the articles in series on an output conveyor, a ware identifying apparatus for selectively identifying in the series on the conveyor, articles formed in a particular section and mold during a particular cycle of the machine operation comprising:

a plurality of mold switches associated respectively with each of the plurality of molds in each section, each switch being selectively actuated to provide a ware signal indicative of an article produced from the associated mold during a particular cycle of operation;

pulse generating means operatively coupled with the ware forming machine and producing trains of pulse signals corresponding to the articles formed in the machine sections during multiple cycles of the machine operation;

section signal generating means operatively coupled with the ware forming machine for generating during each cycle of machine operation a sequence of section signals corresponding to the order of the articles from the sections on the conveyor;

first gating means associated with each of the molds of the machine and connected with both the pulse generating means and the section signal generating means for detecting a coincidence of the pulse signals and the sequenced section signals and generating a series of coincidence pulses for each series of articles from the molds of the respective sections;

signal delay means connected with the plurality of mold switches to receive the ware signals from the switches and produce signals delayed for different numbers of machine cycles after the respective switches are actuated, the number of cycles of delay for the respective signals corresponding with the movement of an article from the corresponding mold in a section to a given station along the conveyor; and

second gating means connected with the first gating means and the signal dealy means to receive the series of coincidence pulses and the delayed signals to generate a unique signal identifying an article produced in a particular mold during a particular cycle of operation at a time when the article reaches the given station along the conveyor.

4,332,607

OVERHEAD MECHANISM FOR FLAT GLASS FORMING TWEEL

Stephen J. Schultz, and Ronald R. Zito, both of Pittsburgh, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

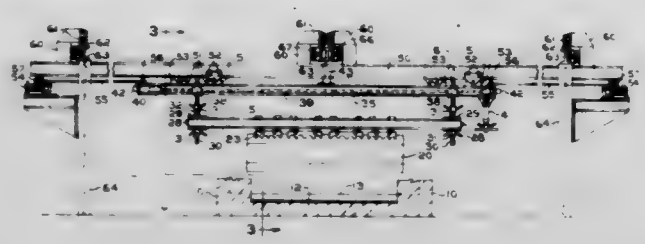
Filed Nov. 28, 1980, Ser. No. 211,166

Int. Cl.³ C03B *18/16*

U.S. Cl. 65—182.5 **6 Claims**

1. An apparatus for producing flat glass including a longitu-

dinally spaced melting furnace and forming chamber and a delivery section therebetween providing a path for a flow of molten glass in the longitudinal direction from the melting furnace into the forming chamber; tweel flow control means in the delivery section for controlling the flow of molten glass therethrough; a first support structure from which the tweel



means are suspended; elevator means over the delivery section for supporting the first support structure and the tweel means; carriage means above the delivery section for supporting the elevator means and for providing to the elevator means, first support structure, and tweel means mobility in a horizontal direction transverse to the longitudinal direction.

4,332,608

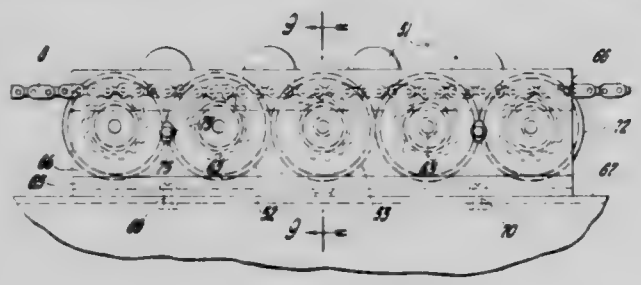
CHAIN DRIVE MECHANISM FOR EQUIPMENT FOR HEATING AND COOLING WORKPIECES

Donald E. Rhonehouse, Box 10, Rte. 1, Cecil, Ohio 45821

Continuation-in-part of Ser. No. 43,357, May 29, 1979, Pat. No. 4,297,121, and a continuation-in-part of Ser. No. 113,828, Jan. 21, 1980, Pat. No. 4,300,937. This application Jul. 25, 1980, Ser. No. 172,245

Int. Cl.³ C03B *35/18*

U.S. Cl. 65—348 **3 Claims**



1. A conveyor for a glass treating furnace comprising:
at least a pair of drive rolls on opposite sides of said furnace;
means rotatably supporting said pairs of drive rolls;
a heat resistant roller extending across said furnace;
said rolls comprising driving portions drivingly contacting said roller, and supportingly contacting said roller adjacent opposite ends of said roller with said roller being unsupported between opposing pairs of drive rolls;
said rolls including a flange extending above the point of contact between said rolls and said roller and forming a restraining shield for limiting movement of said roller longitudinally of its axis;
said rolls further comprising a driven section extending outwardly from said flange and outwardly with respect to said roller;
said driven section being of a diameter substantially less than said flange;
said driven section being shielded from the roller by said flange; and
driving means contacting said driven section and operable to drive said rolls to effect rotation of said roller.

4,332,609

FERTILIZING PLANTS WITH POLYBORATES

Louis E. Ott, Oswego, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Mar. 5, 1981, Ser. No. 240,888

Int. Cl.³ C05G *1/00*

U.S. Cl. 71—27 **13 Claims**

1. A method of fertilizing plants which comprises the application of a polyborate compound which comprises the reaction product of a boric acid compound with at least one amine selected from the group consisting of alkanolamines and aliphatic polyamines.

7. A fertilizer composition comprising: (a) a polyborate compound which comprises the reaction product of a boric acid compound with at least one amine selected from the group consisting of alkanolamines and aliphatic polyamines; and (b) another plant nutrient compound.

4,332,610

UREA FORMALDEHYDE DISPERSIONS MODIFIED WITH HIGHER ALDEHYDES

Paul Sartoretto, North Brunswick, and Kak-Yuen Tao, Highland Park, both of N.J., assignors to W. A. Cleary Chemical Corporation, Somerset, N.J.

Division of Ser. No. 143,367, Apr. 24, 1980, Pat. No. 4,298,512. This application Jun. 3, 1981, Ser. No. 269,773

Int. Cl.³ C05C *9/00*

U.S. Cl. 71—28 **3 Claims**

1. A method of fertilizing soil which comprises distributing over said soil by spraying means a dispersion of a urea aldehyde polymer prepared by a process which comprises:
(a) reacting urea with formaldehyde and a higher aldehyde having from 2 to 4 carbon atoms, wherein the mole ratio of formaldehyde to said higher aldehyde is at least 2:1, in aqueous medium in the presence of an acid catalyst to form a dispersion of urea aldehyde polymer in said aqueous medium; and
(b) neutralizing said dispersion.

4,332,611

HERBICIDAL SULFONAMIDES

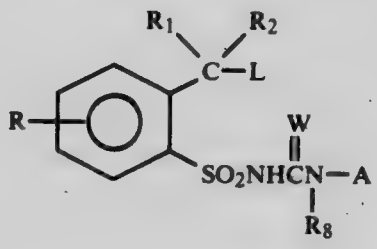
Wallace C. Petersen, Hockessin, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 168,352, Jul. 11, 1980, abandoned. This application May 12, 1981, Ser. No. 259,981

Int. Cl.³ A01N *43/54, 43/66*

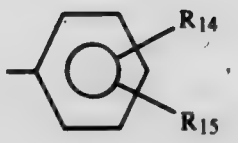
U.S. Cl. 71—92 **25 Claims**

1. A compound selected from

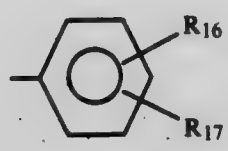


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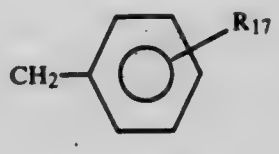
wherein
L is OH, $OC(O)R_{11}$, $OC(O)NHR_{12}$ or $OC(O)OR_{13}$;
R is H, F, Cl, Br, NO_2, CF_3, C_1–C_3 alkyl or C_1–C_3 alkoxy;
R_1 is H or C_1–C_4 alkyl;
R_2 is H or CH_3;
R_8 is H, CH_3 or OCH_3;
R_{11} is H, C_1–C_5 alkyl, C_2–C_3 alkenyl, C_2–C_3 alkynyl, C_3–C_4 cycloalkyl,



C_1–C_4 alkyl substituted with 1–4 substituents selected from 0–3 F, 0–3 Cl or 0–3 Br or C_2–C_3 alkenyl substituted with 1–3 Cl;
R_{12} is H, C_1–C_6 alkyl, C_3–C_4 alkenyl, C_5–C_6 cycloalkyl,

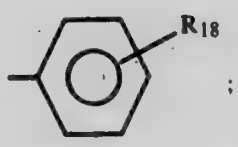


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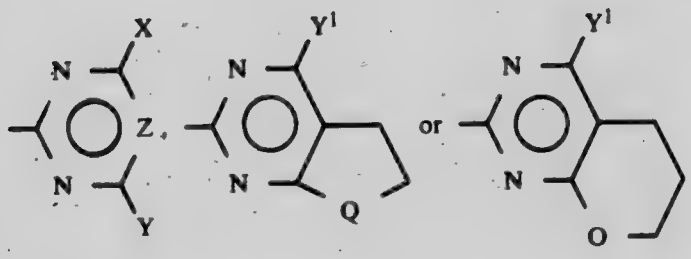
or

C_5–C_6 cycloalkyl substituted with CH_3;
R_{13} is C_1–C_6 alkyl or



;

R_{14} and R_{15} are independently H, NO_2, CH_3, Cl or OCH_3;
R_{16} is H, F, Cl, Br, C_1–C_3 alkyl, NO_2, CN, SO_2CH_3, OCH_3, SCH_3 or CF_3;
R_{17} is H, Cl or C_1–C_3 alkyl;
R_{18} is H, CH_3 or Cl;
A is



W is O or S;
X is H, Cl, Br, CH_3, CH_2CH_3, C_1–C_3 alkoxy, CF_3, SCH_3 or CH_2OCH_3;
Y is CH_3 or OCH_3;
Z is N, CH, CCl, CBr, CCN, CCH_3, CCH_2CH_3, CCH_2CH_2Cl or $CCH_2CH{=}CH_2$;
Y^1 is H, CH_3, OCH_3 or OCH_2CH_3; and
Q is O or CH_2;
and their agriculturally suitable salts; provided that when W is S, then R_8 is H.

14. A composition for the control of undesirable vegetation consisting essentially of a compound of claim **1** and at least one of (a) a surface-active agent and (b) a solid or liquid diluent.

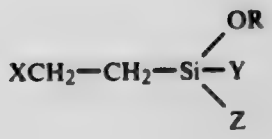
4,332,612

PLANT GROWTH PROMOTING COMPOSITION

Michael J. Brown, Randolph, N.J., assignor to GAF Corporation, New York, N.Y.

Filed Jul. 2, 1980, Ser. No. 165,446
Int. Cl.[3] **A01N** *43/36, 55/00, 31/00*
U.S. Cl. 71—95 **15 Claims**

1. A plant growth promoting composition consisting essentially of an effective amount of the mixture of N-methylpyrrolidone, and a silane having the formula:



wherein
X is a chlorine, bromine or iodine atom;
Y and Z are each independently —OR; halogen; alkenyl of 3 to 8 carbon atoms or alkyl of 1 to 12 carbon atoms, both optionally substituted with halogen; and
R is hydrogen; alkenyl of 2 to 8 carbon atoms optionally substituted with halogen; alkyl of 1 to 12 carbon atoms optionally substituted with halogen, phenoxy or lower alkoxy;
benzyl or phenyl, both optionally substituted with halogen, lower alkyl or lower alkoxy, said N-heterocyclic amide and silane being combined in a mole ratio between about 0.05:1 and about 5:1.

4,332,613

SOLUTIONS OF BROMOXYNIL AND IOXYNIL

James E. Esposito, Chalfont, Pa., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 26, 1979, Ser. No. 106,739
Int. Cl.[3] **A01N** *37/34*
U.S. Cl. 71—105 **12 Claims**

1. A herbicidal solution containing at least one ester selected from the group consisting of 2,6-dibromo-4-cyanophenyl n-octanoate and 2,6-diiodo-4-cyanophenyl n-octanoate and at least one ester selected from the group consisting of 2,6-dibromo-4-cyanophenyl n-butyrate and 2,6-diiodo-4-cyanophenyl n-butyrate wherein from 20 mol. percent to 60 mole percent of such moiety is present as n-butyric acid ester and from 40 mol. percent to 80 mol percent is present as n-octanoic acid ester having from 200 g/L to 800 g/L of the 2,6-dihalo-4-cyanophenoxy moiety dissolved in a high aromatic content, petroleum-base oil, said solution having a crystallization temperature lower than that of a like solution containing a like concentration of 2,6-dihalo-4-cyanophenoxy moiety wherein such moiety is present as only one of 2,6-dihalo-4-cyanophenyl n-octanoate or 2,6-dihalo-4-cyanophenyl n-butyrate.

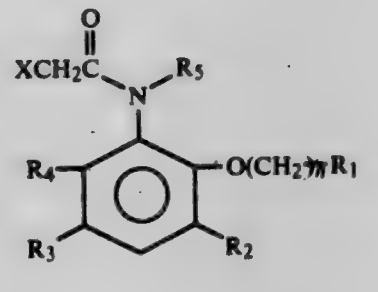
4,332,614

HERBICIDAL 2-HALOACETANTLIDES

Gerhard H. Alt, University City, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 25, 1980, Ser. No. 133,765
Int. Cl.[3] **A01N** *37/22;* **C07C** *103/34*
U.S. Cl. 71—118 **6 Claims**

1. A compound of the formula



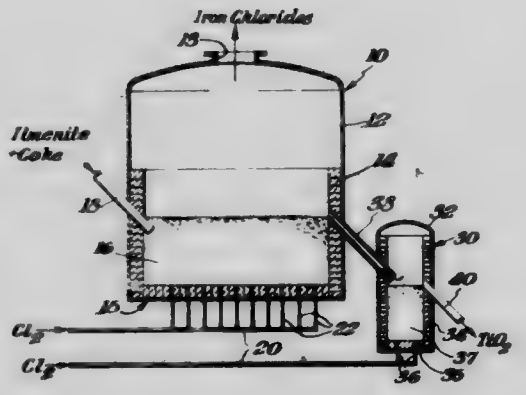
wherein
X is chloro, bromo or iodo,
R_1 is lower alkoxy,
R_2 and R_3 are independently hydrogen, lower alkyl or —CF_3,
R_4 is C_{1-10} alkyl,
R_5 is C_{2-8} alkoxyalkyl and
n is 1 or 2.

4,332,615

PROCESS FOR BENEFICIATING A TITANIFEROUS ORE

Wendell D. Dunn, Jr., Lead, S. Dak., assignor to Titanium Technology (Australia) Ltd., Sydney, Australia

Filed Jun. 29, 1981, Ser. No. 278,872
Int. Cl.[3] C22B *1/08, 1/10*
U.S. Cl. 75—1 TI 4 Claims



1. A process for beneficiation of a titaniferous ore to a polycrystalling rutile having a low iron oxide content without the loss of appreciable titanium values as titanium tetrachloride comprising continuously adding a mixture of a particulate, titaniferous ore and carbon to a first stage gas-solids reactor containing a preformed bed of a partially beneficiated ore comprising particulate titaniferous ore and 10 to 25%, by weight, particulate carbon, said bed having an iron oxide content of 5%, by weight, calculated as Fe_2O_3, said bed having a temperature of 900° to 1090° C., continuously injecting into the bed a gas selected from the group consisting of chlorine, chlorine and oxygen, chlorine and air, chlorine, oxygen and diluent gas, and chlorine, air and diluent gas, at a rate whereby in the first reactor the temperature is maintained, the bed is fluidized and iron oxide in the titaniferous ore is converted into iron chloride vapor, the iron content of the bed is maintained, and less than 2% of the chlorine values are converted to escaping $TiCl_4$; continuously transporting a portion of the bed of the first reactor to a second stage reactor at a rate which maintains constant bed depth in the first reactor, with the proviso that the ratio of the diameters of the first reactor and the second reactor is in the range of 10 to 1, said second reactor containing therein a bed of particulate partially beneficiated ore and carbon wherein the iron content of the ore is in the range of 0.1–1.0%, by weight, calculated as Fe_2O_3; said second reactor bed having a temperature of 900° to 1090° C.; continuously injecting into the bed in the second reactor a reaction gas selected from the group consisting of chlorine, chlorine and oxygen, chlorine and air, chlorine, oxygen and a diluent gas, and chlorine, air and a diluent gas wherein:

(i) said temperature in the second reactor is is maintained,
(ii) the bed is fluidized,
(iii) iron oxide in the partially beneficiated ore is converted to an iron chloride vapor,
(iv) simultaneously with the formation of iron chlorides substantial quantities of $TiCl_4$ are formed,
(v) maintaining the iron content of the bed in the second reactor and in the range of 0.1 to 1.0%, by weight Fe_2O_3, and
(vi) continuously removing a portion of the bed in second reactor to maintain therein a constant bed depth.

4,332,616

HARD-PARTICLE DISPERSION TYPE SINTERED-ALLOY FOR VALVE SEAT USE

Tsuyoshi Morishita; Koji Yagii; Kiyokazu Inmaru, and Kenji Miyake, all of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Jun. 4, 1980, Ser. No. 156,350
Claims priority, application Japan, Jun. 13, 1979, 54/74902
Int. Cl.[3] B22F *3/00*
U.S. Cl. 75—243 3 Claims

1. A hard-particle dispersion type sintered-alloy having a structure composed of hard particles, a Cu alloy phase and refined pearlite for use as a valve seat consisting essentially of a sintered alloy which is composed of C of 0.4 to 1.3% by weight, Si of 0.15 to 1.2% by weight, Ni of 2.0 to 7.5% by weight, Mo of 1.5 to 8.0% by weight and Cu of 13.0 to 22.0% by weight and the remainder substantially Fe, said alloy having dispersed therein hard particles composed of Si of 4 to 7% by weight, Ni of 20 to 30% by weight, Mo of 30 to 40% by weight and the balance substantially Fe, said hard particles constituting 5 to 20% by weight of the alloy.

4,332,617

METHOD OF FABRICATING THIN-WALLED ARTICLES OF TUNGSTEN-NICKEL-IRON ALLOY

Victor M. Hovis, Jr., Kingston, and Walter G. Northcutt, Jr., Oak Ridge, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 18, 1979, Ser. No. 76,528
Int. Cl.[3] B22F *5/00*
U.S. Cl. 75—214 2 Claims

1. A method of fabricating an article of tungsten-nickel-iron alloy formed of 90 to 97 wt.% tungsten, 7 to 2.1 wt.% iron, and 3 to 0.09 wt.% nickel with said article being characterized by a wall thickness in the range of 0.025 to 0.500 inch, a density of greater than 99 percent theoretical, a variance in density over the article of less than about 0.5% and a variance in tensile strength over the article of less than about 4.0%, said method consisting essentially of the steps of blending together constituents of said alloy consisting of discrete particulates of tungsten, nickel and iron in quantities sufficient to provide said alloy, injecting a sufficient quantity of the blended particulates into a plasma stream for spraying the alloy constituents onto a mandrel to form a structure of the alloy constituents with a wall thickness substantially in said range, separating the structure from the mandrel, and thereafter heating the plasma-sprayed structure to a temperature sufficient to liquefy a minor phase of the alloy constituents for forming said alloy by liquid-phase sintering.

4,332,618

THERMAL BARRIER COATING

Norman E. Ballard, Derby, England, assignor to Rolls-Royce Limited, London, England

Filed May 8, 1981, Ser. No. 261,938
Claims priority, application United Kingdom, Jul. 25, 1980, 8024433
Int. Cl.[3] C04B *19/04*
U.S. Cl. 106—84 7 Claims

1. A coating composition for use as a thermal barrier coating comprising a mixture containing constituents of finely divided hollow glass microspheres, a ceramic frit of finely divided particles of an alkali silicate titanate glass and finely divided particles of a refractory filler material selected from the group consisting of micronized mica, aluminum oxide and mullite, the ratio of the refractory filler material to the hollow glass microspheres to the alkali silicate titanate glass varying from 40:33:27, all in parts by weight so that any one of said constituents may be reduced by up to 50% by weight and the weight of each of the remaining constituents is increased in weight by

half said reduction in weight of said one constituent, said constituents being suspended in a binder material.

4,332,619

EXPANSIVE ADMIXTURE

Richard G. Gandy, Grand Prairie, Tex., and Garry L. Briggs, Edmonton, Canada, assignors to BJ-Hughes Inc., Houston, Tex.

Filed Nov. 13, 1980, Ser. No. 206,507
Int. Cl.³ C04B *7/353*
U.S. Cl. 106—87 **5 Claims**

4. A cement composition of the type used to cement the annular space between the pipe and surrounding formation in oil and gas wells comprising cement, sufficient water to effect hydraulic setting of the cement, and an effective amount of an expansive admixture comprising coated aluminum particles wherein said coated aluminum particles are coated with a gasoline and water insoluble wood resin, activated charcoal, and a fluid loss additive.

4,332,620

COLORED PAVING COMPOSITION

Robert L. Quinn, 6320 Falls Rd., Baltimore, Md. 21209

Filed Sep. 29, 1980, Ser. No. 191,902
Int. Cl.³ C08K *3/22*; C08L *7/00, 9/00, 95/00*
U.S. Cl. 523—220 **3 Claims**

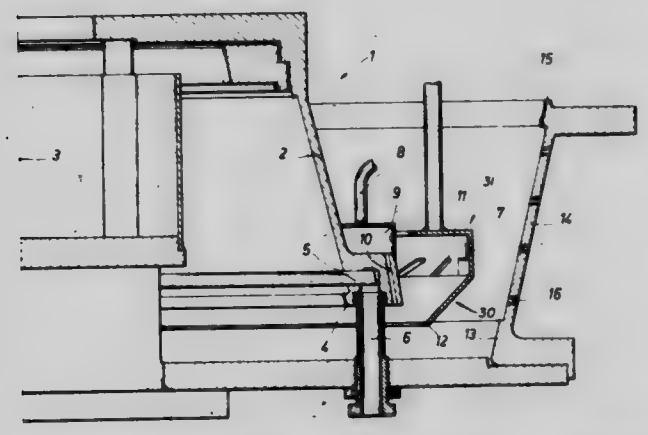
1. As asphaltic paving composition having a color other than black, and requiring no after treatments, comprised of sand and stone screenings in an amount of forty-five percent to eighty percent, a black bituminous binder therefor selected from a group consisting of tar and asphalt in an amount of six percent to twenty-eight percent, and a metallic oxide coloring agent selected from the group consisting of ferric oxide and chromium oxide in an amount of four percent to twenty percent said sand and stone screenings having a maximum particle size of approximately ⅛ inch.

4,332,621

CONTINUOUSLY OPERABLE CENTRIFUGAL FOR MIXING AND CURING SUGAR MASSECUITES

Heinrich Kurland, Lucklum; Helmut Schaper, Brunswick, and Joachim Schueller, Walle, all of Fed. Rep. of Germany, assignors to Braunschweigische Maschinenbauanstalt, Brunswick, Fed. Rep. of Germany

Filed Nov. 13, 1980, Ser. No. 206,641
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1979, 2948691
Int. Cl.³ C13F *1/06, 1/10*
U.S. Cl. 127—19 **8 Claims**



1. A continuously operable sugar centrifuge for mixing and curing sugar massecuites comprising: acceleration bell means comprising downwardly opening centrifugal inner basket means mounted for rotation about a vertical axis, said inner basket means having separated screen means for preworking and separating sugar massecuites into sugar and syrup and a lower edge for delivering separated sugar; upwardly opening centrifugal outer basket means mounted for rotation coaxially about the inner basket means and having an upper edge for delivering sugar; intermediate mixing means comprising ring housing means intermediate the inner and outer basket means being positioned around the lower edge of the inner basket means and open at the inside for receiving sugar delivered over the lower edge of the inner basket means, said ring housing means being independently mounted for movement about the inner basket means, said ring housing means being formed with an upwardly and outwardly sloping impact zone, a partially enclosing retaining zone over the impact zone, and inclined baffle means arranged around the circumference of the ring housing means for imparting turbulence, said retaining zone having an inner edge and said sloping impact zone having an inner edge of greater diameter than the inner edge of the retaining zone for delivering sugar after mixing to the outer basket means; and mixing liquid feeding means comprising annular tank means outside the inner basket means with downwardly and outwardly extending duct means leading toward the lower edge of the inner basket means for introducing mixing liquid into sugar delivered over the lower edge of the inner basket means for turbulent mixing with the sugar in the intermediate mixing means.

4,332,622

DIRECT PRODUCTION OF A PURE SUGAR PRODUCT FROM CANE JUICE

Otto G. Hohnerlein, Jr., Savannah; Willie E. Smith, Jr., Tybee Island, and Nicholas T. Rimedio, Sr., Savannah, all of Ga., assignors to Savannah Foods & Industries, Inc., Savannah, Ga.

Filed Aug. 25, 1980, Ser. No. 181,234
Int. Cl.³ C13K *3/00*; C13D *3/14*
U.S. Cl. 127—41 **15 Claims**

1. A process for the production of a finished sugar product composed chiefly of glucose and fructose directly from cane juice without the concurrent production of raw sugar, molasses, or mixtures thereof, said process comprising the steps of:

(a) acidifying the cane juice to a pH less than its naturally occurring pH and heating the acidified juice at a temperature ranging from between about 40° to about 95° C. for a period of time sufficient to convert at least 95% of sucrose to glucose and fructose;

(b) adjusting the pH of the product of step (a) to about 5.2 to form a floc;

(c) separating the floc from the juice and passing the juice through a filter aid to form a clear solution;

(d) subjecting the clear solution to demineralization and decolorization by passing the solution sequentially through a decolorizer resin, cation resin, and anion exchange resin, without the concurrent production of raw sugar, molasses or mixtures thereof;

(e) passing the solution obtained in step (d) through a bone char filter to remove cane flavors and odors;

(f) passing the effluent obtained in step (e) over a cation exchange resin, and an anion exchange resin; and

(g) concentrating the effluent to at least about 70% solids whereby a clear, colorless, and odorless finished liquid product is obtained which is substantially free from impurities.

4,332,623

ADSORPTION SEPARATION METHOD AND APPARATUS THEREOF

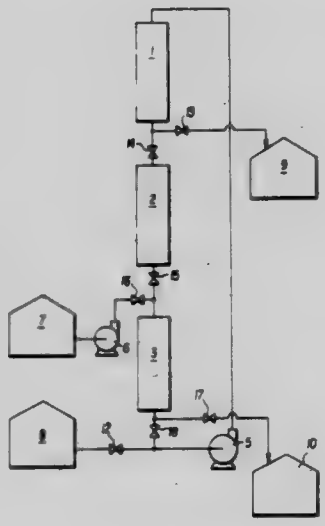
Masao Ando, Musachino; Tetsuya Hirota, Fujisawa, and Katashi Shioda, Machida, all of Japan, assignors to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan

Filed Nov. 1, 1979, Ser. No. 90,133

Claims priority, application Japan, Nov. 2, 1978, 53-135312; Dec. 28, 1978, 53-163720; Mar. 13, 1979, 54-29126; Sep. 3, 1979, 54-112642

Int. Cl.[3] C13K *1/00, 3/00*

U.S. Cl. 127—46.2 14 Claims



1. A batch-wise method for separating a starting fluid containing at least one component which is easy to adsorb and at least one component which is hard to adsorb into the respective components by the use of an adsorption separator which comprises a packed bed where an adsorbent for such components is packed and a fluid passage connecting the front and rear ends of said packed bed so that the fluid is able to be circulated, the method comprising

a first step of feeding the starting fluid comprising at least one component which is easy to adsorb and at least one component which is hard to adsorb through a feed port which is fixed at an intermediate portion of the packed bed while withdrawing from the packed bed a fluid rich with either of the components in an amount equal to the feed of the starting fluid from a position downstream of the fixed feed port,

a second step of stopping the feed of the starting fluid to and the withdrawal of fluid from the packed bed and moving the fluid remaining in the packed bed toward the downward direction, and

a third step of feeding a desorbent fluid to the packed bed while withdrawing from the packed bed a fluid or fluids rich with either of the components in an amount equal to the feed of the desorbent fluid from a position or positions downstream of the desorbent feed port, the withdrawals of fluid from the packed bed being conducted at at least two different positions, the adsorption bands being left in part of the packed bed in the third step, and repeating the above steps;

wherein the method comprises at least one step wherein fluid is flowing through a section of said packed bed, while simultaneously said fluid remains essentially stationary in the remaining sections.

4,332,624

METHOD OF CLEANING A FIRED THICK FILM COPPER LAYER

Jay P. Page, Phoenix, Ariz., and Arthur H. Mones, Edina, Minn., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Dec. 3, 1980, Ser. No. 212,763

Int. Cl.[3] B08B *3/08;* C23G *1/10*

U.S. Cl. 134—3 4 Claims

1. The method of cleaning exposed surfaces of a fired layer of thick film copper paste on a multilayer substrate, which layer has been applied to a fired layer of a dielectric containing glass frit on the substrate, comprising the steps of:

heating a weak solution consisting essentially of HBF_4 in amounts of up to 5%;

immersing the substrate in said solution for a period of time of from 10–20 seconds;

removing the substrate from the solution after said period of time has elapsed; and

rinsing the substrate to remove substantially all of said solution.

4,332,625

METHOD FOR BRUSHING THE FRONT, SIDES AND REAR OF A VEHICLE

George T. Ennis, Playa Del Rey, Calif., assignor to N/S Car Wash Enterprises, Inc., Sharon, Pa.

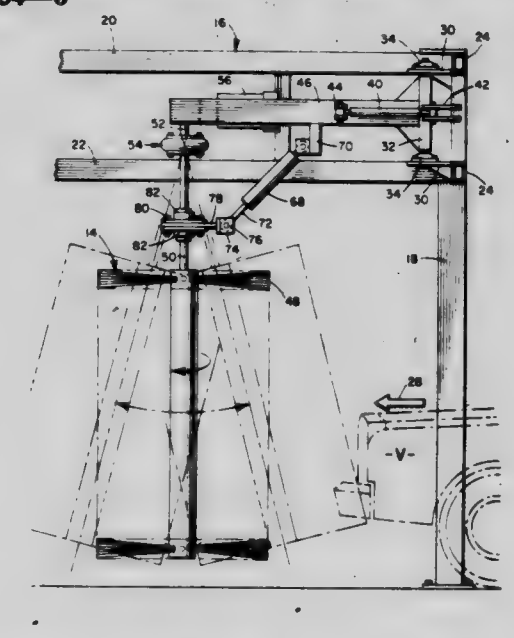
Division of Ser. No. 883,514, Mar. 6, 1978, Pat. No. 4,225,995.

This application May 5, 1980, Ser. No. 144,027

The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.

Int. Cl.[3] B08B *1/04;* B60S *1/00*

U.S. Cl. 134—6 2 Claims



1. A method for washing one or more of the front, sides and rear of a vehicle as it moves relative to a vehicle washing apparatus, said vehicle washing apparatus having a frame, a movable brush support arm pivotally mounted on said frame, at least one brush and coupling means for coupling said brush to said support arm, said coupling means including flexible means connected to said brush for flexing freely in any direction and for generating a restoring force, said support arm being freely movable to the extent that it makes no contribution to the generation of the restoring force, said brush being initially positioned in a normal vertical operating position near the center line of the vehicle, the method comprising the steps of:

engaging the front end of the vehicle with said brush;

rotating said brush in a direction which causes said brush to walk along the surfaces of the vehicle and said arm to pivot due to the reactive force between the surfaces of the vehicle and said brush;

tilting said brush by flexing said flexible means in response to the engagement of said brush with the front end of the vehicle, said flexible means urging said brush toward its

normal vertical position by generating the total restoring force equal in all directions in response to the flexing of said flexible means;

moving said brush around the front corner of the vehicle in response to the combined action of the reactive force between said brush and the surfaces of the vehicle and the restoring force generated by said flexible means; and

engaging the side of the vehicle with said brush.

4,332,626

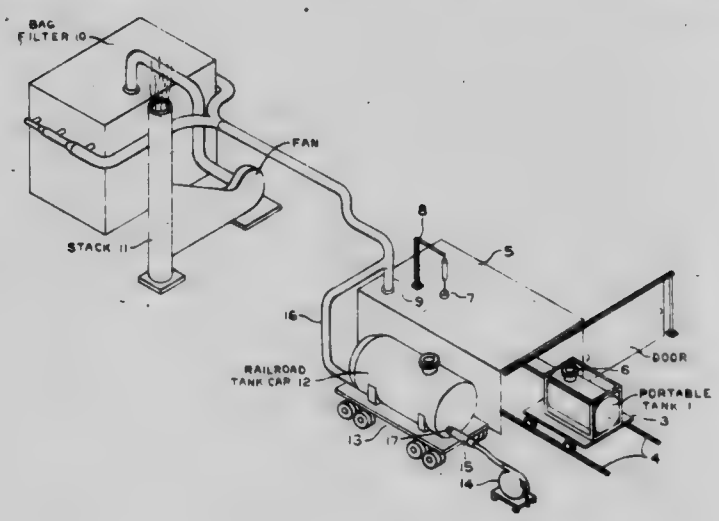
METHOD FOR REMOVING LIQUID RESIDUES FROM VESSELS BY COMBUSTION

Oscar L. Hood, Beaumont, and Irvin V. Lytton, Dickinson, both of Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 72,703, Sep. 4, 1979, abandoned. This application Apr. 22, 1981, Ser. No. 256,437

Int. Cl.³ B08B *9/08*

U.S. Cl. 134—11 **16 Claims**



1. A non-catalytic method of decontaminating vessels used for storing, transporting, or processing oxidizable liquid organic chemicals, which comprises:

a. introducing oxygen and a source of heat directly into the interior of the vessel, said vessel containing minor contaminating amounts of said liquid organic chemical, the heat emitted from said heat source being sufficient to heat the interior surfaces of the vessel to a temperature sufficient to volatilize substantially all and decompose at least a portion of said oxidizable liquid organic chemical contaminating the interior of said vessel, thereby to produce combustion gas within the vessel;

b. exhausting from the vessel combustion gas resulting from step (a);

c. filtering particulates from the exhausted combustion gas and decomposing with heat volatilized organic chemical remaining in the combustion gas exhausted from the vessel; and

d. venting to the atmosphere combustion gas substantially free of said particulates and oxidizable organic chemical.

4,332,627

METHOD OF ELIMINATING LATTICE DEFECTS IN A SEMICONDUCTOR DEVICE

Alfred Schmitt, Boeblingen, and Gerd Schorer, Herrenberg, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 14, 1980, Ser. No. 140,270

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1979, 2917455

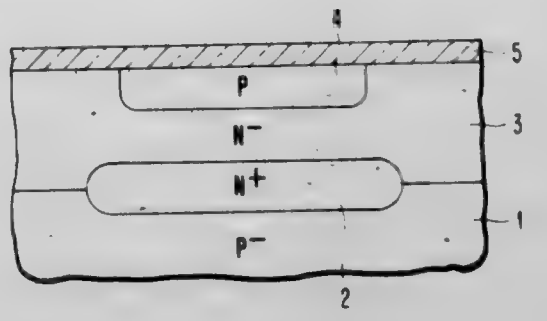
Int. Cl.³ H01L *21/265, 3/14;* B01J *17/00*

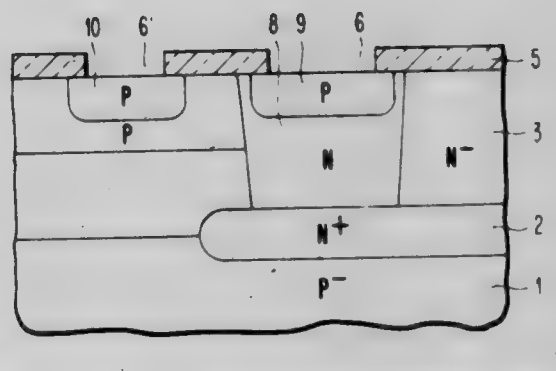
U.S. Cl. 148—1.5 **6 Claims**

1. Method of making defect-free phosphorus implanted zones in a silicon monocrystalline substrate comprising:

implanting phosphorus ions in said zones of said substrate;

implanting ions selected from the group consisting of antimony and arsenic in said zones with about the same or a greater implantation depth than the phosphorus ions to cause the silicon in said zones to become amorphous whereby the defects caused by the phosphorus implantation are included in the amorphous silicon material, and





annealing the structure after said implantations have been performed to cause said zones of amorphous silicon to be converted to defect-free monocrystalline silicon.

4,332,628

SELECTIVE ABSORBER OF SOLAR ENERGY AND PROCESS FOR PRODUCING SAME

Makoto Andoh, Nagoya, Japan, assignor to Sumitomo Light Metal Industries, Ltd., Tokyo, Japan

Filed Feb. 6, 1981, Ser. No. 232,228

Claims priority, application Japan, Feb. 20, 1980, 55-19853

Int. Cl.³ C23F *7/06, 7/26*

U.S. Cl. 148—6.2 **14 Claims**

1. A process for producing a selective absorber of solar energy, which comprises the steps of

subjecting a smooth-surfaced substrate of an aluminum alloy material, containing at least about 0.1% by weight of magnesium and having a specular reflectance of at least 50% at an incident angle of 60°, to a chemical conversion treatment in an aqueous solution containing chromate and/or dichromate to form a chromium-containing chemical conversion coating on a surface of said substrate, and

subsequently subjecting the substrate to an oxidation treatment at a temperature of 400°-600° C. and for a time sufficient without a positive circulation of atmosphere at least in the vicinity of said surface to convert said chemical conversion coating into an oxidized, dark-colored coating having high solar absorptance and low thermal emissivity.

4,332,629

METHOD OF MAKING EXTENDED STRIP OF LEAD-ANTIMONY ALLOYS FOR BATTERY ELECTRODES

John McWhinnie, Bolton, England, assignor to Chloride Group Limited, London, England

Filed Jun. 25, 1980, Ser. No. 162,951

Claims priority, application United Kingdom, Jun. 29, 1979, 7922673

Int. Cl.³ C22C *11/00*

U.S. Cl. 148—11.5 R 8 Claims

1. A method for making a metallic alloy strip less than 0.05 inches (1.27 mm) thick having an aspect ratio of width to thickness in excess of 10:1 comprising:

(a) supplying at a temperature of 200° to 280° C. to an extrusion die having said aspect ratio an alloy consisting essentially of antimony 1–2.5% by weight with the balance lead and inevitable impurities;

(b) forcing said alloy through said extrusion die; and

(c) quenching the strip as it emerges from the die whereby its tensile strength within 6 hours of emerging from the die is at least 35 newtons/square millimeter.

4,332,630

CONTINUOUS COOLING OF LOW CARBON STEEL WIRE ROD

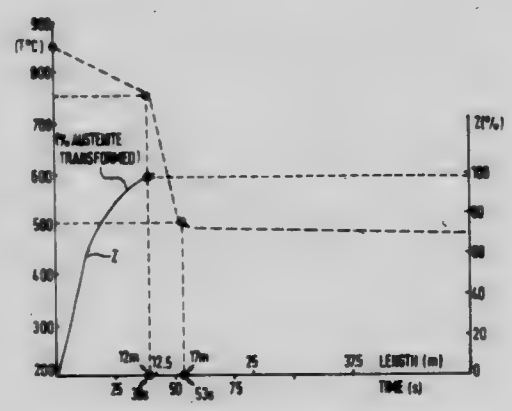
Marios Economopoulos, Liege, and Nicole Lambert, Waremme, both of Belgium, assignors to Centre de Recherches Metallurgie-Centrum voor Research in de Metallurgie, Brussels, Belgium

Filed Oct. 24, 1980, Ser. No. 200,512

Claims priority, application Luxembourg, Oct. 26, 1979, 81824; Jan. 29, 1980, 82114

Int. Cl.³ C21D *9/52*

U.S. Cl. 148—12 B 22 Claims



1. A method for the continuous cooling of low carbon steel wire rod (C≦0.4%) on discharge from a rolling mill, the wire rod having been brought to a temperature of between 900° C. and 780° C., the method comprising the sequential steps of disposing the rod in loose turns on a conveyor means; subjecting the wire rod in turns on the conveyor means to a first slow cooling stage until the allotropic transformation of austenite to ferrite has taken place to at least 80%; subjecting the wire rod, whilst still on the conveyor means, to a rapid cooling stage to a temperature of between 350°0 C. and 560° C.; and subjecting the rod to a second slow cooling stage, the rapid cooling stage occuring at a rate such that at least the major part of the carbon remaining in supersaturation at the end of the first slow cooling stage is still in supersaturation at the beginning of the second slow cooling stage.

4,332,631

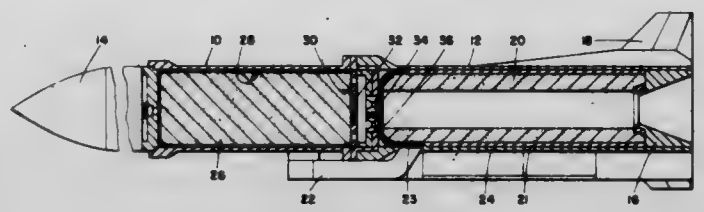
CASTABLE SILICONE BASED MAGNESIUM FUELED PROPELLANT

Charles H. Herty, III, and Samuel E. McClendon, both of Waco, Tex., assignors to Hercules Incorporated, Wilmington, Del.

Filed Jun. 19, 1980, Ser. No. 164,730

Int. Cl.³ C06B *45/10*

U.S. Cl. 149—19.2 3 Claims



1. A castable solid propellant composition suitable for use as a fuel generator for a ducted rocket motor, said composition comprising by weight

(a) from about 50% to about 55% of spherical magnesium having a particle size range from about 44 microns to about 500 microns, and from about 5% to about 13% of flake magnesium having a particle size range such that 100% passes through 40 mesh and about 98% passes through 325 mesh U.S. Standard Sieve Series, the combined percentages of spherical magnesium and flake magnesium being from 55% to about 63% by weight of the propellant composition, and

(b) from about 18% to about 25% of solid oxidizer of which at least about 80% is ammonium perchlorate, and

(c) from about 16% to about 20% of a polysiloxane binder comprising a polysiloxane polymer having a viscosity measured at 77° F. of from about 12 poise to about 50 poise, and a cross-linking agent for said polysiloxane polymer,

the weight ratio of solid oxidizer to polysiloxane polymer being from about 0.9/1 to about 1.5/1.

4,332,632

SOLID PROPELLANT COMPOSITION

John A. Conyers, Fort Worth, Tex.; Adolph E. Oberth, Fair Oaks, and George M. Santerre, Sacramento, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 6, 1971, Ser. No. 161,364

Int. Cl.³ C06B *45/10*

U.S. Cl. 149—19.2 10 Claims

1. A propellant composition, having good thermal cycling ability, consisting essentially of:

(1) 60–85 weight percent ammonium perchlorate;

(2) 2–26 weight percent aluminum;

(3) 2.5–7.5 weight percent poly (1,2-butylene) glycol with a molecular weight of about 1600 to about 2400;

(4) about 1–4 weight percent of a polyoxypropylene derivative of a triol selected from the group consisting of (a) the reaction product of propylene oxide and trimethylolpropane having a molecular weight of between about 3500 and 4700, (b) the reaction product of propylene oxide and hexane triol having a molecular weight of between about 3500 and 4700 and (c) mixtures thereof;

(5) 0.25–0.35 weight percent 2,3-dihydroxypropyl-bis (2-cyanoethyl) amine;

(6) 0.70–1.00 weight percent hexamethylene diisocyanate;

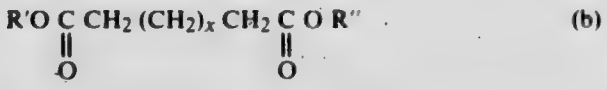
(7) 1.5–3.0 weight percent copper chromite;

(8) 2.5–4.5 weight percent of a carboxylic acid ester selected from the group consisting of

$$CH_3-(CH_2)_n\overset{\overset{O}{\|}}{C}\,O\,R\,O\,C\,(CH_2)_m\,CH_3 \qquad \text{(a)}$$

wherein n and m vary independently and are intergers

from 5–9 inclusive and R is alkylene of 6–12 carbon atoms,



(b)

wherein X is an interger between 1 and 6 inclusive and R′ and R″ vary independently and are alkyl of 6–12 carbon atoms and (c) mixtures thereof;

(9) 0–0.20 weight percent of a metal acetylacetonate;

(10) 0.05–0.2 weight percent sulfur;

(11) 0–0.015 weight percent 2,4-pentanedione; and

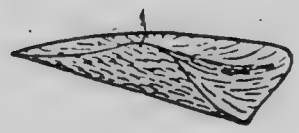
(12) 0–0.01 weight percent liquid silicon oil, provided that when no metal acetylacetonate is present, no 2,4-pentanedione is present.

4,332,633

METHOD FOR PRODUCING SHOULDER PAD MATERIAL

Katsuyoshi Yamauchi, and Kiyoto Nakai, both of Moriyama, Japan, assignors to Carl Freudenberg, Hohnerweg, Fed. Rep. of Germany

Filed Nov. 24, 1980, Ser. No. 209,803
Claims priority, application Japan, Nov. 26, 1979, 54-153168
Int. Cl.³ B32B *27/02, 31/18*
U.S. Cl. 156—62.2 **2 Claims**



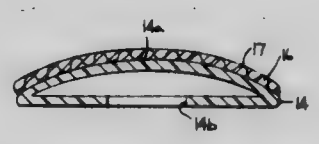
1. A method of producing a shoulder pad blank having a thick-walled portion and a thin-walled portion comprising cutting a sheet of shoulder pad stock material sinusoidally into two intermediate blanks each having a plurality of ridges spaced a predetermined distance from each other, cutting the ridges sinusoidally along their length, subdividing the blank into individual blanks comprising a thick mountainous center surrounded by a thin section, and cutting the individual blanks in half through the mountainous center.

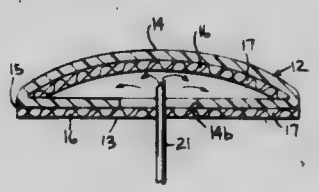
4,332,634

METHOD OF PREPARING A RESEALABLE VALVE

Steven M. Aperavich, Racine, Wis., assignor to Medical Engineering Corporation, Racine, Wis.

Filed Jan. 14, 1981, Ser. No. 224,963
Int. Cl.³ A63B *39/00;* B29C *17/00, 19/00;* A41C *3/10*
U.S. Cl. 156—145 **3 Claims**





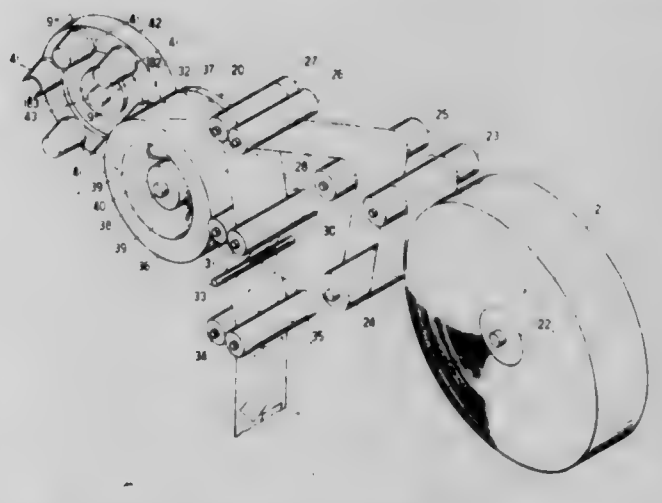
1. A method of preparing a resealable valve which has a resealable inner core and an outer reinforced cover which comprises first molding a hollow shell having a domed top and a bottom with a central opening, turning the shell inside out, affixing a layer containing reinforcing fabric to the inside of the domed top, turning the shell right side out and covering the bottom including the central opening with a layer containing reinforcing fabric to complete the cover, filling the thus formed cover with an uncured elastomer and then curing the cover and its elastomer contents to form a resealable valve having a resealable hard gel inner core and an outer reinforced protective cover.

4,332,635

CUP LABELING METHOD AND APPARATUS

Winnon G. Holbrook, Appleton, and Adrian J. Kettenhofen, Neenah, both of Wis., assignors to American Can Company, Greenwich, Conn.

Filed Jul. 3, 1980, Ser. No. 165,739
Int. Cl.³ B65C *9/04*
U.S. Cl. 156—256 **23 Claims**



1. Cup labeling apparatus comprising:

(a) a die roller having cutting edges on its surface defining an annulus sector cutting pattern;

(b) an anvil roller having a hard cylindrical surface which is mounted to rotate with its surface in engagement with the cutting edges on the die roller whereby a label will be severed in the shape of the cutting edge pattern from a web of paper having heat activable adhesive coated on one side which is passed between the anvil and die rollers, the anvil roller having a plurality of ports distributed over its surface which are positioned to underlie a label cut by the cutting edges;

(c) means for providing a vacuum draw to the ports on the surface of the anvil roller to hold a severed label thereon as the roller is rotating and to release the vacuum draw at a selected position such that the label is released from the anvil roller;

(d) a moving heating surface positioned to receive a label released from the anvil roller with the heat activable side of the label facing away from the heating surface;

(e) means for heating the labels on the heating surface to activate the adhesive thereon; and

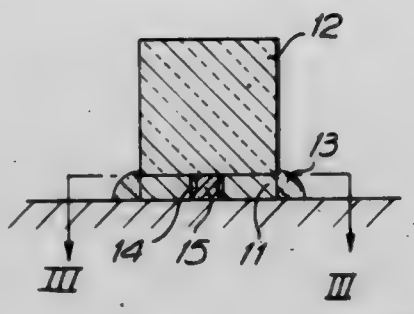
(f) means for bringing frustum shaped formed cups into rotating surface contact with the heated labels on the moving heating surface at a cup labeling position including cup holding mandrels having a surface shape conforming substantially to the inner surface of the cups to be labeled, the mandrel and the cup held thereon in the cup labeling position being rotated at a surface speed which is greater than the speed of the heating surface to draw the labels off of the surface and into adhesive contact with the surface of the cups.

4,332,636

METHOD OF BONDING AN OPTICAL ELEMENT TO A SUPPORT

John McLeod, Edinburgh, Scotland, assignor to Ferranti Limited, Cheadle, England

Filed Apr. 14, 1980, Ser. No. 140,011
Claims priority, application United Kingdom, May 3, 1979, 7915506
Int. Cl.[3] B32B *31/24, 7/14*
U.S. Cl. 156—289 6 Claims



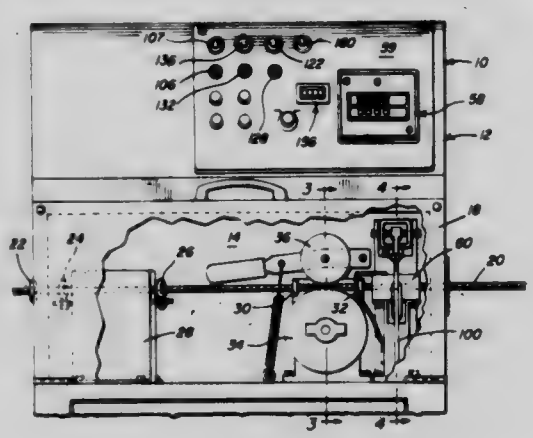
1. A method of bonding an optical element to a support which includes the steps of forming on the support a thin pad having substantially the same external dimensions as the base of the optical element of a material to which a suitable adhesive will not adhere, positioning the optical element on the pad in the desired orientation, applying a fillet of the suitable adhesive around the base of the optical element such that the adhesive is in contact with both the optical element and the support, and allowing the adhesive to set and to secure the optical element rigidly to the support.

4,332,637

ROPE CUTTING AND SEALING MACHINE

Alvin L. Miller, 14949 Stanwood St., SW., Dalton, Ohio 44618

Filed Jul. 23, 1980, Ser. No. 171,464
Int. Cl.[3] B32B *31/00*
U.S. Cl. 156—353 19 Claims



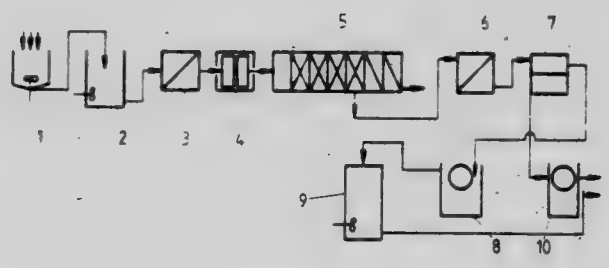
1. A rope cutting and sealing machine for severing predetermined lengths of rope from a supply of rope and fusing the severed ends, said machine comprising:
a housing;
a control panel disposed in an accessible position on said housing;
a die block having an opening disposed therein for receiving said rope to be cut;
rope feed means for feeding a predetermined length of rope through said die block;
heater means for heating air to be applied to said rope to be cut;
blower means connected to said die block for blowing air heated by said heater means onto a portion of the rope disposed in said die block thereby fusing that portion of rope;
cutter means connected to said die block for severing the rope disposed therein; and
control means for controlling automatic cyclic operation of said machine.

4,332,638

METHOD AND APPARATUS FOR THE RECOVERY OF A SUSPENSION OF FIBROUS MATERIAL FROM MIXED WASTE PAPER

Eberhard Mauer; Siegbert Fischer, and Lothar Pfalzer, all of Heidenheim, Fed. Rep. of Germany, assignors to J. M. Voith GmbH, Fed. Rep. of Germany

Filed Mar. 3, 1980, Ser. No. 125,890
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1979, 2908660
Int. Cl.[3] D21B *1/32*
U.S. Cl. 162—4 16 Claims



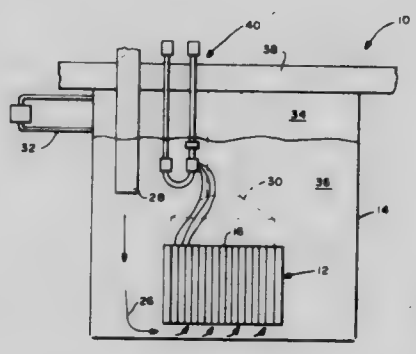
1. Method for recovery of a fiber suspension from mixed waste paper which includes ink containing fibers, comprising the steps of:
separating said fibers into a long-fiber fraction and a short-fiber fration;
treating said separated fiber fractions in separate and substantially different deinking operations for generally deinking and cleaning said fiber fractions; and thereafter
combining said separately cleaned fiber fractions to form a slurry of deinked waste paper.

4,332,639

FAILED ELEMENT DETECTION AND LOCATION SYSTEM AND METHOD FOR USE IN A NUCLEAR REACTOR

Robert O. Crosgrove, Chatsworth; Edward Moody, Simi, and Harold L. Sletten, Northridge, all of Calif., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Feb. 21, 1979, Ser. No. 13,409
Int. Cl.[3] G21C *17/00*
U.S. Cl. 376—253 6 Claims



1. In a nuclear reactor of the type having an internal core housed within a vessel, and a plurality of fuel assemblies housed within said core, each of said fuel assemblies including an open container having an inlet and outlet and an active substance such as plutonium oxide sealed within a relatively large number of elongated hollow pins located within said container, said reactor also including liquid metal heat exchanging fluid such as liquid sodium and means for circulating

a stream of said fluid along a path, a section of which passes through said containers from their inlets to said outlets, a system for detecting breaks in said hollow pins, which breaks are of sufficient size to cause at least one predetermined contaminant to pass into said stream of fluid as the latter passes through said containers, said system comprising:

first means including a first pump for collecting a combined sample of said fluid at the outlets of at least a group of said fuel assembly containers;

first means for detecting the presence or absence of said contaminant in said combined sample, whereby to indicate the presence or absence of a break in at least one pin in said group of fuel assemblies;

second means including a second pump having a lower flow rate capability than said first pump for selectively collecting individual samples of said fluid, one at a time, at the outlets of the fuel assembly containers in said group in the event said combined sample detecting means indicates the presence of a pin break said individual sample collecting second means including valve means for collecting said individual samples one at a time, said valve means including a main housing having wall means defining a plurality of spaced openings therethrough, said openings corresponding to and being in fluid communication with the outlets of said group of fuel assembly containers, respectively, a valve head located within said main housing and adapted for positioning in fluid communication with said openings individually, whereby to collect said individual fluid samples, and means for moving said valve head between said fluid communicating positions without engaging the inner surface of said wall means during movement of the valve head between said positions; and

second means including a single detector for detecting the presence or absence of said contaminant in each of said individual samples, whereby to indicate the fuel assembly or assemblies responsible for the presence of said contaminant.

4,332,640

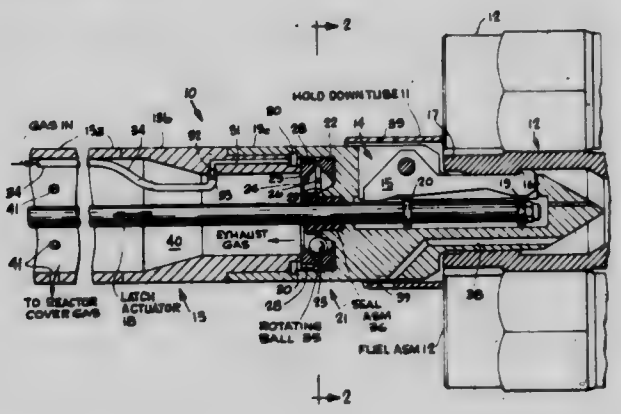
VIBRATING FUEL GRAPPLE

Alan J. Chertock, deceased, late of San Francisco, Calif. (by Theodore E. Hlavac, Jr., beneficiary); Jack N. Fox, San Jose, and Robert B. Weissinger, Santa Clara, both of Calif., assignors to The United States of America as represented by the United State Department of Energy, Washington, D.C.

Filed Apr. 30, 1979, Ser. No. 34,229

Int. Cl.³ G21C *19/20*

U.S. Cl. 376—264 **10 Claims**



1. A method for loosening a stuck fuel assembly in the core of a reactor and increasing the withdrawal capability without exceeding an allowable axial force safety limit exerted on a fuel assembly while removing same from a reactor core comprising the steps of: attaching a grapple mechanism to a fuel assembly to be removed, transmitting a vibrational force to the fuel assembly for loosening the assembly in a reactor core, and applying axial force to the fuel assembly for removing same from a reactor core without exceeding an allowable axial force safety limit.

4,332,641

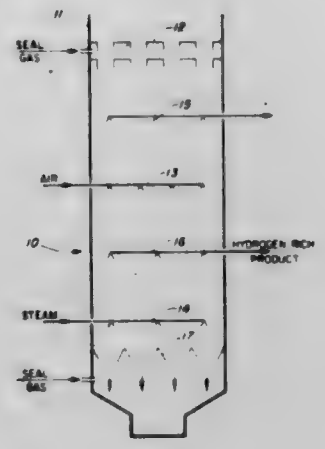
PROCESS FOR PRODUCING CALCINED COKE AND RICH SYNTHESIS GAS

James R. McConaghy, and Ardis L. Anderson, both of Ponca City, Okla., assignors to Conoco, Inc., Ponca City, Okla.

Filed Dec. 22, 1980, Ser. No. 219,007

Int. Cl.³ C10B *49/06;* C10J *3/66, 3/68, 3/82*

U.S. Cl. 201—17 **4 Claims**



1. A method of calcining green petroleum coke to produce calcined coke and a gas stream which is high in hydrogen content and low in nitrogen content consisting essentially of the steps of:

(a) feeding particulate green petroleum coke into the top of a vertical shaft kiln to provide a downwardly moving bed of coke in the kiln;

(b) injecting combustion air into an intermediate combustion zone of the kiln to provide a calcining section at a temperature of from 1400° to 1600° C.;

(c) recovering internally-generated flue gas including nitrogen from said combustion air from the upper section of the kiln;

(d) introducing steam into the lower section of the kiln whereby the steam contacts hot coke descending from the combustion zone and reacts therewith according to the reaction $C+H_2O \rightleftharpoons H_2+CO$ to produce hydrogen and carbon monoxide;

(e) maintaining an upward flow of gas throughout said kiln;

(f) recovering calcined coke product from the operation; and

(g) withdrawing a gas stream comprised of hydrogen and carbon monoxide from a level in the kiln below the combustion zone and above the steam injection level, thereby producing a product gas stream rich in hydrogen and substantially free of nitrogen.

4,332,642

PAIRED STAGE FLASH EVAPORATOR HAVING IMPROVED DISTILLATE COLLECTION

Domenick Cane, Springfield, and Ray D. Peterson, Upper Providence Township, Delaware County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

PCT No. PCT/US81/00852, § 371 Date Jun. 19, 1981, § 102(e) Date Jun. 19, 1981

PCT Filed Jun. 19, 1981, Ser. No. 286,091

Int. Cl.³ B01D *3/06;* C02F *1/06*

U.S. Cl. 202—173 **5 Claims**

1. A multistage flash evaporator unit for a multistage flash evaporation plant wherein successive evaporation stages are operated at successively decreasing pressures to evaporate a solvent from a solution, said evaporator unit comprising:

a generally elongated enclosure having opposed end walls and elongated side and top and bottom walls extending therebetween;

said enclosure having a lower portion where the solvent is evaporated and an upper portion wherein the distillate is condensed;

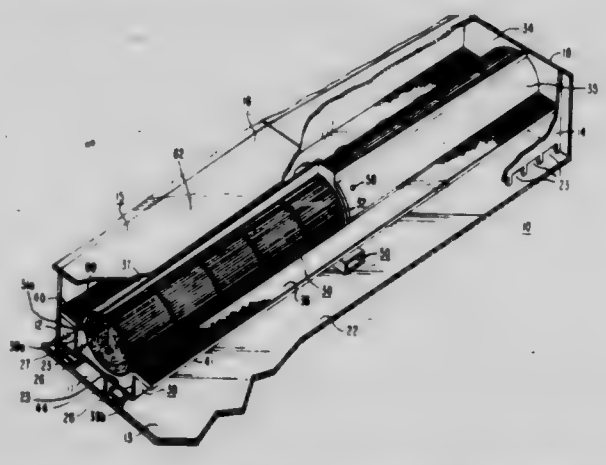
means for dividing said upper enclosure portion into a pair of

separate condenser chambers staged in the longitudinal direction;

condenser means including an array of elongated heat exchanger tubes extending between said end walls to provide tube coolant flow in the longitudinal direction; said tubes extending through apertures in said dividing means;

means for partitioning said enclosure lower portion to define a pair of longitudinally extending separate evaporation chambers through which the solution flows successively in the cross-enclosure direction;

means for separating said condenser chambers from said evaporation chambers and for directing flow of evaporated solvent from one of said evaporation chambers to one of said condenser chambers in a higher pressure evaporation stage and from the other evaporation chamber to



the other condenser chamber in the next lower pressure evaporation stage;

tray means associated with each condenser chamber to collect distillate and direct it toward said dividing means;

duct means extending in the transverse direction and supported generally beneath said dividing means and coupled to said tray means to receive distillate therefrom and to permit flashed vapor through said tray means into the associated condenser chamber; and

means for partitioning said duct means into higher pressure and lower pressure chambers associated respectively with said condenser chambers and for directing distillate from the higher pressure duct chamber to the lower pressure duct chamber.

4,332,643

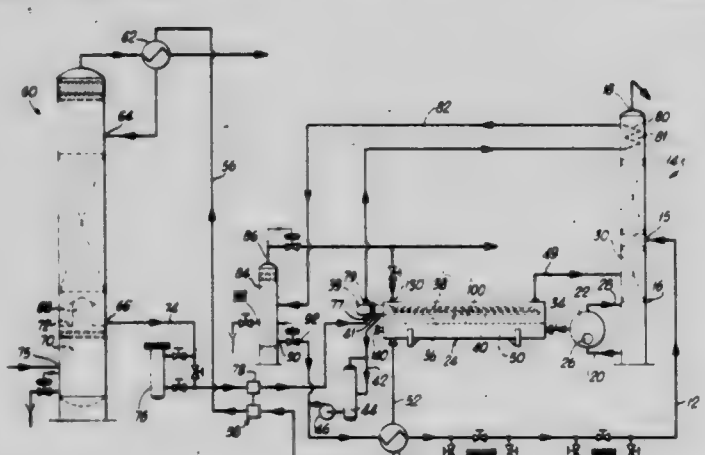
METHOD OF REMOVING WATER FROM GLYCOL SOLUTIONS

Laurence S. Reid, 601 Broad La., Norman, Okla. 73069

Continuation-in-part of Ser. No. 663,085, Mar. 2, 1976, abandoned, and Ser. No. 663,086, Mar. 2, 1976. This application May 30, 1978, Ser. No. 910,476

Int. Cl.³ C07C *29/26*

U.S. Cl. 203—18 **17 Claims**



1. A method of removing water from a mixture of water and a glycol selected from the group consisting of triethylene glycol, tetraethylene glycol and mixtures thereof comprising:

introducing a feed mixture of glycol and water to a mass transfer means for intimately contacting a gas and a liquid to effect mass transfer between said gas and said liquid:

collecting a first concentrated glycol-water liquid from said mass transfer means:

feeding said first concentrated glycol-water liquid to a water exhauster, said feed being at conditions such that an equilibrium vapor of said first concentrated liquid has a glycol/water weight ratio of at least 0.54:

vaporizing a portion of said first concentrated glycol-water liquid to form a recycle vapor and a second concentrated glycol-water liquid:

intimately contacting said recycle vapor with said feed mixture of glycol and water to cause mass transfer of glycol from said vapor to said feed mixture and to cause mass transfer of water from said feed mixture to said vapor:

vaporizing a portion of said second concentrated glycol-water liquid to form a third concentrated glycol-water liquid and an equilibrium vapor in contact with said third concentrated liquid:

condensing a portion of said equilibrium vapor to form a condensate and to allow for further vaporization of said third concentrated liquid, thereby increasing the glycol percentage of said third concentrated liquid; and

removing at least a substantial portion of said condensate from further contact with uncondensed equilibrium vapor.

4,332,644

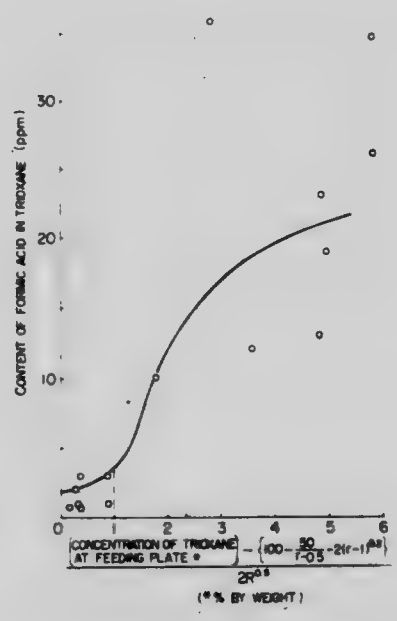
PROCESS FOR SEPARATING TRIOXANE

Katsuhiko Hamanaka; Toshiyuki Iwaisako; Junzo Masamoto, and Koichi Yoshida, all of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jun. 8, 1981, Ser. No. 271,250

Int. Cl.³ B01D *3/34, 11/04*

U.S. Cl. 203—46 **4 Claims**



1. In a process for separating trioxane by a continuous distillation comprising extracting, with benzene, the trioxane-containing distillate obtainable by heating an aqueous solution of formaldehyde, feeding the trioxane-containing benzene solution into a distillation column as a starting material, distilling out the benzene from the column top and withdrawing the trioxane from the column bottom, a process for separating trioxane which comprises retaining the trioxane concentration X in the liquid composition at the starting material feeding plate of the distillation column (% by weight of trioxane based on the total liquid composition at said feeding plate) in the range satisfying the following relationship:

$$100 - \frac{50}{(\gamma - 0.5)} - 2(\gamma - 1)^{0.2} \leqq X \qquad (1)$$

-continued

$$\leqq 100 - \frac{50}{(\gamma - 0.5)} - 2(\gamma - 1)^{0.2} + 2R^{0.5}$$

wherein R is reflux ratio, and γ is a parameter defined by the following equation:

$$\gamma = \frac{R(1 - C/100) + q}{R(1 - C/100) - C/100 + q} \quad (2)$$

wherein q is the proportion of the liquid part in the fed starting material expressed in terms of ratio by weight, and C (%) is the concentration of trioxane in the fed starting material.

4,332,645

PROCESS FOR THE SEPARATION OF METHANOL FROM MIXTURES OF TETRAHYDROFURAN WITH METHANOL AND WATER

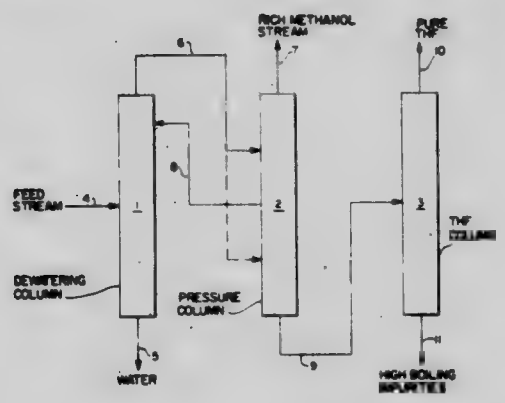
Wolfgang H. E. Müller, and Michael Zölffel, both of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Jul. 10, 1980, Ser. No. 167,443

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1979, 2927931

Int. Cl.³ B01D *3/00*; C07D *307/00*

U.S. Cl. 203—75 **9 Claims**



1. A process for the continuous separation of methanol from a feed mixture containing tetrahydrofuran, water and methanol in a rectifying apparatus having at least two rectifying columns, of which two are operated at different pressures, which comprises introducing the feed mixture into a first rectifying column operated under a lower pressure than a second rectifying column, feeding distillate containing a water/tetrahydrofuran azeotrope from the first column into the second column, withdrawing a product stream rich in water from the second column operated at a higher pressure as a side stream and introducing said side product stream into said first column, withdrawing a methanol enriched product stream containing substantially all of the methanol introduced with the feed mixture from the head of the second column and from the apparatus, and withdrawing a sump product containing substantially dry tetrahydrofuran from the second column.

4,332,646

METHOD FOR ASSAYING IRON-EXPOSED PORTION OF COATED STEEL PLATE OR PROCESSED PRODUCT THEREOF

Michiko Tsurumaru, Tokyo; Yukio Suzuki, and Atsushi Nunokawa, both of Kawasaki, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

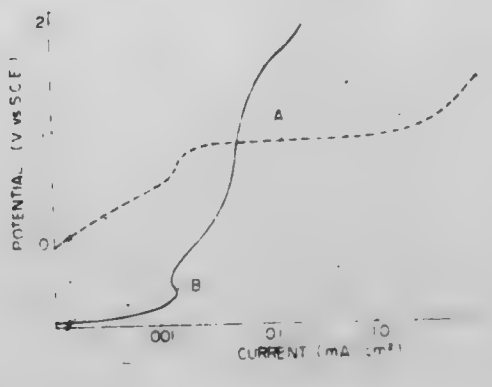
Filed Aug. 18, 1980, Ser. No. 179,152

Claims priority, application Japan, Aug. 20, 1979, 54-105081

Int. Cl.³ G01N *27/00, 27/26*

U.S. Cl. 204—1 T **3 Claims**

1. A method for assaying an exposed iron portion of a tin-plated steel plate or a processed product thereof, which comprises bringing a surface, to be measured, of the tin-plated steel plate or processed product thereof, a reference electrode and a counter electrode into contact with a buffer solution having a pH value of from 9.0 to 11.0, effecting in this state electrolysis between the counter electrode and the tin-plated steel plate or processed product thereof as anode under such conditions that



the voltage of the tin-plated steel plate or processed product thereof to the reference electrode is 0.8 to 1.5 volts calculated as a saturated calomel electrode, and evaluating the exposed iron portion by measuring an electric current flowing between the counter electrode and the tin-plated steel plate or processed product thereof or by observing precipitation and deposition of an oxide or hydrated oxide of iron.

4,332,647

COMPOSITION AND METHOD FOR ELECTRODEPOSITION OF BLACK NICKEL

Stephen K. Woodard, Loveland, Ohio, assignor to Hooker Chemicals & Plastics Corp., Warren, Mich.

Filed Oct. 17, 1980, Ser. No. 197,873

Int. Cl.³ C25D *3/12*

U.S. Cl. 204—49 **16 Claims**

1. A bath for electrodepositing a substantially black nickel deposit on a substrate comprising an aqueous solution having a pH of about 4 to about 12 and containing about 2 to about 25 g/l nickel ions, at least about 7 g/l borate ions, at least about 10 g/l of bath soluble and compatible inert conductivity salts and a bath soluble amine present in an amount to provide a mol ratio of nickel to amine in the solution of about 1:1 to about 1:4, said amine corresponding to the formula:

$$R—NH—[(CH_2)_n—NH]_m—(CH_2)_p—X—R'$$

Wherein:

n, m and p are integers and n is 2 or 3, m is 1 or 2 or 3, and p is 2 or 3;

X is O or NH; and

R and R' are the same or different and are H, $—CH_2CH{=}CH_2$, $—CH_2CH_2CH_2SO_3$ or

$$—CH_2CHCH_2OH$$
$$\quad\quad\quad|$$
$$\quad\quad\quad OH$$

4,332,648

ELECTROLYTIC APPARATUS FOR THE MANUFACTURE OF ALKALI METAL HALATE

Everette M. Spore, Tonawanda, N.Y., assignor to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

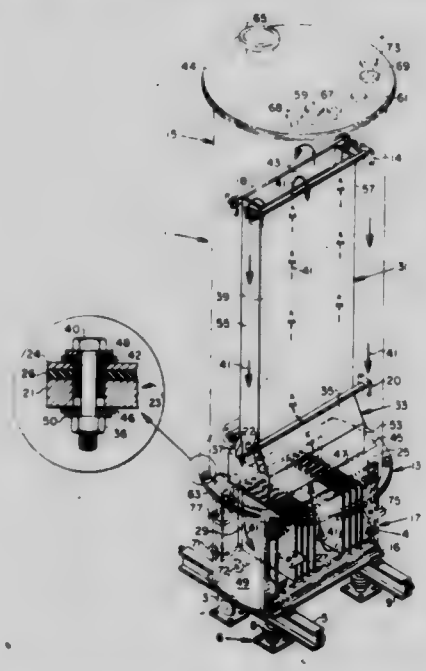
Continuation-in-part of Ser. No. 104,231, Dec. 17, 1979. This application Apr. 28, 1980, Ser. No. 144,010

Int. Cl.³ C25B *1/26, 15/08, 9/00*

U.S. Cl. 204—95 **15 Claims**

1. An electrolytic apparatus for the production of alkali metal halate from an electrolyte comprising an aqueous solution of an alkali metal halide, the apparatus comprising a sub-

stantially cylindrically shaped upper housing section and a substantially rectangular shaped lower housing section, said upper housing superimposed over the lower housing section; electrodes comprising a plurality of upwardly, parallelly, alternating anodes and cathodes mounted to the side walls of the lower housing such that the products of electrolysis at the anodes and cathodes are in contact in the electrolyte between the electrodes where they can react to form hypohalite; a singular upwardly oriented flow directing funneling chimney structure located principally in the upper housing section extending over the electrodes and narrowing down to a passageway at an angle sufficient to maximize gas lift flow through which the hypohalite-containing electrolyte rises



from the lifting power of hydrogen generated from between pairs of the electrodes during electrolysis, said electrolyte being mixed in the passageway, the upper housing having means for removing at least a portion of the hydrogen exiting from the passageway, said upper and lower housing sections including internal voids or clearances at housing ends and between the passageway and housing walls adapted so that electrolyte spilling over the top of the passageway moves downwardly through said voids or clearances in a direction parallel to the longitudinal axis of the cell and then moving transversally at the bottom of the cell for recirculation upwardly through the electrodes and chimney structure, said apparatus including means for feeding electrolyte thereto and halate removal therefrom.

4,332,649

METHOD OF POLISHING GLASS WARE WITH SULFURIC ACID AND HYDROFLUORIC ACID

Erich Sälzle, Nadistrasse 8, 8000 Müchen 40, Fed. Rep. of Germany

Filed Nov. 19, 1980, Ser. No. 208,452

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1979, 2949383

Int. Cl.³ C25B *1/16*

U.S. Cl. 204—98 **20 Claims**

1. A method of polishing glass articles comprising contacting said articles with a polishing bath containing sulfuric acid and hydrofluoric acid and subsequently rinsing the finally polished articles in a sulfuric acid washing bath and/or water washing bath, wherein during the polishing operation dissolved alkali metal ions selected from the group consisting of sodium and potassium are removed from the polishing bath.

4,332,650

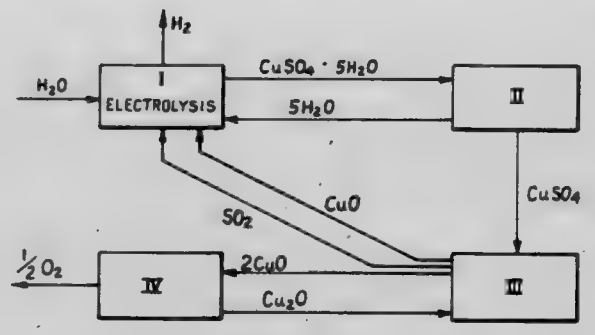
THERMOELECTROCHEMICAL PROCESS USING COPPER OXIDE FOR PRODUCING HYDROGEN AND OXYGEN FROM WATER

Stephen E. Foh, Chicago; Mono M. Mazumder, Westmont, and Jon B. Pangborn, Lisle, all of Ill., assignors to Gas Research Institute, Chicago, Ill.

Filed Jan. 21, 1981, Ser. No. 226,749

Int. Cl.³ C25B *1/04, 1/22*

U.S. Cl. 204—104 **36 Claims**



1. A process for the production of hydrogen and oxygen from water comprising the steps:

electrolytically reacting in an electrochemical reactor an aqueous solution of sulfur dioxide to produce aqueous sulfuric acid in the anode chamber while producing hydrogen in a separated cathode chamber and removing said produced hydrogen from the cycle;

reacting said aqueous sulfuric acid with cupric oxide producing solid copper sulfate hydrate;

thermally dehydrating said copper sulfate hydrate to copper sulfate anhydride and steam;

thermally decomposing said copper sulfate anhydride forming sulfur trioxide and cupric oxide for recycle with additional aqueous sulfuric acid;

reacting said sulfur trioxide with cuprous oxide producing cupric oxide and sulfur dioxide, said sulfur dioxide being recycled to said electrochemical reactor; and

thermally decomposing said cupric oxide produced from said reaction of sulfur trioxide with cuprous oxide to cuprous oxide and to oxygen and removing said oxygen from the cycle.

4,332,651

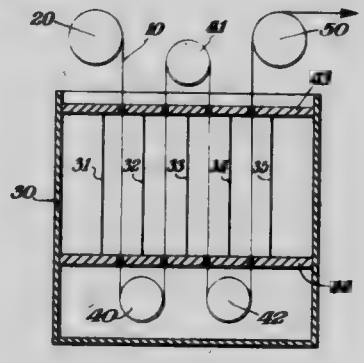
AC ETCHING OF ALUMINUM CAPACITOR FOIL

Richard A. Bemis, Clarksburg, Mass.; Clinton E. Hutchins, Pownal, Vt.; Edward J. Markland, North Adams, and Mulk R. Arora, Williamstown, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed May 20, 1981, Ser. No. 265,296

Int. Cl.³ C25F *3/04, 3/14*

U.S. Cl. 204—129.9 **8 Claims**



1. A process for the AC electrolytic etching of aluminum capacitor foil comprising passing the foil between electrodes supplied with alternating current at a frequency of 15 to 36 Hz in a bath containing 0.5 to 1.8 M hydrochloric acid, 0.05 to 0.3

M phosphoric acid, 0.2 to 0.5 M aluminum chloride, and 0.09–1.0 M alkali or alkaline earth metal chloride at a temperature of 30° to 45° C.

4,332,652

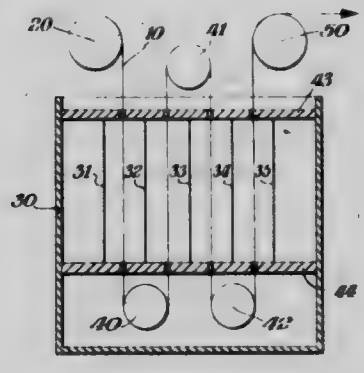
AC ETCHING OF ALUMINUM CAPACITOR FOIL

Mulk R. Arora, Williamstown; Edward J. Paquette, Adams, and Allan B. McPherson, Clarksburg, all of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Continuation-in-part of Ser. No. 210,940, Nov. 28, 1980, abandoned. This application Jul. 6, 1981, Ser. No. 280,659

Int. Cl.³ C25F *3/04*

U.S. Cl. 204—129.75 **5 Claims**



1. A process for AC electrolytic etching of aluminum capacitor foil comprising passing the foil between electrodes supplied with alternating current at a frequency of 12 to 30 Hz in a bath comprising hydrochloric acid, nitric acid, phosphoric acid, and aluminum chloride at 28° to 45° C., the molar ratio of said nitric to said phosphoric acid being 0.3–5.

4,332,653

METHOD OF NITRIDING BY HIGH TEMPERATURE ELECTROLYSIS

Shinzoh Satoh, 2-21-15, Higashimachi, Kichijoji, Musashino-shi, Tokyo, Japan

Filed Jan. 23, 1981, Ser. No. 227,671

Claims priority, application Japan, Jun. 13, 1980, 55-79971

Int. Cl.³ C25D *11/00*

U.S. Cl. 204—140 **8 Claims**

1. A method for nitriding a metallic workpiece by high temperature electrolysis in an electrolyte cell containing a cathode, a molten electrolyte bath having a cyanide as its essential ingredient and wherein said metallic workpiece acts as the anode comprising

dispersing metallic titanium, zirconium or a combination thereof in the molten cyanide bath in a catalytic amount, whereby low grade oxides of said metallic titanium, zirconium or a combination thereof form in said molten cyanide bath in an amount effective to accelerate the nitriding reaction, wherein said metallic titanium, zirconium or a combination thereof is obtained by electrolyzing an aqueous solution of a compound of said titanium, zirconium or a combination thereof;

dipping said metallic workpiece into said molten cyanide bath containing said titanium, zirconium, or combination thereof at a temperature of about 760° to 850° C. and

conducting a direct current of about 10 to 100 A/dm.² through said bath.

4,332,654

PHOTOACTIVATED CATALYTIC HYDROSILYLATION OF CARBONYL COMPOUNDS

Ronald L. Yates, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jul. 17, 1981, Ser. No. 284,034

Int. Cl.³ C07F *7/18*

U.S. Cl. 204—158 R **25 Claims**

1. A process comprising contacting a carbonyl compound with an organosilicon hydride under reaction conditions to form a silyl ether in the presence of a catalytic amount of at least one photoactivated species of a transition metal carbonyl coordination compound precursor.

4,332,655

ADHESIVE COMPOSITIONS COMPRISING ETHYLENE/POLAR MONOMER COPOLYMER AND AN ELASTOMER

Anthony J. Berejka, San Ramon, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 568,207, Apr. 15, 1975, abandoned. This application May 22, 1980, Ser. No. 152,433

Int. Cl.³ C08L *23/16, 23/08*

U.S. Cl. 204—159.2 **27 Claims**

1. An adhesive composition comprising

(a) a normally adhesive copolymer of ethylene and at least one monoolefinically unsaturated polar comonomer, said copolymer containing at least about 50% by weight of combined ethylene, and

(b) an ethylene-propylene elastomer which

(i) has a substantially or fully saturated backbone;

(ii) has a Mooney viscosity at 250° F. of less than about 70;

(iii) contains less than about 55% by weight of combined ethylene; and

(iv) is present in amount 15 to 50 parts by weight per 100 parts by weight of the elastomer and the normally adhesive copolymer together.

4,332,656

POLYIMIDE FOAMS

John Gagliani; Raymond Lee, and Usman A. K. Sorathia, all of San Diego, Calif., assignors to International Harvester Company, Chicago, Ill.

Filed Apr. 10, 1981, Ser. No. 252,902

Int. Cl.³ C08F *8/00*

U.S. Cl. 204—159.14 **13 Claims**

1. A method of preparing a flexible, resilient polyimide foam with improved compression set properties which comprises the step of foaming and curing a precursor containing at least one alkyl ester of 3,3',4,4'-benzophenonetetracarboxylic acid; a meta- or para-substituted aromatic diamine which is free of aliphatic moieties; and a heterocyclic diamine, said ester(s) and said diamines being present in concentrations such that the imide forming functionalities are substantially equimolar and the molar ratio of heterocyclic diamine to tetracarboxylic acid diester(s) is in the range of about 0.4–0.42 to 1.0.

4,332,657

EMULSION COMPOSITION FOR USE IN BAKING PAINT

Keizo Makuuchi, Sakai; Akio Katakai, Takasaki; Miyuki Hagiwara, Maebashi; Tsutomu Yamamoto, Kamakura; Hiroyuki Nakayama, Ninomiya, and Tohru Takagi, Takasaki, all of Japan, assignors to Kansai Paint Co., Ltd., Hyogo and Japan Atomic Energy Research Institute, Tokyo, both of, Japan

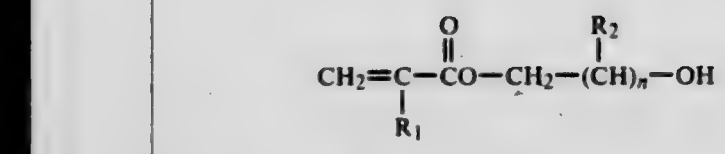
Filed Nov. 16, 1979, Ser. No. 94,882

Claims priority, application Japan, Dec. 1, 1978, 53/148893

Int. Cl.³ C08F *2/46, 2/54;* C08L *33/08, 33/10*

U.S. Cl. 204—159.22 **6 Claims**

1. An aqueous polymer emulsion for use in a baking paint prepared by a process consisting essentially of dispersing a monomer mixture of (A) 2 to 40% by weight of at least one acrylamide selected from the group consisting of N-methylolacrylamide and N-alkoxymethylacrylamide; (B) 1 to 25% by weight of one or more radical polymerizable ethylenic unsaturated monomers having a hydroxyl group having the formula



wherein R_1 is H or CH_3, R_2 is H or CH_3, and n is from 1 to 15; or $CH_2=CH-CH_2-OH$; and (C) 35 to 97% by weight of one or more radical polymerizable ethylenic unsaturated monomers selected from the group consisting of styrene, styrene derivatives, (meth)acrylic acid, (meth)acrylates, acrylonitrile, methacrylonitrile, butadiene, vinyl esters, 1,6-hexanediol di(meth)acrylate and divinyl benzene, the percentages of (A)+(B)+(C) being 100, in water in the presence of surfactant to form an emulsion and irradiating the emulsion with ionizing radiation.

4,332,658

CHEMICAL SUBSTANCE DETECTION APPARATUS

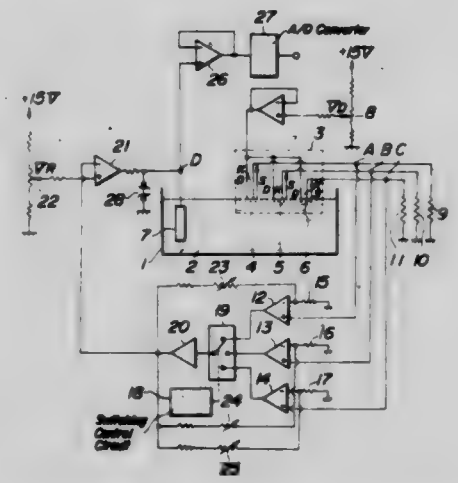
Kosaku Tsuboshima, Hachioji, Japan, assignor to Olympus Optical Company, Ltd., Tokyo, Japan

Filed Aug. 28, 1980, Ser. No. 184,058

Claims priority, application Japan, Sep. 10, 1979, 54-115104

Int. Cl.³ G01N *27/26, 27/30*

U.S. Cl. 204—195 M **6 Claims**



5. A chemical substance detection apparatus comprising:

at least one chemically sensitive element which comprises an insulation gate field effect transistor formed on a substrate and having means for chemical sensitivity to different specified substances and adapted to detect specified substances;

a reference electrode;

means forming reference resistance connected to the source of said at least one chemically sensitive element;

at least one first amplifier connected to said reference resistance means and supplied with the voltage produced therefrom, said at least one first amplifier being operative to adjust gain thereof;

a differential amplifier connected to said at least one first amplifier and having two input terminals one of which is applied with the output voltage of said at least one first amplifier, said differential amplifier applying its output voltage to said reference electrode; and

a reference gate bias voltage source connected to the other input terminal of said differential amplifier and supplying the reference gate bias voltage thereto;

whereby said bias voltage applied to said reference electrode is selectively controlled such that during operation a given electric current substantially always flows the drain-source path of said at least one chemically sensitive element to thereby selectively detect at least one specified substance on the basis of said bias voltage value.

4,332,659

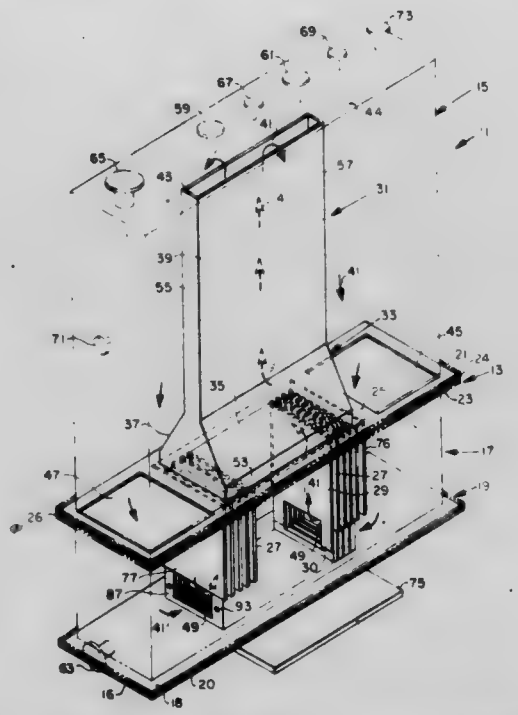
ELECTROLYTIC APPARATUS FOR THE MANUFACTURE OF ALKALI METAL HALATE

Everette M. Spore, Tonawanda, N.Y., assignor to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,231

Int. Cl.³ C25B *15/08, 9/00, 11/02*

U.S. Cl. 204—237 **15 Claims**



1. An electrolytic apparatus for the production of alkali metal halate from an alkali metal halide electrolyte, which comprises a cell housing, a plurality of upwardly and parallelly oriented anodes and cathodes in alternating relationship mounted to said housing such that the products of electrolysis at the anodes and cathodes are in contact in the electrolyte and between the electrodes where they can react to form hypohalite, a singular upwardly oriented flow directing funneling chimney structure in such housing the lower section of the chimney structure extending over the electrodes and narrowing to a passageway through which the hypohalite-containing electrolyte rises due to the lifting power of hydrogen generated between pairs of such electrodes during electrolysis, and in which passageway the hypohalite-containing electrolyte and hydrogen mixes, means for removing from the interior of the housing at the top thereof at least a portion of the hydrogen generated and passed through the passageway, said cell housing including internal voids or clearances at housing ends and between the passageway and housing walls adapted so that electrolyte spilling over the top of the passageway moves downwardly through said voids or clearances in a direction parallel to the longitudinal axis of the cell and then moving transversally at the bottom of the cell for recirculation upwardly through the electrodes and chimney structure.

4,332,660

STORAGE BUNKER DEVICE FOR FEEDING ELECTROLYTIC CELL

Hans Friedli, Steg, and Erwin Arnold, Venthome, both of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Sep. 5, 1980, Ser. No. 184,344

Claims priority, application Switzerland, Sep. 10, 1979, 8147/79

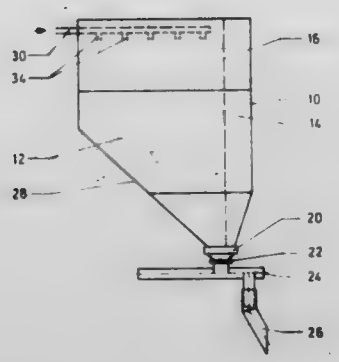
Int. Cl.³ C25C *3/14*

U.S. Cl. 204—245 **8 Claims**

1. A device for feeding alumina and additives to an electrolytic cell comprising:

a storage bunker having a material inlet and a material outlet, said storage bunker having a first compartment for at least said alumina, a second compartment for at least said

additives and dividing means movable in the vertical direction for dividing said first compartment from said second compartment;



an outlet pipe downstream of said material outlet for feeding alumina and additives to said cell; and

a dosing device positioned between said material outlet and said outlet pipe for feeding material to said outlet pipe.

4,332,661

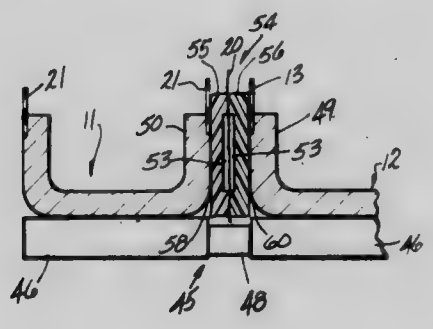
CELLS HAVING GASKET LUBRICATING MEANS

James M. Ford, Cleveland, and John O. Adams, Madisonville, both of Tenn., assignors to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 204,127, Nov. 5, 1980. This application Jan. 2, 1981, Ser. No. 222,116

Int. Cl.³ C25B *13/02, 13/04, 9/00*

U.S. Cl. 204—253 **17 Claims**



1. In an electrolytic cell having a plurality of adjacently positioned electrodes in which electrolyte fluid is contained comprising at least:

(a) a first frame member having a first generally planar side and an opposing second generally planar side to which are respectively connected a first generally planar electrode face and a second generally planar electrode face, at least the opposing second side defining a first plane;

(b) a second frame member having a first generally planar side and an opposing second generally planar side to which are respectively connected a third generally planar electrode face and a fourth generally planar electrode face, at least the first side defining a second plane adjacent the first plane and being generally parallel thereto;

(c) separator means for separating the first frame member from the second frame member having a first surface adjacent the second electrode face and an opposing second surface adjacent the third electrode face;

(d) first sealing means contacting the second side of the first frame member and adjacent the first surface of the separator means, the first sealing means having a first contactable surface of a first predetermined surface area adjacent the separator means;

(e) second sealing means contacting the first side of the second frame member and adjacent the second surface of the separator means having a first contactable surface with a first predetermined surface area adjacent the first side of the second frame member and a second contactable surface with a second predetermined surface area adjacent the separator means;

(f) clamping means for pressing the frames together against the sealing means and the separator means to form a substantially fluid-tight seal between the frame members and the first sealing means and the second sealing means; the improvement comprising

(g) lubricous means having a first side and an opposing second side insertable between at least the first sealing means and the first surface of the separator means so that when the clamping means press the frame members together at least the first sealing means can deform outwardly and slidably against the first side of the lubricous means while the opposing second side and the first surface of the separator means remain substantially fixed in place preventing undesired slipping or tearing of the separator means.

4,332,662

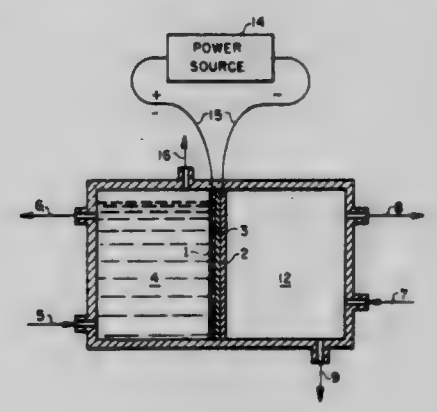
ELECTROLYTIC CELL HAVING A DEPOLARIZED CATHODE

Dirk Pouli, Williamsville; Leo S. Melnicki, Niagara Falls, both of N.Y., and Eric J. Rudd, Painesville, Ohio, assignors to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Filed Jul. 7, 1980, Ser. No. 166,422

Int. Cl.³ C25B *9/00, 11/03, 13/06, 13/08*

U.S. Cl. 204—265 **10 Claims**



1. An electrolytic cell for the electrolysis of an aqueous solution of an alkali metal halide comprising, in combination, an anolyte compartment for retaining an alkali metal halide solution and halogen collection, an oxidizing gas compartment consisting essentially of an enclosed space having means for introducing and withdrawing an oxidizing gas and outlet means for removing liquid alkali metal hydroxide product, and an electrode assembly disposed within said cell between said anolyte compartment and said oxidizing gas compartment, said electrode assembly comprising an anode, a gas permeable porous cathode for the diffusion of the oxidizing gas into said cathode, and a cell separator disposed between and in contact with both the cathode and anode, said cathode having a multiplicity of interconnecting openings permitting the passage of liquid alkali metal hydroxide product through the cathode into the oxidizing gas compartment.

4,332,663

DEHUMIDIFYING DEVICE

Erik S. Berneke, Copenhagen, Denmark, assignor to V. Kann Rasmussen Holding A/S, Denmark

Filed Aug. 20, 1980, Ser. No. 179,755

Claims priority, application Denmark, Sep. 17, 1979, 3873/79

Int. Cl.³ C25B *9/00, 1/04*

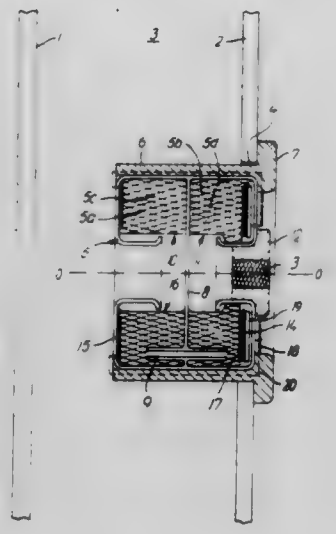
U.S. Cl. 204—277 **26 Claims**

1. A dehumidification device for dehumidifying the enclosed interior cavity defined between the glass panes of a multiple glazed window, said dehumidification device comprising:

a dehumidification cell mounted in a pane of a multiple glazed window and having a first part in communication

with the interior cavity defined between the panes, a second part in communication with the surrounding atmosphere, and a passageway means communicating between said first and second parts to permit air flow therethrough;

a moisture absorbing electrolyte means contained within said cell for absorbing moisture from air passing from the cavity to the surrounding atmosphere and from air passing from the surrounding atmosphere into the cavity;



spaced electrode means within said dehumidification cell and in contact with said moisture absorbing electrolyte means; and

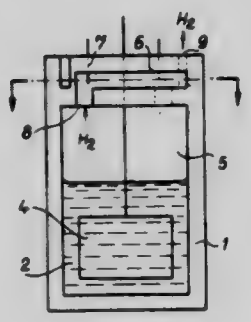
means for supplying energy connected to said spaced electrode means for producing an electrical potential therebetween to effect electrolytic dissociation of the absorbed moisture.

4,332,664

GAS PRODUCING ELECTROLYTIC CELL FOR PORTABLE DEVICES

Zoltan Noszticzius; Karoly Olah; Zsofia Vajta; György Palmai; Gabor Patonay, and Ferenc Szommer, all of Budapest, Hungary, assignors to Csepel Muvek Hiradastechnikai Gepgyara, Budapest, Hungary

Filed Sep. 9, 1980, Ser. No. 185,407
Int. Cl.³ C25B *9/00, 15/08*
U.S. Cl. 204—266 **8 Claims**



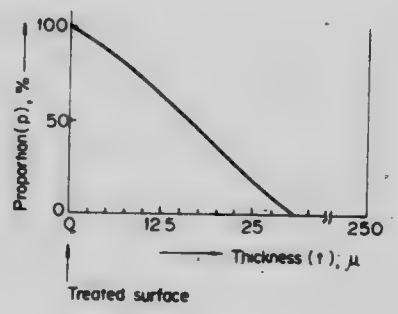
1. A portable gas producing electrolytic cell, comprising a vessel adapted to contain an electrolyte and having a closed bottom and an open top, a wall dividing the interior of the vessel into anode and cathode chambers that communicate with each other below the surface of the electrolyte, a cap covering the open top of the vessel and substantially hermetically separatting the upper portions of the anode and cathode chambers from each other, gas passageways in said cap for each of said anode and cathode chambers, said passage for the cathode chamber extending over the anode chamber and said passage for the anode chamber extending over the cathode chamber, whereby when the cell is overturned on its side so that either the anode chamber is lowermost or the cathode chamber is lowermost, electrolyte cannot escape from the cell.

4,332,665

FLUORINATED CATION EXCHANGE MEMBRANE

Kyoji Kimoto, Yokohama; Hirotsugu Miyauchi, Ota; Jukichi Ohmura, Yokohama; Mikio Ebisawa, Hiratsuka, and Toshioki Hane, Kawasaki, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed May 23, 1980, Ser. No. 152,780
Claims priority, application Japan, May 31, 1979, 54-67887
Int. Cl.³ C25B *13/08*
U.S. Cl. 204—296 **4 Claims**



1. A fluorinated cation exchange membrane comprising a fluorocarbon polymer containing pendant carboxylic acid and/or carboxylate groups and pendant sulfonic acid and/or sulfonate groups, the proportion of the density of pendant carboxylic acid and/or carboxylate groups relative to the total density of pendant carboxylic acid and/or carboxylate groups and pendant sulfonic acid and/or sulfonate groups being different between one surface and an internal plane in cross-section parallel to the surfaces of the membrane;

which membrane comprises a fluorocarbon polymer containing pendant groups of the formula (1):

$$-OCF_2COOM \quad (1)$$

wherein each M independently is hydrogen, ammonium, a quaternary ammonium or a metal atom,

and pendant groups of the formula (2):

$$-OCF_2CF_2SO_3M \quad (2)$$

wherein each M independently is as defined above, and wherein the proportion (p) represented by the equation (a):

$$p = \frac{A}{A+B} \times 100\ (\%) \quad (a)$$

wherein A is a density of pendant groups of the formula (1) and B is the density of pendant groups of the formula (2), is at least 20% in one surface of the membrane, and said proportion (p) gradually decreases from the one surface to the other surface or to that plane within the membrane where A reaches zero, said proportion (p) and a thickness (t) in microns between the one surface and the other surface or a plane within the membrane in cross-section parallel to the surfaces of the membrane satisfying the following inequality (b):

$$\left|\frac{\Delta p}{\Delta t}\right| \leqq 12\ (\%/\mu). \quad (b)$$

4,332,666

COAL LIQUEFACTION PROCESS WHEREIN JET FUEL, DIESEL FUEL AND/OR ASTM NO. 2 FUEL OIL IS RECOVERED

Richard F. Bauman, Houston, and Daniel F. Ryan, Friendswood, both of Tex., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed May 6, 1980, Ser. No. 147,428
Int. Cl.[3] C10G *1/00*
U.S. Cl. 208—8 LE 4 Claims

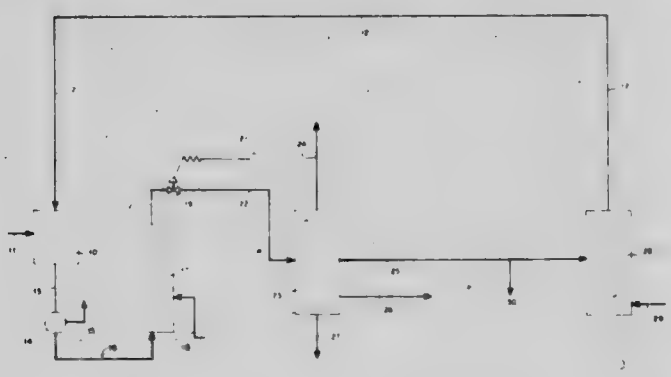
1. In a process for liquefying coal and similar solid carbonaceous materials wherein the solid carbonaceous material is slurried with a hydrogen donor solvent derived from the solid carbonaceous material subjected to liquefaction and wherein the liquefaction is accomplished at elevated temperatures and pressures and a portion of the liquefaction product said portion having an initial boiling point within the range from about 350° F. to about 450° F. and a final boiling point within the range from about 650° F. and to about 950° F. separated, subjected to hydrogenation and used as the hydrogen donor solvent, the improvement wherein the conditions of hydrogenation are controlled such that the yield of napthenic components is from about 5 to about 30 weight percent greater than the concentration of napthenic components in the unhydrogenated fraction and the napthenic components of the fraction subjected to hydrogenation and used as the hydrogen donor solvent are separated and used as a jet fuel, a diesel fuel or an ASTM No. 2 fuel oil or as components therein.

4,332,667

LIQUEFACTION PROCESS FOR SOLID CARBONACEOUS MATERIALS CONTAINING ALKALINE EARTH METAL HUMATES

William R. Epperly, Summit; Barry C. Deane, East Brunswick, both of N.J., and Roy J. Brunson, Buffalo Grove, Ill., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jul. 10, 1978, Ser. No. 922,908
Int. Cl.[3] C10G *1/04*
U.S. Cl. 208—8 LE 6 Claims



1. In a process wherein a lower ranking coal or similar solid carbonaceous material is slurried in a suitable solvent or diluent and liquefied at an elevated temperature and pressure, the improvement comprising subjecting the coal slurry to pressure variation having an amplitude within the range from about 25 to about 500 psi at a frequency within the range from about 0.1 to about 10 cycles per minute during liquefaction.

4,332,668

PRETREATMENT OF SOLID CARBONACEOUS MATERIAL WITH DICARBOXYLIC AROMATIC ACIDS TO PREVENT SCALE FORMATION

Roy J. Brunson, Buffalo Grove, Ill., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Mar. 26, 1979, Ser. No. 23,565
Int. Cl.[3] C10G *1/04, 1/00*
U.S. Cl. 208—8 LE 8 Claims

1. A process for the liquefaction of a lower ranking coal comprising the steps of:

(a) contacting said coal with from about 0.3 to about 1.0 lb moles of a pretreating agent selected from the group consisting of phthalic acid, phthalic anhydride, pyromellitic acid and pyromellitic anhydride per 1000 lbs of coal (MAF) so as to reduce the amount of alkaline earth metal humates therein;

(b) liquefying the thus treated coal at liquefaction conditions to produce a petroleum-like product; and

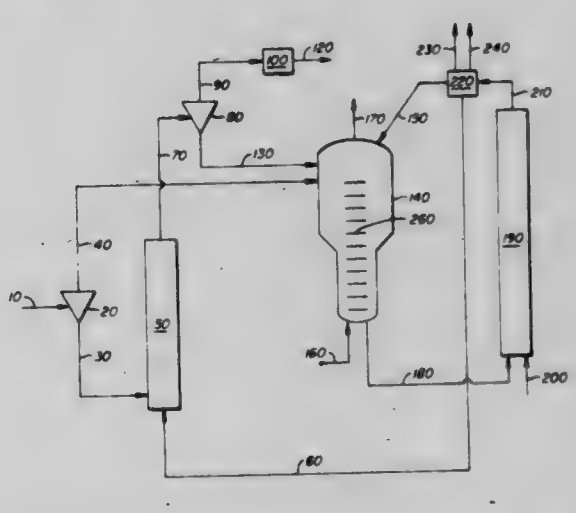
(c) recovering the liquid product from the unliquefied portion of the pretreated coal or similar carbonaceous material.

4,332,669

OIL SHALE RETORTING PROCESS WITH RAW SHALE PREHEAT PRIOR TO PYROLYSIS

Byron G. Spars, Mill Valley; Paul W. Tamm, Oakland, and P. H. Wallman, Berkeley, all of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed May 27, 1980, Ser. No. 153,509
Int. Cl.[3] C10G *1/02*
U.S. Cl. 208—11 R 8 Claims



1. In an improved process for retorting oil shale wherein spent shale particles at an elevated temperature and raw shale particles are introduced into an upper portion of a vertically elongated retort using a staged turbulent bed; a non-oxidizing fluidization gas is passed upwardly through the retort at a velocity in the range of 30–150 centimeters per second; the size of both said raw shale particles and said spent shale particles is maintained in a range which includes particles which are fluidizable at said gas velocity and particles which are non-fluidizable at said gas velocity; the raw shale particles and the spent shale particles pass downwardly through said retort whereby the raw shale is heated to retorting temperature evolving hydrocarbonaceous vapors; the hydrocarbonaceous vapors are withdrawn from an upper portion of the retort with the fluidization gas; retorted shale particles and spent shale particles are withdrawn from a lower portion of the retort, and are fed to a separate combustion zone with oxygen to burn residual carbon thereon and provide hot spent shale particles, the improvement comprising:

classifying and deaerating the raw shale particles into a first fraction and a second fraction, said first fraction containing substantially only raw shale particles sized above about 30 mesh;

preheating said first fraction to a temperature in the range 150°–370° C. with hot spent shale fines, ranging from about 10–500μ, in a dilute phase lift line;

separating the preheated first fraction from the spent shale fines; and

feeding the preheated first fraction and the second fraction to the retort.

4,332,670

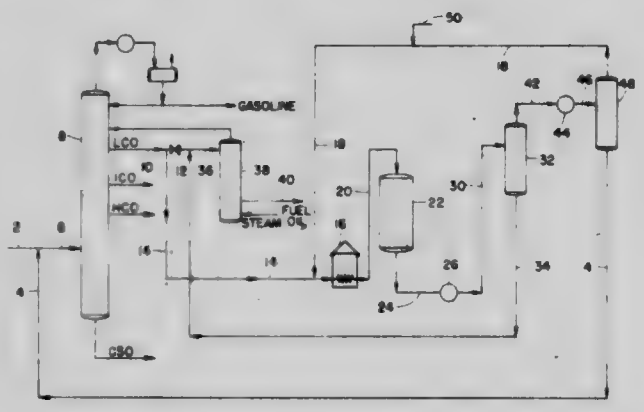
CATALYTIC DEWAXING OF MIDDLE DISTILLATES

Michael J. Antal, Lawrenceville, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Jan. 14, 1981, Ser. No. 224,971

Int. Cl.³ C10G *45/58, 69/04*

U.S. Cl. 208—68 **12 Claims**



1. In a process for reducing the pour point of a middle distillate boiling in the range of about 320° to about 800° F. of the type wherein the middle distillate is catalytically cracked, fractionated and stripped in a catalytic cracking unit and catalytically dewaxed, the improvement which comprises:

(a) recovering the middle distillate subsequent to its being catalytically cracked and fractionated but prior to its being stripped in the catalytic cracking unit,

(b) contacting the middle distillate of step (a) with a ZSM-5 type crystalline zeolite under hydrodewaxing conditions to produce a hydrodewaxed middle distillate,

(c) recovering a first liquid distillate boiling above about 320° F. from the hydrodewaxed middle distillate of step (b) leaving a first gaseous effluent,

(d) recovering a second liquid distillate boiling in the gasoline boiling range from the first gaseous effluent leaving a second gaseous effluent comprising hydrogen and light gaseous hydrocarbons,

(e) fractionating the second liquid distillate in the fractionator of the catalytic cracking unit to yield a gasoline product, and

(f) stripping the first liquid distillate in the middle distillate stripper of the catalytic cracking unit to yield a middle distillate product having a reduced pour point.

4,332,671

PROCESSING OF HEAVY HIGH-SULFUR CRUDE OIL

Lyndon D. Boyer, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Jul. 8, 1981, Ser. No. 271,448

Int. Cl.³ C10G *53/16, 55/08, 57/00*

U.S. Cl. 208—92 **6 Claims**

1. A process for treating a heavy, high-sulfur crude oil to produce gas and liquid hydrocarbons, delayed petroleum coke and sulfur-enriched residuum comprising:

(a) subjecting said crude oil to distillation whereby gas and liquid hydrocarbon products and a residuum are produced;

(b) subjecting a first portion of said residuum to delayed coking;

(c) calcining the delayed coke to produce sulfur and calcined coke;

(d) recovering sulfur from said calcining step and adding said sulfur to a second portion of said residuum to produce a sulfur-enriched residuum.

4,332,672

PROCESS FOR CONTROLLING SULFUR OXIDES USING AN ALUMINA-IMPREGNATED CATALYST

William A. Blanton, Jr., Woodacre, and Robert L. Flanders, San Anselmo, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 751,640, Dec. 17, 1976, Pat. No. 4,115,249, which is a continuation-in-part of Ser. No. 666,115, Mar. 11, 1976, Pat. No. 4,071,436. This application Jul. 10, 1978, Ser. No. 923,428

The portion of the term of this patent subsequent to Jul. 19, 1995, has been disclaimed.

Int. Cl.³ B01J *29/06;* C01G *11/04;* C01B *17/00*

U.S. Cl. 208—120 **3 Claims**

1. In a process for cracking hydrocarbons in the absence of added molecular hydrogen wherein a nonzeolitic cracking catalyst including of at least one acidic cracking component from the group consisting of silica-containing nonzeolitic crystalline refractory inorganic oxides and silica-containing amorphous refractory inorganic oxides is cycled between a cracking zone and a catalyst regeneration zone, a sulfur-containing hydrocarbon stream is cracked in contact with said catalyst in said cracking zone, and a sulfur-containing flue gas is formed in said regeneration zone by burning sulfur-containing coke off said nonzeolitic catalyst with an oxygen-containing gas, the method for reducing the amount of carbon monoxide and sulfur oxides in said flue gas which comprises:

(a) heating particles of said nonzeolitic cracking catalyst to a temperature between 800° F. and 1500° F.;

(b) impregnating the resulting nonzeolitic catalyst particles with an amount of an aluminum compound sufficient to add from 0.1 to 25 weight percent aluminum, calculated on an elemental metal basis, to said nonzeolitic catalyst particles;

(c) cycling the resulting impregnated nonzeolitic catalyst particles between said cracking zone and said regeneration zone in said catalytic cracking system;

(d) reacting sulfur oxides in said flue gas with the added aluminum in said catalyst particles to form a sulfur-containing solid in said catalyst particles in said regeneration zone; and

(e) forming hydrogen sulfide in said cracking zone by contacting said hydrocarbon feed with said sulfur-containing solid in said catalyst particles and removing the resulting hydrogen sulfide from said cracking zone with said fluid products.

4,332,673

HIGH METAL CARBO-METALLIC OIL CONVERSION

George D. Myers, Ashland, Ky., assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Nov. 14, 1979, Ser. No. 94,092

Int. Cl.³ C10G *11/18*

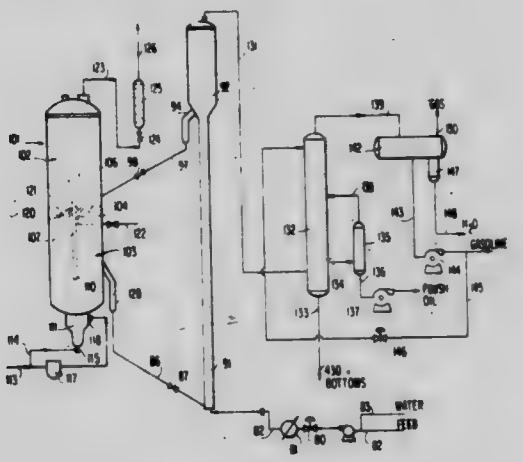
U.S. Cl. 208—120 **45 Claims**

1. A process for economically converting carbometallic oils to lighter products, comprising:

I. providing a converter feed which has had substantially no hydrotreatment and which comprises at least about 70% by volume of 650° F.+ material characterized by a carbon residue on pyrolysis of at least about 1 and by containing at least about 5.5 ppm of nickel equivalents of heavy metal(s);

II. bringing said converter feed together with cracking catalyst having an equilibrium MAT conversion activity level of at least about 40 volume percent and bearing an accumulation of at least about 3000 ppm by weight of nickel equivalents of heavy metal(s) expressed as metals on regenerated equilibrium catalyst, and with additional gaseous and/or vaporized material including steam to form a stream comprising a suspension of said catalyst in said feed and gaseous and/or

vaporized material wherein the ratio of the partial pressure of the added gaseous and/or vaporized material relative to the partial pressure of the feed is in the range of about 0.25 to about 4, and causing the resultant stream to flow at a velocity of at least about 25 feet per second through a progressive flow type reactor having an elongated reaction chamber which is at least in part vertical or inclined for a vapor residence time in the range of about 0.5 to about 3 seconds at a temperature of about 900 to about 1400° F. and under a total pressure of about 10 to about 50 pounds per square inch absolute sufficient for causing a conversion per pass in the range of about 60% to about 90%, while producing coke in amounts in the range of about 6 to about 14% by



weight based on fresh feed, and laying down coke on the catalyst in amounts in the range of about 0.3 to about 3% by weight;

III. separating said catalyst from the resultant cracking products;

IV. stripping hydrocarbons from said separated catalyst;

V. regenerating the metals-bearing, coked catalyst with oxygen-containing combustion-supporting gas under conditions of time, temperature and atmosphere sufficient to reduce the carbon on the catalyst to about 0.25% by weight or less, while forming combustion product gases comprising CO and/or CO_2; and

VI. recycling the regenerated catalyst to the reactor for contact with fresh feed.

4,332,674

METHOD AND APPARATUS FOR CRACKING RESIDUAL OILS

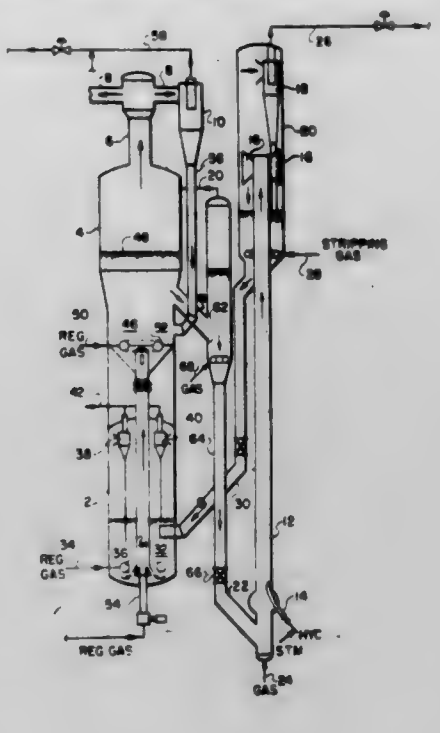
Robert R. Dean, #1 Columbine La., Littleton, Colo. 80123; Jean-Louis Mauleon, 15656 E. Grand Ave., Aurora, Colo. 80112, and Robert W Pfeiffer, 6 Alden Pl., Bronxville, N.Y. 10708

Filed Jul. 15, 1980, Ser. No. 169,086
Int. Cl.³ C10G *11/16*
U.S. Cl. 208—120 **20 Claims**

1. A method for converting hydrocarbons comprising residual oils which comprises

charging hot particles of catalyst at a temperature above 1400° F. and at least equal to the psuedo-critical temperature of a hydrocarbon feed comprising residual oils to the lower portion of a riser conversion zone for flow upwardly therethrough,

charging the hydrocarbon feed comprising residual oils to said riser conversion zone as a multiplicity of separate streams so as to substantially completely vaporize vaporizable components of the feed whereby thermal and catalytic cracking of the feed is accomplished and



recovering a hydrocarbon product of said thermal and catalytic cracking of the feed separate from catalyst particles.

4,332,675

REMOVAL OF BASIC NITROGEN COMPOUNDS FROM ORGANIC STREAMS

Zeinab Baset, New Providence, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Dec. 19, 1980, Ser. No. 218,022
Int. Cl.³ C10G *21/10*
U.S. Cl. 208—254 R **6 Claims**

1. A method for separating basic nitrogen compounds from an organic feedstream selected from the group consisting of coal liquids, oil-shale liquids, petroleum oils, and coal bottoms which are soluble in common organic solvents at temperatures from about 10° C. to about 25° C., which stream is substantially free of water, the method comprising:

(a) contacting said stream at a temperature from about 10° C. to about 25° C. with gaseous sulfur dioxide thereby effecting a precipitate containing basic nitrogen compounds; and

(b) separating the precipitate from the contact stream.

4,332,676

REMOVAL OF BASIC NITROGEN COMPOUNDS FROM ORGANIC STREAMS

Zeinab Baset, New Providence, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Dec. 19, 1980, Ser. No. 218,021
Int. Cl.³ C10G *21/10*
U.S. Cl. 208—254 R **5 Claims**

1. A method for separating basic nitrogen compounds from an organic feed stream selected from the group consisting of coal liquids, oil-shale liquids, petroleum oils, and coal bottoms which are soluble in common organic solvents at temperatures from about 20° C. to about 100° C., wherein said stream contains at least a stoichiometric amount of water but not so much water that would cause two liquid phases, the method comprising:

(a) contacting said stream, at a temperature from about 20° C. to about 100° C. at about atmospheric pressure, with at least one mol of gaseous sulfur dioxide per mol of basic nitrogen compound in an organic stream, thereby precipitating a salt comprising the basic nitrogen compounds, sulfur dioxide and water; and

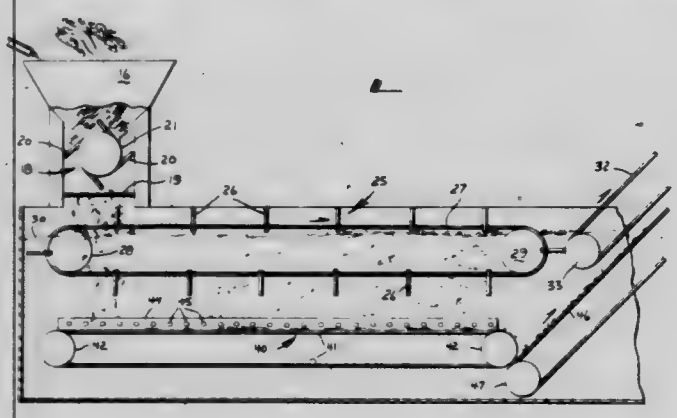
(b) separating the precipitated salt from the contacted stream.

4,332,677

PROCESS FOR RECLAIMING COMPOSITE MATERIALS

Mieczyslaw Budzich, Lexington, and Forest G. Fitz, Jr., West Columbia, both of S.C., assignors to Nassau Recycle Corporation, Staten Island, N.Y.

Filed Oct. 30, 1980, Ser. No. 202,283
Int. Cl.³ B03B *1/02*
U.S. Cl. 209—3 14 Claims



1. A process for reclaiming jelly filled telecommunications cable comprising the steps of:

a segmenting the cable into jelly bearing segments of insulation covered wires;

b submerging the segments in a bath of liquid having a specific gravity greater than the jelly but less than the wires;

c blasting the submerged segments with a gas or vapor heated to a temperature in excess of the melting temperature of the jelly which gas or vapor blasting directly agitates the segments and melts the jelly whereupon jelly is liberated from the segments and rises to the surface of the bath; and

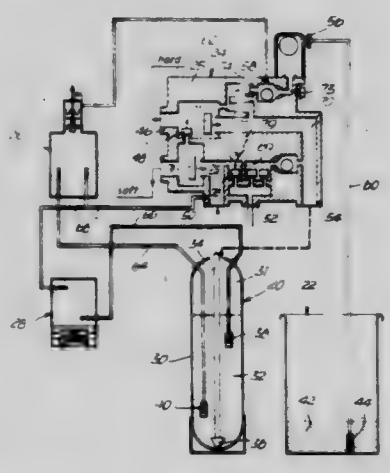
d skimming the jelly from the bath surface.

4,332,678

SYSTEM FOR THE SOFTENING OF WATER

Karl Spiegl, Landhausstr. 35, 7031 Aidlingen 2, Fed. Rep. of Germany

Filed Mar. 14, 1980, Ser. No. 130,501
Claims priority, application Fed. Rep. of Germany, Mar. 20, 1979, 2910869
Int. Cl.³ B01J *47/14*
U.S. Cl. 210—86 23 Claims



1. A system for softening water, said system comprising:

a regeneratable softener having an ion-exchange resin exposable to said water;

means for introducing water to be softened into said softener;

a salt reservoir containing a supersaturated sodium-chloride solution for the regeneration of said resin;

means for transferring supersaturated sodium-chloride solution from the salt reservoir to the softener;

at least one means for removing softened water from said softener and for removing spent regenerant solution from the softener, respectively;

a water hardness detector including a housing containing an ion-exchange shrink resin charge regeneratable by said supersaturated sodium-chloride solution, said shrink resin charge being exposable to water having passed through at least a part of said resin in said softener, and said detector further including a piston reciprocable within said housing, said piston contacts a single free surface of said shrink resin charge at least during detection of water hardness;

means for passing the water and said supersaturated sodium-chloride solution, respectively, from the softener to the detector; and

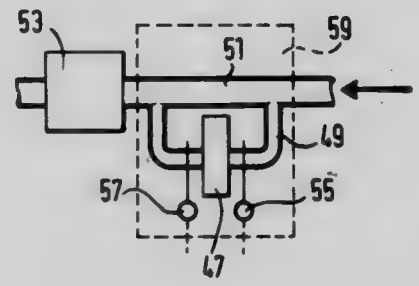
means, responsive to the position of said piston, for initiating the regeneration of at least said softener.

4,332,679

DEVICE FOR INDICATING THE DEGREE OF EXHAUSTION OF AN ADSORPTION FILTER

Bernd Hengst; Wolfgang Grosspietsch, both of Schweinfurt, and Karl-Heinz Ognibeni, Dittelbrunn, all of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Jan. 19, 1981, Ser. No. 226,158
Claims priority, application Fed. Rep. of Germany, Jan. 18, 1980, 3001675
Int. Cl.³ B01D *15/00, 53/30*
U.S. Cl. 210—90 9 Claims



1. A filtering apparatus for detecting the degree of exhaustion of an adsorption filter comprising mechanical filter means arranged in flow communication with said adsorption filter, pressure sensing means for sensing fluid pressure proximate said mechanical filter means both upstream and downstream thereof, and means for detecting the difference between fluid pressure sensed upstream and downstream of said mechanical filter means to provide an indication of the degree of exhaustion of said adsorption filter based upon said fluid pressure difference, said mechanical filter means being connected in shunt with the flow path of said adsorption filter.

4,332,680

FILTER SLUICING APPARATUS

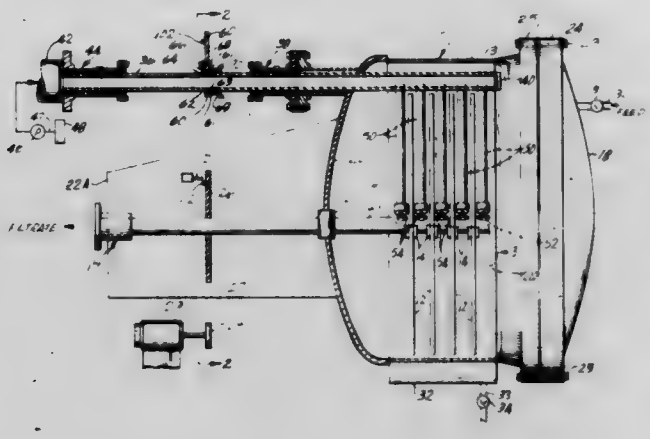
Theodore H. O'Cheskey, Whittier, Calif., assignor to United States Filter Fluid Systems Corporation, Whittier, Calif.

Filed Apr. 14, 1980, Ser. No. 140,298
Int. Cl.³ B01D *33/26*
U.S. Cl. 210—143 12 Claims

1. Filtering apparatus comprising:

at least one filter leaf mounted in the shell to be rotatable in a substantially vertical plane about a substantially horizontal axis;

means for forcing a solids-containing liquid into the shell and into the leaf to form a cake of solids on the leaf;
means for removing filtered liquid from the leaf and the shell;
a movable nozzle in the shell and disposed adjacent the leaf to direct a jet of sluicing liquid against the leaf;
means for rotating the leaf about the axis;
means for supplying a sluicing liquid under pressure through the nozzle to wash solids from the leaf; and



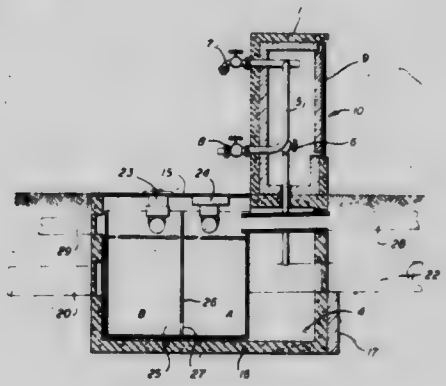
means for moving the nozzle toward and away from the axis of leaf rotation in a plane substantially parallel to the filter leaf to keep the nozzle a substantially constant distance from the leaf as the jet removes solids from the leaf, the jet of sluicing liquid being substantially fan-shaped with the major plane of the fan-shaped jet lying in a plane substantially perpendicular to the plane in which the nozzle moves.

4,332,681

JUNCTION AND CONNECTION TERMINAL FOR THE SERVICE OF FIXED OR MOBILE PREMISES IN PARTICULAR FOR THE SUPPLY OF A SANITARY UNIT WHICH MAY BE ITSELF ATTACHED TO A CARAVAN OR A CAMPING-CAR

Jean-Francois Jambry, 17 Boulevard Raspail, 75007 Paris, and Dusica Milojevic, 93 Boulevard Raspail, 75006 Paris, both of France

Filed Apr. 28, 1980, Ser. No. 144,255
Int. Cl.³ C02C *1/00*
U.S. Cl. 210—170 **15 Claims**



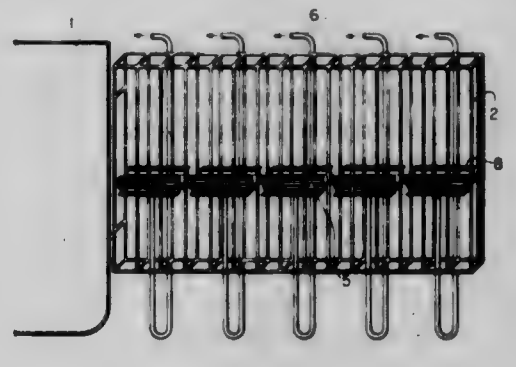
1. A junction and connection terminal for partly embedding in the ground and comprising a case which is of strong material and has an upper part which projects from the surface, the ground and a lower main part which is buried in the ground and has an upper wall substantially flush with the surface of the ground, said upper part defining a first compartment and a second compartment and said lower part defining a third compartment, drinking water piping within said first compartment and leading out of said first compartment for connection to drinking water mains supply, tap means outside said upper part of said case and connected to said piping and supported by said upper part, said tap means including rapid pipe coupling means for connecting said tap means to piping a fixed or mobile sanitary unit for supplying drinking water thereto, electric mains supply cables extending into said second compartment, electric socket means located outside, and mounted on said upper part of said case, for plugging in electric cables of said fixed or mobile sanitary unit, an electric junction box within said second compartment and connecting said mains supply cables to said electric socket means, sewage and household waste liquids discharge pipe means extending out of the interior of said third compartment, sewage and household waste liquids, inlet pipe means extending into said third compartment, means located inside said third compartment and connecting said sewage and household waste liquids inlet pipe means to said sewage and household waste liquids, discharge means and pipe coupling means located outside said third compartment and provided on said sewage and household waste liquids inlet pipe means for connecting said inlet pipe means to sewage and household waste liquids, outlet pipe means of said fixed or mobile sanitary unit.

4,332,682

SYSTEM FOR COLLECTING PRODUCTS DUMPED ON THE SURFACE OF A MASS OF WATER

Francisco-Javier Jauregui Carro, C/Castilla, 14-1° C, Santander, Spain

Filed Aug. 7, 1980, Ser. No. 176,244
Claims priority, application Spain, Aug. 13, 1979, 483.346; Jul. 21, 1980, 493.564
Int. Cl.³ E02B *15/04*
U.S. Cl. 210—242.1 **22 Claims**



1. In a system for collecting products floating on the surface of a body of water, particularly for collecting petroleum products floating on the surface of the sea, said system being of the type including a ship and collecting devices extending from opposite sides of said ship for collecting products from the water surface and for transferring said products to said ship, the improvement wherein each said collecting device comprises:
a cage having a substantially rectangular parallelepided configuration and connected at one end thereof to the respective side of said ship by a freely articulated pivot so that said cage is pivotable in all directions about said pivot with respect to said ship, said cage having a height such that when said ship is at ballast the upper part of said cage will be above the maximum loading line of said ship and the lower part of said cage will be submerged;
a plurality of floating suction pump inlet housings positioned in a longitudinal arrangement within the interior of said cage, each said housing being retained in said cage for substantially independent vertical movement therein to adapt to the water surface and being prevented from movement in other directions relative to said cage;
each said housing having a substantially rectangular parallelepiped configuration including a front face oriented in the direction of travel of said ship;
said front face having therein, throughout substantially the entire width thereof, a longitudinal opening for allowing introduction of products on the water surface into the

interior of said housing upon movement of said ship in said direction, said opening having a lower edge submerged beneath the floating line of said housing; and

means, individually connected to each said housing, for connecting the interiors of said housings to a source of reduced pressure and for transferring products from said interior to said ship.

4,332,683

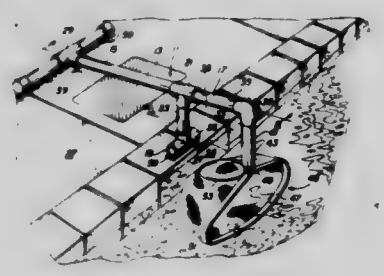
ADJUSTABLE AND STATIONARY HOLDING APPARATUS FOR A SWIMMING POOL SURFACE SKIM NET

William P. Alt, 1331 Stanley St., Longwood, Fla. 32750

Continuation-in-part of Ser. No. 171,883, Jul. 24, 1980, abandoned. This application May 4, 1981, Ser. No. 259,948

Int. Cl.[3] B01D *35/28*

U.S. Cl. 210—499 **6 Claims**



1. An apparatus for skimming debris from the surface of a swimming pool comprising:

a hollow main member having a first end and an opposite second end;

at least one support foot member secured to said main member intermediately between said first and second end, said foot member disposed in a downward direction;

a hollow support member secured to the second opposite end of said main member and having a downwardly disposed hollow portion;

a downwardly disposed hollow skim net holding member having a first portion disposed in the hollow portion of the hollow support member and a second portion provided with a plurality of spaced holes;

a skim net pole having a section adapted to fit inside the skim net holding member;

biased projecting means disposed on said section of said skim net pole for engaging one of said plurality of spaced holes on said hollow support member;

a skim net frame secured to said skim net pole;

netting material secured around the periphery of the skim net frame; and

means coupled to the skim net frame for maintaining the netting material in a fully expanded position whereby the position of the skim net frame and netting material can be changed by displacing the skim net pole until the biased projecting means engages a second one of said plurality of holes and twisting said holding member relative to said hollow support member.

4,332,684

PROCESS FOR TREATING AN ORGANIC PHASE CONTAINING IRON CHLORIDE, MOLYBDENUM CHLORIDE AND HCL

Achille De Schepper, Lichtaart, and Marc Coussement, Hove, both of Belgium, assignors to Metallutgie Hoboken-Overpelt, Brussels, Belgium

Filed Jul. 21, 1980, Ser. No. 169,517

Claims priority, application Luxembourg, Aug. 13, 1979, 81600

Int. Cl.[3] B01D *11/00*

U.S. Cl. 210—634 **8 Claims**

1. A process for treating a loaded organic phase containing iron chloride, molybdenum chloride and HCl in order to remove iron chloride and molybdenum chloride therefrom, this loaded organic phase having been obtained by extracting trivalent iron and hexavalent molybdenum from an aqueous acid chloride solution with an organic liquid comprising an extracting agent consisting of an organophosphoric compound and an agent to prevent emulsion formation consisting of a long chain aliphatic alcohol, this process being characterized in that it comprises the following sequence of steps:

(a) contacting the loaded organic phase with a sufficient quantity of water or acidulated water so that most of the iron and only a minor part of the molybdenum contained in the organic phase are re-extracted, thereby producing a first aqueous eluate and a partially unloaded organic phase;

(b) separating the first aqueous eluate from the partially unloaded organic phase;

(c) contacting the separated partially unloaded organic phase with a sufficient quantity of water or acidulated water so that most of the molybdenum contained in the partially unloaded organic phase is re-extracted, thereby re-extracting also most of the iron remaining in the partially unloaded organic phase, thereby producing a second aqueous eluate and a regenerated organic phase; and

(d) separating the second aqueous eluate from the regenerated organic phase.

4,332,685

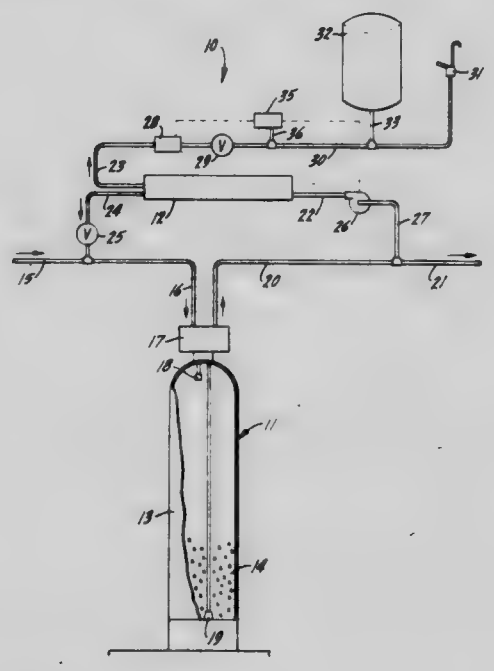
METHOD AND APPARATUS FOR TREATING WATER

Duane D. Nowlin, New Brighton, and Dennis G. Winberg, Cottage Grove, both of Minn., assignors to Ecodyne Corporation, Chicago, Ill.

Filed Jan. 26, 1978, Ser. No. 872,540

Int. Cl.[3] B01D *13/00*

U.S. Cl. 210—638 **8 Claims**



1. The method of treating hard water so as to produce a first supply of softened water that is relatively high in dissolved solids and a second supply of potable water that is low in dissolved solids, comprising the steps of:

(a) passing all of the hard water through an ion exchanger so as to produce a supply of soft water relatively high in dissolved solids;

(b) passing some of the soft water that has passed through said ion exchanger through a reverse osmosis material so as to produce a supply of potable water low in dissolved solids and a waste water;

(c) mixing all of said waste water with said hard water so as to dilute said waste water;

(d) passing the mixture of said waste water and said hard water through said ion exchanger; and

(e) storing downstream from said reverse osmosis material a volume of said potable water that is approximately equal to or less than the volume of water that can be stored in said ion exchanger.

4,332,686

LINEAR POLYURETHANE ULTRAFILTER AND PROCESSES FOR USE THEREOF

Klaus Gerlach, Obernau; Joachim Behnke, Amorbach; Wolfgang Rösener, Erlenbach, and Ewald Hohm, Mömlingen, all of Fed. Rep. of Germany, assignors to Akzo N.V., Arnhem, Netherlands

Filed Apr. 30, 1980, Ser. No. 145,767

Claims priority, application Fed. Rep. of Germany, May 4, 1979, 2918027

Int. Cl.³ B01D *13/00, 39/16*

U.S. Cl. 210—651 **14 Claims**

1. An ultrafiltration membrane consisting essentially of a linear polyurethane, said membrane having a thickness of 0.001 mm to 0.200 mm, hydraulic permeability for pure water of about 50 to 500 $l/m^2 \cdot h$ and a separation factor α of about 2×10^{-3} to 1×10^{-4}, the permeability being based on determination with a membrane of a thickness of about 0.02 mm, a pressure differential of 1 bar and a temperature of 20° C. and the separation factor α being established with the standard 2% oil-and-emulsifier in water emulsion at 25° C., said separation factor being defined as the ratio of the concentrations of oil to water in filtrate from the membrane divided by the ratio of the concentrations of oil to water in feed to the membrane.

12. A process for the separation of an oil-water emulsion comprising passing the emulsion against an ultrafiltration membrane as defined in claim 1 at a pressure differential of at least 1 bar so as to cause the water to permeate the membrane followed by recovering the retentate in the form of oil.

4,332,687

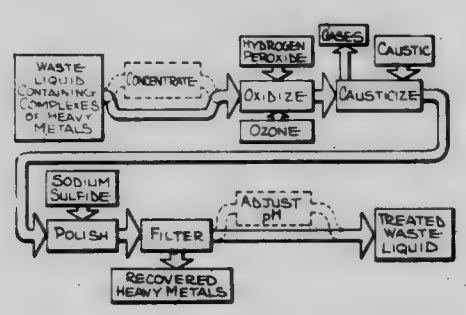
REMOVAL OF COMPLEXED HEAVY METALS FROM WASTE EFFLUENTS

Louis G. Daignault, and Edward E. Schiller, both of Charlotte, N.C., assignors to PCA International, Inc., Matthews, N.C.

Filed Sep. 21, 1978, Ser. No. 944,556

Int. Cl.³ C02F *1/78*

U.S. Cl. 210—721 **12 Claims**



1. A method of treating a waste solution containing heavy metals tightly bound by one or more complexing agents selected from the group consisting of EDTA, NTA and thiosulfate to facilitate separation and recovery of the heavy metals and to reduce pollution of streams by the heavy metals, said method comprising contacting the waste solution with a synergistic mixture of peroxide and ozone to oxidize and destroy the complexing agents and convert the heavy metals into a readily separable form.

4,332,688

AQUEOUS ACID SOLUTION CONTAINING AN ACRYLAMIDO ALKANESULFONIC ACID POLYMER

Jack F. Tate, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

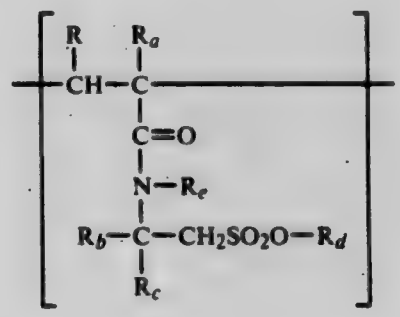
Division of Ser. No. 877,137, Feb. 13, 1978, Pat. No. 4,163,476, which is a continuation-in-part of Ser. No. 753,125, Dec. 22, 1976, abandoned. This application Jan. 8, 1979, Ser. No. 1,797

The portion of the term of this patent subsequent to Jun. 3, 1997, has been disclaimed.

Int. Cl.³ E21B *43/27*

U.S. Cl. 252—8.55 C **24 Claims**

1. An aqueous solution of about 2 to about 12 percent by weight of a mineral acid selected from the group consisting of hydrochloric acid, sulfuric acid and mixtures thereof and from about 1 to about 7 percent by weight of hydrofluoric acid which contains dissolved therein about 0.5 to about 5 percent by weight based on the total solution weight of an oxyalkylated, acrylamido alkanesulfonic acid polymer comprising recurring units of the formula:



wherein R, R_a, R_b, and R_c are independently selected from the group consisting of hydrogen and alkyl having from 1 to 5 inclusive carbon atoms, R_d is selected from the group consisting of hydrogen and $-(C_2H_4O)_mM$, wherein m is an integer of from 1 to about 20 and M is selected from the group consisting of hydrogen, sodium, potassium and ammonium and R_e is selected from the group consisting of hydrogen and $-(C_2H_4O)_sM$ wherein s is an integer of from 1 to about 20 and with the proviso that when R_d is hydrogen then R_e is $-(C_2H_4O)_sM$ and when R_e is hydrogen, then R_d is $-(C_2H_4O)_mM$, and wherein the average molecular weight of said oxyalkylated, acrylamide alkanesulfonic acid polymer ranges from about 1000 to about 1,000,000.

4,332,689

WATER BASE LUBRICANT COMPOSITION

Yoshiharu Tanizaki, Yokohama; Shigeyuki Takase, Kawasaki; Kenichiro Minagawa, Yokohama, and Kiyomitu Watanabe, Tokyo, all of Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan

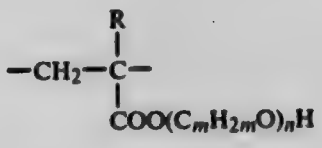
Filed Apr. 1, 1980, Ser. No. 136,578

Claims priority, application Japan, Sep. 28, 1979, 125017

Int. Cl.³ C10M *1/06*

U.S. Cl. 252—49.3 **5 Claims**

1. A water-based lubricant comprising a solution of from 20 to 96 parts by weight of water and from 4 to 80 parts by weight of polymer having a number average molecular weight of less than 100,000, said polymer consisting essentially of recurring structural units of the formula



wherein R is H or CH_3, m is an integer of from 2 to 4, and n is an integer of from 2 to 20.

4,332,690

HEAT STORAGE SYSTEM COMPRISING A PHASE CHANGE MEDIUM AND A NUCLEATING AGENT

Hiroshi Kimura, and Junjiro Kai, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 18, 1980, Ser. No. 141,314

Claims priority, application Japan, Dec. 4, 1979, 54-158810; Dec. 20, 1979, 54-166342

Int. Cl.³ C09K *3/18;* F28D *13/00*

U.S. Cl. 252—70 10 Claims

1. In a heat storage system comprising a phase change medium which results in a phase conversion at a specific temperature and a nucleating agent for initiating a crystallization of said phase change medium, an improvement characterized in that a gas and water are present in contact with each other in the system in amount to form as the phase change medium a gas hydrate having a dodecahedron structure as the basic crystal structure and a clathrate for water which has a dodecahedron structure different from that of said gas hydrate is present as said nucleating agent, wherein said gas hydrate is a hydrate of ethyl chloride, trichlorofluoromethane, dichlorofluoromethane, tetrahydrofuran or trimethylamine or a mixture thereof and said nucleating agent is a hydrate of tetrabutylammonium salt or tetraisomylammonium salt, said nucleating agent being present in amount effective for initiating crystallization of the gas hydrate.

4,332,691

BLEACHING LIQUID CLEANING COMPOSITION

Stuart W. Beavan, Merseyside, England, assignor to Lever Brothers Company, New York, N.Y.

Filed Apr. 6, 1981, Ser. No. 251,036

Claims priority, application United Kingdom, Apr. 11, 1980, 8012042; Apr. 11, 1980, 8012046; Apr. 11, 1980, 8012047; Apr. 11, 1980, 8012048

Int. Cl.³ C11D *9/42*

U.S. Cl. 252—96 16 Claims

1. A liquid-based bleaching and cleaning composition consisting essentially of:

(i) at least about 20% by weight of a liquid base,

(ii) about 1% to about 79.9% by weight of a detersive surfactant with or without a detergency builder; and

(iii) about 0.1% to about 40% by weight of a chlorite whereby said

composition yields a pH of at least 6.0 when dispersed in water at a concentration of about 0.5 g/l and provides a bleaching effect when exposed to a source of ultraviolet light.

4,332,692

LAUNDERING WITH A NONIONIC DETERGENT SYSTEM AT A TEMPERATURE BETWEEN THE CLOUD POINT AND THE PHASE COALESCENCE TEMPERATURES

Nicholas S. Payne, Cincinnati, Ohio; Thomas D. Storm, Tucson, Ariz., and Theodore C. Stephens, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 16,048, Feb. 28, 1979, abandoned. This application Jun. 5, 1980, Ser. No. 156,536

Int. Cl.³ C11D *3/075*

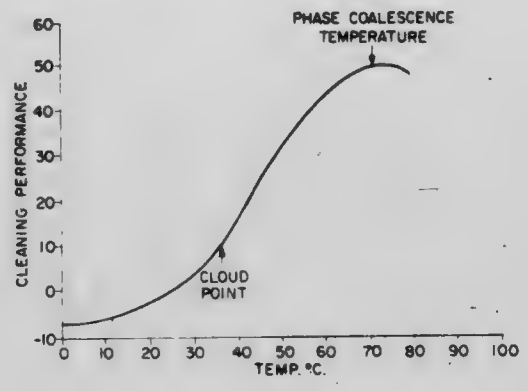
U.S. Cl. 252—135 12 Claims

1. A process for laundering oily soil from a fabric, comprising the step of contacting said fabric with an aqueous washing liquor, having a total surfactant hydrophilic/lipophilic balance index of about 10–13, comprising:

(a) 180 ppm to 20,000 ppm of a nonionic surfactant system which has a critical micelle concentration of less than 50 ppm measured at 25 degrees Celsius in distilled water;

(b) 500 ppm to 10,000 ppm of a sequestering builder selected from compounds of a group of cations selected from sodium, potassium, lithium and hydrogen ions and a group of anions selected from tripolyphosphate, pyrophosphate, orthophosphate, nitrilotriacetate, ethylene diamine tetraacetate, nitrilotrimethyl phosphate, and ethylene diamine tetramethylphosphonate ions, and mixtures thereof; and

(c) 700 ppm to 20,000 ppm of a strong electrolyte; while maintaining said washing liquor at a temperature within the range given by the expression



$$0.30(B-A)+A \leqq T < B$$

wherein T is the temperature of said washing liquor, B is the phase coalescence temperature of said washing liquor and A is the cloud point temperature of said washing liquor.

4,332,693

AGENT FOR THE PURIFICATION OF WASTE WATERS AND PROCESS FOR ITS PRODUCTION

Ralf F. Piepho, Wennigsen, Fed. Rep. of Germany, assignor to American Colloid Company, Skokie, Ill.

Continuation of Ser. No. 867,240, Jan. 6, 1978, abandoned. This application Mar. 5, 1981, Ser. No. 240,874

Int. Cl.³ C02F *5/10*

U.S. Cl. 252—181 6 Claims

1. A chemical agent for the treatment of contaminated waste waters, especially of waste waters in the form of oily emulsions, the agent being composed by weight of the following compounds in the following proportions:

Talc	1.5–2.5 kg
Adipic Acid	2.0–3.0 kg
Aluminum Sulfate	17.0–23.0 kg
An acid activated bentonite, comprising approximately 56.7% SiO_2; 20.2% Al_2O_3; 2.9% CaO; 4.3% MgO; and 2.7% $Na_2O + K_2O$	35.0–48.0 kg
A polymeric organic Flocculating Agent	0.3–0.5 kg
Lime	12.0–15.0 kg
Bentonite	20.0–28.0 kg
	87.8–120.0

4,332,694

THREE-DIMENSIONAL CARRIER OF INORGANIC POROUS MATERIAL-REACTIVE POLYMER AND A METHOD FOR ITS PREPARATION

Jaroslav Kalal, and Marie Tlustakova, both of Prague, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

Continuation-in-part of Ser. No. 847,259, Oct. 31, 1977, abandoned. This application Nov. 29, 1979, Ser. No. 98,343

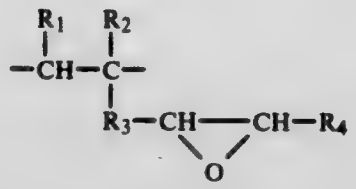
Claims priority, application Czechoslovakia, Nov. 12, 1976, 7319-76; Nov. 12, 1976, 7320-76

Int. Cl.³ C12N *11/08;* B32B *17/10*

U.S. Cl. 252—189 8 Claims

1. A three dimensional carrier consisting of a porous inor-

ganic material and 0.001–95% unextractably sorbed reactive polymer of the general formula I,



I

wherein R_1, R_2, R_4 respectively are hydrogen, alkyl with 1–5 carbon atoms, or aryl, and R_3 is the group $—COO(CH_2)_n—$, wherein n is 1 or 2, some of the epoxy groups of said polymer having interacted with the surface of said inorganic material, the remaining non-interacted epoxy groups of said polymer representing reactable sites, and said polymer prior to contacting said inorganic material, having a degree of polymerization lower than 10^3.

4,332,695

HYDROCARBON EMULSIONS

Johann G. D. Schulz, Pittsburgh, and John A. Cobler, Harwick, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jan. 9, 1980, Ser. No. 110,796
Int. Cl.³ B01J *13/00*
U.S. Cl. 252—312 **12 Claims**

1. A hydrocarbon emulsion containing hexane, water and the product resulting from the reaction of (1) polycyclic, polycarboxylic acids obtained as a result of the oxidation of coal with (2) a base, wherein the weight ratio of hydrocarbon to water is in the range of about 4:1 to about 1:4 and the weight ratio of said product to water is in the range of about 1:49 to about 1:4.

4,332,696

FATTY EPOXIDE HYDROPHOBIZED SILICA AS ANTIFOAMS IN BROWNSTOCK WASHING AIDS

Manuel Slovinsky, Woodridge, and Joseph A. Maciaszek, Naperville, both of Ill., assignors to Nalco Chemical Company, Oak Brook, Ill.

Filed May 27, 1980, Ser. No. 153,512
Int. Cl.³ B01D *19/04*; B05D *3/02, 7/00*
U.S. Cl. 252—321 **5 Claims**

2. In an improved aqueous defoamer composition of the type comprising 70–98% by weight of a water-insoluble organic liquid, from 0.1 to about 20% of a hydrophobic silica suspended in the organic liquid, and from about 1 to about 20% of a oil-soluble spreading agent, the improvement which comprises utilizing as the hydrophobic silica a silica which had at least a portion of its surface esterified with an alpha-beta fatty epoxide.

4. The method of defoaming aqueous systems which comprises adding to said systems a defoaming amount of the composition of claim 2.

4,332,697

PROCESS FOR THE PREPARATION OF CATALYST COMPONENT FOR THE POLYMERIZATION OF α-OLEFINS

Kouhei Kimura, Kanagawa; Hiroyasu Ohba, and Atsushi Murai, both of Chigasaki, all of Japan, assignors to Toho Titanium Co., Ltd., Tokyo, Japan

Filed Dec. 15, 1980, Ser. No. 216,766
Claims priority, application Japan, Dec. 31, 1979, 54-173241
Int. Cl.³ C08F *4/64*
U.S. Cl. 252—429 B **10 Claims**

1. A process for the preparation of a catalyst component for the polymerization of α-olefins which comprises copulverizing for treatment (a) a magnesium halide represented by the general formula MgX_2 where X is a halogen atom, with (b) aluminium isopropoxide to form a first copulverization product, subsequently adding (c) an electron donor compound to said first copulverization product for copulverization treatment therewith to form a second solid copulverization product, contacting said second solid copulverization product with (d) a titanium halide represented by the general formula TiX_4 where X is a halogen atom in the liquid phase or in the gaseous phase to be reacted therewith, and washing the resultant reaction product with an inert organic solvent, whereby the catalyst component is obtained.

4,332,698

CATALYST SHEET AND PREPARATION

Philip Bernstein, Glen Ridge, N.J.; James P. Coffey; Alan E. Varker, both of Warwick, N.Y.; John T. Arms, Monroe; William D. K. Clark, Warwick, both of N.Y., and Paul D. Goodell, Ridgewood, N.J., assignors to MPD Technology Corporation, Wyckoff, N.J.

Filed Jan. 19, 1981, Ser. No. 226,457
Int. Cl.³ B01J *31/06, 31/28, 31/34, 35/02*
U.S. Cl. 252—430 **16 Claims**

1. A catalyst composition said composition being in the form of a sheet comprising a catalyst material encradled in a porous, fiber-containing polymeric material, said polymeric material comprising a fibrillated first polymer and a support-contributing polymer, and said polymeric material having porosity therethrough, and said composition being developed from a catalyst material, a fibrillatable first polymer, a support-contributing second polymer and a major amount of a removable pore-former, said porosity being developed on removal of the pore-former.

4,332,699

CATALYST PREPARATION

Richard J. Nozemack, Lutherville, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Jul. 10, 1980, Ser. No. 167,297
Int. Cl.³ B01J *29/08*
U.S. Cl. 252—455 Z **15 Claims**

1. A method for preparing a zeolite containing hydrocarbon cracking catalyst which is selective for the production of gasoline fractions comprising:

dispersing in an inorganic oxide matrix an alumina coated zeolite which is prepared by the process comprising:

(a) preparing an aqueous slurry of finely divided zeolite,

(b) continuously adding an acid aluminum salt solution and an alkali metal aluminate solution to said zeolite slurry under agitation to provide a reaction mixture wherein the pH remains at about 7 to 8 to precipitate hydrous alumina on said zeolite particles, and

(c) adding a base to the reaction mixture to increase pH to a level of from about 9 to 11 to stabilize said alumina.

3. The method of claim 1 wherein said zeolite is a crystalline alumino silicate selected from the group consisting of type X, type Y, ZSM-5 and mixtures thereof.

6. The method of claim 1 where from about 20 to 50 percent by weight of alumina is precipitated on said zeolite.

4,332,700

METHOD FOR SEPARATING RUBBER FROM METAL

Pavel Munih, Kranj, Yugoslavia, assignor to SAVA KRANJ Industrija gumijevih, usnjenih in kemicnih izdelkov n.o.sol.o., Kranj, Yugoslavia

Filed Oct. 21, 1980, Ser. No. 199,157
Claims priority, application Yugoslavia, Oct. 22, 1979, 2565/79
Int. Cl.³ C08J *3/28, 11/00*
U.S. Cl. 204—155 **8 Claims**

1. A method for separating rubber from metal which comprises covering a disintegrated metal-containing rubber body with an inert powdered agent, exposing said rubber body to high-frequency electromagnetic field for a time sufficient to

cause the metal to glow and the border layer of the rubber on the metal-rubber contact to become thermally degraded and carbonized, cooling until the metal ceases to glow, removing the inert powdered agent, and separating the rubber from the metal by means of magnetic separation.

4,332,701

SPRAYABLE HIGH SOLIDS POLYESTER RESIN COMPOSITIONS

Charles A. Ponyik, Jr., Maple Heights, Ohio, and Michael A. Tobias, Bridgewater, N.J., assignors to Dunlop Limited, London, England

Filed Jun. 18, 1980, Ser. No. 160,536
Int. Cl.³ C09D *3/52, 3/64, 3/66*
U.S. Cl. 524—539 **5 Claims**

1. Polyester resin condensation products of a reaction mixture comprising:
(a) between about 40% and about 60% by weight isophthalic acid;
(b) between about 2% and about 18% by weight of 2-ethyl-2-(hydroxymethyl)-1,3-propanediol;
(c) between about 9% and about 24% by weight of 2,2-dimethyl-1,3-propanediol;
(d) between about 9% and about 30% by weight of 1,6-hexanediol; and
(e) between about 3% and about 15% by weight of benzoic acid; wherein said resin has a number average molecular weight of from about 1400 to about 5000 and a combined acid and hydroxyl value of about 40 to about 160 milligrams of KOH per gram of polyester.

4,332,702

POLYVINYL CHLORIDE COMPOSITIONS AND PROCESSING

Robert A. Lindner, Newburg, N.Y., assignor to Henkel Corporation, Minneapolis, Minn.

Filed Jan. 12, 1981, Ser. No. 223,886
Int. Cl.³ C08K *5/09, 5/10, 5/57*
U.S. Cl. 524—178 **13 Claims**

1. A partial ester of pentaerythritol which is useful for internal lubricating functions and also to function as a hydrogen chloride scavenger in a polyvinyl chloride product such compound is further described as:
a partial ester of 2,2-bishydroxymethyl-1,3-propanediol which contains as the saturated fatty acid portion of said ester the following components:
(a) from 0 to 10 percent of 14 carbon fatty acid;
(b) 0 to 5 percent of 15 carbon fatty acid;
(c) 30 to 60 percent of 16 carbon fatty acid;
(d) 0 to 5 percent of 17 carbon fatty acid; and
(e) 30 to 60 percent 18 carbon fatty acid
reacted to give from 25 to 45 percent monoester, from 40 to 60 percent diester and from about 15 to about 30 percent triester, such that said partial ester is substantially free of unreacted 2,2-bishydroxymethyl-1,3-propanediol and substantially free of the tetraester.

4,332,703

PLASTIC BITUMINOUS COMPOSITIONS

Jan Lijzenga; Gerrit Van Gooswilligen, and Thomas C. Blanken, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Feb. 17, 1981, Ser. No. 235,347
Claims priority, application United Kingdom, Mar. 31, 1980, 10836
Int. Cl.³ C08L *9/00, 95/00*
U.S. Cl. 524—68 **10 Claims**

1. Plastic bituminous compositions comprising
(a) 100–30% w of a mixture of
1. 45–99.8% w of a bituminous component having a penetration of less than 800 (0.1 mm) at 25° C.,
2. 0.1–30% w of a lithium salt of a C_{10}–C_{40} (hydroxy) fatty acid, and
3. 0.1–25% w of a thermoplastic polymer having the general configuration $(A\text{-}B(B\text{-}A)_n$ wherein each A is a thermoplastic polymer block of a monovinyl aromatic hydrocarbon, each B is an elastic polymer block of a conjugated diene or hydrogenated elastic polymer block of a conjugated diene and n is an integer, and
(b) 0–70% w of a filler.

4,332,704

MODIFIED ASPHALT COMPOSITIONS

Alfred Marzocchi; Michael G. Roberts; Charles E. Bolen, and Edward R. Harrington, all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jun. 12, 1980, Ser. No. 158,966
Int. Cl.³ C08L *91/00*
U.S. Cl. 523—203 **11 Claims**

1. A chemically-modified asphalt composition formed by reaction of (a) an asphalt, (b) a polycarboxylic acid or anhydride containing 2 to 4 carboxyl groups and (c) an organic polyalcohol.

4,332,705

ASPHALT COMPOSITION MODIFIED WITH A RUBBERY POLYMER

William E. Uffner, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Apr. 28, 1980, Ser. No. 144,711
Int. Cl.³ C08L *91/00*
U.S. Cl. 523—206 **16 Claims**

1. A chemically-modified asphalt composition comprising an asphalt which has been reacted with (1) a polymerizable monofunctional vinyl aromatic monomer, (2) a polyfunctional polymerizable vinyl aromatic monomer having the formula:

$$CH_2{=}CH{-}R_1{-}(CH_2)_x{-}CH{=}CH_2$$

wherein R_1 is an aromatic group containing 6 to 12 carbon atoms and x is 0 or an integer from 1 to 5 and (3) a rubbery polymer.

4,332,706

INTERNAL REFLECTION SUPPRESSING COATING MATERIAL FOR OPTICAL GLASS

Haruo Uehara, and Kunio Satomi, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 13, 1980, Ser. No. 149,456
Claims priority, application Japan, May 21, 1979, 54-62427; May 21, 1979, 54-62428
Int. Cl.³ C08L *91/00*
U.S. Cl. 523—450 **10 Claims**

1. An internal reflection suppressing coating material for optical glass which comprises, as an admixture, a light absorbing material, a resin and an organic solvent, said light absorbing material being selected from the group consisting of coal tar and coal tar pitch and being present in an amount of 15 to 70 percent by weight of the coating material excluding the solvent, and said resin being selected from the group consisting of vinylidene chloride copolymers, brominated epoxy resins and chlorinated epoxy resins.

4,332,707

SYNERGISTIC SOLVENT SOLUTION OF XYLENE AND STODDARD SOLVENT FOR CHEMICALLY MODIFIED ASPHALT

Michael G. Roberts, and Joseph F. Tanner, both of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Apr. 1, 1981, Ser. No. 249,592
Int. Cl.³ C08L 95/00
U.S. Cl. 524—476 4 Claims

1. A homogeneous, stable organic solvent solution of the reaction product of asphalt, a polymerizable vinyl aromatic monomer, and a rubbery polymer, said solvent being selected from the group consisting of (a) a mixture consisting essentially of about 40–80% by weight xylene and about 20–60% by weight Stoddard solvent, and (b) a mixture consisting essentially of xylene, Stoddard solvent and hexane or heptane, or a mixture of hexane and heptane, with xylene being present in an amount of about 40–80%, the Stoddard solvent being present in an amount of about 5–35%, and said hexane or heptane, or mixture of hexane and heptane, being present in a maximum amount of about 25%.

4,332,708

POLYCARBOXYLIC ACID/ESTER-DIAMINE AQUEOUS COATING COMPOSITION

Edith M. Boldebuck, Schenectady, N.Y., and Eugene G. Banucci, Pittsfield, Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 27, 1980, Ser. No. 124,986
Int. Cl.³ C08L 79/08
U.S. Cl. 524—376 7 Claims

1. Aqueous coating solution comprising by weight

(A) from about 40% to 75% of solids and

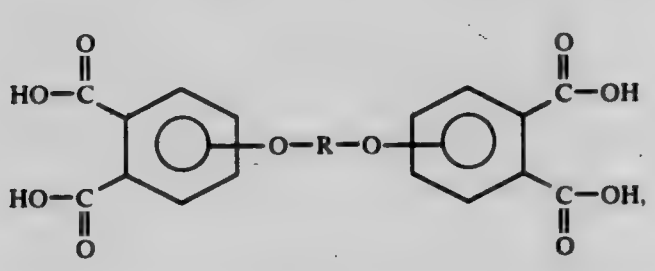
(B) from about 25% to 60% of solvent,

where (A) is a polycarboxylic acid/ester-organic diamine mixture wherein the organic diamine has the formula,

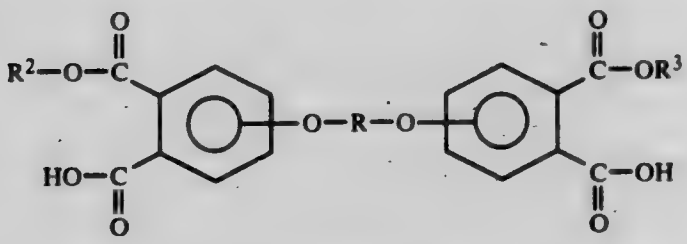
$$NH_2R^1NH_2,$$

is present in about equal molar amounts and up to about a 25 mole percent excess over the moles of organic polycarboxylic acid/ester which mixture is a member selected from

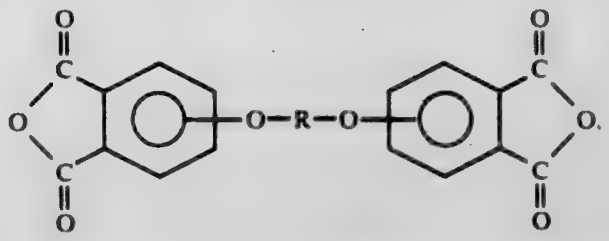
(i) a mixture of 40 to 80 mole percent of tetra-acid of the formula,



and 20 to 60 mole percent of a half-ester of the formula,



or (ii) a mixture consisting essentially of (i) and from 0 to 10 mole percent, based on total moles of said tetra-acid and said half-ester, of organic dianhydride of the formula,



where (B) is a solvent mixture comprising by weight 1 to 20% by weight of water and 80 to 99% by weight of monoalkyl glycol ether having 1 to 4 carbon atoms in the alkyl group, where R is a $C_{(6-30)}$ aromatic organic radical, R^1 is a $C_{(6-30)}$ organic radical, R^2 is an alkyl terminated alkylene ether or dialkylene ether radical and R^3 is selected from R^2 or hydrogen.

4,332,709

WATER-THINNABLE BINDERS AND THEIR PREPARATION

Petrus G. Kooijmans; Wolfgang Kunze, and Arend Noordam, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 16, 1981, Ser. No. 225,557
Claims priority, application United Kingdom, Jan. 25, 1980, 8002541
Int. Cl.³ C08L 63/02
U.S. Cl. 523—416 13 Claims

1. A water-thinnable curable binder suitable for coatings which comprises reacting a polyglycidyl ether of a polyhydric phenol with an aqueous solution of an aliphatic amino acid in which at least 50% of the acid groups have been neutralized with a base, in a ratio of from about 0.7 to 1.2 aminohydrogen equivalents per epoxy equivalent.

4,332,710

THERMAL COAGULATION OF POLYURETHANE DISPERSIONS

John McCartney, Chester County, Pa., assignor to Norwood Industries, Inc., Malvern, Pa.

Filed Feb. 17, 1981, Ser. No. 234,464
Int. Cl.³ C08K 3/34
U.S. Cl. 524—591 14 Claims

1. An aqueous polyurethane composition capable of coagulation by the application of heat thereto comprising:

an aqueous anionic polyurethane dispersion having anionic groups covalently bonded to the polymer chain and solubilized by the addition of a cationic compound which forms a salt with the anionic group; and

a compound which, when heated in an aqueous solution, generates acid which displaces the cationic compound from the covalently bonded anionic group.

4,332,711

THERMOSETTING RESINOUS BINDER COMPOSITIONS, THEIR PREPARATION AND USE AS COATING MATERIALS

Petrus G. Kooymans; Johannes J. M. H. Wintraecken; Werner T. Raudenbusch; Josepha M. E. Seelen-Kruijssen, and Gerardus C. M. Schreurs, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Dec. 3, 1979, Ser. No. 99,363
Claims priority, application Netherlands, Dec. 11, 1978, 7812028
Int. Cl.³ C08L 67/00
U.S. Cl. 523—402 15 Claims

1. A thermosetting binder composition, heat-curable to give an insoluble infusible coating, comprising:

(I) a mixture of:

(1) a non-acidic resinous compound essentially free of ethylenically unsaturation, having a molecular weight

of at least 900 and a hydroxyl content of at least 0.2 equivalent per 100 g, and

(2) a non-acidic polyester having an acid number of not more than 10 of a polycarboxylic acid cross-linking agent having more than one β-hydroxyl ester group per molecule, at least one of components (1) and (2) having a hydroxyl functionality of more than 2, and

(II) a transesterification-promoting metal salt or metal complex curing catalyst which is soluble in liquid hydrocarbons.

4,332,712

PROCESS FOR THE PRODUCTION OF ALKALI METAL SILICATE-ORGANIC PLASTICS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Continuation-in-part of Ser. No. 233,151, Feb. 10, 1981, which is a continuation-in-part of Ser. No. 146,474, May 5, 1980, which is a continuation-in-part of Ser. No. 36,350, May 7, 1979, which is a continuation-in-part of Ser. No. 889,932, Mar. 27, 1978, which is a continuation-in-part of Ser. No. 663,924, Mar. 4, 1976, which is a continuation-in-part of Ser. No. 599,000, Jul. 7, 1975, Pat. No. 4,072,637, which is a continuation-in-part of Ser. No. 262,485, Jun. 14, 1972, abandoned, which is a continuation-in-part of Ser. No. 71,628, Sep. 11, 1970, abandoned. This application Jul. 17, 1981, Ser. No. 284,486

Int. Cl.³ C08K *3/00;* C08J *3/06, 3/08*

U.S. Cl. 524—650 **17 Claims**

1. The process of the production of alkali metal silicate-organic plastic by mixing and reacting the following components:

(a) an aqueous alkali metal silicate solution in the amount of 100 parts by weight

(b) a polymerable unsaturated organic compound in the amount of 5 to 100 parts by weight

(c) a mono or polycarboxylic acid salt forming compound in the amount of 1 to 10 parts by weight

(d) an organic epoxide compound selected from the group consisting of ethylene oxide, propylene oxide, epichlorohydrin and mixtures thereof in the amount of 1 to 50 parts by weight

(e) an initiator, a catalytic amount.

4,332,713

LIQUID OR PASTY THERMOSETTING ADHESIVE WHICH CAN BE PRE-GELLED AND WHICH IS BASED ON EPOXIDE RESIN, AND THE USE OF THIS ADHESIVE

Hans Lehmann, Aesch, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 29, 1980, Ser. No. 202,021

Claims priority, application Switzerland, Nov. 9, 1979, 10047/79

Int. Cl.³ C08K *5/01*

U.S. Cl. 156—328 **9 Claims**

1. A liquid or pasty thermosetting adhesive, which can be pre-gelled and which is based on epoxide resin, which consists essentially of

(a) a liquid epoxide resin having on average more than one epoxide group in the molecule or a mixture of said liquid epoxide resins,

(b) an effective amount of a latent curing agent for epoxide resin, which is insoluble in the epoxide resin at room temperature, and which is selected from the group consisting of dicyandiamide, melamine, guanamine, polycarboxylic acid polyhydrazides, carboxylic acid imides and imidazole derivatives, and

(c) 5 to 50% by weight, relative to the epoxide resin, of at least one halogen-free thermoplast in powder form, which is insoluble in the epoxide resin at room temperature, and which thermoplast has a softening point of between 60° and 160° C.

4,332,714

DRIP-RETARDANT PLASTICIZED POLYPHENYLENE ETHER COMPOSITIONS CONTAINING MICROFIBRILLAR POLY(TETRAFLUOROETHYLENE)

William R. Haaf, Voorhesville; Gim F. Lee, Jr., and Robert A. Williams, both of Albany, all of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Continuation of Ser. No. 753,511, Dec. 21, 1976, abandoned. This application May 3, 1978, Ser. No. 902,411

Int. Cl.³ C08L *53/00;* C08F *8/00;* C08L *71/04;* C08K *5/52*

U.S. Cl. 524—141 **15 Claims**

1. A drip-retardant, plasticized thermoplastic composition which comprises, in admixture:

(a) a polyphenylene ether resin;

(b) a plasticizer in an amount at least sufficient to provide a plasticized composition after molding, said amount being sufficient to lower the temperature required to extrude the composition by at least 50° to 100° F. in comparison with the corresponding composition without the plasticizer; and

(c) a microfibrillar poly(tetrafluoroethylene) resin in an amount at least sufficient to render said thermoplastic composition non-dripping when molten.

4,332,715

VINYL RESIN COMPOSITIONS COMPRISING AN ORGANOPOLYSILOXANE

Isao Ona, Sodeuramachi, and Masaru Ozaki, Ichihara, both of Japan, assignors to Toray Silicone Limited, Tokyo, Japan

Filed Jul. 13, 1981, Ser. No. 282,842

Claims priority, application Japan, Jul. 31, 1980, 55/105378

Int. Cl.³ C08K *5/54*

U.S. Cl. 524—265 **6 Claims**

1. A composition comprising

(a) 100 parts by weight of a vinyl resin component and

(b) from 0.01 to 20 parts by weight of an organopolysiloxane component having the formula

$$A(R_2SiO)_m(RSiO)_nSiR_2A$$
$$\Big|$$
$$R'OCR''$$
$$\|$$
$$O$$

wherein R denotes a substituted or unsubstituted monovalent hydrocarbon radical, R′ denotes a divalent hydrocarbon radical, R″ denotes an alkyl radical, A denotes an R radical or an R′OCOR″ radical, m and n are each zero or a positive integer and the sum of m+n has a value of from 1 to 2000, there being at least one R′OCOR″ radical per molecule of organopolysiloxane.

4,332,716

POLYMER/POLYISOCYANATE COMPOSITIONS, PROCESSES FOR MAKING SAME AND PROCESSES FOR MAKING POLYURETHANE PRODUCTS THEREFROM

Naresh R. Shah, Nitro, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 10, 1980, Ser. No. 215,097

Int. Cl.³ C08G *18/14, 18/63;* C08K *5/05, 5/16*

U.S. Cl. 521—137 **51 Claims**

1. A polymer/polyisocyanate composition comprising:

(1) a major amount of a first organic polyisocyanate;

(2) a minor amount of a first polymer of at least one ethylenically unsaturated monomer stably dispersed in said polyisocyanate; and

(3) a minor amount of a stabilizer selected from the group consisting of:

(a) a polyoxyalkylene polyol having a number average molecular weight of at least 4000, and
(b) an isocyanato terminated prepolymer formed by reacting said polyol and a second organic polyisocyanate with the proviso that the isocyanato terminated prepolymer and the first organic polyisocyanate are present in a relative amount that provides greater than 25 equivalents of isocyanato groups per equivalent of hydroxyl groups.

4,332,717

PURIFICATION OF HUMAN GROWTH HORMONE

Masaharu Kanaoka, Takarazuka; Hideki Yanagi, Toyonaka, and Shigeo Ogino, Nishinomiya, all of Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed Aug. 21, 1980, Ser. No. 180,178
Claims priority, application Japan, Aug. 21, 1979, 54/106808
Int. Cl.[3] A61K *35/55*; C07G *7/00*
U.S. Cl. 260—112 R 9 Claims

1. A method for purifying human growth hormone comprising the steps of:
contacting an aqueous solution of crude human growth hormone with a compound selected from the group consisting of crosslinked agarose having hydrophobic groups or porous resin composed of crosslinked polystyrol and having network structure; and
separating and recovering a purified human growth hormone.

4,332,718

PROCESS FOR PRODUCING AN α-L-ASPARTYL-L-PHENYLALANINE LOWER ALKYL ESTER

Satoji Takahashi, Kawasaki, and Koji Toi, Hayamamachi, both of Japan, assignors to Ajinomoto Company, Inc., Tokyo, Japan

Continuation-in-part of Ser. No. 66,656, Aug. 15, 1979, abandoned. This application Mar. 4, 1980, Ser. No. 126,671
Claims priority, application Japan, Sep. 5, 1978, 53-108962
Int. Cl.[3] C07C *103/52*; C07D *307/60*
U.S. Cl. 260—112.5 R 3 Claims

1. A process for producing an α-L-aspartyl-L-phenylalanine lower alkyl ester or its hydrochloride which comprises (a) treating an L-N-(1-methyl-2-lower aliphatic acylvinyl or 1-methyl-2-lower alkoxycarbonylvinyl)-aspartic acid or an alkali metal salt thereof with a dehydrating agent in an organic solvent containing an acid, (b) reacting the solution resulting from such treatment with an L-phenylalanine lower alkyl ester and (c) treating the resulting reaction mixture with water or an aqueous acid solution to remove the 1-methyl-2-lower aliphatic acylvinyl or 1-methyl-2-lower alkoxycarbonylvinyl group from the L-N-(1-methyl-2-lower aliphatic acylvinyl or 1-methyl-2-lower alkoxycarbonylvinyl)-aspartyl-L-phenylalanine lower alkyl ester.

4,332,719

METHOD AND APPARATUS FOR ISOLATING PROTEIN FROM GLANDLESS COTTONSEED

James T. Lawhon, College Station, and Larry J. Manak, Bryan, both of Tex., assignors to Texas A&M University, College Station, Tex.

Filed May 27, 1980, Ser. No. 153,100
Int. Cl.[3] A23J *1/14*
U.S. Cl. 260—123.5 9 Claims

1. A method of obtaining protein from oilseed, comprising the steps of:
(a) extracting nonstorage protein from defatted oilseed flour or flakes by placing the oilseed flour or flakes in an aqueous solution to solubilize the nonstorage protein and then separating a storage protein-containing residue from the remaining solution;
(b) removing nonstorage protein from the remaining solution by adjusting the pH of that solution to at or near the isoelectric point for nonstorage protein, and then separating the nonstorage protein curd precipitate from the solution, leaving a nonstorage protein whey;
(c) extracting storage protein from the residue from Step (a) by placing that residue in an alkaline solution having a pH greater than about 8 to solubilize the storage protein, and then removing insoluble residue from the remaining alkaline solution;
(d) intermixing the remaining alkaline solution of Step (c) and the nonstorage protein whey of Step (b) and maintaining the pH of the mixture above 7; and
(e) separating protein from the mixture formed by Step (d) by filtration with a semipermeable membrane.

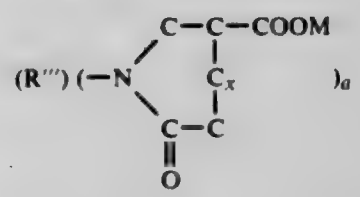
4,332,720

N,N'-POLYOXYALKYLENE BIS(LACTAM CARBOXYLIC ACIDS)

Heinz Schulze; Robert L. Zimmerman, and Harold G. Waddill, all of Austin, Tex., assignors to Texaco Development Corporation, White Plains, N.Y.

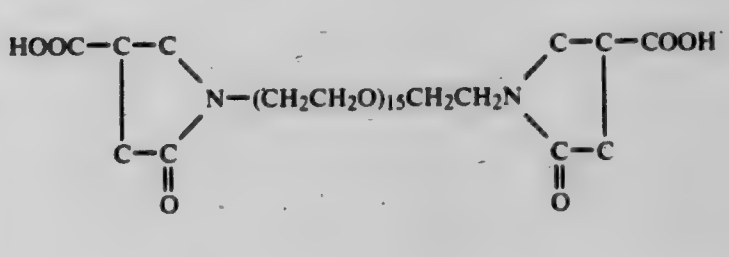
Continuation-in-part of Ser. No. 689,409, May 24, 1976, abandoned. This application Nov. 1, 1977, Ser. No. 847,642
Int. Cl.[3] C07D *207/277, 211/78, 223/10, 227/087*
U.S. Cl. 260—239.3 R 9 Claims

1.

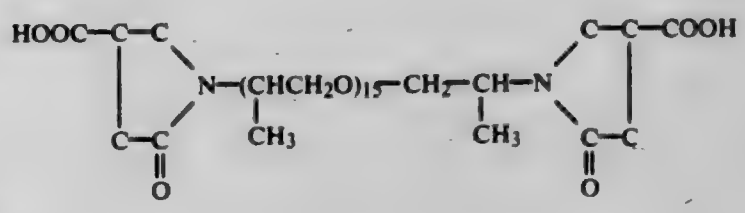


wherein x is an integer 1–2; a is an integer 2–3; M is hydrogen, alkali metal, or quaternary ammonium when x is 1 or 2; R''' is a polyoxyalkylene chain having terminal carbon atoms to which the nitrogen atoms are bonded; and the molecular weight of R''' is 200–2100.

8.



9.



4,332,721

PROCESS FOR PREPARING MICRONIZED SPIRONOLACTONE

Giuseppe Bernini, Milan, Italy, assignor to Secrifarma S.p.A., Milan, Italy

Filed Feb. 19, 1981, Ser. No. 235,816
Claims priority, application Italy, Mar. 6, 1980, 20391 A/80
Int. Cl.[3] C07J *19/00*
U.S. Cl. 260—239.57 3 Claims

1. A process for preparing micronized spironolactone having increased biological activity, which comprises micronizing the spironolactone by precipitation with water from a solution with preferably organic solvents selected from the group con-

sisting of lower alcohols, ethers, lactones, ether-alcohols and glycols at a temperature from 0° to 30° C. and under vigorous stirring.

4,332,722

CYCLIZATION TO FORM CEPHEM RING AND INTERMEDIATES THEREFOR

Teruji Tsuji, Takatsuki; Yoshio Hamashima, Kyoto; Mitsuru Yoshioka, Toyonaka; Masayuki Narisada, Ibaraki; Hiroshi Tanida; Taichiro Komeno, both of Osaka, and Wataru Nagata, Nishinomiya, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

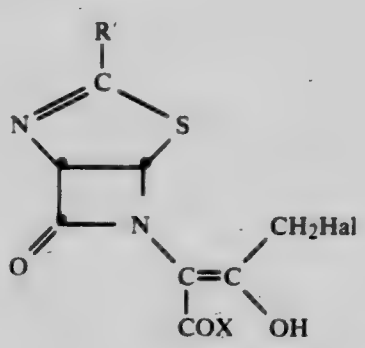
Division of Ser. No. 66,462, Aug. 13, 1979, abandoned, which is a continuation of Ser. No. 856,807, Dec. 1, 1977, abandoned, which is a division of Ser. No. 658,665, Feb. 17, 1976, Pat. No. 4,079,181. This application Feb. 27, 1980, Ser. No. 125,232

Claims priority, application Japan, Feb. 17, 1975, 50-19612; Feb. 21, 1975, 50-22229; Mar. 7, 1975, 50-28452; Mar. 30, 1975, 50-33808

Int. Cl.³ C07D *487/04*

U.S. Cl. 260—245.4 **6 Claims**

1. A member selected from the group consisting of (a) a compound of the formula



wherein

R′ is a member selected from the group consisting of (1) hydrogen, (2) C_1 to C_4 alkyl, (3) phenyl, (4) α-chlorobenzyl, (5) ArCQQ′, (6) Ar-G-CQQ′ wherein Q and Q′ represent hydrogen or methyl, G represents oxygen or sulfur and Ar represents (a) phenyl, (b) dihydrophenyl, (c) monocyclic heterocyclic selected from the group consisting of furyl, thienyl, pyrryl, oxazolyl, isoxazolyl, oxatriazolyl, pyrazolyl, imidazolyl, triazolyl, tetrazolyl, pyridyl, pyrimidyl, pyrazinyl, pyridazinyl, and triazinyl or (d) one of said groups (a) to (c) substituted by an inert group selected from the group of alkyl of 1 to 3 carbon atoms, alkoxy of 1 to 3 carbon atoms, chlorine, bromine, iodine, fluorine, trifluoromethyl hydroxy, cyano, aminomethyl, amino and nitro,

Hal is chlorine, bromine, iodine or fluorine, and

X is OH or a carboxy protecting group containing up to 20 carbon atoms, and (b) an oxo tautomer of said compound.

4,332,723

PROCESS FOR PREPARING N-VINYL CARBAZOLES

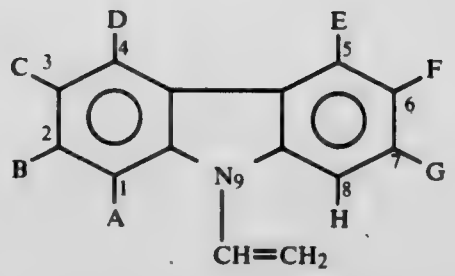
Michael P. Fleming, Boulder, Colo., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed May 20, 1981, Ser. No. 265,303

Int. Cl.³ C07D *209/86*

U.S. Cl. 548—444 **20 Claims**

1. A process for the preparation of a N-vinylcarbazole represented by the following formula:



wherein:

substituents A, B, C, D, E, F, G and H are independently selected from the group consisting of hydrogen, fluorine, chlorine, bromine, iodine, methyl, ethyl, n-propyl, isopropyl, butyl, amyl, iso-amyl, methoxy, ethoxy, nitro, cyano, methylamino, ethylamino, dimethylamino, diethylamino and trifluoromethyl;

which process comprises:

(a) contacting the appropriately N-unsubstituted carbazole with a 1,2-dihaloethane in the presence of a phase transfer catalyst; and

(b) treating with a basic agent to form the corresponding N-vinylcarbazole.

4,332,724

PROCESS FOR PREPARING 4,5,6,7-TETRAHYDRO-7-OXOBENZO[B]THIOPHENES AND 1,2,3,4-TETRAHYDRO-4-OXONAPHTHALENES

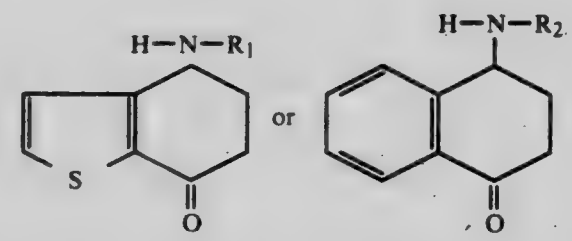
Terence J. Bentley, Cranbury; William H. Gastrock, Hightstown, and Goro Asato, Titusville, all of N.J., assignors to American Cyanamid Co., Stamford, Conn.

Continuation of Ser. No. 713,768, Aug. 12, 1976, abandoned. This application Nov. 16, 1977, Ser. No. 851,992

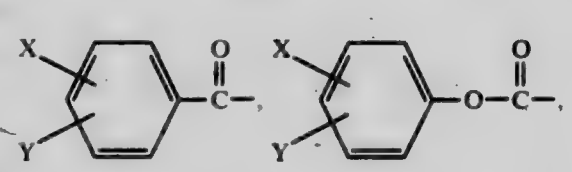
Int. Cl.³ C07D *209/34, 207/24, 333/24;* C07C *125/06*

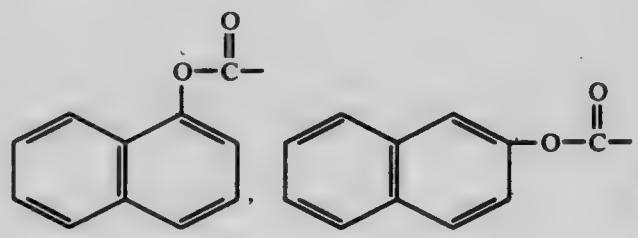
U.S. Cl. 260—326 S **25 Claims**

1. A process for the preparation of a compound of the formula:

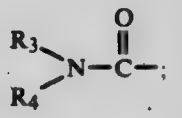


wherein R_1 and R_2 are each a substituent selected from the group consisting of alkanoyl C_1–C_7, halogen-substituted alkanoyl C_1–C_7, carboalkoxy C_1–C_4,



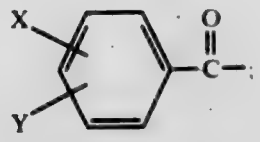


and



R_3 is a radical selected from the group consisting of hydrogen and alkyl C_1–C_4, R_4 is a substituent selected from the group consisting of hydrogen, alkyl C_1–C_8, alkanoyl (C_2–C_4), halo-

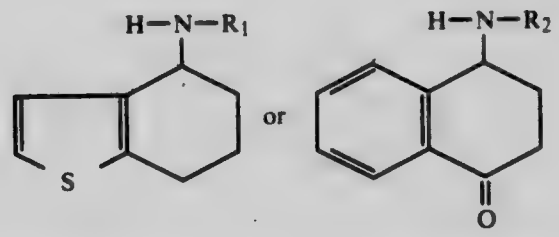
gen-substituted alkanoyl (C_2–C_4), halogen-substituted alkanoyl (C_2–C_4) and



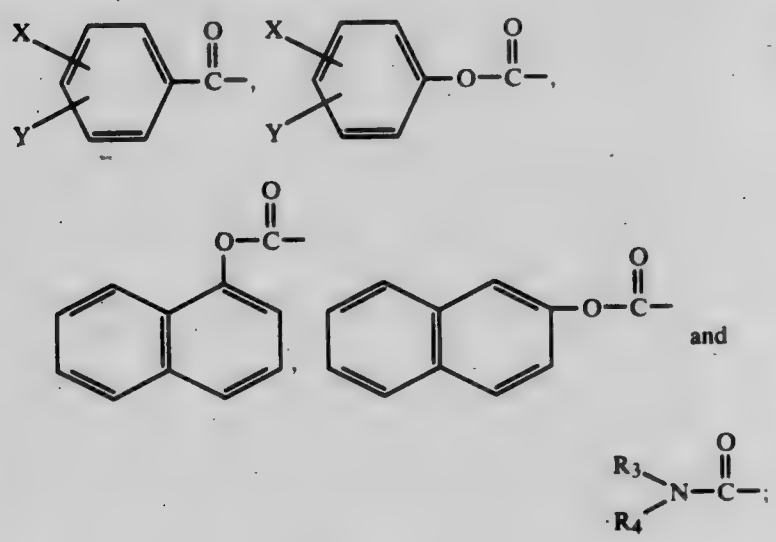
and when the



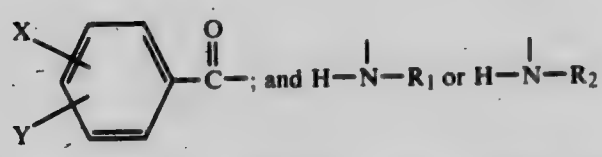
moiety is cyclized, each represents a moiety selected from the group consisting of succinimido, maleimido and phthalimido, X and Y are each a radical selected from the group consisting of hydrogen, fluorine, chlorine, bromine iodine, nitro, alkyl C_1–C_4; the racemic mixtures and the optical isomers thereof; comprising the steps of: subjecting a compound of the formula:



wherein R_1 and R_2 are each a radical selected from the group consisting of alkanoyl C_1–C_7, halogen-substituted alkanoyl C_1–C_7, carboalkoxy C_1–C_7,



R_3 is selected from the group consisting of hydrogen and alkyl (C_1–C_4); R_4 is selected from the group consisting of hydrogen, alkyl (C_1–C_8), alkanoyl (C_2–C_4), and halogen-substituted alkanoyl (C_2–C_4), and



is each cyclized, each represents a moiety selected from the group consisting of succinimido, maleimido and phthalimido; X and Y are selected from the group consisting of hydrogen, halogen, nitro, alkyl C_1–C_4 and alkoxy (C_1–C_4); the racemic mixtures and the optical isomers thereof; to the action of an oxygen containing gas at positive pressures up to about 100 psig and at a temperature ranging from about 20° C. to about 150° C. in the presence of a cobalt catalyst selected from the group consisting of a cobaltous salt and a cobaltic salt, said catalyst being present in a solvent-substrate mixture, wherein said catalyst is present in said mixture in a molar ratio of 1:1 to 15:1, and said solvent being selected from the group consisting of a (C_2–C_6) alkanoic acid, a mixture of a (C_2–C_6) alkanoic acid and a (C_2–C_6) alkanoic acid anhydride, a mixture of a (C_2–C_6) alkanoic acid and an aliphatic ketone, a mixture of a (C_2–C_6) alkanoic acid and a cycloaliphatic ketone, a mixture of a (C_2–C_6) alkanoic acid and an aliphatic aldehyde other than formaldehyde, a mixture of a (C_2–C_6) alkanoic acid and t-butyl alcohol and a mixture of a (C_2–C_6) alkanoic acid and acetonitrile, for a period of time sufficient to essentially complete the reaction, and thereafter recovering said resultant oxidized product.

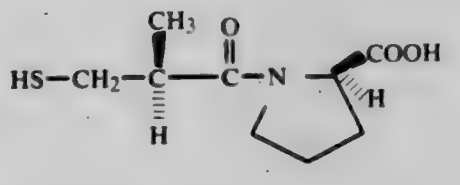
4,332,725

PROCESS FOR THE PREPARATION OF 1-[3-MERCAPTO-(2S)-METHYLPROPIONYL]-PYRROLIDINE-(2S)-CARBOXYLIC ACID

Janos Fischer; Laszlo Rozsa; Pal Vago; Anna Bakonyi, and Gabor Fazekas, all of Budapest, Hungary, assignors to Egyt Gyogyszervegyeszeti Gyar, Budapest, Hungary

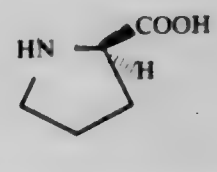
Filed Dec. 22, 1980, Ser. No. 218,814
Claims priority, application Hungary, Dec. 29, 1979, EE 2720
Int. Cl.³ C07D *207/16*
U.S. Cl. 548—533 **6 Claims**

1. A process for the preparation of 1-[3-mercapto-(2S)-methyl-propionyl]-pyrrolidine-(2S)-carboxylic acid of the formula (I)

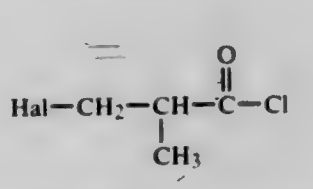


which comprises the steps of:

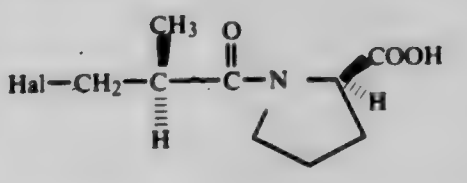
(a) N-acylating L-proline of the formula (IV)



with a 3-halo-2-methyl-propionyl chloride of the formula (III)



wherein Hal is a halogen atom, in an aqueous medium at a temperature of 0° to 25° C. in the presence of an alkali selected from the group consisting of an alkali hydroxide, alkali carbonate and an alkali bicarbonate, wherein the alkali is present in a molar amount double the amount of the compound of the formula (III) or of the compound of the formula (IV) to form an aqueous mixture of a 1-[3-halo-(2S)-methylpropionyl]-pyrrolidine-(2S)-carboxylic acid of the formula (II)

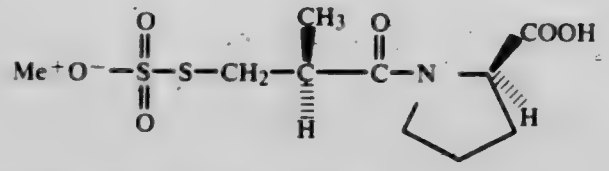


and its diastereomer 1-[3-halo-(2R)-methyl-propionyl]-pyrrolidine-(2S)-carboxylic acid;

(b) acidifying the aqueous mixture formed during step (a) under ice cooling to form crystals of 1-[3-halo-(2S)-methylpropionyl]-pyrrolidine-(2S)-carboxylic acid while 1-[3-halo-(2R)-methyl-propionyl]-pyrrolidine-(2S)-carboxylic acid remains in solution;

(c) separating the crystals of the 1-[3-halo-(2S)-methylpropionyl]-pyrrolidine-(2S)-carboxylic acid from the solution containing the 1-[3-halo-(2R)-methylpropionyl]-pyrrolidine-(2S)-carboxylic acid;

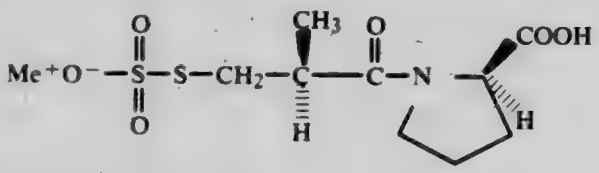
(d) [treating the 1-[3-halo-(2S)-methyl-propionyl]-pyrrolidine-(2S)-methylpropionyl]-pyrrolidine-(2S)-carboxylic acid with an alkali thiosulfate to form a compound of the formula (V)



wherein Me is an alkali metal; and

(e) hydrolyzing the compound of the formula (V) with an acid to form the compound of the formula (I).

5. A salt of the formula (V)



wherein Me is an alkali metal.

4,332,726

PURIFICATION OF MERCAPTOACYL AMINO ACIDS

John N. Korzun, North Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Aug. 25, 1980, Ser. No. 180,790

Int. Cl.³ C07D *207/16*

U.S. Cl. 548—533 **5 Claims**

1. A method of separating 1-(D-3-mercapto-2-methyl-1-oxopropyl)-L-proline, (S,S) from an acidic solution containing 1-(D-3-mercapto-2-methyl-1-oxopropyl)-L-proline (S,S) and 1,1'-[dithiobis(D-2-methyl-1-oxopropane-3,1-diyl)]bis[L-proline], (S,S,S,S) comprising treating said acidic solution with a bivalent metal ion selected from the group consisting of zinc, cadmium, strontium, barium, beryllium, and mercury to form a precipitate of 1-(D-3-mercapto-2-methyl-1-oxopropyl)-L-proline, (S,S) bound with said metal ion, and then treating said precipitate to liberate said 1-(D-3-mercapto-2-methyl-1-oxopropyl)-L-proline, (S,S) free of its dimer.

4,332,727

PREPARATION OF 1-(4-CHLOROBENZOYL)-5-METHOXY-2-METHYL-3-INDOLYLACETOXYACETIC ACID

Karl-Heinz Boltze, Bergisch-Gladbach; Siegfried Raddatz, and Peter-Rudolf Seidel, both of Cologne, all of Fed. Rep. of Germany, assignors to Troponwerke GmbH & Co. KG, Cologne, Fed. Rep. of Germany

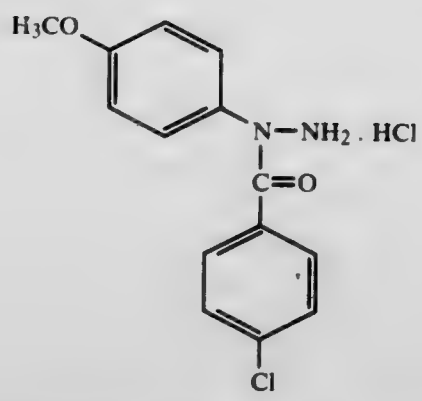
Filed Oct. 2, 1980, Ser. No. 193,497

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1979, 2943125

Int. Cl.³ C07D *209/28*

U.S. Cl. 548—501 **2 Claims**

1. A process for the production of 1-(4-chlorobenzoyl)-5-methoxy-2-methyl-3-indolylacetoxyacetic acid, substantially free from 1-benzoyl-5-methoxy-2-methyl-3-indolylacetoxyacetic acid, which comprises the step of reacting α-(4-chlorobenzoyl)-4-methoxyphenylhydrazine hydrochloride of the formula

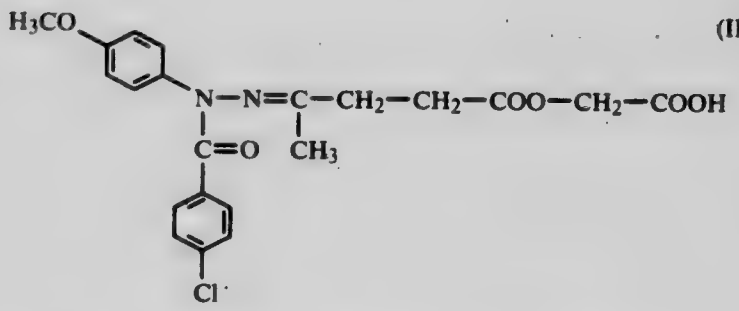


(I)

or the corresponding sulphonate, with free laevulinoyloxyacetic acid of the formula

$$CH_3\text{-}CO\text{-}CH_2\text{-}CH_2\text{-}COO\text{-}CH_2\text{-}COOH \quad \text{(II)}$$

in glacial acetic acid as the solvent, at a temperature between 20° and 60° C., and cyclizing the hydrazone initially formed, of the formula



(III)

to the desired indole, with the splitting off of ammonia by heating to 40° to 80° C.

4,332,728

PROCESS FOR THE PREPARATION OF BISACYL HYDRAZINES

Winfried Orth, Hassloch/Pfalz; Fritz W. Lange, Gauting, and Werner Fickert, Mannheim-Seckenheim, all of Fed. Rep. of Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

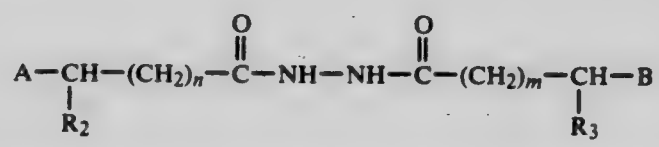
Filed Jan. 12, 1981, Ser. No. 224,129

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1980, 3006807

Int. Cl.³ C07D *207/27, 211/76, 401/12*

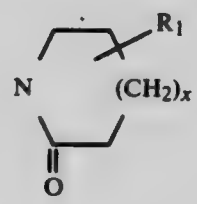
U.S. Cl. 548—519 **7 Claims**

1. In a process for the preparation of acyl hydrazides of the formula

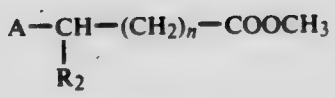


(I)

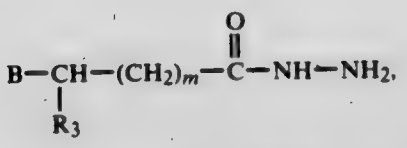
wherein A and B individually are a group of the formula



wherein R_1 is selected from the group consisting of hydrogen and alkyl of 1 to 4 carbon atoms, x is 0 or 1 and R_2 and R_3 are individually selected from the group consisting of hydrogen and alkyl of 1 to 4 carbon atoms and n and m are individually 0, 1, 2 or 3 by reacting a compound of the formula



with a hydrazide of the formula



the improvement comprising effecting the reaction in the presence of at least one catalyst of the formula R′—OMe wherein R′ is selected from the group consisting of hydrogen and alkyl of 1 to 4 carbon atoms and Me is an alkali metal.

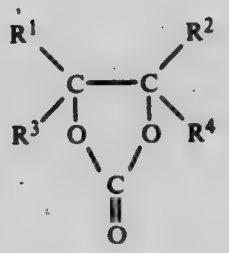
4,332,729

PREPARATION OF CYCLIC CARBONATES

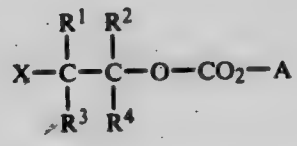
James M. Renga, and Roy A. Periana-Pillai, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 17, 1981, Ser. No. 284,037
Int. Cl.³ C07D *317/38, 317/36, 317/46*
U.S. Cl. 549—229 8 Claims

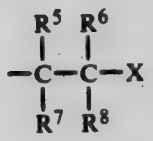
1. A process for making a cyclic alkylene carbonate of the formula



which comprises heating a β-halogenated carbonate ester at about 100° C.–300° C. in the presence of a catalytically effective amount of chemically combined mercury and isolating said cyclic carbonate from the reaction mixture thereby formed, said halogenated carbonate ester having the formula



wherein A is an alkyl group or a group of the formula



wherein the R groups are individually hydrogen, a hydrocarbon group, —CH_2X, —CH_2Y, and each of the pairs R^1, R^2 and R^5, R^6 may together form an alkylene group of 3–6 carbon atoms, each X is individually Cl, Br, or I, and Y is an alkoxy or aroxy group.

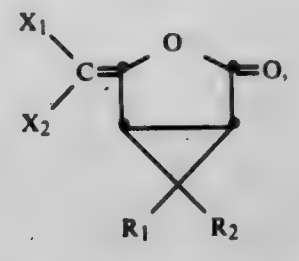
4,332,730

DIHALOMETHYLENELACTONE PYRETHROID INTERMEDIATES

Petrus A. Kramer, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed May 22, 1981, Ser. No. 266,579
Claims priority, application United Kingdom, May 30, 1980, 8017700; European Pat. Off., May 8, 1981, 81200491
Int. Cl.³ C07D *307/93*
U.S. Cl. 549—302 5 Claims

1. A compound of formula



(I)

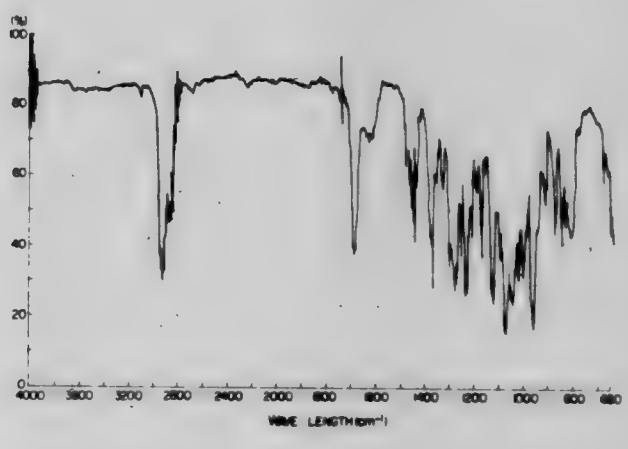
wherein X_1 and X_2 are the same or different halogen atoms, and R_1 and R_2 are the same or different and are hydrogen atoms or alkyl groups with 1–10 carbon atoms.

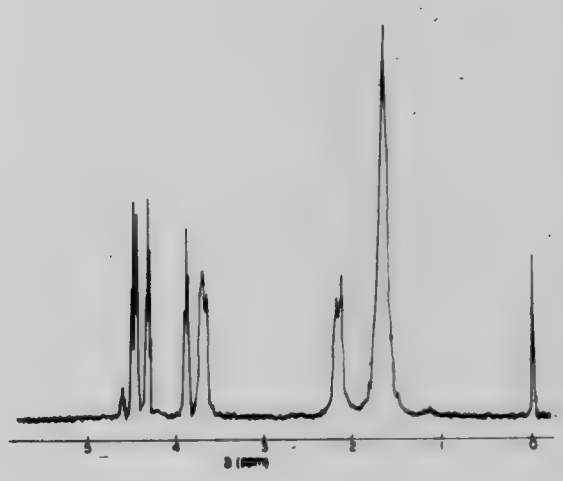
4,332,731

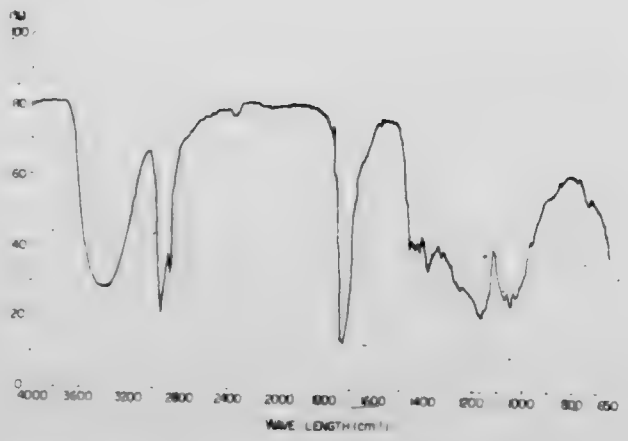
2-METHYLENE-1,4,6-TRIOXASPIRO[4,6]UNDECANE, PROCESS FOR THE PREPARATION THEREOF AND PROCESS FOR THE PREPARATION OF POLYMERS

Takeshi Endo, Yokohama; Takahisa Ogasawara, Tokai, and Kiyokazu Mizutani, Inasawa, all of Japan, assignors to Toagosei Chemical Industry Co., Ltd., Tokyo, Japan

Filed Sep. 17, 1980, Ser. No. 188,267
Claims priority, application Japan, Sep. 22, 1979, 54-121584
Int. Cl.³ C07D *317/02*
U.S. Cl. 549—334 1 Claim







1. 2-Methylene-1,4,6-trioxaspiro[4,6]undecane.

4,332,732

ANTITUMOR AGENTS

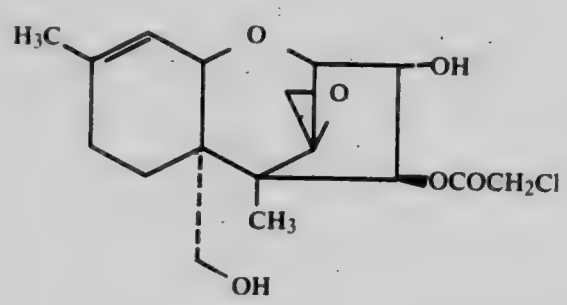
Henry Schmitz, Syracuse; Takushi Kaneko, Fayetteville; John M. Essery, Pleasantville, and Terrence W. Doyle, Fayetteville, all of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 137,336, Apr. 4, 1980, Pat. No. 4,284,568. This application Mar. 4, 1981, Ser. No. 240,340

Int. Cl.³ C07D *311/78*

U.S. Cl. 549—332 **1 Claim**

1. The compound having the formula



4,332,733

PROCESS FOR LIQUEFYING ACID ANHYDRIDE

Hiroshi Samejima; Mareki Miura, and Yoshinobu Onuma, all of Ibaraki, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP79/00049, § 371 Date Oct. 28, 1980, § 102(e) Date Oct. 28, 1980, PCT Pub. No. WO80/01804, PCT Pub. Date Sep. 4, 1980

PCT Filed Feb. 28, 1979, Ser. No. 224,570

Int. Cl.³ C07D *307/89*

U.S. Cl. 549—240 **14 Claims**

1. A process for liquefying a normally solid Diels-Alder reaction product between maleic anhydride and decatriene, which comprises heat-treating at 60° to 250° C. the reaction product in the presence of a compound selected from the following groups (a) to (e):

(a) alkali metal salts;

(b) nitrogen atom-containing organic compounds;

(c) phosphorus atom-containing compounds selected from phosphines and quaternary phosphonium salts;

(d) thiocyanates; and

(e) solid basic compounds (except the alkali metal salts belonging to group (a) described above, wherein the amount of said compound selected from groups (a) to (e) is 0.005 to 3.0 parts by weight per 100 parts by weight of said solid Diehls-Alder reaction product between maleic anhydride and decatriene.

4,332,734

3,3-DISUBSTITUTED-FURANDIONE COMPOUNDS

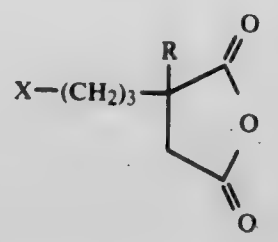
Edmund P. Woo, and Michael J. Mullins, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 9, 1980, Ser. No. 214,613

Int. Cl.³ C07D *307/60*

U.S. Cl. 549—253 **6 Claims**

1. A 3,3-disubstituted tetrahydrofurandione compound of the formula



wherein:

R is phenyl or $C_{1\text{-}10}$ alkyl;

X is $—NH_2$, —C(O)Cl, —OH or $—CO_2R'$, where R′ is hydrogen or R.

4,332,735

ANTIFUNGAL COMPOUND

Robert J. Alaimo; Joseph E. Gray, and George M. Klein, all of Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.

Filed Jul. 6, 1981, Ser. No. 281,236

Int. Cl.³ C07D *307/46*

U.S. Cl. 549—496 **1 Claim**

1. The compound 5-[3,4-dimethoxyphenyl]-N-{[(methylamino)carbonyl]oxy}-α-oxo-2-furanethanimidoyl chloride.

4,332,736

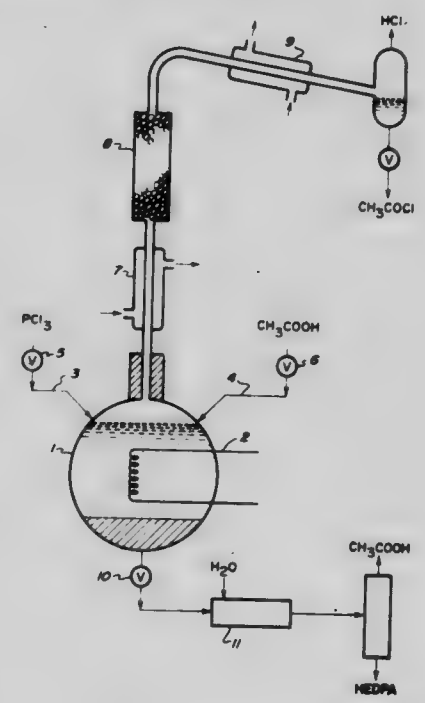
PRODUCTION OF 1-HYDROXYALKYLIDENE-1, 1-DIPHOSPHONIC ACID ESTERS

William E. Starner, Freeland, and Walter F. Yext, Mahanoy City, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Sep. 22, 1980, Ser. No. 190,009

Int. Cl.³ C07F *9/38*

U.S. Cl. 260—403 **8 Claims**



1. In a process for producing an acylated 1-hydroxy alkylidene-1,1-diphosphonic acid (HADPA) by reacting PX_3, where

X is a halogen atom and RCOOH where R is an alkyl group containing from 1–18 carbon atoms to produce said acylated HAPDA, the improvement which comprises:

introducing said PX_3 to a reactor containing RCOOH;

maintaining RCOOH during said introduction of PX_3 at a temperature T such that the resulting reaction between RCOOH and PX_3 results in producing a product mixture comprising acylated HAPDA and by-product phosphorous acid, said temperature being at or greater than 100° C. where R is an integer from 1–4 and at or greater than 130° C. where R is an integer from 5–18 carbon atoms whereby the by-product phosphorous acid detectable by iodometric titration at any time in the product mixture is less than 5% of the total weight of the acylated HADPA and phosphorous acid formed.

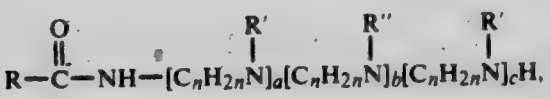
4,332,737

ACID REACTION PRODUCTS OF POLYMERIC AMINES

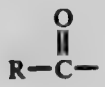
Philip Manos, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 18, 1980, Ser. No. 141,662
Int. Cl.³ C09F *5/00*
U.S. Cl. 260—404.5 **7 Claims**

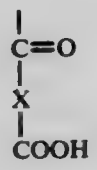
1. A composition of matter having the chemical formula:



wherein
R is a C_{9-23}hydrocarbyl group,
R′ is selected from H and



and wherein at least one R′ is H,
R″ is



group where X is a divalent hydrocarbyl group of 2 to 34 carbon atoms,

n is an integer of 2 or 3 or a combination of 2 and 3, a is an integer of 0–3, b is an integer of 1–2, c is an integer of 0–3 and a+b+c is 2–8.

4,332,738

ESTERIFICATION OF NEO ACIDS BY THE USE OF CATION EXCHANGE RESINS

Francisco M. Benitez, and Michael F. English, both of Baton Rouge, La., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 24, 1980, Ser. No. 209,788
Int. Cl.³ C09F *5/08*; C08H *3/00*
U.S. Cl. 260—410.6 **5 Claims**

1. A method for the direct esterification of a neo acid having from 5 to 28 carbon atoms in its molecule which comprises contacting said acid with an alcohol in a non-aqueous system in the presence of a sulfonic acid cation exchange resin used in its acid form and having a macro-reticular structure.

4,332,739

PROCESS FOR THE MANUFACTURE OF AROMATIC ISOCYANATES

Jacques Kervennal, Lyons; Boubaker Elleuch, Rilleux-la-Pape, and Younès B. Taarit, Lyons, all of France, assignors to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Nov. 3, 1980, Ser. No. 203,249
Claims priority, application France, Nov. 27, 1979, 79 29123
Int. Cl.³ C07C *118/06*
U.S. Cl. 260—453 PC **13 Claims**

1. The process for the manufacture of aromatic isocyanates comprising reacting, in the liquid phase, an aromatic nitro compound with carbon monoxide in the presence of a catalyst comprising a zeolite containing at least one introduced active metal.

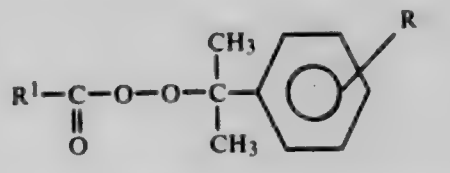
4,332,740

PROCESS FOR PREPARING PEROXYESTERS

Kenji Kato, Kariya, and Hidehiko Hagii, Aichi, both of Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan

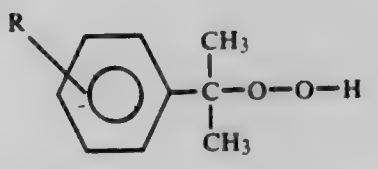
Filed Jan. 9, 1981, Ser. No. 223,551
Claims priority, application Japan, Jan. 19, 1980, 55-4755
Int. Cl.³ C07C *179/02*
U.S. Cl. 260—453 RZ **5 Claims**

1. A process for preparing a peroxyester of the formula



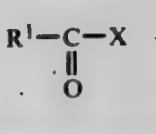
wherein R is a C_1 to C_4 linear or branched alkyl located in meta or para position on the benzene ring, and R^1 is selected from the group consisting of C_1 to C_{12} linear or branched alkyl, phenyl and substituted phenyl,
which consists essentially of the steps of:

1. in a first reaction stage, mixing a hydroperoxide of the formula



wherein R has the same meaning as defined above, with an aqueous potassium hydroxide solution containing from 35 to 60% by weight of potassium hydroxide and with a non-polar organic solvent, under conditions effective to form a homogeneous solution of the potassium salt of said hydroperoxide dissolved in said non-polar organic solvent, then

2. in a second reaction stage, mixing an acid halide of the formula



wherein R^1 has the same meaning as defined above and X is a halogen,

with said homogeneous solution of said potassium salt of said hydroperoxide in said non-polar organic solvent, under conditions effective to form a solution containing from 50 to 80% by weight of said peroxyester dissolved in said non-polar organic solvent, and then

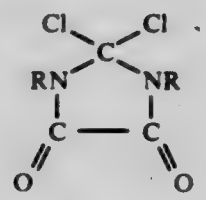
3. recovering said solution of said peroxyester dissolved in said non-polar organic solvent.

4,332,741
DICHLOROPARABANIC ACID STABILIZED DIPHENYLMETHANE DIISOCYANATE-POLYMETHYLENE POLYPHENYL ISOCYANATE COMPOSITIONS

Gary L. Statton, and Stephen H. Harris, both of West Chester, Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Mar. 23, 1981, Ser. No. 246,539
Int. Cl.[3] C07C *119/048*
U.S. Cl. 260—453 SP 5 Claims

1. A method for the storage stabilization of liquid diphenylmethane diisocyanate-polymethylene polyphenyl isocyanate mixtures derived from the thermal decomposition of the corresponding diphenylmethane dicarbamates and polymethylene polyphenyl carbamates prepared by the acid condensation of N-aryl carbamic acid ester with formaldehyde, which comprises incorporating in said liquid isocyanate mixtures from about 0.001 to 1.0 percent by weight of dichloroparabanic acid compound having the formula



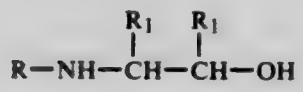
wherein R is an alkyl group having from 1 to 4 carbon atoms or a phenyl group which may be substituted with a 1 to 4 carbon atom alkyl group.

4,332,742
LOW TEMPERATURE STORAGE STABLE LIQUID DIPHENYLMETHANE DIISOCYANATES

Gary F. Allen, New Martinsville, W. Va., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed Jun. 22, 1981, Ser. No. 276,144
Int. Cl.[3] C07C *119/048*
U.S. Cl. 260—453 SP 7 Claims

1. A room temperature storage stable liquid isocyanate comprising the reaction product of a diphenylmethane diisocyanate and an N-substutited ethanolamine of the formula:



wherein R represents a C_6 to C_{10} aryl and wherein at least one R_1 represents hydrogen and the other R_1 is selected from the group consisting of hydrogen, C_1 to C_3 alkyl and phenyl.

4,332,743
PROCESS FOR THE LIQUID PHASE PRODUCTION OF C_1 TO C_3 CARBOXYLIC ACIDS

Clive G. Gasser, Cottingham, and John Russell, Hull, both of England, assignors to BP Chemicals Limited, London, England

Filed Jan. 24, 1979, Ser. No. 6,092
Claims priority, application United Kingdom, Jan. 27, 1978, 03320/78
Int. Cl.[3] C07C *27/10*; C07B *3/00*
U.S. Cl. 562—512.2 8 Claims

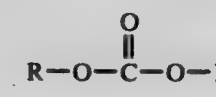
1. In a process for the production of C_1 to C_3 monocarboxylic acids, including a substantial proportion of acetic acid, by oxidizing in a reaction zone a paraffinic hydrocarbon feedstock containing from 4 to 8 carbon atoms in the molecule with molecular oxygen at a temperature in the range from 150° to 250° C. and at an elevated pressure of 30 to 70 bar sufficient to maintain the reactants in the liquid phase, the improvement which comprises carrying out said oxidation in the presence of at least one added phosphorus-containing compound selected from the group consisting of phosphoric acids and phosphates of metals of Groups I and II of the Periodic Table in an amount in the range of from 0.5 to 100 ppm, calculated as elemental phosphorus.

4,332,744
UNSYMMETRICAL POLYNITROCARBONATES AND METHODS OF PREPARATION

William H. Gilligan, Ft. Washington, Md., and Scott L. Stafford, Petersburg, Ak., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

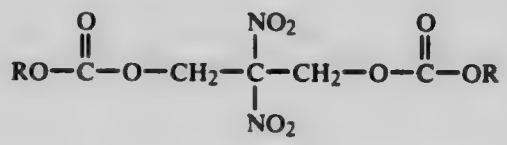
Filed Jan. 13, 1981, Ser. No. 224,776
Int. Cl.[3] C07C *69/96, 68/02*
U.S. Cl. 260—463 27 Claims

1. A compound of the formula



wherein $R \neq R'$ and wherein R and R' are each selected from the group consisting of $-CH_2C(NO_2)_3$, $-CH_2CF(NO_2)_2$, $-CH_2CF_2(NO_2)$, $-CH_2CCl(NO_2)_2$, $-CH_2CF_3$, $-CH_2CCl_3$, $-CH_2C(NO_2)_2CH_3$, and $-CH_2CF_2CF_2H$.

12. A compound of the formula



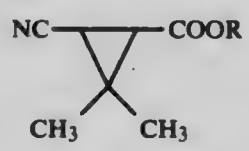
wherein R is selected from the group consisting of $-CH_2C(NO_2)_3$, $-CH_2CF(NO_2)_2$, $-CH_2CF_2(NO_2)$, $-CH_2CCl(NO_2)_2$, $-CH_2CF_3$, $-CH_2CCl_3$, $-CH_2C(NO_2)_2CH_3$, and $-CH_2CF_2CF_2H$.

4,332,745
PREPARATION OF 2-CYANO-3,3-DIMETHYL-CYCLOPROPANE-1-CARBOXYLIC ACID ESTERS AND INTERMEDIATES THEREFOR

Fritz Maurer; Hans-Jochem Riebel, both of Wuppertal, and Uwe Priesnitz, Unna-Massen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 27, 1980, Ser. No. 153,298
Claims priority, application Fed. Rep. of Germany, Jun. 12, 1979, 2923777
Int. Cl.[3] C07C *120/00, 121/46, 121/16*
U.S. Cl. 260—464 6 Claims

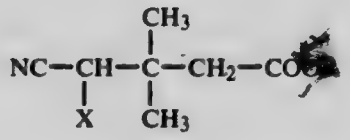
1. A process for the preparation of a 2-cyano-3,3-dimethylcyclopropane-1-carboxylic acid ester of the formula



in which

R is alkyl,

comprising reacting a 3-halogeno-3-cyano-2,2-dimethylpropane-1-carboxylic acid ester of the formula



in which

X is chlorine or bromine,
with a base at a temperature from about 0° to 100° C.

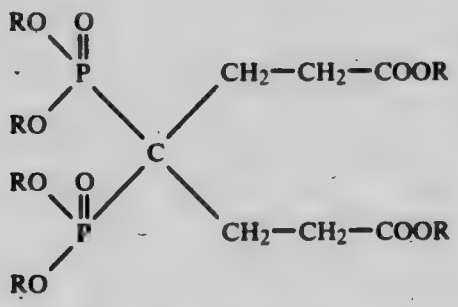
4,332,746

DIPHOSPHONODICARBOXYLIC ACID ESTERS

Horst-Dieter Thamm, Kelkheim; Volker Knittel, Wiesbaden; Werner Sommer, and Gerhard Weckler, both of Sulzbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 73,653, Sep. 10, 1979, Pat. No. 4,260,422, which is a continuation of Ser. No. 843,144, Oct. 17, 1977, abandoned. This application Jul. 28, 1980, Ser. No. 172,584
Claims priority, application Fed. Rep. of Germany, Oct. 19, 1976, 2647042; Apr. 30, 1977, 2719415
Int. Cl.³ C07F *9/40*
U.S. Cl. 260—932 **3 Claims**

1. A phosphonocarboxylic acid compound of the formula



wherein the radicals R may be identical or different and represent alkyl radicals of 1 to 18 carbon atoms substituted 1 to 3 times with chlorine or bromine.

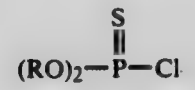
4,332,747

PROCESS FOR PRODUCING DIALKYL PHOSPHOROCHLORIDOTHIONATES

James W. Watson, Jr., Sandy Hook, Conn.; Michael P. Silvon, Mahopac, N.Y., and Brian J. Lobo, Columbia, Tenn., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Sep. 17, 1980, Ser. No. 188,153
Int. Cl.³ C07F *9/20*
U.S. Cl. 260—986 **9 Claims**

1. An improved process for producing dialkyl phosphorochloridothionates having the formula:



where R is a lower alkyl having from 1 to 8 carbon atoms, by the reaction of dialkyl phosphorodithioic acid with chlorine gas, wherein the chlorine added after the initial from 0.63 to 0.86 moles of chlorine per mole of dialkyl phosphorodithioic acid added in the process is diluted with an inert gas.

4,332,748

POLYETHYLENE RECOVERY FROM BROKE

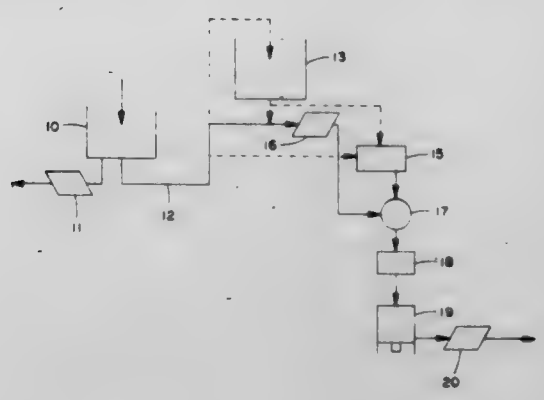
Henry A. Fremont, Wyoming, Ohio, assignor to Champion International Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 709,898, Jul. 29, 1976, abandoned. This application Jun. 2, 1980, Ser. No. 155,606
Int. Cl.³ B01J *2/06*
U.S. Cl. 264—11 **6 Claims**

1. A process for the recovery of polyethylene from a mixture comprising water, polyethylene fragments and cellulosic pulp fibers, said process comprising:

defibering said mixture in a first hydropulper to remove a first quantity of said cellulosic pulp fibers;

thermally drying the defibered mixture in a thermal tumbler dryer to dehydrate said defibered mixture to less than about 15% water, said thermal tumbler dryer having a stream of drying air flowing therein which serves to carry away a second quantity of cellulosic pulp fibers from said defibered mixture during said drying process; and



pelletizing the polyethylene fragments remaining in said dehydrated defibered mixture.

4,332,749

PROCESS FOR THE PRODUCTION OF POLYOLEFINE-BASED FIBRIDS, AND THE FIBRIDS OBTAINED

Jean-Pierre Pleska, Paturages, Belgium, assignor to Hercules Incorporated, Wilmington, Del.

Filed Apr. 23, 1980, Ser. No. 142,996
Claims priority, application France, May 10, 1979, 79 12146
Int. Cl.³ B01J *2/02*
U.S. Cl. 264—13 **13 Claims**

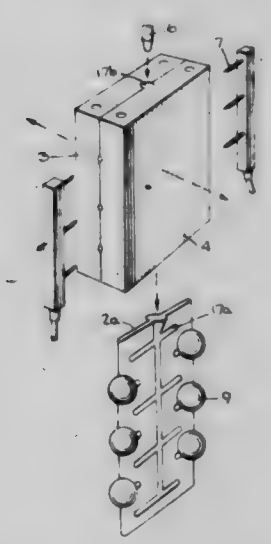
1. In a process for the production of polyolefine-based fibrids by the abrupt expansion of a liquid mixture of molten polyolefine and solvent, by passage through an orifice, the mixture being under pressure and temperature conditions which are such that the abrupt expansion causes the instantaneous vaporisation of the solvent and the solidification of the polyolefine in the form of fibrids, the improvement comprising subjecting to abrupt expansion a liquid mixture containing (1) a polyolefine of normal molecular weight, (2) said solvent and (3) a polyolefine of low molecular weight, onto which a polar monomer has been grafted.

4,332,750

BLOW-MOLDING AND DEGATING HOLLOW SHAPES

Stanley L. Roggenburg, Jr., and Michael E. Tully, both of Staten Island, N.Y., assignors to Essex Chemical Corporation, Clifton, N.J.

Filed Mar. 11, 1980, Ser. No. 129,262
Int. Cl.³ B29C *17/07, 17/08*
U.S. Cl. 264—23 **1 Claim**



1. A method for making a hollow thermoplastic shape, such as a Christmas tree ornament ball, said method comprising forming a tubular thermoplastic parison at plasticized tempera-

ture, closing a blow molding die on the parison so as to flatten it and form the parison into two layers, said die having a cavity defining said shape and enclosing a portion of said flattened parison, while closing said die pinching the parison's said two layers together at the periphery of said cavity so as to weld the two layers together while extruding their thermoplastic away from said periphery into a space providing relief accommodating consequent thickening of the two layers and so as to form a gate having a solid pinch which tapers conically with an angularity of from about 40° to about 60° from said layers towards said cavity and has a junction with said portion in the cavity at the cavity's said periphery, blow molding said portion into said cavity to form said shape, opening said die so as to free said parison with the shape connected thereto by said gate, and applying ultrasonic vibration to said gate for transmission through the pinch to said junction so as to heat and melt the latter and free said shape from said parison, said die having a spine cavity and a plurality of said cavities for molding the shapes, said spine cavity being separated from said cavities, and a spine being blow molded from said parison in said spine cavity separately and independently with respect to said blow molding, said die being opened and said parison being allowed to fall and said junction being made with a thickness of from about 0.002" to about 0.012" so as to hold said shape to said parison when the fall of the latter is abruptly stopped, but so as to permit melting of the junction by said ultrasonic vibration, flattening of said parison forming folds joining said two layers, said die being closed on each parison so that said portion of each parison includes one of said folds, and a needle blow pin being pierced through said one of said folds in each instance to effect said blow molding.

4,332,751

METHOD FOR FABRICATING THIN FILMS OF PYROLYTIC CARBON

Gilbert W. Brassell, Lenoir City; John Lewis, Jr., Oak Ridge, both of Tenn., and Gary W. Weber, Amherst, N.Y., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 13, 1980, Ser. No. 129,868

Int. Cl.³ B29C *25/00, 7/00*

U.S. Cl. 264—28 **6 Claims**

1. A method for fabricating a composite structure consisting of a film of pyrolytic carbon with an adherent coating of polymeric resin thereon, comprising the steps of forming a film of pyrolytic carbon on a substrate having a concave surface of revolution by contacting said concave surface with a gaseous composition containing a hydrocarbon gas and an inert diluent gas therefor while maintaining the substrate at a temperature sufficient to decompose the hydrocarbon gas contacting the concave surface of the substrate to form said film thereon, depositing on the resulting film of pyrolytic carbon an adherent coating of a polymeric resin characterized by shrinking upon chilling to a temperature below 0° C., and chilling the polymeric coating substrate to a temperature below 0° C. to sufficiently shrink the polymeric resin coating to effect the separation of the pyrolytic carbon film attached thereto from the substrate.

4,332,752

PROCESS FOR PRODUCTION OF DIALYSIS MEMBRANE HOLLOW FIBER CHAINS

Werner Henne; Werner Bandel, and Gustav Dünweg, all of Wuppertal, Fed. Rep. of Germany, assignors to Akzo N.V., Arnhem, Netherlands

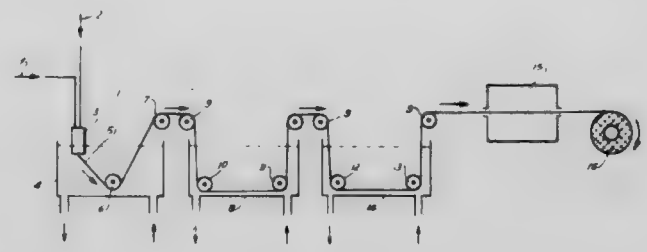
Filed Oct. 1, 1979, Ser. No. 80,788

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1978, 2842835; Feb. 21, 1979, 2806576

Int. Cl.³ B29D *27/00*

U.S. Cl. 264—41 **5 Claims**

1. Process for making hollow fiber with continuous hollow interior consisting of regenerated cellulose for use in semipermeable membranes, comprising extruding a cellulose-cuoxam solution having cellulose content between 6 and 10% by weight through the annular slot of a spinneret into a coagulation bath of aqueous sodium hydroxide having sodium hydroxide content between 10 and 20% by weight while passing a cavity forming fluid through said spinneret, and guiding the formed hollow fiber over successive withdrawal rollers followed by passing the fiber to at least one after treatment bath prior to drying it,



the ratio of withdrawal speed of the fiber at a first withdrawal roller to the speed of extrusion of the cellulose-cuoxam solution being 1.00:1.05, with a second withdrawal roller provided following and rotated at 90–98% of the speed of said first withdrawal roller, and the direction of path of the formed fiber between the spinneret and the first roller forming an acute angle relative to the axis of the spinneret slot.

4,332,753

POROUS REFRACTORY MATERIALS

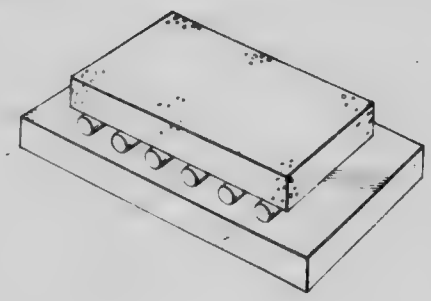
Peter A. Crooke, Mackworth, and Kenneth Gallimore, Derby, both of England, assignors to Rolls-Royce Limited, London, England

Filed Feb. 11, 1981, Ser. No. 233,371

Claims priority, application United Kingdom, Apr. 16, 1980, 8012483

Int. Cl.³ B29J *1/00*

U.S. Cl. 264—44 **4 Claims**



1. A method of making a porous refractory shape comprising the steps of: impregnating a shaped sponge having pores and a cellular structure with a suspension or dispersion of refractory particles in a liquid; squeezing the sponge to remove excess liquid therefrom; air drying the sponge to remove further liquid therefrom; providing a plate-like supporting base made of a refractory material capable of withstanding repeated changes in temperature with a plurality of individually movable supporting rolling elements on the plate-like supporting base upper surface whereby said rolling elements do not penetrate the pores and contaminate the cellular structure of the sponge and said rolling elements being made from a refractory material capable of withstanding a temperature to which the rolling elements are to be subjected; positioning the air dried sponge on top of the plurality of rolling elements supported on the supporting base to define an assembly; then placing the assembly of the supporting base, the rolling elements on the upper surface, and the air dried sponge supported on the rolling elements within a furnace; and subsequently heating the assembly to a temperature to remove the remaining liquid and the material of the sponge and to further sinter the particles together as the porous refractory shape without development

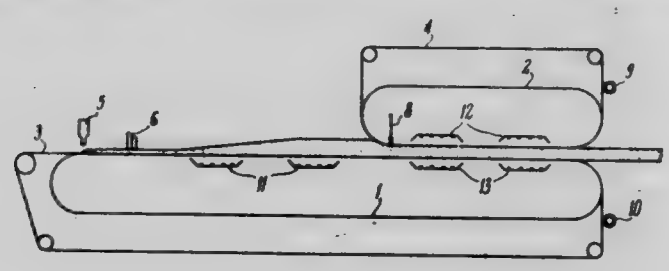
of cracks due to differential rates of expansion and contraction of the assembly.

4,332,754

METHOD FOR THE CONTINUOUS FABRICATION OF CELLULAR PRODUCTS OF THERMOHARDENABLE RESIN

Jean P. Meunier; Marie P. Barthe, both of Clermont De L'Oise; Serge Have, and Bernard Frumen, both of Nogent Sur Oise, all of France, assignors to Saint-Gobain Industries, Neuilly-sur-Seine, France

Continuation of Ser. No. 945,066, Sep. 22, 1978, Pat. No. 4,252,515, which is a division of Ser. No. 795,914, May 11, 1977, abandoned. This application Mar. 13, 1980, Ser. No. 130,003
Claims priority, application France, May 12, 1976, 76 14330
Int. Cl.[3] B29D *27/04*
U.S. Cl. 264—45.5 24 Claims



1. A process for the manufacture of blankets or sheets of expanded phenolic resin having a hard skin on each side in which an expandable liquid mixture comprising a resol resin, a volatile liquid blowing agent and a surface active agent is deposited on a moving surface and expanded and hardened, which process comprises:

(a) depositing the expandable liquid mixture at a temperature of less than about 23° C. on an unheated moving surface with means by which said mixture becomes substantially uniform in thickness;

(b) expanding the substantially uniformly thick liquid mixture by heating said mixture to a temperature of about 30° C. to about 60° C. as it passes through a second zone on the moving surface, the outer surface of the upper side of the expanded mixture being sticky, maintaining the expanded mixture in said second zone until said sticky condition has disappeared, thereby signifying that the mixture is completely expanded and is partially hardened and until said mixture is characterized by a considerable hardening at its center as well as by a state of good flexibility of the outer surface of its upper side; and thereafter

(c) forming the completely expanded mixture between the moving surface and a second surface that is above and substantially parallel to the moving surface at a temperature higher than step (b) and completing the hardening of the expanded mixture.

4,332,755

SINTERED SILICON CARBIDE - ALUMINUM NITRIDE ARTICLES AND METHOD OF MAKING SUCH ARTICLES

Yorihiro Murata, North Tonawanda, N.Y., assignor to Kennecott Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 102,061, Dec. 10, 1979, abandoned, which is a continuation of Ser. No. 915,644, Jun. 15, 1978, abandoned. This application Dec. 19, 1980, Ser. No. 218,589
Int. Cl.[3] C04B *35/56, 35/58*
U.S. Cl. 264—65 17 Claims

1. A method of producing a co-sintered silicon carbide - aluminum nitride product which comprises the steps of:

(a) forming a mixture of finely-divided silicon carbide, aluminum nitride, and carbon, or a carbon source material,

(b) shaping said mixture into an initial green body by cold pressing,

(c) crushing and reforming the initial green body into a second green body,

(d) sintering the second green body under substantially pressureless conditions in an inert atmosphere at a temperature between about 1900° and about 2250° C., and

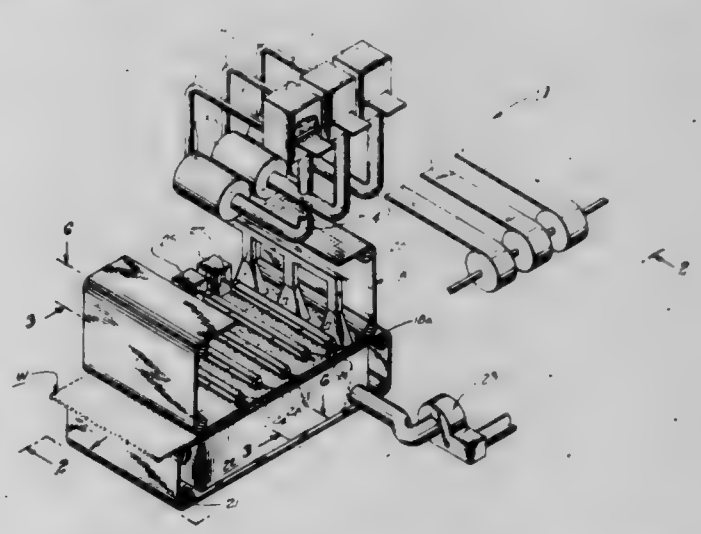
(e) recovering a co-sintered silicon carbide - aluminum nitride product having a density of at least 75 percent of the theoretical density of silicon carbide.

4,332,756

METHOD FOR THE MANUFACTURE OF FIBROUS WEBS

William C. Bean, Larsen, and Thomas M. Tao, Neenah, both of Wis., assignors to American Can Company, Greenwich, Conn.

Division of Ser. No. 105,897, Dec. 21, 1979, Pat. No. 4,268,235. This application Sep. 15, 1980, Ser. No. 187,074
Int. Cl.[3] B28B *1/08*
U.S. Cl. 264—70 5 Claims



1. An improved method for uniformly dry laying a fibrous web on a linearly, unidirectionally moving forming wire, comprising the steps of:

applying a pressure differential transversely of the plane of said forming wire;

disposing a fiber distributor screen above said forming wire;

linearly, unidirectionally moving said screen in the recited direction of movement of said forming wire;

delivering fibers onto said moving screen for passage therethrough of said fibers onto said moving forming wire; and

imparting oscillatory movements to said fibers substantially in the plane of, and transversely of the recited direction of movement of, said screen to uniformly distribute said fibers passing through said screen onto said forming wire to dry lay said fibrous web.

4,332,757

PROCESS FOR CONTINUOUS FILAMENT YARN WITH WOOL-LIKE HAND

Lawrence E. Blackmon, Foley, Ala.; John R. Dees, Pensacola, Fla.; Darrell A. Kelly, Milton, Fla.; Wayne T. Mowe, and Jing-Peir Yu, both of Pensacola, Fla., assignors to Fiber Industries, Inc., Charlotte, S.C.

Continuation-in-part of Ser. No. 155,261, Jun. 2, 1980, abandoned, which is a continuation of Ser. No. 947,687, Oct. 2, 1978, abandoned. This application Oct. 31, 1980, Ser. No. 202,549
Int. Cl.[3] D02G *1/20*
U.S. Cl. 264—103 9 Claims

1. A process for producing a self-crimping yarn comprising first and second types of filaments, said process comprising:

(a) spinning said first type of filament by

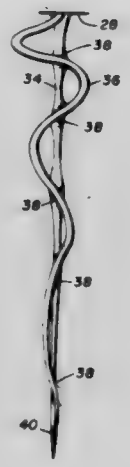
(1) forming a first plurality of melt spun filaments by merging molten polyester streams traveling at different

extrusion speeds to form thick and thin regions in the merged streams out of phase with other merged streams.

(2) quenching said first plurality of merged streams into said first type of filaments having thick and thin regions along their lengths and out of phase from filament to filment;

(b) spinning said second type of filament by

(1) extruding other streams of molten polymer of fiber-forming molecular weight from orifices selected to give filaments having round cross section with lower shrink-



age than said first type of filaments at a common spinning speed; and

(2) quenching said other streams into said second type of filament;

(c) withdrawing said first and said second types of filaments from said streams at said common spinning speed; and

(d) combining said first and said second types of filaments into a yarn;

(e) said thick and thin regions in said first plurality of molten streams and said common spinning speed being selected such that said yarn has a crimp pf at least 2%.

4,332,758

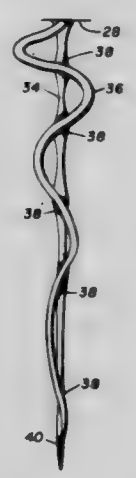
METHOD FOR PRODUCING POLYESTER WOOL-LIKE YARN

Lawrence E. Blackmon, Foley, Ala.; John R. Dees, and Wayne T. Mowe, both of Pensacola, Fla., assignors to Fiber Industries, Inc., Charlotte, N.C.

Continuation-in-part of Ser. No. 972,131, Dec. 21, 1978, abandoned. This application Nov. 10, 1980, Ser. No. 205,205

Int. Cl.³ D02G *1/20*

U.S. Cl. 264—103 **10 Claims**



1. A process for producing a self-crimping yarn comprising first and second types of filaments, said process comprising:

(a) spinning said first of filament type by

(1) forming a first plurality of melt spun filaments by merging molten polyester streams traveling at different extrusion speeds to form thick and thin regions in the merged streams out of phase from other merged streams;

(2) quenching said first plurality of merged streams into said first type of filaments having thick and thin regions along their lengths and out of phase from filament to filament;

(b) spinning said second of filament type by

(1) extruding other streams of molten polymer of fiber forming molecular weight from helical orifices selected to give filaments with helical cross-sections and lower shrinkages than said combined filaments at a given common spinning speed; and

(2) quenching said other streams into filaments;

(c) withdrawing said first and said second types of filaments from said streams at said common spinning speed; and

(d) combining said first and said second types of filaments into a yarn;

(e) said thick and thin regions in said first plurality of molten streams and said common spinning speed being selected such that said yarn has a crimp of at least 2%.

4,332,759

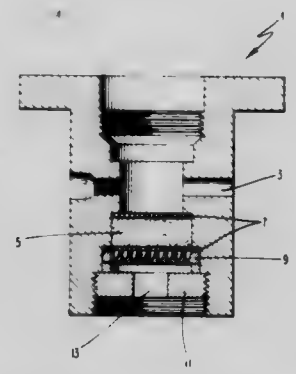
PROCESS FOR EXTRUDING LIQUID CRYSTAL POLYMER

Yoshiaki Ide, North Plainfield, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Jul. 15, 1980, Ser. No. 169,013

Int. Cl.³ B29D *3/02*

U.S. Cl. 264—108 **63 Claims**



1. An improved process for extruding liquid crystal polymer to form shaped articles comprising the steps of:

(a) providing a fluid stream of liquid crystal polymer wherein said stream has a flow pattern comprising substantial shear flow;

(b) converting the flow of said fluid stream of liquid crystal polymer to a substantially elongational flow in the substantial absence of shear flow; and

(c) extruding said fluid stream of liquid crystal polymer to form a shaped article having the polymer molecules oriented substantially parallel to the flow direction and exhibiting enhanced mechanical properties.

4,332,760

DIRECT PRODUCTION OF ELASTOMER COMPOUND FROM REACTOR SOLUTION

David R. Warfel, Exton, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Mar. 30, 1981, Ser. No. 248,138

Int. Cl.³ B02C *18/00*; C08L *9/00*; B28B *3/00*

U.S. Cl. 264—143 **2 Claims**

1. A method of preparing oil-extended elastomer in pellet form consisting essentially of

a. polymerizing from 25 to 55% by weight of a monovinyl aromatic compound and 45 to 75% by weight of a conjugated diene in an inert solvent to form a base thermoplastic elastomer of formula A—B—(B—A)$_n$, where A is a

monovinyl aromatic compound block, B is a conjugated diene block, and n is an integer from 1 to 20;
b. adding to the elastomer-solvent mixture an extender oil, and dispersing the resulting mixture;
c. pumping the dispersion to a devolatilizing extruder;
d. extruding the mixture into a strand while removing the solvent from the mixture; and
e. chopping the resulting strands to form pellets suitable for use in shoe sole molding applications.

4,332,761

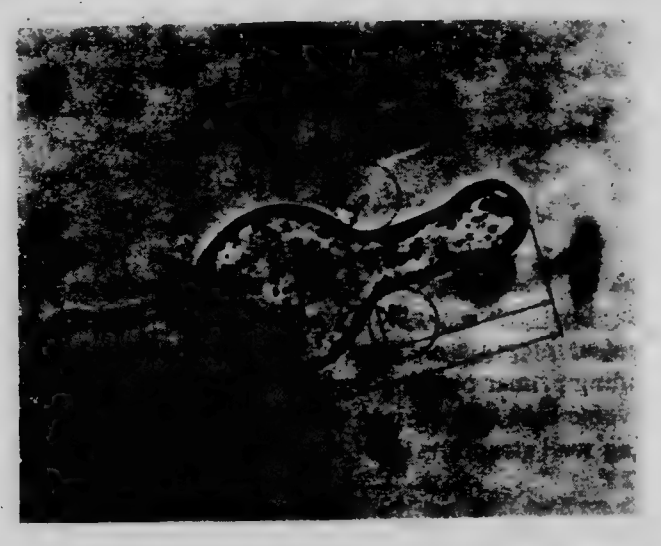
PROCESS FOR MANUFACTURE OF TEXTILE FILAMENTS AND YARNS

Bobby M. Phillips; James O. Casey, Jr., and Dale R. Gregory, all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 36,712, May 7, 1979, Pat. No. 4,245,001, which is a continuation of Ser. No. 834,034, Sep. 16, 1977, abandoned, which is a continuation of Ser. No. 763,258, Jan. 26, 1977, abandoned. This application Oct. 2, 1980, Ser. No. 193,063

Int. Cl.³ B29H *7/18*

U.S. Cl. 264—147 **6 Claims**



1. Process for draw-fracturing textile yarn, said process comprising uniformly drawing to a preselected level of textile utility a yarn comprising filaments having a wing-body interaction defined by

$$\left(\frac{(D\text{max} - D\text{min})D\text{min}}{2Rc^2}\right)\left(\frac{Lw}{D\text{min}}\right)^2 \geqq 10$$

where the ratio of the width of said filament to the width of said wing (L_T/Dmin) is $\leqq 30$, Dmax is the thickness or diameter of the body of the cross-section, Dmin is the thickness of the wing for essentially uniform wings and the minimum thickness close to the body when the thickness of the wing is variable, R_c is the radius of curvature of the intersection of the wing and body, Lw is the overall length of an individual wing and L_T is the overall length of the cross section, stabilizing said yarn to a specific gravity of at least 1.35; fracturing the wing portion of said filament utilizing fracturing means, and taking up said yarn.

4,332,762

PROCESS FOR PREPARING A SPREADABLE ACRYLIC FIBER TOW

Charles E. Lynch, Camden, S.C., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 681,592, Apr. 29, 1976, abandoned. This application Dec. 10, 1979, Ser. No. 101,798

Int. Cl.³ D01D *5/22*

U.S. Cl. 264—168 **2 Claims**

1. A process for preparing a spreadable tow of highly entangled continuous acrylic filaments from a tow of 10,000 or more previously undried bicomponent acrylic filaments having a large difference in the hot water swellability of the components by drying the tow to a maximum water content of 3% by weight at a temperature below the hot wet glass transition temperature of the polymers in the filaments, wherein one component of the filaments is selected from the group consisting of polyacrylonitrile and mixtures of polyacrylonitrile and up to 20% by weight of a copolymer containing 90–98% by weight acrylonitrile units and 2–10% by weight units of styrenesulfonic acid, allyl-sulfonic acid, methallylsulfonic acid,



vinyl-sulfonic acid, or their metal, ammonium or amine salts, a vinyl pyridine, vinyl pyrrolidone, acrylamide, methacrylamide, hydroxymethylacrylamide or mixtures of any of these units and the other component is a copolymer containing 90–98% by weight acrylonitrile units and 2–10% by weight units of styrenesulfonic acid, allyl-sulfonic acid, methallylsulfonic acid, vinyl-sulfonic acid, or their metal, ammonium or amine salts, a vinyl pyridine, vinyl pyrrolidone, acrylamide, methacrylamide, hydroxymethylacrylamide or mixtures of any of these units.

4,332,763

METHOD OF MAKING A COSMETIC SUBSTANCE

Matthias Hempel, Eckental, and Werner Brüchert, Nuremberg, both of Fed. Rep. of Germany, assignors to Schwan-Stabilo Schwanhausser GmbH & Co., Nuremberg, Fed. Rep. of Germany

Filed May 30, 1980, Ser. No. 154,932

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 2923080

Int. Cl.³ A61K *7/02*

U.S. Cl. 264—176 R **4 Claims**

1. A method for the production of a cosmetic stick comprising cold deformation molding a mixture comprising a fatty substance for the creation of a cream-like layer for application to the skin, a water soluble binding agent and an agent which emulsifies on the skin upon the addition of water, and thereafter removing water from the said molded mixture to such an extent that the stick so formed by the said cold deformation hardens into a solid structure.

4,332,764

METHODS FOR PRODUCING MELT-SPUN FILAMENTS

John R. Brayford, Charlotte, and Max L. Cardell, Shelby, both of N.C., assignors to Fiber Industries, Inc., New York, N.Y.

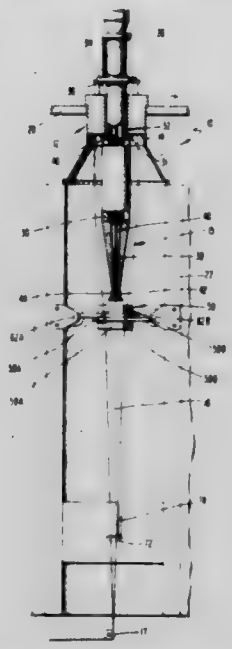
Filed Oct. 21, 1980, Ser. No. 199,321

Int. Cl.³ D01D *1/04*

U.S. Cl. 264—176 F **11 Claims**

1. In a melt-spinning process of the type wherein molten polymer is extruded downwardly through annularly arranged holes of a spinneret to form an annular group of filaments, quench gas is directed from within the filament group and outwardly therethrough, finish liquid is sprayed from within

the filament group and outwardly therethrough beneath the quench gas, the filaments are gathered and redirected at a lower guide means, and the filaments exhibiting vibration during travel from the spinneret to the lower guide means, the improvement comprising the step of passing the filaments through an upper annular guide means disposed around the filament group below the finish spray and above the lower guide means but no higher than the freeze point of the filaments such that the upper guide means is lubricated by the



finish spray and the filaments are contacted and acted inwardly upon by a surface of the upper guide means and deflected thereby, in mutually spaced annular relationship, toward a longitudinal axis defined by the filament group such that a diameter defined by the filament group passing through said upper guide means is smaller than a diameter defined by said filament group emerging from said spinneret, whereby the filaments are suppported between the spinneret and the lower guide means to reduce the amplitude of vibration of the filaments.

4,332,765

PROCESS FOR SPINNING HYDROPHILIC ACRYLIC FIBRES OF LOW DENSITY

Ulrich Reinehr; Toni Herbertz, both of Dormagen, and Hermann-Josef Jungverdorben, Grevenbroich, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 962,959, Nov. 22, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 82,449

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1977, 2752821

Int. Cl.³ D02G *3/00*

U.S. Cl. 264—206 **3 Claims**

1. A process for the production of hydrophilic core-jacket low-density filaments or fibres of polyacrylonitrile having a porousity of at least 50%, water retention capacity of at least 100%, and a mercury density of at most 0.7 g/cm^3 of a hydrophilic, filament-forming synthetic polyacrylonitrile which comprises dry spinning the polymer, there being added to the spinning solvent a substance which:

(a) has a higher boiling point than the spinning solvent used,

(b) is readily miscible with the spinning solvent and with water, and

(c) is a non-solvent for the polymer to be spun, the ratio by weight of polymer solids to non-solvent amounts to at most 2:1;

and, immediately after the filaments leave the spinning jet or at the latest at a time at which they have still not completely hardened, bringing the filaments into contact at a duct temperature of at most 140° C. with steam.

4,332,766

ONE-PIECE SHOTSHELL

Jack A. Erickson; Luke J. Davich, both of Anoka, and Richard W. Proulx, Forest Lake, all of Minn., assignors to Federal Cartridge Corporation, Minneapolis, Minn.

Filed Feb. 1, 1980, Ser. No. 117,580

Int. Cl.³ F42B *7/06*

U.S. Cl. 264—249 **28 Claims**



1. A method of producing a cartridge case from a thermoplastic tube having wall structure supporting at one end thereof an integral transverse base section with a longitudinally extending primer opening therein comprising, telescoping that transverse base section into the adjacent portions of that supporting wall structure.

4,332,767

METHOD FOR PRODUCING THERMOPLASTIC RESIN MOLDED ARTICLES

Minoru Kitanaka, and Zenji Izumi, both of Nagoya, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Dec. 28, 1979, Ser. No. 107,833

Claims priority, application Japan, Dec. 28, 1978, 53-163937; Mar. 1, 1979, 54-24251; Mar. 1, 1979, 54-24252

Int. Cl.³ B29B *3/02*

U.S. Cl. 264—322 **14 Claims**

1. A method for producing thermoplastic resin molded articles which comprises heating a sheet of crystalline crosslinked polyamide or polyester resin, which is crosslinked to a degree of crosslinking of more than about 5% to a temperature higher than the melting point of said crosslinked resin and below the decomposition temperature of the same, transferring said heated sheet to a press mold and press molding said preheated sheet between a pair of press molds maintained at a temperature below the melting point of said crosslinked resin.

4,332,768

ARRANGEMENT FOR SUPPLYING METERED QUANTITIES OF REAGENT LIQUID TO THE TEST TUBES OF AN ANALYZING APPARATUS

Erling G. Berglund, Järfälla, Sweden, assignor to Clinicon AB, Bromma, Sweden

Filed Feb. 23, 1981, Ser. No. 237,076

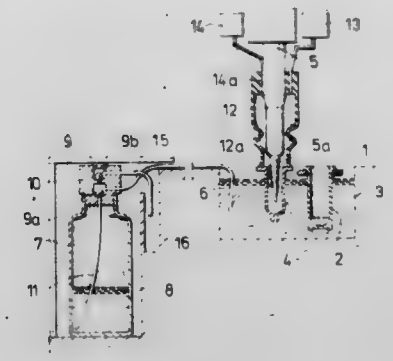
Claims priority, application Sweden, Mar. 11, 1980, 8001913

Int. Cl.³ G01N *1/14, 1/18*

U.S. Cl. 422—63 **8 Claims**

1. An arrangement in an automatically operating analyzing apparatus for supplying metered quantities of liquid reagent to a test-tube, comprising a cup for liquid reagent; a pump capable of drawing liquid into a suction pipe and re-dispensing a given

volume of liquid from said suction pipe, said pump being movable between a position above the reagent cup and a position above the test-tube and arranged to be lowered, in said first position, into the reagent cup for withdrawing reagent liquid therefrom and in said second position to dispense reagent liquid into the test-tube; a storage vessel for reagent liquid, said vessel being connected to said cup through a line having its one



end projecting into the liquid in the storage vessel and its other end discharging into the cup, and including a check valve arranged to permit a liquid flow in only one direction towards the reagent cup; means for generating a sub-pressure in said cup; and a level sensing means for sensing the level of liquid in said cup and rendering said sub-pressure generating means inoperative when the vessel of liquid in said cup exceeds a given highest level.

4,332,769

DISPOSABLE TITRATION DEVICE

Gordon A. Rampy, Warrenton, and Henry B. Castaneda, Woodbridge, both of Va., assignors to Chemetrics, Inc., Warrenton, Va.

Filed Sep. 10, 1980, Ser. No. 185,978
Int. Cl.³ G01N *31/16*
U.S. Cl. 422—75 **4 Claims**



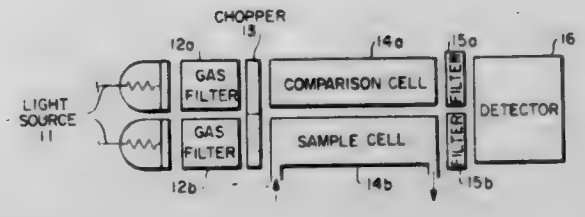
1. A disposable device for onetime quantitative chemical analysis of a fluid comprising a transparent tube of such cross-section that the volume of its contents can be readily measured and of sufficient wall strength to permit ready handling, and having one end thereof drawn to a sealed frangible tip, said tube being evacuated and containing a predetermined quantity of a liquid reagent for the desired analysis, a connector tightly fitting over the frangible tip of sufficient length for ready immersion into the fluid being analyzed, the connector being of material readily deformable by finger pressure of the analyst to permit ready breaking of said frangible tip, said connector having within it a rigid bead of a size suitable for effecting a leak-tight seal in the connector except when a passage is induced by deformation of the deformable connector, thereby producing a positive self-closing valve in the connector.

4,332,770

APPARATUS FOR ANALYZING THE CARBON CONTENT OF METALS

Kozo Ishida, and Akimichi Kira, both of Kyoto, Japan, assignors to Horiba, Ltd., Kyoto, Japan

Filed Oct. 21, 1980, Ser. No. 199,217
Claims priority, application Japan, Nov. 17, 1979, 54-149665
Int. Cl.³ G01N *31/12*
U.S. Cl. 422—78 **2 Claims**



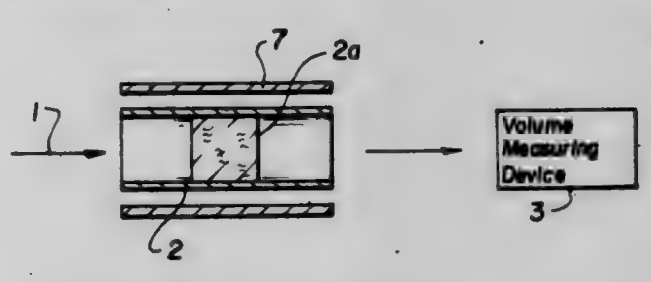
1. An apparatus for analyzing the carbon content of a metallic sample by utilizing a furnace for burning the metallic sample to be analyzed in a current of oxygen so as to generate a gas and comprising a single non-dispersive infrared analyzer having a single detector means for detecting both carbon monoxide and carbon dioxide, said single detector means exhibiting substantially the same sensitivity to both carbon monoxide and carbon dioxide in said gas generated in said furnace.

4,332,771

METHOD AND DEVICE FOR DETERMINING THE ALCOHOL CONTENT OF A PERSON'S BREATHING

Kurt Leichnitz, Gross Gronau, Fed. Rep. of Germany, assignor to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 121,888, Feb. 15, 1980, Pat. No. 4,227,251. This application Feb. 2, 1981, Ser. No. 230,871
Claims priority, application Fed. Rep. of Germany, Mar. 19, 1979, 2910778
Int. Cl.³ G01N *1/22*
U.S. Cl. 422—84 **3 Claims**



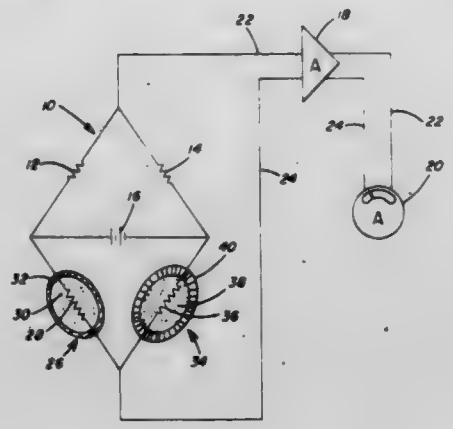
1. A device for determining the alcohol content of air exhaled by a person comprising a sampling tube, a silica gel in said sampling tube capable of retaining alcohol from a gas passed therethrough, cooling means for cooling said tube and said silica gel to about 0° to 5° C., a measuring device for measuring the quantity of gas passed through said sampling tube, means for directing exhaled air through said sampling tube and to said measuring device to a predetermined measured quantity, heating means for heating said sampling tube and said silica gel to a temperature of 150° C. to 200° C. after the measured quantity is obtained, an alcohol testing tube connectable to said sampling tube, said testing tube having material therein for indicating the percentage of alcohol in the air passing therethrough, and pump means connected to said testing tube and said sampling tube for drawing flushing air through said sampling tube and into said testing tube.

4,332,772

PORTABLE GAS DETECTOR

Frank X. McNally, Venetia, Pa., assignor to National Mine Service Company, Pittsburgh, Pa.

Division of Ser. No. 142,026, Apr. 21, 1980. This application Jun. 12, 1981, Ser. No. 272,945
Int. Cl.[3] G01N *27/16*
U.S. Cl. 422—97 2 Claims



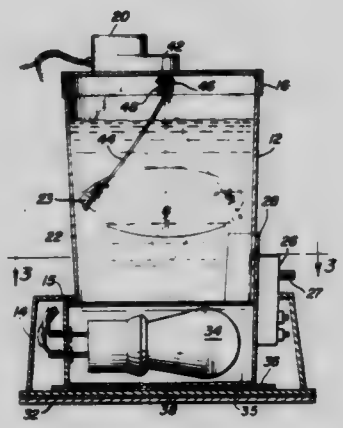
1. In an apparatus for detecting a combustible gas which comprises a Wheatstone bridge circuit having (a) a detector element comprising an electrically conducting member coated with a refractory and having on the surface of said refractory a catalyst for the oxidation of said gas, said detector element constituting one leg of said bridge, and (b) a reference element comprising an electrically conducting member coated with a refractory, said reference element constituting a second leg of said bridge, whereby upon catalytic oxidation of said gas an electrical signal approximately proportional to the amount of said gas present at the detector element is produced, the improvement which comprises a coating of cobalt oxide deposited upon the refractory coating of said reference element, whereby the occurrence of spurious signals by the Wheatstone bridge circuit due to causes other than the presence of a combustible gas is greatly reduced, if not completely eliminated.

4,332,773

APPARATUS FOR GROWING CRYSTALS

Delmer H. Kimberling, 10322 Schnapf La., Newburgh, Ind. 47630

Filed Sep. 5, 1980, Ser. No. 184,336
Int. Cl.[3] B01D *91/02*
U.S. Cl. 422—109 7 Claims



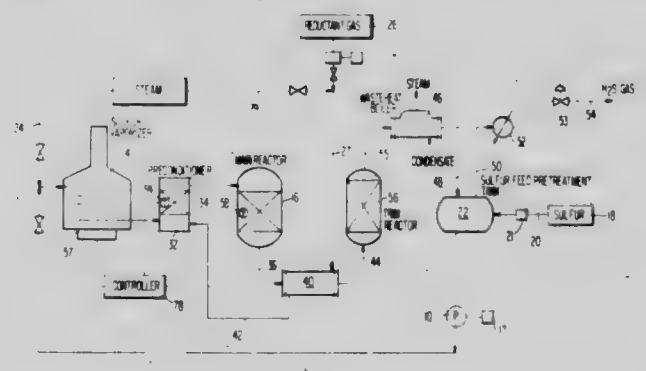
1. An apparatus for growing crystals primarily for use by hobbyists and for classroom instruction comprising: a container for holding a mixture of solvent and solute, means to rotate a crystal in said solution, a heat source placed exterior of said container and off-center and adjacent to the bottom of said container, and temperature control means placed exterior of said container to maintain the temperature of the solution relatively constant during the period of growth of said crystal, said rotating means comprising a motor containing a drive shaft and a flexible elongated crystal support means secured to the exterior of said drive shaft for holding and maintaining the crystal within the solution, the longitudinal axis of said crystal support means being substantially parallel to said drive shaft, said crystal support means being adjustably attached to said drive shaft whereby the placement of said crystal in said solution can be vertically adjusted during the growth of the crystal, said heat source being an electric light bulb and said container being transparent whereby the crystal growing in said solution can be observed regardless of the density of the solution.

4,332,774

MANUFACTURE OF HYDROGEN SULFIDE

Ian Drum, Calgary, Canada; Richard S. Madenburg, Boise, Id.; Douglas M. Paulsrude, Eugene, Oreg.; Carroll H. Sherman, Monaca, Pa.; Frank G. Turpin, Boise, Id., and Gerry A. Wheatcroft, Calgary, Canada, assignors to Home Oil Company Limited, Calgary, Canada and Morrison-Knudsen Company, Inc., Boise, Id.

Filed Aug. 19, 1980, Ser. No. 179,528
Int. Cl.[3] C01B *17/16;* C22B *17/00, 21/00;* C01G *9/00*
U.S. Cl. 422—111 6 Claims



1. Apparatus for producing hydrogen sulfide by reaction of sulfur with a gaseous sulfur reductant feedstock selected from various sulfur reductant feedstocks including hydrogen, hydrocarbons, carbon-containing gases such as carbon monoxide, and mixtures thereof, comprising in combination

an interconnected system for combining sulfur, sulfur reductant feedstock and steam for reaction to produce hydrogen sulfide,

a source of gaseous sulfur reductant feedstock having a predetermined temperature,

vaporizer and superheater means including separately controllable heat source means for vaporizing liquid sulfur and superheating such sulfur vapors,

means for supplying liquid sulfur at a predetermined temperature,

means for delivering such liquid sulfur into the vaporizer and superheater means,

means for quantitatively controlling delivery of liquid sulfur to the vaporizer and superheater means,

means for supplying steam at a predetermined temperature,

means for introducing steam into the vaporizer and superheater means to be superheated with the sulfur vapors,

means for introducing steam with the sulfur reductant feedstock,

means for delivering sulfur vapors, steam and sulfur reductant feedstock into a vessel means for premixing sulfur vapors, steam and sulfur reductant feedstock before introduction into a catalytic reaction zone,

catalytic reaction means connected to such premixing vessel means for receiving and reacting sulfur vapors, steam and sulfur reductant feedstock to produce reaction product including hydrogen sulfide,

means for controlling such heat source means to control heat input into the vaporizer and superheater means to balance

the heat input into the catalytic reaction means from the steam, sulfur and sulfur reductant feedstock,

means for cooling reaction product,

means for delivering reaction product from the catalytic reaction means to the means for cooling reaction product, and

means for delivering cooled reaction product including hydrogen sulfide from the means for cooling reaction product.

4,332,775
HYDROGEN GENERATOR UTILIZING SOLAR ENERGY TO DISSOCIATE WATER

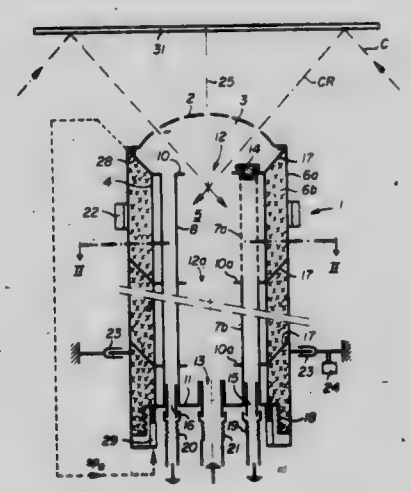
Pierre Genequand, Moillebeau-Parc, and Daniel M. Gross, Carouge, both of Switzerland, assignors to Battelle Memorial Institute, Columbus, Ohio

PCT No. PCT/CH78/00036, § 371 Date Jul. 3, 1980, § 102(e) Date Jun. 30, 1980, PCT Pub. No. WO80/00957, PCT Pub. Date May 15, 1980

PCT Filed Nov. 3, 1978, Ser. No. 200,618

Int. Cl.³ G05D *16/02*; B01J *19/12*; C01B *13/00, 3/06*

U.S. Cl. 422—112 **18 Claims**



1. A gas generator for producing hydrogen and oxygen from thermally dissociated water vapor, comprising

a heat-insulated rotary tubular reactor (1) heated by solar energy in incoming radiation (CR) from the sun, comprising

an inner chamber (5),

inlet means (13) for providing water in the chamber,

an axial upper end wall (2) facing the incoming radiation and having the form of a transparent cap for allowing the radiation to enter the inside of the reactor,

a tubular side wall (4) and a flat lower end wall (11) made of refractory material capable of absorbing a substantial portion of the collected radiation so as to raise, during operation, the temperature in the inner chamber to a level sufficient to dissociate the water therein to form hydrogen and oxygen,

means for separating the hydrogen from the oxygen, comprising a plurality of substantially vertically oriented refractory tubes (7,8) of which at least one (7) has a closed upper end (14) but a partially porous wall (*7a*) for letting the hydrogen preferentially penetrate therein, and another tube (8) has a solid wall and an open upper end for collecting the oxygen, and

a lower end (15,16) of each tube being connected to means for evacuating and storing the gases formed and collected therein.

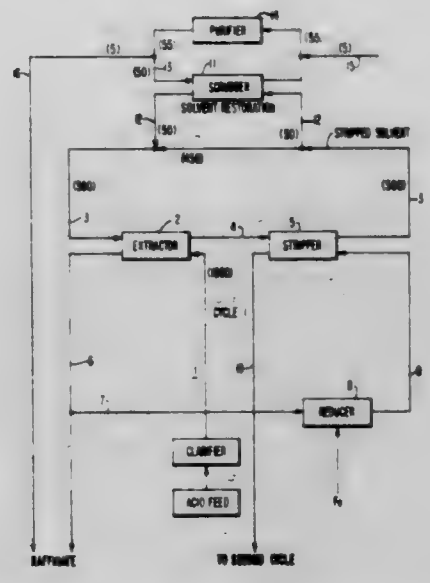
4,332,776
EXTRACTANT SOLVENT RESTORATION IN THE PROCESS FOR RECOVERY OF URANIUM FROM PHOSPHORIC ACID

Regis R. Stana, Lakeland, Fla., assignor to Wyoming Mineral Corporation, Lakewood, Colo.

Filed Nov. 8, 1979, Ser. No. 92,866

Int. Cl.³ C01G *43/00*

U.S. Cl. 423—10 **9 Claims**



1. A process of purifying organic extractant solvent in a uranium recovery process, comprising the steps of:

(A) passing phosphoric acid solution containing uranium values and contaminants into an extractor means and contacting it with a water-immiscible, organic extractant solvent composition, having a uranium extraction coefficient of at least about 2.0, to extract uranium values and contaminants from the acid solution, and then

(B) passing the organic solvent, containing uranium values and contaminants, into a stripper means, to strip uranium values from the organic solvent, and to provide a stripped organic solvent stream still containing contaminants and having a lowered uranium extraction coefficient value, and then

(C) passing from about 5 vol. % to about 35 vol. % of the stripped organic solvent stream from the stripper means into a water scrubber means and contacting it with water, containing no more than about 3 vol. % phosphoric acid as an impurity, to scrub contaminants from the organic solvent and raise its uranium extraction coefficient value, to provide a scrubbed water-immiscible, organic extractant solvent composition stream and a water stream containing contaminants, and then

(D) passing the scrubbed organic solvent back to the extractor means, and

(E) passing the contaminated water stream into at least one purification means, to provide a purified water stream which is fed back into the scrubber means.

4,332,777
HYDROMETALLURGICAL TREATMENT OF METALLURGICAL DUST

Richard Pazdej, Maizieres-les-Metz, France, assignor to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, France

Filed Jun. 6, 1980, Ser. No. 157,645

Claims priority, application France, Jun. 15, 1979, 79 15623

Int. Cl.³ C01G *9/06, 21/20*

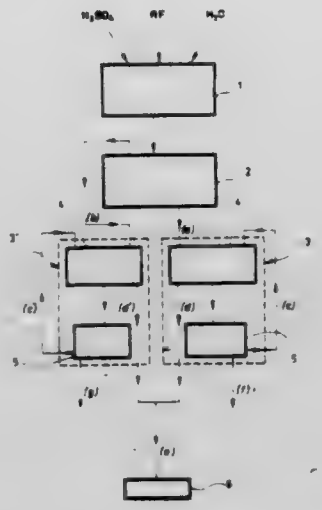
U.S. Cl. 423—98 **5 Claims**

1. Process for the hydrometallurgical treatment of metallurgical dust containing useful elements such as iron, zinc and lead, in which said elements are selectively separated for recovery, comprising in order the steps of:

(1) leaching said dust by attack of sulphuric acid solution

diluted to dissolve said zinc into sulphate form and to form insoluble particles of lead sulphate without affecting said iron, thereby forming a solid fraction and a mainly liquid fraction;

(2) performing a solid-solid separation of said solid fraction



by granulometric classification to separate said iron from very fine lead sulphate particles; and

(3) performing a solid-liquid separation composed of two identical operations in parallel to separate from said mainly liquid fraction, respectively, iron particles and lead sulphate particles.

4,332,778

NON-EVAPORATIVE PROCESS FOR THE PRODUCTION OF ALUMINUM SULFATE

Robert W. Hobday, Wilmington, Del., assignor to Allied Corporation, Morris Township, Morris County, N.J.

Filed Jun. 30, 1980, Ser. No. 164,485

Int. Cl.³ C01G *15/00*; C01F *7/74*; C22B *21/00*; C01F *7/26*

U.S. Cl. 423—132 **9 Claims**

1. In a process for producing drier aluminum sulfate wherein an alumina-bearing substance containing insoluble impurities is contacted with sulfuric acid in a reaction zone heated to a temperature sufficient to form an alum liquor containing about 6 to about 11% alumina as Al_2O_3 and insoluble impurities and wherein the heated alum liquor is separated from the insoluble impurities and wherein the separated heated alum liquor is further treated to produce drier aluminum sulfate, the improvement which consisting essentially of admixing the separated heated alum liquor with a substance containing aluminum trihydrate and additional sulfuric acid in amounts sufficient to produce aluminum sulfate substance consisting essentially of $Al_2(SO_4)_3$ and containing about 17% by weight aluminum as Al_2O_3, while maintaining the temperature of the admixing in the range of about 120° to about 155° C.

4,332,779

PHOSPHORIC ACID FILTRATION PROCESS

Michael J. Thibodeau, Lakeland, Fla., and James S. Balcerski, Maplewood, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Nov. 24, 1980, Ser. No. 209,805

Int. Cl.³ C01B *25/16*

U.S. Cl. 423—321 R **9 Claims**

1. A process for the filtration of phosphoric acid produced by the wet-process comprising initially adding to the prefilt phosphoric acid an effective amount of a cationic flocculant and a dispersant said dispersant being selected from the group consisting of polyacrylates, polysulfonates polyphosphates, and sulfonated polycondensates wherein the ratio of the flocculant to dispersant is from about 0.1:1.0 to 10.0:1.0, respectively, conditioning the prefilt phosphoric acid and thereafter filtering the phosphoric acid to remove impurities and concentrate the acid.

4,332,780

PREPARATION OF CIS-DIAMMINE DIODO PLATINUM (II)

Richard N. Rhoda, Suffern, N.Y., and Jeffrey N. Crosby, Worcester, England, assignors to MPD Technology Corporation, Wyckoff, N.J.

Continuation-in-part of Ser. No. 65,553, Aug. 16, 1979, Pat. No. 4,273,755. This application Mar. 9, 1981, Ser. No. 241,946

Int. Cl.³ C01G *55/00*

U.S. Cl. 423—413 **9 Claims**

1. A process for preparing a cis-diamminediiodoplatinum(II) complex of high purity and in high yield from potassium tetraiodoplatinum(II) by a method comprising adding an aqueous solution of ammonium hydroxide to an aqueous dispersion of potassium tetraiodoplatinum(II), said tetraiodo compound having the formula K_2PtI_4, under a controlled gradually rising temperature profile while controlling the ammonium hydroxide addition so that the pH does not exceed about 7.5.

4,332,781

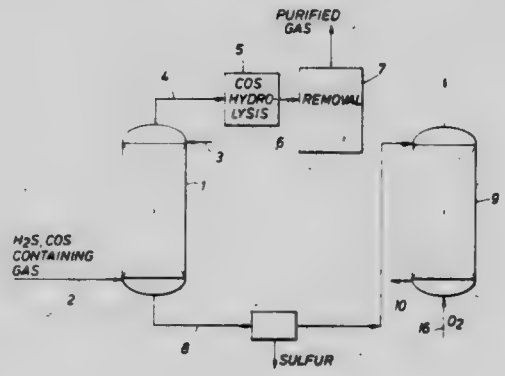
REMOVAL OF HYDROGEN SULFIDE AND CARBONYL SULFIDE FROM GAS-STREAMS

Charles A. Lieder, and Carl H. Deal, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Dec. 29, 1980, Ser. No. 220,487

Int. Cl.³ C01B *17/05*; B01D *53/34*

U.S. Cl. 423—573 G **34 Claims**



1. A process for removal of H_2S and COS from a sour gaseous stream containing H_2S and COS comprising:

(a) contacting said sour gaseous stream in a contacting zone with an aqueous reactant solution, the solution comprising an effective amount of an oxidizing reactant, to produce a gas stream containing COS and an aqueous admixture containing sulfur and a reduced reactant;

(b) contacting the gas stream containing COS with a catalyst for the hydrolysis of COS, in the presence of water, and under conditions to react COS and water, and producing a gas stream containing CO_2 and H_2S;

(c) and removing the H_2S from the gas stream.

4,332,782

METHOD OF PRODUCING PSEUDOBOEHMITE

Julius Scherzer, Anaheim, and Anh-Thu Liu, Santa Ana, both of Calif., assignors to Filtrol Corporation, Los Angeles, Calif.

Filed Jul. 28, 1980, Ser. No. 173,064

Int. Cl.³ C01F *7/34*

U.S. Cl. 423—628 **5 Claims**

1. A process for producing crystalline pseudoboehmite having a peptization index or less than 60 which comprises reacting an aluminum sulfate with ammonium hydroxide in a water solution to a terminal pH of in excess of 9, and forming alumina hydrate gel in a mother liquor, aging said mixture of gel and mother liquor to convert said gel to crystalline pseudoboehmite and maintaining said mother liquor at a pH of about 8 or higher during said aging and separating mother liquor from the pseudoboehmite, in which said aging or said separation is under quiescent conditions.

4,332,783

PROCESS FOR IMMUNOLOGIC DETERMINATION TESTS

Walter Pernice, and Hans-Harald Sedlacek, both of Marburg an der Lahn, Fed. Rep. of Germany, assignors to Behringwerke Aktiengesellschaft, Marburg an der Lahn, Fed. Rep. of Germany

Filed Aug. 15, 1979, Ser. No. 66,793

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1978, 2836046

Int. Cl.[3] G01N *33/54, 33/58, 33/60*

U.S. Cl. 424—1 10 Claims

1. A method for the immunological determination of a immuno-complex, comprising an antigen and an antibody, in a liquid containing said immuno-complex, which method comprises

(a) incubating said liquid containing said immuno-complex with a first reagent bound to a carrier, said first reagent being specific for an antigenic determinant of the antigen in said immuno-complex and being present in amount sufficient to fix said immuno-complex;

(b) separating the carrier from said liquid containing said immuno-complex and incubating it in a solution of a second reagent, said second reagent being specific for an antigenic determinant of the antibody in said immuno-complex and being present in an amount sufficient to fix said immuno-complex; and

(c) separating the carrier from said solution of the second reagent and determining the amount of bound or unbound second reagent.

4,332,784

DUAL ISOTOPE ASSAYS

Geoffrey F. W. Smith; Ralph A. J. Stevens, and Benjamin Jacoby, all of Buckinghamshire, England, assignors to The Radiochemical Centre Limited, Buckinghamshire, England

Filed Jan. 30, 1980, Ser. No. 116,776

Claims priority, application United Kingdom, Feb. 6, 1979, 7904036

Int. Cl.[3] G01N *33/56;* G01T *1/00;* G01N *33/60*

U.S. Cl. 424—1 9 Claims

1. A method of testing for thyroid function by performing a radio-immunoassay of a sample by a dual isotope technique comprising the steps:

(a) mixing the sample to be assayed with a version of a first thyroid component selected from the group T3, T4, TSH and TGB labelled with Se-75 and a version of a second thyroid component selected from the said group labelled with another radioactive isotope, and with an antibody to the said first component and an antibody to the said second component, the amount of antibody being in each case insufficient for reaction with all the thyroid component and labelled version thereof that are present,

(b) incubating the mixture to effect reaction between the thyroid components and the labelled versions thereof, and their respective antibodies,

(c) separating the fractions of the thyroid components plus the labelled versions thereof that are bound to the antibodies from the fractions not so bound,

(d) measuring the radioactive concentrations of the bound or the unbound fractions, and

(e) using the measurements to calculate the concentrations of the thyroid components in the sample being assayed.

4,332,785

IMMUNOASSAY FOR MEASUREMENT OF RETICULOCYTES, AND IMMUNOREACTIVE REAGENTS FOR USE THEREIN

Robert H. Allen, Englewood, and Paul A. Seligman, Denver, both of Colo., assignors to University Patents, Inc., Norwalk, Conn.

Filed Apr. 9, 1980, Ser. No. 138,785

Int. Cl.[3] G01N *33/56, 33/58*

U.S. Cl. 424—1 13 Claims

1. A method for the quantitative assay of the reticulocyte content present in a specimen of red blood cells, comprising the steps of:

(a) forming an incubation mixture comprising said specimen and a reticulocyte-specific antibody which is immunoreactive with proteinaceous material substantially associated with reticulocytes but not substantially associated with mature red blood cells;

(b) incubating said incubation mixture for a period of time sufficient to enable immunoreaction to occur, whereby said reticulocyte-specific antibody forms an immunoreaction product selectively with the reticulocyte portion of said specimen via said immunoreactive proteinaceous material; and

(c) quantitatively measuring the reticulocyte portion of said specimen based upon the extent of said immunoreaction.

4,332,786

METHOD AND COMPOSITION FOR VITAMIN B-12 ASSAY

Michael D. Cabelli, Watertown, and Ernest V. Groman, Brookline, both of Mass., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed May 15, 1980, Ser. No. 150,022

Int. Cl.[3] G01N *33/54, 33/58, 33/60*

U.S. Cl. 424—1 12 Claims

1. In a method for determining vitamin B-12 wherein a sample which contains the vitamin bound to sample binding proteins is heat treated to release the vitamin, the improvement comprising contacting the sample binding protein during the heat treatment with a denaturing agent having the formula $(R)_2NC(A)N(R)_2$, wherein R is hydrogen or lower alkyl and A is oxygen or hydroxyl.

4,332,787

ASSAY FOR BETA-ADRENERGIC ANTAGONISTS AND ANTIBODY THEREFOR

Charles J. Homcy, and Edgar Haber, both of Weston, Mass., assignors to The Massachusetts General Hospital, Boston, Mass.

Filed Jun. 23, 1980, Ser. No. 162,081

Int. Cl.[3] G01N *33/56, 33/58;* C07G *7/00*

U.S. Cl. 424—1 14 Claims

1. The process for determining the concentration of a material selected from the group consisting of an aryloxypropylamine beta-adrenergic antagonist or an active metabolite of said antagonist and mixtures thereof in a sample which comprises:

a. mixing the sample with an antibody for said material, said antibody being formed from an antigen comprising a conjugate of an immunogenic protein linked by a diazo moiety to (a) an aryloxypropylamine beta-adrenergic antagonist or (b) a derivative of said antagonist having beta-adrenergic activity which derivative includes an aryloxypropylamine moiety,

b. determining the extent of the binding reaction between said antibody and said material, and,

c. comparing the measured extent of binding of an unknown with a known quantitative relationship between extent of binding and concentration of said material.

4,332,788

METHOD OF DETERMINING AN ANTIGEN, ANTIBODY FOR ANTIGEN-ANTIBODY COMPLEX INCLUDING FIXING THE AGGREGATES THEREOF

Ei Mochida, Tokyo; Hiroyuki Shinkai, Kawagoe; Takashi Kudo, Tokyo, and Toshiyuki Sugawara, Urawa, all of Japan, assignors to Mochida Seiyaku Kabushiki Kaisha, Tokyo, Japan

Filed May 22, 1980, Ser. No. 152,390

Claims priority, application Japan, Jun. 5, 1979, 54/70371

Int. Cl.[3] G01J *3/42;* G01N *21/75, 31/06, 33/52*

U.S. Cl. 424—12 16 Claims

1. In a measuring method for determining an antigen, antibody, or antigen-antibody complex or conjugate comprising the steps of (1) causing an antigen-antibody reaction between (a) a sensitized carrier particle which is formed by binding (I) at least one substance selected from the group consisting of an antigen, antibody, and antigen-antibody complex and conjugate to (II) a carrier composed of an insoluble finely divided particle so that at least two units of said substance are bound to the particulate carrier and (b) at least one substance selected from the group consisting of an antigen, antibody, and antigen-antibody complex and conjugate to be determined and capable of causing an immunological reaction with said substance (I) bound to said sensitized carrier particle; and (2) measuring the absorbancy or turbidity of the reaction mixture formed in step (1) by irradiating said reaction mixture with a ray having a wavelength of from about 320 to about 2400 nm, wherein the measuring method is to determine the quantity or concentration of aggregate formed by said antigen-antibody reaction, the improvement which comprises fixing the aggregate formed by said antigen-antibody reaction by adding a fixing compound to the reaction mixture formed in the reaction system of step (1).

4,332,789

PHARMACEUTICAL UNIT DOSAGE FORMS

Arthur R. Mlodozeniec, Montclair, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 640,655, Dec. 15, 1975, abandoned. This application Aug. 24, 1977, Ser. No. 827,284

Int. Cl.[3] A61K *9/70*

U.S. Cl. 424—27 10 Claims

1. A solid pharmaceutical unit dosage form comprising a single sheet of an edible, therapeutically inert web having a fibrous composition comprising one or more fibrous materials and one or more non-fibrous modifiers therefor, said sheet having a composition comprising one or more medicaments uniformly loaded to the surface thereof in a finely particulate form, said sheet being fabricated into said unit dosage forms so as to have substantially no medicament loaded to an outer surface thereof, said unit dosage form being sealed so as to completely internalize said medicament.

4,332,790

MICROCAPSULE CONTAINING A MICROORGANISM AND A PROCESS FOR ITS PRODUCTION

Tomaso Sozzi, Lausanne; Alfred Schrenk, Orbe, and Marcel Buhler, Tolochenaz, all of Switzerland, assignors to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Nov. 23, 1979, Ser. No. 96,771

Claims priority, application Switzerland, Dec. 5, 1978, 12392/78

Int. Cl.[3] A61K *39/02, 9/50, 9/42*

U.S. Cl. 424—38 8 Claims

1. A process for the production of microcapsules of fat containing microorganisms of the genus Lactobacillus and/or Bifidobacterium and/or other geni of the intestinal flora comprising forming a dispersion of the microorganisms in molten fat having a melting point of from 40° to 60° C. with from 10^7 to 10^{10} individuals or germs of Lactobacillus and/or Bifidobacterium per gram of fat; spraying the dispersion into the upper portion of a chamber under a pressure of from 3 to 6 bars, said chamber having an upper moderate-temperature zone of at least one meter in height maintained at a temperature between −10° C. and the melting temperature of the fat and a lower low-temperature zone; and collecting the solidified microcapsules.

4,332,791

TOOTHPASTE ACTIVE AGAINST PLAQUE COMPRISING A COPPER COMPOUND AND A SILICA POLISHING AGENT

Helmut Raaf, Bad Schwalbach; Dieter Becker, Darmstadt-Wixhausen; Franz Frosch, Taunusstein; Helmut Harth, Mainz, and Helmar R. Wagner, Darmstadt, all of Fed. Rep. of Germany, assignors to Blendax-Werke R. Schneider GmbH & Co., Fed. Rep. of Germany

Filed Apr. 9, 1981, Ser. No. 252,405

Claims priority, application European Pat. Off., Apr. 29, 1980, 80102304.5

Int. Cl.[3] A61K *7/16, 7/18, 7/24, 33/34*

U.S. Cl. 424—52 14 Claims

1. An aqueous toothpaste composition containing at least one water-soluble copper compound and at least one polishing agent, the major part of said polishing agent being silicon dioxide.

4,332,792

INSECT ATTRACTANT

Gustave K. Kohn, Palo Alto, and Richard L. Baughn, San Francisco, both of Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

Filed Jul. 14, 1980, Ser. No. 168,862

Int. Cl.[3] A01N *25/00*

U.S. Cl. 424—84 10 Claims

1. A process for the manufacture of an insect attractant which comprises pyrolyzing a mixture comprising N-methylnicotinic acid and starch syrup, said mixture containing from about 0.1 to 50 percent, by weight, of said N-methylnicotinic acid, and said pyrolyzing being conducted by heating said mixture at about 100° to 250° C. for about 5 minutes to 120 minutes.

7. In a method for the control of insects using an attractant, the improvement which comprises using the pyrolyzate prepared according to claim 1 as the attractant.

8. The method of claim 7 wherein the insect is a cockroach.

10. The method of claim 8 wherein the mixture contains from about 5 to 15 percent of said acid.

4,332,793

METHOD OF RECOVERING CELL ANTIGEN AND PREPARATION OF FELINE LEUKEMIA VACCINE THEREFROM

Richard G. Olson, London, Ohio, assignor to The Ohio State University Research Foundation, Columbus, Ohio

Filed Dec. 18, 1979, Ser. No. 104,789

Int. Cl.[3] A61K *39/12*

U.S. Cl. 424—89 7 Claims

1. A vaccine for the prevention of disease caused by Feline leukemia virus (FeLV) which comprises: protease enzyme-inhibited, substantially virus-free, cell-free, in vitro produced feline leukemia neoantigens comprising

(a) a FOCMA-type neoantigen which is capable of reading with FOCMA-antisera and which evokes an immune response in cats by the appearance of antibodies thereto; and

(b) a FeLV virion gp70 neoantigen which is capable of reacting with gp70-antisera and which evokes an immune response in cats by the appearance of antibodies thereto,

wherein said protease enzyme inhibition has been effected by at least one of the following techniques:

(i) adding to said neoantigens an effective porportion of a protease enzyme inhibition;

(ii) heating said neoantigens to a temperature effective to inhibit protease enzymes therein;

(iii) changing the pH of said neoantigens to a value effective to inhibit protease enzymes therein;
(iv) changing the ionic strength of said neoantigens to a value effective to inhibit protease enzymes therein.

4,332,794

6''-DEOXYDIBEKACIN, 4'',6''-DIDEOXYDIBEKACIN AND 1-N-AMINOACYL DERIVATIVES THEREOF, AND THE PRODUCTION OF THESE NEW COMPOUNDS

Hamao Umezawa, Tokyo, and Shinichi Kondo, Yokohama, both of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

Filed Aug. 1, 1980, Ser. No. 174,630
Claims priority, application Japan, Sep. 19, 1979, 54/119323
Int. Cl.[3] A61K *31/71;* C07H *15/22*
U.S. Cl. 424—180 9 Claims

7. An antibacterial composition comprising as the active ingredient 6''-deoxydibekacin, 4'',6''-dideoxydibekacin, 1-N-(L-4-amino-2-hydroxybutyryl)-6''-deoxydibekacin or 1-N-(L-4-amino-2-hydroxybutyryl)-4'',6''-dideoxydibekacin or a pharmaceutically acceptable acid addition salt thereof, in an antibacterially effective amount to inhibit the growth of bacteria, in combination with a carrier for the active ingredient compound.

4,332,795

INFLAMMATION-PREVENTING PHARMACEUTICAL COMPOSITION OF ORAL ADMINISTRATION

Miklos Ghyczy; Adorjan Erdös, both of Cologne; Günter Heidemann, Geilenkirchen-Tripsrath, and Götz Ritzmann, Cologne, all of Fed. Rep. of Germany, assignors to A. Nattermann & Cie. GmbH, Cologne, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 104,449
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856333
Int. Cl.[3] A61K *31/40, 31/685*
U.S. Cl. 424—199 14 Claims

1. A method of alleviating inflammation in a mammal comprising orally administering to said mammal an effective inflammation-alleviating amount of a pharmaceutical composition comprising a phospholipid and a non-steroidal inflammation-preventing indole in a molar ratio ranging from about 0.1:1 to about 20:1, respectively.

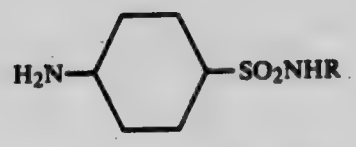
4,332,796

POTENTIATED SULFONAMIDE INJECTABLE PREPARATION

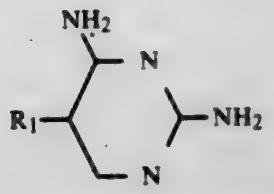
Mario A. Los, Buenos Aires, Argentina, assignor to Laboratorios Bago S.A., Buenos Aires, Argentina

Filed Jun. 11, 1980, Ser. No. 158,398
Claims priority, application Argentina, Feb. 19, 1980, 279998
Int. Cl.[3] A61K *9/42, 31/505, 31/625*
U.S. Cl. 424—229 6 Claims

1. A pharmaceutical composition, which comprises;
in admixture,
(a) from 1 to 20 parts by weight of an alkali metal sulfonamide, said sulfonamide having the structural formula:



wherein R is selected from the group consisting of 6-methoxy-3-pyridazinyl, 6-ethoxy-3-pyridazinyl, 5,6-dimethoxy-4-pyrimidinyl, 2,6-dimethoxy-4-pyrimidinyl, 2,6-dimethyl-4-pyrimidinyl, 2-pyrimidinyl, 4,6-dimethyl-2-pyrimidinyl, 5-methoxy-2-pyrimidinyl, 3,4-dimethyl-5-isoxazolyl, 5-methyl-3-isoxazolyl, 4,5-dimethyl-2-oxazolyl and 2-quinoxalinyl; and
(b) one part by weight of microcrystals of a potentiator for said sulfonamide, said potentiator being a 5-substituted 2,4-diaminopyrimidine of the formula:



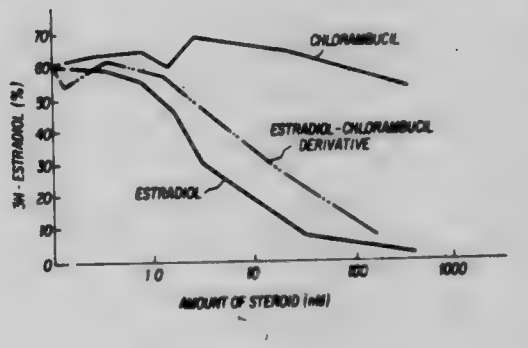
wherein R_1 is selected from the group consisting of 3,4,5-trimethoxybenzyl, 3,4-dimethoxy-6-methylbenzyl and 3,4-dimethoxybenzyl groups, said microcrystals being coated with a mixture of a phospholipid selected from the group consisting of phosphatidylcholine, both naturally occurring and synthetically prepared, phosphatidic acid, lysophosphatidylcholine, phosphatidylserine, phosphatidylethanolamine, sphingolipid, phosphatidylglycerol, spingomyelin, cardiolipin, glycolipid, ganglioside, cerebrosides and lecithin; and
a non-ionic surface-active agent;
the proportion ratio between potentiator:phospholipid:surfactant being between 100:1:30 and 300:1:70.

4,332,797

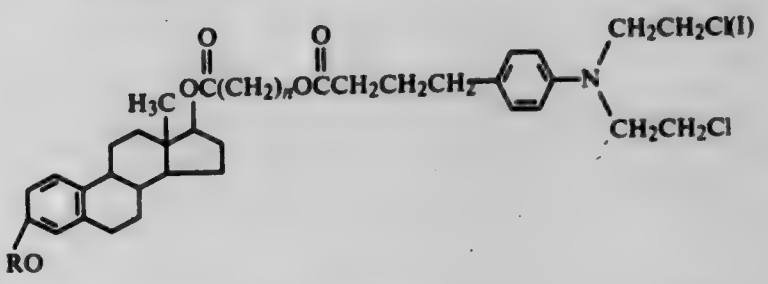
CHLORAMBUCIL DERIVATIVES

Kiro Asano; Humio Tamura, both of Ibaraki; Hiromitsu Tanaka, Tokyo, and Satoru Enomoto, Fujisawa, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 62,789, Aug. 1, 1979, Pat. No. 4,261,910.
This application Sep. 12, 1980, Ser. No. 186,487
Claims priority, application Japan, Aug. 14, 1978, 53/98795; Dec. 8, 1978, 53/152175
Int. Cl.[3] A01N *45/00;* A61K *31/56*
U.S. Cl. 424—238 18 Claims



1. Chlorambucil derivatives having the formula



wherein R represents a hydrogen atom or an acyl group and n is 1 or 2.

7. A composition of matter consisting essentially of from 0.001% to 90% of the compounds of claim 1 as active ingredient and a pharmaceutically acceptable carrier.

4,332,798

7-AMINO-THIA-DIAZOLE OXYIMINO DERIVATIVES OF CEPHEM AND CEPHEM COMPOUNDS

Tsutomu Teraji, Osaka; Kazuo Sakane, Amagasaki, and Jiro Goto, Suita, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 108,161, Dec. 28, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 116,984

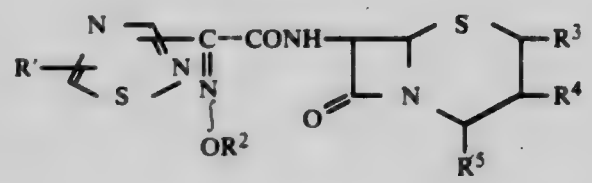
Claims priority, application United Kingdom, Dec. 29, 1978, 50334/78; Oct. 12, 1979, 7935538; Denmark, Dec. 21, 1979, 5542/79

The portion of the term of this patent subsequent to May 19, 1998, has been disclaimed.

Int. Cl.[3] A61K *31/545*; C07D *501/56*

U.S. Cl. 424—246 23 Claims

1. 7-Substituted-3-cephem and cepham-4-carboxylic acid of the formula:



where R^1 is amino or a protected amino;

R^2 is hydrogen; carbamoyl; lower alkanoyl; lower alkoxycarbonyl; aroyl; ar(lower)alkanoyl; cyclo(lower)alkyl(lower)alkanoyl; ar(lower)alkoxycarbonyl; (lower)alkanesulfonyl; arenesulfonyl; aryl; alkaryl; aryl and alkaryl substituted in the aryl nucleus with 1 to 3 substituent(s) selected from the group consisting of halogen, lower alkoxy, nitro, halo(lower)alkyl, and protected carboxy; substituted lower alkyl selected from the group consisting of ar(lower)alkyl, lower alkylthio(lower)alkyl, halo(lower)alkyl, aryloxy(lower)alkyl, cyano(lower)alkyl, protected carboxy(lower)alkyl, di(lower)alkylcarbamoyl(lower)alkyl, lower alkoxy(lower)alkoxy(lower)alkyl, lower alkanesulfonyl(lower)alkyl, protected amino(lower)alkyl, amino(lower)alkyl, carboxy(lower)alkyl, ar(lower)alkyl substituted with protected carboxy, ar(lower)alkyl substituted with carboxy, ar(lower)alkyl substituted with protected amino(lower)alkyl, and ar(lower)alkyl substituted with amino(lower)alkyl; lower alkenyl; lower alkynyl; cycloalkyl; cycloalkyl substituted with carboxy or protected carboxy; cyclo(lower)alkenyl; or S or O containing 5-membered heterocyclic group substituted with oxo group(s);

R^3 is hydrogen or lower alkyl;

R^4 is hydrogen; acyloxy(lower)alkyl; acylthio(lower)alkyl; pyridinium(lower)alkyl; pyridinium(lower)alkyl substituted with carbamoyl; heterocyclicthio(lower)alkyl; heterocyclicthio(lower)alkyl substituted with 1 to 3 substituent(s) selected from the group consisting of lower alkyl, hydroxy(lower)alkyl, protected amino(lower)alkyl, amino(lower)alkyl, di(lower)alkylamino(lower)alkyl, lower alkenyl, carboxy(lower)alkyl, protected carboxy(lower)alkyl, aryl, morpholino(lower)alkyl, piperidino(lower)alkyl, lower alkyl substituted piperazinyl(lower)alkyl, oxo and hydroxy; lower alkyl; halogen; or hydroxy;

R^5 is carboxy or a protected carboxy; wherein R^5 is COO^- when R^4 is pyridinium(lower)alkyl or substituted pyridinium(lower)alkyl; and the heavy solid line means single or double bond; and pharmaceutically acceptable salt thereof.

23. An antibacterial composition comprising an effective amount of a compound of claim 1 or pharmaceutically acceptable salt thereof in association with a pharmaceutically acceptable, substantially non-toxic carrier or excipient.

4,332,799

QUATERNARIES OF TERTIARY AMINO-SUBSTITUTED THIAZINES

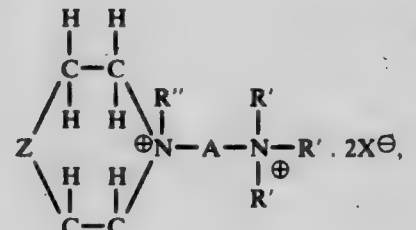
Patrick M. Quinlan, Webster Groves, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Division of Ser. No. 713,704, Aug. 12, 1976, Pat. No. 4,276,416. This application Jul. 7, 1980, Ser. No. 166,438

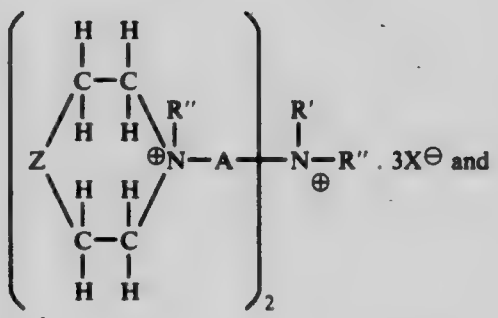
Int. Cl.[3] A01N *43/84*

U.S. Cl. 424—246 8 Claims

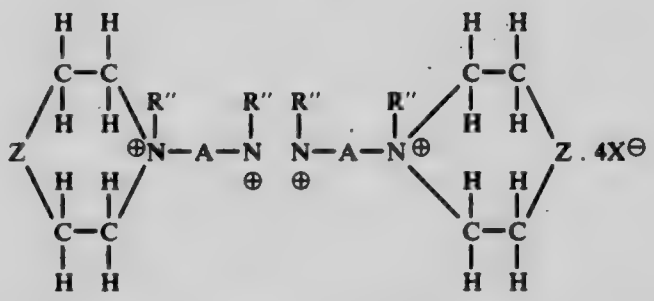
1. A process for inhibiting the growth of microorganisms in aqueous systems which comprises adding to said systems a microbiocidal amount of a quaternary of a tertiary amino-substituted thiazine having the formula selected from the group consisting of



(1)



(2)



(3)

where Z is SO or SO_2, A is alkylene having 2 to 10 carbon atoms, R′ is alkyl or hydroxyalkyl, R″ is alkyl, alkenyl or alkynyl,



represents a cyclic diamine group and X is an anion selected from the group consisting of chloride, iodide, bromide, sulfate, sulfonate and carboxylate.

4,332,800

CEPHEM COMPOUNDS

Tsutomu Teraji, Osaka; Kazuo Sakane, Amagasaki, and Jiro Goto, Suita, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

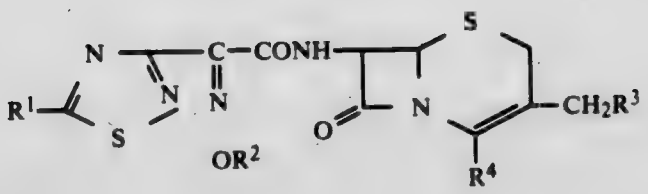
Continuation-in-part of Ser. No. 180,295, Aug. 22, 1980. This application Dec. 9, 1980, Ser. No. 214,785

Claims priority, application United Kingdom, Oct. 12, 1979, 7935538; South Africa, Oct. 1, 1980, 80/6068

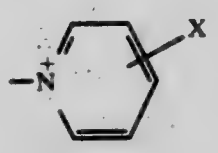
Int. Cl.[3] C07D *501/36*

U.S. Cl. 424—246 15 Claims

1. Cephem compounds comprising the syn isomer of the formula:



wherein
R^1 is amino or a protected amino group,
R^2 is lower alkyl of from 1 to 6 carbon atoms,
R^3 is a group of the formula



wherein
X is carbamoyl, and
R^4 is $-COO^-$, or
R^3 is dihydrotriazinylthio substituted with lower alkyl, oxo and hydroxy, and R^4 is carboxy or protected carboxy, and pharmaceutically acceptable salts thereof.

4,332,801

3-AMINOSYDNONIMINES, THEIR PREPARATION AND USE

Karl Schönafinger; Rudi Beyerle; Rolf-Eberhard Nitz, all of Frankfurt am Main; Piero A. Martorana, Bad Homburg, all of Fed. Rep. of Germany, and Volker Fiedler, Detroit, Mich., assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

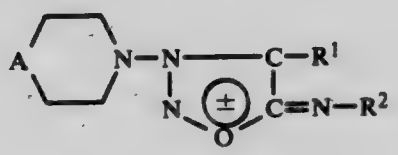
Division of Ser. No. 166,951, Jul. 8, 1980, Pat. No. 4,305,939. This application Feb. 10, 1981, Ser. No. 233,054

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1979, 2930736

Int. Cl.[3] **C07D** *417/04;* **A61K** *31/38, 31/41;* **C07D** *417/14*

U.S. Cl. 424—246 **22 Claims**

1. A compound which, in its free-base form, is a pharmacologically-active and physiologically-acceptable 3-amino-sydnonimine of the formula



wherein
R^1 is —H or halo;
R^2 is —H, —NO, —COR^3 or SO_2R^4;
R^3 is —H; optionally-substituted aliphatic hydrocarbyl having from 1 to 6 carbon atoms and any substituent of which is alkoxy with from 1 to 6 carbon atoms or carbocyclic aryloxy with from 6 to 12 carbon atoms; cycloaliphatic hydrocarbyl having from 5 to 8 ring carbon atoms; optionally-substituted carbocyclic aryl with from 6 to 12 ring carbon atoms and 0, 1, 2 or 3 substituents, any of which is, independently, halo, alkyl with from 1 to 4 carbon atoms or alkoxy with from 1 to 4 carbon atoms; araliphatic hydrocarbyl with from 7 to 13 carbon atoms; alkoxy with from 1 to 6 carbon atoms; carbocyclic aryloxy with from 6 to 12 ring carbon atoms; heteroaryl with 5 or 6 ring members, at least 2 of which are carbon atoms, at most one of which is a sulfur atom, at most one of which is an oxygen atom and at most three of which are nitrogen atoms, and wherein any ring member is a carbon atoms, a sulfur atom, an oxygen atom or a nitrogen atom; or alkoxycarbonyl with from 2 to 7 carbon atoms;
A is >S and
R^4 is aliphatic hydrocarbyl with from 1 to 6 carbon atoms; optionally-substituted carbocyclic aryl with from 6 to 12 ring carbon atoms, any substituent of which is methyl or chloro; or dialkylamino, each alkyl of which has, independently, from 1 to 4 carbon atoms.

18. A pharmaceutical composition useful for reducing blood pressure, in unit-dosage form and having from 0.1 to 50 milligrams of a pharmacologically-acceptable compound according to claim 1 in combination with carrier therefor.

4,332,802

11-OXO-11H-PYRIDO[2,1-b]QUINAZOLINE-2-CARBOXYLIC ACID AND SALTS THEREOF, ANTIALLERGIC COMPOSITIONS CONTAINING IT AND METHODS OF SUPPRESSING ALLERGIC REACTIONS WITH IT

Kurt Schromm, Ingelheim am Rhein; Anton Mentrüp, Mainz-Kastel; Ernst-Otto Renth, Ingelheim am Rhein, and Armin Fügner, Gau-Algesheim, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim KG, Ingelheim am Rhein, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 146,620, May 5, 1980, abandoned, which is a continuation of Ser. No. 64,010, Aug. 6, 1979, abandoned, which is a continuation of Ser. No. 953,753, Oct. 23, 1978, abandoned, which is a continuation of Ser. No. 853,034, Nov. 16, 1977, abandoned, which is a division of Ser. No. 750,725, Dec. 15, 1976, Pat. No. 4,083,980. This application Nov. 5, 1980, Ser. No. 204,226

Claims priority, application Fed. Rep. of Germany, Dec. 19, 1975, 2557425

Int. Cl.[3] **A61K** *31/505;* **C07D** *487/04*

U.S. Cl. 424—251 **3 Claims**

1. 11-Oxo-11H-pyrido[2,1-b]quinazoline-2-carboxylic acid or a non-toxic, pharmacologically acceptable salt thereof.

3. The method of suppressing allergic reactions in warm-blooded animals, which comprises perorally administering to said animal an effective antiallergic amount of a compound of claim 1.

4,332,803

BENZANILIDE DERIVATIVE

Robert F. Mayol, and Richard E. Gammans, both of Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

Filed Sep. 18, 1980, Ser. No. 188,184

Int. Cl.[3] **A61K** *31/445;* **C07D** *211/34*

U.S. Cl. 424—267 **5 Claims**

1. 4-Hydroxy-3-methoxy-N-{2-{2-(1-methyl-2-piperidinyl)ethyl}phenyl}benzamide when in purified pharmaceutically acceptable form.

4,332,804

9-[2-(3-INDOLYL)ETHYL]-1OXA-4,9-DIAZASPIRO[5.5]UNDECAN-3-ONES

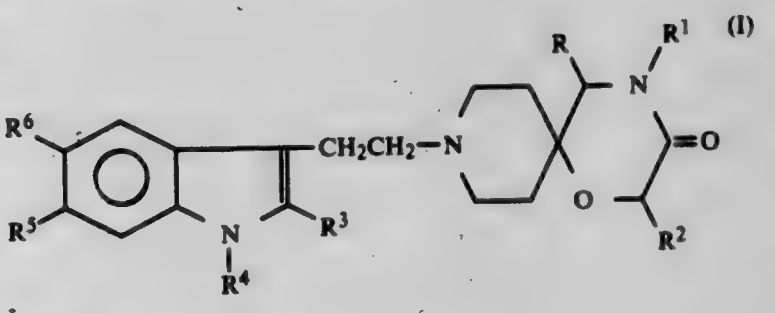
Robin D. Clark, Palo Alto, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Mar. 23, 1981, Ser. No. 246,459

Int. Cl.[3] **A61K** *27/00*

U.S. Cl. 424—248.57 **20 Claims**

1. A compound of the formula

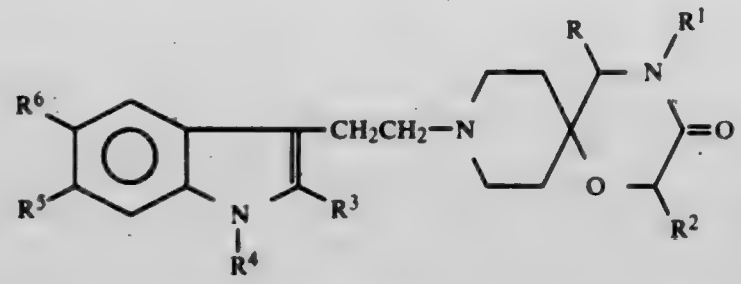


(I)

wherein:
R, R^1, R^2, R^3, and R^4 are independently hydrogen or lower alkyl of one to four carbon atoms; and

R^5 and R^6 are independently hydrogen, lower alkyl of one to four carbon atoms or lower alkoxy of one to four carbon atoms; and the pharmaceutically acceptable acid addition salts thereof.

18. A pharmaceutically composition comprising 5 to 95% by weight of a compound of the formula

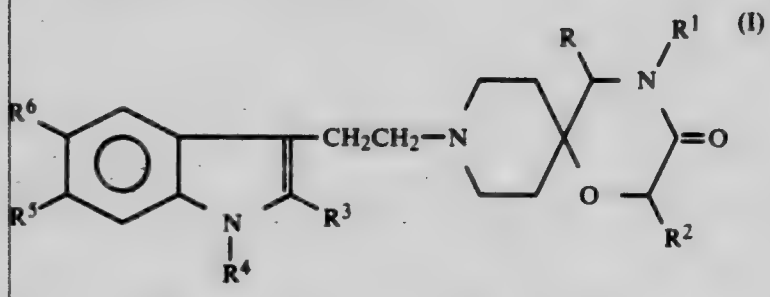


or a pharmaceutically acceptable acid addition salt thereof, wherein:

R, R^1, R^2, R^3, and R^4 are independently hydrogen, or lower alkyl of one to four carbon atoms;

R^5 and R^6 are independently hydrogen, lower alkyl of one to four carbon atoms or lower alkoxy of one to four carbon atoms; in admixture with 90 to 10% of a pharmaceutically acceptable, non-toxic carrier.

19. A method for treating and/or preventing hypertension, congestive heart failure, arrhythmia, migraine, vasospastic disorders and asthma in a mammalian subject comprising administering to said subject a therapeutically effective amount of a compound of the formula



(I)

or a pharmaceutically acceptable acid addition salt thereof, wherein:

R, R^1, R^2, R^3, and R^4 are independently hydrogen or lower alkyl of one to four carbon atoms; and

R^5 and R^6 are independently hydrogen, lower alkyl of one to four carbon atoms or lower alkoxy of one to four carbon atoms or a pharmaceutical composition containing such compound as an active ingredient.

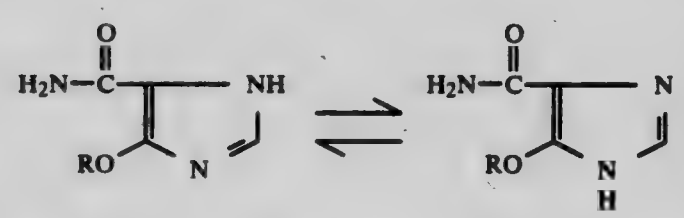
4,332,805

DECAHYDROQUINOLINOL DERIVATIVES AND METHODS OF TREATING CARDIAC ARRYTHMIAS OR INDUCING LOCAL ANAESTHESIA WITH THEM

Maurice Prost, Brussels, and Michel de Claviere, Vilvoorde, both of Belgium, assignors to Sanofi, Paris, France

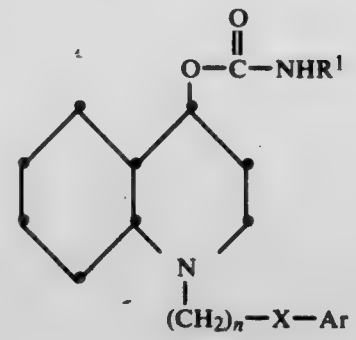
Filed Sep. 4, 1980, Ser. No. 184,129
Claims priority, application France, Sep. 19, 1979, 79 23289
Int. Cl.³ A61K *31/47*; C07D *215/22*
U.S. Cl. 424—258 **17 Claims**

1. A decahydroquinolinol compound of the formula:



wherein R is adamantoyl substituted with 1–3 substituents selected from the group consisting of lower alkyl, lower alkoxy, hydroxy, lower alkanoyloxy, aroyloxy, halogen, acetamido, nitro, an azide group, trifluoromethyl, or phenyl which may be substituted with nitro, halogen, lower alkyl or lower alkoxy.

9. An immunosuppressant composition which comprises an immunosuppressive amount of a compound of claim **1** as an active ingredient and a pharmaceutically acceptable carrier or diluent.



and pharmaceutically acceptable acid addition salts thereof, in which R^1 represents hydrogen, methyl, ethyl, n-propyl, n-butyl or 3-chloro-4-methylphenyl, Ar represents 4-fluorophenyl, 4-bromophenyl or 4-cyanophenyl, X represents oxygen, and n is 3.

14. A pharmaceutical or veterinary composition for treatment of cardiac arrhythmias comprising, as essential active ingredient, at least one decahydroquinolinol compound according to claim **1**, in association with a pharmaceutical carrier or excipient.

15. Method of treating cardiac arrhythmias of various origins and in particular arrhythmias due to myocardial infarction in a host in need of such treatment which method comprises the administration to said host of an effective dose of at least one decahydroquinolinol derivative according to claim **1**.

17. Method of inducing local anaesthesia in a host in need thereof which method comprises the administration to said host of an effective dose of at least one decahydroquinolinol derivative according to claim **1**.

4,332,806

ANTITUMOR AND IMMUNOSUPPRESIVE 4-CARBAMOYL IMIDAZOLIUM-5-OLATE DERIVATIVES, PHARMACEUTICAL COMPOSITION AND PRODUCTION THEREOF

Toshio Atsumi, Kawanishi; Yoshiaki Takebayashi, Toyonaka, and Takao Kiyohara, Takarazuka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 12, 1980, Ser. No. 205,980
Claims priority, application Japan, Nov. 12, 1979, 54-146741
Int. Cl.³ A61K *31/415*; C07D *233/90*
U.S. Cl. 424—273 R **9 Claims**

1. A compound of the formula

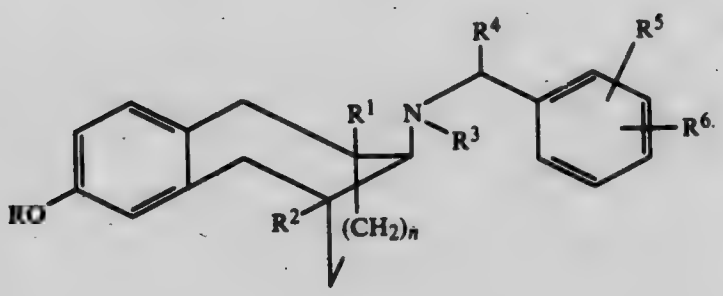
4,332,807

N-SUBSTITUTED-BENZYL-11-ENDO-AMINO-5,6,7,8,9,10-HEXAHYDRO-2-HYDROXY (OR METHOXY)-6,9-METHANOBENZOCYCLOOCTENE (OR NONENE) CENTRALLY-ACTING ANALGESICS

Patrice C. Belanger, Dollard des Ormeaux, and Robert N. Young, Senneville, both of Canada, assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jan. 26, 1981, Ser. No. 228,449
Int. Cl.[3] A61K *31/40, 31/13, 31/275;* C07C *87/28*
U.S. Cl. 424—274 22 Claims

1. A compound of the formula:



(I)

where

R is hydrogen or methyl;

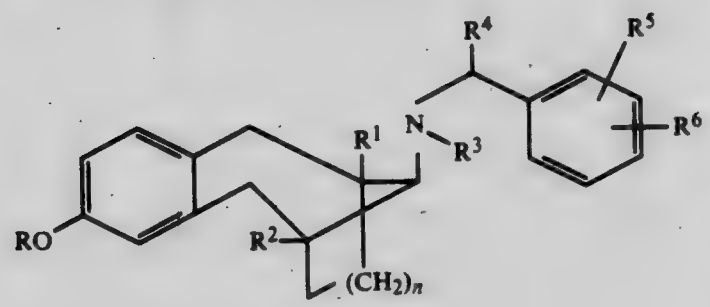
R^1, R^2 and R^4 are each independently selected from the group consisting of (1) hydrogen; and (2) C_{1-4}alkyl;

R^3 is selected from the group consisting of (1) hydrogen; (2) C_{1-4}alkyl; (3) C_{1-4}alkenyl; (4) C_{3-6}cycloalkyl; (5) C_{3-4}cycloalkyl C_{1-4}alkyl; (6) C_{3-6}cycloalkenyl; (7) C_{3-4}cycloalkenyl C_{1-4}alkyl; (8) phenyl; and (9) a methylene bridge attached to the phenyl moiety so as to form a dihydro isoindole structure with the nitrogen atom;

R^5 and R^6 are each independently selected from the group consisting of (1) hydrogen; (2) halo; (3) C_{1-4}alkyl; (4) C_{1-4}alkoxy; (5) amino, and mono- and di-C_{1-4}alkyl substituted amino; (6) cyano; (7) trifluoromethyl; (8) trifluoromethylthio; (9) C_{1-4}alkylthio; (10) C_{1-4}alkylsulfoxide; (11) C_{1-4}alkylsulfone; (12) hydroxy; and (13) phenyl; and

n is 1 or 2; and a pharmaceutically acceptable salt thereof.

20. A method of treating pain comprising administering to a patient in need of such treatment a therapeutically effective amount of a compound of the formula:



(I.)

where

R is hydrogen or methyl;

R^1, R^2, and R^4 are each independently selected from the group consisting of (1) hydrogen; and (2) C_{1-4}alkyl;

R^3 is selected from the group consisting of (1) hydrogen; (2) C_{1-4}alkyl; (3) C_{1-4}alkenyl; (4) C_{3-6}cycloalkyl; (5) C_{3-4}cycloalkyl C_{1-4}alkyl; (6) C_{3-6}cycloalkenyl; (7) C_{3-4}cycloalkenyl C_{1-4}alkyl; (8) phenyl; and (9) a methylene bridge attached to the phenyl moiety so as to form a dihydro isoindole structure with the nitrogen atom;

R^5 and R^6 are each independently selected from the group consisting of (1) hydrogen; (2) halo; (3) C_{1-4}alkyl; (4) C_{1-4}alkoxy; (5) amino, and mono- and di-C_{1-4}alkyl substituted amino; (6) cyano; (7) trifluoromethyl; (8) trifluoromethylthio; (9) C_{1-4}alkylthio; (10) C_{1-4}alkylsulfoxide; (11) C_{1-4}alkylsulfone; (12) hydroxy; and (13) phenyl; and

n is 1 or 2; and a pharmaceutically acceptable salt thereof.

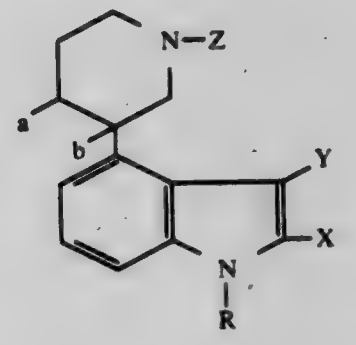
4,332,808

DOPAMINERGICALLY STIMULATING 4-SUBSTITUTED INDOLES

Jacques Guillaume, Sevran; Lucien Nedelec, LeRaincy; Claude Dumont, Nogent-sur-Marne, and Robert Fournex, Paris, all of France, assignors to Roussel Uclaf, Paris, France

Continuation-in-part of Ser. No. 154,507, May 29, 1980, abandoned. This application Dec. 31, 1980, Ser. No. 221,927
Claims priority, application France, Jun. 12, 1979, 79 14976; Oct. 24, 1980, 80 22819
Int. Cl.[3] A61K *31/44, 31/445;* C07D *401/02*
U.S. Cl. 424—263 16 Claims

1. A compound selected from the group consisting of compounds of the formula



wherein R is selected from the group consisting of hydrogen, alkyl of 1 to 8 carbon atoms and aralkyl of 7 to 12 carbon atoms, X is selected from the group consisting of hydrogen and alkyl of 1 to 8 carbon atoms, Y is selected from the group consisting of hydrogen and halogen, Z is selected from the group consisting of hydrogen, alkyl of 1 to 8 carbon atoms, hydroxyalkyl of 1 to 8 carbon atoms, aryloxyalkyl of 7 to 12 carbon atoms, arylalkyl of 7 to 12 carbon atoms optionally substituted with at least one member of the group consisting of halogen, alkoxy of 1 to 4 carbon atoms, alkyl of 1 to 4 carbon atoms, —OH, $-CF_3$, OCF_3, NO_2 and NH_2, cycloalkylalkyl of 4 to 12 carbon atoms, alkenyl of 3 to 8 carbon atoms and alkynyl of 3 to 8 carbon atoms, a and b may each be hydrogen or form a double bond or a is hydrogen and b is selected from the group consisting of —OH and alkoxy of 1 to 8 carbon atoms and their non-toxic, pharmaceutically acceptable acid addition salts.

14. A method of inducing dopamingeric stimulating activity in a warm-blooded animal comprising administering to a warm-blooded animal a dopaminergically stimulating amount of at least one compound of claim 1.

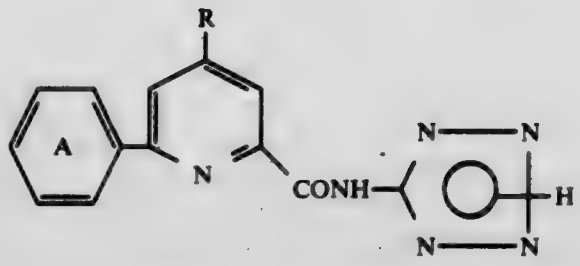
4,332,809

PYRIDINECARBOXAMIDE DERIVATIVES AND PROCESS FOR THE PREPARATION THEREOF

Yasushi Honma, Ageo; Mikio Takeda, Urawa, and Kei Tsuzurahara, Ageo, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Feb. 5, 1981, Ser. No. 231,787
Claims priority, application Japan, Feb. 15, 1980, 55-18008
Int. Cl.[3] A61K *31/455;* C07D *401/12*
U.S. Cl. 424—266 7 Claims

1. An N-(5-tetrazolyl)-6-phenyl-2-pyridinecarboxamide derivative of the formula



wherein R is hydrogen, straight chain alkyl having 1 to 4 carbon atoms, straight chain alkoxy having 1 to 3 carbon atoms, or chlorine, and A is aminophenyl, methylaminophenyl, ethylaminophenyl, dimethylaminophenyl, or diethylaminophenyl, or a pharmaceutically acceptable salt thereof.

5. A composition for treatment of an anaphylaxis which comprises an amount of a compound of claim 1 such that, when administered to a warm blooded animal, it will provide an anti-anaphylactic amount of said compound.

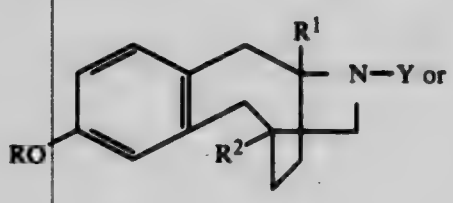
4,332,810

N-(SUBSTITUTED)-2,5-ETHANO-8-HYDROXY (OR METHOXY)-1,2,3,4,5,6-HEXAHYDRO-3 (OR 4)-BENZAZOCINE CENTRALLY-ACTING ANALGESICS

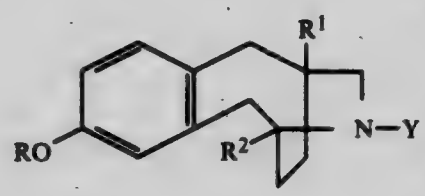
Patrice C. Belanger, Dollard des Ormeaux, and Robert N. Young, Senneville, both of Canada, assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jan. 26, 1981, Ser. No. 228,483
Int. Cl.³ A61K *31/445;* C07D *221/22*
U.S. Cl. 424—267 **14 Claims**

12. A method of treating pain comprising administering to a patient in need of such treatment of therapeutically effective amount of a compound of the formula:



(I.)

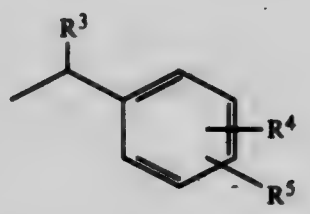


where

R is hydrogen or methyl;

R^1, and R^2, are each independently hydrogen or C_{1-4} alkyl; and

Y is (a) C_{1-4}alkyl; (b) C_{1-4}alkenyl; (c) C_{3-4}cycloalkylmethyl; (d) phenyl C_{1-4}alkyl; or (e)



wherein:

R^3 is hydrogen or C_{1-4}alkyl; and

R^4 and R^5 are each independently selected from the group consisting of (1) hydrogen; (2) halo; (3) C_{1-4} alkyl; (4) C_{1-4} alkoxy; (5) amino, and mono- and di-C_{1-4} alkyl substituted amino; (6) cyano; (7) trifluoromethyl; (8) trifluoromethylthio; (9) C_{1-4} alkylthio; (10) C_{1-4} alkylsulfoxide; (11) C_{1-4} alkylsulfone; (12) hydroxy; and (13) phenyl;

or a pharmaceutically acceptable salt thereof.

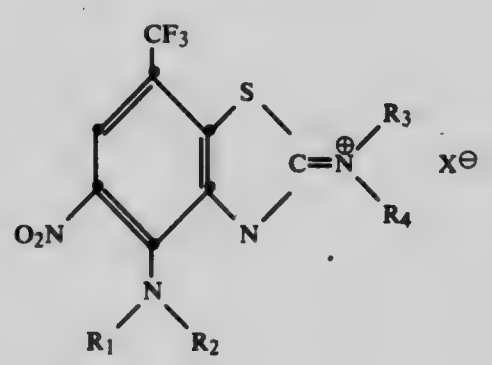
4,332,811

1,3-BENZODITHIOL-2-N,N-DIALKYLIMINIUM SALTS AND PESTICIDAL USE

Hansjakob Fäh, Ormalingen; Saleem Farooq, Ettingen; Alfred Grieder, Böckten, and Karl Scheuzger, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 23, 1981, Ser. No. 246,352
Claims priority, application Switzerland, Mar. 26, 1980, 2373/80; Sep. 16, 1980, 6930/80
Int. Cl.³ A01N *43/28, 43/40;* C07D *339/06, 409/04*
U.S. Cl. 424—267 **10 Claims**

1. The compound of the formula



wherein

R_1 and R_2 independently of one another are each hydrogen, C_1-C_5-alkyl, C_3-C_6-cycloalkyl, C_3-alkenyl, C_3-C_5-alkynyl or the radical $-(CH_2)_n-OR$, in which R is C_1-C_4-alkyl, and n is the number 2 or 3,

R_3 and R_4 independently of one another are each C_1-C_4-alkyl, or together they are the radical $-(CH_2)_4-$ or $-(CH_2)_5-$, and

$X^{\ominus}$ is the molar equivalent of an anion of an inorganic or organic acid.

10. A method for combating pests, particularly members of the order Acarina, especially mites which damage plants, which method comprises applying to said pests or to a locus desired to be protected from said pests a pesticidally effective amount of a compound according to one of claims 1 to 8.

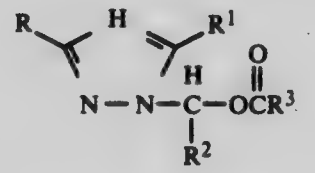
4,332,812

ANTIINFLAMMATORY CARBINOLAMINE ESTERS OF 1,2,4-TRIAZOLES

Peter C. Wade, Pennington, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Oct. 6, 1980, Ser. No. 194,186
Int. Cl.³ A61K *31/41;* C07D *249/08*
U.S. Cl. 424—269 **11 Claims**

1. A compound of the structure



wherein

R is lower alkyl, cycloalkyl, cycloalkyl-lower alkyl, phenyl, phenyl-lower alkyl or phenyl substituted with halogen, CF_3, lower alkyl, lower alkoxy or lower alkylthio,

R^1 is lower alkyl, cycloalkyl or cycloalkyl-lower alkyl,

R^2 is H, lower alkyl, cycloalkyl, phenyl or phenyl substituted with halogen, CF_3, lower alkyl, lower alkoxy or lower alkylthio, and

R^3 is lower alkyl, cycloalkyl, phenyl or phenyl substituted with halogen, CF_3, lower alkyl, lower alkoxy or lower alkylthio, provided that where R^3 is lower alkyl R is other than lower alkyl.

9. A method for treating an inflammatory condition in a mammalian host, which comprises administering an effective amount of a compound as defined in claim 1.

4,332,813

ALLYLSULFOXIDE ENZYME INHIBITORS

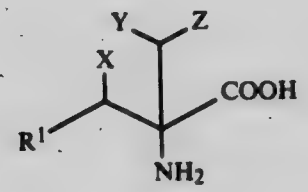
Raymond A. Firestone, Fanwood, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 66,603, Aug. 15, 1979, abandoned. This application May 7, 1980, Ser. No. 147,656

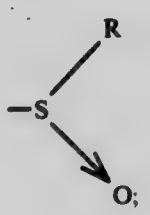
Int. Cl.[3] A61K *31/415*; C07D *233/64*

U.S. Cl. 424—273 R 6 Claims

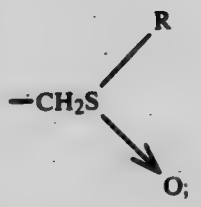
5. A method of inhibiting enzymes in a patient in need of such treatment which comprises the administration of an enzyme inhibitory amount of a compound of structural formula:



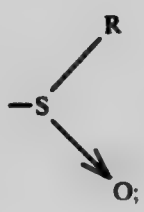
or a pharmaceutically acceptable salt thereof wherein X is hydrogen, fluoro, chloro, bromo, iodo, C_{2-4}alkanoyloxy, toluenesulfonyloxy, benzenesulfonyloxy, C_{1-3}alkansulfonyloxy, p-nitrobenzoyloxy, or



Y is hydrogen or



and Z is fluoro, chloro, bromo, iodo, C_{2-4}alkanoyloxy, toluenesulfonyloxy, benzenesulfonyloxy, C_{1-3}alkanesulfonyloxy, p-nitrobenzoyloxy, or



or Y and Z taken together form $=CH_2$; with the proviso that one and only one of X, Y and Z is a sulfoxide, and one and only one of X and Z is halo; wherein

R is

(1) phenyl
(2) nitrophenyl,
(3) cyanophenyl,
(4) C_{1-3}alkylsulfonylphenyl,
(5) C_{1-3}alkoxycarbonylphenyl,
(6) di(trifluoromethyl)phenyl,
(7) o-C_{1-3}alkylphenyl, or
(8) o,o-di(C_{1-3}alkyl)phenyl; and

R^1 is imidazol-4-yl.

4,332,814

TREATMENT OF DIARRHOEA

Peter M. Newsome, Worcester Park, and Noel A. Mullen, Cranleigh, both of England, assignors to Beecham Group Limited, England

Filed Aug. 11, 1980, Ser. No. 177,365

Claims priority, application United Kingdom, Aug. 23, 1979, 7929434

Int. Cl.[3] A61K *31/415, 31/165*

U.S. Cl. 424—273 R 7 Claims

1. A method for treating diarrhoea in livestock, which comprises administering to livestock an amount effective to treat diarrhoea of a compound which is an α-adrenergic agonist and which has vasoconstrictor activity and is further characterized by formula (I):

A—B—C (I)

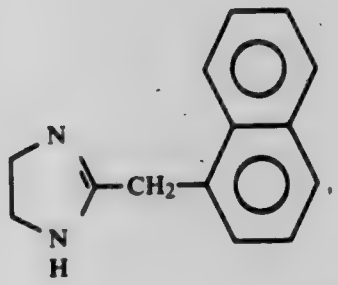
wherein

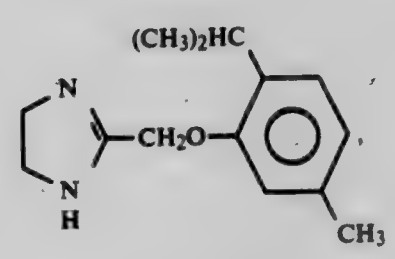
A is 2-imidazolinyl or guanidinyl;

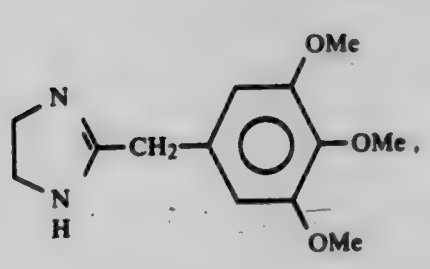
B is selected from a direct bond, $—CH_2—$, $—CH_2O—$, $—COCH_2—$ or —NH—; and

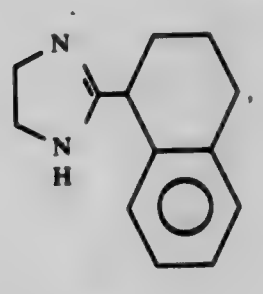
C is phenyl, naphthyl, tetrahydronaphthyl or benzothienyl, unsubstituted or substituted by C_{1-4} alkyl, C_{1-4} alkoxy, halogen or hydroxy, or a salt thereof.

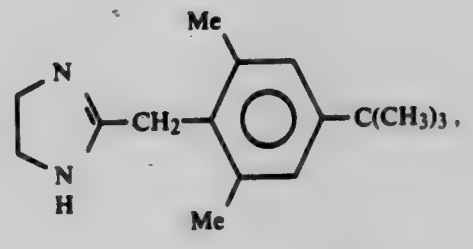
3. The method according to claim 1, wherein said compound of formula (I) is selected from the group consisting of



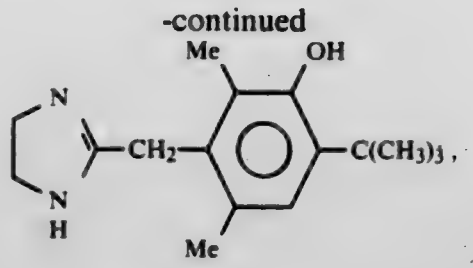


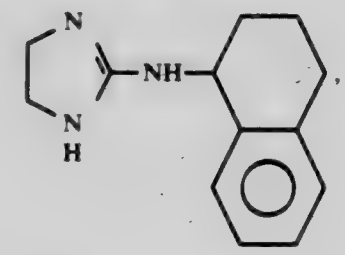


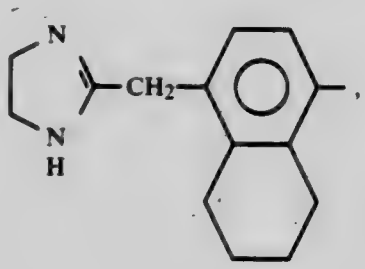


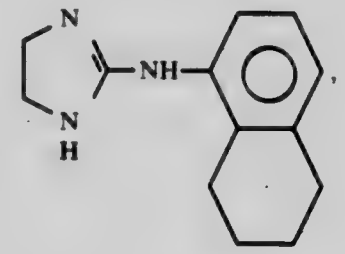


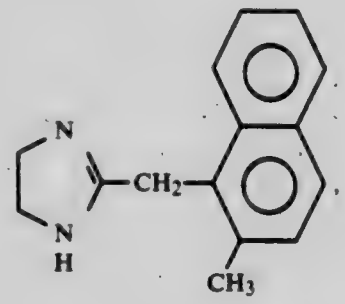
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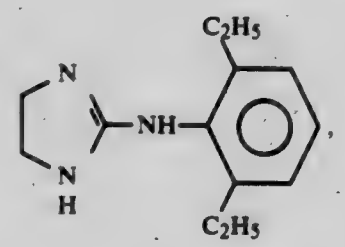


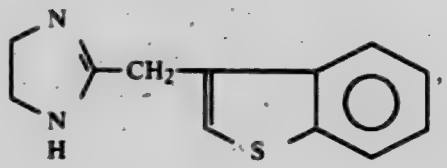


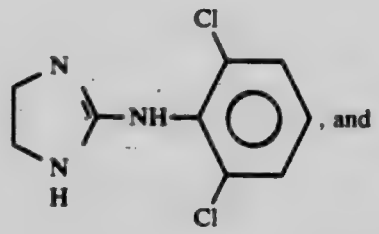




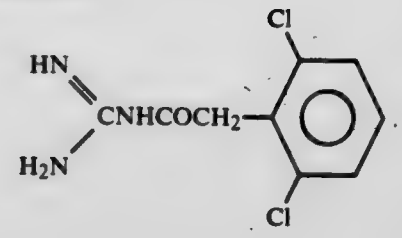







, and

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4,332,815

INSECTICIDAL PERHALOALKYLVINYLCYCLOPROPANECARBOXYLATES

John F. Engel, Medina, N.Y., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 52,043, Jun. 25, 1979, Pat. No. 4,238,505, Ser. No. 37,796, May 10, 1979, abandoned, Ser. No. 55,212, Jul. 6, 1979, Pat. No. 4,235,927, and Ser. No. 65,257, Jul. 30, 1979, Pat. No. 4,243,677, which is a continuation of Ser. No. 927,198, Jul. 24, 1978, abandoned, which is a continuation-in-part of Ser. No. 870,973, Jan. 20, 1978, said Ser. No. 55,212, is a continuation-in-part of Ser. No. 12,266, Feb. 15, 1979, which is a continuation-in-part of Ser. No. 927,198, Jul. 24, 1978. This application Jul. 1, 1980, Ser. No. 164,991

The portion of the term of this patent subsequent to Nov. 25, 1997, has been disclaimed.

Int. Cl.[3] **A01N** *37/08, 37/34;* **C07C** *69/743, 121/48*

U.S. Cl. 424—274 **20 Claims**

1. A compound of the formula.



wherein one of Y and Z is a perhaloalkyl group having 1 to 4 carbon atoms and the other is hydrogen, halogen, lower alkyl, phenyl, phenylthio or benzyl, with the proviso that Y and Z may be combined to form a perhalocyclopentylidine group; R is —OR^1 in which R^1 represents an alcohol residue which forms an insecticidal ester when combined with chrysanthemic acid or a 3-(2,2-dihalovinyl)-2,2-dimethylcyclopropanecarboxylic acid; with the proviso that R^1 is other than phenoxybenzyl, α-cyanophenoxybenzyl or α-ethynyl-phenoxybenzyl.

18. A method for insect control which comprises applying to the locus where control is desired an insecticidally effective amount of the compound of claim **1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13,** or **14**.

4,332,816

FUNGICIDAL 3-(N-CARBONYLAMINO)-PYRROLIDINE-2,5-DIONES

Robert Nyfeler, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

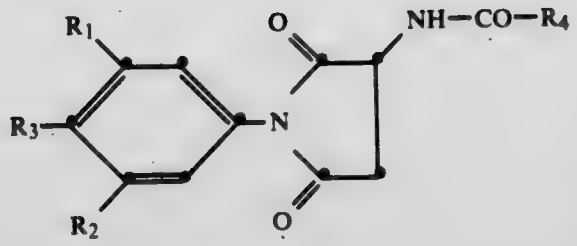
Filed Dec. 3, 1980, Ser. No. 212,471

Claims priority, application Switzerland, Dec. 7, 1979, 10871/79

Int. Cl.[3] **A61K** *31/40;* **C07D** *207/416*

U.S. Cl. 424—274 **21 Claims**

1. A compound of the formula



wherein R_1 is chlorine, bromine or nitro, R_2 is chlorine or bromine, R_3 is hydrogen or fluorine, R_4 is C_1-C_9alkyl which is unsubstituted or substituted by halogen or C_1-C_3alkoxy, or is C_2-C_7alkenyl, C_2-C_4alkynyl or C_3-C_6cycloalkyl, each of which is unsubstituted or substituted by halogen or phenyl, phenyl which is unsubstituted or substituted by halogen, nitro or C_1-C_4alkyl, or is X—R_5, wherein X is oxygen or sulfur and R_5 is C_1-C_6alkyl or C_3-C_6alkenyl, each of which is unsubstituted or substituted by halogen or C_1-C_3alkoxy, or is phenyl which is unsubstituted or substituted by halogen, nitro, C_1-C_3alkyl or C_1-C_3alkoxy, or is benzyl which is unsubstituted or substituted by halogen or nitro.

19. A method of controlling or preventing attack by phytopathogenic microorganisms at a locus, which comprises applying to said locus a microbicidally effective amount of a compound according to claim 1.

4,332,817

INSECTICIDAL COMPOSITIONS

Sol J. Barer, Clark, N.J., assignor to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 779,167, Mar. 18, 1977, Pat. No. 4,226,881, which is a continuation of Ser. No. 631,962, Nov. 14, 1975, abandoned. This application Jan. 24, 1980, Ser. No. 114,873

The portion of the term of this patent subsequent to Oct. 7, 1997, has been disclaimed.

Int. Cl.[3] **A01N** *31/00, 43/08, 47/10*

U.S. Cl. 424—285 **3 Claims**

1. An insecticidal composition comprising 1-naphthyl N-methyl carbamate at a level to provide less than an effective level of toxicity, and an alkanediol of up to 6 carbon atoms in an amount sufficient to enhance the activity of the carbamate to provide a level of toxicity which is significantly greater than the level of toxicity of the carbamate alone.

4,332,818

1,4;3,6-DIANHYDRO-2,5-DIAZIDO-2,5-DIDEOXY-HEXITOLS

Janos Kuszmann; Gabor Medgyes; Ferenc Andrasy, and Pal Berzsenyi, all of Budapest, Hungary, assignors to Egyt Gyógyszervegyészeti Gyár, Budapest, Hungary

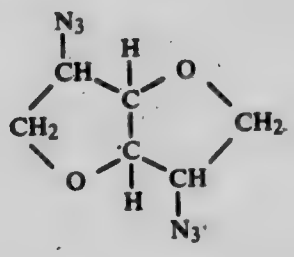
Filed Mar. 11, 1981, Ser. No. 242,709

Claims priority, application Hungary, Mar. 12, 1980, 580

Int. Cl.[3] **A61K** *31/34;* **C07D** *493/04*

U.S. Cl. 424—285 **7 Claims**

1. A stereoisomeric 1,4;3,6-dianhydro-2,5-diazido-2,5-dideoxy-hexitol of the Formula



I

4,332,819

ANTIPHLOGISTIC AGENT AND ITS USE

Eugen Etschenberg, Cologne; Haireddin Jacobi, Leichlingen, and Wolfgang Opitz, Overath, all of Fed. Rep. of Germany, assignors to Troponwerke GmbH & Co. KG, Cologne, Fed. Rep. of Germany

Filed Mar. 6, 1981, Ser. No. 241,146

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1980, 3011999

Int. Cl.[3] **A61K** *31/265*

U.S. Cl. 424—301 **7 Claims**

1. A pharmaceutical composition in solid form containing as an active ingredient an antiinflammatory effective amount of S-benzyl 3-benzylthiopropionothioate, in admixture with an inert pharmaceutical carrier.

4,332,820

SUBSTITUTED BENZONITRILES HAVING ANTIVIRAL ACTIVITY

Lowell D. Markley, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

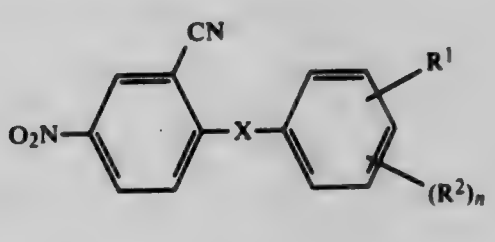
Continuation-in-part of Ser. No. 115,480, Jan. 25, 1980, Pat. No. 4,254,144. This application Dec. 29, 1980, Ser. No. 220,950

The portion of the term of this patent subsequent to Mar. 2, 1998, has been disclaimed.

Int. Cl.[3] **A61K** *31/275;* **C07C** *121/60, 121/75, 121/78*

U.S. Cl. 424—304 **31 Claims**

1. A compound of the formula



wherein

X represents an oxygen or sulfur atom;

R^1 represents Br, Cl, F, phenoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl, benzoyl, alkoxy, alkyl, halogenated alkyl or acetyl;

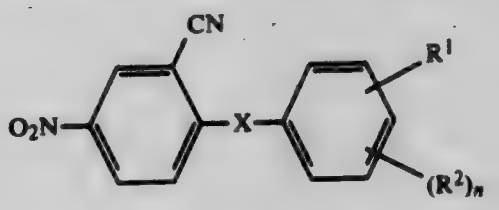
R^2 represents H, Br, Cl, F or CF_3; and

n represents the integer 1, 2, 3 or 4 provided that, when n is the integer 1;

(a) R^1 is other than phenoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl or benzoyl when R^2 is H; and

(b) R^1 is other than Br, Cl, or F when R^2 is H, Br, Cl or F.

17. A method for inhibiting viruses which comprises contacting viruses or virus host cells with an effective virus inhibiting amount of a compound corresponding to the formula



wherein

X represents an oxygen or sulfur atom;

R^1 represents Br, Cl, F, phenoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl, benzoyl, alkoxy, alkyl, halogenated alkyl or acetyl;

R^2 represents H, Br, Cl, F or CF_3; and

n represents the integer 1, 2, 3 or 4 provided that, when n is the integer 1;

(a) R^1 is other than phenoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl or benzoyl when R^2 is H; and

(b) R^1 is other than Br, Cl or F when R^2 is H, Br, Cl or F.

4,332,821

1-ACRYLOYL-3-(SUBSTITUTED)PHENYL UREAS

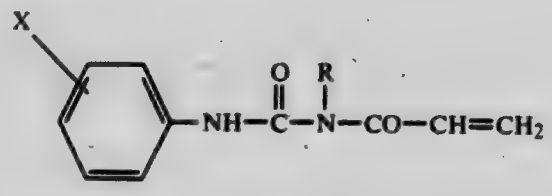
John W. Williams, Vallejo, Calif., and Frank C. Becker, Gurnee, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Continuation-in-part of Ser. No. 48,853, Jun. 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 875,253, Feb. 6, 1978, abandoned. This application Sep. 15, 1980, Ser. No. 187,242

Int. Cl.³ A01N *47/28*

U.S. Cl. 424—322 **5 Claims**

1. The process of protecting substrates susceptible to attack by fungi against attack by common fungi consisting essentially in applying to such substrates an antifungally effective amount of a compound of the formula



wherein X is Or, SR or R with R being H or loweralkyl.

4,332,822

GUANIDINE DERIVATIVES

Terence J. Ward, Slough, England, assignor to John Wyeth & Brother Limited, Maidenhead, England

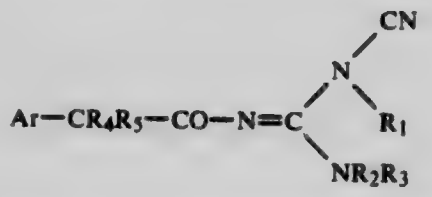
Filed Jan. 30, 1981, Ser. No. 229,902

Claims priority, application United Kingdom, Feb. 5, 1980, 8003848

Int. Cl.³ C07C *125/08;* C07D *207/30;* A61K *31/40, 31/165*

U.S. Cl. 424—324 **8 Claims**

1. A compound having the formula



wherein R_1 and R_2 are independently selected from hydrogen and lower alkyl or R_1 or R_2 taken together represent $—(CH_2)_n—$ where n is selected from 2 and 3; R_3, R_4 and R_5 are independently selected from hydrogen and lower alkyl; and Ar is selected from phenyl and pyrrol-1-yl groups that are substituted by one to two substituents, each substituent being independently selected from halogen, trifluoromethyl, lower alkyl, lower alkoxy and nitro.

7. A method of lowering blood pressure in a hypertensive subject, which comprises administering an effective amount of a compound as defined in claim 1.

4,332,823

FABRICATED MEAT AND MEAT BY-PRODUCTS AND PROCESS

Dennis P. Buemi, Schnecksvilles, Pa., assignor to Liggett Group Inc., Montvale, N.J.

Filed Apr. 7, 1980, Ser. No. 138,190

Int. Cl.³ A23L *1/31*

U.S. Cl. 426—272 **9 Claims**

1. A process for preparing fabricated meat and meat by-products comprising the sequential steps of:

(a) emulsifying meat or meat by-products;

(b) admixing a salt, with said emulsified meat or meat by-products, in a weight-percent proportion of 1.5–3% based on the weight of said fabricated product, said salt being present in proportion sufficient to extract salt soluble protein from said emulsified meat or meat by-products said salt being selected from the group consisting of sodium chloride, potassium chloride, sodium phosphate, potassium phosphate, sodium polyphosphates and potassium polyphosphates;

(c) extracting said salt soluble protein from said meat and meat by-products;

(d) admixing texturized soy with said emulsified meat or meat by-products, extracted protein and salt;

(e) forming said admixture into a desired shape;

(f) blanching said shaped admixture in a temperature range of 170° F.–210° F.; and

(g) thereafter maintaining the mositure content of said fabricated meat and meat by-products in the range of up to about 70%,

the weight-percent proportions of said ingredients being:

meat and meat by-products: 77–92%

texturized soy: 8–20%.

4,332,824

INTERMEDIATE-MOISTURE FROZEN FOODS

Marvin L. Kahn, Williamsville, and Kuttikandathil E. Eapen, Kenmore, both of N.Y., assignors to Rich Products Corporation, Buffalo, N.Y.

Division of Ser. No. 24,127, Mar. 26, 1979, Pat. No. 4,199,604. This application Apr. 16, 1980, Ser. No. 140,790

The portion of the term of this patent subsequent to Nov. 25, 1997, has been disclaimed.

Int. Cl.³ A23L *2/00*

U.S. Cl. 426—330.3 **12 Claims**

1. A method of making a beverage drink which comprises the steps of:

pouring a flowable beverage concentrate which is at freezer temperatures into water wherein said beverage concentrate comprises a mixture of water, sugar and flavoring, said mixture having a water activity of about 0.80–0.90, up to about 0.93, and is substantially non-crystalline at freezer temperatures of about 10° F., and wherein said mixture comprises about 15–55% water, and sugar in a ratio to water of about 0.8–2:1, and said sugar component comprises at least about 50% fructose plus dextrose based on the total sugar content, and wherein the foregoing ingredients provide a microbiologically stable beverage concentrate which is flowable at freezer temperature of about 10° F.

4,332,825

CITRUS FOOD CONTAINING A CYCLODEXTRIN

Masaru Miyawaki, Tsunoekita, and Akira Konno, Osaka, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Sep. 23, 1980, Ser. No. 190,099

Claims priority, application Japan, Sep. 24, 1979, 54-122419

Int. Cl.³ A23B *7/44;* A23L *1/212, 2/16*

U.S. Cl. 426—330.5 **16 Claims**

1. A citrus food stabilized against clouding and possessing reduced bitterness, which consists essentially of a natural citrus material and 0.005 to 1.0 percent by weight of a cyclodextrin, based on the weight of the natural citrus material.

4,332,826

METHOD FOR CANNING FOOD PRODUCTS

Max P. Beauvais, 46 Southridge West, Tiburon, Calif. 94920, and Raymond E. Camezon, 623 Tunbridge Rd., Danville, Calif. 94526

Division of Ser. No. 107,425, Dec. 26, 1979, Pat. No. 4,294,167. This application May 18, 1981, Ser. No. 264,439

Int. Cl.³ A23L *3/00;* B65B *55/14*

U.S. Cl. 426—407 **4 Claims**

1. A method of sterilizing and canning food products without substantial cooking thereof and in a container having a lid covering the open end thereof, comprising the steps of

placing said food products into said container with a small quantity of liquid sufficient to cover the bottom of the interior of said container;

placing a lid having means capable of air-tight sealing over said container open end;

enclosing said lid and said container open upper end within a pressure-tight cover and resiliently urging said lid against said container open end while permitting steam generated within said container to escape past said lid into the volume enclosed by said cover, while maintaining the lower portions of said container exposed to ambient conditions;

applying dry heat to substantially only the lower portions of said container for a period sufficient to sterilize the contained food products by the generation of steam from the heating of said liquid; and

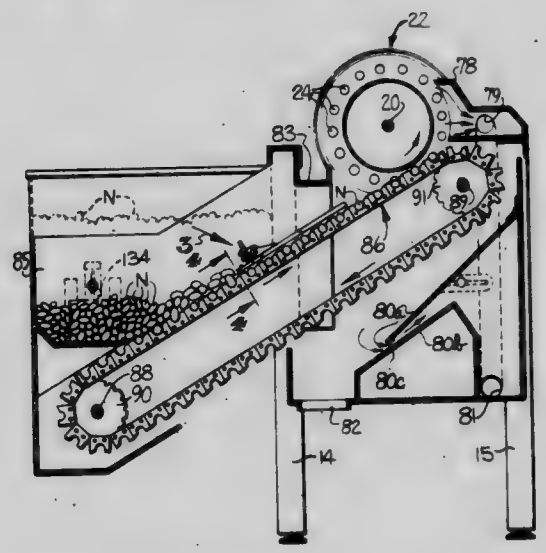
removing said heat and applying a cooling fluid to said exposed lower portions of said container while maintaining said cover in pressure-tight relation with said container upper end and urging said lid against said container open upper end, whereby the cooling of the container by the cooling fluid will condense any remaining steam within the container and create a pressure within the container which is lower than ambient to hold the lid onto the container in an air-tight seal.

4,332,827

METHOD OF CRACKING NUTS AT HIGH PRODUCTION RATES

James B. Quantz, Columbia, S.C., assignor to Machine Design Incorporated, Columbia, S.C.

Filed Oct. 23, 1980, Ser. No. 199,743
Int. Cl.³ A23N 5/02
U.S. Cl. 426—481 9 Claims



1. A method of cracking nuts at a high production rate and comprising the steps of

advancing a plurality of nuts in individual receptacles in succession along a first linear path of travel, with at least substantially all of the advancing nuts being disposed in a predetermined orientation,

removing the advancing nuts in succession from the first path of travel at the terminal end thereof and advancing the removed nuts in succession along a generally curvilinear second path of travel, with the second path of travel defining a circle which is substantially tangent to and disposed above the first path of travel, and such that the nuts continue to advance in the same general direction and are lifted as they move from the first path of travel into the second path of travel, and including clampingly engaging each nut during its removal from the first path of travel and advance along the second path of travel so as to preserve the predetermined orientation of each nut, and

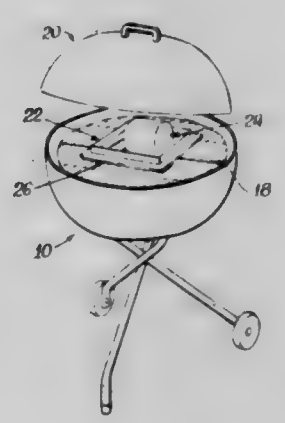
imparting a cracking force to each nut while being advanced along the second path of travel.

4,332,828

METHOD AND APPARATUS FOR COOKING FOOD IN AN ENCLOSED CHAMBER

Alfred H. Gallagher, 6 Keystone Ave., River Forest, Ill. 60305

Continuation of Ser. No. 2,193, Jan. 9, 1979, abandoned, which is a continuation-in-part of Ser. No. 823,952, Aug. 12, 1977, abandoned. This application Aug. 19, 1980, Ser. No. 179,541
Int. Cl.³ A23L 1/00
U.S. Cl. 426—523 3 Claims



1. A method of cooking food in an enclosed cooking chamber that includes means defining a heat source in the lower portion of the chamber and a horizontal grate located within the chamber above the heat source means, comprising the steps of:

placing food to be cooked in an open cooking vessel;

locating the cooking vessel with the food on the grate above the heat source means;

reflecting radiant heat and deflecting heated air currents away from direct application to the cooking vessel from the heat source means by locating a removable pad intermediate the grate and the cooking vessel, said pad comprising a relatively rigid and self-sustaining heat insulating core material and top and bottom layers of radiant heat reflective metallic foil, and said pad having horizontal dimensions providing an area at least as large but not materially larger than the exposed area of the cooking vessel and less than the horizontal dimensions of the grate, said metallic foil layers including a shiny reflective side and a less reflective side, the shiny reflective side of each foil layer being directed downwardly toward the heat source means;

providing space surrounding the cooking vessel within the cooking chamber; and

causing convected heat currents to flow vigorously through the cooking chamber to contact all exposed surfaces of the food being cooked in the vessel by closing the cooking chamber;

whereby heat concentration on the cooking vessel is eliminated and heat is distributed evenly over the food in the cooking vessel.

4,332,829

METHYLTHIOMETHYL ESTERS AS FLAVOR ADDITIVES

Steven van den Bosch, Woudenberg; Evert van't Land, Terschuur, and Jan Stoffelsma, Hoevelaken, all of Netherlands, assignors to Polak's Frutal Works, B.V., Amersfoort, Netherlands

Continuation-in-part of Ser. No. 52,154, Jun. 26, 1979, abandoned. This application Feb. 2, 1981, Ser. No. 231,184
Claims priority, application United Kingdom, Jul. 18, 1978, 30161/78
Int. Cl.³ A23L *1/226, 1/235*
U.S. Cl. 426—535 33 Claims

17. A foodstuff to which has been added about 0.1 to 5 parts per million, based on the total weight of said foodstuff, of at least one methylthiomethyl ester having the structural formula $R—COOCH_2SCH_3$ wherein R is selected from the class consisting of hydrogen, alkyl radicals with 1 to 9 carbon atoms, alkenyl radicals with 2 to 9 carbon atoms and polyunsaturated alkyl radicals with 4 to 9 carbon atoms.

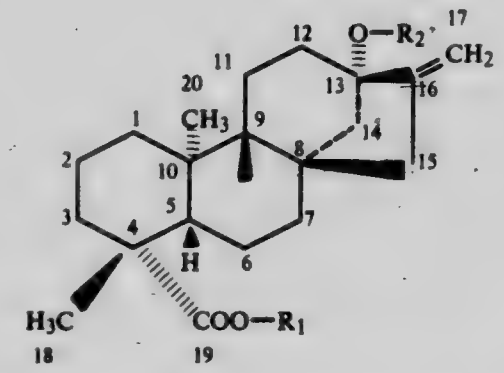
4,332,830

SWEETENING WITH STEVIOSIDE ANALOGS

Grant E. DuBois, Palo Alto, Calif., assignor to Dynapol, Palo Alto, Calif.

Filed Sep. 22, 1980, Ser. No. 189,243
Int. Cl.³ A23L *1/236*
U.S. Cl. 426—548 2 Claims

1. A sweetened edible comprising an effective sweetening amount of a stevioside analog compound having the structure



wherein R_1 and R_2 are together selected from the following groups of substituents; R_1 is $—CH_2—_3SO_3^-M^+$ and R_2 is β-D-Sophorose; R_1 and R_2 are each $—CH_2—_3SO_3^-M^+$; and R_1 is hydrogen and R_2 is $—CH_2—_3SO_3^-M^+$, each case having M^+ being a physiologically acceptable alkali metal cation.

4,332,831

METHOD OF PREPARING SALTED CHEESE CURD LOAVES

Robert R. Rust, Cumberland, Wis., assignor to Universal Foods Corporation, Milwaukee, Wis.

Division of Ser. No. 879,965, Feb. 21, 1978, Pat. No. 4,244,286. This application Jul. 18, 1980, Ser. No. 170,004
Int. Cl.³ A23C *19/02;* A01J *25/11, 25/12*
U.S. Cl. 426—582 5 Claims

1. A method for preparing a salted cheese curd loaf, comprising:

(a) dewheying a mixture of cheese curd and whey to remove the preponderance of liquid whey therefrom;

(b) introducing the resulting curd into a blender having a valved discharge outlet for holding said curd and a small amount of residual whey and combining therewith a predetermined amount of salt which is essentially that amount desired in a final cured cheese to form a salted cheese curd;

(c) discharging the salted cheese curd to a cylindrical downwardly and outwardly tapered curd accumulation, draining and dewheying column having a perforated segment formed therein to permit whey to pass therethrough and out of the draining column while retaining the salted cheese curd in the draining column to form a downwardly and outwardly tapered curd column;

(d) maintaining a sufficient head of salted cheese curd in the draining column to form a column of curd and to dispel excess whey therefrom and thicken and compact the salted cheese curd to the desired loaf-forming consistency as it moves downward in the draining column;

(e) sequentially severing and discharging a predetermined amount of the compacted salted cheese curd from the discharge end of the curd column in a uniform series of salted cheese curd loaves severed from the bottom of the curd column formed in the draining column, whereby the curd column is intermittently impacted by downward dropping of the curd column as a result of the sequential severing and discharging of each cheese curd loaf from the end of the curd column;

(f) introducing the discharged curd loaves into a series of sequentially conveyed cheese curd loaf receiving forms sequentially disposed in curd loaf receiving position adjacent the discharge end of said curd column;

(g) pressing the loaves in the loaf receiving forms;

(h) removing pressed cheese curd loaves from the cheese curd loaf receiving forms;

(i) contacting the cheese curd loaf with a brine solution by immersion of the loaves for a time sufficient to form a rind on said loaf, but not sufficient to substantially alter or increase the salt content of the cheese curd loaf; and

(j) removing the rinded cheese loaf from the brine solution and curing the rinded cheese loaf for a defined period of time required by the standard of identity for the cheese being made.

4,332,832

ANIMAL FOOD AND METHOD

Keith Buckley, Melton Mowbray; Ian E. Burrows, Gaddesby, and Philip J. Lowe, Dunkirk, all of England, assignors to Mars Limited, London, England

Continuation of Ser. No. 969,234, Dec. 13, 1978, abandoned, which is a continuation of Ser. No. 826,655, Aug. 22, 1977, abandoned, which is a continuation of Ser. No. 698,738, Jun. 22, 1976, abandoned, which is a continuation-in-part of Ser. No. 457,484, Apr. 3, 1974, abandoned. This application Jan. 7, 1980, Ser. No. 110,245
Int. Cl.³ A23K *1/10*
U.S. Cl. 426—641 4 Claims

1. A rehydratable dried food having an average moisture content of less than 15% by weight adapted to be served for animal consumption as a soft, moist, comestible product upon the addition of liquid, said product comprising cooked bones, cooked animal tissue, and fat in quantity to enhance rehydration capability, the product being bonded together in the form of extruded pieces by pregelatinized starch as a binder, the bones being softened by cooking and coarsely ground into bone fragments of heterogeneous size and shape present in sufficient quantity to enhance liquid permeability of the dried product, the binder being softenable and disintegratable upon permeation of the dried product by liquid.

4,332,833

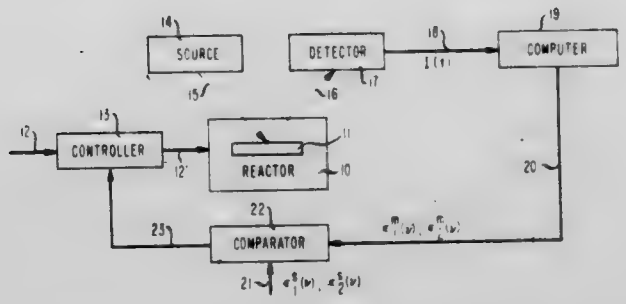
METHOD FOR OPTICAL MONITORING IN MATERIALS FABRICATION

David E. Aspnes, and Brian G. Bagley, both of Watchung, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 29, 1980, Ser. No. 126,217
Int. Cl.³ H01L *21/66*
U.S. Cl. 427—8 20 Claims

1. Method for fabricating an article by a sequence of fabrication steps, one of the steps comprising forming a polycrystalline or amorphous material, the method comprising

(a) determining a measured dielectric function $\epsilon^m(\nu)$ at a multiplicity of frequencies within a frequency range in which the dielectric function of the material $\epsilon(\nu)$ is substantially affected by interband or intraband transitions of electrons in the material,



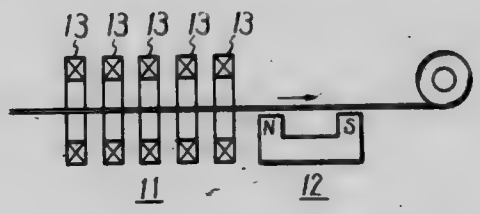
(b) comparing the value of a function of $\epsilon^m(\nu)$ at one or more frequencies to predetermined values, and
(c) modifying at least one of the sequence of fabrication steps in accordance with the result of the comparison.

4,332,834

METHOD OF MANUFACTURING A MAGNETIC RECORDING MEDIUM

Yutaka Takei, Sendai, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 18, 1981, Ser. No. 235,583
Claims priority, application Japan, Feb. 22, 1980, 55/21788
Int. Cl.³ B05D *3/14*
U.S. Cl. 427—48 **9 Claims**



1. A method of manufacturing a magnetic recording medium comprising the steps of;
(a) preparing magnetic paint composed mainly of acicular magnetic powder, and binder uniformly dispersed in solvent,
(b) coating said magnetic paint on a non-magnetic substrate to form a magnetic coating layer on a surface of said substrate,
(c) applying orientation treatment to said magnetic coating layer to orient said magnetic powder along one direction, while said magnetic paint is still wet and said magnetic powder is movable in said magnetic paint,
(d) drying said magnetic coating layer until said magnetic powder is fixed,
wherein said orientation treatment being carried out by applying a pulse magnetic field along said one direction, being larger than coercive force of said magnetic powder, subsequently applying a D.C. magnetic field along the same direction and the same polarity as said pulse magnetic field.

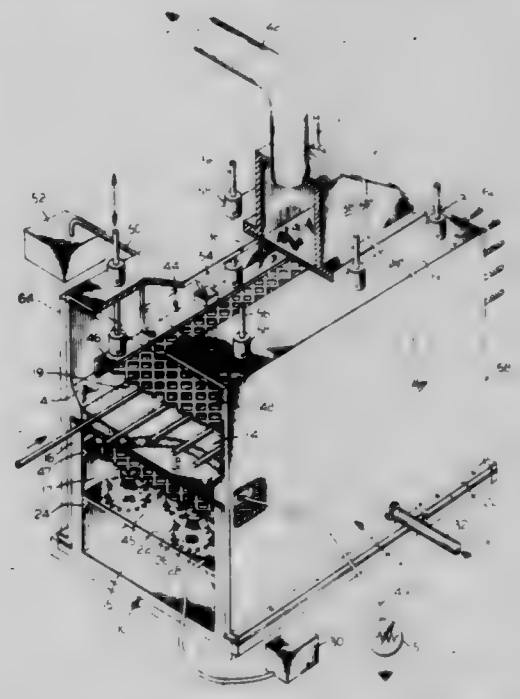
4,332,835

PLENUM MOUNTED GRID FOR ELECTROSTATIC FLUIDIZED BED

Walter G. Knudsen, Bethany, Conn., assignor to Electrostatic Equipment Corp., New Haven, Conn.

Filed Dec. 23, 1980, Ser. No. 218,522
Int. Cl.³ B05D *1/06*
U.S. Cl. 427—32 **21 Claims**

1. Electrostatic fluidized bed coating apparatus comprising, in combination: a housing having a generally planar, substantially horizontal porous support member mounted therein to define within said housing a fluidization chamber thereabove and a plenum therebelow; means for introducing gas into said plenum for passage upwardly through said support member to effect fluidization of particulate coating material supplied to said chamber; means for ionizing gas passing from said plenum into said fluidization chamber, to effect electrostatic charging of such particulate material; and an electrically conductive, open structured control grid mounted within and substantially across said plenum effectively interposed between and spaced from said support member and said ionizing means, said grid being adapted for control of its electrical potential and for substantially unimpeded passage therethrough of the ionized gas, whereby the cooperative effects of fluidization and electrostatic charging may produce a cloud of electrostatically charged particulate material above said support member, and whereby said plenum grid may be used to affect the deposition of powder upon a workpiece exposed to such cloud.



11. In a method for depositing a particulate material upon a workpiece, wherein ionization of a gas is effected by exposing it to electrode means maintained at a high electrical potential, said ionized gas is passed through a substantially horizontal porous plate on which is supported a bed of particles to effect fluidization and electrostatic charging, so as to thereby produce a charged cloud thereof, and wherein the workpiece is maintained at a potential effectively opposite to that of said particles and is exposed thereto, the improvement comprising: passing, substantially without impediment, said ionized gas through an upwardly spaced electrically conductive control grid before passing it through said porous plate, with said grid maintained at an electrical potential substantially different from, and between the potentials of, said workpiece and the gas ionizing electrode means, whereby improved uniformity of deposit thickness, and/or higher powder deposition rates, may be achieved.

4,332,836

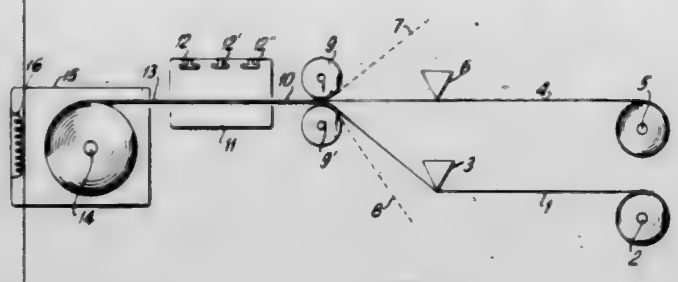
PROCESS FOR PRODUCING COMPOSITE INSULATING MATERIAL

Raymond C. Urban, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 10, 1980, Ser. No. 185,734
Int. Cl.³ B05D *3/06*
U.S. Cl. 427—44 **10 Claims**

1. A process for the production of a composite insulating tape comprising moving a mica paper tape along its longitudinal axis toward coating and curing stations, coating one side of said mica paper tape with a curable admixture of resin material and cross-linking agent to form a composite insulating tape, and then exposing the composite insulating tape to radiant

energy to at least partially cure said admixture while simultaneously advancing said composite insulating tape around a



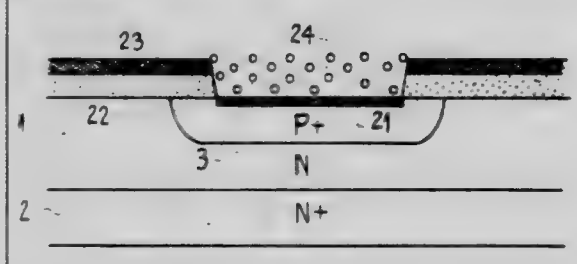
rotating cylindrical member, said rotating cylindrical member compressing said mica paper together with said curable admixture.

4,332,837

PASSIVATION PROCESS AND STRUCTURE FOR SELF-ALIGNMENT WITH THE LOCATION OF A MASK

Andre Peyre-Lavigne, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jun. 17, 1980, Ser. No. 160,363
Claims priority, application France, Jun. 19, 1979, 79 15661
Int. Cl.³ H01L *21/24, 21/314*
U.S. Cl. 427—57 **9 Claims**



1. A process for obtaining a localized passivation structure comprising a basic layer deposited chemically in the vapor phase, this layer being self-aligned with a masking layer used during the process for manufacturing a silicon-based semiconductor component, said process comprising the following steps:

(a) cleaning the surface of the semiconductor in the openings of the mask;

(b) depositing a metal layer of a metal able to form with the silicon a silicide or a eutectic having a melting point at a temperature less than a predetermined temperature T;

(c) reheating so as to combine the metal layer and the visible surface of the semiconductor to form with the silicon a silicide or a eutectic have a melting point at a temperature less than a predetermined temperature;

(d) removing by selective etching the masking layer and the excess metal in the windows of the mask;

(e) depositing chemically in the vapor phase at least one layer of a passivation agent;

from which it results that, in the zones corresponding to the openings of the mask, the deposit of said passivation agent is powdery.

4,332,838

PARTICULATE THIN FILM FABRICATION PROCESS

James E. Wegrzyn, 173 Carlton Dr. East, Shirley, N.Y. 11967

Filed Sep. 24, 1980, Ser. No. 190,467
Int. Cl.³ B05D *5/12*; H01L *31/363, 21/363*
U.S. Cl. 427—74 **17 Claims**

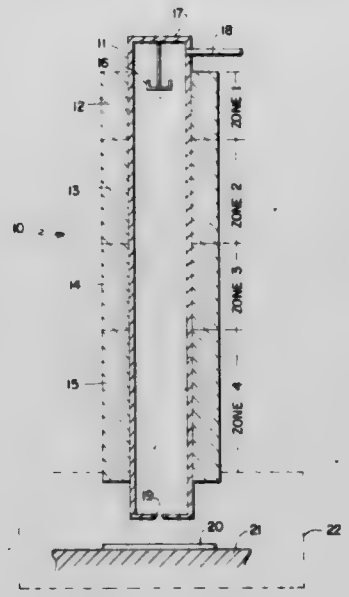
1. A process for depositing a particulate thin film of a vaporizable solid upon a substrate comprising:

vaporizing said solid in a first heating zone;

continuously conveying vapor from said first heating zone in a flowing carrier gas stream to a first condensation zone maintained at a temperature below that of said first heating zone to form an aerosol of disperse size particles;

passing said aerosol and said carrier gas through a second heating zone maintained at a temperature above said first condensation zone to vaporize a substantial portion, but not all, of said aerosol particles;

passing said carrier gas, now containing a depleted number of aerosol particles and vapor of said solid, from the second heating zone to a second condensation zone;



maintaining the temperature of said second condensation zone at a temperature below that of said second heating zone, said second condensation zone temperature being selected to cause growth of said aerosol particles by condensation of vapor thereon; and

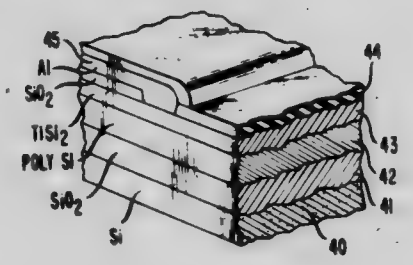
impacting said grown aerosol particles upon a substrate.

4,332,839

METHOD FOR MAKING INTEGRATED SEMICONDUCTOR CIRCUIT STRUCTURE WITH FORMATION OF TI OR TA SILICIDE

Hyman J. Levinstein, Berkeley Heights; Shyam P. Murarka, and Ashok K. Sinha, both of New Providence, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Division of Ser. No. 974,378, Dec. 29, 1978, Pat. No. 4,276,557.
This application Jan. 22, 1981, Ser. No. 227,133
Int. Cl.³ H01L *21/283*
U.S. Cl. 427—85 **3 Claims**



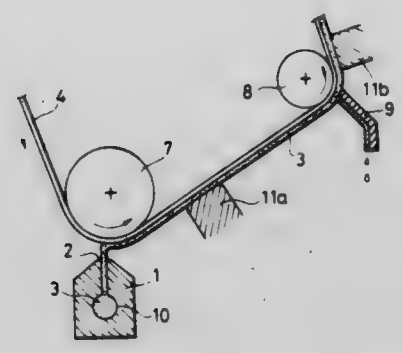
1. A method for making a semiconductor device from a wafer including a silicon epitaxial surface layer, said method comprising the steps of heating the wafer in an oxidizing atmosphere for a time and at a temperature for forming a first SiO_2 overlay, forming a first layer of doped polysilicon over said SiO_2 layer, depositing on said polysilicon layer a second layer of a material selected from the group consisting of Ti and Ta sintering the material of said second layer at a temperature and for a time to form a silicide $TiSi_2$ and $TaSi_2$ of the material, respectively, heating the wafer for a time and at a temperature to form a second SiO_2 overlay while leaving a layer of polysilicon in excess of 1000 Angstroms therebeneath, etching a pattern in said second SiO_2 overlay, depositing an electrically-conducting material over said second SiO_2 overlay, and etching a pattern in said electrically-conducting material.

4,332,840

COATING METHOD

Yasunori Tanaka; Shinji Noda, and Hiroshi Chikamasa, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 23, 1980, Ser. No. 171,509
Claims priority, application Japan, Jul. 23, 1979, 54-93545
Int. Cl.[3] B05D *5/12*
U.S. Cl. 427—130 12 Claims



1. A method for coating a web comprising the steps of: continuously transporting a web to be coated past a nozzle in an extrusion-type coating unit; and discharging a magnetic coating liquid through said nozzle onto said web, wherein:

(a) $V_0 > 0.3$ m/sec,
(b) 3 m/sec $> V_1 > 0.1$ m/sec,
(c) $3 > V_1/V_0$, and
(d) 15 cm $> d > 0.2$ cm

where V_0 is the coating liquid discharge speed at said nozzle of said extrusion-type coating unit, V_1 is the coating liquid striking speed at the surface of said web, and d is the distance between said nozzle and said surface of said web.

4,332,841

MOLD PREPARATION METHOD

Paul F. Price, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,219
Int. Cl.[3] B44D *1/20*
U.S. Cl. 427—135 12 Claims

1. A method for preparing a mold including an upper and lower mold member for use in a record molding apparatus for the molding of high density information discs from a plastic molding composition comprising the steps of:

treating the exposed surfaces of both the upper and lower mold members with a solvent to remove any grit, dirt, debris, dust, lint, fingerprints, or any other foreign matter therefrom,

treating the exposed surfaces of both the upper and lower mold members with a cleaning and drying agent to remove any solvent remaining thereon and to completely dry the exposed surfaces,

applying a coating of an antistatic agent to the surface and other exposed areas of both the upper and lower mold members, and

applying a coating of a mold lubricant to the surface of both the upper and lower mold members.

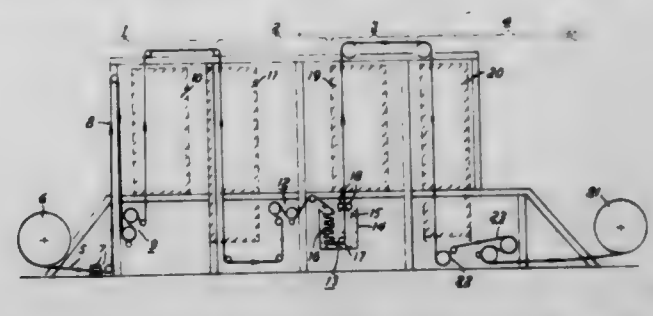
4,332,842

PRODUCTION OF BELTING

Peter J. Litchield, Leyland, and John K. Taylor, Chorley, both of England, assignors to TBA Industrial Products Limited, England

Filed Nov. 20, 1979, Ser. No. 96,123
Claims priority, application United Kingdom, Nov. 22, 1978, 45621/78
Int. Cl.[3] B05D *1/18, 3/02, 3/12*
U.S. Cl. 427—176 9 Claims

1. In the production of solid woven conveyor belting by a process which includes the steps of treating a solid woven belting fabric carcass containing both natural fibers and heat shrinkable synthetic fibers with an impregnant material by subjecting said carcass to a plurality of alternating changes in direction whilst immersed in said material, and then heating the treated carcass to gel the impregnant, the improvement which comprises subjecting said carcass to a preliminary heat treat-



ment immediately prior to immersing said carcass in said material, whereby said synthetic fibers undergo shrinkage prior to immersion in the impregnant material, said shrinkage closing interstices of said carcass to some extent to reduce the impregnant material expelled upon subsequent heating to gel the impregnant.

4,332,843

METALLIC INTERNAL COATING METHOD

Pritam L. Ahuja, West Chester, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Mar. 23, 1981, Ser. No. 246,345
Int. Cl.[3] C23C *13/02*
U.S. Cl. 427—237 7 Claims

1. In a method for applying a metallic coating to a fluid-cooled turbomachinery blading member of an alloy based on an element selected from the group consisting of Co, Ni and their mixtures, the member including an end portion and an airfoil portion connected with the end portion, the airfoil portion including an inner wall surface defining a fluid-cooling passage, the end portion including an end channel therethrough communicating with the fluid-cooling passage, the metallic coating being deposited from a coating powder mixture comprising a coating source powder, a halide activator and an inert filler powder wherein:

a substantially dry coating powder mixture is provided with an inert filler powder having a nonuniform powder size blend which varies predominantly within the range of +325 mesh to −140 mesh;

disposing the coating powder mixture in the end channel, adjacent the fluid-cooling passage;

mechanically retaining the powder mixture in the end channel; and then,

heating the article and mixture in a nonoxidizing atmosphere at a temperature and for a time sufficient to react the coating source powder and the activator to generate from the coating source powder a coating vapor within the end channel and within the adjacent fluid-cooling passage, the coating vapor within the fluid-cooling passage contacting the passage inner wall surface to deposit thereon the metallic coating.

4,332,844

SILICONE COMPOSITIONS FOR ADHESION AND METHOD FOR ADHERING SILICONE RUBBER TO A SUBSTRATE

Mitsuo Hamada, Kisarazu; Sadami Yasuda, and Chiichiro Hasegawa, both of Ichihara, all of Japan, assignors to Toray Silicone Limited, Tokyo, Japan

Filed Jan. 2, 1981, Ser. No. 222,214
Claims priority, application Japan, Jan. 21, 1980, 55/5512
Int. Cl.[3] B05D *3/02*
U.S. Cl. 427—387 22 Claims

9. A method for adhering silicone rubber to a substrate comprising

applying a coating of a silicone composition to a substrate

surface, said silicone composition consisting of (A) 100 parts by weight of an organosilicon compound having an average unit formula

$$R^1_aR^2_b(OR^3)_cSiO_{\frac{4-a-b-c}{2}}$$

in which R^1 represents a monovalent radical selected from the group consisting of hydrocarbon radicals and halogenated hydrocarbon radicals; R^2 represents a monovalent organic radical containing a functional group selected from the group consisting of epoxy, methacryloxy, amino, and mercapto; R^3 represents an alkyl radical; a has a value of 0 to 3 inclusive; b has a value of 0 to 3 inclusive; c has a value such that $0<c\leqq4$; and the sum of $a+b+c$ has a value such that $0<a+b+c\leqq4$; and said organosilicon compound containing at least one silicon-bonded alkoxy radical per molecule, (B) 5 to 500 parts by weight of an organotitanate, and (C) 5 to 1000 parts by weight of an organohydrogensilicon compound having an average unit formula

$$R^4_xH_ySiO_{\frac{4-x-y}{2}}$$

in which R^4 represents a monovalent radical selected from the group consisting of hydrocarbon radicals and halogenated hydrocarbon radicals; x has a value such that $0<x\leqq3$; y has a value such that $0<y\leqq2$; and the sum of $x+y$ has a value such that $0<x+y\leqq4$; and said organohydrogensilicon compound contains at least one SiH per molecule,

drying the coating,

applying an unvulcanized silicone rubber containing a curing catalyst over the dried coating, and thereafter

curing the silicone rubber.

4,332,845

OXYGEN ABSORBENT-CONTAINING BAG

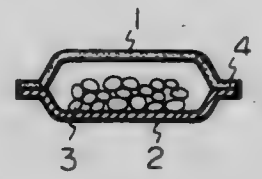
Takanari Nawata; Toshio Komatsu, both of Tokyo, and Yukio Kondoh, Yono, all of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Dec. 11, 1980, Ser. No. 217,413

Claims priority, application Japan, Dec. 21, 1979, 54-177432; Jun. 26, 1980, 55-89576

Int. Cl.³ B32B *3/10*

U.S. Cl. 428—35 **5 Claims**



1. A bag in which an oxygen absorbent is sealed, wherein at least part of the material constituting the bag is composed of a laminated sheet comprising a microporous film having a gas permeable sheet laminated to one or both sides thereof;

wherein said gas permeable sheet is selected from the group consisting of

(a) paper, cloth, non-woven fabric, or a lamination of two or more of said paper, cloth and non-woven fabric,

(b) a plastic film with through holes of 100–3,000μ, or a lamination of two or more plastic films with through holes of 100–3,000μ, and

(c) a composite sheet composed of a member of group (a) and a member of group (b) as defined above;

wherein the microporous film is a mono-layer film having a plurality of fine openings and being gas-permeable, but water-impermeable when there is no difference between pressure outside the bag and pressure in the bag, in which the size of the openings are in the range of 0.01–50 microns, with the distance across the short axis thereof being less than 2 microns; and

wherein the layer of said laminated sheet which has the lowest softening point constitutes the inner surface of the bag.

4,332,846

CAN COVER

Joseph Fischer, Cincinnati, Ohio, and Gerald M. Platz, Conroe, Tex., assignors to National Distillers & Chemical Corp., New York, N.Y.

Continuation of Ser. No. 115,962, Jan. 28, 1980, abandoned. This application Mar. 31, 1981, Ser. No. 249,521

Int. Cl.³ B32B *3/10;* B65D *17/32, 17/34*

U.S. Cl. 428—131 **5 Claims**

1. In an apertured aluminum can cover having a peelable closure member of the pull tab or tear strip type covering said aperture, such that when the aforesaid closure member is peeled away from the can cover to reveal the aperture, a portion of the closure member remains bonded to the can cover, the improvement which comprises a closure member directly adhered to the can cover, said closure member fabricated from a partially hydrolyzed ethylene-vinyl acetate copolymer obtained from the hydrolysis of from about 50 percent to about 80 percent of the vinyl acetate groups of an ethylene-vinyl acetate copolymer containing from about 40 percent to about 80 percent by weight of interpolymerized vinyl acetate.

4,332,847

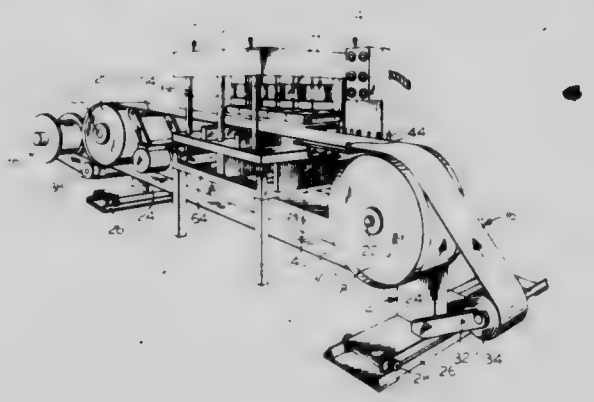
METHOD FOR COMPRESSION MOLDING OF RETROREFLECTIVE SHEETING AND SHEETING PRODUCED THEREBY

William P. Rowland, Southington, Conn., assignor to Relfexite Corporation, New Britain, Conn.

Division of Ser. No. 77,488, Sep. 20, 1979, Pat. No. 4,244,683. This application Aug. 18, 1980, Ser. No. 178,842

Int. Cl.³ B29C *17/00;* B29D *11/00;* G02B *5/12*

U.S. Cl. 428—156 **8 Claims**



1. In a method for embossing synthetic plastic sheet material to generate precisely formed embossments on one surface thereof, the steps comprising:

A. disposing one surface of an elongated strip of synthetic thermoplastic sheet material on an elongated member movable in a path providing a series of stations therealong;

B. placing on the other surface of said synthetic plastic sheet material a series of embossing molds having the desired embossing pattern in their adjacent surfaces, said molds being closely spaced along the length of said sheet material;

C. moving a clamping member against the first of said series of molds to apply clamping force to said first of said series of molds and said elongated member at the first of said series of stations to deform said sheet material therebetween and cause said synthetic plastic thereof to flow into said embossing pattern of said mold to effect embossment thereof;

D. moving said clamping member away from said first of

said series of molds to release said clamping force on said first of said series of molds and elongated member;

E. advancing said first mold and the cooperating portions of said elongated member and sheet material to a second station and a second mold and cooperating portions of said elongated member and sheet material to said first station;

F. moving a second clamping member against said first mold to apply a clamping force to said first mold and elongated member at said second station while simultaneously moving said first mentioned clamping member against said second mold at said first station to apply a clamping force to said second mold and said elongated member at the first station to effect embossment of said sheet material thereat;

G. moving said clamping members away from said first and second molds to release said clamping force at said first and second stations and advancing the first and second molds and the cooperating portions of said elongated member and sheet material to the next stations while advancing a third mold into registry with said first station;

H. moving said first and second clamping members against said molds registering therewith to apply a clamping force to said molds and elongated member at each of said stations;

I. repeating the foregoing series of steps to advance said molds, elongated member and sheet material through said series of stations;

J. controlling the temperature of said molds at at least some of said stations so that said synthetic resin of said sheet material is readily deformed into the embossing pattern of the mold at said first station and is cooled in its mold in subsequent stations; and

K. stripping said embossed sheet material from said molds and elongated member after it has advanced through said series of stations.

7. An elongated strip of embossed synthetic thermoplastic resin sheet material having a series of closely spaced repeating patterns of precisely formed embossments on one surface along substantially the entire length thereof, said embossments being microprisms having a vertical height of not more than 0.008 inch, the deviation in the embossments for the first pattern in the series on said strip from that of the last pattern in the series being less than one percent, said strip being produced in accordance with the method of claim 1.

4,332,848

STRUCTURALLY DEFINED GLASSY METAL STRIPS

Mandayam C. Narasimhan, Seekonk, Mass., assignor to Allied Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 20,907, Mar. 16, 1979, Pat. No. 4,212,343.
This application Mar. 3, 1980, Ser. No. 126,249
Int. Cl.³ B32B *3/28, 3/30*
U.S. Cl. 428—174 **5 Claims**

1. A strip of glassy metal having a thickness of from about 0.02 to about 0.14 mm, and being structurally defined in having substantially corresponding protrusions and indentations on opposite surfaces, said protrusions and indentations being defined by walls having a height and depth of from about 0.1 to about 20 times the thickness of the strip, with the provisos that

(a) walls defining protrusions and indentations of height and depth respectively of less than the thickness of the strip are not steeper than about 88°, measured with respect to the base surface of the strip; and

(b) walls defining protrusions and indentations of height and depth greater than the thickness of the strip are not steeper than

(i) about 65°, measured with respect to the base surface of the strip, when arranged in direction transverse to the length of the strip,

(ii) about 85°, measured with respect to the base surface of the strip, when arranged in longitudinal direction of the strip, and

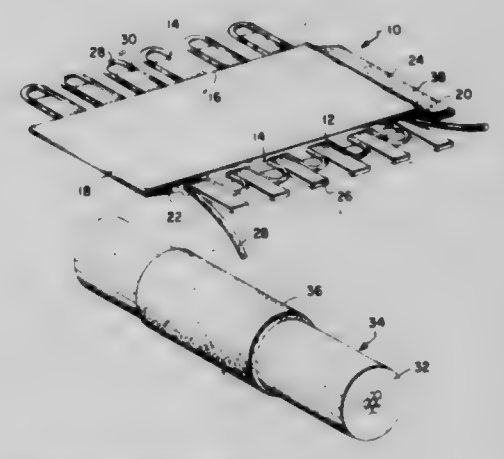
(iii) between 65° and 85°, measured with respect to the base surface of the strip, when arranged in direction between the transverse and the longitudinal.

4,332,849

COLD SHRINK CABLE REPAIR DEVICE

Lee A. Barkus, Millersburg, and Craig W. Simons, New Cumberland, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 28, 1980, Ser. No. 211,018
Int. Cl.³ B32B *1/08, 3/02*
U.S. Cl. 428—188 **5 Claims**



1. A device which comprises:

a. a sheet of material resiliently elongated in one direction and having a plurality of spaced-apart holes extending therethrough in a direction normal to the elongation;

b. a plurality of removable support means positioned in the holes to hold said sheet in the elongated state; and

c. anti-friction means for facilitating the withdrawal of the support means whereupon said sheet returns to its pre-elongated dimensions.

4,332,850

VINYL ACETATE-ETHYLENE EMULSIONS FOR NONWOVEN GOODS

John G. Iacoviello, Allentown, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed May 26, 1981, Ser. No. 267,271
Int. Cl.³ D04H *1/58*
U.S. Cl. 428—288 **12 Claims**

1. In a process for producing an aqueous emulsion suitably adapted for producing non-woven goods said emulsion containing a vinyl acetate-ethylene copolymer wherein said copolymer contains from about 60–96% by weight of vinyl acetete and is produced by (a) forming an aqueous suspension of vinyl acetate, ethylene, and stabilizer, (b) pressurizing the reactor with ethylene to form a vinyl acetate-ethylene raction mixture, (c) initiating the polymerizaton of the reaction mixture by the addition of catalyst, incrementally adding a crosslinkable monomer in a proportion of the 0.5–10% by weight of the copolymer, and (d) carrying out said polymerization at a temperature from 45°–85° C. of 10–100 atmospheres, the improvement for enhancing the absorptive properties of said copolymer which comprises:

pressurizing the reactor with ethylene to an initial ethylene equilibrium pressure of from about 100 to 1,000 psig;

initiating the reaction mixture by the addition of catalyst at a temperature from about 10°-35° C. and bringing the reaction mixture to a reaction temperature of from 45°-85° C. and operating pressure within a period of not more than 2 hours and the reaction temperature exceeds the initiation temperature by at least 20° C.;

adding the crosslinkable monomer at a substantially uniform rate such that the major portion of monomer has been added by the time the vinyl acetate content in the emulsion has been reduced to a level of from 3-25% by weight of the emulsion;

and

continuing polymerization of the reaction mixture until the vinyl acetate content in said emulsion is reduced below about 1% by weight.

4,332,851

RECEPTOR SHEET FOR ELECTROPHOTOGRAPHY

Hiroyoshi Hosomura; Koichi Aota, and Eiji Yoshimura, all of Tokyo, Japan, assignors to Rank Xerox Limited, London, England

Filed Mar. 11, 1980, Ser. No. 129,494
Claims priority, application Japan, Apr. 10, 1979, 54-42603
Int. Cl.³ B32B *5/16*
U.S. Cl. 428—325 **7 Claims**

1. A coated paper suitable for use in an electrophotographic process for receiving an image formed by a magnetic brush device with a single component developer, said paper having a surface coated with a composition comprising about 100 parts by weight of a styrene/butadiene latex with 40 parts by weight of a melamine-formaldehyde resin as a crosslinking agent, and about 50 parts by weight of calcium carbonate as a pigment, said coating composition being coated on paper at an amount of about 3 grams/square meter.

4,332,852

CONDITIONED COLLOIDAL SILICA POST IMPREGNANT TO PREVENT BINDER MIGRATION IN THE PRODUCTION OF INSULATION ARTICLES COMPRISING RANDOMLY ORIENTED REFRACTORY FIBERS

Harris J. Korklan, Granger, and John K. Greany, S. Bend, both of Ind., assignors to Kennecott Corporation, Stamford, Conn.

Division of Ser. No. 891,368, Mar. 29, 1978, Pat. No. 4,204,907. This application Dec. 3, 1979, Ser. No. 99,374
Int. Cl.³ D21F *13/00*
U.S. Cl. 428—331 **2 Claims**

1. An inorganic refractory insulation article comprising randomly oriented refractory fibers retained by dried colloidal silica uniformly distributed throughout the article and from about 0.001 to about 1.5 weight percent of aluminum chlorhydrate.

2. The article of claim 1 wherein said article is a board and wherein said board has a density of from about 0.4 to about 0.6 gms/cc, contains from about 30 to about 50 weight percent fiber, from about 10 to about 45 weight percent dried colloidal silica, from about 0.001 to about 1.5 weight aluminum chlorhydrate and the balance being a filler selected from the group consisting of colloidal clay, ground silica having an average particle size of smaller than about 200 mesh, and mixtures thereof.

4,332,853

CONDUCTIVE PLASTIC WITH METALIZED GLASS FIBERS RETAINED IN PARTIAL CLUMPS

Frederick C. Hornbeck, Sunnyvale, Calif., and James E. Henning, Deerfield Beach, Fla., assignors to International Business Machines Corporation, Armonk, N.Y. and Lundy Electronics & Systems, Inc., Pompano Beach, Fla.

Division of Ser. No. 931,064, Aug. 4, 1978, Pat. No. 4,258,101, which is a continuation of Ser. No. 795,351, May 9, 1977, abandoned. This application Sep. 26, 1980, Ser. No. 191,456
Int. Cl.³ D02G *3/00*
U.S. Cl. 428—371 **4 Claims**

1. A thermo plastic molding pellet for molding articles of plastic and metalized glass fibers by a process in which the fibers disperse through a molded article but tend to become aligned in the general direction of the flow of plastic into a mold and contact between adjacent fibers for electrical conductivity is thereby reduced, comprising,

a core of metalized glass fibers and an outer body of a thermoplastic,

wherein the metalized glass fibers in the core of a pellet are arranged with an inner sub-bundle of fibers and an outer grouping of sub-bundles formed about said inner sub-bundle to partially disperse in the molded article as individual fibers and partially to remain as clumps having a thickness that is appreciably greater than the thickness of an individual fiber for improving the fiber to fiber contact in the direction orthogonal to the general direction of plastic flow in a subsequently molded plastic article.

4,332,854

POLYPROPYLENE OIL REMOVAL STRUCTURE

James H. Parker, P.O. Box 1652, Norfolk, Va. 23501

Continuation of Ser. No. 579,907, May 22, 1975, abandoned. This application Aug. 4, 1980, Ser. No. 174,744
Int. Cl.³ E02B *15/04*
U.S. Cl. 428—377 **5 Claims**



1. A loose, fluffy polyolefin article for manual use in the pick-up of viscous oil comprising a plurality of intermixed strands of polyolefin in encircling, closed relationship, each of said strands being twisted about its longitudinal axis causing an intermixing of said strands with one another forming a large number of interstices throughout the formed article and securing means fixedly tied in tight relationship around said strands at only one point to maintain said strands in a twisted and closed state and thereby insuring the intermixing of the strands with one another.

4,332,855

POLYMERIC COMPOSITIONS

Steven C. Zingheim, Mt. View, and Hans E. Lunk, Menlo Park, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Apr. 14, 1978, Ser. No. 896,244
Int. Cl.³ B32B *15/00, 15/08*
U.S. Cl. 428—379 **11 Claims**

1. A wire having a melt-extruded insulating coating thereon of a composition which comprises an intimate mixture of

(1) a polyester in which at least 90 mole % of the repeating units are tetramethylene terephthalate units and which has a solubility parameter S;
(2) 10 to 40% by weight, based on the weight of the polyester, of a second polymer which
(a) has a flex modulus of 500 to 40,000 psi, and
(b) has solubility parameter of (S+1.5) to (S−1.5); and
(3) flame retardant in an amount such that the ratio by weight of the second polymer to the flame retardant is at least 0.5:1, the flame retardant comprising bromine-containing organic flame retardant in an amount such that the composition contains 5 to 30% by weight, based on the weight of the composition, of bromine-containing organic flame retardant.

9. A composition according to claim 1 wherein the brominated organic flame retardant is decabromo-diphenyl ether.

4,332,856

CARBON OR GRAPHITE ARTICLE AND METHOD OF MAKING BY IMPREGNATING WITH A LIGNIN SULFONATE COMPLEX

Harry L. Hsu, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 192,069
Int. Cl.³ B32B *9/00*
U.S. Cl. 428—408 **12 Claims**

1. In a process for producing a carbon or graphite article by forming a mixture of carbon filler and carbonaceous binder, baking the formed mixture to produce a carbon body, impregnating the carbon body with an impregnation agent, and carbonizing or graphitizing the impregnated carbon body, the improvement wherein said impregnation agent consists essentially of an aqueous solution of a lignin sulfonate complex.

11. A carbon or graphite article prepared by forming a mixture of carbon filler and carbonaceous binder, baking the formed mixture to produce a carbon body, impregnating the carbon body with an impregnation agent, and carbonizing or graphitizing the impregnated carbon body, the improvement wherein said impregnation agent consists essentially of an aqueous solution of a lignin sulfonate complex.

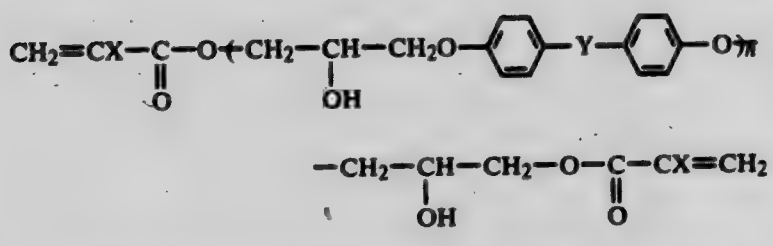
4,332,857

PRIMER COMPOSITION AND A METHOD FOR TREATING A PLASTICS SUBSTRATE USING THE SAME

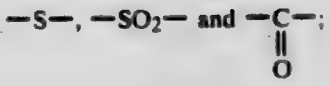
Susumu Taniyama, Toyonaka, and Goro Shimaoka, Sakai, both of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Feb. 4, 1980, Ser. No. 118,107
Claims priority, application Japan, Feb. 5, 1979, 54-12018
Int. Cl.³ C12C *3/04*; C08F *220/20*; B32B *27/30*
U.S. Cl. 428—412 **11 Claims**

1. A method for treating a plastic substrate which comprises coating a plastic substrate with the primer composition prepared by dissolving in an organic solvent one or more diacryloyloxy compounds of the formula:



(wherein X is a hydrogen or methyl group; Y is a linear or branched-alkylene group having less than 8 carbon atoms or a binding group selected from the group consisting of



n is an integer of from 1 to less than 10),
drying the primer-coated plastic substrate to provide a dry primer coating consisting essentially of said one or more diacryloyloxy compounds,
coating the dry primer-coated substrate with a curable resin-containing top-coating finish and
curing the finish.

4,332,858

MULTI-LAYER LAMINATE COMPRISING A MODIFIED STYRENE-BUTADIENE BLOCK COPOLYMER

Akira Saitoh, Fujisawa; Akio Yamori, and Toshio Ibaragi, both of Kawasaki, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Dec. 26, 1979, Ser. No. 106,943
Claims priority, application Japan, Dec. 27, 1978, 53-160021
Int. Cl.³ B32B *9/04, 27/10*
U.S. Cl. 428—412 **1 Claim**

1. A multi-layer laminate comprising at least one A–B double layer structure, characterized in that said layer A is a layer comprising at least one material selected from the group consisting of olefin polymers, polyamide polymers, acrylate polymers, polyether polymers, polycarbonate polymers, polyurethane polymers, vinylidene chloride polymers, thermosetting resins, vulcanized rubbers, glass and papers and said layer B is a layer consisting essentially of a modified block copolymer in which an unsaturated dicarboxylic acid or its anhydride selected from the group consisting of maleic acid, fumaric acid and maleic anhydride is grafted on a styrene-butadiene block copolymer containing two or more polymer blocks composed mainly of styrene and one or more polymer blocks composed mainly of butadiene, the weight ratio of styrene to butadiene in said styrene-butadiene block copolymer being in the range of 20/80–85/15 and the content of said unsaturated dicarboxylic acid or its anhydride in the modified block copolymer being 0.05%–1% by weight.

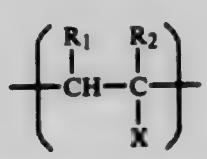
4,332,859

COATED MATERIALS AND PRODUCTION THEREOF

Masaaki Funaki, Toyonaka; Motoaki Yoshida, Kawanishi; Yoshinori Shimauchi; Akira Fujioka, both of Osaka, and Kazuo Sakiyama, Ibaraki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation of Ser. No. 943,813, Sep. 18, 1978, Pat. No. 4,242,412. This application Feb. 8, 1980, Ser. No. 119,773
Claims priority, application Japan, Sep. 27, 1977, 52-116536
The portion of the term of this patent subsequent to Dec. 30, 1997, has been disclaimed.
Int. Cl.³ B32B *27/36, 17/10, 27/42*; B05D *3/02*
U.S. Cl. 428—412 **14 Claims**

1. A formed material of plastics of glass coated with a resin film (1) and a melamine resin film (2), the resin film (1) being formed on the surface of the formed material by using (a) a mixture of methylolmelamine in which all or a part of the methylol groups are alkyletherified, and a polyhydric alcohol having a molecular weight of 1,500 or less which may contain an ethylene oxide or propylene oxide chain, or a pre-condensate thereof, (b) a mixture of a monomer having a unit of the formula (1).



(I)

wherein R_1 and R_2 are independently a hydrogen atom or a

lower alkyl, carboxyl or amino group and X is a hydroxyl group-containing side chain, or a homopolymer or copolymer thereof, and a crosslinking agent, or (c) a mixture of (a) and (b), and the melamine resin film (2) being formed on the resin film (1) by using (d) a mixture of methylolmelamine in which all or a part of the methylol groups are alkyletherified, and a polyhydric alcohol having a molecular weight of 100 to 2,000 and an ethylene oxide chain, or a pre-condensate thereof, and (e) a surface active agent.

4,332,860

AQUEOUS POLYMER DISPERSIONS FOR THE TREATMENT OF LEATHER

Ferdinand Heins, Erkrath, and Wolfgang Speicher, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 081,101, Oct. 2, 1979, abandoned. This application Apr. 3, 1981, Ser. No. 256,844

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2843780

Int. Cl.³ B32B *9/04*; C08L *33/14*

U.S. Cl. 428—473 **1 Claim**

1. A method of treating leather comprising applying to said leather an aqueous dispersion having a pH of from 2 to 7 and particle diameters of from 20 to 150 nm of polymers having a $T_{\lambda max}$ value below 20° C. of:

(A) from 20 to 70 parts, by weight, of one or more acyclic conjugated dienes having from 4 to 9 carbon atoms;

(B) from 10 to 40 parts, by weight of acrylonitrile and/or methacrylonitrile;

(C) from 1 to 5 parts, by weight of allylsulphonic acid and/or methallyl sulphonic acid or water-soluble salts thereof;

(D) from 5 to 15 parts, by weight of acrylic and/or methacrylic acid hydroxyalkylesters having from 2 to 4 carbon atoms in the hydroxyalkyl group; and

(E) 0 to 40 parts, by weight, of acrylic acid and/or methacrylic acid alkyl esters having up to 8 carbon atoms in the alkyl group.

4,332,861

PLASTIC SURFACE TREATMENT

Helmut Franz; James H. Hanlon, both of Pittsburgh, and Lloyd G. Shick, Natrona Heights, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 24, 1980, Ser. No. 209,637

Int. Cl.³ B05D *3/12*; B32B *27/30*; C08J *7/04*

U.S. Cl. 428—520 **10 Claims**

1. A method for treating plastic articles comprising the steps of:

a. processing a plastic article whereby a rough surface is produced; and

b. coating the rough surface with a clear polymer selected from the group consisting of acrylics, polyurethanes and epoxy resins to provide a smooth, durable transparent finish.

4,332,862

WELDED FLEXIBLE SCREEN DECK

John Desmet, Deerlijk, Belgium, assignor to N. V. Bekaert S. A., Zwevegem, Belgium

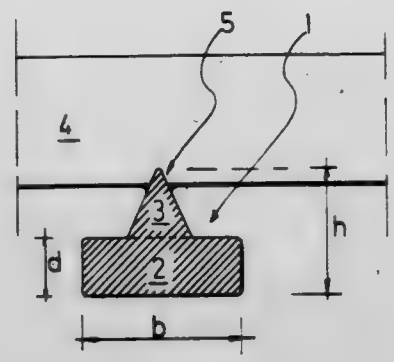
Filed Jan. 7, 1980, Ser. No. 109,880

Claims priority, application Belgium, Jan. 16, 1979, 873488

Int. Cl.³ B32B *3/30*; B01D *39/10*

U.S. Cl. 428—593 **3 Claims**

1. A welded flexible screen deck comprising a series of parallel screen rods and transverse supporting rods wherein the supporting rods (1) are secured at the back side of the screen and have a cross-sectional profile with a substantially rectangular body portion (2) and a rib portion (3) resting against the screen rods such that the height h of the cross-section does not exceed the width b and wherein the thickness d of the body portion is $\leqq h/2$.



4,332,863

MAGNETIC RECORDING MEDIUM

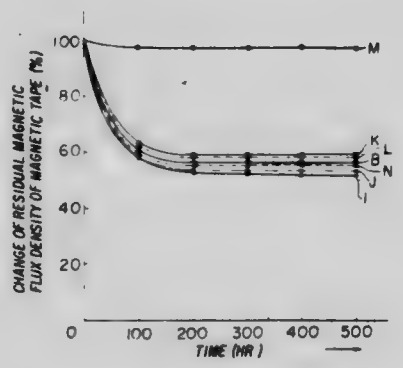
Akihiko Hosaka, Tokyo, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Aug. 5, 1980, Ser. No. 175,530

Claims priority, application Japan, Aug. 12, 1979, 54-0102667

Int. Cl.³ H01F *10/10*

U.S. Cl. 428—695 **2 Claims**



1. A magnetic recording medium comprising a substrate coated with a magnetic composition, said composition having been obtained by (1) dry reducing a metal oxide powder in a hydrogen atmosphere, (2) maintaining the resulting magnetic powder in an inert medium to prevent contact with an oxidizing atmosphere, (3) dispersing the magnetic powder in an inert medium solution of oleic acid to form an oleic acid layer on the surface of the powder, (4) drying the coated magnetic powder, and (5) incorporating the dried, coated magnetic powder into the magnetic composition.

4,332,864

PRIMARY ELECTRIC CELL HAVING MAGNESIUM ALLOY ANODE

John F. King, Bury, Lancs., and Stephen L. Bradshaw, Bolton, Lancs., both of England, assignors to Magnesium Elektron Limited, Great Britain

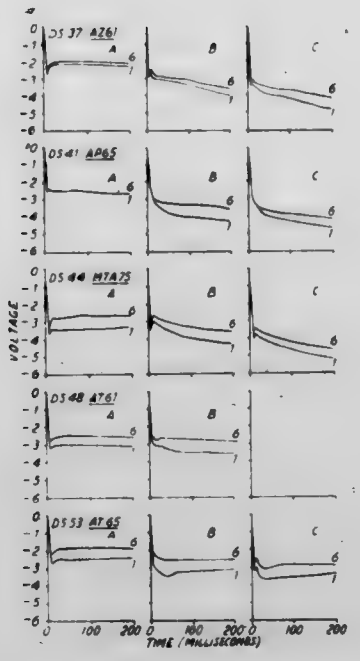
Filed Sep. 17, 1980, Ser. No. 188,152

Claims priority, application United Kingdom, Sep. 19, 1979, 7932401

Int. Cl.³ H01M *6/34, 4/38*

U.S. Cl. 429—3 **7 Claims**

1. An electric primary cell having an anode made of a mag-



nesium alloy containing the following constituents by weight, apart from normal impurities:

Al	1–9%
Zn	0–4%
Sn	0.1–5%
Mn	0–1%
Mg	Remainder.

4,332,865

PROCESS FOR PRODUCING SOLID ELECTROLYTE PRIMARY CELL

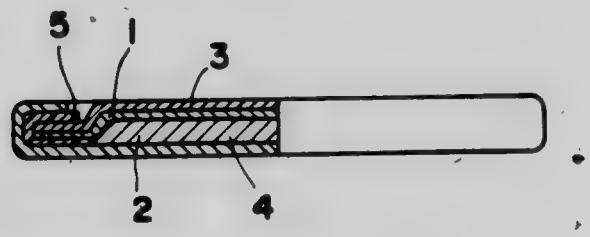
Tadashi Sotomura, Kashiwara; Satoshi Sekido, Yawata; Ken'Ichi Morigaki, Kobe; Ryoji Okazaki, Katano, and Muneaki Nakai, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 2, 1980, Ser. No. 193,156

Claims priority, application Japan, Oct. 8, 1979, 54-134951; Oct. 8, 1979, 54-134952

Int. Cl.³ H01M *6/18*

U.S. Cl. 429—48 **2 Claims**



1. A process for reducing deterioration in the discharge performance due to storage and particularly to high temperature storage of a solid electrolyte primary cell having a lithium anode and an iodine containing cathode, comprising subjecting the cell to preliminary discharge immediately after the fabrication of the cell to form a uniform and dense solid electrolyte layer at the interface between the anode and the cathode, the step of subjecting the cell to preliminary discharge being carried out by subjecting the cell to cell discharge until the amount of such discharge reaches at least 2 mAh per cm^2 of the lithium anode surface.

4,332,866

METHOD OF TEMPERATURE REGULATION

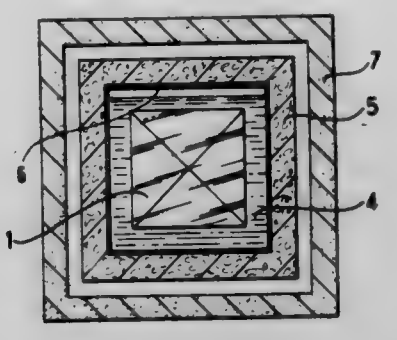
Jean Jacquelin, Malassis, and Jean-Paul Pompon, Vitry, both of France, assignors to Societe Anonyme dite: Compagnie Generale D'Electricite, Paris, France

Filed Jan. 21, 1981, Ser. No. 226,546

Claims priority, application France, Jan. 22, 1980, 80 01290

Int. Cl.³ H01M *6/18, 10/50*

U.S. Cl. 429—50 **6 Claims**



1. A method of regulating the temperature of a system in which an exothermic reaction takes place intermittently at a temperature of at least one hundred degrees centigrade, said reaction taking place in a reactor and during reaction periods which are interspersed with periods of stoppage; the method comprising:

keeping said system in thermal contact with a mass of a first substance chosen to have a boiling point close to the required temperature of the system; whereby heat resulting from said exothermic reaction causes said first substance to boil;

keeping said first substance in thermal contact with a mass of a second substance chosen to have a melting point close to but less than the boiling point of the first substance, whereby heat derived from condensation of the vapour of the first substance causes said second substance to melt; and regulating the temperature of the second substance by adding heat thereto or removing heat therefrom as required to ensure that once all the second substance has melted during a period of exothermic reaction its temperature does not rise more than a few degrees above its melting point, and that once all the second substance has solidified during a stoppage period its temperature does not fall more than a few degrees below its melting point.

4,332,867

BATTERY COIL CONSTRUCTION

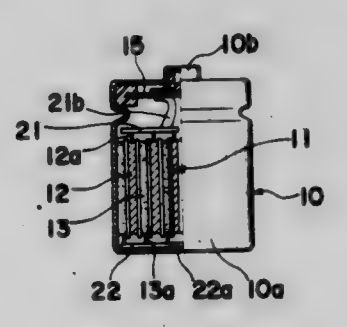
Singo Tsuda, Kadoma; Minoru Yamaga, Hirakata, and Yuzuru Kawai, Kobe, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Nov. 7, 1980, Ser. No. 204,790

Claims priority, application Japan, Nov. 7, 1979, 54-144596

Int. Cl.³ H01M *4/00*

U.S. Cl. 429—94 **3 Claims**



1. A battery coil construction comprising a positive plate having a main portion containing active material and an edge portion free of said active material, a negative plate having a main portion containing active material and an edge portion free of said active material, at least one separator, said positive

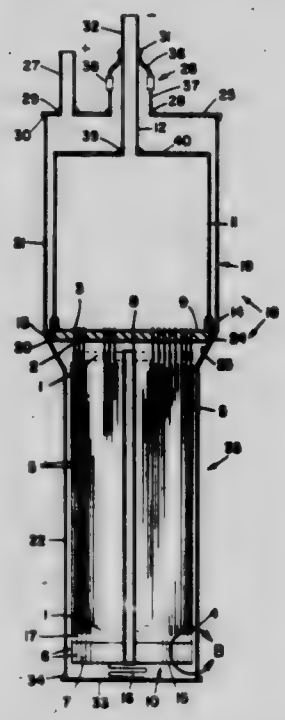
and negative plates being wound together to form a coil assembly with said separator positioned between the positive and negative plates, said positive and negative plates being longitudinally offset from each other so that said edge portion of one plate extends outwardly from the other edge portion of the other plate and also the separator while said edge portion of the other plate extends outwardly from the other edge portion of said one plate, a positive current collector constituted by a generally ring-shaped holeless body and an elongated tab extending outwardly from the outer periphery of said ring-shaped body, and a negative current collector constituted by a holeless disc body having a centrally located tongue protruding outwards from the plane of one surface of said disc body, said ring-shaped body and disc body of the respective positive and negative current collectors being welded to the edges portions of the respective positive and negative plates by a plurality of welds, each of said welds being formed by applying a welding current through a pair of spaced welding electrodes to a portion of the current collector to heat it to a red-hot state thereby to fusion-bond said body to a plurality of turns of the edge portion of the respective plate.

4,332,868

HIGH TEMPERATURE BATTERY CELL COMPRISING STRESS-FREE HOLLOW FIBER BUNDLE

Joginder N. Anand, Clayton; Timothy T. Revak, and Frank J. Rossini, both of Concord, all of Calif., assignors to The Dow Chemical Company, Midland, Mich.

Filed Sep. 1, 1978. Ser. No. 939,156
Int. Cl.³ H01M *2/02*
U.S. Cl. 429—178 **15 Claims**



1. A battery cell in which the electrolyte/separator is in the form of a plurality of hollow fiber lengths and the cell is so constructed that high temperatures may be employed in its fabrication or use without subjecting the cell components to thermally induced stresses of such magnitude as to damage them,

said cell comprising:

a casing which is fitted with electrical leads adapted to function as positive and negative terminals of the cell and has top, bottom and side walls; and

an inner assembly disposed in the casing and so engaged therewith that motion of the assembly therein is limited but motion of the assembly components as a result of thermally induced dimensional changes is not hampered,

said assembly comprising

(a) an upper member having the general shape of a bell or an inverted cup, the bottom edge of which is sealingly engaged with a fluid-impervious, electrically inert, generally disc-like, tubesheet having opposed, generally horizontal, upper and lower faces, said upper member and the tubesheet together defining a tank,

(b) a bundle of said fibers, in generally parallel array, spaced laterally apart, and each having an open end and a closed end and consisting of a fluid-impermeable, electronically non-conductive, but ion conductive, material; said fibers passing generally vertically through and being sealingly engaged with said tubesheet body in such disposition that their open ends are coincident with or adjacent to said upper tubesheet face and communicate with said tank, their closed ends depending from said lower face,

(c) a first current collecting/distributing means disposed in but not filling the spaces between said fibers and joined by a first connecting means to one of said leads,

(d) a second current distributing/collecting means joined to the other of said leads by a second connecting means and so located that, when said tank is substantially filled with a liquid, the latter distributing means is in contact with the liquid,

at least one of said first and second connecting means comprising a limp, electrically conductive link,

said casing and upper member being adapted to prevent fluid communication between the tank interior and the portion of the casing interior external to said assembly.

4,332,869

METAL-RICH IRON SULFIDE CATHODE MATERIAL

Nehemiah Margalit, Chester; Ashok V. Joshi, Fishkill; Wesley E. Aker, Chester, all of N.Y., and Dennis P. Johnson, Madison, Wis., assignors to Ray-O-Vac Corporation, Madison, Wis.

Filed Sep. 12, 1980, Ser. No. 186,585
Int. Cl.³ H01M *4/02*
U.S. Cl. 429—194 **6 Claims**

1. A cathode material having a formula of $Fe_{(x+1)}S$ wherein x is a number from about 0.05 to about 0.2, said cathode material being substantially devoid of sulfur-rich phases.

4,332,870

CELL HAVING A GELLED ANODE CONTAINING A POLYHYDRIC ALCOHOL

Frank E. Parsen, Irvington, and Teresita O. Graham, Dobbs Ferry, both of N.Y., assignors to Duracell International Inc., Bethel, Conn.

Division of Ser. No. 106,995, Dec. 26, 1979, Pat. No. 4,288,913. This application Mar. 9, 1981, Ser. No. 241,918
Int. Cl.³ H01M *6/04*
U.S. Cl. 429—206 **8 Claims**

1. An electrochemical cell comprising an anode, an aqueous alkaline electrolyte solution, a separator and a cathode, said anode comprising a gelled anode comprising a mixture of a powdered metal, a polyhydric alcohol, a portion of the aqueous alkaline electrolyte solution, and a gelling agent.

4,332,871

ZINC ELECTRODE WITH CEMENT ADDITIVE

Allen Charkey, Brookfield, Conn., assignor to Energy Research Corporation, Danbury, Conn.

Filed Sep. 15, 1980, Ser. No. 187,335
Int. Cl.³ H01M *4/36*
U.S. Cl. 429—217 **22 Claims**

1. A zinc electrode comprising a zinc active material and a cement additive distributed therein, said cement additive comprising 70–80% calcium silicate, 1–10% calcium aluminate, 5–12% calcium aluminum ferrite, 6–10% other constituents including calcium sulfate.

4,332,872

OPTICALLY ANNOTATABLE RECORDING FILM

Arthur R. Zingher, 40 Winthrop Ave., Elmsford, N.Y. 10523

Filed Sep. 19, 1980, Ser. No. 188,858
Int. Cl.[3] G03C *11/00, 11/02*
U.S. Cl. 430—8 15 Claims



1. A microfiche film structure for use in a bi-directional microfiche apparatus which projects an image from said film structure and which also includes a laser marking light source for optically annotating said image, including: a primary image recording medium for photographically forming and photochemically fixing a primary image in said film structure; a secondary image recording medium of a separate and distinct character from said primary image recording medium, said secondary image recording medium being disposed in said film structure and being responsive to said laser marking light to record annotations to said primary image, said annotations being recorded in congruent, overlying registration with said primary image.

4,332,873

MULTILAYER PRINTING PLATES AND PROCESS FOR MAKING SAME

Norman E. Hughes, Landenberg, Pa., and Bernard J. Scheve, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 68,833, Aug. 22, 1979, Pat. No. 4,266,007, which is a continuation-in-part of Ser. No. 917,999, Jun. 22, 1978, abandoned. This application Dec. 15, 1980, Ser. No. 216,111
Int. Cl.[3] G03C *1/76*
U.S. Cl. 430—15 2 Claims

1. In a process of making a printing plate having multiple layers of differing moduli from photopolymerizable material, the improvement comprising doctoring over a supported photographic negative which is protected by a cover film a printing layer of a liquid photopolymerizable composition comprising a printing layer of a liquid photopolymerizable composition comprising at least one addition polymerizable compound having a normal boiling point above about 100° C., a molecular weight of less than about 1500 and at least one ethylenically unsaturated group capable of forming a high polymer by photoinitiated polymerization; at least one unsaturated polymeric material which is soluble in said addition polymerizable compound; at least one polymerization inhibitor; and a photoinitiator; doctoring onto the liquid printing layer a base layer of a different liquid photopolymerizable composition comprising at least one addition polymerizable compound having a normal boiling point above about 100° C., a molecular weight of less than about 1500 and at least one ethylenically unsaturated group capable of forming a high polymer by photoinitiated polymerization; at least one unsaturated polymer material which is soluble in said addition polymerizable compound; at least one polymerization inhibitor; and an amount of photoinitiator greater than that in said printing layer such that said base layer has a photopolymerization rate about 1.5 to about 250 times that of said printing layer, said printing layer and base layer compositions having differing crosslinkability such that, upon exposure to actinic light, the layers have moduli differing by at least about 50 p.s.i.

4,332,874

PHOTOSENSITIVE BIS-AZIDE COMPOSITION WITH ACRYLIC TERPOLYMER AND PATTERN-FORMING METHOD

Nobuaki Hayashi, Hachioji; Motoo Akagi, Hinodemachi; Kiyoshi Miura, Mobara, and Yoshiyuki Odaka, Isumimachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 24, 1980, Ser. No. 200,265
Claims priority, application Japan, Oct. 24, 1979, 54-136413
Int. Cl.[3] G03C *1/71, 1/78, 5/00*
U.S. Cl. 430—28 9 Claims

1. A photosensitive composition which comprises:

an admixture of (1) a copolymer prepared by addition polymerization of a monomeric mixture containing acrylamide, diacetoneacrylamide and at least one vinyl monomer containing a sulfonic acid group or salt thereof, with the monomer molar ratio of acrylamide to diacetoneacrylamide being 1.0 to 3.0 and the monomer molar ratio of the at least one vinyl monomer to diacetoneacrylamide being from about 0.01 to 0.4 in the copolymer

and

(2) a water-soluble photosensitive aromatic bisazide compound, with the amount of said bisazide compound being 1 to 50% by weight based on the copolymer.

2. A pattern-forming method comprising the steps of forming on a substrate a film of a photosensitive composition comprising:

an admixture of (1) a copolymer prepared by addition polymerization of a monomeric mixture containing acrylamide, diacetoneacrylamide, and at least one vinyl monomer containing a sulfonic acid group or salt thereof, with the monomer molar ratio of acrylamide to diacetoneacrylamide being 1.0 to 3.0 and the monomer molar ratio of the at least one vinyl monomer to diacetoneacrylamide being from 0.01 to 0.4 in the copolymer and

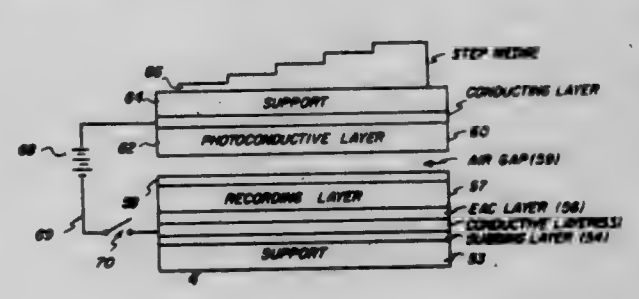
(2) a water-soluble photosensitive aromatic bisazide compound, with the amount of the bisazide compound being 1 to 50% by weight based on the copolymer; irradiating the film with a predetermined pattern of light under such conditions that the Schwarzschild's constant p is in the range of $0<p<0.76$; and developing the film to form a pattern having an area substantially equal to or smaller than the area of the light irradiation region.

4,332,875

POLYMERIC ELECTRICALLY ACTIVE CONDUCTIVE LAYER FOR ELECTRICALLY ACTIVATABLE RECORDING ELEMENT AND PROCESS

Mark Lelental, Penfield, and Richard C. Sutton, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

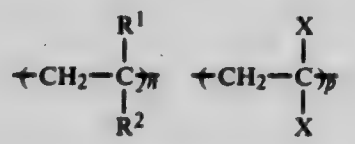
Continuation-in-part of Ser. No. 156,712, Jun. 5, 1980, abandoned, which is a continuation-in-part of Ser. No. 124,189, Feb. 25, 1980, abandoned. This application Jan. 29, 1981, Ser. No. 229,701
Int. Cl.[3] G03G *5/026, 5/04*
U.S. Cl. 430—45 28 Claims



1. In an electrically activatable recording element comprising an electrically conductive support having thereon, in sequence:

(a) a polymeric electrically active conductive layer,

(b) an electrically activatable recording layer comprising:
(A) a dye-forming coupler, and
(B) an oxidation-reduction combination comprising:
(i) an organic silver salt oxidizing agent consisting essentially of a silver salt of a 1,2,4-mercaptotriazole derivative with
(ii) a reducing agent which, in its oxidized form, forms a dye with said dye-forming coupler,
(c) a photoconductive layer separated from (b) by an air gap of up to 20 microns, and
(d) an electrically conductive layer, the improvement wherein the polymeric electrically active conductive layer comprises a vinyl addition polymer comprising recurring units represented by the structure:



wherein R^1 is hydrogen or methyl; R^2 is aryl containing 6 to 10 carbon atoms, or:



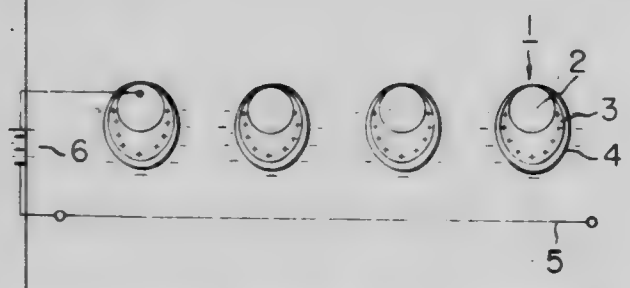
wherein R^3 is alkyl containing 1 to 20 carbon atoms or aryl containing 6 to 10 carbon atoms, each X is bromine or chlorine; n represents 15 to 50 weight percent, and p represents 50 to 85 weight percent of said vinyl addition polymer.

4,332,876

ELECTROPHOTOGRAPHIC SCREEN

Katsunobu Ohara; Keiji Tanaka, both of Kawasaki; Yujiro Ando, Yokohama, and Inao Moriyama, Ebina, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 771,309, Feb. 23, 1977, which is a continuation of Ser. No. 480,280, Jun. 17, 1974, abandoned. This application Jun. 24, 1980, Ser. No. 162,654
Claims priority, application Japan, Jun. 19, 1973, 48-69343; Aug. 1, 1973, 48-87068; Aug. 1, 1973, 48-87069; Aug. 1, 1973, 48-87070; Nov. 2, 1973, 48-123670; Jan. 29, 1974, 49-12412
Int. Cl.[3] G03G *5/04*
U.S. Cl. 430—68 9 Claims



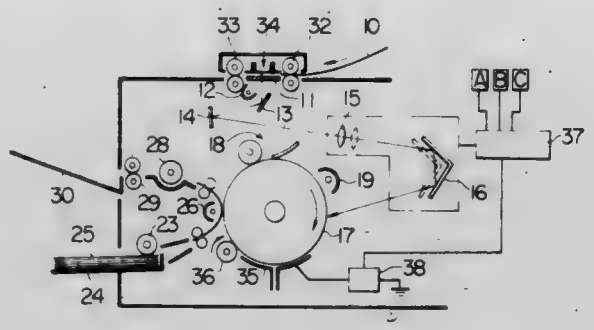
1. A photosensitive perforate screen comprising:
an electrically conductive base having a plurality of fine openings;
a photoconductive layer formed on said base; and
an insulating layer, capable of supporting an electric charge, formed on said photoconductive layer;
wherein one side of said screen includes a conductive outer surface, while said insulating layer defines the outer surface at least on the opposite side of said screen and extends continuously therefrom to the inside peripheries of the screen openings, and wherein said insulating layer is capable of retaining electric charges of opposite polarities on the opposite sides thereof even when exposed to light.

4,332,877

ELECTROPHOTOGRAPHIC COPYING METHOD

Yasuhiro Tabata, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 28, 1979, Ser. No. 108,150
Claims priority, application Japan, Dec. 29, 1978, 53/165267
Int. Cl.[3] G03G *13/06, 13/10*
U.S. Cl. 430—103 3 Claims



1. In an electrophotographic copying method capable of producing copies of a magnification different than that of an original, including the steps of moving a uniformly-charged photosensitive member past an exposure station, moving an optical system relative the original to form a light image thereof at said exposure station to form an electrostatic latent image on said photosensitive member, varying the position and speed of said optical system relative the original for varying the magnification of the latent electrostatic image formed on the photosensitive member, and developing said electrostatic latent image by contacting it with developer in the presence of a developing electrode, the improvement including the step of varying the potential of said developing electrode in accordance with the magnification of said electrostatic latent image.

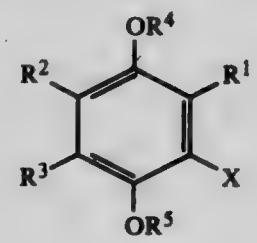
4,332,878

PHOTOGRAPHIC IMAGE-FORMING METHOD

Yoshitaka Akimura; Shigeo Hirano; Hiroyuki Mifune, and Eiichi Okutsu, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Apr. 30, 1981, Ser. No. 259,277
Claims priority, application Japan, Apr. 30, 1980, 55-57269
Int. Cl.[3] G03C *5/30, 1/06*
U.S. Cl. 430—264 21 Claims

1. A method for forming a photographic image which comprises imagewise exposing a silver halide photographic light-sensitive element having a silver halide emulsion layer of substantially the surface latent image type, said silver halide emulsion layer or at least one member of other hydrophilic colloid layers containing a compound represented by formula (I) below, and developing the exposed light-sensitive element in the presence of a compound represented by formula (II) below:



(I)

wherein
X is an indazole radical which is linked to the benzene nucleus through the nitrogen atom at the 1- or 2-position thereof and which may be substituted;
R^1, R^2 and R^3 may be the same or different and each represents a hydrogen atom, an alkyl group, an aryl group, an alkylthio group, an arylthio group, a halogen atom, a hydroxy group, an alkoxy group, an aryloxy group, an acyl group, an alkoxycarbonyl group, an amido group, a sulfonamido group, a carbamoyl group, a sulfamoyl

group, a heterocyclic radical, or X, and R^2 and R^3 may combine together to form a ring;

R^4 and R^5 each represents a hydrogen atom or a group which is hydrolyzed in the presence of an alkali;

$$R^6NHNHCOR^7 \quad \text{(II)}$$

wherein R^6 represents an aryl group which may be substituted, and R^7 represents a hydrogen atom, an aryl group which may be substituted, or an alkyl group which may be substituted.

4,332,879

PROCESS FOR DEPOSITING A FILM OF CONTROLLED COMPOSITION USING A METALLO-ORGANIC PHOTORESIST

Antonio C. Pastor, Santa Monica; Ricardo C. Pastor, Manhattan Beach; Gregory L. Tangonan, Oxnard, and Shi-Yin Wong, Santa Monica, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 1, 1978, Ser. No. 965,651
Int. Cl.³ B05D *5/06, 3/06, 5/12*
U.S. Cl. 430—272 **9 Claims**

1. A process for depositing a film of controlled composition on a substrate comprising the steps of:

(a) providing a polymerizable material which is suitable for use as a photoresist;

(b) introducing into said polymerizable material a predetermined amount of a chosen substance containing a selected cation and which is capable of being chemically linked to said polymerizable material upon polymerization, to form a cation-containing polymerizable material;

(d) polymerizing said cation-containing polymerizable material to form a metallo-organic photoresist of chosen composition having said cation substitutionally incorporated therein; and

(c) depositing said cation-containing polymerizable material on said substrate to a predetermined thickness;

(e) heating said deposited metallo-organic photoresist in a selected reactive atmosphere to elevated temperatures sufficient to combust the organic portion of said metallo-organic photoresist and to leave behind on said substrate an inorganic residue which contains said selected cation.

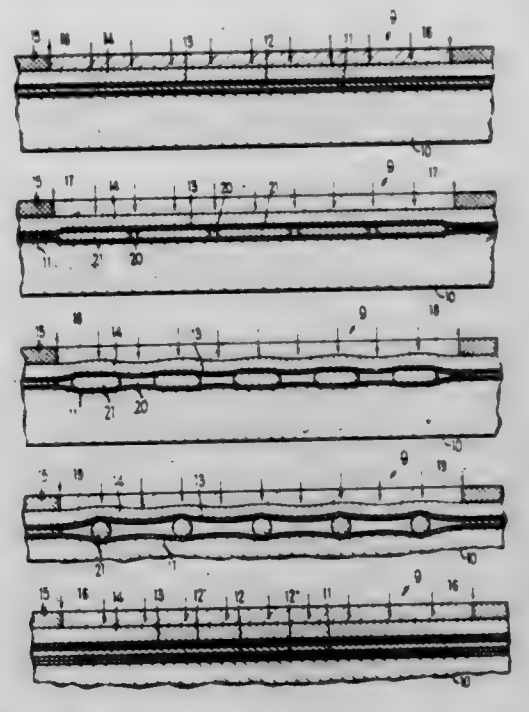
4,332,880

IMAGING FILM WITH IMPROVED PASSIVATING LAYERS

Masatsugu Izu, Birmingham, and Vincent D. Cannella, Detroit, both of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 72,438, Sep. 4, 1979, abandoned, which is a continuation-in-part of Ser. No. 827,470, Aug. 25, 1977, Pat. No. 4,211,838. This application Aug. 4, 1980, Ser. No. 173,046
Int. Cl.³ G03C *1/76*
U.S. Cl. 430—272 **13 Claims**

1. In a dry process dispersion imaging film comprising a transparent substrate, a solid, high optical density and substantially opaque layer of a dispersion imaging material deposited on said substrate, said substantially opaque layer of dispersion imaging material, upon application of energy in an amount sufficient to increase the absorbed energy in the material above a certain critical value, being capable of changing to a substantially fluid state in which the surface tension of the material acts to cause the substantially opaque layer of dispersion material where subject to said energy to disperse and change to a discontinuous layer, the improvement wherein there is located on at least the outer side of said opaque layer of dispersion material a substantially transparent passivating layer for isolating said opaque imaging layer from the surrounding atmosphere, said passivating layer comprising a substantially transparent continuous amorphous film having a thickness no greater than about 500 A°, said amorphous film comprising at least about 50 atomic weight percent of a Group IV oxide (except oxides of carbon) alloyed or mixed with one or more



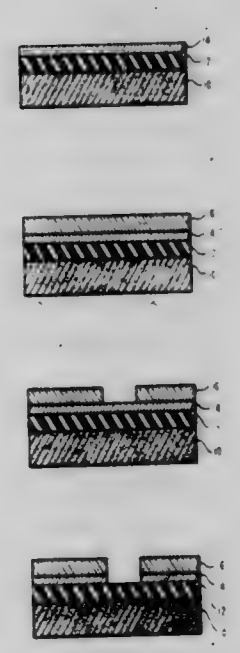
other different oxides of a metal or an inorganic semiconductor or a metal fluoride which stabilizes the amorphous character of said Group IV oxide.

4,332,881

RESIST ADHESION IN INTEGRATED CIRCUIT PROCESSING

Theodore A. Shankoff, Mendham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 28, 1980, Ser. No. 172,836
Int. Cl.³ G03C *5/00*
U.S. Cl. 430—311 **1 Claim**



1. A method for improving positive photoresist adhesion during an integrated circuit fabrication sequence that comprises the steps of

applying resist material to an underlying layer included in an integrated circuit structure,

establishing a prescribed pattern in said resist material to serve as a mask for processing said underlying layer,

and processing said underlying layer through said mask in accordance with said fabrication sequence to define in said layer a pattern corresponding to the pattern established in said resist material thereby to define a feature of said integrated circuit in said underlying layer,

wherein the improvement in said method resides in said applying step, which applying step comprises

depositing a relatively thin 0.0075-to-0.05 μm-thick layer of

a solvent thinned phenol-formaldehyde polymer positive photoresist on an underlying layer to which a relatively thick layer of a phenol-formaldehyde-based photoresist does not adhere well if applied directly thereto,

heating said relatively thin layer for about 60 minutes in the temperature range 140-to-300 degrees C. to enhance the bond between said relatively thin layer and said underlying layer and to cross-link the polymer in said relatively thin layer,

and depositing a relatively thick 0.4-to-2 μm-thick layer of a phenol-formaldehyde-based positive photoresist on said relatively thin layer.

4,332,882

METHOD FOR THE PREPARATION OF HIGHLY HEAT-RESISTANT RELIEF

Hellmut Ahne, Röttenbach; Eberhard Kühn, Hemhofen, and Roland Rubner, Röttenbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 19, 1980, Ser. No. 179,463

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1979, 2933871

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—322 **7 Claims**

1. In a method for the preparation of highly heat-resistant relief structures wherein radiation-sensitive soluble polymer precursor stages are applied in the form of a film or a foil on a substrate; the film or the foil is irradiated through negative patterns with actinic light or by deflecting a light, electron or ion beam; and the non-irradiated film or foil portions removed, the improvement comprising utilizing a precursor stage comprising a member selected from a polyimidazole and a polyimidazopyrrolone precursor in the form of an addition product of an olefinically unsaturated monoepoxide and a product selected from (a) an amino group-containing polycondensation product of an aromatic and/or heterocyclic tetraamino compound with a member selected from the group consisting of a dicarboxylic-acid chloride and a dicarboxylic acid ester and (b) an amino group-containing polyaddition product of said tetraamino compound and a tetracarboxylic-acid dianhydride.

4,332,883

METHOD FOR THE MANUFACTURE OF HIGHLY HEAT-RESISTANT RELIEF STRUCTURES

Hellmut Ahne, Röttenbach; Eberhard Kühn, Hemhofen; Roland Rubner, Röttenbach, and Erwin Schmidt, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 19, 1980, Ser. No. 179,472

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1979, 2933805

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—322 **8 Claims**

1. In a method for the manufacture of a highly heat-resistant relief structure wherein a radiation-sensitive soluble polymer precursor stage is applied in the form of a layer or foil on a substrate; the layer or the foil is irradiated through negative patterns with actinic light or by deflecting a light, electron or ion beam; and the non-irradiated layer or foil portions are removed, the improvement comprising utilizing as said precursor stage a polyoxazole precursor in the form of an addition product of (a) an olefinically unsaturated monoepoxide and (b) a hydroxyl group-containing polycondensation product of (1) an aromatic and/or heterocyclic dihydroxydiamino compound and (2) a member selected from dicarboxylic acid chloride and dicarboxylic acid ester.

4,332,884

PHOTO-SENSITIVE AND HEAT-SENSITIVE COMPOSITION AND RECORDING ELEMENT USING SAME

Koji Uji-Ie, Kawasaki; Masaakira Umehara; Kiyoshi Taniguchi, both of Yokohama, and Makoto Kunikane, Chigasaki, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

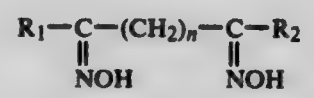
Filed Nov. 3, 1980, Ser. No. 203,164

Claims priority, application Japan, Nov. 14, 1979, 54-147562

Int. Cl.³ G03C *1/52, 1/727*

U.S. Cl. 430—338 **18 Claims**

1. A photo-sensitive and heat-sensitive composition consisting essentially of a photooxidant which produces an oxidizing substance when irradiated by ultraviolet radiation, a color-generator capable of being oxidized by said oxidizing substance to generate a visible color, an acid for promoting said color generation, a hydrogen donator, a photoreductant which when irradiated by visible light produces a reducing substance in the presence of said hydrogen donator, a cobalt (III) complex which when heated is reduced by said reducing substance so as to produce ammonia or an amine, and a chelating agent having the formula:



wherein n is an integer of 0 to 3, and R_1 and R_2 are alkyl, aryl or aralkyl.

4,332,885

PHOTOGRAPHIC SENSITIVE MATERIALS FOR COLOR DIFFUSION TRANSFER PROCESS

Hideki Ohmatsu, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Apr. 7, 1981, Ser. No. 251,801

Claims priority, application Japan, Apr. 7, 1980, 55-45413

Int. Cl.³ G03C *1/76*

U.S. Cl. 430—506 **4 Claims**

1. A photographic sensitive material for a color-diffusion transfer process comprising:

a support;

a red-sensitive emulsion layer on said support;

a green-sensitive emulsion layer on said support; and

a blue-sensitive emulsion layer on said support,

wherein one of said layers is comprised of a plurality of additional layers including a plurality of direct reversal photographic emulsion layers having higher and lower sensitivity which were not previously fogged, and further wherein said direct reversal photographic emulsion layer having lower sensitivity has a gradation of 1.8 or more.

4,332,886

COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL INCLUDING AN ORGANIC SPIROBIS COMPOUND COLOR COUPLER

Kozo Aoki; Tetsuro Kojima; Nobuo Furutachi, and Satoru Sawada, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

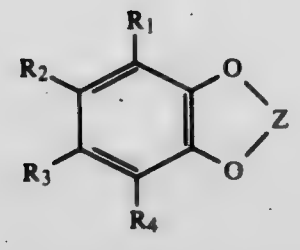
Filed Oct. 8, 1980, Ser. No. 195,166

Claims priority, application Japan, Oct. 8, 1979, 54-129773

Int. Cl.³ G03C *1/10*

U.S. Cl. 430—551 **28 Claims**

1. A color photographic light-sensitive material including a color coupler and containing, in a photographic layer thereof, at least one compound represented by the formula (I), or at least one bis-compound, including a spirobis-compounds, thereof



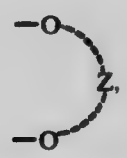
(I)

where

Z represents an alkylene group having from 1 to 3 carbon atoms or an alkylene group having from 1 to 3 carbon atoms and substituted with one or more of a halogen atom, an alkyl group, an aryl group, an alkoxy group, an aryloxy group, a =S group, or a =O group; and

R_1, R_2, R_3 and R_4 each represents a hydrogen atom, a halogen atom, an alkyl group, an aryl group, an alkoxy group, an aryloxy group, an alkylthio group, an acyl group, an acylamino group, a sulfonamido group, a diacylamino group, a carboxy group, a sulfo group, or a hydroxy group, or,

R_1 and R_2 or R_2 and R_3 together form a group represented by



wherein Z has the same meaning as Z in formula (I), or form a 5-membered or 6-membered carbocyclic ring or heterocyclic ring.

2. A color photographic light-sensitive material as in claim 1, wherein the substituent for Z is an alkyl group having from 1 to 32 carbon atoms, an aryl group having from 6 to 32 carbon atoms, an alkoxy group having from 1 to 32 carbon atoms, or an aryloxy having from 6 to 32 carbon atoms.

4,332,887

METHOD FOR PREPARING PHOTOSENSITIVE SILVER HALIDE EMULSIONS

Arthur M. Gerber, Belmont, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 6, 1980, Ser. No. 194,561
Int. Cl.³ G03C *1/02, 1/28*
U.S. Cl. 430—567 **9 Claims**

1. The method for forming a photosensitive silver halide emulsion which comprises the steps of forming photosensitive silver halide grains in the presence of a water-soluble thiocyanate compound with a halide/silver molar ratio ranging from not more than about a 5% molar excess of halide to not more than about a 25% molar excess of silver; ripening said grains subsequent to the forming of said grains in the presence of said water-soluble thiocyanate compound wherein said water-soluble thiocyanate compound is employed at a level of about 0.015 to 1.5 moles per mole of silver, and substantially in the absence of any other ripening agent, for a time sufficient to grow said grains to a predetermined grain size distribution; removing said water-soluble thiocyanate compound subsequent to grain growth and removing any silver thiocyanate formed during precipitation.

4,332,888

METHOD FOR STABILIZING AND SPECTRALLY SENSITIZING PHOTOSENSITIVE SILVER HALIDE EMULSION

Leo D. Corben, Swampscott, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 962,339, Nov. 20, 1978, abandoned.
This application Feb. 15, 1980, Ser. No. 121,800
Int. Cl.³ G03C *1/34, 1/08*
U.S. Cl. 430—570 **16 Claims**

1. A method for stabilizing a photosensitive silver halide emulsion which comprises the following steps, in sequence:

(a) adding to said emulsion a stabilizer in an amount sufficient to substantially arrest chemical ripening but insufficient to interfere with spectral sensitization;

(b) spectrally sensitizing said emulsion; and

(c) adding to said spectrally sensitized emulsion a water-soluble bromide salt, 1-phenyl-5-mercaptotetrazole and a stabilizer selected from the group consisting of an hydroxy triazaindene, an amino triazaindene, an hydroxy tetrazaindene, an amino tetrazaindene, an hydroxy pentazaindene and an amino pentazaindene.

4,332,889

POST-ACTIVATION TYPE DRY IMAGE FORMING MATERIAL

Tetsuo Siga; Shozo Kinoshita; Yoshinobu Ito, all of Fuji, and Minoru Akiyama, Yokohama, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed May 19, 1981, Ser. No. 265,011
Claims priority, application Japan, May 23, 1980, 55-67748
Int. Cl.³ G03C *1/02*
U.S. Cl. 430—583 **25 Claims**

1. A post-activation type dry image forming material comprising:

(a) a silver salt of long chain fatty acid having 16 or more carbon atoms;

(b) a reducing agent for silver ions;

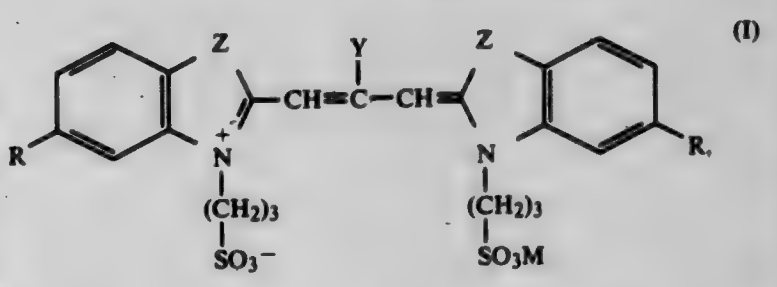
(c) a silver halide component including silver iodide or a silver halide-forming component capable of forming a silver halide component including silver iodide by the reaction thereof with said silver salt of long chain fatty acid (a);

(d) an oxidizing agent for free silver;

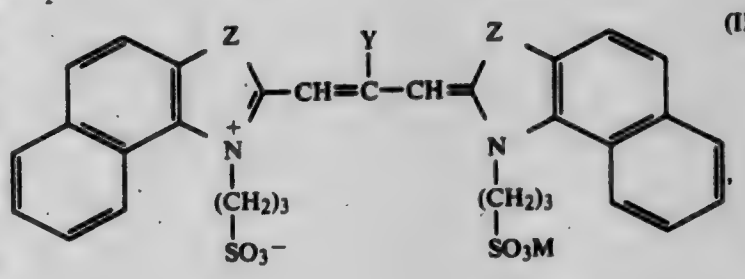
(e) a photoreactive halogeno oxidizing agent;

(f) a binder; and

(g) a spectral sensitizing dye consisting of at least one member selected from the group consisting of those compounds represented by the following formulae:

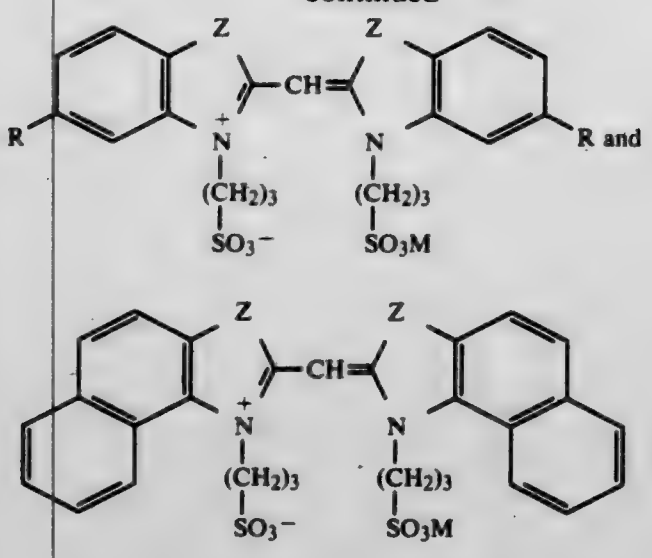


(I)



(II)

-continued



(III)

(IV)

wherein each Z independently is sulfur or selenium, Y is hydrogen or methyl, each R independently is hydrogen or chlorine, and M is hydrogen, $HN(C_2H_5)_3$ or sodium.

4,332,890

DETECTION OF *NEISSERIA GONORRHOEAE*

Alan S. Armstrong, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed May 15, 1978, Ser. No. 905,575
Int. Cl.³ C12Q *1/66*
U.S. Cl. 435—7 **2 Claims**

1. A procedure for identification of a microorganism as *N. gonorrhoeae*, said procedure comprising:

preparing a lysate of the microorganism;

contacting a sample of said lysate with a suspension of discrete particles sensitized with antibodies to *N. gonorrhoeae* strains ATCC 31397, 31398, 31399, 31400, 31401, 31402, 31403, 31404, 31405, 31406, and 31407;

incubating said mixture of lysate and particles; and

determining the presence of agglutination of said incubated mixture indicative of the positive identification of the microorganism as *N. gonorrhoeae*.

4,332,891

PROCESS FOR THE PRODUCTION OF ANTIBIOTIC CEPHAMYCIN C

Takashi Kamogashira; Tsutomu Nishida; Michiharu Sugawara; Tomiyo Nihno, and Setsuko Takegata, all of Tokushima, Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Jun. 16, 1980, Ser. No. 159,568
Claims priority, application Japan, Jun. 15, 1979, 54-75830
Int. Cl.³ C12P *35/08*
U.S. Cl. 435—48 **3 Claims**

1. A process for producing Cephamycin C which comprises cultivating Streptomyces sp. OFR 1022 in a culture medium to accumulate therein Cephamycin C and recovering said Cephamycin C.

4,332,892

PROTEIN SYNTHESIS

Mark Ptashne; Gail D. Lauer; Thomas M. Roberts, all of Cambridge, Mass., and Keith C. Backman, San Francisco, Calif., assignors to President and Fellows of Harvard College, Cambridge, Mass.

Continuation of Ser. No. 3,102, Jan. 15, 1979, abandoned. This application Jan. 10, 1980, Ser. No. 111,101
Int. Cl.³ C12P *21/00*
U.S. Cl. 435—68 **6 Claims**

1. The method of producing native, unfused prokaryotic or eukaryotic protein in bacteria which comprises inserting into a bacterial plasmid a gene for a prokaryotic or eukaryotic protein and a portable promoter consisting of a DNA fragment containing a Shine-Dalgarno sequence and a transcription initiation site recognized by RNA polymerase and containing no protein translational start site, said promoter being inserted upstream from a protein ATG translational start site of said gene, at a position to obtain production of said protein, to form a fused gene having said Shine-Dalgarno sequence, said transcription initiation site, and the ATG signalling the start point of translation, inserting said plasmid into said bacteria to transform said bacteria with said plasmid containing said fused gene, and culturing the transformed bacteria to produce said unfused prokaryotic or eukaryotic protein.

4,332,893

PROCESS FOR THE PRODUCTION OF AN INSULIN-PRODUCING CELL LINE OF PANCREATIC BETA CELLS

Ralph A. Rosenberg, 124 Johnson St., Apt. 1-B, Highland Park, N.J. 08904

Filed Jun. 13, 1980, Ser. No. 159,450
Int. Cl.³ C12N *5/02*; C12P *21/00*; C12N *15/00*
U.S. Cl. 435—68 **16 Claims**

1. A process for producing an insulin-producing pancreatic cell line by conditionally transforming pancreatic cells with a temperature sensitive mutant strain of Rous sarcoma virus, said process comprising the steps of

(a) selectively isolating insulin-producing beta cells cells from a pancreas and culturing said insulin-producing cells to produce a homogeneous population thereof;

(b) growing a culture of a mutant strain of Rous sarcoma virus in a manner to produce a supernatant portion which contains the virion of said mutant strain of said virus, said mutant strain of virus containing in the transforming gene thereof a temperature sensitive lesion which causes said transforming gene to be expressed at a permissive environmental temperature and to be inactivated at a non-permissive environmental temperature;

(c) harvesting the virion-containing supernatant portion of said mutant virus culture including said temperature sensitive transforming gene and infecting said insulin-producing pancreatic cells with said virion of said mutant virus so that the expression of said temperature sensitive transforming gene causes the conditional transformation of said insulin-producing pancreatic cells at said permissive temperature;

(d) culturing the resulting infected insulin-producing pancreatic cells at the permissive temperature for the expression of the temperature sensitive transforming gene of said mutant virus strain in said insulin-producing pancreatic cells for a time sufficient to cause the conditional transformation of said insulin-producing pancreatic cells by said temperature sensitive transforming gene and to produce a desirably large population of said insulin-producing pancreatic cells; and

(e) shifting the temperature of the culture produced in step (d) to the nonpermissive temperature for the inactivation of the temperature sensitive transforming gene of said mutant virus strain in said insulin-producing pancreatic cells for a time sufficient to cause said conditionally transformed insulin-producing pancreatic cells to revert to a non-transformed state and to produce insulin.

4,332,894

CONVERSION OF GUAR GUM TO GEL-FORMING POLYSACCHARIDES BY THE ACTION OF α-GALACTOSIDASE

Roy L. Whistler, West Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind.

Filed Aug. 15, 1980, Ser. No. 178,507
Int. Cl.³ C12P *19/04, 19/14*
U.S. Cl. 435—99 **2 Claims**

1. A method of treatment of guaran having a chain or backbone to which side groups are attached, the treatment to ren-

der the guaran chain more susceptible to association intermolecularly with other guaran chains, thereby promoting gel formation in the treated guaran, the treatment including the steps of:

isolating an enzyme or mixture of enzymes which act to break the bonds between the side groups and the guaran chain;

treating the guaran with the enzyme or enzymes to break such bonds and remove the side groups from the guaran chain to denude zones of desired length along the guaran chain; and

removing the enzyme or enzymes from active contact with the guaran when zones of desired length have been established to prevent further enzyme activity on the partially denuded guaran.

4,332,895

THERMAL STABLE BETA-GALACTOSIDASE

Mansel W. Griffiths, Kilmarnock; David D. Muir, Irvine, and John D. Phillips, Prestwick, all of Scotland, assignors to National Research Development Corp., London, England

Filed Jun. 5, 1979, Ser. No. 45,654

Claims priority, application United Kingdom, Jun. 7, 1978, 26503/78

Int. Cl.³ C12P *19/02*; C12N *11/02, 9/38*

U.S. Cl. 435—105 **9 Claims**

1. A beta-galactosidase in substantially purified form having an activity half life of at least 5 hours at 55° C., at least 3 hours at 60° C., at least 1 hour at 65° C. and at least 10 minutes at 70° C., as measured using ONPG as substrate, said enzyme being derived from a strain of *Bacillus Stearothermophilus* identified as NCIB 11407, NCIB 11408, NCIB 11409, NCIB 11410, NCIB 11411, NCIB 11412 or NCIB 11413.

4,332,896

PROCESS FOR PRODUCING CEPHALOSPORIN ANALOGS

Yukio Hashimoto, Yamato; Kazuo Kimura, Hofu; Tadashi Hirata, Yokohama; Takehiro Ogasa; Shigeru Kobayashi, both of Machida, and Ikuo Matsukuma, Yokkaichi, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

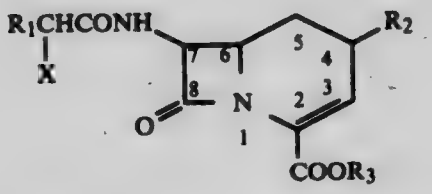
Filed Apr. 14, 1980, Ser. No. 140,184

Claims priority, application Japan, Apr. 14, 1979, 54-45897; Nov. 1, 1979, 54-140476

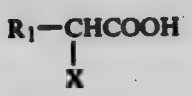
Int. Cl.³ C12P *17/18*

U.S. Cl. 435—119 **5 Claims**

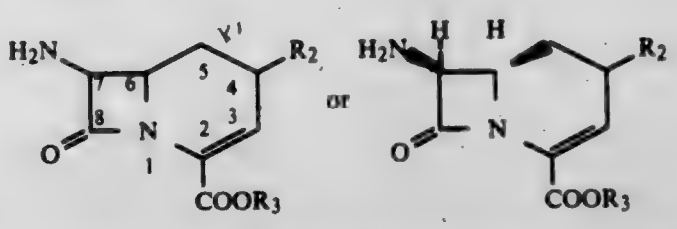
1. A process for producing optically active compounds of the formula



wherein R_1 represents a substituted or unsubstituted saturated or unsaturated six-membered carbocyclic or five-membered heterocyclic group, R_2 represents a hydrogen or a lower alkyl group, R_3 represents a hydrogen or a protective group of carboxylic acid, X represents a hydrogen, a lower alkyl group, a hydroxy group, a carboxy group or an amino group, and the hydrogens at the 6- and 7-positions have cis configuration and salts thereof which comprises reacting an α,α-disubstituted carboxylic acid represented by the formula



wherein R_1 and X have the same significance as defined above or a reactive derivative thereof and a compound represented by the formula



wherein R_2 and R_3 have the same significance as defined above in the presence of an enzyme capable of catalyzing optically selective acylation and derived from a microorganism belonging to the genus Pseudomonas, Xanthomonas, Escherichia, Aeromonas, Achromobacter, Arthrobacter, Acetobacter, Alcaligenes, Kluyvera, Gluconobacter, Clostridium, Comamonas, Corynebacterium, Sarcina, Staphylococcus, Spirillum, Bacillus, Flavobacterium, Brevibacterium, Protaminobacter, Beneckea, Micrococcus, Proteus, Mycoplana or Rhodopseudomonas and thereafter isolating said optically active compound from the reaction mixture.

4,332,897

NOVEL BACTERIOPHAGE AND METHOD FOR PREPARING SAME

Eiichi Nakano, Saitama; Narimasa Saito, Noda, and Danji Fukushima, Omiya, all of Japan, assignors to Noda Institute for Scientific Research, Noda, Japan

Filed Apr. 12, 1978, Ser. No. 895,602

Claims priority, application Japan, Apr. 26, 1977, 52/47409

Int. Cl.³ C12N *15/00*

U.S. Cl. 435—172 **17 Claims**

1. A temperate-bacteriophage whose DNA molecule is endonuclease-sensitive only in the DNA region carrying genetic information for the production of coat proteins.

9. A method for preparing a novel bacteriophage, which comprises making a bacteriophage of the lambdoid phage species endonuclease-resistant and mating the resulting bacteriophage with a lambdoid phage having endonuclease-sensitivity in the DNA region carrying genetic information for the production of coat proteins to obtain a bacteriophage having endonuclease-sensitivity only in the DNA region carrying genetic information for the production of coat proteins.

4,332,898

HYBRID PLASMID AND PROCESS OF MAKING SAME

Fritz Reusser, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 152,347, May 22, 1980, abandoned. This application Jun. 16, 1980, Ser. No. 159,852

Int. Cl.³ C12N *15/00*

U.S. Cl. 435—172 **6 Claims**

2. Hybrid plasmid pUC1021 characterized as follows:

(a) it is a hybrid plasmid which has the entire nucleotide sequence of plasmid pBR322 and a foreign DNA insert at the HindIII site of pBR322;

(b) said DNA insert, and direction of insertion, being shown by the restriction map in the drawing;

(c) said DNA insert being further characterized by (1) the following partial nucleotide sequence which is located between the two HindIII sites of pUC1021: CCGGGAAGTGAAGTCAGAGAAAAG-GAAAAGTGCGAGAGGGAAGGAAAAAGAGG-GGA;(2) being 350 base pairs in length; and (3) having a single MboII restriction site.

4,332,899

PROCESS FOR PRODUCING MALTASE

Charles L. Cooney, Brookline, and Eugene J. Schaefer, Somerville, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Aug. 13, 1980, Ser. No. 177,709
Int. Cl.[3] C12N *15/00, 9/26*
U.S. Cl. 435—172 7 Claims

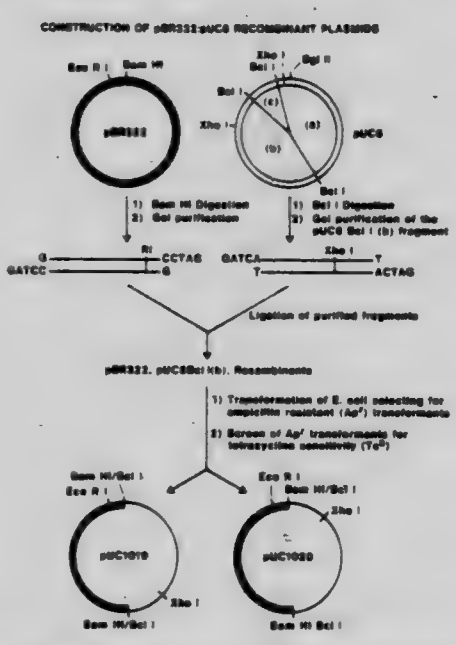
1. A biologically pure culture of *Saccharomyces italicus* obtained by mutation of *Saccharomyces italicus* and having the property of producing maltase while growing on all carbon sources selected from the group consisting of maltose, glycerol, acetate, fructose, glucose and sucrose.

4,332,900

CONSTRUCTION OF CO-INTEGRATE PLASMIDS FROM PLASMIDS OF STREPTOMYCES AND ESCHERICHIA

Jack J. Manis, Portage, and Sarah K. Highlander, Oshtemo Township, Kalamazoo County, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Oct. 1, 1980, Ser. No. 192,727
Int. Cl.[3] C12N *15/00, 1/20, 1/00;* C12P *19/34*
U.S. Cl. 435—172 14 Claims



6. A process for cloning ca. 4.2 kb BclI restriction endonuclease fragment of plasmid pUC6 into a suitable host which comprises:

(a) linearizing plasmid pBR322 by BamHI enconuclease to obtain linear plasmid DNA;

(b) linearizing plasmid pUC6 by BclI endonuclease to obtain linear plasmid DNA;

(c) ligating said linear plasmid DNA from pBR322 and pUC6 to obtain cointegrate plasmids pUC1019 and pUC1020; and,

(d) transforming said cointegrate plasmids into said suitable host.

4,332,901

CLONING VECTOR

Richard N. Goldstein, Cambridge, Mass., assignor to President and Fellows of Harvard College, Cambridge, Mass.

Filed Feb. 27, 1978, Ser. No. 881,170
Int. Cl.[3] C12N *7/00, 15/00*
U.S. Cl. 435—235 4 Claims

1. A cloning vector for use in recombining DNA which is a mutant of bacteriophage P4 wt or P4 vir_1 characterized in that it has plaque forming units appearing, in a cesium chloride equilibrium density gradient at 24° C., in the density range from 1.42 to 1.35 g/ml and displaying a density profile of plaque forming units having three peaks at about 1.42, 1.39 and 1.35 g/ml respectively.

4,332,902

ANTIBIOTIC SUBSTANCE

Mamoru Arai; Akio Torikata; Ryuzou Enokita; Tatsuo Haneishi, and Mutsuo Nakajima, all of Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Division of Ser. No. 41,501, May 22, 1979. This application Oct. 17, 1980, Ser. No. 197,788
Claims priority, application Japan, May 24, 1978, 53/62042
Int. Cl.[3] C12N *1/20;* C12P *1/06;* C12R *1/045*
U.S. Cl. 435—253 1 Claim

1. A biologically pure culture of *Actinoplanes nov. sp.* Strain No. 41042, NRRL-11462, said culture being capable of producing Mycoplanecin.

4,332,903

MEDIA MANIPULATION FOR PREPARING BIOLOGICALLY ACTIVE HOLLOW MYCELIAL PELLETS

Cheng-Shung Gong; Li-Fu Chen, and George T. Tsao, all of West Lafayette, Ind., assignors to Purdue Research Foundation, West Lafayette, Ind.

Filed Aug. 1, 1980, Ser. No. 174,455
Int. Cl.[3] C12N *1/14*
U.S. Cl. 435—254 5 Claims

1. A process for the preparation of biologically active hollow fungal mycelial pellets having an outer surface of structural integrity which comprises the steps of:

(a) innoculating a medium solution with mycelia fungal spores, said medium solution containing a limited amount of nutrient sufficient only to support the growth of said spores to form tiny cell aggregates having a diameter of less than about 2 mm;

(b) incubating the innoculated solution under conditions to limit the vegetative growth of said spoes to a diameter less than 2 mm until said spores form said aggregates;

(c) adding to the aggregates further nutrient to support vigorous vegetative growth of the mycelia; and

(d) incubating the aggregates under agitation for a period of time sufficient to allow the mycelia of the fungi to develop a porous spherical webbed mycelial layer thereby forming a hollow fungal mycelial pellet having an outer surface of structural integrity.

4,332,904

BIOCHEMICAL TREATMENT BY MICROORGANIC METHOD

Ryuichiro Kurane; Tomoo Suzuki, and Yoshimasa Takahara, all of Chiba, Japan, assignors to Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan

Continuation-in-part of Ser. No. 863,046, Dec. 21, 1977, abandoned. This application Apr. 17, 1979, Ser. No. 30,766
Claims priority, application Japan, Dec. 25, 1976, 51/157017
The portion of the term of this patent subsequent to Jan. 9, 1996, has been disclaimed.
Int. Cl.[3] C12N *1/20;* C12P *7/50;* C02F *3/00*
U.S. Cl. 435—262 3 Claims

1. A method of conducting a biochemical reaction to dispose of a phthalate ester with a microorganism comprising:

filling a vessel capable of passing liquids therethrough with a hydrophilic support thereby forming a packed bed of said support having a pH in the range from 3 to 9 and which has the capability of retaining and promoting the cultivation of a microorganism;

inoculating said support with *Nocardia erythropolis;*

passing an aqueous disperson of a phthalate ester through said vessel thereby permitting said *Nocardia erythropolis* to react with the phthalate ester as it passes through the packed bed; and

maintaining the growth of the *Nocardia erythropolis* as it continues to react with the passing phthalate ester.

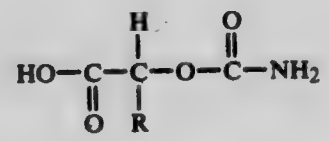
4,332,905

PROCESS FOR PREPARING CARBAMYL DERIVATIVES OF α-HYDROXY ACIDS AND THE CORRESPONDING α-HYDROXY ACIDS

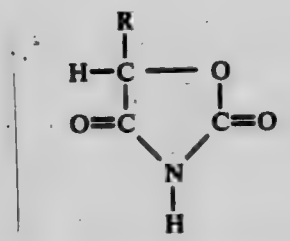
Roberto Olivieri, Mentana; Giancarlo Eletti Bianchi, Rome; Eugenio Fascetti, Rome; Felice Centini, Rome; Ludwig Degen, Rome, and Walter Marconi, San Donato Milanese, all of Italy, assignors to E.N.I. Ente Nozionale Idrocarburi, Rome, Italy

Filed Sep. 17, 1980, Ser. No. 188,074
Claims priority, application Italy, Oct. 17, 1979, 26547 A/79
Int. Cl.³ C07B *19/02*
U.S. Cl. 435—280 6 Claims

1. A process for preparing D-carbamyl-α-hydroxy acids of the formula



consisting of subjecting 5-substituted DL-2,4-oxazolidinediones of the general formula:



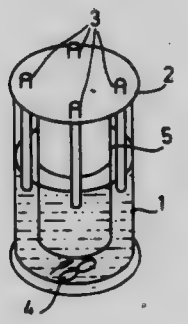
where R is a substituted or unsubstituted aromatic or aliphatic residue, to stereoselective enzymatic hydrolysis in the presence of an agent produced from microorganisms of the following types:
(a) *Agrobacterium radiobacter* NRRL B 11291,
(b) *Bacillus brevis* NRRL B 11080,
(c) *Bacillus stearothermophilus* NRRL B 11079,
(d) Pseudomonas sp CBS 145.75,
(e) Pseudomonas sp CBS 146.75,
(f) Pseudomonas sp ATCC 11299,
(g) *Pseudomonas desmolytica* NC1B8859,
(h) *Pseudomonas fluorescens* ATCC 11250, and
(i) *Pseudomonas putida* ATCC 12633.

4,332,906

VESSEL FOR GROWING CELLS

Robert L. Taylor, Järfälla, Sweden, assignor to LKB-Produkter AB, Bromma, Sweden

Filed Nov. 14, 1980, Ser. No. 207,025
Claims priority, application Sweden, Nov. 19, 1979, 79095360
Int. Cl.³ C12M *1/34*
U.S. Cl. 435—291 3 Claims



1. In apparatus for use with a commercial fermenter vessel of relatively large liquid capacity for the growing of cells in a relatively small volume of liquid culture fluid, said fermenter vessel being of the type wherein the upper margin of the side wall defines a top opening and a removeable closure lid is provided to close said opening, said closure lid including a plurality of downwardly depending detecting and monitoring means arranged adjacent the peripheral margin of the lid, the improvement which comprises an inner compartment secured to the under side of said lid to depend downwardly into said vessel, the outer wall of said container being spaced from the inner wall of said vessel to define an annular chamber for liquid culture fluid into which said detecting and monitoring means depend having a substantially lesser liquid capacity than that of the commercial fermenter vessel itself.

4,332,907

GRANULATED FOAMED GLASS AND PROCESS FOR THE PRODUCTION THEREOF

Otto A. Vieli, Rhäzüns, Switzerland, assignor to Millcell AG, Sarnen, Switzerland

PCT No. PCT/CH79/00128, § 371 Date Jun. 6, 1980, § 102(e) Date Jun. 2, 1980, PCT Pub. No. WO80/00696, PCT Pub. Date Apr. 17, 1980
PCT Filed Oct. 4, 1979, Ser. No. 195,197
Claims priority, application Switzerland, Oct. 6, 1978, 10440/78
Int. Cl.³ C03C *11/00*
U.S. Cl. 501—39 4 Claims

1. Granulated foamed glass, produced by furnace blowing, characterized in that it has a granulometry of 0.2 to 3 mm, 10^6 to 10^7 cavities per cm^3, a compressive strength of at least about 120 kg/cm^2, a bulk density of 100 to 500 g/liter, and that the diameter of the largest cavities essentially is smaller than 0.1 mm.

4,332,908

FOAMED GRANULAR GLASS

Otto A. Vieli, Rhäzüns, Switzerland, assignor to Millcell AG, Sarnen, Switzerland

PCT No. PCT/CH79/00150, § 371 Date Jul. 30, 1980, § 102(e) Date Jul. 28, 1980, PCT Pub. No. WO80/01162, PCT Pub. Date Jun. 12, 1980
PCT Filed Nov. 27, 1979, Ser. No. 200,506
Claims priority, application Switzerland, Nov. 30, 1978, 12265/78
Int. Cl.³ C03C *11/00*
U.S. Cl. 501—39 4 Claims

1. Foamed granular glass, characterized in that it consists of fragments of a foamed glass element having at least 100,000 cavities per cm^3 of at least approximately the same size; it has a compressive strength greater than 130 kg/cm^2; and it has a specific weight of about 0.25.

4,332,909

SILICON NITRIDE BASED SINTERED PRODUCT AND METHOD OF PRODUCING THE SAME

Katsutoshi Nishida, Yokohamashi, and Toshihiko Ochiai, Yokosukashi, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Aug. 25, 1980, Ser. No. 180,627
Claims priority, application Japan, Nov. 22, 1979, 54/150738
Int. Cl.³ C04B *35/58, 35/56, 35/50*
U.S. Cl. 501—97 18 Claims

1. A composition consisting essentially of silicon nitride, 0.02 to 10 weight parts per 100 weight parts of silicon nitride of at least one oxide of yttrium, scandium, cerium, lanthanum and the metal oxides of lanthanide series; and 1 to 100 volume parts per 100 volume parts of silicon nitride of at least one metal oxide of iron, nickel and cobalt.

4,332,910

FREE FLOWING METALLURGICAL WELL POWDER

Bruce E. Dunworth, Nashport, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

Filed Mar. 2, 1981, Ser. No. 239,196
Int. Cl.³ C04B *35/48*
U.S. Cl. 501—106 **12 Claims**

1. A free-flowing, pelletized, metallurgical well powder having essentially the following composition:

natural zircon sand (80 to 200 mesh)	25 to 60% by wt.
zircon, <325 mesh	40 to 70% by wt.
zircon, <600 mesh	0 to 15% by wt.

4,332,911

SULFUR CEMENT-AGGREGATE COMPOSITIONS AND METHODS FOR PREPARING

Edward L. Nimer, San Rafael, and Robert W. Campbell, Lafayette, both of Calif., assignors to Chevron Research, San Francisco, Calif.

Filed Feb. 23, 1981, Ser. No. 237,349
Int. Cl.³ C04B *33/04*
U.S. Cl. 501—140 **22 Claims**

1. A sulfur cement and aggregate composition which comprises a sulfur cement and an aggregate, contaminated with up to 5% by weight of an expansive clay, and an amount of a water soluble salt effective to substantially reduce the water expandability of said expansive clay and wherein said salt is dispersed through said aggregate as discrete particles.

4,332,912

SULFUR-AGGREGATE COMPOSITIONS AND METHODS FOR PREPARING

Bradley S. Albom, Richmond, Calif., assignor to Chevron Research, San Francisco, Calif.

Filed Feb. 23, 1981, Ser. No. 237,350
Int. Cl.³ C04B *33/04*
U.S. Cl. 501—140 **26 Claims**

1. A sulfur cement-aggregate composition, comprising a sulfur cement and an aggregate, contaminated with up to 5 percent by weight of an expansive clay, which has been pretreated prior to being mixed with said sulfur cement with an amount of a salt solution effective to substantially reduce the water expandability of said clay and wherein said solution has a salt concentration of at least about 2 percent by weight.

4,332,913

FLUX COMBINATION OF BARIUM OXIDE AND POTASSIUM FELDSPAR FOR HIGH-STRENGTH ALUMINA PORCELAIN ELECTRIC INSULATORS

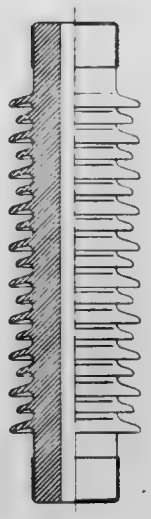
Peter Bock, Bayreuth, Fed. Rep. of Germany, assignor to Rosenthal Technik AG, Selb, Fed. Rep. of Germany

Filed Jul. 30, 1980, Ser. No. 173,812
Claims priority, application Fed. Rep. of Germany, Aug. 14, 1979, 2932914
Int. Cl.³ C04B *33/26*
U.S. Cl. 501—144 **11 Claims**

1. An alumina porcelain composition characterized by a low degree of deformation during firing which makes it suitable for large insulator bodies, said composition consisting essentially of: from about 40 to 60% by weight of calcined alumina, from about 15 to 40% by weight of plastic kaolinite-montmorillonite constituents, and from about 20 to 26% by weight of a flux combination consisting essentially of

(a) from about 0.1 to 5% by weight based on the total composition of at least one alkaline earth oxide or a compound which forms the alkaline earth oxide under firing conditions, of which alkaline earth oxide at least about 50% is barium oxide, and

(b) the balance potassium-aluminum silicates.



4,332,914

MANUFACTURE OF ALKANOLS FROM SYNTHESIS GAS

John F. Knifton, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Jun. 26, 1981, Ser. No. 277,527
Int. Cl.³ C07C *27/06*
U.S. Cl. 518—700 **23 Claims**

1. A process for making alkanols which comprises of contacting a mixture of CO and H_2 at a pressure of 500 psig or greater and at a temperature of at least 180° C. with a catalyst system comprising a ruthenium-containing compound and a material selected from the group consisting of a halogen-free rhenium-containing compound and a halogen-free manganese-containing compound, dispersed in a low melting quaternary phosphonium base or salt.

4,332,915

PRODUCTION OF ALKANOLS FROM SYNTHESIS GAS

John F. Knifton, and Jiang-Jen Lin, both of Austin, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jul. 2, 1981, Ser. No. 279,885
Int. Cl.³ C07C *27/06*
U.S. Cl. 518—700 **17 Claims**

1. A process for making alkanols which comprises contacting a mixture of CO and H_2 at a pressure of 500 psig or greater and at a temperature of at least 150° C. with a catalyst system comprising a ruthenium-containing compound and a halogen-free cobalt-containing compound dispersed in a low melting quaternary phosphonium or ammonium base or salt.

4,332,916

ION EXCHANGE POLYMERS ON IMPROVED POROUS SUBSTRATES

Bruce P. Thill, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 21, 1972, Ser. No. 299,371
Int. Cl.³ C08B *16/00*
U.S. Cl. 521—25 **8 Claims**

4. The method of making an article for the concentration and collection of heavy metal ions from dilute aqueous solution which comprises:

preparing an aqueous solution of a crosslinkable water soluble polymeric material, having cation exchange capacity, and a crosslinking agent;

thoroughly wetting a porous sponge formed of regenerated cellulose with the polymer solution to provide at least 100

percent by weight pickup of the solution based on the dry weight of the sponge;

removing from the sponge polymer solution in excess of 100 percent by weight pickup;

and drying and curing the impregnated sponge at a temperature and for a time sufficient to link the polymeric material to the sponge but less than that at which substantial decomposition of the sponge occurs.

4,332,917

METHOD OF PREPARING A POLYMER MIXTURE, FORMED PRODUCTS OBTAINED THEREFROM AND POLYMER ALLOY

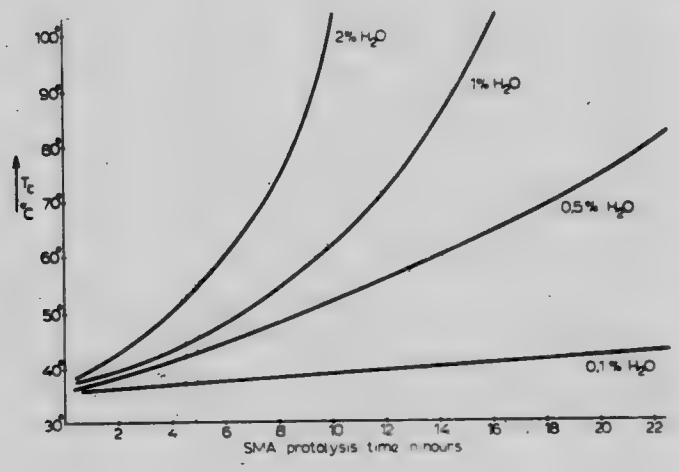
Adolf Heslinga, HD Pijnacker, and Pieter J. Greidanus, MK Leiden, both of Netherlands, assignors to Nederlandse Centrale Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek, The Hague, Netherlands

Filed Dec. 20, 1979, Ser. No. 105,750

Claims priority, application Netherlands, Dec. 22, 1978, 7812529; Dec. 5, 1979, 7908799

Int. Cl.³ C08L *33/02, 1/12;* A61K *47/00;* C08F *6/10*

U.S. Cl. 521—134 **16 Claims**



1. A method for preparing a polymer alloy which is stable and homogeneous up to high temperatures, containing a component (a) which is one or more polymers of high molecular weight having anhydride groups and a component (b) which is a cellulose ester, comprising forming a solution of component (a) in an organic solvent; adding to such solution component (b), said component (a) in dissolved state being protolyzed in whole or in part prior to or after the addition of component (b) by a protolyzing agent; and removing the solvent; said components (a) and (b) each having a molecular weight of at least 10^4.

4,332,918

NITRILE RUBBER COMPOSITION HAVING HIGH MODULUS

Yoshihide Fukahori; Nobuyuki Katacka, both of Kodaira, and Shiro Anzai, Higashimurayama, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 164,755, Jun. 30, 1980, abandoned, which is a continuation of Ser. No. 30,809, Apr. 17, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,319

Int. Cl.³ C08F *265/08*

U.S. Cl. 525—259 **5 Claims**

1. A method of preparing a nitrile rubber composition having high modulus and excellent physical properties and abrasion resistance, which comprises kneading at a temperature of 120°–160° C.

(a) a nitrile rubber,

(b) an α,β-ethylenically unsaturated carboxylic acid, wherein the ratio by weight of the component (a) to the component (b) is 100/10 to 100/40,

(c) a divalent metal compound being present in a quantity of 50 to 150 parts by weight per 100 parts by weight of the component (b), and

(d) a secondary aryl amine being present in a quantity of 0.1 to 4.0 parts by weight per 100 parts by weight of the component (a);

cooling the kneaded mass below 100° C.;

adding to the kneaded mass

(e) an organic peroxide being present in a quantity of 0.3 to 5.0 parts by weight per 100 parts by weight of the component (a); and

heating and curing the resulting mixture at a temperature of 110°–180° C.

4,332,919

MULTIPLY GRAFTED ANTISTATIC RESIN COMPOSITION

Akio Kobayashi, and Takeo Ogihara, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 2, 1981, Ser. No. 269,663

Claims priority, application Japan, Jun. 10, 1980, 55-77951

Int. Cl.³ C08F *265/06*

U.S. Cl. 524—504 **8 Claims**

1. An antistatic resin composition comprising a multiply grafted copolymer which in turn comprises:

(a) 5 to 70% of non-elastic trunk polymer particles;

(b) 5 to 60% of an intermediate elastic layer obtained by graft-polymerizing onto the polymer particles a monomer mixture comprising

(i) 50 to 95% of an elasticity-imparting monomer selected from the group consisting of conjugated dienes and acrylates,

(ii) 5 to 50% of a polyalkylene oxide monomer comprising 4 to 500 alkylene oxide groups together with a polymerizable unsaturated double bond at the terminal, and optionally

(iii) 0 to 45% of an ethylenically unsaturated monomer copolymerizable with the elasticity-imparting monomer; and

(c) 5 to 90% of an outer resin layer obtained by graft-polymerizing an ethylenically unsaturated monomer onto the intermediate elastic layer,

all quantities expressed in percentages and parts being by weight.

4,332,920

MOULDABLE AND EXTRUDABLE POLYETHER-ESTER-AMIDE BLOCK COPOLYMERS

Paul Foy, Paris; Camille Jungblut, and Gerard Deleens, both of Orsay, all of France, assignors to ATO Chimie, Courbevoie, France

Continuation of Ser. No. 948,297, Oct. 3, 1978, Pat. No. 4,230,838, which is a continuation of Ser. No. 784,723, Apr. 5, 1977, abandoned, which is a continuation of Ser. No. 582,428, May 30, 1975, abandoned. This application May 16, 1980, Ser. No. 150,288

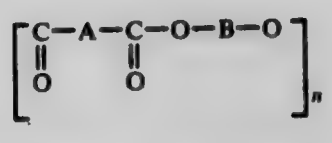
Claims priority, application France, May 31, 1974, 74 18913

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.³ C08L *77/00*

U.S. Cl. 525—408 **34 Claims**

1. A moldable and extrudable polyether-ester-amide block copolymer having the formula:



wherein A is a linear saturated aliphatic polyamide sequence formed from a lactam or amino acid having a hydrocarbon chain containing 4 to 14 carbon atoms or from an aliphatic

C_6-C_{12} dicarboxylic acid and a C_6-C_9 diamine, in the presence of chain-limiting aliphatic carboxylic diacid having 4 to 20 carbon atoms; said polyamide sequence having an average molecular weight of between about 300 and about 15000; and B is a polyether sequence formed from linear or branched aliphatic polyoxyalkylene glycols or mixtures thereof, said polyoxyalkylene glycol having an average molecular weight of from about 200 to about 6000; wherein the proportion by weight of polyoxyalkylene glycol with respect to the total weight of polyether-ester-amide is from about 5 to about 85%; and n indicates a sufficient number of repeating units so that said polyether-ester-amide has an intrinsic viscosity of from 0.8 to 2.05.

4,332,921

POLYCARBONATE/POLYPHOSPHONATE THERMOPLASTIC COMPOSITION

Manfred Schmidt, New Martinsville, W. Va.; Joachim Wank, and Eckart Reese, both of Dormagen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 29, 1980, Ser. No. 220,946

Claims priority, application Fed. Rep. of Germany, Jan. 25, 1980, 3002550

Int. Cl.³ C08L *69/00*

U.S. Cl. 525—462 **11 Claims**

1. A composition comprising

(a) 40 to 85% by weight of a halogen-free aromatic polycarbonate having a weight-average molecular weight greater than 24,000, and

(b) 60 to 15% by weight of a halogen-free aromatic polyphosphonate having a number-average molecular weight of about 11,000 to 200,000.

4,332,922

PROCESS FOR RENDERING SILICONE RUBBER CONTACT LENSES HYDROPHILIC

Gerhard Kossmehl; Dietrich Quast, both of Berlin, and Horst Schäfer, Aschaffenburg-Obernau, all of Fed. Rep. of Germany, assignors to Titmus Eurocon, Aschaffenburg, Fed. Rep. of Germany

Filed Jul. 18, 1980, Ser. No. 170,256

Int. Cl.³ C08L *43/04*; B05D *5/06*

U.S. Cl. 525—478 **13 Claims**

1. Process for rendering silicone rubber contact lenses hydrophilic, which process comprises, as a first step, reacting the silicone rubber with an oligomeric siloxane containing SiH groups in the presence of a catalyst and a solvent which is a weak swelling agent for the silicone rubber and, in a second step, subjecting the resulting equilibrated silicone rubber to

(i) a reaction with an aqueous base in the presence of an alkali metal hydroxide; or

(ii) a silane addition reaction with a reactant containing C=C double bonds.

4,332,923

COMPOSITION FOR COATING HEAT SENSITIVE SUBSTRATES

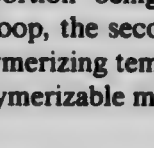
Dennis H. Rainear, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Oct. 23, 1980, Ser. No. 199,391

Int. Cl.³ C08G *59/70, 59/40, 77/46*

U.S. Cl. 525—507 **10 Claims**

1. A composition suitable for coating heat sensitive substrates consisting essentially of a mixture of (1) from 35 to 85 percent by weight of an epoxy resin having an epoxy equivalent weight below 200 and being selected from the group aliphatic, cycloaliphatic and novolac epoxy resins, (2) from 15 to 65 percent by weight of a silanol containing siloxane of the group siloxanes of the formula



and fluid copolymers of $RSiO_{3/2}$ and $(CH_3)_2SiO$ in which R is phenyl or methyl and x has an average value from 3 to 40 and (3) an aluminum catalyst compatible with (1) and combinations of (1) and (2) of the type aluminum chelates of beta-dicarbonyl compounds of the group diketones, ketoesters and diesters and aluminum alkoxides, (3) being in amount sufficient to cure the combination of (1) and (2) within three minutes at 150° C. or less.

4,332,924

RECIRCULATING POLYMERIZATION METHOD AND APPARATUS WITH EVAPORATIVE COOLING

Henry J. Karam, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 922,013, Jul. 5, 1978, abandoned. This application Apr. 18, 1980, Ser. No. 141,749

Int. Cl.³ C08F *2/02*

U.S. Cl. 526—64 **7 Claims**

1. In a continuous process for the polymerization of one or more polymerizable monomers which on polymerization liberate heat and form polymer wherein,

a first stream portion containing polymerizable material is passed to a reactor to form a second stream portion,

the reactor having the flow configuration of a closed loop,

the second stream portion being circulated within and around the closed loop, the second stream portion being maintained at a polymerizing temperature to cause at least a portion of the polymerizable material to polymerize and form polymer,

the polymer being soluble in the second stream portion, the second stream portion being maintained under

a pressure sufficient to prevent vaporization thereof,

removing a third stream portion from the reactor at a rate about equal to the rate of addition of the first stream portion, the third stream portion containing a greater amount of polymer than the first stream portion,

the improvement which comprises providing within the loop of the reactor a region of lower pressure wherein a portion of the second stream portion vaporizes thereby removing a desired amount of heat from the second stream portion.

4,332,925

MODIFIED POLYAMIDEIMIDE RESINS

Yue-guey L. Lee, Schenectady, N.Y., assignor to General Electric Company, New York, N.Y.

Filed Mar. 30, 1981, Ser. No. 249,210

Int. Cl.³ C08G *18/00*

U.S. Cl. 528—48 **14 Claims**

1. A polyamideimide having relatively low viscosity in high-solids solutions prepared from the following components:

(a) trimellitic anhydride; and

(b) an isocyanate mixture comprising

(i) from 75 to 99 mole % of a diisocyanate of the formula

OCN—R—NCO,

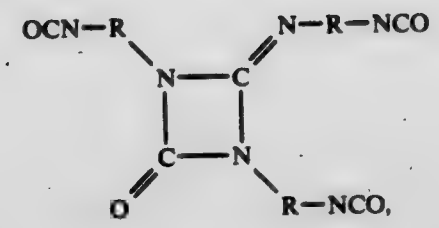
and

(ii) from 25 to 1 mole % of an isocyanate mixture comprising a diisocyanate of the formula

OCN—R—NCO,

and

a triisocyanate of the formula



where R is a divalent hydrocarbon radical of from 2 to 30 carbon atoms, optionally containing —O—, —SO_2— and —S— groups; said components being subjected to polycondensation at a temperature of about 60° C. to 150° C. in the presence of an inert solvent comprising methylpyrrolidone and a catalyst for polycondensation.

4,332,926

PROCESS FOR THE PRODUCTION OF ALKALI METAL SILICATE-ORGANIC PLASTICS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Division of Ser. No. 233,151, Feb. 10, 1981, Pat. No. 4,303,768, which is a continuation-in-part of Ser. No. 146,474, May 5, 1980, Pat. No. 4,273,908, which is a continuation-in-part of Ser. No. 36,350, May 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 889,932, Mar. 27, 1978, abandoned, which is a continuation-in-part of Ser. No. 663,924, Mar. 4, 1976, abandoned, which is a continuation-in-part of Ser. No. 599,000, Jul. 7, 1975, Pat. No. 4,072,637, which is a continuation-in-part of Ser. No. 262,485, Jun. 14, 1972, abandoned, which is a continuation-in-part of Ser. No. 71,628, Sep. 11, 1970, abandoned. This application Aug. 10, 1981, Ser. No. 300,303

Int. Cl.³ C08G *18/08, 18/16*

U.S. Cl. 524—650 19 Claims

1. The process for the production of polyurethane silicate products by mixing and reacting the following components:

(a) an aqueous alkali metal silicate solution in the amount of 100 parts by weight;

(b) a polymerable unsaturated organic compound in the amount of 5 to 100 parts by weight;

(c) a salt-forming compound in the amount of 1 to 10 parts by weight, consisting of organic acids;

(d) an initiator in a catalytic amount;

(e) 50 to 200 parts by weight of an organic polyisocyanate or polyisothiocyanate;

(f) up to 10% by weight of an initiator and

(g) up to 20% by weight of an emulsifier, percentage based on the weight of Components (a), (b), (c) and (d).

4,332,927

CATALYST-CONTAINING STABLE POLYURETHANE FORMING COMPOSITIONS WHICH ARE NON-CYTOTOXIC WHEN CURED AND SEPARATORY DEVICES EMPLOYING SAME

Dominic Simone, Lincroft, N.J., assignor to CasChem, Inc., Bayonne, N.J.

Filed Nov. 14, 1980, Ser. No. 206,816

Int. Cl.³ C08G *18/24*

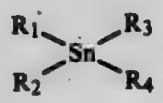
U.S. Cl. 528—58 15 Claims

1. A two component polyurethane forming composition which is non-cytotoxic when cured consisting essentially of:

(a) as a first component at least one NOC-terminated prepolymer;

(b) as a second component of at least one polyol; and

(c) an effective catalytic amount of a dialkyltin dicarboxylated compound having the formula:



wherein:

R1 and R2 are linear or branched alkyl groups having from about 8 about 18 carbon atoms per molecule; and

R_3 and R_4 represent carboxylate groups derived from (a) one or more saturated or unsaturated, linear or barnched, aliphatic hydroxy-carboxylic acids having from about 2 to about 18 carbon atoms per molecule; (b) one or more saturated and unsaturated, linear or branched, aliphatic carboxylic acids having from about 14 to about 20 carbon atoms per molecule; and (c) mixtures of (a) and (b);

and wherein said dialkyltin dicarboxylated compound is incorporated into said second component prior to curing and is stable therein.

4,332,928

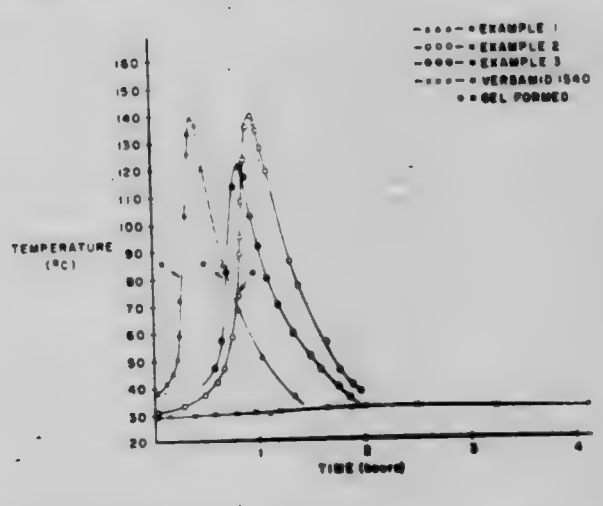
POLYAMINOPOLYAMIDES

Edward W. Kluger, Pauline, and Calvin D. Welch, Greenville, both of S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Mar. 3, 1981, Ser. No. 239,958

Int. Cl.³ C08G *59/54*

U.S. Cl. 528—113 9 Claims



1. Polyaminopolyamide compounds which comprise the reaction product of at least one carboxylic acid anhydride selected from mono-, di-, and poly-anhydrides with at least one polyamine of the formula:

$$H_2N—R—(NH_2)_x$$

in an amount of at least about 2 moles of polyamine per mole of carboxylic acid anhydride group; wherein R is selected from an aromatic group containing from about 13 to about 34 carbon atoms; a cycloalkyl group containing from about 13 to about 34 carbon atoms; and an alkyl group containing from about 9 to about 25 carbon atoms, which may further contain at least one heteroatom selected from oxygen, nitrogen, and sulfur; and x is an integer of from about 2 to about 9.

5. An epoxy resin composition comprising an epoxy resin and at least one epoxy resin curing agent which comprises the reaction product of at least one carboxylic acid anhydride selected from mono-, di-, and poly-anhydrides with at least one polyamine of the formula:

$$H_2N—R—(NH_2)_x$$

in an amount of at least about 2 moles of polyamine per mole of carboxylic acid anhydride group; wherein R is selected from an aromatic group containing from about 13 to about 34 carbon atoms; a cycloalkyl group containing from about 13 to about 34 carbon atoms; and an alkyl group containing from about 9 to about 25 carbon atoms, which may further contain at least one heteroatom selected from oxygen, nitrogen, and sulfur; and x is an integer of from about 2 to about 9.

4,332,929

COPOLYMERS OF ETHERIMIDES AND AMIDES

Fred F. Holub, Schenectady, N.Y., and Gary A. Mellinger, Louisville, Ky., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 116,894, Jan. 30, 1980, abandoned. This application Mar. 16, 1981, Ser. No. 244,465

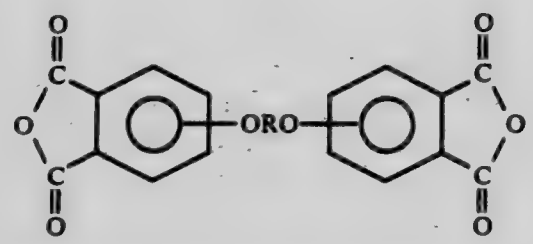
Int. Cl.[3] C08G *73/14*

U.S. Cl. 528—185 28 Claims

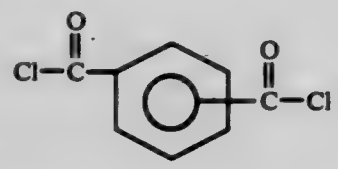
1. A method for making copolymers of etherimide units and amide units which comprises simultaneously interacting a mixture of ingredients comprising (I) an organic diamine of the formula

$$H_2NR^1NH_2$$

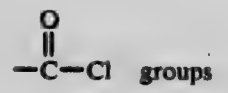
(II) An aromatic bis (etheranhydride) of the general formula:



and (III) a phthaloyl halide of the formula:

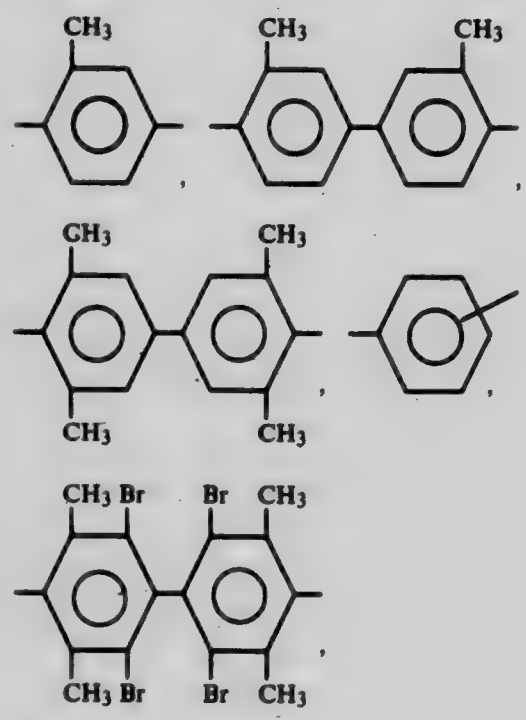


where the



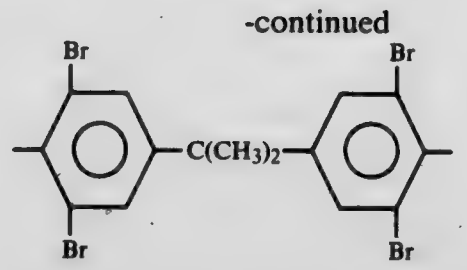
groups

the meta or para to each other, R is a member selected from the class consisting of (a) the following divalent organic radicals:

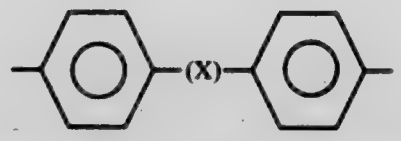


and

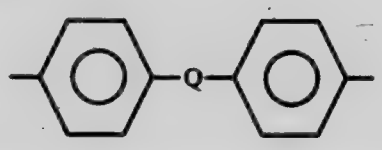
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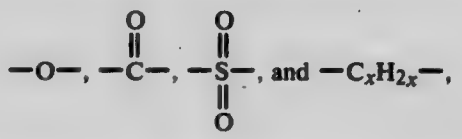
and (b) divalent organic radicals of the general formula,



where X is $-C_yH_{2y}-$, y is a whole number equal to from 1 to 5 inclusive, and R^1 is a divalent organic radical selected from the class consisting of (a) aromatic hydrocarbon radicals having from 6–20 carbon atoms and halogenated derivatives thereof, (b) alkylene radicals and cycloalkylene radicals having from 2–20 carbon atoms, (c) $C_{(2-8)}$ alkylene terminated polydiorganosiloxanes, and (d) divalent radicals included by the formula,



where Q is a member selected from the class consisting of



and x is a whole number equal to from 1 to 5, inclusive.

4,332,930

PROCESS FOR POLYMERIZING FORMALDEHYDE

Takami Ishii; Naohisa Takikawa; Kiyoaki Tokunaga, and Nobuhiro Ogawa, all of Ube, Japan, assignors to UBE Industries, Ltd., Japan

Filed Aug. 22, 1980, Ser. No. 180,306

Claims priority, application Japan, Aug. 23, 1979, 54-106639; Jul. 15, 1980, 55-95693

Int. Cl.[3] C08G *4/00*

U.S. Cl. 528—233 22 Claims

1. A process for polymerizing formaldehyde which comprises subjecting formaldehyde to slurry polymerization in an inert organic liquid medium in the presence of a polymerization catalyst and at least one polyvalent metal salt selected from the group consisting of polyvalent metal salts of alkylsalicylic acids and polyvalent metal salts of dialkyl esters of sulfosuccinic acid.

4,332,931

PROCESS FOR PRODUCING UNSATURATED POLYESTER

Takashi Hasegawa, Kawanishi; Minoru Miki, Kobe, and Yutaka Taniguchi, Amagasaki, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Apr. 9, 1981, Ser. No. 252,602

Claims priority, application Japan, Apr. 22, 1980, 55-53927

Int. Cl.[3] C08G *63/42*

U.S. Cl. 528—297 11 Claims

1. A process for producing an unsaturated polyester, which comprises reacting dicarboxylic acid anhydride with alkylene

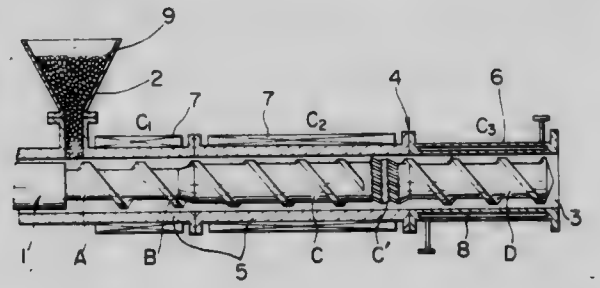
oxide in the presence of a reaction product of dicarboxylic acid and dicyclopentadiene.

4,332,932

METHOD FOR PRODUCING A RUBBER MELT IN A TEMPERATURE-CONTROLLED SCREW EXTRUDER

Kunihiro Harada, Machida; Kiyoshi Kasai, Yokohama; Yoshiki Maki, and Norimasa Oda, both of Hiroshima, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd. and The Japan Steel Works, Ltd., both of Tokyo, Japan

Filed Jan. 15, 1980, Ser. No. 112,291
Claims priority, application Japan, Jan. 16, 1979, 54-3635
Int. Cl.³ C08C *4/00*
U.S. Cl. 528—481 **11 Claims**



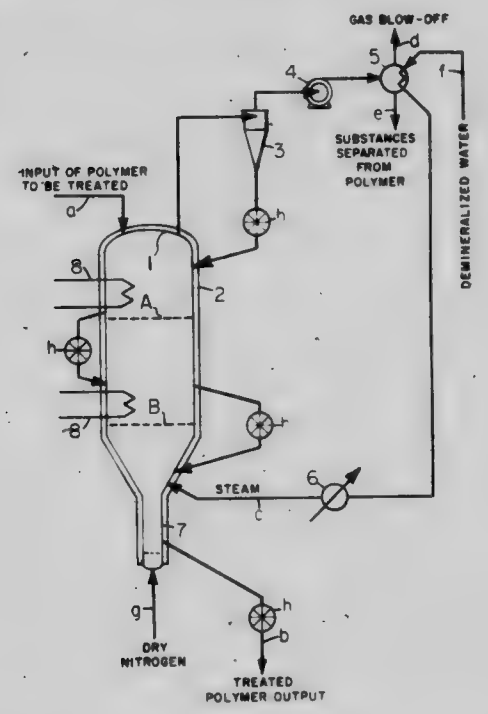
1. A method for producing a rubber melt, comprising:
feeding solid rubber into a screw extruder,
decomposing said solid rubber in a decomposing section of said screw extruder at a temperature of 400°–500° C. to produce a rubber melt, and
cooling said rubber melt to a temperature of not more than 250° C. in a discharging section of said screw extruder.

4,332,933

PROCESS FOR TREATING OLEFINIC POLYMERS WITH STEAM

Giovanni Di Drusco, Milan; Roberto Rinaldi, Mantova, and Gabriele Govoni, Renazzo, all of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Jul. 1, 1980, Ser. No. 165,017
Claims priority, application Italy, Jul. 2, 1979, 24033 A/79
Int. Cl.³ C08F *6/00*
U.S. Cl. 528—500 **5 Claims**



1. A process for reducing the content of catalyst residues, halogenated compounds and organic substances, contained in the crystalline olefinic homopolymers and copolymers prepared by (co)polymerization of olefins with catalysts obtained by reacting an organometallic Al compound with a Ti compound, in which the Ti compound is supported on a Mg halide, and an electron-donor compound is combined with the Ti compound and/or the Mg compound said process consisting in causing a stream of superheated steam having a temperature of from 105° to 140° C. and a pressure of from 0.1 to 10 kg/cm^2 gauge, to pass over the polymer in powder form in a ratio by weight between steam and polymer ranging from 0.10 to 1, and maintaining the polymer at such a temperature so as to prevent steam condensation.

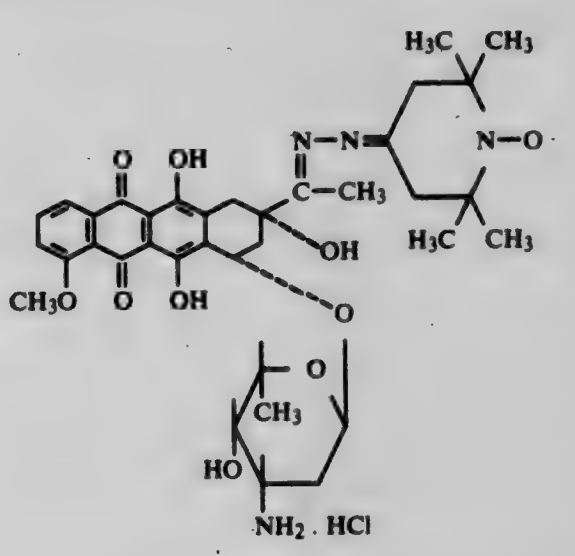
4,332,934

13-(1-OXYL-2,2,6,6-TETRAMETHYLPIPERYLIDENYL-4)HYDRAZONE RUBOMYCIN HYDROCHLORIDE WITH A PARAMAGNETIC CENTER AND A METHOD OF PRODUCING SAME

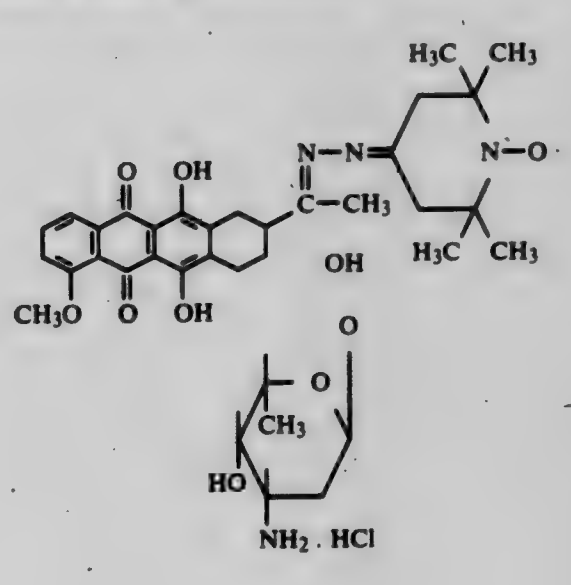
Nikolai M. Emanuel, Vorobievskoe shosse, 2B, kv. 44, Moscow; Nina P. Konovalova, Noginsky raion, p/o Chernogolovka, ulitsa Tretya, 3, kv. 1, Moskovskaya oblast; Leonard S. Povarov, ulitsa Krasikova, 19, kv. 28, Moscow; Anatoly B. Shapiro, B. Koptevsky proezd, 4, kv. 37, Moscow; Raisa F. Dyachkovskaya, Vorobievskoe shosse, 2b, kv. 9, Moscow; Valentina I. Suskina, ulitsa Ulyanova, 49, korpus 1, kv. 58, Moscow, and Ljudmila K. Denisova, Noginsky raion, p/o Chernogolovka, Shkolny bulvar, 1b, kv. 100, Moskovskaya oblast, all of U.S.S.R.

Filed Oct. 2, 1980, Ser. No. 192,964
Claims priority, application U.S.S.R., Mar. 24, 1980, 2893526
Int. Cl.³ C07H *15/24*
U.S. Cl. 536—6.4 **2 Claims**

1. 13-(1-Oxyl-2,2,6,6-tetramethylpiperylidenyl-4)hydrazone rubomycin hydrochloride with a paramagnetic centre, of the formula



2. A method of producing 13-(1-oxo-2,2,6,6-tetramethylpiperylidenyl-4)hydrazone rubomycin hydrochloride with a paramagnetic centre, of the formula



comprising treating rubomycin hydrochloride with an alkali to form the rubomycin base, reacting said rubomycin base with 1-oxo-2,2,6,6-tetramethyl-piperidone-4-hydrazone in a respective molar ratio of 1:1:5 to 2 in a chloroform-methanol medium with a respective volumetric ratio of 8:1 in the presence of acetic acid in a fourfold molar excess with respect to said rubomycin base at 20° to 25° C., separating the formed precipitate, treating the solution remaining after separation and containing the reaction product with an alcoholic solution of hydrogen chloride in a twofold molar excess with respect to said rubomycin base and precipitating the end product with diethyl ether.

4,332,935

PROCESS FOR THE PRODUCTION OF CATIONIC STARCH ETHERS

Wolfgang Fischer, Kahl; Manfred Langer, Karlstein, and Gerhard Pohl, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Dec. 8, 1980, Ser. No. 214,284

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 2949886

Int. Cl.³ C08B *31/08, 31/12*

U.S. Cl. 536—50 **20 Claims**

1. A process for the production of a cationic starch ether comprising reacting starch with an alkylidene epoxide having a tertiary amino group or a quaternary ammonium group in aqueous alkaline medium at a temperature of 50° to 120° C. and wherein the medium contains about 10 to 35 weight percent of water and about 0.2 to 2.0 weight percent calcium hydroxide or calcium oxide.

4,332,936

METHOD OF MAKING POLYETHER POLYOLS FROM SOLID HYDROXYL CONTAINING INITIATORS

Neil H. Nodelman, New Martinsville, W. Va., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed Oct. 16, 1978, Ser. No. 952,019

Int. Cl.³ C07C *41/00*; C07H *15/04*

U.S. Cl. 536—120 **1 Claim**

1. In a process for making a polyether polyol wherein a solid initiator compound containing from 4 to 8 hydroxyl groups is reacted with an alkylene oxide in the presence of an amine catalyst or an amine functional coinitiator which functions as a catalyst, the improvement which comprises mixing and partially dissolving the solid initiator in from about 5 to about 70 parts by weight, based on 100 parts by weight of solid initiator of dimethylformamide.

4,332,937

NAPHTHOLACTAM COMPOUNDS

Rudolf Zink, Therwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,161

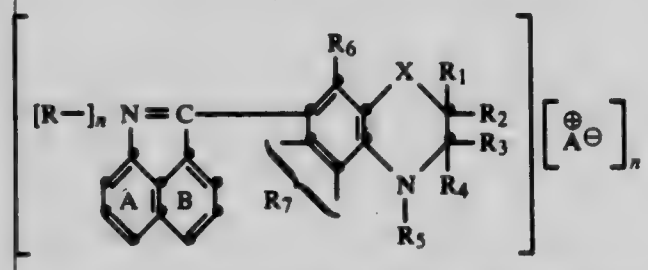
Claims priority, application Switzerland, Apr. 4, 1979, 3133/79

Int. Cl.³ C07D *413/02*

U.S. Cl. 544—105 **15 Claims**

1. A naphtholactam compound of the formula I

(I)



or the carbinol base thereof, in which R is hydrogen or C_1-C_4 alkyl which is unsubstituted or substituted by CN or C_1-C_4 alkoxy; X is a —O— atom; R_1, R_2 and R_3 are hydrogen; R_4 is hydrogen, C_1-C_6 alkyl which is unsubstituted or substituted by OH,CN or phenyl, or is phenyl; R_5 is a C_1-C_4 alkyl group which is unsubstituted or substituted by OH, CN, C_1-C_4 alkoxy or phenyl, or is C_2-C_4 alkenyl; R_6 and R_7, each independently of the other, is hydrogen, C_1-C_4 alkyl or halogen; A is an anion; n is 0 or 1; and rings A and B are unsubstituted or substituted by halogen, CN, COOY, $CONH_2$, CONHY, CON$(Y)_2$, SO_2NH_2, SO_2NHY, $SO_2N(Y)_2$ or SO_2Y in which Y is C_1-C_4 alkyl.

4,332,938

ANTHAQUINONE REACTIVE DYESTUFFS, THEIR PREPARATION AND THEIR USE FOR DYEING MATERIALS CONTAINING OH GROUPS OR AMIDE GROUPS

Wolfgang Harms; Klaus Wunderlich, both of Leverkusen, and Klaus von Oertzen, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

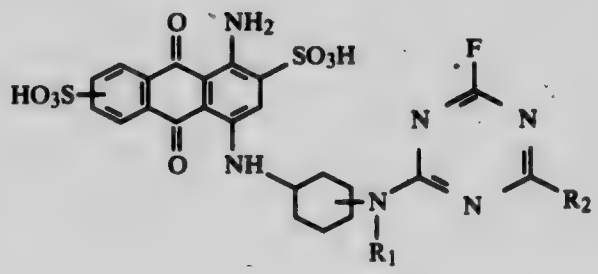
Filed Nov. 30, 1979, Ser. No. 99,120

Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854483

Int. Cl.³ C07D *251/00*

U.S. Cl. 544—189 **7 Claims**

1. Dyestuffs of the formula



wherein

R_1=H, C_1-C_4-alkyl or C_1-C_4-alkyl substituted by OH, OSO_3H, SO_3H or COOH

R_2=amino, mono-C_1-C_4-alkylamino, di-C_1-C_4-alkylamino; amino or mono-C_1-C_4-alkylamino substituted by di-C_1-C_4-alkylamino substituted by OH or SO_3H;

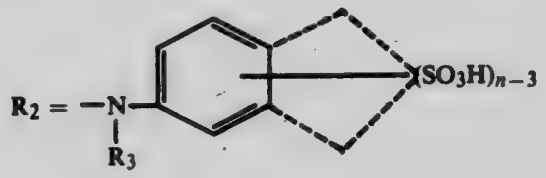
OH, SO_3H, OSO_3H, phenyl; C_1-C_4-alkyl, C_1-C_4-alkyl substituted by methyl, ethyl, halogen, methoxy or ethoxy;

aryl; aryl substituted by methyl, ethyl, halogen, methoxy or ethoxy;

C_1-C_6-alkoxy;

C_1-C_6 alkoxy substiuted by OH or C_1-C_6-alkoxy; or

wherein



wherein

R_3=H; C_1-C_4-alkyl or C_1-C_4-alkyl substituted by OH, SO_3H, OSO_3H.

4,332,939

PROCESS FOR THE PREPARATION OF FLUORINATED S-TRIAZINES

Gottfried Seifert, Muttenz, and Sebastian Stäubli, Magden, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Continuation of Ser. No. 81,965, Oct. 4, 1979, abandoned, which is a continuation of Ser. No. 891,377, Mar. 29, 1978, abandoned. This application Mar. 24, 1981, Ser. No. 246,968

Claims priority, application Switzerland, Apr. 6, 1977, 4359/77; Apr. 15, 1977, 4703/77

Int. Cl.³ C07D *251/28*

U.S. Cl. 544—217 13 Claims

1. In a process for the preparation of a fluorinated s-triazine, in which process a cyanuric halide containing at least one halogen other than fluoride is reacted with hydrogen fluoride, the improvement comprising carrying out said reaction in the presence of activated charcoal at a temperature between 180° C. and 220° C.

4,332,940

PROCESS FOR THE PRODUCTION OF 2,3-CYCLOALKENOPYRIDINES

Helmut Beschke; Heinz Friedrich, and Heribert Offermanns, all of Hanau, Fed. Rep. of Germany, assignors to Deutsche Gold -und Silber-Scheideanstalt Vormals Roessler, Frankfurt, Fed. Rep. of Germany

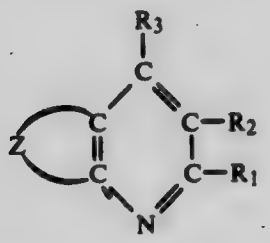
Filed Sep. 6, 1977, Ser. No. 830,983

Claims priority, application Fed. Rep. of Germany, Sep. 3, 1976, 2639702

Int. Cl.³ C07D *215/04, 221/04*

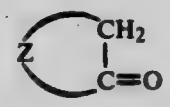
U.S. Cl. 546—181 23 Claims

1. In a process for the production of a 2,3-cycloalkenopyridine of the formula



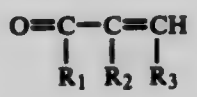
III

where Z is an unsubstituted or 1 to 6 carbon atoms alkyl substituted aliphatic carbon chain having a 2 to 16 carbon atoms and R_1, R_2 and R_3 are hydrogen or 1 to 6 carbon atom alkyl group comprising the step of catalytically reacting a cycloalkanone of the formula



I

or isophorone with an oxo compound having the formula



II

and ammonia in the gas phase at a temperature from about 250° to 550° C., the improvement comprising carrying out the reaction in the presence of a dehydrating and dehydrogenating catalyst which is (1) a catalyst consisting essentially of oxygen containing compounds of Al, F at least one of the elements B and Si and at least one element from the second and fourth groups of the periodic system selected from the group consisting of Mg, Ba, Zn, Sn and Zr, said catalyst having been prepared by heating in the presence of oxygen at a temperature of 600° to 800° C.;

1. aluminum, aluminum oxide or an aluminum compound convertible to the oxide at a said temperature,
2. a compound of fluorine, said fluorine having been added as ammonium fluoride, ammonium hydrogen fluoride, hydrogen fluoride, fluoboric acid, fluosilicic acid, boron trifluoride, magnesium fluoborate, magnesium fluosilicate, zinc fluosilicate or barium fluosilicate,
3. boron, silicon, boric oxide, silica or a compound of boron or silica convertible to the oxide at said temperature and
4. magnesium, zinc, tin, zirconium, magnesium oxide, zinc oxide, tin oxide or a compound of zirconium or barium convertible to the oxide at said temperature, the atomic ratio of Al to F being from 1000:25 of 1000:800 and the atomic ratio of Al to the total of (3) and (4) being from 1000:5 to 1000:200, the atomic ratio of the total of boron and silicon to the other element from the second and fourth groups being between 1 to 10 and 10 to 1 or (2) a catalyst having been prepared by heating at 600° to 800° C. in the presence of gaseous oxygen (1) aluminum metal, aluminum oxide, or a compound of aluminum convertible to the oxide upon heating with gaseous oxygen at 600° to 800° C., (2) ammonium fluoride, hydrogen fluoride or a fluoride of an element of the second main group of the periodic system and (3) at least one element of the second main group of the periodic system, the oxide of said element or a compound of said element convertible to the oxide in the presence of gaseous oxygen at a temperature of 600° to 800° C., said catalyst consisting essentially of the elements Al, F, O and the element of the second main group of the periodic system or (3) a catalyst consisting essentially of the product obtained by treating with oxygen at a temperature of 550° to 1200° C. compounds of the elements Al, F and O and at least two other elements selected from the second, fourth, fifth and sixth groups of the periodic system, said two other elements being selected from the group consisting of Mg, Ba, Zr, Sn, Ti, P, Ta, Sb and S, the ratios of the elements being Al to F of between 1,000 to 10 and 1,000 to 800 and of Al to the elements of the second, fourth, fifth and sixth groups being between 1,000 to 5 and 1,000 to 200.

4,332,941

CYCLOHEXANONES AND CYCLOHEXENONES

Rüdiger Berthold, Bad Soden am Taunus, and Werner H. Müller, Eppstein, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

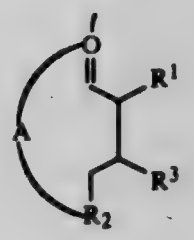
Filed Oct. 10, 1980, Ser. No. 195,840

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1979, 2941625

Int. Cl.³ C07D *401/12*

U.S. Cl. 546—191 10 Claims

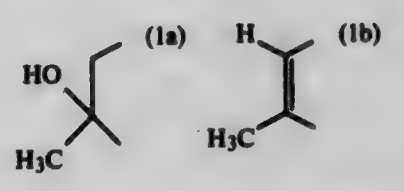
1. A compound of the formula



(1)

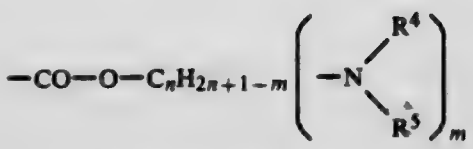
in which

A is a group of the formula (1a) or (1b) which complete formula (1) to a carbocyclic 6-membered ring,



(1a) (1b)

R^1 is hydrogen or a group of the formula (1c)



(1c)

R^2 is a group of the formula (1c),

R^3 is hydrogen, alkyl of 1 to 10 carbon atoms, phenyl, phenyl substituted by 1 to 3 equal or different substituents selected from the group consisting of lower alkyl, lower alkoxy, trifluoromethyl, nitro, cyano, chloro, carbamoyl, sulfamoyl or mono- or di-(lower alkyl)-carbamoyl or -sulfamoyl,

R^4 and R^5, which are the same or different, are lower alkyl or $—NR^4R^5$ is pyrrolidinyl, piperidyl or morpholyl,

m is 1 or 2 and

n is 2 to 6.

5. A compound as claimed in claim 1, wherein R^4 and R^5 are methyl or ethyl or $—NR^4R^5$ is piperidyl, m is 1 and n is 2 or 3.

4,332,942

3-(2-HYDROXY-4-(SUBSTITUTED)PHENYL)AZACYCLOALKANES AS ANALGESICS

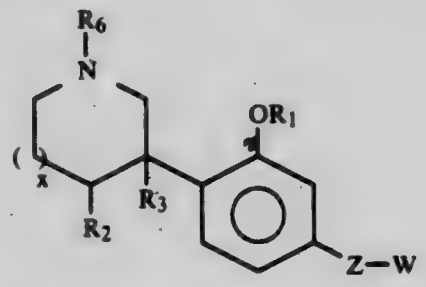
Thomas H. Althuis, Groton; Charles A. Harbert, Waterford; Michael R. Johnson, Gales Ferry, and Lawrence S. Melvin, Jr., Ledyard, all of Conn., assignors to Pfizer, Inc., New York, N.Y.

Division of Ser. No. 419, Jan. 2, 1979, Pat. No. 4,263,438, which is a division of Ser. No. 832,869, Sep. 13, 1977, Pat. No. 4,147,872. This application Oct. 20, 1980, Ser. No. 198,742

Int. Cl.³ C07D *211/22, 211/34*

U.S. Cl. 546—240 **7 Claims**

1. A compound having the formula



wherein R_1 is selected from the group consisting of hydrogen, benzyl and alkanoyl having from one to five carbon atoms;

R_2 is selected from the group consisting of hydrogen, alkyl having from one to six carbon atoms, phenyl and phenylalkyl having from one to four carbon atoms in the alkyl group;

R_3 is hydrogen;

R_6 is selected from the group consisting of alkenyl having from two to six carbon atoms and alkynyl having from two to six carbon atoms;

x is 0 or an integer from 1 to 3;

z is selected from the group consisting of

(a) alkylene having from one to thirteen carbon atoms;

(b) $-(alk_1)_m-O-(alk_2)_n-$ wherein each of (alk_1) and (alk_2) is alkylene having from one to thirteen carbon atoms, with the proviso that the summation of carbon atoms in (alk_1) plus (alk_2) is not greater than thirteen; each of m and n is 0 or 1; and

W is hydrogen; or a pharmaceutically acceptable acid addition salt thereof.

4,332,943

PROCESS FOR THE PREPARATION OF PYRIDINE

Richard Bicker, Frankfurt am Main, and Rüdiger Erckel, Eppstein, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 14, 1981, Ser. No. 292,805

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1980, 3031014

Int. Cl.³ C07D *213/06, 213/12*

U.S. Cl. 546—253 **4 Claims**

1. Process for the preparation of pyridine by ammoxidation at elevated temperature of a C_5 hydrocarbon using a catalyst based on SiO_2 and/or Al_2O_3 with a large surface area and a large pore volume, wherein

(a) cyclopentadiene is used as the C_5 hydrocarbon, and

(b) silica gel, γ-Al_2O_3 and/or aluminum silicate(s) in tellurium-free form, if appropriate doped with oxides of transition metals and/or of gallium and/or indium, having a surface area of between about 75 and 800 m^2/g and a pore volume of between about 0.2 and 2 cm^3/g are used as the catalyst based on SiO_2 and/or Al_2O_3 and

(c) the ammoxidation is carried out at temperatures of from about 200° to 400° C., preferably from about 250° to 350° C.

4,332,944

COMPOSITIONS AND USE

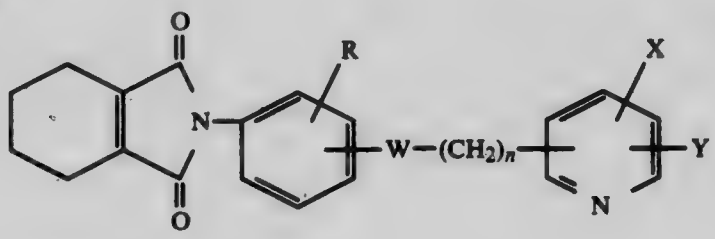
Richard J. Anderson, Palo Alto, and Michael M. Leippe, Boulder Creek, both of Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

Filed Jul. 9, 1981, Ser. No. 281,808

Int. Cl.³ A01N *43/40;* C07D *401/12*

U.S. Cl. 546—272 **20 Claims**

1. A compound selected from those of the following formula (A):



(A)

wherein,

n is one, two or three;

R is hydrogen, bromo, chloro, fluoro or iodo;

W is oxygen or sulfur; and

each of X and Y is, independently, selected from hydrogen, bromo, chloro, fluoro, iodo, lower alkyl, lower alkoxy, lower thioalkyl, lower haloalkyl, lower haloalkoxy, nitro, lower alkoxycarbonyl and cyano.

20. A method for the control of weeds which comprises treating said weed with a herbicidally effective amount of a compound according to formula (A) herein.

4,332,945

OPTICALLY ACTIVE NICOTINE ANALOGS AND PROCESS FOR THEIR PREPARATION

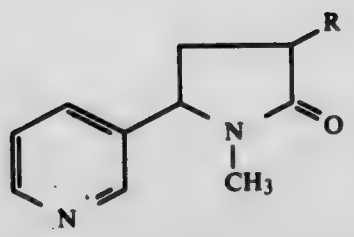
William B. Edwards, III, Richmond, Va., assignor to Philip Morris, Incorporated, New York, N.Y.

Filed Jan. 29, 1981, Ser. No. 229,481

Int. Cl.³ C07D *401/04*

U.S. Cl. 546—281 **24 Claims**

1. A process for preparing a compound represented by the formula:



wherein R is selected from the group consisting of $—CO_2R'$ and R′ wherein R′ is a straight chain or branched alkyl group containing from 1 to 12 carbon atoms which comprises treating continine at a temperature within the range from about −120° to 180° with a non-nucleophilic base and condensing the resulting carbanion with about 1 equivalent of a condensing reagent selected from the group consisting of R'_2CO_3 and R′ halide and recovering the resulting 3-substituted 1-methyl-5-(3-pyridyl)-2-pyrrolidinone.

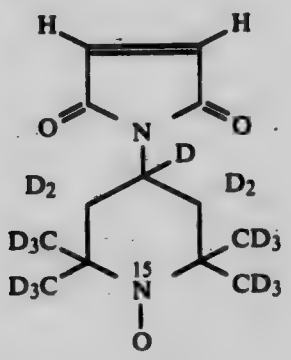
4,332,946

RESOLUTION ENHANCING MALEIMIDE SPIN LABEL FOR BIOLOGICAL EPR STUDIES

Sindhaghatta D. Venkataramu; Donald E. Pearson, and Albert H. Beth, all of Nashville, Tenn., assignors to Vanderbilt University, Nashville, Tenn.

Filed Apr. 3, 1981, Ser. No. 250,137
Int. Cl.³ C07D *401/04*
U.S. Cl. 546—208 **1 Claim**

1. As a resolution enhancing spin label for biomedical EPR applications, the compound



N-(^{15}N-oxyl-2,2,6,6-tetramethyl-4-piperidinyl-d_{17})maleimide.

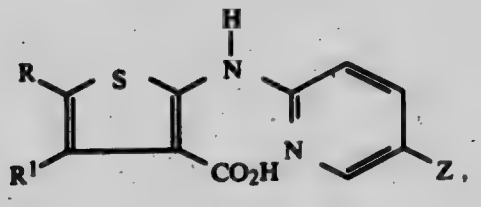
4,332,947

CERTAIN 2-PYRIDYLAMINO-3-THIOPHENE CARBOXYLIC ACID DERIVATIVES

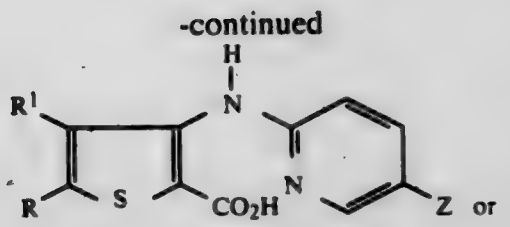
Francis J. Tinney; David T. Connor; Wiaczeslaw A. Cetenko; Joseph J. Kerbleski, and Roderick J. Sorenson, all of Ann Arbor, Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

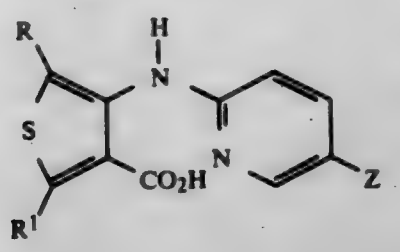
Division of Ser. No. 132,603, Mar. 21, 1980, Pat. No. 4,287,340, which is a division of Ser. No. 70,227, Aug. 27, 1979, Pat. No. 4,230,707. This application Jan. 30, 1981, Ser. No. 230,167
Int. Cl.³ C07D *409/02, 409/14*
U.S. Cl. 546—284 **2 Claims**

1. A compound of the formulae

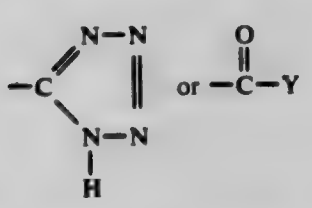


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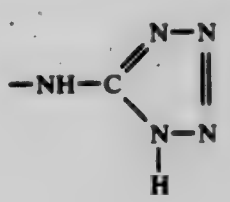




and salts thereof, where [R, R^1 and Z are as defined in claim 1] in R and R^1 are hydrogen, lower alkyl, chloro, bromo, phenyl or x-substituted phenyl where x is lower alkyl, chloro, fluoro, or lower alkyl —O— and Z is —CN,



wherein Y is —OH, $—NH_2$, —O— lower alkyl or



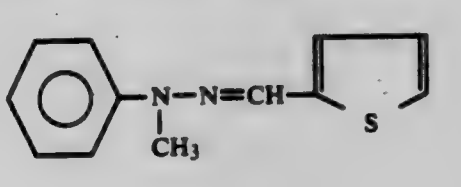
4,332,948

NOVEL HYDRAZONE COMPOUNDS AND PROCESS FOR PREPARING THE SAME

Kiyoshi Sakai; Mitsuru Hashimoto, and Kyoji Tsutsui, all of Numazu, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed May 14, 1980, Ser. No. 149,752
Claims priority, application Japan, May 25, 1979, 54-64033
Int. Cl.³ C07D *333/36*; C07C *109/12*
U.S. Cl. 542—417 **4 Claims**

1. A hydrazone compound having the formula



4,332,949

3-CHLOROALKYL-5-GUANIDINO-1,2,4-THIADIAZOLE COMPOUNDS

Tobias O. Yellin, Wallingford, Pa., and Derrick M. Mant, Bramhall, England, assignors to Imperial Chemical Industries PLC, London, England and ICI Americas Inc., Wilmington, Del.

Continuation of Ser. No. 36,360, May 7, 1979, Pat. No. 4,242,350. This application Aug. 1, 1980, Ser. No. 174,494

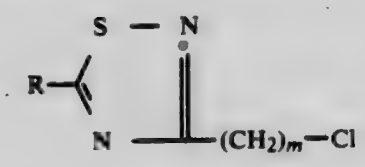
Claims priority, application United Kingdom, May 24, 1978, 21737/78

The portion of the term of this patent subsequent to Dec. 30, 1997, has been disclaimed.

Int. Cl.³ C07D *285/08*

U.S. Cl. 548—128 **2 Claims**

1. A thiadiazole derivative of the following formula:



wherein

R is guanidino; and

m is 1 to 4.

4,332,950

THIAZOLIDINE-SUBSTITUTED PHENYL SULFONIC ACIDS

Charles A. Kelly, Dorchester, and Frank A. Meneghini, Arlington, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

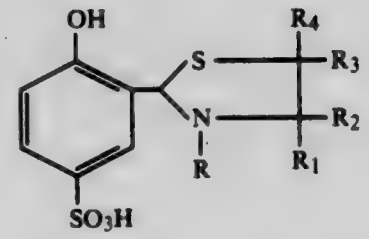
Filed Mar. 2, 1981, Ser. No. 239,356

Int. Cl.³ C07D *277/04*

U.S. Cl. 548—146 **16 Claims**

1. A method which comprises reacting the hydrochloride salt of a 3-(thiazolidin-2′-yl)-4-hydroxy-phenyl sulfonic acid with an excess over equimolar amounts of (i) neat thionyl chloride or (ii) thionyl chloride in a chlorinated hydrocarbon to yield the corresponding 3-(thiazolidin-2′-yl)-4-hydroxy-phenyl sulfonyl chloride.

13. A compound of the formula



wherein R is alkyl, phenyl-substituted alkyl or phenyl and R_1, R_2, R_3 and R_4 each are selected from hydrogen, phenyl and alkyl.

4,332,951

ANTITUMOR AGENTS

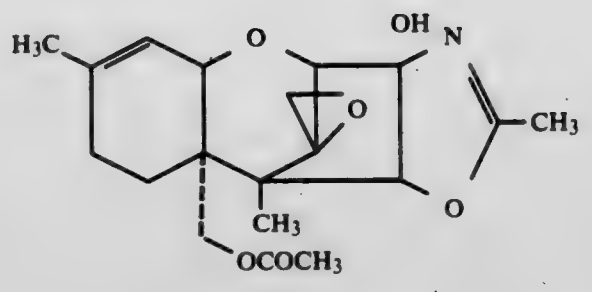
Takushi Kaneko, Fayetteville; John M. Essery, Pleasantville; Henry Schmitz, Syracuse, and Terrence W. Doyle, Fayetteville, all of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 95,917, Nov. 19, 1979, Pat. No. 4,267,113. This application Jan. 9, 1981, Ser. No. 223,594

Int. Cl.³ C07D *498/22, 493/10, 493/20*

U.S. Cl. 548—218 **1 Claim**

1. The compound having the formula



4,332,952

HYPOGLYCEMIC 5-SUBSTITUTED OXAZOLIDINE-2,4-DIONES

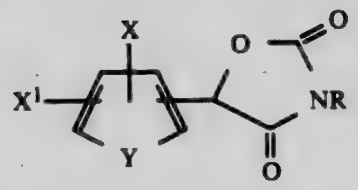
Rodney C. Schnur, Noank, Conn., assignor to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 173,206, Jul. 28, 1980, abandoned. This application Apr. 23, 1981, Ser. No. 252,961

Int. Cl.³ C07D *493/00, 495/00, 263/30*

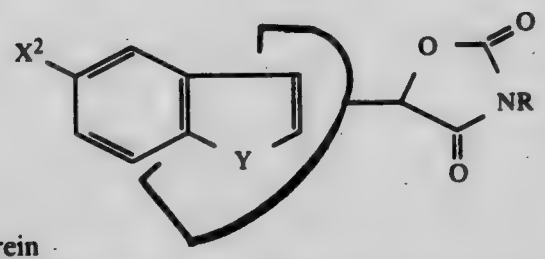
U.S. Cl. 548—226 **23 Claims**

1. A compound of the formula



(I)

or



(II)

wherein

R is hydrogen, (C_1–C_4)-alkanoyl, benzoyl, (C_2–C_4)-carbalkoxy, (C_1–C_3)-alkylcarbamoyl or di(C_1–C_3)-alkylcarbamoyl;

Y is sulfur or oxygen;

X is hydrogen, fluoro, chloro, bromo, iodo, methyl, phenyl, benzoyl, or (C_1–C_3)-alkoxy;

X^1 is hydrogen or methyl; and

X^2 is hydrogen, fluoro, bromo, chloro or iodo; or a pharmaceutically acceptable cationic salt thereof when R is hydrogen.

4,332,953

CARBAMYLBIURET-MODIFIED POLYISOCYANATES

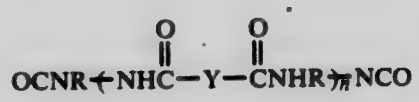
Donald L. Christman, Grosse Ile, and Peter T. Kan, Plymouth, both of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation-in-part of Ser. No. 92,479, Nov. 8, 1979, Pat. No. 4,271,087. This application Dec. 29, 1980, Ser. No. 220,578

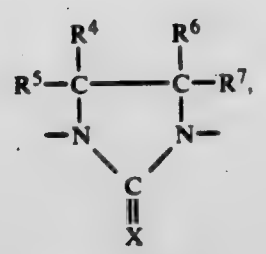
Int. Cl.³ C07D *233/96, 233/72, 233/84, 233/86*

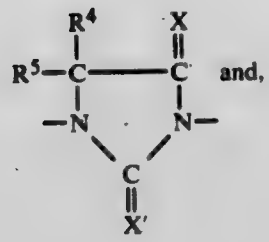
U.S. Cl. 548—307 **7 Claims**

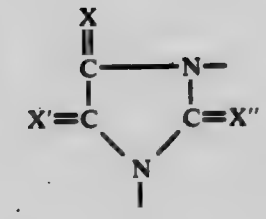
1. A carbamylbiuret-modified polyisocyanate of the formula:



wherein n is an integer of from about 1 to about 20; R is a divalent hydrocarbon radical containing from about 1 to about 18 carbon atoms; and Y is the divalent radical selected from the group consisting of







wherein X, X', and X'' are independently selected from the group consisting of oxygen and sulfur; R^4, R^5, R^6, and R^7 are independently selected from the group consisting of hydrogen, alkyl containing from about 1 to about 6 carbon atoms, cycloalkyl containing from about 3 to about 7 carbon atoms, phenyl, and benzyl.

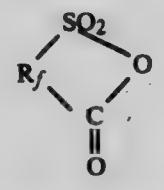
4,332,954

CYCLIC SULFOPERFLUOROALIPHATICCARBOXYLIC ACID ANHYDRIDES

Robert J. Koshar, Mahtomedi, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 30, 1981, Ser. No. 229,872
Int. Cl.³ C07D *327/02, 327/04, 327/06*
U.S. Cl. 549—10 **6 Claims**

1. Cyclic anhydrides of omega-sulfoperfluoroaliphaticcarboxylic acids, having the formula:



wherein R_f is perfluoroalkylene having 2 to 5 catenary carbon atoms or perfluorocycloalkylene having 4 to 7 ring atoms, R_f optionally being substituted by one or more straight chain, branched, or cyclic perfluoroalkyl groups of 1 to 12 carbon atoms, with R_f having a total of up to 14 carbon atoms.

4,332,955

PREPARATION OF TRANSPARENT PIGMENTARY FORMS OF 4,4',7,7'-TETRACHLOROTHIOINDIGO

Helmut Hoch, Wachenheim; Erwin Hahn, Heidelberg, and Heinrich Hiller, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Apr. 7, 1980, Ser. No. 137,955
Claims priority, application Fed. Rep. of Germany, Apr. 23, 1979, 2916400
Int. Cl.³ C07D *333/64*
U.S. Cl. 549—56 **16 Claims**

1. A process for the preparation of a transparent pigmentary form of 4,4',7,7'-tetrachlorothioindigo wherein the leuco compound of tetrachlorothioindigo is oxidized with air, hydrogen peroxide or an adduct of hydrogen peroxide with sodium

(a) carbonate or sodium borate in an aqueous suspension which contains from 3 to 20% by weight, based on the suspension, of leuco compound and from 0.5 to 50% by weight of alkali metal hydroxide and from 1 to 10% by weight of sodium dithionite, both based on leuco compound, at from 20° to 100° C., with simultaneous grinding in the presence of a grinding medium until the leuco compound is completely oxidized, and the pigment is isolated.

(b) **4,332,956**

PROCESS FOR PREPARING ACYLOXYSILANES

Luisito A. Tolentino, Ballston Lake, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Jun. 26, 1981, Ser. No. 278,541
Int. Cl.³ C07F *7/08, 7/04*
U.S. Cl. 556—442 **29 Claims**

1. In a process for producing acyloxysilanes by reacting a

(c) chlorosilane with an aliphatic carboxylic acid in a column at an elevated temperature wherein the chlorosilane is fed into the column, aliphatic carboxylic acid passes upward in the column from a source below the chlorosilane feed, and hydrogen chloride gas is removed from the column, the improvement comprising introducing aliphatic carboxylic acid into the column above the chlorosilane feed.

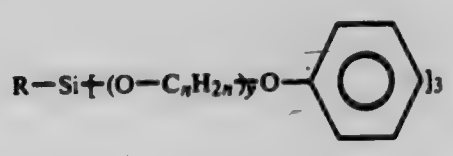
4,332,957

PHENOXYALKOXY SILANES

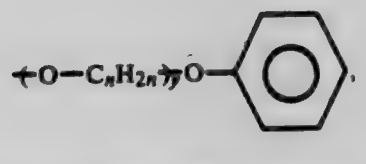
Harry Braus; Anthony Barlow, and Melvin F. Maringer, all of Cincinnati, Ohio, assignors to National Distillers & Chemical Corp., New York, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,012
Int. Cl.³ C07F *7/04, 7/18*
U.S. Cl. 556—446 **14 Claims**

1. A composition of matter comprising a compound corresponding to the formula



wherein
R is C_1–C_5 alkyl, C_2–C_4 alkenyl or



y is an integer of 1 to 5 and n is an integer of 1 to 4.

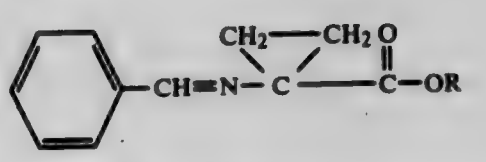
4,332,958

BENZYLIDENE GLYCINE ESTER DERIVATIVES

Shy-fuh Lee, Sunnyvale, Calif., assignor to Zoecon Corporation, Palo Alto, Calif.

Division of Ser. No. 178,062, Aug. 14, 1980, Pat. No. 4,298,760.
This application Jun. 19, 1981, Ser. No. 275,180
Int. Cl.³ C07C *101/06*
U.S. Cl. 560—35 **4 Claims**

1. A compound of the following formula



(2)

wherein R is lower alkyl, unsubstituted aryl, or aryl substituted at one, two or three of the ring carbon atoms with a group

selected from lower alkyl, lower haloalkyl, halogen, nitro, cyano or hydroxy.

4,332,959

PROCESS FOR MANUFACTURING PHENOXYLACTIC ACIDS, THEIR DERIVATIVES AND PRODUCTS OBTAINED THEREBY

Jesus Anatol; Yves Clenet, both of Paris, and Georges Bourdiau, Le Bourget, all of France, assignors to Sucreries du Soissonnais et Compagnie Sucriere, France

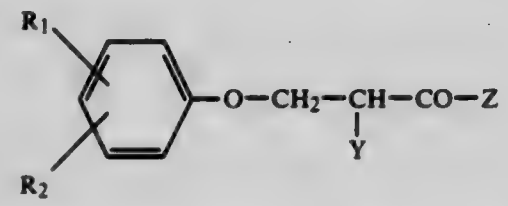
Filed Aug. 17, 1979, Ser. No. 67,637

Claims priority, application France, Aug. 18, 1978, 78 24116

Int. Cl.³ C07C *69/76*

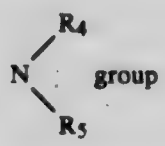
U.S. Cl. 560—60 **5 Claims**

1. Process for the manufacture of phenoxylactic acids and their derivatives of the general formula:



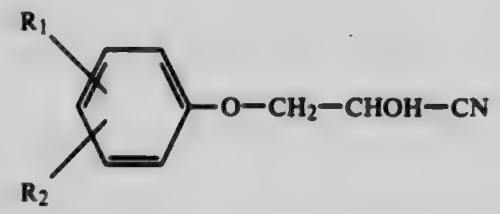
(A1)

(in which R_1 and R_2, identical or different, can represent hydrogen atoms, methyl residues, methoxy groups or halogens; Y represents an OH or O—CO-R_3 group with R_3 representing either an aliphatic residue optionally substituted with a halogen, or an aromatic residue optionally substituted on the nucleus with one or several methyl, methoxy, halogen groups or a pyridyl group; Z represents OH group or an



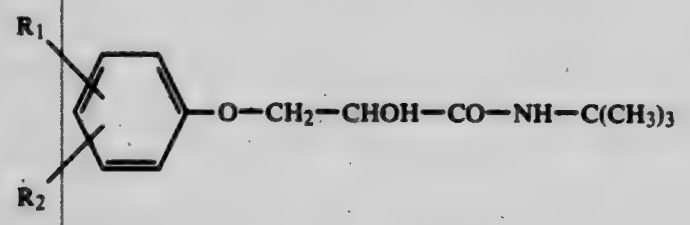
group

with R_4 representing an alkyl or aryl radical and R_5 hydrogen or an alkyl radical, or NR_4R_5 represents the morpholinyl radical), which process consists of subjecting a cyanhydrin of the formula:



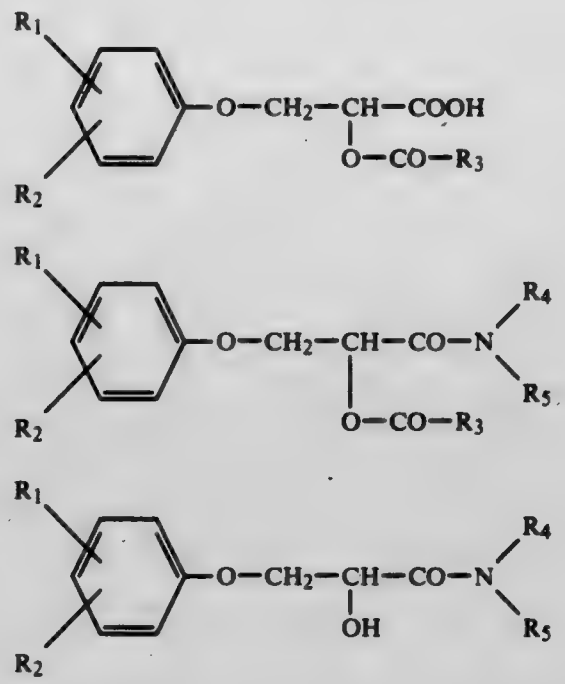
(A)

(where R_1 and R_2 have the above-mentioned significance) to a reaction with tert. butanol or isobutene in the presence of an acid to obtain the compound of the formula:



(A3a)

and of hydrolysing the latter to obtain the corresponding acid of formula (A_1) as defined above, in which Z and Y represent —OH, then, optionally, subjecting this acid to conventional reactions for preparing ester-acids, ester-amides or corresponding amides respectively of the formula:



(A2)

(A4)

(A3)

(where R_1 and R_2, R_3, R_4 and R_5 have the above significance).

4,332,960

HERBICIDAL COMPOSITIONS

Jurgen Trosken, Walldorf; Gerhard Horlein, Frankfurt am Main; Ernst-Friedrich Schulze, Hofheim, and Peter Langeluddeke, Diedenbergen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

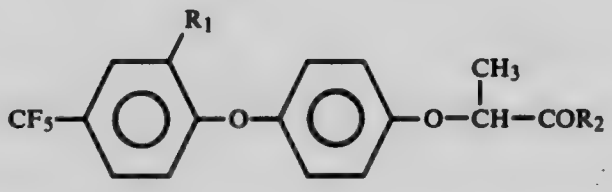
Filed Jul. 8, 1975, Ser. No. 594,031

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1974, 2433067

Int. Cl.³ C07C *69/76*

U.S. Cl. 560—62 **10 Claims**

1. Compounds of the formula I



I

in which

R_1 is hydrogen or halogen, and

R_2 is hydroxy, (C_1–C_6)alkoxy, cyclohexyloxy, phenyloxy, or

the group -Ocat werein cat stands for the cation of an inorganic or organic base.

4,332,961

HERBICIDAL COMPOUND, HERBICIDAL COMPOSITION CONTAINING THE SAME, AND METHOD OF USE THEREOF

Ryohei Takahashi, Kusatsu; Kanichi Fujikawa, Kyoto; Isao Yokomichi, Kusatsu; Sinzo Someya, Kusatsu, and Nobuyuki Sakashita, Kusatsu, all of Japan, assignors to Ishihara Sangyo Kaisha, Ltd., Osaka, Japan

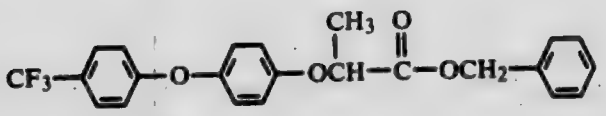
Division of Ser. No. 596,784, Jul. 17, 1975. This application Apr. 15, 1977, Ser. No. 788,048

Claims priority, application Japan, Jul. 17, 1974, 49-82403; Jul. 17, 1974, 49-82404; Oct. 14, 1974, 49-117047

Int. Cl.³ C07C *69/76*

U.S. Cl. 560—62 **4 Claims**

1. A compound having the formula:



4,332,962

PREPARATION OF CYCLOPROPANE CARBOXYLIC ACID ESTERS

David J. Milner, and David Holland, both of Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 49,322, Jun. 18, 1979, abandoned, which is a continuation of Ser. No. 883,310, Mar. 3, 1978, abandoned. This application Feb. 27, 1981, Ser. No. 238,950
Claims priority, application United Kingdom, Mar. 11, 1977, 10401/77
Int. Cl.³ C07D *307/45;* C07C *69/743*
U.S. Cl. 560—124 6 Claims

1. A process for the preparation of an ester of 3(2,2-dihalovinyl)-2,2-dimethylcyclo-propane carboxylic acid, said process comprising reacting a 1,1-dihalo-4-methyl-1,3-pentadiene with an alkyl ester or ester of 3-phenoxyl benzyl alcohol or 5-benzyl-3-furyl methanol of diazoacetic acid in the presence of a divalent rhodium salt which is a pivalate, octoate, benzoate, triphenyl acetate, acetylmandelate, p-methoxybenzoate, p-chlorobenzoate, acetate, n-methoxybenzoate, α-D-methyl camphorate or borofluoride, as a catalyst.

4,332,963

SELECTIVE PRODUCTION OF PHENYLENE DIACETATE

James E. Lyons, Wallingford, and Chao-Yang Hsu, Media, both of Pa., assignors to Sun Tech, Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 137,707, Apr. 7, 1980, abandoned. This application May 11, 1981, Ser. No. 262,157
Int. Cl.³ C07C *69/035*
U.S. Cl. 560—131 10 Claims

1. A process for the acetoxylation of phenyl acetate, which comprises reacting, at elevated temperature and pressure and in the presence of a palladium catalyst and a gas mixture comprising an inert gas and oxygen, a reaction mixture comprising phenyl acetate, acetic acid and acetic anhydride, the amount of oxygen in the gas mixture not exceeding 13 vol. %, whereby paraphenylene diacetate is produced as the predominant product.

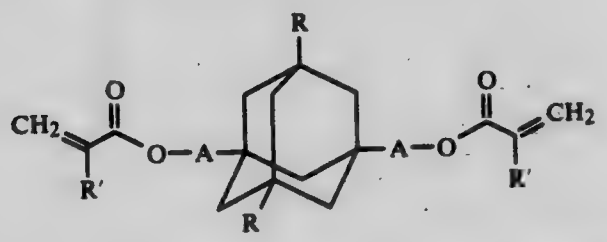
4,332,964

UNSATURATED ESTERS OF ADAMANTANE CONTAINING DIOLS AND THERMO-RESISTANT CROSS-LINKED POLYMERS THEREFROM

Gunter Bellmann, Onex, Switzerland, and Nguyen Van Tao, Cruseilles, France, assignors to Battelle Development Corporation, Columbus, Ohio

Continuation-in-part of Ser. No. 158,504, Jun. 11, 1980. This application May 18, 1981, Ser. No. 264,680
Int. Cl.³ C07C *69/54*
U.S. Cl. 560—141 8 Claims

1. A compound having the formula



wherein R is a radical selected from the group consisting of hydrogen or methyl; R′ is a radical selected from the group consisting of hydrogen or methyl; and A is either a sigma (σ) bond; or a radical satisfying the formula $(CH_2)\eta$ where η is an integer of from 1 through 4; or phenylene; or an alkyl derivative of phenylene.

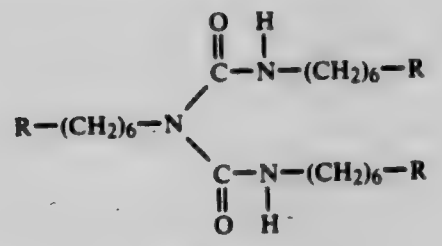
4,332,965

BLOCKED POLYISOCYANATES FORMED FROM A POLYISOCYANATE CONTAINING BIURET GROUPS AND FROM AN ACETOACETIC ACID ALKYL ESTER

Horst Dalibor, Norderstedt, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

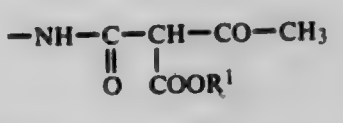
Continuation of Ser. No. 779,156, Mar. 18, 1977, abandoned. This application Mar. 3, 1980, Ser. No. 126,443
Claims priority, application Fed. Rep. of Germany, Mar. 25, 1976, 2612783
Int. Cl.³ C07C *103/87*
U.S. Cl. 560—169 1 Claim

1. Process for the manufacture of a completely or partially blocked compound having the formula



(I)

wherein R denotes the radical



and one to three units of R are present in the compound and wherein, in the case wherein one or two units of R having this meaning are present, the remaining radical R denotes the radical —NCO, and wherein R^1 denotes the methyl, ethyl, propyl, isopropyl, n-butyl, tert.-butyl, isobutyl, sec.-butyl, pentyl, hexyl, heptyl, octyl, nonyl, decyl or dodecyl radical, characterized in that an acetoacetic acid alkyl ester in which the alkyl radical consists of the methyl, ethyl, propyl, isopropyl, n-butyl, tert.-butyl, isobutyl, sec.-butyl, pentyl, hexyl, heptyl, octyl, nonyl, decyl, or dodecyl, is reacted, by warming, in the presence of zinc acetoacetonate as catalyst, with an about 75 percent strength by weight solution of a triisocyanate containing biuret groups having an NCO content of 16.5 to 17.0 percent by weight and which triisocyanate has been obtained by reacting three moles of hexamethylene diisocyanate with one mol of water, and for every NCO group to be blocked in the ratio of acetoacetic acid ester: NCO of 1 to 1.1:1, to obtain a compound of formula I.

4,332,966

PROCESS FOR PRODUCING 3-PENTENOIC ESTERS

Nobuo Isogai; Motoyuki Hosokawa; Takashi Okawa; Natuko Wakui, and Toshiyasu Watanabe, all of Niigata, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Oct. 21, 1980, Ser. No. 199,332
Claims priority, application Japan, Dec. 17, 1979, 54/163840; Sep. 8, 1980, 55/124255
Int. Cl.³ C07C *67/36*
U.S. Cl. 560—206 11 Claims

1. In a process for producing a 3-pentenoic ester which comprises reacting butadiene, carbon monoxide and an alcohol in the presence of cobalt carbonyl catalyst and a solvent,

the improvement wherein the reaction is carried out in a reaction medium composed of at least two solvents selected from the group consisting of pyridine, quinoline, isoquinoline and substituted pyridine, substituted quino-

line and substituted isoquinoline in which substituent or substituents are selected from the group consisting of alkyl having 1–6 carbon atoms, alkenyl having 1–6 carbon atoms, aryl, alkylaryl having 7–10 carbon atoms and aralkyl having 7–10 carbon atoms, and wherein any one of said at least two solvents is present in an amount of more than 2 moles % on the basis of total moles of the solvents.

4,332,967

COMPOUNDS CONTAINING SULFUR AND AMINO GROUPS

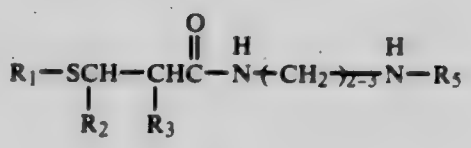
Neil E. S. Thompson, Creve Coeur; Derek Redmore, Webster Groves; Bernardus A. Oude Alink, St. Louis, and Benjamin T. Outlaw, Webster Groves, all of Mo., assignors to Petrolite Corporation, St. Louis, Mo.

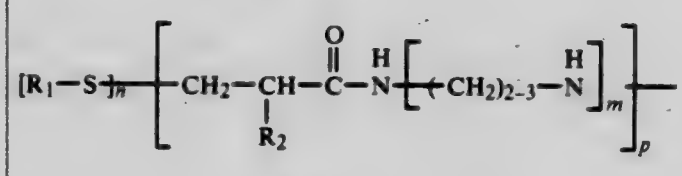
Filed Jun. 19, 1980, Ser. No. 161,198

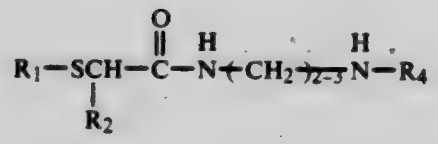
Int. Cl.³ C07C *103/44*

U.S. Cl. 564—162 **6 Claims**

1. A composition selected from the group consisting of;







where

R_1 is a hydrocarbon group, R_2, R_3 are H or alkyl,

R_4, R_5 are H, alkyl, alkanol, or —alkylene N)$_n$H,

n, m or p are one or more,

and mixtures thereof.

4,332,968

IMINES FROM MESITYL OXIDE

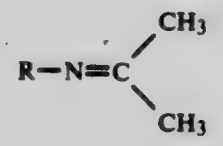
Lawrence A. Smith, Jr., Houston, Tex., assignor to Chemical Research & Licensing Company, Houston, Tex.

Continuation-in-part of Ser. No. 108,790, Dec. 31, 1979, abandoned, which is a division of Ser. No. 889,360, Mar. 23, 1978, Pat. No. 4,306,068. This application Sep. 8, 1980, Ser. No. 185,296

Int. Cl.³ C07C *119/12*

U.S. Cl. 564—278 **4 Claims**

1. The method of producing a compound of the structure



wherein R is an aliphatic, olefinic or aromatic organic radical having 2 to 30 carbon atoms, comprising contacting an organic primary amine having the structure R—NH_2 with mesityl oxide in a reactor to produce said compound and acetone and removing acetone or said adduct from said reactor by fractionation.

4,332,969

SUBSTITUTED 11-AMINOUNDECANOLS

Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Adolf Hubele, Magden, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

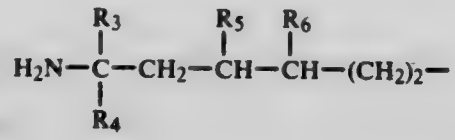
Continuation of Ser. No. 923,436, Jul. 10, 1978, abandoned. This application Feb. 26, 1980, Ser. No. 124,690

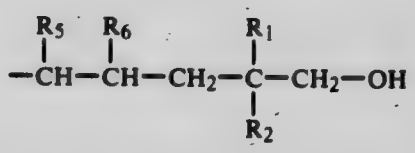
Claims priority, application Switzerland, Jun. 19, 1977, 8914/77

Int. Cl.³ C07C *85/20, 87/40, 87/453, 91/04*

U.S. Cl. 564—460 **8 Claims**

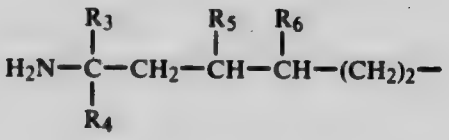
1. A compound of the formula



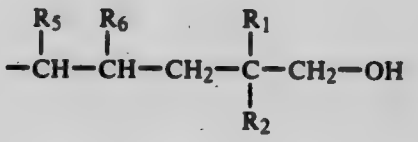


in which R_3, R_5 and R_6 are each hydrogen, R_1 and R_2 independently of one another are alkyl having 1–4 C atoms or together with the bonding C atom are cyclohexyl and R_4 is alkyl having 1–7 C atoms.

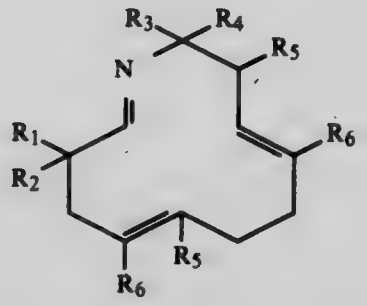
7. A process for the preparation of a compound of formula I



(I)



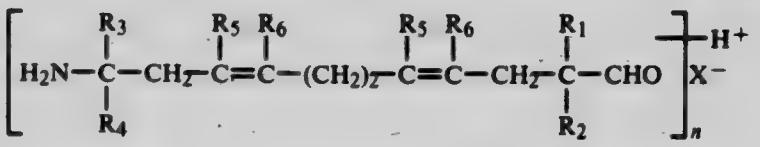
in which R_1 and R_3 independently of one another are hydrogen or alkyl having 1–8 C atoms and R_2 and R_4 independently of one another are alkyl having 1–8 C atoms, or R_1 and R_2 and/or R_3 and R_4 together with the bonding C atom form a cycloaliphatic ring having 4–8 C atoms, and R_5 and R_6 independently of one another are hydrogen or alkyl having 1–4 C atoms, which comprises converting a 1-aza-1,5,9-cyclododecatriene of the formula II



(II)

in an aqueous or aqueous-organic medium in the presence of an inorganic acid which is non-oxidising under the reaction conditions, to a compound of the formula III

(III)



in which X is the anion of an inorganic acid which is nonoxidis-

ing under the reaction conditions and n is an integer corresponding to the valency of X, and then catalytically hydrogenating the compound of the formula III to give a compound of the formula I.

4,332,970

ACETYL HYDRINDACENES, ACETYL INDANES, MIXTURES OF SAME, PROCESSES FOR PREPARING SAME AND ORGANOLEPTIC USES THEREOF

Mark A. Sprecker, Sea Bright; Manfred H. Vock, Locust; Frederick L. Schmitt, Holmdel; Joaquin Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 156,772, Jun. 5, 1980, Pat. No. 4,284,819, which is a division of Ser. No. 953,180, Oct. 20, 1978, Pat. No. 4,209,543. This application Mar. 25, 1981, Ser. No. 247,636

Int. Cl.³ C07C *45/46, 2/70*

U.S. Cl. 568—319 **9 Claims**

1. A process for preparing 4-isopropyl-3,3,8,8-tetramethyl-as-hydrindacene comprising the step of intimately admixing cumene, isoprene and 6-isopropyl-1,1-dimethylindane in the presence of sulfuric acid at a temperature in the range of from about 0° C. up to about 5° C. thereby forming a mixture of cumene, 6-isopropyl-1,1-dimethylindane and 4-isopropyl-3,3,8,8-tetramethyl-as-hydrindacene; then fractionally distilling the resulting mixture and recycling the cumene and 6-isopropyl-1,1-dimethylindane back into the reaction mass and separating out and thereby recovering said 4-isopropyl-3,3,8,8-tetramethyl-as-hydrindacene; the mole ratio of the cumene to 6-isopropyl-1,1-dimethylindane being adjusted such that the net amount of the 6-isopropyl-1,1-dimethylindane formed during the reaction is equal to the amount of 6-isopropyl-1,1-dimethylindane originally charged to the reaction mass; the mole ratio of the 6-isopropyl-1,1-dimethylindane:cumene being within the range of from about 2:1 up to about 3:1; the mole ratio of the sum of cumene and 6-isopropyl-1,1-dimethylindane:isoprene being within the range of from about 2:1 up to about 6:1; the sulfuric acid being used being concentrated sulfuric acid and being from about 85 weight percent aqueous sulfuric acid up to about 95 weight percent aqueous sulfuric acid; the concentration of said concentrated sulfuric acid being used in the reaction mass varying from about 15% up to about 40% based on the total weight of said reaction mass.

4,332,971

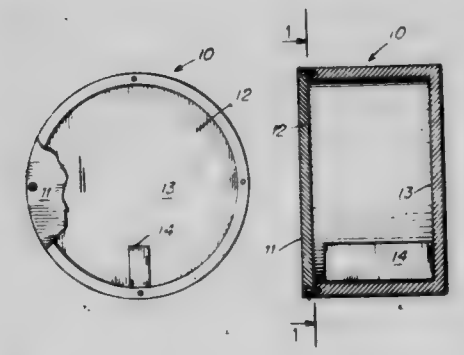
PROCESS FOR THE OXIDATION OF OLEFINICALLY UNSATURATED HYDROCARBONS TO ALDEHYDES USING ATTRITION RESISTANT CATALYSTS

Charles A. Dalton, and William E. Slinkard, both of Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.

Division of Ser. No. 65,256, Aug. 9, 1979, Pat. No. 4,276,196. This application Dec. 15, 1980, Ser. No. 216,399

Int. Cl.³ C07C *45/35, 47/21*

U.S. Cl. 568—480 **5 Claims**



1. In a process for the oxidation of olefinically unsaturated hydrocarbons containing 3 to 5 carbon atoms to the corresponding olefinically unsaturated aldehydes, the improvement comprising reacting, in the vapor phase, said olefinically unsaturated hydrocarbon with molecular oxygen in the presence of an improved attrition resistant oxidation catalyst prepared by:

(1) wetting an essentially inert porous support capable of holding finely divided active catalytic material on its outer surface with a sufficient amount of aqueous silica sol containing from about 20 to about 40 weight percent silica, based on the weight of aqueous silica sol, to provide a wetted support which contains up to the maximum amount of aqueous silica sol which the support can sorb without having the appearance of liquid on the outer surface of said wetted support;

(2) coating the outer surface of said wetted support with a uniformly appearing coating of a dried precursor of a finely divided catalytically active oxide material having the empirical formula:

$$Mo_{12}Bi_aNi_bFe_cCo_dL_eM_fO_x$$

wherein Mo, Bi, Ni, Fe, Co and O respectively are the elements molybdenum bismuth, nickel, iron cobalt and oxygen; L is at least one element selected from potassium and rubidium; M is at least one element selected from phosphorous, cerium, germanium, manganese, niobium, antimony and tanralum; a, b, c, d, e, f, are respectively numbers of atoms of Bi, Ni, Fe, Co, L, M: wherein a is 0.3–3; b is 1–6; c is 1–6 di is 1–7; e is 0.05–2 and f is 0.3–06; and x represents the number of oxygen atoms sufficient to satisfy the valence requirement of the other elements for the oxidation of olefinically unsaturated hydrocarbons to the corresponding unsaturated aldehydes, said precursor having been heated at a temperature of from about 200° C. to about 350° C. in the presence of molecular oxygen for a period of time sufficient to remove the majority of the volatiles therefrom; and

(3) calcining said coated wetted support at a temperature of from about 400° C. to 570° C. to provide a thermodynamically stabilized catalyst, having the desired catalytic activity for the oxidative conversion of olefinically unsaturated hydrocarbons to the corresponding unsaturated aldehydes, combined with a special attrition index not exceeding about 10 weight percent.

4,332,972

MODIFIED ZINC FERRITE OXIDATIVE DEHYDROGENATION CATALYSTS IN OXIDATIVE DEHYDROGENATION

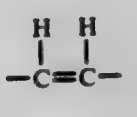
Harold F. Christmann, Seabrook, and Edward J. Miklas, Conroe, both of Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex.

Continuation of Ser. No. 540,335, Jan. 13, 1975, abandoned, which is a division of Ser. No. 502,305, Sep. 3, 1974, Pat. No. 3,960,767. This application Sep. 8, 1978, Ser. No. 940,478

Int. Cl.³ C07C *5/48*

U.S. Cl. 585—442 **7 Claims**

1. In the process of oxidative dehydrogenation of organic compounds having from about 2 to about 20 carbon atoms and at least one



group in the presence of a pelleted powder of a zinc ferrite catalyst composition having the empirical formula $Zn_xFe_yO_z$ wherein x is from 0.1 to about 2, y is about 0.3 to about 12 and z is about 3 to about 18 at a temperature of from about 500° F. to about 1,200° F. to thereby produce a dehydrogenated compound having the same number of carbon atoms, the improvement which comprises incorporating into said catalyst composition zinc carbonate by admixing (1) powdered zinc carbonate in an amount of from about 0.1 to about 25 wt.% determined on the basis of zinc oxide and based on the weight of the zinc ferrite composition, (2) powdered zinc ferrite and (3) aqueous phosphoric acid in an amount to dampen the powder mixture of zinc ferrite and zinc carbonate, and pelletizing the mixture.

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4,332,973

HIGH INTENSITY SOLAR CELL

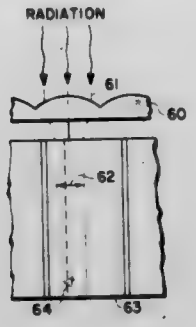
Bernard L. Sater, 9007 Westlawn Blvd., Olmsted Falls, Ohio 44138

Division of Ser. No. 522,244, Nov. 8, 1974, abandoned. This application Aug. 11, 1978, Ser. No. 932,903

Int. Cl.[3] H01L *31/04*

U.S. Cl. 136—246

5 Claims



1. Photovoltaic means for producing an electrical output from incident solar radiation, said photovoltaic means comprising a plurality of unit semiconductor solar cells each having at least one p-n junction, said p-n junctions being arranged in planes lying substantially parallel to the direction of the incoming radiation on the light-receiving surfaces of said cells, and optical radiation-focusing means comprising a corresponding plurality of optical elements having their optical axes arranged in spaced parallel relation in planes parallel to the planes of said p-n junctions, each of said optical axes being respectively offset with respect to the planes of said p-n junctions, said radiation-focusing means thereby being effective to focus incident radiation onto said light-receiving surfaces as beams which are in primary adjacency to the planes of each of said p-n junctions, whereby radiation incident upon said light-receiving surface is directed essentially in the vicinity of each of said p-n junctions.

4,332,974

MULTILAYER PHOTOVOLTAIC CELL

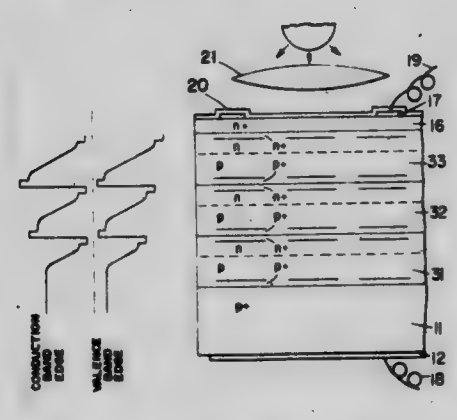
Lewis M. Fraas, Albany, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 52,707, Jun. 28, 1979, abandoned. This application Oct. 23, 1980, Ser. No. 199,803

Int. Cl.[3] H01L *31/06*

U.S. Cl. 136—249

10 Claims



1. A high efficiency, multijunction photovoltaic solar cell for use with a light concentrating element comprising:

(a) a single crystal, single element substrate without an internal light sensitive junction, said substrate capable of lattice matching to within ±1% to a $Ga_{0.88}In_{0.12}As$ semiconductor material responsive in the sun light range,

(b) a first homogeneous layer of semiconductor material deposited on said substrate, lattice matched thereto and having about $Ga_{0.88}In_{0.12}As$ composition with a semiconductor bandgap of 1.25 ev., and absorbing sun light energy at a first wavelength,

(c) a second homogeneous layer of semiconductor material deposited on said first layer lattice matched to said first homogeneous layer and having about $Ga_{0.69}In_{0.31}As_{0.5}P_{0.5}$ composition with a semiconductor bandgap of 1.5 ev., and absorbing sun light energy at a second wavelength,

(d) a third homogeneous layer of semiconductor material deposited on said second layer lattice matched to said second homogeneous layer and having about $In_{0.5}Ga_{0.5}P$ composition with a semiconductor bandgap of 1.85 ev., and absorbing visible light energy at a third wavelength,

(e) said first, second and third layer each having essentially the same lattice constant as said single crystal substrate to within ±1%,

(f) said first, second and third layer each containing a light sensitive p/n homojunction and each layer having a tunneling, shorting heterojunction with the layer immediately above and below it,

(g) said first, second and third layers each developing essentially the same zero voltage light generated current as the other layers.

4,332,975

SEALED CABLE ENCLOSURE AND CABLE ASSEMBLY INCLUDING SAME

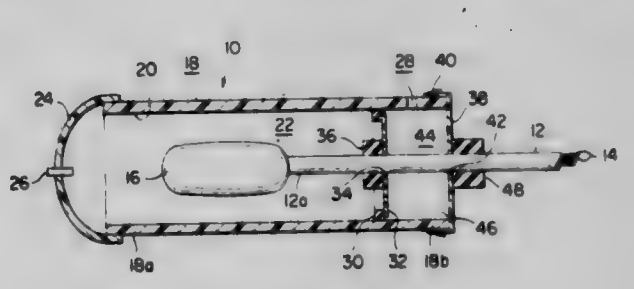
Zoltan B. Dienes, Annandale, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Jun. 13, 1980, Ser. No. 159,067

Int. Cl.[3] H02G *15/04*

U.S. Cl. 174—76

29 Claims



1. A sealed cable assembly, comprising:

an electrical cable; and

a rigid enclosure surrounding a portion of said cable, said enclosure comprising an elongate, hollow housing having inner wall surfaces defining a chamber and an opening for receiving said cable therein; a seal enclosing one end of said housing; at the other housing end an outer wall extending transversely across and covering said opening; an inner wall spaced longitudinally interiorly of said outer wall extending transversely across said opening within said inner wall surfaces; said inner and outer walls each having an aperture for passage of said cable therethrough, a portion of said cable extending interiorly into said chamber; said inner and outer walls defining with said housing inner wall surfaces a cavity; the housing portion in registry with said cavity having a filling aperture therethrough, opening into said cavity; an expanded foamed resinous material substantially filling said cavity; and means inclusive of said inner wall responsive to said foamed resinous material for providing a seal between said cavity and said chamber, whereby said chamber surrounding said cable portion is sealed at both ends thereof.

4,332,976

COAXIAL CABLES

Richard E. Hawkins, Colchester, Vt., assignor to Champlain Cable Corporation, Wilmington, Del.

Filed Jun. 5, 1980, Ser. No. 156,546

Int. Cl.[3] H01B *7/18*

U.S. Cl. 174—107

7 Claims

1. A coaxial cable comprising:

(a) an inner conductor;

(b) a dielectric system comprising:

(i) a first layer of braided high tensile strength polymeric

fluorocarbon filaments surrounding said inner conductor in an open weave along the length of the inner conductor;

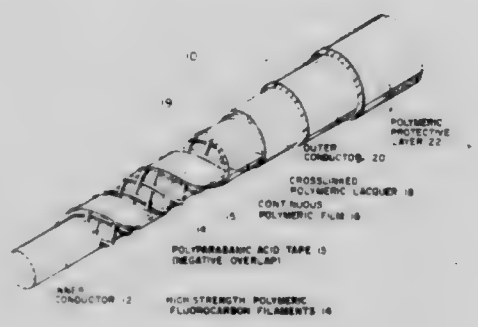
(ii) a second layer of cellular polyparabanic acid tape surrounding circumferentially said first layer, said second layer being helically wound with a negative overlap along the length of the inner conductor so as to leave spaces between wraps of said tape about said first layer;

(iii) a third layer circumferentially surrounding said second layer, said third layer comprising a high strength polymeric film that remains stable at temperatures up to 150° C. providing a continuous skin enclosing said first and second layers; and

(iv) a fourth layer surrounding the third layer of polymeric film, said fourth layer comprising a crosslinked polymeric lacqurer;

(c) an outer conductor being disposed coaxially and circumferentially about the dielectric system; and

(d) an outer protective layer surrounding circumferentially said outer conductor.

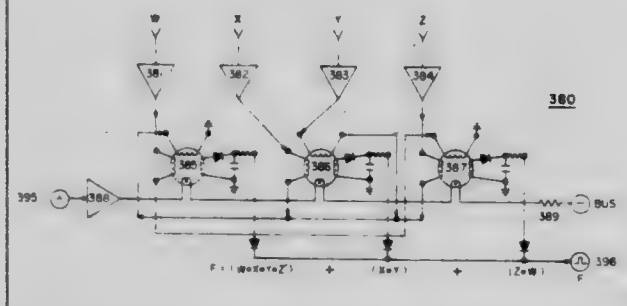


4,332,977

TELETYPEWRITER PRIVACY SYSTEM

Laurance F. Safford, Washington, D.C., assignor to American Standard Inc., New York, N.Y.

Filed Jun. 12, 1962, Ser. No. 201,985
Int. Cl.[3] H04L *9/02*
U.S. Cl. 178—22.14 **21 Claims**



1. A teletypewriter privacy system comprising a first and a second pair of terminals responsive to printing-telegraphy signals having start bauds; means for generating program signals having a fixed timing relationship with the start bauds of said telegraphy signals; a mixer circuit coupled between said terminals, and responsive to said program signals; said mixer circuit including a first switch coupled to said first pair of terminals, and a second switch coupled to said second pair of terminals, means responsive to a start baud at said first pair of terminals for maintaining said first switch operative to couple said first pair of terminals to said mixer circuit for one telegraph character, means responsive to a start baud at said second pair of terminals for maintaining said second switch operative to couple said second pair of terminals to said mixer circuit for one telegraphy character, first polarized switch means responsive to the telegraphy signal at the first pair of terminals and the program signal for selectively activating said second switch, and second polarized switch means responsive to the telegraphy bauds at the second pair of terminals and the program signal for selectively activating said first switch.

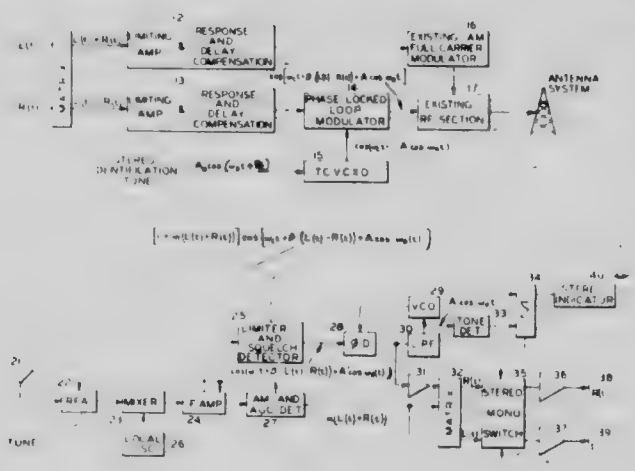
19. In combination, an electrical switching circuit for generating four pseudo-random binary electrical signals that correspond to W, X, Y and Z, and another electrical circuit for combining, through logical OR gates, said electrical signals to generate a further electrical signal representing $W\overline{X}Y\overline{Z}+X\overline{Y}+Z\overline{W}$, for use as a key for encoding a communication signal.

4,332,978

LOW FREQUENCY AM STEREOPHONIC BROADCAST AND RECEIVING APPARATUS

Robert D. Streeter, Fort Wayne, Ind., assignor to The Magnavox Consumer Electronics Co., Fort Wayne, Ind.

Continuation of Ser. No. 779,392, Mar. 21, 1977. This application Apr. 23, 1980, Ser. No. 143,154
The portion of the term of this patent subsequent to Nov. 24, 1998, has been disclaimed.
Int. Cl.[3] H04H *5/00*
U.S. Cl. 179—1 GS **12 Claims**



11. A receiver for detecting a broadcast signal, said signal containing first and second stereophonic related signals modulated thereon, comprising:

means for detecting amplitude variations of said broadcast signal, said means providing a signal representing the summation of said stereophonic related signals;

means for detecting phase variations of said broadcast signal, said phase variation detecting means providing a signal representing the difference of said stereophonic related signals;

squelch detector means for detecting the loss of said broadcast signal, said squelch detector means providing a switching signal during said loss of broadcast signal;

means for combining said signal representing said difference between stereophonic related signals and said signal representing said summation of stereophonic related signals, whereby first and second stereophonic signals are produced, said means for combining including means for inhibiting the production of first and second stereophonic related signals in response to said switching signal.

4,332,979

ELECTRONIC ENVIRONMENTAL ACOUSTIC SIMULATOR

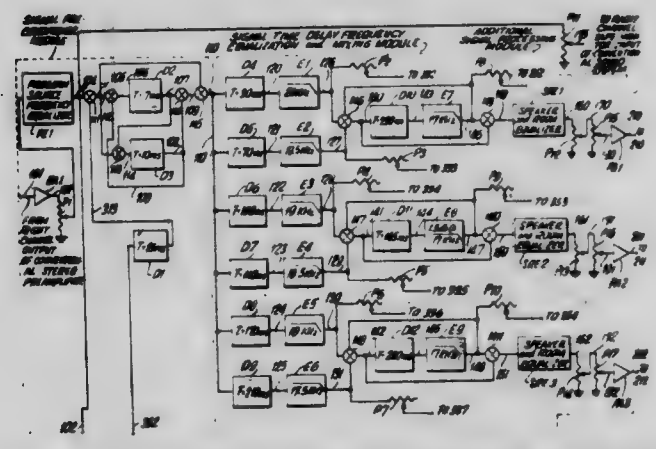
Mark L. Fischer, 555 Middlefield Rd., Apt. P206, Mountain View, Calif. 94040

Continuation of Ser. No. 970,996, Dec. 19, 1978, abandoned. This application Sep. 22, 1980, Ser. No. 189,774
Int. Cl.[3] H04R *5/00*
U.S. Cl. 179—1 GQ **3 Claims**

1. A sound reproduction system for a listening area classified as an environmental acoustic simulator providing enhancement of left and right stereophonic signal sources from a conventional stereo sound system which are delayed, equalized and mixed in certain combinations to form six channels and then

further mixed, equalized and amplified to drive 36 loudspeakers in 18 loudspeaker enclosures, said system comprising;

(a) the signal preconditioner module comprised of two identical submodules designated left and right deriving their input signals from the respective left and right preamplifier tape outputs, main preamplifier outputs or the like of the left and right stereophonic signal sources of a conventional stereo sound system, said submodules comprised of high input impedence buffer amplifiers, control potentiometers for signal level adjustment, adjustable frequency response equalizer means to compensate for variations in the tonal balance of the source signals, time delay units to provide a 25 millisecond delayed signal from one channel into the other, mixers to provide means for an adjustable mixture of signals with corresponding signals of the opposite channel, a controlled reverberation network consisting of means for time delay, mixers and potentiometers providing signal delays of 7 milliseconds, 10 milliseconds and their additive combinations generating the respective left and right output signals for the signal time delay frequency equalization and mixing module, said preconditioner module also providing left and right equalized but undelayed outputs controllable by potentiometers optionally connected to the tape monitor input of the preamplifier of the conventional stereo sound system or to the main power amplifier inputs of the conventional stereo sound system, said potentiometers being mechanically controlled by the same actuator shaft which simultaneously controls the overall gain of the simulator output;



(b) the signal time delay frequency equalization and mixing module comprised of two identical submodules designated left and right deriving their inputs from the respective left and right outputs of the signal preconditioner module, said submodules comprising multiple time delay means providing delays of 30 milliseconds, 70 milliseconds, 100 milliseconds, 140 milliseconds, 170 milliseconds and 210 milliseconds, multiple frequency equalization means providing 3 decibels of attenuation with respect to the midfrequency region at 20 Kilohertz, 19.5 Kilohertz, 19 Kilohertz, 18.5 Kilohertz, 18 Kilohertz and 17.5 Kilohertz, respectively, additional multiple mixers and time delay means providing delays of 145 milliseconds and 290 milliseconds to create in total time delays from both the left and right submodule of up to 4,000 milliseconds, multiple equalization means providing 1½ and 3 db of attenuation at 17 Kilohertz with respect to the midfrequency region, additional mixers and potentiometers providing means to controllably recirculate and crossblend between submodules, their signals from the corresponding left and right channels, there being generated a total of six outputs from the submodules designated as left front, left side, left rear, right front, right side, and right rear for connection to the additional signal processing module;

(c) additional signal processing module consisting of six identical submodules designated as left front, left side, left rear, right front, right side, and right rear, each deriving its input from the corresponding output of the signal delay, frequency equalization and mixing module, each submodule comprising an adjustable frequency equalizer, 2 volume control potentiometers and a high fidelity audio amplifier generating six outputs designated as left front, left side, left rear, right front, right side, right rear suitable for driving the loud speaker systems;

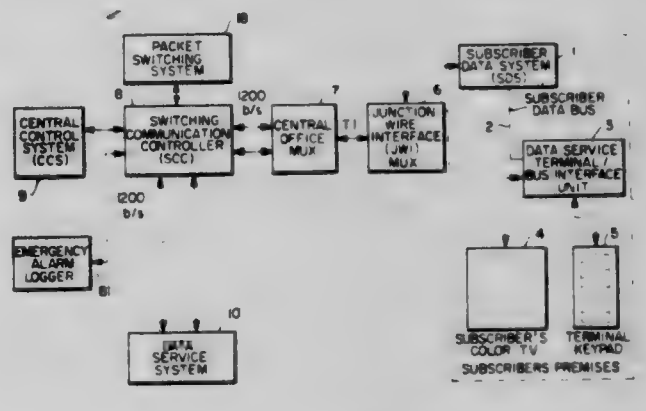
(d) the loudspeaker system comprised of six identical speaker banks designated left front, left side, left rear, right front, right side and right rear, each bank energized by the output of the corresponding additional signal poccessing submodule, each bank comprising three loudspeaker enclosures, each enclosure containing typically 4 inch diameter, 8 ohm full range acoustic suspension high fidelity speakers, wherein two loudspeakers are mounted in series and electrically out of phase in each enclosure to radiate their energy indirectly into the environment, the loudness of each pair of speakers in each enclosure controlled by a 16 ohm, 10 watt, L-pad, three (3) enclosures per speaker bank or group, each of the speaker banks two or more feet from the ceiling with the drivers' axes pointing at the ceiling and nearby walls to take full advantage of the reflective properties of the boundary structure, with one enclosure in the left front bank and one enclosure in the right front bank located near the level of the speakers of the conventional stereo sound system which should be placed from 2 to 4 feet from the floor to simulate early delays arriving close to source, with left and right corresponding banks placed symmetrically and positioned such that each left enclosure is out of phase with its opposite on the right and the speakers within each bank are positioned such that each driver is out of phase with the one adjacent to it.

4,332,980

MULTIPLE SERVICES SYSTEM USING TELEPHONE LOCAL LOOP

Christopher C. Reynolds, Satellite Beach; Earl J. Claire, Melbourne Beach, and John R. Ellis, West Melbourne, all of Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed May 30, 1980, Ser. No. 154,825
Int. Cl.³ H04M *11/04*
U.S. Cl. 179—2 A 43 Claims



1. A multiple services system using telephone transmission lines comprising

a microprocessor-controlled subscriber data system to be located on subscriber premises including a subscriber data bus, at least one data service terminal connected to said bus, at least one alarm condition monitor and microprocessor control means connected to said bus and said alarm condition monitor for controlling the transmission of signals derived therefrom;

a central control system for processing signals applied thereto, including alarm signals;

a data service system for providing data communications to be transmitted to said subscriber data system on request; and

switching communication controller means connected to said subscriber data system via telephone transmission lines for connecting said subscriber data system to said central control system in the case of transmission of alarm

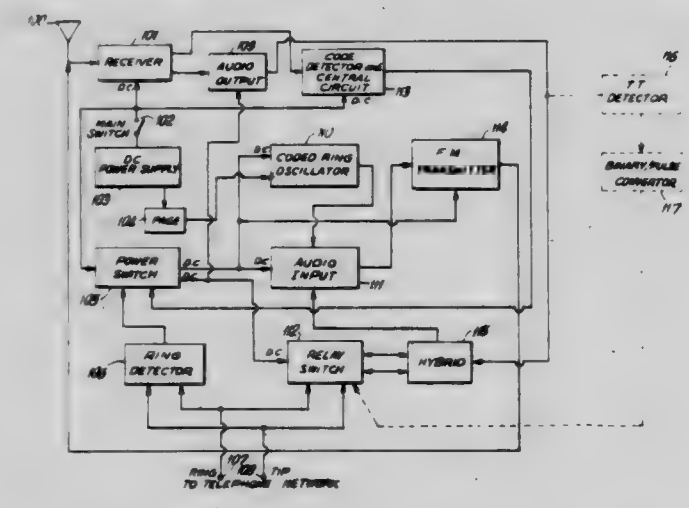
signals and for selectively switching connection of said subscriber data system to said data service system for effecting bidirectional transmission of data communications between said data service system and said subscriber data system in response to an initiating request from said subscriber data system.

4,332,981

CORDLESS TELEPHONE

Edward R. Palombi, 435 E. 65th St., New York, N.Y. 10020, and Joseph H. Vogelman, 48 Green Dr., Roslyn, N.Y. 11576, assignors to Edward Rossi Palombi, New York and Joseph Herbert Vogelman, Roslyn, both of, N.Y.

Filed Aug. 15, 1980, Ser. No. 178,358
Int. Cl.³ H04Q *7/04*
U.S. Cl. 179—2 EA **12 Claims**



7. A cordless telephone system, comprising a remote unit, said remote unit comprising means for generating a first binary code uniquely identifying said remote unit, microphone means for receiving voice signals from a remote unit user, means for modulating a low-frequency subcarrier signal with said first binary code, means for generating telephone system switching signals, and means for selectively combining said first binary code-modulated subcarrier signal, said voice signals and said switching signals and for transmitting said combined signals to a base unit, said base unit comprising, means for receiving said combined signals from said remote unit, means responsive to the reception of said first binary code for establishing a signaling path between said remote unit and a telephone network, said signaling path carrying said voice signals and said switching signals to said telephone network, and means responsive to the termination of said first binary code transmission for breaking said signaling path.

4,332,982

TELEPHONE TOLL CALL SECURITY AND LOGGING DEVICE AND METHOD

Ralph H. Thomas, Bath, Ohio, assignor to Ident-A-Call, Inc., Akron, Ohio

Filed Sep. 5, 1980, Ser. No. 184,242
Int. Cl.³ H04M *1/66*
U.S. Cl. 179—7.1 R **12 Claims**

1. A device to control access to and log telephone calls made upon a long-distance telephone network, comprising:

a telephone instrument;

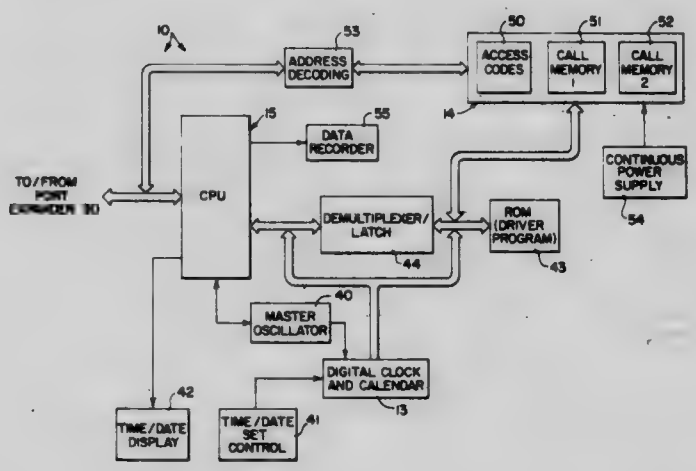
telephone line interface means for selectively connecting said telephone instrument to an incoming telephone line and a local telephone power supply system, said telephone line interface means providing output signals indicative of the operational status of said telephone instrument and all numbers dialed on said telephone instrument;

clock and calendar means for continuously providing output signals indicative of the present date and time-of-day;

access code memory means for storing and providing output signals indicative of a plurality of security codes authorized for utilization of the long-distance telephone network;

first and second log memory means for temporarily storing data regarding all outgoing long-distance telephone calls made from said telephone instrument;

control means for receiving said output signals from said telephone line interface means, said clock and calendar means and said access code memory means, said control means monitoring said telephone line interface means and upon detection of a dialed digit initiating a tie-in to the long-distance telephone network directing the connection of said telephone instrument to said local telephone power supply system and connection of said incoming telephone line to a holding load, said control means comparing the next preselected plurality of dialed digits received to those



stored in said access code memory means to determine the validity thereof, said control means upon determination of a valid access code directing said telephone line interface means to reconnect said telephone instrument with said incoming telephone line and further directing one of said memory means to record said dialed access code and telephone number, the date of said call and the time of call initiation and termination; and,

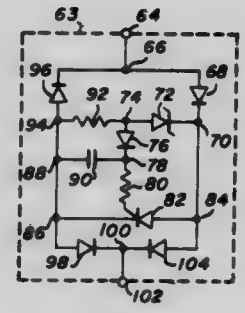
data recorder means for periodically receiving data stored in said first and said second log memory means, said control means routing data from whichever of said log memory means is substantially filled with data to said data recorder means while employing the other said log memory means to record data for toll calls made during the time of data transfer.

4,332,983

TELEPHONE PRIVACY CONTROLLER

Hosein Vakili, 273 Marchmont Dr., Los Gatos, Calif. 95030

Filed Oct. 27, 1980, Ser. No. 200,934
Int. Cl.³ H04M *1/70*
U.S. Cl. 179—17 B **1 Claim**



1. A telephone privacy controller for a party line comprising, at each telephone on said party line:

a first terminal being connected to one of the leads of the party line pair;

a first steering diode connected to the first terminal;

a second terminal connected to the first steering diode whereby current may flow from the first terminal to the second terminal;

a silicon controlled rectifier connected to the second terminal, the third silicon controlled rectifier including a gate input for receiving pulses whereby the silicon controlled rectifier will permit current flow upon receipt of said pulses at said gate;

a Zener diode with one element connected to the second terminal and one element connected to a second steering diode and a resistive element;

a third terminal connected to the output of the silicon controlled rectifier;

capacitive means coupled to said gate of the silicon controlled rectifier and to the third terminal, the capacitive means including a capacitor and a resistor connected in series between said gate input of the silicon controlled rectifier and the output of the silicon controlled rectifier, the common junction of said resistor and capacitor being common to said second diode;

a third steering diode connected to the third terminal and to the first terminal whereby current may flow from the third terminal to the first terminal;

a fourth steering diode connected to the third terminal;

a fourth terminal connected to the fourth steering diode whereby current may flow from the terminal to the fourth terminal; said fourth terminal being connected to its associated telephone which is, in turn, connected to the other lead of said line pair and

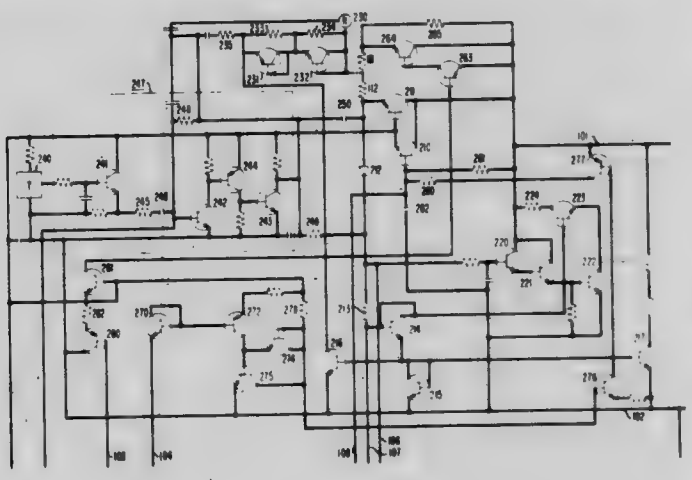
a fifth steering diode connected between the fourth and second terminals whereby current may flow between the fourth terminal to the second terminal.

4,332,984

ACTIVE SPEECH NETWORK CIRCUIT FOR A TELEPHONE SET

Paul C. Davis, Reading, Pa.; Raymond G. Jackson, Indianapolis, Ind.; Kenneth F. Sodomsky, Reading, Pa., and Dennis L. Whitson, Blue River Township, Hancock County, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 13, 1979, Ser. No. 103,404
Int. Cl.³ H04M *1/00*
U.S. Cl. 179—81 R **28 Claims**



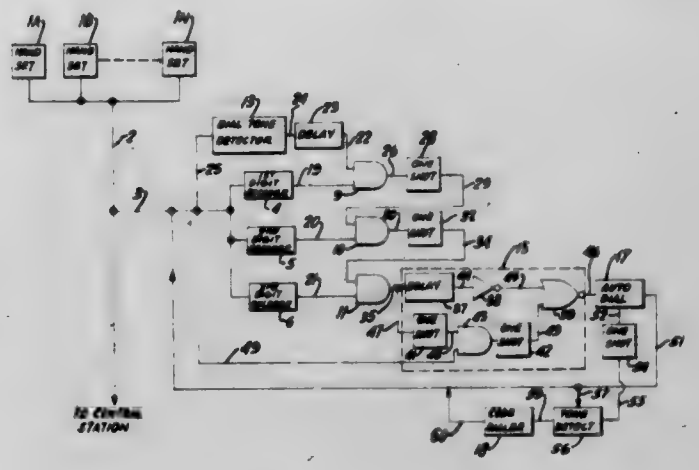
15. An active speech network for a telephone set comprising a pair of line terminals **(101, 102)** with a specific level of voltage and current available, a resistance network **(280, 281)** serially connected with a capacitor **(282)** across the line terminals, the resistance network and capacitor in combination with a control element **(210–215)** providing a first dc voltage level with the active speech network in a first operating condition and a second dc voltage level with the active speech network in a second operating condition.

4,332,985

AUTOMATIC CALLING METHODS AND APPARATUS

Richard I. Samuel, Westfield, N.J., assignor to Jayem Dialer Corp., Westfield, N.J.

Filed Mar. 28, 1980, Ser. No. 134,951
Int. Cl.³ H04M *1/274*
U.S. Cl. 179—90 BD **48 Claims**



1. Automatic calling apparatus responsive to an actuating signal generated by any of a plurality of telephone handsets commonly connected to at least one telephone line and through said at least one telephone line to a switched telephone network for selectively initiating a calling sequence, said apparatus comprising:

input/output conductor means connected to said telephone line for receiving signal information applied to said telephone line from any of said plurality of handsets and for applying calling information to said telephone line, said input/output conductor means being connected to said telephone line in a manner to permit all signal information initially applied to said telephone line from any of said handsets to be further applied to said switched telephone network;

means connected to said input/output conductor means for determining that one of said plurality of telephone handsets connected to said telephone line has been actuated by a user;

means connected to said input/output conductor means for detecting signal information applied to said telephone line by an actuated one of said plurality of handsets for activating said automatic calling apparatus to cause said automatic calling apparatus to apply selected calling information to said telephone line; and

means responsive to a detection of said signal information for activating said automatic calling apparatus for generating said selected calling information corresponding to telephone number information of a location to be contacted and applying said calling information generated to said telephone line through said input/output conductor means.

4,332,986

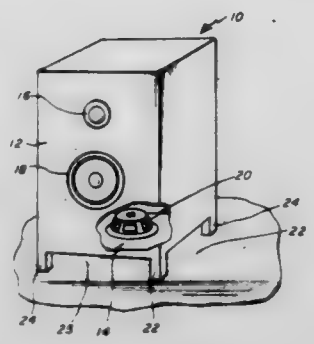
SPEAKER SYSTEM EMPLOYING PASSIVE RADIATOR

John L. Butler, Marshfield, Mass., assignor to Image Acoustics, Inc., North Marshfield, Mass.

Filed Jan. 31, 1980, Ser. No. 117,376
Int. Cl.³ H04R *1/28*; H05K *5/00*
U.S. Cl. 179—146 E **6 Claims**

1. A speaker system comprising; a speaker enclosure including a plurality of walls including a front wall and a bottom wall, the bottom wall facing the floor upon which the speaker system rests, means supporting the speaker enclosure and the bottom wall above the floor and defining an open space below the bottom wall having at least one port communicating with the bottom space to permit the communication of low-frequency sounds, at least one low-frequency speaker, and a passive radiator means supported at said bottom wall and directly facing the floor to direct signals into said space below said bottom wall, said at least one port defined between legs for

supporting the enclosure, wherein the height of the port is small in comparison to the wavelength of sound radiated by



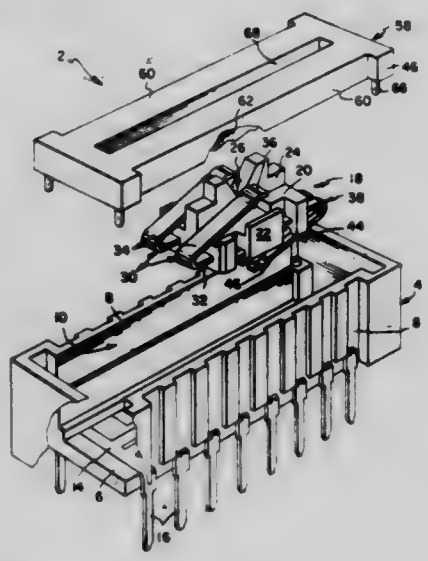
the passive radiator means so that the total radiation resistance of the passive radiator means is approximately equal to twice the self-radiation resistance of the passive radiator means.

4,332,987

DIP SWITCH

Norman E. Hoffman, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Dec. 15, 1980, Ser. No. 216,360
Int. Cl.[3] H01H *15/02*
U.S. Cl. 200—16 D 8 Claims



1. A DIP switch comprising a housing having a base surface and sidewalls defining a channel therebetween, said base surface having circuitry means thereon;

slide body means receivable in and moveable along said channel, said body means having a plurality of spaced apart and parallel arms projecting forward therefrom, each said forward arm having a free, reversely formed, end segment projecting backwards toward, and superior to said body; and said slide body means having a plurality of spaced apart and parallel conductive arms, electrically and mechanically connected at one end and projecting rearward from said slide body means, each said rearward conductive leg having a reversely formed and depending opposite end sgement for engaging said circuitry means; and

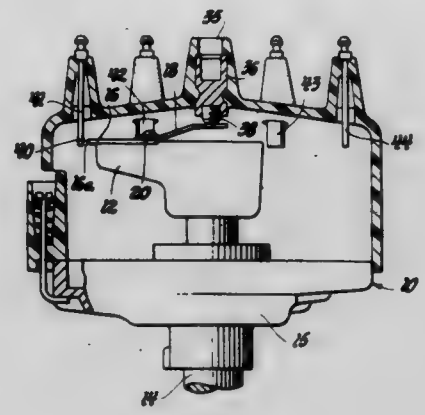
cover means for enclosing the top of said channel, and compressing said forward arm segments thereagainst, and said rearward opposite end segments against said circuitry means.

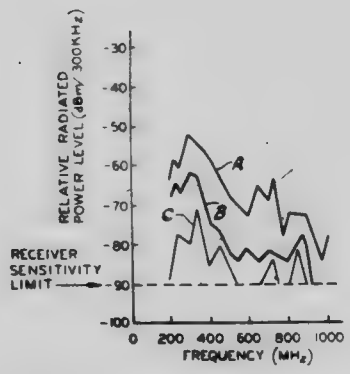
4,332,988

RADIO FREQUENCY INTERFERENCE SUPPRESSING IGNITION DISTRIBUTOR

Dennis F. Dungan, Mt. Clemens, and Wey-Chaung Kuo, Bloomfield Hills, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 12, 1980, Ser. No. 206,022
Int. Cl.[3] H01H *19/00;* F02P *7/00*
U.S. Cl. 200—19 DC 2 Claims





1. In an ignition distributor of the type wherein a movable electrode electrically connected to the secondary winding of an ignition coil is passed in ignition spark gap relationship with at least one stationary electrode electrically connected to a corresponding spark plug, the improvement wherein each stationary electrode is formed of an electrically resistive, resin bonded mixture of metal, carbon and ferrite powders suppressive of radio frequency interference energy generated by an ignition spark.

4,332,989

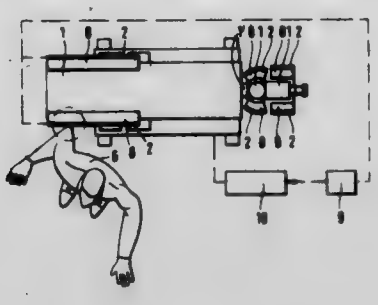
SAFETY ARRANGEMENT FOR SYSTEMS HAVING PARTS SPATIALLY MOVED

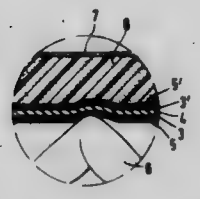
Peter Nicolaisen, Stuttgart, Fed. Rep. of Germany, assignor to Fraunhofer Gesellschaft zur Forderung der argewandten Forschung e.v., Munich, Fed. Rep. of Germany

Filed Dec. 6, 1979, Ser. No. 100,774
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854459
Int. Cl.[3] H01H *3/16, 13/70*
U.S. Cl. 200—47 5 Claims

1. A manipulation or driverless transportation device comprising at least one electrical switch means, electrical control means, and means connecting said switch means to said control means, said switch means being arranged at those locations on said device where said switch means is actuated, upon collision of said device and contact of said switch means with a person or object, to cause said control means to shut off the movement of said device or initiate an emergency operation program causing a sequence of movements opposite to the direction of said collision, said switch means comprising at least one planar laminate on the surfaces of those parts of said device which will contact said person or object upon collison therewith, said laminate comprising a continuous layer of a normally electri-

cally insulating plastic material which becomes electrically conductive upon being compressed, a continuous, electrically conductive layer contiguous to each of the opposite surfaces of said normally electrically insulating plastic material layer, and a deformable layer for receiving impact energy and extending





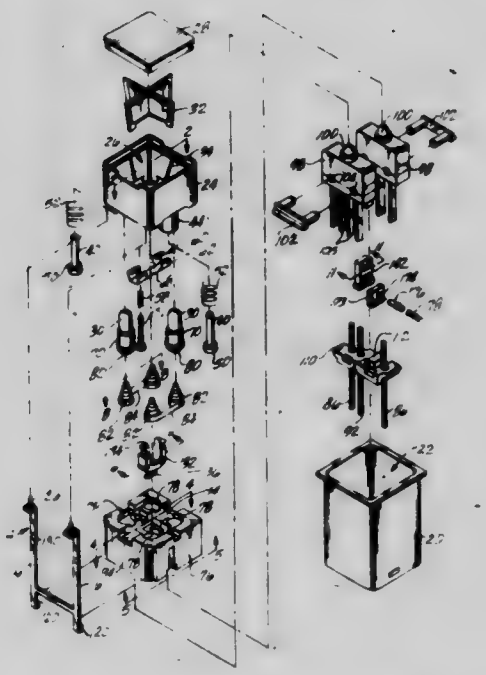
along the side of one of said electrically conductive layers opposite said normally electrically insulating plastic material layer, whereby said switch means may be actuated and an electrical circuit may be closed upon compression of said laminate at any and all points therealong.

4,332,990

MINIATURE ILLUMINATED PUSH BUTTON SWITCH AND INDICATOR LIGHT

Curtis R. Stevens, Mission Viejo, Calif., assignor to Master Specialties Co., Costa Mesa, Calif.

Filed May 19, 1980, Ser. No. 151,160
Int. Cl.³ H01H *9/16*; G08B *5/00*
U.S. Cl. 200—314 **23 Claims**



1. A push button switch assembly comprising:
a housing;
a push button projecting from the housing;
switch means in the housing;
a switch actuator on the push button inside the housing;
a plurality of lamp receptacles in the push button for receiving lamps for illuminating the push button;
a plurality of conductive volute springs in the housing adjacent the lamp receptacle, each volute spring having an axis along which it can be compressed;
means movably supporting the push button in the housing to align the switch actuator with the switch means to operate the switch means and to align a contact of a lamp in each lamp receptacle with the axis of a volute spring, each lamp contact being in spring-biased contact with a spring, the push button being movable into the housing for moving the switch actuator to actuate the switch means; and
a base inside the housing below the push button, means on the base for supporting the volute springs below the lamp receptacles, and means securing the switch means to the base inside the housing below the switch actuator.

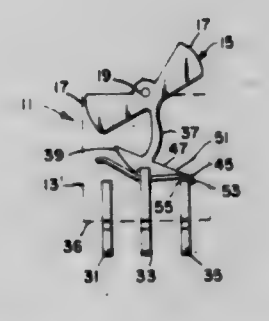
17. An indicator light assembly comprising:
a housing;
a lamp capsule in the housing;
a lamp receptacle in the capsule for releasably mounting a lamp in the capsule;
means in the housing providing electrical contact with a contact on a lamp mounted in the lamp receptacle;
means releasably supporting the lamp capsule in the housing, including means for detaching the capsule from the means releasably supporting the lamp capsule by pulling the capsule away from the housing and for reattaching the capsule by pushing the capsule back into the housing; and
flexible hinge means extending from the inside of the housing to the capsule for maintaining the capsule captive when the capsule is detached from the support means, the hinge means including at least a pair of spaced apart, elongated flexible and foldable filament-like members extending from opposite sides of the capsule to opposite sides of a fixed base of support inside the housing.

4,332,991

ELECTRICAL TOGGLE SWITCH

Arnold B. Nordstrom, 3855 Paseo de las Tortugas, Torrance, Calif. 90505

Filed Dec. 12, 1980, Ser. No. 216,065
Int. Cl.³ H01H *5/18, 3/04*
U.S. Cl. 200—67 G **8 Claims**



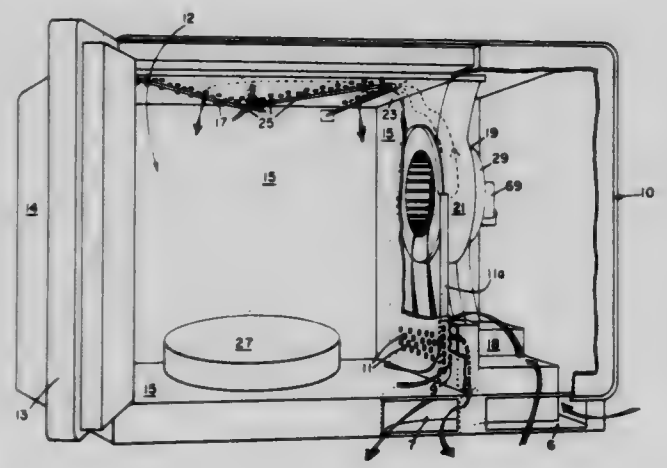
1. An electrical toggle switch, comprising:
a switch housing including a mounting portion;
a plurality of spaced electrical switch contacts mounted in said switch housing;
a conductive contact member pivotally mounted in said housing on a first of said switch contacts and movable to either of two opposite pivotal positions to selectively make electrical contact with others of said contacts on opposite sides of said first switch contact;
a switch lever having two operating positions and including a manipulatable portion, a lower end portion operatively coupled to said conductive contact member opposite said first switch contact, and an intermediate pivot operatively coupled to said switch housing, that portion of said lever between said pivot and said lower end portion being resiliently bendable and having two oppositely bowed stable postions and an unstable range of positions intermediate said stable positions, each of said stable positions corresponding to a different one of said switch lever operating positions, the movement of said switch lever from one of said operating positions to the other thereof causing said contact member to move to a different one of said pivotal positions.

4,332,992

AIR FLOW SYSTEM FOR COMBINATION MICROWAVE AND CONVECTION OVEN

Wallace L. Larsen, Marion, and Eliot R. Duncan, Iowa City, both of Iowa, assignors to Amana Refrigeration, Inc., Amana, Iowa

Filed Dec. 19, 1979, Ser. No. 105,084
Int. Cl.[3] H05B *6/64*
U.S. Cl. 219—10.55 R 10 Claims



1. An air flow system for a combination microwave and electric convection oven comprising:

a. a cabinet;

b. a plurality of wall members joined to divide the cabinet into an oven cavity and an electrical component compartment;

c. an electrical heater selectively associated with a wall member;

d. a first fan selectively associated with the oven cavity to generate a first movement of air in the oven cavity;

e. means for directing air from the first fan past the electrical heater before contacting food to be heated;

f. a second fan selectively associated with the electrical component compartment to generate a second movement of air in the electrical component compartment;

g. means for selectively diverting the first movement of air from the oven cavity outside the oven and simultaneously diverting the second movement of air inside the oven cavity, which means comprises:

(1) a conduit coupled to the first fan and selectively associated with the oven cavity whereby air from the oven cavity moves down the conduit and enters the first fan;

(2) a movable member associated with the conduit for selectively obstructing the flow of air in the conduit;

(3) means for exhausting the air in the oven cavity outside the oven; and

(4) a portion of the conduit having an aperture therein that is exposed to the electrical component compartment with the movable member obstructs the flow of air in the conduit thereby replacing the exhausted cavity air with air from the electrical component compartment; and

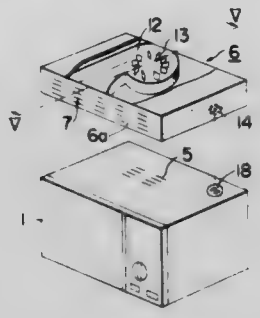
h. means for interconnecting the first fan and the second fan so that both fans are actuated simultaneously from a single motor.

4,332,993

BUILT-IN TYPE MICROWAVE OVEN

Jun Shibahara, and Akira Matsumura, both of Fuji, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Continuation of Ser. No. 69,182, Aug. 24, 1979, abandoned. This application Apr. 30, 1981, Ser. No. 259,366
Claims priority, application Japan, Sep. 2, 1978, 53-121093; Sep. 2, 1978, 53-121094; Oct. 12, 1978, 53-139923; Oct. 12, 1978, 53-139924
Int. Cl.[3] H05B *6/80;* A47J *36/38*
U.S. Cl. 219—10.55 R 2 Claims



1. A built-in type microwave oven comprising:

a cabinet covering the microwave oven and provided with an opening on the upper surface of said cabinet communicating with said oven, said oven including a magnetron energizing circuit and said cabinet including an electrical socket mounted in said upper surface and connected to said magnetron energizing circuit to receive electrical power therefrom,

an air guide member detachably mounted on said cabinet, said air guide member comprising side panels, front and rear panels, a bottom panel having a lower surface and a top panel and enclosing said opening in the upper surface of said cabinet, said front panel being provided with an outlet opening communicating with atmosphere and with said opening formed on the upper surface of said cabinet, said air guide member conducting oven cooling air heated in said oven to atmosphere and having a longitudinal length substantially equal to that of said cabinet, said air guide member further comprising an electric fan contained therein and positioned above said opening formed through said cabinet, an air passage for guiding air from said fan to said outlet opening of said front panel, and a connecting electrical plug attached to said lower surface of said bottom panel and electrically connected to a driving motor of said fan, said plug being received by said socket mounted on the upper surface of said cabinet to supply electrical power from said socket to said fan driving motor, said fan being electrically connected to said magnetron energizing circuit in the microwave oven through said plug and socket.

4,332,994

APPARATUS FOR RESISTANCE WELDING OF CAN BODIES

Paul Opprecht, Im hinteren Bernold, 8962 Bergdietikon, Switzerland

Continuation-in-part of Ser. No. 919,049, Jun. 26, 1978, abandoned. This application Feb. 19, 1980, Ser. No. 122,038
Claims priority, application Switzerland, Jan. 25, 1978, 767/78
Int. Cl.[3] B23K *11/30, 11/32*
U.S. Cl. 219—64 10 Claims

1. An apparatus for the resistance welding of the longitudinal seam of can bodies by means of electrode rollers, comprising:

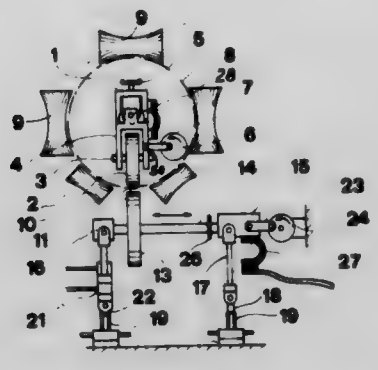
guide means for guiding and overlapping the edges of the can bodies to be welded;

a pair of electrode rollers comprising an upper electrode roller and a lower electrode roller;

said lower electrode roller having a drive shaft;

means for suspending said lower electrode roller together with its drive shaft for movement during the welding operation towards and away from said upper electrode roller in response to variations in the thickness of the can body to be welded;

said suspending means simultaneously also serving to normally bias the lower electrode roller toward the upper electrode roller in order to maintain a substantially constant welding pressure during the welding operation;



means for mounting said lower and upper electrode rollers for movement transversely with respect to the edges to be welded of the can bodies and in the axial direction of said lower and upper electrode rollers; and

said mounting means for said lower and upper electrode rollers enabling transverse movement with respect to the edges to be welded of the can bodies and in the axial direction of the lower and upper electrode rollers during welding of the can bodies.

4,332,995

ELECTRICAL DISCHARGE MACHINE

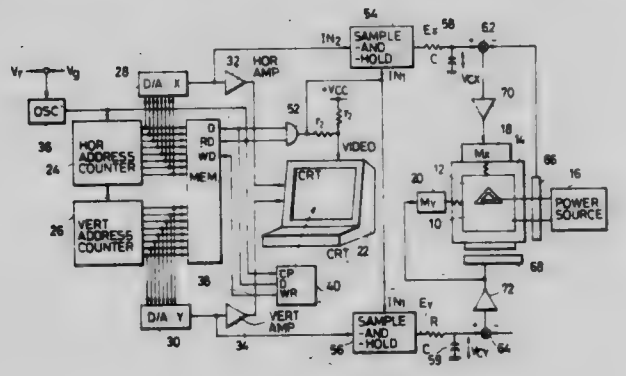
Tetsuro Ito; Toshiro Oizumi, and Shigeo Yamada, all of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 8, 1980, Ser. No. 176,432

Claims priority, application Japan, Aug. 9, 1979, 54/101600; Oct. 11, 1979, 54/131025

Int. Cl.³ B23P *1/02*

U.S. Cl. 219—69 V **10 Claims**



1. An electrical discharge machine for machining a workpiece by applying electric current to said workpiece and an electrode with a machining liquid filling the space between said workpiece and said electrode comprising:

main machining moving means for carrying out main machining movement to machine said workpiece in a main machining direction with said electrode confronting said workpiece;

auxiliary machining moving means for carrying out auxiliary machining movement to machine said workpiece by moving said electrode relative to said workpiece in a plane which crosses said main machining direction;

control means for maintaining a gap between said electrode and said workpiece at a predetermined value; and

display means for detecting an auxiliary machining movement displacement in said plane for displaying said displacement at enlarged scale with the center of said displacement as an origin point.

4,332,996

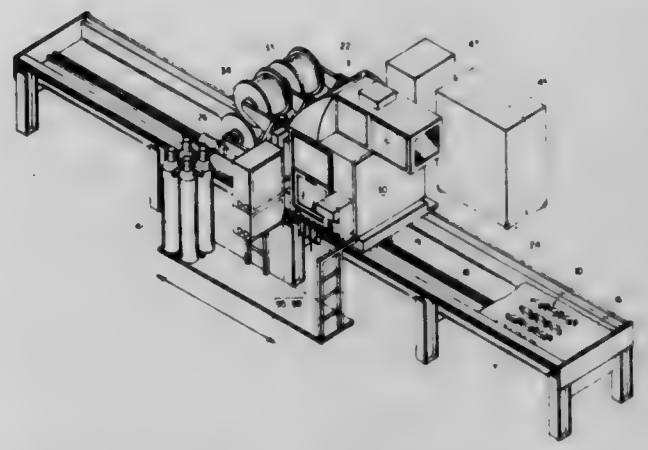
APPARATUS FOR RESURFACING TRACK LINKS FOR CRAWLER-TYPE TRACTORS

Harvey W. Janssen, Lafayette, Calif., assignor to Wolff Manufacturing Co., Burlingame, Calif.

Filed May 7, 1979, Ser. No. 36,657

Int. Cl.³ B23K *9/04*

U.S. Cl. 219—76.14 **7 Claims**



1. Apparatus for resurfacing track links for crawler-type tractors, comprising:

(a) a platform for supporting a track link;

(b) an elongate guide member mounted on the platform for aligning the track link with respect to the platform;

(c) a car mounted on the platform and maneuverable with respect to the platform;

(d) welding means for resurfacing the track link including a welding head attached thereto and means for maneuvering the welding head; and

(e) a carriage supporting the welding means mounted for relative movement on the car, said carriage engages the guide member and is moved by the guide member relative to the car so that the welding head is maintained in alignment with the guide member as the car moves relative to the platform.

4,332,997

APPARATUS FOR DELIVERY OF VALVES AND MELTING RINGS TO AN INDUCTOR HEATER FOR HARD FACING

Daniil A. Dudko, ulitsa Anri Barbjusa, 22/26, kv. 113; Anatoly A. Mozzhukhin, ulitsa Grodnenskaya, 3/5, kv. 37; Vladimir P. Sotchenko, ulitsa P. Tychiny, 13, kv. 210, and Boleslav I. Maximovich, ulitsa Anri Barbjusa, 22/26, kv. 107, all of Kiev, U.S.S.R.

Filed Jul. 15, 1980, Ser. No. 169,172

Int. Cl.³ H05B *6/14*; B23K *37/04*

U.S. Cl. 219—9.5 **4 Claims**

1. An apparatus for delivery of valves and melting rings for internal combustion engines to an inductor heater, for hard facing of said valves by melting said melting rings upon the working surfaces of said valves, comprising:

a vertically installed tubular body arranged under said inductor heater;

first and second gravity feed trays adjoining an upper end of said tubular body for respectively feeding valves and rings to said tubular body;

a stop located under said first tray and positioning a respective valve so that a stem of said respective valve is upwardly directed;

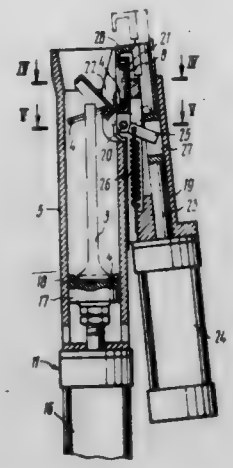
a rotatable pocket receiving a respective work ring and setting it onto said respective valve, said pocket having a rotation axle and being located between said tubular body

and said second tray and having a shelf in a lower part for holding the ring;

an actuating cylinder means to rotate said pocket;

a transmitting link connecting a rod of said actuating cylinder means to said pocket for rotating said pocket to feed said respective ring onto said respective valve; and

a pusher having a plate located inside said tubular body to receive the valve with the ring set thereupon and to convey it into said inductor.

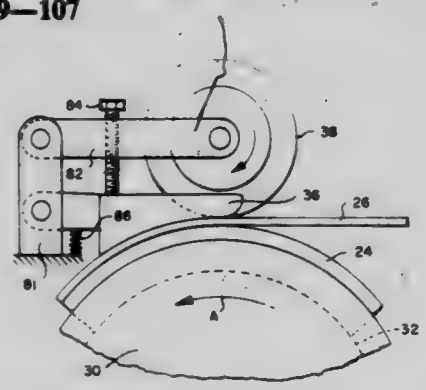


4,332,998

APPARATUS FOR WELDING AUTOMOTIVE BRAKE SHOES

Lawrence A. Boros, Ashtabula, Ohio, assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Aug. 28, 1980, Ser. No. 182,050
Int. Cl.³ B23K *11/32, 11/02*
U.S. Cl. 219—107 **1 Claim**



1. An apparatus for welding the edge surfaces of a pair of curved metal brake shoe webs to a substantially flat brake shoe table surface comprising:

means for positioning said brake shoe table in longitudinal alignment with said brake shoe webs with one end portion of said table surface abutting the surface of said brake shoe webs over a predetermined distance with said table surface diverging away from said brake shoe web edge surface forming a vertex where said surfaces abut;

a forge wheel capable of pressing said abutting surfaces together at said vertexes;

means for providing a high frequency alternating potential to said table and said webs to induce current to flow therebetween and thereby heat the interfacing surfaces in the area of said vertexes;

means for rotating said brake shoe table and said brake shoe webs together along a curvelinear path while maintaining said pressure and high frequency alternating potential to melt said interfacing surfaces together; and

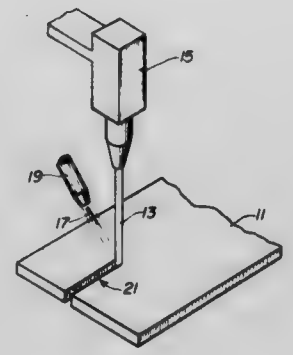
a pair of fingers contacting said brake shoe table for bending said brake shoe table to the curvature of said brake web and holding said brake shoe table in contact with said brake shoe webs as said interfacing surfaces begin to cool.

4,332,999

METHOD FOR MACHINING A WORKPIECE WITH A BEAM OF RADIANT ENERGY ASSISTED BY A CHEMICALLY-REACTIVE GAS

James P. Wittke, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 9, 1980, Ser. No. 195,645
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 LJ **10 Claims**



1. A method for machining a workpiece including (i) directing a beam of radiant energy upon said workpiece whereby said workpiece absorbs substantial energy of said beam and is thereby heated at the area of incidence with said beam and (ii) providing at least at said area of incidence with said beam, an ambient atmosphere that is chemically reactive with the material of said workpiece whereby a chemical reaction occurs between said atmosphere and workpiece material, characterized in that

(a) said beam is of such power density as to heat said area of incidence to a reaction temperature that is below the melting point of said workpiece material but high enough for said chemical reaction to proceed at a practical rate,

(b) said chemical reaction is exothermic and produces a reaction product having a boiling point that is below said reaction temperature and gaseous when formed,

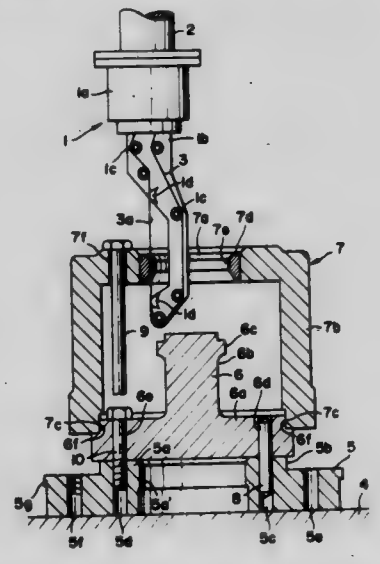
(c) and said radiant energy is of such wavelengths as to produce substantially no reactive dissociation products in said atmosphere.

4,333,000

APPARATUS FOR MAKING HOLLOW EXTRUSION DIES

Akihiko Shimizu, Kawasakishi, Japan, assignor to Japax Inc., Kawasaki, Japan

Filed Aug. 4, 1980, Ser. No. 175,009
Claims priority, application Japan, Aug. 8, 1979, 54-100229
Int. Cl.³ B23P *1/02*
U.S. Cl. 219—69 W **7 Claims**



1. An apparatus for sequentially making male and female die members for use as a hollow die set, from solid male and female

die blanks, respectively, said die members having their respective male and female bearing surfaces spaced apart from one another in a predetermined shaped and mating relationship, from a solid male and a hollow female die blanks, respectively, said apparatus comprising:

a wire-cut EDM electrode head assembly having a plurality of wire guide members for spanning and axially transporting a continuous wire electrode in a fixed path of generally U form at an end portion of said assembly, said path including a predetermined stretch of the axially transported wire electrode constituting an axially moving EDM wire-cutting edge for said male and female die blanks;

a first jig member for securely and interchangeably mounting said male and female die blanks in a predetermined position thereon;

a worktable for securely mounting said first jig member thereon, said worktable being displaceable relative to said wire-cut EDM electrode head assembly; and

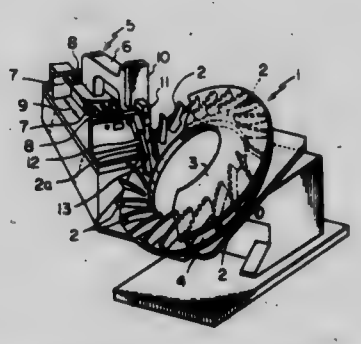
a second jig member for securely mounting on said male die blank when the latter is securely mounted on said first jig member in said predetermined position for providing a reference surface to be engaged by said predetermined stretch of the axially transported wire electrode for machining said male and female die blanks in said predetermined position.

4,333,001

METHOD FOR WELDING AN IMPELLER

Syuhei Nakahama, and Etsu Yamashita, both of Chiba, Japan, assignors to Carrier Corporation, Syracuse, N.Y.

Division of Ser. No. 72,843, Sep. 6, 1979, Pat. No. 4,296,308.
This application Mar. 27, 1981, Ser. No. 248,418
Claims priority, application Japan, Sep. 6, 1978, 53-109274
Int. Cl.³ B23K 9/00
U.S. Cl. 219—125.1 **3 Claims**



1. A method for welding a curved impeller blade to a supporting plate of an impeller, comprising:

holding the impeller plate and impeller blade in positions to define between them a V-shaped channel having an apex constituting a weld line including a straight horizontal portion and further including a curved portion extending continuously from the straight horizontal portion and within a plane inclined with respect to a horizontal plane;

placing a filler wire in the bottom of said V-shaped channel;

moving along said weld line a welding torch assembly having a welding electrode, a nozzle surrounding said electrode and in which said electrode is mounted and having a passage for an inert gas, said nozzle having an exterior shape with the opposite sides thereof shaped for contacting the inner surfaces of said V-shaped channel for maintaining a substantially fixed distance between the tip of said electrode and the straight horizontal portion of the apex of said V-shaped channel, the size of the lower portion of said nozzle from the center line thereof to at least one end of the nozzle facing the direction of the length of the apex line being reduced sufficiently to give the nozzle a shape for keeping the space between said electrode and the apex of the channel substantially the same as the spacing in the straight horizontal portion of the apex during movement of said nozzle along the curved portion of the apex by avoiding interference of the nozzle with the inner surface of the V-shaped channel during movement along the curved portion of the apex;

keeping said nozzle in contact with the inner surface of said V-shaped channel during said movement; and

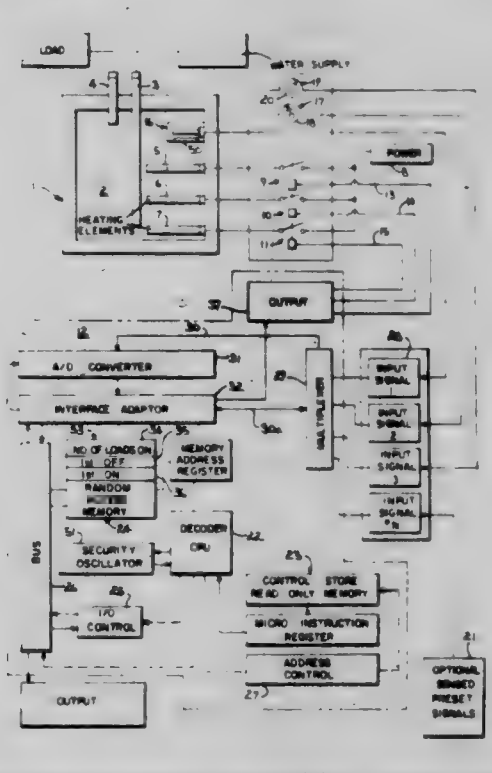
while moving said assembly. operating said assembly to carry out welding while supplying inert gas to said nozzle.

4,333,002

MULTIPLE DEVICE CONTROL APPARATUS

Norman M. Kozak, Greendale, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed Sep. 2, 1980, Ser. No. 182,864
Int. Cl.³ H05B 1/02
U.S. Cl. 219—321 **8 Claims**



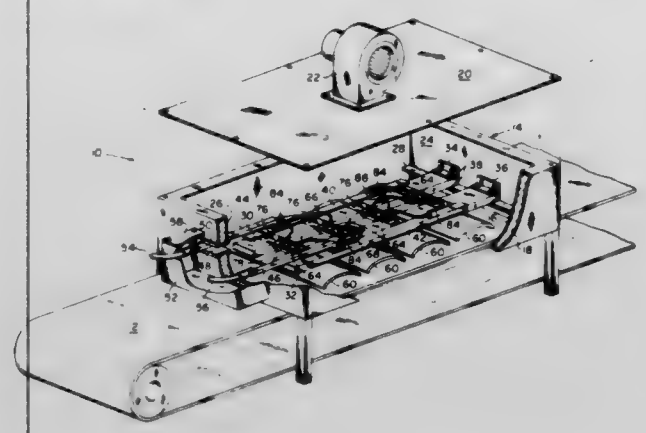
1. A water heater apparatus comprising a water storage tank having a plurality of separate electrical heating means, a plurality of power supply connectors one for each of said heating means, sensor means for sensing the temperature of the water, temperature present means for establishing a signal proportional to a predetermined desired temperature, status means to continuously record the number of heating means in operation, controller logic means for comparing the output of the sensor means and the preset means and the status of said heating means to control the number of activated heating means and to sequentially activate the heating means, said controller logic means being operable to turn on the separate heating means in accordance with the historical operation of said heating means, said sensor means and preset means establish proportional analog signals, said controller logic means includes a microprocessor having a RAM memory including storage locations containing a status number corresponding to the number of energized heating elements and individual status identification of the heating elements last activated and the heating element last deactivated, said microprocessor being operable to cyclically read and digitize said signals of the sensor means and the preset means and establish corresponding data numbers in said RAM memory for the actual temperature and the preset temperature, and said microprocessor being programmed to periodically determine the difference in the stored numbers for the actual temperature and the preset temperature and adding a fixed constant number thereto to generate a control number encoded to the number of elements to be activated for such control number and operable to compare said control number with said status number for generating individual control signals for each of said heating elements.

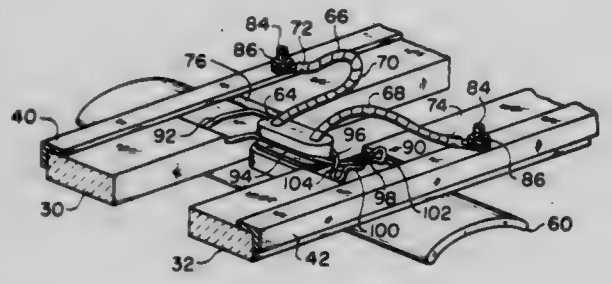
4,333,003

RADIANT AIRFLOW HEAT PROCESSING ASSEMBLY

Jose I. Rivera, 39-20 55th St., Woodside, N.Y. 11377

Filed Jun. 5, 1980, Ser. No. 156,691
Int. Cl.[3] H05B 3/00
U.S. Cl. 219—377 9 Claims





1. A radiant heater comprising a heater enclosure having a pair of opposite walls, a pair of spaced apart substantially parallel dielectric support members, each support member extending between said walls and being secured thereto, first bus bar means supported along a longitudinal surface of one of said support members, second bus bar means supported along a longitudinal surface of the other of said support members, one end of each of said bus bar means being spaced from one wall of said enclosure and the other end extending through the opposite wall thereof so that connection of said bus bar means to a power source can be made outside of said enclosure, a plurality of electrical radiant heating elements each having a pair of electrical leads and front and rear heating surfaces, a plurality of support means, one for each heating element, releasably mounting said radiant heating elements in a spaced relationship along said support members such that the front surfaces thereof are oriented to radiate heat towards an area to be heated, connector means for electrically connecting the leads of said heating elements to said first and said second bus bar means, and blower means for blowing air directly at the leads and rear surfaces of said heating elements and towards the area to be heated whereby the air absorbs heat from the leads and rear surfaces of said heating elements which is transferred to the area to be heated by convection to supplement the radiant heating effect of said heating elements.

4,333,004

DETECTING ICE FORMING WEATHER CONDITIONS

John R. Forgue, Waterbury; Joshua I. Goldberg, Woodbridge, and Leonard Seide, Westport, all of Conn., assignors to Dataproducts New England, Inc., Wallingford, Conn.

Filed Feb. 19, 1980, Ser. No. 122,757
Int. Cl.[3] H05B 1/02
U.S. Cl. 219—497 29 Claims

27. An ice detection apparatus for determining whether weather conditions are ice forming, comprising:

pulse voltage means for supplying a pulse of fixed first voltage when enabled;

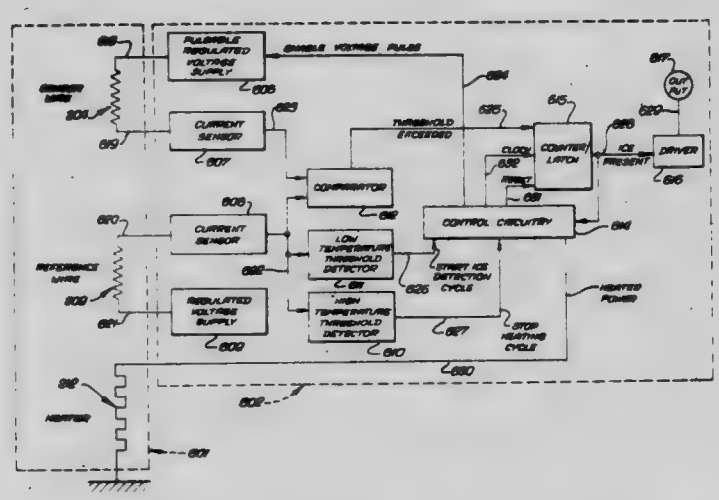
sensor means, directly exposed to said weather conditions and electrically connected to said pulse voltage means, for presenting an electrical resistance in accordance with the temperature of said sensor means;

continuous voltage means for supplying a continuous fixed second voltage;

reference means, exposed to the ambient temperature to which said sensor means is exposed and electrically connected to said continuous voltage means, for presenting an electrical resistance indicative of said ambient temperature;

comparator means, electrically connected to said sensor means and said reference means, for generating an ice-present signal when the resistance of said sensor means during said pulse, when compared to the resistance of said reference means, indicates that ice was in contact with said sensor means during said pulse;

heater means, thermally coupled to said sensor means and reference means, for heating said sensor means and reference means when enabled, to melt ice in contact with said sensor means and reference means;



ambient temperature detection means, electrically connected to said reference means, for generating a start detection signal when the resistance of said reference means indicates said ambient temperature is sufficiently low to allow water to freeze;

high temperature detection means, electrically connected to said reference means, for generating a reset signal when said heater means is enabled and the resistance of said reference means indicates that said heater means has heated said reference means and sensor means to a temperature sufficiently high so as to melt ice in contact with said sensor means; and

control means, receiving said reset signal and said start detection signal, for repetitious spaced enabling of said pulse voltage means while receiving said start detection signal, and for enabling said heater means upon receiving said ice-present signal until receiving said reset signal.

4,333,005

AUTOMATIC CODE READING DEVICES

Shunichi Takamatsu, and Kinshi Maekawa, both of Osaka, Japan, assignors to Itoki Co., Ltd., Osaka, Japan

Filed Nov. 9, 1979, Ser. No. 92,754
Claims priority, application Japan, Nov. 10, 1978, 53-137779; Nov. 10, 1978, 53-137780
Int. Cl.[3] G06K 7/015
U.S. Cl. 235—435 32 Claims

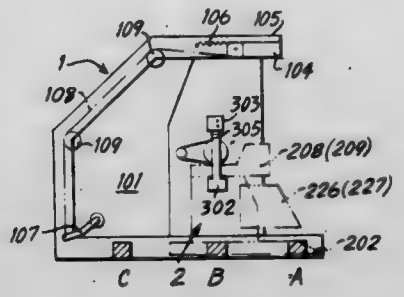
1. An automatic code reading device for reading out a code mark affixed on an axial end surface of an object having a circular section, which comprises:

a housing defining a chamber in which the object should be loaded;

means for stationarily holding the object within said chamber;

means for reading out the code mark and disposed in said chamber to face the object contained in said chamber; and

means for rotating said reading means around the axis of the object contained in said chamber to scan the code mark on the axial end surface of the object without failure, said rotating means including a shaft rotatably supported through and by said housing, motor means for rotating said shaft and mounted on said housing, a lever arm pivoted on the inner end of said shaft and having said reading means mounted on an end thereof, roller means mounted on said lever arm near said reading means, and tension spring means connected between the other end of said lever arm and said shaft to urge said roller means to the axial end surface of the object contained in said chamber.

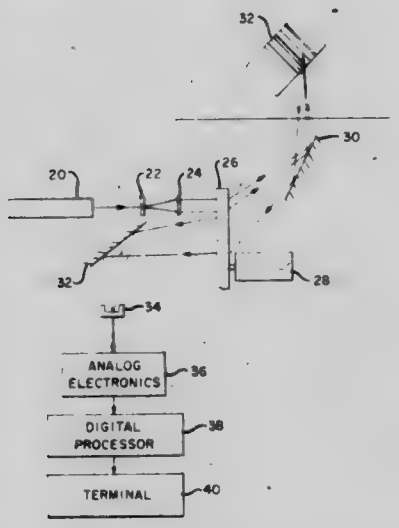


4,333,006

MULTIFOCAL HOLOGRAPHIC SCANNING SYSTEM

Brian A. Gorin, and James A. Hardy, both of Cambridge, Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Dec. 12, 1980, Ser. No. 215,903
Int. Cl.³ G06K 7/10
U.S. Cl. 235—457 **11 Claims**



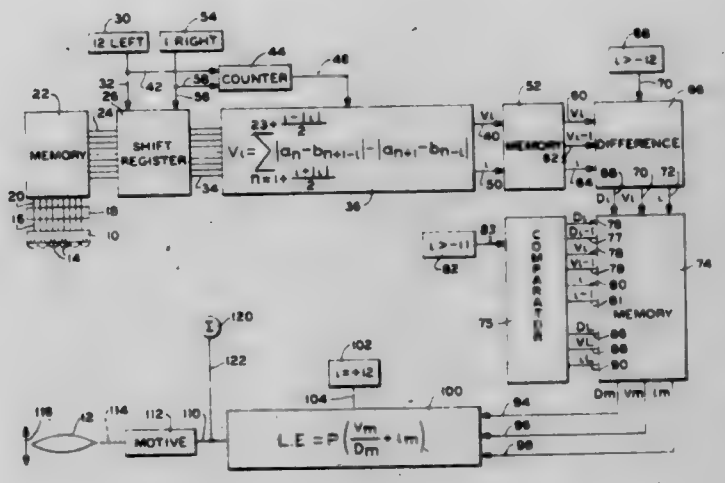
1. An apparatus for scanning an article comprising:
a source of light beam;
a rotating member positioned to receive said light beam;
a plurality of first hologram members located on said rotating member to intercept said light beam, each of said hologram members having a different focal plane for focusing said light beam at a scanning area which overlaps the focal plane of each of the other hologram members adjacent said scanning area through which an article passes;
means located on said rotating member for collecting the light beams reflected from the article and focusing the reflected light beams at a collection point; and
means positioned as the collection point for detecting changes in the light beams reflected from the article.

4,333,007

METHOD AND APPARATUS FOR DETERMINING FOCUS DIRECTION AND AMOUNT

Richard A. Langlais, Littleton; Francis T. Ogawa, Lakewood, and Dennis J. Wilwerding, Littleton, all of Colo., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 10, 1980, Ser. No. 168,225
Int. Cl.³ G01J 1/20
U.S. Cl. 250—201 **10 Claims**



1. Apparatus for use with an auto focus system which includes lens means that produces first and second radiation distribution patterns of a scene to be focussed upon, the patterns being similar and in a first relative position when the lens means is in a proper focus position with respect to the scene, the patterns moving away from the first relative position in a first relative direction as the relative position of the scene and the lens means changes from the proper focus position in one direction and the patterns moving away from the first relative position in a second relative direction as the relative position of the scene and the lens means changes from the proper focus position in a direction opposite to the one direction comprising, in combination:
a first plurality of radiation detectors positioned to receive the first radiation distribution pattern, each radiation detector in the first plurality of radiation detectors operable to produce an output indicative of the radiation received thereby;
a second plurality of radiation detectors positioned to receive the second radiation distribution pattern, each radiation detector in the second plurality of radiation detectors operable to produce an output indicative of the radiation received thereby, each radiation detector in the second plurality of radiation detectors having a positionally corresponding radiation detector in the first plurality of radiation detectors so that, when the lens means is in a proper focus position, the output of each radiation detector in the second plurality of radiation detectors is substantially equal to the output of its positionally corresponding radiation detector in the first plurality of radiation detectors;
shift register means connected to receive the outputs of the radiation detectors in the first and second plurality of radiation detectors and operable to shift the outputs of the radiation detectors in one of the plurality of radiation detectors with respect to the outputs of the positionally corresponding radiation detectors in the other of the plurality of radiation detectors;
signal receiving means connected to the shift register means to receive the outputs of the radiation detectors in the first and second plurality of radiation detectors and to produce a plurality of consecutive outputs, V_i, in accordance with the expression

$$V_i = \sum_{n=1+\frac{i+|i|}{2}}^{(N-1)+\frac{i-|i|}{2}} |a_n - b_{n+1-i}| - |a_{n+1} - b_{n-i}|$$

where N is the number of radiation detectors in the first plurality of radiation detectors, n is any number of 1 to N, a represents the output of individual radiation detectors in the first plurality of radiation detectors, b represents the output of individual radiation detectors in the second plurality of radiation detectors and i represents the number of shifts of the shift register from $-N/2$ to $+N/2$;

difference means connected to the signal receiving means to receive each two consecutive values of V_i and to produce consecutive outputs, D_i, representative of the difference therebetween;

storage means connected to the difference means to receive and store the outputs D_i;

comparator means connected to the storage means to receive the latest value of D_i and the largest D_i value previously stored in the storage means and to produce an output D_L representative of the largest D_i compared;

means connecting the comparator means to the storage means to substitute the D_L output for the largest D_i value previously stored in the storage means; and

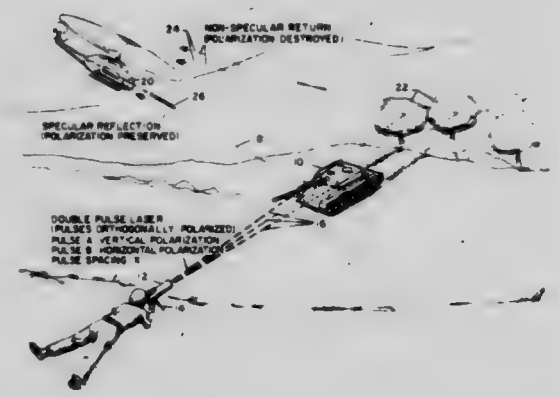
signal processing means connected to the storage means to receive the largest D_L signal, D_m, when $i = +N/2$ and to produce an output, L.E., indicative of $P(V_m/D_m + i_m)$ where P is a constant proportional to the distance between radiation detectors in the first and second plurality of radiation detectors, and V_m and i_m are the V_i and i values when the D_L value is equal to D_m.

4,333,008

POLARIZATION CODED DOUBLET LASER DETECTION SYSTEM

Victor A. Misek, Hudson, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed Apr. 21, 1975, Ser. No. 569,920
Int. Cl.³ G02F *1/01*; G01J *4/00*
U.S. Cl. 250—225 **9 Claims**



1. A system for determining the presence of a specularly reflecting object surrounded by non-specularly reflecting objects comprising in combination:

means for projecting a pulse of polarized electromagnetic energy to a predetermined sector of space;

means responsive to electromagnetic energy of one polarization which has been reflected by objects at said sector of space as a result of illumination by said pulse for producing a first output signal;

means responsive to electromagnetic energy of a polarization different from said one polarization which has been reflected by objects at said sector of space as a result of illumination by said pulse for producing a second output signal, said first and second output signals being equal for randomly polarized electromagnetic energy; and,

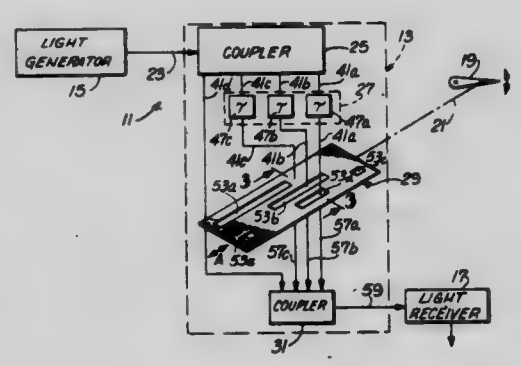
means for subtracting said first output signal from said second output signal to produce a third output signal, whereby the production of said third output signal indicates the presence of energy from a specularly reflecting object.

4,333,009

OPTICAL POSITION TRANSDUCER

Curtis E. Stevens, Irvine, Calif., assignor to Bertea Corporation, Irvine, Calif.

Filed Dec. 10, 1979, Ser. No. 101,586
Int. Cl.³ H01J *3/14*
U.S. Cl. 250—237 G **22 Claims**



1. An optical position transducer adapted to receive an input light pulse comprising:

means responsive to the input light pulse for providing a plurality of light pulses;

a movable element having light transmitting regions and light obstructing regions defining a position code;

a first set of light pulse conductors for conducting at least a first set of the light pulses to a first set of locations closely adjacent the movable element whereby the first set of pulses is transmitted or obstructed by the movable element in accordance with the position of the movable element to provide a position signal representative of the position of the movable element;

a second set of light pulse conductors positioned to conduct the light pulses transmitted by the movable element to a second location;

delay means for causing at least some of the light pulses conducted by the second set of light pulse conductors to be delayed different lengths of time whereby at least some of the light pulses conducted by the second plurality of light pulse conductors can be transmitted from the optical position transducer as a light pulse train on a single light conductor; and

each of said sets of light pulse conductors including a plurality of light pulse conductors.

4,333,010

DOSE CALIBRATOR LINEARITY EVALUATION

William H. Miller, 4245 Wooster Rd., Fairview Park, Ohio 44126

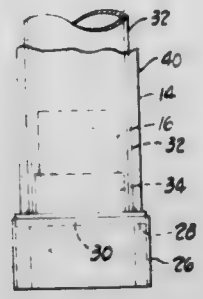
Filed May 8, 1981, Ser. No. 261,748
Int. Cl.³ G01D *18/00*
U.S. Cl. 250—252 **11 Claims**

1. A test method for evaluating response of a dose calibrator for measuring the amount of radiation produced by a radioactive source subject to decay, said method comprising the steps of:

(a) disposing the source for continuous measurement by the dose calibrator during the test;

(b) simulating different amounts of source decay by succes-

sively differingly and incompletely shielding the source during a single test;



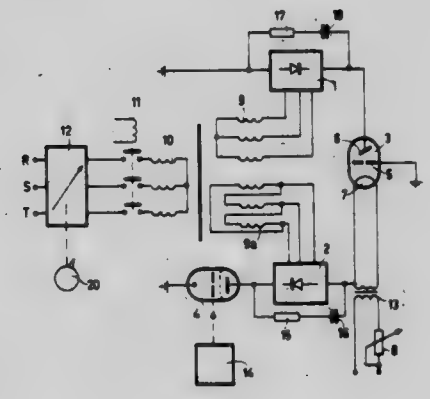
(c) monitoring the response of the dose calibrator to the shielded source at each of the differing shieldings, and
(d) comparing said monitored responses.

4,333,011

X-RAY GENERATOR FOR FAST DOSE RATE CONTROL

Heinz Mester, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 2, 1980, Ser. No. 145,646
Claims priority, application Fed. Rep. of Germany, May 2, 1979, 2917636
Int. Cl.³ H05G *1/30*
U.S. Cl. 250—409 9 Claims



1. An X-ray generator comprising an X-ray tube including an anode, a cathode and an electrode between the anode and cathode, first and second high voltage generators each of which comprises a high voltage transformer winding and rectifying means, means connecting the first high voltage generator to the anode of the X-ray tube to supply thereto a positive high voltage, means connecting the second high voltage generator to the cathode of the X-ray tube to supply thereto a negative high voltage, means connecting said electrode of the X-ray tube to a source of reference voltage which is intermediate in value the anode and cathode voltages of the X-ray tube, and a grid-controlled electron tube connected in series with the second high voltage generator and with its cathode connected to the source of reference voltage whereby a change in the grid voltage of the electron tube produces a simultaneous change in the X-ray tube voltage and current and in the same sense.

4,333,012

AUTOMATIC BLACKENING DEGREE ADJUSTMENT SYSTEM

Shuhei Furuichi, Kyoto, Japan, assignor to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

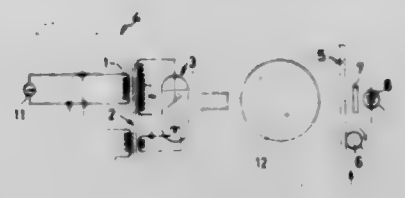
Continuation of Ser. No. 728,059, Jul. 26, 1978, abandoned. This application Sep. 23, 1980, Ser. No. 189,755
Claims priority, application Japan, Jul. 30, 1977, 52-091795
Int. Cl.³ H05G *1/32*
U.S. Cl. 250—409 1 Claim

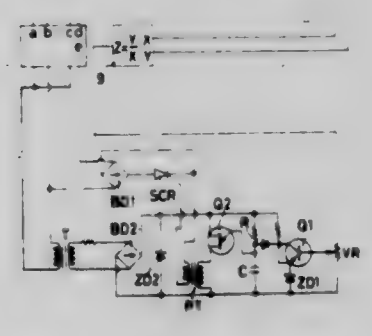
1. An automatic blackening degree adjustment system in an X-ray machine of the type including a source of X-rays which generates an X-ray beam, X-ray film provided opposite the X-ray source, a means for moving the X-ray film relative to the X-ray beam and an X-ray sensor behind the X-ray film, which comprises the steps of:

converting an X-ray intensity into a first electrical signal output;

measuring and converting a relative feed velocity of said X-ray film relative to said X-ray into a second electrical signal output;

feeding said first and second electrical signal outputs to a divider;





converting a quotient of said divider resulting from a division of said first signal by said second signal into a third electrical signal;

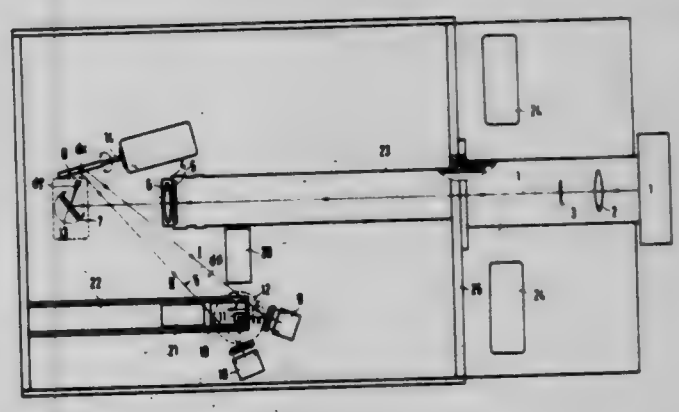
feeding said third electrical signal into a comparator and feeding back an output signal from said comparator to a filament control circuit of said X-raying machine thereby controlling filament current of said X-ray machine whereby a tube voltage of an X-ray tube is kept constant for photographing intervals such that exposure is adjusted to an optimum amount while the X-ray wavelength is kept constant and resulting in X-ray photographs which have sufficient and uniform contrast in all part thereof.

4,333,013

EVALUATION INSTRUMENT FOR PHOSPHATE GLASS DOSIMETER

Bertram Burgkhardt; Winfried König, both of Karlsruhe; Ernst Piesch, Eggenstein-Leopoldshafen, and Hans G. Röber, Karlsruhe, all of Fed. Rep. of Germany, assignors to Kernforschungszentrum Karlsruhe Gesellschaft mit beschränkter Haftung, Karlsruhe, Fed. Rep. of Germany

Filed Jun. 2, 1980, Ser. No. 155,653
Claims priority, application Fed. Rep. of Germany, Jun. 2, 1979, 2922644
Int. Cl.³ G01N *21/64*
U.S. Cl. 250—461 R 10 Claims



1. In a device for evaluating the state of a phosphate glass

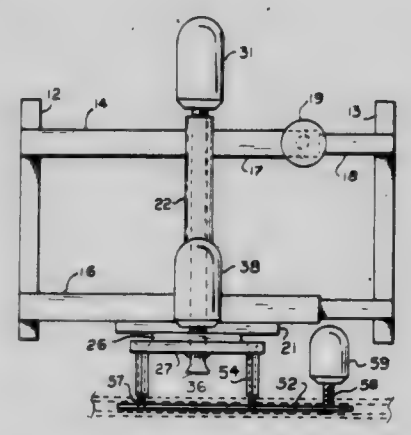
dosimeter by effecting differential scanning of the dosimeter glass with light radiation, the improvement comprising: means for holding the glass stationary; means supplying a single beam of light for effecting the evaluation; and scanning means composed of an element defining a pivotal, elongated slit, two rotatable mirrors and two stationary mirrors arranged in the path of the single beam and operable for causing the beam to scan the glass selectively along any one of three coordinates.

4,333,014

CROSSTABLE X-RAY CASSETTE HOLDER

Governor K. Renshaw, 14448 Merced St., San Leandro, Calif. 94579

Filed Jul. 7, 1980, Ser. No. 166,609
Int. Cl.³ G01N *21/01*; G11B *1/00*; G12B *9/00*
U.S. Cl. 250—521 **6 Claims**



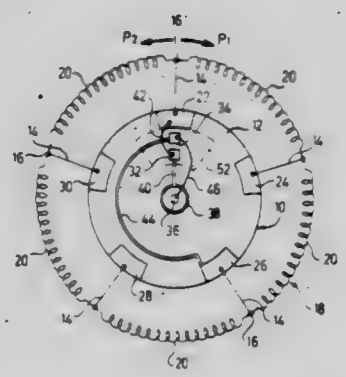
1. An adjustable cross table X-ray film holder comprising
movable end clamping means for engaging the ends of X-ray film in a cassette or the like
a pivot plate carrying said clamping means and pivotally engaging a link extending rearwardly of said clamping means,
a mounting plate having a depending foot adapted to slidably engage a track along a side of an X-ray table for supporting the holder, and
a pivot pin connecting said link and mounting plate with means for fixing the angular relationship of link and mounting plate.

4,333,015

SOLID-STATE COMMUTATOR FOR USE IN ELECTRIC MOTORS

Fritz Faulhaber, CH-6981 Vernate, Tessin, Switzerland

Filed Apr. 3, 1980, Ser. No. 136,967
Claims priority, application Austria, Apr. 17, 1979, 2822/79
Int. Cl.³ G02B *27/00*
U.S. Cl. 250—551 **11 Claims**



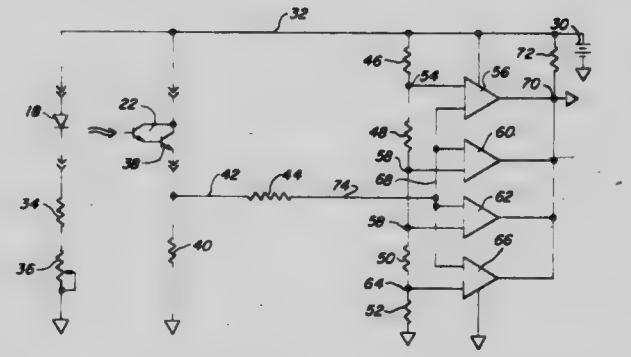
1. A solid-state commutator for use in electric motors, which commutator is designed to energize an armature winding disposed on a rotor by connecting coil sections of the winding across a source, when the winding includes N like individual coil sections connected together end to end at N junction points in order to form a ring, N being an integer greater than two, comprising:
a planar disc with a circular periphery and a center, the disc being rotatable about its center in its own plane;
two contacts located symmetrically about the center of the disc, the contacts allowing a source to be connected across the commutator;
N like terminals located adjacent the periphery of the disc at regular intervals, each of the terminals being connectable to a radially corresponding one of the junction points; and
N like light-actuated semiconductor switches, each such switch being radially aligned with a corresponding one of the terminals and connecting said corresponding one to one of the contacts and connecting another of the terminals to another one of the contacts when the switch is closed by light impinging upon it, and isolating said terminals from said contacts in the absence of light impinging upon it.

4,333,016

LIQUID PRESENCE DETECTOR

Arnold C. Bilstad, Deerfield, and Richard I. Brown, Northbrook, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Mar. 6, 1980, Ser. No. 127,553
Int. Cl.³ G01N *15/06*
U.S. Cl. 250—577 **5 Claims**



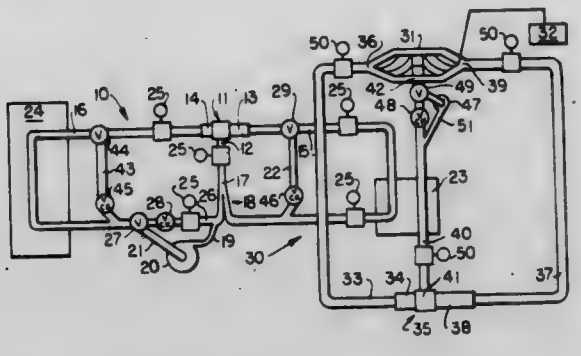
1. A liquid presence detector for detecting the absence of fluid in a fluid chamber, comprising:
a radiation source positioned outside the chamber for transmitting radiation through the chamber, the magnitude of radiation transmitted through the chamber being dependent on the presence of fluid therein;
a radiation detector for receiving radiation transmitted through the chamber and producing an output signal having a level dependent on the magnitude thereof,
said detector output signal having a normal operating range extending from a predetermined maximum signal level to a predetermined minimum signal level;
first comparison means for comparing the detector output signal level with a first reference signal level to develop an output when said output signal level exceeds a first predetermined threshold level between said maximum and minimum detector output levels;
second comparison means for comparing the detector output signal level with a second reference signal level to develop an output when said output level exceeds a second predetermined threshold level above said maximum signal level; and
output circuit means responsive to outputs from either said first or second comparison means for providing an alarm output signal.

4,333,017

METHOD AND APPARATUS FOR CLOSED LOOP VORTEX OPERATION

John J. O'Connell, Box 10, Los Gatos, Calif. 95030

Filed Oct. 20, 1980, Ser. No. 198,476
Int. Cl.[3] F25B *9/02*
U.S. Cl. 290—2 37 Claims



1. A method of generating electricity by using a closed loop vortex tube system comprising:

moving a stream of working fluid at a selected temperature to the inlet port of a vortex tube having a hot outlet port for emitting a hot output working fluid and a cold outlet port for emitting a cold output working fluid,

heat exchanging said hot output working fluid with electric generating means to draw off the heat acquired by said working fluid upon passing through the vortex tube, and generating electricity therewith,

heat exchanging said cold output working fluid with a fluid which is warm relative to said cold output working fluid for regaining an amount of heat energy comparable to the heat exchanged with said electric generating means,

combining said heat exchanged cold output working fluid and said heat exchanged hot output working fluid, and

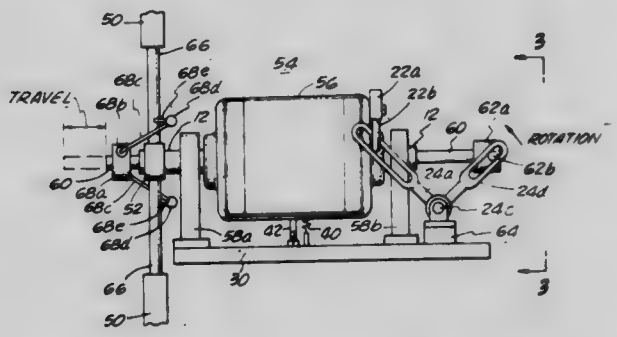
moving the combined stream to the inlet port of said vortex tube.

4,333,018

WIND ENERGY CONVERSION SYSTEM WITH REACTION TORQUE FOR POWER CONTROL

Gerald W. Bottrell, La Crescenta, Calif., assignor to Ventus Energy Corp., Covina, Calif.

Continuation-in-part of Ser. No. 853,395, Nov. 21, 1977, Pat. No. 4,219,308. This application Jul. 9, 1980, Ser. No. 167,043
Int. Cl.[3] F03D *7/04*
U.S. Cl. 290—55 20 Claims



1. A wind energy conversion system comprising:

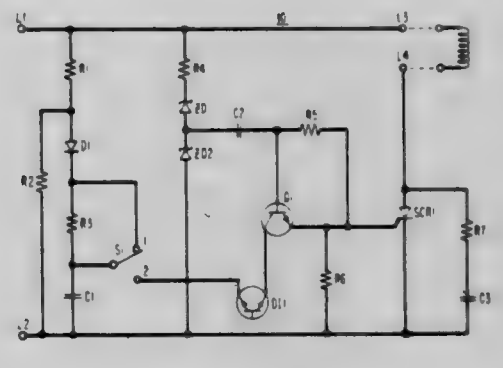
a wind turbine for converting wind energy into wind turbine torque; an essentially horizontally disposed first shaft, one end of which is drivenly connected to said wind turbine; a first means for reacting to wind turbine torque in such a way that, when said system is in use, wind turbine torque produces, in balance thereto, angular displacement of said first means; a chassis to which said first means is rotatably mounted; a driven machine drivenly connected to said first shaft and supported by said chassis; and a second means for adjusting wind turbine efficiency, said second means being drivenly connected to said first means in such a way that said first means is prevented from having continual angular speed, and further in such a way that angular displacement of said first means causes said second means to adjust wind turbine efficiency.

4,333,019

SILICON CONTROLLED RECTIFIER TRIGGER CIRCUIT

Hans Weigert, 284 Franklin Turnpike, Ridgewood, N.J. 07450

Filed May 7, 1980, Ser. No. 147,471
Int. Cl.[3] H03K *17/72*
U.S. Cl. 307—252 N 17 Claims



1. A trigger circuit which is responsive to an input AC voltage for providing at least one drive pulse to a load circuit, said trigger circuit comprising:

switch means having first and second positions, said drive pulse being provided to said load circuit when said switch means is in said second position;

first charge storage means responsive to said input AC voltage when said switch means is in said first position;

first two-terminal switching means conductive when said input AC voltage is greater than a first predetermined value;

second charge storage means responsive to said input AC voltage when said first two-terminal switching means is conductive;

first three-terminal switching means for conduction in response to discharge of said second charge storage means; and

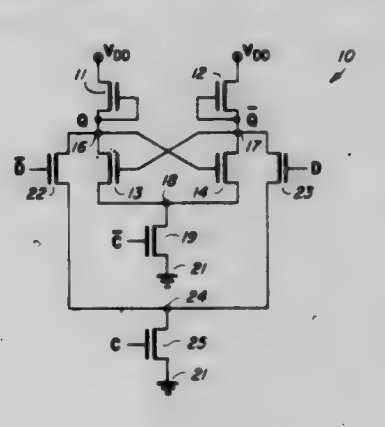
second three-terminal switching means conductive when said first three-terminal switching means is conductive and when said switch means is in said second position, wherein conduction of said second three-terminal switching means passes said pulse to said load circuit.

4,333,020

MOS LATCH CIRCUIT

Heinz B. Maeder, Nyon, Switzerland, assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 23, 1979, Ser. No. 41,569
Int. Cl.[3] H03K *3/26, 17/28, 5/18, 3/353*
U.S. Cl. 307—279 7 Claims



1. A field effect transistor circuit having a first and a second voltage terminal, and capable of receiving a first and a second

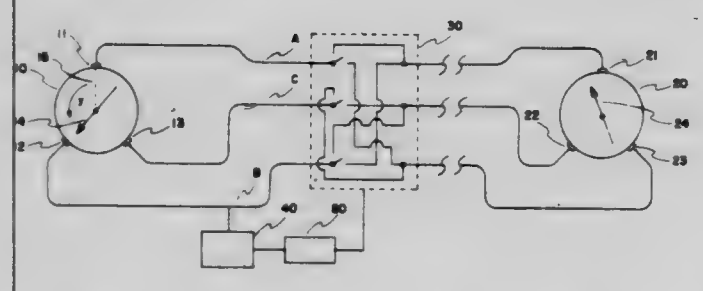
input comprising: a first load transistor coupled between the first voltage terminal and a first node; a second load transistor coupled between the first voltage terminal and a second node; a pair of cross-coupled transistors coupled between a third node and the first and second nodes; a first field effect transistor having a first and a second electrode and a gate electrode, the first electrode being coupled to the third node and the second electrode being coupled to the second voltage terminal, and the gate electrode being for receiving a first clock signal; a second field effect transistor coupled between the first node and a fourth node and having a gate electrode for receiving the first input; a third field effect transistor coupled between the second node and the fourth node and having a gate electrode for receiving the second input; and a fourth field effect transistor coupled between the fourth node and the second voltage terminal and having a gate electrode for receiving a second clock signal.

4,333,021

TRANSIENT STABILITY ENHANCEMENT OF ELECTRIC POWER GENERATING SYSTEMS BY 120-DEGREE PHASE ROTATION

Richard L. Cresap; Carson W. Taylor, and Michael J. Kreipe, all of Portland, Oreg., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 12, 1980, Ser. No. 148,863
Int. Cl.³ H02J *1/00, 3/00*
U.S. Cl. 307—87 **12 Claims**



1. A method for enhancing the transient stability of an electric power generating system having a first set of three-phase generators synchronously turning an intertied second set of three-phase generators at an initial phase connection and an equivalent rotor angle difference, comprising:

a detecting the imminent loss of synchronism between the two generator sets;

b disconnecting the intertie between the first and second sets when said imminent loss of synchronism is detected;

c rotating the phase connections 120 degrees between said first and second sets from said initial phase connection, when said intertie is disconnected, to reduce the equivalent rotor angle difference between the sets by 120 degrees; and

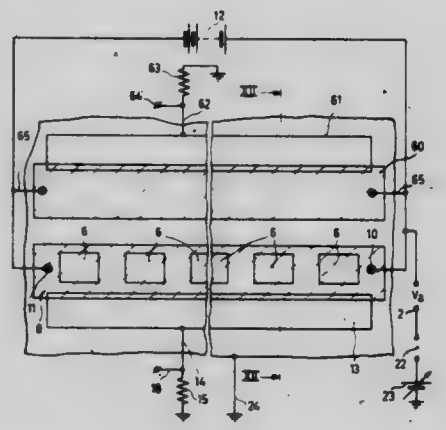
d reconnecting the two generator sets at said new phase connection.

4,333,022

SEMICONDUCTOR DEVICE FOR DIGITIZING AN ELECTRIC ANALOG SIGNAL

Maurice V. Whelan, Eindhoven, and Claude J. P. F. Le Can, Nijmegen, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 909,348, May 25, 1978, abandoned, which is a continuation of Ser. No. 799,718, May 23, 1977, abandoned, which is a continuation of Ser. No. 575,212, May 7, 1975, abandoned. This application Aug. 30, 1979, Ser. No. 71,225
Claims priority, application Netherlands, May 20, 1974, 7406728
Int. Cl.³ H03K *3/353, 13/06;* H01L *29/78, 29/04*
U.S. Cl. 307—304 **1 Claim**



1. A semiconductor circuit arrangement having an analog to digital converter, said circuit arrangement comprising:

a body of semiconductive material including a semiconductive region of a first conductivity type adjoining the surface of said body;

a first array of local surface regions of a second conductivity type disposed in said semiconductive region and spaced apart from each other;

a first and a second surface zone of the second conductivity type in said semiconductive region, each provided with an electric connection;

an insulating layer extending at least partially over said semiconductive region;

a first gate electrode, having two ends, insulated from said semiconductive region and extending at least partially over said surface regions of said first array and said first surface zone of the second conductivity type;

a second gate electrode, having two ends, having substantially the same width as the first gate electrode and insulated from said semiconductive region and extending partially over said second surface zone of the second conductivity type;

one end and the other end of said first gate electrode being connected, respectively, to one end and the other end of said second gate electrode;

means for forming an inversion layer in said semiconductive region under each of said gate electrodes;

said inversion layers adjoining the surface of the body and having an extent which can be controlled in a direction substantially parallel to said gate electrodes;

means for electrically charging said surface regions;

input means for supplying an analog signal to be converted to a digital signal to said gate electrodes;

said input analog signal causing a substantially uniform increase or decrease of the gate potential across the whole length of said gate electrodes and thereby a corresponding modulation of the inversion layers, the increases or decreases of the inversion layers under the gate electrodes being substantially equal to each other;

the inversion layer under said first gate electrode electrically connecting each region of said array of surface regions in succession to said first surface zone and at least partly discharging each region of said array of surface regions by

means of the introduction of majority charge carriers of these regions into these regions;

said charge carriers being supplied via the first surface zone and causing an electric pulse on said electric connection of said first surface zone; and

counter means connected to said first and said second surface zones via said electric connections for determining differentially an output signal between said electric connections and for counting the number of pulses in said output signal, said number being determined by the number of surface regions connected by the inversion layer under the first gate to the first surface zone and thereby by the magnitude of said analog input signal.

4,333,023

TEMPERATURE-STABILIZED LOGARITHMIC CONVERTER

Rush W. Hood, Jr., Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Jun. 16, 1980, Ser. No. 159,989
Int. Cl.³ H03K 3/26; G06G 7/24
U.S. Cl. 307—310 **5 Claims**



1. A temperature-stabilized logarithmic converter circuit, comprising:

an emitter coupled pair of transistors;

first and second operational amplifiers operatively associated with said pair of transistors in such a manner that at least a portion of each transistor forms part of the feedback loop for a respective operational amplifier, whereby a voltage at the output of said first operational amplifier is logarithmically related to a voltage at the input thereof;

means for heating said pair of transistors to a temperature higher than ambient;

means for sensing a change in the junction temperature of one of said pair of transistors; and

heater control means responsive to said sensing means for controlling the power applied to said heating means.

4,333,024

METHOD AND APPARATUS FOR PROCESSING AN ANALOG SIGNAL

Daniel Maussion, Angers, France, assignor to Compagnie Internationale pour l'Informatique Cii-Honeywell Bull (Societe Anonyme), Paris, France

Filed Oct. 18, 1979, Ser. No. 85,959
Claims priority, application France, Oct. 25, 1978, 78 30399
Int. Cl.³ H03K 5/00, 5/22
U.S. Cl. 307—351 **3 Claims**

1. A circuit for processing analog signals comprising generating means for generating a variable D.C. voltage and having an input connected to receive the said analog signals and an output for said variable D.C. voltage, said generating means comprising:

(a) a peak voltage following arrangement including a first differential amplifier having an inverting input connected to receive the said analog signals through a first capacitor connected to said generating means input, a noninverting input connected to receive a D.C. reference voltage, and an output, a second capacitor having one of its electrodes connected to a ground potential, a diode connected between the output of said first differential amplifier and the other electrode of said second capacitor to charge the latter, and a discharge circuit for the said second capacitor which, in conjunction with said second capacitor, defines a selected time constant, and

(b) an amplifier having an input connected to said other electrode of said second capacitor and an output con-



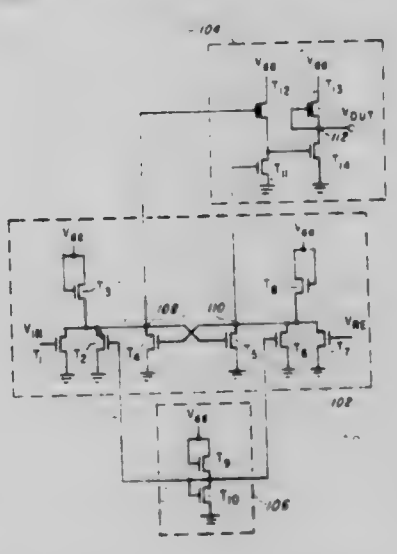
nected to said output of said generating means, and voltage summing means having two inputs, one of which is connected to receive the said analog signals through said first capacitor and the other of which is connected to the output of said generating means, and an output for delivering a succession of steep-sided pulses responsive to analog signals applied to said circuit.

4,333,025

N-CHANNEL MOS COMPARATOR

John C. Domogalla, Missouri City, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 13, 1978, Ser. No. 886,191
Int. Cl.³ H03K 5/24
U.S. Cl. 307—355 **1 Claim**



1. A voltage comparator circuit comprising:

first and second control devices each having a current path and a control electrode,

first and second input terminals to which first and second voltages to be compared with one another are respectively applied; means connecting said input terminals to said control electrodes of said first and second control devices, respectively;

first and second sourcing means each connected in parallel to the current path of a respective one of said first and second control devices, said sourcing means providing current sources;

first and second outputs defined at one end of said current paths of said control devices and providing a differential voltage of said first and second voltages;

a single ended output circuit having first and second inputs connected to said first and second outputs for receiving

said differential voltage, said output circuit providing an output voltage representative of which of said first or second voltages has the larger magnitude;

feedback means comprising a pair of cross-coupled MOS transistors each sized for a magnitude of gain of about unity to provide a magnitude of differential gain of about infinity, said MOS transistors including source-to-drain paths respectively connected in parallel with the current paths of said first and second control devices; and

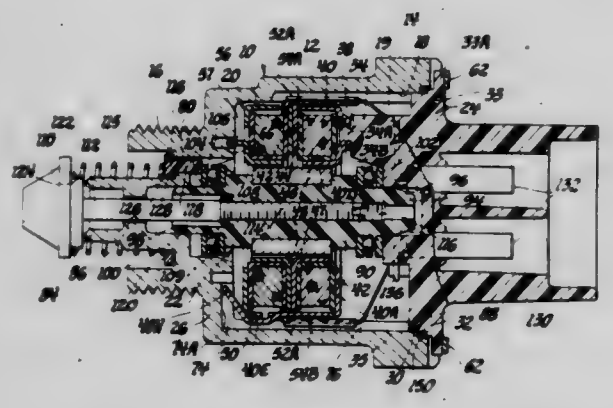
a voltage divider circuit connected to said first and second sourcing means, said voltage divider supplying the voltage operative of said sourcing means.

4,333,026

STEPPING MOTOR

Gustavus P. Bock, Bellbrook, and Larry R. Miller, Springfield, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 8, 1980, Ser. No. 214,200
Int. Cl.³ H02K *5/00*
U.S. Cl. 310—42 **6 Claims**



1. A stator for an electric motor that is assembled to the interior of a motor housing means having an end wall and an open end that is closed by an end cap and wherein after assembly the stator is axially clamped between the end wall of the motor housing and the end cap comprising, housing means comprised of first and second housing members that contain at least one coil winding, each housing member having a plurality of circumferentially spaced poles that define a bore that is adapted to receive the rotor of the motor, a plurality of first tabs integral with said second housing member extending axially of said housing members and each having an end portion partially bent over an end wall of said first housing member to secure said housing members from axial separation, at least a portion of each tab end portion being spaced from the end wall of said first housing member to thereby form bendable resilient means adapted to engage the end wall of the motor housing when said stator assembly is clamped between said end wall of said motor housing and said end cap, and a plurality of second tabs extending axially of said first housing member adapted to be received in corresponding recesses formed in said end wall of said motor housing to fix the stator from radial movement relative to the motor housing.

4,333,027

GAS-COOLED ROTOR FOR TURBO-GENERATOR

Kristian D. Madsen, Västerås, Sweden, assignor to ASEA Aktiebolag, Västerås, Sweden

Continuation of Ser. No. 964,395, Nov. 29, 1978, abandoned. This application Jan. 30, 1981, Ser. No. 229,919
Claims priority, application Sweden, Nov. 30, 1977, 7713540
Int. Cl.³ H02K *1/32*
U.S. Cl. 310—61 **13 Claims**

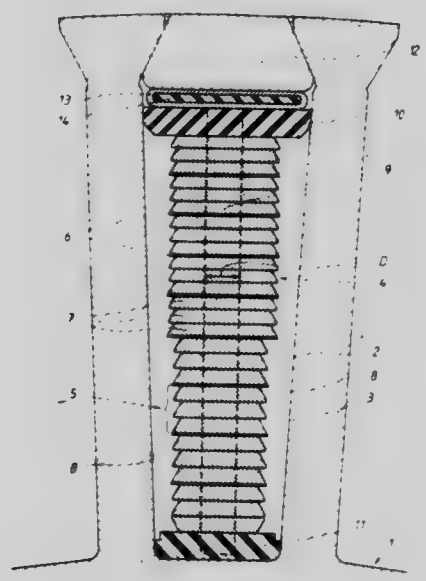
1. An improved gas-cooled rotor assembly employed in a turbo-generator or the like, and comprising:

a rotor core including at least one pair of spaced wall portions defining a winding slot therebetween with a metallic slot wedge extending between said spaced wall portions;

a coil side positioned within said winding slot, said coil side comprising a plurality of conductor portions stacked one upon the other with adjacent planar faces extending perpendicular to an axial plane passing through the winding slot, each pair of adjacent planar faces having an intermediate layer of coil insulation;

said coil side further including opposite side portions spaced from said wall portions of said winding slot, thereby creating axially extending cooling passageways betweem said coil side and the side walls of said winding slot;

radially aligned apertures extending through said conductor portions and said layers of coil insulation extending between said conductor portions, said apertures disposed for receiving a pin-shaped locking member therethrough to prevent tangential separation of said conductor portions from one another;



first and second positioning devices each including insulating material and positioned adjacent to radially outermost and radially innermost conductor portions of said coil side, each of said positioning devices extending beyond opposite sides of said coil side into pressure transmitting engagement with the wall portions of said winding slot for transmitting tangentially directed forces between the wall portions and said coil side;

a metallic pressure bar formed of a solidified pressure medium disposed in said winding slot between said first positioning device and said metallic slot wedge for maintaining sufficient radial pressure against said coil side so as to prevent movements of said conductor portions in a radial direction;

whereby electrical insulation dimensioned to endure the potential difference between the rotor winding and rotor core is applied to less than 70 percent of the total surface area of said coil side.

4,333,028

DAMPED ACOUSTIC TRANSDUCERS WITH PIEZOELECTRIC DRIVERS

Stanley Panton, Peterborough, Canada, assignor to Milltronics Ltd., Peterborough, Canada

Continuation-in-part of Ser. No. 142,014, Apr. 21, 1980. This application Mar. 13, 1981, Ser. No. 243,490
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—326 **25 Claims**

1. A broadly tuned directional transducer system comprising a plate having a radiating surface and a higher flexural mode resonance at substantially the operating frequency of the system, and a transducer element of much smaller effective area

than the radiating surface of the plate and connected thereto for excitation or response to said higher flexural mode resonance, wherein at least alternate antinodal zones of the radiating surfaces of the plate are coupled to a gaseous propagation medium by coupling means formed of low-loss acoustic propagation material of much lower acoustic impedance than the

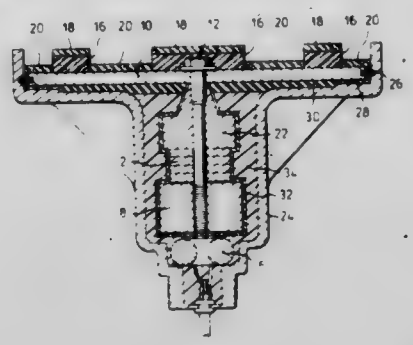


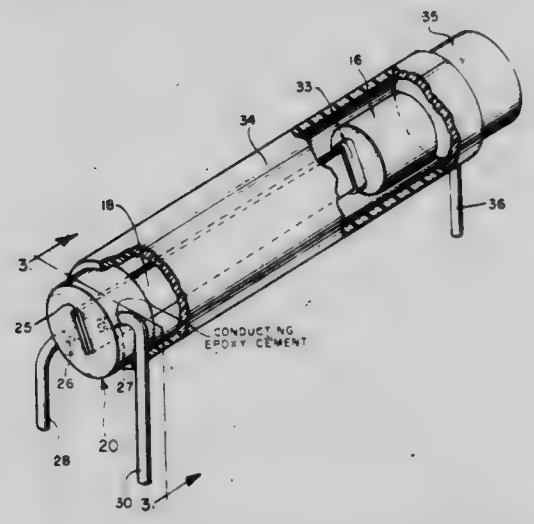
plate and applied at least to said alternate antinodal zones of the radiating surface thereof in a thickness selected to differentiate at least one of the relative phase and the relative amplitude of the radiation from adjacent antinodal zones sufficiently to reduced substantially mutual cancellation, in the far field and in the desired direction of radiation, of sound radiated into said medium from adjacent antinodal zones of the plate.

4,333,029

PIEZOELECTRIC SEISMIC SENSOR FOR INTRUSION DETECTION

Eric A. Kolm, Brookline, and Henry H. Kolm, Wayland, both of Mass., assignors to Baker Industries, Inc., Parsippany, N.J.

Filed Sep. 4, 1979, Ser. No. 72,537
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—329 **10 Claims**



1. A seismic sensor assembly for use in an intrusion detection system, comprising:

a base member;

a cantilever member, comprising a composite flexure member affixed to, and extending substantially perpendicular from, the base member, which flexure member includes a metal shim having upper and lower surfaces, a first piezoelectric ceramic element affixed to the shim upper surface, and a second piezoelectric ceramic element affixed to the shim lower surface, in which said base member defines a slot for receiving the cantilever member, and said base member further defines a pair of opposed holes extending from the surface of the base member to the slot;

a mass, attached to the cantilever member at the end remote from the base member to provide a mass-loaded, piezoelectric cantilever member, for movement when subjected to vibration to bend the cantilever member and produce an output voltage from the piezoelectric ceramic elements which is a function of the mass displacement;

a pair of electrical conductors, each of which extends through one of said holes; and

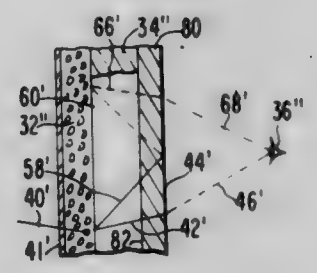
a pair of wire leads, one of which is inserted in each of said holes prior to insertion of the electrical conductor, to enhance the electrical conductivity between the electrical conductor and the surface of the cantilever member received in the slot.

4,333,030

IMAGE CONVERTER TUBE WITH CONTRAST ENHANCING FILTER WHICH PARTIALLY ABSORBS INTERNALLY REFLECTED LIGHT

Louis T. Zitelli, Palo Alto, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Mar. 17, 1980, Ser. No. 130,877
Int. Cl.³ H01J *40/00*
U.S. Cl. 313—94 **12 Claims**



1. An image converter tube comprising an output phosphor screen for generating fluorescent visible light,

a substantially transparent vacuum window for viewing said output screen, and

filter means having substantially lower optical transmission than said window regarding said fluorescent visible light,

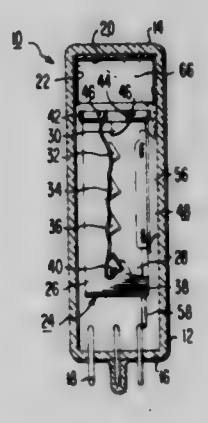
said filter means being in optical contact with the surface of said window facing away from said screen.

4,333,031

PHOTOMULTIPLIER TUBE HAVING DIRECTIONAL ALKALI METAL VAPOR EVAPORATION MEANS

Gilbert N. Butterwick, Leola, Pa., assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 25,559, Mar. 30, 1979. This application Mar. 4, 1981, Ser. No. 240,419
Int. Cl.³ H01J *40/16, 40/02*
U.S. Cl. 313—95 **7 Claims**



1. In a photomultiplier tube of the type comprising: an evacuated envelope, said envelope having a faceplate portion with an inner and an outer surface,

a photoemissive cathode deposited on the inner surface of the faceplate portion of said envelope,

a dynode assembly including a plurality of dynodes arranged to emit secondary electrons in response to electrons emitted from said cathode and an anode for collecting said secondarily emitted electrons, and

an alkali metal vapor source for vapor depositing an alkali

metal on said inner surface of said faceplate thereby forming said cathode, wherein the improvement comprises:

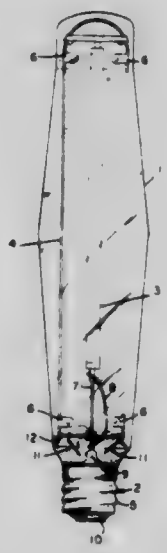
a generator enclosing said alkali metal vapor source, said vapor source consisting of a resistively heated metal holder including therein an alkali metal powder, said generator including means for trapping particles of said alkali metal powder and means for directing the alkali metal evaporation substantially toward said inner surface of said faceplate thereby preventing the uncontrolled evaporation of alkali metal onto said dynode assembly.

4,333,032

HIGH PRESSURE SODIUM LAMP CONTAINING BARIUM GETTER

Elliot F. Wyner, Peabody; John J. Gutta, Salem, both of Mass., and Richard A. Parrott, Merrimack, N.H., assignors to GTE Products Corporation, Stamford, Conn.

Filed Sep. 25, 1978, Ser. No. 945,671
Int. Cl.³ H01J *19/70, 61/24*
U.S. Cl. 313—181 **7 Claims**



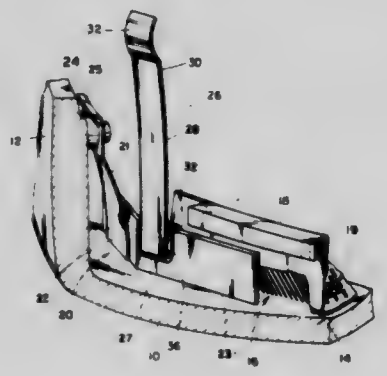
1. A high pressure sodium arc discharge lamp comprising: an elongated arc tube disposed within an evacuated outer jacket, the arc tube containing a fill including sodium and mercury; one or more flash type barium getters disposed within said jacket; a barium film disposed on the inner wall of the jacket and longitudinally spaced more than 1 centimeter from the arc tube, the barium film comprising a visible barium deposit and an invisible barium splash.

4,333,033

ANODE CONTACT SPRING AND METHOD THEREOF FOR COLOR CATHODE RAY PICTURE TUBES

Lowell A. Cordingley, Des Plaines, and Lester C. Gutschick, Deerfield, both of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed Mar. 4, 1980, Ser. No. 127,161
Int. Cl.³ H01J *29/07*
U.S. Cl. 313—407 **9 Claims**



1. An anode contact spring for use in a color cathode ray tube having a glass envelope including a substantially rectangular face panel with a flange conjoined to a funnel having an electrically conductive coating chargeable to a high potential deposited on the inner surface thereof, said panel having an electron-excitable picture imaging screen applied to an inner surface thereof, and an electrically conductive coating disposed on the back of said screen, said tube further including a shadow mask having at least one supportive member for suspending said mask adjacent to said panel by spring means attached at one end to said supportive member, and at the opposite end to an electrically conductive pin extending from said flange and an electrical contact with said screen, said anode contact spring having an attachment end for attaching to said supportive member and a distal end for making contact with said conductive coating of said funnel, the improvement comprising positive locking means for locking said attachment end of said contact spring to said supportive member, the locking means comprising:

bolt means extending from said supportive member and located in a preselected position on said member;

clasping means on said attachment end for clasping said supportive member, one leg of said clasping means being a hasp for engaging said bolt;

an anti-twistoff fold in said contact spring and adjacent to said attachment end;

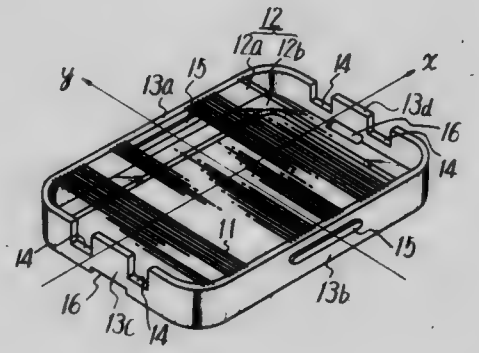
such that upon engagement by manual pressure of said clasping means with said supportive member, said clasping means expands to provide engagement of said hasp with said bolt, then contracts to provide push-click positive locking of said contact spring to said member, and such that said anti-twistoff fold allows for substantial deflection of said contact spring without twisting off and unlocking said clasping means, and the preselected locating of said bolt provides for the precise lateral positioning of said anode contact spring with respect to said shadow mask and said funnel.

4,333,034

GRID STRUCTURE FOR COLOR CATHODE RAY TUBE

Akio Ohgoshi; Akira Nakayama; Yoshihiro Tsukamura, and Takehisa Natori, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 14, 1980, Ser. No. 139,642
Claims priority, application Japan, Apr. 18, 1979, 54/47486
Int. Cl.³ H01J *29/06*
U.S. Cl. 313—407 **11 Claims**



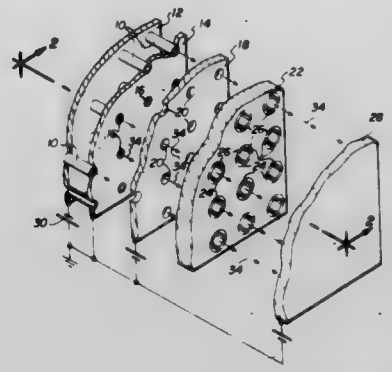
1. A grid structure for a color cathode ray tube comprising a substantially rectangular frame consisting of a pair of first opposed frame portions and a pair of second opposed frame portions orthogonally related to said first frame portions and being integral with the latter at ends thereof, and grid elements secured to said first frame portions and extending therebetween generally parallel to said second frame portions in a longitudinally stressed condition, said second frame portions having recesses therein for enhancing the resilient bending thereof under loads applied to said first frame portions in directions urging the latter toward each other.

4,333,035

AREAL ARRAY OF TUBULAR ELECTRON SOURCES

Donald L. Parker; Wilbur A. Porter, and Robert C. Rogers, all of College Station, Tex., assignors to Woodland International Corporation, Panama, Panama

Filed May 1, 1979, Ser. No. 34,984
Int. Cl.³ H01J 29/46, 29/70
U.S. Cl. 313—411 16 Claims



1. A structure for generating multiple electron beams comprising in combination:

(a) a plurality of hollow tubular electron emitter units aligned with parallel axes, each of said units closed at one end and open at the opposite end thereof,

(b) means for causing heating current to flow along the length of said tubular units for heating said units to produce thermionic electron emission inside said units, and

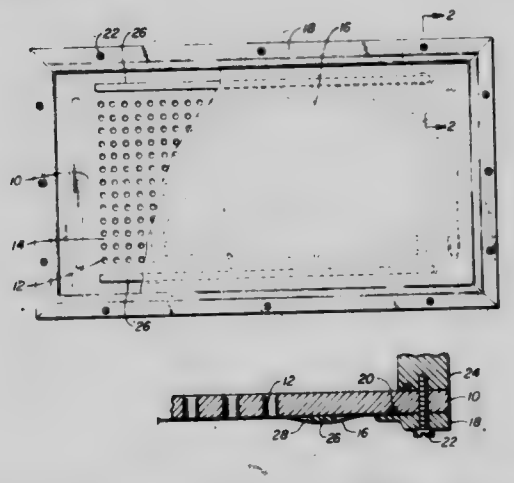
(c) means for directing said electrons from the interior of said units to produce collimated beams of electrons axially from said open ends of said units.

4,333,036

ANODE FOIL HOLDER FOR BROAD BEAM ELECTRON GUN

Sherman R. Farrell, Orinda, Calif., assignor to RPC Industries, Hayward, Calif.

Filed Apr. 28, 1980, Ser. No. 144,244
Int. Cl.³ H01J 33/04
U.S. Cl. 313—420 11 Claims



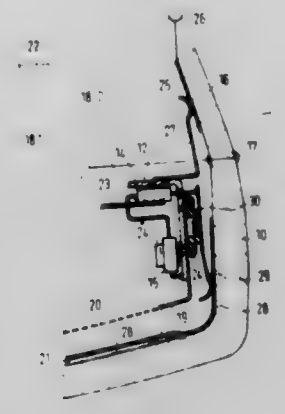
1. An improved foil support for a particle accelerator of the type having an evacuated housing with a multi-apertured window in one wall thereof through which particles are projected and a particle transparent foil covering the window apertures from outside of the housing and which is sealed to the one wall of the housing against the ambient air pressure, wherein the improvement comprises means for pulling a portion of the foil away from the one wall of the housing against the force of the ambient air pressure whereby the foil is placed in tension.

4,333,037

COLOR-PICTURE TUBE WITH AN ARRANGEMENT TO COMPENSATE FOR MISREGISTER

Wolfram Andre, and Hans Müller, both of Aichwald, Fed. Rep. of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Jan. 25, 1980, Ser. No. 115,571
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 2903759
Int. Cl.³ H01J 23/16, 29/80
U.S. Cl. 315—3 10 Claims



1. A color picture tube comprising:

a luminescent screen having an electrically conductive layer,

a shadow mask disposed behind said screen and having a frame,

an anode,

an electron gun system disposed behind said shadow mask for emitting an electron beam, said beam hitting said screen, said shadow mask and said frame, wherein said screen, said shadow mask and said frame are heated,

a first resistor connecting said screen and said anode, said first resistor having a resistance dependent on the temperature of said shadow mask, and

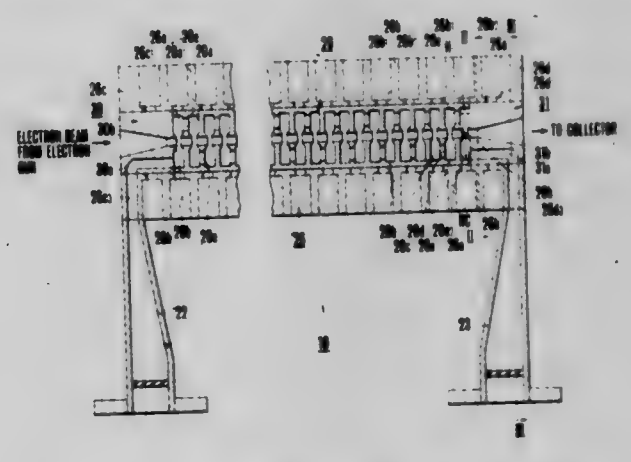
a second resistor connecting said shadow mask and said anode and having a resistance dependent on the temperature of said frame, wherein an electrical field is created between said luminescent screen and said shadow mask.

4,333,038

TRAVELING WAVE TUBE DEVICES

Hisaaki Sato, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Japan

Filed Apr. 7, 1980, Ser. No. 137,799
Int. Cl.³ H01J 25/34
U.S. Cl. 315—3.5 10 Claims



1. In a traveling wave tube of the type provided with an electron gun, a high frequency circuit unit connected thereto and comprising a cavity resonator type delay circuit unit, a collector unit disposed on the output side of the said high frequency circuit unit and adapted to receive an electron beam sent via said high frequency circuit unit, a beam focusing unit

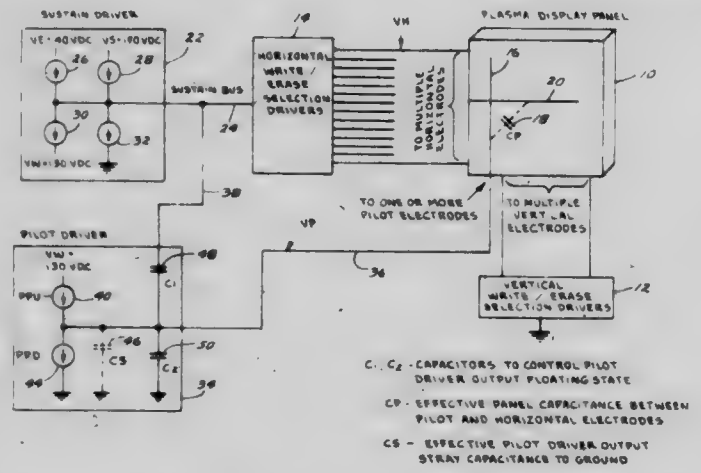
disposed adjacent to said high frequency circuit unit and adapted to cause a periodic magnetic field to act upon the electron beam passing through the high frequency circuit unit, and input/output units connected to the electron gun side of said high frequency circuit unit and the end portion of the collector unit side, a waveguide portion connected to the output unit of said high frequency circuit unit comprises a column-shaped waveguide member having an end surface forming a portion of the wall of a cavity at the end of the high frequency circuit unit, said member being bored with a central aperture at a central axis to allow the passage of the electron beam from the electron gun to the collector unit, said central aperture is tapered and its diameter increases towards the collector unit, and a waveguide for transmitting the electromagnetic waves from said end surface to the output unit, said end surface of the waveguide being shaped like a fan.

4,333,039

PILOT DRIVER FOR PLASMA DISPLAY DEVICE

Richard A. Strom, Eagan, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed Nov. 20, 1980, Ser. No. 208,738
Int. Cl.³ H05B *41/14*
U.S. Cl. 315—169.4 **9 Claims**



1. A plasma display pilot cell driver associated with at least one axis of a plasma display device having pilot cells with at least one pilot cell drive electrode comprising:

a pilot cell driver output bus for connection with the pilot cell drive electrode,

a pull-up switch connected with a first source of voltage, and to said pilot cell driver output bus,

a pull-down switch connected with a second source of voltage, and to said pilot cell driver output bus,

means for allowing the output voltage on said pilot cell driver output bus to float with the voltage applied to said pilot cell drive electrodes, and

means for supplying opposite axis sustain voltage feedback to said pilot cell driver output bus.

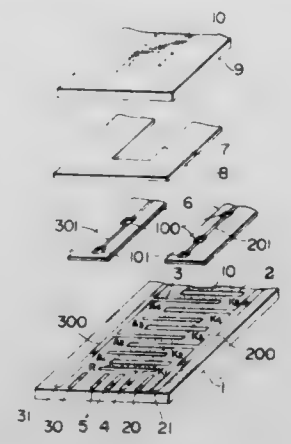
4,333,040

GAS DISCHARGE DISPLAY DEVICE

Yukio Okamoto, Hachioji; Eisuke Mitani, Tokorozawa; Tadao Okabe, Hachioji, and Atsushi Sumioka, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 19, 1979, Ser. No. 49,872
Claims priority, application Japan, Jun. 19, 1978, 53-83849[U]
Int. Cl.³ H01J *61/06*
U.S. Cl. 315—169.2 **6 Claims**

1. A DC type gas discharge display device comprising a plurality of anodes on one surface of a substrate juxtaposed in a relationship spaced from each other, a plurality of cathodes disposed between said anodes, opposite to said anodes and in a relationship spaced therefrom so that said anodes and cathodes are alternately arranged on said one surface of said substrate to form a row in which said anodes alternate with said cathodes, first means for multi-phase connecting said anodes along said row, and second means for multi-phase connecting said cathodes along said row, whereby discharge produced between a selected one of said cathodes along said row and a selected one



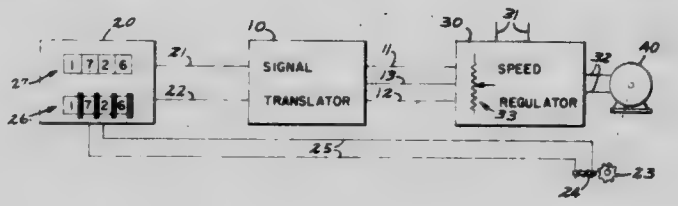
of anodes along said row is self-scanned in accordance with the multi-phase connections.

4,333,041

UNIVERSAL SIGNAL TRANSLATOR FOR MOTOR SPEED CONTROL

Donald L. Overland, Minneapolis, and Glen A. Gauvin, Mound, both of Minn., assignors to Detection Sciences, Inc., Minneapolis, Minn.

Filed Apr. 25, 1980, Ser. No. 143,910
Int. Cl.³ H02P *5/16*
U.S. Cl. 318—317 **11 Claims**



1. A signal translator for use in a motor speed control system of the type including a speed controller for generating speed command signals to control the motor at a preselected speed, and a motor speed regulator which provides controlled electrical energization to the motor to control the speed thereof, the speed regulator including a control potentiometer with terminals to which a reference potential is applied, said signal translator for coupling the speed controller to the speed regulator, said signal translator comprising:

input means for receiving a speed command signal from the speed controller;

terminal means for receiving the reference potential from the speed regulator; and

circuit means connected to receive said speed command signal and said reference potential and operative for generating a DC non-pulsed output signal having a voltage proportional to the magnitude of said speed command signal and proportional to the range of the reference potential, the output signal for connection to the speed regulator in place of the output of the control potentiometer.

4,333,042

SYSTEM FOR DRIVING A MOTOR BY A PULSE WIDTH MODULATION INVERTER

Shigeki Kawada, Hino, and Hiroshi Ishida, Hamuramachi, both of Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Sep. 27, 1979, Ser. No. 79,500
Claims priority, application Japan, Oct. 6, 1978, 53/122731
Int. Cl.³ H02P *5/40*
U.S. Cl. 318—811 **2 Claims**

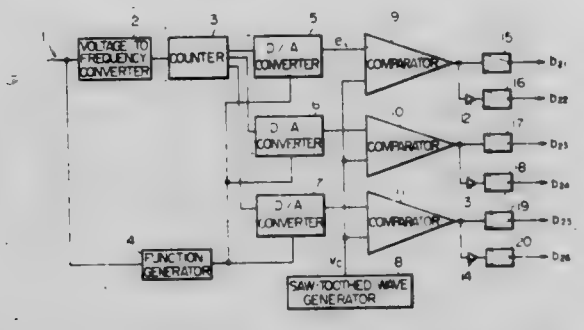
1. A system for driving an AC motor comprising:

A DC power source,

inverter means including a plurality of power transistors connected between said DC power source and said AC motor, for controlling the application of the power from said power source to said AC motor,

a voltage to frequency converter means for receiving an analog voltage input signal which corresponds to a speed command signal for said motor and producing a sequence of pulses which is proportional to said analog voltage input signal,

counter means for frequency dividing coupled to the output of said voltage to frequency converter means, for producing a signal of a frequency for driving said motor,



digital to analog converter means for multiplying the output signal of said counter means by said analog voltage and producing an analog voltage sine wave signal,

a saw-toothed wave generator means for providing a reference saw-toothed voltage which is independent of said analog voltage sine wave signal; and

comparator means coupled to the outputs of said digital to analog converter means and said saw-toothed wave generator means, respectively, for comparing said analog voltage sine wave signal and said reference saw-toothed voltage, wherein the output signals of said comparator means directly control the operation of said plurality of power transistors in said inverter means.

4,333,043

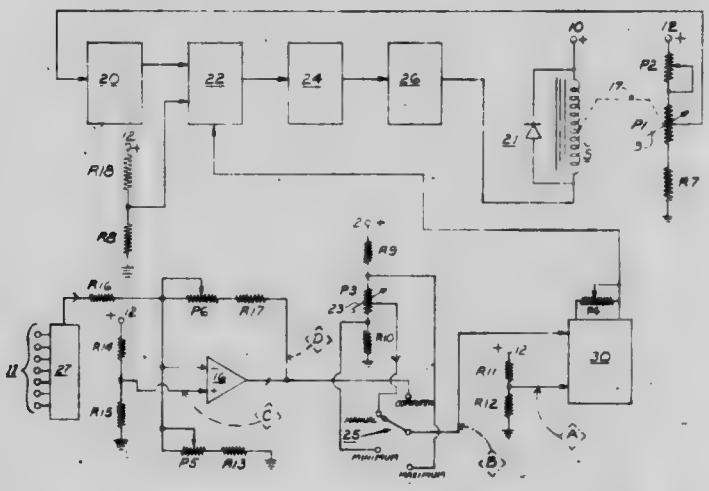
ELECTRICAL CONTROL CIRCUIT FOR CONTROLLING A D.C. SOLENOID

Rudolph E. Six, Roseville, Mich., assignor to Almo Manifold & Tool Co., Center Line, Mich.

Continuation of Ser. No. 889,728, Mar. 24, 1978, abandoned. This application Nov. 7, 1979, Ser. No. 92,214

Int. Cl.³ G05B *7/00*

U.S. Cl. 318—591 **6 Claims**



1. Improvement in an electrical control circuit for controlling a D.C. solenoid having a plunger, a manual control potentiometer, a feedback potentiometer, a comparator for comparing the signal voltages from said potentiometers so that the movement of the plunger of said solenoid is proportional to the movement of the wiper of said manual potentiometer, said feedback potentiometer being controlled by the movement of the plunger of said solenoid, and means for feeding the output signal from said feedback potentiometer to said comparator, said improvement comprising a digital computer control circuit for controlling said solenoid alternately with said manual control, said computer control circuit capable of receiving binary digital input signals and converting them to analog variable signal voltages, switch means for switching between one or the other of said manual and computer controls so that the output signal from either one thereof is fed to said comparator for comparison with the signal from said feedback potentiometer, circuit means in each of the two controls for isolating between ground and a fixed D.C. voltage source the respective output signals so that the respective voltage swings thereof are comparable to each other, means for setting the wiper of the manual potentiometer at a given percentage of its travel while adjusting the input signal to said comparator from said manual control at a predetermined value, means for adjusting the travel position of the plunger of the solenoid and holding it at said given percentage of its travel when the input signal to said comparator is at said predetermined value, and means using said predetermined value of input signal to said comparator for calibrating the computer control against said manual control.

4,333,044

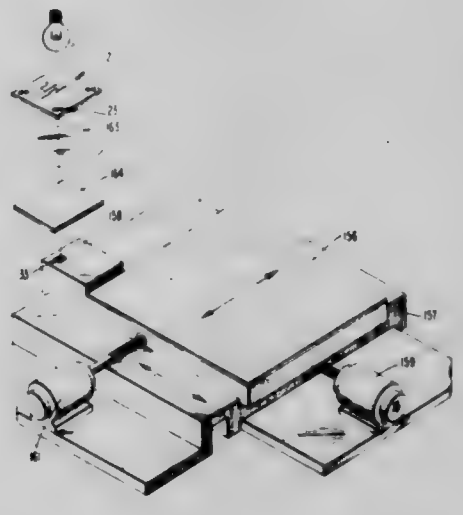
METHODS OF AND SYSTEM FOR ALIGNING A DEVICE WITH A REFERENCE TARGET

Frank H. Blitchington, Richmond, Va., assignor to Western Electric Co., Inc., New York, N.Y.

Filed Aug. 29, 1980, Ser. No. 182,730

Int. Cl.³ G05B *21/02*

U.S. Cl. 318—636 **19 Claims**



1. A method of determining the alignment position of a reference target having light reflective and dark areas with respect to a device, which comprises the steps of:

locating at least two spaced light-sensing charge-accumulating elements of the device in general alignment with the target so that an accumulating charge will develop within those elements which are sensing light;

scanning each element a plurality of times to determine the accumulated charge on the element during each scan;

developing a data pulse during each scan for each element when the accumulated charge exceeds a predetermined level;

counting the number of data pulses emanating from each element;

comparing the counts of data pulses from the two elements; and

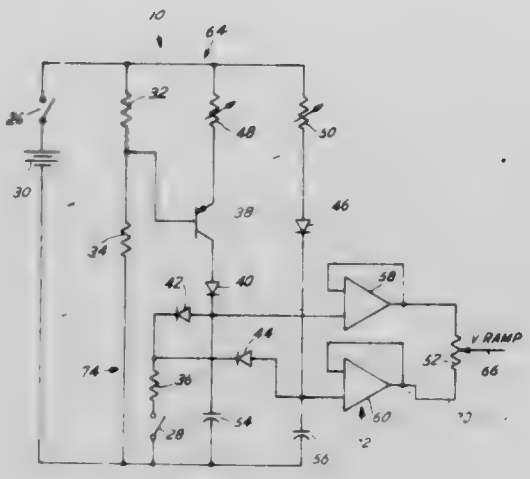
developing a signal in response to the comparison of counted data pulses as a representation of the comparative light sensed by the two elements and the alignment position of the target with respect to the device.

4,333,045

ACCELERATION SHAPING CIRCUIT FOR A STEPPER MOTOR

Norman E. Oltendorf, Algonquin, Ill., assignor to Bodine Electric Company, Chicago, Ill.

Filed Sep. 8, 1980, Ser. No. 185,022
Int. Cl.³ G05B *19/45*
U.S. Cl. 318—696 **10 Claims**



1. An acceleration shaping circuit for a stepper motor, said acceleration shaping circuit providing a variable ramp voltage, comprising, in combination:

a power supply;

source means, couplable to said power supply, for providing a substantially constant current;

first voltage storage means, coupled to said source means, for receiving said substantially constant current, said first voltage storage means charging substantially linearly in response thereto to provide a substantially linear ramp voltage;

a first resistance element;

second voltage storage means, coupled to said first resistance elements and couplable to said power supply, for receiving a current from said power supply through said first resistance element, said second voltage storage means charging substantially exponentially in response thereto to provide a substantially exponential ramp voltage; and

a first adjustable resistance element having a first end terminal, a second end terminal and a wiper, said first end terminal being coupled to said first voltage storage means and said second end terminal being coupled to said second voltage storage means, said variable ramp voltage being available at said wiper and being variable between said substantially linear ramp voltage across said first voltage storage means and said substantially exponential ramp voltage across said second voltage storage means.

4,333,046

POWER FACTOR CONTROL OF A THREE-PHASE INDUCTION MOTOR

Maw H. Lee, Broadview Heights, Ohio, assignor to The Scott & Fetzer Company, Lakewood, Ohio

Continuation-in-part of Ser. No. 66,523, Aug. 15, 1979, abandoned. This application Mar. 5, 1980, Ser. No. 127,441
Int. Cl.³ H02P *7/18*
U.S. Cl. 323—231 **5 Claims**

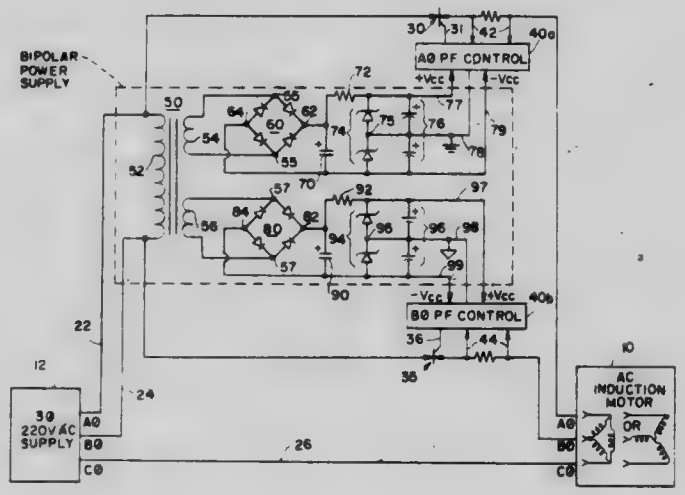
1. In an electronic controller for regulating the power applied by a three-phase AC supply to a three-phase AC induction motor of delta or wye winding configuration, the controller including a pair of power factor control circuits each requiring a positive DC supply voltage, a negative DC supply voltage and an isolated ground, a bipolar supply comprising;

a transformer means having a primary winding connected to sense to a phase-to-phase voltage of the AC supply and a pair of voltage-stepdown secondary windings;

first and second rectifier means each having a DC output and a DC return, and an AC input connected to a respective one of the secondary windings;

first and second capacitor means connected across the DC output and the DC return of a respective one of the first and second rectifier means, the first and second capacitor means filtering the DC outputs of their respective rectifier means to each provide a generally steady state DC voltage;

a first series-connected pair of Zener diodes, the first pair connected to sense at least a portion of the steady DC voltage across the first capacitor means, one end of the series-connected first pair providing a first positive DC supply voltage, the other end of the series-connected first pair providing a first negative DC supply voltage, the midpoint of the first Zener diode pair providing a first electrical ground relative to the positive and negative DC



supply voltages provided by the first Zener diode pair, the first positive and negative DC supply voltages and their respective first electrical ground being connected to energize one of the power factor control circuits; and

a second series-connected pair of Zener diodes, the second pair being connected to sense at least a portion of the DC voltage across the second capacitor means, one end of the series-connected second pair providing a first positive DC supply voltage, the other end of the series-connected second pair providing a second negative DC supply voltage, the midpoint of the second Zener diode pair providing a second electrical ground relative to the positive and negative DC supply voltages provided by the second Zener diode pair, the second positive and negative DC supply voltages and their respective second electrical ground being connected to energize the other power factor control circuit.

4,333,047

STARTING CIRCUIT WITH PRECISE TURN-OFF

John A. Flink, Oakland, Calif., assignor to Precision Monolithics, Inc., Santa Clara, Calif.

Filed Apr. 6, 1981, Ser. No. 251,374
Int. Cl.³ G05F *3/16*
U.S. Cl. 323—311 **15 Claims**

1. A current control circuit for producing an output current when an input voltage is less than a predetermined threshold level, and substantially terminating the output current when the input voltage exceeds said threshold level, comprising:

a first circuit means responsive to a control voltage differential to transmit an output current when the control voltage differential is less than a predetermined turnoff voltage, and to substantially terminate the output current when the control voltage differential exceeds said turnoff voltage, said first circuit means comprising an FET having a gate, source and drain,

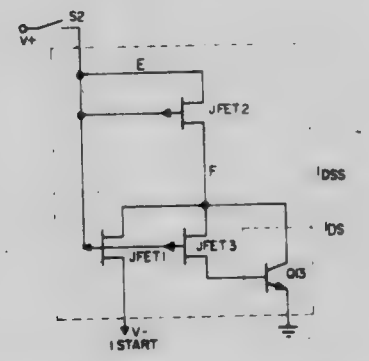
a second circuit means connected to deliver a current for transmission by said first circuit means, said second circuit

means being responsive to said input voltage to establish a control voltage differential for said first circuit means at a level less than the turnoff voltage when said input voltage is less than said threshold level,

a third circuit means having a control terminal and being connected to shunt current from said second circuit means away from the first circuit means, and thereby substantially terminate the transmission of output current by the first circuit means in response to a gating voltage at said control terminal, and

a fourth circuit means connected in circuit with said first, second and third circuit means and responsive to said input voltage exceeding said threshold level to establish

(a) a control voltage differential for said first circuit means substantially at least equal to the turnoff voltage, and



(b) a voltage at the control terminal for said third circuit means sufficient to cause said third circuit means to shunt current away from the first circuit means,

said fourth circuit means comprising an FET having a gate, source and drain, the gates of the first and fourth circuit means being connected together, and the sources of the first and fourth circuit means being connected together to receive the current from the second circuit means,

whereby the current delivered by said second circuit means is transmitted by the first circuit means as an output current of the current control circuit when the input voltage is less than the threshold level, but is shunted away from the first circuit means by the third circuit means when the input voltage exceeds the threshold level.

4,333,048

THYRISTOR CONTROL CIRCUITS

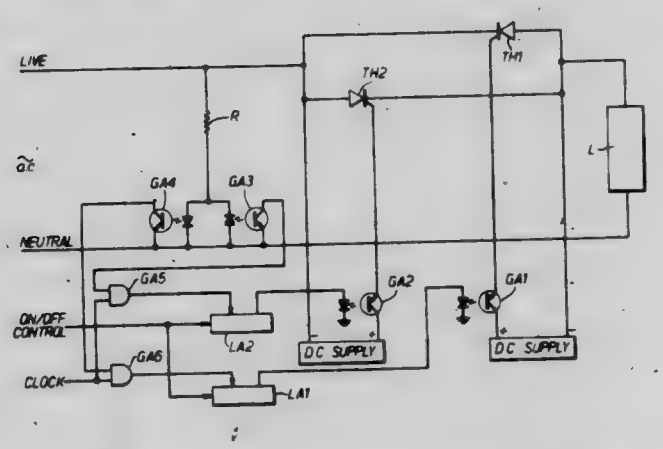
Kenneth W. Bishop, Fareham, England, assignor to Plessey Overseas Limited, Illford, England

Filed Oct. 20, 1980, Ser. No. 198,651

Claims priority, application United Kingdom, Oct. 26, 1979, 7936507

Int. Cl.³ G05F *3/20*

U.S. Cl. 323—319 **5 Claims**



1. A thyristor control circuit arrangement for supplying power from an a.c. supply to a load in accordance with an on/off control signal, said arrangement comprising:

two parallel-connected oppositely-poled thyristors arranged to conduct alternately;

first and second independent d.c. supplies; and

thyristor control means for detecting the polarity of a voltage across the parallel-connected thyristors, and responsive to the on/off control signal for conditioning, from said first independent d.c. supply, one of the thyristors which has a negative voltage across it in readiness for immediate firing thereof as said voltage changes from a negative to a positive voltage, and said thyristor control means being responsive to said on/off control signal after said firing for similarly conditioning the other thyristor for immediate firing.

4,333,049

INRUSH CURRENT MEASURING APPARATUS WITH INSTANTANEOUS POWER INTERRUPTION DEVICE

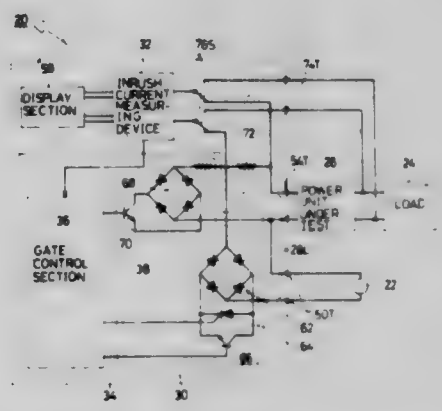
Masatoshi Yui; Minoru Takeoda, both of Tokyo, and Kazuo Otsuka, Komoro, all of Japan, assignors to Takamisawa Cybernetics Co., Ltd., Tokyo, Japan

Filed May 15, 1980, Ser. No. 150,128

Claims priority, application Japan, May 21, 1979, 54-66825[U]; May 21, 1979, 54-66826[U]; May 21, 1979, 54-66827[U]

Int. Cl.³ G01R *19/00, 27/00, 31/00*

U.S. Cl. 324—102 **12 Claims**



1. An inrush current measuring apparatus with an instantaneous power interruption device, comprising an external power input terminal means connecting with a commercial AC supply means, an external power output terminal means connecting with a power unit to be tested, a switching circuit section means functioning to turn on and off the power supply, said switching circuit section means being disposed across a line which connects said external power input terminal means with said external power output terminal means, a gate control section means which controls the open/close timing for said switching circuit section means, a central control circuit means connected via said gate control section means to said switching circuit section, a zero-cross detector section means for detecting zero-cross point in sine waveform of voltage at said external power input terminal means, said zero-cross detector section means being connected to said central control circuit means, a setting section means for setting, on the basis of a zero-cross detection signal from said zero-cross detector section means, an instantaneous power interruption time in instantaneous power interruption mode and a power supply timing in inrush current mode and further an instantaneous power interruption interval in auto mode, said setting section means being connected to said central control circuit means, a current detector section means and a voltage detector section means which detect the current and voltage respectively flowing in said line when said switching circuit section means is opened or closed, both said current detector section means and said voltage detector section means being connected to said central control circuit means, and further a display section means which displays a peak value out of current value signals from said current detector section means, said central control circuit means being further connected to a current monitor terminal

means and to a trigger output terminal means, whereby the electrical behavior on said line resulting from the open/close operation of said switching circuit means can be monitored and output as current or voltage information signals of inrush current mode and instantaneous power interruption mode appearing at said external power output terminal means.

4,333,050

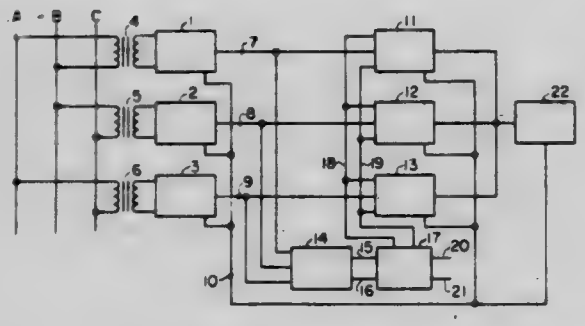
MULTIPHASE VOLTAGE MONITOR

Maynard C. Yeasting, 17967 W. Portage, Elmore, Ohio 43416

Filed Feb. 26, 1980, Ser. No. 124,768

Int. Cl.³ G01R *19/00*; G08B *21/00*; H02H *3/20*

U.S. Cl. 324—107 **7 Claims**



1. A voltage monitor for a multiphase electrical power supply comprising, in combination:

(a) an AC to DC converter for each voltage being monitored,

(b) a voltage limit generator that is connected to the converters and that has means for averaging the voltage outputs of the converters and delivering reference voltages that are selectable percentages above and below the average voltage,

(c) a limit comparator connected to each converter and to the limit voltage generator for comparing the individual converter output with the reference voltages, and

(d) utilization means connected to said comparators for signaling any excursion of a converter output voltage above the high reference voltage or below the low reference voltage.

4,333,051

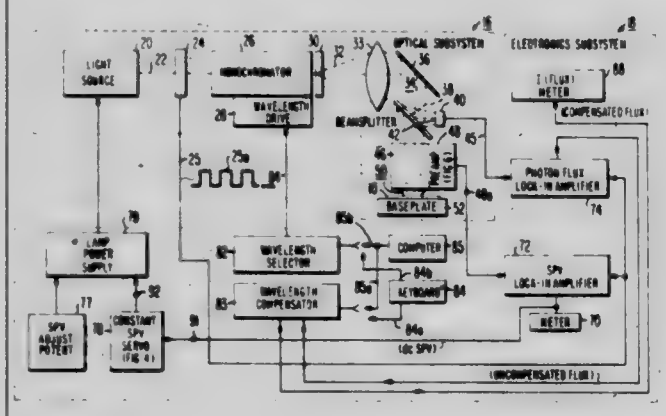
METHOD AND APPARATUS FOR DETERMINING MINORITY CARRIER DIFFUSION LENGTH IN SEMICONDUCTORS

Alvin M. Goodman, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 28, 1980, Ser. No. 153,920

Int. Cl.³ G01R *31/26*

U.S. Cl. 324—158 R **25 Claims**



1. An apparatus for determining the minority carrier diffusion length of a sample of semiconductor material, the sample having two major surfaces, one of the surfaces arranged for illumination and the other surface shielded from illumination comprising:

(a) means for illuminating a portion of the one major surface of the sample with periodically interrupted monochromatic light that is of a selected wavelength;

(b) means for providing a signal representing the surface photovoltage (SPV) on the sample generated in response to chopped monochromatic light;

(c) electronic servo means responsive to said SPV signal for automatically controlling the SPV signal to a substantially constant value; and

(d) means for providing a signal representing the illuminating intensity incident upon the sample.

4,333,052

RESONANT CIRCUIT WITH TWO PARTIAL INDUCTANCES

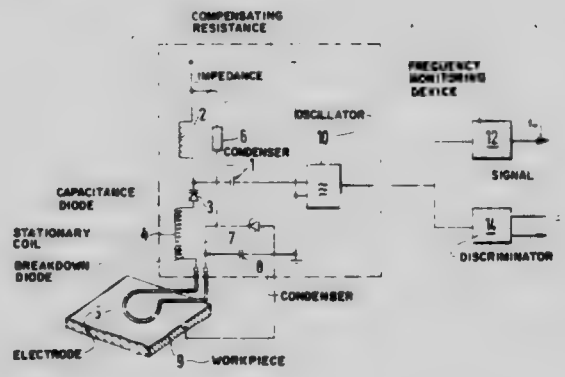
Karl-Heinz Schmall, Baden-Baden, Fed. Rep. of Germany, assignor to Messer Griesheim GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed May 31, 1978, Ser. No. 911,282

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1977, 2726648

Int. Cl.³ G01B *7/14*; G01R *33/12*

U.S. Cl. 324—208 **6 Claims**

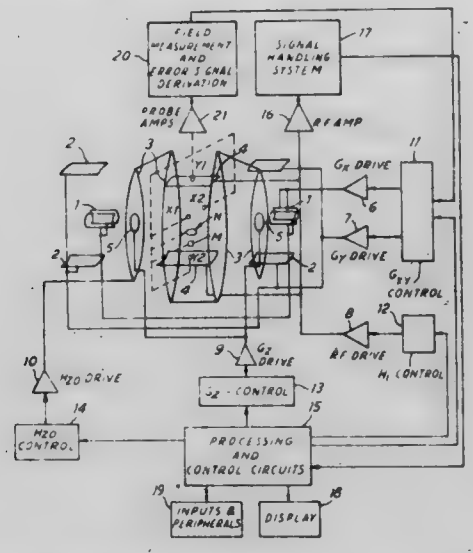


1. In a control circuit for measuring the distance between a workpiece and a sensing element which is formed as inductance and is part of a resonant circuit as a frequency-determining element whereby the frequency variations of the resonant circuit for producing voltage and/or current changes which are proportional to a distance are connected to a measuring circuit, the improvement being said resonant circuit having at least two partial inductances, one of said partial inductances being represented by said sensing element and the other of said partial inductances being a stationary resonant circuit coil arranged at a distance from said sensing element and in immediate influence sphere of the workpiece, in combination therewith, wherein sensing element is part of a cutting torch and said workpiece is metallic, and said sensing element being arranged concentrically around the cutting torch beam, said sensing element being connected to a switching-off device connected to torch control means for inactivating the cutting action of the cutting torch, a capacitance diode being connected to said sensing element, an auxiliary voltage source being connected to said sensing element and said capacitance diode for adjusting a capacitance value to be determined, and said workpiece being connected to the axuiliary voltage source in such a way that when said sensing element and workpiece touch each other the voltage at the capacitance diode and its capacitance value is variable.

4,333,053
IMAGING SYSTEMS

Colin G. Harrison, San Jose, Calif., and Michael Burl, Iver, England, assignors to EMI Limited, Hayes, England

Filed Feb. 28, 1980, Ser. No. 125,495
Claims priority, application United Kingdom, Mar. 13, 1979, 7908734
Int. Cl.³ G01N 27/00
U.S. Cl. 324—307 24 Claims

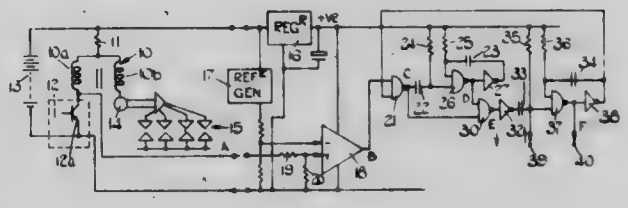


1. A nuclear magnetic resonance apparatus, for examining a substantially planar slice of a body, the apparatus including means for applying magnetic fields to cause resonance preferentially in the plane of said slice, means for applying a pulsed magnetic field having a gradient across the plane of the slice to produce phase dispersion in said resonance, means for sensing resonance signals induced during said pulsed field for a plurality of different directions thereof, means for demodulating the resonance signals and means for further processing the demodulated signals to provide a representation of said slice, wherein the resonance signals are demodulated at a frequency which, in the presence of the said magnetic fields and pulsed magnetic field, is the resonance frequency for a position in the plane lying outside said slice.

4,333,054
APPARATUS FOR USE IN TESTING AN INTERNAL COMBUSTION ENGINE IGNITION SYSTEM

Michael J. Walker, Warley, England, assignor to Lucas Industries Limited, Birmingham, England

Filed May 21, 1980, Ser. No. 152,122
Claims priority, application United Kingdom, May 25, 1979, 7918386
Int. Cl.³ F02P 17/00
U.S. Cl. 324—380 4 Claims

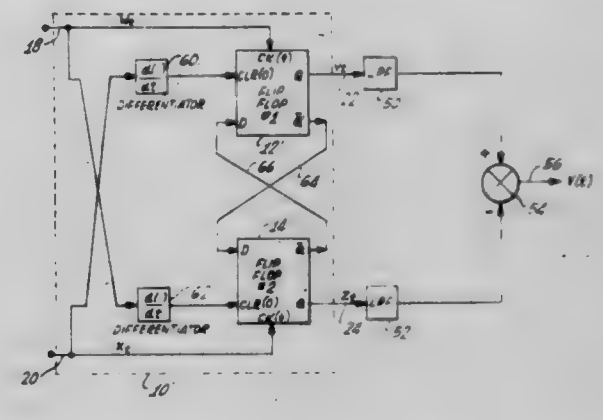


1. Apparatus for use in testing an internal combustion engine ignition system of the type utilizing an ignition coil and electronic switch means for periodically connecting the primary winding of the ignition coil across a supply and for periodically interrupting the coil primary current to produce sparks, the apparatus comprising a voltage comparator means for connection to the ignition system for detecting the voltage across said switch means and indicating when such voltage is in excess of a predetermined value which is an order of magnitude higher than the system voltage and timing means associated with said comparator means and producing an output indicating a satisfactory interruption of coil current only when the output of the comparator means persists in a state indicating that said voltage has been above said predetermined level for less than a predetermined duration.

4,333,055
DIGITAL PHASE-FREQUENCY DETECTOR

John E. Crackel, Carson, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Nov. 23, 1979, Ser. No. 97,087
Int. Cl.³ H03K 5/26
U.S. Cl. 328—133 18 Claims



1. A digital phase-frequency detector circuit, for detecting differences in phase and frequency of two input signals, said circuit comprising:

two digital memory means, corresponding to the two input signals, each switchable to a first memory state in response to occurrence of a selected feature in its input signal, and to a second memory state upon the occurrence of the same selected feature of the other input signal, whereby any attempt to switch one of said memory means to the first state always results in simultaneously setting the other of said memory means to the second state; and

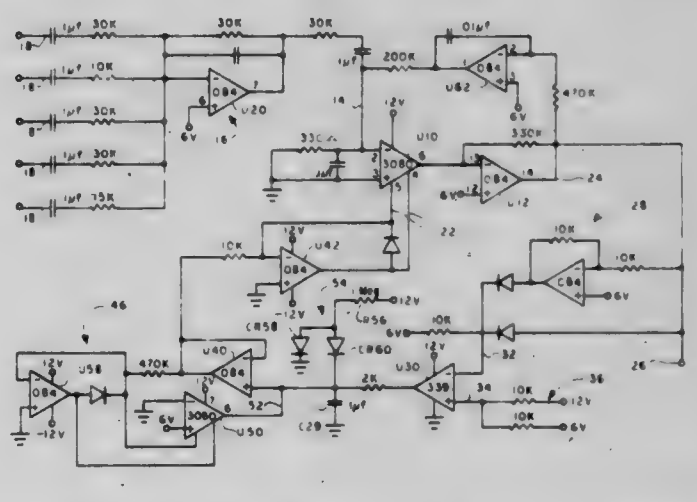
means for preventing each of said memory means from being set to the first state unless the other of said memory means is in the second state;

whereby only one of said memory means can be in the first state at any time, and the states of said memory means provide an indication of phase and frequency difference between the two input signals.

4,333,056
AUTOMATIC GAIN CONTROL CIRCUIT WITH NON-NEGATIVE EXPONENTIAL RELEASE

Ellis K. Cave, Garland, Tex., assignor to Banc-By-Phone Corporation, Bannockburn, Ill.

Filed Apr. 7, 1980, Ser. No. 138,247
Int. Cl.³ H03G 3/30
U.S. Cl. 330—129 19 Claims



1. An automatic gain control (AGC) circuit for providing

gain-controlled signal at an output related to signals received at an input, comprising:

gain-controllable amplifier means having an output coupled to the AGC output;

means coupling the AGC input to an input of said amplifier means; and

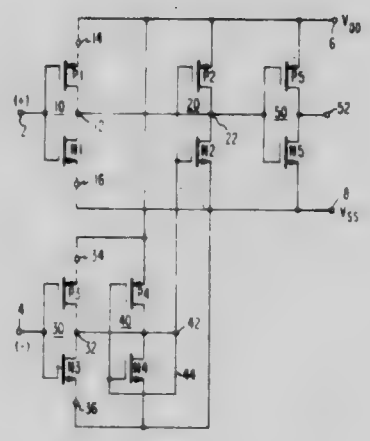
gain control means responsively coupled to receive signals from within the AGC circuit for automatically determining whether the gain should be increased or decreased, and for controlling said amplifier means with control signals which progressively increase in increasingly larger magnitudes, at least initially, if the gain should be increased, and which decrease if the gain should be decreased.

4,333,057

DIFFERENTIAL-INPUT COMPLEMENTARY FIELD-EFFECT TRANSISTOR AMPLIFIER

Merle V. Hoover, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,254
Int. Cl.³ H03F 3/45
U.S. Cl. 330—253 **24 Claims**



1. An FET amplifying circuit comprising:

first and second input terminals for receiving input signals thereat, and an output terminal;

first and second supply terminals for receiving operating potential therebetween;

first, second and third FET inverter amplifier means, each having an input and an output connection and exhibiting transconductance therebetween, and having respective first and second supply connections connected to said first and second supply terminals, respectively;

respective means for connecting said first and second input terminals to the input connections of said first and third inverter amplifier means, respectively;

interconnection means including

a first node,

means for connecting the output connection of said third inverter amplifier means to said first node,

means for connecting said first node to the input connection of said second inverter amplifier means,

fourth FET inverter amplifier means having an input connection, and having an output connection connected to said first node and having first and second supply connections connected to said first and second supply terminals, respectively, and

means for completing a degenerative feedback connection between the output and input connections of said fourth inverter amplifier means;

means for combining signals including

a second node,

means for connecting the output connection of said first inverter amplifier means to said second node, and

means for connecting the output connection of said second inverter amplifier means to said second node; and

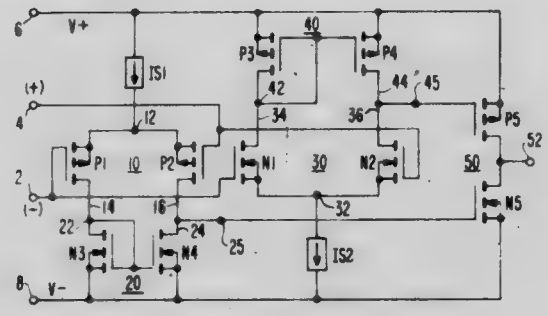
output means connecting said second node to said output terminal.

4,333,058

OPERATIONAL AMPLIFIER EMPLOYING COMPLEMENTARY FIELD-EFFECT TRANSISTORS

Merle V. Hoover, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 28, 1980, Ser. No. 144,291
Int. Cl.³ H03F 3/45, 3/16
U.S. Cl. 330—253 **11 Claims**



1. An amplifying circuit comprising:

first and second supply terminals for receiving relatively positive and relatively negative operating potentials, respectively;

inverting and non-inverting input terminals for receiving input signals thereat, and a signal output terminal;

a first differential-input amplifier means including:

first and second field-effect transistors, of P-channel conductivity type and in long-tailed pair connection, having respective gate electrodes to which said inverting and non-inverting input terminals respectively connect, having respective source electrodes connected to a tail connection, and having respective drain electrodes,

means for supplying a first tail current connected between the tail connection of said first differential-input amplifier means and said first supply terminal,

first current mirror amplifying means having an input and an output connection, and having a common connection to which said second supply terminal connects,

means for connecting the input connection of said first current mirror amplifying means to the drain electrode of said first transistor, and

an output connection of said first differential-input amplifier means at which output resistance is exhibited responsive to the connections of the output connection of said first current mirror amplifying means and the drain electrode of said second transistor thereto;

a second differential-input amplifier including:

third and fourth field-effect transistors, of N-channel conductivity type and in long-tailed pair connection, having respective gate electrodes to which said inverting and non-inverting input terminals respectively connect, having respective source electrodes connected to a tail connection, and having respective drain electrodes,

means for supplying a second tail current connected between the tail connection of said second differential-input amplifier means and said second supply terminal;

second current mirror amplifying means having an input and an output connection, and having a common connection to which said first supply terminal connects,

means for connecting the input connection of said second current mirror amplifying means to the drain-electrode of said third transistor, and

an output connection of said second differential-input amplifier means at which output resistance is exhibited responsive to the connections of the output connection of said second current mirror amplifying means and the drain electrode of said fourth transistor thereto;

output amplifier means including

first and second input connections for providing respective

relatively high resistances as compared to the output resistances of the output connections of said first and second differential-input amplifier means, respectively, and

fifth and sixth field-effect transistors of N-channel and P-channel type, respectively, each in common-source amplifier configuration having respective source electrodes directly connected to said second and first supply terminals respectively having respective drain electrodes connected to said signal output terminal, and having respective gate electrodes serving as the first and second input connections, respectively, of said output amplifier means;

means for directly connecting the output connection of said first differential-input amplifier means to the first input connection of said output amplifier means without substantially reducing the resistance exhibited thereat; and

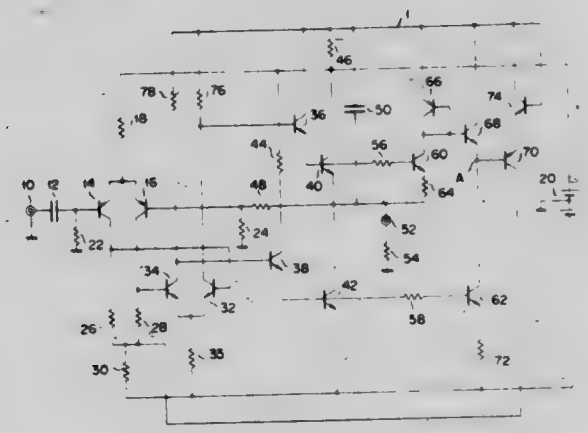
means for directly connecting the output connection of said second differential-input amplifier means to the second input connection of said output amplifier means without substantially reducing the resistance exhibited thereat.

4,333,059

POWER AMPLIFYING CIRCUIT

Hiroyasu Yamaguchi, Yokohama, and Takashi Ishii, Fujisawa, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Mar. 27, 1980, Ser. No. 134,676
Claims priority, application Japan, Mar. 31, 1979, 54/38635
Int. Cl.³ H03F *3/26*
U.S. Cl. 330—265 **4 Claims**



1. A power-amplifying circuit which comprises:

pre-amplifier means for amplifying an input signal;

output means including a push-pull pair of first and second transistors driven in accordance with an output signal from said pre-amplifier means;

feedback means for detecting currents of said first and second transistors and for supplying a signal corresponding to a product of the currents detected to said pre-amplifier means through a negative feedback path in order to regulate the quiescent currents of said first and second transistors;

a power supply terminal which is connected to said output means with a prescribed level of voltage impressed thereon; and

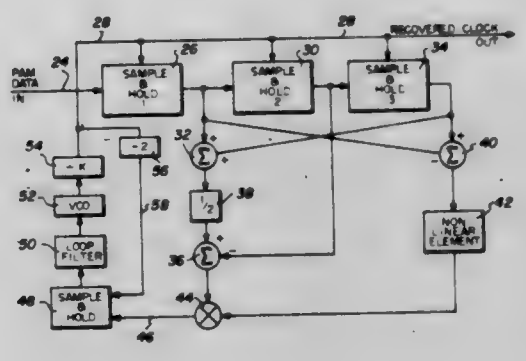
bias means connected to said feedback means and pre-amplifier means for selectively providing a voltage thereto higher than said prescribed level of voltage.

4,333,060

PHASE LOCKED LOOP FOR RECOVERING DATA BIT TIMING

William H. Mosley, Jr., St. Petersburg, and Carl F. Andren, Indiatlantic, both of Fla., assignors to E-Systems, Inc., Dallas, Tex.

Filed Jul. 10, 1980, Ser. No. 167,545
Int. Cl.³ H03L *7/08*
U.S. Cl. 331—1 A **28 Claims**



19. A method for recovering the data bit timing of a received signal including a plurality of data bits, comprising the steps of:

sampling the received signal at a sample rate of twice the data bit frequency to provide mid-bit samples taken at the middle of each data bit and to provide transition samples taken at the middle of each transition between data bits;

producing a control signal proportional to the difference between the average of adjacent mid-bit samples and the transition sample taken between the adjacent mid-bit samples;

producing an oscillator means signal in response to the control signal, said oscillator means signal corresponding to the data bit frequency of the received signal; and

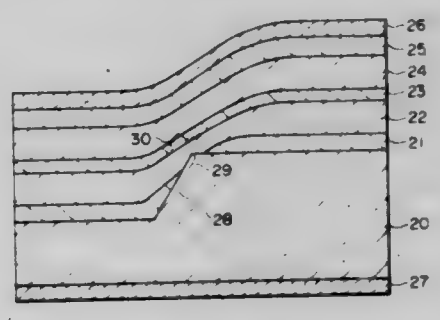
said sampling being responsive to the oscillator means signal to vary the sampling rate whenever a difference exists between the magnitudes of the transition bit sample and the average of the mid-bit samples adjacent to the transition bit sample.

4,333,061

TERRACED SUBSTRATE SEMICONDUCTOR LASER

Yukihiro Sasatani, Osaka, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed May 21, 1980, Ser. No. 151,851
Claims priority, application Japan, May 30, 1979, 54-67307
Int. Cl.³ H01S *3/19*
U.S. Cl. 372—46 **4 Claims**



1. In a semiconductor laser, a light emitting semiconductor device having a double hetero junction structure comprising: a semiconductor substrate of a first conductivity type; a stair-shaped step part in the form of a stripe on a surface of said substrate; a current blocking layer of a second conductivity type formed as a surface of said semiconductor substrate, said current blocking layer being interrupted along an edge portion of said stair-shaped part to form a break area in said current blocking layer in the form of a stripe, said break area forming a current concentration region; and a lower clad layer of said first conductivity type, an active layer of one of said first and

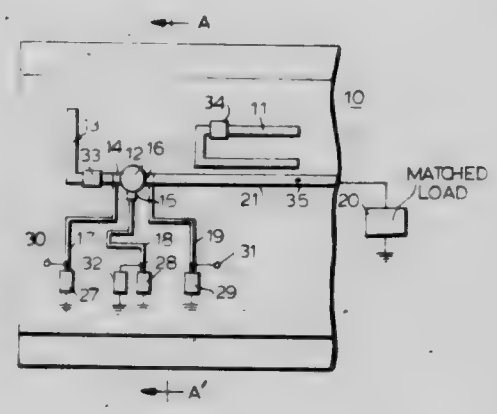
second conductivity types, and an upper clad layer of said second conductivity type formed on said current blocking layer and said break area in the stated order.

4,333,062

TEMPERATURE STABILIZED MIC SOLID-STATE OSCILLATOR

Tomoki Uwano, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 27, 1979, Ser. No. 107,616
Int. Cl.³ H03B *5/18*
U.S. Cl. 331—99 **2 Claims**



1. A temperature-stabilized MIC solid-state oscillator fabricated in the form of a planar transmission circuit and comprising:

a first strip line resonator having a first chip capacitor having linear capacitance temperature variation characteristics inserted serially in the middle of said first strip line, the resonant frequency temperature coefficent of said first strip line resonator being provided continuously by position of said first chip capacitor, wherein said first strip line resonator is coupled electromagnetically to a strip transmission line connecting an oscillating device with a load circuit of an oscillator, and operates as a band rejection filter and which is a load circuit of said oscillating device; and

a second strip line resonator having a second chip capacitor having linear capacitance temperature variation characteristics inserted serially in the middle of said second strip line resonator, said second strip line resonator being a type of serial resonator in order to equivalently ground a port of said oscillating device which is to be grounded for an oscillating condition, whereby each of said two strip line resonators shares an effect of compensation in regard to oscillation frequency temperature characteristics of said oscillator so as to decrease variations of compensated oscillating frequency temperature characteristics caused by variations of said load and caused by variations of characteristics of said oscillating device.

4,333,063

AMPLITUDE EQUALIZER

Toshihiko Ryu, and Yutaka Koizumi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Dec. 2, 1980, Ser. No. 212,164
Claims priority, application Japan, Dec. 3, 1979, 54-156609; Dec. 3, 1979, 54-156610
Int. Cl.³ H03H *7/03, 11/06*
U.S. Cl. 333—18 **4 Claims**

1. An amplitude equalizer for equalizing input signals having amplitude distortion within a predetermined frequency band, comprising:

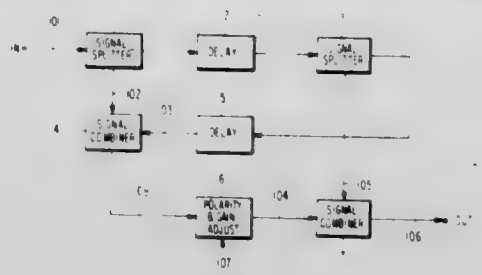
(i) first means for splitting said input signals into first and second output signals;

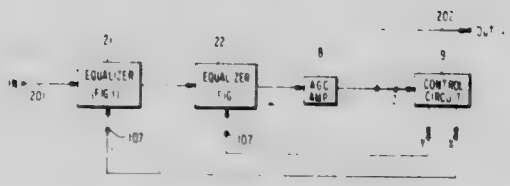
(ii) second means receiving said first output signal and having a predetermined delay time within said frequency band to provide a first delayed output;

(iii) third means for splitting said first delayed output into third and fourth output signals;

(iv) fourth means receiving said third output signal and having a delay time equal to said predetermined delay time to provide a second delayed output;

(v) fifth means for combining said second output signal and





said second delayed output to provide a first combined signal;

(vi) sixth means for varying at least one of the amplitude and polarity of said first combined signal to provide an adjusted signal; and

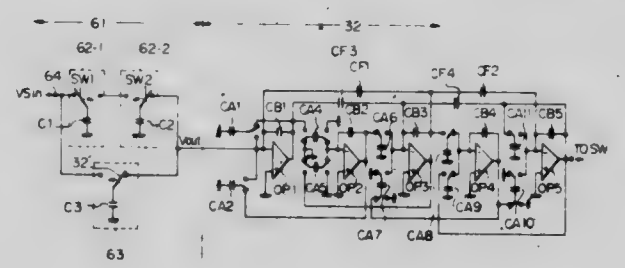
(vii) seventh means for combining said fourth output signal and said adjusted signal to provide equalized signals.

4,333,064

SWITCHED-CAPACITOR FILTER

Seiji Kato, Yamato; Norio Ueno, Kawasaki; Mitsuo Kakuishi, Yokohama; Akihiko Ito, Kawasaki, and Atsushi Iwata, Tokorozawa, all of Japan, assignors to Fujitsu Limited, Kawasaki and Nippon Telegraph & Telephone Public Corporation, Tokyo, both of, Japan

Filed May 23, 1980, Ser. No. 152,558
Claims priority, application Japan, May 28, 1979, 54-65828
Int. Cl.³ H03H *19/00*
U.S. Cl. 333—173 **12 Claims**



1. A prefilter for the input stage of a switched-capacitor filter, said switched-capacitor filter comprising a switched capacitor and associated switching means common to said switched-capacitor filter and said prefilter, and being driven by primary clock pulses having a period T for sampling an input signal to be supplied to said switched-capacitor filter via said prefilter, wherein said prefilter comprises:

(2^k-1) (k being a positive integer) units of switched capacitors;

means for providing secondary clock pulse groups to drive said (2^k-1) units of switched capacitors, each of said secondary clock pulse groups having the same period T and the phases of said secondary clock pulse groups being

shifted by $T/2^k$, $2T/2^k$, $3T/2^k$ . . . $(2^k-1)T/2^k$ with respect to said primary clock pulses;

said switched capacitor common to said switched-capacitor filter and said prefilter being driven by said primary clock pulses;

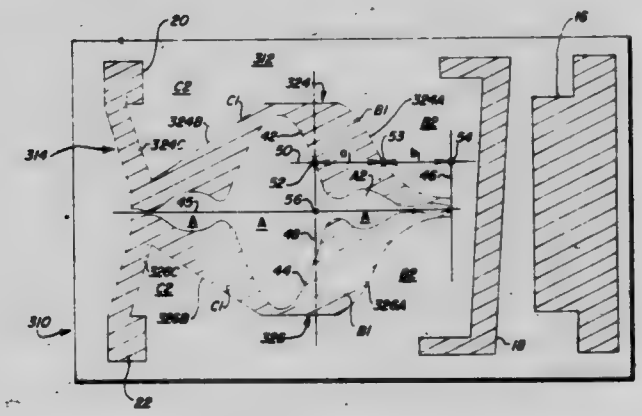
wherein each of said (2^k-1) units of switched capacitors samples and holds the input signal at each corresponding one of said secondary clock pulse groups successively, then, the signals sampled and held by said (2^k-1) switched capacitors are added to the signal sampled and held by said switched capacitor common to said switched-capacitor filter and said prefilter, and the sum signals are supplied to said switched-capacitor filter synchronously with said primary clock pulses.

4,333,065

LOW REFLECTIVITY APODIZED SURFACE ACOUSTIC TRANSDUCER WITH MEANS TO PREVENT WAVEFRONT DISTORTION

Adrian J. DeVries, Mount Prospect, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Oct. 9, 1980, Ser. No. 195,587
Int. Cl.³ H03H 9/145, 9/25, 9/64
U.S. Cl. 333—194 **10 Claims**



1. In a surface acoustic wave transducer of the type having:

a substrate;

a pair of arrays of electrically conductive elements on said substrate;

means for connecting an electrical circuit across said pair of arrays;

said arrays being interdigitated over an active area for coupling between said electrical circuit and an acoustic wave traveling in an acoustic beam direction across the surface of said substrate;

said arrays including an element at one end of said transducer;

an inactive area of said transducer in which no elements of said arrays are interdigitated;

said active area having a first boundary nearest said end element; and

a continuous covering of material adapted to alter the surface acoustic velocity of said substrate over only a portion of said inactive area between said first boundary and said end element;

said covered area having a second boundary between said first boundary and said end element;

said boundary being so shaped that the surface acoustic transit time along a path parallel to said beam direction between said first boundary and said end element is substantially equal across at least the major portion of the aperture of said transducer;

the improvement wherein said second boundary is shaped along the major portion of its length so as to substantially satisfy the equation

$$(a+b)/V_T=(a/V_M)+(b/V_F)$$

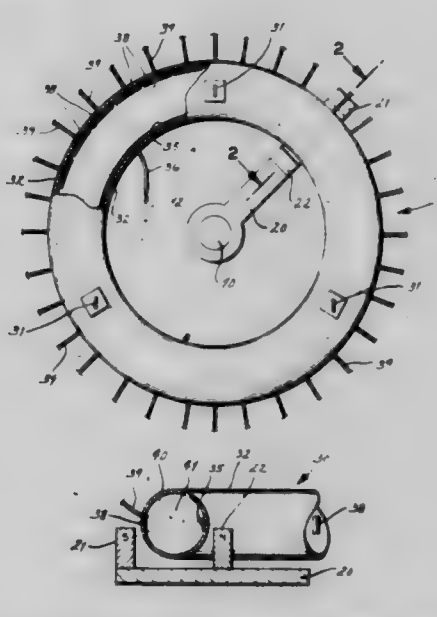
where a is the distance along a line parallel to said beam direction from any point on said first boundary, b is the distance along said parallel line from said intersection with said second boundary to said end element, V_T is the surface acoustic velocity in said active area, V_M is the surface acoustic velocity along said distance a, and V_F is the surface acoustic velocity along said distance b.

4,333,066

POSITION TRANSDUCER

Charles D. Roach, Newport News, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 7, 1980, Ser. No. 166,652
Int. Cl.³ H01H 36/00
U.S. Cl. 335—206 **11 Claims**



1. Transducer apparatus for indicating the position of an element movable in a predictable path, comprising

magnet means mounted to the movable element, whereby the magnet traces a fixed path on movement of the element in its predictable path,

an enclosed conduit, the conduit being mounted in fixed position apart from the movable element and extending adjacent to the fixed path of the magnet means, and

the conduit containing a liquid having suspended therein a mass of ferromagnetic, electrically conductive material, whereby the suspended mass is drawn along within the tube adjacent to the magnetic means, and further comprising

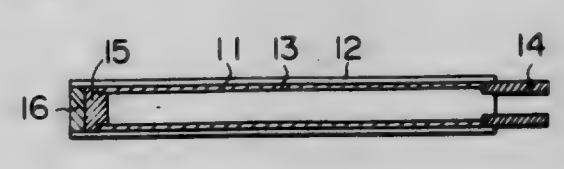
electrode means, extending the length of the conduit, to monitor the position of the suspended particles.

4,333,067

CERAMIC TYPE SENSOR DEVICE

Koichi Kugimiya, Toyonaka; Fumio Hosomi, Hirakata; Yoshihiro Matsuo, Neyagawa, and Tsuneharu Nitta, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 14, 1980, Ser. No. 130,434
Claims priority, application Japan, Mar. 20, 1979, 54-32688; Jun. 14, 1979, 54-75307; Jun. 14, 1979, 54-75309
Int. Cl.³ H01L 7/00
U.S. Cl. 338—34 **10 Claims**



1. A sensor device of a ceramic type comprising a sensing element formed of a ceramic material, at least a pair of electric conductors electrically connected to said sensing element and at least two output terminals for connecting said electric con-

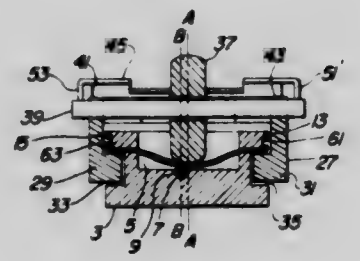
ductors with an external circuit, wherein at least one of said paired electric conductors is tightly and closely embedded within an insulating body of a ceramic material except for those portions of said electric conductor at which said conductor is connected to said sensing element, wherein at least one of said output terminals is partially embedded within said insulating body, said insulating body being composed of a voidless solid supporting part and a coating part, said electric conductors being interposed between opposite surfaces of said voidless solid supporting part and said coating part.

4,333,068

POSITION TRANSDUCER

Joseph F. Kishel, Clarks Summit, Pa., assignor to Sangamo Weston, Inc., Norcross, Ga.

Filed Jul. 28, 1980, Ser. No. 172,902
Int. Cl.³ H01C *10/28*
U.S. Cl. 338—158 **16 Claims**



1. A sealed transducer comprising:
(a) housing;
(b) at least one resistive element having a curved surface disposed in said housing;
(c) a flexible membrane disposed in a non-contacting relationship with each said resistive element, said flexible membrane having a conductive portion facing each said resistive element;
(d) means for sealing said flexible membrane to said housing;
(e) means for making respective electrical connections with said flexible membrane and each said resistive element; and
(f) means, movable with respect to and engaging said flexible membrane, for engaging said flexible membrane to cause said conductive portion of said membrane to contact each said resistive element, said means including at least one roller means, each said roller means having its plane of rotation offset from a plane which includes the longitudinal axis of each said resistive element whereby a wiping action is produced between said conductive portion of said flexible membrane and the surface of each said resistive element.

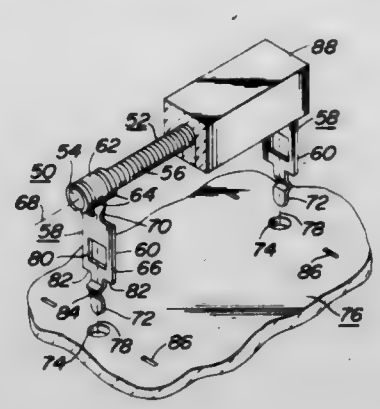
4,333,069

ELECTRICAL RESISTOR FOR A PRINTED CIRCUIT BOARD AND METHOD OF MAKING THE SAME

Joseph P. Worth, West Jefferson, and Bert B. Fletcher, Boone, both of N.C., assignors to TRW, Inc., Cleveland, Ohio

Filed Nov. 14, 1980, Ser. No. 206,703
Int. Cl.³ H01C *1/01*
U.S. Cl. 338—315 **14 Claims**

1. An electrical resistor for a printed circuit board comprising a body extending along a longitudinal axis and providing a resistive electrical path therealong, and terminating means including a pair of metal terminal elements each contacting the elongated body at spaced locations along its resistive path, the metal terminal elements each comprising a strip of given width having a first end portion extending substantially about for being secured with the elongated body at a spaced location therealong and a second end portion, the second end portion extending in a direction transverse to the axis of the body and having a tip for being receiving through an opening in a printed circuit board, each strip having an intermediate neck portion of reduced width with respect to the given width of the strips which is positioned proximate to the body and



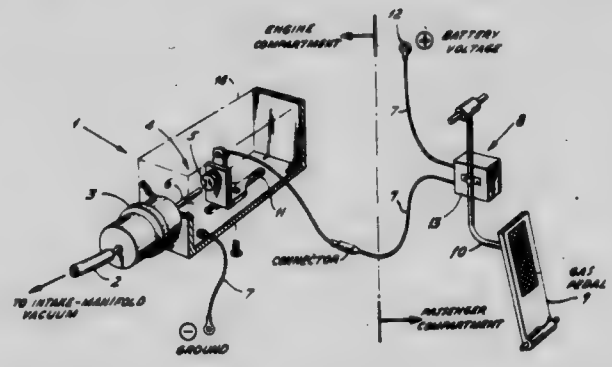
twisted so that the extending second end portion is in a plane which is perpendicular to the axis of the body.

4,333,070

MOTOR VEHICLE FUEL-WASTE INDICATOR

Robert W. Barnes, 108 Deep Dale Dr. East, Levittown, Pa. 19056

Filed Feb. 6, 1981, Ser. No. 231,966
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—52 R **8 Claims**



1. The use of an electro-mechanical vibrator to signal the driver of a motor vehicle, said vehicle having an internal battery, a driver-operated gas pedal, and an internal combustion engine which produces a manifold-vacuum in the intake manifold, as to the state of said vacuum being above or below a pre-selected level, by mechanically coupling said vibrator to the gas pedal under the driver's foot, coupling a sensing assembly to said vacuum, said sensing assembly providing means for connecting a suitable voltage from said battery to said vibrator when said vacuum is below said pre-selected level thereby actuating said vibrator, and for disconnecting said voltage when said vacuum is above said pre-selected level, thereby de-energizing said vibrator.

4,333,071

SELF-CANCELLING APPARATUS FOR VEHICLE TURN INDICATORS

Hiroshi Kira, 6135 Fairview Pl., Aguora, Calif. 91301, and Verne W. Bauman, 887 Conestoga Cir., Newbury Park, Calif. 91320

Filed Aug. 7, 1980, Ser. No. 176,073
Int. Cl.³ B60Q *1/40*; H01H *3/16*
U.S. Cl. 340—56 **10 Claims**

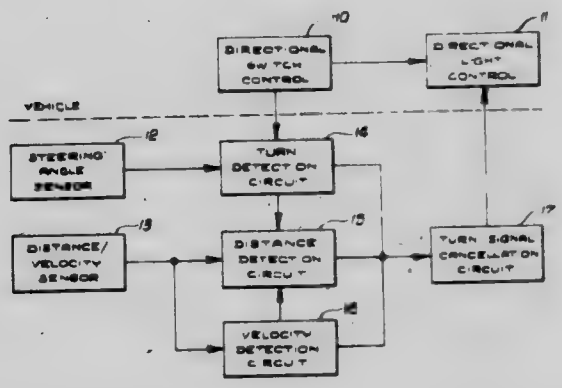
1. A self-cancelling apparatus for vehicle indicator signals for a vehicle having a rotating steering member which rotates relative to the vehicle frame and turn signal means selectively operable for activating and deactivating the vehicle turn signal means comprising:

(a) steering angle sensor means for detecting the change in

the relative angle between the rotating steering member and the frame of the vehicle;

(b) angle sensor processing means for producing a binary electrical output signal having on and off states responsive to the change in the relative angle between the rotating steering member and the frame of the vehicle, said on state occurring when said change exceeds a predetermined angle, said off state occurring when the change does not exceed the predetermined angle, said angle sensor processing means being coupled to said steering angle sensor means;

(c) distance sensor means for sensing the distance traveled by the vehicle, said distance sensor means being coupled to the vehicle;



(d) distance sensor processing means for producing an electrical output signal responsive to a predetermined distance having been traveled by the vehicle, said distance sensor processing means being coupled to the distance sensor means; and

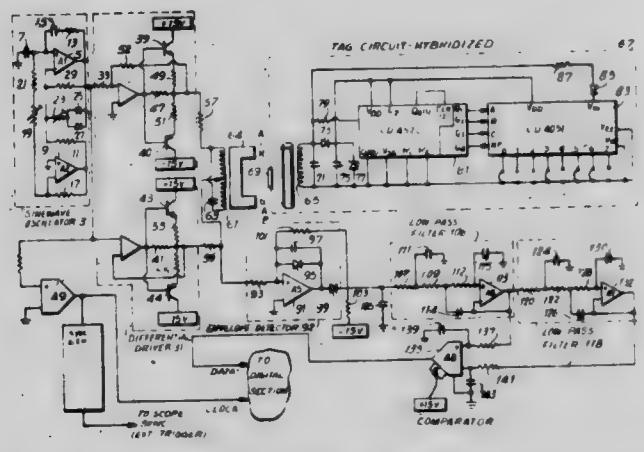
(e) cancellation means for deactivating the turn signal means when the binary electrical output signal of said angle sensor processing means has switched from the on to the off state and the electrical output signal of said distance sensor processing means coincides with the off state, said cancellation means being coupled to the outputs of said angle sensor processing means and said distance sensor processing means.

4,333,072

IDENTIFICATION DEVICE

Michael Beigel, Warwick, N.Y., assignor to International Identification Incorporated, Rosemount, N.J.

Filed Aug. 6, 1979, Ser. No. 64,181
Int. Cl.³ G01S 9/56; H04Q 7/00, 9/00
U.S. Cl. 340—825.54 **6 Claims**



1. A reflective close-coupled identification system comprising:

a first electrical circuit adapted to be connected to a source of alternating current and having a first inductive element;

a second electrical circuit to be associated with the object to be identified and having a second inductive element adapted to be inductively coupled to said first inductive element for inducing an alternating voltage in said second circuit, all power consumed in said second circuit being derived from said first inductive element;

means for selectively loading and unloading said second circuit in a predetermined time sequence over a predetermined period of time including a circuit operatively connected to said second inductive element and having a plurality of terminal pairs, the terminals of each pair being either conductively coupled for loading said second circuit when connected to said second inductive element or insulated from one another for unloading said second circuit when connected to said second inductive element, and means for sequentially connecting each of said terminal pairs to said second inductive element, said second circuit being loaded with the terminals of the terminal pair connected to said second inductive element are conductively coupled and said second circuit being unloaded when the terminals of the terminal pair connected to said second inductive element are insulated from one another; and

sensor means responsive to said loading and unloading including detector means operatively connected to said source of alternating current for deriving a first signal having a characteristic with a magnitude variable with the instantaneous magnitude of the rate of said loading and unloading;

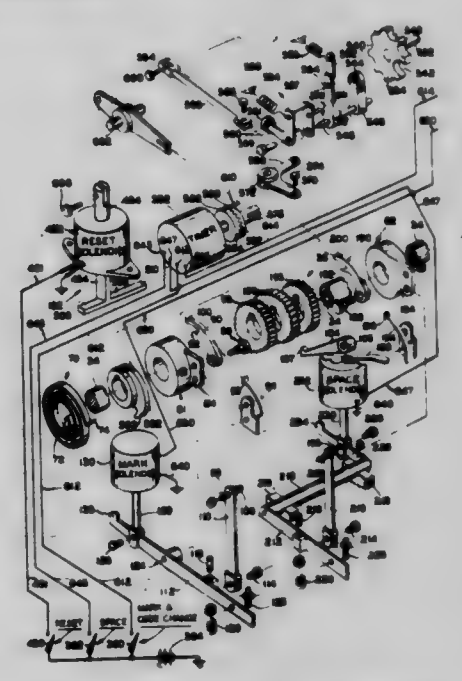
averaging means operatively connected to said source of alternating current for deriving a second signal having a characteristic with a magnitude proportional to the average of said first signal characteristic magnitude; and subtracting means operatively connected to said detector means and said averaging means for producing an output signal with a characteristic having a magnitude proportional to the difference between said first and second signal characteristic magnitudes and varying in a time sequence dependent upon said predetermined time sequence, thereby providing such identification.

4,333,073

ELECTROMECHANICAL DECODER

Peter J. Caruso, Wayne, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed May 28, 1964, Ser. No. 371,072
Int. Cl.³ E05B 37/00, 45/06
U.S. Cl. 340—825.36 **45 Claims**



37. In a decoder mechanism of a type having a predetermined code setting, the combination comprising means for varying the code setting of the mechanism, and means operably controlled by the mechanism for rendering the code varying means effective upon completion of a predetermined cycle of operation of the decoder mechanism.

4,333,074

SECURITY SYSTEM

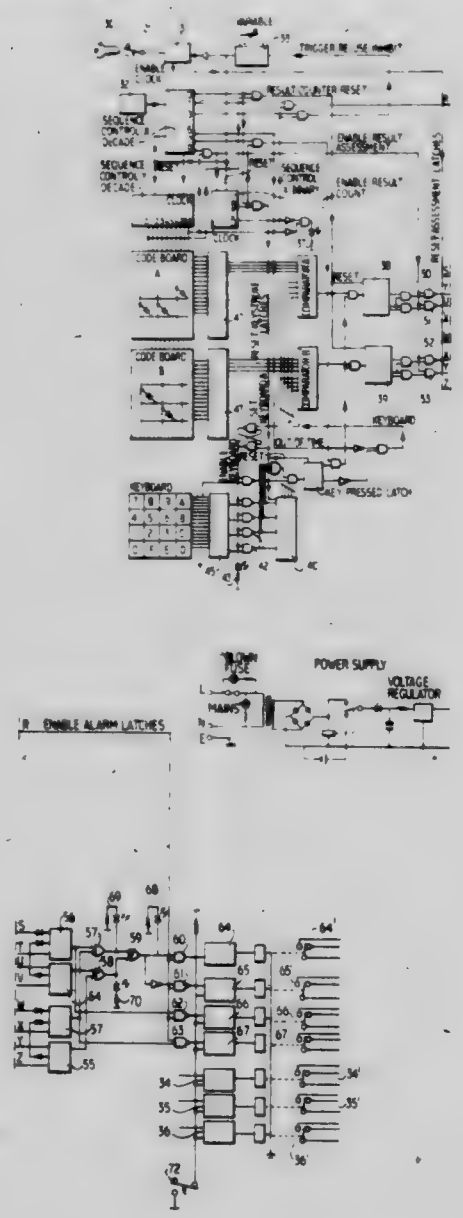
Hugh E. Sutherland, London; Philip J. Spiegelhalter, East Barnet; Martin R. Spiegelhalter, Horam, and Brian H. Goring, Southwater, all of England, assignors to Southwater Security Limited, West Sussex, England

Filed Mar. 5, 1980, Ser. No. 127,305

Claims priority, application United Kingdom, Mar. 7, 1979, 7908009

Int. Cl.³ H04Q *3/00*

U.S. Cl. 340—825.3 **6 Claims**



1. A security system including a combination device in which one or more predetermined combinations can be set by an operator to disable a system primary alarm, and comprising a logic circuit adapted to detect when the set combination differs from this or one of the predetermined combinations by an error which falls within prescribed limits, and in response to the detection of such an error, to disable the system primary alarm but to generate a secondary alarm.

4,333,075

ANALOG-TO-DIGITAL CONVERTER ACCURATE RELATIVE TO THE VALUE OF THE INPUT SIGNAL

Arliss E. Whiteside, Royal Oak, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Mar. 27, 1980, Ser. No. 134,600

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 AD **14 Claims**

1. A non-binary analog to digital converter comprising:

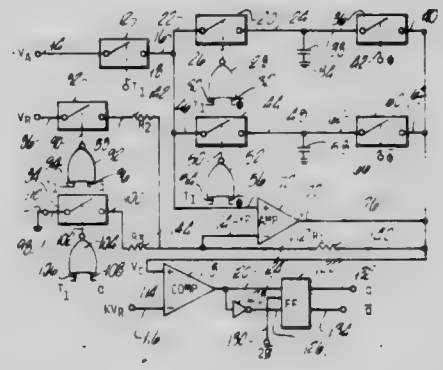
means receiving clock signals from an external source for repetitively generating a predetermined set of sequential timing signals including a first timing signal coincident with the first of said predetermined set of sequential timing signals;

first switch means having a first input receiving an input analog signal, a second input receiving a feedback signal V_C, a third input receiving said first timing signal, and an output, said first switch means having a first state transmitting said analog signal to said output in response to said first timing signal and a second state transmitting said feedback signal V_C to said output in response to the absence of said first timing signal;

analog signal storage means for storing an analog signal;

second switch means for transmitting the signal from the output of said first switch means to said analog storage means in response to a clock signal and transmitting the signal stored in said analog storage means having a value V_P to an output in response to the absence of a clock signal;

comparator means having a negative input receiving a reference signal kV_R, a positive input receiving the signal at the output of the first switch means, and an output, said



comparator means generating a digital output bit having a first value when the signal from the output of the first switch means is greater than the reference signal kV_R and a second value when the signal from the output of the first switch means is less than the reference signal kV_R; and

feedback signal generator means receiving said reference signal V_R, said stored signal V_P, and said digital output bit for generating a first feedback signal V_C having a value:

$$V_C=(1/(1-k))\,(V_P-kV_R)$$

when said digital bit has said first value and generating a second feedback signal having value

$$V_C=(1/k)V_P$$

when said digital bit has said second value, wherein k has a predetermined value in the range from $0<k<\frac{1}{2}$;

wherein the output is a non-binary digital word comprising the sequentially generated digital bits generated at the output of said comparator means between sequential first timing signals.

4,333,076

ULTRA-HIGH FREQUENCY SIMULTANEOUS TRANSMISSION AND RECEPTION HEAD, MILLIMETER WAVE TRANSMITTER - RECEIVER AND RADAR USING SUCH A HEAD

Gerard Cachier, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jun. 9, 1980, Ser. No. 157,344

Claims priority, application France, Jun. 12, 1979, 79 14990

Int. Cl.³ G01S *13/04*

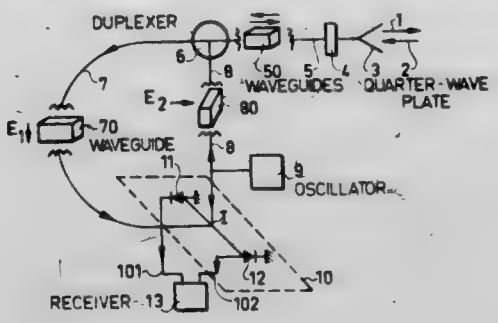
U.S. Cl. 343—5 DD **5 Claims**

1. An ultra-high frequency head comprising:

a microwave oscillator which can be used both as a transmission source and as a local oscillator;

a polarization duplexer having a first, a second and a third port, said first port opening onto a two-way square cross-

section guide destined to be connected with transmitting and/or receiving antenna, said second port opening onto a first rectangular cross-section guide coupled with said microwave oscillator and having a straight longitudinal shape, and said third port opening onto a second rectangular cross-section guide having a shape bent in such a manner that it intersects with said first rectangular guide, the



rectangular cross-section of both rectangular guides being arranged so as to have the electrical components of the electrical fields to be orthogonal in first and second retangular guides;

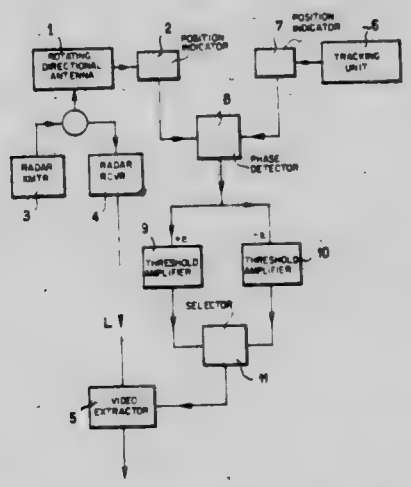
a mixer situated in said second rectangular guide in the vicinity of the intersection of said first and second rectangular guides.

4,333,077

DEVICE FOR DISTANCE ACQUISITION IN A RADAR SYSTEM

Michel Teilhet, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jun. 12, 1980, Ser. No. 158,793
Claims priority, application France, Jun. 13, 1979, 79 15138
Int. Cl.³ G01S *13/86*
U.S. Cl. 343—6 R **8 Claims**



1. A device for range acquisition in a radar system constituted by a surveillance radar equipped with a mobile directional antenna rotating continually around an axis and with first indicating means for giving the direction of said antenna at each instant, a tracking unit provided with second indicating means for giving the direction of a line of sight thereof, and a video extractor, said device comprising:

detecting means controlled by said first and second indicating means for ascertaining a coincidence of the direction of said mobile antenna with the direction of the line of sight of said tracking unit, and

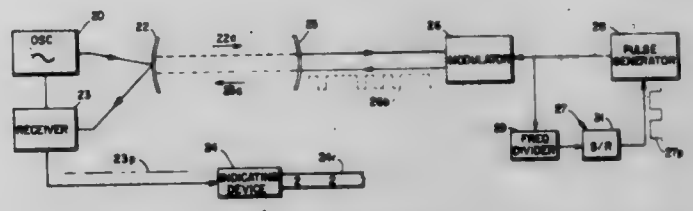
enabling means controlling said extractor in response to signals from said detecting means for initiating measurement of the distance of a tracked echo-emitting target by surveillance signals upon an occurrence of said coincidence.

4,333,078

APPARATUS FOR SYNCHRONIZED RECEPTION IN CONNECTION WITH SYSTEM FOR RECORDING OBJECTS

Bengt Henoch, Hagersten, and Eilert Berglind, Bandhagen, both of Sweden, assignors to Stiftelsen Institutet for Mikrovagsteknik vid Tekniska Hogskolan i Stockholm, Stockholm, Sweden

Continuation-in-part of Ser. No. 67,139, Aug. 16, 1979, abandoned. This application May 29, 1981, Ser. No. 268,496
Claims priority, application Sweden, Aug. 25, 1978, 7809018
Int. Cl.³ G01S *13/76, 13/80, 13/82*
U.S. Cl. 343—6.5 LC **6 Claims**



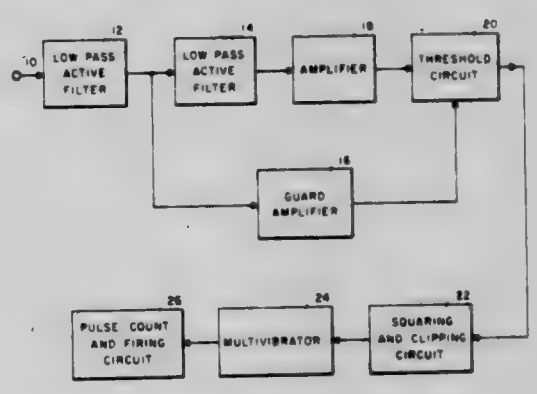
4. A radio communication apparatus for a system having at least first and second stations in which one of said stations is movable relative to the other of said stations, means located at said first station for transmitting a first signal, a transceiver located at said second station for receiving said first signal and comprising (a) first means for supplying information in the form of a coded digital signal which defines the bits of a plural bit binary word and (b) second means electrically connected to said first means for producing a pulse signal having (i) a pre-selected number of cycles at a first pre-selected frequency for each binary 1 bit in said digital signal and (ii) a pre-selected number of cycles at a second pre-selected frequency for each binary 0 bit in said digital signal, said second frequency being different from said first frequency, said transceiver further comprising means electrically connected to said second means for modulating said first signal with said pulse signal to produce a modulated signal, and means electrically connected to said modulating means for transmitting said modulated signal, there being a unit located at said first station and including first means for receiving said modulated signal and for recovering said pulse signal from the received modulated signal, and further means electrically connected to said first means of said unit, said further means being responsive to the frequencies in the recovered pulse signal and also to the number of cycles of said first and second frequencies in the recovered pulse signal for producing a data signal containing said information.

4,333,079

DOPPLER SIGNAL PROCESSING CIRCUIT

John O. Dick; Joe A. McKenzie, both of Riverside, Calif., and William C. Bradford, Hyattsville, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 21, 1970, Ser. No. 63,975
Int. Cl.³ F42C *13/04*
U.S. Cl. 343—7 PF **4 Claims**



1. In a doppler signal processing circuit for producing a

warhead firing pulse in a missile, target encounter, the combination comprising:

(a) first band-pass amplifier circuit means for amplifying the received doppler signal within a predetermined frequency range,

(b) second band-pass amplifier circuit means amplifying only received signals of a higher frequency than the doppler signals amplified by said first band-pass amplifier circuit means for generating a control signal proportional to the signal passed by said second band-pass amplifier,

(c) threshold circuit means coupled to the output of said first and second band-pass amplifier circuit means having a predetermined threshold value that is increased when a control signal is present at the output of said second band-pass amplifier circuit means for passing the signal out of said first band-pass amplifier circuit means when it exceeds the threshold value of said threshold circuit,

(d) firing pulse generating means coupled to the output of said threshold circuit means for generating a firing pulse in response to a predetermined number of pulses passed by said threshold circuit means.

4,333,080

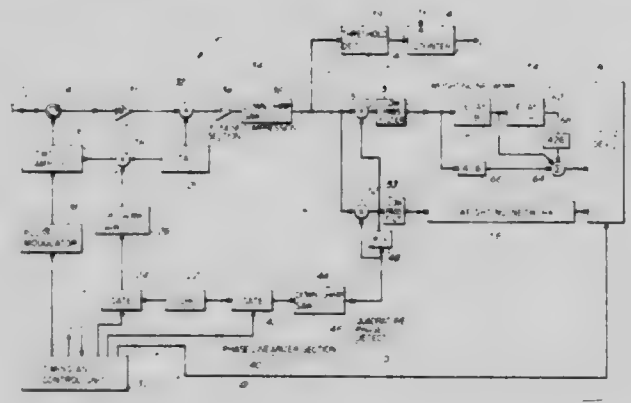
SIGNAL PROCESSOR

John D. Collins, Burlington; Douglas S. MacFall, Jr., Winchester, and William A. Sciarretta, Lexington, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Jul. 18, 1977, Ser. No. 816,422

Int. Cl.[3] G01S *13/28*

U.S. Cl. 343—17.2 PC 12 Claims



1. A signal processor, comprising:

(a) means for pulse compressing an intermediate frequency chirp pulse to produce a compressed pulse having a linearly frequency modulated, intermediate frequency component; and

(b) means for removing the linearly frequency modulated, intermediate frequency component of such compressed pulse, such removing means including a quadrature phase detector means for separating the compressed pulse into a pair of quadrature video compressed pulses.

4,333,081

MONITORING SYSTEM FOR SCANNING-BEAM MICROWAVE LANDING APPARATUS

Günter Höfgen, Kornwestheim, Fed. Rep. of Germany, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Jun. 16, 1980, Ser. No. 159,655

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1979, 2924847

Int. Cl.[3] G01S *1/54, 7/40*

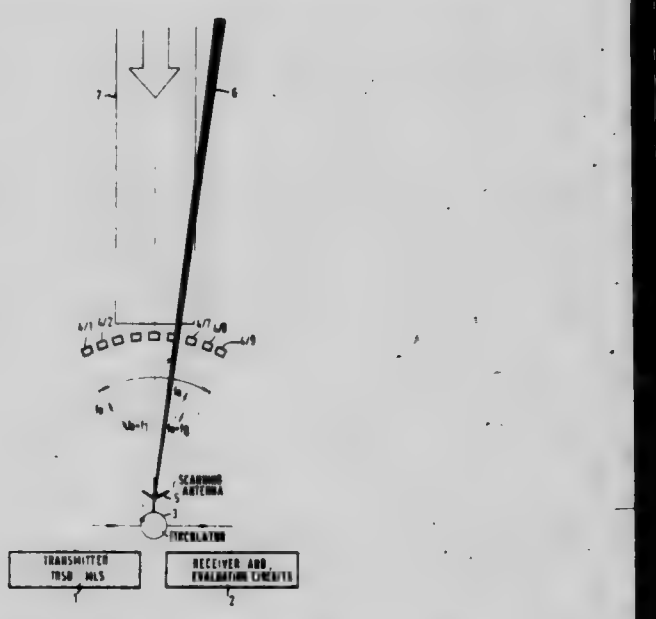
U.S. Cl. 343—108 M 7 Claims

1. In a scanning-beam microwave landing system of the time reference type, the combination comprising:

first means including a transmitter and a directive antenna for transmitting a continuous wave narrow beam of microwave energy and for scanning said beam through a predetermined angular sector in successive scan cycles each consisting of a sweep from a starting angular position through said sector to a predetermined angular limit and a return sweep from said angular limit through said sector to said starting angular position;

second means including a receiver and duplexing means, said receiver and said transmitter being connected to said antenna through said duplexing means to permit contemporaneous operation of said transmitter and said receiver through said antenna;

third means comprising a plurality of transponders each located at a discrete angle within said sector, said transponders including means responsive when said beam scans across each of said discrete angles, to modulate and



retransmit to said antenna, a signal discretely modulated as a function of the corresponding discrete transponder angle, said receiver being responsive to each retransmitted signal during said sweep of said beam across said angle of each corresponding transponder; and

fourth means responsive to the output of said receiver for providing an angle reference for each discrete transponder angle and for comparing the scanning angle at which each of said modulated transponder signals is received with said reference angle for each corresponding transponder, to provide an output signal indicative of any non-correspondence between any of said reference angles and the scanning angle at which the corresponding modulated retransmitted signal is received.

4,333,082

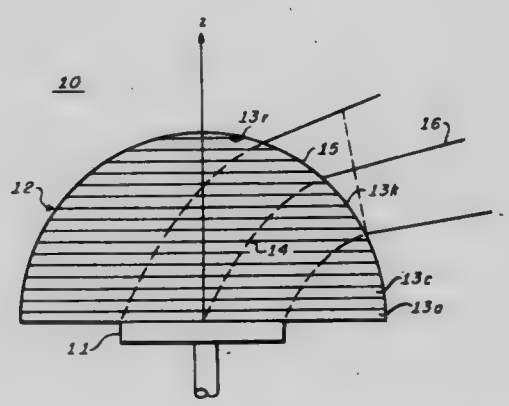
INHOMOGENEOUS DIELECTRIC DOME ANTENNA

Leon Susman, Sudbury, Mass., assignor to Sperry Corporation, New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,427

Int. Cl.[3] H01Q *15/08*

U.S. Cl. 343—754 3 Claims



1. A scanning antenna including a dome shaped substantially

as a hemisphere having an external surface at a radius R, a base plane substantially coincident with said hemisphere's equatorial plane, a z-axis perpendicular to said base plane with z values increasing therefrom, and a dielectric material with a dielectric constant $\epsilon(z)$ that decreases linearly as said Z-values increase in accordance with $\epsilon(z)=1=+K(1-z/R)$, K being a constant, filing substantially all space between said base plane and said external surface, constructed and arranged such that a ray of an electromagnetic signal incident to said base plane at a first angle with respect to said z-axis is plurally refracted between said base plane and said external surface to emerge from said external surface at a second angle with respect to said z-axis which is at least as great as said first angle, thus providing an angle amplification, said angle amplification varying as a function of said first angle, being unity for a ray perpendicularly incident to said base plane and increasing with increasing first angle.

4,333,083

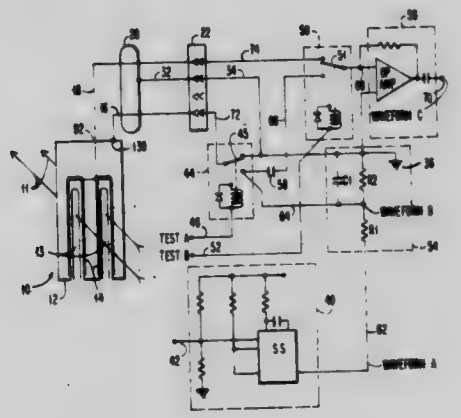
ELECTROSTATIC DROP SENSOR WITH SENSOR DIAGNOSTICS FOR INK JET PRINTERS

Stephen F. Aldridge, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1980, Ser. No. 219,478

Int. Cl.³ G01D *9/00, 15/18*

U.S. Cl. 346—1.1 11 Claims



11. A method for operating an electrostatic drop sensor including a plurality of spaced conductors between which electrostatically charged drops are propelled, comprising the steps of:

connecting at least one of said conductors to a reference potential for conditioning the other of said conductors to produce an output signal in response to passage of an electrostatically charged drop;

connecting at least one of said conductors to a test signal for capacitively inducing a drop simulating signal into the other of said conductors to produce an output signal indicative of the proper operation of said sensor.

4,333,084

PROGRAM PACER

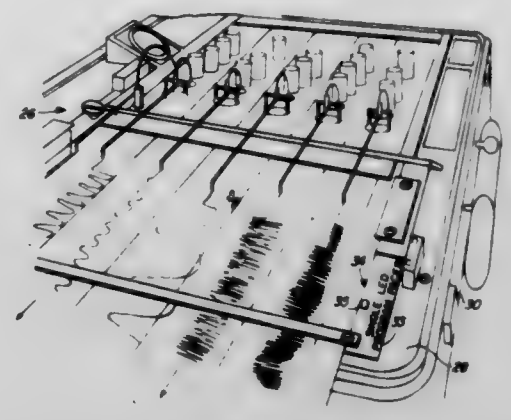
Donald A. Peterson, Berwyn, Ill., assignor to Stoelting Company, Chicago, Ill.

Filed Oct. 6, 1980, Ser. No. 194,761

Int. Cl.³ G01D *9/00*

U.S. Cl. 346—17 4 Claims

1. Polygraphic apparatus including a chart area and a graphic output device for producing a record representative of the pulse of the subject; said apparatus including a timed lighting display means adjacent to the chart area for indicating



when the examiner and examinee have time to ask and respond to a test examination question before the next question.

4,333,085

TIME RECORDER

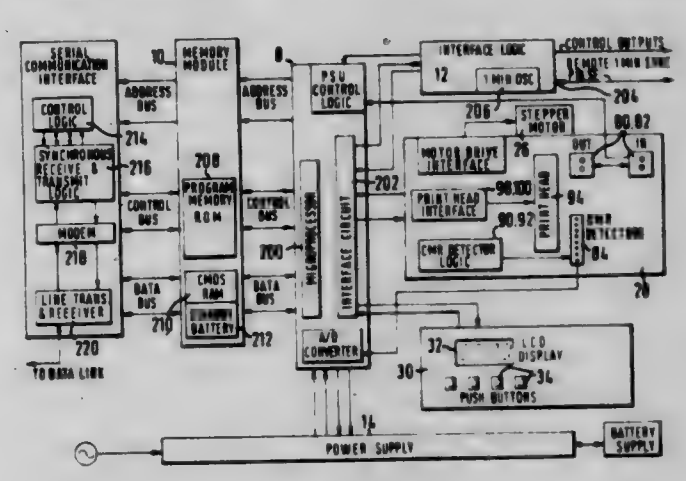
Alan G. Witts, Wimborne, England, assignor to ITR International Time Limited, Dorset, England

Filed May 30, 1980, Ser. No. 155,128

Claims priority, application United Kingdom, Jun. 1, 1979, 7919135

Int. Cl.³ G01D *15/10*; G07C *1/06*

U.S. Cl. 346—76 PH 13 Claims



1. A time clock for use with thermographic time cards on which are to be printed legible characters recording the times at which each card is inserted in the machine and a two-dimensional array of optically readable marks identifying individual cards and which for each card accumulates time for successive periods between pairs of insertions of the card into the clock according to semipermanent timekeeping information entered into the machine, comprising in combination:

(a) a housing;

(b) means in said housing defining a card inlet aperture;

(c) a card guide channel within the housing and communicating at one end with the card inlet aperture;

(d) an optical reader located in the card guide channel and arranged to read the array of marks (if any) present on a card conveyed along the card guide channel;

(e) card transport means including a drive roller disposed in said card guide channel in driving engagement with a card to convey said card stepwise along said channel;

(f) a thermal printer located in the card guide channel for printing said legible characters and said two-dimensional array of optically readable marks on cards conveyed along the card guide channel;

(g) means for providing clock signals;

(h) a read-only memory that contains firmware instructions for the operation of the time-clock;

(i) a random-access memory that contains locations in which are stored variable instructions relating to time accumula-

tion and locations in which data relating to the several cards is accumulated; and

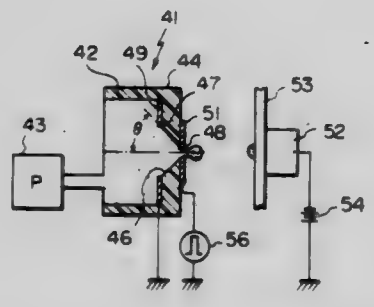
(j) a data processor that is electrically connected to the card reader to receive coded signals therefrom, electrically connected to the card transport means to supply actuating signals thereto to cause the card to move stepwise through the machine, electrically connected to the printer to supply actuating signals thereto to print in predetermined locations on the card as it is conveyed past the printer, electrically connected to the clock so that the time of insertion of the card into the machine may be calculated and electrically connected to the read-only memory and the random access memory so that on receipt of a time card for which the optical reader does not detect coded identity marks the firmware in the read-only memory instructs the data processor to signal the printer to print on that card an array of coded identity marks relating to a random access memory location assigned to that card and on reinsertion of a card bearing coded identity marks recognized by the optical reader the firmware in the read-only memory instructs the data processor to cause the random access memory location assigned to that card to be accessed and the printer to print the time of insertion onto the card in legible characters.

4,333,086

INK JET PRINTING APPARATUS

Yutaka Ebi, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Jun. 18, 1980, Ser. No. 160,770
Claims priority, application Japan, Jun. 30, 1979, 54-82036
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **6 Claims**



1. An ink jet printing apparatus including an ink ejection passageway and ink supply means for supplying ink into the passageway with insufficient pressure to cause the ink to be discharged from the passageway, characterized by comprising:

first electrode means provided to the passageway;

second electrode means provided external of the passageway;

and

power source means for applying a first electric potential to the first electrode means for electrically polarizing the ink in the passageway and applying a second electric potential to the second electrode means for causing the polarized ink to be ejected from the passageway onto a sheet;

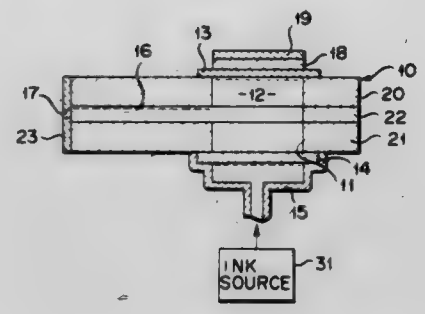
the first electrode means comprising an inlet electrode provided at an inlet of the passageway and an outlet electrode provided at an outlet of the passageway, the power source means applying the first electric potential to the outlet electrode and applying a potential to the inlet electrode such that the first and second electric potentials are opposite in polarity relative to the potential applied to the inlet electrode.

4,333,087

INK-JET RECORDING DEVICE

Yasuhiro Yamaguti, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jul. 10, 1980, Ser. No. 168,253
Claims priority, application Japan, Jul. 18, 1979, 54/90362
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **5 Claims**



1. An ink-jet recording device comprising:

a container having an ink chamber for storing an ink body, having an opening formed on one side;

pressurizing means provided on one side of the container for applying pressure to the ink body in the ink chamber in accordance with an electric signal applied thereto;

a porous filter disposed inside the ink chamber to face the pressurizing means in a predetermined distance to divide the ink chamber into first and second chamber sections and directly subjected to the pressure applied by the pressurizing means;

an ink outlet port opening at the first chamber section between the pressurizing means and porous filter;

an ink inlet port including an opening communicated with the second chamber section and having a smaller diameter than that of the second chamber section; and

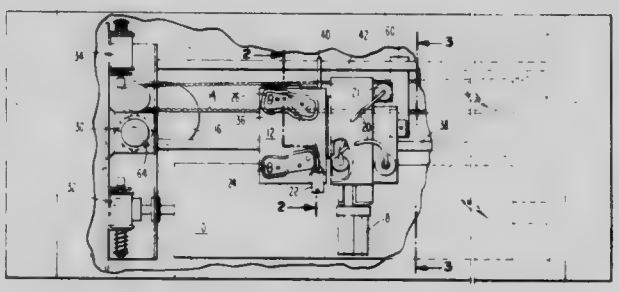
an ink source connected with the inlet port and supplying ink into the ink chamber through the inlet port.

4,333,088

DISPOSABLE PERISTALTIC PUMP ASSEMBLY FOR FACSIMILE PRINTER

Martin J. Diggins, Newtown, Conn., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 3, 1980, Ser. No. 203,589
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **22 Claims**



1. In facsimile apparatus of the type comprising ink jet apparatus for producing droplets of ink in response to print commands, said ink jet being supplied with ink from a disposable reservoir, said reservoir comprising means for priming and purging said jet and means for producing subatmospheric pressure in the vicinity of said jet to remove purged material, the improvement comprising said means for priming or purging said jet being of the peristaltic pump type comprising a first resilient tube having a first end and a second end, means for pressing said first tube closed at a point of closure intermediate said ends, and means for moving said point of closure from said first end of said tube towards said second end, and said means for producing subatmospheric pressure being of the peristaltic

pump type comprising a second resilient tube having an inlet end and an outlet end, means for pressing said second tube closed at a point of closure near said inlet end, and means for moving said point of closure towards said outlet end.

4,333,089

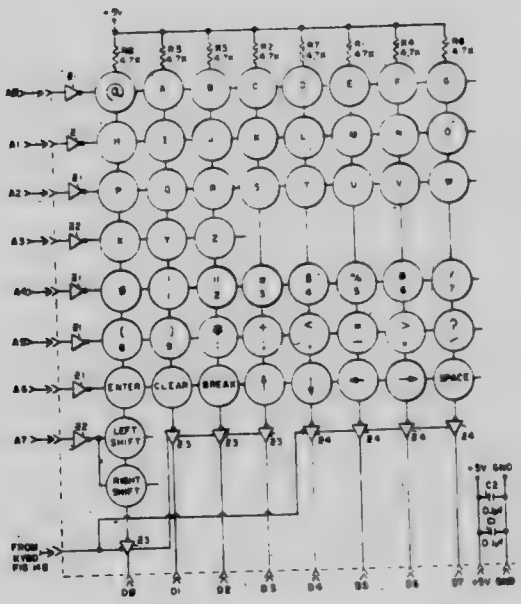
KEYBOARD AND CONTROL SYSTEM

Steven Leininger, Arlington, Tex., assignor to Radio Shack, Fort Worth, Tex.

Division of Ser. No. 926,957, Jul. 21, 1978, abandoned. This application Apr. 18, 1980, Ser. No. 141,295

Int. Cl.³ G06F *3/02*

U.S. Cl. 340—365 S **5 Claims**



1. A keyboard and control system for use with a computer that includes a central processing unit, comprising;

a keyboard including a plurality of keys organized in an array of rows and columns having a plurality of keyboard input address lines corresponding in number to the number of rows, and a plurality of keyboard output data lines corresponding in number to the number of columns, column and row conductors to interconnect the keys in the array, each key having a contact coupled to a corresponding column conductor and a contact coupled to a corresponding row conductor and arranged to provide electrical continuity between the column and row conductors when the key is depressed,

a first plurality of input address lines AO–AN coupled from the central processing unit to the respective keyboard input address lines and forming first order address lines,

a plurality of output data lines DO–DN coupled to the central processing unit,

control circuit means for controlling data transfer between the keyboard and central processing unit, and intercoupling the keyboard output data lines to the respective output data lines DO–DN of the central processing unit and having a control input line,

a second plurality of input address lines coupled from the central processing unit and forming second order address lines,

decoder means responsive to predetermined second order address signals for selectively establishing a keyboard selection signal,

means coupling said keyboard selection signal to the control input line of the control circuit means,

and data processing circuitry for controlling the inputting of data via the keyboard to the central processing unit and comprising,

first means for interrogating the keyboard by coincidentally generating said predetermined second order address signals to in turn generate said keyboard selection signal, and bringing all first order address lines AO-14 AN to an enable state, whereby an output signal being detected on one of the output data lines DO–DN corresponding to the depressed key

thus indicating to the central processing unit that there has been a key depressed on the keyboard, said central processing unit having means for receiving said output signal,

second means responsive to receipt of said output signal for interrogating the keyboard selectively one of said first order address line at a time in sequence until a second output signal is generated on the selected output data line,

and means responsive to the output signal on one of the output data lines DO–DN corresponding to the depressed key, and responsive to one of the first order address lines AO–AN which causes the generation of said second output signal for providing a machine readable code.

4,333,090

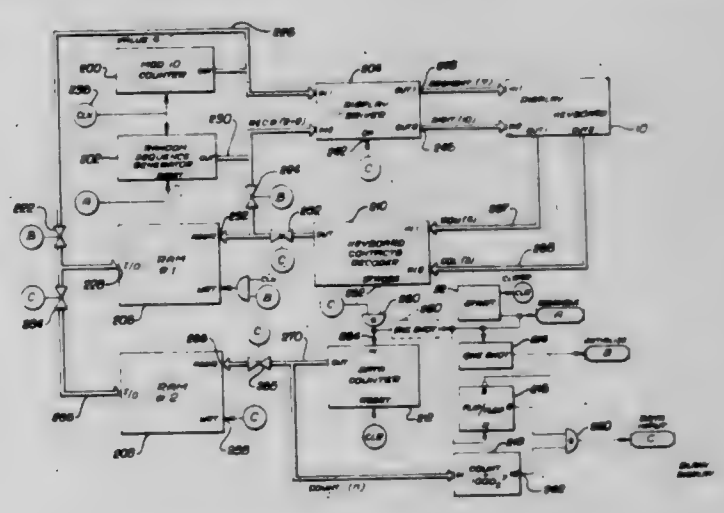
SECURE KEYBOARD INPUT TERMINAL

Steven B. Hirsch, 305 Peck Dr., Beverly Hills, Calif. 90212

Filed May 5, 1980, Ser. No. 146,404

Int. Cl.³ G06F *3/02*; E05B *45/06*

U.S. Cl. 340—365 VL **11 Claims**



1. A secure keyboard input device for inputting secret data sequences formed from a set of characters, said terminal comprising:

a keyboard comprising a plurality of data keys, and means for generating upon the actuation of any of said keys a first signal representing which particular key was actuated;

scramble means for apparently randomly assigning individual ones of said characters to individual ones of said data keys;

a plurality of individual character displays adapted for displaying individual ones of said characters, each of said character displays being associated with a respective one of said data keys;

means for causing each of said displays to display the character then assigned by said scramble means to the data key associated with that particular display;

unscramble means for translating said first signal representing which particular key was actuated to a second signal representing the particular character then assigned to said particular key by said scramble means; and

means for restricting the view of the character displays from other than the individual operating the keyboard.

4,333,091

COMMAND BUFFERS FOR ELECTRONIC CODE KEYER

Terry A. Perdue, St. Joseph, Mich., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Apr. 17, 1981, Ser. No. 255,013

Int. Cl.³ G06F *3/02*; H04L *13/08*; H03R *13/00*

U.S. Cl. 340—365 S **11 Claims**

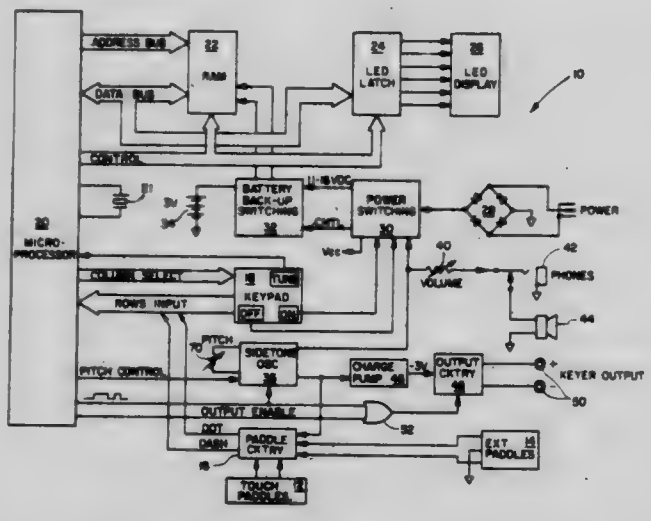
1. An electronic code keyer for automatically generating an

ordered arrangement of characters from a first and second sequence of coded signals wherein a plurality of keyer operating parameters may be varied over a wide range of values, said electronic code keyer comprising:

input means for generating said first sequence of coded signals;

control means for generating said second sequence of coded signals;

processor means coupled to said input means and to said control means and responsive to said first sequence of coded signals for generating said ordered arrangement of characters and responsive to said second sequence of coded signals for generating a plurality of instructions for



operating said keyer over said wide range of operating parameters;

random access memory means coupled to said processor means, said random access memory means having a plurality of addressable memory locations for the storage and read out of said ordered arrangement of characters and said instructions, the read out of said ordered arrangement of characters being determined by said instructions; and

output means coupled to said processor means for receiving said ordered arrangement of characters in accordance with said instructions and for transmitting said characters over a wide range of keyer operating parameters in accordance with said instructions.

4,333,092

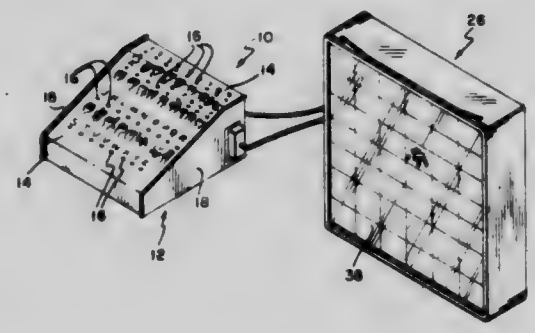
COMMUNICATION AID MEANS AND METHOD

Max N. Field, 501 E. 56th St. South, Wichita, Kans. 67216

Filed Jul. 14, 1980, Ser. No. 168,601

Int. Cl.³ G08B 5/22

U.S. Cl. 340—378.2 **2 Claims**



1. An apparatus for communicating between a mute and another person comprising:

a control box including an alphanumeric keyboard having a plurality of spring-biased switches, each switch representing and being labeled with a number or a letter of the alphabet and with the corresponding identifying hand sign of the mute alphabet;

a control box electronic circuitry means disposed within said control box and having a power means and a plurality of conductors electrically engaging in series the power means and the switches and terminating into at least one electrical receptacle in communication with the outside of the control box;

a display box comprising a light retention board disposed within said display box and including a structure defining a plurality of open top square chambers having a paneled back including an aperture situated within each of said plurality of chambers; a plurality of lights removably lodging within said apertures such as to have one light per chamber; a translucent panel superimposing said open top chambers of said light retention board, said translucent panel being labeled with the identical indicia of the alphanumeric keyboard and being distributed such that a number or a letter of the alphabet and with the corresponding identifying hand sign of the mute alphabet is imposed over each chamber;

a display box electronic circuitry means disposed behind said light retention board and comprising a plurality of second electrical conductors electrically engaging in series said lights and extending outside of said display box and terminating into at least one plug such that when said plug of said display box is inserted into the electrical receptacle of said control box circuitry and as a switch on the keyboard, representing and being labeled with a letter of the alphabet and the corresponding identifying hand sign of the mute alphabet, is closed by a user, a light within one of said plurality of chambers lights to illuminate the indicia over that particular chamber which represents the identical number or letter of the alphabet and the corresponding identifying hand sign of the mute alphabet which said closed switch is labeled and represented with, thereby, enabling the mute to read from the translucent panel as it is illuminated by each light, said power means is a battery, said control box comprises two electrical receptacles, one receptacle situated on each side of said control box, each of said receptacles defined as an eighteen hole receptacle; said display box electronic circuitry means comprises two electronic plugs, each having eighteen prongs to mate with said eighteen hole receptacle; and said display box comprises a hinged box for obtaining access into the inside thereof in order to be able to replace said lights.

4,333,093

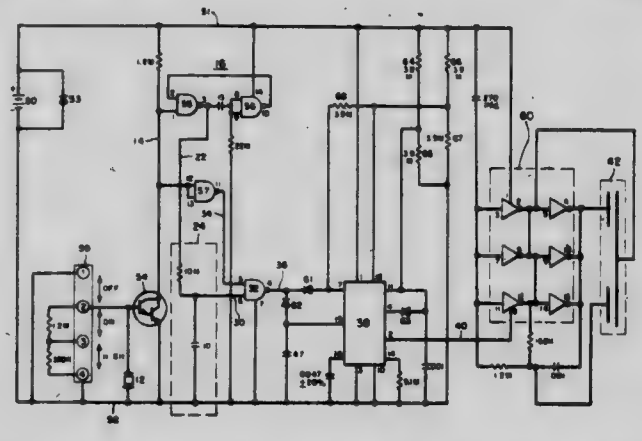
INTRUSION DETECTION SYSTEM

Samuel Raber, Allendale, and Irving L. Ellner, Hopatcong, both of N.J., assignors to Baker Industries, Inc., Parsippany, N.J.

Filed Apr. 28, 1980, Ser. No. 144,128

Int. Cl.³ G08B 13/00, 13/04, 13/08

U.S. Cl. 340—566 **14 Claims**



1. An intrusion detection system for producing an alarm signal responsive to the repetition of a vibration-causing movement, comprising:

a vibration sensor, connected to produce an output signal responsive to each occurrence of the vibration-causing movement;

timing means connected to establish a sensing window

which is initiated upon the expiration of a predetermined delay time commenced by receipt of the first sensor output signal; and

a gate circuit, connected to be armed at the expiration of said delay time and to be triggered upon receipt of the first sensor output signal subsequent to the expiration of the predetermined delay time and prior to the expiration of said sensing window, thus producing the alarm signal only after the delay time has expired and at least one additional sensor output signal has been produced.

4,333,094

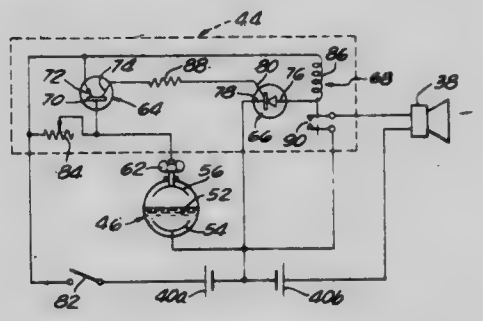
SWIMMING POOL ALARM

William E. Osborne, Whittier, Calif., assignor to Homexx International Corp., Anaheim, Calif.

Continuation-in-part of Ser. No. 966,382, Dec. 4, 1978, abandoned. This application Jun. 26, 1980, Ser. No. 163,314

Int. Cl.³ G08B *21/00*

U.S. Cl. 340—566 **9 Claims**



1. A free-floating housing for use with a swimming pool alarm device, comprising:

a housing formed by top and bottom concave sections peripherally interconnected in confronting relation to provide an internal chamber;

a plurality of openings formed in a central area portion of said top section;

an upstanding cylindrical chimney surrounding said openings; and

a shielding cap secured to the upper end of said chimney.

4,333,095

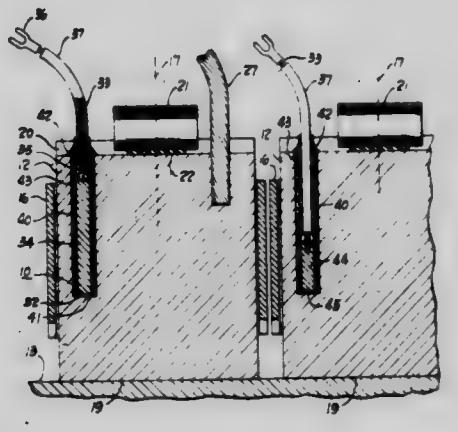
BRUSH WEAR INDICATOR

Edmund J. Silva, North Royalton, Ohio, assignor to Reliance Electric Company, Cleveland, Ohio

Filed Feb. 19, 1980, Ser. No. 122,297

Int. Cl.³ G08B *21/00*

U.S. Cl. 340—679 **16 Claims**



1. A brush wear indicator for use in a dynamoelectric machine having a rotatable electrical conductor comprising in combination,

a brush holder in the dynamoelectric machine and having an axis,

a conductive brush movable axially in said brush holder and having a working face cooperable with and contactable with the rotatable electrical conductor,

indicator means,

an indicator contact having first and second ends and insulatedly mounted on said brush to move in accordance with brush wear movement, separate conductive means insulatedly mounted on said brush and having first and second ends with said second end connected to said indicator means and said first end connected to said second end of said indicator contact, and

said working face of said brush being disposed closer to said first end than to said second end of said indicator contact, whereby upon sufficient brush wear said indicator contact first end engages the rotatable electrical conductor of the dynamoelectric machine to complete an electrical circuit between said indicator contact first end and the rotatable electrical conductor and thus provide an indication at said indicator means.

4,333,096

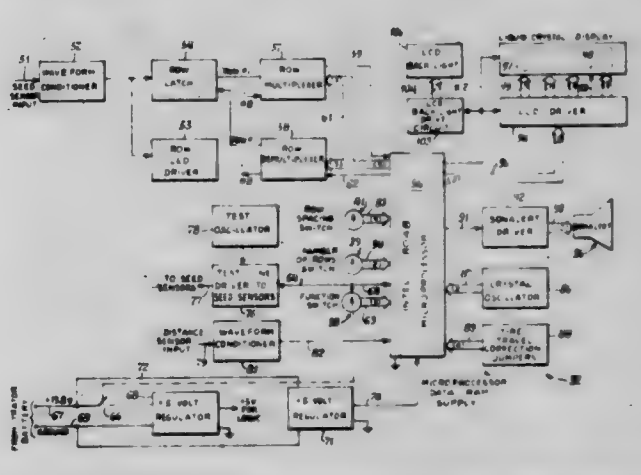
SEED PLANTER MONITOR

John P. Jenkins, Mackinaw; Stephen W. Rector, Bloomington; John J. McCarty, and William Hammond, both of Peoria, all of Ill., assignors to Field Electronics Inc., Bloomington, Ill.

Filed Jul. 27, 1979, Ser. No. 61,421

Int. Cl.³ G06F *15/20*; G08B *19/00*

U.S. Cl. 340—684 **12 Claims**



1. A monitor for a traveling seed planter operable to periodically dispense seeds in each of a plurality of rows, comprising:

seed sensing means for sensing the seeds planted in each row;

row counting means responsive to the seed sensing means and being operable to obtain a separate count of the seeds planted in each row;

means for determining the average number of seeds planted per row from the counts obtained by the row counting means;

means for determining the deviations between the counts obtained by the row counting means and the average number of seeds planted per row;

means for determining the maximum of said deviations;

error checking means for testing for an error condition occuring whenever said maximum deviation exceeds a predetermined limit; and

alarm means responsive to said error checking means for signalling an error condition.

4,333,097

VISUAL DISPLAY TERMINAL WITHOUT FINGER REPOSITIONING

Milorad R. Buric, Chatham, and Nicholas F. Maxemchuk, Mountainside, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 12, 1980, Ser. No. 186,424

Int. Cl.³ G09G *1/00*

U.S. Cl. 340—711 **2 Claims**

1. A terminal including

a keyboard having a plurality of keys,

means for producing a replica of said keyboard upon visual display apparatus,

a first set of labels for identifying a first keyboard layout pattern, said first set being displayed on said replica, a label comprising a symbol, said symbol for identifying a function of a key associated with said label, a respective first symbol for identifying a first function of a respective one of said keys and

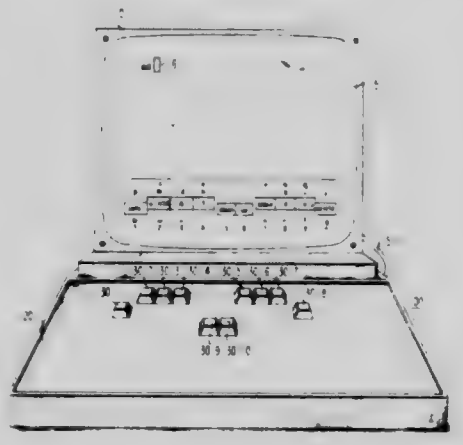
characterized in that said terminal further comprises

a second set of labels for identifying a second keyboard layout pattern,

said second set being displayed in a position juxtaposed to said replica,

said second set including an alternative second symbol for identifying a second function of said respective one of said keys;

said first set and said second set being concurrently displayed on said visual display apparatus,



means coupled to said replica producing means for altering the function of a key, said key function altering means including

means for moving said alternative second symbol from said juxtaposed position and for displaying said alternative second symbol on said replica in place of said respective first symbol, and

means responsive to the operation of the key associated with said first and said second symbols for replacing said first function with said second function;

each key being adapted for operation by a respective finger of an operator of said terminal and

each key being adapted for avoiding the repositioning of said fingers during the operation thereof and

there being no more keys than there are fingers of an operator.

4,333,098

PROCESS FOR THE THREE STEP-MULTIPLEX CONTROL OF ELECTRO-OPTICAL DISPLAY ARRANGEMENTS AND CIRCUIT FOR EFFECTUATING THE PROCESS

Hans Hentzschel, and Soni-Enrico Ludwig, both of Munich, Fed. Rep. of Germany, assignors to Eurosil GmbH, Munich, Fed. Rep. of Germany

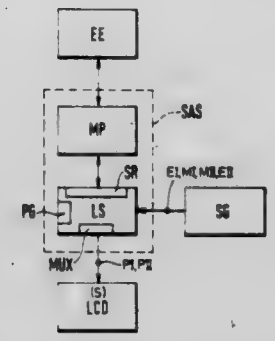
Filed Oct. 27, 1980, Ser. No. 201,151

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1979, 2943339

Int. Cl.³ G06F *3/14*

U.S. Cl. 340—805 **9 Claims**

1. In a process for the three step-multiplex control of electro-optical display arrangements which include segmented forward and back electrodes, effecting said control through periodic pulse sequences which include six pulses within one control period and which can presently assume four different voltage levels, three of said pulse sequences being constantly connected to back electrodes and the other pulse sequences being connected to forward electrodes pursuant to indicia being represented; the improvement comprising: said three pulse sequences connected to the back electrodes being identical to each other during a time interval but being phase-displaced relative to each other by one-third of the control period, said three pulse sequences rising and falling in uniform sequential equal steps being extreme voltage level values; at least five pulse sequences being provided for said forward electrodes for actuation thereof, three of said last-mentioned pulse sequences being identical to each other during a time interval but being phase-displaced relative to each other by



one-third of the control period and having alternatingly opposite paired extreme voltage level values, each said pair being separated through a voltage level deviating by a level step from its extreme values and of which two further pulse sequences are binary pulse sequences having a pulse sequence period of one-third of the control period, one said binary pulse sequence alternating between the two extreme values and the other binary pulse sequence alternating between the two other level stages.

4,333,099

USE OF SILICIDE TO BRIDGE UNWANTED POLYCRYSTALLINE SILICON P-N JUNCTION

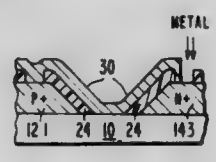
Donald J. Tanguay, Hightstown, and Charles E. Weitzel, Plainsboro, both of N.J., assignors to RCA Corporation, New York, N.Y.

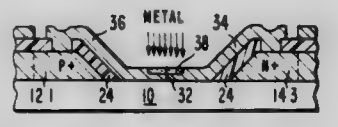
Continuation of Ser. No. 881,255, Feb. 27, 1978, abandoned.

This application Feb. 4, 1980, Ser. No. 118,089

Int. Cl.³ H01L *29/04, 23/48*

U.S. Cl. 357—67 **10 Claims**





1. In an integrated complementary MOS circuit having a first MOS device with a pair of first conductivity type active areas and a second MOS device with a pair of second conductivity type active areas; the improvement comprising:

a doped polysilicon line interconnecting one of the first conductivity type areas of the first MOS device with one of the second conductivity type areas of the second MOS device;

the polysilicon line being doped to either the first or second conductiviy type or doped to the first conductivity type over part of its length and doped to the second conductivity type over the remainder of its length, whereby an undesired junction is formed either at the point of contact of the doped polysilicon line and the second conductivity type area of the second MOS device or at the point of contact of the doped polysilicon line with a region of one of the first or second MOS devices or at the point of

contact of the two differently doped lengths of the polysilicon line; and

means forming a metal silicide at the location of the undesired junction for providing a low resistance conductive path thereacross to eliminate the effect of the undesired junction.

4,333,100

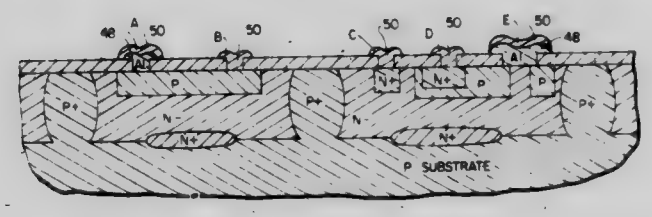
ALUMINUM SCHOTTKY CONTACTS AND SILICON-ALUMINUM INTERCONNECTS FOR INTEGRATED CIRCUITS

William R. Morcom, Melbourne Beach; Hugh C. Nicolay, Melbourne Village, and Jeffrey D. Peters, Palm Bay, all of Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed May 31, 1978, Ser. No. 911,558

Int. Cl.³ H01L *23/48, 29/46, 29/54*

U.S. Cl. 357—71 **9 Claims**



1. An integrated circuit comprising:

a silicon wafer coated on one surface with a silicon oxide;

heavily doped N conductivity type regions in said surface having a depth of less than one micron;

lightly doped N conductivity type regions in said surface;

P conductivity type regions in said surface;

Schottky contacts to a portion of selected lightly doped N conductivity type regions through apertures in said oxide, each Schottky contact includes a layer of aluminum on said lightly doped N conductivity type regions;

ohmic contacts to a portion of selected heavily doped N conductivity type regions through apertures in said oxide, each ohmic contact includes a layer of silicon doped aluminum on said heavily doped N conductivity type region; and

interconnects selectively connecting said contacts, said interconnects includes a layer of silicon doped aluminum forming dual layer Schottky contact and single layer ohmic contacts.

4,333,101

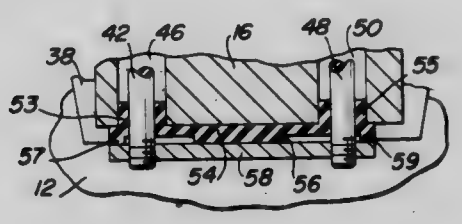
SEMICONDUCTOR HEAT SINK MOUNTING ASSEMBLY

Robert A. York, Dillsburg, Pa., assignor to Flight Systems, Inc., Mechanicsburg, Pa.

Continuation-in-part of Ser. No. 58,055, Jul. 19, 1979, abandoned. This application Sep. 18, 1980, Ser. No. 188,202

Int. Cl.³ H01L *23/48, 29/44, 23/42*

U.S. Cl. 357—79 **8 Claims**



1. A heat sink for an electric device in a vehicle control system comprising first and second heat sink blocks of thermally conductive material, said blocks having opposed parallel faces for clamping an electronic device therebetween, said blocks having horizontally disposed flanges on the lower ends thereof, a first clamping means of electrical insulating material, said first clamping means being longer than each flange, overlying each flange and constituting a spacer between said blocks, said first clamping means having fastener means for securing said blocks to a base plate, a hold down spring overlying said first clamping means and coupled to each fastener means, a second clamping means extending between said blocks for forcing said faces in a direction toward one another, said second clamping means being electrically insulated from one of said blocks.

4,333,102

HIGH PERFORMANCE SEMICONDUCTOR COMPONENT WITH HEAT DISSIPATING DISCS CONNECTED BY BRUSHLIKE BUNDLES OF WIRES

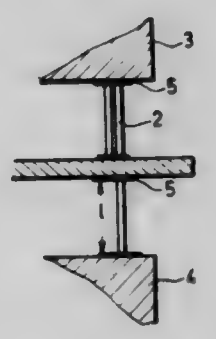
Alfred Jester, Speyer; Elmar Mueller, Alzey, and Hubert Holick, Lampertheim, all of Fed. Rep. of Germany, assignors to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

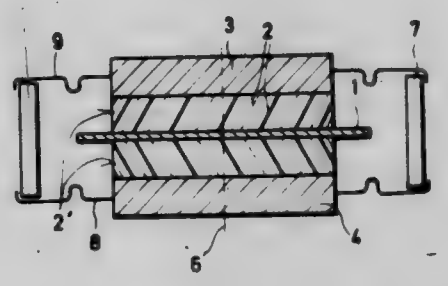
Filed Dec. 18, 1979, Ser. No. 104,890

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855493

Int. Cl.³ H01L *23/48, 29/40, 23/02*

U.S. Cl. 357—81 **7 Claims**





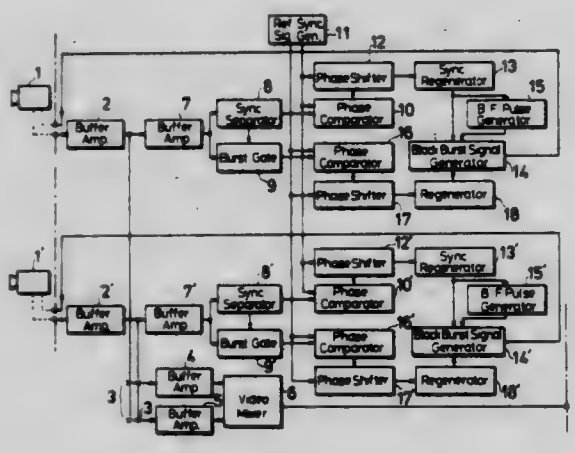
1. A high-performance semiconductor component with a semiconductor disc, having at least one pn-junction, with thermically and electrically conductive heat dissipating discs in the main current and thermal paths connected to the corresponding contact surfaces of said semiconductor disc by means of equally thermically and electrically conductive disc-shaped metal contacts, each metal contact consisting of a brushlike bundle of individual wires, each of said wires being coated with a suitable insulating material and bonded individually to said semiconductor disc and said heat dissipating discs, respectively, and an insulating housing surrounding the disc-rim of said semiconductor disc, wherein the improvement comprises:

each bundle is pre-twisted in relation to a geometric central axis running vertically to the main two surfaces of said semiconductor disc and at least some of said individual wires are longer than the length corresponding to the distance between the two disc surfaces of the metal contact.

4,333,103
AUTOMATIC PHASE ADJUSTING APPARATUS FOR TELEVISION CAMERAS

Yoshinori Koiwa; Daishiro Oka, and Shoroku Takeda, all of Hinoshi, Japan, assignors to Asaka Company Limited, Tokyo, Japan

Filed Aug. 21, 1980, Ser. No. 180,173
Claims priority, application Japan, Oct. 9, 1979, 54-130192
Int. Cl.[3] H04N 9/46, 5/04
U.S. Cl. 358—19 2 Claims



1. In a system for producing a composite video signal for broadcasting by switching, mixing and composing a plurality of composite video signals supplied from a plurality of television cameras, an apparatus for automatically adjusting phases of the plurality of composite video signals comprising commonly for the plurality of television cameras

a circuit for generating a reference composite synchronizing signal and a reference subcarrier signal; and

for the respective television cameras

a circuit for separating a composite synchronizing signal from the composite video signal supplied from the related television camera at a cross point;

a circuit for separating a burst flag signal from the composite video signal at the cross point;

a circuit for detecting a first phase difference between said separated composite synchronizing signal and the reference composite synchronizing signal;

a circuit for shifting the phase of the reference composite synchronizing signal in accordance with the detected first phase difference in such a manner that the detected first phase difference becomes a predetermined value;

a circuit for detecting a second phase difference between said extracted burst flag signal and the reference subcarrier signal;

a circuit for shifting the phase of the reference subcarrier signal in accordance with the detected second phase difference in such a manner that the detected second phase difference becomes a predetermined value;

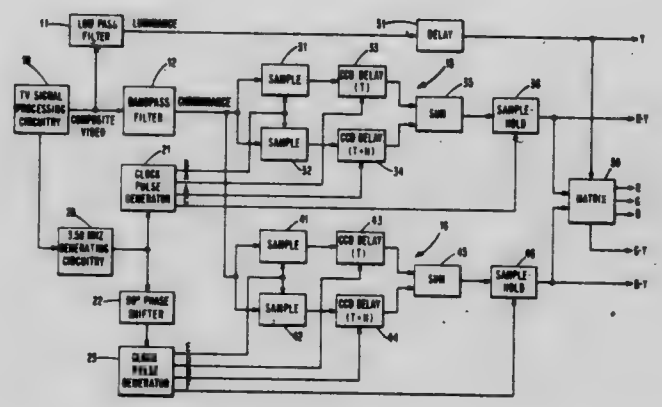
a circuit for deriving a burst flag signal from the phase shifted reference subcarrier signal, said burst flag signal having a corrected phase relation with respect to the phase shifted reference composite synchronizing signal; and

a circuit for combining the derived burst flag signal and the phase shifted reference composite synchronizing signal to generate a synchronous coupling black burst signal to be supplied to the related television camera.

4,333,104
COLOR DEMODULATING APPARATUS WITH CROSS-COLOR CANCELLATION

William L. Geller, Framingham, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Mar. 17, 1980, Ser. No. 130,944
Int. Cl.[3] H04N 9/535
U.S. Cl. 358—23 6 Claims



1. In a television receiver producing a composite video signal, color demodulating apparatus including

filter means for separating the chrominance signal from the other components of the composite video signal;

clock means for producing first clock pulses at the color subcarrier frequency and second clock pulses at the color subcarrier frequency with a phase shift of 90° with respect to the first clock pulses;

a first channel comprising

first sampling means coupled to the filter means and to the clock pulse means, said first sampling means being operable to sample the chrominance signal in response to the first clock pulses;

first delay means coupled to the first sampling means for providing separate first and second paths for each sample, the second path introducing a delay which is greater than the delay of the first path by an amount equal to the horizontal line period of the receiver;

first summing means coupled to the first delay means for adding the samples from the first path to the samples from the second path to produce a series of output pulses;

first output filtering means coupled to the first summing means for producing a continuous first color video signal from the series of output pulses from the first summing means;

a second channel comprising

second sampling means coupled to the filter means and to the clock pulse means, said second sampling means being operable to sample the chrominance signal in response to the second clock pulses;

second delay means coupled to the second sampling means for providing separate first and second paths for each sample, the second path introducing a delay which is greater than the delay of the first path by an amount equal to the horizontal line period of the receiver;

second summing means coupled to the second delay means for adding the samples from the first path to the samples from the second path to produce a series of output pulses;

second output filtering means coupled to the second summing means for producing a continuous second color video signal from the series of output pulses from the second summing means.

4,333,105

BEAM-INDEXING COLOR TELEVISION RECEIVER

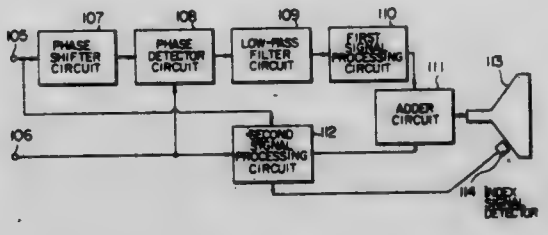
Masaro Kaku, Ebina; Kunio Ando, Yokohama; Toyota Honda, Yokohama, and Fumio Inoue, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 20, 1980, Ser. No. 179,895

Claims priority, application Japan, Aug. 22, 1979, 54-106077; Apr. 23, 1980, 55-52955

Int. Cl.³ H04N 9/24

U.S. Cl. 358—67 8 Claims



1. A beam-indexing color television receiver including a picture tube having a phosphor screen provided with one index stripe for every predetermined integral number of phosphor stripe sets, each of said sets including a red, a green and a blue phosphor stripe, said color television receiver further comprising circuit means for supplying a bias current to said picture tube only upon detection of a chrominance signal within a predetermined hue range around a specific chrominance signal corresponding to the phosphor stripe disposed in the middle between said index stripes.

4,333,106

METHOD OF MEASURING FIRING MISSES AND FIRING MISS-MEASURING INSTALLATION FOR THE PERFORMANCE OF THE METHOD

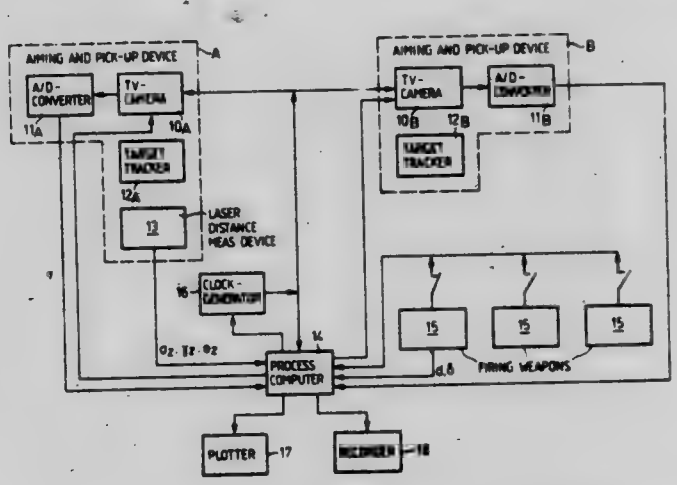
Günter Löwe, Wellerhohn, 5204 Lohmar 21, Fed. Rep. of Germany, assignor to Günter Löwe, Lohmar, Fed. Rep. of Germany

Filed Apr. 21, 1980, Ser. No. 142,169

Claims priority, application Switzerland, May 4, 1979, 4181/79

Int. Cl.³ H04N 7/18; F41G 3/08

U.S. Cl. 358—107 1 Claim



1. A firing miss-measuring installation for measuring firing misses during firing at a movable airborne target, comprising:

a first television camera having a television screen and serving for tracking the movable airborne target;

a weapon for firing a projectile at the target, with a target line prevailing between said weapon and said target;

said target line having an azimuth angle and an elevation angle;

azimuth and elevation coding devices for measuring said azimuth angle and said elevation angle of said target line;

a distance measuring device for determining the distance between the target and a weapon;

a process computer operatively connected with the coding devices and the distance measuring device, in order to computate said azimuth angle, said elevation angle and said distance between the weapon and the target;

a second television camera having a screen and arranged at an exactly measured distance from the first television camera;

a respective target tracking device for aiming both of the television cameras at the target;

analogue-digital converter means for converting to digital form the distance between the target and the projectile appearing at the television screens of both television cameras; and

process computer means for computating the distance between the target and the projectile from a two-dimensional distance appearing at both television screens.

4,333,107

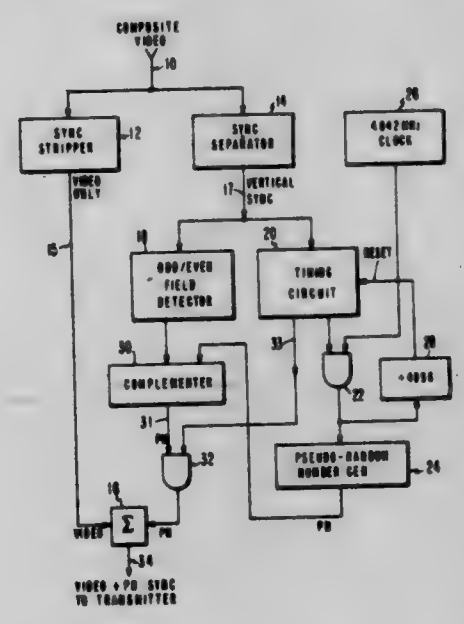
JAM-RESISTANT TV SYSTEM

Kenyon E. McGuire, Somerville, and Stanley S. Brokl, Somerset, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed May 3, 1979, Ser. No. 35,771

Int. Cl.³ H04N 7/16

U.S. Cl. 358—120 10 Claims



1. A jam-resistant TV transmission system, comprising

transmitter means to transmit a composite video signal in which each vertical synchronizing pulse is replaced by a synchronizing signal of several symbols from a pseudo-random number (PN) generator, several symbols occurring with increasing phase delays relative to the vertical synchronizing pulse, and

receiver means for said transmitted signal, including

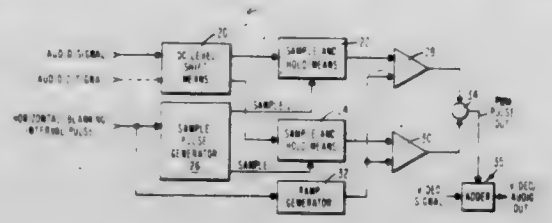
a correlator receptive to said sequential symbols and containing a predetermined one of said symbols as a reference, and producing a correlation pulse when the correlator receives a symbol which is the same as the reference, and

synchronization reconstituting means responsive to the correlation pulse and the known phase delay of the predetermined symbol in the sequence of symbols to produce a reconstituted vertical synchronizing pulse for synchronizing the received video.

4,333,108
APPARATUS AND METHOD FOR TRANSMITTING A PULSE WIDTH MODULATED AUDIO SIGNAL ON A VIDEO SIGNAL

Ronald Quan, and John O. Ryan, both of Cupertino, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Mar. 10, 1980, Ser. No. 129,060
Int. Cl.[3] H04N *7/00*
U.S. Cl. 358—145 15 Claims



1. A system for transmitting an audio signal in pulse modulated form on a video signal during a horizontal blanking interval thereof, comprising:

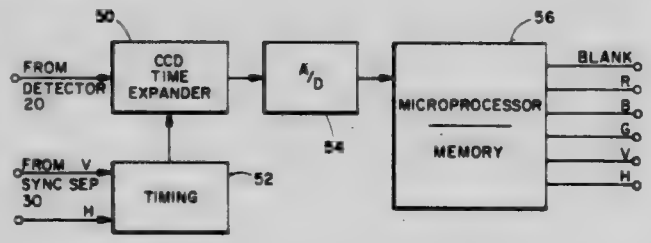
means for periodically generating an output pulse whose leading edge varies in time with respect to a reference edge of said horizontal blanking interval as a function of the voltage level of said audio signal at a first point in time, and whose trailing edge varies in time with respect to a reference edge of said horizontal blanking interval as a function of the voltage level of said audio signal at a second point in time; and

means for adding said output pulse to the video signal during said horizontal blanking interval.

4,333,109
INTELLIGENT TELETEXT DECODER

Walter S. Ciciora, Park Ridge, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Jan. 24, 1980, Ser. No. 114,930
Int. Cl.[3] H04N *5/14, 7/04*
U.S. Cl. 358—147 12 Claims



1. A combination automatic equalization and decoder system for a receiver which receives both transmitted digital format data signals and a transmitted reference signal, said system equalizing said digital data signals according to the distortion exhibited by said reference signal and decoding said data signals, comprising:

a time base expander having an input for receiving and moving said digital format data signals at a selectable rate to an output;

means including a microprocessor for determining the distortion exhibited by said reference signal and for operating on data signals inputted thereto to remove distortions therefrom based on said reference signal distortion;

means coupling said time base expander output to the input of said microprocessor; and

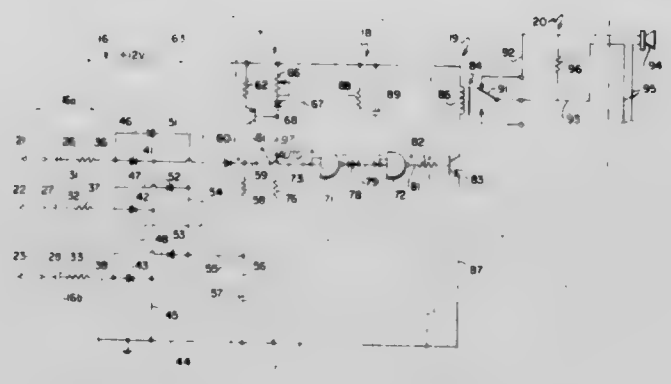
timing circuit means controllingly coupled to said time base expander and coupled to said microprocessor for regulating the rate at which said time base expander moves the data, said timing circuit means causing said time base expander to receive said transmitted digital format data signals at a first rate and later causing said data signals to move to said output at a slower second rate;

said microprocessor including means decoding and outputting said data signals.

4,333,110
TELEVISION EDITING SYSTEM

Nelson A. Faerber, 900 Sixth Ave., Ste. 101, Naples, Fla. 33940, and Edgar L. Bonner, Rte. 4, Box 101B, Taylorsville, N.C. 28681

Continuation-in-part of Ser. No. 38,378, May 11, 1979, Pat. No. 4,259,689. This application Mar. 30, 1981, Ser. No. 248,984
Int. Cl.[3] H04N *5/48*
U.S. Cl. 358—165 27 Claims

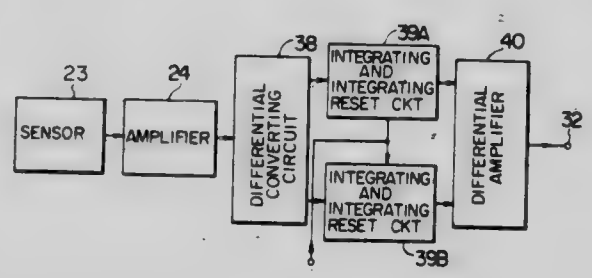


1. A television editing system comprising, in combination, control means for controlling the audio output of a video apparatus, video signal detecting means, means for coupling said video signal detecting means to a video circuit of said video apparatus for receiving the video signal in said video apparatus, monitoring means coupled to said video signal detecting means for monitoring the video signal received by said video signal detecting means to provide an output voltage signal indicating absence of picture information in the video signal at least for a predetermined period of time during the interval between program material and commercial material, responsive means coupled between said control means and said monitoring means for responding to the output voltage signal to actuate said control means for controlling the audio output of said video apparatus, and means coupled to said control means and responsive to an external recall signal for deactuating said control means upon receipt of the external signal.

4,333,111
SIGNAL PROCESSING CIRCUIT FOR SOLID-STATE CAMERA

Masaru Noda, Fujisawa, and Toshio Murakami, Yokohama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 2, 1980, Ser. No. 192,999
Claims priority, application Japan, Oct. 3, 1979, 54-126851
Int. Cl.[3] H04N *3/15*
U.S. Cl. 358—213 8 Claims



1. A signal processing circuit for use in a solid-state camera having a solid-state image sensor for converting picture elements composing an optical image to electrical signals, the circuit comprising:

means for sequentially sensing the electrical signals representing the picture elements output of said solid-state image sensor;

means for converting the output signal of said sensing means into a first and a second signal which are respectively in

phase with and opposite phase to the output signal of said sensing means;

first and second integrators for integrating said first and second signals for each picture element respectively; and

a differential amplifier for producing an output signal representing a difference between two outputs of said first and second integrators as a video signal.

4,333,112

IMAGE SCANNING APPARATUS AND METHOD

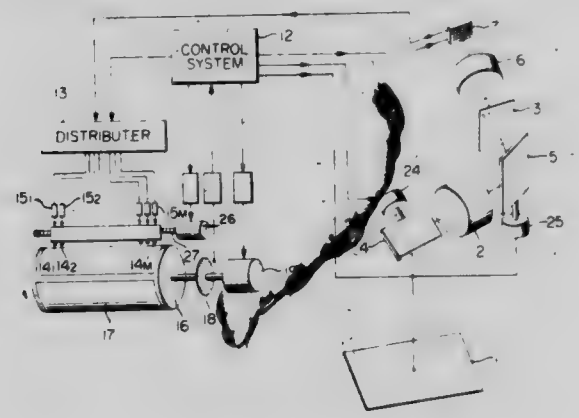
Kazuya Matsumoto, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 14, 1980, Ser. No. 111,973

Claims priority, application Japan, Jan. 20, 1979, 54-5816

Int. Cl.³ H04N *1/22, 1/40, 1/10*

U.S. Cl. 358—298 **7 Claims**



1. A method of scanning and detecting image with high resolution comprising the steps of:

detecting an element image which comprises points at a pitch t times larger than the desirable resolution point pitch in a first direction and at a pitch s times larger than the same desirable resolution point pitch in a second direction by two-dimensional sensing means;

transferring the detection signals together to a memory part to store the signals therein;

effecting a relative movement between said two-dimensional sensing means and said image by an amount corresponding to one desirable resolution point;

transferring the signals previously stored to an output part sequentially; and

scanning the entire image with high resolution by repeating the above cycle of steps sequentially up to t×s times.

4,333,113

METHOD AND APPARATUS FOR MONITORING THE REPRODUCTION OF RECORDED INFORMATION

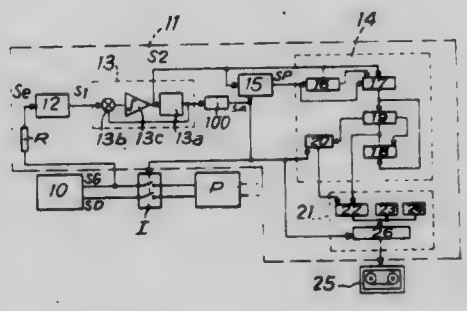
Richard Kalinowski, Brest, France, assignor to Quadrivium Techniques Avancees, Paris, France

Filed Jun. 16, 1980, Ser. No. 160,007

Claims priority, application France, Jun. 18, 1979, 79 15535

Int. Cl.³ G11B *5/02*

U.S. Cl. 360—27 **10 Claims**



1. A method for monitoring the reproduction of an audio information recorded on at least one track of a first recording medium, comprising the steps of recording in superimposition on said at least one track of said first recording medium an audio information signal and an auxiliary information signal, said auxiliary information signal being a coded digital signal derived from a pilot frequency in a limited frequency range outside the spectrum of audible frequencies towards the ultrasounds; detecting, in the course of reading the information recorded on said at least one track, the presence of at least one auxiliary information signal representing, in coded form, auxiliary information associated with the principal audio information; separating said auxiliary information signal from said audio information signal; and rerecording said separated auxiliary information signal on a second recording medium.

4,333,114

RECORDING CIRCUIT EMPLOYING AC BIASING SYSTEM

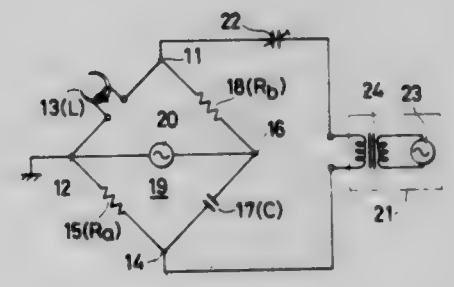
Hajime Ohta, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Dec. 4, 1979, Ser. No. 100,140

Claims priority, application Japan, Dec. 6, 1978, 53-151438

Int. Cl.³ G11B *5/47, 5/02*

U.S. Cl. 360—66 **4 Claims**



1. A recording circuit arrangement for use in driving a magnetic recording head in a magnetic recording apparatus employing an AC biasing system, comprising:

a bridge circuit including said magnetic recording head, a first resistor, a capacitor and a second resistor connected in series to form a diamond having four junctions having a first and a second pair of opposite junctions, said first pair of opposite junctions comprising the junction of said magnetic recording head and said first resistor, and the junction of said capacitor and said second resistor, and said second pair of opposite junctions comprising the junction of said magnetic recording head and said second resistor, and the junction of said first resistor and said capacitor, said bridge circuit satisfying the condition Ra·Rb=L/C, wherein Ra and Rb represent resistance values of the first and second resistors, respectively, L represents inductance value of the magnetic recording head, and C represents capacitance value of the capacitor;

a recording signal generating circuit for generating a recording signal to be recorded by said magnetic recording apparatus, said recording signal being applied across said first pair of opposite junctions of said bridge circuit; and

an AC biasing signal generating circuit for generating an AC biasing signal to be used by said magnetic recording apparatus in recording said recording signal, the AC biasing signal being applied across the second pair of opposite junctions of said bridge circuit.

4,333,115

TAPE TRANSPORT CONTROL SYSTEM

David L. Junio, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 14, 1979, Ser. No. 104,681

Int. Cl.³ G11B *19/06, 27/16, 15/54*

U.S. Cl. 360—74.2 **15 Claims**

1. A transport control system comprising

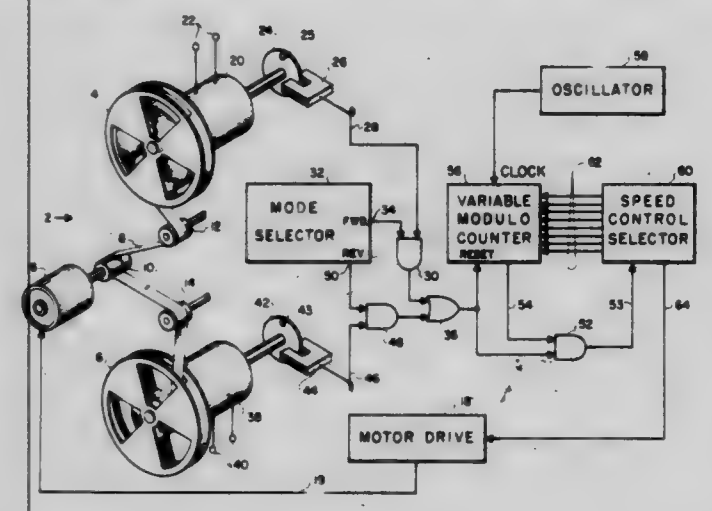
a tape drive means for driving a tape at a predetermined speed,

a tape storage reel means operatively associated with said tape drive means for supplying a tape to said tape drive means,

a transducer means arranged to produce an output signal representative of the rotational speed of said tape storage reel means,

speed control means for said drive means for producing an output signal representative of a predetermined time period corresponding to said predetermined speed of said drive means and

comparator means for comparing said output signal from



said transducer means with said output signal representative of said predetermined time period to produce a deenergization signal for said tape drive means upon the detection of a predetermined relationship therebetween, wherein said output signal from said transducer means is representative of a single rotation of said tape storage reel means and said comparator means compares the occurrence of said single rotation of said tape storage reel means with the occurrence of the end of said predetermined time period to produce said deenergization signal upon the detection of a concurrence therebetween and wherein said speed control means includes reset means for synchronizing the start of said predetermined time period with the start of said single rotation of said tape storage reel means.

4,333,116

POSITIONING DEVICE FOR A MAGNETIC HEAD OF A MAGNETIC TAPE RECORDER

Klaus Schoettle, Heidelberg; Eduard Kaemmer, Mutterstadt; Peter Dobler, Ludwigshafen; Lothar Gliniorz, Frankenthal, and Werner Hoffmann, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Apr. 24, 1980, Ser. No. 143,488

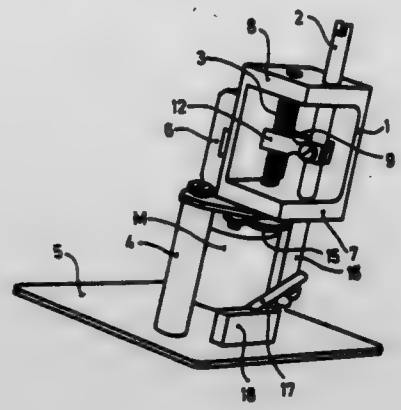
Claims priority, application Fed. Rep. of Germany, May 4, 1979, 2918020

Int. Cl.³ G11B *21/08, 3/04, 17/32*

U.S. Cl. 360—78 **3 Claims**

1. In a positioning device for a magnetic head of a tape recorder, comprising a threaded spindle, a head carrier, and follower means and a cooperating leaf spring attached to said carrier, said threaded spindle driving said carrier by way of said follower means so that the head moves in the plane of the tape, the follower means being provided at their free end with a wedge-shaped portion and the leaf spring causing the wedge-shaped end portion to engage the thread of the spindle, the improvement

that said follower means is in the form of a single wedge-shaped follower the angle of the wedge tip of which is larger than the angle formed by the flanks of the thread of



the spindle, whereby wear and tear is reduced and the positioning accuracy increased.

4,333,117

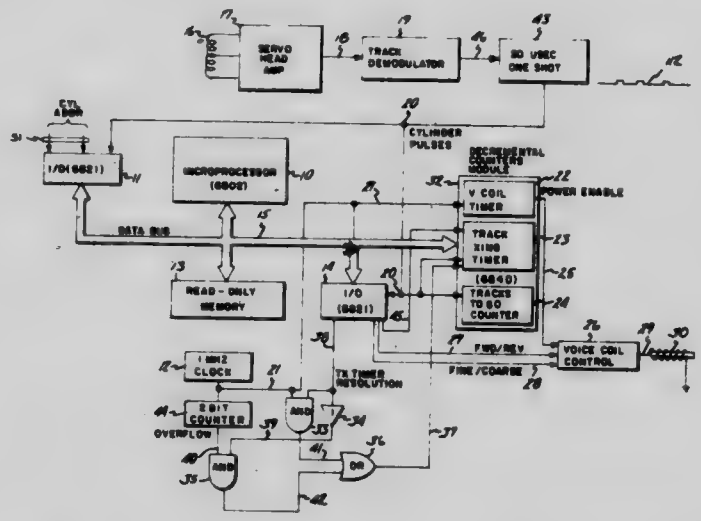
DISC HEAD ARM POSITION CONTROLLER USING DIGITAL VELOCITY SENSING

Bruce E. Johnson, Minnetonka, Minn., assignor to Magnetic Peripherals Inc., Minneapolis, Minn.

Filed Jun. 30, 1980, Ser. No. 164,435

Int. Cl.³ G11B *21/08*

U.S. Cl. 360—78 **10 Claims**



1. In a disk memory of the type having at least two rotatable disk surfaces, at least one carrying a plurality of concentric, circular, sequentially numbered servo tracks having a predetermined spacing; a carriage carrying transducer head arms and radially shifted with respect to the disk surfaces by a linear motor responsive to a motor control signal; a servo transducer head carried on a head arm in such proximity as to allow transducing of the servo information thereon when the servo disk surface is rotating; a servo signal demodulator receiving the output of the servo head and providing during radial movement of the servo head a track crossing signal comprised of cylinder pulses, each generated by the servo head's crossing of a predetermined area of each servo track; means receiving the servo transducer head output and supplying a motor control signal to the linear motor for causing the servo transducer head to maintain alignment with any servo track with which alignment currently exists; and computing means storing the number of the servo track aligned with the servo transducer head, and receiving a destination track number initiating a seek operation and responsive thereto computing and issuing an initial tracks-to-go value signal equal to the absolute difference between the number of the track with which the servo head is aligned and the destination track number and issuing a seek direction signal specifying the direction the servo transducer head must be moved to reach alignment with the destination track, wherein the invention comprises improved means for

controlling servo transducer head velocity during each seek operation, comprising:

(a) timing means receiving the track crossing signal for providing a track crossing time signal encoding in real time the time elapsed between each adjacent pair of cylinder pulses;

(b) a tracks-to-go register receiving the initial tracks-to-go value signal from the computing means and storing said value, and receiving the cylinder pulses and decrementing by one the number of tracks to go responsive to each pulse, and supplying a current tracks-to-go signal encoding the contents of the tracks-to-go register; and

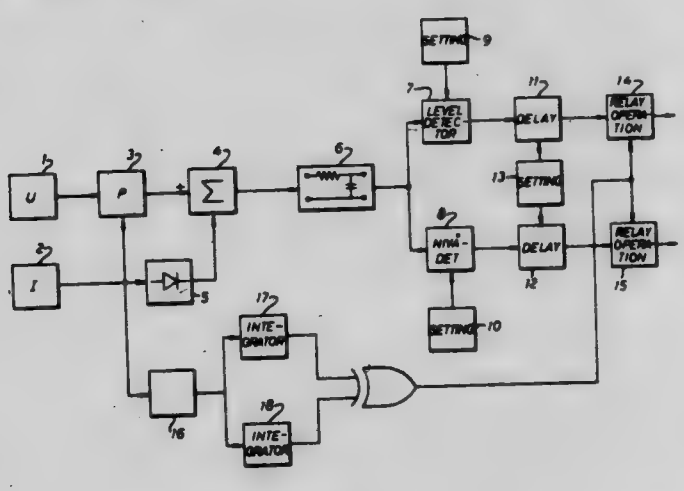
(c) velocity control means receiving the track crossing time signal, the current and initial tracks-to-go signals and the seek direction signal for supplying a motor control signal causing the servo head to move radially to a position above the track specified by the initial tracks-to-go and seek direction signals, and approximately follow a predetermined velocity function dependent on the initial tracks-to-go value, said servo head velocity determined from the time encoded in the track crossing time signal and varied as a function of the current tracks-to-go signal value.

4,333,118

LOAD INDICATORS FOR ALTERNATING-CURRENT MOTORS

Per A. P. Comstedt, Löddeköpinge, and Bo A. Elfner, Lund, both of Sweden, assignors to El-Fi Innovationer AB, Helsingborg, Sweden

Filed Jan. 26, 1981, Ser. No. 228,553
Claims priority, application Sweden, Jan. 29, 1980, 8000672
Int. Cl.³ H02H *7/085, 3/42*
U.S. Cl. 361—30 **5 Claims**



1. A load indicator for A.C. motors comprising a transmitter (2) for producing a signal representing the motor current, a transmitter (1) for producing a signal representing the motor voltage, a multiplying circuit (3) for multiplying the signals representing the motor current and the motor voltage by each other for producing a signal representing the power supplied, a circuit (5) for producing a signal representing the absolute value of the motor current, a differential circuit (4) for providing a signal representing the difference between the signal representing the power supplied and the signal representing the absolute value of the motor current, and a circuit (P1) for selecting the relative sizes of the input signals of the differential circuit in dependence on the A.C. motor connected.

4,333,119

POWER MONITOR SYSTEM

Ivar L. Schoenmeyr, Laguna Niguel, Calif., assignor to Purex Corporation, Lakewood, Calif.

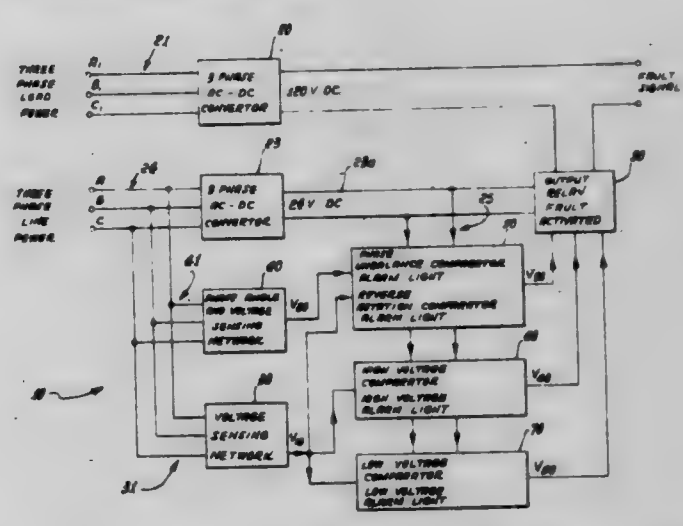
Filed Apr. 28, 1980, Ser. No. 144,425
Int. Cl.³ H02H *3/00*
U.S. Cl. 361—76 **17 Claims**

1. In apparatus to monitor electrical three-phase power, the combination comprising

(a) a three-phase voltage averaging detector to continuously monitor three-phase voltage, and to generate a DC voltage output (V_{10}) that is directly proportional to the average phase voltage, independent of phase sequence, and that is also inversely proportional to unbalance between any two phases,

(b) a high voltage comparator circuit operatively connected with the V_{10} output of the three-phase voltage averaging detector to compare said signal V_{10} with a reference signal V_{15}, thereby to produce an output signal V_{40},

(c) and a low voltage comparator circuit operatively connected with output V_{10} of the three-phase voltage averaging detector and also with a reference signal V_{16} thereby to produce an output V_{50},



(d) and a fault-signal activator circuit coupled to V_{40} and V_{50} to produce a fault signal in the event either of V_{40} and V_{50} reaches a corresponding limit,

(e) a three-phase voltage and phase sequence detector to continuously monitor the three-phase voltage and to generate a floating reference voltage V_{20} that is proportional to the average three-phase voltage, that is also proportional to the unbalance between any two phases, and that is high for reverse rotation,

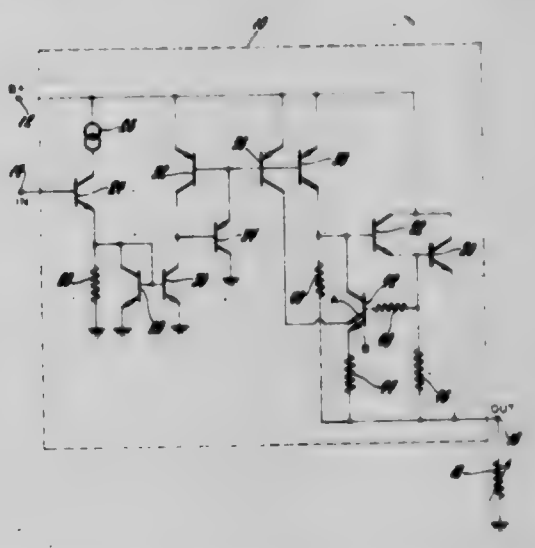
(f) and circuitry connected to receive said V_{10} and V_{20} outputs and to produce output V_{30} fed to the input of the activator circuit.

4,333,120

TRANSISTOR PROTECTION CIRCUIT

Thomas W. Kotowski, Noblesville, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 27, 1980, Ser. No. 125,147
Int. Cl.³ H02H *3/38, 7/20*
U.S. Cl. 361—79 **1 Claim**



1. A bipolar monolithic integrated short circuit and overcurrent protection circuit for an output transistor having an emitter, a base and a collector, the emitter and collector being

coupled between a positive voltage terminal and an output terminal and the output transistor having temperature responsive emitter resistance that dominates the behavior of the base-emitter voltage of the output transistor under high current conditions, the protection circuit comprising:

a protection transistor having a first conductivity type collector, a second conductivity type base in contact with the collector and first and second emitters of the first conductivity type displaced from each other in contact with the base to form first and second emitter-base junctions, respectively;

circuit means effective to sense a predetermined voltage value between the positive voltage terminal and the output terminal representing a short circuit condition of the output terminal, the circuit means including means effective to couple the first emitter of the protection transistor to the collector of the output transistor, means including a diffused area emitter resistor effective to couple the second emitter of the protection transistor to the emitter of the output transistor, the diffused area emitter resistor having temperature responsive characteristics substantially equal to the temperature responsive characteristics of the emitter resistance of the output transistor, one of the first and second emitter-base junctions being forward biased and the other one of the first and second emitter-base junctions being reverse biased, the reverse biased emitter-base junction of the protection transistor breaking down and supplying current through the forward biased emitter-base junction to bias the protection transistor conductive when the output terminal voltage decreases to a value below the voltage at the positive voltage terminal by the predetermined voltage value representing a short circuit condition of the output terminal;

means effective to couple the collector of the protection transistor to shut drive signals provided to the output transistor when said protection transistor is biased conductive; and

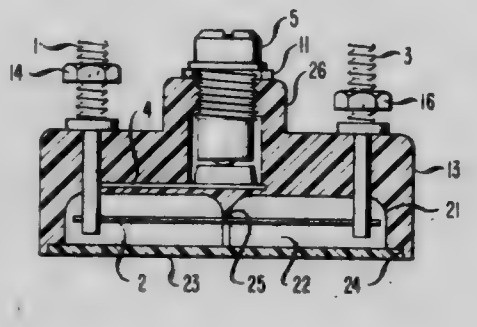
means effective for all values of voltages across the output transistor to continuously apply the voltage at the base of the output transistor to the base of the protection transistor to variably control conduction of the protection transistor to limit the current through the output transistor, whereby the current limit is varied in accord with the temperature responsive characteristics of the diffused area emitter resistor to compensate for variations in the base-emitter voltage of the output transistor due to the emitter series resistance of the output transistor.

4,333,121

FUSED STATION PROTECTOR

Alfred O. Schwarz, Parsippany, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 15, 1980, Ser. No. 178,526
Int. Cl.³ H02H *85/44*
U.S. Cl. 361—104 **4 Claims**



1. A circuit protector comprising an insulative base having an elongated cavity, the cavity being shaped to have a pinched portion between two end portions,

a line terminal held within the base and protruding into one end portion of the cavity,

a station terminal held within the base and protruding into the other end portion of the cavity,

a fuse wire connected between the line and station terminals within the cavity, and

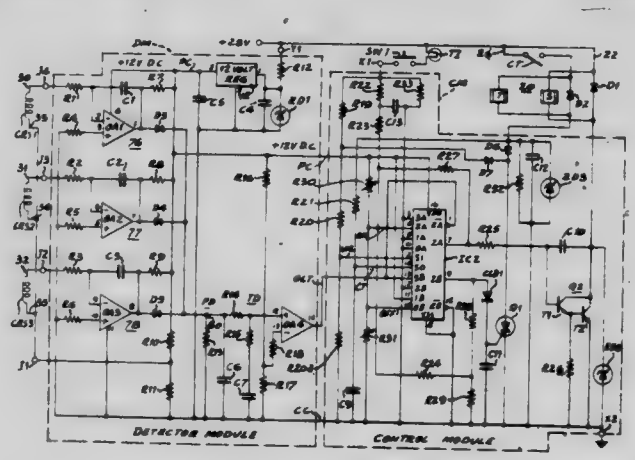
an arc-extinguishing material which fills the cavity and surrounds the fuse wire.

4,333,122

MINIMUM SIZE, INTEGRAL, A.C. OVERLOAD CURRENT SENSING, REMOTE POWER CONTROLLER

John E. Hayden, Cedarburg, and Walter L. Rutchik, Wauwatosa, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Division of Ser. No. 923,325, Jul. 10, 1978, abandoned. This application Aug. 31, 1979, Ser. No. 71,726
Int. Cl.³ H02H *7/085*
U.S. Cl. 361—114 **3 Claims**



1. In an electrical system supplying a load device from an electrical power supply line having protective means including a latching relay having contacts for controlling power connection from said line to said load device, said relay having set and trip coils and a cutthroat contact in series with said trip coil that closes when said relay is set and reopens when said relay is tripped, means responsive to an overload current on the line for providing an overload trip signal, and control circuit means including a set switch and an integrated circuit dual multiplexer for controlling setting of said relay in response to a set signal provided by operation of said set switch and for controlling tripping of said relay in response to said overload trip signal, said multiplexer having first and second multiplexer inputs connected to said set switch and said overload trip signal means and associated with first and second multiplexer outputs for controlling said set and trip coils in response to said set signal and said overload trip signal, respectively, a LOW enable input for controlling said first multiplexer output, and common select inputs controlled by a combined status signal and said cutthroat contact, the improvement comprising:

means for preventing attempted setting of said relay while said overload trip signal persists which otherwise would cause deterioration of said relay contacts comprising:

means applying said overload trip signal also to said enable input as a HIGH to inhibit said first multiplexer output thereby to prevent pulsing of said set coil by manipulation of said set switch as long as said overload trip signal persists.

4,333,123
ANTISTATIC EQUIPMENT EMPLOYING POSITIVE AND NEGATIVE ION SOURCES

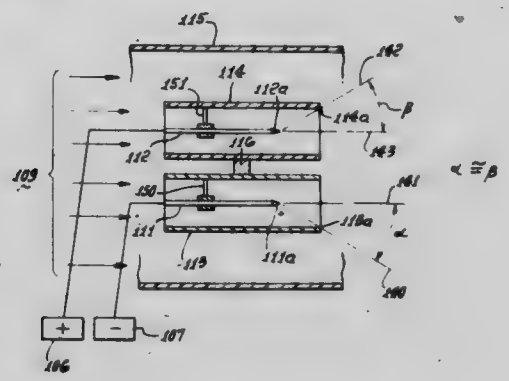
R. Edward Moulden, San Gabriel, Calif., assignor to Consan Pacific Incorporated, Whittier, Calif.

Continuation-in-part of Ser. No. 135,544, Mar. 31, 1980, Pat. No. 4,319,302, which is a continuation-in-part of Ser. No. 80,272, Oct. 1, 1979, abandoned. This application May 27, 1980, Ser. No. 153,257

The portion of the term of this patent subsequent to Mar. 9, 1999, has been disclaimed.

Int. Cl.[3] H05F *3/06*

U.S. Cl. 361—213 23 Claims



1. In apparatus for generating and dispersing ions,
(a) first and second tip means aimed generally longitudinally forwardly, said first tip means spaced laterally from said second tip means,
(b) a circuit means to supply high voltage of relatively positive polarity to the first tip means and high voltage of relatively negative polarity to the second tip means, and
(c) insulative structure including a barrier extending generally forwardly to separate positive ions dispensed generally forwardly of the first tip means from negative ions dispensed generally forwardly of the second tip means,
(d) said insulative structure forming first and second generally parallel and forwardly directed recesses receiving said tip means so that the tip means are substantially entirely located in the recesses, the tip means effectively relatively adjusted spacially relative to the forward ends of the recesses whereby the relative intensities of the positive and negative ions dispersed by the tip means have an adjustably selected relationship.

4,333,124
ELECTRICALLY DISCHARGING METHOD AND DEVICE

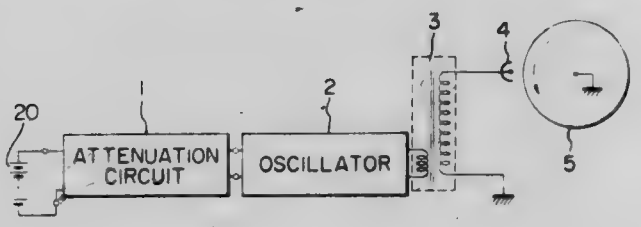
Yasuyuki Tamura; Kimio Nakahata, and Masato Ishida, all of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 840,158, Oct. 7, 1977, abandoned. This application Sep. 17, 1979, Ser. No. 75,969

Claims priority, application Japan, Oct. 18, 1976, 51-124543

Int. Cl.[3] H01T *19/00*

U.S. Cl. 361—214 6 Claims



1. An image formng method comprising the steps of:
electrically charging a recording medium to form an image thereon;
transferring the image on the recording medium onto a transfer medium;
electrically discharging the electric charge on the recording medium by applying a given AC voltage to an AC corona discharger after completion of the transfer operation to remove the residual charge on the recording medium; and
gradually attenuating the AC voltage applied to said AC corona discharger, when the discharge of the residual charge is terminated, until it becomes zero.

4,333,125
COMBUSTION INITIATION SYSTEM

George H. Hensley, Star Route Box 150L, Alameda, N. Mex. 87114, and Raymond E. Hensley, 3805 Garcia Northeast, Albuquerque, N. Mex. 87111

Filed Feb. 8, 1980, Ser. No. 119,869

Int. Cl.[3] F23Q *3/00;* H01T *13/00*

U.S. Cl. 361—257 56 Claims

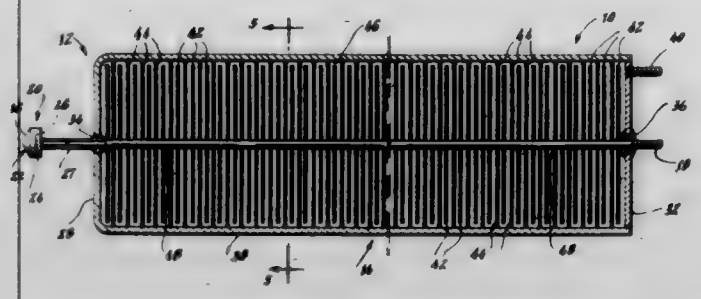


35. A system for sequentially initiating combustion of a plurality of predefined quantities of fuel, comprising:
high voltage generating means adapted to be operably coupled with a source of electrical energy for producing a high electrical voltage;
electrical energy storage means operably coupled with said high voltage generating means for storing a predetermined quantity electrical energy;
a plurality of combustion initiation devices respectively associated with said plurality of said predefined quantities of fuel and spaced distal from said energy storage means, each of said devices including a capacitive portion for storing said predetermined quantity of electrical energy therein and an electrode portion formed integral with said capacitive portion, each said devices being operable to produce a high energy plasma jet for initiating combustion of the corresponding quantity of fuel, the electrode portion of each of said devices comprising a first electrode including a rod shaped member having a tip on one end thereof and a second electrode electrically insulated from said first electrode and including an annular portion circumscribing the longitudinal axis of said rod shaped member, said tip being substantially spaced from said annular portion, said tip and said annular portion defining an annular space therebetween across which electrical current may be transferred to produce an annularly shaped electrical discharge, the longitudinal spacing between said tip and said annular portion being sufficient to allow said discharge to generate a generally cylindrical electromagnetic field enveloping said discharge, said field being sufficient in strength to temporarily radially restrain said discharge whereby to increase the energy density of said discharge; and
timing control means operably coupled with said electrical energy storage means and with each of said initiation devices for selectively coupling said electrical energy storage means with said initiation devices in a predetermined timed sequency whereby to sequentially deliver said predetermined quantity of electrical energy from said storage means to individual ones of said capacitive portions of said initiation devices.

4,333,126
COMBUSTION INITIATION DEVICE

George H. Hensley, Star Rte. Box 150L, Alameda, N. Mex. 87114, and Raymond E. Hensley, 3805 Garcia Northeast, Albuquerque, N. Mex. 87111

Filed May 30, 1980, Ser. No. 154,959
Int. Cl.[3] H01T *13/00*
U.S. Cl. 361—257 23 Claims



1. A device for generating a high energy plasma jet for use in initiating combustion of fuel, comprising:

a first electrical electrode including a rod shaped member having a firing tip on one end thereof;

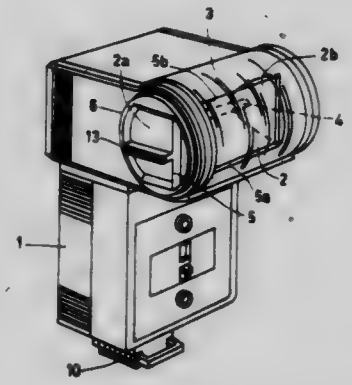
a second electrode electrically insulated from said first electrode and circumscribing the longitudinal axis of said rod shaped member, said first and second electrodes defining a discharge gap across which electrical energy may be discharged in an annular pattern, said tip being longitudinally spaced from said second electrode a sufficient distance to allow the annular discharge to generate a generally cylindrical electromagnetic field surrounding said discharge and sufficient in strength to temporarily radially confine said discharge; and,

a capacitive portion including a first and second plurality of spaced apart capacitive elements alternately disposed with respect to each other and respectively connected to said first and second electrodes.

4,333,127
ELECTRONIC FLASHGUN

Frederik H. Alkema, and Meerten Luursema, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,438
Claims priority, application Netherlands, Oct. 18, 1979, 7907685
Int. Cl.[3] G03B *15/02*
U.S. Cl. 362—17 6 Claims



1. An electronic flashgun which comprises: a case having an elongate generally concave reflector mounted for rotation about a longitudinal axis, end partitions disposed at the axial extremities of said reflector which extend substantially transverse to said axis, a flash discharge lamp disposed in said reflector, characterized in that one of said end partitions is provided with a slot disposed for mounting an effect filter immediately in front of said reflector and said flash tube.

4,333,128
MIRROR FOR THE APHAKIC EYE

Francis D. Moore, 66 Heath St., Brookline, Mass. 02146

Filed Aug. 11, 1980, Ser. No. 176,672
Int. Cl.[3] E21V *33/00*
U.S. Cl. 362—135 9 Claims

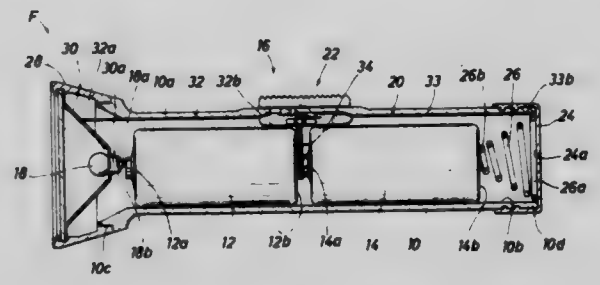


1. Apparatus for providing vision to the aphakic eye without the use of either an external aperture or an external transparent lens comprising reflecting means for gathering rays of light from an illuminated portion of the face of a person having an aphakic eye and reflecting same back toward the aphakic eye, said reflecting means positioned a distance from the face of said person appropriate for self examination of the eye and for the insertion, removal, and adjustment of a contact lens, and the curvature of said reflecting means selected in relation to the distance of the image from the reflecting means to cause rays of light emanating from said eye to form, when modified by the combined refraction of the epithelium and cornea and vitreous humor of said eye, an image at the retina of said aphakic eye, whereby said aphakic eye perceives an image of itself.

4,333,129
FLASHLIGHT WITH BATTERY SEPARATOR

Charles W. Ewing, 7923 Portal, Houston, Tex. 77017

Filed Jul. 28, 1980, Ser. No. 172,760
Int. Cl.[3] F21L *7/00*
U.S. Cl. 362—205 6 Claims



1. A flashlight comprising a flashlight housing, a bulb mounted with said housing, a first battery and a second battery mounted within said housing, each battery with a first terminal and a second terminal, said first and second terminals being of opposite charge, a first switch means mounted with said housing for allowing electrical communication between said first terminal of said first battery and said second terminal of said second battery when in a first position and preventing electrical communication between said first terminal of said first battery and said second terminal of said second battery when in a second position, and circuit means mounted with said housing for making an electrical circuit comprising said second battery, said first battery, said bulb and said switch, wherein the improvement comprises:

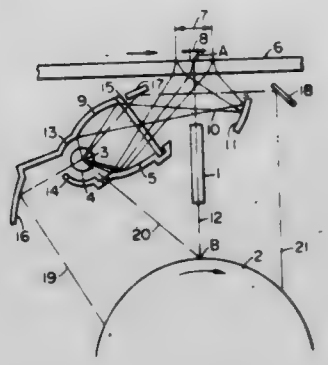
a second switch means mounted within said flashlight for separating said second terminal of said first battery from said first terminal of said second battery when in a second position and allowing electrical communication between said second terminal of said first battery and said first terminal of said second battery when in a first position.

4,333,130

SLIT ILLUMINATING DEVICE

Noritaka Mochizuki, Yokohama, and Atsushi Kubota, Komae, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 28, 1980, Ser. No. 125,580
Int. Cl.³ F21V *7/02, 9/00, 29/00;* G03B *27/54*
U.S. Cl. 362—293 17 Claims



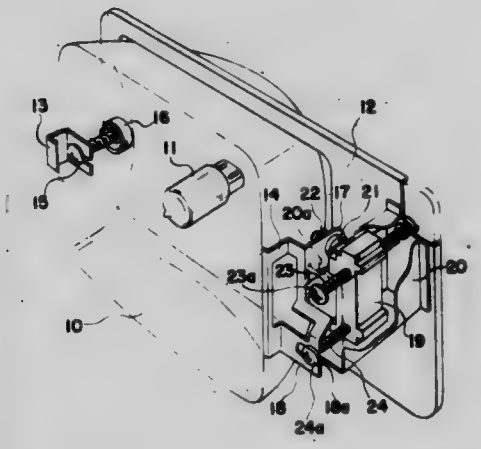
1. A slit illuminating device, comprising:
(a) a light source;
(b) a lower reflecting mirror partially enclosing said light source, wherein the light reflected by said lower reflecting mirror broadly illuminates the slit with divergent light rays;
(c) an upper reflecting mirror partially enclosing said light source, wherein the light reflected by said upper reflecting mirror is reflected as convergent light rays; and
(d) a third reflecting mirror, said third mirror being positioned on the opposite side of a light path extending from the slit to an image forming element than said light source, wherein the reflected light from said upper reflecting mirror is reflected by said third reflecting mirror to broadly illuminate said slit with divergent light rays.

4,333,131

HEADLIGHT MOUNTING AND ADJUSTMENT MECHANISM

Yoshio Hujimoto, Hiroshima; Tadashi Kochi, Fuchu, and Shigeru Furuya, Yokohama, all of Japan, assignors to Toyo Kogyo Co., Ltd., Aki and Stanley Electric Co., Ltd., Tokyo, both of, Japan

Filed May 2, 1980, Ser. No. 146,119
Claims priority, application Japan, May 10, 1979, 54-62211[U]
Int. Cl.³ F21V *19/02*
U.S. Cl. 362—372 7 Claims



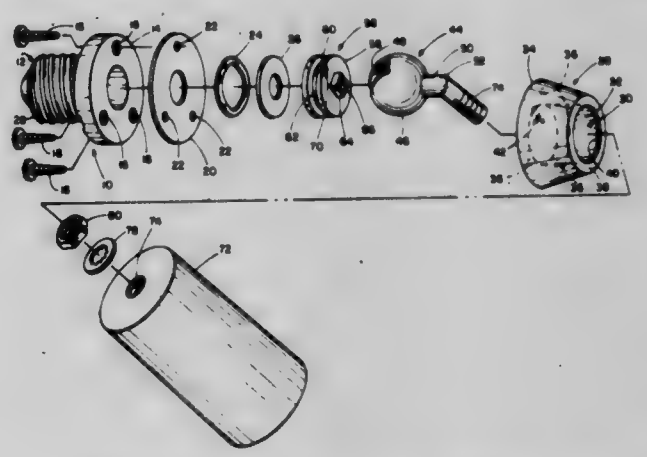
1. A headlight mounting and adjustment mechanism comprising:
a headlight assembly for housing an electric light which when energized emits a beam of light in a direction;
a headlight support fixedly positioned with respect to said headlight assembly;
a first connecting means operatively associated with a first portion of said headlight assembly and said headlight support for pivotally connecting said headlight assembly to said headlight support;
a sliding block supported for movement toward and away from said headlight support and between first and second positions;
a guide means fixedly connected to said headlight support for slidably supporting said sliding block during movement between said first and second positions;
a second connecting means operatively associated with a second portion of said headlight assembly and said sliding block for rotatably mounting said headlight assembly on said sliding block and for rotatably supporting said headlight assembly relative to said sliding block about an axis extending between the pivotal connection of said headlight assembly to said headlight support and the rotatable mount of said headlight assembly to said sliding block;
a first adjusting member operatively associated with said sliding block and said headlight support for sliding said sliding block for pivoting said headlight assembly about the pivotal connection of said headlight assembly to said headlight support; and
a second adjusting member operatively associated with a third portion of said headlight assembly and said sliding block for varying the distance between said third portion and said sliding block for rotating said headlight assembly about said axis.

4,333,132

SWIVEL UNIT FOR ADJUSTABLE LIGHTING FIXTURE

Gary Paley, Cornwall-On-Hudson, N.Y., assignor to Square D Company, Palatine, Ill.

Filed May 10, 1979, Ser. No. 37,623
Int. Cl.³ F21M *3/18*
U.S. Cl. 362—421 15 Claims



1. An environmentally sealed and manually controlled swivel unit comprising:
a base for establishing electrical and mechanical connection with a source of electrical power;
a housing having a central housing bore defining an inner surface, said housing having a first end for attachment to said base and a second end having an internal shoulder, said housing also having a guide pin extending radially inward a predetermined distance from said inner surface near said first end;
a swivel ball device having a spherical body with a predetermined rectangular cavity and a tube extending from said spherical body opposite said cavity, said tube having a predetermined bend and said spherical body having a tunnel connecting said tube to said cavity, said spherical body also having a predetermined diameter substantially equal to the diameter of said central bore in said housing, said swivel ball being contained inside of said housing adjacent said shoulder on said second end of said housing;
a swivel ball controller having first and second circular rims spaced apart a predetermined distance and connected by a circular body member, said controller also having a

square cavity guide extension centrally located on said first rim opposite said body member, said first and second rims, said body member and said cavity guide extension having a central controller bore, said swivel ball controller also having a stop wall extending between said first and second rims and also extending from the edge of said rims to said circular body member, said first and second rims having a diameter substantially equal to said diameter of said central housing bore in said housing and said circular body member having a diameter less than the diameter of said rims, said swivel ball controller being located in said central housing bore near said first end such that said cavity guide extension rides in said cavity in said swivel ball device and said guide pin in said housing rides between said first and second rims,

a tension means for forcing said swivel ball controller against said swivel ball device and for forcing said swivel ball device against said shoulder of said housing thereby defining a predetermined lamp-holding force, said tension means being located between said swivel ball controller and said base when said base is attached to said first end of said housing,

wherein said swivel ball controller allows said swivel ball device to rotate about a first axis and to rotate about a second axis perpendicular to said first axis, and also wherein said swivel ball device and said shoulder on said housing form an environmentally sealed juncture, and further wherein said predetermined lamp holding force retains said swivel ball device at any selected position while allowing easy manual movement of said swivel ball device.

4,333,133

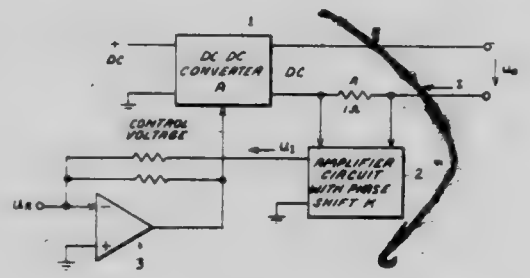
POWER SOURCE WITH AN ELECTRONIC IMPEDANCE CHANGER

Joseph Pernyeszi, Fairfield, Conn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,470

Int. Cl.³ H02M *3/00*; H02P *13/18*

U.S. Cl. 363—15 **23 Claims**



1. A circuit arrangement to provide a fixed voltage source in series with an arbitrarily chosen impedance of only magnitude and phase angle comprising:

a power converter providing an output current and output voltage;

first means coupled to the output of said converter to sense said output current;

second means coupled to said first means for amplifying said sensed output current and imparting a predetermined phase shift thereto to provide a control voltage; and

third means coupled to said second means and said converter to couple said control voltage to said converter to control said output voltage thereof.

4,333,134

CONVERTERS

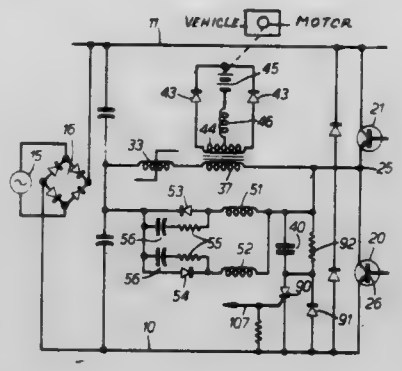
David Gurwicz, Gateshead, England, assignor to Chloride Group Limited, London, England

Filed Feb. 25, 1980, Ser. No. 124,078

Claims priority, application United Kingdom, Feb. 28, 1979, 7907036

Int. Cl.³ H02M *3/335*

U.S. Cl. 363—17 **15 Claims**



1. A converter including D.C. input supply terminals, a load circuit including a high frequency transformer having primary and secondary windings, and an output rectifier, an oscillatory circuit including at least one capacitor and a parallel inductor connected in parallel with the primary winding of the transformer, and switching means including at least one solid state switching device, means for synchronizing the switching device to the oscillation of the oscillatory circuit for allowing the circuit to oscillate freely for part of a cycle to transfer energy from the inductor to the capacitor to charge the latter to a certain condition in which the voltage across the parallel inductor is substantial and that across the switching device is negligible and only then for connecting the parallel inductor across the D.C. input terminals whereupon the parallel inductor receives and stores energy from the said supply, and means connected in series in the load circuit for restricting load current to a low value during a part of the cycle in which the capacitor receives energy from the parallel inductor and until the capacitor is charged to the said condition and the switching means has connected the load circuit across the supply.

4,333,135

FOUR QUADRANT AC AND DC TO AC AND DC CONVERTER WITH TWO OR MORE INDEPENDENTLY CONTROLLED LOADS

Francisc C. Schwarz, Round Hill Rd., Lincoln, Mass. 01773

Filed May 21, 1980, Ser. No. 151,967

Int. Cl.³ H02M *3/315*

U.S. Cl. 363—28 **13 Claims**

1. A converter circuit for transferring electrical power between circuit input means and first and second circuit output means, comprising in combination:

capacitor means;

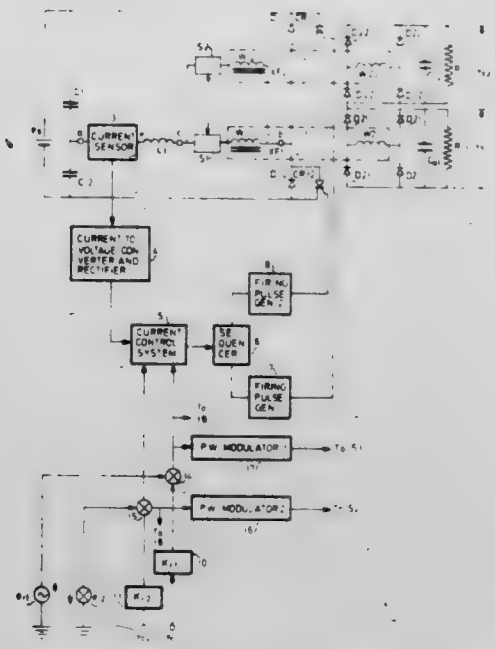
inductor means;

controllable resonant circuit switch means;

means connecting said capacitor means and said inductor means and said controllable resonant circuit switch means for forming series resonant circuit means to transfer electrical power between the circuit input means and the first and second circuit output means through resonant oscillation in said series resonant circuit means;

control means connected to said controllable resonant circuit switch means for controlling the transfer of the total

electrical power transferred between the circuit input means and the first and second circuit output means; and



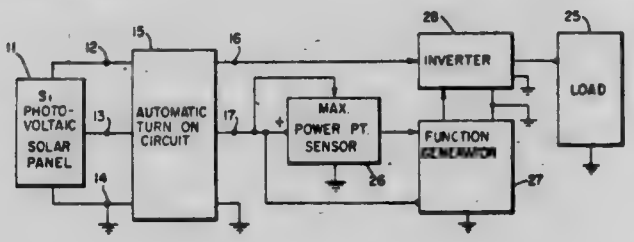
first controllable switch means connected for controlling the transfer of electrical power through the first circuit output means.

4,333,136

SOLAR POWERED AUTOMATIC TURN-ON CONTROL (SPA-TOC) UNIT AND METHOD

Richard H. Baker, 26 Wildwood Dr., Bedford, Mass. 01730

Filed Nov. 26, 1979, Ser. No. 97,205
Int. Cl.³ H02P *13/18*; G05F *5/00*
U.S. Cl. 363—43 **27 Claims**



22. A method of controlling the application of d.c. output power of a photovoltaic solar panel to a load comprising determining whether a panel output parameter value is above or below a predetermined threshold, in response to the output parameter value being below the threshold loading the panel with an impedance that causes the panel to derive the output parameter with a value different from the parameter value at the maximum power point for the panel at the threshold while decoupling the panel from the load, in response to the output parameter value being above the threshold coupling the panel to the load while operating the panel substantially at the maximum power point for the panel.

4,333,137

THYRISTOR SWITCH WITH TRANSIENT PROTECTION AND RF INTERFERENCE SUPPRESSION

Gunnar Asplund, Ludvika, Sweden, assignor to ASEA Aktiebolag, Sweden

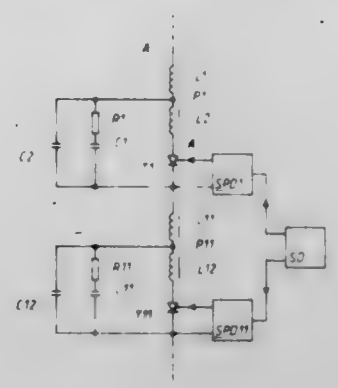
Filed Nov. 10, 1980, Ser. No. 205,852
Claims priority, application Sweden, Nov. 12, 1979, 7909314
Int. Cl.³ H02H *7/125*
U.S. Cl. 363—54 **6 Claims**

1. In a high voltage converter valve having at least a pair of thyristors, the improvement comprising:

a first inductor serially connected in circuit with each corresponding thyristor for limiting the rate of current increase in the switch during thyristor firing;

series connected resistor and first capacitor components connected in parallel across the outward leads of each serially connected thyristor and inductor, for providing equal voltage distribution between the thyristors;

a second capacitor connected in parallel with each series connected resistor and first capacitor; and



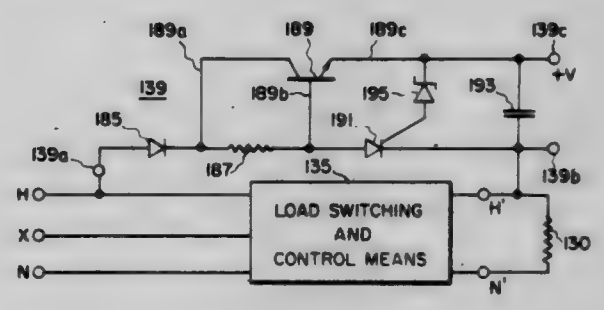
a second respective inductor connected in circuit with each corresponding first inductor and cooperating with stray capacitance for minimizing the generation of radio frequency interference signals from the switch.

4,333,138

POWER SUPPLY FOR LOAD CONTROLLER

Paul G. Huber, Pawtucket, R.I., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 27, 1980, Ser. No. 181,813
Int. Cl.³ H02P *13/26*
U.S. Cl. 363—89 **8 Claims**



1. A power supply for providing an operating potential of a selected polarity and magnitude to apparatus connected in series between an A.C. energy source and an energy-consuming load, comprising:

an input terminal connected to said source:

a power supply output terminal;

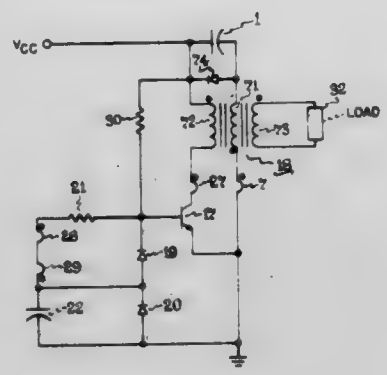
means connected between said output and common terminals for storing electrical charge;

means connected to said input terminal for charging said storage means during a half-cycle of said A.C. source having said selected polarity, said charging means including a unidirectionally-conducting element having a first electrode connected to said input terminal and a second electrode, said element being polarized to conduct only during said source half-cycle of selected polarity; means connected between said second electrode and said output terminal for providing a flow of current into said charge storing means during at least a portion of the conduction time interval of said unidirectionally-conducting element, and including a solid-state device having a controllably switchable main circuit connected between said element second electrode and said output terminal and a control electrode controlling said main circuit to conduct a flow of current therethrough responsive to a signal received thereat; and a current source connected between said element second electrode and said device control electrode for providing said signal whenever said element conducts.

4,333,139
STATIC INVERTER

Daniel V. Owen, and Alan M. Smith, both of Hendersonville, N.C., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 14, 1980, Ser. No. 206,863
Int. Cl.[3] H02P *13/20*
U.S. Cl. 363—97 6 Claims



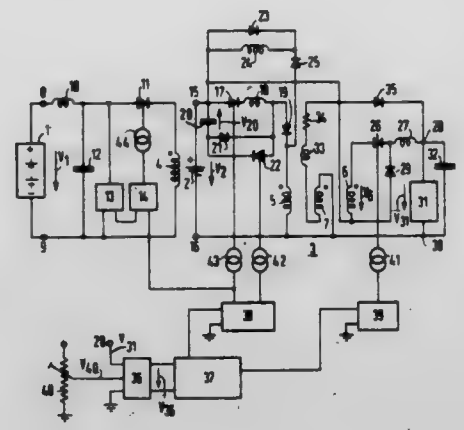
1. A static inverter comprising;
A. input terminals for connection to a direct current source,
B. inductive means comprising:
(1) a core of substantially linear magnetic material having a closed main magnetic path and including a small aperture in a segment of the said path which partitions the cross-section of said main magnetic path into two branches and creates a low reluctance closed flux path,
(2) a primary power winding encircling the full core cross-section for generating flux around said main magnetic path,
(3) a second power winding encircling the full core cross-section and connected across said direct current source,
(4) a diode connected in series between said second power winding and said direct current source,
(5) a feedback control winding in series with said second power winding encircling one of said branches for generating a flux around said low reluctance closed path having the same direction as said main flux in one of said branches and an opposite direction of the other branch, and
C. a controlled switch having control, common and output electrodes for intermittent energization of the inductive means from said direct current source, said controlled switch connected in series with said primary power winding,
whereby said feedback control winding serves to assure commutation and re-triggering of said controlled switch.

4,333,140
PULSE-CONTROLLED D-C CONVERTER WITH INDUCTIVE LOAD

Harald Heinicke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 23, 1980, Ser. No. 189,768
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1979, 2940533
Int. Cl.[3] H02M *3/315*
U.S. Cl. 363—27 4 Claims

1. A D-C voltage converter circuit for controlling a voltage at an output terminal for connecting an inductive load, the circuit being of the type which is provided with battery terminals for connecting a battery, a first thyristor for controlling electrical conduction from the battery terminals to a first primary winding of a pulse transformer, the pulse transformer having a secondary winding for supplying electrical energy to the output terminal, the battery responsively supplying an increased cutoff voltage for extinguishing the first thyristor, CHARACTERIZED IN THAT the pulse transformer is further provided with a second primary winding connected to an input terminal for receiving a main D-C voltage, conduction between said input terminal and said second primary winding being controllable by a second thyristor so as to cause the first

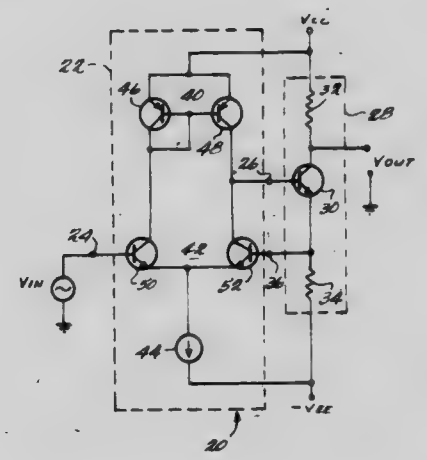


primary winding and the secondary winding to produce currents for charging the battery and supplying the inductive load.

4,333,141
FULL WAVE RECTIFIER

Katsumi Nagano, Hiratsukashi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 19, 1980, Ser. No. 188,662
Claims priority, application Japan, Sep. 25, 1979, 54-122074
Int. Cl.[3] H02M *7/217*
U.S. Cl. 363—127 3 Claims



1. A full wave rectifier comprising:
a transistor circuit including a first transistor having a control terminal and current conducting terminals and first and second resistors each having one terminal connected to one of said current conducting terminals, respectively and another terminal connected to first and second power sources, respectively;
a current mirror having a power terminal connected to said first power source, an input terminal and an output terminal, said first transistor control terminal being connected to said output terminal;
a second transistor having a base for receiving an alternating signal to be rectified, a first current conducting terminal connected to said current mirror input terminal and a second current conducting terminal;
a third transistor having a base connected to one of said first transistor current conducting transistors, a first current conducting terminal connected to said current mirror output and a second current conducting terminal; and
a constant current source connected to said second and third transistors second current conducting terminals.

4,333,142
SELF-CONFIGURABLE COMPUTER AND MEMORY SYSTEM

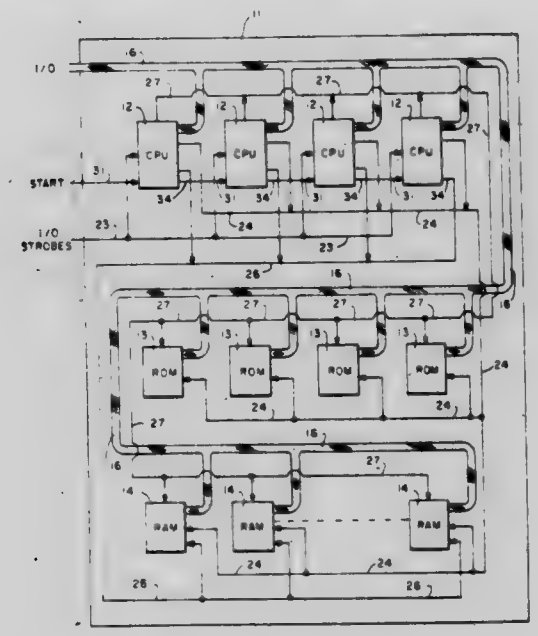
Gilman D. Chesley, 22431 Starling Dr., Los Altos, Calif. 94022

Division of Ser. No. 818,235, Jul. 22, 1977. This application Jul. 12, 1979, Ser. No. 56,909

The portion of the term of this patent subsequent to Mar. 4, 1997, has been disclaimed.

Int. Cl.[3] G06F *11/04*

U.S. Cl. 364—200 6 Claims



1. In a self-configurable integrated circuit structure: a semiconductor wafer, a plurality of memory chips formed on the wafer, each of said memory chips having a predetermined unique address, an address table representing the addresses of all of the memory chips, a common bus for carrying signals to the memory chips during normal operation of the same, means for applying test signals to the memory chips via the common bus and means for sensing the manner in which the memory chips respond to the test signals and storing data in the address table to indicate the condition of each memory chip for subsequent automatic assignment of memory space.

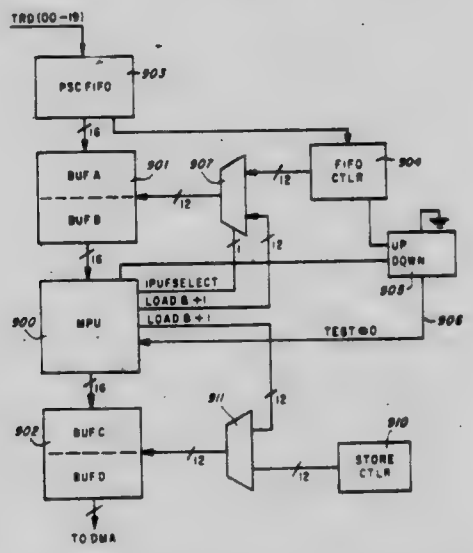
4,333,143
INPUT PROCESS SEQUENCE CONTROLLER

Powell L. Calder, Georgetown, Tex., assignor to Texas Instruments, Dallas, Tex.

Filed Nov. 19, 1979, Ser. No. 95,920

Int. Cl.[3] G06F *3/00*

U.S. Cl. 364—200 8 Claims



1. A process sequence controller having a processor unit, controlled by a read-only memory for receiving data, in real time, from peripheral digital apparatus, processing the data and transmitting the processed data to a central processor, comprising:

(a) a first buffer, divided into an input buffer and a process buffer, for receiving data from the peripheral digital apparatus;

(b) a first controller, connected to the first buffer and to the processor unit for controlling the flow of the data into the first buffer and out of the first buffer into the processor unit to be processed;

(c) a second buffer divided into a process operation buffer and a store DMA buffer, for receiving processed data from the processor unit; and

(d) a second controller connected to the second buffer and to the processor unit for controlling the flow of the processed data out of the processor unit into the second buffer, and out of the second buffer into the central processor.

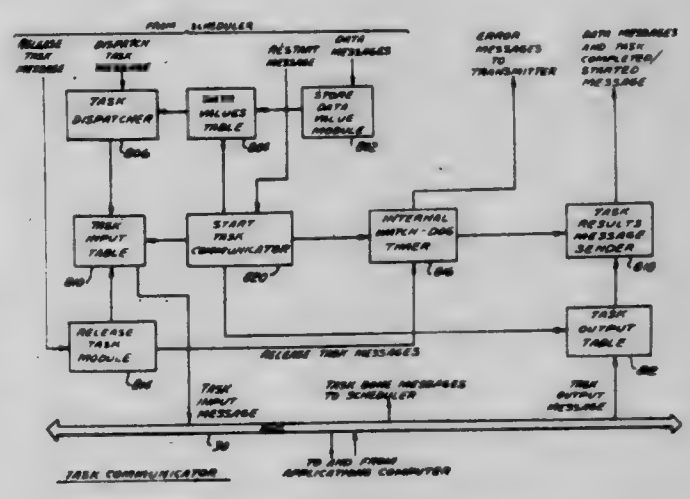
4,333,144
TASK COMMUNICATOR FOR MULTIPLE COMPUTER SYSTEM

Arliss E. Whiteside, Royal Oak; Morris D. Freedman, Southfield, both of Mich., and Ömür Tasar, Harvard, Mass., assignors to The Bendix Corporation, Southfield, Mich.

Filed Feb. 5, 1980, Ser. No. 118,813

Int. Cl.[3] G06F *15/16, 3/00, 9/46*

U.S. Cl. 364—200 17 Claims



1. A task communicator for each computer in a multiple computer system wherein each computer is capable of executing an assigned set of tasks, and each computer includes means for selecting the tasks it will execute, means for scheduling for execution the selected tasks in their order of selection, and an applications computer for executing the scheduled tasks, and wherein all of the computers in the system send messages to each other, said messages containing the identity and the values of the data variables resulting from the execution of the tasks by its own applications computer and wherein said applications computer generates a task done signal when it completes the execution of each task and is ready for a new task and said means for scheduling generates sequential dispatch task signals in response to said task done signal, each of said sequential dispatch task signals containing the identity of a scheduled task in its sequential order of selection, each of said task communicators comprising:

a data value table storing the values of the data variables required for the execution of each assigned task, each data variable being generated at different times, and several values of the same data variable may be generated before a task is executed requiring an earlier generated value for that data variable, each data variable having an associated storage location in said data values table for storing at least one data value for that data variable;

store data value means responsive to the identity of the data variable contained in said messages received from all of said computers for recording in said associated storage

locations of the data values table the values of the data variables contained in said messages;

task input means interfacing said applications computer for temporarily storing a task input message containing the values of the data variables required by said applications computer for the execution of the next scheduled task;

task dispatcher means responsive to the task identified in each of said dispatch task signals for selecting from said data values table the values of the data variables required for the execution of the scheduled task identified in said dispatch task signal and for recording said selected values in said task input means to generate said task input message;

task releaser means responsive to said task done signal generated by said applications computer signifying it has completed the execution of the preceeding scheduled task for releasing said task input message stored in said task input means to said applications computer for the execution of the scheduled task;

task output means for temporarily storing the values of the data variables produced by the execution of the task currently being executed by said applications computer; and

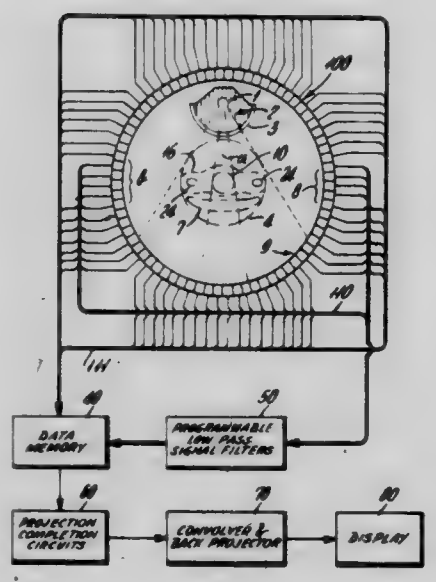
task results message sender means responsive to said task done signal generated by the applications computer signifying it has completed the execution of its current task for sending said messages to all of the computers, said messages containing the identity and values of the data variables stored in said task output means.

4,333,145

METHOD OF HIGH RESOLUTION PARTIAL AREA SCAN INVOLVING CONCENTRATED HIGH DENSITY MATERIAL OUTSIDE THE PARTIAL AREA

Dominic J. Heuscher, Aurora, and Roland W. Carlson, Lyndhurst, both of Ohio, assignors to Technicare Corporation, Solon, Ohio

Filed Nov. 29, 1979, Ser. No. 98,431
Int. Cl.[3] G01N *23/00*; G01T *1/20*
U.S. Cl. 364—414 10 Claims



1. In a method of high resolution computed tomography scanning of a portion of a planar region of a patient such as a section of the spine by a CT scanner of the type having a scan circle defining an examination region, a rotating source of penetrating radiation movably mounted relative to said scan circle for subjecting the scan circle to radiation, an array of stationary radiation detectors coplanar with the path of the source, spaced about the axis of rotation of the source and positioned to receive at least some of the radiation that passes from said source and through the scan circle for producing signals indicative of the intensity of radiation impinging thereon, and processing means operatively connected with said detector array for reconstructing into a visual display said signals caused by radiation attenuation in the scan circle, wherein concentrated high density material such as bone tissue is situated within the planar region but outside the portion of interest, the improvement comprising:

(a) emitting a divergent beam of radiation by said rotating source at an angle sufficiently large to encompass the portion of interest of the planar region of the patient and smaller than required for subjecting the entire scan circle to radiation, the common area within the angle of the beam at different positions of the rotating source defining a small scan circle corresponding to the portion of interest;

(b) selecting from said array of detectors those detectors whose signals are altered by projections of bone tissue situated outside the small scan circle;

(c) acquiring from said signals of said array of detectors a plurality of projections of the portion of interest of the planar slice of the patient corresponding to a plurality of angular orientations of the source about said patient, each projection representing the irradiated portion of the object as defined by said divergent beam;

(d) filtering signals produced by said selected detectors so as to minimize errors introduced into the projections by the bone tissue situated outside the small scan circle; and

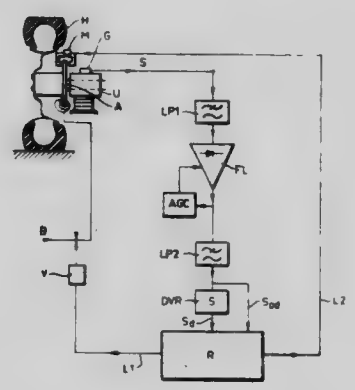
(e) reconstructing said portion of interest of the planar region of said scanned patient from said plurality of projections.

4,333,146

DEVICE FOR ELIMINATING THE VEHICLE WHEEL LOCKING RISK AT BRAKING

Brajnandan Sinha, 1 Spovgränd, S-951 47 Luleå, Sweden, and Sven-Erik Tiberg, Gammelstad, Sweden, assignors to Brajnandan Sinha, Luleå, Sweden

Filed Apr. 30, 1980, Ser. No. 145,213
Claims priority, application Sweden, May 2, 1979, 7903814
Int. Cl.[3] G06G *7/70*; B60T *8/00*
U.S. Cl. 364—426 5 Claims

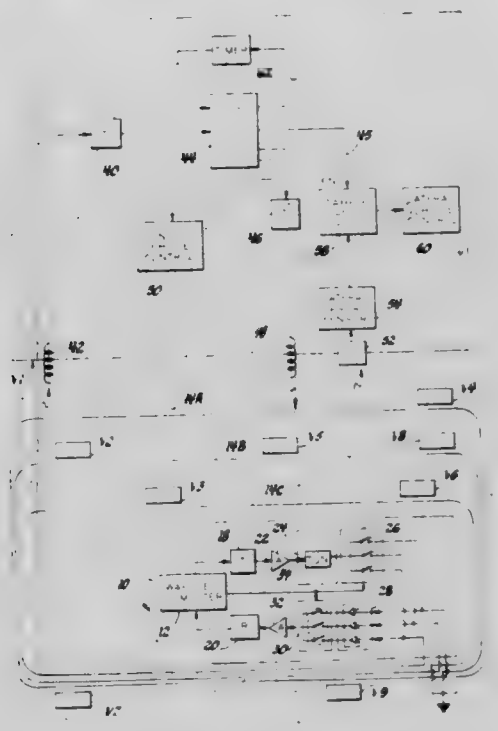


1. A device for eliminating the locking risk of vehicle wheels at the application of a braking force, comprising an accelerometer mounted on a non-rotary portion connected with the wheel axle for emitting continuously, in response to the motions of the mounting point due to irregularities of the road, a primary signal indicative of the acceleration of said point as influenced by the damping properties of the wheel tire; first means for transforming the primary signal to a secondary signal, the strength of which is related to the speed of changes in said primary signal, and second means connected to said first means and controlling the braking force of a fluid-operated brake system so as to momentarily reduce the braking force in response to a sudden change in said secondary signal, corresponding to a sudden reduction in the ground braking moment of the wheel and due to reduced damping of the tire, whereby the locking risk is removed.

4,333,147
MULTIPLEXED INDUCTIVE AUTOMATED GUIDANCE FOR MOVING VEHICLES

William R. Regueiro, Troy; Robert W. Cowan, Sterling Heights, and Richard W. Dick, Redford Township, Wayne County, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 13, 1980, Ser. No. 149,437
Int. Cl.[3] G06F *15/50;* B62D *1/24*
U.S. Cl. 364—436 3 Claims



2. An automated guidance control system comprising:

a plurality of guideway conductors arranged to define an equal number of partially coincident vehicle travel paths;

one or more vehicles associated with each of said guideway conductors;

wayside control means for transmitting uniform duration wayside-to-vehicle communications over each of said guideway conductors in sequence, each communication comprising an identification portion uniquely corresponding to the identity of a selected vehicle, and a control portion containing control information for said selected vehicle;

lateral guidance means aboard each vehicle including first means for developing a lateral error signal in response to the detection of an electromagnetic field surrounding a current carrying guideway conductor in the vicinity of the vehicle and second means for controlling the lateral position of the vehicle in response to a lateral error value applied thereto;

sample-and-hold means for applying a lateral error value to said second means, said sample-and-hold means being effective when enabled to update said applied value in accordance with the instantaneous value of said lateral error signal;

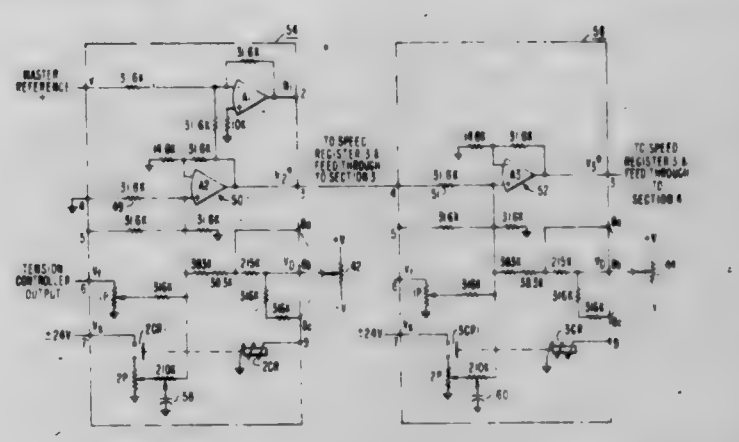
control means aboard each vehicle for receiving and processing wayside-to-vehicle communications from said guideway conductor, said control means including timing means for developing control pulses at predetermined intervals relative to the receipt of a synchronization signal, the duration of said intervals being a function of the number of guideway conductors and the wayside-to-vehicle communication duration, and comparator means for applying a synchronization signal to said timing means when the identification portion of a received wayside-to-vehicle communication matches the identity of the respective vehicle, so that said control pulses coincide with the transmission of subsequent wayside-to-vehicle communications over the same guideway conductor; and

means for momentarily enabling said sample-and-hold means in time with the development of said control pulses whereby each vehicle is controlled to follow the travel path defined by the guideway conductor with which it is associated.

4,333,148
PROCESS LINE PROGRESSIVE DRAW CONTROL SYSTEM

Curtis L. Ivey, Amherst, N.Y., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 28, 1979, Ser. No. 98,002
Int. Cl.[3] G06G *7/66;* B21B *37/00*
U.S. Cl. 364—469 4 Claims



1. A progressive draw controller for a process line having a plurality of stands, said controller comprising:

a first no-draw stand control having a speed regulating means with a master reference voltage V applied thereto,

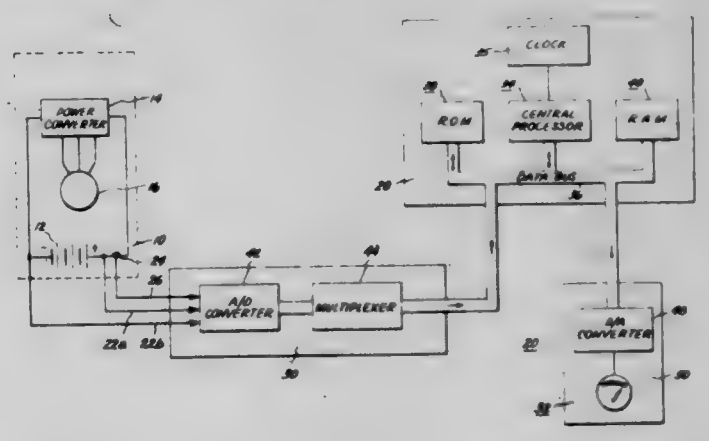
a second stand control having a second speed regulating means and having means for generating a second stand voltage V_2 derived from a preselected potential value voltage V_2 linearly variable between $+V$ and $-V$, said second voltage V_2 being applied to the second stand speed regulation means, and

each succeeding stand control having an associated speed regulating means and having means for generating a stand voltage for that stand derived from a potential value linearly variable between $+V$ and $-V$ preselected for that stand and from the stand voltage generated by said voltage generating means associated with the next preceding stand, the stand voltage for each stand being applied to the speed regulating means for that stand.

4,333,149
MICROPROCESSOR-BASED STATE OF CHARGE GAUGE FOR SECONDARY BATTERIES

Dale F. Taylor; John S. Sicko, both of Schenectady, N.Y., and William S. Passman, Salem, Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 6, 1980, Ser. No. 109,813
Int. Cl.[3] G01N *27/42;* G06F *15/56*
U.S. Cl. 364—481 11 Claims



1. A state of charge indicator for measuring the state of

charge of secondary batteries and for providing a visual indication of remaining battery charge comprising:

a data circuit adapted to be coupled to a secondary battery under load for providing first and second output signals proportional to the magnitude of battery discharge current and battery terminal voltage, respectively;

processing means coupled to said data circuit for computing battery dynamic resistance in accordance with the magnitude of battery discharge current and the magnitude of battery terminal voltage and for computing total battery charge capacity in accordance with battery dynamic resistance and battery charge already delivered and determining the remaining battery charge by comparing total battery charge capacity with battery charge already delivered; and

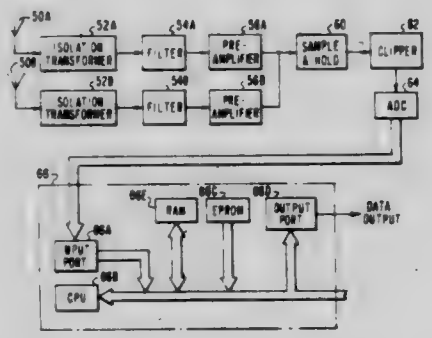
display apparatus coupled to said processor unit for providing a visual indication of remaining battery charge determined by said processor unit.

4,333,150

SIGNAL RECEIVING APPARATUS AND METHOD

Thomas C. Matty, N. Huntingdon, and Aaron C. James, Jefferson Boro, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 28, 1980, Ser. No. 116,119
Int. Cl.[3] H04M *1/50*; G01R *23/02*
U.S. Cl. 364—484 **12 Claims**



1. In signal receiving apparatus operative with an input signal to determine the presence of a signal component having a known frequency characteristic, the combination of

means for taking a selected number of data samples of the input signal with said number having an integer relationship with said frequency characteristic,

means for providing a signal waveform by superimposing at least first and second groups of said data samples with said groups being predetermined in accordance with the known frequency of said signal component,

means for establishing in relation to each data sample position of said signal a first product of the signal waveform data for that position and the value of a reference sine wave for that same position, with the reference sine wave being determined by the known frequency characteristic,

means for establishing in relation to each of said data sample positions a second product of the signal waveform data for that position and the value of a reference cosine wave for that same position, with the reference cosine wave being determined by the known frequency characteristic,

means for combining said first and second products, and

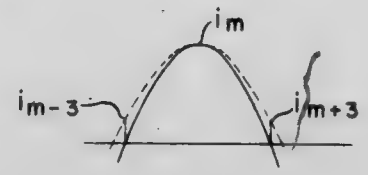
means for establishing from said combined products the presence of the signal component in relation to a desired threshold magnitude for the signal component.

4,333,151

METHOD FOR PROTECTING AN ELECTRIC POWER SYSTEM AND DIGITAL PROTECTIVE SYSTEM

Tetsuo Matsushima, Fuchu, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Dec. 21, 1979, Ser. No. 106,365
Claims priority, application Japan, Dec. 28, 1978, 53/161129
Int. Cl.[3] H02H *3/42*
U.S. Cl. 364—492 **16 Claims**



1. A machine implemented method for protecting an electric power system comprising the steps of:

sampling, at a predetermined sampling interval, an AC electrical quantity in said electric power system to obtain sampled data, each of which is indicative of an instantaneous value of said electrical quantity at a respective sampling time point,

converting said sampled data into first digital data,

storing said first digital data,

retrieving said first digital data and preparing therefrom a digital data q_m indicative of an instantaneous value at a first time point of an AC electrical quantity relating to said electric power system and digital data q_{m-n} and q_{m-n+1} indicative of instantaneous values of an AC electrical quantity relating to said electric power system, the data q_{m-n} being indicative of an instantaneous value at a time point in advance of said first time point by an angle of $\alpha°$ in the range of from 0° to 180°, and the data q_{m-n+1} being indicative of an instantaneous value at a time point lagging behind said first time point by an angle of $(180-\alpha)°$,

calculating a first value in accordance with the following expression:

$$\frac{1}{2}\{a \times q_{m-n} - (2-a) \times q_{m-n+1}\}$$

where $a=\alpha/90$

and, producing from the data q_m and said calculated first value a signal for use as a condition for tripping a circuit breaker in said electric power system of for operating an alarm device.

4,333,152

TV MOVIES THAT TALK BACK

Robert M. Best, 16016 9th NE., Seattle, Wash. 98155

Continuation-in-part of Ser. No. 136,100, Mar. 31, 1980, which is a continuation of Ser. No. 9,533, Feb. 5, 1979, abandoned. This application Jun. 13, 1980, Ser. No. 159,141
Int. Cl.[3] G11B *31/00*; G06F *15/44*; G10L *1/00*
U.S. Cl. 364—521 **10 Claims**

2. In a video system adapted to present a sound movie with which a human viewer interacts, the improvement for simulating a voice conversation between the viewer and the movie, comprising:

video means for generating picture elements of a first animated cartoon picture linked to a plurality of second animated cartoon pictures, the cartoon pictures including a talking face;

means for displaying a plurality of messages, each message corresponding to a second animated cartoon in said plurality thereof;

means for receiving from said viewer a signal corresponding to a selected message in said plurality of messages; and

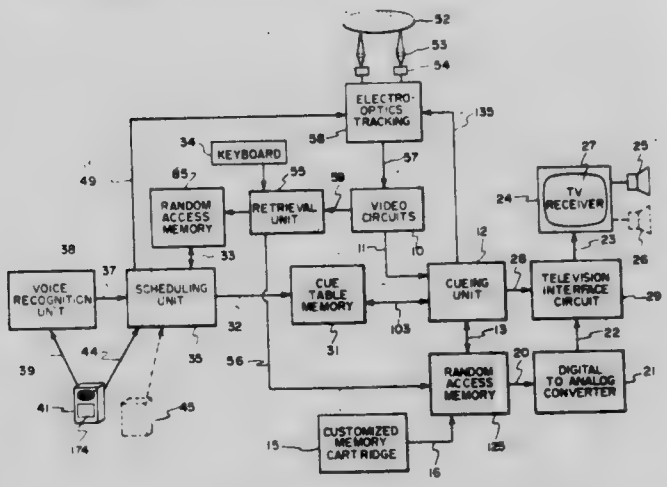
audio means for electronically generating a voice signal including words in said selected message, thereby simulating the viewer's side of a voice conversation,

said video generating means further generating picture elements of a second animated cartoon picture corresponding to said selected message accompanied by a second voice signal responsive to the selected message, thereby simulating a voice conversation between the viewer and the talking face in the animated cartoon movie.

7. A method of controlling a branching movie with words spoken by a human viewer of the movie, comprising the steps of:

presenting to said viewer a first scene in said movie linked to a plurality of second scenes therein;

presenting to said viewer a plurality of commands, each command corresponding to one second scene in said plurality thereof;



presenting to said viewer a plurality of abbreviations corresponding to said plurality of commands to elicit from said viewer a spoken response;

analyzing said spoken response electronically to determine which selected abbreviation in said presented plurality of abbreviations resembles said spoken response, thereby determining which selected command in said plurality of presented commands corresponds to said spoken response; and

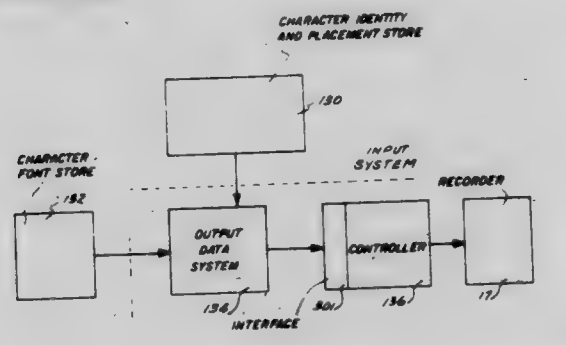
presenting to said viewer a second scene in said plurality thereof corresponding to said selected command, thereby executing the selected command.

4,333,153

SCANNING AND CONTROL SYSTEM FOR ELECTRO OPTICAL PRINTER

Alfred E. Mletzko, Woodbury, and Andrew P. Gonet, Stamford, both of Conn., assignors to Eltra Corporation, Toledo, Ohio

Filed Nov. 26, 1979, Ser. No. 97,281
Int. Cl.³ G06F *3/14*
U.S. Cl. 364—523 **47 Claims**



1. An electrophotographic typesetting system having a raster scanning means including means for directing a beam of modulated radiation across an imaging surface, means for providing relative motion between said beam and an imaging surface to produce a succession of raster lines, and forming a plurality of characters on said surface,

including means for providing first digital data defining the identity and location of characters, font storage means providing second digital data defining the contour of a plurality of characters with respect to a normalized encoded set of first and second coordinates, data processing means connected to said first and second digital data for producing third digital data defining the character boundaries intersecting a raster line, means for modulating said beam to change the state of the beam from a first state to a second state at a first intersection and to reverse the state of the beam at a successive intersection, forming said characters on said surface, said data processing means including a raster line store for storing said third digital data,

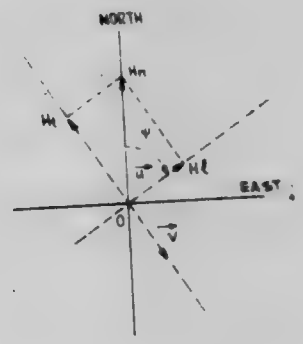
and a controller for controlling at least a part of said system and having means for interogating said raster line store and inhibiting said data processing means from transmitting said third digital data in response to an incompletely filled line store.

4,333,154

DEVICE FOR DETERMINING THE DIRECTION OF A LINE OF SIGHT

Jacques Devaud, Chabeuil; Jean-Robert Costet, and Michel Moulin, both of Valence, all of France, assignors to Crouzet, Paris, France

Filed Mar. 5, 1980, Ser. No. 127,788
Claims priority, application France, Mar. 9, 1979, 79 06311
Int. Cl.³ G01B *7/00*; G06F *15/20*
U.S. Cl. 364—559 **8 Claims**



1. A device for determining the direction of a line of sight or the orientation of a sighting trihedron associated with said line of sight, defined by a magnetic azimuth angle, an elevation angle and an inclination angle determined in a reference trihedron, said sighting and reference trihedron defining a long axis and a cross axis, said device comprising: a sighting unit defining said sighting trihedron, a gravimetric detector for measuring components of the gravity acceleration vector in the sighting trihedron, computer means connected to said gravimetric detector for computing said elevation and inclination angles in terms of said components of the gravity acceleration vector, a magnetometric detector for measuring components of the earth magnetic field vector in the sighting trihedron, said computer means being connected to said magnetometric detector for computing the components of the earth magnetic field vector along said long axis and said cross axis in terms of said components of the earth magnetic field vector, and for computing said magnetic azimuth angle in terms of said components along said long axis and said cross axis.

4,333,155

CALCULATOR HAVING A MODULAR KEYBOARD

John N. Johnston, North Plainfield, N.J., assignor to Litton Business Systems, Inc., Morris Plains, N.J.

Filed May 18, 1979, Ser. No. 40,131
Int. Cl.³ G06F *1/00*
U.S. Cl. 364—708 **10 Claims**

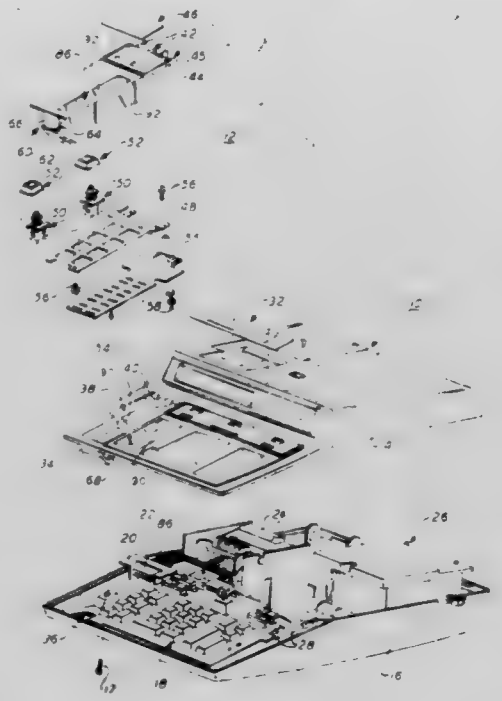
1. In a calculator comprising:

a main keyboard;

a housing connected to the main keyboard and having an opening therein;

a keyboard module for insertion into the opening, the key-

board module having a second keyboard including at least one key switch, electrical circuit means connected to the key switch, first connecting means for electrically connecting the circuit means to the calculator, and a module frame supporting the second keyboard, the electrical circuit means and the connecting means, the improvement comprising:



second connecting means disposed in the opening for electrically connecting the first connecting means in the keyboard module to the calculator, the second connecting means being movable at least in the direction of insertion of the module into the opening, whereby keyboard modules of different sizes are insertable into the opening.

4,333,156

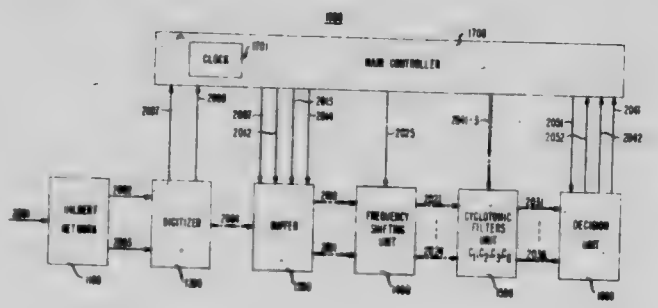
BROADBAND CYCLOTOMIC TONE DETECTOR

Robert P. Kurshan, New York, N.Y., and David Malah, Kiryat-Bialik, Israel, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 23, 1980, Ser. No. 162,256

Int. Cl.[3] **G06F** *15/31*

U.S. Cl. 364—724 **31 Claims**



1. Circuitry for detecting the frequency of a discrete-time input signal

CHARACTERIZED BY

control means (**1700**) for operating on said input signal by sequentially decimating said input signal to provide a decimated signal; and

cyclotomic filter means (**1500**), responsive to said control means, for receiving and processing said decimated signal.

4,333,157

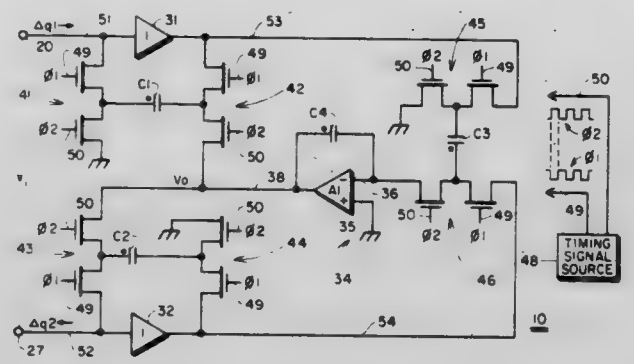
SWITCHED-CAPACITOR FLOATING-INDUCTOR SIMULATION CIRCUIT

Man S. Lee, Belmont, Calif., assignor to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.

Filed Jun. 25, 1980, Ser. No. 162,981

Int. Cl.[3] **G06G** *7/62;* **H03H** *11/00*

U.S. Cl. 364—802 **17 Claims**



1. An integratable switched-capacitor floating-inductor simulation circuit comprising:

first and second nodes adapted for receiving an input voltage;

first and second voltage follower means having input terminals connected to said first and second nodes, respectively, and having output terminals across which the input voltage is established;

first, second and third capacitors having capacitances **C1**, **C2**, and **C3**;

integrator means including a fourth capacitor having a capacitance **C4** associated therewith, and having an input and an output terminal; and

switch means associated with said first, second and third capacitors and being periodically operative in first and second switch states; operation of said switch means in the first state electrically connecting said first and second capacitors across said first and second voltage follower means, respectively, for discharging these capacitors, and electrically connecting said third capacitor to the output terminal of at least one of said voltage follower means for charging said third capacitor with the output voltage thereof; operation of said switch means in the second state electrically connecting said third capacitor to said integrator means for causing the latter to integrate the charge on said third capacitor and produce an output voltage that is proportional to the integral of the input voltage that is available on the output terminals of said voltage follower means, and electrically connecting said first and second capacitors to said integrator means for charging these two capacitors to the output voltage, whereby a switched-capacitor floating-inductor is simulated across said first and second nodes.

4,333,158

AUTOMATIC GAIN CONTROL CIRCUIT FOR AN ADAPTIVE FILTER

Johannes O. Voorman, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 10, 1980, Ser. No. 129,050

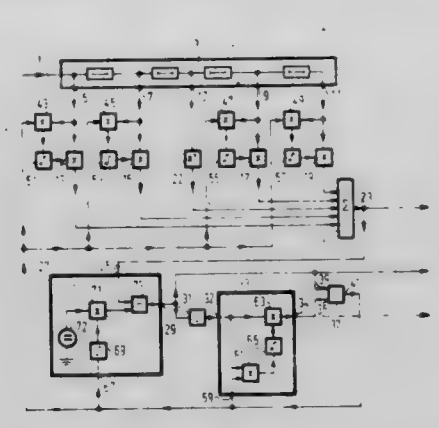
Claims priority, application Netherlands, Mar. 16, 1979, 7902093

Int. Cl.[3] **H03H** *21/00;* **H03G** *3/20*

U.S. Cl. 364—825 **3 Claims**

1. An automatic gain control circuit for an adaptive filter, said filter including a delay circuit having a plurality of taps thereto, a plurality of amplitude control circuits coupled respectively to said plurality of taps, correlation circuits for respectively providing control signals for said amplitude control circuits, means for combining the outputs from said amplitude control circuits for forming a corrected output signal of

said filter, and a difference determining circuit having an input coupled to the corrected signal output of the filter and an output for providing an error signal which, in turn, is applied to said correlation circuits, characterized in that said automatic gain control circuit is coupled to another input of said difference determining circuit and to the corrected signal output of the filter for deriving a reference signal from the corrected output signal of the filter, said reference signal having a waveform which substantially corresponds to the desired waveform



of the corrected output signal, said automatic gain control circuit comprising a further control circuit having a first input and an output coupled respectively to the input and the output of the automatic gain control circuit, an integrator coupled to a second input of said further control circuit for providing a control signal therefor, and a multiplying circuit having inputs coupled respectively to the input of said automatic gain control circuit and the output of said difference determining circuit and an output coupled to said integrator.

4,333,159

COMBINATION SHIFT REGISTER, COUNTER AND MEMORY DEVICE

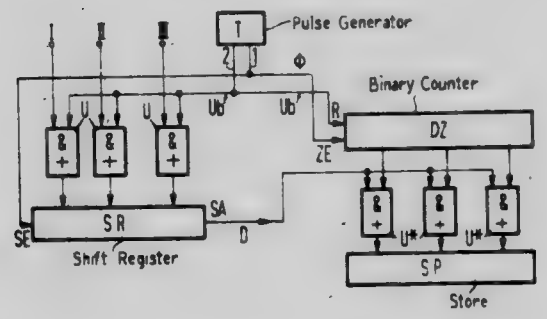
Klaus D. Bigall, Vaterstetten, and Helmut Roesler, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Nov. 5, 1979, Ser. No. 90,998

Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850652

Int. Cl.[3] **G06F** *13/00*

U.S. Cl. 364—900 **2 Claims**



1. A digital semiconductor circuit which receives input signals (I, II, III . . .) for charging a respective memory cell of a clock-controlled shift register (SR) operating in parallel to serial operation, comprising a clock generator (T) producing first and second clock output signals (1, 2), a shift register (SR), a binary digital counter (DZ), said shift register (SR) and said binary counter (DZ) receiving said first clock output signal (1), a plurality of AND gates (U*) receiving the outputs of respective counting stages of said digital counter (DZ), the serial output of said shift register (SR) connected to inputs of all of said AND gates (U*), an address memory (SP) receiving the outputs of said plurality of AND gates (U*) which are connected to the respective memory cell of said address memory (SP) which is designed as a shift register, a second plurality of AND gates (U) receiving a second output of said clock generator (T) as well as said input signals (I, II, III . . .) and the output of said second plurality of AND gates connected to said shift register and said second output (2) connected as the reset pulse of said binary digital counter (DZ) and said first and second outputs (1, 2) of said clock generator (T) synchronized such that reset of said binary counter occurs only after the complete emptying of said shift register (SR).

4,333,160

MEMORY CONTROL SYSTEM

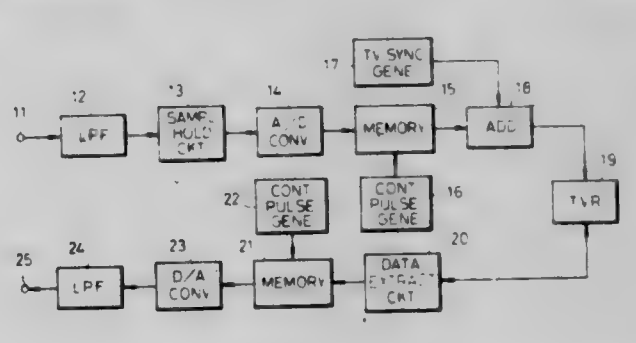
Harukuni Kobari, Yokohama; Yasuhiro Yamada, Fujisawa; Susumu Suzuki, and Chitoshi Hibino, both of Yokohama, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan.

Filed Nov. 19, 1979, Ser. No. 95,553

Claims priority, application Japan, Nov. 20, 1978, 53-143180; Nov. 20, 1978, 53-143181

Int. Cl.[3] **H04N** *5/76*; **G06F** *13/00*

U.S. Cl. 364—900 **15 Claims**



1. A memory control system comprising a memory supplied with an digital signal comprising a series of data; and a control circuit for producing a control signal to control said memory in such a manner that the total memory capacity of said memory is partitioned into a plurality (k) of memory capacity segments having given capacity values (lengths) which are different from each other, and said digital signal is written in datum by datum with an order and further the written-in digital signal is read out datum by datum with an order rearranged from the order with which the digital signal is written in, by means of circulating addresses through the plurality of divided memory capacity segments while maintaining the relationship in terms of capacity values (lengths) between the plurality of divided memory capacity segments to be constant.

4,333,161

DATA PROCESSING APPARATUS OPERATIVE ON DATA PASSING ALONG A SERIAL, SEGMENTED STORE

Ivor Catt, "Hartspring", 17 King Harry Lane, St. Albans, Hertfordshire, England

Continuation-in-part of Ser. No. 974,482, Dec. 29, 1978, abandoned, which is a continuation of Ser. No. 785,177, Apr. 6, 1977, abandoned. This application Jan. 30, 1980, Ser. No. 116,848

Int. Cl.[3] **G06F** *13/00, 3/00*; **G11C** *21/00, 19/00*

U.S. Cl. 364—900 **3 Claims**

1. A data processing apparatus comprising

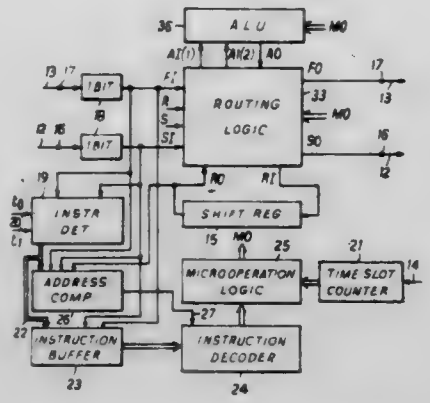
a central unit;

a serial store formed of a plurality of segments each with input and output terminals connected in a chain to form a serial path for data and instructions from the central unit, via successive segments and back to the central unit;

timing means to effect passage of data and instructions along the said path;

each segment including a shift register, an arithmetic and logic unit, and switching means operable in a first mode to set up a serial configuration in which the segment input terminal is connected to the input terminal of the shift register and the output terminal of the shift register is connected to the segment output terminal, operable in a second mode to set up a recirculating configuration in

which the segment input terminal is connected to the segment output terminal by a bypass line and the register output terminal is connected to the register input terminal by a feedback connection, and operable in a third mode to set up a processing configuration in which the segment input terminal and register output terminal are connected



to inputs of the arithmetical and logic unit and an output of the said unit is connected to at least one of the register input terminal and segment output terminal;

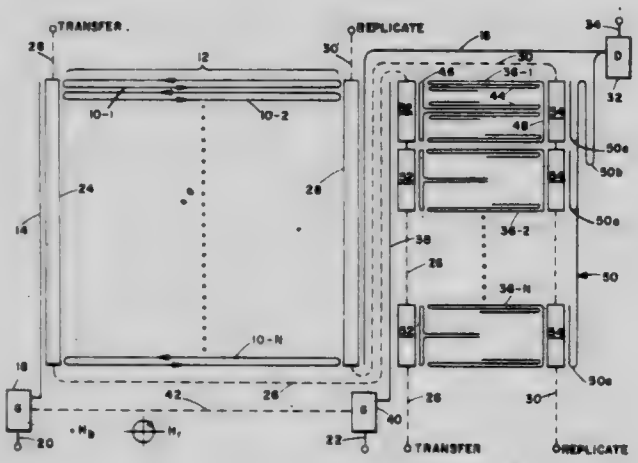
and each segment further including control means responsive to instruction information received on the said serial path to switch between the said first, second and third modes.

4,333,162

BUBBLE MEMORY WITH CONDUCTOR PROGRAMMABLE TRANSPARENT ERROR MAP

George F. Reyling, Sunnyvale, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Aug. 4, 1980, Ser. No. 174,939
Int. Cl.[3] G11C *19/08*
U.S. Cl. 365—15 10 Claims



1. A magnetic bubble memory comprising:

a plurality of data loop means, some of which may be defective, for storing magnetic bubbles representative of information therein;

first input path means for propagating bubbles to the data loop means;

a plurality of first transfer gates each normally capable of transferring a bubble from the first input path means to a corresponding one of the data loop means upon receiving a transfer-in signal and adapted to be selectively disabled to prevent transferring a bubble into a defective data loop means upon receiving the transfer-in signal;

first output path means for propagating bubbles from the data loop means;

a plurality of first replicate gates each for replicating a bubble onto the output path means from a corresponding one of the data loop means upon receiving a replicate signal;

a plurality of redundant loop means for storing magnetic bubble representative of information therein;

second input path means for propagating magnetic bubbles to the redundant loop means;

a plurality of second transfer gates corresponding to each of the redundant loop means, each of the second transfer gates adapted to be selectively enabled to transfer a bubble from the second input path means to its corresponding one of the redundant loop means upon receiving the transfer-in signal;

second output path means for propagating bubbles from the redundant loop means and merging them with bubbles propagated on the first output path means;

a plurality of second replicate gates corresponding to each of the redundant loop means, each of the second replicate gates adapted to be selectively enabled for replicating a bubble from its corresponding one of the redundant loop means onto the second output path means upon receiving the replicate signal; and

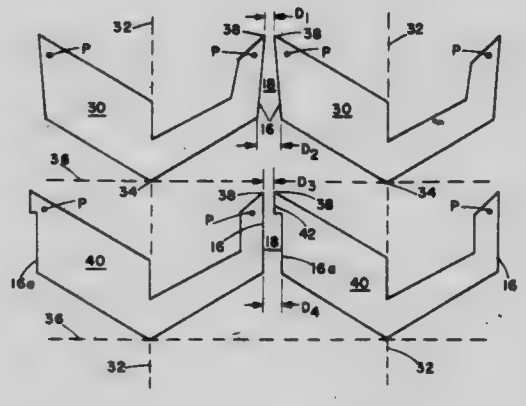
means for simultaneously generating the same input data stream of magnetic bubbles on both the first and second input path means.

4,333,163

BUBBLE MEMORY WITH INCREASED GAP TOLERANCE BETWEEN PROPAGATION ELEMENTS

Peter K. George, Morgan Hill, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Apr. 25, 1980, Ser. No. 143,593
Int. Cl.[3] G11C *19/08*
U.S. Cl. 365—43 9 Claims



1. A magnetic bubble memory comprising:

means for defining a plurality of minor loops for propagating bubbles therearound;

means for defining a serial-parallel input path for propagating bubbles to the minor loops and

means for defining a parallel-serial output path for propagating bubbles from the minor loops;

the minor loops each including first and second legs made of a plurality of asymmetric chevron propagation elements arranged in side by side consecutive fashion,

each chevron propagation element having a peak and a pair of poles,

adjacent chevron propagation elements in a leg having opposing side edges normally defining a gap therebetween extending in the plane of the elements and increasing in width at a predetermined rate moving in a direction away from the poles toward a line intersecting the peaks of the adjacent elements, and

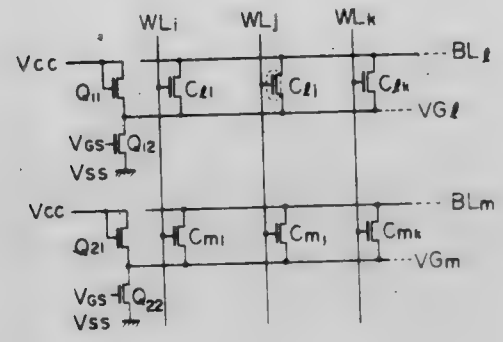
the predetermined rate of gap width increase being sufficient so that the majority of shorts which occur between adjacent ones of the chevron propagation elements due to fabrication inaccuracies will not create barriers to bubble propagation.

4,333,164

READ ONLY MEMORY

Yasuo Orikabe, Kawasaki, and Masakazu Matsuda, Ishikawa, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 25, 1980, Ser. No. 124,466
Claims priority, application Japan, Feb. 28, 1979, 54-23084
Int. Cl.[3] G11C *17/00*
U.S. Cl. 365—104 19 Claims



1. A read only memory comprising:

a plurality of word lines,

a plurality of bit lines disposed relatively to said plurality of word lines to define a plurality of intersections therebetween,

a plurality of virtual ground lines respectively corresponding to said plurality of bit lines, and

a plurality of memory cells comprising field effect transistors, each located at a corresponding intersection of a respectively associated word line and a respectively associated bit line,

each of said transistors having a first electrode connected to said respectively associated word line, a second electrode connected to said respectively associated bit line, and a third electrode connected to said virtual ground line respectively corresponding to said respectively associated bit line,

each of said bit lines having plural said memory cells associated therewith, the plural said field effect transistors comprising said memory cells being connected in parallel between the associated said bit line and the respectively corresponding virtual ground line,

particular ones of said memory cells, selected according to data to be stored in said read only memory, comprising depletion-type field effect transistors formed selectively by ion implantation and the remainder of said memory cells comprising enhancement-type cells not subjected to ion implantation, and

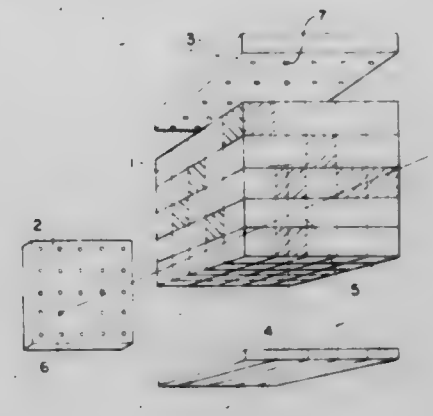
means for selectively activating said word lines and said virtual ground lines to establish a first potential difference between a selected word line and the virtual ground line corresponding to a selected bit line which, as applied to the correspoding memory cell at the intersection of the selected word and bit lines, is sufficient to turn on said corresponding memory cell when comprising a depletion-type transistor but is insufficient to turn on said corresponding memory cell when comprising an enhancement-type transistor, and to establish a second potential difference between each non-selected word line and the virtual ground line corresponding to the said selected bit line which, as applied to the corresponding memory cells at the intersections of said non-selected word lines and said selected bit line, is insufficient to turn on said corresponding memory cells when comprising either a depletion-type transistor or an enhancement-type transistor.

4,333,165

THREE-DIMENSIONAL PATTERN MAKING METHODS

Wyn K. Swainson, Berkeley, and Stephen D. Kramer, Oakland, both of Calif., assignors to Formigraphic Engine Corporation, San Francisco, Calif.

Continuation-in-part of Ser. No. 544,480, Jan. 27, 1975, Pat. No. 4,078,229. This application Dec. 1, 1977, Ser. No. 856,434
Int. Cl.[3] G11C *11/42, 13/04*
U.S. Cl. 365—120 27 Claims



1. A method for generating a substantially persistent three-dimensional inhomogeneity pattern in active media dispersed in a volume of sustaining fluid medium, in response to energy level changes stimulated by directed electromagnetic energy input, said method comprising the steps of:

generating control signals specifying fixed relative coordinate positions within said volume;

directing electromagnetic energy into said volume to cause energy level changes within molecules of said active media at said coordinate positions corresponding to said three-dimensional pattern, said molecules being an agent capable of receiving energy from a source external to said volume and transferring energy so as to create change in the physio-chemical behavior state of said active media; and

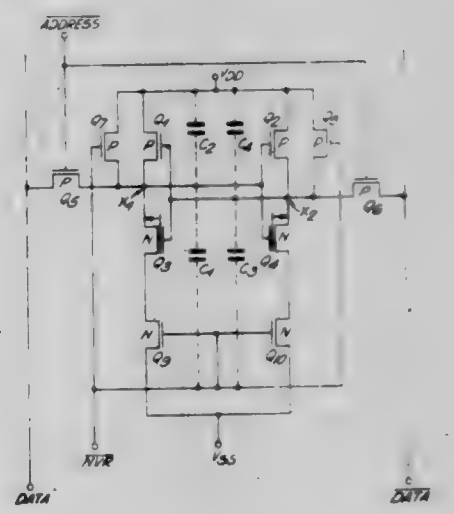
stimulating said molecule to effect an intramolecular radiationless transition not depending on 1/rq to produce a reaction generating said three-dimensional pattern.

4,333,166

SEMICONDUCTOR MEMORY CIRCUITS

Colin W. Edwards, Lightwater, England, assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 10, 1979, Ser. No. 101,968
Int. Cl.[3] G11C *11/40*
U.S. Cl. 365—182 17 Claims



1. A non-volatile bistable semiconductor latch having a pair of cross-coupled branches connectable across a common supply voltage, each branch including a complementary driver or load and a driver connected in series at a respective node, at

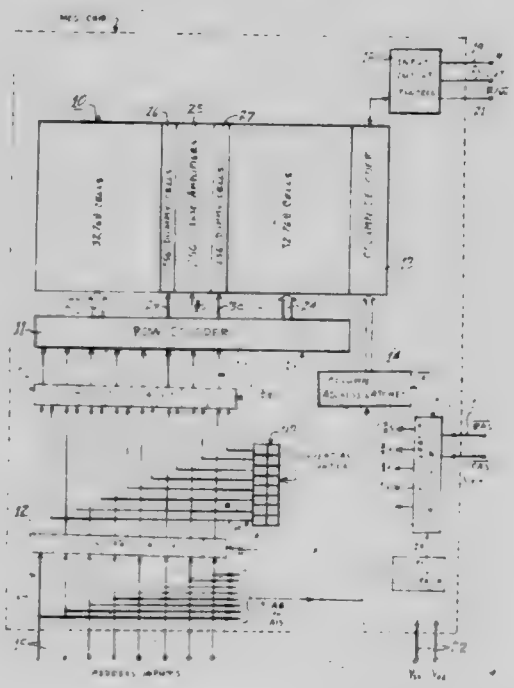
least one of said complementary drivers or loads, or drivers, including an insulated gate field effect transistor (IGFET) having a threshold voltage which may be varied by raising its gate potential above a predetermined level relative to the potential on one of its other electrodes, whereby volatile information stored in said latch is rendered non-volatile by increasing said gate potential above said predetermined level, and means for precharging both said nodes to an identical logic state such that, when the precharge signal is removed, at least one variable threshold IGFET switches in a direction to place the latch in the correct logic state dictated by an earlier non-volatile storing operation.

4,333,167

DYNAMIC MEMORY WITH ON-CHIP REFRESH INVISIBLE TO CPU

David J. McElroy, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 5, 1979, Ser. No. 82,371
Int. Cl.³ G11C *7/00, 11/40*
U.S. Cl. 365—222 **14 Claims**



10. A semiconductor memory device comprising an array of memory cells in a single integrated circuit formed in a semiconductor body, the memory device having refresh address generator means included within said body along with means for changing the address produced by the generator means, addressing means included within the body for alternatively receiving an address from inputs to the device or from the generator means and for accessing the array using said address, and means included within the body for activating the means for changing the address in a regular timing sequence.

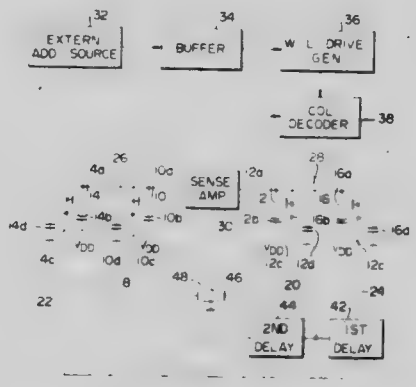
4,333,168

MEMORY CIRCUIT

Koichiro Mashiko; Toshio Ichiyama, and Makoto Taniguchi, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 8, 1980, Ser. No. 176,638
Claims priority, application Japan, Aug. 8, 1979, 54-101980
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—210 **2 Claims**

1. A memory circuit comprising a plurality of single transistor type memory cells arranged in rows and columns, each of said memory cells including a memory capacitor having an electric charge stored thereon; a pair of dummy memory cells identical in construction to said memory cells for each row; a sense amplifier for each row; a pair of true and complementary bit lines connected to said sense amplifier for each row; the memory cells arranged in each row being connected to said sense amplifier through said pair of true and complementary bit lines to be located on both sides of said sense amplifier; said pair of dummy memory cells for each row being connected to said sense amplifier through said pair of true and complementary bit lines to be located on both sides of said sense amplifier respectively; address means including a plurality of word lines each connected to the memory cells arranged in each column, a pair of dummy word lines connected to said dummy memory cells respectively for each row, a column decoder connected to all said word lines and dummy word lines and responsive to an address signal externally applied thereto to select both one of said word lines and one of said dummy word lines as determined by said address signal, and a word line-drive generator connected to said column decoder and response to said address signal also externally applied thereto generate and supply a word line-drive signal to said selected word line and dummy



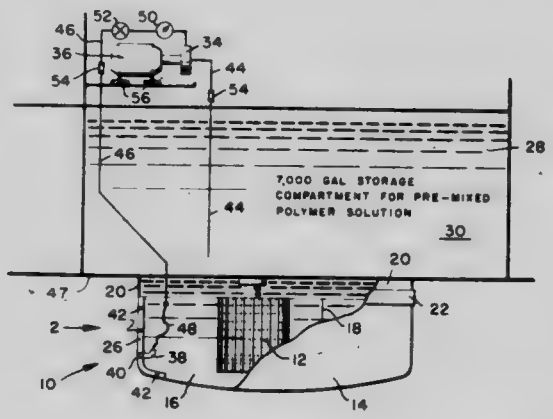
word line through said column decoder to develop potentials thereon to effect the turn-on of the memory cell and the dummy memory cell connected to said selected word line and dummy word line respectively thereby to cause said electric charges on said memory capacitor in said turned-on memory cell and dummy memory cell to be read out on an associated pair of said true and complementary bit lines respectively; and activation means for each row connected to said pair of dummy word lines for said row and also to said sense amplifier for said row to generate and supply an activating signal to said sense amplifier to activate the latter when said electric charges on said memory capacitor are properly read out on the last-mentioned pair of said true and complementary bit lines; said sense amplifier, as activated, amplifying a potential difference between potentials developed on said pair of true and complementary bit lines due to the reading of said electric charges.

4,333,169

FLOW NOISE SUPPRESSION SYSTEM FOR A SONAR DOME

Jack W. Hoyt, Pasadena, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 4, 1966, Ser. No. 585,218
Int. Cl.³ H04K *3/00*; H04R *1/44*
U.S. Cl. 367—1 **5 Claims**



1. In a sonar transducer unit adapted to be carried by a

moving water vehicle external to the hull thereof and submerged in the ambient stream, the combination comprising;

(a) an acoustically transparent shell forming a substantially closed container about the transducer unit, and

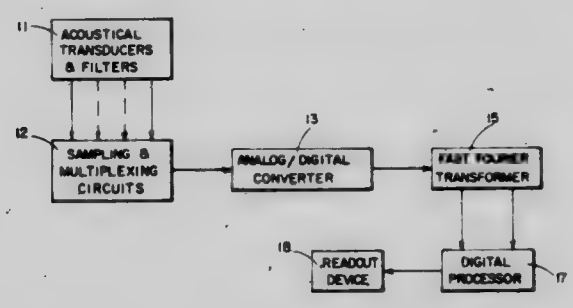
(b) means for injecting a dilute aqueous solution of a water soluble polymer material of a first predetermined concentration into the layer of ambient water flow adjoining the exterior of the surface of the shell in such a manner that substantially the entire exterior surface of the shell is bathed in the sheath of dispersed solution.

4,333,170

ACOUSTICAL DETECTION AND TRACKING SYSTEM

Lemuel P. Mathews, Rancho Palos Verdes; Charles A. Lohman, Fullerton, and Paul R. Armstrong, Yorba Linda, all of Calif., assignors to Northrop Corporation, Los Angeles, Calif.

Filed Nov. 21, 1977, Ser. No. 853,207
Int. Cl.³ G01S *3/80*
U.S. Cl. 367—125 **13 Claims**



1. An acoustical detection system for detecting targets which generate acoustical signals comprising:

at least one pair of acoustical transducer means for receiving acoustical signals from said targets and transducing said acoustical signals to electrical signals having a plurality of frequency bins, said transducer means being spaced from each other,

means for converting said electrical signals from analog signals to digital signals,

means for processing said digital signals to generate phase difference signals in accordance with the phase differences between each of the frequency bins of the signals received by said pair of transducer means,

means for dividing each of said phase difference signals by a signal in accordance with the frequency of the frequency bin associated therewith to generate phase difference slope signals for each of said frequency bins,

means for grouping together signals representing common phase difference slopes, the signals in each such grouping representing signals emanating from a common target, and

means for processing each of the groupings of signals to determine the direction and identity of each of the targets.

4,333,171

ELECTRONIC TIMEPIECE WITH DIFFUSION RESISTOR FOR COMPENSATING THRESHOLD VARIATIONS

Yasuhiko Nishikubo, Tokorozawa, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Aug. 27, 1980, Ser. No. 181,764
Claims priority, application Japan, Sep. 4, 1979, 54-113166; Sep. 4, 1979, 54-113167
Int. Cl.³ G04C *3/00, 5/00*
U.S. Cl. 368—87 **3 Claims**

1. An electronic timepiece comprising:

an electronic circuit unit including,

an oscillator for producing a time standard signal,

a frequency divider for dividing the output signal of said oscillator, and

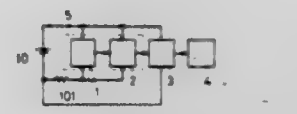
a display driver,

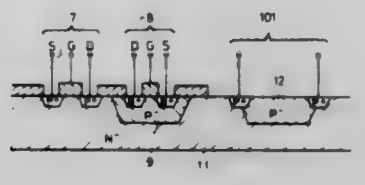
said electronic circuit unit being composed of a CMOS integrated circuit;

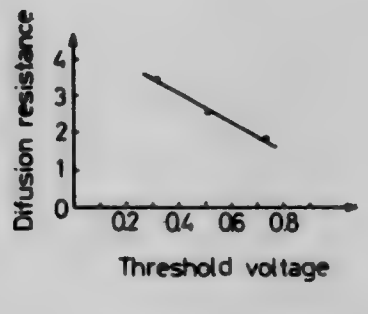
a display device connected to said electronic circuit unit,

a voltage supply connected to said electronic circuit unit;

a resistor formed in the N-type substrate of a CMOS transistor within said CMOS integrated circuit at the same time







with the diffusion of the P-well for the N-channel MOS transistor of said CMOS transistor, and

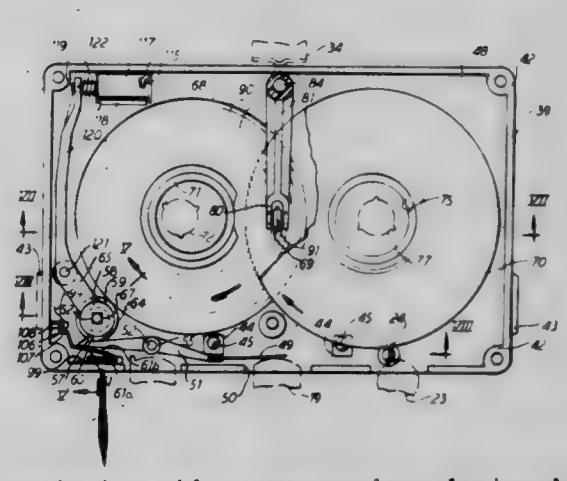
a voltage supply circuit including said resistor and connecting the voltage supply to said electronic circuit unit for supplying the supply voltage from said voltage supply to a part of said CMOS integrated circuit via said resistor.

4,333,172

METRONOME CARTRIDGE

Shin H. Chen, Apartment B, 6333 N. Lakewood, Chicago, Ill. 60660

Filed Jul. 12, 1979, Ser. No. 56,983
Int. Cl.³ G04F *5/02*
U.S. Cl. 369—2 **30 Claims**



1. In combination with a cassette player having driving means:

a metronome cartridge having a body adapted to be removably received in operative relation to the player interchangeably with tape cassettes;

and tape-free mechanical means carried by said cartridge body and adapted to be driven by said driving means for generating metronomic time signals in the operation of said player.

4,333,173

OPTICAL INFORMATION PROCESSOR WITH PRISMATIC CORRECTION OF LASER BEAM SHAPE

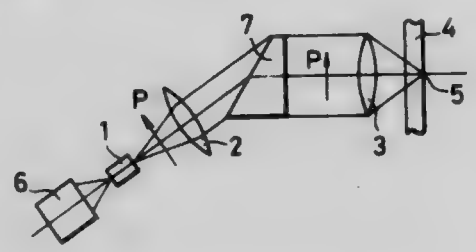
Seiji Yonezawa, Hachiouji; Toshio Sugiyama, Toyokawa, and Masahiro Ojima, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 22, 1980, Ser. No. 152,297

Claims priority, application Japan, Jun. 15, 1979, 54-74664; Oct. 29, 1979, 54-148846[U]; Feb. 18, 1980, 55-17813; Apr. 10, 1980, 55-48436[U]

Int. Cl.³ G11B 7/12

U.S. Cl. 369—45 29 Claims



1. An optical information processor comprising a light source formed by a semiconductor laser having a rectangular light emitting region which emits a beam of light having a substantially-elliptical cross section, an information storage medium, an optical system which focuses the beam of light emitted by the semiconductor laser onto the information storage medium, and means for detecting variations in the amount of light emergent from the information storage medium; wherein said optical system includes means in the form of at least one prism for converting the elliptical light beam emitted by said semiconductor laser device into a beam of circular cross section.

4,333,174

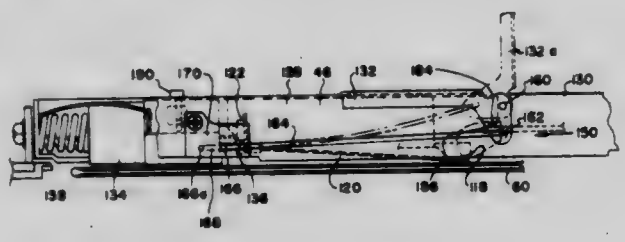
TRANSDUCER DISPLACEMENT APPARATUS FOR VIDEO DISC PLAYER

Myron C. Stewart, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,340

Int. Cl.³ G11B 3/02

U.S. Cl. 369—256 3 Claims



1. In a system for recovering prerecorded information from an information track disposed on a disc record by means of a pickup stylus when stylus/record relative velocity is established; said pickup stylus being disposed at one end of a stylus arm assembly; the other end of said stylus arm assembly being suspended in a protective cartridge; said system including a translatably-mounted carriage having a compartment for removably receiving said pickup cartridge; said system further having a transducer slidably-mounted in said carriage for motion toward and away from a retracted position thereof; said transducer having a support element subject to coupling with the other end of said stylus assembly; said cartridge compartment having a movably-mounted cover; apparatus comprising:

(A) means for generating a force for biasing said transducer away from said retracted position thereof; and

(B) a transducer retraction means including an actuated member; said actuated member engaging said transducer in response to the opening of said cartridge cover for retracting said transducer against the force of said biasing means to provide room for receiving said cartridge in said compartment; said actuated member being responsive to the travel of said cartridge cover in the closing direction for effecting displacement of said transducer away from said retracted position under the influence of said biasing means until said transducer engages said cartridge disposed in said compartment to effect said coupling between said transducer support element and said other end of said stylus assembly; further closing of said cartridge cover causing additional displacement of said actuated member to a location where said actuated member is out of engagement with said transducer so that said biasing means controls said transducer/cartridge coupling independent of said retraction means.

4,333,175

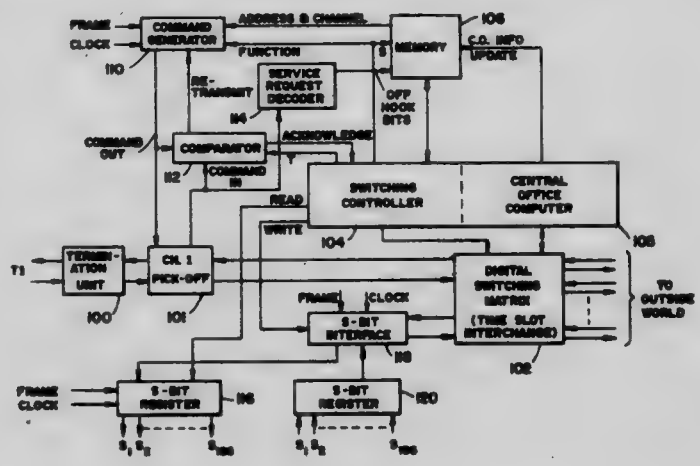
TELEPHONE SYSTEM USING PULSE CODE MODULATED SUBSCRIBER LINES

R. Gordon Cook, Canandaigua, N.Y., and Todd V. Townsend, Reno, Nev., assignors to Lynch Communication Systems, Inc., Reno, Nev.

Filed May 9, 1980, Ser. No. 148,248

Int. Cl.³ H04J 3/08

U.S. Cl. 370—56 20 Claims



1. A telephone system for conveying digital signals between a central office and a plurality of subscriber locations, comprising;

(a) at least one distribution location remote from said central office; each said distribution location being connected to at least one of said subscriber locations by two wire line means;

(b) time-division pulse-code multiplexed digital signal carrier means serially connecting said central office and said distribution locations and being looped back to said central office, said carrier means having a plurality of signal channels transmitted sequentially, said channels occupying equal time intervals in said time division;

(c) switching means at said central office for selectively connecting said channels of said carrier means at said central office to the outside world or to each other;

(d) subscriber-connecting means at said distribution locations for selectively connecting individual ones of said subscriber locations to individual channels of said carrier means under the control of said switching means.

4,333,176

DATA EXTRACTION MEANS FOR USE IN A DATA TRANSMISSION SYSTEM

Floyd W. Looschen, Laguna Beach, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Division of Ser. No. 883,302, Mar. 3, 1978, Pat. No. 4,225,752. This application Jan. 21, 1980, Ser. No. 113,905

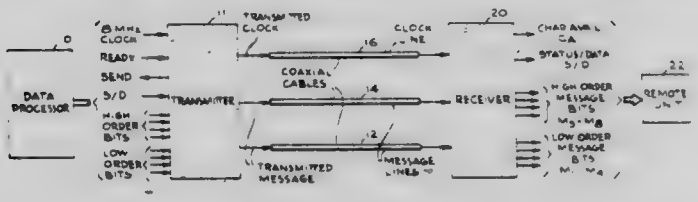
Int. Cl.³ H04J 3/06

U.S. Cl. 370—84 6 Claims

1. Means for extracting different data items from a plurality

of applied digital signals, wherein a first applied digital signal comprises first and second data items occurring during respective first and second time periods, and wherein a second applied digital signal comprises a clock having a first repetition rate during time periods corresponding to said first time periods and having a second repetition rate during time periods corresponding to said second time periods, said means comprising:

strobe generating means responsive to said first applied signal for generating at least three sets of periodically occurring strobe pulses, each set having a repetition rate determined by said clock, each strobe pulse of said second set having a first predetermined time spacing with respect



to each corresponding pulse of said first set, and each strobe pulse of said third set having a second predetermined time spacing with respect to each corresponding pulse of said second set, said first and second predetermined time spacings being chosen in conjunction with said first and second repetition rates so as to produce predetermined combinations of strobe pulses from said sets indicative of which of said first and second repetition rates is being applied; and

data extracting means responsive to said second applied signal and to said strobe pulses and also to said predetermined combinations of strobe pulses for individually extracting said first and second data items from said first applied signal.

4,333,177

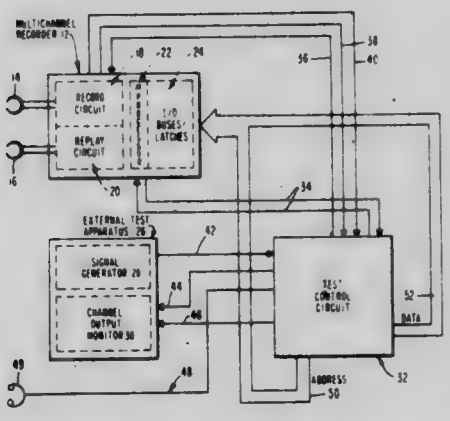
TEST CONTROL CIRCUIT FOR MULTICHANNEL APPARATUS SUCH AS TAPE RECORDERS AND THE LIKE

Philip H. Sutterlin, Sunnyvale, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Oct. 31, 1979, Ser. No. 90,050

Int. Cl.³ G01R *31/28;* G06F *11/00*

U.S. Cl. 371—15 **14 Claims**



1. A test control circuit for selectively coupling the input and output of one or more channels of a multichannel apparatus to selected test signals of external test/monitor means in response to an operator-generated select command and an acknowledgement signal by an associated microprocessor control system, wherein the multichannel apparatus includes input/output buses and respective latches integral with each channel of the multichannel apparatus, comprising the combination of;

channel selector means remote from the multichannel apparatus for supplying digital channel select control signals to the latter for selectively enabling respective latches of the input and output buses of at least one selected channel in the multichannel apparatus, while disabling latches in unselected channels, in response to the operator-generated select command and the acknowledgement signal from the associated microprocessor control system; and

input/output bus buffer means responsive to the channel selector means for selectively coupling the external test-/monitor means to the selected channels of the multichannel apparatus to supply and receive the test signals as remotely directed by the channel selector means.

4,333,178

OPTICAL FIBER REPEATER

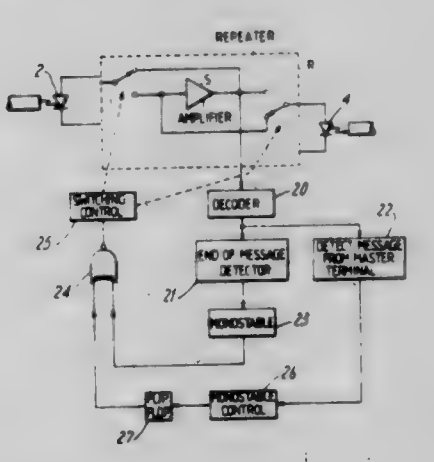
Jeffrey G. Farrington, Bishop's Stortford, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Dec. 2, 1980, Ser. No. 212,190

Claims priority, application United Kingdom, Dec. 4, 1979, 7941729

Int. Cl.³ H04B *9/00*

U.S. Cl. 455—601 **7 Claims**



1. A data transmission system of the closed-loop type having a plurality of stations coupled to a closed-loop comprising:

a first station of said plurality of stations transmitting a message to a second station of said plurality of stations, said message having a header portion including at least an address of said second station and being transmitted around said loop in a given direction from said first station to said second station, said second station responding to said address and accepting said message after which said second station transmits a reply message to said first station in direction around said loop opposite said given direction, said transmission direction being returned to said given direction after reception of said reply message at said first station; and

a reversible repeater included in each of said plurality of stations coupled to said loop to convey said message and said reply message around said loop, all of said repeaters being reversed when said direction of transmission around said loop is reversed.

DESIGN PATENTS

GRANTED JUN. 1, 1982

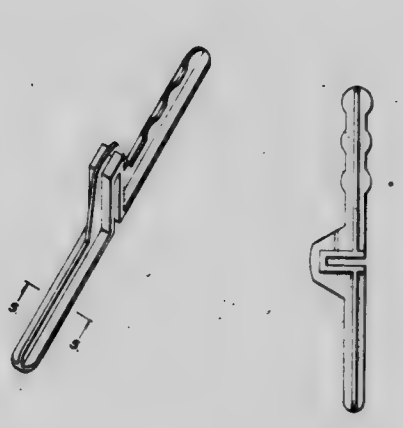
ERRATA

For CLASS	See PATENT NO.
D09–339	264,681
D34–024	264,696
D34–035	264,697

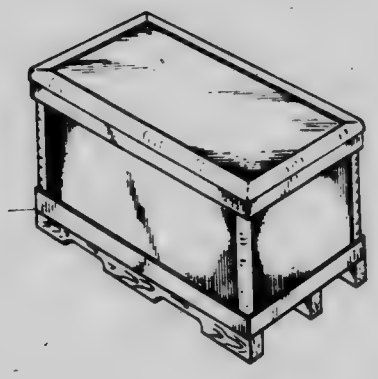
DESIGNS

JUNE 1, 1982

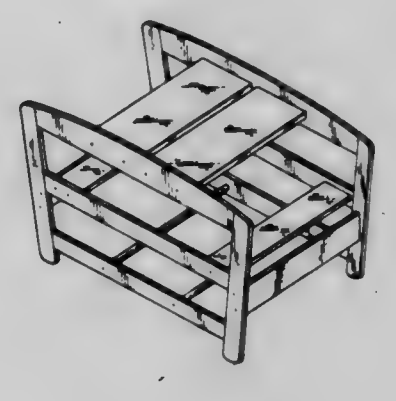
264,640
HANDLE STICK FOR A CONFECTIONERY PRODUCT
Sam Kupperman, Chicago, and Dennis Kupperman, Glenview, both of Ill., assignors to RB Toy Development Co., Skokie, Ill.
Filed May 22, 1978, Ser. No. 908,102
Term of patent 14 years
Int. Cl. D01—*99*
U.S. Cl. D1—99



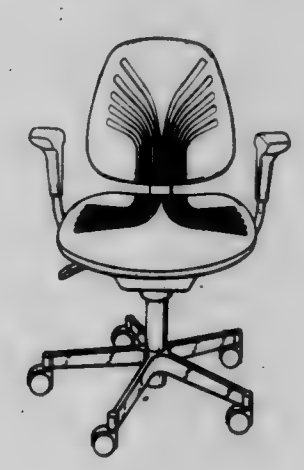
264,641
AIR CARGO CONTAINER
Robert P. Evans, Walnut Creek, and Dale F. Weiss, Hermosa Beach, both of Calif., assignors to Transequip, Inc., Compton, Calif.
Filed Mar. 28, 1980, Ser. No. 135,213
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D3—30.1



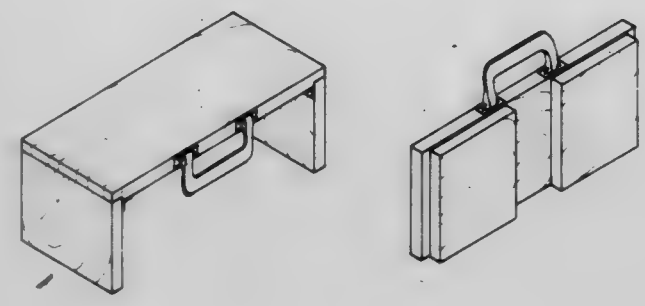
264,642
INVERTIBLE TABLE AND ROCKER COMBINATION
Harry D. Greenman, London, England, assignor to Multi-Commerce U.S.A. Ltd., New York, N.Y.
Filed Nov. 28, 1979, Ser. No. 98,370
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—3



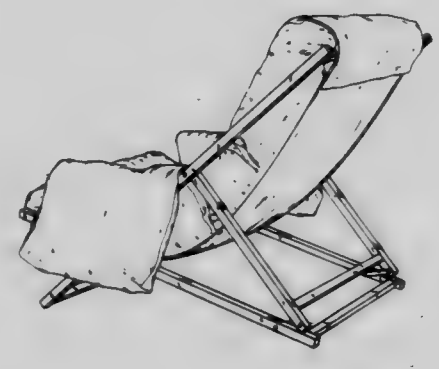
264,643
OFFICE CHAIR
Chuck Pelly, Calabasas, Calif., assignor to Messrs. Willibald Grammer, Amberg, Fed. Rep. of Germany
Filed Sep. 28, 1979, Ser. No. 80,165
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1979, MRII/303
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—31



264,644
PORTABLE ORTHOPEDIC FOOTSTOOL
Robert Baker, 8401 Bridgeport Dr., Huntington Beach, Calif. 96246
Filed Oct. 3, 1979, Ser. No. 81,523
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—32



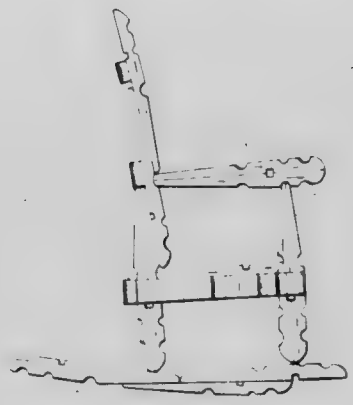
264,645
LOUNGE CHAIR
Richard H. Arnesen, Chicago, Ill., assignor to Gold Medal, Inc., Racine, Wis.
Filed Oct. 9, 1979, Ser. No. 82,596
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—37



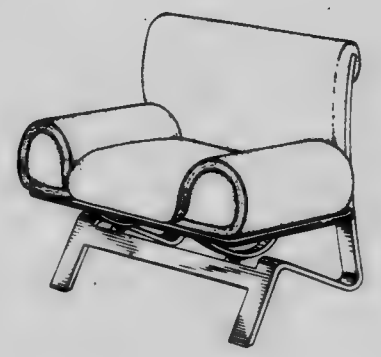
264,646
FLOATABLE LOUNGE CHAIR
Daniel D. Shauan, Griffin Park, 118 Olive St., New Port Richey, Fla. 33553
Filed Nov. 15, 1979, Ser. No. 94,688
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—37



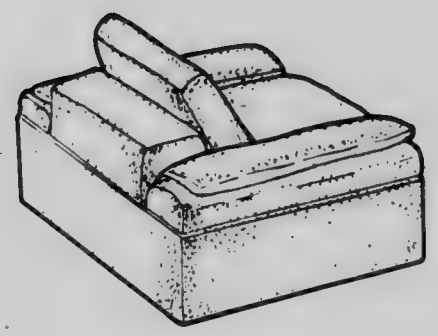
264,647
ROCKING CHAIR
Lynn Turner, 1048 W. Decatur St., Decatur, Ill. 62522
Filed Oct. 9, 1979, Ser. No. 82,619
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—49



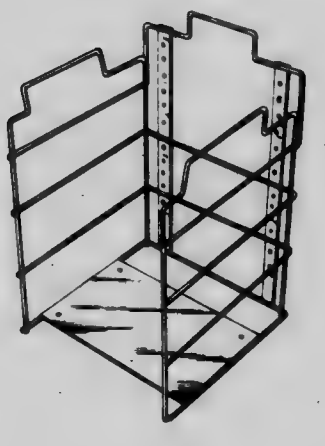
264,648
SEAT
Rodrigo Rodriquez, Carimate, Italy, assignor to Cassina S.p.A., Milan, Italy
Filed Mar. 18, 1980, Ser. No. 131,544
Claims priority, application Italy, Sep. 19, 1979, 22577 B/79[U]
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—67



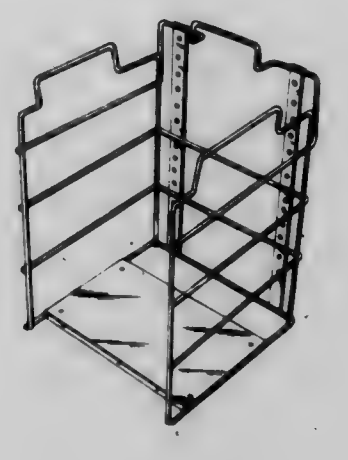
264,649
ARMCHAIR
Giorgio Saporiti, Besnate, Varese, Italy
Filed Apr. 30, 1979, Ser. No. 34,486
Claims priority, application Italy, Dec. 28, 1979, 60906-B/79[U]
The portion of the term of this patent subsequent to Apr. 6, 1996, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—71



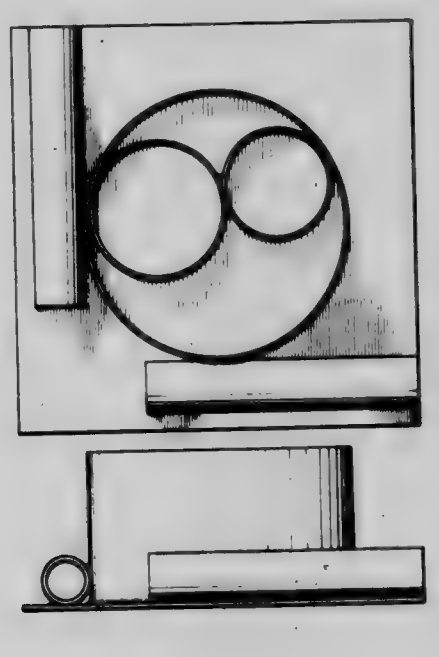
264,650
PLASTIC BAG HOLDING RACK
Gerhard Adamson, West Milford, N.J., assignor to Union Carbide Corporation, Danbury, Conn.
Filed Apr. 22, 1980, Ser. No. 142,728
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—85



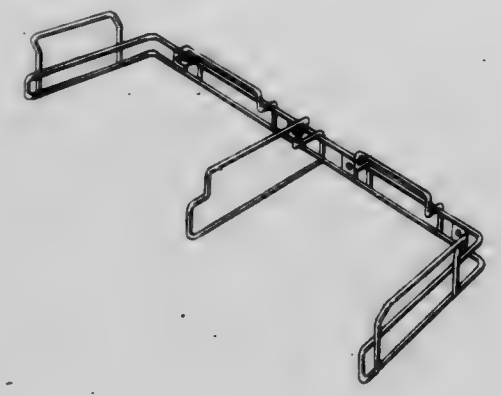
264,651
PLASTIC BAG HOLDING RACK
Gerhard Adamson, West Milford, N.J., assignor to Union Carbide Corp., Danbury, Conn.
Filed Apr. 22, 1980, Ser. No. 142,729
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—85



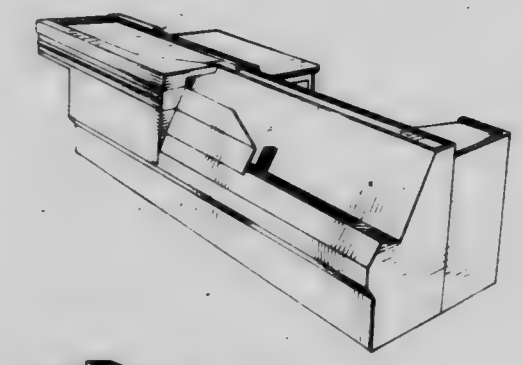
264,652
TREE HOLDER
Sam F. Sovey, 5042 Anthony, Corpus Christi, Tex. 78415
Filed Apr. 2, 1980, Ser. No. 136,714
Term of patent 14 years
Int. Cl. D6—*99;* D11—*02*
U.S. Cl. D6—105

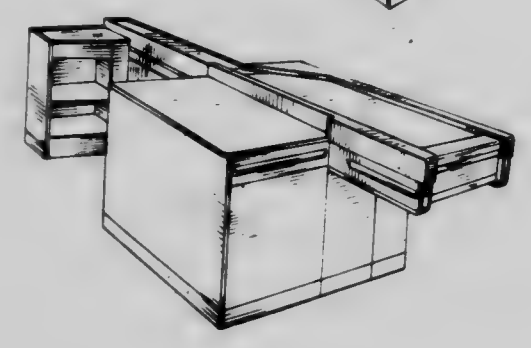


264,653
PLASTIC BAG HOLDING RACK
Gerhard Adamson, West Milford, N.J., assignor to Union Carbide Corp., Danbury, Conn.
Filed Apr. 22, 1980, Ser. No. 142,727
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—114

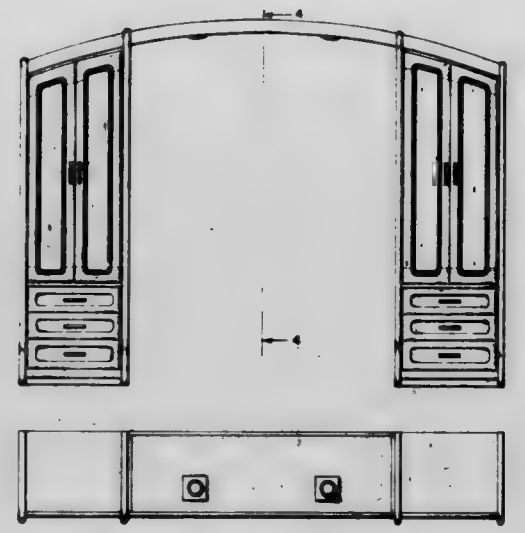


264,654
CHECKOUT COUNTER
Marinus J. M. Langen, Rexdale, and Edgars H. Strauss, Toronto, both of Canada, assignors to H. J. Langen & Sons Limited, Rexdale, Canada
Filed Apr. 9, 1979, Ser. No. 28,519
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—143

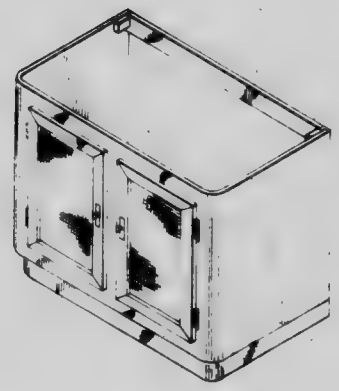




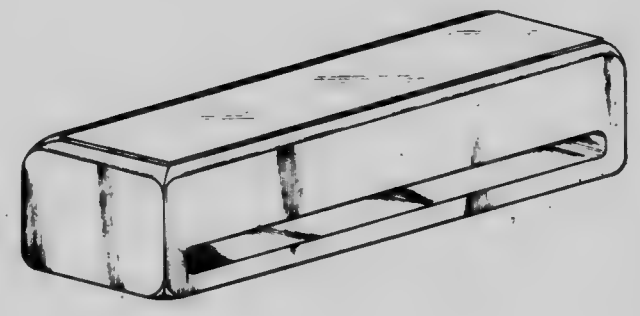
264,655
COMBINED DUAL ARMOIRE AND LIGHT BRIDGE UNIT
Huey T. Keller, 332½ S. Wrenn St., High Point, N.C. 27260
Filed Feb. 21, 1980, Ser. No. 123,284
Term of patent 14 years
Int. Cl. D06—*04, 05*
U.S. Cl. D6—164



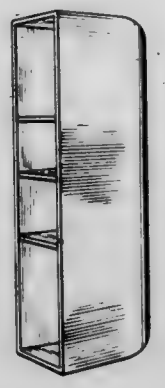
264,656
CABINET
Carl H. Oscarson, Riverwoods, Ill., assignor to Pace Industries Inc., Chicago, Ill.
Filed Jan. 7, 1980, Ser. No. 110,336
Term of patent 3½ years
Int. Cl. D06—*04*
U.S. Cl. D6—168

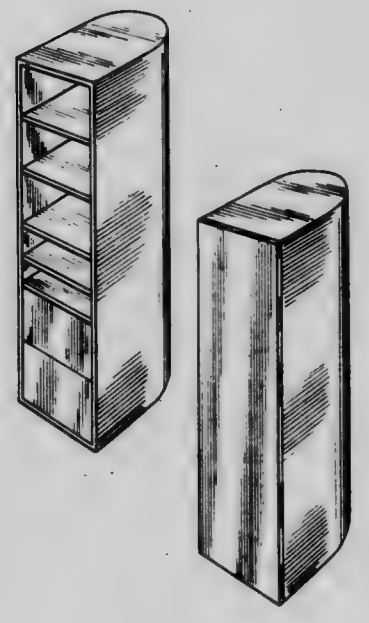


264,657
COFFEE TABLE
Rosemary T. Pettiner, 3684 Walden Pl., Carmel, Ind. 46032
Filed Oct. 9, 1979, Ser. No. 82,786
Term of patent 3½ years
Int. Cl. D6—*03*
U.S. Cl. D6—177

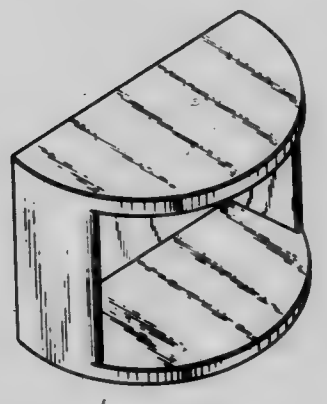


264,658
SHELF UNIT OR SIMILAR ARTICLE
Lydia de Polo, and Jack G. Dunbar, both of New York, N.Y., assignors to General Mills, Inc., Minneapolis, Minn.
Filed Jun. 4, 1979, Ser. No. 45,154
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—186

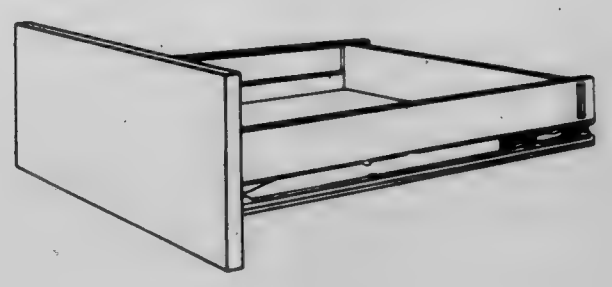




264,659
SHELVING UNIT
Frederick E. Markus, 20 Park Ave., Belmont, Mass. 02178
Filed Sep. 20, 1979, Ser. No. 77,295
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—186



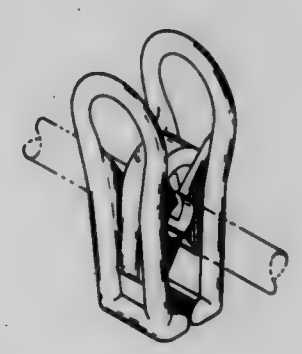
264,660
DRAWER
Erich Röck, and Josef Brunner, both of Höchst, Austria, assignors to Julius Blum Gesellschaft m.b.H., Höchst, Austria
Filed Jun. 6, 1980, Ser. No. 157,110
Claims priority, application United Kingdom, Dec. 12, 1979, 992 705
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



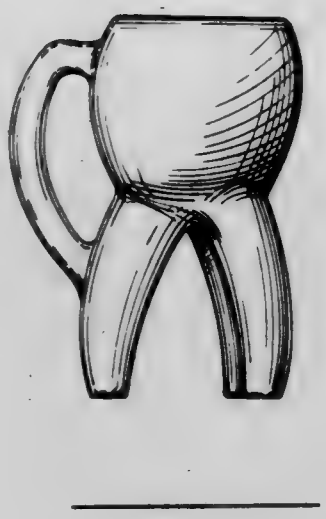
264,661
FURNITURE PANEL
Walter K. Otto, High Point, N.C., assignor to Vaughan-Bassett Furniture Company, Inc., Galax, Va.
Filed Oct. 31, 1979, Ser. No. 89,976
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—193



264,662
SPRING CLIP
Leonard Bisk, Elkins Park, and Gunther Rogahn, Lansdale, both of Pa., assignors to Independent Products Company, Inc., Lansdale, Pa.
Filed Mar. 20, 1980, Ser. No. 132,241
Term of patent 14 years
Int. Cl. D6—*08*; D8—*08*; D7—*05*
U.S. Cl. D6—257



264,663
BEVERAGE MUG
Richard Ochwat, 385 Schmale Rd., Carol Stream, Ill. 60187
Filed Aug. 14, 1980, Ser. No. 177,867
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—5



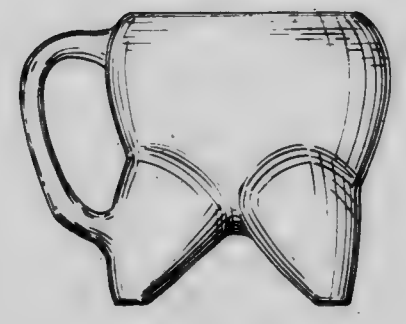
264,664
BEVERAGE MUG
Richard Ochwat, 385 Schmale Rd., Carol Stream, Ill. 60187
Filed Aug. 14, 1980, Ser. No. 177,868
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—5



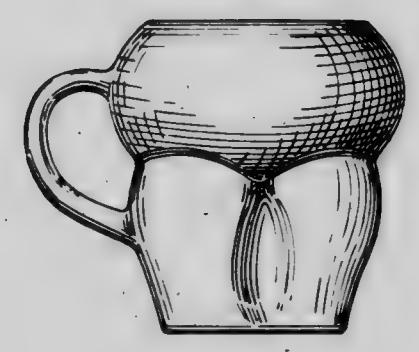
264,665
BEVERAGE MUG
Richard Ochwat, 385 Schmale Rd., Carol Stream, Ill. 60187
Filed Aug. 14, 1980, Ser. No. 177,869
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—5



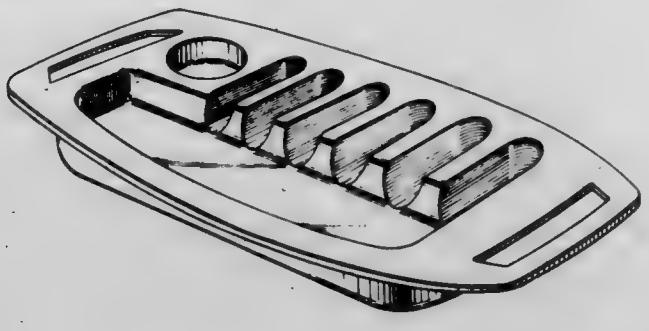
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BEVERAGE MUG
Richard Ochwat, 385 Schmale Rd., Carol Stream, Ill. 60187
Filed Aug. 14, 1980, Ser. No. 177,870
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—5

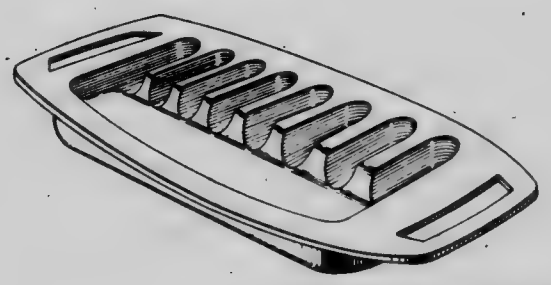


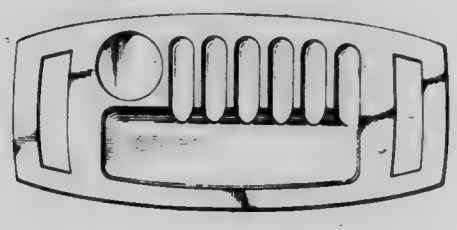
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BEVERAGE MUG
Richard Ochwat, 385 Schmale Rd., Carol Stream, Ill. 60187
Filed Aug. 14, 1980, Ser. No. 177,871
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—5



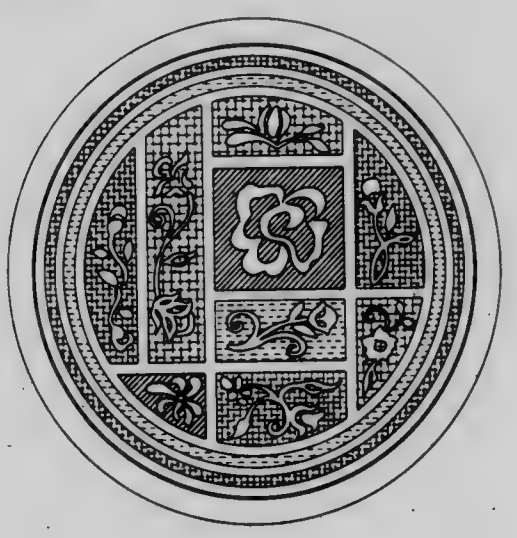
264,668
TACO SERVER
Janet L. Golubski, and Ralph E. Golubski, both of 5349 Webster Ave., Kansas City, Kans. 66104
Filed Jul. 14, 1980, Ser. No. 167,737
Term of patent 14 years
Int. Cl. D07—*99*
U.S. Cl. D7—21







264,669
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jul. 14, 1980, Ser. No. 168,691
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35



264,670
DINNER PLATE OR SIMILAR ARTICLE
Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Aug. 7, 1980, Ser. No. 176,107
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35



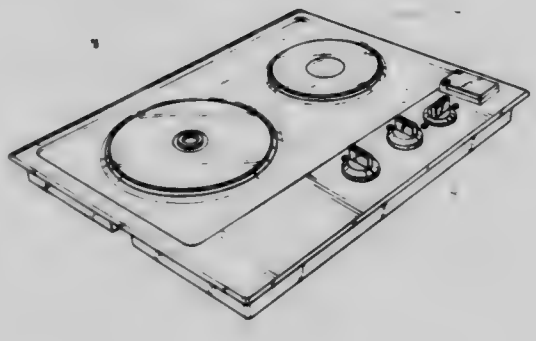
264,671
DINNER PLATE OR SIMILAR ARTICLE
Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Aug. 7, 1980, Ser. No. 176,108
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35



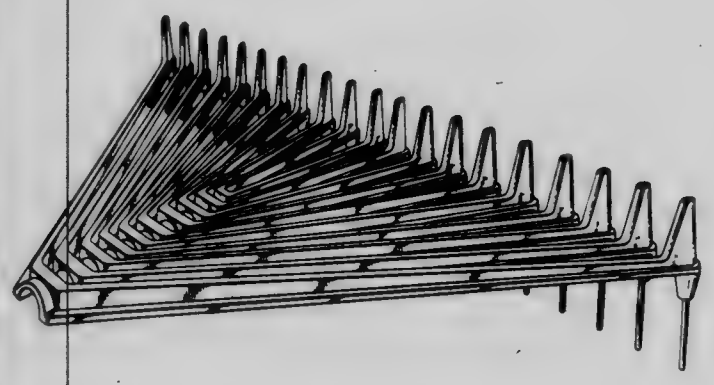
264,672
COMBINATION HOLDER AND SET OF SKEWERS OR THE LIKE
Leon L. Griffin, Rte. 2, Knightdale, N.C. 27545
Filed Dec. 14, 1979, Ser. No. 103,484
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—73



264,673
COOKING APPLIANCE
Felix Schreder, Oberderdingen, Fed. Rep. of Germany, assignor to E.G.O. Elektro-Gerate Blanc und Fischer, Fed. Rep. of Germany
Filed Jun. 4, 1979, Ser. No. 45,541
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1978, 10 AR 133/78
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—124



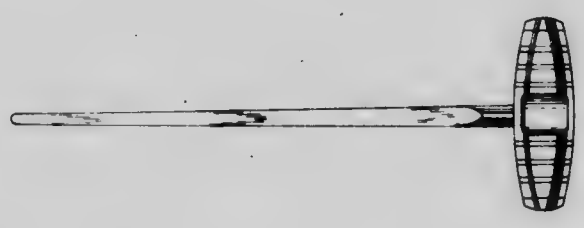
264,674
RAKE HEAD
John S. F. Grindlay, Coventry, England, assignor to Coventry Motor & Sundries Limited, Coventry, England
Filed Jun. 12, 1979, Ser. No. 47,797
Term of patent 7 years
Int. Cl. D8—*05*
U.S. Cl. D8—13



264,675
BLADE FOR POWER SCYTHE
Hisashi Inaga, Tokyo, and Masato Nogawa, Yokohama, both of Japan, assignors to Kioritz Corporation, Tokyo, Japan
Filed Jun. 4, 1979, Ser. No. 44,974
Claims priority, application Japan, Mar. 13, 1979, 54-9886
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—20

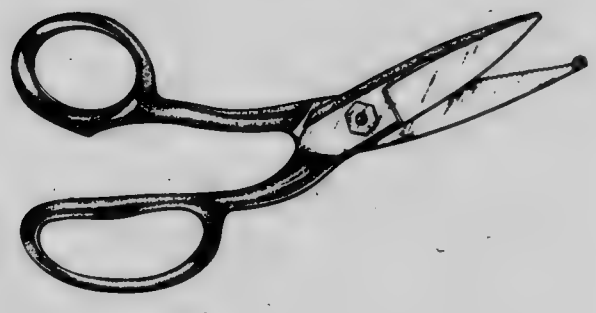


264,676
AWL
Bronislaw Sokolowski, 44 Aldrich St., Webster, Mass. 01570
Filed Dec. 17, 1979, Ser. No. 104,273
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—47

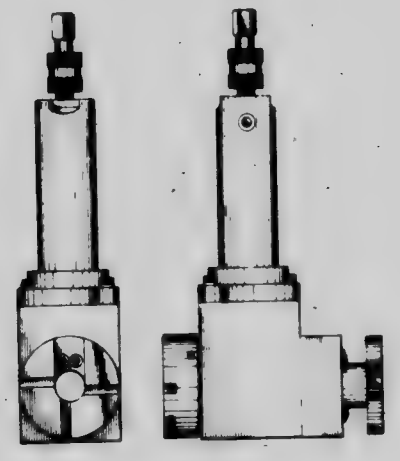


264,677
SCISSORS
Leroy R. Perry, Jr., 1301 E. Rubio St., Altadena, Calif. 91001
Continuation-in-part of Ser. No. 73,546, Sep. 5, 1979. This application Nov. 2, 1979, Ser. No. 90,543
Term of patent 14 years
Int. Cl. D08—*03*
U.S. Cl. D8—57

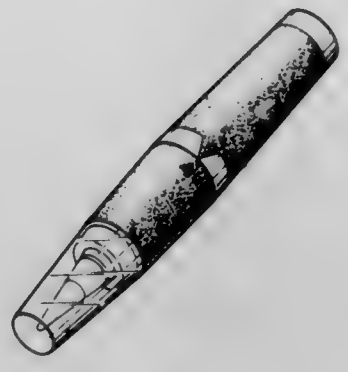




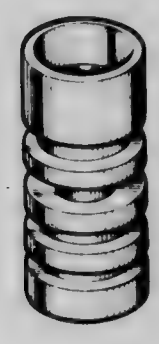
264,678
PIPE END PREPARATION TOOL
Henry Astle, Rancho Cordova, and John E. Pertle, Garden Valley, both of Calif., assignors to Tri Tool, Inc., Rancho Cordova, Calif.
Filed Dec. 3, 1979, Ser. No. 99,873
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—61



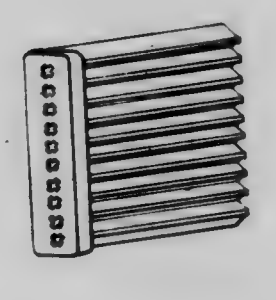
264,679
FISH HOOK SHARPENER
Gene G. Funkhouser, 5214 Keo Dr., Santa Barbara, Calif. 93111
Filed Nov. 16, 1979, Ser. No. 94,970
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—62



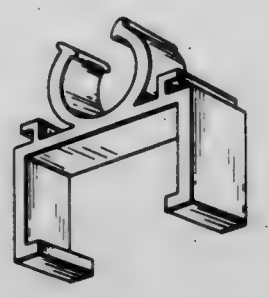
264,680
LOCKING PIN
Bo G. Widen, Torshälla, Sweden, assignor to GKN-Stenman AB, Eskilstuna, Sweden
Filed Jan. 9, 1980, Ser. No. 110,726
Claims priority, application Sweden, Jul. 10, 1979, 791648
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—343



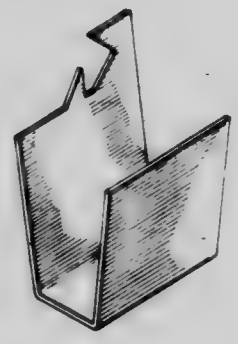
264,681
CONTAINER FOR PELLETED DRUGS
Roger W. Turley, 25 Farmerie Rd., Hundon, Sudbury, Suffolk, England
Filed Nov. 8, 1978, Ser. No. 958,952
Claims priority, application United Kingdom, May 9, 1978, 984511
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—339



264,682
REBAR SUPPORT AND NAILING BLOCK HOLDER
David A. Van Doren, P.O. Box 1008, Hays, Kans. 67601
Filed Mar. 10, 1980, Ser. No. 128,491
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—354



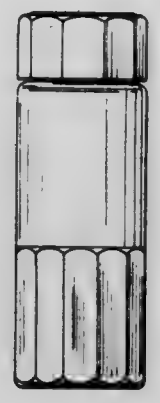
264,683
WIRE AND PLUMBING PROTECTION DEVICE
Vernon A. Searer, Elkhart, Ind., assignor to Elkhart Rivet & Register Co., Inc., Elkhart, Ind.
Filed Mar. 14, 1980, Ser. No. 130,427
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—354



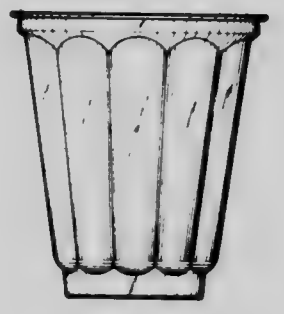
264,684
PACKAGING CARTON
Paul J. Hunckler, and John P. Hunckler, both of Huntington County, Ind., assignors to Hunckler Products, Inc., Huntington, Ind.
Filed Nov. 2, 1979, Ser. No. 90,541
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—346



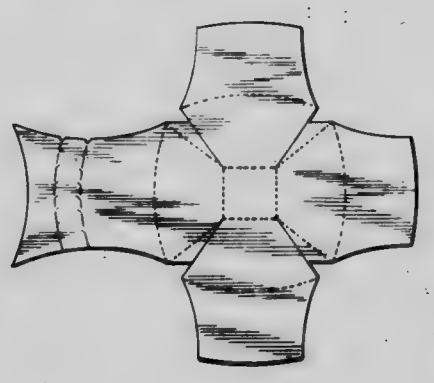
264,685
BOTTLE
Gilbert Ducros, 26170 Buis-les-Baronnies, France
Filed Oct. 25, 1977, Ser. No. 844,775
Claims priority, application France, Apr. 25, 1977, 48
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—390



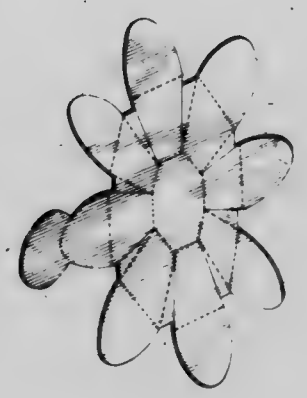
264,686
PACKAGING CUP
Paul Davis, Swampscott, Mass., assignor to Sweetheart Plastics, Inc., Wilmington, Mass.
Filed Mar. 10, 1980, Ser. No. 129,400
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—429



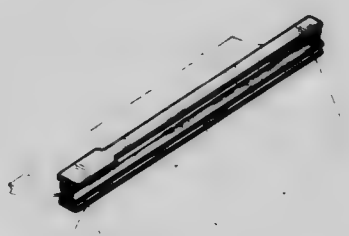
264,687
CONTAINER BLANK
John J. Austin, LaGrange, Ill., assignor to Champion International Corporation, Stamford, Conn.
Filed Jan. 21, 1980, Ser. No. 113,569
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



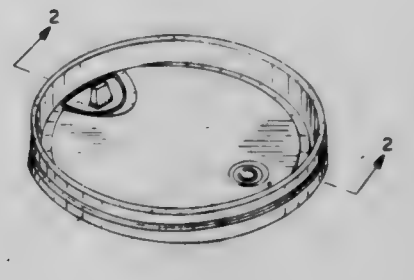
264,688
CONTAINER BLANK
John J. Austin, LaGrange, Ill., assignor to Champion International Corporation, Stamford, Conn.
Filed Jan. 22, 1980, Ser. No. 114,192
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



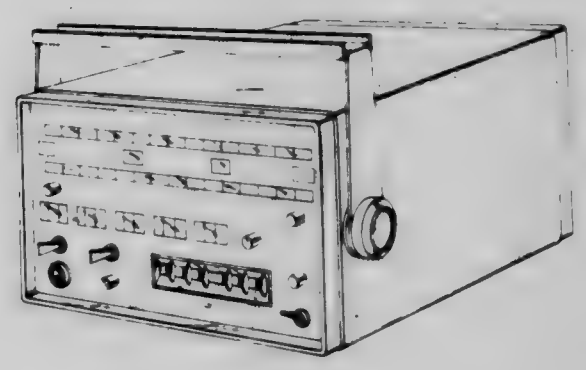
264,689
BAG FASTENER OR THE LIKE
David L. Miller, 18424 Domino St., Reseda, Calif. 91335
Filed Nov. 5, 1979, Ser. No. 90,928
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—434



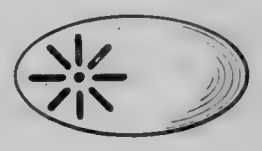
264,690
TOP FOR A DRINK CUP
Connice W. Bagwell, Rte. 2, Box 346, Somerville, Ala. 35670
Continuation-in-part of Ser. No. 79,720, Sep. 28, 1979. This application Feb. 15, 1980, Ser. No. 121,900
The portion of the term of this patent subsequent to Jun. 30, 1998, has been disclaimed.
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—454

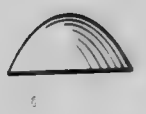


264,691
TELECOMMUNICATIONS TEST INSTRUMENT
Charles Volkland, San Jose, and Louis H. Zumbahlen, Jr., Boulder Creek, both of Calif., assignors to Halcyon, Inc., San Jose, Calif.
Filed Apr. 30, 1980, Ser. No. 136,986
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—75



264,692
SUNBURST RING CROWN
Pearl Sandblom, 68A Mylod St., Norwood, Mass. 02062
Filed Sep. 20, 1979, Ser. No. 77,387
Term of patent 3½ years
Int. Cl. D11—*01*
U.S. Cl. D11—89

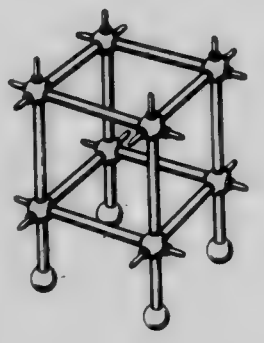




264,693
MEDAL
Pierre Rodier, Palaiseau, France, assignor to Helior S.A., Geneva, Switzerland
Filed Nov. 27, 1979, Ser. No. 98,119
Claims priority, application Switzerland, Jun. 1, 1979, 68877
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D11—106

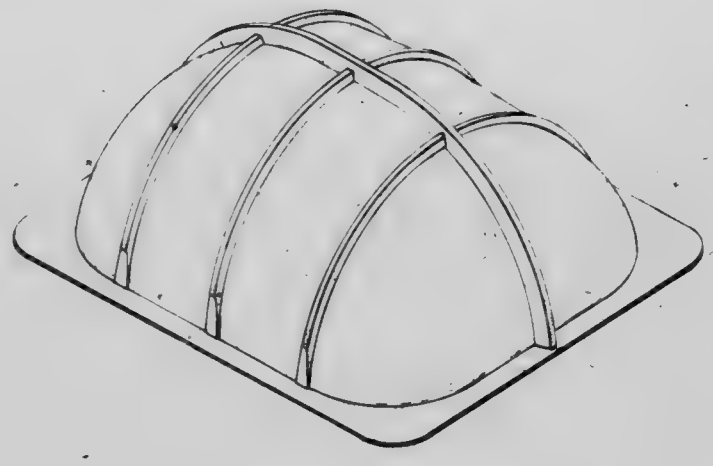


264,694
LATTICE MODULE
Yuzo Takahashi, 32-19, Daizawa 2-chome, Setagaya-ku, Tokyo, Japan (155)
Filed Jun. 1, 1979, Ser. No. 44,516
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—131

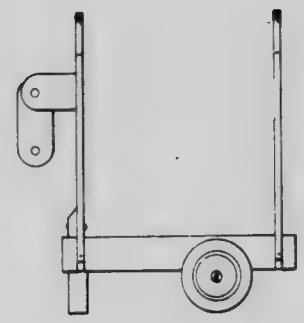




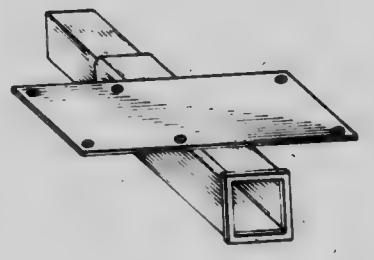
264,695
MINIATURE PLASTIC GREENHOUSE
Ronald C. Mackes, Crestone, Colo., assignor to BQP Industries, Inc., Denver, Colo.
Filed May 27, 1980, Ser. No. 153,046
Term of patent 14 years
Int. Cl. D11—*02;* D25—*03*
U.S. Cl. D11—145



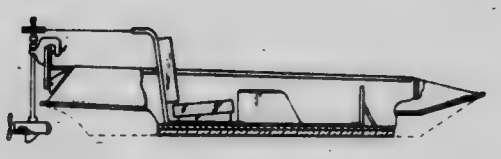
264,696
FIREWOOD CART
Kenneth E. Rahn, Rte. 2, W. 2727 N. Shore Dr., Onalaska, Wis. 54650
Filed Mar. 21, 1980, Ser. No. 133,486
Term of patent 3½ years
Int. Cl. D12—*02*
U.S. Cl. D34—24



264,697
COMBINED WINCH MOUNT AND DRAW BAR ADAPTER FOR VEHICLES
John W. Monteith, 28773 U.S. 20 West, Elkhart, Ind. 46514
Filed Jul. 26, 1979, Ser. No. 61,079
Term of patent 14 years
Int. Cl. D12—*05, 16*
U.S. Cl. D34—35



264,698
COMBINED UPPER HULL, INTERIOR AND MOTOR FOR A BOAT
Bobby G. Tindal, Rte. 1, Pelion, S.C. 29123
Filed Sep. 19, 1977, Ser. No. 834,698
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—302

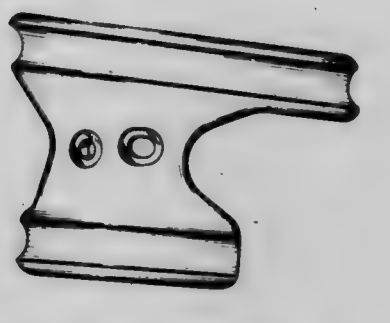


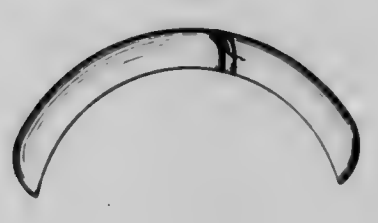


264,699
UTILITY CARRIER CART
Ralph A. Watkins, 113 R St., NE., Washington, D.C. 20002
Filed Jan. 20, 1975, Ser. No. 541,918
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D12—105

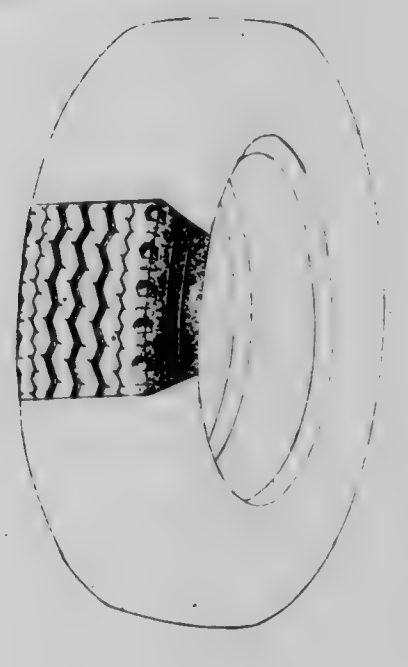


264,700
CABLE GUIDE FOR VARIABLE SPEED TRANSMISSION SUCH AS DERAILLEURS
Gilbert Geney, Seloncourt, France, assignor to Cycles Peugeot, Valentigney, France
Filed Aug. 8, 1979, Ser. No. 64,796
Claims priority, application France, Feb. 16, 1979, 384
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—114

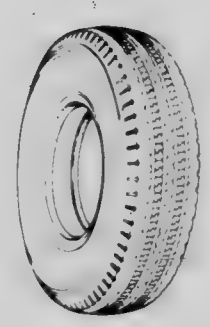




264,701
TIRE
Michael R. Corner, Coventry, England, assignor to Dunlop Limited, London, England
Filed Dec. 28, 1979, Ser. No. 107,862
Claims priority, application United Kingdom, Jul. 10, 1979, 990633
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—142



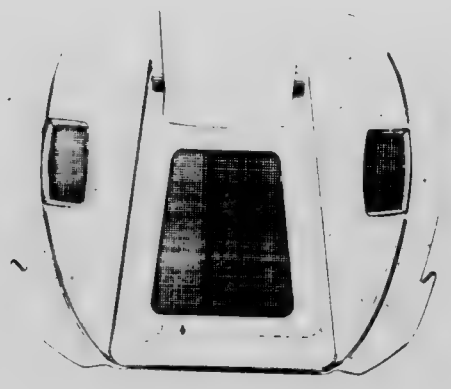
264,702
AUTOMOBILE TIRE
Yukio Kaga, Hiratsuka, Japan, assignor to The Yokohama Rubber Co., Ltd., Tokyo, Japan
Filed Jan. 7, 1980, Ser. No. 110,197
Claims priority, application Japan, Jul. 9, 1979, 54-28544
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—142



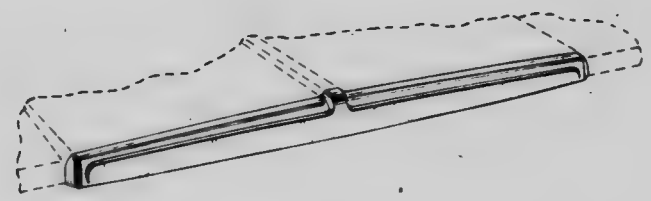
264,703
TIRE
Eiji Nakasaki, Kakogawa, Japan, assignor to Dunlop Limited, London, England
Filed May 31, 1979, Ser. No. 44,358
Claims priority, application Japan, Dec. 22, 1978, 53-54000
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



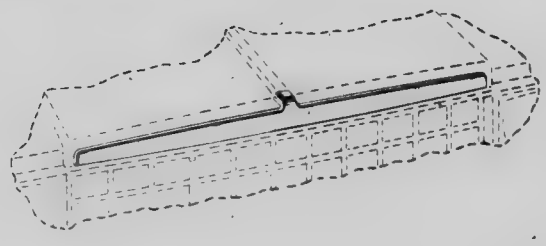
264,704
MOTORCYCLE FAIRING OR SIMILAR ARTICLE
William V. Rehberg, 10315 SE. 16th, Bellevue, Wash. 98004
Filed Jun. 29, 1979, Ser. No. 53,296
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—186



264,705
TRIM PIECE FOR AN AUTOMOBILE HOOD
Ulric W. Trombley, R.R. #1, Chisago City, Minn. 55013, and Richard J. Nozel, 354 Edith Dr., West St. Paul, Minn. 55118
Filed Mar. 20, 1980, Ser. No. 132,087
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—190



264,706
TRIM PIECE FOR AN AUTOMOBILE HOOD
Ulric W. Trombley, R.R. #1, Chisago City, Minn. 55013, and Richard J. Nozel, 354 Edith Dr., West St. Paul, Minn. 55118
Filed Mar. 20, 1980, Ser. No. 132,091
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—190

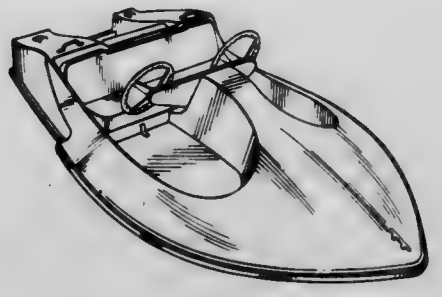


264,707
BOAT

James F. Bettis, Elgin, Ill., assignor to Skivette Corporation, Elgin, Ill.

Filed Jun. 7, 1979, Ser. No. 46,241
Term of patent 14 years
Int. Cl. D12—*06*

U.S. Cl. D12—300

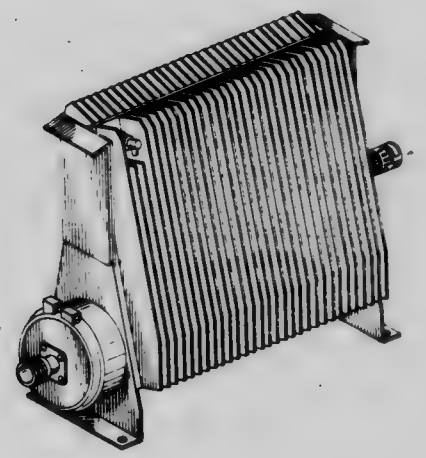


264,708
RADIATOR FOR RF LINE TERMINATION

Leo Lesyk, Walton Hills, Ohio, assignor to Bird Electronic Corporation, Solon, Ohio

Filed Dec. 12, 1979, Ser. No. 103,075
Term of patent 14 years
Int. Cl. D13—*02*

U.S. Cl. D13—4

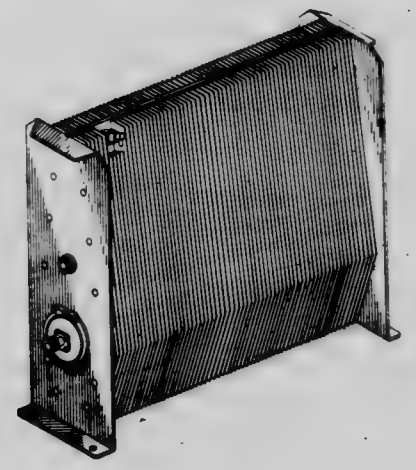


264,709
RADIATOR FOR AN RF LINE TERMINATION

Leo Lesyk, Walton Hills, Ohio, assignor to Bird Electronic Corporation, Solon, Ohio

Filed Dec. 12, 1979, Ser. No. 103,076
Term of patent 14 years
Int. Cl. D13—*02*

U.S. Cl. D13—4

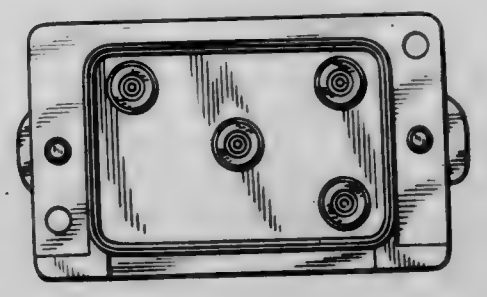


264,710
C.A.T.V. SIGNAL SPLITTER

David F. Shu, Cook County, Ill., assignor to TDS, Inc., Elk Grove Village, Ill.

Filed May 9, 1979, Ser. No. 37,404
Term of patent 14 years
Int. Cl. D13—*02*

U.S. Cl. D13—11

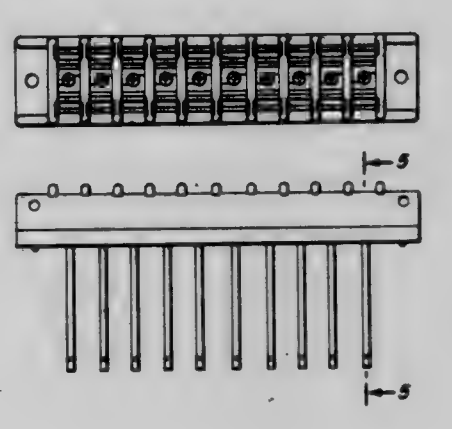


264,711
VERSATILE ELECTRICAL TERMINAL BLOCK

Lee M. Ford, 3945 Michael, Los Angeles, Calif. 90066

Filed Nov. 8, 1979, Ser. No. 92,565
Term of patent 14 years
Int. Cl. D13—*03*

U.S. Cl. D13—24

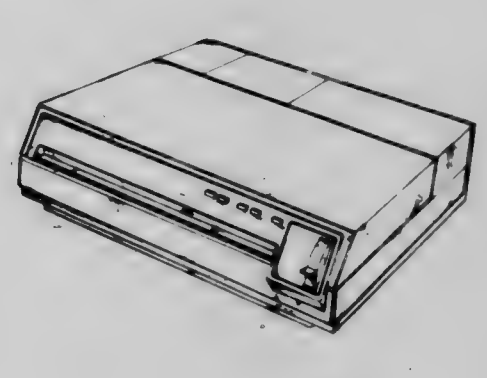


264,712
VIDEO DISC PLAYER

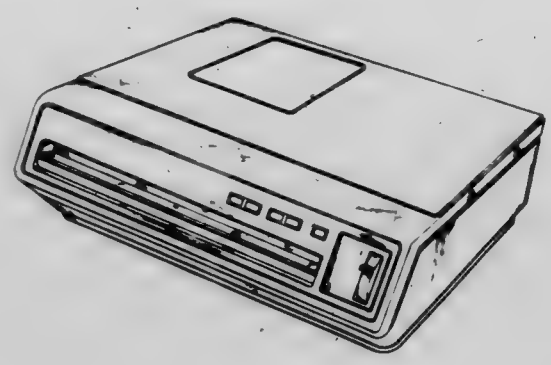
Donald B. O'Leary, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 21, 1980, Ser. No. 122,960
Term of patent 14 years
Int. Cl. D14—*01*

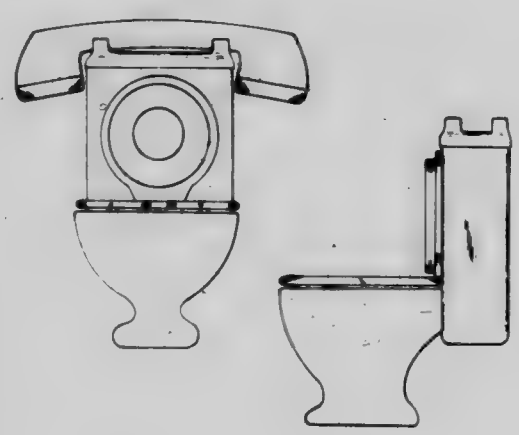
U.S. Cl. D14—1



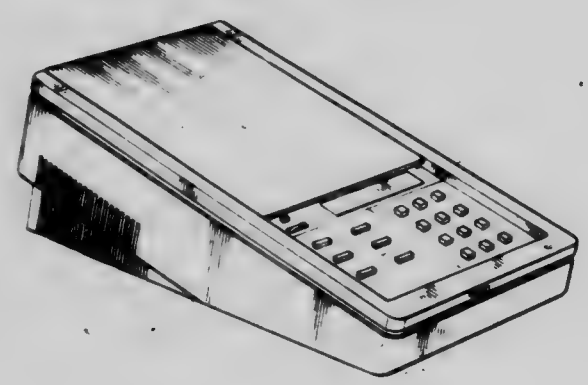
264,713
VIDEO DISC PLAYER
Donald B. O'Leary, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Filed Feb. 21, 1980, Ser. No. 122,961
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—1



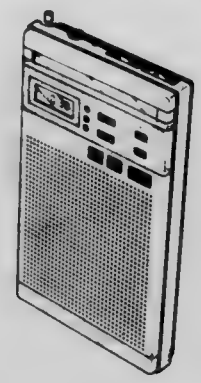
264,714
TELEPHONE
Jon Tyree, 208 Lugonia St.-Apartment A, Newport Beach, Calif. 92663
Filed Jul. 24, 1980, Ser. No. 171,664
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



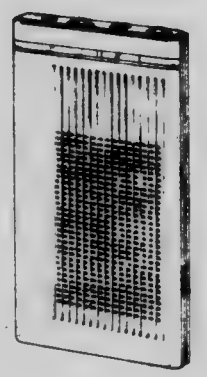
264,715
TELEPHONE BASE
Peter D. H. Trussler, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada
Filed Aug. 13, 1979, Ser. No. 66,471
Claims priority, application Canada, Aug. 8, 1979, 08-08-79-3
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—60



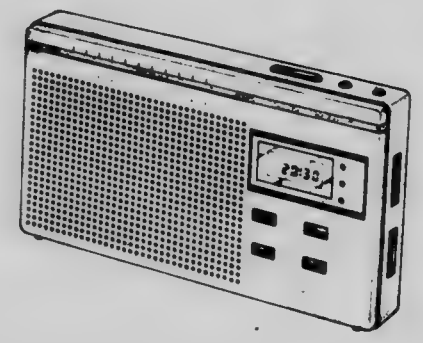
264,716
CLOCK RADIO
Iwao Nakajima, Ikoma, and Benito Mishiro, Sakai, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Jun. 10, 1980, Ser. No. 158,161
Claims priority, application Japan, Dec. 20, 1979, 54-53708
Term of patent 14 years
Int. Cl. D14—*03;* D10—*01*
U.S. Cl. D14—68



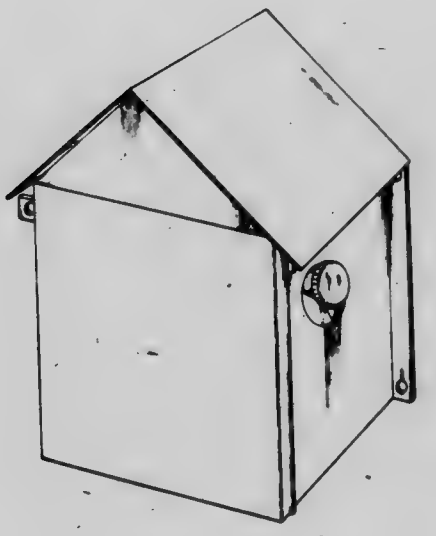
264,717
RADIO RECEIVER
Masanori Hamada, Yao; Yoshiyuki Saigo, Hirakata; Benito Mishiro, Sakai, and Kikuo Ohta, Ikoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jun. 10, 1980, Ser. No. 158,162
Claims priority, application Japan, Dec. 20, 1979, 54-53691
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—68



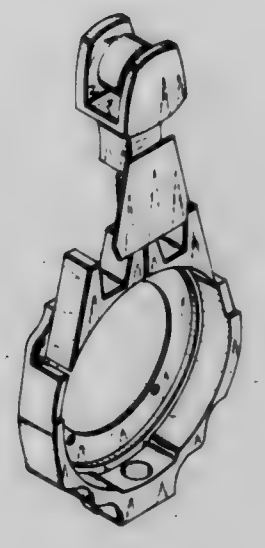
264,718
CLOCK RADIO
Kunio Hoshino, Katano, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Jun. 10, 1980, Ser. No. 158,160
Claims priority, application Japan, Dec. 20, 1979, 54-53706
Term of patent 14 years
Int. Cl. D14—*03;* D10—*01*
U.S. Cl. D14—70



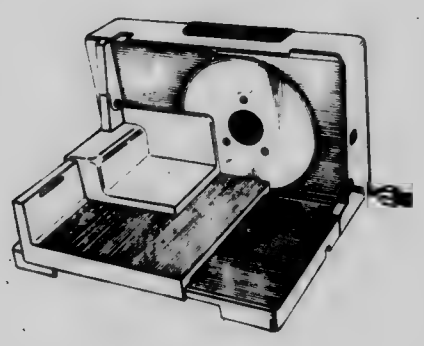
264,719
AIR COMPRESSOR HOUSING
Martin R. Ehlers, 800 W. Ford Valley Rd., Knoxville, Tenn. 37920
Filed Mar. 3, 1980, Ser. No. 126,381
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D15—9



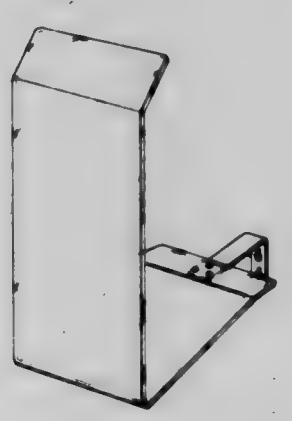
264,721
HOUSING FOR ABRASIVE BELT SANDING MACHINE
Aaron P. Rasmussen, 9606 Candy La., La Mesa, Calif. 92041
Filed Mar. 18, 1980, Ser. No. 131,284
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—126



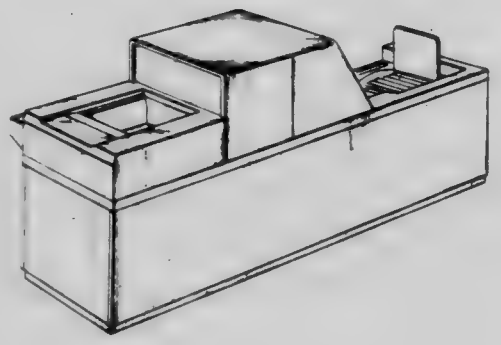
264,720
ELECTRIC FOOD SLICER
Michio Fuse, Nagoya, Japan, assignor to Kabushikikaisha AichidenkikosaKusho, Japan
Filed Jun. 7, 1979, Ser. No. 46,528
Claims priority, application Japan, Mar. 30, 1979, 54-13125
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D15—97



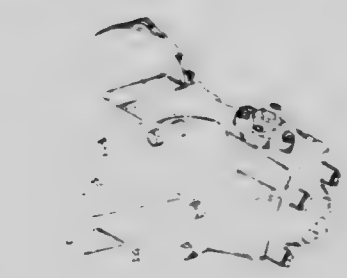
264,722
JEWELER'S SHIELD
Michael P. Summers, 1209 E. Broadway, Apt. 22D, Hewlett, N.Y. 11557, and Kenneth Bishop, 30 Saddlerock Rd., Valley Stream, N.N.Y. 11581
Filed Mar. 18, 1980, Ser. No. 131,474
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—138



264,723
MERCHANDISE BAGGING DEVICE
Eiichi Tsujimoto, Kobe, Japan, assignor to Kawasaki Steel Corporation, Kobe, Japan
Filed Oct. 22, 1979, Ser. No. 87,299
Claims priority, application Japan, Apr. 13, 1979, 54-15284
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—145

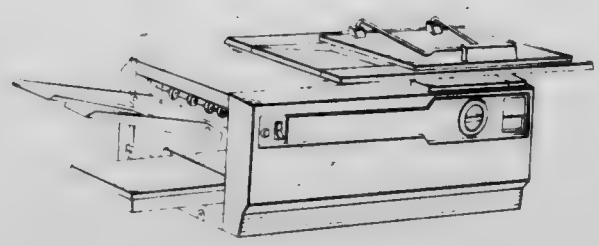


264,724
TRANSMISSION FOR BOATS
Kjell Borgersen, Hjälteby, and Lennart Brandt, Fjäras, both of Sweden, assignors to AB Volvo Penta, Gothenburg, Sweden
Filed Dec. 19, 1979, Ser. No. 105,242
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—149

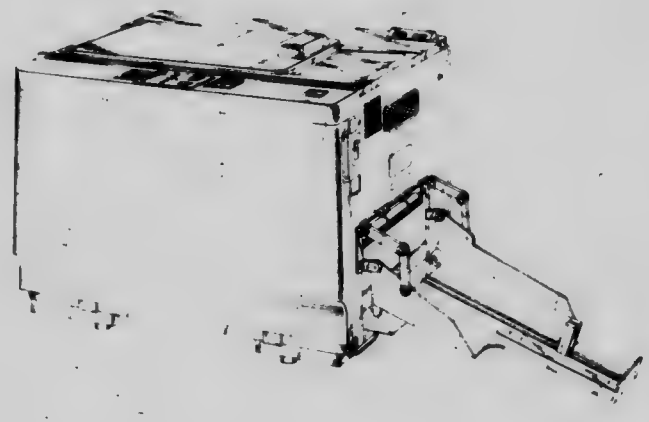




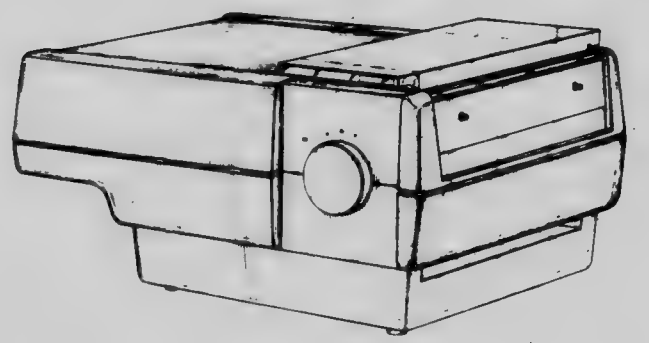
264,725
ELECTROPHOTOGRAPHIC COPIER
Hiroyuki Tokuda, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 14, 1980, Ser. No. 140,105
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—31



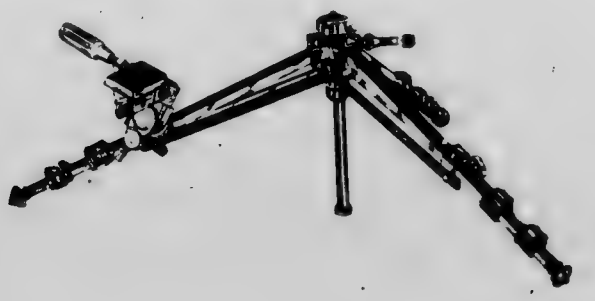
264,726
ELECTRONIC COPYING MACHINE OR THE LIKE
Kunio Hara, Chiba, and Hideyuki Horie, Kamagaya, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan
Filed May 12, 1980, Ser. No. 148,704
Claims priority, application Japan, Nov. 16, 1979, 54-47760
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—31



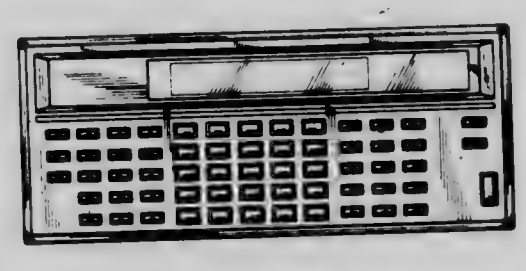
264,727
ELECTRONIC COPYING MACHINE OR THE LIKE
Yozo Matsuzaka, Yokohama, and Kunio Hara, Chiba, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan
Filed May 28, 1980, Ser. No. 153,953
Claims priority, application Japan, Dec. 12, 1979, 54-51633
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—31



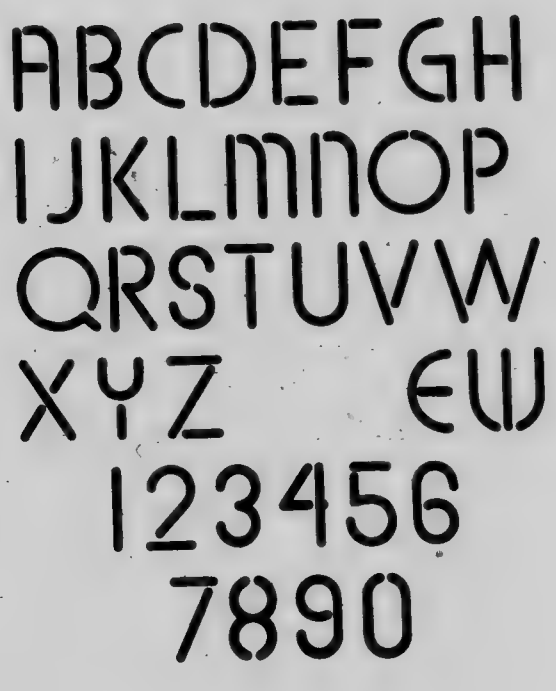
264,728
CAMERA TRIPOD OR THE LIKE
Osamu Iwasaki, Tokorozawa, Japan, assignor to Slik Tripod Co., Ltd., Saitama, Japan
Filed Jan. 4, 1979, Ser. No. 876
Claims priority, application Japan, Sep. 12, 1978, 53-38566
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D16—45



264,729
ELECTRONIC CALCULATOR WITH TIMEPIECE
Yoshiaki Kobayashi, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan
Filed Aug. 3, 1979, Ser. No. 58,504
Term of patent 14 years
Int. Cl. D18—*01;* D10—*2*
U.S. Cl. D18—2



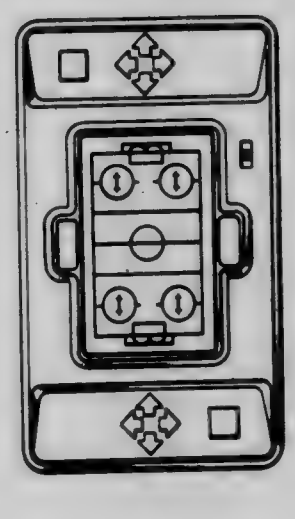
264,730
TYPE FONT
Donald J. Carlyon, 1980 Hotchkiss Rd., Bay City, Mich. 48706
Filed May 12, 1980, Ser. No. 148,984
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D18—26



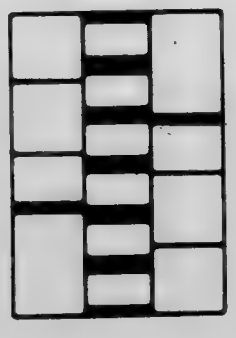
264,731
DISPLAY CARD HOLDER
Bernard E. Shuman, 3230 Clubhouse Rd., Merrick, N.Y. 11566
Filed Feb. 4, 1980, Ser. No. 118,628
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D20—40



264,732
ELECTRONIC HAND-HELD HOCKEY GAME HOUSING OR THE LIKE
Tsuneo Hanzawa, Tokyo, Japan, assignor to Entex Industries, Inc., Compton, Calif.
Filed Feb. 4, 1980, Ser. No. 117,999
Claims priority, application Japan, Dec. 17, 1979, 54-053040
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



264,733
PLAYING CARD
Samuel Nugroho, Djalan Mangga Besar, Raya No. 64, Djakarta, Indonesia
Filed May 21, 1980, Ser. No. 151,891
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—42



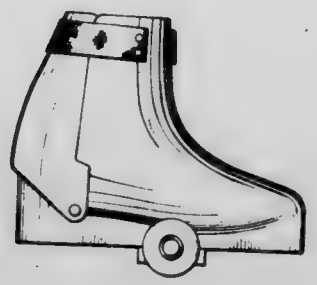
264,734
SET OF PLAYING CARDS
Samuel Nugroho, Djalan Mangga Besar, Raya No. 64, Djakarta, Indonesia
Filed May 21, 1980, Ser. No. 151,896
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—42



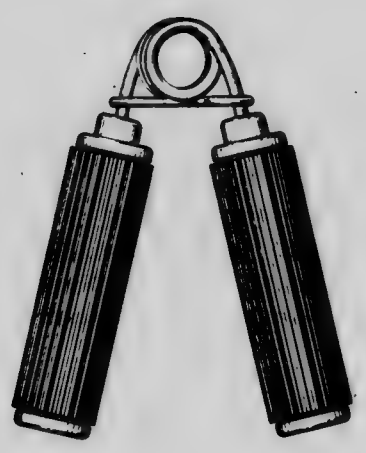
264,735
NOVELTY BINOCULARS
Anna M. Ocker, 1857 Santa Gertrudis Dr., Bismarck, N. Dak. 58501
Filed Apr. 14, 1980, Ser. No. 140,230
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—59



264,736
EXERCISE BOOT
Robert C. Wolf, 28 Muirfield Rd., Rockville Center, N.Y. 11570
Filed May 22, 1980, Ser. No. 152,418
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—196



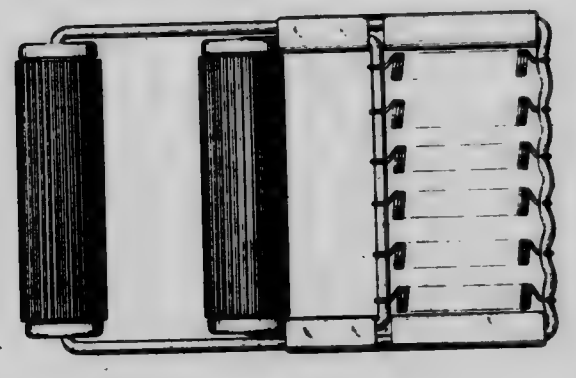
264,737
HAND GRIP EXERCISER
Marvin Cooper, New Rochelle, N.Y., assignor to Dynamic Classics, Ltd., New York, N.Y.
Filed May 7, 1980, Ser. No. 147,512
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198



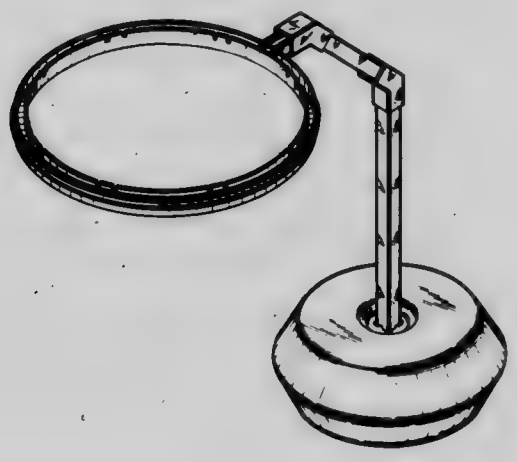
264,738
COIL EXERCISER
Marvin Cooper, New Rochelle, N.Y., assignor to Dynamic Classics, Ltd., New York, N.Y.
Filed May 7, 1980, Ser. No. 147,516
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198



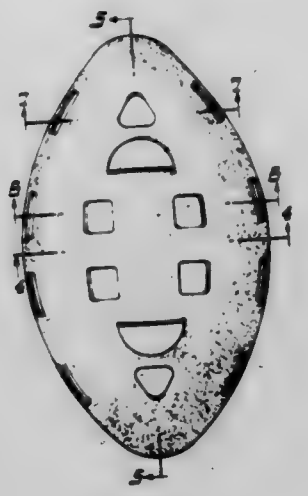
264,739
ADJUSTABLE HAND GRIP EXERCISER
Marvin Cooper, New Rochelle, N.Y., assignor to Dynamic Classics, Ltd., New York, N.Y.
Filed May 7, 1980, Ser. No. 147,517
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198



264,740
WATER BASKETBALL GAME GOAL
Dennis H. Merino, 2873 King Edward Dr., El Dorado Hills, Calif. 95630, and J. Clyde Ralph, 2773 Curtis Way, Sacramento, Calif. 95818
Filed Dec. 26, 1979, Ser. No. 106,458
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—201



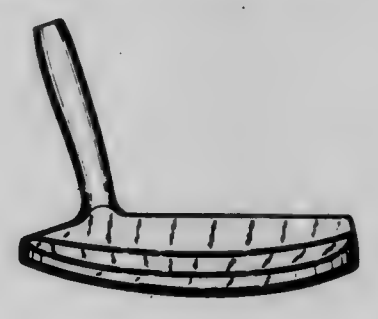
264,741
KICKING-PRACTICE FOOTBALL
John C. Patton, 1460 Tulane, Vidor, Tex. 77662
Filed Jul. 23, 1979, Ser. No. 59,671
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—204



264,742
PUTTER
Truett P. Mills, Tuscaloosa, Ala., assignor to Questor Corporation, Toledo, Ohio
Filed Aug. 11, 1980, Ser. No. 177,052
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—217



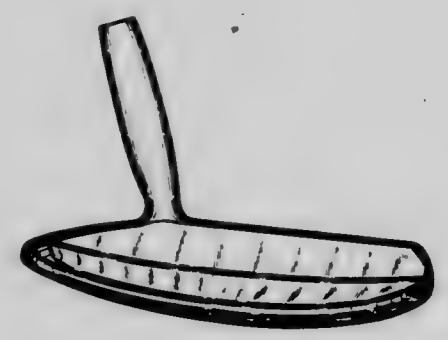
264,743
PUTTER
Truett P. Mills, Tuscaloosa, Ala., assignor to Questor Corp., Toledo, Ohio
Filed Aug. 11, 1980, Ser. No. 177,053
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—217



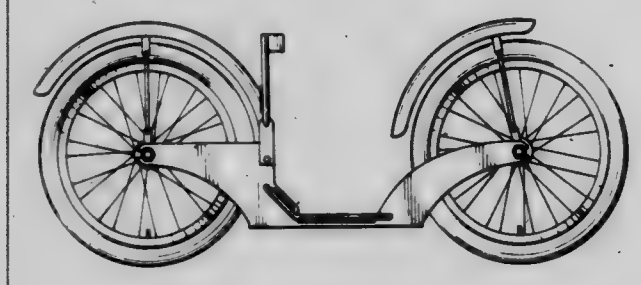
264,744
PUTTER
Truett P. Mills, Tuscaloosa, Ala., assignor to Questor Corporation, Toledo, Ohio
Filed Aug. 11, 1980, Ser. No. 177,054
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—217



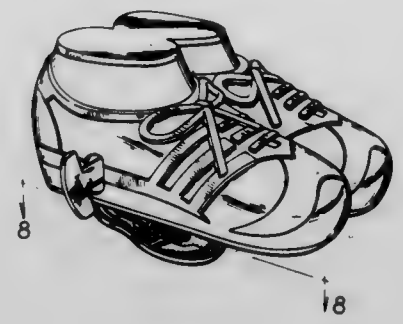
264,745
PUTTER
Truett P. Mills, Tuscaloosa, Ala., assignor to Questor Corporation, Toledo, Ohio
Filed Aug. 11, 1980, Ser. No. 177,055
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—217



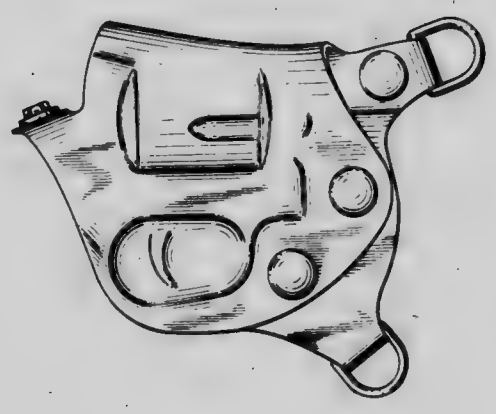
264,746
ROLLER SKATE
Wallace E. Orth, Sublette, Kans., assignor to Skee-Bike, Inc., Sublette, Kans.
Filed May 19, 1980, Ser. No. 151,524
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—226



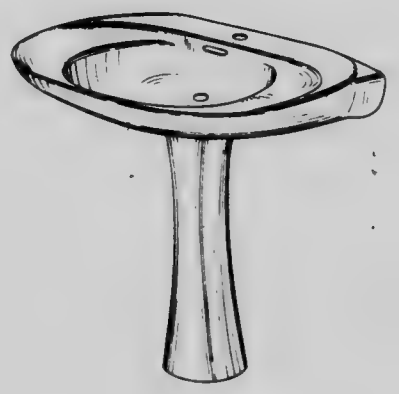
264,747
WALKING TOY
Marc S. Seltzer, 6885 Hunters Knoll, Atlanta, Ga. 30328
Filed Mar. 3, 1980, Ser. No. 126,530
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—240



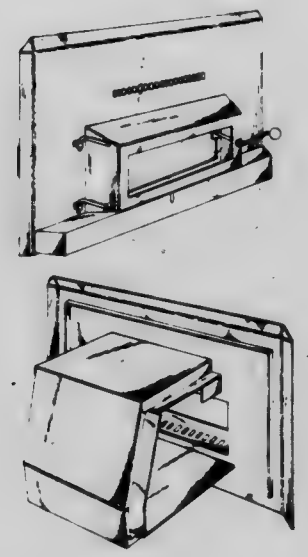
264,748
HOLSTER
Paris Theodore, 24 E. 73rd St., New York, N.Y. 10021
Filed Aug. 1, 1980, Ser. No. 174,328
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D22—13



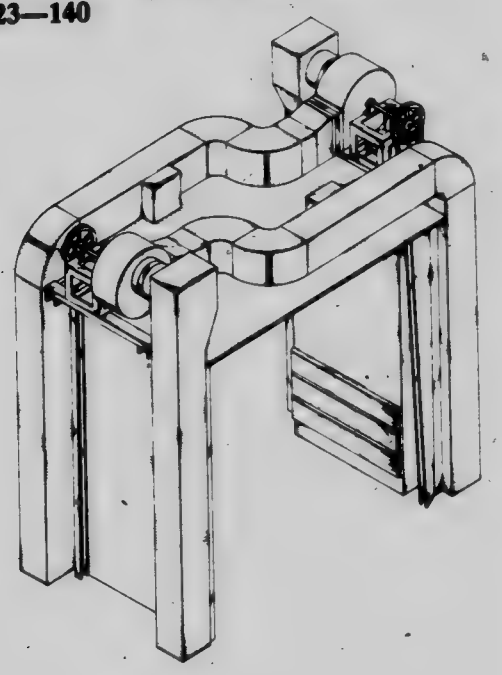
264,749
COMBINED LAVATORY AND SUPPORT PEDESTAL
Hertha A. Bengtson, Mölle, Sweden, assignor to American Standard Inc., New York, N.Y.
Filed Aug. 27, 1979, Ser. No. 70,272
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1979, 20AR250
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—61



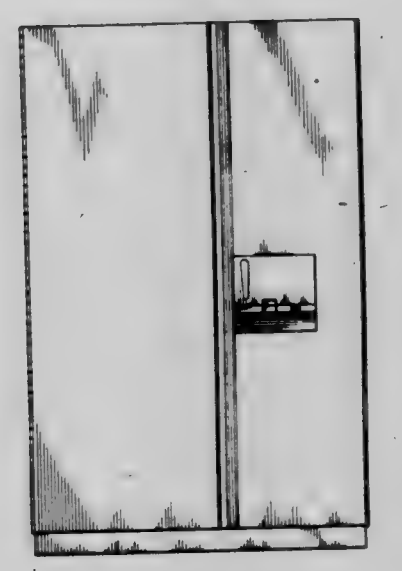
264,750
FIREPLACE INSERT
Melvin V. Horpestad, 3521 River Rd. West, R.R. 1, Delta, British Columbia, Canada (V4K 3N2)
Filed Mar. 4, 1980, Ser. No. 127,229
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—95



264,751
CONDITIONED AIR VESTIBULE
George R. Smith, Brookeville, Md., assignor to HCR Incorporated, Falls Church, Va.
Filed Apr. 14, 1980, Ser. No. 140,200
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—140



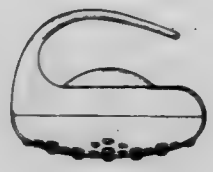
264,752
PHARMACEUTICAL DISPENSING CABINET
Samuel S. Leotta, Jenkintown, Pa., assignor to Warner-Lambert Company, Morris Plains, N.J.
Filed Aug. 10, 1979, Ser. No. 65,681
Term of patent 3½ years
Int. Cl. D24—*99*
U.S. Cl. D24—1.1



264,753
HAND OPERATED VACUUM EXHAUSTER
An C. Wu, 4F-1, No. 58, Hsin-Yi Rd., Sec. 4, Taipei, Taiwan
Filed Feb. 11, 1980, Ser. No. 120,310
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—34

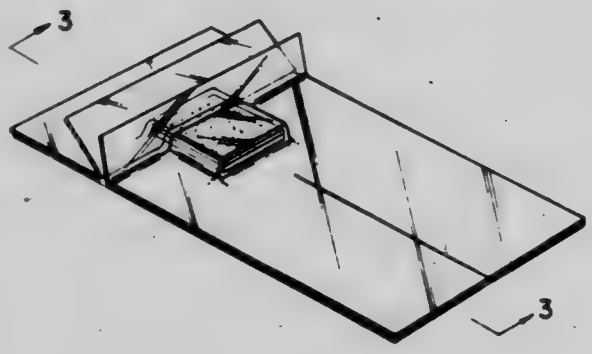


264,754
MANUAL MASSAGE INSTRUMENT
Jean-Pierre Vitrac, Paris, France, assignor to Pierre Fabre S.A., Paris, France
Filed Jan. 28, 1980, Ser. No. 116,254
Claims priority, application France, Aug. 8, 1979, 42697
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D24—36

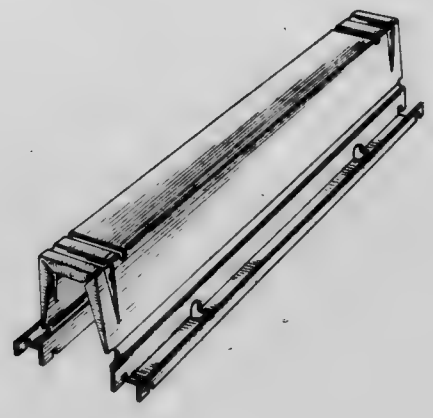




264,755
SECURING DEVICE FOR CATHETER
Birgitta Olson, Lund, Sweden, assignor to Landstingens Inkopscentral, Lic., Solna, Sweden
Filed May 29, 1979, Ser. No. 43,047
Claims priority, application Sweden, Nov. 28, 1978, 78-2780
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—49



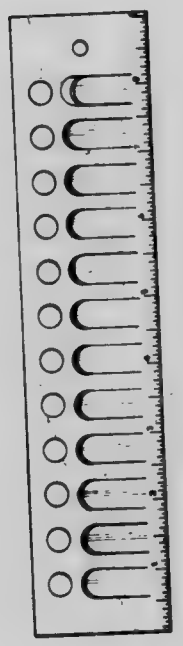
264,756
BEAM FOR FRAME STRUCTURE
Ingvar K. Andersson, Süffle, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden
Filed Feb. 27, 1980, Ser. No. 125,041
Claims priority, application Sweden, Aug. 29, 1979, 79-1907
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—73



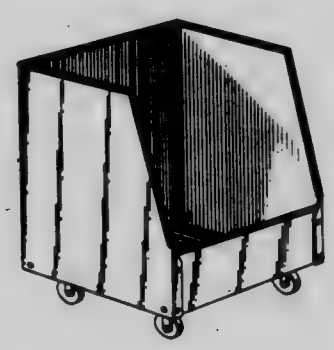
264,757
MASCARA APPLICATOR
John E. Jedzinak, Suffern; Ralph J. Cataneo, Brooklyn, both of N.Y., and Eustace Fotiu, Mahwah, N.J., assignors to Revlon, Inc., New York, N.Y.
Filed May 12, 1980, Ser. No. 149,081
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—7



264,758
HOLDER FOR SKEINS OF FLOSS
Lois J. Walker, 6708 Blue Spruce Ct., Union Lake, Mich. 48085
Filed Mar. 7, 1980, Ser. No. 128,026
Term of patent 14 years
Int. Cl. D28—*99*
U.S. Cl. D28—64



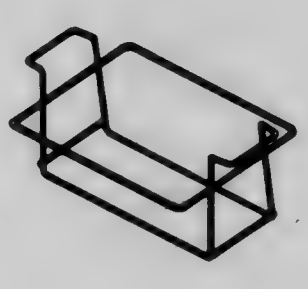
264,759
CART FOR STORING AND TRANSPORTING SOLID FUELS INCLUDING WOOD LOGS AND COAL
Glenn F. Schilling, Lancaster, and James C. Varble, Clarence Center, both of N.Y., assignors to Lancaster Fabricating Co., Inc., Lancaster, Pa.
Filed May 9, 1980, Ser. No. 148,542
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—17



264,760
FLUID CONTAINER
Sheldon Berney, Winnipeg, and John Howard, Scarborough, both of Canada, assignors to Reliance Products Ltd., Winnipeg, Canada
Filed Mar. 10, 1980, Ser. No. 128,950
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D34—39



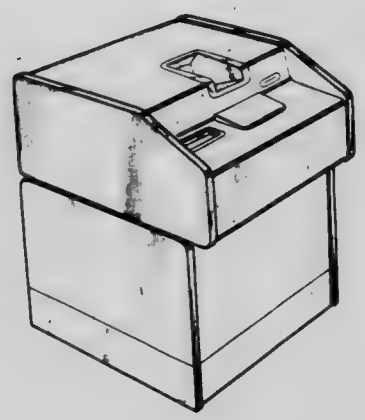
264,761
BASKET FOR COMPUTER FORMS OR THE LIKE
Michael A. Dekarski, 13419 Larkin Dr., Minnetonka, Minn. 55343
Filed Jun. 16, 1980, Ser. No. 160,138
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D34—42



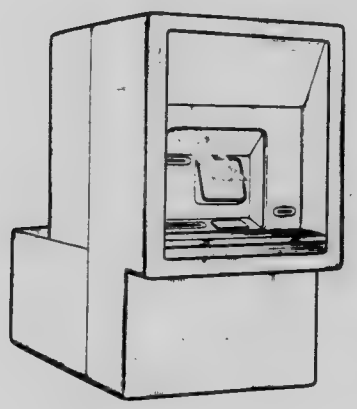
264,762
CURTAIN MATERIAL
Hans Stöcker, Wil, Switzerland, assignor to Gardisette International AG, Lucerne, Switzerland
Filed Jan. 9, 1980, Ser. No. 110,758
Claims priority, application Fed. Rep. of Germany, Jul. 10, 1979, URA752/79
Term of patent 14 years
Int. Cl. D5—*05*
U.S. Cl. D47—6 E



264,763
INDOOR CUSTOMER ACTIVATED BANKING MACHINE TERMINAL OR THE LIKE
Ingvar Freijd, Linköping, Sweden, assignor to Datasaab AB, Jarfalla, Sweden
Filed Mar. 11, 1980, Ser. No. 129,307
Claims priority, application Sweden, Sep. 14, 1979, 792042
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—28



264,764
OUTDOOR CUSTOMER ACTIVATED BANKING MACHINE TERMINAL OR THE LIKE
Ingvar Freijd, Linköping, Sweden, assignor to Datasaab AB, Jarfalla, Sweden
Filed Mar. 11, 1980, Ser. No. 129,308
Claims priority, application Sweden, Sep. 14, 1979, 7920430
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—28



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1ST DAY OF JUNE, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A-Betong AB: *See—*
Westberg, Stefan, 4,332,118, Cl. 52-263.000.

A & H Mfg. Co.: *See—*
Feibelman, Jeffrey A., 4,332,320, Cl. 206-45.140.

A. Nattermann & Cie. GmbH: *See—*
Ghyczy, Miklos; Erdos, Adorjan; Heidemann, Gunter; and Ritzmann, Gotz, 4,332,795, Cl. 424-199.000.

A. O. Smith Corporation: *See—*
Kozak, Norman M., 4,333,002, Cl. 219-321.000.

A. O. Smith Harvestore Products, Inc.: *See—*
Peters, Anthony J., 4,332,484, Cl. 366-137.000.

A/S Haustrup Plastic: *See—*
Ingemann, Ole, 4,332,332, Cl. 220-276.000.

Abbott Laboratories: *See—*
Armstrong, Alan S., 4,332,890, Cl. 435-7.000.
Williams, John W.; and Becker, Frank C., 4,332,821, Cl. 424-322.000.

Aberle, Claus; Ruger, James F.; and Schulz, Klaus-Peter, to Eltro GmbH. Radiometer. 4,332,168, Cl. 374-130.000.

Adams, John O.: *See—*
Ford, James M.; and Adams, John O., 4,332,661, Cl. 204-253.000.

Adhia, Bharat J.: *See—*
deMonterey, Francis G.; Adhia, Bharat J.; and Johnson, David M., 4,332,354, Cl. 241-16.000.

ADI-Aeroponics Growth Ltd.: *See—*
Nir, Isaac, 4,332,105, Cl. 47-1.00R.

Adkins, David E.; Chin, Arthur H. T.; Haws, Ronnie E.; and Wittman, Robert H., to Hughes Undersea Coupling, Inc. Pipeline pigging plug. 4,332,277, Cl. 138-89.000.

Adorni, Napoleone; and Pizzolati, Pier L., to Cise S.p.A. Method and apparatus for constructing an optical fiber cable which is resistant to high temperatures and is perfectly watertight, and cable producted by such process. 4,332,436, Cl. 350-96.230.

Advanced Catheter Systems, Inc.: *See—*
Lundquist, Ingemar, 4,332,254, Cl. 128-344.000.

AFGA-Gevaert AG: *See—*
Luedemann, Heinz; and Schneider, Klaus, 4,332,339, Cl. 226-195.000.

Afros S.r.l.: *See—*
Fiorentini, Carlo, 4,332,335, Cl. 222-145.000.

Agency of Industrial Science & Technology, Ministry of International Trade & Industry: *See—*
Kurane, Ryuichiro; Suzuki, Tomoo; and Takahara, Yoshimasa, 4,332,904, Cl. 435-262.000.

Ahne, Hellmut; Kuhn, Eberhard; and Rubner, Roland, to Siemens Aktiengesellschaft. Method for the preparation of highly heat-resistant relief. 4,332,882, Cl. 430-322.000.

Ahne, Hellmut; Kuhn, Eberhard; Rubner, Roland; and Schmidt, Erwin, to Siemens Aktiengesellschaft. Method for the manufacture of highly heat-resistant relief structures. 4,332,883, Cl. 430-322.000.

Ahuja, Pritam L., to General Electric Company. Metallic internal coating method. 4,332,843, Cl. 427-237.000.

Air Products and Chemicals, Inc.: *See—*
Antonas, Ioannis A.; Allam, Rodney J.; and Hegarty, William P., 4,332,598, Cl. 62-17.000.
Iacoviello, John G., 4,332,850, Cl. 428-288.000.
Starner, William E.; and Yext, Walter F., 4,332,736, Cl. 260-403.000.

Aisin Seiki Kabushiki Kaisha: *See—*
Nakazawa, Takaaki; Nagata, Takenori; Kuroda, Yasuo; and Suzuki, Toshio, 4,332,412, Cl. 296-29.000.

Ajay Enterprises, Inc.: *See—*
Rader, Richard S., 4,332,283, Cl. 150-1.50R.

Ajinomoto Company, Inc.: *See—*
Takahashi, Satoji; and Toi, Koji, 4,332,718, Cl. 260-112.50R.

Akagi, Motoo: *See—*
Hayashi, Nobuaki; Akagi, Motoo; Miura, Kiyoshi; and Odaka, Yoshiyuki, 4,332,874, Cl. 430-28.000.

Aker, Wesley E.: *See—*
Margalit, Nehemiah; Joshi, Ashok V.; Aker, Wesley E.; and Johnson, Dennis P., 4,332,869, Cl. 429-194.000.

Akimura, Yoshitaka; Hirano, Shigeo; Mifune, Hiroyuki; and Okutsu, Eiichi, to Fuji Photo Film Co., Ltd. Photographic image-forming method. 4,332,878, Cl. 430-264.000.

Akiyama, Minoru: *See—*
Siga, Tetsuo; Kinoshita, Shozo; Ito, Yoshinobu; and Akiyama, Minoru, 4,332,889, Cl. 430-583.000.

Aktiengesellschaft Fr. Mettler's Sohne Maschinenfabrik: *See—*
Hauri, Tobias, 4,332,065, Cl. 28-225.000.

Akzo N.V.: *See—*
Gerlach, Klaus; Behnke, Joachim; Rosener, Wolfgang; and Hohm, Ewald, 4,332,686, Cl. 210-651.000.
Henne, Werner; Bandel, Werner; and Dunweg, Gustav, 4,332,752, Cl. 264-41.000.
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,600, Cl. 65-2.000.
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,601, Cl. 65-2.000.

Alaimo, Robert J.; Gray, Joseph E.; and Klein, George M., to Morton-Norwich Products, Inc. Antifungal compound. 4,332,735, Cl. 549-496.000.

Albom, Bradley S., to Chevron Research. Sulfur-aggregate compositions and methods for preparing. 4,332,912, Cl. 501-140.000.

Aldridge, Stephen F., to International Business Machines Corporation. Electrostatic drop sensor with sensor diagnostics for ink jet printers. 4,333,083, Cl. 346-1.100.

Alkema, Frederik H.; and Luursema, Meerten, to U.S. Philips Corporation. Electronic flashgun. 4,333,127, Cl. 362-17.000.

Allam, Rodney J.: *See—*
Antonas, Ioannis A.; Allam, Rodney J.; and Hegarty, William P., 4,332,598, Cl. 62-17.000.

Allen, Gary F., to Mobay Chemical Corporation. Low temperature storage stable liquid diphenylmethane diisocyanates. 4,332,742, Cl. 260-453.0SP.

Allen, Robert H.; and Seligman, Paul A., to University Patents, Inc. Immunoassay for measurement of reticulocytes, and immunoreactive reagents for use therein. 4,332,785, Cl. 424-1.000.

Allen, Roger F., to Plumettaz S.A. Gun system with barrel opening sealed off by projectile. 4,332,234, Cl. 124-73.000.

Allied Corporation: *See—*
Hobday, Robert W., 4,332,778, Cl. 423-132.000.
Narasimhan, Mandayam C., 4,332,848, Cl. 428-174.000.

Allis-Chalmers Corporation: *See—*
Wooldridge, James E., 4,332,597, Cl. 55-124.000.

Almo Manifold & Tool Co.: *See—*
Six, Rudolph E., 4,333,043, Cl. 318-591.000.

Alperin, Morton. Jet diffuser ejector. 4,332,529, Cl. 417-54.000.

Alston, Arthur: *See—*
Chin, Thomas G.; and Alston, Arthur, 4,332,159, Cl. 73-64.200.

Alt, Gerhard H., to Monsanto Company. Herbicidal 2-haloacetantlides. 4,332,614, Cl. 71-118.000.

Alt, William P. Adjustable and stationary holding apparatus for a swimming pool surface skim net. 4,332,683, Cl. 210-499.000.

Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., to Pfizer, Inc. 3-(2-Hydroxy-4-(substituted)phenyl)azacycloalkanes as analgesics. 4,332,942, Cl. 546-240.000.

Amana Refrigeration, Inc.: *See—*
Larsen, Wallace E.; and Duncan, Eliot R., 4,332,992, Cl. 219-10.55R.

American Can Company: *See—*
Bean, William C.; and Tao, Thomas M., 4,332,756, Cl. 264-70.000.
Holbrook, Winnon G.; and Kettenhofen, Adrian J., 4,332,635, Cl. 156-256.000.
Howard, Thomas B.; and Puissant, Gerald H., 4,332,324, Cl. 206-389.000.
Lin, Stephen Y., 4,332,589, Cl. 8-557.000.

American Colloid Company: *See—*
Piepho, Ralf F., 4,332,693, Cl. 252-181.000.

American Cyanamid Co.: *See—*
Bentley, Terence J.; Gastrock, William H.; and Asato, Goro, 4,332,724, Cl. 260-326.00S.
Thibodeau, Michael J.; and Balcerski, James S., 4,332,779, Cl. 423-321.00R.

American Hoechst Corporation: *See—*
Hensel, Roy; Biller, Leonhard F.; and Danson, Russell J., 4,332,454, Cl. 354-317.000.

American Hospital Supply Corporation: *See—*
Linsey, Mark, 4,332,333, Cl. 222-83.000.

American Standard Inc.: *See—*
Safford, Laurance F., 4,332,977, Cl. 178-22.140.

AMP Incorporated: *See—*
Barkus, Lee A.; and Simons, Craig W., 4,332,849, Cl. 428-188.000.
Bobb, Clifford F.; and Cobaugh, Robert F., 4,332,431, Cl. 339-74.00R.
Hoffman, Norman E., 4,332,987, Cl. 200-16.00D.
Johnson, Keith, Jr.; Long, Robert A.; and Over, William R., 4,332,083, Cl. 29-749.000.

Ampex Corporation: *See—*
Quan, Ronald; and Ryan, John O., 4,333,108, Cl. 358-145.000.
Sutterlin, Philip H., 4,333,177, Cl. 371-15.000.

Amwake, Harvey E., to Dresser Industries, Inc. Side bearing cage assembly. 4,332,202, Cl. 105-199.0CB.
Anand, Joginder N.; Revak, Timothy T.; and Rossini, Frank J., to Dow Chemical Company, The. High temperature battery cell comprising stress-free hollow fiber bundle. 4,332,868, Cl. 429-178.000.
Anatol, Jesus; Clenet, Yves; and Bourdiau, Georges, to Sucreries du Soissonnais et Compagnie Sucriere. Process for manufacturing phenoxylactic acids, their derivatives and products obtained thereby. 4,332,959, Cl. 560-60.000.
Anciens Establissements M. Frisquet: *See*—
Frisquet, Maurice, 4,332,274, Cl. 137-496.000.
Anders, Dietmar, to Hermann Berstorff Maschinenbau GmbH. Kneading and mixing machine. 4,332,480, Cl. 366-77.000.
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Anderson, Ardis L.: *See*—
McConaghy, James R.; and Anderson, Ardis L., 4,332,641, Cl. 201-17.000.
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Anderson, Richard J.; and Leippe, Michael M., to Zoecon Corporation. Compositions and use. 4,332,944, Cl. 546-272.000.
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Kaku, Masaro; Ando, Kunio; Honda, Toyota; and Inoue, Fumio, 4,333,105, Cl. 358-67.000.
Ando, Masao; Hirota, Tetsuya; and Shioda, Katashi, to Mitsubishi Chemical Industries, Ltd. Adsorption separation method and apparatus thereof. 4,332,623, Cl. 127-46.200.
Ando, Takehiro: *See*—
Yoshimura, Junjiro; Furukawa, Akira; and Ando, Takehiro, 4,332,268, Cl. 137-81.100.
Ando, Yujiro: *See*—
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Andoh, Makoto, to Sumitomo Light Metal Industries, Ltd. Selective absorber of solar energy and process for producing same. 4,332,628, Cl. 148-6.200.
Andrasy, Ferenc: *See*—
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Andre, Wolfram; and Muller, Hans, to International Standard Electric Corporation. Color-picture tube with an arrangement to compensate for misregister. 4,333,037, Cl. 315-3.000.
Andreas Stihl: *See*—
Itzrodt, Gerd, 4,332,220, Cl. 123-41.700.
Andren, Carl F.: *See*—
Mosley, William H., Jr.; and Andren, Carl F., 4,333,060, Cl. 331-1.00A.
Andresen, Herman J. Control system having squeeze type manual actuator. 4,332,177, Cl. 74-491.000.
Andrews, Ottie H. Wave-and-tide-pump apparatus and method thereof. 4,332,506, Cl. 405-77.000.
Antal, Michael J., to Mobil Oil Corporation. Catalytic dewaxing of middle distillates. 4,332,670, Cl. 208-68.000.
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Aoki, Katashi. Parison molding apparatus in an injection stretching blow molding machine. 4,332,544, Cl. 425-529.000.
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Aoyama, Takahiko; and Nakaya, Akira, to Kawasaki Jukogyo Kabushiki Kaisha. Motorcycle sprocket. 4,332,574, Cl. 474-161.000.
Aperavich, Steven M., to Medical Engineering Corporation. Method of preparing a resealable valve. 4,332,634, Cl. 156-145.000.
Appelmann, Horst, to C. J. Rush Limited. Collapsible revolving door. 4,332,108, Cl. 49-44.000.
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Bernstein, Philip; Coffey, James P.; Varker, Alan E.; Arms, John T.; Clark, William D. K.; and Goodell, Paul D., 4,332,698, Cl. 252-430.000.
Armstrong, Alan S., to Abbott Laboratories. Detection of neisseria gonorrhoeae. 4,332,890, Cl. 435-7.000.
Armstrong, David A., to British Steel Corporation. Strip feeding. 4,332,357, Cl. 242-78.100.
Armstrong, Paul R.: *See*—
Mathews, Lemuel P.; Lohman, Charles A.; and Armstrong, Paul R., 4,333,170, Cl. 367-125.000.
Arnold, Erwin: *See*—
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Arnold, William A. Universal mechanical seal gland. 4,332,391, Cl. 277-11.000.
Arora, Mulk R.; Paquette, Edward J.; and McPherson, Allan B., to Sprague Electric Company. AC Etching of aluminum capacitor foil. 4,332,652, Cl. 204-129.750.
Arora, Mulk R.: *See*—
Bemis, Richard A.; Hutchins, Clinton E.; Markland, Edward J.; and Arora, Mulk R., 4,332,651, Cl. 204-129.900.
Artale, Richard: *See*—
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ASA S.A.: *See*—
Bru, Christian; and Dupeuble, Jean-Claude, 4,332,132, Cl. 57-280.000.
Asahi Glass Company, Ltd.: *See*—
Baba, Morimitsu, 4,332,281, Cl. 141-1.000.
Asahi Kasei Kogyo Kabushiki Kaisha: *See*—
Hamanaka, Katsuhiko; Iwaisako, Toshiyuki; Masamoto, Junzo; and Yoshida, Koichi, 4,332,644, Cl. 203-46.000.
Kimoto, Kyoji; Miyauchi, Hirotsugu; Ohmura, Jukichi; Ebisawa, Mikio; and Hane, Toshioki, 4,332,665, Cl. 204-296.000.
Saitoh, Akira; Yamori, Akio; and Ibaragi, Toshio, 4,332,858, Cl. 428-412.000.
Siga, Tetsuo; Kinoshita, Shozo; Ito, Yoshinobu; and Akiyama, Minoru, 4,332,889, Cl. 430-583.000.
Asai, Toshihiro: *See*—
Inoue, Kimio; Ogawa, Katsumi; Fukui, Tsugushi; Asai, Toshihiro; and Hashizume, Shinji, 4,332,481, Cl. 366-84.000.
Asaka Company Limited: *See*—
Koiwa, Yoshinori; Oka, Daishiro; and Takeda, Shoroku, 4,333,103, Cl. 358-19.000.
Asano, Kiro; Tamura, Humio; Tanaka, Hiromitsu; and Enomoto, Satoru, to Kureha Kagaku Kogyo Kabushiki Kaisha. Chlorambucil derivatives. 4,332,797, Cl. 424-238.000.
Asato, Goro: *See*—
Bentley, Terence J.; Gastrock, William H.; and Asato, Goro, 4,332,724, Cl. 260-326.00S.
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ASEA Aktiebolag: *See*—
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Madsen, Kristian D., 4,333,027, Cl. 310-61.000.
Nordvall, Jan O., 4,332,154, Cl. 72-31.000.
Ashby, George M., Jr. Backing stabilizer. 4,332,396, Cl. 280-474.000.
Ashland Oil, Inc.: *See*—
Myers, George D., 4,332,673, Cl. 208-120.000.
Asplund, Gunnar, to ASEA Aktiebolag. Thyristor switch with transient protection and RF interference suppression. 4,333,137, Cl. 363-54.000.
Aspnes, David E.; and Bagley, Brian G., to Bell Telephone Laboratories, Incorporated. Method for optical monitoring in materials fabrication. 4,332,833, Cl. 427-8.000.
Athe, Christian: *See*—
Reynard, Remi; Athe, Christian; and Aubert, Jean-Paul, 4,332,509, Cl. 405-168.000.
Atlantic Richfield Company: *See*—
Statton, Gary L.; and Harris, Stephen H., 4,332,741, Cl. 260-453.0SP.
Warfel, David R., 4,332,760, Cl. 264-143.000.
ATO Chimie: *See*—
Foy, Paul; Jungblut, Camille; and Deleens, Gerard, 4,332,920, Cl. 525-408.000.
Atsumi, Toshio; Takebayashi, Yoshiaki; and Kiyohara, Takao, to Sumitomo Chemical Company, Limited. Antitumor and immunosuppresive 4-carbamoyl imidazolium-5-olate derivatives, pharmaceutical composition and production thereof. 4,332,806, Cl. 424-273.00R.
Aubert, Jean-Paul: *See*—
Reynard, Remi; Athe, Christian; and Aubert, Jean-Paul, 4,332,509, Cl. 405-168.000.
Auld, David L.; and Waugh, Robert E., to D. L. Auld Company, The. Method for making decorative emblems. 4,332,074, Cl. 29-527.400.
Auriemma, Joseph F., to Ciba-Geigy Corporation. Cam lock for a spigot. 4,332,403, Cl. 285-189.000.
Avon Products, Inc.: *See*—
Linton, Robert; Asbury, Frank; and Artale, Richard, 4,332,548, Cl. 431-289.000.
Ayer, George E., to Bunker Ramo Corporation. Medical clip and electrode constructions. 4,332,257, Cl. 128-640.000.
Azam, Guy: *See*—
Bensussan, Andre; and Azam, Guy, 4,332,091, Cl. 34-1.000.
B. F. Goodrich Company, The: *See*—
Fisher, John M., 4,332,049, Cl. 441-80.000.
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Broodman, Johannus J., 4,332,156, Cl. 72-264.000.
Baba, Morimitsu, to Asahi Glass Company, Ltd.; and Baba Seisakusho Co., Ltd. Method and apparatus for spreading a polyurethane foamable composition. 4,332,281, Cl. 141-1.000.
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Ptashne, Mark; Lauer, Gail D.; Roberts, Thomas M.; and Backman, Keith C., 4,332,892, Cl. 435-68.000.

Bacsik, George J., to Exxon Research & Engineering Co. Process and apparatus for furnace operation with gas seal. 4,332,546, Cl. 431-5.000.

Bagley, Brian G.: *See—*
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Bahre, Karl; Boer, Werner; Richter, Jorg; Seebacher, Gerald; and Warnke, Hans, to Kloeckner-Werke AG. Scraper chain conveyor. 4,332,317, Cl. 198-734.000.

Bailey, Escar L.; and Walker, Clifford G., to United States of America, Army. Directional two axis optical inclinometer. 4,332,090, Cl. 33-366.000.

Baker Industries, Inc.: *See—*
Kolm, Eric A.; and Kolm, Henry H., 4,333,029, Cl. 310-329.000.
Raber, Samuel; and Ellner, Irving L., 4,333,093, Cl. 340-566.000.

Baker International Corporation: *See—*
Baker, John R., 4,332,410, Cl. 294-86.180.
Evans, Robert W., 4,332,267, Cl. 137-1.000.

Baker, John R., to Baker International Corporation. Retrieving tool for well packer. 4,332,410, Cl. 294-86.180.

Baker, Richard H. Solar powered automatic turn-on control (SPATOC) unit and method. 4,333,136, Cl. 363-43.000.

Baker, Robert L. Collapsible tent for truck beds. 4,332,265, Cl. 135-3.00A.

Bakonyi, Anna: *See—*
Fischer, Janos; Rozsa, Laszlo; Vago, Pal; Bakonyi, Anna; and Fazekas, Gabor, 4,332,725, Cl. 548-533.000.

Balcerski, James S.: *See—*
Thibodeau, Michael J.; and Balcerski, James S., 4,332,779, Cl. 423-321.00R.

Balde, John W.; Spencer, Robert A.; and Thompson, Richard K., Jr., to Western Electric Co., Inc.; and Bell Telephone Laboratories. Termination of flat flexible cables. 4,332,433, Cl. 339-99.00R.

Ballard, Norman E., to Rolls-Royce Limited. Thermal barrier coating. 4,332,618, Cl. 106-84.000.

Banc-By-Phone Corporation: *See—*
Cave, Ellis K., 4,333,056, Cl. 330-129.000.

Bandel, Werner: *See—*
Henne, Werner; Bandel, Werner; and Dunweg, Gustav, 4,332,752, Cl. 264-41.000.

Bannister, Clifford R. Collapsible exercise back pack. 4,332,379, Cl. 272-119.000.

Banucci, Eugene G.: *See—*
Boldebuck, Edith M.; and Banucci, Eugene G., 4,332,708, Cl. 524-376.000.

Baragar, Harold A.; and Toovey, Kenneth S. Penetrometer. 4,332,160, Cl. 73-84.000.

Barber-Greene Company: *See—*
Binz, Lee V., 4,332,478, Cl. 366-4.000.

Barbero, Aquilino: *See—*
Bovio, Michele; Barbero, Aquilino; Gillone, Walter; and Berruti, Pierangelo, 4,332,487, Cl. 400-126.000.

Barclay, John A.; and Steyert, William A., to United States of America, Energy. Active magnetic regenerator. 4,332,135, Cl. 62-3.000.

Barer, Sol J., to Celanese Corporation. Insecticidal compositions. 4,332,817, Cl. 424-285.000.

Barkus, Lee A.; and Simons, Craig W., to AMP Incorporated. Cold shrink cable repair device. 4,332,849, Cl. 428-188.000.

Barlow, Anthony: *See—*
Braus, Harry; Barlow, Anthony; and Maringer, Melvin F., 4,332,957, Cl. 556-446.000.

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Schipper, Heinz; Hartig, Wolfgang; Weber, Klaus; Blumberg, Josef; and Wessolowski, Bernd, 4,332,129, Cl. 57-105.000.

Barnes, Robert W. Motor vehicle fuel-waste indicator. 4,333,070, Cl. 340-52.00R.

Barnow, Charles A. Transfer case conversion kit. 4,332,304, Cl. 180-233.000.

Barozzi, Gian P.; and Goreschi, Giancarlo, to Xelavis S.A. Device for the control of the position of the type carrying element in typewriters. 4,332,488, Cl. 400-161.500.

Barozzi, Gian P.; and Horeschi, Giancarlo, to Xelavis S.A. Device for the feed and motion reversal of the ribbon for typewriter cartridges and cartridge therefore. 4,332,491, Cl. 400-208.000.

Barthe, Marie P.: *See—*
Meunier, Jean P.; Barthe, Marie P.; Have, Serge; and Frumen, Bernard, 4,332,754, Cl. 264-45.500.

Barton, Joseph J., IV; and Boyd, Bobby G. Wet rope weed killer. 4,332,106, Cl. 47-1.500.

Bartulis, Michael V.; Smura, Edwin J.; Dunn, Richard P.; Bebb, Herbert B.; Ciuffini, Anthony J.; and Mosing, Lionel W., to Xerox Corporation. Interactive user-machine interface method and apparatus for copier/duplicator. 4,332,464, Cl. 355-14.00C.

Baset, Zeinab, to Exxon Research & Engineering Co. Removal of basic nitrogen compounds from organic streams. 4,332,675, Cl. 208-254.00R.

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BASF Aktiengesellschaft: *See—*
Hoch, Helmut; Hahn, Erwin; and Hiller, Heinrich, 4,332,955, Cl. 549-56.000.
Schoettle, Klaus; Kaemmer, Eduard; Dobler, Peter; Gliniorz, Lothar; and Hoffmann, Werner, 4,333,116, Cl. 360-78.000.

BASF Wyandotte Corporation: *See—*
Christman, Donald L.; and Kan, Peter T., 4,332,953, Cl. 548-307.000.

deMonterey, Francis G.; Adhia, Bharat J.; and Johnson, David M., 4,332,354, Cl. 241-16.000.

Battelle Development Corporation: *See—*
Bellmann, Gunter; and Van Tao, Nguyen, 4,332,964, Cl. 560-141.000.

Battelle Memorial Institute: *See—*
Genequand, Pierre; and Gross, Daniel M., 4,332,775, Cl. 422-112.000.

Bauer, Otto; Eberl, Leonhard; Geyer, Gerhard; and Straubel, Max, to Robert Bosch GmbH. Injection timing device for internal combustion engines. 4,332,227, Cl. 123-502.000.

Baughn, Richard L.: *See—*
Kohn, Gustave K.; and Baughn, Richard L., 4,332,792, Cl. 424-84.000.

Bauman, Richard F.; and Ryan, Daniel F., to Exxon Research & Engineering Co. Coal liquefaction process wherein jet fuel, diesel fuel and/or ASTM No. 2 fuel oil is recovered. 4,332,666, Cl. 208-8.0LE.

Bauman, Verne W.: *See—*
Kira, Hiroshi; and Bauman, Verne W., 4,333,071, Cl. 340-56.000.

Baumann, Richard S., to Western Industries, Inc. Gas torch having an improved valve construction. 4,332,550, Cl. 431-344.000.

Baxter Travenol Laboratories, Inc.: *See—*
Bilstad, Arnold C.; and Brown, Richard I., 4,333,016, Cl. 250-577.000.
Cabelli, Michael D.; and Groman, Ernest V., 4,332,786, Cl. 424-1.000.
Mittleman, Herbert; and Boland, Gordon P., 4,332,247, Cl. 128-214.00C.
Williams, Ronald A., 4,332,122, Cl. 53-425.000.

Bayer Aktiengesellschaft: *See—*
Harms, Wolfgang; Wunderlich, Klaus; and von Oertzen, Klaus, 4,332,938, Cl. 544-189.000.
Heins, Ferdinand; and Speicher, Wolfgang, 4,332,860, Cl. 428-473.000.
Kressner, Michael; Kolbe, Joachim; Bremer, Fritz; Pape, Georg; Wolf, Karlheinz; and Kummeler, Ferdinand, 4,332,587, Cl. 8-506.000.
Maurer, Fritz; Riebel, Hans-Jochem; and Priesnitz, Uwe, 4,332,745, Cl. 260-464.000.
Reinehr, Ulrich; Herbertz, Toni; and Jungverdorben, Hermann-Josef, 4,332,765, Cl. 264-206.000.
Schmidt, Manfred; Wank, Joachim; and Reese, Eckart, 4,332,921, Cl. 525-462.000.

Baylor, John M., to J. I. Case Company. Master track link assembly. 4,332,425, Cl. 305-54.000.

BBC Brown, Boveri & Company, Limited: *See—*
Jester, Alfred; Mueller, Elmar; and Holick, Hubert, 4,333,102, Cl. 357-81.000.

Beach Manufacturing Corp.: *See—*
Dulin, David L., 4,332,197, Cl. 101-415.100.

Bean, William C.; and Tao, Thomas M., to American Can Company. Method for the manufacture of fibrous webs. 4,332,756, Cl. 264-70.000.

Beauvais, Max P.; and Camezon, Raymond E. Method for canning food products. 4,332,826, Cl. 426-407.000.

Beavan, Stuart W., to Lever Brothers Company. Bleaching liquid cleaning composition. 4,332,691, Cl. 252-96.000.

Bebb, Herbert B.: *See—*
Bartulis, Michael V.; Smura, Edwin J.; Dunn, Richard P.; Bebb, Herbert B.; Ciuffini, Anthony J.; and Mosing, Lionel W., 4,332,464, Cl. 355-14.00C.

Beck, Heinz: *See—*
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,600, Cl. 65-2.000.
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,601, Cl. 65-2.000.

Becker, Dieter: *See—*
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Becker, Erich. Membrane pump with tiltable rolling piston pressing the membrane. 4,332,534, Cl. 418-45.000.

Becker, Frank C.: *See—*
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Beecham Group Limited: *See—*
Newsome, Peter M.; and Mullen, Noel A., 4,332,814, Cl. 424-273.00R.

Behney, Charles A. Equine sanitation apparatus and method. 4,332,250, Cl. 128-239.000.

Behnke, Joachim: *See—*
Gerlach, Klaus; Behnke, Joachim; Rosener, Wolfgang; and Hohm, Ewald, 4,332,686, Cl. 210-651.000.

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Pernice, Walter; and Sedlacek, Hans-Harald, 4,332,783, Cl. 424-1.000.

Beigel, Michael, to International Identification Incorporated. Identification device. 4,333,072, Cl. 340-825.540.

Belanger, Patrice C.; and Young, Robert N., to Merck & Co., Inc. N-Substituted-benzyl-11-endo-amino-5,6,7,8,9,10-hexahydro-2-hydroxy (or methoxy)-6,9-methanobenzocyclooctene (or nonene) centrally-acting analgesics. 4,332,807, Cl. 424-274.000.

Belanger, Patrice C.; and Young, Robert N., to Merck & Co., Inc. N-(Substituted)-2,5-ethano-8-hydroxy (or methoxy)-1,2,3,4,5,6-hex-

ahydro-3 (or 4)-benzazocine centrally-acting analgesics. 4,332,810, Cl. 424-267.000.
Bell, Dwain C.; and Anderson, Lloyd E. Carpet removing apparatus and method. 4,332,371, Cl. 254-203.000.
Bell Telephone Laboratories: *See—*
Balde, John W.; Spencer, Robert A.; and Thompson, Richard K., Jr., 4,332,433, Cl. 339-99.00R.
Bell Telephone Laboratories, Incorporated: *See—*
Aspnes, David E.; and Bagley, Brian G., 4,332,833, Cl. 427-8.000.
Buric, Milorad R.; and Maxemchuk, Nicholas F., 4,333,097, Cl. 340-711.000.
Davis, Paul C.; Jackson, Raymond G.; Sodomsky, Kenneth F.; and Whitson, Dennis L., 4,332,984, Cl. 179-81.00R.
DiDomenico, Mauro, Jr.; Singh, Shobha; and Van Uitert, LeGrand G., 4,332,440, Cl. 350-357.000.
Kurshan, Robert P.; and Malah, David, 4,333,156, Cl. 364-724.000.
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., 4,332,839, Cl. 427-85.000.
Miller, Anton J., 4,332,474, Cl. 356-366.000.
Minetti, Richard H., 4,332,341, Cl. 228-180.00A.
Schwarz, Alfred O., 4,333,121, Cl. 361-104.000.
Shankoff, Theodore A., 4,332,881, Cl. 430-311.000.
Bell, Theodore F. Bicycle brake. 4,332,313, Cl. 192-5.000.
Bellmann, Gunter; and Van Tao, Nguyen, to Battelle Development Corporation. Unsaturated esters of adamantane containing diols and thermo-resistant cross-linked polymers therefrom. 4,332,964, Cl. 560-141.000.
Belval, Michel; Casselman, Chantal; Malet, Jean-Claude; Prats, Christian; and Meneret, Jean, to Commissariat a l'Energie Atomique; and Carbonisation Entreprise et Ceramique (C.E.C.). Sub-assembly for detecting leaks of a liquid metal. 4,332,170, Cl. 73-40.50R.
Bemis, Richard A.; Hutchins, Clinton E.; Markland, Edward J.; and Arora, Mulk R., to Sprague Electric Company. AC Etching of aluminum capacitor foil. 4,332,651, Cl. 204-129.900.
Bendix Corporation, The: *See—*
Caruso, Peter J., 4,333,073, Cl. 340-825.360.
Whiteside, Arliss E., 4,333,075, Cl. 340-347.0AD.
Whiteside, Arliss E.; Freedman, Morris D.; and Tasar, Omur, 4,333,144, Cl. 364-200.000.
Benitez, Francisco M.; and English, Michael F., to Exxon Research & Engineering Co. Esterification of neo acids by the use of cation exchange resins. 4,332,738, Cl. 260-410.600.
Benner, James D.: *See—*
Loyd, Comer C., Jr.; and Benner, James D., 4,332,389, Cl. 273-237.000.
Bensussan, Andre; and Azam, Guy, to C. G. R. MeV. Microwave drying device for drying products in form of grains. 4,332,091, Cl. 34-1.000.
Bentley, Terence J.; Gastrock, William H.; and Asato, Goro, to American Cyanamid Co. Process for preparing 4,5,6,7-tetrahydro-7-oxobenzo[b]thiophenes and 1,2,3,4-tetrahydro-4-oxonaphthalenes. 4,332,724, Cl. 260-326.00S.
Benton Casing Service, Inc.: *See—*
Ellzey, Rex B., 4,332,411, Cl. 294-104.000.
Bereit, Arnold. Apparatus for the atomization of oil in a compressed air line. 4,332,309, Cl. 184-7.00D.
Berejka, Anthony J., to Raychem Corporation. Adhesive compositions comprising ethylene/polar monomer copolymer and an elastomer. 4,332,655, Cl. 204-159.200.
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Berglund, Erling G., to Clinicon AB. Arrangement for supplying metered quantities of reagent liquid to the test tubes of an analyzing apparatus. 4,332,768, Cl. 422-63.000.
Berk, Edmund C., to United States of America, Navy. Flexure mounted gimbal support assembly. 4,332,365, Cl. 248-544.000.
Berneke, Erik S., to V. Kann Rasmussen Holding A/S. Dehumidifying device. 4,332,663, Cl. 204-277.000.
Bernini, Giuseppe, to Secrifarma S.p.A. Process for preparing micronized spironolactone. 4,332,721, Cl. 260-239.570.
Bernstein, Philip; Coffey, James P.; Varker, Alan E.; Arms, John T.; Clark, William D. K.; and Goodell, Paul D., to MPD Technology Corporation. Catalyst sheet and preparation. 4,332,698, Cl. 252-430.000.
Berruti, Pierangelo: *See—*
Bovio, Michele; Barbero, Aquilino; Gillone, Walter; and Berruti, Pierangelo, 4,332,487, Cl. 400-126.000.
Bert, Stephen F.: *See—*
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Bertea Corporation: *See—*
Stevens, Curtis E., 4,333,009, Cl. 250-237.00G.
Berthold, Rudiger; and Muller, Werner H., to Hoechst Aktiengesellschaft. Cyclohexanones and cyclohexenones. 4,332,941, Cl. 546-191.000.
Berthollet, Pierre. Apparatus for uprooting shrubs and the like. 4,332,093, Cl. 37-2.00R.
Berti, Eugenio, to Burroughs Corporation. Tensioning means for reel-to-reel tape transports. 4,332,359, Cl. 242-203.000.
Berzsenyi, Pal: *See—*
Kuszmann, Janos; Medgyes, Gabor; Andrasy, Ferenc; and Berzsenyi, Pal, 4,332,818, Cl. 424-285.000.
Beschke, Helmut; Friedrich, Heinz; and Offermanns, Heribert, to Deutsche Gold -und Silber-Scheideanstalt Vormals Roessler. Process for the production of 2,3-cycloalkenopyridines. 4,332,940, Cl. 546-181.000.
Beskin, Gerald S., to Therapac Div., Krelitz Industries, Inc. Easel. 4,332,364, Cl. 248-442.200.
Best, Robert M. TV Movies that talk back. 4,333,152, Cl. 364-521.000.
Beth, Albert H.: *See—*
Venkataramu, Sindhaghatta D.; Pearson, Donald E.; and Beth, Albert H., 4,332,946, Cl. 546-208.000.
Beyerle, Rudi: *See—*
Schonafinger, Karl; Beyerle, Rudi; Nitz, Rolf-Eberhard; Martorana, Piero A.; and Fiedler, Volker, 4,332,801, Cl. 424-246.000.
Biasotti, Joseph B.: *See—*
Herbstman, Sheldon; Biasotti, Joseph B.; and Brennan, Michael E., 4,332,595, Cl. 44-72.000.
Bicher, James I.; Sandhu, Taljit S.; and Hetzel, Fred W. External microwave applicator and method. 4,332,260, Cl. 128-804.000.
Bicker, Richard; and Erckel, Rudiger, to Hoechst Aktiengesellschaft. Process for the preparation of pyridine. 4,332,943, Cl. 546-253.000.
Bigall, Klaus D.; and Roesler, Helmut, to Siemens Aktiengesellschaft. Combination shift register, counter and memory device. 4,333,159, Cl. 364-900.000.
Biller, Leonhard F.: *See—*
Hensel, Roy; Biller, Leonhard F.; and Danson, Russell J., 4,332,454, Cl. 354-317.000.
Bilstad, Arnold C.; and Brown, Richard I., to Baxter Travenol Laboratories, Inc. Liquid presence detector. 4,333,016, Cl. 250-577.000.
Binz, Lee V., to Barber-Greene Company. Method and apparatus for reducing smoke emissions in an asphalt drum mixer. 4,332,478, Cl. 366-4.000.
Bischofberger, Juerg; and Wuermli, Arthur, to Rieter Machine Works Limited. Drive for drafting arrangement rolls of long spinning machines. 4,332,059, Cl. 19-244.000.
Bishop, Kenneth W., to Plessey Overseas Limited. Thyristor control circuits. 4,333,048, Cl. 323-319.000.
BJ-Hughes Inc.: *See—*
Gandy, Richard G.; and Briggs, Garry L., 4,332,619, Cl. 106-87.000.
Kuus, Felix; and Eckmann, Gerald C., 4,332,298, Cl. 166-319.000.
Bjerklie, John W.: *See—*
LaHaye, Paul G.; Bjerklie, John W.; and Penty, Robert A., 4,332,295, Cl. 165-178.000.
Blackmon, Lawrence E.; Dees, John R.; Kelly, Darrell A.; Mowe, Wayne T.; and Yu, Jing-Peir, to Fiber Industries, Inc. Process for continuous filament yarn with wool-like hand. 4,332,757, Cl. 264-103.000.
Blackmon, Lawrence E.; Dees, John R.; and Mowe, Wayne T., to Fiber Industries, Inc. Method for producing polyester wool-like yarn. 4,332,758, Cl. 264-103.000.
Blanken, Thomas C.: *See—*
Lijzenga, Jan; Van Gooswilligen, Gerrit; and Blanken, Thomas C., 4,332,703, Cl. 524-68.000.
Blanton, William A., Jr.; and Flanders, Robert L., to Chevron Research Company. Process for controlling sulfur oxides using an alumina-impregnated catalyst. 4,332,672, Cl. 208-120.000.
Blaskowski, Henry J.; and Palchik, David, to Combustion Engineering, Inc. Method of improving load response on coal-fired boilers. 4,332,207, Cl. 110-347.000.
Bleckmann, Ingo. Method of producing a heater or heat exchange element. 4,332,080, Cl. 29-611.000.
Blendax-Werke R. Schneider GmbH & Co.: *See—*
Raaf, Helmut; Becker, Dieter; Frosch, Franz; Harth, Helmut; and Wagner, Helmar R., 4,332,791, Cl. 424-52.000.
Blitchington, Frank H., to Western Electric Co., Inc. Methods of and system for aligning a device with a reference target. 4,333,044, Cl. 318-636.000.
Blount, David H. Process for the production of alkali metal silicate-organic plastics. 4,332,712, Cl. 524-650.000.
Blount, David H. Process for the production of alkali metal silicate-organic plastics. 4,332,926, Cl. 524-650.000.
Blumberg, Josef: *See—*
Schipper, Heinz; Hartig, Wolfgang; Weber, Klaus; Blumberg, Josef; and Wessolowski, Bernd, 4,332,129, Cl. 57-105.000.
BMS Roasting Equipment Corporation: *See—*
Stachowicz, Edward, 4,332,409, Cl. 294-2.000.
Bobb, Clifford F.; and Cobaugh, Robert F., to AMP Incorporated. Preassembled electrical connector. 4,332,431, Cl. 339-74.00R.
Bobst, S.A.: *See—*
Jaton, Jean-Philippe, 4,332,124, Cl. 53-540.000.
Bochan, John, to General Electric Company. Washing machine. 4,332,152, Cl. 68-171.000.
Bochumer Eisenhuette Heintzmann GmbH & Co.: *See—*
Heintzmann, Peter; Koppers, Manfred; and Bohnes, Karlheinz, 4,332,512, Cl. 405-290.000.
Bock, Gustavus P.; and Miller, Larry R., to General Motors Corporation. Stepping motor. 4,333,026, Cl. 310-42.000.
Bock, Peter, to Rosenthal Technik AG. Flux combination of barium oxide and potassium feldspar for high-strength alumina porcelain electric insulators. 4,332,913, Cl. 501-144.000.
Bodine Electric Company: *See—*
Oltendorf, Norman E., 4,333,045, Cl. 318-696.000.
Boehringer Ingelheim KG: *See—*
Schromm, Kurt; Mentrup, Anton; Renth, Ernst-Otto; and Fugner, Armin, 4,332,802, Cl. 424-251.000.
Boehringer, Wilfred E., to McDonnell Douglas Corporation. Dual sealing ring seal with hydraulic expansion. 4,332,392, Cl. 277-27.000.
Boeing Company, The: *See—*
Kristoffersen, Bjorn R., 4,332,041, Cl. 4-316.000.

Tucker, Gordon H.; and Fitch, Robert E., 4,332,206, Cl. 110-203.000.

Boer, Werner: *See—*
Bahre, Karl; Boer, Werner; Richter, Jorg; Seebacher, Gerald; and Warnke, Hans, 4,332,317, Cl. 198-734.000.

Boerner, Manfred: *See—*
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Bohnes, Karlheinz: *See—*
Heintzmann, Peter; Koppers, Manfred; and Bohnes, Karlheinz, 4,332,512, Cl. 405-290.000.

Boland, Gordon P.: *See—*
Mittleman, Herbert; and Boland, Gordon P., 4,332,247, Cl. 128-214.00C.

Boldebuck, Edith M.; and Banucci, Eugene G., to General Electric Company. Polycarboxylic acid/ester-diamine aqueous coating composition. 4,332,708, Cl. 524-376.000.

Bolen, Charles E.: *See—*
Marzocchi, Alfred; Roberts, Michael G.; Bolen, Charles E.; and Harrington, Edward R., 4,332,704, Cl. 523-203.000.

Boltze, Karl-Heinz; Raddatz, Siegfried; and Seidel, Peter-Rudolf, to Troponwerke GmbH & Co. KG. Preparation of 1-(4-chlorobenzoyl)-5-methoxy-2-methyl-3-indolylacetoxyacetic acid. 4,332,727, Cl. 548-501.000.

Bonner, Edgar L.: *See—*
Faerber, Nelson A.; and Bonner, Edgar L., 4,333,110, Cl. 358-165.000.

Boone, Frank J., Sr. Emergency trachea airway. 4,332,245, Cl. 128-207.170.

Boros, Lawrence A., to Rockwell International Corporation. Apparatus for welding automotive brake shoes. 4,332,998, Cl. 219-107.000.

Bottrell, Gerald W., to Ventus Energy Corp. Wind energy conversion system with reaction torque for power control. 4,333,018, Cl. 290-55.000.

Bourdiau, Georges: *See—*
Anatol, Jesus; Clenet, Yves; and Bourdiau, Georges, 4,332,959, Cl. 560-60.000.

Bovio, Michele; Barbero, Aquilino; Gillone, Walter; and Berruti, Pierangelo, to Ing. C. Olivetti & C., S.p.A. Solid ink cartridge for a non-impact printer. 4,332,487, Cl. 400-126.000.

Bowen Tools, Inc.: *See—*
Byrne, Joseph H., Jr., 4,332,062, Cl. 24-263.0DA.

Boyce, Harold L. Leakproof refrigerant connector. 4,332,273, Cl. 137-322.000.

Boyd, Bobby G.: *See—*
Barton, Joseph J., IV; and Boyd, Bobby G., 4,332,106, Cl. 47-1.500.

Boyer, Lyndon D., to Conoco Inc. Processing of heavy high-sulfur crude oil. 4,332,671, Cl. 208-92.000.

Boyle, Daniel J.: *See—*
Jaeschke, Harold R.; Linder, Alan; and Boyle, Daniel J., 4,332,322, Cl. 206-364.000.

BP Chemicals Limited: *See—*
Gasser, Clive G.; and Russell, John, 4,332,743, Cl. 562-512.200.

Bradford, William C.: *See—*
Dick, John O.; McKenzie, Joe A.; and Bradford, William C., 4,333,079, Cl. 343-7.0PF.

Bradley, Dennis K.; Brewbaker, Harold R.; and West, Vern W. Cable burying apparatus. 4,332,511, Cl. 405-178.000.

Bradshaw, Stephen L.: *See—*
King, John F.; and Bradshaw, Stephen L., 4,332,864, Cl. 429-3.000.

Braet, Jerome A.: *See—*
Van Auwelaer, James M.; Hutchinson, Eugene B.; and Braet, Jerome A., 4,332,126, Cl. 56-10.200.

Branch, John K. Bow pencil. 4,332,496, Cl. 401-52.000.

Brandenfels, Carl W.: *See—*
Foley, Clifford T.; and Brandenfels, Carl W., 4,332,046, Cl. 7-146.000.

Brassell, Gilbert W.; Lewis, John, Jr.; and Weber, Gary W., to United States of America, Energy. Method for fabricating thin films of pyrolytic carbon. 4,332,751, Cl. 264-28.000.

Braun, Rolf, to M.A.N.-Roland Druckmaschinen Aktiengesellschaft. Pressurized arrangement including timers for metering ink on the fountain roller of a printing press. 4,332,196, Cl. 101-365.000.

Braunschweigische Maschinenbauanstalt: *See—*
Kurland, Heinrich; Schaper, Helmut; and Schueller, Joachim, 4,332,621, Cl. 127-19.000.

Braus, Harry; Barlow, Anthony; and Maringer, Melvin F., to National Distillers & Chemical Corp. Phenoxyalkoxy silanes. 4,332,957, Cl. 556-446.000.

Brayford, John R.; and Cardell, Max L., to Fiber Industries, Inc. Methods for producing melt-spun filaments. 4,332,764, Cl. 264-176.00F.

Bremer, Fritz: *See—*
Kressner, Michael; Kolbe, Joachim; Brémer, Fritz; Pape, Georg; Wolf, Karlheinz; and Kummeler, Ferdinand, 4,332,587, Cl. 8-506.000.

Brennan, Michael E.: *See—*
Herbstman, Sheldon; Biasotti, Joseph B.; and Brennan, Michael E., 4,332,595, Cl. 44-72.000.

Breuer, Oswald: *See—*
Merten, Gerhard; Breuer, Oswald; and Steinkuhl, Bernd, 4,332,421, Cl. 299-34.000.

Brevetti Motta s.a.s: *See—*
Isella, Giuseppe, 4,332,072, Cl. 29-408.000.

Brewbaker, Harold R.: *See—*
Bradley, Dennis K.; Brewbaker, Harold R.; and West, Vern W., 4,332,511, Cl. 405-178.000.

Bridgestone Tire Co., Ltd.: *See—*
Fukahori, Yoshihide; Katacka, Nobuyuki; and Anzai, Shiro, 4,332,918, Cl. 525-259.000.
Takigawa, Hiroyoshi; and Miyamura, Nobuhiro, 4,332,286, Cl. 152-209.00R.

Briggs, Garry L.: *See—*
Gandy, Richard G.; and Briggs, Garry L., 4,332,619, Cl. 106-87.000.

Bristol-Myers Company: *See—*
Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., 4,332,951, Cl. 548-218.000.
Schmitz, Henry; Kaneko, Takushi; Essery, John M.; and Doyle, Terrence W., 4,332,732, Cl. 549-332.000.

British Railways Board: *See—*
Pollard, Maurice G.; and Sutton, Allan, 4,332,201, Cl. 105-167.000.

British Steel Corporation: *See—*
Armstrong, David A., 4,332,357, Cl. 242-78.100.

Brodowski, Walter: *See—*
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,600, Cl. 65-2.000.
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,601, Cl. 65-2.000.

Brokl, Stanley S.: *See—*
McGuire, Kenyon E.; and Brokl, Stanley S., 4,333,107, Cl. 358-120.000.

Broodman, Johannus J., to B. V. Koninklijke Maatschappij "de Schelde". Method for the manufacture of pipes by means of extrusion as well as for providing one flange on at least two pipes, and device to carry out the said method. 4,332,156, Cl. 72-264.000.

Brossmer, Max; and Boerner, Manfred, to D.I.E.N.E.S Apparatebau GmbH. Apparatus for heat treatment of synthetic yarns and fibers. 4,332,151, Cl. 68-5.00E.

Brown, Michael J., to GAF Corporation. Plant growth promoting composition. 4,332,612, Cl. 71-95.000.

Brown, Richard I.: *See—*
Bilstad, Arnold C.; and Brown, Richard I., 4,333,016, Cl. 250-577.000.

Brown, Wade R., to Eaton Corporation. Precision flow control device. 4,332,275, Cl. 137-504.000.

Brownlee, Robert R.; Tyers, G. Frank; and Neff, Paul H., to Research Corporation. System for monitoring hermetic integrity, pacing pulse and load impedance in cardiac pacers. 4,332,256, Cl. 128-419.0PT.

Bru, Christian; and Dupeuble, Jean-Claude, to ASA S.A. False-twist apparatus. 4,332,132, Cl. 57-280.000.

Bruchert, Werner: *See—*
Hempel, Matthias; and Bruchert, Werner, 4,332,763, Cl. 264-176.00R.

Brunson, Roy J., to Exxon Research & Engineering Co. Pretreatment of solid carbonaceous material with dicarboxylic aromatic acids to prevent scale formation. 4,332,668, Cl. 208-8.0LE.

Brunson, Roy J.: *See—*
Epperly, William R.; Deane, Barry C.; and Brunson, Roy J., 4,332,667, Cl. 208-8.0LE.

Brunswick Corporation: *See—*
Neufeld, Henry L., 4,332,358, Cl. 242-84.20A.

Buchanan, Howard A. Prefabricated building structure. 4,332,116, Cl. 52-82.000.

Buckley, Keith; Burrows, Ian E.; and Lowe, Philip J., to Mars Limited. Animal food and method. 4,332,832, Cl. 426-641.000.

Budecker, Ludwig, to ITT Industries, Inc. Flow control and accumulator charging valve. 4,332,270, Cl. 137-101.000.

Budzich, Mieczyslaw; and Fitz, Forest G., Jr., to Nassau Recycle Corporation. Process for reclaiming composite materials. 4,332,677, Cl. 209-3.000.

Buemi, Dennis P., to Liggett Group Inc. Fabricated meat and meat by-products and process. 4,332,823, Cl. 426-272.000.

Buhler, Marcel: *See—*
Sozzi, Tomaso; Schrenk, Alfred; and Buhler, Marcel, 4,332,790, Cl. 424-38.000.

Bunker Ramo Corporation: *See—*
Ayer, George E., 4,332,257, Cl. 128-640.000.

Burbank, Peter L., to University of Kentucky Research Foundation. Instructional device for use of a bronchoscope. 4,332,569, Cl. 434-272.000.

Burgers, August, to Europatent S.A. Wooden frames or the like having two frame parts adapted to be connected by a clamping-eccentric connector. 4,332,495, Cl. 403-6.000.

Burgess, Lester E.; Fox, Karl M.; McGarry, Phillip E.; and Herman, David E., to Gulf & Western Industries, Inc. Process for beneficiating coal. 4,332,593, Cl. 44-51.000.

Burgkhardt, Bertram; Konig, Winfried; Piesch, Ernst; and Rober, Hans G., to Kernforschungszentrum Karlsruhe Gesellschaft mit beschrankter Haftung. Evaluation instrument for phosphate glass dosimeter. 4,333,013, Cl. 250-461.00R.

Buric, Milorad R.; and Maxemchuk, Nicholas F., to Bell Telephone Laboratories, Incorporated. Visual display terminal without finger repositioning. 4,333,097, Cl. 340-711.000.

Burl, Michael: *See—*
Harrison, Colin G.; and Burl, Michael, 4,333,053, Cl. 324-307.000.

Burlington Industries, Inc.: *See—*
Koncelik, Joseph A., 4,332,042, Cl. 5-424.000.

Burroughs Corporation: *See—*
Berti, Eugenio, 4,332,359, Cl. 242-203.000.
Looschen, Floyd W., 4,333,176, Cl. 370-84.000.

Burrows, Ian E.: *See—*
Buckley, Keith; Burrows, Ian E.; and Lowe, Philip J., 4,332,832, Cl. 426-641.000.

Bury, Joe. Target with magnetically-held, dislodgeable indicator. 4,332,390, Cl. 273-389.000.

Busse, Jurgen: *See—*
Soecknick, Erhard; and Busse, Jurgen, 4,332,143, Cl. 62-284.000.

Butler, John L., to Image Acoustics, Inc. Speaker system employing passive radiator. 4,332,986, Cl. 179-146.00E.

Butterwick, Gilbert N., to RCA Corporation. Photomultiplier tube having directional alkali metal vapor evaporation means. 4,333,031, Cl. 313-95.000.

Byrne, Joseph H., Jr., to Bowen Tools, Inc. Bowl structure. 4,332,062, Cl. 24-263.0DA.

C. G. R. MeV: *See—*
Bensussan, Andre; and Azam, Guy, 4,332,091, Cl. 34-1.000.

C. J. Rush Limited: *See—*
Appelmann, Horst, 4,332,108, Cl. 49-44.000.

Cabelli, Michael D.; and Groman, Ernest V., to Baxter Travenol Laboratories, Inc. Method and composition for vitamin B-12 Assay. 4,332,786, Cl. 424-1.000.

Cachier, Gerard, to Thomson-CSF. Ultra-high frequency simultaneous transmission and reception head, millimeter wave transmitter - receiver and radar using such a head. 4,333,076, Cl. 343-5.0DD.

Caffrey, Michael S. Superior performance yo-yo. 4,332,102, Cl. 46-61.000.

Cail, Norman; Daniels, Raymond A.; Eggerling, John B.; and Lammers, Gerald B., to International Business Machines Corporation. Electrical drive for scanning optics in a continuously variable reduction copier. 4,332,461, Cl. 355-14.00R.

Calder, Powell L., to Texas Instruments. Input process sequence controller. 4,333,143, Cl. 364-200.000.

Calvert, Rodney K., to Mead Corporation, The. Packaging machine and method. 4,332,123, Cl. 53-475.000.

Camezon, Raymond E.: *See—*
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Campbell, Robert W.: *See—*
Nimer, Edward L.; and Campbell, Robert W., 4,332,911, Cl. 501-140.000.

Campbell, Sterret P. Dough divider. 4,332,538, Cl. 425-140.000.

Candelaria, Ken: *See—*
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Cane, Domenick; and Peterson, Ray D., to Westinghouse Electric Corp. Paired stage flash evaporator having improved distillate collection. 4,332,642, Cl. 202-173.000.

Cannella, Vincent D.: *See—*
Izu, Masatsugu; and Cannella, Vincent D., 4,332,880, Cl. 430-272.000.

Canon Kabushiki Kaisha: *See—*
Matsumoto, Kazuya, 4,333,112, Cl. 358-298.000.
Mochizuki, Noritaka; and Kubota, Atsushi, 4,333,130, Cl. 362-293.000.
Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, 4,332,876, Cl. 430-68.000.
Okuno, Youichi, 4,332,446, Cl. 354-155.000.
Sato, Masatoshi, 4,332,477, Cl. 356-371.000.
Tamura, Yasuyuki; Nakahata, Kimio; and Ishida, Masato, 4,333,124, Cl. 361-214.000.
Uehara, Haruo; and Satomi, Kunio, 4,332,706, Cl. 523-450.000.
Yagasaki, Toshiaki; Masuda, Shunichi; Shimizu, Katsuichi; and Sakamaki, Hisashi, 4,332,462, Cl. 355-14.00R.

Carbonisation Entreprise et Ceramique (C.E.C.): *See—*
Belval, Michel; Casselman, Chantal; Malet, Jean-Claude; Prats, Christian; and Meneret, Jean, 4,332,170, Cl. 73-40.50R.

Cardell, Max L.: *See—*
Brayford, John R.; and Cardell, Max L., 4,332,764, Cl. 264-176.00F.

Cardin, Pierre J. Muscle building apparatus for developing bending strength. 4,332,380, Cl. 272-137.000.

Cargile, Harry M., to Emhart Industries, Inc. Core pin support and adjusting arrangement. 4,332,545, Cl. 425-577.000.

Carlew Chemicals Limited: *See—*
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Carlson, Paul R.; and Carlson, Richard L. Remotely manually controllable belt drive clutch. 4,332,572, Cl. 474-38.000.

Carlson, Richard L.: *See—*
Carlson, Paul R.; and Carlson, Richard L., 4,332,572, Cl. 474-38.000.

Carlson, Roland W.: *See—*
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Carrier Corporation: *See—*
Hayes, Richmond S., Jr., 4,332,137, Cl. 62-81.000.
Nakahama, Syuhei; and Yamashita, Etsu, 4,333,001, Cl. 219-125.100.

Caruso, Peter J., to Bendix Corporation, The. Electromechanical decoder. 4,333,073, Cl. 340-825.360.

CasChem, Inc.: *See—*
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Casey, James O., Jr.: *See—*
Phillips, Bobby M.; Casey, James O., Jr.; and Gregory, Dale R., 4,332,761, Cl. 264-147.000.

Casio Computer, Co., Ltd.: *See—*
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Cassella Aktiengesellschaft: *See—*
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Casselman, Chantal: *See—*
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Castaneda, Henry B.: *See—*
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Catt, Ivor. Data processing apparatus operative on data passing along a serial, segmented store. 4,333,161, Cl. 364-900.000.

Cave, Ellis K., to Banc-By-Phone Corporation. Automatic gain control circuit with non-negative exponential release. 4,333,056, Cl. 330-129.000.

Celanese Corporation: *See—*
Barer, Sol J., 4,332,817, Cl. 424-285.000.
Dalton, Charles A.; and Slinkard, William E., 4,332,971, Cl. 568-480.000.
Ide, Yoshiaki, 4,332,759, Cl. 264-108.000.

Centini, Felice: *See—*
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Centre de Recherches Metallurgie-Centrum voor Research in de Metallurgie: *See—*
Economopoulos, Marios; and Lambert, Nicole, 4,332,630, Cl. 148-12.00B.

Centre Stephanois de Recherches Mecaniques Hydromecanique et Frottement: *See—*
Estenevy, Serge, 4,332,098, Cl. 42-84.000.

Ceskoslovenska akademie ved: *See—*
Kalal, Jaroslav; and Tlustakova, Marie, 4,332,694, Cl. 252-189.000.

Cetenko, Wiaczeslaw A.: *See—*
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Champion International Corporation: *See—*
Fremont, Henry A., 4,332,748, Cl. 264-11.000.
Jaeschke, Harold R.; Linder, Alan; and Boyle, Daniel J., 4,332,322, Cl. 206-364.000.

Chamran, Morteza M.; Scott, Larkin B.; Williams, Paul B.; and Ford, Michael A., to Perkin-Elmer Corporation, The. Spectrophotometer system having power line synchronization. 4,332,470, Cl. 356-325.000.

Chang, Wen-Hsuan: *See—*
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Chapman, Gary L.; and Cummins, William H., to Texaco Inc. Catalyst bed level measuring device. 4,332,086, Cl. 33-126.500.

Charkey, Allen, to Energy Research Corporation. Zinc electrode with cement additive. 4,332,871, Cl. 429-217.000.

Chase, Edward J., Jr.: *See—*
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Chemetrics, Inc.: *See—*
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Chemical Research & Licensing Company: *See—*
Smith, Lawrence A., Jr., 4,332,968, Cl. 564-278.000.

Chemische Werke Huls Aktiengesellschaft: *See—*
Muller, Wolfgang H. E.; and Zolffel, Michael, 4,332,645, Cl. 203-75.000.

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Gong, Cheng-Shung; Chen, Li-Fu; and Tsao, George T., 4,332,903, Cl. 435-254.000.

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Cheney, Marvin C., Jr., to United Technologies Corporation. Matched stiffness rotor flexbeam and blade system. 4,332,525, Cl. 416-134.00A.

Chertock, Alan J., deceased (by Hlavac, Theodore E., Jr., beneficiary); Fox, Jack N.; and Weissinger, Robert B., to United States of America, Energy. Vibrating fuel grapple. 4,332,640, Cl. 376-264.000.

Chesley, Gilman D. Self-configurable computer and memory system. 4,333,142, Cl. 364-200.000.

Chevron Research: *See—*
Albom, Bradley S., 4,332,912, Cl. 501-140.000.
Nimer, Edward L.; and Campbell, Robert W., 4,332,911, Cl. 501-140.000.

Chevron Research Company: *See—*
Blanton, William A., Jr.; and Flanders, Robert L., 4,332,672, Cl. 208-120.000.
Chin, Thomas G.; and Alston, Arthur, 4,332,159, Cl. 73-64.200.
Fraas, Lewis M., 4,332,974, Cl. 136-249.000.
Spars, Byron G.; Tamm, Paul W.; and Wallman, P. H., 4,332,669, Cl. 208-11.00R.

Chikama, Toshio, to Machida Endoscope Co., Ltd. Guide tube assembly. 4,332,242, Cl. 128-3.000.

Chikamasa, Hiroshi: *See—*
Tanaka, Yasunori; Noda, Shinji; and Chikamasa, Hiroshi, 4,332,840, Cl. 427-130.000.

Chin, Arthur H. T.: *See—*
Adkins, David E.; Chin, Arthur H. T.; Haws, Ronnie E.; and Wittman, Robert H., 4,332,277, Cl. 138-89.000.

Chin, Thomas G.; and Alston, Arthur, to Chevron Research Company. Reid vapor pressure tester. 4,332,159, Cl. 73-64.200.

Chinn, Eldon K.: *See—*
Parks, Alvin L.; and McAlexander, W. D., 4,332,299, Cl. 172-98.000.
Chloride Group Limited: *See—*
Gurwicz, David, 4,333,134, Cl. 363-17.000.
McWhinnie, John, 4,332,629, Cl. 148-11.50R.
Christiansen, James S. Wallet with elastic strap. 4,332,338, Cl. 224-222.000.
Christman, Donald L.; and Kan, Peter T., to BASF Wyandotte Corporation. Carbamylbiuret-modified polyisocyanates. 4,332,953, Cl. 548-307.000.
Christmann, Harold F.; and Miklas, Edward J., to Petro-Tex Chemical Corporation. Modified zinc ferrite oxidative dehydrogenation catalysts in oxidative dehydrogenation. 4,332,972, Cl. 585-442.000.
Chrysler Corporation: *See—*
Zimmerman, David M., 4,332,594, Cl. 44-53.000.
Ciba-Geigy AG: *See—*
Seifert, Gottfried; and Staubli, Sebastian, 4,332,939, Cl. 544-217.000.
Ciba-Geigy Corporation: *See—*
Auriemma, Joseph F., 4,332,403, Cl. 285-189.000.
Eugster, Peter; and Koller, Stefan, 4,332,588, Cl. 8-526.000.
Fah, Hansjakob; Farooq, Saleem; Grieder, Alfred; and Scheuzger, Karl, 4,332,811, Cl. 424-267.000.
Lehmann, Hans, 4,332,713, Cl. 156-328.000.
Nyfeler, Robert, 4,332,816, Cl. 424-274.000.
Reinehr, Dieter; and Hubele, Adolf, 4,332,969, Cl. 564-460.000.
Zink, Rudolf, 4,332,937, Cl. 544-105.000.
Ciciora, Walter S., to Zenith Radio Corporation. Intelligent teletext decoder. 4,333,109, Cl. 358-147.000.
Cise S.p.A.: *See—*
Adorni, Napoleone; and Pizzolati, Pier L., 4,332,436, Cl. 350-96.230.
Citizen Watch Co., Ltd.: *See—*
Nishikubo, Yasuhiko, 4,333,171, Cl. 368-87.000.
Ciuffini, Anthony J.: *See—*
Bartulis, Michael V.; Smura, Edwin J.; Dunn, Richard P.; Bebb, Herbert B.; Ciuffini, Anthony J.; and Mosing, Lionel W., 4,332,464, Cl. 355-14.00C.
Claire, Earl J.: *See—*
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Clark, Paul R., to Rockwell International Corporation. Printed circuit board connector. 4,332,430, Cl. 339-17.00C.
Clark, Robin D., to Syntex (U.S.A.) Inc. 9-[2-(3-Indolyl)ethyl]-1oxa-4,9-diazaspiro[5.5]undecan-3-ones. 4,332,804, Cl. 424-248.570.
Clark, William D. K.: *See—*
Bernstein, Philip; Coffey, James P.; Varker, Alan E.; Arms, John T.; Clark, William D. K.; and Goodell, Paul D., 4,332,698, Cl. 252-430.000.
Clayton, William J., to Mobil Oil Corporation. Plastic bag having unique tuck flap construction. 4,332,347, Cl. 229-62.000.
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Berglund, Erling G., 4,332,768, Cl. 422-63.000.
Cloverline Inc., The: *See—*
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Cobaugh, Robert F.: *See—*
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Cobler, John A.: *See—*
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Cobra Golf, Inc. II: *See—*
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Cochran, Gary L.; and Parquet, Donald J., to J. I. Case Company. Hydrostatic transmission bleed-off valve. 4,332,134, Cl. 60-464.000.
Coffey, James P.: *See—*
Bernstein, Philip; Coffey, James P.; Varker, Alan E.; Arms, John T.; Clark, William D. K.; and Goodell, Paul D., 4,332,698, Cl. 252-430.000.
Coflexip: *See—*
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Cointment, Delma M. Device for removing and replacing soft contact lenses worn on the human eye. 4,332,408, Cl. 294-1.0CA.
Colleran, Stephen A., to Molex Incorporated. Low insertion force connector assembly. 4,332,432, Cl. 339-75.00M.
Collet, Marnix G.: *See—*
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Collins, John D.; MacFall, Douglas S., Jr.; and Sciarretta, William A., to Raytheon Company. Signal processor. 4,333,080, Cl. 343-17.2PC.
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Commissariat a l'Energie Atomique: *See—*
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Compagnie Internationale pour l'Informatique Cii-Honeywell Bull (Societe Anonyme): *See—*
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Comstedt, Per A. P.; and Elfner, Bo A., to El-Fi Innovationer AB. Load indicators for alternating-current motors. 4,333,118, Cl. 361-30.000.
Connor, David T.: *See—*
Tinney, Francis J.; Connor, David T.; Cetenko, Wiaczeslaw A.; Kerbleski, Joseph J.; and Sorenson, Roderick J., 4,332,947, Cl. 546-284.000.
Conoco Inc.: *See—*
Boyer, Lyndon D., 4,332,671, Cl. 208-92.000.
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Consan Pacific Incorporated: *See—*
Moulden, R. Edward, 4,333,123, Cl. 361-213.000.
Control Data Corporation: *See—*
Strom, Richard A., 4,333,039, Cl. 315-169.400.
Conwed Corporation: *See—*
Kelly, Michael G.; and Pastien, Eugene R., 4,332,326, Cl. 206-497.000.
Conyers, John A.; Oberth, Adolph E.; and Santerre, George M., to United States of America, Navy. Solid propellant composition. 4,332,632, Cl. 149-19.200.
Cook, R. Gordon; and Townsend, Todd V., to Lynch Communication Systems, Inc. Telephone system using pulse code modulated subscriber lines. 4,333,175, Cl. 370-56.000.
Cooney, Charles L.; and Schaefer, Eugene J., to Massachusetts Institute of Technology. Process for producing maltase. 4,332,899, Cl. 435-172.000.
Corben, Leo D., to Polaroid Corporation. Method for stabilizing and spectrally sensitizing photosensitive silver halide emulsion. 4,332,888, Cl. 430-570.000.
Cordingley, Lowell A.; and Gutschick, Lester C., to Zenith Radio Corporation. Anode contact spring and method thereof for color cathode ray picture tubes. 4,333,033, Cl. 313-407.000.
Corl, Robert W., Jr., to Modular Systems, Inc. Interlocking furniture assembly and method. 4,332,205, Cl. 108-60.000.
Coski, William D. Reciprocably supported dual drive member and features thereof. 4,332,420, Cl. 299-31.000.
Costanza, Daniel W., to Xerox Corporation. Optical scanning carriage. 4,332,460, Cl. 355-8.000.
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Coulter Systems Corporation: *See—*
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Coussement, Marc: *See—*
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Cowan, Robert W.: *See—*
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Cowman, Joel V. Stud locater. 4,332,088, Cl. 33-169.00R.
Cox, Francis G.; and Ricketts, William J., to General Motors Corporation. Internal combustion engine with oxygen sensor heater control. 4,332,225, Cl. 123-440.000.
Crackel, John E., to TRW Inc. Digital phase-frequency detector. 4,333,055, Cl. 328-133.000.
Cresap, Richard L.; Taylor, Carson W.; and Kreipe, Michael J., to United States of America, Energy. Transient stability enhancement of electric power generating systems by 120-degree phase rotation. 4,333,021, Cl. 307-87.000.
Crocker, Zenas; and Gupta, Ved P., to Carlew Chemicals Limited. Apparatus for controlled mixing in a high intensity mixer. 4,332,479, Cl. 366-77.000.
Crooke, Peter A.; and Gallimore, Kenneth, to Rolls-Royce Limited. Porous refractory materials. 4,332,753, Cl. 264-44.000.
Crosby, Jeffrey N.: *See—*
Rhoda, Richard N.; and Crosby, Jeffrey N., 4,332,780, Cl. 423-413.000.
Crosgrove, Robert O.; Moody, Edward; and Sletten, Harold L., to Electric Power Research Institute, Inc. Failed element detection and location system and method for use in a nuclear reactor. 4,332,639, Cl. 376-253.000.
Crouzet: *See—*
Devaud, Jacques; Costet, Jean-Robert; and Moulin, Michel, 4,333,154, Cl. 364-559.000.
Crow, Thomas L., to Cobra Golf, Inc. II. Golf club head. 4,332,388, Cl. 273-172.000.
Crown Systems Company: *See—*
Woloszczuk, Orest, 4,332,368, Cl. 251-30.000.
Csepel Muvek Hiradastechnikai Gepgyara: *See—*
Noszticzius, Zoltan; Olah, Karoly; Vajta, Zsofia; Palmai, Gyorgy; Patonay, Gabor; and Szommer, Ferenc, 4,332,664, Cl. 204-266.000.
Culk, Raimund. Variable pitch propellers. 4,332,526, Cl. 416-166.000.
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Cunningham, Lee. Heated bed for animals. 4,332,214, Cl. 119-1.000.
Cuschera, Casper. Self contained seal for drains. 4,332,393, Cl. 277-112.000.

Cyloflex, Inc.: *See—*
Lovas, Joseph R.; Lovas, Paul J.; and Koelmel, Carl F., 4,332,084, Cl. 30-380.000.
D.I.E.N.E.S Apparatebau GmbH: *See—*
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Dahlberg, Peter: *See—*
Thern, Rolf A. B.; and Dahlberg, Peter, 4,332,492, Cl. 400-320.000.
Daiberl, Karl. Aligning assembly for use in dentistry. 4,332,556, Cl. 433-69.000.
Daignault, Louis G.; and Schiller, Edward E., to PCA International, Inc. Removal of complexed heavy metals from waste effluents. 4,332,687, Cl. 210-721.000.
Dalibor, Horst, to Hoechst Aktiengesellschaft. Blocked polyisocyanates formed from a polyisocyanate containing biuret groups and from an acetoacetic acid alkyl ester. 4,332,965, Cl. 560-169.000.
Dalstein, Rolf; Spies, Johann; Greif, Hans-Dieter; Termath, Gunter; Unbescheid, Jurgen; and Nowoczyn, Hans-Werner, to Erno Raumfahrttechnik GmbH. Solar energy collector panel. 4,332,241, Cl. 126-450.000.
Dalton, Charles A.; and Slinkard, William E., to Celanese Corporation. Process for the oxidation of olefinically unsaturated hydrocarbons to aldehydes using attrition resistant catalysts. 4,332,971, Cl. 568-480.000.
Dalton, James M. Plasma fuel ignitors. 4,332,223, Cl. 123-253.000.
Damour, Lawrence R. Chuck for simultaneously winding a plurality of narrow product strips on cores. 4,332,356, Cl. 242-72.00B.
Dana Corporation: *See—*
Flotow, Richard A., 4,332,314, Cl. 192-89.00B.
Daniels, Raymond A.: *See—*
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Davich, Luke J.: *See—*
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David Brown Tractors, Ltd.: *See—*
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Davis, Grover M., to Talbot-Carlson, Inc. Controlled rate exerciser and method of conditioning. 4,332,217, Cl. 119-29.000.
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Davis, Paul C.; Jackson, Raymond G.; Sodomsky, Kenneth F.; and Whitson, Dennis L., to Bell Telephone Laboratories, Incorporated. Active speech network circuit for a telephone set. 4,332,984, Cl. 179-81.00R.
Davy, Lee N.: *See—*
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De Lorean Manufacturing Company: *See—*
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Dean, Robert R.; Mauleon, Jean-Louis; and Pfeiffer, Robert W. Method and apparatus for cracking residual oils. 4,332,674, Cl. 208-120.000.
Deane, Barry C.: *See—*
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De Busscher, Cyriel R. J., to Sperry Corporation. Combine harvester. 4,332,262, Cl. 130-27.00P.
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de Maight, Winfried, to Zahnradfabrik Friedrichshafen, AG. Auxiliary power steering. 4,332,303, Cl. 180-132.000.
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Deminov, Alexei D.: *See—*
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deMonterey, Francis G.; Adhia, Bharat J.; and Johnson, David M., to BASF Wyandotte Corporation. Process for preparing transparent iron oxide pigment dispersions. 4,332,354, Cl. 241-16.000.
Dempster Industries, Inc.: *See—*
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Dentrex Manufacturing Company: *See—*
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Dergo, Stephen J. Dowel drill fixture. 4,332,514, Cl. 408-103.000.
Descals Munt, Buenaventura. Adjustable quadrangular base for framework assembling machines. 4,332,366, Cl. 248-670.000.
De Schepper, Achille; and Coussement, Marc, to Metallutgie Hoboken-Overpelt. Process for treating an organic phase containing iron chloride, molybdenum chloride and HCl. 4,332,684, Cl. 210-634.000.
Desmet, John, to N. V. Bekaert S. A. Welded flexible screen deck. 4,332,862, Cl. 428-593.000.
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Deutsche Gold -und Silber-Scheideanstalt Vormals Roessler: *See—*
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Devaud, Jacques; Costet, Jean-Robert; and Moulin, Michel, to Crouzet. Device for determining the direction of a line of sight. 4,333,154, Cl. 364-559.000.
DeVitis, Thomas N. Medical apparatus. 4,332,248, Cl. 128-214.00R.
DeVries, Adrian J., to Zenith Radio Corporation. Low reflectivity apodized surface acoustic transducer with means to prevent wavefront distortion. 4,333,065, Cl. 333-194.000.
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DiDomenico, Mauro, Jr.; Singh, Shobha; and Van Uitert, LeGrand G., to Bell Telephone Laboratories, Incorporated. Structure of display devices. 4,332,440, Cl. 350-357.000.
Di Drusco, Giovanni; Rinaldi, Roberto; and Govoni, Gabriele, to Montedison S.p.A. Process for treating olefinic polymers with steam. 4,332,933, Cl. 528-500.000.
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Dietrich, Jurgen; Klotz, Hansjorg; and Hofer, Bernd, to Erno Raumfahrttechnick GmbH. Centrifuge. 4,332,349, Cl. 233-1.00R.
Diggins, Martin J., to Exxon Research & Engineering Co. Disposable peristaltic pump assembly for facsimile printer. 4,333,088, Cl. 346-140.00R.
Director-General of the Agency of Industrial Science and Technology, The: *See—*
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Renga, James M.; and Periana-Pillai, Roy A., 4,332,729, Cl. 549-229.000.
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Woo, Edmund P.; and Mullins, Michael J., 4,332,734, Cl. 549-253.000.
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Dravco Corporation: *See—*
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Drefahl, Klaus; and Gilles, Helmut, to Metallgesellschaft Aktiengesellschaft. Gas cooler with multiply deformed lead tubes. 4,332,294, Cl. 165-157.000.

Dreier, Raymond R.: *See—*
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Dresser Industries, Inc.: *See—*
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Sun, Robert J.; and Maltby, Frederick L., 4,332,167, Cl. 73-304.00C.

Drum, Ian; Madenburg, Richard S.; Paulsrude, Douglas M.; Sherman, Carroll H.; Turpin, Frank G.; and Wheatcroft, Gerry A., to Home Oil Company Limited; and Morrison-Knudsen Company, Inc. Manufacture of hydrogen sulfide. 4,332,774, Cl. 422-111.000.

DuBois, Grant E., to Dynapol. Sweetening with stevioside analogs. 4,332,830, Cl. 426-548.000.

DuBois, R. Clark; and Hamma, John C., to Gradco/Dendoki, Inc. Compact sorter. 4,332,377, Cl. 271-293.000.

Dudko, Daniil A.; Mozzhukhin, Anatoly A.; Sotchenko, Vladimir P.; and Maximovich, Boleslav I. Apparatus for delivery of valves and melting rings to an inductor heater for hard facing. 4,332,997, Cl. 219-9.500.

Duffy, Thomas E.: *See—*
Levy, David E.; Zwies, Alfred; and Duffy, Thomas E., 4,332,244, Cl. 128-205.250.

Dufrancatel, Michel, to Societe Anonyme: Esterel Caravanes. Folding caravan. 4,332,115, Cl. 52-66.000.

Dulin, David L., to Beach Manufacturing Corp. Self-tensioning printing cylinder lock. 4,332,197, Cl. 101-415.100.

Dumont, Claude: *See—*
Guillaume, Jacques; Nedelec, Lucien; Dumont, Claude; and Fournex, Robert, 4,332,808, Cl. 424-263.000.

Duncan, Eliot R.: *See—*
Larsen, Wallace L.; and Duncan, Eliot R., 4,332,992, Cl. 219-10.55R.

Dungan, Dennis F.; and Kuo, Wey-Chaung, to General Motors Corporation. Radio frequency interference suppressing ignition distributor. 4,332,988, Cl. 200-19.0DC.

Dunlop Limited: *See—*
Ponyik, Charles A., Jr.; and Tobias, Michael A., 4,332,701, Cl. 524-539.000.

Dunn, Richard P.: *See—*
Bartulis, Michael V.; Smura, Edwin J.; Dunn, Richard P.; Bebb, Herbert B.; Ciuffini, Anthony J.; and Mosing, Lionel W., 4,332,464, Cl. 355-14.00C.

Dunn, Wendell D., Jr., to Titanium Technology (Australia) Ltd. Process for beneficiating a titaniferous ore. 4,332,615, Cl. 75-1.0TI.

Dunweg, Gustav: *See—*
Henne, Werner; Bandel, Werner; and Dunweg, Gustav, 4,332,752, Cl. 264-41.000.

Dunworth, Bruce E., to Ferro Corporation. Free flowing metallurgical well powder. 4,332,910, Cl. 501-106.000.

Dupeuble, Jean-Claude: *See—*
Bru, Christian; and Dupeuble, Jean-Claude, 4,332,132, Cl. 57-280.000.

Du Pont de Nemours, E. I., and Company: *See—*
Lynch, Charles E., 4,332,762, Cl. 264-168.000.
Manos, Philip, 4,332,737, Cl. 260-404.500.
Petersen, Wallace C., 4,332,611, Cl. 71-92.000.

Duracell International Inc.: *See—*
Parsen, Frank E.; and Graham, Teresita O., 4,332,870, Cl. 429-206.000.

Dyachkovskaya, Raisa F.: *See—*
Emanuel, Nikolai M.; Konovalova, Nina P.; Povarov, Leonard S.; Shapiro, Anatoly B.; Dyachkovskaya, Raisa F.; Suskina, Valentina I.; and Denisova, Ljudmila K., 4,332,934, Cl. 536-6.400.

Dynaflair Corporation Canada, Inc.: *See—*
Stolpe, Rudolf, 4,332,287, Cl. 160-133.000.

Dynapol: *See—*
DuBois, Grant E., 4,332,830, Cl. 426-548.000.

E.N.I. Ente Nozionale Idrocarburi: *See—*
Olivieri, Roberto; Eletti Bianchi, Giancarlo; Fascetti, Eugenio; Centini, Felice; Degen, Ludwig; and Marconi, Walter, 4,332,905, Cl. 435-280.000.

E. R. Squibb & Sons, Inc.: *See—*
Korzun, John N., 4,332,726, Cl. 548-533.000.
Wade, Peter C., 4,332,812, Cl. 424-269.000.

E-Systems, Inc.: *See—*
Mosley, William H., Jr.; and Andren, Carl F., 4,333,060, Cl. 331-1.00A.

Eapen, Kuttikandathil E.: *See—*
Kahn, Marvin L.; and Eapen, Kuttikandathil E., 4,332,824, Cl. 426-330.300.

Earle, Roger W.; and Walsh, William J., to Sybron Corporation. Vacuum firing porcelain furnace. 4,332,553, Cl. 432-205.000.

Eastman Kodak Company: *See—*
Firth, Ronald R.; and Davy, Lee N., 4,332,463, Cl. 355-14.00R.
Lelental, Mark; and Sutton, Richard C., 4,332,875, Cl. 430-45.000.
Phillips, Bobby M.; Casey, James O., Jr.; and Gregory, Dale R., 4,332,761, Cl. 264-147.000.
Seely, Neil G.; and Smart, David C., 4,332,453, Cl. 354-288.000.

Eaton Corporation: *See—*
Brown, Wade R., 4,332,275, Cl. 137-504.000.
Hayden, John E.; and Rutchik, Walter L., 4,333,122, Cl. 361-114.000.

Eberl, Leonhard: *See—*
Bauer, Otto; Eberl, Leonhard; Geyer, Gerhard; and Straubel, Max, 4,332,227, Cl. 123-502.000.

Ebi, Yutaka, to Ricoh Company, Ltd. Ink jet printing apparatus. 4,333,086, Cl. 346-140.00R.

Ebisawa, Mikio: *See—*
Kimoto, Kyoji; Miyauchi, Hirotsugu; Ohmura, Jukichi; Ebisawa, Mikio; and Hane, Toshioki, 4,332,665, Cl. 204-296.000.

Eckmann, Gerald C.: *See—*
Kuus, Felix; and Eckmann, Gerald C., 4,332,298, Cl. 166-319.000.

Ecodyne Corporation: *See—*
Nowlin, Duane D.; and Winberg, Dennis G., 4,332,685, Cl. 210-638.000.

Economopoulos, Marios; and Lambert, Nicole, to Centre de Recherches Metallurgie-Centrum voor Research in de Metallurgie. Continuous cooling of low carbon steel wire rod. 4,332,630, Cl. 148-12.00B.

Eddy, Roger C. Lockable support float. 4,332,048, Cl. 441-1.000.

Eduard Rohr AG: *See—*
Rohr, Eduard, 4,332,271, Cl. 137-315.000.

Edwards, Colin W., to Hughes Aircraft Company. Semiconductor memory circuits. 4,333,166, Cl. 365-182.000.

Edwards, William B., III, to Philip Morris, Incorporated. Optically active nicotine analogs and process for their preparation. 4,332,945, Cl. 546-281.000.

Egami, Tsuneyuki: *See—*
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,332,165, Cl. 73-204.000.

Eggerling, John B.: *See—*
Cail, Norman; Daniels, Raymond A.; Eggerling, John B.; and Lammers, Gerald B., 4,332,461, Cl. 355-14.00R.

Egyt Gyogyszervegyeszeti Gyar: *See—*
Fischer, Janos; Rozsa, Laszlo; Vago, Pal; Bakonyi, Anna; and Fazekas, Gabor, 4,332,725, Cl. 548-533.000.
Kuszmann, Janos; Medgyes, Gabor; Andrasy, Ferenc; and Berzsenyi, Pal, 4,332,818, Cl. 424-285.000.

Ehrhardt, Henry S., to Industrial Heat Engineering. Fabric singer burner and manifold assembly. 4,332,063, Cl. 26-3.000.

Ehrmann, Wolfgang; and Winter, Claus, to Hafele KG, Firma. Lock catch for doors. 4,332,406, Cl. 292-18.000.

Eiler, Peter: *See—*
Otto, Gunter; and Eiler, Peter, 4,332,328, Cl. 212-180.000.

Einbinder, Harvey. Ten-finger typewriter keyboards. 4,332,493, Cl. 400-484.000.

El-Fi Innovationer AB: *See—*
Comstedt, Per A. P.; and Elfner, Bo A., 4,333,118, Cl. 361-30.000.

Electric Power Research Institute, Inc.: *See—*
Crosgrove, Robert O.; Moody, Edward; and Sletten, Harold L., 4,332,639, Cl. 376-253.000.

Electrostatic Equipment Corp.: *See—*
Knudsen, Walter G., 4,332,835, Cl. 427-32.000.

Eletti Bianchi, Giancarlo: *See—*
Olivieri, Roberto; Eletti Bianchi, Giancarlo; Fascetti, Eugenio; Centini, Felice; Degen, Ludwig; and Marconi, Walter, 4,332,905, Cl. 435-280.000.

Elfner, Bo A.: *See—*
Comstedt, Per A. P.; and Elfner, Bo A., 4,333,118, Cl. 361-30.000.

Elleuch, Boubaker: *See—*
Kervennal, Jacques; Elleuch, Boubaker; and Taarit, Younes B., 4,332,739, Cl. 260-453.0PC.

Ellis, John R.: *See—*
Reynolds, Christopher C.; Claire, Earl J.; and Ellis, John R., 4,332,980, Cl. 179-2.00A.

Ellis, John T., to Illinois Tube Company. V-Belt measuring device. 4,332,087, Cl. 33-137.00R.

Ellner, Irving L.: *See—*
Raber, Samuel; and Ellner, Irving L., 4,333,093, Cl. 340-566.000.

Ellzey, Rex B., to Benton Casing Service, Inc. Oil well pipe pickup and laydown apparatus. 4,332,411, Cl. 294-104.000.

Eltra Corporation: *See—*
Mletzko, Alfred E.; and Gonet, Andrew P., 4,333,153, Cl. 364-523.000.

Eltro GmbH: *See—*
Aberle, Claus; Ruger, James F.; and Schulz, Klaus-Peter, 4,332,168, Cl. 374-130.000.

Emanuel, Nikolai M.; Konovalova, Nina P.; Povarov, Leonard S.; Shapiro, Anatoly B.; Dyachkovskaya, Raisa F.; Suskina, Valentina I.; and Denisova, Ljudmila K. 13-(1-Oxyl-2,2,6,6-tetramethylpiperylidenyl-4)hydrazone rubomycin hydrochloride with a paramagnetic center and a method of producing same. 4,332,934, Cl. 536-6.400.

Emerson, Reginald S., to Leslie Hartridge Limited. Cam box assembly. 4,332,163, Cl. 73-119.00A.

Emhart Industries, Inc.: *See—*
Cargile, Harry M., 4,332,545, Cl. 425-577.000.
Gardner, Edward B., 4,332,606, Cl. 65-158.000.

EMI Limited: *See—*
Harrison, Colin G.; and Burl, Michael, 4,333,053, Cl. 324-307.000.

Endo, Takeshi; Ogasawara, Takahisa; and Mizutani, Kiyokazu, to Toagosei Chemical Industry Co., Ltd. 2-Methylene-1,4,6-trioxaspiro[4,6]undecane, process for the preparation thereof and process for the preparation of polymers. 4,332,731, Cl. 549-334.000.

Energy Conversion Devices, Inc.: *See—*
Flasck, Richard, 4,332,466, Cl. 355-27.000.
Izu, Masatsugu; and Cannella, Vincent D., 4,332,880, Cl. 430-272.000.

Energy Research Corporation: *See—*
Charkey, Allen, 4,332,871, Cl. 429-217.000.

Engel, John F., to FMC Corporation. Insecticidal perhaloalkylvinylcyclopropanecarboxylates. 4,332,815, Cl. 424-274.000.

Engler, Kevin G. Fluid mixer. 4,332,482, Cl. 366-130.000.

English, Michael F.: *See—*
Benitez, Francisco M.; and English, Michael F., 4,332,738, Cl. 260-410.600.

Engstrom, George L.: *See—*
Waldo, Russell W.; and Engstrom, George L., 4,332,407, Cl. 292-161.000.

Ennis, George T., to N/S Car Wash Enterprises, Inc. Method for brushing the front, sides and rear of a vehicle. 4,332,625, Cl. 134-6.000.

Enokita, Ryuzou: *See—*
Arai, Mamoru; Torikata, Akio; Enokita, Ryuzou; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,332,902, Cl. 435-253.000.

Enomoto, Hiroshi: *See—*
Iwai, Kazuhiro; and Enomoto, Hiroshi, 4,332,310, Cl. 188-218.00A.

Enomoto, Satoru: *See—*
Asano, Kiro; Tamura, Humio; Tanaka, Hiromitsu; and Enomoto, Satoru, 4,332,797, Cl. 424-238.000.

Enting, David E.: *See—*
Frohwerk, Arthur E.; and Enting, David E., 4,332,327, Cl. 206-604.000.

Epperly, William R.; Deane, Barry C.; and Brunson, Roy J., to Exxon Research & Engineering Co. Liquefaction process for solid carbonaceous materials containing alkaline earth metal humates. 4,332,667, Cl. 208-8.0LE.

Erckel, Rudiger: *See—*
Bicker, Richard; and Erckel, Rudiger, 4,332,943, Cl. 546-253.000.

Erdos, Adorjan: *See—*
Ghyczy, Miklos; Erdos, Adorjan; Heidemann, Gunter; and Ritzmann, Gotz, 4,332,795, Cl. 424-199.000.

Erickson, Jack A.; Davich, Luke J.; and Proulx, Richard W., to Federal Cartridge Corporation. One-piece shotshell. 4,332,766, Cl. 264-249.000.

Erickson, John W., to Kobe, Inc. High speed jet rotating casing apparatus. 4,332,521, Cl. 415-189.000.

Erion, Jeffrey A., to Ford Motor Company. Window assembly. 4,332,413, Cl. 296-84.00R.

Erno Raumfahrttechnick GmbH: *See—*
Dietrich, Jurgen; Klotz, Hansjorg; and Hofer, Bernd, 4,332,349, Cl. 233-1.00R.

Erno Raumfahrttechnik GmbH: *See—*
Dalstein, Rolf; Spies, Johann; Greif, Hans-Dieter; Termath, Gunter; Unbescheid, Jurgen; and Nowoczyn, Hans-Werner, 4,332,241, Cl. 126-450.000.

Esformes, Ira; and Kummer, Frederick J., to Hospital for Joint Disease Orthopaedic Institute. Artificial joint. 4,332,037, Cl. 3-1.910.

Esposito, James E., to Union Carbide Corporation. Solutions of bromoxynil and ioxynil. 4,332,613, Cl. 71-105.000.

Essery, John M.: *See—*
Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., 4,332,951, Cl. 548-218.000.
Schmitz, Henry; Kaneko, Takushi; Essery, John M.; and Doyle, Terrence W., 4,332,732, Cl. 549-332.000.

Essex Chemical Corporation: *See—*
Roggenburg, Stanley L., Jr.; and Tully, Michael E., 4,332,750, Cl. 264-23.000.

Estenevy, Serge, to Centre Stephanois de Recherches Mecaniques Hydromecanique et Frottement. Electric control weapon, operation and ammunition therefor. 4,332,098, Cl. 42-84.000.

Etschenberg, Eugen; Jacobi, Haireddin; and Opitz, Wolfgang, to Troponwerke GmbH & Co. KG. Antiphlogistic agent and its use. 4,332,819, Cl. 424-301.000.

Eugster, Peter; and Koller, Stefan, to Ciba-Geigy Corporation. Disperse dye stable to dyeing, and its use for dyeing and printing synthetic and semi-synthetic fibre materials. 4,332,588, Cl. 8-526.000.

Europatent S.A.: *See—*
Burgers, August, 4,332,495, Cl. 403-6.000.

Eurosil GmbH: *See—*
Hentzschel, Hans; and Ludwig, Soni-Enrico, 4,333,098, Cl. 340-805.000.

Evans, Robert W., to Baker International Corporation. Ball valve assembly. 4,332,267, Cl. 137-1.000.

Ewing, Charles W. Flashlight with battery separator. 4,333,129, Cl. 362-205.000.

Ex-Cell-O Corporation: *See—*
Moran, John P., 4,332,345, Cl. 229-37.00R.

Expert Automation, Inc.: *See—*
Rust, Norbert, 4,332,176, Cl. 74-110.000.

Exxon Research & Engineering Co.: *See—*
Bacsik, George J., 4,332,546, Cl. 431-5.000.
Baset, Zeinab, 4,332,675, Cl. 208-254.00R.
Baset, Zeinab, 4,332,676, Cl. 208-254.00R.
Bauman, Richard F.; and Ryan, Daniel F., 4,332,666, Cl. 208-8.0LE.
Benitez, Francisco M.; and English, Michael F., 4,332,738, Cl. 260-410.600.
Brunson, Roy J., 4,332,668, Cl. 208-8.0LE.
Diggins, Martin J., 4,333,088, Cl. 346-140.00R.
Epperly, William R.; Deane, Barry C.; and Brunson, Roy J., 4,332,667, Cl. 208-8.0LE.

Faerber, Nelson A.; and Bonner, Edgar L. Television editing system. 4,333,110, Cl. 358-165.000.

Fah, Hansjakob; Farooq, Saleem; Grieder, Alfred; and Scheuzger, Karl, to Ciba-Geigy Corporation. 1,3-Benzodithiol-2-N,N-dialkyliminium salts and pesticidal use. 4,332,811, Cl. 424-267.000.

Fairchild Camera & Instrument Corp.: *See—*
Kant, Rajni, 4,332,070, Cl. 29-578.000.

Falzarano, Anthony V.: *See—*
Milden, Morton; and Falzarano, Anthony V., 4,332,383, Cl. 273-64.000.

Farooq, Saleem: *See—*
Fah, Hansjakob; Farooq, Saleem; Grieder, Alfred; and Scheuzger, Karl, 4,332,811, Cl. 424-267.000.

Farrell, Sherman R., to RPC Industries. Anode foil holder for broad beam electron gun. 4,333,036, Cl. 313-420.000.

Farrington, Jeffrey G., to International Standard Electric Corporation. Optical fiber repeater. 4,333,178, Cl. 455-601.000.

Fascetti, Eugenio: *See—*
Olivieri, Roberto; Eletti Bianchi, Giancarlo; Fascetti, Eugenio; Centini, Felice; Degen, Ludwig; and Marconi, Walter, 4,332,905, Cl. 435-280.000.

Faulhaber, Fritz. Solid-state commutator for use in electric motors. 4,333,015, Cl. 250-551.000.

Fawley, Norman C. Rotatable valve protector for compressed gas cylinder. 4,332,331, Cl. 220-85.00P.

Fazekas, Gabor: *See—*
Fischer, Janos; Rozsa, Laszlo; Vago, Pal; Bakonyi, Anna; and Fazekas, Gabor, 4,332,725, Cl. 548-533.000.

Federal Cartridge Corporation: *See—*
Erickson, Jack A.; Davich, Luke J.; and Proulx, Richard W., 4,332,766, Cl. 264-249.000.

Federal Paper Board Company, Inc.: *See—*
Manizza, Guelfo A., 4,332,325, Cl. 206-216.000.

Feibelman, Jeffrey A., to A & H Mfg. Co. Pendant display card. 4,332,320, Cl. 206-45.140.

Feichtner, Hannes: *See—*
Haslmayr, Johann; and Feichtner, Hannes, 4,332,551, Cl. 432-19.000.

Feldman, Michael A. Storage vial for soft contact lenses. 4,332,318, Cl. 206-5.100.

Felthuis, Jacob: *See—*
van Laar, Jacobus; Felthuis, Jacob; and Kastelic, Wilhelmus A. J., 4,332,554, Cl. 432-233.000.

Ferranti Limited: *See—*
McLeod, John, 4,332,636, Cl. 156-289.000.

Ferrentino, Antonio, to Industrie Pirelli Societa per Azioni. Method and apparatus for recovering a length of an elongated body, submerged in water. 4,332,510, Cl. 405-171.000.

Ferri, Johann W.: *See—*
Gasser, Hermann; di Benedetto, Paolo; and Ferri, Johann W., 4,332,130, Cl. 57-279.000.

Ferro Corporation: *See—*
Dunworth, Bruce E., 4,332,910, Cl. 501-106.000.
Searight, Charles E.; and Heasley, James H., 4,332,437, Cl. 350-103.000.

Fiber Industries, Inc.: *See—*
Blackmon, Lawrence E.; Dees, John R.; Kelly, Darrell A.; Mowe, Wayne T.; and Yu, Jing-Peir, 4,332,757, Cl. 264-103.000.
Blackmon, Lawrence E.; Dees, John R.; and Mowe, Wayne T., 4,332,758, Cl. 264-103.000.
Brayford, John R.; and Cardell, Max L., 4,332,764, Cl. 264-176.00F.

Fichtel & Sachs AG: *See—*
Hengst, Bernd; Grosspietsch, Wolfgang; and Ognibeni, Karl-Heinz, 4,332,679, Cl. 210-90.000.

Fickert, Werner: *See—*
Orth, Winfried; Lange, Fritz W.; and Fickert, Werner, 4,332,728, Cl. 548-519.000.

Fiedler, Volker: *See—*
Schonafinger, Karl; Beyerle, Rudi; Nitz, Rolf-Eberhard; Martorana, Piero A.; and Fiedler, Volker, 4,332,801, Cl. 424-246.000.

Field Electronics Inc.: *See—*
Jenkins, John P.; Rector, Stephen W.; McCarty, John J.; and Hammond, William, 4,333,096, Cl. 340-684.000.

Field, Max N. Communication aid means and method. 4,333,092, Cl. 340-378.200.
Filtrol Corporation: *See—*
Scherzer, Julius; and Liu, Anh-Thu, 4,332,782, Cl. 423-628.000.
Fiorentini, Carlo, to Afros S.r.l. Head for mixing and ejecting interacting liquid components, for molding plastic materials. 4,332,335, Cl. 222-145.000.
Firestone, Raymond A., to Merck & Co., Inc. Allylsulfoxide enzyme inhibitors. 4,332,813, Cl. 424-273.00R.
First National Supermarkets, Inc.: *See—*
Mart, Clyde D., 4,332,190, Cl. 99-538.000.
Firth, Ronald R.; and Davy, Lee N., to Eastman Kodak Company. Non-synchronous operation of an electronic copier. 4,332,463, Cl. 355-14.00R.
Fischer, Janos; Rozsa, Laszlo; Vago, Pal; Bakonyi, Anna; and Fazekas, Gabor, to Egyt Gyogyszervegyeszeti Gyar. Process for the preparation of 1-[3-mercapto-(2S)-methylpropionyl]-pyrrolidine-(2S)-carboxylic acid. 4,332,725, Cl. 548-533.000.
Fischer, Joseph; and Platz, Gerald M., to National Distillers & Chemical Corp. Can cover. 4,332,846, Cl. 428-131.000.
Fischer, Mark L. Electronic environmental acoustic simulator. 4,332,979, Cl. 179-1.0GQ.
Fischer, Siegbert: *See—*
Mauer, Eberhard; Fischer, Siegbert; and Pfalzer, Lothar, 4,332,638, Cl. 162-4.000.
Fischer, Wolfgang; Langer, Manfred; and Pohl, Gerhard, to Degussa Aktiengesellschaft. Process for the production of cationic starch ethers. 4,332,935, Cl. 536-50.000.
Fisher, John M., to B. F. Goodrich Company, The. Escape slide and protective shield. 4,332,049, Cl. 441-80.000.
Fitch, Robert E.: *See—*
Tucker, Gordon H.; and Fitch, Robert E., 4,332,206, Cl. 110-203.000.
Fitz, Forest G., Jr.: *See—*
Budzich, Mieczyslaw; and Fitz, Forest G., Jr., 4,332,677, Cl. 209-3.000.
Flanders, Robert L.: *See—*
Blanton, William A., Jr.; and Flanders, Robert L., 4,332,672, Cl. 208-120.000.
Flasck, Richard, to Energy Conversion Devices, Inc. Apparatus for producing microform records at high speed from computer or other electrical data signal sources. 4,332,466, Cl. 355-27.000.
Fleer, Ernst-Otto: *See—*
Schuss, Werner; and Fleer, Ernst-Otto, 4,332,562, Cl. 433-126.000.
Fleming, Michael P., to Syntex (U.S.A.) Inc. Process for preparing N-vinyl carbazoles. 4,332,723, Cl. 548-444.000.
Fletcher, Bert B.: *See—*
Worth, Joseph P.; and Fletcher, Bert B., 4,333,069, Cl. 338-315.000.
Flight Systems, Inc.: *See—*
York, Robert A., 4,333,101, Cl. 357-79.000.
Flinchbaugh, Anna M., executrix: *See—*
Flinchbaugh, Donald E., deceased, 4,332,110, Cl. 51-165.780.
Flinchbaugh, Donald E., deceased (by Flinchbaugh, Anna M., executrix), to Weldon Hydraulics, Inc. Automatically adjustable grinding wheel. 4,332,110, Cl. 51-165.780.
Flink, John A., to Precision Monolithics, Inc. Starting circuit with precise turn-off. 4,333,047, Cl. 323-311.000.
Flotow, Richard A., to Dana Corporation. Spring clutch. 4,332,314, Cl. 192-89.00B.
Flowers, Robert. Railway car floor assembly apparatus. 4,332,203, Cl. 105-422.000.
FMC Corporation: *See—*
Engel, John F., 4,332,815, Cl. 424-274.000.
Foh, Stephen E.; Mazumder, Mono M.; and Pangborn, Jon B., to Gas Research Institute. Thermoelectrochemical process using copper oxide for producing hydrogen and oxygen from water. 4,332,650, Cl. 204-104.000.
Foley, Clifford T.; and Brandenfels, Carl W. Combined hammer and level. 4,332,046, Cl. 7-146.000.
Ford, James M.; and Adams, John O., to Olin Corporation. Cells having gasket lubricating means. 4,332,661, Cl. 204-253.000.
Ford, Michael A.: *See—*
Chamran, Morteza M.; Scott, Larkin B.; Williams, Paul B.; and Ford, Michael A., 4,332,470, Cl. 356-325.000.
Ford Motor Company: *See—*
Erion, Jeffrey A., 4,332,413, Cl. 296-84.00R.
Sabel, Gustav; and Schellens, Horst, 4,332,312, Cl. 192-4.00C.
Forgue, John R.; Goldberg, Joshua I.; and Seide, Leonard, to Dataproducts New England, Inc. Detecting ice forming weather conditions. 4,333,004, Cl. 219-497.000.
Form Flo Equipment Manufacturers Inc.: *See—*
Thompson, Doyle D., 4,332,581, Cl. 493-413.000.
Formigraphic Engine Corporation: *See—*
Swainson, Wyn K.; and Kramer, Stephen D., 4,333,165, Cl. 365-120.000.
Foster Wheeler Energy Corporation: *See—*
Stewart, Robert D.; and Gamble, Robert L., 4,332,218, Cl. 122-4.00D.
Fournex, Robert: *See—*
Guillaume, Jacques; Nedelec, Lucien; Dumont, Claude; and Fournex, Robert, 4,332,808, Cl. 424-263.000.
Foust, Robert K. Body support frame for a casket. 4,332,064, Cl. 27-12.000.
Fox, Jack N.: *See—*
Chertock, Alan J., deceased; Fox, Jack N.; and Weissinger, Robert B., 4,332,640, Cl. 376-264.000.
Fox, Karl M.: *See—*
Burgess, Lester E.; Fox, Karl M.; McGarry, Phillip E.; and Herman, David E., 4,332,593, Cl. 44-51.000.
Foy, Paul; Jungblut, Camille; and Deleens, Gerard, to ATO Chimie. Mouldable and extrudable polyether-ester-amide block copolymers. 4,332,920, Cl. 525-408.000.
Fraas, Lewis M., to Chevron Research Company. Multilayer photovoltaic cell. 4,332,974, Cl. 136-249.000.
Francis, Gaylord L., to North American Philips Corporation. Temperature sensor. 4,332,081, Cl. 29-612.000.
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Lutz, Alfons; Schatzler, Walter; Jardin, Hans; Sielk, Werner; and Frank, Julius, 4,332,416, Cl. 296-216.000.
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Nicolaisen, Peter, 4,332,989, Cl. 200-47.000.
Freedman, Morris D.: *See—*
Whiteside, Arliss E.; Freedman, Morris D.; and Tasar, Omur, 4,333,144, Cl. 364-200.000.
Freeland, John L. Artificial hand. 4,332,038, Cl. 3-12.600.
Fremont, Henry A., to Champion International Corporation. Polyethylene recovery from broke. 4,332,748, Cl. 264-11.000.
Frentzel, Kurt H.; and Oskam, Herman, to Hunter Douglas Internation, N.V. Pull carrier for vertically louvered venetian blind. 4,332,288, Cl. 160-176.00R.
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Freudenstein, Ferdinand: *See—*
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Friedli, Hans; and Arnold, Erwin, to Swiss Aluminium Ltd. Storage bunker device for feeding electrolytic cell. 4,332,660, Cl. 204-245.000.
Friedrich, Heinz: *See—*
Beschke, Helmut; Friedrich, Heinz; and Offermanns, Heribert, 4,332,940, Cl. 546-181.000.
Frisquet, Maurice, to Anciens Etablissements M. Frisquet. Disconnector for drinking water distribution system. 4,332,274, Cl. 137-496.000.
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Akimura, Yoshitaka; Hirano, Shigeo; Mifune, Hiroyuki; and Okutsu, Eiichi, 4,332,878, Cl. 430-264.000.
Aoki, Kozo; Kojima, Tetsuro; Furutachi, Nobuo; and Sawada, Satoru, 4,332,886, Cl. 430-551.000.
Ichii, Hirokazu, 4,332,451, Cl. 354-234.000.
Ohmatsu, Hideki, 4,332,885, Cl. 430-506.000.
Tanaka, Yasunori; Noda, Shinji; and Chikamasa, Hiroshi, 4,332,840, Cl. 427-130.000.
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Fuller, David L., to Scripto, Inc. Gas pressure regulator for lighters. 4,332,549, Cl. 431-344.000.
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GAF Corporation: *See—*
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Gagliani, John; Lee, Raymond; and Sorathia, Usman A. K., to International Harvester Company. Polyimide foams. 4,332,656, Cl. 204-159.140.
Gallagher, Alfred H. Method and apparatus for cooking food in an enclosed chamber. 4,332,828, Cl. 426-523.000.
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Gandy, Richard G.; and Briggs, Garry L., to BJ-Hughes Inc. Expansive admixture. 4,332,619, Cl. 106-87.000.
Ganz, Jorg, to Sig Societe Industrielle Suisse. Tamping device for railway tamping machine. 4,332,200, Cl. 104-12.000.
Garberick, Thayne K. Coil cleaning device and system. 4,332,292, Cl. 165-95.000.
Garcia, Raul, Jr. Solar tracking system. 4,332,238, Cl. 126-425.000.
Gardner, Edward B., to Emhart Industries, Inc. Ware identifying apparatus for glassware machines and the like. 4,332,606, Cl. 65-158.000.
Garrett Corporation, The: *See—*
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Garthe, Hellmut, to Klockner-Humboldt-Deutz Aktiengesellschaft. Device for indicating the economical operating range of an engine. 4,332,162, Cl. 73-117.300.
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Gasser, Clive G.; and Russell, John, to BP Chemicals Limited. Process for the liquid phase production of C_1 to C_3 carboxylic acids. 4,332,743, Cl. 562-512.200.
Gasser, Hermann; di Benedetto, Paolo; and Ferri, Johann W., to Luwa AG. Apparatus for infeeding textile band material to a consumer. 4,332,130, Cl. 57-279.000.
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Geller, William L., to GTE Laboratories Incorporated. Color demodulating apparatus with cross-color cancellation. 4,333,104, Cl. 358-23.000.
Genequand, Pierre; and Gross, Daniel M., to Battelle Memorial Institute. Hydrogen generator utilizing solar energy to dissociate water. 4,332,775, Cl. 422-112.000.
General Dynamics Corporation: *See—*
Hailey, Samuel I.; and Kaler, George M., Jr., 4,332,066, Cl. 29-26.00R.
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General Electric Company: *See—*
Ahuja, Pritam L., 4,332,843, Cl. 427-237.000.
Bochan, John, 4,332,152, Cl. 68-171.000.
Boldebuck, Edith M.; and Banucci, Eugene G., 4,332,708, Cl. 524-376.000.
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Owen, Daniel V.; and Smith, Alan M., 4,333,139, Cl. 363-97.000.
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General Motors Corporation: *See—*
Bock, Gustavus P.; and Miller, Larry R., 4,333,026, Cl. 310-42.000.
Cox, Francis G.; and Ricketts, William J., 4,332,225, Cl. 123-440.000.
Dungan, Dennis F.; and Kuo, Wey-Chaung, 4,332,988, Cl. 200-19.0DC.
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MacManus, Daniel C., 4,332,173, Cl. 73-861.890.
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Gensheimer, Valentin, to M.A.N.-Roland Druckmaschinen Aktiengesellschaft. Arrangement for reducing vibration of cylinders in printing press. 4,332,194, Cl. 101-216.000.
George, Peter K., to National Semiconductor Corporation. Bubble memory with increased gap tolerance between propagation elements. 4,333,163, Cl. 365-43.000.
Gerber, Arthur M., to Polaroid Corporation. Method for preparing photosensitive silver halide emulsions. 4,332,887, Cl. 430-567.000.
Gerlach, Klaus; Behnke, Joachim; Rosener, Wolfgang; and Hohm, Ewald, to Akzo N.V. Linear polyurethane ultrafilter and processes for use thereof. 4,332,686, Cl. 210-651.000.
Getty, Paul A. Anatomical model. 4,332,570, Cl. 434-274.000.
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Ghyczy, Miklos; Erdos, Adorjan; Heidemann, Gunter; and Ritzmann, Gotz, to A. Nattermann & Cie. GmbH. Inflammation-preventing pharmaceutical composition of oral administration. 4,332,795, Cl. 424-199.000.
Gilles, Helmut: *See—*
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Gilligan, William H.; and Stafford, Scott L., to United States of America, Navy. Unsymmetrical polynitrocarbonates and methods of preparation. 4,332,744, Cl. 260-463.000.
Gillone, Walter: *See—*
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Gong, Cheng-Shung; Chen, Li-Fu; and Tsao, George T., to Purdue Research Foundation. Media manipulation for preparing biologically active hollow mycelial pellets. 4,332,903, Cl. 435-254.000.
Gonzalez, Ernesto. Electrocombustion engine. 4,332,219, Cl. 123-3.000.
Goodell, Paul D.: *See—*
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Goodman, Alvin M., to RCA Corporation. Method and apparatus for determining minority carrier diffusion length in semiconductors. 4,333,051, Cl. 324-158.00R.
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Gordon, Marvin; and Lichtenstein, Joseph, to Whitman Medical Corporation. Adjustable in-line intravenous valve with locking mechanism. 4,332,369, Cl. 251-114.000.

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Gorin, Brian A.; and Hardy, James A., to NCR Corporation. Multifocal holographic scanning system. 4,333,006, Cl. 235-457.000.

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Gortz, Norman; Huson, Andrew S.; and MacIntyre, Robert M., to United Healthcare Association. Automated cleaning system for dialyzers. 4,332,264, Cl. 134-57.00R.

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Gray, Joseph E.: *See—*
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Grech, Leonard. Adjustable power transmitting device. 4,332,147, Cl. 464-109.000.

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Griffin, Henry W.; and Hollar, Arthur W., Jr., to General Motors Corporation. Infinite position door hold-open. 4,332,056, Cl. 16-341.000.

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Griffith, Gerald W., to James Dole Corporation. Magnetic actuation methods and apparatus. 4,332,450, Cl. 354-234.000.

Griffiths, Mansel W.; Muir, David D.; and Phillips, John D., to National Research Development Corp. Thermal stable beta-galactosidase. 4,332,895, Cl. 435-105.000.

Groman, Ernest V.: *See—*
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GTE Automatic Electric Laboratories, Inc.: *See—*
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Gulf Research & Development Company: *See—*
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Gutnick, Morton. Devices and methods for the prevention of transmission of venereal disease and non-gonococcal genital infections. 4,332,243, Cl. 128-132.00R.

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Haaf, William R.; Lee, Gim F., Jr.; and Williams, Robert A., to General Electric Company. Drip-retardant plasticized polyphenylene ether compositions containing microfibrillar poly(tetrafluoroethylene). 4,332,714, Cl. 524-141.000.

Haber, Edgar: *See—*
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Hakim, Salomon; and Hakim, Carlos A., to Hakim Company Limited. Shunt valve. 4,332,255, Cl. 128-350.00V.

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Hamanaka, Katsuhiko; Iwaisako, Toshiyuki; Masamoto, Junzo; and Yoshida, Koichi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for separating trioxane. 4,332,644, Cl. 203-46.000.

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Hammond, William: *See—*
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Hannebaum, Harold W. Rotating air draft fireplace. 4,332,235, Cl. 126-120.000.

Hansotte, Roger J., to Dravco Corporation. Process and apparatus for desolventizing and drying solvent wet materials. 4,332,092, Cl. 34-27.000.

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Harbert, Charles A.: *See—*
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Harrington Manufacturing Company: *See—*
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Harris Corporation: *See—*
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Reynolds, Christopher C.; Claire, Earl J.; and Ellis, John R., 4,332,980, Cl. 179-2.00A.

Harris, Frederick J., to Olin Corporation. Piston tool buffer assembly. 4,332,340, Cl. 227-10.000.

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Harrison, Colin G.; and Burl, Michael, to EMI Limited. Imaging systems. 4,333,053, Cl. 324-307.000.

Harth, Helmut: *See—*
Raaf, Helmut; Becker, Dieter; Frosch, Franz; Harth, Helmut; and Wagner, Helmar R., 4,332,791, Cl. 424-52.000.

Hartig, Wolfgang: *See—*
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Hasegawa, Takashi; Miki, Minoru; and Taniguchi, Yutaka, to Takeda Chemical Industries, Ltd. Process for producing unsaturated polyester. 4,332,931, Cl. 528-297.000.

Hashimoto, Mitsuru: *See—*
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Hashimoto, Yukio; Kimura, Kazuo; Hirata, Tadashi; Ogasa, Takehiro; Kobayashi, Shigeru; and Matsukuma, Ikuo, to Kyowa Hakko Kogyo Co., Ltd. Process for producing cephalosporin analogs. 4,332,896, Cl. 435-119.000.

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Have, Serge: *See—*
Meunier, Jean P.; Barthe, Marie P.; Have, Serge; and Frumen, Bernard, 4,332,754, Cl. 264-45.500.

Hawkins, Richard E., to Champiain Cable Corporation. Coaxial cables. 4,332,976, Cl. 174-107.000.

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Adkins, David E.; Chin, Arthur H. T.; Haws, Ronnie E.; and Wittman, Robert H., 4,332,277, Cl. 138-89.000.

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Hayden, John E.; and Rutchik, Walter L., to Eaton Corporation. Minimum size, integral, A.C. overload current sensing, remote power controller. 4,333,122, Cl. 361-114.000.

Hayes, Richmond S., Jr., to Carrier Corporation. Heat exchange apparatus and method having two refrigeration circuits. 4,332,137, Cl. 62-81.000.

Hayman, Eric R., to Safeguard Business Systems, Inc. Pocket-size one-write checkbook. 4,332,400, Cl. 282-3.00A.

Haynes, John; and Huggins, Thomas B., Sr., to Westinghouse Electric Corp. Nuclear fuel pellet loading apparatus. 4,332,120, Cl. 53-245.000.

Heasley, James H.: *See—*
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Heinicke, Harald, to Siemens Aktiengesellschaft. Pulse-controlled D-C converter with inductive load. 4,333,140, Cl. 363-27.000.

Heins, Ferdinand; and Speicher, Wolfgang, to Bayer Aktiengesellschaft. Aqueous polymer dispersions for the treatment of leather. 4,332,860, Cl. 428-473.000.

Heintzmann, Peter; Koppers, Manfred; and Bohnes, Karlheinz, to Bochumer Eisenhuette Heintzmann GmbH & Co. Arrangement for erecting columnar supporting elements for underground excavations. 4,332,512, Cl. 405-290.000.

Hempel, Matthias; and Bruchert, Werner, to Schwan-Stabilo Schwanhausser GmbH & Co. Method of making a cosmetic substance. 4,332,763, Cl. 264-176.00R.

Hendriks, Emery F. M., to Van Doorne's Transmissie B.V. Composite driving belt. 4,332,575, Cl. 474-201.000.

Hengst, Bernd; Grosspietsch, Wolfgang; and Ognibeni, Karl-Heinz, to Fichtel & Sachs AG. Device for indicating the degree of exhaustion of an adsorption filter. 4,332,679, Cl. 210-90.000.

Henkel Corporation: *See—*
Lindner, Robert A., 4,332,702, Cl. 524-178.000.

Henne, Werner; Bandel, Werner; and Dunweg, Gustav, to Akzo N.V. Process for production of dialysis membrane hollow fiber chains. 4,332,752, Cl. 264-41.000.

Hennessy Industries, Inc.: *See—*
Stuart, Robert J., 4,332,169, Cl. 73-487.000.

Henning, James E.: *See—*
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Henoch, Bengt; and Berglind, Eilert, to Stiftelsen Institutet for Mikrovagsteknik vid Tekniska Hogskolan i Stockholm. Apparatus for synchronized reception in connection with system for recording objects. 4,333,078, Cl. 343-6.5LC.

Hensel, Roy; Biller, Leonhard F.; and Danson, Russell J., to American Hoechst Corporation. Assembly for processing a photosensitive material. 4,332,454, Cl. 354-317.000.

Hensley, George H.; and Hensley, Raymond E. Combustion initiation system. 4,333,125, Cl. 361-257.000.

Hensley, George H.; and Hensley, Raymond E. Combustion initiation device. 4,333,126, Cl. 361-257.000.

Hensley, Raymond E.: *See—*
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Hentzschel, Hans; and Ludwig, Soni-Enrico, to Eurosil GmbH. Process for the three step-multiplex control of electro-optical display arrangements and circuit for effectuating the process. 4,333,098, Cl. 340-805.000.

Herbertz, Toni: *See—*
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Hercules Incorporated: *See—*
Herty, Charles H., III; and McClendon, Samuel E., 4,332,631, Cl. 149-19.200.
Hughes, Norman E.; and Scheve, Bernard J., 4,332,873, Cl. 430-15.000.
Pleska, Jean-Pierre, 4,332,749, Cl. 264-13.000.

Herman, David E.: *See—*
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Hertrich, Klaus, to VEB Polygraph Leipzig Kombinat fuer Polygraphische Maschinen und Ausruestungen. Rotary folder with resettable release point. 4,332,582, Cl. 493-424.000.

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Heslinga, Adolf; and Greidanus, Pieter J., to Nederlandse Centrale Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek. Method of preparing a polymer mixture, formed products obtained therefrom and polymer alloy. 4,332,917, Cl. 521-134.000.

Hetzel, Fred W.: *See—*
Bicher, James I.; Sandhu, Taljit S.; and Hetzel, Fred W., 4,332,260, Cl. 128-804.000.

Heuscher, Dominic J.; and Carlson, Roland W., to Technicare Corporation. Method of high resolution partial area scan involving concentrated high density material outside the partial area. 4,333,145, Cl. 364-414.000.

Hewell, Gerald M., to Mead Corporation, The. Merchandising display stand. 4,332,204, Cl. 108-1.000.

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Hibino, Chitoshi: *See—*
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Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,601, Cl. 65-2.000.

Hilshorst, Howard H. Pavement planing device. 4,332,422, Cl. 299-39.000.

Hiraga, Masaharu: *See—*
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Hiramatsu, Michio, to Nippondenso Co., Ltd. Corrugated fin type heat exchanger. 4,332,293, Cl. 165-153.000.

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Hirano, Takazo: *See—*
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Hobday, Robert W., to Allied Corporation. Non-evaporative process for the production of aluminum sulfate. 4,332,778, Cl. 423-132.000.

Hoch, Helmut; Hahn, Erwin; and Hiller, Heinrich, to BASF Aktiengesellschaft. Preparation of transparent pigmentary forms of 4,4',7,7'-tetrachlorothioindigo. 4,332,955, Cl. 549-56.000.

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Hoffman, Lionel B., to Pitney Bowes Inc. Table top copy machine. 4,332,458, Cl. 355-3.0BE.

Hoffman, Norman E., to AMP Incorporated. DIP Switch. 4,332,987, Cl. 200-16.00D.

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Hoffmann, Werner: *See—*
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Hofgen, Gunter, to International Standard Electric Corporation. Monitoring system for scanning-beam microwave landing apparatus. 4,333,081, Cl. 343-108.00M.

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Hohman, Charles M.; Propster, Mark A.; and Seng, Stephen, to Owens-Corning Fiberglas Corporation. Method for predrying pelletized material. 4,332,603, Cl. 65-27.000.

Hohnerlein, Otto G., Jr.; Smith, Willie E., Jr.; and Rimedio, Nicholas T., Sr., to Savannah Foods & Industries, Inc. Direct production of a pure sugar product from cane juice. 4,332,622, Cl. 127-41.000.

Holbrook, Winnon G.; and Kettenhofen, Adrian J., to American Can Company. Cup labeling method and apparatus. 4,332,635, Cl. 156-256.000.

Holdren, Richard D. Apparatus and method for producing highly nutritive storage stable forage plant material. 4,332,125, Cl. 56-1.000.

Holick, Hubert: *See—*
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Holland, David: *See—*
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Hollar, Arthur W., Jr.: *See—*
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Holub, Fred F.; and Mellinger, Gary A., to General Electric Company. Copolymers of etherimides and amides. 4,332,929, Cl. 528-185.000.

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Martin, Ronald L.; and Orrico, Mario M. V., 4,332,269, Cl. 137-84.000.
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Honma, Yasushi; Takeda, Mikio; and Tsuzurahara, Kei, to Tanabe Seiyaku Co., Ltd. Pyridinecarboxamide derivatives and process for the preparation thereof. 4,332,809, Cl. 424-266.000.

Hood, Oscar L.; and Lytton, Irvin V., to PPG Industries, Inc. Method for removing liquid residues from vessels by combustion. 4,332,626, Cl. 134-11.000.

Hood, Rush W., Jr., to Tektronix, Inc. Temperature-stabilized logarithmic converter. 4,333,023, Cl. 307-310.000.

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Hooker Chemicals & Plastics Corp.: *See—*
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Spore, Everette M., 4,332,659, Cl. 204-237.000.
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Hoover, Merle V., to RCA Corporation. Differential-input complementary field-effect transistor amplifier. 4,333,057, Cl. 330-253.000.

Hoover, Merle V., to RCA Corporation. Operational amplifier employing complementary field-effect transistors. 4,333,058, Cl. 330-253.000.

Hoover Universal, Inc.: *See—*
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Hope, Henry F.; and Hope, Stephen F. Mixing apparatus. 4,332,483, Cl. 366-132.000.

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Hornbeck, Frederick C.; and Henning, James E., to International Business Machines Corporation; and Lundy Electronics & Systems, Inc. Conductive plastic with metalized glass fibers retained in partial clumps. 4,332,853, Cl. 428-371.000.

Horsfall, Harry, to David Brown Tractors, Ltd. Tractor power lift mechanisms. 4,332,285, Cl. 251-240.000.

Hosaka, Akihiko, to TDK Electronics Co., Ltd. Magnetic recording medium. 4,332,863, Cl. 428-695.000.

Hosoi, Toshiaki. Grinding apparatus for a flank of an end mill point. 4,332,109, Cl. 51-127.000.

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Hosomura, Hiroyoshi; Aota, Koichi; and Yoshimura, Eiji, to Rank Xerox Limited. Receptor sheet for electrophotography. 4,332,851, Cl. 428-325.000.

Hosono, Tsutomu, to Fuji Photo Optical Co., Ltd. Flash light discharge tube control device. 4,332,445, Cl. 354-106.000.

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Hotine, William. Sun powered automatic sun following reflector. 4,332,239, Cl. 126-425.000.
Houk, Leroy M., Jr. Assembly for filling and emptying a water bed. 4,332,044, Cl. 5-453.000.
House, Palmer A., to United States of America, Energy. Velocity pump - reaction turbine. 4,332,520, Cl. 415-63.000.
Hovis, Victor M., Jr.; and Northcutt, Walter G., Jr., to United States of America, Energy. Method of fabricating thin-walled articles of tungsten-nickel-iron alloy. 4,332,617, Cl. 75-214.000.
Howard, Thomas B.; and Puissant, Gerald H., to American Can Company. Manufacture of rolls of fibrous web material. 4,332,324, Cl. 206-389.000.
Hoyt, Jack W., to United States of America, Navy. Flow noise suppression system for a sonar dome. 4,333,169, Cl. 367-1.000.
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Hsu, Harry L., to Great Lakes Carbon Corporation. Carbon or graphite article and method of making by impregnating with a lignin sulfonate complex. 4,332,856, Cl. 428-408.000.
Hsu, Sheng T., to RCA Corporation. Method of making electrically programmable control gate injected floating gate solid state memory transistor. 4,332,077, Cl. 29-571.000.
Hsu, Yun T. Multipurpose air filling tent. 4,332,112, Cl. 52-2.000.
Hubbard Company: *See*—
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Huber, Paul G., to General Electric Company. Power supply for load controller. 4,333,138, Cl. 363-89.000.
Huffman, John, to Metal Bellows Corporation. Flexible tubing coupling. 4,332,404, Cl. 285-223.000.
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Pastor, Antonio C.; Pastor, Ricardo C.; Tangonan, Gregory L.; and Wong, Shi-Yin, 4,332,879, Cl. 430-272.000.
Hughes, Norman E.; and Scheve, Bernard J., to Hercules Incorporated. Multilayer printing plates and process for making same. 4,332,873, Cl. 430-15.000.
Hughes Undersea Coupling, Inc.: *See*—
Adkins, David E.; Chin, Arthur H. T.; Haws, Ronnie E.; and Wittman, Robert H., 4,332,277, Cl. 138-89.000.
Hujimoto, Yoshio; Kochi, Tadashi; and Furuya, Shigeru, to Toyo Kogyo Co., Ltd.; and Stanley Electric Co., Ltd. Headlight mounting and adjustment mechanism. 4,333,131, Cl. 362-372.000.
Hunter Douglas Internation, N.V.: *See*—
Frentzel, Kurt H.; and Oskam, Herman, 4,332,288, Cl. 160-176.00R.
Huppunen, Robert D.; and Morin, Theodore J., to Thermatool Corp. Solder pot with replenisher and skimmer. 4,332,373, Cl. 266-228.000.
Hurst, George H., Jr. Apparatus for signaling direction of travel on a road bed. 4,332,503, Cl. 404-11.000.
Hurwood, David L. Hygienic comfort product. 4,332,319, Cl. 206-210.000.
Huson, Andrew S.: *See*—
Gortz, Norman; Huson, Andrew S.; and MacIntyre, Robert M., 4,332,264, Cl. 134-57.00R.
Hutchins, Clinton E.: *See*—
Bemis, Richard A.; Hutchins, Clinton E.; Markland, Edward J.; and Arora, Mulk R., 4,332,651, Cl. 204-129.900.
Hutchinson, Eugene B.: *See*—
Van Auwelaer, James M.; Hutchinson, Eugene B.; and Braet, Jerome A., 4,332,126, Cl. 56-10.200.
Hyink, Darryl E. Cabinet with electrical apparatus for use in teaching. 4,332,568, Cl. 434-224.000.
Iacoviello, John G., to Air Products and Chemicals, Inc. Vinyl acetate-ethylene emulsions for nonwoven goods. 4,332,850, Cl. 428-288.000.
Ibaragi, Toshio: *See*—
Saitoh, Akira; Yamori, Akio; and Ibaragi, Toshio, 4,332,858, Cl. 428-412.000.
Ichii, Hirokazu, to Fuji Photo Film Co., Ltd. Release safety shutter interlock for battery powered camera. 4,332,451, Cl. 354-234.000.
Ichiyama, Toshio: *See*—
Mashiko, Koichiro; Ichiyama, Toshio; and Taniguchi, Makoto, 4,333,168, Cl. 365-210.000.
ICI Americas Inc.: *See*—
Yellin, Tobias O.; and Mant, Derrick M., 4,332,949, Cl. 548-128.000.
Ide, Yoshiaki, to Celanese Corporation. Process for extruding liquid crystal polymer. 4,332,759, Cl. 264-108.000.
Ideal Security Hardware Corporation: *See*—
Waldo, Russell W.; and Engstrom, George L., 4,332,407, Cl. 292-161.000.
Ident-A-Call, Inc.: *See*—
Thomas, Ralph H., 4,332,982, Cl. 179-7.10R.
Igarashi, Michiaki; Nakayama, Tetsuya; and Yamano, Shigemi, to Kabushiki Kaisha Komatsu Seisakusho. Control device for an earthwork machine. 4,332,517, Cl. 414-699.000.
Iida, Taketoshi; Saito, Kazuyoshi; Shrasaka, Toshio; and Takemura, Yasuhiko, to Tokyo Shibaura Denki Kabushiki Kaisha. Ultrasonic diagnosis apparatus. 4,332,171, Cl. 73-626.000.
Illinois Tube Company: *See*—
Ellis, John T., 4,332,087, Cl. 33-137.00R.
Image Acoustics, Inc.: *See*—
Butler, John L., 4,332,986, Cl. 179-146.00E.
Imai, Eiji; and Omote, Kazuaki, to Nissan Motor Company, Ltd. Air intake housing. 4,332,187, Cl. 98-2.170.
Imhof, Ernst; and Schmid, Gunther, to Robert Bosch GmbH. Cooling system for, and method of cooling an internal combustion engine. 4,332,221, Cl. 123-41.080.
imka Forschungsgesellschaft fur Bienenzucht mbH: *See*—
Schmidt, Matthias, 4,332,045, Cl. 6-1.000.
Imperial Chemical Industries Limited: *See*—
Milner, David J.; and Holland, David, 4,332,962, Cl. 560-124.000.
Imperial Chemical Industries PLC: *See*—
Yellin, Tobias O.; and Mant, Derrick M., 4,332,949, Cl. 548-128.000.
Industrial Heat Engineering: *See*—
Ehrhardt, Henry S., 4,332,063, Cl. 26-3.000.
Industrie Pirelli Societa per Azioni: *See*—
Ferrentino, Antonio, 4,332,510, Cl. 405-171.000.
Ing. C. Olivetti & C., S.p.A.: *See*—
Bovio, Michele; Barbero, Aquilino; Gillone, Walter; and Berruti, Pierangelo, 4,332,487, Cl. 400-126.000.
Ingemann, Ole, to A/S Haustrup Plastic. Container and closure having frangible opening means. 4,332,332, Cl. 220-276.000.
Inmaru, Kiyokazu: *See*—
Morishita, Tsuyoshi; Yagii, Koji; Inmaru, Kiyokazu; and Miyake, Kenji, 4,332,616, Cl. 75-243.000.
Inoue, Fumio: *See*—
Kaku, Masaro; Ando, Kunio; Honda, Toyota; and Inoue, Fumio, 4,333,105, Cl. 358-67.000.
Inoue, Kimio; Ogawa, Katsumi; Fukui, Tsugushi; Asai, Toshihiro; and Hashizume, Shinji, to Kobe Steel, Ltd. Continuous mixing machine. 4,332,481, Cl. 366-84.000.
Institut de Recherches de la Siderurgie Francaise: *See*—
Pazdej, Richard, 4,332,777, Cl. 423-98.000.
Institut Straumann AG: *See*—
Sutter, Franz; and Straumann, Fritz, 4,332,036, Cl. 3-1.910.
International Business Machines Corporation: *See*—
Aldridge, Stephen F., 4,333,083, Cl. 346-1.100.
Cail, Norman; Daniels, Raymond A.; Eggerling, John B.; and Lammers, Gerald B., 4,332,461, Cl. 355-14.00R.
Dollenmayer, William L., 4,332,489, Cl. 400-172.000.
Hornbeck, Frederick C.; and Henning, James E., 4,332,853, Cl. 428-371.000.
Kellogg, Robert M.; and Kruger, Victor R., 4,332,351, Cl. 233-38.000.
Koopman, Nicholas G.; Marcotte, Vincent C.; and Teed, Stephen, 4,332,343, Cl. 228-231.000.
Schmitt, Alfred; and Schorer, Gerd, 4,332,627, Cl. 148-1.500.
Steuty, Thomas D., 4,332,465, Cl. 355-14.00R.
International Flavors & Fragrances Inc.: *See*—
Sprecker, Mark A.; Vock, Manfred H.; Schmitt, Frederick L.; Vinals, Joaquin; and Kiwala, Jacob, 4,332,970, Cl. 568-319.000.
International Harvester Company: *See*—
Gagliani, John; Lee, Raymond; and Sorathia, Usman A. K., 4,332,656, Cl. 204-159.140.
Staiert, Richard W.; and Krukow, Eugene J., 4,332,127, Cl. 56-10.200.
International Identification Incorporated: *See*—
Beigel, Michael, 4,333,072, Cl. 340-825.540.
International Minerals & Chemical Corp.: *See*—
Novacek, Edward P., 4,332,336, Cl. 222-269.000.
International Standard Electric Corporation: *See*—
Andre, Wolfram; and Muller, Hans, 4,333,037, Cl. 315-3.000.
Farrington, Jeffrey G., 4,333,178, Cl. 455-601.000.
Hofgen, Gunter, 4,333,081, Cl. 343-108.00M.
International Telephone and Telegraph Corporation: *See*—
Lawford, Victor N., 4,332,166, Cl. 73-299.000.
Pernyeszi, Joseph, 4,333,133, Cl. 363-15.000.
Inventive Technology International, Inc.: *See*—
McSpadden, John T., 4,332,561, Cl. 433-102.000.
IPCO Corporation: *See*—
Weissman, Bernard, 4,332,563, Cl. 433-215.000.
Irie, Yoichiro: *See*—
Kimura, Hiroshi; Matsui, Toshikazu; Hisajima, Masahiko; Shigemura, Yutaka; Irie, Yoichiro; and Morimoto, Kiyoshi, 4,332,467, Cl. 355-14.00D.
Isella, Giuseppe, to Brevetti Motta s.a.s. Method and device for spacing continuously manufactured zip fasteners in which the connection elements are constituted by a monofilament of meander or spiral form. 4,332,072, Cl. 29-408.000.
Ishida, Hiroshi: *See*—
Kawada, Shigeki; and Ishida, Hiroshi, 4,333,042, Cl. 318-811.000.
Ishida, Kozo; and Kira, Akimichi, to Horiba, Ltd. Apparatus for analyzing the carbon content of metals. 4,332,770, Cl. 422-78.000.
Ishida, Masato: *See*—
Tamura, Yasuyuki; Nakahata, Kimio; and Ishida, Masato, 4,333,124, Cl. 361-214.000.
Ishihara Sangyo Kaisha, Ltd.: *See*—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,332,961, Cl. 560-62.000.
Ishii, Takami; Takikawa, Naohisa; Tokunaga, Kiyoaki; and Ogawa, Nobuhiro, to UBE Industries, Ltd. Process for polymerizing formaldehyde. 4,332,930, Cl. 528-233.000.
Ishii, Takashi: *See*—
Yamaguchi, Hiroyasu; and Ishii, Takashi, 4,333,059, Cl. 330-265.000.
Isogai, Nobuo; Hosokawa, Motoyuki; Okawa, Takashi; Wakui, Natuko; and Watanabe, Toshiyasu, to Mitsubishi Gas Chemical Company,

Inc. Process for producing 3-pentenoic esters. 4,332,966, Cl. 560-206.000.

Ito, Akihiko: *See—*
Kato, Seiji; Ueno, Norio; Kakuishi, Mitsuo; Ito, Akihiko; and Iwata, Atsushi, 4,333,064, Cl. 333-173.000.

Ito, Hiromi: *See—*
Kato, Yutaka; Tokitoh, Hirohiko; Kitahara, Tomohiro; and Ito, Hiromi, 4,332,472, Cl. 356-344.000.

Ito, Hiroshi, to Yamaha Hatsudoki Kabushiki Kaisha. Exhaust muffler. 4,332,307, Cl. 181-256.000.

Ito, Tetsuro; Oizumi, Toshiro; and Yamada, Shigeo, to Mitsubishi Denki Kabushiki Kaisha. Electrical discharge machine. 4,332,995, Cl. 219-69.00V.

Ito, Yoshinobu: *See—*
Siga, Tetsuo; Kinoshita, Shozo; Ito, Yoshinobu; and Akiyama, Minoru, 4,332,889, Cl. 430-583.000.

Itoh, Tadamasa: *See—*
Oi, Naobumi; Itoh, Tadamasa; and Yasumasa, Yoshiaki, 4,332,591, Cl. 23-230.0PC.

Itoki Co., Ltd.: *See—*
Takamatsu, Shunichi; and Maekawa, Kinshi, 4,333,005, Cl. 235-435.000.

ITR International Time Limited: *See—*
Witts, Alan G., 4,333,085, Cl. 346-76.0PH.

ITT Industries, Inc.: *See—*
Budecker, Ludwig, 4,332,270, Cl. 137-101.000.
Schopper, Bernd; and Tandler, Peter, 4,332,423, Cl. 303-22.00R.

Itzrodt, Gerd, to Andreas Stihl. Power tool, especially power saw. 4,332,220, Cl. 123-41.700.

Ivey, Curtis L., to Westinghouse Electric Corp. Process line progressive draw control system. 4,333,148, Cl. 364-469.000.

Iwai, Kazuhiro; and Enomoto, Hiroshi, to Honda Giken Kogyo Kabushiki Kaisha. Device for preventing intrusion of water, dust, etc. into drum brake. 4,332,310, Cl. 188-218.00A.

Iwaisako, Toshiyuki: *See—*
Hamanaka, Katsuhiko; Iwaisako, Toshiyuki; Masamoto, Junzo; and Yoshida, Koichi, 4,332,644, Cl. 203-46.000.

Iwata, Atsushi: *See—*
Kato, Seiji; Ueno, Norio; Kakuishi, Mitsuo; Ito, Akihiko; and Iwata, Atsushi, 4,333,064, Cl. 333-173.000.

Izu, Masatsugu; and Cannella, Vincent D., to Energy Conversion Devices, Inc. Imaging film with improved passivating layers. 4,332,880, Cl. 430-272.000.

Izumi, Zenji: *See—*
Kitanaka, Minoru; and Izumi, Zenji, 4,332,767, Cl. 264-322.000.

J. I. Case Company: *See—*
Baylor, John M., 4,332,425, Cl. 305-54.000.
Cochran, Gary L.; and Parquet, Donald J., 4,332,134, Cl. 60-464.000.

J. M. Voith GmbH: *See—*
Mauer, Eberhard; Fischer, Siegbert; and Pfalzer, Lothar, 4,332,638, Cl. 162-4.000.

Jacko, John; and Stack, William F., to United States Steel Corporation. Rope helix gage. 4,332,085, Cl. 33-143.00R.

Jackson, Raymond G.: *See—*
Davis, Paul C.; Jackson, Raymond G.; Sodomsky, Kenneth F.; and Whitson, Dennis L., 4,332,984, Cl. 179-81.00R.

Jacobi, Haireddin: *See—*
Etschenberg, Eugen; Jacobi, Haireddin; and Opitz, Wolfgang, 4,332,819, Cl. 424-301.000.

Jacoby, Benjamin: *See—*
Smith, Geoffrey F. W.; Stevens, Ralph A. J.; and Jacoby, Benjamin, 4,332,784, Cl. 424-1.000.

Jacquelin, Jean; and Pompon, Jean-Paul, to Societe Anonyme dite: Compagnie Generale D'Electricite. Method of temperature regulation. 4,332,866, Cl. 429-50.000.

Jaeger, Thomas S., to Honeywell Inc. Multistage thermostat using integral initiation change means. 4,332,352, Cl. 236-1.00E.

Jaeschke, Harold R.; Linder, Alan; and Boyle, Daniel J., to Champion International Corporation. Folder to hold coil of plastic tubing with clamp and fittings. 4,332,322, Cl. 206-364.000.

Jakobsen, Einar. Wave motors. 4,332,571, Cl. 440-9.000.

Jambry, Jean-Francois; and Milojevic, Dusica. Junction and connection terminal for the service of fixed or mobile premises in particular for the supply of a sanitary unit which may be itself attached to a caravan or a camping-car. 4,332,681, Cl. 210-170.000.

James, Aaron C.: *See—*
Matty, Thomas C.; and James, Aaron C., 4,333,150, Cl. 364-484.000.

James Dole Corporation: *See—*
Griffith, Gerald W., 4,332,450, Cl. 354-234.000.

Janome Sewing Machine Co., Ltd.: *See—*
Watasue, Toshiaki; and Makabe, Hachiro, 4,332,208, Cl. 112-277.000.

Janssen, Harvey W., to Wolff Manufacturing Co. Apparatus for resurfacing track links for crawler-type tractors. 4,332,996, Cl. 219-76.140.

Japan Atomic Energy Research Institute: *See—*
Makuuchi, Keizo; Katakai, Akio; Hagiwara, Miyuki; Yamamoto, Tsutomu; Nakayama, Hiroyuki; and Takagi, Tohru, 4,332,657, Cl. 204-159.220.

Japan Steel Works, Ltd., The: *See—*
Harada, Kunihiro; Kasai, Kiyoshi; Maki, Yoshiki; and Oda, Norimasa, 4,332,932, Cl. 528-481.000.

Japan Synthetic Rubber Co., Ltd.: *See—*
Harada, Kunihiro; Kasai, Kiyoshi; Maki, Yoshiki; and Oda, Norimasa, 4,332,932, Cl. 528-481.000.

Japax Inc.: *See—*
Shimizu, Akihiko, 4,333,000, Cl. 219-69.00W.

Jardin, Hans: *See—*
Lutz, Alfons; Schatzler, Walter; Jardin, Hans; Sielk, Werner; and Frank, Julius, 4,332,416, Cl. 296-216.000.

Jaton, Jean-Philippe, to Bobst, S.A. Device for delivering and packaging folded boxes received from a folder-gluer. 4,332,124, Cl. 53-540.000.

Jauregui Carro, Francisco-Javier. System for collecting products dumped on the surface of a mass of water. 4,332,682, Cl. 210-242.100.

Jayem Dialer Corp.: *See—*
Samuel, Richard I., 4,332,985, Cl. 179-90.0BD.

Jenkins, John P.; Rector, Stephen W.; McCarty, John J.; and Hammond, William, to Field Electronics Inc. Seed planter monitor. 4,333,096, Cl. 340-684.000.

Jensen, Thomas H., to PPG Industries, Inc. Fin cooler for glass fiber former. 4,332,602, Cl. 65-12.000.

Jesme, Philip O., to Smead Manufacturing Company, The. Applicator for normally viscous substances. 4,332,212, Cl. 118-202.000.

Jester, Alfred; Mueller, Elmar; and Holick, Hubert, to BBC Brown, Boveri & Company, Limited. High performance semiconductor component with heat dissipating discs connected by brushlike bundles of wires. 4,333,102, Cl. 357-81.000.

John D. Hollingsworth on Wheels, Inc.: *See—*
Warnock, William A., 4,332,058, Cl. 19-106.00R.

John Wyeth & Brother Limited: *See—*
Ward, Terence J., 4,332,822, Cl. 424-324.000.

Johnson, Allard R. Resaw apparatus. 4,332,180, Cl. 83-872.000.

Johnson, Bruce E., to Magnetic Peripherals Inc. Disc head arm position controller using digital velocity sensing. 4,333,117, Cl. 360-78.000.

Johnson, David M.: *See—*
deMonterey, Francis G.; Adhia, Bharat J.; and Johnson, David M., 4,332,354, Cl. 241-16.000.

Johnson, Dennis P.: *See—*
Margalit, Nehemiah; Joshi, Ashok V.; Aker, Wesley E.; and Johnson, Dennis P., 4,332,869, Cl. 429-194.000.

Johnson, Frederick P., to Simon Container Machinery Limited. Production of cases. 4,332,579, Cl. 493-325.000.

Johnson & Johnson: *See—*
Krainski, Theodore J., Jr., 4,332,175, Cl. 73-825.000.

Johnson, Keith, Jr.; Long, Robert A.; and Over, William R., to AMP Incorporated. Terminating apparatus for flat cable. 4,332,083, Cl. 29-749.000.

Johnson, Larry K., to Texas Instruments Incorporated. Keyboard apparatus and method for making same. 4,332,082, Cl. 29-622.000.

Johnson, Michael R.: *See—*
Althuis, Thomas H.; Harbert, Charles A.; Johnson, Michael R.; and Melvin, Lawrence S., Jr., 4,332,942, Cl. 546-240.000.

Johnston, John N., to Litton Business Systems, Inc. Calculator having a modular keyboard. 4,333,155, Cl. 364-708.000.

Jonell, Per-Olof. Method and a machine of obtaining samples from the ground to determine its composition. 4,332,301, Cl. 175-50.000.

Jones, Barry M.: *See—*
Paist, H. Palmer; and Jones, Barry M., 4,332,054, Cl. 16-197.000.

Joshi, Ashok V.: *See—*
Margalit, Nehemiah; Joshi, Ashok V.; Aker, Wesley E.; and Johnson, Dennis P., 4,332,869, Cl. 429-194.000.

Joslin, Joel A., to Sherwood Medical Industries, Inc. Filter and valve assembly for hypodermic syringe. 4,332,249, Cl. 128-218.0NV.

Joutsjoki, Jukka, to Oy Wartsila AB. Roll nip arrangement. 4,332,192, Cl. 100-168.000.

Jungblut, Camille: *See—*
Foy, Paul; Jungblut, Camille; and Deleens, Gerard, 4,332,920, Cl. 525-408.000.

Jungverdorben, Hermann-Josef: *See—*
Reinehr, Ulrich; Herbertz, Toni; and Jungverdorben, Hermann-Josef, 4,332,765, Cl. 264-206.000.

Junio, David L., to Honeywell Inc. Tape transport control system. 4,333,115, Cl. 360-74.200.

Kabushiki Kaisha Komatsu Seisakusho: *See—*
Igarashi, Michiaki; Nakayama, Tetsuya; and Yamano, Shigemi, 4,332,517, Cl. 414-699.000.
Uchida, Kanich; and Sawamura, Hitoshi, 4,332,573, Cl. 474-94.000.

Kabushiki Kaisha Morita Seisakusho: *See—*
Furuichi, Shuhei, 4,333,012, Cl. 250-409.000.

Kabushiki Kaisha Tokyo Kikai Seisakusho: *See—*
Mizumura, Shizuo, 4,332,195, Cl. 101-349.000.

Kaemmer, Eduard: *See—*
Schoettle, Klaus; Kaemmer, Eduard; Dobler, Peter; Gliniorz, Lothar; and Hoffmann, Werner, 4,333,116, Cl. 360-78.000.

Kagerhuber, Franz: *See—*
Reithner, Gerhard; Wagner, Peter; and Kagerhuber, Franz, 4,332,289, Cl. 164-446.000.

Kahn, Marvin L.; and Eapen, Kuttikandathil E., to Rich Products Corporation. Intermediate-moisture frozen foods. 4,332,824, Cl. 426-330.300.

Kai, Junjiro: *See—*
Kimura, Hiroshi; and Kai, Junjiro, 4,332,690, Cl. 252-70.000.

Kaiho, Kenichi: *See—*
Nakahara, Yasushi; Ohtomo, Tadasuke; Yurugi, Masahiro; Naitoh, Takumi; and Kaiho, Kenichi, 4,332,516, Cl. 414-288.000.

Kajima Corporation: *See—*
Nakahara, Yasushi; Ohtomo, Tadasuke; Yurugi, Masahiro; Naitoh, Takumi; and Kaiho, Kenichi, 4,332,516, Cl. 414-288.000.

Kakino, Yoshiaki, to NL Circuit Design Block Co., Ltd. Acoustic detection of tool wear and fracture. 4,332,161, Cl. 73-104.000.

Kaku, Masaro; Ando, Kunio; Honda, Toyota; and Inoue, Fumio, to Hitachi, Ltd. Beam-indexing color television receiver. 4,333,105, Cl. 358-67.000.

Kakuishi, Mitsuo: *See*—
Kato, Seiji; Ueno, Norio; Kakuishi, Mitsuo; Ito, Akihiko; and Iwata, Atsushi, 4,333,064, Cl. 333-173.000.

Kalal, Jaroslav; and Tlustakova, Marie, to Ceskoslovenska akademie ved. Three-dimensional carrier of inorganic porous material-reactive polymer and a method for its preparation. 4,332,694, Cl. 252-189.000.

Kaler, George M., Jr.: *See*—
Hailey, Samuel I.; and Kaler, George M., Jr., 4,332,066, Cl. 29-26.00R.

Kalinowski, Richard, to Quadrivium Techniques Avancees. Method and apparatus for monitoring the reproduction of recorded information. 4,333,113, Cl. 360-27.000.

Kamogashira, Takashi; Nishida, Tsutomu; Sugawara, Michiharu; Nihno, Tomiyo; and Takegata, Setsuko, to Otsuka Pharmaceutical Co., Ltd. Process for the production of antibiotic Cephamycin C. 4,332,891, Cl. 435-48.000.

Kan, Peter T.: *See*—
Christman, Donald L.; and Kan, Peter T., 4,332,953, Cl. 548-307.000.

Kanaoka, Masaharu; Yanagi, Hideki; and Ogino, Shigeo, to Sumitomo Chemical Company, Ltd. Purification of human growth hormone. 4,332,717, Cl. 260-112.00R.

Kaneko, Takushi; Essery, John M.; Schmitz, Henry; and Doyle, Terrence W., to Bristol-Myers Company. Antitumor agents. 4,332,951, Cl. 548-218.000.

Kaneko, Takushi: *See*—
Schmitz, Henry; Kaneko, Takushi; Essery, John M.; and Doyle, Terrence W., 4,332,732, Cl. 549-332.000.

Kankaanpaa, Matti, to Valmet Oy. Calender. 4,332,191, Cl. 100-162.00R.

Kansai Paint Co., Ltd.: *See*—
Makuuchi, Keizo; Katakai, Akio; Hagiwara, Miyuki; Yamamoto, Tsutomu; Nakayama, Hiroyuki; and Takagi, Tohru, 4,332,657, Cl. 204-159.220.

Kant, Rajni, to Fairchild Camera & Instrument Corp. Method for forming a headless resistor utilizing selective diffusion and special contact formation. 4,332,070, Cl. 29-578.000.

Karam, Henry J., to Dow Chemical Company, The. Recirculating polymerization method and apparatus with evaporative cooling. 4,332,924, Cl. 526-64.000.

Karl Mayer Textilmaschinenfabrik GmbH: *See*—
Mayer, Ingo, 4,332,149, Cl. 66-87.000.

Kasai, Kiyoshi: *See*—
Harada, Kunihiro; Kasai, Kiyoshi; Maki, Yoshiki; and Oda, Norimasa, 4,332,932, Cl. 528-481.000.

Kashio, Toshio, to Casio Computer, Co., Ltd. Electronic musical instrument with means for selecting tone clock numbers. 4,332,181, Cl. 84-1.010.

Kastelic, Wilhelmus A. J.: *See*—
van Laar, Jacobus; Felthuis, Jacob; and Kastelic, Wilhelmus A. J., 4,332,554, Cl. 432-233.000.

Kata, Mamoru: *See*—
Wakamori, Fumio; Funabashi, Motohisa; Kata, Mamoru; Hirano, Takazo; and Onari, Mikihiko, 4,332,507, Cl. 405-92.000.

Katacka, Nobuyuki: *See*—
Fukahori, Yoshihide; Katacka, Nobuyuki; and Anzai, Shiro, 4,332,918, Cl. 525-259.000.

Katakai, Akio: *See*—
Makuuchi, Keizo; Katakai, Akio; Hagiwara, Miyuki; Yamamoto, Tsutomu; Nakayama, Hiroyuki; and Takagi, Tohru, 4,332,657, Cl. 204-159.220.

Kato, Kenji; and Hagii, Hidehiko, to Nippon Oil and Fats Co., Ltd. Process for preparing peroxyesters. 4,332,740, Cl. 260-453.0RZ.

Kato, Seiji; Ueno, Norio; Kakuishi, Mitsuo; Ito, Akihiko; and Iwata, Atsushi, to Fujitsu Limited; and Nippon Telegraph & Telephone Public Corporation. Switched-capacitor filter. 4,333,064, Cl. 333-173.000.

Kato, Tutomu: *See*—
Mitsuyama, Akira; Kawano, Tadaaki; Kato, Tutomu; Deguchi, Masanobu; and Katoh, Ituro, 4,332,457, Cl. 355-3.0FU.

Kato, Yutaka; Tokitoh, Hirohiko; Kitahara, Tomohiro; and Ito, Hiromi, to Olympus Optical Company Ltd. Automatic cataphoresis apparatus. 4,332,472, Cl. 356-344.000.

Katoh, Ituro: *See*—
Mitsuyama, Akira; Kawano, Tadaaki; Kato, Tutomu; Deguchi, Masanobu; and Katoh, Ituro, 4,332,457, Cl. 355-3.0FU.

Kaufmann, Kenneth M., to Pako Corporation. Graphic arts processor having switch selectable replenishment control information matrices. 4,332,456, Cl. 354-298.000.

Kawada, Shigeki; and Ishida, Hiroshi, to Fujitsu Fanuc Limited. System for driving a motor by a pulse width modulation inverter. 4,333,042, Cl. 318-811.000.

Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, to Nippon Soken, Inc. Gas flow measuring device. 4,332,165, Cl. 73-204.000.

Kawai Musical Instrument Mfg. Co., Ltd.: *See*—
Deutsch, Ralph, 4,332,183, Cl. 84-1.260.

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Kawamoto, Akira: *See*—
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Yoshida, Toshio; and Matsui, Shigetomo, 4,332,073, Cl. 29-421.00R.

Keegan, Patrick J.: *See*—
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Keiper Automobiltechnik GmbH & Co. KG: *See*—
Strowik, Willibald, 4,332,418, Cl. 297-362.000.

Kellogg, Robert M.; and Kruger, Victor R., to International Business Machines Corporation. Blood fraction extracting centrifuge. 4,332,351, Cl. 233-38.000.

Kelly, Charles A.; and Meneghini, Frank A., to Polaroid Corporation. Thiazolidine-substituted phenyl sulfonic acids. 4,332,950, Cl. 548-146.000.

Kelly, Darrell A.: *See*—
Blackmon, Lawrence E.; Dees, John R.; Kelly, Darrell A.; Mowe, Wayne T.; and Yu, Jing-Peir, 4,332,757, Cl. 264-103.000.

Kelly, Michael G.; and Pastien, Eugene R., to Conwed Corporation. Plastic netting for load unitization. 4,332,326, Cl. 206-497.000.

Kelsey, Paul G. Heat generator apparatus. 4,332,237, Cl. 126-247.000.

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Schoots, Peter J., 4,332,253, Cl. 128-287.000.
Taylor, Rebecca S., 4,332,252, Cl. 128-275.000.

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Korklan, Harris J.; and Greany, John K., 4,332,852, Cl. 428-331.000.
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Kepple, Wilson E. Ski pole. 4,332,399, Cl. 280-819.000.

Kerbleski, Joseph J.: *See*—
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Burgkhardt, Bertram; Konig, Winfried; Piesch, Ernst; and Rober, Hans G., 4,333,013, Cl. 250-461.00R.

Kervennal, Jacques; Elleuch, Boubaker; and Taarit, Younes B., to Produits Chimiques Ugine Kuhlmann. Process for the manufacture of aromatic isocyanates. 4,332,739, Cl. 260-453.0PC.

Kettenhofen, Adrian J.: *See*—
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Keystone Camera Corporation: *See*—
Zawodny, Arthur, 4,332,448, Cl. 354-213.000.
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Kimura, Hiroshi; and Kai, Junjiro, to Mitsubishi Denki Kabushiki Kaisha. Heat storage system comprising a phase change medium and a nucleating agent. 4,332,690, Cl. 252-70.000.

Kimura, Kazuo: *See*—
Hashimoto, Yukio; Kimura, Kazuo; Hirata, Tadashi; Ogasa, Takehiro; Kobayashi, Shigeru; and Matsukuma, Ikuo, 4,332,896, Cl. 435-119.000.

Kimura, Kouhei; Ohba, Hiroyasu; and Murai, Atsushi, to Toho Titanium Co., Ltd. Process for the preparation of catalyst component for the polymerization of α-olefins. 4,332,697, Cl. 252-429.00B.

King, John F.; and Bradshaw, Stephen L., to Magnesium Elektron Limited. Primary electric cell having magnesium alloy anode. 4,332,864, Cl. 429-3.000.

Kingsford, Ted I., to Plough, Inc. Adjustable cosmetic wiper. 4,332,494, Cl. 401-5.000.

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Kira, Hiroshi; and Bauman, Verne W. Self-cancelling apparatus for vehicle turn indicators. 4,333,071, Cl. 340-56.000.

Kishel, Joseph F., to Sangamo Weston, Inc. Position transducer. 4,333,068, Cl. 338-158.000.

Kitagawa, Tohru: *See*—
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Kitrell, John V. Manicure easel. 4,332,263, Cl. 132-73.000.
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Sprecker, Mark A.; Vock, Manfred H.; Schmitt, Frederick L.; Vinals, Joaquin; and Kiwala, Jacob, 4,332,970, Cl. 568-319.000.
Kiyohara, Takao: *See—*
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Klein, George M.: *See—*
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Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
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Kloeckner-Werke AG: *See—*
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Kluger, Edward W.; and Welch, Calvin D., to Milliken Research Corporation. Polyaminopolyamides. 4,332,928, Cl. 528-113.000.
Knifton, John F., to Texaco Inc. Manufacture of alkanols from synthesis gas. 4,332,914, Cl. 518-700.000.
Knifton, John F.; and Lin, Jiang-Jen, to Texaco Inc. Production of alkanols from synthesis gas. 4,332,915, Cl. 518-700.000.
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Knoble, Herman W. Bow-string release device. 4,332,233, Cl. 124-35.00A.
Knudsen, Walter G., to Electrostatic Equipment Corp. Plenum mounted grid for electrostatic fluidized bed. 4,332,835, Cl. 427-32.000.
Kobari, Harukuni; Yamada, Yasuhiro; Suzuki, Susumu; and Hibino, Chitoshi, to Victor Company of Japan, Ltd. Memory control system. 4,333,160, Cl. 364-900.000.
Kobayashi, Akio; and Ogihara, Takeo, to Kureha Kagaku Kogyo Kabushiki Kaisha. Multiply grafted antistatic resin composition. 4,332,919, Cl. 524-504.000.
Kobayashi, Isao: *See—*
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Kobe Steel, Ltd.: *See—*
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Kohama, Tokio: *See—*
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Kohner, Frank: *See—*
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Kohner, Michael; and Kohner, Frank, to Michael Kohner Corp., The. Gravity flow display device. 4,332,096, Cl. 40-486.000.
Koiwa, Yoshinori; Oka, Daishiro; and Takeda, Shoroku, to Asaka Company Limited. Automatic phase adjusting apparatus for television cameras. 4,333,103, Cl. 358-19.000.
Koizumi, Yutaka: *See—*
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Kojima, Tetsuro: *See—*
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Kolm, Eric A.; and Kolm, Henry H., to Baker Industries, Inc. Piezoelectric seismic sensor for intrusion detection. 4,333,029, Cl. 310-329.000.
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Kooijmans, Petrus G.; Kunze, Wolfgang; and Noordam, Arend, to Shell Oil Company. Water-thinnable binders and their preparation. 4,332,709, Cl. 523-416.000.
Koopman, Nicholas G.; Marcotte, Vincent C.; and Teed, Stephen, to International Business Machines Corporation. Process for in-situ modification of solder comopsition. 4,332,343, Cl. 228-231.000.
Kooymans, Petrus G.; Wintraecken, Johannes J. M. H.; Raudenbusch, Werner T.; Seelen-Kruijssen, Josepha M. E.; and Schreurs, Gerardus C. M., to Shell Oil Company. Thermosetting resinous binder compositions, their preparation and use as coating materials. 4,332,711, Cl. 523-402.000.
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Korzun, John N., to E. R. Squibb & Sons, Inc. Purification of mercaptoacyl amino acids. 4,332,726, Cl. 548-533.000.
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Kosecoff, Irving W. Foldable bicycle carrier. 4,332,337, Cl. 224-42.03B.
Koshar, Robert J., to Minnesota Mining and Manufacturing Company. Cyclic sulfoperfluoroaliphaticcarboxylic acid anhydrides. 4,332,954, Cl. 549-10.000.
Kosmanski, Thomas J., to General Motors Corporation. Vehicle vacuum supply system. 4,332,302, Cl. 180-54.00R.
Kossmehl, Gerhard; Quast, Dietrich; and Schafer, Horst, to Titmus Eurocon. Process for rendering silicone rubber contact lenses hydrophilic. 4,332,922, Cl. 525-478.000.
Kotowski, Thomas W., to General Motors Corporation. Transistor protection circuit. 4,333,120, Cl. 361-79.000.
Kozak, Norman M., to A. O. Smith Corporation. Multiple device control apparatus. 4,333,002, Cl. 219-321.000.
Krabbe, Wilfried, to Philipp Holzmann Aktiengesellschaft. Shield for tunneling and mining. 4,332,508, Cl. 405-144.000.
Krainski, Theodore J., Jr., to Johnson & Johnson. Counterbalance loading device. 4,332,175, Cl. 73-825.000.
Kramer, Petrus A., to Shell Oil Company. Dihalomethylenelactone pyrethroid intermediates. 4,332,730, Cl. 549-302.000.
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Kressner, Michael; Kolbe, Joachim; Bremer, Fritz; Pape, Georg; Wolf, Karlheinz; and Kummeler, Ferdinand, to Bayer Aktiengesellschaft. Colorant preparations, a process for their production and their use for coloring plastics. 4,332,587, Cl. 8-506.000.
Kristoffersen, Bjorn R., to Boeing Company, The. Pressurized drain for toilet waste tank. 4,332,041, Cl. 4-316.000.
Kritzer, Richard W. Making heat exchangers. 4,332,069, Cl. 29-157.30A.
Kronman, Albert F., to 21st Century Envelope Co. Inc. Two-way envelope. 4,332,346, Cl. 229-73.000.
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Kuehnle, Manfred R., to Coulter Systems Corporation. Plate making attachment for graphic art cameras. 4,332,459, Cl. 355-3.0BE.
Kugimiya, Koichi; Hosomi, Fumio; Matsuo, Yoshihiro; and Nitta, Tsuneharu, to Matsushita Electric Industrial Co., Ltd. Ceramic type sensor device. 4,333,067, Cl. 338-34.000.
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Kurane, Ryuichiro; Suzuki, Tomoo; and Takahara, Yoshimasa, to Agency of Industrial Science & Technology, Ministry of International Trade & Industry. Biochemical treatment by microorganic method. 4,332,904, Cl. 435-262.000.
Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
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Kurland, Heinrich; Schaper, Helmut; and Schueller, Joachim, to Braunschweigische Maschinenbauanstalt. Continuously operable centrifugal for mixing and curing sugar massecuites. 4,332,621, Cl. 127-19.000.
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Kurshan, Robert P.; and Malah, David, to Bell Telephone Laboratories, Incorporated. Broadband cyclotomic tone detector. 4,333,156, Cl. 364-724.000.
Kuszmann, Janos; Medgyes, Gabor; Andrasy, Ferenc; and Berzsenyi, Pal, to Egyt Gyogyszervegyeszeti Gyar. 1,4;3,6-Dianhydro-2,5-diazido-2,5-dideoxy-hexitols. 4,332,818, Cl. 424-285.000.
Kuttelwesch, Rudolf, to Mewa Mechanische Weberei Altstadt GmbH. Method for extracting water from laundry. 4,332,047, Cl. 8-158.000.
Kuus, Felix; and Eckmann, Gerald C., to BJ-Hughes Inc. Valve assembly for an inflatable packer system. 4,332,298, Cl. 166-319.000.
Kyowa Hakko Kogyo Co., Ltd.: *See—*
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LaFuente, Henry. Ocular prosthesis which simulates change in pupil diameter. 4,332,039, Cl. 3-13.000.
LaHaye, Paul G.; Bjerklie, John W.; and Penty, Robert A., to Hague International. Composite ceramic heat exchange tube. 4,332,295, Cl. 165-178.000.
Lalikos, James M.; and Waite, Harold K., to Titeflex Corporation. Braided-wire sheathing having bundled strands twisted to equalize tension. 4,332,278, Cl. 138-127.000.
Lambert, Nicole: *See—*
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Lambert, William S. Automatic flag system. 4,332,210, Cl. 116-173.000.
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LaMonte, Salvatore. Attachment tool for a vacuum cleaner hose. 4,332,051, Cl. 15-328.000.
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Langlais, Richard A.; Ogawa, Francis T.; and Wilwerding, Dennis J., to Honeywell Inc. Method and apparatus for determining focus direction and amount. 4,333,007, Cl. 250-201.000.
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Larsen, Wallace L.; and Duncan, Eliot R., to Amana Refrigeration, Inc. Air flow system for combination microwave and convection oven. 4,332,992, Cl. 219-10.55R.
Larson, Clayton E., to White Metal Rolling & Stamping Corp. Safety stepladders. 4,332,308, Cl. 182-120.000.
Larson, Leigh R., to Hi-Life Rubber, Inc. Milking inflation. 4,332,215, Cl. 119-14.490.
Larson, Lynn D. Waterbed mattress. 4,332,043, Cl. 5-450.000.
Laster, Pat A. Pressurized air pumping apparatus. 4,332,530, Cl. 417-130.000.
Latsch, Reinhard; and Schlembach, Hans, to Robert Bosch GmbH. Internal combustion engine with a main combustion chamber and an ignition chamber. 4,332,224, Cl. 123-254.000.
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Lawford, Victor N., to International Telephone and Telegraph Corporation. Temperature compensation apparatus for a liquid filled conduit. 4,332,166, Cl. 73-299.000.
Lawhon, James T.; and Manak, Larry J., to Texas A&M University. Method and apparatus for isolating protein from glandless cottonseed. 4,332,719, Cl. 260-123.500.
Lawrason, Robert E., Sr. Adjustable frame for supporting macrame. 4,332,405, Cl. 289-16.500.
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Le Can, Claude J. P. F.: *See—*
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Lee, Man S., to GTE Automatic Electric Laboratories, Inc. Switched-capacitor floating-inductor simulation circuit. 4,333,157, Cl. 364-802.000.
Lee, Maw H., to Scott & Fetzer Company, The. Power factor control of a three-phase induction motor. 4,333,046, Cl. 323-231.000.
Lee, Raymond: *See—*
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Lee, Shy-fuh, to Zoecon Corporation. Benzylidene glycine ester derivatives. 4,332,958, Cl. 560-35.000.
Lee, Yue-guey L., to General Electric Company. Modified polyamideimide resins. 4,332,925, Cl. 528-48.000.
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Otto, Gunter; and Eiler, Peter, 4,332,328, Cl. 212-180.000.
Leopold, Norbert, to Cloverline Inc., The. Telephone note clip. 4,332,362, Cl. 248-226.500.
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Emerson, Reginald S., 4,332,163, Cl. 73-119.00A.
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Beavan, Stuart W., 4,332,691, Cl. 252-96.000.
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., to Bell Telephone Laboratories, Incorporated. Method for making integrated semiconductor circuit structure with formation of Ti or Ta silicide. 4,332,839, Cl. 427-85.000.
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Brassell, Gilbert W.; Lewis, John, Jr.; and Weber, Gary W., 4,332,751, Cl. 264-28.000.
Lewis, William R. Sealant applicator. 4,332,498, Cl. 401-188.00R.
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Shulman, Leon, 4,332,103, Cl. 46-81.000.
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Buemi, Dennis P., 4,332,823, Cl. 426-272.000.
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Lin, Stephen Y., to American Can Company. Method for polymerization of lignosulfonates. 4,332,589, Cl. 8-557.000.
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Lindner, Robert A., to Henkel Corporation. Polyvinyl chloride compositions and processing. 4,332,702, Cl. 524-178.000.
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Taylor, Robert L., 4,332,906, Cl. 435-291.000.
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Lockwood, Alan C., to Norris Industries, Inc. Electrical cut-in box. 4,332,330, Cl. 220-3.500.
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Lohman, Charles A.: *See—*
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Looschen, Floyd W., to Burroughs Corporation. Data extraction means for use in a data transmission system. 4,333,176, Cl. 370-84.000.
Lord, Raymond E. Prefabricated modular crown system. 4,332,564, Cl. 433-218.000.
Los, Mario A., to Laboratorios Bago S.A. Potentiated sulfonamide injectable preparation. 4,332,796, Cl. 424-229.000.
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Lowe, Gunter, to Lowe, Gunter. Method of measuring firing misses and firing miss-measuring installation for the performance of the method. 4,333,106, Cl. 358-107.000.
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Green, Stanley, 4,332,438, Cl. 350-167.000.
Walker, Michael J., 4,333,054, Cl. 324-380.000.
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Luedemann, Heinz; and Schneider, Klaus, to AFGA-Gevaert AG. Web-advancing apparatus. 4,332,339, Cl. 226-195.000.
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Lyons, James E.; and Hsu, Chao-Yang, to Sun Tech, Inc. Selective production of phenylene diacetate. 4,332,963, Cl. 560-131.000.
Lyons, Sanford D. Exercising device. 4,332,381, Cl. 272-144.000.
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Macchi, Massimo, to Officine Savio S.p.A. Piecing machine for non-fabric ribbons. 4,332,580, Cl. 493-346.000.
MacDonald, James D., Jr. Thrust augmenter ejector combustion device. 4,332,547, Cl. 431-242.000.
MacFall, Douglas S., Jr.: *See—*
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Chikama, Toshio, 4,332,242, Cl. 128-3.000.
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Magnavox Consumer Electronics Co., The: *See—*
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Maki, Emil R.; and Freudenstein, Ferdinand, to General Motors Corporation. Cyclic phase-change coupling. 4,332,148, Cl. 464-102.000.
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Manis, Jack J.; and Highlander, Sarah K., to Upjohn Company, The. Construction of co-integrate plasmids from plasmids of Streptomyces and Escherichia. 4,332,900, Cl. 435-172.000.
Manizza, Guelfo A., to Federal Paper Board Company, Inc. Bottle package with promotional card insert. 4,332,325, Cl. 206-216.000.
Mano, Hiroshi, to Sumitomo Electric Industries, Ltd. Porous structure of polytetrafluoroethylene and process for production thereof. 4,332,035, Cl. 3-1.400.
Manos, Philip, to Du Pont de Nemours, E. I., and Company. Acid reaction products of polymeric amines. 4,332,737, Cl. 260-404.500.
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Marconi, Walter: *See—*
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Margolis, Jack S.: *See—*
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Marietta, Walter E., to Parker-Hannifin Corporation. Variable displacement pump with torque limiting control. 4,332,531, Cl. 417-218.000.
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Marino, Frank C., to Loctite Corporation. Workpiece coating apparatus. 4,332,213, Cl. 118-211.000.
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Mart, Clyde D., to First National Supermarkets, Inc. Spiral meat slicer. 4,332,190, Cl. 99-538.000.
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Maruyama, Teruo, to Matsushita Electric Industrial Co., Ltd. Rotary mechanism with axial bearings. 4,332,428, Cl. 308-10.000.
Marzocchi, Alfred; Roberts, Michael G.; Bolen, Charles E.; and Harrington, Edward R., to Owens-Corning Fiberglas Corporation. Modified asphalt compositions. 4,332,704, Cl. 523-203.000.
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Matty, Thomas C.; and James, Aaron C., to Westinghouse Electric Corp. Signal receiving apparatus and method. 4,333,150, Cl. 364-484.000.
Mauer, Eberhard; Fischer, Siegbert; and Pfalzer, Lothar, to J. M. Voith GmbH. Method and apparatus for the recovery of a suspension of fibrous material from mixed waste paper. 4,332,638, Cl. 162-4.000.
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Maussion, Daniel, to Compagnie Internationale pour l'Informatique Cii-Honeywell Bull (Societe Anonyme). Method and apparatus for processing an analog signal. 4,333,024, Cl. 307-351.000.
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Mayol, Robert F.; and Gammans, Richard E., to Mead Johnson & Company. Benzanilide derivative. 4,332,803, Cl. 424-267.000.
Mazeski, Conrad A.; and Candelaria, Ken. Monitoring attention and cognition and the effect of sensory motor, nutritional, and other biochemical factors thereon. 4,332,566, Cl. 434-178.000.
Mazumder, Mono M.: *See—*
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McCaslin, Robert E. Game with moveable maze on game board. 4,332,385, Cl. 273-113.000.
McClellan, Jack A. Centrifuge apparatus for separating entrained solids from industrial waste water. 4,332,350, Cl. 233-7.000.
McClellan, Thomas A. Bag holder support system. 4,332,361, Cl. 248-95.000.
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McCorkle, Charles E., Jr. Intravenous channel cardiac electrode and lead assembly and method. 4,332,259, Cl. 128-786.000.
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McElroy, David J., to Texas Instruments Incorporated. Dynamic memory with on-chip refresh invisible to CPU. 4,333,167, Cl. 365-222.000.
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McGuire, Kenyon E.; and Brokl, Stanley S., to RCA Corporation. Jam-resistant TV system. 4,333,107, Cl. 358-120.000.
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McLeod, John, to Ferranti Limited. Method of bonding an optical element to a support. 4,332,636, Cl. 156-289.000.
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McSpadden, John T., to Inventive Technology International, Inc. Dental file. 4,332,561, Cl. 433-102.000.
McWhinnie, John, to Chloride Group Limited. Method of making extended strip of lead-antimony alloys for battery electrodes. 4,332,629, Cl. 148-11.50R.
Mead Corporation, The: *See—*
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Mead Johnson & Company: *See—*
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Melnicki, Leo S.: *See—*
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Meneghini, Frank A.: *See—*
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Meneret, Jean: *See—*
Belval, Michel; Casselman, Chantal; Malet, Jean-Claude; Prats, Christian; and Meneret, Jean, 4,332,170, Cl. 73-40.50R.
Mentrup, Anton: *See—*
Schromm, Kurt; Mentrup, Anton; Renth, Ernst-Otto; and Fugner, Armin, 4,332,802, Cl. 424-251.000.
Merck & Co., Inc.: *See—*
Belanger, Patrice C.; and Young, Robert N., 4,332,807, Cl. 424-274.000.
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Firestone, Raymond A., 4,332,813, Cl. 424-273.00R.
Merten, Gerhard; Breuer, Oswald; and Steinkuhl, Bernd, to Gewerkschaft Eisenhutte Westfalia. Coupling devices for connecting a mineral mining machine to a drive chain. 4,332,421, Cl. 299-34.000.
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Schmall, Karl-Heinz, 4,333,052, Cl. 324-208.000.
Soecknick, Erhard; and Busse, Jurgen, 4,332,143, Cl. 62-284.000.
Mester, Heinz, to U.S. Philips Corporation. X-Ray generator for fast dose rate control. 4,333,011, Cl. 250-409.000.
Metal Bellows Corporation: *See—*
Huffman, John, 4,332,404, Cl. 285-223.000.
Metallgesellschaft Aktiengesellschaft: *See—*
Drefahl, Klaus; and Gilles, Helmut, 4,332,294, Cl. 165-157.000.
Metallutgie Hoboken-Overpelt: *See—*
De Schepper, Achille; and Coussement, Marc, 4,332,684, Cl. 210-634.000.
Meunier, Jean P.; Barthe, Marie P.; Have, Serge; and Frumen, Bernard, to Saint-Gobain Industries. Method for the continuous fabrication of cellular products of thermohardenable resin. 4,332,754, Cl. 264-45.500.
Mewa Mechanische Weberei Altstadt GmbH: *See—*
Kuttelwesch, Rudolf, 4,332,047, Cl. 8-158.000.
Mialet, Pierre P. Display system. 4,332,565, Cl. 434-118.000.
Mian, Thomas T. Dustless bag breaker. 4,332,334, Cl. 222-83.500.
Michael Kohner Corp., The: *See—*
Kohner, Michael; and Kohner, Frank, 4,332,096, Cl. 40-486.000.
Mieger, Rolf. Hydraulic locking of the boom to the swivel arm of an excavator, crane or the like. 4,332,094, Cl. 37-103.000.
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Akimura, Yoshitaka; Hirano, Shigeo; Mifune, Hiroyuki; and Okutsu, Eiichi, 4,332,878, Cl. 430-264.000.
Miki, Minoru: *See—*
Hasegawa, Takashi; Miki, Minoru; and Taniguchi, Yutaka, 4,332,931, Cl. 528-297.000.
Miklas, Edward J.: *See—*
Christmann, Harold F.; and Miklas, Edward J., 4,332,972, Cl. 585-442.000.
Milden, Morton; and Falzarano, Anthony V., to Maddak, Inc. Bowling ball with retractable handle. 4,332,383, Cl. 273-64.000.
Miles, James M. Dual key locks with multi-function tumblers. 4,332,153, Cl. 70-339.000.
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Vieli, Otto A., 4,332,907, Cl. 501-39.000.
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Miller, Alvin L. Rope cutting and sealing machine. 4,332,637, Cl. 156-353.000.
Miller, Anton J., to Bell Telephone Laboratories, Incorporated. Method and apparatus for testing the orientation of crystal plates. 4,332,474, Cl. 356-366.000.
Miller, Larry R.: *See—*
Bock, Gustavus P.; and Miller, Larry R., 4,333,026, Cl. 310-42.000.
Miller, William H. Dose calibrator linearity evaluation. 4,333,010, Cl. 250-252.000.
Milliken Research Corporation: *See—*
Kluger, Edward W.; and Welch, Calvin D., 4,332,928, Cl. 528-113.000.
Milltronics Ltd.: *See—*
Panton, Stanley, 4,333,028, Cl. 310-326.000.
Milner, David J.; and Holland, David, to Imperial Chemical Industries Limited. Preparation of cyclopropane carboxylic acid esters. 4,332,962, Cl. 560-124.000.
Milojevic, Dusica: *See—*
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Minagawa, Kenichiro: *See—*
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Minemura, Norihiro; Toyao, Manabu; Kobayashi, Tsukasa; and Tashiro, Mikio, to Teijin Limited. Synthetic fur and process for preparation thereof. 4,332,585, Cl. 8-114.600.
Minetti, Richard H., to Bell Telephone Laboratories, Incorporated. Fabrication of circuit packages using solid phase solder bonding. 4,332,341, Cl. 228-180.00A.
Minnesota Mining and Manufacturing Company: *See—*
Koshar, Robert J., 4,332,954, Cl. 549-10.000.
Misek, Victor A., to Sanders Associates, Inc. Polarization coded doublet laser detection system. 4,333,008, Cl. 250-225.000.
Mita Industrial Co., Ltd.: *See—*
Kimura, Hiroshi; Matsui, Toshikazu; Hisajima, Masahiko; Shigemura, Yutaka; Irie, Yoichiro; and Morimoto, Kiyoshi, 4,332,467, Cl. 355-14.00D.
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Mitsubishi Gas Chemical Company, Inc.: *See—*
Isogai, Nobuo; Hosokawa, Motoyuki; Okawa, Takashi; Wakui, Natuko; and Watanabe, Toshiyasu, 4,332,966, Cl. 560-206.000.
Nawata, Takanari; Komatsu, Toshio; and Kondoh, Yukio, 4,332,845, Cl. 428-35.000.
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Mitsubishi Petrochemical Co., Ltd.: *See—*
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Mitsui Toatsu Chemicals, Inc.: *See—*
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Mitsuyama, Akira; Kawano, Tadaaki; Kato, Tutomu; Deguchi, Masanobu; and Katoh, Ituro, to Sharp Kabushiki Kaisha. Fixing device for fixing images of an original document on plain paper copy sheets. 4,332,457, Cl. 355-3.0FU.
Mittleman, Herbert; and Boland, Gordon P., to Baxter Travenol Laboratories, Inc. Administration set including burette with pivotable air valve. 4,332,247, Cl. 128-214.00C.
Miura, Kiyoshi: *See—*
Hayashi, Nobuaki; Akagi, Motoo; Miura, Kiyoshi; and Odaka, Yoshiyuki, 4,332,874, Cl. 430-28.000.
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Miyake, Kenji: *See—*
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Miyauchi, Hirotsugu: *See—*
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Miyawaki, Masaru; and Konno, Akira, to Takeda Chemical Industries, Ltd. Citrus food containing a cyclodextrin. 4,332,825, Cl. 426-330.500.
Mizelle, Ned W., to Hoover Universal, Inc. Reclining actuator for a recliner chair. 4,332,417, Cl. 297-329.000.
Mizumura, Shizuo, to Kabushiki Kaisha Tokyo Kikai Seisakusho. Variable-amplitude vibrator for inking rollers in printing presses. 4,332,195, Cl. 101-349.000.
Mizutani, Kiyokazu: *See—*
Endo, Takeshi; Ogasawara, Takahisa; and Mizutani, Kiyokazu, 4,332,731, Cl. 549-334.000.
Mletzko, Alfred E.; and Gonet, Andrew P., to Eltra Corporation. Scanning and control system for electro optical printer. 4,333,153, Cl. 364-523.000.
Mlodozeniec, Arthur R., to Hoffmann-La Roche Inc. Pharmaceutical unit dosage forms. 4,332,789, Cl. 424-27.000.
Mobay Chemical Corporation: *See—*
Allen, Gary F., 4,332,742, Cl. 260-453.0SP.
Nodelman, Neil H., 4,332,936, Cl. 536-120.000.
Mobil Oil Corporation: *See—*
Antal, Michael J., 4,332,670, Cl. 208-68.000.
Clayton, William J., 4,332,347, Cl. 229-62.000.
Mochida, Ei; Shinkai, Hiroyuki; Kudo, Takashi; and Sugawara, Toshiyuki, to Mochida Seiyaku Kabushiki Kaisha. Method of determining an antigen, antibody for antigen-antibody complex including fixing the aggregates thereof. 4,332,788, Cl. 424-12.000.
Mochida Seiyaku Kabushiki Kaisha: *See—*
Mochida, Ei; Shinkai, Hiroyuki; Kudo, Takashi; and Sugawara, Toshiyuki, 4,332,788, Cl. 424-12.000.
Mochizuki, Noritaka; and Kubota, Atsushi, to Canon Kabushiki Kaisha. Slit illuminating device. 4,333,130, Cl. 362-293.000.
Modular Systems, Inc.: *See—*
Corl, Robert W., Jr., 4,332,205, Cl. 108-60.000.
Moldovan, Richard J.; and Davis, Harold D., to Lear Siegler, Inc. Variable speed centrifugal pump. 4,332,527, Cl. 417-15.000.
Molex Incorporated: *See—*
Colleran, Stephen A., 4,332,432, Cl. 339-75.00M.
Mones, Arthur H.: *See—*
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Monsanto Company: *See*—
Alt, Gerhard H., 4,332,614, Cl. 71-118.000.
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Montedison S.p.A.: *See*—
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Moore, Francis D. Mirror for the aphakic eye. 4,333,128, Cl. 362-135.000.
Moore, Leslie T. Video room. 4,332,113, Cl. 52-6.000.
Moran, John P., to Ex-Cell-O Corporation. Container with infolded bottom closure. 4,332,345, Cl. 229-37.00R.
Morcom, William R.; Nicolay, Hugh C.; and Peters, Jeffrey D., to Harris Corporation. Aluminum Schottky contacts and silicon-aluminum interconnects for integrated circuits. 4,333,100, Cl. 357-71.000.
Morehead, Enoch W. Cat catcher (fishing device). 4,332,099, Cl. 43-15.000.
Morgan Construction Company: *See*—
Pariseau, David L., 4,332,155, Cl. 72-66.000.
Morigaki, Ken'Ichi: *See*—
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Morishita, Tsuyoshi; Yagii, Koji; Inmaru, Kiyokazu; and Miyake, Kenji, to Toyo Kogyo Co., Ltd. Hard-particle dispersion type sintered-alloy for valve seat use. 4,332,616, Cl. 75-243.000.
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Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, 4,332,876, Cl. 430-68.000.
Morrison-Knudsen Company, Inc.: *See*—
Drum, Ian; Madenburg, Richard S.; Paulsrude, Douglas M.; Sherman, Carroll H.; Turpin, Frank G.; and Wheatcroft, Gerry A., 4,332,774, Cl. 422-111.000.
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Mosing, Lionel W.: *See*—
Bartulis, Michael V.; Smura, Edwin J.; Dunn, Richard P.; Bebb, Herbert B.; Ciuffini, Anthony J.; and Mosing, Lionel W., 4,332,464, Cl. 355-14.00C.
Mosley, William H., Jr.; and Andren, Carl F., to E-Systems, Inc. Phase locked loop for recovering data bit timing. 4,333,060, Cl. 331-1.00A.
Mosse, Richard W. E., to Novus Corp. N.V. Packaging. 4,332,577, Cl. 493-74.000.
Motorola, Inc.: *See*—
Maeder, Heinz B., 4,333,020, Cl. 307-279.000.
Moulden, R. Edward, to Consan Pacific Incorporated. Antistatic equipment employing positive and negative ion sources. 4,333,123, Cl. 361-213.000.
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Blackmon, Lawrence E.; Dees, John R.; Kelly, Darrell A.; Mowe, Wayne T.; and Yu, Jing-Peir, 4,332,757, Cl. 264-103.000.
Blackmon, Lawrence E.; Dees, John R.; and Mowe, Wayne T., 4,332,758, Cl. 264-103.000.
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Bernstein, Philip; Coffey, James P.; Varker, Alan E.; Arms, John T.; Clark, William D. K.; and Goodell, Paul D., 4,332,698, Cl. 252-430.000.
Rhoda, Richard N.; and Crosby, Jeffrey N., 4,332,780, Cl. 423-413.000.
Mueller, Dale A.; Ruminsky, Robert T.; Serber, Stephen L.; and Wolfgram, Rodger C., to Honeywell Inc. Defrost control system for refrigeration system. 4,332,141, Cl. 62-140.000.
Mueller, Elmar: *See*—
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Muir, David D.: *See*—
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Mullen, John W., III. Puzzle comprising blocks with rabbeted ends. 4,332,387, Cl. 273-156.000.
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Muller, Tore B. Process for continuous crystallization. 4,332,592, Cl. 23-301.000.
Muller, Werner H.: *See*—
Berthold, Rudiger; and Muller, Werner H., 4,332,941, Cl. 546-191.000.
Muller, Wolfgang H. E.; and Zolffel, Michael, to Chemische Werke Huls Aktiengesellschaft. Process for the separation of methanol from mixtures of tetrahydrofuran with methanol and water. 4,332,645, Cl. 203-75.000.
Mullins, Michael J.: *See*—
Woo, Edmund P.; and Mullins, Michael J., 4,332,734, Cl. 549-253.000.
Mulock-Bentley, Desmond, to D. Mulock-Bentley and Associates (Proprietary) Limited. Heat exchanger with slotted fin strips. 4,332,291, Cl. 165-76.000.
Multi-Contact AG: *See*—
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Munih, Pavel, to SAVA KRANJ Industrija gumijevih, usnjenih in kemicnih izdelkov n.o.sol.o. Method for separating rubber from metal. 4,332,700, Cl. 204-155.000.
Murai, Atsushi: *See*—
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Murakami, Toshio: *See*—
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Muralidhara, H. S., to Systems Consultants, Inc. Recovery of potential energy and chromium values from leather tannery wastes. 4,332,584, Cl. 8-94.270.
Murarka, Shyam P.: *See*—
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Murata, Yorihiro, to Kennecott Corporation. Sintered silicon carbide - aluminum nitride articles and method of making such articles. 4,332,755, Cl. 264-65.000.
Muse, Ralph F., to Hubbard Company. Garment waistband structures. 4,332,034, Cl. 2-237.000.
Mutalibov, Abdusalam A.; Murashov, Oleg D.; Makhmudov, Takhir M.; Shvartsman, Leonid M.; Deminov, Alexei D.; Podlesnykh, Valentina A.; and Spirin, Lev A. Rotary pulsation apparatus. 4,332,486, Cl. 366-146.000.
Myers, George D., to Ashland Oil, Inc. High metal carbo-metallic oil conversion. 4,332,673, Cl. 208-120.000.
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Nakagawa, Noboru; Oonishi, Toshiyuki; Tsutsumi, Masato; and Kawamoto, Akira, to Tokyo Shibaura Denki Kabushiki Kaisha. Refrigerating apparatus. 4,332,138, Cl. 62-199.000.
Nakahama, Syuhei; and Yamashita, Etsu, to Carrier Corporation. Method for welding an impeller. 4,333,001, Cl. 219-125.100.
Nakahara, Yasushi; Ohtomo, Tadasuke; Yurugi, Masahiro; Naitoh, Takumi; and Kaiho, Kenichi, to Kajima Corporation. Method and apparatus for throwing down concrete. 4,332,516, Cl. 414-288.000.
Nakahata, Kimio: *See*—
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Nakano, Eiichi; Saito, Narimasa; and Fukushima, Danji, to Noda Institute for Scientific Research. Novel bacteriophage and method for preparing same. 4,332,897, Cl. 435-172.000.
Nakano, Yoshiyuki; and Tanaka, Etsuo, to Nippon Kogaku K.K. Electric shutter for camera. 4,332,452, Cl. 354-234.000.
Nakaya, Akira: *See*—
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Nakazawa, Takaaki; Nagata, Takenori; Kuroda, Yasuo; and Suzuki, Toshio, to Aisin Seiki Kabushiki Kaisha. Accessory molding strip. 4,332,412, Cl. 296-29.000.
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Napier, Loyd S.; and Pollard, Jim L., to Napier, Loyd S. Combined bow with a unitary sight and cable guard. 4,332,231, Cl. 124-24.00R.
Narasimhan, Mandayam C., to Allied Corporation. Structurally defined glassy metal strips. 4,332,848, Cl. 428-174.000.
Narisada, Masayuki: *See—*
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Griffiths, Mansel W.; Muir, David D.; and Phillips, John D., 4,332,895, Cl. 435-105.000.
National Semiconductor Corporation: *See—*
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Hasegawa, Noriyoshi, 4,332,384, Cl. 273-73.00F.
Ohta, Hajime, 4,333,114, Cl. 360-66.000.
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Nakano, Yoshiyuki; and Tanaka, Etsuo, 4,332,452, Cl. 354-234.000.
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Terashima, Kenzi, 4,332,111, Cl. 52-1.000.
Nippon Soken, Inc.: *See—*
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Nippon Telegraph & Telephone Public Corporation: *See—*
Kato, Seiji; Ueno, Norio; Kakuishi, Mitsuo; Ito, Akihiko; and Iwata, Atsushi, 4,333,064, Cl. 333-173.000.
Nippondenso Co., Ltd.: *See—*
Hiramatsu, Michio, 4,332,293, Cl. 165-153.000.
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Nitta, Tsuneharu: *See—*
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Nitz, Rolf-Eberhard: *See—*
Schonafinger, Karl; Beyerle, Rudi; Nitz, Rolf-Eberhard; Martorana, Piero A.; and Fiedler, Volker, 4,332,801, Cl. 424-246.000.
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Kakino, Yoshiaki, 4,332,161, Cl. 73-104.000.
NL Industries, Inc.: *See—*
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Noda Institute for Scientific Research: *See—*
Nakano, Eiichi; Saito, Narimasa; and Fukushima, Danji, 4,332,897, Cl. 435-172.000.
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Nodelman, Neil H., to Mobay Chemical Corporation. Method of making polyether polyols from solid hydroxyl containing initiators. 4,332,936, Cl. 536-120.000.
Nogues, Pastora S. Mathematical teaching apparatus. 4,332,567, Cl. 434-195.000.
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Kooijmans, Petrus G.; Kunze, Wolfgang; and Noordam, Arend, 4,332,709, Cl. 523-416.000.
Nordin, Richard M. Currency reception and storage device. 4,332,348, Cl. 232-43.300.
Nordstrom, Arnold B. Electrical toggle switch. 4,332,991, Cl. 200-67.00G.
Nordvall, Jan O., to ASEA Aktiebolag. Deflector roll. 4,332,154, Cl. 72-31.000.
Norris Industries, Inc.: *See—*
Lockwood, Alan C., 4,332,330, Cl. 220-3.500.
North American Philips Corporation: *See—*
Francis, Gaylord L., 4,332,081, Cl. 29-612.000.
North, Bernard F., to Sun Chemical Corporation. Novel reactants for crosslinking textile fabrics. 4,332,586, Cl. 8-186.000.
Northcutt, Walter G., Jr.: *See—*
Hovis, Victor M., Jr.; and Northcutt, Walter G., Jr., 4,332,617, Cl. 75-214.000.
Northrop Corporation: *See—*
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Noszticzius, Zoltan; Olah, Karoly; Vajta, Zsofia; Palmai, Gyorgy; Patonay, Gabor; and Szommer, Ferenc, to Csepel Muvek Hiradastechnikai Gepgyara. Gas producing electrolytic cell for portable devices. 4,332,664, Cl. 204-266.000.
Novacek, Edward P., to International Minerals & Chemical Corp. Spreading apparatus for mixed density materials. 4,332,336, Cl. 222-269.000.

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Mosse, Richard W. E., 4,332,577, Cl. 493-74.000.

Nowlin, Duane D.; and Winberg, Dennis G., to Ecodyne Corporation. Method and apparatus for treating water. 4,332,685, Cl. 210-638.000.

Nowoczyn, Hans-Werner: *See—*
Dalstein, Rolf; Spies, Johann; Greif, Hans-Dieter; Termath, Gunter; Unbescheid, Jurgen; and Nowoczyn, Hans-Werner, 4,332,241, Cl. 126-450.000.

Noyes, Billy P. Thermal line printer. 4,332,193, Cl. 101-93.010.

Nozawa, Hideyo; and Naito, Hideshi, to Nippon Kogaku K.K. Photographic lens capable of photographing the magnifications. 4,332,444, Cl. 354-79.000.

Nozemack, Richard J., to W. R. Grace & Co. Catalyst preparation. 4,332,699, Cl. 252-455.00Z.

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Singh, Anand P.; and Schichman, Daniel, 4,332,536, Cl. 425-33.000.

Nunokawa, Atsushi: *See—*
Tsurumaru, Michiko; Suzuki, Yukio; and Nunokawa, Atsushi, 4,332,646, Cl. 204-1.00T.

Nyfeler, Robert, to Ciba-Geigy Corporation. Fungicidal 3-(N-carbonylamino)-pyrrolidine-2,5-diones. 4,332,816, Cl. 424-274.000.

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Oberth, Adolph E.: *See—*
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Yuhasz, Joseph M.; and O'Brien, Sean A., 4,332,145, Cl. 62-342.000.

O'Cheskey, Theodore H., to United States Filter Fluid Systems Corporation. Filter sluicing apparatus. 4,332,680, Cl. 210-143.000.

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O'Connell, John J. Method and apparatus for closed loop vortex operation. 4,333,017, Cl. 290-2.000.

Oda, Norimasa: *See—*
Harada, Kunihiro; Kasai, Kiyoshi; Maki, Yoshiki; and Oda, Norimasa, 4,332,932, Cl. 528-481.000.

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Ogasa, Takehiro: *See—*
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Ogasawara, Takahisa: *See—*
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Ogawa, Francis T.: *See—*
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Ogihara, Takeo: *See—*
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Ogino, Shigeo: *See—*
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Ognibeni, Karl-Heinz: *See—*
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Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, to Canon Kabushiki Kaisha. Electrophotographic screen. 4,332,876, Cl. 430-68.000.

Ohba, Hiroyasu: *See—*
Kimura, Kouhei; Ohba, Hiroyasu; and Murai, Atsushi, 4,332,697, Cl. 252-429.00B.

Ohgoshi, Akio; Nakayama, Akira; Tsukamura, Yoshihiro; and Natori, Takehisa, to Sony Corporation. Grid structure for color cathode ray tube. 4,333,034, Cl. 313-407.000.

Ohio State University Research Foundation, The: *See—*
Olson, Richard G., 4,332,793, Cl. 424-89.000.

Ohmatsu, Hideki, to Fuji Photo Film Co., Ltd. Photographic sensitive materials for color diffusion transfer process. 4,332,885, Cl. 430-506.000.

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Kimoto, Kyoji; Miyauchi, Hirotsugu; Ohmura, Jukichi; Ebisawa, Mikio; and Hane, Toshioki, 4,332,665, Cl. 204-296.000.

Ohta, Hajime, to Nippon Gakki Seizo Kabushiki Kaisha. Recording circuit employing AC biasing system. 4,333,114, Cl. 360-66.000.

Ohtomo, Tadasuke: *See—*
Nakahara, Yasushi; Ohtomo, Tadasuke; Yurugi, Masahiro; Naitoh, Takumi; and Kaiho, Kenichi, 4,332,516, Cl. 414-288.000.

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Ota, Isao; Shirazawa, Haruhiro; Tatsumichi, Toshio; Kawarada, Hiroshi; and Ohtsuka, Tetsuro, 4,332,075, Cl. 29-571.000.

Oi, Naobumi; Itoh, Tadamasa; and Yasumasa, Yoshiaki, to Sumitomo Chemical Company, Limited. Analytical method and apparatus for the determination of total nitrogen contents in aqueous systems. 4,332,591, Cl. 23-230.0PC.

Oizumi, Toshiro: *See—*
Ito, Tetsuro; Oizumi, Toshiro; and Yamada, Shigeo, 4,332,995, Cl. 219-69.00V.

Ojima, Masahiro: *See—*
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Okabe, Tadao: *See—*
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Okamoto, Yukio; Mitani, Eisuke; Okabe, Tadao; and Sumioka, Atsushi, to Hitachi, Ltd. Gas discharge display device. 4,333,040, Cl. 315-169.200.

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Okonski, Edward B.: *See—*
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Okuda, Tadanobu, to Kyushu Hitachi Maxell, Ltd. Self-propelled record cleaner. 4,332,050, Cl. 15-246.000.

Okuno, Youichi, to Canon Kabushiki Kaisha. View finder for camera. 4,332,446, Cl. 354-155.000.

Okutsu, Eiichi: *See—*
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Harris, Frederick J., 4,332,340, Cl. 227-10.000.

Olivieri, Roberto; Eletti Bianchi, Giancarlo; Fascetti, Eugenio; Centini, Felice; Degen, Ludwig; and Marconi, Walter, to E.N.I. Ente Nozionale Idrocarburi. Process for preparing carbamyl derivatives of α-hydroxy acids and the corresponding α-hydroxy acids. 4,332,905, Cl. 435-280.000.

Olson, Richard G., to Ohio State University Research Foundation, The. Method of recovering cell antigen and preparation of feline leukemia vaccine therefrom. 4,332,793, Cl. 424-89.000.

Oltendorf, Norman E., to Bodine Electric Company. Acceleration shaping circuit for a stepper motor. 4,333,045, Cl. 318-696.000.

Olympus Optical Company Ltd.: *See—*
Kato, Yutaka; Tokitoh, Hirohiko; Kitahara, Tomohiro; and Ito, Hiromi, 4,332,472, Cl. 356-344.000.
Ookawa, Kaneyas, 4,332,442, Cl. 350-469.000.
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Tsunefuji, Katsuhiko, 4,332,447, Cl. 354-209.000.

Omote, Kazuaki: *See—*
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Ona, Isao; and Ozaki, Masaru, to Toray Silicone Limited. Vinyl resin compositions comprising an organopolysiloxane. 4,332,715, Cl. 524-265.000.

Onari, Mikihiko: *See—*
Wakamori, Fumio; Funabashi, Motohisa; Kata, Mamoru; Hirano, Takazo; and Onari, Mikihiko, 4,332,507, Cl. 405-92.000.

Ono, Akira, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for detecting a mutual positional relationship of two sample members. 4,332,473, Cl. 356-356.000.

Onuma, Yoshinobu: *See—*
Samejima, Hiroshi; Miura, Mareki; and Onuma, Yoshinobu, 4,332,733, Cl. 549-240.000.

Ookawa, Kaneyas, to Olympus Optical Co., Ltd. Reproducing objective for video disks. 4,332,442, Cl. 350-469.000.

Oonishi, Toshiyuki: *See—*
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Opitz, Wolfgang: *See—*
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Opprecht, Paul. Apparatus for resistance welding of can bodies. 4,332,994, Cl. 219-64.000.

Orikabe, Yasuo; and Matsuda, Masakazu, to Fujitsu Limited. Read only memory. 4,333,164, Cl. 365-104.000.

Orrico, Mario M. V.: *See—*
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Orth, Winfried; Lange, Fritz W.; and Fickert, Werner, to Rutgerswerke Aktiengesellschaft. Process for the preparation of bisacyl hydrazines. 4,332,728, Cl. 548-519.000.

Osborne, Howard S. Slump testing device. 4,332,158, Cl. 73-59.000.

Osborne, William E., to Homexx International Corp. Swimming pool alarm. 4,333,094, Cl. 340-566.000.

Oskam, Herman: *See—*
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Ota, Isao; Shirazawa, Haruhiro; Tatsumichi, Toshio; Kawarada, Hiroshi; and Ohtsuka, Tetsuro, to Matsushita Electric Industrial Co., Ltd. Method of producing thin film transistor array. 4,332,075, Cl. 29-571.000.

Otsuka, Kazuo: *See—*
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Ott, Louis E., to Standard Oil Company (Indiana). Fertilizing plants with polyborates. 4,332,609, Cl. 71-27.000.

Otto, Gunter; and Eiler, Peter, to Leo Gottwald KG, Firma. Mobile crane. 4,332,328, Cl. 212-180.000.

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Outlaw, Benjamin T.: *See—*
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Over, William R.: *See—*
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Overland, Donald L.; and Gauvin, Glen A., to Detection Sciences, Inc. Universal signal translator for motor speed control. 4,333,041, Cl. 318-317.000.

Owen, Daniel V.; and Smith, Alan M., to General Electric Company. Static inverter. 4,333,139, Cl. 363-97.000.

Owens-Corning Fiberglas Corporation: *See—*
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Uffner, William E., 4,332,705, Cl. 523-206.000.

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Page, Jay P.; and Mones, Arthur H., to Honeywell Information Systems Inc. Method of cleaning a fired thick film copper layer. 4,332,624, Cl. 134-3.000.

Paist, H. Palmer; and Jones, Barry M., to Quaker City Manufacturing Company. Block and tackle window sash balance and installation method. 4,332,054, Cl. 16-197.000.

Pako Corporation: *See—*
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Paley, Gary, to Square D Company. Swivel unit for adjustable lighting fixture. 4,333,132, Cl. 362-421.000.

Pallis, Christopher N. Key chain wallet. 4,332,284, Cl. 150-35.000.

Palmai, Gyorgy: *See—*
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Palmer, William A. Self-contained, compact towable facility having maximized balanced water storage drain water collection and waste water isolation systems. 4,332,040, Cl. 4-300.000.

Palombi, Edward R.; and Vogelman, Joseph H., to Palombi, Edward Rossi; and Vogelman, Joseph Herbert. Cordless telephone. 4,332,981, Cl. 179-2.0EA.

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Palsky, Alain; and Vella, Guy, to Rhone Poulenc Textile. Apparatus and process of manufacturing a metal cord. 4,332,131, Cl. 57-213.000.

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Papez, Stanislav, to Volkswagenwerk Aktiengesellschaft. Camshaft for an internal combustion engine. 4,332,222, Cl. 123-90.170.

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Pariseau, David L., to Morgan Construction Company. Rolling mill laying pipe. 4,332,155, Cl. 72-66.000.

Parker, Donald L.; Porter, Wilbur A.; and Rogers, Robert C., to Woodland International Corporation. Areal array of tubular electron sources. 4,333,035, Cl. 313-411.000.

Parker-Hannifin Corporation: *See—*
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Parker, James H. Polypropylene oil removal structure. 4,332,854, Cl. 428-377.000.

Parks, Alvin L.; and McAlexander, W. D., to Chinn, Eldon K. Cultivator device for a vehicle. 4,332,299, Cl. 172-98.000.

Parquet, Donald J.: *See—*
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Parrott, Richard A.: *See—*
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Parsen, Frank E.; and Graham, Teresita O., to Duracell International Inc. Cell having a gelled anode containing a polyhydric alcohol. 4,332,870, Cl. 429-206.000.

Passman, William S.: *See—*
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Pearce, John W. Paint rollers. 4,332,067, Cl. 29-116.00R.

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LaHaye, Paul G.; Bjerklie, John W.; and Penty, Robert A., 4,332,295, Cl. 165-178.000.

Perdue, Terry A., to Zenith Radio Corporation. Command buffers for electronic code keyer. 4,333,091, Cl. 340-365.00S.

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Pestolite, Inc.: *See—*
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Schnur, Rodney C., 4,332,952, Cl. 548-226.000.
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Phillips, Peter. Stringed musical instrument having a bridge secured to and translatable along a string. 4,332,184, Cl. 84-173.000.
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Polaroid Corporation: *See—*
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Kelly, Charles A.; and Meneghini, Frank A., 4,332,950, Cl. 548-146.000.
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Schultz, Stephen J.; and Zito, Ronald R., 4,332,607, Cl. 65-182.500.
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Purex Corporation: *See—*
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Reinehr, Ulrich; Herbertz, Toni; and Jungverdorben, Hermann-Josef, to Bayer Aktiengesellschaft. Process for spinning hydrophilic acrylic fibres of low density. 4,332,765, Cl. 264-206.000.
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Renga, James M.; and Periana-Pillai, Roy A., to Dow Chemical Company, The. Preparation of cyclic carbonates. 4,332,729, Cl. 549-229.000.
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Roach, Charles D., to United States of America, Army. Position transducer. 4,333,066, Cl. 335-206.000.
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Rodriguez, Gonzalo C. Combination toothbrush and toothpaste dispenser. 4,332,497, Cl. 401-154.000.
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Rogers, Robert C.: *See—*
Parker, Donald L.; Porter, Wilbur A.; and Rogers, Robert C., 4,333,035, Cl. 313-411.000.
Roggenburg, Stanley L., Jr.; and Tully, Michael E., to Essex Chemical Corporation. Blow-molding and degating hollow shapes. 4,332,750, Cl. 264-23.000.
Rohm, Gunter H. Hydraulic actuator for lathe chuck. 4,332,186, Cl. 91-1.000.
Rohr, Eduard, to Eduard Rohr AG. Throttling device for pipe conduits. 4,332,271, Cl. 137-315.000.

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Ballard, Norman E., 4,332,618, Cl. 106-84.000.
Crooke, Peter A.; and Gallimore, Kenneth, 4,332,753, Cl. 264-44.000.
Sargent, Raymond F.; and Hall, John M., 4,332,427, Cl. 308-9.000.
Rosenberg, Ralph A. Process for the production of an insulin-producing cell line of pancreatic beta cells. 4,332,893, Cl. 435-68.000.
Rosener, Wolfgang: *See*—
Gerlach, Klaus; Behnke, Joachim; Rosener, Wolfgang; and Hohm, Ewald, 4,332,686, Cl. 210-651.000.
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Rottenkolber, John J.: *See*—
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Rowland, William P., to Relfexite Corporation. Method for compression molding of retroreflective sheeting and sheeting produced thereby. 4,332,847, Cl. 428-156.000.
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Farrell, Sherman R., 4,333,036, Cl. 313-420.000.
Rubner, Roland: *See*—
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Rudd, Eric J.: *See*—
Pouli, Dirk; Melnicki, Leo S.; and Rudd, Eric J., 4,332,662, Cl. 204-265.000.
Rudnick, Jack Z.; Okonski, Edward B.; and Rottenkolber, John J. Hinge with a spring arm catch. 4,332,055, Cl. 16-335.000.
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Ruminsky, Robert T.: *See*—
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Russell, John: *See*—
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Rust, Norbert, to Expert Automation, Inc. Mechanical motion control apparatus. 4,332,176, Cl. 74-110.000.
Rust, Robert R., to Universal Foods Corporation. Method of preparing salted cheese curd loaves. 4,332,831, Cl. 426-582.000.
Rutchik, Walter L.: *See*—
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Rutgerswerke Aktiengesellschaft: *See*—
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Ryan, Daniel F.: *See*—
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Ryu, Toshihiko; and Koizumi, Yutaka, to Nippon Electric Co., Ltd. Amplitude equalizer. 4,333,063, Cl. 333-18.000.
Sabel, Gustav; and Schellens, Horst, to Ford Motor Company. Reverse speed shift device for a motor vehicle change-speed gearbox. 4,332,312, Cl. 192-4.00C.
Safeguard Business Systems, Inc.: *See*—
Hayman, Eric R., 4,332,400, Cl. 282-3.00A.
Safford, Laurance F., to American Standard Inc. Teletypewriter privacy system. 4,332,977, Cl. 178-22.140.
Saint-Gobain Industries: *See*—
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Saito, Kazuyoshi: *See*—
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Saitoh, Akira; Yamori, Akio; and Ibaragi, Toshio, to Asahi Kasei Kogyo Kabushiki Kaisha. Multi-layer laminate comprising a modified styrene-butadiene block copolymer. 4,332,858, Cl. 428-412.000.
Sakai, Kiyoshi; Hashimoto, Mitsuru; and Tsutsui, Kyoji, to Ricoh Company, Ltd. Novel hydrazone compounds and process for preparing the same. 4,332,948, Cl. 542-417.000.
Sakamaki, Hisashi: *See*—
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Salice, Luciano, to Deutsche Salice GmbH. Concealed hinge for doors, flaps, or the like. 4,332,053, Cl. 16-370.000.
Salzle, Erich. Method of polishing glass ware with sulfuric acid and hydrofluoric acid. 4,332,649, Cl. 204-98.000.
Samejima, Hiroshi; Miura, Mareki; and Onuma, Yoshinobu, to Mitsubishi Petrochemical Co., Ltd. Process for liquefying acid anhydride. 4,332,733, Cl. 549-240.000.
Samuel, Richard I., to Jayem Dialer Corp. Automatic calling methods and apparatus. 4,332,985, Cl. 179-90.0BD.
Sanders Associates, Inc.: *See*—
Misek, Victor A., 4,333,008, Cl. 250-225.000.
Sandhu, Taljit S.: *See*—
Bicher, James I.; Sandhu, Taljit S.; and Hetzel, Fred W., 4,332,260, Cl. 128-804.000.
Sandiford, Burton B., to Union Oil Company of California. Selectively controlling fluid flow through the higher permeability zones of subterranean reservoirs. 4,332,297, Cl. 166-270.000.
Sandstrom, Erland T.: *See*—
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Sankyo Company Limited: *See*—
Arai, Mamoru; Torikata, Akio; Enokita, Ryuzou; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,332,902, Cl. 435-253.000.
Sankyo Electric Company Limited: *See*—
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Sargent, Raymond F.; and Hall, John M., to Rolls-Royce Limited. Air bearing for use with concentric rotary shafts in machines. 4,332,427, Cl. 308-9.000.
Sartoretto, Paul; and Tao, Kak-Yuen, to W. A. Cleary Chemical Corporation. Urea formaldehyde dispersions modified with higher aldehydes. 4,332,610, Cl. 71-28.000.
Sasatani, Yukihiro, to Sumitomo Electric Industries, Ltd. Terraced substrate semiconductor laser. 4,333,061, Cl. 372-46.000.
Sater, Bernard L. High intensity solar cell. 4,332,973, Cl. 136-246.000.
Sato, Hisaaki, to Nippon Electric Co., Ltd. Traveling wave tube devices. 4,333,038, Cl. 315-3.500.
Sato, Hisao. Spring clip for holding sheets of paper or the like. 4,332,060, Cl. 24-67.900.
Sato, Masatoshi, to Canon Kabushiki Kaisha. Flatness measuring apparatus. 4,332,477, Cl. 356-371.000.
Sato, Yoshinori: *See*—
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Satoh, Shinzoh. Method of nitriding by high temperature electrolysis. 4,332,653, Cl. 204-140.000.
Satomi, Kunio: *See*—
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Saulgeot, Claude, to Societe Anonyme dite Compagnie Industrielle des Telecommunications Cit-Alcatel. Hard vacuum pump. 4,332,522, Cl. 415-90.000.
SAVA KRANJ Industrija gumijevih, usnjenih in kemicnih izdelkov n.o.sol.o.: *See*—
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Scherzer, Julius; and Liu, Anh-Thu, to Filtrol Corporation. Method of producing pseudoboehmite. 4,332,782, Cl. 423-628.000.
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Schiller, Edward E.: *See—*
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Schipper, Heinz; Hartig, Wolfgang; Weber, Klaus; Blumberg, Josef; and Wessolowski, Bernd, to Barmag Barmer Maschinenfabrik AG. Multi-spindle double twist twisting machine. 4,332,129, Cl. 57-105.000.
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Schlesinger, Robert J.; and Keegan, Patrick J. BTU Meter. 4,332,164, Cl. 73-193.00R.
Schmall, Karl-Heinz, to Messer Griesheim GmbH. Tool-to-workpiece distance using a resonant circuit with two partial inductances. 4,333,052, Cl. 324-208.000.
Schmid, Gunther: *See—*
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Schmidt, Manfred; Wank, Joachim; and Reese, Eckart, to Bayer Aktiengesellschaft. Polycarbonate/polyphosphonate thermoplastic composition. 4,332,921, Cl. 525-462.000.
Schmidt, Matthias, to imka Forschungsgesellschaft fur Bienenzucht mbH. Method and apparatus for economically maintaining and breeding bees in a bee compound unit. 4,332,045, Cl. 6-1.000.
Schmitt, Alfred; and Schorer, Gerd, to International Business Machines Corporation. Method of eliminating lattice defects in a semiconductor device. 4,332,627, Cl. 148-1.500.
Schmitt, Frederick L.: *See—*
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Schmitz, Henry; Kaneko, Takushi; Essery, John M.; and Doyle, Terrence W., to Bristol-Myers Company. Antitumor agents. 4,332,732, Cl. 549-332.000.
Schmitz, Henry: *See—*
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Schmoeger, Duane A. Printing press with an air assist sheet delivery and powdering system. 4,332,198, Cl. 101-416.00B.
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Schneider, William A., to Pestolite, Inc. Flying insect trap. 4,332,100, Cl. 43-113.000.
Schnur, Rodney C., to Pfizer Inc. Hypoglycemic 5-substituted oxazolidine-2,4-diones. 4,332,952, Cl. 548-226.000.
Schoenmeyr, Ivar L., to Purex Corporation. Power monitor system. 4,333,119, Cl. 361-76.000.
Schoettle, Klaus; Kaemmer, Eduard; Dobler, Peter; Gliniorz, Lothar; and Hoffmann, Werner, to BASF Aktiengesellschaft. Positioning device for a magnetic head of a magnetic tape recorder. 4,333,116, Cl. 360-78.000.
Schonafinger, Karl; Beyerle, Rudi; Nitz, Rolf-Eberhard; Martorana, Piero A.; and Fiedler, Volker, to Cassella Aktiengesellschaft. 3-Aminosydnonimines, their preparation and use. 4,332,801, Cl. 424-246.000.
Schoots, Peter J., to Kendall Company, The. Disposable diaper and top sheet therefor. 4,332,253, Cl. 128-287.000.
Schopper, Bernd; and Tandler, Peter, to ITT Industries, Inc. Two-circuit pressure control unit. 4,332,423, Cl. 303-22.00R.
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Schromm, Kurt; Mentrup, Anton; Renth, Ernst-Otto; and Fugner, Armin, to Boehringer Ingelheim KG. 11-Oxo-11H-pyrido[2,1-b]quinazoline-2-carboxylic acid and salts thereof, antiallergic compositions containing it and methods of suppressing allergic reactions with it. 4,332,802, Cl. 424-251.000.
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Schuit, Johannes. Double intake, supercharging I.C. engine. 4,332,229, Cl. 123-65.00B.
Schultz, Stephen J.; and Zito, Ronald R., to PPG Industries, Inc. Overhead mechanism for flat glass forming tweel. 4,332,607, Cl. 65-182.500.
Schulz, Johann G. D.; and Cobler, John A., to Gulf Research & Development Company. Hydrocarbon emulsions. 4,332,695, Cl. 252-312.000.
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Schulze, Heinz; Zimmerman, Robert L.; and Waddill, Harold G., to Texaco Development Corporation. N,N'-Polyoxyalkylene bis(lactam carboxylic acids). 4,332,720, Cl. 260-239.30R.
Schuss, Werner; and Fleer, Ernst-Otto, to Siemens Aktiengesellschaft. Dental handpiece. 4,332,562, Cl. 433-126.000.
Schwan-Stabilo Schwanhausser GmbH & Co.: *See—*
Hempel, Matthias; and Bruchert, Werner, 4,332,763, Cl. 264-176.00R.
Schwarz, Alfred O., to Bell Telephone Laboratories, Incorporated. Fused station protector. 4,333,121, Cl. 361-104.000.
Schwarz, Francisc C. Four quadrant AC and DC to AC and DC converter with two or more independently controlled loads. 4,333,135, Cl. 363-28.000.
Schwarz, Frederick M.; Griffin, James G.; and Gudaitus, Vytautis P., to United Technologies Corporation. Compressor bleed system for cooling and clearance control. 4,332,133, Cl. 60-39.750.
Schwarz, Rudolf, to Staeubli Ltd. Connecting rod between the heddle frame of a weaving machine and the heddle frame actuating device of the shed-forming machine which controls same. 4,332,279, Cl. 139-82.000.
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Scriven, Roger L.; and Chang, Wen-Hsuan, to PPG Industries, Inc. Implosion coatings. 4,332,329, Cl. 220-2.10A.
Searight, Charles E.; and Heasley, James H., to Ferro Corporation. Retroreflective marking tape. 4,332,437, Cl. 350-103.000.
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Seelandt, Karl H., to General Signal Corporation. Moldatherm insulated pacemaker furnace and method of manufacture. 4,332,552, Cl. 432-209.000.
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Seely, Neil G.; and Smart, David C., to Eastman Kodak Company. Film loading apparatus. 4,332,453, Cl. 354-288.000.
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Seifert, Gottfried; and Staubli, Sebastian, to Ciba-Geigy AG. Process for the preparation of fluorinated s-triazines. 4,332,939, Cl. 544-217.000.
Sekido, Satoshi: *See—*
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Serck Industries, Limited: *See—*
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Shah, Naresh R., to Union Carbide Corporation. Polymer/polyisocyanate compositions, processes for making same and processes for making polyurethane products therefrom. 4,332,716, Cl. 521-137.000.
Shankoff, Theodore A., to Bell Telephone Laboratories, Incorporated. Resist adhesion in integrated circuit processing. 4,332,881, Cl. 430-311.000.

Shapiro, Anatoly B.: *See—*
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Shaw, David N. Bottoming cycle refrigerant scavenging for positive displacement compressor, refrigeration and heat pump systems. 4,332,144, Cl. 62-324.100.
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Kooymans, Petrus G.; Wintraecken, Johannes J. M. H.; Raudenbusch, Werner T.; Seelen-Kruijssen, Josepha M. E.; and Schreurs, Gerardus C. M., 4,332,711, Cl. 523-402.000.
Kramer, Petrus A., 4,332,730, Cl. 549-302.000.
Lieder, Charles A.; and Deal, Carl H., 4,332,781, Cl. 423-573.00G.
Lijzenga, Jan; Van Gooswilligen, Gerrit; and Blanken, Thomas C., 4,332,703, Cl. 524-68.000.
Shellhause, Ronald L., to General Motors Corporation. Quick connect hydraulic coupling assembly. 4,332,402, Cl. 285-86.000.
Sherman, Carroll H.: *See—*
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Shibahara, Jun; and Matsumura, Akira, to Tokyo Shibaura Denki Kabushiki Kaisha. Built-in type microwave oven. 4,332,993, Cl. 219-10.55R.
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Shimizu, Akihiko, to Japax Inc. Apparatus for making hollow extrusion dies. 4,333,000, Cl. 219-69.00W.
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Skala, Stephen F. Apparatus for rapid heat transfer and efficient heat storage. 4,332,290, Cl. 165-10.000.
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Slysh, Paul, to General Dynamics Corporation. Structural node for large space structures. 4,332,501, Cl. 403-219.000.
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Spars, Byron G.; Tamm, Paul W.; and Wallman, P. H., to Chevron Research Company. Oil shale retorting process with raw shale preheat prior to pyrolysis. 4,332,669, Cl. 208-11.00R.
Spears, Harry L., to Watson International Resources, Ltd. Fluid pump. 4,332,533, Cl. 417-513.000.
Speicher, John M., to General Dynamics, Pomona Division. Recirculation bearing for rolling arc gimbal. 4,332,426, Cl. 308-2.00R.
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Bemis, Richard A.; Hutchins, Clinton E.; Markland, Edward J.; and Arora, Mulk R., 4,332,651, Cl. 204-129.900.
Sprecker, Mark A.; Vock, Manfred H.; Schmitt, Frederick L.; Vinals, Joaquin; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Acetyl hydrindacenes, acetyl indanes, mixtures of same, processes for preparing same and organoleptic uses thereof. 4,332,970, Cl. 568-319.000.
Spring, Donald H. Fuel hose drainage apparatus. 4,332,276, Cl. 137-526.000.
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Starner, William E.; and Yext, Walter F., to Air Products and Chemicals, Inc. Production of 1-hydroxyalkylidene-1, 1-diphosphonic acid esters. 4,332,736, Cl. 260-403.000.
Statton, Gary L.; and Harris, Stephen H., to Atlantic Richfield Company. Dichloroparabanic acid stabilized diphenylmethane diisocyanate-polymethylene polyphenyl isocyanate compositions. 4,332,741, Cl. 260-453.0SP.
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Stephenson, Edgar O.; Kohl, John M.; and Cunningham, Charles R., to General Electric Company. Insulated casing assembly. 4,332,401, Cl. 285-47.000.
Stettner, Louis J. Archival print and film washer. 4,332,455, Cl. 354-324.000.
Steury, Thomas D., to International Business Machines Corporation. Balanced photoconductor usage control system. 4,332,465, Cl. 355-14.00R.
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Strodthoff, Glenn G. Resealable package. 4,332,344, Cl. 229-62.000.
Strom, Richard A., to Control Data Corporation. Pilot driver for plasma display device. 4,333,039, Cl. 315-169.400.
Strowik, Willibald, to Keiper Automobiltechnik GmbH & Co. KG. Adjustable hinge mount for seats having reclinable backrest, particularly motor vehicle seats. 4,332,418, Cl. 297-362.000.
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Stucheli, Edwin. Joint. 4,332,499, Cl. 403-53.000.
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Stutzle, Dietmar, to Diehl, Firma. Optoelectronic proximity sensor. 4,332,468, Cl. 356-5.000.
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Sutherland, Hugh E.; Spiegelhalter, Philip J.; Spiegelhalter, Martin R.; and Goring, Brian H., to Southwater Security Limited. Security system. 4,333,074, Cl. 340-825.300.
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Nakazawa, Takaaki; Nagata, Takenori; Kuroda, Yasuo; and Suzuki, Toshio, 4,332,412, Cl. 296-29.000.
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Tsurumaru, Michiko; Suzuki, Yukio; and Nunokawa, Atsushi, 4,332,646, Cl. 204-1.00T.
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Friedli, Hans; and Arnold, Erwin, 4,332,660, Cl. 204-245.000.
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Earle, Roger W.; and Walsh, William J., 4,332,553, Cl. 432-205.000.
Syntex (U.S.A.) Inc.: *See—*
Clark, Robin D., 4,332,804, Cl. 424-248.570.
Fleming, Michael P., 4,332,723, Cl. 548-444.000.
Systems Consultants, Inc.: *See—*
Muralidhara, H. S., 4,332,584, Cl. 8-94.270.
Szommer, Ferenc: *See—*
Noszticzius, Zoltan; Olah, Karoly; Vajta, Zsofia; Palmai, Gyorgy; Patonay, Gabor; and Szommer, Ferenc, 4,332,664, Cl. 204-266.000.
Taarit, Younes B.: *See—*
Kervennal, Jacques; Elleuch, Boubaker; and Taarit, Younes B., 4,332,739, Cl. 260-453.0PC.
Tabata, Yasuhiro, to Ricoh Company, Ltd. Electrophotographic copying method. 4,332,877, Cl. 430-103.000.
Takagi, Tohru: *See—*
Makuuchi, Keizo; Katakai, Akio; Hagiwara, Miyuki; Yamamoto, Tsutomu; Nakayama, Hiroyuki; and Takagi, Tohru, 4,332,657, Cl. 204-159.220.
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Yui, Masatoshi; Takeoda, Minoru; and Otsuka, Kazuo, 4,333,049, Cl. 324-102.000.
Takara Co., Ltd.: *See—*
Tomita, Tohru, 4,332,101, Cl. 46-9.000.
Takara Company, New York, Inc.: *See—*
Watanabe, Tony, 4,332,557, Cl. 433-77.000.
Takase, Shigeyuki: *See—*
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Takebayashi, Yoshiaki: *See—*
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Takeda Chemical Industries, Ltd.: *See—*
Hasegawa, Takashi; Miki, Minoru; and Taniguchi, Yutaka, 4,332,931, Cl. 528-297.000.
Miyawaki, Masaru; and Konno, Akira, 4,332,825, Cl. 426-330.500.
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Kamogashira, Takashi; Nishida, Tsutomu; Sugawara, Michiharu; Nihno, Tomiyo; and Takegata, Setsuko, 4,332,891, Cl. 435-48.000.
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Takigawa, Hiroyoshi; and Miyamura, Nobuhiro, to Bridgestone Tire Company, Limited. Heavy duty pneumatic tire tread. 4,332,286, Cl. 152-209.00R.

Takikawa, Naohisa: *See—*
Ishii, Takami; Takikawa, Naohisa; Tokunaga, Kiyoaki; and Ogawa, Nobuhiro, 4,332,930, Cl. 528-233.000.

Talbot-Carlson, Inc.: *See—*
Davis, Grover M., 4,332,217, Cl. 119-29.000.

Tamm, Paul W.: *See—*
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Tamura, Humio: *See—*
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Tamura, Yasuyuki; Nakahata, Kimio; and Ishida, Masato, to Canon Kabushiki Kaisha. Electrically discharging method and device. 4,333,124, Cl. 361-214.000.

Tanabe Seiyaku Co., Ltd.: *See—*
Honma, Yasushi; Takeda, Mikio; and Tsuzurahara, Kei, 4,332,809, Cl. 424-266.000.

Tanaka, Etsuo: *See—*
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Tanaka, Hiromitsu: *See—*
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Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, 4,332,876, Cl. 430-68.000.

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Tandler, Peter: *See—*
Schopper, Bernd; and Tandler, Peter, 4,332,423, Cl. 303-22.00R.

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Pastor, Antonio C.; Pastor, Ricardo C.; Tangonan, Gregory L.; and Wong, Shi-Yin, 4,332,879, Cl. 430-272.000.

Tanguay, Donald J.; and Weitzel, Charles E., to RCA Corporation. Use of silicide to bridge unwanted polycrystalline silicon P-N junction. 4,333,099, Cl. 357-67.000.

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Tsuji, Teruji; Hamashima, Yoshio; Yoshioka, Mitsuru; Narisada, Masayuki; Tanida, Hiroshi; Komeno, Taichiro; and Nagata, Wataru, 4,332,722, Cl. 260-245.400.

Taniguchi, Kiyoshi: *See—*
Uji-Ie, Koji; Umehara, Masaakira; Taniguchi, Kiyoshi; and Kunikane, Makoto, 4,332,884, Cl. 430-338.000.

Taniguchi, Makoto: *See—*
Mashiko, Koichiro; Ichiyama, Toshio; and Taniguchi, Makoto, 4,333,168, Cl. 365-210.000.

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Hasegawa, Takashi; Miki, Minoru; and Taniguchi, Yutaka, 4,332,931, Cl. 528-297.000.

Taniyama, Susumu; and Shimaoka, Goro, to Mitsubishi Gas Chemical Company, Inc. Primer composition and a method for treating a plastics substrate using the same. 4,332,857, Cl. 428-412.000.

Tanizaki, Yoshiharu; Takase, Shigeyuki; Minagawa, Kenichiro; and Watanabe, Kiyomitu, to Nippon Oil and Fats Co., Ltd. Water base lubricant composition. 4,332,689, Cl. 252-49.300.

Tanner, Joseph F.: *See—*
Roberts, Michael G.; and Tanner, Joseph F., 4,332,707, Cl. 524-476.000.

Tanney, Oliver M., to Goodren Products Corp. Picture holder. 4,332,095, Cl. 40-158.00R.

Tao, Kak-Yuen: *See—*
Sartoretto, Paul; and Tao, Kak-Yuen, 4,332,610, Cl. 71-28.000.

Tao, Thomas M.: *See—*
Bean, William C.; and Tao, Thomas M., 4,332,756, Cl. 264-70.000.

Tasar, Omur: *See—*
Whiteside, Arliss E.; Freedman, Morris D.; and Tasar, Omur, 4,333,144, Cl. 364-200.000.

Tashiro, Mikio: *See—*
Minemura, Norihiro; Toyao, Manabu; Kobayashi, Tsukasa; and Tashiro, Mikio, 4,332,585, Cl. 8-114.600.

Tate, Jack F., to Texaco Inc. Aqueous acid solution containing an acrylamido alkanesulfonic acid polymer. 4,332,688, Cl. 252-8.55C.

Tatsumichi, Toshio: *See—*
Ota, Isao; Shirazawa, Haruhiro; Tatsumichi, Toshio; Kawarada, Hiroshi; and Ohtsuka, Tetsuro, 4,332,075, Cl. 29-571.000.

Taylor, Carson W.: *See—*
Cresap, Richard L.; Taylor, Carson W.; and Kreipe, Michael J., 4,333,021, Cl. 307-87.000.

Taylor, Dale F.; Sicko, John S.; and Passman, William S., to General Electric Company. Microprocessor-based state of charge gauge for secondary batteries. 4,333,149, Cl. 364-481.000.

Taylor, John K.: *See—*
Litchield, Peter J.; and Taylor, John K., 4,332,842, Cl. 427-176.000.

Taylor, Rebecca S., to Kendall Company, The. Drainage receptacle with support member. 4,332,252, Cl. 128-275.000.

Taylor, Robert L., to LKB-Produkter AB. Vessel for growing cells. 4,332,906, Cl. 435-291.000.

Taylor, William J., Jr. Drum magazine for automatic pistol or the like. 4,332,097, Cl. 42-50.000.

TBA Industrial Products Limited: *See—*
Litchield, Peter J.; and Taylor, John K., 4,332,842, Cl. 427-176.000.

TDK Electronics Co., Ltd.: *See—*
Hosaka, Akihiko, 4,332,863, Cl. 428-695.000.

Technicare Corporation: *See—*
Heuscher, Dominic J.; and Carlson, Roland W., 4,333,145, Cl. 364-414.000.

Teed, Stephen: *See—*
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Teijin Limited: *See—*
Minemura, Norihiro; Toyao, Manabu; Kobayashi, Tsukasa; and Tashiro, Mikio, 4,332,585, Cl. 8-114.600.

Teilhet, Michel, to Thomson-CSF. Device for distance acquisition in a radar system. 4,333,077, Cl. 343-6.00R.

Tektronix, Inc.: *See—*
Hood, Rush W., Jr., 4,333,023, Cl. 307-310.000.

Teledyne Industries, Inc.: *See—*
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Teraji, Tsutomu; Sakane, Kazuo; and Goto, Jiro, to Fujisawa Pharmaceutical Co., Ltd. 7-Amino-thia-diazole oxyimino derivatives of cephem and cephem compounds. 4,332,798, Cl. 424-246.000.

Teraji, Tsutomu; Sakane, Kazuo; and Goto, Jiro, to Fujisawa Pharmaceutical Co., Ltd. Cephem compounds. 4,332,800, Cl. 424-246.000.

Terashima, Kenzi, to Nippon Sheet Glass Co., Ltd. Fireproof windowpane and mounting frame therefor. 4,332,111, Cl. 52-1.000.

Terauchi, Kiyoshi; and Hiraga, Masaharu, to Sankyo Electric Company Limited. Scroll type compressor having an oil separator and oil sump in the suction chamber. 4,332,535, Cl. 418-55.000.

Termath, Gunter: *See—*
Dalstein, Rolf; Spies, Johann; Greif, Hans-Dieter; Termath, Gunter; Unbescheid, Jurgen; and Nowoczyn, Hans-Werner, 4,332,241, Cl. 126-450.000.

Texaco Development Corporation: *See—*
Schulze, Heinz; Zimmerman, Robert L.; and Waddill, Harold G., 4,332,720, Cl. 260-239.30R.

Texaco Inc.: *See—*
Chapman, Gary L.; and Cummins, William H., 4,332,086, Cl. 33-126.500.
Herbstman, Sheldon; Biasotti, Joseph B.; and Brennan, Michael E., 4,332,595, Cl. 44-72.000.
Knifton, John F., 4,332,914, Cl. 518-700.000.
Knifton, John F.; and Lin, Jiang-Jen, 4,332,915, Cl. 518-700.000.
Tate, Jack F., 4,332,688, Cl. 252-8.55C.

Texas A&M University: *See—*
Lawhon, James T.; and Manak, Larry J., 4,332,719, Cl. 260-123.500.

Texas Instruments: *See—*
Calder, Powell L., 4,333,143, Cl. 364-200.000.

Texas Instruments Incorporated: *See—*
Domogalla, John C., 4,333,025, Cl. 307-355.000.
Johnson, Larry K., 4,332,082, Cl. 29-622.000.
McElroy, David J., 4,333,167, Cl. 365-222.000.

Textron, Inc.: *See—*
Rieth, Kurt A.; and Bert, Stephen F., 4,332,061, Cl. 24-343.000.

Thamm, Horst-Dieter; Knittel, Volker; Sommer, Werner; and Weckler, Gerhard, to Hoechst Aktiengesellschaft. Diphosphonodicarboxylic acid esters. 4,332,746, Cl. 260-932.000.

Therapac Div., Krelitz Industries, Inc.: *See—*
Beskin, Gerald S., 4,332,364, Cl. 248-442.200.

Thermatool Corp.: *See—*
Huppunen, Robert D.; and Morin, Theodore J., 4,332,373, Cl. 266-228.000.

Thern, Rolf A. B.; and Dahlberg, Peter, to U.S. Philips Corporation. Device for controlling the carriage movement in a printer. 4,332,492, Cl. 400-320.000.

Thibodeau, Michael J.; and Balcerski, James S., to American Cyanamid Company. Phosphoric acid filtration process. 4,332,779, Cl. 423-321.00R.

Thijssen, Henricus A. C.; and van der Malen, Bernardus G. M., to Douwe Egberts Koninklijke Tabaksfabriek, Koffiebranderijin en Theehandel B.V. Counter current crystallizer. 4,332,140, Cl. 62-123.000.

Thijssen, Henricus A. C.; and van der Malen, Bernardus G. M., to Douwe Egberts Koninklijke, Tabaksfabriek-Koffiebranderijen Theehandel B.V. Continuous packed bed wash column. 4,332,599, Cl. 62-542.000.

Thill, Bruce P., to Dow Chemical Company, The. Ion exchange polymers on improved porous substrates. 4,332,916, Cl. 521-25.000.

Thomas & Betts Corporation: *See—*
Dienes, Zoltan B., 4,332,975, Cl. 174-76.000.

Thomas, Penrhyn F. Contact lenses. 4,332,443, Cl. 351-160.00H.

Thomas, Ralph H., to Ident-A-Call, Inc. Telephone toll call security and logging device and method. 4,332,982, Cl. 179-7.10R.

Thompson, Doyle D., to Form Flo Equipment Manufacturers Inc. Adjustable paper folding apparatus. 4,332,581, Cl. 493-413.000.

Thompson, James. Insertion device. 4,332,251, Cl. 128-263.000.

Thompson, James A., to De Lorean Manufacturing Company. Low disturbance track cleat and ice calk structure for firm or icy snow. 4,332,424, Cl. 305-35.0EB.

Thompson, Neil E. S.; Redmore, Derek; Oude Alink, Bernardus A.; and Outlaw, Benjamin T., to Petrolite Corporation. Compounds containing sulfur and amino groups. 4,332,967, Cl. 564-162.000.

Thompson, Richard K., Jr.: *See—*
Balde, John W.; Spencer, Robert A.; and Thompson, Richard K., Jr., 4,332,433, Cl. 339-99.00R.

Thomson-CSF: *See—*
Cachier, Gerard, 4,333,076, Cl. 343-5.0DD.
Peyre-Lavigne, Andre, 4,332,837, Cl. 427-57.000.

Teilhet, Michel, 4,333,077, Cl. 343-6.00R.
Thomson, Thomas H., to Staodynamics, Inc. Positive displacement intravenous infusion pump device and method. 4,332,246, Cl. 128-214.00F.
Tiberg, Sven-Erik: *See—*
Sinha, Brajnandan; and Tiberg, Sven-Erik, 4,333,146, Cl. 364-426.000.
Tinney, Francis J.; Connor, David T.; Cetenko, Wiaczeslaw A.; Kerbleski, Joseph J.; and Sorenson, Roderick J., to Warner-Lambert Company. Certain 2-pyridylamino-3-thiophene carboxylic acid derivatives. 4,332,947, Cl. 546-284.000.
Titanium Technology (Australia) Ltd.: *See—*
Dunn, Wendell D., Jr., 4,332,615, Cl. 75-1.0TI.
Titeflex Corporation: *See—*
Lalikos, James M.; and Waite, Harold K., 4,332,278, Cl. 138-127.000.
Titmus Eurocon: *See—*
Kossmehl, Gerhard; Quast, Dietrich; and Schafer, Horst, 4,332,922, Cl. 525-478.000.
Tlustakova, Marie: *See—*
Kalal, Jaroslav; and Tlustakova, Marie, 4,332,694, Cl. 252-189.000.
Toagosei Chemical Industry Co., Ltd.: *See—*
Endo, Takeshi; Ogasawara, Takahisa; and Mizutani, Kiyokazu, 4,332,731, Cl. 549-334.000.
Tobias, Michael A.: *See—*
Ponyik, Charles A., Jr.; and Tobias, Michael A., 4,332,701, Cl. 524-539.000.
Toews, Norman J. Wall or panel connector and panels therefor. 4,332,119, Cl. 52-772.000.
Toho Titanium Co., Ltd.: *See—*
Kimura, Kouhei; Ohba, Hiroyasu; and Murai, Atsushi, 4,332,697, Cl. 252-429.00B.
Toi, Koji: *See—*
Takahashi, Satoji; and Toi, Koji, 4,332,718, Cl. 260-112.50R.
Tokitoh, Hirohiko: *See—*
Kato, Yutaka; Tokitoh, Hirohiko; Kitahara, Tomohiro; and Ito, Hiromi, 4,332,472, Cl. 356-344.000.
Tokunaga, Kiyoaki: *See—*
Ishii, Takami; Takikawa, Naohisa; Tokunaga, Kiyoaki; and Ogawa, Nobuhiro, 4,332,930, Cl. 528-233.000.
Tokyo Electric Company, Limited: *See—*
Suzuki, Seiji; Sakamoto, Kohichiro; and Kitagawa, Tohru, 4,332,174, Cl. 73-862.650.
Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Iida, Taketoshi; Saito, Kazuyoshi; Shrasaka, Toshio; and Takemura, Yasuhiko, 4,332,171, Cl. 73-626.000.
Matsushima, Tetsuo, 4,333,151, Cl. 364-492.000.
Nagano, Katsumi, 4,333,141, Cl. 363-127.000.
Nakagawa, Noboru; Oonishi, Toshiyuki; Tsutsumi, Masato; and Kawamoto, Akira, 4,332,138, Cl. 62-199.000.
Nishida, Katsutoshi; and Ochiai, Toshihiko, 4,332,909, Cl. 501-97.000.
Ono, Akira, 4,332,473, Cl. 356-356.000.
Shibahara, Jun; and Matsumura, Akira, 4,332,993, Cl. 219-10.55R.
Tsubo, Shuzo, 4,332,375, Cl. 271-9.000.
Yamaguchi, Hiroyasu; and Ishii, Takashi, 4,333,059, Cl. 330-265.000.
Yamaguti, Yasuhiro, 4,333,087, Cl. 346-140.00R.
Tolentino, Luisito A., to General Electric Company. Process for preparing acyloxysilanes. 4,332,956, Cl. 556-442.000.
Tomita, Tohru, to Takara Co., Ltd. Toy kitchen assembly. 4,332,101, Cl. 46-9.000.
Toovey, Kenneth S.: *See—*
Baragar, Harold A.; and Toovey, Kenneth S., 4,332,160, Cl. 73-84.000.
Topliffe, Roger O., to United States of America, Army. Automatically deployed shell fins. 4,332,360, Cl. 244-3.270.
Toray Industries, Inc.: *See—*
Kitanaka, Minoru; and Izumj, Zenji, 4,332,767, Cl. 264-322.000.
Toray Silicone Limited: *See—*
Hamada, Mitsuo; Yasuda, Sadami; and Hasegawa, Chiichiro, 4,332,844, Cl. 427-387.000.
Ona, Isao; and Ozaki, Masaru, 4,332,715, Cl. 524-265.000.
Torikata, Akio: *See—*
Arai, Mamoru; Torikata, Akio; Enokita, Ryuzou; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,332,902, Cl. 435-253.000.
Torstensson, Bengt-Arne. Device for determining the pore water pressure in a soil. 4,332,172, Cl. 73-707.000.
Townsend, Richard J. Euchre score board. 4,332,386, Cl. 273-148.00A.
Townsend, Todd V.: *See—*
Cook, R. Gordon; and Townsend, Todd V., 4,333,175, Cl. 370-56.000.
Toyama, Kenji: *See—*
Nioh, Susumu; Hirayama, Hiroshi; Honda, Tetsuzo; Nagahama, Takashi; Naruo, Masaki; Yoshida, Teruo; Siotu, Gisaburo; Sato, Yoshinori; and Toyama, Kenji, 4,332,211, Cl. 118-62.000.
Toyao, Manabu: *See—*
Minemura, Norihiro; Toyao, Manabu; Kobayashi, Tsukasa; and Tashiro, Mikio, 4,332,585, Cl. 8-114.600.
Toyo Engineering Corporation: *See—*
Nioh, Susumu; Hirayama, Hiroshi; Honda, Tetsuzo; Nagahama, Takashi; Naruo, Masaki; Yoshida, Teruo; Siotu, Gisaburo; Sato, Yoshinori; and Toyama, Kenji, 4,332,211, Cl. 118-62.000.
Toyo Kogyo Co., Ltd.: *See—*
Hujimoto, Yoshio; Kochi, Tadashi; and Furuya, Shigeru, 4,333,131, Cl. 362-372.000.
Morishita, Tsuyoshi; Yagii, Koji; Inmaru, Kiyokazu; and Miyake, Kenji, 4,332,616, Cl. 75-243.000.
Toyo Seikan Kaisha, Ltd.: *See—*
Tsurumaru, Michiko; Suzuki, Yukio; and Nunokawa, Atsushi, 4,332,646, Cl. 204-1.00T.
Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Nomura, Yoshihisa, 4,332,311, Cl. 188-340.000.
Troncoso, Fernando, Jr. Archery bow with spring-biased arrow rest. 4,332,232, Cl. 124-24.00R.
Troponwerke GmbH & Co. KG: *See—*
Boltze, Karl-Heinz; Raddatz, Siegfried; and Seidel, Peter-Rudolf, 4,332,727, Cl. 548-501.000.
Etschenberg, Eugen; Jacobi, Haireddin; and Opitz, Wolfgang, 4,332,819, Cl. 424-301.000.
Trosken, Jurgen; Horlein, Gerhard; Schulze, Ernst-Friedrich; and Langeluddeke, Peter, to Hoechst Aktiengesellschaft. Herbicidal compositions. 4,332,960, Cl. 560-62.000.
Trudeau, William H.: *See—*
Smith, Joseph E., Jr.; and Trudeau, William H., 4,332,500, Cl. 403-114.000.
TRW Inc.: *See—*
Crackel, John E., 4,333,055, Cl. 328-133.000.
Worth, Joseph P.; and Fletcher, Bert B., 4,333,069, Cl. 338-315.000.
Tsao, George T.: *See—*
Gong, Cheng-Shung; Chen, Li-Fu; and Tsao, George T., 4,332,903, Cl. 435-254.000.
Tschudi, Giulio, to Hermes Precisa International S.A. Lining-up assembly for a printing disc. 4,332,490, Cl. 400-175.000.
Tsubo, Shuzo, to Tokyo Shibaura Denki Kabushiki Kaisha. Copy sheet-feeding apparatus. 4,332,375, Cl. 271-9.000.
Tsuboshima, Kosaku, to Olympus Optical Company, Ltd. Chemical substance detection apparatus. 4,332,658, Cl. 204-195.00M.
Tsuda, Singo; Yamaga, Minoru; and Kawai, Yuzuru, to Matsushita Electric Industrial Co., Ltd. Battery coil construction. 4,332,867, Cl. 429-94.000.
Tsuji, Teruji; Hamashima, Yoshio; Yoshioka, Mitsuru; Narisada, Masayuki; Tanida, Hiroshi; Komeno, Taichiro; and Nagata, Wataru, to Shionogi & Co., Ltd. Cyclization to form cephem ring and intermediates therefor. 4,332,722, Cl. 260-245.400.
Tsukamura, Yoshihiro: *See—*
Ohgoshi, Akio; Nakayama, Akira; Tsukamura, Yoshihiro; and Natori, Takehisa, 4,333,034, Cl. 313-407.000.
Tsukishima Kikai Co., Ltd.: *See—*
Nioh, Susumu; Hirayama, Hiroshi; Honda, Tetsuzo; Nagahama, Takashi; Naruo, Masaki; Yoshida, Teruo; Siotu, Gisaburo; Sato, Yoshinori; and Toyama, Kenji, 4,332,211, Cl. 118-62.000.
Tsunefuji, Katsuhiko, to Olympus Optical Company Ltd. Electromagnetic shutter apparatus for camera. 4,332,447, Cl. 354-209.000.
Tsurumaru, Michiko; Suzuki, Yukio; and Nunokawa, Atsushi, to Toyo Seikan Kaisha, Ltd. Method for assaying iron-exposed portion of coated steel plate or processed product thereof. 4,332,646, Cl. 204-1.00T.
Tsutsui, Kyoji: *See—*
Sakai, Kiyoshi; Hashimoto, Mitsuru; and Tsutsui, Kyoji, 4,332,948, Cl. 542-417.000.
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Twyman, Raymond B. Cargo spring batten. 4,332,515, Cl. 410-149.000.
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Ishii, Takami; Takikawa, Naohisa; Tokunaga, Kiyoaki; and Ogawa, Nobuhiro, 4,332,930, Cl. 528-233.000.
Uchida, Kanich; and Sawamura, Hitoshi, to Kabushiki Kaisha Komatsu Seisakusho. Sprocket wheels of an endless track-type vehicle. 4,332,573, Cl. 474-94.000.
Uehara, Haruo; and Satomi, Kunio, to Canon Kabushiki Kaisha. Internal reflection suppressing coating material for optical glass. 4,332,706, Cl. 523-450.000.
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position and recording element using same. 4,332,884, Cl. 430-338.000.

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Frank, Jonathan M., 4,332,033, Cl. 2-105.000.

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Sandiford, Burton B., 4,332,297, Cl. 166-270.000.

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Roach, Charles D., 4,333,066, Cl. 335-206.000.
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Brassell, Gilbert W.; Lewis, John, Jr.; and Weber, Gary W., 4,332,751, Cl. 264-28.000.
Chertock, Alan J., deceased; Fox, Jack N.; and Weissinger, Robert B., 4,332,640, Cl. 376-264.000.
Cresap, Richard L.; Taylor, Carson W.; and Kreipe, Michael J., 4,333,021, Cl. 307-87.000.
House, Palmer A., 4,332,520, Cl. 415-63.000.
Hovis, Victor M., Jr.; and Northcutt, Walter G., Jr., 4,332,617, Cl. 75-214.000.

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Margolis, Jack S. Coherently pulsed laser source. 4,332,441, Cl. 350-358.000.

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Conyers, John A.; Oberth, Adolph E.; and Santerre, George M., 4,332,632, Cl. 149-19.200.
Dick, John O.; McKenzie, Joe A.; and Bradford, William C., 4,333,079, Cl. 343-7.0PF.
Gilligan, William H.; and Stafford, Scott L., 4,332,744, Cl. 260-463.000.
Hoyt, Jack W., 4,333,169, Cl. 367-1.000.
Means, James E., 4,332,199, Cl. 102-276.000.

U.S. Philips Corporation: *See—*
Alkema, Frederik H.; and Luursema, Meerten, 4,333,127, Cl. 362-17.000.
Mester, Heinz, 4,333,011, Cl. 250-409.000.
Peek, Hermanus L.; and Collet, Marnix G., 4,332,078, Cl. 29-580.000.
Solo de Zaldivar, Jose, 4,332,076, Cl. 29-571.000.
Thern, Rolf A. B.; and Dahlberg, Peter, 4,332,492, Cl. 400-320.000.
van Der Put, Henricus C. A., 4,332,342, Cl. 228-180.00A.
Voorman, Johannes O., 4,333,158, Cl. 364-825.000.
Whelan, Maurice V.; and Le Can, Claude J. P. F., 4,333,022, Cl. 307-304.000.

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United Technologies Corporation: *See—*
Cheney, Marvin C., Jr., 4,332,525, Cl. 416-134.00A.
Schwarz, Frederick M.; Griffin, James G.; and Gudaitus, Vytautis P., 4,332,133, Cl. 60-39.750.

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Rust, Robert R., 4,332,831, Cl. 426-582.000.

University of Kentucky Research Foundation: *See—*
Burbank, Peter L., 4,332,569, Cl. 434-272.000.

University of Pennsylvania, Trustees of the: *See—*
Zemel, Jay N.; and Rahnamai, Hamid, 4,332,157, Cl. 73-26.000.

University Patents, Inc.: *See—*
Allen, Robert H.; and Seligman, Paul A., 4,332,785, Cl. 424-1.000.

Upjohn Company, The: *See—*
Manis, Jack J.; and Highlander, Sarah K., 4,332,900, Cl. 435-172.000.
Reusser, Fritz, 4,332,898, Cl. 435-172.000.

Urban, Raymond C., to General Electric Company. Process for producing composite insulating material. 4,332,836, Cl. 427-44.000.

Uwano, Tomoki, to Matsushita Electric Industrial Co., Ltd. Temperature stabilized MIC solid-state oscillator. 4,333,062, Cl. 331-99.000.

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Berneke, Erik S., 4,332,663, Cl. 204-277.000.

Vago, Pal: *See—*
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Vajta, Zsofia: *See—*
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Vakili, Hosein. Telephone privacy controller. 4,332,983, Cl. 179-17.00B.

Valkenburg, Wilhelmus G. H. Procedure and arrangement for keeping livestock. 4,332,216, Cl. 119-22.000.

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Van Doorne's Transmissie B.V.: *See—*
Hendriks, Emery F. M., 4,332,575, Cl. 474-201.000.

Van Auwelaer, James M.; Hutchinson, Eugene B.; and Braet, Jerome A., to Deere & Company. Automatic height control for a harvester header. 4,332,126, Cl. 56-10.200.

Van de Caveye, Yves H., to Societe D'Exploitation des Etablissements Minato. Press for moulding concrete products. 4,332,540, Cl. 425-182.000.

van den Bosch, Steven; van't Land, Evert; and Stoffelsma, Jan, to Polak's Frutal Works, B.V. Methylthiomethyl esters as flavor additives. 4,332,829, Cl. 426-535.000.

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Venkataramu, Sindhaghatta D.; Pearson, Donald E.; and Beth, Albert H., 4,332,946, Cl. 546-208.000.

van der Malen, Bernardus G. M.: *See—*
Thijssen, Henricus A. C.; and van der Malen, Bernardus G. M., 4,332,140, Cl. 62-123.000.
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van der Meulen, Leonard. Apparatus for making thermoplastic carrier bags. 4,332,578, Cl. 493-197.000.

van Der Put, Henricus C. A., to U.S. Philips Corporation. Method of soldering components to a thick-film substrate. 4,332,342, Cl. 228-180.00A.

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van Laar, Jacobus; Felthuis, Jacob; and Kastelic, Wilhelmus A. J., to Hoogovens Ijmuiden B.V. Shaft furnace having cooling plates. 4,332,554, Cl. 432-233.000.

van't Land, Evert: *See—*
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Van Tao, Nguyen: *See—*
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Van Uitert, LeGrand G.: *See—*
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Varian Associates, Inc.: *See—*
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Varker, Alan E.: *See—*
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VEB Polygraph Leipzig Kombinat fuer Polygraphische Maschinen und Ausruestungen: *See—*
Hertrich, Klaus, 4,332,582, Cl. 493-424.000.

Vella, Guy: *See—*
Palsky, Alain; and Vella, Guy, 4,332,131, Cl. 57-213.000.

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Ventus Energy Corp.: *See—*
Bottrell, Gerald W., 4,333,018, Cl. 290-55.000.

Victor Company of Japan, Ltd.: *See—*
Kobari, Harukuni; Yamada, Yasuhiro; Suzuki, Susumu; and Hibino, Chitoshi, 4,333,160, Cl. 364-900.000.

Vieli, Otto A., to Millcell AG. Granulated foamed glass and process for the production thereof. 4,332,907, Cl. 501-39.000.

Vieli, Otto A., to Millcell AG. Foamed granular glass. 4,332,908, Cl. 501-39.000.

Vinals, Joaquin: *See—*
Sprecker, Mark A.; Vock, Manfred H.; Schmitt, Frederick L.; Vinals, Joaquin; and Kiwala, Jacob, 4,332,970, Cl. 568-319.000.

Vock, Manfred H.: *See—*
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Reithner, Gerhard; Wagner, Peter; and Kagerhuber, Franz, 4,332,289, Cl. 164-446.000.

Vogel, Ignaz. Seat. 4,332,419, Cl. 297-443.000.

Vogelman, Joseph H.: *See—*
Palombi, Edward R.; and Vogelman, Joseph H., 4,332,981, Cl. 179-2.0EA.

Vogelman, Joseph Herbert: *See—*
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Papez, Stanislav, 4,332,222, Cl. 123-90.170.

Volpe, Richard L., to White Consolidated Industries, Inc. Mechanism for stacking sequentially received sheets. 4,332,376, Cl. 271-217.000.
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Voorman, Johannes O., to U.S. Philips Corporation. Automatic gain control circuit for an adaptive filter. 4,333,158, Cl. 364-825.000.
Vukich, John. Extendible finger wrench. 4,332,178, Cl. 81-439.000.
W. A. Cleary Chemical Corporation: *See*—
Sartoretto, Paul; and Tao, Kak-Yuen, 4,332,610, Cl. 71-28.000.
W. R. Grace & Co.: *See*—
Nozemack, Richard J., 4,332,699, Cl. 252-455.00Z.
Waddill, Harold G.: *See*—
Schulze, Heinz; Zimmerman, Robert L.; and Waddill, Harold G., 4,332,720, Cl. 260-239.30R.
Wade, Peter C., to E. R. Squibb & Sons, Inc. Antiinflammatory carbinolamine esters of 1,2,4-triazoles. 4,332,812, Cl. 424-269.000.
Wageley, Tevis R. Portable blind and shelter. 4,332,266, Cl. 135-5.00R.
Wagner, Helmar R.: *See*—
Raaf, Helmut; Becker, Dieter; Frosch, Franz; Harth, Helmut; and Wagner, Helmar R., 4,332,791, Cl. 424-52.000.
Wagner, Peter: *See*—
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Waite, Harold K.: *See*—
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Wakamori, Fumio; Funabashi, Motohisa; Kata, Mamoru; Hirano, Takazo; and Onari, Mikihiko, to Hitachi, Ltd. Water level control system for a reservoir. 4,332,507, Cl. 405-92.000.
Wakui, Natuko: *See*—
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Waldo, Russell W.; and Engstrom, George L., to Ideal Security Hardware Corporation. Automatically locking crossbolt deadlock. 4,332,407, Cl. 292-161.000.
Walin, Gosta. Oil collecting apparatus. 4,332,519, Cl. 415-52.000.
Walker, Clifford G.: *See*—
Bailey, Escar L.; and Walker, Clifford G., 4,332,090, Cl. 33-366.000.
Walker, Michael J., to Lucas Industries Limited. Apparatus for use in testing an internal combustion engine ignition system. 4,333,054, Cl. 324-380.000.
Wallis, Bernard J. Combined punch retainer and fluid-actuated stripper. 4,332,179, Cl. 83-137.000.
Wallman, P. H.: *See*—
Spars, Byron G.; Tamm, Paul W.; and Wallman, P. H., 4,332,669, Cl. 208-11.00R.
Walsh, William J.: *See*—
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Wank, Joachim: *See*—
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Ward, Carter J. Solar-energy-powered sun tracker. 4,332,240, Cl. 126-425.000.
Ward, Joseph O. Coin operated lock mechanism. 4,332,315, Cl. 194-1.00G.
Ward, Terence J., to John Wyeth & Brother Limited. Guanidine derivatives. 4,332,822, Cl. 424-324.000.
Ware, Don E. Adjustable light hanger. 4,332,363, Cl. 248-321.000.
Warfel, David R., to Atlantic Richfield Company. Direct production of elastomer compound from reactor solution. 4,332,760, Cl. 264-143.000.
Warner-Lambert Company: *See*—
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Warnke, Hans: *See*—
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Warnock, William A., to John D. Hollingsworth on Wheels, Inc. Web doffing apparatus. 4,332,058, Cl. 19-106.00R.
Watanabe, Kiyomitu: *See*—
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Watanabe, Tony, to Takara Company, New York, Inc. Dental operatory system. 4,332,557, Cl. 433-77.000.
Watanabe, Toshiyasu: *See*—
Isogai, Nobuo; Hosokawa, Motoyuki; Okawa, Takashi; Wakui, Natuko; and Watanabe, Toshiyasu, 4,332,966, Cl. 560-206.000.
Watasue, Toshiaki; and Makabe, Hachiro, to Janome Sewing Machine Co., Ltd. Sewing machine speed control circuit. 4,332,208, Cl. 112-277.000.
Watson International Resources, Ltd.: *See*—
Spears, Harry L., 4,332,533, Cl. 417-513.000.
Watson, James W., Jr.; Silvon, Michael P.; and Lobo, Brian J., to Stauffer Chemical Company. Process for producing dialkyl phosphorochloridothionates. 4,332,747, Cl. 260-986.000.
Waugh, Robert E.: *See*—
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Wayt, Newell E. Well cleaning tool. 4,332,296, Cl. 166-171.000.
Webasto-Werk W. Baier GmbH & Co.: *See*—
Lutz, Alfons; Schatzler, Walter; Jardin, Hans; Sielk, Werner; and Frank, Julius, 4,332,416, Cl. 296-216.000.
Weber, Gary W.: *See*—
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Weber, Klaus: *See*—
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Webster, E. Graham, to Sperry Corporation. Automatic hydraulic neutralizing mechanism. 4,332,261, Cl. 130-27.00R.
Weckler, Gerhard: *See*—
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Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, to Akzo N.V. Method for making silica fibers. 4,332,600, Cl. 65-2.000.
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, to Akzo N.V. Method for making silica fibers. 4,332,601, Cl. 65-2.000.
Wegrzyn, James E. Particulate thin film fabrication process. 4,332,838, Cl. 427-74.000.
Weigert, Hans. Silicon controlled rectifier trigger circuit. 4,333,019, Cl. 307-252.00N.
Weisbrich, Alfred L. Multifunctional tarp rotor strut vanes. 4,332,518, Cl. 415-2.00R.
Weissinger, Robert B.: *See*—
Chertock, Alan J., deceased; Fox, Jack N.; and Weissinger, Robert B., 4,332,640, Cl. 376-264.000.
Weissman, Bernard, to IPCO Corporation. Flexible dental retaining splint. 4,332,563, Cl. 433-215.000.
Weitzel, Charles E.: *See*—
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Welch, Calvin D.: *See*—
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Weldon Hydraulics, Inc.: *See*—
Flinchbaugh, Donald E., deceased, 4,332,110, Cl. 51-165.780.
Wendell, David E. Hot tap apparatus and method. 4,332,272, Cl. 137-318.000.
Wendland, Paul H., to Photodyne, Inc. Optical multimeter. 4,332,469, Cl. 356-222.000.
Wessolowski, Bernd: *See*—
Schipper, Heinz; Hartig, Wolfgang; Weber, Klaus; Blumberg, Josef; and Wessolowski, Bernd, 4,332,129, Cl. 57-105.000.
West, Vern W.: *See*—
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Westberg, Stefan, to A-Betong AB. Method and support for angularly adjusting a building element. 4,332,118, Cl. 52-263.000.
Western Electric Co., Inc.: *See*—
Balde, John W.; Spencer, Robert A.; and Thompson, Richard K., Jr., 4,332,433, Cl. 339-99.00R.
Blitchington, Frank H., 4,333,044, Cl. 318-636.000.
Western Industries, Inc.: *See*—
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Westinghouse Electric Corp.: *See*—
Cane, Domenick; and Peterson, Ray D., 4,332,642, Cl. 202-173.000.
Haynes, John; and Huggins, Thomas B., Sr., 4,332,120, Cl. 53-245.000.
Ivey, Curtis L., 4,333,148, Cl. 364-469.000.
Matty, Thomas C.; and James, Aaron C., 4,333,150, Cl. 364-484.000.
Wheatcroft, Gerry A.: *See*—
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Whelan, Maurice V.; and Le Can, Claude J. P. F., to U.S. Philips Corporation. Semiconductor device for digitizing an electric analog signal. 4,333,022, Cl. 307-304.000.
Whistler, Roy L., to Purdue Research Foundation. Conversion of guar gum to gel-forming polysaccharides by the action of α-galactosidase. 4,332,894, Cl. 435-99.000.
White Consolidated Industries, Inc.: *See*—
Volpe, Richard L., 4,332,376, Cl. 271-217.000.
White Metal Rolling & Stamping Corp.: *See*—
Larson, Clayton E., 4,332,308, Cl. 182-120.000.
Whiteside, Arliss E., to Bendix Corporation, The. An analog-to-digital converter accurate relative to the value of the input signal. 4,333,075, Cl. 340-347.0AD.
Whiteside, Arliss E.; Freedman, Morris D.; and Tasar, Omur, to Bendix Corporation, The. Task communicator for multiple computer system. 4,333,144, Cl. 364-200.000.
Whitman Medical Corporation: *See*—
Gordon, Marvin; and Lichtenstein, Joseph, 4,332,369, Cl. 251-114.000.
Whitson, Dennis L.: *See*—
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Williams, John W.; and Becker, Frank C., to Abbott Laboratories. 1-Acryloyl-3-(substituted)phenyl ureas. 4,332,821, Cl. 424-322.000.
Williams, Paul B.: *See*—
Chamran, Morteza M.; Scott, Larkin B.; Williams, Paul B.; and Ford, Michael A., 4,332,470, Cl. 356-325.000.
Williams, Robert: *See*—
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Williams, Robert A.: *See*—
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Williams, Ronald A., to Baxter Travenol Laboratories, Inc. Method of making and filling liquid-containing sterile packages such as blood bags. 4,332,122, Cl. 53-425.000.
Williams, Thomas P. Open cart roof structure. 4,332,415, Cl. 296-213.000.
Williams, William F., to Serck Industries, Limited. Fluid flow control valve, principally of the ball or plug type. 4,332,370, Cl. 251-214.000.
Wilwerding, Dennis J.: *See*—
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Stemmler, Kurt; and Kosche, Hartmut, 4,332,583, Cl. 493-430.000.
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Ehrmann, Wolfgang; and Winter, Claus, 4,332,406, Cl. 292-18.000.
Wintraecken, Johannes J. M. H.: *See*—
Kooymans, Petrus G.; Wintraecken, Johannes J. M. H.; Raudenbusch, Werner T.; Seelen-Kruijssen, Josepha M. E.; and Schreurs, Gerardus C. M., 4,332,711, Cl. 523-402.000.
Wittke, James P., to RCA Corporation. Method for machining a workpiece with a beam of radiant energy assisted by a chemically-reactive gas. 4,332,999, Cl. 219-121.0LJ.
Wittman, Robert H.: *See*—
Adkins, David E.; Chin, Arthur H. T.; Haws, Ronnie E.; and Wittman, Robert H., 4,332,277, Cl. 138-89.000.
Witts, Alan G., to ITR International Time Limited. Time recorder. 4,333,085, Cl. 346-76.0PH.
Wolf, Karlheinz: *See*—
Kressner, Michael; Kolbe, Joachim; Bremer, Fritz; Pape, Georg; Wolf, Karlheinz; and Kummeler, Ferdinand, 4,332,587, Cl. 8-506.000.
Wolff Manufacturing Co.: *See*—
Janssen, Harvey W., 4,332,996, Cl. 219-76.140.
Wolfgram, Rodger C.: *See*—
Mueller, Dale A.; Ruminsky, Robert T.; Serber, Stephen L.; and Wolfgram, Rodger C., 4,332,141, Cl. 62-140.000.
Woloszczuk, Orest, to Crown Systems Company. Valve. 4,332,368, Cl. 251-30.000.
Wong, Shi-Yin: *See*—
Pastor, Antonio C.; Pastor, Ricardo C.; Tangonan, Gregory L.; and Wong, Shi-Yin, 4,332,879, Cl. 430-272.000.
Woo, Edmund P.; and Mullins, Michael J., to Dow Chemical Company, The. 3,3-Disubstituted-furandione compounds. 4,332,734, Cl. 549-253.000.
Woodard, Stephen K., to Hooker Chemicals & Plastics Corp. Composition and method for electrodeposition of black nickel. 4,332,647, Cl. 204-49.000.
Woodland International Corporation: *See*—
Parker, Donald L.; Porter, Wilbur A.; and Rogers, Robert C., 4,333,035, Cl. 313-411.000.
Woodman, Robert C., to Sunbeam Corporation. Portable freezer having mechanical means providing visual indication of firmness of contents. 4,332,485, Cl. 366-142.000.
Wooldridge, James E., to Allis-Chalmers Corporation. Plate electrode arrangement for an electrostatic precipitator. 4,332,597, Cl. 55-124.000.
Wormald, Philip J.; and Clemmow, Raymond J., to Padley & Venables Limited. Apparatus for use in drilling. 4,332,502, Cl. 403-343.000.
Worth, Joseph P.; and Fletcher, Bert B., to TRW, Inc. Electrical resistor for a printed circuit board and method of making the same. 4,333,069, Cl. 338-315.000.
Wratschko, Otto. Shaving kit. 4,332,321, Cl. 206-228.000.
Wright, Donald C.; and Simpkin, Gordon T., to Pilkington Brothers Limited. Thermally treating articles with particulate material and apparatus therefor. 4,332,605, Cl. 65-114.000.
Wuermli, Arthur: *See*—
Bischofberger, Juerg; and Wuermli, Arthur, 4,332,059, Cl. 19-244.000.
Wunderlich, Klaus: *See*—
Harms, Wolfgang; Wunderlich, Klaus; and von Oertzen, Klaus, 4,332,938, Cl. 544-189.000.
Wyner, Elliot F.; Gutta, John J.; and Parrott, Richard A., to GTE Products Corporation. High pressure sodium lamp containing barium getter. 4,333,032, Cl. 313-181.000.
Wyoming Mineral Corporation: *See*—
Stana, Regis R., 4,332,776, Cl. 423-10.000.
Xelavis S.A.: *See*—
Barozzi, Gian P.; and Goreschi, Giancarlo, 4,332,488, Cl. 400-161.500.
Barozzi, Gian P.; and Horeschi, Giancarlo, 4,332,491, Cl. 400-208.000.
Xerox Corporation: *See*—
Bartulis, Michael V.; Smura, Edwin J.; Dunn, Richard P.; Bebb, Herbert B.; Ciuffini, Anthony J.; and Mosing, Lionel W., 4,332,464, Cl. 355-14.00C.
Costanza, Daniel W., 4,332,460, Cl. 355-8.000.
Yagasaki, Toshiaki; Masuda, Shunichi; Shimizu, Katsuichi; and Sakamaki, Hisashi, to Canon Kabushiki Kaisha. Feed control device. 4,332,462, Cl. 355-14.00R.
Yagii, Koji: *See*—
Morishita, Tsuyoshi; Yagii, Koji; Inmaru, Kiyokazu; and Miyake, Kenji, 4,332,616, Cl. 75-243.000.
Yamada, Shigeo: *See*—
Ito, Tetsuro; Oizumi, Toshiro; and Yamada, Shigeo, 4,332,995, Cl. 219-69.00V.
Yamada, Yasuhiro: *See*—
Kobari, Harukuni; Yamada, Yasuhiro; Suzuki, Susumu; and Hibino, Chitoshi, 4,333,160, Cl. 364-900.000.
Yamaga, Minoru: *See*—
Tsuda, Singo; Yamaga, Minoru; and Kawai, Yuzuru, 4,332,867, Cl. 429-94.000.
Yamaguchi, Hiroyasu; and Ishii, Takashi, to Tokyo Shibaura Denki Kabushiki Kaisha. Power amplifying circuit. 4,333,059, Cl. 330-265.000.
Yamaguti, Yasuhiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Ink-jet recording device. 4,333,087, Cl. 346-140.00R.
Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Ito, Hiroshi, 4,332,307, Cl. 181-256.000.
Yamamoto, Tsutomu: *See*—
Makuuchi, Keizo; Katakai, Akio; Hagiwara, Miyuki; Yamamoto, Tsutomu; Nakayama, Hiroyuki; and Takagi, Tohru, 4,332,657, Cl. 204-159.220.
Yamano, Shigemi: *See*—
Igarashi, Michiaki; Nakayama, Tetsuya; and Yamano, Shigemi, 4,332,517, Cl. 414-699.000.
Yamashita, Etsu: *See*—
Nakahama, Syuhei; and Yamashita, Etsu, 4,333,001, Cl. 219-125.100.
Yamauchi, Katsuyoshi; and Nakai, Kiyoto, to Freudenberg, Carl. Method for producing shoulder pad material. 4,332,633, Cl. 156-62.200.
Yamazaki, Susumu; Nagoya, Yoshinari; and Shimizu, Masajiro, to Hitachi, Ltd. Drive force transmitting device for ice-making tray of automatic ice-making machine. 4,332,146, Cl. 62-353.000.
Yamori, Akio: *See*—
Saitoh, Akira; Yamori, Akio; and Ibaragi, Toshio, 4,332,858, Cl. 428-412.000.
Yanagi, Hideki: *See*—
Kanaoka, Masaharu; Yanagi, Hideki; and Ogino, Shigeo, 4,332,717, Cl. 260-112.00R.
Yasuda, Sadami: *See*—
Hamada, Mitsuo; Yasuda, Sadami; and Hasegawa, Chiichiro, 4,332,844, Cl. 427-387.000.
Yasumasa, Yoshiaki: *See*—
Oi, Naobumi; Itoh, Tadamasa; and Yasumasa, Yoshiaki, 4,332,591, Cl. 23-230.0PC.
Yates, Ronald L., to Dow Chemical Company, The. Photoactivated catalytic hydrosilylation of carbonyl compounds. 4,332,654, Cl. 204-158.00R.
Yeasting, Maynard C. Multiphase voltage monitor. 4,333,050, Cl. 324-107.000.
Yellin, Tobias O.; and Mant, Derrick M., to Imperial Chemical Industries PLC; and ICI Americas Inc. 3-Chloroalkyl-5-guanidino-1,2,4-thiadiazole compounds. 4,332,949, Cl. 548-128.000.
Yext, Walter F.: *See*—
Starner, William E.; and Yext, Walter F., 4,332,736, Cl. 260-403.000.
Yokomichi, Isao: *See*—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,332,961, Cl. 560-62.000.
Yonezawa, Seiji; Sugiyama, Toshio; and Ojima, Masahiro, to Hitachi, Ltd. Optical information processor with prismatic correction of laser beam shape. 4,333,173, Cl. 369-45.000.
York, Robert A., to Flight Systems, Inc. Semiconductor heat sink mounting assembly. 4,333,101, Cl. 357-79.000.
Yoshida Kogyo, K.K.: *See*—
Takahashi, Kihei, 4,332,071, Cl. 29-408.000.
Yoshida, Koichi: *See*—
Hamanaka, Katsuhiko; Iwaisako, Toshiyuki; Masamoto, Junzo; and Yoshida, Koichi, 4,332,644, Cl. 203-46.000.
Yoshida, Motoaki: *See*—
Funaki, Masaaki; Yoshida, Motoaki; Shimauchi, Yoshinori; Fujioka, Akira; and Sakiyama, Kazuo, 4,332,859, Cl. 428-412.000.
Yoshida, Teruo: *See*—
Nioh, Susumu; Hirayama, Hiroshi; Honda, Tetsuzo; Nagahama, Takashi; Naruo, Masaki; Yoshida, Teruo; Siotu, Gisaburo; Sato, Yoshinori; and Toyama, Kenji, 4,332,211, Cl. 118-62.000.
Yoshida, Toshio; and Matsui, Shigetomo, to Kawasaki Jukogyo Kabushiki Kaisha. Method of producing multiple-wall composite pipes. 4,332,073, Cl. 29-421.00R.
Yoshimura, Eiji: *See*—
Hosomura, Hiroyoshi; Aota, Koichi; and Yoshimura, Eiji, 4,332,851, Cl. 428-325.000.
Yoshimura, Junjiro; Furukawa, Akira; and Ando, Takehiro, to Nippondenso Co., Ltd. Atmospheric pressure compensation device, 4,332,268, Cl. 137-81.100.
Yoshioka, Mitsuru: *See*—
Tsuji, Teruji; Hamashima, Yoshio; Yoshioka, Mitsuru; Narisada, Masayuki; Tanida, Hiroshi; Komeno, Taichiro; and Nagata, Wataru, 4,332,722, Cl. 260-245.400.
Young, Robert N.: *See*—
Belanger, Patrice C.; and Young, Robert N., 4,332,807, Cl. 424-274.000.
Belanger, Patrice C.; and Young, Robert N., 4,332,810, Cl. 424-267.000.
Yu, Jing-Peir: *See*—
Blackmon, Lawrence E.; Dees, John R.; Kelly, Darrell A.; Mowe, Wayne T.; and Yu, Jing-Peir, 4,332,757, Cl. 264-103.000.

Yuhasz, Joseph M.; and O'Brien, Sean A. System for making frozen food article. 4,332,145, Cl. 62-342.000.
Yui, Masatoshi; Takeoda, Minoru; and Otsuka, Kazuo, to Takamisawa Cybernetics Co., Ltd. Inrush current measuring apparatus with instantaneous power interruption device. 4,333,049, Cl. 324-102.000.
Yurugi, Masahiro: *See*—
Nakahara, Yasushi; Ohtomo, Tadasuke; Yurugi, Masahiro; Naitoh, Takumi; and Kaiho, Kenichi, 4,332,516, Cl. 414-288.000.
Zahnradfabrik Friedrichshafen, AG: *See*—
de Maight, Winfried, 4,332,303, Cl. 180-132.000.
Liska, Georg, 4,332,532, Cl. 417-273.000.
Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai: *See*—
Umezawa, Hamao; and Kondo, Shinichi, 4,332,794, Cl. 424-180.000.
Zani, Gian M., to R. Bialetti & C. S.p.A. Pasta machine. 4,332,539, Cl. 425-151.000.
Zawodny, Arthur, to Keystone Camera Corporation. Film winding safety mechanism. 4,332,448, Cl. 354-213.000.
Zawodny, Arthur; and Krysicki, Jerzy, to Keystone Camera Corporation. Film advance and rewind mechanism. 4,332,449, Cl. 354-214.000.
Zech, Leonard E. Self-propelled landsailer. 4,332,395, Cl. 280-213.000.
Zemel, Jay N.; and Rahnamai, Hamid, to University of Pennsylvania, Trustees of the. Pyroelectric anemometer. 4,332,157, Cl. 73-26.000.
Zengel, Hans: *See*—
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,600, Cl. 65-2.000.
Wegerhoff, Arno; Zengel, Hans; Brodowski, Walter; Beck, Heinz; Seeberger, Ernst; Steenken, Gerhard; and Hillermeider, Karlheinz, 4,332,601, Cl. 65-2.000.
Zenith Radio Corporation: *See*—
Ciciora, Walter S., 4,333,109, Cl. 358-147.000.
Cordingley, Lowell A.; and Gutschick, Lester C., 4,333,033, Cl. 313-407.000.
DeVries, Adrian J., 4,333,065, Cl. 333-194.000.
Perdue, Terry A., 4,333,091, Cl. 340-365.00S.
Zimmerman, David M., to Chrysler Corporation. Fuels for internal combustion engines. 4,332,594, Cl. 44-53.000.
Zimmerman, Robert L.: *See*—
Schulze, Heinz; Zimmerman, Robert L.; and Waddill, Harold G., 4,332,720, Cl. 260-239.30R.
Zingheim, Steven C.; and Lunk, Hans E., to Raychem Corporation. Polymeric compositions. 4,332,855, Cl. 428-379.000.
Zingher, Arthur R. Optically annotatable recording film. 4,332,872, Cl. 430-8.000.
Zink, Rudolf, to Ciba-Geigy Corporation. Naphtholactam compounds. 4,332,937, Cl. 544-105.000.
Zitelli, Louis T., to Varian Associates, Inc. Image converter tube with contrast enhancing filter which partially absorbs internally reflected light. 4,333,030, Cl. 313-94.000.
Zito, Ronald R.: *See*—
Schultz, Stephen J.; and Zito, Ronald R., 4,332,607, Cl. 65-182.500.
Zoecon Corporation: *See*—
Anderson, Richard J.; and Leippe, Michael M., 4,332,944, Cl. 546-272.000.
Kohn, Gustave K.; and Baughn, Richard L., 4,332,792, Cl. 424-84.000.
Lee, Shy-fuh, 4,332,958, Cl. 560-35.000.
Zolffel, Michael: *See*—
Muller, Wolfgang H. E.; and Zolffel, Michael, 4,332,645, Cl. 203-75.000.
Zopfy, Rainer K.; Nolan, Robert F.; and Stapf, Carl J., to Raikon Research Corporation. Method and apparatus for automatically loading tape cartridges with supply tape. 4,332,355, Cl. 242-56.00R.
Zwies, Alfred: *See*—
Levy, David E.; Zwies, Alfred; and Duffy, Thomas E., 4,332,244, Cl. 128-205.250.
Zygo Corporation: *See*—
Demarest, Frank C., 4,332,475, Cl. 356-386.000.
21st Century Envelope Co. Inc.: *See*—
Kronman, Albert F., 4,332,346, Cl. 229-73.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1ST DAY OF JUNE, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Ackerman, Myron H. Folded tie liner. Re. 30,950, Cl. 2-144.000.

Acutherm, Inc.: *See—*
Vance, Robert L.; and Noll, Robert W., Re. 30,953, Cl. 236-49.000.

Carson, Edward H. D.: *See—*
Smith, Royal; and Carson, Edward H. D., Re. 30,954, Cl. 297-118.000.

Cuckson, Eric E.; and Jones, Arthur L., to Scovill Inc. Thermoplastic strips for sliding clasp fasteners. Re. 30,951, Cl. 24-205.13R.

Feistel, Horst, to International Business Machines Corporation. Variant key matrix cipher system. Re. 30,957, Cl. 178-22.170.

Imperial Chemical Industries Limited: *See—*
Stanistreet, Harold P., Re. 30,955, Cl. 156-308.200.

International Business Machines Corporation: *See—*
Feistel, Horst, Re. 30,957, Cl. 178-22.170.

Jones, Arthur L.: *See—*
Cuckson, Eric E.; and Jones, Arthur L., Re. 30,951, Cl. 24-205.13R.

Noll, Robert W.: *See—*
Vance, Robert L.; and Noll, Robert W., Re. 30,953, Cl. 236-49.000.

Schulze, Ehrhart, to Steigler, Karl Heinz. Welding machine for thermoplastic web. Re. 30,956, Cl. 156-515.000.

Scovill Inc.: *See—*
Cuckson, Eric E.; and Jones, Arthur L., Re. 30,951, Cl. 24-205.13R.

Smith, Royal; and Carson, Edward H. D. Wheelchairs. Re. 30,954, Cl. 297-118.000.

Stanistreet, Harold P., to Imperial Chemical Industries Limited. Fibrous product. Re. 30,955, Cl. 156-308.200.

Steigler, Karl Heinz: *See—*
Schulze, Ehrhart, Re. 30,956, Cl. 156-515.000.

Vance, Robert L.; and Noll, Robert W., to Acutherm, Inc. Thermally actuated diffuser. Re. 30,953, Cl. 236-49.000.

Western Rock Bit Company Limited: *See—*
White, Kenneth M., Re. 30,952, Cl. 175-410.000.

White, Kenneth M., to Western Rock Bit Company Limited. Percussion drill bit. Re. 30,952, Cl. 175-410.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Ogata, Taskashi; Namihisa, Shoichiro; and Fujii, Tsumoru, to Nippon Mining Co., Ltd. Process for separating cobalt and nickel from a solution containing cobalt and nickel. B1 4,246,240, Cl. 423-139.

Nippon Mining Co., Ltd.: *See—*
Ogata, Taskashi; Namihisa, Shoichiro; and Fujii, Tsumoru, B1 4,246,240, Cl. 423-139.

Namihisa, Shoichiro: *See—*
Ogata, Taskashi; Namihisa, Shoichiro; and Fujii, Tsumoru, B1 4,246,240, Cl. 423-139.

Fujii, Tsumoru: *See—*
Ogata, Taskashi; Namihisa, Shoichiro; and Fujii, Tsumoru, B1 4,246,240, Cl. 423-139.

LIST OF DESIGN PATENTEES

AB Volvo Penta: *See—*
Borgersen, Kjell; and Brandt, Lennart, 264,724, Cl. D15-149.000.

Adamson, Gerhard, to Union Carbide Corporation. Plastic bag holding rack. 264,650, 6-1-82, Cl. D6-85.000.

Adamson, Gerhard, to Union Carbide Corp. Plastic bag holding rack. 264,651, 6-1-82, Cl. D6-85.000.

Adamson, Gerhard, to Union Carbide Corp. Plastic bag holding rack. 264,653, 6-1-82, Cl. D6-114.000.

Aktiebolaget Electrolux: *See—*
Andersson, Ingvar K., 264,756, Cl. D25-73.000.

American Standard Inc.: *See—*
Bengtson, Hertha A., 264,749, Cl. D23-61.000.

Andersson, Ingvar K., to Aktiebolaget Electrolux. Beam for frame structure. 264,756, 6-1-82, Cl. D25-73.000.

Arnesen, Richard H., to Gold Medal, Inc. Lounge chair. 264,645, 6-1-82, Cl. D6-37.000.

Astle, Henry; and Pertle, John E., to Tri Tool, Inc. Pipe end preparation tool. 264,678, 6-1-82, Cl. D8-61.000.

Austin, John J., to Champion International Corporation. Container blank. 264,687, 6-1-82, Cl. D9-433.000.

Austin, John J., to Champion International Corporation. Container blank. 264,688, 6-1-82, Cl. D9-433.000.

Bagwell, Connice W. Top for a drink cup. 264,690, 6-1-82, Cl. D9-454.000.

Baker, Robert. Portable orthopedic footstool. 264,644, 6-1-82, Cl. D6-32.000.

Bengtson, Hertha A., to American Standard Inc. Combined lavatory and support pedestal. 264,749, 6-1-82, Cl. D23-61.000.

Berney, Sheldon; and Howard, John, to Reliance Products Ltd. Fluid container. 264,760, 6-1-82, Cl. D34-39.000.

Bettis, James F., to Skivette Corporation. Boat. 264,707, 6-1-82, Cl. D12-300.000.

Bird Electronic Corporation: *See—*
Lesyk, Leo, 264,708, Cl. D13-4.000.
Lesyk, Leo, 264,709, Cl. D13-4.000.

Bishop, Kenneth: *See—*
Summers, Michael P.; and Bishop, Kenneth, 264,722, Cl. D15-138.000.

Bisk, Leonard; and Rogahn, Gunther, to Independent Products Company, Inc. Spring clip. 264,662, 6-1-82, Cl. D6-257.000.

Borgersen, Kjell; and Brandt, Lennart, to AB Volvo Penta. Transmission for boats. 264,724, 6-1-82, Cl. D15-149.000.

BQP Industries, Inc.: *See—*
Mackes, Ronald C., 264,695, Cl. D11-145.000.

Brandt, Lennart: *See—*
Borgersen, Kjell; and Brandt, Lennart, 264,724, Cl. D15-149.000.

Brunner, Josef: *See—*
Rock, Erich; and Brunner, Josef, 264,660, Cl. D6-191.000.

Canon Kabushiki Kaisha: *See—*
Tokuda, Hiroyuki, 264,725, Cl. D16-31.000.

Carlyon, Donald J. Type font. 264,730, 6-1-82, Cl. D18-26.000.
Cassina S.p.A.: *See—*
Rodriquez, Rodrigo, 264,648, Cl. D6-67.000.
Cataneo, Ralph J.: *See—*
Jedzinak, John E.; Cataneo, Ralph J.; and Fotiu, Eustace, 264,757, Cl. D28-7.000.
Champion International Corporation: *See—*
Austin, John J., 264,687, Cl. D9-433.000.
Austin, John J., 264,688, Cl. D9-433.000.
Cooper, Marvin, to Dynamic Classics, Ltd. Hand grip exerciser. 264,737, 6-1-82, Cl. D21-198.000.
Cooper, Marvin, to Dynamic Classics, Ltd. Coil exerciser. 264,738, 6-1-82, Cl. D21-198.000.
Cooper, Marvin, to Dynamic Classics, Ltd. Adjustable hand grip exerciser. 264,739, 6-1-82, Cl. D21-198.000.
Corner, Michael R., to Dunlop Limited. Tire. 264,701, 6-1-82, Cl. D12-142.000.
Coventry Motor & Sundries Limited: *See—*
Grindlay, John S. F., 264,674, Cl. D8-13.000.
Cycles Peugeot: *See—*
Geney, Gilbert, 264,700, Cl. D12-114.000.
Datasaab AB: *See—*
Freijd, Ingvar, 264,763, Cl. D99-28.000.
Freijd, Ingvar, 264,764, Cl. D99-28.000.
Davis, Paul, to Sweetheart Plastics, Inc. Packaging cup. 264,686, 6-1-82, Cl. D9-429.000.
Dekarski, Michael A. Basket for computer forms or the like. 264,761, 6-1-82, Cl. D34-42.000.
de Polo, Lydia; and Dunbar, Jack G., to General Mills, Inc. Shelf unit or similar article. 264,658, 6-1-82, Cl. D6-186.000.
Ducros, Gilbert. Bottle. 264,685, 6-1-82, Cl. D9-390.000.
Dunbar, Jack G.: *See—*
de Polo, Lydia; and Dunbar, Jack G., 264,658, Cl. D6-186.000.
Dunlop Limited: *See—*
Corner, Michael R., 264,701, Cl. D12-142.000.
Nakasaki, Eiji, 264,703, Cl. D12-146.000.
Dynamic Classics, Ltd.: *See—*
Cooper, Marvin, 264,737, Cl. D21-198.000.
Cooper, Marvin, 264,738, Cl. D21-198.000.
Cooper, Marvin, 264,739, Cl. D21-198.000.
E.G.O. Elektro-Gerate Blanc und Fischer: *See—*
Schreder, Felix, 264,673, Cl. D7-124.000.
Ehlers, Martin R. Air compressor housing. 264,719, 6-1-82, Cl. D15-9.000.
Elkhart Rivet & Register Co., Inc.: *See—*
Searer, Vernon A., 264,683, Cl. D8-354.000.
Entex Industries, Inc.: *See—*
Hanzawa, Tsuneo, 264,732, Cl. D21-13.000.
Evans, Robert P.; and Weiss, Dale F., to Transequip, Inc. Air cargo container. 264,641, 6-1-82, Cl. D3-30.100.
Ford, Lee M. Versatile electrical terminal block. 264,711, 6-1-82, Cl. D13-24.000.
Fotiu, Eustace: *See—*
Jedzinak, John E.; Cataneo, Ralph J.; and Fotiu, Eustace, 264,757, Cl. D28-7.000.
Freijd, Ingvar, to Datasaab AB. Indoor customer activated banking machine terminal or the like. 264,763, 6-1-82, Cl. D99-28.000.
Freijd, Ingvar, to Datasaab AB. Outdoor customer activated banking machine terminal or the like. 264,764, 6-1-82, Cl. D99-28.000.
Friedman, Alan H., to Syracuse China Corporation. Dinner plate or similar article. 264,670, 6-1-82, Cl. D7-35.000.
Friedman, Alan H., to Syracuse China Corporation. Dinner plate or similar article. 264,671, 6-1-82, Cl. D7-35.000.
Funkhouser, Gene G. Fish hook sharpener. 264,679, 6-1-82, Cl. D8-62.000.
Fuse, Michio, to Kabushikikaisha AichidenkikosaKusho. Electric food slicer. 264,720, 6-1-82, Cl. D15-97.000.
Gardisette International AG: *See—*
Stocker, Hans, 264,762, Cl. D47-6.00E.
General Mills, Inc.: *See—*
de Polo, Lydia; and Dunbar, Jack G., 264,658, Cl. D6-186.000.
Geney, Gilbert, to Cycles Peugeot. Cable guide for variable speed transmission such as derailleurs. 264,700, 6-1-82, Cl. D12-114.000.
GKN-Stenman AB: *See—*
Widen, Bo G., 264,680, Cl. D8-343.000.
Gold Medal, Inc.: *See—*
Arnesen, Richard H., 264,645, Cl. D6-37.000.
Golubski, Janet L.; and Golubski, Ralph E. Taco server. 264,668, 6-1-82, Cl. D7-21.000.
Golubski, Ralph E.: *See—*
Golubski, Janet L.; and Golubski, Ralph E., 264,668, Cl. D7-21.000.
Greenman, Harry D., to Multi-Commerce U.S.A. Ltd. Invertible table and rocker combination. 264,642, 6-1-82, Cl. D6-3.000.
Griffin, Leon L. Combination holder and set of skewers or the like. 264,672, 6-1-82, Cl. D7-73.000.
Grindlay, John S. F., to Coventry Motor & Sundries Limited. Rake head. 264,674, 6-1-82, Cl. D8-13.000.
H. J. Langen & Sons Limited: *See—*
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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Achorn, Frank P.; and McGill, Kenneth E. Ammonium polyphosphate sulfate fertilizers from wet-process phosphoric acid. T101,901, 6-1-82, Cl. 71-36.000.

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CLASS 100

162 R 4,332,191
168 4,332,192

CLASS 101

93.01 4,332,193
216 4,332,194
349 4,332,195
365 4,332,196
415.1 4,332,197
416 B 4,332,198

CLASS 102

276 4,332,199

CLASS 104

12 4,332,200

CLASS 105

167 4,332,201
199 CB 4,332,202
422 4,332,203

CLASS 106

84 4,332,618
87 4,332,619

CLASS 108

1 4,332,204
60 4,332,205

CLASS 110

203 4,332,206
347 4,332,207

CLASS 112

277 4,332,208
287 4,332,209

CLASS 116

173 4,332,210

CLASS 118

62 4,332,211
202 4,332,212
211 4,332,213

CLASS 119

1 4,332,214
14.49 4,332,215
22 4,332,216
29 4,332,217

CLASS 122

4 D 4,332,218

CLASS 123

3 4,332,219
41.08 4,332,221
41.7 4,332,220
65 B 4,332,229
90.17 4,332,222
253 4,332,223
254 4,332,224
440 4,332,225
494 4,332,226
502 4,332,227
557 4,332,228

CLASS 134

20 R 4,332,230
24 R 4,332,231
4,332,232
35 A 4,332,233
73 4,332,234

CLASS 126

120 4,332,235
121 4,332,236
247 4,332,237
425 4,332,238
4,332,239
4,332,240
450 4,332,241

CLASS 127

19 4,332,621
41 4,332,622
46.2 4,332,623

CLASS 128

3 4,332,242
132 R 4,332,243
205.25 4,332,244
207.17 4,332,245
214 C 4,332,247
214 F 4,332,246
214 R 4,332,248
218 NV 4,332,249
239 4,332,250
263 4,332,251
275 4,332,252
287 4,332,253
344 4,332,254
350 V 4,332,255
419 PT 4,332,256
640 4,332,257
666 4,332,258
786 4,332,259
804 4,332,260

CLASS 130

27 P 4,332,262
27 R 4,332,261

CLASS 132

73 4,332,263
91 4,332,559

CLASS 134

3 4,332,624
6 4,332,625
11 4,332,626
57 R 4,332,264

CLASS 135

3 A 4,332,265
5 R 4,332,266

CLASS 136

246 4,332,973
249 4,332,974

CLASS 137

1 4,332,267
81.1 4,332,268
84 4,332,269
101 4,332,270
315 4,332,271
318 4,332,272
322 4,332,273
496 4,332,274
504 4,332,275
526 4,332,276

CLASS 138

89 4,332,277
127 4,332,278

CLASS 139

82 4,332,279
435 4,332,280

CLASS 141

1 4,332,281
4,332,282

CLASS 148

1.5 4,332,627
6.2 4,332,628
11.5 R 4,332,629
12 B 4,332,630

CLASS 149

19.2 4,332,631
4,332,632

CLASS 150

1.5 R 4,332,283
35 4,332,284

CLASS 151

209 R 4,332,286

CLASS 156

62.2 4,332,633
145 4,332,634
256 4,332,635
289 4,332,636
308.2 Re.30,955
328 4,332,713
353 4,332,637
515 Re.30,956

CLASS 160

133 4,332,287
176 R 4,332,288

CLASS 162

4 4,332,638

CLASS 164

446 4,332,289

CLASS 168

10 4,332,290
76 4,332,291
95 4,332,292
153 4,332,293
157 4,332,294
178 4,332,295

CLASS 166

171 4,332,296
270 4,332,297
319 4,332,298

CLASS 172

98 4,332,299

CLASS 173

104 4,332,300

CLASS 174

76 4,332,975
107 4,332,976

CLASS 175

50 4,332,301
410 Re.30,952

CLASS 178

22.14 4,332,977
22.17 Re.30,957

CLASS 179

1 GQ 4,332,979
1 GS 4,332,978
2 A 4,332,980
2 EA 4,332,981
7.1 R 4,332,982
17 B 4,332,983
81 R 4,332,984
90 BD 4,332,985
146 E 4,332,986

CLASS 180

54 R 4,332,302
132 4,332,303
233 4,332,304
271 4,332,305
287 4,332,306

CLASS 181

256 4,332,307

CLASS 182

120 4,332,308

CLASS 184

7 D 4,332,309

CLASS 188

218 A 4,332,310
340 4,332,311

CLASS 192

4 C 4,332,312
5 4,332,313
89 B 4,332,314

CLASS 194

1 G 4,332,315

CLASS 198

425 4,332,316
734 4,332,317

CLASS 200

16 D 4,332,987
19 DC 4,332,988
47 4,332,989
67 G 4,332,991
314 4,332,990

CLASS 201
17 4,332,641

CLASS 202
173 4,332,642

CLASS 203
18 4,332,643
46 4,332,644
75 4,332,645

CLASS 204
1 T 4,332,646
49 4,332,647
95 4,332,648
98 4,332,649
108 4,332,650
129.75 4,332,652
129.9 4,332,651
140 4,332,653
155 4,332,700
158 R 4,332,654
159.14 4,332,656
159.2 4,332,655
159.22 4,332,657
195 M 4,332,658
237 4,332,659
245 4,332,660
253 4,332,661
265 4,332,662
266 4,332,664
277 4,332,663
295 4,332,665

CLASS 206
5.1 4,332,318
45.14 4,332,320
210 4,332,319
216 4,332,325
228 4,332,321
368 4,332,322
368 4,332,323
389 4,332,324
497 4,332,326
604 4,332,327

CLASS 208
8 LE 4,332,666
4,332,667
4,332,668
11 R 4,332,669
68 4,332,670
92 4,332,671
120 4,332,672
4,332,673
4,332,674
254 R 4,332,675
4,332,676

CLASS 209
3 4,332,677

CLASS 210
86 4,332,678
90 4,332,679
143 4,332,680
170 4,332,681
242.1 4,332,682
499 4,332,683
636 4,332,684
638 4,332,685
651 4,332,686
721 4,332,687

CLASS 212
180 4,332,328

CLASS 219
9.5 4,332,997
10.55 R 4,332,992
4,332,993
64 4,332,994
69 V 4,332,995
69 W 4,333,000
76.14 4,332,996
107 4,332,998
121 LJ 4,332,999
125.1 4,333,001
321 4,333,002
377 4,333,003
490 4,333,004

CLASS 220
2.1 A 4,332,329
3.5 4,332,330
85 P 4,332,331
276 4,332,332

CLASS 222
83 4,332,333
83.5 4,332,334
145 4,332,335
269 4,332,336

CLASS 224
42.03 B 4,332,337
222 4,332,338

CLASS 226
195 4,332,339

CLASS 227
10 4,332,340

CLASS 228
180 A 4,332,341
4,332,342
231 4,332,343

CLASS 229
37 R 4,332,345
62 4,332,344
4,332,347
73 4,332,346

CLASS 232
43.3 4,332,348

CLASS 233
1 R 4,332,349
7 4,332,350
38 4,332,351

CLASS 235
435 4,333,005
457 4,333,006

CLASS 236
1 E 4,332,352
49 Re.30,953

CLASS 241
14 4,332,353
16 4,332,354

CLASS 242
56 R 4,332,355
72 B 4,332,356
78.1 4,332,357
84.2 A 4,332,358
203 4,332,359

CLASS 244
3.27 4,332,360

CLASS 248
95 4,332,361
226.5 4,332,362
321 4,332,363
442.2 4,332,364
544 4,332,365
670 4,332,366

CLASS 250
201 4,333,007
225 4,333,008
237 G 4,333,009
252 4,333,010
409 4,333,011
4,333,012
461 R 4,333,013
521 4,333,014
551 4,333,015
577 4,333,016

CLASS 251
1 A 4,332,367
30 4,332,368
114 4,332,369
214 4,332,370
240 4,332,285

CLASS 252
8.55 C 4,332,688
49.3 4,332,689
70 4,332,690
96 4,332,691
135 4,332,692
181 4,332,693
189 4,332,694
312 4,332,695
321 4,332,696
429 B 4,332,697
430 4,332,698
455 Z 4,332,699

CLASS 254
203 4,332,371
391 4,332,372

CLASS 260
112 R 4,332,717
112.5 R 4,332,718
123.5 4,332,719
239.3 R 4,332,720
239.57 4,332,721
245.4 4,332,722
326 S 4,332,724
403 4,332,736
404.5 4,332,737
410.6 4,332,738
453 PC 4,332,739
453 RZ 4,332,740
453 SP 4,332,741
4,332,742
463 4,332,744
464 4,332,745
932 4,332,746
986 4,332,747

CLASS 264
11 4,332,748
13 4,332,749
23 4,332,750
28 4,332,751
41 4,332,752
44 4,332,753
45.5 4,332,754
65 4,332,755
70 4,332,756
103 4,332,757
4,332,758
108 4,332,759
143 4,332,760
147 4,332,761
168 4,332,762
176 F 4,332,764
176 R 4,332,763
206 4,332,765
249 4,332,766
322 4,332,767

CLASS 266
99 4,332,374
228 4,332,373

CLASS 271
9 4,332,375
217 4,332,376
293 4,332,377

CLASS 272
70.3 4,332,378
119 4,332,379
137 4,332,380
144 4,332,381

CLASS 273
54 B 4,332,382
64 4,332,383
73 F 4,332,384
113 4,332,385
148 A 4,332,386
156 4,332,387
172 4,332,388
237 4,332,389
389 4,332,390

CLASS 277
11 4,332,391
27 4,332,392
112 4,332,393

CLASS 280
11.27 4,332,394
213 4,332,395
474 4,332,396
693 4,332,397
732 4,332,398
819 4,332,399

CLASS 282
3 A 4,332,400

CLASS 285
47 4,332,401
86 4,332,402
189 4,332,403
223 4,332,404

CLASS 289
16.5 4,332,405

CLASS 290
2 4,333,017
55 4,333,018

CLASS 292
18 4,332,406
161 4,332,407

CLASS 294
1 CA 4,332,408
2 4,332,409
86.18 4,332,410
104 4,332,411

CLASS 296
29 4,332,412
84 R 4,332,413
97 D 4,332,414
213 4,332,415
216 4,332,416

CLASS 297
118 Re.30,954
329 4,332,417
362 4,332,418
443 4,332,419

CLASS 299
31 4,332,420
34 4,332,421
39 4,332,422

CLASS 303
22 R 4,332,423

CLASS 305
35 EB 4,332,424
54 4,332,425

CLASS 307
87 4,333,021
252 N 4,333,019
279 4,333,020
304 4,333,022
310 4,333,023
351 4,333,024
355 4,333,025

CLASS 308
2 R 4,332,426
9 4,332,427
10 4,332,428

CLASS 310
42 4,333,026
61 4,333,027
326 4,333,028
329 4,333,029

CLASS 312
236 4,332,429

CLASS 313
94 4,333,030
95 4,333,031
181 4,333,032
407 4,333,033
4,333,034
411 4,333,035
420 4,333,036

CLASS 315
3 4,333,037
3.5 4,333,038
169.2 4,333,040
169.4 4,333,039

CLASS 318
317 4,333,041
591 4,333,043
636 4,333,044
696 4,333,045
811 4,333,042

CLASS 323
231 4,333,046
311 4,333,047
319 4,333,048

CLASS 324
102 4,333,049
107 4,333,050
158 R 4,333,051
208 4,333,052
307 4,333,053
380 4,333,054

CLASS 328
133 4,333,055

CLASS 330
129 4,333,056
253 4,333,057
4,333,058
265 4,333,059

CLASS 331
1 A 4,333,060
99 4,333,062

CLASS 333
18 4,333,063
173 4,333,064
194 4,333,065

CLASS 335
206 4,333,066

CLASS 338
34 4,333,067
158 4,333,068
315 4,333,069

CLASS 339
17 C 4,332,430
74 R 4,332,431
75 M 4,332,432
99 R 4,332,433
258 R 4,332,434

CLASS 340
52 R 4,333,070
56 4,333,071
347 AD 4,333,075
365 S 4,333,089
4,333,091
365 VL 4,333,090
378.2 4,333,092
566 4,333,093
4,333,094
679 4,333,095
684 4,333,096
711 4,333,097
805 4,333,098
825.3 4,333,074
825.36 4,333,073
825.54 4,333,072

CLASS 343
5 DD 4,333,076
6 R 4,333,077
6.5 LC 4,333,078
7 PF 4,333,079
17.2 PC 4,333,080
108 M 4,333,081
754 4,333,082

CLASS 346
1.1 4,333,083
17 4,333,084
76 PH 4,333,085
140 R 4,333,086
4,333,087
4,333,088

CLASS 350
96.20 4,332,435
96.23 4,332,436
103 4,332,437
167 4,332,438
320 4,332,439
357 4,332,440
358 4,332,441
469 4,332,442

CLASS 351
160 H 4,332,443

CLASS 354
79 4,332,444
106 4,332,445
155 4,332,446
209 4,332,447
213 4,332,448
214 4,332,449
234 4,332,450
4,332,451
4,332,452
288 4,332,453
298 4,332,456
317 4,332,454
324 4,332,455

CLASS 355
3 BE 4,332,458
4,332,459
3 FU 4,332,457
8 4,332,460
14 C 4,332,464
14 D 4,332,467
14 R 4,332,461
4,332,462
4,332,463
4,332,465
27 4,332,466

CLASS 356
5 4,332,468
222 4,332,469
246 4,332,471
325 4,332,470
344 4,332,472
356 4,332,473
366 4,332,474
369 4,332,476
371 4,332,477
386 4,332,475

CLASS 357
67 4,333,099
71 4,333,100
79 4,333,101
81 4,333,102

CLASS 358
19 4,333,103
23 4,333,104
67 4,333,105
107 4,333,106
120 4,333,107
145 4,333,108
147 4,333,109
165 4,333,110
213 4,333,111
298 4,333,112

CLASS 360
27 4,333,113
66 4,333,114
74.2 4,333,115
78 4,333,116
4,333,117

CLASS 361
30 4,333,118
76 4,333,119
79 4,333,120
104 4,333,121
114 4,333,122
213 4,333,123
214 4,333,124
257 4,333,125
4,333,126

CLASS 362
17 4,333,127
135 4,333,128
205 4,333,129
293 4,333,130
372 4,333,131
421 4,333,132

CLASS 363
15 4,333,133
17 4,333,134
27 4,333,140
28 4,333,135
43 4,333,136
54 4,333,137
89 4,333,138
97 4,333,139
127 4,333,141

CLASS 364
200 4,333,142
4,333,143
4,333,144
414 4,333,145
426 4,333,146
436 4,333,147
469 4,333,148
481 4,333,149
484 4,333,150
492 4,333,151
521 4,333,152
523 4,333,153
559 4,333,154
708 4,333,155
724 4,333,156
802 4,333,157
825 4,333,158
900 4,333,159
4,333,160
4,333,161

CLASS 365
15 4,333,162
43 4,333,163
104 4,333,164
120 4,333,165
182 4,333,166
210 4,333,168
222 4,333,167

CLASS 366
4 4,332,478
77 4,332,479
4,332,480
84 4,332,481
130 4,332,482
132 4,332,483
137 4,332,484
142 4,332,485
146 4,332,486

CLASS 367
1 4,333,169
125 4,333,170

CLASS 368
87 4,333,171

CLASS 369
2 4,333,172
45 4,333,173
256 4,333,174

CLASS 370
56 4,333,175
84 4,333,176

CLASS 371
15 4,333,177

CLASS 372
46 4,333,061

CLASS 374
130 4,332,168

CLASS 376
253 4,332,639
264 4,332,640

CLASS 400
126 4,332,487
161.5 4,332,488
172 4,332,489
175 4,332,490
208 4,332,491
320 4,332,492
404 4,332,493

CLASS 401
5 4,332,494
52 4,332,496

154 4,332,497
188 R 4,332,498

CLASS 403

6 4,332,495
53 4,332,499
114 4,332,500
219 4,332,501
343 4,332,502

CLASS 404

11 4,332,503
68 4,332,504
108 4,332,505

CLASS 405

77 4,332,506
92 4,332,507
144 4,332,508
168 4,332,509
171 4,332,510
178 4,332,511
290 4,332,512

CLASS 407

101 4,332,513

CLASS 408

103 4,332,514

CLASS 410

149 4,332,515

CLASS 414

288 4,332,516
699 4,332,517

CLASS 415

2 R 4,332,518
52 4,332,519
63 4,332,520
90 4,332,522
126 4,332,523
176 4,332,524
189 4,332,521

CLASS 416

134 A 4,332,525
166 4,332,526

CLASS 417

15 4,332,527
45 4,332,528
54 4,332,529
130 4,332,530
218 4,332,531
273 4,332,532
513 4,332,533

CLASS 418

45 4,332,534
55 4,332,535

CLASS 422

63 4,332,768
75 4,332,769
78 4,332,770
84 4,332,771
97 4,332,772
109 4,332,773
111 4,332,774
112 4,332,775

CLASS 423

10 4,332,776
98 4,332,777
132 4,332,778
139 B1 4,246,240
321 R 4,332,779
413 4,332,780
573 G 4,332,781
628 4,332,782

CLASS 424

1 4,332,783
4,332,784
4,332,785
4,332,786
4,332,787
12 4,332,788
27 4,332,789
38 4,332,790
52 4,332,791
84 4,332,792
89 4,332,793
180 4,332,794
199 4,332,795
229 4,332,796
238 4,332,797
246 4,332,798
4,332,799
4,332,800
4,332,801
248.57 4,332,804
251 4,332,802
258 4,332,805
263 4,332,808
266 4,332,809
267 4,332,803
4,332,810
4,332,811
269 4,332,812
273 R 4,332,806
4,332,813
4,332,814
274 4,332,807
4,332,815
4,332,816
285 4,332,817
4,332,818
301 4,332,819
304 4,332,820
322 4,332,821
324 4,332,822

CLASS 425

33 4,332,536
121 4,332,537
140 4,332,538
151 4,332,539
182 4,332,540
197 4,332,541
459 4,332,542
461 4,332,543
529 4,332,544
577 4,332,545

CLASS 426

272 4,332,823
330.3 4,332,824
330.5 4,332,825
407 4,332,826
481 4,332,827
523 4,332,828
535 4,332,829
548 4,332,830
582 4,332,831
641 4,332,832

CLASS 427

8 4,332,833
32 4,332,835
44 4,332,836
48 4,332,834
57 4,332,837
74 4,332,838
85 4,332,839
130 4,332,840
135 4,332,841
176 4,332,842
237 4,332,843
387 4,332,844

CLASS 428

35 4,332,845
131 4,332,846
156 4,332,847
174 4,332,848
188 4,332,849
288 4,332,850
325 4,332,851
331 4,332,852
371 4,332,853
377 4,332,854
379 4,332,855
408 4,332,856
412 4,332,857
4,332,858
4,332,859
473 4,332,860
520 4,332,861
593 4,332,862
695 4,332,863

CLASS 429

1 4,332,864
48 4,332,865
50 4,332,866
94 4,332,867
178 4,332,868
194 4,332,869
206 4,332,870
217 4,332,871

CLASS 430

8 4,332,872
15 4,332,873
28 4,332,874
45 4,332,875
68 4,332,876
103 4,332,877
264 4,332,878
272 4,332,879
4,332,880
311 4,332,881
322 4,332,882
4,332,883
338 4,332,884
506 4,332,885
551 4,332,886
567 4,332,887
570 4,332,888
583 4,332,889

CLASS 431

5 4,332,546
242 4,332,547
289 4,332,548
344 4,332,549
4,332,550

CLASS 432

19 4,332,551
205 4,332,553
209 4,332,552
233 4,332,554

CLASS 433

28 4,332,555
69 4,332,556
77 4,332,557
86 4,332,558
92 4,332,560
102 4,332,561
126 4,332,562
215 4,332,563
218 4,332,564

CLASS 434

118 4,332,565
178 4,332,566
195 4,332,567
224 4,332,568
272 4,332,569
274 4,332,570

CLASS 435

7 4,332,890
48 4,332,891
68 4,332,892
4,332,893
99 4,332,894
105 4,332,895
119 4,332,896
172 4,332,897
4,332,898
4,332,899
4,332,900
235 4,332,901
253 4,332,902
254 4,332,903
262 4,332,904
280 4,332,905
291 4,332,906

CLASS 440

9 4,332,571

CLASS 441

1 4,332,048
80 4,332,049

CLASS 455

601 4,333,178

CLASS 464

102 4,332,148
109 4,332,147

CLASS 474

38 4,332,572
94 4,332,573
161 4,332,574
201 4,332,575
205 4,332,576

CLASS 493

74 4,332,577
197 4,332,578
325 4,332,579
346 4,332,580
413 4,332,581
424 4,332,582
430 4,332,583

CLASS 501

39 4,332,907
4,332,908
97 4,332,909
106 4,332,910
140 4,332,911
4,332,912
144 4,332,913

CLASS 518

700 4,332,914
4,332,915

CLASS 521

25 4,332,916
134 4,332,917
137 4,332,716

CLASS 523

203 4,332,704
206 4,332,705
220 4,332,620
402 4,332,711
416 4,332,709
450 4,332,706

CLASS 524

68 4,332,703
141 4,332,714
178 4,332,702
265 4,332,715
376 4,332,708
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Chemical (4,333,730)	587
Electrical (4,334,119)	699
Design Patents Granted (264,765)	771
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

Jan. 19, 1982.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,195,868, Re. S.N. 368,649, Filed Apr. 15, 1982, Cl. 366/85, CONTINUOUS MIXER, Bernard Loomans, et al., Owner of Record: *Baker Perkins, Inc., New York, N.Y.,* Attorney or Agent: John F. Learman, et al., Ex. Gp.: 242

3,782,336, Re. S.N. 353,433, Filed Mar. 1, 1982, Cl. 122/379, METHOD AND APPARATUS FOR CLEANING HEATED SURFACES, John E. Nelson, Owner of Record: *The Babcock & Wilcox Co., New Orleans, La.,* Attorney or Agent: Cyrus G. Minkler, Ex. Gp.: 344

4,093,147, Re. S.N. 307,561, Filed Oct. 1, 1981, Cl. 242/159, FLAT NYLON 66 YARN HAVING A SOFT HAND, AND PROCESS FOR MAKING SAME, James E. Bromley, et al., Owner of Record: *Monsanto Co., St. Louis, Mo.,* Attorney or Agent: Kelly O. Corley, et al., Ex. Gp.: 242

4,117,827, Re. S.N. 306,423, Filed Sept. 28, 1981, Cl. 126/121, FIREPLACE CONSTRUCTION, Thomas F. Billmeyer, Owner of Record: *Inventor,* Attorney or Agent: Ernest A. Wegner, et al., Ex. Gp.: 345

4,145,632, Re. S.N. 365,079, Filed Apr. 5, 1982, Cl. 313/330, COMPOSITE SUBSTRATE FOR ROTATING X-RAY ANODE TUBE, Thomas Maurice Devine, Jr., Owner of Record: *General Electric Co., Schenectady, N.Y.,* Attorney or Agent: Marvin Snyder, Ex. Gp.: 256

4,179,967, Re. S.N. 312,360, Filed Oct. 16, 1981, Cl. 83/846, VARIABLE TOOTH SAW BLADE, Calvin M. Clark, Owner of Record: *Capewell Manufacturing Co., Hartford, Ct.,* Attorney or Agent: Vernon F. Kalb, et al., Ex. Gp.: 323

4,190,058, Re. S.N. 351,641, Filed Feb. 23, 1982, Cl. 128/736, DEVICE FOR USE IN EARLY DETECTION OF BREAST CANCER, Zsigmond L. Sagi, Owner of Record: *Arden Industries, Inc., New Jersey,* Attorney or Agent: Richard Whiting, Ex. Gp.: 335

4,194,701, Re. S.N. 360,051, Filed Mar. 19, 1982, Cl. 242/58.3, ROLL STAND WITH MEANS FOR JOINING A WEB TO ANOTHER WHEN UNWOUND FROM ROLLS, Bengt A. Andreasson, Owner of Record: *Ab Amals Mekaniska Verkstad, Amal, Sweden,* Attorney or Agent: Robert B. Murray, et al., Ex. Gp.: 242

4,196,988, Re. S.N. 363,859, Filed Mar. 31, 1982, Cl. 354/33, MANUAL OR AUTOMATIC CAMERA AND ELECTRONIC FLASH FOR USE THEREWITH, Masahiro Kawasaki, Owner of Record: *Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan,* Attorney or Agent: Harold D. Steinberg, et al., Ex. Gp.: 211

4,297,758, Re. S.N. 364,283, Filed Apr. 1, 1982, Cl. 440/10, LIFE PRESERVER OF THE ENCAPSULATED TYPE, Harold J. Moran, Owner of Record: *Switlik Parachute Co., Inc., Trenton, N.J.* Attorney or Agent: Frederick A. Zoda, et al., Ex. Gp.: 315

4,313,645, Re. S.N. 367,188, Filed Apr. 9, 1982, Cl. 339/103M, TELEPHONE CORD HAVING BRAIDED OUTER JACKET, Eugene R. Cocco, Owner of Record: *Western Electric Co., Inc., New York, N.Y.,* Attorney or Agent: S. I. Rosen, et al., Ex. Gp.: 322

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b).

Re. 29,795, Reexam. No. 90/000,192, Requested: Apr. 27, 1982, Cl. 83/245, SELF-CONTAINED FEED ROLL FOR POWER PUNCH PRESSES, Harry Eyberger, Owner of Record: *Requester,* Attorney or Agent: Price & Adams, Ltd., Ex. Gp.: 323, Requester: Vamco Machine & Tool, Inc., Pittsburgh, Pa.

4,157,968, Reexam. No. 90/000,175, Requested: Mar. 12, 1982, Cl. 210/489, FILTERS, Dirk G. Kronsbein, Owner of Record: *Ultra Filters, GMBH, Dusseldorf, Fed. Rep. Germany,* Attorney or Agent: Toren, McGeady & Stanger, Ex. Gp.: 170 Requester: Vincent L. Ramik, Washington, D.C.

4,285,380, Reexam. No. 90/000,196, Requested: May 6, 1982, Cl. 411/103, PANEL FASTENER, Bulent Gulistan, Owner of Record: *VSI Corp., Pasadena, Calif.,* Attorney or Agent: Christie, Parker, & Hale, Ex. Gp.: 355, Requester: Rexnord, Inc., Legal Dept., Milwaukee, Wis.

Erratum

In the Requests for Reexamination Filed, appearing in the May 18, 1982 Official Gazette (1018 OG 20), the Reexam. No. for 4,219,126 should be 90/000,190.

Adverse Decisions in Interference

In the designated interference involving the indicated claims of the following patents, final decisions having

been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,794,703, T.M. Beck, R.J. Eletto and D.J. Martin, PROCESS FOR THE PURIFICATION OF DIALKYL PHOSPHOROCHLORIDOTHIONATES, Interference No. 100,185, decided Nov. 23, 1981, claims 1 and 2.

Patent No. 3,956,103, G.J. Antos, HYDROCARBON CONVERSION WITH AN ACIDIC MULTI-METALLIC CATALYTIC COMPOSITE, Interference No. 99,634, decided Dec. 21, 1981, claims 10 and 15.

Patent No. 3,969,071, B. Hugelin, NEW CARRIERS AND THEIR USE IN PRINTING AND DYEING, Interference No. 100,618, decided Mar. 24, 1982, claims 1-3, 5, 9-12.

Patent No. 4,000,985, R.B. Orelup, AZO DYES HAVING A HIGH SOLUBILITY IN PETROLEUM FUELS, Interference No. 100,018, decided Feb. 2, 1981, claims 16 and 20.

Patent No. 4,047,355, W.L. Knorr, SHAFTWALL, Interference No. 99,853, decided Mar. 18, 1981, claims 1-5, 8, 11-14.

Patent No. 4,155,955, C.R. Parks, CHEMICALLY BOUND ANTIOXIDANTS, Interference No. 100,644, decided Oct. 1, 1981, claims 1 and 2.

Patent No. 4,168,618, M. Saier, H.W. Kastner and R. Klockler, Y AND T-FINNED TUBES AND METHODS AND APPARATUS FOR THEIR MAKING, Interference No. 100,583, decided Feb. 1, 1982, claims 1-6, 8, 17, 21, 26, 27, 29 and 35.

NANNIE B. HENRY,
Deputy Clerk,
Board of Patent Interferences.

PATENT NOTICES

Certificates of Correction for the Week of June 8, 1982

Re. 30,584	4,293,184	4,307,544	4,317,629
3,641,239	4,294,836	4,308,254	4,318,038
3,965,105	4,294,837	4,309,226	4,318,058
4,038,345	4,295,636	4,309,626	4,318,544
4,115,356	4,296,066	4,309,650	4,319,141
4,126,349	4,297,362	4,309,668	4,319,146
4,160,914	4,297,363	4,309,762	4,319,222
4,186,791	4,297,671	4,310,248	4,319,255
4,190,298	4,297,679	4,310,661	4,319,509
4,191,566	4,298,748	4,311,157	4,319,601
4,207,221	4,299,500	4,311,322	4,319,634
4,210,581	4,299,573	4,311,644	4,319,638
4,220,265	4,301,290	4,311,703	4,319,874
4,234,232	4,301,756	4,312,155	4,320,869
4,238,456	4,301,804	4,312,759	4,321,136
4,250,322	4,302,113	4,312,945	4,321,145
4,263,428	4,302,406	4,313,014	4,321,253
4,264,532	4,302,620	4,313,107	4,321,305
4,264,612	4,302,809	4,313,193	4,321,397
4,268,442	4,303,657	4,313,737	4,321,562
4,269,438	4,303,797	4,314,612	4,321,789
4,271,374	4,304,100	4,314,934	4,321,942
4,271,410	4,304,173	4,315,254	4,322,094
4,273,089	4,304,259	4,315,292	4,322,562
4,278,751	4,304,339	4,315,461	4,322,638
4,282,333	4,305,328	4,315,546	4,322,761
4,284,053	4,306,049	4,315,744	4,322,854
4,284,705	4,306,079	4,315,977	4,322,870
4,288,956	4,306,091	4,316,364	4,322,934
4,291,213	4,306,308	4,316,383	4,323,083
4,292,961	4,307,110	4,317,172	

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

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Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

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	Sacramento: California State Library	(916) 322-4572
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Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
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New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
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Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF April 3, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-04-80
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-04-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-16-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-08-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	8-26-80
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	8-05-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	5-05-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	5-15-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	8-11-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	10-01-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	5-29-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	7-17-80

Expiration of patents: The patents within the range of numbers indicated below expire during April 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,176,314 to 3,181,174, inclusive

Plant Patents ..... Numbers 2,490 to 2,501 inclusive

REISSUES

JUNE 8, 1982

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,958

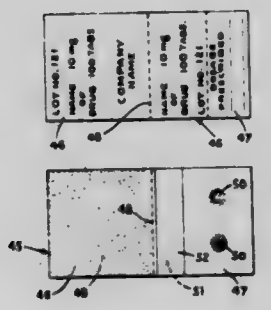
PACKAGE LABEL AND MANUFACTURE OF SAME

Rollin T. White, Westfield, N.J., assignor to NJM, Inc., Fairfield, N.J.

Original No. 4,128,954, dated Dec. 12, 1978, Ser. No. 776,534, Mar. 11, 1977. Application for reissue Sep. 25, 1980, Ser. No. 190,560

Int. Cl.[3] G09F *3/00;* A61F *13/02;* B32B *3/14, 7/06*

U.S. Cl. 40—310 10 Claims



1. The article which comprises a container for a product having a label bearing surface portion, and a label proper on such container comprising an unfolded sheet of label paper overlying said container surface portion as a single layer, said sheet being weakened transversely to provide two sections separable from one another, each of said sections having provided on its face side information relating to the particular product packaged in the container, a first of said sections having on its back side an adhesive permanently affixing said first section to the container, the second of said sections having on a first portion of its back side an adhesive removably affixing said second section to the container, whereby both of said sections hold the unfolded label sheet as a whole on the container in a form conforming to the shape of the container surface covered thereby, a pressure sensitive adhesive on a second portion of the back side of said second section *adjacent to said transversely weakened portion of the label sheet* and a second layer of material having a release coating thereon and covering said pressure sensitive adhesive to render the latter adhesively inoperative while said second label section is adhered to the container, said second layer being removable when said second label section is detached from the container and said first label section to render the pressure sensitive adhesive operative to adhere the back of the detached second label section to another article.

Re. 30,959

SCHEDULING BOARD

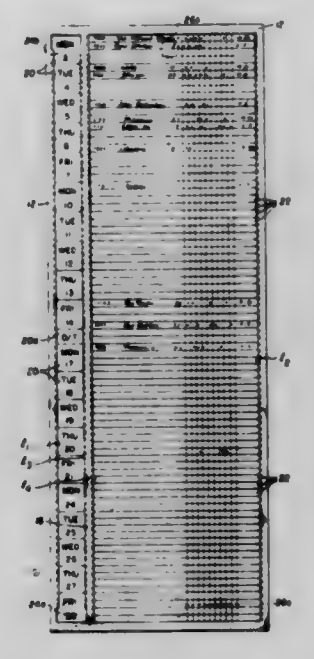
John S. Anderson, and Virginia B. Anderson, both of Manor Hill Farm, 4600 Breidenbaugh La., Glenarm, Md. 21057

Original No. 4,003,150, dated Jan. 18, 1977, Ser. No. 668,576, Mar. 19, 1976. Application for reissue Jan. 3, 1979, Ser. No. 679

Int. Cl.[3] G09F *3/20*

U.S. Cl. 40—374 14 Claims

9. A scheduling board for providing a visual listing comprising: a planar board of rigid material having a planar outer face, means providing the planar outer face a relatively narrow-width slideway, a plurality of discrete planar tabs having top and bottom edges arranged in column formation in said slideway with said edges disposed in abuttable relationship, said tabs being inscribable with indicia on their outer planar faces, means providing on the planar outer face of said board a channel of substantially greater lateral dimension than that of said slideway with one side proximal to and parallel with said slideway, a multiplicity of transversely disposed elongated semi-rigid strips slidably disposed in top-to-bottom relationship in said channel, said strips being inscribable with indicia on their outer faces, the vertical height of said strips being a known fraction of the vertical height of any one of



said tabs whereby the total vertical height of a plurality of said strips equals the vertical height of one or more tabs, and means retaining both the tabs and the strips in vertically slidable engagement on the outer face of the board.

Re. 30,960

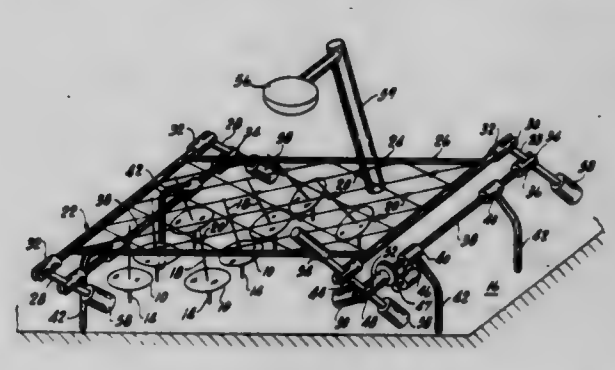
CENTRAL RECEIVER SOLAR COLLECTOR USING MECHANICALLY LINKED MIRRORS

Warren T. Sommer, 3137 N. Cramer St., Milwaukee, Wis. 53211

Original No. 4,102,326, dated Jul. 25, 1978, Ser. No. 837,181, Sep. 28, 1977. Application for reissue Jul. 23, 1980, Ser. No. 171,648

Int. Cl.[3] F24J *3/02;* G02B *5/08*

U.S. Cl. 126—424 22 Claims



1. A solar radiation collector utilizing mechanically linked mirrors to provide radiation concentration, comprising:

(a) a radiation receiver,

(b) a first rigid structure substantially greater in dimensional extent in at least one dimension than the [dimentions] *dimensions* of the radiation receiver, the first rigid structure being generally fixed with respect to the radiation receiver at a position displaced from the radiation receiver along a line normal to the directions of major dimensional extent of the first rigid structure,

(c) a first plurality of articulated joints carried by the first rigid structure, the joints allowing free rotation in any direction within a substantial range of angular positions,

(d) a plurality of mirrors, each mirror being coupled to and

rotatable about an individual joint of the first plurality of articulated joints so that, when properly oriented, each of the mirrors may reflect radiation from a radiation source onto the radiation receiver,

(e) a second rigid structure which is translatably movable in three mutually perpendicular directions with respect to the first rigid structure, with the motion being constrained so that each point on the second rigid structure generally moves over a spherical surface particular to that point,

(f) a plurality of positional guides carried by the second rigid structure, each individual positional guide being paired with an individual joint of the first plurality of articulated joints [in that each positional guide is disposed with respect to the second rigid structure in such a way that the particular spherical surface to which a positional guide is constrained contains an articulated joint of the first plurality of joints, with the articulated joint positioned at the intersection with the spherical surface of a straight line which passes through the position of the radiation receiver and the center of the particular sphere of constraint],

(g) a plurality of linear guide members, each coupled to an individual articulated joint of the first plurality of joints and extending to the positional guide associated with that particular joint, with the positional guide slidably engaging the linear guide member and with each linear guide member adapted to orient the individual mirror associated with that particular joint to a position normal to the linear guide member, and

(h) means for moving the second rigid structure, in response to changes in the angular position of the sun, so that each positional guide lies along a line which passes through the center of the particular sphere of constraint for that positional guide and is aligned *generally* in the direction of the sun.

Re. 30,961

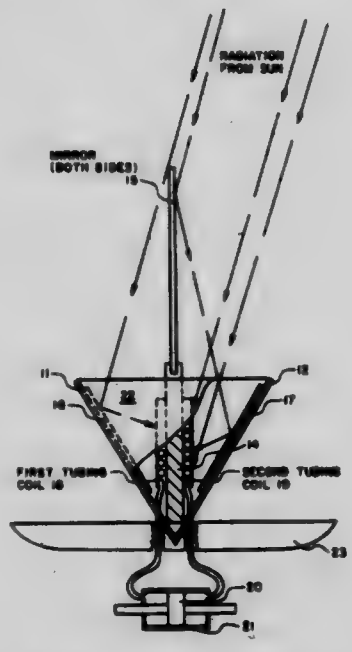
SOLAR-ENERGY-POWERED SUN TRACKER

Roland W. Robbins, 825 E. California Blvd., Ridgecrest, Calif. 93555

Original No. 4,027,651, dated Jun. 7, 1977, Ser. No. 658,544, Feb. 17, 1976. Continuation of Ser. No. 26,037, Apr. 2, 1979, abandoned. Application for reissue Jul. 7, 1980, Ser. No. 166,336

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—425 **12 Claims**



10. Apparatus for tracking a radient energy source such as the sun, comprising;

at least one radient energy sensing means mounted so as to rotate on at least one axis with respect to said source so as to be able to track said source;

said energy sensing means each comprising at least a first and second energy collector/convertor means mounted in spaced relation to each other;

means associated with said first and second collector/convertor means effective to create a difference in the amount of radiation received by said first and second collector/convertor means respectively when said apparatus is pointed toward said source at other than boresight;

each said collector/convertor means including a fluid containing reservoir wherein a vapor pressure is created when said reservoir is receiving radient energy and said pressure created is in proportion to the radient energy received; and

fluid motor means connected to said reservoirs translating vapor pressure of said reservoirs respectively into movement of said apparatus when a vapor pressure differential exists between said reservoirs;

whereby the apparatus will tend to move toward boresight position with respect to said source.

Re. 30,962

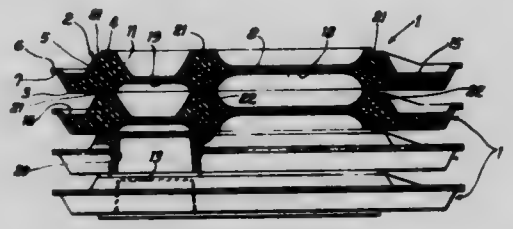
INSULATED TRAYS FOR FOOD OR THE LIKE

John A. Bridges, Nashville, Tenn., assignor to Aladdin Industries, Incorporated, Nashville, Tenn.

Original No. 3,532,247, dated Oct. 6, 1970, Ser. No. 837,979, Apr. 28, 1969. Continuation of Ser. No. 690,654, Dec. 14, 1967, abandoned, which is a continuation-in-part of Ser. No. 672,219, Mar. 30, 1967, abandoned. Application for reissue Jul. 20, 1979, Ser. No. 59,396

Int. Cl.³ B65D *1/26, 21/04*

U.S. Cl. 220—23.6 **10 Claims**



11. An insulated food service system comprising a multiplicity of stacked insulated trays, each upper surface of each tray being formed to define a plurality of dished receptacles for the reception of food portions, said lower surface of each tray being formed to define a plurality of inverted dished portions under and substantially coextensive with a corresponding dished portion formed in said upper surface to form groups of vertically aligned compartments, one group of said compartments having thin, essentially non-insulating upper and lower walls and thicker insulating side walls so that first food portions of a like temperature may be placed in said one group of vertically aligned compartments and second food portions of a like different temperature may be placed in another group of said vertically aligned compartments whereby a food portion in any intermediate one of said group of vertically aligned compartment has substantial insulation between it and food portions in adjacent compartments but substantially none between it and food portions in compartments above and below it.

Re. 30,963

ATOMIZER WHEEL WITH WEAR-RESISTANT, SINTERED BUSHINGS

Aage Moller, Farum, and Orla Straarup, Birkerod, both of Denmark, assignors to Aktieselskabet Niro Atomizer, Soborg, Denmark

Original No. 3,640,467, dated Feb. 8, 1972, Ser. No. 871,925, Oct. 28, 1969. Application for reissue Apr. 11, 1978, Ser. No. 895,529

Claims priority, application Denmark, Nov. 5, 1968, 5367/68

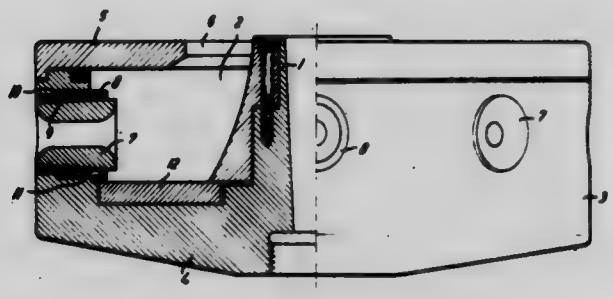
Int. Cl.² B05B *3/10*

U.S. Cl. 239—224 **7 Claims**

9. In an atomizer wheel for atomization of slurries of highly abrasive materials having: a bowl-shaped wheel with a central hub and a cylindrical outer wall coaxially disposed about said hub and

a bottom part connecting said outer wall with said hub to define an annular chamber; an annular cover member on said outer wall, said cover member having a central opening defining together with said hub an unobstructed space in communication with said annular chamber; a plurality of ejection openings disposed in said outer wall distributed around the circumference thereof, each said opening having its axis in a radial direction, and a lining, said lining having a first bushing with its inner end projecting into said annular chamber; said first bushing constituting the sole defining path for exhausting slurry and made of a sintered wear resistant material with a conical outer surface, wherein the improvement comprises

a second bushing fitted over said first bushing, said second bushing having an outside diameter small enough to define a clearance fit with said opening so that it will remain circular even if the opening is deformed when running, and a sealing ring around the outer circumference of the second bushing at a location adjacent the outer wall of said annular chamber to prevent escape of slurry into the clearance fit space between the second bushing and the opening into which it is inserted; said second bushing being provided with shoulder means on the outer surface thereof in its region radially outwardly of said sealing ring so as to be rotatable to positions throughout 360° to compensate for wear, said shoulder means engaging an inwardly extending edge of said opening and constituting the sole means preventing outward movement of said bushing from said opening but permitting free inward movement for easy removal or adjustment thereof.



Re. 30,964

PACKAGE INSPECTION AND HANDLING SYSTEM

Dean C. Butner, Clemmons, and Douglas C. Clark, Winston-Salem, both of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Original No. 3,939,984, dated Feb. 24, 1976, Ser. No. 534,939, Dec. 20, 1974. Application for reissue Feb. 28, 1980, Ser. No. 125,727

Int. Cl.³ B07C *5/02*

U.S. Cl. 209—536 **14 Claims**

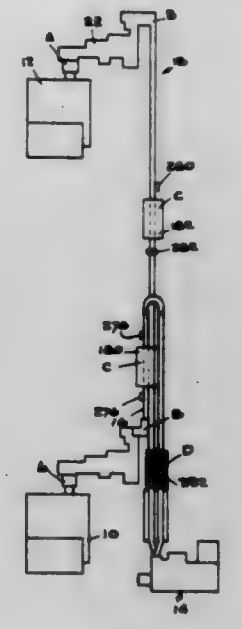
29. An accumulator for use on an interconnecting conveyor between a packaging machine and a cartoning machine comprising:

(a) a frame

(b) a magazine having a plurality of flights mounted for movement on said frame for receiving and storing packages from said conveyor, said conveyor passing through a part of said magazine;

(c) drive means for moving said magazine with respect to said conveyor;

(d) a flight status detecting means including a first and second sensing means adjacent to said conveyor, said first sensing means being located before the entrance end of said magazine and said second sensing means being located after the exit of said magazine, each sensing means detecting the presence of a package and said first sensing means detecting a full flight during the loading operation of said accumulator and the second sensing means determining the absence of packages indicating an empty flight during the unloading operation of said accumulator;



(e) means for selectively activating and deactivating said flight status detecting means; and

(f) means for de-energizing said drive means at each flight of said magazine.

Re. 30,965

FERMENTATION OF OXYGENATED HYDROCARBON COMPOUNDS WITH THERMOPHILIC MICROORGANISMS AND MICROORGANISMS THEREFOR

Donald O. Hitzman, Bartlesville, Okla., assignor to Provesta Corporation, Bartlesville, Okla.

Original No. 3,981,774, dated Sep. 21, 1976, Ser. No. 618,191, Sep. 30, 1975. Application for reissue Aug. 31, 1978, Ser. No. 938,589

Int. Cl.³ C12P *21/00*

U.S. Cl. 435—68 **27 Claims**

1. A method of producing a single cell protein material which comprises culturing a Bacillus microorganism species NRRL B-8066 or NRRL B-8065 in an aqueous medium employing an oxygenated hydrocarbon as carbon and energy source under aerobic fermentation conditions and recovering the resulting microorganisms as a single cell protein material.

25. A biologically pure culture of bacteria having the identifying characteristics of Bacillus NRRL B-8065 or NRRL B-8066, said culture being capable of producing recoverable amounts of single cell protein upon aerobic fermentation in an aqueous nutrient medium containing assimilable amounts of carbon, nitrogen, and inorganic nutrients, wherein said carbon is substantially supplied in the form of an oxygenated hydrocarbon compound.

PLANT PATENTS

GRANTED JUNE 8, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,855

ROSE PLANT

Dorothy J. S. Bailey, Bakersfield, Calif., assignor to San Joaquin Rose Co., McFarland, Calif.

Filed Sep. 9, 1980, Ser. No. 185,537
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—11 1 Claim

1. A new and distinct variety of rose plant of the grandiflora class, substantially as shown and described, characterized particularly by flowers of unusual multi-red toned coloration darkening upon aging to more uniform coloring.

4,856

GRAPEVINE

Harold P. Olmo, Davis, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed Sep. 22, 1980, Ser. No. 189,538
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—47 1 Claim

1. The new and distinct grapevine herein described and illustrated, and identified by the characteristics enumerated above.

PATENTS

GRANTED JUN. 8, 1982

ERRATA

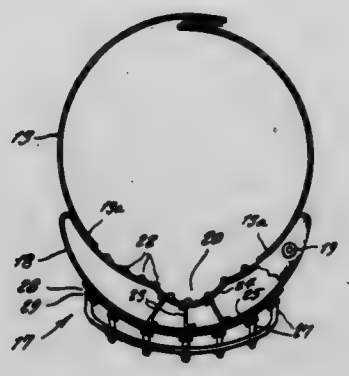
For CLASS	See PATENT NO.
114–344	4,333,191
464–026	4,333,319
374–010	4,333,332
116–217	4,333,339
376–100	4,333,796
376–210	4,333,797
376–449	4,333,798
523–220	4,333,863
525–501	4,333,864
523–410	4,333,865
524–534	4,333,866
524–547	4,333,867
524–152	4,333,868
524–100	4,333,869
548–421	4,333,877
548–531	4,333,878
549–549	4,333,879
427–089	4,333,922
525–390	4,334,050
564–367	4,334,085
373–159	4,334,119
372–057	4,334,199
372–090	4,334,200
364–167	4,334,266

PATENTS

GRANTED JUNE 8, 1982

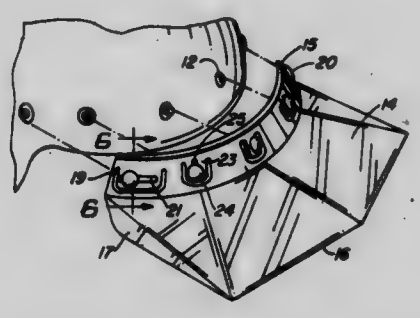
GENERAL AND MECHANICAL

4,333,179
PROTECTIVE GUARD FOR THE THROAT AREA
Robert A. Laurita, 105-00 Shore Front Pkwy., Apt. 6-L, Rockaway, N.Y. 11694
Filed Jun. 18, 1980, Ser. No. 160,834
Int. Cl.[3] A41D *13/00;* A42B *3/02*
U.S. Cl. 2—2 1 Claim



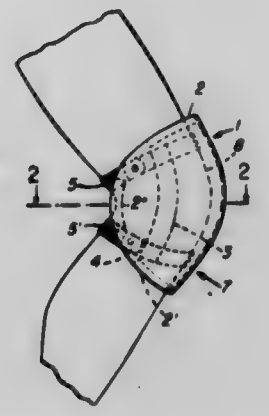
1. A protective guard for a throat area, comprising in combination, a collar for being worn around a neck, and a shield at a front of said collar, said shield comprising an air bag on said collar, and a grill on a front side of said air bag; said grill being selectively detachable from said air bag by loop pile fastener means; said air bag being contoured to fit around an Adam's apple portion of said throat by means of a plurality of radiating straps between opposite inner and outer walls of said air bag so to maintain a contour for said Adam's apple.

4,333,180
HELMET VISOR
William P. Bay, Rte. 1, Box 53, Ormand Beach, Fla. 32974
Filed Dec. 11, 1980, Ser. No. 215,228
Int. Cl.[3] A61F *9/04;* A42B *3/02*
U.S. Cl. 2—10 9 Claims



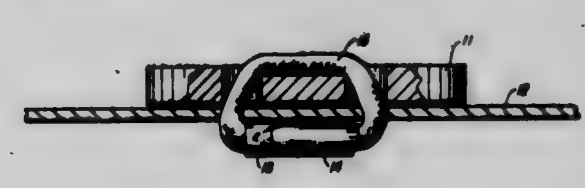
1. A visor for attachment to a helmet having snap portions thereon comprising in combination:
a visor support portion curved to fit adjacent said helmet;
a visor bill portion integral with said visor support portion and protruding therefrom;
said visor support portion having a plurality of generally U-shaped elongated apertures formed therein forming a plurality of resilient tabs, each tab formed by said U-shaped elongated apertures having a snap portion attached thereto resiliently mounting each said snap portion to said visor support portion when attached to a helmet, thereby giving said visor resilience relative to said helmet.

4,333,181
PROTECTIVE STRUCTURES FOR JOINTS
John Corriero, 310 Greenwich St.-Apt. 35J, New York, N.Y. 10013
Filed May 16, 1980, Ser. No. 150,597
Int. Cl.[3] A41D *13/06*
U.S. Cl. 2—24 12 Claims



1. A protective structure for a joint of a body limb comprising:
a. a rigid shield;
b. bracing and cushioning means;
c. fasteners for attaching said bracing and cushioning means to said shield; and
d. means for attaching said shield, bracing and cushioning means and fasteners to the user
whereby
said rigid shield generally conforms in shape to the front and sides of said joint in semi-flexed configuration albeit larger; is continuous; and entirely surrounds the area to be protected; and
said bracing and cushioning means comprise body-conforming flexible straps which are in substantially intimate contact with the limbs surrounding the joint area and suspend said shield in non-contacting relationship to said joint.

4,333,182
BUTTON ANCHOR METHOD AND APPARATUS
Judith Seibt, P.O. Box 4304, Winter Park, Fla. 32793
Filed Sep. 8, 1981, Ser. No. 299,781
Int. Cl.[3] A47C *23/02;* A44B *1/30, 1/18*
U.S. Cl. 2—265 6 Claims



1. A button anchor comprising:
an elongated elastic thread;
an elongated needle portion formed on one end of said elongated thread; and
an elongated ferrule portion attached on the other end of said elastic thread and having a bore in one end thereof, whereby said needle portion can thread said elastic thread through a garment and button and be locked into said ferrule portion.

4,333,183

DEODORIZING METHODS AND ARTICLES USING ION EXCHANGE MANUFACTURE

Karel Popper, 95 Paraiso Court, Danville, Calif. 94526

Division of Ser. No. 626,361, Oct. 28, 1975, Pat. No. 4,155,123, which is a division of Ser. No. 382,208, Aug. 24, 1973, Pat. No. 3,922,723. This application Nov. 9, 1978, Ser. No. 959,356

Int. Cl.[3] A41B 9/00

U.S. Cl. 2—400 10 Claims

1. A deodorant manufacture configured into a shaped article comprising anion exchange material and normally juxtaposed to a source of odorant of at least secondary status with said anion exchange in contact with said odorant, said anion exchange material being in non-fluid and essentially non-dispersible, substantially extended form and having anion exchange sites capable of substantially sorbing anions from said odorant at the pH existing in the region of contact between said material and said odorant; any components of said material that are endowed with anion exchange sites and are grossly discernible as distinct from one another being, when considered as a group, constrained against any significant flowing so that these components as a group exhibit the characteristic of being non-fluid and essentially non-dispersible; a primary source of odorant being one where odorant is inherent or is, in effect, being generated, and a secondary source of odorant being an odoriferous region of atmosphere immediately adjacent to, and disposed to flow into or out of, a confined space.

4,333,184

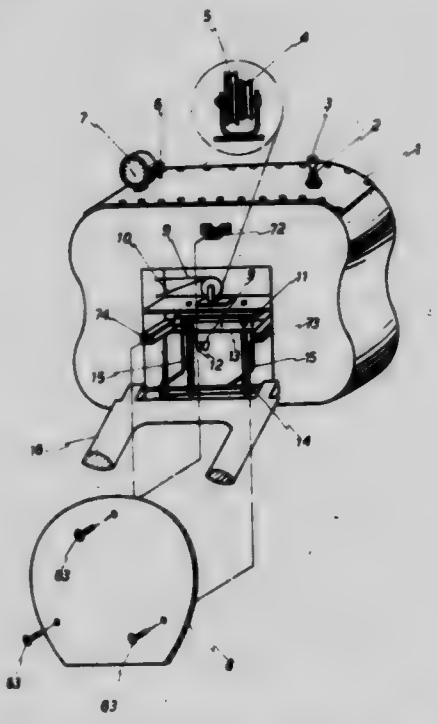
MULTI-FUNCTION CLOSET STOOL

Hsian Wang, No. 11, Alley 38, La. 80 Wen Lin N. Rd. Peitou, Taipei, Taiwan

Filed Mar. 21, 1980, Ser. No. 132,532

Int. Cl.[3] E03D 1/00, 5/012, 5/04, 1/34

U.S. Cl. 4—313 6 Claims



1. A closet stool comprising: a water tank having a water outlet valve; spring biased seat, biased upwardly having levers connected to a plurality of cables; first cable connected to and actuating a timing assembly connected to a pressure gauge of a piston sleeve containing air; a second cable connected to an end of said piston sleeve, said sleeve and piston compressing air communicating with an expandable air container, said piston resiliently swing biased in an upward position, said air container connected to a pivotal lever on one end and the other end comprising a lid for said water outlet valve which is actuated by said air container, wherein said seat is depressed by an occupant which moves said first cable to actuate said timing assembly, when said seat is released said first cable again actuates said timing assembly wherein after a set period of time said timing assembly releases the air in said sleeve to an air outlet connected to said air container, expanding said air container to move said lever to open said lid on said valve to release the water in the water tank which flushes the closet stool, wherein said pressure gauge measures the air pressure in the system.

4,333,185

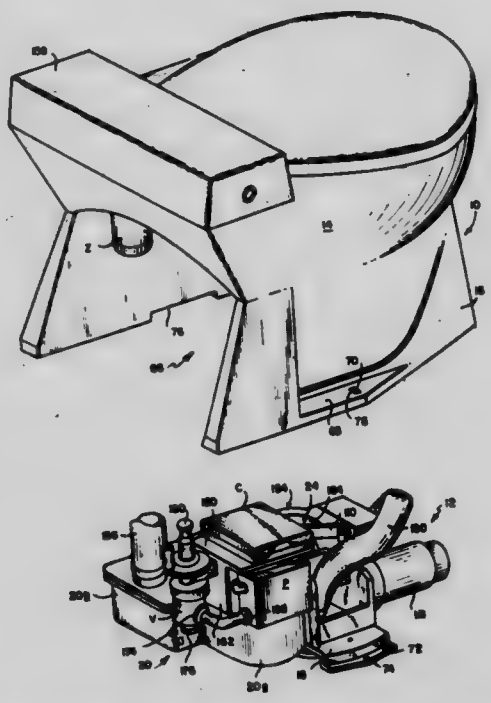
WATER SAVING TOILET SYSTEM

Walter O. Heinze, Swathmore, Pa., and Wesley M. Tufts, Holliston, Mass., assignors to International Water Saving Systems, Inc., New York, N.Y.

Filed May 7, 1980, Ser. No. 147,484

Int. Cl.[3] E03D 9/10

U.S. Cl. 4—319 39 Claims



1. A water saving toilet comprising a bowl, means for supplying flush water to the top of the bowl, a discharge port at the bottom of the bowl, an attrition chamber, conductor means connecting the port at the bottom of the bowl to the attrition chamber, said attrition chamber having a discharge port, means for effecting hydraulic attrition situated in the attrition chamber, a pump having an intake side connected to the attrition chamber to induct effluent from the bowl into the attrition chamber and a discharge side adapted to be connected to a waste pipe to remove the treated effluent from the attrition chamber, means for effecting operation of the means for effecting hydraulic attrition and the pump and control means for controlling operation of the discharge pump and the means for supplying flush water to supply a predetermined volume of flush water to the bowl and to discharge a corresponding volume of treated effluent from the attrition chamber.

4,333,186

SWIMMING POOL CONSTRUCTION

Jay A. Lankheet, 1329 Bayview Ave., Holland, Mich. 49423

Filed Sep. 7, 1979, Ser. No. 73,555

Int. Cl.[3] E04H 3/16, 3/18

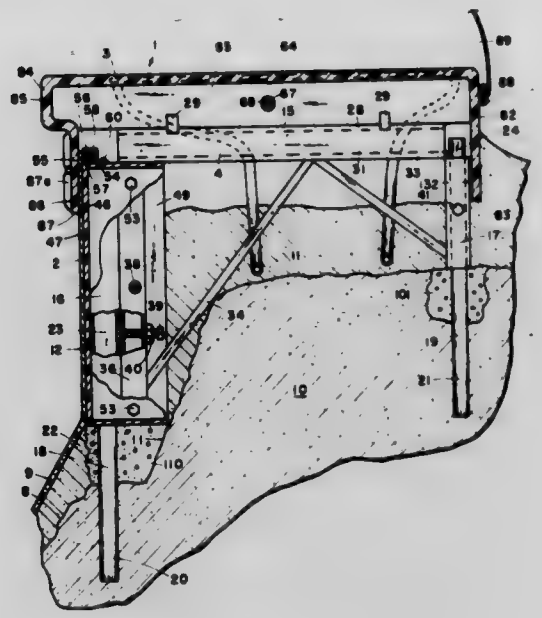
U.S. Cl. 4—506 31 Claims

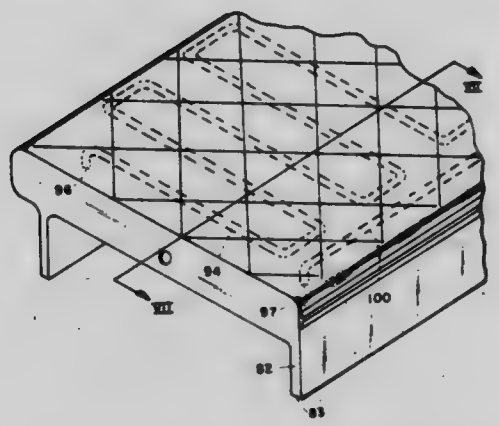
1. In a swimming pool construction including a plurality of prefabricated panels to form a deck assembly about a marginal portion of the pool, the improvement comprising:

means for interconnecting said deck panels, including:

a pair of flanges depending from the ends of each of said deck panel sections, and including a pair of aligned apertures disposed therethrough; said deck panel sections being positioned in an end-to-end relationship, and each of said flange apertures being aligned; first and second ones of said deck panel sections being disposed at opposite ends of said deck panel sections being disposed at opposite ends of said deck assembly; and

an elongate, rigid rod extending through each of said apertures and including means connecting one end of the rod with said first deck panel section, and tightening means on the other end of said rod, engaging the second deck panel section for moving the one rod end with respect thereto and tensing the rod, whereby each of said deck panel sections is drawn abuttingly together by





said rod to securely and detachably interconnect each of the deck panel sections in said deck assembly; and

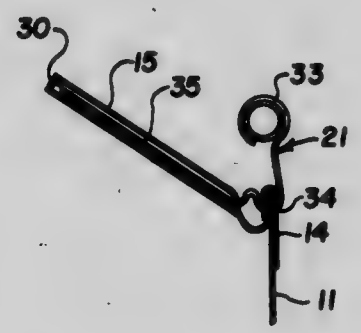
a corner member for interconnecting non-linearly disposed straight sections of the deck assembly, having a pair of depending end flanges with an aperture aligned with said deck panel flange apertures therethrough for connection with one end of said rod.

4,333,187

SHOWER CURTAIN

Bob A. Schuler, 2426 Wood Oak Ct., Irving, Tex. 75060

Filed Oct. 20, 1980, Ser. No. 198,914
Int. Cl.³ A47K *3/22*
U.S. Cl. 4—608 **7 Claims**



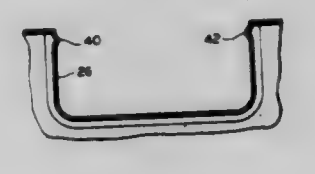
1. A shower curtain assembly for use across an opening into a shower enclosure between vertical walls adjacent to said enclosure and ceiling, said assembly comprising: two shower curtain panels positioned in adjacent coplanar overlapping relationship along vertical inside edge portions; securing means along vertical opposite end outside edge portions of said panels for securing each of said panels along said outside edge portion with an adjacent vertical wall surface; a horizontal securing strip secured and folded in overlapping relationship with the horizontal top edge portion of said curtain panels; a horizontal net panel secured along a bottom edge portion with said top edge portions of said curtain panels and said securing strip; and hanging and support means for supporting said curtain panels and said net panel from a horizontal rod across said opening into said shower enclosure and for supporting said net panel at an upward and inward angle from said curtain panels toward said ceiling.

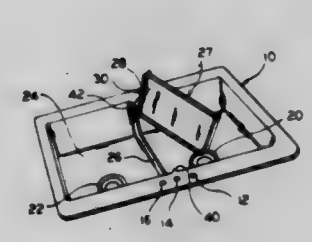
4,333,188

CONVERTIBLE SINK

Harald W. Jensen, deceased, late of Oak Brook, Ill. (by Alice Jensen, executor), and Christen V. Jensen, Itasca, Ill., assignors to Stainless Steel Sinks, Inc., Addison, Ill.

Continuation-in-part of Ser. No. 80,261, Oct. 1, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 186,471
Int. Cl.³ A47K *3/14*; E03C *1/186*
U.S. Cl. 4—514 **8 Claims**





1. A sink which can be divided into two or more watertight compartments, comprising: a liquid receptacle; at least one rib integrally formed within said receptacle extending along its internal surface; at least one plate spanning the distance between opposite sides of said receptacle; an elastic flange secured to the periphery of said plate along its edge; and a pair of detents located on opposite sides of said receptacle near the top of said rib to engage said flange and retain said flange against said rib, thereby causing a deformation of said flange and a mating of the flange and rib, which secures said plate within the receptacle.

4,333,189

AUTOMATIC BEE FEEDER

James R. Mentzer, Box 276, R.D. 2, New Holland, Pa. 17557, and Hugh J. Lofting, Box 230, R.D. 2, West Grove, Pa. 19390

Filed Oct. 16, 1980, Ser. No. 197,539
Int. Cl.³ A01K *53/00*
U.S. Cl. 6—5 **16 Claims**

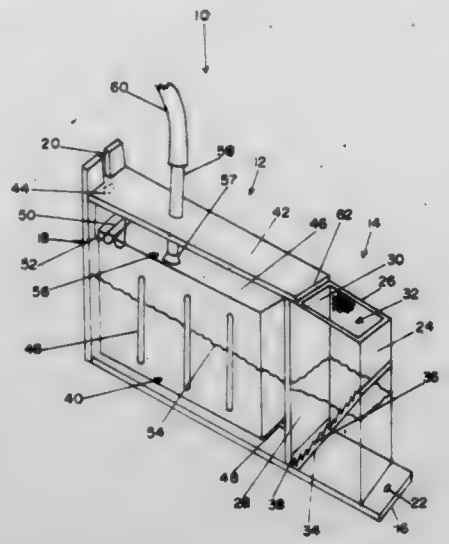
5. A float controlled feeding station for bees comprising:

a structure, attached to a replaceable hive frame and fitted within the outline of the frame, comprising:

a first chamber, enclosed to prevent access to its interior by bees, containing a float means acting upon a valve means which prevents liquid from flowing into the first chamber when the depth of liquid in the first chamber is greater than a specific level;

a second chamber with access means for bees, intercon-

nected with the first chamber at a point below the level of liquid at which the valve means prevents liquid flow; and



connecting means connecting the first chamber to a liquid supply means.

4,333,190

PROCESS FOR EXTRACTING WATER FROM DESIZING LIQUORS

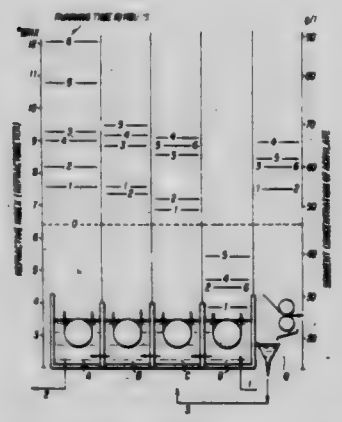
Wilhelm Ruettiger, Ludwigshafen; Franz Suetsch, Roedersheim-Gronau, and Albrecht Wuerz, Maikammer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, LuDwigshafen, Fed. Rep. of Germany

Filed Sep. 11, 1980, Ser. No. 186,388

Claims priority, application Fed. Rep. of Germany, Sep. 13, 1979, 2937002

Int. Cl.³ D06B *3/10;* D06L *1/14*

U.S. Cl. 8—151 **10 Claims**



1. A process for desizing a fabric web comprising the steps of: first wetting the dry size-loaded fabric with the desizing liquor separated from a previous batch of fabric after desizing, so that the fabric, and the size adhering thereto, take up water from the desizing liquor by swelling, solvation or both, thereby increasing the concentration of size in the desizing liquor; separating the concentrated desizing liquor from the fabric; recycling the concentrated desizing liquor to a sizing operation; desizing the wetted fabric by a continuous fresh water wash; separating the desized fabric from the resulting desizing liquor; and recycling the desizing liquor to the first wetting step.

4,333,191

COMBINATION MOTOR HOME AND HOUSE BOAT

Alvin L. Long, Civilian Gen. Del., Beale A.F.B., Calif. 95903

Filed Jun. 22, 1978, Ser. No. 917,952

Int. Cl.³ B60P *3/10;* B63B *21/64;* B63C *13/001*

U.S. Cl. 114—344 **1 Claim**

1. The motor home-houseboat combination vehicle comprising a road-going vehicle having at least four wheels in standard configuration, an enclosed cab, the space behind said cab being occupied by a shelter of substantially the same transverse cross-sectional configuration as said cab and an inverted houseboat cabin having a cross section such that its sides and top are continuations of the like surfaces of said shelter, said houseboat cabin being positioned in tandem with and behind said shelter and lying atop a planar platform extension of the said shelter which extends to the end of the frame of said truck; and buoyant float means attached to the bottom of said inverted houseboat cabin, which extend substantially the length of the vehicle, and further including detachable hydraulic ram means



attached to said cabin and said platform on each side of the vehicle which, when actuated, are capable of lifting and rotating said cabin and attached to pontoons from a first inverted position aboard said truck to a right-side-up position in line with and to the rear of said truck for launching thereof, and subsequent retrieval, the craft being returnable to its initial position by said ram means, the cabin being longitudinally moveable atop the float means when said right-side-up position.

4,333,192

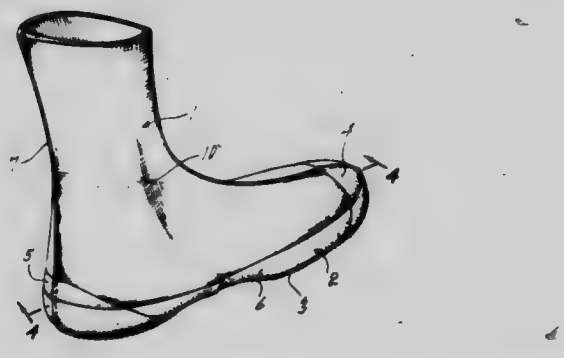
METHOD OF MAKING BOOTS FOR AQUATIC ACTIVITIES

André Stockli, 2086 Prieur St.; Fernando Castaneda, 7838 Casgrain St., both of Montreal, and Jean-Louis Stockli, 3112 Gérard St., Fabreville, all of Canada

Division of Ser. No. 922,070, Jul. 5, 1978, abandoned. This application Dec. 7, 1979, Ser. No. 101,213

Int. Cl.³ A43D *9/00, 13/08*

U.S. Cl. 12—142 E **8 Claims**



1. A method of making a boot for divers and the like, comprising the steps of forming a sock from a sheet of cellular elastomeric material, said sock including a sole portion and an upper, said elastomeric material covered at least on the outside of said sock by a fabric of synthetic yarn adhering to said elastomeric material over the entire surface of the latter, adhering an outsole assembly including an unvulcanized, non-cellular rubber composition, to said sole portion and to the adjacent part of the upper all around the sole portion, placing the resulting unit in an oven and vulcanizing under pressure said outsole assembly in situ on said sock at a maximum temperature below the degrading temperature of the cellular elastomeric material of the sock.

4,333,193

SHOE MOLDING PROCESS

Hans Bartneck, Cincinnati, Ohio, assignor to The United States Shoe Corporation, Cincinnati, Ohio

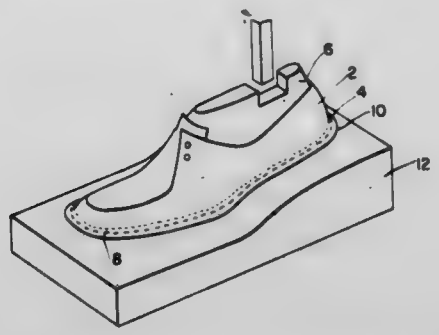
Filed May 1, 1980, Ser. No. 145,560

Int. Cl.³ A43D *9/00;* A43C *13/08;* A43B *9/10*

U.S. Cl. 12—142 RS **7 Claims**

1. A method of forming an integrally molded upper and shoe sole, comprising in sequence:

(a) stitching a full sole socklining to a shoe upper at a given distance from the lower peripheral edge of the upper, said distance defining a mold engaging lip of said upper;
(b) mounting said upper with stitched socklining on a shoe last to conform said full sole socklining and upper to said last;
(c) supporting the lasted upper and socklining in an upper mold;



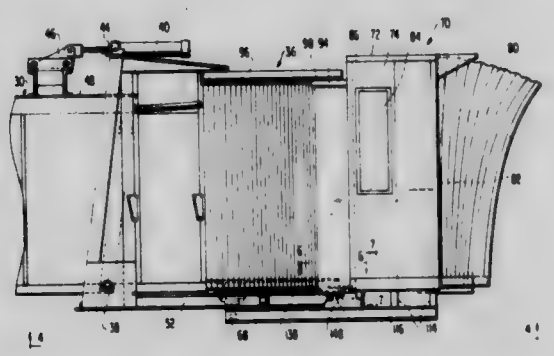
(d) filling a lower mold with an expanding, foaming resin for forming a sole; and
(e) mounting said upper mold over said lower mold with said mold engaging lip of said upper secured resiliently between the edges of said upper and lower molds for a time sufficient to cure said resin to the underside of said lasted full sole socklining and upper and contour said upper, said socklining and said sole to said last.

4,333,194

AIRCRAFT LOADER WITH REVOLVING CAB

Otto Drozd, Hialeah, Fla., assignor to Wollard Aircraft Equipment, Inc., Miami, Fla.

Filed Nov. 12, 1980, Ser. No. 206,283
Int. Cl.³ E01D *1/00*
U.S. Cl. 14—71.5 10 Claims



1. In a conveyance vehicle loading ramp of the type providing an elongated enclosed passageway extending from a terminal building to an outer end portion adapted to be moved both horizontally and vertically to position the outer end in communication with a door in a conveyance vehicle spaced from the terminal building, the ramp including an elongated generally rectangular tunnel section, an articulated generally cylindrical head having a diameter greater than the transverse dimension of the tunnel mounted on the outer end of the rectangular tunnel section, and a vestibule mounted on the enlarged head for generally horizontal swinging movement therearound, the rectangular tunnel section, the articulated head and the vestibule having passages therethrough in communication with one another and cooperating to provide the enclosed passageway, the improvement comprising

a floor in the articulated head having a generally arcuate outer peripheral edge portion and a generally horizontal structural frame extending beneath and supporting the floor,

an arcuate track supported by the structural frame and extending adjacent to the peripheral edge portion of the floor of the articulated head, the arcuate track having an upwardly directed load bearing surface and having a common radial center with the generally arcuate peripheral edge portion of the floor of the articulated head,

a generally horizontal platform mounted on the generally horizontal structural frame for movement about the articulated head,

such platform including elongated, rigid arm means and a vestibule support portion projecting outwardly from the articulated head,

such rigid arm means extending beneath and substantially parallel to the structural frame of the articulated head,

pivot means pivotally connecting such elongated arms to the structural frame of the articulated head for limited movement about a generally vertical pivot axis containing the common radial centers of the arcuate portion of the floor of the enlarged head and of the arcuate track,

roller means mounted on the generally horizontal platform and projecting upwardly therefrom, the roller means engaging the upwardly directed load bearing surface of the arcuate track and cooperating with the pivot means to provide vertical support for such platform, the roller means including at least two rollers positioned one on each side of the passageway extending through the vestibule, and

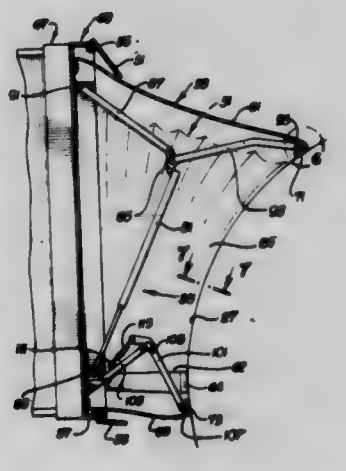
means mounting the vestibule on the vestibule support for limited horizontal swinging movement therwith around the generally vertical pivot axis containing the common radial centers of the arcuate edge portion of the floor of the articulated head and of the arcuate track whereby the vestibule is substantially entirely bottom supported.

4,333,195

FIRE PROTECTIVE WALKWAY APPARATUS

Robert D. Lichti, 3318 Warwood Rd., Lakewood, Calif. 90712

Filed Nov. 24, 1980, Ser. No. 209,709
Int. Cl.³ E01D *1/00*
U.S. Cl. 14—71.5 12 Claims



12. A fire protective air terminal walkway apparatus for mating with the side of an aircraft around the entry door thereof and comprising:

a terminal walkway projecting from a terminal for mating on its free extremity with said aircraft around said entry door;

a shroud housing mounted on the said free extremity of said walkway;

a fire protective tubular shroud for surrounding the top, bottom and sides of said free extremity and collapsible into said housing, said shroud being extendable to cover said top, bottom and sides of said free extremity and conformable on its free end with such side of said aircraft around said entry door to seal therewith;

operator means carried by said shroud housing operable to selectively extend said tubular tunnel to cover said free extremity of said walkway and to carry said free end thereof into sealing engagement with said side of said aircraft;

and,

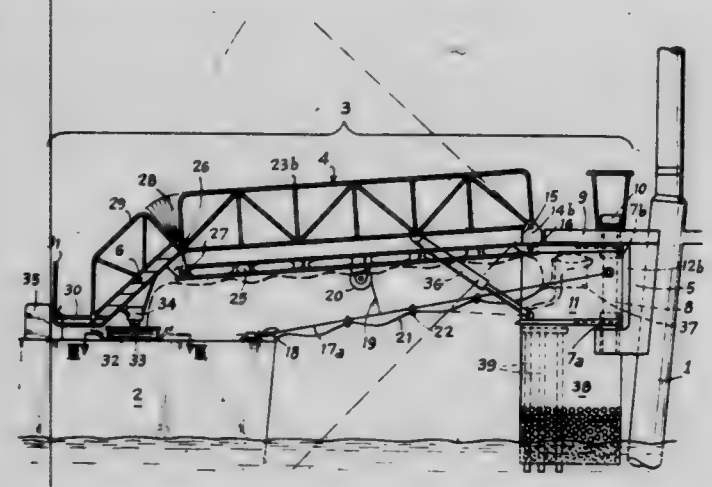
actuator means retaining said shroud in said housing and selectively operative upon detection of fire to actuate said operator for extension of said shroud to cover said free extremity of said walkway.

4,333,196

DEVICE AND METHOD OF TRANS-SHIPMENT BETWEEN A SHIP AND A FIXED STRUCTURE SITUATED AT SEA

Alain P. Bougaran, Marseilles, France, assignor to Compagnie Chambon, Marseilles, France

Filed Dec. 10, 1980, Ser. No. 214,630
Claims priority, application France, Dec. 12, 1979, 79 30808
Int. Cl.[3] E01D *1/00*
U.S. Cl. 14—71.7 12 Claims



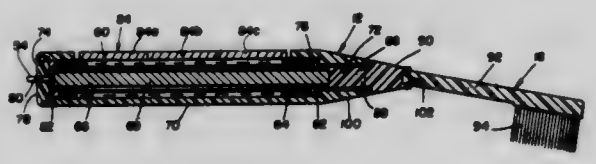
1. Device for trans-shipment of crews or light equipment between a ship and a fixed structure at sea, comprising a directional gangway, one end of which is mounted for pivoting on the fixed structure about a vertical axle, means for pivoting the said gangway about the said axle, and an air cushion designed to rest on a free area on the ship's deck for supporting the second end of the gangway by simple sliding support.

4,333,197

ULTRASONIC TOOTHBRUSH

Arthur Kuris, 3725 Henry Hudson Pkwy., New York, N.Y. 10463

Filed Jun. 2, 1980, Ser. No. 155,478
Int. Cl.[3] A46B *13/02*
U.S. Cl. 15—22 R 14 Claims



1. An apparatus for use in personal dental hygienic care comprising:

(a) an elongated hollow housing member having disposed therein;

(i) an elongated coil means extending within said housing member, and

(ii) magnetic biasing means disposed along the length of said coil means for providing lines of flux within said coil means;

(b) a brush member adapted to be received within the human mouth and moved across tooth and gingival surfaces including,

(i) an elongated portion of magnetostrictive core material extending from one end of said brush member and removably receivable into the central portion of said coil means and cooperating therewith,

(ii) brush means having a plurality of bristles affixed therein disposed on the opposite end of said brush member

(iii) impedance transfer means operatively connected between said brush means and said core portion for transferring ultrasonic energy therebetween; and

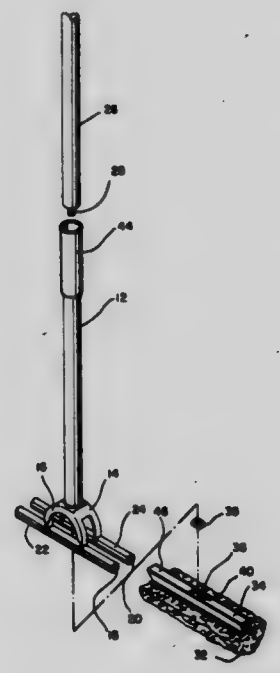
(c) ultrasonic energy driving means coupled to said coil means and adapted to be connected to a source of electrical energy for providing ultrasonic energy to said coil means for displacing said brush member at an ultrasonic rate.

4,333,198

SPONGE MOP

Joseph Vosbikian, 617 Ashmead St., Cheltenham, Pa. 19012

Filed Dec. 15, 1980, Ser. No. 216,156
Int. Cl.[3] A47L *13/144*
U.S. Cl. 15—119 A 6 Claims



1. In a sponge mop, the combination of

a hollow body of elongate tubular configuration;

an operating handle adapted for axial reciprocation within the body between a working position and a water wringing position,

the handle endwardly carrying a sponge assembly connector means, the sponge assembly connector means comprising a cylindrical, axially aligned fastener means downwardly projecting from the handle;

a sponge squeezing assembly affixed at one end of the hollow body,

the sponge squeezing assembly comprising at least a pair of spaced rollers to wring water from the sponge; and

a sponge assembly releasably connected to the sponge assembly connector means and comprising a sponge, a sponge carrier and engagement means to engage the sponge assembly fastener means,

the engagement means comprising a threaded nut secured to the sponge carrier, the nut releasably engaging the fastener means,

at least a major portion of the sponge being pulled between the rollers to drive water from the sponge when the operating handle is reciprocated to its said water wringing position.

4,333,199

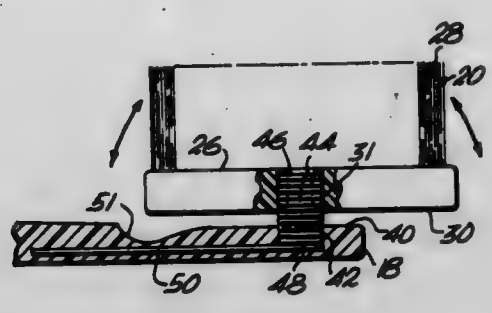
TOOTHBRUSH

Manuel Del Rosario, 6459 SW. 38 St., Miami, Fla. 33155

Continuation of Ser. No. 123,660, Feb. 22, 1980, abandoned, which is a continuation-in-part of Ser. No. 13,384, Feb. 21, 1979, abandoned. This application Apr. 30, 1981, Ser. No. 259,258

Int. Cl.[3] A46B 7/06

U.S. Cl. 15—167 R 6 Claims



1. A toothbrush having an elongate handle with a proximal end zone and a distal end zone and including a brush mounted adjacent the distal end zone, said brush including a base of predetermined length and a first main surface and an array of bristles secured in upstanding relation to those and extending in a common direction for the first main surface, the brush base having a second main surface oppositely facing in relation to the first main surface and having a central recess extending toward the surface from which the brushes extend, said distal end zone of said handle having a first face with a recess in said first face confronting the second main surface of the brush base, a coil spring having an upper end and a lower end, said upper end being nested in the recess of said brush base and fixed therein to connect the brush to the handle and the lower end of said spring being nested in the recess of said distal end zone and being secured thereto; and said coil spring including a tangentially extending elongate portion said portion being embedded in the distal end zone and extending toward said proximal end, said upper surface of said distal end zone having a recess in the first face spaced in a direction toward the proximal end zone and from the recess in said distal end zone a distance of about one-half of said predetermined length of said base, whereby, said base with said brushes is adapted for rotation about the axis of said spring and for tilting and rocking motion, with said base being adapted to move in and out of said recess in the first face of the distal end zone of the handle in said rocking motion.

4,333,200

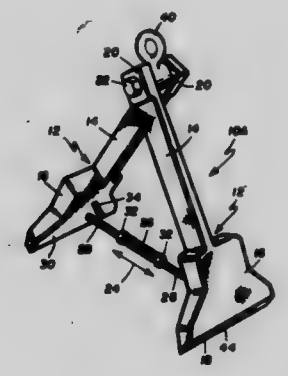
CHIMNEY CLEANER

Russel E. Thurow, 115 Tami La., Mankato, Minn. 56001

Filed Sep. 25, 1980, Ser. No. 190,726

Int. Cl.[3] F23J 3/00

U.S. Cl. 15—243 9 Claims



1. A chimney cleaner device for use in cleaning inside surfaces of a chimney in both an upward and downward direction, the device comprising:

a pair of diverging cleaning arms, each cleaning arm having an integral upper shank portion and lower blade portion, the blade portion having an outermost scraping edge and a beveled surface slanting inwardly from the scraping edge to a lower end of the blade portion and the blade portion having most of the cleaning arm weight;

pivotal connecting means for pivotally connecting the cleaning arms at an upper end of the shank portion; and

biasing means for providing a lateral outward force to bias the blade portions of the cleaning arms outwardly about the pivotal connecting means in a diverging manner sufficient to bring the scraping edge into engagement with the inside surfaces of the chimney as the device is raised and lowered in the chimney with the weight of the combined cleaning arms overcoming the lateral force of the biasing means sufficiently to permit gravitational downward movement of the cleaner device.

4,333,201

DEVICE FOR PREVENTING THE DISCHARGE OF DUST AND FIBER PARTICLES FROM THE WORK ZONES OF A TEXTILE MACHINE

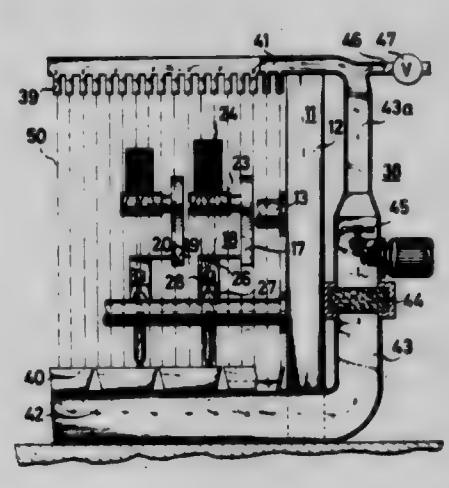
Joachim Rohner, Mönchen-Gladbach, Fed. Rep. of Germany, assignor to W. Schlafhorst & Co., Mönchen-Gladbach, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,312

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903139

Int. Cl.[3] A47L 5/38

U.S. Cl. 15—301 11 Claims



1. Device for carrying out a method of preventing the discharge of dust and fiber particles from textile machine work zones having running threads disposed therein, comprising a machine frame, air supply and exhaust ducting connected to said machine frame, air discharge and air suction nozzles disposed on said ducting generating a closed air screen system separating the work zones from the ambient air in the vicinity of the machine, and additional means being connected to said ducting and being disposed within said air screen system for venting air from the work zones.

4,333,202

FLOOR SCRUBBER WITH COMBINED SOLUTION AND RECOVERY TANK

Thomas S. Block, Muskegon, Mich., assignor to McGraw-Edison Company, Rolling Meadows, Ill.

Filed Dec. 28, 1979, Ser. No. 108,295

Int. Cl.[3] A47L 11/20

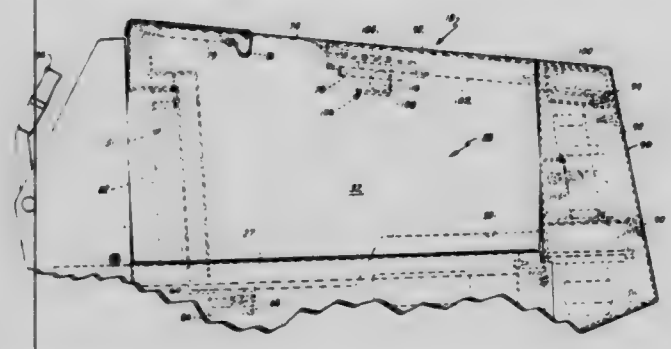
U.S. Cl. 15—320 16 Claims

1. In a unitary floor scrubbing apparatus of the type including a scrubber means for scrubbing a floor surface, vacuum means for recovering the dirty solution from the floor surface and an improved removable cleaning solution and recovery storage means for containing the cleaning solution and the recovered cleaning solution, wherein said improved cleaning solution and recovery storage means comprises:

a rigid member having spaced inner and outer walls, said

inner wall including an inner bottom and four inner side walls, said outer wall including an outer bottom and four outer side walls, said inner and outer wall defining a pair of tanks, one of said tanks being a cleaning solution storage tank and the other of said tanks being a recovery tank, said recovery tank having at least one orifice for receiving the dirty solution and said cleaning solution storage tank having orifices for receiving and discharging cleaning solution to be applied to the floor surface;

a top affixed to said recovery tank permanently and substan-



tially closing said recovery tank and containing an aperture opening into said recovery tank;

connecting means between said vacuum means and the aperture in said top of said recovery tank for applying a vacuum to said recovery tank, said connecting means having a substantially rigid movable portion terminating in an inlet of said connecting means to said vacuum means, which inlet is in sealing disconnectable connection to the aperture in said top;

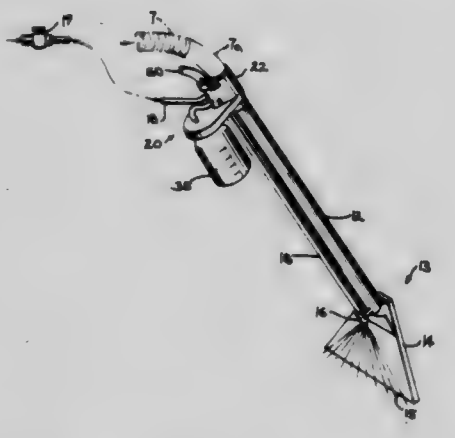
drain means connected to said member for permitting selective draining of the contents of said tanks.

4,333,203

CONVERSION ATTACHMENT FOR A WET-DRY VACUUM CLEANER

Robert A. Yonkers, Grandville, Mich., assignor to Bissell, Inc., Grand Rapids, Mich.

Filed Apr. 23, 1980, Ser. No. 139,106
Int. Cl.³ A47L *7/00, 11/34*
U.S. Cl. 15—321 **18 Claims**



1. For use with a source of water under pressure and a wet-dry vacuum cleaner having a recovery tank with an inlet and an outlet and means for selectively vacuumizing said tank, said cleaner further having a vacuum conduit connected to said inlet and a wand connected to said conduit, said wand having a cleaning head at its lower end with said head including a vacuum nozzle connected through said wand and conduit to said inlet; a conversion attachment for said vacuum cleaner and comprising:

(a) a substitute wand connectable to said vacuum conduit to form a suction line therewith and with said wand having a substitute cleaning head with a vacuum nozzle,

(b) liquid discharge means mounted on said substitute cleaning head,

(c) a water line connected to said liquid discharge means and adapted for connection with said source of water,

(d) an assembly inserted in said water line, said assembly including a detergent container and also including liquid flow control means for dispensing detergent into said water line when water is flowing therethrough from the water source,

(e) means for mounting said assembly to said suction line,

(f) means disposed on said liquid flow control means for connecting the latter into said water line to thereby divide the latter into inlet and outlet line portions,

(g) a detergent line connected between the interior of said detergent container and said liquid flow control means,

(h) said liquid flow control means being constructed to selectively dispense pressurized water and detergent through said outlet line portion to said liquid discharge means on said substitute cleaning head, said liquid flow control means comprising:

(1) a member forming a valve body having:

(A) a water inlet port connectable to said inlet line portion,

(B) a detergent inlet port connected to said detergent line,

(C) and a liquid outlet port connectable to said outlet line portion,

(2) said ports being positioned so that said detergent inlet port is disposed between said water inlet port and said liquid outlet port,

(3) a tubular valve member shorter than and slideably disposed in said valve body, said valve member having an inlet opening in its wall which is selectively registrable with said water inlet port, and having an inner head end having a discharge passageway disposed therein which faces said liquid outlet port,

(4) said valve member being movable longitudinally in said valve body between:

(A) a retracted position wherein said inlet opening registers with said water inlet port and said head end terminates longitudinally outwardly of said liquid outlet port to form a metering chamber communicating with said detergent inlet port, said discharge passageway and said liquid outlet port,

(B) and an extended position wherein the valve member wall blocks said water and detergent inlet ports and said metering chamber is replaced by the said head end of the valve member,

(5) and means to move said valve member between said retracted and extended positions to thereby control the flow of liquid from said outlet port to said liquid discharge means of said substitute cleaning head,

(i) the construction being such that, upon actuation of said liquid flow control means of said assembly and said tank vacuumizing means of said cleaner, a mixture of water and detergent liquid is discharged through said liquid discharge means onto the surface to be cleaned and subsequently removed to the said recovery tank of said cleaner.

4,333,204

ROTARY FLOORING SURFACE TREATING DEVICE

Clifford L. Monson, 1765 Ala Moana Blvd., #492, Honolulu, HI. 96815

Continuation-in-part of Ser. No. 89,486, Oct. 30, 1979, Pat. No. 4,264,999. This application Jul. 7, 1980, Ser. No. 166,396
Int. Cl.³ A47L *11/34*
U.S. Cl. 15—321 **8 Claims**

1. A rotary flooring surface treating device which is movable on and over the surface to be treated, said device comprising a lower carriage unit and an upper handle unit,

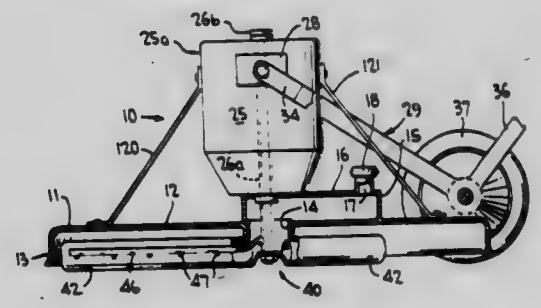
said lower carriage unit including a shroud means, a drive means and a wand means;

said shroud means including a generally disc-shaped cover

part having a skirt extending downwardly from the periphery thereof and an opening therethrough at the center thereof, said shroud means also including means forming a vacuum chamber positioned on the upperside of said cover part so as to enclose said opening, said vacuum chamber including means forming a port for sealing attachment thereto of one end of a flexible hose which is connected at its other end to a vacuum generating means, said shroud means also including an annular vacuum seal means extending downwardly from the underside thereof so as to enclose said opening, said seal means being capable of forming a substantially vacuum-tight seal with an upper part of a hollow cylindrical portion of a wand means positioned therein, yet allow for free rotation of said upper part therein;

said drive means including a motor positioned on top of said vacuum chamber and fixedly connected to said shroud means, said motor including a rotatable hollowed out drive shaft sealingly extending downwardly through said vacuum chamber and through said opening in said cover part, the upper end of said hollowed out drive shaft extending upwardly through the motor housing and terminating in a liquid-tight coupling means, the lower end of said hollowed out drive shaft including multiple openings therein,

said wand means, which is fixedly attached to said drive shaft of said motor, including a hollow cylindrical portion whose upper part is generally sealingly yet rotationally mounted within said annular vacuum seal means and multiple radially-extending arms, said arms each including a radially-extending vacuum duct means with a bottom vacuum slot, each of said vacuum duct means being operatively connected to the lower part of said hollow cylindrical portion, and a discharge pipe with spray nozzles attached to the side of each vacuum duct means;



multiple hose means sealingly connected to separately extend between one opening in the lower end of said hollowed out drive shaft and a separate discharge pipe, each of said hose means acting to deliver a portion of the treating solution which has passed downwardly through the hollowed out drive shaft from the liquid-tight coupling means to a separate discharge pipe;

said lower carriage unit also including wheel means for movably mounting said shroud means and said wand means above the flooring surface to be treated and a bracket means for connecting said lower carriage unit to said upper handle unit;

said upper handle unit including an extension means and a handle means,

said extension means including at least one elongated extension member, one end of which is adjustably connected to said bracket means,

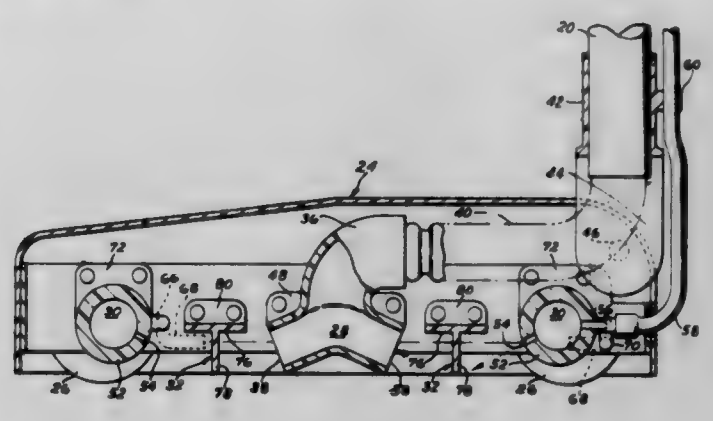
said handle means comprising an operator gripper means connected to said extension means adjacent the second end thereof.

4,333,205

VACUUM CLEANER WITH SOIL AGITATOR AND COMPRESSED AIR MEANS

James C. Woodward, Elizabethtown, and Marion D. Holland, Cox's Creek, both of Ky., assignors to Robert E. Robbins, Elizabethtown, Ky.

Filed Nov. 14, 1979, Ser. No. 94,354
Int. Cl.[3] A47L 5/14
U.S. Cl. 15—345 6 Claims



3. Vacuum cleaning apparatus including a first source of vacuum air pressure and a second source of compressed air, said apparatus comprising:

a. a vacuum hood enclosure supported on and movable along a surface to be cleaned and having an open side confronting the said surface to be cleaned to form therewith a traveling vacuum chamber;

b. a suction nozzle inlet opening located within the vacuum hood enclosure and having an outlet opening that is connected to the vacuum air pressure source;

c. a jet stream manifold also located within the vacuum hood enclosure and having an inlet opening that is connected to the compressed air source;

d. a power-driven brush also located within the hood enclosure and within the said open side thereof and being interposed generally between the jet stream manifold and the suction nozzle inlet opening;

e. the said jet stream manifold being in the form of a shroud which overlies the brush, at least one lower edge of the shroud being provided with carpet rake formations, the walls of the shroud having hollow passages for the movement of compressed air therethrough, the lower tips of the rake formation being provided with orifices that are directed toward the working area of the brush, whereby the jet stream manifold is a combined carpet rake and source and carrier of a plurality of jet streams.

4,333,206

NESTED HINGE MEMBERS WITH SPRING ARM CATCH

Richard D. Lang, Chittenango, and Theodore S. Bolton, Liverpool both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

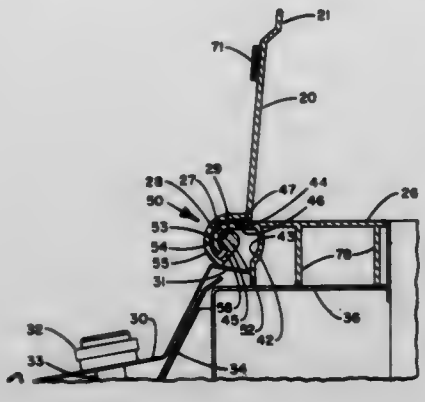
Filed May 19, 1980, Ser. No. 151,038
Int. Cl.[3] E05D 1/04
U.S. Cl. 16—335 4 Claims

1. A rotatable door mechanism for securing a door of an air conditioning unit which comprises:

a support assembly having a curvilinear rotating support defining both an inner guide surface and an outer guide surface and a slide support spaced from the rotating support, said slide support including a curvilinear slide surface;

a pivot assembly for mating with the support assembly including a rotating portion having an inner guide surface for engaging the outer guide surface of the rotating support and an outer guide surface for engaging the slide surface of the slide support and a pivot cylinder for engaging the inner guide surface of the rotating support;

a door mounted to the pivot assembly whereby the door may be rotated between positions with the various surfaces of the pivot assembly and support assembly engaging each other to provide for rotational movement therebetween; and



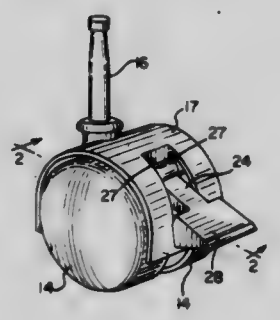
a plate mounted to engage the outer surface of the rotating portion, said plate acting to secure the door in a predetermined position by applying a force to the rotating portion of the pivot assembly.

4,333,207

TWIN WHEEL CASTER BRAKE

John T. Atwood, South Bend, Ind., assignor to Shepherd Products U.S. Inc., St. Joseph, Mich.

Filed Dec. 22, 1980, Ser. No. 219,363
Int. Cl.³ B06B *33/00*
U.S. Cl. 16—35 R 6 Claims



1. A twin wheel caster brake arrangement including a caster having a pair of wheels mounted on a common axle at opposite sides of a central body, said body having a central hub and a wheel cover overlying said wheels, a brake lever between the wheels pivotally mounted under the wheel cover and an outer end of the lever extending through the wheel cover, and a brake pin at the inner end of the lever extending into locking engagement with the respective wheels when said outer end is fulcrumed about said pivotal mounting.

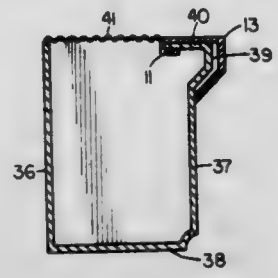
4,333,208

GUTTER GUARD CLIP AND METHOD OF MANUFACTURE

Ernest H. Fuller, 3225 E. Riverside Dr., Ft. Myers, Fla. 33901

Filed Jul. 9, 1979, Ser. No. 55,595
Int. Cl.³ A44B *21/00*; B23P *11/00*
U.S. Cl. 24—1 7 Claims

1. A clip useful for securing a guard to a gutter comprising at least one tab of from about ⅛ to about ¼ inch in width and from about ½ to about 1 inch in length adjacent one end, said tab being of sufficient length to be capable of being positioned below an opening of a gutter screen and bent under the lip of the gutter flange means adjacent said tab for supporting a portion of the clip on the surface of said guard, and a body member capable of being bent around the outside of said flange, the said clip being constructed of a malleable material which can be bent readily beyond its elastic limit without fracturing, said material having a thickness of from about 0.025



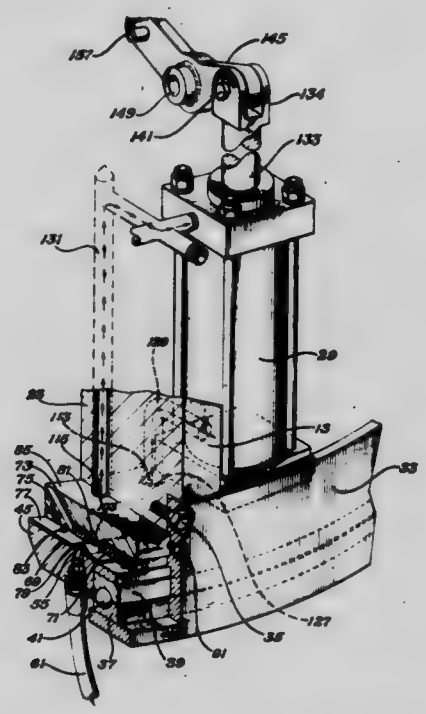
to about 0.25 inch and said clip having an overall length of from about 2 to about 4 inches.

4,333,209

ROTARY POWER SLIPS

Neil W. Herst, Houston, Tex., assignor to BJ-Hughes Inc., Houston, Tex.

Filed Jul. 3, 1980, Ser. No. 165,585
Int. Cl.³ E21C *1/00*
U.S. Cl. 24—263 DA 4 Claims



1. Improved rotary power slips having a housing for mounting concentrically with the pipe opening in a rotary table of an earth drilling rig, comprising:

an annular stationary seal ring supported by the housing with a transverse upper surface and an annular opening generally coaxial with the pipe opening in the rotary table, said stationary seal ring having a primary fluid conduit for connection to a stationary fluid source on the drilling rig;

an annular air transfer plate secured to the housing with a transverse lower surface adjacent the stationary seal ring;

expansive means mounted on the upper surface of said stationary seal ring and cooperative with the lower transverse surface of said air transfer plate for forming at least one annular expansive fluid duct therewith when pressure is applied to said primary fluid conduit in said stationary seal ring;

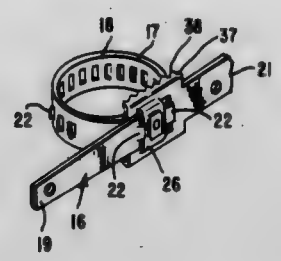
said housing having a secondary fluid conduit in fluid communication with said annular fluid duct;

fluid actuated operator means connected to said slips and carried by said housing in fluid connection with said secondary fluid conduit to selectively grip and release pipe in the rotary table in response to fluid flow through the primary conduit, the annular expansive fluid duct, the air transfer plate, and the secondary fluid conduit.

4,333,210
SEALING DEVICE

Ralph G. Burnett, Kenosha, Wis., assignor to American Casting and Manufacturing Corporation, Plain View, N.Y.

Filed May 15, 1980, Ser. No. 150,242
The portion of the term of this patent subsequent to Sep. 23, 1997, has been disclaimed.
Int. Cl.[3] B65D *27/30, 77/10*
U.S. Cl. 24—30.5 R 3 Claims



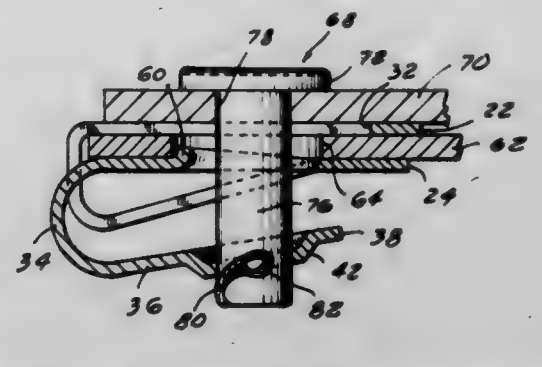
1. A sealing device for a receptacle having at least one open end, which receptacle consists at least in part of deformable material adjacent the open end thereof, so that the material may be gathered together to form a neck, said sealing device comprising a relatively thin band of flexible material which is of sufficient strength that it is manually severable only by cutting through the same, said band comprising an elongated flat body portion and a pair of end portions at the extremities thereof, means for tightly securing the body portion of said band circumferentially about the neck of said receptacle adjacent to said end, with said end portions extending outwardly from the circumferential body portion, means on said band for preventing the seal from being opened to gain access to said receptacle without severing or damaging the band, a plurality of projections formed on one side of the body portion of the band at substantially right angles to the length thereof and bent in one direction toward one end of the band, and locking means adjacent said one end of the band for engaging one or more of said projections, said locking means and said projections permitting relative movement of said band in one direction relative to said locking means and substantially preventing relative movement thereof in the other direction, said locking means comprising a first substantially rectangular panel formed in the band and extending outwardly from one side of the band, a transverse slit for receiving one free end of the band when the device is assembled, a second substantially rectangular panel formed in the band and extending outwardly from the band in the opposite direction to the first panel, a window formed centrally of the first panel provided with a pair of transversely extending edges, a reversely bent tooth formed on one of the said window edges, a pair of transversely extending slits formed at the edges of said panel, certain of said individual teeth on the band engaging with one transverse edge of said panel, one of said teeth engaging with the reversely bent tooth on said one transverse edge of said window and one transverse edge of said depression when the device is assembled.

4,333,211
SLIP-ON RECEPTACLE

Conrad J. Gunther, Uniondale, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.

Filed Mar. 13, 1980, Ser. No. 130,020
Int. Cl.[3] F16B *37/04*
U.S. Cl. 24—221 R 9 Claims

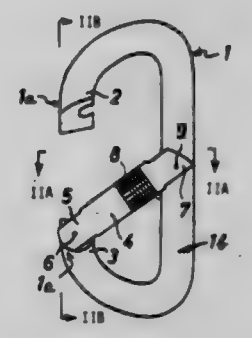
1. A slip-on receptacle adapted to be inserted on one of two members to be fastened in alignment with a hole therein and to receive and engage with a stud coupled with the other of the two members so as to fasten the two members together comprising; a resilient strip folded upon itself with one section of the strip engaging the undersurface of the one member and another upper section of the strip engaging the upper surface of the one member, a central portion of the strip severed along both side edges and across one end thereof which is folded upwardly and back upon itself above the upper section to form a cantilever spring, stud engaging means on the cantilever spring in alignment with the hole in the one member to receive the stud coupled with the other member and passed through the hole and to interengage with the stud and hold the members together, the two sections being in close fitting position on the one member in order to reinforce the fastening action and discourage separation of the members when the stud and receptacle are coupled, the upper section of the strip having a pair of parallel edge portions formed between an edge of the strip and an adjacent edge of the central portion, and each edge portion of the upper section being bent upward away from the one member and spaced a lesser distance from the one member than the cantilever spring.



4,333,212
SNAP-HOOK, PARTICULARLY FOR MOUNTAINEERING

Jean-Claude Bibollet, F-Glapigny-74230-Thones, France

Filed Nov. 16, 1979, Ser. No. 94,858
Claims priority, application France, Nov. 17, 1978, 78 33354
Int. Cl.[3] A44B *13/02*
U.S. Cl. 24—233 1 Claim

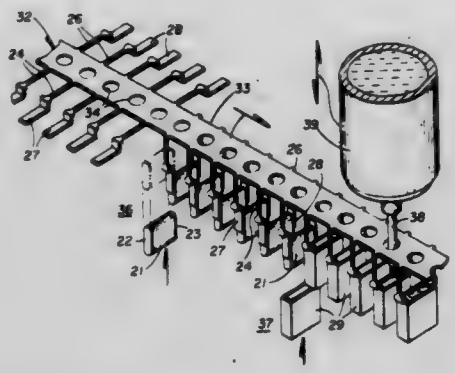


1. A snap-hook for use with ropes or the like comprising an open ring made from a cylindrical rod and a tilting finger, said open ring comprising a main longitudinal back arm and two curved end portions, said tilting finger being pivotably attached at one end of said open ring so as to pivot thereon and join the other end of the ring so as to shut the snap-hook, the axis around which the finger pivots being inclined with respect to the line perpendicular to the plane of the ring by only a few degrees, so that when the snap-hook opens, the free end of the finger tilts out of this plane and passes along side of and very close to the main longitudinal back arm of the ring, almost touching it when in fully opened position, thereby increasing the opening of the snap-hook and facilitating insertion therein of ropes or the like, and spring means for returning the finger to the plane of the ring and shutting the snap-hook.

4,333,213
APPARATUS FOR BONDING LEADS TO CAPACITOR BLANKS

John R. Meal, Naperville, and Donald K. Sandmore, Oak Lawn, both of Ill., assignors to Western Electric Company, Inc., New York, N.Y.

Division of Ser. No. 72,394, Sep. 4, 1979, Pat. No. 4,268,942.
This application Jan. 16, 1981, Ser. No. 225,579
Int. Cl.³ H01G *4/32*
U.S. Cl. 29—25.42 7 Claims



1. An apparatus for assembling leads to a capacitor blank wherein the capacitor blank is constructed of a rolled metallized film having a pair of end electrodes constructed of heat fusible material, which comprises:

an anvil;

means for cyclically advancing a lead frame having a central strip and oppositely extending leads over said anvil;

means rendered effective upon each advance of the lead frame for advancing a capacitor blank into proximity to the underside of the anvil;

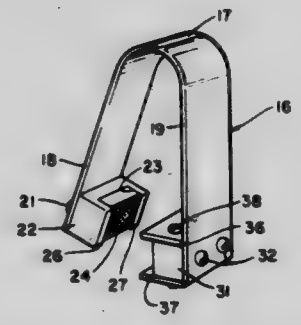
means rendered effective upon each advance of a capacitor blank into proximity of the anvil for bending a pair of leads about said anvil and into engagement with the pair of end electrodes; and

heat means rendered effective following bending of said pair of leads for fusing the leads to the end electrodes.

4,333,214
WIRE WELDMENT DEFLASHING TOOL

Harry C. Neumann, Alsip, and Frank G. Skiba, Villa Park, both of Ill., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,599
Int. Cl.³ B23D *71/04*
U.S. Cl. 29—80 2 Claims



1. A tool for removing a bulbous portion from a wire, which comprises:

a generally U-shaped resilient band having a pair of opposed end sections with facing inside surfaces;

a first block secured to the inside facing surface of a first end section of said resilient band, a second block secured to the inside facing surface of the second end section of said resilient band and positioned to engage said first block when said band is compressively flexed;

said first and second blocks each provided with a recess of predetermined depth;

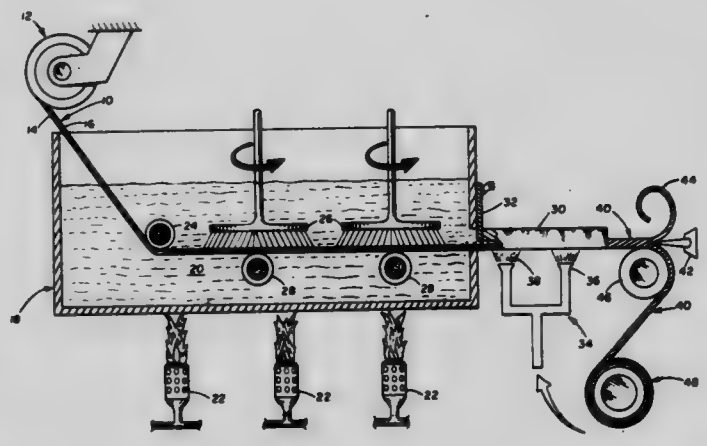
a first abrading member mounted in a first of said recesses and a second abrading member mounted in the other of said recesses, said abrading members each having a thickness which is slightly less than said predetermined depth of said recess in which the abrading member is mounted; and

a pair of guide plates secured to one of said blocks for guiding the blocks into juxtaposition upon flexing of said band to move the blocks toward each other.

4,333,215
BEARING MATERIAL AND METHOD OF MAKING

Lee A. Swanger, Euclid, Ohio, assignor to Gould Inc., Rolling Meadows, Ill.

Filed Jun. 18, 1979, Ser. No. 49,102
Int. Cl.³ B21D *53/10*
U.S. Cl. 29—149.5 S 11 Claims



1. A method for producing a multilayer metallic bearing material which has an interlayer of aluminum or aluminum-base alloy comprising:

providing a composite strip of a backing material bonded to said aluminum or aluminum-base alloy;

passing the composite strip below the surface of a bath of a molten bearing overlay material;

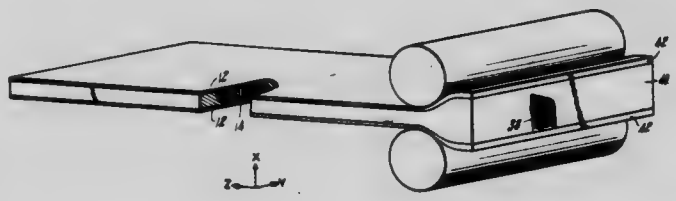
removing surface oxide from the surface of the aluminum or aluminum-base alloy layer while under the surface of the bath thereby allowing uniform adherence of the molten overlay material to the aluminum or aluminum-base alloy interlayer; and

withdrawing the composite strip from the bath and simultaneously controlling uniform thickness of the overlay material on the interlayer over the width of the strip thereby providing the bearing material with bonded overlay layer of the ultimate bearing surface material upon solidification without the need of further casting step.

4,333,216
METHOD FOR MANUFACTURING A SANDWICH PANEL STRUCTURE

Edward R. Slaughter, Palm Beach Shores, Fla., assignor to United Technologies Corporation, Hartford, Conn.

Filed Mar. 23, 1981, Ser. No. 246,757
Int. Cl.³ B23P *17/00*
U.S. Cl. 29—157 R 1 Claim



1. A method for manufacturing a sandwich panel consisting

of a pair of opposing sheets separated by a multiplicity of pins, wherein the method comprises:

assembling alternating strips of material from which the pins are to be fabricated and a leachable matrix material;

encasing the assemblage of alternating strips in a sheath of matrix material;

rolling the encased assemblage in the longitudinal direction of the alternating strips to bond the strips into a composite sheet containing parallel bars of pin material;

stacking a plurality of composite sheets one upon the other with the bars of pin material in parallel alignment;

rolling the stacked composite sheets in the longitudinal direction of the bars of pin material to bond the sheets in a composite billet containing multiple rows of ribbons of pin material;

cutting a material slice from the composite billet in a direction perpendicular to longitudinal direction of the ribbons of pin material to form a slice of said composite billet in which a multiplicity of pin material ribbons extend across the slice;

placing a facing sheet of material from which the sandwich panel is to be constructed on each side of the composite slice in contact with opposite ends of the pin material extending across the slice;

rolling the facing sheets and composite slice to bond the sheets and pin material embedded in the slice one to another and to form pins of the desired end shape and dimension; and

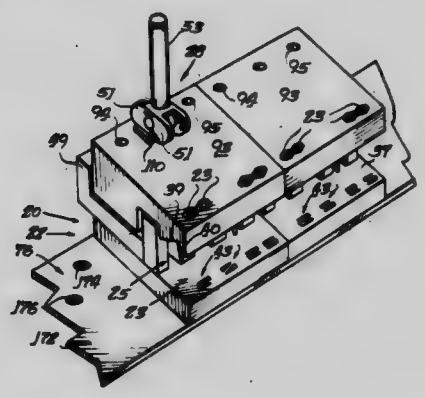
leaching the matrix material from between the pins to form a sandwich panel in which the pair of opposing face sheets are separated by a multiplicity of spaced pins.

4,333,217

APPARATUS FOR STAPLING BELT

Winston C. Pray, Lombard, Ill., assignor to Flexible Steel Lacing Company, Downers Grove, Ill.

Filed Sep. 1, 1978, Ser. No. 938,893
Int. Cl.³ B23P *11/00*
U.S. Cl. 29—243.51 **15 Claims**



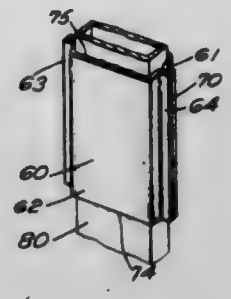
1. In an apparatus having a staple guide block means having staple guiding means therein for guiding the staples into openings in an upper belt fastener plate of a belt fastener being held and located by said guide block means relative to the staple guiding means and having an anvil means for deflecting the ends of the staples driven through a belt disposed between said guide block and said anvil means and through openings in a lower belt fastener plate with the staple legs being received within grooves in said anvil means, the improvement comprising: belt fastener locating means on said guide block means being movable in a lateral direction relative to said anvil means and said staple guiding means between a first position to engage and position a rearward end of first length of belt fastener and a second position to engage and position a rearward end of a second length of belt fastener, and means for securing said belt fastener locating means in said first and second positions.

4,333,218

METHOD OF REPAIRING A BOX BEAM

Alan W. Wentworth, 41 Mayfair Rd., Warwick, R.I. 02888

Filed May 30, 1980, Ser. No. 154,811
Int. Cl.³ B22D *19/10*; B23K *31/00*
U.S. Cl. 29—402.16 **5 Claims**



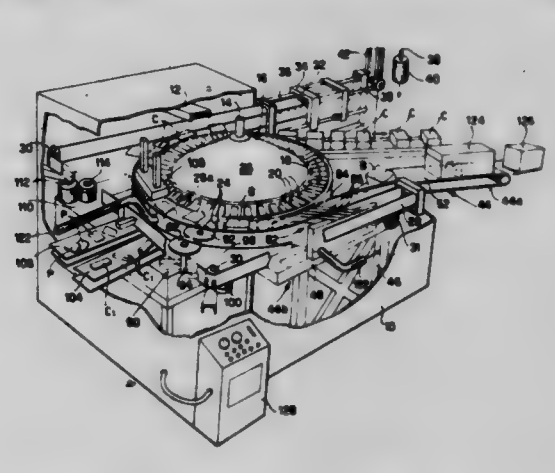
1. The method of repairing a weakened rigid box beam of external angular cross section having a front, back and side walls, comprising the steps of forming a plate to snugly externally fit said front wall and a portion of each adjoining side wall of said beam, forming a second plate to externally snugly fit said back wall and a portion of each adjacent side wall, said front and back side wall edge portions respectively in close adjacency, clamping both plates in position and welding all edges of said plates to each other and to the box beam to secure said plates together in position embracing and strengthening said box beam.

4,333,219

METHOD AND MACHINE FOR RECOVERING MATERIAL FROM CONSUMED ACCUMULATOR BATTERIES

Marco Ginatta, Turin, Italy, assignor to Snamprogetti S.p.A., Milan and Elettrochimica Marco Ginatta S.p.A., Santena, both of, Italy

Filed Oct. 3, 1980, Ser. No. 193,457
Claims priority, application Italy, Oct. 16, 1979, 69007 A/79
Int. Cl.³ B23Q *17/00*; B23P *19/00*
U.S. Cl. 29—408.3 **25 Claims**



1. A method for recovering material from consumed accumulator batteries with a parallelepiped casing, comprising the following stages:

providing a horizontal rotatable table (**16**),

keeping said table (**16**) under continuous rotation,

continuously feeding a row of batteries (B) tangentially to the periphery of the rotatable table (**16**) in such a manner as to bring one of the side walls (C_3) of the casing (C) of each battery (B) into contact with the periphery of the table (**16**), such that a portion of said side wall (C_3) projects below the contour of the table (**16**),

exerting a radial thrust on that side wall (C_2) of the casing (C) of each battery (B) which is opposite the wall (C_3) in contact with the periphery of the table (**16**) such as to keep said battery (B) adhering to said table (**16**) over a path

corresponding to a substantial angle of rotation of the table (16),

separating the lower horizontal wall (C_1) of the respective casing (C) from each battery (B) by a cutting action carried out on that part of each battery (B) which projects below the contour of the rotatable table (16) while said battery (B) is adhering to the table (16), so as to enable said wall (C_1) to be separated from the remaining part of the battery (B) by gravity,

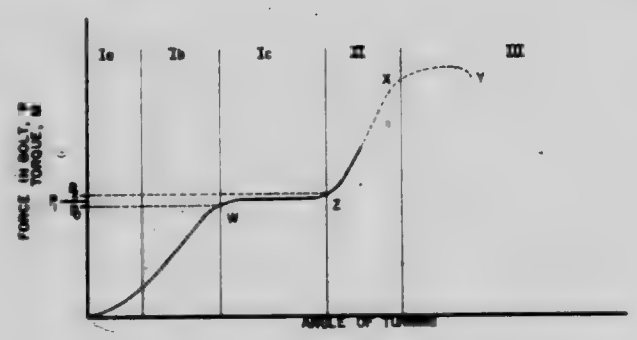
releasing the radial thrust exerted on each battery (B) at the end of said path so as to enable the table (16) to be separated from said remaining part of the battery (B) by gravity.

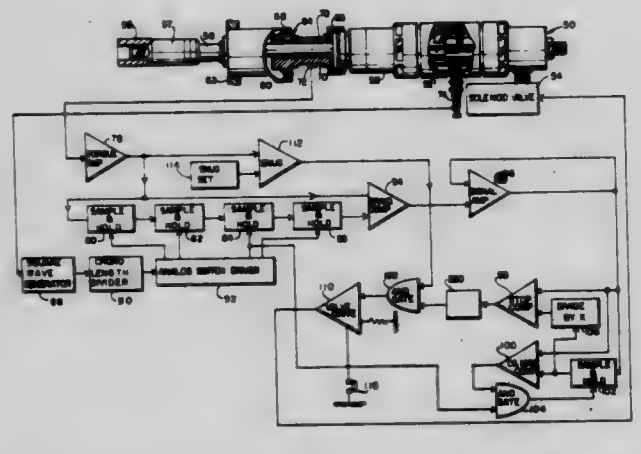
4,333,220

METHOD AND APPARATUS FOR TIGHTENING AN ASSEMBLY INCLUDING A PRE-LOAD INDICATING FASTENER

Arthur J. Aspers, Williamstown, N.J., assignor to SPS Technologies, Inc., Jenkintown, Pa.

Filed Jan. 18, 1980, Ser. No. 113,416
Int. Cl.[3] B23Q *17/00*; B23P *19/04*
U.S. Cl. 29—407 17 Claims





1. A method of tightening a joint assembly including a pre-load indicating fastener having a crushable element, the tightening curve of the assembly exhibiting an elastic and a plastic region each for the crushable element and for the joint, comprising the steps of:

applying torque and rotation to the fastener;

developing a changing signal representative of the torque gradient of the torque imparted to the fastener with respect to the rotation thereof;

determining the largest torque gradient developed up to any point and storing an information signal representative thereof;

comparing said stored information signal and said gradient signal and developing a control signal indicative of the commencement of plastic deformation of the crushable element when said gradient signal has changed to a predetermined percentage of said information signal;

continuing to apply torque and rotation after said control signal indicates commencement of said plastic deformation of the crushable element; continuing to compare said stored information signal and said gradient signal and continuing to develop said control signal until said control signal indicates the commencement of elastic deformation of the joint; and

ceasing to apply torque and rotation when said control signal indicates the commencement of elastic deformation of the joint, whereby the crushable element is fully plastically deformed.

6. Apparatus for tightening a joint assembly including a pre-load indicating fastener having a crushable element, the torque-rotation curve of the assembly exhibiting an elastic and a plastic region each for the crushable element and for the joint, which comprises:

first means for imparting torque and rotation to the fastener;

second means connected to said first means for detecting significant changes in the slope of the torque-rotation curve of the assembly and generating a control signal indicative thereof;

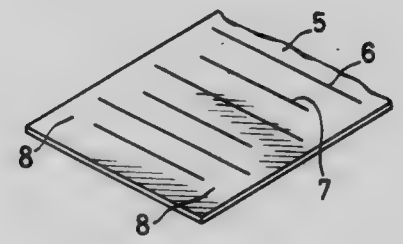
third means responsive to said control signal for ignoring said control signal when said control signal indicates the commencement of plastic deformation of the crushable element and for responding to said control signal when said control signal indicates commencement of elastic deformation of the joint assembly, whereby the crushable element is fully plastically deformed and fourth means responsive to said third means for causing said first means to cease to import said torque and rotation to the fastener.

4,333,221

METHOD FOR PRODUCING A CHANNEL SHAPED TRIM

Keizo Hayashi, Nagoya, Japan, assignor to Toyoda Gosei Co., Ltd., Nagoya, Japan

Filed Apr. 28, 1980, Ser. No. 144,453
Claims priority, application Japan, May 31, 1979, 54/67868
Int. Cl.[3] B32B *31/16*
U.S. Cl. 29—413 5 Claims



1. A method for producing a channel-shaped trim including a core member embedded within a covering material and having a longitudinally extending opening for embracing and clamping an edge flange of a support member comprising the steps of:

preparing a core member from a band-shaped metallic plate by perforating a plurality of transversely extending slits in said plate, so as to be arranged in a longitudinal direction thereof at predetermined intervals, the length of said slits being made larger every at least two slits, thereby to form a series of unslit connecting portions in both side end portions of said plate, of which width is made narrower at predetermined intervals in accordance with the length of said slits; and by rolling said series of unslit connecting portions in a longitudinal direction of said plate so as to make said connecting portions thin and enlarge said transversely extending slits into slots having a predetermined width in a longitudinal direction of said plate;

covering said core member with a covering material to form a covered core member;

applying a bending force to said covered core member in a vertical direction thereof to break said core member in said narrower connecting portions in a transverse direction of said member and to divide said core member into a plurality of core pieces within said covering material; and

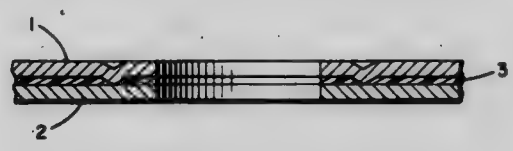
bending said plurality of core pieces divided within said covering material to form a channel-shaped trim having a longitudinally extending opening for embracing and clamping an edge flange of a support member.

4,333,222

METHOD OF ELIMINATING CREEP IN SCREW JOINTS OR RIVETED JOINTS

Lars E. Melin, Lulea, Sweden, assignor to Antiphon AB, Sundbyberg, Sweden

Filed Jan. 21, 1980, Ser. No. 113,676
Claims priority, application Sweden, Jan. 26, 1979, 7900699
Int. Cl.³ B23P *9/00, 19/00*
U.S. Cl. 29—445 **2 Claims**



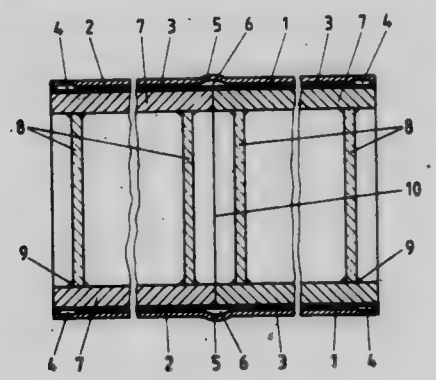
2. A method for reducing relative movement between laminates of a laminated article comprising first and second facing metal sheets and an intermediate plastic or rubber vibration damping material joined together into a unit under compression with at least one screw or rivet, said method comprising joining said metal sheets with said damping material therebetween under compression with at least one screw or rivet; and embossing one face of a first metal sheet inwardly towards the intermediate material under a pressure which forces the protruding portion on an opposite face of the metal sheet through a intermediate layer and into contact with the second first metal sheet adjacent to said screw or rivet to fix the metal sheets against relative movement toward each other.

4,333,223

SHIELDING CYLINDER AND METHOD OF MANUFACTURE

Willy Germann, Wurenlos, Switzerland, assignor to BBC Brown, Boveri & Company, Ltd., Baden, Switzerland

Division of Ser. No. 5,915, Jan. 23, 1979, abandoned. This application Apr. 1, 1980, Ser. No. 136,349
Claims priority, application Switzerland, Jan. 25, 1978, 788/78
Int. Cl.³ B23P *11/02*
U.S. Cl. 29—447 **6 Claims**



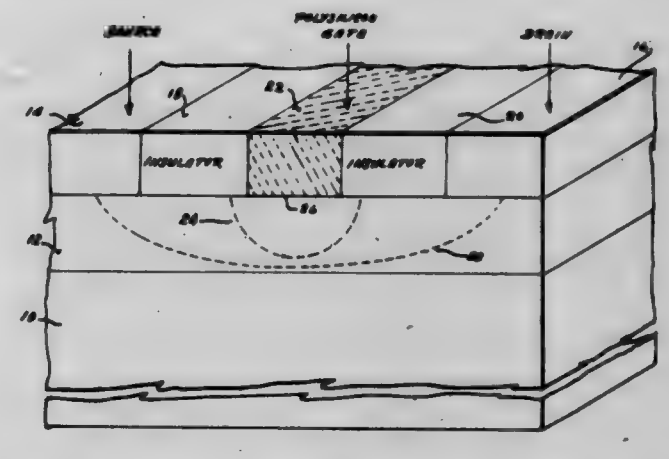
1. A method for manufacturing a shielding cylinder for an electrical machine having a superconductive excitation winding, the method comprising the steps of:
heat-shrinking an inner cylindrical member onto a mandrel;
machining an outer surface of the inner cylindrical member wherein axial ducts are machined into the outer surface of the inner cylindrical member;
machining an inner surface of an outer cylindrical member to provide at least one peripheral duct; and
heat-shrinking the outer cylindrical member onto the inner cylindrical member thereby forming cooling ducts within the shielding cylinder.

4,333,224

METHOD OF FABRICATING POLYSILICON/SILICON JUNCTION FIELD EFFECT TRANSISTORS

Bobby L. Buchanan, 351 Baldwin Rd., Carlisle, Mass. 01741

Continuation of Ser. No. 899,673, Apr. 24, 1978, abandoned. This application May 6, 1980, Ser. No. 147,024
Int. Cl.³ H01L *21/22*
U.S. Cl. 29—571 **2 Claims**



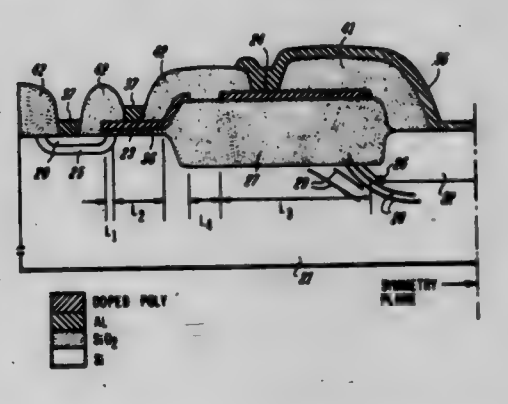
1. The method of fabricating a junction field effect transistor comprising the steps of:
fabricating a silicon epi wafer having a bounding n type silicon substrate and a p type silicon overlay substrate;
thermally growing a layer of silicon dioxide on said overlay substrate;
masking said layer of silicon dioxide to define a gate region;
etching through said layer of silicon dioxide in the gate region to said overlay substrate;
depositing heavily doped polysilicon into said etched gate region;
masking said layer of silicon dioxide to define source and drain contact regions;
etching through said layer of silicon dioxide in said source and drain regions to said overlay substrate; and
evaporating aluminum contacts into said source and drain regions.

4,333,225

METHOD OF MAKING A CIRCULAR HIGH VOLTAGE FIELD EFFECT TRANSISTOR

Keming W. Yeh, Los Angeles, Calif., assignor to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 970,679, Dec. 18, 1978. This application Dec. 11, 1980, Ser. No. 215,288
Int. Cl.³ H01L *21/26*
U.S. Cl. 29—571 **18 Claims**



1. The method of making a circular high voltage field effect transistor with a resistive gate on a lightly doped substrate comprising the steps of:
using a first mask and impurities opposite those contained in

the substrate region to form a central circular drain region on the surface of said substrate,

using a second mask to grow a concentric thick oxide layer on said substrate surface immediately outside said drain region, and then removing said second mask,

growing a thin oxide layer on the surface of said substrate immediately outside said thick oxide layer,

using a third mask to form an effective channel region under said thin oxide at a radial distance from said thick oxide layer by doping said substrate with impurities,

using a fourth mask to deposit two separate resistive layers, the first comprising a short concentric band on that portion of the thick oxide layer closest to said drain, the second forming a continuous concentric layer covering a large part of the thick oxide layer and extending outward, partially covering the thin oxide layer and extending to a point over a portion of said effective channel region,

using a fifth mask to form a deposited layer over a central portion of the second resistive layer which covers said thick oxide layer,

etching off the thin oxide not covered by said resistive layers to expose a portion of said substrate,

adding impurities to the exposed portions of said resistive layers to create a gate having conductive portions separated by a resistive portion and a field plate, and to the exposed portion of the substrate to form a source region,

removing said deposited layer,

using a sixth mask to cover with an insulating layer all except the central portions of said source, said conductive portion of said gate, said field plate, and said drain, and

using a seventh mask to apply metalization to said central portions to enable circuit connections thereto.

4,333,226

METHOD OF FORMING PATTERNED REFRACTORY METAL FILMS BY SELECTIVE OXYGEN IMPLANT AND SUBLIMATION

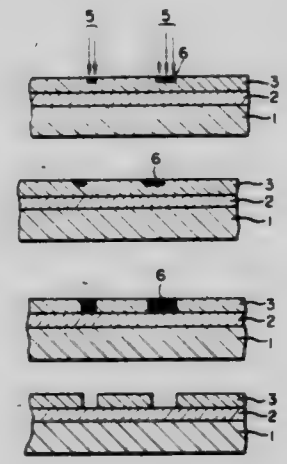
Haruhiko Abe, Takarazuka; Masao Nagatomo, Itami; Natsuro Tsubouchi; Hiroshi Harada, both of Kawanishi, and Junichi Mitsuhashi, Sakai, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Nov. 24, 1980, Ser. No. 209,889

Claims priority, application Japan, Nov. 30, 1979, 54/156504

Int. Cl.³ B05D *3/06, 5/12;* H01L *21/312*

U.S. Cl. 29—576 B **15 Claims**



1. A method for the manufacture of semiconductor devices comprising the steps of;

forming a thin metallic film of a metal which is capable of oxidation into an oxide that can be sublimated at a high temperature, on a major surface of a semiconductor substrate;

irradiating an oxygen ion beam on a major surface of said thin metallic film in a predetermined pattern to implant the oxygen ions therein and to change the metal in the implanted portion to the oxide, said predetermined pattern corresponding to a negative of a desired pattern into which said thin metallic film is to be formed; and

heating said thin metallic film to an elevated temperature effective to remove by sublimation the oxidized portions to form the desired pattern with the remaining thin metallic film.

4,333,227

PROCESS FOR FABRICATING A SELF-ALIGNED MICROMETER BIPOLAR TRANSISTOR DEVICE

Cheng T. Horng, San Jose, Calif.; Michael R. Poponiak, Newburgh; Hans S. Rupprecht, Yorktown Heights, both of N.Y., and Robert O. Schwenker, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 98,588, Nov. 29, 1979, Pat. No. 4,303,933.

This application Jan. 12, 1981, Ser. No. 224,705

Int. Cl.³ H01L *21/302, 21/31*

U.S. Cl. 29—580 **6 Claims**

1. In a method of fabricating a planar vertical bipolar transistor structure on a silicon substrate of a first conductivity type having a planar surface, said structure including, a shallow depth epitaxial layer upon one surface of said substrate, said epitaxial layer having a substantially flat exposed top surface, an emitter region formed in said epitaxial layer, said emitter region having an exposed essentially planar surface, a base region formed in said epitaxial layer beneath said emitter region to provide a base-emitter junction, a collector region formed at least in part in said epitaxial layer beneath said base region to provide a base-collector junction, said structure

having a said base-emitter junction which is essentially flat and has an area in the order of one square micron, said base-collector junction residing directly beneath and uniformly spaced from said base-emitter junction, and said base-collector junction being essentially flat and having an area in the order of one square micron, said method including the following steps:

(S1) introduce impurities of a second conductivity type into said planar surface of said substrate (FIG. 2, 10) to form a subcollector 11;

(S2) deposit an epitaxial layer (FIG. 3, 12) of a second conductivity type on said planar surface of said substrate;

(S3) deposit an oxide layer (FIG. 4, 13) on said planar surface of said substrate;

(S4) deposit a resist layer (FIG. 4, 14) on said oxide layer 13;

(S5) open a window (FIG. 4, 15) in said resist layer 14 and said oxide layer 13;

(S6) utilizing a reactive ion etch technique (FIG. 5) and window 15 etch the epitaxial layer 12 to the subcollector region 11 to provide a shallow trench;

(S7) deposit an oxide layer (FIG. 6, 16) on the exposed surface of said substrate;

(S8) deposit a resist layer (FIG. 6, 17) on said oxide layer 16;

(S9) open windows (FIG. 6, 18A, 18B) in said resist layer 17 and said oxide layer 16;

(S10) remove resist layer (FIG. 7, 17);

(S11) utilizing said oxide layer as a mask, employ a reactive ion etching technique to provide the enclosed deep trench (FIG. 7, 19A, 19B), the etching is stopped when it reaches the substrate 10;

(S12) remove the oxide layer (FIG. 7, 16);

(S13) deposit a thin oxide layer (FIG. 8, 20) on the exposed surface of the substrate;

(S14) deposit a thick oxide layer (FIG. 9, 21) to fill the shallow trench and deep trench (19A, 19B), said thick oxide layer 21 also substantially planarizing said exposed surface of said substrate;

(S15) deposit and utilize a blanket resist layer (FIG. 9, 22) on said thick oxide layer 21 to further planarize said exposed surface of said substrate;

(S16) reactive ion etch the exposed surface of the substrate to the surface of the epitaxial layer (FIG. 10, 12);

(S17) deposit a resist layer (FIG. 11, 23) and form an opening 24 in said layer;

(S18) introduce impurities of the second conductivity type via said window (FIG. 11, 24) into the epitaxial layer 12 to form reach through region 25;

(S19) remove the resist layer (FIG. 11, 23);

(S20) deposit a resist layer (FIG. 12, 26) on the exposed surface of the substrate;

(S21) form windows (FIG. 12, 27, 28) in the resist layer 26;

(S22) introduce impurities of a second conductivity type, via said windows 27, 28, into the exposed surface of said substrate to provide the emitter 29 and the collector contact 30;

(S23) remove the resist layer (FIG. 12, 26);

(S24) deposit a resist layer (FIG. 13, 31);

(S25) form a window (FIG. 13, 32) in the resist layer 31;

(S26) utilizing an etching technique that has a high etching rate of silicon dioxide as compared to silicon remove a portion of the shallow trench 15 and a portion of the deep trench (FIG. 13, 19A);

(S27) remove the resist layer (FIG. 13, 31);

(S28) and thermally oxidize at a relatively low temperature the exposed surface of the substrate, whereby the low temperature oxidation results in forming thick oxide layers (FIG. 14, 33, 34 and 35) over the emitter 29, subcollector 11 and collector reach through contact 30, and the low temperature oxidation results in relatively thin oxide layers 36 and 37 on the lightly doped sidewall base contact and surface of the epitaxial layer 12.

4,333,228

METHOD FOR PRODUCING A SUPER-CONDUCTIVE COIL AND COIL PRODUCED IN ACCORDANCE WITH THIS METHOD

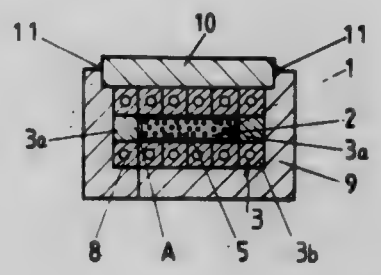
Alfred Koch, Bremgarten, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Oct. 23, 1979, Ser. No. 87,342

Claims priority, application Switzerland, Dec. 22, 1978, 13071/78

Int. Cl.³ H01L *39/24*

U.S. Cl. 29—599 **5 Claims**



1. A method for producing a super-conductive coil to be formed as a coil conductor containing a carrier which essentially consists of a stabilizing material and in which a main duct is provided in which at least one super-conductor cable is to be embedded in a joining material, comprising:

loosely inserting the super-conductor cable into the main duct;

shaping the carrier into the shape of a coil; and

completely filling the main duct having the super-conductor cable with the joining material.

4,333,229

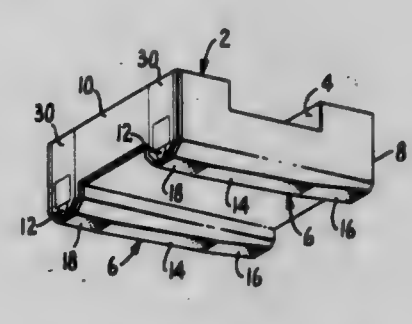
METHOD OF MANUFACTURING THIN FILM MAGNETIC HEAD/SLIDER COMBINATION

Michael L. Ellenberger, Santa Cruz, Calif., assignor to Memorex Corporation, Santa Clara, Calif.

Filed Jul. 21, 1980, Ser. No. 170,479

Int. Cl.³ G11B *5/42*

U.S. Cl. 29—603 **7 Claims**



1. A method of manufacturing a thin film magnetic recording and playback head/slider combination having an air bearing structure, comprising the steps of

on an extended member of substrate material, forming at least two intersecting elongated surfaces, a first said surface being flat, and a second said surface being flat and defined as the rear surface of said head/slider combination;

depositing a plurality of side-by-side thin film transducers onto said member rear surface and positioned relative to said first surface in the predetermined relationship desired for the finished head/slider combination;

forming recesses in said first surface between said transducers, the recesses so formed intersecting both said rear surface and a third surface of said member defined as the front surface thereof, whereby are formed a plurality of rails extending between the member front and rear surfaces and including said first surfaces, at least some of which rails have a transducer at the rear end thereof; and

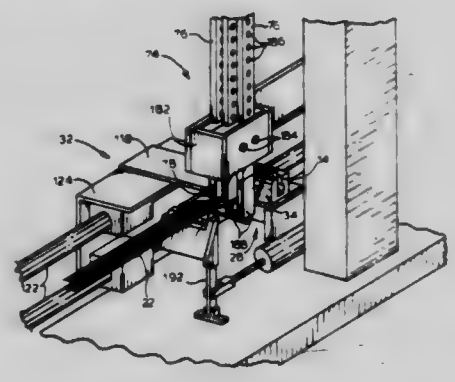
forming on each said rail an air bearing surface and taper extending longitudinally of said rail between said first surface and said forward surface, said air bearing surface intersecting said first surface and being inclined away from said first surface and being formed by abrading said rail at an angle to said first surface until said intersection of said air bearing surface and said first surface is a predetermined distance from said member rear surface, and said taper extending from said air bearing surface to said member forward surface.

4,333,230

MACHINE FOR MAKING AN ELECTRICAL HARNESS

Jack F. Funcik, Downers Grove; Joseph C. Bennet, Lisle; Joseph T. Tubbs, Woodridge, and Thomas E. Schneider, Burbank, all of Ill., assignors to Molex Incorporated, Lisle, Ill.

Division of Ser. No. 12,715, Feb. 16, 1980, Pat. No. 4,235,015.
This application Aug. 11, 1980, Ser. No. 176,857
Int. Cl.³ B23P *19/00*
U.S. Cl. 29—749 **3 Claims**



1. In a machine for making electrical harness,

said harness comprising at least one connector with insulation displacement type contacts loaded therein, each contact connected to an insulation clad wire, said wires generally being of different lengths,

said machine including a first station whereat a connector is positioned, insertion means for simultaneously displacing each wire into its corresponding contact, a second station having holding means for selectively gripping said wires and means for cutting said wires, a looping assembly intermediate said first and second stations including a plurality of reciprocally mounted wire looping members secured to one another for movement together in the same direction and having wire engaging ends normally spaced from and adapted to axially engage its corresponding wire, the wire looping members being actuable to move from a first spaced position to a second position engaging and forcing each corresponding wire to form a loop of a given magnitude, whereby loops of different magnitudes are formed in said wires, and control means for sequentially actuating said insertion means, holding means, wire cutting means and looping assembly in a given order, the improvement in said looping assembly comprising:

said wire looping members being staggered in the axial directions of said wires and mounted relative to one another so that said wire engaging ends initially engage each respective wire at different distances from the connector.

4,333,231

WIRE RELEASE TOOL

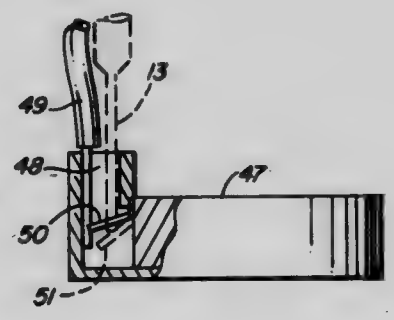
Homer E. Yeargin, 7004 N. 11th Pl., Phoeniz, Ariz. 85020

Continuation-in-part of Ser. No. 7,041, Jan. 29, 1979, abandoned. This application Jun. 25, 1980, Ser. No. 162,680
Int. Cl.³ H01R *43/00*
U.S. Cl. 29—764 **9 Claims**

1. A wire release tool for releasing stripped conductors from sockets within electrical devices of the type utilizing spring-biased detent tongues to engage stripped conductors inserted within the sockets thereof, the spring-biased detent tongues normally preventing withdrawal of the stripped conductors from the sockets, the electrical devices being of the type which include access openings of either circular or rectangular shape adjacent the sockets thereof to afford access to said detent tongues, the circular access openings having a predetermined diameter and a first predetermined depth, the rectangular access openings having a predetermined length and width and a second predetermined depth, said wire release tool comprising in combination:

a. a central core of metal having first and second ends;

b. a metal pin for traversing one of said circular access openings and contacting one of said spring-biased detent tongues in engagement with a stripped conductor and biasing said tongue away fron said conductor, said metal pin extending longitudinally from the first end of said central core, said metal pin having a working end opposite the first end of said central core, the working end having a uniformly circular cross-section along its length having a diameter substantially equal to said predetermined diameter and said working end having a length in excess of said first predetermined depth for allowing said working end of said metal pin to be inserted into a circular access opening of an electrical device of the type which includes



circular access openings to a sufficient depth to bias the detent tongue away from the stripped conductor inserted within the socket adjacent the circular access opening;

c. a metal blade for traversing one of said rectangular access openings and contacting one of said spring-biased detent tongues in engagement with a stripped conductor and biasing said tongue away from said conductor, said metal blade extending longitudinally from the second end of said central core, said metal blade having a working end opposite the second end of said central core, said working end having a uniformly rectangular cross-section along its length, the rectangular cross-section having a length and width substantially equal to said predetermined length and width, respectively, and said working end having a length in excess of said second predetermined depth for allowing said working end of said metal blade to be inserted into a rectangular access opening of an electrical device of the type which includes rectangular access openings to a sufficient depth to bias the detent tongue away from the stripped conductor inserted within the socket adjacent the rectangular access opening; and

d. a body of electrically insulating material formed about and secured to said central core of metal.

4,333,232

APPARATUS FOR FORMING FLYPIECE AND SLIDE FASTENER CHAIN ASSEMBLY

David A. Orr, Union City; Hiren S. Gala, Erie, and George J. Scagnelli, Meadville, all of Pa., assignors to Talon, Inc., Meadville, Pa.

Division of Ser. No. 909,863, May 26, 1978, Pat. No. 4,236,292.
This application Jun. 27, 1980, Ser. No. 163,454
Int. Cl.³ B29D *5/00*
U.S. Cl. 29—767 **5 Claims**

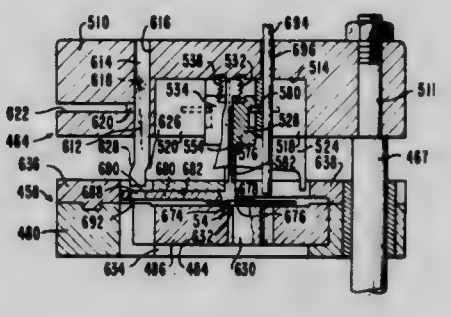
1. An apparatus for gapping and applying a bottom stop to a section of slide fastener chain comprising

a bottom stop machine for applying staple-like bottom stops to a slide fastener chain;

a movable punch assembly mounted in juxtaposition to the bottom stop applying machine and including a slide fastener element gapping punch blade aligned with the bottom stop applying machine and extending from a point adjacent the bottom stop applying machine;

a common base assembly extending under both the punch assembly and the bottom stop machine and including an anvil portion under the bottom stop applying machine, a die portion with a die opening under the punch assembly for cooperating with the gapping punch blade, a pair of parallel ridges extending along opposite sides of the die opening and forming a channel between the ridges for receiving and holding bottom portions of fastener elements of the slide fastener chain centrally aligned over the die opening and aligned with the anvil portion;

means for advancing the slide fastener chain into the common base assembly;



means operated by the punch assembly for positioning and holding the fastening elements in the channel when the punch assembly is in the down position and for releasing the fastening elements when the punch assembly is in a raised position, said means including a plate slidably mounted in the common base assembly for movement transverse to the longitudinal dimension of the slide fastener chain from a retracted position to an advanced position to engage the fastening elements of the slide fastener chain and to position and secure the engaged fastener elements within the channel; and

operating means for moving the punch assembly downward to operate the positioning and holding means and to punch portions of slide fastener elements from the slide fastener chain and for operating the bottom stop applying machine for applying a bottom stop to the slide fastener chain when the punch assembly is in the down position.

4,333,233

MACHINES AND METHOD APPLICABLE TO THE MANUFACTURE OF ELECTRICAL AND LIKE DEVICES

Peter J. Dodson, Cheshunt, and Kenneth E. Horwood, Basildon, both of England, assignors to Guardall Limited, Enfield, England

Filed Feb. 19, 1980, Ser. No. 122,895

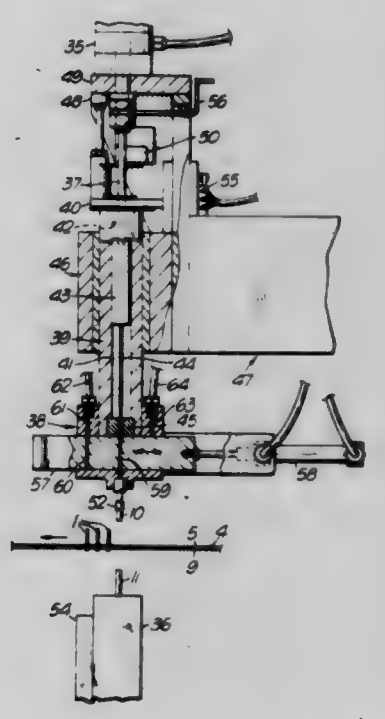
Claims priority, application United Kingdom, Feb. 19, 1979, 7905697

Int. Cl.³ H05K *3/32*; B23P *3/32*

U.S. Cl. 29—845 **13 Claims**

1. In a method for inserting components into a board, in which a component-insertion head and the board are brought into contact one with the other where a said component is to be inserted, and including repeated execution of steps which comprise a first step of charging the head with a component via a reciprocated shuttle and a second step of driving the component from the head into the board, said first step including loading a component on the shuttle when the reciprocated shuttle is at the end of a first of the two strokes of its reciprocating movement and through the second of said strokes of the reciprocated shuttle translating this component as so loaded on the shuttle to said head to charge said head therewith, the improvement wherein said first step also includes loading a component on the shuttle when the shuttle is at the end of its said second stroke and through the said first stroke of the reciprocated shuttle translating this component as so loaded on the shuttle to said head to charge said head therewith, the shuttle being reciprocated to execute its said first and second strokes in response to successive executions respectively of said second step.

4. In a machine for inserting pins into a board, said machine including a pin-insertion head, a reciprocating shuttle having a pin-receiving aperture therein for translating pins loaded in said aperture to the said head one at a time, pin-loading means operative when the shuttle is in a first position to load a pin into said aperture of the shuttle, the shuttle being moved in one stroke of its reciprocating movement by a predetermined distance from the said first position to occupy a second position in which said aperture is aligned with the said head so as to



translate the loaded pin to the said head for insertion therefrom into said board, and said shuttle being moved in a return stroke of its reciprocating movement back to its said first position for reloading from the said pin-loading means with another of said pins, the improvement wherein the shuttle has a further pin-receiving aperture therein spaced from the first-mentioned aperture by an amount measured in the direction of said first hole equal to said distance, and wherein the machine includes further pin-loading means spaced effectively from the first-mentioned pin-loading means by an amount in said direction equal to twice said distance, said further pin-loading means being operative when the shuttle is in its said second position to load the shuttle with a pin for translation to the said head during the said return stroke of the shuttle so that an individual pin is translated to the said head for insertion therefrom into the board upon each stroke of the shuttle.

4,333,234

PAPER SLITTING DEVICE

Dean C. Smith, 2301 Rodney Dr., and Gary F. Quinton, 1261 Skyline Blvd., both of Reno, Nev. 89509

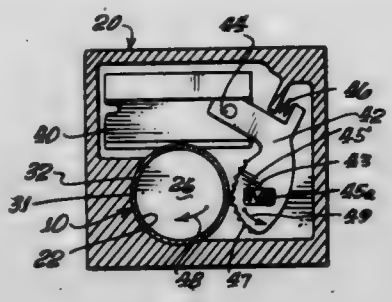
Filed Sep. 17, 1980, Ser. No. 188,080

Int. Cl.³ B26B *27/00*

U.S. Cl. 30—2 **1 Claim**

1. A paper slitting device for slitting the side wall of a wrapped roll of coins which comprises: a housing means, said housing means having a cylindrical opening therein terminating in an end wall; a slot in said housing means communicating with said cylindrical opening at a point near said end wall and on a plane normal to a longitudinal axis of said cylindrical opening; a lever means mounted within said slot and said lever means pivotally mounted within said slot at a point parallel to, but offset, from the axis of said cylindrical opening; a semi-cir-

cular segment of said lever having a serrated edge means projecting into said cylindrical opening so as to frictionally engage the external cylindrical surface of a roll of wrapped coins; a paper slitting device affixed to said lever means at an end of said lever means so as to be able to come into contact



with said external cylindrical surface of said roll of wrapped coins when said roll of wrapped coins is rotated in a direction toward said serrated edge means of said lever and away from said paper slitting device while said wrapped roll is within said cylindrical recess.

4,333,235

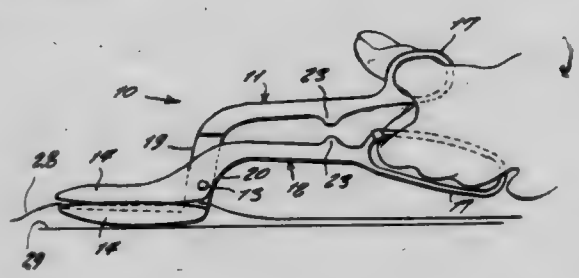
CROSS SCISSORS/SHEARS

Marvin M. Howard, 5 Herron St., Bemis, Tenn. 38314

Filed Feb. 12, 1981, Ser. No. 233,787

Int. Cl.³ B26B *13/20*

U.S. Cl. 30—259 **1 Claim**



1. A double cross scissors/shears, comprising in combination, a pair of crossing levers having corresponding cutting blades at one end and corresponding handles at an opposite end, a pivot screw holding said levers together, and a double offset intermediate portion on each said lever, said pivot screw being through said double offset portions; each said double offset portion being formed by a pair of bends in opposite directions, so that said handles are both at a higher elevation than said blades, when in use cutting a material laid flat on a cutting surface; a protrusion on each said handle abutting each other when said scissors/shears are in a closed position; each said handle including a loop around a hole for receiving either a thumb or the fingers of a persons hand, a rotatable ring around one said loop having loop pile on a portion of an outer side thereof which in one rotated position abuts a corresponding loop pile stationarily affixed on the other said handle loop, when said scissors/shears are in said closed position.

4,333,236

PORTABLE BOARD MILL

Joseph R. Lovas, East Stroudsburg, Pa.; Paul J. Lovas, Blairstown, N.J., and Carl F. Koelmel, East Stroudsburg, Pa., assignors to Cyloflex, Inc., East Stroudsburg, Pa.

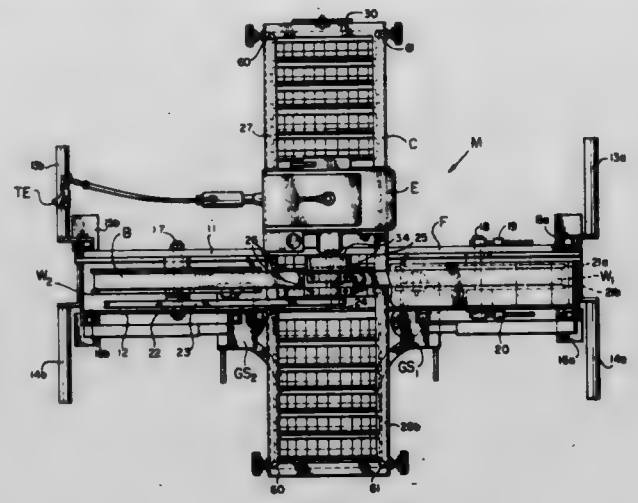
Division of Ser. No. 94,433, Nov. 15, 1979, Pat. No. 4,276,693.

This application Mar. 18, 1980, Ser. No. 245,037

Int. Cl.³ B27B *15/02*

U.S. Cl. 30—380 **5 Claims**

1. In a portable mill for cutting lumber from a log, including a frame adapted to be disposed transverse to the log, a pair of wheels mounted for rotation in a vertical plane in said frame, a band saw blade trained around said wheels, means for rotating at least one of said wheels to cause the blade to form a cut in the log, and a carriage carried by said frame to afford movement of the frame along the log as the blade advances to cut the log lengthwise, the improvement comprising: stabilizer means carried by said frame behind said cutting blade in the plane thereof for engaging in the cut made by the blade to restrain motion of the frame as it advances lengthwise of the log during cutting, said blade stabilizer means including a pair of stabilizer assemblies disposed in spaced relation on the trailing side of the



frame and adapted to confront opposite sides of the log, each stabilizer assembly including knife means engaging in said cut, means mounting said stabilizer assemblies to said frame for movement toward and away from one another, and means cooperating with said stabilizer assemblies for biasing them toward one another for causing their knife means to engage in said cut, whereby the knife means cooperates with the blade to provide a substantially flat cut in the log.

4,333,237

APPARATUS FOR COMPARING THE DISTANCE OF TWO BALLS FROM A THIRD BALL

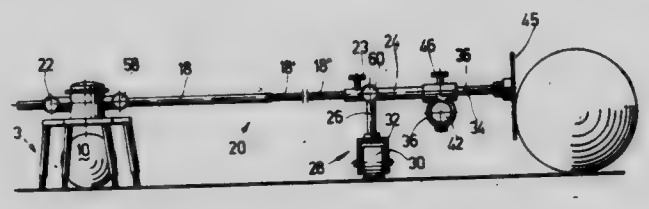
Nazzareno E. Carbone, Viale S. Martino, Isol. 12, Messina, Italy

Filed Jan. 5, 1981, Ser. No. 222,526

Claims priority, application Italy, Jan. 3, 1980, 18701 A/80; Dec. 22, 1980, 50444 A/80

Int. Cl.³ G01B *5/14*

U.S. Cl. 33—143 R **2 Claims**



1. An apparatus for comparing the distances between a first ball and other balls all lying on the same substantially horizontal plane, said apparatus comprising a stand having a plate supported by legs which stand will fit over the first ball, a rotatable hub supported by said plate and extending outwardly above said plate, a telescopic rod mounted on said hub for rotation in a horizontal plane, said rod being extensible to the positions of said other balls and a means for centering said stand over said first ball, said centering means including a ring of distinctive color around the upper edge of said hub, a circular flat disk of transparent material embedded in said plate, and two rings of different color concentric with the disk and traced in said disk, one of said rings having about the same diameter as said ring around the hub and the other having about the same diameter of said first ball.

4,333,238

COORDINATE MEASURING MACHINE

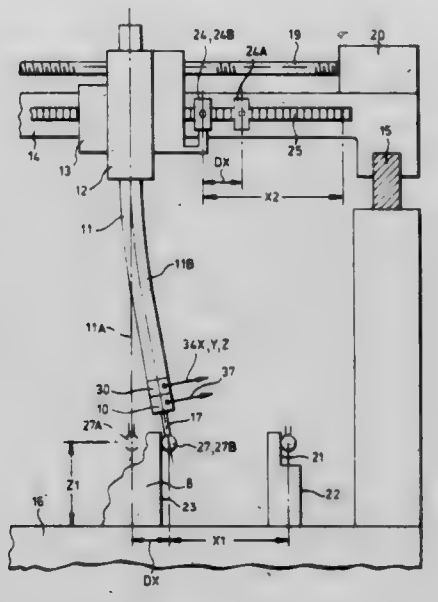
David R. McMurtry, 'Undercroft', Wotton-under-Edge, Gloucestershire, England

Filed Mar. 31, 1980, Ser. No. 136,091

Claims priority, application United Kingdom, Mar. 30, 1979, 7911329

Int. Cl.³ G01B 7/00, 7/28

U.S. Cl. 33—174 L 3 Claims



1. A method of determining a measurement of a workpiece on a machine comprising a probe, structure supporting said probe for flexile and translational movement relative to a workpiece to be measured and relative to a means for continually measuring the position of the probe relative to a datum, the probe having means for generating a signal when having a predetermined relationship with a proximate surface of the workpiece; said method comprising the steps of:

(a) moving said probe toward said surface;

(b) determining the output of said measuring means at the instant said signal is generated thereby defining the measured position of said probe;

(c) determining the deflection of said structure at said instant thereby defining the difference between the measured and the actual positions of said probe; and

(d) subtracting said difference to said output of the measuring means to establish a measure of the actual position of said probe.

4,333,239

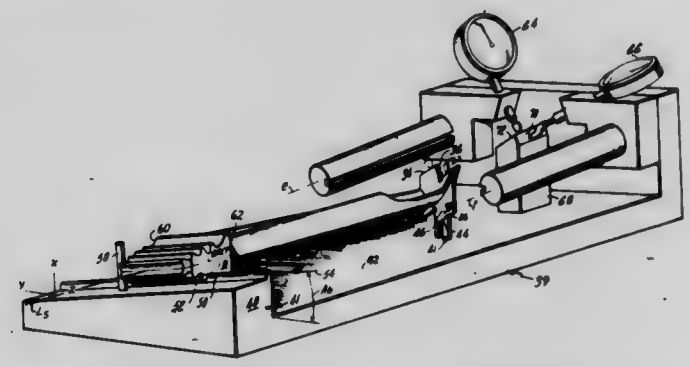
METHOD AND APPARATUS FOR INSPECTING SHROUDS OF ROTOR BLADES

John P. Arrigoni, Wallingford, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jun. 2, 1980, Ser. No. 155,253

Int. Cl.³ G01B 5/02, 5/25

U.S. Cl. 33—174 C 15 Claims



4. A fixture for inspecting a rotor blade of an array of rotor blades of the type found in an axial flow rotary machine, each blade including a root, an airfoil, a shroud attached to the airfoil, each shroud having a shroud reference plane, a notch face, a cross notch face on the other side of the shroud which corresponds to the notch face, a cross notch dimension measured along a line perpendicular to the notch face and the cross notch face, first and second tangential faces, first and second cross tangential faces on the other side of the shroud which correspond to the first and second tangential faces, a cross shroud dimension measured along a line perpendicular to the first tangential face and the second cross tangential face, which comprises:

locator means on the fixture having a first reference surface which is adapted to engage the first tangential face of the rotor blade and having a second reference surface on the fixture which is adapted to engage the notch face of the rotor blade, the reference surfaces being disposed such that the angle between the surfaces is equal to the angle between a corresponding first cross tangential face and a corresponding cross notch face of an adjacent rotor blade;

means for orienting the shroud reference plane of the rotor blade with respect to the first reference surface of the fixture and the second reference surface of the fixture such that the shroud reference plane of the rotor blade has the same angular relationship with respect to the reference surfaces that the shroud reference plane has in the machine with respect to a corresponding first cross tangential face and a corresponding cross notch face of an adjacent blade made to design;

means for measuring a first distance between the first reference surface of the fixture and the second cross tangential face of the shroud;

means for measuring a second distance between the second reference surface of the fixture and the cross notch face.

4,333,240

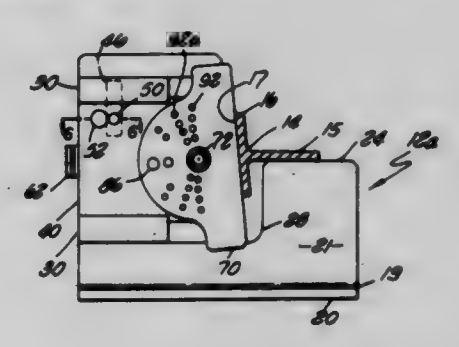
INSPECTION DEVICE FOR MEASURING THE CONTOUR AND/OR ANGULAR TOLERANCE OF A PART

Eugene S. Searcy, Terlton, Okla., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed May 16, 1980, Ser. No. 150,540

Int. Cl.³ G01B 5/20

U.S. Cl. 33—174 G 10 Claims



1. A device for inspecting whether the surface of a discrete portion of a part is within allowable tolerance comprising:

a base adapted to position said part for inspection;

a probe moveably connected to said base for oscillatory movement relative to said base and adapted to engage said surface; and

probe limiting means associated with said base and said probe for limiting the movement of said probe to said allowable tolerance of said surface;

such that when said part is positioned for inspection on said base, said probe will indicate whether said surface is within allowable tolerance by making contact therewith.

4,333,241
PASTA MEASURER

Ronald J. Wasik, and Janice E. Wasik, both of 544 Forest Hill Dr., Kitchener, Ontario, Canada

Filed Mar. 24, 1981, Ser. No. 247,222
Int. Cl.³ G01B 3/02
U.S. Cl. 33—174 T 2 Claims



1. A measuring device for accurately measuring the amount of uncooked spaghetti or vermicelli or the like required to produce a given volume of cooked pasta comprising:

a flexible measuring tape having a series of calibrations to show directly the amount of uncooked said pasta required to yield a given number of cooked portions;

a ring device on one end of said tape;

a reference point for said calibrations toward the ring end of said tape, said reference point comprising a portion of said tape narrowed to form a neck symmetrical about the longitudinal centre-line of the flat side of said tape;

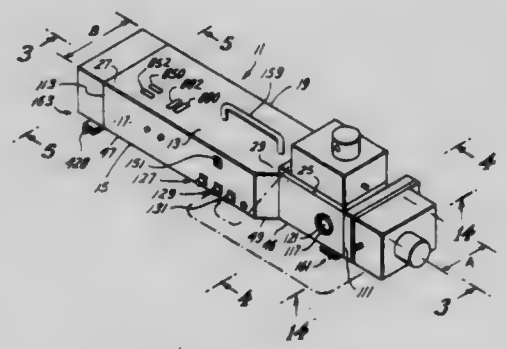
said calibrations comprising a series of holes through said tape along the longitudinal centre line of the flat side thereof, each said hole accessible to an edge of said tape through a discontinuity in said tape adjacent each said hole, each said discontinuity comprising substantially a hair line break in said tape and terminating in a notched configuration at said edge;

whereby said tape may be removeably locked into a selected one of said calibrations by insertion of said reference point into said selected calibration through the appropriate said discontinuity.

4,333,242
CONSTRUCTION LASER

Robert K. Genho, Sr., Houston, Tex., assignor to Lasertron Company, Houston, Tex.

Filed May 7, 1979, Ser. No. 36,663
Int. Cl.³ G02B 7/14; G01B 11/26
U.S. Cl. 33—227 6 Claims



1. An apparatus for providing a plurality of detectable reference lines, comprising:

an elongate housing;

a source of a coherent source beam of light positioned within said housing;

a beam splitter for splitting said source beam into a first beam directed along a first axis and a second beam directed along a second axis;

support means for supporting said housing on a surface, said support means including a plurality of feet for contacting such surface and adjustment means for adjusting the orientation of said housing with respect to said surface without substantially changing the position of said feet with respect to said surface;

grade control means for detecting the orientation of said first and second axes with respect to the horizontal and adjusting said adjustment means in accordance with such detection;

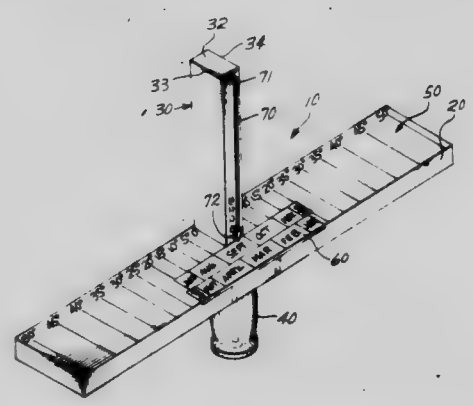
wherein said adjustment means includes a front support mechanism pivotally connected to one end of said housing, said front support mechanism including three perpendicular pivot axes; and

wherein said adjustment means includes a base unit fixedly attached to said feet and plunger means for connecting said base unit to said housing, said plunger means including a first plunger cylinder connected to said housing and a first plunger rod axially movably disposed within said first plunger cylinder, said first plunger rod being attached at one end to said base unit, said plunger means further including drive means for moving said first plunger rod axially within said first plunger cylinder.

4,333,243
LATITUDE FINDER

Harry P. McLaughlin, 4431 - 25th SW., Seattle, Wash. 98166

Filed Oct. 10, 1980, Ser. No. 195,844
Int. Cl.³ G01C 21/20
U.S. Cl. 33—268 5 Claims



1. An apparatus for indicating the latitude position of the user comprising:

(a) a planar base member having both a scale having degrees and a scale having the days of the year marked on its top surface;

(b) a vertical member extending perpendicularly upwardly from the base member; and,

(c) pendulum means carried on the vertical member alignable with the current day date when the planar base member is oriented in a meridian plane in a north-south direction and rotated in the vertical plane such that when the pendulum means is so aligned, the end of the shadow on the scale having degrees marked thereon cast by the vertical member from the noon sun indicates the latitude position of the user.

4,333,244
LEVELING STAND

Ivan Bailey, 3205 Pamala Park Estates, Maple Ave., Conneaut, Ohio 44030

Filed Dec. 10, 1979, Ser. No. 101,871
Int. Cl.³ G01C 5/00
U.S. Cl. 33—290 1 Claim

1. In combination,

a level,

said level having an elongated level body 11,

a stand 12 having a base 17,

said base 17 comprising a base body 16 having a vertically extending bore 18 therein,

a rod 19 telescopically and rotably received in said bore 16,

support means 24 supported onto said rod,

said base body 16 having at least three legs, swingably attached thereto to swing from a folded position to an erect position and to rest on the ground,

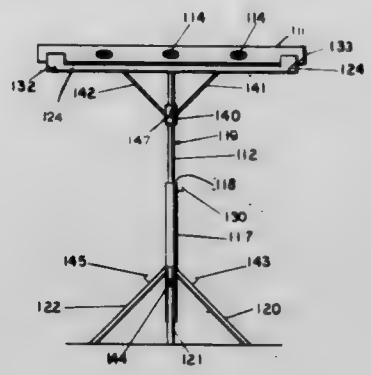
said legs being telescopic whereby the length thereof can be adjusted for adjusting the level of said rod and said level body,

spaced brackets fixed to said support means,

said brackets each comprising a horizontal web member fixed to said support means,

a first jaw member and second jaw member,

said jaw members extending upwardly, fixed to said web and defining a space there-between, and threaded clamp



means on said jaw members, adapted to clamp said level body between said jaws,

and two spaced rifle sights fixed to said brackets for establishing the level of distant objects,

said support means comprising a turntable level holder pivotably supported on said telescoping rod,

a sleeve rotatably supported on said rod below said level holder and base rod attached to said sleeve and to said level holder whereby said level can be swung around said body.

4,333,245

HEAD SUPPORTING DEVICE FOR UNIVERSAL PARALLEL RULER

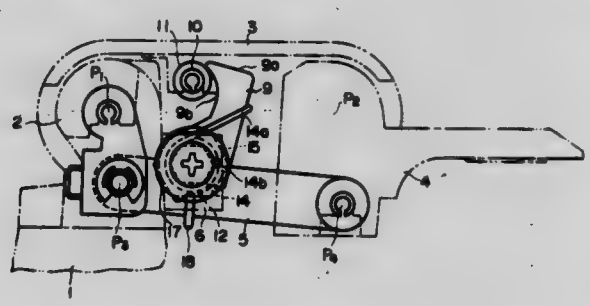
Shigeo Iseya, Tsurugashima, and Giichi Utagawa, Tokyo, both of Japan, assignors to Asahi Seimitsu Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 20, 1980, Ser. No. 198,646

Claims priority, application Japan, Nov. 6, 1979, 54/143668

Int. Cl.³ B43L *13/02*

U.S. Cl. 33—438 **5 Claims**



1. A head supporting device for use with a universal parallel ruler attached to a drawing board, the parallel ruler including a cursor movably mounted along a longitudinal rail and coupled to an operating head having a scale attached thereto, the head supporting device being connected between the cursor and the operating head for permitting said operating head to move toward and away from the drawing board surface relative to the cursor, said head supporting device comprising:

lifted condition holding member means having a first surface and a second surface and being rotatably mounted along an axis substantially parallel to said rail for preventing a movement of the operating head away from the drawing board surface relative to the cursor when the universal parallel ruler is in a position nearest to the drawing board surface and an external force is not applied thereto and for retaining said operating head in a lifted condition when the universal ruler is in a position farthest from the drawing board and permitting a movement of the operating head toward the drawing board relative to the cursor when the universal parallel ruler is in a position farthest from the drawing board surface and an external force is applied thereto;

rolling member means rotatable about a central axis substantially parallel to said axis for engaging with said first surface of said holding member means when the universal parallel ruler is in said position nearest to the drawing board surface thereby preventing said movement of the head away from the drawing board surface and for engaging with said second surface of said holding member means when the parallel ruler is in said position farthest from the drawing board surface thereby retaining said head in a lifted condition and permitting said movement of the head toward the drawing board surface; and

biasing means for exerting a force on said holding member means thereby forcing said lifted condition holding member means into contact with said rolling member means.

4,333,246

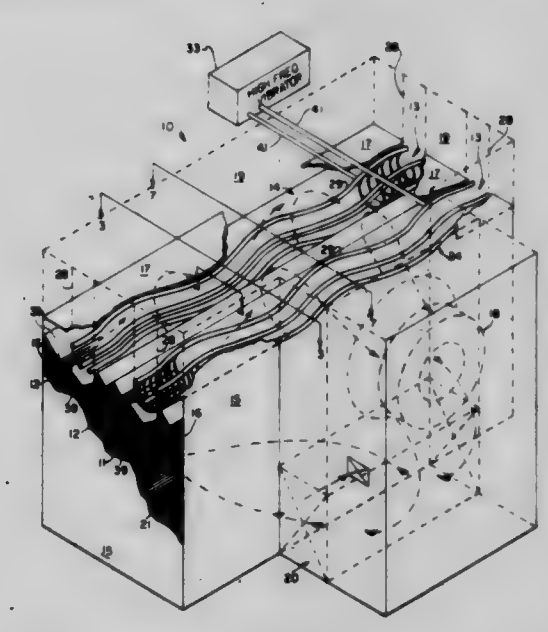
APPARATUS AND METHOD FOR DRYING CAN CLOSURES

Richard W. Sullivan, Denver, and Tuan A. Nguyen, Broomfield, both of Colo., assignors to Ball Corporation, Muncie, Ind.

Filed Oct. 10, 1980, Ser. No. 195,974

Int. Cl.³ F26B *3/04, 25/02*

U.S. Cl. 34—23 **23 Claims**



1. Apparatus for treating articles comprising: a plurality of spaced apart rails between which a stack of articles, set on edge, in abutting face-to-face contact are confined, said rails being disposed relative to one another so as to define a curved path of substantially constant width; a means for pushing said stack longitudinally within the confines of said rails whereby the portions of adjacent articles in proximity to the rail of greater radius of curvature are spaced from one another; and means for directing a treating medium between said spaced article portions.

4,333,247

FOOTWEAR ARTICLE AND PROCESS

Lamberto Marinelli, Potro S. Elpidio, Italy, assignor to TAK PLAST Company, Italy

Filed Dec. 6, 1978, Ser. No. 967,027

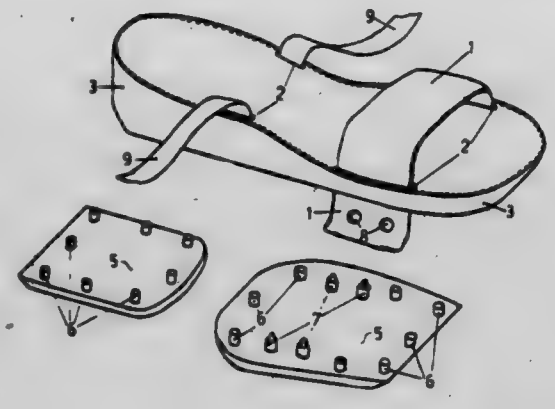
Claims priority, application Italy, Dec. 14, 1977, 644 A/77; Mar. 2, 1978, 607 A/78

Int. Cl.³ A43B *3/12;* A43D *9/00*

U.S. Cl. 36—11.5 **7 Claims**

1. An article of footwear comprising a sole having top and bottom faces, at least two slots disposed on opposed sides of said sole extending through the top and bottom faces, at least

two cut out areas on the bottom face of the sole proximate to said slots, an upper having portions adapted to be threaded through said slots and folded onto said cut out areas, an undersole, and means to connect said undersole to said sole with said portions of said upper securely clamped therebetween. In which the said two slots are disposed near a front toe area of said sole, and two additional slots are provided near the rear heel area of said sole, a cutaway area extending between said



last two additional slots on the bottom face of said sole, and a strap threaded through said two additional slots and running along said last named cutaway area.

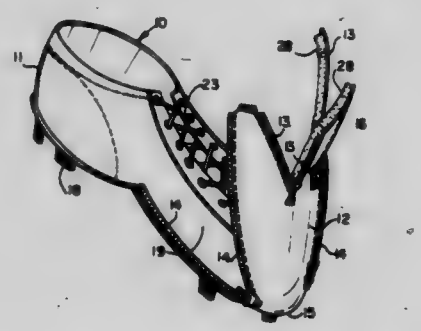
6. The method of claim 5 further including providing a second pair of slots on the sole at the end remote from said first two slots, providing a cutaway on the bottom face extending between said second pair of slots, and threading a strap through said slots upon said cutaway portion.

4,333,248

PROTECTIVE SHOE

Samuel Samuels, 1801 J. F. Kennedy Blvd., Apt. 1001, Philadelphia, Pa. 19103

Filed Jul. 23, 1980, Ser. No. 171,618
Int. Cl.[3] A43B *13/22, 3/24, 5/00*
U.S. Cl. 36—72 R
8 Claims



1. In a protective shoe comprising a toe, welt, instep, laces, sole, and heel, the improvement which comprises:

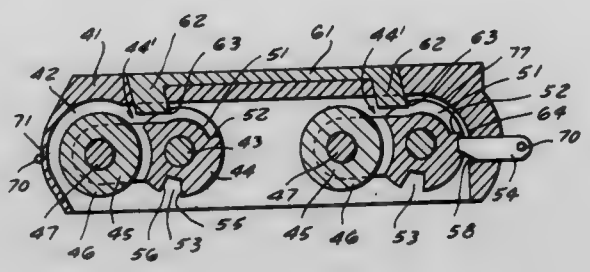
a protective cover, said cover comprising a flexible sheet and a layer of flexible energy absorbing material affixed to the inner surface of said sheet, said protective cover configured to fit over the toe and instep portion of said shoe, said protective cover and said shoe at the welt thereof, each being provided with elements of attaching means, to at least partly remove said protective cover from said shoe, and said protective cover being provided with a central flap portion overlying the laces of said shoe, said flap being provided on each side thereof with one of a pair of selectively operable flap closure means to provide maximum protection to said instep and to provide access to said laces.

4,333,249

CONVERTIBLE SPORTS DEVICE

Hans-Joachim Schaefer, Gymnasiumstrasse 7, D-6380 Bad Homburg, Fed. Rep. of Germany

Continuation of Ser. No. 5,697, Jan. 23, 1979, abandoned, which is a continuation of Ser. No. 821,310, Aug. 2, 1977, abandoned.
This application Nov. 21, 1980, Ser. No. 170,806
Int. Cl.[3] A43B *5/04*
U.S. Cl. 36—115
51 Claims



1. In a sports device, a combination comprising

means forming a housing;

at least one sport member movable relative to said housing between an extended and a retracted position, and having two faces spaced from one another; and

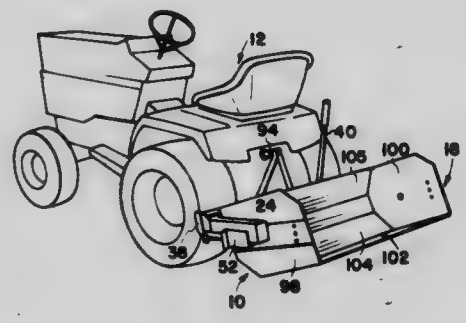
arresting means including an arresting member movable between a first position in which said arresting member abuts against and is in surface contact with one of said faces of said sport member so as to arrest the latter in said extended position, and a second position in which said arresting member abuts against and is in surface contact with the other face of said sport member so as to arrest the latter in said retracted position.

4,333,250

MULTI-PURPOSE ATTACHMENT FOR VEHICLES

Joe W. Henderson, Rte. 2, Box 894, Claremore, Okla. 74017

Filed Sep. 14, 1979, Ser. No. 75,828
Int. Cl.[3] E02F *3/62;* A01B *59/042*
U.S. Cl. 37—117.5
7 Claims



2. A multi-purpose attachment for vehicles having a lift apparatus and comprising universal carrier means of substantially U-shaped configuration adapted for connection with the lift apparatus of the vehicle, implement means supported by the carrier means, journal means provided on the implement means for pivotally securing the implement to the carrier means, hitch means provided on the carrier means for securing thereof to the lift apparatus, dual latch means provided on said carrier means for cooperating with said journal means for removably securing the implement means to the carrier means, transversely extending rod means provided on said carrier means and rotatable about its own longitudinal axis for simultaneous actuation of said dual latch means, said implement means being a multi-purpose implement pivotal with respect to the carrier means to provide a plurality of relative working positions therebetween, and including locking means cooperating between the multi-purpose implement and the carrier means for locking the multi-purpose implement in each of said positions to provide for said plurality of work operations for the

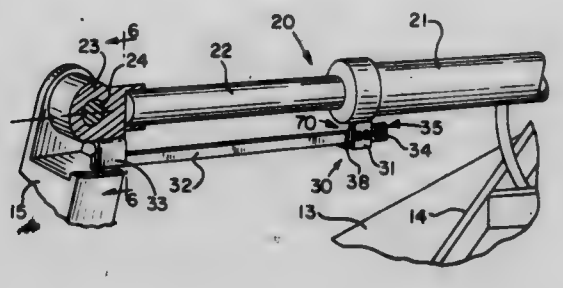
vehicle from a single implement, and including lever means secured to said multi-purpose implement for manual pivoting of said multi-purpose implement with respect to the carrier means.

4,333,251

AUTOMATIC BUCKET LEVELER

Roland E. Weisman, Wilmot, Wis., assignor to International Harvester Co., Chicago, Ill.

Filed Jan. 23, 1981, Ser. No. 227,849
Int. Cl.³ D06F *81/00*
U.S. Cl. 37—118 R **7 Claims**



1. An automatic bucket leveler means for a tractor loader vehicle having a frame, a bucket pivotally mounted to a pair of boom arms pivotally mounted to the frame, a rocking lever pivotally mounted to and between the boom arms and having one end pivotally connected to the bucket and an opposite end pivotally connected to a connecting eye end means of a hydraulic piston rod, the hydraulic piston rod telescopically slidable from an open end of a cylinder tube, the cylinder tube having a closed end pivotally mounted to the frame centrally between the boom arms on a longitudinally extending axis, a first bracket means connected to the cylinder tube and a second bracket means connected to the connecting eye end means of the piston rod for mounting the automatic bucket leveler means thereto on a plane vertically passing through the longitudinal axis, a trip bar connected at one end to the second bracket means and having a free end longitudinally extending toward the first bracket means on the vertical plane, a proximity switch connected to the first bracket means and laterally spaced from the trip bar, and a trip bar guide means mounted to the first bracket means and having guide finger means longitudinally spaced from the proximity switch and laterally spaced apart on opposite sides of the vertical plane and trip bar, the guide finger means maintaining the trip bar in proper laterally spaced apart relationship to the proximity switch.

4,333,252

METHOD FOR PLEATING CLOTH

LaVonne Nye, Coal Valley, Ill., assignor to B&B Miniatures, The Whimsey, Coal Valley, Ill.

Division of Ser. No. 40,263, May 18, 1979, Pat. No. 4,284,215, which is a continuation of Ser. No. 871,916, Jan. 24, 1978, abandoned. This application May 22, 1981, Ser. No. 266,568
Int. Cl.³ D06F *67/04;* A41H *43/00*
U.S. Cl. 38—144 **1 Claim**

1. A method of pleating cloth on a cloth pleater comprising a frame of two side members and two end members and having a series of flat pleating slats, with every slat being engaged by and freely movable along guide means associated with the side members and comprising the steps of:

interweaving the cloth between a number of pairs of slats, each pair defined by a preceding and a succeeding slat in said series;

continuously advancing said succeeding slat to said preceding slat until substantially the entire length of the cloth has been interwoven;

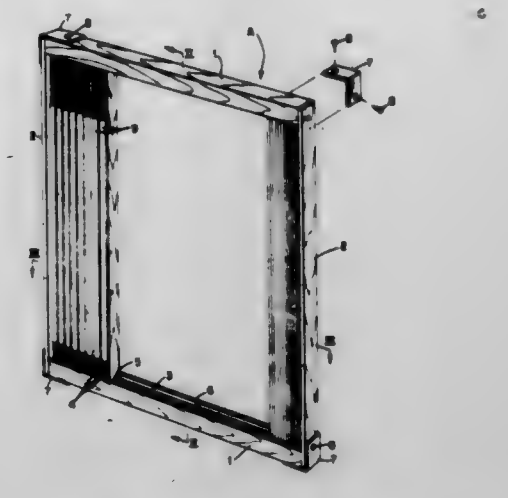
attaching the pleater with the cloth thereon to a rigid supporting surface;

applying steam to one surface of the cloth;

applying steam to the opposite surface of the cloth;

allowing the cloth to dry on the pleater;

removing the cloth from the pleater;



fastening the cloth to said supporting surface;

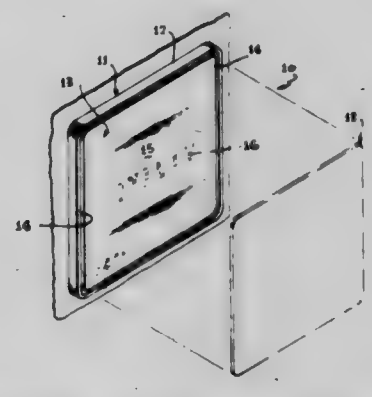
applying steam to the cloth and allowing the cloth to dry on said surface.

4,333,253

DISPLAY SIGN

Andrew K. Cooper, 22635 Flamingo St., Woodland Hills, Calif. 91364

Filed Dec. 26, 1979, Ser. No. 106,447
Int. Cl.³ G09F *3/18*
U.S. Cl. 40—10 R **1 Claim**



1. A display sign for mounting on a vertical wall comprising the combination of:

a single black member or frame providing a rear element or front face carrying a continuous, seamless sidewall about its peripheral edge so as to define a central display area between the opposing wall surfaces of said continuous sidewall;

a display plate substantially occupying said recessed display area;

the peripheral edge of said display plate and the opposing wall surfaces of said continuous sidewall defining a continuous and uninterrupted groove therebetween defining a reveal;

a filler plate occupying said central display recessed area immediately behind said display plate and having edge marginal regions exposed via said reveal;

adhesive means attaching said display plate to said filler plate and said filler plate to said back member;

said display plate having an exposed face or surface surrounded by said reveal carrying indicia for visual observation;

the reverse side of the back member or frame whose surface provides a display area for carrying indicia for visual observation;

said display plate and said back member are molded parts of plastic material;

said marginal region of said filler plate terminates immedi-

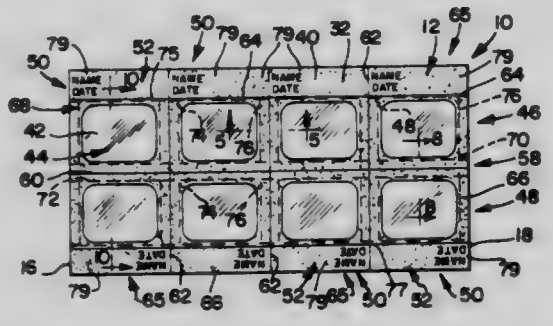
ately adjacent to and in insertable contact with said continuous sidewall;
said adhesive strips spaces said display plate from said filler plate and said filler plate from said rear element of said back member so as to define a closed cavity therebetween providing lightening characteristics;
said continuous sidewall is integrally formed with said rear element of said back member so as to provide contoured corners that flow into the perimeter edge in an uninterrupted seamless line;
a glass door pivotally mounted on said back member sidewall.

4,333,254

MULTIPURPOSE DENTAL X-RAY FILM MOUNT ARRANGEMENT

Charles F. Stevenson, Elgin, Ill., assignor to Rinn Corporation, Elgin, Ill.

Filed Apr. 6, 1981, Ser. No. 251,477
Int. Cl.³ G09F *1/10*
U.S. Cl. 40—158 B **9 Claims**



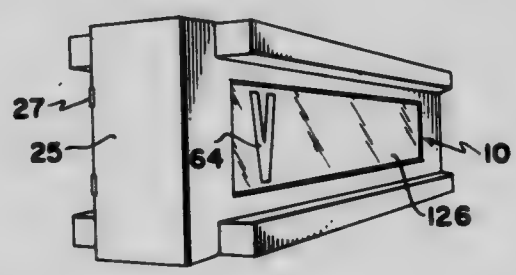
1. A dental X-ray film mount arrangement comprising:
a front sheet and a back sheet, each of a polymeric material and each being of film thickness dimensions and disposed in face to face relation,
said sheets being quadrilateral in configuration and having substantially the same length in coinciding relation,
with said back sheet being narrower in width than said front sheet and being centered on said front sheet along the length thereof,
whereby said sheets define at like opposed ends of same transversely extending end edges in substantially coinciding relation, and define at like opposed sides of same longitudinally extending side edges of which said side edges of said front sheet project beyond the side edges of said back sheet substantially equal amounts,
said front sheet defining an outwardly facing side surface and an inwardly facing side surface facing said back sheet,
said back sheet defining an outwardly facing side surface and an inwardly facing side surface facing said front sheet,
said sheets being bonded together to form a mount assembly by:
a continuous rectilinear weld line coincident and coextensive with the longitudinal centerline of said sheets and extending between said end edges thereof,
a plurality of continuous rectilinear weld lines extending transversely of said sheets between said longitudinally extending side edges of both said sheets and that are spaced apart longitudinally of said sheets to, together with the first mentioned weld line, delineate said assembly into pairs of quadrilateral sections of equal dimensions longitudinally and transversely of said sheets, of which one section of each pair is on one side of said first mentioned weld line and the other section of each pair is on the other side of said first mentioned weld line,
said sheets being indented along said weld lines for making said assembly frangible therealong for effecting manual tear separation of one or more of said sections from said assembly,
a pair of dashed base weld lines disposed one on either side of said first mentioned weld line, extending in parallel, equally spaced, relation thereto and therefrom between said end edges of said sheets,
and for each of said sections, a pair of side dashed weld lines extending transversely of said sheets between said longitudinally extending side edges of said back sheet and the dashed weld line of said pair of base dashed weld lines that extends across the respective said sections,
said sheets being free from securement to each other in the respective sections between said side dashed weld lines therefor for defining in each said section a planar dental X-ray film receiving pocket,
said pockets being of substantially the same size,
with the material from which the front sheet is formed being transparent,
said front sheet outwardly facing side being imprinted with a writing implement markable opaque ink, with said imprinting delineating about each pocket an ink free area proportioned to approximate the size of dental X-ray film received in the respective pockets for forming a window for each such pocket,
with said window of the respective pockets being approximately centered thereon.

4,333,255

ADVERTISING DISPLAY APPARATUS

James C. Ward, Saginaw, Mich., assignor to Ward Outdoor Advertising, Saginaw, Mich.

Filed Aug. 29, 1980, Ser. No. 182,509
Int. Cl.³ G09F *11/12*
U.S. Cl. 40—524 **13 Claims**



1. Advertising display apparatus comprising:
a frame;
an endless carrier mounted on said frame for movement in an endless path including at least one curvilinear path portion;
means for driving said carrier in said endless path;
a plurality of individual display panels;
means removably, dependently mounting said display panels on said carrier such that the leading and trailing edge portions of said display panels overlap the adjacent trailing and leading edge portions of adjacent leading and trailing panels, respectively; and
curvilinear guide means for guiding said leading and trailing edge portions of said panels out of the planes of said panels to maintain said edge portions of said panels in overlapping relation as said panels negotiate said curvilinear path portion.

4,333,256

CLOTHES PIN STIRRUP FASTENER FOR UNITARY PISTOL HAND GRIP

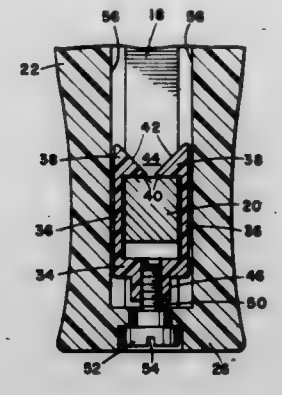
Guy L. Hogue, Atascadero, Calif., assignor to Hogue Combat Grips, Inc., Los Osos, Calif.

Filed Aug. 18, 1980, Ser. No. 178,686
Int. Cl.³ F41C *23/00*
U.S. Cl. 42—71 P **6 Claims**

1. A fastener for use in combination with a pistol having a cutout butt frame portion with downwardly extending front and rear members and a foot portion extending between the lower ends of said front and rear members, and a unitary hand

grip covering said butt frame section, said unitary hand grip having a closed bottom, the fastener comprising:

a yoke having a cross bar below said foot portion and upwardly extending side members straddling said foot portion,



locking pawls formed at the upper ends of each of said side members permitting insertion of said foot portion between said yoke side members but preventing the removal of said foot portion once inserted,

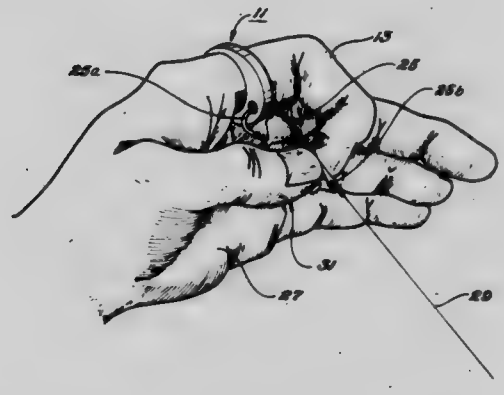
and screw means for securing said unitary hand grip to said cross bar.

4,333,257

METHOD AND FINGER RING DEVICE FOR SNELLING A FISHHOOK

Gordon M. Burrell, 2813 Meadowbrook Dr., Fort Worth, Tex. 76103

Filed Oct. 20, 1980, Ser. No. 198,913
Int. Cl.³ A01K *97/06*
U.S. Cl. 43—57.5 R **5 Claims**



1. A method for snelling a fishhook, comprising:

providing an annular member with an aperture for insertion over a user's finger; the aperture having an axis;

providing a closed loop on the annular member spaced from the aperture;

inserting the annular member over the finger of the user, with the closed loop on the palm side of the user's hand;

inserting a hook portion of a fishhook into the loop to retain the fishhook;

tying a line to an eye of the fishhook while the fishhook is retained by the loop, creating a knot;

tensioning the knot while the fishhook is retained by the loop by pulling the line away from the annular member in a radial direction with respect to the axis of the aperture; and

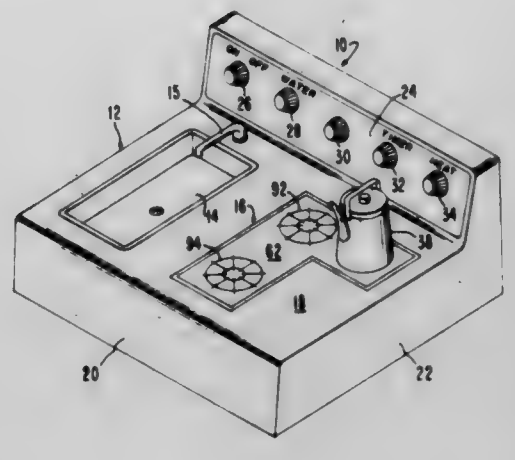
withdrawing the fishhook from the loop.

4,333,258

ELECTRONIC TOY

Robert E. McCaslin, 1227 Coldwater Canyon, Beverly Hills, Calif. 90210

Filed Mar. 23, 1981, Ser. No. 246,557
Int. Cl.³ A63H *3/52, 33/26*
U.S. Cl. 46—14 **8 Claims**



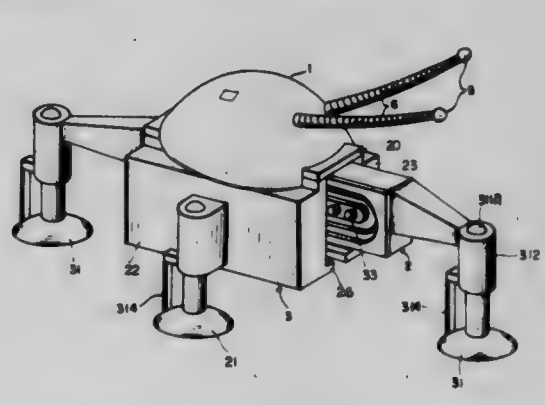
1. An electronic toy comprising: a support having a upper surface; a member adapted to be removably placed on the upper surface and to be supported thereby, said member having magnetic means thereon for creating a magnetic field adjacent to the upper surface when the member is supported thereby; an electronic circuit carried by the support and including an actuatable magnetically responsive device in the field of the magnetic means of the member when the member is on the upper surface, said circuit including a white noise generator having a signal, a speaker for generating sounds, and means coupling the white noise generator to the speaker so that the speaker can generate sounds corresponding to the output signals of the generator, said circuit further including oscillator means responsive to the actuation of the device for producing signals different from the output signals of the white noise generator, and means coupled with said oscillator means for mixing the output signals of the oscillator means and the generator to produce predetermined output sounds at the speaker.

4,333,259

WALL-CLAMBERING TOY SPACE BUG

Lin Pin-Huang, Taipei, Taiwan, assignor to Chen Te-Son, Taipei, Taiwan

Filed Nov. 13, 1980, Ser. No. 206,684
Int. Cl.³ A63H *11/04*
U.S. Cl. 46—132 **7 Claims**



1. A wall clambering toy comprising:

a longitudinal frame member having wall-attaching sucker means thereon at the opposite ends thereof;

a transverse frame member extending on opposite sides of said longitudinal frame member and having wall-attaching sucker means thereon at the laterally opposite ends thereof;

means mounting said members for reciprocal relative longitudinal movement therebetween accompanied by relative

vertical movement therebetween in an opposite direction at each end of said reciprocal longitudinal movement; and power-operated means for effecting movements, whereby the sucker means on one member attach to a wall while the other member advances with its sucker means detached relative to the one member, the other member moves toward and attaches its sucker means to the wall, the one member moves away from and detaches its sucker means from the wall, advances and moves toward and attaches its sucker means to the wall, and the cycle is repeated.

4,333,260

HOOP GUIDING AND BRAKING APPARATUS

Edward Hawkins, Sr., 117 Fisher Ave., Piscataway, N.J. 08854

Filed Apr. 13, 1981, Ser. No. 253,101
Int. Cl.³ A63H *33/02*
U.S. Cl. 46—220 **8 Claims**



1. A roller hoop or wheel guide apparatus comprising:
an elongated member manifesting a support section, said member having a central slot at one end, and having at least one opening transverse to said central slot near the opposite end of said elongated member with said opening directed from the top surface to the bottom surface of said elongated member,
a handle section having a grip member adapted to be grasped by the hand of a user, first and second projecting members extending from said grip member to form a fork and separated one from the other to form a support accomodating space with one end of said support section inserted within said space with said opening underlying said projecting members,
a hoop engaging section comprising a loop having a top section in a plane parallel to said support section as directed from said support section manifested by two symmetrical sloping side arms forming a V configuration and thence directed relatively parallel to one another in the same plane, and then having an abrupt downward transverse bend in each arm at the end remote from said support section to form a cross bar between said arms for propelling a wheel emplaced between said side arms, with said V configuration operative to exert a braking force against the sides of said wheel as imparted by a user during a rolling operation to slow or stop said wheel when rolling with the apex of said V inserted into said central slot of said support member.

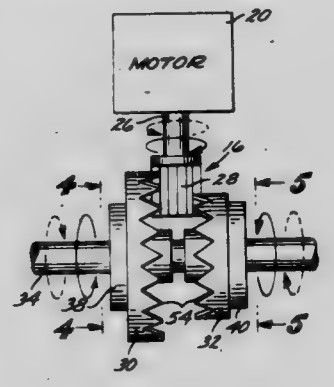
4,333,261

TWO SPEED TOY CAR AND TRACK ASSEMBLY

Lawrence T. Jones, Playa Del Rey; Anson Sims, Granada Hills; Ashley G. Howden; Mark S. Knighton, both of Los Angeles; L. C. James Kingsbury, Fountain Valley, and Richard F. M. Conroy, Woodland Hills, all of Calif., assignors to California R & D Center, Culver City, Calif.

Filed Jan. 22, 1980, Ser. No. 114,198
Int. Cl.³ A63H *17/36*
U.S. Cl. 46—257 **18 Claims**

1. A miniature toy car having different forward driving gear ratios to provide at least two different forward speeds to the car comprising:
a car chassis body;
a reversible electric motor mounted to the car chassis body and having a rotating output shaft;
wheel means connected to the chassis body to permit movement of the toy car on a support surface, the wheel means including a pair of driving wheels interconnected by a rigid axle;
a first set of gears operatively connected to the output shaft of the motor and driven thereby;
a one-way clutch connecting the first set of gears to the axle to drive the axle and the driving wheels in a forwardly direction only as the output shaft is rotated in a first direction, the one-way clutch allowing the first set of gears to rotate independently of the rigid axle when the output shaft rotates in a second direction;
a second set of gears operatively connected to the output shaft of the motor and driven thereby, and



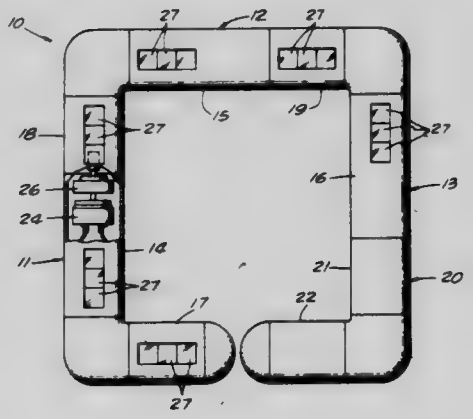
a second one-way clutch connecting the second set of gears to the axle to drive the axle and the driving wheels in a forwardly direction only as the output shaft is rotated in the second direction which is opposite to the first direction, the second one-way clutch allowing the first set of gears to rotate independently of the rigid axle when the output shaft rotates in the first direction, the first and second sets of gears having different gear ratios for driving the axle whereby the speed of forwardly driven rotation of the entire axle and of both rear wheels depends on the direction of rotation of the output shaft of the reversible electric motor.

4,333,262

SOLAR POWERED TOY

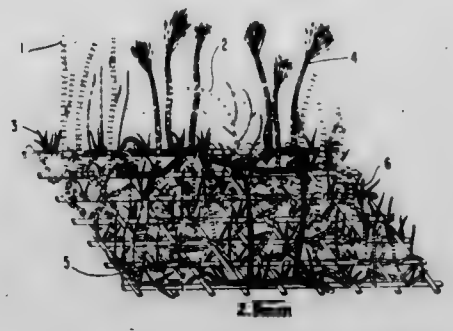
Akira Kimura, 595 Broadway #2, New York, N.Y. 10012

Filed Nov. 3, 1980, Ser. No. 203,279
Int. Cl.³ A63H *11/00, 33/26*
U.S. Cl. 46—266 **6 Claims**



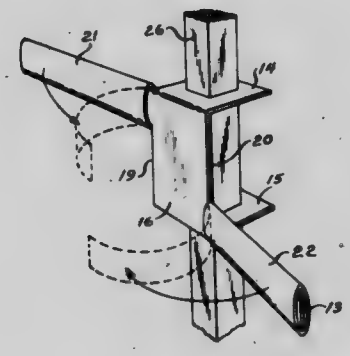
1. A solar powered toy including a plurality of legs each having a first section and an angularly related section, the legs being rotatably connected with adjacent legs, at least one of the legs having one section aligned with and pivotally connected to another section of an adjacent leg, means including an electric motor mounted in selected sections and each motor connected to turn the section of the adjacent leg, and solar cells mounted in an exposed position on at least one of said legs and connected to drive said electric motor.

4,333,263
ALGAL TURF SCRUBBER
Walter H. Adey, McLean, Va., assignor to The Smithsonian Institution, Washington, D.C.
Filed Oct. 7, 1980, Ser. No. 194,726
Int. Cl.[3] A01G *7/00*
U.S. Cl. 47—1.4 9 Claims



1. A method of producing an algal turf comprising the steps of:
providing spores of benthic microalgae,
providing a growing surface for spores of benthic microalgae,
subjecting the growing surface to light to grow a benthic algal turf on said surface,
subjecting the benthic microalgae on the growing surface to water surge motion to promote metabolite cellular-ambient water exchange and control the light reception on the turf so that said turf receives substantially uniform illumination, and
periodically harvesting said benthic microalgae algal turf growing on said surface to remove a portion of the algae growing thereon prior to said turf being overgrown by macroalgae.

4,333,264
TREE NURSERY CLIP
Thomas J. Smrt, 172 S. Northwest Hwy., Cary, Ill. 60013
Filed Jan. 24, 1978, Ser. No. 871,829
Int. Cl.[3] A01G *17/04, 9/12*
U.S. Cl. 47—42 1 Claim



1. A tree nursery clip for training a tree to grow in a desired configuration comprising a generally C-shaped mounting portion having an upper planar attaching portion and a lower planar attaching portion connected by a generally planar bight portion, the attaching portions extending generally perpendicularly from the bight portion and being generally parallel to each other, each of the attaching portions having a non-circular opening for receiving a correspondingly shaped stake whereby the clip will not rotate relative to the stake, and a pair of bendable arms extending from the bight portion in generally opposite directions, the arms being constructed and arranged to be bent around a tree to hold the tree adjacent to the stake.

4,333,265
AIR DROP PLANTING SYSTEM AND IMPROVED PLANTING DEVICE FOR SAME
Richard L. Arnold, P.O. Box 3276, Reno, Nev. 89505
Filed Mar. 13, 1980, Ser. No. 129,925
Int. Cl.[3] A01G *23/02*
U.S. Cl. 47—74 5 Claims

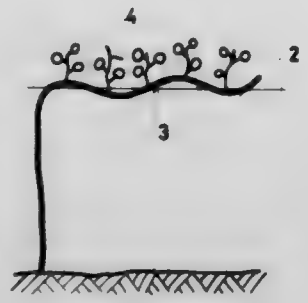


1. An improved air drop planting device for air drop planting of seedlings or the like, said planting device comprising:
a hollow air foil body formed of a non-water soluble, soil bacteria biodegradable material,
said hollow body bearing internally a growing medium and a seedling within said medium and said seedling having its root structure within said medium and its leaf structure rising from the medium at an open end of said hollow body,
said body comprising at least one life support nutrient for said seedling, said body material comprising compressed ureaform powder, said body taking the shape of an open cone including in sequence from said open end, at least a major cone portion and an integral thickened tip, and wherein at least said tip being of increased density relative to said major cone portion, the outer surface of said compressed powder cone being roughened such that the hollow cone body is inherently aerodynamically stable so as to drop nose first to effect planting of said seedling by earth surface penetration, said planting device further comprising a driving wing assembly, said driving wing assembly including a circular band having an internal diameter on the order of said hollow cone body adjacent its open end, being concentrically mounted to said hollow cone body and bearing a plurality of air foil wings projecting radially from the periphery of the band for imparting rotation to said cone body and increasing the relative velocity of said planting device during air drop, and wherein the pitch of each air foil wing is approximately ten degrees, and said air foil wings are positioned thirty-one degrees to each side of a centerline bisecting said band.

4,333,266
VITICULTURAL PROCESS AND VINE-DRESSING MACHINE
Tivadar Babo, Borkombinat, 6344 Hajos-Hild, Hungary
Continuation of Ser. No. 913, Dec. 27, 1978, abandoned, which is a continuation of Ser. No. 843,961, Oct. 20, 1977, abandoned. This application Feb. 8, 1980, Ser. No. 119,820
Int. Cl.[3] A01G *17/02*
U.S. Cl. 47—58 6 Claims

1. In a viticulture process comprising growing a grape-vinestock having at least one cordon arm with (a) vine branches depending downwardly therefrom and (b) said cordon arm being supported by a functional wire strung between supporting posts, the improvement which comprises initially growing and training said cordon arm to be supported on a single functional wire, initially cultivating the downwardly depending vine branches to depend freely from said cordon arm and to be spaced about 10 to 30 cm apart and spray dressing the freely

downwardly depending vine branches and the growth thereon substantially downwardly from a predetermined level, said predetermined level being intermediate the upper and lower ends of said freely downwardly depending vine branches, for substantially preventing fruit growth in the sprayed areas, thereby causing regulation of high product yield and quality or



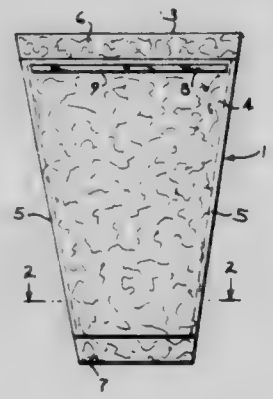
both, generally from the buds which are on the portion of the freely downwardly depending vine branches which are not subjected to said spray dressing, and thereby eliminating periodic cyclic product variations and permanently maintaining, without cutting, substantially the entire length of each freely downwardly depending vine branch.

4,333,267

PROTECTIVE SLEEVE FOR PLANTS

Earl R. Witte, Richfield, Wis., assignor to Meridian Industries Inc., Milwaukee, Wis.

Filed Apr. 28, 1980, Ser. No. 144,658
Int. Cl.³ A01G *9/02*
U.S. Cl. 47—84 **5 Claims**



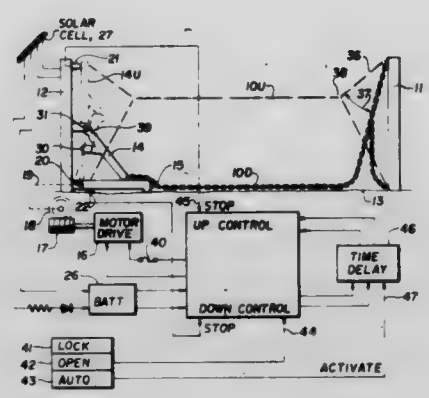
1. In combination, a pot to contain a plant and having a tapered body portion and a rim extending outwardly from the upper end of the body portion; and a protective open-ended sleeve surrounding the pot and the plant, said sleeve comprising a first sheet of material having a generally trapezoidal shape, a second sheet of material having a generally trapezoidal shape and disposed flatwise with respect to the first sheet, connecting means for joining the side edges of the sheets together to form a tapered sleeve to receive the plants, said sleeve having an open lower end and an open upper end, at least one of said sheets being formed of porous, spun bonded, randomly oriented synthetic fibrous material, each sheet having an upper edge and a lower edge and a pair of side edges that converge in a direction from the upper edge to the lower edge, the upper edge of a first of said sheets extending upwardly beyond the corresponding upper edge of the second sheet to provide a projecting end portion, said projecting end portion being foldable to enclose the open end of the sleeve and provide a complete enclosure for the plant, whereby the plant can be watered through the enclosed sleeve and air can circulate through the sleeve, the open lower end of said sleeve disposed in snug engagement with both the rim and the body portion of the pot.

4,333,268

ENERGY SAVING ELECTRICALLY ACTUATED BARRIER GATE CONTROL MEANS OPERABLE FROM SOLAR ENERGY

Robert F. Dumbeck, P.O. Box, Elgin, Tex. 78621

Filed Mar. 4, 1980, Ser. No. 127,233
Int. Cl.³ E01F *13/00*
U.S. Cl. 49—34 **19 Claims**



1. A self powered environmental energy operated barrier access gate assembly, comprising in combination,

a gate assembly with a barrier movable into open and closed positions for prevention of automotive traffic therethrough in closed position,

a reversible d-c motor,

a gate actuating mechanism powered thereby comprising a motor driven gear coupled for pivoting a single pivotable lever arm connected to the gate assembly for thereby moving the gate barrier between said open and closed positions,

an electric control system actuating said motor for moving the gate to selected ones of said open and closed positions in respective forward and reverse motor directions,

a d-c battery power supply with an environmental energy producing device coupled to said power supply to recharge the battery, and

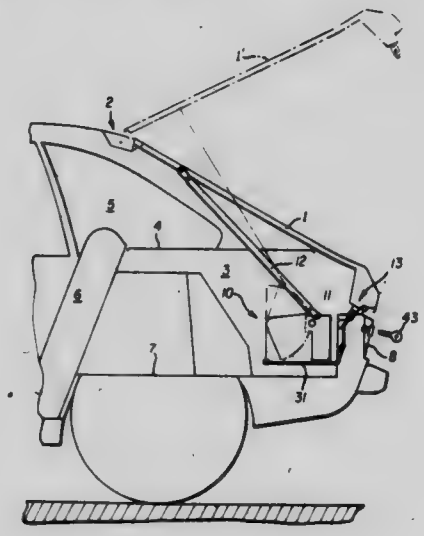
circuitry connecting said motor and control system to derive all operating power thereto from environmental energy by way of said rechargeable battery.

4,333,269

AUTOMATIC CONTROL AND LOCKING DEVICE

Jacques Bascou, Boulogne-Billancourt, France, assignor to Regie Nationale Des Usines Renault, Boulogne-Billancourt, France

Filed Mar. 17, 1980, Ser. No. 131,013
Claims priority, application France, Mar. 16, 1979, 79 06766
Int. Cl.³ E05F *15/00*
U.S. Cl. 49—280 **6 Claims**



1. An apparatus for the remote control and locking of a

vehicle storage area hatch member having a lock, said apparatus comprising:

a plate mounted in said vehicle adjacent said hatch member;

an electric motor including an output pinion mounted on said plate;

an axis on said plate;

means for operating said hatch member, said means for operating comprising a first sector pivotally mounted on said axis and having a first cogged portion of a first length, said first cogged portion being engageable with said output pinion for rotation of said first sector, and a rod connected between said first sector and said hatch member whereby rotation of said first sector moves said hatch; and

means for locking and unlocking said hatch member, said means for locking and unlocking comprising a second sector pivotally mounted on said axis and having a second cogged portion of a second length, said second cogged portion being engageable with said output pinion for rotation of said second sector, said means for locking and unlocking further comprising mechanical means intermittently connecting said second sector and said lock whereby rotation of said second sector operates said lock; wherein said second length of said second cogged portion is greater than said first length of said first cogged portion whereby, beyond a predetermined angle of rotation, only said second sector is rotated by said pinion, and wherein said mechanical means includes:

a sheathed cable having one end connected to said lock and another end located adjacent said second sector;

a second pin on said second sector; and

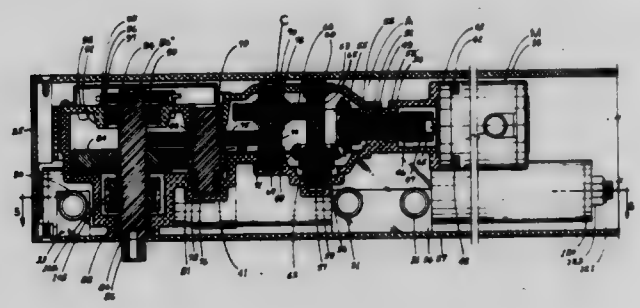
a fork fixed to said other end of said cable at such a position relative to said second pin that said fork is engaged by said second pin beyond said predetermined angle of rotation of said second sector whereby the further rotation of said second sector operates said lock.

4,333,270

AUTOMATIC DOOR OPERATOR

John C. Catlett, Cordova, Tenn., assignor to BESAM-EADS, Inc., Memphis, Tenn.

Filed Feb. 22, 1980, Ser. No. 123,503
Int. Cl.³ E05F *15/12*
U.S. Cl. 49—336 **8 Claims**



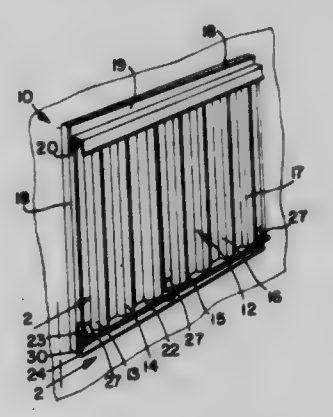
1. A universally configurable door operator for driving any of various swing-mounted doors regardless of the directions of normal opening and panic swing of such door, said operator including a prime mover and a main housing and comprising within said main housing a door driving shaft, means mounting said door driving shaft for rotation about a vertical axis, said shaft being connectable to said door for closing and opening of said door by either clockwise or counterclockwise rotation of said door driving shaft, transmission means interconnecting said prime mover and said door driving shaft for producing rotation of said shaft in either a clockwise or counterclockwise direction for normal opening of said door pursuant to selective delivery of power by said prime mover, a pinion interconnected with said shaft for corresponding rotation with said shaft, and a rack gear meshing with said pinion for shifting movement in either of opposite directions about a longitudinal axis transverse to the rotational axis of said shaft in response to clockwise or counterclockwise rotation of said shaft, said main housing including an opening for access to one end of said rack gear, the improvement comprising a single changeable modular assembly including an assembly housing for selective attachment to said main housing and an operating rod within said assembly housing and including a portion extending through said opening into said main housing for selective interengagement with said one end of said rack gear, said assembly housing including a single coiled compression spring maintained therein in a state of pretension by said operating rod, said assembly housing orienting said spring for compression on an axis aligned with the longitudinal axis of transverse shifting movement of said rack gear, said spring having an inner end oriented toward said rack gear and an outer end oriented remote from said rack gear, said operating rod providing further tensioning of said spring by compression of said spring from said inner end or the outer end thereof in response to shifting of said rack gear in a predetermined direction corresponding to the direction of normal opening swing of said door for storing energy, said spring returning to its original state of pretension for transferring said stored energy to said rack gear via said operating rod to close said door upon cessation of delivery of power by said prime mover, and means within said assembly housing for limiting movement of said operating rod to establish the permissible extremes of shifting of said rack gear thereby to determine the permissible extremes of normal opening and panic swing of said door, said modular assembly being changeable for changing the normal opening and panic swing directions of said door.

4,333,271

HURRICANE PANEL SECURITY DEVICE

James F. DePaolo, Coral Springs; Joseph T. Hale, Miami, and Carl F. Holmberg, Miami, all of Fla., assignors to Nichols-Homeshield, Inc., Aurora, Ill.

Filed Mar. 13, 1981, Ser. No. 243,470
Int. Cl.³ E06B *3/32*
U.S. Cl. 49—464 **7 Claims**

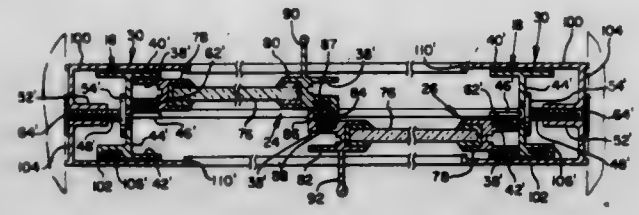


1. A hurricane panel installation having a header disposed adjacent the top of a building opening and a sill disposed adjacent the bottom of the opening, a hurricane panel extending into said header and supported on said sill, one or more fasteners extending vertically through a portion of the sill and engaging the hurricane panel above said portion and in contact with another part of the sill below said portion, a security member beneath said sill portion in engagement with said fasteners to prevent their removal, and a locking member extending through said sill portion and engaging the security member to lock the security member against displacement.

4,333,272
EXPANDABLE WINDOW DEVICE

Stephen B. Eastman, 5907 NE. 98th Ave., Vancouver, Wash. 98662

Filed Jun. 2, 1980, Ser. No. 155,576
Int. Cl.[3] E06B *1/04*
U.S. Cl. 49—505 5 Claims



1. An expandable window device adaptable for various size casings, said window device comprising:

a plurality of track members including a sill track member, a header track member and jamb track members joined to form a track frame into which a window sash is slidably received,

at least one U-shaped horizontal expander channel receiving therewithin a horizontally disposed track member, and at least one U-shaped vertical expander channel receiving therewithin a vertically disposed jamb track member,

and expanding means extending from ones of said track members and engaging ones of said expander channels for urging said expander channels toward the inside of the casing into which the window is to be located,

wherein said expanding means comprise plural threaded fasteners rotatable from within said track frame and threadably engaging said ones of said expander channels for adjustably urging the same toward the inside of the casing,

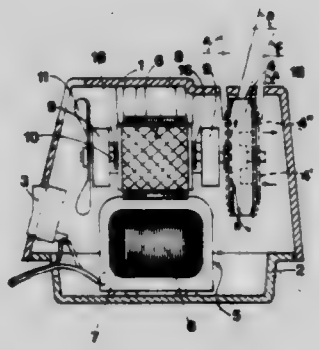
ones of said track members being substantially H-shaped in cross section having side flanges over which said expander channels are slidable and a web between said side flanges for receiving a said threaded fastener, a said threaded fastener extending for making a threaded connection with a rib at the end of a said expander channel,

wherein a said H-shaped track member is provided with a central longitudinal track partition toward said window sash for forming a double track adaptable for receiving either one of a pair of window sashes, said central longitudinal partition having breaks at locations of said threaded fasteners, each of said fasteners comprising a flathead screw having a driving head received in a countersunk hole in the web of a said track member and accessible from within the said track member.

4,333,273
ELECTRIC KNIFE SHARPENER

Gilles Roucau, 11667 St-Julien, Montreal-North, Prov. of Quebec, Canada (H1H 3Y9), and Emilien Roussy, 2259 Desormeaux, St., Montreal, Prov. of Quebec, Canada (H1L 4X2)

Filed May 23, 1980, Ser. No. 152,701
Int. Cl.[3] B24B *3/54*
U.S. Cl. 51—102 5 Claims

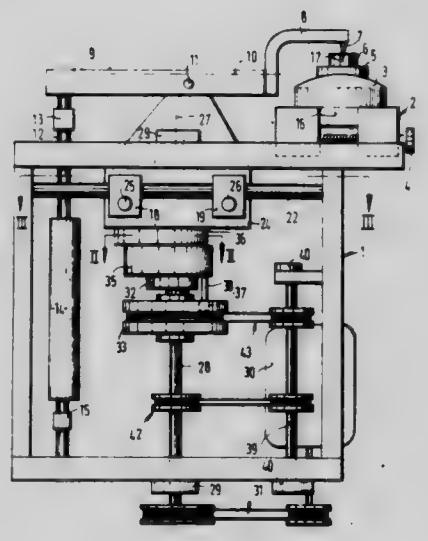


1. An electric knife sharpener comprising a housing, an electric motor mounted in said housing and including a rotor and a stator, bearing means rotatively holding the rotor and arranged for axial displacement of the latter, said rotor having an armature rotatively carried by said bearing means and axially displaceable relative thereto, the stator having a winding producing a magnetic field operatively acting on the armature to drive the rotor and axially biasing the armature against axial displacement thereof from a magnetically neutral axial position relative to said bearing means, a grinding wheel connected to the rotor and axially displaceable bodily therewith against the magnetic axial bias produced on the rotor by the winding, and said housing havinhg at least one aperture therein adjacent the grinding wheel and providing access to hold a knife in lateral contact with one side of the grinding wheel against said magnetic axial bias for operative sharpening of the knife.

4,333,274
MACHINE FOR SMOOTHING AND/OR POLISHING LENS FACES

Stuart Eadon-Allen, Birmingham, England, assignor to Dollond & Aitchison Services Limited, Birmingham, England

PCT No. PCT/GB78/00039, § 371 Date Jul. 11, 1979, § 102(e) Date Jul. 11, 1979, PCT Pub. No. WO79/00285, PCT Pub. Date May 31, 1979
PCT Filed Nov. 13, 1978, Ser. No. 127,243
Int. Cl.[3] B24B *13/00*
U.S. Cl. 51—160 10 Claims



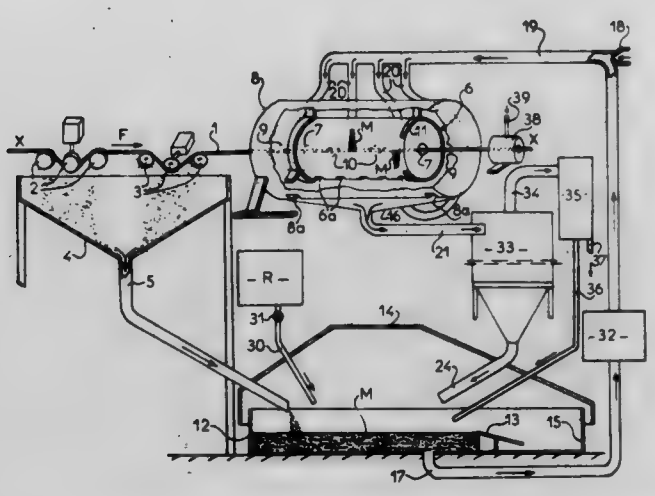
1. A machine for smoothing and/or polishing lenses comprising at least one pair of relatively movable holders arranged for holding respective ones of a tool and a workpiece which are to be rubbed together by relative movement of the holders, constraining means for maintaining respective reference axes of the holders parallel to a reference plane and driving means for causing said relative movement of the holders characterised in that the driving means comprises first and second elements which are rotatable about a main axis at respective different speeds, the first element defining an auxiliary axis offset from the main axis to move around the main axis when the first element rotates and an output element mounted for rotation about the auxiliary axis, the second element being so associated with the output element as to move the output element around the auxiliary axis when the second element moves around the main axis.

4,333,275

PROCESS AND APPARATUS FOR DESCALING ROD

Jean Bernot, Saint Dizier, France, assignor to Trefilunion S.A., Saint Dizier, France

Filed Jun. 13, 1979, Ser. No. 48,114
Claims priority, application France, Jun. 20, 1978, 78 18654
The portion of the term of this patent subsequent to Nov. 27, 1996, has been disclaimed.
Int. Cl.³ B24C 1/00, 3/12
U.S. Cl. 51—320 16 Claims



1. A process for removing iron oxide scale from a steel rod, including the steps of bending the rod to cause a portion of said scale to be detached from the rod surface, collecting the detached scale, projecting the collected scale against the rod within an enclosure at a point downstream from the bending site, re-collecting the projected and newly detached scale, and recycling the re-collected scale for further projecting, characterized by:

(a) suspending the collected, projected, re-collected and recycled scale in a liquid carrier,

(b) accelerating the projected suspended scale against the rod with pressurized air,

(c) projecting the accelerated suspended scale against the rod at a plurality of axially spaced points relative to the longitudinal dimension of the rod, and

(d) elastically cushioning the interior surface of the enclosure.

4,333,276

TUMBLING APPARATUS

James R. Goff, Rte. 1 - Box 247AB, Seminole, Okla. 74868

Filed Mar. 26, 1980, Ser. No. 134,245
Int. Cl.³ B24C 3/26
U.S. Cl. 51—422 9 Claims

1. A tumbling apparatus for tumbling workpieces comprising:

a frame,

a first roller rotatably mounted in said frame,

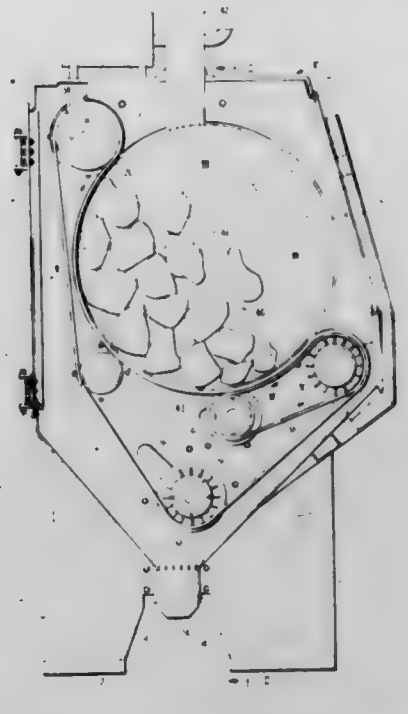
a second roller spaced from said first roller and rotatably mounted in said frame,

a first endless belt mounted circumferentially around said first and second rollers thereby defining an outer surface of said first belt and defining an upwardly opening pocket on the outer surface of said first belt for receiving said workpieces,

means for driving said first belt,

a third roller spaced from said first and second rollers rotatably mounted in said frame and located below said pocket,

a second endless belt mounted circumferentially around said second and third rollers and located within said first endless belt so that said second belt is in supporting contact with said first belt underneath a portion of said pocket.

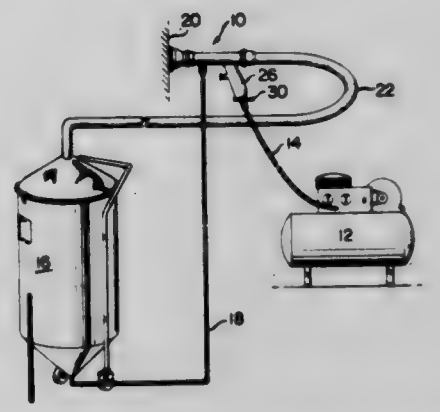


4,333,277

COMBINATION SAND-BLASTING AND VACUUM APPARATUS

Robert T. Tasedan, 562 Joann, A, Costa Mesa, Calif. 92627

Filed Jul. 28, 1980, Ser. No. 172,776
Int. Cl.³ B24C 3/02
U.S. Cl. 51—425 6 Claims



1. A sand-blasting apparatus, including a compressor and a storage tank, comprising:

a sand-blasting gun having an air-inlet passage and a sand-inlet passage, and including a longitudinal cylindrical housing provided with front and rear open ends;

a first means in said gun to provide a continuous rearward air flow to establish a continuous vacuum in a rearward direction through said cylindrical housing;

a second means in said gun to provide a selective rear air flow to establish a secondary selective vacuum in a rearward direction through said cylindrical housing;

a trigger-valve means to control air flow to said secondary vacuum means, and interposed between said secondary vacuum means and said air-inlet passage;

an air-and-sand-mixing-vacuum chamber;

a front air-discharge nozzle positioned within said air-and-sand-mixing-vacuum chamber;

a sand-discharge nozzle attached to said gun, and projecting from said front open end of said housing; and

means to enclose said sand-discharge nozzle to confine the sand between said gun and the surface of the workpiece

being sanded, whereby sand in said enclosure is vacuumed therefrom;

wherein said first means to establish a continuous vacuum comprises:

a rear discharge bore formed in said gun and positioned to communicate with said air-inlet passage; and

a rear air-discharge nozzle mounted in said bore, wherein said rear air-discharge nozzle is disposed adjacent said rear open end of said cylinder; and

wherein said second means to establish a selective secondary vacuum comprises:

a second air passage disposed between said trigger-valve means and said front air-discharge nozzle, said second air passage communicating with said air-inlet passage when said trigger-valve means is operated; and

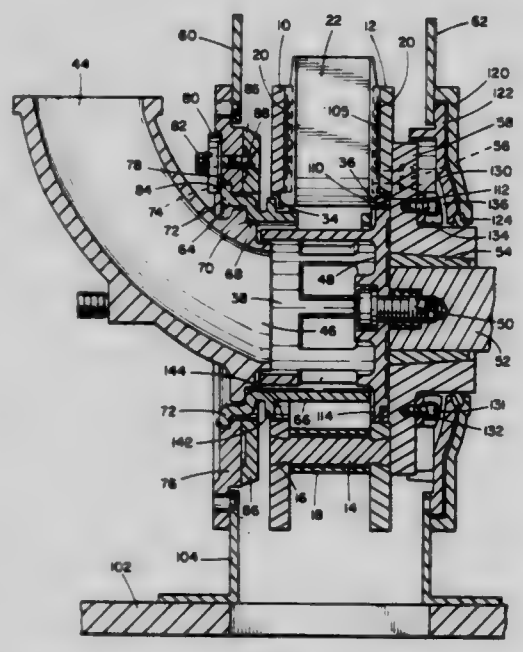
a pair of discharge orifices communicating between said second air passage and said housing, said orifices being disposed angularly and rearwardly of said second air passage, to establish a rearward vacuum when said trigger-valve means is operated.

4,333,278

BLADED CENTRIFUGAL BLASTING WHEEL

Harold F. Schulte, Mishawaka; Raymond M. Leliaert, and Robert D. Rohr, both of South Bend, all of Ind., assignors to Wheelabrator-Frye Inc., Hampton, N.H.

Filed Sep. 24, 1979, Ser. No. 78,478
Int. Cl.³ B24C 5/06
U.S. Cl. 51—434 **10 Claims**



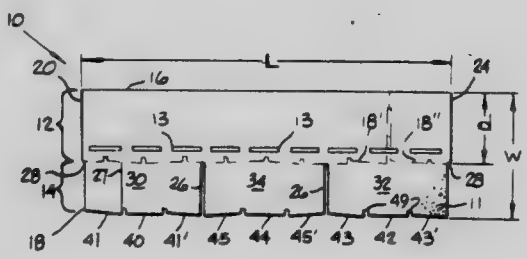
1. In a bladed centrifugal blasting wheel, a pair of front and back wheel plates interconnected in spaced parallel relation with each wheel plate having a central opening defined by inner peripheral surfaces of the wheel plates, a plurality of crosswise aligned grooves in the inner faces of said front and back wheel plates extending radially in equally circumferentially spaced apart relation from the inner peripheral surfaces of the wheel plates to their outer edges, a blade for each pair of aligned grooves dimensioned to have a width slidably to be received between said pair of crosswise aligned grooves and dimensioned to have a length to enable insertion into said crosswise aligned grooves through said central opening, means releasably holding the blades within said crosswise aligned grooves when in position of use between said front and back wheel plates, said means comprising lugs extending laterally from the opposite sides of the inner end portion of the blade for a distance to extend beyond the inner ends of the grooves whereby the inner peripheral surface of the plates, adjacent the grooves, lies in the path of the lugs to prevent displacement of the blade beyond engagement between the lugs and the plates when the blades are inserted in position of use, an impeller in the form of a vaned cylindrical member mounted within the central opening, flange means extending radially outwardly from the impeller for a distance less than the central opening but more than the distance between the central opening less the length of the blade lugs, and slots in the outer ends of said flange means dimensioned to receive portions of said blade lugs extending inwardly beyond the inner ends of the grooves to interlock the impeller and the blades to maintain registry therebetween.

4,333,279

THREE-TAB SHINGLE WITH STAGGERED BUTT EDGE FEATURE

Raymond L. R. Corbin, Littleton, CO, and Robert F. Reinhart, San Clemente, Calif., assignors to Manville Service Corporation, Denver, Colo.

Filed Jan. 3, 1980, Ser. No. 109,377
Int. Cl.³ E04D 1/26
U.S. Cl. 52—105 **12 Claims**



1. In a shingle of generally rectangular planar shape having a headlap portion and a butt portion, said rectangular shape being defined by a top edge at the upper edge of the headlap portion, a butt edge on the lower edge of said butt portion, a leading edge and a trailing edge each extending between said top edge and said butt edge;

at least one slot cutout having a length which extends from said butt edge across said butt portion towards said headlap portion and terminating a predetermined distance from said top edge;

means located on at least said trailing edge for indicating said predetermined distance;

a first tab extending longitudinally between said leading edge and said at least one slot cutout;

a second tab extending longitudinally between said at least one slot cutout and said trailing edge;

said first tab and said second tab being substantially the same length and each tab having a lower edge corresponding to a portion of said butt edge;

an alignment edge extending a minor portion of the length of said lower edge of each said first tab and said second tab for aligning with the terminal end of a slot cutout or an indicating means of a substantially identical subjacent shingle, said alignment edge being generally straight, parallel, and spaced the same distance away from said top edge of the shingle;

the lower edge of said first tab and the lower edge of said second tab each including a first staggered edge and a second staggered edge, said staggered edges flanking said alignment edge, said staggered edges being angled relative to said top edge and relative to said alignment edge, said staggered edges together with said alignment edges operating to give said butt edge a jagged, nonuniform appearance, the improvement comprising:

(a) said first staggered edge of said first tab is adjacent said leading edge and said second staggered edge of said second tab is adjacent said trailing edge, said first and second staggered edges having substantially identical contours and spaced substantially equal distances from said top edge, and

(b) a knife slit located between said first staggered edge and said alignment edge of said first tab, said knife slit extending substantially across said butt portion.

4,333,280

SHEAR LOAD RESISTANT STRUCTURE

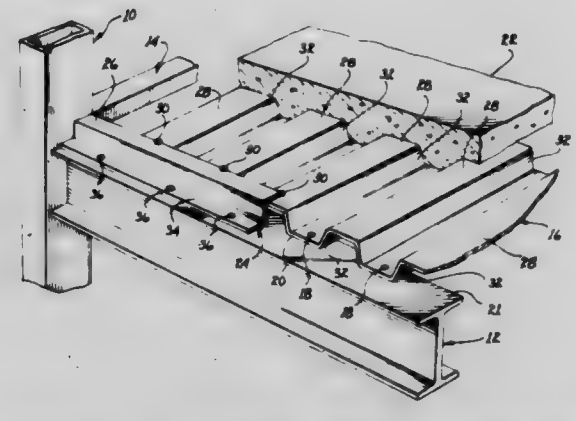
Virgil R. Morton, Redondo Beach, Calif., assignor to Verco Manufacturing, Inc., Phoenix, Ariz.

Division of Ser. No. 86,271, Oct. 19, 1979, Pat. No. 4,335,557, which is a continuation-in-part of Ser. No. 936,176, Aug. 23, 1978, Pat. No. 4,186,535. This application Nov. 24, 1980, Ser. No. 209,874

The portion of the term of this patent subsequent to Feb. 5, 1997, has been disclaimed.

Int. Cl.[3] E04B *1/98*

U.S. Cl. 52—167 34 Claims



1. A diaphragm for translating horizontal shear loads imposed thereon through a supporting load bearing member to vertical load resisting members in buildings, said diaphragm comprising in combination:

(a) a fluted deck, said fluted deck including webs alternately interconnecting top and bottom flutes terminating at opposed open ends defined by the extremities of said webs, said top flutes and said bottom flutes, said fluted deck having each of the opposed open ends supported by a load bearing member;

(b) first attachment means for rigidly securing selected ones of said bottom flutes to the supporting load bearing member;

(c) load translation means transversely located with respect to the flutes of said fluted deck for interconnecting selected ones of the open ends defined by said top flutes and adjacent ones of said webs with the load bearing member;

(d) second attachment means for rigidly securing at least one of said webs and the interconnecting one of said top flutes of the selected ones of the open ends directly to said load translation means; and

(e) third attachment means for rigidly securing said load translation means with the load bearing member;

whereby, said load translation means inhibits relative movement between said top and bottom flutes and buckling said webs of said fluted deck due to horizontal shear loads imposed upon said diaphragm and said load translation means translates the horizontal shear loads from said diaphragm to the load bearing member and ultimately to the vertical load resisting members.

4,333,281

BASEMENT WALL DRAINING MOLDING

Santo Scarfone, Windsor, Canada, assignor to Scarfone Construction Limited, Windsor, Canada

Filed Mar. 10, 1980, Ser. No. 128,523

Claims priority, application Canada, Feb. 14, 1980, 348689

Int. Cl.[3] E04B *1/70;* E02D *31/02*

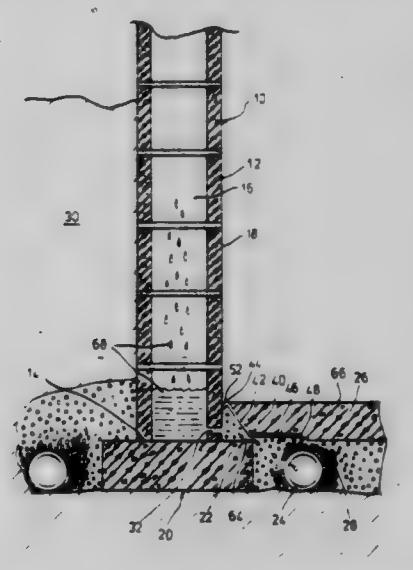
U.S. Cl. 52—169.5 9 Claims

1. A basement wall drain unit for removing moisture from a wall formed of concrete blocks to have a base, an interior, and an inner surface, the blocks being laid on a footing with a weeping drain extending beneath a concrete basement floor having an upper surface and along a portion of the footing which extends inwardly past the inner surface of the wall, a plurality of horizontally spaced drain passages having been formed to extend from the interior of the wall to the inner surface of the wall near the base of the wall, the drain unit comprising an elongated sheet-like integral body having a substantially uniform cross section to extend adjacent the base of the wall generally above the inner portion of the footing with the concrete basement floor poured against it, the body having:

(a) a first wing portion spaced from the inner surface of the wall and extending upwardly to an upper edge above the upper surface of the concrete basement floor; and

(b) a second wing portion extending inwardly from the first wing portion to an inner edge beyond the inner portion of the footing, spacing being provided between the second wing portion and the inner portion of the footing;

whereby a space is formed between the drain unit and the inner surface of the wall and the inner portion of the



footing into which moisture may drain from the interior of the wall through the drain passages and then down into an area beneath the basement floor adjacent the weeping drain,

said body further having:

(c) a lip portion sloping downwardly and outwardly from the upper edge of the first wing portion to abut against the inner surface of the wall, the lip portion having spaced indentations therealong to form openings between it and the inner surface of the wall, whereby moisture may drain down from the inner surface of the wall, through the openings into said space between the drain unit and the inner surface of the wall and the inner portion of the footing and then down into the area beneath the basement floor adjacent the weeping drain.

4,333,282

MULTI-LAYERED BULLETPROOF WINDOW

Richard C. Medlin, 2434 Toftrees, San Antonio, Tex. 78209

Continuation-in-part of Ser. No. 920,715, Jun. 30, 1978, Pat. No. 4,316,404. This application May 5, 1980, Ser. No. 146,300

Int. Cl.[3] E06B *7/12, 3/24*

U.S. Cl. 52—172 8 Claims

1. A protective window comprising:

a first section of translucent material and a second section of translucent material, and first section and said second section being separated by a space, and said first section and said second section being composed and constructed to resist penetration by high velocity projectiles;

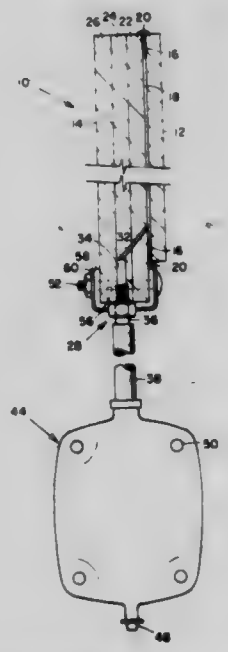
a coupling located between said first section and said second section, the combination of said coupling, said first section, and said second section enclosing said space and preventing substantial gaseous communication between said enclosed space and atmosphere;

a low pressure gaseous drying agent within said enclosed space, said gaseous drying agent being pressurized more than one atmosphere;

means for maintaining pressure of said gaseous drying agent at more than one atmosphere, said gas maintaining means operating by supplying additional gaseous drying agent via passage means to within said enclosed space as may be necessary to maintain pressure of said gaseous drying agent at more than one atmosphere, said means for maintaining including;

at least one window aperture, said window aperture being a means of gaseous communication between said enclosed space and a gaseous drying agent reservoir; and

a combination comprising said enclosed space, said window aperture, said passage means, and said gaseous drying agent reservoir, said combination being constructed and designed so that upon loss of said gaseous drying agent from within said enclosed space, additional quantities of said gaseous drying agent are communicated from said gaseous drying agent reservoir to



within said enclosed space as to at least partially offset said loss of said gaseous drying agent from within said enclosed space and thereby maintain a gas pressure of more than one atmosphere within said enclosed space;

said gaseous drying agent reservoir being substantially impermeable to gaseous diffusion and capable of containing said gaseous drying agent at more than one atmosphere for extended periods of time without undue leakage, said gaseous drying agent reservoir being designed and constructed to exert a continuous positive pressure upon said gaseous drying agent such that some of said gaseous drying agent is communicated from said gaseous drying agent reservoir to said enclosed space, said gaseous drying agent reservoir continuing to exert positive pressure upon said gaseous drying agent remaining within said gaseous drying agent reservoir; and

said gaseous drying agent reservoir including an elastic collapsible bag.

4,333,283

DOUBLE SASH STRUCTURE

Hiroyuki Ebata, Uozu, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

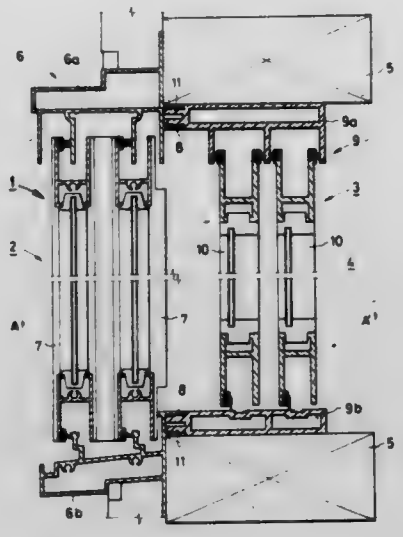
Continuation of Ser. No. 863,581, Dec. 22, 1977, abandoned. This application Oct. 30, 1979, Ser. No. 89,310

Claims priority, application Japan, Dec. 29, 1976, 51/178687[U]

Int. Cl.³ E06B *3/26, 1/32, 1/26*

U.S. Cl. 52—202 **6 Claims**

1. A double sash structure for attachment in and around an opening in a room structure, a first window frame supporting said first sash and having first engagement means integral therewith, a second sash disposed on the indoor side of the room structure, and a second window frame supporting said second sash and having second engagement means integral therewith adapted for positive coupling with said first window frame, said first window frame and said first sash being formed of a metallic material and said second window frame and second sash a synthetic resin material having a low heat con-



ductivity, said first and second engagement means each comprising a projecting engagement member extending toward the other and operative upon attachment of said second frame to said first frame to securely fix the first and second frames together.

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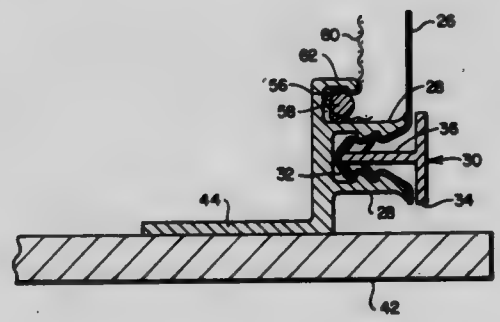
EXTRUSION AND BUILDING STRUCTURES

David F. Meadows, Milton, W. Va., assignor to DoNel Corporation, Mt. Vernon, Ohio

Continuation-in-part of Ser. No. 1,593, Jan. 8, 1979, Pat. No. 4,233,790, which is a continuation-in-part of Ser. No. 807,492, Jun. 17, 1977, abandoned. This application Jun. 9, 1980, Ser. No. 157,863

Int. Cl.³ E04B *1/00*

U.S. Cl. 52—222 **10 Claims**



1. A window-like structure comprising:

a plurality of rigid side and end members secured together in perpendicular and parallel relationship to form a frame and arranged to be secured to a building structure, the ends of said members being mitered and united together, each of said members of said frame being formed with a first channel which combine to form a continuous channel positioned around the periphery of said frame, said channel including teeth projecting inwardly from its sides;

a sheet of flexible plastic material spreading over all of said side and end members;

a plurality of locking members being inserted in said continuous channel, thereby forcing a portion of said flexible plastic sheet into said channel and stretching, sealing, holding, and locking said sheet to said frame in said channel;

each said locking member being formed as a one piece extrusion having a generally T-shape in cross section with a stem and a head both of which are formed of substantially rigid plastic material and which has both sides of the stem

of the T provided with integral spaced angularly and outwardly extending projections of plastic material substantially more flexible than the substantially rigid material of the main section of the T and integrally united with the substantially rigid material of the main section of the T, said projections having a thickness less than the stem and being inclined from the stem toward the head;

the width of the channel between the crests of the teeth being less than the width between the outer ends of the projections, the teeth and projections combining to lock the sheet in place, the improvement comprising:

means forming a second channel in the side and end members, said second channel being spaced inwardly from the first channel and designed to receive a resilient spline, a sheet of screen material extending over the frame and the second channel and being locked in said second channel by the spline.

4,333,285

BUILDING STRUCTURE

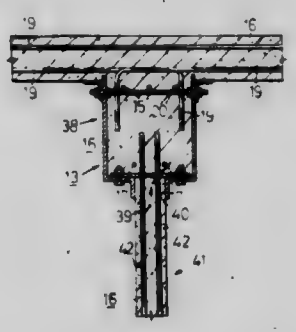
Hajime Koizumi, Tokyo; Kozo Toyama, Tama; Mikio Kobayashi; Hajime Hatano, both of Hachiooji; Toshio Saeki, Tama; Kaoru Mizukoshi, Hino; Shinichi Tamanaga; Keizo Miyakawa, both of Kodaira, and Tomoyasu Kato, Tokyo, all of Japan, assignors to Kajima Kensetsu Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 858,198, Dec. 7, 1977, Pat. No. 4,211,045. This application Aug. 8, 1979, Ser. No. 64,732

Claims priority, application Japan, Jan. 20, 1977, 52-5198; Mar. 17, 1977, 52-30112; May 24, 1977, 52-66452; May 24, 1977, 52-66453; May 24, 1977, 52-66454

Int. Cl.³ E04B *5/36*

U.S. Cl. 52—252 **3 Claims**



1. A building structure comprising: columns and a concrete pour of a wall, slab and beams, including

(a) a steel reinforcing channel comprised of a pair of opposed horizontally extending side wall members having bottom and top openings therebetween communicating with the space between said members, the contour of said steel channel being in conformity with that of a concrete beam to be formed, and said side wall members being confined between adjoining columns;

(b) said bottom and top openings extending continuously along the entire longitudinal extent of said side wall members;

(c) horizontal steel interconnecting members transversely spanning and interconnecting the lower edges of said opposed side wall members, said interconnecting members being spaced apart so as not to appreciably diminish the area of said bottom opening;

(d) reinforcing rods extending from said wall into the space between said opposed side wall members through said bottom opening;

(e) reinforcing rods extending from said slab into the space between said opposed side wall members through said top opening, and

(f) interconnecting concrete forming said slab and filling said channel and said wall through said top and bottom openings to form a concrete beam atop and coextensive with said wall and integrated therewith throughout the entire length of the beam.

4,333,286

WALLS AND PARTITIONS AND CONCEALED FASTENERS FOR ASSEMBLY THEREOF

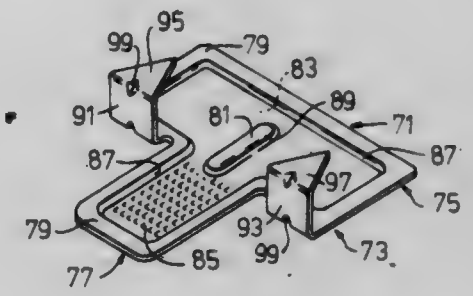
Roger N. Weinar, 19 Parkside Ave., Hamburg, N.Y. 14075

Continuation-in-part of Ser. No. 947,078, Sep. 29, 1978, Pat. No. 4,221,095, and Ser. No. 171,331, Jul. 23, 1980, Pat. No. 4,296,580, which is a continuation-in-part of Ser. No. 736,425, Oct. 28, 1976, Pat. No. 4,117,644. This application Sep. 8, 1980, Ser. No. 184,961

The portion of the term of this patent subsequent to Oct. 3, 1995, has been disclaimed.

Int. Cl.³ E04B *1/00*

U.S. Cl. 52—281 **39 Claims**



1. A wall or partition comprising a substructure and a surface structure, said substructure including framing or supporting means for holding the surface structure, and said surface structure comprising first and second aligned substantially flat panels, adjacent at sides thereof, each of which has concealed major back, sides, top and bottom surfaces and a visible major front surface, which panels are substantially invisibly secured to the substructure and thereby are secured together or spaced apart a spacing distance by a first series of spaced apart concealed fastener clips appended to said first panel and to the substructure, and a second series of spaced apart concealed fastener clips appended to said second panel, so located as to avoid contact with any of said first series clips, and with a part of each of the panel contacting surfaces of each of the second series of clips contacting the major back surface of the first panel and spacing such surface from the framing or supporting means, with each of the clips of both said series being made from sheet or strip material and having spacing base portions, each of which is substantially coplanar and directly continuous, extending substantially parallel to said respective panels at concealed major back surfaces of said panels, with said spacing base portions each having, spaced apart, a substructure contacting surface on one side of the material thereof and a panel contacting surface on the other side, which spacing base portions space the major back panel surface from the framing or supporting means, which clip surfaces are spaced apart by intermediate strengthening wall(s), a plurality of web portions extending from each of said base portions and between the ajdacent first and second panel sides, and pointed tabs extending from said web portions, impaling a side of the panel to which the clip is appended, and wherein the clip fasteners of the second series of clips include reinforcing and lateral movement inhibiting indentations in web portions thereof.

4,333,287

SYSTEM OF LATTICE TILES

Marlan M. Lewis, 6036 Ridgecrest, Dallas, Tex. 75231, assignor to Marlan M. Lewis, Dallas, Tex.

Continuation of Ser. No. 930,377, Aug. 2, 1978, abandoned. This application May 29, 1980, Ser. No. 154,585

Int. Cl.³ B44F *7/00*

U.S. Cl. 52—311 **2 Claims**

1. A system of lattice tiles for constructing a decorative lattice, comprising:

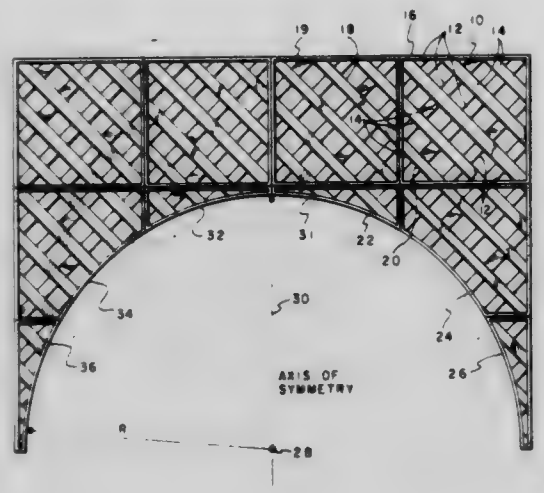
a first tile which includes:

a first plurality of strips,

a second plurality of strips attached across said first strips to

form a square section of lattice with said strips disposed symmetrically with respect to the diagonals of the square so that a plurality of said tiles may be joined together with the strips of one tile appearing to be continuations of strips in adjacent tiles; and,

second, third, and fourth tiles, each comprising a portion of a square section formed by said first tile, said portions being shaped to form one half of an arch when said third tile is installed adjacent to said second tile and when said fourth tile is installed adjacent said third tile,



each of said tiles including a border strip around the tile and the border strip of said first tile being adapted to abut against and along an identical border strip of another tile, and at least two sides of the border strips of said second, third, and fourth tiles adapted to abut against and along an identical border strip on another tile,

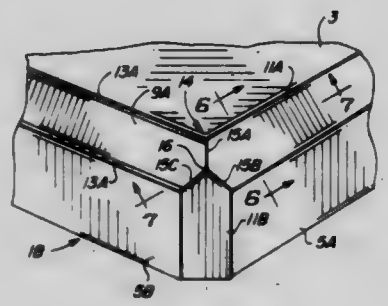
whereby a plurality of said tiles can be installed to form an archway.

4,333,288

BEVELED EDGE TRIM

Donald W. Coombs, 8191 E. Helen St., Tucson, Ariz. 85715

Filed Oct. 3, 1979, Ser. No. 81,478
Int. Cl.[3] B32B *3/02*
U.S. Cl. 52—312 6 Claims



1. A countertop structure comprising in combination:

a. a substrate, said substrate having a horizontal flat upper surface and a substantially vertical edge surface;

b. a first laminate layer adhesively attached to the upper surface of said substrate;

c. a second laminate layer adhesively attached to the substantially vertical surface of said substrate;

d. a first beveled inlay groove in said countertop structure, the bottom surface of said beveled inlay groove being of uniform width, said first beveled inlay groove being disposed between adjacent edges of said first and second laminate layers, said first beveled inlay groove having two opposed side walls at least partially formed by said adjacent edges of said first and second laminate layers, said side walls of said first beveled inlay groove each being sloped outward from the bottom surface of said first beveled inlay groove so that the width of the top portion of said first beveled inlay groove is greater than the width of the bottom surface thereof;

e. a first inlay strip disposed in and substantially coextensive with said first beveled inlay groove, said first inlay strip having a thickness substantially equal to the depth of said first beveled inlay groove, said first beveled inlay strip having two opposed side walls and an inner surface and outer surface, said side walls of said first beveled inlay strip each being sloped so that the width of the outer surface of said first inlay strip is substantially equal to the width of the top portion of said first beveled inlay groove and the width of the inner surface of said first inlay strip is substantially equal to the width of the bottom surface of said first beveled inlay groove, so that the side walls of said first inlay strip closely adjoin the two side walls of said first beveled inlay grooves, respectively; and

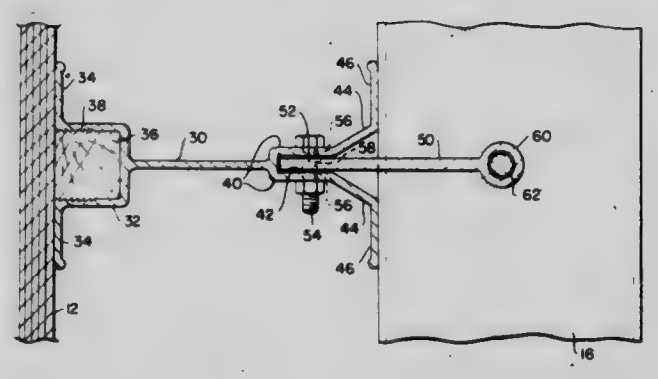
f. adhesive means disposed between said first beveled inlay groove and said first inlay strip.

4,333,289

CONCRETE FORM SUPPORT STRUCTURE

James K. Strickland, Jacksonville, Fla., assignor to Strickland Systems, Inc., Jacksonville, Fla.

Filed Feb. 29, 1980, Ser. No. 125,939
Int. Cl.[3] B24B *45/00*
U.S. Cl. 52—364 2 Claims



1. Apparatus for use in concrete form panel support comprising:

an elongate beam having a generally uniform I-shaped cross section with an outwardly opening pocket extending along one edge thereof to retain a nailer for securing said beam to a form panel and a Y-shaped segment extending along the opposite edge of said beam, said segment being formed by legs having one length thereof parallel to define therebetween an outwardly opening cavity and a second length of said legs diverging outwardly from said first length, said legs having oppositely directed flanges extending from the outer ends of the diverging second length of said legs;

a bracket having a flat portion insertable into said cavity and means functioning as a fastening tubular portion connected to said flat portion, said tubular portion accommodating a fastening element therewithin to fasten said bracket and the elongate beam carried thereby to a stiffener member of the form panel support structure;

means enabling said flat portion of said bracket to be secured in said cavity of the beam Y-shaped segment at a predetermined position along the length of said beam;

a fastening element received within said tubular portion of said bracket; and

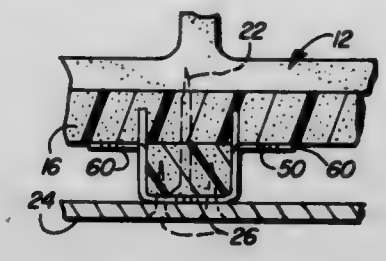
a stiffener member engaged by said fastening element formed by strong back elements that are each engaged by said fastening element with said strong back elements being spaced by the length of said tubular portion of said bracket therebetween.

4,333,290

STRUCTURAL MEMBER FOR INSTALLATION SYSTEM

Michael V. Koberstein, Scottsdale, Ariz., assignor to Arizona Diversified Products, Inc., Phoenix, Ariz.

Filed May 10, 1979, Ser. No. 37,539
Int. Cl.[3] E04B *1/88, 2/28*
U.S. Cl. 52—376 5 Claims



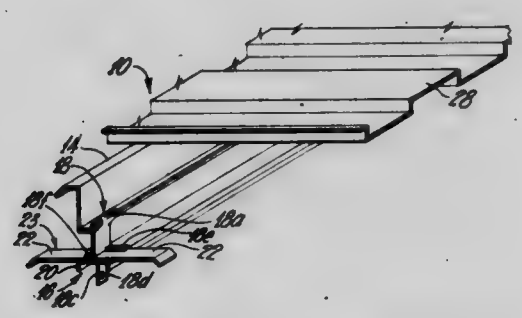
1. An insulation system comprising:
(a) a masonary wall;
(b) at least one cellular insulation sheet at the surface of said wall;
(c) an elongate generally U-shaped metal strip substantially co-extensive with a dimension of said insulation sheet, said strip having a bight section and at least one depending leg;
(d) insulative spacer means integrally formed with said strip adapted to elevate the bight section of said strip from the face of said insulation sheet;
(e) first fastener means extending through said metal strip into said wall securing said strip against said sheet with said spacer engaging said sheet and said bight portion at said strip elevated from the surface of said sheet;
(f) a finishing panel engaging the bight of said strip; and
(g) second fastener means securing said finishing panel to said metal strip with a dead air space therebetween, said dead air space being established between said finishing panel and said insulation sheet by said spacer means elevating the bight section of said strip from the face of said insulation sheet thereby increasing the overall R value of the wall system without the requirement of additional insulation.

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INSULATED ROOF STRUCTURE

Dwight S. Musgrave, Granville; John D. McMahan, Newark, and Robert L. Downing, S. Vienna, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jul. 28, 1980, Ser. No. 172,876
Int. Cl.[3] E04B *1/74*
U.S. Cl. 52—404 2 Claims



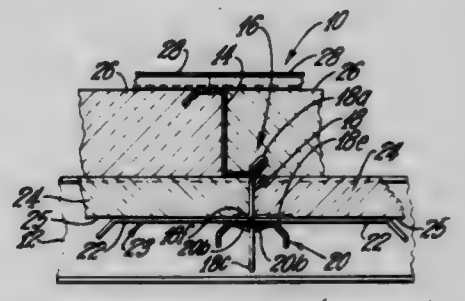
1. An insulated roof structure (10) comprising a plurality of parallel horizontally extending beams (12) spaced apart from each other, a plurality of parallel horizontally extending purlins (14) spaced apart from each other, supported by and extending transversely of the beams (12), and each having a generally Z-shaped cross section with an upwardly extending lower free end portion, a plurality of insulation support members (16), each of said purlins (14) having a plurality of said insulation support members (16) hung thereon and extending longitudinally therealong in a row, each insulation support member (16) including a pair of spaced hangers (18) respectively having hooked upper end portions (18*a*) in which an upwardly extending lower free end portion of a purlin (14) is received, an elongated board-edge sealing member (20) of inverted generally channel-shaped cross section, and two pairs of horizontally extending guide and support arms (22) extending transversely of the sealing member (20), the hangers (18) respectively supporting opposite end portions of the sealing member (20) and each hanger (18) having a pair of the guide and support arms (22) extending respectively oppositely therefrom, a plurality of fibrous glass boards (24) providing an inner roof layer, each board (24) extending between a pair of adjacent purlins (14) and a row of the boards (24) extending along the adjacent purlins (14) between each pair of adjacent beams (12), each board (24) being provided with an impervious facing (25) and being supported adjacent one end on the board-edge sealing member (20) and the respective arms (22) of an insulation support member (16) on one purlin (14) of a pair of adjacent purlins (14) and being supported adjacent the other end of the board-edge sealing member (20) and the respective arms (22) of an insulation support member (16) on the other purlin (14) of the pair of adjacent purlins (14), a plurality of fibrous glass insulation batts (26) covering the inner roof layer of boards (24), and a plurality of roof panels (28) secured to the purlins (14) and covering the batts (26).

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INSULATED ROOF STRUCTURE

Dwight S. Musgrave, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jul. 28, 1980, Ser. No. 172,877
Int. Cl.[3] E04B *1/74*
U.S. Cl. 52—404 7 Claims



1. An insulated roof structure (10) comprising a plurality of parallel horizontally extending beams (12) spaced apart from each other, a plurality of parallel horizontally extending purlins (14) spaced apart from each other, supported by and extending transversely of the beams (12), and each having a generally Z-shaped cross section with an upwardly extending lower free end portion, a plurality of insulation support members (16), each of said purlins (14) having a plurality of said insulation support members (16) hung thereon and extending longitudinally therealong in a row, each insulation support member (16) including a pair of spaced hangers (18) respectively having hooked upper end portions (18*a*) in which an upwardly extending lower free end portion of a purlin (14) is received, an elongated board-edge sealing member (20) of inverted generally channel-shaped cross section, and a pair of crosspieces (23) extending transversely of the sealing member (20), each hanger (18) including a lower tab portion (18*c*) and a pair of offset transversely oppositely extending intermediate tabs (18*e*, 18*f*), each crosspiece (23) having an aperture (23*a*), the board-edge sealing member (20) being provided respectively adjacent opposite ends with a pair of rectangular apertures (20*a*) each having a pair of downwardly projecting resiliently bendable tabs (20*b*) respectively on a pair of opposite edges thereof, the distance between the free ends of the downwardly projecting tabs (20*b*) in a free state being less than the thickness of the lower tab portion (18*c*) of a hanger (18), the lower tab portions (18*c*) of the two hangers (18) extending respectively through the apertures (23*a*) of the crosspieces (23) and through the apertures (20*a*) of the board-edge sealing

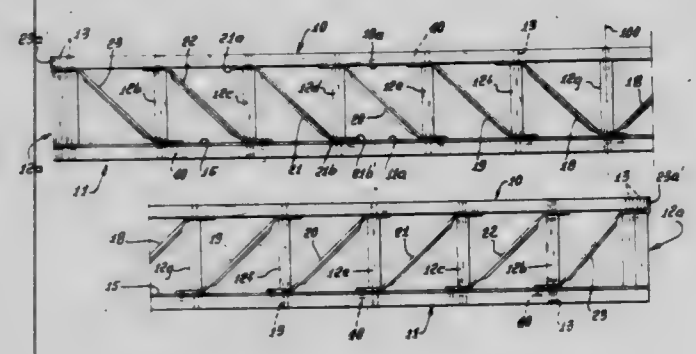
member (20) between the downwardly projecting tabs (20*b*), lower surfaces of the crosspieces (23) engaging the board-edge sealing member (20), and upper surfaces of the crosspieces 23 engaging the intermediate tabs (18*e*, 18*f*) of the respective hangers (18), a plurality of fibrous glass boards (24) providing an inner roof layer, each board (24) extending between a pair of adjacent purlins (14) and a row of the boards (24) extending along the adjacent purlins (14) between each pair of adjacent beams (12), each board (24) being provided with an impervious facing (25) and being supported adjacent one end on the board-edge sealing member (20) and the crosspieces (23) of an insulation support member (16) on one purlin (14) of a pair of adjacent purlins (14) and being supported adjacent the other end on the board-edge sealing member (20) and the crosspieces (23) of an insulation support member (16) on the other purlin (14) of the pair of adjacent purlins (14), a plurality of fibrous glass insulation batts (26) covering the inner roof layer of boards (24), and a plurality of roof panels (28) secured to the purlins (14) and covering the batts (26).

4,333,293

JOIST HAVING DIFFERING METAL WEB REINFORCEMENT

Edgar D. Jackson, Victorville, Calif., assignor to Steel Web Corporation, Alta Loma, Calif.

Filed May 19, 1980, Ser. No. 151,158
Int. Cl.³ E04C *3/292*
U.S. Cl. 52—692 **12 Claims**



1. In a truss, the combination comprises
(a) upper and lower longitudinally extending generally parallel chord members which are vertically spaced apart,
(b) multiple upright blocks which are longitudinally spaced apart along the lengths of said chord members and located therebetween, said blocks interconnecting the chord members,
(c) and multiple load carrying metallic webs in spaces between the blocks, each web having flat ends, one of which is located between the upper end of a block and the lower side of the upper chord member, and the other of which is located between the lower end of another block and the upper side of the lower chord member, said other end located closer to the center of the truss than said one end,
(d) successive webs in a direction away from the center of the truss having increasing thickness,
(e) and including nail type fasteners driven through the chord members, then through said web flat ends, and then endwise into said blocks, the number of said fasteners driven through said flat ends increasing as the thickness of the flat ends increases for successive webs in a direction away from the center of the truss.

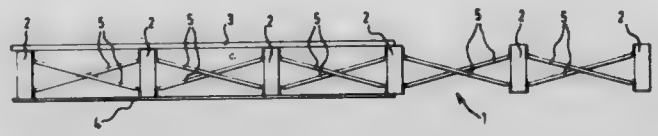
4,333,294

HERRINGBONE STRUTS

Brian Robinson, Usk, Wales, assignor to Catnic Components Limited, Caerphilly, Wales

Filed Mar. 17, 1980, Ser. No. 130,963
Int. Cl.³ E04C *3/18*
U.S. Cl. 52—695 **2 Claims**

1. A joist interconnecting strut member for securing between two adjacent joists of a building structure, comprising: an elongated body member having respective ends and a longitudinal axis having a substantially M shaped transverse cross section including means for preventing torsional buckling of said strut member comprising the legs of said M shaped cross section; the lower ends of the legs of said M shaped cross section both lying in one plane, the upper ends of the legs of said M shaped cross section both lying in another plane substantially parallel to the plane containing the lower ends of the legs of said M shaped cross section, the bottom of the middle



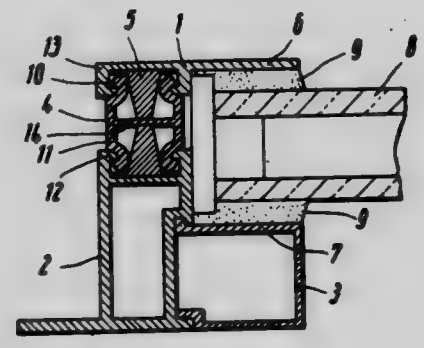
section of the M of said M shaped cross section being located at a point substantially mid-way between the plane containing the lower ends of the legs of said M shaped cross section and the plane containing the upper ends of the legs of said M shaped cross section; a flange at one of said ends and a flange at the other of said ends; said flanges being directed in opposite directions as considered from said longitudinal axis; and said flanges being inclined at an angle of greater than ninety degrees with respect to said longitudinal axis of said elongated body member.

4,333,295

CASEMENT FRAME

Bernhard Janke, Bindlach, Fed. Rep. of Germany, assignor to HEF-Fenstertechnik Vetriebs GmbH, Fed. Rep. of Germany

Filed May 22, 1980, Ser. No. 152,302
Int. Cl.³ E06B *3/26*
U.S. Cl. 52—730 **12 Claims**



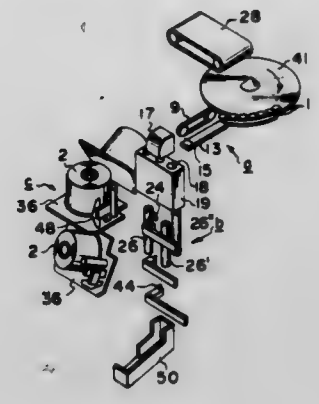
1. A frame assembly comprising a pair of open channel members, each having a central portion and substantially normally extending flanges along the longitudinal edges thereof, a spacer interposed between said channel members, said spacer being H-shaped in cross-section having a pair of lateral side walls and a central cross-bar, the ends of the lateral walls of said spacer and the flanges of said channel members being formed with cooperative engagement means, a removable plug inserted within each of the cavities formed by the lateral walls of said spacer, and the respective channel members, said plug comprising a body having a wedge shape cross-section, the larger base of said plug having a surface conforming to the central portion of said channel member and being provided with laterally extending shoulders, said surface being arranged so that it abuts the central portion of its associated channel member, and the laterally extending shoulders are compressively interposed between the flat central portion and the ends of the lateral walls of said spacer the body of said plug having a lateral dimension so as to place said cooperative engagement means under stress to lock the same.

4,333,296

COIN WRAPPING MACHINE

Kenkichi Watanabe, Tokyo, Japan, assignor to Tokyo, Japan

Filed Mar. 13, 1980, Ser. No. 129,839
Claims priority, application Japan, Mar. 15, 1979, 54-30230
Int. Cl.³ B65B *57/04, 11/04*
U.S. Cl. 53—64 **6 Claims**



5. The improvement of claim 4, wherein said control means further comprises:

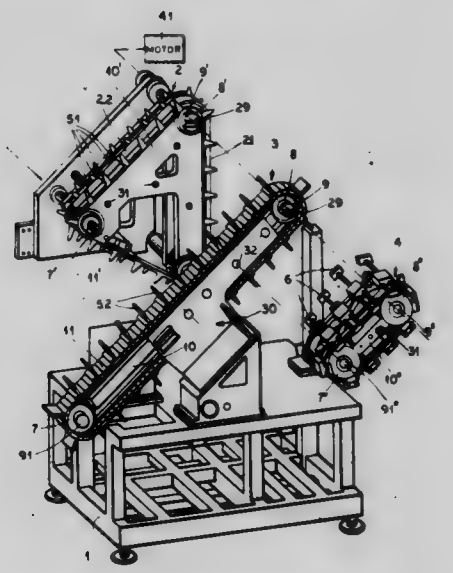
means for generating a wrapping paper supply unit replacement signal when said coin kind setting dial is set in one of said second plurality of positions.

4,333,297

CONVEYOR DEVICE FOR PACKAGING

Valentin Küttenbaum, Laupheim, and Ernst Henle, Schwendi-Weihungszell, both of Fed. Rep. of Germany, assignors to Josef Uhlmann Maschinenfabrik GmbH & Co. KG, Laupheim, Fed. Rep. of Germany

Filed May 7, 1980, Ser. No. 147,082
Claims priority, application Fed. Rep. of Germany, Jul. 25, 1979, 2930150
Int. Cl.³ B65B *5/00*
U.S. Cl. 53—252 **9 Claims**



1. A packaging device comprising:

a frame;

a first conveyor assembly on said frame for transporting packagable goods from a product-feed station along a first path extending therefrom;

a second conveyor assembly on said frame for transporting containers from a receptacle-feed station along a second path extending at least in part parallel to said first path, said assemblies each including a conveyor belt mounted on at least two wheel members rigid with respective shafts rotatably journaled on a carrier disposed within a loop formed by said belt, each of said assemblies being provided with at least one shaft formed with connector means whereby a shaft of said first assembly is drivably interlocked with a shaft of said second assembly, the carriers of said assemblies being removably secured to said frame;

feed means for delivering said goods to said product-feed station and said containers to said receptacle-feed station;

drive means on said frame connectable to at least one of said wheel members for supplying rotary power to move the belts of said first and said second assemblies along said first and said second paths, respectively; and

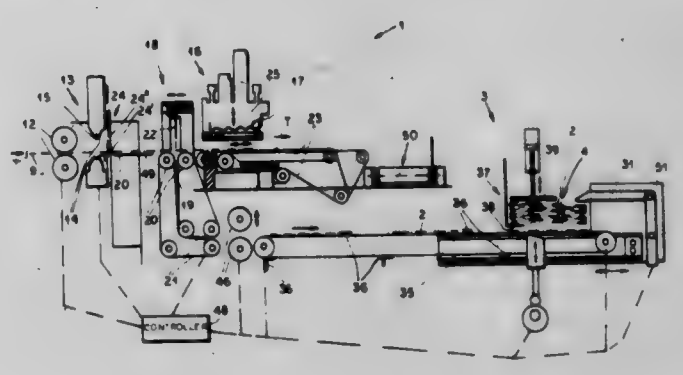
transport means on said frame operating in synchronism with the belts of said assemblies to move goods from said first assembly to containers on said second assembly substantially transversely to said paths at parallel portions thereof.

4,333,298

METHOD OF AND APPARATUS FOR BOXING SHOPPING BAGS

Hans Lehmacher, Im Hummerich, 5216 Niederkassel-Mondorf, Fed. Rep. of Germany

Filed Mar. 4, 1980, Ser. No. 127,064
Claims priority, application Fed. Rep. of Germany, Mar. 7, 1979, 2908943
Int. Cl.³ B65B *35/50, 39/00, 5/08*
U.S. Cl. 53—447 **12 Claims**



1. In combination with an apparatus which delivers to a stacking station a succession of like flat and flexible objects such as folded shopping bags, a packaging apparatus comprising:

means at said stacking station for stacking said objects up into a stack with said objects generally planar in said stack;

a laterally closed loading cassette in a packaging station adjacent said stacking station and having a floor formed with an elongated throughgoing slot, said floor being dimensioned to receive said stack with said objects generally planar;

transfer means including a gripper displaceable between said stations for gripping said stack in said stacking station, for displacing said stack with said objects in said stack generally planar into said cassette, and for depositing said stack with said objects in said stack generally planar on said floor over said slot;

means for positioning an upwardly open carton under and around said cassette; and

means for relatively vertically displacing said cassette and carton while simultaneously pushing said stack in said cassette through said slot with temporary deformation of said objects into U-section as same pass through said slot to leave said stack with said objects generally planar in said carton.

4,333,299

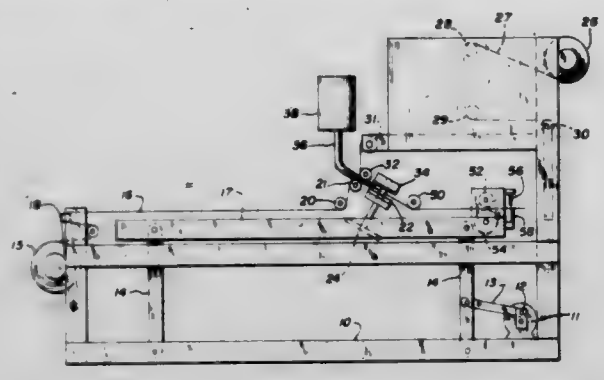
FORM FILL AND SEAL PACKAGE MAKING

Joel A. Hamilton, 101 Hardenburgh Ave., Demarest, N.J. 07627

Continuation-in-part of Ser. No. 33,844, Apr. 27, 1979, abandoned. This application Oct. 21, 1980, Ser. No. 199,229

Int. Cl.[3] B65B *9/04, 9/08*

U.S. Cl. 53—450 14 Claims



1. Apparatus for forming, filling and sealing a pouch of film in which the upper and lower films are intermittently advanced to a pouch former whereat and in which material is discharged into the formed pouch which is then sealed after a determined filling, this apparatus including:

(a) a support frame;

(b) means for supporting lower and upper films and means for intermittently advancing said films at substantially the same speed;

(c) a delivery spout fixedly supported so as to be positioned between the lower and upper films;

(d) sealing means for forming a sequential series of sealed pockets of a U or V-shape simultaneously by and with combined and opposed die means having corresponding U or V-shapes in joined lower and upper films by closing and opening said appropriately configured die means which are moved in a timed relationship to the intermittent movement of the films, said sealing of the films into formed pockets occuring when and while the movement of films is substantially stopped;

(e) means for positioning the lower and upper films as they are brought in way of said sealing means which is disposed at least at an angle or slope of at least ten degrees to a horizontal surface, said pocket formed around said spout with said pocket having its open top formed with sufficient film material so that the material forming the pocket is not stretched as the pocket is formed around the spout;

(f) means for providing a supply of material from a supply hopper during a determined time period and to the end of said delivery spout, said spout extending within the opening of the formed pocket and at least at an angle similar to the formed pocket;

(g) means for delivering a measured flow of material through said delivery spout only after the pocket has been formed by the opposed configured die means;

(h) means for sealing the open end of the pocket after filling the pocket with a determined quantity of material;

(i) means for advancing the now formed, filled and sealed product to a severing means for separating the packaged product into a desired configuration and plurality, and

(j) means for delivering the separated and packaged product to an accumulating means.

4,333,300

ENVELOPE PROCESSING MACHINE AND METHOD

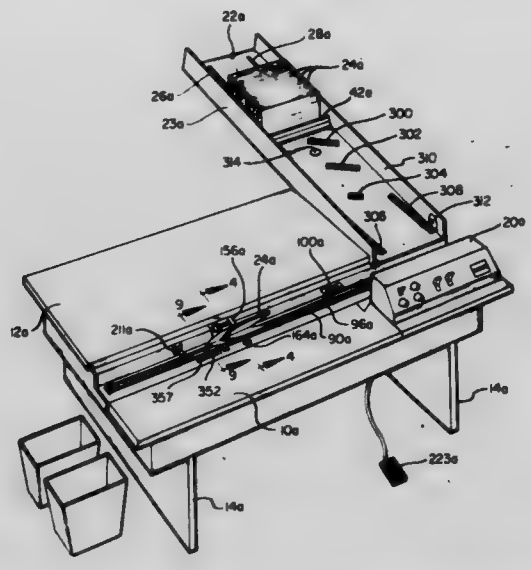
Robert J. Russell, Medford, N.J., assignor to Mail-Ex Corporation, Skokie, Ill.

Filed May 30, 1980, Ser. No. 154,873

Int. Cl.[3] B65B *43/30*

U.S. Cl. 53—569 18 Claims

1. An envelope processing machine to facilitate operator removal of envelope contents and comprising a supply hopper for envelopes, first cutting means for severing an edge of an envelope, second cutting means for severing an adjacent and contiguous edge of an envelope, means for removing envelopes in one by one relationship from said hopper and conveyor flight means providing movable support for the envelope and for transmitting them with continuous movement along a first path of travel to and through said first cutting means to sever the edge paralleling the first path of travel of movement of the envelope, an envelope processing station, conveyor means for transmitting the envelopes with continuous movement along a



second path of travel of movement of the envelope to and through the second cutting means to sever an adjacent and contiguous edge paralleling the second path of travel of movement of the envelope and then to the processing station, and means disposed at the processing station for gripping the opposed envelope side walls and for separating and holding open said side walls by separating the severed adjacent and contiguous edges leaving the counterpart adjacent and contiguous edges connected to facilitate envelope content removal by operator gripping or sliding of the contents.

4,333,301

ROLL WRAPPING ARRANGEMENT

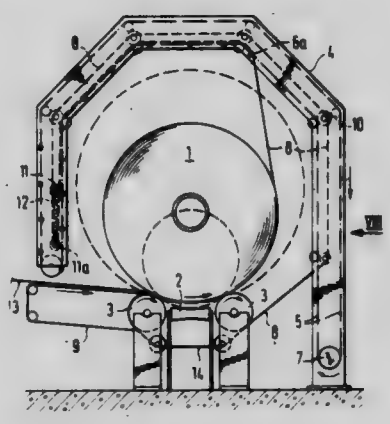
Pauli Koutonen, and Lars-Erik Alanco, both of Järvenpä, Finland, assignors to Oy Wartsila AB, Helsinki, Finland

Filed Feb. 6, 1980, Ser. No. 119,110

Claims priority, application Finland, Feb. 13, 1979, 790470

Int. Cl.[3] B65B *11/04*

U.S. Cl. 53—587 14 Claims



1. An arrangement for wrapping big web rolls in a wrapper, which arrangement comprises a support system for supporting and rotating said roll and a stationary support frame surrounding said roll and being provided with means for leading said wrapper around said roll, said support frame being provided with a tension guide strap having a first portion in contact with the mantle surface of said roll and two parallel chains movable around the roll and interconnected over a portion with crossbars for applying said strap onto the mantle surface of said roll

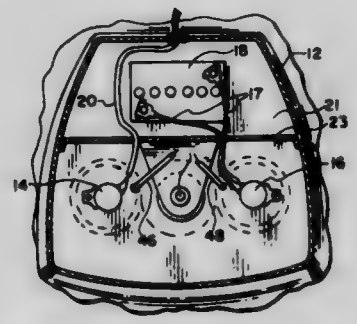
for keeping said wrapper on the mantle surface of said roll, at least some of said crossbars comprise a support means which supports a second portion of said guide strap at a distance from said roll against the tension of said strap urging it towards said roll, thereby causing said guide strap to bend off at a point between said first and said second portions from the mantle surface of said roll, said chains also having another portion free from crossbars following said crossbar portion of said chains, thereby allowing said guide strap to settle onto said roll from between said chains as said chains move around the roll, means to move said pair of parallel chains around said roll during the wrapping operation thereby to move said bending-off point of the guide strap around said roll and to cause an increasing portion of said guide strap to settle, due to its tension, onto the free mantle surface of said roll to bring the front end of said wrapper against the roll and to keep said wrapper closely thereon when rotating said roll during simultaneous feeding of the wrapper thereto and thereby wrap said roll.

4,333,302

COMBINED A.C./D.C. ELECTRIC LAWN MOWER

Ronald Thomas, 9350 S. Parnell Ave., Chicago, Ill. 60620, and Donald H. Smith, Crystal Lake, Ill., assignors to Ronald Thomas, Chicago, Ill.

Filed Mar. 13, 1981, Ser. No. 243,551
Int. Cl.³ A01D *35/262, 69/04, 69/08, 69/10*
U.S. Cl. 56—10.5 **6 Claims**



1. An electric lawn mower including a housing, and a cutting blade, said mower comprising, an A.C. motor and a D.C. motor mounted adjacent each other within the housing, a driven gear and an engageable clutch assembly associated with each respective motor for selectively imparting rotative movement from each motor to its associated driven gear, a drive gear engaged between said driven gears for interaction therewith, the drive gear being connected to the blade for imparting cutting movement thereto, whereby upon energization of either motor and its associated clutch assembly separately its associated driven gear will impart motion to the drive gear and blade and upon energization of both motors concurrently the combined power of said motors is imparted through their associated driven gears to said drive gear and the blade.

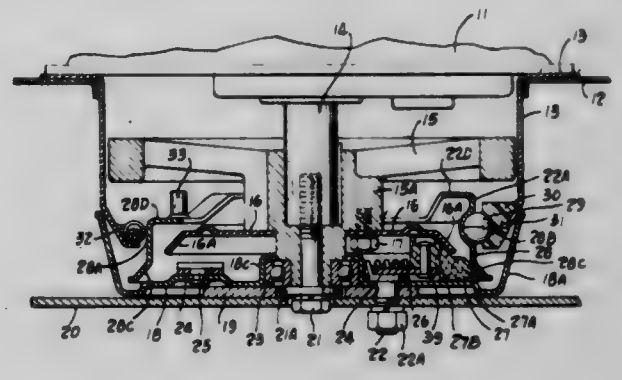
4,333,303

CLUTCH AND BRAKE MECHANISM

Gerhard R. Plamper, Valley City, Ohio, assignor to MTD Products Inc., Cleveland, Ohio

Filed Aug. 1, 1980, Ser. No. 174,681
Int. Cl.³ A01D *69/08;* F16D *67/02*
U.S. Cl. 56—11.3 **18 Claims**

1. A clutch and brake mechanism for a rotary type lawn mower having a motor mounted on the mower housing, a motor-driven shaft extending from the housing, and a cutting blade mounted at the free end of the shaft and adapted to be rotated by the shaft, the improvement comprising in combination, a rotatable member concentrically mounted about said shaft adjacent the free end of the shaft and adapted to be secured to the blade to rotate with the blade, a plurality of carrier members pivotally mounted to said rotatable member to swing in planes normal to the axis of said shaft, a plurality of friction elements each mounted on one of said carrier members to swing therewith radially outwardly and inwardly relative to the shaft axis, first resilient members operatively connecting said rotatable member and each of said carrier members to resiliently swing in a direction moving the friction elements radially outwardly from the axis of the shaft, each of said friction elements having an inclined braking surface and an inclined clutching surface, said braking surfaces and said clutching surfaces being disposed in concentric arcs spaced from each other, an annular clutch plate concentrically mounted about said shaft and mounted to rotate with the shaft, said clutch plate having an engaging portion adapted to clutchingly engage the inclined clutching surfaces of said friction elements to provide driving engagement between the clutch plate and the friction elements, an annular brake plate concentrically mounted about said shaft, said brake plate having an engaging portion adapted to brakingly engage the inclined braking surfaces of said friction elements to provide braking engagement between the brake plate and the friction elements, a cup member carried by said mower housing and extending from the same, a camming assembly carried by the cup member and operatively engaging said brake plate for translating circular movement of the brake plate to longitudinal movement parallel to the axis of the shaft toward and away from the friction elements, second resilient members operatively connecting said brake plate and said cup member for resiliently urging the brake plate in a rotative direction translated to longitudinal movement toward, and into engagement with, the inclined braking surfaces of the friction elements, and a connecting member connected to the cup member adapted to be operated in opposition to the urging of said second resilient member to rotate the brake plate in a direction to move the plate member longitudinally away from the friction elements to disengage the braking surfaces of the friction elements, the radial spacing of the braking surfaces from the clutching surfaces of the friction elements being such that upon the braking engagement of the brake plate and braking surfaces, the friction elements are sufficiently pressed to swing radially on the carrier members a radial inward distance to disengage the clutching surfaces of the friction elements from the clutch plate and thereby discontinue rotation of the rotatable member and blade by said shaft.



4,333,304

ADJUSTABLE CROP GUIDE APPARATUS

James G. Greiner, Leola; Joseph J. Lehman, New Holland, and Edward H. Priepke, Lancaster, all of Pa., assignors to Sperry Corporation, New Holland, Pa.

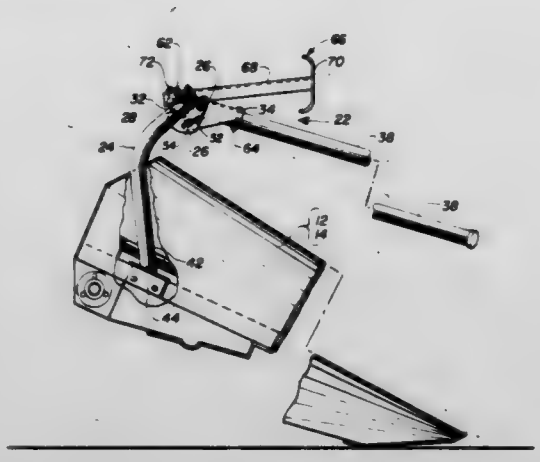
Filed Mar. 26, 1981, Ser. No. 247,963
Int. Cl.³ A01D *45/00*
U.S. Cl. 56—119 **12 Claims**

1. An adjustable crop guide apparatus comprising:

a support member including a first support post, a second support post, and means adjustably interconnecting said first and second posts;

bracket means attached to said support for movement in a first and second direction relative to said support, said

second direction being substantially perpendicular to said first direction; and



crop guide means having one end connected to said bracket for movement therewith in said first and second directions and for independent movement in said second direction relative to said bracket.

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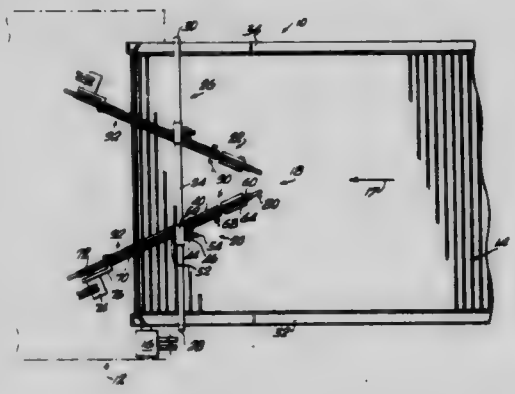
PLANT SPREADER DEVICE FOR A CROP HARVESTER

George Cooper, 13841 SW. 252 St., Princeton, Fla. 33032

Continuation-in-part of Ser. No. 914,609, Jun. 12, 1978, Pat. No. 4,189,906. This application Feb. 25, 1981, Ser. No. 237,879

Int. Cl.[3] A01D *46/00*

U.S. Cl. 56—327 R 11 Claims



1. A plant spreader device for a crop harvester, such as a tomato harvester, for discharging plants, such as tomato vines, into and generally across the width of an interior chamber of a conventional harvester after the plants have been cut from their root systems and fed onto a leading end of an existing driven, rearwardly inclined belt conveyor assembly, pivotally carried on a front end of the harvester, the plants normally being transported on a central portion of the belt conveyor from the lower leading end thereof, adjacent to an existing centrally disposed cutter means, to an upper rear end plant discharge portion thereof, said plant spreader device comprising, a bridge fixed in a spanning relation to the upper rear end discharge portion, including a main transverse span portion positioned a predetermined distance thereabove, a pair of conveyor means fixed relative to said main span portion in a depending relation therefrom, and including first end portions, extending rearwardly from first ends, overlying the upper rear end discharge portion in a predetermined spaced above relation, and diverging rearwardly from said first ends with second end portions thereof overlying the interior chamber; means extending outwardly from said pair in positions to engage the plants as they are moved upwardly rearwardly on the central belt conveyor portion, and means to drive said pair in a predetermined direction to spread the plants generally along lines of divergence defined by said pair for discharge by gravity forces, from said second end portions into the interior chamber.

4,333,306

STEEL CORD

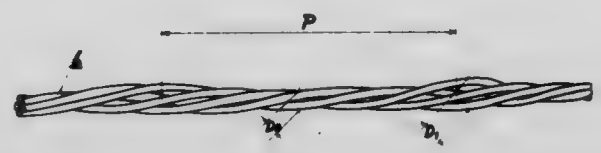
Fumio Yamashita, and Hideharu Kurobe, both of Ono, Japan, assignors to Hiroyuki Kanai, Ashiyo, Japan

Filed Dec. 22, 1980, Ser. No. 218,740

Claims priority, application Japan, Dec. 21, 1979, 54-177954[U]; Oct. 13, 1980, 55-146117[U]

Int. Cl.[3] D07B *1/06;* D02G *3/48*

U.S. Cl. 57—206 1 Claim



1. A steel cord composed of a plurality of material wires intertwisted, wherein loosely intertwisted portions and tightly intertwisted portions alternate with each other, and wherein a distance between loosely intertwisted portions is made one pitch or two pitches and wherein the ratio of the cord diameter at a loosely intertwisted portion D_1 to the cord diameter at a tightly intertwisted portion D_2 is in the range of from 1.15 to 1.4.

4,333,307

FRICTION ROTOR

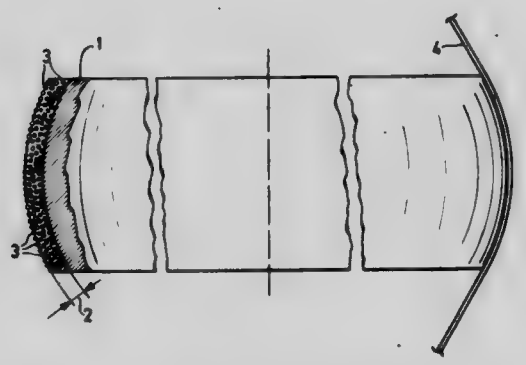
Friedrich Schuster, and Hans Hermanns, both of Hammelburg, Fed. Rep. of Germany, assignors to Kugelfischer Georg Schafer & Co., Scheinfurt, Fed. Rep. of Germany

Continuation of Ser. No. 611,859, Sep. 10, 1975, abandoned. This application Aug. 17, 1978, Ser. No. 934,538

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1974, 2443238

Int. Cl.[3] D02G *1/04, 1/08*

U.S. Cl. 57—334 6 Claims



1. A friction rotor for false-twisting thread having a surface coating which is contacted by thread as the thread is false-twisted, said coating being more wear resistant than an uncoated area of the rotor, said coating comprising a metal layer having diamonds of relatively rounded form and with a substantially uniform mean diameter in the range of from 2 to 20 microns substantially uniformly dispersed throughout said layer and projecting outwardly from the surface of the coating in a wart-like substantially uniform manner, said metal layer being less wear resistant than the diamonds, the volume fraction of the diamonds in said coating and the size of said diamonds being correlated to match the characteristics of a thread to be false-twisted so as to provide an effective friction false-twisting operation, said surface having been finished to provide a relatively smooth surface while retaining the necessary friction characteristics to impart an effective false-twist to said thread without the thread being excessively loaded.

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FALSE-TWIST SYSTEM SWITCHABLE BETWEEN S-TWIST AND Z-TWIST

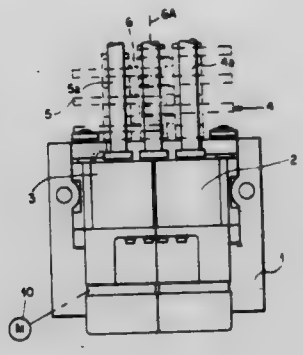
Herbert Schleyer, Schweinfurt, and Theo Bieber, Hammelburg, both of Fed. Rep. of Germany, assignors to Fag Kugelfischer Georg Schäfer & Co., Schweinfurt, Fed. Rep. of Germany

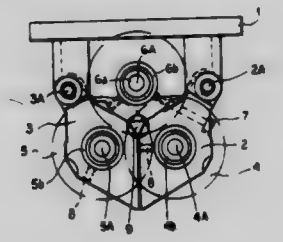
Filed Oct. 24, 1980, Ser. No. 200,552

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1979, 2943179

Int. Cl.[3] D01H *7/92*; D02G *1/04*

U.S. Cl. 57—339 6 Claims





1. A false-twist apparatus comprising:

a base defining a fixed assembly axis;

a fixed disk assembly including a shaft and a plurality of disks journaled in said base at said fixed axis with said shaft on said fixed axis and said disks spaced therealong;

a pair of supports on said base defining respective movable assembly axes;

respective movable disk assemblies each including a shaft and a plurality of disks journaled on said supports with said shafts on the respective movable axes and said disks spaced therealong;

respective pivot means between said base and said supports defining respective pivot axes offset from said movable axes for pivoting of said supports with the respective disk assemblies between inner positions with said disks overlapping radially and each assembly axis equispaced from the other two assembly axes and outer positions with said disks spaced radially apart;

drive means connected to said assemblies for jointly rotating said assemblies in one direction about the respective movable and fixed axes for S-twist and in the opposite direction for Z-twist; and

means releasably securing said movable disk assemblies in said supports for mounting of either of said movable disk assemblies in either support, whereby for changeover between S-twist and Z-twist said movable disk assemblies can be switched.

4,333,309

STEAM ASSISTED GAS TURBINE ENGINE

Paul D. Coronel, 208-H Eagle Heights, Madison, Wis. 53705

Filed Jan. 30, 1980, Ser. No. 116,867

Int. Cl.[3] F02C *7/047*, *6/18*

U.S. Cl. 60—39.09 D 10 Claims

1. A gas turbine engine having in combination a compressor, a combustion chamber downstream therefrom, means for introducing air and fuel as components which form the main stream flow entering the combustion chamber, means for maintaining combustion in the combustion chamber, at least one turbine rotor wheel bearing turbine blades downstream from the combustion chamber and driven by the combustion gas flow, wherein the improvements comprise:

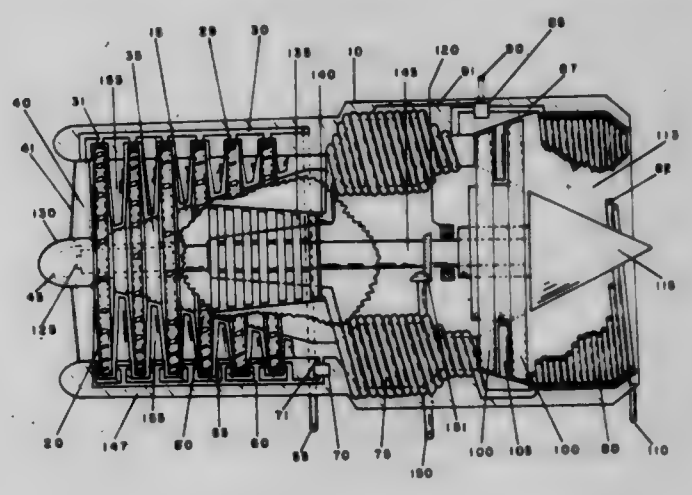
a. a rotor wheel compressor-condenser unit with at lease one compressor-condensor rotor wheel with internal passages therein capable of exchanging heat from a vapor and transferring this heat to the elastic fluid being compressed during the operation of the compressor-condenser unit, condensing the vapor to a liquid,

b. a combustion chamber comprising a burner casing, heat dilution holes in the burner casing, a heat-exchanger-boiler unit comprising annular tubing surrounding the burner casing and sealed against pressure loss of combustion gases,

c. a steam powered turbine enclosed in a casing within a main engine casing, attached to a main drive shaft, driven by an expanding heated fluid, heated by a heat absorbing process utilized to cool various components of the gas turbine engine,

d. a means of directing a fluid from a liquid pump immersed in a liquid collection tank, powered by an accessory drive shaft, through components including said heat-exchanger boiler heated by engine operation for heat absorption, into the steam turbine for production of power, through condensing components including said compressor-condenser rotor wheel for conversion to a liquid, through a liquid-air separator, and into the liquid collection tank for recycling,

e. a means of transferring the condensate from the rotating compressor-condenser wheels to fixed condensate entrance ports located within shroud corridors which are connected to condensate corridors located in the main engine casing,



f. a means to prevent loss of condensate during the transferring process utilizing high-pressure air bled from the compressor and directed through a high pressure corridor to nozzles which direct the air to compressor-condenser shroud edges, forming an air pressure seal between the shroud and the engine casing,

g. a means of utilizing incurvate corridors on the edges of the compressor-condenser shroud and the engine casing to provide uniform high pressure for sealing,

h. the use of adjustable compressor-condenser guide vanes as a means of cooling or condensing a heated fluid flowing within corridors within the guide vanes,

a means for transferring fluids between adjustable guide vanes and fluid corridors located within the main engine housing, utilizing friction seals to prevent effusion of the two separated fluids into each other, or into the interior or exterior of the main engine casing,

j. a means of boiling a fluid in an exhaust turbine-boiler rotor wheel during the operation of the engine by the flowing of a liquid into corridors, absorbing exhaust gas heat, vaporizing the liquid, and exiting through a corridor located within the rotor wheel,

k. a means of transferring a vapor and a fluid to and from said exhaust turbine-boiler rotor wheel located on the

main drive shaft through common corridors connected with the main drive shaft,

l. a means of injecting and extracting a vapor and a fluid between the main drive shaft and a fixed internal engine framework with the use of friction seals to prevent effusion of the two separated fluids into each other, or into the interior of the engine,

m. a means of providing a de-icing system for an intake cone, air intake guide vanes, and leading edges of the engine casing by utilizing the heat exchange of a condensing vapor and the resulting condensate to provide heat to these components,

n a means of capturing exhaust gas heat through the use of a heat absorbing fluid passing through annular tubing located within an exhaust nozzle of the gas turbine engine, and

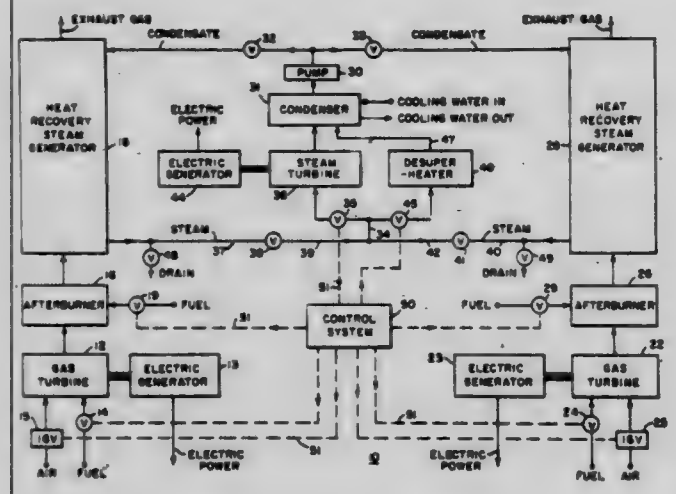
o a means of transferring a heated fluid or vapor from the exhaust nozzle to a fuel exchanger and combustion chamber heat exchanger by utilizing corridors located within the main engine housing.

4,333,310

COMBINED CYCLE ELECTRIC POWER PLANT WITH FEEDFORWARD AFTERBURNER TEMPERATURE SETPOINT CONTROL

Robert Uram, East Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 2, 1975, Ser. No. 564,563
Int. Cl.³ F02C 6/18
U.S. Cl. 60—39.18 B **9 Claims**



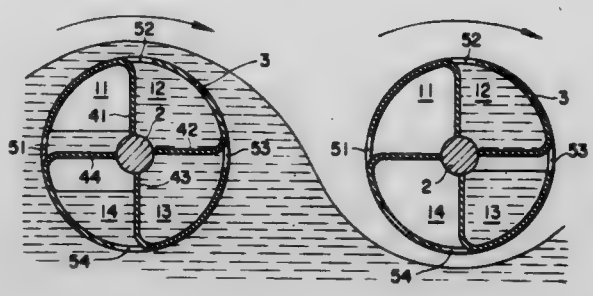
1. A combined cycle electric power plant comprising at least one gas turbine and a steam turbine, a heat recovery steam generator connected to deliver steam to said steam turbine, an afterburner connected to deliver heat to said steam generator and connected to receive exhaust gas from said at least one turbine and adapted to impart further heat to said exhaust gas, a control system for operating said plant, said control system including a gas turbine control, a steam turbine control and an afterburner control including circuitry for delivering signals representative of said received exhaust gas, said afterburner control having means for generating an afterburner control signal, said afterburner control signal generating means comprising a stored program in a programmable digital computer, said program performing the function of generating a gas temperature set point signal which is a non-linear function of said exhaust gas signal and means for selectively connecting said afterburner control signal to said afterburner for automatic control of said afterburner, whereby said steam turbine is controlled in a following mode from said at least one gas turbine.

4,333,311

WAVE ENERGY CONVERTING DEVICE

Siichi Kitabayashi, No. 919-12, Oaza Koshikiya, Ageo-shi, Saitama, Japan

Filed Oct. 11, 1979, Ser. No. 83,793
Claims priority, application Japan, Jun. 25, 1979, 54-79849
Int. Cl.³ F03B 13/12
U.S. Cl. 60—496 **8 Claims**



1. A wave energy converting device for partial submergence in the sea for passing thereover of waves and comprising:

a rotary shaft;

a rotary hollow sleeve formed with a peripheral wall mounted on said rotary shaft for rotation therewith in one rotational direction;

a plurality of transverse partition walls partitioning said hollow sleeve into a plurality of compartments;

a plurality of radial plates in said compartments and projecting longitudinally of said compartments, each plate spanning between said rotary shaft, said partition walls and said peripheral wall to cooperate with said peripheral wall to form a plurality of water chambers in each compartment, each chamber having radial leading and trailing plates when said sleeve is rotated in said one direction; and

a plurality of first ports formed in said peripheral wall, each port being disposed closely adjacent the trailing plate of each water chamber and occupying a minor portion of the peripheral wall, means positioning said wave energy converting device partially submerged in said sea and exposed to waves passing thereover, whereby said device partially submerged in said sea with the axis of rotation of said sleeve extending horizontally for passage thereover of waves to sequentially submerge and emerge said sleeve, causes chambers having upwardly facing ports to be filled with water during submergence and chambers with downwardly facing ports to be drained during emergence, said ports being so arranged and configured relative to said water chambers and radial plates as to cause air disposed in said chambers during upward rotation of said respective chambers to the level of said longitudinal axis to be trapped to block entry of water and cause the chambers on the side of said shaft which are more nearly filled with water to be weighted downwardly relative to the chambers on the opposite side of said shaft.

4,333,312

THERMODYNAMIC ENERGY CONVERSION SYSTEM AND METHOD, UTILIZING A THERMODYNAMIC WORKING FLUID OF ENCASED EXPANDITES

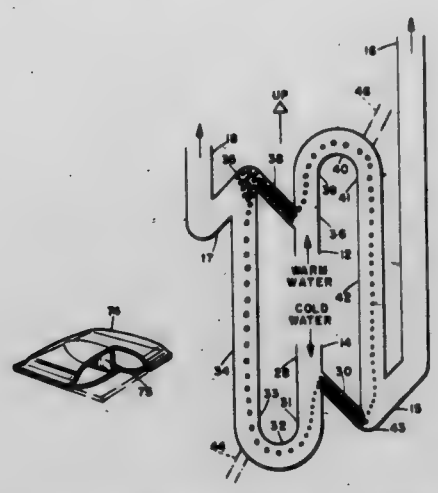
Jens O. Sorensen, Rancho Santa Fe, Calif., assignor to Trade Finance International, Georgetown, Cayman Islands

Continuation-in-part of Ser. No. 25,800, Apr. 2, 1979, Pat. No. 4,214,449. This application Mar. 10, 1980, Ser. No. 123,491
The portion of the term of this patent subsequent to Jul. 29, 1997, has been disclaimed.
Int. Cl.³ F03G 7/06
U.S. Cl. 60—641.7 **18 Claims**

1. A method of thermodynamic energy conversion comprising the steps of:

(a) providing a thermodynamic working fluid that changes density and volume in response to changes in temperature at a given pressure;

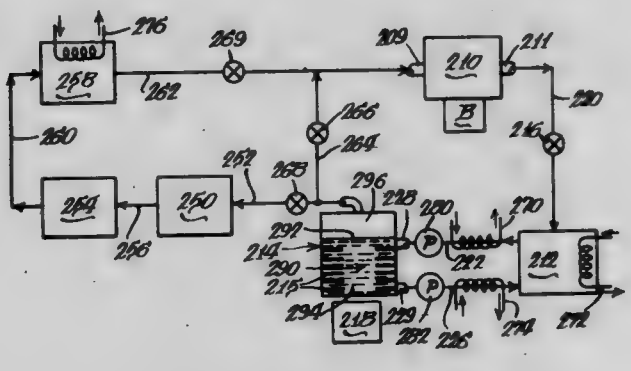
(b) introducing the thermodynamic working fluid to a thermal fluid at different combinations of temperature and pressure;
(c) transporting the thermodynamic working fluid and the thermal fluid through a mass transport conduit circuit in response to pressure differentials created as the thermodynamic working fluid is exposed to the thermal fluid at different combinations of pressure and temperature; and
(d) converting the pressure of the transported fluids to a useful form of energy,
characterized by step (a) comprising the step of:
(e) providing a thermodynamic working fluid that comprises thousands of encased expandites.



4,333,313

GAS POWERED, CLOSED LOOP POWER SYSTEM AND PROCESS FOR USING SAME

Joseph T. Cardone, Northridge; Kenneth J. Shatz, Hollywood, both of Calif., and James M. Dill, Ft. Lauderdale, FL, assignors to Ecological Energy Systems, Inc., Northbrook, Ill.
Continuation-in-part of Ser. No. 9,765, Feb. 6, 1979, abandoned.
This application Aug. 10, 1979, Ser. No. 65,537
Int. Cl.³ F01K 25/06
U.S. Cl. 60—649 20 Claims

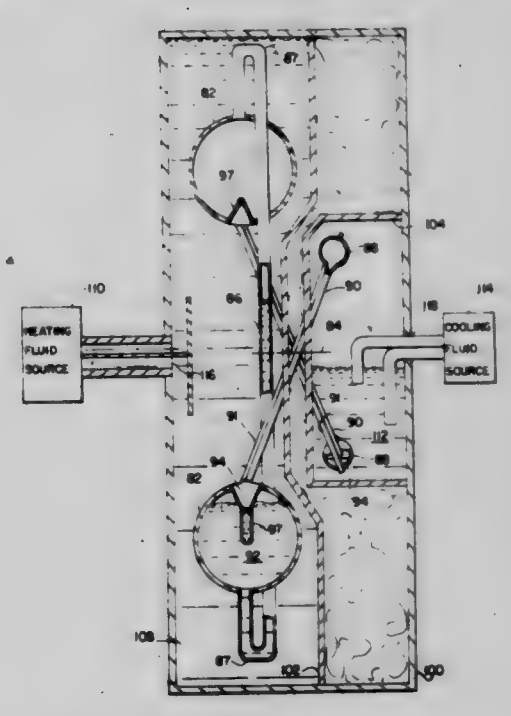


1. A closed loop process for producing power comprising the steps of:
supplying a gas at a first pressure to a power generating means for generating power as a result of the flow of a gas through said power generating means, and allowing said gas to exit therefrom, thereby generating mechanical power;
dissolving said exiting gas from said power generating means in a solvent medium having high solvent power for said gas within a dissolving means to form a solution at a zone wherein said solvent medium comes into direct contact with said gas, said dissolution lowering the pressure of said exiting gas relative to the gas flowing into said power generating means whereby the gas flows through said mechanical power generating means as a result of the pressure differential, said lowered gas pressure being at least about one atmosphere;
providing a separating means having a body of said solution therein, said body of solution having an upper body portion and a lower body portion;
impelling said solution into said upper body portion of said solution within said separating means;
adding sufficient heat to said solution to substantially separate said dissolved gas from said solvent medium and thereby increase the pressure of the separated gas;
supplying said separated solvent medium from said lower body portion of said solution within said separating means to said zone in said dissolving means wherein said separated solvent comes into direct contact with said gas, whereby said separated solvent medium is recycled into the power generating system;
maintaining a reservoir of liquefied gas;
liquefying a portion of said separated gas and adding said liqueified gas to said reservoir;
gasifying some of said liquefied separated gas from said reservoir and readjusting the pressure thereof to said first pressure;
passing said last-named gasified product to said power generating means as at least a portion of the separated gas supplied thereto; and
passing the remainder of said separated gas at said first pressure directly from said separating means to said power generating means.

4,333,314

SOLAR ENERGY SYSTEM AND HEAT ENGINE THEREFOR

Robert W. Allen, 15916 Los Altos, Fountain Valley, Calif. 92708
Filed Mar. 3, 1980, Ser. No. 126,947
Int. Cl.³ F01K 7/00
U.S. Cl. 60—675 23 Claims



1. A heat engine comprising
first and second tanks,
means for radially mounting said tanks for rotation with respect to an axis of rotation and so as to be spaced from each other,
conduit means connecting said first tank to said second tank for transfer of fluid therebetween,
a relatively heavy fluid disposed in said tanks for transfer therebetween,
means for heating said heavy fluid, and
means for introducing a relatively volatile fluid in a condensed state into direct contact with said heavy fluid for vaporization of said volatile fluid at predetermined times during the rotation of said tanks about said axis of rotation such that the expansion of said vaporized volatile fluid causes said heavy fluid to be cyclically transferred from a

predetermined one of said tanks to the other of said tanks so as to maintain the rotation of said tanks about said axis of rotation.

4,333,315

PROCESS FOR PREPARING A GASIFIED ICE PRODUCT

Valery B. Zemelman, Wilton, Conn.; Fredric Kleiner, New City, and Michael J. Kuchman, Hopewell Junction, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed May 4, 1981, Ser. No. 260,147
Int. Cl.³ F25C *1/00*
U.S. Cl. 62—1 **17 Claims**

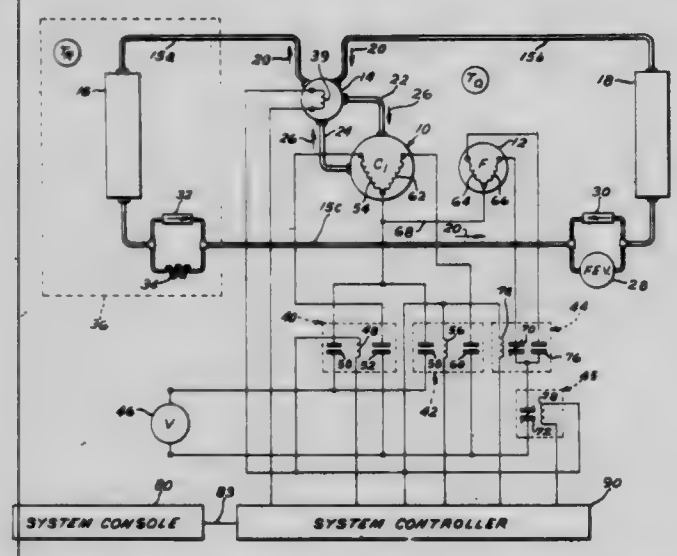
1. A process for preparing gasified ice characterized by high degree of mechanical strength in its frozen state and a high gas content, which comprises: contacting aqueous liquid in a pressurized vessel with a conditionally-stable, hydrate-forming gas under conditions of pressure and temperature effective to form a stable gas hydrate; vigorously agitating the aqueous liquid during the period of contact to provide bubbles of the gas dispersed therein in continuous, efficient mass transfer contact; maintaining contact for a period of time effective to form a suspension comprising gas hydrate dispersed within said carbonated aqueous solution; degassing the suspension while maintaining said suspension under pressure by agitating to a degree effective to dislodge unreacted and undissolved gas bubbles from the suspension and permit them to rise to the upper surface thereof; transporting the essentially gas-bubble-free suspension through a port in the vessel while under pressure to a pressurized freezing vessel; and freezing the essentially gas-bubble-free suspension under pressure.

4,333,316

AUTOMATIC CONTROL APPARATUS FOR A HEAT PUMP SYSTEM

Custis L. Stamp, Jr., Tyler, Tex., and Rollie R. Herzog, Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Oct. 14, 1980, Ser. No. 196,413
Int. Cl.³ F25B *49/00, 13/00*
U.S. Cl. 62—126 **13 Claims**



1. In a heat pump system, automatic control apparatus for switching the heat pump system from a normal functional operating mode to a standby operating mode in which temperatures in the conditioned space are maintained within an expanded temperature range having predetermined upper and lower temperature limits, the control apparatus comprising:

means for receiving and storing user-selected volatile data representing a desired target temperature for the conditioned space and a desired functional operating mode for the heat pump system;

means for supplying a data check code signal, the status of which indicates the validity or invalidity of the data signals emanating from the volatile data storage means;

means repetitively responsive to the stored volatile data signals and to valid data check code signals for operating the heat pump system in the user-selected functional operating mode and for entering the heat pump system into the standby mode when a predetermined number of invalid data check code signals are repetitively sensed in sequence;

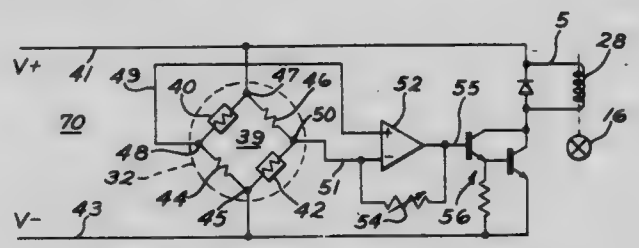
and standby means responsive to an enter standby mode instruction to cause one or both of said predetermined upper and lower temperature limits of the expanded temperature range to be established to supersede the user-inserted target temperature and for operating the heat pump system to maintain the temperature of the conditioned space within said expanded temperature range.

4,333,317

SUPERHEAT CONTROLLER

George N. Sawyer, Flint, Tex., assignor to General Electric Company, Louisville, Ky.

Filed Aug. 4, 1980, Ser. No. 175,168
Int. Cl.³ F25B *41/04*
U.S. Cl. 62—212 **4 Claims**



1. A refrigerant flow control system for a refrigeration system of the type having a compressor including a discharge and suction conduit, a condenser, an electro-mechanical expansion means for regulating refrigerant flow in said system and an evaporator for receiving liquid phase refrigerant at an inlet and providing gaseous phase refrigerant at an outlet; means controlling said expansion means in accordance with the superheat condition at said suction conduit by regulating the admission of liquid phase refrigerant to said evaporator comprising:

a sensing member including a cavity;

a differential pressure responsive element arranged to divide said cavity into a first and second chamber with at least a portion of said sensing member including said second chamber being in thermal contact with said suction line;

a fluid in said second chamber having characteristics approaching or identical with those of the refrigerant employed in said system;

a conduit introducing gaseous phase refrigerant at suction line pressure to said first chamber so that said differential pressure responsive element is subjected on one side to saturation pressure of said fluid in said second chamber under influence of said suction line temperature and on the other side to refrigerant in said first chamber at suction line fluid pressure;

a differential pressure sensing means arranged on said differential pressure responsive element for sensing the difference in pressure between said first chamber and second chamber, said differential pressure sensing means including strain sensing resistive elements whose resistance varies as a function of pressure differential between said chambers;

a signal means for producing an electrical signal from the action of the said differential pressure sensing element for controlling operation of said electro-mechanical expansion means; and

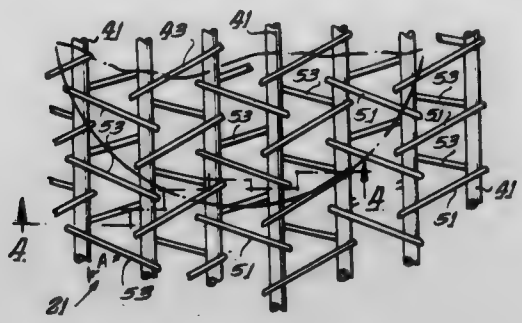
control means for causing said electric signal to activate said electro-mechanical expansion means for controlling the superheat condition of said gaseous phase refrigerant in said suction conduit in accordance with the pressure differential between said first and second chambers.

4,333,318

CO_2 FREEZER

Lewis Tyree, Jr., 145 Briarwood Ave., North, Oak Brook, Ill. 60521

Filed May 4, 1981, Ser. No. 259,968
Int. Cl.³ F25D 17/02
U.S. Cl. 62—374 10 Claims



1. A CO_2 comprising

means defining an elongated enclosure having an entrance at one end and an exit at the opposite end,

an endless porous belt conveyor for carrying material to be cooled along a path from said entrance to said exit, said endless belt having an upper operating run and a lower return run which are vertically spaced apart to provide an intermediate region therebetween,

CO_2 injection means located in said enclosure to expand high pressure liquid CO_2 through a nozzle to create CO_2 snow plus cold CO_2 vapor, and

blower means located in said intermediate region and aimed at an angle of between about 5° and about 35° upward from the horizontal,

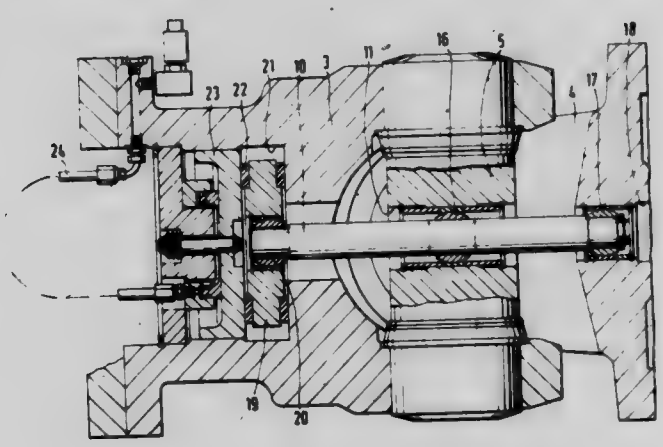
said belt including a plurality of longitudinally spaced transverse rod means and a plurality of belt sections which are interconnected by said transverse rod means whereby said belt effectively deflects cold CO_2 vapor being discharged by said blower means upward against the undersurface of mateial being carried along said endless belt.

4,333,319

UNIVERSAL JOINT ASSEMBLY

Walter Bischoff, Münster-Wolbeck, Fed. Rep. of Germany, assignor to Gelenkwellenbau GmbH, Essen, Fed. Rep. of Germany

Filed Jun. 24, 1980, Ser. No. 162,530
Claims priority, application Fed. Rep. of Germany, Jul. 3, 1979, 2926710
Int. Cl.³ F16D 3/26
U.S. Cl. 464—26 7 Claims



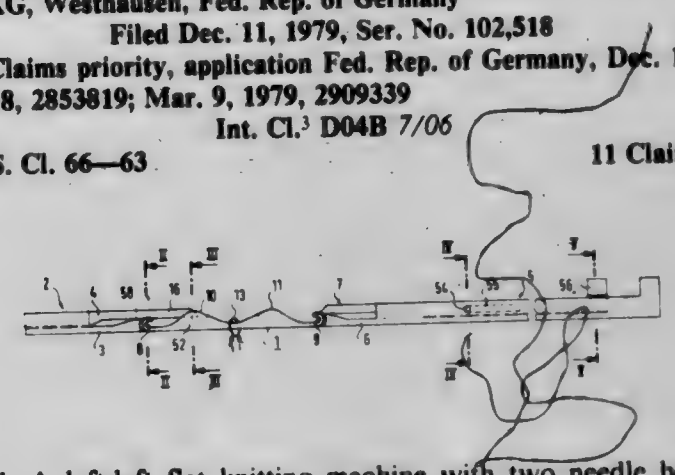
1. A universal joint assembly comprising: first and second yoke means; trunnion cross means operatively connected between said first and second yoke means for torque transmission therebetween; means defining a generally centralized bore extending through said trunnion cross means between said first and second yoke means; bolt means extending within said bore connected between said first and second yoke means through said trunnion cross means; radially movable means in said first yoke means having said bolt means angularly movably received therein; and locking means for locking said radially movable means in any selected position thereof.

4,333,320

LEFT-LEFT FLAT KNITTING MACHINE

Gottfried Kuhnert, Aalen, Fed. Rep. of Germany, assignor to Universal-Maschinenfabrik Dr. Rudolf Schieber GmbH & Co. KG, Westhausen, Fed. Rep. of Germany

Filed Dec. 11, 1979, Ser. No. 102,518
Claims priority, application Fed. Rep. of Germany, Dec. 13, 1978, 2853819; Mar. 9, 1979, 2909339
Int. Cl.³ D04B 7/06
U.S. Cl. 66—63 11 Claims



1. A left-left flat knitting machine with two needle beds arranged in a common plane, knitting needles provided with needle hooks at both ends thereof, and bars provided in the needle bed channels of both needle beds to activate said knitting needles, characterized in that said knitting needles are formed as double hook needles without pivoted tongues for closing said hooks and (1) having two needle humps substantially the same height as said needle hooks (10,11) and that the bars are so formed as to act only as push bars (2,5), each composed of a stitch transfer bar (3,6) and a tongue bar (4,7) having integral feet.

4,333,321

KNITWARE STRUCTURE

Manfred Schneider, and Frank Schubert, both of Karl Marx Stadt, German Democratic Rep., assignors to Veb Wirkmaschinenbau Karl-Marx-Stadt, Karl Marx Stadt, German Democratic Rep.

Filed Feb. 28, 1980, Ser. No. 126,857
Claims priority, application German Democratic Rep., Mar. 4, 1979, 211561
Int. Cl.³ D04B 23/08, 23/10
U.S. Cl. 66—192 5 Claims



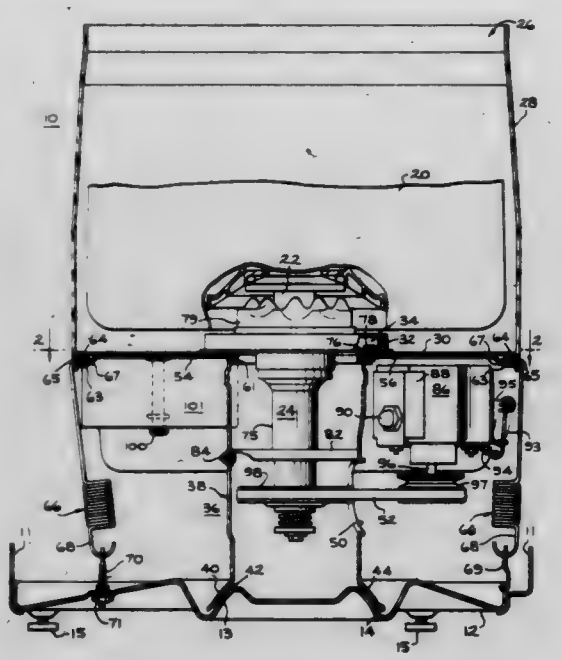
1. Knitted goods, particularly pile-knit goods, comprising a base fabric formed of weft yarn elements and interlooped warp yarns defining therewith wales and courses, said weft yarn elements extending over at least two wales; and pile yarns tied into the loops of the warp yarns and including pile-forming components tied with the warp yarns in every second course and non-patterning components tied as standing weft in one respective wale into the in between courses.

4,333,322

MOUNT FOR WASHING MACHINE

David L. Billings; Robert M. Fey, and Richard A. Waugh, all of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Dec. 11, 1980, Ser. No. 215,217
Int. Cl.[3] D06F *37/24*
U.S. Cl. 68—23.2 13 Claims



1. An upright fabric washing machine comprising:

a cabinet structure having a bottom frame including a bearing for pivotally supporting an assembly of working parts of said machine;

a mount including a hollow mounting post pivotally supported on said bearing and extending generally vertically upward within said cabinet structure and a plurality of mounting arms, each of said mounting arms being attached to the upper portion of said mounting post and extending outwardly in a generally horizontal direction;

a non-rotatable tub having a peripheral side wall and a bottom wall defining an access opening therethrough;

means securing said tub to said mount with said tub bottom wall supported by said mounting arms and with the access opening in register with said hollow mounting post;

a transmission enclosed in a housing and having an output member extending from an upper end of said housing; and

means securing said housing to said mount with said housing disposed substantially within said mounting post and said output member extending upwardly within said tub.

4,333,323

WASHING MACHINE

Vijay K. Stokes, Schenectady, N.Y., assignor to General Electric Company, Louisville, Ky.

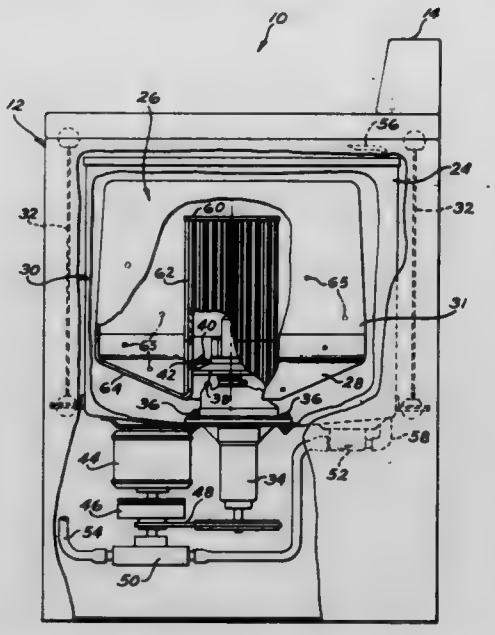
Filed Dec. 15, 1980, Ser. No. 216,119
Int. Cl.[3] D06F *21/06*
U.S. Cl. 68—171 4 Claims

1. In a washing machine for fabric articles comprising a receptacle to receive washing liquid and a fabric article load to be washed in the liquid, said receptacle having a generally vertical central axis; and drive means operatively connected to said receptacle and constructed and arranged to move said receptacle so that the central axis of said receptacle moves in an orbital path; said receptacle comprising:

(a) a generally upright circumferentially outer wall;

(b) a generally upright center post spaced radially inward of said outer wall and having a circumferentially outer surface for engaging fabric articles, said outer surface being textured to minimize slippage between said outer surface and fabric articles; and

(c) an annular bottom wall interconnecting the lower ends of said outer wall and said center post, said bottom wall having an upper surface textured to maximize slippage between said upper surface and fabric articles, said upper surface being contoured to slope downwardly substantially continuously from said outer wall to said center post and to undulate circumferentially of said receptacle.

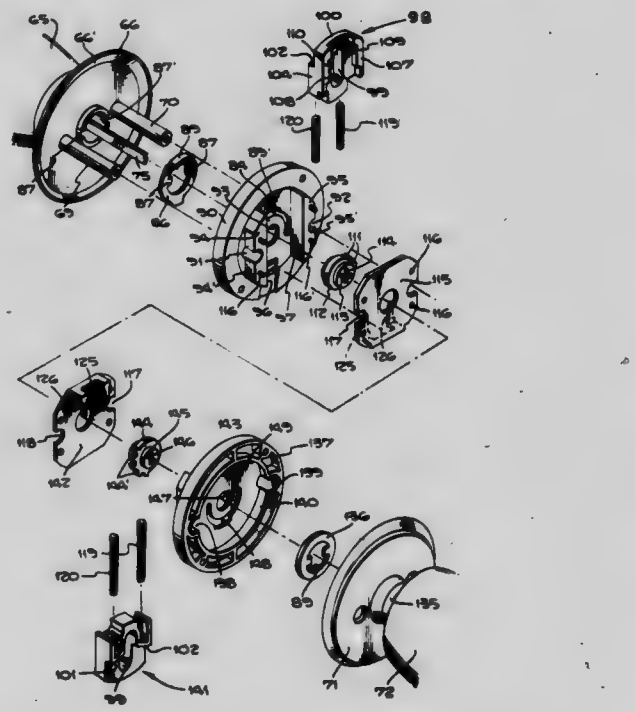


4,333,324

SPRING/DEAD BOLT LOCK ASSEMBLY

Hagen Dietrich, Delta, and William J. Fane, North Vancouver, both of Canada, assignors to Norris Industries, Inc., Huntington Beach, Calif.

Continuation-in-part of Ser. No. 35,208, May 2, 1979, Pat. No. 4,255,953. This application Jun. 23, 1980, Ser. No. 161,899
Int. Cl.[3] E05B *59/00, 55/00*
U.S. Cl. 70—107 10 Claims



1. A door lock acting as a combination spring latch and dead bolt comprising a latch bolt subassembly with a cam engaging means thereon and adapted to move between a partially extended spring latch position, a dead bolt position, and a withdrawn position, said subassembly comprising a latch bolt, a bolt extension and a case extension in longitudinal alignment, latch bolt actuating means comprising a spindle means and a main cam member on said spindle means having an operating engagement with said cam engaging means, a key actuated outside operating assembly including a spring latch release member in operating relationship with said spindle means, an inside operating assembly including a spring latch release

member and a turn member in operating relationship with said spindle means, outside driving means adapted to engage said spindle means for driving said spindle means in a rotating direction, an outside drive housing having an outside drive element thereon in a transversely reciprocating path of movement and adapted to engage said outside driving means, and a rotatable drive member between said outside spring latch release member and said outside drive housing, an inside driving means adapted to engage said spindle means for driving said spindle means in a rotating direction, an inside drive housing having a transversely reciprocating path of movement and having an inside drive element thereon in continuous progressive engagement with said inside drive means, and a rotatable cam drive member between said inside spring latch release member and said inside drive housing, a clear way between said outside drive housing and said outside drive means when said latch bolt subassembly is in dead bolt position whereby the outside spring latch release member is free of operating engagement with said spindle means when the latch bolt subassembly is in dead bolt position.

4,333,325

STEERING SHAFT LOCKING DEVICE

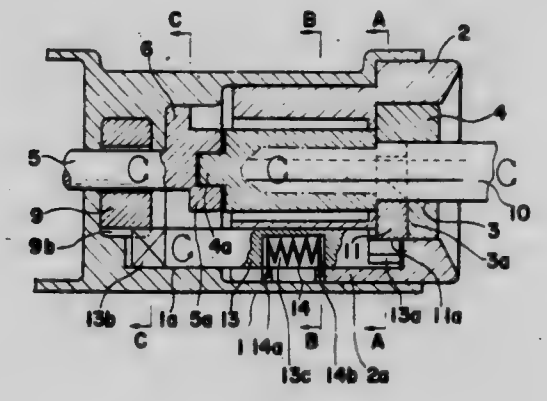
Minoru Morikawa, Nagoya; Sadao Kokubu, Iwakura, and Tadashi Hirai, Nagoya, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Filed Apr. 20, 1979, Ser. No. 32,105

Claims priority, application Japan, Apr. 24, 1978, 53/55510[U]

Int. Cl.³ B60R *25/02*; E05B *65/12*

U.S. Cl. 70—186 **4 Claims**



1. A steering shaft locking device, comprising:

a housing;

a locking rotor rotatably mounted in said housing and having key actuated means for locking said rotor against rotation in said housing and a slot for receiving a key for actuating said key actuated means;

a movable piece mounted in said locking rotor for movement of an outer end thereof to the periphery of the rotor when a key is inserted into said slot and being free to allow the outer end to move inwardly from the periphery of the rotor when no key is present in the slot;

a cam connected to the end of said rotor within said housing;

a lock bar slidably mounted in said casing for sliding movement transversely of the axis of rotation of said rotor and engaged by said cam for movement in response to movement of said rotor and having a projection on an edge thereof;

a first spring engaging said lock bar for urging said lock bar against said cam;

a lock shaft mounted in said housing for rotation around the longitudinal axis thereof and being held in said housing against movement in the axial direction thereof, said lock shaft having one end adjacent said projection on said lock bar and engaged by said projection for being rotated by said lock bar from a neutral rotational position in one rotational direction when said lock bar is moved in the one direction by said cam, and being rotated by said lock bar from said neutral rotational position in the other direction when said lock bar is moved in the other direction by said first spring, and having the other end adjacent the outer end of said movable piece, said other end having a shape for engaging said movable piece and urging it inwardly of said rotor when said lock shaft is rotated in said other rotational direction and moving out of contact with the periphery of said rotor when said lock shaft is rotated in said one direction; and

a second spring engaging said lock shaft for urging said lock shaft to said neutral rotational position from a rotational position in either rotational direction from said neutral rotational position, said second spring being weaker than said first spring.

4,333,326

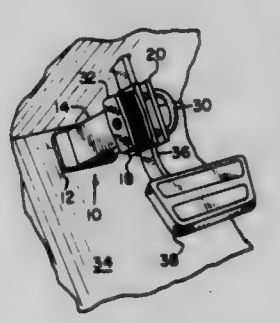
BRAKE AND CLUTCH LOCK ASSEMBLY

Robert E. Winters, 519 W. 16th Pl., Chicago Heights, Ill. 60411

Filed Jul. 16, 1980, Ser. No. 169,833

Int. Cl.³ B60R *25/00*; G05G *5/06*

U.S. Cl. 70—203 **1 Claim**



1. An apparatus useful for substantially immobilizing the shaft of a foot pedal assembly normally necessary to completely control the operation of a vehicle having a floor, said apparatus comprising base means being a rigid structure, and having a first end and a second end, said first end having a larger cross sectional area than said second end, and said base means being sized to fit between said floor and said shaft, provided that in use said first end is in contact with said floor, first wall means and second wall means each extending upwardly from said second end of said base means and being spaced apart so as to be capable of cradling said shaft between said first and second wall means and said second end of said base means, each of said first and second wall means having a pair of holes therethrough equidistant up from said second end of said base means, lock means capable of passing through at least one of said holes in each of said first and second wall means to thereby effectively lock said shaft in said cradled position and rendering said foot pedal assembly effectively inoperative.

4,333,327

MAGNETIC TUMBLER LOCK

Kiyoyasu Wake, Tokyo, Japan, assignor to Miwa Lock Co., Ltd., Tokyo, Japan

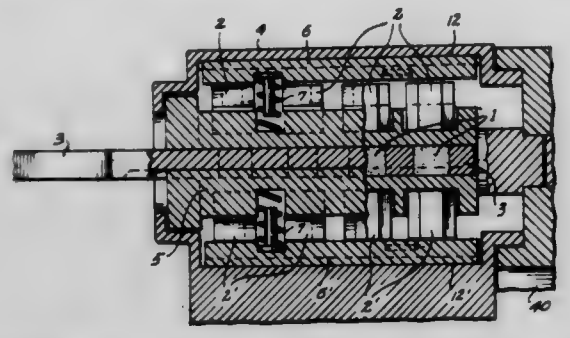
Continuation of Ser. No. 867,665, Jan. 9, 1978, abandoned. This application Feb. 7, 1980, Ser. No. 119,286

Int. Cl.³ E05B *47/00*

U.S. Cl. 70—276 **7 Claims**

1. A magnetic actuated lock mechanism comprising an external housing, an inner cylinder which is adapted to turn in said external housing, said inner cylinder having a keyhole for receiving a key axially therein, there being arranged two rows of tumbler magnets in said inner cylinder, said tumbler magnets being adapted to turn about a rotary axis transverse of the longitudinal axis of the inner cylinder; said tumbler magnets being magnetized through a process of partial magnetization producing both a north and south magnetic poles on the end adjacent to said keyhole; a magnetic key provided with a key magnet corresponding to each of said tumbler magnets for

co-operating with each of said tumbler magnets, said key magnets being magnetized through a process of partial magnitization producing both a north and south magnetic poles on the end adjacent to said tumbler magnets, said tumbler magnets and said key magnets being substantially coaxially oriented in pairs so that the magnetic flux passes through the interior of the key magnets and through the interiors of the rotatable tumbler magnets along a curved line and beyond the key magnets whereby each tumbler magnet is rotatably operable by a single key magnet and said tumbler magnets are each rotated into an unlocked position upon insertion of said key; and a bolt rod extending in the direction of length of the inner cylinder,



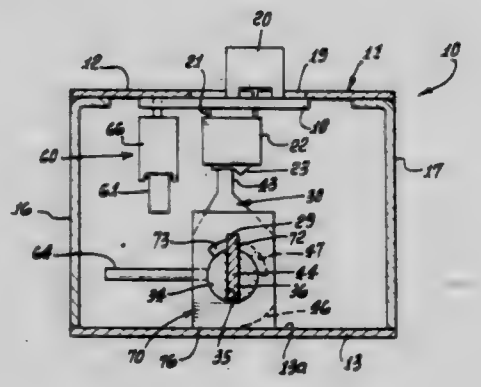
adjacent said two rows of tumbler magnets, said mechanism constructed and arranged such that, in said locked position of said tumbler magnet, the bolt rod is locked outwardly abutting the top surface of said tumbler magnets and within an interior slot in the external housing preventing relative angular displacement between said inner cylinder and said external housing and in said unlocked position of said tumbler magnets, the bolt rod is movable inwardly toward the longitudinal axis of the inner cylinder into a slot formed by aligned recesses in said tumbler magnets when said tumbler magnets are rotated into the unlocked position by insertion of a proper magnetic key, whereby said inner cylinder is rotatable with respect to said external housing.

4,333,328

ACCESS IDENTIFICATION APPARATUS

John D. Platt, S. Laguna, Calif., assignor to A.R.M., Costa Mesa, Calif.

Filed May 2, 1980, Ser. No. 146,009
Int. Cl.³ E05B *49/00*; H01H *9/28*
U.S. Cl. 70—278 **26 Claims**



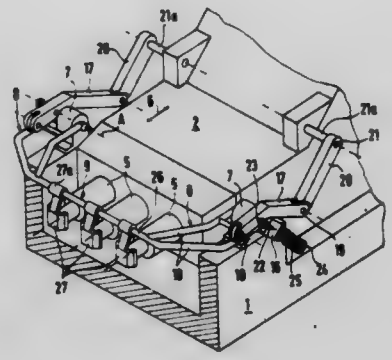
1. In access identification apparatus,
(a) a plurality of switch actuating elements,
(b) a key having identity shoulders corresponding to selected ones of said elements,
(c) means including structure to receive insertion of the key and responsive to movement of said identity shoulders to effect activation of the switch elements corresponding to said shoulders, and
(d) a housing and a receptacle mounted on the housing, said receptacle carrying said switch actuating elements to be rocked back and forth between two positions by said structure which includes plates having exterior tangs engageable with said respective elements, said elements rocking counterclockwise as said tangs rotate clockwise, and vice versa.

4,333,329

CROSS TRANSPORT PRESS

Hans Richner, Büsserach, Switzerland, assignor to Hatebur Umformmaschinen AG, Reinach, Switzerland

Filed Feb. 11, 1980, Ser. No. 120,232
Claims priority, application Fed. Rep. of Germany, Feb. 26, 1979, 2907464
Int. Cl.³ B21D *55/00, 37/16*
U.S. Cl. 72—3 **8 Claims**



1. A cross transport press comprising: a press frame; a press carriage mounted in sliding bearings, which is arranged to be driven in reciprocation through a crank transmission and to a forward end of which is rigidly attached at least one ram for shaping metal components; and means for periodically sensing and cooling the end face of the at least one ram, the means comprising a sensing rocker which is arranged to be driven in the work rhythm of the ram, carries at least one sensing element at a forward end thereof and is mounted about a horizontal pivot axis so that during normal operation of the press the sensing rocker travels past in front of the forward end of the ram in the region of the rear dead-centre position of the press carriage and stops the press if it encounters an obstacle, the sensing rocker comprising at least one rocker arm arranged on the press frame beside the ram, which is mounted for rotation about said pivot axis and which is articulatedly engaged by one end of a transmission lever, the other end of which is operatively driven from a crank transmission, a stop being provided on the rocker arm which determines the lower position of the transmission lever and the transmission lever is further retained on the stop of the rocker arm by an elastic element so that the transmission lever lifts from the said stop counter to the return force of the elastic element if the sensing element is unable to attain its lower limit position.

4,333,330

SPREADER TOOL

Thomas M. Porter, Concord, Mass., assignor to H. K. Porter, Inc., Somerville, Mass.

Filed Apr. 21, 1980, Ser. No. 141,896
Int. Cl.³ B66F *3/00*
U.S. Cl. 72—392 **6 Claims**

1. A spreader tool for providing a controlled level of force in operation, the tool comprising a fluid operated jack, said jack comprising a cylinder having a longitudinal axis and a open forward end and a piston element having a forward end operatively disposed for axial movement in said open forward end of said cylinder; first support means mounted on said forward end of said piston; at least two roller means mounted in spaced adjacent relation on said first support means such that their common axis of rotation is normal to the longitudinal axis of said cylinder; second support means mounted about the periphery of said open forward end of said cylinder; and a pair of force arms separately, pivotally mounted on said second support means on opposite sides of said cylinder about pivot axes which are parallel to each other and to said axis of rotation

of said roller means, each said force arm having a distal load engaging portion and a curved inner edge extending over and bearing against one of said roller means, whereby axial movement of said piston out of said cylinder will cause the respective roller means to roll along the inner edges of the respective force arms forcing same apart and the curvature of said inner edges being such that said force transmitted from said jack to said force arms is controlled.

4,333,331

CALIBRATING UNIT FOR CALIBRATING A HYDRAULIC OR ELECTRIC PRESSURE GAUGE, ESPECIALLY OF A PROBING DEVICE

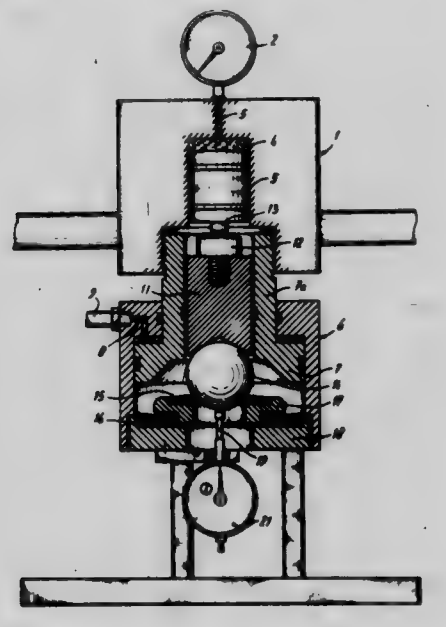
Adriaan B. Mann, Delft, Netherlands, assignor to Goudsche Machinefabriek B.V., Gouda, Netherlands

Filed Aug. 13, 1980, Ser. No. 177,771

Claims priority, application Netherlands, Aug. 17, 1979, 7906279

Int. Cl.³ G01L *27/00*

U.S. Cl. 73—4 R **6 Claims**



1. Calibrating unit for calibrating a hydraulic or electric pressure gauge especially of a probing device, wherein the calibrating unit comprises at least a housing having a wall, and upper side, and a bottom plate, a piston mounted within said housing and having a connecting portion protruding from the upper side of the housing for connecting the piston with a casing of the pressure gauge to be calibrated, a supply channel in the wall of the housing for supplying hydraulic liquid to load the piston, a pressure piece movable within the piston and having an upper side, a lower side and a lower face, said pressure piece being able to be loaded at its upper side by a measuring member of the pressure gauge to be calibrated and to load at its lower side a spring element resting on the housing, and a measuring watch or the like for determining the movement of the pressure piece.

4,333,332

DIFFERENTIAL SCANNING MICROCALORIMETER

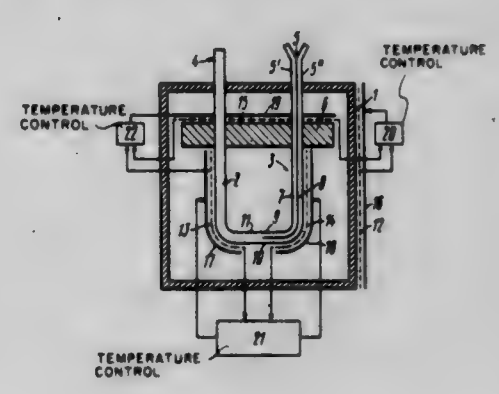
Peter L. Privalov, ulitsa Obrucheva, 28 korpus 2, kv. 145, Moscow, U.S.S.R.

Filed May 21, 1980, Ser. No. 152,140

Claims priority, application U.S.S.R., May 21, 1979, 2760252

Int. Cl.³ G01N *25/20*

U.S. Cl. 374—10 **5 Claims**



1. A differential scanning microcalorimeter, comprising:

an adiabatic shell with an external surface;

a first capillary calorimetric chamber enclosed in said adiabatic shell, provided with an external surface, with a first end extending from said adiabatic shell, and with a second end disposed inside said shell;

a second capillary calorimetric chamber also disposed in said adiabatic shell and provided with an external surface, with a first end extending from said adiabatic shell, at least one of said capillary calorimetric chambers being made in the form of two capillary tubes in thermal contact with each other over the full length thereof; with first ends constituting a first end of said at least one of said chambers extending from said adiabatic shell, and with second ends constituting a second end of said at least one of said chambers enclosed inside said shell and communicating with the second end of the other of said chambers;

a heat bypass disposed in said adiabatic shell, limiting working volumes of said calorimetric chambers and serving to pass said first ends of said chambers extending from said shell;

a first thermal sensitive element located on said external surface of said adiabatic shell;

a second thermal sensitive element located on said external surface of said first capillary calorimetric chamber;

a third thermal sensitive element located on said external surface of said second capillary calorimetric chamber;

a first heating element located on said external surface of said adiabatic shell;

a second heating element located on said external surface of said first capillary calorimetric chamber;

a third heating element located on said external surface of said second capillary calorimetric chamber; and

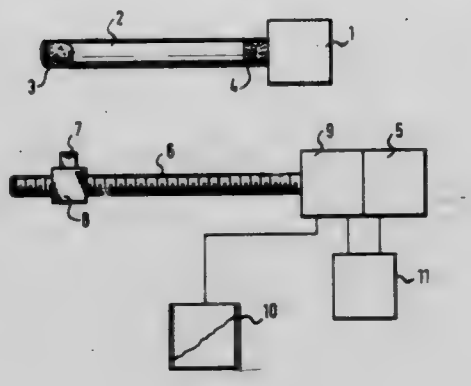
a set of temperature controls electrically coupled with said thermal sensitive elements and said heating elements.

4,333,333

APPARATUS FOR DETERMINING THE BURNING AND/OR GLOWING RATES OF A SMOKABLE ARTICLE

Dirk Pangritz, Halstenbek, Fed. Rep. of Germany, assignor to B.A.T. Cigaretten-Fabriken GmbH, Hamburg, Fed. Rep. of Germany

Filed Nov. 24, 1980, Ser. No. 210,050
Claims priority, application Fed. Rep. of Germany, Nov. 23, 1979, 2947249
Int. Cl.³ G01N *21/72*
U.S. Cl. 374—8 7 Claims



1. An apparatus for determining the burning and/or glowing rate of a smokable article, said apparatus comprising:

(a) sensor means for sensing the incandescent zone of the smokable article;

(b) drive means for moving said sensor means along a path parallel to the direction of burning and glowing of the smokable article; and

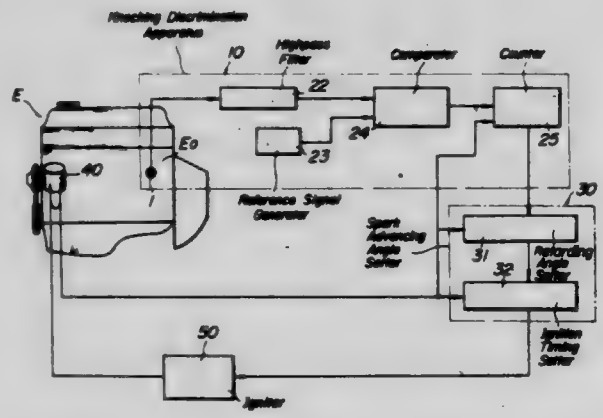
(c) control circuit means, including first switch means coupled to said sensor means and said drive means for stopping said drive means and thereby the movement of said sensor means when said sensor means detects a predetermined radiation intensity and for starting said drive means and thereby said sensor means when said sensor means detects a radiation intensity other than said predetermined intensity when said first switch means are in a first state, and for starting said drive means and thereby the movement of said sensor means when said sensor means detects a predetermined radiation intensity and for stopping said sensor means when said sensor means detects a radiation intensity other than said predetermined intensity when said first switch means are in a second state.

4,333,334

KNOCKING DISCRIMINATION APPARATUS

Yasuo Nakajima, Yokosuka, and Kazuhiro Kikuchi, Yokohama, both of Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Apr. 25, 1980, Ser. No. 143,715
Claims priority, application Japan, Apr. 26, 1979, 54-51659
Int. Cl.³ G01L *23/22*
U.S. Cl. 73—35 7 Claims



1. A knocking discrimination apparatus for discriminating a degree of knocking taking place in an internal combustion engine, wherein an output signal of a knocking sensor for detecting a vibration caused by the knocking is compared with a reference signal for the discrimination of knocking, comprising:

a control circuit for controlling a peak level of the output signal of said knocking sensor to be held at a substantially constant level regardless of an operating condition of the internal combustion engine, so as to compare the controlled peak level of said output signal with said reference signal which has a constant level for the discrimination of knocking;

a high pass filter for passing selectively at least high frequency components of said output signal; and

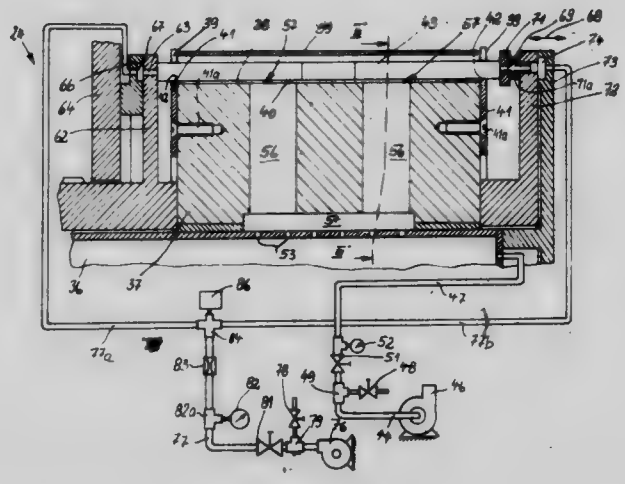
a counter for counting said high frequency components caused by the excess of the peak level of said output signal above the constant level of the reference signal, said counter indicating the degree of knocking present in said engine.

4,333,335

APPARATUS FOR TESTING THE WRAPPERS OF CIGARETTES OR THE LIKE

Uwe Heitmann, Hamburg, and Willy Rudszinat, Dassendorf, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

Continuation of Ser. No. 384,279, Jul. 31, 1973, abandoned. This application Apr. 26, 1979, Ser. No. 33,387
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1972, 2237971
Int. Cl.³ G01N *15/08*
U.S. Cl. 73—41 11 Claims



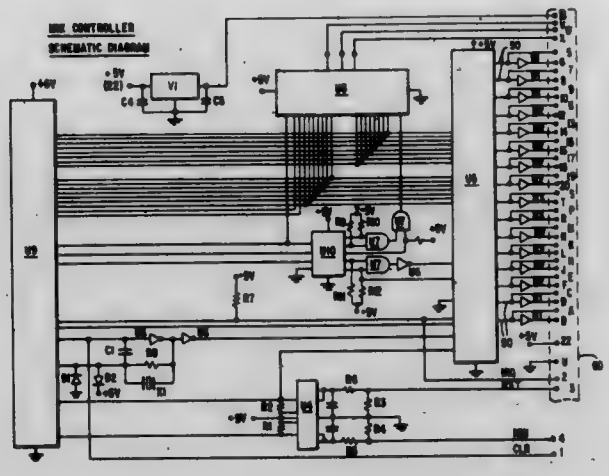
1. In an apparatus for testing cigarettes or analogous articles consisting of or having open-ended tubular wrappers, a combination comprising conveyor means arranged to transport successive articles to be tested sideways toward, past and beyond a testing station and including pairs of spaced-apart article supporting elements with each pair of supporting elements engaging spaced-apart portions of the wrapper of an article during travel toward, past and beyond said testing station, said conveyor means further having at least one opening provided intermediate each of said pairs of supporting elements and being spaced apart from the wrappers of articles in the respective supporting elements; and suction generating means communicating with said openings while said openings travel toward, past and beyond said testing station so that the streams of air flowing into said openings attract the wrappers of articles to the respective pairs of supporting elements.

4,333,336

APPARATUS FOR COMPUTING FLOW RATE OF THERMOPLASTIC MATERIAL

Carl A. Myerholtz, and Ralph W. Myerholtz, Jr., both of Naperville, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed May 7, 1980, Ser. No. 148,153
Int. Cl.[3] G01N *11/04*
U.S. Cl. 73—56 7 Claims



1. In a device for determining the flow rate of a thermoplastic material in accord with Procedure B of ASTM Method D1238 using an extrusion plastometer, the improvement comprising

means for entering one or more numerical factors specified by said ASTM Method D1238 for said thermoplastic material into an input/output device capable of being read by a microprocessor,

means for initiating an electronically timed interval when a change of state is detected in a switch designed to undergo a first change of state after displacement of said thermoplastic material begins in said plastometer,

means for checking the status of said switch at predetermined intervals,

means for ending said electronically timed interval when said switch undergoes a second change of state upon the displacement of a predetermined volume of said thermoplastic material,

means for determining the duration of said timed interval,

means for calculating the flow rate for said thermoplastic material by dividing said factor by the duration of said timed interval, and

means for displaying said flow rate in a convenient input-/output device.

4,333,337

METHOD FOR DETERMINING THE GASOLINE MILEAGE FOR A VEHICLE

John A. Marten, Wauconda, Ill., assignor to Sun Electric Corporation, Crystal Lake, Ill.

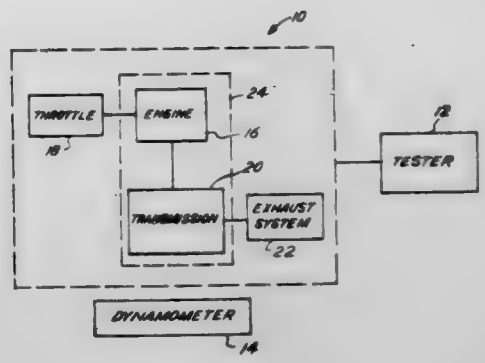
Filed Oct. 9, 1980, Ser. No. 195,526
Int. Cl.[3] G01F *9/00*
U.S. Cl. 73—114 14 Claims

1. In a method for determining a gasoline mileage rating for a vehicle of the type wherein said vehicle is operated on a dynamometer at a city driving speed and monitored to provide data sufficient to calculate said gasoline mileage rating therefrom, said vehicle having a weight, a predetermined driveline, and delivering a horsepower during operation at said city driving speed, the improvement comprising the steps of:

(a) selecting a test horsepower value for said vehicle based upon said weight, said predetermined driveline, said city driving speed and a predetermined acceleration rate related to typical city driving characteristics;

(b) starting said vehicle and accelerating said vehicle to said city driving speed;

(c) setting said dynamometer to maintain said city driving speed;



(d) adjusting said horsepower delivered by said vehicle to substantially equal said test horsepower value; and

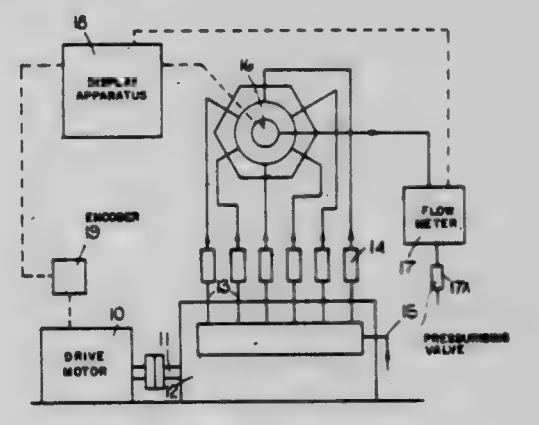
(e) then initiating said monitoring of said vehicle.

4,333,338

FUEL PUMP TEST EQUIPMENT

Daniel F. Patey, and Paul M. Doyle, both of London, England, assignors to Lucas Industries Limited, Birmingham, England

Filed Jul. 17, 1980, Ser. No. 169,782
Claims priority, application United Kingdom, Sep. 15, 1979, 7932089
Int. Cl.[3] G01M *19/00*
U.S. Cl. 73—119 A 6 Claims



1. A test equipment for use when testing a fuel injection pump of the kind intended to supply fuel to a multicylinder internal combustion engine, the test equipment comprising means defining a chamber, a plurality of nozzles having inlets for connection to the outlets of the injection pump respectively, said nozzles being positioned to direct liquid into said chamber, a restricted outlet from said chamber, a pressure transducer for providing a signal indicative of the pressure variation in said chamber as fuel is directed into the chamber from the nozzles in turn, and a display apparatus which receives the signal from said transducer and displays the pressure variations in said chamber.

4,333,339

STEAM TRAP MONITOR

Gerald W. McNeely, Arden, and Gerardus L. J. Tummers, Asheville, both of N.C., assignors to Akzona Incorporated, Asheville, N.C.

Continuation-in-part of Ser. No. 132,581, Mar. 21, 1980, abandoned. This application May 6, 1980, Ser. No. 147,038
Int. Cl.[3] G01K *11/06, 11/16, 11/18, 1/20*
U.S. Cl. 116—217 8 Claims

1. A temperature indicator comprising:

(a) a substrate having an embossed well therein;

(b) a substantially transparent cover over and in intimate contact with said well, to form an enclosed pocket, whereby at least one of the substrate and cover is air

permeable, and the bottom of said well has a detectable color, said well containing a chemical which is solid below a predetermined temperature and liquid above said predetermined temperature, which chemical in its solid state entirely fills said pocket, whereby the detectable color of the bottom of said well is visible when said chemical is in its liquid phase and is substantially invisible when it is in its solid phase.

4,333,340

DEVICE FOR MEASUREMENT OF MUSCULAR STRENGTH

Alf U. Elmeskog, Minkvägen 13, S-754 60 Uppsala, Sweden

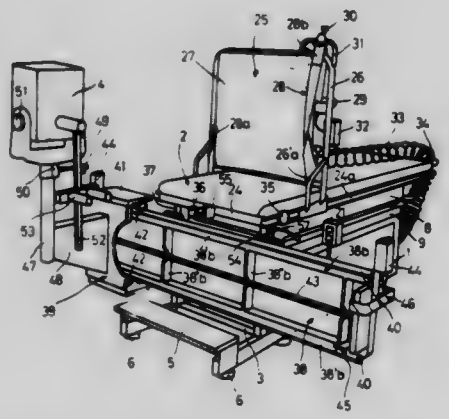
PCT No. PCT/SE79/00161, § 371 Date Mar. 25, 1980, § 102(e) Date Mar. 24, 1980, PCT Pub. No. WO80/00308, PCT Pub. Date Mar. 6, 1980

PCT Filed Jul. 24, 1979, Ser. No. 132,842

Claims priority, application Sweden, Jul. 25, 1978, 7808119

Int. Cl.³ G01L *5/02*

U.S. Cl. 73—379 **5 Claims**



1. A bench device for measuring muscular forces with static or dynamic opposing force providing means, comprising a base, a bunk having a back-rest adjustable therealong, said bunk being vertically adjustable on said base and longitudinally displaceable therealong, guiding means arranged at one end of said base below the plane of said bunk and substantially perpendicular to the longitudinal direction of the bunk, and at least one holder for static or dynamic opposing force providing means, which is horizontally displaceable along said guiding means between end positions on either side of said bunk, said holder and bunk thus being continuously adjustable relative to each other vertically as well as transversely and longitudinally to the bunk to render various measurements of muscular forces possible on a sitting as well as a lying person.

4,333,341

DETERMINATION OF THE ACCELERATION OF GRAVITY

Emanuel P. Manche, 33 Edwards La., Glen Cove, N.Y. 11542

Filed Jun. 9, 1980, Ser. No. 157,662

Int. Cl.³ G01V *7/14*

U.S. Cl. 73—382 R **3 Claims**

1. An apparatus for measuring the acceleration of gravity comprising:

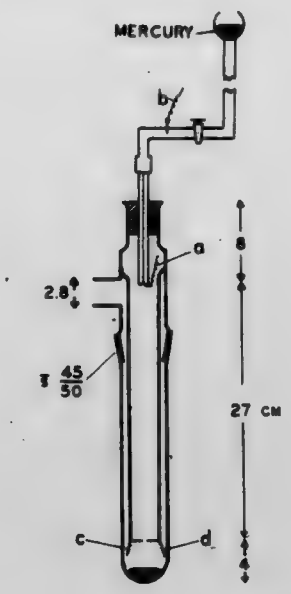
an elongated container, mounted with its longitudinal axis vertical, and having an opening in its top;

a capillary tube extending through the opening in the top and being vertically adjustable so that the distance between the end of the tube within the container and bottom of the container may be varied;

a reservoir containing mercury connected to the other end of the capillary tube by a conduit providing a pressure head at the other end of the capillary;

means for varying the pressure head;

means for sensing departure of a drop of mecury from the end of the tube within the container and sensing arrival of the drop at a fixed point a known distance from the end of the tube; and



means for measuring the time interval between the departure and arrival of the drop of mecury.

4,333,342

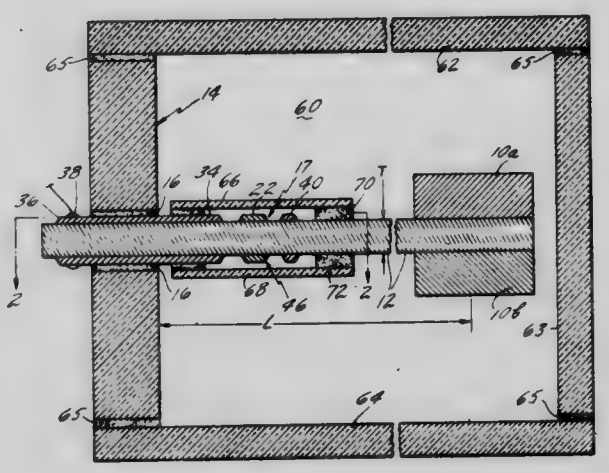
FLUID DAMPED SAW ACCELEROMETER

Meyer Gilden, West Hartford; Donald E. Cullen, Manchester, and Thomas W. Grudkowski, Glastonbury, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Nov. 3, 1980, Ser. No. 203,823

Int. Cl.³ G01P *15/08*

U.S. Cl. 73—516 R **5 Claims**



1. A damped, cantilevered mass accelerometer comprising:

a beam comprised of piezoelectric material rigidly disposed at a proximal end so as to form a cantilever and having an inertial mass disposed at the distal end thereof, a surface acoustic wave device formed on a first surface of said beam near said distal end, and circuit means for providing a signal indication of the acoustic velocity of a surface wave in said surface acoustic wave device;

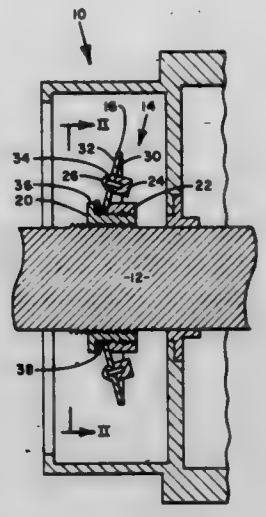
characterized by

said beam being disposed within an enclosed chamber including a damping fluid, said surface acoustic wave device being isolated from said damping fluid by a thin wall sealed to said beam so that said surface acoustic wave device is encapsulated between said beam and said wall.

4,333,343
CENTRIFUGALLY ACTUATED TRIP MECHANISM

Charles C. Czuszak, Greensburg, Pa., assignor to Elliott Turbomachinery Co., Inc., Jeannette, Pa.

Filed Oct. 27, 1980, Ser. No. 200,859
Int. Cl.³ G01P *3/16*; G05D *13/04*
U.S. Cl. 73—538 5 Claims

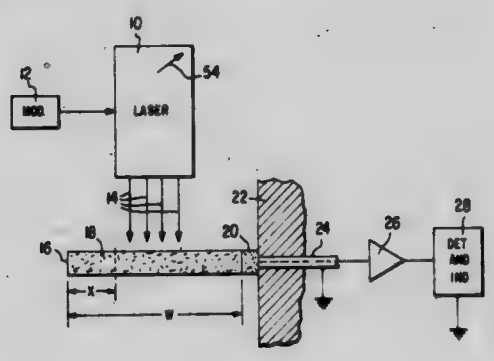


1. A trip mechanism for use with a rotatable shaft comprising:
a Belleville spring encircling the shaft;
collar means secured to the shaft for mounting the spring thereon and engaging the spring to transmit rotary motion from the shaft to the Belleville spring; and
a plurality of weights connected to the spring; wherein the spring includes
a reinforcing band portion annularly extending around the Belleville spring, the spring and weights being so proportioned that the spring will snap overcenter when the rotational speed of the shaft exceeds a preset value and will snap back overcenter toward an unstressed position when the rotational speed of the shaft is reduced.

4,333,344
SYSTEM AND METHOD FOR TESTING THE REACTION OF RARE EARTH IONS

Clyde A. Morrison, Wheaton, and Joseph P. Sattler, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 28, 1980, Ser. No. 200,832
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—584 9 Claims

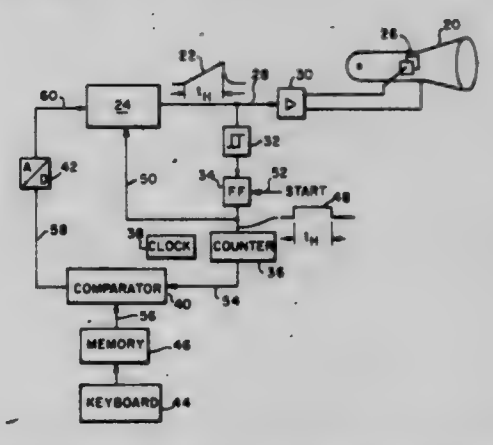


7. A method for indicating the excited state reactions of rare earth ions in a crystalline medium comprising the steps of:
forming a mechanical bar of the crystalline medium doped with rare earth ions, said bar having a mechanically resonant frequency,
exciting the bar with radiant energy near the excitation frequency of the ions in the bar and modulating said energy at the said mechanically resonant frequency, thereby to excite the rare-earth ions to provide non-radiative phonons which mechanically excite the bar at the said modulation frequency and thereby cause the bar to mechanically resonate,
piezoelectrically transferring a portion of the resonant energy to electrical energy, and
indicating the electrical energy thus transferred,
thereby providing indication of the excited state reactions of said ions.

4,333,345
DISPLAY OF ULTRASOUND TEST DATA

Peter Renzel, Düren, and Klaus Kroesen, Bonn, both of Fed. Rep. of Germany, assignors to Krautkramer-Branson, Inc., Stratford, Conn.

Filed Oct. 21, 1980, Ser. No. 199,244
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945201
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—606 12 Claims



1. Apparatus for displaying an echo related signal, said signal resulting from the reflection of ultrasonic energy from within an object being examined, the display apparatus comprising:
means for transducing the echo related signals into an information containing voltage signal;
cathode ray tube;
sweep voltage generator means, said sweep voltage generator means producing a sawtooth voltage for time-dependent deflection of the electron beam of the cathode ray tube in a first direction, said sawtooth voltage having preselected minimum and maximum levels and a predetermined slope;
means for applying the sawtooth voltage provided by said sweep voltage generator means to a first pair of deflection plates of said cathode ray tube;
data entry means for generating signals commensurate with a desired examination field in the test object in units of length and for generating signals commensurate with those parameters of the test object and ultrasound energy source which effect the transmission time of the ultrasonic energy from the source to the beginning of the desired examination field, said data entry means also generating signals commensurate with the parameters of a region within the examination field;
microprocessor means, said microprocessor means including means for storing information commensurate with signals generated by said data entry means, said microprocessor means computing and storing the delay time commensurate with the ultrasound energy transmission time between the source of ultrasonic energy and the depth in the test object commensurate with the beginning of the region within the examination field, said microprocessor further computing and storing the time commensurate with the length in the direction of ultrasound energy travel in the workpiece of the said region within the imaging field;
means responsive to the information computed and stored by said microprocessor means for generating deflection signals for application to a second pair of deflection plates of

said cathode ray tube and for generating a cathode ray tube electron beam generating control signal;

means for selectively and alternately applying said information containing signals and said deflection signals generated in response to the information computed and stored by said microprocessor means to said cathode ray tube second pair of deflection plates; and

means for applying said electron beam gating control signal to said cathode ray tube simultaneously with the application of said computed deflection signal whereby the bounds of the region and the echo related signals may be displayed.

4,333,346

DISPLAY DEVICE FOR NON-DESTRUCTIVE TESTING APPARATUS

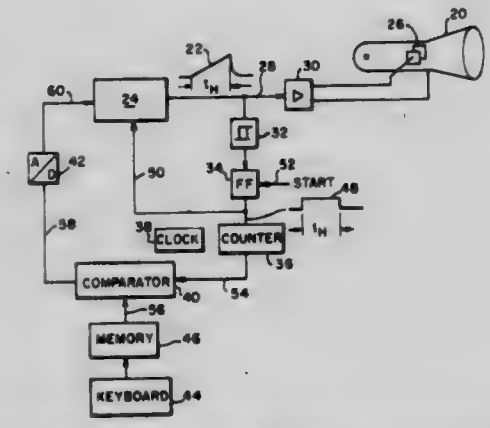
Peter Renzel, Düren, Fed. Rep. of Germany, assignor to Krautkramer-Branson, Inc., Stratford, Conn.

Filed Oct. 21, 1980, Ser. No. 199,246

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945202

Int. Cl.³ G01N *29/04*

U.S. Cl. 73—606 **8 Claims**



1. Apparatus for use in the display of the results of nondestructive testing with a beam of ultrasonic energy comprising:

a cathode ray tube;

means for applying signals commensurate with echoes received from within a workpiece to a first pair of deflection plates of said cathode ray tube;

adjustable sweep voltage generator means, said sweep voltage generator means providing an output voltage having a sawtooth wave form for the time-dependent deflection of the electron beam of said cathode ray tube, said sawtooth voltage having a defined amplitude range and a variable slope;

means for applying said sweep voltage output voltage to the second pair of deflection plates of said cathode ray tube;

data entry means for serially generating signals commensurate with a desired imaging region in the test object and with those parameters of the ultrasound beam generator and test object which effect the transmission time of the ultrasound beam from the ultrasound transducer to the onset of the imaging region;

microprocessor means, said microprocessor means including memory means for storing the information entered by means of said data entry means, said microprocessor means further comprising a computing circuit for computing a desired sawtooth voltage waveform slope commensurate with the desired imaging region and a trigger delay time commensurate with the travel time between emission of the ultrasonic signal and said signal arriving at the onset of the desired imaging region, said microprocessor means further storing information commensurate with messages corresponding to computed information and information provided from said data entry means;

writing circuit means connected to said microprocessor means memory means, said writing circuit means providing a first output signal commensurate with deflection and a second output signal commensurate with cathode ray tube electron beam intensity, said first and second output signals being commensurate with alpha-numeric information stored in said microprocessor means memory information stored in said microprocessor means memory means; and

means for selectively and simultaneously applying said writing circuit means intensity related signals to said cathode ray tube to gate the electron beam and for applying said deflection related signals to said cathode ray tube first deflection plates, whereby alpha-numeric information may be displayed in addition to said echo related signals.

4,333,347

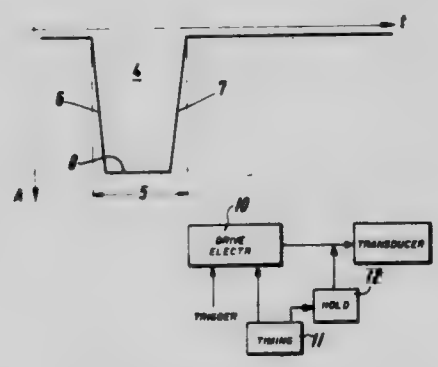
STIMULATING ELECTRO-ACOUSTICAL TRANSDUCERS

Raimund Lang, Wasserlos; Jörg Quittkat, Neuberg; Gert Fischer, Mülheim, and Dieter Lather, Rheurdt, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf and Nukem GmbH, Hanau, both of, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 927,047, Jul. 24, 1978, abandoned. This application Jun. 7, 1979, Ser. No. 46,541

Int. Cl.³ G01N *29/04*

U.S. Cl. 73—642 **3 Claims**



1. Method of stimulating and energizing an electroacoustic transducer comprising the steps of producing an electrical signal with a definite rise time and as applied to the transducer;

holding the energizing level to a particular amplitude for a period so that the total pulse period is at least approximately equal to one or an odd multiple of half an oscillating period at a resonance frequency of the transducer; and

running the signal level back to a zero or reference level to be actively maintained thereafter for positively inhibiting the production of ultrasonic signals by the transducer following the steep traversing edge.

4,333,348

LIQUID-FILLED PRESSURE GAUGE

Helmut Berninger, Eisenbach, Fed. Rep. of Germany, assignor to Alexander Wiegand GmbH u. Co., Klingenberg, Fed. Rep. of Germany

Filed Aug. 18, 1978, Ser. No. 934,979

Int. Cl.² G01L *7/04*

U.S. Cl. 73—708 **6 Claims**

1. A liquid-filled pressure gauge, comprising

a housing including a circumferential wall, a rear wall and a front side,

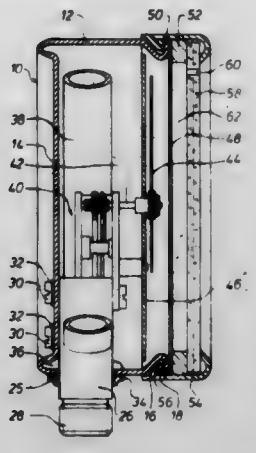
a transparent face plate on the front side of said housing,

a metering element in the interior of said housing,

a metering element support one end of which projects out of the housing on the other end of which projects into the interior of said housing and supports the metering element at one end,

a pointer train having a pointer which is articulately connected to the other end of said metering element and whose pointer position can be observed or viewed through the face plate,

wherein the face plate consists of a stiff material,
wherein an elastic membrane of transparent material which seals off the front side of the housing is located on the side of said face plate which faces the interior of said housing,



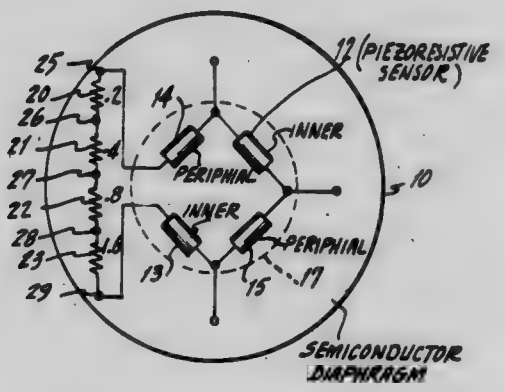
wherein the membrane is disposed in at least partially spaced relation from the interior side of said face plate
and wherein the space between said face plate and said membrane is vented externally.

4,333,349

BINARY BALANCING APPARATUS FOR SEMICONDUCTOR TRANSDUCER STRUCTURES

Joseph R. Mallon, Franklin Lakes, and Anthony D. Kurtz, Englewood, both of N.J., assignors to Kulite Semiconductor Products, Inc., Ridgefield, N.J.

Filed Oct. 6, 1980, Ser. No. 194,034
Int. Cl.³ G01L *19/04*
U.S. Cl. 73—708 **19 Claims**



5. In an integrated semiconductor transducer arrangement of the type employing a bridge configuration of integrated piezoresistive sensing elements, with said elements deposited on a semiconductor substrate by an integrated circuit technique, the combination therewith of balancing apparatus for providing a zero shift and balance for said bridge configuration, comprising:

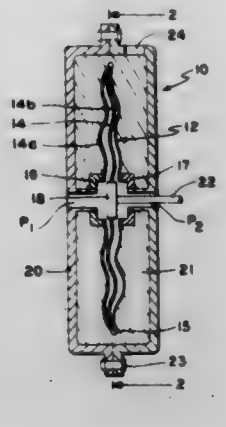
a binary resistive ladder comprising a plurality of resistors, each one differing in value from each other by a factor of two and arranged in series with at least one section of said bridge, and means for selectively bypassing desired ones of said resistors according to an output from said transducer upon application thereto of a zero reference pressure, said resistive ladder deposited on said diaphragm according to the same technique as employed for deposition of said piezoresistors.

4,333,350

DIFFERENTIAL PRESSURE SENSING DEVICE

James M. Gibb, 15 Etive Dr., Airdrie, Scotland

Filed May 1, 1980, Ser. No. 145,396
Int. Cl.³ G01L *7/08*
U.S. Cl. 73—715 **5 Claims**



1. A differential pressure measuring device comprising, a capsule comprising three correspondingly shaped side by side flexible members, means securing said members to each other at their outer peripheral edges, said outer members providing a limiting position for an inner member, an output member connected to said inner member to provide an output when a differential pressure is applied across said inner member, housing means for said capsule, and a liquid filling surrounding said capsule, said filling hardening when said outer members are held in a predetermined limiting position.

4,333,351

METHOD AND APPARATUS FOR MEASURING THE RESIDUAL TENSION IN A STUD OR A BOLT

John H. Bickford, Middletown, Conn., assignor to Raymond Engineering Inc., Middletown, Conn.

Filed Feb. 25, 1980, Ser. No. 124,301
Int. Cl.³ F16B *31/02*
U.S. Cl. 73—761 **6 Claims**

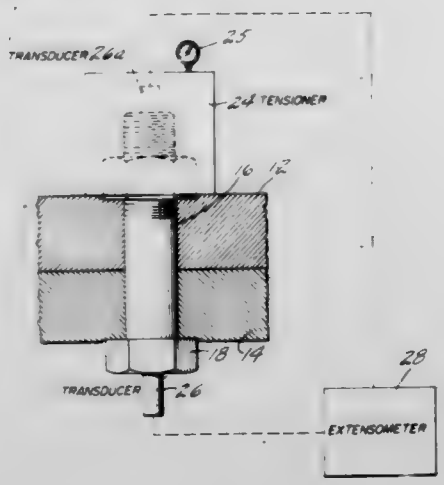
1. A method for determining the residual tension in a fastener, the method including the steps of:

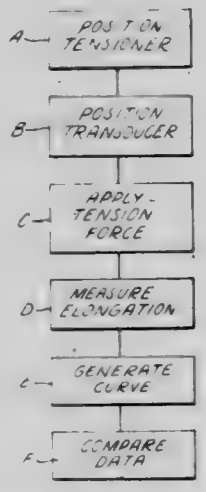
applying increasing tension forces to a fastener to elongate the fastener;

determining the elongation of the fastener for various tension forces;

generating a force-strain curve data to relate the increasing

force applied to the fastener to the elongation of the fastener; and





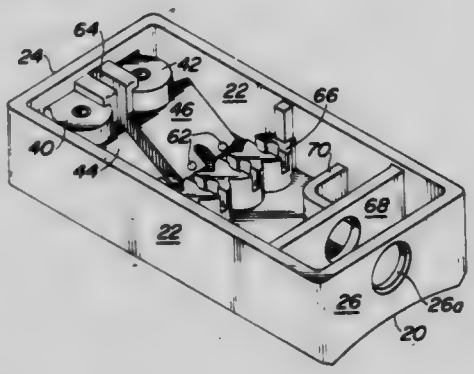
determining the residual preload of the fastener as a function of the initial slope of the generated force-strain curve data.

4,333,352

INJECTION-MOLDED DOPPLER FLOWMETER TRANSDUCER ASSEMBLY

James G. Connery, Ambler; Dominick D. Diascro, Philadelphia; Louis D. DiNapoli, Colmar; Giancarlo Punis, Chalfont, and Anthony J. Matour, Harleysville, all of Pa., assignors to Leeds & Northrup Company, North Wales, Pa.

Filed Oct. 14, 1980, Ser. No. 197,059
Int. Cl.³ G01F *1/66*
U.S. Cl. 73—861.18 **14 Claims**



1. A preformed transducer housing for an ultrasonic flowmeter for mounting on the outer surface of a cylindrical pipe comprising:

a base member having a semi-cylindrical concave surface for engagement with said surface of said pipe;

side walls and end walls carried by said base member upstanding away from said semi-cylindrical surface to form an enclosure;

pedestal means integral with said base member located within said enclosure, said pedestal means having an exposed flat face, the plane of said face forming an acute angle with the axis of said semi-cylindrical surface, and

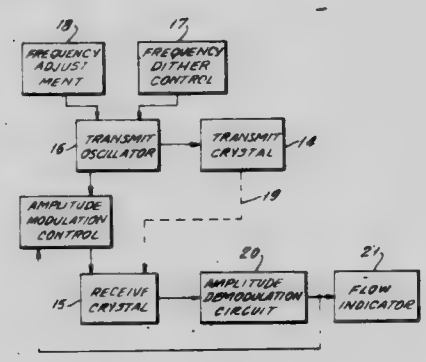
acoustic transmission barrier means in said pedestal means for dividing said exposed flat face into two areas separated by said acoustic transmission barrier means.

4,333,353

TWO-TRANSDUCER DOPPLER FLOWMETER WITH SWEPT OSCILLATOR

Joseph Baumoel, 107 Columbia Dr., Jericho, Long Island, N.Y. 11753

Filed Jul. 28, 1980, Ser. No. 173,012
Int. Cl.³ G01F *1/66*
U.S. Cl. 73—861.25 **10 Claims**



1. A doppler flowmeter measuring system for measuring the flow of a fluid in a conduit comprising:

first transducer means connected to a first portion of said conduit and operable for injecting ultrasonic energy into said fluid;

second transducer means separate from said first transducer means and connected to a second portion of said conduit and operable for receiving ultrasonic energy injected into said fluid by said first transducer means and reflected by energy reflecting objects in said fluid;

a high frequency generator connected to said first transducer means for causing said first transducer means to inject ultrasonic energy into said fluid with a wave form at least generally following the wave form of the output of said high frequency generator;

means coupling a portion of the output ultrasonic energy of said first transducer means directly to said second transducer means, whereby the output of said second transducer means is a wave form which is the summation of the wave form of ultrasonic energy received directly from said first transducer means and the ultrasonic energy reflected from reflecting objects in said fluid;

amplitude demodulation means connected to said second transducer means for demodulating the beat frequency content in the ouptut of said second transducer means and for producing an output signal related to said beat frequency;

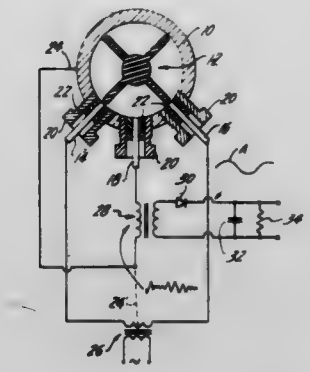
said wave form of ultrasonic energy injected into said fluid by said first transducer means containing a relatively low frequency cyclic dither; said relatively low frequency cyclic dither having a cyclic frequency which is relatively high in comparison to the highest beat frequency which is to be produced by said measuring system; and

means for modulating the ratio of the amplitudes of the signals received by said second transducer means from said energy reflecting objects and directly from said first transducer means respectively.

4,333,354
LIQUID FLOW SENSORS

Murray F. Feller, Citrus County, Fla., assignor to Wilgood Corporation, Jacksonville, Fla.

Continuation-in-part of Ser. No. 31,416, Apr. 19, 1979, abandoned. This application May 15, 1980, Ser. No. 150,142
Int. Cl.³ G01F *1/10*
U.S. Cl. 73—861.77 12 Claims

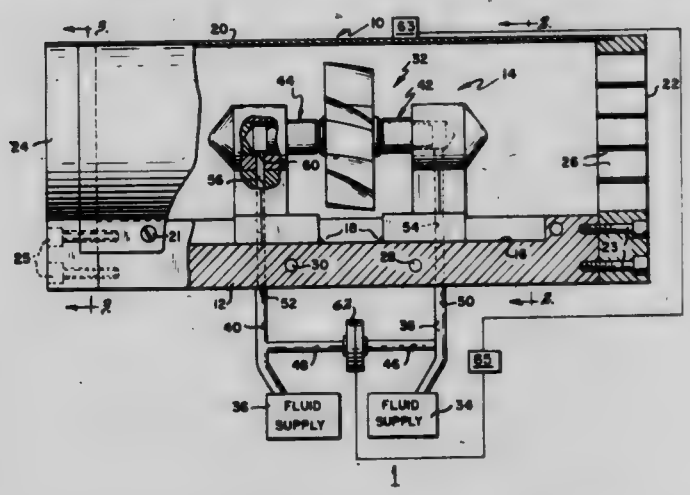


1. A liquid flow sensor for water or similar liquid having some electrical conductivity, including a rotor adapted to be rotated about its axis by flowing liquid and having vanes of much higher resistivity than that of the liquid, means for supporting the rotor within a wall defining a liquid flow passage whereby rotation of the rotor may be calibrated in terms of liquid flow within the wall, and an electric circuit for producing signals representing the flow of the liquid, said circuit including plural excitation and sensing electrodes at least two of which are disposed in proximity to the path of said vanes, said electrodes being exposed to the liquid and said two electrodes acting in the absence of said rotor, to form a pattern of paths of current therebetween, said vanes being movable successively into a position clear of substantial current paths between said two electrodes and into positions wherein a substantial portion of said pattern of paths would extend through the thickness of said vanes but is suppressed thereby.

4,333,355
PRESSURE BALANCED DRAG TURBINE MASS FLOW METER

Michael W. Dacus, Gilbert, and Jack H. Cole, Fayetteville, both of Ark., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 23, 1980, Ser. No. 143,058
Int. Cl.³ G01F *1/10*
U.S. Cl. 73—861.91 6 Claims



1

1. In a device for measuring the density and velocity of a fluid flowing through a tubular member, which comprises a rotor assembly axially disposed within the tubular member, said rotor assembly supported to allow rotation about and translation along the tubular member axis, the rotor assembly consisting of a plurality of blades mounted upon a shaft, a fluid bearing means for suspending the rotor assembly shaft within the tubular member whereby the sliding friction between the rotor shaft and a bearing surface is eliminated, and a means for measurement of rotor blade velocity, the improvement comprising,

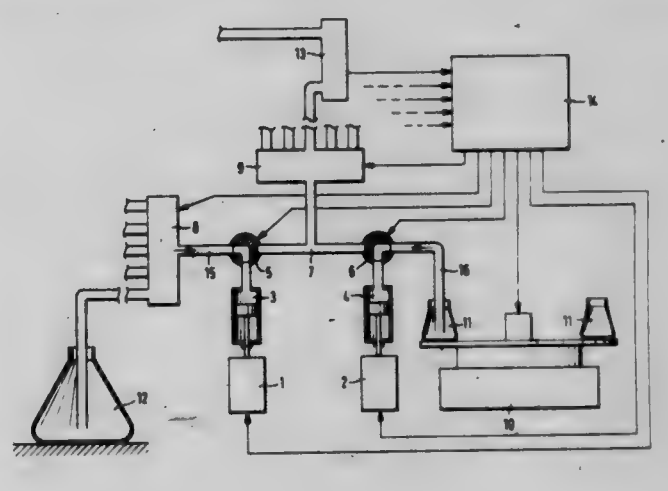
means for establishing independent constant fluid flow to upstream and downstream fluid bearings whereby a pressure balance is attained between the upstream and downstream sides of the rotor shaft, and

detection means for monitoring a fluid pressure differential between the upstream and downstream bearings of the rotor shaft, said pressure differential arising from rotor shaft displacement during fluid flow in either direction in the tubular member.

4,333,356
MIXING APPARATUS

Hermann Bartels, Binningen; Hans-Christian Mez, Basel; Walter Huber, Riehen, and Hans-Peter Stolz, Pratteln, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Apr. 15, 1980, Ser. No. 140,536
Claims priority, application Switzerland, Apr. 27, 1979, 3992/79
Int. Cl.³ G01N *35/08*
U.S. Cl. 73—864.21 11 Claims



1. In a mixing apparatus for producing a liquid having a plurality of components mixed in a selected ratio which comprises flow means for receiving the respective components, and a plurality of metering pumps for the respective components connected to said flow means and operable to cause delivery thereto of the components, each pump having a respective stepping motor as a drive motor and comprising a piston burette, the piston of which is driven by said stepping motor to sweep a predetermined increment of volume in response to each step of the stepping motor,

the improvement comprising an automatic control means connected to the pump motors to control same and being operable to supply individual control signals thereto as respective trains of pulses, said control means having input means for receiving input data determining the selected mixing ratio and including computer means (a) being responsive to such input data to compute and establish the pulse interval for each pulse train such that the pumps cause quantities of the respective components to be delivered to said flow means in the same period of time in accord with said selected ratio and at a respective uniform rate during said period and (b) being arranged to compute initial piston positions for the burettes in accord with the quantities of the respective components to be delivered to the flow means in accord with said selected ratio; and said automatic control means further including an interface device connected to each stepping motor and responsive to commands generated by the computer means to supply pulses to the associated stepping motor to establish the

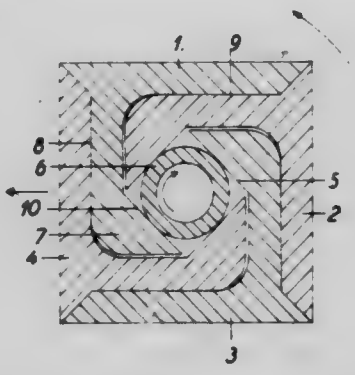
initial position of the associated burette piston and to subsequently control the supply of the train of pulses to the stepping motor to cause delivery of the associated component to said flow means.

4,333,357

EXPANSION ELEMENT

Knud Vinther, M-o-llegardsparken 4, DK-8355 Ny Solbjerg, Denmark

Filed Jun. 6, 1980, Ser. No. 157,924
Int. Cl.³ F16H *21/44, 25/18*
U.S. Cl. 74—110 **9 Claims**



1. An expansion mechanism comprising n (where n is an integer greater than 2) substantially identical hook-shaped or spiral-shaped elements disposed in a circular array about a central axis so that each element has first and second adjacent elements, and each element having first, second and third portions each having an inner surface and an outer surface, the inner surfaces of said first portions respectively defining a regular n-sided polygonal chamber, the center of which lies on said central axis, the outer surfaces of said second portions respectively being sliding surfaces, and the inner surface of said third portion of each element being a sliding surface which is in sliding contact with the outer sliding surface of the second portion of said first adjacent element, whereby upon linear displacement of one of said elements in a direction along that side of the polygon which is defined by the inner surface of said first portion of that element, sliding movement of the outer surface of the second portion of that element along the inner surface of the third portion of the second adjacent element, and of the inner surface of the third portion of that element along the outer surface of the first adjacent element, causes said adjacent elements to be displaced correspondingly, between a first condition in which the outer surfaces of the third portions respectively are relatively close to said central axis and a second condition in which the outer surfaces of the third portions respectively are relatively distant from said central axis.

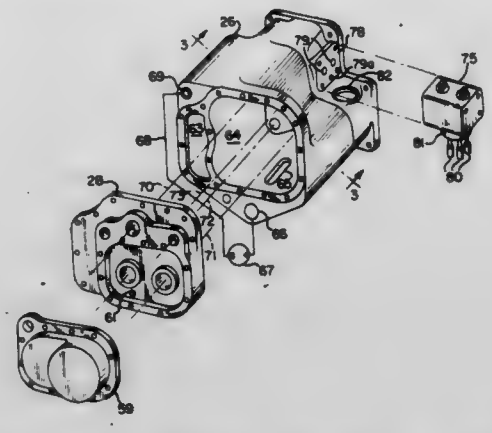
4,333,358

POWER-SHIFT COUNTERSHAFT TYPE TRANSMISSION

Giorgio P. Grattapaglia, Turin, Italy, assignor to Fiat-Allis Macchine Movimento Terra S.p.A., Stupinigi, Italy

Filed Jul. 16, 1980, Ser. No. 169,406
Claims priority, application Italy, Dec. 18, 1979, 69433 A/79
Int. Cl.³ F16H *3/08, 57/02*
U.S. Cl. 74—359 **9 Claims**

1. A power-shift countershaft type transmission comprising:
a transmission housing having a first end wall and a second end wall which is releasably secured to said housing in spaced relationship to said first end wall,
said first and second end walls each having aligned bearing bores therein for rotatably supporting power transmission means,
a dividing wall formed within said housing in a position between said first and second end wall to form a main rotating components compartment and a sump compartment,
power transmission means rotatably supported by said first and second end wall bearing bores providing forward, reverse, and change-speed transmission of power,
control means operatively connected to said transmission for selectively controlling the transmission of power from said power transmission means, and



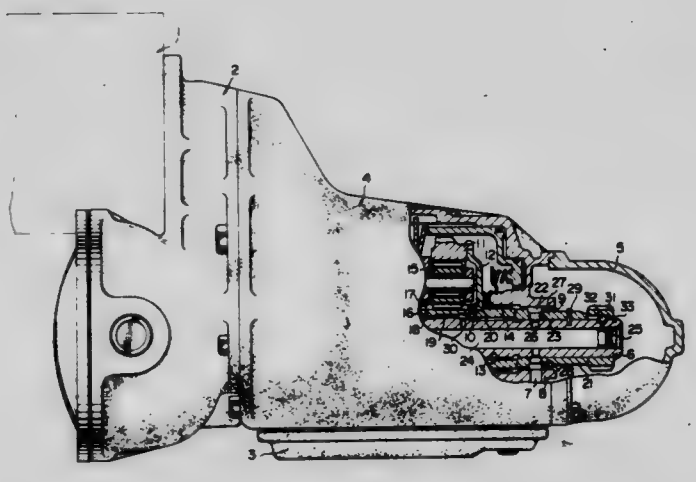
fluid transfer means coupled between said main rotating components compartment and said sump compartment, for transferring fluid therebetween to operate said power transmission means in a substantially splash-free environment.

4,333,359

LUBRICATING OIL TRANSFER CONSTRUCTION IN AN AUTOMATIC TRANSMISSION FOR VEHICLES

Yutaka Taga, and Kunio Morisawa, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Apr. 24, 1980, Ser. No. 143,361
Claims priority, application Japan, Jun. 27, 1979, 54-81109
Int. Cl.³ F16H *57/04*
U.S. Cl. 74—467 **4 Claims**



1. An automatic transmission comprising:
a power output shaft having a lubricating oil through hole bored along its axis and at least one radial lubricating oil hole extending between its outside surface and said axial through hole,
a transmission case having a power output shaft support hole for supporting said power output shaft and a lubricating oil supply passage which opens to said power output shaft support hole to provide a supply of lubricating oil to said axial through hole in said power output shaft by way of said radial lubricating oil hole in said power output shaft, said power output shaft support hole including a first portion which serves as a radial bearing portion for rotationally supporting said power output shaft and a second portion which is located axially adjacent to and coaxial with said first portion and serves as an annular sealing surface, said power output shaft having a construction permitting its assembly into said power output shaft sup-

port hole from the side of said first portion of said support hole,

a lubricating oil transfer mechanism comprising a power output shaft sleeve of a generally tubular shape and having a construction permitting it to be fitted closely over said power output shaft from the side of said second portion of said support hole so as to integrally rotate with said power output shaft but not to engage in any rotational power transmission, said power output shaft sleeve providing an oil communications passage between said lubricating oil supply passage in said case and said radial lubricating oil hole in said power output shaft, said power output shaft sleeve being formed with a circumferential groove in the outside surface thereof, and,

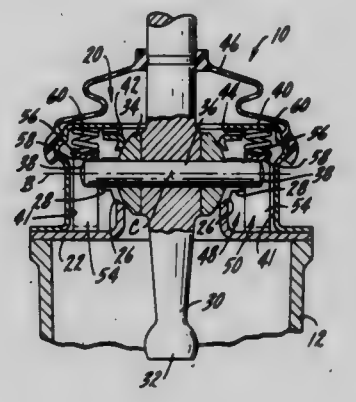
a lubricating oil seal ring provided between said second portion of said support hole and said power output shaft sleeve and received in said circumferential groove, for intercepting leakage of lubricating oil through an annular space in the power output shaft support hole surrounding said power output shaft.

4,333,360

TRANSMISSION SHIFT CONTROL APPARATUS

John P. Simmons, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Jul. 3, 1980, Ser. No. 165,895
Int. Cl.³ G05G 9/12; F16C 11/06
U.S. Cl. 74—473 P 11 Claims



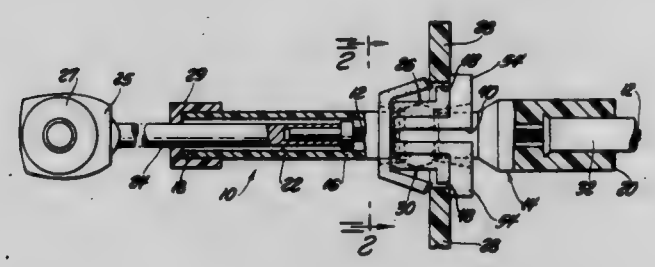
1. Shift control apparatus comprising a housing defining a seat having at least one slot, a shift lever including a pivot element in said seat and a pin extending through each slot, and biasing means including at least one biasing mechanism, each biasing mechanism including a saddle riding on said pin and extending therefrom with a pair of base portions contiguous to said housing, and resilient means including a pair of springs respectively biasing said base portions toward contact with said housing.

4,333,361

REMOTE CONTROL (SWIVEL JOINT)

Arthur L. Spease, Livonia, Mich., assignor to Teleflex Incorporated, Limerick, Pa.

Filed Apr. 25, 1980, Ser. No. 143,902
Int. Cl.³ F16C 1/10
U.S. Cl. 74—501 P 10 Claims



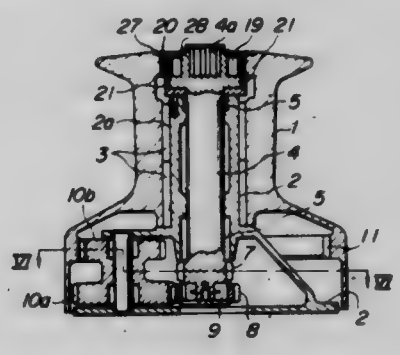
1. A motion transmitting remote control assembly (10) of the type for transmitting motion in a curved path by a flexible motion transmitting core element (12), said assembly (10) comprising: a motion transmitting core element (12); guide means (14) for movably supporting said core element (12), said guide means (14) including a rigid end fitting (16) having first and second ends (18, 20) with a bore (22) therethrough and between said ends (18, 20), said core element (12) including a rigid bar (24) extending from said first end (18) of said end fitting (16) and supported for reciprocating movement in said bore (22) of said end fitting (16); support means (26) for supporting said end fitting (16) in a support structure (28); and characterized by swivel joint means (30) interconnecting said support means (26) and said end fitting (16) at an intermediate position spaced from both of said first and second ends (18, 20) for allowing pivotal movement of said end fitting (16) and said bar (24) about said swivel joint means (30) while at the same time allowing movement of said bar (24) in said end fitting (16) and through said swivel joint means (30), said guide means (14) including a flexible conduit (32) attached to and extending from said second end (20) of said end fitting (16).

4,333,362

SPEED-SHIFT APPARATUS FOR SHEET WINCH

Masumi Sugioka, Shimada, and Norihiro Ogawa, Shizuoka, both of Japan, assignors to Asahi Malleble Iron Co., Ltd., Shizuoka, Japan

Filed May 23, 1980, Ser. No. 152,882
Claims priority, application Japan, May 31, 1979, 54-67898
Int. Cl.³ F16H 5/52
U.S. Cl. 74—812 5 Claims



1. A speed-shift apparatus for a sheet winch with multiple speed-change ratio comprising

a base;

a drum rotatably supported by a bearing roller disposed between said drum and base;

an input shaft rotatably fitted in said base;

a driving gear secured to a lower portion of said input shaft and a further driving gear operatively connected to the lower end of said input shaft through a one-way clutch mechanism;

a planet gear supported by a side shaft and meshed with said driving gear and an internal gear formed on the inner peripheral surface of the lower end of said drum;

a first intermediate gear meshed with said driving gear and a second intermediate gear coaxially connected to said first intermediate gear meshed with said further driving gear;

a one-way rotation transmitting mechanism having a plurality of pawl means pivotally secured to said input shaft and a pawl-engaging groove means formed on the surface of said winch drum which faces said pawl means so as to allow the drum a one-way rotation by their engaging;

an interrupting member having pawl-engaging portions and being disposed between said drum and said input shaft and being rotatably supported on the top surface of said base and adapted to partially interrupt a space between said pawl means and said pawl-engaging groove means; and

a mechanism allowing one-way rotation of said interrupting member relative to a base of said sheet winch, said mechanism including sawteeth formed on the lower bottom surface of said interrupting member and a resiliently bi-

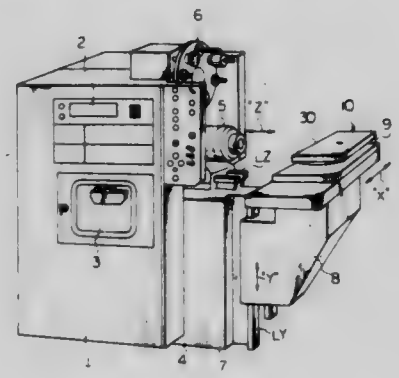
ased pin means extending from said base so as to engage said sawteeth.

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INDEX TABLE ASSEMBLY

Seiuemon Inaba; Tokiji Shimajiri, both of Kawasaki, and Kenichi Toyoda, Hino, all of Japan, assignors to A. Aoki & Associates, Tokyo, Japan

Continuation of Ser. No. 863,346, Dec. 22, 1977, abandoned.
This application Jun. 18, 1980, Ser. No. 160,525
Claims priority, application Japan, Dec. 29, 1976, 51-160626
Int. Cl.³ B23Q *17/00*
U.S. Cl. 74—826 **5 Claims**



1. An indexing table assembly adapted to be mounted on a machine tool or other industrial machine, comprising first and second screw elements coaxially engaged with each other and mounted for movement along their axes, means for moving said first screw element along its axis, a turntable connected to said second screw element and movable therewith, means for preventing said second screw element from being moved beyond a predetermined range, said means for moving said first screw element comprising a cylindrical piston directly connected to said first screw element, a circular fluid chamber in which said cylindrical piston is mounted for movement, said cylindrical piston separating said chamber into first and second chambers, a source of pressurized fluid, a control valve for controlling the flow of pressurized fluid into either said first chamber or said second chamber with the result that when the pressurized fluid flows into said second chamber the first screw element is moved positively in one direction, and then when the pressurized fluid flows into said first chamber said first screw element is moved positively in the other direction, a turntable operated control circuit for said control valve, and cam and valve means for effecting a dampening action of the fluid in said first chamber during indexing operation of the assembly, said cam being connected to said second screw element.

4,333,364

METHOD FOR MANUFACTURING A ROTARY DRILL BIT HAVING A SOLID FORGED, UNITARY BODY

Daniel W. Varel, Dallas, Tex., assignor to Varel Manufacturing Company, Dallas, Tex.

Filed Apr. 7, 1980, Ser. No. 138,079
Int. Cl.³ B21K *5/02*; E21B *9/08*
U.S. Cl. 76—108 A **5 Claims**

1. A method for manufacturing a rotary earth boring bit for use on a rotating drill string, said method comprising the following steps:

forging a unitary body for rotating on an axis of rotation including an upper portion and a lower portion;

machining three hemi-cylindrical body surfaces on the lower portion of said body spaced at 120° intervals around said body;

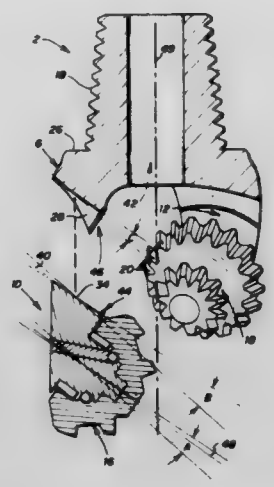
forging three cutter bases;

machining a cylindrical bearing pin having a center axis of symmetry on each of said bases;

machining a base surface on each of said bases to mate with one of said body surfaces;

machining a shoulder on said base disposed adjacent said base surface and adjacent the bearing pin;

machining an annular recess in each of the body surfaces and positioned to receive the shoulder of a cutter base;



rotatably mounting a cutter on said bearing pin; and

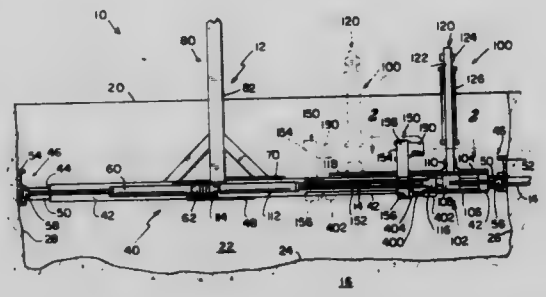
electron beam welding each of said base surfaces to one of said body surfaces said cutter bases being oriented with said bearing pins extending inwardly with respect to the bit.

4,333,365

POWER PIPE TONGS

Robert G. Perry, 3000 Ashwood Dr., Evansville, Ind. 47711

Filed May 9, 1980, Ser. No. 148,195
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—57.16 **17 Claims**



1. A power-driven apparatus for rotating a tubular member, comprising a housing, a first rotatable member including a hollow generally cylindrical-shaped portion for receiving the tubular member and a radially outwardly projecting flange in proximity to one end thereof, mounting means secured to the housing and including bearings for rotatably supporting the first rotatable member, a second rotatable member rotatably carried on the first rotatable member between the flange of the first rotatable member and the mounting means so that the second rotatable member is rotatable about the first rotatable member, the second rotatable member including bearings positioned in tandem with the bearings of the mounting means, at most two jaws, each having an arcuate outer surface and an arcuate inner surface, the inner surface of each jaw including upper and lower means for gripping the tubular member, means for pivotally mounting the jaws to the flange of the first rotatable member, the jaws having a non-gripping position to allow the tubular member to pass therebetween, means on the second rotatable member for engaging the outer arcuate surfaces of the jaws and pivoting the jaws inwardly in response to rotation of the second rotatable member to engage the tubular member in a gripping position, a bidirectional power means, coupling means between the power means and the second rotatable member for rotating the second rotatable member in first and second directions, the inner and outer arcuate surfaces

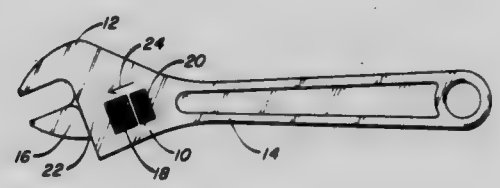
of the jaws providing flared jaw ends for restricting movement of the engaging means along the outer surfaces when the gripping means engage the tubular member, and biasing means interconnecting first adjacent ends of the jaws and interconnecting second adjacent ends of the jaws for biasing the jaws toward the non-gripping position.

4,333,366

CRESCENT WRENCH OPERATING INDICATOR

Carl R. Hurtig, Cohasset, Mass., assignor to Encor Limited, Cohasset, Mass.

Filed Mar. 21, 1980, Ser. No. 132,616
Int. Cl.³ B25B *13/16*
U.S. Cl. 81—170 **4 Claims**



1. In an adjustable wrench including a body, a handle, and a pair of jaws, at least one of which is movable toward and away from the other jaw, and a rotatable adjustment screw manually operable to cause jaw opening and closing, the improvement comprising:

a first tactual relatively roughened surface area disposed on at least one side of the wrench body closely adjacent one radial edge of said adjustment screw;

a second tactual relatively smooth surface area, tactually distinguishable from the first surface area, and being disposed on at least said one side of the wrench body closely adjacent another radial edge of said adjustment screw opposite said one radial edge; and

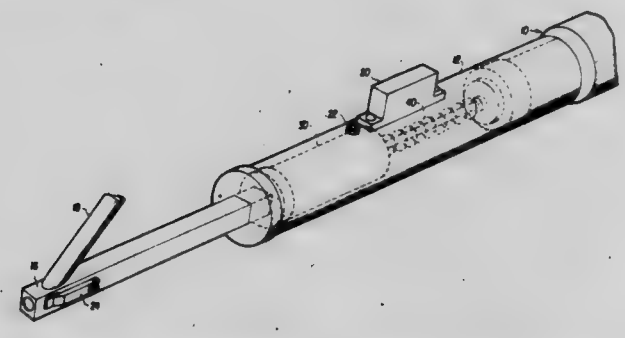
the rough to smooth surface area transition direction across the adjustment screw indicating the direction of rotation of the adjustment screw to cause intended jaw movement in one direction.

4,333,367

FEED CONTROL SYSTEM FOR AUTOMATIC FASTENER DRIVERS

Brenda W. Taffer, P.O. Box 335, Conover, N.C. 28613

Filed Jun. 23, 1980, Ser. No. 162,170
Int. Cl.³ B25B *23/04*
U.S. Cl. 81—430 **9 Claims**



1. A feed control apparatus for pneumatic fastener driving machines of the type in which a housing supports an air motor and a movable barrel which supports the fastener until driven by the motor through a drive bit, and in which a throttle valve is activated responsive to relative movement of the barrel with respect to the air motor to introduce air under pressure through a first input to the air motor or drive mechanism, and fasteners from a feed mechanism are pneumatically delivered to a receiving chamber in the barrel at the end of each driving operation; said feed control apparatus comprising:

(a) said housing carrying said throttle valve, air motor and barrel, said barrel including said receiving chamber therein and slidably received within said housing between three distinct positions, a ready position in which the fastener is seated with respect to said drive bit and engaged thereby, a driving position in which said barrel is moved rearwardly from said first position, and a fastener receiving position in which said barrel is urged forwardly of said first position to provide clearance for the entry of a new fastener;

(b) an electrical switching means mounted in said housing in the path of movement of said barrel and engaged thereby for detecting the barrel position at any one of said distinct positions and for causing a changed electrical condition responsive to movement of said barrel to any one of said three positions;

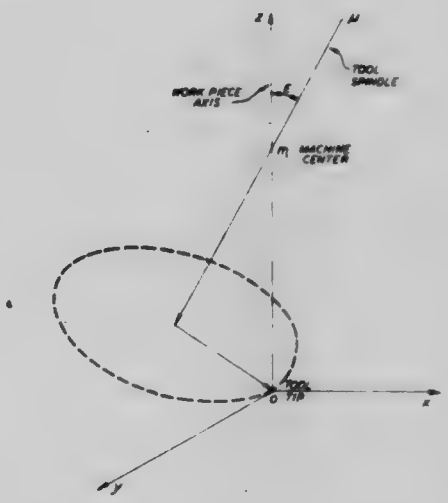
(c) an electrical control circuit connecting said drive mechanism and said feed mechanism, said circuit including said switching means for automatically initiating movement of said barrel to said third position and delivery of a new fastener from said feed mechanism to the chamber responsive to the movement of said barrel from said drive position back to said ready position.

4,333,368

METHOD AND APPARATUS FOR GENERATING ASPHERICAL SURFACES OF REVOLUTION

Gordon J. Watt, Fairfield, Conn., assignor to Kollmorgen Technologies Corporation, Dallas, Tex.

Filed Jul. 15, 1980, Ser. No. 169,072
Int. Cl.³ B23B *3/00, 3/28*
U.S. Cl. 82—1 C **10 Claims**



1. A method of cutting a desired aspherical surface of revolution on a work piece continuously rotatable about a vertical work spindle axis and engageable by a single-point cutting tip radially displaced from a tool spindle axis, said cutting tip being turnable about said tool spindle axis to describe a circular arcuate path in space, said method comprising:

(a) orienting the tool spindle axis relative to the work spindle axis so that the two spindle axes intersect at a given angle to define a machine center directly above said cutting tip when said cutting tip is at the lowest point in its circular arcuate path;

(b) continuously rotating the work piece about said work spindle axis;

(c) engaging said work piece by said cutting tip; and

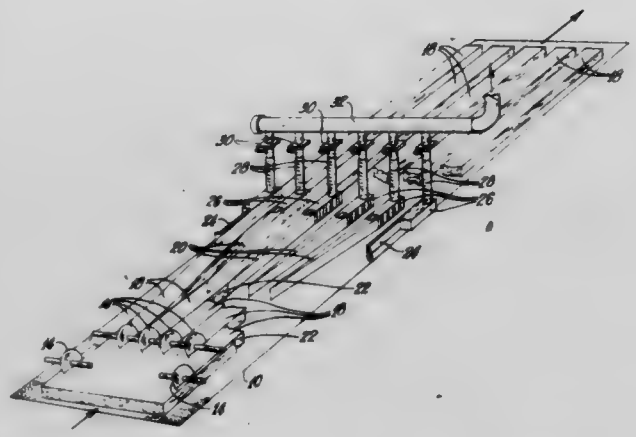
(d) turning said cutting tip about said tool spindle axis while displacing said machine center to follow the locus of the center of curvature of said desired aspherical surface at said cutting tip.

4,333,369

APPARATUS AND METHOD FOR DIVIDING FIBROUS MINERAL BLANKETS

Ralph E. McCort, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 16, 1980, Ser. No. 216,748
Int. Cl.[3] B26D *7/18*
U.S. Cl. 83—24 11 Claims



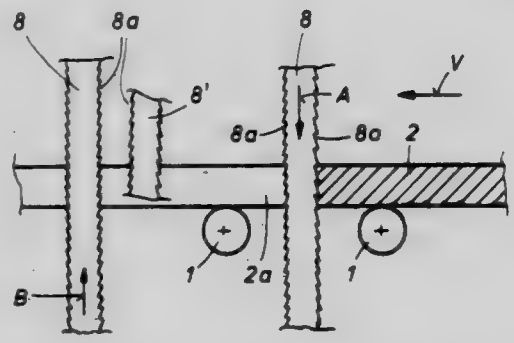
9. Apparatus for dividing a fibrous mineral blanket of the type in which a fibrous mineral blanket is passed into contact with means for slitting the blanket into batts and subsequently passed into contact with means for separating said batts from each other, wherein the improvement comprises suction chambers having one or more vertical openings having a height-to-width ratio of about 10 and being adapted for contact with the side edges of said batts, vacuum pipes extending into said chambers for educting air and airborne particles from said chambers and said side edges of said batts, said vacuum pipes having their eduction openings positioned within the bottom 25 percent of said chambers, and blast gates for establishing a velocity across said openings within the range of from about 5.0 to about 8.3 meters per second.

4,333,370

METHOD AND PLANT FOR SLITTING A HOT SLAB EMERGING FROM A CONTINUOUS CASTING PLANT

Ernst Th. Sack, Ratingen, Fed. Rep. of Germany, assignor to Sack GmbH, Düsseldorf, Fed. Rep. of Germany

Filed Jul. 7, 1980, Ser. No. 166,452
Claims priority, application Fed. Rep. of Germany, Jun. 11, 1980, 2927944
Int. Cl.[3] B22D *11/126*
U.S. Cl. 83—56 12 Claims



1. A method for slitting a hot slab emerging from a continuous casting plant advancing on a roller table comprising the steps of:

(a) providing a plurality of band saw means, each having a saw blade;

(b) serially positioning said blade of each of said band saw means one behind the next in a single cutting path, the first blade in the direction of said emerging slab being the leading blade, and the blades positioned therebehind being succeeding blades;

(c) advancing the emerging slab;

(d) cutting the advancing slab with the leading blade of the serially positioned blades;

(e) providing means on each blade for removing said leading blade in the series when said leading blade breaks;

(f) continuing to advance the slab when said leading blade breaks; and

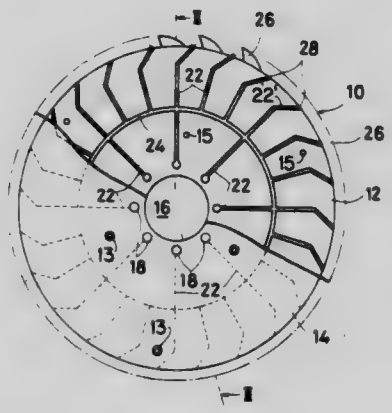
(g) cutting said advancing slab with said succeeding saw blade.

4,333,371

SAW BLADES HAVING COOLANT PASSAGES AND APPARATUS FOR USING THE BLADES

Eiji Matsuda, Kyoto, Japan, assignor to Tani Saw Mfg. Co., Ltd., Osaka, Japan

Filed Feb. 20, 1980, Ser. No. 122,922
Claims priority, application Japan, Jul. 3, 1979, 54-27047
Int. Cl.[3] B23D *59/02*
U.S. Cl. 83—169 3 Claims



1. A circular saw blade having two toothed blade members immovably coupled together, said blade comprising:

a plurality of coolant passages grooved on at least one inside surface of one of said blade members;

a plurality of inlet ports in an outside surface of said blade;

a plurality of release ports, there being a release port at the root peripheral side of each tooth cutting edge;

said coolant passages including radially directed first portions communicating with said inlet ports; and,

said coolant passages including second portions terminating at said release ports for directing a coolant toward said cutting edges to cool said cutting edges and remove cut work material therefrom.

4,333,372

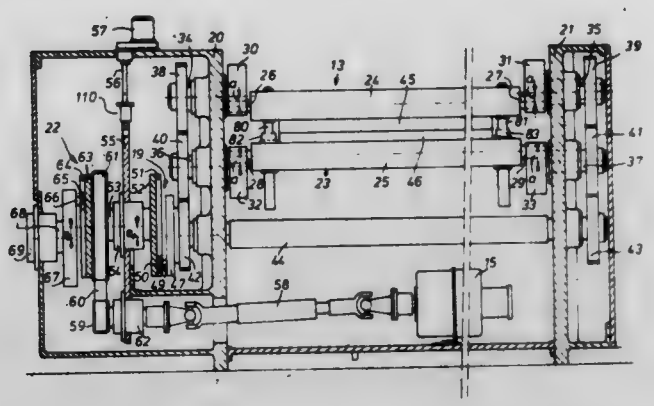
ROTARY CROSS-CUTTING APPARATUS FOR CUTTING CONTINUOUSLY MOVING WEBS

Wilfried E. Muylle, Schoten, Belgium, and Heinz Kreiter, Darmstadt, Fed. Rep. of Germany, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Aug. 5, 1980, Ser. No. 175,588
Claims priority, application United Kingdom, Aug. 7, 1979, 7927497
Int. Cl.[3] B23D *25/00*
U.S. Cl. 83—324 8 Claims

1. A rotary cross-cutting apparatus for cutting a continuously moving web into adjustable predetermined lengths, said apparatus comprising a web cutter which is mounted for cyclical movement towards and away from the web path, feed means for feeding the web to said web cutter, motor means for driving said web cutter and said feed means, a driving shaft which is adapted to be driven at constant speed by said motor means and which is coupled to said cutter via a speed controller causing acceleration and deceleration of said cutter in each cycle, compensating means including a compensating flywheel which serves to compensate for the fluctuating loading of the driving shaft due to the acceleration and deceleration of said cutter, the driving shaft being coupled to the web cutter on the

one hand and to the compensating means flywheel on the other hand by first and second crank arm mechanisms respectively, which have a common input rotation axis and separate output rotation axes offset from said input rotation axis by an eccen-



tricity e_1 and e_2 respectively which are 180° out-of-phase relative to one another, means mounting said driving shaft for parallel bodily displacement transversely of its axis, and means for adjusting the bodily position of said driving shaft to vary the eccentricities e_1 and e_2.

4,333,373

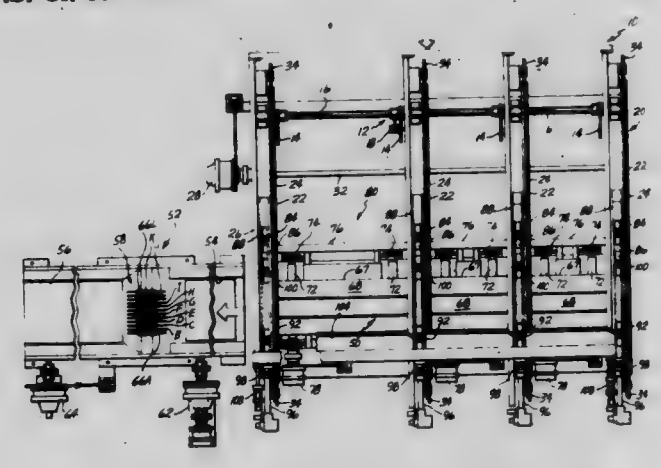
POSITIONING AND FEED SYSTEM FOR CANTS AND BOARDS

Charles Blickenderfer, Puyallup, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed Sep. 30, 1980, Ser. No. 192,278

Int. Cl.³ B27B 5/00; B26D 7/06

U.S. Cl. 83—419 **11 Claims**



1. An apparatus for orienting a cant or board with respect to at least one cutting element in a downstream work station where the cants or boards are moved transversely into a position for longitudinal feeding into the work station, comprising:

a pre-positioning station spaced transversely from a plane through the work station and having at least two longitudinally spaced independent vertically and transversely movable pins associated therewith for skewing and orienting a cant or board with respect to a reference line corresponding to a reference plane through the work station,

a final positioning and feed station transversely spaced from the pre-positioning station and approximately in line with and upstream from the work station, having at least two longitudinally spaced independent vertically and transversely movable pins associated therewith and having means to move each pin transversely substantially the same distance as the corresponding pin in the pre-positioning station, and

means associated with the final positioning and feed station for accepting the pre-positioned cant or board after its transverse movement has stopped and conveying it longitudinally in its pre-positioned orientation through the work station.

4,333,374

SUBMULTIPLE-RELATED-FREQUENCY WAVE GENERATOR

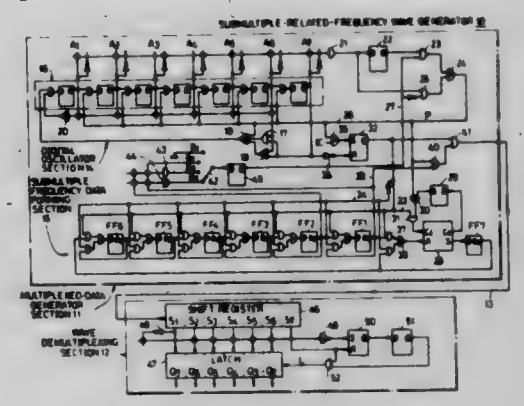
Takatoshi Okumura; Akira Nakada; Yasuji Uchiyama; Eiichiro Aoki; Eiichi Yamaga, and Akiyoshi Oya, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Division of Ser. No. 915,239, Jun. 13, 1978, Pat. No. 4,228,403. This application Mar. 24, 1980, Ser. No. 133,601

Claims priority, application Japan, Jun. 17, 1977, 52-71822; Sep. 1, 1977, 52-105105

Int. Cl.³ G10H 5/06

U.S. Cl. 84—1.01 **15 Claims**



1. A submultiple-related frequency wave generator useful in an electronic musical instrument, comprising:

a digital oscillator means for producing basic pulses which occur at a repetitive rate corresponding to a specific frequency,

submultiple frequency data forming means, cooperating with said digital oscillator means and receiving said basic pulses, for transmitting upon each occurrence of said basic pulse, a serial data signal consisting of said basic pulse and a binary number having a certain number of bits, and form incrementing said binary number upon repetitive occurrences of said basic pulses, each bit in said transmitted binary number thereby representing the state of a respective square wave which is a submultiple of said specific frequency,

said digital oscillator means producing basic pulses at a specific frequency which corresponds to a particular musical note in a high octave, each represented square wave thereby corresponding to a musical note of the same note name as said particular musical note but in a respectively lower octave, and

musical tone production means, connected to receive said transmitted basic pulses and binary numbers, for producing musical tones from selected ones of said square waves represented by bits of said transmitted binary numbers.

4,333,375

ELECTRONIC MUSICAL INSTRUMENT HAVING TIME MULTIPLEXED KEYING SYSTEM

Kiyoshi Sogoh, Hamamatsu, Japan, assignor to Nihon-Hammond Kabushiki Kaisha, Osaka, Japan

Filed Apr. 28, 1980, Ser. No. 144,070

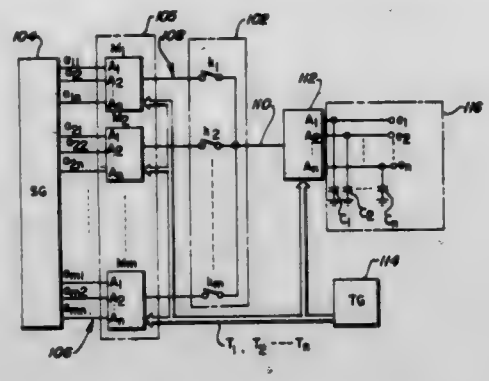
Claims priority, application Japan, May 2, 1979, 54-54338; Nov. 14, 1979, 54-54336; Nov. 14, 1979, 54-54337; Nov. 14, 1979, 54-86319

Int. Cl.³ G10H 1/00

U.S. Cl. 84—1.01 **8 Claims**

1. A synthesis electronic organ having a signal generator for generating a multiplicity of tone signals corresponding to the fundamentals and desired harmonics of notes to be synthesized, at least one keyboard having a plurality of single contact keys and a time division multiplexed keying system, said keying system comprising: a plurality of time division multiplexer circuits corresponding in number to said plurality of keys, each of said multiplexer circuits having a plurality of input terminals

connected to receive selected ones of said tone signals and an output terminal; a first time division demultiplexer circuit having an input terminal and a plurality of output terminals corresponding in number to said plurality of input terminals of said multiplexer circuits; first conductor means for interconnecting said plurality of keys individually to said multiplexer circuits and in common to said first demultiplexer input terminal; and a time slot signal generator for generating time slot signals to control said plurality of multiplexer circuits and said demultiplexer circuit in synchronism.



4,333,376

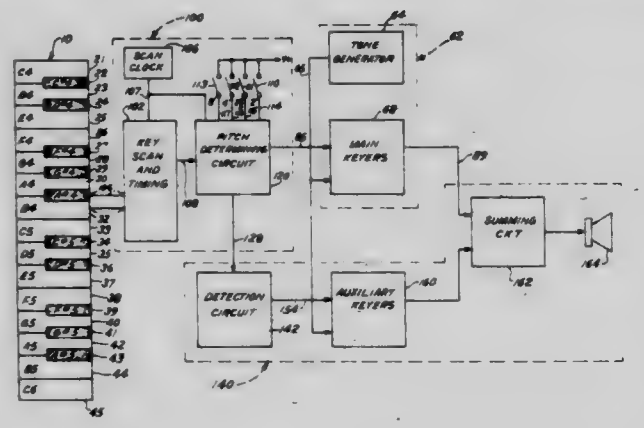
APPARATUS FOR REINFORCING NOTES SELECTED BY MORE THAN ONE KEY

Douglas R. Moore, Vernon Hills, and Richard S. Swain, Des Plaines, both of Ill., assignors to Norlin Industries, Inc., White Plaines, N.Y.

Continuation of Ser. No. 824,906, Aug. 15, 1977, abandoned. This application May 16, 1980, Ser. No. 150,330

Int. Cl.³ G10H *1/02*

U.S. Cl. 84—1.27 **15 Claims**



1. In an electronic musical instrument, improved apparatus for generating a plurality of musical notes, each note being generated at either a first level of sound intensity or a second level of sound intensity, comprising:

playable keys, each key manually actuable for commanding generation of a number of musical notes;

coupler means manually actuable for controlling the number of notes to be generated by the actuation of a key;

tone signal generation means for generating a plurality of tone signals, each said tone signal corresponding to a musical note;

command means responsive to manual actuation of said keys for generating a number of commands for each key actuated, each said command corresponding to a different note, said command means enabling said tone signal generation means to provide a tone signal for each different note associated with generated commands, said command means being responsive to said coupler means for controlling the number of commands generated for each key; and

converting means for converting tone signals to audible notes, each note being generated at either a first level of sound intensity or a second level of sound intensity, said converting means for detecting substantially simultaneous generation of two commands corresponding to the same note for generating the same note at said second level of sound intensity, said converting means for detecting substantially simultaneous generation of three commands corresponding to the same note for generating the same note at said second level of sound intensity, said converting means for generating a note at said first level of sound intensity in response to a sole command from said command means.

4,333,377

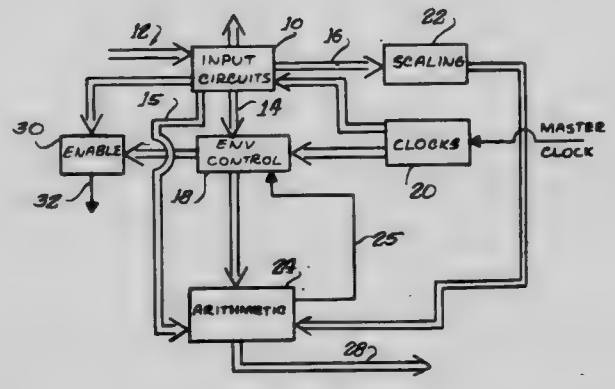
TONE GENERATION SYSTEM FOR ELECTRONIC MUSICAL INSTRUMENT

Thomas A. Niezgoda, DeKalb, and Carl P. Oppenheimer, Sycamore, both of Ill., assignors to Acoustic Standards, Orange, Calif.

Continuation of Ser. No. 67,425, Aug. 17, 1979, abandoned. This application Mar. 3, 1981, Ser. No. 240,183

Int. Cl.³ G10H *1/057, 1/46*

U.S. Cl. 84—1.27 **9 Claims**



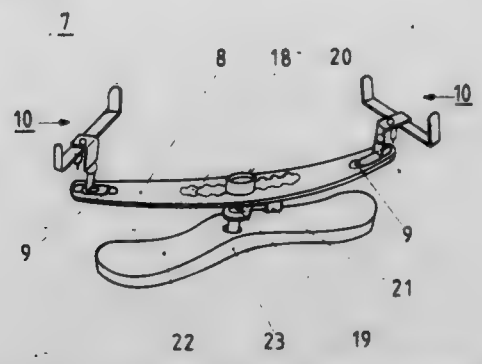
1. In an electronic musical instrument of the type wherein an audible tone is generated electronically in response to an actuation of tone initiating means of the instrument by a player, an envelope generation system for producing a plurality of envelope signals which define a preselected envelope waveform, said envelope generation system comprising: input circuit means responsive to player actuation of said tone-initiating means for producing envelope control signals and for producing a series of envelope count signals, clock means for generating a series of timing signals, envelope control circuit means responsive to said envelope control signals and to said timing signals for generating a series of predetermined digital increment defining signals, arithmetic circuit means for performing predetermined arithmetic functions utilizing said increment defining signals and said envelope count signals to produce therefrom a series of digital envelope signals collectively defining said envelope waveform wherein said arithmetic circuit includes means for producing said series of digital envelope signals Y_x in accordance with the equation $Y_x = Y_x - 1 \pm \Delta Y$ where x represents ones of said series of envelope count signals, Y_x and $Y_x - 1$ represent ones of said digital envelope signals produced in response to envelope count signals x and $x-1$, and ΔY represents one of said digital increment defining signals, said envelope generation system further including scaling means for producing a digital scaling signal corresponding to the intensity of player actuation of said tone initiating means and wherein said arithmetic circuit means further includes means for producing said series of digital envelope signals Y_x in accordance with the equation $Y_x = Y_x - 1 \pm S \cdot \Delta Y_x$, where S represents said digital scaling signal.

4,333,378

DEVICE FOR SUPPORTING A MUSICAL INSTRUMENT

Alois Hrdlicka, Zürcherstrasse 135, CH-8406 Winterthur, Switzerland

Filed Dec. 4, 1980, Ser. No. 213,165
Int. Cl.³ G10G *5/00*
U.S. Cl. 84—280 **17 Claims**



1. A device for supporting a musical instrument on the body of a musician, the device comprising:

rest means for resting the instrument on the body of the musician;

a support member;

clamping means at each end of said support member for clamping respective edges of the musical instrument, said clamping means spacing said support member away from the musical instrument; and

locking means for selectively locking said support member in a particular orientation with respect to said rest means said locking means including only one selectively lockable universal joint disposed between and connected to said support member and said rest means.

4,333,379

STRINGING FOR MUSICAL INSTRUMENTS

Erhard Meinel, and Käthe Meinel, both of Wallensteinstr. 24, Geretsried D-8192, Fed. Rep. of Germany

Filed Apr. 21, 1981, Ser. No. 256,069
Claims priority, application Fed. Rep. of Germany, Apr. 30, 1980, 3016723
Int. Cl.³ G10D *3/10*
U.S. Cl. 84—297 S **4 Claims**

1. In stringing for plucked musical instruments provided with treble strings and with low note strings with steel core, and wire wrapping, wherein the treble strings and the steel cores of the low note strings consist of bronzed gray cast steel, which is tinned or nickeled or has a coating of a ferromagnetic, corrosion-resistant metal alloy, the improvement characterized in that the treble strings and the steel cores of the low note strings additionally have a surface coating of gold and the wrapping wire of the low note strings consists of nickeled iron or an iron/nickel alloy with a surface coating of gold.

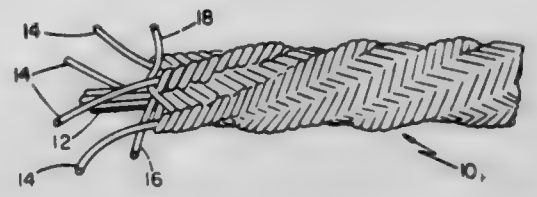
4,333,380

METHOD FOR MAKING BRAIDED PACKING

Peter F. Kozlowski, Billerica, Mass., assignor to A. W. Chesterton Company, Stoneham, Mass.

Division of Ser. No. 924,520, Jul. 14, 1978, Pat. No. 4,256,011, which is a continuation-in-part of Ser. No. 754,254, Dec. 27, 1976, Pat. No. 4,100,835. This application Jan. 30, 1981, Ser. No. 230,019
Int. Cl.³ D04C *1/06*
U.S. Cl. 87—6 **6 Claims**

1. The method of braiding a braid having a normal helical twist comprising providing a plurality of carriers having braid strands thereon, extending said braid strands to a point of convergence, moving said carriers with said braid strands in one direction about said point in a predetermined braiding pattern thereby forming a braid at said point of convergence comprising rows of braid strands, gripping said braid at said point of convergence and rotating said braid about its axis at the point of convergence as said carriers are moved in said one



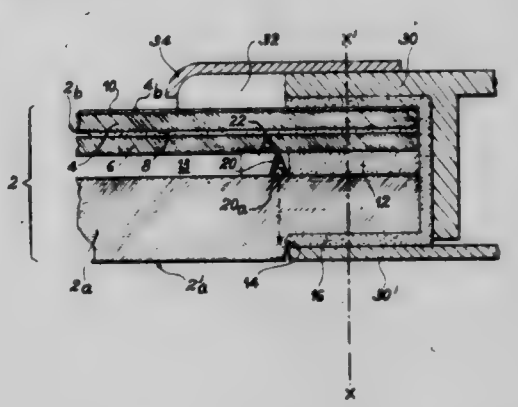
direction, whereby said rows of braid strands are braided into a braid with a normal helical twist.

4,333,381

PLATE-GLASS FITTED WITH AN EXPLOSION-CUTTING DEVICE

Paul H. Boeglin, Maule, and Claude R. Chigot, Saint-Nazaire, both of France, assignors to Societe Nationale Industrielle Aerospatiale, Paris, France

Filed Dec. 27, 1979, Ser. No. 107,605
Claims priority, application France, Jan. 4, 1979, 79 00192
Int. Cl.³ B64C *1/32*
U.S. Cl. 89—1 B **5 Claims**



1. A plate-glass window fitted with an explosion-cutting device for obtaining an emergency exit by cutting said window along a well-determined outline, wherein said plate-glass window is constituted by two respectively inner and outer parallel walls between which is maintained an empty space and wherein said device comprises a detonating and cutting fuse, inserted along said outline between said walls and mounted with damping means, so that the detonation of said fuse produces an anisotropic detonating action, said fuse being orientated in order that said detonating action is applied on said outer wall so that operation of said fuse gives rise simultaneously along the cutting outline on the one hand to breakage and ejection of said outer wall and on the other hand to embrittlement of said inner wall upon detonation.

4,333,382

BOOST ASSISTED MISSILE LAUNCHER

Lloyd J. Holt, China Lake, and Clayton E. Paniaqui, Ridgecrest, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 26, 1979, Ser. No. 107,236
Int. Cl.³ F41F *3/04*
U.S. Cl. 89—1.806 **10 Claims**

1. A boost assisted missile launcher for launching missiles from aircraft comprising:

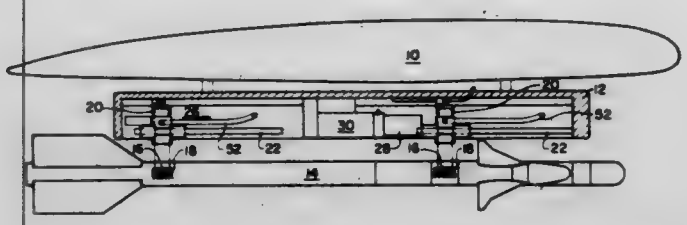
support means mounted within the launcher for holding the missile until missile launch is desired;

guide means connected to said support means for launching said missile along a predetermined path;

drive means for propelling said missile along said guide means;

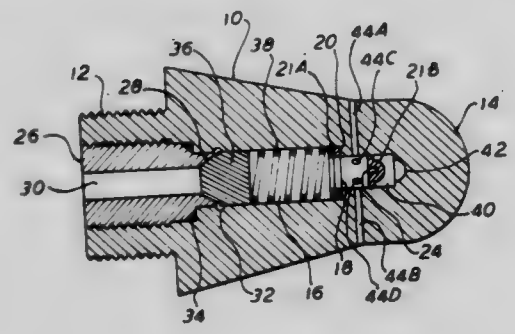
a telescoping piston assembly mounted to said support means for driving said missile to a predetermined velocity;

a hydraulic actuator system with at least one input for expanding said telescoping piston;
a pressurized vessel for a fluid media with at least one input to said hydraulic actuator system for activating said system;
a poppet valve placed between said pressurized vessel and said hydraulic actuator system for preventing activation until a predetermined time;



a solenoid, electronically connected to said power supply and placed about said poppet valve so as to open said poppet valve when said solenoid is triggered by said power supply; and
a power supply connected to said drive means for triggering said drive means.

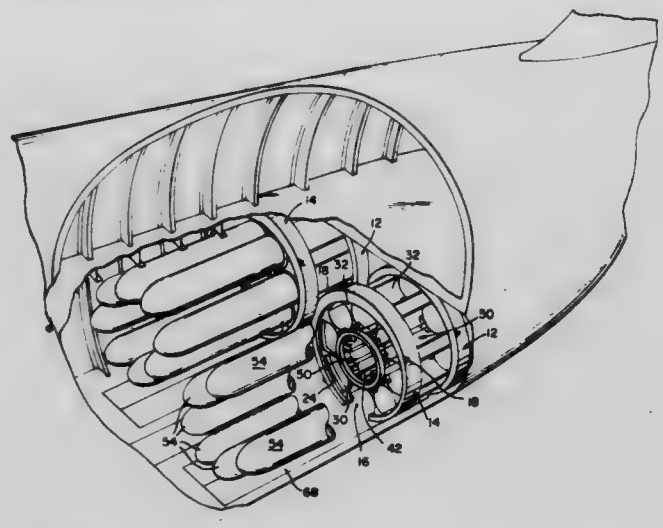
4,333,383
PRIMER DEVICE
LeRoy Stansbury, Jr., and William F. Donovan, both of Aberdeen, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 29, 1979, Ser. No. 89,020
Int. Cl.³ F41F *1/04*
U.S. Cl. 89—7 **14 Claims**



1. In a primer device having a primary propellant contained in a cavity of a breech body, a coupling means for igniting a main charge, comprising:
a housing having a central chamber, said chamber having an inlet and outlet port, said housing and its inlet port being sealingly mountable over said cavity, said outlet port being adjacent to said main charge;
a valve means mounted to said inlet port for sealing said cavity from said chamber, said valve means being operable to allow communication between said cavity and chamber in response to the pressure in said cavity exceeding that of said chamber by a given value pressure; and
a frangible seal mounted at said outlet port for sealing it, said seal being sized to rupture in response to a predetermined differential pressure across it.

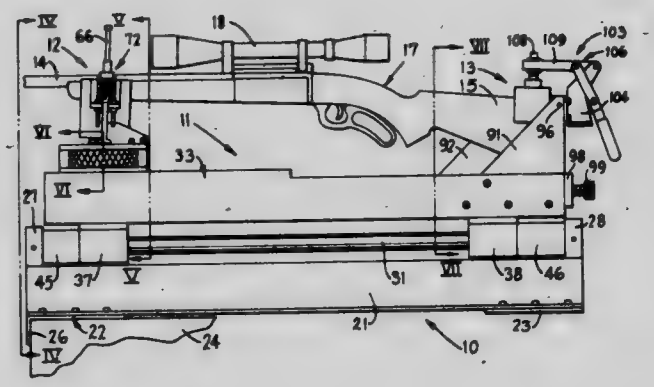
4,333,384
ROTARY RACK LAUNCHER WITH DIRECT LOAD PATH SUSPENSION
Alison M. Arnold, Greenbank, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Jun. 13, 1980, Ser. No. 159,372
Int. Cl.³ F41F *3/06*
U.S. Cl. 89—1.803 **14 Claims**

1. A rotary rack launcher, comprising:
a rotatable hub,
spaced spokes extending radially outwardly from said hub,
shoes extending from the outer ends of said spokes,
a track extending generally peripherally around said spokes and said shoes,
said shoes being adapted to ride on and be secured to said track so that said hub, said spokes, and said shoes can be moved relative to said track and be supported thereby,
means attached to said track for securing said track to an aircraft so that said hub has its axis transverse to a plane through said shoes,



said track being cutaway peripherally so that a launch may be made from a lower portion thereof below said axis, said cutaway portion of said track being along the periphery sufficiently to extend between two adjacent spokes, and
means adjacent said hub and the inner ends of said spokes for supporting launchable material between each pair of consecutive spokes,
whereby the loadpath for material launchable through said cutaway supported between a pair of adjacent spokes is directly through said means adjacent said hub, through the hub, to the spokes, to the track, and to the aircraft.

4,333,385
GUN SIGHTING APPARATUS
W. Jay Culver, 250 17 Mile Rd., Kent City, Mich. 49330
Filed Aug. 7, 1980, Ser. No. 176,223
Int. Cl.³ F41F *25/00*
U.S. Cl. 89—37 BA **6 Claims**



1. An apparatus for adjusting the sights of a gun having an elongated barrel and a butt, comprising:
elongated base means;
elongated rod means rigidly secured to and extending lengthwise of said base means and having a pair of spaced abutment means;
elongated gun support means having slide means secured thereto and mounted upon said rod means for movement lengthwise thereof, said slide means being disposed between and spaced from said abutment means;
resiliently flexible, substantially solid state means disposed

snugly between each abutment means and the adjacent slide means;

a pair of spaced cradle means mounted upon said gun support means and arranged for supporting said gun barrel and said gun butt; and

manually operable clamp means for engaging said barrel and said butt for firmly holding them rigidly within said cradle means.

4,333,386

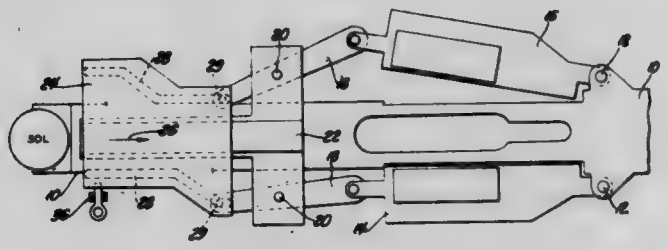
MECHANISM FOR SELECTIVELY ADJUSTING AMMUNITION FEED CHUTES

Donald N. Montgomery, Newport Beach, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 15, 1980, Ser. No. 121,765

Int. Cl.³ F41D *10/00*

U.S. Cl. 89—33 SF **6 Claims**



1. In a gun having a receiver, first and second ammunition feed chutes, each movably mounted between a standby position spaced from the receiver and a feeder position engaged with the receiver, and a chute actuator plate (24) movable in the direction of the gun axis from a first rearward position in which only one chute is set to feed ammunition to a second intermediate position in which neither chute can feed ammunition, to a third forward position in which only the other chute is set to feed ammunition; the improvement comprising electrically-energized powered mechanism for moving the chute actuator plate to its three positions, said mechanism including a slideway (30) oriented parallel to the direction of motion of the chute actuator plate, a toothed rack (34) slidably mounted in the slideway and having a disengageable connection (38) with the chute actuator plate, a rotary pinion gear (52) stationed at a point along the slideway to move the rack, a reversible electric motor (54) drivingly connected to the pinion gear, first and second motor limit switches (60, 62) located at the slideway, each switch having a depressable actuator; said rack having first and second control tracks (68, 70) on its side surface individually engaged by respective ones of the switch actuators, the tracks being contoured to provide three different switch condition combinations for selectively de-energizing the motor when the chute actuator plate reaches its three aforementioned positions.

4,333,387

ANTI-JAM HYDRAULIC SERVO VALVE

Clyde R. Seitz, Laguna Beach, Calif., assignor to Bertea Corporation, Irvine, Calif.

Continuation of Ser. No. 888,700, Mar. 21, 1978, abandoned.

This application Mar. 6, 1980, Ser. No. 127,735

Int. Cl.³ F01B *25/26*

U.S. Cl. 91—1 **22 Claims**

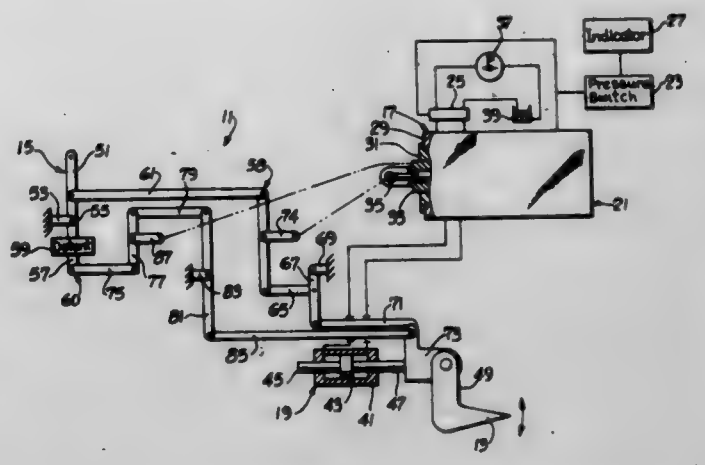
1. A control system for controlling the flow of fluid under pressure to a controllable device, said control system comprising:

a housing having a supply port for receiving fluid under pressure and a return port for returning the fluid from the housing, said housing having first and second ports for supplying the fluid to the device and for receiving fluid from the device;

first valve means mounted for movement in said housing and including a first slide movable for controlling the flow of fluid from the supply port to said first and second ports and from said first and second ports to said return port;

a second slide mounted for movement in said housing;

input means for moving both of said slides in said housing during normal operation of the control system;



said input means including detent means responsive to the jamming of either of said slides for permitting the input means to drive the other of said slides; and

jam responsive means for sensing the jamming of either of said slides and providing a signal in response thereto.

4,333,388

RECIPROCATING ENGINE WITH IMPROVED PISTON MOVEMENT STABILIZING MEANS

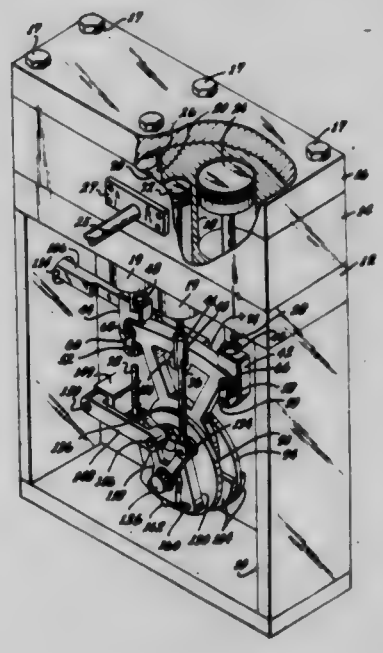
John H. Hedger, P.O. Box 357, Lakeside, Calif. 92040

Continuation of Ser. No. 969,660, Dec. 15, 1978, abandoned.

This application May 27, 1980, Ser. No. 153,774

Int. Cl.³ F01B *1/00*; F01L *31/00*

U.S. Cl. 91—186 **2 Claims**



1. In a fluid driven reciprocating engine which comprises an engine block containing at least two parallel cylinders, a piston located in each of said cylinders for parallel reciprocating movement therein, piston rods rigidly connected at a first end to each of said pistons extending out of said cylinders along the cylinder centerlines into a housing containing connecting means operatively connecting a second end of each of said piston rods to a single crank pin on a rotary output shaft, and valve means within said block for selectively supplying fluid to and exhausting fluid from said cylinders above and below said pistons, the improvement wherein said connecting means comprises a single solid member having spaced means flexibly attaching said single solid member to said second ends of said piston rods, said second ends of said piston rods have a roughly

"C" shaped configuration partially surrounding said single solid member and said spaced means comprise flat link members, and further including a swing link stabilizing means pivotably connected at one end to a support rigidly secured to said housing and pivotably connected at a second end to said single solid member, said swinging link extending approximately perpendicular to said piston rods, whereby said connecting means is constrained to movement along a path substantially parallel to said piston rods as said pistons reciprocate within said cylinders.

4,333,389

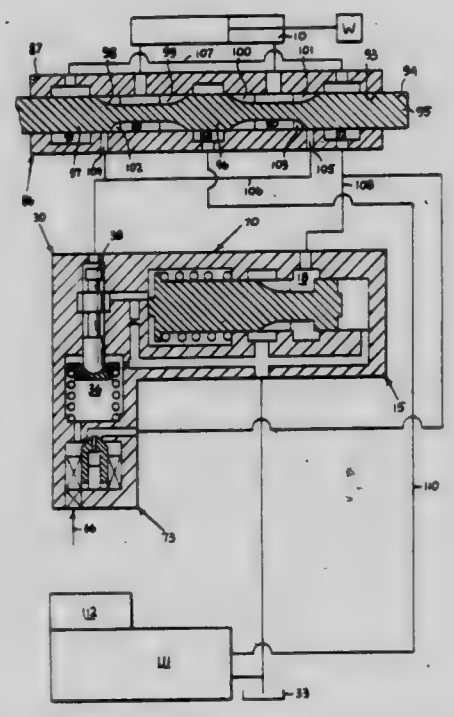
LOAD RESPONSIVE FLUID CONTROL VALVE

Tadeusz Budzich, 80 Murwood Dr., Moreland Hills, Ohio 44022

Continuation-in-part of Ser. No. 113,288, Jan. 18, 1980. This application Feb. 7, 1980, Ser. No. 119,382

Int. Cl.³ F15B *13/04*

U.S. Cl. 91—446 **43 Claims**



30. A load responsive valve assembly comprising a housing having an inlet chamber connected to a fluid motor, and an exhaust chamber connected to exhaust means, control orifice means interposed between said inlet chamber and said fluid motor, first valve means having fluid throttling means between said inlet chamber and said exhaust chamber controllable by a pilot valve means and operable to throttle fluid flow from said inlet chamber to said exhaust chamber to maintain a constant pressure differential at a preselected constant level across said pilot valve means and to maintain a constant pressure differential across said control orifice means.

4,333,390

BALANCED PIVOTED VANE VALVE

Billy S. Hegg, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 29, 1980, Ser. No. 126,159

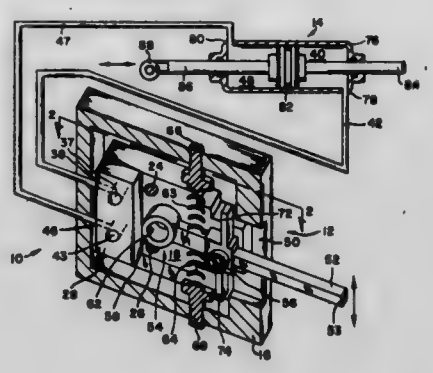
Int. Cl.³ F15B *13/04*

U.S. Cl. 91—467 **8 Claims**

1. In a control member having a housing with a chamber therein, said housing having an entrance port connected to a source of pressurized fluid, first and second diametrically opposite arcuate operational ports concentric to said entrance port and connected to a fluid pressure responsive device, and an exit port for providing continual communication between the chamber and the environment surrounding the housing, and a valve located in the chamber for directing pressurized fluid from the entrance port to one of said first and second arcuate operational ports while allowing the other to be communicated to the chamber in response to an input signal, characterized in that said valve includes:

a lever arm having a first end and a second end, said first end having a cylindrical valve integral therewith, said cylindrical valve having a cylindrical bore therethrough that extends from a first face to a second face, said first and second faces engaging the housing; and

a pivot pin extending through the lever arm to locate said cylindrical valve adjacent the entrance port and connect



said bore with the pressurized fluid to define a flow path for the pressurized fluid in said chamber, said pressurized fluid in the bore acting on the lever to create a balanced force condition therein in the absence of an input signal, said cylindrical valve being moved in an arc by an input signal applied to said second end to connect said bore with one of said first and second arcuate operational ports and supply pressurized fluid to the pressure responsive device corresponding to the input signal.

4,333,391

ADJUSTABLE SPRING-RETURN ACTUATOR

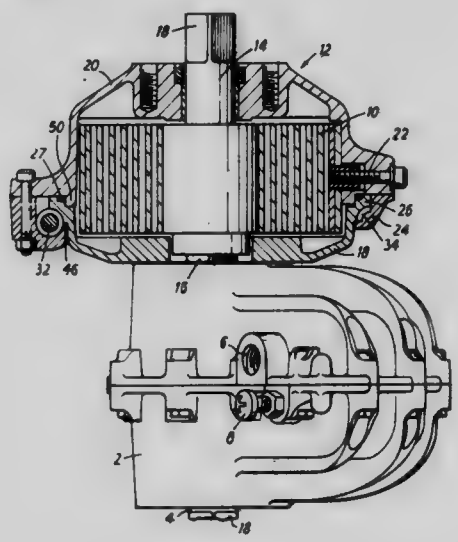
Alan R. B. Nash, 39 Abbott's Ride, Farnham, Surrey, England

Filed Feb. 29, 1980, Ser. No. 126,128

Claims priority, application United Kingdom, Mar. 2, 1979, 7907453

Int. Cl.³ F01C *9/00*; F01B *31/00*

U.S. Cl. 92—121 **11 Claims**



1. A pressure-fluid operated actuator comprising a casing, a displacement member in said casing, pivot bearing means between said member and the casing providing a pivot axis for the displacement member, and porting in the casing for a pressure fluid whereby the member is rotatable about said axis under the action of the pressure fluid, a biasing spring connected to the displacement member to return it to an end position from which it can be displaced by said pressure fluid, a housing for said spring comprising two parts that are respectively fixedly secured to the casing and rotationally displaceable relative to the casing about said axis of rotation, the spring having one end fixed to the displacement member and another end fixed to said displaceable housing part for variation of the

torque exerted by the spring on the displacement member by rotation of said displaceable part to an adjusted angular position, a worm and wormwheel mechanism for said rotation including a wormwheel element comprising teeth on one of the housing parts and a worm element carried by the other of the housing parts, an arcuate region of the worm element being engaged by the wormwheel teeth, said region being non-symmetrically offset with respect to a plane containing the worm axis and normal to the axis of rotation of said displaceable housing part, the wormwheel teeth for engaging said region of the worm element being formed integrally on its housing part, whereby the worm and wormwheel elements may be brought into mesh by relative movement of the housing parts towards each other in the direction of said axis of rotation, so that said housing parts may, if desired, be of relatively simple die-cast or moulded construction.

4,333,392

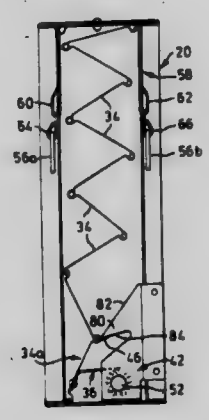
FIRE DAMPER

Michael T. Nailor, 189 Old Yonge St., Willowdale, Ontario, Canada (M2P 1R2), and Andrew J. Hart, 15 - 33 Four Winds Dr., Downsview, Ontario, Canada (M3J 1K7)

Filed Jan. 14, 1980, Ser. No. 111,619

Int. Cl.[3] E05F *15/20*

U.S. Cl. 98—1 7 Claims



1. A fire damper comprising:

a frame defining a generally rectangular central opening and having first and second ends and two opposite sides;

a blade assembly coupled to said first end of the frame and including a plurality of generally rectangular blades pivotally connected together end to end for movement relative to one another between a position in which the blades are disposed in a folded configuration at said first end of the frame, whereby said frame opening is unobstructed, and a position in which the blades are unfolded and extend across and close said opening;

spring means biassing said blades toward said unfolded position;

fusible link means normally retaining said blades in said folded position and adapted, when exposed to a predetermined high temperature, to release the blades and allow them to move to said unfolded position under the influence of said spring means; and,

means adapted to retain said blade assembly in said unfolded position after the blades have been released by said fusible link means;

each said blade comprising a planar central portion having side edges for co-operation with said sides of said frame and opposite end edge portions each of arcuate shape in cross-section and extending longitudinally of the relevant edge of the blade so as to define a formation of part cylindrical shape engaged with a similar edge portion of an adjacent blade for defining said pivotal connection between the blades, and said blade assembly including an endmost blade which is disposed adjacent said second end of the frame in the unfolded position of the blades with an outer one of its said arcuate end edge portions in co-operation with said second end of the frame and an inner one of its said edge portions spaced inwardly of the frame and pivotally connected to an adjacent blade in said assembly by engagement of said arcuate end edge portion around a corresponding arcuate end edge portion of said adjacent blade;

said retaining means comprising at least one locking member secured to said frame adjacent said second end thereof and defining a locking projection, and an integral tab portion formed from part of said inner arcuate end edge portion of said endmost blade of the blade assembly and positioned to engage behind said projection as the blade assembly moves from its folded position to its unfolded position, whereby said tab and projection positively lock the blade assembly in said unfolded position and the co-operating part cylindrical end edge portion of said adjacent blade in said assembly serves to prevent passage of flame and gases through said portion of the endmost blade from which said tab is formed.

4,333,393

PITCHING MECHANISM FOR LAUTER TUN KNIVES

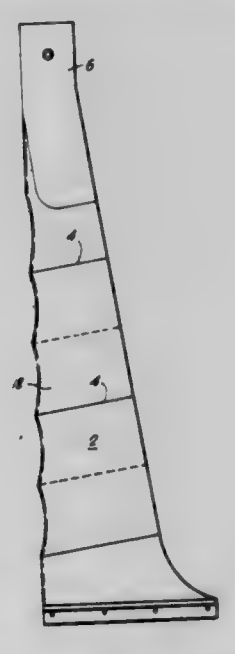
John C. Hancock, Willington; John M. Winwood, Mickelover, and Noel R. Wilkinson, Burton on Trent, all of England, assignors to Robert Morton D.G. Limited, Burton-on-Trent, England

Filed Mar. 4, 1980, Ser. No. 127,139

Claims priority, application United Kingdom, Jul. 17, 1979, 7924815

Int. Cl.[3] C12G *3/02;* B01F *15/02*

U.S. Cl. 99—277.2 3 Claims



1. In an apparatus for working the contents of a lauter tun, said apparatus comprising at least one lauter tun knife, drive means for supporting said knife within and moving said knife through the contents of said tun, said knife comprising a longitudinal support axis, first and second edges, at least one blade pitched relative to said axis, and said first edge leading said second edge through said contents, the improvements comprising:

means for changing direction of moving of said knife between forward and reverse such that said second edge leads said first edge through said contents;

means for pivotally mounting said knife to said drive means for angular displacement of said knife about said axis by pressure exerted on said blade by said contents during said moving; and

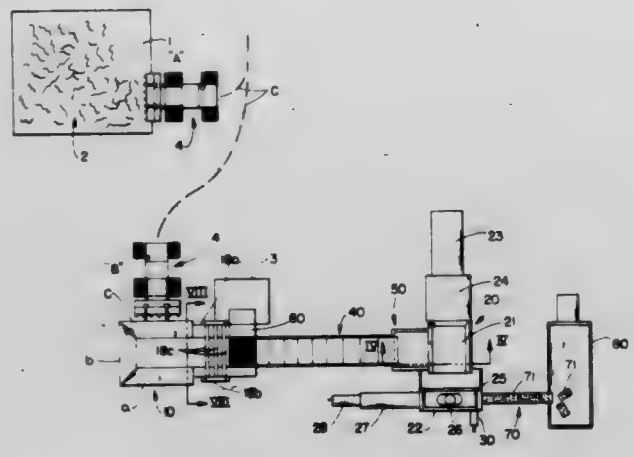
means for limiting the extent of said angular displacement between a first position and a second position such that said knife is pivotal between said first and second positions automatically according to which of said first and second edges is leading during said moving.

4,333,394

METHOD FOR HANDLING AND BALING METALLIC SCRAP MATERIAL

Stanford M. Brown, 1647 Thornapple River Dr., SE., Grand Rapids, Mich. 49506

Filed Dec. 31, 1979, Ser. No. 108,508
Int. Cl.³ B30B *7/02, 15/30*
U.S. Cl. 100—42 **4 Claims**



1. A process for handling and baling metallic scrap material comprising the steps of providing a storage area for storing said material; providing a baling means at a location remote from said storage area; providing a combination hopper and conveying means remote from said storage area and said baling means, said hopper and conveying means including a hopper with an open bottom located over a conveyor; picking up material and carrying the same from said storage area to said hopper and conveying means by means of a front loader; dumping said material by means of said front loader into said hopper whereby said material is dropped into said hopper and falls on said conveyor; providing a second conveyor; conveying said material out of said hopper to said second conveyor by means of the conveyor located under said hopper; transferring said material from said hopper to said baling means and during such transferring step weighing said materials and dividing the same into batches having a predetermined weight; depositing each of said weighed batches of said material in said baling means and during such dumping step stopping the conveying of said material out of said hopper and the transfer of said material from said hopper; and separately compacting and baling said weighed batches of said material and during such compacting and baling step reinitiating the said conveying and transferring step.

4,333,395

CONTAINER CRUSHING DEVICE

Garrett W. Kurtz, 946 Main Ave., Durango, Colo. 81301

Filed Feb. 11, 1980, Ser. No. 120,141
Int. Cl.³ B30B *7/00, 9/32*
U.S. Cl. 100—233 **7 Claims**

1. A device for crushing a metal container to reduce the bulk of the container and facilitate recycling for the metal content of the container, the container having a pair of opposed ends, said device comprising:

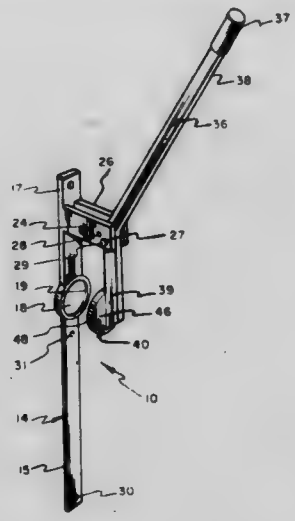
a generally circular base plate;

an annular retaining ring integral with said circular base plate and having a substantially identical peripheral configuration as said circular base plate, said annular retaining ring being sized to receive one of said pair of opposed ends therethrough;

base means for securing said circular base plate and said annular retaining ring against relative movement;

a generally circular disk of substantially uniform thickness having an annular groove formed in one face thereof, said annular groove capable of receiving the other of said pair of opposed ends and defining a raised central portion and a raised outer, annular portion, the circular edge of said central portion being chamfered along substantially the entire circumference thereof to aid in positioning said other said pair of opposed ends within said annular groove; and

an operating lever pivotally secured to said securing base means and having said generally circular disk fixedly secured to one end thereof, said operating lever being angled intermediate the length thereof and being pivotally secured to said securing base means at the position where said lever is angled, said lever being operable to secure said container against movement in a first position when said one of said pair of opposed ends is received through



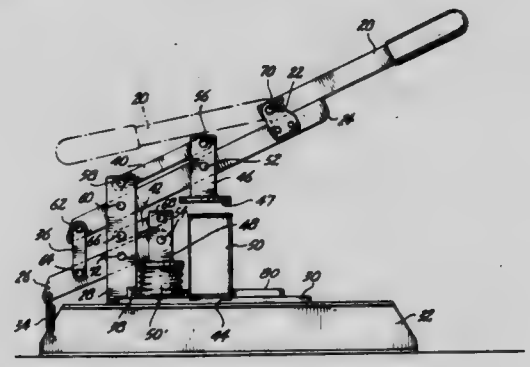
said annular retaining ring and said other of said pair of opposed ends is positioned within said annular groove, said lever capable of manipulating said circular disk in a relatively axial direction with respect to said circular base plate to a second position wherein said container is crushed, said circular disk being offset from and angeled with respect to said circular base plate in said second position to crush said container into relatively small bulk, and said lever capable of manipulating said circular disk away from said circular base plate to permit movement of said crushed container with respect to said circular disk and said circular base plate due to gravitational force.

4,333,396

TWO-STAGE CAN CRUSHER

Russell D. Longnecker, P.O. Box 731, Mt. Vernon, Wash. 98273

Filed Apr. 4, 1980, Ser. No. 137,515
Int. Cl.³ B30B *9/32*
U.S. Cl. 100—233 **14 Claims**



1. A device for crushing a can along its longitudianl axis comprising:

means forming a horizontal base;

an upright stanchion mounted upon said base;

a long lever arm crossing said stanchion and being pivotally connected thereto;

a short lever arm crossing said stanchion and pivotally connected to said stanchion between said long lever arm and said base means;

a first crush head pivotally connected to said long lever arm and cooperating with said base upon rotation of said long lever arm toward said base to axially crush a cylindrical container placed between said crush head and said base;

a second crush head pivotally connected to said short lever arm and cooperating with said base upon rotation of said short lever arm toward said base to axially crush a cylindrical container placed between said crush head and said base;

a first link pivotally connected endwise between said first crush head and said stanchion;

a second link endwise pivotally connected between said second crush head and said stanchion; and

linkage means interconnecting said long lever arm and short lever arm whereby rotation of said long lever arm about its pivotal mounting on said stanchion induces corresponding rotational movement of said short lever arm.

4,333,397

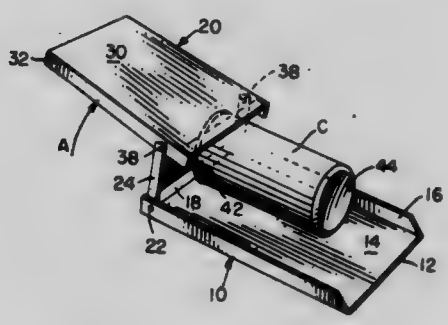
CAN FLATTENING DEVICE

Edward E. Modes, 1417 Shawnee Trail, Deerfield, Ill. 60015

Filed Dec. 19, 1980, Ser. No. 218,298

Int. Cl.³ B30B *1/04, 7/00*

U.S. Cl. 100—233 **18 Claims**



1. A device for individually flattening cylindrical cans, comprising:

a base for supporting a can in a crushing position in which the can is disposed on its side on said base; and

lever means pivotally attached to said base, said lever means being swingable upwardly from said base to a raised position to permit a can to be positioned on its side on said base and downwardly toward said base for crushing the positioned can, said lever means being jointed and including a can engaging edge projecting from the joint whereby the edge is pivotable both about the pivot axis of said lever means on the base and about said joint to effect crushing of one side of the can at a crease adjacent one end thereof with said one end flattened over said one side, the partially flattened can then being turned over for similarly flattening the other side and other end thereof.

4,333,398

DRIVING FORCE CONTROL SYSTEM FOR IMPACT PRINTER

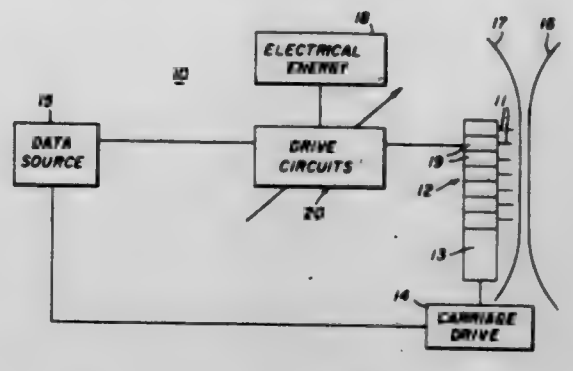
Andrew B. Carson, Jr., and Samuel C. Harris, Jr., both of Waynesboro, Va., assignors to General Electric Company, Waynesboro, Va.

Filed Nov. 6, 1980, Ser. No. 204,632

Int. Cl.³ B41J *7/84, 7/92, 9/38, 9/42*

U.S. Cl. 101—93.02 **13 Claims**

1. In an impact printer which develops a force whose direction is a function of the direction of drive pulses wherein said printer comprises a movable electromagnetic printing element located adjacent a backstop, a source of drive pulses for application to said printing element for moving the printing element from the backstop toward a record medium to print indicia and a source of damping pulses for application to the printing element after its return to the backstop from the record medium to minimize bounce of the printing element from the backstop, control means coupled to the source of drive pulses and to the source of damping pulses and responsive to the beginning of a drive pulse prior to the completion of the preceding damping pulse for varying the energy content of said drive pulse in proportion to the amount of overlap of said drive pulse with the preceding damping pulse.



4,333,399

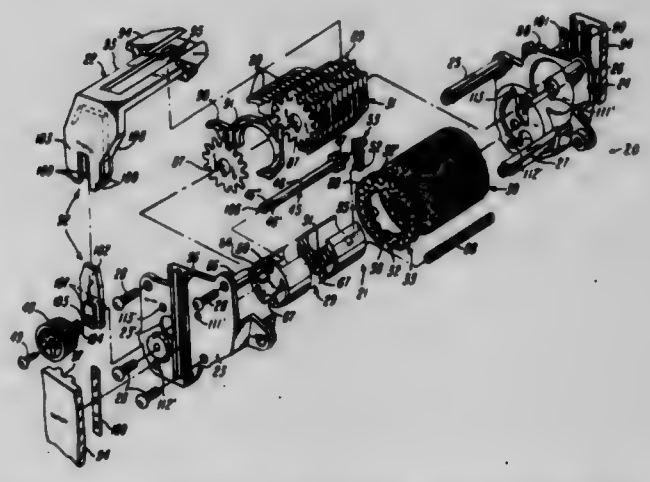
METHOD OF MAKING PRINT HEAD

Paul H. Hamisch, Jr., Franklin, and Robert M. Pabodie, Dayton, both of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Division of Ser. No. 95,848, Nov. 19, 1979, Pat. No. 4,275,654. This application Mar. 13, 1981, Ser. No. 243,237

Int. Cl.³ B41N *1/00*

U.S. Cl. 101—401.2 **5 Claims**



1. Method of making a print head, comprising the steps of: providing a first set of wheels which are coupled to printing elements, a second set of read wheels having human readable indicia, and a pair of side plates, with the first set of wheels having gears which can mesh with gears on the second set of wheels, passing pins through one side plate, loading the first set of wheels and the second set of wheels onto respective supports with the pins extending through alignment openings in the wheels so that all the wheels are in geared relationship and the read wheels indicate which printing elements are at a printing position, and inserting a selector shaft into holes of either set of wheels.

4,333,400

TWO STAGE PARACHUTE FUZE RECOVERY SYSTEM

John F. McNelia, and Carl R. Peterson, both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

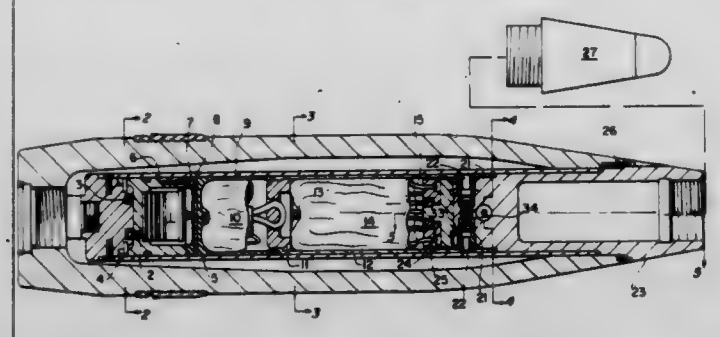
Filed Feb. 1, 1980, Ser. No. 117,702

Int. Cl.³ F42B *4/08*

U.S. Cl. 102—348 **11 Claims**

1. A gun shell type projectile including an external frontally mounted fuze member, said gun shell type projectile comprising in combination a generally cylindrical outer shell casing, containing within the body of the projectile a longitudinal

cavity, a two stage parachute-fuze recovery unit mounted within the said longitudinal cavity comprising in combination a first stage parachute, a first explosive means, a timing device and primer with associated means to activate said primer at a pre set time; said first explosive means being located between the base of the shell casing and the base of the recovery unit so that upon ignition of the said first explosive means ejects the recovery unit from the shell casing by exerting positive pres-



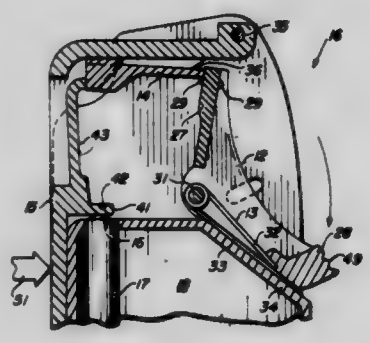
sure on the opening between the shell casing and on the base of the recovery unit the said parachute recovery system, explosive means to eject the said two stage recovery unit from the shell casing; means to deploy the first parachute at the time the recovery unit is ejected from the unit and a second explosive means that releases the second stage parachute, wherein the second stage parachute is released by said second explosive means that is actuated by the centrifugal force exerted by the spin imparted to the shell casing by the gun barrel.

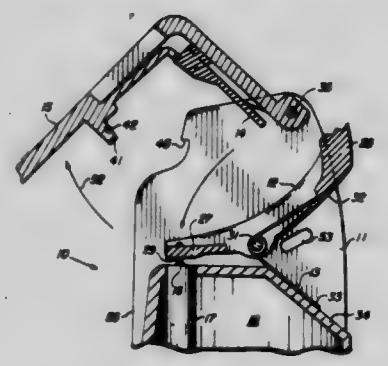
4,333,401

HAND GRENADE

Charles M. Byers, 2105 S. Hardy Dr., Tempe, Ariz. 85282, and Jody L. Numbers, Scottsdale, Ariz., assignors to Charles M. Byers, Tempe, Ariz.

Filed Aug. 13, 1979, Ser. No. 66,289
Int. Cl.³ F42B *27/08*
U.S. Cl. 102—487 **7 Claims**





1. A hand grenade having a striker mechanism that is uncocked until immediately prior to the use of the grenade, the hand grenade comprising:

an elongated hollow close-ended body member,

a striker arm pivotally mounted on the outside periphery of one end of said body member,

a firing pin mounted on and adjacent one end of said striker arm,

a primer mounted on said one end of said body member,

a first spring means for biasing said striker arm in one direction to cause said firing pin to move toward said primer,

a time delay train mounted in said body member in burning association with said primer,

at least one ignitable charge mounted in said body member for actuation by said train,

a safety lever pivotally mounted on said body member,

said safety lever comprising an L-shaped configuration, one leg of which extends across said one end and is pivotally mounted to said body member and its other leg arranged in one position to extend longitudinally of said body member and movable to a position laterally of said body member,

a sear arranged to extend juxtapositioned to said one leg of said lever for limited movement therealong,

a second spring means comprising a flat cantilevered strip connected at one end to said other leg of said lever and at its other end to said sear for normally biasing said sear away from said other leg of said lever and along said one leg of said lever,

a tab comprising a part of said other leg of said lever for extending over said primer and in the path of movement of said firing pin when said other leg of said lever is positioned longitudinally of said body member,

said first spring means biasing the firing pin of said striker arm into engagement with said tab when said first spring means is in its extended condition and said other leg of said lever is longitudinally of said body members, and

means mounted on said striker arm for rotating said striker arm in a second direction to bias said first spring means and cause said one end of said striker arm to engage said sear and to move it longitudinally of said one leg of said lever to bias said second spring means and said other leg of said lever to a position longitudinally of said body member,

said other leg of said lever being hand-held against said body and when released, moving laterally of said body member under the bias of said second spring means thereby moving said sear out of engagement with said striker arm and said tab out of blocking engagement with said primer,

said first spring means then biasing said firing pin into engagement with said primer.

4,333,402

ARRANGEMENT FOR LAUNCHING INTERFERENCE MATERIAL

Sven Landstrom, Fjallgatan 16, S116 45 Stockholm, and Kaj Lundahl, David Bagares gatan 26A, S-111-38 Stockholm, both of Sweden

PCT No. PCT/SE79/00039, § 371 Date Oct. 23, 1979, § 102(e) Date Oct. 23, 1979, PCT Pub. No. WO79/00658, PCT Pub. Date Sep. 6, 1979
PCT Filed Feb. 22, 1979, Ser. No. 189,832
Int. Cl.³ F42B *13/42*
U.S. Cl. 102—505 **5 Claims**

1. A projectile that carries a store of radiation interference medium for dispersive discharge at a predetermined time following expulsion of the projectile from a substantially tubular launcher under the force of pressure gas acting upon a rear end of the projectile, said projectile being characterized by:

A. an elongated casing having front and rear end walls,

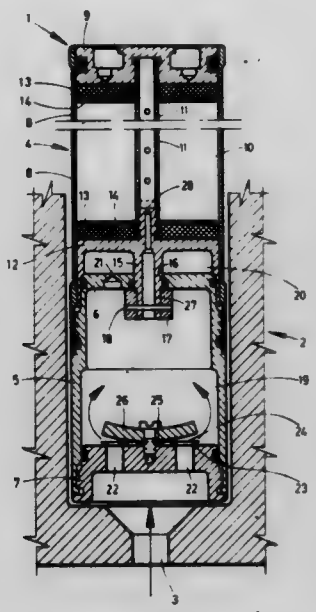
(1) said rear end wall having a port therein through which pressure gas can enter the interior of the casing during expulsion of the projectile from a launcher, and

(2) one of said end walls being separable from the remainder of the casing in an endwise outward direction;

B. a piston slidable in said direction in the interior of the casing and cooperating with said one end wall to define a compartment in the casing wherein said medium is stored;

C. rigid means providing a connection between said piston and said one end wall whereby the latter is constrained to move in said direction in unison with the piston;

D. a partition fixed in the interior of said casing, between said piston and the other of said end walls, said partition
(1) cooperating with said other end wall to define a first chamber of substantially fixed volume and
(2) cooperating with said piston to define an expandable second chamber, and
(3) having a restricted passage therethrough that provides for retarded flow of pressure gas from said first chamber to said second chamber;



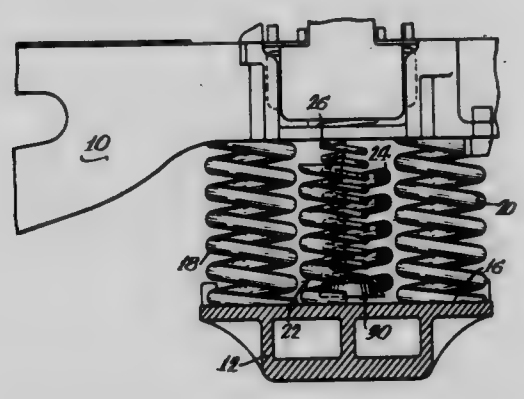
E. means comprising a check valve providing for substantially unrestricted flow of pressure gas from said port to said first chamber but preventing flow of pressure gas from said first chamber through said port; and
F. means providing a disruptable connection between a part fixed in the casing and another part that is fixed to the piston, said disruptable connection confining the piston against motion relative to the casing in said direction until the piston is released by force upon it in excess of a predetermined value, exerted by pressure gas in said second chamber.

4,333,403

RETAINER RAILWAY CAR TRUCK BOLSTER SPRING

Carl E. Tack, Elmhurst, Ill., and Sergei G. Guins, Okemos, Mich., assignors to TransDyne, Inc., Chicago, Ill.

Filed Apr. 9, 1979, Ser. No. 28,265
Int. Cl.³ B61F *5/06;* **F16F** *1/06, 1/12, 3/04*
U.S. Cl. 105—197 R **8 Claims**



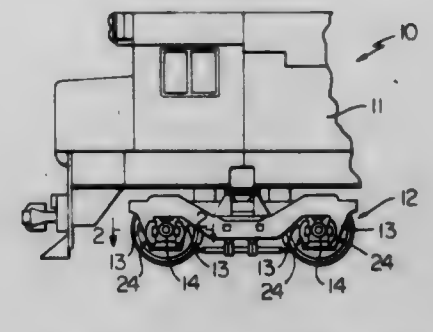
1. In a railway truck comprising a pair of side frames having windows therein for receiving the ends of a bolster, and a plurality of spring groups extending upward from the floor of said window and supporting said bolster, said spring groups including a two stage spring group comprising an outer coil and an inner coil in coaxial relation with the outer coil, and retainer means for retaining said inner and outer coils in coaxial relation, said retainer means and said outer coil having a mating helical relation supporting the retainer means above the side frame window floor.

4,333,404

REINFORCED RAILWAY PEDESTAL LINER

Donald L. Kleykamp, Dayton, Ohio, assignor to Dayco Corporation, Dayton, Ohio

Filed Jun. 16, 1980, Ser. No. 160,059
Int. Cl.³ B61F *5/32, 5/50;* **F16C** *27/02, 33/28*
U.S. Cl. 105—225 **11 Claims**



1. In a pedestal liner for a railway vehicle wherein said vehicle comprises, pedestal trucks comprising pairs of pedestal legs and a journal box disposed between each pair of pedestal legs, each journal box having a vertically disposed planar guide surface and a pair of spaced vertically disposed parallel side surfaces disposed on opposite sides of said guide surface, said pedestal liner being roughly U-shaped and having a bight provided with antifriction material which is adapted to engage said guide surface and a pair of parallel legs provided with antifriction material which is adapted to engage said side surfaces, said pedestal liner being adapted to be disposed between an associated pedestal leg and journal box and fastened to its associated pedestal leg, said antifriction material being comprised of ultra high molecular weight polymeric material, the improvement comprising a perforated reinforcing structure embedded in said polymeric material which serves as a matrix therefor and substantially completely surrounds said structure, said structure having openings therein for receiving said polymeric material completely therethrough and enabling better embedment of said structure, said structure providing reinforcement and preventing cold flow of said polymeric material, said reinforcing structure consisting of a single piece of material disposed in a substantially U-shaped configuration and being embedded between opposed outside surfaces of said bight and opposed outside surfaces of each of said parallel legs, and further comprising means for fastening said pedestal liner to its pedestal leg, said fastening means comprising at least one pair of aligned cylindrical bores in said legs each for receiving a fastener therethrough, each of said bores extending through said reinforcing structure.

2. In a pedestal liner for a railway vehicle wherein said vehicle comprises, pedestal trucks comprising pairs of pedestal legs and a journal box disposed between each pair of pedestal legs, each journal box having a vertically disposed planar guide surface and a pair of spaced vertically disposed parallel side surfaces disposed on opposite sides of said guide surface, said pedestal liner being roughly U-shaped and having a bight provided with antifriction material which is adapted to engage said guide surface and a pair of parallel legs provided with antifriction material which is adapted to engage said side surfaces, said pedestal liner being adapted to be disposed between an associated pedestal leg and journal box and fastened to its associated pedestal leg, said antifriction material being comprised of ultra high molecular weight polymeric material, the improvement comprising a perforated reinforcing structure embedded in said polymeric material which serves as a matrix therefor and substantially completely surrounds said structure, said structure having openings therein for receiving said polymeric material completely therethrough and enabling better embedment of said structure, said structure providing rein-

forcement and preventing cold flow of said polymeric material, said reinforcing structure consisting of a single piece of material disposed in a substantially U-shaped configuration and being embedded substantially centrally between opposed outside surfaces of said bight and opposed outside surfaces of each of said parallel legs, said bight having a particular thickness and each of said legs having an upper portion and a rear portion substantially equal in thickness of said particular thickness, and said substantially equal thickness upper portion providing a high strength junction at the upper portion of each leg to said bight and said substantially equal thickness rear portion providing a high strength portion for fastening said pedestal liner to its pedestal leg.

4,333,405

BURNER FOR COMBUSTION OF POWDERED FUELS

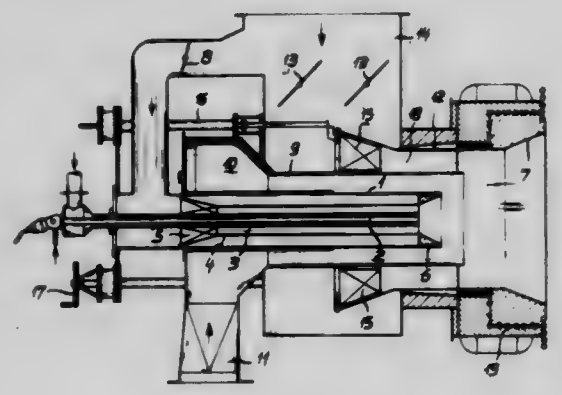
Sigfrid Michelfelder, and Klaus Leikert, both of Gummersbach, Fed. Rep. of Germany, assignors to L. & C. Steinmüller GmbH, Gummersbach, Fed. Rep. of Germany

Filed Aug. 7, 1980, Ser. No. 176,188

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933060

Int. Cl.³ F23D *1/02*

U.S. Cl. 110—264 **10 Claims**



1. A burner, for combustion of powdered fuels, comprising:
a main burner, including:
a core-air tube;
a dust tube surrounding at least a portion of said core-air tube;
a first mantle-air tube which surrounds at least a portion of said dust tube and is provided with an air inlet and a burner opening or discharge which widens conically toward a combustion chamber; and
a first twist blade ring, which is arranged at said air inlet of said first mantle-air tube and is axially displaceable; and
a dust-ignition burner, as an ignition device, concentrically arranged in said core-air tube and including:
an igniter;
an ignition-dust tube arranged concentrically around at least a portion of said igniter;
a second mantle-air tube, which surrounds at least a portion of said ignition-dust tube, for the ignition-dust flame, and second mantle-air tube being provided with an air inlet and discharge which widens conically outwardly; and
a second twist blade ring, which is arranged at said air inlet of said second mantle-air tube and is axially displaceable.

4,333,406

ANCHORING MEANS FOR REFRACTIVE BLOCKS

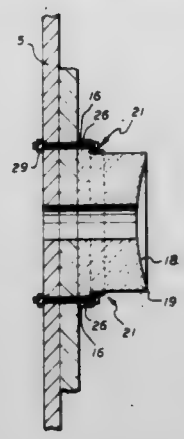
Max E. Duke, 3311 S. Shore Dr., Humble, Tex. 77338

Continuation of Ser. No. 85,244, Oct. 16, 1979, abandoned. This application Jun. 8, 1981, Ser. No. 271,630

Int. Cl.³ F23M *5/02*

U.S. Cl. 110—340 **4 Claims**

1. The combination of a refractory burner block of frangible material having an inner, heat exposed face and side walls with rib-like lateral extensions for accommodating other insulating material in protective contact with said side walls, of burner block anchoring means comprising angle bar framing with flanges facing and abutting said side walls and other flanges resting against inward faces of said rib-like extensions, and



means for securing said latter flanges and said framing to a support in position for protection by said other insulating material.

4,333,407

LIFTING DEVICE FOR THE PRESSER FOOT OF A SEWING MACHINE

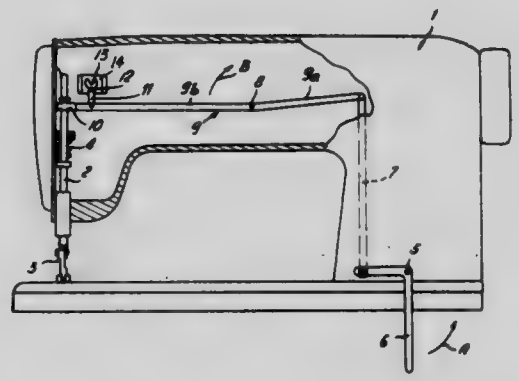
Werner Lerch, Steckborn, Switzerland, assignor to Fritz Gegauf Aktiengesellschaft Bernina-Nahmaschinenfabrik, Steckborn, Switzerland

Filed Nov. 6, 1979, Ser. No. 92,061

Claims priority, application Switzerland, Nov. 9, 1978, 11520/78

Int. Cl.³ D05B *29/00*

U.S. Cl. 112—237 **8 Claims**



1. A device for raising and lowering a presser foot of a sewing machine which comprises:
an operating lever, operable in synchronization for lifting and lowering the presser foot;
a presser bar operatively connected to the presser foot and provided with spring bias means which acts to hold the presser foot in a normally lowered position;
a double lever arm operatively connected at one end to the operating lever and at the other end to the presser bar, whereby, movement of the operating lever imparts movement to the double lever arm thereby imparting movement to the presser bar to act against the spring bias means for raising the presser foot of the sewing machine and further movement of the operation lever imparts movement to the double lever arm thereby permitting the spring bias means to impart movement to the presser bar to lower the presser foot; and
wherein a plate member containing a defined path is disposed adjacent to the double lever arm and a guide arm is operatively connected to the double lever arm, said guide arm being provided with a detent member which is adapted to traverse said defined path to selectively retain

said double lever arm, said operating lever and said presser foot in a raised position and to normally enable said double lever arm, said operating lever and said presser foot to assume said lowered position.

4,333,408

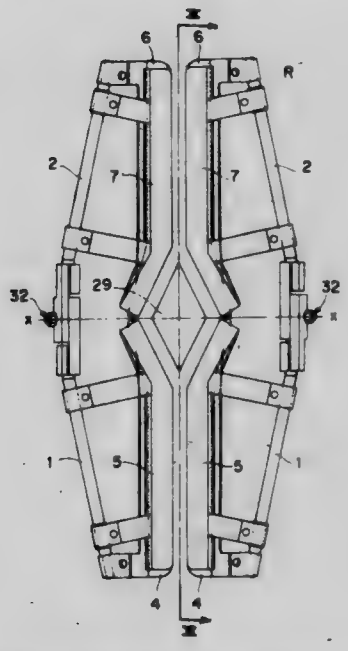
MACHINE FOR MANUFACTURING PANTYHOSE WITH GUSSET

Maria Maselli; Alberto Frullini, both of Via di Brozzi 151 A; Meri Elbetti, Via G. Oberdan 24, S. Donnina, and Luisa Frullini, Via B. della Gatta 14, all of Florence, Italy

Continuation-in-part of Ser. No. 46,928, Jun. 8, 1979, abandoned. This application Nov. 6, 1979, Ser. No. 91,741

Int. Cl.³ D05B *21/00*; D05C *9/04, 9/10*

U.S. Cl. 112—121.15 **7 Claims**



1. A machine for manufacturing pantyhose with a gusset, from two tubular stockings, comprising:

stocking support means operable to support two tubular stockings which are to be sewn together to form the pantyhose, said stocking support means including retractor devices, one for each tubular stocking, each of said retractor devices being independent of each other and substantially identical with each other;

stocking cutting means for slitting each stocking along a distance where the stockings are to be sewn together to form the pantyhose;

a sewing unit to sewing unit to sew the gusset to the one stocking;

means to dispose a gusset over the cut portion of one of the stockings, said last mentioned means including means for separately holding the gusset during sewing half of the perimeter of the gusset by said single sewing unit,

means including one of said retractor devices to move the other of the stockings into overlapping relationship with the gusset sewn to the one stocking; and

means for moving said sewing unit to sew the one stocking to the other stocking and to the gusset.

4,333,409

FABRIC LABEL FEEDING MEANS

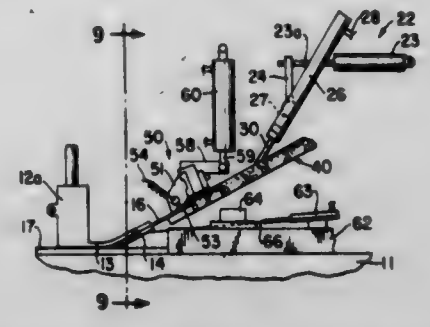
John L. Rockerath, Utica, N.Y., assignor to Cluett, Peabody & Co., Inc., New York, N.Y.

Filed Dec. 21, 1979, Ser. No. 106,013

Int. Cl.³ D05B *35/06*

U.S. Cl. 112—121.27 **6 Claims**

1. A fabric part label feed apparatus comprising a tape strip consisting of discrete individual labels joined end to end, storage means for said tape strip, means for removing said tape strip from said storage means, a sewing station, means for supporting and guiding said strip toward said sewing station, a feed rod continuously reciprocable through a work stroke of predetermined length toward and away from said supporting and guiding means and operable to engage said strip during each movement of said feed rod toward said supporting and guiding means during the continuous reciprocation of the feed rod to continously advance said strip incrementally toward said sewing station, means for receiving said strip adjacent to



said sewing station and for feeding a label therefrom into and through said sewing station, and cutting means operating in conjunction with said label feed rod to sever in sequence with the continuous reciprocation of the feed rod individual labels from said strip immediately prior to an individual label being fed into said sewing station.

4,333,410

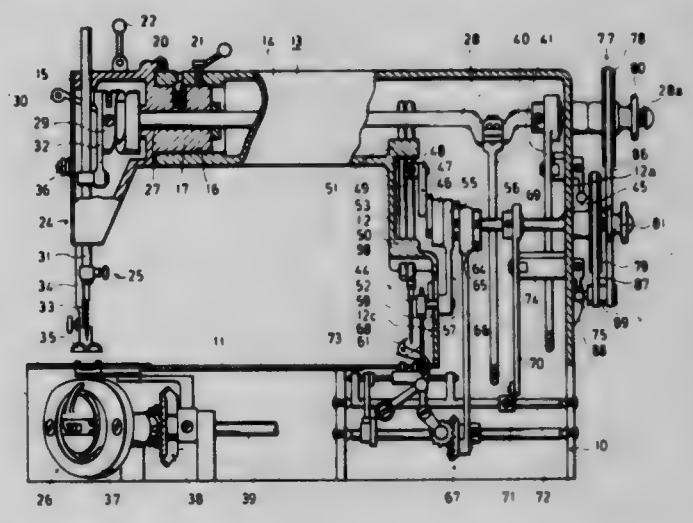
SEWING MACHINE

Bunsaku Taketomi, 56-141 aza-Ishikane, ohaza-Iwasaki, Nishin-cho, Aichi-gun, Aichi-ken, Japan

Continuation of Ser. No. 951,709, Oct. 13, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 128,983

Int. Cl.³ D05B *1/14, 1/20*

U.S. Cl. 112—162 **7 Claims**



1. In a sewing machine of the kind having:

(a) a bed

(b) an arm frame opposed to said bed and positioned above said bed and disposed substantially parallel with said bed,

(c) a support extending upright from said bed to support one end of said arm frame,

(d) an upper lockstitch mechanism including a needle bar located at a free end of said arm frame,

(e) a lower lockstitch mechanism disposed below said upper lockstitch mechanism and within said bed,

the improvement which comprises:

(i) an overedge stitching mechanism disposed within said upright support between said bed and said arm frame,

(ii) said arm frame comprises an arm frame body fixed to said upright support, and a head connected to a free end of said arm frame body and provided with said upper lockstitch mechanism, means selectively rotatably connecting said head with respect to a longitudinal axis of said arm frame body so as to permit said needle bar in said lock-stitching mechanism to be rotated about said axis in a cloth feed

direction, whereby said head can be selectively rotated toward and away from said lower lockstitch mechanism.

7. A sewing machine comprising:

(i) a frame of generally horizontal U-shape and including a bed, an arm frame disposed opposite said bed and substantially parallel above said bed, and an upright support extending from said bed to support one end of said arm frame, said support including a wall formed with a recess adjacent said bed,

(ii) a lockstitching means comprising a needle support bar disposed at a free end of said arm frame and movable up and down, a needle mounted at the lower end of said needle bar, and disposed opposite said recess, an arm shaft positioned substantially horizontally within said arm frame, means connecting said arm shaft and said needle support bar for moving said bar up and down, a shuttle disposed in said bed at a position at which said needle enters said bed, a shuttle driving shaft disposed interiorly of said bed and connected to said shuttle for driving said shuttle, and a connecting means disposed interiorly of said upright support and interposed between said arm shaft and said shuttle driving shaft for rotating said shuttle driving shaft in synchronism with said arm shaft,

(iii) an overedge stitching means comprising a needle support bar extending through an upper part of said wall bounding said recess, said bar being movable up and down, a needle mounted on the lower end of said needle support bar, a spindle disposed interiorly of said upright support, means connecting said spindle and said needle support bar for moving said bar up and down, a looper mounted movably in said bed and disposed at at position in which said overedge stitching needle moves downwardly in said recess, a looper driving means disposed interiorly of said bed and connected to said looper for driving said looper, and a connecting means disposed interiorly of said upright support and interposed between said spindle and said looper driving means for operating said looper driving means in synchronism with said spindle,

(iv) a driving means, and clutch means associated with said driving means and respectively with said lockstitching shaft and said overedge stitching spindle for selectively coupling said shaft and said spindle with said driving means.

4,333,411

BOBBIN THREAD LEVEL DETECTION AND DISPLAY ARRANGEMENT FOR A SEWING MACHINE

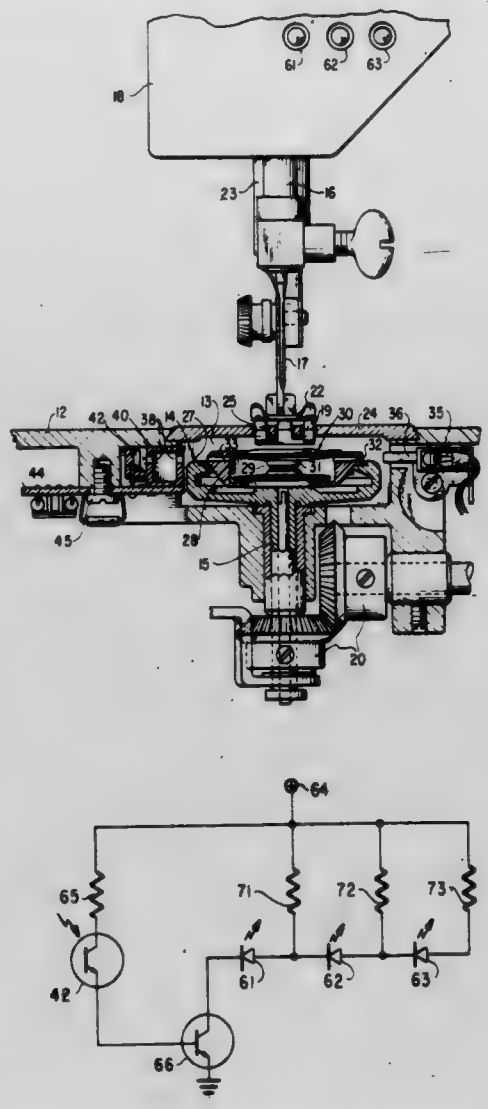
David A. Lerner, Flushing, N.Y., assignor to The Singer Company, Stamford, Conn.

Filed Jul. 15, 1981, Ser. No. 283,403
Int. Cl.[3] D05B *45/00, 59/00*
U.S. Cl. 112—278 3 Claims

1. A sewing machine having a frame including a bed, said bed having a cavity for receiving a loop taker, a loop taker rotatably supported in said cavity, a bobbin case supported in said loop taker against rotation therewith, said bobbin case freely supporting a lower thread carrying bobbin therein, and means for sensing the thread carrying condition of said bobbin, said sensing means including a light source and a light detector, wherein the improvement comprises:

a display device including a plurality of light emitting elements positioned in a regular array; and

energizing means responsive to the amount of light impinging on said light detector for controlling the energization of said plurality of light emitting elements to produce a



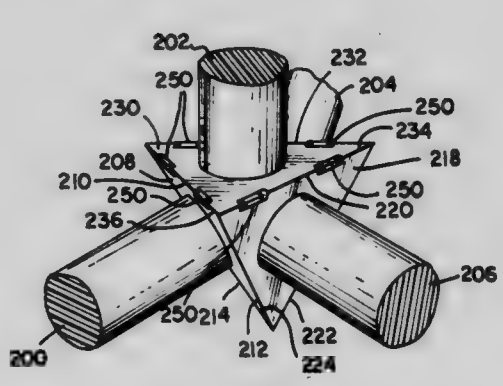
visible light pattern in said display device that is related to the thread carrying condition of said bobbin.

4,333,412

SPAR JUNCTURE STRUCTURE FOR WIND PROPELLED CRAFT

Quentin M. McKenna, 2 Ave de la Boussole, Port La Galere, Theoule-sur-Mer, 06590, France

Filed Sep. 26, 1980, Ser. No. 191,327
Int. Cl.[3] B63B *35/00*
U.S. Cl. 114—39 4 Claims



1. A wind propelled craft adapted to move over a surface comprising:

three substantially equidistantly spaced support members adapted to engage and be supported on the surface,

four substantially rigid spars connected together at a juncture and extending radially outward therefrom, each of said spars forming an angle of about 110° with each of the other spars, said spars having ends distal from the juncture,

a plurality of substantially equilength stays connected to and between each one of said spars and the other spars, respectively, said stays being connected to said spars at points substantially equidistant from said juncture so as to form with said spars a frame of substantially equilateral tetrahedral shape,

one end of each of said spars being formed as three faces of a tetrahedron, wherein said three faces converge at an apex and wherein the faces of the spars at the juncture interfit with each other to form a generally solid assembly at the juncture,

means for movably connecting three of said one ends to the fourth said one end so that said three ends can articulate about said fourth end when certain of said stays are disconnected from the spars,

three of said spars extending generally laterally and downwardly from the juncture and the fourth spar extending vertically upward from the juncture,

said support members being connected to said frame at points near the distal ends of the spars extending laterally and downwardly from the juncture, and

a sail connected to said frame.

4,333,413

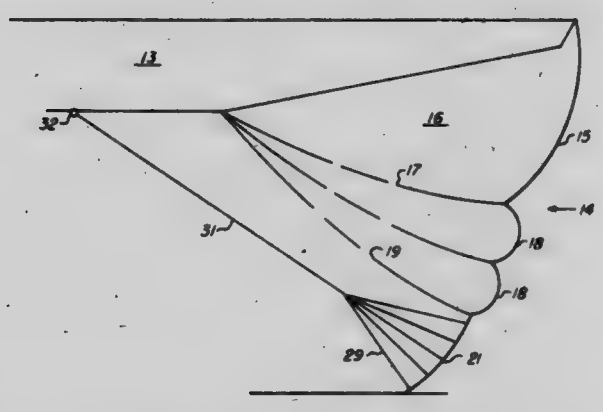
TRANSVERSELY STIFFENED MEMBRANE SEAL

Sydney Davis, Silver Spring, Md., and Alexander Malakhoff, Arlington, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 23, 1980, Ser. No. 114,455

Int. Cl.³ B63B *1/38*

U.S. Cl. 114—67 A **10 Claims**



10. In an air cushion marine vessel of the type having an elongated hull with forward and rear end portions and with spaced depending sidewalls extending generally from the forward portion to the rear portion of the hull to define a plenum chamber therebetween, the improvement in a seal structure for the plenum chamber comprising:

a stiffened lobe seal portion including a membrane section and a plurality of elongated stiffener members connected thereto and extending generally athwartship, transversely across the membrane section; and

support means connected to the longitudinal edge portions of the stiffener members, the support means extending rearwardly of the stiffened lobe portion and connected to the hull of the vessel, and the plurality of stiffener members are arranged in both end-to-end and spaced apart parallel relationship with each other.

4,333,414

SUBMERSIBLE TWIN-HULL WATERCRAFT

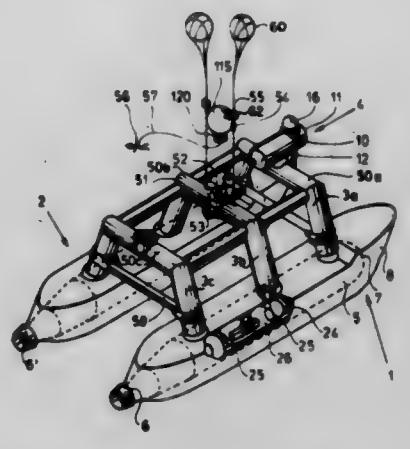
Gerhard Hauz, Waldbronn, Fed. Rep. of Germany, assignor to Gunther Rudi Laukien, Fed. Rep. of Germany

Filed Oct. 22, 1979, Ser. No. 87,001

Claims priority, application Fed. Rep. of Germany, Oct. 24, 1978, 2846154

Int. Cl.³ B63G *8/41*

U.S. Cl. 114—322 **7 Claims**



1. A submersible watercraft, comprising;

a pair of spaced hulls with watertight walls and ballast tanks adapted to be flooded and blown for varying the buoyancy of the craft,

a plurality of tubular members for rigidly interconnecting said hulls, each of the tubular members extending between the hulls and having at least a section which is pressure-resistant and weighing less than the volume of water displaced by the section when it is submerged, so that the watercraft has the stability of a catamaran when surfaced, is weight stable when completely submerged, and when partially submerged with the two hulls substantially completely below the mean waterline the tubular members are at least partly above the mean waterline,

a sealable docking port mounted in one of said tubular members adapted to permit passage into the interior of the watercraft,

a diver-exit vessel detachably connectable to said docking port having a sealable opening for the entering and exit of a diver, the diver-exit vessel being constructed as a pressure vessel to accommodate a diver, and having ballast means adapted to be independently flooded and blown for varying the bouyancy thereof,

means for sealably detachably joining the diver exit vessel to the docking port enabling transfer therebetween underwater, and

means for guiding the ascent and descent of the diver-exit vessel relative to the watercraft comprising a first rope and a second rope, each rope being attached at one end to the watercraft, and in which the diver-exit vessel is fitted with a first eye and a second eye, the two eyes being located respectively at opposite points on a largest horizontal periphery of the diver-exit vessel, the first and the second ropes passing respectively through the first and the second eyes.

4,333,415

APPARATUS FOR DISTRIBUTING AND SIFTING JAPANESE STYLE BREAD CRUMBS IN A TYPICAL BREADING MACHINE FOR COATING EDIBLE FOOD PRODUCTS

Michael E. Miller, Bellevue, and Richard J. Hummel, Sandusky, both of Ohio, assignors to Sam Stein Associates, Inc., Sandusky, Ohio

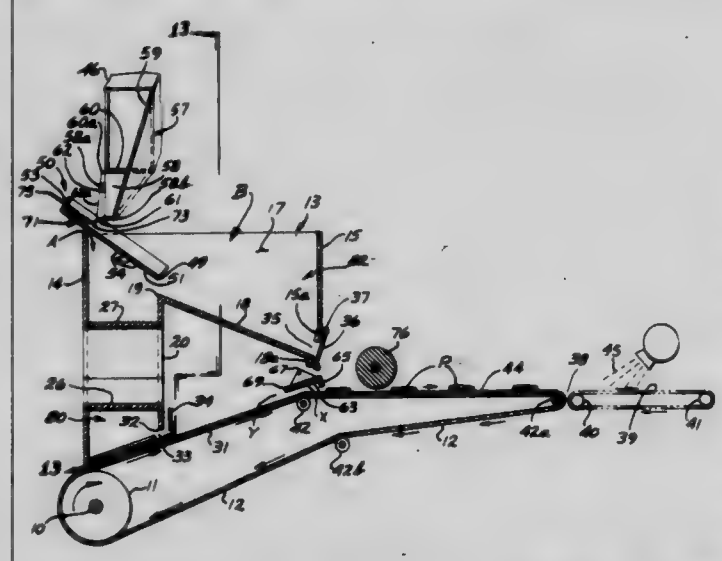
Filed Aug. 7, 1980, Ser. No. 176,024

Int. Cl.³ B05C *19/00*

U.S. Cl. 118—16 **8 Claims**

1. In a breading machine having a conveyor means for mov-

ing a plurality of parallel lines of product to be coated with breading material along a breading or coating path and hopper means wide enough to include said path for discharging breading material at a plurality of zones along said path and wherein said hopper means is operable to discharge breading material onto said conveyor means to form a bottom coating bed upon which the batter coated product to be bread coated is laid whereupon breading material in said bed adheres to the surfaces of said product contacting said bed, and wherein said hopper means is operable to subsequently discharge breading material onto the remaining product surfaces of said product and thus effectively to coat the exterior surfaces of said product with breading; the improvement for efficiently using Japanese style bread crumbs which display a wide variation in crumb sizes as the breading material comprising distribution means disposed at the feed input of said hopper means to intercept an input flow of a normal composition of said Japanese style bread crumbs from said input flow and operable to provide a substantially even distribution of said normal composition of particles of said crumbs in said input flow across the width of said hopper means in a plane transverse to the direction of travel of product along said coating path, and sifter means disposed between said distribution means and said hopper means and operable to receive said even distribution of said normal composition of particles of said crumbs and also operable to separate said normal composition of said crumbs into a first flow substantially composed of a higher than normal percentage of finer particles of said crumbs mixed with a lower than normal percentage of coarser particles of said crumbs and a second flow substantially composed of a higher than normal percentage of coarser particles of said crumbs mixed with a lower than normal percentage of finer particles of said crumbs, said first flow being directed into a first portion of said hopper means to supply said bottom coating bed on said conveyor means and said second flow being directed into a second portion of said hopper means to supply crumbs to coat said remaining surfaces of said product, whereby each surface of said product may be presented with a well controlled flow of said crumbs in the composition of larger and smaller particles best suited to coat the individual surfaces of said product, and whereby all surfaces of all product pieces may present a nearly identical finished appearance.



4,333,417

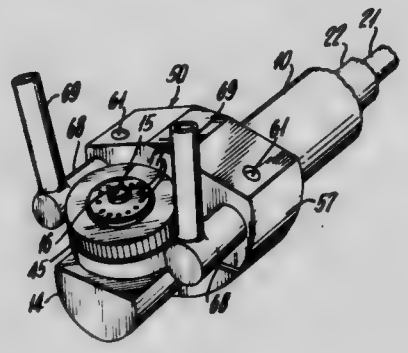
COATING SYSTEM

Neal H. Camp, 107 Wood St., Willits, Calif. 95490; James E. Paetz, 5061 Pressley Rd., Santa Rosa, Calif. 95404, and Nicholas L. Patterson, 24033 Sherwood Rd., Willits, Calif. 95490

Filed Dec. 13, 1979, Ser. No. 103,101

Int. Cl.³ B05C *3/10, 11/06*

U.S. Cl. 118—50 **20 Claims**



and radially outside said central passage, said head and nozzle having cooperating formations defining an annular-manifold region for supply of said combustible-gas jets, said head having first passage means establishing an independent connection of said first elongate passage to the central passage of said nozzle, and said head having second passage means establishing an independent connection of said second elongate passage to said manifold region; the gas-distributor connection means at said one end including cylindrical formations concentric with said passages, and means on said body for selectively securing said one end to a gas distributor in any desired angular orientation of said offset axis with respect to the axis of concentricity of said formations.

4,333,416

EXTENSION NOZZLE ATTACHMENT FOR A FLAME-SPRAY TORCH

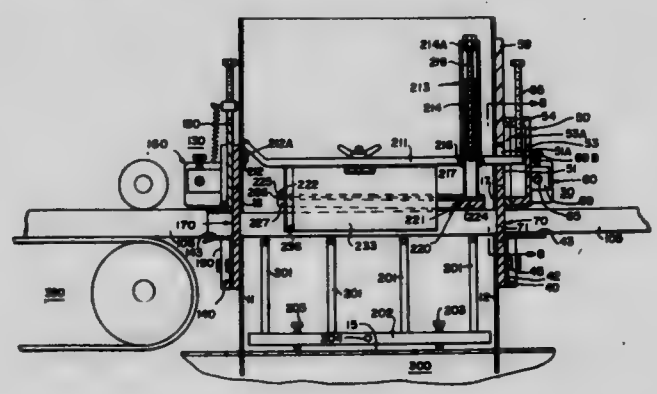
Anthony J. Rotolico, Hauppauge, and Eduardo Romero, Coram, both of N.Y., assignors to Eutectic Corporation, Flushing, N.Y.

Filed Apr. 14, 1980, Ser. No. 140,142

Int. Cl.³ B05C *5/04, 7/02, 7/06*

U.S. Cl. 118—47 **12 Claims**

1. As an article of manufacture, a nozzle attachment for a flame-spray torch for coating within a workpiece bore, said attachment comprising an elongate body with means at one end for removable gas-distributor connection to a gas torch and with a head at the other end for removable nozzle connection, said head having nozzle-mounting means on a nozzle-orienting axis at angular offset with respect to the elongation of said body, first and second independent elongate concentric passages extending the length of said body to said head first for accommodation of a distributor-supplied flow of carrier gas and powder and second for accommodation of a distributor-supplied flow of combustible-gas mixture; a nozzle removably fitted to said head on said offset axis and having a central passage for discharge of carrier gas and powder on the nozzle axis, said nozzle having an angularly spaced plurality of combustible-gas jets concentrically arrayed about the nozzle axis



4,333,415

METHOD AND APPARATUS FOR COATING ARTICLES

Robert Bruce Wallace, Pittsburgh, Pa., assignor to Vac-Tec Systems, Inc., Boulder, Colo.

Filed Jan. 28, 1980, Ser. No. 116,139

Int. Cl.³ B05C *11/08*

U.S. Cl. 118—49 **20 Claims**

1. In a system for continuous application of a liquid coating material onto the surfaces of successive units of material having varying cross-sectional dimensions, a coating chamber substantially closed to the atmosphere for containing a substantial head of liquid coating material, said coating chamber defining an inlet aperture and an outlet aperture therein generally conforming to the dimensions of the largest cross section of material to be coated in said chamber, said apertures being

located on opposite sides of said chamber in substantial alignment with each other and at a level in said chamber where substantial hydrostatic pressure of said liquid coating material will be maintained; port defining means mounted over each of said inlet and outlet apertures for providing entrance and exit ports of adjustable dimensions, each of said port defining means comprising at least one gate, gate mounting means for mounting said gate in sliding relation with one of the edges of an associated aperture, positioning means for setting an initial position of said gate, and spring means for biasing said gate toward said initial position; dimension sensing means positioned inside said chamber for sensing variations in at least one dimension of units of material passing through said chamber and automatically adjusting the position of said slidably mounted gate at said outlet aperture; and means acting continuously above the level of liquid coating material in said chamber to produce a pressure differential between the interior and exterior of said chamber sufficient to induce a continuous flow of air into said chamber about the periphery of portions of material positioned within said entrance and exit ports and upwardly through said liquid coating material in said chamber.

4,333,418

APPARATUS FOR THE PRODUCTION OF MAGNETIC RECORDING MEDIA IN TAPE FORM

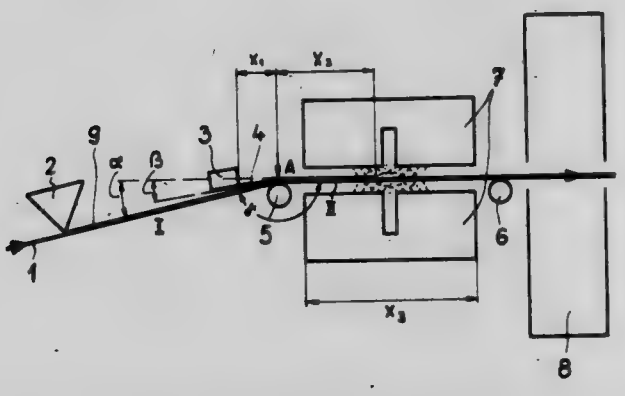
Peter Nagel, Willstaett; Klaus Schoettle, Heidelberg; Reinrich Wittkamp, Mannheim, and Karl Hauck, Maxdorf, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Division of Ser. No. 815,929, Jul. 15, 1977, which is a continuation of Ser. No. 711,822, Aug. 5, 1976, abandoned. This application Mar. 28, 1980, Ser. No. 135,913

Claims priority, application Fed. Rep. of Germany, Aug. 6, 1975, 2535092

Int. Cl.³ B05C *11/02*

U.S. Cl. 118—106 **4 Claims**



1. An apparatus for the manufacture of magnetic recording tape, including:

means for coating a moving web of non-magnetizable tape base material with a layer of fluid magnetic dispersion comprising a mixture of anisotropic magnetic particles in a binder,

a deflecting roll disposed downstream of said coating means,

means for conveying said web past said coating means upwardly towards said deflecting roll in an inclined plane, said deflecting roll causing said web to change direction to a horizontal plane,

a magnetic orienting device disposed downstream of said deflecting roll and having at least one pair of poles adjacent said horizontal plane, the poles of said pair extending perpendicularly to and being spaced lengthwise of said web so as to orient said magnetic particles in a direction parallel to the surface of the web,

a flexible blanket mounted between the coating means and the magnetic orienting device so as to provide a portion in sliding contact with the magnetic layer,

the first line of contact of the blanket with said layer being near the deflecting roll and the length of the blanket being so correlated with the position of said magnetic orienting device that the blanket extends to a point between said lengthwise spaced poles, and

drying means disposed downstream of the last-mentioned point.

4,333,419

METHODS AND DEVICE FOR CLADDING ELONGATED OBJECTS SUCH AS WIRES AND THE LIKE WITH POWDERED MATERIAL

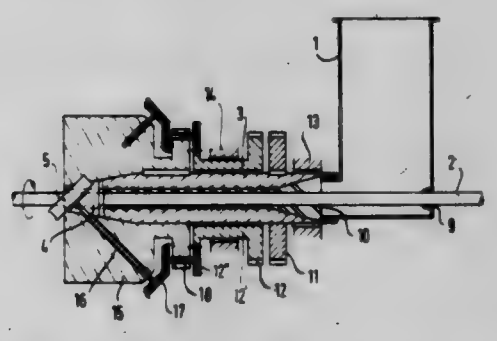
Walter Hufnagl, Lommelstrasse 9, 8 München 71, Fed. Rep. of Germany, and Peter Kotauczek, Weissperberl. 38, 1030 Wien, Austria

Filed Nov. 8, 1978, Ser. No. 958,882

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1977, 2750369

Int. Cl.³ B05C *3/02*

U.S. Cl. 118—405 **28 Claims**



1. A device for cladding elongated objects, such as wires and the like with a powdered material, comprising a storage container for the powdered material, said storage container being adapted to receive the elongated object; a rotary internal worm conveyor having an internal surface, an inlet communicating with said container and an outlet provided with a nozzle, said elongated object to be clad being fed through said internal surface of said conveyor to provide continuous applying of the powdered material onto the surface of the object during the feeding of the latter; and at least one set of rotary pressing rollers arranged at the outlet of said nozzle and each having an axis of rotation positioned at an acute angle with the direction of feeding of the elongated object to thereby obtain on said elongated object the compacted powdered layer with bonded portions having spiral-like form and overlapping each other.

4,333,420

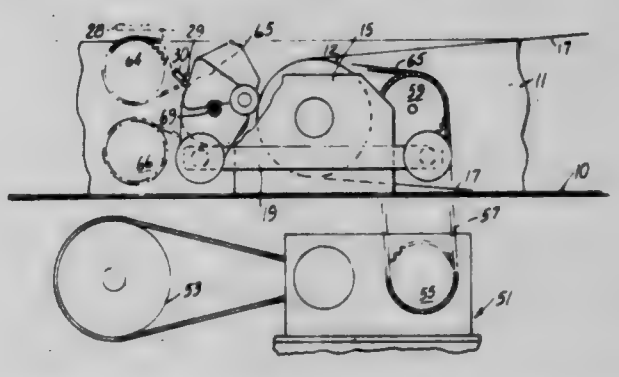
GLUE APPLICATOR

Nello J. Petri, 1450 Bancroft Ave., San Francisco, Calif. 94124

Filed Jul. 21, 1980, Ser. No. 170,540

Int. Cl.³ B05C *5/02*

U.S. Cl. 118—411 **6 Claims**



1. In combination with a moving web of paper or the like, a glue applicator for applying glue to said moving web comprising:

a glue pump including a housing therefor,

said housing being formed with an inlet for glue and a discharge nozzle,

means mounting said housing in close proximity to said web with said discharge nozzle positioned for applying the discharged glue directly from said nozzle to said moving web,

a rotating member associated with said moving web and rotating at a speed proportional to the speed of said web,

a rotatable rod of noncircular cross section for driving said pump,

said pump including a driven gear formed with a through opening having a cross section complementary to the cross section of said rotatable rod and receiving the latter therethrough,

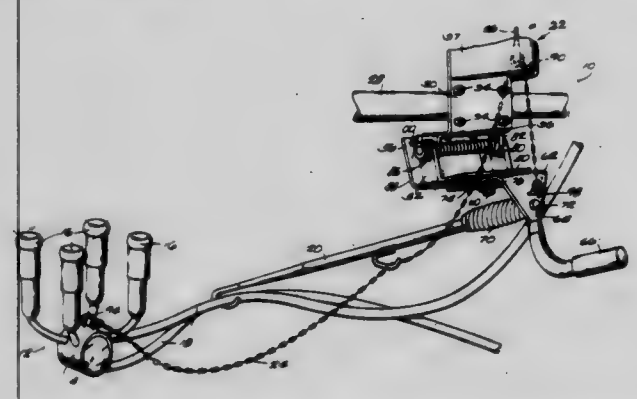
means interconnecting said rotating member and said rod for driving said pump at a speed proportional to the speed of said moving web.

4,333,421

MILKING UNIT SUPPORT AND DETACHER MECHANISM

Gary W. Schluckbier, Madison, Wis., assignor to DEC International, Inc., Madison, Wis.

Filed Jun. 18, 1980, Ser. No. 160,465
Int. Cl.³ A01J *5/04, 7/00*
U.S. Cl. 119—14.08 **13 Claims**



8. A milking unit support and detacher mechanism for supporting a milking unit when the milking unit is attached to a cow for milking, said milking unit having a teat cup assembly and at least one hose member extending from said assembly, the milking unit support and detacher mechanism comprising:

a milking unit support arm movable between a first position wherein said arm extends downwardly and a second position wherein said arm extends outwardly, said milking unit support arm having a free end engageable with said hose member in spaced relation to said teat cup assembly for supporting said milking unit when the milking unit is attached to a cow for milking and when said arm is in said second position; and

support means for said milking unit support arm including first means disposed for rotation about a horizontal axis and second means disposed for pivotal movement about an axis transverse to said horizontal axis, and said milking unit support arm being attached to one of said first and second means for movement about said transverse axis and said horizontal axis, and said support means including a spring having opposite ends, one of said ends being supported by said one of said first and second means and the other of said ends supporting said milking unit support arm.

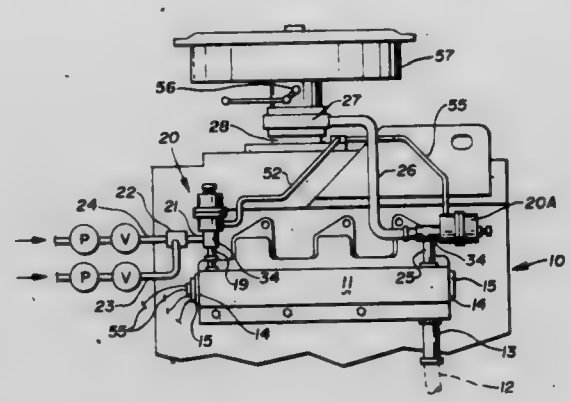
4,333,422

HOT FUEL GAS GENERATOR WITH DUAL CONTROLS

Fred G. Mahoney, 509 Dorseyville Rd., Pittsburgh, Pa. 15238

Filed Aug. 27, 1980, Ser. No. 181,878
Int. Cl.³ F02B *43/00*
U.S. Cl. 123—3 **6 Claims**

1. A generator for producing hot fuel gas for an internal combustion engine having intake and exhaust manifolds, said generator comprising a heat exchanger positioned through said exhaust manifold, the heat exchanger comprising a tubular member having inner and outer surfaces, means closing the ends of said tubular member, an elongated body member positioned in said tubular member in continuous engagement with said inner surface thereof, the exterior of said body member having a continuous spiral configuration therein forming an elongated continuous spiral passageway, means for introducing liquids to be gasified into one end of said spiral passageway and means communicating with the other end thereof for



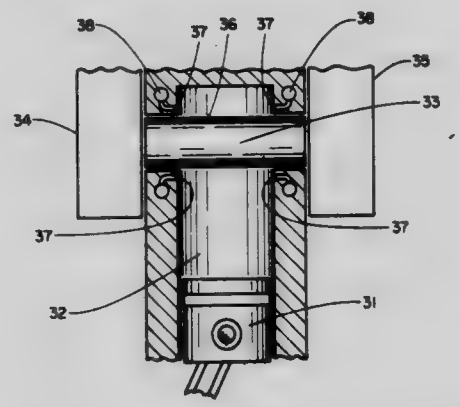
receiving gasified fuel therefrom valves in communication with said means for introducing said liquids and receiving said gasified fuel, a supply source of said liquids in connection with one of said valves and means establishing communication between the other of said valves and said intake manifold, means for actuating said valves simultaneously, said valve actuating means responsive in operation to inlet manifold pressure changes when said internal combustion engine is operating.

4,333,423

ENGINE STEAM STRATIFIER

Joseph C. Firey, P.O. Box 254 Northgate Sta., Seattle, Wash. 98125

Filed May 9, 1980, Ser. No. 148,401
Int. Cl.³ F02B *45/02;* **F02D** *19/04*
U.S. Cl. 123—23 **18 Claims**



1. The combination of a solid carbon burning internal combustion engine comprising:

at least one cylinder and at least one and at most two pistons with piston crowns operative within each of said cylinders, each of said cylinders comprising a combustion chamber space fully enclosed by a portion of the interior walls of said cylinder and the crowns of said pistons when said pistons are at that position creating the smallest such fully enclosed space during the engine compression process;

means for placing solid carbon fuel and the pore spaces therein within a fractional portion of each of said combustion chamber spaces, said fractional portion exceeding zero and not exceeding one, so that a major portion of said solid carbon remains within said combustion chamber through several engine cycles,

each of said cylinders further comprising at least one solid,

non carbon piece, said solid piece and any non carbon pore spaces therein being stationary with respect to said cylinders and occupying a fractional portion, which is less than one and exceeds zero, of said combustion chamber space;

each of said combustion chamber spaces being large enough to contain said solid carbon fuel and the pore spaces therein when placed within said combustion chamber, said solid non carbon stationary pieces and the non carbon pore spaces therein, and a clear non pore space free of solid material, said clear space being a fractional portion, which is less than one and may be zero, of said combustion chamber space;

wherein the improvement comprises adding to said solid carbon burning engine at least one engine steam stratifier comprising:

means for supplying steam;

means for delivering said steam equally into each engine cylinder commencing after commencement of the engine intake process, and stopping prior to the end of the engine compression process;

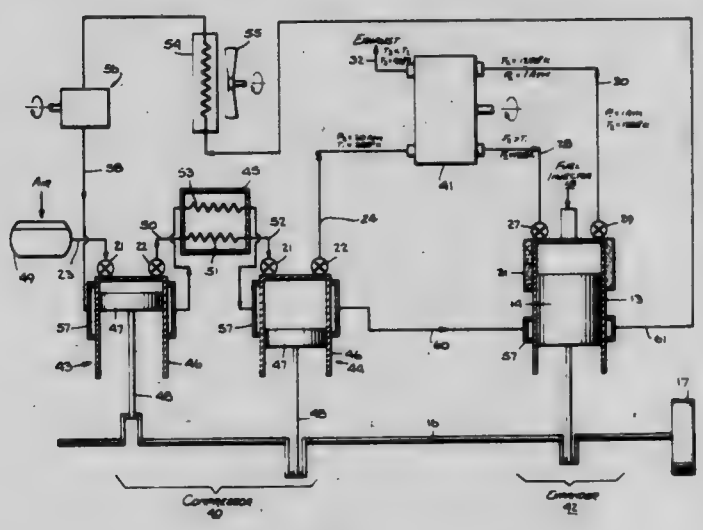
whereby the solid carbon pore temperatures within said combustion chamber can be reduced.

4,333,424

INTERNAL COMBUSTION ENGINE

Richard McFee, R.D. #1, Union Springs, N.Y. 13160

Filed Jan. 29, 1980, Ser. No. 116,456
Int. Cl.³ F02B *33/00*
U.S. Cl. 123—39 **14 Claims**



1. An internal combustion engine comprising

an air compressor for receiving and compressing a flow of air to a given pressure and temperature;

a heat exchanger defining a first flow path for receiving a pressurized flow of air from said compressor and a second flow path for receiving a flow of hot gas in heat exchange relation with said first path to heat the flow in said first flow path to a higher second temperature while cooling the flow in said second flow path;

at least one expander having a cylinder, a piston reciprocally mounted in said cylinder for movement in a power stroke and an exhaust stroke, an inlet valve connected to said first flow path of said heat exchanger to direct a flow of compressed air at said second temperature into said cylinder during an intake phase of said power stroke while allowing the pressure of the air to reduce to atmospheric during a subsequent expansion phase of said power stroke, and an outlet valve connected to said second flow path of said heat exchanger to deliver an expanded flow of air at said second temperature from said cylinder to said second flow path during said exhaust stroke;

first means for injecting fuel into said cylinder during said expansion phase of said power stroke in an amount adequate to maintain the temperature of the air therein at or above the temperature of the air upon entry therein during said intake phase; and

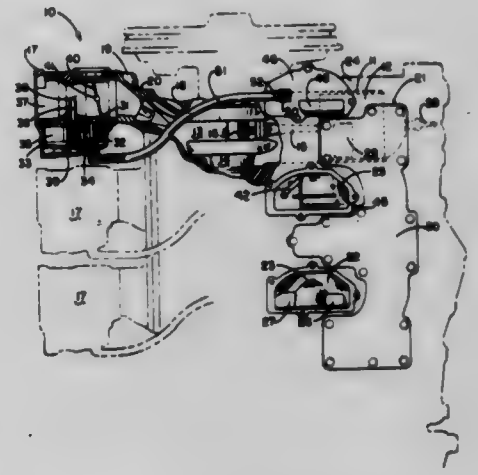
second means connected to said piston for absorbing and storing the energy of each expansion stroke of said piston for subsequent use.

4,333,425

FUEL SYSTEM FOR A TWO-CYCLE ENGINE

David W. Kusche, Oshkosh, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Dec. 29, 1980, Ser. No. 220,386
Int. Cl.³ F02B *33/04*
U.S. Cl. 123—73 R **10 Claims**



1. A fuel system for a two-cycle, crankcase compression engine having a cylinder block, a cylinder, a piston reciprocable in said cylinder, a crankcase, a transfer passage for transferring air-fuel mixture from said crankcase to said cylinder and an exhaust port for removing combustion gases from said cylinder, said fuel system comprising:

(A) a main inlet passage for supplying an air-fuel mixture to said crankcase;

(B) a main valve for shutting off said main inlet passage at idle speeds; and

(C) an idle inlet passage for supplying an idle air-fuel mixture directly to said transfer passage.

4,333,426

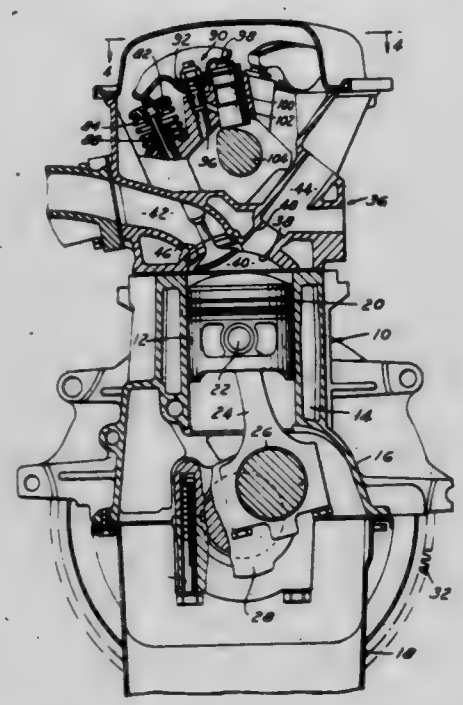
INTERNAL COMBUSTION ENGINE CONSTRUCTION

John M. Gavasso, Farmington Hills; Louis G. Bodnar, Westland, and Walter E. Parker, Plymouth, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jan. 4, 1980, Ser. No. 109,721
Int. Cl.³ F02C *1/02*
U.S. Cl. 123—90.27 **1 Claim**

1. A low emission output internal combustion engine construction comprising a cylinder block having a plurality of cylinder bores therein, and a cylinder head secured over the block and having adjacent each cylinder bore a hemispherically shaped recess together with the adjacent cylinder bore defining a combustion chamber having a hemispherical surface facing the adjacent cylinder bore, each surface having an inlet valve and an exhaust valve therein, the longitudinal centerlines of the valves each being perpendicular to the hemispherical surface and extending towards the bore to intersect the centerline of the cylinder bore at a common point effecting a seating of the faces of all the valves flush against the hemispherical surface to thereby provide a minimum surface area exposed to combustion chamber hydrocarbon buildup, valve train means for reciprocating the valves comprising a single camshaft centrally mounted on the cylinder head having a plurality of axially spaced cams thereon, a plurality of pivotal rocker arms each stud mounted on the cylinder head and engaged at one end by tappet means engaged with a cam on the camshaft and engaged at the opposite end with the end of a valve, the inlet and exhaust valves being symetrically located on opposite sides

of the camshaft, and spring means biasing each valve to a closed position with the valve face flush with the hemispherical surface, the longitudinal centerlines of the tappet, rocker arm stud and valve of each valve train together intersecting at a common point and being contained and movable in a single plane that is both oblique to the rotational axis of the camshaft and canted to lie at an angle between the horizontal axis of rotation of the camshaft and the vertical axis of the cylinder bore, whereby each valve longitudinal centerline then will intersect the hemispherical surface in a perpendicular manner locating the valve flush therewith and with the valve center-



line intersecting the surface at a point other than on the longitudinal and transverse centerlines of the surface,

each rocker arm includes said stud mounting the rocker arm for independent attitude with respect to the other rocker arms and a semicylindrical fulcrum secured to the stud engageable with the rocker arm preventing rotation of the rocker arm about the longitudinal axis of the stud to maintain movement of the valve train in the single plane, and

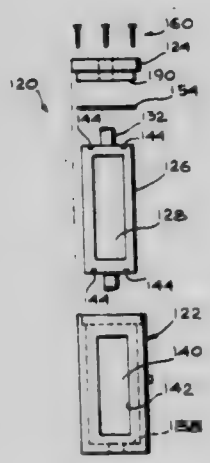
each port being offset with respect to the longitudinal and transverse centerlines of the cylinder bore, the inlet valve port overlapping the centerline of the cylinder bore.

4,333,427

INTERNAL COMBUSTION ENGINE

Antonio Burillo, 127 Monterey Rd., S. Pasadena, Calif. 91030, and Richard Dane, II, Alhambra, Calif.

Filed Aug. 5, 1980, Ser. No. 175,585
Int. Cl.³ F01L *7/00*
U.S. Cl. 123—190 A **8 Claims**



1. In an internal combustion engine having a plurality of combustion chambers:

an inlet lower cover portion having a first set of inlet ports communicating with respective ones of said combustion chambers;

an inlet upper cover having a second set of inlet ports respectively aligned, in operation, with said first set of inlet ports in said inlet lower cover portion;

an exhaust lower cover portion having a first set of exhaust ports equal in number to the number of said combustion chambers and communicating with respective ones thereof;

an exhaust upper cover having a second set of exhaust ports respectively aligned, in operation, with said first set of exhaust ports;

an intake valve shaft assembly including a plurality of rotary valves supported to communicate, in a predetermined time sequence, between the ports in said first set of inlet ports and respective ones of the ports in said second set of inlet ports;

an exhaust valve shaft assembly including a plurality of rotary valves supported to communicate, in a predetermined time sequence, between respective ones of said ports in said first and second sets of exhaust ports;

means for driving said intake and exhaust valve shaft assemblies synchronously with respect to each other;

said inlet and exhaust valve shaft assemblies being segmented between adjacent rotary valves;

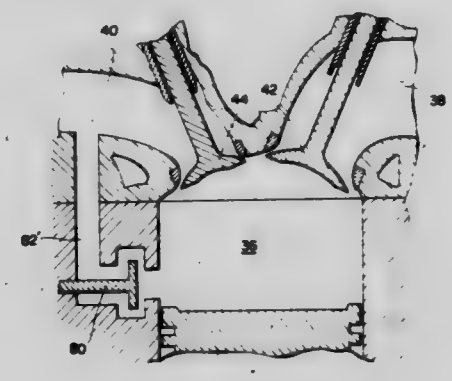
each of said rotary valves including a rotor portion having a port passing diametrically therethrough, said rotor portion terminating in a pair of axles, and a cylindrical cap portion having inner and outer surfaces and being coaxial with and enclosing said rotor portion except for openings at opposite ends of said cup portion for passage of said axles therethrough and diametrically opposed ports positioned to communicate with said port in said rotor.

4,333,428

INTERNAL COMBUSTION ENGINE

Toshiaki Tanaka, Fujisawa, and Yukihiro Etoh, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Dec. 19, 1979, Ser. No. 105,104
Claims priority, application Japan, May 8, 1979, 54-1189
Int. Cl.³ F02M *25/06*; F01N *3/15*
U.S. Cl. 123—198 F **3 Claims**



1. An internal combusion engine comprising:

(a) first and second cylinder units each including at least one cylinder having a combustion chamber defined by a cylinder block and a cylinder head mounted on said cylinder block, each of said combustion chambers being connected through an exhaust valve to an exhaust port formed in said cylinder head;

(b) a bypass passage associated with each cylinder of said second cylinder unit, said bypass passage opening at its one end into said exhaust port and at the other end into said combustion chamber providing communication therebetween to bypass said exhaust valve;

(c) a bypass valve provided in said bypass passage, said bypass valve being normally in its closed position to inter-

rupt communication between said exhaust port and said combustion chamber; and

(d) control means responsive to engine low load conditions for disabling said second cylinder unit and placing said bypass valve into its open position to provide said communication between said exhaust port and said combustion chamber.

4,333,429

INTERNAL COMBUSTION ENGINE

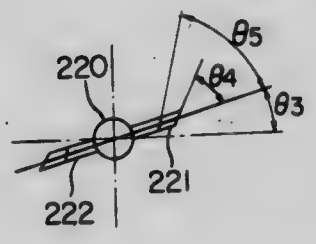
Masahiko Iiyama, Tokyo; Tsugio Sanka, Wako, and Kenji Naito, Kamifukuoka, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 48,468, Jun. 14, 1979, abandoned. This application Nov. 20, 1980, Ser. No. 208,840

Claims priority, application Japan, Jun. 15, 1978, 53-72421; Jun. 15, 1978, 53-72422; Jun. 15, 1978, 53-72424

Int. Cl.³ F02B *19/10*

U.S. Cl. 123—274 **7 Claims**



1. In a multi-cylinder internal combustion engine having, for each cylinder provided with a reciprocal piston therein, a main combustion chamber defined above the piston and a sub-combustion chamber defined above said main combustion chamber and communicating with the latter through a torch nozzle, a main intake passage and a sub-intake passage for supplying a comparatively lean mixture and a comparatively rich mixture to said main and sub-combustion chambers, respectively, said carburetor comprising a single throttle valve shaft extending across said main and sub-intake passages, a main throttle valve and a sub-throttle valve disposed in said main and sub-intake passages, respectively, said main and sub-throttle valves being attached to said single throttle valve shaft, means attaching said main and sub-throttle valves to said single throttle valve shaft at the same attaching angles, said main throttle valve and sub-throttle valve having respective parallel surfaces and outer peripheral edge surfaces, the angle formed between the outer peripheral edge surface and the parallel surfaces of said main throttle valve and the angle formed between the outer peripheral edge surface and the parallel surfaces of said sub-throttle valves being different from one another so that the ratio of the open areas of said main and sub-intake passages is not constant as said throttle valve shaft is operated.

4,333,430

ENGINE BRAKE

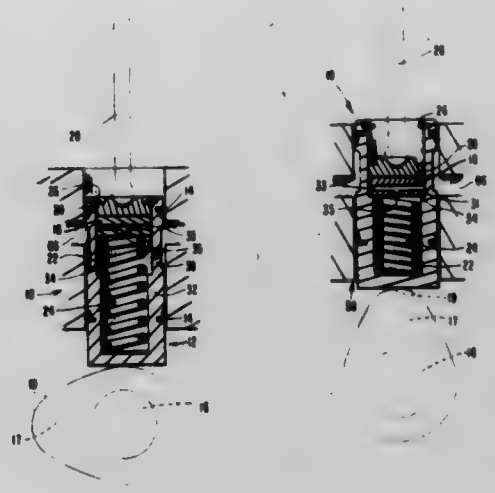
Von D. Rosquist, P.O. Box 161, Levan, Utah 84639

Filed Jun. 15, 1979, Ser. No. 48,988

Int. Cl.³ F02D *9/06*

U.S. Cl. 123—321 **7 Claims**

1. In an engine brake for use with an internal combustion engine having an engine block, a cam shaft, a combustion chamber, a valve in said combustion chamber, a valve operating mechanism between said cam shaft and said valve for operating said valve in response to rotation of said cam shaft, said valve operating mechanism including an actuator, said actuator having a normal extended position in which said valve normally opens and closes during engine operation and a collapsed position in which said valve is only partially opened, means for supplying a pressurized fluid to said actuator to shift said actuator between its normal extended and collapsed positions, whereby said actuator when in its normal extended position opens and closes said valve in response to cam shaft rotation and said engine operates as a power producer and when in its collapsed position said valve is only partially opened by said actuator and said engine operates as an energy dissipator for braking purposes, a fluid pump driven by an electric motor, said pump for delivering pressurized fluid to said actuator, the improvement wherein:



said electric motor includes a pinion gear adapted to engage an engine flywheel ring gear, means for engaging said pinion gear with said ring gear, and means for electrically connecting said motor to the storage battery of a vehicle, whereby said motor may be employed to drive said pump while driving said pinion gear in engagement with said engine flywheel ring gear.

4,333,431

WATER-COOLED TWO STROKE ENGINE HAVING EXHAUST PORT TIMING CONTROL VALVE MEANS

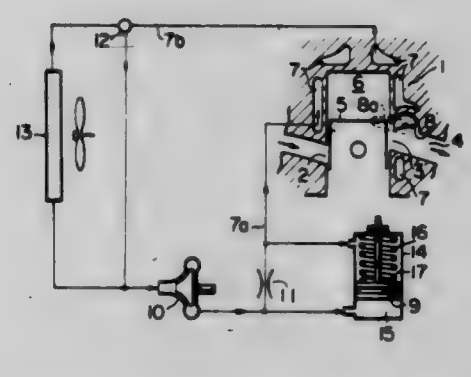
Toshimitsu Iio, Hamamatsu, and Yuusaku Yamaoka, Iwata, both of Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Japan

Filed Oct. 1, 1980, Ser. No. 192,860

Claims priority, application Japan, Oct. 17, 1979, 54-133863

Int. Cl.³ F02B *75/02*

U.S. Cl. 123—323 **5 Claims**



1. A water-cooled two stroke engine comprising cylinder means having cylinder wall means formed with exhaust port means, piston means provided in said cylinder means for reciprocating movement so that the exhaust port means is cyclically closed by the piston means, said exhaust port means being provided at an upper portion thereof with exhaust port timing control valve means, cooling water jacket means formed in said cylinder means, cooling water passage means having restriction means and leading to said jacket means for providing a supply of cooling water to said jacket means, actuator means for moving the valve means under a low engine speed to a position wherein it covers the upper portion of the exhaust port means so that exhaust port opening timing is retarded, said actuator means comprising pressure responsive movable means, operating pressure chamber means defined at one side of the movable means for applying said movable means with a

pressure in said cooling water passage means upstream of the restriction means, and compensating pressure chamber means defined at the opposite side of the movable means for applying the movable means with a pressure in said cooling water passage means downstream of the restriction means, said movable means being connected with said valve means so that the valve means is moved to a position wherein it uncovers the upper portion of the exhaust port means when the movable means is moved under a pressure in the operating pressure chamber means.

4,333,432

FUEL INJECTION PUMP

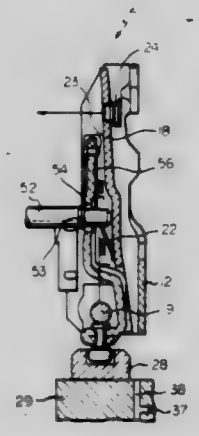
Masayoshi Kobayashi; Toru Sakuranaka, and Sachio Nakagawa, all of Higashi Matsuyama, Japan, assignors to Diesel Kiki Company, Ltd., Tokyo, Japan

Filed Mar. 3, 1980, Ser. No. 126,246

Claims priority, application Japan, Mar. 10, 1979, 54-29886[U]

Int. Cl.³ F02D *1/04, 1/06*

U.S. Cl. 123—366 **3 Claims**



1. A fuel injection pump including a pin, a start lever rotatable about the pin, a tension lever rotatable about the pin, a start spring urging the start lever away from the tension lever, engine driven flyweights urging the start lever toward the tension lever when rotated, a governor spring urging the tension lever toward the start lever and a fuel control member operatively connected to the tension lever, characterized by comprising:

a governor rod connected to the flyweights and being moved toward the tension lever upon rotation of the flyweights, the start lever being formed with a hole through which the governor rod extends, the governor rod being formed with a flange having a diameter larger than the hole for abutment with the start lever before an end of the governor rod abuts against the tension lever.

4,333,433

ELECTRONIC IGNITION SYSTEM WITH MECHANICAL ADVANCE

Richard W. Mattson, Rossford, Ohio, assignor to Eltra Corporation, Toledo, Ohio

Filed Mar. 17, 1980, Ser. No. 130,898

Int. Cl.³ F02P *5/04, 7/02*

U.S. Cl. 123—420 **11 Claims**

1. An ignition controller, comprising:

a rotatable shaft;

trigger rotor means operably connected to said shaft and movable therewith;

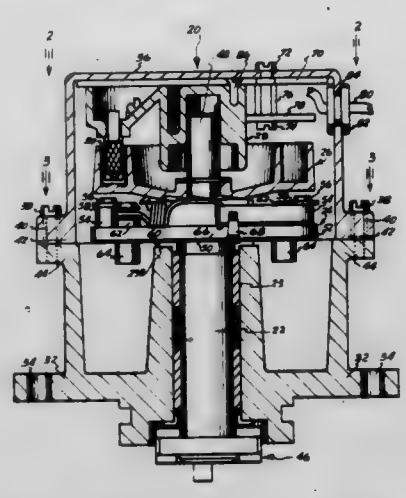
carrier means for supporting a sensing means;

said sensing means being affixed to said carrier means, and supplying an ignition control signal responsive to rotation of said shaft;

said carrier means including means for rotatably engaging said shaft and being located thereby;

whereby said trigger rotor means and said sensing means are referenced to said shaft and to each other;

said trigger rotor means including a first disk portion, said disk portion having a first wall portion perpendicular thereto peripheral to said disk portion and having a second wall



portion protruding therefrom parallel to said first wall portion;

a portion of said disk portion and an inner surface of said first wall portion and outer surface of said second wall portion defining an annular groove; and

a metallic portion being disposed in said annular groove.

4,333,434

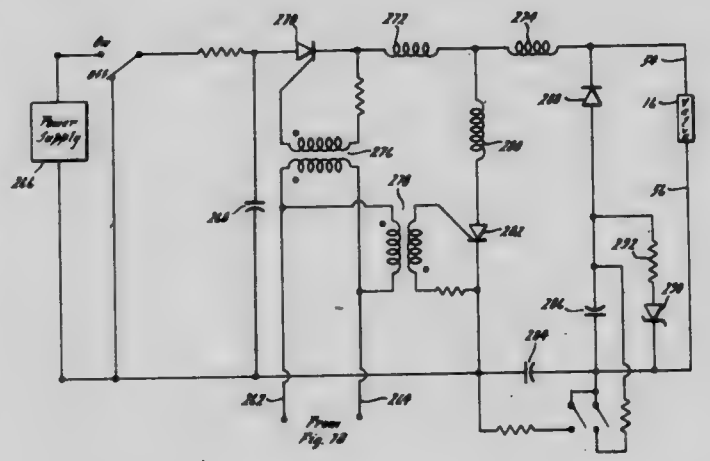
FUEL INJECTION SYSTEM, CONTROL VALVE AND ELECTRONIC CONTROL CIRCUIT

Ellsworth G. Brunais, Mt. Clemens, and Jay C. McCombie, West Bloomfield, both of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Filed Oct. 31, 1977, Ser. No. 846,737

Int. Cl.³ F04B *41/06;* B05B *1/30;* F02M *51/00*

U.S. Cl. 123—478 **4 Claims**



1. A fuel injection control system comprising:

a control valve including a piezoelectric stack for actuating the valve;

a control circuit for controllably energizing said stack comprising a source of DC potential, means for selectively connecting said source of DC potential to said stack including a charge circuit path via which said stack is charged from said source, said charge circuit including two series-connected inductances, and a discharge circuit for discharging said stack, said discharge circuit including one of said series-connected inductances and a third inductance, said one of said two series-connected inductances and said third inductance being connected in series, and further including energy storage means associated with said charge and discharge circuits for storing some of the energy from the stack via said one of said two inductances and said third inductance during stack discharge

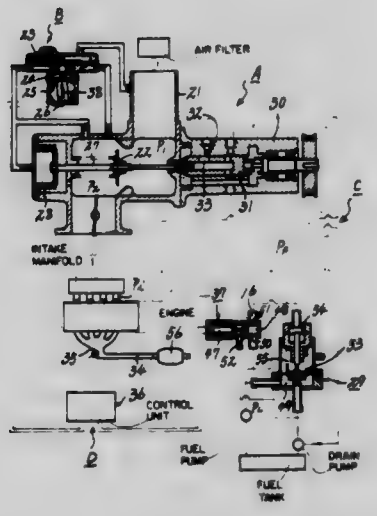
and for returning some of the stored energy to the stack via said first two series-connected inductances during charging of the stack.

4,333,435

FUEL INJECTION DEVICE

Tsugito Nakazeki, Iwata, and Haruhisa Harada, Kakegawa, both of Japan, assignors to NTN Toyo Bearing Company, Limited, Osaka, Japan

Filed Mar. 23, 1979, Ser. No. 23,281
Claims priority, application Japan, Apr. 24, 1978, 53/48868
Int. Cl.³ F02D *3/00, 5/02*
U.S. Cl. 123—489 **2 Claims**



1. An apparatus for controlling the air-fuel mixture of an internal combustion engine comprising:

a control mechanism for actuating a solenoid valve between opened and closed positions, said control mechanism including a triangular-wave generator capable of generating a triangular wave having a fixed amplitude and a fixed period and a comparing unit means for receiving said triangular wave and comparing said triangular wave with electrical signals received from a plurality of sensor means disposed within said engine;

a pressure regulating means connected to a fuel line of said engine, said pressure regulating means prescribing a pressure difference across a fuel metering gate, said solenoid valve being disposed so as to regulate signals between said control mechanism and said pressure regulating means, thereby adjusting said pressure regulating means in response to said electrical signals originating from said plurality of sensor means;

a fuel flow rate measuring and distributing means disposed in said fuel line and having said fuel metering gate disposed therein;

a throttle valve disposed within a suction pipe, said throttle valve regulating air flow into said engine;

an air flow rate detecting valve disposed within said suction pipe, said air flow rate detecting valve being connected to said fuel metering gate;

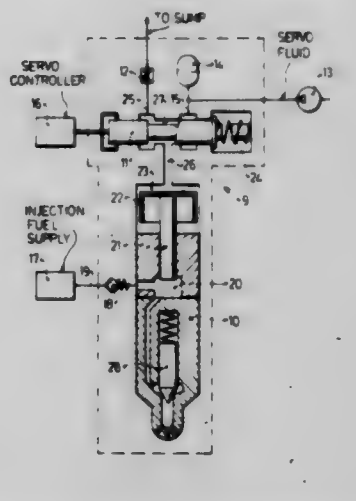
a servo-mechanism connected to said control mechanism, said servo-mechanism providing a constant pressure difference across said air flow rate detecting valve disposed within said suction pipe, whereby the air fuel ratio supplied to said engine is maintained at a desired constant value.

4,333,436

SERVO OPERATED INJECTION NOZZLE-PUMP COMBINATION WITH CONTROLLED RATE OF SERVO PRESSURE CHANGE

Odon Kopse, Stuttgart, and Kurt Ziesche, Remseck, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 9, 1979, Ser. No. 10,619
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1978, 2806788
Int. Cl.³ F02M *39/02*
U.S. Cl. 123—502 **12 Claims**



1. Fuel injection nozzle-pump combination for an internal combustion engine having

a nozzle body (10) formed with nozzle openings therein;

a fuel chamber (20) in said nozzle body;

a source of fluid fuel (17) in fuel communication with the chamber and providing a predetermined quantity of fuel thereto;

a pump piston (21) positioned in said body to exert pressure on the fuel fluid in said chamber and effect injection of fuel from the nozzle openings;

a source of pressurized servo fluid (13, 14, 15);

a servo fluid cylinder (23), said pump piston being subjected to pressure in said cylinder (23);

a control valve including a valve housing and a movable valve element (41, 51, 81) providing a fluid flow path for pressurized servo fluid and controlling by means of control edges admission of pressurized servo fluid from said source to said cylinder, said control valve having control edges (33, 37, 44, 96) at adjacent locations of said valve housing and movable valve element which form a throttle for fluid flow upon initial displacement of the movable element;

servo control means (16) controlling the positioning of the movable valve element of said control valve to thereby control, selectively, admission of said pressurized servo fluid to the cylinder and hence movement of the piston (21) into the fuel chamber to inject fuel from the nozzle openings

and wherein said valve, in addition to said control edges (33, 34, 37 34) further comprises additional throttle means (43, 48, 57, 86) forming a hydraulic choke or throttle for hydraulically choking or throttling the servo fluid, said additional throttle means being inserted in the servo fluid flow path upon initial displacement of the movable valve element (41, 51, 81) from a position blocking the fluid flow path to a position establishing an open unconstricted fluid flow path from the source of pressurized servo fluid (13, 14, 15) to the servo cylinder (23) to provide for initial controlled throttling of flow of the servo fluid being admitted to the servo cylinder and hence gradual buildup of pressure of the servo fluid acting on the pump piston (21) upon commencement of fuel injection.

4,333,437

TIMING CONTROL APPARATUS FOR FUEL INJECTION PUMP

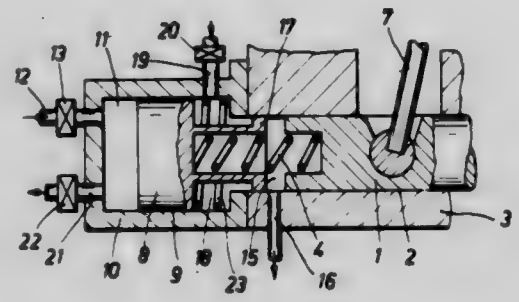
Ingolf Löhner, Brunswick; Konrad Barnert, and Günter Stein, both of Wolfsburg, all of Fed. Rep. of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Division of Ser. No. 894,944, Apr. 10, 1978, abandoned. This application Sep. 30, 1980, Ser. No. 192,617

Claims priority, application Fed. Rep. of Germany, Apr. 13, 1977, 2716307

Int. Cl.[3] F02M 59/32

U.S. Cl. 123—502 2 Claims



1. Apparatus for regulating the injection timing of a fuel injection pump in a diesel engine in accordance with engine temperature and speed, comprising:

(a) means for supplying a first fluid pressure proportional to engine speed;

(b) means for supplying a second fluid pressure, controlled according to engine temperature, including a source of said pressure and a valve;

(c) a first piston movably mounted in a cylinder and acted upon by said first fluid pressure;

(d) an actuating member connecting said piston to said fuel injection pump for advancing the injection timing of said pump upon movement of said first piston by said first fluid pressure;

(e) a spring means urging said first piston against said first fluid pressure; and

(f) a spring tension adjusting means comprising a movable control element engaging one end of said first spring means and acted upon by said second controlled fluid pressure to move in the direction of said first spring means thereby increasing said spring force against said first piston;

said apparatus further comprising a second piston movably mounted in a second cylinder and connected to an idle stop, a second spring means urging said second piston and said idle stop to an advanced idle position, and means for providing said second controlled fluid pressure to said second cylinder to act on said second piston in opposition to said second spring means and thereby to move said idle stop out of said advanced idle position.

4,333,438

DEVICE FOR RECYCLING EXHAUST GASES FOR A DIESEL ENGINE

Jean Perez, Rueil, and Jean-Claude Carnus, Paris, both of France, assignors to Automobiles Peugeot and Societe Anonyme Automobiles Citroen, both of Paris, France

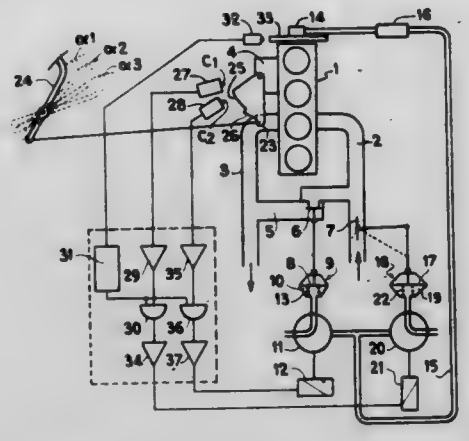
Filed Mar. 5, 1979, Ser. No. 16,949

Claims priority, application France, Mar. 22, 1978, 78 08335; Dec. 5, 1978, 78 34233

Int. Cl.[3] F02M 25/06

U.S. Cl. 123—569 22 Claims

1. A device for recycling exhaust gases for a Diesel engine comprising an induction pipe having a throttle member therein, an exhaust pipe, a connecting pipe interconnecting the induction pipe and the exhaust pipe, a closure member inserted in the connecting pipe, an accelerator pedal for the engine, said connecting pipe being connected to the induction pipe downstream of the throttle member relative to flow through the induction pipe, control means including closure means for activating the closure member to prevent recycling when the speed of the engine is below a first predetermined non zero value and also when the accelerator pedal passes beyond a first predetermined limit; said control means further including throttle means for switching the throttle member to pass in a



step-wise fashion between two distinct positions, a relatively open position to a relatively closed position, when both the speed of the engine is above a second predetermined value and the accelerator pedal has not passed a second predetermined limit and for switching the throttle member to pass in a step-wise fashion from said relatively closed position to a relatively open position when the accelerator pedal has passed said second predetermined limit.

4,333,439

APPARATUS FOR CONTROLLING THE EXHAUST GAS RECIRCULATION RATE IN AN INTERNAL COMBUSTION ENGINE

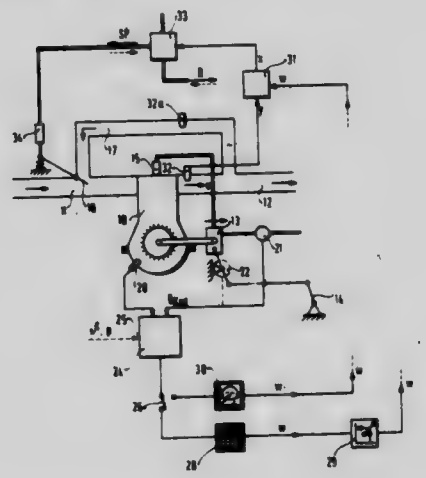
Klaus Müller, Tamm; Helmut Maurer, Schwieberdingen; Franz Rieger, Aalen, and Ernst Linder, Mühlacker, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 4, 1980, Ser. No. 127,158

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1979, 2911209

Int. Cl.[3] F02M 25/06

U.S. Cl. 123—569 9 Claims



1. A system for controlling exhaust gas recirculation rate in an internal combustion engine having an auto-ignition comprising:

an air intake manifold;

an exhaust manifold;

an exhaust recirculation line extending from said exhaust manifold to a junction with said air intake manifold;

a mixture valve in an area of the junction of said exhaust circulation line with said air intake manifold;

control means for controlling positions of said mixture valve relative to said junction and said air intake manifold;

a data detection apparatus for detecting different operational variables of said engine and producing an output signal in accordance with said operational variables;

set-point value means for receiving said output signal from said data detection apparatus, said means producing an output signal representing given set-point values;

at least one oxygen sensor for producing an output signal corresponding to oxygen concentrations;

a closed-loop control apparatus for receiving said set-point values from said means for receiving output signals from said data detection apparatus and from said at least one oxygen sensor, said closed-loop control apparatus having an output related to said set-point values and oxygen concentration;

a converter means for receiving said output signal from said closed-loop control apparatus and directing an output signal to said mixture valve control means for positioning said mixture valve relative to said junction and said air inlet manifold.

4,333,440

APPARATUS FOR CONTROLLING RECIRCULATED EXHAUST GAS QUANTITIES IN SELF-IGNITING INTERNAL COMBUSTION ENGINES

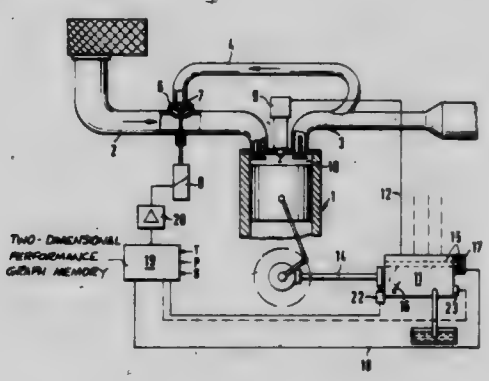
Franz Eheim, Stuttgart, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 4, 1980, Ser. No. 127,159

Claims priority, application Fed. Rep. of Germany, Mar. 10, 1979, 2909465

Int. Cl.³ F02M *25/06*

U.S. Cl. 123—569 **2 Claims**



1. An apparatus for controlling recirculated exhaust gas quantities in self-igniting internal combustion engines supplied with fuel from a fuel injection pump comprising:

a quantity adjusting device attached to the fuel injection pump to control fuel quantity;

an air intake manifold connected to an internal combustion engine,

an exhaust gas recirculation line connected from an exhaust manifold of the engine leading and coupled into the air intake manifold;

an rpm transducer connected to a drive shaft of the injection pump;

an exhaust gas quantity control member having an adjusting magnetic valve means and a closing element positioned in the exhaust gas recirculation line;

a travel path transducer connected to detect the position of the quantity adjusting device;

a performance-graph memory means connected to the exhaust gas quantity control member, the rpm transducer and the travel path transducer, and which generates an exhaust gas recirculation quantity control signal to the adjusting magnetic valve means such that the closing element is selectively positioned to open a pre-determined cross-section of the exhaust gas recirculated line according to injection pump drive shaft rpm and quantity adjusting device position.

4,333,441

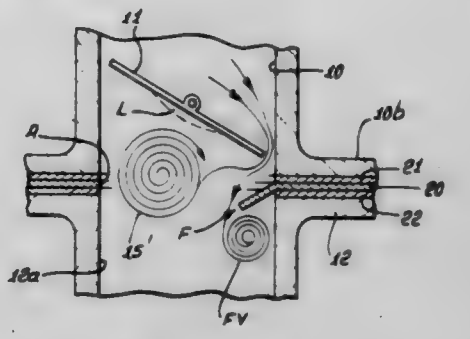
DEVICE FOR IMPROVING THE FUEL-GAS AIR MIXTURE AND THE OPERATION OF AN INTERNAL COMBUSTION ENGINE

Thomas W. Still, 3013 Sanignacio, and William H. Sherlock, 3357 Granada Ave., both of El Monte, Calif. 91731

Filed Mar. 21, 1980, Ser. No. 132,613

Int. Cl.³ F02M *29/00*

U.S. Cl. 123—590 **21 Claims**



1. A device for use with a throttle valve of a conventional carburetor-manifold system of an internal combustion engine,

said device comprising a bore of essentially the same size as the carburetor-manifold bores to convey a fuel-air mixture therethrough to the internal combustion engine,

said bore being constructed and defined with no more than 180 degrees of its bore diameter with means constructed and defined to extend inwardly of the periphery of the bore for intercepting a portion of said mixture from only the descending portion of the throttle valve with a minimum restriction to the flow of said mixture into the manifold and without impeding the opening movement of the carburetor throttle valve,

said means being further characterized as creating a turbulence in the intercepted portion of said mixture immediately below said means.

16. A method of improving the mixing of fuel and air for use in an internal combustion engine having a carburetor, the carburetor having a throttle valve immediately adjacent the outlet bore of the carburetor for controlling the volume of the fuel-air mixture flowing out of the carburetor past the throttle valve and into the internal combustion engine by means of a manifold connected therebetween during the opening of the throttle valve from a closed position to open positions over normal driving speeds of the vehicle equipped with the internal combustion engine creating a normally large rotating vortex immediately below the fuel exit side of the throttle valves, including the steps of

intercepting the flow of the fuel-air mixture by means of a surface immediately after the mixture flows between the adjacent surface of the outlet bore and only the lower edge of the descending portion of the throttle valve of the carburetor, and

shaping the intercepting surface to cause the intercepted fuel-air mixture to create a plurality of relatively small vortices rotating in a plane parallel to and interfering with said large vortex to thereby reduce the back pressure created at the throttle valve whereby an increased volume, and more thoroughly mixed fuel-air mixture flows into the internal combustion engine.

4,333,442

CAPACITOR DISCHARGE IGNITION SYSTEM AND METHOD OF MANUFACTURE THEREOF

Ronald J. Wolf, Zanesville, Ind., assignor to Wabash, Inc., Wabash, Ind.

Continuation-in-part of Ser. No. 105,234, Dec. 19, 1979, abandoned. This application Jul. 24, 1980, Ser. No. 171,705

Int. Cl.³ F02P *1/00*

U.S. Cl. 123—599 **19 Claims**

1. In a capacitor discharge ignition system for use with and positioned adjacent a rotating magnetic field in synchronism

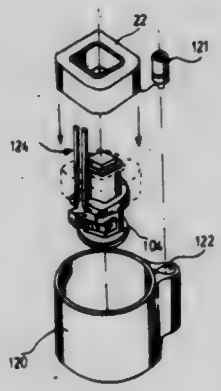
with the operation of an engine, a capacitor discharge ignition sub-assembly for mounting on a ferromagnetic core, the capacitor discharge ignition sub-assembly comprising:

an auxiliary coil;

an ignition transformer including primary and secondary coils;

a coil support member, said auxiliary coil and said primary and secondary coils being concentrically disposed on said coil support member about a common axis;

electrical circuitry means interconnecting said auxiliary coil and said primary coil and being responsive to said auxiliary coil for providing energy to said primary coil in response to induced electrical energy in said auxiliary coil as a result of the rotating magnetic field; and



a housing for receiving and enclosing said auxiliary coil, said ignition coil and said circuitry means, said auxiliary coil being disposed about a first portion of said coil support member, said ignition transformer being disposed about a second portion of said coil support member adjacent said first portion and said electrical circuitry means being disposed about said auxiliary coil and between said auxiliary coil and said housing,

said auxiliary coil being fabricated having a coil height dimension that is a substantial portion of the outer winding diameter dimension of said auxiliary coil, said substantial portion being at least a factor of one-half.

4,333,443

COMPOUND BOW AND BOW CABLING SYSTEM

David Roelle, Pine Bluff, Ark., assignor to Ben Pearson Archery Inc., Pine Bluff, Ark.

Filed Oct. 14, 1980, Ser. No. 196,470
Int. Cl.³ F41B 5/00
U.S. Cl. 124—24 R **20 Claims**

11. A compound bow adapted for quick disassembly, said bow comprising:

handle means adapted to be manually grasped by an archer;

first and second resilient limb means extending outwardly from said handle means terminating respectively in first and second limb end portions;

first and second eccentric pulley means revolvably coupled to said first and second limb end portions respectively;

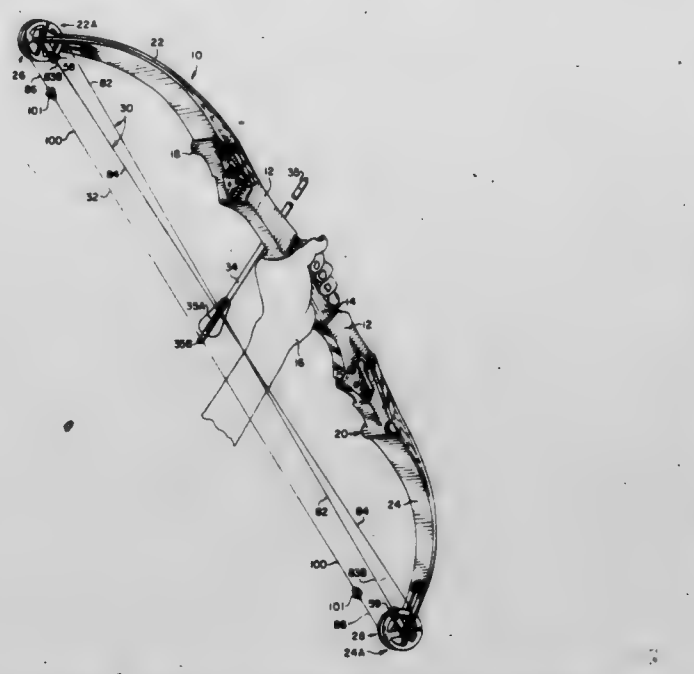
a segmented cable system comprising:

a pair of pulley cables, each pulley cable having a first end revolvably associated with one of said pulley means at one of said limb end portions and a second end secured to said bow;

a bowstring adapted to extend between said first and second limb ends for propelling an arrow; and,

a pair of string cables each having a first end revolvably associated with one of said pulley means at one of said limb end portions and coupled to one of said pulley cable first ends, each string cable including a second end removably coupled to said bowstring; and,

coupling members secured to said pulley cable first ends and to said string cable first ends, said coupling members adapted to be selectively secured together whereby to



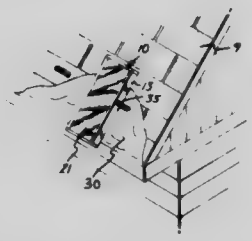
connect a pulley cable to a string cable thereby joining said segmented cable system.

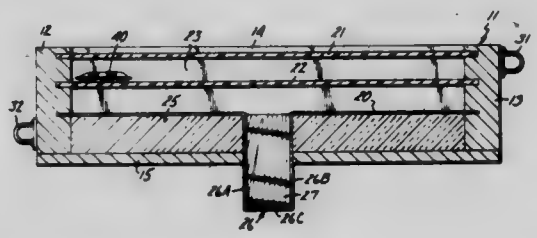
4,333,444

SOLAR POWERED ICE MELTER FOR ROOFS

Roger I. Sell, 4824 W. 99th St., Bloomington, Minn. 55437, and Irving W. Sell, Minneapolis, Minn., assignors to Roger I. Sell, Bloomington, Minn.

Filed Apr. 4, 1980, Ser. No. 137,251
Int. Cl.³ F24J 3/02
U.S. Cl. 126—417 **12 Claims**



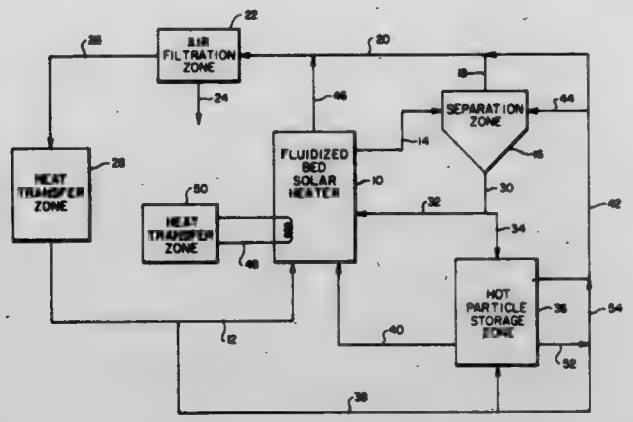


1. A portable solar collector for melting ice and preventing ice formation along a path down a sloping supporting surface on which the collector is mounted comprising a housing with a bottom wall, means on said housing forming a solar energy absorber with a heat absorbent surface for converting solar energy into heat, and an elongated heat conductor having a rib surface smaller in area than the heat absorbent surface extending to the outside of said housing through an opening in the bottom wall and in heat transfer relationship to said absorber, whereby heat from said absorber is transferred to and concentrated in said conductor, and said rib surface conducts heat to material in contact therewith.

4,333,445
FLUIDIZED BED SOLAR ENERGY HEATER

Donald M. Lee, 92 S. Altamont Rd., Huntington, W. Va. 25701

Filed Jan. 24, 1980, Ser. No. 115,241
Int. Cl.[3] F24J *3/02*
U.S. Cl. 126—436 11 Claims



1. In combination, a fluidized bed of dark particles contained within a solar heater, a gas filter, a zone for receiving heat, means for separating said particles from a gas and a storage zone for storing heated particles, including:

means for transmitting and admitting unheated gas to the solar heater under sufficient volume and pressure to maintain the particles within the solar heater in the physical state of a fluidized bed,

said solar heater being an enclosed container covered by a transparent wall facing in the direction of the sun whereby the rays of the sun will pass through said wall and heat the contents of said container,

means for receiving heated gas from said solar heater and transporting it to the gas filter, said gas filter including means to separate said gas from solids entrained therein,

means for transporting gas from said gas filter to the zone for receiving heat,

means for transporting heated gas and particles from said solar heater to a separator, said particles being in the physical state of a transported bed in their movement from the heater to the separator, said separator including means for separating said gas from said particles,

means for transporting heated gas from said separator to said gas filter,

means for transporting said heated particles from said separator to said storage zone,

means for passing unheated gas through the heated particles in the storage zone and subsequently to the gas filter, and

means for transporting cooled particles from said storage zone to the solar heater.

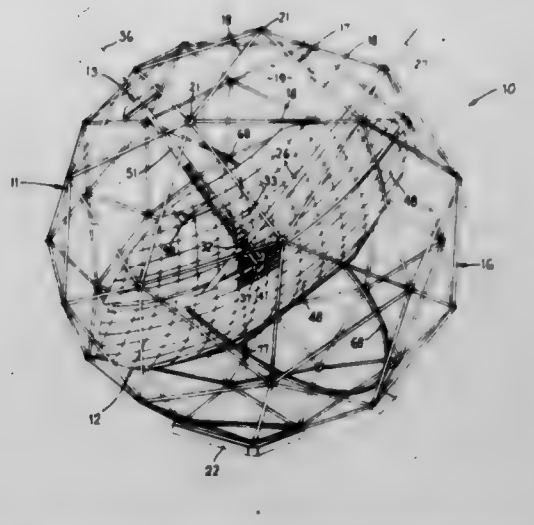
4,333,446
SOLAR CONCENTRATOR

Jerry S. Smyth, Huntington Twp., Huntington County, Ind., assignor to Smyth Aerodynamics, Inc., Huntington, Ind.

Filed May 16, 1980, Ser. No. 150,524
Int. Cl.[3] F24J *3/02*
U.S. Cl. 126—438 10 Claims

1. In a solar concentrator having a stationary support frame, a dish-shaped reflector assembly movably supported on said frame for angular displacement about first and second substantially perpendicular axes, and first and second drive means interconnected to said reflector assembly for effecting angular displacement thereof relative to said frame about the respective first and second axes, comprising the improvement wherein:

said stationary support frame is an open ball-like framework formed as a geodesic dome, a support shaft extending substantially diametrically across the interior of said open framework and having the opposite ends thereof supported on said framework, said support shaft defining said first axis and being oriented to extend substantially parallel with the earth's north-south axis, support means hingedly supported on said support shaft substantially at the midpoint thereof for permitting angular displacement of said support means relative to said support shaft about said

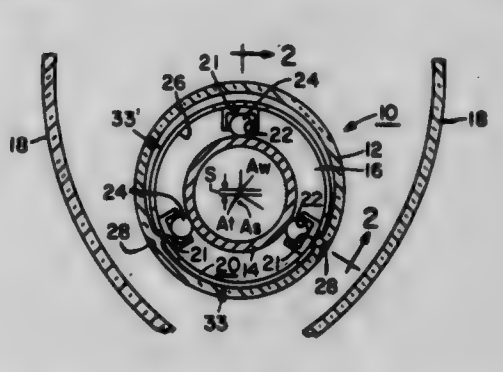


second axis, and said dish-shaped reflector assembly being surrounded by and entirely positioned within the interior of said ball-like framework and fixedly secured to said support means so as to be movable within said open framework.

4,333,447
SOLAR RECEIVER TUBE SUPPORT

Craig M. Lemrow, Big Flats, and Arthur H. Wilder, Corning, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Jun. 4, 1980, Ser. No. 156,761
Int. Cl.[3] F24J *3/02*
U.S. Cl. 126—443 14 Claims



1. In a solar energy collector having a solar window portion and a thermally cyclical solar energy receiver element located therewithin, a support for the receiver element adapted to locate same in spaced relation with respect to the window and to accommodate linear expansion and contraction of the receiver element relative to the window due to thermal cycles thereof, the support comprising; a bearing adapted to engage opposed surfaces of the receiver element and the window including a plurality of roller bearings being selectively located between the opposed surfaces of said window and said receiver for spacing one from the other and being free to rollably carry the receiver element as it expands and contracts during thermal cycles, and a frame member located between said opposed surfaces of said window and said receiver including retainer means for associatively accommodating one each of the roller bearings therein and securing each to a limited path of rotation relative to the window and the receiver element during each thermal cycle.

4,333,448

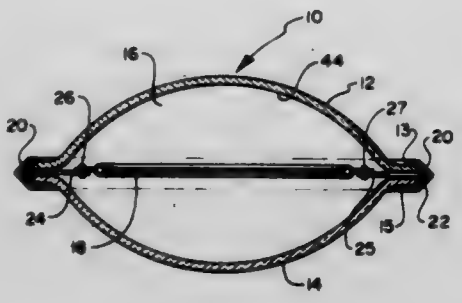
SOLAR ENERGY ABSORBER APPARATUS AND METHOD

Steven A. Johnson, 136 N. 1st West, Preston, Id. 83263

Division of Ser. No. 711,334, Aug. 3, 1976, Pat. No. 4,185,616. This application Sep. 21, 1979, Ser. No. 77,805

Int. Cl.[3] F24J *3/02*

U.S. Cl. 126—452 4 Claims



1. A method for absorbing solar energy in the form of heat in a liquid comprising the steps of:

preparing an absorber panel for the absorption of solar energy comprising combining a liquid flow channel with a solar energy absorbing material and forming the combination into a surface;

forming an enclosure for the absorber panel by fabricating an upper panel from transparent material with a curvilinear surface having its periphery in a single plane and joining a lower panel thereto, the lower panel having a curvilinear surface and a periphery in a single plane, the periphery of the lower panel dimensionally corresponding to the periphery of the upper panel;

enclosing the absorber panel in the enclosure;

sealing the periphery of the enclosure;

creating a vacuum condition within the enclosure thereby insulating the absorber panel from convective and conductive heat losses;

compressing the enclosure around its periphery by applying a compressive force parallel to the plane formed by the juncture of the peripheries of the upper and lower panels to compensate for the tension placed on the periphery of the enclosure by the vacuum condition in the enclosure; and

exposing the absorber panel to solar radiation.

4,333,449

WATER RESISTANT ADHESIVE STRIP

Heinz Müller; Peter Jauchen, both of Hamburg; Bodo Szonn, Kisdorf, and Rolf Schulze, Hamburg, all of Fed. Rep. of Germany, assignors to Beiersdorf Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 11, 1981, Ser. No. 272,596

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1980, 3022605

Int. Cl.[3] A61F *13/00*

U.S. Cl. 128—155 9 Claims

1. In a water-resistant adhesive strip comprising a support having a back and front, and an adhesive layer on said front, the improvement which comprises said support being a porous, thin fiber web, elastic in at least one direction, and having a pore size of 0.5 to 2.0 mm, a thermosetting, water-impermeable lacquer layer about 5 to about 10 microns thick on said back, said lacquer layer is joined to said web by a porous, elastic intermediate layer, said lacquer layer being less elastic than said support in at least one direction, whereby cracking of said lacquer layer occurs under stretching of said support.

4,333,450

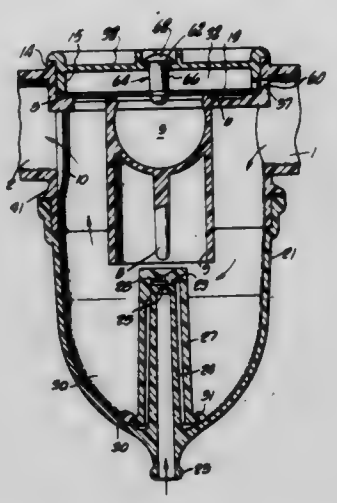
NEBULIZER-MANIFOLD

Victor E. Lester, P.O. Box 608, Sonora, Calif. 95370

Continuation of Ser. No. 750,510, Dec. 14, 1976, abandoned, which is a continuation-in-part of Ser. No. 635,902, Nov. 28, 1975, abandoned, which is a continuation-in-part of Ser. No. 523,123, Nov. 12, 1974, abandoned. This application Apr. 11, 1980, Ser. No. 139,259

Int. Cl.[3] A61M *11/00*

U.S. Cl. 128—200.14 7 Claims



2. A nebulizer-manifold device for introducing a spray into a low pressure main gas stream, comprising:

a body member defining a nebulizer bowl and an exhalation control chamber including a cover member having an opening and a vent valve movably disposed in said opening, said body member including a main gas inlet, a patient connector port and an exhalation port;

said main gas inlet and said patient connector port in open communication with said nebulizer bowl and through which gas from the low pressure main gas stream flows, said patient connector port adapted to be in communication with said exhalation port;

a pressure sensitive member comprising a flexible diaphragm member separating said nebulizer bowl and said exhalation control chamber and extending across said exhalation port and adapted to close said exhalation port during an inhalation phase when the gas flows from said main gas inlet through said nebulizer bowl into said patient connector port; and

a passageway communicating low pressure gas from said main gas inlet to said exhalation control chamber to close said exhalation port during the inhalation phase, said vent valve being connected to a flexing portion of said diaphragm member to thereby close said valve during an inhalation phase and to open said valve during an exhalation phase.

4,333,451

POSITIVE PRESSURE BREATHING APPARATUS WITH CONDENSATE REMOVAL

Bernard R. Paluch, 1607 Cedar La., Mt. Prospect, Ill. 60056

Filed Dec. 12, 1980, Ser. No. 215,832

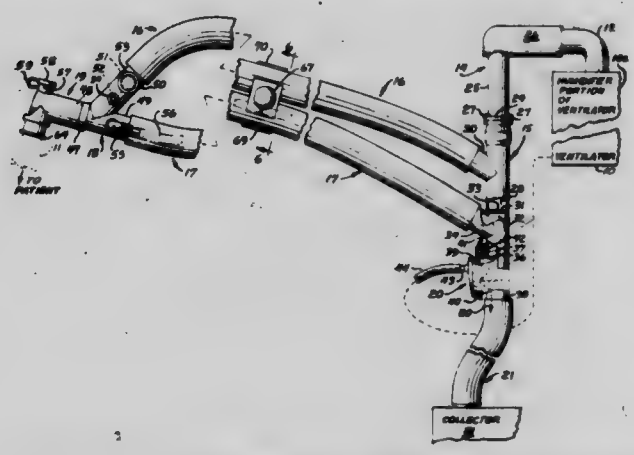
Int. Cl.[3] A61M *16/00*

U.S. Cl. 128—205.12 18 Claims

2. A condensate removal system for use with a ventilation circuit extending between a patient and a ventilator having means for conditioning the air, wherein said circuit includes a manifold having an interior chamber and including internal wall means dividing the interior chamber of the manifold into an inhalation chamber having a lowermost portion and an exhalation chamber having a lowermost portion with the lowermost portion of the inhalation chamber being positioned above the lowermost portion of the exhalation chamber, said manifold having a lowermost portion communicating with the

lowermost portion of said exhalation chamber and an exhaust conduit connection in that lowermost portion, an air-supply conduit having one end connected to said inhalation chamber and the other end adapted to be connected to the ventilator, a patient inspiratory conduit connected to the manifold and communicating with the inhalation chamber above the lowermost portion thereof, a patient expiratory conduit connected to the manifold and communicating with said exhalation chamber above the lowermost portion thereof, a discharge conduit connected to the exhaust conduit connection of the manifold, conduit means adjacent the patient and to which the inspiratory and expiratory conduits are connected with the conduit means providing fluid communication between the inspiratory and expiratory conduits, and valve means mounted in the manifold for controlling the flow of fluid from the expiratory chamber to the discharge conduit, said valve means adapted to be connected to the ventilator for timing the opening and closing of the valve means in accordance with selected modes of patient ventilation, said condensate removal system being characterized by:

said valve means being positioned in the manifold between the lowermost portion of the exhalation chamber and said



lowermost portion of the manifold to control the flow of fluid therebetween, said manifold having air-supply conduit and inspiratory conduit connections to which said air-supply conduit and inspiratory conduit are connected and communicate with said inhalation chamber and an expiratory conduit connection to which said expiratory conduit is connected and communicates with said exhalation chamber, and said wall means including a lower wall portion defining an orifice forming a fluid communication between the inhalation and exhalation chambers;

whereby liquid accumulating in the exhalation conduit will drain into the exhalation chamber and liquid accumulating in the inhalation chamber will drain through the orifice into the exhalation chamber and thence pass through the valve means, when open, to the exhaust conduit connection, and said orifice presents a substantial resistance to the flow of air between the two chambers as compared to the resistance to the flow of air between the two chambers that exists through the inspiratory and expiratory conduits and their fluid communication at the conduit means to the end that the orifice is virtually closed to the passage of air during normal operation of the ventilation circuit.

4,333,452

PRESSURE CONTROL SYSTEMS

Anthony S. Au, P.O. Box 2593 Station A, Sudbury, Ontario, Canada (P3A 4S9)

Division of Ser. No. 809,802, Jun. 24, 1977, Pat. No. 4,178,938.
This application Aug. 7, 1979, Ser. No. 64,378
Int. Cl.³ A61M *16/00*
U.S. Cl. 128—205.24 **1 Claim**

1. In an expiratory system having an expiratory passage, the improvement of: means for generating a positive and expiratory pressure comprising a pneumatic valve comprising:

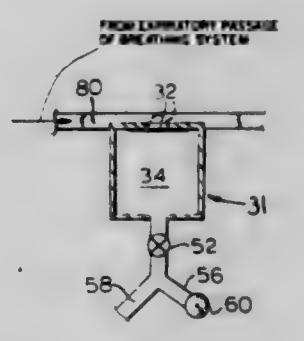
(a) a body,

(b) a through passage opening through said body, said through passage having a longitudinally extending first side wall which is arcuate in shape in a direction transverse to its longitudinal extent,

(c) an enclosed pressure chamber formed in said body and disposed outwardly from said through passage,

(d) a valve passage extending between said pressure chamber and said through passage, said valve passage having a first end disposed opposite and opening toward said first side wall of said through passage,

(e) a flexible valve closure member mounted in said body and extending across said first end of said valve passage to close said valve passage, said flexible closure member being disposed opposite said first side wall of said through passage in a face-to-face relationship therewith and being extendable from a first position in which it is spaced from said first side wall to permit free flow of fluid through said



through passage to a second position in which it extends into engagement with said first side wall to close said through passage in response to variations in the differential pressure between the pressure in said pressure chamber and the pressure in said through passage,

(f) an input passage means opening into said pressure chamber for admitting air under pressure to and venting air from said pressure chamber,

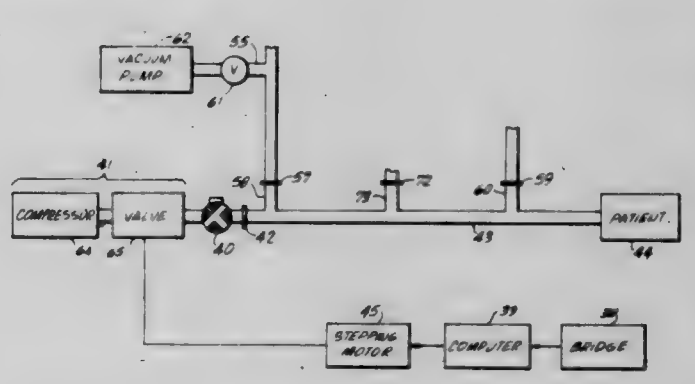
(g) valve means in said single input passage which is operable for selectively opening and closing said input passage whereby said valve is closed it completely isolates said pressure chamber such that after pressurizing said pressure chamber, said valve may be closed and said pneumatic vent valve may operate automatically to open and close said through passage as required in use.

4,333,453

RESPIRATOR VALVE

Jerome A. Rodder, 775 Sunshine Dr., Los Altos, Calif. 94022

Division of Ser. No. 951,167, Oct. 13, 1978, Pat. No. 4,262,689.
This application May 13, 1980, Ser. No. 149,486
Int. Cl.³ A61M *16/00*
U.S. Cl. 128—205.24 **5 Claims**



1. A respirator comprising:

a gas compressor;

a tee connection having first, second, and third legs;

a sealless control valve having an inlet to which the compressor is connected and an outlet connected to the first leg of the tee connection, the control valve having a chamber therein communicating with said inlet and outlet

and adjustable means freely mounted in said chamber to provide a minimum flow position and a maximum flow therethrough to change the flow rate between the inlet and outlet, said adjustable means being freely mounted in said chamber such that gas continuously leaks through the valve from inlet to outlet;

a vacuum source;

flow control means connecting the second leg of the tee connection to the vacuum source for continuously drawing gas away from the tee connection such that substantially none of said gas flowing from said valve in its minimum flow setting passes into said third leg thereby compensating for the gas leakage through the valve; and

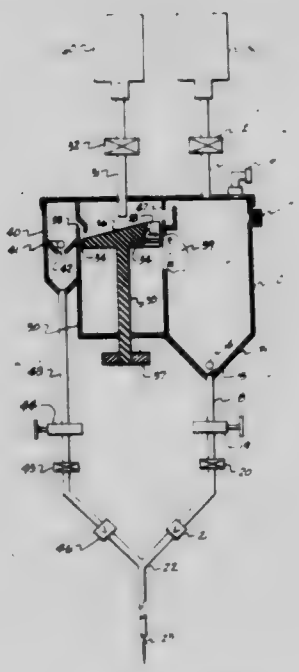
a patient breathing tube connected to the third leg of the tee connection.

4,333,454

AUTOMATIC TUBULAR FEEDING APPARATUS AND METHOD

Thomas S. Hargest, III, 1078 Winslow Dr., Charleston, S.C. 29412

Filed Jan. 14, 1980, Ser. No. 111,609
Int. Cl.³ A61M *5/00*
U.S. Cl. 128—214 R **27 Claims**



1. A system for tubular administration of a first medical solution with automatic conversion to administration of a second medical solution when administration of the first medical solution is substantially complete comprising:

(a) a housing;

(b) a first reservoir located in said housing and being adapted to receive a predetermined quantity of said first solution, said reservoir having floating ball valve means associated therewith that automatically open in the presence of a quantity of said first solution and close in the absence of first solution, said first reservoir means further being associated with solution discharge means;

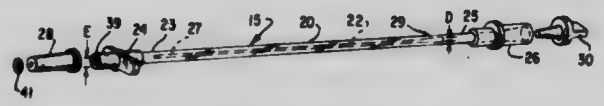
(c) a second reservoir located in said housing in communication with said first reservoir, said second reservoir having a wall movable therein to preset the volumetric capacity thereof at a volume less than the volume of first solution to be received in said first reservoir, said second reservoir further having an overflow chamber in communication therewith, said overflow chamber having floating ball valve means associated therewith, said valve means opening in the presence of a quantity of said second solution and closing in the absence of second solution, said overflow chamber valve means being associated with solution discharge means and said second reservoir being adapted for association with a source of second solution, both said solution discharge means being connectable with a means for feeding said solutions to the body of a patient, said effective volumetric capacity of said second reservoir being such that second solution flowing into said chamber during feeding of first solution from said first reservoir will overflow into said overflow chamber just prior to completion of discharge of said first solution, whereby second solution discharge from said second reservoir automatically initiates without height dependence of said first or second solution.

4,333,455

INJECTABLE CATHETER AND METHOD OF PLACING SAME

Raymond O. Bodicky, St. Louis, Mo., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed Dec. 26, 1979, Ser. No. 106,493
Int. Cl.³ A61M *5/00*
U.S. Cl. 128—214.4 **8 Claims**



1. A catheter placement device for propelling an elongate flexible and elastic catheter into a body passageway;

an elongate tubular means having a hollow internal cavity throughout the length thereof, said tubular means being substantially straight and having a longitudinal axis throughout the length thereof, an enlarged proximal portion on said flexible and elastic catheter; said flexible and elastic catheter being disposed completely within said tubular means and having a longitudinal axis lying along a longitudinal axis of said tubular means; said tubular means having an internal diameter slightly greater than the external diameter of the elastic catheter and of the enlarged proximal portion of said elastic catheter to support the catheter along its length;

an introducer cannula having one end portion insertable into said body passageway;

means for connecting a distal end of said tubular means with said introducer cannula; and

dispensing means removably connected to a proximal end of said tubular means for selectively expelling fluid into said tubular means for propelling said flexible and elastic catheter along the axis of said tubular means and out of the distal end of said tubular means and partially through said introducer cannula and partially into said body passageway.

4,333,456

SELF-ASPIRATING HYPODERMIC SYRINGE AND SELF-ASPIRATING ASSEMBLY THEREFOR

William G. Webb, Rensselaer, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

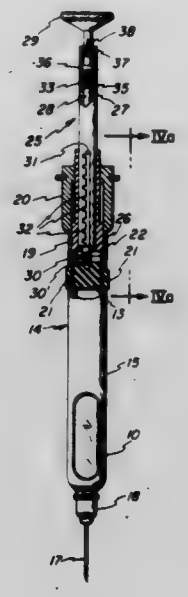
Filed Feb. 9, 1981, Ser. No. 232,630
Int. Cl.³ A61M *5/22*
U.S. Cl. 128—218 R **40 Claims**

1. A self-aspirating hypodermic syringe of the type used in combination with a cartridge ampoule which is sealed at its upper end by a slidable piston and at its lower end by a pierceable membrane and which contains an injectable fluid therein, the syringe having a double ended needle attached thereto for communication with the cartridge ampoule contents via the pierceable membrane, said syringe comprising in combination:

(A) a syringe holder comprising a head, a barrel attached thereto for receiving said cartridge ampoule and provided at its lower end with a double ended needle, and a generally cylindrical holding means within said head which is adapted to securely hold said cartridge ampoule within said barrel; and

(B) a self-aspirating assembly slidable within the bore of said

holding means comprising a pair of plungers, one slidable within the other, said plungers being biased one against the other, the inner plunger being adapted for positive interengagement with said slidable piston of said cartridge ampoule and the outer plunger being adapted for positive, selective and reversible locking with said holding means thereby to immobilize said outer plunger against axial movement relative to said syringe holder and cartridge ampoule,



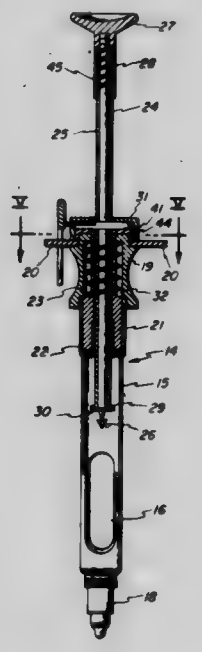
whereby upon alternate exertion of downward pressure upon said inner plunger while said outer plunger is locked and release of said downward pressure, the said bias of said inner plunger against said outer plunger creates aspirating conditions within said cartridge ampoule and whereby upon exertion of downward pressure upon said inner plunger while said outer plunger is unlocked, said inner and outer plungers are freely slidable within the bore of said holding means.

4,333,457

SELF-ASPIRATING SYRINGE WITH FRICTIONALLY ENGAGED LOCKING COLLET

Herman Margulies, South Orange, N.J., assignor to Sterling Drug Inc., New York, N.Y.

Filed Feb. 9, 1981, Ser. No. 232,633
Int. Cl.³ A61M 5/22
U.S. Cl. 128—218 R **10 Claims**



1. A self-aspirating hypodermic syringe of the type used in combination with a cartridge ampoule which is sealed at its upper end by a slidable piston and at its lower end by a pierceable membrane, and which contains an injectable fluid therein, which comprises a syringe holder having:

(A) a head;

(B) a barrel attached thereto for receiving said cartridge ampoule and provided at its lower end with a double ended needle for communication with the cartridge ampoule contents; and

(C) a generally cylindrical holding means within said head, said holding means being adapted:

(1) to securely hold said cartridge ampoule within said barrel;

(2) to receive within the bore thereof a double plunger mechanism comprising an inner plunger slidable within the bore of, and biased against, an outer plunger, said inner plunger having interengagement means for making positive interengagement with the slidable piston closing the upper end of said cartridge ampoule; and

(3) to generate frictional resistance to axial movement of said outer plunger,

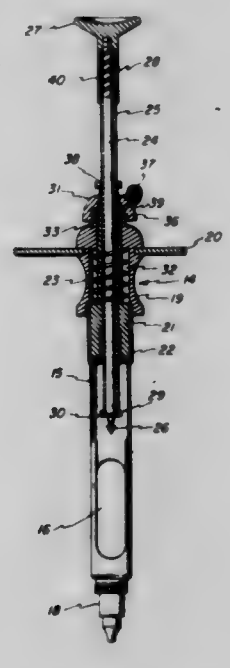
whereby upon alternate exertion of downward pressure upon said inner plunger and release thereof when said frictional resistance is generated, the bias of said inner plunger against said outer plunger creates aspirating conditions in said ampoule.

4,333,458

SELF-ASPIRATING SYRINGE WITH POSITIVELY ENGAGED LOCKING COLLET

Herman Margulies, South Orange, N.J., and William G. Webb, East Greenbush, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Feb. 9, 1981, Ser. No. 232,634
Int. Cl.³ A61M 5/22
U.S. Cl. 128—218 R **7 Claims**



1. A self-aspirating hypodermic syringe of the type used in combination with a cartridge ampoule which is sealed at its upper end by a slidable piston and at its lower end by a pierceable membrane, and which contains an injectable fluid therein, which comprises a syringe holder having:

(A) a head;

(B) a barrel attached thereto for receiving said cartridge ampoule and provided at its lower end with a double ended needle for communication with the cartridge ampoule contents; and

(C) a generally cylindrical holding means within said head, said holding means being adapted for:

(1) securely holding said cartridge ampoule within said barrel;

(2) receiving within the bore thereof a double plunger mechanism comprising an inner plunger slidable within the bore of, and biased against, an outer plunger, said inner plunger having interengagement means for making positive inter-

engagement with the slidable piston closing the upper end of said cartridge ampoule; and

(3) positively, selectively and reversibly locking said outer plunger within the head of said syringe holder thereby to immobilize said outer plunger against axial movement relative to said syringe holder, whereby upon alternate exertion of downward pressure upon said inner plunger and release thereof when said holding means is in locking engagement, the bias of said inner plunger against said outer plunger creates aspirating conditions within said ampoule and whereby upon exertion of downward pressure upon said inner plunger when said holding means is unlocked, said inner and outer plungers are freely slidable within the bore of said holding means.

4,333,459

INTRAMUSCULAR INJECTION DEVICE SUITABLE FOR INSULIN INJECTIONS

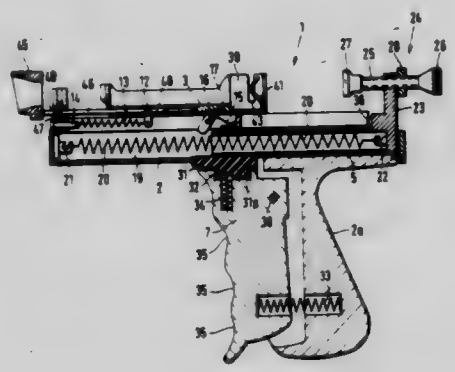
Michael Becker, Brucknerstrasse 6, D-5020 Frechen-Grefrath, Fed. Rep. of Germany

Filed Mar. 4, 1981, Ser. No. 240,259

Claims priority, application Fed. Rep. of Germany, Mar. 12, 1980, 8006721[U]

Int. Cl.³ A61M *5/20*

U.S. Cl. 128—218 F **11 Claims**



1. An injection device for intramuscular injection of a medicament comprising:

a guiding housing (2) having a pistol grip (2*a*) depending therefrom, a trigger member (7) forwardly adjacent said pistol grip (2*a*) and movable with respect thereto and to said housing, and a first spring (33) opposing the pulling of said trigger member back against said pistol grip;

a push member (5) for actuating the injection device movable in a first guideway (19) of said housing connected to a second spring for moving it forwardly in said guideway and having a heel bracket (23);

a carriage (3) movable in said second guideway in said housing and having means for holding a syringe (4) in said carriage with its needle extending forward and its piston shaft extending rearward towards said heel bracket (3);

a third spring (13) connected to said carriage for moving said carriage forward for making a skin puncture with the needle of a syringe mounted therein, and

a releasable catch (16,15) cooperating with a notch in said carriage (3) and mounted on said housing, for holding said carriage in cocked position against the force of said third spring, said catch having a portion extending into the initial path of travel of said push member (5) for causing said push member to release said carriage from its cocked position;

said trigger member (7) having means (31) for frictionally engaging said push member (5) for braking the movement of said push member and for arresting the movement thereof by the force of said first spring (33) in the idle or released condition of said trigger member (7)

said heel bracket (23) having means for bearing against and actuating the piston shaft of a syringe mounted in said carriage.

4,333,460

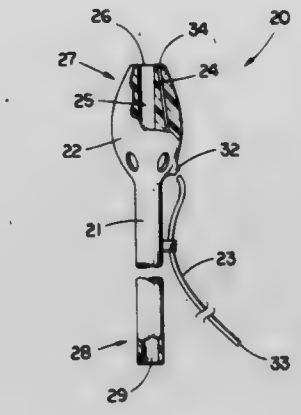
ENEMA APPARATA IMPROVEMENTS RELATING DOUBLE CONTRAST STUDIES

Roscoe E. Miller, 7400 W. 88th St., Indianapolis, Ind. 46278

Continuation-in-part of Ser. No. 39,502, May 16, 1979, abandoned. This application Apr. 4, 1980, Ser. No. 131,965

Int. Cl.³ A61M *3/00*

U.S. Cl. 128—239 **5 Claims**



1. An enema administering apparatus insertable into the rectum for delivery of a contrast medium to internal portions of a patient's anatomy, said enema administering apparatus comprising:

a generally tubular stem portion having a free end, an insertable end and a single passageway extending therethrough from an inject location adjacent said free end to a discharge location adjacent said insertable end;

an enlarged hollow tip portion disposed at said insertable end of said tubular stem portion and having at least one contrast medium exit aperture located therein and defining a contrast medium passageway arranged in flow communication between said single passageway and said exit aperture; and

air passageway means completely external of said single passageway and said contrast medium passageway and having an air delivery outlet opening disposed in said tip portion and which is spaced apart from said contrast medium exit aperture.

4,333,461

BORATED POLYSACCHARIDE ABSORBENTS AND ABSORBENT PRODUCTS

Ernest G. Muller, Highland Park, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,204

Int. Cl.³ A41B *13/02*

U.S. Cl. 128—284 **2 Claims**

1. A disposable diaper comprising a body contacting, urine permeable topsheet, a liquid impervious bottom sheet, and an intermediate layer between said topsheet and said bottom sheet comprising the dry borax cross-linked guar gum absorbent perpared by:

mixing a cis1,2-diol containing polysaccharide material and water for time sufficient to at least substantially completely hydrate the material;

adding an aqueous solution of a source of borate ions to the hydrated material to cross-link same and form a thickened gell mass; and,

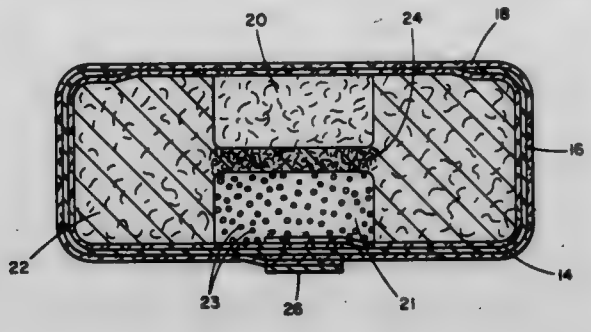
dehydrating the thickened mass to drive off water contained therein; said absorbent carried by a flexible substrate open cell plastic foam whereby said article is capable of being held in form retaining contact with an animal body such that the absorbent material is capable of coming in contact with body fluids exuded by the body.

4,333,462

ABSORBENT STRUCTURE CONTAINING SUPERABSORBENT

Dennis C. Holtman, Orland Park, and Shirley A. Wade, Chicago, both of Ill., assignors to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Filed Nov. 17, 1980, Ser. No. 207,522
Int. Cl.[3] A41B *13/02*
U.S. Cl. 128—287 12 Claims



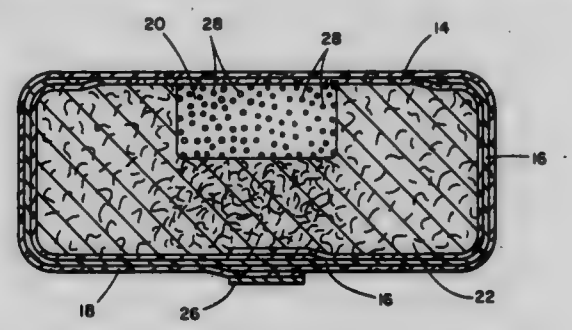
1. An absorbent structure, suitable for absorption of body fluids, comprising a moisture-impermeable backing sheet; an absorbent, loosely-compacted cellulosic fibrous batt, superimposed on said backing sheet; and a moisture-permeable fabric cover, covering at least the side of said absorbent batt opposite said backing sheet, said absorbent batt being provided with two reservoirs, each having a capacity sufficient to hold at least 75% of the body fluid discharged in one second, the first reservoir being situated immediately below the moisture-permeable fabric cover in the void zone and being formed by compression of the cellulosic fibrous batt, the second reservoir being of substantially the same size as the first reservoir and being located below the first reservoir within the cellulosic fibrous batt, the second reservoir being formed by compression of the cellulosic fibers in the reservoir zone, said second reservoir containing deposited therein a water-swellable, water-insoluble absorbent composition.

4,333,463

ABSORBENT STRUCTURE CONTAINING SUPERABSORBENT

Dennis C. Holtman, Orland Park, Ill., assignor to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Filed Nov. 17, 1980, Ser. No. 207,523
Int. Cl.[3] A41B *13/02*
U.S. Cl. 128—287 11 Claims



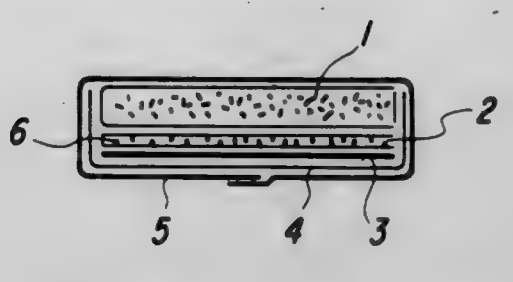
1. An absorbent structure suitable for absorption of body fluids comprising a moisture-impermeable backing sheet; an absorbent, loosely-compacted cellulosic fibrous batt, superimposed on said backing sheet; and a moisture-permeable fabric cover, covering at least the side of said absorbent batt opposite said backing sheet, said absorbent batt being provided with a reservoir having a capacity sufficient to hold at least 75% of the body fluid discharged in one second and containing deposited therein a water-swellable, water-insoluble absorbent composition, said reservoir being situated in the void zone and being formed by the compression of the cellulosic fibrous batt.

4,333,464

SANITARY NAPKIN

Tadao Nakano, Kainan, Japan, assignor to Zenmi Co., Ltd., Wakayama, Japan

Filed Apr. 11, 1980, Ser. No. 139,266
Claims priority, application Japan, Apr. 28, 1979, 54-53078
Int. Cl.[3] A61F *13/16*
U.S. Cl. 128—290 R 3 Claims



1. A sanitary napkin comprising at least one layer formulated of a water-absorbable substance and at least one layer consisting of a film based on water-soluble or water-dispersible polyvinyl alcohol,

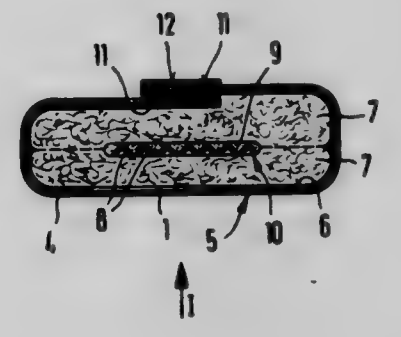
said water-absorbable substance comprising a powder of a water-soluble of water-dispersible polymeric substance and a powder of a gelatinizing accelerator for polyvinyl alcohol selected from the group consisting of boric acid, sodium borate, sodium surface, magnesium sulfate and aluminum sulfate.

4,333,465

HYGIENIC SANITARY TOWEL

Georg Wiegner, Breslauer Strasse 35, 4060 Viersen 11, Fed. Rep. of Germany

Filed Dec. 5, 1979, Ser. No. 100,556
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2853243
Int. Cl.[3] A61F *13/16*
U.S. Cl. 128—290 R 2 Claims

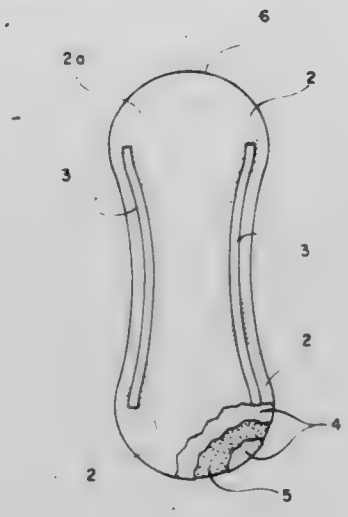


1. Hygienic sanitary towel for absorbing body fluid from a fluid opening of the body, consisting of an absorptive filling of hydrophilic fiber material with at least one cover, characterized by the fact that the outer cover (5) consists of a liquid-impermeable composite material and has a defined liquid-permeable absorptive zone (1) at the side facing the fluid opening and contains in the core of the filling an insert (8) in which there are highly absorptive polymers and consists on the outside of a liquid-permeable carrier material (4) of woven material, fleece or tissue and, on the inside, with the exception of the defined absorption zone (1), of a liquid-impermeable layer (6) and wherein insert (10) in the core consists of tissue paper, 8 which is folded once or several times and on which the highly absorptive polymers are applied before the paper is folded.

4,333,466
SANITARY NAPKIN WITH IMPROVED PANTY ADHESIVE

Billie J. Matthews, Menasha, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Aug. 5, 1980, Ser. No. 175,298
Int. Cl.[3] A61F *13/16*
U.S. Cl. 128—290 R 5 Claims



1. A sanitary napkin comprising an absorbent layer and a fluid impervious baffle, attached thereto said napkin having inwardly arcuate edges along the sides of said baffle and a plurality of pressure sensitive adhesive strips corresponding to each of these edges, said adhesive strips each being spaced equidistantly from the longitudinal edges in the arcuate portion of the napkin.

4,333,467
NONSTICK CONDUCTIVE COATING

Joseph J. Domicone, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Dec. 12, 1979, Ser. No. 102,887
Int. Cl.[3] A61B *17/36*
U.S. Cl. 128—303.14 1 Claim

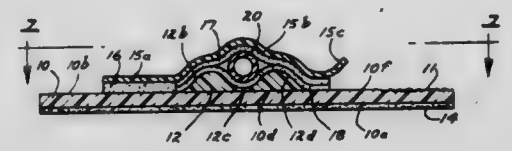
1. In an electrosurgical cutting blade for carrying electrical source generated hemostatic and cauterizing currents to a portion of the blade for contacting with tissue, an electrically conductive non-stick electrode deposited near the cutting edge thereof comprising: a first coating of electrically conductive material adherently deposited on said blade, said conductive material having an exposed working surface and intersticies therein producing irregularities in said working surface; a superposed coating of nonstick material adherently deposited and chemically bonded to said first coating in at least said intersticies, to the extent that, the working surface of said first coating is sufficiently conductive through the chemical bonded first coating to carry the hemostatic and cauterizing currents to the tissue and the second coating imparts non-stick characteristics to the blade.

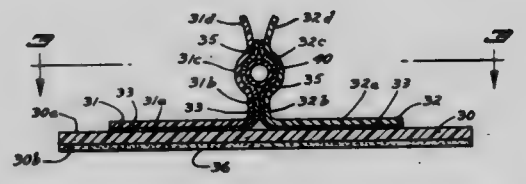
4,333,468
MESENTERY TUBE HOLDER APPARATUS

Robert W. Geist, 7 Sandpiper La., St. Paul, Minn. 55110

Filed Aug. 18, 1980, Ser. No. 178,912
Int. Cl.[3] A61M *25/02*
U.S. Cl. 128—348 14 Claims

1. Apparatus for affixing a medical tube or the like to a body comprising a base plate contourable to the shape of a part of the body and in a flat condition having an upper surface and a lower surface, said upper surface including a first end portion, an intermediate surface portion, and an opposite end surface portion, the base plate intermediate portion having an upwardly opening transverse groove, the thickness of the base plate longitudinally on either side of the groove being substantially greater than the thickness of either of the base plate end portions, a layer of pressure sensitive adhesive covering the lower surface for adhering the base plate to the body, and means for affixing a tube to the base plate, said means including an elongated first flap having a first end portion, an intermediate portion and an opposite end portion, a layer of permanent





adhesive for bonding the flap first end portion to the base plate first end portion and pressure sensitive adhesive for adhering the flap intermediate portion to the tube and to the base plate intermediate portion longitudinally on either side of the groove that is of a substantially greater thickness than the base plate end portions.

4,333,469
BONE GROWTH STIMULATOR

Keith W. Jeffcoat, Beacon Hill, and Geoffrey G. Wickham, Longueville, both of Australia, assignors to Telectronics Pty. Ltd., New South Wales, Australia

Filed Jul. 20, 1979, Ser. No. 59,443
Int. Cl.[3] A61N *1/18*
U.S. Cl. 128—419 F 83 Claims

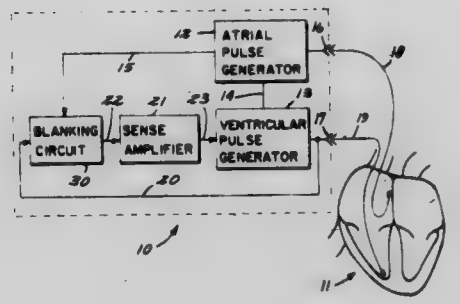


1. An implantable bone growth stimulator comprising a case made of at least 90% titanium, a current source in said case, and anode and at least one cathode leads electrically connected to said current source and exiting said case; characterized by said case having a cylindrical cross-section and a length which is at least two times greater than its diameter, said anode lead being made of platinum, being bent back where it exits said case, and being electrically connected to said case.

4,333,470
OUTPUT PULSE ARTIFACT REJECTION IN DEMAND PACEMAKERS

Thomas C. Barthel, Becker, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 7, 1980, Ser. No. 137,578
Int. Cl.³ A61N 1/36
U.S. Cl. 128—419 PG 8 Claims

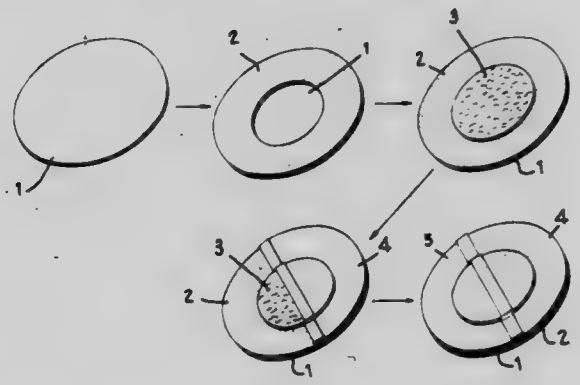


1. A heart pacemaker comprising:
terminal means for connection to a patient's means for delivery atrial and ventricular stimulation thereto;
generating means for delivering sequential atrial and ventricular electrical stimulation pulses to said terminal means at a predetermined repetition rate;
a sensing amplifier for sensing electrical signals indicative of the patient's heartbeat;
blanking means for normally connecting said terminal means to said sensing amplifier for conveying the patient's heartbeat signals thereto, and for selectively decoupling said sensing amplifier from said terminal means during delivery of an atrial stimulation pulse, said blanking means including holding circuit means operative during a blanking interval to hold a prior signal level at the input to the sensing amplifier, and timing means for sequentially returning the blanking means and the holding means to normal operation at the end of the atrial stimulation pulse.

4,333,471
NIPPLE COVER

Tadanobu Nakai, Kita-Katsuragi, Japan, assignor to Tokiwa Chemical Industries, Limited, Osaka, Japan

Filed Jan. 19, 1981, Ser. No. 226,446
Int. Cl.³ A61J 13/00; A41C 3/06
U.S. Cl. 128—505 4 Claims



1. A nipple-cover in the form of a sheet of paper for covering women's nipples comprising a flexible paper backing having an excellent air permeability, a coating layer of tacky and pressure sensitive adhesive composition united to one surface of said paper backing, a felt fabric member centrally disposed on said one surface, a pair of protective cover release papers for covering said felt fabric arranged to lie one above the other at adjacent edge portions thereof with one edge of an inner release paper being turned up and folded.

4,333,472
COMPENSATORY-CORRECTIVE ORTHOPEDIC FOOT DEVICES

Steven E. Tager, 20445 Pacifica Dr., Cupertino, Calif. 95014

Filed Dec. 31, 1979, Ser. No. 108,799
Int. Cl.³ A61F 5/14
U.S. Cl. 128—581 12 Claims

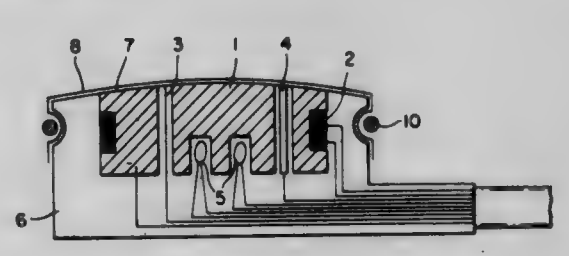


1. An orthopedic compensatory-corrective device disposed in a subject's footwear to correct varus and valgus recessed structural abnormalities of the foot comprising a compensatory separate moveable cushion pad of a material wedge-shaped laterally of the foot exhibiting a hardness in the range of 15 to 22 durometer to be held between the subject's foot and footwear at the location of the recessed abnormality.

4,333,473
APPARATUS FOR THE CUTANEOUS DETERMINATION OF THE OXYGEN PARTIAL PRESSURE IN BLOOD

Patrick Eberhard, Allschwil, and Wolfgang Mindt, Münchenstein, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Sep. 5, 1979, Ser. No. 72,367
Claims priority, application Switzerland, Sep. 11, 1978, 9488/78
Int. Cl.³ A61B 5/00
U.S. Cl. 128—635 2 Claims

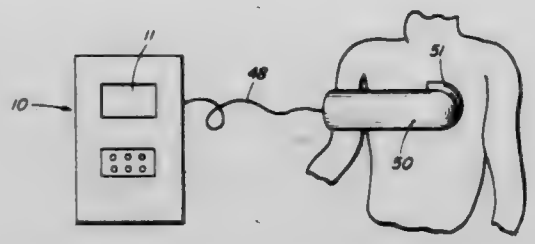


1. An apparatus for the cutaneous determination of the partial pressure of gases in blood comprising an anode having a contact surface for application to an individual's skin; a first cathode being a blood gas electrode having a first contact surface for application to an individual's skin and having a gas consumption sufficiently low to enable representative partial pressure measurements; a second cathode being a second blood gas electrode having a second contact surface and consuming practically all gas arriving at its contact surface, the two cathode electrodes being in structural unity with the anode to form a common contact surface; a membrane covering said common contact surface for the application to an individual's skin, and a heating means for heating the common contact surface for thermal stimulation of the blood perfusion.

4,333,474
ULTRASONIC IMAGING SYSTEM

Anant K. Nigam, Plantation, Fla., assignor to New York Institute of Technology, Old Westbury, N.Y.

Continuation of Ser. No. 875,442, Feb. 6, 1978, Pat. No. 4,207,901, which is a division of Ser. No. 665,898, Mar. 11, 1976, Pat. No. 4,084,582. This application Jun. 9, 1980, Ser. No. 157,398
Int. Cl.[3] A61B 5/00
U.S. Cl. 128—660 7 Claims



1. In an ultrasonic apparatus for imaging sections of a body by transmitting ultrasonic energy into the body and determining the characteristics of the ultrasonic energy echoing therefrom, said apparatus including timing means for generating timing signals; energizing/receiving means operative in response to the timing signals; and display/record means synchronized with said timing signals for displaying and/or recording image-representative signals from the energizing-/receiving means; a scanning module, comprising:

a fluid-tight enclosure having a scanning window;

a fluid contained in said enclosure;

a reflective scanner disposed in said fluid;

a first transducer, mounted in conjunction with said reflective scanner, for converting energy from said energizing-/receiving means to ultrasonic energy;

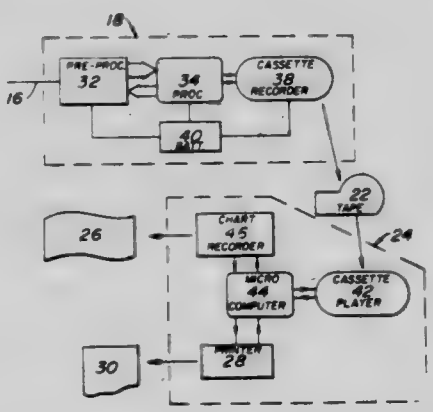
a second transducer spaced from said scanning window and said reflective scanner for converting ultrasonic echoes reflected from said reflective scanner to electrical signals, said electrical signals being coupled to said energizing-/receiving means; and

driving means synchronized with said timing signals for moving said reflective scanner in periodic fashion.

4,333,475
AMBULATORY CARDIAC MONITORING SYSTEM

John R. Moreno, Cherry Hill, N.J.; Richard J. Byrne, and Charles B. Shakespeare, both of Philadelphia, Pa., assignors to Medical Concepts, Inc., Mount Laurel, N.J.

Filed Dec. 6, 1979, Ser. No. 100,903
Int. Cl.[3] A61B 5/04
U.S. Cl. 128—711 48 Claims



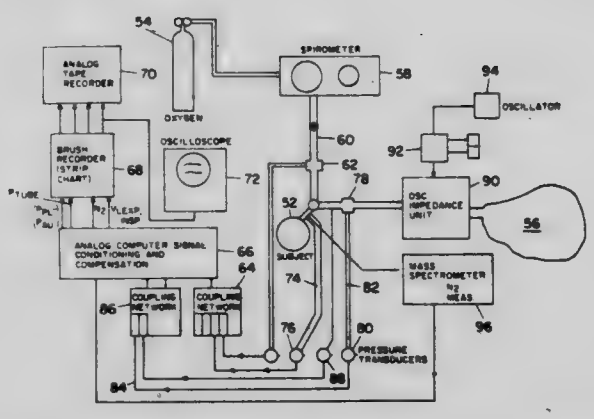
1. An ambulatory cardiac monitoring system to event record and monitor ECG signals from a patient for a predetermined time interval on a recording medium, said recording medium being removed from said patient subsequent to said predetermined time interval for insert into scanner means for producing printed outputs of said events recorded on said recording medium wherein the improvement comprises:

recorder means to be coupled to said patient during said predetermined time interval, said recorder means being electrically coupled to said patient for (1) continuously monitoring said ECG signals of said patient during said predetermined time interval, and (2) entering a record signal on said recording medium responsive to prior ECG signals monitored from said patient during said predetermined time interval, said recorder means including analog pre-processor means having means for detecting a QRS signal wave complex of said monitored ECG signal for (1) normalization, (2) filtering, and (3) gain control of said monitored ECG signals to produce a plurality of analog pre-processor output signals.

4,333,476
COMPREHENSIVE PULMONARY MEASUREMENT TECHNIQUE

Willis G. Downing, Jr., 9430 Tujunga Canyon Blvd., Tujunga, Calif. 91042

Filed Dec. 15, 1978, Ser. No. 969,962
Int. Cl.[3] A61B 5/08
U.S. Cl. 128—720 17 Claims



1. An apparatus for the comprehensive measurement of pulmonary functions comprising:

a source of gas which includes no nitrogen;

a closed pulmonary measurement system including an input spirometer coupled to said source of gas for supplying a measured quantity of said gas excluding nitrogen from said source to a subject;

means for collecting gas exhaled by the subject;

means for supplying alternating pressure signals to the mouth of a subject;

means for measuring the flow of air exhaled by the subject;

means for continuously measuring the nitrogen content of the exhaled air;

means for determining the resistance of the lungs to both steady state and alternating air flow during various portions of a breathing cycle; and

means for recording and correlating all of said measured and determined values.

4,333,477
FEVER THERMOMETER

Melvin Chervitz, 121 Mystic Meadows La., St. Louis, Mo. 63141

Continuation of Ser. No. 924,507, Jul. 14, 1978, Pat. No. 4,232,684. This application Nov. 12, 1980, Ser. No. 206,054
The portion of the term of this patent subsequent to Nov. 11, 1997, has been disclaimed.
Int. Cl.[3] A61B 5/00
U.S. Cl. 128—736 1 Claim

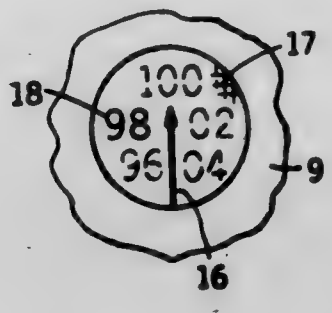
1. A fever thermometer, comprising:

(a) a flexible web,

(b) an adhesive on the web for securing the web to the skin of the human body.

(c) a plurality of numerical display areas on the web having a predetermined attitude so as to be read easily when the

web is adhered in a predetermined directional attitude, each numerical display area including an encapsulated liquid crystal indicator, the color spectrum of each liquid crystal indicator being responsive to a different specific temperature range, and the liquid crystal indicators being of a color to be substantially invisible at temperatures not within the responsive temperature ranges of the liquid crystal indicators, and



(d) a directional indicator on the web for enabling adherence of the web in the predetermined directional attitude with the numerical display areas in their predetermined attitude when the numerical display areas are substantially invisible at temperatures not within the responsive temperature ranges of the liquid crystal indicators so that the numerical display areas can be easily read when made visible at temperatures within the responsive temperature ranges of the liquid crystal indicators.

4,333,478

BLOOD EXTRACTION INSTRUMENT

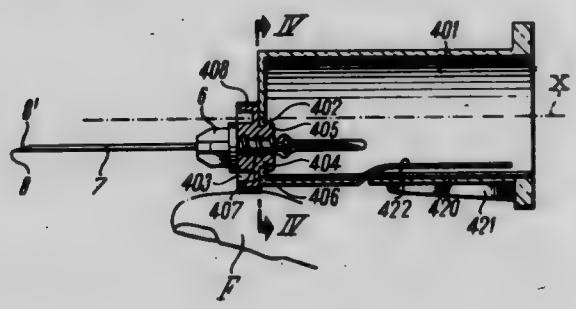
Karl Krieg, Nuertingen, Fed. Rep. of Germany, assignor to C.A. Greiner & Sohne GmbH & Co. KG, Nuertigen, Fed. Rep. of Germany

Filed Oct. 14, 1980, Ser. No. 196,721

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1979, 2946680

Int. Cl.³ A61B 5/14

U.S. Cl. 128—764 **10 Claims**



1. A blood extraction instrument, comprising:

a hollow, cylindrical body having an open end and a closed end, the open end being adapted to receive a blood sample tube, said blood sample tube being closed with a membrane by means of a screw-on cap, said screw-on cap being provided with an opening for exposure of said membrane, means for mounting a double-ended hollow needle in said closed end of said cylindrical body, one end of said double-ended hollow needle being positioned to penetrate said membrane of said blood sample tube, said means for mounting said double-ended hollow needle including a connector mounted in said closed end wherein it may be rotatably adjusted with respect to the cylindrical body to enable rotatable adjustment of said needle.

4,333,479

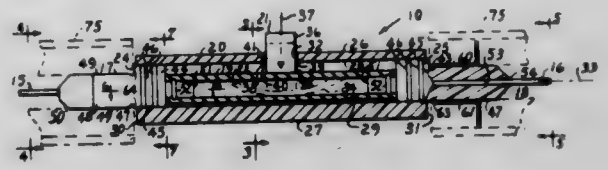
DISPOSABLE NEEDLE ASSEMBLY

Lewis D. Shiplee, III, 1112 S. Magnolia Dr., Apt. V-204, Tallahassee, Fla. 32301

Filed Oct. 1, 1979, Ser. No. 80,484

Int. Cl.³ A61B 5/14

U.S. Cl. 128—766 **7 Claims**



1. In a disposable blood drawing device comprising an evacuated container having a stopper, a holder for the container, and a dual needle assembly that is connectable with the holder for receiving and delivering blood to an evacuated container held thereby, the improved dual needle assembly comprising a housing having opposite end openings, a hypodermic needle mounted in one of said end openings for penetrating and receiving blood from a blood vein, a tap needle mounted in the other of said end openings for penetrating the stopper and delivering the received blood to a container held by the holder, a resilient tube located in the interior of the housing and having a passage that interconnects and communicates with the hypodermic and tap needles for conveying the received blood to the tap needle, and a substantially linearly movable push button that is mounted in the housing and manipulatable at the exterior thereof to constrict said passage and thereby limit the flow of blood therethrough.

4,333,480

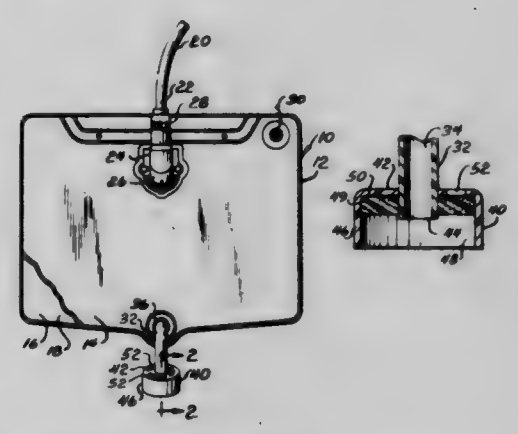
URINE RECEPTACLE WITH A TUBULAR SECTION TO RETAIN AN ANTIMICROBIAL AGENT

Frank K. Villari, Oak Park, and James P. Cianci, Cary, both of Ill., assignors to The Kendall Company, Boston, Mass.

Filed Apr. 11, 1980, Ser. No. 139,301

Int. Cl.³ A61F 5/44

U.S. Cl. 128—767 **3 Claims**



1. A urine receptacle, comprising:

a container having a chamber for collection of urine;

a tubular section having an inner end attached to a lower portion of the container forming a sampling port means and communicating with said chamber, and an outer end;

port means comprising a hood having an inner wall attached to the tubular section, and a generally annular sidewall extending from said inner wall, with said inner wall and sidewall defining a cavity, with said tubular section extending through the inner wall into said cavity, with said outer end being located in said cavity and being spaced inwardly from an outer edge of the sidewall, and with said outer end and sidewall defining a generally annular groove in said cavity, with the outer edge of said hood sidewall remaining free during use of the receptacle,

means to alleviate heat build up comprising said inner wall having at least one opening extending therethrough; and means in said groove for retaining an antimicrobial agent comprising a ring of porous material in said groove, with said opening communicating directly with said ring.

4,333,481

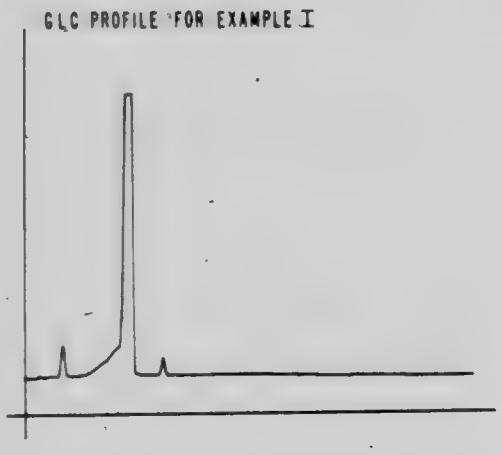
1-N-BUTOXY-1-ETHANOL ACETATE AND USES THEREOF FOR AUGMENTING OR ENHANCING THE AROMA OR TASTE OF CONSUMABLE MATERIALS

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

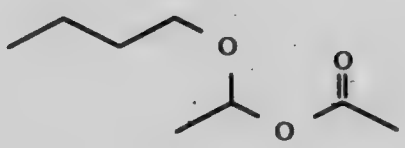
Division of Ser. No. 217,810, Dec. 18, 1980, Pat. No. 4,296,138, which is a continuation-in-part of Ser. No. 176,111, Aug. 7, 1980, Pat. No. 4,296,137. This application Jul. 29, 1981, Ser. No. 287,896

Int. Cl.³ A24B *3/12, 15/30*

U.S. Cl. 131—276 **3 Claims**



1. A process for augmenting or enhancing the aroma or taste of a smoking tobacco comprising the step of adding to smoking tobacco an organoleptic property-modifying, augmenting or enhancing quantity of 1-n-butoxy-1-ethanol acetate having the structure:



4,333,482

PROCESS FOR INCREASING FILLING POWER OF RECONSTITUTED TOBACCO

Joseph L. Banyasz, Richmond, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed Jul. 22, 1980, Ser. No. 171,173

Int. Cl.³ A24B *3/14, 3/18*

U.S. Cl. 131—300 **18 Claims**

1. A method of increasing the filling power of reconstituted tobacco made by a paper-making process which comprises:

(a) uniformly adjusting the moisture content of the reconstituted tobacco to between 15% and 50% by weight;

(b) subjecting the moisturized reconstituted tobacco to heat treatment for a period of time in excess of that required to accomplish evaporation of substantially all of the moisture in the reconstituted tobacco to stiffen the reconstituted tobacco, thereby increasing its filling power at a substantially constant specific volume.

4,333,483

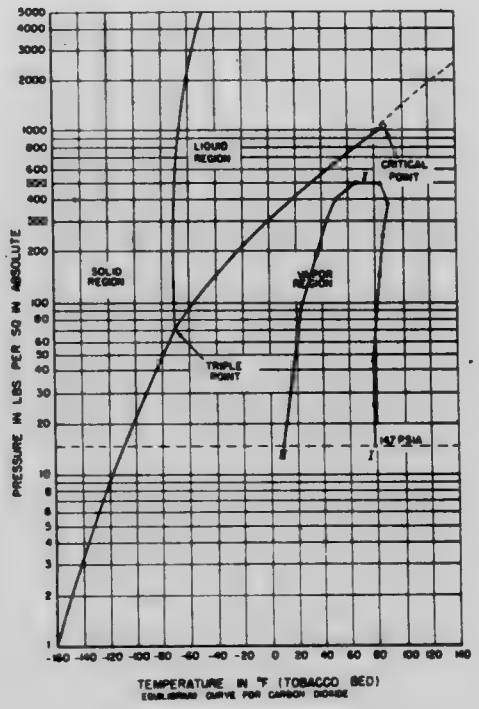
TOBACCO PRODUCT

Roger Z. de la Burde, Powhatan; Patrick E. Aument, Hopewell, and Francis V. Utsch, Chester, all of Va., assignors to Philip Morris Incorporated, New York, N.Y.

Division of Ser. No. 891,468, Mar. 29, 1978, Pat. No. 4,258,729. This application Apr. 24, 1980, Ser. No. 143,311

Int. Cl.³ A24B *15/10, 15/28*

U.S. Cl. 131—352 **1 Claim**



1. A tobacco product comprising 100 parts by weight of tobacco and at least 1 part by weight of gaseous carbon dioxide, wherein the gaseous carbon dioxide is retained by the tobacco with no other additive not natural to tobacco.

4,333,484

MODIFIED CELLULOSIC SMOKING MATERIAL AND METHOD FOR ITS PREPARATION

Gus D. Keritsis, Richmond, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed Aug. 2, 1978, Ser. No. 930,328

Int. Cl.³ A24B *3/14;* A24D *1/18*

U.S. Cl. 131—359 **29 Claims**

1. A process for producing a foamed smoking material comprising:

(a) providing an aqueous slurry of cellulosic material;

(b) adding from about 5 to 40% by weight, based on the cellulosic material, of a metal salt of an organic or inorganic acid selected from the group consisting of calcium salts, magnesium salts, iron salts, aluminum salts, and mixtures thereof;

(c) adding a foaming or blowing agent to the resulting slurry under conditions, which do not allow the foaming or blowing agent to foam the slurry; and

(d) casting or extruding the slurry and then drying the cast or extruded slurry under such conditions wherein the slurry is foamed during the casting or extruding step or during the drying step.

4,333,485

WATER-BASED CLEANING SYSTEM

Tom O. B. Karlsson, Floda, and Hans M. Larsson, Göteborg, both of Sweden, assignors to Nordnero AB, Kungalv, Sweden

Filed Jul. 1, 1980, Ser. No. 165,025

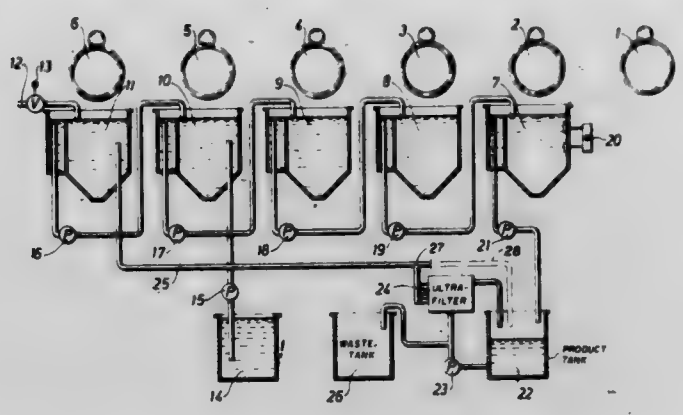
Claims priority, application Sweden, Jul. 3, 1979, 7905806

Int. Cl.³ B08B *3/12*

U.S. Cl. 134—60 **3 Claims**

1. A water-based cleaning system comprising a plurality of treatment stations for use during a cleaning procedure, means

for transporting articles to be cleaned past said plurality of treatment stations, with movement of said articles being in a first direction, means for causing a cleaning liquid to flow through said stations in a second direction which is opposite to said first direction, means for removing said cleaning liquid from the first treatment station and supplying it to the input side of an ultrafilter means, and means for controlling the



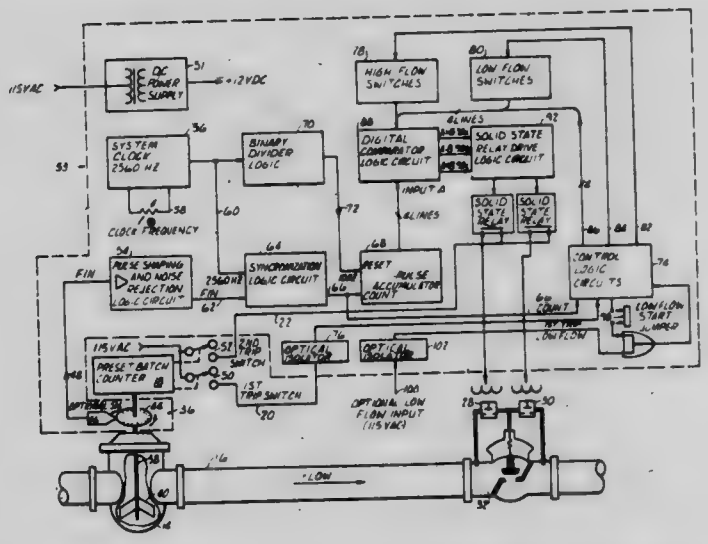
amount of said cleaning liquid flowing from the output side of said ultrafilter means, means for dividing said cleaning liquid and for supplying at least a controlled part of said cleaning liquid to one of the last treatment stations and for resupplying at least some of the remainder of said amount of said cleaning liquid to the input side of the ultrafilter means, said control means automatically controlling the flow of said cleaning liquid in said second direction through said treatment stations.

4,333,486

ELECTRONIC VALVE CONTROLLER

Frederick A. Ciccozzi, Erie, Pa., assignor to Geosource Inc., Houston, Tex.

Filed Sep. 5, 1980, Ser. No. 184,347
Int. Cl.³ G05D 7/00
U.S. Cl. 137—1 22 Claims



1. A circuit for electronic control of a meter valve system comprising:

an optical switch assembly for monitoring flow through the system, said optical switch assembly generating digital pulses in response to flow rate of a fluid within said system;

a power supply for supplying DC power to said circuit;

pulse shaping and noise rejection circuitry, electrically connected to said optical switch assembly for converting said digital pulses to high level noise free digital pulses;

a system clock generating clock pulses for synchronizing said circuit operation, having a means for adjusting frequency;

synchronization circuitry, electrically connected to said system clock and said pulse shaping and noise rejection circuitry, for sampling and holding said digital pulses such that the falling edge of said digital pulses are coincident with said system clock pulses;

means electrically connected to said system clock for generating a time base;

pulse accumulator circuitry electrically connected to said synchronization circuitry for counting and storing digital pulses over said time base whereby said digital pulses are indicative of actual system flow rate;

control logic circuitry electrically connected to said meter valve system and said synchronization circuitry for generating flow rate signals, based upon data from said meter valve system and generating multilevel shutdown signals based upon a predetermined count of said digital pulses;

means for storing logic data representing a desired flow rate, said means enabled by said flow rate signals from said control logic circuitry;

means for comparing said desired flow rate with said actual flow rate, electrically connected to said control logic circuitry said means for storing data representative of said flow rate and said pulse accumulator circuitry; and

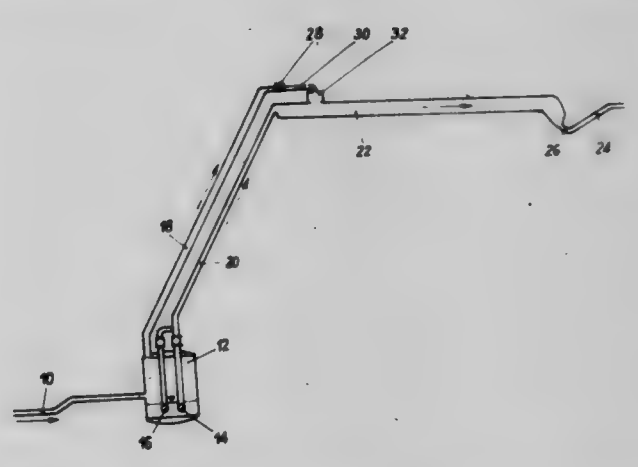
means for enabling a solenoid activated valve in said meter valve system, electrically connected and responsive to signals from said means for comparing.

4,333,487

PNEUMATICALLY DRIVEN DRAINAGE FACILITY

Harald Michael, Am Gosslers Park 9, 2000 Hamburg 55, Fed. Rep. of Germany

Filed Mar. 6, 1980, Ser. No. 127,913
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1979, 2908745
Int. Cl.³ C02C 1/00
U.S. Cl. 137—2 11 Claims



10. A method of causing fluid flow in a pneumatically driven drainage facility comprising the steps of: subjecting the lines of the facility to a change in pressure to cause fluid movement therethrough, said movement comprising the air and liquid travelling through the conduit in the form of alternating bodies of air and liquid, wherein the pneumatically driven air bodies drive the liquid bodies along the conduit, boosting the flow at at least one intermediate station by receiving air and liquid therein, collecting liquid, passing out the air through a first branch line which communicates with the intermediate station above the level of the collected liquid, pumping the liquid through a second branch line separated from the first branch line, and into a downstream descending conduit section, and delivering the air from the first branch line into the descending conduit section above the liquid therein.

4,333,488
METHOD OF TRANSPORTING VISCOUS HYDROCARBONS

Gifford G. McClaflin, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Sep. 8, 1980, Ser. No. 184,826
Int. Cl.[3] F17D *1/17*
U.S. Cl. 137—13 7 Claims

1. In the method of transporting a viscous hydrocarbon through a pipe the improvement which comprises forming an oil-in-water emulsion of lower viscosity to facilitate transporting said hydrocarbon through said pipe by adding to said hydrocarbon from about 20 to about 80 volume percent of an aqueous solution containing an effective amount, in the range of about 100 to about 3,000 parts per million by weight, based on said hydrocarbon of the adipate ester of a polyoxyethylene-polyoxypropylene block polymer, which is represented by the formula

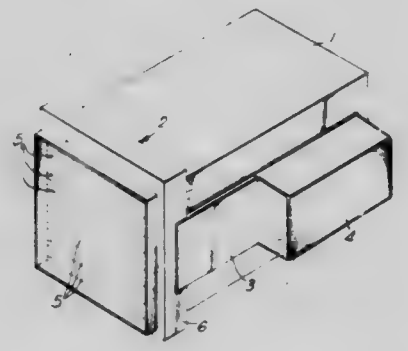
$$HO(CH_2CH_2O)_a(\underset{\displaystyle CH_3}{\underset{|}{CH}}CH_2O)_b(CH_2CH_2O)_cH$$

wherein a and c are numbers in the range of about 5 to about 20, with the sum of a and c being in the range of about 10 to about 40 and b is a number in the range of about 16 to about 30.

4,333,489
SPRING-MOTOR DUAL-FUNCTIONING MECHANISM

Robert J. Magill, Whitstable; Donald J. Lockley, and Richard J. Perrin, both of Herne Bay, all of England, assignors to Actionair Equipment Limited, Whitstable, England

Filed Sep. 1, 1979, Ser. No. 73,366
Claims priority, application United Kingdom, Sep. 11, 1978, 36293/78
Int. Cl.[3] F16K *17/38, 17/40*
U.S. Cl. 137—77 10 Claims

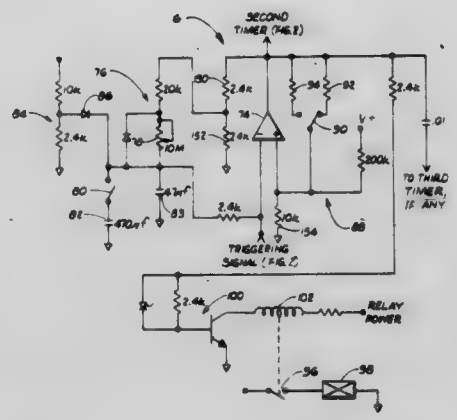


3. In combination with a releasable and resettable device: a spring-motor dual-functioning mechanism comprising a D.C. magnet actuable to release the releasable and resettable device, electrical supply means connected to supply an electrical current to said D.C. magnet to hold the latter in a non-releasing state, whereby said D.C. magnet is actuated when the holding electrical current ceases, detection means connected to said D.C. magnet to actuate the latter when conditions indicative of a fire are detected by said detection means, said D.C. magnet also being actuated in the event of failure of said supply of electrical current to said D.C. magnet, by said electrical supply means, a spring motor actuable to reset the device, and spring-winding means actuable to rewind said spring motor, the spring motor storage power being sufficient for at least two complete resetting operations of said mechanism before rewinding of said spring motor mechanism is necessary, in which said mechanism and said releasable and resettable device each have actuation members, those of the former being juxtaposed to those of the latter for actuation of said actuation members of said device by those of said mechanism thereby to allow the mechanism to be moved away from the releasable and resettable device for inspection without disconnection of said actuation members.

4,333,490
APPARATUS AND METHOD FOR CONTROLLING A WATERING SYSTEM

William L. Enter, Sr., 525 S. Aqua Clear Dr., Mustang, Okla. 73064

Filed Jan. 4, 1980, Ser. No. 109,542
Int. Cl.[3] A01G *25/16*
U.S. Cl. 137—78.3 43 Claims



1. An apparatus for automatically controlling a watering system in response to a comparison of an ambient condition with a time-varying reference level having an adjustable maximum value, said apparatus comprising:

monitor means for sensing the magnitude of the ambient condition and converting the sensed magnitude into a proportional electrical signal;

first timer means for generating a triggering signal when the time-varying reference level exceeds the magnitude of the proportional electrical signal;

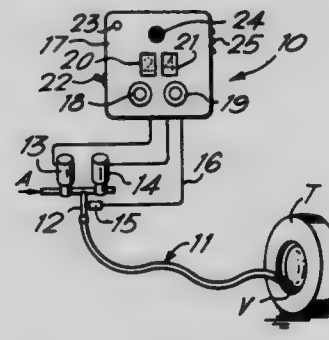
second timer means, responsive to the triggering signal, for actuating the watering system for a predetermined period of time; and

disabling means for comparing the proportional electrical signal with a predetermined cut-off level, and for preventing said first timer means from generating the triggering signal when the magnitude of the proportional electrical signal passes the cut-off level.

4,333,491
AIR DISPENSING APPARATUS

John S. Knubley, 1 Kia Ora, Barwis Hill, Penzance, Cornwall, England

Filed May 16, 1980, Ser. No. 150,644
Claims priority, application United Kingdom, May 18, 1979, 7917462; Oct. 16, 1979, 7935858
Int. Cl.[3] B60C *23/04*
U.S. Cl. 137—116.3 16 Claims



1. A vehicle tire inflation system comprising:

a pressure transducer adapted for connection to a vehicle tire to be responsive to the pressure therewithin for generating a corresponding output signal;

converter means responsive to an output signal from said

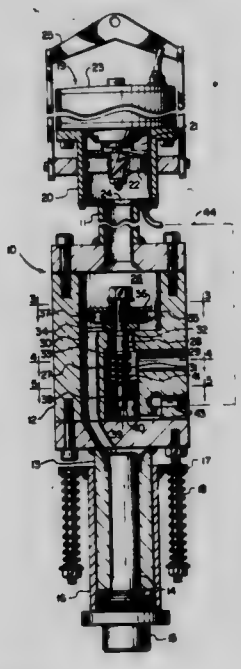
transducer for deriving a periodic signal having a frequency which is a function of the transducer output signal;
counter means coupled to the output of said converter means for counting excursions of the variable frequency signal produced thereby and providing output signals representative of the count accumulated;
time control means associated with said counter means for determining periods during which the output of said converter means is counted by said counter means whereby the count accumulated during each of said periods constitutes a measure of the transducer output during the respective period;
comparator means for comparing the count assembled in said counter means with a predetermined quantity representative of a desired tire pressure;
control means responsive to the result of said comparison for correspondingly adjusting the tire pressure; and
the operations of said comparator means and of said control means being arranged to occur at times determined by said time control means.

4,333,492

LIQUID INERTIA TOOL

Joe E. West, 111426 Goodnight La., Dallas, Tex. 75229

Division of Ser. No. 714,375, Aug. 16, 1976, abandoned. This application Dec. 10, 1979, Ser. No. 102,254
Int. Cl.³ F15B *11/15;* F16K *31/122*
U.S. Cl. 137—119 **7 Claims**



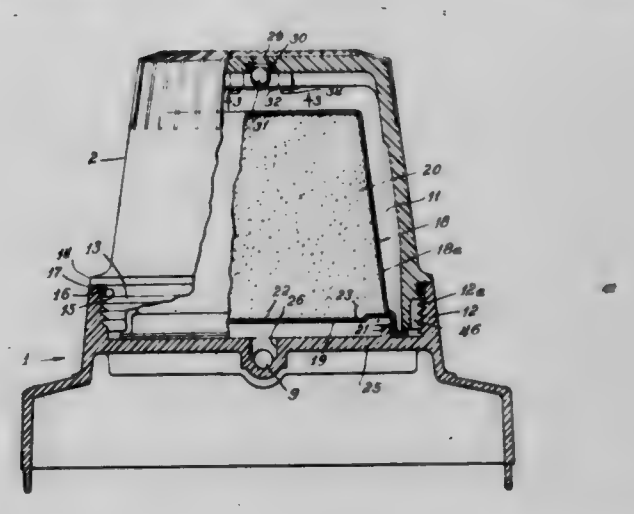
1. A valve mechanism for decelerating the flow of liquid in a ram tube, in order to derive a force from the inertia of the flowing liquid, comprising:
a valve housing;
a main bore in one end of said housing;
a least one force transmitting bore in the other end of said housing communicating with said main bore;
a central bore in said housing communicating at one end thereof with said main bore;
at least one generally transverse diverter bore in said housing communicating at its inner end with said central bore intermediate the ends thereof;
and a stem valve assembly mounted in said central bore comprising:
a stem;
a valve body carried on said stem and seatable against the bottom of said main bore;
valve closing means carried on said stem at one end thereof and reciprocable therewith in said main bore;
a valve opening piston mounted on said stem at the other end thereof, said piston being reciprocable in said central bore;
and means for delivering hydraulic pressure to the end face of said piston.

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CARTRIDGE FEEDER FOR SOLUBLE FERTILIZER

John L. Beiswenger, Libertyville, Ill.; Howard R. Moon, Fort Atkinson, Wis.; Dhananjay V. Chaphalkar, Lindenhurst, and Frank A. Smiesko, McHenry, both of Ill., assignors to Acme Burgess, Inc., Grayslake, Ill.

Filed Mar. 28, 1980, Ser. No. 134,952
Int. Cl.³ B05B *7/14*
U.S. Cl. 137—268 **8 Claims**



1. A liquid fertilizer feeder comprising a base adapted to rest in stable upright position upon the ground and having a main water passageway therethrough, a fertilizer supply cartridge comprising a closed container containing granular solid fertilizer disposed atop said base, said cartridge container comprising an inverted frustoconical cup of plastic film and a flat closure for the otherwise open bottom thereof, the bottom of said container having a metering orifice and a solution outlet aperture at spaced apart locations therein, said metering orifice being located at the center of said closure and said solution outlet aperture being one of several apertures spaced around the periphery of said closure, a cover removably secured to the top of said base and providing with said base a watertight enclosure for said cartridge, said passageway having a converging inlet section and a diverging outlet section and a side branch inlet port and a side branch return port at spaced apart locations of said converging and diverging sections, respectively, in the top of said passageway and opening directly into said watertight enclosure, said inlet port being located upstream from said return port and directly under said metering orifice whereby a side branch water stream is directed from said inlet port against said cartridge container at said metering orifice to cause water to flow therethrough into the body of granular fertilizer within said container, said return port being open to said outlet aperture in said container whereby fertilizer solution may flow through said aperture and said return port into said main water passageway, and means atop said base and integral therewith for locating and retaining said cartridge coaxially with said side branch inlet port.

4,333,494

VALVE BOX

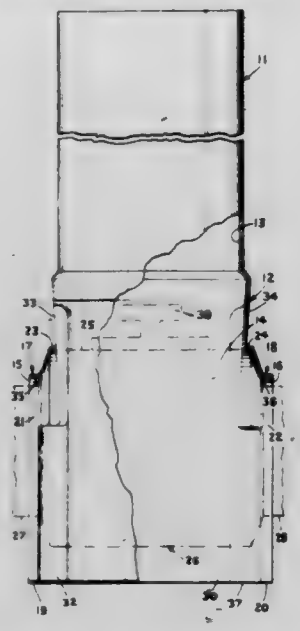
Thomas Shope, Kearny, N.J., assignor to CP Test Services - Valvco, Inc., Kearny, N.J.

Filed Jan. 30, 1980, Ser. No. 116,883
Int. Cl.³ F16L *5/00*
U.S. Cl. 137—364 **11 Claims**

1. A valve box comprising
(a) a generally vertically elongated, hollow member open at its bottom;
(b) a hollow valve housing formed on the bottom of said member, the interiors of said member and housing communicating; the housing being open at its bottom end and

adapted to receive a valve body having diametrically opposed inlet and outlet conduits extending generally horizontally therefrom;

(c) at least two diametrically opposed inlet and outlet conduit receiving openings in the side of the housing, each said opening being closed at the top and communicating with the open bottom of the housing;



(d) internal bearing means on the housing adapted to engage the valve body to positively limit its upward movement in the housing; and

(e) the valve body engaging the bearing means when the said inlet and outlet conduits are vertically spaced away from the top of the respective conduit openings.

4,333,495

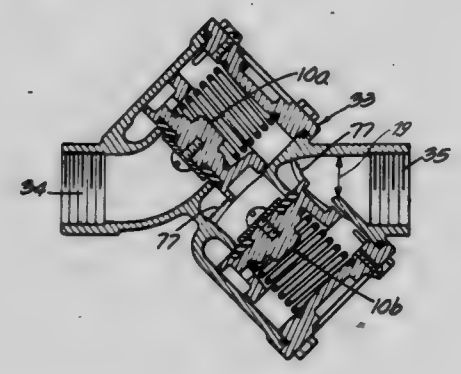
CHECK VALVE ASSEMBLY

David E. Griswold, Corona Del Mar, and Richard E. Veit, Morro Bay, both of Calif., assignors to Griswold Controls, Irvine, Calif.

Division of Ser. No. 10,987, Feb. 9, 1979, Pat. No. 4,244,395, which is a continuation-in-part of Ser. No. 410,173, Oct. 26, 1973, abandoned. This application Sep. 2, 1980, Ser. No. 183,583

Int. Cl.³ F16K *15/02*

U.S. Cl. 137—484.2 **2 Claims**



1. In a double check valve assembly having two duplicate check valves connected in series, the upstream check valve having an inlet terminal and the downstream check valve having a discharge terminal, said terminals being axially aligned, and a passage constituting the discharge passage for the upstream check valve and the inlet passage for the downstream check valve, the improvement comprising, in combination: each check valve having a stationary annular valve seat, and having a stationary barrel positioned coaxially of said valve seat, each check valve having a valve poppet guided for axial movement in its respective barrel and having a seal element adapted for sealing contact with its respective valve seat, each check valve having a spring acting to move its respective valve poppet into sealing contact with said valve seat, each valve poppet having an axis of movement disposed at an angle of about 45° with respect to the axis of said coaxial terminals, and each valve poppet having an axis of movement at substantially right angles to the axis of movement of the other valve poppet.

4,333,496

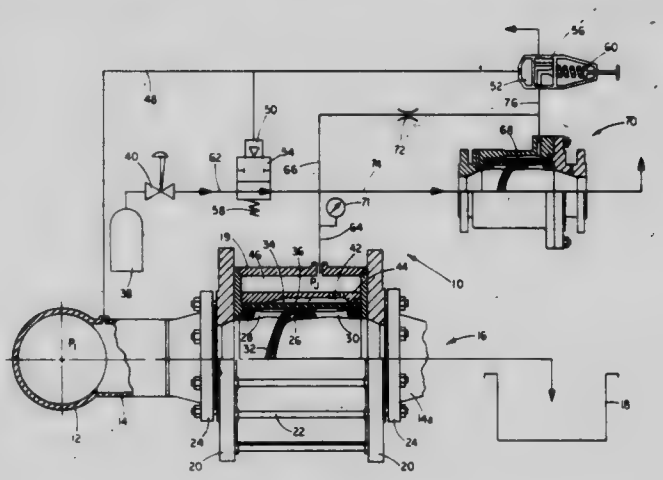
SURGE RELIEVER WITH INCREASE CAPACITY FLOW

Peter C. M. Chow, Newark, and William N. Ringer, Pleasant Hill, both of Calif., assignors to Grove Valve and Regulator Company, Oakland, Calif.

Filed Sep. 15, 1980, Ser. No. 186,858

Int. Cl.³ F16K *31/12*

U.S. Cl. 137—489 **10 Claims**



1. A liquid pipeline surge reliever system comprising:

a diverter line for connection into a liquid pipeline;

a main surge relief valve in said diverter line having a first pressure gas control chamber, said main valve being conditioned to open to a reservoir when liquid on the upstream side thereof reaches a pressure to overcome that in said first control chamber, and a source of gas under pressure connected to said first control chamber;

the improvement comprising:

a control pressure bleed valve having a smaller second pressure gas control chamber and being conditioned to open when pressure on the upstream side thereof exceeds that in said second control chamber;

one gas line connecting said first pressure control chamber to the inlet of said bleed valve and another gas line connecting said first control chamber to said second control chamber;

a pilot valve conditioned to open when pressure being sensed therein exceeds a predetermined set, pipeline surge pressure;

said second control chamber being connected to said pilot valve to be exhausted therethrough;

a sensing line conducting pipeline fluid to said pilot valve so that if pressure therein reaches said set pressure, the pilot valve opens to exhaust said second control chamber, enabling gas from said first control chamber to open said bleed valve;

a supply gas line connecting said pressure gas source to said first control chamber;

a pressure actuated on-off valve in said supply gas line conditioned to close when pressure sensed thereby approaches said set pressure; and

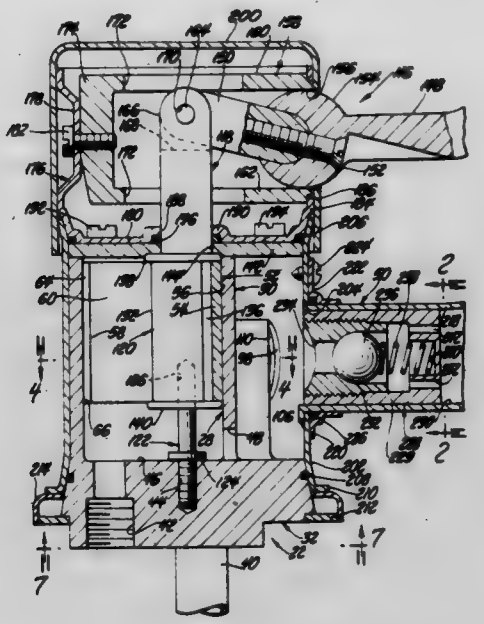
an actuating line connecting said sensing line to said on-off valve.

4,333,497

FAUCET ASSEMBLY WITH MIXING VALVE

Agustin A. Busquets, 6211 Pinetree Dr., Utica, Mich. 48087

Filed Oct. 9, 1979, Ser. No. 83,001
Int. Cl.[3] F16K *11/02*
U.S. Cl. 137—625.17 17 Claims



1. A mixing valve assembly comprising:

a valve housing closed at one end and open at its opposite end and having a circular bore defined by an inner wall portion, a hot water inlet port, a cold water inlet port circumferentially spaced from the hot water inlet port, and at least one outlet port;

a hollow control valve adapted to be slidably and rotatably mounted in said bore, the control valve including a cylindrical portion having circumferentially spaced passages formed therethrough and extending in a mixing chamber, said control valve having a pair of parallel guide members circumferentially spaced on the inner surface of the control valve and projecting into the mixing chamber,

a valve lid mounted over the open end of said valve housing and overlying the inner wall portion, the valve lid having an aperture formed therethrough and an apertured seal mounted about said aperture,

actuating means comprising a rotatable, slidable and elongated control stem passing through the seal of said apertured valve lid and including a cam engaging said parallel guides for rotating movement; the control stem having a free end disposed in the mixing chamber and having a cylindrical slot extending into the control stem from the free end,

guide means comprising a pin having one end mounted in the closed end of said valve housing and the other end defining a cylindrical stem slidably and rotatably mounted in the cylindrical slot of said control stem,

securing means comprising flanges formed at opposite ends of said cam and engaging said parallel guides for axial movement with said cam wherein axial displacement of said control stem regulates the degree to which the water inlet ports overlap said passages to control the volume of fluid entering the mixing chamber and rotatory movement of said control stem controlling the temperature of the mixed hot and cold water.

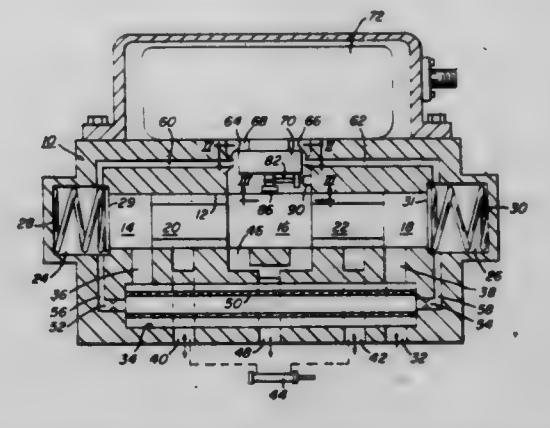
4,333,498

STEPPER MOTOR ACTUATED SERVOVALVE

Don W. Huling, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Mar. 5, 1980, Ser. No. 127,284
Int. Cl.[3] F15B *13/043*
U.S. Cl. 137—625.62 3 Claims

1. A servovalve comprising a valve body having a bore therein, a spool valve element reciprocable within said bore for controlling communication between an inlet pressure port in the valve body and a pair of output ports, opposed spring means carried in chambers located at opposite ends of said bore for urging said spool valve element into a null position where the input port is disconnected from both of said output ports, means for metering fluid under pressure from said input port to both of said chambers, opposed nozzles connected to the respective chambers and adapted to produce jet streams of fluid directed toward each other, a rotary valve member interposed between said nozzles and configured such that the jets impinge



thereon and the distance between the respective nozzles and at least a portion of the surface of the rotary valve member can differ depending upon the angular position of the rotary valve member about its axis of rotation, and stepper motor means for rotating said valve element in stepped increments;

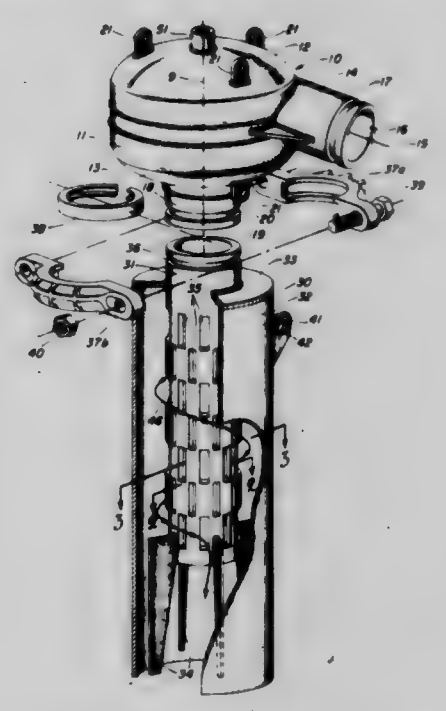
said rotary valve member comprising a cylinder rotatable about an axis normal to the flat end surfaces thereof, said cylinder including a groove in the periphery thereof, the cross-sectional area of which varies circumferentially therearound.

4,333,499

PRESSURE DISSIPATION APPARATUS

Jeffrey L. Beck, and William T. Sweeney, both of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Apr. 15, 1980, Ser. No. 140,516
Int. Cl.[3] F15C *1/16*; B04C *3/06*
U.S. Cl. 137—812 1 Claim



1. In an apparatus for dissipating the pressure of confined slurry having:

(a) a housing having a sidewall means which has a substantially circular cross section normal to its vertical axis, a top and bottom means;

(b) inlet means formed into said sidewall wherein the axis of

said inlet means is tangent to a diameter of said substantially cylindrically-shaped sidewall so that said confined fluid entering said input into said housing forms a vortex over a location at said bottom and top means;

(c) outlet means extending through and from said bottom, said housing having a substantially unobstructed flow path for fluids fom said inlet to said outlet; and

(d) a fluid opening through said top aligned with said vortex;

an apparatus for said velocity reduction from said outlet means comprising:

(e) an apparatus adapted to receive slurry comprising solids mixed with a fluid under low pressure and high rotational velocity comprising a first cylinder having an inlet and an outlet with an unobstructed passage therethrough, said first cylinder having a plurality of openings through the wall of said cylinder, a second cylinder having a diameter greater than said first cylinder and axially aligned therewith, means for mechanically attaching said second cylinder to said first cylinder between said inlet and said plurality of openings, and means mounted between said first and second cylinders to stop the rotation of said fluid passing through said plurality of openings caused by high velocity fluid striking said first and second cylinders and said means mounted between said first and second cylinder whereby said solid portion of said slurry can pass unobstructed through said first cylinder from said inlet to said outlet and said fluid can pass through said plurality of openings to said second cylinder striking said means for stopping rotation and wherein said fluid can then fall from said second cylinder terminus.

4,333,500

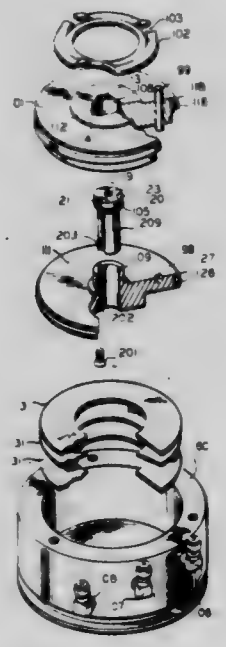
FLUID ACTUATED VALVE

Arthur B. Broerman, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 23, 1980, Ser. No. 152,907

Int. Cl.³ F16K *11/22*; G01N *1/10*

U.S. Cl. 137—863 **10 Claims**



1. A multi-port diaphragm-sealed valve capable of operating at elevated temperatures comprising:

an end cap having upper and lower surfaces and a plurality of spaced-apart passageways extending through the upper and lower surfaces to provide ports for said valve;

a plunger housing secured to said end cap, said plunger housing having upper and lower surfaces and a plurality of spaced-apart passageways extending through the upper and lower surfaces of said plunger housing and being positioned such that each said passageway of said plunger housing will be positioned between a different pair of the passageways of said plunger housing;

a diaphragm positioned between the lower surface of said end cap and the upper surface of said plunger housing and extending over the open ends of the passageways of both said end cap and said plunger housing;

a plurality of plunger means each being positioned in and extending through a respective one of the passageways of said plunger housing such that actuating means on the lower surface of the plunger housing can force each said plunger means upward so that it causes the diaphragm to block off communication between the respective surrounding pair of passageways in said end cap;

means for allowing communication between adjacent pairs of passageways of said end cap when the respective plunger means are not forcing the diaphragm to block off communication between said pairs of passageways;

a piston housing in sealing engagement with the lower surface of said plunger housing, said piston housing comprising a tubular sidewall;

a first piston means having an opening extending axially therethrough, said first piston being positioned in said piston housing adjacent the lower surface of the plunger housing for reciprocal movement along the central axis of the piston housing in sealing engagement with the inner surface of said tubular sidewall, with the sealing engagement being provided by a spring-loaded seal comprising a ring of heat resistant polymeric material, said spring-loaded seal being in gripping engagement with the periphery of said piston in a channel extending around the periphery of said first piston, wherein the one edge of the channel extends outwardly farther than the other edge of the channel and the edge that extends outwardly the least tapers inwardly away from the channel in such a manner as to permit the spring-loaded seal to be readily snapped into said channel, and wherein the upper surface of said first piston has a configuration such that a first chamber is formed between the outer portions thereof and the lower surface of said plunger housing, and such that when said first piston is in its upper position it will force a first set of said plunger means to force the diaphragm against the end cap to block off communication between the pair of passageways in the end cap surrounding each plunger means of that first set;

a second piston means being positioned in said piston housing below said first piston means for reciprocal movement along the central axis of the piston housing in sealing engagement with the inner surface of said tubular sidewall, with the sealing engagement being provided by a spring-loaded seal comprising a ring of heat resistant polymeric material, said spring-loaded seal being in gripping engagement with the periphery of said second piston in a channel extending around the periphery of said second piston wherein one edge of the channel extends outwardly further than the other edge of the channel and the edge that extends outwardly the least tapers inwardly away from the channel in such a manner as to permit the spring-loaded seal to be readily snapped in said channel, said second piston means containing a projecting portion which extends upwardly from the upper face of said second piston through the opening in said first piston for reciprocal movement in said opening in sealing engagement with said first piston, said sealing engagement being provided by a spring-loaded seal comprising a ring of heat resistant polymeric material, said spring-loaded seal being in gripping engagement with the periphery of said projecting portion in a channel extending around said projecting portion, wherein at least the upper portion of the projecting portion can be separated to allow said sealing ring to be readily placed in said channel of said projecting portion, and wherein the projecting portion is of such length and its upper surface of such configuration that when the second piston is in its uppermost position it will force a second set of said plunger means to force the diaphragm against the end cap to block off communication between the pair of passageways in the end cap surrounding each plunger of that second set, and wherein the

lower surface of said first piston and the upper surface of said second piston are such that even when the second piston is in its uppermost position there is a gap between the outer portions thereof so as to define a second chamber; and wherein said second piston means includes a securement means for securing the separable portion of the projecting portion to said second piston;

first spring means positioned between the lower surface of said plunger housing and said first piston means to urge said first piston means away from said plunger housing;

second spring means positioned beneath the lower surface of said second piston means for urging said second piston means toward said plunger housing;

spring securement means for securing said second spring means so that said second spring means will urge said second piston means toward said plunger housing;

a fluid passageway extending through said piston housing into said second chamber, through which fluid can be passed to cause said first and second pistons to move relative to each other.

4,333,501

WEAVING MACHINE HAVING A RIGID FRAME

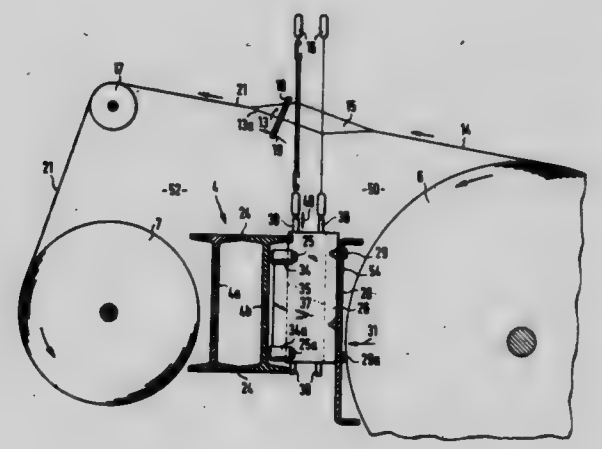
Otto Hintsch, Wallisellen, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Mar. 17, 1980, Ser. No. 131,114

Claims priority, application Switzerland, Mar. 28, 1979, 2871/79

Int. Cl.³ D03D *49/02*

U.S. Cl. 139—1 R **9 Claims**



1. In a weaving machine having a machine frame including a warp beam end, a cloth beam end, a main girder extending across said frame between said ends, a supplementary girder parallel to and spaced from said main girder at said warp beam end, said supplementary girder being U-shaped in cross-section with a pair of flanges directed towards said warp end of said machine frame and a plurality of drive members located between said girders for vertically driving a plurality of shed-forming shafts;

at least one connecting member secured to and between said girders to form a rigid connection between said girders,

a guide mounted on said connecting member for guiding said drive members therein, and

a warp beam mounted at said warp beam end of said frame and projecting into and between said flanges of said supplementary girder.

4,333,502

FORMING FABRICS FOR PAPER-MAKING MACHINES AND METHODS OF MANUFACTURE THEREOF

Robert Karm, Selestat, France, assignor to Martel Catala & Cie, Selestat, France

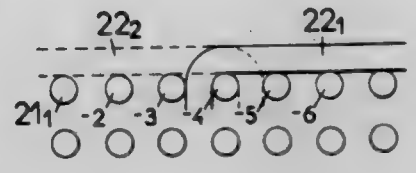
Continuation-in-part of Ser. No. 780,249, Mar. 22, 1977, Pat. No. 4,171,009. This application May 2, 1979, Ser. No. 35,416

Claims priority, application France, Nov. 7, 1977, 77 33394

The portion of the term of this patent subsequent to Oct. 16, 1996, has been disclaimed.

Int. Cl.³ D03D *15/00, 15/02;* B21F *1/10;* B10D *39/08*

U.S. Cl. 139—425 A **9 Claims**



1. Endless forming fabric for paper-making machine and the like, comprising:

an upper layer of threads transverse to the direction of movement of the fabric on the machine and located on the material forming side of the fabric,

a lower layer of threads transverse to said direction of movement and located on the wear side of the fabric,

and longitudinal threads interwoven with the layers of transverse threads,

wherein all outer loops formed by the longitudinal threads over the transverse threads of the upper layer bind with from 3 to 7 transverse threads of the upper layer and the first points of crossing of said outer loops with the transverse threads are distributed according to a weaving pattern comprising at least five longitudinal threads,

and the weaving pattern on the outer surface of the fabric which supports the material to be formed is of a type without alignments of said loops on adjacent threads and without diagonal effects,

wherein the longitudinal threads from lower loops each binding with one transverse thread of the lower layer on the wear side of the fabric,

and wherein said outer loops formed by the longitudinal threads over the transverse threads of the upper layer are so located that there is no gap in the longitudinal direction between each individual said outer loop of each said longitudinal thread and outer loops of the adjacent longitudinal threads.

4,333,503

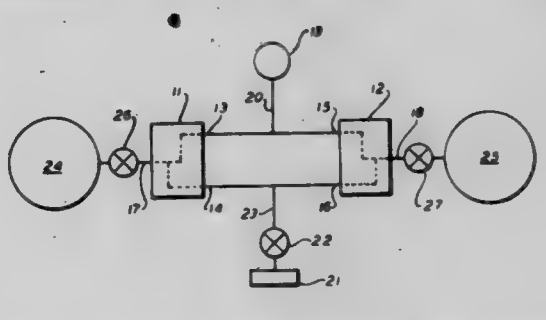
SYSTEM AND METHODS WITH SCAVENGING CAPABILITIES FOR SIMULTANEOUSLY FILLING AND EVACUATING A PLURALITY OF SEPARATE PRESSURE VESSELS

John Stefiuk, R.D. #1 Bunker Hill Rd., Princeton, N.J. 08540

Filed Jan. 30, 1980, Ser. No. 116,881

Int. Cl.³ B65B *31/00*

U.S. Cl. 141—8 **4 Claims**



1. A system with scavenging capability for simultaneously filling a first vessel with a pressurized fluid and evacuating a second vessel comprising:

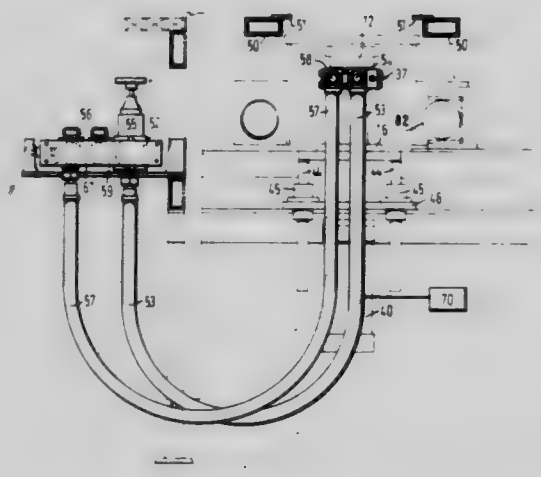
(a) at least two multi-position valve means, each valve means having at least two inlets and at least one outlet;
(b) one of each of the inlets of each said multi-position valve means connected respectively to a source of fluid under pressure and a source of vacuum, the inlets of each multi-position valve means connected to the source of vacuum being also operatively connected to each other, and
(c) an outlet of each of the multi-position valve means being operatively connectable to at least one vessel valve means which is in turn proximal to and connectable to a vessel;
(d) each multi-position valve means being operable to connect the vessel valve means to which it is connected to the other vessel valve means through the other multi-position valve means.

4,333,504

CONTAINER FILLING MACHINE

Cyril G. Golding, Sedgley, England, assignor to GKN Sankey Telford, England

Filed May 7, 1980, Ser. No. 147,495
Claims priority, application United Kingdom, May 12, 1979, 7916585
Int. Cl.³ B65B *31/00*
U.S. Cl. 141—55 **4 Claims**



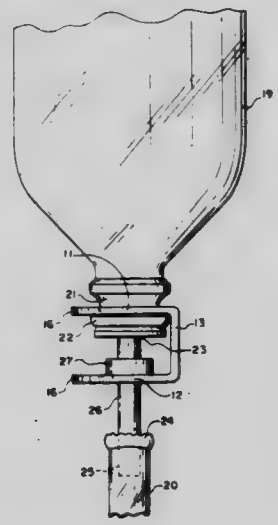
1. A machine for filling with liquid containers having spring-loaded closure units, the filling being carried out via a head which seals with a container to be filled and which carries means to open the closure unit of said container, the machine comprising:
a main frame and a filling head movable relative to the frame to engage a container to be filled,
a liquid inlet valve on the frame and a conduit from the liquid inlet valve to a change-over valve fixed to the head,
a liquid outlet valve on the frame and a conduit from the liquid outlet valve to the change-over valve,
a gas inlet valve fixed on the frame and a conduit from the gas inlet valve to the head,
said change-over valve being operable in synchronism with the liquid inlet valve,
the change-over valve being adjustable to a first state in which the head communicates with the liquid inlet valve and a second state in which the head communicates wih the liquid outlet valve, and,
control means arranged so that during filling of a container the container closure unit is open, the liquid inlet valve is open and the change-over valve is in its first state so that liquid passes through the liquid inlet valve and the conduit from it to the change-over valve, then to the head and then into the container and, upon termination of filling, the container closure unit and the liquid inlet valve are closed, the change-over valve is changed over to its second state and the gas inlet valve is opened so that gas can flow from the gas inlet valve through the conduit from it to the head to enable the gas to clear the head of liquid which is driven by the gas through the change-over valve into the conduit therefrom to the liquid outlet valve.

4,333,505

CLAMP FOR PREVENTING THE UNINTENTIONAL SEPARATION OF A CONDUIT FROM A CONTAINER

William L. Jones, Victor, N.Y., and Jon A. Christensen, Lake Zurich, Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jul. 7, 1980, Ser. No. 166,212
Int. Cl.³ B65B *3/00*
U.S. Cl. 141—383 **1 Claim**



1. In a fluid assembly including a container suspended in an inverted position, said container having a relatively narrow neck defining a discharge opening from said container, said neck having an enlarged diameter portion adjacent the end thereof, a stopper disposed in said discharge opening and a fluid delivery conduit terminating in a spike, said spike being inserted sufficiently into said stopper to communicate with the interior of said container, said spike having an enlarged flange portion exterior of said container, the improvement comprising:
a generally U-shaped clamp for preventing the unintended separation of the spike from the stopper, said clamp having a pair of flat, substantially parallel leg portions, each leg portion terminating in a free end;
a spike-receiving slot defined in one of said leg portions and extending through the free end thereof, said spike-receiving slot having a width less than the width of said flange to prevent said flange from passing therethrough;
the other of said leg portions defining a neck-receiving aperture therein and a slot communicating between said aperture and the free end of said other leg portion, said neck-receiving aperture being smaller than said enlarged diameter portion of the container neck to prevent withdrawal of the neck through said aperture, said communicating slot having a width smaller than the width of said container neck and said other leg portion being sufficiently resilient to permit temporary spreading of said communicating slot to receive said container neck being disposed in neck-receiving aperture of said other leg portion, whereby said enlarged diameter neck portion and said spike flange are captured between said leg portions of said clamp, said clamp thereby preventing unintended separation of said spike from said stopper.

4,333,506

PENCIL SHARPENER

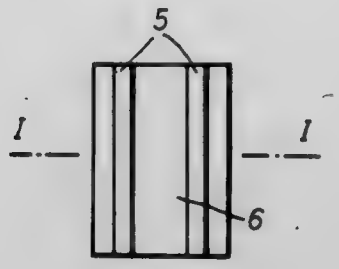
Werner Möbius, Hindenburgstrasse 77, 8520 Erlangen, Fed. Rep. of Germany

Continuation of Ser. No. 935,976, Aug. 22, 1978, abandoned. This application Jul. 11, 1979, Ser. No. 56,523

Claims priority, application Fed. Rep. of Germany, Oct. 11, 1977, 7731410[U]

Int. Cl.³ B43L *23/00*

U.S. Cl. 145—3.1 4 Claims



1. A hand held pencil sharpener comprising a metallic body member of rectangular cross-section, said body member having a longitudinal pencil opening, sharpening means associated with said pencil opening and a pair of external gripping surfaces on opposite sides of said body member independent from said pencil opening and said sharpening means, each gripping surface comprising at least three longitudinal ridges having equal width, a longitudinal recess between each pair of adjacent ridges, each recess having a planar bottom surface, planar side walls and a substantially rectangular cross-section, and said recesses being equal in width.

4,333,507

TIRE WITH COMPOSITE REINFORCEMENT CORD

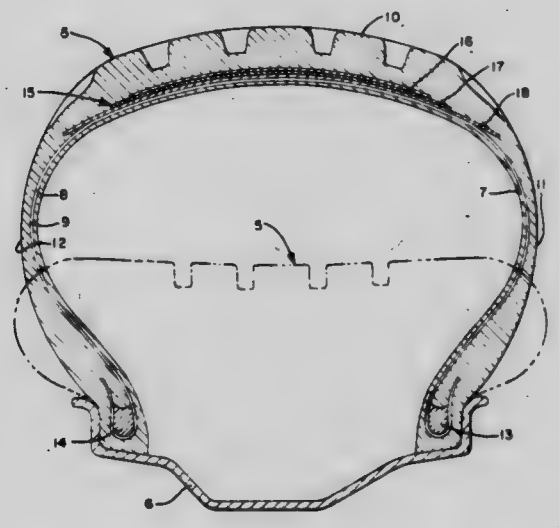
Georges J. E. Schmit, Bridel, and Thomas N. H. Welter, Keispelt, both of Luxembourg, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 916,271, Jun. 16, 1978. This application Nov. 20, 1980, Ser. No. 208,706

The portion of the term of this patent subsequent to Dec. 23, 1997, has been disclaimed.

Int. Cl.³ B60C *9/00*; D02G *3/36*

U.S. Cl. 152—359 9 Claims



1. A tire having at least one part reinforced with a plurality of composite cords, each of which initially prior to vulcanization comprises at least one high tenacity, substantially inextensible yarn spirally wrapped around a core, said core including at least one filament having at room temperature an elastic limit of at least 2.5 kilograms and a modulus of elasticity greater than 25 grams per denier to resist and recover from tension forces on the cord during the processing of said cord and tire and said core having a reduction in tenacity after being subjected to temperatures normally used during vulcanization of the tire of at least 120° C. and cooling to a lower temperature to permit stretching out of said yarn to allow for elongation of the tire and then reinforcing of the tire in the elongated condition when said yarn is stretched out.

2. A tire having at least one part reinforced with a plurality of composite cords, each of which initially prior to vulcanization comprises at least one high tenacity, substantially inextensible continuous yarn spirally wrapped around a core, said core including at least one filament having at room temperature an elastic limit of at least 2.5 kilograms and a modulus of elasticity greater than 25 grams per denier to resist and recover from tension forces on the cord during the processing of said cord and tire and said core having a reduction in tenacity after being subjected to temperatures normally used during vulcanization of the tire in the range of 120° C. to 150° C. and cooling to a lower temperature to permit stretching out of said yarn to allow for elongation of the tire and then reinforcing of the tire in the elongated condition when said yarn is stretched out.

4,333,508

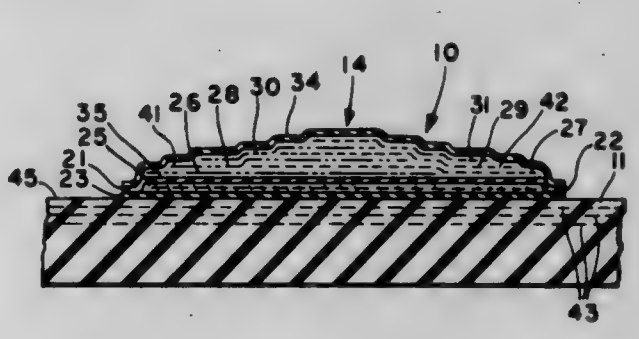
TIRE REPAIR PATCH FOR SIDEWALL AND BEAD REPAIRS

Jobbie DiRocco, 3424 Sweetbriar Ave., Akron, Ohio 44321, and David J. DiRocco, 7090 Grove Rd., Clinton, Ohio 44216

Filed Jun. 1, 1981, Ser. No. 268,874

Int. Cl.³ B60C *21/02, 21/04*

U.S. Cl. 152—367 12 Claims



1. A tire sidewall repair patch for application to the inner surface of a tire sidewall at a tire sidewall injury comprising a plurality of overlapping plies of reinforcing cords, a central portion for positioning over said tire injury, an inner margin having an inner edge adapted to conform generally to the shape of the bead portion of a tire, some of said plies of reinforcing cords extending into only one side portion of said inner margin and an additional number of said plies extending into only the other side portion of said inner margin so that there will be a concentration of said plies at said central portion to provide strength and a reduction in plies in each said side portion to provide flexibility of said patch in the area of the side portions of said patch.

4,333,509

SECTIONAL VENETIAN BLINDS

William H. Conn, Pasadena, Calif., assignor to Ohline Corporation, Gardena, Calif.

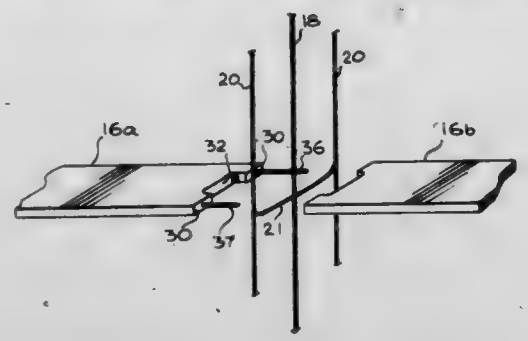
Filed Oct. 22, 1979, Ser. No. 87,029

Int. Cl.³ E06B *9/386*

U.S. Cl. 160—173 15 Claims

1. A Venetian blind having a plurality of slats supported in spaced relationship by a support structure which includes at least a pair of lift strings threaded through the slats in positions on opposite sides of the center plane of the blind, at least one of the slats being constructed in sections situated on opposite sides of a lift string, the sectioned slat having a joint encircling the lift string, said joint comprising adjacent end portions of said slat sections shaped for joining together in abutting relationship and concealed joining means encased within said end

portions, said joining means comprising a plurality of pins mounted to extend from at least one abutting end portion for



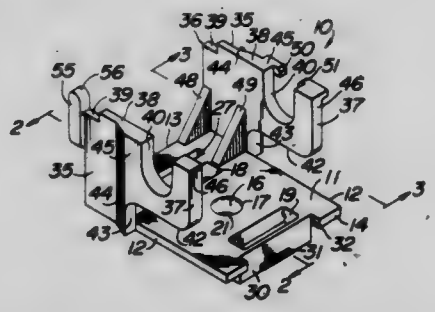
insertion into the other abutting end portion so as to be totally concealed within the sectioned slat joint.

4,333,510

TILT ROD SUPPORT FOR A VENETIAN BLIND

Mark A. Fox, Montoursville, Pa., assignor to Marathon Manufacturing Company, Houston, Tex.

Filed Dec. 29, 1980, Ser. No. 216,776
Int. Cl.³ E06B *9/38*
U.S. Cl. 160—177 **11 Claims**



1. In a venetian blind, a tilt rod support for mounting a tilt rod in a head rail: said tilt rod support being integrally formed of plastic material and comprising a base for resting in a head rail, nether boss means on said base for conformably engaging through the bottom of said head rail, retainer means on said boss means for retaining engagement with the bottom of said head rail, a pair of spaced walls upstanding from said base and terminating at upper edges, said walls each having a cut-out extending downwardly through its upper edge and defining of the adjacent wall portion a pair of upstanding legs, said cut-outs being in general alignment with each other and adapted to rotatably receive a tilt rod, and projections on at least one pair of said legs extending into the upper region of the associated cut-out, said projections and said one pair of legs being resiliently deflectable to snap pass and releasably retain a tilt rod in said associated cut-out.

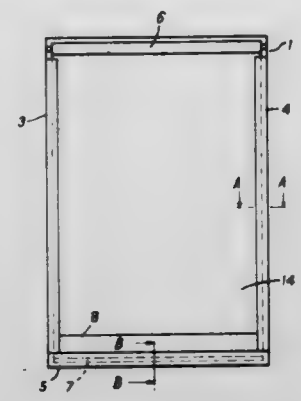
4,333,511

WINDOW INSULATIONS

David R. Johnston, Reading, England

Filed Oct. 9, 1979, Ser. No. 82,589
Claims priority, application United Kingdom, Oct. 10, 1978, 39979/78
Int. Cl.³ E06B *9/20, 9/208*
U.S. Cl. 160—267 R **12 Claims**

1. A thermal insulation arrangement for a window or door in a frame, the arrangement comprising a spring-loaded roller mounted across the top of the frame, a flexible sheet wound on the roller of such a shape and size as to fill the frame when drawn down from the roller, a stiffening bar along the free end of the sheet, channel members mounted down the sides of the frame, and flexible plastic brush seals mounted in the channel members, wherein said stiffening bar is respectively extended into said channel members between the brush seals, the brush seals respectively slidably engaging both faces of the sheet at the side edges thereof for air sealing between the respective brush seals and the respective faces of the sheet at the side



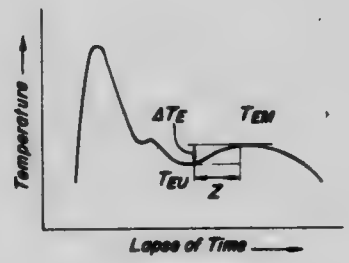
edges thereof and for allowing passage of the stiffening bar between the respective brush seals.

4,333,512

METHOD OF QUICKLY PREDICTING THE DEGREE OF NODULARITY OF SPHEROIDAL GRAPHITE CAST IRON FROM A MOLTEN IRON SAMPLE

Taku Sugiura, Nagoya; Katsuya Fukuoka, Chita; Tomihiko Inoue, Tsushima; Masayoshi Kanbe, Toyoake, and Toshio Iwama, Nagoya, all of Japan, assignors to Yahagi Iron Co., Ltd., Nagoya, Japan

Filed May 15, 1979, Ser. No. 39,432
Claims priority, application Japan, May 17, 1978, 53-58640
Int. Cl.³ B22D *2/00*
U.S. Cl. 164—453 **5 Claims**



1. A method of producing spheroidal graphite cast iron of a high degree of nodularity, comprising:

subjecting a quantity of molten iron containing carbon to a nodulizing treatment;

pouring a sample of said quantity of molten iron into a sampling mold having a thermocouple for measuring a temperature change of molten iron poured into the mold and converting the value into electrical signal;

cooling said sample of molten iron with the cooling conditions adjusted such that the time duration after the pouring of the sample of molten iron into the sampling mold up to the completion of the eutectic solidification is within a range of 1 to 10 minutes;

measuring the lowest temperature T_{EU} due to undercooling and the highest temperature T_{EM} due to recalescence subsequent to the undercooling and the time elapsed (Z) between the occurrence of the lowest temperature T_{EU} and the occurrence of the highest tmperature T_{EM} by said thermocouple during the cooling period;

sampling the analogue signals derived from said thermocouple at predetermined short time intervals of less than 3 seconds in sampling means;

converting the sampled analogue signal into a digital signal in an analogue-digital converter;

successively determining and storing in a computer the values for the lowest temperature T_{EU} due to undercooling and for the highest temperature T_{EM} due to recalescence subsequent to the undercooling;

determining and storing in the computer the elapsed time Z from the occurrence of the lowest temperature T_{EU} and the occurrence of the highest temperature T_{EM};

storing in the computer predetermined constants (a, b, c, e);

processing the value of the degree to be determined of nodularity from the temperature T_{EM}, T_{EU}, the constants (a, b, c, e) and the measured time (Z) according to a predetermined function $(a+bT_{EM}+c\Delta T_E+eZ)$ in an operational processing circuit of the computer;

displaying the achieved value of the degree of nodularity with a digital or analogue display; and

casting the rest of said quantity of molten iron if the displayed value of the degree of nodularity is at least 61%.

4,333,513

CATECHOL RESINS FOR THE SHELL PROCESS

Robert S. Craig, Hoffman Estates, Ill., assignor to Acme Resin Corporation, Englewood Cliffs, N.J.

Division of Ser. No. 90,388, Nov. 1, 1979, Pat. No. 4,281,090, which is a division of Ser. No. 869,407, Jan. 16, 1978, Pat. No. 4,206,262. This application Mar. 5, 1981, Ser. No. 240,641

Int. Cl.³ B22C *1/22*

U.S. Cl. 164—526 **5 Claims**

1. A process for forming foundry cores and molds comprising the steps of:

(1) contacting a hot pattern with a free-flowing resin-coated sand comprising

(a) particles of sand coated with from about 1% to 8%, by weight of the sand, of a novolak resin; consisting essentially of from about 50% to about 98% of a phenol-formaldehyde novolak resin and from about 2% to about 50% of a catechol-formaldehyde agent;

(b) a curing agent;

(2) holding the resin-coated sand against the hot pattern to bond a portion of the particles of resin-coated sand together to form a foundry mold or core of suitable thickness;

(3) removing unbonded particles of resin-coated sand from bonded particles of sand forming the foundry mold or core;

(4) curing the foundry mold or core, the hot pattern having a temperature of from about 300° F. to 700° F.; and

(5) removing the foundry mold or core from the pattern.

4,333,514

SUSPENSION FOR A THERMALLY HEAVY LOAD CYLINDRICAL PIPE ASSEMBLY

Rolf Dörling, and Hans Hemschemeier, both of Gummersbach, Fed. Rep. of Germany, assignors to L. & C. Steinmüller GmbH, Gummersbach, Fed. Rep. of Germany

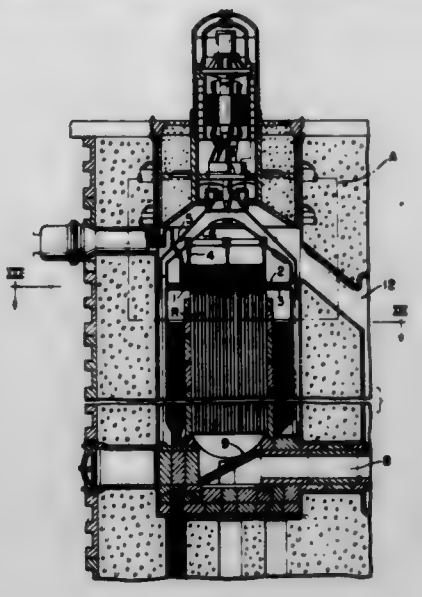
Division of Ser. No. 960,834, Nov. 15, 1978, Pat. No. 4,258,781. This application Jul. 30, 1980, Ser. No. 173,468

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1977, 2750924

Int. Cl.³ F28F *9/00*

U.S. Cl. 165—1 **1 Claim**

1. In a method of cooling a suspension plate having means forming chambers and forming a part of a suspension permitting an effective cooling for a thermally heavy load cylindrical pipe assembly having an axis with a high-temperature reactor with cooled-off heat carrier gas. the improvement in combination therewith which comprises the steps of uniformaly distributing and utilizing gas from the reactor over the entire pipe assembly as cooling medium for the suspension plate for the pipes and the hollow supporting structure including therewith



at least a portion of the cooled-off heat carrier gas of the high-temperature reactor.

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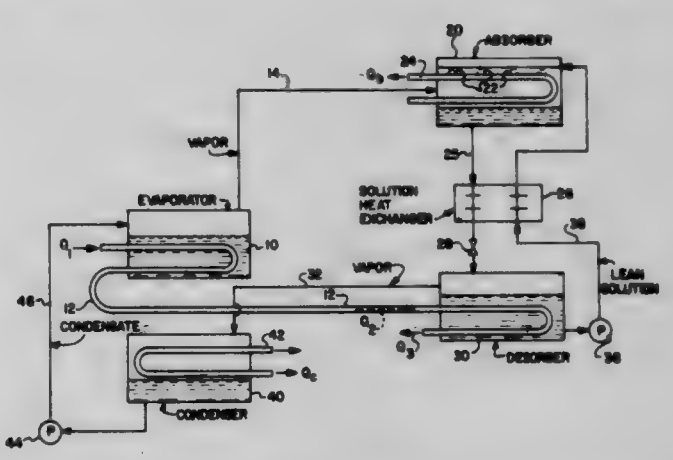
PROCESS AND SYSTEM FOR BOOSTING THE TEMPERATURE OF SENSIBLE WASTE HEAT SOURCES

William H. Wilkinson, Columbus, and William T. Hanna, Gahanna, both of Ohio, assignors to Battelle Development Corp., Columbus, Ohio

Filed Aug. 13, 1980, Ser. No. 177,663

Int. Cl.³ F25B *15/00*

U.S. Cl. 165—1 **15 Claims**



1. A process for boosting the temperature of a sensible waste heat source available at a first temperature to a higher second temperature comprising the steps of:

(a) supplying heat from said waste heat source and utilizing a portion of it to evaporate a refrigerant at a relatively high pressure to form a refrigerant vapor,

(b) contacting said refrigerant vapor with a liquid solution of an absorbent and said refrigerant which is relatively lean in refrigerant to absorb at least a portion of said refrigerant vapor into solution, thereby releasing heat to an external process stream at said higher second temperature,

(c) passing the resultant relatively refrigerant rich solution to an area of relatively lower pressure and supplying a succeeding portion of heat from said waste heat source to desorb at least a portion of the refrigerant from said refrigerant rich solution as vapor thereby forming a refrigerant lean solution,

(d) recycling said refrigerant lean solution to again contact it with refrigerant vapor from said evaporating step,

(e) condensing at least a portion of the desorbed refrigerant vapor to form a refrigerant liquid, and

(f) returning the condensed refrigerant liquid to said evaporating step.

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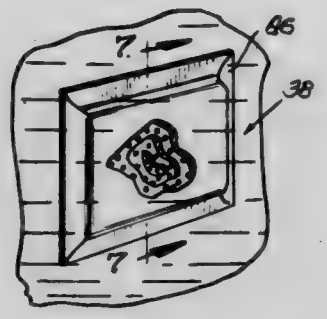
CORRODIBLE CONTAINER FOR AUTOMATIC ADDITION OF CORROSION INHIBITOR TO A COOLANT SYSTEM

Robert H. Krueger, Palatine; Clarence E. Albertson, Villa Park, both of Ill., and Bruce P. Miglin, Columbus, Ohio, assignors to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 88,506, Oct. 26, 1979, abandoned, which is a continuation-in-part of Ser. No. 964,219, Nov. 27, 1978, abandoned. This application Dec. 10, 1980, Ser. No. 214,843

Int. Cl.[3] F28F *19/00*

U.S. Cl. 165—1 36 Claims



8. The method as set forth in claim 1, including the step of providing an expandible anhydrous salt as a corrosion inhibitor in the container so that upon penetration of the container portion by the coolant to contact the salt, the salt rapidly expands to rupture said container portion and allow release of the inhibitor.

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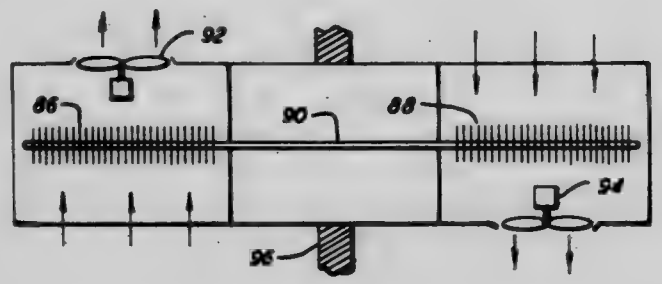
HEAT EXCHANGE METHOD USING NATURAL FLOW OF HEAT EXCHANGE MEDIUM

James Parro, R.D. 2, Sadler Rd., Skaneateles, N.Y. 13152

Division of Ser. No. 56,419, Jul. 10, 1979, Pat. No. 4,295,342. This application Jul. 8, 1981, Ser. No. 281,272

Int. Cl.[3] F25D *31/00;* F23D *15/00;* F24J *3/00*

U.S. Cl. 165—1 12 Claims



1. A method of reducing energy losses and of eliminating undesired transfer of air between the interior and exterior of an enclosed room in heating, ventilating and air conditioning applications by reversible heat exchange between room air and outside air, comprising:

(a) providing a pair of continuous heat exchange coils each having an upper and a lower end and a plurality of substantially horizontal portions therebetween;

(b) placing the upper ends of said coils at a vertical level substantially higher than the lower ends of each coil;

(c) connecting said upper ends for direct communication through a connecting line and connecting said lower ends for direct communication through a connecting line;

(d) charging said coils with a heat exchange liquid to a level substantially above the lower ends and below the upper ends of both of said coils; and

(e) placing said coils on opposite sides of a wall separating the room from the outside with said lines connecting said upper and lower ends passing through said wall, thereby contacting one of said coils only with room air and the other only with outside air, whereby refrigerant is evaporated from the inside coil when room air is warmer than outside air, and vice versa, thereby increasing the pressure in the coil from which refrigerant is evaporated and causing refrigerant to flow to the other coil giving up heat to the air at the lowest temperature.

4,333,518

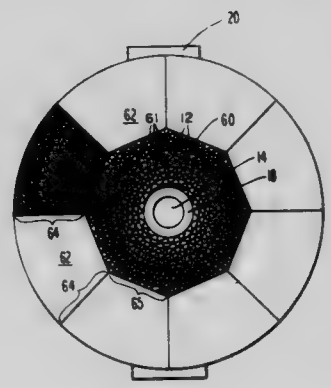
METHOD FOR IMPROVING THERMAL SHOCK RESISTANCE OF HONEYCOMBED STRUCTURES FORMED FROM JOINED CELLULAR SEGMENTS

Rodney I. Frost, Corning; Robert D. McBrayer, Painted Post, and Vimal K. Pujari, Corning, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,776

Int. Cl.[3] B32B *3/12, 1/08*

U.S. Cl. 165—8 18 Claims



1. A method of improving the thermal shock resistance of honeycombed outer surface of a structure fabricated from ceramic, glass-ceramic, glass, sintered metal or cermet, said surface being formed from a plurality of cellular segments, said segments each being joined to one another along side walls by a bond joint of cement therebetween, said cement formed from ceramic, glass-ceramic, glass, sinterable metal, cermet or other ceramic base materials, comprising the steps of:

bonding each of said cellular segments to another of said cellular segments along one of said side walls of each so as to form a cement bond joint therebetween; and

recessing a substantial plurality of said cement bond joints from said honeycombed surface whereby the thermal shock resistance of said surface is improved.

4,333,519

CONTROLLER FOR AIR CONDITIONING UNITS, HEATING UNITS AND THE LIKE

Doron Shafrir, 4 Ross Ave., Spring Valley, N.Y. 10977, and Jeffrey Lamb, 172-41 Highland Ave., Jamaica Estates, N.Y. 11432

Filed May 8, 1980, Ser. No. 148,059

Int. Cl.[3] F25B *29/00;* F23N *5/20*

U.S. Cl. 165—12 36 Claims

1. A controller for a system of the type which regulates the temperature in a space, said system including a first energy consuming component and an energy source for activating said component when said energy source is connected thereto, said controller comprising:

a first preset temperature sensitive device for providing a first output signal at a first predetermined temperature;

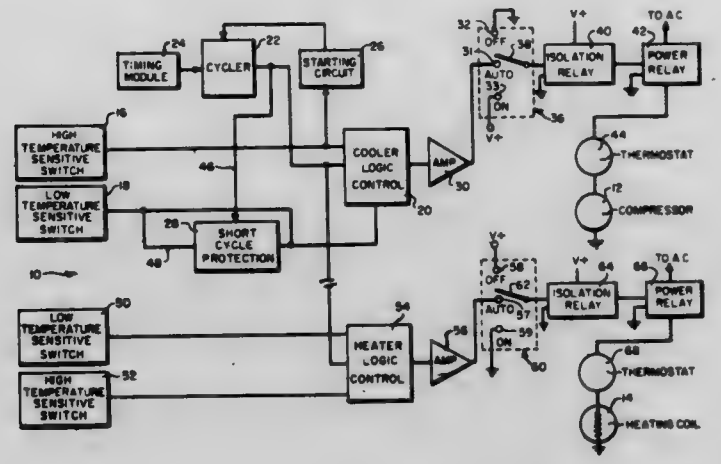
a second preset temperature sensitive device for providing a second output signal at a second predetermined temperature, said second predetermined temperature being lower than said first predetermined temperature;

means for generating a third output signal having a first predetermined duty cycle;

first switch means operatively connected to said energy source and said first energy consuming component, said

switch means being operable in a first mode wherein said switch means interrupts the connection between said energy source and said first component, and a second mode wherein the connection between said energy source and said first component is uninterrupted by said switch means; and

first control means operatively connected to said first, second and third output signals, and said first switch means, for



(a) operating said switch means in one of said first and second modes when said first output signal is present at said control means,

(b) cycling said switch means between said first and second modes according to said first predetermined duty cycle when neither of said first and second output signals is present at said control means, and

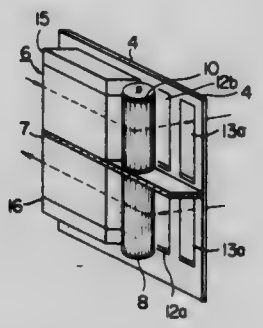
(c) operating said switch means in the other of said first and second modes when said second output signal is present at said control means.

4,333,520

HEATING AND COOLING VENTILATING SYSTEM WITH HEAT RECOVERY

Michio Yanadori, Hachioji; Kengo Hasegawa, Sakura, and Motokazu Uchida, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 3, 1980, Ser. No. 156,116
Claims priority, application Japan, Jun. 4, 1979, 54-68959
Int. Cl.³ F24F *7/00*; F28D *15/00*
U.S. Cl. 165—59 **6 Claims**



1. A ventilating system comprising:

a cabinet;

a heat exchanger utilizing boiling and condensation of a fluid mounted in said casing;

a first air passage and a second air passage defined in said cabinet by a partition plate extending horizontally across said heat exchanger substantially in the center thereof; and

at least one air sucking and exhausting fan mounted in one of said first air passage and said second air passage; wherein the improvement comprises:

at least one auxiliary heat exchanger functioning as a cooler when space cooling is effected by said ventilating system and a heater when space heating is effected thereby;

a ventilating port for effecting heat recovery and a ventilating port for allowing cooled air or heated air to flow therethrough formed in said cabinet to cooperate with one air duct communicationg with said first air passage;

a ventilating port for effecting heat recovery and a ventilating port for allowing cooled air or heated air to flow therethrough formed in said cabinet to cooperate with another air duct communicating with said second air passage;

a plurality of shutters, one of said shutters being mounted in said first air passage for alternately opening and closing said ventilating port for effecting heat recovery and said ventilating port for allowing cooled air or heated air to flow therethrough and the other shutter being mounted in said second air passage for alternately opening and closing said ventilating port for effecting heat recovery and said ventilating port for allowing cooled air or heated air to flow therethrough; and

a plurality of ventilating ports for effecting cooling by ventilation and a plurality of ventilating ports for effecting heat recovery formed in said first air passage and a plurality of ventilating ports for effecting cooling by ventilation and a plurality of ventilating ports for effecting heat recovery formed in said second air passage;

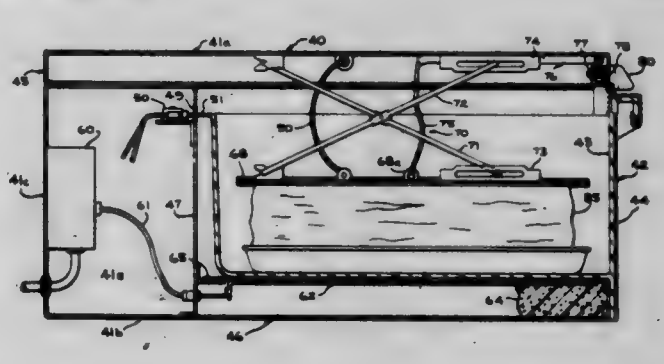
wherein said various ventilating ports are alternately opened and closed to suit the conditions of operating the ventilating system in a heat recovery mode, a cooling by ventilation mode, and a space cooling or space heating mode.

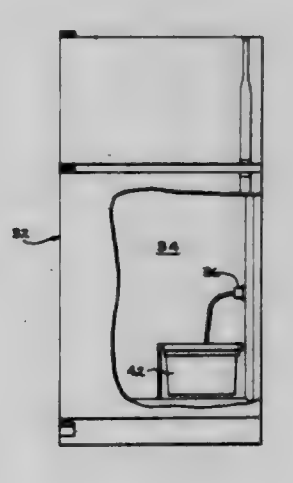
4,333,521

APPARATUS FOR THAWING FROZEN FOOD

Richard L. Stottman, Lima, Ohio, and Peter H. Smith, Anchorage, Ky., assignors to General Electric Company, Louisville, Ky.

Division of Ser. No. 108,755, Dec. 31, 1979, Pat. No. 4,296,299.
This application Apr. 2, 1981, Ser. No. 250,493
Int. Cl.³ F25B *29/00*
U.S. Cl. 165—63 **5 Claims**





1. A refrigerator comprising:

a food storage compartment;

means for maintaining the food storage compartment at a relatively cool temperature for food preservation purposes;

a food thawing enclosure including top, bottom and side walls comprised of electromagnetic radiation shielding

material within said food storage compartment and being in good thermal communication with the food storage compartment, said enclosure having a pair of electrodes therein defining a food thawing zone;

means providing access to said enclosure for enabling removable insertion of frozen food into said food thawing zone;

and means for supplying high frequency electromagnetic energy to said electrodes;

whereby the frozen food may be thawed and allowed to remain in said enclosure subsequent to thawing, the temperature within said enclosure being substantially at the temperature of the food storage compartment thus preventing spoilage of the thawed food.

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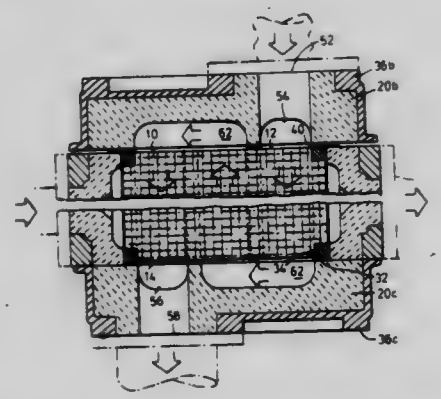
CASINGS FOR HEAT EXCHANGERS AND BURNER/RECUPERATOR ASSEMBLIES INCORPORATING SUCH CASINGS

Heinz Brune, P.O. Box 3201, Station C, Hamilton, Ontario, Canada (L8H 7K6)

Continuation-in-part of Ser. No. 10,186, Feb. 7, 1979, Pat. No. 4,262,740. This application Mar. 9, 1981, Ser. No. 241,896

Int. Cl.³ F28F *9/00*

U.S. Cl. 165—69 **8 Claims**



1. A casing for a heat exchanger core which has therein a first plurality of parallel passages extending between two opposite faces of the body and constituting a first fluid flow path having an inlet and an outlet and a second plurality of parallel passages extending between two other opposite faces of the body and constituting a second fluid flow path having an inlet and an outlet and in heat exchange communication with the first path, the casing including:

a hollow casing body having an internal shoulder to be engaged by a respective face of the core and surrounding a respective fluid path inlet or outlet from the casing body;

a first gasket interposed between the shoulder and the edges of the abutting core face;

a second gasket mounted on the edges of the core face opposite to the said abutting face to seal the join between the said core edges and the casing body;

a gasket compressor member engaging the gasket face of the second gasket opposite to that engaged with the core face edges; and

resilient means operative between the gasket compressor member and the casing body to urge the compressor member toward the core face and thereby compress the gaskets into sealing engagement with the respective core edges and the casing body;

wherein the said hollow casing body comprises a central portion thereof of a thickness to just accommodate a respective heat exchanger core;

a first end portion removably mounted on said central portion and providing a respective plenum for gases passing through the core;

and wherein the said gasket compressor member comprises a second end portion of the hollow casing body providing another respective plenum for gases passing through the core.

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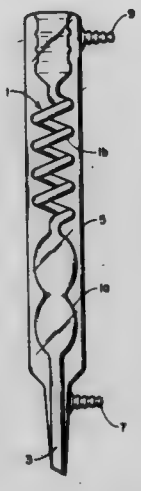
REFLUX CONDENSER

Harold E. Hartzler, Goshen, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Nov. 1, 1979, Ser. No. 90,323

Int. Cl.³ F28B *1/00*

U.S. Cl. 165—73 **9 Claims**



1. In combination with a reflux apparatus having a central chamber for the reception of hot gases from a reaction vessel, which central chamber is designed to be open to the atmosphere at one end and removably connected to and in gaseous communication with the reaction vessel at the other end and is surrounded by a cooling jacket for flow therethrough of a cooling liquid for cooling and condensing hot gases surging through the central chamber from the reaction vessel, the improvement wherein the central chamber comprises:

(a) a lower primary condenser formed of 2 or more bulbous portions connected to and in fluid communication with each other and with,

(b) an upper secondary condenser formed of a curvilinear column.

4,333,524

HIGH EFFICIENCY FURNACE

Robert H. Elkins, Hinsdale; Gary M. Durkin, Justice, and Robert A. Macriss, Deerfield, all of Ill., assignors to Southern California Gas Company, Los Angeles, Calif.

Continuation of Ser. No. 16,206, Feb. 28, 1979, Pat. No. 4,249,594. This application Feb. 9, 1981, Ser. No. 232,807

The portion of the term of this patent subsequent to Feb. 10, 1998, has been disclaimed.

Int. Cl.³ F28D *13/00*; F22B *23/06*; F28B *7/00*

U.S. Cl. 165—104.16 **39 Claims**

1. In a high efficiency furnace, multiple fluidized bed means for heat exchange between two gas streams comprising:

flue gas duct means for conveyance of flue gas from a burner;

a first quantity of solid particles capable of operation at flue gas temperatures of about 200° to about 1200° F. comprising a first fluidized bed within said flue gas duct means and providing automatic flue closure upon stoppage of combustion;

distributor means for supporting said first fluidized bed and for admitting flue gas thereto and distributing flue gas throughout said first fluidized bed;

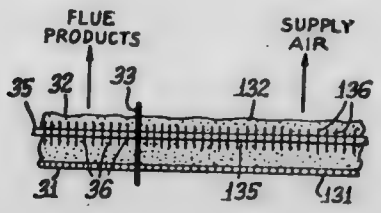
air duct means exterior to said flue gas duct means for the portion of its length passing through said first fluidized bed for conveyance of an air stream to be heated for introduction to heat an enclosed volume;

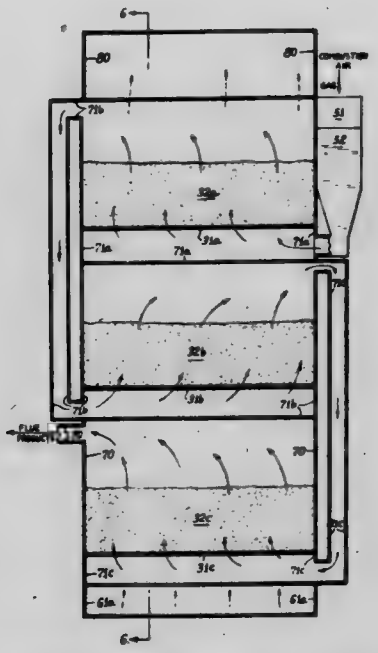
a second quantity of solid particles comprising a second fluidized bed within said air duct means;

distributor means for supporting said second fluidized bed

and for admitting air thereto and distributing the air to be heated throughout said second fluidized bed;

thermal exchange means in communication with said first





and second fluidized beds transferring heat from said first to said second fluidized bed;

each of said fluidized beds having a depth, when in fluidied state, of about ½ inch to about 4 inches.

4,333,525

HEAT EXCHANGER FOR USE WITH HEAT PIPE

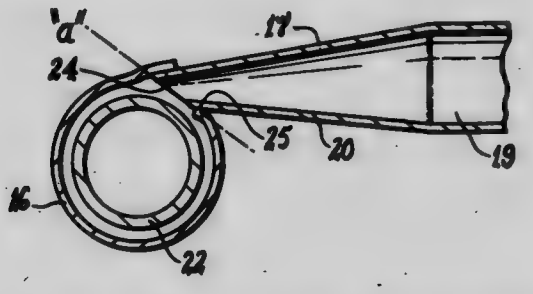
David D. Ikin, Blackburn; Paul G. Butler, Rosanna East; Christopher D. Sassella, Lower Plenty, and James K. Oliver, Altona North, all of Australia, assignors to Alcoa of Australia Limited, Melbourne, Australia

Filed Oct. 4, 1979, Ser. No. 81,903

Claims priority, application Australia, Oct. 4, 1978, PD6226; Feb. 19, 1979, PD7737

Int. Cl.³ F28D *15/00, 7/10*

U.S. Cl. 165—104.21 **8 Claims**



1. A heat exchanger jacket adapted to surround portion of a fluid-containing pipe and having at least one end adapted for fluid tight connection to said pipe, said jacket including a substantially tubular body portion and two fluid conduits lying on opposite sides of the body portion, each said conduit being connected to the body portion adjacent an opposite end portion thereof and adapted for fluid tight connection to an opposed conduit in such a manner as to impart a turbulent swirling or helical path to fluid passing through said body portion, characterized in that the end of at least said fluid conduit adapted to carry incoming fluid is formed before connection of the conduit to said body portion as a nozzle of decreased cross-sectional flow area normal to the flow of said fluid, and said decreased cross-sectional flow area is not more than the cross-sectional area of the fluid flow passage in the annular chamber, formed in use between said body portion and said pipe, adjacent the nozzle and normal to the flow path in said chamber.

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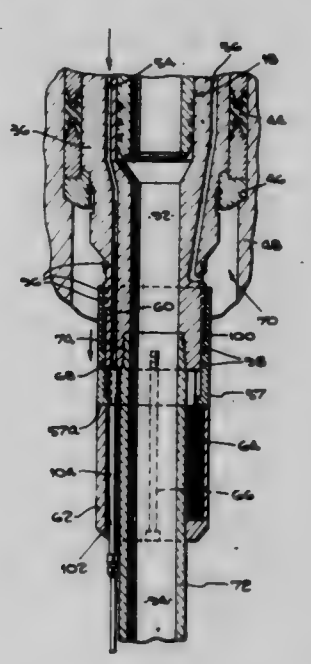
ANNULUS VALVE

Bruce J. Watkins, Rancho Palos Verdes, Calif., assignor to Hughes Tool Company, Houston, Tex.

Filed May 10, 1979, Ser. No. 37,841

Int. Cl.³ E21B *34/02*

U.S. Cl. 166—87 **6 Claims**



1. In an annulus valve apparatus for controlling fluid flow through a tubing-casing annulus formed between a casing and an inner tubing, said apparatus having a tubing hanger body landed within said casing in sealing relation thereto closing said annulus, said apparatus comprising:

passage means communicating between portions of said tubing-casing annulus above and below said tubing hanger body for passing fluid therebetween;

hydraulically-actuated means for opening said passage means to fluid flow therethrough; and

means for supplying hydraulic fluid to said opening means from a location remote therefrom, said fluid activating said opening means from a closed to an open position relative to said passage means, the improvement wherein said means for opening comprises:

a generally cylindrical sleeve member slidably movable on said body between positions opening and closing said passage means and having an internal hydraulic fluid receiving annular chamber formed between said sleeve member and said body; and

said means for supplying hydraulic fluid includes a tubing mandrel run from said remote location and removably inserted concentrically into said hanger body, said mandrel having at least one control fluid passage therein and said body having a second fluid passage opening to said chamber and communicating with said mandrel control fluid passage when said mandrel is inserted in said hanger body, for supplying said hydraulic fluid to slide said sleeve member to said open position.

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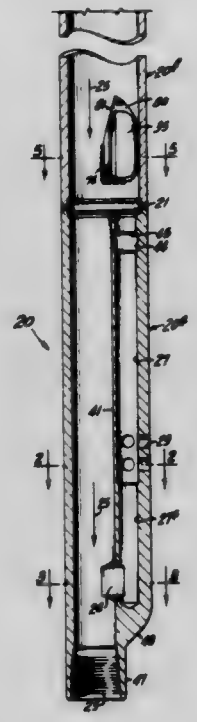
SIDE POCKET MANDREL AND METHOD OF CONSTRUCTION

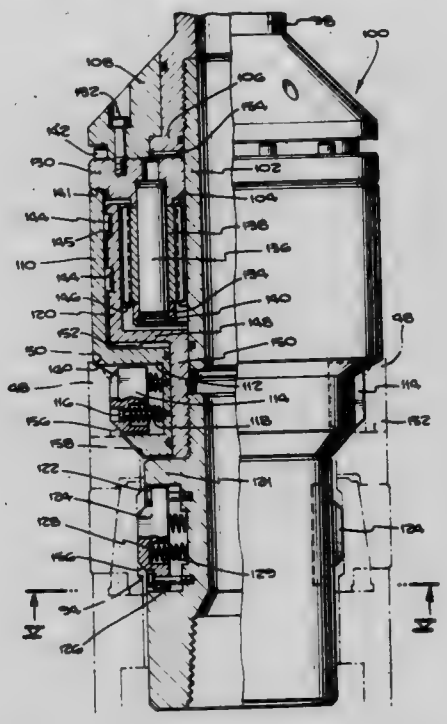
Robert S. Higgins, Lewisville, and David T. Merritt, Carrollton, both of Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Continuation-in-part of Ser. No. 86,723, Oct. 22, 1979, abandoned, which is a continuation-in-part of Ser. No. 77,184, Sep. 20, 1979, abandoned. This application May 12, 1980, Ser. No. 148,928

Int. Cl.³ E21B *23/03*

U.S. Cl. 166—117.5 34 Claims





1. A side pocket mandrel, comprising:

a. an elongate one-piece main body section having

i. a main bore extending longitudinally therethrough, said main bore being full opening,

ii. a machined receptacle bore therein extending alongside and offset from said main bore and open at its upper end,

iii. lateral port means in said main body section communicating said receptacle bore with the exterior of said main body section,

iv. means providing fluid communication between said main bore and said receptacle bore below the upper end thereof, and

v. means for connecting the lower end of said main body section to a tubing string; and

b. an upper body section welded to said main body section by a circumferential weld, said upper body section providing

i. a main passage therethrough in alignment with the main bore of said main body section,

ii. an offset belly therein in alignment with said receptacle bore providing space for operating a kickover tool for inserting a flow control device in said receptacle, and

iii. means for connecting the upper end of said upper body section to a tubing string.

4,333,528

SEAL ASSEMBLY RELEASING TOOL

Daniel C. Woodman, Hermosa Beach, Calif., assignor to Hughes Tool Company, Houston, Tex.

Filed Oct. 2, 1980, Ser. No. 193,314

Int. Cl.³ E21B *31/20*

U.S. Cl. 166—117.5 4 Claims

1. In a well formed with an outer well head casing and a concentric inner well head casing mounted upon a hanger which lands upon a shoulder formed on the inner surface of said outer well head casing having a casing hanger seal assembly mounted between said hanger and said outer casing an improved seal assembly releasing tool comprising: a shaft for lowering said tool into said outer casing of said well; an outer support case rotatably mounted upon said shaft; an inner unlocking element rotatably mounted within said outer support case; a planetary gear mounted between said outer case and said inner element; said outer support case having a reduced cylindrical surface area which slidably fits within a first cylindrical opening of said assembly tool, the surface of which is relieved to form cam surfaces therein; cam follower means extending from said reduced surface area of said outer support case for engaging said cam surfaces in said first cylindrical opening surface; said inner unlocking element having an extended cylindrical surface area which slidably fits within a second smaller concentric cylindrical opening of said assembly tool than said first mentioned cylindrical opening, the surface of which is relieved to form cam surfaces therein; and cam follower means extending from said extended surface area of said inner unlocking element for engaging said cam surfaces on said second cylindrical opening surface; wherein rotation of said tool turns and locks said first mentioned cam followers into said first seal assembly surface and continued rotation turns and locks said second mentioned cam followers into said second seal assembly surface in an opposite direction for releasing said seal assembly.

4,333,529

OIL RECOVERY PROCESS

Robert P. McCorquodale, West Hill, Canada, assignor to Wet-Com Engineering Ltd., Scarborough, Canada

Filed Aug. 29, 1980, Ser. No. 182,572

Claims priority, application United Kingdom, Aug. 31, 1979, 7930336

Int. Cl.³ E21B *43/24, 43/40*

U.S. Cl. 166—267 7 Claims

1. A continuous process for the recovery of oil from an oil deposit, which comprises:

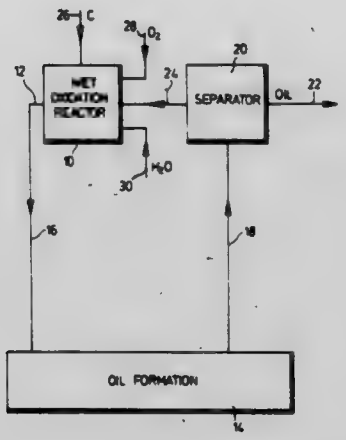
(a) continuously feeding an aqueous dispersion of carbonaceous material having a concentration of about 10 to about 20 wt.% COD to an enclosed reaction zone,

(b) continuously contacting said aqueous dispersion of carbonaceous material with an oxidizing gas in said enclosed reaction zone at a temperature of about 200° to about 350°, at a pressure of about 500 to about 3000 psi and for a time of about 5 to about 120 minutes to effect substantial wet oxidation combustion of said carbonaceous material to form a product gas stream having a pressure of about 500 to about 3000 psi and containing about 50 to about 95% by

volume of steam, about 5 to about 50% by volume of carbon dioxide and 0 to about 35% by weight of nitrogen,

(c) continuously injecting said product gas stream into said oil deposit under sufficient pressure to cause said oil to be ejected from said deposit in aqueous admixture,

(d) continuously recovering oil from said ejected aqueous admixture to leave an aqueous medium containing residual quantities of said oil in a concentration of about 1000 to about 10,000 ppm COD,



(e) continuously adding to said aqueous medium sufficient quantity of a fossil fuel to provide an aqueous dispersion of carbonaceous material having a concentration of about 10 to about 20 wt.% COD, and

(f) continuously forwarding said latter aqueous dispersion to said enclosed reaction zone as said continuously fed aqueous dispersion in step (a), whereby said residual quantities of said oil are consumed in forming said gas stream.

4,333,530

METHOD AND APPARATUS FOR CEMENTING A CASING

Ernest E. Armstrong, 3521 Seaboard, Midland, Tex. 79701

Continuation-in-part of Ser. No. 714,589, Aug. 16, 1976, Pat. No. 4,105,074, and a continuation-in-part of Ser. No. 814,396, Jul. 11, 1977, abandoned. This application Dec. 8, 1978, Ser. No. 967,791

Int. Cl.³ E21B *33/16*

U.S. Cl. 166—289 **19 Claims**



1. Method of cementing a casing in a borehole comprising:

(1) connecting an upper casing string and a lower casing string together with a coupling member while running the casing string into the borehole;

(2) forming an isolated flow path which extends through the entire casing string to the bottom of the borehole;

(3) flowing cement along said isolated flow path and back up the borehole annulus to cement the lower casing string within the lower borehole;

(4) perforating the lower casing string after the first cementing stage of step (3), testing the well to determine the production rate thereof, shutting in the well, and thereafter continuing with step (5);

(5) moving the upper casing string respective to the lower casing string, using the relative movement effected between the upper and lower casing strings to form a lateral flow path which extends through the upper casing string and directly from the coupling member into the borehole annulus;

(6) flowing cement through the upper casing string, down to the lateral flow path and directly into the borehole annulus at a location above the lower casing string, and forcing cement to flow up the borehole annulus towards the surface of the ground;

(7) moving the upper casing string and using the relative movement effected between the upper and lower casing strings to close the lateral flow path and to form a sealed flow passageway through the coupling member; and,

(8) leaving the coupling member downhole as a permanent part of the casing string.

4,333,531

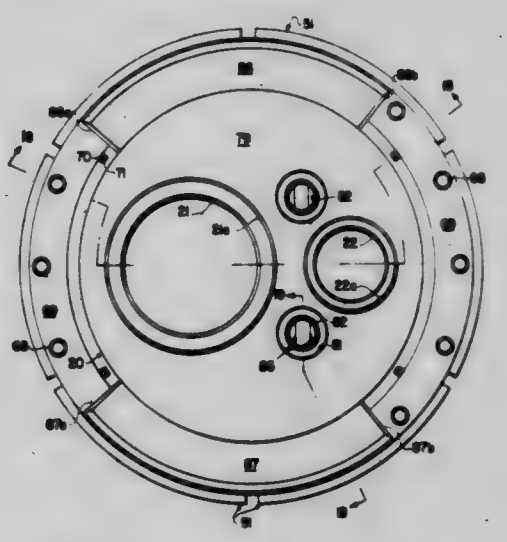
METHOD AND APPARATUS FOR MULTIPLE WELL COMPLETION

John E. Lawson, London, England, assignor to Armco Inc., Middletown, Ohio

Filed Feb. 11, 1980, Ser. No. 120,695

Int. Cl.³ E21B *41/04*

U.S. Cl. 166—341 **5 Claims**



1. In the completion of an underwater well by a procedure including running in a multiple string tubing hanger with the aid of a guidance system while the drilling upper body is in place, orienting the tubing hanger with respect to the drilling upper body, landing the tubing hanger below the drilling upper body while maintaining orientation of the tubing hanger, removing the drilling upper body, and then installing with the aid of the guidance system a production upper body having flow passages to be placed in respective communication with flow passages of the tubing hanger, the improved method for assuring precise orientation of the production upper body relative to the flow passages of the tubing hanger comprising

providing the upper end of the tubing hanger with a transverse flange interrupted by a gap having a predetermined angular relation to the positions of the through passages of the tubing hanger;

connecting to the tubing hanger a handling tool having both a locator device adapted to coact with orientation reference means on the drilling upper body and a dependent

spline dimensioned for snug insertion through the gap in the tubing hanger flange and having a predetermined angular relation to the locator device and a predetermined angular relation to the through passages of the tubing hanger when the spline of the handling tool extends through the gap in the hanger flange;

running in the handling tool and tubing hanger;

manipulating the handling tool to cause the locator device to coact with the orientation reference means of the drilling upper body;

manipulating the handling tool to land the oriented tubing hanger while maintaining orientation of the tubing hanger;

disconnecting the handling tool from the tubing hanger and retrieving the handling tool;

removing the drilling upper body;

providing the production upper body with a dependent spline dimensioned for snug insertion through the gap in the tubing hanger flange and having the same angular relation to the flow passages of the production upper body as the spline of the handling tool had with the flow passages of the tubing hanger when the handling tool was attached to the tubing hanger;

lowering the production upper body to the tubing hanger with the aid of the guidance system and employing the guidance system to maintain the production upper body in a rotational position such that the spline of the production upper body is substantially aligned with the gap in the tubing hanger flange; and

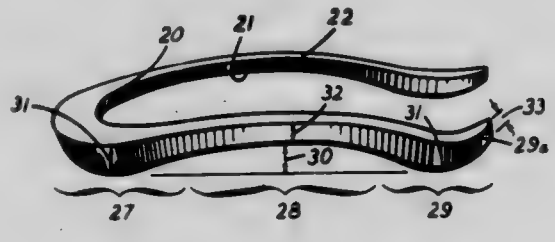
when the spline of the production upper body engages the tubing hanger flange, remotely adjusting the rotational position of the production upper body to eliminate any misalignment between the spline of the production upper body and the gap of the tubing hanger flange and landing the production upper body with the spline extending through the gap and with the flow passages of the production upper body aligned precisely with the flow passages of the tubing hanger.

4,333,532

FLEXIBLE HORSESHOE

Paul E. Mennick, 693 Woodbine Dr., San Rafael, Calif. 94903

Filed May 28, 1980, Ser. No. 154,113
Int. Cl.[3] A01L *1/02*
U.S. Cl. 168—24 8 Claims



1. A horseshoe comprising:

a generally U-shaped body of a resilient, flexible material;

a pair of toe portions at the forward end of said body and formed by the body;

toe support surfaces on the undersides of said toe portions each providing an area of ground contact;

heel portions at the trailing ends of said body; and

heel support surfaces on the undersides of said heel portions providing areas of ground contact;

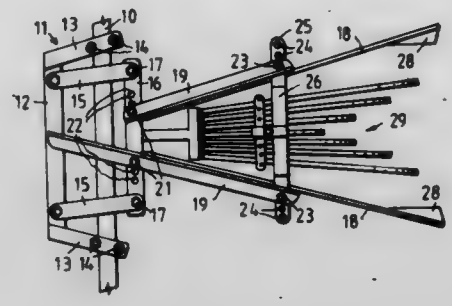
said shoe, when undeformed, having fore to aft arched portions in the legs of said U-shaped body generally centrally of each of said toe portions and one of said heel portions to enable flexing thereof.

4,333,533

WEEDER FOR ROW CROPS

Frank G. Zahra, and Johann V. Binder, both of Cardier Rd., Wangan, Australia (4860)

Filed Dec. 1, 1980, Ser. No. 211,853
Int. Cl.[3] A01B *39/18*
U.S. Cl. 172—155 5 Claims



1. A weeder comprising:

a main frame for attachment to a tractor;

a fixed transverse member secured to the main frame forwardly of and substantially parallel thereto;

a movable transverse member rearwardly of and substantially parallel to the main frame;

two pairs of connecting links pivotally connecting the movable transverse member to the fixed transverse member, the links of each pair passing respectively above and below the main frame, the pairs of links being so arranged that the movable transverse member may move laterally, but with limited vertical movement, relative to the main frame; and

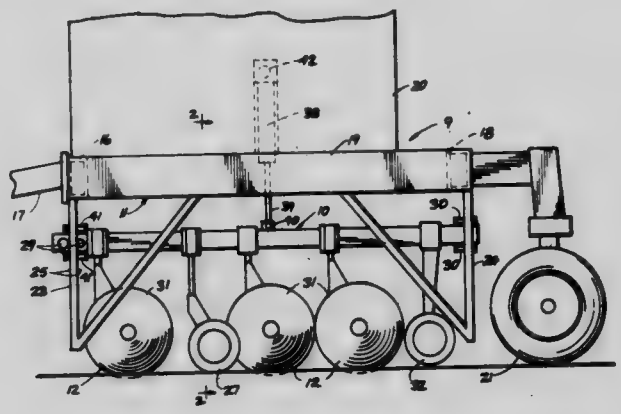
a pair of upright skid boards being laterally spaced at the front and rearwardly divergent and so constructed and arranged that, when the tractor-drawn main frame is advanced, the skid boards travel in a furrow and to both sides of the plants of a row crop, into which the soil may fall as the weeder passes, the skid boards being laterally movable relative to the main frame as they travel in the furrow.

4,333,534

AGRICULTURAL TOOL CARRIER

Guy J. Swanson, S. 4305 University, Spokane, Wash. 99206, and Morton C. Swanson, Rte. 1, Palouse, Wash. 99161

Filed Aug. 4, 1980, Ser. No. 174,841
Int. Cl.[3] A01C *5/00*
U.S. Cl. 172—464 4 Claims



1. An agricultural tool carrier comprising:

a ground-supported frame;

front and rear upright guides fixed on said frame in longitudinally spaced positions along its intended direction of travel, said guides presenting upright surfaces;

a longitudinally elongated single row tool bar mounted between the front and rear guides, said tool bar being

aligned along the intended directions of travel of said frame;

first means operably connected between said tool bar and one of said guides for transmitting longitudinal forces from the frame to said tool bar by engagement of said upright surfaces during frame travel;

second means operably connected between said tool bar and each of said guides for vertically guiding the tool bar for elevational movement relative to the frame alongside each of said front and rear guides by engagement of said upright surfaces;

a first ground-engaging wheel mounted to the tool bar at a location adjacent to the front guide; and

a second ground-engaging wheel mounted to the tool bar at a location adjacent to the rear guide;

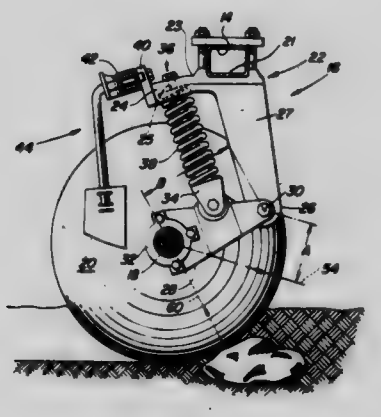
power means operably connected between the frame and tool bar at a location between the first and second ground-engaging wheels for applying a selected vertical force against the tool bar.

4,333,535

DISC STANDARD ASSEMBLY

Robert D. Hentrich, Sr., Walcott, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Jul. 25, 1980, Ser. No. 172,363
Int. Cl.[3] A01B *21/08*
U.S. Cl. 172—572 15 Claims



1. In a disc harrow with a frame, a disc gang and a support assembly for supporting the disc gang from the frame, the support assembly comprising:

a standard with an upper end fixed to the frame and depending therefrom to a lower end remote from the frame;

an arm with a first end and with a second end rotatably supporting the disc gang, the first and second arm ends having a horizontal separation which is larger than their vertical separation;

pivot means for pivotally interconnecting the lower standard end and the first arm end and for confining the arm to pivot about an axis which lies in a horizontal plane, the arm having a length chosen so that the pivot means and an axis of the disc gang have a separation which is not greater than a radius of a disc of the disc gang; and

resilient means connected between the arm and the upper end of the standard for resisting upward pivoting of the arm and disc gang.

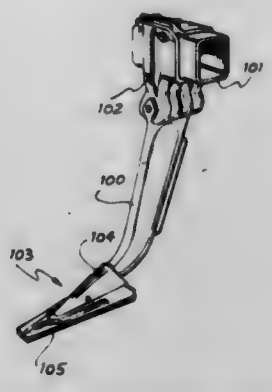
4,333,536

PLOW SHANK AND DIGGING BLADE ATTACHED TO LOWER EXTREMITY THEREOF BY ADAPTOR

John W. Ryan, Yowie Bay, Australia, assignor to Agrowplow Pty. Limited, Yowie Bay, Australia

Continuation of Ser. No. 932,022, Aug. 8, 1978, abandoned. This application Dec. 29, 1980, Ser. No. 220,410
Claims priority, application Australia, Aug. 9, 1977, PD1154
Int. Cl.[3] A01B *15/02*
U.S. Cl. 172—721 10 Claims

1. Plowing apparatus comprising, in combination, an elongated plow shank which, in use, extends generally vertically and a plow digging point removably attached to the lower extremity of said shank so as to be drawn through soil thereby to cultivate the soil, said digging point including a digging blade and an adaptor, said blade having an upper earth working surface arcuate in transverse cross section so as to be generally convexed with downwardly sloping sides, said adaptor engaging said blade to releasably secure said blade to said shank and having a forwardly tapering recess which receives



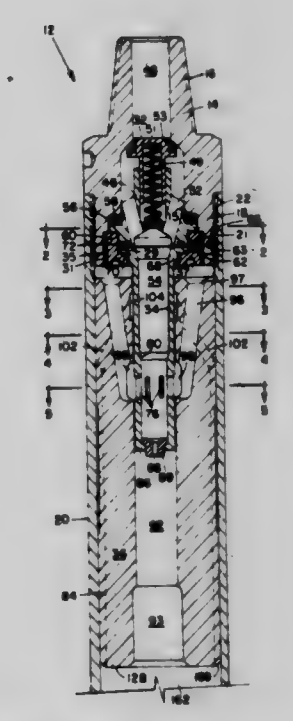
and generally encompasses said lower extremity of said shank, said adaptor and said blade having cooperating means for releasably securing said adaptor to said upper earth working surface of said blade, said adaptor and said cooperating means being configured so that said upper earth working surface is rearwardly upwardly inclined by from 5° to 15° with respect to the horizontal, said blade being located below said lower extremity of said shank to thereby enable said blade to present a low forward facing rounded profile.

4,333,537

IMPACT DRILLING TOOL HAVING IMPROVED VALVING

Jesse W. Harris, 527 Sonnet Dr., San Antonio, Tex. 78216, and Louis L. Lutich, 107 E. Turbo, San Antonia, Tex. 78216

Continuation of Ser. No. 963,221, Nov. 24, 1978, abandoned. This application Oct. 28, 1980, Ser. No. 201,579
Int. Cl.[3] B25D *9/12;* F01L *21/02*
U.S. Cl. 173—17 4 Claims



1. An impact drilling tool for connection in a string of drilling pipe, said tool comprising:

an upper sub for connection to said drilling pipe;

a casing with an upper end connected to said upper sub;

anvil means slideably received in a lower end of said casing, said anvil means being connected to bit means;

hammer means carried in said casing above said anvil means,

said hammer means reciprocating along an elongated axis of said tool for striking said anvil means during each cycle;

means for feeding pressurized pneumatic fluid from said drilling pipe through a center portion of said hammer means, said feeder means having a lengthwise passage and a set of radial passages, a lower end of said feeder means terminating within said center portion of said hammer means;

cross passages in said hammer means with a first set terminating at an upper end above said hammer means and a second set terminating at a lower end below said hammer means, a lower end of said first set of cross passages terminating in said center portion below an upper end of said second set of cross passages which also terminate in said center portion;

said set of radial passages slideably connecting with said lower end of said first set of cross passages and said upper end of said second set of cross passages to respectively pressurize above and below said hammer means during each cycle thereof, said lower end of said feeder means slideably connecting with said lower end of said first set of cross passages to exhaust pressure above said hammer means during each cycle thereof;

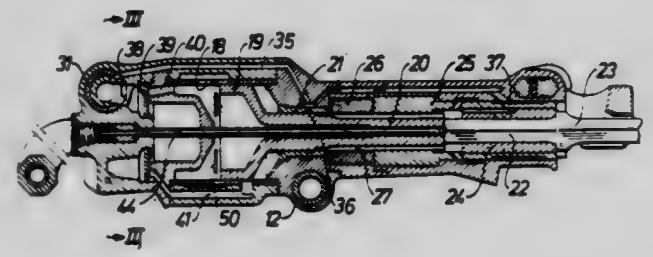
exhaust means carried by said anvil means and located between said hammer means and said anvil means for exhausting pressure below said hammer means during each cycle thereof.

4,333,538

PNEUMATIC DRILL LUBRICATOR

Carl G. B. Ekwall, Saltsjöbaden, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Oct. 1, 1979, Ser. No. 80,673
Claims priority, application Sweden, Oct. 6, 1978, 7810468
Int. Cl.³ B25D *17/26*
U.S. Cl. 173—104 **14 Claims**



1. Rock drilling apparatus comprising:

a rock drill having a pneumatic impact motor (10),

a supply conduit (15) coupled to the rock drill for supplying compressed drive air to the impact motor, and

an oiler (16) coupled to the supply conduit (15) at a distance from the rock drill to supply oil to the air in said air supply conduit (15),

the improvement comprising:

a wall flow oil separator (30–33; 45) arranged in connection with the rock drill (10) to separate oil from the oil containing drive air in the drive air supply conduit (15) before the oil containing drive air reaches the impact motor, and

at least one conveying passage (35) in said rock drill and coupled to said oil separator for conveying the separated oil to parts (21, 24, 25) to be lubricated within the rock drill,

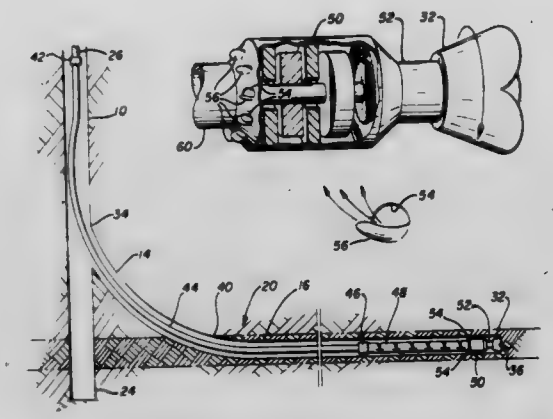
said wall flow oil separator including a passage for receiving the oil containing drive air and a transverse slot (32, 46) in a wall of said passage of the oil separator, said transverse slot being coupled to said at least one conveying passage (35) to supply the separated oil to said at least one conveying passage.

4,333,539

METHOD FOR EXTENDED STRAIGHT LINE DRILLING FROM A CURVED BOREHOLE

William C. Lyons, 1209 Calle Luna, Santa Fe, N. Mex. 87501, and Albert O. White, 1327 Fox Hollow Rd., Schenectady, N.Y. 12309

Filed Dec. 31, 1979, Ser. No. 108,686
Int. Cl.³ E21B *4/02, 7/08*
U.S. Cl. 175—61 **4 Claims**



1. Method of communicating a subterranean formation with the surface of the ground comprising the steps of:

forming a substantially vertical borehole which extends from the surface of the ground, downhole to close proximity of the formation;

penetrating the sidewall of the vertical part of the borehole at a location above the formation equal to the radius of curvature of the part of the borehole to be subsequently turned by positioning a curved pipe downhole in the borehole at the location where the hole is to be turned laterally away from the vertical part of the borehole; said curved pipe having a radius of curvature equal to the desired radius of curvature of the curved part of the borehole;

placing a flexible drive pipe assembly within said curved pipe; and, connecting one end of the drive pipe assembly to a drill pipe string;

attaching a drill bit to a gas turbine and connecting the gas inlet of the turbine to said flexible drive pipe assembly;

providing a resisting action for overcoming the turning reaction of the drill bit as cuttings are removed while penetrating the earth and forming the curved part of the borehole; directing the exhaust gases from said gas turbine away therefrom in a direction to provide at least part of said resisting action;

forcing said bit into engagement with the formation by moving the bit axially in advance of said turbine; and,

extending the borehole laterally away from the curved part of the borehole, so that the formation is penetrated substantially horizontally.

4,333,540

CUTTER ELEMENT AND CUTTER FOR ROCK DRILLING

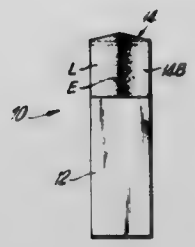
William H. Daniels, Delaware, Ohio, and John B. Cheatham, Jr., Houston, Tex., assignors to General Electric Company, Worthington, Ohio

Continuation of Ser. No. 947,865, Oct. 2, 1978, abandoned. This application Feb. 11, 1980, Ser. No. 120,021
Int. Cl.³ E21B *10/46*
U.S. Cl. 175—329 **2 Claims**

1. An improved drag type oil and rock drill bit having composite compact cutter elements each comprising a polycrystalline layer of diamond cubic boron nitride, wurtzite boron nitride or mixtures thereof bonded to a substrate made of a cemented carbide selected from tantalum, titanium or tungsten carbide, wherein the improvement comprises compact cutting elements having a generally V-shape configuration in which

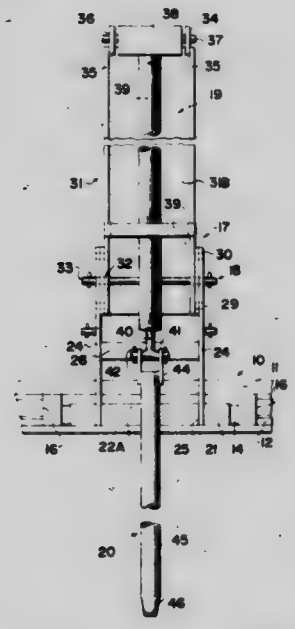
the polycrystalline diamond layer forms the legs of said V-shape, said V-shape defining an included angle of from





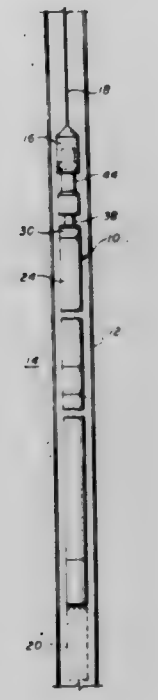
60°–90°, to cause a plowing effect and rock chip flow along the cutter elements.

4,333,541
BUMPER MOUNTED SOIL SAMPLING DEVICE
John G. Doty, Box 202, Carlyle, Saskatchewan, Canada
Filed Jun. 26, 1980, Ser. No. 163,102
Claims priority, application Canada, Nov. 1, 1979, 338946
Int. Cl.³ E21B 7/02, 10/02
U.S. Cl. 175—162 11 Claims



5. A soil sampling device for use with a truck or the like having a recess formed in the moulded rear bumper thereof; comprising in combination an hydraulic piston and cylinder assembly including a piston rod secured to and extending from the piston of said piston and cylinder assembly, frame means supporting the cylinder of said piston and cylinder assembly, a soil sampling tube detachably secured to the distal end of the piston rod of said piston and cylinder assembly and means for detachably mounting said sampling device within the recess of the moulded rear bumper of the associated truck, said means for detachably mounting said soil sampling device within the recess of the moulded rear bumper of the associated truck including a transverse channel member detachably secured within the recess, said frame means supporting said piston and cylinder assembly being secured to and extending upwardly from said transverse channel member and brace means extending between said frame means and said transverse channel.

4,333,542
DOWNHOLE FISHING JAR MECHANISM
William T. Taylor, P.O. Box 309, Warren, Tex. 77664
Filed Jan. 31, 1980, Ser. No. 117,308
Int. Cl.³ E21B 4/06
U.S. Cl. 175—299 27 Claims



1. A downhole jar mechanism for freeing stuck objects within a well bore, said jar mechanism comprising:

a body structure including an anvil structure adapted for disposition in force transmitting relation with downhole fishing apparatus that establishes interconnection with an object stuck within said well bore;

an operator element receivable in movable relationship within said body structure including striker means axially immovably connected thereto adapted to strike said anvil and impart an upwardly directed impact force thereto;

compression spring means adapted to oppose movement of said striker means toward said anvil means; and,

means for releasing said striker means from the opposing force of said compression spring upon predetermined upward movement of said striker means toward said anvil structure, thereby controlling the force of impact of said striker means against said anvil structure, said releasing means including;

first detent recess means being defined internally of said body structure,

latch means disposed between said body structure and said operator element, said latch means being formed to define detent aperture means,

said operator element being formed to define second detent recess means,

detent means maintained within said detent aperture means and said second detent recess means by said body structure and interlocking said latch means and said operator element in said releasable interconnection, and

spring-energizing means being interposed between said latch means and said compression spring means and transmitting upward movement of said latch means to said spring means for compression of said spring means.

4,333,543

WHEEL OR AXLE LOAD MEASURING DEVICE FOR ROAD VEHICLES

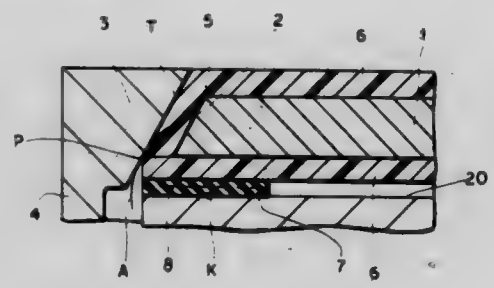
Ludwig Pietzsch, Rittnerstr. 36, 7500 Karlsruhe, Fed. Rep. of Germany; Knut Overlach, Karlsruhe, and Hans J. Eberhard, Rheinstetten, both of Fed. Rep. of Germany, assignors to Ludwig Pietzsch, Karlsruhe, Fed. Rep. of Germany

Filed Apr. 10, 1980, Ser. No. 135,534

Claims priority, application Fed. Rep. of Germany, Apr. 11, 1979, 2914600; Apr. 11, 1979, 7910586[U]

Int. Cl.³ G01G *19/02*

U.S. Cl. 177—134 14 Claims



1. A road or axle load measuring device comprising:

a frame having a pair of limbs extending transversely to the direction of travel of a vehicle whose axle or wheel load is to be measured;

a measuring plate received in said frame and having edges extending along said limbs, said edges diverging downwardly so as to be partly overhung by said limbs;

at least one strain gauge strip mounted on said measuring plate; and

a pair of elastic bars formed on the underside of said measuring plate along said edges for supporting said measuring plate upon a surface whereby said measuring plate deformes between said bars when loaded by a wheel.

4,333,544

MUFFLER FOR COMBUSTION ENGINES

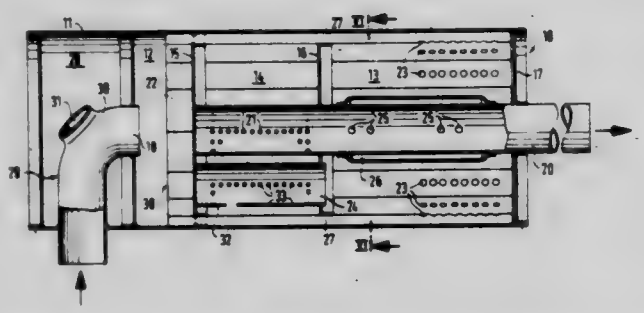
Walter Seeger, Gaggenau, Fed. Rep. of Germany, assignor to Max Roth KG, Gaggenau, Fed. Rep. of Germany

Filed Mar. 3, 1980, Ser. No. 126,318

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1979, 2908506

Int. Cl.³ F01N *1/08*

U.S. Cl. 181—266 8 Claims



1. Muffler for muffling high frequency portion of noise in combustion engines, comprising a housing subdivided by bottoms into at least two successively arranged reflection chambers, one of said chambers being a first inlet-side reflection chamber with an extending exhaust entry pipe, intermediate channel means extending through at least one inner bottom from a first into at least one reflection chamber, an exhaust outlet pipe extending from the last reflection chamber out of the muffler and having at least in the region of the last reflection chamber at least one inlet opening, said intermediate channel means having a plurality of intermediate channels which are flowed-through in one and the same direction, each channel having a small cross-sectional area in relation to the cross-section of the exhaust inlet pipe, said reflection chambers comprising a first outer reflection, a second outer reflection and a final reflection chamber, said intermediate channels passing outside the final reflection chamber located between the intermediate channels from the first outer reflection chamber into the second outer reflection chamber, exhaust passing into said final reflection chamber only after having left said second reflection chamber, the exhaust passing from said final reflection chamber into said exhaust outlet pipe, said intermediate channels being formed on the inner side of the wall housing; a sheet metal formed under a predetermined angle with corrugations at the inner side of the wall and forming together with the inner side of the wall said intermediate channels; said intermediate channels having a plurality of holes over a part of their length in the second outer reflection chamber which is adjacent the outlet bottom; an inner bottom next adjacent an outer bottom and having at least one passage hole; a resonator pipe closed at an end and connected to said passage hole, said resonator having holes in its wall; said exhaust outlet pipe being closed at its end associated with the muffler and extending from the last reflection chamber through an outlet bottom, a resonator space being located ahead of the first outer reflection chamber, and an exhaust inlet pipe arranged in said resonator space and constructed as a suction resonator, said suction resonator comprising a knee-shaped pipe, an opening being arranged in the region of the outer bend of the knee, said outlet opening being substantially in registry with the exhaust outlet pipe, the sum of the small cross-sectional areas of said channels being larger than the cross-sectional areas of said exhaust entry pipe, a predetermined number of said intermediate channels having tuning openings axially offset in different intermediate channels for different frequencies, said housing having a substantially oval cross-section, said exhaust entry pipe and said exhaust outlet pipe being arranged symmetrically in said housing, said intermediate channels being defined by tubes formed from corrugated sheet metal.

4,333,545

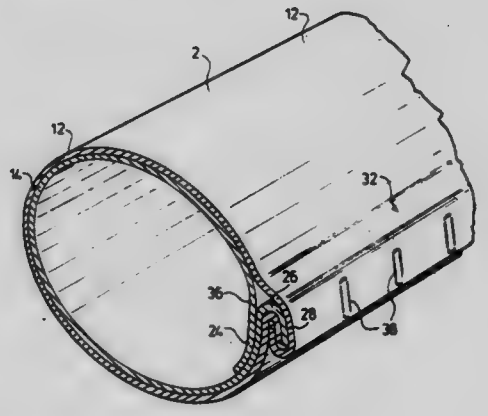
BACK-FIRE RESISTANT LOCK SEAM FOR MUFFLER SHELLS

Peter Roberts, Mississauga, Canada, assignor to Thrush Incorporated, Rexdale, Canada

Filed Sep. 15, 1980, Ser. No. 187,263

Int. Cl.³ F01N *7/18*

U.S. Cl. 181—282 11 Claims

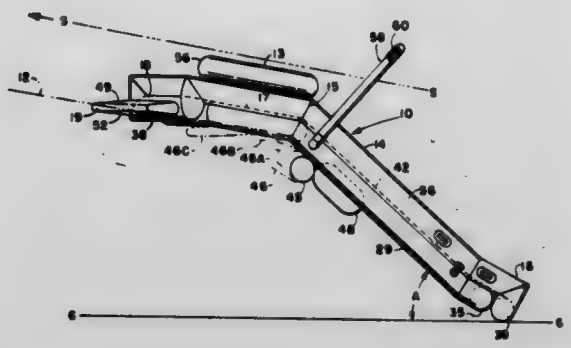


1. A muffler shell comprising:

a two ply sheet of metal formed into a tube,

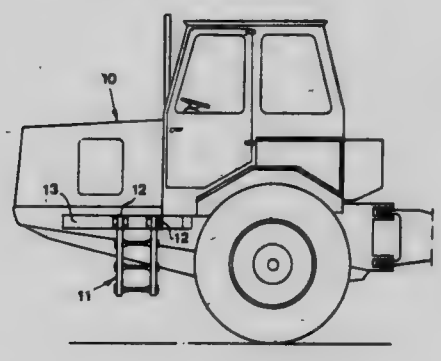
an interlock joining the ends of the sheet to retain it in tubular formation, said interlock comprising complementary hook elements located at said ends, a hook element at one said end including both plies therein, the hook element at the other said end including the outer ply only, the inner ply at the other said end extending beyond the hook element to overlap said interlock thereby forming a shield therefor.

4,333,546
ESCAPE SLIDE
John M. Fisher, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio
Filed Feb. 19, 1980, Ser. No. 122,216
Int. Cl.³ A62B *1/20;* B64D *25/14*
U.S. Cl. 182—48 8 Claims



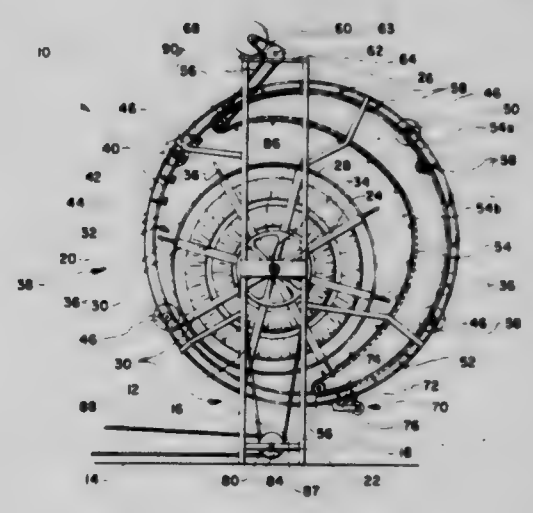
1. An escape slide adapted to be inflated and extend from a supporting surface at an elevated position to a lower surface comprising an inflatable entrance portion with a walkway for mounting on said supporting surface and a slide portion extending from an entrance end at said elevated position to an exit end at said lower surface, said entrance portion of said escape slide including a plurality of supporting tubes having top and bottom surfaces, at least some of said bottom surfaces of said supporting tubes being in the same plane for engagement with said supporting surface, at least some of said top surfaces of said supporting tubes providing support for said walkway and all of said supporting tubes being located above said plane of said bottom surfaces and below said walkway to provide a stable support for persons traversing said walkway to said entrance end of said slide portion, and an inflatable, substantially rigid walkway ramp having an upper surface and a lower surface extending outwardly from an edge of said entrance portion.

4,333,547
CLIMBING DEVICE FOR VEHICLES
Gustav I. Johansson, Korpvägen 9, S-826 00 Söderhamn, Sweden
Filed Apr. 1, 1980, Ser. No. 136,253
Int. Cl.³ E06C *5/26*
U.S. Cl. 182—90 8 Claims



1. A climbing device for vehicles, said climbing device comprising a number of foot steps arranged on a frame composed of one or more supporting members, said supporting members being made of flexible material to allow temporary deformation of said frame without causing permanent damages in said frame when striking an obstacle, said device having means at one end thereof for attachment to the vehicle in cantilever relation with the other end of said device being adapted to terminate freely spaced from the vehicle in outwardly displaced relation, said flexible supporting members including a reinforcement located in the vicinity of that face of said members which is directed outwardly from the vehicle in order to provide said members with a greater resistance to bending in the direction inwardly toward the vehicle than in the opposite direction.

4,333,548
WEIGHT DRIVEN ROTARY POWER GENERATING APPARATUS
Sterling W. Jones, Rte. 1, Box 118, Rowland, N.C. 28383
Filed May 2, 1980, Ser. No. 146,353
Int. Cl.³ F03G *3/02*
U.S. Cl. 185—33 10 Claims



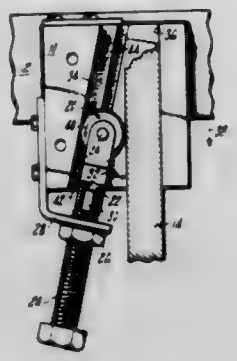
1. A weight actuated power generating apparatus adapted to utilize the energy associated with a plurality of moving weights to drive a flywheel comprising: a frame structure; a flywheel rotatively mounted to said frame structure; a weight guide assembly radially spaced from said flywheel and continually extending therearound in a closed fashion, said weight guide assembly including two axially spaced tracks with each track including two radially spaced retaining members that define an open raceway therebetween; a plurality of weights movably mounted in said weight guide assembly with said weights including opposed bearing means adapted to be retained within said open raceway for allowing said weights to move around said weight guide assembly, and wherein said weight guide assembly includes a falling run through which said weights fall, and a return run through which said weights are returned to an elevated position; means projecting from said flywheel for engagement with respective weights moving through said falling run for enabling said weights to impart a driving force to said flywheel as the respective weights move through said falling run segment of said weight guide assembly; and weight transfer means operatively associated with said apparatus for engaging respective weights after passing through said falling run and for transferring said weights through said return run to an elevated position where the respective weights assume potential energy due to their evaluation within said weight guide assembly, whereby as the weights are allowed to move through said weight guide assembly, respective weights engage the means projecting from said flywheel during the period in which the respective weights are moving through said falling run, wherein engagement of the weights with the flywheel imparts a driving force thereto and generally acts to contribute to the driving force of said flywheel; and output means drivingly interconnected to said flywheel for generating an output torque in response to said flywheel being driven.

4,333,549

CAR BLOCKING APPARATUS

Meredith R. Davis, Bristol, Conn., assignor to Otis Elevator Company, Farmington, Conn.

Filed Jun. 25, 1980, Ser. No. 162,870
Int. Cl.³ B66B 5/16
U.S. Cl. 187—93 3 Claims



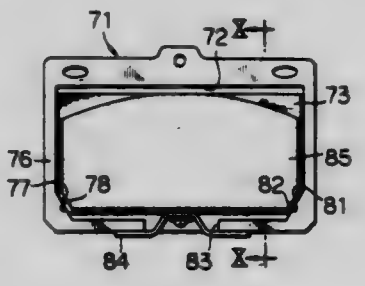
1. An apparatus for blocking an elevator car in position in a shaftway containing an elevator guide rail, characterized by:
a retainer member containing a slot for receiving a portion of the guide rail and adapted for supporting the car,
a wedge member which is adapted to be driven, within said slot, between the retainer and the guide rail in response to car movement, said wedge member being carried on the retainer and being adapted to be adjustably positioned between the retainer and the rail,
clamping means for attaching the retainer to said rail,
said wedge member being attached to a bolt that is carried on the retainer and rotatable for controlling the position of the wedge within said retainer along the positioning axis of said bolt, and
said wedge member comprising a roller, a yoke, a first pin and a second pin, said roller being mounted on said first pin to rotate thereon, said first pin being mounted to said yoke, said yoke being mounted on said second pin to rotate around the axis of said second pin, said second pin being attached to said bolt with said axis oriented to permit said yoke to rotate around the positioning axis of said bolt.

4,333,550

BRAKE SHOE AND SUPPORT STRUCTURE FOR A DISC BRAKE

Kenji Shirai, Susono, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed May 20, 1980, Ser. No. 151,640
Claims priority, application Japan, Feb. 4, 1980, 55-12234
Int. Cl.³ F16D 55/15
U.S. Cl. 188—72.2 6 Claims



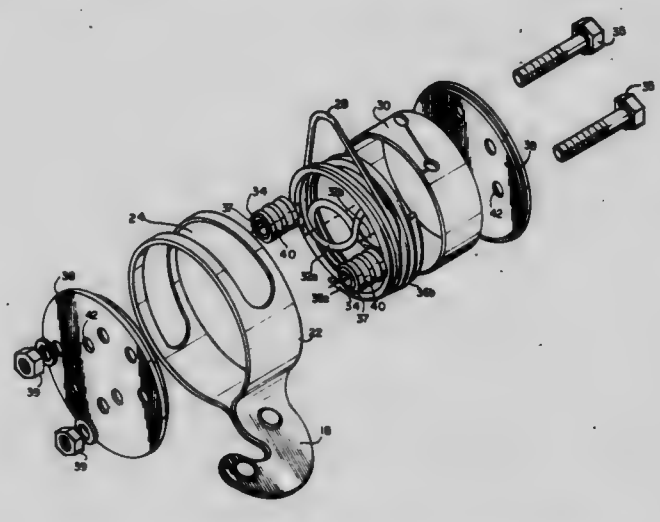
1. A disc brake comprising:
a disc rotor having on either side thereof a friction surface;
a pair of braking pad assemblies respectively consisting of a friction pad disposed face to face with said friction surface and a backing plate secured to the rear side of said friction pad;
an actuator disposed face to face with said backing plate for urging said braking pad assemblies onto said friction surfaces of said disc rotor by corresponding urging surfaces formed thereon parallel to said friction surfaces;
a transmitting plate sandwiched at least between one of said braking pad assemblies and said actuator for transmitting the urging force of said actuator to said one of the braking pad assemblies;
a stationary member supporting said transmitting plate movably in a parallel direction to the axis of said disc rotor;
a slant planar surface formed on said transmitting plate on the side facing said disc rotor, said slant planar surface being so inclined as to gradually decrease the distance from said disc rotor in a direction away from the axis of said disc rotor, and a rear surface of said one of the braking pad assemblies being correspondingly inclined for slidably and closely complementarily contacting said slant planar surface of said transmitting plate to receive urging force of said actuator transmitted by said transmitting plate when the brake is applied;
cam means disposed on said transmitting plate for pushing said one of the braking pad assemblies in a direction away from the axis of said disc rotor, when said one of the braking pad assemblies is laterally moved together with said disc rotor by frictional force produced between the two;
stopper means for limiting the movement amount of said one of the braking pad assemblies in the rotational direction of said disc rotor; and
return spring means for restoring said one of the braking pad assemblies to the original position when the brake is released.

4,333,551

LOAD LIMITER

Joseph Shefrin, Springfield, Pa., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 28, 1979, Ser. No. 79,934
Int. Cl.³ F16F 7/12
U.S. Cl. 188—372 10 Claims



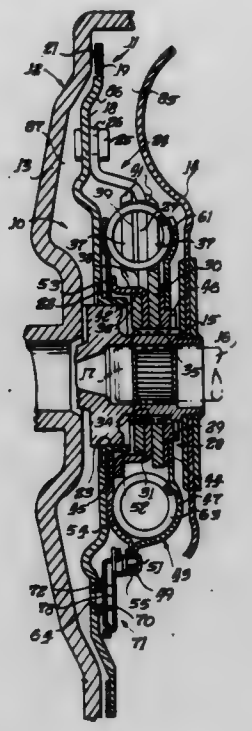
1. An energy absorption apparatus which comprises:
a housing;
an energy absorption means which includes a single length of wire forming a first loop, a second loop, and a third loop, said third loop being interposed between said first and second loops, said wire continuing to form a first coil from said first loop and a second coil from said second loop, said first and second loops being positioned within the circumference of said first and second coils, and said third loop being positioned outside the circumference of said third loop: and
a pair of spaced guide means projecting through said first and second loops and connected to said housing whereby energy is absorbed by bending said wire about said guide means in the event a predetermined force is exerted between said third loop and said housing.

4,333,552

HYDRAULIC PRESSURE RELIEF VALVE

Paul E. LaMarche, Utica, Mich., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed May 27, 1980, Ser. No. 153,130
Int. Cl.[3] F16D *47/06*
U.S. Cl. 192—3.29 17 Claims



1. In a lock-up clutch assembly for a torque converter having a vibration damper therein, the assembly including a piston plate adapted to engage the housing of the torque converter, a hub assembly operatively connected to the hub of the torque converter turbine and having a pair of oppositely disposed radially extending hub arms, a floating equalizer journalled on said hub assembly and having spring separators mounted therein, a plurality of compression springs positioned between said spring separators and hub arms, and drive means secured to said piston plate and extending into the path of said compression springs, the improvement comprising pressure relief valve to equalize the pressure on the opposite sides of the piston plate, said piston plate having at least one opening therein, a resilient sealing member encompassing said opening, and said relief valve including a sliding valve plate having an opening therein offset from said piston plate opening in the neutral and drive modes of the torque converter, and a spring plate having an upwardly offset mounting portion secured to said floating equalizer and operatively connected to said valve plate, and a pair of downwardly biased spring arms integral with said spring plate engaging and biasing said valve plate against said resilient sealing member, wherein actuation of the valve occurs to uncover said piston plate opening due to movement of said floating equalizer relative to said piston plate upon deceleration of the torque converter in the coast mode.

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PRESTRESSED ELASTOMER FOR ENERGY STORAGE

Lyle O. Hoppie, Birmingham, and Donald Speranza, Canton, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

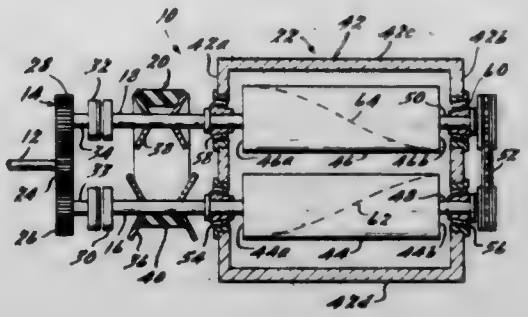
Filed Sep. 8, 1980, Ser. No. 184,880
Int. Cl.[3] F16D *67/02;* B60K *41/24*
U.S. Cl. 192—4 A 17 Claims

1. An energy storage device comprising:

a shaft means mounted for rotation;

an elastomeric rod having a longitudinal axis and first and second ends lying along the axis;

means mounting said rod for rotation of said first end relative to said second end in response to rotation of said shaft means, thereby torsionally stressing the rod about said axis; and



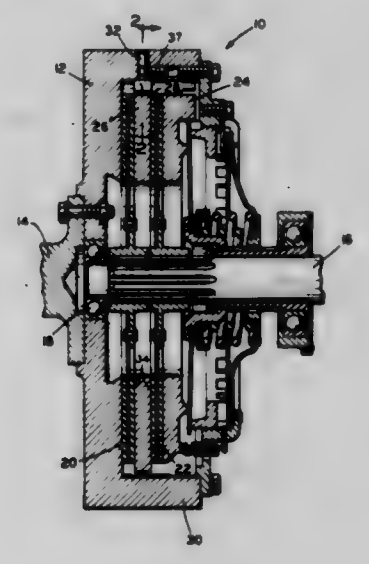
means prestressing the rod in the direction of the longitudinal axis independent of said torsional stressing.

4,333,554

SELF-ALIGNING CLUTCH PLATE DRIVE APPARATUS

William H. Sink, Auburn, and Wendell Lane, Kendallville, both of Ind., assignors to Dana Corporation, Toledo, Ohio

Filed Mar. 6, 1980, Ser. No. 127,718
Int. Cl.[3] F16D *13/50, 3/06*
U.S. Cl. 192—70.19 12 Claims



1. In a clutch having a driven plate axially movable but rotatably fixed with respect to the flywheel, said flywheel comprising a drive pin and means for holding said drive pin; an improvement for driving said driven plate wherein said drive pin comprises a shank fixedly connected to and extending radially inwardly of said holding means, said shank containing a drive head rotatably mounted thereto in driving engagement with said driven plate.

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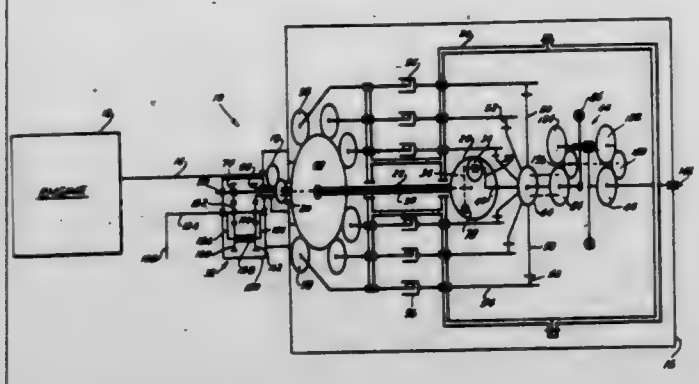
VARIABLE SPEED TRANSMISSION

Laird B. Gogins, Salt Lake City, Utah, assignor to Power-Matic Corporation, Salt Lake City, Utah

Division of Ser. No. 945,123, Sep. 25, 1978, Pat. No. 4,194,407.
This application Mar. 24, 1980, Ser. No. 133,416
Int. Cl.[3] F16D *31/00*
U.S. Cl. 192—58 R 3 Claims

1. A clutch comprising a housing having a non-circular chamber formed therein; a shaft rotatably mounted in said housing and extending through said chamber, a rotor body secured to said shaft in said chamber for rotation therein, said rotor body having a plurality of radially extending slots formed therein; means in said body for providing fluid communication between the lower ends of said slots and the portion of the chamber surrounding the rotor; a plurality of radially extending vanes respectively slidably mounted in said slots for radial movement with respect to said rotor; said vanes dividing said chamber into a plurality of spaces between the vanes about the rotor; hydraulic fluid in said spaces and slots below the

vanes whereby said shaft will drive said housing through said fluid when the shaft is rotated faster than the rotation, in the same direction, of said housing, and means for reversing the



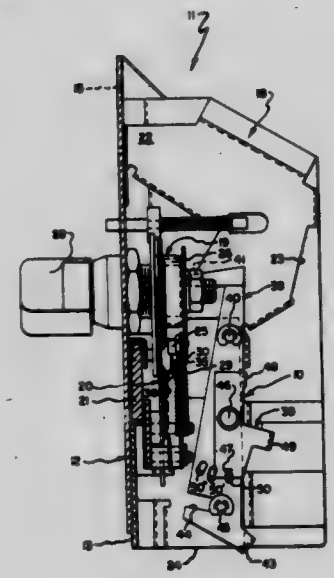
driving direction of the clutch including means for selectively permitting fluid to pass from some of said spaces to the bottom of said slots.

4,333,556

DEVICE FOR VARYING NUMBER OF COINS NEEDED TO PERMIT OPERATION OF A COIN-OPERATED MECHANISM

James M. Robbins, Jamestown, N.Y., assignor to Jamestown Metal Mfg. Corp., Jamestown, N.Y.

Filed Aug. 18, 1980, Ser. No. 178,777
Int. Cl.³ G07F *1/04*
U.S. Cl. 194—92 17 Claims



1. In a coin-operated mechanism having a coin chute, an actuator by which said mechanism may be selectively operated, and a coin-feeling finger arranged to permit operation of said actuator when a coin is sensed as being in a predetermined position within said chute, the improvement comprising: a selector for varying the number of coins needed to permit said actuator to be operated, said selector mechanism including

an arm mounted for movement relative to said chute, said arm having one portion engageable with said actuator;

a first stop mounted on said arm and selectively movable relative thereto between an operable position arranged to hold a coin within said chute in a first position to be sensed by said finger, and an inoperable position which will permit a coin to pass;

a second stop mounted on said arm and selectively movable relative thereto between an operable position arranged to hold a coin within said chute in a second position beneath said first position, and an inoperable position which will permit a coin to pass; and

a third stop mounted on said arm and arranged for movement therewith between an operable position at which a coin within said chute will be held in a third position beneath said second position, and an inoperable position which will permit a coin to pass;

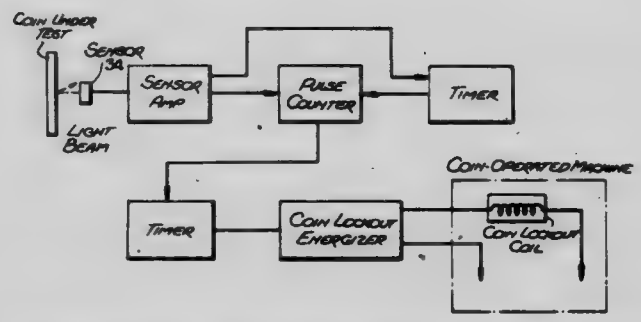
whereby said first and second stops may be selectively moved relative to said arm to vary the number of coins needed to permit said actuator to be operated.

4,333,557

SOLID STATE SLUG REJECTOR

George M. Kozak, 58 Second St., Old Bridge, N.J. 08857

Filed Feb. 21, 1980, Ser. No. 123,385
Int. Cl.³ G07F *3/02*
U.S. Cl. 194—97 A 3 Claims



1. A slug detection and rejection system for distinguishing between genuine and bogus coins, comprising:

a. an electromagnetic transmitter;

b. a receiver adapted and located to receive pulsed electromagnetic energy reflected from the surface contours of a face of a moving coin; and

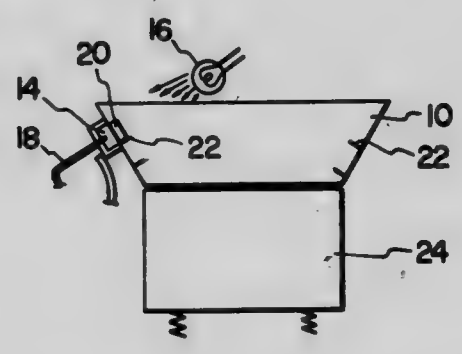
c. pulse-counting electrical circuit means, said pulse counting electrical circuit means distinguishing between a genuine and a bogus coin by counting the number of received pulses, comparing said number with a pre-selected number and activating a coin lock-out mechanism accordingly.

4,333,558

PHOTOELECTRIC CONTROL SYSTEM FOR PARTS ORIENTATION

Takeyoshi Nonaka, and Kazuo Otsuka, both of Hino, Japan, assignors to Shinko Electric Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 683,938, May 6, 1976, abandoned. This application Oct. 27, 1977, Ser. No. 846,103
Int. Cl.³ B65G *47/24*
U.S. Cl. 198—391 16 Claims



1. A photo-electric control system for controlling the orientation of parts moving along a parts feeding track of a vibratory bowl-type parts feeder, said control system comprising:

plural photo-responsive elements mounted adjacent the parts feeding track in a selected parts detection position and adpated to respond to light directed across the path followed by the parts;

at least one other photo-responsive element mounted adjacent the parts feeding track at the detection position and also adapted to respond to light directed across the path;

a light source for projecting light across the path to said photo-responsive elements;

spacing means for spacing apart parts successively arriving at said detection position;

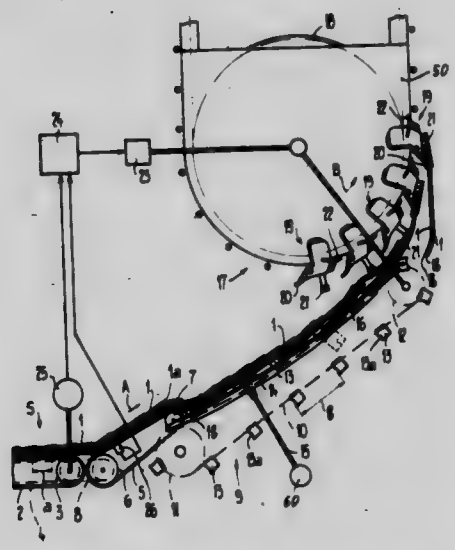
said first-mentioned photo-responsive elements adapted to produce multiple-state discrimination signals, each discrimination signal indicative of a part orientation;
said second-mentioned photo-responsive element adapted to produce an synchronizing signal when a part interrupts the light to said second-mentioned photo-responsive element;
electronic processing means including a synchronously operable, multiple state storage means adapted to store said discrimination signal or a combination thereof;
pre-programmable switch means connected between said first-mentioned photo-responsive elements and said processing means and having multiple switching configurations to present the discrimination signal or a combination thereof to said electronic processing means;
said second-mentioned photo-responsive elements connected to a synchronous input of said storage means;
said processing means providing a signal indication as to the orientation of the part when said synchronizing signal enables said storage device.

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APPARATUS FOR INFEEDING FLAT PRODUCTS, ESPECIALLY PRINTED PRODUCTS, ARRIVING IN AN IMBRICATED STREAM TO A TRANSPORT DEVICE

Walter Reist, Hinwil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

Filed Jan. 10, 1980, Ser. No. 110,822
Claims priority, application Switzerland, Jan. 29, 1979, 843/79
Int. Cl.³ B65H *29/04*
U.S. Cl. 198—461 **9 Claims**



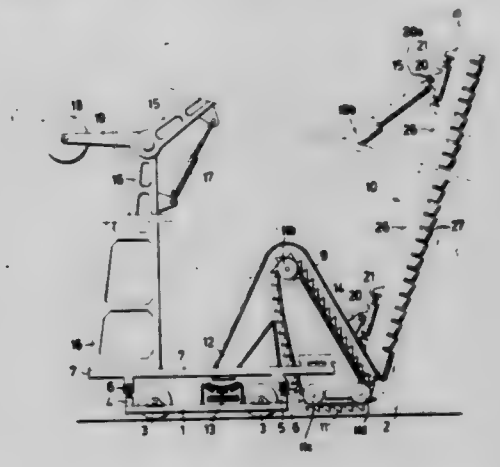
1. An apparatus for infeeding substantially flat products, especially printed products, arriving in an imbricated products stream, to a transport device, comprising:
a transport device having gripper elements arranged behind one another with respect to a direction of conveying of the products;
said gripper elements serving for engaging the infed products;
a conveyor device provided with a number of substantially equidistantly spaced entrainment members for engaging trailing edges of the products;
means for revolvingly driving said conveyor device at a greater velocity in relation to the infeed velocity of the imbricated stream of products;
the spacing between each two neighboring entrainment members being greater than the spacing between the trailing edges of two printed products which bear upon one another;
means for engaging individual ones of said products in the product stream conveyed by said conveyor device; and
said engaging means reducing the speed of conveying of the momentarily engaged product in relation to the conveying speed of a given number of trailing products until engagement by one of the entrainment members.

4,333,560

APPARATUS FOR REMOVING PARTICULATE MATERIAL FROM A PILE THEREOF

Olof E. Frisk, Järved, Sweden, assignor to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden

Filed Aug. 1, 1980, Ser. No. 174,384
Int. Cl.³ B65G *65/02*
U.S. Cl. 198—519 **9 Claims**



1. Apparatus for removing particulate material having a volume not exceeding about 0.5 dm^3 from a pile thereof, comprising, in combination,
(1) an elongated tubular scraper means arranged for oscillatory movement along its longitudinal axis;
(2) a base upon which the scraper means is carried in a manner to be brought into contact with a side of the pile of material from the bottom up to the top of the pile;
(3) the tubular scraper means being open at the bottom thereof, and having a side wall which can be brought into contact with a side of the pile, and which has a plurality of slots therethrough arranged one above the other and extending along the longitudinal axis of said tube, the lower edge of at least one such slot projecting outwardly from the outer wall of the tube further than the upper edge of such slot; and
(4) the tubular scraper means when oscillating scraping material from the pile through the slots into and through the tube down to the ground, so that said material can be collected and carried away from said pile.

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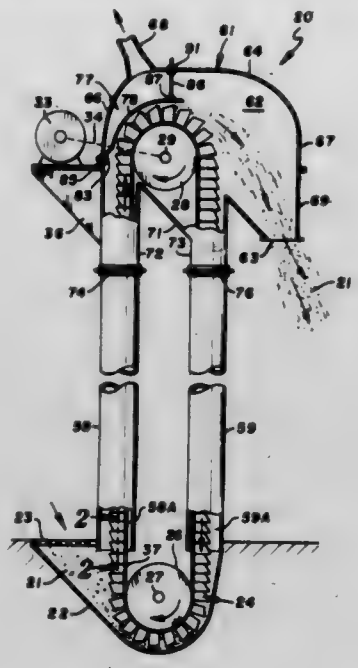
ELEVATOR HEAD MATERIAL GUIDE MEANS

Hans J. Schlegel, 6129-72nd La. North, Minneapolis, Minn. 55429

Continuation of Ser. No. 923,181, Jul. 10, 1978, abandoned. This application Aug. 8, 1980, Ser. No. 176,480
Int. Cl.³ B65G *17/36, 35/00*
U.S. Cl. 198—703 **15 Claims**

7. In a conveyor for moving material including endless moving belt means having a plurality of cooperatively associated cups thereon for receiving and carrying material as said endless belt moves in a substantially linear path beween spaced pulleys and discharging material as said cups pass around one of said pulleys, a housing generally enclosing said endless belt means, said housing having an outer wall adjacent the material discharge end of the conveyor, and a arcuate baffle to aid in retaining material in said cups as the latter pass around said one pulley prior to material discharge, said baffle having a configuration substantially complementary to the arcuate path of said cups about said one pulley and having an entry end adjacent arriving cups and an exit end remote therefrom, the improvement comprising: means mounting said baffle to said outer wall of the housing in fixed relation to space said entry end of said baffle from said outer wall of the housing thereby to define an

opening between said baffle and said outer wall of the housing facing said linear path into which moving air and dust adjacent said endless belt can flow and be delivered from proximity to



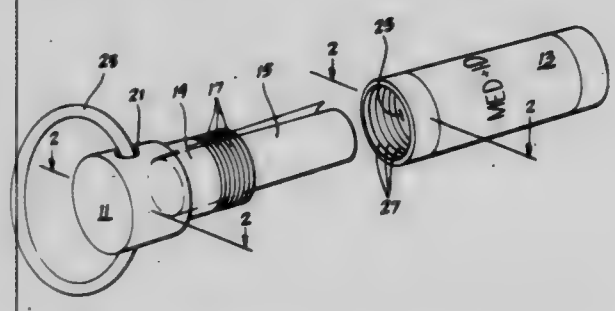
said cups as they move about said one pulley to minimize air turbulence thereat prior to discharging material from said cups.

4,333,562

CAPSULE FOR STORING WRITTEN INFORMATION

Michael A. Todd, 1121 Hacienda Blvd., Hacienda Heights, Calif. 91745

Filed Feb. 2, 1981, Ser. No. 230,315
Int. Cl.³ A45C *11/00*; B65D *83/00*
U.S. Cl. 206—37 **5 Claims**



1. A device for containing and protecting medical information upon a user to permit easy access and examination of said information in an emergency situation comprising:

a body member having a cavity therein, said cavity having an opening therein, said opening being constructed and adapted to receive a plug member in releasably sealed engagement therewith;

a roll of paper adapted to contain written medical information pertaining to said user; and

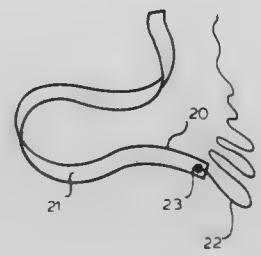
a plug member having a chamber therein; said chamber opening into said cavity when said plug member is engaged in said opening, said chamber being sized to tightly receive and securely retain one end of said roll of paper such that when said plug member is secured in said opening, the chamber and said roll of paper are unrestrictedly enclosed and protected by said body member and when said plug member is removed from said opening, said roll of paper is withdrawn from said body member and exposed and readily accessible so that said roll of paper may be easily removed from said plug member and examined.

4,333,563

FILM OR TAPE RETAINER DEVICE FOR REELS

Robert C. Hansard, 6711 Varna Ave., Van Nuys, Calif. 91401, and E. R. Brink, Jr., 922 Patterson Ave., Glendale, Calif. 91202

Filed Oct. 2, 1980, Ser. No. 193,347
Int. Cl.³ B65D *85/67, 85/671, 63/10*
U.S. Cl. 206—53 **6 Claims**



1. A film retainer for reel stored film comprising a closed loop of open mesh elastic material being relatively inelastic in a transverse direction and relatively elastic in a longitudinal direction, said elastic material having a maximum extension of at least 50% of its original length for elastic retention of film on a reel.

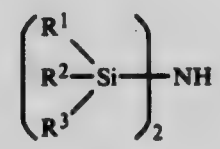
4,333,564

METHOD OF CONTROLLING RHEOLOGICAL PROPERTIES OF GEL-LIKE COMPOSITIONS

William Hertl, and Anthony R. Zine, Jr., both of Corning, N.Y., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.

Continuation of Ser. No. 908,002, May 22, 1978, abandoned. This application Jan. 16, 1980, Ser. No. 112,684
Int. Cl.³ B01D *21/26*; B01J *13/00*
U.S. Cl. 206—216 **21 Claims**

15. In combination, a blood separation tube, a water-insoluble, thixotropic, gel-like composition having a specific gravity of from about 1.03 to about 1.09, disposed in said blood separation tube, said composition comprising a liquid component including a material selected from the group consisting of silicone, mineral oil, polyester, butadiene polymer, and butylene polymer, and an inert, finely-divided filler including a material selected from the group consisting of glass, silica, mica, alumina, magnesia, and titania and having a density greater than about 1.03, a disilazane incorporated into said composition in an amount sufficient to reduce the composition viscosity or thixotropic index to the desired level, wherein the disilazane has the general formula,



in which R^1, R^2, and R^3 independently are selected from the group consisting of hydrogen, C_1–C_{18} alkyl, and C_2–C_4 alkenyl, with the proviso that no more than one of R^1, R^2, and R^3 can contain more than three carbon atoms.

4,333,565

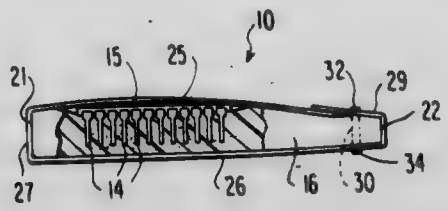
ANTI-STATIC PACKAGE FOR ELECTRONIC CHIPS

Larry N. Woods, 409 N. Rockborough Ct., Stone Mountain, Ga. 30083

Filed Feb. 27, 1981, Ser. No. 238,946
Int. Cl.³ B65D *73/02, 85/30*
U.S. Cl. 206—329 **2 Claims**

1. A magazine for a static electricity sensitive device of the type having a plurality of electrical terminals depending from a thin body, said magazine comprising an electrically conductive pad, said pad being comprised of a carbon black impreg-

nated high density polyurethane foam, the magazine pad further having opposed top and bottom surfaces joined with opposing end and side surfaces to form a unitary pad, the thickness of the pad between the pad top and bottom surfaces being sufficient to accomodate the electrical terminals of the device upon being embedded therein, a cover having two free ends wrapped about said pad top, bottom and end surfaces and sized to present end portions in mutually overlapping relation



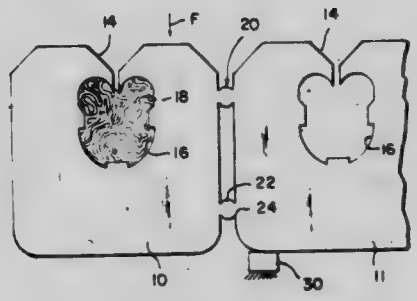
atop said pad top surface; said cover being wrapped about said pad top, bottom and end surfaces wherein the two free ends overlap on said top surface in a reentrant manner to apply clamping pressure to said pad, means fastening said cover to said pad comprising a staple having a bight overlaying one of the cover end portions from which two staple legs extend completely through said pad and the bottom surface of said cover.

4,333,566

CLOSURE STRIP

Jack H. Holmes, Cowiche, Wash., assignor to Kwik Lok Corp., Yakima, Wash.

Filed Dec. 1, 1980, Ser. No. 211,572
Int. Cl.³ B65D *85/24*
U.S. Cl. 206—343 **4 Claims**



1. In a multi-closure strip wherein the closures each have a side-edge, bag-neck access opening joining a bag-neck confining aperture, said closures being joined together in such strip by webs spaced transverse to the length of the strip, the webs having a thickness in the length direction of the strip to space adjacent closures, and each said web having a transversely enlarged central portion relative to the lengthwise direction of the strip and transversely reduced points of fracture on each end of said central portion at the juncture of the closure and web whereby separation of the closures by breaking the points of fracture will leave a smooth edge at each closure.

4,333,567

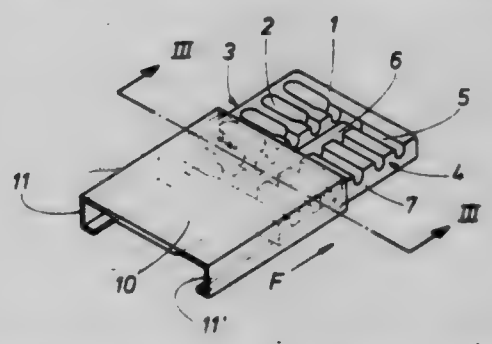
PLATE FOR PACKAGING DENTAL ROOT-CANAL INSTRUMENTS

Henri Leonard, Besancon, France, assignor to Micro-Mega S.A., France

Filed Mar. 31, 1980, Ser. No. 135,286
Claims priority; application France, May 31, 1979, 79 14659
Int. Cl.³ B65D *75/42*
U.S. Cl. 206—368 **4 Claims**

1. A container for packaging and dispensing root-canal instruments, notably nerve broaches, each having a shorter, thicker shank portion and a longer slender shaft portion, said container comprising;

a generally rectangular support having opposite side edges and opposite end edges, said support being formed of thin light material to provide an upper face and a plurality of spaced identical cavities formed in said upper face and extending parallel to one another and to end edges of said support, each of said cavities comprising a shorter, deeper, wider recess shaped and dimensioned to receive said shank portion of one of said instruments, said recess being located near one side edge of said support, and a longer, shallower and narrower groove shaped and dimensioned to receive said slender shaft portion of said instrument, said groove extending from said recess to the opposite side edge of said support, a central longitudinally extending channel formed in said upper face and extending substantially the full length thereof, said channel intersecting said grooves and having a depth greater than the depth of said grooves and a width to receive finger tips of a user, said support having at opposite side edges thereof depending



skirt elements extending down from said upper face and having a height at least equal to the depth of said recesses, and

a rigid cover molded of plastic material and comprising a top having a longitudinally extending central portion only engaging said upper face of said support while side portions of said top are recessed from the upper face of said support, and opposite side flanges extending down from said top outwardly of said side edges of said support and having inturned lower edge portions engaging under lower edges of said skirt portions of said support, said cover being thereby slidable longitudinally of said support to uncover individually instruments in said cavities,

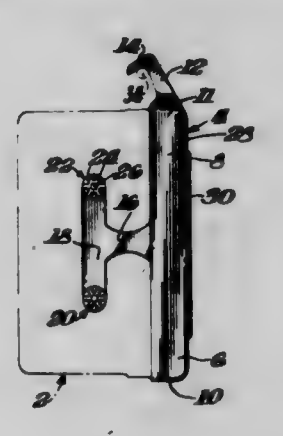
at least one of said support and cover being transparent so that said instruments can be seen.

4,333,568

CASSETTE TAPE DUST COVER

Karl D. Weldin, Wilmington, Del., assignor to Jerre E. Epps, Philadelphia, Pa., a part interest

Continuation-in-part of Ser. No. 955,593, Oct. 30, 1978, abandoned. This application Jul. 7, 1980, Ser. No. 166,760
Int. Cl.³ B65D *85/67, 45/00, 59/06*
U.S. Cl. 206—387 **5 Claims**



1. A storage case for a recording tape cassette for locking the spindles of the cassette reels against rotation and for protecting an open side of the cassette, said storage case comprising:

a casing member having a base wall, two flat, substantially parallel side walls which form a U-shaped member with said base wall, and a pair of end walls substantially perpen-

dicular to said side walls and enclosing said U-shaped member, said side walls and said end walls having substantially equal width to define an opening opposed to said base wall and adapted for receiving the open side of the cassette;

a flexible strap extending from one side of said U-shaped member and having two spindle pegs mounted thereon, said pegs adapted to fit into the spindles of the cassette reels to prevent the reels from rotating; and

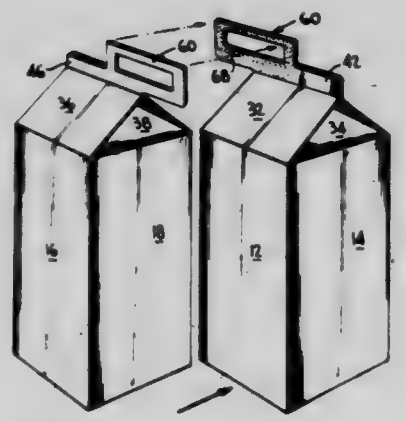
a hook-shaped member mounted on one of said end walls for hanging the case, with a cassette therein, on a horizontal rod.

4,333,569

CARRYING HANDLE FOR DETACHABLE CONTAINERS AND CONTAINERS INCLUDING SUCH HANDLE

Margaret F. Hammacher, 1293 Elizabeth Dr., Hamilton, Ohio 45013

Filed Jul. 29, 1980, Ser. No. 173,432
Int. Cl.³ B65D *75/56, 85/62, 5/46*
U.S. Cl. 206—431 **12 Claims**



1. A container adapted to facilitate pouring and carrying comprising:

(a) a bottom wall;

(b) a plurality of side walls foldably connected to and extending upwardly from said bottom wall;

(c) a gable top closure foldably connected to and extending upwardly from said side walls, said gable top closure including slanting roof panels, said closure having first and second ends and a pour spout located at one of said ends; and

(d) a handle assembly connected to and extending upwardly from said top closure, said handle assembly having a first end connected to said closure and a second end extending beyond said closure and one of said side walls, said handle assembly including a handle, said handle having two faces, one of said handle faces being coated with an adhesive which is relatively high in shear strength and relatively low in tensile strength.

4,333,570

MERCHANDISING PACKAGE FOR CONTAINERS

James E. Heider, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Continuation of Ser. No. 694,267, Jun. 9, 1976, abandoned. This application Mar. 13, 1980, Ser. No. 129,955
Int. Cl.³ B65D *71/08*
U.S. Cl. 206—432 **18 Claims**

1. A multiple container package comprising

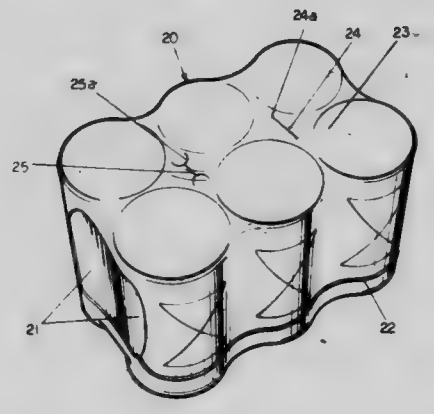
a plurality of upright filled and closed containers grouped in side-by-side engagement with their central axes substantially parallel and disposed normal to a longitudinal dimension of the package; and

an open ended sleeve of preoriented, shrinkable thermoplastic material encircling said group of the containers disposed along the longitudinal dimension of the group and shrunken snugly about said group of containers covering substantially at least their longitudinal extent in the package;

said preoriented material of the sleeve being characterized as a substantially uniaxially oriented, opaque, laminated, thermoplastic material capable of shrinkage in the circumferential dimension of said sleve at least 2½ times shrinkage capability in the axial dimension thereof and being readily tearable in the circumferential direction and tear resistant in the axial direction;

said sleeve material comprising a cellular thermoplastic layer laminated to a noncellular thermoplastic film layer;

said sleeve in shrink-fit relation snugly engaging the group of containers circumferentially and axially of the package tightly holding them together in surface contact with each other and being in surface contact with a substantial portion of that part of each of the side, top and bottom surfaces of each container which surfaces constitute the exterior of said group; and



said sleeve including at least one slit therein extending in the circumferential, readily tearable direction, said at least one slit extending along a plane extending between adjacent containers of said package, and a bead of said thermoplastic material at each end of said slit in alignment with each end of said slit to retard tearing of said sleeve in said circumferential direction and permit said slit to be used as a finger opening for carrying purposes;

whereby, containers may be removed from a portion of said package at one end thereof by tearing said sleeve about its circumference along a plane extending substantially between adjacent containers and separating one portion of said sleeve from the remaining portion of said sleeve such that the remaining portion of said package is left intact and constitutes a shorter package with respect to said longitudinal dimension.

4,333,571

PACKAGING UNIT FOR FRUIT OR LIKE ARTICLES

Nerio Martelli, Bologna, Italy, assignor to NESPAK S.p.A. Societa' Generale per l'Imballaggio, Massa Lombarda, Italy

Filed May 22, 1980, Ser. No. 152,480
Claims priority, application Italy, May 30, 1979, 12622 A/79
Int. Cl.³ B65D *85/34, 21/02, 23/00*
U.S. Cl. 206—499 **9 Claims**

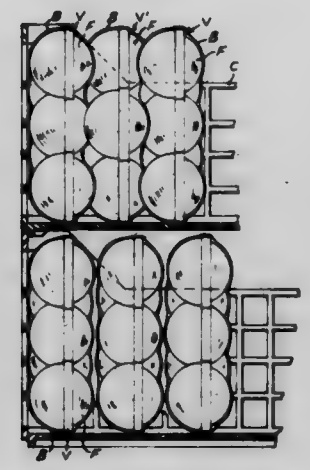
1. A packaging unit for the packaging of fruit or like articles comprising, in combination:

a rigid, box-like container having an accessible top, a bottom and four sides; and

a plurality of substantially rectangular pocket trays mountable in said container with one end of said trays resting on said container bottom and the other end of said trays located at said container top such that said trays are substantially vertical when said container is resting horizontally on its bottom,

and in a tray that presents, when disposed horizontally, a plurality of staggered parallel rows of upwardly directed pockets having a vertical cross-section generally conforming to the shape of the fruit or like articles to be placed

therein, and in which the top rim of each pocket has an approximately triangular shape in plan and has curvilinear convex sides, and in which the vertices of each pocket are arranged at a higher level than the sides joining said vertices, whereby two adjacent pockets of one row and the intermediate pocket of the adjoining staggered row define a triangular pyramidal projection in correspondence of the common vertex, wherein the improvements in said pocket trays that permit their vertical packing in said container without damage to the contents of said pockets include



said tray being made of foamed plastic sheet having a thickness in the pocket areas so as to afford a sufficiently sturdy structure that the pocket sides can operate as shelves to hold the pocket contents in the pocket, and

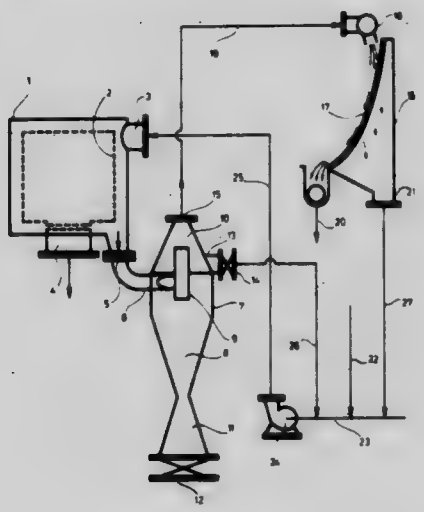
at least the side of said pyramidal projection forming a part of said intermediate pocket being concave so that the pocket contents rest on said concave side of said pyramidal projection whenever said tray is disposed in a substantially vertical orientation.

4,333,572

SEPARATION OF PULP FLOW

Rune H. Frykhult, Huddinge, Sweden, assignor to AB Celleco, Stockholm, Sweden

Filed Dec. 15, 1980, Ser. No. 216,560
Claims priority, application Sweden, Dec. 18, 1979, 7910404
Int. Cl.³ D21D *5/16, 5/24*
U.S. Cl. 209—17 **3 Claims**



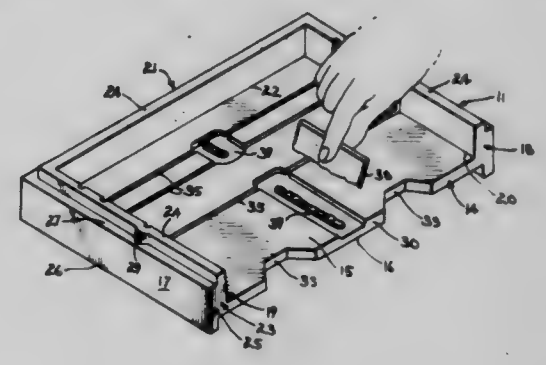
1. A method for separating a pulp-containing stream having impurities which are partly relatively light coarse particles and partly relatively heavy coarse particles, said method comprising the steps of feeding said stream to a sieving locus and there separating the flow into at least one pulp flow and one coarse reject flow, said coarse reject flow containing substantial amounts of the coarse particles and pulp, feeding the coarse reject flow into a hydrocyclone separator and there separating said reject flow into three separate flows, namely, a second pulp flow, a heavy reject flow containing a substantial amount of said relatively heavy particles, and a light reject flow containing a substantial amount of said relatively light particles, and feeding said light reject flow to a bow sieving locus and there separating the light reject flow into a flow enriched in light particles, which do not pass through the bow sieve, and a flow enriched in fibers.

4,333,573

STACKABLE TRAY

Verne R. Holoubek, Branch Road Farm, Ixonia, Wis. 53036

Filed May 23, 1980, Ser. No. 152,560
Int. Cl.³ B42F *17/12*
U.S. Cl. 211—11 **3 Claims**



1. A stackable tray for the storage of an item, comprising

a base having an upper surface to support said item and a spaced lower surface,

a pair of side walls and an end wall connected to said base and including means to support another stacked tray to form a substantial enclosure about said upper surface by said side walls and said end wall of one tray and the lower surface of an adjacent stacked tray with access to said substantial enclosure provided at a base front portion oppositely spaced from said end wall, and

a plurality of spaced separators integrally connected to said upper surface to project into said substantial enclosure to form a plurality of channels within said substantial enclosure, said separators adapted to be selectively broken away from said upper surface and to be removed therefrom to selectively enlarge one of the channels and to selectively limit the depth of entry of an item into the enlarged channel as desired for providing substantially enclosed storage adaptable to the relative length and width of the stored item.

4,333,574

WOOD RACK

R. Steven Christy, Sr., 389 Poplar Lent Rd., Concord, N.C. 28025

Filed Feb. 5, 1980, Ser. No. 118,745
Int. Cl.³ A47G *29/00*
U.S. Cl. 211—60 R **5 Claims**

1. A knock-down rack for firewood or the like including:

(a) a pair of rectangular spaced upright closed frames each having top, bottom, left and right side braces,

(b) said braces having vertical surfaces,

(c) a horizontal closed rectangular base frame having a pair of end braces and a pair of side braces,

(d) said horizontal closed rectangular frame receivable within one of said upright frames,

(e) one of said pair of upright frames having means for connecting it to one end of said horizontal closed rectangular frame adjacent said upright frame's bottom brace and the other of said pair of upright frames having means for connecting it to the other end of said horizontal frame adjacent said other upright frame's bottom brace,

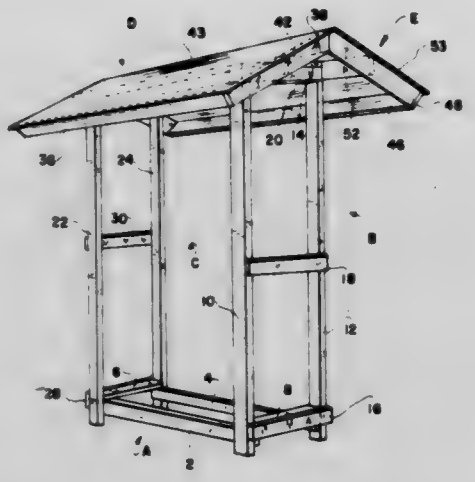
(f) a hipped roof for said rack having a top side and an

underside including a pair of interconnected separable closed frames connected to said upright frames,

(g) said interconnected separable frames each including a pair of spaced vertical horizontal braces parallel to each other,

(h) each pair of spaced horizontal braces including a top support brace and an adjacent support brace,

(i) said top support braces mounted adjacent each other and directly engaging the top braces of said spaced upright closed frames,



(j) said adjacent support brace of one of said pair of separable frames mounted adjacent said left side braces of said upright frames and said adjacent support brace of the other of said pair of separable frames mounted adjacent said right side braces of said upright frames,

(k) said closed frames each being substantially similar in length and width and being substantially longer than wider and stackable one on the other for shipping prior to assembly, and

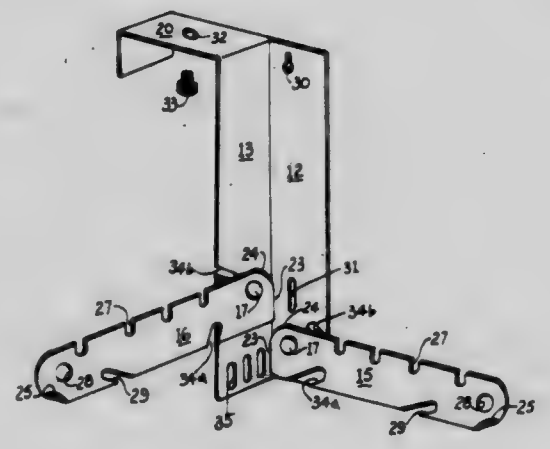
(l) said rack including ground engaging support means, and being open-sided to provide an unobstructed wood receiving opening therein.

4,333,575

COLLAPSIBLE HANGER DEVICE

Joseph Wong, 855 Grenon Ave., Unit #2, Ottawa, Ontario, Canada (K2B 6G1)

Filed Sep. 18, 1980, Ser. No. 188,565
Int. Cl.³ A47F *5/00*
U.S. Cl. 211—118 **11 Claims**



1. A collapsible hanger device comprising:

an elongate member having a pair of mutually angularly disposed walls extending longitudinally thereof;

a pair of arms pivotally mounted on respective ones of said walls;

said arms being pivotal relative to said walls about respective mutually angled axes of pivotation between collapsed positions, in which said arms are nestled in an angular space defined by said walls with said arms extending longitudinally of said elongate member, and extended positions, in which said arms project laterally of said elongate member;

means for releasably supporting said arms in said extended positions; and

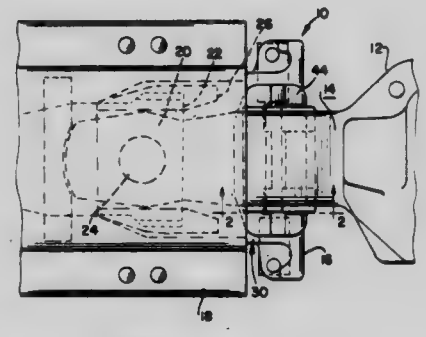
means for suspending said elongate member from a support.

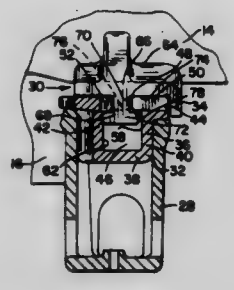
4,333,576

CARRIER ASSEMBLY FOR USE WITH A ROTARY RAILROAD COUPLER SYSTEM

John W. Kaim, Chicago, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill.

Continuation-in-part of Ser. No. 957,709, Nov. 6, 1978, abandoned. This application Feb. 25, 1980, Ser. No. 124,332
Int. Cl.³ B61G *9/22*
U.S. Cl. 213—61 **3 Claims**





1. In a rotary type railroad coupler system wherein a type E coupler head and cylindrical shank are rotatively joined to a yoke collar by a retractable pin, said shank being held substantially horizontal by a carrier assembly connected to a striker casting of said coupler system, said carrier assembly comprising a saddle casting portion and a carrier portion with said coupler shank being engaged with an upper cradle area of said saddle casting portion, an improvement in said carrier assembly comprising,

lug means formed on a bottom of said saddle casting portion, said lug means providing guidance of said saddle casting portion during sideways movement of said saddle casting portion relative to said carrier portion and locking to selectively maintain said portions in an assembled relationship, and

groove means formed laterally to a longitudinal slot in an upper member of said carrier portion, said groove means providing passage of said saddle casting portion lug means upon alignment of said saddle casting portion lug means and said carrier portion groove means,

wherein said portions may be assembled or disassembled by aligning said saddle casting lug means with said carrier portion groove means and then moving said lug means through said groove means, with assembly or disassembly of said portions inhibited by misaligning said saddle casting portion lug means and said carrier portion groove means.

4,333,577

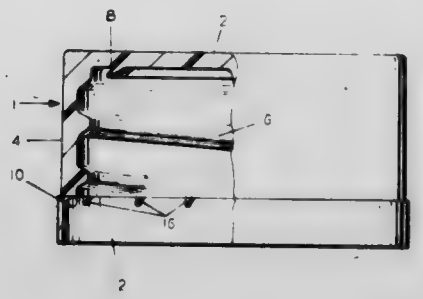
TAMPERPROOF CLOSURE

George V. Mumford, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Sep. 15, 1980, Ser. No. 186,938
Int. Cl.³ B65D *41/34*
U.S. Cl. 215—246 **2 Claims**

1. A molded thermoplastic closure comprising a disc-shaped

panel, and annular skirt depending from the periphery of said panel, a heat shrinkable annular band disposed in depending relation from the annular bottom edge of said skirt, said band having an outside diameter adjacent said annular bottom edge greater than the outside diameter of said skirt bottom edge and



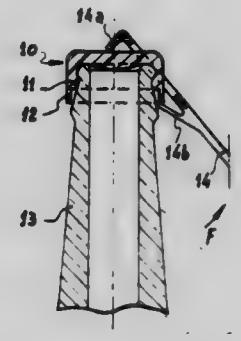
an inside diameter adjacent said annular bottom edge less than the outside diameter of said skirt adjacent to said edge, thereby defining a continuous shearable annular connection between said annular bottom edge of said skirt and the top annular portion of said band.

4,333,578

BOTTLE CAP HAVING OPENING MEANS

Giuseppe Di Nunzio, Via Filadelfia 130, 10137 Turin, Italy

Filed Jun. 17, 1980, Ser. No. 160,407
Claims priority, application Italy, Jun. 18, 1979, 53340/79[U]
Int. Cl.[3] B65D *41/32*
U.S. Cl. 215—253 1 Claim



1. Bottle cap of synthetic resin material suitable for carbonated beverages which comprises a continuous peripheral relief member that is directed radially inwardly and which is substantially V-shaped in cross-section, said relief member being in juxtaposition with a mating groove in the neck of the bottle and beneath said member (11) a continuous, annular collar (12) spaced radially outwardly from the neck of the bottle and forming the lowermost portion of said bottle cap; said annular collar being subject to cracking during the removal of said cap from said bottle by the action of a bottle opener, thereby providing indication of previous removal of said cap.

4,333,579

PANEL FILTER HOUSING

Lawrence C. Flood, Hamlin, N.Y., assignor to Dollinger Corporation, Rochester, N.Y.

Filed Sep. 8, 1980, Ser. No. 185,372
Int. Cl.[3] B65D *6/26, 6/34*
U.S. Cl. 220—4 R 12 Claims

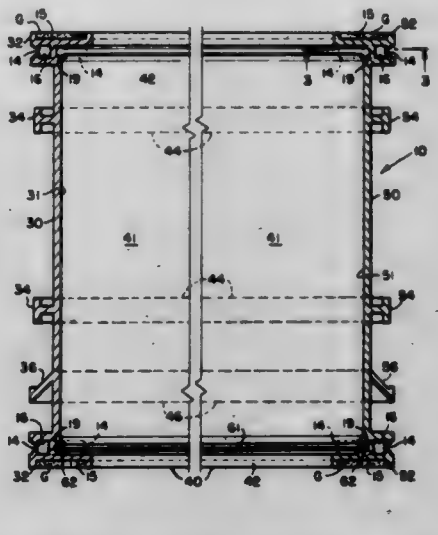
1. A filter housing, comprising

two pairs of rigid panels, each having a generally rectangular configuration overall, and each being substantially identical in cross sectional configuration,

a pair of spaced, parallel, similarly-shaped side rails formed along the two side edges, respectively, of each of said panels, and a plane, filter-supporting surface formed on one side of each panel and extending between the two side rails thereof, and

means releasably securing opposite ends of one of said pairs of panels to opposite ends of the other pair of panels, thereby to form a generally rectangular filter housing having therethrough a central opening bound by said plane surfaces on said panels,

each of said side rails having therein a plurality of spaced, parallel, longitudinally extending recesses, one of which opens at each end thereof on a corner of said rectangular housing in registry with one end of said one recess in another of said rails, and



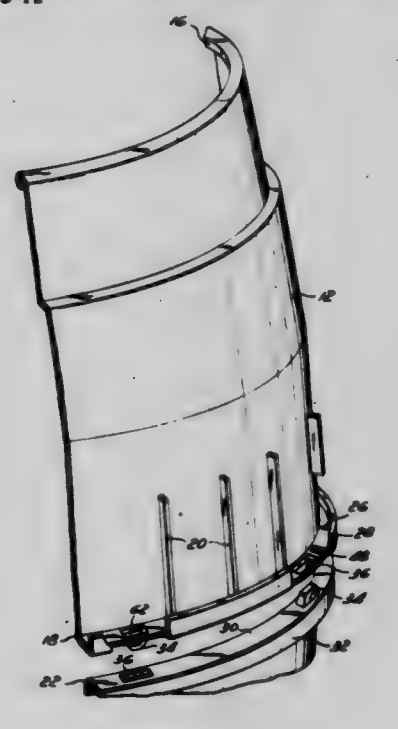
said securing means comprising a plurality of right-angular clip members located at the corners of said housing, and each clip member having opposite ends thereof frictionally engaged in a pair of said registering ends of said one recesses.

4,333,580

MECHANISM FOR LOCKING TWO HALVES OF AN UNDERGROUND VAULT

Robert L. Sweigart, Jr., Arcadia, Calif., assignor to Associated Plastics, Inc., Fountain Valley, Calif.

Filed Sep. 29, 1980, Ser. No. 191,396
Int. Cl.[3] B65D *8/04, 41/06*
U.S. Cl. 220—5 A 5 Claims



1. An underground vault comprising:

a first housing having an open end;

a second housing having an open end and an annular flange which projects outwardly from the exterior of said second housing;

said first housing having a resiliently deformable hook depending from said open end;

said flange having an opening extending therethrough, said

opening being of a size sufficient to permit said hook to pass through it;

said flange having a recess located proximal to said opening, and a camming surface, between said recess and said opening;

said hook having means for engaging said recess, said engaging means, upon mutual rotation of said housings, traversing said camming surface to engage said recess and lock said housings together; and

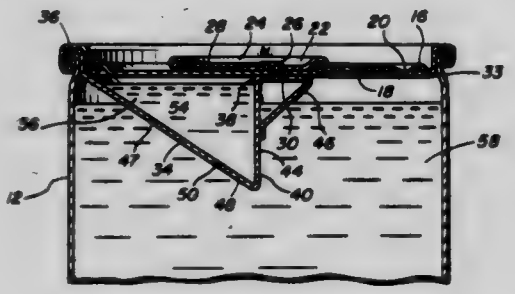
said camming surface resiliently deforming said hook in a plane parallel to the direction of motion of said hook as it traverses said camming surface.

4,333,581

MULTI-COMPARTMENT CONTAINER WITH POP-TOP AND COMMUNICATING DOOR

Donald G. Flansburg, Merced, Calif., assignor to Henry H. Howard, Modesto, Calif.

Filed Aug. 19, 1980, Ser. No. 179,932
Int. Cl.³ B65D *25/08, 41/32*
U.S. Cl. 220—20 10 Claims



1. A container for beverages, said container including an outer peripheral wall and top and bottom walls, said top wall spanning and being sealed relative to the upper marginal edges of said peripheral wall, said top wall having a first elongated tab portion formed integrally therewith and downwardly tearable from said top wall into said container with one bendable end of said first tab portion remaining attached to said top wall, an upwardly opening partition wall disposed below said top wall and including peripheral edges sealed relative to said top wall and defining a closed chamber within said container below said top wall, said partition wall including a second elongated tab portion formed integrally therewith and tearable therefrom with one bendable end portion of said second tab portion remaining attached to said partition wall, and connecting means attached to said first and second tab portions operative to effect tearing of said second tab portion from said partition wall response to downward tearing of said first tab portion from said top wall.

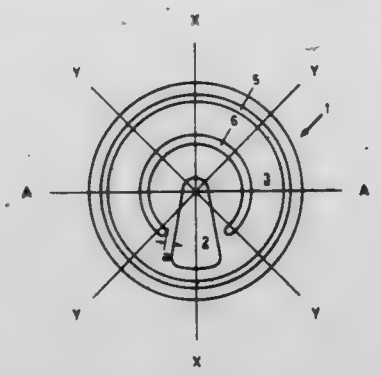
4,333,582

GROOVED BEVERAGE CAN LID

Siegfried Bloeck; Erich Höfling, both of Kreuzlingen; Rudolf Lüthi, Niederwangen, and Werner Diemi, Bern, all of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Oct. 3, 1980, Ser. No. 193,796
Claims priority, application Switzerland, Oct. 16, 1979, 9282/79
Int. Cl.³ B65D *6/34, 8/04, 41/02*
U.S. Cl. 220—66 11 Claims

1. A container lid for pressurized sealed containers comprising a top surface having a removable portion, said removable portion being located at an angle with respect to the rolling direction of the lid material selected from the group consisting of about 0° and 90°, said top surface further having stiffening grooves located at a 45° angle with respect to the rolling direc-



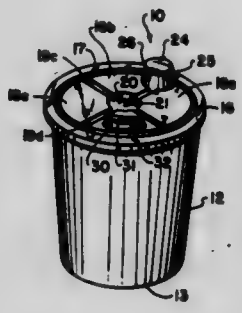
tion of the lid material wherein the strength of said lid is increased by about 10%.

4,333,583

DRINKING SPOUT COVER

Joseph Montemarano, Angie Dr., Hopewell Junction, N.Y. 12533

Filed May 1, 1980, Ser. No. 145,848
Int. Cl.³ B65D *41/32*
U.S. Cl. 220—90.4 5 Claims



1. A drinking spout cover for a liquid container having a substantially circular opening comprising:

a substantially circular main body portion of a plastic material having a slightly greater diameter than the container opening and a flexible and downwardly extending peripheral portion said body portion further including a central recessed portion of a cylindrical configuration extending downwardly from the main body portion and having a central aperture in the base thereof, said aperture permitting an outflow of air during closure of the cover on a container and a plurality of evenly spaced recessed channels, the majority of said channels extending from the central recessed portion towards the periphery of the cover, and

a drinking spout positioned on the main body portion towards the periphery of the cover and in line with one of said recessed channels, said spout comprising an upwardly extending hollow frustoconical member having an unobstructed interior, a cover integrally mounted across the upper end of the spout and having a tab extending outwardly therefrom for gripping purposes and said spout having a plurality of fine perforations circumferentially arranged about the upper surface thereof to permit ready removal of the cover for drinking purposes.

4,333,584

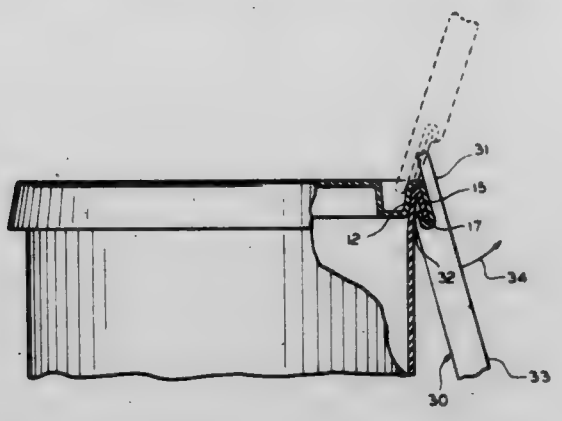
CONTAINER CLOSURE

John C. Gall, Chicago, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.

Filed Sep. 19, 1980, Ser. No. 188,807
Int. Cl.³ B65D *41/10, 41/12, 41/14*
U.S. Cl. 220—309 11 Claims

1. A closure for a container having a foldable resilient annular wall defining an opening comprising a bendable resilient

annular wall adapted to be disposed at least partially in contact with the foldable wall of the container, said bendable wall of said closure having a reversely bent annular lip disposed about the outer edge of the foldable wall of the container when said closure is disposed with said bendable wall of said closure at least partially in contact with the foldable wall of the container, said bendable wall of said closure and the foldable wall



of the container being reversably movable together between an unlocked position and a locked position upon application of force sufficient to achieve over-center snap action when said closure has said reversely bent lip disposed about the outer edge of the wall of the container, whereby said bendable wall of said closure may be repeatedly moved into and out of locking engagement with the foldable wall of the container.

4,333,585

DEEP-DRAWN PREFORMED CLOSURE FOR THE HERMETIC SEALING OF A CAN OR SIMILAR CONTAINER

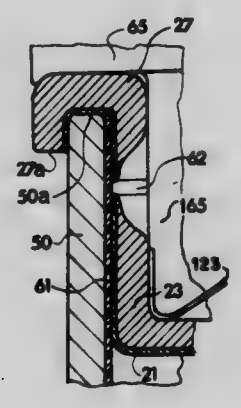
Luigi Del Bon, 141 Feldstrasse, 4663 Aarburg, Switzerland

Filed Jul. 10, 1979, Ser. No. 56,404

Claims priority, application Switzerland, Jul. 10, 1978, 7454/78; Feb. 17, 1979, 1539/79

Int. Cl.³ B65D *3/12, 3/22, 41/50*

U.S. Cl. 220—359 **3 Claims**



1. A deep-drawn preformed closure element adapted for the hermetic sealing of an opening of a can or similar container having a can body having a top and said opening in said top, the wall of which can body is lined on its inside surface with a protective coating which is rendered thermo-glueable upon heating, and said closure element being in a state ready for introduction and gluing into said opening of said can top and essentially consisting of a membrane deep drawn from an aluminum foil or similar sheet material, and being adapted for serving as a warranty seal for said container, said membrane comprising:

(a) a flat part, adapted for covering the top opening in said can body,

(b) an annular collar part, joined to the periphery of said flat part, said membrane bearing at least on the side of said collar part destined to contact said can body, a coating which is rendered thermo-glueable upon heating, whereby said collar part is adapted for being glued to the thermo-glueable coating of the inside wall surrounding the top opening of said can body,

(c) a peripheral rim-covering part, joined to the periphery of said collar part away from said flat part, and destined for covering the rim of said can about said can top opening, and

(d) collar part rupturing line means comprising at least one endless reduced thickness portion in said collar part, extending all the way thereabout, in a zone of said collar part extending parallel to the peripheral junction of said flat part with said collar part and intermediate said last-mentioned junction and the peripheral junction of said collar part with said rim-covering part, for separating the closure element into two parts, during assembly of the closure element to the can, through tensioning of said collar part in a direction substantially perpendicular to said flat part, and inwardly toward the can interior, and heating the same, whereby an upper portion of said collar part, above said collar part-rupturing line means, becomes thermo-glued to the underlying protective coating of the can body wall in an upper contact zone of the latter, and a lower portion of said collar part, below said collar part-rupturing line means, becomes thermo-glued sealingly to the underlying protective coating in a second, lower zone of the can body wall, while leaving a circumferential zone of said protective coating intermediate said first and second contact zone thereof uncovered and intact.

4,333,586

INSERTION MACHINE FOR INTEGRATED CIRCUITS

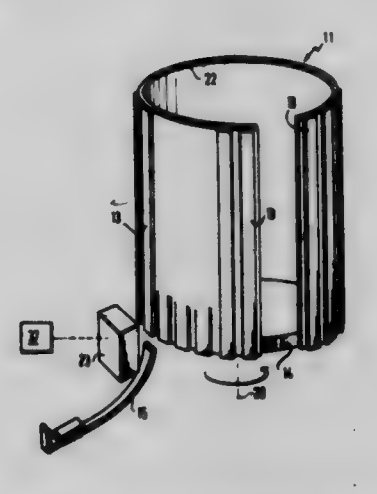
Gerd Stückler, Birkenweg 18, D-8151 Osterwarngau, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,332

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1979, 2844169

Int. Cl.³ B65G *59/06*

U.S. Cl. 221—106 **13 Claims**

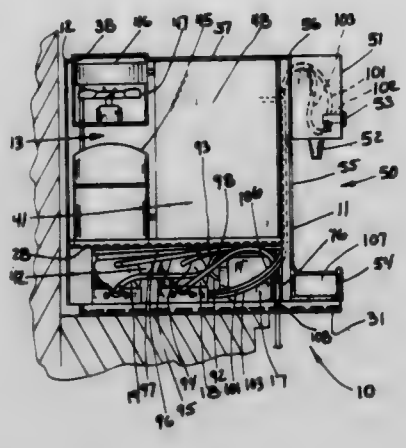


1. Insertion machine for integrated circuits, comprising a magazine (13,22,24) with several bars (13) arranged side by side to receive the integrated circuits (8,9,10) in a row one above the other, a lock at the bottom end of each of said bars, an output device (15,23) which receives and conveys the integrated circuits (8,9,10), after the lock of the bars (13) has been opened, from the bars (13) into a removal position, characterized in that a driving mechanism (14) moves the magazine (13,22,24) relative to said output device (15,23) common to the bars (13), a plate-shaped carrier (22,24) mounting said bars (13) and held exchangeably on said drive (14), the carrier is a flexible plate (22), which is bent into a hollow cylinder and secured on the driving mechanism (14), and is turned by the driving mechanism about the cylinder axis (20), said bars (13) are held removably on the plate (22,24) and carry locking elements (47,41) with complementary locking elements (39,45) in the plate (22,24).

4,333,587
BEVERAGE DISPENSER

Herman S. Fessler, Coon Rapids, Minn., and William A. Harvill, Stone Mountain, Ga., assignors to The Coca-Cola Company, Atlanta, Ga. and The Cornelius Company, Anoka, Minn., part interest to each

Filed Jan. 31, 1980, Ser. No. 117,330
Int. Cl.[3] B67D 5/56
U.S. Cl. 222—129.1 16 Claims



1. A pressurized fluid powerable post-mix beverage dispenser comprising:

(a) an exterior cabinet having a front end with a dispensing nozzle and a drip tray;

(b) means dividing the interior of the cabinet into first and second discrete compartments;

(c) refrigeration means for cooling beverage ingredients, said refrigeration means being in the first compartment;

(d) a drawer trackway in the second compartment;

(e) a slide drawer in the second compartment, said drawer being slidably mounted to the trackway and having thereon a fluid powerable syrup pump, a bulkhead for fluid lines, a propellent fluid line from the bulkhead to the syrup pump for supply of propellent fluid to the pump, and product lines from the bulkhead to the syrup pump for supply of syrup and water respectively, said drawer being slidably withdrawable to an alternate access position in which the drawer is substantially out of the second compartment and in which the pump, bulkhead, fluid lines and product lines are forward of the cabinet front end; and

(f) a product delivery line from the pump to the refrigeration means, said product delivery line including a length normally within the second compartment, said length being flexible and being forward of the cabinet front end when the drawer is in the access position, enabling slidable withdrawal of the drawer and all components thereon without disconnection of any syrup components for providing substantially unobstructed access to the pump without requiring disconnection of any line.

4,333,588
ICE DISPENSER ASSEMBLY

Raymond M. Schreck; Bill G. Brown, and David A. Gilda, all of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

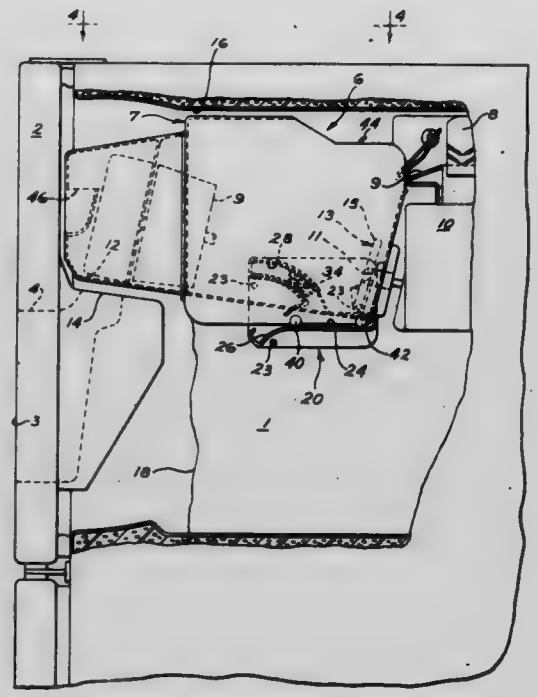
Filed Aug. 8, 1980, Ser. No. 176,301
Int. Cl.[3] F25C 5/18
U.S. Cl. 222—164 8 Claims

1. An ice dispenser assembly for use in a freezer compartment of a refrigerator including a motor-driven ice dispenser comprising;

an ice piece storage receptacle having an open top and including means for dispensing ice pieces contained therein,

a stationary track member on each side of the receptacle, each track member having a rearward horizontal portion, a forward downwardly curved portion, and a forward upwardly curved portion,

two pairs of spaced guide elements, each pair including a forward guide element and a rearward guide element, one pair of said guide elements being secured to the receptacle on each side thereof and slidable in each of the respective stationary track members to move the receptacle from a first position to a second position, said pairs of guide elements being located in the rearward horizontal portion

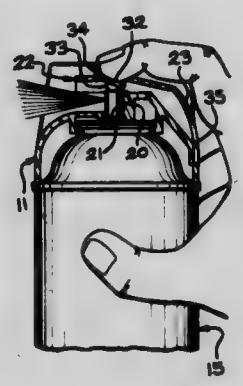


of the track members when the receptacle is in its first position and the forward guide element of each pair of guide elements is in the downwardly curved portion and the rearward guide element of each pair is in the upwardly curved portion when the receptacle is in its second position.

4,333,589
CHILD-RESISTANT OVERCAP FOR A PRESSURIZED CONTAINER

Randall G. Bush, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Filed Jun. 30, 1980, Ser. No. 163,939
Int. Cl.[3] B67D 5/32; B65D 83/14, 51/20
U.S. Cl. 222—402.11 7 Claims



1. A child-resistant overcap for a pressurized container which includes a dispensing valve at the center top thereof, said container also having an annular assembly seam surrounding said valve and a tubular nozzle axially moveable to actuate said valve, said overcap comprising, in combination,

(a) a generally cup-shaped body having (1) a depending skirt with a lip at its lower margin that is adapted to engage said seam for retaining said overcap on said container, (2) an axial opening that is adapted to receive said axially moveable nozzle and (3) a top having a finger depression extending across said top and intersecting said axial opening,

(b) a valve guard unitary with said body and mountable in

the finger depression for movement between a valve-guarding position and a valve-actuating position said valve guard including a valve actuator movable relative to said valve guard in all of its positions and being movable into actuating engagement with said nozzle only when said valve guard is in said valve actuating position,

(c) co-operating means on said guard and said body for guiding said guard between such positions, and

(d) resilient means formed integrally with said body and guard and biasing said guard toward such guarding position.

4,333,590

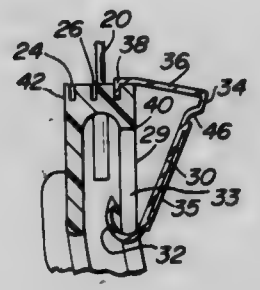
GARMENT HANGER

Raymond A. Princiotta, 208 N. Concord, Havertown, Pa. 19083

Filed Jan. 10, 1980, Ser. No. 110,953

Int. Cl.³ A47J *51/08*

U.S. Cl. 223—85 **12 Claims**



1. A garment hanger having a hook connected to a body which has arms extending therefrom, the improvement comprising an adjustable spacer on the body, means on the upper end of the body adjacent the hook for selective mating cooperation with any one of at least two operative positions associated with one end portion of said spacer so that said spacer portion is adjustable between said operative positions for adjusting the effective width of said body to thereby limit the extent to which two such hangers can approach one another on a rack, said spacer portion being generally perpendicular to said arms, and an abutment surface on the other end portion of said spacer for contact with another hanger on a rack.

9. A garment hanger having a metal hook connected to a plastic body which has arms extending therefrom, the improvement comprisng a plastic spacer adjustably supported by the body and cooperating therewith to define the width of the body, said spacer being adjustable relative to the body between at least two operative positions for adjusting the effective width of the body to thereby limit the extent to which two such hangers can approach one another on a rack, said spacer having a generally horizontal member, a tongue on one end portion of said member, said member having an abutment surface on the opposite end portion for contact with another hanger on a rack, said hook having a shank portion, and means defining at least one slot on opposite sides of said hook shank portion and generally perpendicular to said shank portion for selective receiving said tongue when said spacer is in one of said operative positions.

4,333,591

BABY BACKPACK SACK

Dorothy S. Case, 2101 Forest Park Dr., Anchorage, Ak. 99503

Filed Oct. 14, 1980, Ser. No. 196,287

Int. Cl.³ A47D *13/02*

U.S. Cl. 224—160 **15 Claims**

1. A baby backpack sack adapted to substantially completely enclose a backpack carrier having shoulder straps, comprising:

a first generally rectangular panel defining a first side of the sack, said first panel having an upper edge, a lower edge and first and second side edges;

a second generally rectangular panel defining a second side of the sack, said second panel having an upper edge, a lower edge, said first and second side edges, with said first panel and said second panel being joined to one another along only a portion of said first side edges and said second side edges;

a third generally rectangular panel defining a bottom of said sack, said third panel having a first lower edge, a second lower edge and first and second side edges,

said third panel being joined along said first lower edge to said lower edge of said first panel,

said third panel being joined along said second lower edge to said lower edge of said second panel,



said third panel being joined along a portion of said first side edge to the remainder of said first side edge of said first panel and being joined along the remainder of said first side edge to the remainder of said first side edge of said second panel and

said third panel being joined along a portion of said second side edge to the remainder of said second side edge of said first panel and being joined along the remainder of said second side edge to the remainder of said second side edge of said second panel; and

means for facilitating passage of said shoulder straps of said backpack carrier through said first panel.

4,333,592

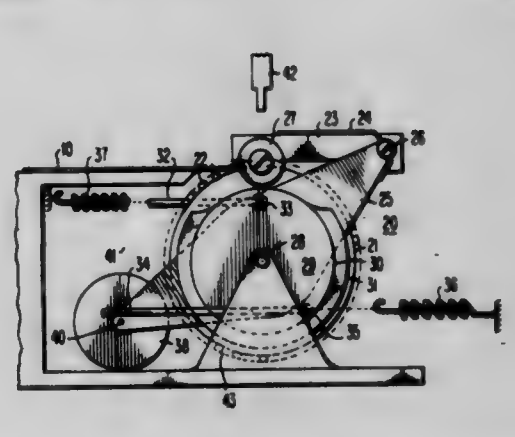
APPARATUS FOR HANDLING DEFORMABLE COMPONENTS SUPPORTED IN A MATRIX

William Z. Marder, Pennington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 30, 1980, Ser. No. 221,377

Int. Cl.³ G03B *1/18, 1/24*

U.S. Cl. 226—52 **7 Claims**



1. An apparatus for handling deformable component parts supported in a contiguous matrix comprising:

a wheel, the circumferential surface of which is configured in an integral number of equal facets, and having an indexing tooth protruding radially outward from each facet; said wheel being rotatably mounted at its axis of rotation to a base structure;

a generally longitudinal linking element having a first end rotatably mounted to the base structure to rotate about the

same axis as the wheel, said linking element extending radially from said axis;

a clamp plate having a first end pivotally mounted to a second end of the linking element, said plate having a second end arranged substantially tangent to the wheel so that a surface of the plate may be positioned parallel with a facet of the wheel by rotation of the linking element and the matrix may be threaded between said plate and said facet, said plate surface having a recess for engaging an indexing tooth of the wheel and thereby causing the wheel to rotate when the linking element is rotated.

4,333,593

FEEDER FOR FEEDING STOCK TO MACHINES OR DEVICES

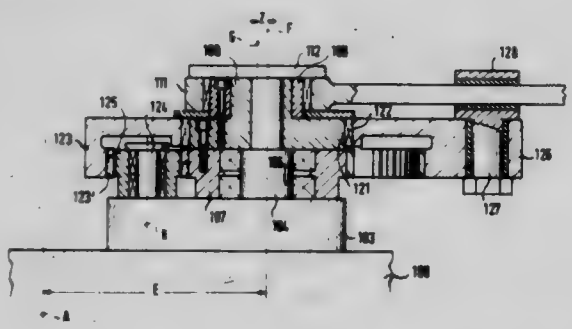
Otto Bihler, Schleiferweg 2, D-8959 Halblech, Füssen, Fed. Rep. of Germany, and Eduard Brüller, Trimbach, Switzerland, assignors to Otto Bihler, Füssen, Fed. Rep. of Germany

Continuation of Ser. No. 875,449, Feb. 6, 1978, abandoned. This application Apr. 6, 1979, Ser. No. 27,774

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1977, 2706351; Sep. 13, 1977, 2741149

Int. Cl.³ B65H *17/36*

U.S. Cl. 226—122 **36 Claims**



1. In a device for feeding stock to machines or devices having a feeding slide reciprocable in a straight line between two terminal positions and a driving device for the feeding slide including a first eccentric pin eccentrically revolving about an axis of revolution and temporarily leaving the feeding slide stationary in its two terminal positions during continued revolution of the eccentric pin, the improvement comprising an auxiliary device initiating periodic movement of the feeding slide which is superposed on the movement caused by revolution of the eccentric pin at least in the region of the terminal positions of the feeding slide, the auxiliary device including a second eccentric pin revolving about a second axis of revolution at a higher rate of revolution than said first eccentric pin.

4,333,594

PLANET GUIDE ROLLER FEED ARRANGEMENT FOR MELTING WELDING WIRES

Erwin Cloos, Haiger, Fed. Rep. of Germany, assignor to Carl Cloos Verwaltungsgesellschaft oHG, Haiger, Fed. Rep. of Germany

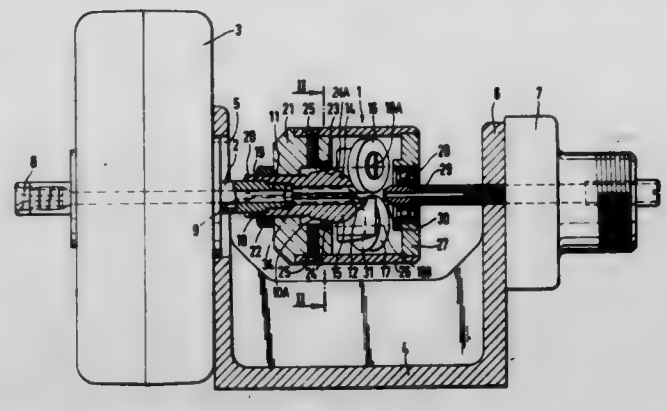
Filed Apr. 7, 1980, Ser. No. 138,060

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915320

Int. Cl.³ B65H *17/22*

U.S. Cl. 226—176 **13 Claims**

1. In a planet guide roller feed arrangement for advancing a meltable guide wire, including at least two planet guide rollers, first means for supporting said guide rollers at circumferentially spaced locations about the axis of said wire, the axis of each said roller being skewed at an acute angle with respect to the axis of said wire and each said guide roller being movable in a direction substantially radially of said wire, second means for urging said rollers into engagement with said wire, and drive means for effecting rotation of said guide rollers around the axis of said wire, the improvement comprising a sleevelike bearing part having at least two slots therein which extend axially from one end thereof a portion of the length thereof, said slots defining at least two axially extending, resiliently flexible arms, each said guide roller being supported on a respective one of said arms adjacent said one end of said bearing part, said wire extending substantially coaxially through said bearing part and said second means being engageable with said arms for flexing them radially inwardly until said guide rollers engage said wire.



4,333,595

OFFSET PISTON FOR POWDER ACTUATED TOOLS

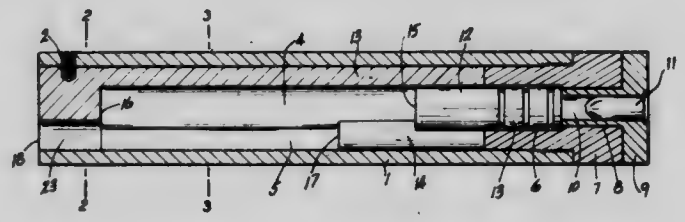
Marc Combette, and Jean Ollivier, both of Valence, France, assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 9, 1980, Ser. No. 138,788

Claims priority, application United Kingdom, Apr. 10, 1979, 7912654

Int. Cl.³ B25C *1/14, 1/18*

U.S. Cl. 227—10 **12 Claims**



1. An improved barrel assembly for a powder-actuated tool comprising a right cylindrical barrel member and a piston, said barrel member being provided with first and second communicating, longitudinal bores, said bores each being transversely offset and each being closed at one end and opening into opposite ends of said barrel member, said piston comprising at least a first portion slidable in said first bore and a second portion slidable in said second bore.

4,333,596

HIGH STRENGTH NEEDLE ASSEMBLY WITH SHARPENABLE CUTTING EDGE

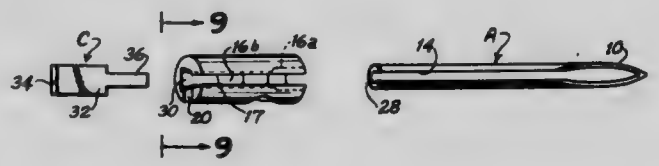
Steven Kunreuther, 285 Central Park W., New York, N.Y. 10024

Continuation of Ser. No. 55,542, Jul. 9, 1979, Pat. No. 4,273,279. This application Jul. 28, 1980, Ser. No. 172,690

The portion of the term of this patent subsequent to Jun. 16, 1998, has been disclaimed.

Int. Cl.³ B25C *1/00*

U.S. Cl. 227—67 **11 Claims**



1. A needle assembly for dispensing fasteners or the like

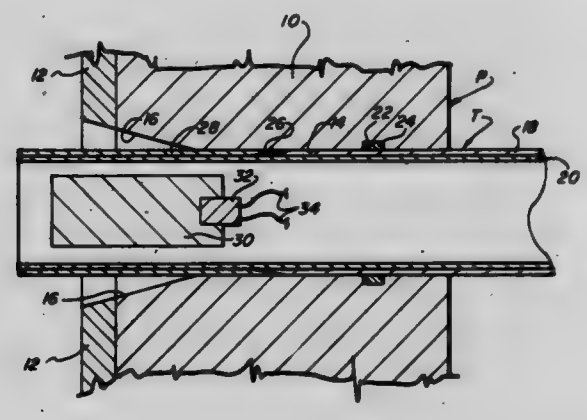
comprising a substantially cylindrical base having a central bore, a needle extending from one end of said base, said needle having an outer diameter smaller than the outer diameter of said base, a knife integral with and extending from and beyond the other end of said base, said knife comprising a cutting edge spaced from said other end of said base.

4,333,597

METHOD OF EXPLOSIVELY FORMING BI-METAL TUBEPLATE JOINTS

Roy Hardwick, Louisville, Colo., assignor to Explosive Fabricators, Louisville, Colo.

Filed May 27, 1980, Ser. No. 153,047
Int. Cl.³ B23K *20/08*
U.S. Cl. 228—108 **7 Claims**



4. A method of explosively bonding two cylindrical parallel members to each other and to a body defining a conical anvil surface through which they extend, including the steps of:

positioning an inner metallic tube within an outer metallic tube in contiguous parallel relationship;

placing an outer end of the tubes within a body defining an aperture having a conical anvil surface sloping away from a surface of the outer tube at one side of the aperture;

providing an explosive charge having a detination velocity greater than 120% of the sonic velocity of the metallic tube with the greater sonic velocity within the inner tube extending substantially the length of the conical anvil surface; and

igniting the explosive charge at an inner end within the tubes causing the inner tube to progressively expand and be driven against the outer tube along a collision point moving at supersonic velocity toward the outer end of the tubes to expand the outer tube until it strikes the anvil surface resulting in a first pressure point moving at subsonic velocity as the outer tube strikes the anvil surface and a second pressure point moving at subsonic velocity as the inner tube impacts against the now stationary outer tube creating a weld between the surfaces of the anvil and the outer tube and between the surfaces of the outer tube and the inner tube.

4,333,598

METHOD OF BRAZING HONEYCOMB AND PANEL ASSEMBLIES

Nelson C. Ittner, Encino, and William I. Rooke, Blue Jay, both of Calif., assignors to Alloy Spot Welders, Inc., Los Angeles, Calif.

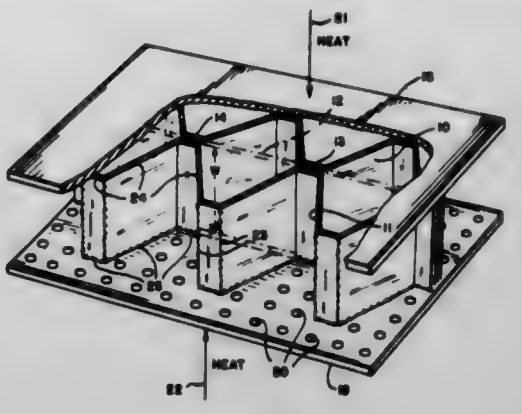
Filed Sep. 8, 1980, Ser. No. 185,305
Int. Cl.³ B23K *31/02*
U.S. Cl. 228—181 **9 Claims**

1. A method of brazing honeycomb cells to top and bottom panels including the steps of:

(a) providing ribbon segments of brazing foil having widths substantially equal to the cell heights between the panels;

(b) positioning said ribbon segments between successive honeycomb cell nodes so as to lie essentially in parallel planes bisecting the cells and extending normal to the planes of the top and bottom panels when positioned to sandwich the honeycomb cells therebetween; and,

(c) applying heat to the top and bottom panels to melt the ribbon segments of brazing foil to a liquid resulting in the liquid filling the joints defined between the nodes of the



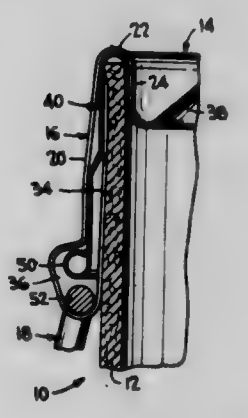
cells with each other and the top and bottom contact joint lines of the cell walls with the top and bottom panels whereby excess brazing material on the panel surfaces covering the open cell portions free of joints is virtually eliminated.

4,333,599

CRIMPED-ON DRUM COVER HANDLE

Michael J. Stemen, Bolingbrook, Ill., assignor to The Continental Group, Inc., Stamford, Conn.

Filed Dec. 17, 1980, Ser. No. 217,351
Int. Cl.³ B65D *25/28, 45/16*
U.S. Cl. 229—5.7 **10 Claims**



1. A side handle hinge member for a fibre drum, said hinge member being in the form of a metal strip bent to define a primary leg terminating at an upper end in a reversely bent anchor portion extending to one side of said leg and forming means for engagement over a cover rim portion, a locking flap extending from said anchor portion, an offset at the lower end of said primary leg extending to the other side of said primary leg, said offset terminating in a depending leg which in turn terminates in a reverse bend; said offset, said depending leg and said reverse bend combining to define a receptacle for a cover curl and a handle pivot bar; and said reverse bend terminating in an upwardly direction anchor leg for engagement between a cover skirt and a drum wall.

4,333,600

SIX-CELL PARTITION

Jeffrey M. Gardner, Wheaton, Ill., assignor to Container Corporation of America, Chicago, Ill.

Filed Sep. 26, 1980, Ser. No. 191,313
Int. Cl.³ B65D *5/48*
U.S. Cl. 229—42 **9 Claims**

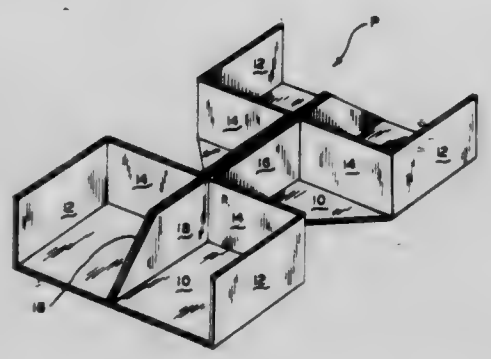
1. An internal partition device, formed of a unitary blank of

foldable sheet material such as paperboard, for forming six cells within an outer container or wrapper, comprising:

(a) a pair of co-planar, horizontal panels having outer end edges and corresponding transverse edge portions spaced from each other;

(b) pairs of opposed vertical, longitudinal, side panels foldably joined to and extending normally from opposed side edges of said horizontal panels;

(c) pairs of co-planar, vertical, transverse panels spaced inboardly from outer end edges of said horizontal panels and spaced from each other;



(d) each of said transverse panels being foldably joined at its outer end to an inner end of a related side panel;

(e) a vertical, longitudinal, center partition member positioned intermediate corresponding side panels and including:

(i) a pair of outer panels each being foldably joined at its opposite ends to inner ends of related transverse panels;

(ii) at least one inner panel foldably joined at one edge to an edge of a related outer panel;

(iii) said inner panel being sandwiched between said outer panels in parallel relation therewith.

4,333,601

ALUMINUM FOIL LINED PACKAGE, PARTICULARLY SUITABLE FOR OIL- AND FAT-CONTAINING PRODUCTS

Jakob Grimm, Langnau-Emmental, Switzerland, assignor to Inauen Machinen AG, Herisau, Switzerland

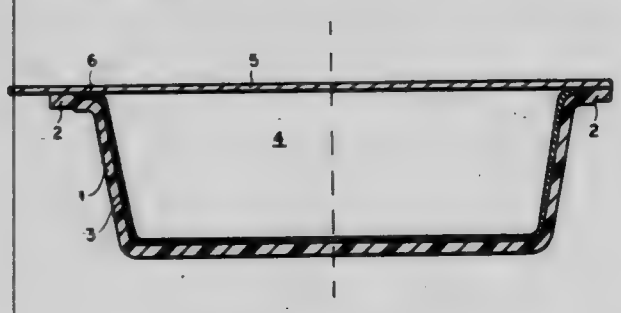
PCT No. PCT/CH80/00050, § 371 Date Jan. 2, 1981, § 102(e) Date Dec. 30, 1980, PCT Pub. No. WO80/02412, PCT Pub. Date Nov. 13, 1980

PCT Filed Apr. 28, 1980, Ser. No. 227,086

Claims priority, application Switzerland, May 2, 1979, 4094/79

Int. Cl.³ B65D 5/56, 5/64

U.S. Cl. 229—43 **2 Claims**



1. A food-packaging container comprising an upwardly open cup-shaped receptacle having an outer plastic layer and an inner aluminum foil lining, said receptacle having downwardly tapering walls, a base unitary with said walls and an outwardly directed horizontal flange surrounding a mouth of said receptacle and lying in plane, said plastic layer extending to the outer periphery of said flange and said lining extending over the entire base and walls and having an outwardly directed portion overlying said layer of said flange but terminating inwardly of said periphery whereby a peripheral zone of the material of said layer is exposed from above on said flange, and an aluminum cover closing said mouth of said receptacle and extending over said zone and bonding directly to said layer at said zone.

4,333,602

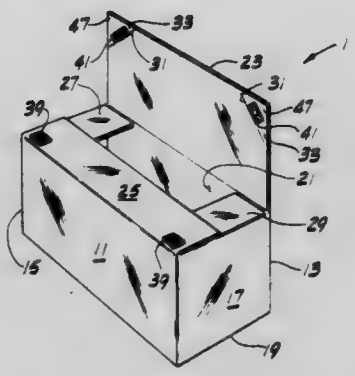
RECLOSABLE CONTAINER

Robert C. Geschwender, Lincoln, Nebr., assignor to Concept Engineering Inc., Lincoln, Nebr.

Filed Nov. 26, 1980, Ser. No. 210,284

Int. Cl.³ B65D 5/66

U.S. Cl. 229—44 R **4 Claims**



1. A container having an opening providing access to the interior thereof, a lid for the opening, at least a portion of said lid being substantially rigid and planar and hinged for swinging about a hinge line from a first position overlying a substantially rigid planar portion of the container to a second position away from said container portion, and a two-part fastener for releasably securing said lid portion to said container portion thereby to maintain the lid closed, the first part of said fastener being secured to said container portion and the second part to said lid portion closely adjacent said hinge line with the lid portion extending outwardly beyond said second part and serving as a lever for swinging said lid portion from said first position in which said fastener parts are interengaged for maintaining the lid closed to said second position in which said fastener parts are disengaged for permitting the lid to be opened, said container being recloseable by swinging the lid portion back to said first position, said fastener parts being secured to said lid and container portions by clips receivable in openings in the lid and container portions for clipping said fastener parts in position.

4,333,603

MAILBOX WITH LOCKABLE LETTER MAIL COMPARTMENT FOR USE IN MOTORIZED DELIVERY ROUTES

Raymond A. Carlson, 4147 E. Whittier, Tucson, Ariz. 85711

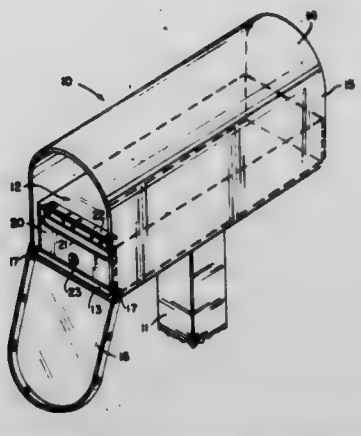
Continuation-in-part of Ser. No. 957,536, Nov. 3, 1978, abandoned. This application Jan. 15, 1980, Ser. No. 112,296

Int. Cl.³ A47G 29/12

U.S. Cl. 232—17 **3 Claims**

1. In a rural-type mailbox having a flat rectangular floor, a short back plate, side walls extending no higher than the back plate, and a cover that may be formed by extending the side wall on one side over to the side wall on the other side in a form which conforms to the shape of the back plate, said side walls being flat over at least an initial part extending up from said floor, and a hinged door opposite said back plate, said hinged door conforming to the shape of said back plate to fit the opening between said side walls and between the floor and the cover, the combination of a lockable box inside of said rural-type mailbox for receiving letter mail, said lockable box being comprised of a flat rectangular bottom, flat rectangular sides extending from said bottom to a height less than the height of said back plate of said rural-type mailbox, a top, and a front closure at one end, said lockable box closely fitting inside said rural-type mailbox with the closure thereof placed

just behind said hinged door of said rural-type mailbox, a slot in said lockable box through which letter mail may be inserted, said closure comprising a hinged door through which letter mail may be removed from said lockable box, and said hinged door of said lockable box having a key-operated mechanism



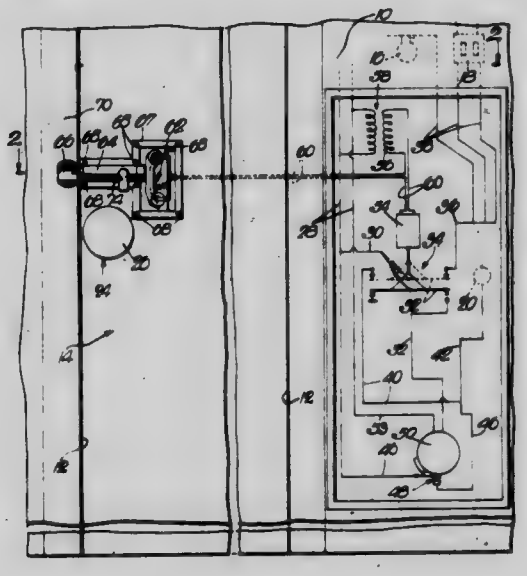
for locking, and means for securing the bottom of said close fitting lockable box to the floor of said rural-type mailbox with said slot and hinged door of said lockable box accessible through said hinged door of said rural-type mailbox for insertion and removal of letter mail.

4,333,604

ECONOMIC ENERGY CONTROL

Gary M. Petrillo, 47 Corey Rd., North Haven, Conn. 06473

Filed Apr. 13, 1981, Ser. No. 253,692
Int. Cl.³ E05B *65/00*; H01H *27/06*
U.S. Cl. 236—46 R 4 Claims



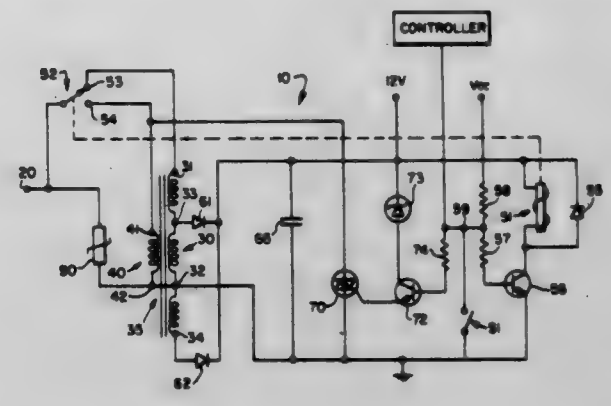
1. A system for controlling the energy consumption of an energy-operated device in a room having a door movable into open and closed positions and a source of electrical energy, comprising a circuit for said device including said energy source, for rendering said device operative and inoperative on closing and opening said circuit, respectively a first switch in said circuit spring-urged into closed position and shiftable into open position to close and open said circuit respectively, a time delay relay adapted when energized, to hold said switch in said closed position for a preset delay period and then shift it into said open position, a circuit for said relay including a master switch of push button type mounted on said door and having its push button formed as a latch bolt manipulatable on the inside of said door, a catch in the room into and from which said latch bolt is projectible and retractible to lock and unlock said door, respectively, from the inside of the room, with said master switch being opened and closed to open and close said relay circuit on projection and retraction, respectively, of said latch bolt.

4,333,605

VARIABLE INPUT-RESISTANCE POWER SUPPLY CIRCUIT

Kenneth R. Peters, Billerica, Mass., assignor to American Stabilia, Inc., Lewiston, Me.

Filed Apr. 17, 1981, Ser. No. 255,177
Int. Cl.³ H01H *9/00*; G05D *15/00*
U.S. Cl. 236—78 R 10 Claims



2. In a temperature control system including an input voltage signal, a power supply circuit comprising:

a transformer having a core, input terminals, and output terminals;

a primary winding electromagnetically coupled to said core of said transformer such that the rms voltage at said output terminals remains larger than a minimum voltage level whether said input voltage signal is connected to said input terminals of said transformer or to said primary winding, said primary winding having input terminals separated by an impedance which is substantially smaller than the impedance between said input terminals of said transformer;

voltage limiting means connected to said primary winding for monitoring said rms voltage at said output winding and for ensuring that said rms voltage at said output terminals does not exceed a predetermined level when said input voltage signal is connected to said input terminals of said primary winding; and

switching means for connecting said input voltage signal to said input terminals of said transformer if said temperature control system is in a first state requiring a large voltage across said power supply circuit, and for connecting said input voltage signal to said input terminals of said primary winding if said temperature control system is in a second state requiring a small voltage across said power supply circuit.

4,333,606

AIR INTAKE CONTROL SYSTEM IN AIR CONDITIONING SYSTEM

Yukio Shimada; Naoyoshi Suzuki; Toshio Ohashi, all of Yokohama, and Yasushi Inoshita, Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Nov. 6, 1980, Ser. No. 204,511
Claims priority, application Japan, Nov. 15, 1979, 54-147066
Int. Cl.³ B60H *1/00*
U.S. Cl. 237—12.3 A 9 Claims

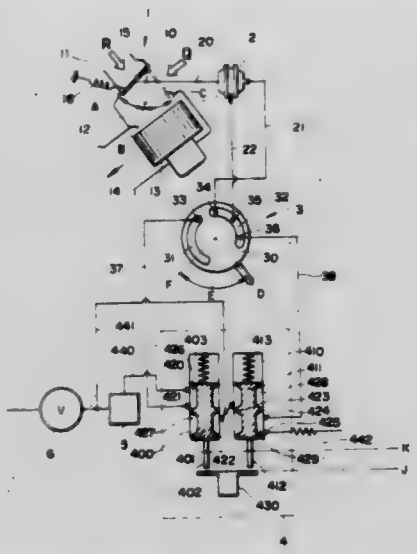
1. In an air conditioning system having an air intake system adapted to be switched between at least an outside air position and a recirculating air position, an air intake control system comprising:

(a) a pressure activated actuator adapted to switch said air intake system between said two positions;

(b) a mode selector having two inlets receiving a first control pressure and a second control pressure, and, adapted to supply selectively a plurality of different groupings of said first and second control pressures to said actuator;

(c) a first reference pressure source supplying a first reference pressure;

(d) a second reference pressure source supplying a second reference pressure;
(e) an air control switch receiving said first reference pressure source, adapted to output said first reference pressure when operated; and
(f) an air intake changeover switch receiving input pressures including the first reference pressure from said air control switch, and said first and second reference pressures from said first and second reference pressure sources, and



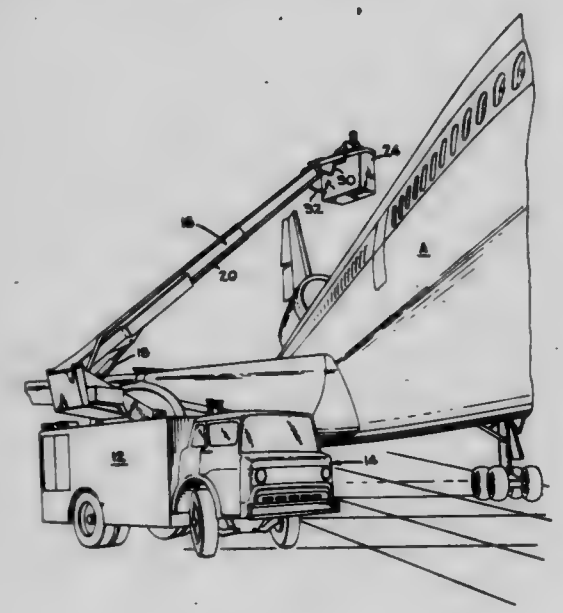
adapted, in a first position, to supply a first combination of said input pressures to said inlets of said mode selector; and adapted in a second position to supply a second combination of said input pressures to said inlets of said mode selector;
wherein said second combination is such that irrespective of the switching state of said mode selector, the groupings of said first and second control pressures supplied to said actuator is such that said actuator switches the air intake system to said recirculating air position.

4,333,607

PROPORTIONAL MIX SYSTEM AND METHOD FOR APPLYING A THIXOTROPIC DE-ICING FLUID TO AN AIRCRAFT

Wilfred Mueller, Oakland; Donald M. Ingram, Santa Clara, and William B. Walker, Los Gatos, all of Calif., assignors to FMC Corporation, Chicago, Ill.

Filed Dec. 4, 1979, Ser. No. 100,173
Int. Cl.[3] B05B *1/24*
U.S. Cl. 239—13 26 Claims



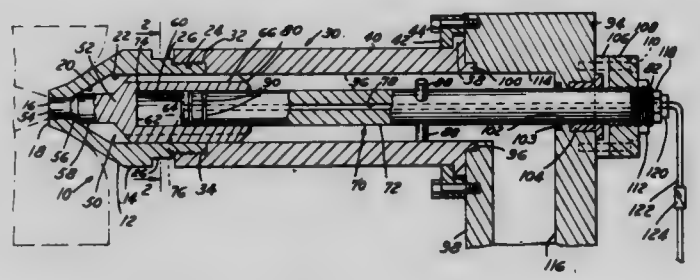
1. An apparatus for applying a de-icing fluid to a vehicle such as an aircraft; which apparatus includes a water tank and a water discharge system including a water pump, a water heater, and at least one discharge nozzle; a de-icing fluid tank and a de-icing fluid discharge system communicating with said nozzle and including a de-icing fluid pump; and power means for driving the pumps: the improvement which comprises clutch means interposed between said de-icing fluid pump and said power means, and control means included in at least one of said discharge systems for engaging said clutch in response to a flow of fluid through said discharge system at a rate in excess of a predetermined flow rate for subsequent discharge out of said nozzle, said one discharge system being said de-icing fluid discharge system, a de-icing fluid flow switch included in said control means for engaging said clutch and driving said de-icing fluid pump when the de-icing fluid flow through said de-icing fluid flow switch and one of said nozzles is above a predetermined value.

4,333,608

INJECTION MOLDING NOZZLE

James W. Hendry, Englewood, Tenn., assignor to Ex-Cell-O Corporation, Troy, Mich.

Filed Sep. 19, 1980, Ser. No. 188,799
Int. Cl.[3] B29F *1/03*
U.S. Cl. 239—118 7 Claims



1. An apparatus for controlling the flow of plasticized resin through a nozzle assembly comprising:
(a) a nozzle tip means attached to a nozzle body means, said body means affixed to a manifold means;
(b) passage means internal to said manifold means communication with a bore in said nozzle body means and in communication with bore in said nozzle tip means;
(c) plunger means internal to said nozzle assembly in cooperating engagement with said nozzle tip means;
(d) a control rod means, having a longitudinal bore therein, coacting with said plunger means and forming a chamber therein;
(e) said control rod means adjustably attached to said manifold means for controlling the displacement of said plunger means to vary the flow of plasticized resin;
(f) said plunger means is operated to an open position by a force developed by the resin acting on a differential area of said plunger and;
(g) said plunger is operated to a closed position by a force developed by fluid pressure in said chamber means.

4,333,609

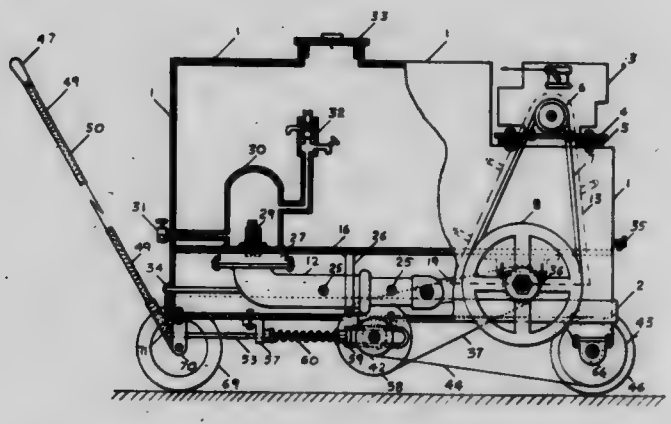
POWER PROPELLED RECIPROCATING PISTON PUMP LIQUID SPRAYER

Stevan Backo, 1884 Pillette Rd., Windsor, Ontario, Canada (N8T 1P1)

Filed Apr. 11, 1980, Ser. No. 139,191
Int. Cl.[3] B05B *9/03*
U.S. Cl. 239—124 12 Claims

1. A power propelled reciprocating piston pump liquid sprayer comprising: a frame having front and rear cross members; a front axle being pivotally supported from the center of said front cross member and a rear axle supported from said rear cross member; a pair of wheels journalled on the opposite ends of the front axle and a pair of wheels journalled on the opposite ends of the rear axle; a steering handle connected to the front axle for moving the sprayer in the desired direction; a reservoir for holding the liquid to be sprayed mounted upon

said frame; a power unit mounted on top and to the rear of said reservoir; a first pulley connected to said power unit; a reciprocating piston pump mounted at the base of said frame; a crankshaft connected to said reciprocating piston pump; a second pulley connected to said crankshaft; a "V" belt trained over said first and second pulleys in order to operate said reciprocating piston pump; a valve housing secured to the base of said reservoir; inlet means to the reciprocating piston pump being located partly in said valve housing and partly in said reservoir, valve means in the form of a sliding rubber disc controlling the flow of liquid through said inlet means; outlet means from said reciprocating piston being located partly in said valve housing and partly in said reservoir and leading into a chamber means welded inside and to the base of said reservoir; a spring loaded ball valve controlling the flow of liquid through said outlet means; said chamber means completely enclosing the upper portion of said ball valve; an outlet tube attached to said chamber means and leading to the exterior of said reservoir; an adjustable pressure release valve attached to said chamber means for dumping excess liquid within said chamber means back into the reservoir; a chain drive sprocket secured to said crankshaft; a clutch shaft supported from said frame; a freewheeling clutch member associated with said



clutch shaft; a first sprocket being attached to said freewheeling clutch member; a sliding clutch member moving on said clutch shaft; a coil spring for forcing apart said sliding clutch member and said freewheeling clutch member disengaged; a second sprocket, this second sprocket being secured to said clutch shaft; a woodruff key upon said clutch shaft for guiding said sliding clutch member during back and forth movement of said sliding clutch member upon said clutch shaft; a third sprocket, this third sprocket being secured to the rear axle; a first chain means trained over said chain drive sprocket and said freewheeling clutch member; a second chain means trained over said second and third sprockets; and a manually controlled clutch operating lever connected by means of linkage means to a tapered clutch actuating fork for forcing said sliding clutch member into engagement with said freewheeling clutch member after overcoming the pressure exerted by said coil spring; whereby the motion transmitted by said power unit to said crankshaft is transmitted to said rear axle so as to propel the sprayer via said first chain means trained over said chain drive sprocket and said freewheeling clutch member, and via said second chain means trained over said second and third sprockets upon movement of said sliding clutch member into engagement with said freewheeling clutch member upon movement of said clutch operating lever by an operator.

4,333,610

GROOVED NOZZLE IRRIGATION SPRINKLER

Lloyd W. Clements, 49 W. Lincoln Ave. (C), Woodland, Calif. 95695

Continuation of Ser. No. 29,369, Apr. 11, 1979, abandoned. This application Jul. 10, 1980, Ser. No. 167,236

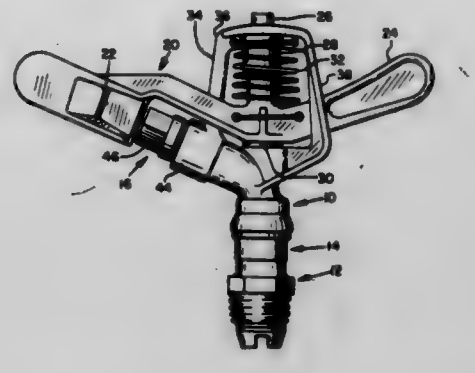
Int. Cl.³ A62C *31/02*

U.S. Cl. 239—601 11 Claims

1. In a sprinkler, a nozzle comprising:

a first portion having walls defining a generally frustoconical entrance passageway; and

a second portion having walls defining a generally cylindrical elongated discharge passageway in streamlined fluid communication with the entrance passageway, the discharge passageway terminating in an orifice at an effluent end of the nozzle, the length of the discharge passageway



being at least twice its diameter, the discharge passageway having a plurality of shallow longitudinal grooves in the walls thereof, the grooves being coextensive with the discharge passageway, the discharge passageway having a uniform transverse cross section of a predetermined area, the total cross-sectional area of the grooves being a small fraction of said predetermined area.

4,333,611

PROCESS FOR DECOMPOSING CELLS OF BIOMASSES OR THE LIKE

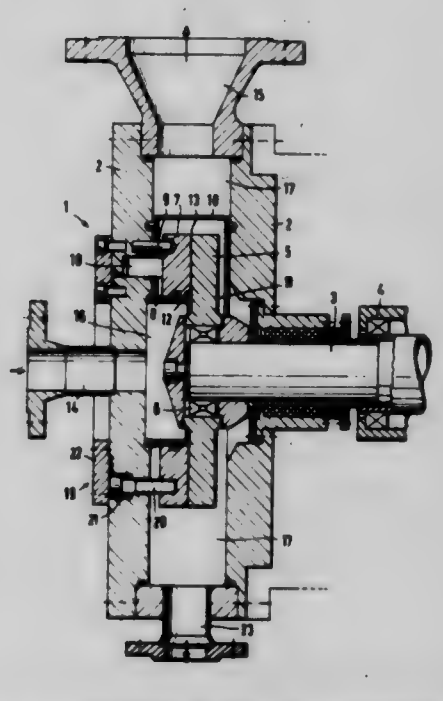
Friedrich J. Zacker, St. Andreasstrasse 16, D-4040 Neuss 21, Fed. Rep. of Germany; Georg Osthaus, Neuss, Fed. Rep. of Germany, and Doris Zacker-Kerbler, Vienna, Austria, assignors to Friedrich Josef Zacker, Neuss, Fed. Rep. of Germany

Filed May 2, 1980, Ser. No. 145,915

Claims priority, application Fed. Rep. of Germany, May 5, 1979, 2918212

Int. Cl.³ B02C *19/00*

U.S. Cl. 241—1 7 Claims



1. A process for decomposing cells of biomasses or the like or of substrates containing biomasses by heat and expansion, comprising passing said biomass through a gap between confronting surfaces of at least two elements, at least one of said elements moving with respect to the other of said elements at a sufficient speed and the width of said gap being sufficiently narrow to cause sudden heating of said biomass due to friction between said surfaces, and then directing said heated biomass from said gap into a chamber whereby the cells of said biomass

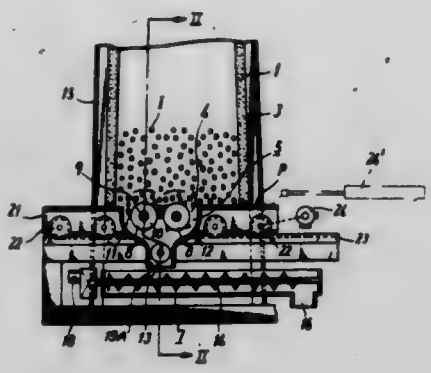
are caused to burst due to the vapor generated in said cells by said heat.

4,333,612

APPARATUS FOR STORAGE OF ICE

Takeshi Hayashi, Naruto, Japan, assignor to Kyoei Zoki Kabushiki Kaisha, Naruto, Japan

Filed Nov. 27, 1979, Ser. No. 98,018
Int. Cl.³ B02C *18/12*
U.S. Cl. 241—33 9 Claims



1. An apparatus for the storage and dispensing of ice, comprising:

a storage housing having upstanding sidewalls diverging in a direction from the top to the bottom thereof and adapted to store a quantity of ice therein;

insulation means insulating said upstanding sidewalls;

means defining a downwardly facing opening in a bottom part of said storage housing;

scratching-off means inside said storage housing and below said opening for breaking pieces of ice from said quantity of ice, said scratching-off means including at least two screw conveyors each rotatable about horizontal, coplanar and parallel axes, the screw blade of each screw conveyor effecting a horizontal conveyance of said pieces of ice along a path of movement in a direction parallel to said parallel axes;

outlet means located in said bottom part of said storage housing and oriented in alignment with said path of movement and being adapted to receive said pieces of ice therein; and

conveyor means positioned in alignment with said outlet means and oriented to convey said pieces of ice at a right angle to said path of movement.

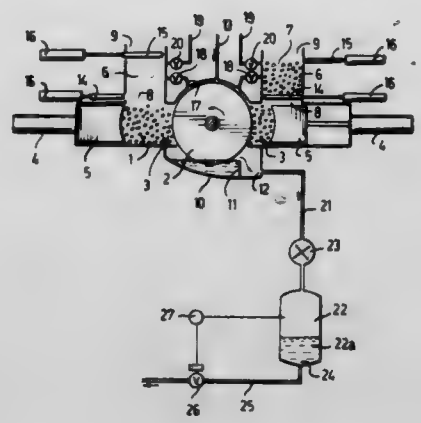
4,333,613

APPARATUS FOR CONTINUOUSLY GRINDING WOOD UNDER PRESSURE AND CONTINUOUSLY DISCHARGING GROUNDWOOD

Pekka O. Haikkala, Vuolteenkatu, Finland, assignor to Oy. Tampella AB, Tampere, Finland

Division of Ser. No. 6,156, Jan. 24, 1979, Pat. No. 4,274,600.
This application Dec. 1, 1980, Ser. No. 211,867
Claims priority, application Finland, Feb. 16, 1978, 780514
Int. Cl.³ B02C *23/24*
U.S. Cl. 241—34 7 Claims

1. Apparatus for continuously processing wood, comprising means defining a grinding chamber, means for providing gas under superatmospheric pressure in the grinding chamber, a grinding means which is mounted for rotation in the grinding chamber, a device for feeding wood into the grinding chamber to form a primary groundwood stock therein, and a device for discharging the primary groundwood stock from the chamber without allowing gas to escape from the grinding chamber to atmosphere, the feeding device comprising a stationary feeding chamber provided with shutter means for sequentially pressure-tightly closing said feeding chamber from the atmosphere and from the grinding chamber respectively, thereby to prevent escape of gas from the grinding chamber through the feeding device, and the discharging device comprising a stick crusher for crushing sticks present in the primary groundwood stock thereby to produce a secondary groundwood stock, and means for receiving the secondary groundwood stock from the



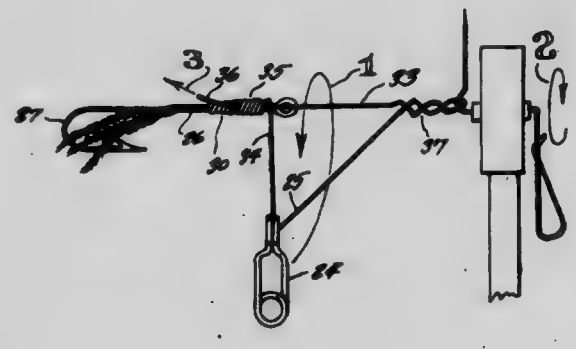
stick crusher and for continuously discharging the secondary groundwood stock while preserving a hydraulic seal of groundwood stock thereby to prevent escape of gas from the grinding chamber through the discharge device.

4,333,614

WHIP FINISH KNOT TYING AID

Eli A. Flax, 33 Gillette Ave., Patchogue, N.Y. 11772

Filed Jun. 18, 1980, Ser. No. 160,839
Int. Cl.³ A01K *97/00*; B65H *81/00*
U.S. Cl. 242—1 7 Claims



1. A fixture for aiding in whip-finishing a tying of an artificial fly on a fish hook, comprising, in combination, a supporting base for resting upon a surface, said supporting base having an upper face surface; an upright post extending perpendicularly from said upper face of said supporting post and affixed to said upper face; a sleeve telescopingly mounted about said post at the upper end of said post, said sleeve comprising a main elongated portion having a central aperture formed along the length thereof in which is received in sliding fashion the upper end of said post, a bushing mounted within said main elongated portion and traversing said central aperture along the width thereof, said bushing being positioned in said main elongated portion approximately midway between the ends thereof, said bushing resting on the uppermost portion of said upper end of said upright post so that a portion of said sleeve extends about said upper end of said upright post in telescoping fashion, and a portion of said sleeve extends upwardly from said upper end of said upright post, said bushing having a longitudinal axial passageway formed therethrough; and a crank means insertable through said sleeve and said bushing, said crank means comprising a horizontal leg portion which extends through said axial passageway in said bushing, a first vertical leg portion extending from one end of said horizontal leg portion and extending parallel with said central aperture of said sleeve, and a second vertical leg portion extending from the other end of said bushing and projecting in a direction opposite to said first leg portion, said second leg portion also extending parallel with said central aperture of said sleeve; said first leg portion

constituting a means for grasping to rotate said crank; and said second leg portion comprising a bent curved portion adjacent said other end of said bushing, and a straight elongated portion projecting from said bent curved portion at the portion thereof distant from said other end of said bushing, said bent curved portion of said second leg portion defining a catching area for loops of thread twisted during the tying of the fly to the hook shank, said bent portion holding said twisted loops thereon so that said crank may be rotated to thereby untwist said twisted loops.

4,333,615

FILM CASSETTE FOR ROLL FILMS

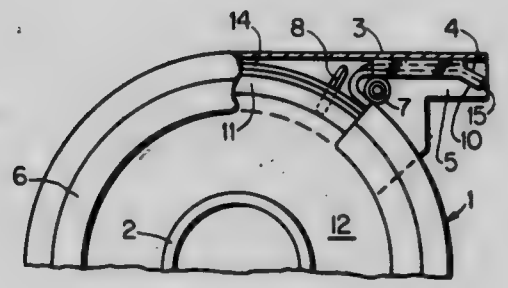
Achim Kluczynski, Overath, and Erik Altmann, Muelheim an der Ruhr, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Filed Sep. 2, 1980, Ser. No. 183,055

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1979, 2935774

Int. Cl.³ G03B *1/04*

U.S. Cl. 242—71.1 5 Claims



1. A film cassette for roll films, in particular for miniature films, consisting of a cylindrical container as the film storage chamber, a film exit slot formed thereon and containing a film spool, at least one flange provided on the spool comprising on its outer circumference a conical collar wherein at least one edge of the cylindrical container is turned inwards to increase the impermeability to light of the film storage chamber and constructed so that the flange of the film spool is contained therein, the outer flange diameter of the spool and the inner wall of the container being positioned to hold the spool radially in position, and wherein the cassette slot comprises strips bent downwards at its lateral ends to define the width of the slot and in that at least one closure element is formed onto the cassette container overlapping the deformed container edge and laterally closing the cassette slot.

4,333,616

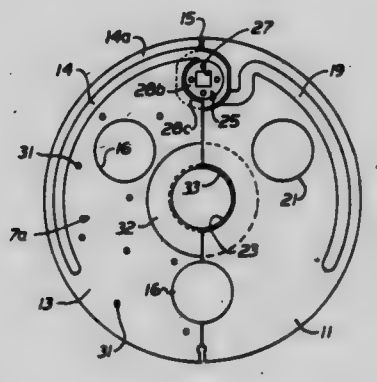
COLLAPSIBLE CORE PLATE CONSTRUCTION

Joseph Strouse, c/o Strouse Industries, Inc., 8090 Danbury Dr., Mentor, Ohio 44060

Filed Sep. 19, 1980, Ser. No. 188,864

Int. Cl.³ B65H *75/18*

U.S. Cl. 242—72 R 8 Claims



1. Recoiler mechanism including a core plate of relatively thin material having a main body and complementary arcuate portions of like thinness providing a part of the peripheral surface of the core plate, said portions being integrally connected with the body, forming with the body, a flexible surface about which material may be coiled, the arcuate portions terminating in adjacent free ends, and means intermediate the free ends, to effect expandible and subsequent collapsible movement of at least part of the portions to enable removal of material coiled about the surface.

4,333,617

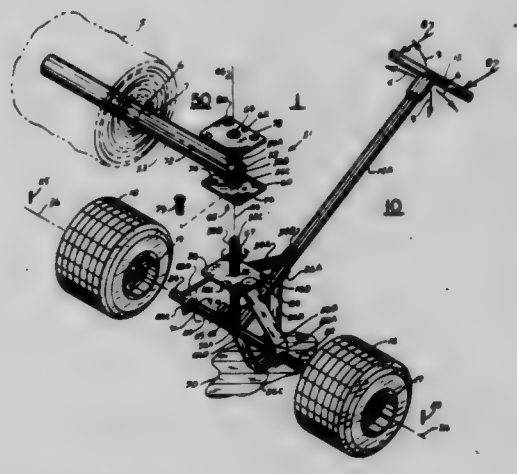
PIN-TURNING ARTICLES AND METHODS, FOR HANDLING LOAD OBJECTS

Martin B. Hamilton, Box 97, Wesley, Iowa 50483

Filed Mar. 18, 1981, Ser. No. 245,083

Int. Cl.³ B65H *75/40*

U.S. Cl. 242—86.52 18 Claims



1. Load handling apparatus for handling a load body, said load handling apparatus comprising

transporting means comprising body means and means mounted to said body means for permitting said body means to move along a surface;

said body means comprising lifting pin means having an elongated section having an end and having a first direction of elongation, first weight supporting means mounted on said body means in substantially fixed relation to said lifting pin means, and means for turning said lifting pin means around an axis substantially parallel to the surface and substantially perpendicular to said first direction of elongation so that said first direction of elongation and said axis lie in a common geometric plane;

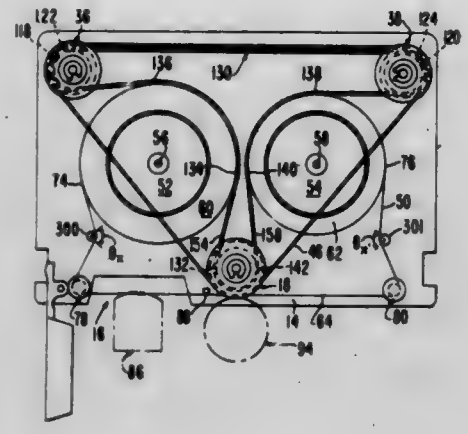
said load handling apparatus further comprising lift member means having at least a second elongated section having a second direction of elongation, said second elongated section being shaped so as to be attachable slidably to said load body, and said lift member means further having receptacle means for pivotably and slidably receiving said lifting pin means elongated section so that said second direction of elongation is substantially perpendicular to said first direction of elongation, said first weight supporting means being pivotably supportive of the weight of said lift member means when said lifting pin means is inserted into said receptacle means;

said transporting means being orientable so that said axis is substantially parallel to said second direction of elongation, and said lifting pin means by said turning around said axis permitting lifting of said lift member means and said load body, said load handling apparatus thereby being able to lift and transport and thereby handle said load body, when said lift member means is slidably attached to said load body and said lifting pin means is received into said lift member means.

4,333,618
APPARATUS FOR REDUCING TAPE TENSION VARIATIONS IN A PERIPHERAL BELT DRIVE TAPE TRANSPORT SYSTEM

William E. Seaman, Woodside, Calif., assignor to Newell Research Corporation, Saratoga, Calif.

Filed Jun. 24, 1980, Ser. No. 162,598
Int. Cl.[3] G03B *1/04*; G11B *15/32*
U.S. Cl. 242—192 7 Claims



1. In a tape transport system having a tape supply hub and a tape takeup hub, wherein tape is drawn from the supply hub over a first turn-around element, past a transducing head station, over a second turn-around element, and onto the takeup hub;

a length of tape having one end portion wound about the tape supply hub, an opposite end portion wound about the tape takeup hub, and an intermediate portion of tape extending between the hubs;

an endless drive belt loop having a stiffness which is at least approximately equal to that of the tape stiffness, said drive belt engaging the periphery of tape wound upon the supply hub and the takeup hub for driving the tape-wound hubs to thereby transfer tape from one hub to the other hub and for establishing a tension on the intermediate portion of tape;

said first and second tape guide turn-around elements being positioned so as to support a head-span of tape to thereby guide the intermediate portion of tape past the transducing head station as the tape is transferred from one of the hubs to the other one of the hubs, the improvement comprising:

a first fixed friction post located in said tape path, between said turn-around element and said supply roll,

said first post being located so as to be in constant contact with the tape as it spools off of said supply hub, the tape describing a minimum angle of wrap around said post when a minimum amount of tape is wound upon said hub, and a maximum angle of wrap around said post when a maximum amount of tape is wound upon said hub, said minimum angle being an angle greater than zero degrees, sufficient to prevent the frictional drag between the tape and post surfaces from falling to zero;

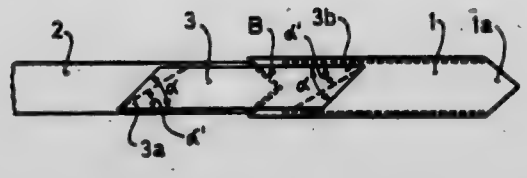
and a second fixed friction post located in said tape path, between said second turn-around idler and said takeup roll,

said second post being located so as to be in constant contact with the tape as it spools onto said takeup hub, the tape describing a minimum angle of wrap around said post when a minimum amount of tape is wound upon said hub, and a maximum angle of wrap around said post when a maximum amount of tape is wound upon said hub, said minimum angle being an angle greater than zero degrees, sufficient to prevent the frictional drag between the tape and post surfaces from falling to zero.

4,333,619
RECORDING MEDIUM AND LEADER ASSEMBLY

Klaus Schoettle, Heidelberg, and Lothar Gliniorz, Frankenthal, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Apr. 24, 1980, Ser. No. 143,487
Claims priority, application Fed. Rep. of Germany, May 2, 1979, 2917709
Int. Cl.[3] G03B *1/04*; G03C *1/76*
U.S. Cl. 242—195 12 Claims

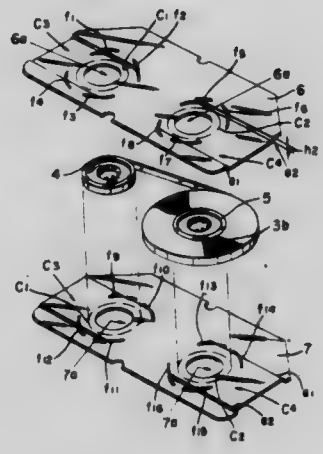


1. A recording tape, in particular a magnetic tape, having at least one self-threading leader and adapted to form a supply or take-up roll, the leader having adhesive means which join the leader to the recording tape and wrapping smoothly onto the circumference of a substantially cylindrical hub to begin winding the tape thereon or engaging the periphery of the fully wound roll of tape to maintain the roll's integrity, the leader and the recording tape abutting at their ends in a butt-joint so that their backs form a flat surface, and the there being provided a piece of splicing tape, said piece of splicing tape covering said butt-joint and having a length approximately corresponding to the length of the leader.

4,333,620
TAPE CASSETTE

Toshihiko Ishida, and Kimio Tanaka, both of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Mar. 19, 1980, Ser. No. 131,817
Claims priority, application Japan, Mar. 19, 1979, 54-35449[U]
Int. Cl.[3] G03B *1/04*; G11B *15/32*
U.S. Cl. 242—199 4 Claims



1. A tape cassette comprising:

first and second half casings connected together;

a magnetic tape mounted within said first and second half casings;

first and second reel hubs for winding the magnetic tape;

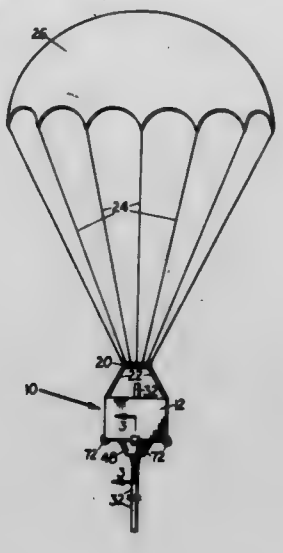
first and second plates for holding the reel hubs and the magnetic tape in said first and second half casings, said first and second plates including a pair of bent portions defining portions in contact with the reel hubs, said bent portions having a plurality of cut portions extending therethrough which surround said first and second reel hubs.

4,333,621

SHOCK ABSORBING MECHANISM FOR A PARACHUTE SUPPORTED LOAD

Otto H. Acker, P.O. Box 2, Washougal, Wash. 98671

Filed Apr. 30, 1979, Ser. No. 34,288
Int. Cl.[3] B64D *1/14*
U.S. Cl. 244—138 R 5 Claims



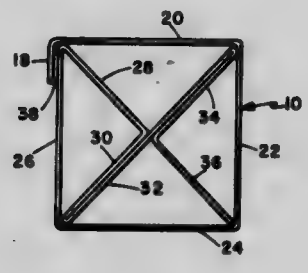
1. A shock absorbing mechanism for a parachute supported load comprising
(a) a load support container having enclosing sides and also having top and bottom wall portions,
(b) connecting means on said container arranged to connect it to a parachute,
(c) tube-like guide means integral with said container,
(d) said guide means being disposed in a central portion of said container and opening through said top and bottom wall portions,
(e) a landing rod slidable in said guide means,
(f) and friction brake means operating between said landing rod and said guide means,
(g) said landing rod being of a sufficient length to project beyond the lower end of said container whereby said landing rod in a parachute landing of said container engages the ground prior to the container and frictionally slides upwardly through said container in said guide means for cushioning the landing shock of said support means.

4,333,622

KNOCKDOWN SPACER FOR BOOKSHELVES AND THE LIKE

Robert N. Albano, 1844 S. Butler Ave. #4, Los Angeles, Calif. 90025

Filed Apr. 30, 1980, Ser. No. 144,979
Int. Cl.[3] A47B *91/00*; F16M *11/20*
U.S. Cl. 248—188.8 3 Claims



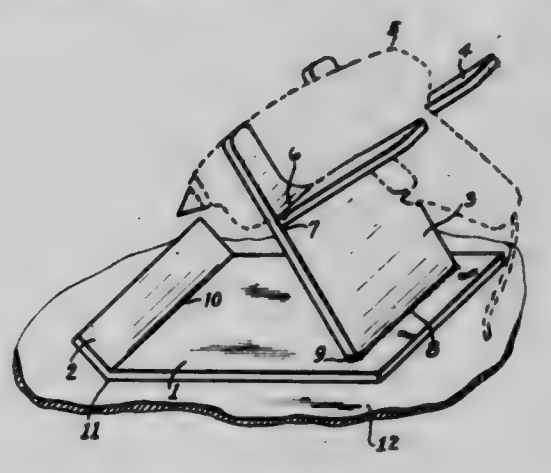
1. A knockdown spacer for bookshelves and the like, comprising:
a single piece elongated rectangular blank of flat sheet material having opposed longitudinal edges;
said blank having creases extending perpendicularly between said edges, the creases being spaced to divide the blank into a continuous succession of wall elements arranged to be folded and define an open ended box of generally rectangular cross section with exterior side walls and interior cruciform diagonal walls extending between opposite corners of the box;
a single end of said blank having a retaining flap thereon for overlapping a portion of one of said side walls in the box configuration;
and retaining means including fasteners having interengaging elements on said flap and the overlapped side wall portion.

4,333,623

GLUE GUN HOLDER

Walder C. May, 84 S. 100 E., St. George, Utah 84770

Filed Mar. 31, 1980, Ser. No. 135,894
Int. Cl.[3] F16M *11/00*
U.S. Cl. 248—176 2 Claims



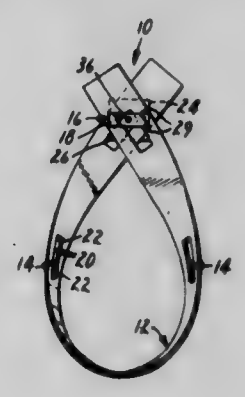
1. A holder for a glue gun or the like made by welding together four steel plates comprising a flat base plate, a second inclined plate welded to one end of said base plate, a third plate welded to the base plate and extending at an angle thereto in the direction of the inclined plate and a fourth plate welded perpendicularly to the third plate and extending at an angle to said third plate toward said inclined plate, said third and fourth plates each having a recess formed in the end thereof opposite the weld thereby forming a cradle for receiving a glue gun above said base plate so that any glue dripping from the glue gun will fall on the base plate, said inclined plate forming a shield to prevent glue from running off the base plate in a forward direction and to prevent loose objects on a surface on which the base plate rests from coming into contact with any glue on said base plate.

4,333,624

HANGER ASSEMBLY

John A. Raddatz, South St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 15, 1979, Ser. No. 85,043
Int. Cl.[3] F16M *13/00*
U.S. Cl. 248—205 R 11 Claims



1. A hanger assembly comprising:

a stiff, flexible, resilient polymeric strap having a plurality of through openings spaced along its length, each of said openings being partially defined by opposed, generally parallel side surfaces defining the longest dimension and width of said opening, said side surfaces being disposed generally parallel to and equally spaced from the adjacent edges of said strap; and

a rigid locking member comprising:

a backing plate portion having length and width dimensions along a front surface precluding the movement of said backing plate portion through one of said openings in a direction normal to said front surface;

a post portion projecting from said backing plate normal to said front surface and being adapted to be received between the side surfaces of said openings; and

an elongate flange portion transverse of and centrally affixed on the end of said post portion opposite said backing plate portion, said flange portion having a width and a length parallel to said front surface adapted so that said flange portion can pass freely through one of said openings when the long side surfaces of said flange are aligned with the side surfaces of that opening, with said length of said flange portion being adapted to prevent movement of said flange portion through one of said openings when the long side surfaces of said flange portion are disposed transverse of said opening;

said locking member having an orifice through said backing plate, post and flange portions to afford attaching said locking member to a support.

4,333,625

WALL HANGER HOOKS

Richard Haug, P.O. Box 115, Lake Grove, N.Y. 11755

Continuation of Ser. No. 11,842, Feb. 13, 1979, abandoned. This application Feb. 21, 1980, Ser. No. 123,360

Int. Cl.³ E04G *3/00*

U.S. Cl. 248—216.1 **1 Claim**



1. A wall hanger hook comprising a substantially flat face plate having an upper edge and a lower edge, a first side edge, and a second side edge; an elongated straight prong extending from said upper edge of said face plate at an acute angle thereof relative to the plane containing the front surface of said flat face plate such that the end of said prong remote from said upper edge projects downwardly toward said lower edge from said upper edge, said prong having a tapered cross-section such that said remote end of said prong terminates substantially in a point, said prong further having a plurality of serrations formed across the width thereof for anchoring said prong in a wall; and a first pair of hook members extending from said lower edge of said flat face plate, and a second pair of hook members extending from the side edges of said flat face plate, one of said second pair extending from said first side edge and the other extending from said second side edge, said second pair of hook members being spaced from each other across the width of said plate a greater distance than said first pair of hook members, and said second pair of hook members being positioned closer to said upper edge of said plate than said first pair of hook members, said flat face plate being of substantially rectangular cross-section and having a cut-out portion formed therein also of substantially rectangular cross-section.

4,333,626

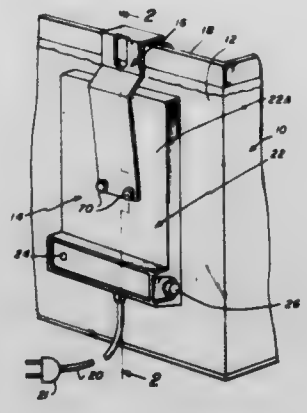
AQUARIUM HEATER

Arthur J. Holbrook, Lynnfield, Mass., assignor to Rolf C. Hagen (USA) Corp., Mansfield, Mass.

Division of Ser. No. 949,436, Oct. 10, 1978, Pat. No. 4,313,048. This application Nov. 2, 1979, Ser. No. 90,674

Int. Cl.³ A47G *29/00*

U.S. Cl. 248—360 **8 Claims**



1. In combination, an aquarium heater and a holder for the aquarium heater for mounting the heater against an outer surface of a side wall of an aquarium tank, said aquarium heater comprising an insulated housing, heat transfer plate means and means for selectively coupling electrically-generated heat to the heat transfer plate means from which the heat is coupled through the aquarium tank side wall to the water in the aquarium tank, said heater housing having a thickness less than its width and height and having an outer planar surface extending substantially in parallel with the aquarium tank side wall, said holder comprising an elongated member having a top flange for contacting a top edge of the tank side wall, top securing means connected to the top flange for securing on the inside of the side wall maintained the top end of the elongated member in a fixed position relative to the tank side wall, and a lower depending leg means extending from the top flange and at least partially outwardly of the tank side wall and housing outer planar surface, said lower depending leg means including top and bottom leg walls, said top leg wall coupled to said top flange and the top and bottom leg walls commonly interconnecting to form an angle therebetween less than 180°, said bottom leg wall having means for securing the depending leg means to the outer planar surface of the housing, said leg means arranged to provide a biasing force in a direction normal to the outer planar surface of the housing to maintain the heater heat transfer plate means in intimate contact with the outer surface of the side wall of the aquarium tank.

4,333,627

ARRANGEMENT FOR MOVING AN OBJECT

Walter Dembinski, Schweinfurt, and Karl-Joachim Kühne, Niederwerrn, both of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Jan. 14, 1980, Ser. No. 112,717

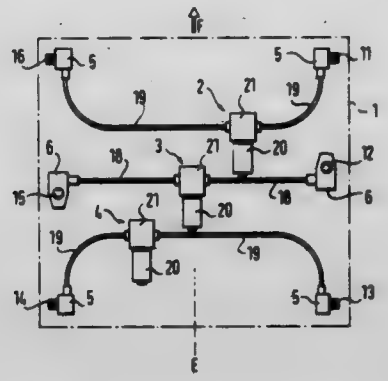
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 2903782

Int. Cl.³ A45D *19/04;* A47J *47/16;* F16M *16/00*

U.S. Cl. 248—396 **29 Claims**

1. An arrangement for imparting different adjustable directional movements to an object, comprising a number of adjusting gear assemblies each corresponding to one of said different adjustable directional movements and including a gear housing, a worm gear having an axis and supported in said gear housing for rotation about the axis of said worm gear, motion transmitting means for connecting said worm gear to the object to adjustably move the object when said worm gear is driven by said worm, a worm arranged for rotation in said gear housing in meshed engagement with said worm gear for driving said worm gear, drive means including a worm shaft for driving said worm, a number of worm shaft bearing inserts

removably mounted in said gear housing for supporting said worm shaft, seating means including recesses formed in said gear housing for seating said worm shaft bearing inserts wherein each of said recesses is arranged to seat a selected one of a number of differently shaped worm shaft bearing inserts so



that said worm shaft can be supported at a desired position relative to said gear housing in accordance with the selected bearing inserts seated in said recesses, at least some of the gear housings of said adjusting gear assemblies being constructed substantially identically to one another.

4,333,628

PERFORATED BOARD DISPLAY BRACKET ASSEMBLY

Robert C. Geisler, Addison, Ill., assignor to Keystone Consolidated Industries, Inc., Peoria, Ill.

Filed Jul. 9, 1980, Ser. No. 167,032
Int. Cl.³ F16M *13/00*
U.S. Cl. 248—551 **3 Claims**



1. An improved perforated board display assembly comprising, in combination:

a perforated board having an array of perforated board openings for receipt of a hanger member;

a hanger member comprised of a flexible U-shaped rod having generally parallel, spaced legs connected by a crown section, the legs each terminating in a double bend which projects through the perforated board openings to define parallel runs on each side of the perforated board, said legs having extended elastic runs connected to the crown section; and

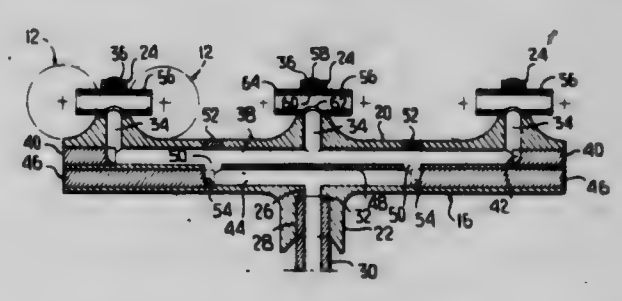
a display board comprising a planar detent panel conforming in general to the shape and size between the legs and crown section, a second display panel extending over the planar detent panel and facing one side of the planar detent panel and hanger member, and a cross bar member affixed on the opposite side of the planar detent panel and projecting over a portion of the extended elastic runs of the legs whereby the display board is positioned and retained on the hanger member which, in turn, is engaged with the perforated board, said display board being removed by elastically deflecting the legs of the hanger member to permit slidable removal of the display board planar detent panel from engagement with the hanger member.

4,333,629

FLOATING MANIFOLD FOR MULTI-CAVITY INJECTION MOLD

Siegfried S. Roy, Amherst, N.H., assignor to Pepsico, Inc., Purchase, N.Y.

Filed Mar. 11, 1980, Ser. No. 129,442
Int. Cl.³ B29F *1/03*
U.S. Cl. 249—119 **6 Claims**



1. A multiple cavity injection mold assembly wherein material is injection molded from an extruder into a plurality of mold cavities in a manner involving substantial thermal gradients and expansions, comprising:

a. a supply tube, extending in a transverse direction, for supplying molding material from an extruder to the plurality of mold cavities;

b. a plurality of mold cavities having inlet passageways extending in a longitudinal direction, substantially orthogonal to said transverse direction; and

c. a floating manifold positioned between said supply tube and said inlet passageways to the plurality of mold cavities and designed to accommodate thermal expansions in both said transverse and longitudinal directions, said manifold having an inlet passageway extending in said transverse direction and being in telescoped relation with said supply tube and further having exit passageways extending in said longitudinal direction and being in telescoped relation with said inlet passageways to said plurality of mold cavities, whereby the telescoped relations in both the transverse and longitudinal directions allow the manifold to positionally float to accommodate thermal expansions in both directions.

4,333,630

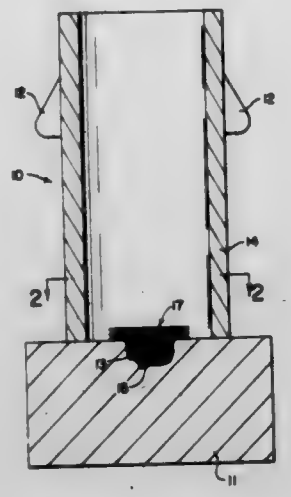
MOLD BOTTOM AND STOOL PROTECTOR CONSTRUCTION

Robert R. Strange, 522 Lynnview Dr., Sagamore Hills, Ohio 44067

Filed Nov. 14, 1980, Ser. No. 207,029
Int. Cl.³ B22D *7/06, 7/12*
U.S. Cl. 249—135 **8 Claims**

1. In combination, an ingot mold including a bottom having an ingot molding surface and including an eroded cavity defined therein and filled with particulate material, and a laminated plate assembly covering said filled cavity and comprising at least two spaced-apart metal plates secured together at laterally spaced points, the thickness of each plate being be-

tween about 0.070 and 0.250 inches, and the spacing between the plates being between 0.0625 and 0.50 inches, the spaced-



apart metal plates being substantially parallel to one another and substantially parallel to the ingot molding surface.

4,333,631

PIPE VALVE ASSEMBLY WITH METAL VALVE SLIDE FOR HIGH VACUUM INSTALLATIONS

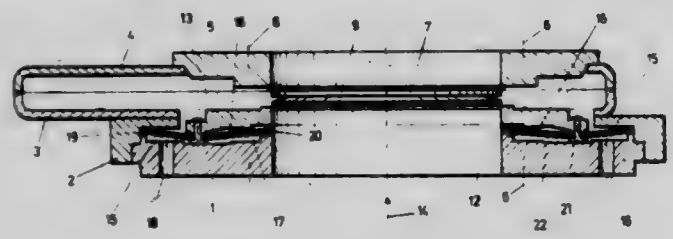
Hubert Bösch, Lustenau, Austria, assignor to Vat Aktiengesellschaft für Vakuum-Apparate-Technik, Haag, Switzerland

Filed Nov. 17, 1980, Ser. No. 207,425

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947517

Int. Cl.³ F16K *25/00*

U.S. Cl. 251—159 **4 Claims**



1. A pipe valve assembly particularly for controlling flow in pipes for high vacuum installations comprising: a housing defining a flow aperture, a valve member adapted to be moved between a first position for closing said aperture and a second position for opening said aperture, a valve seat ring arranged coaxially with said aperture and adapted to be moved axially relative thereto to a sealing position to press said valve member against said housing to seal said aperture when said valve member is in said first position, spring means engaging said valve seat member to urge said valve seat member away from said sealing position, and fluid pressure means including means defining together with said spring means a fluid pressure chamber on one side of said spring means for urging said valve seat ring into said sealing position, said spring means comprising a smaller diameter annular spring member and a larger diameter annular spring member arranged coaxially relative to each other and relative to said valve seat ring, with said valve seat ring being attached with the outer edge of said smaller diameter spring member and the inner edge of said larger diameter spring member, said spring means being supported in said housing at an inner edge of said smaller diameter spring member and at an outer edge of said larger diameter spring member.

4,333,632

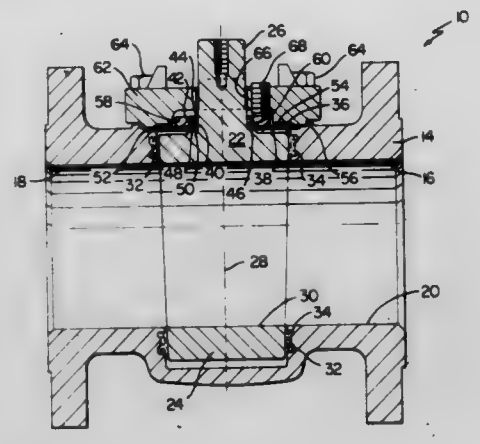
LIP SEAL

Russell G. Smith, Cincinnati, Ohio, assignor to Xomox Corporation, Cincinnati, Ohio

Filed Jan. 7, 1981, Ser. No. 223,126

Int. Cl.³ F16K *5/02*

U.S. Cl. 251—214 **5 Claims**



1. A valve with an improved top seal, comprising:

(a) a valve body having an internal flow passage extending therethrough;

(b) a valving member rotatably fitted in said valve body for controlling fluid flow through the internal flow passage, said valving member being rotatable about an axis and having a plug portion interposed in said internal flow passage with a passageway which is selectively movable in and out of registry with said internal flow passage in accordance with the valving member rotational position with respect to said valve body, said valving member having a shaft portion joined to said plug portion for transmitting torque to said plug portion from a location remote from said plug portion and a shoulder on said valving member intermediate said shaft and plug portion;

(c) a diaphragm sealingly fitted to said valve body and having a central opening through which said shaft portion of said valving member extends, said diaphragm having a hollow groove of predetermined cross-sectional shape proximal to said central opening, said hollow groove having sidewalls extending in the direction of said axis said sidewalls being convergent in a direction toward said remote location with one of the sidewalls engaging said stem portion of the valving member; and

(d) a circular seal fitted within said hollow groove and having a cross-sectional configuration matching that of the groove, said circular seal bearing against and in sealing relationship to said shoulder and being operative to radially urge said sidewalls of said one of the groove in said diaphragm against said stem portion of the valving member.

4,333,633

PNEUMATIC SENSOR

Casimir M. Guzay, Hoffman Estates, and James A. Wright, Chicago, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed May 22, 1980, Ser. No. 152,276

Int. Cl.³ F16K *1/00*

U.S. Cl. 251—320 **3 Claims**

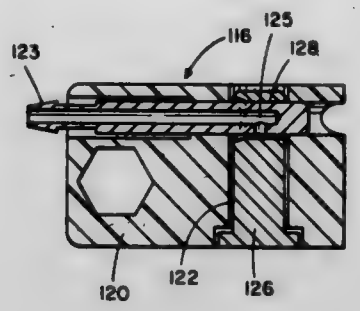
1. A pneumatic sensor for connection to the sensor port of a bleed-pressure piloted valve and resonsive to engagement by an article the presence of which is to be detected to block air from escaping said sensor port, said sensor comprising:

a body having a bore;

a target slightly smaller than said bore disposed in said bore and having an aperture the axis of which extends transversely to that of said bore;

a tube connected to said sensing port and slightly smaller than said aperture extending through said body and into

said aperture, said tube having an opening disposed in said aperture and extending generally toward the end of the target to be engaged by said article, said target being movable between an extended position and a retracted position in which said target blocks said opening, air pressure biasing said target to its extended position and the



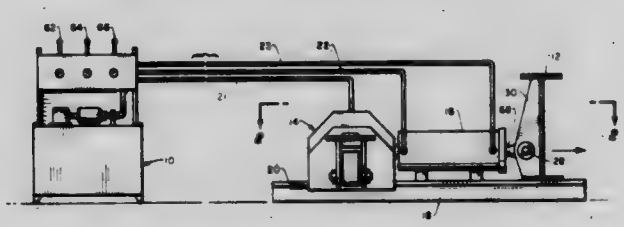
surface of said target defining said aperture being arcuate whereby, when said target is in its extended position, air escaping from said tube opening undergoes annular flow causing a pressure balance on the surface defining said target opening so that said target is movable from its extended position by very low force.

4,333,634

GRIPPER ASSEMBLY FOR MOVING DRILLING RIGS

Fred H. Malzacher, 5530 Rushmore St., Ventura, Calif. 93003

Filed Apr. 8, 1980, Ser. No. 138,329
Int. Cl.³ B66F *1/00*
U.S. Cl. 254—106 **10 Claims**



1. A gripping assembly for moving drilling rigs supported on a flanged skid base of a drilling platform comprising:

a support frame comprised of a platform joining end plates resting on the flanges of said skid base;

a cross-member traversing said support frame having cantilevered shoulder extensions extending outboard of the flanges of said skid base;

gripper connecting arms pivotally mounted on said shoulder extensions having gripping flanges adapted to press against the underside of said skid base flanges;

clamping load expansion hydraulic means for applying a force to said gripper connecting arms whereby said arms apply a clamping force on said skid base flanges between the edges of said end plates and said connecting arm gripper flanges;

hydraulic jack means connecting said support frame to said drilling rig for moving said drilling rig while said gripper assembly is clamped to the flanges of said skid base.

4,333,635

FOLLOW-UP CONTROL MEANS IN SWINGING-ARM FLAME-CUTTING MACHINES

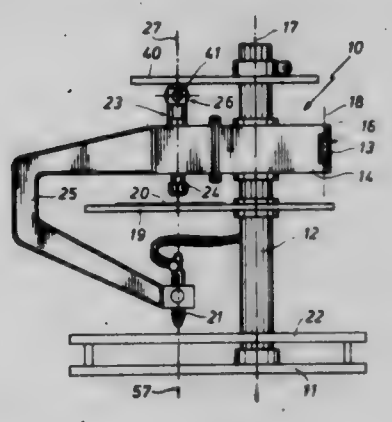
Anton Koukal, Pfarrstrasse 6, 7326 Heiningen, Fed. Rep. of Germany

Filed Nov. 26, 1979, Ser. No. 97,121
Int. Cl.³ B23K *7/10*
U.S. Cl. 266—64 **6 Claims**

1. Follow-up control means in swinging-arm flame-cutting machines comprising a scanning element which is arranged at the outer component arm of the swinging arm carrying the cutting torch, and in coaxial relation to the latter and which is advanced by drive means likewise arranged on the outer component arm to follow automatically the contour of a pattern having the configuration of a part to be cut from a workpiece, characterized by the following features:

(a) the scanning element comprises a photo-electric scanning head (24) which together with the feeding means (26) forms an assembly (23) seated at the outer guide rod (14) of the swinging-arm (16) for rotation about the torch axis (57, 27);

(b) the feeding means (26) comprises a feed wheel (39) which is driven by a feed motor (36) and which rides on an end plate (40) fixed to the frame of the flame-cutting machine (10, 60) which extends in parallel to the supporting surface (19) for the pattern (20) and to the plane of movement of the torch (21), respectively the point of contact (42) between the feed wheel (39) and the said end plate being arranged at the point where the torch axis (57, 27) projects through the contact surface (43) of the end plate (40), and the center plane of the said feed wheel (39) which com-



prises the torch axis (57, 27) extending perpendicularly to its axis of rotation (41);

(c) the scanning head (24) comprises a conventional arrangement of photo-electric detectors picking up the directional changes of the contour of the pattern and generating a control signal characteristic of any deviation of the contour of the pattern (20) from the momentary feeding direction, which signal is supplied to a swivel control motor (33) which, in response to the said control signal, rotates the scanning head (24) together with the drive means (26) into the orientation conforming to the contour of the pattern;

(d) the pattern (20) is arranged in a plane extending between the scanning head (24) and the workpiece and in parallel to the latter and to the end plate (40), and the torch (21) is connected with the outer guide arm (14) by means of a U-shaped arm (24) encompassing the pattern (20) at a certain distance.

4,333,636

CUTTING-TORCH HOLDER

Joseph A. Wajtkowicz, Pasadena, Md., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Dec. 10, 1980, Ser. No. 215,192
Int. Cl.³ B23K *7/10*
U.S. Cl. 266—68 **1 Claim**

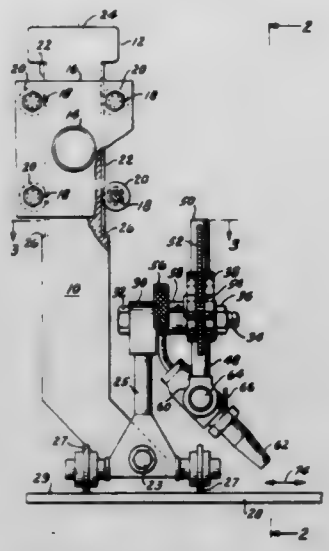
1. Apparatus adapted to automatically maintain flame cutting means a predetermined distance from a work surface as the flame cutting means moves relative to a work surface comprising:

(a) a slide member having its upper end slidably attached for vertical movement to an arm member and its lower end pivotally attached to a support arm by horizontally extending pivot means so that said support arm is adapted to rotate about said pivot means in a substantially vertical plane,

(b) holder means attached to said support arm for securing said flame cutting means to said support arm,

(c) said holder means comprising an L-shaped member hav-

ing integral rack means on its vertical leg in mating contact with pinion means on said support arm for vertically adjusting said flame cutting means and pivot means on its horizontal leg for adjusting the angle at which the flame cutting means impacts the work surface, and



(d) roller means attached to said support arm whereby as the roller means rides on said work surface said slide member moves vertically relative to said arm member and said support arm rotates in a vertical plane about said horizontally extending pivot means relative to said slide member in response to irregularities in said work surface.

4,333,637

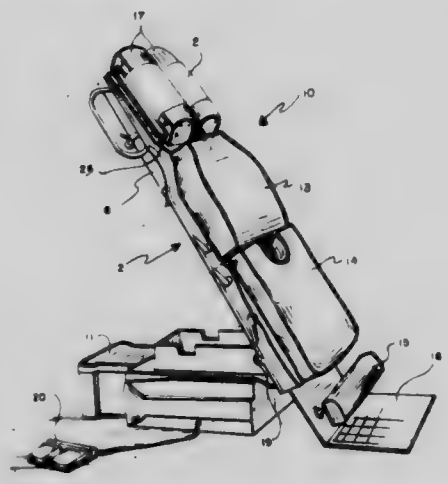
CHIROPRACTIC TABLE WITH PAPER RETAINER

Robert B. Shelton, 726 W. 600 South, Brigham City, Utah 84302

Filed May 19, 1980, Ser. No. 151,117

Int. Cl.[3] A61G *13/00*

U.S. Cl. 269—322 **15 Claims**



1. A chiropractic table assembly having a floor contacting base; a table member secured to the base, the upper surface thereof being adapted for a patient to pronely rest cushioned thereon; a rolled strip supply of disposable sanitary paper secured to the table member, a free end portion thereof changeably covering the face supporting portion of the upper surface; and a paper retainer comprising: an elongate retainer base secured to the table member and having an outwardly facing elongate surface extending at least the width of the paper strip transversely; an elongate paper clamping member with an inwardly disposed surface portion thereof in general matching relationship with the elongate surface of the retainer base; and spring means urging said member toward contact with said surface of the base, so that the free end of the paper strip is clamped therebetween; and wherein the paper clamping member has a pair of parallel bores, a one therethrough near each of its ends; and the spring means comprises: a pair of studs of generally smaller diameter than the bores, each having an enlarged end portion, and each being disposed in general axial alignment with a one of the bores and secured rigidly at its smaller end to and outstanding normally from the paper retainer base; and a compression coil spring disposed about each of the studs and acting between the enlarged end thereof and the clamping member urging it to clamp the paper against the paper retainer base.

4,333,638

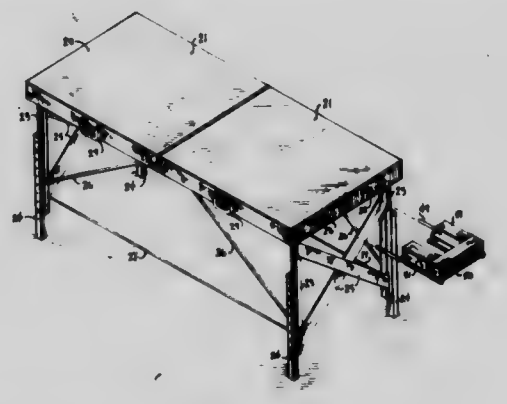
MASSAGE AND THERAPEUTIC BODY WORK TABLE

Michael A. Gillotti, 6979 Baker La., Sebastapol, Calif. 95472

Continuation of Ser. No. 26,822, Apr. 4, 1979, abandoned. This application Dec. 10, 1980, Ser. No. 215,121

Int. Cl.[3] A61G *13/00*

U.S. Cl. 269—322 **6 Claims**



1. A portable, folding massage table to be subjected to forces parallel to the surface thereof as well as vertical loading comprising:

a pair of rectangular table top sections;

a peripheral border flange depending from each of said sections;

hinge members interconnecting the flange bottom edges of adjacent sides of said sections to enable folding of said table top sections from a working configuration, wherein said table top sections are co-planar, and a portable configuration, wherein the bottom edges of said flanges are juxtaposed;

two pairs of support legs of rectangular cross section;

hinge means securing facing sides of each pair of legs to the underside of a table top section near the outer edge thereof to fold toward said hinge members into the receptacle formed by said border flange;

a pair of rigid, diagonal cross braces secured between the legs of each pair thereof;

a pair of flexible, non-stretchable cables, one of said cables being secured between each leg of a pair thereof and the opposing leg of the other pair thereof, each said cable being of nearly the combined lengths of said table top sections so as to be under tension when said sections are in working configuration, and being secured at opposite ends thereof to opposing legs near the bottoms thereof to prevent separation thereof;

a pair of rigid rods removably connected between the inner surface of each of said adjacent flanges near the ends thereof to said facing sides of the pair of legs carried on the same table top section to prevent inward movement thereof;

an extension for each of said legs;

a row of through holes along the length of each of said extensions;

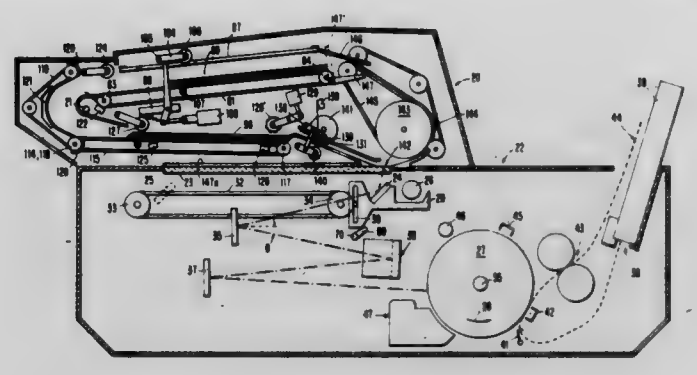
a pair of spaced threaded members secured to each of said legs to extend from a lateral side thereof, said threaded members being receivable in a pair of said holes aligned therewith; and

complementary tongue and groove slide means formed in said lateral side and a side of said extension containing said row of through holes.

4,333,639
RECIRCULATING DOCUMENT FEED FOR ELECTROPHOTOGRAPHIC APPARATUS

Ronald V. Davidge, Boulder; Carl A. Queener, Lyons, both of Colo., and James T. Vanderslice, Wilton, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 27, 1980, Ser. No. 181,574
Int. Cl.³ B65H 5/22
U.S. Cl. 271—3.1 4 Claims

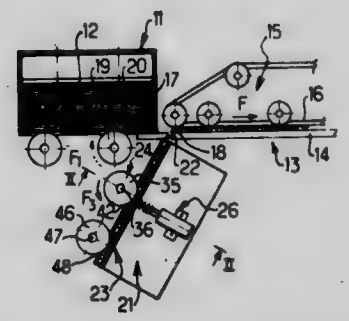


1. A copier, including:
copier optics for scanning documents to be copied;
a first document tray for holding a stack of original documents with all their faces, carrying matter to be copied, oriented in a first direction;
a second document tray for receiving the stack of original documents with all their faces, carrying matter to be copied, oriented in a second direction;
means for substantially simultaneously transferring, along a first path removed from the copier optics, all the documents from the stack in the first document tray and placing the documents in the second document tray to form the stack in the second document tray; and
a transport device for sequentially transferring, along a second path past the copier optics, documents from the top of the stack in the second document tray to reconstruct the stack of original documents in the first document tray.

4,333,640
AUTOMATIC DOCUMENT PROCESSING MACHINE

Jacky F. A. Miller, Paris, France, assignor to Compagnie Internationale pour l'Informatique CII Honeywell Bull (Societe Anonyme), Paris, France

Filed Dec. 18, 1979, Ser. No. 104,858
Claims priority, application France, Dec. 28, 1978, 78 36795
Int. Cl.³ B65H 3/44
U.S. Cl. 271—9 16 Claims

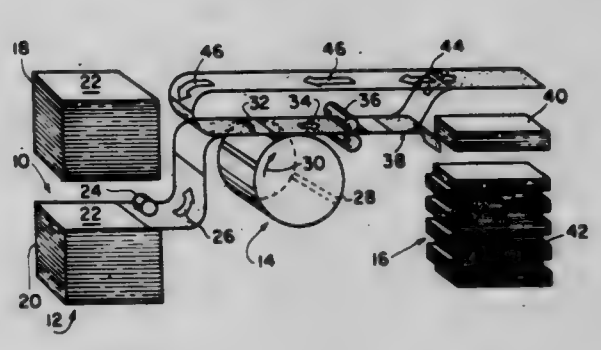


1. An automatic document processing machine comprising a loading magazine containing a stack of documents and provided with a throat though which said documents can be extracted one-by-one from said magazine, feeding means for controlling the extraction of said stacked documents, one-by-one, through said throat, a guide track provided with at least one processing station adapted for treating only one document at a time, said track having a document entry situated close to said throat and in line with said throat, and unit insertion means for inserting another single document which includes an exit for documents, a drive means disposed to come into contact with said another document in the said support means arranged to feed the said another document to the said exit, and an engaging means adapted to produce relative movement between the said support means and the said drive means, said support means having its exit disposed adjacent to the throat of said loading magazine and to the document entry of said guide track, and arranged so that said exit is in line with said document entry at least when the said engaging means is actuated at an instant different from that at which said feeding means is actuated and wherein said support means comprises two plates, a spacer between one end of each of said plates for spacing said plates away from one another and forming an internal cavity therebetween, a pivot hinge, said support means being mounted to said pivot hinge to pivot relative to the said drive means upon actuation of said engaging means.

4,333,641
DUPLEX PRINTING/PAPER HANDLING APPARATUS FOR CUT SHEET PRINTING

Emmett B. Peter, III, Leesburg, Fla., assignor to Burroughs Corporation, Orlando, Fla.

Filed Jun. 26, 1980, Ser. No. 163,394
Int. Cl.³ B65H 29/58
U.S. Cl. 271—289 6 Claims



1. Paper handling apparatus for selectively diverting cut sheet and similar type items from a single input pathway into a selected one of a number of output pathways comprising,
a modular structural support member including a plurality of diverging pathways,
a first set of diverter means,
a second set of diverter means,
flexible means coupling said first and second set of diverter means for conjoint operation,
electromagnetic means operably coupled to said flexible coupling means for causing said diverter means to move so as to block and unblock the pathway of cut sheet items fed therepast, and
one-way gate means operably associated with said first and second diverter means permitting a selected sheet item to pass said one way gate means and enter one of said item diverting pathways without return.

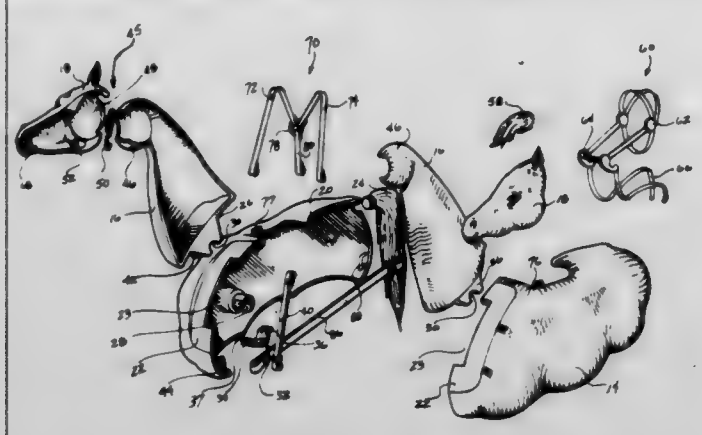
4,333,642
TOY

Andrea V. Adams, Rte. #1, Box 378, Bentonville, Ark. 72712

Filed Jul. 23, 1980, Ser. No. 171,446
Int. Cl.³ A63G 31/00
U.S. Cl. 272—1 D 20 Claims

20. In a toy to be worn by a person for play and ornamentation and including a substantially hollow body member open at the bottom and having a central opening therethrough that is large enough to receive the body of the person wearing the toy, the improvement comprising a stabilizing strap member extending lengthwise across the inside of the body member in spaced relationship below the central opening for extending between the legs of a person wearing the toy, said strap having its opposite end portions connected respectively to said body

member adjacent opposite ends thereof and being relatively tightly drawn so as to stabilize the position of the body member



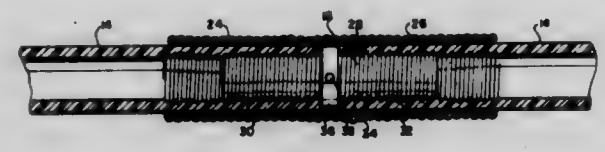
on the person wearing the toy and to facilitate control to coordinate movements of the body member to movements of said person wearing the toy.

4,333,643

JAVELIN

Victor Saffire, 450 Regimental Rd., King of Prussia, Pa. 19406

Filed Feb. 19, 1980, Ser. No. 122,126
Int. Cl.[3] A63B *65/02*
U.S. Cl. 272—106 11 Claims



8. A javelin comprising:

a. a body having separate front and rear sections, each of which includes a tapered portion extending from a small diameter tip to a large diameter end; and

b. adjustable means for matably engaging said large diameter ends to form said body, said adjustable coupling means comprising:

i. threaded insert means associated with each of said large diameter ends;

ii. coupling means for threadably engaging each of said threaded insert means; and

iii. ring means threadably engaging and movable along said coupling means to vary engagement between said coupling means and said threaded insert means;

so that movement of said ring means alters the relative distribution of weight between said front and rear sections of said body.

4,333,644

HACK-SQUAT MACHINE

Lloyd J. Lambert, Jr., and Lloyd J. Lambert, Sr., both of 1538 College Ave., South Houston, Tex. 77587

Filed Jan. 21, 1980, Ser. No. 113,687
Int. Cl.[3] A63B *21/06*
U.S. Cl. 272—118 10 Claims

1. A squat and hack machine comprising in combination:

a base frame having a weight supporting cage extending upwardly therefrom and including weights therein,

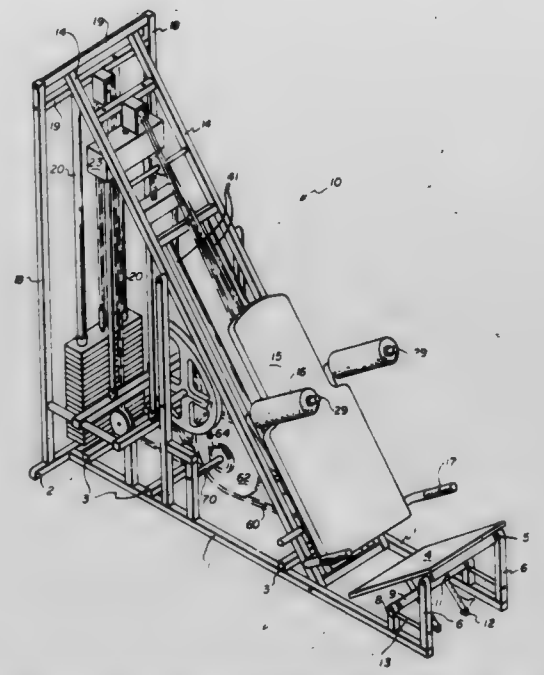
a back support frame extending from a top of said weight cage to said base frame,

a pair of spaced parallel first rod members inboard of said back support frame and supported thereby,

sled means for supporting a user, said sled means being slideably disposed on said first rod members, said shed means including a back support and second rod members, said back support being attached to said second rod members,

said second rod members slideably disposed within said sled means,

means on said second rod members to selectively lock said second rod members to said sled means whereby when



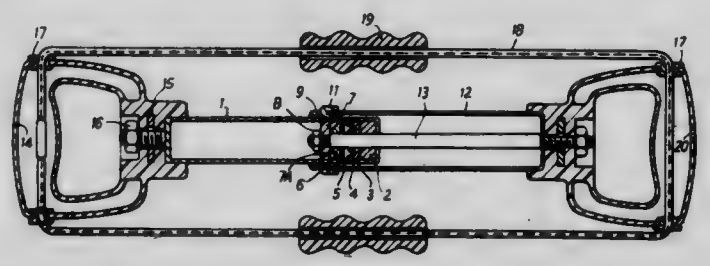
unlocked, said second rod members and therefore said back support can be adjusted independently of said weights along said back support frame, and when locked said weights are operatively connected to said back support during an exercise.

4,333,645

EXERCISING APPARATUS WITH GAS RESISTANCE

Hann C. Wu, Tainan, Taiwan, assignor to Horng Meei Spring Enterprise Co. Ltd., Tainan, Taiwan

Filed Oct. 3, 1980, Ser. No. 193,797
Claims priority, application Taiwan, Dec. 14, 1979, 6824956; United Kingdom, Jun. 2, 1980, 8017920
Int. Cl.[3] A63B *21/00*
U.S. Cl. 272—130 3 Claims

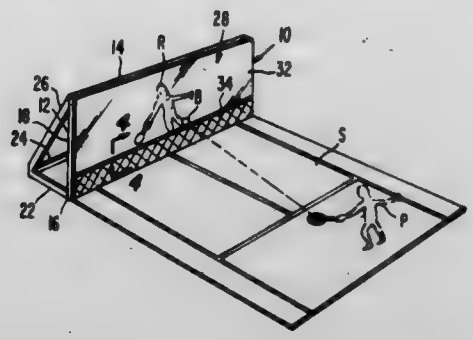


1. An exercising device comprising a cylinder having a handle fixed to one end, a piston movable in the cylinder and carried at one end of a piston rod extending through a gas-tight seal in the end wall of the cylinder opposite the handle, a further handle fixed to the other end of the piston rod, the cylinder containing a pressurized gas and the piston having a bore through which the gas can pass during compression and expansion of the device, the cylinder being permanently closed in the rotion of the cylinder opposite the gas-tight seal through which the piston rod extends so that the volume of the pressurized gas in the cylinder is decreased as the piston rod is moved further into the cylinder when an external force is applied to the handles to compress the device, the effective area of the face of the piston facing the opposite portion being larger than the effective area of the opposite face of the piston, thus the pressurized gas exerts a net force on the piston and tends to return the piston toward the rest or start position.

4,333,646
TENNIS PRACTICE AND TRAINING AID

Robert Pfeilsticker, 1815 Fite Ter., Langhorne, Pa. 19047

Filed Aug. 1, 1979, Ser. No. 62,862
Int. Cl.³ A63B *69/38*
U.S. Cl. 273—29 A 4 Claims



1. In a practice and training aid for tennis players, a backboard adapted for installation upon a playing surface comprising:

(a) a backing panel adapted to be mounted in a generally vertical position and having a front surface facing forwardly toward a player stationed upon the playing surface;

(b) a transparent facing member fixedly secured to and overlying the entire front surface of the backing panel and having a wholly flat front face presenting a rebound surface for a tennis ball, said front face, over its entire area, lying in a plane tilted slightly out of the vertical in a direction such that a tennis ball propelled by a player against the rebound surface in a horizontal path will rebound upwardly therefrom toward the player at a slight angle from the horizontal; and

(c) a wholly flat mirror surface adapted to reflect the player's own image, interposed between the backing panel and the facing member and lying in a vertical plane whereby the player's image when viewed along a horizontal path at eye level is reflected along the same horizontal path as that along which it is seen by the player, said backing panel, facing member, and mirror surface being coextensive in height and width, the horizontal distance between said planes becoming progressively greater in a direction from the top to the bottom edges of said reflecting surface and said facing member, whereby a tennis ball propelled along a horizontal path by a player against the tilted front face of the facing member will rebound upwardly therefrom toward the player in a path inclined at a slight angle from the horizontal, while at the same time the player's reflected image as viewed along a parallel horizontal path in the vertical mirror surface through the transparent facing member will be reflected along the same horizontal path as that along which it is seen by the player.

4,333,647
ARM CONTROL DEVICE FOR ATHLETE

William J. Schaefer, 3706 Jay La. South, Rolling Meadows, Ill. 60008

Filed Apr. 22, 1980, Ser. No. 142,672
Int. Cl.³ A63B *69/00*
U.S. Cl. 273—54 B 7 Claims

1. An athletic hand movement restricting device comprising:

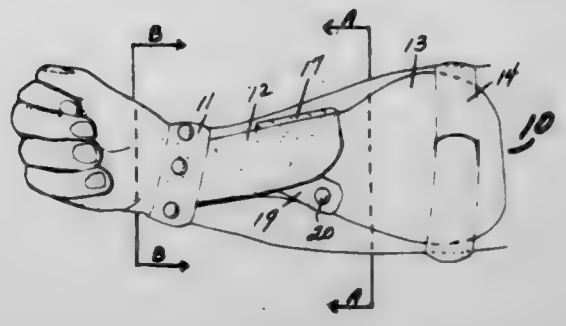
hinged plate assembly means for connecting a user's forearm and wrist;

said hinged plate assembly means including forearm means to be secured to a user's forearm just below the elbow and wrist means to be secured to a user's wrist;

means for securing said forearm means to a user's forearm just below the elbow;

means for securing said wrist means to a user's wrist;

said hinged plate assembly means being so constructed as to allow unrestricted relation of the user's wrist, hand and thumb about an axis passing through the forearm and wrist in a direction away from the body while restricting

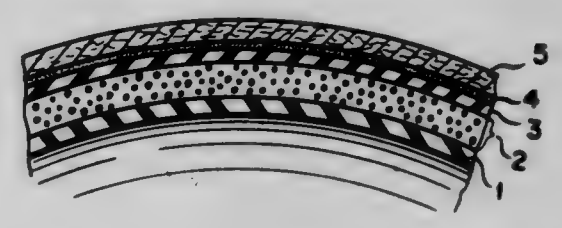


rotation beyond a predetermined point in the opposite direction.

4,333,648
INFLATABLE GAME BALL

Masayoshi Aoyama, Hiroshima, Japan, assignor to Molten Rubber Industry Co., Ltd., Hiroshima, Japan

Filed Jan. 25, 1980, Ser. No. 115,224
Claims priority, application Japan, Feb. 6, 1979, 54/11870; Jul. 19, 1979, 54/90979
Int. Cl.³ A63B *41/10, 45/00;* B65H *81/00*
U.S. Cl. 273—65 EB 4 Claims

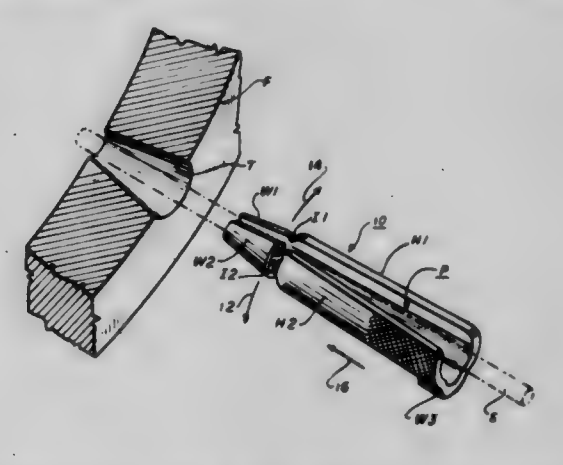


1. A ball of the inflatable type consisting essentially of a hollow rubber tube used as a ball substrate which is inflated with a gas under pressure, a reinforcing thread winding layer formed by winding a reinforcing nylon filament thread and a rubber thread simultaneously with each other along the outer periphery of said rubber tube, and a surface cover layer covering said reinforcing thread winding layer therewith through an adhesive, said surface cover layer being made of a natural or synthetic leather stock.

4,333,649
RACKET STRING CLAMP

George A. Vaughn, Princeton, and Francis J. Fuchs, Jr., Princeton Junction, both of N.J., assignors to AMF Incorporated, White Plains, N.Y.

Continuation-in-part of Ser. No. 128,158, Mar. 7, 1980, abandoned. This application Oct. 1, 1980, Ser. No. 192,689
Int. Cl.³ A63B *51/00*
U.S. Cl. 273—73 D 8 Claims



1. A racket string clamp for securing an end portion of a

game ball string in a hole extending through the frame of a game ball racket, comprising:

integrally formed plurality of opposed wedges and handle means, said handle means defined by a plurality of handle members equal in number to said wedges, the rearward portions of said wedges and the forward portions of said handle members formed integrally and in a predetermined manner to provide a weakened joint, the rearward portions of said handle members formed integrally to provide a pivot about which said wedges and said handle members pivot toward and away from each other in tweezer-like action, said wedges and said handle members having inner surfaces providing in combination a passageway for receiving said string upon said wedges and handle members pivoting away from each other;

upon said string being received within said passageway said wedges and handle members pivoting towards each other and said passageway aligning the inner surfaces of said wedges and said handle members with respect to said string prior to the insertion of said wedges into said hole, and said handle means for being gripped by an operator to slide said aligned wedges and handle members along said string and to insert said wedges into said hole and to wedge said wedges between said string end portion and the racket frame surface defining said hole to secure said end portion of said string to said racket frame; and

upon said end portion of said string being secured to said racket frame, said handle means for being moved back and forth with respect to said wedges by said operator to break said handle means away from said wedges at said weakened joint.

4,333,650

STRING LOAD APPORTIONED RACKET

Tsai C. Soong, 1839 Jackson Rd., Penfield, N.Y. 14526

Continuation-in-part of Ser. No. 136,907, Apr. 3, 1980, abandoned, which is a continuation-in-part of Ser. No. 120,160, Feb. 11, 1980, abandoned, which is a continuation-in-part of Ser. No. 68,572, Aug. 22, 1979, abandoned. This application Jan. 26, 1981, Ser. No. 228,577

Int. Cl.³ A63B *51/00*

U.S. Cl. 273—73 D **21 Claims**



1. A racket having a hand grip joined to a frame supporting a string network that extends throughout a ball-hitting region spaced from said grip, said frame having a shank region extending from said grip and flaring outward in a throat region and extending around a generally oval ball-hitting region spanned by transverse and longitudinal strings, said racket comprising:

a. at least a central plurality of said longitudinal strings having a strung length at least 30% longer than all other strings in said network;

b. said central plurality of longer longitudinal strings including at least one-third of all the longitudinal strings in said network; and

c. said longer longitudinal strings being strung with at least 30% more tension than all other strings in said network so that said longer strung length and greater tension causes said longer longitudinal strings to provide from approximately half to substantially more than half of the string force that decelerates a ball penetrating said string network in a central region occupied by said longer longitudinal strings.

4,333,651

BALL STRIKING GAME

Luis Ingels, 242 S. Irwindale, Azusa, Calif. 91702

Filed Dec. 10, 1979, Ser. No. 101,500

Int. Cl.³ A63B *71/00*

U.S. Cl. 273—129 V **12 Claims**



1. In a game in which a club has a handle and a head for striking a ball toward a target the improvement comprising:

a pivoted striker plate comprising a face on said head which can pivot between an open and closed position;

a spring biasing said striker plate toward an open position;

latch means in the form of a hook on the end of a pivoted lever arm engaging a slot in said striker plate latching said plate in a closed position against the force of said spring; and

release means releasing said latch means whereby said plate can swing open and strike a ball placed adjacent to said striker plate toward a target.

4,333,652

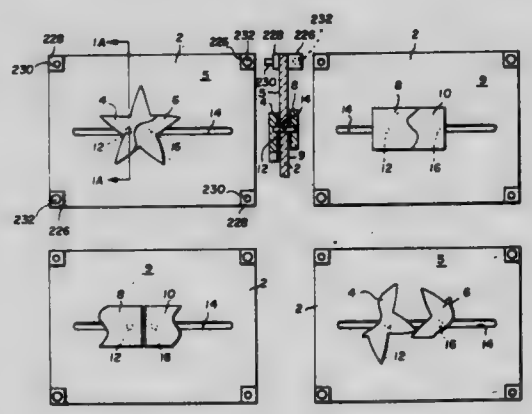
TWO-SIDED PUZZLE

Robert E. Clancy, 13 Mays Ave., Hornell, N.Y. 14843

Filed Oct. 14, 1980, Ser. No. 196,739

Int. Cl.³ A63F *9/08*

U.S. Cl. 273—153 S **10 Claims**



1. A two-sided puzzle comprising:

a substantially flat support member having upper and lower side surfaces;

at least one elongated slot of a finite width extending through said support member from said lower side surface to said upper side surface;

at least a first plurality of separate, flat puzzle members adjacent said upper side surface, each puzzle member having a non-symmetrical periphery, said puzzle members further being slidably and rotatably movable relative to one another between at least one matched position, in which portions of said peripheries of said plurality of puzzle members match to form a figure having a symmetrical periphery, and an unmatched position, in which said plurality of puzzle members are separate and said peripheries thereof do not match;

at least a second plurality of separate, flat puzzle members adjacent said lower side surface, each puzzle member having a non-symmetrical periphery, said puzzle members further being slidably and rotatably movable relative to one another between at least one matched position, in which portions of said peripheries of said plurality of puzzle members match to form a figure having a symmetrical periphery, and an unmatched position, in which said plurality of puzzle members are separate and said peripheries thereof do not match; and

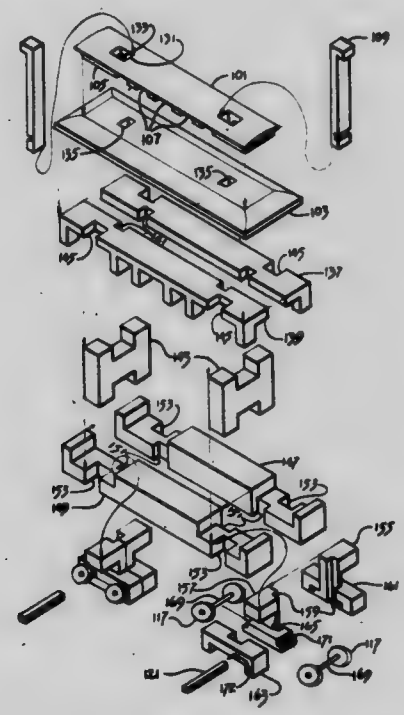
means extending through and slidable within said slot for rigidly coupling at least one of said puzzle members of said first plurality of puzzle members to a corresponding puzzle member of said second plurality of puzzle members for slidable and rotatable movement of said coupled puzzle members within said slot whereby slidable and rotatable movement of one of said first and second pluralities of puzzle members to its matched position automatically moves the other of said first and second pluralities of puzzle members to an unmatched position.

4,333,653

SAN FRANCISCO CABLE CAR PUZZLE

Michael D. Maynard, 4770 W. Mars, Tucson, Ariz. 85704

Filed Aug. 21, 1980, Ser. No. 179,975
Int. Cl.[3] A63F *9/12*
U.S. Cl. 273—160 10 Claims



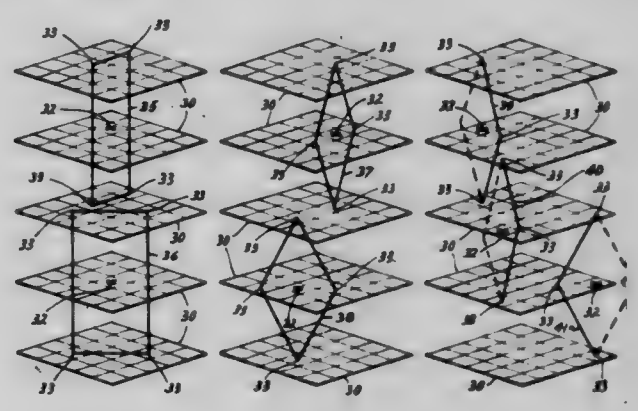
1. A puzzle assemblage take-apart toy resembling the San Francisco cable car comprising a plurality of interlocking parts each forming part of the structure, each of said parts having a fitting connection in respect to each of said other parts and each of said parts being mounted in sequence upon preceding assembled parts, said parts being assembled in a predetermined sequence to form the San Francisco cable car, all said parts held in fixed configuration by two key pieces, said parts defining an upper roof piece, a subroof connected to and spaced below the upper roof piece, window pieces connected to and spaced below said subroof, base pieces connected to and spaced below said window pieces, axle housings connected to and spaced below said base pieces, and wheels connected to said axle housings whereby when all said pieces are assembled, said toy resembles a San Francisco cable car whereby said puzzle assemblage take-apart toy may be assembled by placing in order each part and, when assembled, inserting said key pieces to hold said toy in final fixed configuration.

4,333,654

GAME

John C. Allain, deceased, late of New Iberia, La. (Regina Gonsoulin Allain, administratrix), assignor to Regina Gonsoulin Allain; John Russell Allain; Timothy Stephen Allain and Christina Rita Allain, all of New Iberia, La., part interest to each

Filed Jul. 5, 1979, Ser. No. 54,682
Int. Cl.[3] A63F *3/00*
U.S. Cl. 273—241 1 Claim

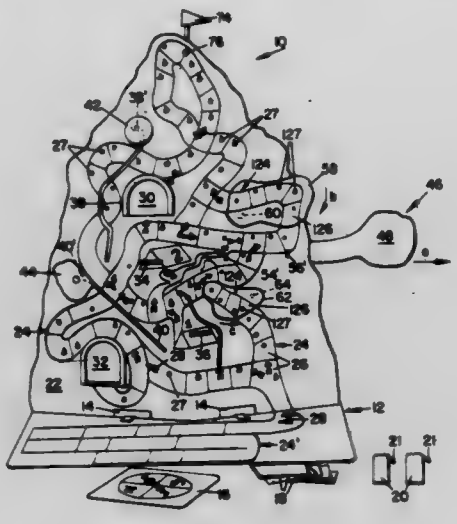


1. Method for play of a game on surface means comprising plural coplanar areas disposed side by side in equal parallel rows of at least three areas each in mutually transverse directions on each of a plurality of vertically spaced identical levels of such areas, comprising placing by each player of a distinguishable set of plural markers each on any unoccupied area of any level of such areas, some of said areas remaining unoccupied, each player playing in repetitive sequential turn by moving a single marker of his said set of markers from its prior disposition on an area of a level to any unoccupied other area on the same level or on any other of said levels, capturing and removing a marker of one player when markers of another player become disposed on one or more of said levels to adjacently surround the marker in dispositions in which the surrounding markers define the corners of a rectangle or of a diamond or, at the vertically spaced aligned sides of three of said levels, a half diamond, removing a first player's markers from a level and terminating play by said first player on the said level when said first player has no more than three markers remaining on said level, removing one player's markers from any level when only said one player has more than three markers thereon and placing said one player's markers on an unoccupied area of any one or more of the other said levels, discontinuing play on said any level after said one player's markers have been removed from said any level, continuing play be each player in repetitive turn until only one player having more than three markers remaining on a single level on which play has not been discontinued remains as winner of the game.

4,333,655
MOUNTAIN CLIMBER GAME WITH MOVEABLY ATTACHED PIECES

Elliot A. Rudell, 2422 Curtis Ave., Redondo Beach, Calif. 90278; Joseph S. Cernansky, Manhattan Beach, and Richard P. Kamrath, Redondo Beach, both of Calif., assignors to Elliot A. Rudell, Lawndale, Calif.

Filed Jul. 24, 1980, Ser. No. 171,904
Int. Cl.[3] A63F *3/00*
U.S. Cl. 273—241 3 Claims

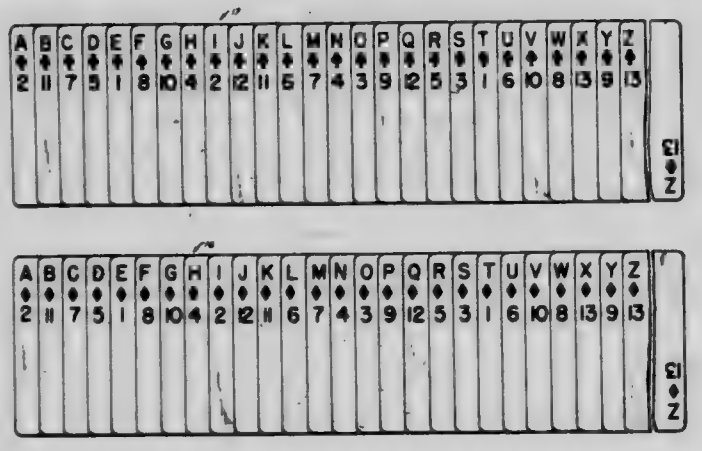


1. A game comprising: an upright playing surface representative of a mountain having trails thereon and openings through the playing surface along the trails, playing pieces releasably engageable with the openings, a plurality of missiles movably related to the playing surface and adapted to contact the playing pieces for physically displacing from the representation of the mountain, and wherein certain of the missiles being slidably related to slots in the playing surface.

4,333,656
DECK OF PLAYING CARDS

Steven Sommer, 305 W. 91st St., New York, N.Y. 10024

Filed Feb. 27, 1981, Ser. No. 238,886
Int. Cl.[3] A63F *1/00*
U.S. Cl. 273—299 2 Claims



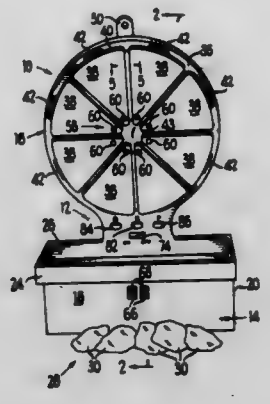
1. A deck of playing cards comprising 104 individual cards, the cards of the deck being divided into four suits of 26 cards each, each card of each suit bearing, in addition to its respective suit marking, a different one of the 26 letters of the English alphabet, and

each card of each suit also bearing a number representative of the frequency with which the letter borne by the card occurs in words in the English language, the more frequently used letters corresponding to lower numbers and the less frequently used letters corresponding to higher numbers, said numbers being one to thirteen, inclusive, in a consecutive series appearing on at least thirteen cards of each suit, said numbers constituting the sole means for ranking the cards in each suit.

4,333,657
ELECTRONIC DART GAME

Eugene Jaworski, Park Ridge; Harry Disko, South Barrington, and Jeffrey D. Breslow, Highland Park, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 8, 1980, Ser. No. 119,888
Int. Cl.[3] A63F *9/02; F41J 5/04*
U.S. Cl. 273—376 25 Claims



1. A microcomputer controlled target game, comprising;

a housing;

a plurality of player actuable target elements mounted on said housing, said target elements being arranged in a generally radial array;

at least one game object;

microcomputer control means for detecting the actuation of a target element by a game object;

means for producing a sensorially perceptible event in response to the detection by said control means of the actuation of a target element;

microcomputer means for detecting the simultaneous actuation of more than one element;

means for automatically accruing a game point value for the simultaneous actuation of more than one target element; and

microcomputer means for automatically accumulating the accrued point values of the target elements actuated by a game object.

4,333,658
SPORTING IMPLEMENT STRUCTURE, PARTICULARLY FOR SOCCER GAME PRACTICING

Giuliano Giovetti, Via Giacomo Boni, 29-Milano, Italy

Filed Jul. 23, 1979, Ser. No. 59,939
Claims priority, application Italy, Jul. 28, 1978, 22483/78[U]
Int. Cl.[3] A63B *43/02, 69/26*
U.S. Cl. 273—411 2 Claims

1. A sporting implement structure particularly for soccer game practicing, comprising:

(a) a helmet-like element for arrangement on the user's head, said helmet-like element comprising an elastic strap for location around the user's head and a top supporting member extending across said elastic strap for location on the top of the user's head;

(b) two eyelets defined by said elastic strap adjacent the user's temples, said eyelets being formed by joining together two spaced apart areas of said elastic strap;

(c) a pair of strings each having one end carrying a ball and another end engaging said elastic strap at a corresponding one of said eyelets;

wherein said top supporting member comprises a string-like member and said elastic strap further comprises two spaced apart through holes in a front portion thereof between said eyelets, said string-like member having a portion inserted through said holes and a front end of said portion re-united to a middle portion of said string-like

member to form a substantially triangular arrangement adjacent said front portion of said elastic strap, said string-



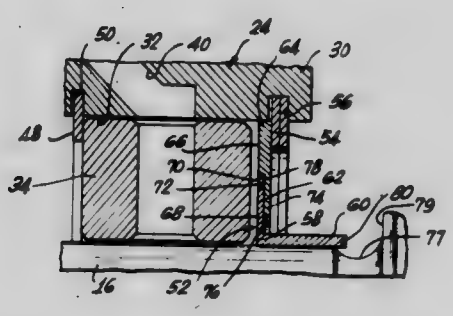
like member further having a rear end adjustably secured to a rear portion of said elastic strap.

4,333,659

TURBOCHARGER SHAFT SEAL ARRANGEMENT

Craig A. Gibbs, Stanton, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Jul. 28, 1980, Ser. No. 172,870
Int. Cl.³ F16J *15/40*
U.S. Cl. 277—1 **20 Claims**



1. In a turbocharger having a center housing with a bearing bore receiving bearing means rotatably supporting a turbocharger shaft, and a turbine wheel mounted on said shaft within a turbine housing, a shaft seal arrangement for preventing leakage of bearing lubricant from the center housing into the turbine housing, comprising:

a first annular seal member received about the shaft between the bearing means and the turbine housing for substantially preventing leakage of lubricant between said first seal member and the shaft;

a second annular seal member received within the center housing generally in axial alignment with said first seal member for substantially preventing leakage of lubricant between said second seal member and the center housing; and

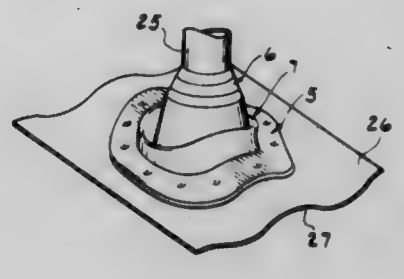
said first and second seal members respectively including axially presented sealing faces in sealing bearing engagement with each other for substantially preventing leakage of lubricant between said seal members, said sealing faces being radially movable with respect to each other to accommodate radial excursions of the shaft and wherein said shaft includes slinger means defining an annular recess adjacent said seal members and a radially projecting flange adjacent the end of said recess opposite said seal members, said first seal member including an axially projecting leg extending along the shaft and terminating with a slight overhang annularly about said recess.

4,333,660

SEAL DEVICE FOR PIPE PROJECTING THROUGH ROOF

George M. Cupit, 5 Waldheim Rd., Bayswater, Victoria, Australia

Continuation of Ser. No. 870,102, Jan. 17, 1978, abandoned. This application Mar. 3, 1980, Ser. No. 126,200
Claims priority, application Australia, Jan. 17, 1977, PC 8770
Int. Cl.³ F16L *41/06*; F16J *15/00*
U.S. Cl. 277—9 **6 Claims**



1. A seal device to provide a fluid seal between an elongate member and a non-planar surface through which the elongate member projects, comprising a base member capable of conforming attachment to the non-planar surface, said base member comprising an apertured metal outer flange element of non-resilient manually deformable nature so that in use it may be deformed to conform with the contour of the non-planar surface to which it is to be attached and will by itself generally retain such deformed contour and a complementary apertured sealing element of non-metallic resilient material with a flange portion secured in underlying relation to said metal outer flange element with respective apertures aligned and so as to be compressed between the metal outer flange element and the non-planar surface to which the device is to be attached in use to provide a seal therebetween, a sleeve member of non-metallic resilient material integral with the sealing element and projecting through the aperture in the metal outer flange element, said sleeve member when in use having at an end portion remote from the base member an aperture dimensioned to receive the elongate member in sealing engagement, the sleeve member between the said end portion and the base member being flexible to accommodate in use misalignment between the base member and the apertured portion of the sleeve, said metal outer flange element, when deformed to the contour of the non-planar surface to which it is attached, maintaining the flange portion of said sealing element in a similarly deformed contour to abut said non-planar surface in sealing engagement therewith.

4,333,661

EXPANDING HELICAL SEAL FOR PISTONS AND THE LIKE

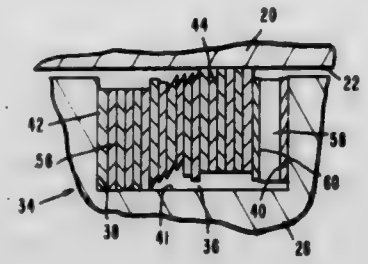
David A. Merrell, Manhattan Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 5, 1980, Ser. No. 213,429
Int. Cl.³ F16J *15/16, 9/04*
U.S. Cl. 277—203 **5 Claims**

1. A seal comprising:

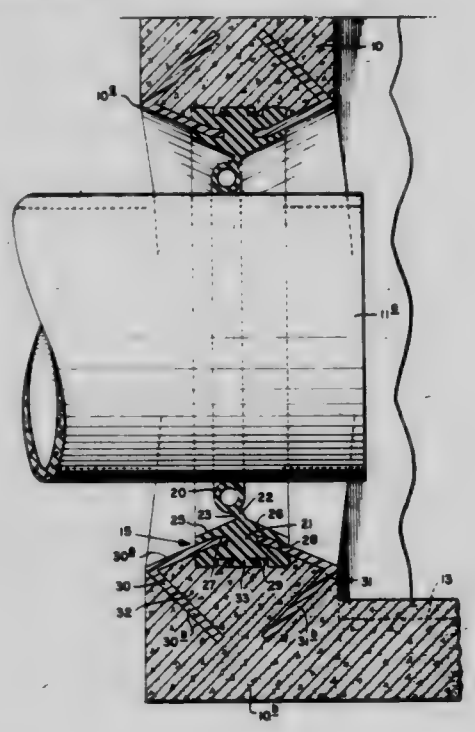
a continuous helical spiral coil made of resilient material and having a small end, a large end of larger diameter than said small end and an intermediate transitional portion therebetween, said helical spiral coil being for positioning in a seal groove so that one of said ends seals in the groove as a stationary seal and the other of said ends extends out of the groove for engaging on a relatively moving wall as a dynamic seal, with the resiliency of said helical spiral coil stressing said helical spiral coil to engage both as a static

seal in the groove and as a dynamic seal against the wall; and



a spring engaging said helical coil to thrust said helical coil in a direction parallel to the wall and axially of said helical coil to reduce axial motion between the turns of said helical coil.

4,333,662
PIPE SEAL
William D. Jones, 803 Monaco Dr., Warrington, Pa. 18976
Filed Dec. 9, 1980, Ser. No. 214,692
Int. Cl.[3] F16L *21/02*; F16J *15/32*
U.S. Cl. 277—207 A 14 Claims



1. A resilient gasket for sealing an annular space between a pipe and a surrounding aperture in a pipe receiving structure, comprising:

an annular ring adapted to engage the outer periphery of the pipe,

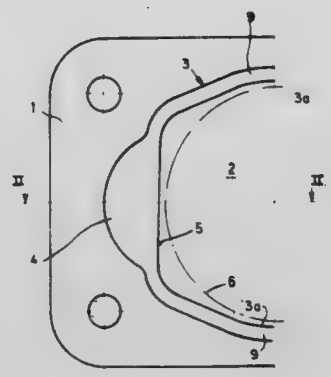
a flexible neck integral with said ring and extending outwardly therefrom,

a base surrounding said neck integral therewith,

said base having a portion embedded within said pipe receiving structure and having a portion exposed to said pipe, said exposed portion extending laterally of said neck in opposite directions beyond the ring,

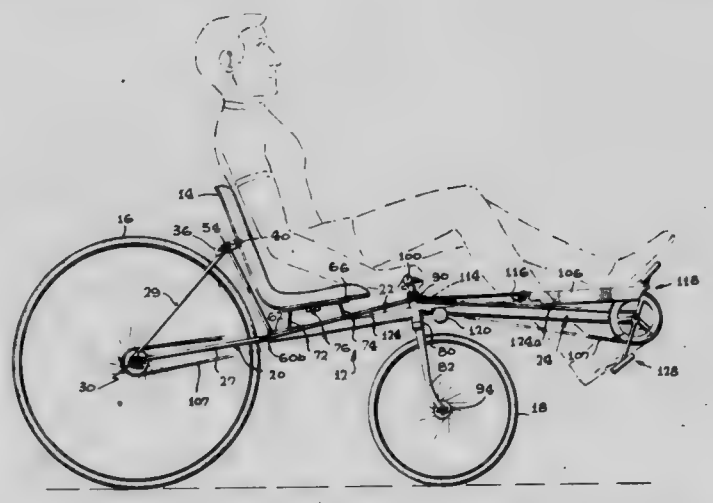
said flexible neck cooperating with said base to afford both lateral and radial motion of the ring relative to the base and compression of the ring against the exposed portion of the base.

4,333,663
FLAT GASKET
Karl-Gerd Friedrichs, Leverkusen, Fed. Rep. of Germany, assignor to Goetze AG, Burscheid, Fed. Rep. of Germany
Filed Dec. 13, 1979, Ser. No. 103,217
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856186
Int. Cl.[3] F16J *15/12*
U.S. Cl. 277—235 R 5 Claims



1. In a flat gasket having a closed edge defining an opening, a metal frame surrounding the opening and having curvilinear length portions bent over the closed edge along the length thereof; said frame having rims on both sides of the gasket and a part connecting the rims and extending over said edge; and metal overlays arranged adjacent the frame in a face-to-face relationship with the gasket on both sides thereof; the improvement wherein each overlay comprises a flap-like, one-piece, integral extension of the rims on both sides of said gasket along a length portion of said frame and further wherein said length portion has a linear course.

4,333,664
RECUMBENT VEHICLE
Milton Turner, 691 S. Irolo St., Los Angeles, Calif. 90005, and Julian M. Smith, 1607 E. 126th St., Compton, Calif. 90222
Filed Feb. 25, 1980, Ser. No. 124,441
Int. Cl.[3] B62K *3/14*
U.S. Cl. 280—261 22 Claims



1. In a bicycle adapted to be propelled by a recumbent rider, including an elongated frame having a front portion and a rear portion, a front wheel rotatably mounted on the frame, a rear wheel rotatably mounted the rear portion of the frame, a crank assembly including crank pedals supported on the front portion of said frame, a front fork support housing secured to the frame intermdiate said front and rear portions and rotatably supporting said front wheel, and a seat supported on said frame generally intermediate said wheels, the improvement comprising:

a support member connecting the back of said seat with the rear portion of said frame for reinforcing the rear portion of said frame and for resisting torsional rotational move-

ment of said seat relative to said frame through pressures against said seat back as said bicycle is driven by force being applied alternately to said pedal cranks,

said rear portion of said frame comprising a fork including substantially horizontal left and right tongs, said left and right tongs supporting said rear wheel; said fork further including left and right stays connected to the rear of said left and right tongs respectively, and extending upwardly and forwardly toward the back of said seat;

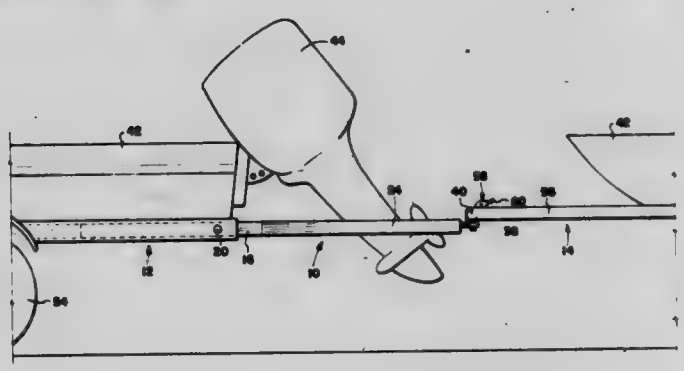
and said support member comprises an X member diagonally connecting said left stay with said right tong of said rear fork and diagonally connecting said right stay with said left tong of said rear fork, and means connecting said X member to the back of said seat.

4,333,665

DETACHABLE TRAILER HITCH

Paul D. Haddock, 1605 W. Knoxville, Broken Arrow, Okla. 74012

Filed Sep. 5, 1980, Ser. No. 184,273
Int. Cl.³ B60D 1/14
U.S. Cl. 280—408 **8 Claims**



1. In combination with at least two trailers, a detachable trailer hitch apparatus for connecting trailers in spaced tandem relation, said hitch apparatus comprising frame means having a connection section for engagement with the trailing end of one of said trailers, means cooperating between the connection section and the said trailing end for removably connecting the hitch apparatus to said one trailer, inwardly diverging frame means extending outwardly from said connection section in a direction away from said one trailer, and hitch means disposed outboard of said diverging frame means for removable connection with the leading end of the other of said trailers for connecting the trailers in said spaced tandem relation.

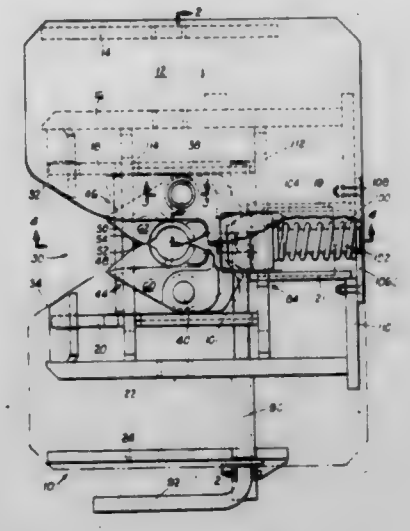
4,333,666

HITCH HEAD HAVING INTERLOCKING JAW MECHANISM

James C. Hammonds, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Jun. 12, 1980, Ser. No. 158,962
Int. Cl.³ B62D 53/08, 53/10, 53/12
U.S. Cl. 280—435 **17 Claims**

1. A hitch head or fifth wheel comprising: a pair of pivotable jaws adapted to hold in place a kingpin of a highway trailer; a horizontally movable lock block, said lock block biased by resilient means to a closed position engaging the jaws and holding said jaws in closed position; said jaws adapted to maintain the kingpin in place; said lock block being movable to an open position by a finger engaging the lock block; said finger integrally connected to a horizontally extending operating shaft; said finger comprising a body portion surrounding said shaft; a first finger extension extending in a first radial direction from said body portion, and a second finger extension extending in a second radial direction from said body portion; whereby said jaws are movable to an open position upon exit of the kingpin; the rear portion of each of said jaws having a rear surface, whereby if one of said jaws begins to move from open position toward closed position and the other jaw does not, the rear surface on said one jaw will activate said first finger extension and pivot said finger sufficiently that said second finger extension will engage the rear surface on the other jaw,



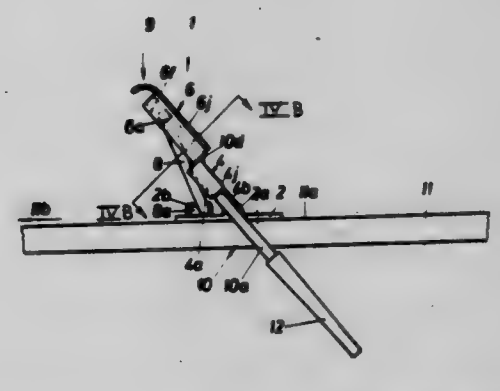
thereby preventing further rearward movement of said lock block and said lock block preventing said first jaw from moving further toward the closed position.

4,333,667

SKI BRAKE

Friedrich Leichtfried, Traiskirchen, and Alois Himmetsberger, Vienna, both of Austria, assignors to TMC Corporation, Baar, Switzerland

Filed Dec. 19, 1979, Ser. No. 105,069
Claims priority, application Austria, Dec. 21, 1978, 9119/78; Feb. 5, 1979, 846/79
Int. Cl.³ A63C 7/10
U.S. Cl. 280—605 **14 Claims**



1. In a ski brake having at least one braking leg pivotal by a force applied by a ski boot or by a sole plate secured to a ski boot to a pedal about an axle extending substantially at a right angle with respect to the longitudinal axis of a ski in a mounting member adapted to be secured to said ski, said braking leg being pivotal between a braking position and a retracted position, an erecting spring resisting a pivoting of said braking leg toward said retracted position, said braking leg having a braking mandrel thereon and a first segment therein which extends from said braking mandrel toward the central longitudinal axis of the ski, said braking leg being held totally above the upper surface of said ski and between the lateral edges of said ski in the retracted position of said ski brake by said pedal which is stepped down upon by said ski boot or by said sole plate, and in the braking position of said ski brake, said braking mandrel being positioned laterally outside of one of said ski edges and projecting below the running surface of said ski, said braking leg being pivotal about first means defining a swivel shaft which extends in longitudinal direction of said ski, said first means including at least one further second segment on said braking leg which extends substantially parallel with respect to said central longitudinal axis of said ski brake, and second

means operatively connecting said second segment to said axle to facilitate said pivotal movement of said braking leg about the axis of said second segment, the improvement comprising wherein said pedal includes a support member pivotally secured to said mounting member by said axle for movement about said axle, wherein said second means includes bearing means on said support member and having an axis extending generally parallel to said longitudinal axis of said ski when said ski brake is in said retracted position, said second segment being rotatably received in said bearing means, said second means further including laterally offset means on said second segment and extending laterally of said axis, said second means still further including an operating plate operatively connected to said laterally offset means and supported for movement relative to said support member between first and second positions, said first position being elevated above said support member and said second position being flush with said support member, said operating plate effecting a movement of said braking leg to said retracted position in response to a movement of said operating plate from said first position toward said second position thereof and wherein resilient means is provided for continually urging said operating plate to said first position.

4,333,668

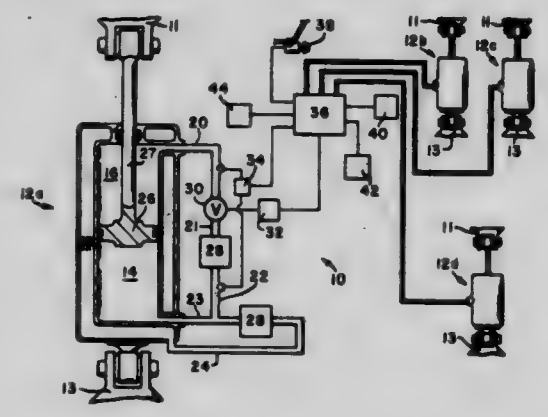
ELECTRONIC ADAPTIVE RIDE CONTROL SYSTEM

Richard T. Hendrickson, and Joel S. Carter, both of South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Dec. 17, 1979, Ser. No. 104,326

Int. Cl.³ B60G *21/00*

U.S. Cl. 280—703 **1 Claim**



1. An electronic adaptive ride control system for an automotive vehicle having sprung and unsprung masses, said system comprising an adjustable shock absorber for resisting the relative motion of said sprung and unsprung masses of said vehicle, said shock absorber comprising a pair of variable-volume chambers between which fluid is communicated in response to relative motion of said sprung and unsprung masses, variable fluid flow resistance means for adjusting the motion resistance of said shock absorber by interrupting said fluid communication independent of the relative position of said masses, in response to control signals generated by a control unit of said system;

said variable fluid flow resistance means comprising valve means for opening and closing said fluid communication between said pair of chambers, and servo means operatively coupled to said valve means for controlling the opening and closing of the valve means in response to said control signals;

said shock absorber also comprising pumping means defining said pair of variable-volume chambers for pumping viscous fluid through the valve means in response to relative motion of the masses;

a housing connected to one of the masses;

a rod connected to the other of the masses;

a piston connected to the rod and cooperating with the housing to define said pair of chambers for containing viscous fluid therewithin, the piston being movable relative to the housing to transfer fluid between said chambers and through said valve means in response to relative movement of the masses;

said housing, said rod, and said piston cooperating to define said pumping means; and

said shock absorber further comprising a passage disposed outwardly of the housing and communicating said pair of chambers with each other, said passage receiving said valve means whereby fluid communication through said passage is varied in response to said control signals.

4,333,669

BRAZED OR SOLDERED JOINTS

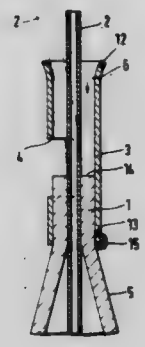
Roland Eckert, Sulzfeld, Fed. Rep. of Germany, assignor to E.G.O. Elektro-Geräte Blanc und Fischer, Fed. Rep. of Germany

Filed Apr. 23, 1980, Ser. No. 142,919

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1979, 2917335

Int. Cl.³ F16L *13/08*

U.S. Cl. 285—21 **10 Claims**



1. A brazed or soldered joint between a connecting socket having a free end and a thin, flexible metal tube inserted therein, comprising a thin-walled metal sleeve surrounding the connecting socket, a portion thereof embracing the connecting socket and another portion thereof extending beyond the free end of the connecting socket, surrounding the metal tube but having a sufficiently large free clearance to preclude capillary action between the metal sleeve and the metal tube during the brazing or soldering, the metal sleeve being provided with at least one aperture in the area of the free end of the connecting socket into which brazing or soldering material can be deposited in the form of a paste which after heating will braze or solder together the metal tube and the sleeve to the connecting socket by capillary action, but will not hinder movement of the flexible metal tube within the metal sleeve, whereby the metal sleeve enhances the integrity of the brazed or soldered joint, and thereafter, prevents kinking and accidental breaking of the metal tube.

4,333,670

STEPPED TRANSITION JOINT

Kenneth H. Holko, San Diego, Calif., assignor to General Atomic Company, San Diego, Calif.

Filed May 5, 1980, Ser. No. 146,491

Int. Cl.³ F16L *13/02*

U.S. Cl. 285—173 **12 Claims**



1. A transition joint which must withstand severe conditions

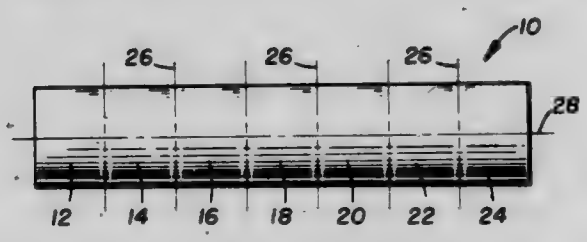
in high temperature environments and useful for bonding together tubular pieces formed respectively from a low alloy or carbon steel and a high temperature alloy having a high chromium content of approximately 18%, the low alloy steel and high temperature alloy tubular pieces also having substantially different characteristics such as thermal expansion coefficients, strength and the like, said transition joint comprising a plurality of tubular transition parts aligned along a common longitudinal axis and welded together, a first adjacent pair of transition parts each having chromium contents less than 10 percent being characterized by a maximum chromium differential between the parts of approximately 2-5%, a further adjacent transition part having a chromium content greater than 10 percent and a maximum chromium differential in the range of approximately 3-7% between adjacent transition parts, said tubular transition parts of the lowest chromium content having end faces perpendicular to said longitudinal axis and extending across the full wall thickness thereof, some of the transition parts being selected from standard ASTM code approved materials, each of said transition parts having throughout its length substantially the same thermal expansion coefficients and composition of elements, the transition parts at opposite ends of the transition joint having similar chromium percentages selected in accordance with the tubular pieces to which they are to be joined, the transition parts also being selected to provide a stepped relation of physical characteristics including thermal expansion coefficients, said chromium percentages being graded to reduce carbon migration across an interface between adjacent end faces.

4,333,671

FRICTION WELDED TRANSITION JOINT

Kenneth H. Holko, San Diego, Calif., assignor to General Atomic Company, San Diego, Calif.

Filed May 5, 1980, Ser. No. 146,771
Int. Cl.³ F16L *13/02*
U.S. Cl. 285—173 **3 Claims**



1. A bonded transition joint for use in high temperature applications which must withstand severe conditions in high temperature environments comprising at least three tubular transition parts:

a first tubular part of low alloy or carbon steel having a first predetermined chromium content with a uniform thermal expansion coefficient, strength and carbon constituency throughout and having a longitudinal extending axis,

a second tubular part of a higher chromium alloy with a uniform thermal expansion characteristics, strength and carbon constituency throughout and having a longitudinally extending axis aligned with the longitudinally extending axis of said first tubular part;

a third tubular part of a high temperature alloy and having a higher chromium content than said predetermined chromium content,

a first interface on the end of said first tubular part in a plane perpendicular to the axis of said first tubular part and having a cross-sectional thickness equal to the thickness of said first tubular part,

a second interface on the end of said second tubular part in a plane perpendicular to the axis of said second tubular part and having a cross-sectional thickness equal to the thickness of said second tubular part,

at least a portion of the transition parts within the transition joint being formed from standard, code approved materials to assure effective operation over long periods of time,

said first and second interfaces being abutted and bonded to each other by friction welding without any weld material between said interfaces to limit mixing of compositions of said first and second materials, to limit the migration of carbon from the first tubular part to the second tubular part, and to reduce thermally induced stresses,

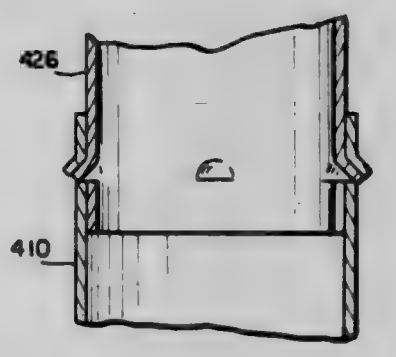
said third tubular part being friction welded to another end of said second tubular part.

4,333,672

TUBE-TO-TUBE CONNECTION

James C. Arthur, and Graham F. Thieman, both of Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind.

Continuation-in-part of Ser. No. 65,131, Aug. 9, 1979. This application Dec. 10, 1979, Ser. No. 101,734
Int. Cl.³ F16L *13/14*
U.S. Cl. 285—382.2 **10 Claims**



1. A mechanical connection, comprising a first tube including a first tube end having a first inside dimension, a second tube including a second tube end having a second outside dimension, the second dimension being slightly smaller than the first to provide a sliding fit of the second tube end into the first tube end, and means for mechanically joining said first tube and said second tube including at least two staked segments in generally the same plane about the axes of said first and second tubes, each staked segment comprising a circumferentially extending registering strip of the first and second tube side walls, with at most one of the axially facing side edges of the strip of each of the first and second tube side walls being sheared and the sheared axially facing side edge of one of the first and second tube side walls protruding at least substantially to a region of the wall of the other of the first and second tubes surrounding the strip, whereby rotational and longitudinal movement of the tubes with respect to each other is prevented.

4,333,673

GATE LATCH

Kenneth G. Kerr, Timboon, Australia, assignor to Ada Margery Kerr; Alan Gordon Kerr; Keith Edward Kerr; Bruce Kenneth Kerr and Colin Frederick Kerr, all of Timboon, Australia

Continuation-in-part of Ser. No. 936,727, Aug. 25, 1978, Pat. No. 4,226,450. This application Apr. 4, 1980, Ser. No. 137,017
Claims priority, application Australia, Aug. 25, 1977, PD1379; Oct. 21, 1977, PD2149; Feb. 12, 1980, PE2331
Int. Cl.³ E05C *5/02*
U.S. Cl. 292—59 **10 Claims**

1. A gate latch comprising:

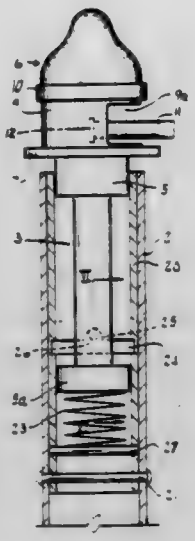
a tubular support;

a latch member having a shaft portion, mounted within said tubular support for rotation therein, and also having a latch portion, extending axially outwardly from said shaft portion, said latch portion having at least one peripheral projection extending axially outwardly from said shaft portion; and

a complemental gate locking bar extending from a gate and having locking means, at its free end, for engaging the latch portion within spacing defined by said at least one

peripheral projection in order to lock the gate relative to said tubular support;

wherein said at least one peripheral projection defines the spacing so as to permit entry of the complemental gate locking bar;



said at least one peripheral projection is a tubular wall; and said tubular wall has an opening therein through which the complemental gate locking bar extends in order to lock the gate relative to the tubular support.

4,333,674

VEHICLE BUMPERS WITH COLLAPSIBLE PARTS

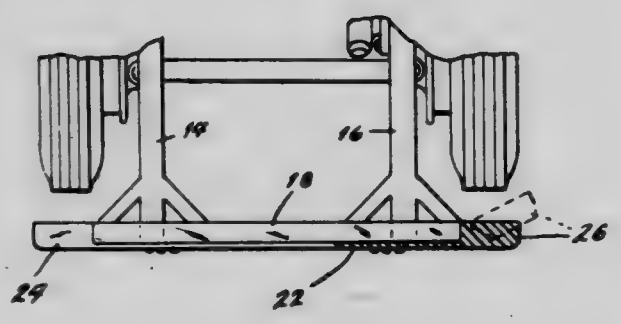
Carl F. Buettner, 9501 Pinespray, St. Louis, Mo. 63126, and John S. Hill, 604 Plaza Dr., Joplin, Mo. 64801

Continuation-in-part of Ser. No. 883,829, Mar. 6, 1978, Pat. No. 4,225,167. This application Feb. 14, 1980, Ser. No. 121,325

The portion of the term of this patent subsequent to Sep. 30, 1997, has been disclaimed.

Int. Cl.³ B60R *19/00*

U.S. Cl. 293—120 **17 Claims**



1. A one-piece bumper for mounting on a vehicle having a predetermined width comprising a main body section for connecting to the vehicle and end sections connected integrally to the main body section, said main body section including said integrally connected end sections having an overall length to extend substantially across the width of the vehicle, means forming an integral connection between the main section and each of the end sections including a groove defining a location of substantially reduced cross-section therebetween, said main body section and said end sections having relatively uniform thickness along the length thereof but being substantially less thick at the locations of said grooves, said main body section and said integral end sections being constructed of a frangible material whereby said end sections are more likely to break away from said main body section at the locations of the respective grooves on impact rather than to bend.

4,333,675

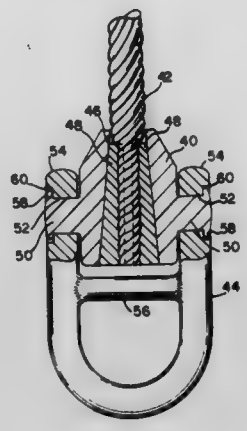
CABLE CONNECTOR

Ben Wirkkala, P.O. Box 524, Naselle, Wash. 98638

Filed Jan. 4, 1980, Ser. No. 109,469

Int. Cl.³ B66C *1/34*

U.S. Cl. 294—78 R **1 Claim**



1. A cable connector for interconnecting a mainline cable with a plurality of choker cables, comprising:

a generally u-shaped shackle having side arms in which aligned openings are formed;

a pin bridging the space between the side arms of said shackle, said pin having the ends thereof freely rotatable in said openings and restraining means formed on the ends of said pin for preventing endwise movement thereof;

a ferrule formed as an integral part of said pin and positioned midway between the side arms of said shackle, said ferrule having a tapered frustro-conically shaped centerbore through which said mainline cable extends;

a cable fastening means comprising a pair of semi-frustro-conically shaped nubbins tapered to match the taper of the centerbore of said ferrule, said nubbins each having a semi-cylindrically shaped groove extending along the axis thereof which together form a central cylindrical passage through which said mainline cable extends and is frictionally held between said nubbins, said nubbins contacting the wall of said centerbore over the major surface area of said centerbore in order to maximize the strength and rigidity of said fastening means; and

a reinforcing bar extending between said side arms to prevent either withdrawal of the ends of said pin from said openings or spreading of said arms of the shackle responsive to spreading forces applied to said shackle.

4,333,676

ROTATIONAL MECHANISM FOR AN EXCAVATOR GRAB BUCKET

Heinz Thumm, Fellbach-Oeffingen, Fed. Rep. of Germany, assignor to Firma Thumm Ölhydraulische Antriebe GmbH, Fellbach-Oeffingen, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 237,064

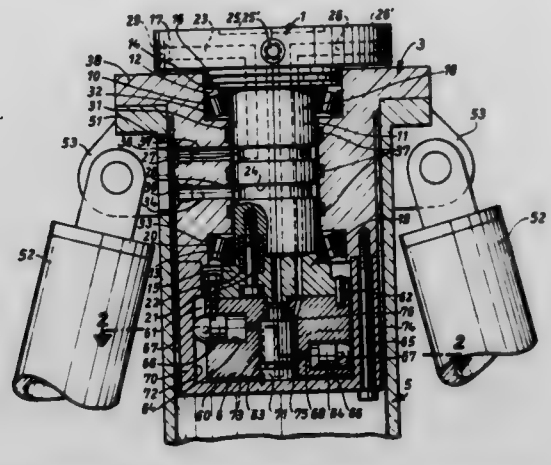
Claims priority, application Fed. Rep. of Germany, Sep. 2, 1978, 2838346

Int. Cl.³ B25B *1/00*

U.S. Cl. 294—88 **11 Claims**

1. Apparatus for actuating a grab bucket of an excavator comprising: a stator mounted on said excavator; a rotor having said grab bucket mounted thereon connected with said stator for rotation relative thereto about a rotational axis; a shaft on said stator operatively engaged within a bore formed in said rotor; first hydraulic duct means extending through said stator; second hydraulic duct means extending through said rotor; passage means defined between said stator shaft and said rotor bore for placing said first and second hydraulic duct means in operative communication with each other; said first and said second hydraulic duct means being adapted to be operatively connected with hydraulic drive means for actuation of said grab bucket; first and second shoulder means defined on said

stator shaft axially spaced from each other and protruding radially therefrom; third and fourth shoulder means defined on said rotor arranged in cooperative relationship, respectively, with said first and second shoulder means of said stator shaft; first axial-radial bearing means operatively interposed between said stator shaft and said rotor axially located between said first



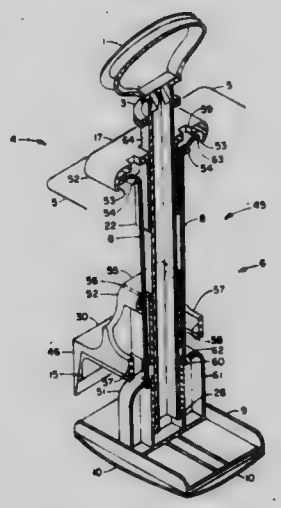
and third shoulder means; and second axial-radial bearing means operatively interposed between said stator shaft and said rotor axially located between said second and fourth shoulder means; said passage means being axially located relative to said stator shaft between said first and said second axial-radial bearing means.

4,333,677

DEVICE FOR CARRYING AND SECURING SKIS, BOOTS AND POLES

John M. Crump, 1018 Parkridge Cir. W., Jacksonville, Fla. 32211

Filed Feb. 28, 1980, Ser. No. 125,340
Int. Cl.³ A45F *5/10*
U.S. Cl. 294—147 **9 Claims**



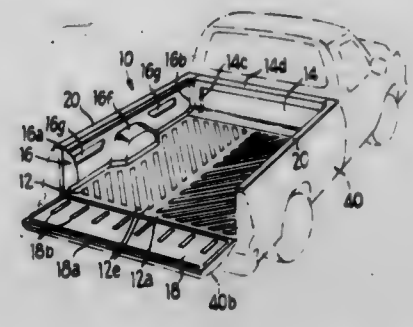
1. A device for the character described comprising a pair of mutually aligned and selectively manipulatable cooperative cradle carriages each slidable mounted in a predetermined relationship relative to a column member, one of said carriages having a pair of oppositely disposed downwardly depending skirts functioning in cooperation with said column member to form ski and pole magazine chambers, said column member disposed at its upper extremity with a hand grasp and at its lower extremity with a base member, said base member cooperating with said column and said skirts to form said ski and pole magazine chambers, means adjustably engaged with said column member whereby both of said carriages may be manipulated one relative to the other for selectively engaging any combination of boots, skis and poles into releasable securement therewith.

4,333,678

TRUCK BED LINER ASSEMBLY

Donald L. Munoz, Warren; Daniel A. Grote, Algonac; David G. Bronder, Rochester, all of Mich., and Gerald J. Weis, Dallas, Tex., assignors to Thermoplastics Incorporated, Prairie View, Tex.

Filed Aug. 13, 1979, Ser. No. 66,096
Int. Cl.³ B62D *33/00*
U.S. Cl. 296—39 R **11 Claims**



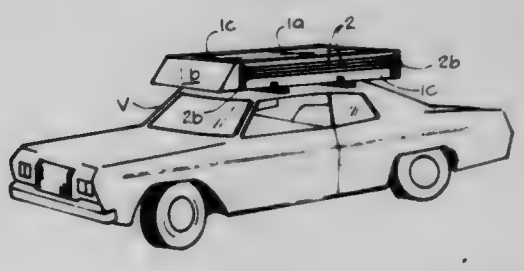
1. A knockdown protective liner assembly for the bed of a pickup truck including a bed floor, a bed front wall, bed side walls and a tail gate, said liner assembly consisting of interconnectible panels comprising: a floor panel for the bed floor and having upstanding flanges at the front and side edges thereof; a front panel for the bed front wall and for overlapping the upstanding flange at the front edge of the floor panel and having an upper outwardly extending flange for overlying the top of the bed front wall, a lower inwardly extending flange for overlapping the front portion of the floor panel, and inwardly extending end flanges; side panels for the bed side walls and for overlapping the upstanding flanges at the side edges of the floor panel and having upper outwardly extending flanges for overlying the tops of the bed side walls, lower inwardly extending flanges for overlapping the side portions of the floor panel and forward inwardly extending end flanges for overlapping the inwardly extending end flanges of the front panel; and fastening means for fastening the front panel to the upstanding flange at the front edge of the floor panel, the forward inwardly extending end flanges of the side panels to inwardly extending end flanges of the front panel and the side panels to the upstanding flanges at the side edges of the floor panel to form a unitary protective liner to be received in the bed of the pickup truck.

4,333,679

VEHICLE TOP TRANSPORTED, SELF CONTAINED CAMPER

Raymond D. Hardy, Rte. 3, Box 147B, Robstown, Tex. 78380, and William E. Van Steenwyk, 3191 Highway 21A, Festus, Mo. 63028

Filed Jan. 7, 1980, Ser. No. 109,868
Int. Cl.³ B60P *3/32*
U.S. Cl. 296—161 **15 Claims**



1. A camper comprising a rigid roof structure mountable for travel atop a vehicle, legs pivoted at their upper ends to said roof structure and swingable from horizontal traveling positions along both sides of said roof structure to generally upright positions supporting said roof structure from the ground, said roof structure mounting vertically movable floor structure

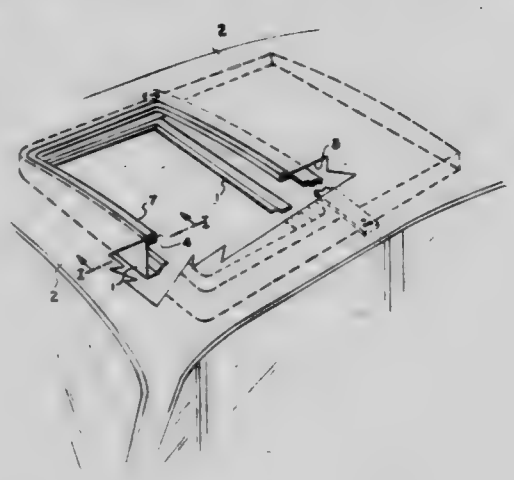
and collapsible intermediate structure stored in collapsed travel position between said roof and floor structures, and selectively controlled means operatively connecting said floor and roof structures and extending said collapsible intermediate structure to operative condition and raising said floor structure to said roof structure and collapsing said intermediate structure into traveling position, said collapsible intermediate structure having flexible walls and including sleeping bunks connected to said flexible walls and resting on said floor structure when the camper is in traveling position, and parallel maintenance linkage means connecting said bunks to said floor structure whereby to position said bunks above said floor structure when said floor structure is fully lowered.

4,333,680

VEHICLE SUNROOF INSTALLATION

Ernest Wolf, St. Louis, and John Amos, Rolla, both of Mo., assignors to Sky-Top Sunroofs Ltd., St. Louis, Mo.

Filed Oct. 17, 1979, Ser. No. 85,889
Int. Cl.³ B60J 7/00
U.S. Cl. 296—216 **14 Claims**



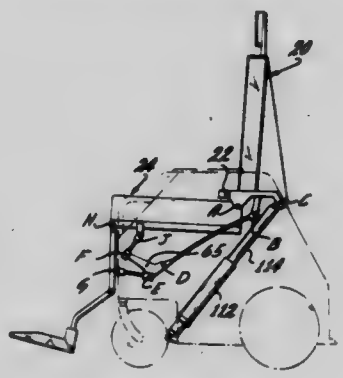
1. In combination
(1) a vehicle having an opening in the roof thereof, and
(2) a sunroof, said sunroof having panel means capable of opening and closing said opening,
the improvement wherein said sunroof is attached to the underside of the vehicle roof by means of an adhesive,
said sunroof being substantially coextensive to said vehicle roof, and
also substantially parallel to the sweep of the vehicle roof in the area of said adhesive attachment.

4,333,681

POWER OPERATED RECLINING WHEELCHAIR

M. Eugene Nelson, 4921 Gary St., San Diego, Calif. 92115

Filed Nov. 16, 1979, Ser. No. 94,729
Int. Cl.³ A47C 1/034
U.S. Cl. 297—83 **12 Claims**



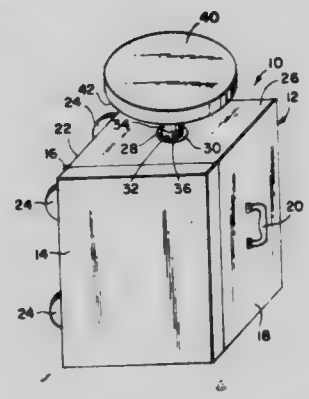
1. A reclining chair comprising:
a frame assembly having a base frame and a pair of laterally spaced side-wall frames extending upwardly from opposite lateral sides of said base frame, each of said sidewall frames having a fixed major pivot point located adjacent its rear end, said major pivot points being substantially co-axial and being located approximately at the hip joint of the occupant of the chair;
a back rest assembly;
a seat assembly;
means for pivotally reclining said back rest assembly about said major pivot points in coordinated movement with said seat assembly during which said seat assembly travels from an initial position to an intermediate-travel position and continues on to a final position wherein:
a. at said initial position the front end and the rear end of said seat assembly are substantially horizontal;
b. at said intermediate-travel position the front end of said seat assembly is tilted upwardly and forwardly advanced from its initial position while its rear end is positioned lower than and forwardly advanced of its initial position, and
c. at said final position the front end and the rear end of said seat assembly are substantially horizontal and at substantially the same vertical height as said front and rear ends in the initial position and said front end and rear end are advanced forwardly from their intermediate-travel position.

4,333,682

SPACE CASE DRUMMERS THRONE COMBINATION

George H. Iser, 94-06 82nd Pl., Ozone Park, N.Y. 11416

Filed Aug. 14, 1980, Ser. No. 177,950
Int. Cl.³ A47C 7/62
U.S. Cl. 297—192 **2 Claims**



1. A storage case, comprising in combination a hollow box, a hinged door on the front of said box, a handle at one side of said box, a plurality of casters at the other side of said box, and an adjustable, removable seat assembly at the top of said box, wherein said top of said box comprises a central aperture, and a ring with a central threaded aperture placed into said top aperture and wherein said seat assembly comprises a seat with a bottom central threaded partial aperture and a vertical shaft threaded on both ends that threads into said bottom of said seat and into said top of said box.

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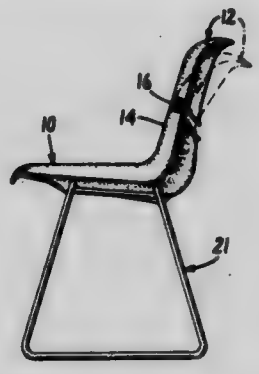
CHAIR WITH AUTOMATICALLY ADJUSTABLE TILTING BACK

Emilio Ambasz, New York, N.Y., assignor to Center for Design Research and Development N.V., Curacao, Netherlands Antilles

Continuation-in-part of Ser. No. 966,123, Dec. 4, 1978, abandoned. This application Jul. 11, 1979, Ser. No. 56,790
Int. Cl.³ A47C 5/12, 7/40
U.S. Cl. 297—292 **18 Claims**

1. A chair comprising a unitary seat and lower back, an upper back, the seat and lower back and the upper back being contoured longitudinally and transversely to conform generally to the anatomical shapes of the parts of a person sitting in

the chair which are supported by the chair, and the lower back and upper back having complementary sockets at each side opening toward each other, and a resilient articulating linkage received in each complementary pair of sockets and mounting the lower back on the upper back for articulation between a resiliently restrained relatively upright position and a backward tilted position about a transverse horizontal axis at a height above the seat corresponding to about the middle of the anatomical back of a person sitting in the chair, at least the medial portion of the upper back being located substantially below the axis about which the upper back articulates, so that the upper back is vertically coextensive with and supports the major part of the anatomical middle back of a person sitting in



the chair from about the waist to about the shoulder blades and the lower medial portion thereof shifts forward when the upper back articulates backward, and each articulating linkage including an upper tubular link and a lower tubular link, each such link having a front wall and a back wall, an axle joining the links for articulation, a spring reaction plate pivotably carried by the axle, and having a leg received within each link, compression springs engaged under compression between the front wall of each link and the respective leg of the spring reaction plate and urging the links about the axle in a direction toward the relatively upright position of the upper back and stop means for establishing the upright position and the full backward tilted position of the upper back.

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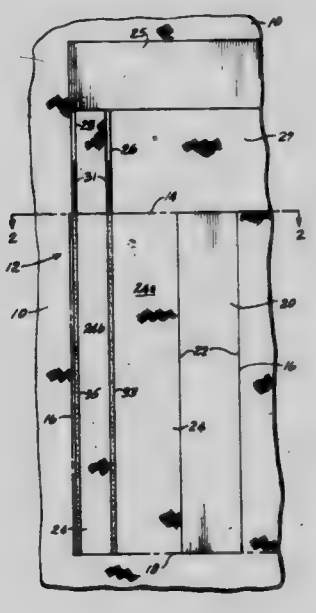
METHOD OF UNIFORM RUBBLIZATION FOR LIMITED VOID VOLUME BLASTING

Thomas E. Ricketts, Grand Junction, Colo., and Bruce B. Redpath, Murphys, Calif., assignors to Occidental Oil Shale Inc., Grand Junction, Colo.

Continuation-in-part of Ser. No. 88,370, Oct. 26, 1979, abandoned. This application Oct. 2, 1980, Ser. No. 193,119

Int. Cl.[3] **E21B** *43/247, 43/263;* **E21C** *41/10*

U.S. Cl. 299—2 **81 Claims**



1. A method for recovering liquid and gaseous products from an in situ oil shale retort in a subterranean formation containing oil shale comprising the steps of:

excavating a first portion of the formation from within the boundaries of the retort being formed to form at least one void, the surface of the formation defining such a void providing at least one free face within the boundaries of the retort being formed, and leaving a second portion of the formation within the boundaries of such retort being formed and extending away from such a free face, such a second portion to be explosively expanded toward such a void;

placing at least two arrays of explosive charges in such a second portion of formation, the first array of explosive charges having a first burden distance measured from such a free face and the second array of explosive charges having a second burden distance measured from the first array of explosive charges, the second burden distance being less than the first burden distance, wherein the equivalent scaled point charge depth of burial of the first array of explosive charges is substantially equal to the equivalent scaled point charge depth of burial of the second array of explosive charges, the first array of explosive charges being closer to the free face than the second array of explosive charges;

detonating such explosive charges for explosively expanding such a second portion of formation toward such a void to form a fragmented permeable mass of formation particles containing oil shale in the subterranean formation for forming an in situ oil shale retort;

introducing gas into the fragmented permeable mass in the in situ oil shale retort for establishing a retorting zone in the fragmented mass wherein oil shale is retorted to produce gaseous and liquid products and for advancing the retorting zone through the fragmented mass; and

withdrawing gaseous and liquid products from the retort.

14. A method for forming an in situ oil shale retort in a retort site within a subterranean formation containing oil shale, such an in situ oil shale retort containing a fragmented permeable mass of formation particles, such a fragmented mass having top, bottom, and side boundaries, comprising the steps of:

excavating a first portion of the formation from within the boundaries of the fragmented mass being formed to form at least one void, a surface of the formation defining such a void providing at least a first free face within the boundaries of the fragmented mass being formed, and leaving a second portion of the formation within the boundaries of such fragmented mass being formed and extending away from such first free face, such second portion to be explosively expanded toward such a void;

placing at least a first and a second array of spaced apart explosive charges in such a second portion of formation, the first array being closer to the first free face than the second array wherein the burden distance of the first array measured from the first free face is greater than the burden distance of the second array measured from the first array of explosive charges; and

detonating such explosive charges for explosively expanding such a second portion of formation toward the void to form a fragmented permeable mass of formation particles containing oil shale in the subterranean formation for forming an in situ oil shale retort.

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ROAD SURFACING APPARATUS

Jeffrey K. Arnswald, Olathe, Kans., assignor to Federal-Mogul Corporation, Detroit, Mich.

Filed Jun. 9, 1980, Ser. No. 157,945

Int. Cl.[3] **E01C** *23/09*

U.S. Cl. 299—39 **18 Claims**

1. An elongated roadway surfacing machine comprising:

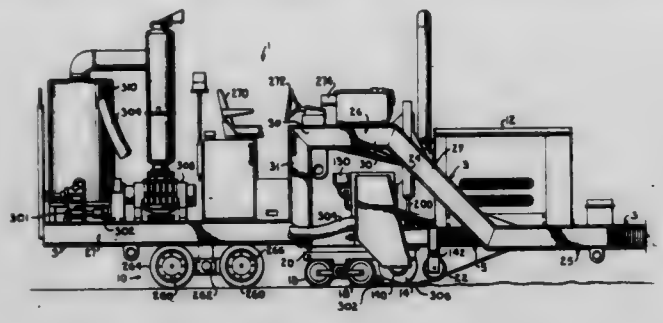
(a) a rigid main frame having front and rear ground engaging support wheels, means driving at least certain of said

support wheels for moving said main frame forwardly along a surface;

(b) a sub-frame mounted on said main frame between said front and rear wheels and adapted to move vertically with respect to said main frame;

(c) a cutter head rotatably mounted on said sub-frame transversely of said main frame;

(d) depth of cut control means vertically adjustably mounted



on said sub-frame rearwardly of said cutter head and engaging the cut behind said cutter head for controlling the depth of cutter head displacement into said surface;

(e) weight transfer means connected between said main frame and said sub-frame forwardly of said depth of cut control means; and

(f) a prime mover operably engaged with said cutter head to provide rotational motion thereto during forward motion of said main frame.

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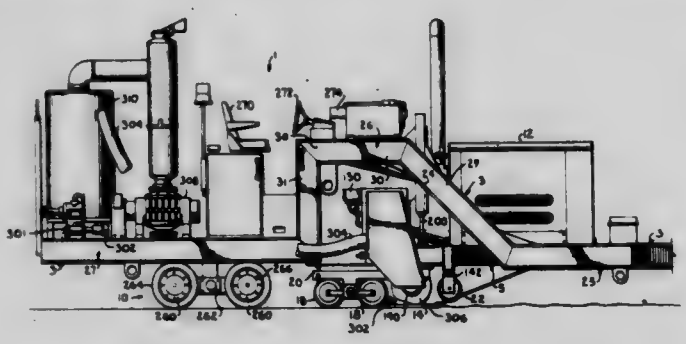
ROAD PLANER DEVICE WITH AUXILIARY OUTRIGGER DEPTH CONTROL WHEELS

Jeffrey K. Arnswald, Olathe, Kans., assignor to Federal-Mogul Corporation, Detroit, Mich.

Filed Jun. 9, 1980, Ser. No. 157,959

Int. Cl.³ E01C *23/09*

U.S. Cl. 299—39 **7 Claims**



1. In a road surface planing device having a rigid main frame, said device being adapted for planing sequential, adjacent, multiple swaths along a road surface;

(a) a sub-frame pivotally mounted on said main frame for upward and downward pivotal movement of said sub-frame relative to said main frame; a cutter head mounted on said sub-frame;

(b) depth control means located rearwardly of said cutter head and engaging the cut swath provided by said cutter head;

(c) adjusting means operably mounted between said sub-frame and outrigger control device to selectively lock said outrigger control device into fixed relation with said sub-frame and contact with said previously cut swath surface for supporting said sub-frame such that said cutter head is retained at an elevation cutting said subsequent swath coplanar with said previously cut swath.

4,333,687

HOLDER FOR THE ATTACHMENT OF CUTTERS TO MINING AND TUNNELLING MACHINES

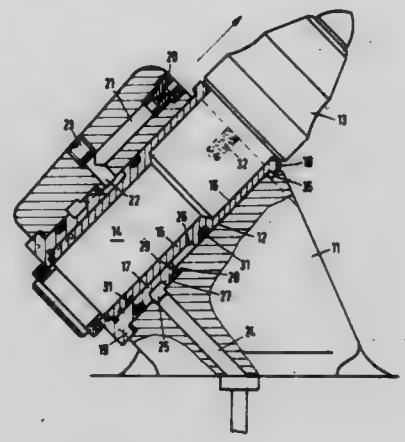
Ingo Barnstorf, Frankfurt, Fed. Rep. of Germany, assignor to Kennametal Inc., Latrobe, Pa.

Filed Aug. 11, 1980, Ser. No. 177,070

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1978, 2854307

Int. Cl.³ E21C *35/22*

U.S. Cl. 299—81 **13 Claims**



1. A holder for the attachment of cutters, in particular, circular shank cutters, to mining and tunnelling machines, which has at least one spray nozzle for coolant spraying of the bit working area, the coolant supply for which is in controlled dependence upon an application of a pressure load to the cutter, comprising: means for receiving said cutter shank in said holder; an insert sleeve surrounding said cutter shank inserted with axial play in said means for receiving said cutter shank; a shut-off member, carried on said insert, which engages into a coolant supply line to said spray nozzle when a pressure load is applied to said cutter and shuts off said coolant supply when there is no load on said cutter.

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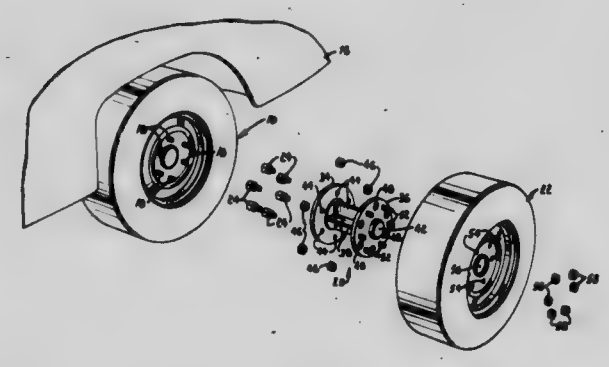
MOUNTING ARRANGEMENT FOR DUAL WHEELS

Ernest M. Lemmon, P.O. Box 569, Arkoma, Okla. 74901, and James P. Pettigrew, 6815 S. 9th St., Fort Smith, Ark. 72901

Filed May 9, 1980, Ser. No. 148,462

Int. Cl.³ B60B *11/00*

U.S. Cl. 301—36 R **4 Claims**



1. Apparatus for mounting a second wheel to a first wheel carried on an axle having a plurality of externally threaded studs projecting therefrom, said apparatus comprising in combination:

a plurality of fastening elements for fastening the first wheel on the studs projecting from the axle to secure the first wheel to the axle, each fastening element including an internally threaded nut portion on one end adapted to be threaded onto the corresponding stud to secure the first wheel thereon and a solid externally threaded shank on the opposite end integral with said nut portion and pro-

jecting outwardly therefrom to provide an outward continuation of the corresponding stud;

an adapter having a body portion and flat first and second flanges on opposite ends of said body portion, said first flange having a plurality of openings therein for receiving the corresponding shanks of said fastening elements to mount said adapter on said shanks;

a plurality of nut elements adapted to be threaded onto the externally threaded shanks and against said first flange to secure said adapter on said fastening elements; and

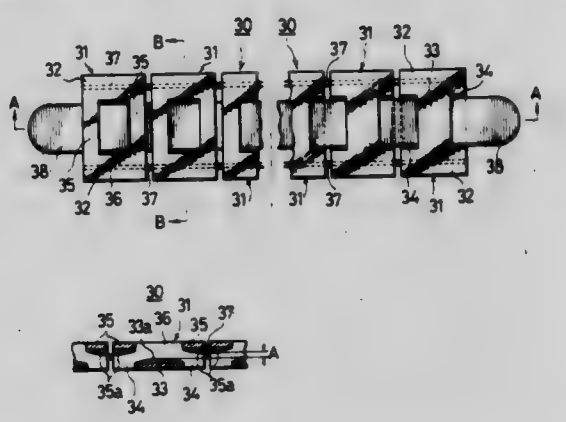
means for mounting the second wheel on said second flange with the second wheel located outwardly of the first wheel, said mounting means including a plurality of externally threaded bolt members projecting from said second flange and a plurality of nuts adapted to be threaded onto said bolt members to secure the second wheel thereon.

4,333,689

CONNECTION DEVICE FOR SPACED ELECTRIC COMPONENTS

Hitoshi Fujino, Furukawa, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 970,642, Dec. 18, 1978, abandoned.
This application Sep. 23, 1980, Ser. No. 190,023
Claims priority, application Japan, Dec. 16, 1977, 52/169120
Int. Cl.³ F16C *29/00*; H01H *3/00, 3/12*
U.S. Cl. 308—3 R **5 Claims**



1. A connection member for interconnecting spaced electric components for operating one component remotely by actuation of the other, comprising

a guide member formed of a resilient material and defining a generally flat tubular pathway adapted to extend in either a curved or straight path between said components;

said pathway having windows and bridge portions extending laterally across said guide member with the windows on one surface facing the bridge portions of the other;

a slide member formed by cutting a plate of a resilient material to a predetermined width, said slide member being insertable through said guide member to ride on the inner surfaces of said bridge portions and having end portions adapted to be connected to respective ones of said components;

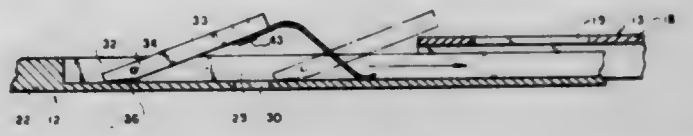
and means formed on the inner surface of said bridge portions for engaging slidably the central portion of said slide member while providing escape portions for the lateral edges thereof whereby any burrs formed during cutting of said slide member can pass through said escape portions even if said guide member is bent into a curved configuration, said means including projections extending inwardly of the respective bridge portions, said projections running along the bridge portions so as to extend transversely across said guide member and ending short of the sides of the guide member so as to form said escape portions; said projections each having a surface curved in the longitudinal direction of said guide member.

4,333,690

SLIDE MECHANISM

Tom Keefe, Stony Point, and Bruno Rosellini, Orangeburg, both of N.Y., assignors to Grant Industries Incorporated, West Nyack, N.Y.

Filed Jan. 12, 1981, Ser. No. 224,632
Int. Cl.³ F16C *29/10*
U.S. Cl. 308—3.8 **10 Claims**



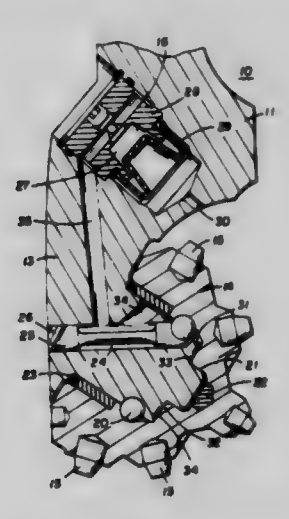
1. A slide structure comprising a pair of first and second longitudinal slide members mutually relatively longitudinally slidable between relatively extended and contracted positions, said first slide member having a first stop defining face and a first stop member located on and longitudinally movable with said second slide member and transversely movable between an inwardly retracted position toward said second slide member out of the relative path of movement of said first stop and an advanced position at least in said path of movement and being spring biased to an advanced position and including a second stop defining face facing toward said first stop and a cam surface extending from said second stop toward said first stop and inwardly inclined toward said first stop whereby with relative longitudinal movement of said slide members said first stop engages said cam surface to retract said stop member to a position with said second stop in said first stop relative path of movement.

4,333,691

ROTARY ROCK BIT WITH IMPROVED THRUST FLANGE

Thomas W. Cooper, Mansfield, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Oct. 9, 1980, Ser. No. 195,468
Int. Cl.³ F16C *33/10, 33/66*; E21B *10/22*
U.S. Cl. 308—8.2 **3 Claims**



1. An improved earth boring bit having a bit body defining a downwardly extending arm with a downwardly, inwardly extending bearing pin, a rolling cone cutter rotatably mounted on said arm, said arm and cone defining cooperating engaging surfaces extending radially with respect to the axis of said pin providing facing engaging thrust bearing areas for the thrust forces between said bit body and said cone, and lubricant disposed between said surfaces to reduce the friction and wear as said cone rotates thereon, and wherein said cooperating radially extending surfaces define a first annular surface on said cone and a mating second annular surface on said pin, said first surface terminating inwardly at an inner shoulder extending away from said arm and outwardly at a second shoulder extending above said first surface toward said arm, said improvement comprising:

a plurality of slots in said first annular surface, said slots open to said inner shoulder and terminating closely adjacent said second shoulder and extending from said inner shoulder to said termination point generally in the direction of rotation of said cone, whereby

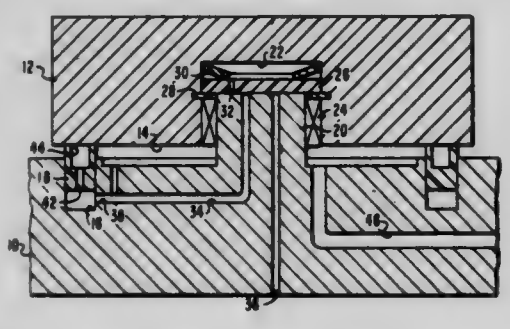
lubricant migrating outwardly from between said facing thrust bearing surfaces is continuously scraped into said slots and forced back toward the inner shoulder of the annular bearing area for replenishing lubricant to the radially inner area of said thrust bearing area.

4,333,692

HYDROSTATIC AXIAL THRUST BEARING

Charles E. Kraus, Austin, Tex., assignor to Excelermatic Inc., Austin, Tex.

Filed Dec. 5, 1980, Ser. No. 213,414
Int. Cl.[3] F16C *32/06*
U.S. Cl. 308—9 8 Claims



1. A hydrostatic axial thrust bearing comprising: a support member; a load member disposed opposite said support member with a bearing cavity formed therebetween, said load member having a central cavity, a valve disc seated in said cavity and being axially movable therein, spring means disposed in said cavity and forcing said valve disc into a seated position, said support member having a vent passage extending therethrough and having an opening below said valve disc, a bearing cavity seal ring disposed in a groove formed in one of said support and load members and being axially movable therein, said seal ring defining the circumferential limits of said bearing cavity, and means for admitting pressurized fluid to said bearing cavity to support said load member on said support member, said load member lifting said valve disc off said vent opening for discharging excessive amounts of fluid from said bearing cavity and said spring means providing increased vent closing forces while the valve disc is unseated during sudden load peaks so as to dampen peak bearing load forces while permitting limited movement of the load member toward the support member beyond the normal operating position.

4,333,693

AXLE BEARING

Axel H. Sjöbom, Postlada 7919, S-860 20 Njurunda, Sweden

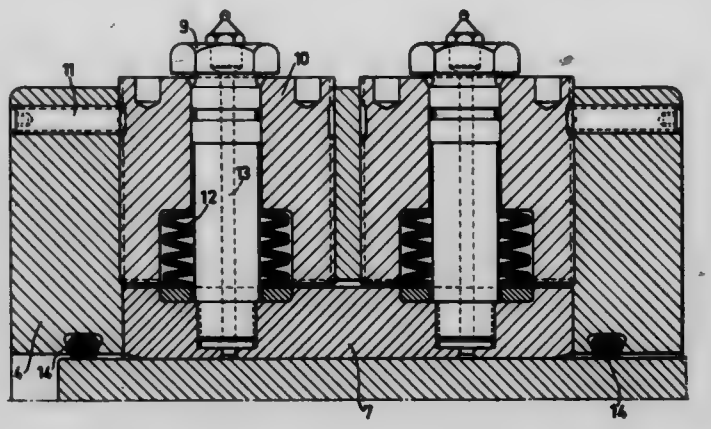
Continuation of Ser. No. 733,954, Oct. 19, 1976, abandoned.
This application Apr. 25, 1978, Ser. No. 899,796
Claims priority, application Sweden, Nov. 6, 1975, 7512455
Int. Cl.[3] F16C *19/00*
U.S. Cl. 308—176 10 Claims

1. An axle bearing including a stationary outer bearing housing and an inner bearing housing adapted to receive a radial bearing, said inner bearing housing being axially movable within said outer bearing housing, wherein the improvement comprises:

a first support member fixably secured to said outer bearing housing in one half of said outer housing for supporting said inner bearing housing;

a second support member in the opposed half of the outer bearing housing, said second support member being radially movable with respect to said outer housing, and said second support member including a contact surface for contacting a complementary contact surface of said inner bearing housing;

an adjusting member adjustably connected to said outer bearing housing for supporting said second support member for relative radial movement with respect to said adjusting member, said adjusting member providing a limit for limiting the radial movement of said second support member away from said inner bearing housing;



means for biasing said second support member towards said inner bearing housing; and

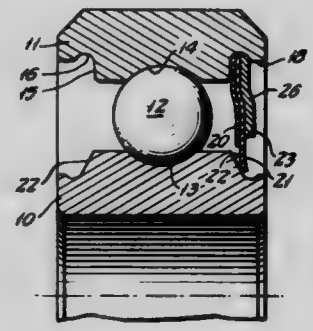
lubricating means for lubricating said contact surfaces of said inner bearing housing and said second support member to permit free sliding movement between said support member and said inner bearing housing.

4,333,694

ANTIFRICTION BEARING WITH REMOVABLE SEAL MEANS

Ralph S. Howe, Jr., New Britain, Conn., assignor to Textron Inc., Providence, R.I.

Filed Nov. 18, 1980, Ser. No. 208,043
Int. Cl.[3] F16C *33/78*
U.S. Cl. 308—187.2 9 Claims



1. A sealed antifriction bearing wherein the bearing comprises inner and outer race rings with interposed antifriction elements riding the races of said rings, the outer ring having a circumferentially continuous radially inwardly open seal-retaining groove of continuously curved sectional contour between an axially inner abutment shoulder and an axial-end land of diameter greater than the inner diameter of said shoulder, the axially outer end of said groove contour being characterized by a ramp substantially tangent to said continuously curved contour, said inner ring having a sloping seal surface in substantially axial registry with said groove, said ramp converging toward said land in the axially outward direction; and seal elements comprising a first stiff annular backing ring of diameter to clear said land and in abutment with said shoulder, said backing ring having clearance with said inner race ring, an annular seal ring of yieldable material in radially overlapping abutment with said backing ring and having yielding circumferentially continuous seal contact with said seal surface, and a split otherwise annular cap ring of stiffly compliant material of unstressed outer diameter intermediate the diameter of said

land and the groove-bottom diameter, said cap ring compressionally abutting said seal ring and having an axially outer and radially outer corner bevel in wedging engagement with said ramp.

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ROLLER BEARING

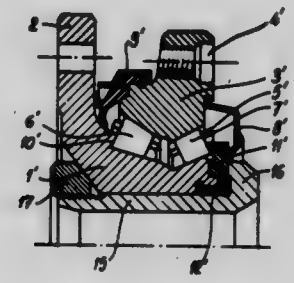
Terence A. Evans, 37 the Coppins, Ampthill, England

Continuation of Ser. No. 944,969, Sep. 22, 1978, abandoned. This application Jul. 28, 1980, Ser. No. 172,550

Claims priority, application Netherlands, Sep. 28, 1977, 7710564

Int. Cl.³ F16C *19/28, 25/06*

U.S. Cl. 308—211 **7 Claims**



1. A hub bearing assembly comprising a first outer annular ring and an inner ring member, the outer ring having a pair of axially spaced outer raceways and said inner ring member having a pair of spaced inner raceways confronting the outer raceways, a plurality of rollers arranged in two rows in the annular space between the outer ring and inner ring member, said rows of rollers separated by cages and in line contact with said bearing raceways, said inner ring member comprising at least a pair of inner ring elements, one of said inner ring elements having said inner raceways thereon and an integral first flange confronting the axial ends of the rollers of one row, the other inner ring element having guide flange means confronting and guiding the rollers of the other row at the opposite axial end of said inner ring member, said other inner ring element extending axially so that its outer free terminal end opposite said guide flange means is disposed adjacent said first flange of said one inner ring element, sealing means fastened at one axial end to said outer annular ring and means including a detachable retaining member cooperable with the terminal end of said other ring element for securing said inner ring elements in assembled relation and providing a means for preloading said bearing.

6. A hub bearing assembly comprising a first outer annular ring and and inner ring member, the outer ring having a pair of axially spaced outer raceways and said inner ring member having a pair of spaced inner raceways confronting the outer raceways, a plurality of rollers arranged in two rows in the annular space between the raceways of said outer ring and inner ring member, said rows of rollers separated by cages and in line contact with said bearing raceways, said inner ring member comprising at least a pair of inner ring elements, one of said inner ring elements having an integral first flange confronting the axial ends of the rollers of one row, the other ring element having a guide flange at one axial end opposite said integral first flange of said one ring member and extending axially so that its terminal end is disposed adjacent said first flange, an annular bearing component engaging between the guide flange of said other ring member and confronting and adapted to engage the axial ends of the rollers of said other row of rollers, a nut member threadedly engageable on the outer terminal end of said other ring element and engageable with said one ring element, actuation of said nut member in one direction operable to prestress the rollers through said annular bearing component in an axial direction to take up undesirable play in the bearing.

4,333,696

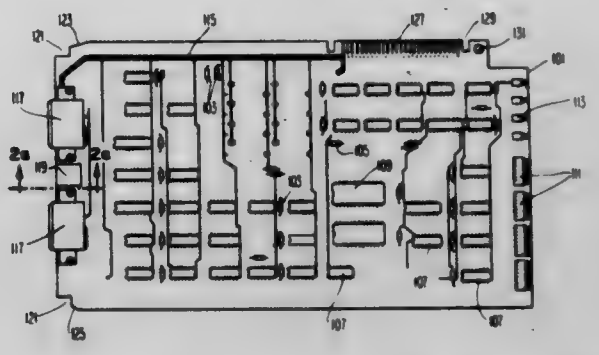
PLURAL EDGE P.C. BOARD INTERCONNECTION

Joseph L. O'Neill, Haddonfield, N.J., and Christopher J. Scafidi, Marlton, N.J., assignors to Infotron Systems Corporation, Cherry Hill, N.J.

Filed Jun. 19, 1980, Ser. No. 160,846

Int. Cl.³ H05K *1/00*

U.S. Cl. 339—17 LM **15 Claims**



1. An electrical signal interconnection apparatus providing interface connections and inter-component connections for an expandable capacity unit cabinet containing a plurality of said components, comprising:

first means, associated individually with each of said plural components, for making inter-component electrical signal connections, said first signal connection means being located at a first separate location on each said component;

means for adjustably mating with each said first signal connection means for providing inter-component signal connections, said signal connection mating means be fixedly and structurally associated with said cabinet and capable of expanded capacity mating and inter-component connections;

means for removably receiving, and positioning said expandable number of plural components;

second means, associated individually with each of said plural components, for making cabinet external interface signal connections, said second interface signal connection means being located at a second separate location on each said component,

means for lockably engaging each said component for securedly holding same in said cabinet, and

means for positioning and securedly holding interface signal connectors externally to said cabinet for mating with said second signal connection means.

4,333,697

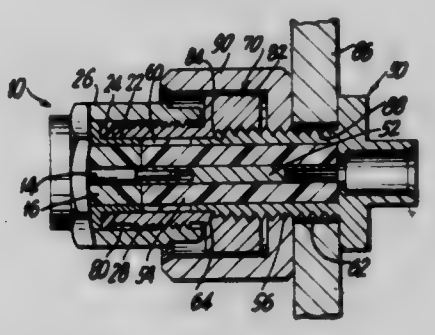
ADAPTER FOR A COAXIAL CONNECTOR

Charles W. Dreyer, Fairfield, Conn., assignor to Sealectro Corporation, Mamaroneck, N.Y.

Filed Jul. 14, 1980, Ser. No. 168,623

Int. Cl.³ H01R *13/00*

U.S. Cl. 339—31 R **6 Claims**



1. A coaxial connector comprising:

a connector member having a mating end and including a central conductor surrounded by a tubular insulator and a generally cylindrical outer conductor, said outer conduc-

tor having a threaded portion spaced from said mating end, said mating end including a plurality of longitudinally extending slits defining a plurality of cantilevered spring fingers, with the diameter of said mating end of said outer conductor being less than the diameter of said threaded portion; and

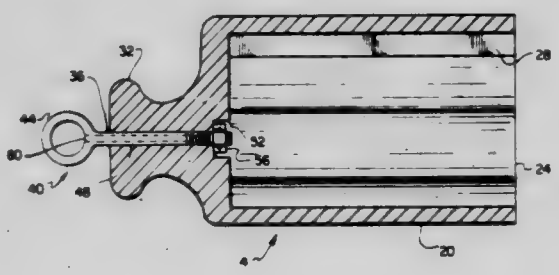
an adapter member of elongated, cylindrical configuration having a mating end, with the outer surface of said adapter being threaded, and with the inner surface thereof having major and minor diameter portions separated by a circumferential step, with the minor diameter portion being disposed adjacent the mating end thereof and having an inner diameter substantially corresponding to the outer diameter of said mating end of said conductor member, and with the major diameter portion, disposed at the opposed end of said adapter member, being threaded and adapted to engage with said threaded portion of said connector member, and wherein the mating end of said connector member is receivable within said adapter member, with the threaded portion of said connector member being threadably engaged with the threaded major diameter portion of said adapter member, such that the distal end of said threaded portion abuts said circumferential step of said adapter member whereby the configuration of the mating end of said connector member is altered.

4,333,698

COVER FOR TRUCK/TRAILER MALE ELECTRICAL PLUG

Leroy Herbert, 70 E. 100 North, Bountiful, Utah 84010

Filed Apr. 11, 1980, Ser. No. 139,163
Int. Cl.³ H01R *13/52*
U.S. Cl. 339—36 **2 Claims**



1. A cover for a truck/trailer electrical plug which has predetermined exterior side wall demensions and a guide ridge protruding from the side wall and extending longitudinally therealong said the cover including

a hollow body member made of a resilient material and formed with an opening in the front end thereof for receiving a plug, the interior sidewall deminisions of the hollow being substantially the same as the exterior side wall dimensions of the plug, said body member including a groove formed in the interior side wall of the hollow for slidingly receiving the guide ridge of the plug when the body member is placed over the plug,

channel means extending from the hollow of the body member through a rear wall thereof to allow escape of air when the cover is placed over the plug, and the entry of air when the cover is removed from the plug, and an

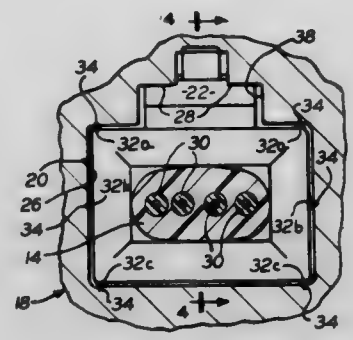
eyebolt means having an elongate bolt portion and eyelet formed at one end of the bolt portion, said eyebolt means being disposed in the rear wall of the body member with the bolt portion being imbedded in said rear wall and the eyelet being positioned outside the body member, said eyebolt means including a hollow channel formed in the bolt portion to extend the full length thereof to allow communication between the interior and exterior of the body member.

4,333,699

FLAT TELEPHONE CORD PLUG IMPROVEMENTS

William J. Brorein, Whippany, N.J., assignor to GK Technologies, Incorporated, Greenwich, Conn.

Continuation of Ser. No. 870,586, Jan. 18, 1978, abandoned. This application Sep. 10, 1979, Ser. No. 74,136
Int. Cl.³ H01R *13/62*
U.S. Cl. 339—61 M **15 Claims**



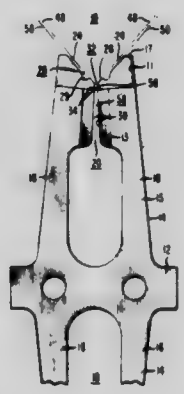
1. A telephone connection including a miniature plug for connecting telephone wires in an opening in a jack of the telephone handset or a wall jack that has an opening with side walls, said plug having a rearward end with an entrance opening therein for receiving a cord having a plurality of conductors therein, outlet openings near the other end of the plug for circuits from the conductors in the cord, protuberances normal to the longitudinal sides of the plug and at spaced positions around the perimeter of said plug, said protuberances having bases immovably secured to the plug immediately beneath them and being somewhat greater in height than a clearance between the walls of the plug and the walls of the opening in the jack into which the plug is intended to be inserted, said walls of the jack opening being in fixed relation to one another whereby the protuberances wedge the plug against movement in all directions transverse of the direction in which the plug is inserted into the opening in the jack.

4,333,700

INSULATION-PENETRATING SLOTTED BEAM CONTACT ELEMENT

William E. Pugh, III, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 23, 1980, Ser. No. 152,721
Int. Cl.³ H01R *4/02*
U.S. Cl. 339—97 R **19 Claims**



1. A slotted beam contact element (10,110) for electrically terminating an insulated conductor (220) comprised of a conductor (202) surrounded by a jacket of insulation (224), where the contact element is a substantially planar conductive structure comprising a base portion (12), a bifurcated beam (14) with substantially parallel furcations (16,116) extending from the base portion where the furcations define between them a substantially V-shaped wire-guiding entrance (18,118) near the free ends (17,117) of the furcations, and a wire-gripping slot (20,120) formed with facing furcation sidewalls (30,126) where

the sidewalls at their ends adjacent the entrance form a mouth (32,128) to the slot, the contact element being characterized by:

means for removing outer-insulation portions (228) from the insulation of the insulated conductor as the insulated conductor is guided toward the wire-gripping slot, the outer-insulation removing means being disposed at a predetermined location remote from the mouth and along the entrance, said outer-insulation removing means comprising a cutting edge on each furcation (16,116) substantially normal to the plane of the contact element, the cutting edge being defined by an intersection of a ledge (34,134) formed from a first coined region (11,130) on a first face (13,132) of the contact element with its associated entrance sidewall (26,124).

4,333,701

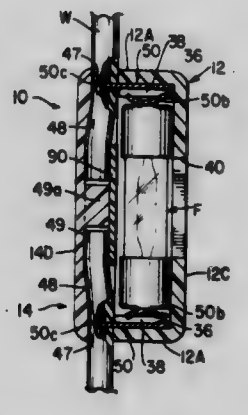
IN LINE CARTRIDGE TYPE FUSE HOLDER

Henry Schick, Commack, N.Y., assignor to Gilbert Mfg., Co., Inc., Long Island City, N.Y.

Continuation-in-part of Ser. No. 54,001, Jul. 2, 1979, abandoned. This application May 1, 1981, Ser. No. 259,587

Int. Cl.[3] H01R *13/38*

U.S. Cl. 339—97 P 10 Claims



1. An in-line holder for cartridge type fuses of the type which are elongated and have an electrically conductive piece at each end and a central section of electrically insulating material comprising:

an elongated body of an electrically insulating material formed by first and second sections,

means formed in said first section adapted for holding a current carrying insulated line having one conductor which is cut leaving two spaced opposing ends,

a terminal contact mounted in and adjacent each end of said second section in spaced relatlinship at a distance to permit the cartridge fuse to be removably held therebetween, each said terminal contact including means adapted for holding and making electrical contact with a respective conductive piece of the cartridge type fuse located between the terminal contacts, each of said terminal contacts also having formed thereon a barbed end for extending into said first section when the two sections are juxtaposed and each barbed end adapted to pierce through the insulation of the cut conductor of the insulated line held in said first section at a respective one of its cut ends to make electrical contact with the current carrying wire therein,

said first and second sections being formed as an integral unit with hinge means for connecting said two sections,

and coacting fastening means formed on the exterior of said first and second sections for holding said two sections juxtaposed together with the barbed end of each terminal contact in a position in said first section to pierce through the insulation of the respective corresponding end of the cut conductor to place the fuse held in said second section in the cut line, separation of the two sections removing said terminal contacts from the cut conductor ends and thereby removing current from the cartridge fuse.

4,333,702

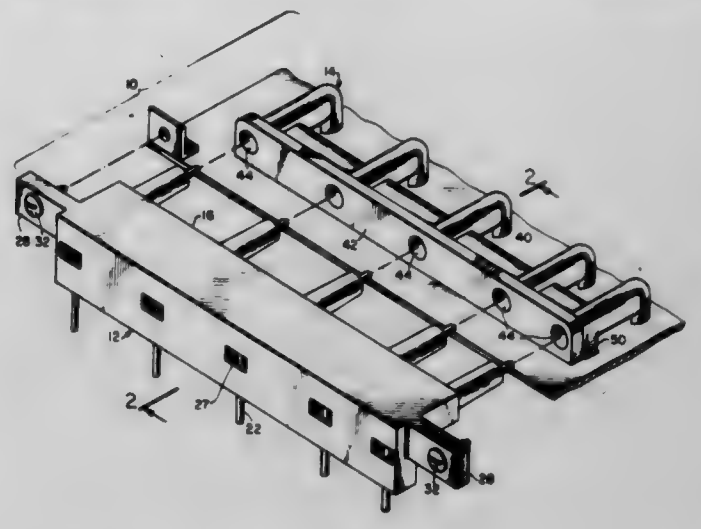
LOW COST HIGH VOLTAGE CONNECTOR

Henry O. Herrmann, Jr., Elizabethtown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 24, 1980, Ser. No. 133,368

Int. Cl.[3] H01R *13/627*

U.S. Cl. 339—217 R 12 Claims



1. A high voltage connector comprising:

a plug member having a housing defining a plurality of cavities therein, a plurality of inserts each received in a respective cavity, each insert having an intersecting bore and channel;

a like plurality of terminals each terminating a respective wire with said terminal being mounted in said bore and said wire extending through said channel; and

a header having a mating face, a plurality of bores in said mating face, a cavity intersecting each said bore, and a terminal snap fitted into said cavity to such position where it can be engaged by a respective terminal in said plug member extending through said bore, and means for mounting said header on a circuit board or the like.

4,333,703

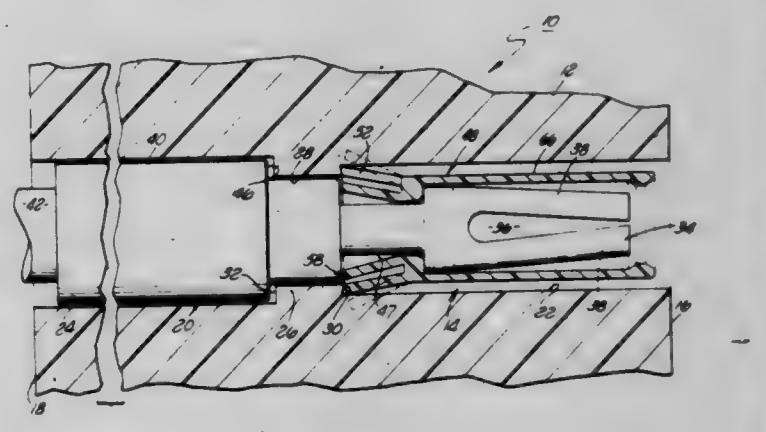
CONTACT RETENTION ASSEMBLY

John W. Anhalt, Orange, and Steven Z. Muzslay, Huntington Beach, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 19, 1980, Ser. No. 151,307

Int. Cl.[3] H01R *4/24*

U.S. Cl. 339—217 S 13 Claims



1. A front release contact retention assembly comprising:

an insulator having a passage extending therethrough from a front face to a rear face thereof;

said passage having a forwardly facing shoulder therein;

a contact mounted in said passage having an annular groove therein in front of said shoulder;

a plastic retention ring mounted on said contact, said ring embodying inner and outer rearwardly extending circular skirts, said outer skirt surrounding said inner skirt;

said inner skirt lying in said groove to retain said ring axially on said contact; and

said outer skirt being radially deflectable and extending outwardly to engage said shoulder to thereby restrict rearward movement of said contact in said passage.

4,333,704

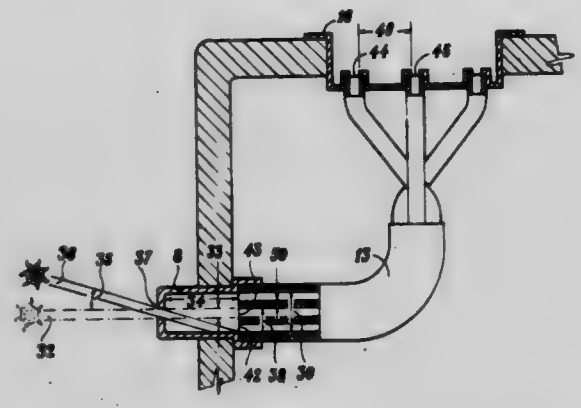
SOLAR ALIGNMENT DEVICE

Hyman Steinberg, 7200 NW. 78th St., Tamarac, Fla. 33319

Filed Apr. 18, 1980, Ser. No. 141,313

Int. Cl.[3] G02B *5/14*

U.S. Cl. 350—96.10 10 Claims



1. On a solar grill, including an outer frame defining an opening in which an essentially flat collector plate is disposed within the frame, a display device for indicating the position of the sun, relative to a position which is perpendicular to the collector plate of such grill, comprising:

an enclosure with an aperture at one end and an opening at the other end operably connected to pass light therebetween, said enclosure connected to said outer frame with the said aperture parallel to the plane of said collector plate;

a flexible, light-transmitting cable having one end connected to said opening, below said aperture, said enclosure having light-absorbing interior walls and said enclosure connected to said grill frame, and

said cable having a display end connected to said frame at a location suitable for viewing.

4,333,705

JIG FOR COUPLING OF OPTIC-WAVEGUIDE ELEMENTS

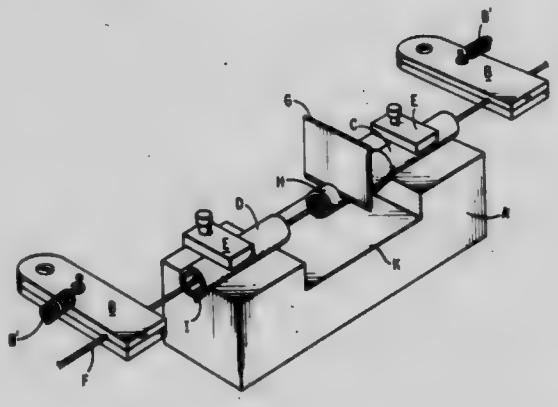
John F. Mead, Princes Risboro, England, assignor to Plessey Mandel und Investments A.G., Zug, Switzerland

Division of Ser. No. 835,918, Sep. 23, 1977, Pat. No. 4,195,045. This application Oct. 31, 1979, Ser. No. 89,724

Claims priority, application United Kingdom, Sep. 25, 1976, 39905/76

Int. Cl.[3] G02B *5/172*

U.S. Cl. 350—96.20 4 Claims



1. A jig for the accurate attachment of a surrounding sleeve to an optical fibre including means for detachably mounting in accurate axial alignment with each other a precision-made accurate axial alignment with each other, a precision-made cylindrical sleeve which is to be attached to the fibre, and which is closed at one end by an end wall having a coaxial bore closely fitting the fibre and, at an axial distance from this sleeve, a second cylindrical sleeve of similar construction; and means for releasably applying longitudinal tension to a length of fibre which has been threaded through the bores in the respective end walls of the two thus mounted cylindrical sleeves, and which extends through the whole length of at least the first-mentioned sleeve, said jig being further equipped with means for guiding a knife blade to a position at which it engages the fibre, in a plane normal to the fibre, at a predetermined point between the two mutually facing ends of the cylinder sleeves.

4,333,706

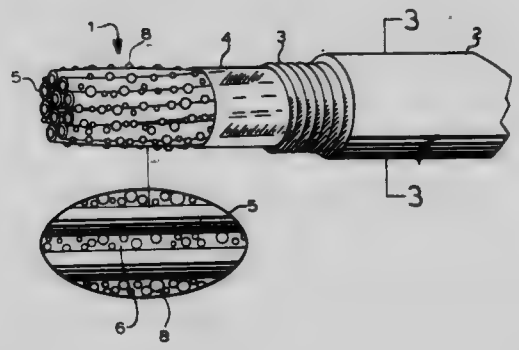
FILLING MATERIALS FOR COMMUNICATIONS CABLE

Lawrence E. Davis, Hickory, and Naren I. Patel, Valdese, both of N.C., assignors to Siecor Corporation, Hickory, N.C.

Continuation-in-part of Ser. No. 106,866, Dec. 26, 1979, abandoned. This application May 2, 1980, Ser. No. 146,339

Int. Cl.[3] B32B *17/00;* G02B *5/16;* H02G *15/20*

U.S. Cl. 350—96.23 16 Claims



1. A cable comprising a plurality of conductors arranged to define a plurality of interstices therebetween, a jacket circumferentially surrounding said conductors, the improvement comprising a cable filler mixture disposed of said interstices, said mixture comprising 62 to 95 weight percent petrolatum, 1 to 8 weight percent low molecular weight polyethylene and 1 to 35 weight percent inorganic hollow micropheres having a particle density from 0.12 to 0.6 gms/cm^3 and diameters up to 325 microns, said polyethylene being dissolved in said petrolatum.

4. A cable comprising a plurality of conductors arranged to define a plurality of interstices therebetween, a jacket circumferentially surrounding said conductors, the improvement comprising a cable filler material disposed in said interstices, said material comprising 60 to 98 weight percent petrolatum, 1 to 15 weight percent glycerol hydroxy stearate and 1 to 39 weight percent inorganic hollow microspheres having a particle density from 0.12 to 0.6 gms/cm^3 and diameters up to 325 microns, said glycerol hydroxy stearate being dissolved in said petrolatum.

4,333,707

METHOD OF IMAGE ENHANCEMENT

Laurice J. West, 24 Morningside Dr., Yardley, Pa. 19067

Continuation-in-part of Ser. No. 32,729, Apr. 23, 1979, abandoned. This application Sep. 18, 1980, Ser. No. 188,340

Int. Cl.[3] G02B *27/22;* H04N *9/54, 5/72*

U.S. Cl. 350—144 2 Claims

1. A method of viewing a substantially two-dimensional visual image in an image plane comprising the steps of: locating optical bending means in a path through which said image is viewed by an observer at a position between said image plane and said observer such that any two rays emanating from substantially any point on said image plane pass through said

optical bending means and diverge in the place between said observer and said bending means; maintaining substantially the same perceived overall image size for both the eyes of the observer with said optical bending means; and selectively bending light rays extending from said image plane to the eyes of the observer; using said optical bending means, so that, for substantially any two horizontally spaced points in the image plane, the left and right eyes of the observer perceive a different horizontal spacing between said points; in which said selective bending step is carried out by optical bending means in the form of a transparent sheet having a refractive index higher



than that of air and having undulating horizontal cross-sections, and in which the distance h between the high points of the peaks and the low points of the adjacent valleys of the undulations is at least approximately ten times greater than sd_1/d_2 where s is the interocular spacing of the observer, d_1 is the closest distance between the image plane and the surface of the optical bending means nearest the image plane, and d_2 is the distance between the image plane and the observer, and in which the undulations are formed so that the effective focal length at substantially any location on the surface of the optical bending means is at least approximately 400 mm.

4,333,708

MECHANICALLY MULTISTABLE LIQUID CRYSTAL CELL

Gary D. Boyd, Rumson; Julian Cheng, Little Silver, and Peter D. T. Ngo, Colts Neck, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

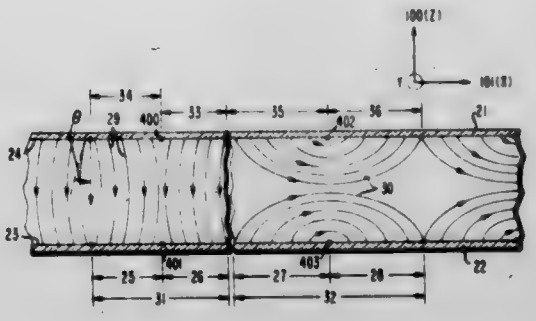
Filed Nov. 30, 1979, Ser. No. 98,976
Int. Cl.³ G02F *1/133*
U.S. Cl. 350—346 27 Claims

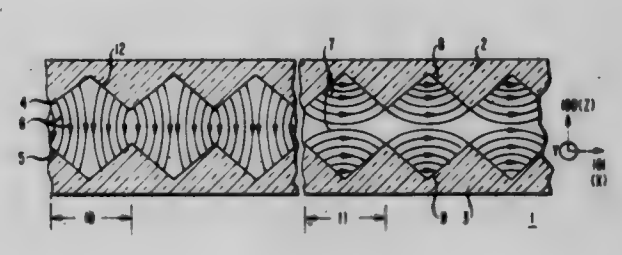
1. A mechanically bistable liquid crystal cell comprising a liquid crystal material having orientational directors disposed between a first substrate surface of a first substrate and a second substrate surface of a second substrate, said first substrate surface and second substrate surface being substantially planar and parallel to each other, said liquid crystal material being mainly in the nematic mesophase;

characterized in that

said first and second substrate surfaces being fabricated such that the directors adjacent to each surface are parallel aligned and the alignments alternate from a positive angle to a negative angle with respect to a normal to each substrate surface, which normal points into said liquid crystal material, the angle being between 22.5 and 67.5 degrees;

the boundary provided by said first and second substrate surfaces contains at least two singular points of orientational alignment in a plane perpendicular to said substrate surfaces where said alignments alternate from a positive angle to a negative angle, one of said two singular points serving as the source of a disclination which can be moved by an externally applied field and the other one of said two





singular points serving as the point at which the disclination can be pinned after it has completed its movement.

4,333,709

MIXTURE OF DISC-LIKE LIQUID CRYSTALS, ELECTRO-OPTICAL DEVICE USING SUCH A MIXTURE AND PROCESS FOR ORIENTING THE MOLECULES OF THE MIXTURE

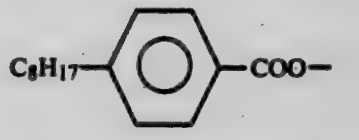
Jean-Claude Dubois; Annie Zann; Jean Billard, and Michel Hareng, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 3, 1980, Ser. No. 212,598
Claims priority, application France, Dec. 7, 1979, 79 30121; Feb. 22, 1980, 80 03977
Int. Cl.³ C09K *3/34*; G02F *1/13*
U.S. Cl. 350—350 R 11 Claims

1. A mixture of liquid crystals having a nematic mesophase consisting essentially of a mixture of hexasubstituted triphenylene derivatives, the molecules of said derivatives being substituted in positions 2, 3, 6, 7, 10 and 11 with six identical substituent radicals wherein said mixture comprises a first derivative wherein the substituent radicals have the formula

$$C_7H_{15}—COO—$$

and a second derivative wherein the substituent radicals have the formula



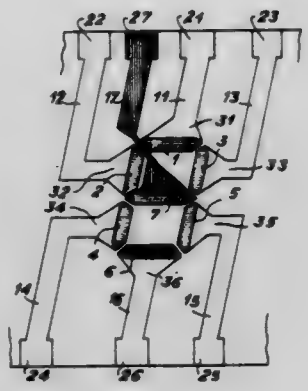
wherein the proportions of said first derivative and said second derivative are chosen so that the nematic mesophase exists over a temperature range useful in a liquid crystal electro-optical display device.

4,333,710

ELECTRODE SYSTEM FOR ELECTROLYTIC DISPLAY MEANS WITH SEVEN SEGMENTS

Jacques Duchene, Saint Ismier, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Jun. 23, 1980, Ser. No. 161,921
Claims priority, application France, Jun. 28, 1979, 79 16740
Int. Cl.³ G02F 1/17
U.S. Cl. 350—357 3 Claims



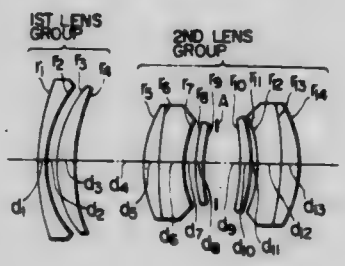
1. A system of electrodes for electrolytic display means with seven segments, comprising on one wall seven electrodes constituted by a first thin transparent conductive film in the form of a segment having two large sides, said electrodes being subdivided into six peripheral electrodes and one central electrode, each electrode being connected to a second thin conductive film deposited on said wall and forming a current lead, each current lead being connected to a connector, wherein each lead comprises a constricted zone followed by an enlarged zone leading to one of the large sides of one of the electrodes, the constriction relative to the current lead associated with the central electrode being positioned between two adjacent peripheral electrodes.

4,333,711

ZOOM LENS FOR COPYING

Takayuki Itoh, Tokyo; Ryota Ogawa, Kawagoe, and Yasunori Arai, Asaka, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 29, 1980, Ser. No. 154,261
Claims priority, application Japan, Jun. 20, 1979, 54-77925
Int. Cl.³ G02B 15/14
U.S. Cl. 350—426 1 Claim



1. A zoom lens for a copying system comprising, in order from the object side, a first lens group having a negative focal length and a second lens group having a positive focal length, the distance between said first and second lens groups being variable while the distance between the object surface and the image surface is maintained constant, movement of said first lens group being primarily to maintain constant the distance between the object and image surfaces and movement of said second lens group serving primarily a variator effect, said first lens group comprising a first negative meniscus lens convex toward the object and a first positive meniscus lens convex toward the object, said second lens group comprising a fixed focus lens used for copying and a diaphragm, said fixed focus lens comprising, in order from said diaphragm, a second positive meniscus lens concave toward said diaphragm, a second negative meniscus lens concave toward said diaphragm and a third positive meniscus lens concave toward the object, said third positive meniscus lens and said second negative meniscus lens being cemented to one another, said second and third positive meniscus lenses and said second negative meniscus lens being disposed on the object side of said diaphragm and, in order from said diaphragm, a fourth positive meniscus lens concave toward said diaphragm, a third negative meniscus lens concave toward said diaphragm, and fifth positive meniscus lens concave toward said diaphragm, said fifth positive meniscus lens and said third negative meniscus lens being connected to one another, said fourth and fifth positive meniscus lenses and said third negative meniscus lens being disposed on the image side, and said zoom lens satisfying the following conditions:

$F_\infty = 5.6 \quad f = 247.2 - 255.0$

$NA = 0.0523 \sim 0.0446 \quad M = -1/\sqrt{2} \sim -1$

$\omega = 14.17° \sim 16.26°$

Surface No.	r	d	N	ν
1	98.943	5.00	1.51633	64.1
2	54.662	6.09		
3	54.954	9.99	1.51112	60.5
4	81.487	38.06 ~ 5.00		
5	53.339	9.01	1.69350	53.2
6	167.595	12.42	1.61293	37.0
7	41.833	7.10		
8	65.070	4.50	1.60311	60.7
9	110.597	19.91		
10	−149.268	5.00	1.60311	60.7
11	−76.765	5.74		
12	−43.201	12.51	1.57309	42.6
13	−107.943	9.07	1.67790	55.3
14	−60.832			

$M_{max}/M_{min} = 1.414$
$|f_I|/f_{min} = 5.1$
$r_{IP}/f_{min} = 0.222$
$\Delta D_{I,II}/f_{min} = 0.134$
$D_{I\sim A}/f_{min} = 0.393$

4,333,712

CHANGE-OVER DEVICE FOR ZOOM LENS

Yasumasa Tomori, Sakada, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 1, 1980, Ser. No. 136,211
Claims priority, application Japan, Apr. 16, 1979, 54/46513
Int. Cl.³ G02B 7/10
U.S. Cl. 350—430 5 Claims

1. A zoom lens, including a stationary lens mount for attachment to a camera, wherein a zooming operation is carried out by moving a single normal operational barrel along an optical axis and a focusing operation of a front lens group is carried out by the rotation of the single normal operational barrel around the optical axis, comprising:

a plurality of lens groups including said front lens group for focusing and second and third lens groups for zooming;

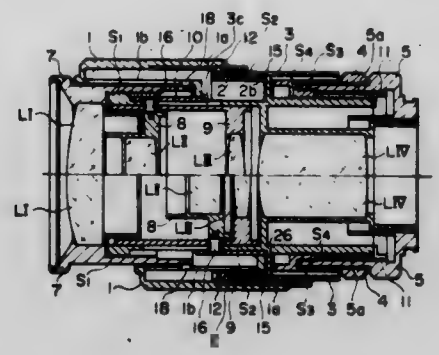
cooperating means for rotating said single normal operational barrel;

a second focusing operational barrel for moving all of the

lens groups for performing macro photographing operations;

a support barrel for supporting said lens groups, said support barrel being movable along the optical axis but not rotatable around the optical axis; and

a change-over rod slidably mounted on said support barrel, said change-over rod being axially movable between a first position and a second position, said change-over rod being selectively engageable and disengageable from said normal operational barrel and said second focusing operational barrel at a predetermined focusing position for normal photographing, said change-over rod being engaged with said normal operational barrel through said cooperating means at said first position, and said change-over rod being engaged with said second operational barrel at said second position, wherein at the first position, rotation of said normal operational barrel is prevented, each of said lens groups being integrally movable for macro photographing with one another with a spacing between said lens groups being maintained constant.

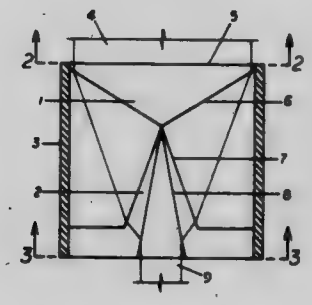


4,333,713

CONICAL BEAM CONCENTRATOR

John E. Clegg, 2320 Keystone Dr., Orlando, Fla. 32806

Filed May 6, 1981, Ser. No. 260,583
Int. Cl.[3] G02B *13/18*
U.S. Cl. 350—432 1 Claim



1. A conical beam concentrator comprising an upper component lens mounted above a lower component lens inside a casing, with each component lens having one or two conical sections with surfaces which refract light rays at prescribed angles, with all conical sections being aligned on a common axis which is parallel to the light rays entering and exiting the component lenses, with all surfaces of the component lenses not used for the refraction and transmission of light rays being opaque;

(a) with the upper component lens having a planar section which receives parallel rays emanating from the sun, and a convex conical section which receives parallel rays transmitted from the planar section,

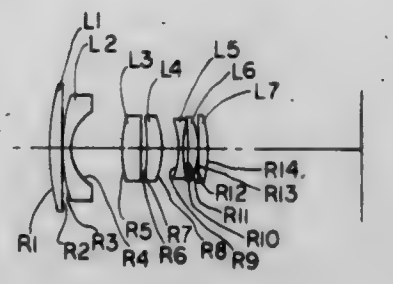
(b) with the lower component lens having a convex conical section which receives parallel rays refracted by the convex conical section of the upper component lens, and a concave conical section which receives parallel rays refracted by the convex conical section of the lower component lens and which refracts the rays out of the lower component lens in a direction parallel to the common axis of the conical sections.

4,333,714

COMPACT WIDE ANGLE LENS

Melvyn H. Kreitzer, Cincinnati, Ohio, assignor to Vivitar Corporation, Santa Monica, Calif.

Continuation-in-part of Ser. No. 941,529, Sep. 11, 1978, abandoned. This application Feb. 4, 1980, Ser. No. 118,519
Int. Cl.[3] G02B *13/04*
U.S. Cl. 350—460 7 Claims



1. A retrofocus lens comprising from the object end, a first group of negative power consisting of a positive element and a negative meniscus convex to the object, a second group having convex object and image side surfaces, and a third group comprising a biconcave element and two positive elements convex to the image end, and

$$1.2k_o > |k_1| > 0.9k_o$$

$$1.6k_o > k_2 > 1.2k_o$$

where

k_o is the optical power of the lens,

k_1 is the absolute optical power of the first group,

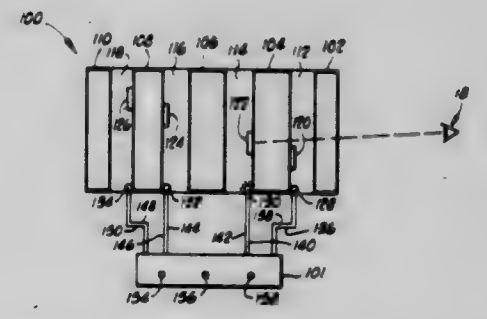
k_2 is the optical power of the second group, and the third group is of relatively weak optical power.

4,333,715

MOVING PICTURE APPARATUS

Philip A. Brooks, 436 NW. 46th Ter., Oklahoma City, Okla. 73118

Continuation-in-part of Ser. No. 941,146, Sep. 11, 1978, Pat. No. 4,294,516. This application Apr. 30, 1979, Ser. No. 34,293
Int. Cl.[3] G03B *25/00*; G09F *13/00*; G02F *1/133*
U.S. Cl. 352—98 2 Claims



1. An apparatus for creating the effect upon a viewer of moving related images, as in a motion picture, comprising:

a display structure including a stacked array of a plurality of transparent members and gate members alternately positioned so that said stacked array has a first end thereof defined by a respective one of the transparent members and a second end thereof defined by another respective one of the transparent members and said stacked array also has a plurality of gate members disposed between consecutive transparent members, whereby there are a plurality of sets of facing surfaces of consecutively stacked transparent members, each set being disposed adjacent the two major surfaces of an associated gate member;

a plurality of pairs of image producers associated with said

display structure, each pair of said image producers comprising solely:

a first transparent electrode having a predetermined size, shape and position of the total pictorial image to be displayed, corresponding to a respective moment of the motion, said first transparent electrode being disposed on a respective one of the facing surfaces of a respective one set of these sets of facing surfaces;

a second transparent electrode having a predetermined size, shape and position which is the mirror image of the predetermined size, shape and position of said first transparent electrode, said second transparent electrode being disposed in axial alignment with said first transparent electrode on the other facing surface of the respective set of facing surfaces with which said first transparent electrode is associated; and

a scanning controller means, electrically connected to a plurality of pairs of image producers, for sequentially activating at a selectable rate each of said image producers so that each set of first and second transparent electrodes representing a respective total pictorial image to be displayed in motion become periodically visible to the viewer so the effect of motion is imparted thereto.

4,333,716

FOCUS DETECTION SYSTEM

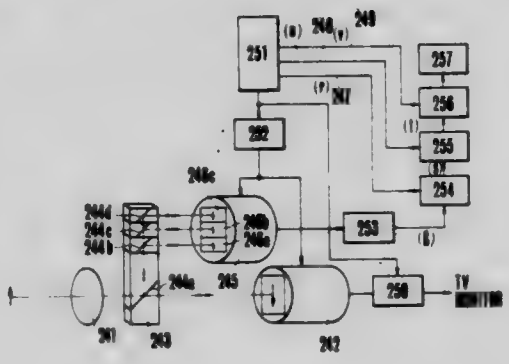
Toshio Sakane, Yokohama; Kazuya Hosoe, Machida; Tokuichi Tsunekawa, Yokohama; Takao Kinoshita, Tokyo, and Takashi Kawabata, Kamakura, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 29, 1979, Ser. No. 98,514

Claims priority, application Japan, Dec. 4, 1978, 53-150379

Int. Cl.³ G03B *7/099*

U.S. Cl. 354—25 **39 Claims**



18. An optical arrangement for receiving image forming radiation coming from an image forming optical system, said arrangement comprising in combination:

(A) a beam dividing member for receiving said image forming radiation coming from said image forming optical system and for dividing the received radiation into a plurality of radiation components to form at least three images with differing path lengths to their respective imaging points from the image forming optical system; and

(B) a plurality of radiation sensitive portions, each respectively for receiving said radiation components divided by said beam dividing member, said portions being arranged at different positions on a common plane.

4,333,717

CAMERA HAVING FOCUS DETECTION DEVICE

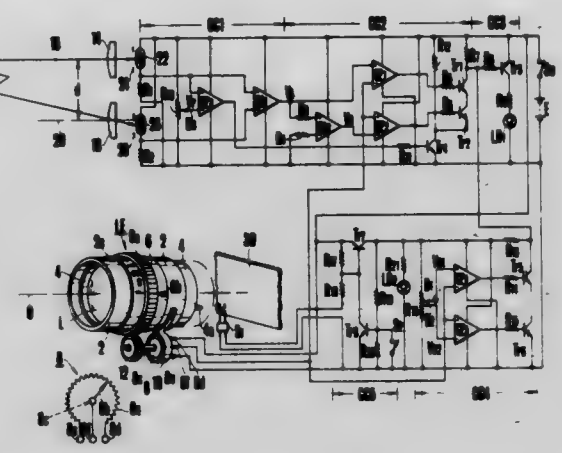
Shuichi Tamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 922,647, Jul. 7, 1978, Pat. No. 4,247,187. This application Dec. 31, 1980, Ser. No. 221,701

Claims priority, application Japan, Jul. 14, 1977, 52-84410; Aug. 5, 1977, 52-93998

Int. Cl.³ G03B *3/10*

U.S. Cl. 354—25 **6 Claims**



1. A device comprising:

(A) lens means adjustable along an optical axis for focusing on an object;

(B) distance detecting means for detecting the distance of the object and producing an electrical indication indicative of the object distance;

(C) first indicating means correlated with said lens means for producing an electrical indication indicative of the position of the lens means on the optical axis;

(D) second indicating means for providing an electrical indication indicative of at least one limited distance;

(E) selecting means for automatically selecting one of the electrical indications produced by said distance detecting means and the electrical indication provided by said second indicating means; and

(F) output indicating means response to the electrical indication selected by said selecting means and to the electrical indication produced by said first indicating means for producing an output indication which is available for setting the lens means to a position at which the lens means is focused to the distance indicated by the electrical indication selected by the selecting means.

4,333,718

PHOTOGRAPHIC FLASH CONTROL CIRCUITRY HAVING SELECTIVELY OPERABLE INTERNAL SENSOR

James R. Adams, Jr., Littleton, and Francis T. Ogawa, Lakewood, both of Colo., assignors to Rollei of America, Inc., Littleton, Colo.

Filed Jan. 16, 1980, Ser. No. 112,605

Int. Cl.³ G03B *15/05*

U.S. Cl. 354—31 **13 Claims**

1. Flash control circuitry for use with a photographic camera, comprising:

terminal means for receiving an electrical control signal;

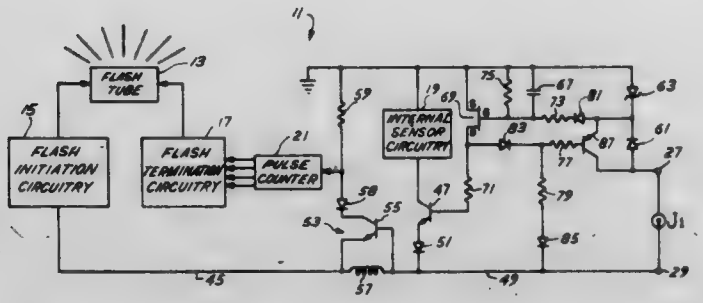
flash means for producing a photographic flash; and

circuit means interconnecting said terminal means and said flash means for initiating the flash of said flash means for producing light for illuminating an object to be photographed by the camera, and for automatically terminating the flash after a predetermined quantity of light has been received from the object, said circuit means including:

(i) means responsive to an electrical control signal received by said terminal means for firing said flash means;

(ii) light responsive integrating means arranged to receive

light from the object for effecting automatic termination of the flash of said flash means, said integrating means having a first state in which said integrating means is enabled for controlling flash termination and a second state in which said integrating means is disabled from controlling flash termination;



(iii) control means responsive to an electrical control signal received by said terminal means, for placing said integrating means in one of said first and second states;

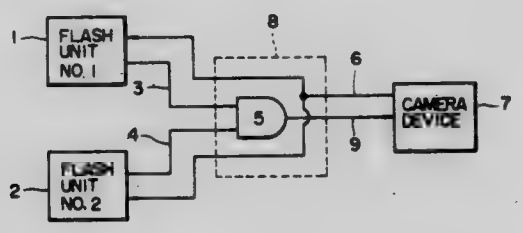
said second-named control signal and said third-named control signal being different voltage signals.

4,333,719

MULTIPLE FLASH ADAPTOR

Satoshi Takami, Niiza; Teruo Hagiwara, Ageo; Toru Kando, Tokyo, and Yoshifumi Kuroki, Tsurugashima, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 4, 1981, Ser. No. 240,422
Claims priority, application Japan, Mar. 10, 1980, 55/30825[U]
Int. Cl.³ G03B *15/05*
U.S. Cl. 354—132 1 Claim



1. A multiple flash adaptor for causing a plurality of flash units to simultaneously emit light in response to actuation by a single camera device, said camera device detecting electrical signals produced by said plurality of flash units when said plurality of flash units become ready for operation, comprising:

a logical product circuit having inputs coupled to receive output signals from each flash unit indicative of the operatability of the flash unit and an output coupled to a single input of said camera device.

4,333,720

STOP CONTROL DEVICE

Ryoichi Suzuki, Kawasaki, and Takashi Uchiyama, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 11, 1980, Ser. No. 158,463
Claims priority, application Japan, Jun. 14, 1979, 54-74799
Int. Cl.³ G03B *9/56*
U.S. Cl. 354—227 5 Claims

1. A camera stop device having a controllable stop aperture so that a quantity of light corresponding to an effective T number can be selected to pass through the device, comprising:

(a) stop means including a physical property member responsive to a control signal to provide a variable light transmission factor, said member being arranged to form a light transmitting part of a first area and a light shielding part of a second area according to the values of said light transmission factor for said light transmitting part and said light shielding part; and

(b) a control circuit coupled to said physical property member for providing said control signal to select said first and said second areas according to a number of stopping steps



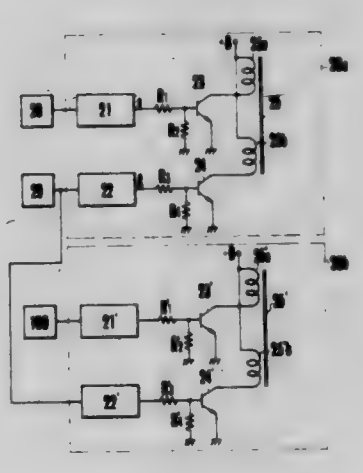
wherein the stop aperture corresponding to each stopping step is determined by the selected first area of said light transmitting part, said selected first area being determined in such a manner that the effective T number for each stopping step does not deviate from the equal multiplicative sequence.

4,333,721

ELECTROMAGNETICALLY DRIVEN SHUTTER

Syozo Yoshida, Machida, and Yoji Sugiura, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 26, 1980, Ser. No. 163,405
Claims priority, application Japan, Jul. 3, 1979, 54-84179
Int. Cl.³ G03B *9/08*
U.S. Cl. 354—234 6 Claims



1. In an electromagnetically operated shutter having a first shutter member and a second shutter member with a slit opening formed therebetween being rendered adjustable to control an exposure, the improvement comprising:

(a) a first electromagnet for driving said first shutter member, said electromagnet having first and second magnetic coils which produce magnetic fluxes in directions opposite to each other, whereby the current supply to said first magnetic coil causes forward movement of said first shutter member, and the current supply to said second magnetic coil causes backward movement of said first shutter member;

(b) a first switching element connected to said first magnetic coil, said switching element when actuated causing current to flow through said first magnetic coil;

(c) a second switching element connected to said second magnetic coil, said element when actuated causing current to flow through said second magnetic coil;

(d) a second electromagnet for driving said second shutter member to move, said electromagnet having third and fourth magnetic coils which produce magnetic fluxes in directions opposite to each other, whereby the current supply to said third magnetic coil causes forward movement of said second shutter member and the current sup-

ply to said fourth magnetic coil causes backward movement of said second shutter member;

(e) a third switching element connected to said third magnetic coil, said element when actuated allowing current to flow through said third magnetic coil;

(f) a fourth switching element connected to said fourth magnetic coil, said element when actuated allowing current to flow through said fourth magnetic coil;

(g) release actuating signal forming means;

(h) counting means for producing a shutter closing signal in a time necessary to take an exposure from the start of an exposure actuation;

(i) a first circuit alternatively receptive of a release actuating signal and a shutter closing signal, said circuit responsive to said release actuating signal for producing a signal which causes said first switching element to be actuated, and responsive to said shutter closing signal for producing a signal which causes said second switching element to be actuated; and

(j) a second circuit receptive of said shutter closing signal and said release actuating signal in the reverse order to that in which they enter said first circuit, said circuit responsive to said shutter closing signal for producing a signal which causes said third element to be actuated, and responsive to said release actuating signal for producing a signal which causes said fourth element to be actuated.

4,333,722

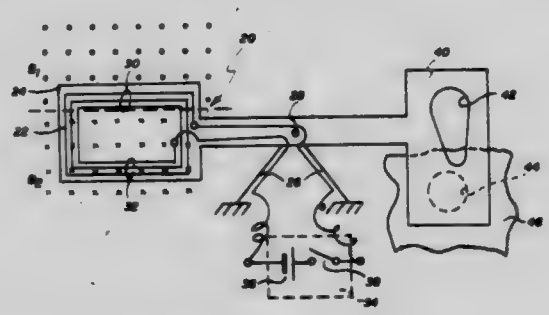
METHOD OF CONTROLLING ELECTROMAGNETIC ACTUATOR IN A CAMERA, AND ACTUATOR CONTROLLABLE THEREBY

James K. Lee, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,168

Int. Cl.³ G03B 9/02, 9/62

U.S. Cl. 354—234 **9 Claims**



1. In a camera, of the type having an electromagnetic actuator, including an armature having an electrical conductor movable in a magnetic field in response to an electrical current being applied to the conductor, and means for urging the armature toward a relative rest position; the improvement comprising control circuit means for supplying a series of current pulses to said conductor, the frequency of said pulses being above the cutoff frequency of said actuator, such that the duration of said pulses in said series determines the extent of movement of said armature, and the number of pulses in said series determines the duration of the movement.

3. In a camera of the type having an electromagnetic actuator including an armature having a conductor, means for producing a magnetic field in the vicinity of the conductor, means for mounting the armature for displacement relative to the magnetic field producing means in response to an electrical current being applied to the conductor, conductor means for applying an electrical current to the armature conductor and spring means connected between the armature and the magnetic field producing means for urging the armature toward a rest position, the improvement wherein:

said mounting means, said conductor means, and said spring means comprise a conductive flexure hinge having first and second conductive flexible elements, said armature conductor being electrically connected between said flexible elements.

4,333,723

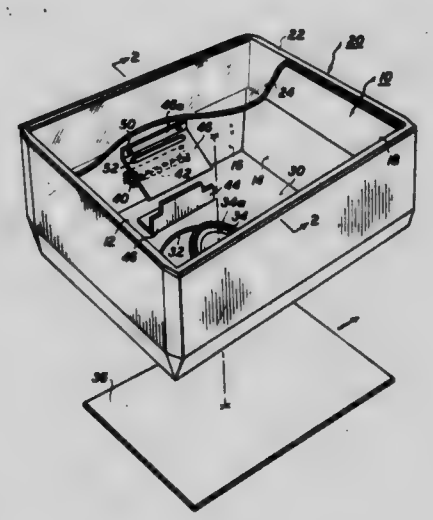
FULL FRAME FLASH ILLUMINATION SYSTEM UTILIZING A DIFFUSE INTEGRATING OPTICAL CAVITY

Frederick A. Green, Fairport; George R. Simpson; Stephen T. Avery, both of Rochester, and John A. Durbin, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 15,557, Feb. 26, 1979, abandoned. This application Jan. 23, 1980, Ser. No. 114,480

Int. Cl.³ G03B 27/72

U.S. Cl. 355—71 **7 Claims**



1. A full frame, flash illumination system for a document copying machine comprising:

a housing having a top surface defining an object plane and containing a platen for supporting a document to be copied, a bottom surface accommodating a lens for focusing an image of a document onto an image plane, said housing completely enclosed by side walls joined to said top and bottom surfaces, said housing further characterized by having its interior surfaces completely covered with a high reflectivity material such that said surfaces are highly diffusely reflective to light incident thereon,

a single flash illumination source positioned within said housing between said top and bottom surfaces,

a blocking element positioned between the source and the platen of sufficient length and width to prevent direct illumination from the source from reaching any portion of the platen, said element including an aperture therein, and

means to intermittently pulse said illumination source to produce light flashes of pre-defined direction and intensity a portion of said light passing through said aperture, said flashes undergoing multiple reflections from said coated surfaces to achieve a uniformly diffuse irradiation at the platen.

4,333,724

PHOTOELECTRIC DETECTOR

Hiroshi Honma, Hino, Japan, assignor to Hochiki Corporation, Tokyo, Japan

Filed Jun. 26, 1980, Ser. No. 163,073

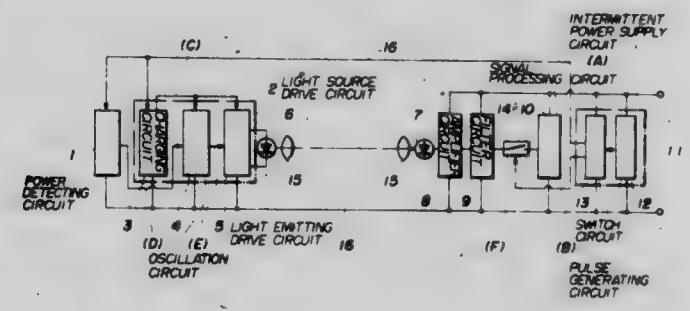
Claims priority, application Japan, Jun. 27, 1979, 54-80095; Jul. 3, 1979, 54-83446

Int. Cl.³ G01N 21/00

U.S. Cl. 356—437 **3 Claims**

1. In a photoelectric detector wherein a light transmitting section including a light source and a light receiving section for receiving and processing a light signal from the light transmitting section are disposed remote from each other and connected through a power line to detect a change in a transmitted light amount due to cut-off or attenuation of light beams therebetween, the improvement comprising: an intermittent power

supply circuit for intermittently supplying power to the light transmitting section and outputting a pulse corresponding to intermittently supplied power; a power detecting circuit for detecting the intermittent power to output a control signal depending upon the detected conditions; said intermittent power supply circuit and said power supply detecting circuit being provided in one and the other of the light transmitting section and the light receiving section, respectively; a light source drive circuit provided in the light transmitting section and adapted to be controlled with respect to the illumination period by the intermittent power supply or the control signal to illuminate the light source intermittently; and a switch circuit provided in the light receiving section and driven according to said control signal or said pulse to control transmission or processing of a received light signal or a signal based thereon in synchronism with the intermittent illumination of the light source; said power detecting circuit being provided in said light transmitting section; said intermittent power supply



circuit is provided in the light receiving section; said light source drive circuit includes a charging circuit adapted to be charged during the power supply period and to illuminate said light source in response to the control signal from said power detecting circuit, using the charged electric charge at said charging circuit when no power is supplied; said intermittent power supply includes a pulse generating circuit for intermittently producing pulses to intermittently supply the power and to drive said switch circuit; and said switch circuit is driven by said pulses to operate for allowing transmission or processing of the received light signal or the signal based thereon when no power is supplied; a short circuit connected between the power source output terminals at the light receiving section which communicate with the power lines to the light transmitting section; said short circuit being adapted to made the impedance between the power lines low to discharge electric charge of mutual capacitance between the lines only during those periods when said intermittent power supply circuit does not power the light transmitting section.

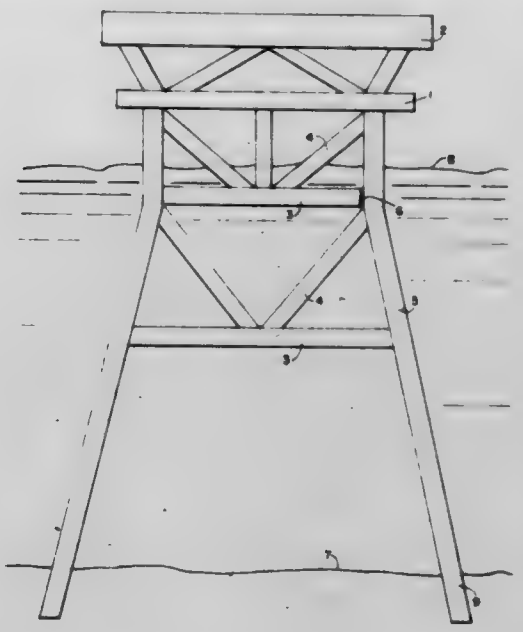
4,333,725

COMPRESSION STRESSED WELD JOINTS ON OFFSHORE PLATFORMS

Marvin L. Peterson, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Continuation of Ser. No. 790,504, Apr. 25, 1977, abandoned.
This application Jun. 2, 1978, Ser. No. 912,164
Int. Cl.³ F16B *11/00*
U.S. Cl. 403—271 **9 Claims**

1. In a weld joint joining in fluid-tight relationship the end of a first elongated hollow tubular structural member to the side of a second elongated tubular structural member wherein at least a portion of the weld joint is subject to cyclic tension and stress, the improvement comprising: means for applying a compressive load to the weld joint subsequent to solidification of the weld joint sufficient to place the weld joint in compressive stress, the means for applying compressive load being internal in the hollow tubular members, the external environment being a corroding marine environment, and the interior of the hollow tubular structural members being additionally protected from the external environment by filling with con-



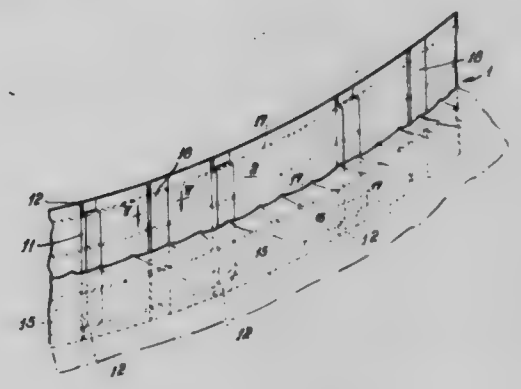
crete, an inert gas, or organic polymer, a potting material, an oily material, a paraffinic material, or bitumen.

4,333,726

WATER BARRIER FLOTATION CURTAIN

Kaj O. H. Fuxelius, Billingsfors, Sweden, assignor to Billingsfors Bruks Aktiebolag, Billingsfors, Sweden

Continuation of Ser. No. 641,504, Dec. 17, 1975, abandoned.
This application May 11, 1977, Ser. No. 795,806
Int. Cl.³ E02B *15/04*
U.S. Cl. 405—72 **8 Claims**



1. A water barrier flotation curtain comprising an elongated barrier provided with floating means and sinking means balanced to maintain the curtain in an essentially vertical floating position with its upper elongated edge area positioned above water level, characterized in that the barrier is made of a longitudinally flexible, water-resistant, elongated paper web having at spaced intervals, parallel, vertical, rectangular ribs alternating with rectangular panels, said panels having a uniform thickness transversely and longitudinally and said ribs being narrow relative to said panels and said curtain being capable of being rolled upon itself into an easily handleable package; in that said web is made of two continuous paper sheets, which are laminated together with a laminating material and which at intervals, as seen in the longitudinal direction of the barrier, are separated to provide said ribs, at least some of which comprise vertical pockets which house said sinking means in the bottom portion thereof and said floating means in the top portion thereof with the sinking means and floating means being so balanced in said pockets that, without any other sinking and floating means, said barrier is maintained in the desired essentially vertical floating position with its upper elongated edge area positioned above the water level; in that said panels have a thickness determined solely by the thickness of said sheets and said laminating material; and in that some of

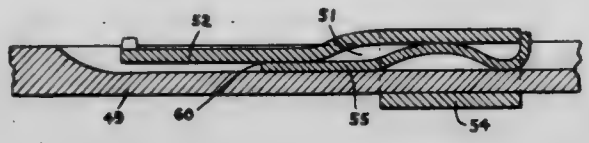
the ribs comprise portions of said web folded back on itself into reinforcing ribs.

4,333,727

COMPOSITE ROTARY TOOL INCLUDING HOLE FORMING MEANS AND A DEBURRER OR CHAMFERER

Donald C. Bennett, 2 Sullivan Way, East Brunswick, N.J. 08816

Filed Sep. 23, 1977, Ser. No. 835,905
Int. Cl.[3] B23B *51/00*
U.S. Cl. 408—191 2 Claims



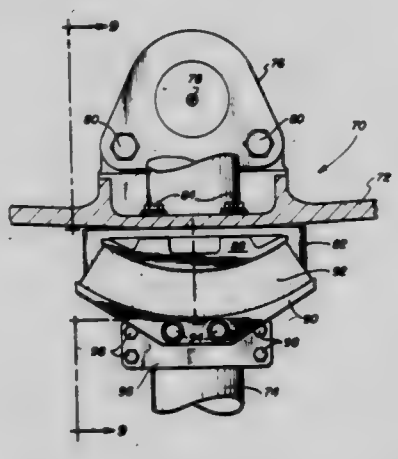
1. A composite rotary tool including a drill having a front and rear end, a drill shaft at the rear end of the drill, a groove formed in the drill shaft and extending in a direction away from the rear end of the drill, a cantilever support mounted at least partially in the groove, a cutter carried by the cantilever support and extending in the direction of the drill for removing a small amount of material from an edge of a hole following the drilling operation, the cantilever support including a split ring and a cantilevered spring member supporting the cutter and means for adjusting tension of the spring member.

4,333,728

COMPOUND HUB SPRING SYSTEM FOR HELICOPTERS

Jan M. Drees, Dallas County; Larry W. Dooley, and William D. Neathery, both of Tarrant County, all of Tex., assignors to Textron, Inc., Providence, R.I.

Continuation-in-part of Ser. No. 823,624, Aug. 11, 1977, abandoned. This application Aug. 29, 1979, Ser. No. 70,877
Int. Cl.[3] B64C *27/52*
U.S. Cl. 416—134 A 14 Claims



1. A rotor blade mounting for a flapping main rotor of a helicopter with a rotatable drive mast, comprising:

a trunnion attached to the mast, said trunnion including structure extending from opposite sides thereof to define a teetering axis;

a yoke mounted on said trunnion for pivotal movement about said teetering axis, said yoke having rotor blades attached thereto;

first elastomeric spring means connected between said yoke and mast for continuously opposing flapping of the rotor blades with a restraining shear bias of predetermined first spring rate, said first spring means being disposed in spaced relationship with the teetering axis; and

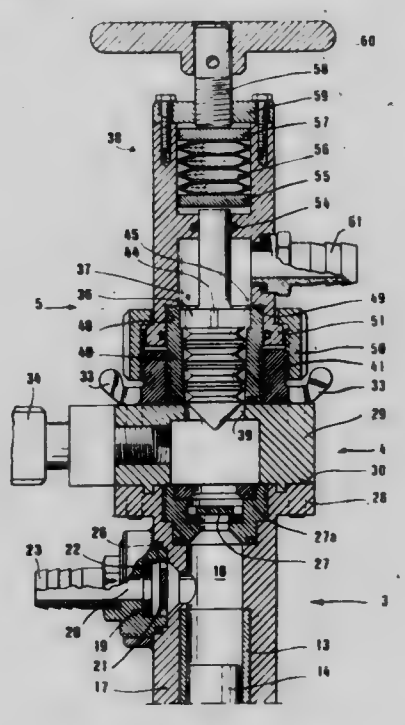
second elastomeric spring means mounted on said yoke to engage said mast for opposing flapping of the rotor blades beyond a preselected flapping angle with a restraining compression bias of relatively higher second spring rate so that overall the flap-opposing bias is nonlinear, said second spring means being positioned on opposite sides of the mast in spaced apart relationship with the teetering axis.

4,333,729

APPARATUS FOR HOMOGENIZING LIQUID AND VISCOUS SUBSTANCES

Max H. Marugg, Zizers, Switzerland

PCT No. PCT/EP78/00002, § 371 Date Feb. 28, 1979, § 102(e) Date Feb. 28, 1979, PCT Pub. No. WO79/00020, PCT Pub. Date Jan. 25, 1979
PCT Filed Jun. 26, 1978, Ser. No. 15,952
Claims priority, application Fed. Rep. of Germany, Jul. 1, 1977, 2729855
Int. Cl.[3] F04B *39/12, 39/14*
U.S. Cl. 417—313 14 Claims



1. Homogenizing apparatus for liquid and pulpy substances, consisting of a high-pressure pump with a crank drive and at least one piston arranged in a cylinder block, driven by means of connecting and side rods, and connected to a homogenizing device placed on a cylinder block, which device has a homogenizing head that consists of a sleeve with a smooth spherical bore up on the outlet side and a plunger held by axial compression arranged in this borehole, which plunger consists of a solid section of essentially truncated cone-shaped surface area, onto which axial and successive step rings are built, each of which steps are placed with their outer periphery toward the borehole, is characterized by the fact that an intermediate chamber, which may be opened, is placed between homogenizing unit and cylinder head of the high-pressure pump and further characterized in that the high-pressure pump/formed with horizontal cylinders is joined by means of a trough to the crankshaft drive and crankcase holding leak-proof guidebars, that trough holds guidebar with side rods joined to piston, and that ring-shaped collars are arranged on side rods.

CHEMICAL

4,333,730
META-PHENYLENEDIAMINES, DYEING COMPOSITIONS IN WHICH THEY ARE PRESENT AND THE CORRESPONDING DYEING PROCESS

Andree Bugaut, Boulogne; Majdi M. Shahin, Paris; Jean-Jacques H. Vandenbossche, Aulray-Sous-Bois, and Gregoire Kalopissis, Neuilly sur Seine, all of France, assignors to Societe Anonyme dite: L'Oreal, Paris, France

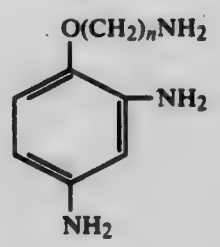
Filed Apr. 18, 1980, Ser. No. 142,572

Claims priority, application France, Apr. 26, 1979, 79 10683

Int. Cl.³ A61K *7/13*

U.S. Cl. 8—407 **32 Claims**

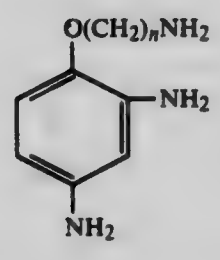
1. A compound of the formula:



(I)

in which n is equal to 2, 3 or 4, or an acid salt thereof.

4. A composition suitable for dyeing human hair in the presence of an oxidizing agent selected from the group consisting of hydrogen peroxide, urea peroxide and ammonium persulfate, said composition comprising an aqueous solution of at least one oxidation base and, as a coupler, at least one compound having the formula



(I)

in which n is equal to 2, 3 or 4, or an acid salt thereof.

4,333,731
METHOD AND APPARATUS FOR THE MANUFACTURE OF TANNED HIDES AND SKINS

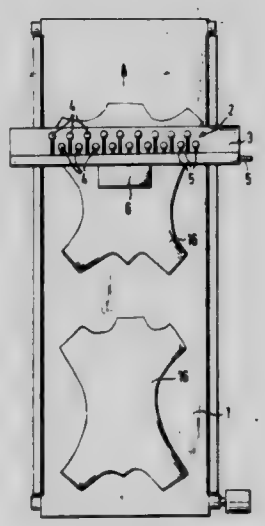
Peter Schindlmayr, Rheinbach, and Horst Zäpfel, Karlsruhe, both of Fed. Rep. of Germany, assignors to Arenco-BMD Maschinenfabrik GmbH, Karlsruhe, Fed. Rep. of Germany

Filed Jul. 12, 1979, Ser. No. 56,849

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1978, 2831617

Int. Cl.³ C14C *15/00, 1/04, 1/06, 3/30*

U.S. Cl. 8—436 **12 Claims**



1. Method for the manufacture of tanned hides and skins with the following steps of procedure:

(a) Soaking of the hide,
(b) Liming in alkaline medium,
(c) Deliming in acid medium,
(d) Bating by proteolytic enzymes,
(e) Pickling by means of acids and salts,
(f) Tanning by means of chromium -III- salts,
(g) Retanning, and
(h) Fatliquoring of the hide,

wherein the solutions or liquids used in one or more of the procedure steps are introduced into the hide or skin by injection of the solutions or liquids into the hide or skin under a pressure of greater than 50 bars.

4,333,732
DYESTUFF PREPARATIONS CONTAINING OXALKYLATES OF MODIFIED NATURAL ROSIN ACIDS

Reinhold Deubel, Bad Soden am Taunus; Konrad Opitz, Liederbach; Hubert Kruse, Kelkheim; Manfred Schneider, Eppstein, and Heinz Uhrig, Steinbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 13, 1979, Ser. No. 75,032

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1979, 2924404

Int. Cl.³ C09B *67/00*; D06P *1/16*

U.S. Cl. 8—527 **15 Claims**

1. A dyestuff preparation, comprising a water-insoluble dyestuff and water-soluble oxalkylate of the formula

$$A\text{-}[(X\text{-}O)_n\text{-}H]_m,$$

wherein

A is selected from the group consisting of radicals of

(a) modified natural rosin acids, each of which is obtained by disproportionation, dimerization, hydrogenation or dehydrogenation of a natural rosin acid or by reaction of colophony with an aromatic hydroxy compound, or aryl, aralkyl or cycloalkyl compound capable of splitting off halogen,

(b) esterification products of natural rosin acids, and esterification products of modified natural resin acids as defined in (a), each obtained by esterifying 1 to 4 mols of such natural rosin acid or modified natural rosin acid with 1 mol of a di-, tri-, tetra-, penta- or hexahydric alcohol, and mixtures of said esterification products, and

(c) maleinate rosins obtained from colophony by reaction with maleic anhydride and subsequent esterification of the anhydride group;

X stands for a group or groups, either identical or different, of the formulae $—CH_2—CH_2—$ and $—CH_2—CH(CH_3)—$;

n stands for a number of from 8 to 100; and

m stands for a number of from 1 to 5.--;

4,333,733
CONTINUOUS RELEASE OF REAGENT IN AN ANALYTICAL ELEMENT TO REDUCE ASSAY INTERFERENCE

Karl J. Sanford, and Jon N. Eikenberry, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 17, 1980, Ser. No. 169,704

Int. Cl.³ G01N *21/78, 31/22, 33/68*

U.S. Cl. 23—230 B **27 Claims**

25. A method for the selective determination of an analyte in an aqueous fluid containing said analyte, said method comprising

(a) contacting a sample of said fluid with a reaction zone of a multizone dry analytical element having a reaction zone in fluid contact with a dry reagent zone; said reagent zone being impermeable to said analyte and interferents to an assay for said analyte and includes a reagent composition

comprising a chromogenic indicator which interacts with said analyte and interferents to produce a color response; and said contacting causes release of said reagent composition from said reagent zone to said reaction zone at a rate sufficient to produce an analyte color response corresponding to

(1) the interaction of said indicator with said analyte, and

(2) reduced interaction of said indicator with interferents; and

(b) determining said analyte from said analyte color response.

4,333,734

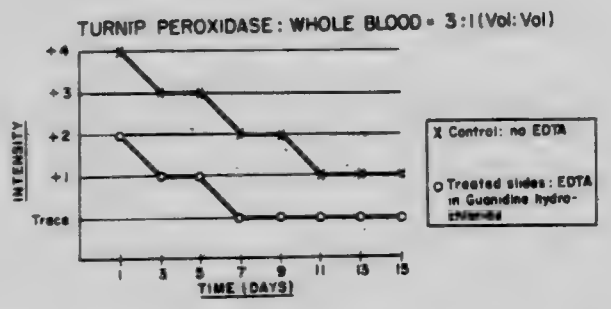
DIAGNOSTIC DEVICE FOR FECAL OCCULT BLOOD AND METHOD OF USE

Martin Fleisher, Glen Cove, N.Y., assignor to Sloan-Kettering Institute for Cancer Research, New York, N.Y.

Continuation-in-part of Ser. No. 113,414, Jan. 18, 1980, abandoned. This application Oct. 8, 1980, Ser. No. 195,220

Int. Cl.³ G01N *21/78, 33/72*

U.S. Cl. 23—230 B **12 Claims**



1. In a process for determining the presence of fecal occult blood in a test sample using a test matrix containing guaiac, the improvement for preventing false-positive results in the presence of peroxidase enzymes comprising the steps of

at least partially denaturing the protein forming the peroxidase enzymes with an effective amount of a compound from the group consisting of soluble salts of guanidine, urea and salicyclic acid to attenuate enzymatic activity; and

effectively removing from reaction with the peroxidase enzymes, magnesium and/or calcium ions, necessary for efficient biochemical activity of the peroxidase enzyme.

4,333,735

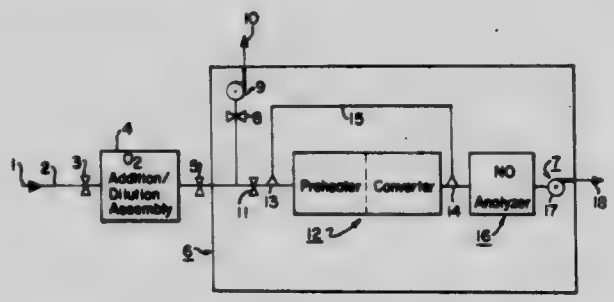
PROCESS AND APPARATUS FOR MEASURING GASEOUS FIXED NITROGEN SPECIES

James E. Hardy, Scotch Plains, and John J. Knarr, South Plainfield, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Mar. 16, 1981, Ser. No. 244,205

Int. Cl.³ G01N *21/75, 31/12*

U.S. Cl. 23—232 R **20 Claims**



1. An improved process for measuring the total concentration of fixed nitrogen species, including NO, NO_2, NH_3 and HCN, in a gaseous mixture involving the steps of contacting said gaseous mixture with a conversion catalyst at elevated temperature and in the presence of excess elemental oxygen and thereby converting said fixed nitrogen species to NO and measuring the resulting NO concentration and calculating therefrom said total concentration of gaseous fixed nitrogen species, in which the improvement comprises the combined steps of:

(a) reducing the pressure of said gaseous mixture to about 0.03 MPa or below;

(b) preheating said gaseous mixture from step (a) to a temperature in the range of about 700°–1100° K in a non-catalytic preheat zone; and

(c) contacting said preheated gaseous mixture from step (b) with said conversion catalyst at a temperature in the range of about 800°–1100° K. for a sufficient time to convert substantially all of said gaseous fixed nitrogen species to NO.

4,333,736

METHOD OF UTILIZING SOLAR PONDS FOR EFFECTING CONTROLLED TEMPERATURE CHANGES OF SOLUTIONS PARTICULARLY IN PROCESSES INVOLVING THE DISSOLUTION AND/OR PRECIPITATION OF SALTS

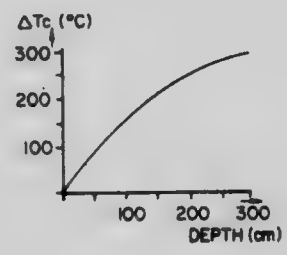
Sraya Shachar, Ramat Gan, Israel, assignor to Solmat Systems Ltd., Jerusalem, Israel

Filed Jan. 21, 1980, Ser. No. 113,782

Claims priority, application Israel, Jan. 26, 1979, 56510

Int. Cl.³ B01D *9/02*

U.S. Cl. 23—295 S **29 Claims**



1. A method of changing the salt content of a solution, comprising: establishing a non-convective solar pond including the salt, which pond is heated by solar radiation and has a stable salt-concentration gradient and a stable temperature gradient increasing from the top of the pond to the bottom thereof, the bottom layer of the pond being a substantially saturated solution at a predetermined temperature; introducing a feed solution containing the salt directly into the bottom layer and circulating same through the bottom layer; said predetermined temperature of the bottom layer being different from the initial temperature of the feed solution when introduced into the pond bottom layer and being selected to effect a change in solubility, and thereby a change in the salt content, of the feed solution by causing salt in the feed solution to be precipitated therefrom or additional salt to be dissolved in the feed solution; and withdrawing the resulting depleted or enriched feed solution.

4,333,737

RECLAMATION OF MATERIALS FROM PHOTOFLASH CARTRIDGES

Francis E. Montgomery, Bloomfield; James E. Short, Jr., Switz City, and William J. Weaver, Washington, all of Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 30, 1981, Ser. No. 258,984

Int. Cl.³ B01D *9/02, 11/02;* B01F *1/00*

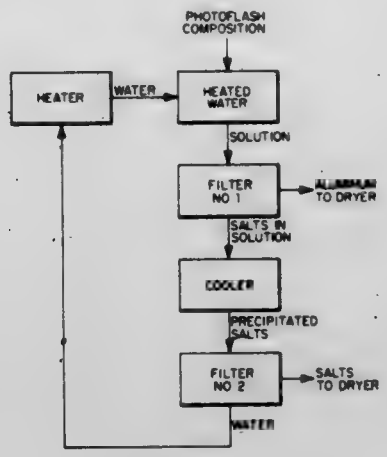
U.S. Cl. 23—297 **3 Claims**

1. A process for reclaiming the chemical ingredients in photoflash cartridges comprised of aluminum powder, potassium perchlorate and barium nitrate, said process comprising,

first dissolving said potassium perchlorate and said barium nitrate in water heated to about 130 degrees F.,

then filtering said aluminum powder from the heated water solution,

then cooling said water solution to about 75 degrees F. to



precipitate said potassium perchlorate and said barium nitrate, and

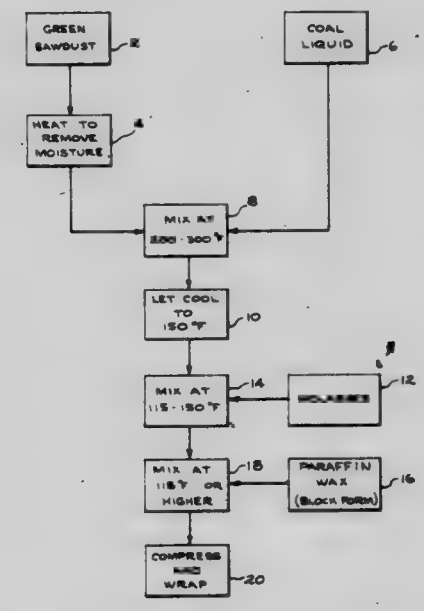
then filtering said potassium perchlorate and said barium nitrate from the water.

4,333,738

SYNTHETIC FIRE LOG AND METHOD FOR MAKING SAME

Jimmy Schrader, Louisville, Ky., assignor to John S. Mathis, Shelbyville, Ky., a part interest

Filed Nov. 24, 1980, Ser. No. 209,717
Int. Cl.³ C10L *5/10*
U.S. Cl. 44—15 B **10 Claims**



1. A method for making synthetic fire logs, the steps of which comprise

providing a quantity of relatively dry sawdust,

mixing said quantity of relatively dry sawdust with of coal liquid, molasses and wax at an elevated temperature at least sufficient to melt said wax and form a thoroughly incorporated mixture,

compressing said mixture in a mold to form a compacted mass, and

removing said compacted mass from said mold after said mass has cooled to a suitable handling temperature wherein the proportion of coal liquid mixed in said mixture is in a range of about 6–32 percent by weight of the total weight of said green sawdust, coal liquid, molasses and wax used to form said mixture.

4,333,739

BLENDED ETHANOL FUEL

Alan M. Neves, 1596 24th St., Ogden, Utah 84401

Filed Oct. 23, 1979, Ser. No. 87,618
Int. Cl.³ C10L *1/02*
U.S. Cl. 44—52 **11 Claims**

1. A fuel comprising:

an ethanol base having a composition by volume percent of about 70% to about 85% ethanol and about 30% to about 15% water;

a volatile hydrocarbon component in an amount of about 4% to about 10% by volume of the ethanol base, said hydrocarbon component being selected from the group consisting of lower alkanes, alkenes, alkynes, dienes, or cyclo-forms thereof, having from 1 to 6 carbon atoms; and

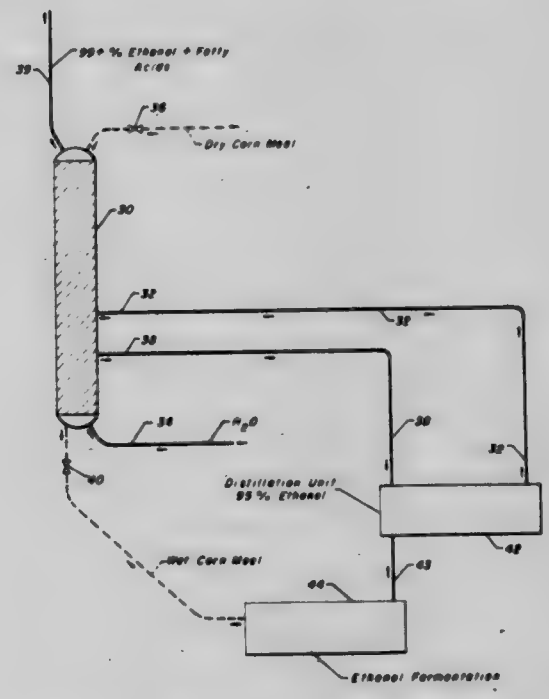
benzene in an amount sufficient to prevent separation of the water from the other components of the fuel.

4,333,740

PROCESS FOR THE SEPARATION OF WATER FROM ETHANOL

James W. Priegnitz, Elgin, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Dec. 23, 1980, Ser. No. 219,746
Int. Cl.³ C10L *1/02*; C07C *29/76*
U.S. Cl. 44—56 **17 Claims**



1. A process for separating water from a feed mixture comprising ethanol and water which process comprises contacting at adsorption conditions said mixture with an adsorbent consisting essentially of corn meal which process comprises the steps of:

(a) maintaining a plurality of chambers containing said adsorbent serially connected by connecting conduits, said chambers comprising three sections, an adsorption section, a flush section and a reload section, each section comprising one or more whole chambers and having separate operational functions occurring therein:

(b) maintaining net liquid flow in a single direction through said adsorption section and said flush section;

(c) maintaining said adsorption section defined by chambers located between a feed inlet stream at the upstream boundary of said section and a raffinate outlet stream at the downstream boundary of said section;

(d) maintaining said flush section upstream from said adsorption section, said flush section having the operational function of displacing ethanol from the chambers in the flush section with water, said flush section defined by at least a portion of the chambers located between a water inlet stream at an upstream boundary of said flush section and said feed inlet stream;

(e) passing said feed mixture into said adsorption section at adsorption conditions to effect the selective adsorption of water by said corn meal and withdrawing a raffinate outlet stream from said adsorption zone, the ethanol concentration in said outlet stream being greater than the ethanol concentration in said feed mixture;

(f) periodically advancing through said chambers in a downstream direction with respect to said net fluid flow all streams, including the feed inlet stream, raffinate outlet stream, and water inlet stream to effect the shifting of sections through said chambers, the operational function of the chambers comprising said reload section prior to said advancement changing to the furthermost downstream chambers of said adsorption section subsequent to said advancement, and the operational function of a like number of chambers comprising the furthermost upstream chambers of said flush section prior to said advancement changing to the reload section subsequent to said advancement; and

(g) replacing the wet corn meal with dry corn meal in the chambers comprising the reload section during the time between each periodic advancement.

2. The process of claim 1 wherein said feed mixture comprises about 95 wt. % ethanol and about 5 wt. % water.

8. A process for separating water from a feed mixture comprising ethanol and water which process comprises contacting at adsorption conditions said mixture with an adsorbent consisting essentially of corn meal which process comprises the steps of:

(a) maintaining net liquid flow upward through a vertical column of said adsorbent in a single direction, which column contains at least two zones, an adsorption zone and a flush zone, each zone having separate operational functions occurring therein and being serially interconnected with the terminal zones of said column connected to provide a continuous connection of said zones;

(b) maintaining net flow of corn meal downward through said column;

(c) maintaining said adsorption zone in said column defined by the adsorbent located between a feed inlet stream at an upstream boundary of said zone with respect to the direction of said fluid flow and the top of said column at a downstream boundary of said zone;

(d) maintaining a flush zone upstream from said adsorption zone, said flush zone defined by at least a portion of the adsorbent located between the bottom of said column at an upstream boundary of said flush zone and said feed inlet stream;

(e) passing said feed stream into said adsorption zone at adsorption conditions to effect the selective adsorption of water by said adsorbent in said adsorption zone and withdrawing a raffinate outlet stream from said adsorption zone, the ethanol concentration in said outlet stream being greater than the ethanol concentration in said feed mixture;

(f) passing said water inlet stream into said flush zone to effect the displacement of said ethanol from the adsorbent in said flush zone; and

(g) continuously introducing dry corn meal into the top of said column and withdrawing wet corn meal from the bottom of said column.

9. The process of claim 8 wherein said feed mixture comprises about 95 wt. % ethanol and about 5 wt. % water.

15. The process of either of claims 2 or 9 wherein fatty acids contained in said raffinate outlet stream are removed by mixing said stream with hydrocarbon liquid to obtain a product mixture, thereby effecting the formation of a precipitate containing said fatty acids, which precipitate is then filtered from said product mixture to obtain a product mixture of reduced fatty acid content.

4,333,741

OLEFIN-ACRYLONITRILE COPOLYMERS AND USES THEREOF

Michael I. Naiman, and Rudolf S. Buriks, both of St. Louis, Mo., assignors to Petrolite Corporation, St. Louis, Mo.

Filed Jun. 27, 1977, Ser. No. 810,342
Int. Cl.³ C10L *1/22*
U.S. Cl. 44—62 **14 Claims**

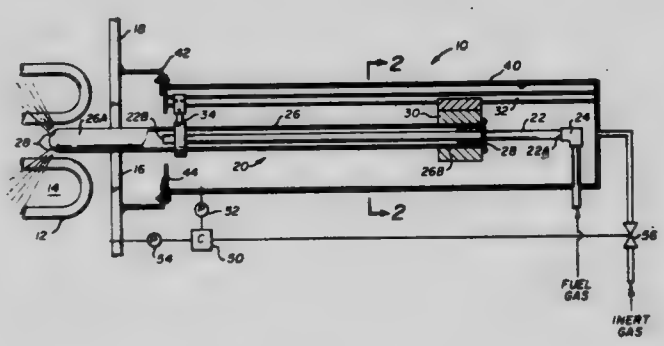
1. A composition having increased electrical conductivity comprising a liquid hydrocarbon and an anti-static amount of a copolymer of a 1-alkene and acrylonitrile where the 1-alkene has from 6 to 28 carbon atoms, the ratio of acrylonitrile to 1-alkene is 1:1 to 5:1 and where the molecular weight of the copolymer is from about 1,000 to about 100,000.

4,333,742

SOOT BLOWER USING FUEL GAS AS BLOWING MEDIUM

Michael C. Tanca, Tariffville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Mar. 4, 1981, Ser. No. 240,427
Int. Cl.³ C10J *3/86*
U.S. Cl. 48—77 **2 Claims**



1. In combination with a coal gasifier having a furnace defined by a bounding wall wherein coal is gasified to generate a hot combustible product gas, and having at least one heat exchange tube bundle disposed within the furnace so that the hot combustible product gas must traverse the tube bundle before leaving the furnace, a soot blower assembly comprising:

a. a soot blower lance having an inlet end for receiving the hot combustible product gas and a discharge end through which the hot combustible product gas is directed into the furnace so as to impinge upon the tube bundle, the discharge end of said lance being translatable into and out of said furance;

b. drive means operatively associated with said soot blower lance for moving the discharge end of said lance into and out of said furnace;

c. a gas tight enclosure surrounding the combination of said soot blower lance and said drive means, said enclosure having one open end mounted to the furnace about an access opening in the wall of the furnace through which the discharge end of said soot blower lance passes to gain access to the heat exchange tube bundle disposed within the furnace; and

d. supply means for injecting inert gas into said gas tight enclosure so as to maintain the gas pressure within said gas tight enclosure higher than the gas pressure within the furnace.

4,333,743

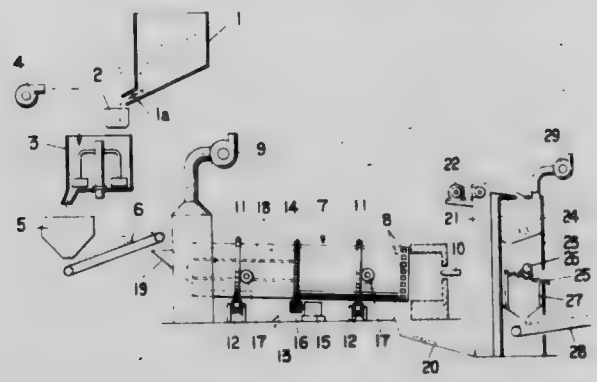
SAND-BLASTING ABRASIVE MATERIALS AND METHOD OF PRODUCING THE SAME

Nobuo Nojima, Hyogo, Japan, assignor to Nojimagumi Co., Ltd., Hyogo, Japan

Filed Oct. 25, 1977, Ser. No. 845,139
Int. Cl.² C09G *1/16*; B24B *37/00*
U.S. Cl. 51—298 **3 Claims**

1. A method of producing pulverized abrasive materials for

sand blasting, comprising the steps of: carrying out a first phase by adding two parts of a thermosetting resin, to which one part of a setting catalyst has been added, to 100 parts of a pulverized material of grade No. 4, selected from the group that consists of silica sand and slag; uniformly mixing them while blowing heated air thereinto at about 80° to 100° C., constituting a first heat treatment, so as to coat the resulting pulverized sand-blasting abrasive material with the resin in a fixed thickness, to dry and to thermally set the resin coating on the abrasive material; and carrying out a second, separate phase by a subsequent re-heating treatment at about 300° C. while stirring up, so as to change chemically the resin coating, obtained on the



abrasive material in the first heat treatment, and to render the coating unsoluble and unmeltable while leaving the abrasive material in the pulverized condition; the coating increasing the strength of the abrasive material by penetrating into cracks inherent in the abrasive material so that a substantial proportion of the pulverized abrasive material can be recovered after the sand blasting for re-use; whereby the heat, generated by impact when the abrasive material is blown against a surface, to be cleaned by the sand blasting, leaves the unsoluble and unmeltable coating in this state, and actually continues the setting of that coating so that sand-blasting efficiency is increased; and whereby dust formation during the sand blasting is reduced, thereby increasing environmental protection.

4,333,744

TWO-FEED PRESSURE SWING ADSORPTION PROCESS

Andrija Fuderer, Antwerp, Belgium, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 9, 1981, Ser. No. 241,638
Int. Cl.³ B01D *53/04*
U.S. Cl. 55—25 **20 Claims**

1. An improved pressure swing adsorption process for the separation and purification of hydrogen contained in a gas stream having a relatively high concentration of carbon dioxide therein comprising:

(a) pretreating at least about 30% up to about 80% by volume of said gas stream to remove a substantial portion of said carbon dioxide therefrom, the unpretreated gas stream having a carbon dioxide content of at least about twice that of the thus-pretreated gas stream;

(b) passing the pretreated gas stream at an elevated adsorption pressure to the feed end of an adsorbent bed capable of adsorbing carbon dioxide and other impurities of said stream, a purified hydrogen stream being withdrawn from the product end of the bed having an advancing adsorption front therein;

(c) upon completion of step (b), passing the unpretreated gas stream to said feed end of the bed at essentially the same pressure as in step (b), a second adsorption front being created at the higher concentration and adsorption loading of carbon dioxide, a purified hydrogen stream continuing to be withdrawn from the product end of the bed;

(d) concurrently depressurizing said bed to release void space gas from the product end of the bed;

(e) countercurrently depressurizing said bed to a lower desorption pressure to desorb and release carbon dioxide and other impurities from the feed end of the bed;

(f) repressurizing said bed to said elevated adsorption pressure; and

(g) repeating said steps (b)–(f) for the separation and purification of additional quantities of hydrogen;

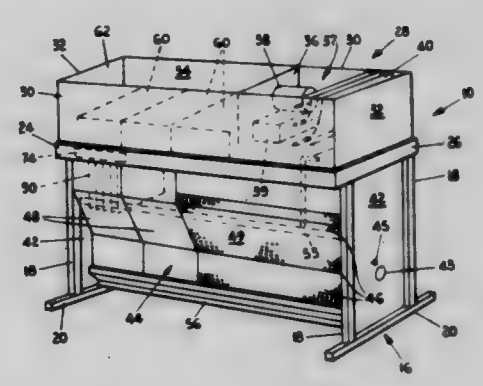
whereby the recovery of purified hydrogen is enhanced at a significant savings in equipment and operating costs as compared with the pretreatment of all of the gas stream for removal of carbon dioxide therefrom.

4,333,745

WORKBENCH FILTERING STATION AND METHOD

Ernest J. Zeanwick, Muskegon, Mich., assignor to Textron, Inc., Providence, R.I.

Filed Nov. 28, 1980, Ser. No. 211,257
Int. Cl.³ B01D *46/02*; F24F *3/16*
U.S. Cl. 55—97 **16 Claims**



1. A workbench filtering station comprising:

an open support frame;

a first pair of parallel, spaced vertical panels suspended from said support frame;

a second pair of parallel, spaced vertical panels secured to said support frame and perpendicular to said first pair of panels;

said first and second pair of vertical panels enclosing said open support frame to thereby define a generally open interior;

gas flow inlet means provided on at least one of said panels for communicating with said open interior, said gas flow inlet means including a perforated area having a selected ratio of open area to solid area disposed on a portion of said at least one panel of said first pair of panels, said perforated area regulating the volume of air drawn into the generally open interior;

first filter means having a first filtering efficiency arranged in said generally open interior and in communication with said gas flow inlet means for cleaning the gas flow to a first selected particulate level;

second filter means having a filtering efficiency greater than said first filter means, said second filter means being supported on said frame and disposed in a chamber in fluid communication with said generally open interior so as to clean the gas flow to a second selected particulate level;

fan means mounted on said frame for providing a constant volume gas flow through said generally open interior wherein said fan means maintains a selected static pressure at the outlet thereof; and

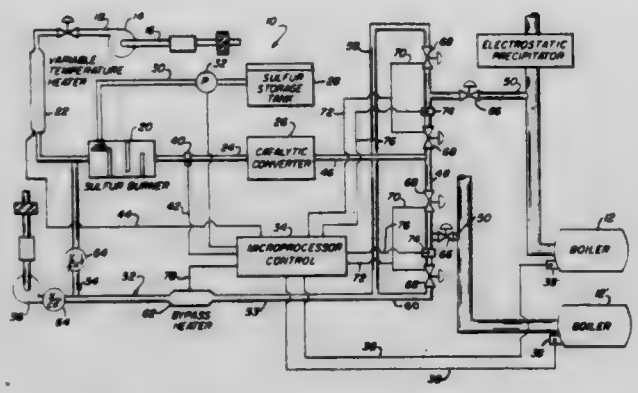
exhaust means in communication with said chamber in which said second filter means is disposed for discharging a clean gas flow.

4,333,746

GAS CONDITIONING MEANS FOR A PLURALITY OF BOILERS

Barry Southam, San Juan Capistrano, Calif., assignor to Wahlco, Inc., Santa Ana, Calif.

Filed Apr. 24, 1981, Ser. No. 257,343
Int. Cl.[3] B03C *3/34*
U.S. Cl. 55—106 10 Claims



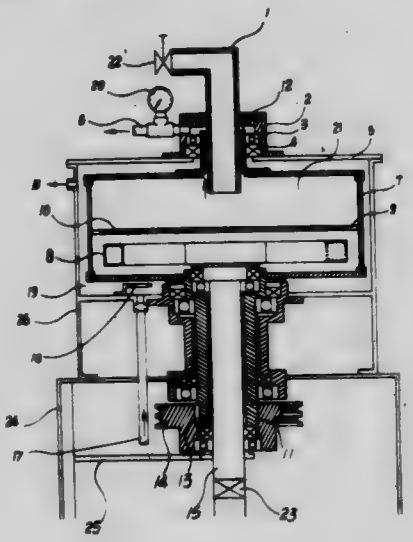
1. In a sulfur trioxide conditioning system which includes heater means for heating air and means for conditioning a first flow of air, which has been heated by a first section of said heater means, to produce a sulfur dioxide conditioning mixture which is thereafter passed through a catalytic converter to produce a sulfur trioxide conditioning mixture, the improvement comprising: a plurality of independent injection portions, each of which communicates with a respective one of a plurality of independent boiler flue gas streams; directing means for selectively directing such sulfur trioxide conditioning mixture through said injection portions; purging means for selectively directing an unconditioned purge flow of air, which has been heated by said heater means, through respective ones of said independent injection portions for the purging thereof for a predetermined period after such sulfur trioxide conditioning mixture is no longer being directed therethrough; means for maintaining said purge flow of air at a temperature above the dew point of sulfur trioxide during substantially the entire purge period.

4,333,747

APPARATUS FOR RAPIDLY AND CONTINUOUSLY DEFOAMING LIQUID MATERIAL

Chiu H. Yang, and Zuu C. Hong, both of 24 An Ching St., San Chung, Taipei, Taiwan

Filed Sep. 24, 1980, Ser. No. 190,336
Int. Cl.[3] B01D *19/00*
U.S. Cl. 55—178 3 Claims



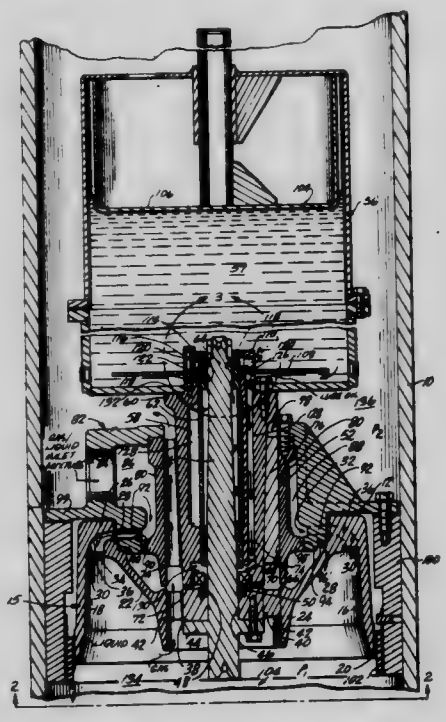
1. An apparatus for defoaming a liquid containing a gas comprising:
a cylindrical vessel having a top, a bottom, an interior and an axis;
a partition board longitudinally dividing the interior of the vessel into an upper chamber and a lower chamber, said partition board having a plurality of small holes at the circumferential periphery thereof communicating the upper chamber with the lower chamber;
a casing surrounding the vessel;
a first sleeve axially connected to the top of the vessel rotatably mounting the vessel in the casing;
a liquid feed pipe stationarily mounted in the first sleeve having an annular clearance between the first sleeve and the feed pipe, the feed pipe opening into the upper chamber;
means for rotating the vessel in the casing operatively associated with the first sleeve;
means for creating a partial vacuum in the vessel connected to the interior of the vessel via said clearance; and
means for discharging defoamed liquid opening into the lower chamber comprising a second sleeve rotatably, axially connected to the bottom of the vessel, a discharge stationarily mounted in the second sleeve and a pair of pipes which are S-shaped in plan view fixedly mounted in the lower chamber on said discharge pipe, said S-shaped pipes each having a scoop opening at its end furthest from the axis of the vessel.

4,333,748

ROTARY GAS/LIQUID SEPARATOR

John W. Erickson, Huntington Beach, Calif., assignor to Baker International Corporation, Orange, Calif.

Continuation of Ser. No. 939,479, Sep. 5, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 111,784
Int. Cl.[3] B01D *53/24*
U.S. Cl. 55—202 36 Claims

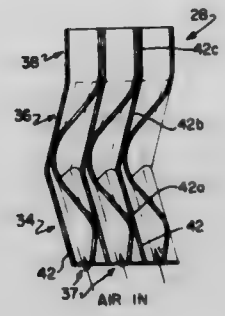


1. A gas/liquid separator comprising:
a housing;
a free-running rotor mounted for rotation about a vertical axis in the housing, the rotor having a downwardly extending inside surface and being open at its lower end;
means for directing a gas/liquid mixture into the inside of the rotor for rotating the rotor;
a chamber in the housing below the rotor for receiving separated gas and liquid; and
a plurality of fan blades on the rotor in gas communication with the chamber for discharging gas from the chamber at a pressure higher than the pressure in the chamber.

4,333,749
DRIFT ELIMINATOR STRUCTURE FOR COUNTERFLOW WATER COOLING TOWER

Joyce D. Holmberg, Overland Park, and Ohler L. Kinney, Jr., Leawood, both of Kans., assignors to The Marley Company, Mission, Kans.

Filed Oct. 24, 1980, Ser. No. 200,461
Int. Cl.[3] B01D *45/16, 51/10*
U.S. Cl. 55—257 PV 7 Claims

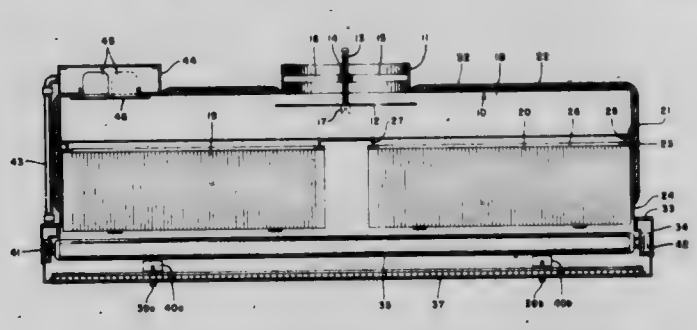


1. A drift eliminator, comprising:
structure including walls defining a plurality of elongated, discrete cells for passage of moisture-laden air therethrough,
each of said cells presenting first, second and third elongated air diversion sections therealong defined by corresponding wall sections,
the longitudinal axes of said first and second sections being at an angle relative to one another,
the longitudinal axes of said second and third sections being at an angle relative to one another,
the longitudinal axes of said first and second sections being disposed in a first plane,
the longitudinal axis of said third section being disposed at an angle relative to said first plane,
said wall sections being joined to one another in end-to-end relationship such that said cells are free of discontinuities along the length thereof,
said structure including continuous, spaced, opposed, face-to-face wall members presenting first, second and third generally planar regions corresponding to said diversion sections with continuous, individually corrugated wall elements separate from said wall members and disposed between and secured to the adjacent faces of respective pairs of said wall members.

4,333,750
FILTRATION MODULE WITH INCLUDED ILLUMINATION

Martin C. Helmus, 2525 Knollview, SW., Wyoming, Mich. 49509, and Wallace L. Baker, 4505 Hersman, SE., Grand Rapids, Mich. 49506

Filed Feb. 20, 1981, Ser. No. 236,437
Int. Cl.[3] B01D *50/00*
U.S. Cl. 55—259 3 Claims

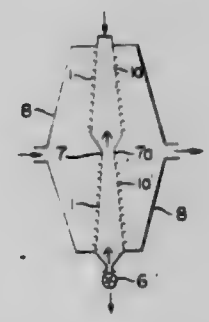


1. A filtration unit including a housing provided with an intake opening adapted for connection to a duct system, said housing also having a receptacle portion adapted to receive a filter element, a filter element removeably received in said receptacle portion said housing having an outlet opening on the opposite side of said receptacle portion from said intake opening, said unit also having disengageable means attached to said housing and adapted to releaseably secure a filter element in said receptacle portion, said means being accessible through said outlet opening, wherein the improvement comprises:
light means disposed within said outlet opening, said light means including socket means and at least one replaceable bulb normally received in said socket means and further including electrical components mounted on said housing and accessible through said outlet opening in the absence of a filter element from said receptacle portion.

4,333,751
MULTI-STAGE MOVING BED TYPE ADSORPTION DEVICE

Seiji Iwamura, and Hiromi Tanaka, both of Abiko, Japan, assignors to Sumitomo Heavy Industries, Ltd., Tokyo, Japan

Filed Aug. 11, 1980, Ser. No. 177,300
Claims priority, application Japan, Aug. 16, 1979, 54-104700
Int. Cl.[3] B01D *53/08, 46/34*
U.S. Cl. 55—390 2 Claims



1. A multi-stage, moving bed-type, adsorption apparatus, comprising:
a gas-circulating vessel having a gas inlet and a gas outlet for gas to be treated;
a plurality of adsorption chamber units, said adsorption chamber units being located inside said vessel between said gas inlet and said gas outlet, and filled with adsorbent particles and being arranged in vertical alignment one above the other so that adsorbent particles can flow downwardly through said units in series; each of said adsorption chamber units comprising opposed, upwardly extending, horizontally spaced-apart, front and rear, upper walls, said upper walls comprising louvers so that gas can be fed through the louvers in one of said upper walls and can be discharged through the louvers in the other of said upper walls, the upper ends of said upper walls being horizontally spaced from each other to define an inlet for said adsorbent particles, said upper walls diverging with respect to each other in the downward direction; opposed, horizontally spaced-apart, front and rear, lower walls extending downwardly from the lower ends of said front upper wall and said rear upper wall, respectively, said lower walls converging toward each other in the downward direction with the lower ends of said lower walls being horizontally spaced from each other to define an outlet for adsorbent particles; a pair of side walls extending between said front and rear, upper and lower walls at the opposite ends thereof, respectively, for closing the space therebetween so that said upper, lower and side walls define a chamber for containing said adsorbent particles, a horizontal rectifying body which is of inverted V-shape in cross section and a vertical rectifying plate extending downwardly from the apex of said rectifying body, said rectifying body and said rectifying plate being centrally located in the lower portion of said chamber between said front and rear lower walls and extending horizontally between said side walls; a coupling passage extending downwardly from the adsorbent outlet of each of said adsorption chamber units, except the lowermost one thereof, to the adsorbent inlet of the adjacent

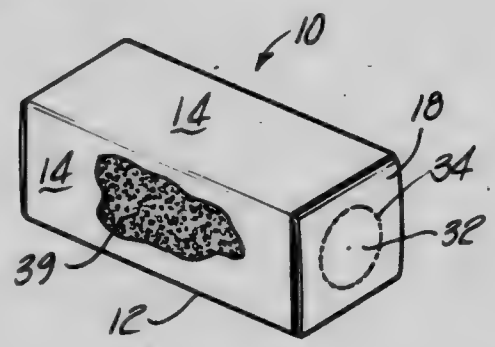
adsorption chamber unit located therebelow, each said coupling passage being located directly vertically below the rectifying body of the adsorption chamber unit disposed thereabove, each said coupling passage being defined by opposed, horizontally spaced-apart, front and rear, vertical walls which extend downwardly from the lower ends of the front and rear lower walls of the upper adsorption chamber unit to the upper ends of the front and rear upper walls of the adjacent lower adsorption chamber unit so that adsorbent particles leaving the adsorbent outlet of the upper adsorption chamber unit flow through said coupling passage into the adsorbent inlet of the adjacent lower adsorption chamber unit; and an adsorbent particle discharging means provided at the adsorbent outlet of the lowermost adsorption chamber unit.

4,333,752

ADSORBENT CARTRIDGE FOR THE EXHAUST OF DIAZO PROCESS MACHINES

Edward J. Thies, Detroit, and Norman Michlin, Southfield, both of Mich., assignors to Michlin Chemical Corporation, Detroit, Mich.

Filed Jan. 14, 1980, Ser. No. 111,516
Int. Cl.³ B01D *53/04*
U.S. Cl. 55—387 **10 Claims**



1. A disposable cartridge for processing ammonia-laden exhaust gasses from a diazo process printing machine, comprising:

an elongated tubular container, rectangular in cross section having its opposed ends closed off by first end flaps integrally secured to one side wall of the container;

second end flaps at each end of the container formed by extensions of side walls thereof adjacent to the one side wall to which the first end flaps are secured, said second end flaps having central apertures therein;

means formed in each first end flap to allow the manual removal of a central section in the first end flaps;

screens secured to each of said second end flaps so as to cover the apertures therein; and

an ammonia adsorbent material disposed within the container, between the screens, whereby the first end flaps close off the container ends prior to use of the cartridge and the central sections of each first end flap may be manually removed when the cartridge is to be placed into use so that the exhaust from the diazo printer may be passed into the cartridge through one end screen to contact the adsorbent, and out of the cartridge through the other end screen.

7. A cartridge for use in connection with a diazo printing machine, operative to process exhaust gasses derived from the machine to render the gasses less noxious comprising:

a corrugated cardboard box, rectangular in cross section, having four elongated closed sides and sets of three end flaps formed at each of the longitudinally displaced ends of the box, each end flap in a set being secured to the end of a different side wall of the box to project outwardly therefrom in a foldable manner;

apertures formed centrally through two of the flaps secured to opposite end sidewalls in each set;

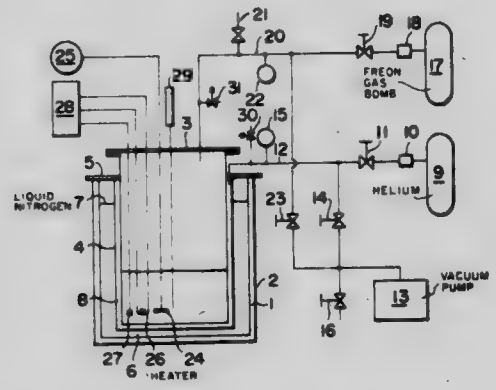
a pair of screen members, one secured at each end of the container by being sandwiched between and adhered to said two end flaps in each set so that the screen extends normally to the longitudinal axis of the container and covers the apertures in the two end flaps, and means formed in each of the center flaps of each set for removing a central section from such end flap whereby the center end flap of each set may be disposed over said screens so as to close off the screens prior to placement of the cartridge in use and when the cartridge is ready for use the center section of each of the two center end flaps of a set may be manually removed so that exhaust gasses from a diazo printing machine may be passed into the cartridge through one of the end screens and may exit from the cartridge from the other end; and an ammonia adsorbent media disposed within the box.

4,333,753

METHOD OF LIQUEFYING FREON GAS

Yasuo Kuraoka, Sapporo, Japan, assignor to Hoxan Corporation, Sapporo, Japan

Filed Jul. 10, 1980, Ser. No. 168,441
Int. Cl.³ F25J *1/00*
U.S. Cl. 62—9 **1 Claim**



1. A method of liquefying Freon gas, comprising the steps of:

(a) evacuating to a vacuum an empty inner tank;

(b) forming an outer jacket about said inner tank to define a heat exchange first space which is to be occupied by a heat exchange medium;

(c) inserting said inner tank with its jacket into an outer tank of somewhat larger periphery than said inner tank and jacket to define a cooling second space between the inner wall of said outer tank and the outer wall of said jacket, so that a cooling medium can be introduced into said second space;

(d) feeding a liquified nitrogen cooling medium into said second space so as to fill up said second space;

(e) feeding helium into said first space as a heat exchange medium and sealing said helium in said first space so that the absolute pressure thereof is substantially at atmospheric pressure or at a slightly negative pressure thereto;

(f) feeding Freon gas to said inner tank vacuum to liquify said Freon gas by the nitrogen cooling medium and the helium heat exchange medium; and,

(g) agitating the liquified freon stored in said inner tank to prevent solidification thereof.

4,333,754

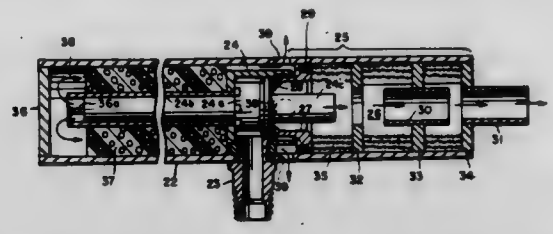
ANTI-ICING NOISE-SUPPRESSING VORTEX TUBE ASSEMBLY

Joseph E. Peter, Cincinnati, Ohio, assignor to Vortec Corporation, Cincinnati, Ohio

Filed Jun. 27, 1979, Ser. No. 52,347
Int. Cl.³ F25B *9/02*; F01N *1/00*
U.S. Cl. 62—5 **11 Claims**

1. An anti-icing noise-suppressing vortex tube assembly comprising a vortex tube having a generally cylindrical generator body provided with a compressed air inlet, a hot air outlet tube projecting from one end of said body, and a cold air outlet

tube coaxial with said hot air inlet tube and projecting from the opposite end of said body; a heat-conductive outer tubular casing disposed about said vortex tube; a noise-suppressing muffler having a thermally-conductive tubular muffler casing secured to said outer casing and having noise-suppressing means disposed therein; said muffler casing having an inlet at one end communicating directly with said cold air outlet tube and having a discharge nozzle at the other end thereof coaxial



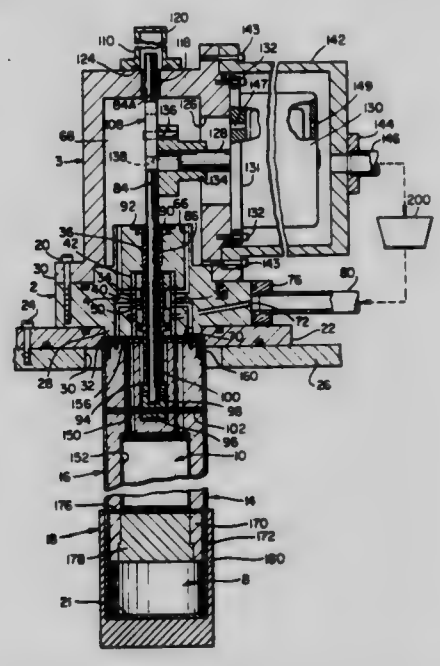
with said muffler inlet; deflecting means provided by said outer casing for redirecting hot air discharged from said hot air outlet tube back through said outer casing toward said muffler, and also causing heating of said conductive outer casing for transmitting heat by conduction to said muffler, for preventing excessive icing of said muffler; said outer casing having a hot air discharge port formed in the wall thereof for the separate discharge of hot air in a direction other than the direction of discharge of cold air from said nozzle.

4,333,755

CRYOGENIC APPARATUS

Domenico S. Sarcia, Carlisle, Mass., assignor to Oerlikon-Buhrle U.S.A. Inc., New York, N.Y.

Continuation-in-part of Ser. No. 89,274, Oct. 29, 1979, Pat. No. 4,305,741. This application Mar. 30, 1981, Ser. No. 248,988
Int. Cl.³ F25B *9/00*
U.S. Cl. 62—6 **16 Claims**



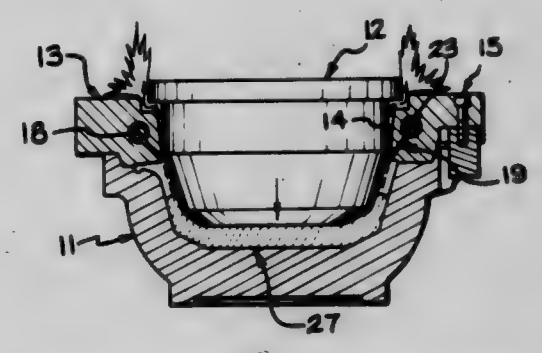
1. In a cryogenic refrigerator in which (a) fluid under pressure is cooled by heat exchange and expansion in the course of its being transferred into and out of a chamber of variable volume via a thermal regenerator, (b) transfer of the fluid is achieved by reciprocal movement of displacer means and (c) a cyclically operating valve means controls introduction of high pressure fluid to and discharge of low pressure fluid from that chamber, the improvement comprising a displacer, cylinder means cooperating with the displacer so as to define first and second chambers with said first chamber having a volume which varies according to movement of the displacer within the cylinder means, conduit means and a thermal regenerator connecting said first and second chambers, means connected to said displacer for reciprocating said displacer in said cylinder means, and a control valve for controlling the flow of a refrigerant fluid to and from said first chamber, said control valve comprising a high pressure inlet port, a low pressure outlet port, and a valve member movable between first and second positions and arranged so that it connects said inlet and outlet ports to said second chamber when in said first and second positions respectively, and means for (a) causing said valve member to be shifted to said first position by said displacer as said displacer moves in a first direction and (b) causing said valve member to be shifted to said second position by said displacer as said displacer moves in a second opposite direction.

4,333,756

METHOD FOR PRODUCING A PRESSED GLASS ARTICLE

Thomas A. Seeman, 1152 Juliet, Toledo, Ohio 43614

Filed Mar. 9, 1981, Ser. No. 241,491
Int. Cl.³ C03B *40/02*
U.S. Cl. 65—25.1 **2 Claims**



1. In a method for producing a pressed glass article, which method includes the steps of advancing a plunger into a gob of softened glass in a mold while causing a gas to flow from a manifold around the exterior of the plunger, the improvement wherein the gas caused to flow from the manifold is a cold mixture of at least one alkane and at least the unsaturated hydrocarbon and the proportion of alkane to unsaturated hydrocarbon is controlled so that a substantially invisible lubricious coating is deposited on the plunger.

4,333,757

MUSHROOM-GROWING MEDIUM

Ralph H. Kurtzman, Jr., Berkeley, Calif., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Mar. 21, 1980, Ser. No. 132,597
Int. Cl.³ C05F *11/08*
U.S. Cl. 71—5 **17 Claims**

1. A process for preparing a cellulosic medium for growing mushrooms, which comprises the steps of

(a) fermenting a liquid mixture containing sources of soluble carbon and nitrogen under aerobic conditions, the ratio of the nitrogen source to the carbon source being 11–13 parts of nitrogen source per 100 parts of soluble carbon source such as to result in a drop in pH of the mixture to about 4.0–6.0 during the fermentation,

(b) mixing the fermented liquid mixture with an amount of water sufficient to reduce the nitrogen content of the mixture to about 0.1–0.5% based on the weight of the mixture and calculated from the initial content of nitrogen in the added source thereof,

(c) incorporating into the fermented liquid mixture a source of calcium ions in the proportion of about 0.005–0.08 parts by weight of calcium ions per part by weight of cellulosic material,

(d) heating the fermented liquid mixture to a temperature of about 65°–80° C.,

(e) contacting the fermented liquid mixture with cellulosic material, and

(f) holding the cellulosic material at a pH of about 6.5–7.5 and at a temperature and for a time sufficient to allow

substantial reduction of organisms detrimental to mushroom culture.

4,333,758

1-TRIACONTANOL PLANT GROWTH STIMULATOR FORMULATIONS

Andrew J. Welebir, 1008 Steeples Ct., Falls Church, Va. 22046

Continuation-in-part of Ser. No. 47,696, Jun. 12, 1979. This application May 2, 1980, Ser. No. 146,005

Int. Cl.³ A01N *59/00*

U.S. Cl. 71—80 **16 Claims**

1. A plant growth stimulator formulation, consisting essentially of:

an effective plant growth stimulating amount of 1-triacontanol; a water soluble or miscible polar organic solvent in which 1-triacontanol is soluble; metal ions selected from the group consisting of Ca^{++} and La^{+3}, said metal ions being present in an amount effective to assist the 1-triacontanol in stimulating plant growth; and water.

4,333,759

HERBICIDAL 5-CYANO-2,3-DIHYDRO-BENZOFURAN-2-ONES

Peter S. Gates; Derek Baldwin, both of Cambridge; Carol A. Wilson, Saffron Walden, and John Gillon, Cambridge, all of England, assignors to Fisons Limited, London, England

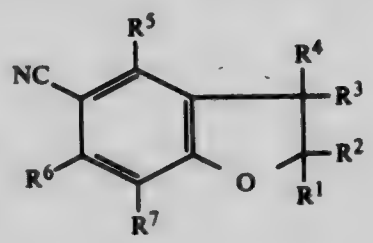
Division of Ser. No. 62,511, Jul. 27, 1979, Pat. No. 4,263,037. This application Dec. 4, 1980, Ser. No. 213,151

Claims priority, application United Kingdom, Jul. 29, 1978, 31646/78; Oct. 24, 1978, 41692/78

Int. Cl.³ A01N *43/12*; C07D *307/88*

U.S. Cl. 71—88 **6 Claims**

1. A 2,3-dihydro-5-cyanobenzofuran of the formula:



(I)

wherein R^1 and R^2 together represent =O; R^3 and R^4 together represent alkylene of 3 to 6 carbon atoms, or each represents hydrogen or alkyl of 1 to 6 carbon atoms; and R^5, R^6 and R^7, which may be the same or different, each represent hydrogen, halogen, alkyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, alkanoyl of 2 to 6 carbon atoms or cyano.

6. A method of combating weeds at a locus infested or liable to be infested with them, which method comprises applying to the locus a herbicidally effective amount of one or more compounds according to any one of claims 3, 4, and 1.

4,333,760

HERBICIDAL SULFONAMIDES

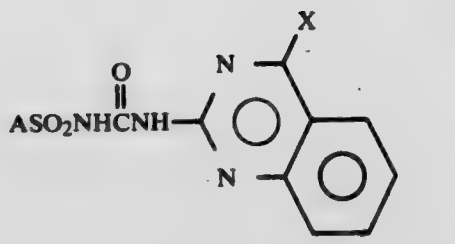
William T. Zimmerman, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 180,483, Aug. 22, 1980, abandoned. This application Jun. 9, 1981, Ser. No. 269,510

Int. Cl.³ A01N *43/54*; C07D *239/84*

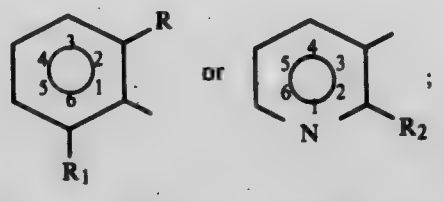
U.S. Cl. 71—92 **21 Claims**

1. A compound selected from:



I

where A is



R is NO_2, CF_3, COR_3, $S(O)_mR_4$, $SO_2NR_5R_6$ or $SO_2N(CH_3)(OCH_3)$;

R_1 is H, Cl or CH_3;

R_3 is C_1–C_3 alkyl, C_1–C_3 $OCH_2CH{=}CH_2$, OCH_2CH_2Cl, $OCH_2CH_2OCH_3$, NR_7R_8 or C_1–C_3 alkylthio;

m is 0, 1 or 2;

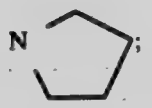
R_4 is C_1–C_3 alkyl;

R_5 and R_6 are independently C_1–C_2 alkyl;

R_7 is C_1–C_2 alkyl or OCH_3;

R_8 is C_1–C_2 alkyl or

R_7 and R_8 can be taken together to form



R_2 is Cl or SO_2R_9;

R_9 is C_1–C_3 alkyl; and

X is H or CH_3; and

their agriculturally suitable salts; provided that when R_7 is OCH_3 then R_8 is CH_3.

8. A composition suitable for controlling the growth of undesired vegetation which comprises an effective amount of a compound of claim 1 and at least one of the following: surfactant, solid or liquid diluent.

4,333,761

METHOD FOR DIRECT REDUCTION OF IRON USING HIGH SULFUR GAS

William A. Ahrendt, and Donald Beggs, both of Charlotte, N.C., assignors to Midrex Corporation, Charlotte, N.C.

Division of Ser. No. 86,980, Oct. 22, 1979, Pat. No. 4,270,739. This application Dec. 12, 1980, Ser. No. 215,782

Int. Cl.³ C21B *13/02*

U.S. Cl. 75—35 **7 Claims**

1. A method of reducing iron oxide to metallized iron comprising:

(a) establishing a gravitational flow of particulate iron oxide material through a generally vertical shaft furnace by charging such material to the upper portion of said shaft furnace and removing metallized iron product from the bottom of said furnace;

(b) selecting a sulfur-containing process gas from the group comprising coke oven gas, natural gas and blast furnace gas;

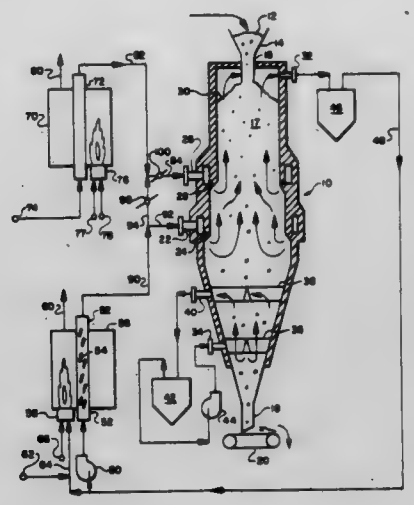
(c) heating said process gas to a temperature of at least 600° C.;

(d) mixing said heated process gas with hot reformed reducing gas to form a hot reducing gas mixture;

(e) introducing said reducing gas mixture to said gravita-

tional flow of material in said shaft furnace intermediate the ends of said furnace;

(f) causing said reducing gas mixture to flow countercurrently through said gravitational flow of material desulfurizing the reducing gas, reducing the iron oxide material to metallized iron and forming a low sulfur top gas;



(g) removing said top gas from said furnace, cooling and scrubbing said removed top gas; and

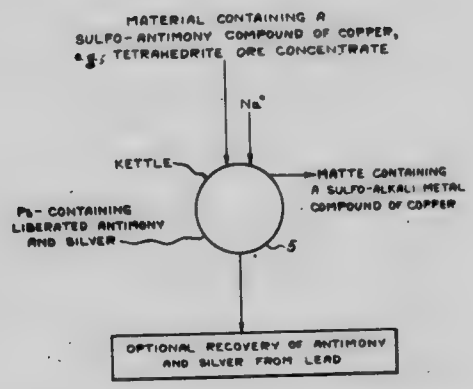
(h) heating said removed top gas in the presence of a catalyst to form said hot reformed reducing gas, whereby the sulfur content of said removed top gas is too low to poison the catalyst.

4,333,762

LOW TEMPERATURE, NON-SO_2 POLLUTING, KETTLE PROCESS FOR THE SEPARATION OF ANTIMONY VALUES FROM MATERIAL CONTAINING SULFO-ANTIMONY COMPOUNDS OF COPPER

Carl R. Di Martini, Piscataway, N.J.; William L. Scott, Tampa, Fla., and Leo J. Bulvanoski, Fords, N.J., assignors to Asarco Incorporated, New York, N.Y.

Filed Mar. 20, 1980, Ser. No. 132,240
Int. Cl.³ C22B *30/02*
U.S. Cl. 75—69 **12 Claims**



1. A process for separating antimony values from a material containing a sulfo-antimony compound of copper without the use of a reverberatory or blast furnace which comprises:

(a) establishing a pool of molten lead;

(b) adding metallic alkali metal to the molten lead pool in an amount sufficient to reduce the desired amount of combined antimony in the sulfo-antimony compound of copper to metallic antimony;

(c) adding the material containing the sulfo-antimony compound of copper to the molten lead pool;

(d) mixing together the metallic alkali metal, molten lead, and material containing the sulfo-antimony compound of copper whereupon the metallic alkali metal reacts with the material containing the sulfo-antimony compound of copper to reduce the combined antimony therein to zero valent, elemental antimony;

(e) forming a low melting copper sulfide-alkali metal sulfide matte phase which separates from the molten lead pool;

(f) passing the liberated metallic antimony into the molten lead pool; and

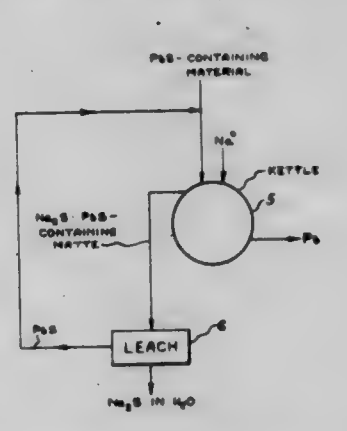
(g) separating the low melting matte phase from the pool containing the antimony.

4,333,763

LOW TEMPERATURE, NON-SO_2 POLLUTING, KETTLE PROCESS FOR SEPARATION OF LEAD FROM LEAD SULFIDE-CONTAINING MATERIAL

Carl R. Di Martini, Piscataway; Herbert E. Howe, North Plainfield, both of N.J.; William L. Scott, Tampa, Fla., and Leo J. Bulvanoski, Fords, N.J., assignors to Asarco Incorporated, New York, N.Y.

Filed Mar. 20, 1980, Ser. No. 132,239
Int. Cl.³ C22B *13/00*
U.S. Cl. 75—77 **20 Claims**



1. A process for separating lead from a material containing lead sulfide which comprises:

(a) establishing a pool of molten lead in a kettle;

(b) incorporating metallic alkali metal in the lead pool;

(c) the alkali metal being incorporated in the molten lead in an amount sufficient to reduce the combined lead in lead sulfide to metallic lead;

(d) adding the material containing lead sulfide to the molten lead;

(e) mixing together the metallic alkali metal, molten lead, and the lead sulfide-containing material wherein the mixing together is carried out at a temperature of the molten lead pool in the range above the melting point of the metallic lead up to but not above 650° C.;

(f) the metallic alkali metal reacting with the lead sulfide to reduce the combined lead of the lead sulfide to metallic lead;

(g) a matte phase comprising a sulfur compound of the alkali metal separating from the molten lead;

(h) the thus-liberated metallic lead reporting in the molten lead pool, and a sulfur compound of the alkali metal being present in the matte phase; and

(i) separating the matte phase from the lead pool.

4,333,764

NITROGEN-GAS-STABILIZED CEMENT AND A PROCESS FOR MAKING AND USING IT

Edwin A. Richardson, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jan. 21, 1981, Ser. No. 227,027
Int. Cl.³ C04B *21/02*
U.S. Cl. 106—87 **8 Claims**

1. In a well treating process in which an aqueous slurry of cement is pumped into a well to form a substantially impermeable set cement within a subterranean zone in which the temperature and pressure are relatively high, the improvement comprising using as said slurry:

a pumpable aqueous slurry of cement which contains dissolved within its aqueous liquid phase nitrogen-gas-generating reactants; and

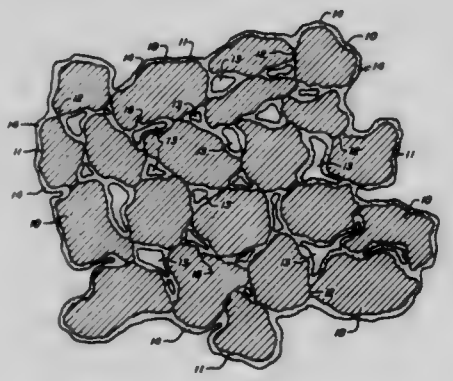
said reactants (a) consist essentially of compounds that react while dissolved within the aqueous liquid (b) have a rate of reaction and a concentration within the aqueous liquid such that the rate at which they generate the gas is relatively insignificant until their concentration within that liquid is increased by the loss of aqueous liquid which accompanies the setting of the cement and (c) are present within the cement slurry in a proportion such that the volume of the gas they are capable of generating substantially equals the volume lost by the cement slurry during the setting of the cement.

4,333,765

SANDLESS CONCRETE

Arthur Shaw, 101 Stock Isle Apartments, Key West, Fla. 33040

Filed Aug. 8, 1980, Ser. No. 176,515
Int. Cl.³ C04B 7/02
U.S. Cl. 106—98 **4 Claims**



1. A method of making sandless cementitious material comprising the steps of:

forming an aqueous suspension of silicon dioxide of 100 mesh or finer;

sizing an aggregate in said aqueous suspension, said aggregate being predominantly comprised of aggregate elements having a size in the range between 0.05 and 3 inches, each cubic yard of said aggregate being sized with 10 to 35 pounds of silicon dioxide in 10 to 25 gallons of water;

adding between 150 and 600 pounds of cement to each cubic yard of said sized aggregate in said suspension; and

permitting the mixture of water, sized aggregate and cement to cure.

4,333,766

CALCIUM PROCESS FOR MANUFACTURING SILICATE AND/OR ALUMINATE BASED PRODUCTS

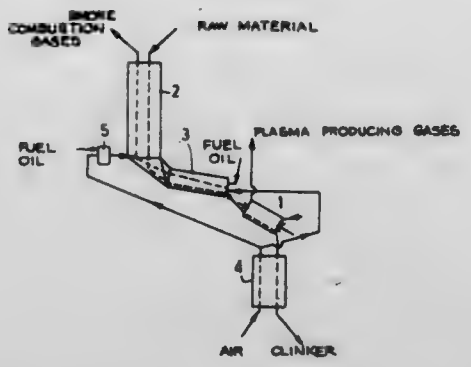
Jacques Moisset, Fourqueux; Claude Bonet, Saint-Cyr en Val; Alain Rouanet, Font-Romeu; Alain Petit, and Robert Delmas, both of Mont-Louis, all of France, assignors to Lafarge, Paris, France

Filed Sep. 18, 1980, Ser. No. 188,504
Claims priority, application France, Sep. 24, 1979, 79 23737
Int. Cl.³ C04B 7/02
U.S. Cl. 106—100 **14 Claims**

1. A process for manufacturing clinker containing more than 50% by weight of a raw material selected from the group consisting of tricalcium silicate, dicalcium silicate, calcium metasilicate, monocalcium aluminate, and slags, said process comprising the steps of:

(a) heating in a first enclosure a solid raw material containing calcium carbonate to an elevated temperature sufficient to decarbonate the calcium carbonate, including the step of bringing hot gases into direct counterflow contact with the raw material;

(b) further heating the raw material in a second enclosure in the presence of a reducing gas to a temperature greater than 1500° C. so as to obtain fusion of more than 80% of the raw material, including the step of maintaining impurity containing hot gases generated during said further heating step out of contact with the raw material during step (a); and



(c) cooling said further heated raw material and conveying the hot gases produced during cooling of said raw material for use in step (a), said gases being conveyed to said first enclosure without passing through said second enclosure in which step (b) is carried out.

4,333,767

METHOD FOR THE MANUFACTURE OF AN ADHESIVE FROM ANIMAL BLOOD

Arno Nass, Hameln, Fed. Rep. of Germany, assignor to Bison-Werke Bahre und Greten GmbH & Co., KG, Springe, Fed. Rep. of Germany

Filed Dec. 14, 1979, Ser. No. 103,715
Claims priority, application Fed. Rep. of Germany, Jan. 9, 1979, 2900621
Int. Cl.³ C09J 3/24
U.S. Cl. 106—161 **9 Claims**

1. A method of manufacturing an adhesive from animal blood comprising adding a diluent in the form of sodium chloride to the blood to form a mixture which is then dried and stored as a dried mass, converting said dried mass by the addition of water to a sprayable solution in the range from 13% up to approximately 40% concentration and then adding a monobasic organic acid to said solution in a quantity sufficient to produce a ph value in the range 3.0 to 4.0 to form the adhesive immediately prior to use thereof.

4,333,768

TECHNIQUE TO REDUCE THE ZEOLITE MOLECULAR SIEVE SOLUBILITY IN AN AQUEOUS SYSTEM

Santi Kulprathipanja, Hoffman Estates, and Herman S. Bloch, Skokie, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Dec. 18, 1980, Ser. No. 217,945
Int. Cl.³ C13D 3/14
U.S. Cl. 127—46.2 **9 Claims**

1. A process for the separation of a component from a feed mixture comprising an aqueous solution of a mixture of components by contacting said solution with an adsorbent consisting essentially of a crystalline aluminosilicate and a cellulose ether binder to reduce the extent of disintegration of said adsorbent, wherein said adsorbent exhibits adsorption selectivity towards said component to separate said component from said feed mixture and thereafter recovering said selectively adsorbed component.

4,333,769

TECHNIQUE TO REDUCE THE ZEOLITE MOLECULAR SIEVE SOLUBILITY IN AN AQUEOUS SYSTEM

Santi Kulprathipanja, Hoffman Estates, and Richard W. Neuzil, Downers Grove, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 146,533, May 2, 1980. This application Dec. 18, 1980, Ser. No. 217,946

Int. Cl.[3] C13D *3/14*

U.S. Cl. 127—46.2 9 Claims

1. A process for the separation of a component from a feed mixture comprising an aqueous solution of a mixture of components by contacting said solution with an adsorbent comprising both a crystalline aluminosilicate and an inorganic matrix wherein said crystalline aluminosilicate is dispersed in said inorganic matrix, and wherein said adsorbent is coated on the outside of said adsorbent with a cellulose ether to substantially reduce disintegration of said adsorbent and wherein said adsorbent exhibits an adsorptive selectivity towards said component to selectively adsorb said component from said mixture, and thereafter said adsorbed component is recovered.

4,333,770

EXTRACTION OF SUCROSE FROM MOLASSES

Richard W. Neuzil, Downers Grove, and Richard L. Fergin, Mount Prospect, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Sep. 8, 1980, Ser. No. 185,101

Int. Cl.[3] C13D *3/12*

U.S. Cl. 127—46.3 4 Claims

1. A process for separating sucrose from an aqueous mixture of a sugar source containing sucrose and at least one other sugar which comprises the steps of:

(a) contacting said mixture at adsorbent conditions with an adsorbent comprising a shaped replication of inorganic support particle aggregates, said adsorbent consisting of a carbonaceous pyropolymer containing at least carbon and hydrogen atoms thereby selectively adsorbing said sucrose thereon;

(b) separating from the adsorbent a raffinate stream comprising at least one other sugar;

(c) contacting said adsorbent at desportion conditions with a desorbent material consisting essentially of an aqueous methanolic solution having from about 10% to about 50% methanol by weight to effect desorption of said sucrose from said adsorbent, and

(d) separating and recovering from said adsorbent an extraction stream comprising said sucrose.

4,333,771

DETERGENT COMPOSITION WITH A MECHANICAL CLEANING EFFECT

Theodor Altenschöpfer, Dusseldorf; Klaus Schumann, Erkrath, and Dieter Grodau, Hilden, all of Fed. Rep. of Germany; assignors to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA), Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 237,063

Claims priority, application Fed. Rep. of Germany, Feb. 27, 1980, 3007320

Int. Cl.[3] B08B *3/04, 7/02;* C11D *3/12, 3/14*

U.S. Cl. 134—7 13 Claims

1. A detergent composition with a mechanical cleaning effect for the mechanical cleaning of hard surfaces, particularly cooking and baking utensils, comprising a mixture of granular particles consisting substantially of

(A) a powdered to granulated component of conventional mechanical dishwasher washing agents capable of rapidly dissolving or finely dispersing in water, and

(B) a granulated component comprising finely divided, water-insoluble inorganic compounds having a particle size between dust fineness and 100μ, granulated to a grain size of from 0.2 to 4 mm, and having a granular stability, as determined according to the method indicated in the disclosure, of a half value of ¼ to 3 and an end value of not more than 15% particles having a size of over 0.4 mm.

12. In a method for cleaning hard surfaces of cooking utensils in a mechanical dishwasher comprising the steps of subjecting the dirty surfaces of cooking utensils to the action of a pressurized washing solution containing conventional water-soluble to water-dispersible detergent components and a granulated component capable of a mechanical scrubbing action, for a time sufficient to cleanse said dirty surfaces, rinsing said cleansed cooking utensils and recovering cleaned cooking utensils, the improvement consisting of using a granulated component comprising finely-divided, water-insoluble inorganic compounds having a particle size between dust fineness and 100μ, granulated to a grain size of from 0.2 to 4 mm, and having a granular stability, as determined according to the method indicated in the disclosure, of a half value of ¼ to 3 and an end value of not more than 15% particles having a size of over 0.4 mm, as said granulated component, wherein said granulated component breaks down to a finely-divided, water-insoluble component during the washing process.

4,333,772

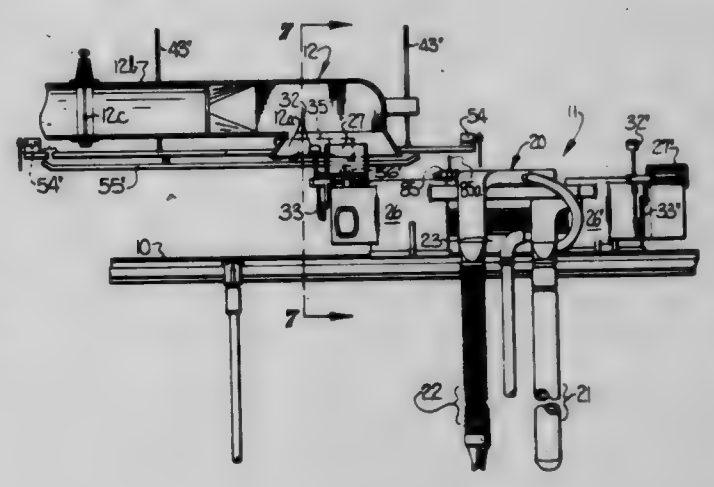
TRAVELING PNEUMATIC CLEANER AND AUTOMATIC UNLOADING ARRANGEMENT AND METHOD

William L. Mulligan, and Thomas R. House, both of Charlotte, N.C., assignors to Parks-Cramer Company, Fitchburg, Mass.

Filed Jun. 18, 1980, Ser. No. 160,823

Int. Cl.[3] A47L *5/38*

U.S. Cl. 134—18 20 Claims



20. A method of handling fiber waste created by textile machines comprising the steps of

directing a plurality of traveling pneumatic cleaners along respective predetermined paths of travel associated with respective groups of the textile machines while collecting fiber waste generated by each group of the textile machines in a fiber waste collection chamber on the respective traveling cleaner,

providing a respective unloading station adjacent the path of travel of each traveling cleaner with all the unloading stations connected to a common source of suction,

repeatedly moving each traveling cleaner past its respective unloading station, and

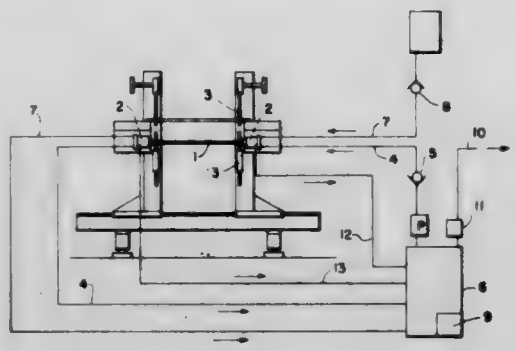
during only certain movements of each traveling cleaner past its respective unloading station effecting transfer of collected fiber waste from the collection chamber of the respective traveling cleaner into the respective unloading station by the suction air flow being induced by the common source of suction, while concurrently preventing the transfer of fiber waste from the collection chambers of the respective other traveling cleaners into said any other of the unloading stations.

4,333,773

METHOD FOR INTERNAL WASHING OR CLEANING AND RINSING OR DRYING OF TUBULAR MATERIALS

Bengt Fjällström, Södra Kungsvägen 9, Tidaholm, Sweden

Filed Sep. 23, 1980, Ser. No. 190,097
Claims priority, application Sweden, Jun. 19, 1980, 80045651
Int. Cl.[3] B08B *9/00*
U.S. Cl. 134—22 C 5 Claims



1. A method for the internal washing or cleaning and the rinsing or drying of a tubular member, said process comprising:

connecting the opposite ends of a tubular member to be cleaned to a pair of washing heads;

providing a tank of washing or cleaning liquid having a purifying device;

during a washing or cleaning cycle, circulating in a closed system the washing or cleaning liquid from said tank, through one of said washing heads, said tubular member, the other of said washing heads, and back to said tank, thus cleaning the interior of said tubular member, passing the thus returned washing or cleaning liquid through said purifying device and thereby purifying said washing or cleaning liquid;

interrupting said washing or cleaning cycle and conducting a rinsing or drying cycle comprising passing a rinsing or drying gas from a source thereof through said one washing head, said tubular member, said other washing head, and into said tank, thereby rinsing or drying said interior of said tubular member, and separating said rinsing or drying gas from said washing or cleaning liquid in said tank; separating any remaining washing or cleaning liquid from said rinsing or drying gas comprising passing said gas from said tank through a separation device and therein condensing the remaining washing or cleaning liquid from said gas, flowing the thus condensed washing or cleaning liquid back to said tank, and discharging the thus purified gas through a discharge tube; and

interrupting said rinsing or drying cycle and removing said tubular member from said washing heads.

4,333,774

METHOD FOR PRODUCING WALLED EMITTER TYPE BIPOLAR TRANSISTORS

Hajime Kamioka, Yokohama, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

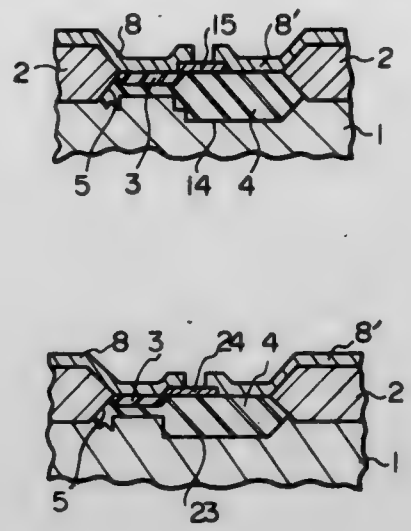
Filed Mar. 14, 1980, Ser. No. 130,535
Claims priority, application Japan, Mar. 20, 1979, 54/33113
Int. Cl.[3] H01L *21/26, 21/225*
U.S. Cl. 148—1.5 18 Claims

1. A method for producing, on a semiconductor body of a first conductivity type, a bipolar transistor which is isolated by an insulating layer and which has an emitter region that is in contact with said insulating layer and a base region, comprising the steps of:

forming a first insulating film on a part of the semiconductor body and a part of said insulating layer prior to the formation of the base region;

forming a second insulating film, which is smaller than said first insulating film, on said first insulating film above a part of said semiconductor body corresponding to said emitter region; and

forming the base region by an ion implantation process.

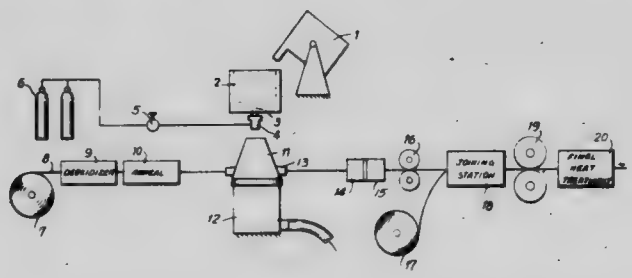


4,333,775

METHOD OF PRODUCING ALUMINUM ALLOY COMPOSITE

Duraid Mahrus, Sao Paulo, Brazil, assignor to Metal Leve S.A. Industria e Comercio, Brazil

Continuation-in-part of Ser. No. 56,189, Jul. 10, 1979, abandoned. This application Jul. 1, 1980, Ser. No. 165,054
Claims priority, application Brazil, Jul. 14, 1978, 7804586[U]
Int. Cl.[3] C22F *1/04*
U.S. Cl. 148—11.5 Q 7 Claims



1. Method of producing Al-Pb alloy low-friction composite suitable for the manufacture of bearing materials, which comprises forming an alloy melt of 5 to 20% lead in aluminum, atomizing said melt by the impingement, at an angle of 20°–45° of a thin stream of said alloy with a gas stream to form a pattern of liquid particles of said melt, directing said particle pattern onto a face of a moving aluminum strip under conditions such that the particles are liquid at the time of contacing the aluminum strip and solidify on said strip shortly after contact therewith to form an alloy coating thereon, compacting and rolling said coated strip to bond said coating to said aluminum strip and form an alloy composite of said Al-Pb alloy bonded to said aluminum strip.

4. The method according to claim 1 wherein the aluminum strip coated with the pattern of particles is subjected to heat treatments and rolling operations to eliminate porosities in the coating.

5. The method according to claim 4 wherein said composite is further heat treated and juxtaposed to a steel supporting strip and the composite bonded thereto by a further rolling operation to form a supported alloy material suitable for the fabrication of bearings.

4,333,776

SEMI-FINISHED STEEL ARTICLE

Debanshu Bhattacharya, Matteson, Ill.; Dennis T. Quinto, St. John, and Michael O. Holowaty, Crown Point, both of Ind., assignors to Inland Steel Company, Chicago, Ill.

Continuation of Ser. No. 122,283, Feb. 19, 1980, abandoned, which is a division of Ser. No. 5,965, Jan. 24, 1979, Pat. No. 4,236,939. This application Jun. 8, 1981, Ser. No. 271,681

Int. Cl.³ C22C *38/00*

U.S. Cl. 148—36 4 Claims

1. An as-deformed billet of free machining steel, said billet comprising:

a composition consisting essentially of, in wt.%:

carbon	0.06–1.0
manganese	0.30–1.6
sulfur	up to 0.35
bismuth	0.10–0.40
tellurium	machinability increasing amounts up to 0.06
lead	up to 0.15
silicon	up to 0.30
phosphorus	up to 0.12
iron	essentially the balance;

the combined lead plus bismuth content being at least 0.25 wt.%;

all of said tellurium being combined substantially with said bismuth and/or said manganese as microinclusions of Bi_2Te_3 and/or MnTe;

there being substantially no FeTe;

microinclusions of elemental bismuth;

a billet surface substantially free of surface cracking and burning in the as-deformed condition;

and iron oxide on the surface of said billet in said as-deformed condition;

said billet having microinclusions of PbTe in amounts insufficient to produce substantial surface cracking during hot deforming of said billet at a temperature below 1150° C. (2100° F.).

4,333,777

METHOD AND APPARATUS FOR COMPENSATING FOR LOCAL TEMPERATURE DIFFERENCE OF STEEL PRODUCT

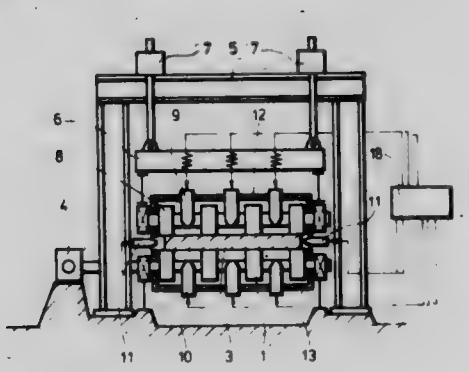
Osamu Takeuchi, Mitaka; Kiyoshi Aoki, Chiba, and Yuichi Fujii, Funabashi, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 20, 1980, Ser. No. 161,588

Claims priority, application Japan, Nov. 20, 1979, 54-150512

Int. Cl.³ C21D *11/00*

U.S. Cl. 148—128 4 Claims



1. An apparatus for compensating for local temperature difference of a sheet steel product comprising: an array of lower rollers which defines a path of travel of said sheet steel product, an array of upper rollers disposed in opposed relationship with said lower rollers, an array of lower burners positioned between said lower rollers, an array of upper burners positioned between said upper rollers, a vertically movable frame upon which are mounted said upper rollers and said upper burners so that the latter can be moved vertically toward or away from said path of travel depending upon the thickness or gauge of said sheet steel product, temperature sensing means for sensing the surface temperature distribution of said sheet steel product before said sheet steel product enters said apparatus, sheet sensing means for sensing the leading edge of said sheet steel product, an arithmetic and logical unit for comparing the outputs from said temperature sensing means with a reference temperature as well as responding to the output of said sheet sensing means, thereby detecting the portions of said sheet steel product whose local temperatures are below said reference temperature, and burner control means responsive to the output from said arithmetic and logical unit for selectively igniting one or more upper and lower burners, whereby said portions of said sheet steel product are heated and consequently the surface temperature of said sheet steel product is uniformly heated to said reference temperature.

4,333,778

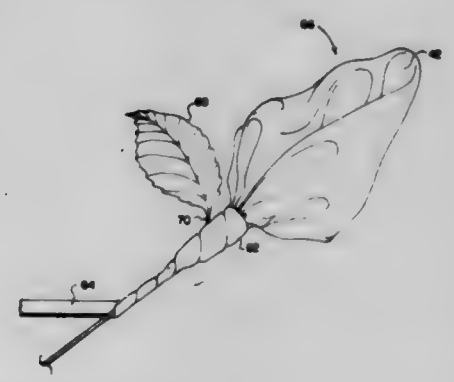
FLOWER BUD

Mary T. Griffin, 3991 Shady Hill, Dallas, Tex. 75229

Filed Feb. 7, 1980, Ser. No. 119,438

Int. Cl.³ A41G *1/00*

U.S. Cl. 156—61 19 Claims



1. A method of making an artificial flower bud from a single piece of fabric comprising:

(a) cutting a rectangular section of fabric having right and left short edges and upper and lower long edges;

(b) folding the right edge back onto said fabric section with said right edge near and substantially parallel to said lower edge, to form a bias fold extending substantially from a lower right corner of said section to a point on said upper edge spaced from the upper left corner of said section;

(c) folding the upper left corner of said section down to a point between the lower left section corner and the upper right corner;

(d) folding the lower right corner of said section over said section to a point between said upper left corner and said lower left corner;

(e) forming pleats in said left and lower edges to gather said left and lower edges into a bundle; and

(f) wrapping said bundle with a cord to permanently fix the configuration of said artificial flower bud.

4,333,779

APPARATUS AND PROCESS FOR MANUFACTURING BIO-OXIDATION AND NITRIFICATION MODULES

William R. Rinker; Harry R. Ayers, and John W. Miller, all of Cuyahoga Falls, Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Feb. 23, 1981, Ser. No. 236,967

Int. Cl.³ B06B *3/00;* B23K *19/04;* B30B *15/34;* B32B *31/20*

U.S. Cl. 156—73.1 6 Claims

1. Apparatus for manufacturing a bio-oxidation and nitrification module composed of alternating flat thermoplastic sheets and corrugated thermoplastic sheets joined together to form a unitary structure, said apparatus comprising sonic welding

means for ultrasonically welding together a paired flat sheet and corrugated sheet of said module along their interfacial zones of contact, assembly means for receiving paired welded flat sheet-corrugated sheet components from said sonic welding means and maintaining said components in stacked relation, edge-flanger means for flanging the edges of a stack of said paired welded flat sheet-corrugated sheet components to form an edge-seam which unites the said components together and forms the unitary module structure, and carriage means for moving a stack of paired welded flat sheet-corrugated sheet components from said assembly means along a predetermined path into said edge-flanger means, said sonic welding means including:

(a) a cradle having its upper face contoured to receive one of said corrugated sheets with one of said flat sheets disposed thereupon,
(b) a bank of sonic welder units,
(c) means for moving said cradle beneath said bank of sonic welder units, and
(d) means for resiliently maintaining said welder units against the upper face of said flat sheet disposed upon said corrugated sheet nested in said cradle as said cradle is advanced beneath said bank of sonic welder units along a predetermined path.

6. A process for making a bio-oxidation and nitrification module composed of alternating flat thermoplastic sheets and corrugated thermoplastic sheets, said process comprising:

(a) pairing together one of said flat sheets and one of said corrugated sheets used in said module and sonic welding said paired sheets together along their zones of interfacial contact by transmitting mechanical vibratory energy of ultrasonic frequency through said paired sheets while said paired sheets are maintained in physical contact,
(b) forming additional sonic-welded flat sheet-corrugated sheet components,
(c) stacking said sonic-welded flat sheet-corrugated sheet components one on top of another while maintaining an alternating flat sheet-corrugated sheet arrangement until a stack of said flat sheet-corrugated sheet components equal in height to the height of the said module to be formed is realized, and,
(d) heat-flanging the edges of said stacked flat sheet-corrugated sheet components to cause heat-welding of the edges of adjacent sheets together forming an edge-seam uniting the stacked sheets into a unitary structure.

4,333,780

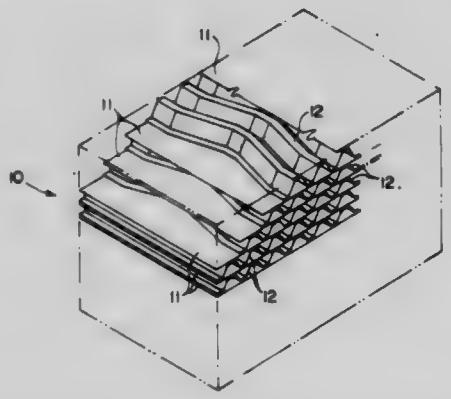
SUBMERSION TREATMENT OF FOAMABLE THERMOPLASTIC SHEET ON PREFORMS

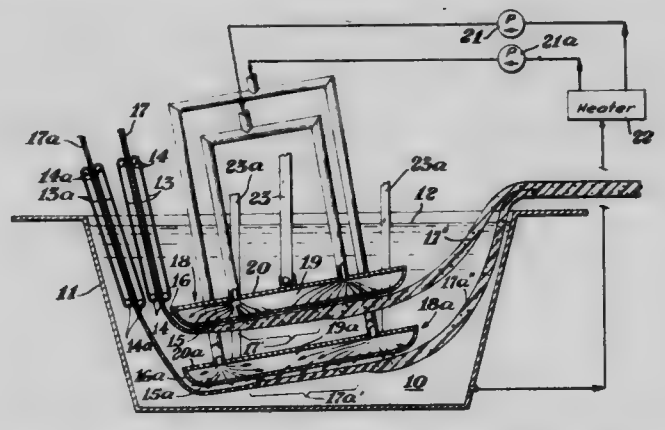
Sambasiva R. Allada, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 2, 1980, Ser. No. 212,179
Int. Cl.³ B29D *27/00*
U.S. Cl. 156—78 **5 Claims**

1. In a continuous method of preparing a thermoplastic foam article wherein a heat foamable crosslinked thermoplastic preform is heated to a temperature at or above the foaming temperature of the foamable preform, said foaming temperature being at or above the decomposition temperature of a blowing agent compounded in the preform and at or above the heat softening temperature of the thermoplastic resin, said heating achieved by submerging said preform into and passing it through and out of a body of a liquid heat transfer medium which is at or above the foaming temperature of the foamable preform, said preform being thereby heated and foamed during which time said preform is typically soft, sticky and/or of low tensile strength, the resulting foamed resin product then being removed from the body of the heat transfer liquid, which liquid has a greater density than the foaming and foamed resin product, the improvement wherein the foamable and foaming resin preform is held submerged while in the body of heat transfer liquid under and by a protective dynamic fluid boundary layer generated by the forced diffusion of a fluid through the pores of a stationary porous plate, said diffused fluid being at substantially the same temperature as the liquid heat transfer medium, said dynamic fluid layer separating and preventing contact between the soft, sticky, foamable, foaming and foamed resin preform and the surface of the porous plate.

5. Apparatus for continuously forming foamed resin products from heat foamable thermoplastic resin preforms, which apparatus comprises a vessel adapted for holding a body of





heat transfer liquid, means for controllably heating said liquid at a temperature above the heat foaming temperature of the foamable thermoplastic resin preform, means for continuously passing the foamable resin preform into and submerging it in the body of heat transfer liquid, whereby the foamable resin preform is heated to its foaming temperature and foams, and means for continuously taking the resulting foamed resin product out of the body of heat transfer liquid, which liquid is more dense than the foaming and foamed resin product, which apparatus also comprises and is particularly characterized by a porous plate means, through the pores of which is forcibly diffused amounts of the heat transfer liquid sufficient to generate and maintain a dynamic layer of the heat transfer liquid above resin preform and below the porous plate, the dynamic layer holding the foaming resin preform submerged while in the body of heat transfer liquid, said porous plate means being positioned above the path to be taken by the foamable and foaming resin preform through the apparatus at least from a point just before the resin preform would reach its heat foaming temperature to a point where the foaming of the foamable resin preform would be substantially complete.

4,333,781

METHOD AND APPARATUS FOR MANUFACTURING DECALS

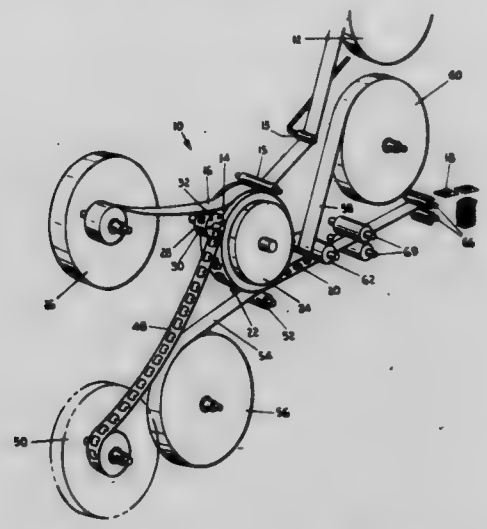
Daniel R. Meulenberg, 4690 Stauffer, SE., Kentwood, Mich. 49508

Filed Feb. 19, 1980, Ser. No. 122,430
Int. Cl.³ B32B *31/00*; C22C *23/00*; B07C *5/00*; C09J *5/00*
U.S. Cl. 156—152 **17 Claims**

1. A method for manufacturing decals from a web of synthetic decal stock, wherein the decals have an open interior portion that requires removal of a separate core portion of waste material from the decal stock during manufacture, the method comprising:

cutting the decals in the decal stock at spaced intervals in the web;

affixing the decals to a vacuum surface wherein the decals are urged to adhere to a perforated surface by a vacuum drawn through the perforations, the perforations in the surface being small enough to prevent the decal itself from being drawn through the perforation but the vacuum surface having enlarged openings conforming in position to any waste core portions of the decal, the enlarged



openings and the vacuum being sufficient to draw the waste core material through the openings in the surface and away from the decals, leaving the decals with their desired open interior portions;

stripping away from the decals the waste portions of the decal stock on the exterior of the decals, such that the decals are retained by the vacuum on the vacuum surface; and

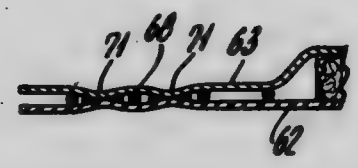
removing the decals from the vacuum surface.

4,333,782

METHOD OF MAKING LAMINATED STRUCTURES HAVING GATHERED AND UNGATHERED MARGINAL PORTIONS

Heinz A. Pieniak, Chicago, Ill., assignor to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Filed Feb. 11, 1980, Ser. No. 120,194
Int. Cl.³ A61F *13/16*; B32B *31/08*
U.S. Cl. 156—164 **3 Claims**



2. A method of intermittently attaching a pair of elastic members intermediate the opposing waistband portions of absorbent pads contained in a continuously moving web of interconnected disposable diapers to form a pair of discrete elastic leg bands in each of said diapers cut from said web, said method comprising the steps of:

(a) feeding first and second web substrates to an assembly station;

(b) feeding a pair of stretched elastic members, each member comprising a plurality of longitudinally extending elastic elements, intermittent portions of said elements being interconnected to define apertures therebetween with the portions of said elements between said intermittent portions being non-interconnected, to said assembly station;

(c) applying adhesive to at least one of said webs as it is being fed to said assembly station, at least a portion of said adhesive being registered such that it will lie within the area occupied by the apertured portions of said stretched elastic members;

(d) feeding absorbent pad elements having opposing waistband portions with one of said first and second webs;

(e) adhering said first web and said second web together at said assembly station through the portions of the elastic members defining apertures; and

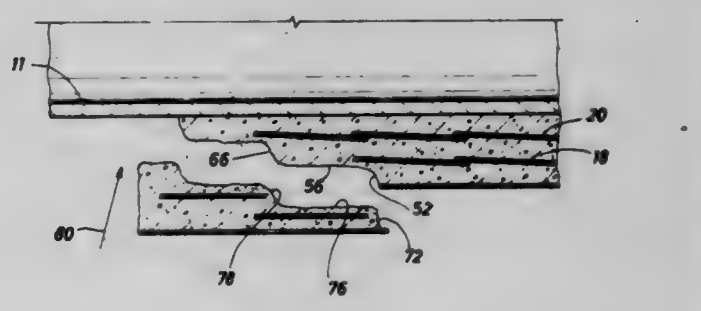
(f) cutting said webs transversely into discrete disposable diapers along a line severing said elastic members in non-interconnected portions to allow said non-interconnected portions to relax and return to their unstretched state.

4,333,783

PIPE COATING APPARATUS

David L. Gardner, Rte. 23, Box 64, Conroe, Tex. 77303

Filed Aug. 22, 1980, Ser. No. 180,379
Int. Cl.³ B65H *81/00*
U.S. Cl. 156—187 **18 Claims**



1. Apparatus for placing weight material on a pipe which is axially advanced along its major axis and is rotated as it advances so that the pipe moves along a helical path, the apparatus comprising:

(a) a conveyor having

(1) an endless loop belt having an exposed top surface;

(2) a first roller within said looped belt;

(3) a second roller within said looped belt;

(4) said rollers stretching said looped belt taut to define an exposed top surface;

(5) motive means for moving said belt in endless travel around said rollers such that the top surface thereof advances in a given direction;

(b) means positioning a helically rotating pipe above said belt located to enable the top surface thereof to advance toward the pipe approaching from a lateral direction below the pipe; and

(c) means for depositing a supply of tacky weight material on the top surface of said looped belt in the form of a shaped ribbon; and

(d) cutting means for cutting the ribbon along an edge of the ribbon face after the ribbon is adhered to the pipe.

4,333,784

MACHINE AND METHOD FOR PRODUCING WEATHERPROOFED MULTI LEAF SHIPPING FORMS

Hubert McCarthy, 424 - 51st Ave. SE., Calgary, Alberta T2H OM7, Canada

Filed Mar. 20, 1980, Ser. No. 131,906
Int. Cl.³ B32B *31/20*
U.S. Cl. 156—252 **56 Claims**

1. A machine for producing multi leaf shipping forms including:

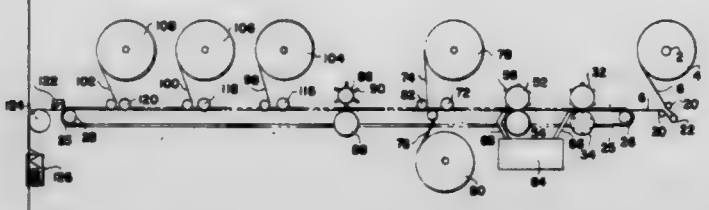
(a) means for holding a pre-printed form running length web

(b) means for relieving successive transverse portions of said web and intermediate said web and extending short of the side edges of said web

means for applying top and bottom sheets to said web

(d) means for encapsulating said web between said successive relieved portions of said web by pressure bonding said top and bottom sheets in face to face contact with

each other along the length of successive relieved portions of said web, and



(e) means for bonding one of said side edges of said web to said sheets while leaving at least a substantial portion of the other side edge of said web unbonded to at least one of said sheets.

4,333,785

ADHESION OF BRASS TO RUBBER

David E. Erickson, Stow, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 150,103, May 15, 1980, abandoned.
This application Apr. 15, 1981, Ser. No. 254,572
Int. Cl.[3] B32B *31/00, 31/26*
U.S. Cl. 156—281 8 Claims

1. The method which comprises dipping brass plated steel cord in an aqueous solution consisting essentially of from about 0.5 to 6.0 percent by weight of at least one salt selected from the group consisting of the NH_4, Na, K, Li, Ca, Mg, Sr, Ba and Zn salts of a saturated aliphatic monocarboxylic acid selected from the group consisting of formic, acetic, propionic, n-butyric, isobutyric, valeric and isovaleric acids and mixtures thereof for a time and at a temperature sufficient to remove at least a substantial amount of the corrosion products on the outer surface layers of said cord and then drying the same.

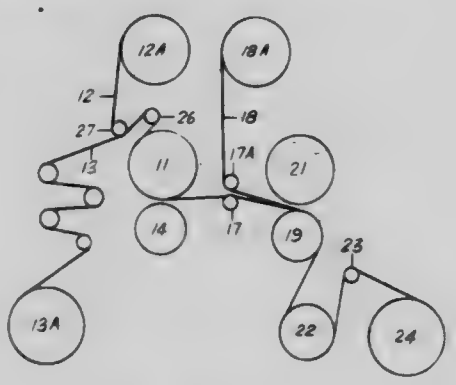
5. The method according to claim 1 containing the additional step of combining said dried cord with a vulcanizable rubber compound and vulcanizing the same.

4,333,786

LAMINATING

Frank P. Civardi, Wayne; Stanley G. Sova, Clifton, and Milan J. Getting, Nutley, all of N.J., assignors to Inmont Corporation, Clifton, N.J.

Continuation-in-part of Ser. No. 19,235, Mar. 9, 1979, abandoned. This application Feb. 27, 1980, Ser. No. 125,002
Int. Cl.[3] B32B *1/00*
U.S. Cl. 156—306.6 17 Claims



1. Process for making a laminate which comprises:

(a) continuously feeding a macro-apertured solid web of thermoplastic polymer into contact with a hot moving surface of a continuously rotating roll, the temperature of said hot surface being above the melting temperature of said polymer, said macro-apertured polymer web having a thickness of at least about 0.07 mm and weighing about 10 to 100 grams per square meter, the polymer portions of the web thickness which are in contact with said hot surface becoming molten and adhering to said hot surface while the polymer portions of the web thickness which are more remote from said hot surface become at least softened,

(b) continuously feeding a fibrous web to said roll so that said fibrous web is in contact with said polymer on said hot surface,

(c) maintaining said thermoplastic polymer in macro-apertured condition on said surface substantially without relative movement between surface and said polymer,

(d) during said period pressing said fibrous web against said thermoplastic polymer on said hot surface to such an extent that portions of said thermoplastic polymer adjacent to said porous web penetrate into said fibrous web and are molded around surface fibers thereof while molten portions of said thermoplastic polymer remain exposed at the surface of said fibrous web and then

(e) within 5 seconds of said contact in step a, continuously peeling said fibrous web away from said hot roll surface so that said fibrous web removes, from said hot roll surface, said molded portions of said thermoplastic polymer and at least part of said molten exposed portions.

4,333,787

ADHESION OF RUBBER TO BRASS

David E. Erickson, Stow, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio

Filed May 22, 1980, Ser. No. 152,235
Int. Cl.[3] B29H *9/10;* B60C *9/00*
U.S. Cl. 156—307.3 6 Claims

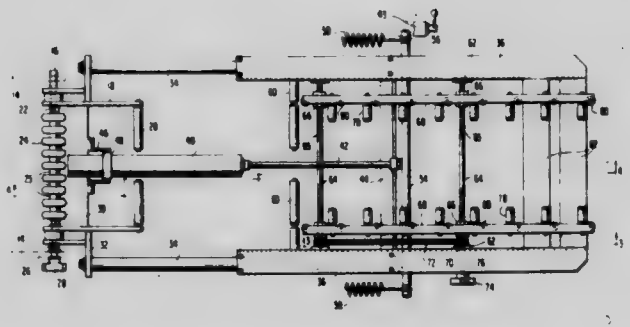
1. The method which comprises treating brass plated steel cord in an acidic alcohol solution of from about 1 to 10% by weight of a carboxylic acid in an alcohol, said carboxylic acid having from 1 to 12 carbon atoms, having from 1 to 3 COOH groups and consisting of carbon, hydrogen and oxygen and said alcohol having from 1 to 10 carbon atoms, having from 1 to 2 OH groups and consisting of carbon, hydrogen and oxygen for a time and at a temperature sufficient to remove at least a substantial amount of the corrosion products on the outer surface layers of said cord, rinsing said cord and drying the same, and treating said acidic alcohol solution treated, rinsed and dried cord with H_2S gas for a time and at a temperature sufficient to provide a thin sulfide layer on the surface of said cord.

4,333,788

TIRE BUILDING MACHINE SERVICER

Karl W. Klose, Findlay, Ohio, assignor to Cooper Tire & Rubber Company, Findlay, Ohio

Filed Apr. 4, 1980, Ser. No. 137,556
Int. Cl.[3] B29H *17/20*
U.S. Cl. 156—405 R 10 Claims



1. An extensible servicer device for supplying belt material to a tire carcass being built, comprising, a support member having brackets secured thereto;

a pair of frame rails arranged in spaced parallel relation to one another with frame members slidably mounted on said rails, said frame members having a receiving and a delivery end;

means pivotally connecting an end of said rails to said brackets;

a cylinder and piston rod connected to said frame members for advancing said frame members toward the other end of said rails and to retract said frame members towards the first named end of said rails;

said frame members receiving said belt material for delivering same to said tire carcass; and

the delivery end of said frame members tapering to a reduced end portion having guide members mounted thereon subjacent the top surface of said frame members, said guide members supporting said belt material and precisely orienting the center of said belt material with the center of the tire carcass contemporaneous with delivering the belt material in a tangential path to the point of contact with the center line of the tire carcass.

4,333,789

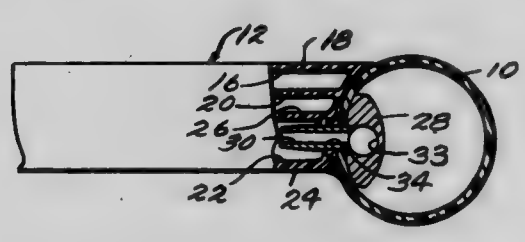
APPARATUS FOR MANIFOLDING MULTIPLE PASSAGE SOLAR PANEL

Roy E. McAlister, 5285 Red Rock North, Phoenix, Ariz. 85018

Division of Ser. No. 172,418, Jul. 25, 1980, Pat. No. 4,300,971, which is a continuation-in-part of Ser. No. 32,635, Apr. 23, 1979. This application Dec. 4, 1980, Ser. No. 213,198

Int. Cl.³ B32B *31/04, 31/26*

U.S. Cl. 156—499 **22 Claims**



1. Apparatus for sealingly connecting a thermoplastic solar panel structure having a multiplicity of elongated thin wall sections defining a multiplicity of parallel passages extending longitudinally between the ends of said panel structure to a thermoplastic manifold tube, said apparatus comprising

panel structure engaging means for fixedly positioning an end of a panel structure to which a manifold tube is to be connected,

means for mounting a manifold tube for movement from a position in which a side wall portion thereof is spaced a predetermined distance from a panel structure end fixedly positioned by said panel structure engaging means into a position of pressure engagement therewith,

an elongated mandrel having a multiplicity of transversely projecting elements corresponding in number and spacing to the panel passages to be communicated with the interior of the manifold tube of a size to engage longitudinally within the interior periphery of said manifold tube,

means mounting said mandrel for transverse movement within said manifold tube,

means for heating the panel structure end and said manifold tube side wall portion when the latter are disposed in said predetermined spaced relation to soften the thermoplastic material thereof,

means for moving said mandrel within said manifold tube so as to position the projecting elements thereof through the side wall portion thereof and into the open ends of corresponding panel structure passages and for withdrawing said mandrel in the direction of extent of said elements to a position within the interior of said manifold tube following the connection of the latter to the panel structure end, and

means for moving said manifold tube toward said panel structure end so as to cause said manifold tube side wall portion to apply a pressure to said panel structure end sufficient to deform the softened thermoplastic material thereof and effect a fusing of the same into a unitary mass.

4,333,790

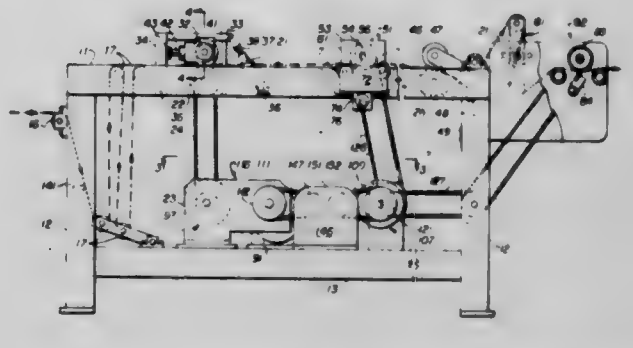
ROTARY BAG SEALING AND PERFORATING MACHINE

Helmut T. Schaffron, c/o Schaffron Machine & Engineering Co., 9 D, Harter Ave., Woodland, Calif. 95695

Filed Jul. 31, 1980, Ser. No. 174,164

Int. Cl.³ B32B *31/18;* B31B *1/26*

U.S. Cl. 156—510 **17 Claims**



1. In a machine for forming transverse lines across a moving web and wherein the distances between said lines may be varied, a frame, web advancing means for advancing said web longitudinally of said frame, a shaft extending transversely of said frame, line placement means rotated by said shaft for placing said transverse lines on said web during a portion of the cycle of rotation of said shaft, a motor, first means for driving said web advancing means from said motor, second means for rotating said shaft from said motor for said first portion of its cycle of rotation at a first speed having a first ratio to the speed of said first means and for a second portion of the cycle of rotation of said shaft at a second speed having a second ratio different from said first ratio, and second means for increasing and decreasing said second speed.

4,333,791

ULTRASONIC SEAM WELDING APPARATUS

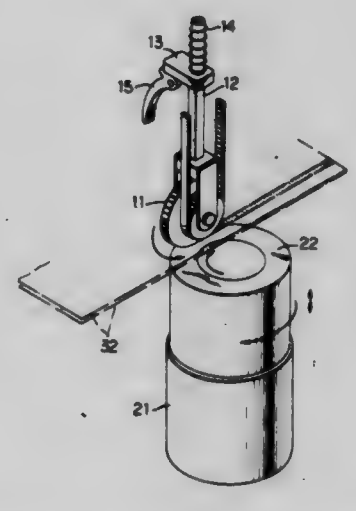
Heizo Onishi, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Oct. 14, 1980, Ser. No. 196,641

Claims priority, application Japan, Oct. 27, 1979, 54-149044[U]; May 20, 1980, 55-69056[U]

Int. Cl.³ B23K *19/04;* B29C *27/08*

U.S. Cl. 156—580.1 **8 Claims**



1. An ultrasonic seam welding apparatus comprising:

a machine frame provided with a plurality of supports;

a converter-horn assembly including a horn coupled to, for being oscillated in a parallel direction to a longitudinal axis of said assembly, an electroacoustic converter;

said horn having a circular flat surface substantially perpendicular to, and concentric with, said longitudinal axis;

bearing means interposed between said supports and said

assembly for enabling said assembly to rotate about said longitudinal axis;

a roller disposed rotatably on said machine frame;

said roller having a peripheral surface, which is placed opposite to said flat surface and at a position off-set from said longitudinal axis in a radial direction;

urging means for urging said roller toward said flat surface of said horn to hold two or more sheet-like thermoplastic workpieces between said roller and said flat surface; and

a drive means for rotating said horn to feed said workpieces.

4,333,792

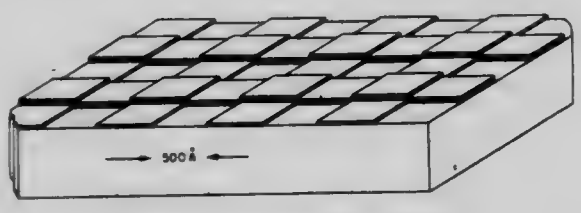
ENHANCING EPITAXY AND PREFERRED ORIENTATION

Henry I. Smith, Sudbury, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 756,358, Jan. 3, 1977, abandoned. This application Apr. 9, 1979, Ser. No. 28,118

Int. Cl.³ C30B *23/04*

U.S. Cl. 156—612 **38 Claims**



SURFACE RELIEF FOR EPITAXY CONTROL

1. A method of enhancing epitaxy and preferred orientation which method includes the steps of intentionally forming at predetermined locations a plurality of artificial defects having predetermined geometric form at the surface of a solid substrate, with said artificial defects being selected from the group consisting of (1) artificial point defects and (2) artificial surface relief structure,

the separation between adjacent artificial defects being sufficiently small so that both artificial defects in a pair of adjacent ones contribute to influencing said crystallographic orientation,

and thereafter depositing a film on said surface to form a substantially epitaxial or preferred orientation layer in said film having crystallographic orientation materially influenced by the geometric arrangement of adjacent artificial defects by a process in which the formation of crystalline regions and any changes in crystallographic orientation occur while material forming said film is in contact with said artificial defects.

4,333,793

HIGH-SELECTIVITY PLASMA-ASSISTED ETCHING OF RESIST-MASKED LAYER

Nadia Lifshitz, New Providence; Joseph M. Moran, Berkeley Heights, both of N.J., and David N. Wang, Cupertino, Calif., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 20, 1980, Ser. No. 199,023

Int. Cl.³ B44C *1/22; 25/06*

U.S. Cl. 156—643 **9 Claims**

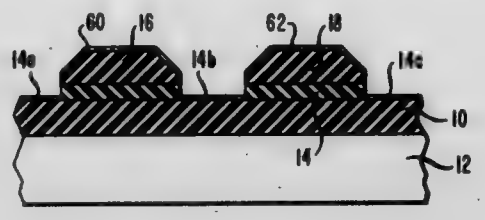
1. A method of fabricating a VLSI device, comprising the steps of

forming a layer to be patterned,

depositing a resist layer on said layer to be patterned,

patterning said resist layer to define features therein,

and, using said patterned resist layer as a mask, dry etching said layer to be patterned in a plasma-assisted etching step in which a protective polymer film is formed and maintained only on said patterned resist layer while said layer



to be patterned is etched to define said device features therein.

4,333,794

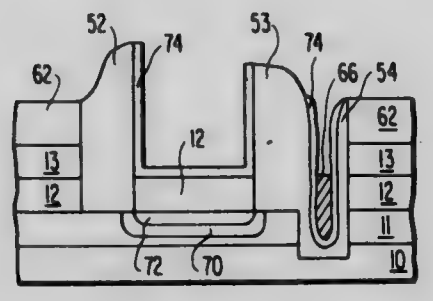
OMISSION OF THICK SI_3N_4 LAYERS IN ISA SCHEMES

Klaus D. Beyer, and Joseph S. Logan, both of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 7, 1981, Ser. No. 251,698

Int. Cl.³ H01L *21/306, 21/312*

U.S. Cl. 156—648 **10 Claims**



1. A method of forming self-aligned dielectric isolation in a semiconductor silicon substrate comprising:

(a) forming an epitaxial layer on said substrate;

(b) forming a polysilicon layer over said epitaxial layer;

(c) forming an ion implantation masking rectangular island on said polysilicon layer;

(d) forming ion implantation masking side walls on said diffusion-resistant rectangular island;

(e) implanting a first impurity into areas not covered by said island or said side walls;

(f) forming an ion implantation masking layer on said silicon substrate at areas other than at said diffusion-resistant side walls and abutting said side walls;

(g) removing said side walls;

(h) implanting a second impurity only in the area where said side walls were removed, said island and said masking layer preventing implantation into areas other than where said side walls were removed;

(i) etching a gap through said polysilicon layer at the areas where side walls were removed;

(j) covering the surface of said device with an etchable dielectric material, which etchable dielectric material also covers said exposed silicon layer;

(k) selectively masking and then removing said etchable dielectric material in areas other than in said island, said gap, and an area contiguous to said gap, whereby said etchable dielectric material is removed in a prospective deep trench area surrounding but spaced from said gap by said area contiguous said gap;

(l) etching a deep trench into said silicon substrate where said etchable dielectric material was removed from said prospective deep trench area, said deep trench being spaced from said island by said gap and said area contiguous to said gap;

(m) implanting a third impurity into said deep trench;

(n) filling said deep trench with a dielectric isolation material.

4,333,795

CHEMICAL COMPOSITIONS USEFUL AS PAPER SIZING AGENTS AND METHOD OF MAKING SAME

Peter C. Street, Langho, England, assignor to Tenneco Chemicals, Inc., Piscataway, N.J.

Filed Apr. 7, 1980, Ser. No. 137,677
Claims priority, application United Kingdom, May 23, 1979, 7918031
Int. Cl.[3] D21D *3/00;* D21H *3/28, 3/34;* C09D *3/40*
U.S. Cl. 162—168 N 23 Claims

1. A stable aqueous chemical composition which is suitable for use as a one-sheet sizing agent for paper, which comprises a rosin dispersion component, aluminum sulphate, and optionally an alkali, the pH of said composition being from about 3.0 to about 5.0.

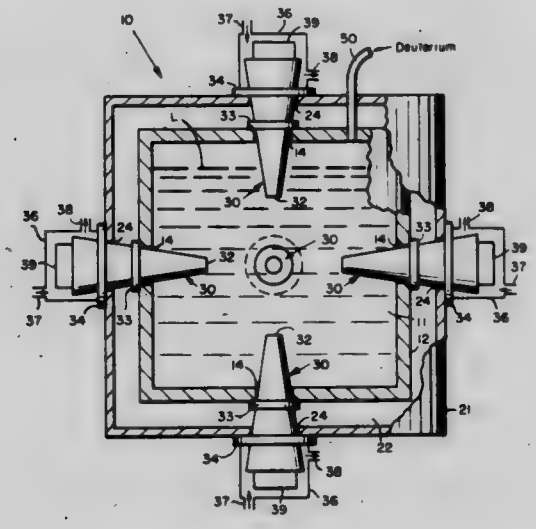
20. A method of sizing paper by a one-shot process which comprises adding the composition of claim 1 to a cellulosic, or other fibre, stock from which a web is subsequently made.

4,333,796

METHOD OF GENERATING ENERGY BY ACOUSTICALLY INDUCED CAVITATION FUSION AND REACTOR THEREFOR

Hugh G. Flynn, 55 Council Rock Ave., Rochester, N.Y. 14610

Filed May 19, 1978, Ser. No. 907,737
Int. Cl.[3] G21B *1/00*
U.S. Cl. 376—100 21 Claims



16. A cavitation fusion reactor for producing nuclear fusion neutrons and tritum, comprising

a first housing therein a chamber for holding a liquid metal at elevated temperatures and pressures,

a neutron and tritium shield surrounding said housing in spaced relation thereto,

an inert gas located in said space and surrounding said housing,

means for applying an external force in opposition to the force of gravity on the liquid metal thereby to counterbalance the force of gravity on the liquid metal so as to yield an effective gravity force of approximately zero on the liquid metal and form a cavitation zone therein, and

means for applying an acoustical pulsing field having alternating negative and positive pressure pulses to the liquid metal to vary its ambient pressure sufficiently to induce in the metal in said zone a cavitation effect which causes at least one small bubble to be formed and expand by means of said negative pressure pulse and then to collapse violently by means of a positive pressure pulse, said means for applying acoustic pulses including

a first plurality of acoustical horns mounted intermediate their ends in said housing and said shield, respectively, and extending through said space to supply acoustical energy to a liquid metal in said chamber, and

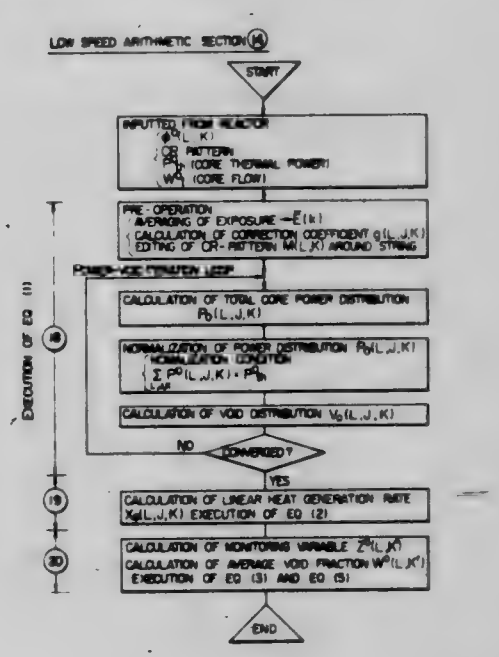
means for supplying deuterium to said chamber, thereby to provide hydrogen isotopes that are subjected to nuclear fusion by said acoustical energy.

4,333,797

REACTOR POWER CONTROL APPARATUS

Yasuo Nishizawa, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed May 7, 1980, Ser. No. 147,077
Claims priority, application Japan, May 11, 1979, 54-57045
Int. Cl.[3] G21C *7/00*
U.S. Cl. 376—210 3 Claims



1. A reactor power control apparatus for a nuclear reactor, comprising core flow control means for controlling a core flow within the reactor to thereby control reactor power, and arithmetic operational means for determining the linear heat generation rate in the longitudinal direction of fuel rods in the reactor from input quantities available from neutron detectors provided at predetermined locations in said reactor and producing a core flow setting signal to be supplied to said core flow control means so that change rate of said linear heat generation rate does not exceed a limit change rate, said arithmetic operational means comprising:

first means for determining a monitoring quantity represented by a ratio between the linear heat generation rate and neutron flux at monitoring points within said reactor and for determining a void fraction at said monitoring points;

second means for receiving as input thereto scheduled values of maximum and minimum electric powers expected in succeeding operation of said reactor to determine said monitoring quantities and said void fractions at said monitoring points which correspond to said maximum electric power and said minimum electric power, respectively, to thereby derive a relation among three sets of said monitoring quantities and said void fractions;

third means for determining the void fraction from the instant neutron flux and determining the linear heat generation rate from the just above-mentioned void fraction and neutron flux in accordance with said relation for every control period; and

fourth means for producing said core flow setting signal on the basis of said linear heat generation rate.

4,333,798

SLEEVE CONNECTION FOR RECONSTITUTABLE CONTROL ROD GUIDE TUBE

Andrew J. Anthony, Tariffville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 10, 1979, Ser. No. 102,171
Int. Cl.[3] G21C *19/20*
U.S. Cl. 376—449 4 Claims



1. In a reconstitutable nuclear fuel assembly of the type including a zircaloy control rod guide tube having an internally threaded boss at its upper end removably connected to an externally threaded extension portion of a stainless steel post, and having a critical region within the tube which may be subject to wear from a control rod to be suspended therein, the improvement comprising:

the guide tube boss having an internal ledge below the threads thereof;

a flanged, thin-walled metal cylinder suspended from the ledge within the guide tube and extending downward below the critical region, the cylinder having an inner diameter larger than the control rod outer diameter and an outer surface in firm contact with the tube inner surface over substantially the entire length of the cylinder;

and the lowermost internal extension of the post being in vertical alignment with but slightly spaced form the flange, whereby the cylinder may freely expand toward the post but is restrained from moving upward into the post.

4,333,799

PURIFICATION AND RECOVERY OF ETHYLENE DICHLORIDE

Aurelio M. Crico, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 61,711, Jul. 30, 1979, abandoned. This application Dec. 15, 1980, Ser. No. 216,038
Int. Cl.[3] B01D *3/40*
U.S. Cl. 203—67 2 Claims

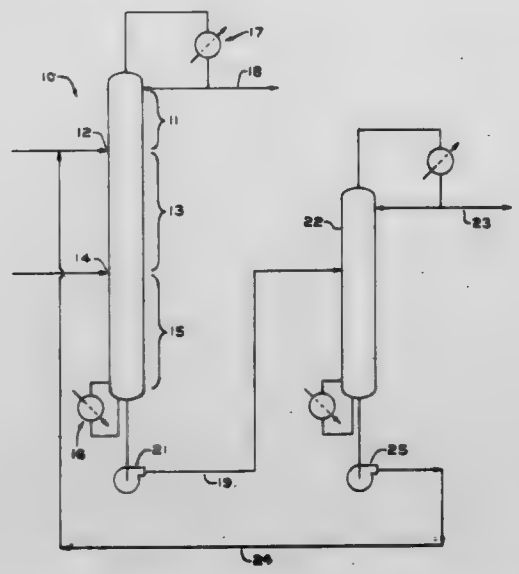
1. A process comprising:

a. vaporizing n moles per hour of crude liquid ethylene dichloride containing trichloroethylene, benzene or a mixture thereof to form vaporous crude ethylene dichloride;

b. feeding n moles per hour of said vaporous crude ethylene dichloride to a distillation column at a first feed point;

c. feeding at least 0.43 n moles per hour of liquid perchloroethylene to said column at a second feed point located on said column above said first feed point;

d. within said column, contacting vaporous crude ethylene dichloride with downflowing perchloroethylene, thereby stripping ethylene dichloride of trichloroethylene, benzene or a mixture thereof, and



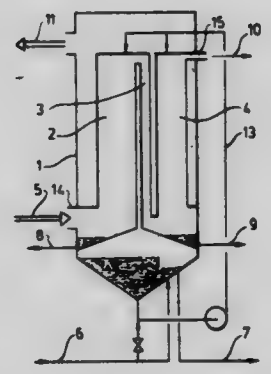
e. recovering, as a light fraction, ethylene dichloride having a reduced content of trichloroethylene, benzene or a mixture thereof.

4,333,800

METHOD FOR THE RECOVERY OF EASILY EVAPORABLE COMPONENTS FROM HOT GASES

Kaj O. Henricson, Kaskö, Finland, assignor to Rosenblad Corporation, Princeton, N.J.

Continuation of Ser. No. 746,676, Dec. 2, 1976, abandoned. This application Jan. 11, 1979, Ser. No. 2,686
Int. Cl.[3] B01D *3/14*
U.S. Cl. 203—87 2 Claims



1. A method for the recovery of heat and easily evaporable components from methanol and turpentine-bearing vapor wherein such vapor from a single source of vapor is selectively condensed to produce two distinct and different condensates, a clean condensate and a condensate containing methanol, comprising the steps of:

(a) feeding hot liquor from cellulose digestion to an expansion tank to separate a first stream of methanol and turpentine-bearing vapor from the liquor, which vapor is said vapor from a single source of vapor;

(b) feeding said first vapor stream from a single source from step (a) to the section of a first gas space of an evaporator, expanding and feeding the liquor from step (a) to said evaporator as cooling liquor and passing said cooling liquor countercurrently to and in indirect heat exchange contact with said vapor in said first gas space to produce a clean condensate from said vapor which is relatively free of easily evaporable components while leaving some of said vapor uncondonsed;

(c) removing said clean condensate from said evaporator and passing said uncondensed vapor into a second gas space of said evaporator to flow therethrough in concurrent indirect heat exchange contact and then in countercurrent indirect heat exchange contact with said cooling liquor,

producing a second condensate from the vapor in said second gas space containing methanol and leaving uncondensed some vapor in said second gas space containing methanol and turpentine;

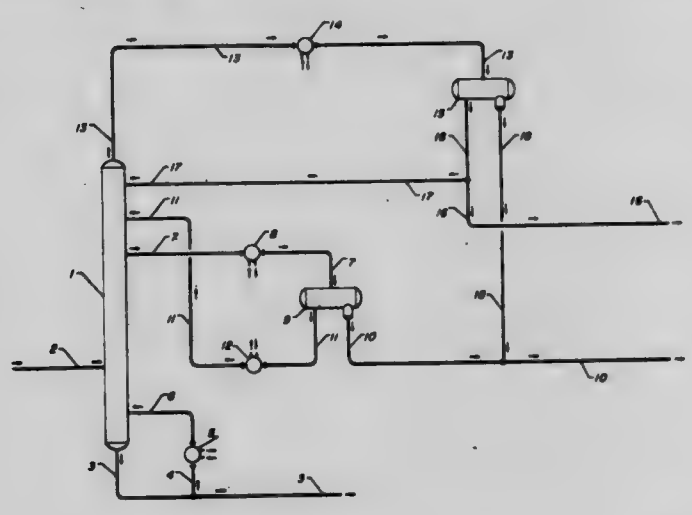
(d) discharging said condensate containing methanol from said second gas space, and withdrawing said uncondensed vapor from said second gas space to a turpentine condenser for condensation of turpentine and separation of methanol therefrom and combining said separated methanol with the condensate from said second gas space and discharging cooling liquor from the evaporator.

4,333,801

RECOVERY OF A CUMENE/ALPHA-METHYLSTYRENE FRACTION FROM A MIXTURE THEREOF WITH PHENOL AND WATER

Peter R. Pujado, Palatine, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Aug. 3, 1981, Ser. No. 289,591
Int. Cl.³ B01D *3/14*
U.S. Cl. 203—94 4 Claims



1. A process for the recovery of a fraction comprising a secondary alkylbenzene and the corresponding secondary monoalkenylbenzene from a mixture thereof with a phenol and water which comprises the steps of:

(a) introducing said mixture into a fractionation column at an intermediate level, said column being operated at conditions to separate an overhead fraction comprising said secondary alkylbenzene and said secondary monoalkenylbenzene, and a bottoms fraction comprising said phenol;

(b) recovering one portion of said overhead fraction, and returning another portion thereof as reflux to said column;

(c) withdrawing a vapor stream from a level in said column above the aforementioned intermediate level and below the withdrawl point of said overhead fraction, said vapor stream comprising at least a portion of said secondary alkylbenzene and said secondary alkenylbenzene and an azeotropic mixture of said phenol and water;

(d) condensing said vapor stream and forming an organic phase and an aqueous phase; and,

(e) discharging said aqueous phase, and recycling said organic phase to said column at a level above that at which said vapor stream is withdrawn and below that at which said secondary alkylbenzene/secondary alkenylbenzene fraction is returned to said column as reflux, said organic phase being recycled to said column at conditions to maintain the vapor phase conditions therein.

4,333,802

METHOD OF ELECTROCHEMICAL OBTAINING OF BRIGHT TIN COATINGS

Jan Przyluski; Kazimierz Madry; Zbigniew Dolecki; Andrzej Kotarski; Maria Drygas; Jacek Kokosinski; Zygmunt Kuzma, and Bohdan Chelminski, all of Warsaw, Poland, assignors to Politechnika Warszawska, Warsaw, Poland

Continuation-in-part of Ser. No. 109,581, Jan. 4, 1980, abandoned. This application Jan. 22, 1981, Ser. No. 227,306
Claims priority, application Poland, Jan. 11, 1979, 212740
Int. Cl.³ C25D *3/32*
U.S. Cl. 204—54 R 1 Claim

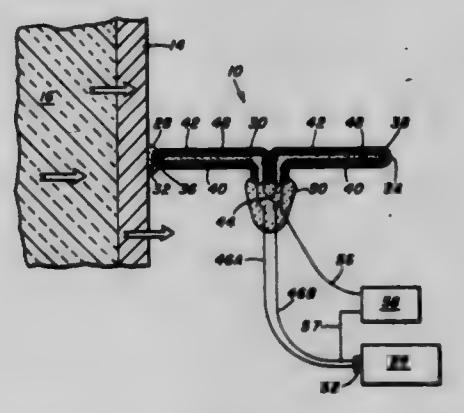
1. In a method for the electrodeposition of bright tin coatings by the use of an electroplating bath comprising a solution of stannous sulfate and sulfuric acid, the improvement which comprises adding to the bath an alcoholic solution containing from 14 to 30 percent by weight of a surface active agent, from 0.5 to 5 percent by weight of an unsaturated carbonyl compound containing an aryl group, from 1.0 to 10.0 percent by weight of the product of transesterification of a natural fat, and at least one of the following ingredients: from 0 to 8 percent by weight of an ester of an unsaturated acid and from 0 to 15 percent by weight of compound containing an ether group, the said solution being added to the bath in the ratio of 1 part of solution to 20 to 35 parts by weight of the bath.

4,333,803

METHOD AND APPARATUS FOR CONTROLLING THE HEAT BALANCE IN ALUMINUM REDUCTION CELLS

Edward J. Seger, Apollo, and Warren E. Haupin, New Kensington, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Oct. 3, 1980, Ser. No. 193,597
Int. Cl.³ C25C *3/00, 3/06, 3/20;* G01F *15/02*
U.S. Cl. 204—67 19 Claims



18. In a method of controlling the energy balance and lateral ledge thickness of electrolyte in an aluminum reduction cell including molten aluminum and electrolytic bath, the method comprising:

(a) attaching a relatively short and thin heat flow sensor at a location on the outside surface of a cell wall with said sensor having a negligible effect on the heat flow from the surface to which it is attached;

(b) said sensor having a close-ended hollow thermally conductive body, a first and a second thermocouple therein each near opposite ends of the body, each thermocouple having two wires of dissimilar metals, each thermocouple having the same dissimilar metals, and insulation within the body for electrically insulating the wires from the body, said sensor attached substantially perpendicular to the cell side wall by one closed end of the sensor body at a location below the minimum molten aluminum and electrolytic bath interface;

(c) electrically connecting one of said wires of the first thermocouple with the wire of the same metal of the second thermocouple at a location intermediate the closed ends of the sensor body;

(d) electrically connecting the other of the two wires of the first and second thermocouple with an instrument respon-

sive to the electrical potential between the first and second thermocouples, said wires extending out of the sensor body at a location intermediate the closed ends of the body;

(e) measuring an electrical signal generated by the temperature difference between the first and second thermocouples, the signal being a function only of the cell wall surface and heat flux from the surface;

(f) determining the heat flow through the cell wall as a function of the temperature difference; and

(g) maintaining a predetermined energy balance commensurate with a stable reduction cell by adjusting the amount of heat added to the cell to control the lateral ledge thickness of electrolyte.

4,333,804

METHOD OF PREVENTING DETERIORATION OF PALLADIUM OXIDE ANODE

Kohji Saito, and Hidenori Shibata, both of Chiba, Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Jan. 21, 1981, Ser. No. 226,903
Claims priority, application Japan, Jan. 22, 1980, 55/5231
Int. Cl.³ C25B *1/34*
U.S. Cl. 204—98 **9 Claims**

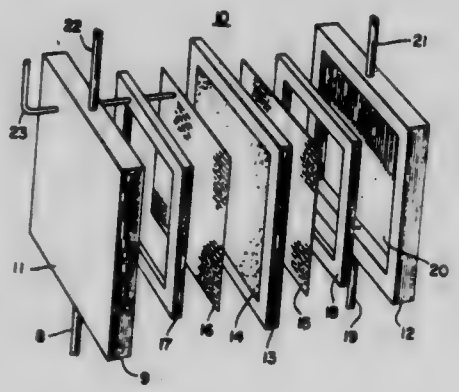
1. The method of preventing deterioration of a palladium oxide type anode in the anolyte of a diaphragm type electrolytic cell for electrolysis of an alkali metal chloride comprising adding to said anolyte a compound generating hypochlorite ion during shortcircuit state, the concentration of said hypochlorite ion being higher than 1.0 g./l., whereby the concentration of hypochlorite ion in the anolyte yields an anode potential higher than the reduction potential of palladium oxide.

4,333,805

HALOGEN EVOLUTION WITH IMPROVED ANODE CATALYST

Craig R. Davidson, Hampstead, N.H., and John M. Sedlak, Andover, Mass., assignors to General Electric Company, Wilmington, Mass.

Continuation of Ser. No. 145,936, Mar. 2, 1980. This application Apr. 27, 1981, Ser. No. 258,127
Int. Cl.³ C25B *1/34, 11/08*
U.S. Cl. 204—98 **21 Claims**



1. In a method for electrolytically generating halogens comprising:

(a) providing a catalytic cathode;

(b) providing a catalytic halogen evolving anode;

(c) positioning a solid polymer electrolyte ion transporting membrane between the cathode and the anode, the cathode being bonded to one surface of the membrane and the anode being bonded to the other surface of the membrane, and,

(d) providing a direct potential between the cathode and the anode and supplying a halogen-containing electrolyte to one of the electrodes to be acted on electrochemically to evolve halogen gas at the anode;

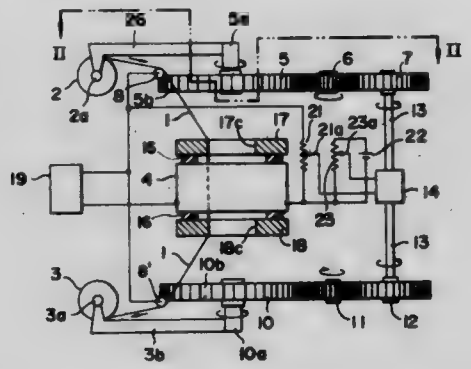
the improvement comprising providing a catalyst at the halogen evolving anode comprising ruthenium oxide and manganese oxide.

4,333,806

METHOD OF AND APPARATUS FOR ELECTROEROSIVELY MACHINING A CONTOUR IN A WORKPIECE WITH A TRAVELING-WIRE ELECTRODE

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed Aug. 29, 1980, Ser. No. 182,648
Claims priority, application Japan, Aug. 30, 1979, 54-110551
Int. Cl.³ B23P *1/02, 1/12*
U.S. Cl. 204—129.1 **19 Claims**



1. A method of electroerosively machining a desired contour in a workpiece with a wire electrode axially transported from supply means to takeup means and supported under tension by a pair of wire guide heads so as to traverse the workpiece in a path therebetween while defining a liquid flooded electroerosive machining gap with the workpiece, the method comprising the steps of:

(a) disposing on at least one side of the two opposite surfaces of said workpiece traversed by said axially advancing wire electrode and in a predetermined fixed relationship with said workpiece a template block formed with a template contour corresponding to said desired contour to be machined in said workpiece;

(b) holding with said template contour said wire electrode advancing tightly stretched between said wire guide heads across said workpiece;

(c) electrically energizing said workpiece and said axially advancing wire electrode to electroerosively remove material from said workpiece across said machining gap; and

(d) while holding with said template contour said wire electrode advancing tightly stretched between said wire guide heads across said workpiece, displacing at least one of said guide heads to cause said axially advancing wire electrode to move transversely to the axis thereof along said template contour so that with the transverse movement of said wire electrode, said desired contour is progressively formed in said workpiece by electroerosion.

4,333,807

REVERSE COATING PROCESS

Tameyuki Suzuki, Zushi, and Akira Kubo, Sakura, both of Japan, assignors to Shinto Paint Co., Ltd., Amagasaki, Japan

Filed Oct. 1, 1980, Ser. No. 192,839
Claims priority, application Japan, Oct. 12, 1979, 54-132257
Int. Cl.³ C25D *13/06, 13/20*
U.S. Cl. 204—181 T **3 Claims**

1. In a reverse coating process comprising coating a substrate with a coating composition containing a fine synthetic resin powder which is solid at a room temperature but can be melted at an elevated temperature, heating the thus-obtained coating, electrodeposition coating the first coating with an ionic coating composition and subsequently heating the same, the improvement wherein the heating step following the first coating of the substrate with said resin powder-containing

coating composition is carried out at a temperature which is high enough to completely melt the thus-formed coating but not so high to effect cross-linking curing of said coating, and wherein the coating, after the said heating or the electrodeposition coating step, is subjected to sanding, and the last heating step is carried out at a temperature which is high enough to effect a cross-linking cure reaction in the coating.

4,333,808

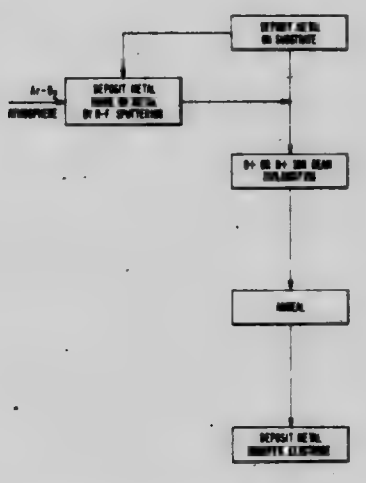
METHOD FOR MANUFACTURE OF ULTRA-THIN FILM CAPACITOR

Arup Bhattacharyya, Essex Junction, Vt.; Wei-Kan Chu, Poughkeepsie; James K. Howard, Fishkill, both of N.Y., and Francis W. Wiedman, Stowe, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 89,710, Oct. 30, 1979, abandoned. This application Feb. 13, 1981, Ser. No. 234,084

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—192 D **6 Claims**



1. A method for manufacture of an ultra-thin film capacitor comprising:

providing a substrate,

applying to said substrate a metal electrically conductive film to form a composite having a first capacitor electrode,

applying by sputtering a film selected from the group consisting of metal oxide films and metal nitride films to the surface of said first electrode;

the metal of said metal oxide and metal nitride films is selected from the group consisting of tantalum, niobium, titanium, vanadium, hafnium and zirconium;

subjecting the surface of said metal oxide and metal nitride films to ion implantation treatment to implant ions selected from the group consisting of O+ and N+ ions in the surface of said first electrode;

subjecting said composite to annealing heat treatment to provide an ultra-thin dielectric film adjacent the surface of said first electrode; and

applying an electrically conductive film to said composite to form a counter capacitor electrode.

4,333,809

CROSS-LINKABLE POLYCARBONATE ELASTOMERS, A PROCESS FOR THEIR PREPARATION AND USE FOR PACKAGING MEDICINES

Manfred Schreckenberg; Dieter Freitag, both of Krefeld; Hans-Heribert Burgdörfer, Cologne, all of Fed. Rep. of Germany; Günther Lehnert, Emeryville, Calif.; Siegfried Adelmann, and Hans Rudolph, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 22, 1980, Ser. No. 170,439

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1979, 2930787

Int. Cl.³ C08G *63/62;* C08J *3/28*

U.S. Cl. 204—159.14 **14 Claims**

1. In the process for the preparation of high molecular weight, thermoplastically processable, segmented, cross-linkable polycarbonate elastomers by known polycarbonate preparation processes, in a heterogeneous or a homogeneous solvent phase system, from "soft segments" which are capable of incorporation and from diphenols, the improvement comprising cocondensing aromatic hydroxyketones having the carbonyl and the hydroxyl groups bonded directly to an aromatic ring in amounts of 1 to 20 mol % relative to the molar amount of said diphenols.

4,333,810

ANALYZER FOR CHEMICAL OXIDIZING OR REDUCING AGENTS

Duane K. Wolcott, and John B. Carraway, Jr., both of Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich.

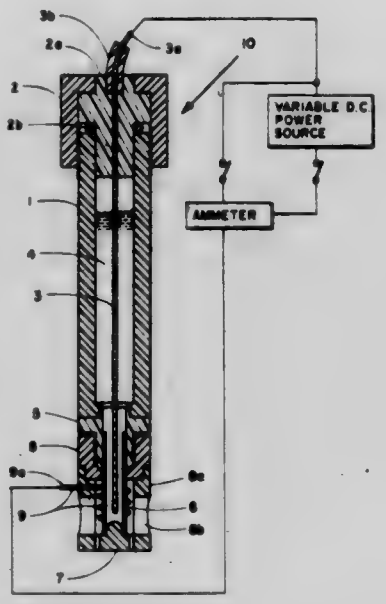
Filed Apr. 11, 1980, Ser. No. 139,379

Int. Cl.³ G01N *27/30, 27/52*

U.S. Cl. 204—195 M **27 Claims**

1. An instrument for quantitatively determining the concentration of chemical oxidizing and reducing agents in a gaseous environment, comprising: a first electrode exposed to said gaseous environment; a second electrode; an electrolyte solution; an ion-exchange membrane adapted to contain said electrolyte solution; and means for measuring a flow of electrical current generated between said first and second electrodes, said second electrode in contact with said electrolyte solution, said ion-exchange membrane separating said electrolyte solu-

tion and second electrode from said first electrode, said first electrode in electrical contact with said ion-exchange membrane thereby completing an electrochemical couple between said first and second electrodes.



4,333,811

DEVICE FOR MONITORING A COMPONENT IN A FLUID MIXTURE

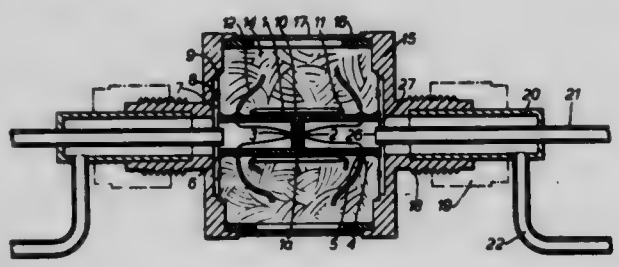
Riad M. A. Kocache, and Danny F. Holman, both of Crowborough, England, assignors to Sybron Corporation, Rochester, N.Y.

Filed Jun. 20, 1980, Ser. No. 161,449

Claims priority, application United Kingdom, Jun. 21, 1979, 7921718

Int. Cl.³ G01N *27/58*

U.S. Cl. 204—195 S **11 Claims**



1. A device for monitoring a component in a fluid mixture comprising a tube, the bore of which is divided into two chambers by a disc of solid electrolyte having a conducting ion related to the component to be monitored, the disc being provided with electrodes on its opposed faces, the device further comprising a housing within which said tube is disposed, and suspension means for resiliently suspending said tube within said housing.

4,333,812

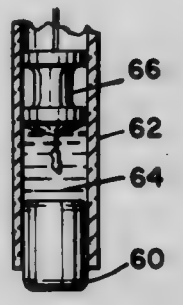
ORIENTATION-INSENSITIVE ELECTRODE

Gary L. Bukamier, 4358 E. La Palma, Anaheim, Calif. 92807, and Steven L. Rupert, 600 Langsdorf Dr., Fullerton, Calif. 92631

Filed Jun. 27, 1980, Ser. No. 163,710

Int. Cl.³ G01N *27/30, 27/36*

U.S. Cl. 204—195 G **9 Claims**



1. An electrode comprising:

a container for electrolyte including a wall at which electrochemical sensing is to be accomplished;

a body of electrolyte disposed in said container overlying said wall;

maintaining means for maintaining said electrolyte in intimate contact with said wall against gravitational force in every spacial orientation of the electrode;

said maintaining means comprising a piston which is trapped between said container and said body of electrolyte to increase with temperature and which is biased to maintain intimate contact with said electrolyte to prevent formation of bubbles as the volume of electrolyte is decreased;

the piston being formed with two spaced, outwardly extending resilient encompassing flanges by which it engages the walls of the container and which yields to permit piston action by the central region of said piston.

4,333,813

CATHODES FOR ALUMINA REDUCTION CELLS

Howard I. Kaplan, Florence, Ala.; Jerry H. Bryce, Lawrenceburg, Tenn.; Thomas J. Johnston, Rogersville, Ala.; Curtis J. McMinn, Florence, Ala.; John T. Willett, Florence, Ala., and Nolan E. Richards, Florence, Ala., assignors to Reynolds Metals Company, Richmond, Va.

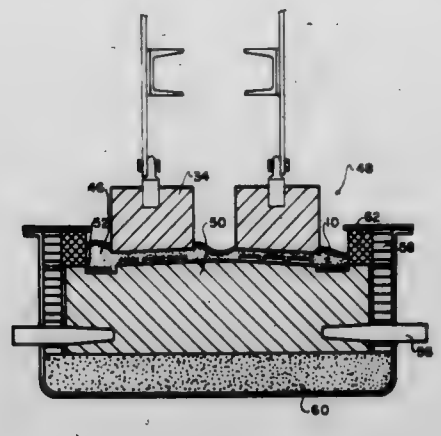
Continuation-in-part of Ser. No. 126,837, Mar. 3, 1980, abandoned, which is a continuation of Ser. No. 43,241, May 29, 1979, abandoned, which is a continuation of Ser. No. 43,338, May 29, 1979, abandoned. This application Nov. 5, 1980, Ser. No. 203,559

Int. Cl.³ C25C *3/08;* B32B *9/04;* B05D *5/12*

U.S. Cl. 204—243 R **29 Claims**

11. An alumina reduction cell having a drained cathode which comprises a carbonaceous bed and a composite tile, said composite tile being characterized by a layer of an RHM material bonded to a base layer of a graphitic material, said RHM material comprising a hot pressed mixture of titanium diboride and aluminum nitride powders, said composite tile being further characterized by the bond between said layer of an RHM material and said base layer of a graphitic material, said bond having been produced simultaneously as said layer of an RHM material is formed by hot pressing said mixture of said powders directly against said base layer of a graphitic material,

said base layer of a graphitic material being bonded to said carbonaceous bed by means of a carbonaceous cement, said



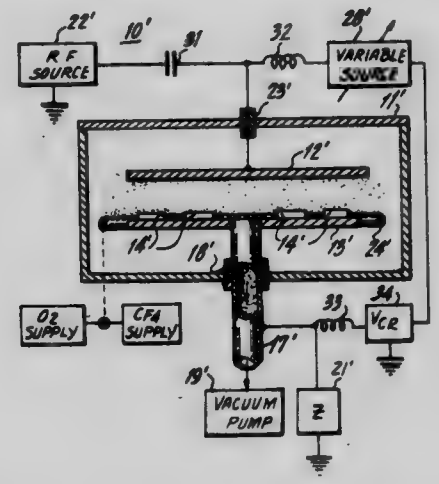
layer of an RHM material thereby providing a molten aluminum contacting surface of said cathode.

4,333,814

METHODS AND APPARATUS FOR IMPROVING AN RF EXCITED REACTIVE GAS PLASMA

Birol Küyel, Hopewell, N.J., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Dec. 26, 1979, Ser. No. 107,223
Int. Cl.³ C23F *1/02*
U.S. Cl. 204—298 **2 Claims**



1. Apparatus for controlling the plasma etching of at least one surface of a workpiece which comprises:

a hermetically-sealed reaction chamber;

first and second, spaced-apart, electrodes positioned within said chamber, said workpiece being supported by at least said second electrode for exposure to the plasma;

means for supplying at least one gas species to said reaction chamber;

means for maintaining a predetermined level of vacuum within said chamber, said means also serving to exhaust spend gases and reaction by-products from the chamber;

a source of RF energy for establishing an alternating field between said first and second electrodes thereby to excite said gas species to form an RF reactive gas plasma;

a DC blocking capacitor intermediate the output of said source of RF energy and said first electrode;

a variable source of DC potential;

an RF-choke interconnecting a first output terminal of said variable source of DC potential and said first electrode;

a voltage-controlled-resistor having a control electrode connected intermediate a second output terminal of said variable DC source and ground; and

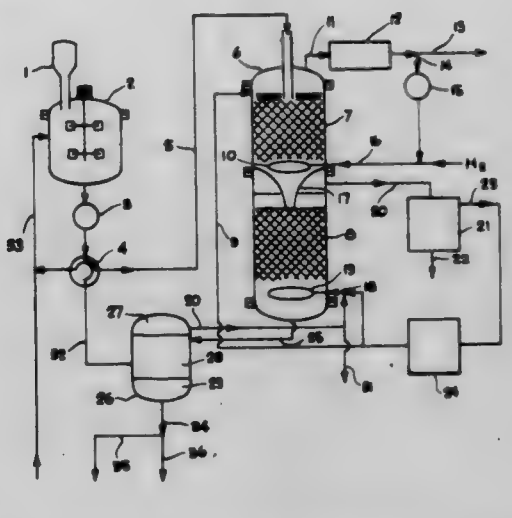
an RF-choke interconnecting the control electrode of said voltage-controlled-resistor and said second electrode.

4,333,815

COAL LIQUEFACTION IN AN INORGANIC-ORGANIC MEDIUM

Theodore Vermeulen, Berkeley; Edward A. Grens, II, Danville, and Ronald R. Holten, El Cerrito, all of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 5, 1979, Ser. No. 17,299
Int. Cl.³ C10G *1/06, 1/08*
U.S. Cl. 208—10 **14 Claims**



1. An improved process for the liquefaction of coal by contacting pulverized coal in the presence of hydrogen at a temperature in the range of about 225° C. to below 315° C. and a pressure of at least 200 p.s.i.g. with a liquid mixture having an inorganic phase and an organic phase, wherein:

(1) said inorganic phase consists essentially of $ZnCl_2$ catalyst melt and optionally water, and wherein

(2) said organic phase comprises at least one organic solvent selected from the group consisting of (a) and (b) wherein

(a) is an organic solvent miscible with $ZnCl_2$ catalyst characterized as being soluble in the organic phase and as reducing the melting point of $ZnCl_2$ catalyst, said organic solvent being selected from the group consisting of methanol, ethanol, propanol, isopropanol, and a mixture thereof, and

(b) is a hydrogen-donor solvent comprising hydroaromatic hydrocarbons immiscible with the $ZnCl_2$ catalyst, with the provision that the inorganic phase must contain water when a member of (2a) is not selected as a constituent of the organic phase.

11. An improved process for the liquefaction of coal by contacting pulverized coal in the presence of hydrogen at a temperature in the range of about 225° C. to below 315° C. and a pressure of at least 200 p.s.i.g. with a liquid mixture having an inorganic phase and an organic phase, wherein:

(1) said inorganic phase consists essentially of $ZnCl_2$ catalyst melt and optionally water, and wherein

(2) said organic phase comprises methanol.

4,333,816

METHOD FOR THE PRODUCTION OF NEEDLE COKE

Georg Kölling, Essen; Ingo Romey, Drevenack, and Hellmut Kokot, Essen, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Filed Aug. 18, 1980, Ser. No. 179,281
Claims priority, application Fed. Rep. of Germany, Feb. 22, 1980, 3006694
Int. Cl.³ C10G *9/14*
U.S. Cl. 208—91 **5 Claims**

1. A method for production of needle coke, comprising the steps of liquifyng coal tar pitch at temperatures from aboout 135° C. to 280° C.; filtering the liquified coal tar pitch through a sieve having apertures from about 100 to 220 μm and a closed surface of at least 75 percent of the total sieve surface, under pressures from about 2 to 10 bar, until a filter cake of a height

of from about 40 to 80 mm forms above the sieve for separating ash, soot and quinoline-insoluble parts from the liquid; and subjecting the filtrate obtained to a coking process.

4,333,817

SEPARATION OF NORMALLY GASEOUS HYDROCARBONS FROM A CATALYTIC REFORMING EFFLUENT AND RECOVERY OF PURIFIED HYDROGEN

Dennis E. O'Brien, Arlington Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 26, 1981, Ser. No. 228,517
Int. Cl.[3] C10G *47/00, 49/22*
U.S. Cl. 208—101 5 Claims

1. A process for the catalytic reforming of a hydrocarbonaceous feedstock which comprises the steps of:

(a) contacting said feedstock with a reforming catalyst in a reforming zone in the presence of hydrogen at reforming conditions to produce an effluent stream comprising hydrogen admixed with hydrocarbon conversion products;

(b) separating said effluent at a low pressure relative to the reforming pressure and forming a gaseous phase comprising hydrogen admixed with light hydrocarbon conversion products and a liquid hydrocarbon phase comprising the heavier hydrocarbon conversion products;

(c) recovering the liquid hydrocarbon phase and introducing the same into a plural stage absorption zone as the hereinafter specified lean oil;

(d) recycling a portion of said gaseous phase to the reforming zone as at least a portion of the hydrogen contained therein;

(e) contacting the balance of said gaseous phase with the heretofore specified lean oil in said plural stage absorption zone at a high pressure relative to the reforming pressure and at a temperature of from about 90° to about 150° F. to produce a purified hydrogen stream and a light hydrocarbon-enriched lean oil stream;

(f) recovering the purified hydrogen stream; and,

(g) introducing the light hydrocarbon-enriched lean oil stream into a fractionation zone at conditions to produce an overhead fraction comprising said light hydrocarbon conversion products, and a higher boiling reformate fraction comprising said heavier hydrocarbon conversion products.

4,333,818

SEPARATION OF NORMALLY GASEOUS HYDROCARBONS FROM A CATALYTIC REFORMING EFFLUENT AND RECOVERY OF PURIFIED HYDROGEN

Angelo C. Coste, Chicago, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 26, 1981, Ser. No. 228,516
Int. Cl.[3] C10G *47/00, 49/22*
U.S. Cl. 208—101 7 Claims

1. A process for the catalytic reforming of a hydrocarbonaceous feedstock which comprises the steps of:

(a) contacting said feedstock with a reforming catalyst in a reforming zone in the presence of hydrogen at reforming conditions to produce an effluent stream comprising hydrogen admixed with hydrocarbon conversion products;

(b) separating said effluent in a first gas-liquid separation zone at a low pressure relative to said reforming zone and forming a gaseous phase comprising hydrogen admixed with light hydrocarbon conversion products and a liquid hydrocarbon phase comprising the heavier hydrocarbon conversion products;

(c) compressing the gaseous phase from step (b) to a high pressure relative to said first gas-liquid separation zone;

(d) admixing the gaseous phase from step (c) with at least a portion of the liquid hydrocarbon phase from step (b);

(e) separating the resulting mixture in a second gas-liquid separation zone at said relatively high pressure and forming a gaseous phase comprising relatively pure hydrogen and a liquid hydrocarbon phase;

(f) recycling a portion of the gaseous phase from step (e) to said reforming zone;

(g) compressing the balance of the gaseous phase from step (e) to a pressure of from about 300 to about 800 psig.;

(h) admixing the gaseous phase from step (g) with at least a portion of the liquid hydrocarbon phase from step (e);

(i) separating the resulting mixture in a third gas-liquid separation zone at a pressure of from about 300 to about 800 psig. and forming a purified hydrogen stream and a liquid hydrocarbon stream comprising the hydrocarbon conversion products;

(j) recovering the purified hydrogen stream; and,

(k) introducing the liquid hydrocarbon stream into a fractionation zone at conditions to produce an overhead fraction comprising light hydrocarbon conversion products and a higher boiling reformate fraction comprising the heavier hydrocarbon conversion products.

4,333,819

SEPARATION AND RECOVERY OF HYDROGEN AND NORMALLY GASEOUS HYDROCARBONS FROM NET EXCESS HYDROGEN FROM A CATALYTIC REFORMING PROCESS

Clifford A. Scheifele, Jr., Glendale Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 26, 1981, Ser. No. 228,518
Int. Cl.[3] C10G *47/00, 49/22*
U.S. Cl. 208—101 7 Claims

1. A process for converting hydrocarbons in the presence of hydrogen which comprises the steps of:

(a) contacting said hydrocarbons with a catalyst in the presence of hydrogen at hydrocarbon conversion conditions to produce an effluent stream comprising hydrogen admixed with hydrocarbon conversion products;

(b) separating said effluent at a relatively low pressure into a gaseous stream comprising hydrogen admixed with light hydrocarbon conversion products and a liquid stream comprising the heavier hydrocarbon conversion products;

(c) contacting at least a portion of said gaseous stream with a hereinafter specified lean oil in a plural stage absorption zone at a relatively high pressure, and at a temperature of from about 0° to about 55° F., to produce a relatively pure hydrogen stream and a light hydrocarbon-enriched oil stream;

(d) recovering the relatively pure hydrogen stream;

(e) introducing the enriched oil stream into a fractionation zone at conditions to produce an overhead fraction comprising said light hydrocarbon conversion products, and a fraction comprising the heavier hydrocarbon conversion products; and,

(f) combining the liquid hydrocarbon stream from step (b) with a portion of the heavier hydrocarbon fraction from step (e) and passing the combination into said plural stage absorption zone as said specified lean oil.

4,333,820

RECOVERY OF NORMALLY GASEOUS HYDROCARBONS FROM NET EXCESS HYDROGEN IN A CATALYTIC REFORMING PROCESS

Clifford A. Scheifele, Jr., Glendale Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 26, 1981, Ser. No. 228,519
Int. Cl.[3] C10G *47/00, 49/22*
U.S. Cl. 208—101 7 Claims

1. A process for converting hydrocarbons in the presence of hydrogen which comprises the steps of:

(a) contacting said hydrocarbons with a catalyst in the presence of hydrogen at hydrocarbon conversion conditions to produce an effluent stream comprising hydrogen admixed with hydrocarbon conversion products;

(b) separating said effluent at a relatively low pressure into a gaseous stream comprising hydrogen admixed with light hydrocarbon conversion products, and a liquid stream comprising heavier hydrocarbon conversion products;
(c) contacting at least a portion of said gaseous stream with a hereinafter specified lean oil in a plural stage absorption zone at a relatively high pressure, and at a temperature of from about 0° to about 60° F., to produce a relatively pure hydrogen stream and a light hydrocarbon-enriched oil stream;
(d) recovering the hydrogen stream;
(e) introducing the enriched oil stream into a fractionation zone at conditions to produce an overhead fraction comprising light hydrocarbon conversion products, and a lower fraction comprising heavier hydrocarbon conversion products; and,
(f) passing the liquid hydrocarbon stream from step (b) into said plural stage absorption zone as said specified lean oil.

4,333,821

PROCESS FOR USE OF A HIGH OCTANE FCC CATALYSTS

Hosheng Tu, Shorewood, Ill., assignor to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 147,980, May 8, 1980, Pat. No. 4,299,733. This application Jun. 1, 1981, Ser. No. 268,620
Int. Cl.³ C10G *11/05, 11/04*
U.S. Cl. 208—120 **12 Claims**

1. A process for cracking a hydrocarbon charge stock which comprises contacting said charge stock with a catalytic composite comprising particles of the oxide of at least one of the elements from the group consisting of silicon, aluminum and titanium, said composite manufactured by:
(a) preparing a gelation product by mixing together in an aqueous medium a water soluble inorganic salt of said element and a water soluble cationic organic polymer comprising a cationic polyacrylamide having a molecular weight greater than 500,000; and,
(b) spray drying said gelation product in air at a temperature sufficient to decompose said organic polymer and to form said oxide.

2. The process of claim 1 further characterized in that said composite contains a zeolitic crystalline aluminosilicate incorporated therein by dispersing said crystalline aluminosilicate in water to prepare a slurry and adding said slurry to said gelation product prior to said spray drying.

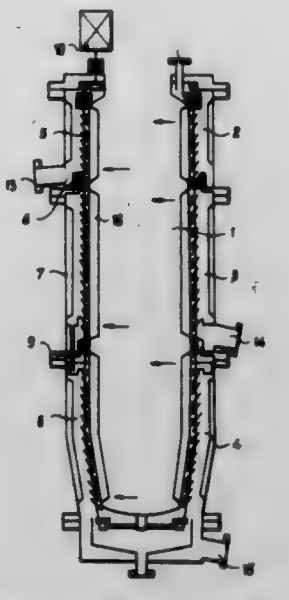
4,333,822

METHOD OF TREATING WASTE ENGINE OILS

Alexander Tkac, and Jan Cvengros, both of Bratislava, Czechoslovakia, assignors to Slovenska vysoka skola technicka, Bratislava, Czechoslovakia

Filed Nov. 10, 1980, Ser. No. 205,269
Claims priority, application Czechoslovakia, Nov. 10, 1979, 7666-79
Int. Cl.³ C10M *11/00*
U.S. Cl. 208—184 **2 Claims**

1. A method of treating waste engine oils before the re-refining thereof after the removal of water and easily volatile components therefrom, comprising heating waste engine oil under a pressure ranging from 1 to 100 Pa in the form of a thin scraped film having a thickness of from 0.1 to 2 mm to a temperature of from 200° to 300° C., condensing liberated vapors together with tornoff micro-drops at a temperature of from 20°



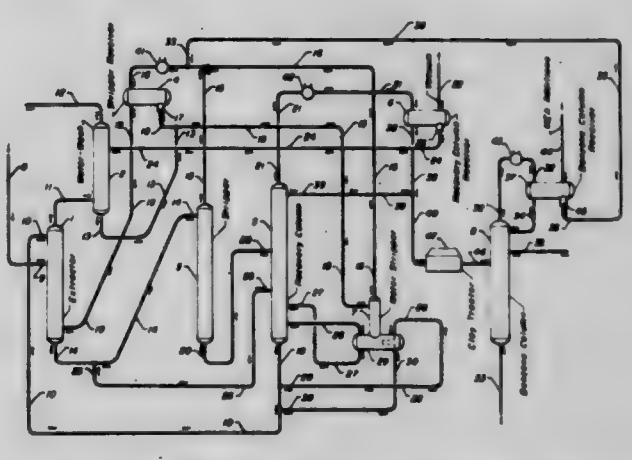
to 100° C., and immediately subjecting the condensate to a short-path distillation whereby it is refined.

4,333,823

CORROSION INHIBITION IN AROMATIC LIQUID EXTRACTION

George R. Winter, III, Mt. Prospect, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Sep. 8, 1980, Ser. No. 185,102
Int. Cl.³ C10G *21/22*
U.S. Cl. 208—325 **6 Claims**



1. A process for the recovery of aromatic hydrocarbons from a mixture thereof with non-aromatic hydrocarbons while reducing corrosion of process equipment, which process comprises the steps of:
a. introducing said mixture into an extraction zone, and therein contacting said mixture with a solvent comprising a sulfolane type organic compound characteristically selective for absorbing aromatic hydrocarbons;
b. removing a non-aromatic raffinate stream from said zone, through an upper locus thereof;
c. removing an aromatic, solvent-rich extract stream from said zone, through a lower locus thereof, and introducing said extract stream into a stripper column;
d. removing a non-aromatic concentrate from said stripper column, through an upper locus thereof, and removing a solvent-rich aromatic concentrate from said stripper column, through a lower locus thereof;
e. combining said non-aromatic concentrate with a hereafter described high water content stream containing organic amine and introducing the combination into a stripper receiver vessel, removing non-aromatic concentrate containing organic amine from said stripper receiver vessel and passing said non-aromatic concentrate containing organic amine as reflux into said extraction zone;
f. introducing said aromatic concentrate into a recovery col-

umn, recovering a substantially solvent-free aromatic concentrate through an upper locus thereof, and removing a substantially hydrocarbon-free solvent-rich stream from a lower locus thereof;

g. introducing said solvent-free aromatic concentrate into a benzene column, recovering a substantially pure benzene concentrate through an upper locus thereof, and removing a substantially benzene-free aromatic product stream from a lower locus thereof;

h. introducing said benzene concentrate into a benzene column receiver vessel;

i. introducing an organic amine into said benzene column receiver vessel;

j. removing benzene reflux containing organic amine from said benzene column receiver vessel and introducing said reflux to said benzene column; and

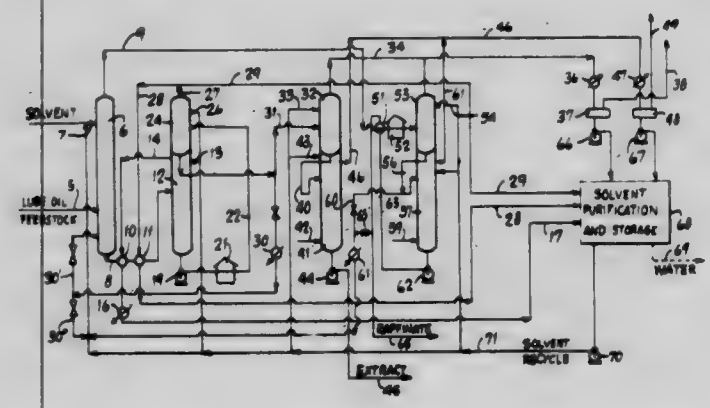
k. removing a high water content stream containing organic amine from said benzene column receiver vessel, and combining said stream with said non-aromatic concentrate from said stripper column as aforesaid thereby effecting introduction of organic amine in effective corrosion inhibiting concentrations throughout the process equipment.

4,333,824

REFINING HIGHLY AROMATIC LUBE OIL STOCKS

William F. Brown, Port Arthur, and Albert G. Bieber, China, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jun. 27, 1980, Ser. No. 163,571
Int. Cl.³ C10G *21/20*
U.S. Cl. 208—326 **7 Claims**



1. In a process for solvent refining a petroleum based oil stock containing aromatic and non-aromatic components wherein said oil stock is contacted with N-methyl-2-pyrrolidone in a solvent extraction zone to produce an aromatics-rich primary extract phase containing solvent and an aromatics poor raffinate phase containing solvent, said phases are separated from one another and separately processed for the recovery of solvent therefrom for recycle to the process, the improvement which comprises returning a portion of said aromatics-rich extract to said solvent extraction zone in admixture with said recycle solvent.

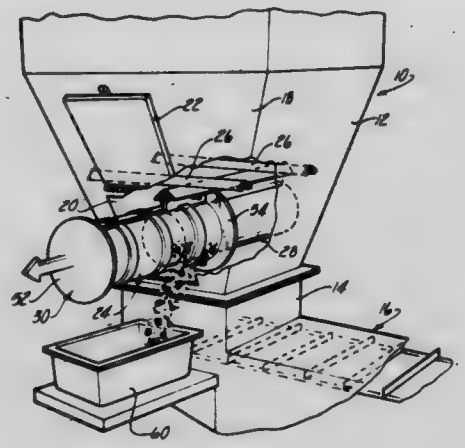
4,333,825

DUMP PIT MAGNET ASSEMBLY

Donald J. Wyland, Brighton, and Michael W. Stowe, Pontiac, both of Mich., assignors to Industrial Magnetics, Inc., Troy, Mich.

Filed Jan. 28, 1981, Ser. No. 229,297
Int. Cl.³ B03C *1/14*
U.S. Cl. 209—223 A **5 Claims**

1. In combination a hopper into the upper end of which grain is adapted to be admitted in a vertically downward direction, said hopper having an open lower end through which the grain flowing downwardly through the hopper is adapted to be discharged, said hopper having side walls extending vertically between its upper and lower ends, a plurality of magnets secured together to form a magnet cylinder in said hopper arranged with its axis extending horizontally, a support bar extending axially of said magnet cylinder and projecting radially upwardly from the uppermost surface thereof, the lower edge of said support bar being fixedly secured to said magnet cylinder, means fixed to the upper edge of said support bar and connected with side walls of said hopper for supporting the magnet cylinder in fixed position within the hopper intermediate the upper and lower ends thereof, a cylindrical stripper shell of non-magnetic material telescopically received over said magnet cylinder, said shell having an axially extending slot therein extending to at least one end of the shell for accommo-



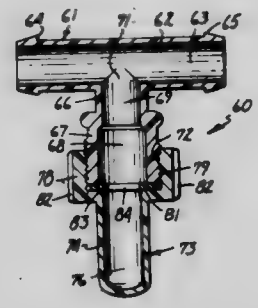
dating said support bar, a radially outwardly extending abutment extending around said one end of said shell to the opposite sides of said slot, said shell having a diameter at least slightly larger than the diameter of the magnet cylinder so as to be slideably supported thereon, one side wall of the hopper having an opening therein aligned axially with said shell and through which the shell is adapted to be axially withdrawn, a panel for optionally closing said opening, said shell being arranged on said magnet cylinder with the end thereof provided with said radial abutment remote from the end of the magnet cylinder adjacent the opening in the hopper.

4,333,826

SEDIMENT INDICATOR FOR LIQUID CIRCULATORY SYSTEM

Robert V. Albertson, 2100 Shadywood Rd., Wayzata, Minn. 55391

Continuation-in-part of Ser. No. 34,267, Apr. 30, 1979, Pat. No. 4,271,016. This application Dec. 11, 1980, Ser. No. 215,393
Int. Cl.³ B01D *21/00*
U.S. Cl. 210—94 **10 Claims**



1. A sediment indicator to provide visual indicia of the amount of sediment contained in the fluid medium of a fluid circulatory system having a fluid flow line, comprising: an open ended tubular member insertable in a fluid flow line of a fluid circulating system, said tubular member having an unobstructed fluid flow passage disposed in a normal circulatory flow path of fluid in the circulatory system when the tubular member is inserted in said fluid flow line, said unobstructed fluid flow passage having a diameter substantially the same as said fluid flow line so as to minimize disruption of normal fluid flow in the flow line, a neck extended normally from said tubular member, said neck terminating in a head having an outward edge surrounding an open end, said neck and head

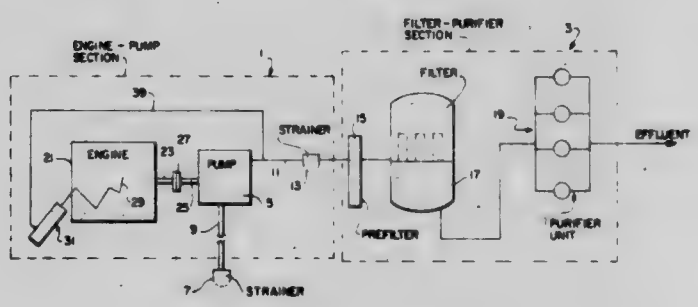
having an unobstructed passage open to said fluid flow passage and the open end of the head, a housing connected to the head and having a sediment depository chamber open to the fluid flow passage of the tubular member such that at least some sediment in fluid circulating through the fluid flow passage enters the sediment chamber; said housing having a side wall at least partially transparent to permit viewing into the sediment chamber from without the housing to determine the amount of sediment collected in the sediment chamber, said housing having a generally cylindrical body portion and a cap at one end, said head having exterior threads, said cap having an opening with interior threads threadably engaging the exterior threads on the head, said head and said housing having openings co-extensive to form a passage to said sediment chamber, said cap includes an interior shoulder which intercepts the outward edge of said head when threadably engaged with respect thereto, and a resilient washer disposed between the shoulder of the cap of the housing and the outward edge of the head to provide a fluid seal between the shoulder and outward edge, said washer having a single hole smaller than said openings in said head and housing to control the rate of collection of sediment in the sediment chamber.

4,333,827

AUTOMATIC ENGINE SHUT DOWN DEVICE AND SYSTEMS EMPLOYING THE SAME

Charles A. Cummins, II, Lutherville, Md., assignor to APT Inc., Annapolis Junction, Md.

Filed Aug. 14, 1980, Ser. No. 178,109
Int. Cl.[3] B01D *1/00*
U.S. Cl. 210—100 30 Claims



1. A compact, portable water purification system for producing potable drinking water from contaminated or turbid water, said system comprising:

pump means having a suction inlet and a pressure discharge for withdrawing contaminated or turbid water from a source thereof and for discharging said water at an operational pressure;

strainer means for receiving said water from said pump means and for straining said water;

prefilter means for receiving said water from said strainer means and for removing particles from said water;

primary filter means for receiving said water from said prefilter means and for filtering bacteria from said water;

purifier means for receiving said water from said primary filter means and for purifying said water to remove therefrom residual bacteria and viral pathogens and for discharging said water as potable drinking water;

engine means for driving said pump means, said engine means being operable by an engine operating fluid, said engine means including control member means for controlling the supply of said engine operating fluid to said engine means, said control member means being movable between a first position, whereat said control member means allows access of said engine operating fluid to said engine means and thereby enables operation of said engine means and thus of said pump means, and a second position, whereat said control member means blocks access of said engine operating fluid to said engine means and thereby prevents operation of said engine means and thus of said pump means; and

shut down means for, upon the removal or substantial reduction of suction at said inlet of said pump means, automatically terminating operation of said engine means and thereby said pump means and for thus preventing damage to said pump means, said shut down means comprising:

pressure responsive means, operatively connected to said control member means and to said discharge of said pump means to be responsive to the discharge pressure thereat, for moving said control member means to said first position thereof when said discharge pressure is above a predetermined level;

biasing means, operatively connected to said control member means and operable in opposition to said discharge pressure, for immediately and rapidly moving said control member means to said second position thereof when said discharge pressure drops below the predetermined level as a result of the removal or substantial reduction of suction at said inlet of said pump means; and

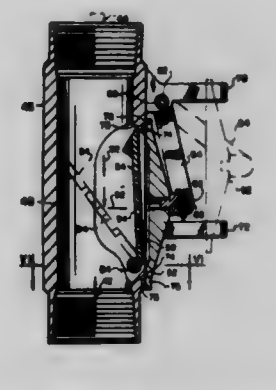
draining means for selectively draining said pressure responsive means of water therein as a result of the connection thereof to said discharge of said pump means.

4,333,828

AUTOMATIC DUMP VALVE

Donald F. Taylor, 3555 Vancouver, Dallas, Tex. 75229

Division of Ser. No. 58,927, Jul. 19, 1979. This application Sep. 15, 1980, Ser. No. 187,423
Int. Cl.[3] B01D *35/14*
U.S. Cl. 210—113 4 Claims



1. A riser mounted, automatic subsea dump sub comprising:

a composite riser section having an internal bore defining a flow passage including upper and lower tool joint sections having pin and box connections at opposite ends for connection in series with a marine riser string;

a dump valve including a tubular housing section connected in the composite riser section between the upper and lower tool joints, the valve housing section having a sidewall opening defining a dump port in communication with the flow passage, a cover plate mounted for movement from a position of sealing engagement with the dump port to an open port position, and a deflector plate mounted for movement from a clear passage position wherein the deflector plate is retracted substantially out of the flow passage, to a dump position wherein the deflector plate is extended from the dump port transversely through the flow passage thereby defining a bypass channel for diverting falling solids through the dump port;

an actuator including a tubular housing section connected in the composite riser section between the upper and lower tool joints, the actuator housing section having a sidewall portion projecting into the flow passage thereby defining a constricted flow region, a tubular pressure chamber housing mounted in spaced relation around the actuator housing section and sealed at one end thereto defining an annular cavity, a piston assembly dividing the annular cavity into first and second pressure chambers, the sidewall portion having a flow opening connecting the constricted flow region in fluid communication with the first

pressure chamber whereby changes in fluid pressure in the constricted flow region resulting from changes in the rate of flow of fluid through the dump sub are transmitted to the first pressure chamber, and the second pressure chamber being connected for pressurization by ambient pressure; and,

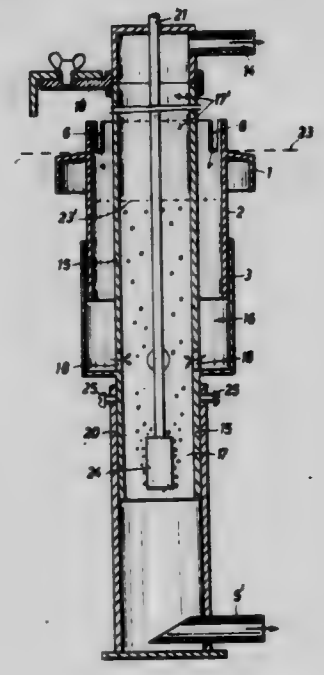
linkage interconnecting the piston assembly, cover plate and deflector plate for moving the cover plate and deflector plate in response to extension or retraction of the piston due to a change in fluid pressure in the first pressure chamber caused by a change in flow rate through the dump sub.

4,333,829

AQUARIA INLET MEANS

Gerhard Walther, Zeilsheimerstr. 27a, 6238 Hofheim, Taunus, Fed. Rep. of Germany

Filed Jul. 9, 1980, Ser. No. 166,992
Int. Cl.³ E04H *3/20*
U.S. Cl. 210—169 **7 Claims**



1. For use as an inlet means in an aquaria recirculating system utilizing a pump for removing water from the aquaria, passing it through a filter, and returning the filtered water back to the aquaria, the inlet comprising a first water tube with means for connection to a pump at its lower end, an open upper end, a second tubular assembly with an open lower end located within said first water tube and arranged for slidable movement with respect to said first tube, the second tubular assembly further comprising float means supporting an open upper end whereby water from the surface of a body of water may be collected, vertically-shaped inlet slots located in the surface of said first water tube, vertically adjustable closure means for said slots located behind said slots constructed and arranged to permit manual adjustment of the inlet opening size of said slots in varying fluid flow rate therethrough, whereby liquid may be simultaneously collected from both the upper surface and the lower regions of the body of water located in the aquaria, be filtered, and returned to the aquaria by said pump means.

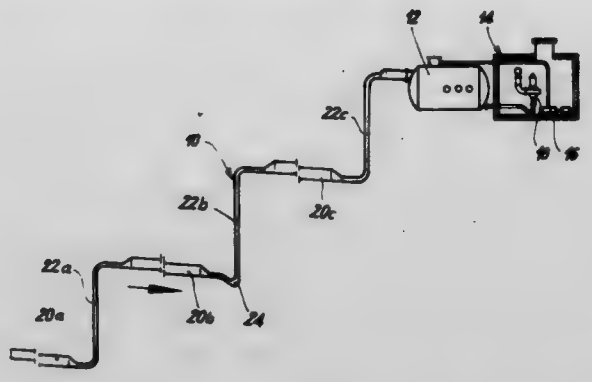
4,333,830

VACUUM DRAIN SYSTEM

Harald Michael, Hamburg, Fed. Rep. of Germany, assignor to Electrolux GmbH, Hamburg, Fed. Rep. of Germany

Filed Aug. 16, 1977, Ser. No. 825,027
Claims priority, application Fed. Rep. of Germany, Aug. 21, 1976, 2637765
Int. Cl.³ C02F *9/00*
U.S. Cl. 210—170 **7 Claims**

1. An improved vacuum drain system comprising: a conduit adapted to be connected to a plurality of drain connections from which waste water is drained and comprising successively alternating sections which ascend and descend in the direction of flow through the conduit; a collector tank in fluid communication with said conduit for receiving liquid flowing therethrough; and suction means connected to said conduit for providing a vacuum in said collector tank to induce the flow of liquid through said conduit, at least one of said descending



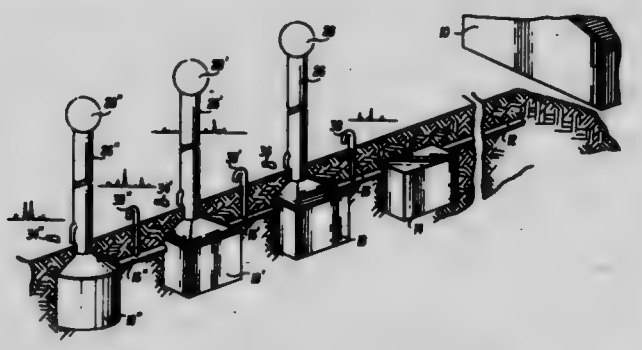
conduit sections having a substantially larger cross section than that of an adjacent ascending conduit section, the said adjacent ascending conduit section being located downstream of the said at least one descending conduit section in the direction of fluid flow and being directly connected thereto so that the entire amount of fluid flowing in the descending conduit section will also flow in the ascending conduit section.

4,333,831

EVAPORATION SEPTIC TANK SEWAGE SYSTEM

Manfred W. A. Petzinger, Rte. 7, Box 87, Elizabethtown, Ky. 42701

Filed Dec. 22, 1980, Ser. No. 219,036
Int. Cl.³ C02F *1/04*
U.S. Cl. 210—170 **6 Claims**



1. An improved apparatus for evaporating liquids from fluent sewage, comprising:

a. a tank, having enclosing walls with an upwardly converging top wall;

b. a first conduit for directing a flow of fluent sewage into said tank;

c. a second conduit for directing overflow liquid sewage from said tank;

d. a third conduit extending upwardly from said first conduit, whereby air is drawn through said tank by convection;

e. at least one vapor stack extending from an upper portion of said tank, said vapor stack being closed at its upper end with a rotary ventilator;

f. at least one upwardly angled baffle member extending around the interior perimeter of said at least one vapor stack thereby preventing return flow of condensate from said at least one vapor stack into said tank;

g. at least one fourth conduit, communicating with the interior of said vapor stack adjacent said baffle member, for conveying return condensate to a point outside said vapor stack, said fourth conduit comprising means for prevent-

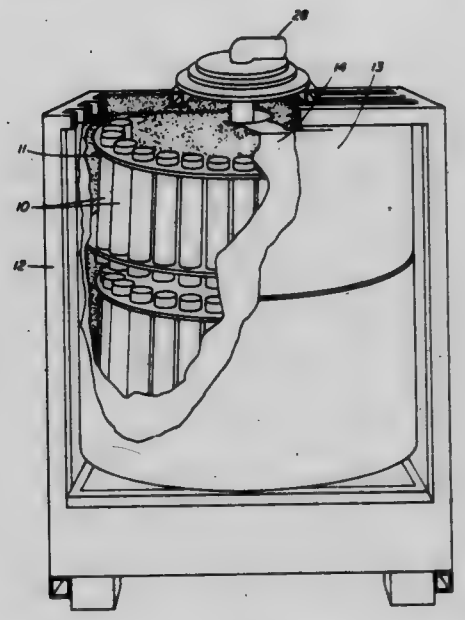
ing flow of air from said vapor stack through said fourth conduit.

4,333,832

ROTATING SOLUTION SEPARATION SYSTEM

Thomas L. Siwecki, 410 Civic Dr., Walnut Creek, Calif. 94596, and Gerry B. Andeen, Menlo Park, Calif., assignors to Thomas L. Siwecki, Walnut Creek, Calif.

Filed Aug. 29, 1977, Ser. No. 828,903
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—195.2 **13 Claims**



1. Apparatus for providing a reduced concentration solution and an increased concentration solution from an original solution comprising:

a rotating structure having an entry port for the original solution at its axis of rotation;

a cannister consisting of a confined container of reverse osmosis membrane material mounted at an off-axis position on the rotating structure;

means for radially flowing the original solution to the off-axis position and through the reverse osmosis membrane material to provide a reduced concentration solution;

means for collecting that portion of the original solution which has not flowed through the reverse osmosis membrane to provide an increased concentration solution; and

means for rotating the rotating structure.

4,333,833

IN-LINE DISINFECTANT CONTACTOR

Karl E. Longley, San Antonio, Tex.; Brian Ratigan, Philadelphia, and James W. Davis, New Britain, both of Pa., assignors to Fischer & Porter Co., Warminster, Pa.

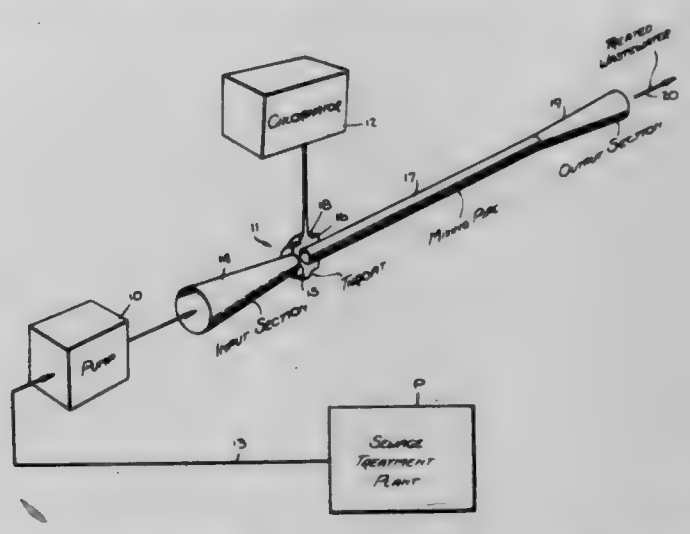
Filed May 8, 1978, Ser. No. 903,596
Int. Cl.³ C02F *1/68*
U.S. Cl. 210—198.1 **2 Claims**

1. A wastewater treatment system operating in conjunction with a wastewater treatment plant whose effluent is a stream of wastewater; said system being provided with an in-line contactor adapted to bring about intimate contact between a disinfectant and the wastewater stream to react the disinfectant with pathogens in the wastewater in a manner effecting rapid and efficient kills with minimal unwanted side effect and pump means to force said stream into the contactor under pressure, said contactor stream into the contactor under pressure, said contactor comprising:

A. an input flow section having a predetermined internal diameter through which the stream to be treated is forced under pressure, said section having a converging nozzle which projects the stream forwardly at high velocity; said treated effluent being fed to the inlet of said input flow section by an upstream line whose diameter matches the diameter of the inlet to the input section;

B. a throat surrounding the nozzle and including a lateral port coupling the throat to a disinfectant supply in the form of molecular chlorine;

C. an elongated mixing pipe in axial alignment with said input section and having a uniform internal diameter which is small relative to said predetermined diameter, the inlet of the pipe being coupled to said throat to receive the projected stream, the velocity of which is such as to render the stream highly turbulent in the pipe, the projected stream creating a vacuum in the throat educing disinfectant from the supply



which is intermingled with the turbulent stream in said pipe to effect the desired disinfection thereof, said mixing pipe being axially shiftable relative to said throat to adjust the position of said pipe inlet with respect to said lateral port; and

D. a diverging, pressure-reducing output flow section coupled to the outlet of said pipe and in axial alignment therewith, whereby the disinfected wastewater stream is discharged in a less-turbulent condition from the contactor, the outlet of said output flow section having a diameter which matches that of a downstream line coupled thereto and which also matches the diameter of the upstream line coupled thereto.

4,333,834

DEVICE FOR DISPERSING A FLUID IN A LIQUID AND IN PARTICULAR OZONIZED AIR IN WATER

Brandin Werner, Montmorency, France, assignor to Trailigaz, Compagnie Generale de l'Ozone, Garges les Gonesse, France

Filed Dec. 10, 1980, Ser. No. 214,906
Int. Cl.³ C02F *1/74*
U.S. Cl. 210—219 **4 Claims**

1. In a device for dispersing a fluid into a liquid, said device comprising a tank for receiving said liquid, an open-ended fluid supply tube extending into the tank for immersion in said liquid, and means defining a centrifugal pump coaxial with an end portion of the supply tube and communicating with the end portion of the supply tube by way of a centre inlet for projecting said fluid from the supply tube into said liquid surrounding the pump; the improvement comprising:

an induction enclosure interposed coaxially between and sealedly interconnecting the end portion of the supply tube and the pump inlet,

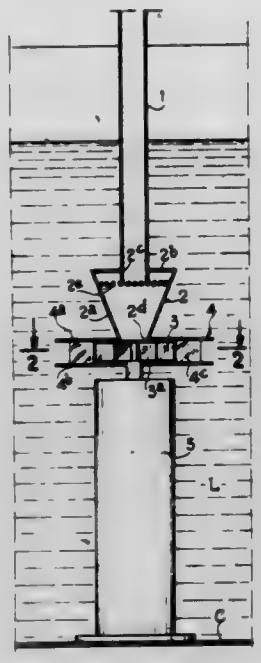
the induction enclosure having a substantially frustoconical shape and a smaller end and a larger end and being connected to the pump inlet adjacent said smaller end and connected to the lower end portion of the supply tube adjacent said larger end,

the end portion of the supply tube projecting into the enclosure but terminating short of the pump inlet,

the enclosure defining liquid induction orifices adjacent said larger end of the enclosure,

the orifices having a size which is small enough with respect to the flow through the pump to create a depression within the

enclosure in operation of the device and thereby draw into the enclosure said fluid from the supply tube and said liquid



through said orifices and form an emulsion of said fluid and said liquid, which emulsion is projected by the pump into said liquid in the tank.

4,333,835

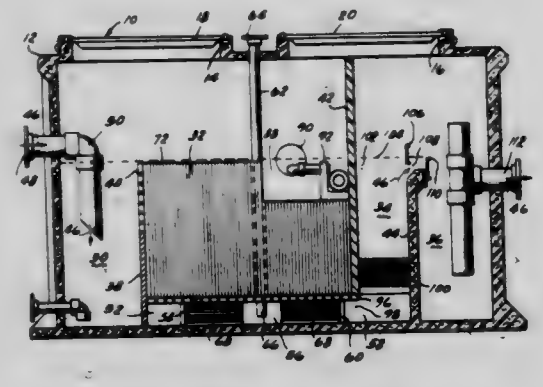
VERTICAL TUBE LIQUID POLLUTANT SEPARATORS

William M. Lynch, Glen Ellyn, Ill., assignor to AFL Industries, Inc., Riviera Beach, Fla.

Continuation-in-part of Ser. No. 768,266, Feb. 14, 1977, abandoned. This application May 19, 1978, Ser. No. 907,826

Int. Cl.³ B01D *23/06*

U.S. Cl. 210—305 **18 Claims**



1. A self-contained liquid pollutant-separating system for removing oils and settleable solids from incoming feed of water containing such oils and solids comprising:

(a) an insulated tank having a selective size with respect to said incoming feed to promote flow having laminar characteristics through said tank, said tank having an inlet means for said incoming feed at a first end of said tank and an outlet means for clairified water at a second end;

(b) a distribution chamber in said tank formed by said first end and a widthwise first partition spaced from said end and mounted between sidewalls of said tank, said partition having an open area to provide for passage of water from said distribution chamber;

(c) a separation chamber in said tank formed by said first partition and a widthwise second partition spaced from said first partition and mounted between said sidewalls of said tank, said second partition having a bottom edge spaced above a bottom of said tank to provide a submerged outlet for water from said separation chamber, said chamber further including a sludge accumulation area below a grate floor spaced above said bottom of said tank;

(d) separating means in said separation chamber comprising a plurality of vertically disposed perforated oleophilic and hydrophobic coalescing tubes through which all of the water entering the separating chamber from the discharge chamber through said open area in said first partition must pass transversely through the perforations in the tubes and contact the tubes both externally and internally, said tubes being supported above said grate and having upper open ends submerged below liquid level in said separation chamber and lower open ends opening downwardly toward said grate floor;

(e) oil accumulation means located in substantial alignment with the tops of said tubes to receive oil coalesced in said tubes and rising to said liquid level, and comprising trough means at the upper part of said second partition;

(f) a weir chamber in said tank formed by said second partition and a widthwise weir partition between said side walls of said tank and spaced from said second partition, said weir partition having an adjustable horizontal top edge spillover device for controlling water level in at least said weir chamber;

(g) fine filter means positioned adjacent to said submerged outlet so that all water that passes through said outlet to said weir chamber must also pass through said filter means which is adapted for coalescing any minute oil droplets from the water that may have escaped said separating means tubes;

(h) an oil barrier bar extending across said weir chamber in adjacent spaced relation to said spillover device and partially submerged in the liquid level in said weir chamber as a sheen baffle to restrain escape of residual oil from said weir chamber;

(i) a clarified liquid chamber in said tank in space between said weir partition and said second end of said tank to receive clarified water overflowing said weir partition over said spill over device, and providing a reservoir to supply said outlet; whereby said incoming feed of water enters the tank through said inlet into said distribution chamber and then enters said separation chamber, oils and settleable solids in said water are separated therefrom as said water flows transversely through the perforations in said tubes and contacts the tubes externally and internally, and separated oils are coalesced and ascend and are removed by way of said accumulation means and solids descend to said sludge accumulation area, the substantially clarified water flowing through said submerged opening and through said fine filter means into said weir chamber from which the substantially clarified water flows over said spill over device and into said clarified water chamber for discharge through said outlet.

4,333,836

CELLULAR DRUM FILTER FOR THE DEWATERING OF FIBER SUSPENSIONS

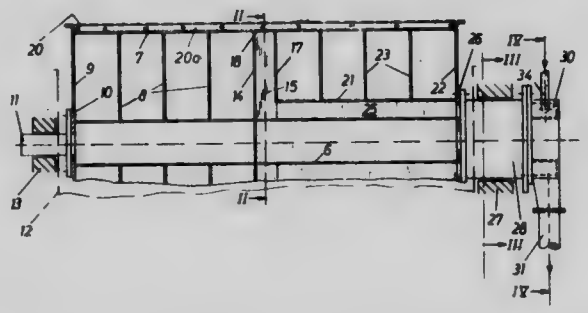
Fritz Peroutka, Heindenheim, Fed. Rep. of Germany, and Helmut Hirschfelder, Sao Paulo, Brazil, assignors to Voith S.A., Brazil

Filed Apr. 29, 1980, Ser. No. 144,916

Claims priority, application Brazil, Apr. 30, 1979, 5900592[U]

Int. Cl.³ B01D *33/06*

U.S. Cl. 210—404 **23 Claims**



1. A cellular drum filter for the dewatering of suspensions, comprising;

a filter drum; support means for supporting said filter drum for rotation;

said filter drum comprising:

an outer drum shell which is pervious to liquid and which has an inner surface;

suction cell forming means cooperating with and opposed to said inner surface of said outer drum shell for defining a plurality of hollow suction cells located radially inward from said outer drum shell inner surface; and

suction means for applying suction to said suction cells; said suction means comprising a first passage within said filter drum and a device for applying suction to said first passage;

said suction means also comprising a plurality of radial passages disposed inside said drum radial passage communicating at the radially outward end thereof with at least one said suction cell; each said radial passage also communicating with said first passage;

said suction means further comprising a control head disposed between said suction applying device and said first passage; said control head including radial passage selection means for permitting and prohibiting suction communication between said suction applying device and each of said radial passages in accordance with the predetermined angular positions of said drum;

said support means further comprising a hollow journal mounted at one end of said filter drum, said control head being operatively connected to said journal, said journal being configured to define second passages communicating between said control chamber and said channels of said first passage;

each said radial passage having a cross-section, in a plane perpendicular to the axis of rotation of said filter drum, with the general shape of a sector of a circle.

4,333,837

WATER PURIFICATION PROCESS AND APPARATUS

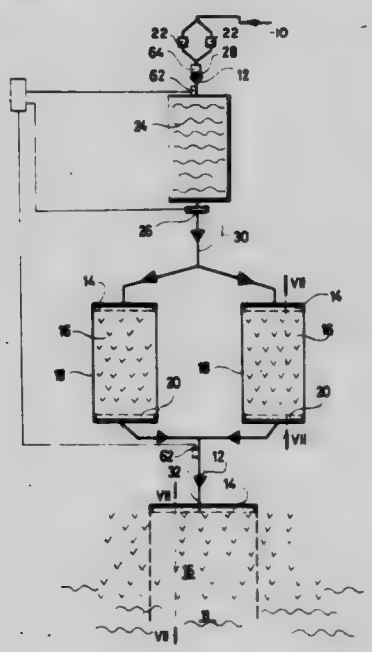
Sándor Plósz; Katalin Babos; Károly Rózsavolgyi, and Lajos Felföldy, all of Budapest, Hungary, assignors to Városépitési Tudományos és TervezöIntézet, Budapest, Hungary

Continuation of Ser. No. 929,275, Jul. 31, 1978, abandoned. This application Feb. 11, 1980, Ser. No. 119,855

Claims priority, application Hungary, Aug. 4, 1977, VA 1507

Int. Cl.³ C02F *3/32*

U.S. Cl. 210—602 **10 Claims**



1. Apparatus for purifying a flow of polluted water containing diffuse pollutants resulting from abalation prior to said flow reaching a living body of water, said apparatus comprising

settling means for removing rubble drift from said flow;

a first aquatic plant area adjacent a living body of water and having at least one natural and contiguous border therewith and directly communicating with said living body of water through said border, said first aquatic plant area having at least one distinct plant zone wherein aquatic plants biologically fix, immobilize or extract at least a part of the diffuse substances from the flow;

means for guiding the flow from said settling means and along at least one flow path to said first aquatic plant area; and

means in the path of said flow for increasing the surface area of the flowing polluted water in said first aquatic plant area so that substantially the entire width of the first aquatic plant area is covered by the flowing polluted water, said means in said flow path for increasing the surface area of the flowing water in said first aquatic plant area being a distribution channel disposed in the flow path and having an entry port intermediate the ends of the channel and through which the flow enters the channel, and having a plurality of exit ports through which the flow exits from the channel, and a deflecting element disposed in the entry port and at least partially across the flow path to substantially evenly distribute the flowing water to the exit ports.

6. Process for purifying a flow of polluted water containing diffuse pollutants resulting from abalation prior to said flow reaching a living body of water, comprising the steps of:

settling and removing rubble drift from said flow;

then guiding the flow along at least one flow path to a first aquatic plant area;

then contacting the flow in said first aquatic plant area with at least one distinct plant zone containing aquatic plants which biologically fix, immobilize or extract at least a part of the diffuse substances from the flow;

increasing the surface area of the flowing polluted water in the first aquatic plant area so that substantially the entire width of the first aquatic plant area is covered by the following polluted water;

then directly transmitting the flow from the first aquatic plant area to said living body of water through a natural border of said first aquatic plant area coextensive with and directly communicating with said living body of water, said step of increasing the surface area of the flowing polluted water in the first aquatic plant area being carried out by passing the flow into a distribution channel, deflecting the flow as it enters the channel, so that the flow is substantially evenly spread within the channel, then passing the substantially evenly spread flow out of the channel through a plurality of exit ports in a wall of the channel.

4,333,838

METHOD AND APPARATUS FOR PURIFYING AN ACTIVATED SLUDGE-WASTE WATER MIXTURE

Wilhelm Ballnus, Burgwedel, Fed. Rep. of Germany, assignor to Schreiber-Kläranlagen Dr.-Ing. Aug. Schreiber GmbH & Co. KG, Langenhage, Fed. Rep. of Germany

Filed Mar. 24, 1981, Ser. No. 247,223

Claims priority, application Fed. Rep. of Germany, Mar. 24, 1980, 3011247

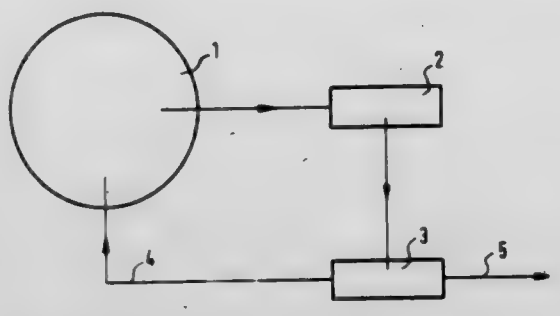
Int. Cl.³ C02F *3/26*

U.S. Cl. 210—614 **13 Claims**

1. A method of purifying an activated sludge-waste water mixture, which comprises the introduction of a gas comprising molecular oxygen to the mixture in an automatically controlled manner in dependence upon the state of purification of the waste water;

in which the state of purification of the waste water is moni-

tored by measuring the visible depth of the waste water and, depending upon this measurement, appropriate con-



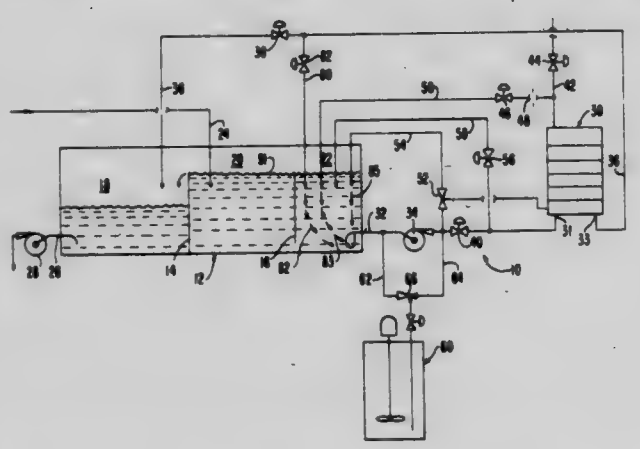
trol is applied automatically over the introduction of the gas to the mixture.

4,333,839

FILTER SYSTEM WITH IMPROVED BLOWDOWN COLLECTION AND RECIRCULATION MEANS

Richard E. Cardoza, Tiburon, and William D. Crowe, San Francisco, both of Calif., assignors to J. R. Schneider Co., Inc., Corte Madera, Calif.

Filed Nov. 26, 1980, Ser. No. 210,478
Int. Cl.³ B01D *37/02*
U.S. Cl. 210—777 **10 Claims**



7. In a method of filtering process liquid in a system having a filter operable in pre-coat, filtration and blowdown cycles, the improvement comprising: directing dirty process liquid into a first region adjacent to a second region for receiving clean liquid from the filter; providing a first chamber adjacent to the first region and in fluid communication therewith; pumping process liquid from the first chamber to the filter during the pre-coat and filtration cycles; allowing clean liquid from the filter to flow into the second region during the filtration cycle; allowing liquid and particulate material from the filter to flow into a second chamber adjacent to the first chamber during the pre-coat and filtration cycles, said first and second chambers being in fluid communication with each other during the pre-coat cycle; blocking fluid communication between the chamber during the blowdown cycles; and creating a cyclonic liquid action in said first chamber during the pre-coat and filtration cycles.

4,333,840

HYBRID PTFE LUBRICANT FOR WEAPONS

Franklin G. Reick, Westwood, N.J., assignor to Michael Ebert, Mamaroneck, N.Y., a part interest

Continuation-in-part of Ser. No. 218,008, Dec. 18, 1980, which is a continuation-in-part of Ser. No. 158,329, Jun. 10, 1980, Pat. No. 4,284,518. This application Feb. 12, 1981, Ser. No. 233,894
Int. Cl.³ C10M *5/10, 5/18*
U.S. Cl. 252—16 **7 Claims**

1. A hybrid lubricant especially adapted for use in firearms and similar applications that require a low viscosity lubricant, said hybrid lubricant comprising:

A. a minor amount of an additive constituted by a dispersion of polytetrafluoroethylene solid particles, a neutralizing agent stabilizing the dispersion to prevent agglomeration of the particles, and a fluid oil lubricant carrier of relatively high viscosity intermingled with the stabilized dispersion; and

B. a major amount of a synthetic fluid lubricant having a low viscosity diluting the additive.

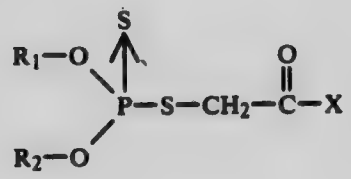
4,333,841

DITHIOPHOSPHATE LUBRICANT ADDITIVES

Andreas Schmidt, Reinach; Rudolf Kirchmayr, Aesch, both of Switzerland, and Donald R. Randell, Stockport, England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 952,920, Oct. 19, 1978, abandoned, which is a continuation of Ser. No. 862,078, Dec. 19, 1977, abandoned. This application Sep. 5, 1980, Ser. No. 184,609
Int. Cl.³ C10M *71/46;* C07F *9/32*
U.S. Cl. 252—32.7 E **4 Claims**

1. A lubricant composition, which comprises a lubricant, which is a mineral oil, synthetic oil or mixture thereof having lubricating properties, and 0.001 to 5 percent by weight, based on the lubricant, of an extreme pressure and antiwear additive of the formula



wherein

R_1 and R_2 have the same meaning and each represents alkyl of 3 to 8 carbon atoms, or R_1 and R_2 together represent alkylene of 2 to 8 carbon atoms, and

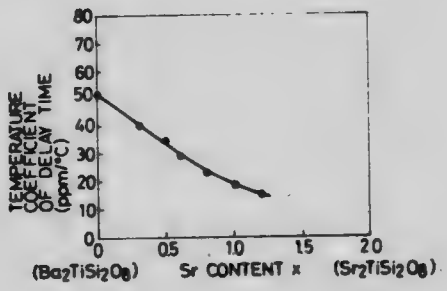
X represents —OH, $—NR_3R_4$ or $—OH.NR_3R_4R_5$ in which each of R_3, R_4 and R_5 independently represents hydrogen or alkyl of 3 to 18 carbon atoms.

4,333,842

PIEZOELECTRIC SINGLE CRYSTAL AND SURFACE ACOUSTIC WAVE ELEMENT EMPLOYING THE SAME

Yukio Ito, Kokubunji; Kazuyuki Nagatsuma; Sigeru Jyomura, both of Hachioji; Sakichi Ashida, Fuchu, and Hiroshi Takeuchi, Matsudo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 15, 1980, Ser. No. 178,593
Claims priority, application Japan, Aug. 22, 1979, 54-106097
Int. Cl.³ C04B *35/00*
U.S. Cl. 252—62.9 **2 Claims**



1. A piezoelectric single crystal characterized by having a composition which is represented by a general formula $(Ba_{2-x}Sr_x)TiSi_2O_8$ and in which the value x lies within a range of $0.25 \leqq x \leqq 1.2$.

4,333,843

GLYCOL COMPOSITIONS CONTAINING A HYDROLYZATE OF AN ORGANO PHOSPHORUS-SILICON COMPOUND

Phillip L. Wing, Lake Jackson, Tex., and George A. Sweeney, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 153,464, May 27, 1980, abandoned, which is a continuation-in-part of Ser. No. 59,412, Jul. 20, 1979, abandoned, which is a continuation-in-part of Ser. No. 939,100, Sep. 1, 1978, abandoned. This application Oct. 20, 1980, Ser. No. 198,973

Int. Cl.[3] C09K *5/00*

U.S. Cl. 252—75 18 Claims

1. A gellation resistant aqueous glycol composition comprising

(A) 85 to 98 percent by weight of an alkylene glycol, an alkylene glycol ether, or mixtures thereof,

(B) an effective amount to reduce corrosion of an alkali metal silicate,

(C) an effective amount to improve gellation resistance of the hydrolyzate of organophosphorus-silicon compounds having the formula

$$(RO)_3Si(CH_2)_n—O—P(O)(CH_3)—OR$$

wherein r is an alkyl group of 1–4 carbon atoms, and n is an integer of 1–4, and

(D) the remainder being water, and an effective amount of one or more other corrosion inhibitors.

4,333,844

DETERGENT COMPOSITIONS

Peter M. Duggleby; Francis G. Foster, both of Wirral, England, and Jacobus R. Nooi, Hellevoetsluis, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

Filed Nov. 3, 1980, Ser. No. 203,172

Claims priority, application United Kingdom, Nov. 12, 1979, 7939123

Int. Cl.[3] C11D *7/54*

U.S. Cl. 252—97 10 Claims

1. A particulate alkaline detergent composition for fabric washing consisting essentially of about 5% to about 40% by weight of at least one synthetic detergent compound, a builder system comprising a mixture of alkalimetal tripolyphosphate and an alkalimetal orthophosphate and an activated peroxygen bleach system comprising a mixture of a peroxy bleach compound in the form of an inorganic persalt together with an activator therefor, wherein said alkalimetal tripolyphosphate and the alkalimetal orthophosphate are present in a weight ratio of about 20:1 to about 3:1, and constitute about 5% to about 30% by weight of the composition.

4,333,845

COATING COMPOSITION THINNER FOR DECREASING POLLUTION RESULTING FROM THE APPLICATION OF A COATING COMPOSITION

James W. Garner, Farmington Hills, Mich., assignor to Grow Group, Inc., New York, N.Y.

Division of Ser. No. 932,948, Aug. 11, 1978, Pat. No. 4,265,944, which is a continuation-in-part of Ser. No. 739,203, Nov. 8, 1976, abandoned. This application Sep. 8, 1980, Ser. No. 185,326

Int. Cl.[3] C09D *9/00;* C11D *7/50*

U.S. Cl. 252—170 3 Claims

1. A coating composition thinner comprising a completely water miscible organic based solvent capable of dissolving organic solvent based coating compositions comprising;

a. a water miscible compound selected from the group consisting of a saturated aliphatic glycol or a saturated aliphatic glycol ether, both containing at least 3 carbon atoms and a compound containing Formula I:

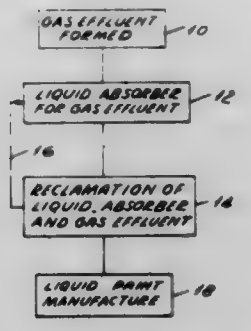
$$R—O\{CH_2(R_1)—O\}_nR_2 \quad (I)$$

wherein

R is independently selected from the group consisting of hydrogen, alkyl of from 1 to 4 carbon atoms and —(O)-C—CH_3;

R_1 is independently selected from the group consisting of —CH_2, —CH_2—CH_2—, —CH_2—$CH(CH_3)$—, and —$CH(CH_2OH)$—;

R_2 is independently selected from the group consisting of alkyl of from 1 to 4 carbon atoms, hydroxyl substituted



alkyl of from 1 to 4 carbon atoms and —(O)C—CH_3; and

n is a number of from 1 to 4; and mixtures thereof, in an amount ranging from about 10 to about 60 parts by weight (PBW);

b. a water miscible monoalcohol having from 1 to about 8 carbon atoms, in an amount of about 10 to about 60 PBW; and

c. water miscible saturated aliphatic ketone of up to 12 carbon atoms in an amount of about 10 to about 50 PBW, the total of a+b+c equaling 100 PBW.

4,333,846

TRANSITION METAL ALUMINATES

John M. Lee, and William C. Bauman, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 939,545, Sep. 5, 1978, Pat. No. 4,221,767, which is a division of Ser. No. 812,534, Jul. 5, 1977, Pat. No. 4,116,856, and a continuation-in-part of Ser. No. 95,692, Nov. 19, 1979, which is a division of Ser. No. 939,545, Sep. 5, 1978, Pat. No. 4,221,767, which is a division of Ser. No. 812,534, Jul. 5, 1977, Pat. No. 4,116,856, and a continuation-in-part of Ser. No. 95,691, Nov. 19, 1979, abandoned, which is a continuation-in-part of Ser. No. 939,545, Sep. 5, 1978, Pat. No. 4,221,767, which is a division of Ser. No. 812,534, Jul. 5, 1977, Pat. No. 4,116,856. This application Sep. 4, 1980, Ser. No. 183,908

Int. Cl.[3] B01D *15/04*

U.S. Cl. 252—184 8 Claims

1. A process for removing transition metal ions from aqueous solution, said transition metal ions being selected from the group consisting of Cu, Zn, Mn, Fe, Co, and Ni, said process comprising

contacting said aqueous solution with a crystalline transition metal aluminate conforming generally to the formula

$$MA_a{}^vZ_b{}^v.nAl(OH)_3.mH_2O$$

where M is at least one divalent transition metal selected from the group comprising Cu, Zn, Mn, Fe, Co, and Ni,

where AZ represents negative valence ions or radicals,

n is a value of from about 1 to about 4,

v is a negative valence of 1, 2, or 3,

a and b are each values of from zero to 2,

with (va)+(vb) equal to 2, and

with m being a value of zero or more;

wherein the transition metal in the aluminate structure corresponds to the transition metal in said solution, said transition metal aluminate being deficient in said transition metal ion at the outset,

continuing said contacting until the said transition metal aluminate has become substantially enriched by transition metal ions from the said aqueous solution.

4,333,847

FIXATION BY ANION EXCHANGE OF TOXIC MATERIALS IN A GLASS MATRIX

Danh C. Tran, Rockville, Md.; Pedro B. Macedo, 6100 Highboro Dr., Bethesda, Md. 20034; Joseph H. Simmons; Catherine J. Simmons, both of Bethesda, Md., and Nicholas Lagakos, Silver Spring, Md., assignors to P. B. Macedo, Bethesda and T. A. Litovitz, Silver Spring, both of, Md.

Continuation-in-part of Ser. No. 34,567, Apr. 30, 1979, which is a continuation-in-part of Ser. No. 959,220, Nov. 9, 1978, abandoned. This application Aug. 10, 1979, Ser. No. 65,752

Int. Cl.³ G21F *9/16*

U.S. Cl. 252—629 **62 Claims**

1. A process for separating and immobilizing radioactive anions and/or radioactive cations from a liquid containing same comprising contacting said liquid with a porous silica glass or gel comprising at least 82 mol percent silica having interconnected pores and (a) non-radioactive cationic organosiloxy groups bonded to silicon of the glass or gel on the internal surfaces of said pores and non-radioactive anions ionically bonded to said cationic organosiloxy groups and displaceable by said radioactive anions; and/or (b) non-radioactive anionic organosiloxy groups bonded to silicon of the glass or gel on the internal surfaces of said pores and non-radioactive cations ionically bonded to said anionic organosiloxy groups and displaceable by said radioactive cations; and/or (c) non-radioactive cationic polyvalent metals bonded to silicon of the glass or gel through divalent oxygen linkages on the internal surfaces of said pores and non-radioactive anions ionically bonded to said cationic metals and displaceable by said radioactive anions, to provide a distribution of radioactive anions and/or cations internally bonded within the pores of said glass or gel and heating the porous silicate glass or gel to collapse said pores containing said internally bonded radioactive anions and/or cations.

4,333,848

ATHERMAL LASER GLASS COMPOSITION

John D. Myers, Perrysburg, Ohio, and Charles S. Vollers, Blissfield, Mich., assignors to Kigre, Inc., Toledo, Ohio

Filed Dec. 3, 1980, Ser. No. 212,396

Int. Cl.³ C03C *3/04, 3/16;* C09K *11/42*

U.S. Cl. 252—301.4 P **15 Claims**

1. A temperature stable phosphate laser glass comprising a phosphate base glass composition and additions including 0.5 to 10 percent by weight of a lasing component and 0.5 to 5 percent by weight of a solarization inhibitor selected from the group consisting of SiO_2, Nb_2O_5 and Sb_2O_3, said phosphate base glass composition consisting essentially of the following, in mole percent:

P_2O_5	55–65%
Li_2O	6–12%
K_2O	0–10%
BaO	20–30%
CaO	0–10%
SrO	0–10%
Al_2O_3	1–4%

wherein the total of Li_2O and K_2O is less than 15 mole percent and the total of Al_3O_3 plus Nd_2O_3 as the lasing component is 4 ± 1.5 mole percent.

4,333,849

ENCAPSULATION PROCESS

Gary D. Pack, Waverly, and Frederick D. Weaver, Chillicothe, both of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Jun. 2, 1980, Ser. No. 155,683

Int. Cl.³ B01J *13/02*

U.S. Cl. 252—316 **13 Claims**

1. A process for the manufacture of microcapsules comprising the steps of:

(a) preparing a hydrophobic phase component comprising a homogeneous solution of an electron donating chromogenic material and a hydrophobic material;

(b) preparing a hydrophilic phase component comprising a mixture of a regulating agent and water, said regulating agent comprising a starch material, said regulating agent being present in said hydrophilic phase component at a concentration of from 3% to 40% by weight;

(c) combining said hydrophobic phase component and said hydrophilic phase component to form an oil-in-water emulsion; said oil-in-water emulsion further comprising

(i) an aqueous solution of urea;

(ii) an aqueous solution of resorcinol; and

(iii) an aqueous solution of formaldehyde;

(d) adjusting the pH of said oil-in-water emulsion to a level at which a wall forming reaction is initiated by the addition of a catalyst;

(e) elevating the temperature of said partially reacted oil-in-water emulsion to from about 50° C. to about 80° C.; and

(f) maintaining the temperature of said oil-in-water emulsion at from about 50° C. to 80° C. for a period of time sufficient to form discrete microcapsules characterized by being substantially impermeable to said hydrophobic emulsion component.

4,333,850

FILLED POLYMER COMPOSITION FOR AUTOMATIC ADDITION OF A CORROSION INHIBITOR TO A COOLANT SYSTEM

Robert H. Krueger, Palatine, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Jun. 15, 1979, Ser. No. 49,005

Int. Cl.³ C23F *11/16, 11/18;* F01P *3/00*

U.S. Cl. 252—389 A **12 Claims**

1. A filled polymer composition for the automatic addition of a corrosion inhibitor to a coolant system, comprising an insoluble polymer, a slightly water soluble polymer and a soluble corrosion inhibitor, wherein powders of the three components are milled together and compression molded at an elevated temperature to form a solid member to be inserted in the circulating fluid of a coolant system, the corrosion inhibitor leaching out of the polymer to retain a proper level of corrosion inhibitor in the coolant.

4,333,851

OLEFIN POLYMERIZATION CATALYST, PROCESS AND POLYOLEFIN PRODUCT

John G. Speakman, Bo'ness, Scotland, and Nicholas P. Wilkinson, Kettering, England, assignors to BP Chemicals Limited, London and The University of Nottingham, Nottingham, both of, England

Filed Jul. 7, 1980, Ser. No. 166,197

Claims priority, application United Kingdom, Jul. 17, 1979, 7924895

Int. Cl.³ C08F *4/64*

U.S. Cl. 252—429 B **11 Claims**

1. A supported Ziegler catalyst prepared by carrying out the following steps under substantially anhydrous conditions (A) reacting together a refractory oxide support material having acidic surface hydroxyl groups and an organo metallic compound wherein the metal is aluminum, boron, lithium, zinc or magnesium, (B) separating unreacted organo metallic com-

pound, if any, from the solid product obtained from step (A), (C) impregnating the solid product with a halogen-containing titanium compound and a halogen-containing vanadium compound in which the halogen is attached directly to the metal of said comounds and (D) separating unadsorbed titanium and vanadium compounds, if any, from the solid catalyst obtained from step (C).

4,333,852

CATALYST FOR THE SELECTIVE PRODUCTION OF ETHANOL AND METHANOL DIRECTLY FROM SYNTHESIS GAS

Barbara K. Warren, Charleston, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

Division of Ser. No. 190,905, Sep. 25, 1980, Pat. No. 4,301,253. This application Jul. 6, 1981, Ser. No. 280,375

Int. Cl.³ B01J *31/18*

U.S. Cl. 252—429 R **6 Claims**

1. A catalyst for the direct production of ethanol or mixtures thereof with other alkanols containing up to three carbon atoms by the reaction of carbon monoxide and hydrogen comprising (a) a ruthenium compound, (b) a promoter, and (c) an organic phosphine oxide solvent wherein said ruthenium compound (a) is a compound capable of generating a soluble ruthenium complex under the reaction conditions, said promoter (b) is (i) elemental iodine or bromine or a compound thereof which is capable of generating hydrogen iodide or hydrogen bromide during said reaction and is charged at an amount sufficient to generate a hydrogen halide to ruthenium atom mole ratio of from 0.001:1 to 5:1 in said reaction mixture, or (ii) an alkali halide at a ratio to ruthenium atom as high as 20:1, or (iii) mixture thereof, and said organic phosphine oxide solvent (c) is present at a concentration of from 1 to 100 weight percent of the total solvent charged.

4,333,853

MIXED VANADIUM PHOSPHORUS OXIDE CATALYSTS AND PREPARATION THEREOF

Ernest C. Milberger, Solon; Noel J. Bremer, Stow, and Dennis E. Dria, Cleveland, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed May 5, 1980, Ser. No. 146,971

Int. Cl.³ B01J *23/22, 27/18*

U.S. Cl. 252—435 **27 Claims**

1. A process for the preparation of oxidation catalysts containing the mixed oxides of vanadium and phosphorus which comprises the steps of

(a) introducing a substantially pentavalent vanadium-containing compound and a pentavalent phosphorus-containing compound into an organic liquid medium capable of reducing the vanadium to a valence state less than +5;

(b) effecting the reduction of at least a portion of the vanadium to a valence state of +4 while in the presence of the phosphorus-containing compound and in the absence of a corrosive reducing agent by heating the vanadium-containing reducing medium of step (a);

(c) recovering the mixed vanadium phosphorus oxide-containing catalyst precursor;

(d) drying the catalyst precursor;

(e) calcining the catalyst precursor to form the active oxidation catalyst.

4,333,854

SULFIDED SUPERACTIVE MULTIMETALLIC CATALYTIC COMPOSITE

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 45,024, Jun. 4, 1979, Pat. No. 4,246,095, which is a continuation-in-part of Ser. No. 833,332, Sep. 14, 1977, Pat. No. 4,165,276. This application Oct. 23, 1980, Ser. No. 199,778

The portion of the term of this patent subsequent to Aug. 21, 1996, has been disclaimed.

Int. Cl.³ B01J *27/02*

U.S. Cl. 252—439 **17 Claims**

1. A catalytic composite comprising a sulfided combination of both (1) a catalytically effective amount of a pyrolyzed rhenium carbonyl component with a porous carrier material and (2) a uniform dispersion of catalytically effective amounts of a platinum group component which is maintained in the elemental metallic state during the incorporation and pyrolysis of the rhenium carbonyl component.

4,333,855

PROMOTED ZINC TITANATE AS CATALYTIC AGENT

Lloyd E. Gardner; Floyd E. Farha, Jr.; Alan D. Eastman, and Lewis E. Drehman, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 125,429, Feb. 18, 1980, abandoned. This application Apr. 30, 1981, Ser. No. 258,976

Int. Cl.³ B01J *21/06, 23/40, 23/06*

U.S. Cl. 252—439 **9 Claims**

1. A catalyst composition comprising zinc, titanium, and at least one promoter selected from the group consisting of vanadium, chromium, cobalt, molybdenum, tungsten, platinum, palladium, rhodium, ruthenium, and compounds thereof, wherein the concentration by weight of said at least one promoter in said catalyst composition is less than the total concentration by weight of said zinc and said titanium in said catalyst composition and wherein said catalyst composition is prepared by calcining a mixture of zinc oxide and titanium dioxide in the presence of molecular oxygen at a temperature in the range of about 650° C. to about 1050° C. to form zinc titanate and adding said at least one promoter to said zinc titanate to form said catalyst composition.

9. A composition in accordance with claim 1 wherein said catalyst composition is completely sulfided after said at least one promoter is added to said zinc titanate.

4,333,856

HYDROCARBON ISOMERIZATION CATALYST AND PROCESS

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 68,278, Aug. 20, 1979, Pat. No. 4,256,566, which is a continuation-in-part of Ser. No. 833,332, Sep. 14, 1977, Pat. No. 4,165,276. This application Dec. 3, 1980, Ser. No. 212,641

The portion of the term of this patent subsequent to Jul. 23, 1998, has been disclaimed.

Int. Cl.³ B01J *27/08, 27/10*

U.S. Cl. 252—441 **8 Claims**

1. A catalytic composite comprising a combination of a catalytically effective amount of a pyrolyzed rhenium carbonyl component with a porous carrier material containing a uniform dispersion of catalytically effective amounts of a platinum group component, which is maintained in the elemental metallic state during the incorporation and pyrolysis of the rhenium carbonyl component, of a tin component, of a halogen component and of about 1 to about 100 wt. % of a Friedel-Crafts metal halide calculated on a Friedel-Crafts metal halide-free basis.

4,333,857

ATTRITION RESISTANT ZEOLITE CONTAINING CATALYST

John Lim, Anaheim; Michael Brady, Studio City, and Dennis Stamires, Newport Beach, all of Calif., assignors to Filtrol Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 3,407, Jan. 15, 1979, Pat. No. 4,086,187. This application Mar. 17, 1980, Ser. No. 130,715
Int. Cl.[3] B01J *29/08, 35/08*
U.S. Cl. 252—455 Z 17 Claims

1. A process for forming a hydrocarbon conversion catalyst comprising comminuting crystals of a zeolite of the faujasite type and combining the comminuted zeolite with pseudoboehmite, clay and ammonium polysilicate or silica sol in a water slurry, spray drying said water slurry and forming microspheres.

2. The process for producing microspheres of hydrocarbon conversion catalyst comprising comminuting crystals of a Y type zeolite in amount in the range of about 10% to about 50% and combining said comminuted zeolite in a slurry containing about 10% to about 50% pseudoboehmite, and ammonium polysilicate or silica sol, the amount of said ammonium polysilicate or silica sol expressed as the equivalent SiO_2 being in the range of about 5% to about 30% and kaolin clay in the range of from about 10% to about 30% and spray drying said slurry to form microspheres, said percentages being by weight based on the microspheres on a volatile free basis, comminuting the said slurry and spray drying said comminuted slurry.

4,333,858

CATALYST WITH MO, V, TI AND PROCESS

Harry J. Decker, and Erlind M. Thorsteinson, both of Charleston, W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 408,416, Oct. 23, 1973, abandoned. This application May 5, 1980, Ser. No. 146,221
Int. Cl.[3] B01J *23/16, 23/84*
U.S. Cl. 252—455 R 9 Claims

1. An oxidation catalyst containing the elements Mo, V, Ti, and X in the ratio

$$Mo_aV_bTi_cX_d$$

wherein X is selected from the group consisting of Fe, Cu, Co, Cr and/or Mn
a is 12,
b is 1 to 14,
c is 0.1 to 12, and
d is 0.01 to 1.0.

3. A catalyst as in claim 1 in which said support is silica, alumina, or silica-alumina.

4,333,859

HIGH SILICA FAUJASITE POLYMORPH - CSZ-3 AND METHOD OF SYNTHESIZING

David E. W. Vaughan, Flemington, N.J., and Michael G. Barrett, Severna Park, Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Oct. 27, 1980, Ser. No. 201,260
Int. Cl.[3] C01B *33/28;* B01J *29/08*
U.S. Cl. 252—455 Z 18 Claims

1. A high silica faujasite aluminosilicate having a silica to alumina ratio of between 5.0 and 7.0 and having cesium ions trapped in the sodalite cages.

3. A hydrogen exchanged high silica faujasite aluminosilicate produced by exchanging the faujasite aluminosilicate of claim 1 with an ammonium solution followed by heating so as to increase the hydrogen ion content.

4,333,860

SOLUBILIZED CHROMIUM SALT IN POLYMERIZATION CATALYST

Gil R. Hawley, and Max P. McDaniel, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 14, 1979, Ser. No. 103,686
Int. Cl.[3] B01S *23/26*
U.S. Cl. 252—458 11 Claims

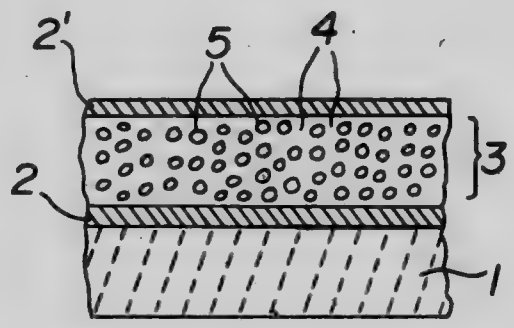
1. A process for producing a catalyst comprising:
contacting a chromium-containing salt, which is insoluble in nonaqueous solvents which do not easily rehydrate silica, with a solubilizing agent thus converting it to a chromium-containing complex having charged ions which is soluble in said nonaqueous solvents;
impregnating a particulate support with the thus solubilized chromium-containing complex dissolved in a nonaqueous solvent which does not easily rehydrate silica; and
activating said thus impregnated support by heating same in an oxygen ambient at a temperature sufficient to oxidize at least a portion of said chromium.

4,333,861

THICK FILM VARISTOR

Masaki Aoki, Hirakata, and Mitsuhiro Ohtani, Sakai, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Continuation of Ser. No. 850,851, Nov. 11, 1977, abandoned. This application Apr. 5, 1979, Ser. No. 27,392
Claims priority, application Japan, Nov. 26, 1976, 51-142450
Int. Cl.[3] H01B *1/06*
U.S. Cl. 252—518 7 Claims



1. A thick film varistor comprising a thick film consisting essentially of 20 to 85 weight percent of finely divided particles of tin oxide dispersed in 15 to 80 weight percent of glass frit, said glass frit being a zinc antimony barium borate glass consisting essentially of 15 to 40 weight percent of ZnO, 0.1 to 10 weight percent of Sb_2O_3, 10 to 40 weight percent of BaO and 30 to 45 weight percent of B_2O_3, said tin oxide having incorporated therein an additive selected from 0.1 to 15 weight percent of one of vanadium oxide (V_2O_5), molybdenum oxide (MoO_3), zirconium oxide (ZrO_2), indium oxide (In_2O_3), thorium oxide (ThO_2) or phosphorus oxide (P_2O_5).

4,333,862

DETERGENT COMPOSITIONS COMPRISING MIXTURE OF CATIONIC, ANIONIC AND NONIONIC SURFACTANTS

Rory J. M. Smith, Rowlands Gill, and Allan C. McRitchie, Blyth, both of England, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 156,005, Jun. 3, 1980, abandoned, which is a continuation of Ser. No. 919,536, Jun. 26, 1978, abandoned. This application Feb. 9, 1981, Ser. No. 232,930
Claims priority, application United Kingdom, Jun. 29, 1977, 27275/77
Int. Cl.[3] C11D *1/86, 17/00*
U.S. Cl. 252—547 10 Claims

1. A liquid detergent composition comprising from 2–100%

of a surfactant system consisting essentially of a water-soluble combination of anionic, ethoxylated nonionic and quaternary ammonium cationic surfactants; wherein the anionic:cationic surfactant weight ratio is less than 5:1; wherein the nonionic:-cationic surfactant weight ratio is in the range from 5:1 to 2:3; wherein the surfactant system contains anionic and cationic surfactants in an equivalent ratio of at least 1:1; wherein said nonionic surfactant has the formula

$$RO(C_2H_4O)_nH$$

wherein R is primary or secondary, branched or unbranched C_{8-24} alkyl or alkenyl or C_{6-12} alkyl phenyl, and n, the average degree of ethoxylation, is from 2 to 9; and wherein said quaternary ammonium cationic surfactant is selected from the group consisting of quaternary ammonium salts having one fatty alkyl group containing from 12 to 14 carbon atoms and three groups which contain 1 to 4 carbon atoms or are benzyl with no more than one of said groups being benzyl, and mixtures of said salts.

4,333,863

WATER RESISTANT TEXTURIZED WALL COVERINGS

Thomas A. Lindroth, Spring Valley, Calif., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Feb. 12, 1981, Ser. No. 233,738
Int. Cl.³ C08L *5/00*
U.S. Cl. 523—220 **9 Claims**

1. A wall covering composition comprising at least 75% of

MATERIAL	RANGE BY WT.	MAXIMUM SIZE
Paper Pulp Fibers	10–30%	5 mm length
Textile Linters	10–30%	5 mm length
Cotton Threads	5–15%	3 mm length
Polyester Threads	5–15%	3 mm length
Wood Chips	40–60%	1 mm diameter
Grain Shafts	5–10%	10 mm length

and about 3 to about 20 wt.% of a gum blend comprising algin and TKP in the weight:weight ratios of 20:80 and 5:95.

4,333,864

PROCESS FOR PRODUCING IMPROVED ALKYD RESIN EMULSIONS

Bertram Zückert, Graz, Austria, assignor to Vianova Kunstharz, A.G., Werndorf, Austria

Filed Oct. 27, 1980, Ser. No. 201,345
Claims priority, application Austria, Oct. 29, 1979, 6965/79
Int. Cl.³ C08L *33/02*
U.S. Cl. 525—501.5 **12 Claims**

1. Process for producing water-emulsifiable air drying paint binders based on modified alkyd resins having a fatty acid content of from 15 to 50% by weight and a polyethylene glycol content of from 3 to 8% and which are obtained through condensation of a polyethylene glycol with an average molecular weight of between 500 and 5000 and a low molecular alkyl- and/or arylphenol resol and an oil fatty acid ester with an iodine number of at least 125, and through reaction of the condensate with mono- and dicarboxylic acids and the normally used alcohol components, characterized in that—

(A) 50–92% by weight of a polyethyleneglycol-resol-modified alkyd resin intermediate with an acid value of below 15, an intrinsic viscosity of from 4 to 8 ml/g (chloroform/20° C.), and a hydroxyl number of from 50 to 250 mg KOH/g, and

(B) 8–50% by weight of a polymer, obtained through free radical polymerization at 80° to 140° C. of

6–40% by weight of methacrylic acid,

20–55% by weight of a drying oil fatty acid with an iodine number of at least 125 and

20–70% by weight of one or more vinyl- and/or vinylidene compounds containing no other reactive groups other than the double bond,

are esterified at 170° to 200° C. to an acid value of from 10 to 30, and an intrinsic viscosity of from 8 to 12 ml/g (chloroform/20° C.).

4,333,865

AQUEOUS EMULSION OF AIR DRYING AND STOVING ALKYD RESINS AND PROCESS FOR PRODUCING SAID RESINS

Bertram Zückert, Graz, Austria, assignor to Vianova Kunstharz, A.G., Werndorf, Austria

Filed Nov. 10, 1980, Ser. No. 205,192
Claims priority, application Austria, Nov. 19, 1979, 7335/79; Aug. 29, 1980, 4371/80
Int. Cl.³ C08L *33/02*
U.S. Cl. 523—410 **23 Claims**

1. Process for producing improved aqueous emulsions for air drying and stoving paints based on polyethyleneglycol-modified alkyd resins, characterized in that

(a) fatty acid esters are provided wherein the saturated or unsaturated fatty acid radicals carry more than 10 carbon atoms and contain ether-like bound polyethyleneglycol radicals having an average molecular weight of between 500 and 5000;

(b) the fatty acid esters of (a) are reacted through re-esterification with alkyd resin materials to provide an alkyd resin intermediate with an acid value of below 15 mg KOH/g, a hydroxyl value of between about 50 and 250 mg KOH/g, and a PEG-level of from about 3.5 to 15% by weight;

(c) 50 to 90% by weight of alkyd resin intermediate (b) are esterified with from 10 to 50% by weight of a copolymer containing

6–40% by weight of methacrylic acid,

20–55% by weight of an unsaturated oil fatty acid with an iodine number of at least 125, and

20–70% by weight of one or more vinyl and/or vinylidene compound free from reactive functional group other than ethylenic double bonds,

until an acid vaue of from about 10 to 35 mg KOH/g and an intrinsic viscosity in chloroform at 20° C. of from about 6 to 15 ml/g is attained, with a PEG-level of from about 3 to 8%, and

(d) emulsifying the modified alkyd resin (c) in water with neutralization of the carboxy groups with ammonia or amines and the addition of up to a maximum of 20% by weight of organic auxiliary solvents.

4,333,866

ASPHALT COMPOSITION

William E. Uffner, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jun. 16, 1980, Ser. No. 159,526
Int. Cl.³ C08L *91/00*
U.S. Cl. 524—534 **15 Claims**

1. A chemically-modified asphalt composition comprising an asphalt which has been reacted with (1) a polymerizable vinyl aromatic monomer which has the formula:

$$R_1—C(R_2)=C(R_2)—R_3$$

wherein R_1 is an aromatic group containing 6 to 12 carbon atoms, R_2 is hydrogen or methyl and R_3 is selected from the group consisting of $—CH_2OH$, —CHO, —COX wherein X is halogen, —COOH and $—CH_2CN$ and (2) a rubbery polymer.

4,333,867

CERAMIC TILE ADHESIVES

Barry J. Sauntson, Higham Ferrers, England, assignor to Scott Bader Company Limited, Northamptonshire, England

Filed Feb. 23, 1981, Ser. No. 236,725

Claims priority, application United Kingdom, Mar. 3, 1980, 8007092

Int. Cl.[3] C08L *43/04*

U.S. Cl. 524—547 9 Claims

1. An aqueous emulsion polymer composition for use as a ceramic tile adhesive, which composition contains a large quantity, based on the weight of solid polymer, of filler material and an emulsion polymer of at least one acrylate monomer selected from acrylates and methacrylates and at least one vinyl aromatic monomer, which emulsion polymer is prepared in the presence of at least one unsaturated organo-silicon compound to improve retention of adhesive strength of the adhesive composition on exposure to moisture.

4,333,868

PHOSPHITE ESTER STABILIZERS

Andreas Schmidt, Reinach, and Kurt Schwarzenbach, Pfeffingen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

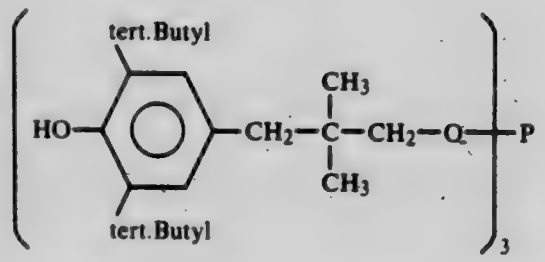
Continuation of Ser. No. 948,939, Oct. 6, 1978, abandoned, which is a division of Ser. No. 709,135, Jul. 27, 1976, Pat. No. 4,132,702, which is a continuation-in-part of Ser. No. 561,394, Mar. 24, 1975, abandoned. This application Dec. 17, 1979, Ser. No. 104,502

Claims priority, application Switzerland, Mar. 27, 1974, 004282/74

Int. Cl.[3] C07F *9/145;* C08K *5/52*

U.S. Cl. 524—152 2 Claims

1. The compound



2. A composition of matter comprising polypropylene stabilized by the compound of claim 1.

4,333,869

SELF-EXTINGUISHING POLYMERIC COMPOSITIONS

Franco Marciandi, Rho, and Pasquale Relvini, Bollaten, both of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Sep. 15, 1980, Ser. No. 187,048

Claims priority, application Italy, Sep. 18, 1979, 25790 A/79

Int. Cl.[3] C08K *3/32, 5/34*

U.S. Cl. 524—100 15 Claims

1. Self extinguishing polymeric compositions, comprising a thermoplastic polymer and an anti-flame additive consisting of:

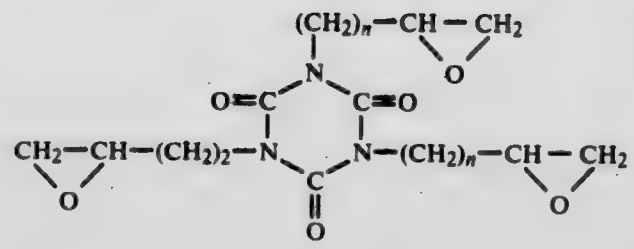
(1) 10–25% by weight, on the total composition, of an ammonium polyphosphate or amine phosphate; and

(2) 10–25% by weight, on the total composition, of a product obtained by reacting in bulk, at a temperature comprised between 80° C. and 230° C.,

(a) at least one organic compound selected from the group consisting of

(i) urea, N,N'-dimethylurea, thiourea, ethyleneurea, hydantoin, isocyanuric acid, mixtures of ethyleneurea and melamine, mixtures of ethyleneurea and isocyanuric acid, mixtures of urea and melamine, mixtures of ethylene urea and acetoguanamine; with

(b) an epoxyalkyl ester of isocyanuric acid of the formula:



wherein n is an integer from 1 to 3;

the reaction being carried out according to a molar ratio (a):(b) comprised between 3:1 and 0.1:1.

4,333,870

PROCESS FOR SEPARATING γ-GLOBULIN AGGREGATE BY POLYSULFONE MEMBRANE

Kenji Koyama; Syotaro Ohno, both of Tokuyama, and Mitsutoshi Fukuda, Shin-nanyo, all of Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Yamaguchi, Japan

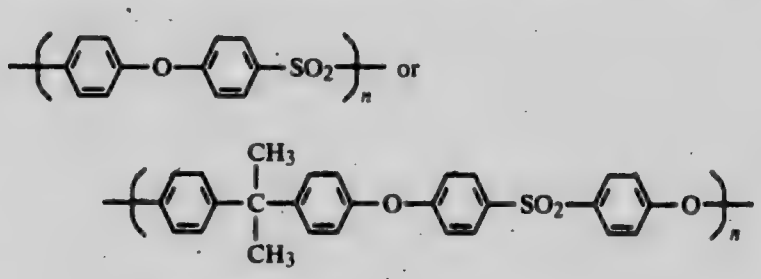
Filed Sep. 17, 1980, Ser. No. 188,118

Claims priority, application Japan, Oct. 22, 1979, 54-135137

Int. Cl.[3] C07G *7/00*

U.S. Cl. 260—112 B 3 Claims

1. A process for separating γ-globulin aggregate by a membrane which comprises separating γ-globulin aggregate from an aqueous solution of γ-globulin through an ultrafiltration membrane made of a polysulfone resin having the formula



(n = 50 to 250)

4,333,871

COAGULATION METHOD FOR PREPARING LEAF PROTEIN CONCENTRATES (LPC) FROM PLANT FOLIAGE

Donald W. De Jong, Youngsville, N.C., assignor to International Harvester Company, Chicago, Ill.

Filed Mar. 18, 1981, Ser. No. 244,843

Int. Cl.[3] A23J *1/14*

U.S. Cl. 260—112 R 11 Claims

1. A method of separating protein from a photosynthetic organism comprising:

disrupting cells of said photosynthetic organism to form a green juice;

adding a crosslinking reagent to said green juice;

lowering the pH of said green juice to a value in the range of 3.0 to 5.0 to cause said protein to precipitate and to form a coagulum; and

separating said coagulum from said green juice.

4,333,872

METHOD OF PRODUCING α-L-ASPARTYL-L-PHENYLALANINE METHYLESTER

Prathivadibhayankaram S. Sampathkumar, Parsippany, and Basant K. Dwivedi, Randolph, both of N.J., assignors to Chimicasa GmbH, Switzerland

Continuation-in-part of Ser. No. 150,881, May 27, 1980, abandoned. This application Sep. 19, 1980, Ser. No. 185,721

Int. Cl.³ C07C *103/52*

U.S. Cl. 260—112.5 R 15 Claims

1. In a method for the preparation of an alkyl ester of α-L-aspartyl-L-phenylalanine which method comprises:

condensing a monovalent alkali-ester mixed anhydride aspartate compound having an amino-protective group under alkaline condition with an alkyl ester of phenylalanine to produce an amino-protected ester condensate compound;

the improvement which comprises:

(a) providing an amino-protective group which is acid-removable with the ester group; and

(b) reducing the pH of the amino-protected ester condensate compound to an acidic condition to remove the amino protective ester group and to form the alpha and beta mixture of the alkyl ester of α-L-aspartyl-L-phenylalanine.

4,333,873

PHARMACOLOGICALLY ACTIVE PEPTIDES

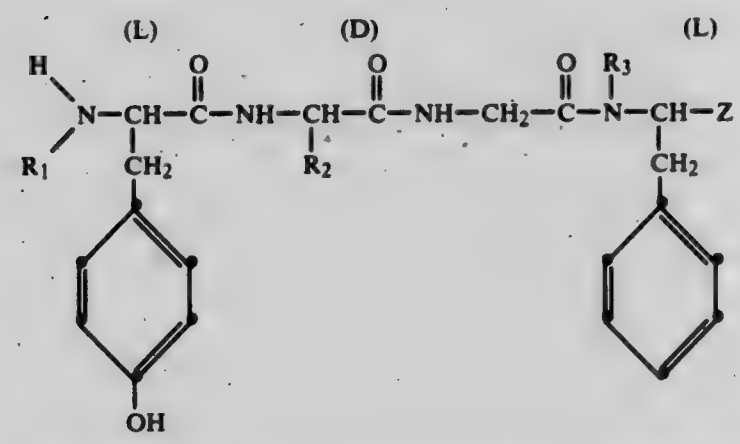
Robert T. Shuman, Greenwood, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 104,349, Dec. 17, 1979, Pat. No. 4,283,330. This application Apr. 24, 1981, Ser. No. 257,454

Int. Cl.³ C07C *103/52*

U.S. Cl. 260—112.5 E 14 Claims

1. A compound of the formula



and pharmaceutically acceptable non-toxic acid addition salts thereof, in which L and D define the chirality;

R_1 is hydrogen or C_1–C_3 primary alkyl;

R_2 is C_1–C_4 primary or secondary alkyl, allyl, cyclopropylmethyl, C_1–C_2 hydroxyalkyl, or $-(CH_2)_m-U-CH_3$ in which U is —S— or >S—O and m is 1 or 2;

R_3 is allyl; and

Z is

$$-CH_2OR_4,\ -\overset{O}{\overset{\|}{C}}-NH_2,\ \text{or}\ -\overset{O}{\overset{\|}{C}}-OR_5,$$

in which R_4 is hydrogen, acetyl, or acetoxymethyl and R_5 is C_1–C_3 alkyl.

4,333,874

CATIONIC TRIAZINYLAMINO AZO DYESTUFFS

Horst Nickel, Leverkusen; Friedhelm Müller, Odenthal, and Peter Mummenhoff, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

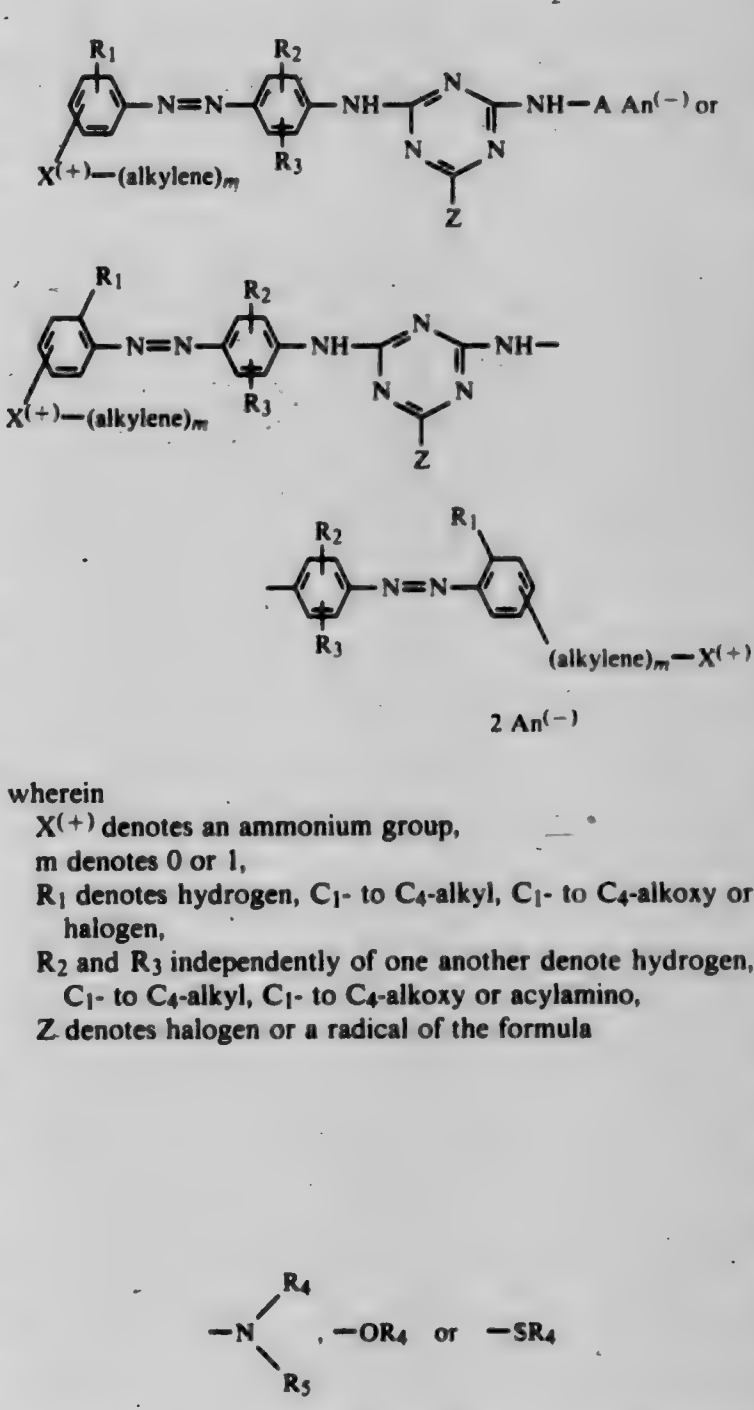
Filed Jul. 28, 1980, Ser. No. 172,506

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933031

Int. Cl.³ C07C *107/06*; C09B *44/02, 62/085*

U.S. Cl. 260—153 4 Claims

1. Cationic azo dyestuffs of the general formula



wherein

$X^{(+)}$ denotes an ammonium group,

m denotes 0 or 1,

R_1 denotes hydrogen, C_1- to C_4-alkyl, C_1- to C_4-alkoxy or halogen,

R_2 and R_3 independently of one another denote hydrogen, C_1- to C_4-alkyl, C_1- to C_4-alkoxy or acylamino,

Z denotes halogen or a radical of the formula

R_4 and R_5 independently of one another denote hydrogen, or C_1- to C_4-alkyl, cyclohexyl, phenyl, benzyl or phenylethyl, it being possible for these radicals to be substituted by hydroxyl,

C_1- to C_4-alkoxy, chlorine or cyano and for the cyclohexyl, phenyl, benzyl and phenylethyl radical additionally to be substituted by C_1- to C_4-alkyl, or

R_4 and R_5, together with the nitrogen atom to which they are bonded, denote a 5- or 6-membered ring,

A denotes an aryl radical and

$An^{(-)}$ denotes an anion.

4,333,875

5,8-DIHYDROXY-1,4-BIS(GUANIDINYLAMINO)ANTHRAQUINONES

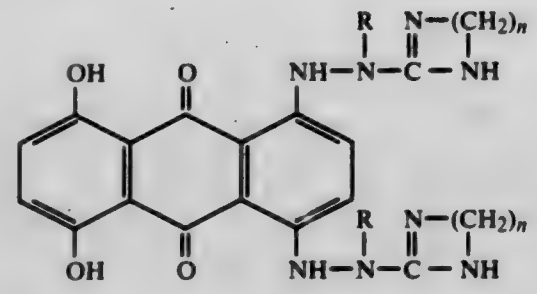
Keith C. Murdock, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 87,908, Oct. 24, 1979, Pat. No. 4,275,010. This application Feb. 4, 1981, Ser. No. 231,566

Int. Cl.³ C07D *403/12*

U.S. Cl. 260—239 BC 8 Claims

1. A compound selected from the group consisting of those of the formula:



(I)

wherein R is selected from the group consisting of hydrogen and straight or branched chain lower alkyl (C_1-C_4) groups and n is an integer from 2 to 4, inclusive.

4,333,876

PROCESS FOR THE PREPARATION OF METAL DIPHTHALOCYANINES

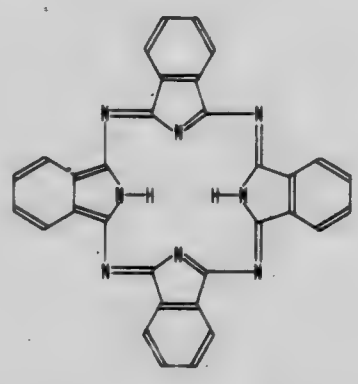
George Elliott, Sandon, and Brian W. Ely, Braintree, both of England, assignors to The Marconi Company Limited, Chelmsford, England

Filed Nov. 18, 1980, Ser. No. 208,118

Claims priority, application United Kingdom, Nov. 23, 1979, 7940543

Int. Cl.³ C09B *47/04*

U.S. Cl. 260—245.73 12 Claims



1. A process for the preparation of a metal diphthalocyanine of the general formula $(PC)_2H.M^{III}$ or $(PC)_2.M^{IV}$ wherein M^{III} and M^{IV} represent, respectively, a tri- and tetravalent metal, and PC represents the phthalocyanine ring system, comprising reacting the metal in the form of a complex with a 2,4-diketone with a large molar excess, based on the metal, of a phthalocyanine, to give the desired metal diphthalocyanine.

4,333,877

SUBSTITUTED 2,7-DIOXO-2,7-DIHYDROBENZO[1:2-B; 5:6-B¹]DIFURAN OR -DIPYRROLE DYESTUFFS, THEIR PREPARATION AND THEIR USE

John L. Carey, Rochdale, and Colin W. Greenhalgh, Manchester, both of England, assignors to Imperial Chemical Industries Limited, London, England

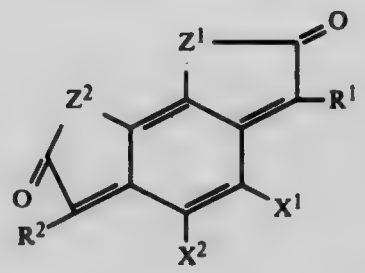
Filed Jul. 10, 1980, Ser. No. 168,446

Claims priority, application United Kingdom, Jul. 18, 1979, 7925030

Int. Cl.³ C07D *209/56, 307/77, 493/04*

U.S. Cl. 548—421 4 Claims

1. Dyestuffs characterised by the general formula:



(I)

wherein Z^1 and Z^2 each independently represent oxygen or —NH—; R^1 and R^2 each independently represent unsubstituted naphthyl, unsubstituted phenyl, 3,4-methylenedioxyphenyl or phenyl substituted by at least one of C_1-C_4 alkyl, C_1-C_4 alkoxy, nitro, acetylamino, or halogen; X^1 and X^2 each independently represent hydrogen, C_1-C_4 alkyl, C_1-C_4 alkoxy, halogen or hydroxy, or X^1 and X^2 together form a 6-membered benzene ring which is unsubstituted or substituted by at least one of halogen or nitro.

4,333,878

PROCESS FOR PRODUCING SUBSTITUTED PYRROLES

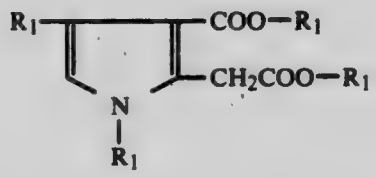
Michael J. Dagani, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 137,510, Apr. 4, 1980, abandoned. This application Feb. 19, 1981, Ser. No. 236,039

Int. Cl.³ C07D *207/34*

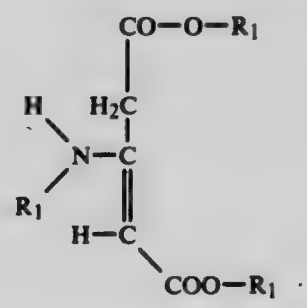
U.S. Cl. 548—531 8 Claims

1. A process for the preparation of a loweralkyl 1,4-dilower-alkyl-3-loweralkoxycarbonyl-pyrrole-2-acetate of the formula:



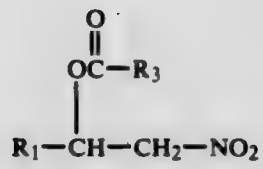
IV

wherein each R_1 is independently a loweralkyl group which comprises reacting a mixture of a loweralkyl enamine of a diloweralkyl acetone dicarboxylate of the formula:



V

with a compound of the formula:



VI

wherein R_1 is independently selected and has the same meaning as hereinabove and R_3 is a lower alkyl, tolyl or benzyl group.

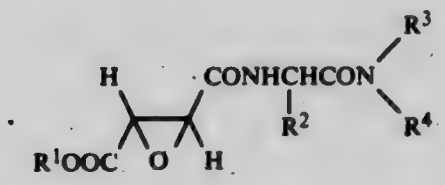
4,333,879

EPOXYSUCCINIC ACID DERIVATIVES

Masaharu Tamai; Takashi Adachi; Shigeo Morimoto; Kiyoshi Oguma; Kazunori Hanada, and Sadafumi Omura, all of Saitama, Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,410
Claims priority, application Japan, Feb. 27, 1979, 54/22365
Int. Cl.[3] C07D *303/48, 405/12;* C07C *103/52*
U.S. Cl. 549—549 3 Claims

1. An epoxysuccinic acid derivative of the formula



wherein

R^1 is hydrogen, alkali metal, alkyl having 1–2 carbon atoms, cycloalkyl having 5–6 carbon atoms or benzyl,

R^2 is a branched chain alkyl group having 3–4 carbon atoms or benzyl,

R^3 is hydrogen or methyl, and

R^4 is alkyl having 1–10 carbon atoms, phenyl benzyl, phenethyl, or cycloalkyl having 3–6 carbon atoms, or

R^3 and R^4 taken together with the nitrogen atom to which they are attached form a pyrrolidino heterocyclic ring, or said heterocyclic ring substituted with a protected carboxy.

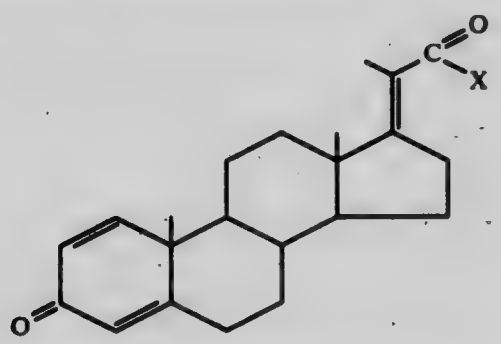
4,333,880

3-OXO-PREGNA-1,14,17-TRIEN-20-CARBOXYLATES AND PROCESS

Wolfgang Preuss, Monheim; Michael Bahn, Hilden; Rolf Schmid, Düsseldorf, and Rüdiger Wagner, Monheim, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA), Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Jan. 26, 1981, Ser. No. 228,177
Claims priority, application Austria, Feb. 4, 1980, 582/80
Int. Cl.[3] C07J *9/00*
U.S. Cl. 260—397.1 12 Claims

1. A $\Delta^{1,4,17}$-BNC compound having the formula:



wherein X is a substituent selected from the group consisting of OH and OCH_3.

4,333,881

PROCESS FOR REDUCING METAL ALKOXIDES, AND THE USE OF THE COMPOUNDS SO OBTAINED

Alberto Greco, Dresano, and Guglielmo Bertolini, Pavia, both of Italy, assignors to Anic S.p.A., Palermo and Snamprogetti S.p.A., Milan, both of, Italy

Filed Feb. 25, 1980, Ser. No. 124,148
Claims priority, application Italy, Mar. 7, 1979, 20798 A/79
Int. Cl.[3] C07F *9/00, 7/28, 7/00, 11/00*
U.S. Cl. 260—429 R 4 Claims

1. A process for reducing alkoxides of transition metals selected from the group consisting of Ti (4+), V (4+), V (5+), Cr (4+), and Zr (4+), to the corresponding alkoxides of lower valency, consisting essentially of reacting at least one member of said alkoxides of said metals in the liquid phase with the vapours of at least one metal selected from the group consisting of alkaline earth, group III and group IV metals, and manganese.

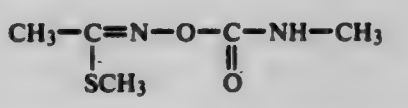
4,333,882

PROCESS FOR PREPARING N-METHYLCARBAMATE OF METHYLTHIOACETALDOXIME

Stefano Campolmi, Novara; Vittorio Carletti, Meda, and Marcello Marchi, Novara, all of Italy, assignors to Montedison S.p.A., Milan, Italy

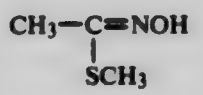
Filed Feb. 17, 1981, Ser. No. 234,842
Claims priority, application Italy, Feb. 18, 1980, 19979 A/80
Int. Cl.[3] C07C *119/18*
U.S. Cl. 260—453.3 9 Claims

1. A process for preparing N-methylcarbamate of methylthioacetaldoxime of formula



(I)

characterized in that an aqueous suspension of methylthioacetaldoxime of formula



(II)

is additioned, in one step only, with gaseous phosgene and aqueous methylamine in the presence of an aqueous inorganic alkaline base, substantially at room temperature and pressure, and at a pH maintained constant around a value between 8 and 12.

4,333,883

PREPARATION OF N-CHLOROTHIO(METHYL)CARBAMOYL HALIDES

Stephen J. Nelson, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Jul. 6, 1981, Ser. No. 280,638
Int. Cl.[3] C07C *51/62, 125/03*
U.S. Cl. 260—544 C 11 Claims

1. A process for preparing a N-chlorothio(methyl)carbamoyl halide which comprises (a) reacting N-methylcarbamoyl halide with an excess of sulfur dichloride in the presence of a tertiary organic base to form a mixture containing N-chlorothio(methyl)carbamoyl halide and sulfur monochloride; (b) chlorinating the mixture obtained in (a) to obtain a product containing N-chlorothio(methyl)carbamoyl halide and sulfur dichloride and (c) subjecting the product obtained in (b) to distillation.

4,333,884

PRODUCTION OF ACETIC ANHYDRIDE

Hans-Klaus Kübbeler, Swisttal; Heinz Erpenbach, Cologne; Klaus Gehrmann, and Klaus Schmitz, both of Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 29, 1980, Ser. No. 191,702

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1979, 2939839

Int. Cl.³ C07C *51/56, 51/54, 53/12*

U.S. Cl. 260—546 7 Claims

1. In a process for making acetic anhydride by reacting methyl acetate and/or dimethylether with carbon monoxide under practically anhydrous conditions, at temperatures of 350 to 575 K., under pressures of 1 to 300 bars, and in the presence of a catalyst system containing noble metals belonging to group VIII of the periodic system of the elements, or compounds thereof, iodine and/or its compounds, and an aliphatic carboxylic acid having 1 to 8 carbon atoms, the improvement which comprises: effecting the reaction in the presence of a catalyst system containing, as additional ingredients, a heterocyclic aromatic compound, in which at least one hetero atom is a quaternary nitrogen atom, or a quaternary organophosphorus compound, and a zirconium compound being soluble in the reaction mixture; said heterocyclic compound or organophosphorus compound being in the form of its addition product with acetic acid or methyl iodide and having a melting point or mixed melting point of less than 413 K., which is the boiling point of acetic anhydride.

4,333,885

METHOD FOR PRODUCING CARBOXYLIC ACID ANHYDRIDE

David Feitler, Whitehall, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 2, 1981, Ser. No. 250,473

Int. Cl.³ C07C *51/56, 51/54, 53/12*

U.S. Cl. 260—549 10 Claims

1. A process for the production of carboxylic acid anhydride from carboxylic acid ester and synthesis gas comprising reacting a feed gas mixture of hydrogen and carbon monoxide in which the volume percent hydrogen ranges from about 33% to about 80% with a liquid reactant mixture comprising carboxylic acid ester at a temperature in the range of from about 125° C. to about 250° C. and a pressure in the range of from about 5 atmospheres to about 100 atmospheres in the presence of an iodide promoted catalyst containing a noble metal of the eighth subgroup of the periodic table and a side-reaction-inhibiting amount of a carboxylic acid inhibitor having an acyl moiety corresponding to the acyl moiety of said carboxylic acid ester.

4,333,886

CARBURETOR

Tomiyoshi Mitsui, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

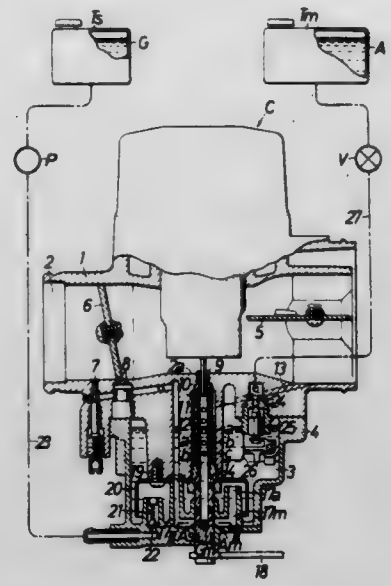
Filed Mar. 27, 1981, Ser. No. 248,302

Claims priority, application Japan, Mar. 31, 1980, 55-41616

Int. Cl.³ F02M *13/06*

U.S. Cl. 261—18 R 4 Claims

1. A carburetor comprising: an intake passage, a main nozzle opening to said intake passage, a fixed support cylinder having a peripheral wall formed therethrough with a plurality of apertures, said peripheral wall being surrounded by an annular chamber communicating with said intake passage upstream of said main nozzle, a float chamber for storing fuel, an air bleed pipe rotatably fitted in said fixed support cylinder and communicating with said main nozzle and said float chamber, said air bleed pipe having a peripheral wall formed therethrough with a plurality of groups of air bleed ports of different air-bleeding characteristics, said groups of air bleed ports being selectively placed into communication with said apertures in said fixed support cylinder in accordance with the turning movement of said air bleed pipe relative to said fixed support cylinder, a changeover valve operatively connected with said air bleed pipe for integral rotation therewith and adapted to be operated



from the outside for changing the degree of communication between said air bleed pipe and said float chamber.

4,333,887

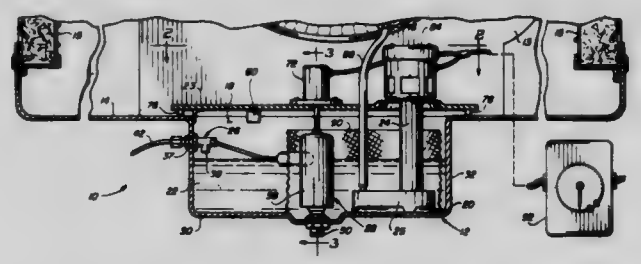
AUTOMATIC FLUSHING AND DRAINING APPARATUS FOR EVAPORATIVE COOLERS

Adam D. Goettl, 4960 E. Palomino Dr., Phoenix, Ariz. 85018

Continuation-in-part of Ser. No. 222,552, Jan. 5, 1981, Pat. No. 4,289,713, which is a continuation-in-part of Ser. No. 115,041, Jan. 24, 1980, Pat. No. 4,255,361, which is a continuation-in-part of Ser. No. 7,027, Jan. 29, 1979, Pat. No. 4,192,832. This application Aug. 27, 1981, Ser. No. 296,775

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—27 17 Claims



1. An automatic flushing and draining apparatus for an evaporative cooler comprising:

(a) an evaporative cooler including a sump means in the bottom thereof for containing a water supply used in operation of said evaporative cooler;

(b) shutoff valve means for supplying water from an external source to the sump means of said evaporative cooler and maintaining it at a predetermined operating level;

(c) a siphon drain valve mounted in the sump means of said evaporative cooler and having a water inlet adjacent its lower end and a water passage zone at its upper end, said siphon drain valve being vertically movable between an upwardly extended position wherein its water passage zone is located above the operating water level in the sump means of said evaporative cooler and a downwardly disposed position wherein its water passage zone is located below the operating water level in the sump means of said evaporative cooler; and

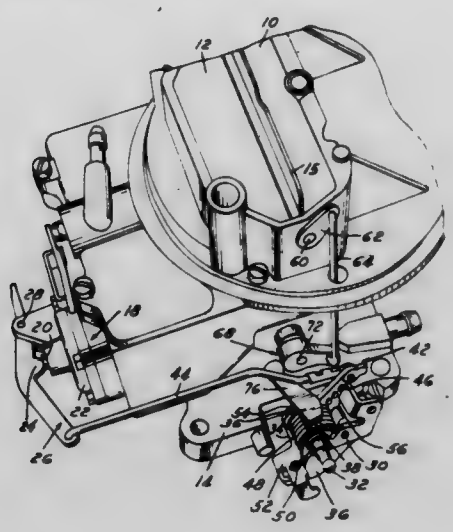
(d) means coupled to said siphon drain valve and having a first state wherein said siphon drain valve is in its axially upwardly extended position and a second state which moves said siphon drain valve to its axially downwardly disposed position for priming thereof.

4,333,888

CARBURETOR ACCELERATOR PUMP STROKE CONTROL

David A. Onofrio, Riverview, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jul. 31, 1980, Ser. No. 174,072
Int. Cl.³ F02M 7/08
U.S. Cl. 261—34 B 4 Claims



1. A stroke control for the accelerator pump of a carburetor having an induction passage, the flow therethrough being controlled by both a throttle valve and a thermostatically responsive choke valve spaced from one another in the passage and each rotatably mounted for movement across the passage, the accelerator pump having a fuel pumping control linkage operatively connected to the throttle valve for actuation of the pump through a normal full stroke upon a predetermined opening movement of the throttle valve,

the stroke control including a cam mounted for movement at times into engagement with a portion of the linkage to restrict the movement of the linkage to provide a less than normal stroke of the pump, and means operatively connecting the cam to the choke valve for effecting a movement of the cam in response to movement of the choke valve,

the linkage including a fuel pumping lever movable through a normal stroke to provide a full actuation of the pump, the throttle valve and a throttle lever being secured on a shaft, an accelerator pump overtravel lever rotatably mounted on the shaft and connected to the fuel pumping lever for movement thereof, overtravel spring means surrounding the shaft with opposite ends of the spring interconnecting the overtravel lever and throttle lever permitting relative movement between the two, a stop in the path of movement of the overtravel lever to limit and define the normal stroke of the overtravel lever and the fuel pumping lever, and a further lever secured to the overtravel lever and projecting into alignment with the cam to be engaged thereby at times when the cam is moved a predetermined amount by the choke valve to prevent the overtravel lever from moving into engagement with the stop and thereby decreasing the stroke of the fuel pumping lever.

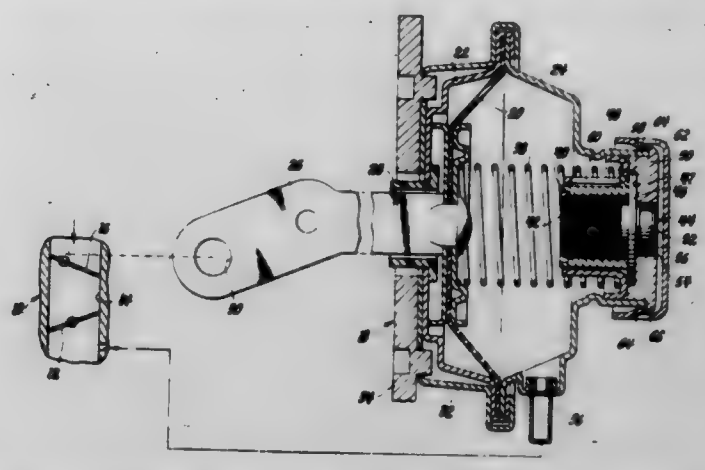
4,333,889

CARBURETOR VACUUM BREAK ASSEMBLY

Myron Faryna, and Kerry A. Morphet, both of Rochester, N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 10, 1981, Ser. No. 252,842
Int. Cl.³ F02M 1/14
U.S. Cl. 261—39 B 1 Claim

1. A carburetor vacuum break assembly including a housing, a diaphragm secured in said housing and having a center section adapted to travel to and from a retracted position in response to variations in pressure in said housing, and a stop having a portion engaging said diaphragm in said retracted position, and wherein said stop comprises a screw member having a neck received in a bore in said housing, a radially extending flange trapped against axial movement in a radially extending recess in said housing, and a threaded stem projecting toward said diaphragm, a seal engaged between the neck of said screw member and said housing to prevent leakage about said screw member, and a bushing threaded on the stem of said



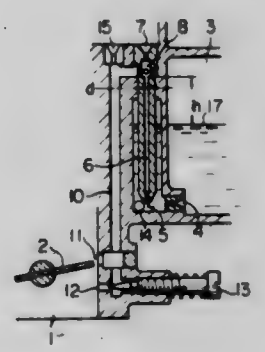
screw member, said bushing having a tab extending radially into an axially extending recess formed in said housing whereby said bushing is trapped against rotary motion and is constrained to move axially upon rotation of said screw member, said bushing constituting said portion of said stop engaging said diaphragm in said retracted position, the position of said bushing being adjustable by rotation of said screw member to thereby establish said retracted position.

4,333,890

SLOW FUEL CONTROLLING DEVICE FOR CARBURETOR

Kimiji Karino; Tadao Osawa; Masami Nagano, all of Katsuta; Tokihiko Sakuma; Yuiti Kanazawa, both of Hitachi; Tunemitu Kuroha, Tokaimura, and Kanji Tachibana, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 29, 1980, Ser. No. 144,921
Claims priority, application Japan, May 9, 1979, 54/57210
Int. Cl.³ F02M 3/08
U.S. Cl. 261—41 D 5 Claims



1. A carburetor having a slow fuel system which comprises;

(1) a mixing chamber,

(2) metering means for metering flow of the fuel introduced from a fuel float chamber,

(3) a fuel passage for introducing the fuel metered by said metering means into said mixing chamber,

(4) a slow air bleed passage for introducing air into said mixing chamber,

(5) a mixture passage for introducing the air-fuel mixture mixed in said mixing chamber into an intake passage,

wherein said fuel passage and said slow air bleed passage are arranged to mix air and fuel in said mixing chamber in the form of counter flows, and the diameter of said fuel passage is selected to substantially fill said fuel passage with the fuel by utilizing capillary action, and wherein the

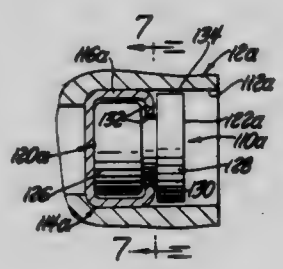
diameter of said metering means is smaller than the diameter of said fuel passage.

4,333,891

TAMPER PROOF SEALING PLUG

Robert J. Miller, Warren, Mich., assignor to Colt Industries Operating Corp, New York, N.Y.

Division of Ser. No. 39,192, May 15, 1979, Pat. No. 4,283,353.
This application Jan. 19, 1981, Ser. No. 225,986
Int. Cl.[3] F16K *35/00*; F16L *55/10*
U.S. Cl. 261—41 D 7 Claims



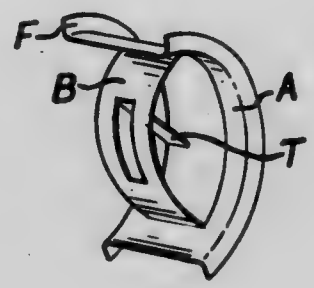
1. A fuel metering system effective for metering the rate of fuel flow to an associated combustion engine, comprising body means, conduit means formed in said body means communicating with a source of fuel, orifice means formed generally in said body means for receiving fuel from said conduit means and discharging said fuel into induction passage means associated with said engine, an opening formed in said body means, said opening receiving adjustably positionable valve means, said valve means being selectively adjustably positionable with respect to said orifice means in order to thereby cooperate with said orifice means in order to cooperatingly define an effective metering area for metering said rate of said fuel flow from said conduit means and to said induction passage means, and closure means received in said opening as to effectively close said opening to access to said valve means, said closure means comprising retainer means, and a closure member operatively retained by said retainer means against withdrawal of said closure member from said opening, said closure member being rotatable with respect to said body means, said retainer means comprising a cup-like caging member having a generally transverse end wall and a generally cylindrical wall joined thereto and terminating in an open end, said closure member comprising a first closure member body portion and a second closure member body portion, an intermediate closure member body portion of transverse dimension less than that of either said first or second closure member body portions and operatively joining said first and second closure member body portions, said cylindrical wall of said cup-like caging member being formed generally radially inwardly as to define a flange-like portion having a second opening in said open end, said intermediate closure member body portion being generally received within said second opening, said first closure member body portion being contained within said cup-like caging member, and said second closure member body portion being situated externally of said cup-like caging member, said first closure member body portion being of a dimension precluding withdrawal of said first closure member body portion through said second opening, and said second closure member body portion being of a dimension precluding insertion into said cup-like caging member through said second opening of said cup-like caging member.

4,333,892

DUMPED PACKINGS AND APPARATUS COMPRISING SUCH DUMPED PACKINGS

Stephen R. M. Ellis, Surby, Near Port Erin, Isle of Man, and Ronald Priestley, Kings Heath, England, assignors to Citten Limited, England

Continuation-in-part of Ser. No. 824,206, Aug. 12, 1977, abandoned, which is a continuation of Ser. No. 653,006, Jan. 28, 1976, abandoned. This application Aug. 17, 1979, Ser. No. 67,395
Claims priority, application United Kingdom, Jan. 29, 1975, 3943/75
Int. Cl.[3] B01F *3/04*
U.S. Cl. 261—94 11 Claims



1. A dumped random packing for use in gas/liquid contact apparatus consisting of a plurality of packing elements each comprising: an elongate polygonal or curved trough-shaped base member having free ends and longitudinally extending from one free end to the other around a first notional axis to an extent of about 90° to about 270° to define a space which is at least partially enclosed by said base member, said base member having one or more elongated apertures for gas/liquid flow through said base member; and at least one bridging member carried by said base member extending about a second notional axis parallel to the first notional axis and in the opposite sense to the base member, at least partially through said space, said trough-shaped base member having side walls on the edges of said base member defining spaced, parallel liquid distribution channels, one near each edge of and extending longitudinally of said base member, and forming spacing members extending transversely of said first notional axis outwardly of said base member, said bridging member having an aperture and a projecting tag which extends into said space from at least one edge of said aperture, the combination of said free ended, apertured base member and bridging member integral therewith providing an open structure of low resistance to gas flow through said element and the trough-shape providing a structure which aids liquid distribution and provides strength to resist collapse of said element under compressive stresses in said dumped random packing.

4,333,893

HIGH AREA CONTACTOR

Robert A. Clyde, Alfred University, P.O. Box 486, Alfred, N.Y. 14802

Filed Jan. 23, 1980, Ser. No. 114,637
Int. Cl.[3] F02M *17/28*
U.S. Cl. 261—94 21 Claims

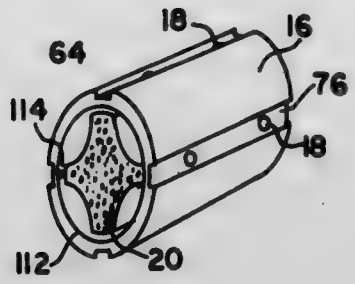
1. A tough and abrasive resistant high-area fluid contactor element comprising:

a high-area inner sponge member having a network of randomly located inter-connected closely adjacent filaments which define a plurality of inter-connecting cavities and which present a torturous flow path; and

a tough, rigid, and abrasive resistant substantially cylindrical shaped outer member surrounding said inner member to protect said inner member from abrasion and impact, said outer member having a first selected length and a first and further end.

16. A tough and abrasive resistant fluid contactor element comprising a tough and abrasive resistant substantially cylin-

drically shaped member having a longitudinal axis, and wherein a cross-section perpendicular to said longitudinal axis



through said substantially cylindrically shaped member has inside and outside walls, each of which are scalloped having a multiplicity of crests and a multiplicity of troughs.

4,333,894

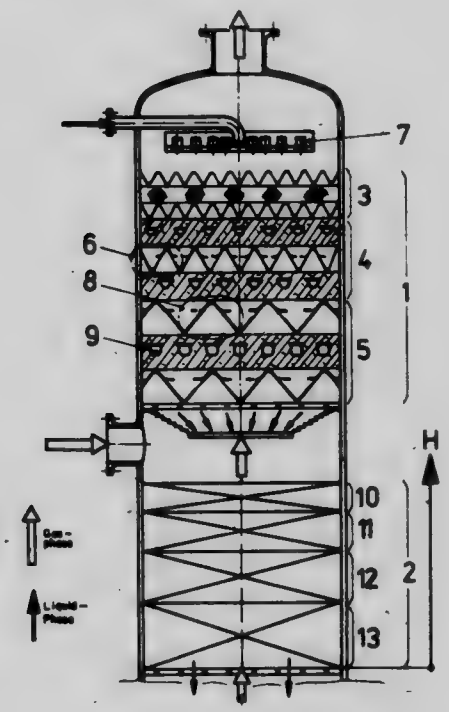
MASS-TRANSFER COLUMN

Klaus Hoppe, Magdeburg; Jürgen Müller; Jürgen Keller, both of Karl-Marx-Stadt; Bernd Kulbe, Leipzig; Klaus Lessig, Grimma; Christian Berlin, Grimma, and Eckhard Danke, Grimma, all of German Democratic Rep., assignors to Veb Chemieanlagenbaukombinat Leipzig-Grimma, Grimma, German Democratic Rep.

Filed Jan. 10, 1980, Ser. No. 110,853

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—96 **3 Claims**



1. Mass-transfer column for liquid-vapor contact processes, provided with packed tower internals and consisting of one or a plurality of a contact zone(s), wherein every contact zone is subdivided into immediately contiguous packed tower internals, characterized by the entire packed tower internals of one contact zone (1) containing a plurality, but a minimum of, three immediately contiguous horizontal packings (3; 4; 5) of varying geometry but identical basic structural configuration, said varying geometry having influence upon the vapor and liquid loading capacity of such a gradation that the free-flow sectional area is adapted to the load, thereby operating in the optimal load range of each of said packings.

4,333,895

APPARATUS FOR MOULDING MAGNET COMPACTS

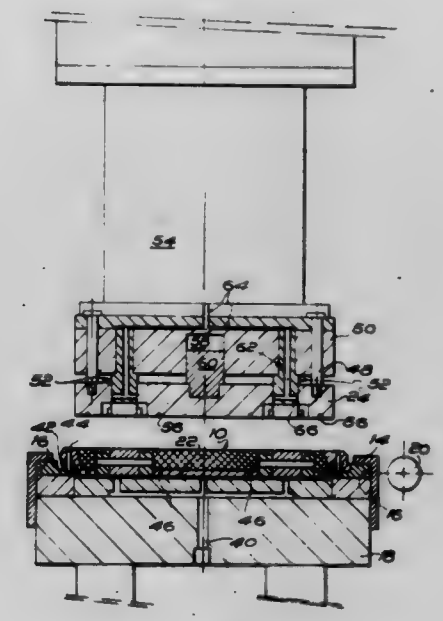
Kenneth H. Strawson, and Gerald Spencer, both of Sheffield, England, assignors to National Research Development Corp., London, England

Filed May 31, 1978, Ser. No. 911,104

Claims priority, application United Kingdom, Aug. 1, 1977, 32260/77

Int. Cl.³ B06B *1/02*

U.S. Cl. 264—24 **5 Claims**



1. A method of producing molded magnet compacts from a compactable slurry containing ferrite particles comprising the steps of providing a mold having fixable die plates and a mass of material having a high magnetic conductivity and a predetermined configuration and disposition relative to said die plates, fixing said plates relative to each other to define a die cavity of predetermined configuration and fixed volume, filling said die cavity with said slurry under a hydraulic pressure sufficient to compact said slurry therein, producing an induced electro-magnetic field through said die plates said field being transverse to the press axis of the mold, whereby said induced magnetic field passes non-linearly through said die cavity so that in cooperation with said mass, the ferrite particles within the slurry are oriented in a predetermined polar direction.

4,333,896

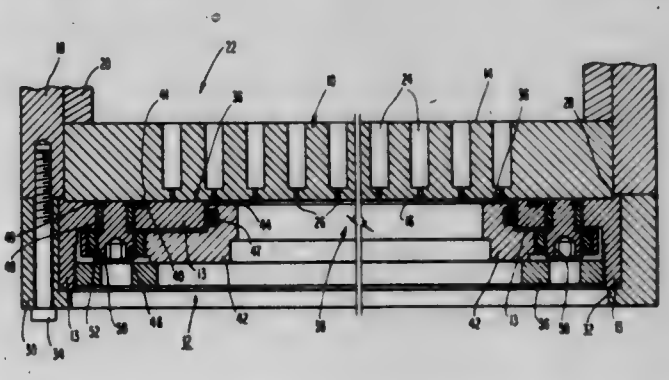
METHOD AND APPARATUS FOR EXTRUDING HONEYCOMB STRUCTURES WITH SKINS THEREON INVOLVING THE USE OF AN ADJUSTABLE EXTENSION DIE MASK

George M. Cunningham, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed May 12, 1980, Ser. No. 148,791

Int. Cl.³ B28B *21/54*; B28C *7/16*; B29F *3/04*

U.S. Cl. 264—40.5 **11 Claims**



1. A method of extruding honeycomb structures with skins thereon and comprising the steps of:

extruding material through a die means having an inlet face

and an outlet face and a plurality of passageways for said material extending therebetween so as to form honeycomb structures thereform;

passing said structures emanating from the passageways of the central portion of said outlet face through an orifice in a mask adjacent a peripheral portion of said outlet face, simultaneously passing said structures or a separate portion of said material from the passageways of the peripheral portion of said outlet face into a recess between said mask and said outlet face, compacting such structures or material in the recess into a skin-forming mass, delivering said mass from the recess to the periphery of said orifice and forming said mass into skins on said structures passing through said orifice, the depth of said recess being controllable and capable of being varied during extrusion;

monitoring the viscosity of said material passing through said die and mask; and

varying the depth of said recess in response to changes in said viscosity during extrusion of said material through the die means and into and through said mask.

4,333,897

METHOD AND MOLD FOR MOLDING PREFOAMED PARTICULATE THERMOPLASTIC SYNTHETIC RESIN MATERIAL

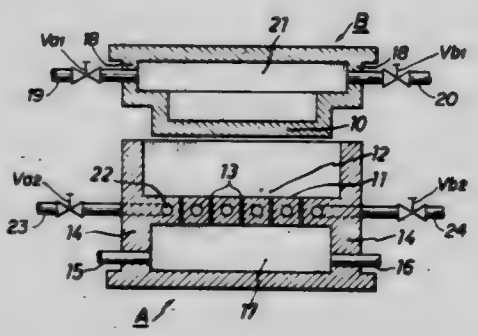
Tatsuo Hayashi, Nakatsugawa; Ryouichi Itoh, Yokkaichi, and Tatsumi Tsuji, Suzuka, all of Japan, assignors to Mitsubishi Petrochemical Company Limited, Tokyo and Daisen Industry Company Limited, Saitana, both of, Japan

Filed Jul. 16, 1979, Ser. No. 57,569

Claims priority, application Japan, Jul. 18, 1978, 53-86684

Int. Cl.³ B29D *27/00*

U.S. Cl. 264—40.6 **6 Claims**



1. A method for molding prefoamed particles of thermoplastic synthetic resin in a mold comprising opposed mold parts defining when closed a cavity and each of which parts have internal and external walls facing and not facing, respectively, the cavity, one or both of the mold parts having a heating chamber with steam inlet and outlet on an external wall, and one or both of the mold parts having a plurality of uniformly distributed steam passages in its internal wall leading from the cavity to the heating chamber, said internal wall having a surface heating chamber independent of the steam passages, comprising the steps: introducing the prefoamed particles into the cavity, thereafter introducing steam into the heating chamber to cause steam to feed through the plurality of passages into gaps between the prefoamed particles filled in the cavity to preheat same, and following this preheating, the mold is closed and steam is introduced into the surface heating chamber to cause the prefoamed particles contacting the cavity walls to be heated to form a smoothed superficial skin layer on the surface of the molded material, and controlling the steam pressure introduced into the surface heating chamber in order to control over a continuous range the superficial temperature of the prefoamed material and thereby control over a continuous range the thickness of the superficial skin layer on the surface of the prefoamed material.

4,333,898

METHOD OF MAKING A FOAMED PLASTIC

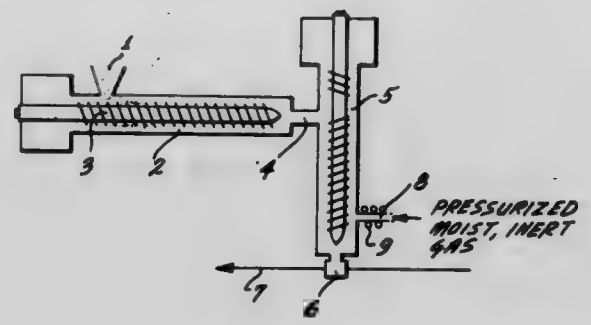
Hans-Martin Schmidtchen, Osnabrück, Fed. Rep. of Germany, assignor to Kabel und Metallwerke Gutehoffnungshutte A.G., Hanover, Fed. Rep. of Germany

Filed Oct. 26, 1978, Ser. No. 955,101

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1977, 2713181

Int. Cl.³ B29D *7/02*

U.S. Cl. 264—45.9 **9 Claims**



1. In a method of making a cellular, polymeric product, wherein a silane compound is grafted upon a thermoplastic or elastomeric material to permit crosslinking in the presence of moisture, after the grafting-on of the silane, the grafted material being in a fluid state, the improvement of introducing into the grafted material from the outside pressurized, moist gas as a foaming agent, subsequent to grafting, while the grafted material is still in the fluid state, for obtaining and producing cells in the material, the cell walls being exposed to the moisture in the gas and begin crosslinking, and immediately thereafter shaping the material into the desired product.

4,333,899

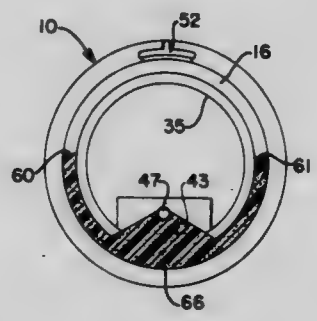
METHOD AND APPARATUS FOR MOLDING A TIRE

James M. Hogan, Tallmadge, and Cletus A. Becht, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 3, 1979, Ser. No. 99,705

Int. Cl.³ B29D *27/00*

U.S. Cl. 264—51 **15 Claims**



1. A method of molding an article with an opening through the article from a liquid reactive elastomeric mixture adapted to be cast and cured in an annular mold cavity of a rigid mold tilted relative to the horizontal so that said mold will have an upper edge portion and a lower edge portion, and having an inlet opening provided in said mold adjacent said lower edge portion, comprising injecting the reactive mixture through said inlet openings into the mold cavity whereby it flows in different directions around an inner mold portion along an inner mold surface of said cavity providing at least two leading surface portions of said flowing mixture, joining said leading surface portions to form an interface portion in said mold cavity, ejecting said interface portion from said mold cavity through an outlet vent provided in said mold at a location adjacent said upper edge portion of said mold where said leading surface portions meet, curing said reactive mixture to form an elastomeric material, removing said article from said

mold and severing said interface portion ejected through said outlet vent from said mold cavity to provide a substantially uniform molded article of elastomeric material.

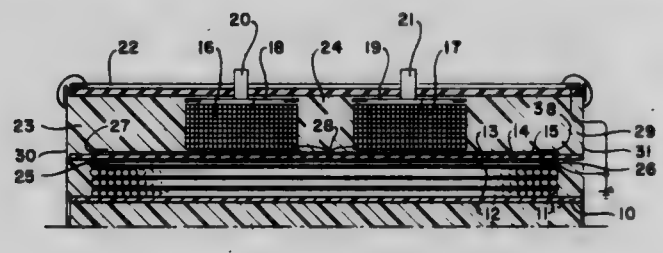
2. The method of claim 1 wherein said liquid reactive elastomeric mixture is a foamable liquid reactive elastomeric mixture to form a microcellular product and is injected into said mold cavity until said cavity is at least partially full and continuing to cure said reactive material during the foaming process so that the leading surfaces of the foam will meet at said interface portion and air and gases along with said interface portion are ejected from said cavity into said outlet vent.

4,333,900

PROCESS FOR MANUFACTURE OF HIGH VOLTAGE TRANSFORMERS AND THE LIKE

James J. Carey, Henrietta, N.Y., assignor to Chloride Electro Networks, Division of Chloride, Inc., N. American Operation, Tampa, Fla.

Continuation of Ser. No. 856,998, Dec. 2, 1977, abandoned. This application Oct. 1, 1979, Ser. No. 80,208
Int. Cl.³ H02K *15/12*
U.S. Cl. 264—85 **3 Claims**



1. A process for making and encapsulating a transformer insulation system comprising:

forming the system with ultra-clean components to obtain a system that is free from impurities;

positioning ultrasonically cleaned porous fiber material as filler and ultra-clean oxide-free copper shields having folded edges to form radii ends near selected portions of the transformer to control the electric field and minimize corona; and

processing encapsulation of the system by vacuum baking it in an oven at 100° C. to 155° C. for at least four hours to remove any slight impurities that may be present and completely dry the transformer, then

flooding the oven with nitrogen to atmospheric pressure, and

capping the transformers off in hermetic containers at approximately 140° C. with nitrogen and allowing them to cool to room temperature for storage in this low pressure nitrogen atmosphere before encapsulation, and vacuum encapsulating the transformer and insulation system.

4,333,901

MOLDING ARTICLES OF THERMOPLASTIC RUBBER

Gerald T. Young, Conway, N.H.; Michael R. Easterling, Windsor, and Robert E. Dukeshire, Hartland, both of Vt., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 16, 1980, Ser. No. 150,474
Int. Cl.³ B29F *1/00*
U.S. Cl. 264—85 **8 Claims**

1. A method for providing a relatively smooth surface to an injection molded article of thermoplastic rubber comprising:

(a) providing a source of relatively moisture-free pressurized gas and a cold mold that when closed defines a sealed mold cavity;

(b) pressurizing the mold cavity with the relatively moisture-free gas prior to and during low pressure and speed injection of molten thermoplastic rubber into the mold cavity, the pressure of the gas being at least 50 pounds per square inch gauge but less than the pressure of the molten thermoplastic rubber as it is injected into the mold cavity;

(c) maintaining said gas pressurization while injecting molten thermoplastic rubber into said mold cavity;

(d) terminating the source of said gas pressurization about 1 to 2 seconds prior to completion of filling of the mold cavity with thermoplastic rubber;

(e) completing filling of the mold cavity with thermoplastic rubber; and

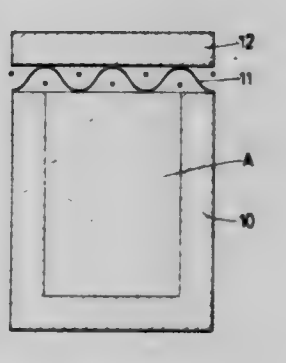
(f) allowing the thermoplastic rubber to solidify, then opening the mold and removing the thermoplastic rubber article from the mold cavity.

4,333,902

PROCESS OF PRODUCING A SINTERED COMPACT

Akio Hara, Nishinomiya, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jan. 24, 1977, Ser. No. 762,189
Int. Cl.³ B29C *1/02*
U.S. Cl. 264—320 **12 Claims**



1. Process of producing a sintered compact comprising:

filling a cup with a powdered material to be sintered;

putting on an opening of the cup a covering member consisting of a lid and solder so as to permit ventilation between the interior and exterior of the cup to form a cup assembly;

applying heat as well as vacuum to the cup assembly to degas the powdered material;

melting the solder by the continuation of heat to air-tightly seal the cup with the lid to obtain a closed cup compressible under high pressure at high temperature while maintaining the air-tight seal; and

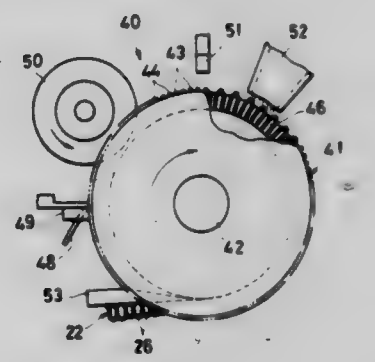
hot-pressing the closed cup to obtain a sintered compact.

4,333,903

ROW OF CONTINUOUS SLIDE FASTENER COUPLING ELEMENTS AND METHOD OF MAKING THE SAME

Hiroshi Yoshida, Kurobe; Isao Hagiwara, Namerikawa, and Shigeyuki Oodera, Kurobe, all of Japan, assignors to Yoshida Kogyo K.K., Tokyo, Japan

Filed Jan. 31, 1979, Ser. No. 8,102
Claims priority, application Japan, Jan. 31, 1978, 53/9461
Int. Cl.³ A44B *19/12*; B29C *25/00*
U.S. Cl. 264—165 **7 Claims**



1. A method of manufacturing a row of continuous slide fastener coupling elements, comprising the steps of:

(a) transporting and bending a monolfilament of thermosplastic synthetic resin successively into a plurality of continuous turns each including a coupling head, a pair of spaced legs extending from said coupling head, and a connector located remotely from said coupling head and extending between one of said legs and a leg of an adjacent coupling element; and

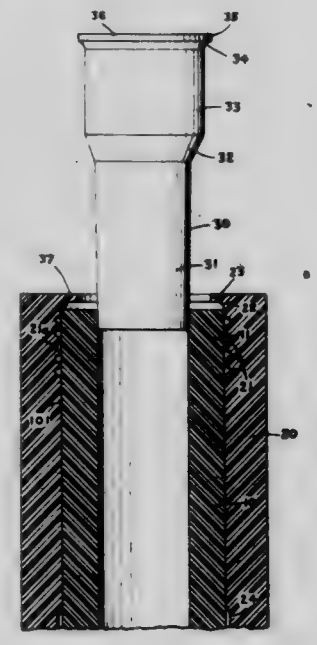
(b) substantially during said bending, permanently heat-setting only each said connector at least at a surface layer thereof which faces away from said coupling head at a temperature slightly below the melting point of the monofilament, and while said turns are still being transported, providing said turns a temporary heat-set at a relatively low temperature, whereby the temporarily heat-set coupling heads are stabilized in pitch by the permanently heat-set connectors.

4,333,904

FORMING A MOUTHPIECE ON A PREFORM

Kjell M. Jakobsen, Skanör, Sweden, assignor to PLM AB, Malmo, Sweden

Continuation of Ser. No. 15,961, Feb. 28, 1979, abandoned. This application Aug. 28, 1980, Ser. No. 182,086
Claims priority, application Sweden, Mar. 2, 1978, 7802362
Int. Cl.[3] B29C *17/00, 17/07*
U.S. Cl. 264—323 **9 Claims**



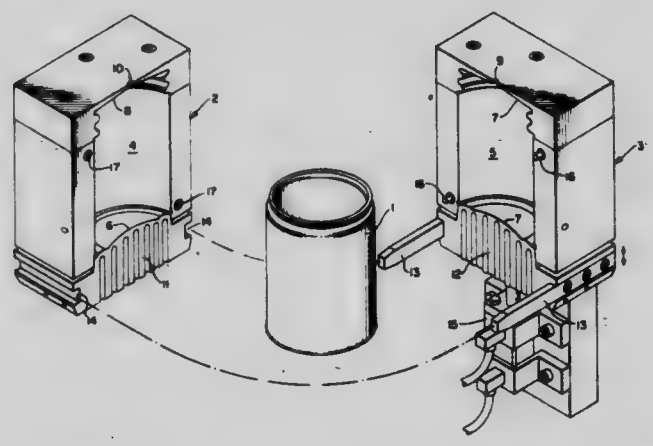
1. In a process for forming a mouthpiece on a preform formed from a tubular blank of thermoplastic material, adapted for the production of a container, the mouthpiece being formed with connecting means on the outer surface thereof by inserting the blank between an outer mold section having a mold portion for the formation of the connecting means and an inner mold section, the two mold sections being moved relatively axially to force the material of the inserted blank to move radially outwards into the mold portion for the connecting means of the outer mold section, an improvement comprising forming the inner mold section with a first conical surface merging with a second conical surface of greater cone angle in turn merging with a cylindrical surface, the relative movement of said mold sections during molding resulting in axial advance of the inner mold section into the outer mold section with the first conical surface entering the mold section first, the material of said blank being at a temperature not greater than the glass transition temperature and being squeezed between said first and second conical surfaces and said outer mold section to undergo radial compression and deformation into the mold portion during said axial advance of the inner mold section for the connecting means of the outer section to secure the blank to said outer mold section whereupon the second conical section displaces the material in the inner region of the blank axially in the direction of insertion of the inner mold section to reduce the thickness of the mouthpiece in relation to the remainder of the blank while the blank undergoes overall lengthening at its end remote from the mouthpiece and said mouthpiece of the blank is elongated and flows axially in opposite direction to fill the mold when the first mold section is fully inserted into the second mold section, the penetration of said first conical section into said blank during axial advance of said second conical section into said blank preventing displaced material from entering the internal cavity of the blank.

4,333,905

METHOD FOR BLOWMOLDING A CONTAINER

Borge Hestehave, Alta Loma, and Kjeld Hestehave, Upland, both of Calif., assignors to Bomatic, Inc., Ontario, Calif.

Filed Oct. 15, 1980, Ser. No. 197,151
Int. Cl.[3] B29C *17/07*
U.S. Cl. 264—529 **12 Claims**



1. A method for the blow molding of a plastic container with a thickened bead at the bottom thereof comprising the steps of:

(a) extruding a tubular parison between parts of a blow mold;

(b) closing said mold parts about said parison so as to define a molding cavity of a greater size than the intended finished size of said container;

(c) preblowing said parison within said molding cavity with a blowing medium under low pressure so as to partially inflate said parison to approximately 95% of said finizhed size has been inserted;

(d) raising a molding cavity bottom wall part of said blow mold so as to compact 2 double-wall thickness of said partially inflated parison in a manner forming a thickened bead in a circumferential bead forming recess between said bottom wall part and adjacent surrounding molding cavity parts;

(e) finish-blowing said parison within said molding cavity with a blowing medium under high pressure so as to inflate said parison to said intended finished size; and

(f) opening said mold parts for removal of said container.

4,333,906

PROCESS FOR PRODUCING HOLLOW FIBERS HAVING A NON-UNIFORM WALL THICKNESS AND A NON-UNIFORM CROSS-SECTIONAL AREA

Christopher H. Porter, Newtown Square, and John A. Taylor, Furlong, both of Pa., assignors to Extracorporeal Medical Specialties, Inc., King of Prussia, Pa.

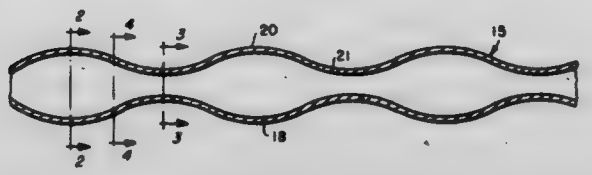
Division of Ser. No. 19,973, Mar. 12, 1979, Pat. No. 4,288,494. This application Jul. 14, 1980, Ser. No. 167,891
Int. Cl.[3] B29C *17/02*
U.S. Cl. 264—40.3 **11 Claims**

1. A method for producing a regenerated cellulose hollow fiber having a hollow core extending continuously throughout the length thereof, said fiber having a non-uniform wall thickness and a non-uniform cross-sectional area, said method comprising

(a) providing a tube-in-orifice spinneret comprising a hous-

ing having a chamber communicating with an outer surface thereof and a hollow tube having a continuous lumen extending the length thereof secured within said chamber, the walls of said chamber and the outer surface of said tube defining an annular space through which a fiber forming material may be extruded;

(b) supplying to said chamber a fiber forming material selected from the group consisting of cuprammonium cellulose solution and viscose cellulose solution;



(c) extruding said fiber forming material through said annular space to form a hollow core extrudate;

(d) supplying a fluid at a constant mean flow rate to the lumen of said hollow tube while simultaneously varying the pressure on said supplied fluid;

(e) removing from the exit of said spinneret said extrudate with said fluid contained in the hollow core thereof; and

(f) converting said fiber forming material to fiber form.

4,333,907

BIAXIALLY ORIENTED WHOLLY AROMATIC POLYESTER FILM

Takanori Urasaki, Hino; Yasuji Hirabayashi, Hachioji; Makoto Ogasawara, and Hiroo Inata, both of Hino, all of Japan, assignors to Teitin Limited, Osaka, Japan

Filed Jun. 24, 1980, Ser. No. 162,576

Claims priority, application Japan, Jun. 25, 1979, 54-79050; Sep. 25, 1979, 54-121926; Sep. 25, 1979, 54-121927

Int. Cl.³ B29C *17/02;* C08G *63/02*

U.S. Cl. 264—290.2 **19 Claims**

1. A melt-molded film of a wholly aromatic polyester, said film having in its plane two perpendicularly crossing directions in each of which the Young's modulus and strength of the film at 25° C. are at least about 200 kg/mm^2 and at least about 5 kg/mm^2 respectively, the product of the Young's moduli of the film in the two directions being at least 8×10^4 (kg/mm^2)^2, and said wholly aromatic polyester being substantially linear, having a melt viscosity at about its melting point of at least about 10000 poises, and being composed substantially of recurring units derived from p-hydroxybenzoic acid, recurring units derived from a m- or p-oriented aromatic dicarboxylic acid and recurring units derived from a m- or p-oriented aromatic dihydroxy compound, the proportion of said recurring units derived from p-hydroxybenzoic acid being about 30 to about 70 mole% based on the entire recurring units, the melt viscosity (η_a) of the film being defined by the following equation

$$\eta_a=\pi pr^4/8lQ \quad (1)$$

wherein η_a is the melt viscosity of a wholly aromatic polyester sample determined by packing about 1 g of a powder of the wholly aromatic polyester sample in a cylinder having a cross-sectional area of 1 cm^2 and equipped with a nozzle having a diameter of 1 mm and a length of 5 mm centrally at its bottom portion, extruding the polyester under pressure from the nozzle at about its melting point, and measuring the melt viscosity of the polyester when the shear rate (sec^{-1}) defined by the following equation (2)

$$\gamma_a=4Q/\pi r^3 \quad (2)$$

reaches 100 sec^{-1}; p is the pressure (dyne/cm^2) applied; r is the radius (=0.05 cm) of the nozzle; l is the length (=0.5 cm) of the nozzle; and Q is the rate (cc/sec) of the polyester extruded.

4,333,908

KIT FOR DETERMINING SILICA-ALUMINA CATALYST IN FUEL OIL

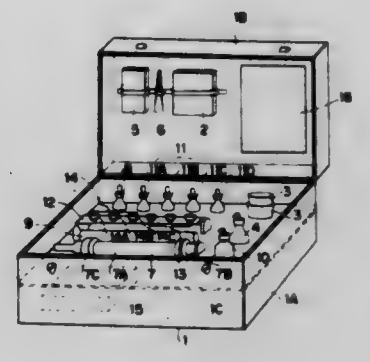
Hiroya Maki; Taketoshi Furusawa, and Takeo Takaishi, all of Nagasaki, Japan, assignors to Mitsubishi-Jukogyo Kabushiki Kaisha, Japan

Filed Dec. 29, 1980, Ser. No. 221,195

Claims priority, application Japan, Jan. 14, 1980, 55/1922[U]; Sep. 19, 1980, 55/132245[U]

Int. Cl.³ G01N *33/22, 1/00*

U.S. Cl. 422—61 **4 Claims**



1. An analytical kit for fuel oil to determine a silica-alumina catalyst component contained therein, which comprises a plurality of syringes for sampling fuel oil, sample containers for holding the sampled oil, an organic solvent for dissolving said oil in one of said containers, filter means for the solution of said oil in said organic solvent, a reagent for dissolving a catalyst component in the filtration residue formed by said filter means, a measuring cylinder to contain the solution formed by said reagent, purified water for diluting said solution in said cylinder to a predetermined volume, color-producing reagents to be added to said solution adjusted with said purified water, means for comparing the color developed by said color-producing reagents with colors of known standards, and a portable box accommodating all of said means and supplies.

4,333,909

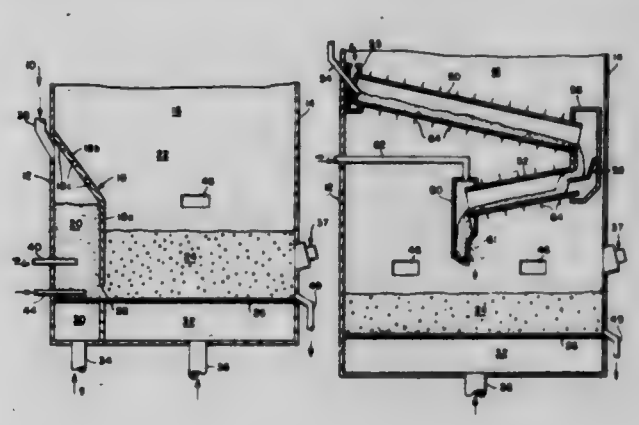
FLUIDIZED BED BOILER UTILIZING PRECALCINATION OF ACCEPTORS

Robert D. Stewart, Verona, and Robert L. Gamble, Wayne, both of N.J., assignors to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed May 9, 1980, Ser. No. 148,339

Int. Cl.³ F27B *15/08, 15/10, 15/14;* B01J *8/28*

U.S. Cl. 422—141 **15 Claims**



1. A fluidized bed boiler comprising a housing, grate means supported in said housing and adapted to receive a bed of particulate material at least a portion of which is fossil fuel, means for passing air through said grate means and said particulate material to fluidize said particulate material, first means for introducing into said housing a raw acceptor for the sulfur produced as a result of combustion of said fuel, means for confining a supply of said acceptor within an area that is iso-

lated from said bed of particulate material and in a heat transfer relation to the heat generated by said fluidized bed to calcine said acceptor, and second means for introducing said calcined acceptor into said bed, said second introducing means including means directing pressurized gas from the area within the confining means to the bed of particulate material to assist in moving the acceptor from said area to said bed.

9. A fluidized bed boiler comprising a housing, grate means supported in said housing and adapted to receive a bed of particulate material at least a portion of which is fossil fuel, means for passing air through said grate means and said particulate material to fluidize said particulate material, means for introducing into said housing a raw acceptor for the sulfur produced as a result of combustion of said fuel, means for confining said acceptor within an area that is isolated from said bed of particulate material and in a heat transfer relation to the heat generated by said fluidized bed to calcine said acceptor and for introducing said calcined acceptor into said bed, said confining and introducing means comprising at least one downwardly slanted, elongated distribution conduit positioned in a vertically stacked configuration within said housing above said fluidized bed, wherein said means for introducing said raw acceptor into said housing deposits said raw acceptor into the upper end of the uppermost of said at least one downwardly slanted distribution conduit and wherein the calcined acceptor passes from the lower end of the lowermost of said slanted elongated conduits onto said bed of particulate material.

4,333,910

ARRANGEMENT FOR DISCHARGING COKE FROM A COOLING SHAFT SUPPLIED WITH COOLING GAS

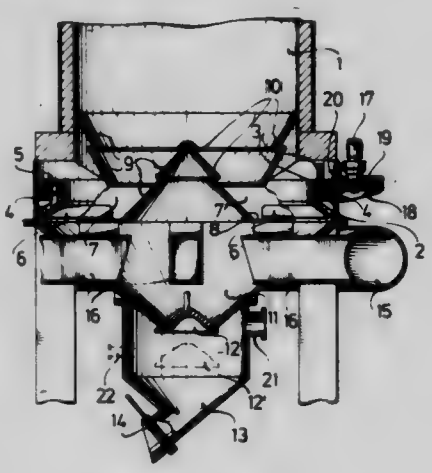
Johannes Lorrek, and Friedrich Jokisch, both of Essen, Fed. Rep. of Germany, assignors to Krupp-Koppers GmbH, Essen, Fed. Rep. of Germany

Filed Jan. 14, 1981, Ser. No. 225,969

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1980, 3003345

Int. Cl.³ B01F *7/16*

U.S. Cl. 422—228 **23 Claims**



1. An arrangement for discharging coke from a cooling shaft supplied with cooling gas and having an outlet region, the arrangement comprising housing means arranged to be located adjacent to the outlet region of the cooling shaft and sealed from atmosphere; a supporting element accomodated rotatable in said housing means; at least one coke stripping member also accommodated in said housing means and arranged to engage in a mass of coke discharged from the cooling shaft, said coke stripping member being mounted on said supporting element for joint rotation therewith; and means for rotating said supporting element together with said coke stripping member.

4,333,911

METHOD OF PREPARING A SOLUTION OF GALLIUM 68 FROM GERMANIUM 68

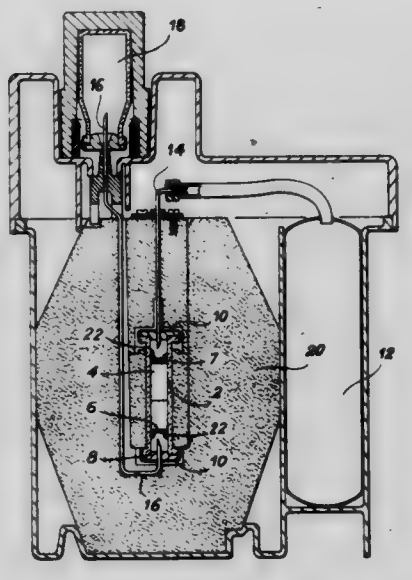
Dominique Comar, Bures sur Yvette; Christian Loc'h, Rosny sous Bois, and Bernard Maziere, Gif-sur-Yvette, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Apr. 23, 1980, Ser. No. 143,106

Claims priority, application France, Apr. 24, 1979, 79 10361

Int. Cl.³ C01G *15/00;* A61K *43/00*

U.S. Cl. 423—2 **5 Claims**



1. A method of preparing a solution of gallium 68 from germanium 68, wherein the germanium 68 is fixed on particles of tin dioxide and the gallium 68 produced by radioactive decay of the germanium 68 fixed on said particles is then eluted with a solution of hydrochloric acid.

4,333,912

METHOD FOR DISSOLVING PLUTONIUM-CONTAINING NUCLEAR FUELS

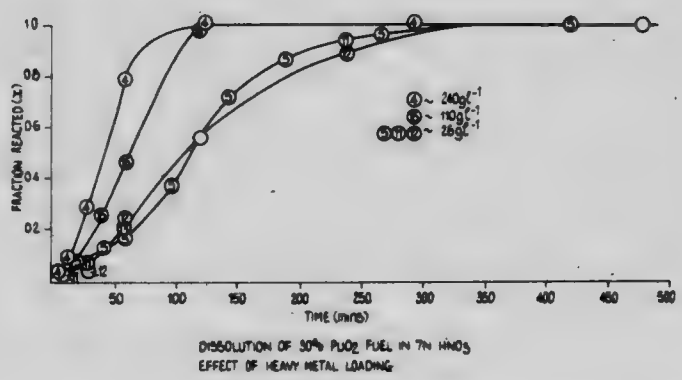
Alfred L. Mills, Thurso; Laurence R. Weatherley, Cairneyhill, both of Scotland, and John A. Crofts, Dursley, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Apr. 22, 1980, Ser. No. 142,736

Claims priority, application United Kingdom, Apr. 30, 1979, 7914978; Nov. 7, 1979, 7938498

Int. Cl.³ B01F *1/00;* C01G *43/02*

U.S. Cl. 423—20 **3 Claims**



1. A method of increasing the dissolution rate in nitric acid of plutonium dioxide and uranium/plutonium oxide fuels and insoluble residues therefrom comprising conducting said disolution in at least 7 molar nitric acid having metal loadings of Pu or U+Pu maintained at at least 200 g per liter of nitric acid.

4,333,913

METHOD OF PURIFYING AQUEOUS SOLUTIONS OF METAL HYDROXIDES

Ronald L. Dotson, and Edward P. Carr, both of Cleveland, Tenn., assignors to Olin Corporation, New Haven, Conn.

Continuation of Ser. No. 965,818, Dec. 4, 1978, Pat. No. 4,260,494. This application Aug. 18, 1980, Ser. No. 179,147
The portion of the term of this patent subsequent to Apr. 7, 1998, has been disclaimed.
Int. Cl.[3] C01D *1/36*
U.S. Cl. 423—184 14 Claims

1. A process for purifying an aqueous solution of an alkali metal hydroxide containing a soluble polysulfide complex of mercury and having an alkali metal hydroxide concentration in the range from about 25 to about 75% by weight, which comprises:

(a) heating said solution to a temperature of at least 25° C.,

(b) reacting an inorganic peroxide with said solution to precipitate solid particles of an oxide of said mercury in said solution, and

(c) separating said solid particles from said solution.

4,333,914

METHOD FOR MAKING ALUMINUM TRIMETAPHOSPHATES FROM POWDER REACTANTS

James E. Neely, Jr., Butler; Chia-Cheng Lin, Gibsonia; Charlene A. Falleroni, Lower Burrell, and Annette Moff, Latrobe, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 26, 1980, Ser. No. 210,509
Int. Cl.[3] C01B *25/36*
U.S. Cl. 423—314 6 Claims

1. A method for making aluminum trimetaphosphate comprising a mixture of chain form polyphosphate species comprising the steps of:

a. mixing thoroughly in approximately stoichiometric quantities

(1) an aluminum hydroxide compound and

(2) a phosphate compound capable of reacting with the aluminum hydroxide compound to form aluminum trimetaphosphate; and

b. heating the mixture at a sufficient temperature for a sufficient time to convert the reactants to a product which comprises a mixture of chain form polyphosphate species of aluminum trimetaphosphate.

4,333,915

PROCESS FOR PRODUCING METALLIC CARBONITRIDE

Tadashi Iwai; Takashi Kawahito, and Masahiro Tokuse, all of Ube, Japan, assignors to UBE Industries, Ltd., Yamaguchi, Japan

Filed Mar. 31, 1981, Ser. No. 249,353
Claims priority, application Japan, Jun. 20, 1980, 55-82867
Int. Cl.[3] C01B *33/00;* C01C *3/08;* C04B *35/56, 35/58*
U.S. Cl. 423—324 15 Claims

1. A process for producing a metallic carbonitride said metal being selected from the group consisting of Groups IV, V and VI of the Periodic Table of Elements, comprising the step of calcining a precursor obtained by (i) reacting the reaction product of ammonia and the halide of a metal with at least one member selected from the group consisting of carbohydrates and polyvinyl alcohols, or (ii) the reaction product of the halide of a metal and at least one member selected from the group consisting of carbohydrates and polyvinyl alcohols with ammonia.

4,333,916

PROCESS FOR PRODUCING CARBONITRIDE OF METAL

Tadashi Iwai; Takashi Kawahito, and Masahiro Tokuse, all of Ube, Japan, assignors to UBE Industries, Ltd., Yamaguchi, Japan

Filed Mar. 30, 1981, Ser. No. 248,823
Claims priority, application Japan, Apr. 18, 1980, 55-50355
Int. Cl.[3] C01C *3/08;* C04B *35/56, 35/58*
U.S. Cl. 423—371 11 Claims

1. A process for producing the carbonitride of a metal comprising the step of calcining a precursor obtained by (i) reacting the reaction product of ammonia and the halide of a metal selected from the group consisting of Groups IV, V and VI of the Periodic Table of Elements with polyphenol, or (ii) reacting the reaction product of polyphenol and the halide of a metal selected from the group consisting of Groups IV, V and VI of the Periodic Table of Elements with ammonia, the amount of the polyphenol being within the range defined by the following relationship:

$$0 < \frac{a \times b}{c} < 3$$

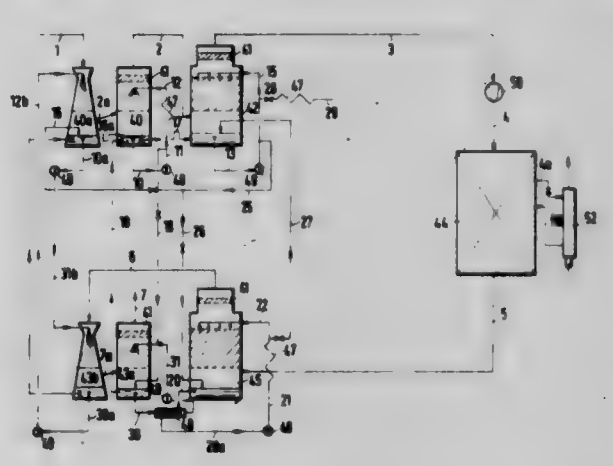
wherein a is the number of hydroxyl groups contained in one molecule of the polyphenol, b is the number of moles of the polyphenol and c is the number of moles of the metallic halide.

4,333,917

PROCESS OF PRODUCING SULFURIC ACID

Karl H. Dörr, Mainz; Helmut Diekmann, Karben; Hugo Grimm, Miltenberg; Ulrich Sander, Friedrichsdorf; Michael Tacke, and Waldemar Weber, both of Offenbach, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 7, 1980, Ser. No. 119,289
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1979, 2905083
Int. Cl.[3] C01B *17/74, 17/98, 17/48;* B01D *3/00*
U.S. Cl. 423—522 8 Claims



1. In a process for producing sulfuric acid from SO_2-containing gases containing more water than required for sulfuric acid production comprising forming SO_3 by a catalytic reaction and absorbing the SO_3 in concentrated sulfuric acid, in which process the SO_2-containing gas is purified and cooled, the cooled gases containing more water than required for concentrated sulfuric acid production, at least part of the SO_2-containing gas which as been purified and cooled is predried in contact with dilute sulfuric acid in a preliminary drying stage, the SO_2-containing gas is finally dried with concentrated sulfuric acid, dilute acid from the final dryer is returned to an SO_3 absorbing step and dilute sulfuric acid which has been used for predrying is strengthened in a strengthening stage in direct contact with water absorbing gases and is returned to the preliminary drying stage, the improvement wherein:

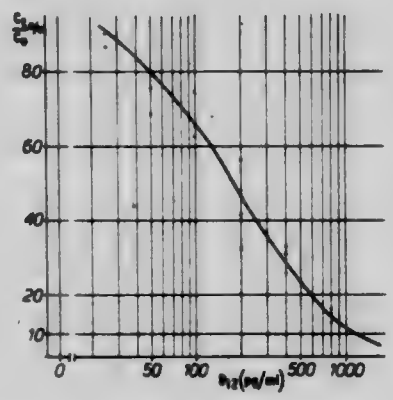
(a) dilute sulfuric acid having a concentration of 30 to 70 percent by weight is used in the preliminary drying stage:
(b) a partial stream of dilute sulfuric acid is withdrawn from the preliminary drying stage and in said strengthening stage is strengthened in direct contact with water-absorbing gases and is then returned to the preliminary drying stage at a concentration which is 2 to 40% by weight higher than the concentration of the dilute sulfuric acid in the preliminary drying stage;
(c) the partial stream of dilute sulfuric acid is circulated in said strengthening stage of step (b) and is heated therein by an indirect heat exchange;
(d) the dilute sulfuric acid circulating in the preliminary drying stage is cooled by an indirect heat exchange;
(e) the temperature of the SO_2-containing gas leaving the preliminary drying stage is maintained as high as or higher than the temperature of the gases entering the preliminary drying stage;
(f) removing more water in the preliminary drying stage than is required to maintain a water balance between the final drying step and the SO_3 absorbing step, a portion of the dilute acid from the preliminary drying stage is supplied to the SO_3 absorbing step to maintain the water balance in the overall plant; and
(g) sufficient sulfuric acid is supplied from the SO_3 absorbing step to the preliminary drying stage to compensate for the dilute acid supplied from the preliminary drying stage to the SO_3 absorbing stage.

4,333,918

RADIOASSAY FOR VITAMIN B_{12}

James A. Carney, London, England, and Adrienne R. McGregor, East Malvern, Australia, assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Mar. 23, 1979, Ser. No. 969,624
Int. Cl.³ G01N *33/54, 33/56;* G01T *1/00*
U.S. Cl. 424—1 **13 Claims**



1. A method of assaying a liquid for vitamin B_{12}, which comprises: forming a mixture comprising a sample of the liquid, vitamin B_{12}-binding proteins from chicken serum, and a buffer to provide a pH in the range 12.8 to 13.2, whereby vitamin B_{12} in the mixture becomes bound to the said binding proteins; and then measuring the amount of vitamin B_{12} present in the sample by analysis of a component of the mixture.

4,333,919

GROWTH PROMOTANT CONTROLLED RELEASE FORMULATIONS AND METHOD OF TREATMENT

John W. Kleber, and Barbara E. Simpson, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 74,682, Sep. 12, 1979, abandoned. This application Dec. 15, 1980, Ser. No. 216,404
Int. Cl.³ A61K *9/22, 9/26*
U.S. Cl. 424—15 **24 Claims**

1. A biodegradable controlled release formulation useful in promoting growth and feed utilization in ruminant animals comprising from about 20 to about 80 percent by weight of a growth promoting and feed utilization enhancing agent intimately dispersed throughout a copolymer derived from about 60 to about 95 percent by weight of lactic acid and about 40 to about 5 percent by weight of glycolic acid, said copolymer having an inherent viscosity of about 0.08 to about 0.30 when measured in chloroform, said copolymer having a molecular weight of about 6000 to about 35000 and being substantially free of polymerization catalyst, said formulation being in combination with suitable excipients and carriers therefor.

4,333,920

BENZALPHTHALIDES AND BROAD SPECTRUM SUN SCREENS

Donald E. Conner, Clifton, N.J., assignor to Van Dyk & Company, Inc., Belleville, N.J.

Continuation-in-part of Ser. No. 14,598, Feb. 23, 1979, abandoned. This application May 24, 1979, Ser. No. 42,013
Int. Cl.³ A61K *7/42*
U.S. Cl. 424—59 **18 Claims**

1. A composition adapted for application to the human skin comprising a cosmetic oil carrier containing distributed therein from an effective amount to provide substantial protection against erythemal and tanning radiation up to the limit of solubility therein of a benzalphthalide.

4,333,921

HAIR CLEANSING CONDITIONER WITH LATHERING ACTION

Oscar B. Luedicke, Butler; Thad Domzalski, Pompton Lakes, and David Zajac, East Brunswick, all of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Oct. 2, 1980, Ser. No. 193,217
Int. Cl.³ A61K *7/06*
U.S. Cl. 424—70 **3 Claims**

1. An aqueous hair conditioning composition consisting essentially of from about 1 to 2 percent by weight of an alkyl (C_{12} to C_{20}) dimethylbenzylammonium chloride compound, from about 3 to 5 percent by weight of an alkyl (C_{10} to C_{18}) dimethylamine oxide compound, and about 0.5 percent of an aqueous pearlescent hair conditioning composition comprising glycolamido stearate, said composition having a pH in the range of about 4–6.

4,333,922

METHOD FOR THE TREATMENT OF WATER-LIVING ANIMALS WITH HEALTH MODIFYING AGENTS

Robert J. Herschler, 3080 NW. 8th St., Camas, Wash. 98607

Continuation-in-part of Ser. No. 505,396, Sep. 12, 1974, abandoned. This application Feb. 11, 1976, Ser. No. 657,228
Int. Cl.³ A61K *39/12, 31/14, 31/17*
U.S. Cl. 424—89 **28 Claims**

1. A method of enhancing the penetration into and across an epithelial membrane barrier of a water-living animal of a health modifying agent capable of eliciting a desired health modifying effect therefrom comprising contacting the water-living animal with a sufficient amount of an aqueous solution or dispersion of the health modifying agent to produce the desired health modifying effect on the water-living animal and a solution comprising a sufficient concentration of a second agent selected from the group consisting of acetamide, urea, sodium chloride and mixtures thereof to enhance penetration and systemic uptake of the health modifying agent to achieve the desired health modifying effect.

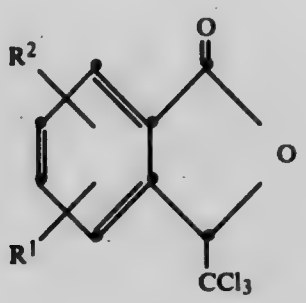
4,333,923

METHOD FOR IMPROVING THE EFFICIENCY OF RUMINANT FEED UTILIZATION

James R. Beck, Indianapolis, and Joseph A. Yahner, Clinton, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Mar. 26, 1981, Ser. No. 247,673
Int. Cl.[3] A61K *35/00, 37/00, 31/335*
U.S. Cl. 424—115 14 Claims

1. A method of increasing the efficiency of feed utilization by ruminant animals having a developed rumen function which comprises the oral administration to such animals of a propionate-increasing amount or a methane-inhibiting amount of a compound having the formula



wherein: R^1 and R^2 independently are hydrogen, hydroxy, C_1–C_3alkoxy, or C_1–C_3alkyl.

7. The method of claim 1 wherein the phthalide is administered in combination with a polyether or glycopeptide feed efficiency enhancing agent.

8. The method of claim 7 wherein the phthalide is administered in combination with monensin.

4,333,924

RETINOL ACETATE SKIN-CARE COMPOSITIONS

Inez Bowley, Dorking, and Raymond G. Harrison, Reigate, both of England, assignors to Beecham Group Limited, England

Continuation of Ser. No. 933,489, Aug. 14, 1978, abandoned.
This application Mar. 25, 1980, Ser. No. 133,810
Int. Cl.[3] A61K *31/00, 31/215, 47/00*
U.S. Cl. 424—170 6 Claims

1. A skin care composition comprising an oil-in-water emulsion base comprising about 30% by weight of an oil selected form the group consisting of mineral oil and mineral oil in combination with lanolin and decyl oleate, a non-ionic emulsifying agent in an amount from 2 to 12% by weight and retinol acetate in an amount from 1,000 to 15,000 IUg^g-1.

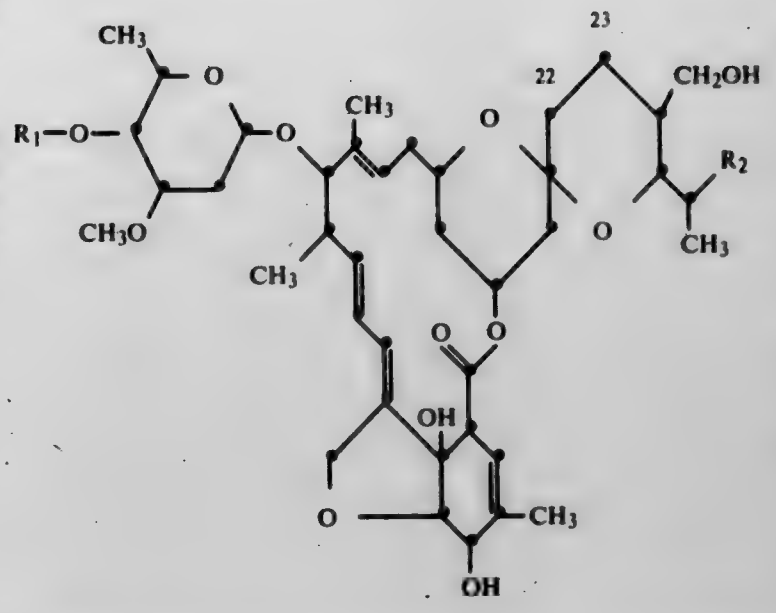
4,333,925

DERIVATIVES OF C-076 COMPOUNDS

Rudolf P. Buhs, Short Hills; Theodore A. Jacob, Westfield; Gerald Miwa, Maplewood; Elena Sestokas, Rahway; Rae Taub, Metuchen, and John S. Walsh, Avenel, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

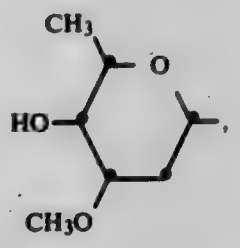
Filed May 11, 1981, Ser. No. 262,082
Int. Cl.[3] A61K *31/71;* C07H *17/08*
U.S. Cl. 424—181 8 Claims

1. A compound having the formula:

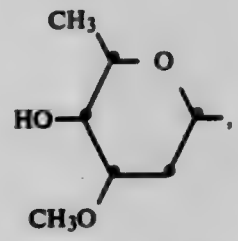


wherein R_1, R_2 and the 22, 23 broken line have the following meanings:

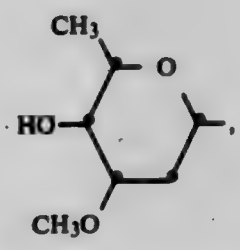
In Compound I, R_1 is



R_2 is $—CH_2CH_3$, and the 22, 23 bond is a double bond; in Compound II, R_1 is —H, R_2 is $—CH_2CH_3$, and the 22, 23 bond is a single bond; in Compound III, R_1 is



R_2 is $—CH_2CH_3$, and the 22, 23 bond is a single bond; in Compound IV, R_1 is —H, R_2 is $—CH_3$, and the 22, 23 bond is a single bond; or in Compound V, R_1 is



R_2 is $—CH_3$ and the 22, 23 bond is a single bond.

4,333,926

STERYL-β-D-GLUCOSIDE PHARMACEUTICAL COMPOSITIONS AND USE

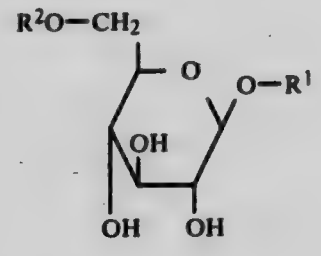
Katsuya Ohata; Tadatoshi Nomura, and Masayoshi Watanabe, all of Kyoto, Japan, assignors to Nippon Shinyaku Co., Ltd., Kyoto, Japan

Continuation of Ser. No. 722,649, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 616,308, Sep. 24, 1975, abandoned, which is a continuation-in-part of Ser. No. 579,831, May 22, 1975, abandoned. This application May 24, 1979, Ser. No. 42,048

Int. Cl.[3] A61K *31/70, 31/705*

U.S. Cl. 424—182 10 Claims

1. The method of achieving hemostatic, vascular stabilization and anti-shock effect in humans and other animals in need thereof which comprises orally, parenterally, rectally or topically administering thereto an effective amount of at least one compound of the formula:



wherein

R^1 is β-sitosteryl, campesteryl, stigmasteryl or cholesteryl; and

R^2 is hydrogen or palmitoyl.

4,333,927

SKIN PREPARATION

Kunihiko Ofuchi, Yokohama; Koichiro Oda, Tokyo, and Kenichiro Nakao, Yokohama, all of Japan, assignors to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan

Filed Mar. 13, 1981, Ser. No. 243,430

Claims priority, application Japan, Mar. 27, 1980, 55-39450

Int. Cl.[3] A61K *31/58;* A01N *45/00*

U.S. Cl. 424—238 23 Claims

1. A skin preparation containing at least one topical corticosteroid selected from the group consisting of hydrocortisone, prednisolone, methylprednisolone, dexamethasone, triamsinolone, triamsinolone acetonide, flumethasone, fluocinonide, beclomethasone, betamethasone, fluocinolone, fluoromethalone, fludroxycortide, clobetasone and clobetasol, and an effective amount of a phosphatide and at least one of butylhydroxyanisole and butylhydroxytoluene to impart stability to the preparation for a prolonged period.

4,333,928

16 α-ALKYL STEROIDS, THEIR PREPARATION, AND PHARMACEUTICAL PREPARATIONS THEREOF

Günter Neef; Ulrich Eder; Gregor Haffer; Gerhard Sauer; Rudolf Wiechert, and Hermann Steinbeck, all of Berlin, Fed. Rep. of Germany, assignors to Schering, Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

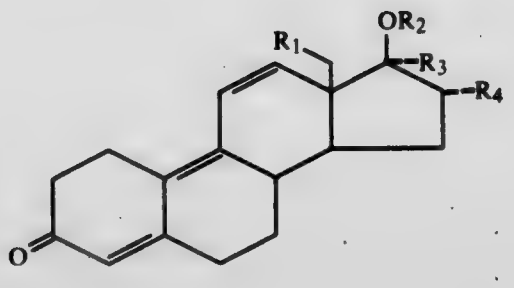
Filed May 16, 1980, Ser. No. 150,518

Claims priority, application Fed. Rep. of Germany, May 17, 1979, 2920184

Int. Cl.[3] A61K *31/56*

U.S. Cl. 424—243 14 Claims

1. A 16α-alkyl steroid of the formula



wherein

R_1 is hydrogen or methyl,

R_2 is hydrogen, C_{1-5} alkyl, C_{3-5} cycloalkyl, C_{1-5} alkyl or C_{3-5} cycloalkyl interrupted by 0 at a nonterminal position, the acyl residue of a C_{1-17} hydrocarbon carboxylic or sulfonic acid, glycosyl or glycosyl esterified by a C_{1-5} alkanoyl,

R_3 is hydrogen, C_{1-5} alkyl, C_{2-3} alkenyl, C_{2-3} alkynyl or one of the latter three substituted by OH or halo, and

R_4 is methyl, ethyl or propyl.

14. A method of achieving progestational effects in a patient in need of such treatment comprising administering to the patient a progestationally effective amount of a compound of claim 1.

4,333,929

CARBOXAMIDINE DERIVATIVES AND HYPOGLYCEMICAL USE

Barrie C. C. Cantello, Redhill, England, assignor to Beecham Group Limited, England

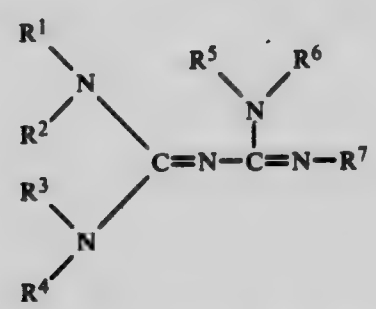
Filed Jan. 19, 1981, Ser. No. 226,180

Claims priority, application United Kingdom, Jan. 22, 1980, 8002132

Int. Cl.[3] A61K *31/155, 31/54;* C07C *129/00;* C07D *279/10*

U.S. Cl. 424—246 13 Claims

1. A compound of the formula:



or a pharmaceutically acceptable acid addition salt thereof wherein

each of R^1, R^2, R^3 and R^4 independently of the others is alkyl of 1 to 6 carbon atoms;

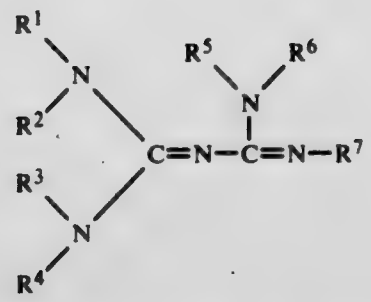
R^5 when taken independently of R^6 is hydrogen or alkyl of 1 to 6 carbon atoms;

R^6, when taken independently of R^5 is alkyl of 1 to 6 carbon atoms, phenyl or benzyl, said phenyl and benzyl being unsubstituted or substituted with from 1 to 3 members selected from the group consisting of halo, alkyl of 1 to 6 carbon atoms and alkoxy of 1 to 6 carbon atoms; or

R^5 and R^6 together with the nitrogen to which they are attached are a 5 to 6 membered heterocyclic ring containing said nitrogen as the sole hetero atom or containing a member selected from the group consisting of nitrogen, oxygen or sulfur as a second hetero atom; and

R^7 phenyl or benzyl, said phenyl and benzyl being unsubstituted or substituted with from 1 to 3 members selected from the group consisting of halo, alkyl of 1 to 6 carbon atoms and alkoxy of 1 to 6 carbon atoms.

8. The method of effecting a hypoglycemic response in an animal in need thereof which comprises administering thereto an effective amount of a compound of the formula:



or a pharmaceutically acceptable acid addition salt thereof wherein

each of R^1, R^2, R^3 and R^4 independently of the others is alkyl of 1 to 6 carbon atoms;

R^5 when taken independently of R^6 is hydrogen or alkyl of 1 to 6 carbon atoms;

R^6, when taken independently of R^5 is alkyl of 1 to 6 carbon atoms, phenyl or benzyl, said phenyl and benzyl being unsubstituted or substituted with from 1 to 3 members selected from the group consisting of halo, alkyl of 1 to 6 carbon atoms and alkoxy of 1 to 6 carbon atoms; or

R^5 and R^6 together with the nitrogen to which they are attached are a 5 to 6 membered heterocyclic ring containing said nitrogen as the sole hetero atom or containing a member selected from the group consisting of nitrogen, oxygen or sulfur as a second hetero atom; and

R^7 is alkyl of 1 to 6 carbon atoms, phenyl or benzyl, said phenyl and benzyl being unsubstituted or substituted with from 1 to 3 members selected from the group consisting of halo, alkyl of 1 to 6 carbon atoms and alkoxy of 1 to 6 carbon atoms.

4,333,930

ORTHOARYLIDENEAMINOPHENETHYLAMINES AND PHARMACEUTICAL COMPOSITIONS

Marie-Helene Creuzet, Bordeaux; Claude Feniou, Pessac; Francoise Guichard, Bordeaux, and Gisele Prat, Talence, all of France, assignors to Laboratoires Sarget, Merignac, France

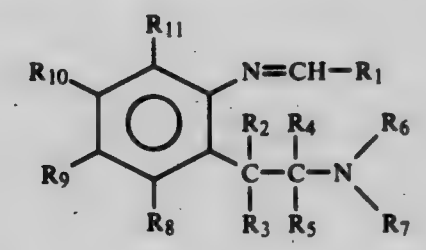
Filed Feb. 23, 1981, Ser. No. 237,277

Claims priority, application France, Feb. 21, 1980, 80 03774

Int. Cl.³ A61K *31/535, 31/36;* C07D *413/06, 317/58*

U.S. Cl. 424—248.51 **7 Claims**

1. A compound of the formula

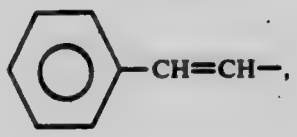


(I)

wherein

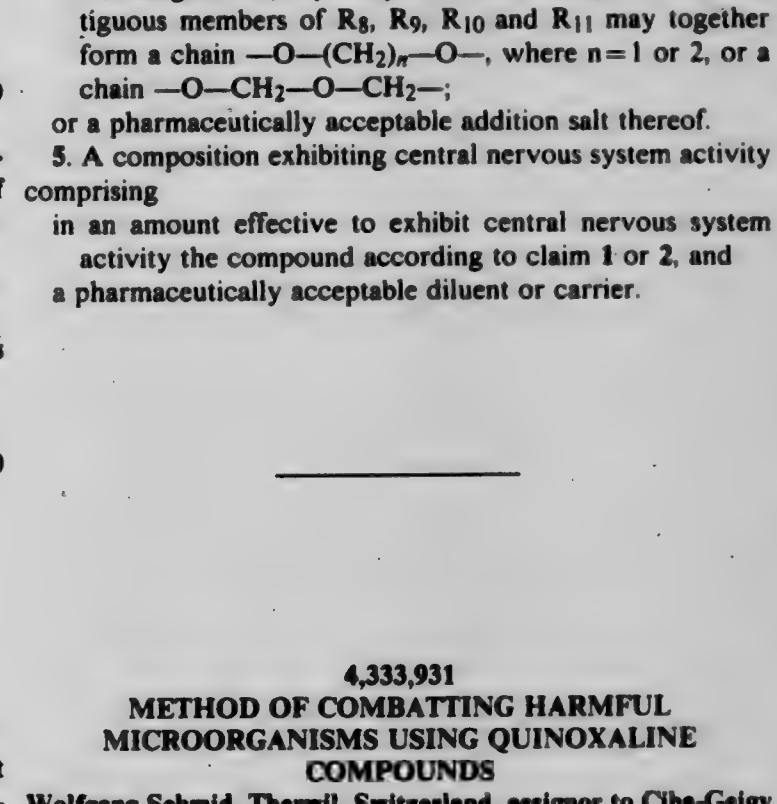
R_1 is phenyl which is unsubstituted or substituted by at least one member selected from the group consisting of halogen, CF_3, C_1-C_4 alkyl, C_1-C_4 alkoxy and COOH, or

R_1 is



or

R_1 is a heterocycle selected from the group consisting of



R_2, R_3, R_4 and R_5, which may be identical or different, are H or CH_3;

R_6 and R_7, which may be identical or different, are C_1-C_6 alkyl, which may be straight-chained or branched, or

R_7 can be H when R_6 is a branched-chain alkyl, or

R_6 and R_7 can form, with the nitrogen to which they are bonded, a heterocycle selected from the group consisting of

R_8, R_9, R_{10} and R_{11}, which may be identical or different, are H, halogen, CF_3, hydroxy or C_1-C_4 alkoxy, or two contiguous members of R_8, R_9, R_{10} and R_{11} may together form a chain $-O-(CH_2)_n-O-$, where n=1 or 2, or a chain $-O-CH_2-O-CH_2-$;

or a pharmaceutically acceptable addition salt thereof.

5. A composition exhibiting central nervous system activity comprising

in an amount effective to exhibit central nervous system activity the compound according to claim 1 or 2, and

a pharmaceutically acceptable diluent or carrier.

4,333,931

METHOD OF COMBATTING HARMFUL MICROORGANISMS USING QUINOXALINE COMPOUNDS

Wolfgang Schmid, Therwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

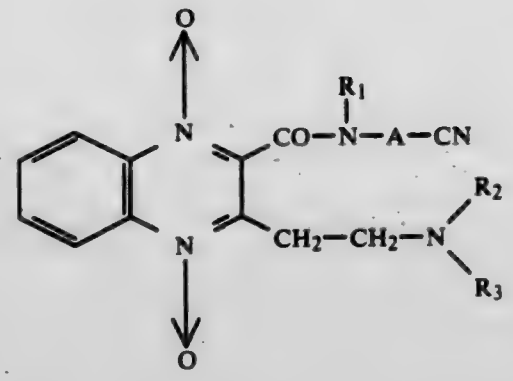
Division of Ser. No. 102,281, Dec. 10, 1979, Pat. No. 4,254,120. This application Dec. 29, 1980, Ser. No. 221,181

Claims priority, application Switzerland, Dec. 19, 1978, 12887/78; Jul. 5, 1979, 6295/79; Nov. 20, 1979, 10341/79

Int. Cl.³ A61K *31/535, 31/495*

U.S. Cl. 424—248.54 **7 Claims**

1. A method for combatting harmful microorganisms which comprises administering to an animal infested with said microorganisms a microbicidally effective amount of a compound of the formula



in which

R_1 is hydrogen or alkyl having 1 to 4 carbon atoms,

each of R_2 and R_3 is alkyl having 1 to 4 carbon atoms, or, together with the nitrogen atom to which they are attached, form a heterocyclic ring which is unsubstituted or substituted by alkyl having 1 to 4 carbon atoms and which has 4 or 5 ring carbon atoms and optionally an oxygen atom as a further hetero atom, and

A is alkyl having 1 to 4 carbon atoms, or an acid addition salt thereof.

4,333,932

ORGANIC DIAMINE THERAPEUTIC COMPOSITIONS AND METHODS

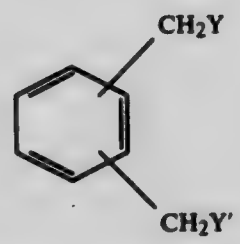
John L. Belletire, Madison, Wis., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 952,302, Oct. 18, 1978, Pat. No. 4,220,650. This application Feb. 20, 1980, Ser. No. 123,063

Int. Cl.³ A61K *31/535*

U.S. Cl. 424—248.56 9 Claims

7. A method for lowering blood sugar in the treatment of a diabetic host which comprising orally administering to said host an effective blood sugar lowering amount of a compound selected from the group consisting of organic diamine bases of the formula



and the pharmaceutically acceptable acid addition and quaternary ammonium salts thereof wherein Y is selected from the group consisting of pyridylamino, piperidino and morpholine and Y′ is 2,3-dihydroisoindolyl.

9. The method as claimed in claim 7 wherein the compound administered is 2,3-dihydro-2-[2-(4-morpholinomethyl)phenylmethyl]-1H-isoindole.

4,333,933

BENZOGUANAMINE DERIVATIVES, THEIR PRODUCTION AND PHARMACEUTICAL COMPOSITIONS CONTAINING THE SAME

Shingo Matsumura; Hiroshi Enomoto; Yoshiaki Aoyagi, and Yoshihisa Shibata, all of Kyoto, Japan, assignors to Nippon Shinyaku Co., Ltd., Japan

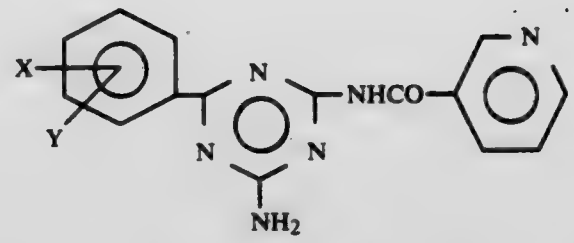
Filed May 22, 1981, Ser. No. 266,483

Claims priority, application Japan, Jun. 4, 1980, 55/75875

Int. Cl.³ C07D *251/48, 401/12;* A61K *31/44, 31/53*

U.S. Cl. 424—249 20 Claims

1. A nicotinoylbenzoguanamine derivative or an acid addition salt thereof of the formula (I):



in which X and Y are the same or different and each independently is hydrogen or halogen, but both X and Y are not simultaneously hydrogen.

4,333,934

IMIDAZOQUINOXALINES AND PYRROLOQUINOXALINES

Alan C. Barnes, and David A. Rowlands, both of Cirencester, England, assignors to Roussel Uclaf, Paris, France

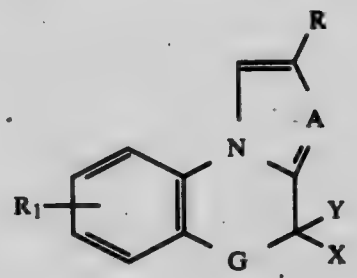
Filed Feb. 4, 1980, Ser. No. 118,445

Claims priority, application United Kingdom, Feb. 9, 1979, 7904648

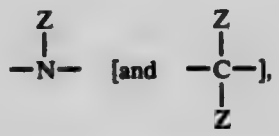
Int. Cl.³ C07D *241/42, 241/44, 487/04*

U.S. Cl. 424—250 18 Claims

1. A compound selected from the group consisting of compounds of the formula



wherein A is selected from the group consisting of nitrogen and =CH—, G is



Z is selected from the group consisting of hydrogen and alkyl of 1 to 5 carbon atoms or taken with Y forms a carbon-nitrogen bond, Y is hydrogen, or taken with Z is a carbon-nitrogen bond or taken with X is =O and X is hydrogen or taken with Y is =O, R is selected from the group consisting of hydroxymethyl, formyl, N-(tetrazol-5-yl)-carbamoyl, aminomethyl and carbamoyl, R_1 is selected from the group consisting of hydrogen, halogen and alkoxy of 1 to 5 carbon atoms and its nontoxic, pharmaceutically acceptable acid addition salts.

4,333,935

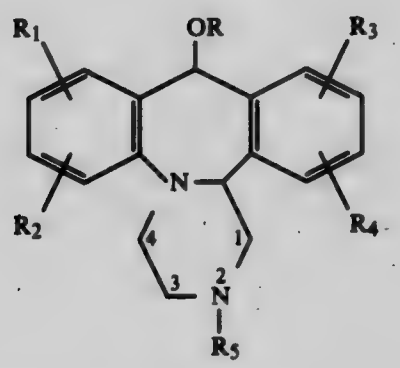
ANTIANXIETY COMPOSITIONS OF 10-HYDROXY 1,2,3,4,10,14b-HEXAHYDRODIBENZO[c,f]PYRAZINO-1,2a AZEPINES AND A METHOD OF USE THEREOF

Willem J. van der Burg, Heesch, Netherlands, assignor to Akzona Incorporated, Asheville, N.C.

Continuation of Ser. No. 77,693, Sep. 21, 1979, Pat. No. 4,284,559. This application Mar. 27, 1981, Ser. No. 248,113
Claims priority, application Netherlands, Sep. 26, 1978, 7809726
Int. Cl.³ A61K *31/495*; C07D *7/04*
U.S. Cl. 424—250 18 Claims

1. A pharmaceutical composition for treating anxiety in a patient, comprising:

(a) a pharmaceutically effective anxiety reducing amount of a compound of the formula:



or a pharmaceutically effective non-toxic salt thereof, wherein:

(a) R is hydrogen, alkyl of one to six carbons, aralkyl of seven to ten carbons, or carboxylic acyl group of one to six carbons;

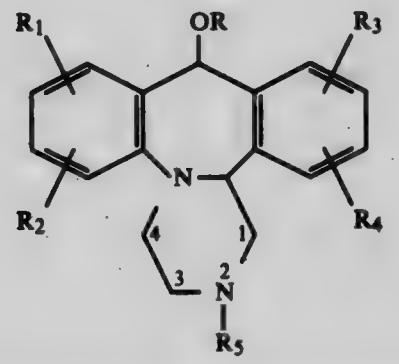
(b) R_1, R_2, R_3 and R_4 each represent hydrogen, hydroxy, halogen, alkyl of one to six carbons, alkoxy of one to six carbons, alkylthio of one to six carbons, or trifluromethyl; and

(c) R_5 represents hydrogen or an alkyl groups of one to six carbons; and

(B) a pharmaceutically effective carrier.

16. A method for treating anxiety in humans which comprises administering to a human

a pharmaceutically effective anxiety reducing amount of a compound of the formula:



or a pharmaceutically effective non-toxic salt thereof, wherein:

(a) R is hydrogen, alkyl of one to six carbons, aralkyl of seven to ten carbons, or a carboxylic acyl group of one to six carbons;

(b) R_1, R_2, R_3, and R_4 each represent hydrogen, hydroxy, halogen, alkyl of one to six carbons, alkoxy of one to six carbons, alkylthio of one to six carbons, or trifluromethyl; and

(c) R_5 represents hydrogen or an alkyl group of one to six carbons.

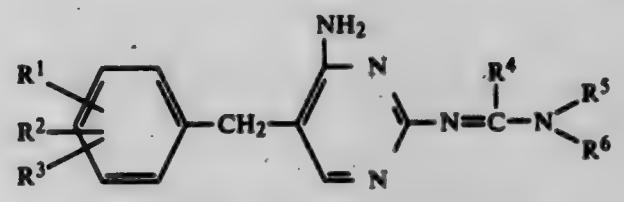
4,333,936

NOVEL AMIDINO-BENZYLPYRIMIDINES, PROCESSES FOR THEIR MANUFACTURE AND ANTIBACTERIAL AND ANTIPROTOZOAL USE THEREOF

Peter Scharwaechter, Moorrege; Klaus Gutsche, Rellingen; Wilhelm Kohlmann, Moorrege, all of Fed. Rep. of Germany; Gerhard Kroemer, deceased, late of Elmshorn, Fed. Rep. of Germany; by Norma Kroemer, legal representative, Lahn-Giessen, Fed. Rep. of Germany; by Helmut Kroemer, legal representative, and by Maria M. Kroemer, legal representative, both of Stolberg, Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

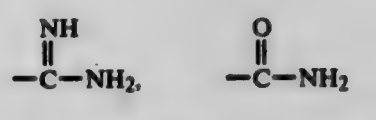
Filed Jul. 3, 1978, Ser. No. 921,175
Int. Cl.³ C07D *239/49, 403/12, 413/12*; A61K *31/505*
U.S. Cl. 424—251 25 Claims

1. An amidino-benzylpyrimidine of the formula I



(I)

where R^1, R^2, and R^3, which may be identical or different, are hydrogen, methyl, methoxy or chlorine, R^4 is alkyl of 1 to 6 carbon atoms or benzyl and R^5 and R^6, which may be identical or different, are hydrogen, lower alkyl of 1 to 4 carbon atoms, or phenyl, trimethoxybenzyl, cyclohexyl, adamantyl or furfuryl, or one of the radicals R^5 and R^6 is $—C_6H_4—SO_2—NH—R^7$, where R^7 is



or, pyrimidin-2-yl, 4-methyl-pyrimidin-2-yl, 5-methyl-pyrimidin-2-yl, 5-isopropyl-pyrimidin-2-yl, 5-methoxy-pyrimidin-2-yl, 6-methoxy-pyridazin-3-yl, 3-methoxy-pyrazin-2-yl, 5-methyl-isoxazol-3-yl or 2-pyridinyl, or R^5 and R^6 together with the nitrogen to which they are bonded are a saturated heterocyclic ring of 5–7 members containing one oxygen atom or one >N—Y group, where Y is methyl, benzyl or phenyl, and their pharmacologically acceptable salts with acids.

25. An antibacterial and antiprotozoal composition consisting essential of a pharmaceutically acceptable carrier or excipient and a therapeutically active amount of a compound of claim 1.

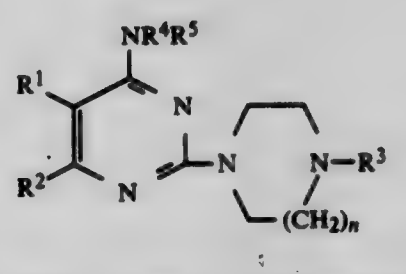
4,333,937

2-(PIPERAZINYL)-4-PYRIMIOINAMINES

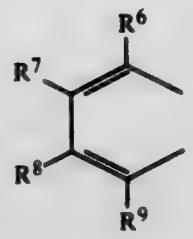
Sumanas Rakhit, Dollard des Ormeaux, and Jehan F. Bagli, Kirkland, both of Canada, assignors to American Home Products Corp., New York, N.Y.

Filed Apr. 18, 1980, Ser. No. 141,548
Int. Cl.³ A61K *31/505*
U.S. Cl. 424—251 18 Claims

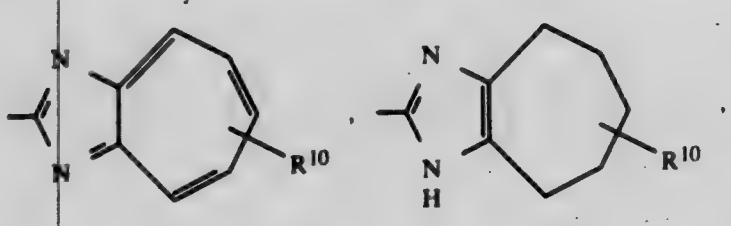
1. A compound of the formula

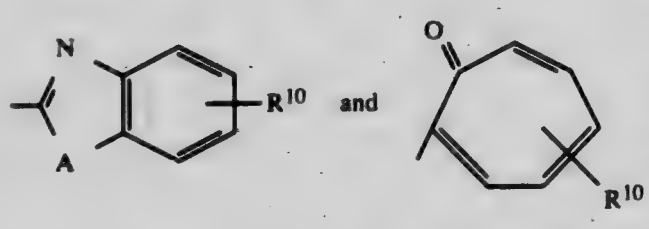


in which R^1 and R^2 are hydrogen, or R^1 and R^2 together form a chain of the formula



wherein R^6, R^7, R^8 and R^9 each is hydrogen or lower alkoxy; R^3 is selected from the group consisting of





wherein R^{10} is hydrogen, halo, lower alkyl, lower alkoxy, hydroxy, 1-oxo(lower)alkoxy or $NR^{11}R^{12}$ wherein R^{11} and R^{12} each is hydrogen or lower alkyl; A is O, S or NH; R^4 and R^5 each is hydrogen or lower alkyl; and n is 1 or 2; or a therapeutically acceptable acid addition salt thereof.

17. A pharmaceutical composition for treating hypertension, which comprises a compound of claim 1, and a pharmaceutically acceptable carrier therefor.

4,333,938

IMINO DERIVATIVES OF 5-AMINOBENZODIOXOLE-1,3 WHICH ARE USEFUL AS MEDICAMENTS

Marie-Helene Creuzet, Bordeaux; Claude Feniou, Pessac; Gisele Prat, Talence, and Henri Pontagnier, Pessac, all of France, assignors to Laboratoires Sarget, Merignac, France

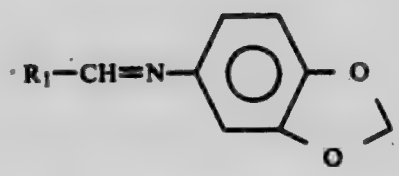
Filed Jun. 25, 1980, Ser. No. 162,814

Claims priority, application France, Jul. 16, 1979, 79 18357

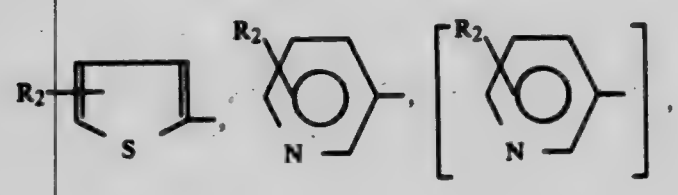
Int. Cl.³ C07D *405/12, 407/12*

U.S. Cl. 424—263 **12 Claims**

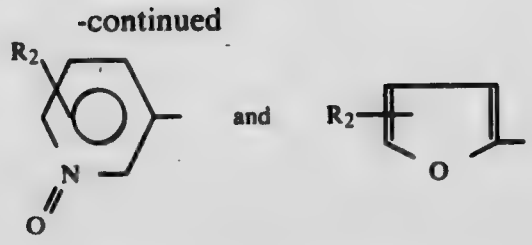
1. A compound of the general formula



wherein R_1 is an unsaturated heterocyclic radical selected from the group consisting of



-continued



wherein R_2 is H or one substituent selected from the group consisting of CH_3, halogen, and nitro.

4,333,939

TETRAHYDROPYRIDINYL-INDOLES

Jacques Guillaume, Sevran; Lucien Nedelec, Le Raincy, and Claude Dumont, Nogent-sur-Marne, all of France, assignors to Roussel Uclaf, Paris, France

Filed Jun. 30, 1980, Ser. No. 163,967

Claims priority, application France, Jul. 13, 1979, 79 18217; Mar. 7, 1980, 80 05180

Int. Cl.³ A61K *31/44*; C07D *401/04*

U.S. Cl. 424—263 **3 Claims**

1. A compound selected from the group consisting of 3-(1,2,3,6-tetrahydro-4-pyridinyl)-5-methylthio-1H-indole and its non-toxic, pharmaceutically acceptable acid addition salts.

3. A method of inducing antidepressive activity in warm-blooded animals comprising administering to warm-blooded animals an amount of at least one compound of claim 1 sufficient to induce antidepressive activity.

4,333,940

RING-FLUORINATED 4-(MONOSUBSTITUTED-AMINO) PHENYL COMPOUNDS IN INHIBITING ATHEROSCLEROTIC LESION DEVELOPMENT

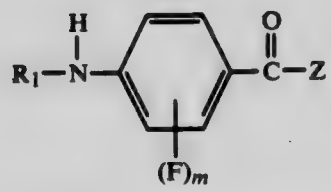
Robert G. Shepherd, South Nyack, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 874,433, Feb. 2, 1978, Pat. No. 4,243,609. This application Aug. 11, 1980, Ser. No. 176,958

Int. Cl.³ A01N *41/02, 43/42*; A61K *31/44, 31/255*

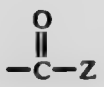
U.S. Cl. 424—263 **12 Claims**

1. The method of inhibiting atherosclerotic lesion development in a mammal comprising the administration of an effective lesion-development inhibiting amount of a compound of the formula:



wherein R_1 is an unbranched or branched alkyl group, optionally mono- or polyunsaturated and optionally containing saturated or unsaturated cycloalkyl and/or substituted or unsubstituted aryl or heteroaryl groups, of the formula $C_nH_{2n-(2p-1)}$, n is an integer from 7 to 19, inclusive, and p is an integer up to 6; m is an integer from 1 to 4, inclusive; Z is selected from the group consisting of hydrogen, loweralkyl, hydroxy, loweralkoxy, loweralkoxyalkoxy, diloweralkylaminoalkoxy, (mono- or polyhydroxy)loweralkoxy, allyloxy, 2,3-epoxypropoxy, substituted or unsubstituted benzyloxy, substituted or unsubstituted phenoxy and 3-pyridyloxy, pyridylmethoxy, (mono- or polycarboxy)loweralkoxy, (mono- or polycarboxy)hydroxyloweralkoxy, tetrahydropyranyloxy, (mono- or polyhydroxy)alkylamino, allylamino, propargylamino, 2-sulfoethylamino, (mono- or polycarboxy)loweralkylamino, (mono- or polycarboalkoxy)loweralkylamino, loweralkanoylamino, (substituted or unsubstituted aroyl)amino, loweralkanesulfonylamino, (substituted or unsubstituted arene)-sulfonylamino, loweralkanoylhydrazino, hydroxylamino, polymethyleneimino, 4-carboethoxy or 4-carboxythiazolidino, loweralkyl bearing one or

more carboxy, carboalkoxy, carbamoyl, acyl, sulfinyl, or sulfonyl groups; and wherein



may be replaced by carboxyloweralkyl, carboxyloweralkenyl, carboxyloweralkynyl, carboalkoxyloweralkyl, carboalkoxyloweralkenyl, carboalkoxyloweralkynyl, and the pharmacologically acceptable acid addition and cationic salts thereof to said mammal.

4,333,941

INHIBITION OF ENVELOPED VIRUSES WITH PHENYL KETONES

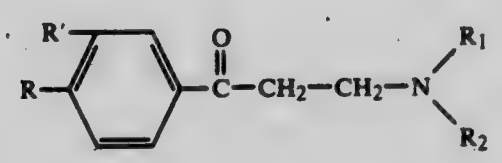
Brenda S. Baratz; Robert A. Phillips, both of Indianapolis, and David L. Steward, Carmel, all of Ind., assignors to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 643,585, Dec. 22, 1975, abandoned. This application Oct. 3, 1977, Ser. No. 839,056

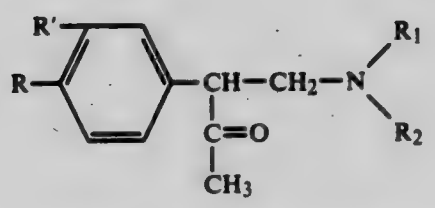
Int. Cl.³ H61K *27/00;* A61K *31/445, 31/135*

U.S. Cl. 424—267 **26 Claims**

1. A method for inhibiting enveloped viruses on non-living substrates which comprises contacting an enveloped virus and a non-living substrate contaminated therewith, with an effective virus inhibiting amount of a phenylketone compound or pharmacologically-acceptable salt thereof, said phenylketone compound corresponding to one of the formulae:



I



II

wherein R represents hydrogen, halo, or alkoxy of from one to twelve carbon atoms, R′ represents hydrogen or halo; R_1 and R_2 represent loweralkyl, or R_1 and R_2 taken together with the nitrogen atom represent a heterocyclic amino group or an N-alkyl quaternary heterocyclic ammonium group having four, five or six carbon atoms and zero or one additional ring hetero atom selected from oxygen, sulfur and nitrogen or R_1 and R_2, taken together with the nitrogen atom represent triloweralkylammonium.

4,333,942

ANTI-DEPRESSANT AND ANALGESIC 4-PHENOXYPIPERIDINES

Klaus Eistetter, Constance; Hans-Peter Kley, Allensbach; Heinz-Günter Menge, and Hartmann Schaefer, both of Constance, all of Fed. Rep. of Germany, assignors to BYK Gulden Lomberg Chemische Fabrik GmbH, Constance, Fed. Rep. of Germany

Filed Jul. 11, 1980, Ser. No. 167,628

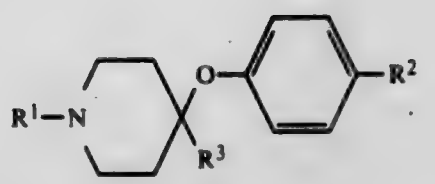
Claims priority, application Switzerland, Aug. 3, 1979, 7127/79

Int. Cl.³ A61K *31/445;* C07D *211/52, 211/48*

U.S. Cl. 424—267 **28 Claims**

1. A compound selected from the group consisting of

(a) a 4-phenoxypiperidine of the formula



(I)

wherein

R_1 is —H, $C_{1\text{-}5}$ alkyl, $C_{3\text{-}5}$ alkenyl, cycloalkylmethyl with from 3 to 7 ring carbon atoms or phenylalkyl with from 1 to 3 carbon atoms in the alkyl,

R^2 is —H, —NO_2, amino or (carboxylic acid or carbonic acid acyl)amino and

R^3 is phenyl or benzyl,

(b) an N-oxide of (a) and

(c) an acid-addition salt of (a).

26. A process for treating depression which comprises administering a therapeutically-effective and pharmacologically-acceptable amount of a physiologically-acceptable compound according to claim 1 to a mammal afflicted with or subject to depression.

27. A process for treating pain which comprises administering an analgesically-effective and pharmacologically-acceptable amount of a physiologically-acceptable compound according to claim 1 to a mammal afflicted with pain.

4,333,943

ETHYL 3-(3-INDOLYL)-3-(5-TETRAZOLYL) PROPIONATE COMPOUNDS USED AS ANTI-HYPERTENSIVE AGENTS

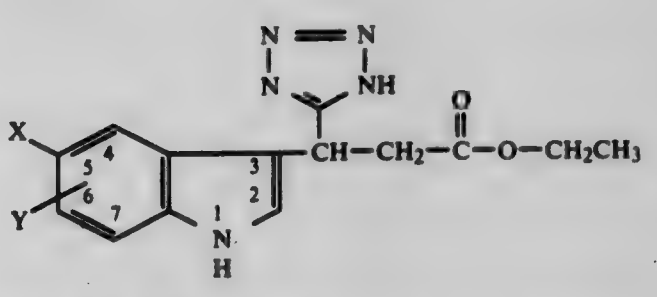
Elva Kurchacova, and Max E. Safdy, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Continuation of Ser. No. 143,319, Apr. 24, 1980, abandoned. This application Dec. 15, 1980, Ser. No. 216,516

Int. Cl.³ A61K *31/41;* C07D *257/04*

U.S. Cl. 424—269 **6 Claims**

1. A method for treating hypertension in an individual for whom such therapy is indicated which method comprises administering to the individual a therapeutically effective amount of an ethyl 3-(3-Indolyl)-3-(5-tetrazolyl) propionate of the formula:



wherein X is H or methoxy and Y is H, Cl or methoxy.

4,333,944

8-HALO-6-PHENYL-4H-S-TRIAZOLO (3,4-C) THIENO 1,4-DIAZEPIN-1-ONES

Karl-Heinz Weber, Gau-Algesheim; Adolf Langbein, Ingelheim am Rhein; Erich Lehr, Waldalgesheim; Karin Böke, Ingelheim am Rhein, and Franz J. Kuhn, Bingen, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

Continuation of Ser. No. 101,232, Dec. 7, 1979, abandoned, which is a continuation of Ser. No. 41,941, May 24, 1979, abandoned, which is a continuation of Ser. No. 881,851, Feb. 27, 1978, abandoned. This application Feb. 10, 1981, Ser. No. 233,294

Claims priority, application Fed. Rep. of Germany, Feb. 25, 1977, 2708121

Int. Cl.[3] A61K *31/55;* C07D *495/14*

U.S. Cl. 424—269 3 Claims

1. 8-Bromo-6-(o-chlorophenyl)-4H-s-triazolo[3,4-c]thieno[2,3-e]1,4-diazepin-1-one.

2. An amxyolytic, anticonvulsive or sedative pharmaceutical dosage unit composition consisting essentially of an inert pharmaceutical carrier and an effective anxiolytic, anticonvulsive or sedative amount of the compound of claim 1.

4,333,945

THIAZOLINE AND IMIDAZOLINE DERIVATIVES USEFUL AS MINOR TRANQUILIZERS

Erwin Ringwald, Riehen, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

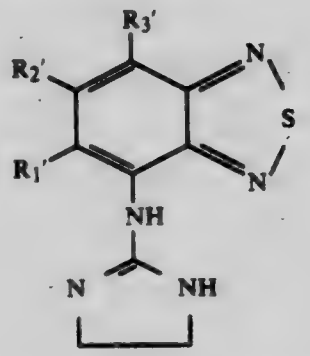
Continuation-in-part of Ser. No. 185,943, Sep. 10, 1980, abandoned, which is a continuation of Ser. No. 121,128, Feb. 13, 1980, abandoned. This application Dec. 3, 1980, Ser. No. 212,661

Claims priority, application United Kingdom, Feb. 16, 1979, 7905543; Feb. 16, 1979, 7905544

Int. Cl.[3] A61K *31/425*

U.S. Cl. 424—270 4 Claims

1. A method of tranquilizing a neurotic subject which comprises administering to said subject a therapeutically effective amount of a compound of formula I' a



I'a

wherein each of R_1', R_2' and R_3', independently, is hydrogen, halo, C_{1-4} alkyl, C_{1-4} alkoxy, nitro, cyano, hydroxy or C_{1-4} alkylthio, said compound being in free base or in pharmaceutically acceptable acid addition salt form.

4,333,946

BLOCKING HISTAMINE H_2-RECEPTORS WITH IMIDAZOLYLALKYL GUANIDINE DERIVATIVES

Graham J. Durant; Charon R. Ganellin, both of Welwyn Garden City; Geoffrey R. Owen, High Wycombe, and Rodney C. Young, Bengeo, all of England, assignors to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

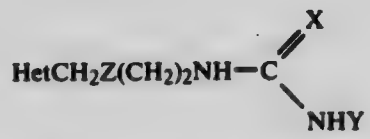
Division of Ser. No. 70,184, Aug. 27, 1979, Pat. No. 4,276,301, which is a division of Ser. No. 892,232, Mar. 31, 1978, Pat. No. 4,192,879, which is a division of Ser. No. 686,185, May 13, 1976, Pat. No. 4,098,898. This application Jan. 29, 1981, Ser. No. 229,435

Claims priority, application United Kingdom, May 21, 1975, 21817/75; Nov. 20, 1975, 47782/75

Int. Cl.[3] A61K *31/415;* C07D *233/64, 233/68*

U.S. Cl. 424—273 R 8 Claims

1. A compound of the formula:



wherein X is N.CN; Y is di(lower alkyl)amino, lower alkoxy or phenylethyl; Z is sulphur or methylene; Het is an imidazole ring which is attached at a ring carbon and which ring is optionally substituted by lower alkyl, hydroxy, halogen or amino; provided that when Z is methylene, Y is not phenylethyl, or a pharmaceutically acceptable acid addition salt thereof.

8. A method of blocking histamine H_2-receptors which comprises administering to an animal in need thereof in an effective amount to block said receptors a compound of claim 1.

4,333,947

SUBSTITUTED IMIDAZOLES AND THEIR USE

Arto J. Karjalainen, and Kauko O. A. Kurkela, both of Oulu, Finland, assignors to Farmos-Yhtyma Oy, Turku, Finland

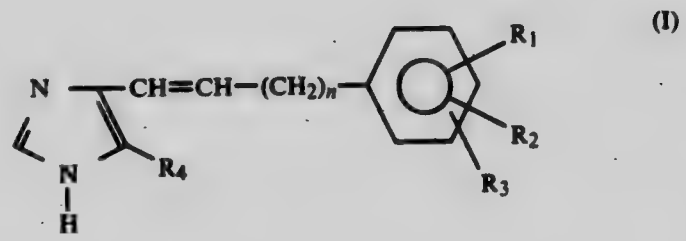
Filed Feb. 11, 1981, Ser. No. 233,305

Claims priority, application United Kingdom, Feb. 13, 1980, 8004748

Int. Cl.[3] C07C *233/96*

U.S. Cl. 424—273 R 23 Claims

1. A substituted imidazole of the formula:



(I)

wherein each of R_1, R_2 and R_3, which can be the same or different, is hydrogen, chloro, bromo, fluoro, methyl, ethyl, methoxy, amino, hydroxy or nitro; R_4 is hydrogen or an alkyl radical of 1 to 7 carbon atoms; and n is an integer from 0–3, and its non-toxic pharmaceutically acceptable acid addition salts.

4,333,948
PHARMACEUTICAL FORMULATIONS CONTAINING PROSTAGLANDIN

Klaüs U. Weithmann, Eppstein, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 13, 1981, Ser. No. 243,443

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 3010002

Int. Cl.³ A61K *31/34, 31/215, 31/19*

U.S. Cl. 424—285 **8 Claims**

1. A pharmaceutical composition comprising an effective amount of a prostaglandin or prostaglandin derivative in admixture with a substance stabilizing prostaglandins, which substance is a blood serum fraction having a molecular weight below 2000 which is stable to alkalis, is unstable to acids, is stable to temperatures up to 100° C., and is non-volatile at room temperature.

4,333,949
1H-INDEN-1-ONE DERIVATIVES, THEIR USE IN MICROBICIDAL COMPOSITIONS, AND FOR COMBATING MICROORGANISMS

Elmar Sturm, Aesch, and Robert Nyfeler, Basel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

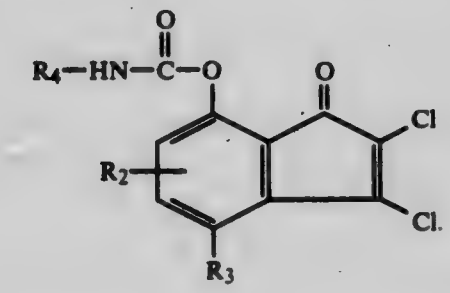
Division of Ser. No. 89,830, Oct. 31, 1979, Pat. No. 4,291,061. This application Jun. 5, 1981, Ser. No. 270,714

Claims priority, application Switzerland, Nov. 6, 1978, 11528/78

Int. Cl.³ A01N *47/10;* **C07C** *125/04, 125/067*

U.S. Cl. 424—300 **13 Claims**

1. A 2,3-dichloro-7-carbamoyloxy-1H-inden-1-one derivative of the formula



wherein

R_2 and R_3 independently of one another are each hydrogen fluorine, chlorine, bromine, C_1–C_4-alkyl, trifluoromethyl or nitro, and

R_4 is hydrogen, C_1–C_6-alkyl or C_2–C_4-alkenyl, each of which is unsubstituted or substituted by halogen, or R_4 is phenyl which is unsubstituted or is substituted by C_1–C_4-alkyl, C_1–C_4-alkoxy, halogen, trifluoromethyl, cyano or nitro, or it is a C_3–C_6-cycloalkyl group.

7. A method for combatting microorganisms which comprises applying to said microorganisms or to the habitat thereof a pesticidally effective amount of a compound according to claim 1.

4,333,950
(+)-4-SUBSTITUTED-2-INDANOL INSECTICIDAL ESTER DERIVATIVES

John F. Engel, Medina, N.Y., assignor to FMC Corporation, Philadelphia, Pa.

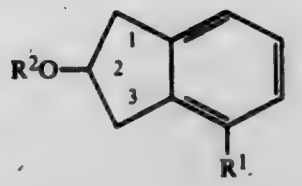
Continuation-in-part of Ser. No. 42,372, May 24, 1979, Pat. No. 4,263,319, which is a continuation of Ser. No. 927,198, Jul. 24, 1978, abandoned, said Ser. No. 870,973. This application Dec. 31, 1980, Ser. No. 221,656

The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.

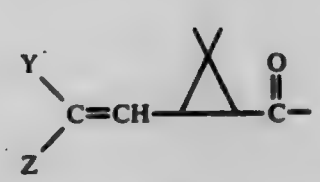
Int. Cl.³ A01N *53/00;* **C07C** *61/04, 61/35*

U.S. Cl. 424—305 **12 Claims**

1. A 4-substituted-2-indanyl compound of the formula



wherein R^1 is phenyl which may be substituted with halogen or lower alkyl; R^2 is 2,2,3,3-tetramethylcyclopropanecarbonyl, 1-(4-chlorophenyl)-2-methylpropylcarbonyl, or a group of the formula



wherein Y and Z, the same or different, are hydrogen, halogen, lower alkyl, perhalo(lower)alkyl, phenyl which may be substituted with halogen or lower alkyl, or phenylthio which may be substituted with halogen or lower alkyl, with the proviso that one of Y and Z is other than hydrogen; and the isomer of S configuration at C-2 of the indanyl ring is present in an enantiomeric excess of at least 25% over the isomer of R configuration at C-2 of the indanyl ring.

11. A method for controlling insects or acarids which comprises applying to the insect or acarid or to a locus where control is desired an insecticidally or acaricidally effective amount of the compound of claim 1, 2, 3, 4, 5, 6, 7, 8, or 9.

4,333,951
2-AMINO-6-BIPHENYLACETIC ACIDS

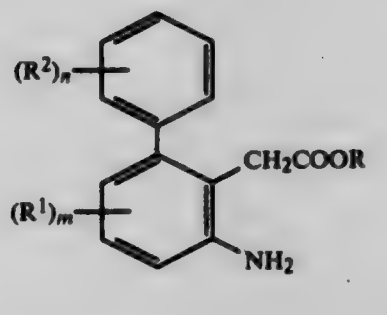
David A. Walsh, Richmond, Va., assignor to A. H. Robins Company, Inc., Richmond, Va.

Continuation-in-part of Ser. No. 57,118, is a continuation-in-part of Ser. No. 851,641, Nov. 15, 1977, abandoned. This application Jul. 2, 1980, Ser. No. 165,323

Int. Cl.³ C07C *101/447;* **A61K** *31/195, 31/215*

U.S. Cl. 424—319 **12 Claims**

1. A compound exhibiting muscle relaxant activity selected from the group having the formula:



wherein;

R is hydrogen or lower alkyl,

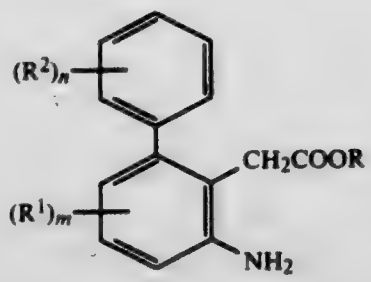
R^1 is fluoro, chloro, bromo, lower alkyl or amino,

R^2 is lower alkyl, lower alkoxy, fluoro, chloro, bromo, amino or trifluoromethyl,

n is 0–3 and m is 0–2,

and the pharmaceutically acceptable salts thereof.

9. A method for providing muscle relaxation in a living animal body with a minimum of undesirable side effects comprising internally administering to said living animal body an effective amount of a compound selected from the group having the formula:



wherein;
R is hydrogen or lower alkyl,
R^1 is fluoro, chloro, bromo, lower alkyl or amino,
R^2 is lower alkyl, lower alkoxy, fluoro, chloro, bromo, amino or trifluoromethyl,
n is 0–3 and m is 0–2,
and the pharmaceutically acceptable salts thereof.

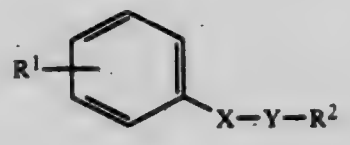
4,333,952

GROWTH PROMOTORS FOR RUMINANTS

Brian G. McDonald, Mosspark, Scotland, assignor to Beecham Group Limited, England

Filed Jun. 30, 1980, Ser. No. 164,085
Claims priority, application United Kingdom, Jul. 10, 1979, 7924026; Dec. 1, 1979, 7941534
Int. Cl.³ A61K *31/085, 31/12, 31/135, 31/045*
U.S. Cl. 424—330 **25 Claims**

1. The method of promoting growth in ruminants by inhibiting methane production and enhancing proprionate production which comprises orally administering to a ruminant an effective nontoxic amount of a compound of the formula:



or a pharmaceutically acceptable salt thereof wherein
R^1 is hydrogen, halo or alkoxy of 1 to 4 carbon atoms;
X is oxygen, carbonyl, hydroxymethylene or NR^3 in which R^3 is hydrogen, alkyl of 1 to 4 carbon atoms or $-YR^2$,
Y is $—CH_2CHOH—$ or, provided X is carbonyl, —CH=CH; and
R^2 is alkyl of 1 to 4 carbon atoms, one carbon atom of which is di- or trihalogenated.

4,333,953

CREAMY MILK ICE CREAM AND PROCESS FOR THE PRODUCTION THEREOF

Jan Trzecieski, Naerum, Denmark, assignor to Kirk Chemicals, Denmark

Filed Nov. 7, 1980, Ser. No. 204,804
Claims priority, application Denmark, Nov. 12, 1979, 4780/79
Int. Cl.³ A23G *9/04, 9/02*
U.S. Cl. 426—34 **7 Claims**

1. A process for the production of creamy milk ice cream which per 100 parts by weight of the mlik ice cream comprises mixing 12–15 parts of milk solid non fat with lactase, sugars, stabilizer, emulsifier and water, then holding the resulting mixture under conditions suited to enzymatic hydrolysis of lactose until at least about 50% of the lactose in the mixture has been hydrolyzed, thereafter adding 2–4 parts of edible fat the lactase, sugars, stabilizer, emulsifier and water being the balance by weight of said hundred parts, then pasteurizing, followed by homogenizing and subsequently freezing, followed by hardening.

4,333,954

SOFT ICE CREAM AND PROCESS FOR PRODUCTION THEREOF

Jan Trzecieski, Naerum, Denmark, assignor to Kirk Chemicals, Denmark

Filed Nov. 7, 1980, Ser. No. 204,803
Claims priority, application Denmark, Nov. 12, 1979, 4779/79
Int. Cl.³ A23G *9/04, 9/02*
U.S. Cl. 426—41 **6 Claims**

1. A process for the production of a reduced in hardness ice cream which comprises mixing demineralized whey powder, lactase, sugars, stabilizer, emulsifier and water, the demineralized whey being present as about 9–12% by weight of the ice cream, then holding the resulting mixture under conditions suited to enzymatic hydrolysis of lactose until at least about 50% of the lactose content in the mixture has been hydrolyzed, thereafter in succession adding edible fat, the edible fat being present as about 7–12% by weight of the ice cream, pasteurizing, homogenizing and freezing and then hardening.

4,333,955

PROCESSED DRIED BEANS AS INSTANT FOOD AND THEIR MANUFACTURING METHOD

Susumu Murata; Noriyuki Shimizu, both of Osaka, and Sadao Kokeguchi, Ibaragi, all of Japan, assignors to Kanebo Foods, Ltd., Tokyo, Japan

Filed Jul. 2, 1980, Ser. No. 166,692
Claims priority, application Japan, Jul. 5, 1979, 54-85608
Int. Cl.³ A23L *1/20*
U.S. Cl. 426—44 **25 Claims**

23. A method for producing processed dried beans which are quickly restored to the condition of boiled soft raw beans by immersion in hot water, said beans being rich in starch and poor in both protein and fat, said method comprising the steps of:
(1) boiling said raw beans in water at least once;
(2) enzymatically treating said boiled beans by contacting said boiled beans with an aqueous solution of a cellulase enzyme or a mixture of cellulase and pectinase enzymes at a pH of about 3.0 to about 7.0 for a period of time sufficient to destroy the cellulosic substances or the cellulosic and pectic intercellular substances existing in the cell walls of the beans allowing improved permeation of hot water into the core of each bean so treated;
(3) boiling said enzyme-treated beans of step (2) in an acidic solution at a pH of about 1.5 to about 5.5 to swell and gelatinize the starch component contained in the bean cells: and thereafter
(4) drying the beans boiled in step (3) using super-heated steam having a super-heat degree of about 60° to about 150° C. and a drying ability of up to about 0.8 until the beans have a water content of about 8 to about 12% by weight relative to the weight of the dried beans, thereby producing dried processed beans having a good appearance and substantially free from cracks and fractures.

4,333,956

CALCIUM AMMONIUM LACTATE AND SOLIDIFIED FERMENTED AMMONIATED CONDENSED WHEY

Fred W. Juengst, Jr., Green Bay, and John A. Dika, Kewaunee, both of Wis., assignors to Calor Agriculture Research, Inc., Okemos, Mich.

Continuation-in-part of Ser. No. 93,162, Nov. 13, 1979, abandoned. This application Jan. 4, 1980, Ser. No. 109,480
Int. Cl.³ A23K *1/08*
U.S. Cl. 426—69 **14 Claims**

1. A method of producing a ruminant feed containing solidified fermented ammoniated condensed whey which method consists essentially of mixing fermented ammoniated condensed whey containing 35–55% ammonium lactate with an effective amount of a calcium salt of a strong mineral acid selected from the group consisting of calcium chloride, cal-

cium sulfate and calcium phosphate to cause the solidification of said fermented ammoniated condensed whey, and allowing the resulting mixture to stand until it has solidified.

4,333,957

CAPSULE AND PROCESS FOR THE PRODUCTION OF A COLORED GELATIN CAPSULE

Yakutaro Okajima, Tokyo, and Keiji Sekigawa, Sagamihara, both of Japan, assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Oct. 21, 1980, Ser. No. 198,992
Int. Cl.[3] A23L *1/00*; A23J *3/00*
U.S. Cl. 426—140 4 Claims

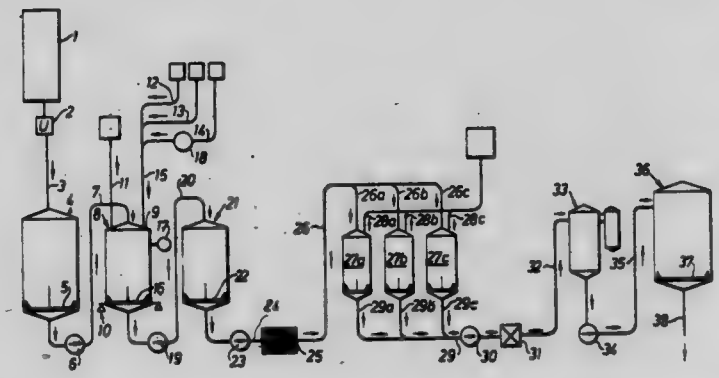
1. A process for coloring gelatin used for forming gelatin capsules comprising: a. homogeneously dispersing carminic acid or laccaic acid and ammonium alum and/or potassium alum in the gelatin, and b. forming gelatin capsules from the resulting gelatin dispersion.

4,333,958

METHOD FOR THE MANUFACTURE OF WHEY PRODUCTS

Eric R. Egnell, Tyresö, Sweden, assignor to Nedre Norrlands Producentforening ek. for, Bangardsgatan, Ostersund, Sweden

Continuation-in-part of Ser. No. 952,934, Oct. 20, 1978, Pat. No. 4,253,386. This application Oct. 20, 1980, Ser. No. 198,361
Claims priority, application Sweden, Oct. 28, 1977, 7712167
Int. Cl.[3] A23C *21/00*
U.S. Cl. 426—583 4 Claims



1. A method for the production of eatable whey products, comprising the sequential steps of

(1) concentrating whey obtained from the byproducts of milk of cows or goats to a total solids content of between 40–80% by weight,

(2) adding non-heat-sensitive raw materials selected from the group consisting of sugars and fats of butter type to said concentrate to form a mixture therewith,

(3) adjusting the acidity of said mixture by the addition of pH-regulating agents of food quality so as to obtain a pH of between 5.8 and 6.8,

(4) heating said pH-adjusted mixture at a temperature of between 85° and 140° C. for a time sufficient to precipitate the whey proteins,

(5) thereafter adding heat-sensitive additives selected from the group consisting of flavoring agents and preservatives to said mixture,

(6) maintaining the mixture at about 95° C. for about 30 minutes,

(7) mechanically working said mixture to homogenize said precipitated proteins therein, thereby forming a homogenized product,

(8) cooling the thus homogenized product to a temperature C, between 5° and about 60° and

(9) storing said product for a time sufficient to obtain a predetermined consistency.

4,333,959

DECHOLESTERIZATION OF EGG-YOLK

Umberto Bracco, and Jean-Louis Viret, both of La Tour-de-Peilz, Switzerland, assignors to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Sep. 26, 1980, Ser. No. 190,975
Int. Cl.[3] A23L *1/32*
U.S. Cl. 426—614 13 Claims

1. A process for reducing the amount of cholesterol in egg-yolk which comprises the steps of:

(a) reducing the pH of fresh, wet egg-yolk to destabilise the emulsion;

(b) treating the destabilised egg-yolk emulsion with a substantially cholesterol-free edible oil to form a fine dispersion;

(c) centrifuging the dispersion to form an egg-yolk phase and an oil phase; and

(d) separating the egg-yolk phase having reduced cholesterol content from the oil phase.

4,333,960

PROCESS FOR PRODUCING DEHYDRATED RICE AND PRODUCT FROM PARBOILED RICE

James A. Barry, Carlow, and James McGarry, Kilkieran, both of Ireland, assignors to Comhlucht Siuicre Eireann Teoranta (Irish Sugar Company Limited), Dublin, Ireland

Filed Jul. 1, 1980, Ser. No. 165,062
Claims priority, application Ireland, Jul. 3, 1979, 474/79; May 16, 1980, 1032/80
Int. Cl.[3] A23L *1/182*
U.S. Cl. 426—625 14 Claims

1. A process for the production of dehydrated rice without mechanical compression of the rice grains, said dehydrated rice being capable of rehydration to a palatable state in 2–3 minutes by the addition of boiling water thereto, without additional cooking, which process comprises soaking parboiled rice, washing it, cooking the soaked rice, drying the cooked rice to a moisture content in the range 2–20% by weight, and puffing the dried rice at a temperature in the range 180°–350° C.

4,333,961

PREPARATION OF THIN, ALIGNED MAGNETIC COATINGS

Calvin A. Bruce; Andrew M. Homola, and Max R. Lorenz, all of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 30, 1981, Ser. No. 259,270
Int. Cl.[3] B05D *1/04*
U.S. Cl. 427—13 15 Claims

1. A method for applying a magnetic coating to a disk substrate comprising the steps of:

coating said substrate with an active coating material having an electrostatic charge in an aqueous environment to form an active layer,

applying to the active coating material magnetic particles coated with colloidal silica, said silica-coated magnetic particles having an electrostatic charge thereon in an aqueous environment opposite to the charge on said active coating material, whereby the magnetic particles are electrostatically attracted to and bonded to said active material to form a magnetic layer, and

applying a magnetic field to said magnetic particles to magnetically align said particles.

4,333,962

METHOD FOR PRODUCING GOLD COLOR COATINGS

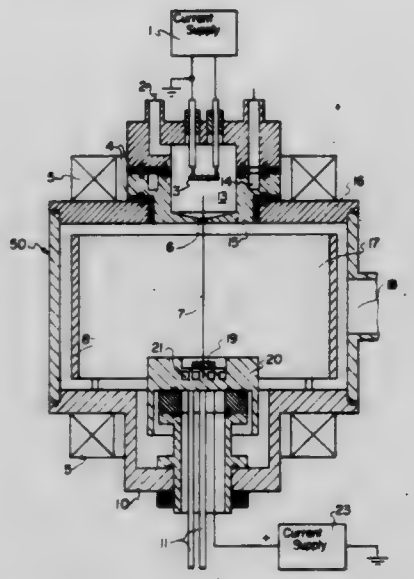
Hans K. Pulker, Triesen, Liechtenstein, and Helmut Daxinger, Wangs, Switzerland, assignors to Balzers Aktiengesellschaft, Liechtenstein

Filed Aug. 29, 1980, Ser. No. 182,800

Claims priority, application Switzerland, Sep. 4, 1979, 7971/79

Int. Cl.[3] C23C *11/14*

U.S. Cl. 427—37 11 Claims



1. A method of controlling color hues of coatings on substrates using a housing capable of being evacuated and having an evaporation chamber therein, a hot cathode chamber therein in communication with the evaporation chamber, a support structure for the substance to be coated in said housing evaporation chamber and a crucible for material to be evaporated spaced from said support structure in said evaporation chamber and forming an anode, and a hot cathode in the hot cathode chamber, the method comprising evaporating the material in the evaporation chamber while maintaining a residual gas atmosphere containing nitrogen therein, producing an electric gas arc discharge between the cathode and anode of a low voltage, admixing a carbon containing gaseous compound to the residual gas, and applying a negative biasing voltage relative to the housing to the substrate to be coated.

4,333,963

RADIATION CURABLE COMPOSITIONS CONTAINING β-CYANOETHOXYALKYL ACRYLATES

William D. Emmons, Huntingdon Valley; Donald A. Winey, Warminster, and Nicholas A. Rounds, New Britain, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Dec. 30, 1980, Ser. No. 222,784

Int. Cl.[3] B05D *3/00*

U.S. Cl. 427—44 8 Claims

1. A radiation curable composition comprising

(a) about 5–95% by weight, based on total composition, of at least one cyanoethoxyalkyl acrylate having the formula

$$H_2C{=}{-}CH{-}C(O){-}O{-}R{-}O{-}CH_2CH_2CN$$

wherein R is a (C_2–C_5) alkylene group or a (C_2–C_5) oxaalkylene group having discrete alkylene segments containing at least two carbon atoms joined by the oxygen atom;

(b) about 1–90% by weight, based on total composition, of at least one radiation curable component selected from the group of an acrylated polymer or oil and a urethane prepolymer; and

(c) from 0 up to about 5% by weight, based on total composition, of a photoinitiator.

5. A method of coating a substrate which comprises applying to the substrate a composition according to claim 1 and curing or drying the coated substrate by exposing the coated substrate to radiation.

4,333,964

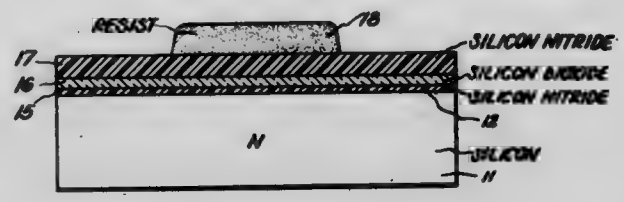
METHOD OF MAKING INTEGRATED CIRCUITS

Mario Ghezzo, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 15, 1980, Ser. No. 187,430

Int. Cl.[3] B05D *5/12;* H01L *21/306*

U.S. Cl. 427—93 5 Claims



1. The method of providing in a substrate of silicon semiconductor material having a major surface, a thick layer of silicon dioxide contiguous to a region of said substrate adjacent said major surface comprising:

providing said substrate of silicon semiconductor material having said major surface,

forming a first thin layer of silicon nitride on said major surface,

forming a second thin layer of silicon dioxide on said layer of silicon nitride,

forming a third layer of silicon nitride on said second layer of silicon dioxide,

patterning said third layer of silicon nitride to produce a retained portion overlying and in registry with said region on said major surface,

patterning said second layer of silicon dioxide to produce a retained portion overlying and in registry with said region on said major surface,

patterning said first layer of silicon nitride to produce a retained portion overlying and in registry with said region on said major surface,

heating said substrate in an oxidizing atmosphere to a temperature and for a time to cause the silicon semiconductor material contiguous to said region to be converted to silicon dioxide.

4,333,965

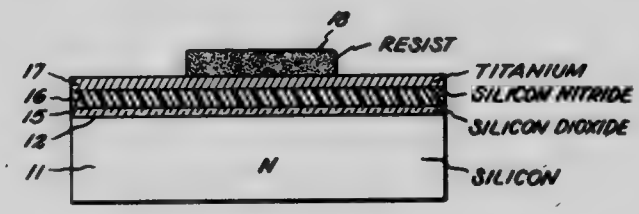
METHOD OF MAKING INTEGRATED CIRCUITS

Tat-Sing P. Chow, Schenectady, and Mario Ghezzo, Ballston Lake, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 15, 1980, Ser. No. 187,501

Int. Cl.[3] B05D *5/12;* H01L *21/306*

U.S. Cl. 427—93 7 Claims



1. The method of providing in a substrate of semiconductor material having a major surface a thick layer of silicon dioxide contiguous to a region of said substrate adjacent said major surface comprising:

providing said substrate of silicon semiconductor material having a major surface,

forming a first thin layer of silicon dioxide on said major surface,

forming a second thick layer of silicon nitride on said first layer of silicon dioxide,

forming a third layer of an ion erosion resistant material on said second layer of silicon nitride,

patterning said third layer of ion erosion resistant material to produce a retained portion overlying and in registry with said region of said major surface,

patterning said second and first layers using said retained portion of said third layer as a mask by ion beam etching orthogonally to the plane of said major surface to produce retained portions of said second and first layers each overlying and in registry with said region of said major surface and to remove portions of said substrate to form a mesa the top of which is said region,

removing said retained portion of said third layer,

depositing a fourth layer of silicon nitride over exposed portions of said substrate including the side walls of said mesa and said retained portions of said first and second layers,

removing the portions of said fourth layer of silicon nitride contiguous to and overlying said major surface of said substrate,

heating said substrate in an oxidizing atmosphere to a temperature and for a time to cause exposed portions of said substrate to be converted to a thick layer of silicon dioxide,

removing the portions of said second and fourth layers of silicon nitride covering said mesa to expose the side walls thereof,

heating said substrate to cause exposed portions of the side walls of said mesa to be converted to silicon dioxide.

4,333,966

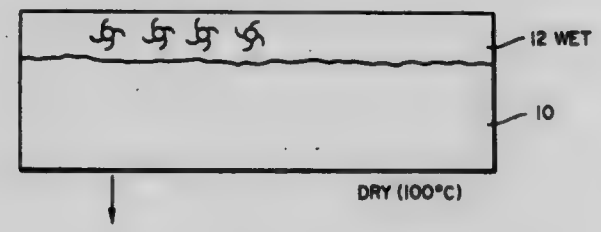
METHOD OF FORMING A CONDUCTIVE METAL PATTERN

Robert J. Deffeyes, Arlington, and Harris W. Armstrong, Ft. Worth, both of Tex., assignors to Graham Magnetics, Inc., North Richland Hills, Tex.

Division of Ser. No. 62,016, Jul. 30, 1979, Pat. No. 4,289,534, which is a division of Ser. No. 793,384, May 3, 1977, Pat. No. 4,186,244. This application Dec. 24, 1980, Ser. No. 219,943

Int. Cl.³ H05K *3/00*

U.S. Cl. 427—96 **9 Claims**



1. A process for making a conductive metal pattern on a non-conductive substrate comprising the steps of

(1) forming a pattern, on said non-conductive substrate, of a coating comprising a non-conductive, fusible, metal-powder product; said fusible metal-powder product being formed by a chemical reaction of (a) a metal-powder substrate, with (b) hydrocarbon-chain-bearing reactants; and whereon said hydrocarbon chains are chemically bonded to said metal powder substrate to form a non-conductive barrier layer chemically reacted to said metal; and

(2) thermally decomposing said barrier material and causing said non-conductive metal powder product to fuse into said conductive coating.

4,333,967

PROCESS OF MAKING A THERMOSENSITIVE RECORDING MATERIAL

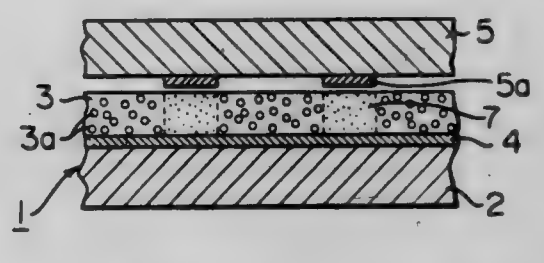
Nobuhiro Miyakawa, Kobe, and Tatsuo Aizawa, Osaka, both of Japan, assignors to Mita Industrial Company, Tokyo, Japan

Division of Ser. No. 136,068, Mar. 28, 1980, which is a continuation of Ser. No. 971,833, Dec. 19, 1978, abandoned. This application Jan. 12, 1981, Ser. No. 224,626

Claims priority, application Japan, Dec. 21, 1977, 52-154855

Int. Cl.³ B41M *3/12*

U.S. Cl. 427—148 **11 Claims**



1. A process for producing a thermosensitive recording material comprising a matrix of an electrically insulating, film-forming thermoplastic resin and, dispersed as a fine powder in the matrix, at least one linear aliphatic dicarboxylic acid having at least 13 carbon atoms and a melting point of not more than 150° C. or its ammonium salt, the amount of the linear aliphatic dicarboxylic acid or its ammonium salt being 5 to 40 parts by weight per 100 parts by weight of the resin matrix, which comprises intimately mixing a solution or dispersion of the electrically insulating, film-forming thermoplastic resin with 5 to 40 parts by weight per 100 parts by weight of the resin of the linear aliphatic dicarboxylic acid or its ammonium salt, and drying the resulting mixture at a temperature of not more than 40° C.

4,333,968

THERMOPLASTIC PACKAGING FILMS WITH IMPROVED HEAT-SEAL CHARACTERISTICS

A. Michael Nahmias, Canandaigua, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Jan. 25, 1980, Ser. No. 115,530

Int. Cl.³ B05D *3/02, 3/12, 3/00*; B32B *27/08*

U.S. Cl. 427—173 **1 Claim**

1. A method for producing coated biaxially oriented polypropylene film, said film being adapted for heat sealing in a manner whereby the seal may be peeled apart without damaging the film layers in the seal area, which comprises the sequential steps of:

a. Extruding a polypropylene base film and orienting said film in the longitudinal direction;

b. Extrusion coating at least one surface of said oriented film with a single layer of an ethylene-vinyl acetate copolymer coating to form a coated film, said copolymer containing from about 6% up to about 10% by weight vinyl acetate in said copolymer;

c. Preheating said coated film at a heating rate of above about 5° F. per second and below about 40° F. per second; and

d. Orienting the resultant preheated coated film in the transverse direction.

4,333,969

PROCESS FOR PRODUCING STYRENIC POLYMER BEADS OF PREFERRED BEAD SIZE

Harold A. Wright, Murrysville, and Alvin R. Ingram, West Chester, both of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 23, 1980, Ser. No. 219,453
Int. Cl.[3] B05D 7/00; C08F 112/08
U.S. Cl. 427—222 11 Claims

1. A process for forming styrenic polymer beads having a preferred diameter bead size from styrenic polymer beads of a lesser diameter bead size comprising:

(a) forming a suspension of said styrenic polymer beads of a lesser diameter bead size in an aqueous medium with the aid of a finely divided, difficultly water-soluble, inorganic phosphate suspending agent and a modifier therefor,

(b) forming an emulsion of styrenic monomer, containing a monomer-soluble free-radical-producing catalyst, in an aqueous medium containing a nonionic surfactant comprising an ethylene oxide condensate of an alkylphenol, selected from the group consisting of octylphenols and nonylphenols, said surfactant containing at least fifty moles of ethylene oxide per mole of alkylphenol, and

(c) adding said styrenic emulsion continuously over a period of time to said styrenic polymer bead suspension and subjecting the mixture so formed to an elevated temperature to polymerize said styrenic monomer about said styrenic polymer beads.

4,333,970

PROCESS FOR PRODUCING COATED BEADS WITH MACROMONOMER-STYRENE POLYMERIZATE COATING

Elizabeth A. Blommers, Newtown Square; David R. Warfel, Exton, and Alvin R. Ingram, West Chester, all of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 23, 1980, Ser. No. 219,465
Int. Cl.[3] B05D 7/00; C08F 212/08, 236/10
U.S. Cl. 427—222 7 Claims

1. A process for forming coated styrenic polymer beads which exhibit anti-lumping properties upon preexpansion and which are useful in producing soft foamed articles comprising:

(a) forming an aqueous suspension of initial styrenic polymer beads with the aid of a finely divided, difficulty water-soluble, inorganic phosphate suspending agent and a modifier therefore;

(b) forming an emulsion containing a coating composition, consisting of a major amount of a styrenic monomer and a minor amount of a conjugated diene-styrene macromonomer, which is an anionically prepared polymer of molecular weight between 5000 and 50,000 terminated with a reactive monofunctional polymerizable group, and containing a styrenic monomer-soluble free-radical-producing catalyst; in an aqueous medium containing a nonionic surfactant comprising an ethylene oxide condensate of an alkylphenol, selected from octylphenols and nonylphenols, said surfactants containing at least thirty moles of ethylene oxide per mole of alkylphenol;

(c) adding said emulsion to said styrenic polymer bead suspension to form a mixture thereof, while maintaining the suspension at an elevated temprature; and maintaining the mixture so formed at an elevated temperature to cause said coating composition to polymerize and form a coating about said initial styrene beads.

4,333,971

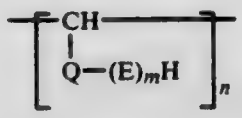
SUBSTRATE TREATING COMPOSITIONS

Donald N. Van Eenam, Des Peres, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Jun. 5, 1981, Ser. No. 270,777
Int. Cl.[3] B05D 3/02
U.S. Cl. 427—389.9 14 Claims

1. A process for improving the physical properties of a fibrous substrate which comprises applying thereto a composition of matter comprising:

A. a polyether-ene having the formula



where Q is a moiety terminating in the residue of an active hydrogen-containing group selected from the group consisting of alcoholic hydroxyl, thiol, amide, carboxylic acid and secondary amine with an active hydrogen removed, E is a moiety containing a radical having an activated olefinic unsaturation, either α,β or β,γ to the activating group, n is the number of adjacent segments having this formula, and n and m are integers and are each at least 1, provided that where one is less than 4 the other is at least 4; and

B. a non-air-curing compound having a structure comprising at least two free-radical polymerizable unsaturated groups;

and allowing the composition to thermoset cure irreversibly on the substrate.

4,333,972

HIGHLY ANISOTROPIC MEMBRANES

Robert E. Kesting, Irvine, Calif., assignor to Puropore, Inc., Tustin, Calif.

Filed Jun. 25, 1980, Ser. No. 162,679
Int. Cl.[3] B05D 5/00
U.S. Cl. 427—244 8 Claims



1. A method of manufacturing microporous polymeric membranes comprising the steps of:

forming a casting solution consisting essentially of a solvent, a non-solvent and polymer, the solvent being selected from the group consisting of methyl formate, propylene oxide or mixtures thereof, the non-solvent consisting essentially of isopropyl alcohol, t-butyl alcohol or a mixture of said alcohols, and the polymer being selected from the group consisting of cellulose nitrate and mixtures of cellulose nitrate and cellulose acetate, cellulose nitrate content exceeding cellulose acetate content therein;

casting said solution onto a substrate; and

allowing the solvent and the non-solvent, respectively, to evaporate to thereby form an anisotropic cellulosic membrane having a first pore size adjacent one surface and a second smaller pore size adjacent the other surface of the membrane.

4,333,973
INSULATING MACHINE AND PROCESS

Francis V. Bellafiore; Michael P. Duff, and David M. O'Meara, all of Joliet, Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Aug. 7, 1980, Ser. No. 176,185
Int. Cl.[3] B05D *1/02*
U.S. Cl. 427—424 23 Claims



1. A method of applying a bed of polymeric insulating foam which comprises:

spraying by means of a nozzle a liquid composition, which quickly expands and sets into a dry polymeric insulating foam, in a predetermined pattern of travel onto a horizontal or sloped surface to thereby deposit a layer of insulating foam in the form of a band of preset length and width and with a forward face sloped for a substantial part of the band width;

spraying a second band of the liquid composition in a substantially similar predetermined pattern, length and width, as that of the prior layer, onto substantially all of the sloped forward face of the prior band to thereby deposit a sloped second foamed layer as a band on, and without significantly exceeding the height of, the first foamed band; and

then applying a sloped third foam band to the second band in a similar manner followed by the consecutive application of additional sloped foam bands until an insulating bed comprising a multitude of sloped foam layers in the form of bands of substantially uniform height or thickness and length is deposited.

4,333,974
CANDY-COVERED FIGURINE AND METHOD OF PRODUCING

Frances P. Davis, 4808 Holston Heights La., Knoxville, Tenn. 37914

Filed Oct. 1, 1979, Ser. No. 81,021
Int. Cl.[3] A01N *1/00;* B32B *7/08;* B23P *3/00, 25/00, 11/00*
U.S. Cl. 428—16 18 Claims





1. A process for manufacturing a figurine partially covered with candy comprising the steps of:

inserting a first end of an elongated member into a styrofoam head member;

inserting the further end of said elongated member into a styrofoam body member thereby joining said head and body members and forming a head and body juncture;

joining a lower extremity member to said styrofoam body member substantially opposite said inserted elongated member thereby forming a body-foot juncture;

mounting ear and mouth members at selected ear and mouth locations on said styrofoam head member;

dipping said head member with said mounted ear and mouth members, below said head and body juncture into a reinforcing mixture to color said styrofoam head member and said ear and mouth members a desired color;

mounting eye members at selected locations on said dipped styrofoam head member;

reinforcing said body-foot juncture;

joining hand and arm members to said styrofoam body members; and

securing colorful wrapped candies at selected locations on said styrofoam head and body members.

5. A process for manufacturing a figurine partially covered with candy comprising the steps of:

covering a first end of an elongated member with an adhesive and inserting said adhesive covered first end into a styrofoam head member;

covering the further end of said elongated member with adhesive and inserting said further end into a styrofoam body member, thereby joining said head and body members;

joining a lower extremity member to said styrofoam body member at a location substantially opposite said inserted elongated member;

reinforcing the juncture between said styrofoam body member and other selected members joined thereto;

joining hand and arm members to said styrofoam body member;

forming depressions in said styrofoam head member at selected locations for receiving eyes, ears and mouth members;

coloring said styrofoam members to provide desired flesh tones;

securing said eye, ear and mouth members in said depressions;

painting said styrofoam head member to provide facial details;

attaching selected decorative details at selected locations on said members; and

securing colorfully wrapped candies at selected locations to said styrofoam members thereby providing a colorful figurine.

17. A candy-covered figurine comprising:

a head member fabricated from a styrofoam material;

a rigid elongated member having a first and further end, said first end inserted in said styrofoam head member;

ear and mouth members mounted at selected locations on said styrofoam head member;

a body member fabricated from a styrofoam material and joined to said head member by inserting said further end of said rigid elongated member in said body member to form a head-body juncture, said heat-body juncture being reinforced by dipping said head member and said head-body juncture into a reinforcing and covering mixture which serves to cover said head member a preselected color;

a lower extremity member mounted on said styrofoam body member at a location substantially opposite said head-body juncture;

eye members mounted at selected locations on said dipped styrofoam head member;

arm members joined to said styrofoam body member; and

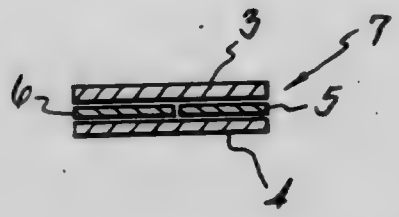
a multiplicity of colorful wrapped candies secured at selected location on said styrofoam head and body members.

4,333,975

FLAT GASKET LAMINATE OF EXPANDED GRAPHITE FOIL AND METALLIC REINFORCEMENT LAYER

Geoffrey Booth, Huddersfield, England, assignor to Flexitallic Gaskets Limited, Heckmondwike, England

Filed Dec. 5, 1980, Ser. No. 213,504
Claims priority, application United Kingdom, Dec. 15, 1979, 7943297
Int. Cl.³ B32B *3/02*; F16J *15/00*
U.S. Cl. 428—65 3 Claims



1. A flat gasket consisting essentially of a laminate of layers of expanded graphite foil and a metallic reinforcement layer, the graphite foil layers being so disposed as to overlap with and enclose the reinforcement layer within the gasket in relation to at least one edge thereof, said one edge being that edge of the gasket which in use is exposed to an aggressive environment.

2. The gasket of claim 1 wherein the metallic reinforcement layer projects beyond the graphite foil layers at the opposite edge to said one edge and the projecting portion thereof constitutes locating means for the gasket on installation.

4,333,976

COMPOSITE WOVEN OR KNITTED FABRIC

Miyoshi Okamoto, Takatsuki, and Mineto Fushida, Shiga, both of Japan, assignors to Toray Industries, Incorporated, Tokyo, Japan

Continuation of Ser. No. 20,541, Mar. 14, 1979, abandoned. This application Feb. 25, 1980, Ser. No. 124,352
Claims priority, application Japan, Mar. 15, 1978, 53-28639
Int. Cl.³ B32B *33/00*
U.S. Cl. 428—91 11 Claims



1. Woven or knitted fabric containing a plurality of naps composed of bundles of superfine fibers of less than 0.7 denier which are bound with a cured organic silicone polymer.

4,333,977

WEAR-RESISTANT ARTICLE

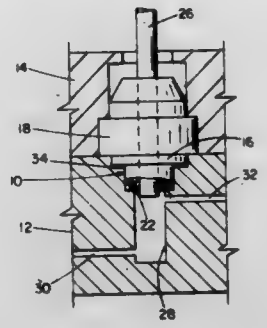
Louis Abrahams, Worcester, and Thomas P. J. Izod, Holliston, both of Mass., assignors to Waters Associates, Inc., Milford, Mass.

Filed Aug. 27, 1980, Ser. No. 181,908
Int. Cl.³ B32B *3/10, 27/00*; C08K *7/02*
U.S. Cl. 428—131 7 Claims

1. A sintered, molded wear-resistant shaped article having a non-oxidized surface and having the empirically derived formula $CF_{1.28}$ made from a molded and sintered granular mixture consisting essentially of 74–84% by weight polytetrafluoroethylene, 7–17% by weight graphite fibers, and 4–14% by weight fluorinated graphite.

3. The article of claim 1 wherein said article includes a working surface that rubs against another surface moving relative thereto.

4. The article of claim 3 wherein said working surface is a sealing surface and said article has the form of an annular seal.



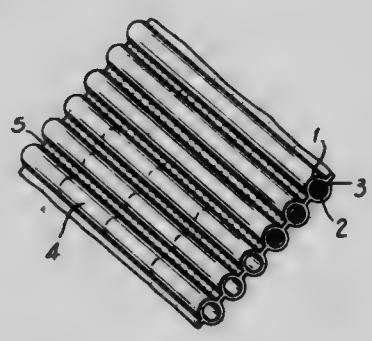
6. The seal of claim 4 wherein there is a bore passing therethrough and an annular spring element embedded in the seal all around said bore.

4,333,978

METHOD AND APPARATUS FOR PRODUCING A COMPOSITE MATERIAL HAVING ULTRASONICALLY WELDED SEAMS WHICH CONFINE STRANDS

Walter Kocher, Mozart Strasse 11, 8671 Selbitz, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 105,295, Dec. 19, 1979. This application Jan. 19, 1981, Ser. No. 226,522
Claims priority, application Fed. Rep. of Germany, Mar. 29, 1979, 7909013[U]; Jul. 18, 1979, 2928941; European Pat. Off., Feb. 13, 1980, 80100728.7
Int. Cl.³ B06B *3/00*; B29C *27/08*; B32B *3/22, 31/21*; B65B *11/00*
U.S. Cl. 428—158 24 Claims



1. An article of manufacture comprising:
a lower layer;
an upper layer ultrasonically welded to said lower layer along substantially parallel, spaced apart weld seams; and
an intermediate layer disposed between said upper layer and said lower layer, wherein at least one of said upper, lower and intermediate layers is applied with a tensile stress which is different from the tensile stress on at least another of said upper, lower and intermediate layers when said upper layer is ultrasonically welded to said lower layer.

6. A method of producing a composite material of the type having an upper layer, a lower layer and an intermediate layer disposed between said upper layer and said lower layer, comprising the steps of:
ultrasonically welding said upper layer to said lower layer along substantially parallel, spaced apart weld seams;
feeding said intermediate layer between said upper layer and said lower layer during said step of ultrasonically welding; and
applying a tensile stress to at least one of said upper, lower and intermediate layers during said step of ultrasonically welding which is different from the tensile stress on at least another of said upper, lower and intermediate layers.

15. Apparatus for producing a composite material of the type having an upper layer, a lower layer and an intermediate layer disposed between said upper layer and said lower layer, comprising:
welding means for ultrasonically welding said upper layer to

said lower layer along substantially parallel, spaced apart weld seams;

feeding means for feeding said intermediate layer to said welding means between said upper layer and said lower layer; and

tension means for applying a tensile stress to at least one of said upper, lower and intermediate layers supplied to said welding means which is different from the tensile stress on at least another of said upper, lower and intermediate layers.

4,333,979

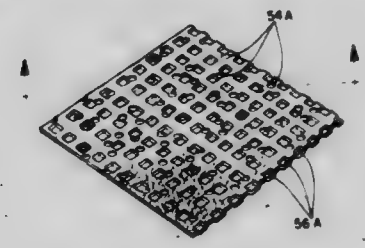
SOFT, BULKY, LIGHTWEIGHT NONWOVEN WEB AND METHOD OF PRODUCING; THE WEB HAS BOTH FUSED SPOT BONDS AND PATTERNED EMBOSSMENTS

Michael A. Sciaraffa; David G. Thome, both of Appleton, and Clifford M. Vogt, Neenah, all of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

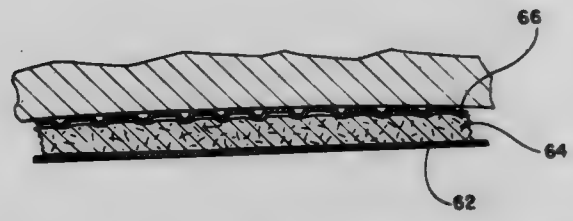
Filed Aug. 18, 1980, Ser. No. 179,054

Int. Cl.³ A61F *13/16*; D04H *3/14, 5/06*

U.S. Cl. 428—179 **15 Claims**







1. Nonwoven web having a basis weight in the range of from 0.4 oz/yd^2 to 2.0 oz/yd^2 and density in the range of from 0.08 to 0.20 g/cc comprising randomly oriented thermoplastic filaments overlapping and bonded with a fine pattern of fused bond areas covering 5 to 50% of the web surface with a frequency of 50 to 3200 bond areas per square inch and individual bond area in the range of 0.0005 to 0.0015 in^2, said web also containing a gross pattern of embossments covering 5 to 80% of the web surface with a frequency of 1 to 500 embossments per square inch and individual embossment area in the range of 0.003 to 0.03 in^2 resulting in an effective Ames web thickness of at least 0.010 inch.

10. Method of forming a lightweight, bulky nonwoven web comprising the steps of,

(a) melt spinning a thermoplastic polymer into filaments,

(b) collecting said filaments into a randomly oriented, overlapping web,

(c) bonding said web under pressure producing a fine pattern of fused bond areas covering 5 to 50% of the web surface with a frequency of 50 to 3200 bond areas per square inch and individual bond area in the range of 0.0005 to 0.0015 in^2, and

(d) embossing said web under pressure producing a gross pattern of embossments covering 5 to 80% of the web surface with a frequency of 1 to 500 embossments per square inch and individual embossment area in the range of from 0.003 to 0.030 in^2.

4,333,980

MULTI-PLY FABRIC STRUCTURE INCLUDING INTERLINER

William M. Russell, Belchertown, Mass., assignor to Facemate Corporation, Chicopee, Mass.

Continuation-in-part of Ser. No. 888,025, Mar. 20, 1978, abandoned. This application May 18, 1979, Ser. No. 40,442

Int. Cl.³ B32B *27/14*

U.S. Cl. 428—192 **12 Claims**

1. Multi-ply fabric structure for use in fabricating garment components comprising at least one outer fabric ply and a fabric interliner having on one surface a heat responsive, permanent type adhesive and on the opposite surface a temporary fusible adhesive, the adhesive properties of which are removable by laundering, said temporary and permanent adhesives disposed at discontinuous bond sites being simultaneously activatable to a tacky condition within a first range of heat and dwell time, said outer fabric ply being superposed in generally edge-to-edge abutting relation against said interliner, outer edge portions of both said interliner and fabric ply being folded inwardly to overlapping relation against the marginal portions of said interliner, the overlapped edge and marginal portions of the interliner and fabric ply being bondable together by activation of said temporary and permanent adhesives within said first energy level range for providing temporary adhesive bonding between said overlapped edge and marginal portions of the interliner and the outer ply, said permanent adhesive being further responsive to a substantially higher energy level than said first range for permanent bonding onto one surface of said interliner.

4,333,981

ABRASION RESISTANT IMPACT ABSORBENT ANIMAL STALL FLOOR AND WALL COVERING

Armand G. Winfield, and Barbara L. Winfield, both of P.O. Box 1296, Santa Fe, N. Mex. 87501

Filed May 5, 1980, Ser. No. 146,775

Int. Cl.³ B32B *7/02*

U.S. Cl. 428—215 **24 Claims**

1. An abrasion resistant, impact absorbent animal stall floor and wall covering which comprises a laminate of:

(a) a liquid impermeable layer of an ionomer resin, said layer having an aggregate minimum thickness of about 5 mils, superimposed upon

(b) a foamed resin layer having an aggregate minimum thickness of about 200 mils, and an aggregate density in the range of from about 0.50 to about 10.0 lbs. per cubit foot.

4,333,982

FUSIBLE INTERLINING OF A TEXTILE SHEET AND A HEAT-SEALABLE FILM FOR WASHABLE GARMENTS

Edward R. Rand, Paris, France, assignor to Lainiére de Picardie, Péronne, France

Filed Jul. 30, 1980, Ser. No. 173,602

Claims priority, application Switzerland, Jul. 31, 1979, 7056/79

Int. Cl.³ D03D *3/00*

U.S. Cl. 428—245 **10 Claims**

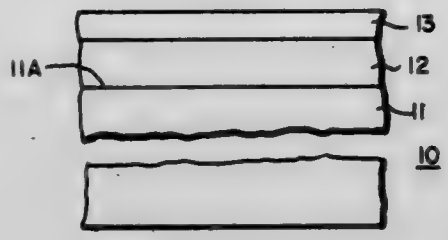
1. A fusible interlining for washable garments comprising at least one textile sheet-like structure which does not soften or melt at temperatures below 200° C. and a heat-sealable film consisting essentially of 50 to 75% by weight of a thermoplastic elastomer and 25 to 50% by weight of at least one modifier selected from the group consisting of homopolymers and copolymers of lower olefins; thermoplastic polymers of aromatic vinyl compounds selected from homopolymers of styrene, α-methylstyrene or vinyltoluene and copolymers of the said monomers with one another; and plasticizing hydrocarbon oils.

4,333,983

OPTICAL ARTICLE AND METHOD

Thomas H. Allen, Santa Rosa, Calif., assignor to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Apr. 25, 1980, Ser. No. 143,592
Int. Cl.[3] B32B *27/06*; G02B *5/28*
U.S. Cl. 428—336 16 Claims



1. A transparent flexible polymer substrate carrying on at least one surface thereof a thin film adhesion layer of aluminum oxide formed to a thickness of at least about 170 nanometers and an optical coating comprising at least one thin film layer formed on said thin film adhesion layer of aluminum oxide and having preselected optical properties.

14. A method of forming an antireflection optical coating on a flexible polymer substrate comprising the steps of:

disposing a flexible polymer substrate in a vacuum deposition chamber;

depositing a thin film adhesion layer of aluminum oxide on at least one surface of said substrate to a thickness of at least about 170 nanometers; and

depositing an optical coating on said thin film adhesion layer of aluminum oxide.

4,333,984

HEAT-SENSITIVE RECORDING SHEETS

Akira Igarashi, and Hiroharu Matsukawa, both of Fujinomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 18, 1980, Ser. No. 217,641
Claims priority, application Japan, Dec. 18, 1979, 54/164217
Int. Cl.[3] C09J *7/02*; G03C *1/52*
U.S. Cl. 428—336 12 Claims

1. A heat-sensitive recording sheet which comprises

a support,

a white or light-colored pigment coating layer having an oil absorption determined by JIS K5101 of 75 ml/100 g or more on the support, and

a heat-sensitive color forming layer comprising an electron donor colorless dye and an electron acceptor compound on said coating layer wherein recording occurs due to a color reaction upon melting one or both of said dye and said acceptor.

4,333,985

MAGNETIC RECORDING MEDIUM

Ryuji Shirahata; Akio Yanai, and Tatsuji Kitamoto, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 24, 1981, Ser. No. 257,286
Claims priority, application Japan, Apr. 24, 1980, 55-54609
Int. Cl.[3] B32B *15/08*
U.S. Cl. 428—336 3 Claims

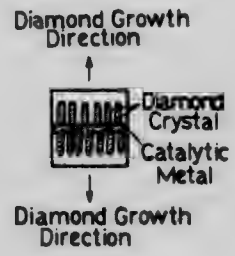
1. A magnetic recording medium comprising a protective layer composed of at least one substance selected from the group consisting of poly(paraxylylene), poly(monochloroparaxylylene), and poly(dichloroparaxylylene), formed on a magnetic recording layer comprising a thin ferromagnetic metal film.

4,333,986

DIAMOND SINTERED COMPACT WHEREIN CRYSTAL PARTICLES ARE UNIFORMLY ORIENTATED IN A PARTICULAR DIRECTION AND A METHOD FOR PRODUCING THE SAME

Kazuo Tsuji; Shuji Yazu, and Akio Hara, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jun. 10, 1980, Ser. No. 158,136
Claims priority, application Japan, Jun. 11, 1979, 54-73670; May 30, 1980, 55-73570
Int. Cl.[3] B22B *9/00*; C01B *31/06*
U.S. Cl. 428—402 3 Claims



1. A polycrystalline diamond sintered compact containing 5–30 weight % of a catalytic metal for synthesizing diamond from a carbonaceous raw material, said sintered compact being constituted by individual crystal particles each of which has a long axis more than 2 times the length of its short axis, the long axes of more than 50% of said crystal particles being uniformly oriented in the direction of the thickness of said sintered compact or in the direction normal thereto, said crystal particles forming a substantially continuous diamond phase by being bonded to each other in the direction of the long axes thereof.

4,333,987

METHODS FOR BONDING DISSIMILAR SYNTHETIC POLYMERIC MATERIALS AND THE PRODUCTS INVOLVED IN AND RESULTING FROM SUCH METHODS

Harold Kwart, 203 Cheltenham Rd., Newark, Del. 19711, and Seevaram N. Varadhachary, 401 Union St., Newtown, Pa. 18940

Filed Dec. 19, 1979, Ser. No. 105,051
Int. Cl.[3] B05D *3/06*
U.S. Cl. 428—419 25 Claims

1. A multi-layered construction of dissimilar synthetic polymeric materials comprising:

a first layer of a synthetic polymeric composition comprising a vinyl resin, at least one plasticizer for said vinyl resin, an organic unsaturated chemical compound soluble or dispersible in said vinyl resin synthetic polymeric composition and of sufficiently low volatility as not to be driven off during heat processing of said multi-layered construction, and a free radical producer or reaction initiator; and

a second layer of a synthetic polymeric composition comprising an ultraviolet-curable acrylated polyurethane resin and a polythiol capable of reacting with said organic unsaturated chemical compound in said first layer to form permanent primary chemical bonds bonding said layers together said first and second layers having been bonded together by reacting said organic unsaturated chemical compound and said polythiol.

15. A method of forming a multi-layered construction of dissimilar synthetic polymeric materials comprising:

forming a first layer of a synthetic polymeric composition comprising a vinyl resin, at least one plasticizer for said vinyl resin, an organic unsaturated chemical compound soluble or dispersible in said vinyl resin synthetic polymeric composition and of sufficiently low volatility as not to be driven off during heat processing of said multi-layered construction, and a free radical producer or reaction initiator;

forming a second layer of a synthetic polymeric composition comprising an ultraviolet-curable acrylated polyurethane resin and a polythiol capable of reacting with said organic unsaturated chemical compound in said first layer; and

exposing said first layer and said second layer to curing conditions, while in contact, for said ultraviolet-curable acrylated polyurethane resin, whereby said organic unsaturated chemical compound reacts with said polythiol to create strong and permanent primary chemical bonds between said layers.

4,333,988

MAGNETIC RECORDING MEDIA

Yasuyuki Yamada; Kenichi Masuyama, and Tatsuji Kitamoto, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 11, 1979, Ser. No. 74,469
Claims priority, application Japan, Sep. 11, 1978, 53-111581
Int. Cl.³ G11B *5/70*
U.S. Cl. 428—425.9 **24 Claims**

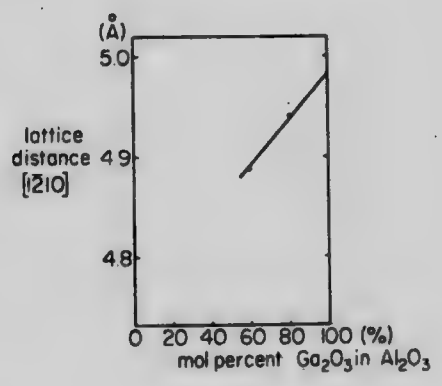
1. In a magnetic recording medium comprising a non-magnetic support and a recording layer comprising a finely divided ferromagnetic powder dispersed in a binder, the improvement wherein said binder comprises a 2-chloroacrylonitrile polymer and a polyurethane prepolymer having at least two terminal isocyanate groups.

4,333,989

SAPPHIRE SINGLE CRYSTAL SUBSTRATE CONSISTING ESSENTIALLY OF GA_2O_3 FOR SEMICONDUCTOR DEVICES

Jun-Ichi Nishizawa, and Kitsuhiro Kimura, both of Sendai, Japan, assignors to Semiconductor Research Foundation, Sendai, Japan

Continuation of Ser. No. 947,851, Oct. 2, 1978, abandoned, which is a division of Ser. No. 625,527, Oct. 24, 1975, Pat. No. 4,126,731. This application Feb. 22, 1982, Ser. No. 167,757
Claims priority, application Japan, Oct. 26, 1974, 49/123616
Int. Cl.³ C30B *29/20*
U.S. Cl. 428—446 **3 Claims**



1. A grown crystal structure comprising a sapphire-containing rhombohedral single-crystal electrically insulating substrate and an epitaxially grown semiconductor layer of silicon on said substrate, said single-crystal electrically insulating substrate consisting essentially of GA_2O_3 in an amount of between 71 and 98 mol % with the balance being essentially Al_2O_3, whereby the lattice misfit coefficient between said substrate and said epitaxially grown silicon layer is not more than about 1% along the axis of said substrate.

4,333,990

HEAT-SENSITIVE RECORDING PAPER

Noboru Yamato, and Tosimi Satake, both of Tokyo, Japan, assignors to Jujo Patper Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 68,444, Aug. 21, 1979, abandoned. This application Dec. 31, 1980, Ser. No. 221,793
Claims priority, application Japan, Aug. 25, 1978, 53-104163
Int. Cl.³ B41M *5/18*
U.S. Cl. 428—531 **5 Claims**

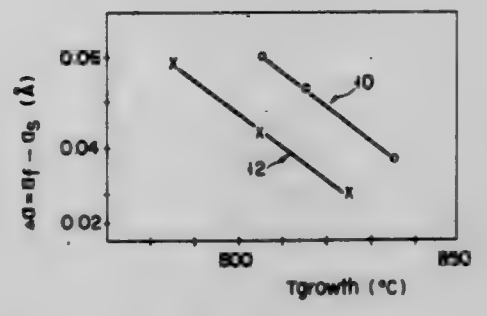
1. A heat-sensitive recording paper containing a colorless or pale-colored chromogenic dyestuff and a phenolic substance in the color-developing layer thereof, characterized in that said color-developing layer contains 20–65 weight % of filler of aluminum hydroxide with respect to the total weight of the color developing layer.

4,333,991

MAGNETIC GARNET FILM AND MANUFACTURING METHOD THEREFOR

Yoshifumi Sakurai, Minoo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1981, Ser. No. 258,005
Claims priority, application Japan, May 1, 1980, 55-58400
Int. Cl.³ C04B *35/40*; C30B *29/28*
U.S. Cl. 428—702 **9 Claims**



8. A magnetic garnet film having a composition selected from the group consisting of $(BiGdLu)_3(FeAl)_5O_{12}$ and $(BiGdSm)_3(FeAl)_5O_{12}$, said garnet film being composed of a single crystal grown on a substrate having a composition selected from the group consisting of $Gd_3Ga_5O_{12}$, $Sm_3Ga_5O_{12}$ and $Nd_3Ga_5O_{12}$, and being multilayered with a photoelectric film.

4,333,992

METHOD FOR PRODUCING STEAM FROM THE LIQUID IN A MOIST GAS STREAM

Herbert C. Healy, Hebron, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Oct. 30, 1980, Ser. No. 202,049
Int. Cl.³ H01M *8/04*
U.S. Cl. 429—17 **7 Claims**

1. In a power producing plant comprising primary electricity generating means and cogeneration means, wherein said primary electricity generating means produces a moist gas stream containing high quality waste heat at a first pressure and first temperature which is well above the dew point of said stream, and wherein said cogeneration means derives at least part of its energy from high quality waste heat from said primary electricity generating means, and wherein said power plant requires a supply of steam, a method for removing water from said moist gas stream and converting said water to said steam required by said power plant comprising the steps of:

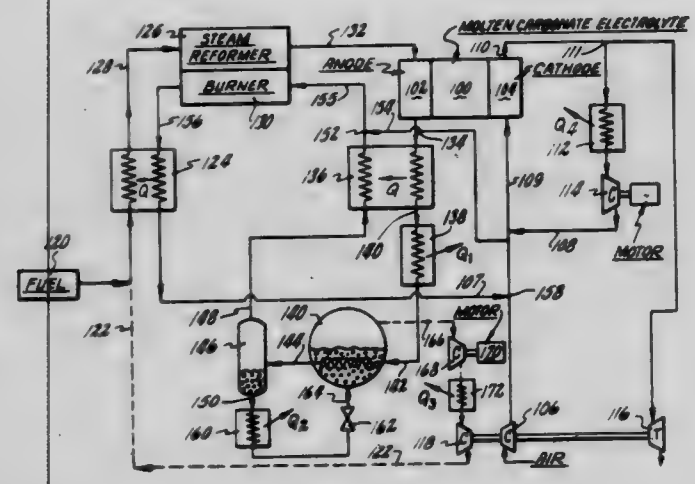
reducing the temperature of said moist gas stream to a second temperature which is still above the dew point of said stream by using the said high quality heat within said moist gas stream to provide energy for said cogeneration means;

introducing said moist gas stream at said second temperature into a condenser/boiler;

condensing water from the gas stream in the condenser/-boiler by cooling the gas stream to a third temperature which is below the stream's dew point without significantly reducing the pressure of the gas stream to produce liquid water at said third temperature and at a pressure which is substantially the same as the pressure of the moist gas stream entering the condenser/boiler;

separating the condensed liquid water from the gas stream;

reducing the temperature of the condensed liquid water from said third temperature to a lower, fourth temperature;



reducing the pressure of the condensed liquid water to a second pressure such that the boiling temperature of the water is equal to or lower than said third temperature; and

vaporizing the reduced pressure and reduced temperature separated liquid water in said condenser/boiler by heating said liquid at said second pressure using only the heat of condensation from the step of condensing and sensible heat from the moist gas stream passing through said condenser/boiler to produce steam at said second pressure.

4,333,993

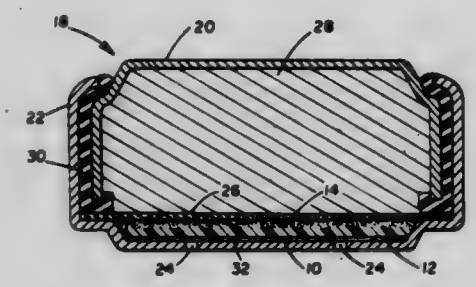
AIR CATHODE FOR AIR DEPOLARIZED CELLS

Henry F. Gibbard, Schaumburg, Ill., assignor to Gould Inc., Rolling Meadows, Ill.

Continuation of Ser. No. 189,159, Sep. 22, 1980, abandoned. This application Jul. 10, 1981, Ser. No. 282,311

Int. Cl.[3] H01M *4/00*

U.S. Cl. 429—27 14 Claims



1. A gas depolarized electrochemical cell comprising a cell casing having means allowing oxygen ingress therein, an anode and a cathode disposed in the casing, a separator interposed between the anode and cathode,-a current collector and an electrolyte, said cathode consisting of a unitary member having a hydrophobic surface portion and a hydrophilic surface portion consisting of an ion-exchange portion having dispersed therein catalyst particles in an amount sufficient to carry out the desired oxygen reduction, the hydrophobic surface portion of the cathode being positioned to contact the ingressing oxygen.

8. An air cathode for use in an air depolarized cell which consists of a unitary member having a hydrophobic surface portion and a hydrophilic surface portion consisting of an ion-exchange portion having dispersed therein catalyst particles to reduce oxygen.

4,333,994

CELL EMPLOYING A COILED ELECTRODE ASSEMBLY

Lewis F. Urry, Columbia Station, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 27, 1981, Ser. No. 248,216

Int. Cl.[3] H01M *6/10*

U.S. Cl. 429—94 13 Claims



1. An electrochemical cell comprising a coiled electrode assembly disposed within a container closed by a cover, said coiled electrode assembly comprising an elongated first electrode strip, an elongated second electrode strip and a separator, all of which are helically wound about each other so that the separator is interposed between said first electrode strip and said second electrode strip, the improvement wherein the portion of at least one of the wound electrodes that is not sandwiched between layers of the other wound electrode has an average thickness that is no greater than 80% of the average thickness of the portion of said at least one wound electrode that is sandwiched between layers of the other wound electrode.

4,333,995

LEAK PROOF CELLS PROVIDED WITH A SYNTHETIC RESIN GASKET HAVING AN INCREASED DEGREE OF CRYSTALLINITY

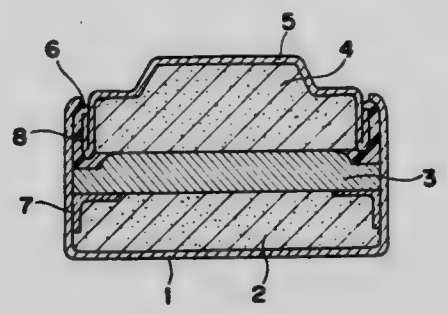
Osamu Ishida, Suita; Yoshio Uetani, Ibaraki, and Seiichi Matsushima, Toyonaka, all of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Filed Jun. 27, 1980, Ser. No. 163,512

Claims priority, application Japan, Jun. 28, 1979, 54/81805; Jun. 28, 1979, 54/81806; Jun. 28, 1979, 54/81807; Jun. 28, 1979, 54/81808

Int. Cl.[3] H01M *2/08*

U.S. Cl. 429—172 13 Claims



1. A leak-proof cell comprising a positive can and a negative collector fitted in the opening of the positive can, a gasket made of a synthetic resin being set in the space between the positive can and the negative collector to prevent the leakage of any liquid material in the cell, characterized in that the degree of crystallinity of the gasket set in the cell is at least 10% higher than that of the gasket immediately after molding.

4,333,996

SOLID STATE CELL IN WHICH AN INERT NONCONDUCTIVE MATERIAL IS DISPERSED IN THE CATHODE

Demetrios V. Louzos, Rocky River, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Sep. 29, 1980, Ser. No. 191,521
Int. Cl.³ H01M 6/18
U.S. Cl. 429—191 8 Claims

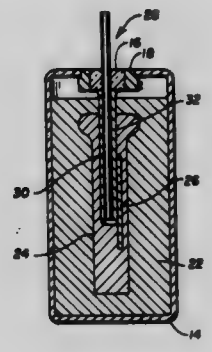
1. A solid state cell comprising an anode, a solid electrolyte and a charge transfer complex cathode in which the complex is the reaction product of an organic electron donor selected from the group consisting of poly-2-vinyl-pyridine, mesophase pitch, poly(N-vinylpyrrolidone), anthracene and naphthalene and an electron acceptor of at least one halogen; the improvement wherein a minimum amount of at least one chemically inert, high surface area, electrically nonconductive material in particulate form is dispersed in the cathode.

4,333,997

LITHIUM-HALOGEN BATTERIES

Lee F. Athearn, Fridley, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Division of Ser. No. 68,872, Aug. 22, 1979, Pat. No. 4,292,346, which is a division of Ser. No. 20,809, Mar. 15, 1979, Pat. No. 4,212,930. This application Aug. 29, 1980, Ser. No. 182,650
Int. Cl.³ H01M 4/40
U.S. Cl. 429—218 6 Claims



1. A lithium electrode comprising a collector body alternately overlayed with lithium in two forms: one form comprising a hot-dipped lithium coating, the other form comprising a plurality of pressed lithium pieces.

4,333,998

RADIATION-CURABLE COMPOSITION FOR RESTORATIVE AND/OR PROTECTIVE TREATMENT OF PHOTOGRAPHIC ELEMENTS

Gerald M. Leszyk, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 24, 1980, Ser. No. 209,799
Int. Cl.³ G03C 1/76, 5/26
U.S. Cl. 430—12 38 Claims

1. A radiation-curable coating composition which is useful for the formation of protective overcoats on photographic elements, said composition comprising (1) an acrylated urethane, (2) an aliphatic ethylenically-unsaturated carboxylic acid, (3) a multifunctional acrylate, and (4) a siloxy-containing polycarbinol.

10. A photographic element comprising

(1) a support,

(2) at least one image-bearing layer, and

(3) a protective overcoat layer which is permanently bonded to the support side of said element; said protective overcoat layer having been formed by (a) coating said support side with a radiation-curable coating composition which forms a transparent, flexible, scratch-resistant, cross-linked polymeric layer upon radiation curing, said coating composition comprising (1) an acrylated urethane, (2) an aliphatic ethylenically-unsaturated carboxylic acid, (3) a multifunctional acrylate, and (4) a siloxy-containing polycarbinol, and (b) subjecting said coating to radiation sufficient to cure said coating and bond it to said support side.

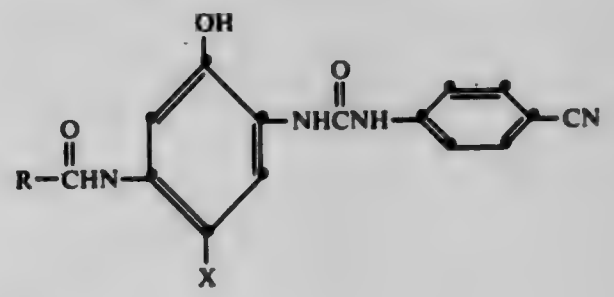
4,333,999

CYAN DYE-FORMING COUPLERS

Philip T. S. Lau, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 85,140, Oct. 15, 1979, abandoned. This application Jul. 10, 1980, Ser. No. 168,831
Int. Cl.³ G03C 1/40
U.S. Cl. 430—17 20 Claims

15. A processed photographic element containing a cyan dye image comprised of a cyan dye obtained by coupling of oxidized silver halide color developing agent and a cyan dye-forming coupler having the structure:



wherein:

X is hydrogen or a coupling-off group; and

R is a ballast group.

4,334,000

CYANINE AND DIANE DYE MIXTURE PROVIDES NEAR I. R. SENSITIVE, CHARGE TRANSPORT LAYER, ELECTROPHOTOGRAPHIC PHOTOCONDUCTIVE ELEMENT

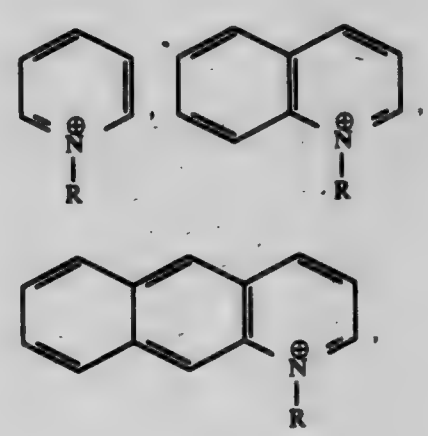
Mike S. H. Chang, Danbury; John T. Donoghue, Trumbull, and Peter G. Edelman, Westport, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 19, 1980, Ser. No. 218,389
Int. Cl.³ G03G 5/14
U.S. Cl. 430—58 16 Claims

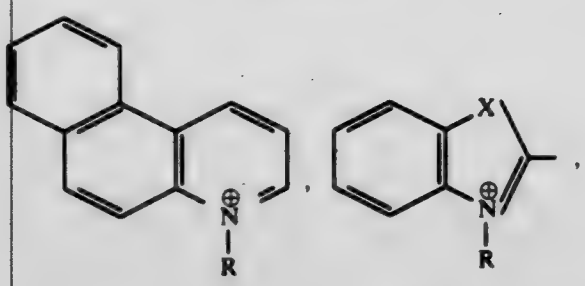
1. A photoconductive element which is extremely sensitive to exposure to light rays in the near-infrared region of the spectrum, said element comprising an electroconductive support, a charge generating layer comprising a mixture of at least one cyanine dye and at least one diane dye in which the weight percent of cyanine dye relating to the total weight of said dye mixture ranges between about 0.05% and 50.0%, said cyanine dye having a general structure of the basic moiety as follows:

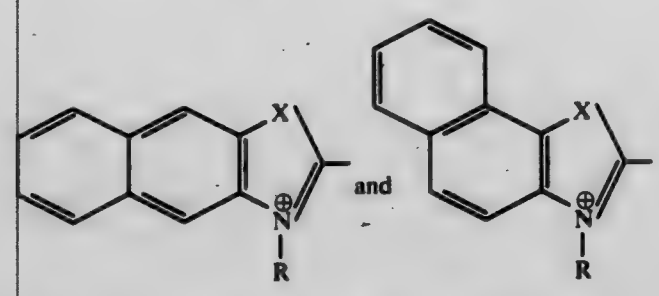
$$(A—(CH=CH)_nCH=B)\ Z^-$$

. . . wherein n is an integer selected from a range of 2 to 4 inclusive, Z^- is an anion, and A and B are non-fused or fused hetero-cyclic rings, wherein A is selected from the group consisting of:

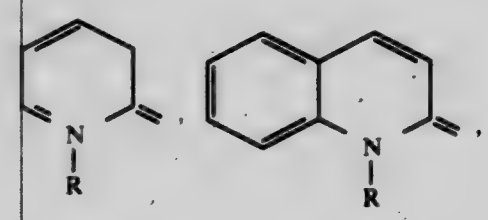


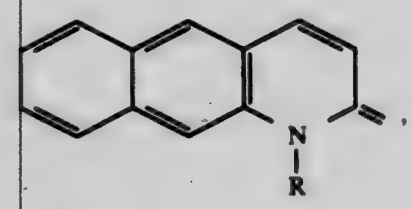
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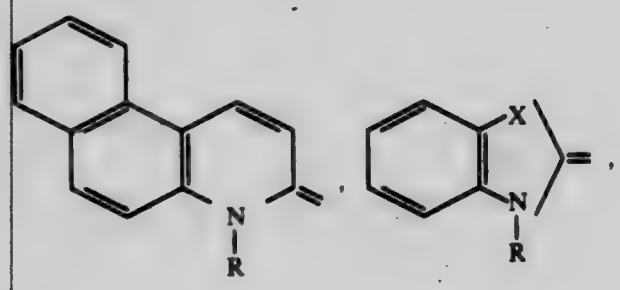


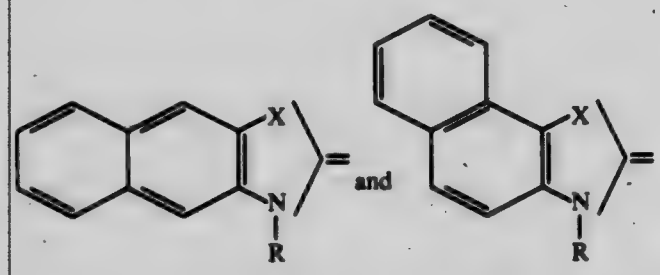


. . . and B= is selected from the group consisting of:







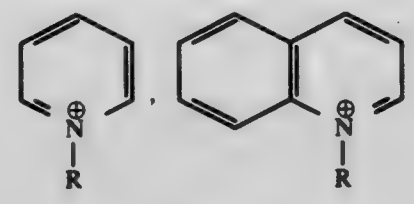


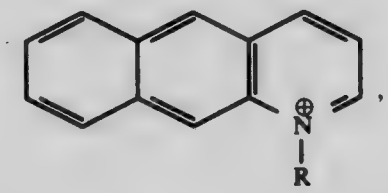
. . . wherein R is selected from the group alkyl, substituted alkyl and aryl groups and X is selected from the group S, Se, O, NMe, NEt, CMe_2 and CEt_2, and a charge transport layer comprising a conventional organic chemical capable of transporting electrical charges generated by said charge generating layer in areas of said element exposed to said light rays.

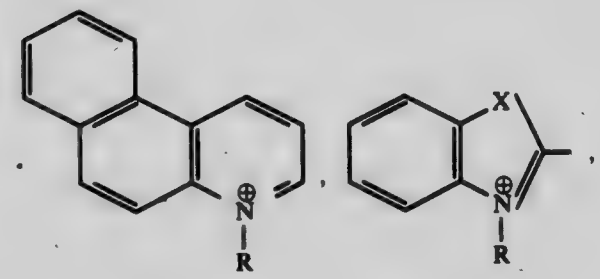
9. Process for producing a photoconductive element which is extremely sensitive to light rays in the near-infrared region of the spectrum, said element comprising an electroconductive support, a charge generating layer and a charge transport layer comprising a conventional organic chemical capable of transporting electrical charges generated by said charge generating layer in areas of said element exposed to said light rays, comprising the step of producing said charge generating layer by mixing together a cyanine dye and a diane dye in a coating composition in which the weight percent of cyanine dye relative to the total weight of said dye mixture ranges between about 0.05% and 50.0%, said cyanine dye having a general structure of the basic moiety as follows:

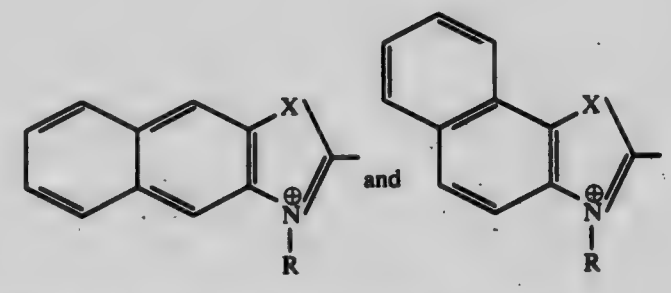
$$(A—(CH=CH)_nCH=B)\ Z^-$$

. . . wherein n is an integer selected from a range of 2 to 4 inclusive, Z^- is an anion, and A and B are non-fused or fused hetero-cyclic rings, wherein A is selected from the group consisting of:

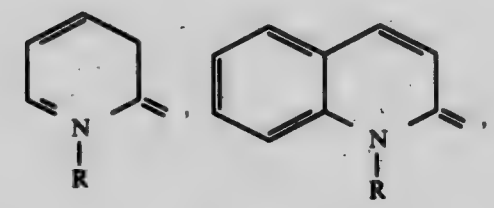


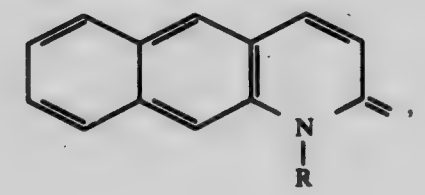


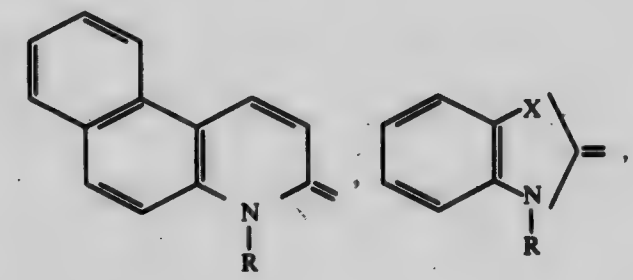




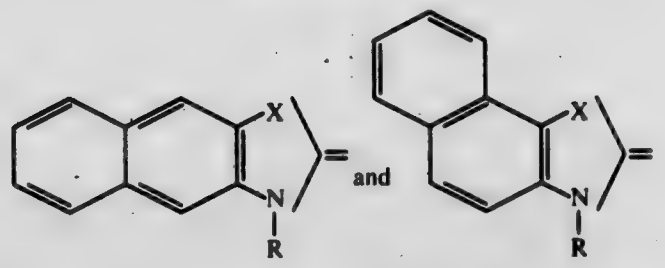
. . . and B= is selected from the group consisting of:







-continued



. . . wherein R is selected from the group alkyl, substituted alkyl and aryl groups and X is selected from the group S, Se, O, NMe, NEt, CMe_2 and CEt_2, and applying said composition as a uniform thin layer.

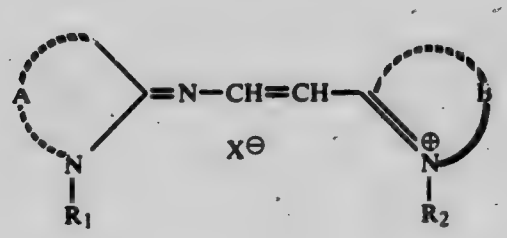
4,334,001

AZACYANINE SPECTRA SENSITIZED ORGANIC PHOTOCONDUCTIVE COMPOSITIONS AND ELEMENTS

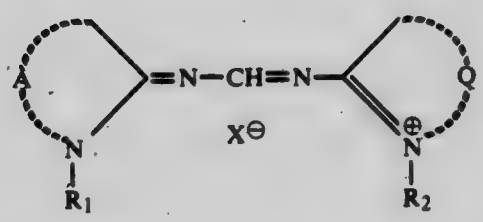
Seiji Horie, and Hideo Sato, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 8, 1980, Ser. No. 214,157
Claims priority, application Japan, Dec. 7, 1979, 54-158148
Int. Cl.[3] G03G 5/09
U.S. Cl. 430—83 9 Claims

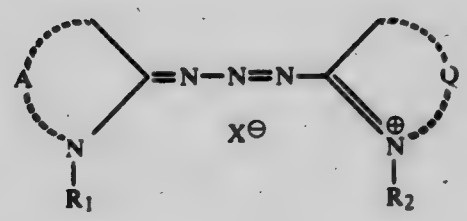
1. A photoconductive composition comprising an organic photoconductive substance and at least one spectral sensitizer selected from azacyanines represented by formula (I), (II), (III), (IV), or (V)



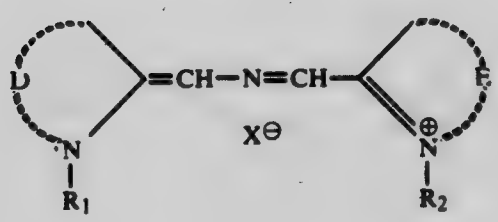
(I)



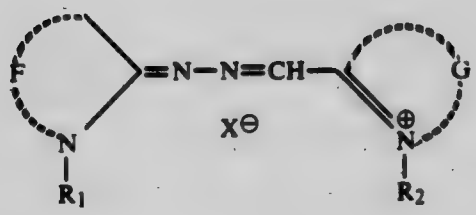
(II)



(III)

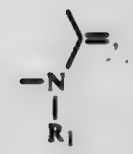


(IV)

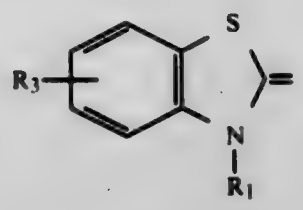


(V)

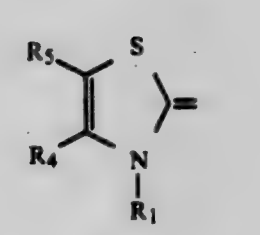
wherein A, together with the group



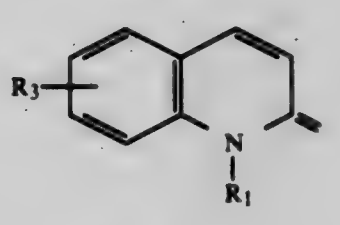
is a group represented by formula (1), (2), (3), or (4)



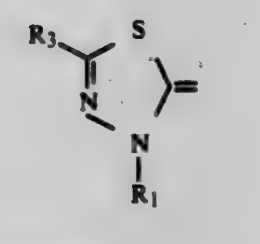
(1)



(2)

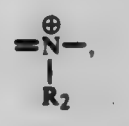


(3)

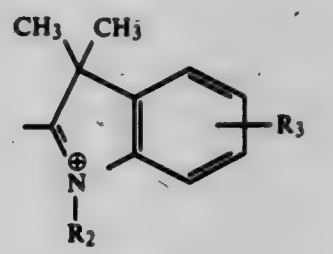


(4)

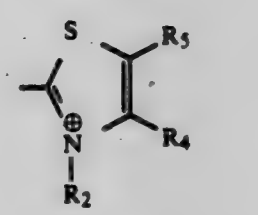
B, together with the group



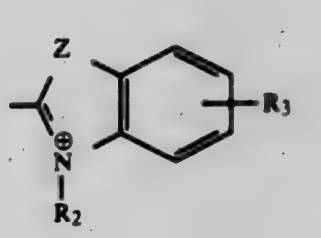
is a group represented by formula (5), (6), (7), (8), (9), or (10)



(5)

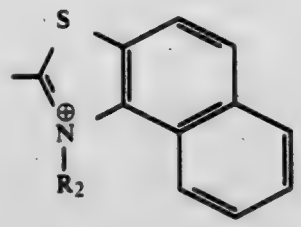


(6)

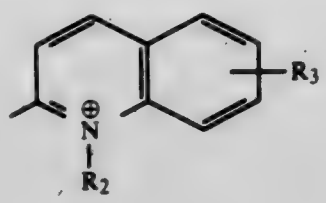


(7)

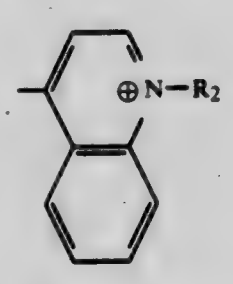
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(8)

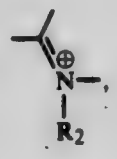


(9)

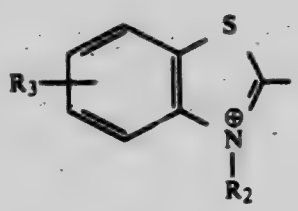


(10)

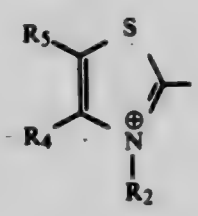
wherein Z is —O—, —Se— or —S—;
Q, together with the group



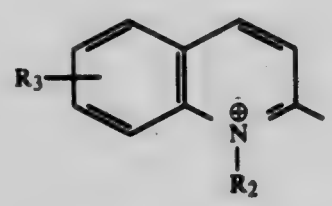
is a group represented by formula (11), (12), (13) or (14)



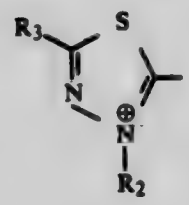
(11)



(12)

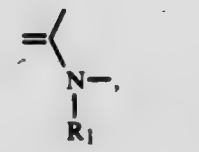


(13)

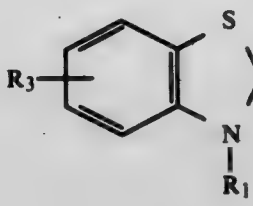


(14)

D, together with the group

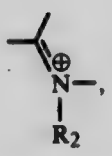


(15)

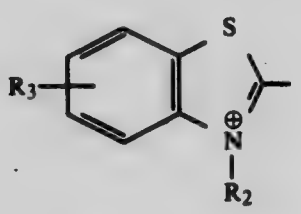


(16)

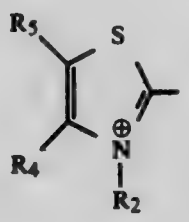
E, together with the group



is a group represented by formula (17) or (18)

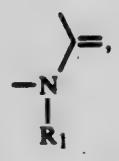


(17)

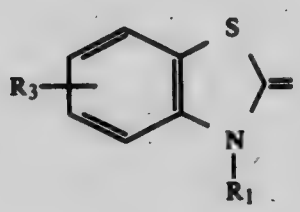


(18)

F, together with the group

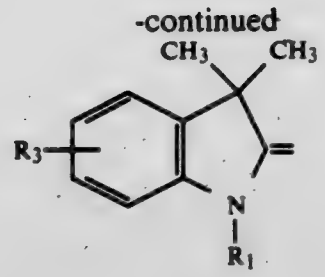


is a group represented by formula (19), (20), (21), (22), or (23)

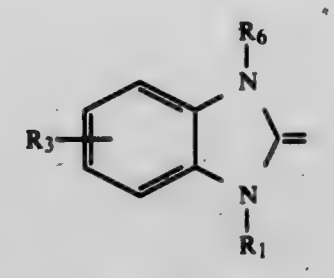


(19)

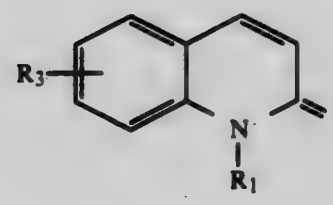
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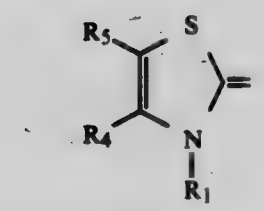
(20)



(21)

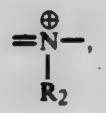


(22)

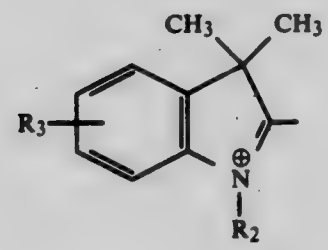


(23)

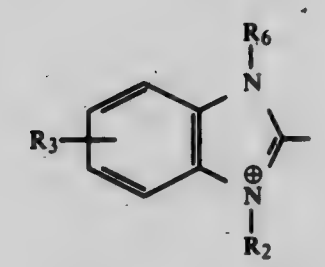
G, together with the group



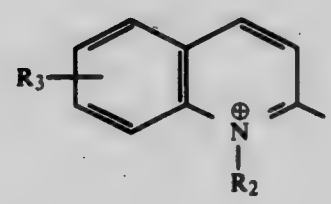
is a group represented by formula (24), (25), (26), or (27)



(24)

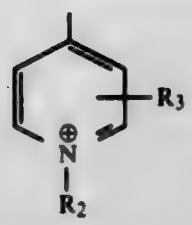


(25)



(26)

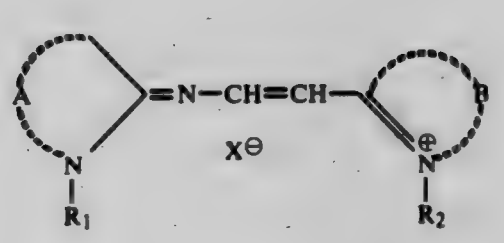
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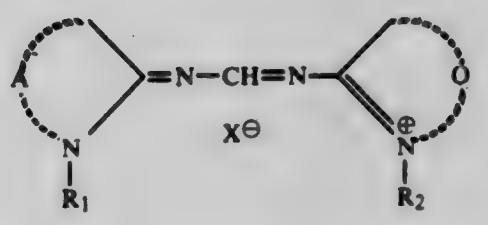
(27)

and R_1, R_2, and R_6 are each an alkyl group, and R_3, R_4, and R_5 are each hydrogen, an alkyl group, an alkoxy group, or a substituted alkyl group.

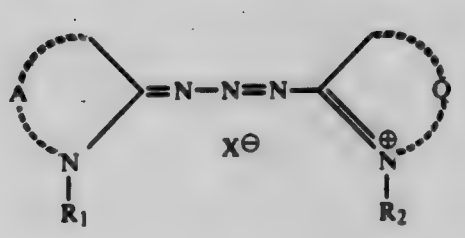
7. A photosensitive member comprising a melt-extruded film of a photoconductive composition comprising an organic photoconductive substance and at least one spectral sensitizer selected from azacyanines represented by formula (I), (II), (III), (IV), or (V)



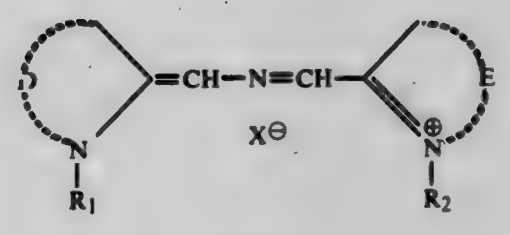
(I)



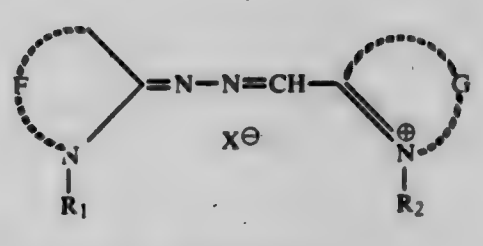
(II)



(III)

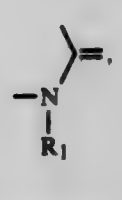


(IV)

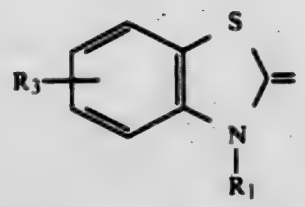


(V)

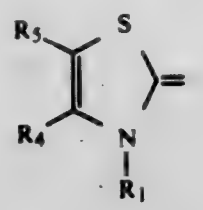
wherein A, together with the group



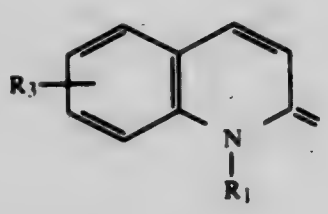
is a group represented by formula (1), (2), (3) or (4)



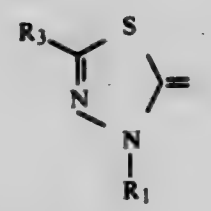
(1)



(2)

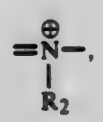


(3)

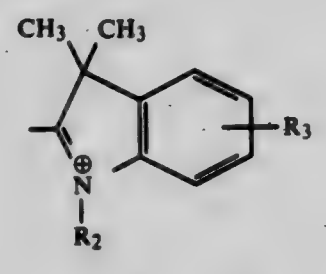


(4)

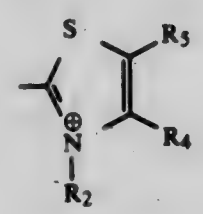
B, together with the group



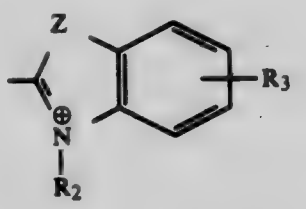
is a group represented by formula (5), (6), (7), (8), (9), or (10)



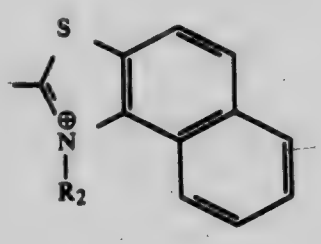
(5)



(6)

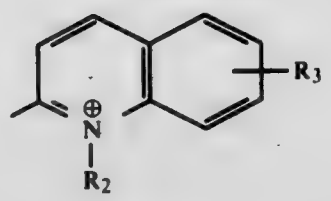


(7)

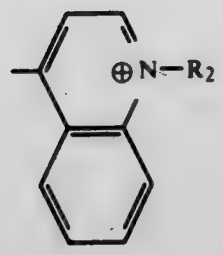


(8)

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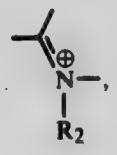


(9)

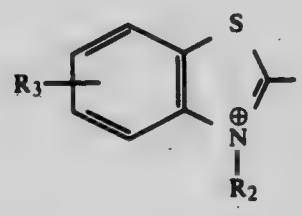


(10)

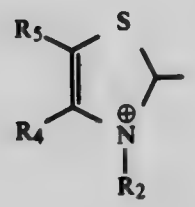
wherein Z is —O—, —Se— or —S—; Q, together with the group



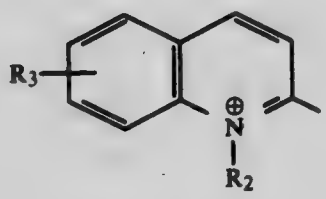
is a group represented by formula (11), (12), (13), or (14)



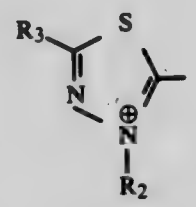
(11)



(12)

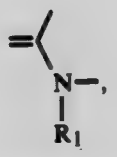


(13)

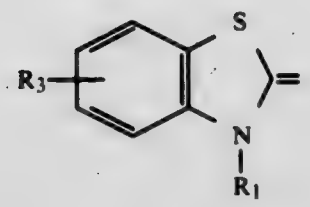


(14)

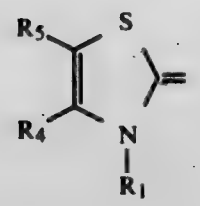
D, together with the group



is a group represented by formula (15) or (16)

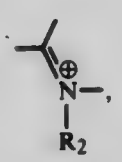


(15)

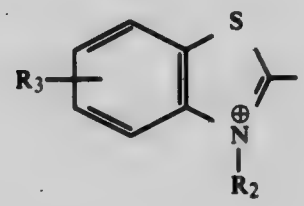


(11)

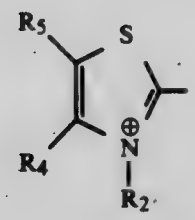
E, together with the group



is a group represented by formula (17) or (18)

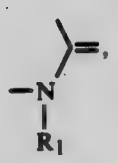


(17)

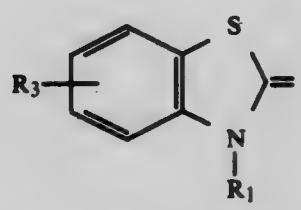


(18)

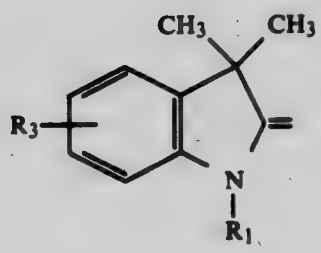
F, together with the group



is a group represented by formula (19), (20), (21), (22), or (23)

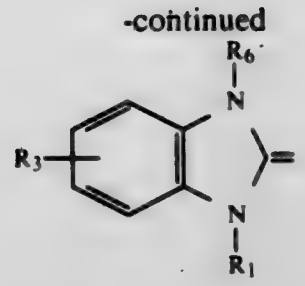


(19)

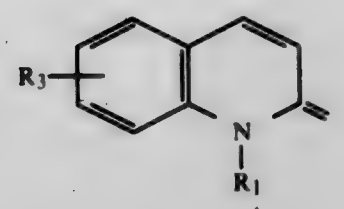


(20)

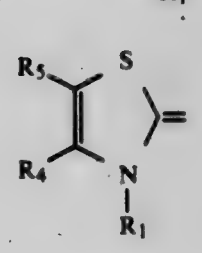
-continued



(21)

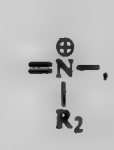


(22)

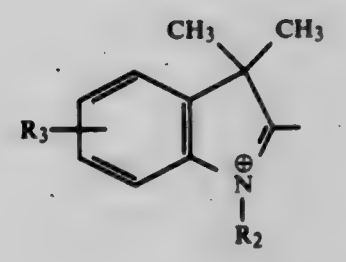


(23)

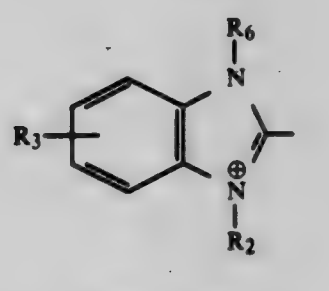
G, together with the group



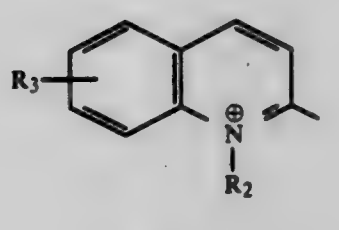
is a group represented by formula (24), (25), (26), or (27)



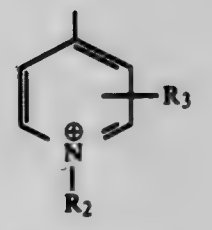
(24)



(25)



(26)



(27)

and R_1, R_2, and R_6 are each an alkyl group, and R_3, R_4, and R_5 are each hydrogen, an alkyl group, an alkoxy group, or a substituted alkyl group.

4,334,002

IMAGE DEVELOPMENT METHOD

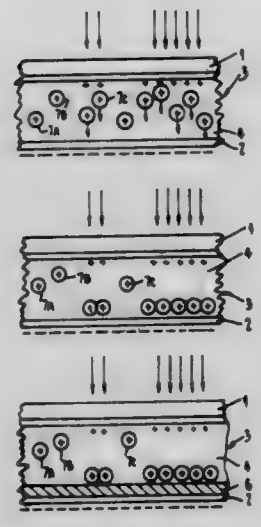
Rodger D. Bouette, Somerville, Australia, assignor to Repco Research Pty. Ltd., Dandenong, Australia

Continuation of Ser. No. 691,607, Jun. 1, 1976, abandoned. This application Jun. 20, 1978, Ser. No. 917,366

Claims priority, application Australia, Jun. 4, 1975, PC 1864

Int. Cl.³ G03G *13/10, 13/22*

U.S. Cl. 430—103 9 Claims



1. A method of electrographically forming a printable image using an electrographic plate having an imaging face closely spaced from an opposing electrode comprising the steps of: applying a voltage to said imaging face and to said opposing electrode producing an electric field extending from said imaging face to said opposing electrode; illuminating said plate with an image to generate a voltage pattern on said face; and passing a developer fluid between the face and said opposing electrode; the improvement comprising entraining a printing medium within said developer fluid to be placed thereby within said electric field in out of contact relation to said face, said printing medium having a net electrostatic charge of the same polarity as the voltage applied to said face which causes migration of the printing medium in image relation to said voltage pattern towards the opposing electrode from the developer fluid under the influence of the electric field.

4,334,003

ULTRA HIGH SPEED PRESENSITIZED LITHOGRAPHIC PLATES

Thomas H. Jones, Naperville, Ill., assignor to Richardson Graphics Company, Des Plaines, Ill.

Division of Ser. No. 44,531, Jun. 1, 1979, Pat. No. 4,263,392. This application Sep. 18, 1980, Ser. No. 188,292

The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.

Int. Cl.³ G03C *1/54, 1/71;* G03F *7/08, 7/16*

U.S. Cl. 430—156 21 Claims

1. An ultra high speed presensitized lithographic plate comprising:

a backing member including a substrate surface exhibiting a propensity for adhesion of diazonium materials thereto; and

a photosensitive negative-working diazonium material selected from the group consisting of a diazonium compound and a diazonium resin layer adhered to said substrate surface, said diazonium material layer being of a residual thickness and having been formed by extraction from an initial diazonium layer coated onto said substrate surface and having more diazonium material than that of said residual thickness diazonium layer, said residual thickness diazonium layer including a quantity of diazonium material sufficient to form a lithographic image on the plate when subjected to ultra high speed exposure conditions, said residual thickness of the diazonium material layer including a quantity of diazonium material of not much greater than about 0.05 mg of diazonium material per square foot of substrate surface.

4,334,004

LIGHT-SENSITIVE DIAZOTYPE MATERIAL WITH 2-HYDROXY-3-NAPHTHOIC ACID AMIDES HAVING 6-SULFONIC ACID AMIDE SUBSTITUTION

Siegfried Scheler, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 16, 1979, Ser. No. 21,104

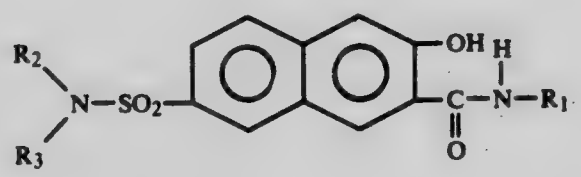
Claims priority, application Fed. Rep. of Germany, Mar. 18, 1978, 2811981

Int. Cl.³ G03C *1/58, 1/54*

U.S. Cl. 430—176 10 Claims

1. In a diazotype material comprising a light-sensitive layer on a support, said layer containing at least one photosensitive diazonium compound from the group consisting of (1) unilaterally diazotized p-phenylene diamine with alkoxy group in positions 2 and 5 relative the diazonium radical; (2) p-mercapto benzene diazonium compound; (3) p-phenyl benzene diazonium compound; (4) p-acylamino benzene diazonium compound; and (5) 6-chloro-4-dimethylamino-3(4-chlorophenoxy)-benzene diazonium compound at least one coupling component, a binder, and an acid stabilizer,

the improvement that the coupling component is at least one 2-hydroxy-3-naphthoic acid amide of the general formula



wherein

R_1 is hydrogen, a substituted or unsubstituted alkyl, cycloalkyl, aralkyl or aryl group, and

R_2 and R_3 are identical or different and are hydrogen, a substituted or unsubstituted alkyl, cycloalkyl, aralkyl or aryl group, or together with the nitrogen atom to which they are attached, a substituted or unsubstituted heterocyclic group.

4,334,005

TRANSITION METAL PHOTOREDUCTION SYSTEMS AND PROCESSES

Anthony Adin, Rochester, and James C. Fleming, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 720,873, Sep. 7, 1976, Pat. No. 4,201,588, which is a continuation-in-part of Ser. No. 618,186, Sep. 30, 1975, abandoned, which is a continuation-in-part of Ser. No. 461,057, Apr. 15, 1974, abandoned. This application Mar. 15, 1979, Ser. No. 20,898

Int. Cl.³ B03C *1/727;* G03C *1/72*

U.S. Cl. 430—211 6 Claims

1. In an imaging element comprising a support, and on the support a radiation-sensitive composition capable of imagewise generating amines in response to activating radiation, and an image-recording composition responsive to said amines in admixture with said radiation-sensitive composition;

the improvement wherein said admixed compositions comprise o-phthalaldehyde and a reducible, inert cobalt(III)-complex containing releasable amine ligands;

and further including, in chemical association with said complex, a photoreductant capable of causing the reduction, upon exposure to activating radiation longer than 300 nanometers in wavelength, of said cobalt(III)complex.

2. In an imaging element comprising a support, and on the support, in superposed and reactively associated layers, a layer of a radiation-sensitive composition capable of imagewise

generating amines in response to activating radiation and comprising a reducible inert cobalt(III)complex containing releasable amine ligands, and a layer of an image-recording composition responsive to said amines;

the improvement wherein said radiation-sensitive composition further includes a photoreductant capable of causing the reduction, upon exposure to activating radiation longer than 300 nanometers in wavelength, of said cobalt-(III)complex;

and wherein said image-recording composition comprises o-phthalaldehyde.

3. In an imagewise exposed imaging element comprising a support, and on the support, in superposed and reactively associated layers, a first layer containing in the exposed portions of said layer, a composition comprising a reducible, inert cobalt(III)complex containing releasable amine ligands, and a second layer of an image-recording composition;

the improvement wherein said composition further includes, in said exposed portions, a reducing agent for said cobalt-(III)complex produced from the exposure of a photoreductant to radiation longer than 300 nm in wavelength,

and wherein said image-recording composition comprises o-phthalaldehyde.

4,334,006

PEEL-APART PROCESS FOR FORMING RELIEF IMAGES

Masao Kitajima; Hiromichi Tachikawa; Fumiaki Shinozaki, and Tomoaki Ikeda, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 966,990, Dec. 6, 1978, abandoned. This application Apr. 14, 1980, Ser. No. 139,623

Claims priority, application Japan, Dec. 6, 1977, 52-145685

The portion of the term of this patent subsequent to Jul. 8, 1997, has been disclaimed.

Int. Cl.³ G03C *11/12, 5/00, 5/18*

U.S. Cl. 430—254 **17 Claims**

1. The process for forming an image, which comprises imagewise exposing a photo-sensitive image-forming material comprising a support having formed thereon a layer of a photo-sensitive composition containing an o-quinonediazide compound and a thermoplastic binder, said photo-sensitive composition being solid and not adhesive at ordinary temperatures, but softenable upon heating, heating the exposed photo-sensitive material in intimate contact with a peeling development carrier sheet which has no adhesive coating and which is nontacky at ordinary temperature to a temperature above the softening temperature of the photo-sensitive composition, the heating temperature being high enough to obtain sufficient adhesion between the photo-sensitive composition and the peeling development carrier sheet such that quality images can be peeled from the support but low enough that the photo-sensitive composition and the peeling development carrier sheet are not softened to the point at which good image quality is not obtained, and peeling the carrier sheet and the image-forming material from each other at a temperature below said heating temperature to thereby transfer and adhere the exposed area of the photo-sensitive composition layer to the carrier sheet and simultaneously form a negative relief image on the carrier sheet, and a positive relief image corresponding to the non-transferred area of the photo-sensitive composition layer on the support.

4,334,007

PROCESS OF MAKING AN OPTICALLY RECORDABLE AND READABLE INFORMATION CARRIER AND THE CARRIER OBTAINED BY THIS PROCESS

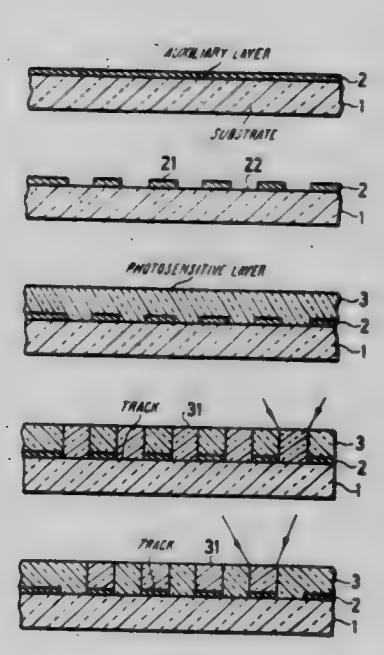
Claude Tinet, and Claire Lemonon, both of Paris, France, assignors to Thomson-Brandt, Paris, France

Division of Ser. No. 189,222, Sep. 22, 1980, Pat. No. 4,288,510, which is a division of Ser. No. 42,450, May 25, 1979, Pat. No. 4,252,889, which is a continuation of Ser. No. 835,282, Sep. 20, 1977, abandoned. This application Apr. 13, 1981, Ser. No. 253,273

Claims priority, application France, Sep. 24, 1976, 76 28771

Int. Cl.³ G03C *1/76*

U.S. Cl. 430—270 **3 Claims**



1. An optically recordable and readable video disc or tape for use in an information storage system of the type comprising optical means for producing focussed reading and recording radiation beams to be projected onto said video disc or tape, and servocontrol means for maintaining said optical means and said video disc or tape in proper registry, said video disc or tape comprising:

a substrate;

a radiation sensitive layer covering said substrate; and

an auxiliary layer covering said radiation sensitive layer and comprising a continuous recording track formed by a smooth groove being made in said auxiliary layer exposing a continuous track of said radiation sensitive layer following a predetermined configuration,

said continuous track being optically trackable by said optical servocontrol means, and

the track being recordable with elements of information by irradiating said radiation sensitive layer with said focussed recording radiation beam modulated by elements of information to be recorded to cause the formation of optically detectable structural changes in the structure of said radiation sensitive layer,

said continuous track and said information being distinctly detectable by optical reading means sensitive to said optical-structural changes, and

said track being detectable even in the absence of recorded information.

4,334,008

PHOTOSENSITIVE COMPOSITIONS OF POLYMER POLYNITRATE ESTER AND BASIC AROMATIC AMINE

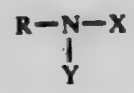
John F. Rice, Nashua, N.H.; Albert P. Yundt, Medfield, Mass., and Kenneth J. Quast, Milford, N.H., assignors to Bard Laboratories, Inc., Amherst, N.H.

Continuation of Ser. No. 734,649, Oct. 21, 1976, abandoned, which is a continuation of Ser. No. 560,565, Mar. 20, 1975, abandoned. This application May 29, 1980, Ser. No. 154,313

Int. Cl.³ G03C *1/68*

U.S. Cl. 430—270 62 Claims

1. A photosensitive imaging system suitable for producing an image in response to exposure to electromagnetic radiation, consisting essentially of a molecularly intimate and homogeneous admixture of at least one basic, aromatic amine and an oxidizer which oxidizes the basic aromatic amine on said exposure of said system to electromagnetic radiation, said oxidizer consisting essentially of a polymer polynitrate ester having a viscosity in the range of about 0.1 to about 5000 seconds, the aromatic amine comprising a compound of the following formula:



wherein R is an aromatic nucleus substituted either directly or by nitrogen or oxygen bonds with members of the group of hydrogen, halogen, alkyl, aryl and alkaryl groups, and X and Y are selected from the group of hydrogen, hydroxyl, alkyl, aryl, and alkaryl groups provided that X and Y are not both hydroxyl, such that said aromatic amine is relatively basic, such basicity not being substantially nullified by salt or amide formation.

4,334,009

PROCESS FOR MODIFYING TACKY SURFACES

Magalie M. Charles, Staten Island, N.Y., and Robert B. Heiart, Middletown, N.J., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 23, 1980, Ser. No. 189,829

Int. Cl.³ G03C *7/40*; B05D *5/02*

U.S. Cl. 430—291 20 Claims

1. In a process for modifying a tacky surface by adhering particulate material thereto which comprises

(1) applying the particulate material to said tacky surface, and

(2) removing excess particulate material therefrom,

the improvement wherein prior to application to the tacky surface the particulate material is admixed with carrier particles which are removed with the excess particulate material, the ratio in the mixture of the average particle diameter of carrier particles to that of the particulate material in the mixture being greater than 2 and the weight ratio of particulate material to carrier particles being less than 1.

4,334,010

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENT

Hiroyuki Mifune; Shoji Ishiguro; Tadao Shishido; Yoshiharu Fuseya, all of Minami-ashigara, and Teruaki Tsujikawa, Otsu, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

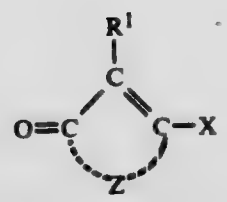
Filed Jul. 17, 1981, Ser. No. 284,164

Claims priority, application Japan, Jul. 17, 1980, 55-97934

Int. Cl.³ G03C *1/34*

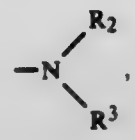
U.S. Cl. 430—551 27 Claims

1. A silver halide photographic light-sensitive element comprising a support having thereon at least one silver halide emulsion layer, wherein at least one compound represented by formula (I) is incorporated in the silver halide emulsion layer or in another hydrophilic colloid layer:



(I)

wherein X represents a hydroxy group or a group represented by



wherein R^2 and R^3 each repesents hydrogen, an alkyl group, or an aryl group; R^1 represents a sulfur-containing saturated heterocyclic group or a group represented by -A-S-B, wherein A represents an alkylene group and B represents hydrogen, an alkyl group, or an aryl group; and Z represents an atomic group forming a 5-membered or 6-membered unsubstituted or substituted carbocyclic ring.

4,334,011

COLOR PHOTOGRAPHIC LIGHT SENSITIVE MATERIALS

Kozo Aoki; Yoshio Seoka, and Yukio Yokota, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

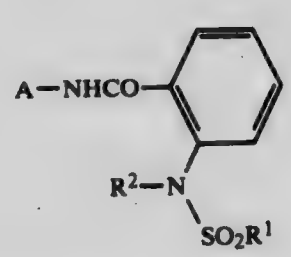
Filed Dec. 5, 1980, Ser. No. 213,513

Claims priority, application Japan, Dec. 5, 1979, 54-157729

Int. Cl.³ G03C *1/40*

U.S. Cl. 430—552 11 Claims

1. A color photographic silver halide light sensitive material comprising a cyan dye forming coupler represented by formula (I)



(I)

wherein A represents a cyan coupler residue, but the —NHCO group does not bond to A in the active position of A, R^1 represents a substituted or unsubstituted alkyl group or aryl group, R^2 represents hydrogen or a substituted or unsubstituted alkyl group, and the various positions of the phenyl group of the formula (I) may be substituted with from 1 to 3 substituents selected from the group consisting of hydrogen, a halogen atom, an alkyl group, or an alkoxy group.

4,334,012

SILVER HALIDE PRECIPITATION PROCESS WITH DELETION OF MATERIALS

Andre G. E. Mignot, Bonneuil-sur-Marne, France, assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 215,890, Dec. 12, 1980, abandoned, which is a continuation-in-part of Ser. No. 116,685, Jan. 30, 1980, abandoned. This application Jul. 6, 1981, Ser. No. 280,625

Int. Cl.³ G03C *1/02*

U.S. Cl. 430—567 27 Claims

1. In a process comprising

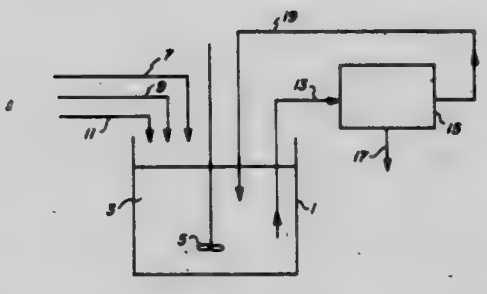
forming a radiation-sensitive silver halide dispersion by reacting silver and halide salts in solution, wherein the silver and halide salts are reacted to form silver halide

grain nuclei in the presence of a dispersing medium and silver halide grain growth is allowed to proceed in a reaction vessel in which the silver halide grain nuclei and the dispersing medium are present,

the improvement comprising, while increasing the silver halide present in the dispersing medium during silver halide grain growth, reducing the volume of the dispersion by separating a portion of the dispersing medium while retaining the silver halide grains within the dispersion remaining.

2. In a double-jet batch process comprising

forming a radiation-sensitive silver halide dispersion by reacting a silver salt solution and a halide salt solution within a dispersing medium to achieve silver halide grain



nucleation followed by silver halide grain growth, wherein during silver halide grain growth the silver and halide salts are concurrently run into a reaction vessel containing the dispersing medium,

the improvement comprising, while running the silver and halide salt solutions and during silver halide grain growth,

withdrawing a portion of the dispersion from the reaction vessel,

reducing the volume of the withdrawn dispersion by separating a portion of the dispersing medium while retaining the silver halide grains within the remaining withdrawn dispersion, and

returning the remaining withdrawn dispersion to the reaction vessel.

4,334,013

USE OF COPOLYMERS IN THE PRODUCTION OF PHOTOGRAPHIC EMULSIONS AND PHOTOGRAPHIC MATERIALS

Peter Bergthaller, and Helmut Sommer, both of Cologne, Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Filed Nov. 12, 1980, Ser. No. 206,155

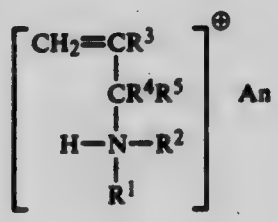
Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2946465

Int. Cl.³ G03C *1/72*

U.S. Cl. 430—569 **7 Claims**

1. A photographic material comprising a support and at least one photosensitive silver halide emulsion layer on said support comprising a peptizing agent and at least one silver halide wherein the improvement comprises said photosensitive layer includes a peptizing agent comprised of a copolymer of at least the following polymerized compounds:

(1) An allyl ammonium salt corresponding to the following formula



(A)

in which

R^1 and R^2 which may be the same or different, represent hydrogen; an aliphatic, araliphatic or cycloaliphatic radical which may be substituted, or R^1 and R^2 may together represent the atoms required to complete a 5- to 7-membered ring;

R^3, R^4 and R^5 which may be the same or different, represent hydrogen or an alkyl radical which may be substituted;

An represents an anion and/or

R^3 represents the radical $(-CR^5R^4-NR^1R^2H)^+$ An;

(2) a monomer B containing at least one anionic group; and

(3) at least 40 mole percent of a compound C which is acrylamide and/or methacrylamide; wherein the copolymer has a molecular weight of from 10,000 to 200,000 and the polymer is present in a quantity of from 500 mg to 500 g per mole of silver halide.

4,334,014

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENTS

Hiroyuki Mifune; Tadao Shishido; Shoji Ishiguro, all of Minami-ashigara, and Jisaburo Ueyanagi, Nishinomiya, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

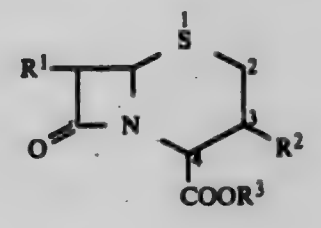
Filed Mar. 18, 1981, Ser. No. 244,993

Claims priority, application Japan, Mar. 18, 1980, 55-34379

Int. Cl.³ G03C *1/34*

U.S. Cl. 430—611 **10 Claims**

1. A silver halide photographic light-sensitive element comprising a support, at least one silver halide emulsion layer which is substantially of the surface latent image type, and at least one hydrophilic colloid layer, wherein at least one of the silver halide emulsion layer and the hydrophilic colloid layer contains a cephalosporin compound in an amount sufficient to reduce latent image regression, wherein the cephalosprin compound has the following formula:



(I)

wherein

R^1 represent an amino group;

R^2 can represent hydrogen, a halogen group, an amino group, a hydroxy group, a mercapto group, an alkyl group, an alkoxy group, an aryloxy group, an alkylthio group, an arylthio group, an acyloxy group, an acylthio group, a heterocyclic group, or a formyl group; and

R^3 can represent hydrogen, an alkali metal ion, an ammonium ion, or a hydrocarbon or heterocyclic group which may be substituted; or

R^2 and R^3 together can represent a group completing an oxygen-containing heterocyclic group.

4,334,015

IMAGING COMPOSITIONS

Dean R. Yarian, Afton, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

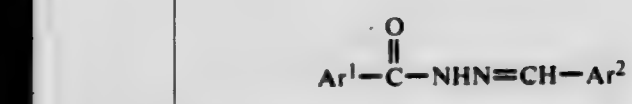
Filed May 23, 1979, Ser. No. 41,693

Int. Cl.³ B01J *13/02*; B41M *5/16, 5/22*; C09D *11/00*; C09B *26/02*

U.S. Cl. 435—1 **36 Claims**

32. A system for forming colored markings from substantially colorless first and second coreactants comprising:

(a) a carrier means carrying a first color-forming coreactant, said first coreactant comprising an aromatic substituted hydrazone and a reaction-implementing cosolvent vehicle, said hydrazone having the formula



wherein Ar^1 and Ar^2 are independently selected aromatic substituents, Ar^1 being selected from the group of aromatic substituents consisting of phenyl, substituted phenyl, napthyl, and substituted naphthyl and Ar^2 being selected from the group of aromatic substituents consisting of o-hydroxy substituted phenyl and o-hydroxy substituted naphthyl,

(b) a record sheet having on at least a portion of one major surface a second coreactant comprising a transition metal salt,

(c) transfer means for transferring at least a portion of said first coreactant to selected areas of said record sheet having said second coreactant.

4,334,016

HUMAN OSTEOGENIC SARCOMA CELL LINE AND USE THEREOF FOR IMMUNOFLUORESCENT ANTIBODY TEST

Toru Furukawa, Philadelphia, Pa., assignor to The Wistar Institute of Anatomy and Biology, Philadelphia, Pa.

Filed Jun. 19, 1980, Ser. No. 161,005

Int. Cl.³ C12Q *1/70*; C12N *5/02*

U.S. Cl. 435—5 **1 Claim**



1. A test procedure for determining the presence of human cytomegalovirus (HCMV) antibody in a sample of human blood which comprises substantially uniformly distributing on a surface as target cells a human osteogenic sarcoma cell line designated ATCC Accession Number CRL 8069 and characterized by an unlimited life span, by being chronically and persistently infected with HCMV, and by showing a substantially constant ratio between cells infected with HCMV and non-infected cells, the percentage of infected cells comprising from about 1 to about 10 percent of the total cells, inoculating said target cells with a diluted sample of blood serum to be tested for the presence of HCMV antibody, contacting the cells with a fluorescein isothiocyanate conjugated immunoglobulin, and optically viewing said cells to determine the presence of immunofluorescent positive cells resulting from reaction between cell antigens and test serum antibodies.

4,334,017

METHOD FOR DETECTING CANCER IN MAMMALIAN TISSUE

George M. Plotkin, Lynn, and George Wolf, Lexington, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 30,182, Apr. 16, 1979, abandoned. This application Mar. 16, 1981, Ser. No. 243,860

Int. Cl.³ G01N *33/54*; C12Q *1/54, 1/48*

U.S. Cl. 435—7 **12 Claims**

5. An improved noninvasive test for cancer in mammals, comprising:

(a) incubating cells from said mammalian tissue in the presence of a label which: (1) has a specific affinity for β-linked galactose moieties present in the membrane of said cells; and, (2) is capable of being detected after it becomes bound to said β-linked galactose moieties in said cell membrane;

(b) detecting the amount of said label which is bound to said cell membrane; and,

(c) comparing the amount of said label bound to the cell membrane of test cells to the level which would be present in non-cancer cells.

4,334,018

PROCESS AND REAGENT FOR THE DETERMINATION OF PROTHROMBIN

Bruno Kirchhof, Münster, Fed. Rep. of Germany, assignor to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Continuation of Ser. No. 971,600, Dec. 20, 1978, abandoned. This application Dec. 15, 1980, Ser. No. 216,696

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1977, 2757992

Int. Cl.³ C12Q *1/38, 1/56*

U.S. Cl. 435—13 **25 Claims**

1. In a process for the determination of prothrombin in biological material, by conversion of prothrombin into thrombin, enzymatic fission of a thrombin substrate and measurement of product, the improvement comprising incubating the test solution with the addition of Factor Xa as the sole enzyme activating prothrombin into thrombin.

8. Reagent for the determination of prothrombin in biological material, comprising a thrombin substrate and a prothrombin activator, wherein the prothrombin activator is Factor Xa in a concentration of from 0.2 to 2.5% of the biological material.

4,334,019

PROCESS FOR PRODUCING DE(MYCINOSYLOXY)TYLOSIN

Richard H. Baltz; Gene M. Wild, Indianapolis, Ind., and Eugene T. Seno, Norwich, England, assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 156,855, Jun. 12, 1980. This application May 8, 1981, Ser. No. 261,826

Int. Cl.³ C12P *19/62*; C12N *1/20*

U.S. Cl. 435—76 **6 Claims**

1. The method of producing 23-de(mycinosyloxy)tylosin and 20-dihydro-23-de(mycinosyloxy)tylosin which comprises cultivating *Streptomyces fradiae* NRRL 11271 or a 23-de(mycinosyloxy)tylosin-producing mutant or recombinant thereof in a culture medium containing assimilable sources of carbon, nitrogen, and inorganic salts under submerged aerobic fermentation conditions until a substantial amount of antibiotic activity is produced.

4,334,020

METHOD OF PRODUCING L-GLUTAMIC ACID BY FERMENTATION

Hidetsugu Nakazawa, Kawasaki; Ichiro Yamane, Yamato, and Eiichi Akutsu, Yokohama, all of Japan, assignors to Ajinomoto Company Incorporated, Tokyo, Japan

Filed Jun. 6, 1980, Ser. No. 157,012

Claims priority, application Japan, Jun. 20, 1979, 54/78294

Int. Cl.³ C12P *13/14*

U.S. Cl. 435—110 **3 Claims**

1. A method for producing L-glutamic acid by fermentation which comprises aerobically culturing in an aqueous culture medium a mutant of the genus Brevibacterium or Corynebacterium resistant to a compound having vitamine-P activity, selected from the group consisting of acenocoumarin, apiin, coumetarol, cyclocumarol, dicumarol, diosmetin, esculetin, esculin, ethyl-bis-coumacetate, 3,3'-ethylidene-bis-4-hydroxycoumarin, hesperetin, hesperidin, morin, naringenin, phenprocoumon, quercetin, quercimeritrin, robinin, rutin, scopa-

rone, skimmin, umbelliferone, and warfarin, and recovering the L-glutamic acid accumulated in the resulted culture liquid.

4,334,021

PROCESS FOR PRODUCING COPROPORPHYRIN III

Ichiro Kojima, Yokosuka; Kenji Maruhashi, Yokohama, and Yasuo Fujiwara, Tokyo, all of Japan, assignors to Nippon Oil Company, Ltd., Tokyo, Japan

Filed Nov. 28, 1980, Ser. No. 211,057
Claims priority, application Japan, Nov. 29, 1979, 54/153648
Int. Cl.³ C12P *17/16*
U.S. Cl. 435—118 **6 Claims**

1. In a process for producing coproporphyrin III which comprises cultivating a coproporphyrin III-producing microorganism of the genus Arthrobacter in a culture medium containing a carbon source, a nitrogen source and a mineral and recovering coproporphyrin III from the culture broth, the improvement wherein the culture medium contains at least 0.1 g, per liter of the culture medium, of L-cystine, at least 0.5 g, per liter of the culture medium, of Mg^{++}, or both.

4,334,022

METHOD FOR PRODUCING MILDIOMYCIN

Takashi Suzuki, Suita; Hidekazu Sawada, Neyagawa, and Tsunetomo Asai, Kawanishi, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Jun. 16, 1980, Ser. No. 159,925
Claims priority, application Japan, Jun. 21, 1979, 54-78917
Int. Cl.³ C12N *1/38*
U.S. Cl. 435—119 **10 Claims**

1. In a method for producing mildiomycin which comprises cultivating a mildiomycin-producing microorganism belonging to the genus Streptoverticillium in a culture medium to elaborate and accumulate mildiomycin in the culture broth, the improvement wherein the cultivation is carried out in the presence of an N-methyl compound and wherein the concentration of N-methyl compound in the culture medium is at least 3 mM.

4,334,023

PROCESS FOR OBTAINING CHOLESTEROL OXIDASE

Helmgard Gauhl, Tutzing; Georg Schawohl, Munich; Hans Seidel, and Klaus Beaucamp, both of Tutzing, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed May 7, 1980, Ser. No. 147,460
Claims priority, application Fed. Rep. of Germany, Jun. 20, 1979, 2924875
Int. Cl.³ C12N *9/04*
U.S. Cl. 435—190 **8 Claims**

1. Process for the preparation of cholesterol oxidase, which comprises culturing at least one micro-organism from the group consisting of

Streptomyces griseofuscus DSM 40191,
Streptomyces hygroscopicus 40771,
Streptomyces acidomyceticus DSM 40798; and
Arthrobacter paraffinens DSM 312,

and recovering cholesterol oxidase from the culture.

4,334,024

PREPARATION AND CRYSTALLIZATION OF FRACTION I PROTEIN FROM PLANT SOURCES

Sarjit Johal, 1411 S. 11th St. #2, Lincoln, Nebr. 86502

Filed Nov. 3, 1980, Ser. No. 203,779
Int. Cl.³ C12N *9/88*
U.S. Cl. 435—232 **16 Claims**

1. A method for preparing crystalline ribulose 1,5-bisphosphate carboxylase from plant material comprising the steps of:

(a) grinding a sample of said plant material with a suitable buffer solution;
(b) filtering said solution;
(c) adding to said solution, while stirring, sufficient quantities of polyethylene glycol (PEG) having a molecular weight in the range from 5000 to 7000 to bring said polyethylene glycol to a final concentration in the range from 5 to 15 (weight/volume) percent;
(d) discarding the precipitates formed;
(e) storing said solution for about 1 to 8 hours;
(f) collecting and washing the crystals resulting from said storage; and
(g) lyophilizing said crystals.

4,334,025

NOVEL SUBSTANCE M-9337 AND PROCESS FOR PREPARING SAME

Sadao Miyamura, Niigata, Japan, assignor to SS Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Jan. 30, 1981, Ser. No. 230,293
Claims priority, application Japan, Jan. 31, 1980, 55-10481
Int. Cl.³ C12N *1/20*; C12P *7/00*; A61K *35/74*
U.S. Cl. 435—253 **4 Claims**

1. A substance M-9337 having the following properties:

(1) Nature: Neutral (1 mg/ml: pH 6–7), white to light yellow powder;
(2) Elementary analysis:
C . . . 52–53%
H . . . 7–8%
O . . . 39–41%;
(3) Solubility: Soluble in dimethylsulfoxide and a mixed solvent of chloroform and methanol, slightly soluble in water and methanol, and insoluble in ethyl acetate and chloroform;
(4) Color reaction:Positive with respect to anthrone, iodine, ammonium molybdate-perchloric acid, and anisaldehyde reactions and negative with respect to ninhydrin and Dragendorff reagent reactions;
(5) Melting point: 170°–175° C. (decomposed);
(6) Ultraviolet absorption spectrum: As seen in FIG. 1;
(7) Infrared absorption spectrum (KBr): As seen in FIG. 2; and
(8) Thin layer chromatography:
n-propanol-water (4:1)
Rf=about 0.5
n-butanol-acetic acid-water (4:1:5)
Rf=about 0.28
toluene-formic acid-ethyl formate (5:1:4)
Rf=about 0.013
n-butanol-pyridine-water (3:2:1)
Rf=about 0.51
n-propanol-N ammonia-water (6:2:1)
Rf=about 0.41.

4,334,026

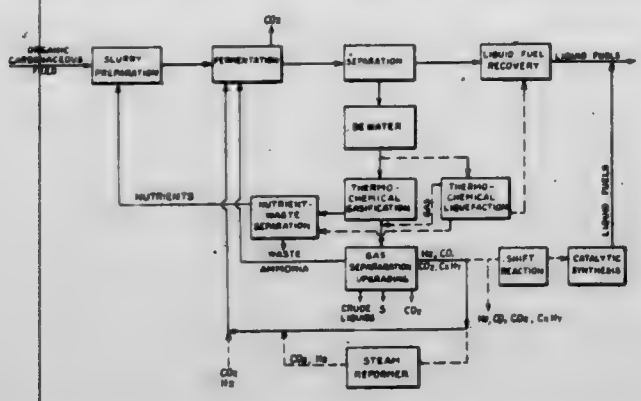
HYBRID BIO-THERMAL LIQUEFACTION

David P. Chynoweth, St. Charles, and Paul B. Tarman, Elmhurst, both of Ill., assignors to Institute of Gas Technology, Chicago, Ill.

Continuation-in-part of Ser. No. 113,242, Jan. 18, 1980, Pat. No. 4,289,625. This application Sep. 11, 1980, Ser. No. 186,248
Int. Cl.³ C12P *7/08*
U.S. Cl. 435—163 **33 Claims**

1. A hybrid bio-thermal liquefaction process for improved carbonaceous liquefaction to produce alcohol containing liquid fuels comprising: adding organic carbonaceous feed to a fermentation reactor; fermenting said organic carbonaceous feed under alcohol producing conditions in an active alcohol producing biological liquid culture; separating alcohol containing liquid fuel product and fermentation residue and dewatering and introducing said fermentation residue into a thermochemical converter; thermochemically converting at least a substantial portion of the organic carbon component of said fermentation residue under elevated temperature conditions

producing thermochemical converter products and thermochemical residue, a portion of at least one of said thermochemi-



cal products or their derivatives or thermochemical residue being passed to said fermentation reactor.

4,334,027

PREPARATION OF IMMOBILIZED ENZYMATICALLY-ACTIVE SUBSTANCE

Joachim Klein, Schapenbruch 14, 3300 Braunschweig, and Fritz Wagner, Hohe Wiese 2, 3300 Braunschweig-Stöckheim, both of Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,573
Int. Cl.³ C12N *11/10, 11/08, 11/04*
U.S. Cl. 435—178 **26 Claims**

1. In a process for producing an immobilized enzymatically-active substance in which an enzymatically-active substance in combination with an aqueous polyelectrolyte solution comprising a substantial amount of alginate is added to an aqueous precipitation bath containing a source of multivalent ion having a charge opposite to that of the polyelectrolyte so that said polyelectrolyte precipitates to form beads of gel containing said enzymatically-active substance wherein the improvement comprises:

(a) drying of the precipitated beads of gel under controlled conditions as to significantly reduce the diameter of the beads, thereby hardening said beads and imparting to said beads significantly increased strength and a higher ratio of the content of enzymatically-active substance to the diameter of the beads; and

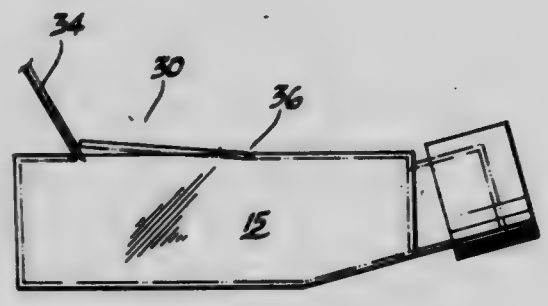
(b) adding the beads resulting from step (a) to a precipitation bath containing a multivalent ion having a charge opposite to that of the polyelectrolyte to effect further hardening of the beads.

4,334,028

FLASK

Joseph L. Carver, 310 Via Lido Nord, Newport Beach, Calif. 92663

Filed Jan. 2, 1981, Ser. No. 222,045
Int. Cl.³ C12M *3/00*
U.S. Cl. 435—284 **4 Claims**



1. In a flask suitable for tissue or micro-organism culture, having top and bottom walls, a pair of similar side walls, a closed end wall, a second end wall having an opening therein, a tubular open neck in sealing engagement at one end with the second end wall so as to surround the opening therein, and means for sealing the other end of the neck, the improvement which comprises a frangible zone integrally formed in the top wall for access to the interior of the culture flask.

4,334,029

UNFIRED REFRACTORY COMPOSITION

Hiroyuki Naito; Takashi Maruya, both of Tsuruoka; Kyugo Gotoh, Urawa, and Hideyo Ohmori, Funabashi, all of Japan, assignors to Mizusawa Kazahu Kogyo Kabushiki Kaisha, Osaka; Mitsubisha Corporation, Tokyo and Yamato Refractives & Co., Chiba, all of, Japan

Filed Jan. 6, 1980, Ser. No. 222,929
Claims priority, application Japan, Jan. 9, 1980, 55-579
Int. Cl.³ C04B *35/52*
U.S. Cl. 501—109 **7 Claims**

1. An unfired refractory composition comprising a refractory aggregate and a binder for the refractory aggregate, in which the binder comprises a water-soluble or water-dispersible siliceous binder in an amount of 1 to 20% by weight based on the refractory aggregate, a carbonizable organic binder in an amount of 2 to 15% by weight based on the refractory aggregate and a phosphate type hardening agent in an amount of 0.5 to 20% by weight based on the refractory aggregate wherein the siliceous binder is an alkali metal borosilicate binder in which the M_2O/SiO_2 molar ratio (in which M stands for an alkali metal) is in the range of from 0.4 to 1.20 and the B_2O_3/SiO_2 molar ratio is in the range of from 0.01 to 0.3

4,334,030

THERMOPLASTIC FOAMABLE BLENDS

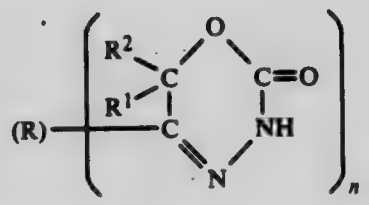
John E. Kochanowski, Monterey, Mass., assignor to General Electric Company, Pittsfield, Mass.

Filed Nov. 23, 1979, Ser. No. 97,017
Int. Cl.³ C08J *9/08, 9/10*
U.S. Cl. 521—90 **17 Claims**

1. A substantially uniform injection moldable foamable blend comprising:

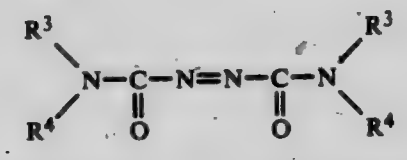
(i) a thermoplastic organic polymer;

(ii) a dihydrooxadiazinone represented by the formula



wherein n is an integer equal to 1 or 2; R is a monovalent radical when n is 1, and a divalent radical when n is 2, selected from a $C_{(1-8)}$ alkyl radical or alkylene radical, a $C_{(6-30)}$ aryl radical or arylene radical and halogenated derivatives thereof; R^1 and R^2 are independently selected from hydrogen, $C_{(1-8)}$ alkyl, alkylene, $C_{(6-30)}$ aryl, alkoxy and aryloxy radicals; and,

(iii) amide derivatives of azodicarboxylic acid represented by the general formula



wherein R^3 and R^4 are independently selected from hydrogen and $C_{(1-10)}$ alkyl radicals.

4,334,031

FLAME-RETARDANT POLYURETHANE FOAM PREPARED BY INCORPORATING A GRAFT POLYMER HAVING A PARTICLE SIZE GREATER THAN 0.5 MICRON

Jay G. Otten, Flat Rock; Duane A. Heyman, Monroe, both of Mich., and John R. Murphy, Wayne, Pa., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Jan. 12, 1981, Ser. No. 224,352

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—106 6 Claims

1. In the preparation of a flame-retardant, flexible polyurethane foam prepared from the reaction of a polyoxyalkylene polyether polyol having an average equivalent weight of from 200 to 2500 and graft polymer content of at least 5 parts by weight per 100 parts by weight of said polyol, an organic polyisocyanate, a blowing agent and flame-retardant compounds, the improvement comprises incorporating therein a graft polymer having a particle size greater than 0.5 micron.

4,334,032

FOAMED POLYMERS CONTAINING LOW MOLECULAR WEIGHT URETHANE MODIFIER COMPOUND

John T. Patton, Jr., Wyandotte, Mich., and Herwart C. Vogt, Sparta, N.J., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation of Ser. No. 77,845, Sep. 21, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,536

Int. Cl.³ C08G *18/14, 18/71, 18/16*

U.S. Cl. 521—115 4 Claims

1. In a polyurethane foam prepared by the reaction of a polyoxyalkylene polyether polyol with an organic polyisocyanate in the absence of a trimerization catalyst, the improvement which comprises incorporating in the preparation of said foam from about 2 percent by weight to 75 percent by weight based upon the total weight of the polyether polyol and the organic polyisocyanate an isocyanate-free, hydroxyl group-free reaction product of an organic isocyanate with a monohydric or polyhydric compound containing from 1 to 4 hydroxyl groups and from 2 to 18 carbon atoms.

4,334,033

PROCESS FOR THE MANUFACTURE OF POLYURETHANE ELASTOMERS

Lothar Metzinger; Otmar Zipp, both of Osnabrueck, and Heinz Bollmann, Alfhausen-Heeke, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,530

Claims priority, application Fed. Rep. of Germany, Oct. 9, 1979, 2940856

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—159 17 Claims

1. A process for the manufacture of polyurethane elastomers comprising the steps of:

(a) preparing a hydroxyl group-containing prepolymer by reacting a higher molecular weight polyhydroxyl compound with an organic diisocyanate at a weight ratio of OH groups to NCO groups of about 1.2:1 to 2:1,

(b) dividing said prepolymer into two components A and B in a weight ratio of about 80:20 to 20:80,

(c) reacting component A with 1,5-naphthylene diisocyanate (NDI) in a weight ratio of OH:NCO groups of about 1:2.5 to 1:12 to produce a terminal NCO group-containing NDI-polyurethane adduct,

(d) mixing component B with material selected from the group consisting of chain extenders, crosslinking agents, water and mixtures thereof and optionally auxiliaries and additives, and

(e) reacting said NDI polyurethane adduct (from step c) with the mixture from step d.

4,334,03[illegible]

PROCESS FOR THE [illegible]PARATION OF POLYMERIZABLE POLYU[illegible]ETHANE ELASTOMERS

August Lehner, Roedersheim-Gronau; Heinrich Hartmann, Limbergerhof; Guenter Heil, Ludwigshafen; Werner Lenz, Bad Durkheim; Ingolf Buethe, Mannheim, and Rudolf Bachmann, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Feb. 5, 1981, Ser. No. 231,836

Claims priority, application Fed. Rep. of Germany, Feb. 11, 1980, 3005035

Int. Cl.³ C08G *63/76, 18/62*

U.S. Cl. 525—28 7 Claims

1. A process for the preparation of polymerizable, primarily linear thermoplastic polyurethane elastomers with acrylate side groups comprising reacting an organic polyisocyanate with a mixture of

(a) an acrylate diol having a molecular weight of 146 to 3000,

(b) an organic polyhydroxyl compound other than those of paragraph (a) having a molecular weight between 400 and 5000, and

(c) a chain extender selected from the group consisting of diols, diamines, aminoalcohols, and triols, having a molecular weight between 61 and 400, water, and mixtures thereof

wherein the ratio of isocyanate to active hydrogen containing groups is from 0.8:1 to 1.2:1 and wherein 1.4 to 1.8 moles of organic polyisocyanate, 0 to 15 moles of component (c) and 0.3 to 6 moles of component (a) are used per mole of component (b).

4,334,035

UNSATURATED POLYESTER RESIN COMPOSITION

Taketoshi Fujita; Yasuyuki Ohgi, and Yousui Nemoto, all of Yokkaichi, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

Filed Mar. 19, 1981, Ser. No. 245,436

Int. Cl.³ C08G *63/54*

U.S. Cl. 525—34 3 Claims

1. An unsaturated polyester resin composition comprising (A) an unsaturated polyester alkyd prepared by condensing all or at least 30 mol% of 1,2-butanediol as a polyhydric alcohol component, all or part of phthalic anhydride as a saturated polybasic acid component, and an unsaturated polybasic acid component, and (B) an unsaturated monomer copolymerizable with said component (A), the amount of said component (B) being 20 to 55 parts by weight based on 100 parts by weight of said component (A).

4,334,036

PROCESS FOR PRODUCING CURABLE VINYL POLYMER HAVING SILYL GROUP

Kazuya Yonezawa; Hisao Furukawa, and Masaaki Azuma, all of Kobe, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 936,628, Aug. 24, 1978, abandoned. This application Jul. 11, 1980, Ser. No. 167,657

Int. Cl.³ C08F *8/34, 8/42, 236/02*

U.S. Cl. 525—102 5 Claims

1. A process for producing vinyl polymer having a silyl group for use as a coating material, which comprises reacting at 50° to 150° C. for a period of from 1 to 4 hours, and in the presence of a catalyst selected from a member of the group VIII transition metals or complexes thereof, a hydrosilane compound represented by the formula:

$$X_{3-a}\overset{(R_1)_a}{\underset{|}{Si}}-H$$

wherein R_1 is a hydrogen or a monovalent hydrocarbon radical having 1 to 10 carbon atoms, X is a member selected from the group consisting of halogen, alkoxy radical, acyloxy radical, aminoxyl radical, phenoxy radical, thioalkoxy radical and amino radical and "a" is a whole number equal to 0, 1 or 2;

with a polymer or copolymer comprising 1 to 95 weight percent monomer or monomers (A) selected from the group consisting of methyl methacrylate, butyl acrylate, butyl methacrylate, styrene, acrylic acid, maleic acid anhydride, 2-ethyl-hexyl acrylate and mixtures thereof; and 99 to 5 weight percent of a monomer or monomers (B) selected from the group consisting of allyl methacrylate, allyl acrylate, and mixtures thereof; and

wherein the main chain is a vinyl polymer having a molecular weight of between 200 to 30,000; and

wherein said resulting vinyl polymer having a silyl group is substantially free of internal double bonds.

4,334,037

MOULDING COMPOSITIONS OF A STYRENE POLYMER AND PTFE PARTICLES

Eric H. W. Allen, Luton, England, assignor to George Kent Limited, Luton, England

Continuation of Ser. No. 49,749, Jun. 18, 1979, abandoned. This application May 7, 1981, Ser. No. 261,515

Claims priority, application United Kingdom, Mar. 7, 1979, 7908122

Int. Cl.³ C08L *25/06, 27/18*

U.S. Cl. 525—199 **12 Claims**

1. A thermoplastic moulding composition comprising a major proportion of a thermoplastic styrene-based polymeric material having dispersed therein at least 5% by weight, based on the total weight of the composition of PTFE particles, said PTFE particles being of a generally granular nature having an average particle size in the range of 1 to 10 μm with not more than 1% of the PTFE particles having sizes greater than 50 μm and wherein the maximum transverse dimension of the PTFE particles does not differ significantly from their minimum dimension, such that the melt elasticity of the composition during moulding does not differ significantly from that of the polymeric material without said PTFE particles.

4,334,038

SHAPING OF PLASTIC MATERIALS CONTAINING POLYMERIC LUBRICANT

Heinz Beck, Duren; Karl H. Frassek, Langerwehe, both of Fed. Rep. of Germany; Egenius A. Giezen, BA Rheden, and Eduard M. Verhulst, BA Zevenaar, both of Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

Filed Jan. 30, 1981, Ser. No. 229,916

Claims priority, application Fed. Rep. of Germany, Feb. 2, 1980, 3003797

Int. Cl.³ C08L *23/08, 35/00, 35/02*

U.S. Cl. 525—207 **11 Claims**

1. A process for shaping plastic materials, wherein a molded body is produced from a melt of a mixture comprising a plastic material, stabilizers and/or antioxidants, pigments and/or fillers, flowing agents and a lubricant, wherein the lubricants comprise a copolymer of unsaturated polycarboxylic acids, or anhydrides thereof, and α-olefins having an average carbon number of at least 28 carbon atoms.

4,334,039

PROCESS FOR PREPARING POLYMERIC POLYBLENDS HAVING A RUBBER PHASE AS PARTICLES WITH A BIMODAL PARTICLE SIZE DISTRIBUTION

Carl R. Dupre, Amherst, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 23, 1981, Ser. No. 246,486

Int. Cl.³ C08F *259/02, 279/02*

U.S. Cl. 525—263 **18 Claims**

1. A continuous mass polymerization for preparing monoalkenyl aromatic polyblends having a dispersed rubber phase as rubber particles having a bimodal rubber particle size distribution comprising,

A. continuously mass polymerizing a first solution of an alkenyl aromatic monomer having dissolved therein about 2 to 15% by weight of a first diene rubber in a first reaction zone to a conversion of about 10 to 40% forming a partially polymerized first solution with said first diene rubber being dispersed as rubber particles having an average diameter of about 0.1 to 1.0 microns,

B. continuously feeding said partially polymerized first solution to a second reaction zone in series with said first reaction zone, simultaneously with a second solution of a monoalkenyl aromatic monomer having dissolved therein about 2 to 15% by weight of a second diene rubber, forming a partially polymerized second solution,

C. continuously mass polymerizing said partially polymerized second solution in said second reaction zone to a conversion of about 20 to 50% forming a partially polymerized third solution having the second diene rubber dispersed as rubber particles having an average diameter of about 2 to 5 microns,

D. continuously mass polymerizing said third solution in a third reaction zone to a conversion of about 60 to 95%,

E. continuously removing an effluent from said third reaction zone and separating said polyblend from said effluent, said polyblend having a polyalkenyl aromatic polymer as a matrix polymer with said first diene rubber dispersed as rubber particles having a average diameter of about 0.1 to 1.0 microns and said second diene rubber dispersed as rubber particles having an average diameter of about 2 to 5 microns providing said polyblend with a rubber phase having said bimodal particle size distribution, wherein about 70–95% of the rubber particles have a particle size of about 0.5 to 1.0 microns and 5 to 30% of the rubber particles have a particle size of about 2.0 to 5.0 microns, said polyblend having superior toughness and gloss.

4,334,040

PROPYLENE BLOCK COPOLYMERS

Masaki Fujii, and Mitsutaka Miyabayashi, both of Yokkaichi, Japan, assignors to Mitsubishi Petrochemical Company Limited, Japan

Filed Sep. 12, 1980, Ser. No. 186,578

Claims priority, application Japan, Sep. 18, 1979, 54-119943; Sep. 18, 1979, 54-119944

Int. Cl.³ C08F *255/08*

U.S. Cl. 525—321 **12 Claims**

1. A thermoplastic propylene block copolymer, characterized in that:

(1) the limiting viscosity of said copolymer in decalin at 135° C. is 0.3 to 15 dl/gram;

(2) said copolymer comprises 2 to 40 percent by weight of hexene-1 and 1 to 50 percent by weight of ethylene, the remainder being substantially propylene, in blocks consisting essentially of (a) a random copolymer block of propylene and hexene-1 and (b) an ethylene polymer block selected from the group consisting of ethylene homopolymer blocks, binary random copolymer blocks of ethylene and hexene-1 and ternary random copolymer blocks of ethylene, propylene and hexene-1; and

(3) the quantity, the fusion peak temperature as determined by differential scanning calorimetry (DSC), and the contents of hexene-1 and ethylene of each of the fractions resulting from successive extraction of the copolymer at 40° C. and 80° C. by means of o-dichlorobenzene are as indicated in the table:

Fraction	Quantity (% by weight)	Fusion peak temp. by DSC (°C.)	Content of [straight-chain α-olefin] hexene-1 (% by weight)	Content of ethylene (% by weight)
Fraction soluble at 40° C. or lower	5 to 40	Substantially no peaks recognizable	5 to 80	4 to 50
Fraction soluble above 40° C. up to 80° C.	15 to 45	80 to 150 at the higher temp. 135 to 165 at the lower temp. 105 to 135	3 to 60	3 to 45
Fraction insoluble at 80° C. or lower	15 to 80		0.1 to 11	1 to 35

4,334,041

TWO-PHASE ETHYLENE-PROPYLENE BLOCK COPOLYMERIZATION PROCESS

Edward A. Zukowski, Clark, N.J., assignor to El Paso Polyolefins Company, Paramus, N.J.

Continuation-in-part of Ser. No. 177,296, Aug. 11, 1980, Pat. No. 4,284,738. This application Jul. 16, 1981, Ser. No. 283,777

Int. Cl.³ C08F *297/08*

U.S. Cl. 525—53 **14 Claims**

1. A continuous sequential vapor phase block copolymerization process for the production of impact resistant ethylene-propylene polymers at high productivity rates, which comprises:

(A) preparing a propylene prepolymer in finely divided form and containing active catalyst residues by polymerizing propylene at a pressure sufficient to maintain propylene in liquid phase and at a temperature ranging between about 145° F. and about 160° F. in the presence of a catalyst composition containing the components:

(a) a first at least partial complex of an alkyl aluminum compound with an electron donor compound wherein the alkyl aluminum is selected from aluminum trialkyl or a mixture of aluminum trialkyl and a dialkyl aluminum halide and wherein the mole ratio of alkyl aluminum to electron donor is maintained between about 2 and about 5, and,

(b) a complex of an electron donor compound with a titanium tri- or tetrahalide supported on magnesium dihalide, where the components (a) and (b) are being provided in a molar ratio of Al/Ti between about 40:1 and about 150:1, and,

separating the propylene prepolymer from volatile constituents;

(B) introducing the propylene prepolymer, ethylene and propylene into at least one continuously agitated vapor phase reaction zone;

(C) introducing to said vapor phase reaction zone:

(i) a quantity of a second at least partial complex of an alkyl aluminum compound with an electron donor compound, wherein the alkyl aluminum is selected from trialkyl aluminum or mixtures of trialkyl aluminum and dialkyl aluminum halide and wherein the mole ratio of alkyl aluminum to electron donor compound is maintained in a range from about 8:1 to about 15:1 and the quantity of aluminum alkyl compound is between about 15 to about 50% of the aluminum alkyl compound of component (a), and,

(ii) an additional quantity of component (b) sufficient to provide a molar ratio of Al/Ti of components (i) and (ii) between about 75:1 and about 125:1,

(D) polymerizing said ethylene and propylene onto the propylene prepolymer in said vapor phase reaction zone at the temperature of from about 140° F. to about 170° F.

4,334,042

CARBONYLATION OF OLEFINIC COMPOUNDS

Mitsuo Matsumoto, and Masuhiko Tamura, both of Kurashiki, Japan, assignors to Kuraray Co. Ltd., Kurashiki, Japan

Filed Jul. 23, 1979, Ser. No. 59,518

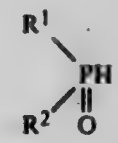
Claims priority, application Japan, Aug. 7, 1978, 53-96387

The portion of the term of this patent subsequent to Dec. 9, 1997, has been disclaimed.

Int. Cl.³ C07C *45/50, 67/38;* C08F *8/14, 8/00*

U.S. Cl. 525—339 **8 Claims**

1. A process for carbonylating olefinic compounds which comprises bringing an olefinic compound into contact with carbon monoxide and hydrogen or an alcohol in the presence of a cobalt carbonyl catalyst plus a secondary phosphine oxide having the general formula (I)



(I)

wherein R^1 and R^2 are the same or different and each is a substituted or unsubstituted hydrocarbon residue containing not more than about 20 carbon atoms, said secondary phosphine oxide being added to the reaction system in an amount of 0.2 to 20 moles per gram atom of the cobalt.

4,334,043

METALLIC SALT PRE-TREATMENT OF CROSSLINKABLE CO-POLYMERS FOR ELIMINATING TACKINESS

Jürgen Groepper, Günzburg, Fed. Rep. of Germany, assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Aug. 7, 1980, Ser. No. 176,170

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1979, 2936906

Int. Cl.³ C08F *8/42, 8/44, 8/46*

U.S. Cl. 525—370 **7 Claims**

1. In a process for the crosslinking of crosslinkable polymers or co-polymers comprising molding the crosslinkable polymers or co-polymers into the desired shaped articles and crosslinking the shaped articles with free radical initiators of organic peroxides in the presence of oxygen wherein the crosslinked polymer or copolymer products have a tacky surface, the improvement comprising pretreating the shaped articles of crosslinkable polymers or copolymers prior to crosslinking by heating to prevent the surface of the shaped articles from being tacky with a member coated thereon selected from the group consisting of

(a) an organo-metallic compound prepared by reacting an aliphatic or aromatic acid with a transition element,

(b) inorganic acid salts of transition elements,

(c) lanthanide compound, and

(d) mixtures thereof wherein the transition elements are metals selected from the Periodic Table having an atomic number in the range of 21 to 30, 39 to 48, 57 to 80 and 89 to 92.

4,334,044

DIENE RUBBER HAVING ANTI-DETERIORATING FUNCTION AND PROCESS FOR PRODUCTION THEREOF

Teizo Kotani, Yokohama; Yasuhiko Takemura, and Toshio Miyabayashi, both of Yokkaichi, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed May 7, 1980, Ser. No. 147,529
Claims priority, application Japan, May 18, 1979, 54/60526
Int. Cl.[3] C08F *8/32*
U.S. Cl. 525—379 22 Claims

1. A diene rubber having resistance to deterioration and an anti-deteriorating function obtained by reacting a polymer, of a conjugated diene monomer having nitrile groups with an anti-deteriorating agent having at least one polar group selected from the group consisting of amino group and imino group in the presence of an acid catalyst.

4,334,045

LOW COLOR COMPOSITIONS COMPRISING A CROSS-LINKED POLYCYANURATE POLYMER AND A THERMOPLASTIC POLYMER

Tse C. Wu; Dusan C. Prevorsek, and David H. Wertz, all of Morristown, N.J., assignors to Allied Corporation, Morristown, N.J.

Filed Dec. 5, 1980, Ser. No. 213,530
Int. Cl.[3] C08L *69/00, 67/02*
U.S. Cl. 525—439 28 Claims

1. A process for preparing a cured composition which comprises:

(a) purifying a monomeric aromatic dicyanate to remove color forming impurities;

(b) combining the purified aromatic dicyanate with an effective amount of a zinc salt and with a thermoplastic polymer;

(c) curing the aromatic dicyanate at at least one temperature at least about 150° C. and below about 200° C.; and

(d) further curing the aromatic dicyanate at at least one temperature between about 200° C. and about 300° C., for a time sufficient to cure the dicyanate without causing such color formation that the Yellowness Index of the cured composition exceeds about 30.

4,334,046

PRODUCTION OF COPOLYMERS OF ACRYLONITRILE AND VINYL CHLORIDE

Joachim König, Berg.-Gladbach, and Carlhans Süling, Odenthal, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 868,728, Jan. 11, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,724
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1977, 2702053
Int. Cl.[3] C08F *2/30, 222/30, 2/26*
U.S. Cl. 526—93 7 Claims

1. In a semi-continuous or continuous process for the production of a chemically uniform acrylonitrile-vinyl chloride copolymer which contains from 30 to 60% by weight of acrylonitrile, from 70 to 40% by weight of vinyl chloride and, from 0 to 15% by weight of at least one other vinyl monomer, which process comprises polymerisation in aqueous emulsion in the presence of an nonionic or anionic emulsifier or mixture thereof in the presence of a redox catalyst of a peroxodisulphate and a water-soluble compound of tetravalent sulphur at a constant polymerisation velocity and with a fluctuating concentration of at least one iron salt in the reaction medium, the improvement wherein the polymerisation reaction is carried out at a pH-value of from 2 to 6 in the presence of a mixture of an iron salt and citric acid as a complex former.

4,334,047

POLYMERIZATION CATALYSTS

John B. Rogan, Glen Ellyn, and Robert V. Morris, Naperville, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 700,582, Jun. 28, 1976, abandoned. This application Dec. 2, 1977, Ser. No. 856,763
Int. Cl.[3] C08F *4/64, 10/06*
U.S. Cl. 526—138 20 Claims

1. An alpha-olefin polymerization catalyst composition comprising:

(a) an alkylaluminum component selected from the group consisting of a trialkylaluminum, a dialkylaluminum chloride or bromide, a mixture of a trialkylaluminum and a dialkylaluminum chloride or bromide, and a mixture of a trialkylaluminum and an alkylaluminum dichloride or dibromide; wherein each alkyl radical contains from 1 to about 6 carbon atoms;

(b) a titanium trichloride;

(c) an effective amount, up to about 20 mol % based upon the amount of the titanium trichloride employed, of sulfur dioxide; and

(d) an effective amount, ranging from about 0.2 to 10 mols per mol of sulfur dioxide employed, of 2,4,6-collidine;

said effective amounts being effective to reduce the fraction of alkane-soluble polymer produced during polymerization of said alpha-olefin without serious decreases in total polymer yield.

4,334,048

OLEFIN METATHESIS

Thomas J. Katz, New York; Mridula Nair, Penfield, and Steven J. Lee, New York, all of N.Y., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 26, 1981, Ser. No. 267,111
Int. Cl.[3] C08F *4/78*
U.S. Cl. 526—170 5 Claims

1. A process for polymerizing a cyclic or acyclic olefin to obtain a highly chemically homogeneous (stereoselective) polymer employing acetylene or substituted acetylene as a coinitiator which comprises the steps of:

reacting said olefin with phenylacetylene, both having been passed through short columns of alumina to obtain a mixture;

distilling said mixture into an ampule containing (phenylmethoxycarbene) pentacarbonyl tungsten and sealing the ampule;

heating the contents of said sealed ampule; and

dissolving the contents of said sealed ampule in methylene chloride, and precipitating said highly chemically homogeneous polymer therefrom using methanol.

4,334,049

PROCESS FOR THE PREPARATION OF FINELY DIVIDED SOLID POLYMERS IN POLYOL

Gerhard G. Ramlow, Grosse Ile; Duane A. Heyman, Monroe, and Richard A. Moore, Trenton, all of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Aug. 18, 1980, Ser. No. 179,136
Int. Cl.[3] C08F *2/00*
U.S. Cl. 526—202 11 Claims

1. In a process for the preparation of a finely divided solid polymer prepared by polymerizing in the presence of a free-radical initiator, and an organic solvent, an ethylenically unsaturated monomer or mixture of monomers, the improvement comprises, conducting said polymerization in the presence of an effective amount of a preformed polymeric stabilizer wherein said stabilizer consists of an alkylene oxide adduct of a copolymer of styrene-allyl alcohol, said stabilizer having an equivalent weight of 220 to 8000.

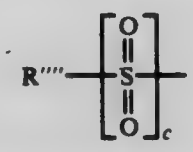
4,334,050

ARENE POLYSULFONYL HALIDE COUPLED BLOCK POLYMERS OF POLYPHENYLENE OXIDE AND AROMATIC POLYFORMALS

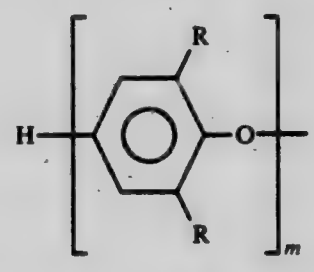
Dwain M. White, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 9, 1981, Ser. No. 232,776
Int. Cl.[3] C08G *81/00, 65/38*
U.S. Cl. 525—390 5 Claims

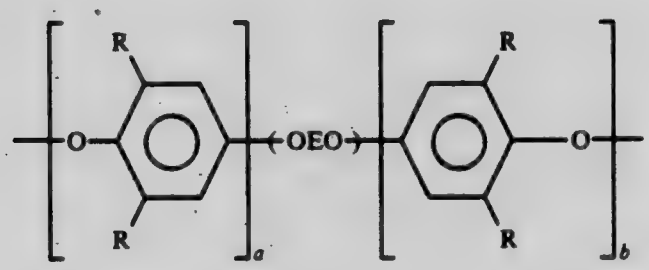
2. An arene polysulfonyl halide coupled polyphenylene oxide aromatic polyformal block copolymer comprising an arene sulfonyl radical of the formula:



wherein c is a number at least equal to 2, and R'''' is selected from phenylene, biphenylene, bis(phenylene)-C_{1-8} alkane, biphenylene oxide, and poly(C_{2-8} oxyalkylene); a polyphenylene oxide radical of the formulas:



wherein independently each R is hydrogen, a hydrocarbon radical, a halohydrocarbon radical, a hydroxcarbonoxy radical or a halohydrocarbonoxy radical, m is a number of at least 1, or



wherein independent each -(OEO)- is a divalent quinone residue, E is a divalent arene radical, either a or b is at least equal to 1, the sum of a plus b is at least equal to 10, R is the same as above, and an aromatic polyformal radical of the formula:

wherein n is an integer at least equal to 1, and R' is a divalent aromatic radical.

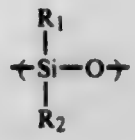
4,334,051

HEAT RESISTANT POLYVANADIOSILOXANES AND A PROCESS FOR THEIR PRODUCTION

Seishi Yajima, Tohoku daigaku shukusha 4-2, 843, Ohnuki-machi, Oharai-machi, Higashubaraki-gun, Ibaraki-ken, Japan; Kiyohito Okamura, and Toetsu Shishido, both of Oharai, Japan, assignors to Seishi Yajima, Japan

Filed Nov. 26, 1980, Ser. No. 210,639
Claims priority, application Japan, Dec. 5, 1979, 54-156886; Mar. 31, 1980, 55-040304
Int. Cl.[3] C08G *77/04*
U.S. Cl. 528—25 8 Claims

4. A process for the production of a polyvanadiosiloxane which comprises reacting an oily polysiloxane having the main chain skeleton consisting of units of



wherein R_1 and R_2 may be the same or different and stand for a lower alkyl group, phenyl group, fluoroalkyl group, nitrile group or vinyl group, and a vanadium compound by heating at a temperature of 450° C. or less under conditions capable of forming a complex of the vanadium compound.

4,334,052

RIGID, NON-CELLULAR POLYURETHANE MODIFIED WITH REACTION PRODUCT OF AN ISOCYANATE AND AN ALCOHOL

John T. Patton, Jr., Wyandotte, Mich.; Herwart C. Vogt, Sparta, N.J., and Manher Parekh, Warren, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation of Ser. No. 77,846, Sep. 21, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,537
Int. Cl.[3] C08G *18/38, 18/16, 18/71*
U.S. Cl. 528—52 4 Claims

1. In the process for the preparation of a noncellular, solid urethane polymer composition prepared by the reaction of a polyoxyalkylene polyether polyol with an organic polyisocyanate in the absence of a trimization catalyst, the improvement comprising the addition of from about 2 percent by weight to 75 percent by weight based upon the total weight of the polyether polyol and the organic polyisocyanate, an isocyanate-free, hydroxyl group-free reaction product of an organic isocyanate with a monohydric or polyhydric compound containing from 1 to 4 hydroxyl groups and from 2 to 18 carbon atoms prior to said reaction.

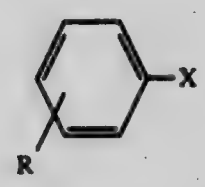
4,334,053

PROCESS FOR THE PREPARATION OF AROMATIC POLYESTERS AND THE USE THEREOF FOR THE PRODUCTION OF INJECTION MOLDED ARTICLES, FILMS AND COATINGS

Dieter Freitag, Krefeld; Klaus Reinking, Wermelskirchen; Karsten Idel, Krefeld; Harald Medem, Krefeld, and Ludwig Bottenbruch, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 29, 1980, Ser. No. 191,670
Claims priority, application Fed. Rep. of Germany, Oct. 3, 1979, 2940024
Int. Cl.[3] C08F *4/46*
U.S. Cl. 528—179 9 Claims

1. Thermoplastic aromatic polyesters based on diphenols, terephthalic and isophthalic acid (acid ratio of from 7:3 to 3:7), chain terminators and optionally branching agents, characterised in that the chain terminators are compounds of the formula (I)



(I)

wherein

X represents OH, OCOCl or COCl and

R represents a branched chain alkyl radical having 8 or 9 carbon atoms, provided that in the alkyl radical R 47 to 89% of the hydrogen atoms are part of methyl groups,

that R is in the o- and/or p-position and the upper limit of the amount of the o-isomer is 20%.

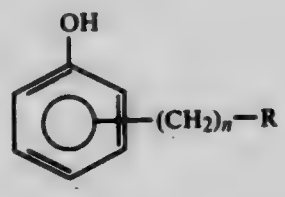
4,334,054

FILMS OF POLYPHENYLENE OXIDES

Jacques E. Dubois, Paris; Minh-Chau Pham, Le Vesinet, and Pierre C. Lacaze, Paris, all of France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly-Sur-Seine, France

Filed Jun. 5, 1978, Ser. No. 912,740
Claims priority, application France, Jun. 10, 1977, 77 17851
Int. Cl.³ C08G *65/44*
U.S. Cl. 528—210 32 Claims

1. A polyphenylene oxide film obtained by anodically oxidizing a monomer of the formula



wherein

R is C_{1-7}acyl, hydroxy, carboxy, alkoxycarbonyl, amino, alkylamino, or phenylamino; and

n is an integer or where R is acyl, 0 or an integer.

4,334,055

RESIN DERIVED FROM ACENAPHTHENE, PROCESS FOR ITS PRODUCTION AND INTERMEDIATES IN ITS PRODUCTION

Joseph G. Robinson, Winchcombe, and Sally A. Brain, Evesham, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed Aug. 11, 1981, Ser. No. 292,037
Claims priority, application United Kingdom, Aug. 29, 1980, 8027953
Int. Cl.³ C08G *12/00*
U.S. Cl. 528—229 10 Claims

1. A process for the production of a thermally stable resin comprising the steps of:

(1) reacting acenaphthene with a formaldehyde donor in the presence of an acid catalyst to produce a low molecular weight resin comprising oligomers of acenaphthene moieties joined by substantially only methylene bridges;

(2) oxidising the low molecular weight resin to form an intermediate resin comprising naphthalic acid units joined by keto bridges; and

(3) reacting the intermediate resin with a di- or tetra-functional primary aromatic amine to produce the thermally stable resin.

4,334,056

METHOD FOR POLYTROPICALLY PRECIPITATING POLYAMIDE POWDER COATING COMPOSITIONS WHERE THE POLYAMIDES HAVE AT LEAST 10 ALIPHATICALLY BOUND CARBON ATOMS PER CARBONAMIDE GROUP

Klaus-Rudolf Meyer, Hattingen; Karl-Heinz Hornung, Marl; Rainer Feldmann, Marl, and Hans-Jürgen Smigerski, Marl, all of Fed. Rep. of Germany, assignors to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Filed Feb. 20, 1980, Ser. No. 123,030
Claims priority, application Fed. Rep. of Germany, Feb. 21, 1979, 2906647
Int. Cl.³ C08G *69/46*
U.S. Cl. 528—496 11 Claims

1. A method of producing polyamide powder from polyamide having a relative viscosity of 1.4 to 1.8 as measured in 0.5% meta-cresol solution at 25° C. and at least 70% of said polyamide consisting of polyamide with at least 10 aliphatically bound carbon atoms per carbonamide group, comprising:

(a) dissolving said polyamide in at least twice the amount by weight of ethanol in a closed vessel at a temperature between about 130° to 150° C. to form a solution of said polyamide;

(b) cooling said solution to a precipitation temperature between about 100° and 125° C. and ceasing said cooling at said precipitation temperature;

(c) precipitating said polyamide powder from said cooled solution of (b) polytropically with agitation and under an inert gas atmosphere; and

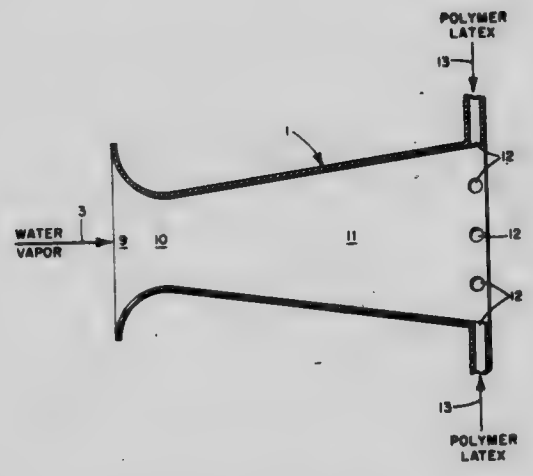
(d) separating said precipitated polyamide powders of (c) from said ethanol.

4,334,057

CONTINUOUS PROCESS FOR RECOVERING POLYMERS FROM THEIR LATEXES

Gabriele Govoni, Renazzo; Gianfranco Rubichi, and Pierluigi Guardigli, both of Ferrara, all of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Dec. 19, 1980, Ser. No. 218,085
Claims priority, application Italy, Dec. 20, 1979, 28276 A/79
Int. Cl.³ C08F *6/06, 6/10*
U.S. Cl. 528—500 4 Claims



1. A continuous process for the recovery of polymers from their latexes obtained by emulsion polymerization, said process consisting of the following phases:

(A) feeding the polymeric latexes containing from 10 to 50% by weight of polymer, at a temperature of from 10° to 120° C., through one or more feeding channels to the narrow zone or the divergent section of a nozzle in which water vapor flows at sonic or supersonic speed respectively, maintaining vapor latex feeding ratios of 0.1–2 kg of vapor/kg of latex, the latex being subdivided by the water vapor into a dispersion of particles; and

(B) continuously feeding the dispersion obtained in step (A) to a tube or to an exchanger of the type tube-in-tube directly connected with the divergent section of the nozzle where the dispersion, at a temperature of 100°–150° C. for residence times ranging from 0.1 to 1 second, maintains a speed of 50–150 m/sec., thus obtaining a dispersion of solid caked particles of polymer and of liquid particles in a vapor phase comprising the unreacted monomers and the water vapor, and separating the vapor phase from the dispersion.

4,334,058
RUTIN POLY(H—)SULFATE SALTS AND RELATED COMPOUNDS

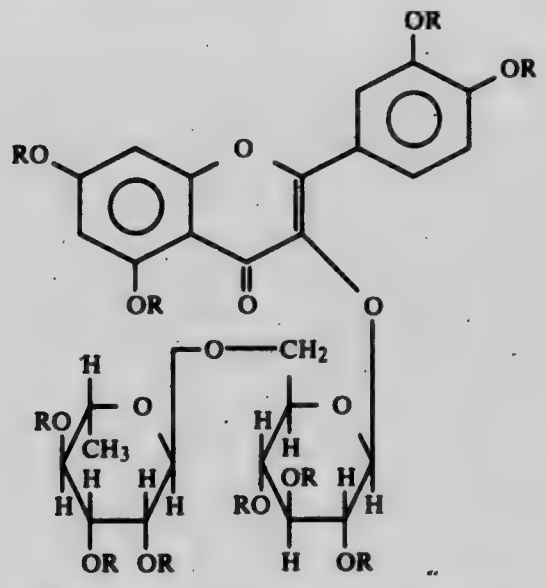
Vijay G. Nair, New York, and Seymour Bernstein, New City, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 62,587, Jul. 31, 1979, abandoned, which is a continuation-in-part of Ser. No. 966,423, Dec. 4, 1978, abandoned. This application Aug. 25, 1980, Ser. No. 181,251

Int. Cl.³ A61K *31/70*; C07H *13/12, 11/00*

U.S. Cl. 536—8 6 Claims

1. A rutin poly(H—)sulfate of the formula:



wherein each R is selected from the group consisting of hydrogen and $-SO_3A$; wherein A is a pharmaceutically acceptable salt cation; with the proviso that at least six of the R groups are $-SO_3A$.

4,334,059
SILYLATED ARABINO-BASE COMPOUNDS

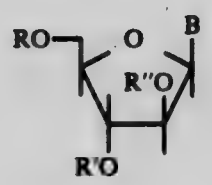
Kelvin K. Ogilvie, Candiac, Canada, assignor to Bio Logicals Inc., Toronto, Canada

Filed Oct. 20, 1980, Ser. No. 198,654

Int. Cl.³ C07H *19/06*

U.S. Cl. 536—23 7 Claims

1. Silylated arabino-cytosine compounds having the general formula:



wherein B represents an unsubstituted cytosine group and each R, R′ and R″ is independently selected from hydrogen and alkylsilyl, with the proviso that at least one R, R′ and R″ is alkylsilyl.

4,334,060
REACTOR FOR THE GAS PHASE NITRATION OF CELLULOSE

Marcel Blais, Newton, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 30, 1980, Ser. No. 202,222

Int. Cl.³ C08B *5/02*

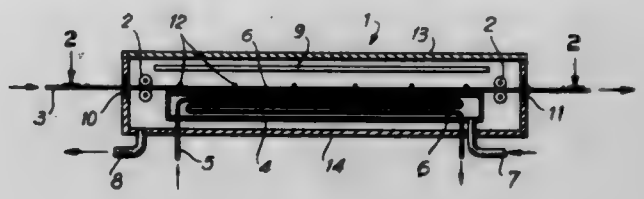
U.S. Cl. 536—35 4 Claims

1. A continuous vapor phase process for the nitration of cellulose to produce nitrocellulose by reaction with nitric acid which comprises

introducing cellulose in porous sheet form into a reactor having a substantially gas-tight housing containing a table having a perforated surface,

passing the cellulose sheet over at least a portion of the perforated surface of said table,

introducing a stream of nitric acid vapor into said housing and through said perforations to provide a cushion of gas supporting said sheet moving over said table and force nitric acid vapor through said porous cellulose sheet,



contacting said sheet with said nitric acid vapor for a sufficient period to nitrate the cellulose to a nitrogen content of at least about 7%, and

continuously removing from said housing unreacted nitric acid vapor and water vapor formed in the reaction and the nitrocellulose sheet thus produced.

4,334,061
PROCESS FOR RECOVERY OF POLYOL FATTY ACID POLYESTERS

Joseph A. Bossier, III, Greenwell Springs, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Oct. 29, 1979, Ser. No. 89,145

Int. Cl.³ C07H *1/00, 1/06*

U.S. Cl. 536—119 39 Claims

1. In a solvent-free, low temperature process for synthesizing polyol fatty acid polyesters by transesterification of a polyol with a fatty acid ester to produce a crude reaction product containing a dark, liquid mixture of the product polyol fatty acid polyester, fatty acid alkyl esters, alkali metal fatty acid soaps and color-forming impurities, the improvement which comprises treating the crude reaction product to obtain the polyol fatty acid polyesters contained therein by the steps of contacting the crude reaction product with an aqueous washing medium while maintaining the resultant mixture at a pH of from 7 to about 12, inclusive, in the presence of an emulsion decreasing organic solvent at a temperature of from about 25° C. to about 100° C. for a period of time of from about 15 minutes to at least three hours to dissolve substantial amounts of fatty acid soaps and color-forming impurities in the aqueous phase, allowing the phases to settle into an organic phase and an aqueous phase and separating the organic from the aqueous phase.

5. The process of claim 1 in which said polyol fatty acid polyester is sucrose.

4,334,062
CEPHALOSPORANIC ACID DERIVATIVES

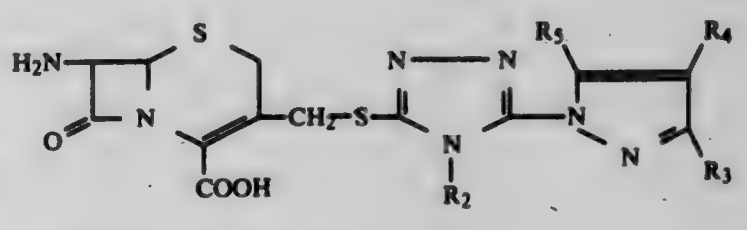
William V. Curran, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Oct. 24, 1980, Ser. No. 200,236

Int. Cl.³ C07D *501/18*

U.S. Cl. 544—026 4 Claims

1. A compound selected from those of the formula:



wherein

R_2 is selected from the group hydrogen, amino, C_1 to C_6 alkylamino and di-C_1 to C_6-alkylamino;

R_3, R_4, and R_5 are the same or different and are selected from the group hydrogen, hydroxy, C_1 to C_6 alkyl, C_1 to C_6 alkoxy, trifluoromethyl, phenyl, substituted phenyl, heterocyclic aryl, and R_3 and R_4 or R_4 and R_5 taken together are the moiety $—CH_2—(CH_2)_2—CH_2—$;

wherein the substituents on the phenyl are mono- or di-substituents which are the same or different and which are selected from the group C_1 to C_3 alkyl, C_1 to C_3 alkoxy, fluoro, chloro, bromo, and trifluoromethyl; and

wherein the heterocyclic aryl is selected from the group of five- and six-membered aromatic ring compounds containing one to three heteroatoms which are the same or different and which are selected from the group oxygen, nitrogen, and sulfur, and wherein said heterocyclic aryl is optionally substituted as defined above for substituted phenyl;

and the pharmaceutically acceptable non-toxic salts thereof.

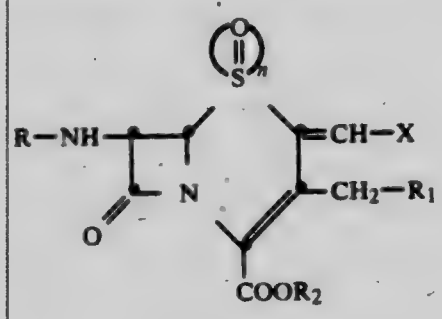
4,334,063

CEPHALOSPORIN VINYL HALIDES

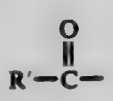
Douglas O. Spry, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 91,603, Nov. 5, 1979, Pat. No. 4,299,954.
This application Mar. 30, 1981, Ser. No. 249,055
Int. Cl.³ C07D *501/20*
U.S. Cl. 544—28 **7 Claims**

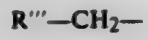
1. A compound of the formula



wherein R is an acyl group

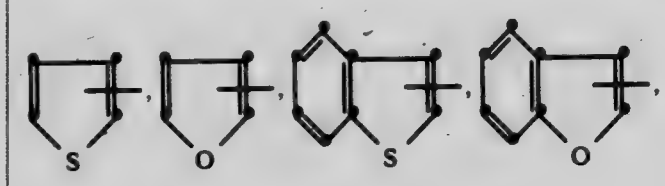


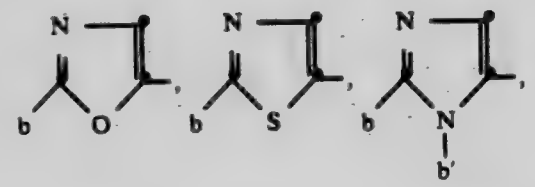
wherein R′ is a heteroarylmethyl group of the formula

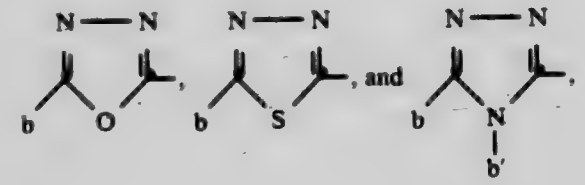


$R'''—CH_2—$

wherein R‴ is selected from the group consisting of







wherein each b is hydrogen, C_1–C_4 alkyl or amino, and each b′ is hydrogen or C_1–C_4 alkyl;

R_1 is hydrogen or acetoxy;

X is chloro or bromo;

R_2 is hydrogen or a carboxylic acid protecting group; and n is 0 or 1.

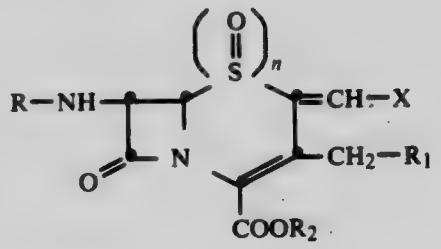
4,334,064

CEPHALOSPORIN VINYL HALIDES

Douglas O. Spry, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 91,603, Nov. 5, 1979, Pat. No. 4,299,954.
This application Mar. 30, 1981, Ser. No. 249,056
Int. Cl.³ C07D *501/18*
U.S. Cl. 544—30 **1 Claim**

1. A compound of the formula



wherein R is hydrogen;

R_1 is hydrogen or acetoxy;

X is chloro or bromo;

R_2 is hydrogen or a carboxylic acid protecting group; and n is 0 or 1.

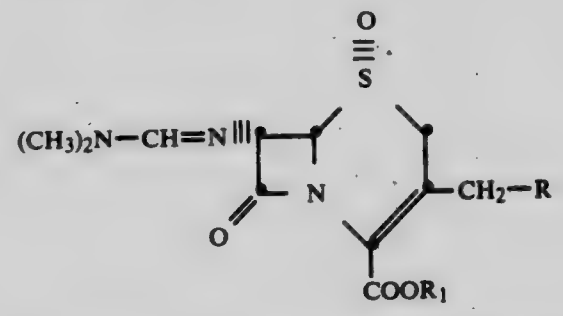
4,334,065

CEPHALOSPORIN INTERMEDIATES

Robert R. Chauvette, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Nov. 24, 1980, Ser. No. 209,440
Int. Cl.³ C07D *501/18*
U.S. Cl. 544—30 **13 Claims**

1. A compound of the formula



wherein R is hydrogen or acetoxy; R_1 is a carboxy protecting group; and the acid addition salts thereof.

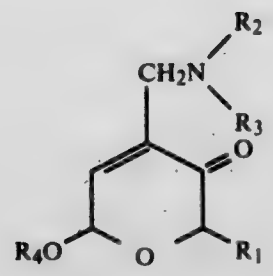
4,334,066

HETEROCYCLIC CONTAINING 5-OXO PYRANS

Yasuo Shimizu; Hisashi Takao, both of Tokushima; Shoji Asano, Kitamura; Shuya Shimada, and Kazutoshi Kikkawa, both of Tokushima, all of Japan, assignors to Otsuka Kagaku Yakuhin Kabushiki Kaisha, Japan

Filed Apr. 20, 1981, Ser. No. 255,817
Int. Cl.³ C07D *295/10*
U.S. Cl. 544—149 **2 Claims**

1. A pyran derivative represented by the formula



(I)

wherein R_1 and R_4 are each the same or different alkyl having 1 to 6 carbon atoms, R_2 and R_3, when attached to a nitrogen atom, forms a saturated heterocyclic ring which has as a hetero atom a nitrogen atom in addition to the nitrogen atom attached to R_2 and R_3, or oxygen atom, and an acid addition salt thereof.

4,334,067

FLAVAN COMPOUNDS AND ACID ADDITION SALTS THEREOF

Sachio Ohno; Mitsuaki Nagasaka, both of Aichi, and Kazuo Kato, Nagoya, all of Japan, assignors to Maruko Seiyaku Co., Ltd., Aichi, Japan

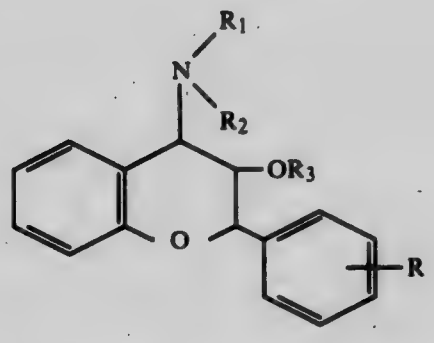
Filed Oct. 29, 1980, Ser. No. 201,877

Claims priority, application Japan, Oct. 29, 1979, 54-139685; Nov. 7, 1979, 54-144194

Int. Cl.³ C07D *413/04, 311/68*

U.S. Cl. 544—151 8 Claims

1. A flavan compound represented by the formula (I)



(I)

wherein R represents hydrogen or an alkoxy group, R_1 represents hydrogen or an alkyl group, R_2 represents an alkyl group, a hydroxyalkyl group or a substituted aminoalkyl group, or R_1 and R_2, when taken together with the nitrogen atom to which they are attached, can form a piperidino group, an N-substituted piperazino group or a morpholino group, and R_3 represents hydrogen or an acetyl group, with the proviso that when R is hydrogen, R_2 is a substituted aminoalkyl group, and the pharmaceutically acceptable acid addition salts thereof.

4,334,068

PROCESS FOR THE PREPARATION OF TRIAZINYLAMINO-ANTHRAQUINONES

Rütger Neeff, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

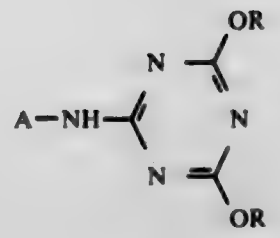
Filed Dec. 4, 1980, Ser. No. 213,242

Claims priority, application Fed. Rep. of Germany, Dec. 18, 1979, 2950876

Int. Cl.³ C07D *251/46, 403/12, 417/12*

U.S. Cl. 544—187 4 Claims

1. A process for the preparation of a monoanthraquinonyl-amino-diaryloxy-triazine of the formula



wherein

A is an anthraquinone radical and

R is an aryl radical, comprising condensing one mol of the corresponding amino-anthraquinone with one mol of cyanuric chloride and an excess of the corresponding phenol at elevated temperature in a one-stage procedure in the absence of acid acceptors and extraneous organic solvents.

4,334,069

CHEMILUMINESCENT PHTHALHYDRAZIDE-LABELED HAPTEN CONJUGATES

Robert T. Buckler, Edwardsburg, Mich., and Hartmut R. Schroeder, Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Jul. 24, 1978, Ser. No. 927,621

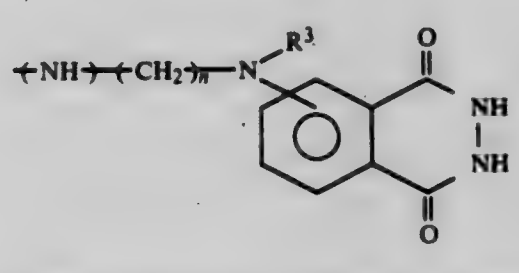
Int. Cl.³ C07D *237/32*

U.S. Cl. 544—237 10 Claims

1. A chemiluminescent-labeled conjugate of the formula:

L(CO)—(NH)labeling substance

wherein L(CO)— is a hapten of molecular weight greater than 100 bound to said labeling substance through an amide bond, characterized in that said —(NH)labeling substance has the formula:



wherein R^3 is hydrogen or straight chain alkyl having 1–4 carbon atoms and n=2–8.

4,334,070

CYCLOALKA[4,5]PYRROLO[2,3-g]ISOQUINOLINES

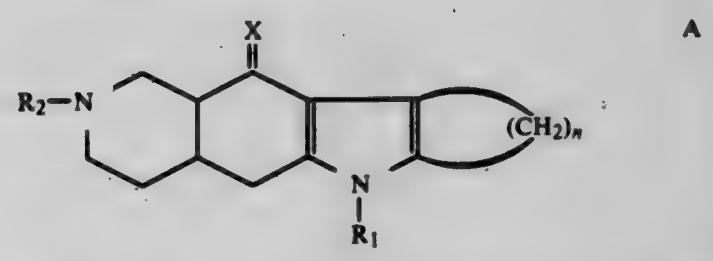
Leo Berger, Montclair, and Gary L. Olson, Westfield, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 216,116, Dec. 15, 1980, abandoned, which is a continuation-in-part of Ser. No. 125,604, Feb. 28, 1980, abandoned. This application Feb. 2, 1981, Ser. No. 230,765

Int. Cl.³ C07D *471/04;* A61K *31/475*

U.S. Cl. 546—70 51 Claims

1. A compound of the formula



A

wherein

R_1 is hydrogen; alkyl of 1 to 7 carbon atoms; alkanoyl of 1 to

7 carbon atoms; benzoyl; fluorobenzoyl; phenyl or phenyl substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkyl amino of 1 to 7 carbon atoms, wherein phenyl or substituted phenyl is linked to an alkylene of 1 to 4 carbon atoms;

R_2 is hydrogen; alkyl of 1 to 7 carbon atoms; hydroxyalkyl of 1 to 7 carbon atoms; hydroxyalkyl of 1 to 7 carbon atoms bearing as a substituent phenyl or phenyl substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkylamino of 1 to 7 carbon atoms; alkoxyalkyl wherein each alkyl group is of 1 to 7 carbon atoms; alkanoyloxy of 1 to 7 carbon atoms-alkyl of 1 to 7 carbon atoms; benzoyloxy-alkyl of 1 to 7 carbon atoms; 4-fluorobenzoyloxy-alkyl of 1 to 7 carbon atoms; alkanoyl of 1 to 7 carbon atoms-alkyl of 1 to 7 carbon atoms; benzoyl alkyl of 1 to 7 carbon atoms; 4-fluorobenzoyl-alkyl of 1 to 7 carbon atoms; phenyl or phenyl substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkylamino of 1 to 7 carbon atoms, wherein phenyl or substituted phenyl is linked to an alkylene of 1 to 4 carbon atoms; alkenyl of 2 to 7 carbon atoms; cycloalkyl of 3 to 6 carbon atoms-alkyl of 2 to 7 carbon atoms; alkynyl of 2 to 7 carbon atoms; thienyl-alkyl of 1 to 7 carbon atoms; furylalkyl of 1 to 7 carbon atoms; phenylcarboxamido-alkyl of 1 to 7 carbon atoms; phenylcarboxamido-alkyl of 1 to 7 carbon atoms wherein phenyl is substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkylamino of 1 to 7 carbon atoms; phenyl-alkenyl of 2 to 7 carbon atoms; phenyl-alkenyl of 2 to 7 carbon atoms wherein phenyl is substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkylamino of 1 to 7 carbon atoms; alkenyloxy of 2 to 7 carbon atoms-alkyl of 1 to 7 carbon atoms; phenyloxy-alkyl of 1 to 7 carbon atoms; phenyloxy-alkyl of 1 to 7 carbon atoms wherein phenyl is substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkylamino of 1 to 7 carbon atoms; phenyl-alkoxy of 1 to 4 carbon atoms-alkyl of 1 to 7 carbon atoms; phenyl-alkoxy of 1 to 4 carbon atoms-alkyl of 1 to 7 carbon atoms wherein phenyl is substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkylamino of 1 to 7 carbon atoms; phenyl-N-imidazolonylalkyl of 1 to 7 carbon atoms; or phenyl-N-imidazolonyl-alkyl of 1 to 7 carbon atoms wherein phenyl is substituted by halogen, trifluoromethyl, alkyl of 1 to 7 carbon atoms, alkoxy of 1 to 7 carbon atoms, nitro, amino, alkylamino of 1 to 7 carbon atoms or di-alkylamino of 1 to 7 carbon atoms;

X is O or S; and n is 3, 4, 5 or 6,

or its pharmaceutically acceptable acid addition salt.

4,334,071

17-CYCLOBUTYLMETHYL-3-HYDROXY-8β-METHYL-6-METHYLENE-MORPHINANE METHANESULFONATE

Michael P. Kotick, and Joseph O. Polazzi, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Feb. 2, 1981, Ser. No. 230,726

Int. Cl.³ C07D *221/28;* A61K *31/485*

U.S. Cl. 546—74 **1 Claim**

1. 17-cyclobutylmethyl-3-hydroxy-8β-methyl-6-methylene-morphinane methanesulfonate.

4,334,072

LACTONE COMPOUNDS CONTAINING AN INDOLIZINE RADICAL

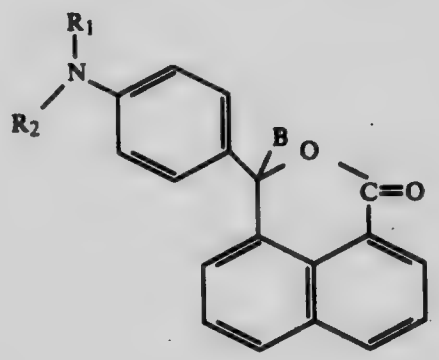
William J. Becker; Sheldon Farber, and Troy E. Hoover, all of Appleton, Wis., assignors to Appleton Papers Inc., Appleton, Wis.

Division of Ser. No. 112,500, Jan. 16, 1980, Pat. No. 4,275,206, which is a continuation-in-part of Ser. No. 17,764, Mar. 5, 1979, Pat. No. 4,232,887. This application Sep. 29, 1980, Ser. No. 192,152

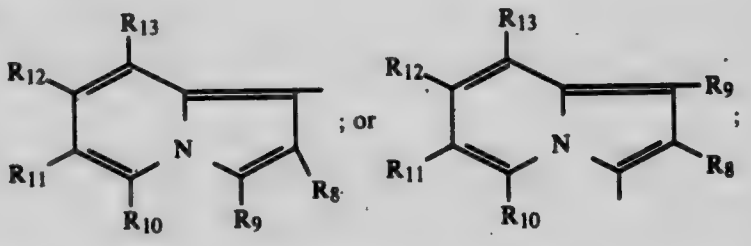
Int. Cl.³ C07D *401/14, 405/14*

U.S. Cl. 546—112 **20 Claims**

1. A compound represented by the formula:



wherein B is:



R_1 and R_2 are: hydrogen or alkyl of one to four carbon atoms,

R_8 is: phenyl, phenyl which is substituted by methoxy, phenyl, chloro or dimethylamino or alkyl of one to four carbon atoms,

R_9 is: hydrogen, alkyl of one to four carbon atoms or phenyl; and

R_{10}, R_{11}, R_{12} and R_{13} are: hydrogen or alkyl of one to four carbon atoms.

4,334,073

PROCESS FOR THE PREPARATION OF ALPHA-HYDROXYCARBOXYLIC ACID AMIDE COMPOUNDS

Hans-Joachim Diehr, Wuppertal, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

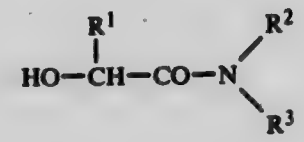
Continuation-in-part of Ser. No. 114,469, Jan. 23, 1980, abandoned. This application Dec. 1, 1980, Ser. No. 211,989

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1979, 2904490

Int. Cl.³ C07D *211/16, 85/24*

U.S. Cl. 546—245 **16 Claims**

1. Process for the preparation of an alpha-hydrocarboxylic acid amide compound of the formula



(I)

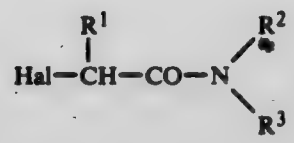
wherein

R^1 is hydrogen or alkyl; and

R^2 and R^3 are individually selected from hydrogen, alkyl, alkenyl, alkynyl, aralkyl, cycloalkyl or aryl, each of which

may be optionally substituted, or a nitrogen-containing heterocyclic radical; or

R^2 and R^3, together with the nitrogen atom to which they are bonded, represent an optionally benzo-fused monocyclic or bicyclic ring, which ring may be substituted and may be partially unsaturated, which process comprises reacting in a first stage an alpha-halocarboxylic acid amide of the formula

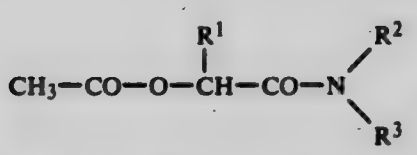


(II)

wherein

R^1, R^2 and R^3 are identified as above with the proviso that R^1, R^2 and R^3 are not all hydrogen; and

Hal is chlorine or bromine, with an alkali metal acetate or alkaline earth metal acetate in the presence of a quaternary ammonium salt and as a diluent wherein the reactants are suspended, an aliphatic or aromatic optionally chlorinated hydrocarbon, at a temperature between 20° and 200° C., and, in a second stage, deacylating the alpha-acetoxycarboxylic acid amide produced, having the general formula



(III)

in which R^1, R^2 and R^3, are identified as above by reacting said amide III with an alcohol of the general formula

R^4-OH (IV),

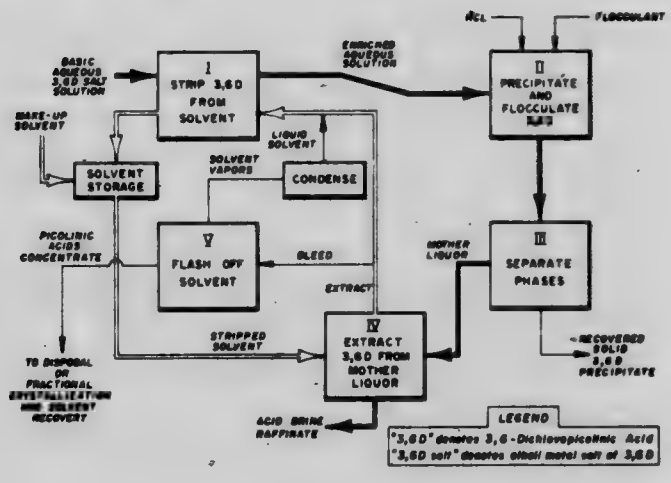
in which R^4 is alkyl in the presence of a catalytic amount of a catalyst selected from alkali metal hydroxides, alkaline earth metal hydroxides, alkali metal carbonates, and alkaline earth metal carbonates, at a temperature between 20° and 150° C.

4,334,074

METHOD OF RECOVERING 3,6-DICHLOROPICOLINIC ACID FROM BASIC AQUEOUS SOLUTIONS OF SALTS THEREOF

Russell R. Peterson, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed Feb. 2, 1981, Ser. No. 230,783
Int. Cl.³ C07D *213/55*
U.S. Cl. 546—327 11 Claims



1. The method of recovering 3,6-dichloropicolinic acid from a basic, aqueous feed solution of an alkali metal salt thereof which comprises:

a. providing as said solution one containing the free hydroxide of said alkali metal,

b. intimately contacting the aqueous solution with a solution of 3,6-dichloropicolinic acid in a water-immiscible solvent, thereby stripping the acid from said solvent and converting it to more of said salt,

c. separating the thus-stripped solvent from the resulting mixture of the additional salt with said feed solution,

d. adding to said mixture a flocculant and hydrochloric acid, the latter in an amount such as to reduce the pH of the mixture to a value of about 2 or less, thereby converting the alkali metal 3,6-dichloropicolinate present to the free acid and precipitating solid particles of free 3,6-dichloropicolinic acid,

e. removing said particles from the resultant slurry, thereby producing an aqueous mother liquor having 3,6-dichloropicolinic acid dissolved therein,

f. extracting the latter acid from said mother liquor by intimately contacting the liquor with said stripped solvent, then separating the resultant extract of 3,6-dichloropicolinic acid in said solvent, and

g. employing the extract, as in the preceding step b, in treating more of said feed solution by said method.

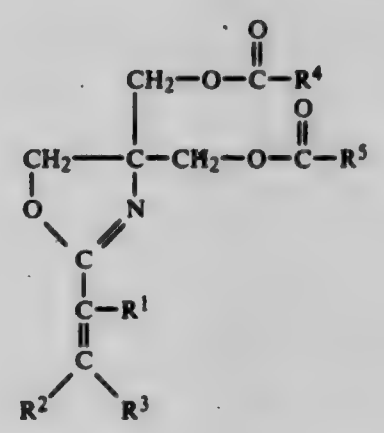
4,334,075

OXAZOLINE DIESTERS

Clifford H. Strolle, Springfield, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 22, 1980, Ser. No. 189,060
Int. Cl.³ C07D *263/14*
U.S. Cl. 548—239 9 Claims

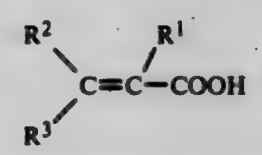
1. An oxazoline diester, capable of rapid air-drying, of the formula



wherein R^1 and R^2 are the same or different and are H, aryl, or C_1–C_4 alkyl; R^3 is alkyl, aryl, or carboxyl; and R^4 and R^5 are the same or different and are each the residue of an aliphatic carboxylic acid that has 6 or more carbon atoms or an aromatic carboxylic acid.

6. A process for preparing a monomeric oxazoline diester comprising the steps of

(a) reacting 0.8–1.25 moles of tris(hydroxymethyl) aminomethane with 1 mole of a non-terminally unsaturated carboxylic acid of the formula



where R^1 and R^2 are the same or different and are H, aryl, or C_1–C_4 alkyl and R^3 is alkyl, aryl, or carboxyl; and

(b) esterifying the reaction product of (a) with an acid selected from the group consisting of aliphatic carboxylic acids having at least 6 carbon atoms, aromatic carboxylic acids, and mixtures of these in a molar ratio of said acid to said reaction product of about 2:1

wherein reactions (a) and (b) are carried out at atmospheric

pressure and reflux conditions and in the absence of a polymerization inhibitor, and wherein the oxazoline diester is produced in monomeric form.

4,334,076

PROCESS FOR THE PREPARATION OF SULFURIC ACID SEMIESTER ETHYLSULFONYL COMPOUNDS OF AMINOPHENOLS, AMINOBENZANILIDES OR PHENYLPYRAZOLONES BY ESTERIFICATION WITH SULFURIC ACID AND/OR SULFUR TRIOXIDE IN A KNEADER

Hans H. Steuernagel, Kelkheim; Ernst Hoyer, and Fritz Meininger, both of Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 1, 1977, Ser. No. 820,884

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1976, 2634783; Aug. 3, 1976, 2634856; Aug. 3, 1976, 2634857

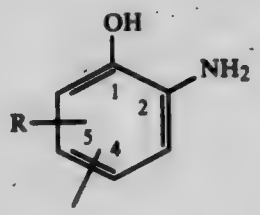
Int. Cl.³ C07C *139/00, 139/10;* C07D *231/02, 231/34*

U.S. Cl. 548—375 **13 Claims**

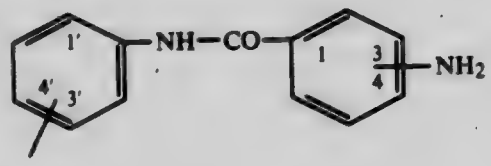
1. In a process for the preparation of a compound of the formula

$$Q\text{-}SO_2\text{—}CH_2\text{—}CH_2\text{—}OSO_3H$$

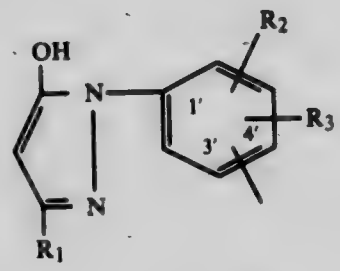
in which Q- represents a radical of the formula



of the formula



or of the formula



in which R is hydrogen, lower alkoxy, lower alkyl, nitro, chlorine, or bromine, R_1 is methyl, carboxyl or phenyl, R_2 is hydrogen, methyl, ethyl, methoxy, ethoxy or chlorine, and R_3 is hydrogen, methyl, ethyl, methoxy or ethoxy, the β-sulfatoethylsulfonyl group is in the 4- or 5-position of the benzene nucleus of the aminophenol or in the 3'- or 4'-position of the benzene nucleus and the amino group is bonded in the 3- or 4-position to the benzene nucleus of the benzoyl radical, by the esterification of a compound of the formula

$$Q\text{-}SO_2\text{—}CH_2\text{—}CH_2\text{—}OH,$$

in which Q- and R, R_1, R_2 and R_3 therein have the meanings given above and the β-hydroxyethylsulfonyl group is in the 4- or 5-position of the benzene nucleus of the aminophenol or in the 3'- or 4'-position of the benzene nucleus, and the amino group is bonded in the 3- or 4-position to the benzene nucleus of the benzoyl radical, the improvement which comprises carrying out the esterification in a machine operating with a kneading action and with the action of 1 to 2.5 times the equimolar amount, calculated on SO_3, of sulfur trioxide or sulfuric acid containing sulfur trioxide.

4,334,077

STEREOSPECIFIC SULFOXIDATION OF DIBENZO THIEPINS

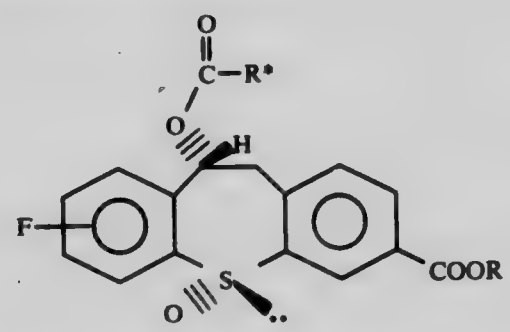
Patrice C. Belanger, Dollard des Ormeaux; Joshua Rokach, Chomedey-Laval; Robert N. Young, Senneville, and John Scheigetz, Dollard des Ormeaux, all of Canada, assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jan. 28, 1981, Ser. No. 229,223

Int. Cl.³ C07D *337/14*

U.S. Cl. 549—12 **3 Claims**

1. A compound of the formula:



wherein the F substituent is attached to the 7 or 8 carbon; R* is an α-substituted benzyl substituent selected from α-methoxy-α-trifluoromethylbenzyl and α-methoxy benzyl; and R is a lower alkyl substituent.

4,334,078

DIBENZOTHIOPHENES

Leo Berger, Montclair; John T. Plati, Rutherford, and Albert Ziering, Nutley, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 68,297, Aug. 20, 1979, abandoned, which is a continuation of Ser. No. 861,747, Dec. 19, 1977, abandoned, which is a division of Ser. No. 669,940, Mar. 24, 1976, abandoned. This application Dec. 22, 1980, Ser. No. 219,135

Int. Cl.³ C07D *333/76*

U.S. Cl. 549—43 **3 Claims**

1. A compound of the formula

wherein R'_1 is halogen, lower alkyl or lower alkoxy, and X and Y, independently, are hydrogen or lower alkyl, or, when X and Y are different, enantiomers.

4,334,079

SYNTHESIS OF SUBSTITUTED BENZYL ESTERS

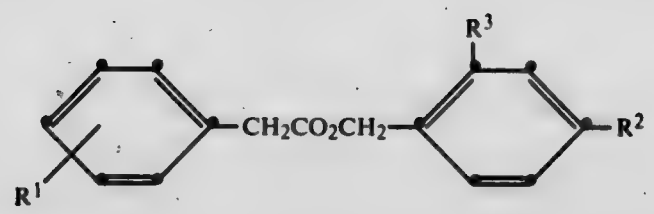
James M. Greene, Indianapolis, and Charles A. Bunnell, Lafayette, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Nov. 3, 1980, Ser. No. 203,736

Int. Cl.³ C07C *69/76*

U.S. Cl. 560—75 **25 Claims**

1. A process for preparing a compound of the formula

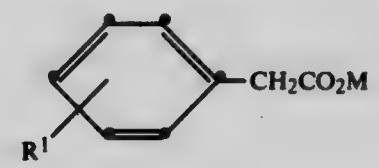


wherein

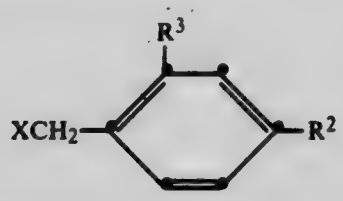
R^1 is hydroxy, protected hydroxy, hydrogen, C_1–C_4 alkyl, C_1–C_4 alkoxy or halo;

one of R^2 and R^3 is hydrogen and the other is phenoxy or C_1–C_6 alkoxy;

by reacting a compound of the formula



with a compound of the formula



wherein M is sodium or potassium, and X is chloro or bromo; in an organic solvent which is inert to esterification and in which the phenylacetic acid salt is substantially insoluble, and in the presence of a catalytic amount of a phase transfer catalyst of the formula

$$X^1NR^4R^5R^6R^7$$

wherein

X^1 is chloro, bromo, iodo, toluenesulfonate or methanesulfonate;

R^4 and R^5 are independently C_1–C_{16} alkyl, phenyl or benzyl;

R^6 and R^7 are independently C_1–C_{16} alkyl;

provided that, when X^1 is a group other than iodo, the process is carried out in the presence of from about 0.1 to about 0.5 mole of an alkali metal iodide per mole of product to be produced.

4,334,080

PROCESS FOR PRODUCING BENZENE CARBOXYLIC ACID ESTER

Koichi Abe; Masami Ishihara, and Thuyoshi Watanabe, all of Kurashiki, Japan, assignors to Mitsubishi Gas Chemical Co., Ltd., Tokyo, Japan

Filed Nov. 24, 1980, Ser. No. 210,058

Claims priority, application Japan, Nov. 26, 1979, 54/152650

Int. Cl.³ C07C *67/08*

U.S. Cl. 560—99 **5 Claims**

1. A process for producing benzenecarboxylic acid ester which comprises reacting benzenecarboxylic acid having 8 to 10 carbon atoms or its anhydride with aliphatic alcohol having 7 to 11 carbon atoms in the presence of an amorphous aluminum compound represented by the formula $Al_x(CO_3)_y(OH)_z.nH_2O$, wherein x:y=8–6:1 and x:z=11–8:4–3, as a catalyst and an alkali metal compound as a promoter.

4,334,081

PREPARATION OF SUBSTITUTED OLEFINS

Ismael Colon, Middlesex, N.J., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jan. 23, 1981, Ser. No. 227,931

Int. Cl.³ C07C *69/157, 15/44, 15/46, 2/60*

U.S. Cl. 560—130 **11 Claims**

1. A method of preparing substituted olefins which comprises reacting organic halides free of nitro and acidic functional groups with an olefin which has 2 to 18 carbons and is free of nitro substituents in an aprotic solvent system, optionally containing a mixture of polar and nonpolar solvents with a catalytic amount of a catalyst mixture consisting essentially of:

(1) a nickel compound containing no radicals in which N and O are bonded directly together;

(2) a triarylphosphine having 6 to about 14 carbons in each aryl moiety, and

(3) zinc metal, at a temperature of up to about 250° C.;

wherein the ratio of gram atoms of nickel per mole of organic halide is about 0.001 to about 1, the ratio of triarylphosphine to nickel is about 1 to about 100 moles per gram atom of nickel and the amount of zinc in relation to that of nickel is about 1 to 100 fold excess over that of the stoichiometric amount required to reduce all of the nickel present initially.

4,334,082

DIALKYL PERFLUORO-ω-FLUOROFORMYL DIESTERS AND MONOMERS AND POLYMERS THEREFROM

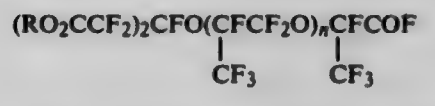
Paul R. Resnick, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 26, 1980, Ser. No. 191,301

Int. Cl.³ C07C *69/708*

U.S. Cl. 560—180 **5 Claims**

1. A diester of the formula:



wherein R is CH_3 or C_2H_5 and n is an integer from 0 to 10.

4,334,083

PROCESS FOR THE PREPARATION OF AN ALKYL 2-CHLOROPROPIONATE BY CHLORINATING AN ALKYL LACTATE

Bernard Buathier, St. Cyr au Mont d'Or, and Andre Bernard, Villeurbanne, both of France, assignors to Rhone-Poulenc Agrochimie, Lyons, France

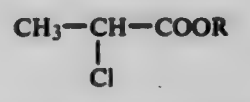
Filed May 21, 1980, Ser. No. 152,098

Claims priority, application France, Jun. 20, 1979, 79 16335

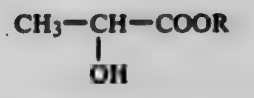
Int. Cl.³ C07C *69/63*

U.S. Cl. 560—226 **9 Claims**

1. A process for the preparation of an optically active alkyl 2-chloropropionate of the formula:



in which R represents an alkyl radical containing from 1 to 5 carbon atoms, by reacting excess thionyl chloride with an optically active alkyl lactate of the formula:



in which R has the same meaning as above, with, in a first step, the formation of the chlorosulphinate of the alkyl lactate, and then, in a second step, the thermal decomposition of the chlo-

rosulphinate of the alkyl lactate, which process comprises, during the first step, gradually bringing the alkyl lactate into contact with the thionyl chloride, in the presence of 0.05–2% by weight of pyridine based on the weight of said alkyl lactate, whilst maintaining, in the reaction mixture, a molar excess of thionyl chloride of at least 2.5%, relative to the amount of alkyl lactate introduced into this mixture, at a temperature which is kept below the decomposition point of the chlorosulphinate of the alkyl lactate during the first step, and, in the second step, heating the reaction mixture resulting from the first step at a temperature which is at least equal to the decomposition point of the chlorosulphinate of the alkyl lactate.

4,334,084

ORGANIC ACIDS AND PROCESS FOR PREPARING SAME

Johann G. D. Schulz, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed May 30, 1978, Ser. No. 910,215
Int. Cl.³ C07C *51/373, 51/47*
U.S. Cl. 562—410 **10 Claims**

1. In a process for preparing a mixture of polycyclic, aromatic, polycarboxylic acids carrying nuclear nitro groups that is soluble in a mixture consisting essentially of acetone or methyl ethyl ketone and methyl alcohol or isopropyl alcohol but insoluble in water which consists essentially in subjecting a slurry containing coal to reaction with aqueous nitric acid having a concentration of about 5 to about 90 percent at a temperature of about 15° to about 200° C. for about 0.5 to about 15 hours and mechanically separating the solids in the resulting slurry, the improvement which consists essentially in extracting said separated solids with a mixture consisting essentially of acetone or methyl ethyl ketone and methyl alcohol or isopropanol in amounts to form an azeotropic mixture and then separating said ketone and said alcohol from the extract to obtain said mixture of polycyclic, aromatic, polycarboxylic acids.

4,334,085

TRANSAMINATION PROCESS FOR MANNICH PRODUCTS

Robert J. Basalay, Naperville, and John H. Udelhofen, Wheaton, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Sep. 14, 1978, Ser. No. 942,187
Int. Cl.³ C07C *87/28*
U.S. Cl. 564—367 **8 Claims**

1. A transamination process for Mannich products comprising the reaction of a polyamine comprising at least two nitrogen atoms separated by at least an ethylene group with a substantially formaldehyde-free mononitrogen Mannich adduct.

4,334,086

PRODUCTION OF TEREPHTHALIC ACID

Jacques D. V. Hanotier, and Monique J. S. Hanotier-Bridoux, both of Lasne Chapelle St. Lambert, Belgium, assignors to Labofina S.A., Brussels, Belgium

Filed Mar. 16, 1981, Ser. No. 244,141
Int. Cl.³ C07C *51/16*
U.S. Cl. 562—413 **9 Claims**

1. A process for the continuous production of terephthalic acid from p-xylene, comprising the steps of:

(a) oxidizing p-xylene in a first oxidation zone at a temperature between about 130° and 170° C. in the presence of not more than about 10 weight % of water and a catalyst comprising a mixture of cobalt and manganese salts, the residence time in the first oxidation zone being such that not more than about 15% by weight of the equilibrium reaction is comprised of terephthalic acid;

(b) oxidizing the partially-oxidized compounds formed in said first oxidation zone in a second oxidation zone in the presence of an additional amount of water up to a concentration of from about 20 to 70% by weight of the liquid phase and in the presence of an additional amount of a catalyst comprising a mixture of cobalt and manganese salts, at a temperature of from about 180° to 200° C. and a pressure high enough to maintain an oxygen partial pressure in said second zone of at least about 0.05 kg/cm², the residence time in said second oxidation zone being such that not more than about 50% by weight of the equilibrium mixture is comprised of terephthalic acid;

(c) stripping p-xylene vapors from said second oxidation zone;

(d) separating crystals of crude terephthalic acid from the effluent from said second oxidation zone from the soluble components of said effluent;

(e) countercurrently washing the separated crystals with fresh water to produce a slurry;

(f) recycling from about 80 to 98% of said soluble components to the second oxidation zone, and recycling from about 2 and 20% of said soluble components to the first oxidation zone to provide the latter with heavy metal catalyst;

(g) heating said slurry of crude terephthalic acid crystals to a temperature at least about 5° C. higher than necessary for dissolving the crude terephthalic acid and having the resulting solution saturated with terephthalic acid;

(h) cooling the resulting solution of crude terephthalic acid to a temperature not lower than about 185° C. sufficient to crystallize the terephthalic acid, whereby a slurry of purified terephthalic acid crystals is produced;

(i) separating the crystals of terephthalic acid from the slurry of purified terephthalic acid at a temperature not lower than the final temperature of crystallization in step (h);

(j) countercurrently washing the separated crystals of purified terephthalic acid with fresh water; and

(k) recovering and recycling to the second oxidation zone the dissolved material present in the water solution used for said washing step (j).

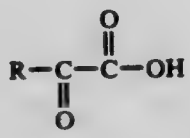
4,334,087

PROCESS FOR PREPARING α-KETOCARBOXYLIC ACIDS

Ted A. Baer, and Jeffrey N. Labovitz, both of Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

Filed Sep. 11, 1980, Ser. No. 186,360
Int. Cl.³ C07C *59/76, 59/80, 59/86, 62/38*
U.S. Cl. 562—459 **12 Claims**

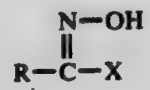
1. A process for the manufacture of an α-ketocarboxylic acid of formula (A)



(A)

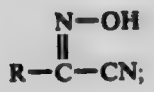
which comprises the steps of:

(a) reacting an oximinohalide of formula (I)



(I)

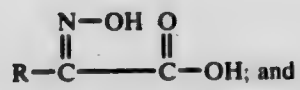
with at least one equivalent of a member selected from the group consisting of sodium cyanide, potassium cyanide and mixtures thereof to form an oximinonitrile of formula (II)



(II)

(b) reacting an oximinonitrile of formula (II) with at least

two equivalents of hydroxide ion to form an oximinoacid of formula (III)



(III)

(c) hydrolysis of said oximinoacid in an aqueous medium to form said α-ketocarboxylic acid and recovering the α-ketocarboxylic acid from the medium, wherein X is chloro, bromo or iodo and R is hydrogen or an organo group selected from the unsubstituted and substituted members of the group consisting of alkyl having from 1 to 22 carbon atoms, alkenyl having from 2 to 22 carbon atoms, alkynyl having from 2 to 22 carbon atoms, oxa-alkyl having from 2 to 22 carbon atoms, thia-alkyl having from 2 to 22 carbon atoms, cycloalkyl having from 3 to 8 carbon atoms, cycloalkalkyl having from 4 to 8 carbon atoms, cycloalkenyl having from 4 to 8 carbon atoms, aryl having from 6 to 12 carbon atoms, aralkyl having from 7 to 12 carbon atoms, and heterocyclic having from 3 to 10 carbon atoms and having 1 or 2 hetero atoms selected from oxygen, sulfur, and nitrogen, the substituted members of the group being substituted by at least one substituent from the group consisting of hydroxy, mercapto, nitro, fluoro, chloro, bromo, iodo, amino and hydrocarboxy.

4,334,088

2-ALKYNYL-5-INDANYLOXYACETIC ACIDS

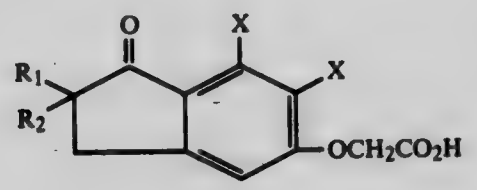
Porter C. Johnson, Evansville, Ind., and William L. Matier, Libertyville, Ill., assignors to Mead Johnson & Company, Evansville, Ind.

Division of Ser. No. 190,159, Sep. 24, 1980, Pat. No. 4,291,168, which is a division of Ser. No. 27,961, Apr. 9, 1979, Pat. No. 4,247,715. This application May 21, 1981, Ser. No. 265,872

Int. Cl.³ C07C *59/76*

U.S. Cl. 562—462 **4 Claims**

1. A process for preparing an indanyloxy compound of Formula I



(I)

wherein

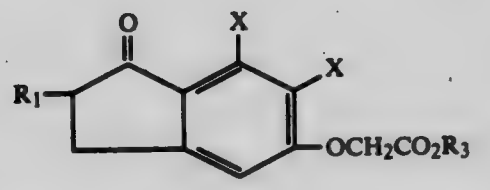
X is halo;

R_1 is phenyl or p-halophenyl;

R_2 is propargyl or 3-butynyl;

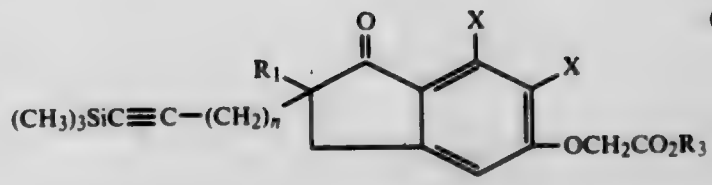
which comprises consecutive steps of:

alkynylating an indanyloxyacetate of Formula III



(III)

wherein X is halo, R_1 is phenyl or p-halophenyl and R_3 is lower alkyl of 1 to 4 carbon atoms inclusive with $(CH_3)_3SiC{\equiv}C\text{-}(CH_2)_n\text{-}Br$ in which n is 1 or 2 in the presence of a carbonate base in a reaction inert solvent such as dimethylformamide to provide a trimethylsilylalkynylindanyloxyacetic acid of Formula IV



(IV)

wherein X, n, R_1 and R_3 are as defined above; and treating the formula IV compound with sodium or potassium hydroxide in ethanol to provide the Formula I compound.

4,334,089

SUBSTITUTED OXOCARBOXYLIC ACIDS, PROCESSES FOR THEIR PREPARATION, THEIR USE AND MEDICAMENTS CONTAINING THEM

Ekkehard Kraass, Krummesse, and Horst Wolf, Constance, both of Fed. Rep. of Germany, assignors to Byk Gulden Lomberg Chemische Fabrik Gesellschaft, Constance, Fed. Rep. of Germany

PCT No. PCT/EP80/00123, § 371 Date Jun. 29, 1981, § 102(e) Date Jun. 29, 1981, PCT Pub. No. WO81/01285, PCT Pub. Date May 14, 1981

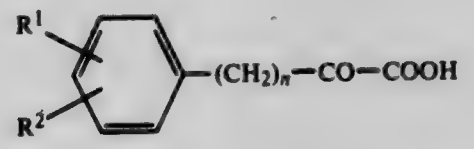
PCT Filed Oct. 31, 1980, Ser. No. 279,961

Claims priority, application Switzerland, Oct. 31, 1979, 9785/79

Int. Cl.³ C07C *62/32*

U.S. Cl. 562—463 **13 Claims**

1. Substituted oxocarboxylic acids of the general formula I



(I)

wherein

R^1 denotes a hydrogen atom, a halogen atom, a hydroxyl group, a lower alkyl group, a lower alkoxy group or a trifluoromethyl group,

R^2 denotes a hydrogen atom or a halogen atom and

n denotes an integer from 3 to 8,

excluding those wherein

R^1 denotes a hydrogen atom or a methoxy group and

R^2 denotes a hydrogen atom, if

n denotes 3,

and their salts.

4,334,090

SLURRIES OF TEREPHTHALIC ACID IN ETHYLENE GLYCOL

Peter A. Donaldson, Yarm, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Nov. 19, 1980, Ser. No. 208,348

Claims priority, application United Kingdom, Nov. 28, 1979, 7941092

Int. Cl.³ C07C *63/14, 51/42*

U.S. Cl. 562—480 **18 Claims**

1. A method of reducing the viscosity of a slurry of terephthalic acid in ethylene glycol which comprises subjecting the terephthalic acid crystals before forming the slurry to mild attrition at an elevated temperature in the absence of a solvent for a period of time sufficient to modify the crystals so that they form a slurry with ethylene glycol which has a reduced viscosity.

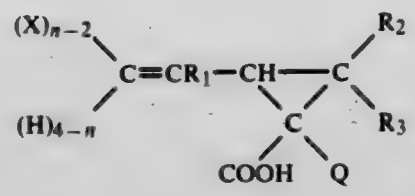
4,334,091

PROCESS FOR PREPARING HALOVINYL CYCLOPROPANE CARBOXYLIC ACID SALTS

Robert J. Tedeschi, Whitehouse Station, N.J., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Aug. 14, 1978, Ser. No. 933,330
Int. Cl.[3] C07C *51/487*
U.S. Cl. 562—506 6 Claims

1. A process for forming the compound having the formula



wherein:

X is a halogen atom selected from the group consisting of bromine and chlorine

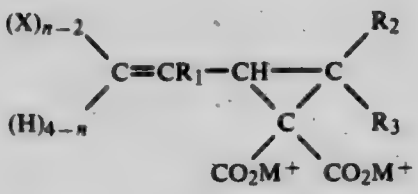
n is 3 or 4;

R^1 is hydrogen or a lower alkyl group having from 1–6 carbon atoms, cycloalkyl group and an aryl group;

R^2 and R^3 are lower alkyl groups having from 1–6 carbon atoms, aryl groups, cycloalkyl and aralkyl; and

Q is CO_2M+ where M is an alkali or alkaline earth metal;

which comprises dispersing a compound represented by the formula:



in an organic solvent inert to said compound thereby forming a dispersion, acidifying the dispersion with aqueous mineral acid, terminating acidification at a pH of 3–4 thereby forming a precipitate and then recovering the precipitate as product compound.

4,334,092

METHOD OF PREPARING ALIPHATIC CARBOXYLIC ACIDS

John F. Knifton, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,632
The portion of the term of this patent subsequent to Apr. 7, 1998, has been disclaimed.
Int. Cl.[3] C07C *51/12*
U.S. Cl. 562—517 14 Claims

1. A process of preparing higher homologues of aliphatic carboxylic acids containing 2–6 carbon atoms which comprises the steps of contacting said aliphatic carboxylic acid starting material with at least a catalytic amount of a rhodium-containing compound in the presence of an iodide or bromide promoter and heating the resultant reaction mixture at a temperature of from about 100° to about 350° C. and under superatmospheric pressures of 500 psi or greater with carbon monoxide and hydrogen until substantial formation of the desired acids containing at least three (3) carbon atoms has been achieved, and recovering said desired acids.

4,334,093

METHOD OF PREPARING ALIPHATIC CARBOXYLIC ACIDS

John F. Knifton, Austin, Tex., assignor to Texaco, Inc., White Plains, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,629
Int. Cl.[3] C07C *51/12*
U.S. Cl. 562—517 14 Claims

1. A process of preparing higher homologues of aliphatic carboxylic acids containing 2–6 carbon atoms which comprises the steps of contacting said aliphatic carboxylic acid starting material with at least a catalytic amount of nickel-containing compound in the presence of a Group VB tertiary donor ligand wherein the key elements of the ligand is selected from the group consisting of nitrogen, phosphorus, arsenic and antimony and wherein each key element is in the trivalent oxidation state, and in the presence of an iodide or bromide promoter and heating the resultant reaction mixture at a temperature of from about 100° to about 350° C. and under superatmospheric pressures of 500 psi or greater with carbon monoxide and hydrogen until substantial formation of the desired acids containing at least 3 carbon atoms has been achieved and recovering said desired acids.

4,334,094

METHOD OF PREPARING ALIPHATIC CARBOXYLIC ACIDS

John F. Knifton, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,633
The portion of the term of this patent subsequent to Apr. 7, 1998, has been disclaimed.
Int. Cl.[3] C07C *51/12, 120/00, 121/407, 148/00, 149/20*
U.S. Cl. 562—517 15 Claims

1. A process of preparing higher homologues of aliphatic carboxylic acids containing 2–6 carbon atoms which comprises the steps of contacting said aliphatic carboxylic acid starting material with at least a catalytic amount of a palladium-containing compound in combination with a Group VB tertiary donor ligand and in the presence of an iodide or bromide promoter and heating the resultant reaction mixture at a temperature of from 100° to about 350° C. under superatmospheric pressures of 500 psi or greater with carbon monoxide and hydrogen until substantial formation of the desired acids containing at least 3 carbon atoms has been achieved, and recovering said desired acids.

4,334,095

EXTRACTION OF ORGANIC ACIDS FROM AQUEOUS SOLUTIONS

Avraham M. Baniel, Jerusalem, Israel, assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Oct. 6, 1980, Ser. No. 194,555
Int. Cl.[3] C07C *59/265*
U.S. Cl. 562—584 10 Claims

1. A process for the extraction of an organic acid selected from the class consisting of citric acid, malic acid and lactic acid from an aqueous solution thereof which comprises contacting such solution with a mixture of a water immiscible amine and a water immiscible organic acid dissolved in a suitable water immiscible solvent.

4,334,096
PROCESS FOR SYNTHESIZING UREA

Keizo Konoki, Tokyo; Michio Nobue, Funabashi; Akito Fukui, Yotsukaidomachi, and Shigeru Inoue, Kamakura, all of Japan, assignors to Toyo Engineering Corporation and Mitsui Toatsu Chemicals, Inc., both of Tokyo, Japan

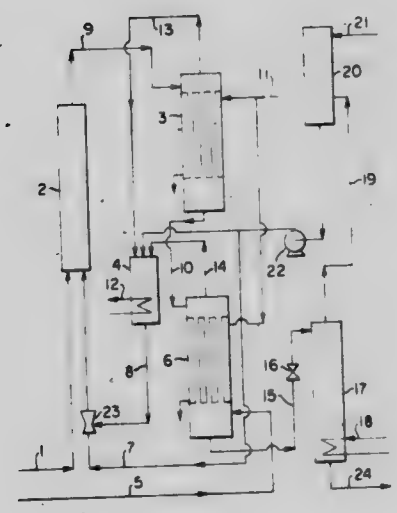
PCT No. PCT/JP79/00192, § 371 Date Mar. 24, 1980, § 102(e) Date Mar. 5, 1980, PCT Pub. No. WO80/00343, PCT Pub. Date Mar. 6, 1980

PCT Filed Jul. 24, 1979, Ser. No. 191,212

Claims priority, application Japan, Jul. 24, 1978, 53-90120

Int. Cl.³ C07C *126/02*

U.S. Cl. 564—72 10 Claims



1. In a urea synthesis process in which ammonia and carbon dioxide are reacted in a reactor, at an elevated temperature and pressure, to form a urea synthesis effluent stream containing urea, ammonium carbamate, ammonia and water, the improvement which comprises: passing said effluent stream downwardly through a first heating zone which is maintained at substantially the same pressure as said reactor and which is externally heated so as to decompose a large amount of said ammonium carbamate to form ammonia and carbon dioxide and to distill off ammonia and carbon dioxide gases; separating the effluent stream in said first heating zone into a first gas phase containing ammonia and carbon dioxide and a first liquid phase containing said urea, said water and reduced amounts of ammonium carbamate and ammonia, then passing said first liquid phase downwardly through a second heating zone which is maintained at substantially the same pressure as said reactor and which is externally heated so as to decompose ammonium carbamate in said first liquid phase to form ammonia and carbon dioxide and to distill off ammonia and carbon dioxide gases, and simultaneously contacting said first liquid phase with CO_2 stripping gas fed into said second heating zone from an external source thereof whereby to remove ammonia from said first liquid phase; separating said first liquid phase in said second heating zone into a second gas phase containing ammonia and carbon dioxide and a second liquid phase of an aqueous urea solution; then reducing the pressure of said second liquid phase and feeding same through a urea purification stage which is at a lower pressure than said reactor whereby to obtain a purified aqueous urea solution; and continuously maintaining said first gas phase and said second gas phase substantially at a pressure of said reactor and feeding said first gas phase and said second gas phase into said reactor.

4,334,097
PROCESS FOR THE PREPARATION OF N-α-ALKOXYALKYL-CARBOXAMIDES, AND SOME REPRESENTATIVES OF THIS CLASS OF COMPOUNDS AND SECONDARY PRODUCTS OBTAINED THEREFROM

Erwin Schmidt, Kelkheim, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 202,606, Oct. 31, 1980, abandoned. This application May 1, 1981, Ser. No. 259,367

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1979, 2944456

Int. Cl.³ C07C *102/00*

U.S. Cl. 564—201 11 Claims

1. A process for the preparation of N-α-alkoxyalkyl-carboxamides starting from primary or secondary carboxamides, which comprises reacting primary or secondary amides of aliphatic, araliphatic or aromatic carboxylic acids, or cyclic carboxamides (lactams) which are not capable of forming an aromatic system, with open-chain α-halogenoalkyl ethers with at least 3 C atoms per molecule, in the presence of tertiary amines.

4,334,098
TRANS,TRANS-Δ-DAMASCONE, MIXTURES CONTAINING MAJOR PROPORTIONS OF SAME, PROCESSES FOR PREPARING SAME AND ORGANOLEPTIC USES THEREOF

Braja D. Mookherjee, Holmdel; Robert W. Trenkle, Bricktown; Richard A. Wilson, Westfield; Frederick L. Schmitt, Holmdel; Manfred H. Vock, Locust; Edward J. Granda, Englishtown; Joaquin Vinals, Red Bank, all of N.J.; Jacob Kiwala, Brooklyn, N.Y., and William L. Schreiber, Jackson, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 928,718, Jul. 27, 1978. This application Mar. 23, 1979, Ser. No. 23,323

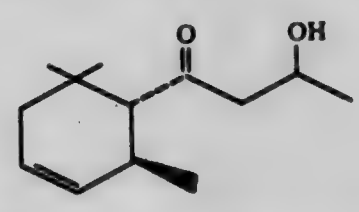
Int. Cl.³ C07C *45/66, 45/67, 45/45*

U.S. Cl. 568—347 2 Claims

1. A process for producing a composition of matter comprising more than 80% trans, trans-delta-damascone comprising the steps of (i) intimately admixing 1-alpha-acetyl-2-alpha-6,6-trimethyl-3-cyclohexene with refluxing alcoholic base or alkali metal alcoholate according to the reaction:

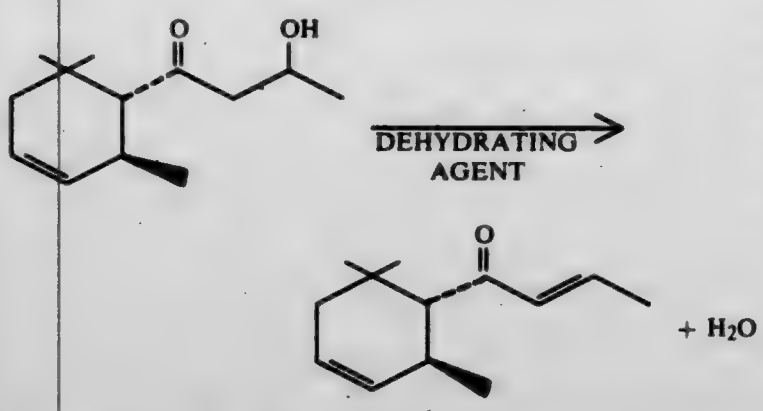


wherein R is lower alkyl, selected from the group consisting of methyl and ethyl and M is alkali metal selected from the group consisting of sodium and potassium; (ii) fractionally distilling the resulting reaction mass whereby a composition of matter containing more than 80% by weight of the trans isomer of 1-acetyl-2,6,6-trimethyl-3-cyclohexane is isolated; (iii) intimately admixing the resulting distillate containing more than 80% of the trans isomer of 1-acetyl-2,6,6-trimethyl-3-cyclohexane and less than 20% of the cis isomer of 1-acetyl-2,6,6-trimethyl-3-cyclohexane with acetaldehyde yielding a composition of matter containing more than 80% of the trans isomer of the hydroxy ketone having the structure:



(iv) dehydrating the resulting product with a dehydrating

agent selected from the group consisting of paratoluene sulphonic acid and acetic anhydride whereby trans,trans-delta-damascone is produced according to the reaction:



(v) distilling from the reaction mass a material containing 80–98% trans,trans-delta-damascone and 2–20% cis,trans-delta-damascone.

4,334,099

PREPARATION OF HEXAFLUOROACETONE FROM HEXAFLUOROTHIOACETONE DIMER

Michael Van De Puy, Cheektowaga; Louis G. Anello, Hamburg, and Martin A. Robinson, East Amherst, all of N.Y., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Dec. 18, 1980, Ser. No. 217,943
Int. Cl.³ C07C *45/56*
U.S. Cl. 568—386 **8 Claims**

1. A process for preparation of hexafluoroacetone, which comprises reacting, at elevated temperatures, in the liquid phase, hexafluorothioacetone dimer in an aprotic solvent containing an effective amount of an alkali metal fluoride with at least about a stoichiometric amount of an oxidizing agent selected from the group consisting of HgO, Ag_2O, Cu_2O, CuO, P_2O_5, MIO_3 and MIO_4 wherein M is an alkali metal or alkaline earth metal.

4,334,100

PRODUCTION OF ALDEHYDES

Jens Hagen, Ketsch, and Klaus Bruns, Krefeld-Traar, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA), Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Nov. 14, 1979, Ser. No. 94,275
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849742
Int. Cl.³ C07C *45/50*
U.S. Cl. 568—444 **1 Claim**

1. A process for preparing aldehydes by hydroformylation of monoterpene compounds, which comprises reacting a monocyclic or bicyclic monoterpene compound selected from the group consisting of limonene, camphene, β-pinene, and α-terpinene at from about 70° to 160° under a pressure of from about 100 to 400 bar and in the presence of a catalyst mixture consisting essentially of triphenyl phosphine and $RhCl(CO)[P(C_6H_5)_3]_2$.

4,334,101

METHOD FOR PREPARING METAL-CARBONYL CLUSTERS IMMOBILIZED IN ZEOLITE AND THEIR USE AS HETEROGENEOUS CATALYSTS

Elvio Mantovani; Nicola Palladino, and Antonio Zanobi, all of Rome, Italy, assignors to Snamprogetti S.p.A., Milan, Italy

Division of Ser. No. 874,196, Feb. 1, 1978, Pat. No. 4,199,478. This application Oct. 19, 1979, Ser. No. 86,350
Claims priority, application Italy, Feb. 1, 1977, 19833 A/77
Int. Cl.³ C07C *45/50, 47/00*
U.S. Cl. 568—454 **2 Claims**

1. The use as heterogeneous catalysts in hydroformylation reactions of olefins and dienes, of metal carbonyl clusters trapped in the interior of the crystalline structure of zeolites, prepared by exchanging a zeolite with a metal in the form of a salt or an ion complex, subsequently reducing and carbonylating the metal itself, forming metal carbonyl clusters in the interior of said zeolite, hydroformylating an olefin or a diene under a pressure in a range of from about 50 to about 100 atmospheres, at a temperature in a range of from about 80° C. to about 130° C. in the presence of said zeolite having said metal carbonyl clusters trapped in the interior thereof and recovering aldehyde.

4,334,102

REMOVING LIQUID HYDROCARBONS FROM POLYETHER SOLVENTS

Wilmot H. Decker, Morris Plains, and Kurt Theurer, Flanders, both of N.J., assignors to Allied Corporation, Morristown, N.J.

Filed Apr. 2, 1981, Ser. No. 250,460
Int. Cl.³ C07C *41/38*
U.S. Cl. 568—621 **15 Claims**

1. A method of removing normally liquid hydrocarbons from a solution of said normally liquid hydrocarbons in a polyether solvent which is a dialkyl ether of a polyalkylene glycol which comprises:

(a) mixing the solution of normally liquid hydrocarbons in polyether solvent with an aqueous solution of at least 5 weight percent of a salt relatively insoluble in anhydrous polyether solvent;

(b) removing at a first temperature below about 40° C. a first organic layer containing liquid hydrocarbons from the remaining aqueous layer containing polyether solvent and salt;

(c) heating the remaining aqueous layer to a second temperature above about 40° C. where the remaining aqueous layer separates into a second organic layer containing polyether solvent and an aqueous salt solution; and

(d) removing the aqueous salt solution.

4,334,103

PROCESS FOR HETEROGENEOUS NUCLEOPHILIC SUBSTITUTION REACTIONS

Laszlo Töke; Gabor T. Szabo; Gabor Szabo; Lajos Nagy, and Istvan Rusznak, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Budapest, Hungary

Continuation-in-part of Ser. No. 953,164, Oct. 20, 1978, Pat. No. 4,229,366. This application Jun. 27, 1980, Ser. No. 163,431
Claims priority, application Hungary, Oct. 20, 1977, CI 1779
Int. Cl.³ C07C *17/20, 29/58, 41/01*
U.S. Cl. 568—631 **11 Claims**

1. A process for carrying out a nucleophilic substitution reaction which comprises the step of conducting the reaction in a heterogeneous system containing a nucleophilic reagent selected from the group consisting of an alkali metal, alkali earth metal or ammonium halide, hydroxide or phenolate and a benzyl halide substrate wherein one of said nucleophilic reagent and said benzyl halide substrate is in a solid state and the other is in a dissolved state, a water-immiscible solvent, water, and a phase transfer agent selected from the group consisting of a polymerizate of a lower alkylene glycol, a polymerizate of a lower alkylene glycol with a dilower alkylamine group or 1-piperidyl group terminally substituted thereon, a mixture of a polymerizate of a lower alkylene glycol and a triloweralkyl amine, and mixtures thereof.

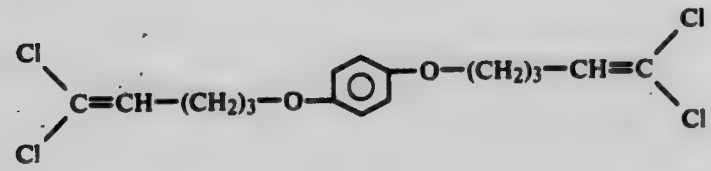
4,334,104

HYDROQUINONE DIETHER HAVING JUVENILE HORMONE AND ACARICIDE ACTIVITY

Franco Bettarini, Novara; Pietro Massardo, Milan; Paolo Piccardi, Milan, and Angelo Longoni, Milan, all of Italy, assignors to Montedison S.p.A., Milan, Italy

Continuation-in-part of Ser. No. 50,335, Jun. 20, 1979, abandoned. This application Oct. 20, 1980, Ser. No. 198,489
Claims priority, application Italy, Jun. 21, 1978, 24794 A/78; Mar. 5, 1979, 20734 A/79
Int. Cl.³ C07C *43/205*
U.S. Cl. 568—649 1 Claim

1. A hydroquinone diether which is 1,4-di-(5,5-dichloro-4-pentenyloxy)-benzene of formula:



4,334,105

METHOD FOR THE DEHALOGENATION OF ETHERS

Ross C. Terrell, Clark, and Kirsten Hansen, Berkeley Heights, both of N.J., assignors to Airco, Inc., Montvale, N.J.

Continuation of Ser. No. 33,293, Apr. 25, 1979, abandoned. This application Aug. 8, 1980, Ser. No. 176,297
Int. Cl.³ C07C *41/24, 41/44, 41/18*
U.S. Cl. 568—682 17 Claims

1. A method for the dehalogenation of haloethers comprising providing a haloether having the formula:

$$CX'_3\text{-}[CY_2]_n\text{-}O\text{-}CZ_2\text{-}CX_3$$

where n is 0 or 1, and wherein

(a) when n is O, CX'_3 is selected from the group consisting of CH_3 and CF_2A, where A is selected from the group consisting of H, F, Cl and Br, CZ_2 is selected from the group consisting of CF_2, CFA', and CA'_2, where A' is selected from the group consisting of Cl and Br, provided that when CZ_2 is CF_2, CX_3 is selected from the group consisting of CFA'_2 and CA'_3, when CZ_2 is CFA', CX_3 is CFA'_2, and when CZ_2 is CA'_2, CX_3 is CF_3; and provided that CZ_2 and CX_3 are not both reducible, but at least one of CZ_2 and CX_3 is reducible; and

(b) when n is 1, CZ_2 and CX_3 are the same as in (a) and either (1) CY_2 and CX'_3 are the same as CZ_2 and CX_3, respectively, in (a) or (2) CY_2 is selected from the group consisting of CF_2, CFA", CHA' and CH_2 provided that when CY_2 is CF_2, CX'_3 is selected from the group consisting of CF_3, CHFA', CHA'_2 and CF_2A", A" being selected from the group consisting of H, Cl and Br, when CY_2 is CFA", CX'_3 is selected from the group consisting of CF_3 and CF_2A', where CY_2 is CHA', CX'_3 is CF_3 and when CY_2 is CH_2, CX'_3 is selected from the group consisting of CF_3, CH_3 and CHF_2, and

contacting said haloether with a hydrogen donor comprising an amine selected from the group consisting of primary alkylamines, secondary alkyl amines, primary, secondary and tertiary alkanol amines.

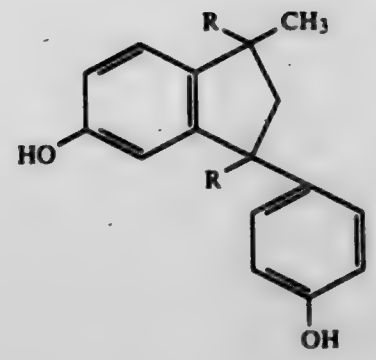
4,334,106

PROCESS FOR THE PREPARATION OF HYDROXYPHENYL-INDANOLS

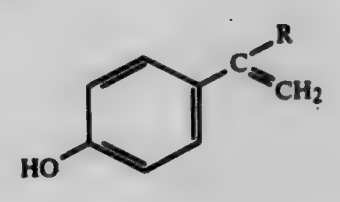
Shenghong A. Dai, Wallingford, Conn., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Feb. 5, 1981, Ser. No. 231,789
Int. Cl.³ C07C *37/11, 37/20, 39/12*
U.S. Cl. 568—719 13 Claims

1. A method for preparing a hydroxyphenyl-indanol having the formula



wherein R is lower-alkyl, comprising dissolving a phenol selected from the group consisting of an isopropenylphenol having the formula



wherein R is defined as above, oligomers thereof, and mixtures of any of said group in any combination and proportion, in a stoichiometric excess of an organic acid selected from the group consisting of trifluoroacetic acid, trichloroacetic acid, difluoroacetic acid, dichloroacetic acid, fluoroacetic acid, chloroacetic acid, formic acid, and mixtures thereof, at a temperature falling within a range of from about 0° C. to about 90° C. to form a solution; and maintaining said solution at a temperature falling within the above said range until the formation of said indanol is substantially complete.

4,334,107

CATALYTIC PURIFICATION OF PHENOL

Jan F. Van Peppen, Chester, Va., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Nov. 21, 1980, Ser. No. 208,903
Int. Cl.³ C07C *37/86, 45/00*
U.S. Cl. 568—749 6 Claims

1. A method to purify crude phenol containing acetol and alpha-methyl styrene prior to hydrogenation comprising

contacting the crude phenol with a catalyst while

heating the crude phenol and catalyst to a temperature between about 140° C. and about 190° C.

at a pressure between about atmospheric and about 70 psig.

in an inert atmosphere

so that the catalyst causes a reaction between the impurities acetol and alpha-methyl styrene to form cumene and pyruvic aldehyde, then

heating the resultant compounds for a period of 0.1 to about six hours under an inert gas sweep to a temperature of from about 150° C. to about 190° C. until the pyruvic aldehyde decomposes and its decomposition products are swept away in the gas sweep,

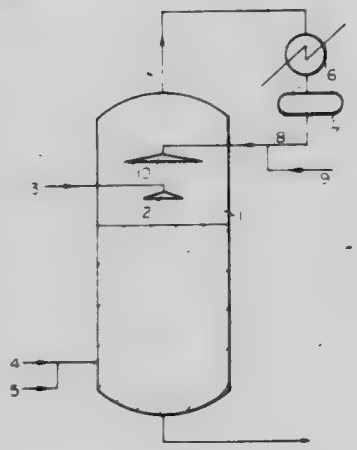
and said catalyst is selected from the group consisting of palladium, platinum, rhodium and ruthenium supported on a support selected from the group consisting of carbon, aluminum oxide and silica.

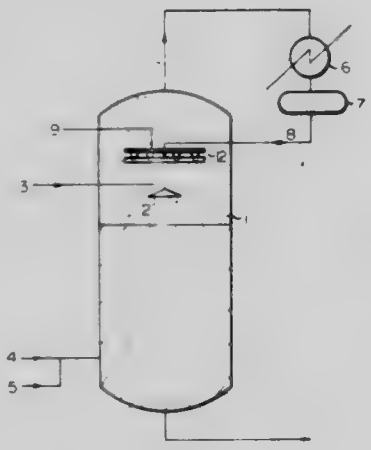
4,334,108

PROCESS AND APPARATUS FOR PREPARATION OF PHENOLS

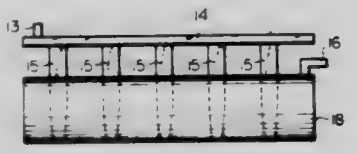
Katsuhiko Hashimoto; Hirohiko Nambu, both of Iwakuni; Kazuhiro Watari, Waki; Kenichi Mizuno, Iwakuni; Tadateru Murakami, Otake; Yutaka Matsuoka, Iwakuni; Mitsutoshi Moriyama, Musashino, and Norio Ohno, Waki, all of Japan, assignors to Mitsu Petrochemical Industries Ltd., Tokyo, Japan

Filed Jun. 30, 1980, Ser. No. 164,147
Claims priority, application Japan, Jun. 30, 1979, 54-82019
Int. Cl.³ C07C *37/60*
U.S. Cl. 568—803 10 Claims









1. In a process for the preparation of phenols which comprises reacting an α-hydroxyalkyl-substituted aromatic compound and/or an α,β-unsaturated alkyl-substituted aromatic compound with hydrogen peroxide in the presence of an acid catalyst, at a temperature of 20° to 100° C., the improvement wherein the hydrogen peroxide is diluted with a diluent comprising acetone so that the volume is 10 to 100 times the original volume, and the diluted hydrogen peroxide is supplied in a divided manner to at least two portions of the reaction vessel.

4,334,109

SYNTHESIS OF 4-HALOALKYL ALCOHOLS

Kenneth G. Hammond, Poughkeepsie, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Jan. 5, 1979, Ser. No. 1,241
Int. Cl.³ C07C *29/64, 31/36*
U.S. Cl. 568—841 6 Claims

1. A process for synthesizing a chlorobutanol comprising reacting at a temperature of 20° to 87° C. tetrahydrofuran and hydrogen chloride in the presence of 1 to 30 parts by weight per 100 parts by weight of tetrahydrofuran of a polymeric resin which is not degraded under the reaction conditions having pendant $N(R)_3X$ or $N(R)_2$ groups where R is an alkyl group having from 1 to 10 carbon atoms and where X is chloride, bromide or iodide; said resin being insoluble in said 4-chlorobutanol.

4,334,110

METHOD OF PRODUCING SYMMETRICAL TRINITROBENZENE

Erik Bengtsson; Nils Billingsson, both of Karlskoga; Karl-Johan Persson, Storfors, and Bengt-Olov Bäckman, Karlskoga, all of Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Sep. 24, 1980, Ser. No. 190,136
Claims priority, application Sweden, Sep. 27, 1979, 7908005
Int. Cl.³ C07C *76/02, 79/10*
U.S. Cl. 568—932 9 Claims

1. A method of producing 1,3,5-trinitrobenzene (symmetrical trinitrobenzene) through direct oxidation of 2,4,6-trinitrotoluene (TNT) with nitric acid (HNO_3) under pressure and at an elevated temperature above 150° C. wherein said oxidation is carried out as a continuous process by feeding 2,4,6-trinitrotoluene and a theoretical excess of nitric acid of at least 100% based on the 2,4,6-trinitrotoluene into the lower part of a vertical reaction zone containing a vertical tube with a length to diameter ratio of 100:1 to 100:2, causing the reactants to flow through said vertical reaction zone under continuous stirring achieved by gases formed during the reaction between the reactants, maintaining the pressure in said reaction zone about 15 kg/cm^2 by adjusting the flow speed of the reactants and product through said reaction zone; and removing reaction product from the upper part of said reaction zone.

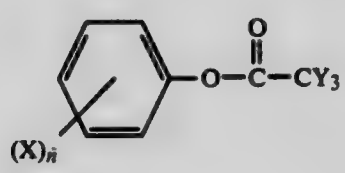
4,334,111

PROCESS FOR PREPARING SUBSTITUTED BENZOTRIHALIDES

Ralph A. Davis, and R. Garth Pews, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Feb. 17, 1978, Ser. No. 878,845
Int. Cl.³ C07C *21/24*
U.S. Cl. 570—143 16 Claims

1. A process for producing a substituted benzotrihalide compound comprising pyrolyzing a substituted phenyl trihaloacetate of the formula



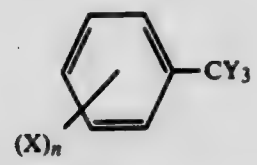
(I)

wherein each

X is halo, nitro, alkyloxy, aryloxy, aralkyloxy, cyano, lower alkyl, haloalkyl, haloalkyloxy, alkenyl, haloalkenyl, carbamoyl, N,N-dialkylcarbamoyl, N,N-diarylcarbamoyl, or N,N-diaralkyloxy;

Y is halo; and

n is an integer of from 1 to 5; to form a substituted benzotrihalide of the formula



(II)

wherein X, Y, and n are defined above.

4,334,112

PROCESS FOR PRODUCING 2,5-DICHLORO-P-XYLENE

Young-Jin Lee, South Charleston, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Oct. 5, 1978, Ser. No. 948,656
Int. Cl.[3] C07C *17/12*
U.S. Cl. 570—207 6 Claims

1. A process for producing dichlorinated p-xylene having a high ratio of 2,5-dichloro-p-xylene to 2,3-dichloro-p-xylene isomers which comprises reacting 2-chloro-p-xylene and anhydrous ferric chloride at a temperature of from 25° C. to 150° C.

4,334,113

SYNTHETIC HYDROCARBON OLIGOMERS

John P. Pellegrini, Jr., O'Hara Township, Allegheny County; David L. Beach, and Thaddeus P. Kobylinski, both of Gibsonia, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 158,482, Jun. 11, 1980, abandoned. This application Sep. 29, 1980, Ser. No. 191,867
Int. Cl.[3] C07C *5/02*
U.S. Cl. 585—18 21 Claims

1. A method for preparing a synthetic hydrocarbon fluid which comprises contacting an olefin reactant selected from 2-butene, an olefin having the formula $CH_2{=}CH{-}R$ wherein R is alkyl having from one to about ten carbon atoms, and mixtures thereof and a catalytic amount of the reaction product of tungsten hexafluoride and water wherein tungsten hexafluoride and water are reacted in a mol ratio of between about 2:1 and about 20:1.

19. A synthetic hydrocarbon fluid comprising the hydrogenated oligomer mixture containing between about 20 and about 32 carbon atoms per molecule and prepared by the oligomerization of a 1-olefin selected from propylene, 1-butene, 2-butene, and mixtures thereof with up to about 50 mol percent of 1-olefin selected from 1-pentene, 1-hexene or a mixture thereof.

4,334,114

PRODUCTION OF AROMATIC HYDROCARBONS FROM A MIXED FEEDSTOCK OF C_5–C_{12} OLEFINS AND C_3–C_4 HYDROCARBONS

John F. G. Ellis, Northwood, England, assignor to The British Petroleum Company Limited, London, England

Filed Jul. 30, 1980, Ser. No. 173,767
Claims priority, application United Kingdom, Aug. 7, 1979, 7927534
Int. Cl.[3] C07C *15/02*
U.S. Cl. 585—407 7 Claims

1. A process for converting olefins to aromatic hydrocarbons and hydrogen which comprises bringing a mixed feedstock comprising:

(a) a hydrocarbon fraction containing olefins and consisting substantially of C_5 to C_{12} hydrocarbons derived from cracked spirits from the catalytic, thermal, or steam cracking of a crude oil fraction selected from the group consisting of distillate oils, light heavy distillate oils, atmospheric residue and vacuum residue; and

(b) saturated and/or unsaturated C_3–C_4 hydrocarbons derived from by-product gases from thermal, catalytic, or steam cracking of wax distillates, residues and deasphalted oils either before or after hydrotreating

in which the relative proportions of the hydrocarbon fraction containing olefins (a) and the C_3–C_4 hydrocarbons (b) in the mixed feedstock is between 1:3 and 3:1 by volume into contact in the vapor phase and at an elevated temperature with a catalyst composition comprising an aluminosilicate having a gallium compound deposited thereon and/or an aluminosilicate in which the cations have been exchanged with gallium ions, said aluminosilicate having a silica to alumina ratio of at least 5:1.

4,334,115

PROCESS FOR MAKING TERT-BUTYLTOLUENES

Raymond L. Cobb, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 18, 1981, Ser. No. 274,982
Int. Cl.[3] C07C *15/395*
U.S. Cl. 585—407 6 Claims

1. A process for obtaining at least one tert-butyltoluene selected from the group consisting of 4-tert-butyltoluene and 3,5-di-tert-butyltoluene comprising reacting a hydrocarbon feed comprising isobutylene and isobutene in the liquid phase in a reaction zone in the presence of liquid hydrocarbon fluoride under conditions suitable for producing at least one of said tert-butyltoluenes, separating the acid from the hydrocarbon product, and separating at least one of said tertbutyltoluenes from the hydrocarbon product.

4,334,116

DEHYDROGENATION USING PROMOTED MOLYBDENUM-COPPER-TIN CATALYSTS

Louis J. Velenyi, Lyndhurst, and Andrew S. Krupa, Twinsburg, both of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Division of Ser. No. 102,087, Dec. 10, 1979, Pat. No. 4,279,777. This application Apr. 27, 1981, Ser. No. 258,151
Int. Cl.[3] C07C *4/02*
U.S. Cl. 585—440 5 Claims

1. A process for dehydrogenating a dehydrogenatable hydrocarbon comprising contacting the hydrocarbon with a catalyst of the formula:

$$Mo_aCu_bSn_cA_dL_eO_x$$

wherein

A is selected from the group consisting of Li, Na, K, Cs, Mg, Ca, Sr, Ba, La, Ce, Th, U and mixtures thereof;

L is selected from the group consisting of Zn, Cd, Hg, Al, Ga, In, Tl, Ti, Zr, Hf, Nb, Ta, Ag, Au, Te, Se, Bi, Sb, Cr, As, S, Re, Mn, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt and mixtures thereof; and

wherein

a is 0.1–15;
b is 0.1–15;
c is 0.05–12;
d is 0.01–10;
e is 0–12; and
x is the number of oxygens sufficient to satisfy the valence requirements of the other elements present.

4,334,117

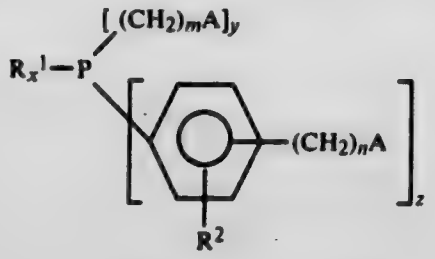
PROCESS FOR PRODUCING ALKADIENES

Noriaki Yoshimura, and Masuhiko Tamura, both of Kurashiki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Sep. 4, 1980, Ser. No. 183,500
Claims priority, application Japan, Sep. 10, 1979, 54-116276
Int. Cl.[3] C07C *11/12*
U.S. Cl. 585—509 7 Claims

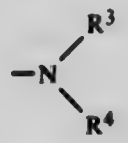
1. A process for producing alkadienes which comprises (1) contacting butadiene or isoprene with at least one catalyst selected from the group consisting of platinum and palladium and compounds of said metals in a sulfolane solution, in the

presence of a tertiary lower alkylamine formate and at least one phosphine compound of the general formula (I)



(I)

wherein R^1 is a substituted or unsubstituted hydrocarbon group of 1 to 10 carbon atoms; R^2 is a hydrogen atom, a saturated aliphatic hydrocarbon group of 1 to 5 carbon atoms, a nitro group or a halogen atom; m is equal to 1, 2 or 3; n is equal to 0 or 1; x is equal to 0, 1 or 2; y and z each is 0, 1, 2 or 3 (provided that y and z are not concurrently equal to 0 and that $x+y+z=3$); A is $-SO_3M$ wherein M is a cation selected from the group consisting of H, alkali metals, alkaline earth metals and NH_4 or the formate or an inorganic acid salt of



wherein R^3 and R^4 each is a saturated aliphatic hydrocarbon group of 1 to 4 carbon atoms, in an amount of 4 to 200 moles per gram atom of the metal constituting the catalyst to form dimeric alkadienes; (2) separating the reaction mixture into an alkadiene-containing layer and a catalyst-containing layer; and (3) recycling said catalyst-containing layer to the alkadiene production process.

4,334,118

SOLID PHOSPHORIC ACID CATALYZED OLEFIN POLYMERIZATION PROCESS

John F. Manning, Moraga, Calif., assignor to Chevron Research, San Francisco, Calif.

Filed Jun. 1, 1981, Ser. No. 268,943

Int. Cl.³ C07C *2/04*

U.S. Cl. 585—529 **9 Claims**

1. In a process for polymerizing C_3-C_{12} olefins to produce lower polyolefins which comprises contacting a mixed liquid/-vapor olefin feed stream with a solid phosphoric acid catalyst having a siliceous support under polymerization conditions, the improvement wherein said catalyst has a phosporic acid strength in the range of about from 100 to 108 wt. %, and said olefin feed stream comprises an amount of an alkanol, selected from the group consisting of alkanols which are reactive at the polymerization conditions used for said process to decompose at yields of at least 50% upon contact with said solid phosphoric acid catalyst under said polymerization conditions generating water as a decomposition product, effective to maintain the phosphoric acid strength of said catalyst within said range by replacing at least a portion of the water discharged from said catalyst during said polymerization with water generated by decomposition of said alkanol.

4,334,119

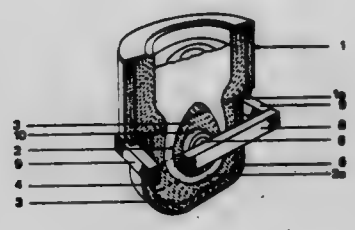
CHANNEL FURNACE HAVING A MAGNETIC CORE FOR GENERATING THREE-DIMENSIONAL MAGNETIC FIELDS

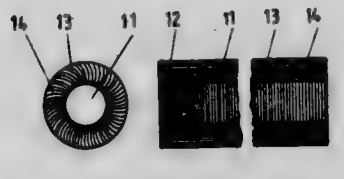
Heinz Baltensperger, Mellingen; Karl Buhler, Nussbaumen, and Werner Schott, Baden, all of Switzerland, assignors to BBC Brown, Boveri & Company, Ltd., Baden, Switzerland

Continuation-in-part of Ser. No. 78,688, Sep. 25, 1979. This application Jan. 30, 1981, Ser. No. 229,941

Int. Cl.[3] H05B *5/14*

U.S. Cl. 373—159 2 Claims





1. A channel furnace for metals, comprising:

a melting tank;

a duct forming a loop below said tank, said duct having an inner channel connected to two different zones in the bottom of said tank; and

an inductor disposed within said loop for producing a three-dimensional magnetic field to heat and circulate metal in said channel, said inductor including:

a magnetic core having an inner core formed from a plurality of disk-shaped sheets stacked upon one another to form a substantially cylindrical core and an outer core surrounding said inner core formed from a plurality of elongated sheets extending in the longitudinal direction of the core, each elongated sheet being generally radially oriented, and

a coil surrounding said magnetic core.

4,334,120

SUNLIGHT-INTO-ENERGY CONVERSION APPARATUS

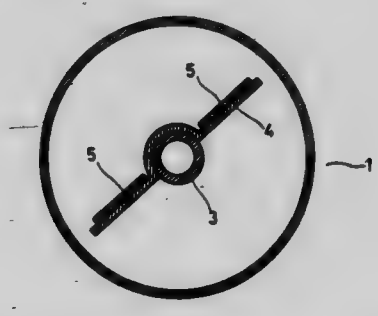
Masaru Yamano, Hirakata, and Yukinori Kuwano, Takatsuki, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Mar. 12, 1980, Ser. No. 129,716

Claims priority, application Japan, Mar. 20, 1979, 54-32814; Feb. 13, 1980, 55-16901

Int. Cl.[3] H01L *31/04*; F24J *3/02*

U.S. Cl. 136—248 13 Claims



1. A sunlight-into-energy conversion apparatus, comprising:

a heating medium tube;

a heat collecting element thermally connected to the heating medium tube and having a surface; and

at least one amorphous silicon solar cell located on said surface and having a thickness such that the infra-red portion of sunlight incident upon said at least one solar cell will pass therethrough and will heat the heat collecting element.

4,334,121

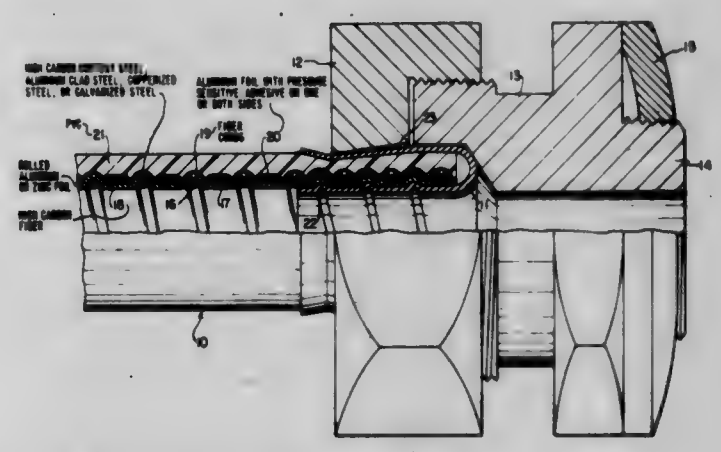
ELECTRICAL CONDUIT INCLUDING HELICAL GROUNDING AND REINFORCING ELEMENTS

Thomas A. Kutnyak, Greenwood, S.C., assignor to Automation Industries, Inc., Greenwich, Conn.

Filed May 15, 1980, Ser. No. 150,212

Int. Cl.[3] H02G *3/04*; F16L *11/10, 11/12*

U.S. Cl. 174—68 C 23 Claims



16. An electrical conduit comprising

(a) a self-supporting helix;

(b) a foil channel applied helically about the helix and spanning the turns thereof, the edges of the channel being spaced apart over the turns of the helix;

(c) an electrically conductive grounding element applied helically about the channel; and

(d) an outer circumferentially complete jacket.

19. An electrical conduit and end fitting assembly comprising

(a) an electrical conduit comprising

i. a self-supporting helix;

ii. a foil channel applied helically about the helix and spanning the turns thereof, the edges of the channel being spaced apart over the turns of the helix;

iii. an electrically conductive grounding element applied helically about the channel; and

iv. an outer circumferentially complete jacket; and

(b) an end fitting comprising

i. a cylindrical insert forcibly screwed into an end portion of the conduit;

ii. the insert having a helical exterior land of a pitch equal to that of the self-supporting helix;

iii. the helical land deforming the center of the channel outwardly.

4,334,122

BIMETALLIC ELECTRICAL CONNECTOR AND METHOD FOR MAKING SUCH CONNECTOR

Moreland P. Bennett, Hickory, N.C., assignor to General Electric Company, Philadelphia, Pa.

Filed Jun. 25, 1980, Ser. No. 163,007

Int. Cl.[3] H01R *4/02*

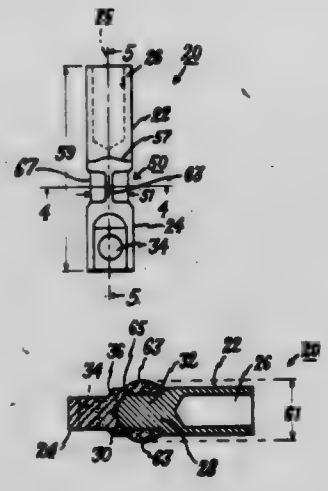
U.S. Cl. 174—94 R 4 Claims

1. An electrical terminator comprising:

a first member of a copper material having a first end portion, a cylindrical middle portion, a cylindrical second end portion and an opening extending from said cylindrical second portion to said cylindrical middle portion, said first end portion having means for coupling to an electrical conductor, said cylindrical middle portion having a circumferential depression in its major portion and two radi-

ally-outwardly projecting lips at diametrically opposite locations extending longitudinally of said middle portion, said opening having a chamber at its inner end with a circumferentially extending pocket located at the entrance to said chamber, the pocket projecting radially outwardly from the adjacent portion of said opening, and;

a second member of an aluminum material having a first end portion and a second portion, said first end portion having



means for coupling to an electrical conductor, said second portion extending through said opening bonded to the walls of said opening, and extruded into said chamber to a position located past said pocket at the entrance of said chamber and having a portion filling said pocket;

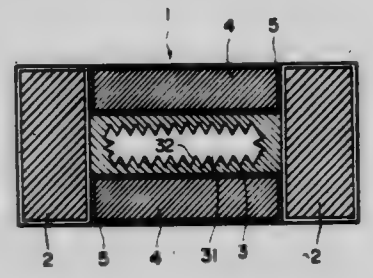
said circumferential depression having lips and said extrusion of the aluminum second portion forming an interlocking joint of said second member within said first member.

4,334,123

INTERNAL COOLING TYPE SUPERCONDUCTOR

Naofumi Tada, Hitachi; Hiroshi Kimura, Tokyo, and Hisanao Ogata, Shimoinayoshi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 14, 1980, Ser. No. 206,728
Claims priority, application Japan, Nov. 16, 1979, 54-147790
Int. Cl.³ H01B *12/00*
U.S. Cl. 174—15 S **9 Claims**



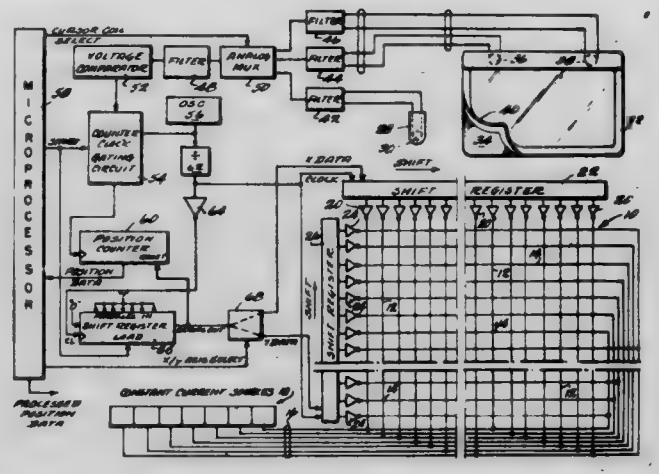
1. An internal cooling type superconductor having at least one wire of superconductive material throughout its length, a stabilizer joined to the superconductive material, a coolant passage formed in the stabilizer and extending in the length direction of said superconductor forming means to pass a coolant fluid and cool said superconductor and helium within said passage, the improvement being in that a ratio of a total circumferential length of said coolant passage contacting with supercritical helium as a coolant to a total sectional area of said coolant passage is greater than 25 (cm^{-1}), and that the total sectional area of said coolant passage is at least 4 percent of the total sectional area of said superconductor.

4,334,124

FLOATING COORDINATE SYSTEM

Bruce E. Imsand, and Robert L. Kuehlthau, both of Huntsville, Ala., assignors to Intergraph Corporation, Huntsville, Ala.

Filed Mar. 26, 1980, Ser. No. 134,345
Int. Cl.³ G08C *21/00*
U.S. Cl. 178—19 **25 Claims**



1. A method for determining the position of a device with respect to a first coordinate system and a second coordinate system in a computer coordinate entry system comprising the steps of:

producing data related to the position of said device with respect to said first coordinate system;

producing data related to the position of said second coordinate system with respect to said first coordinate system; and

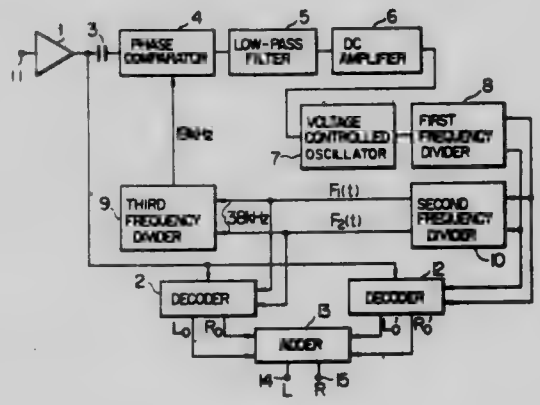
generating from said device positional data and said second coordinate system positional data a signal related to the position of said device with respect to said second coordinate system.

4,334,125

STEREO DEMODULATOR CIRCUIT

Shigeki Inoue, Toyokawa, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 6, 1980, Ser. No. 118,974
Claims priority, application Japan, Feb. 13, 1979, 54/14230
Int. Cl.³ H04H *5/00*
U.S. Cl. 179—1 GE **4 Claims**



1. A stereo demodulator circuit comprising:

a voltage-controlled oscillator for generating a signal having a frequency which is N times (N being an integer not less than 3) the frequency of a sub-carrier in synchronism with the phase of a pilot signal contained in a composite signal;

a first frequency divider supplied with an output signal from said voltage-controlled oscillator and dividing by N the frequency of the output signal from said voltage-controlled oscillator for producing a first switching signal having the same frequency as said sub-carrier frequency;

a second frequency divider supplied with an output signal from said voltage-controlled oscillator and dividing the

frequency of the output signal from said voltage-controlled oscillator for producing a second switching signal having a frequency which is 3 times the frequency of said sub-carrier;

a first circuit means supplied with said composite signal for producing a first output signal;

a second circuit means supplied with said composite signal for producing a second output signal which is one-third the amplitude of the first output signal from said first circuit means;

a first switching circuit supplied with said first switching signal and the first output signal of said first circuit means for separating a left and a right channel signal from said composite signal;

a second switching circuit supplied with said second switching signal and the second output signal of said second circuit means for separating a left and a right channel signal from said composite signal;

a first adder for adding the left channel output signal of said first switching circuit to the left channel output signal of said second switching circuit; and

a second adder for adding the right channel output signal of said first switching circuit to the right channel output signal of said second switching circuit.

4,334,126

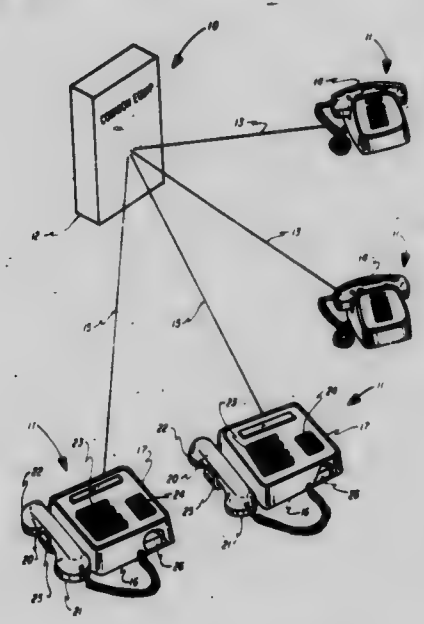
CONTROL CIRCUIT FOR CONCURRENTLY MONITORING AND CONTROLLING FUNCTIONS AND FREQUENCY MODULATING STATUS INFORMATION IN A DIGITAL DATA NETWORK

Barry Slingsby, Altomante Springs, Fla., assignor to Stromberg-Carlson Corporation, Orlando, Fla.

Filed Feb. 11, 1980, Ser. No. 120,570

Int. Cl.[3] H04Q *5/18*

U.S. Cl. 179—18 ES 11 Claims



1. A remote unit for performing various control functions and monitoring other functions in response to frequency modulated control data signals conveyed from a central location over a data signal path means, said unit comprising:

A. at least one first function means for performing a predetermined control function in response to the control data signal from the central location, each said first function means responding to the control data when it is constituted by electrical logic signals,

B. at least one second function means for generating electrical logic signals corresponding to control data to be transferred to the central location,

C. decoding means for converting the frequency modulated control data signals into electrical logical signals, and

D. control means interconnecting each said function means and said decoding means, said control means including:

i. a voltage source for generating a voltage,

ii. switching means connected to said voltage source for selectively switching a voltage onto the data signal path means, and

iii. a programmed microcomputer system means including:

(a) a plurality of output signalling means connected to said first function means and to said switching means, and

(b) a plurality of input signalling means connected to said second function means and said decoding means, said microcomputer system means generating, in response to its program, on said output signalling means connected to said switching means a frequency modulated control signal in response to signals at said input signalling means, said switching means being shifted between conductive and nonconductive states in response to the frequency modulated control signal thereby to couple the frequency modulated signals onto the data signal path means.

4,334,127

MAGNETIC CIRCUIT FOR PLANAR DIAPHRAGM TYPE LOUDSPEAKER

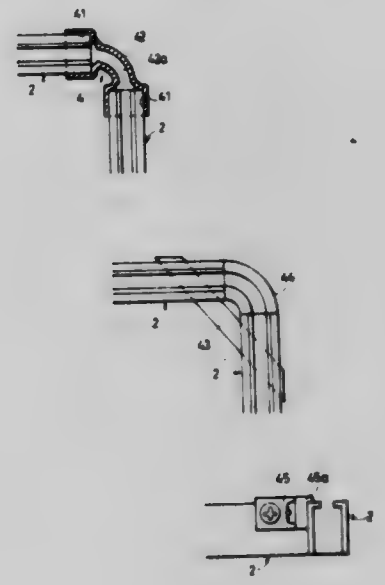
Kunihiko Shimada, and Yukio Tsuchiya, both of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

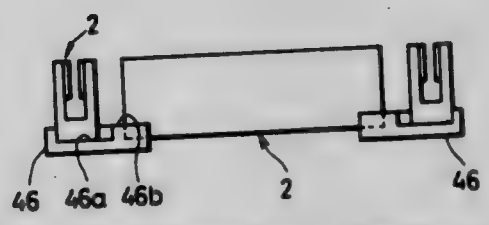
Filed Jun. 30, 1980, Ser. No. 164,128

Claims priority, application Japan, Jun. 30, 1979, 54-82956; Jun. 30, 1979, 54-82957; Jun. 30, 1979, 54-90270[U]; Jun. 30, 1979, 54-90275[U]

Int. Cl.[3] H04R *9/02*

U.S. Cl. 179—115.5 R 12 Claims





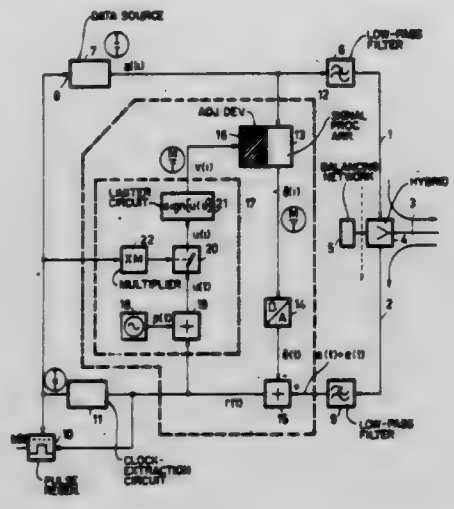
1. A magnetic circuit comprising: a plurality of straight magnetic circuit units of a predetermined length, said magnetic circuit units being arranged in a polygon; and means for mechanically and magnetically coupling said magnetic circuit units at ends thereof,

said means for mechanically and magnetically coupling said magnetic circuit units comprising an elbow section of magnetic metal, said elbow section having insert recess portions at both ends thereof and a curved coupling portion therebetween, said insert recess portions being adapted to receive ends of said magnetic circuit units.

4,334,128
ECHO CANCELER FOR HOMOCHRONOUS DATA TRANSMISSION SYSTEMS

Wilfred A. M. Snijders, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 10, 1980, Ser. No. 128,418
Claims priority, application Netherlands, Mar. 15, 1979, 7902053
Int. Cl.³ H04B 3/20
U.S. Cl. 179—170.2 1 Claim



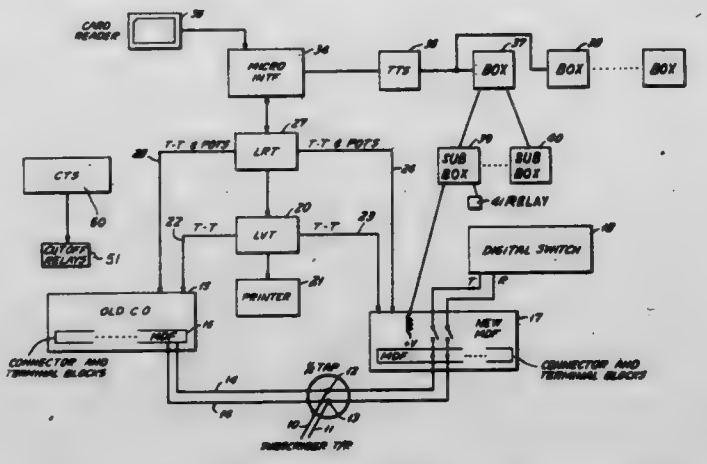
1. An echo canceller including:
an adjustable signal processing arrangement connected to a first one-way transmission path out of two one-way transmission paths of a transmission system for producing a synthetic echo signal;
first combining means connected to the second one-way transmission path of said two one-way transmission paths for combining signals occurring in the second one-way transmission path with the synthetic echo signals produced by the signal processing arrangement for generating residual signals;
adjusting means responsive to control signals for adjusting the signal processing arrangement; and
control signal generating means responsive to said residual signals and comprising limiter means for converting the limiter input signals applied thereto into a train of positive and negative pulses which are indicative of the polarity of the limiter input signal, these pulses being applied as control signal to the said adjusting means, characterized in that the said control signal generating means further comprise:
generating means for generating an auxiliary signal which is uncorrelated to the residual signals; and
second combining means arranged for algebraically combining the auxiliary signal with the residual signals for generating the limiter input signal.

4,334,129
TELEPHONE DIGITAL OFFICE CUTOVER SYSTEM

Paul V. De Luca, Plandome Manor; John J. Gazzo, Commack, and Thomas A. Hollfelder, Huntington, all of N.Y., assignors to Porta Systems Corp., Syosset, N.Y.

Filed Oct. 17, 1980, Ser. No. 197,911
Int. Cl.³ H04M 3/30
U.S. Cl. 179—175.11 2 Claims

1. A system for automated testing of telephone subscriber pairs prior to cutover from an old telephone office frame to a new digital control office frame comprising: a plurality of serially readable cards each having coded information relative to a subscriber pair, including old and new directory numbers; card reading means for serially reading said cards; a computer means interfacing with said card reader; a line verification tester interfacing with said computer means and having test trunks interconnecting the subscriber pairs in said old and new offices; signal means sensing the output of said line verification tester; half tap means interconnecting each of said subscriber pairs to said old and new offices; said old office having cut off relays corresponding to each subscriber pair, and a manually controlled cut through system controlling said cut off relays;

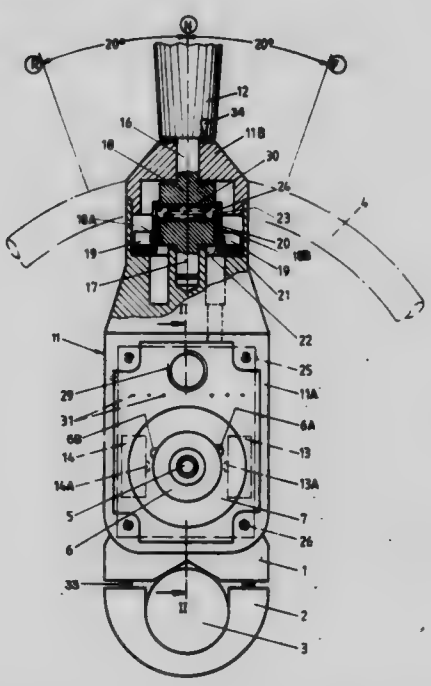


said new office having a digital switching system, and relays for interconnecting said switching system to individual subscriber pairs; and a trunk transition system interfaced with said computer means, and controlling said relays at said new office.

4,334,130
GEAR SHIFTER MOUNTED ON STEERING COLUMN OF HEAVY-DUTY VEHICLE

Willy Beig, Friedrichshafen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, Friedrichshafen, Fed. Rep. of Germany

Filed Aug. 22, 1980, Ser. No. 180,348
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1979, 2934473
Int. Cl.³ H01H 9/06
U.S. Cl. 200—61.54 7 Claims



1. A gear shifter for an automotive vehicle provided with a steering column and further provided with a gear transmission including electrical control means responsive to first and second command signals for establishing forward and reverse drive, respectively, and to a plurality of additional command signals for establishing as many different speed ratios in either driving direction,
comprising:
a mounting member fixedly securable to said steering column and provided with a pivot stud orientable substantially parallel to said column;
a hollow shift lever swingable on said pivot stud between

three pivotal positions including a forward position, a reverse position and an intermediate neutral position;

a first pair of coacting detent members on said pivot stud and in the interior of said shift lever for releasably indexing the latter in any of said pivotal positions;

a knob rotatably mounted on an extremity of said shift lever remote from said pivot stud, said knob having a stem extending into said extremity;

a second pair of coacting detent members on said stem and in said extremity for releasably indexing said knob in any of a plurality of angular positions relative to said shift lever;

first cam means on said pivot stud;

a first and a second microswitch inside said shift lever positioned for operation by said first cam means in said forward position and in said reverse position for emitting said first and said second command signal, respectively;

second cam means on said stem;

a plurality of further microswitches in said extremity positioned for operation by said second cam means in respective angular positions of said knob for emitting said additional command signals; and

conductor means extending from said shift lever for carrying said command signals to said control means.

4,334,131

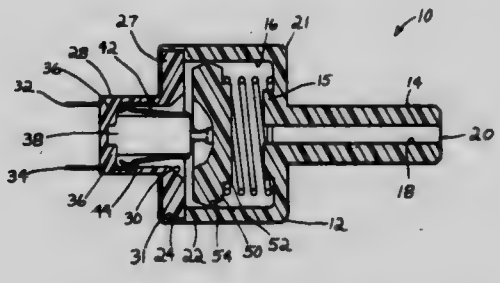
MULTI-STAGE PRESSURE SWITCH

Steven R. Cooper, Elkhart, Ind., and Kenneth L. Shaw, Edwardsburg, Mich., assignors to CTS Corporation, Elkhart, Ind.

Filed Jul. 18, 1980, Ser. No. 172,361

Int. Cl.³ H01H *35/38*

U.S. Cl. 200—82 R **15 Claims**



1. A fluid pressure differential switch, comprising an annular cover housing having an internal bore, a switch housing secured to the cover housing, a resilient means disposed in said cover housing, a circular piston disposed in the bore of said cover housing and having an integral seal about the circumference of the piston and in sealing and sliding contact with the surface of said bore, a switch drive arm having a first contactor mounted thereon and a switch arm extension and ball, said piston having a socket disposed therein and receiving said ball to universally connect the switch drive arm to the piston, and first terminals disposed inside said switch housing and extending outwardly from said switch housing, said resilient means biasing said piston in response to changes in fluid pressure differential effecting movements of said piston along said bore whereby said contactor engages and disengages from said first terminals.

4,334,132

SWITCH WITH SHAFT POSITIONING ARRANGEMENT

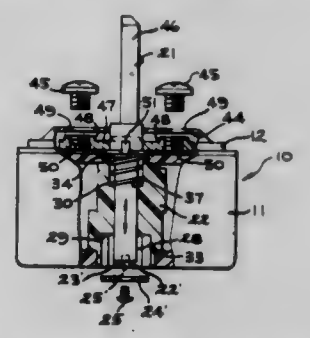
William F. Poole, Jeffersontown, Ky., assignor to General Electric Company, Louisville, Ky.

Continuation of Ser. No. 1,630, Jan. 8, 1979, abandoned. This application Aug. 15, 1980, Ser. No. 178,268

Int. Cl.³ H01H *19/58*

U.S. Cl. 200—153 LB **4 Claims**

1. A switch having a housing provided with a rotatable actuator, a set of contacts operable between open and closed positions by said actuator and a rotatable selector shaft for positioning said actuator in response to the rotational position of said shaft; said shaft extending out of the front of said housing and extending through said actuator to the rear of said housing adjacent a rear opening in said housing; a mounting member positioned in said housing; said mounting member and said housing having cooperating positioning means for selectively locating said mounting member in one of a plurality of predetermined positions spaced angularly around said shaft; said mounting member including first latching means having a different predetermined position relative to said shaft when said mounting member is in each of its plurality of positions; second latching means carried by said shaft and adapted to engage said first latching means when said shaft is in a first position to prevent rotation of said shaft until said shaft is moved axially toward the rear of said housing for disengaging said first and second latching means; removable securing means for securing said mounting member in any of its predetermined positions within said housing; axial movement of said



shaft toward the rear of said housing, with said securing means removed, freeing said mounting member for movement from one to another of its predetermined positions so that the position of the first latching means and thus the first position of said shaft is moved; an actuator driver carried by said shaft adjacent the rear of said housing and operatively interconnected to said actuator to drive said actuator upon rotation of said driver by said shaft; coupling means for coupling said driver to said shaft and fastener means carried by said shaft for locking said driver to said shaft; said fastener being located adjacent said opening in the rear of said housing and accessible therethrough to permit removal of said driver from said shaft and subsequent relocking of said driver to said shaft through said opening; said coupling means being so oriented in relation to said first and second latching means that said driver can be coupled to said shaft and operatively interconnected to said actuator when said mounting member is in any of its predetermined positions.

4,334,133

CONTACT ARRANGEMENT FOR VACUUM SWITCHES

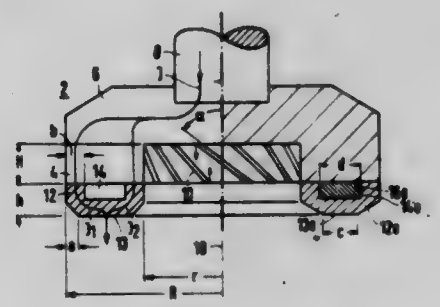
Rudolf Gebel, Erlangen; Gerhard Peche, Berlin; Heinrich Schindler, and Jürgen-Dietrich Welly, both of Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 24, 1980, Ser. No. 132,865

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1979, 2912823; Nov. 26, 1979, 2947562

Int. Cl.³ H01H *1/06*

U.S. Cl. 200—279 **22 Claims**



1. In a contact arrangement for vacuum switches with cup contacts which are arranged coaxially to each other, each comprising a slotted contact carrier which is provided with a

closed contact ring, the end face of which forms a contact surface, the improvement comprising:

(a) bevels formed on the exposed surface of the contact ring extending radially inward and outward leaving an annular flat portion of reduced width on the face of the contact ring to form the contact surface, and;

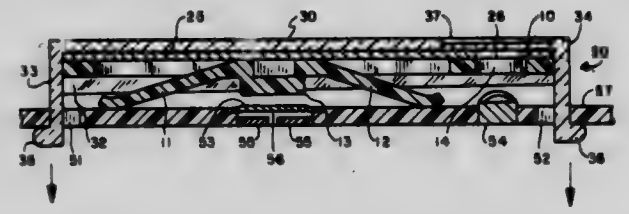
(b) an annular zone of substantially reduced conductivity as compared to the material of the contact carrier between the contact ring and the contact carrier in an area which is adjacent the annular flat portion of said contact surface whereby current will flow from said contact carrier, through the portion of said contact ring containing said bevels to said flat contact surface to result in magnetic forces which tend to stabilize the arc.

4,334,134

IDENTIFICATION CAP ACTUATOR ASSEMBLY

George M. Janda, Westchester, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Nov. 13, 1980, Ser. No. 206,493
Int. Cl.[3] H01H *9/06*
U.S. Cl. 200—314 5 Claims



1. An identification cap actuator adapted to cooperate with circuit closing a means, said circuit closing means including a circuit board having conductors thereon, a resilient dome contact element in spaced apart relationship to said conductors and adapted to make contact with said conductors upon the application of a force thereon, said circuit board further including a pair of slots extending through said circuit board each on an opposite side of said dome contact element, said identification cap actuator comprising:

a clear cap having top and bottom surfaces and at least two walls extending perpendicularly to said top and bottom surfaces, each of said walls including leg portions extending beyond said respective wall and each leg portion inserted into a different one of said circuit board slots;

a tension bar including a horizontally oriented member, a pair of arms each arm extending obliquely from said horizontal member and in opposite directions from each other and a finger located between said arms, said tension bar arranged to install within said clear cap with said arms resting on said circuit board and holding said clear cap in a spaced relation to said circuit board with said finger in juxtaposition to said dome contact element; and

an indentification insert including identifying indicia thereon sandwiched between said clear cap bottom surface and said tension bar horizontal member, said indicia visible through said clear cap top surface;

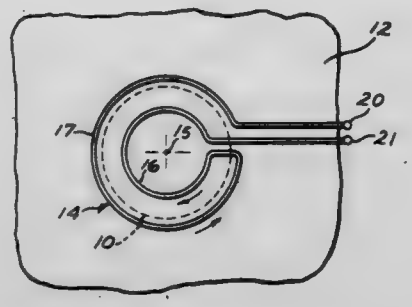
whereby, in response to a manual pressure applied to said clear cap top surface said clear cap legs extend through said respective slots and said tension bar is urged downward allowing said tension bar finger to apply said pressure to said dome contact element allowing said dome contact element to contact said conductors.

4,334,135

UTENSIL LOCATION SENSOR FOR INDUCTION SURFACE UNITS

Peter H. Smith, Anchorage, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Dec. 22, 1980, Ser. No. 218,875
Int. Cl.[3] H05B *6/12*
U.S. Cl. 219—10.49 R 4 Claims



1. An induction cooking apparatus comprising:

a cooking surface for supporting a ferrous cooking utensil, said cooking surface having a geometric center;

an induction heating coil positioned below said surface for producing an ultrasonic magnetic field linking the ferrous utensil for heating the contents of the utensil, said heating coil having a geometric center aligned with the geometric center of said cooking surface;

conductive loop means located in a plane substantially parallel to said cooking surface intermediate said cooking surface and said induction coil for providing a signal responsive to the magnetic field between said induction heating coil and the ferrous cooking utensil; said loop means being formed as a single continuous conductor including an inner loop of a smaller diameter than the smallest utensil to be used with said apparatus and an outer loop of a larger diameter than the largest utensil to be used with said apparatus, said loops being concentrically positioned with their geometric centers substantially aligned with the geometric center of said cooking surface so that the signal provided by said loop means varies from a maximum in accord with any off center positioning of the cooking utensil on said cooking surface.

4,334,136

MICROWAVE TREATING MECHANISM

Douglas P. Mahan, 1510 NE. 72nd Ave., Portland, Oreg. 97213; Richard E. Skinner, and Robert A. McClanathan, both of Portland, Oreg., assignors to Douglas P. Mahan, Portland, Oreg.

Filed Oct. 1, 1979, Ser. No. 80,665
Int. Cl.[3] H05B *6/68;* F26B *11/02*
U.S. Cl. 219—10.55 B 7 Claims

1. Microwave treating mechanism for removing moisture from articles comprising

(a) a hollow tumbler-type drum arranged to receive articles from which moisture is to be removed,

(b) support means supporting said drum on substantially a horizontal axis,

(c) drive means arranged to rotate said drum whereby articles being treated tumble across the interior of said drum,

(d) microwave power means on said support means disposed with the output thereof directed in an axial direction into said drum for engaging articles tumbling across the rotating drum for removing moisture therefrom,

(e) an electric circuit for said power means,

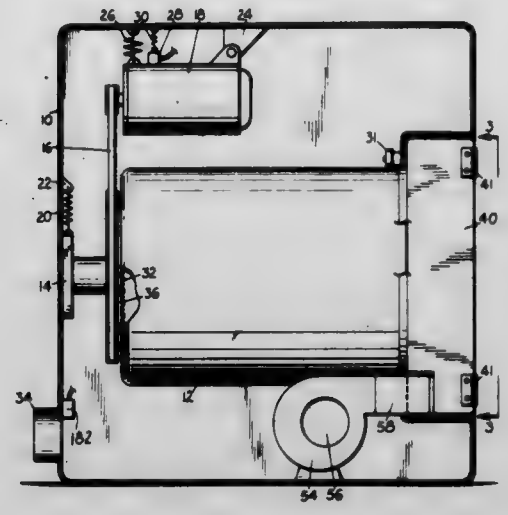
(f) control means in said circuit for said power means,

(g) and forced air means in said mechanism moving heated air through said drum for carrying away moisture within said drum,

(h) said forced air means including air inlets into said support means and drum,

(i) an air outlet from said drum,

(j) and a passageway between said inlet and outlet
(k) said passageway extending adjacent to said power means in an arrangement such that forced air that removes moisture from said drum cools said power means and said power means in being cooled causes said forced air to be heated before its entry into said drum to increase the vapor carrying capabilities of said forced air.

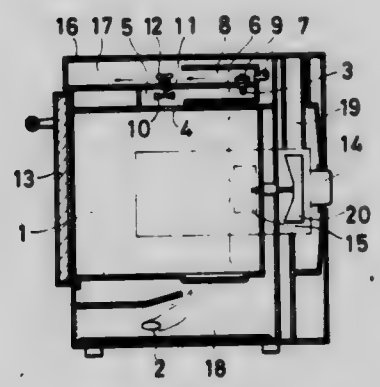


4,334,137

ARRANGEMENT FOR COOKING EITHER WITH A HEAT SOURCE OR A MICROWAVE SOURCE

Hidehiko Takagi, Ichinomiya; Hisao Hayashi; Kazuo Ogawa, both of Nagoya, and Yoshihiro Kanaya, Konan, all of Japan, assignors to Rinnai Kabushiki Kaisha, Fukuzumi, Japan

Filed Oct. 18, 1979, Ser. No. 86,066
Claims priority, application Japan, Oct. 25, 1978, 53-145776
Int. Cl.³ H05B 6/74
U.S. Cl. 219—10.55 F 5 Claims



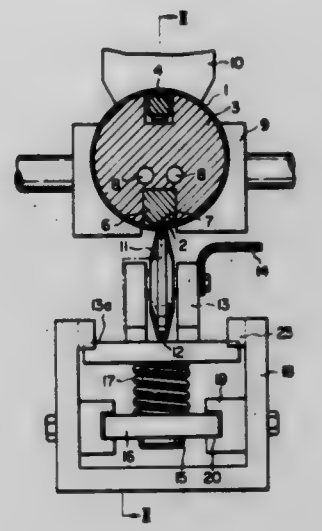
1. An apparatus for cooking either with a heat source or a microwave source, comprising: a heating chamber provided with a heat source; a stirrer chamber on an outer side of said heating chamber; a partition plate air-tightly separating the heating chamber from the stirrer chamber; a waveguide in communication with said stirrer chamber and extending sidewards therefrom; a magnetron having an output connected to the waveguide, whereby cooking by heat from the heat source and cooking by microwave with the magnetron can be carried out as selected; a ventilation duct on the outer side of said stirrer chamber and said waveguide; a cooling fan in communication with said ventilation duct; said ventilation duct having upstream and downstream sides; a radiation fin on said magnetron and disposed in the upstream side of said ventilation duct; a windmill on the downstream side of said ventilation duct; a stirrer in said stirrer chamber; a shaft connecting said stirrer to said windmill; and said stirrer chamber and said ventilation duct being partitioned air-tightly to prevent microwave leakage.

4,334,138

METHOD OF ELECTRIC WELDING TINFREE CANS

Kenji Matsuno, Yokohama, and Hiroyuki Funamoto, Tokyo, both of Japan, assignors to Toyo Seikan Kaisha, Limited, Tokyo, Japan

Filed May 19, 1980, Ser. No. 150,775
Claims priority, application Japan, Aug. 6, 1979, 54-99479; Aug. 23, 1979, 54-106696
Int. Cl.³ B23K 11/06
U.S. Cl. 219—64 7 Claims



1. A method of making a tinfree steel can body having a mash welded side seam from a blank of a tinfree steel, said tinfree steel having a surface chromium layer consisting of a metallic chromium layer of 20~200 mg/m^2 and a chromium oxide layer thereon of 5~30 mg/m^2 in terms of chromium which comprises

preparing a can body preform having a side lapped portion, formed from the blank of said tinfree steel whose opposite marginal portions to be overlapped remain as they are without removing said surface chromium layer, said lapped portion being formed by overlapping said marginal portions, so that the width of said lapped portion is 0.2~1.2 mm;

providing a cooled elongated electrode having an electrode surface the width of which is greater than that of said lapped portion, and a cooled rotary electrode opposite to said elongated electrode and having an electrode surface the width of which is greater than that of said lapped portion, and a radius of curvature of at least 50 mm;

placing said can body preform such that the inner side of said lapped portion is opposed to said electrode surface of said elongated electrode;

moving said rotary electrode in the direction of said lapped portion while pressing the whole width of said lapped portion between said electrode surfaces of said elongated electrode and said rotary electrode with a welding force of 40 to 500 kg and satisfying the relationship of $1/1000 \leqq L/W \leqq 1/00$, wherein L is the width of said lapped portion in mm and W is the welding force in kg; and

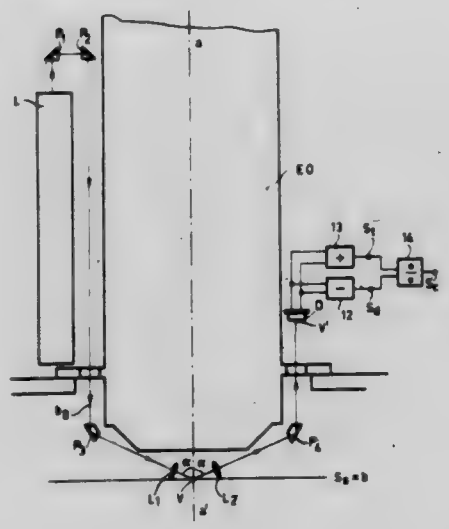
simultaneously, applying an A.C. current between said elongated electrode and said rotary electrode, and seam resistant welding said lapped portion, so as to form a mash welded side seam whose thickness is 1.0 to 1.6 times as large as the thickness of the blank of said tinfree steel, at least the portion of the inner surface of said side seam which was brought into contact with said elongated electrode being covered with said surface chromium layer.

4,334,139

APPARATUS FOR WRITING PATTERNS IN A LAYER ON A SUBSTRATE BY MEANS OF A BEAM OF ELECTRICALLY CHARGED PARTICLES

Stefan Wittekoek, and Theodorus A. Fahner, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 9, 1980, Ser. No. 157,993
Claims priority, application Netherlands, Jun. 12, 1979, 7904580
Int. Cl.³ B23K *15/00*
U.S. Cl. 219—121 EW 7 Claims



1. An apparatus for writing patterns in a layer of a substrate by means of a charged particle beam, said apparatus comprising:

a. a source for producing a charged particle beam along a beam axis;

b. means for moving the substrate relative to the beam axis;

c. an electrical lense for focusing the charged particle beam onto the layer;

d. deflection means for deflecting the charged particle beam to predetermined positions on the substrate;

e. an optical system including:

1. a radiation source for producing an optical beam;

2. first optical means for focusing the optical beam into a spot on the surface of the substrate; and

3. second optical means for forming an image of the spot in a plane of the optical system; and

f. detection means for detecting the position in said plane at which the image is formed, and for producing a signal representative of a lateral positional error of the image caused by a deviation between the actual and a desired distance of the deflection means from the substrate surface, said signal being utilizable by the deflection means for automatically adjusting the deflection angle of the charged particle beam to prevent lateral positional errors of said charged particle beam.

4,334,140

PIPE CLAMP WITH IMPROVED BAND CONNECTION

James C. Morriss, Jr., Nash, Tex., assignor to JCM Industries, Inc., Nash, Tex.

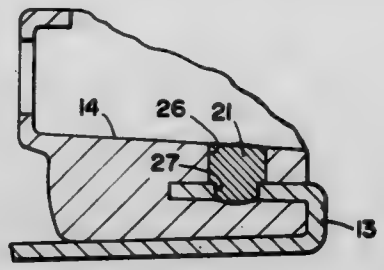
Continuation of Ser. No. 786,456, Apr. 11, 1977, abandoned.
This application Apr. 27, 1979, Ser. No. 33,910
Int. Cl.³ B23K *9/225;* B65D *63/02*
U.S. Cl. 219—127 4 Claims

1. In the production of a low-bolt pipe clamp of the type having a malleable band secured to cast metal lugs, which in service are drawn together by bolts to seal together two sections of pipe, a method for securing the malleable band to each cast metal lug to produce a high-strength, shear resistant connection, comprising the steps of:

providing an integrally formed cast lug with open jaws across its width, spaced apart sufficiently to receive the end of the band between them, with holes through at least one jaw, spaced across its width;

inserting the band into the cast lug between the open jaws, with spaced holes in the band end aligned in registry with the jaw holes; and

welding the jaws and the band together through the aligned



holes and filling the holes with weld, generally flush with the outer surface of the jaw, thereby permanently maintaining the jaw spacing and providing locations where the two jaws and the band are securely welded together.

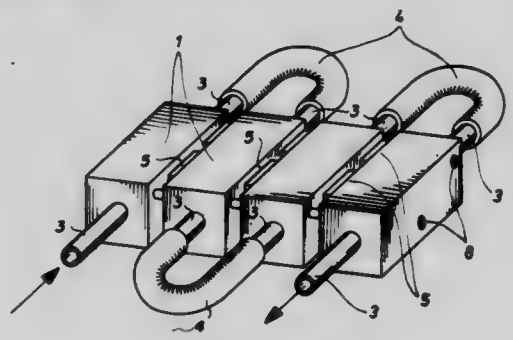
4. A low-bolt pipe clamp of the type having a non-cast malleable band secured to a pair of cast metal lugs, said pipe clamp being formed according to the method of claim 1.

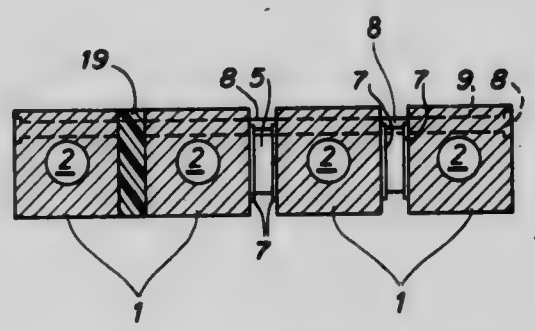
4,334,141

COMBINED ELECTRIC WATER HEATING AND VESSEL SUPPORT PLATE FOR A BEVERAGE PREPARATION DEVICE

Hanno Roller; Helmut Ohnmacht, both of Kandel; Ludwig Lieber, Steinweiler, and Karl-Heinz Nauerth, Erlenbach, all of Fed. Rep. of Germany, assignors to Firma Fritz Eichenauer, Kandel, Fed. Rep. of Germany

Filed Jan. 16, 1979, Ser. No. 3,896
Claims priority, application Fed. Rep. of Germany, Feb. 4, 1978, 2804818
Int. Cl.³ A47J *31/44;* F24H *1/12;* H05B *3/00*
U.S. Cl. 219—283 12 Claims





1. In a beverage preparation device for a vessel,

a combined water heating and vessel support plate member for supporting the vessel for the device, said plate member comprising

a heating slab including a freely selectable number of heating-plate segments of good heat conductivity and plate-

like electric heating elements of positive temperature coefficient electrical resistance, wherein:

the heating-plate segments each being provided with a water flow-through duct, means for clamping adjacent heating-plate segments together side-by-side with their top surfaces coplanar to form a flat vessel support surface, the water flow-through duct of each segment comprising a longitudinal aperture, the apertures of adjacent segments being operatively connected to form a continuous duct having an inlet at one end and an outlet at the other end, and

at least one heating element being disposed between each adjacent pair of heating-plate segments in heat exchange contact with the adjacent segments, and wherein

any free intermediate space between heating-plate segments is filled with an electrically insulating filling composition which is a good conductor of heat.

4,334,142

SKIN EFFECT PIPE HEATING SYSTEM UTILIZING CONVECTIVE AND CONDUCTIVE HEAT TRANSFER

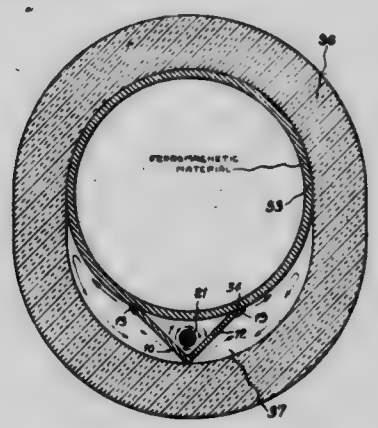
Douglas Blackmore, 57 Hillcrest Dr., Upper Saddle River, N.J. 07458

Continuation-in-part of Ser. No. 1,044, Jan. 4, 1979, Pat. No. 4,280,045, which is a continuation-in-part of Ser. No. 744,437, May 6, 1977, abandoned. This application Aug. 20, 1980, Ser. No. 179,719

The portion of the term of this patent subsequent to Jul. 21, 1998, has been disclaimed.

Int. Cl.³ H05B *3/00*; F16L *53/00*

U.S. Cl. 219—301 **4 Claims**



1. A heat generating system for mounting on the wall of a pipe, said system having a heat generator structure utilizing skin effect alternating current and including a ferromagnetic, elongate hollow element and an insulated conductor freely movable for expansion within said hollow element, the inner surfaces of said element defining an air space at least partially surrounding said conductor, said conductor being connected at one end to one pole of a source of alternating current, the other end of the conductor being connected to a far end of said hollow element, and a near end of the hollow element being connected to another pole of the alternating current source, said hollow element comprising two parts with one part defining an elongated open face channel having two elongated, coextensive, spaced longitudinal edges, the other part being the portion of the wall of said pipe confronting said one part and bounded by said longitudinal edges, means securing said other part in spaced relationship to said longitudinal edges so as to provide openings between said other part and said longitudinal edges of said one part along the length of said hollow element for enabling substantial transverse air flow freely therethrough across said conductor and internal surfaces of said hollow element with resultant convection heating air flow of said generated heat, and said two parts being of such thickness that said alternating current is confined along the inner surface portion of said hollow element when said conductor and hollow element are energized by said source.

4,334,143

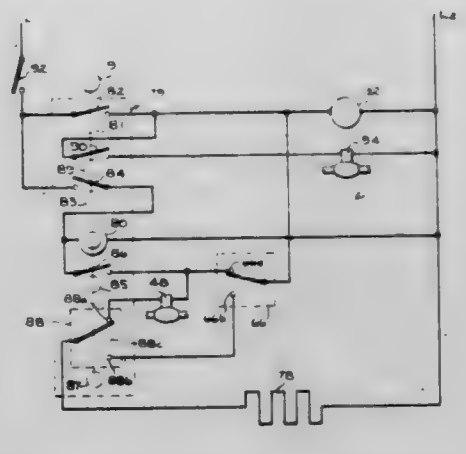
HEATER PROTECTION ARRANGEMENT FOR A WASHING APPLIANCE

Donald S. Cushing, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 11, 1979, Ser. No. 83,912

Int. Cl.³ H05B *1/02*

U.S. Cl. 219—333 **6 Claims**



1. In a washing appliance having a wash chamber, fill means for controllably supplying liquid to the wash chamber, heater means for heating liquid in the wash chamber, and drain means for controllably removing liquid from the wash chamber; a control system comprising:

level sensing means for sensing the liquid level in the wash chamber, said sensing means being constructed and arranged to assume a reset state when there is less than a predetermined level of liquid in said wash chamber;

sequence control means comprising a timer motor for controlling the fill means and the drain means to provide a plurality of operating cycles including a drain cycle during which liquid is removed from the wash chamber;

a first cam-actuated switch operative, when actuated by said timer motor, to enable energization of said timer motor independent of the liquid level in the wash chamber; and

a second, cam-actuated switch connected in circuit between said level sensing means and said timer motor and operative, when actuated by said timer motor, to enable energization of said timer motor when said level sensing means is in its reset state, said first and second cam-actuated switches being so connected to said timer motor that at the end of a drain cycle said timer motor first actuates said second switch and deactuates said first switch, thereby preventing continued energization of said timer motor unless said level sensing means is in its reset state at the end of the drain cycle.

4,334,144

CORONA EFFECT SURFACE TREATMENT APPARATUS FOR SHEET

Ezio Ferrarini, Via Melotta, 19, Soncino, Cremona, Italy

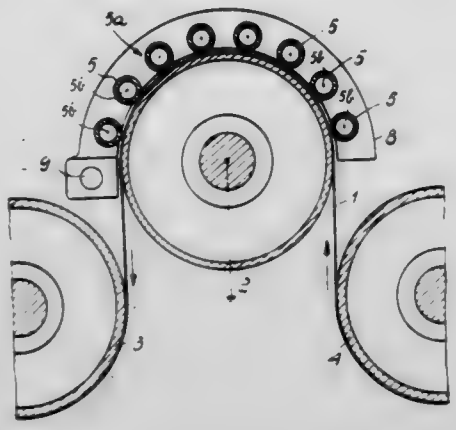
Filed Apr. 7, 1980, Ser. No. 137,931

Int. Cl.³ H05B *7/18*

U.S. Cl. 219—383 **3 Claims**

1. An apparatus for corona effect surface treatment of sheet materials, comprising an elongated metal electrode and at least one insulating material encased electrode coextensive therewith and spaced therefrom to form a gap therebetween through which the materials to be treated are caused to pass and, supporting means for the electrodes, wherein according to the improvement, said encased electrode comprises a tube of insulating material defining a hollow tubular inner space therein, a conductor within said inner space and coextensive with the electrode and in clearing relationship with said tube, a cooling fluid circulating within said tube and a heat ex-

changer in communication with said tube and means for circulating said cooling fluid therethrough, and electrical connec-



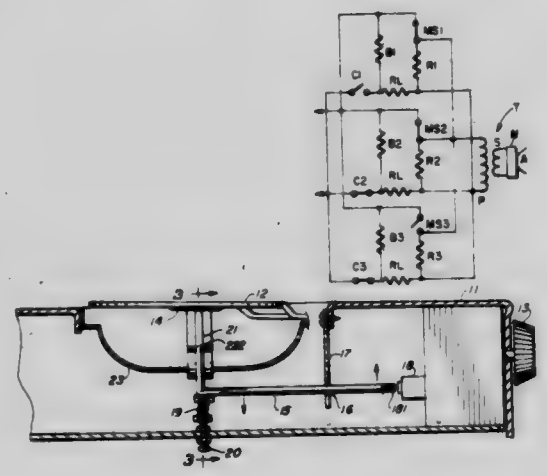
tions for connecting said metal and said encased electrodes to the required polarity.

4,334,145

ENERGIZED RANGE BURNER SIGNAL

Robert L. Norris, Sr., 2701 E. Utopia #112, Phoenix, Ariz. 85024

Filed Oct. 6, 1980, Ser. No. 194,580
Int. Cl.[3] H05B *1/02, 3/68*
U.S. Cl. 219—453 10 Claims



10. In combination:
an electrical resistive heating element;
a selector switch for connecting a source of electrical power across said element; and
alarm circuit means for sensing when electrical power is connected across said element for sensing when a utensil is positioned on said element, and for producing an alarm signal only when power is connected across said element and no utensil is positioned on said element.

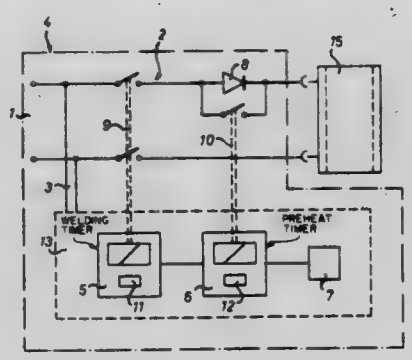
4,334,146

METHOD AND APPARATUS FOR JOINING THERMOPLASTIC LINE ELEMENTS

Werner Sturm, Allerheiligenstr. 624, Hägendorf, Switzerland

PCT No. PCT/CH79/00059, § 371 Date Dec. 28, 1979, § 102(e) Date Dec. 11, 1979, PCT Pub. No. WO79/01000, PCT Pub. Date Nov. 29, 1979
PCT Filed Apr. 26, 1979, Ser. No. 177,760
Claims priority, application Switzerland, Apr. 28, 1978, 4696/78
Int. Cl.[3] H05B *1/02*
U.S. Cl. 219—492 1 Claim

1. An apparatus for joining thermoplastic line elements, comprising
a thermoplastic welding sleeve with an electrical resistance heating wire winding disposed therein; and
power control means, electrically coupled to said heating wire winding, for supplying and regulating electrical power to said heating wire winding, said power control means including
a welding circuit coupled to said heating wire winding for conducting electrical power thereto and having a main switch connected in series with said heating wire winding,
an overall timing means, coupled to said main switch, for controlling actuation thereof,
power level selecting means, in said welding circuit in series with said main switch and heating wire winding, for selectively regulating the electrical power supplied to said heating wire winding to either of a rated welding power level or a preheating power level, said power



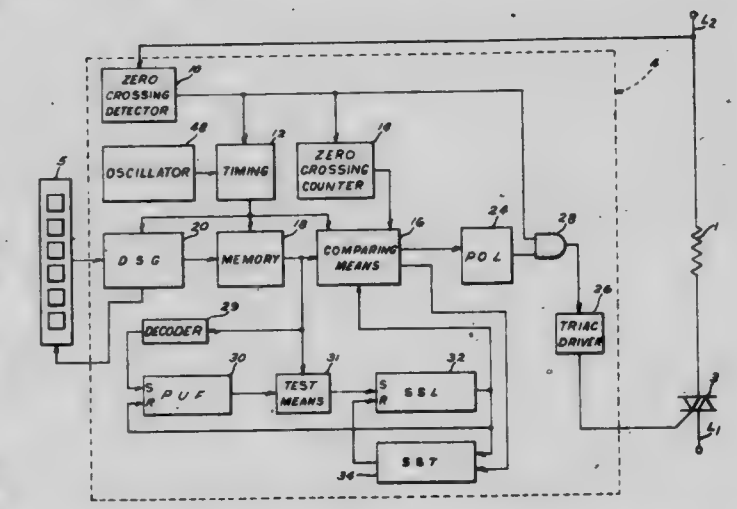
selecting means comprising a diode bridged by a preheating switch connected in parallel with said diode,
a preheating timing means, coupled to said preheating switch, for controlling actuation of said power level selecting means by actuating said preheating switch, and
said overall timing means and said preheating timing means having means for indicating the operating stage of said welding cycle;
whereby said overall timing means and said main switch start and stop a welding cycle of said sleeve by controlling interruptions of said welding circuit, and said preheating timing means and said power level selecting means vary the electrical power during said welding cycle.

4,334,147

POWER CONTROL FOR APPLIANCE USING HIGH INRUSH CURRENT ELEMENT

Thomas R. Payne, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Feb. 1, 1979, Ser. No. 8,376
Int. Cl.[3] H05B *1/02*
U.S. Cl. 219—497 13 Claims



1. A power control system for controlling power delivered to a heating element in response to selection of one of a plurality of power control settings including an OFF setting, said

settings corresponding to different levels of power applied to said heating element, said element exhibiting a relatively high resistance at high temperatures and a relatively low resistance at low temperatures, at least one of said power level settings operative to deliver power to said element, when at said relatively low temperature, which results in a current level which exceeds an acceptable limit, said power control system including transition detection means operating independently of current and voltage in said element for detecting a transition from said OFF setting to said one power setting, transient control means responsive to said detection means for delivering power to said element for a preselected time at a level lower than that associated with said one power setting, when said transition is detected, said lower power level being sufficiently low that current in the element does not exceed said acceptable limits, and steady state control means for controlling power to said element in accordance with said one setting after expiration of said preselected time.

4,334,148

PTC HEATERS

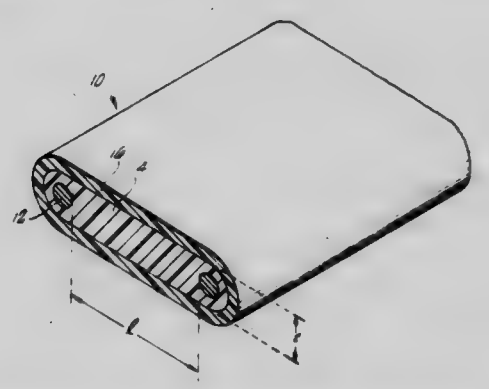
Andrew J. Kampe, Half Moon Bay, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 608,660, Aug. 28, 1979, abandoned. This application Jan. 16, 1978, Ser. No. 869,786

Claims priority, application United Kingdom, Aug. 30, 1974, 38059/74

Int. Cl.³ H05B *3/12*

U.S. Cl. 219—553 **2 Claims**



1. A self-regulating PTC strip heater comprising two parallel spaced-apart rod-like electrodes embedded in and enclosed by a web of PTC material which consists of an extruded homogenous mixture comprising carbon black dispersed in a polymeric material, said web of PTC material having a generally rectangular cross-section and having a generally retangular cross-section between the electrodes and having a substantially constant thickness t, said thickness t being greater than the maximum dimension of the electrodes in the same direction, and said electrodes being spaced apart by a distance 1 such that the ratio 1/t is from about 3/1 to 5/1, the current path between said electrodes always being exclusively in said web of PTC material.

4,334,149

TAPE RECORDER WITH DISPLAY SHOWING TAPE TRAVEL DIRECTION

Kenji Furuta, Hachioji, Japan, assignor to Olympus Optical Company Limited, Hachioji, Japan

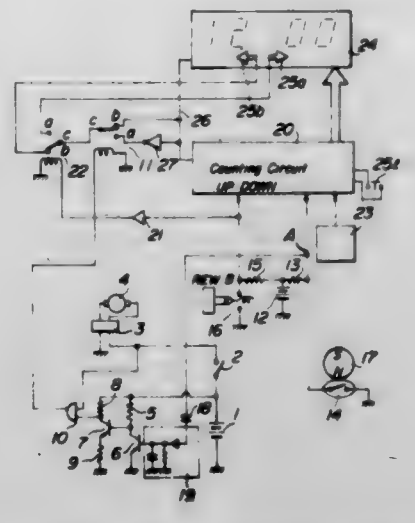
Filed Jan. 30, 1979, Ser. No. 7,808

Claims priority, application Japan, Feb. 1, 1978, 53/11168[U]

Int. Cl.³ G06M *3/14*

U.S. Cl. 235—92 MP **14 Claims**

1. A tape recorder, comprising a tape drive, tape counter means for counting tape, a tape direction switch, display means responsive to said tape counter means and said direction switch for displaying values indicative of the tape count when the tape counter means indicates that the tape is running, said display means including direction indicating markers, control means coupled to said tape drive and to said display means as well as said counter means and said direction switch for enabling the display of the markers only in response to both the tape drive



and the tape counter being operative and for causing said display means to indicate one of said markers in response to said direction switch.

4,334,150

CIRCUIT WITH AN EXPOSURE MEASURING UNIT FOR SENSOR CONTROLLED RANGE MEASUREMENT

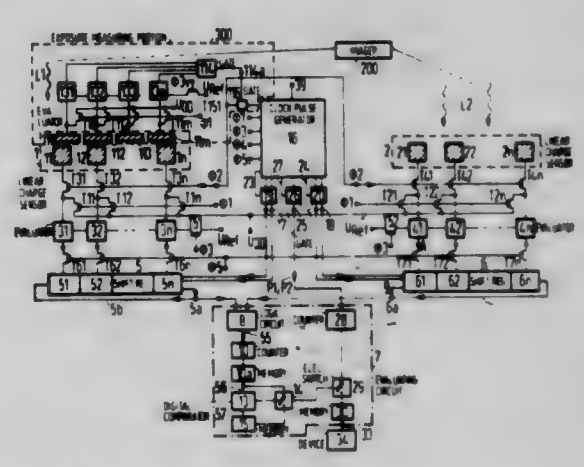
Heiner Herbst, Munich; Hans-Joerg Pfleiderer, Zorneding, and Hans-Peter Grassl, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 11, 1980, Ser. No. 168,648

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1979, 2936491

Int. Cl.³ G01C *3/08*

U.S. Cl. 250—201 **12 Claims**



1. A circuit having an exposure measuring portion and designed for sensor-controlled range measurement, comprising: two linear semiconductor image sensors having sensor elements; means for projecting line segments corresponding to two images separately obtained from an object onto the corresponding image sensors; an evaluator means connected to each of the sensor elements for switching between two different states depending upon whether a reference charge in the sensor elements is exceeded so as to digitalize sensor signals; an evaluating circuit means for evaluating the digitalized sensor signals in dependence upon varying relative position shifts with respect to a maximum correlation; device means connected to the evaluating circuit means for evaluating a range of said object; means for determining integration time of the sensor elements including strip-shaped comparing sensor elements positioned for exposure to an optically generated charge quantity which corresponds to a plurality of sensor elements in at least one of the image sensors; said comparing sensor elements being arranged along a longitudinal axis parallel to said at least

one image sensor; dimensions of the individual comparing sensor elements along the longitudinal axis being substantially smaller than a corresponding dimension of the at least one image sensor; and each of the individual comparing sensor elements being connected via an evaluator means to associated inputs of a gate circuit means, an output of which represents an output of an exposure measuring portion which is formed of said comparing sensor elements, associated evaluator means, and gate circuit means, said evaluator means switching between two different states depending on whether a reference charge in the comparing sensor element is exceeded.

4,334,151

CIRCUIT PROVIDED WITH AN EXPOSURE MEASURING PART FOR SENSOR-CONTROLLED TELEMETRY

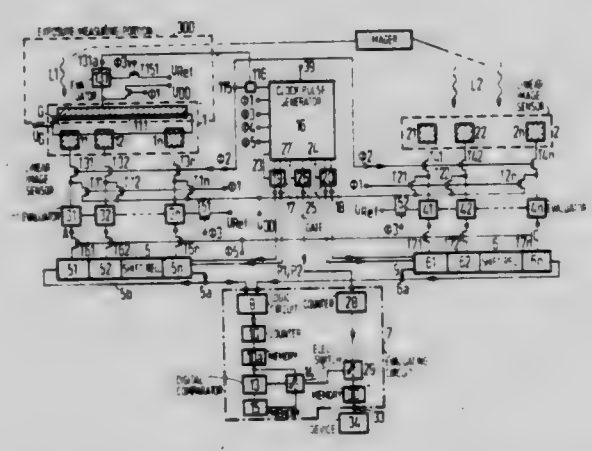
Heiner Herbst, Munich; Hans-Joerg Pfleiderer, Zorneding, and Hans-Peter Grassl, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 11, 1980, Ser. No. 168,649

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1979, 2936536

Int. Cl.³ G01C *3/08*

U.S. Cl. 250—201 **12 Claims**



1. A circuit having an exposure measuring portion and designed for sensor-controlled range measurement, comprising: two linear image sensors having sensor elements integrated on a doped semiconductor member; means for projecting line segments corresponding to two images separately obtained from an object onto the corresponding image sensors; and evaluator means connected to each of the sensor elements for switching between two different switching states depending upon whether a reference charge in the sensor elements is exceeded so as to digitalize sensor signals; an evaluating circuit means for evaluating the digitalized sensor signals in dependence upon varying relative position shifts with respect to a maximum correlation; device means connected to the evaluating circuit means for indicating a range of said object; an exposure measuring circuit having means for determining integration time of the sensor elements including a strip-shaped comparing sensor element co-integrated on the semiconductor member and longitudinally extending and positioned for exposure to an optically generated charge quantity which corresponds to a plurality of sensor elements in at least one of the image sensors; said comparison sensor element being designed as a strip-shaped photodiode arranged next to the sensor element row in at least one of the image sensors; and above a zone of the semiconductor member between the sensor element row and the comparison sensor element, a gate separated by a thin insulating layer from the semiconductor member is provided, said gate being subject to a constant voltage.

4,334,152

POSITION INDICATING SYSTEMS

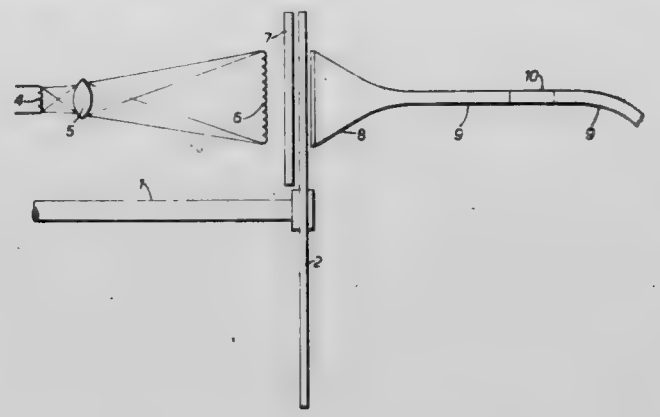
John P. Dakin, Chandlers Ford, and David A. Kahn, Bittern, both of England, assignors to Plessey Incorporated, New York, N.Y.

Filed Dec. 4, 1979, Ser. No. 100,144

Claims priority, application United Kingdom, Dec. 6, 1978, 47428/78

Int. Cl.³ G01J *3/34*

U.S. Cl. 250—226 **8 Claims**



1. A position indicating system for affording an indication of the instantaneous position of a movable member, comprising:

a coded structure rotatably movable in accordance with movement of said movable member;

deriving means associated with said coded structure for deriving different colour light bands from broadband light;

optical fibre means for receiving colour light bands emerging from said movable coded structure, said optical fibre means having light scrambling means disposed therein for multiplexed transmission of the colour light bands; and

light detector means for receiving said transmitted colour light bands, and for producing an output dependent upon the light received by said optical fibre means and indicative of the instantaneous position of said movable member.

4,334,153

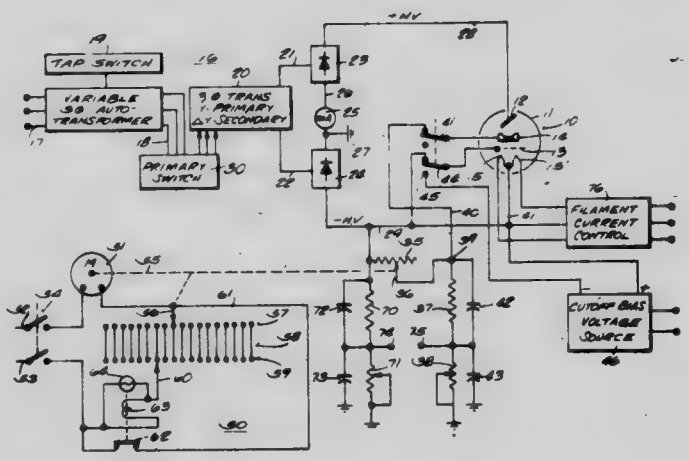
X-RAY TUBE GRID BIAS SUPPLY

Harold E. Stehman, Hales Corners, and Herbert E. Daniels, Brown Deer, both of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 29, 1980, Ser. No. 191,789

Int. Cl.³ H05G *1/00, 1/34*

U.S. Cl. 250—405 **5 Claims**



1. A system for providing a variable bias voltage for an x-ray tube that is adapted for varying its focal spot size, said tube comprising a target anode, cathode means spaced from the anode and including a filament and a first control electrode proximate to the filament, and a second electrode for controlling focusing located between said cathode means and said

anode, means for connecting said anode to the positive terminal of a dc kilovoltage supply which is above ground by a predetermined amount and means for connecting said filament of said cathode means to the negative terminal of said supply which is below ground by a predetermined amount, and

the improvement for applying to said second electrode a focus control bias voltage which will vary in proportion to any variations in the applied kilovoltage between said cathode means and ground when said x-ray tube is conducting such that said bias voltage will track said applied kilovoltage, comprising:

a first voltage divider means including at least two resistor means connected in a series circuit, at least one of which has means for adjusting its value for selecting bias voltage level, connected between said cathode means and ground, and

means for connecting a point intermediate of said resistor means to said second electrode to provide the bias voltage for focusing.

4,334,154

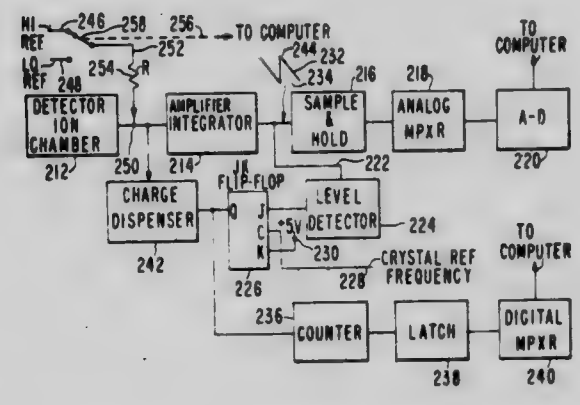
TOMOGRAPHIC SCANNING APPARATUS

Paul Sandland, Half Moon Bay, Calif., assignor to General Electric Company, Milwaukee, Wis.

Division of Ser. No. 856,946, Dec. 2, 1977, Pat. No. 4,236,079, which is a continuation of Ser. No. 667,938, Apr. 19, 1976, abandoned. This application Sep. 18, 1978, Ser. No. 943,076

Int. Cl.³ A61B *6/00*

U.S. Cl. 250—445 T **1 Claim**



1. An apparatus for examining a subject by means of penetrating radiation and providing a digital output signal for use in reconstruction of a representation of the structure residing in a section taken through said subject; said apparatus comprising:

means for causing penetrating radiation to enter said subject at a plurality of locations around said section, and detector means for detecting radiation passing through said section; and

signal processing means for receiving the output signals from said detector means and amplifying and converting said signals to digital form;

the improvement wherein:

said signal processing means includes integrator means for integrating the output signals from said detector means, means for resetting said integrator means upon the integrated signal reaching a selected level, means for counting the resets generated by said detector output signal to provide a coarse measure of said output signal, and means for measuring the remaining signal level from said integrator means to provide a fine measurement of said detector output signal, whereby said processing means is relatively sensitive to a wide range of said detector signals.

4,334,155

X-RAY EXAMINATION APPARATUS, COMPRISING AN EXAMINATION TABLE WHICH CAN BE SWIVELLED AROUND A HORIZONTAL AXIS

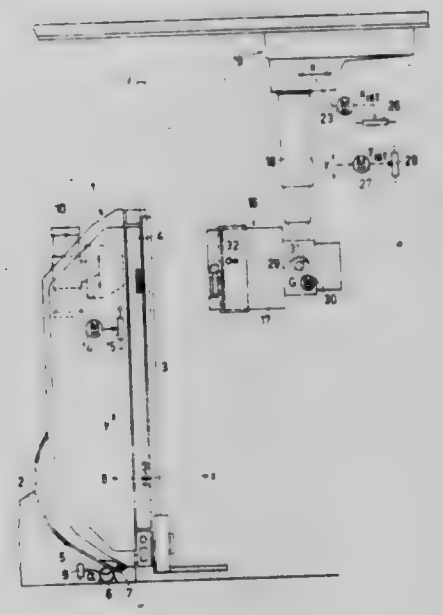
Kurt Gieschen, and Friedrich Reinger, both of Hamburg, Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 56,478, Jul. 11, 1979, abandoned. This application Jun. 24, 1980, Ser. No. 162,694

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1978, 2831058

Int. Cl.³ H05G *1/02*

U.S. Cl. 250—490 **6 Claims**



1. An X-ray examination apparatus comprising: an examination table (1) which is swivelable around a horizontal axis (8); an X-ray source (10) which is displaceable parallel to the top of the table (3) and perpendicularly to the swivel axis (8); an image detector (16) which is directed onto the X-ray source (10) in all swivel positions and which is situated on an opposite side of the table top (3) therefrom; and a first measuring device (9) which supplies a first signal which is a measure of the inclination of the examination table (1); characterized in that the apparatus includes stand arrangement means, an apparatus section which includes either the image detector (16) or the X-ray source (10) being mounted on the stand arrangement means (19) said apparatus section being movable independently of the examination table (1) and swivelable around an axis (29) which is parallel to the swivel axis (8), and further comprises: first drive motor means, (30) which comprises a first control circuit, which link the inclination of the apparatus section (16) to the inclination of the examination table (1); second and third drive motor means (23, 27) which displace said apparatus section (16) in two mutually perpendicular directions which define a plane transversely of the swivel axis, and include, respectively, second and third measuring devices (26, 28), each of which generates a signal (x_{ist}, y_{ist}) which corresponds to the position or the displacement of the stand arrangement means (19) or of the apparatus section (16) in the plane perpendicular to the swivel axis (8); at least one arithmetic device (38) which, during a swivelling movement of the examination table (1), continuously calculates, from the signals (α_O, x_O, y_O) generated by the three measuring devices (9, 26, 29) in a preceding position of the table, the position (x, y) or displacement of the apparatus section in a subsequent swivelled position (α) and controls the first motor drive means therewith so that the orientation and the distance of the apparatus section (16) with respect to the examination table (1) remains unchanged, said arithmetic unit also controlling the second and the third drive motor means (23, 27).

4,334,156

METHOD OF SHADOW PRINTING EXPOSURE

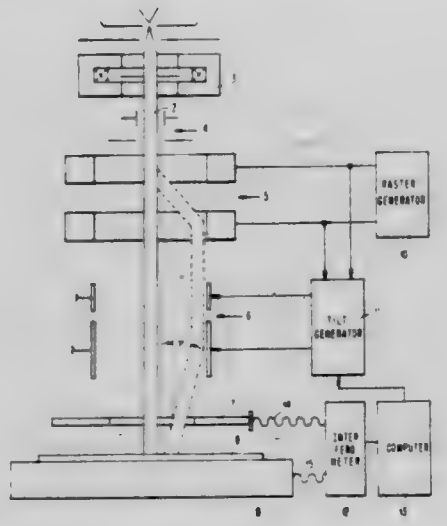
Harald Bohlen, Boeblingen; Helmut Engelke, Altdorf; Werner Kulcke, Boeblingen; Peter Nehmiz, Stuttgart, and Johann Greschner, Pliezhausen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 28, 1979, Ser. No. 70,453

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1978, 2837590

Int. Cl.[3] H01J *37/00*

U.S. Cl. 250—491 11 Claims



1. A method of exposing a target surface to particle beam radiation by shadow printing, comprising the steps of:

arranging a mask suitable close to and in front of a target surface and at approximately a predetermined alignment position with respect to said target surface;

forming a particle beam having a cross-section which is much smaller than the whole region of said mask to be exposed to said particle beam at said predetermined alignment position;

subdividing said whole mask region to be exposed to said particle beam into a multiplicity of individual subareas;

determining the individual alignment error of each of said subareas of said mask region by determining the deviation of the actual position of each individual subarea from a predetermined nominal position thereof;

steering said particle beam so as to expose said individual subareas of said mask region successively to said particle beam; and

while exposing each successive subarea to said particle beam, compensating for the individual alignment error determined for said subarea by controllably tilting said particle beam in a direction and by an amount corresponding to said individually determined alignment error.

4,334,157

DATA LATCH WITH ENABLE SIGNAL GATING

David A. Ferris, West Buxton, Me., assignor to Fairchild Camera and Instrument Corp., Mountain View, Calif.

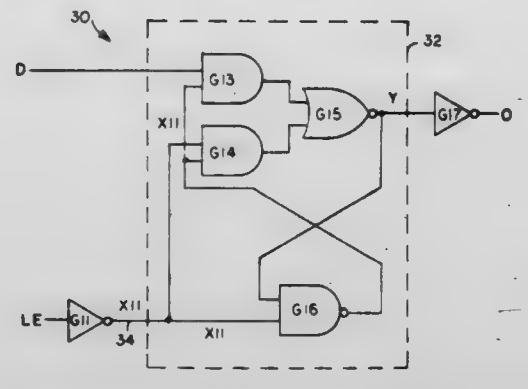
Filed Feb. 22, 1980, Ser. No. 123,717

Int. Cl.[3] H03K *3/288, 17/00*

U.S. Cl. 307—291 14 Claims

1. In a new and improved data latch having an input and output and at least two operative modes, a transmitting or transparent mode for transmitting data signals through the latch and a latching mode for latching and temporary storage by feedback of data signals in the latch, said data latch including enable gating signal means for switching the data latch between the transmitting and latching modes, the improvement comprising:

pregate means for pregating feedback data signals in the latch, said pregate means operatively coupled to the data latch output and enable gating signal means to provide positive feedback data signals in the latching mode, said



pregate means also operatively coupled to provide gating signals for passing data in the transmitting mode.

4,334,158

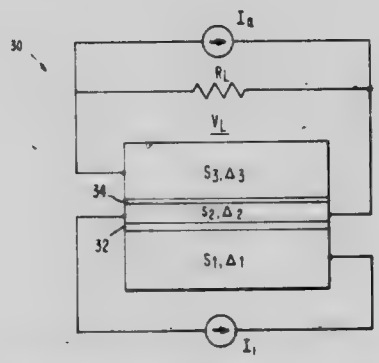
SUPERCONDUCTING SWITCH AND AMPLIFIER DEVICE

Sadeg M. Faris, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 6, 1980, Ser. No. 156,948

Int. Cl.[3] H03K *17/92, 19/195, 3/38*

U.S. Cl. 307—462 67 Claims



1. A superconducting device comprising in combination:

a tunnel junction comprised of two electrodes separated by a tunneling barrier, wherein one of said electrodes is a superconductor, said tunnel junction exhibiting a threshold power density at which an excess number of quasi-particles exists causing the superconducting gap of said superconducting electrode to vanish,

means for injecting power of the order of said threshold power density into said superconducting electrode,

load means connected to said tunnel junction for receiving the output of said tunnel junction.

4,334,159

SLIP RING COOLING DEVICES FOR ELECTRICAL ROTARY MACHINES

Norihiro Ooki, Katsuta; Shoji Motegi, and Masatoshi Watanabe, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 29, 1980, Ser. No. 154,478

Claims priority, application Japan, May 29, 1979, 54/65616

Int. Cl.[3] H02K *9/28*

U.S. Cl. 310—54 13 Claims

1. An electrical rotary machine, comprising:

an annular slip ring having a peripheral portion and axially opposite side portions;

a plurality of chambers formed in said slip ring at the peripheral portion of said ring with intervals in the peripheral direction, for enclosing cooling liquid and its vapor, said chambers each extending axially from one end at one side portion of said slip ring to an opposite end at the other side portion;

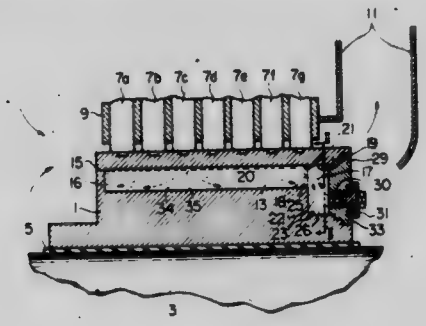
common passage means, provided at the one side portion of said slip ring and fluid communicating with only the one end of each of said plurality of chambers;

means fluid sealing the remainder of each of said chambers;

means hermetically sealing liquid volatile at the working temperature of said slip ring and its vapor within said communicating passage means and chambers;

said passage means including an annular passage that extends radially outward substantially at least as far as the radially outermost portions of said chambers and that extends radially inward a substantial distance beyond the radially innermost portions of said chambers;

said passage means providing an outer axial free liquid flow path for liquid coolant freely from said annular passage to said one end of each of said chambers, that is substantially at the radius of the radially outermost portions of said chambers, and further providing an inner axial free liquid flow path from the one end of said chambers to said annu-



lar passage at substantially the same radius as the innermost portions of said chambers;

means providing cooling for the liquid within said annular passage; and

said passage means uniformly distributing the cooled liquid from said annular passage along said outer path to each of said chambers by centrifugal force applied on the liquid by the rotation of said slip ring so that the liquid may travel axially from said one end to said other end along the outermost portions of each of said chambers to be heated and partially vaporized, so that heated liquid and its vapor will travel axially along the inner portions of said chambers from said other end to said one end through a lower path and into said annular passage, and said annular passage will receive gases within its innermost portion generally radially inward of said chambers so that the vapor is condensed and the liquid cooled in said annular passage for recirculation to said chambers.

4,334,160

ROTATING ELECTRICAL MACHINE

Frederick B. McCarty, San Pedro, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

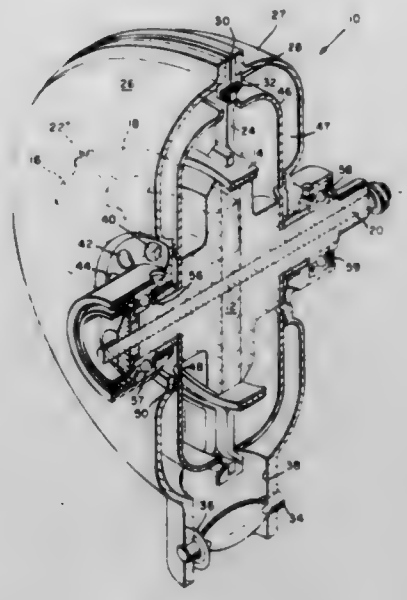
Filed Apr. 27, 1979, Ser. No. 34,086
Int. Cl.³ H02K *9/08*
U.S. Cl. 310—57 **22 Claims**

1. A rotating electrical machine, comprising:

a machine housing;

a rotor assembly rotatably mounted with said machine housing for providing magnetic flux, said rotor assembly comprising a plurality of pairs of oppositely-polarized permanent magnetic poles spaced apart to form a plurality of air gaps therebetween, said pairs of oppositely-polarized permanent magnetic poles forming magnetic fields within said air gaps, said magnetic fields all being in the same direction; and

an ironless stator assembly, said ironless stator assembly comprising a plurality of multi-turn coils bonded together to form an annular shape having an outer circumference, said ironless stator assembly being positioned within said air gaps to provide magnetic flux linkage between said rotor assembly and said ironless stator assembly, said ironless stator assembly including means for connecting said outer circumference thereof to said machine housing to support said ironless stator assembly therewithin, said



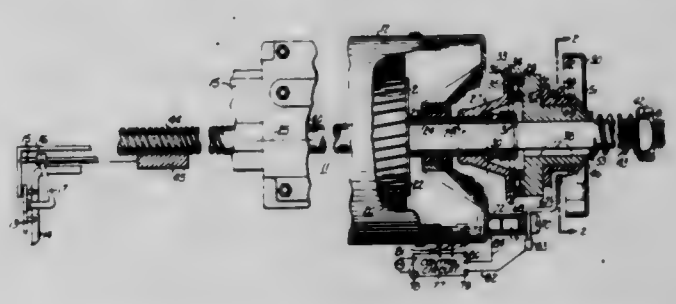
connecting means being the only supporting connection to said said stator assembly.

4,334,161

CENTRIFUGAL SWITCH AND MOTOR CONTROL

Alvin J. Carli, Sebring, Ohio, assignor to The Alliance Manufacturing Company, Inc., Alliance, Ohio

Filed Nov. 8, 1979, Ser. No. 92,453
Int. Cl.³ H02K *11/00*
U.S. Cl. 310—68 E **19 Claims**



1. A centrifugal switch for use with a frame comprising, in combination,

a rotatable member having an axis of rotation,

first and second coacting conductor members in said centrifugal switch,

said second conductor member including a substantially circular portion coaxial with said axis,

said first conductor member including a spring blade,

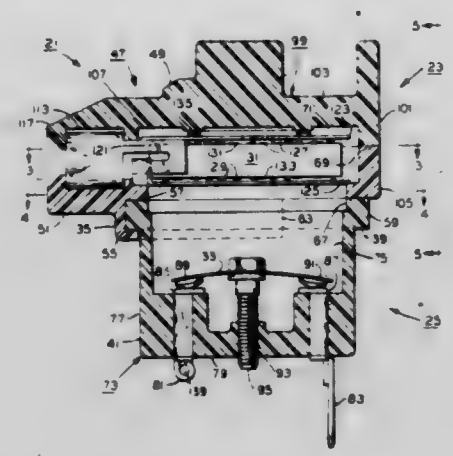
said spring blade being long relative to the width thereof and wide relative to the thickness thereof,

means mounting said spring blade near one end thereof for rotation with said rotatable member and mounting weight means near the other end thereof to have the spring blade act as a cantilever spring blade whereby upon rotation of said rotatable member at a predetermined speed the weight means urges said cantilever blade out of engagement with said second conductor member and whereby when said rotatable member is rotating at less than said predetermined speed said cantilever blade engages said second conductor member as a switch-closed condition.

4,334,162
RELEASABLE COMBINATION AND METHOD OF ASSEMBLY

Donald L. Haag, Sterling, and Lee O. Woods, Morrison, both of Ill., assignors to General Electric Company, Fort Wayne, Ind.

Filed Mar. 17, 1980, Ser. No. 131,218
Int. Cl.[3] H02H *5/04;* H02K *11/00*
U.S. Cl. 310—68 C 44 Claims



1. A releasable combination of a separable starter device and a separable protector device for connection in circuit relation with a winding circuit of a dynamoelectric machine, the releasable combination comprising:

casing means for said separable protector device and including a first sidewall disposed between a pair of generally opposite first end walls, one of said first end walls comprising a first flange extending generally circumferentially about said first sidewall generally radially thereof, a first chamber within said first sidewall between said first end walls, and a first opening through said one first end wall intersecting with said first chamber;

thermally and current responsive switch means mounted to the other of said first end walls within said first chamber for the connection in the circuit relation with the winding circuit of the dynamoelectric machine when said starter device and said protector device are in the releasable combination thereof;

housing means for said separable starter device comprising a second sidewall disposed between a pair of generally opposite second end walls, a second chamber within said second sidewall between said second end walls, a second opening through one of said second end walls intersecting with said second chamber and arranged to communicate with said first opening in said casing means when said starter device and said protector device are in the releasable combination thereof, a pair of apertures extending through said second sidewall and intersecting with said chamber, means for defining a yieldable section of said housing means including a slot through said one second end wall and at least or part of said second sidewall and intersecting with said second chamber and said second opening, a second flange extending from said one second end wall exteriorly of said housing generally coaxially with said second opening and sized to extend in seating engagement generally circumferentially about at least a major portion of said first flange on said casing means, a pair of opposed adjacent free ends on said second flange and spaced apart on opposite sides of said slot, and means between said free ends of said second flange for the passage therethrough of said first flange on said casing means, said yieldable section of said housing being initially yieldable to effect the spreading apart of said free ends on said second flange in response to an assembly force applied on at least one of said housing means and said casing means urging said first flange into interfering engagement with said free ends on said second flange and the subsequent passage through said passage means of said first flange on said casing means into the seating engagement with said second flange, and said yieldable section thereafter resiling to reposition said free ends on said second flange in releasable displacement preventing engagement with said first flange on said casing means thereby to releasably maintain said protector device and starter device against separation from the releasable combination thereof;

a PTCR disposed in said second chamber in thermal coupling relation through said first and second openings with said switch means when said starter device and said protector device are in the releasable combination thereof, and a pair of opposite contact sides on said PTCR;

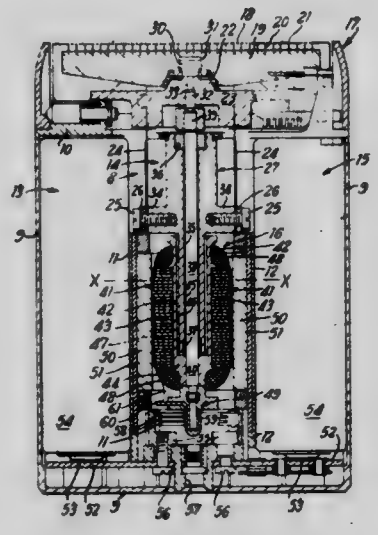
a pair of contact plates arranged in said second chamber in electrical contacting engagment with said opposite contact sides of said PTCR and disposed at least adjacent said second end walls, respectively; and

a pair of female terminal means arranged at least in part in said apertures and connected with said contact plates, respectively, for the connection in the circuit relation with the winding circuit of the dynamoelectric machine when the starter device and the protector device are in the releasable combination thereof.

4,334,163
DC ELECTRIC MOTORS

Enzo Ascoli, Lausanne, Switzerland, assignor to The Gillette Company, Boston, Mass.

Continuation of Ser. No. 862,709, Dec. 21, 1977, abandoned.
This application Oct. 1, 1979, Ser. No. 81,492
Claims priority, application United Kingdom, Jun. 4, 1977, 23835/77
Int. Cl.[3] H02K *5/16*
U.S. Cl. 310—90 6 Claims



1. A DC electric motor comprising a stator, a shaft, a rotor secured to said shaft for rotation within said stator, spaced bearings for said shaft, a tubular support having first and second opposite ends and carrying said spaced bearings, said shaft being journalled in said bearings for coaxial rotation within said tubular support, said shaft having a driven end portion extending from said first end of said tubular support and a driving end portion extending from said opposite end of said tubular support, said rotor comprising a hollow cylindrical body, a lamination stack carried by said body, said lamination stack being formed with a plurality of generally longitudinally extending slots, and a rotor winding comprising a plurality of coils having coil sides formed by winding a number of turns of wire around said lamination stack and into said slots in a regular lapping pattern so that each slot receives only one coil side of only one coil to provide a symmetrical winding to make said rotor substantially balanced mechanically, means securing said body at only one end thereof to said driven end portion of said shaft so that said first end length of said tubular support is coaxially freely received within said hollow cylindrical body, a commutator having a plurality of segments equal in number to one half the number of said slots, means mounting said commutator to said driven end portion of said shaft at the

exterior side of said body remote from said tubular support, a circuit board extending transverse to the axis of said motor at the commutator end thereof, brushes for said motor formed of substantially 98% copper, 1.8% beryllium, and 0.2% lead for cooperating with said commutator formed of an alloy of substantially 70% silver and 30% palladium, and means for securing said brushes to said circuit board.

4,334,164

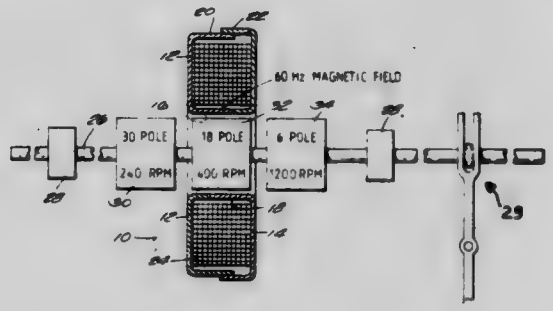
MULTI-SPEED PERMANENT MAGNET MOTOR

Kenji Yatsushiro, Chicago, and George F. Kuchuris, Bloomingdale, both of Ill., assignors to The Singer Company, Stamford, Conn.

Continuation of Ser. No. 924,951, Jul. 17, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 112,128

Int. Cl.³ H02K *16/00*

U.S. Cl. 310—114 **3 Claims**



1. An electric motor comprising,

a stator assembly including a coil and at least six stator poles each of which has an angular embrace equal to 360° divided by the number of stator poles,

the flux of all said stator poles being in phase and the magnetic field of each of said stator poles being unbalanced in the same direction by removal of material from the same half of each stator pole,

a rotor assembly coaxial with the stator assembly and having a rotor shaft and a plurality of rotors mounted on the shaft,

one assembly being movable with respect to the other assembly to selectively position one of the rotors in the field of said coil,

said rotors being permanently magnetized to provide rotor poles, each rotor having a different number of poles and the number of poles in each rotor being a whole odd number multiple of the number of stator poles so there is always an odd number of rotor poles within the embrace of each stator pole to ensure starting while the rotational speed of the rotor assembly is determined by the number of rotor poles in the rotor positioned in the field of the coil.

4,334,165

COPPER-STEEL COMPOSITE COMMUTATOR BAR

William G. Moffatt, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,528

Int. Cl.³ H02K *13/10*

U.S. Cl. 310—233 **22 Claims**

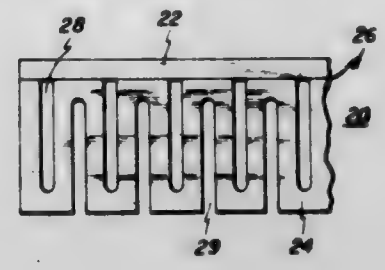
1. A duplex commutator bar resistant to interfacial delamination due to differential thermal expansion for mounting in an electrical commutator; said bar comprising

an elongated iron base alloy body having an upper longitudinal surface and a lower longitudinal surface,

a first plurality of spaced expansion joints extending from said upper longitudinal surface to an interior portion of said body,

a second plurality of spaced expansion joints extending from said lower longitudinal surface to an interior portion of said body and

a solid electrically conducting copper section bonded longitudinally to the upper longitudinal surface of said body



along a plurality of separate interface regions between said body and said section.

4,334,166

ROTARY MAGNETIC SENSOR

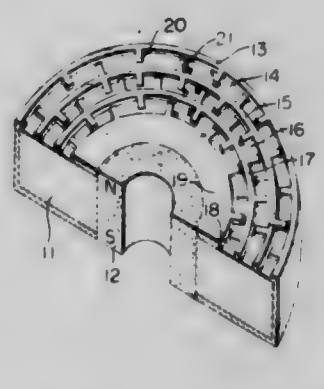
Nobufumi Miyahara, Yokohama, and Takashi Uchida, Hayama, both of Japan, assignors to Kanto Kasei Kogyo Kabushiki Kaisha, Kanagawa, Japan

Continuation of Ser. No. 862,288, Dec. 19, 1977, abandoned. This application Feb. 19, 1980, Ser. No. 122,821

Claims priority, application Japan, Jan. 19, 1977, 52-4021; Jan. 19, 1977, 52/4032

Int. Cl.³ H02K *1/22*

U.S. Cl. 310—268 **10 Claims**



1. A rotary magnetic encoder for magnetically detecting rotation and angular position of a rotary member and for generating electrical signals representing the rotation and angular position of said rotary member comprising a rotary body made of non-magnetic solid material, an annular magnet provided in the center of said rotary body for rotation with said body, a magnetic film formed on the surface of said rotary body having respective portions magnetically connected with opposite poles of said annular magnet, a magnetic-film pattern formed in said magnetic film in which magnetic flux distribution is varied in the rotating direction of said rotary body and a stationary magnetic detector disposed adjacent only a portion of the rotary path of said magnetic-film pattern for sensing changes in magnetic flux caused by said magnetic-film pattern as said pattern rotates with said rotary body past said detector and for generating electrical signals corresponding to the rotation and angular position of said rotary body.

4,334,167

ELASTIC SURFACE WAVE DEVICE

Shoichi Minagawa, and Takeshi Okamoto, both of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed May 27, 1980, Ser. No. 153,238

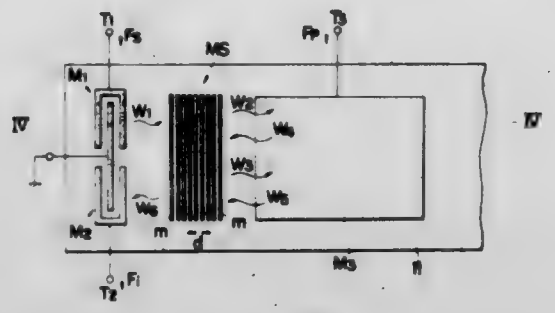
Claims priority, application Japan, May 28, 1979, 54-64923

Int. Cl.³ H01L *41/08*

U.S. Cl. 310—313 R **9 Claims**

1. In an elastic surface wave device comprising a body having an input electrode, an output electrode and a pump electrode provided thereon, wherein the improvement com-

prises: said output electrode is juxtaposed with said input electrode on the same side of said body with reference to said pump electrode and wherein a further electrode for outputting



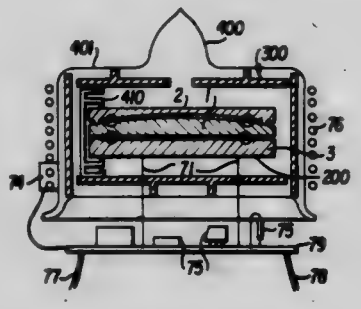
through said output electrode a backward wave signal from said pump electrode is provided at an intermediate position between said input and output electrodes and said pump electrode.

4,334,168

HIGH FREQUENCY, THERMOSTATICALLY SELF CONTROLLED OSCILLATOR

Raymond J. Besson, Besancon, and Jean P. Valentin, Pouilley les Vignes, both of France, assignors to Etat Francais, Paris, France

Filed Jul. 8, 1980, Ser. No. 166,907
Claims priority, application France, Jul. 19, 1979, 79 18553
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—343 **21 Claims**



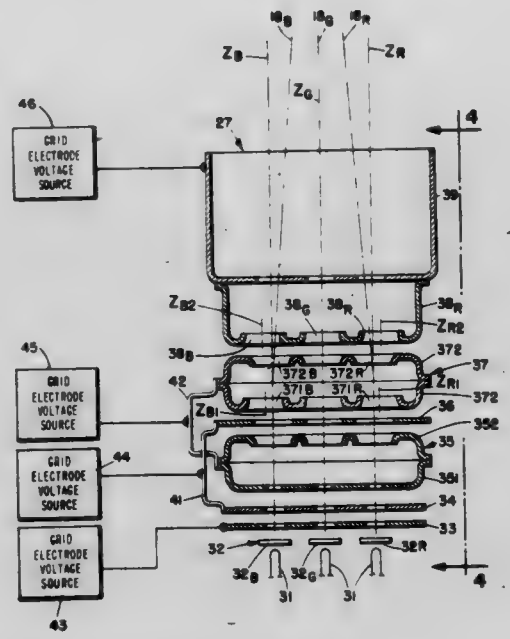
1. High frequency, thermostatically self-controlled, oscillator of a type that comprises a piezoelectric resonator mounted in a sealed container and composed of at least one piezoelectric crystal provided with a continuous peripheral section that forms a ring connected to a central section by an intermediate zone which is recessed over the greater part of its area and comprises at least two connection bridges to connect the central section and the peripheral section solidly together, and two dielectric plates to hold and maintain the exciting electrodes, without contact with, and respectively opposite, each of the sides of one of the central and peripheral sections which then constitutes the active vibrating part of the crystal, the other part of the crystal that constitutes a support part for the crystal is maintained in position between the said dielectric plates, characterised by the fact that the contact between the top part of the crystal and the two dielectric plates is limited to a discontinuous surface of reduced extent composed of a finite number of contact surfaces elements, by the fact that at least one infra-red reflecting screen is disposed inside the sealed container in the immediate vicinity of the piezoelectric resonator, and by the fact that the electric power applied to the exciting electrodes is at least 50 microwatts approximately.

4,334,169

ELECTRON GUN STRUCTURE

Shigeo Takenaka, Fukaya; Eizaburou Hamano, Kumagaya, and Shinpei Koshigoe, Fukaya, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 17, 1979, Ser. No. 85,678
Int. Cl.³ H01J *29/56, 29/46*
U.S. Cl. 313—414 **9 Claims**



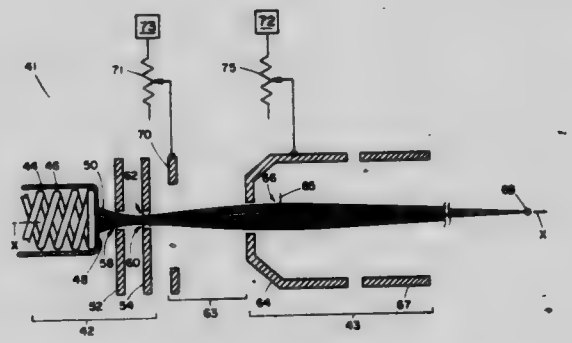
1. An electron gun system comprising:
a cathode means, positioned on an electron gun axis, for emitting an electron beam along a beam path;
a plurality of grid electrodes arranged along said electron gun axis, a first voltage source coupled to at least one of said grid electrodes for forming a plurality of electrostatic lenses on said electron gun axis for focusing said electron beam;
a focus control means coupled to a first voltage source for controlling said focusing; and
wherein at least three of said grid electrodes comprise asymmetric deflecting means for forming at least two asymmetric electrostatic lenses along said electron gun axis for deflecting said electron beam.

4,334,170

MEANS AND METHOD FOR PROVIDING OPTIMUM RESOLUTION OF T.V. CATHODE RAY TUBE ELECTRON GUNS

Robert G. Rockwell, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Sep. 28, 1979, Ser. No. 79,926
Int. Cl.³ H01J *29/46, 29/56*
U.S. Cl. 315—16 **6 Claims**



1. For use in a television cathode ray tube of the direct view or projection type having associated therewith a power supply for developing a predetermined pattern of operating voltages including at least first and second adjustable voltages, an electron gun having apertured electrodes aligned on an axis for

receiving said operating voltages to produce a focused beam of electrons comprising:

lower end means for generating an electron beam having a crossover, said beam expanding in the aperture of a prefocusing electrode, the outer rays of said expanding beam defining a half-angle with respect to said axis;

main focus lens means adjacent to prefocusing electrode for receiving said expanding beam and focusing said beam to form a beam spot of minimum size at a predetermined distance from said gun, said main focus lens means having at least a focusing electrode for receiving said first adjustable voltage for focusing said beam spot, said main focus lens means, by its inherent characteristics, being capable of focusing a minimum beam spot whose size is a function of the beam half angle;

said gun being characterized by having:

at least one half-angle control element located in the region between said prefocusing electrode and said main focus lens means and relatively widely spaced from said prefocusing electrode, the aperture of said control element being relatively larger than the aperture of said prefocusing electrode;

means for receiving a second adjustable voltage from said power supply in the range of a few hundred volts plus or minus relative to the voltage on said prefocusing electrode;

means for applying said second adjustable voltage to said half-angle control element of selectively adjusting the strength of the field induced by said control element, such that when said means for adjusting said voltage on said control element is adjusted to increase the strength of the half-angle control field, said half-angle is increased; and conversely, when said voltage is adjusted to decrease the strength of the half-angle control field, said half-angle is decreased; and

means for fixing said second adjustable voltage for maintaining a selected constant optimum voltage on said control element, effective to cause the size of the focused beam spot to remain essentially minimum for equal focus voltage at different current levels.

4,334,171

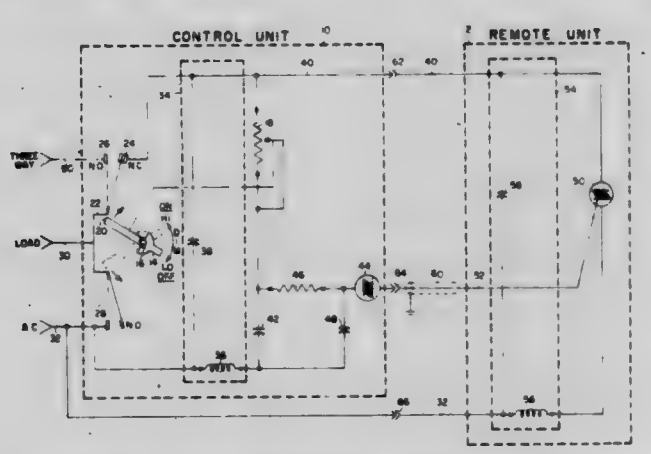
LIGHT DIMMER SWITCH HAVING REMOTE LOAD CURRENT SWITCHING

Dan F. Parman; LeMoey M. Wiebush, both of San Antonio; Fred M. Shaw, Universal City, and James P. Cummins, San Antonio, all of Tex., assignors to Power Controls Corporation, San Antonio, Tex.

Continuation-in-part of Ser. No. 942,191, Sep. 14, 1978, abandoned. This application Jul. 7, 1980, Ser. No. 166,057

Int. Cl.³ G05F *1/00*

U.S. Cl. 315—199 **4 Claims**



1. A switch for varying current received by a load from a source of AC power, said switch including a control unit and a remote unit;

said control unit in a first housing comprising means for connecting said load and said source of AC power to a control circuit contained in a control housing of said control unit, said control circuit including first switching means for providing a gate signal during each half cycle of said source of AC power, a vertically actuated lever pivotally mounted in said control housing operating full ON and full OFF contacts at opposite end of pivotal movement thereof, said lever simultaneously with movement to position intermediate positions between said full ON and full OFF changing variable resistance means in said control circuit connected in series with said source of AC power and said load and to said first switch means to vary a trigger point of said first switching means, wiper means of said variable resistance means being position by said vertically actuated lever mounted in said control housing;

said remote unit in a second housing comprising second switching means mounted on a heat sink inside a second housing, said second housing being remotely located from said first housing, said remote unit having at least three leads connecting to said control circuit of said control unit, a first of said leads connecting said gate signal to a gate terminal of said second switching means, a second of said leads connecting said source of AC power to a first side of said second switching means, and a third of said leads connecting said load to a second side of said second switching means, said second switching means receiving said gate signal during each half cycle of said source of AC power to allow conduction of load current therethrough when not disconnected or bypassed by said contacts, heat from said second switching means being dissipated in said heat sink;

electrical connecting means for said leads comprising a thin, electrically insulating thermally conductive strip having one side secured to said heat sink and terminals positioned on a second side of said strip, said strip and said terminals being attached to said heat sink by screws, said screws being electrically insulated from said heat sink and connecting to said first, second and third leads;

said switch having a maximum rating of between 600 watts to 3000 watts for delivering to said load, first filter means in said second and third leads between said control unit and said remote unit wherein said remote unit switches current being delivered up to said maximum rating, said first filter means preventing RFI noise from interfering with normal AM broadcast bands;

said control unit including said first housing and electrical connections thereto being adapted to fit inside a standard switch box without extra heat sinks attached thereto.

4,334,172

ADAPTOR FOR HIGH INTENSITY ARC DISCHARGE LAMPS

Elliott F. Wyner, Peabody; Orville R. Burr, Beverly, both of Mass., and Robert L. Garrison, Henniker, N.H., assignors to GTE Products Corporation, Stamford, Conn.

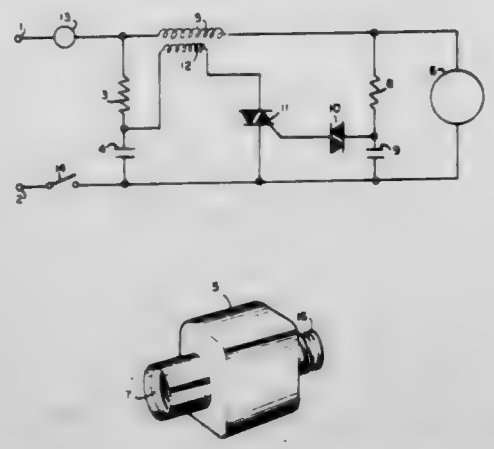
Continuation of Ser. No. 808,126, Jun. 20, 1977, abandoned. This application Sep. 22, 1980, Ser. No. 189,552

Int. Cl.³ H05B *41/16*

U.S. Cl. 315—289 **2 Claims**

1. An adaptor for operation of a high intensity arc discharge lamp comprising: a first and second wire for connecting the adaptor to an AC power source; the combination of a first resistor in series with a first capacitor, electrically connected between the first and second wires; a series circuit of an inductor, a second resistor and a second capacitor, electrically connected in parallel with said combination; a trigger winding on the inductor, one end of which is connected to a point between said first resistor and said first capacitor, the other end of which is connected to one end of a triac, the other end of the

triac being connected to said second wire; the gate of the triac being connected to one side of a diac; the other side of the diac



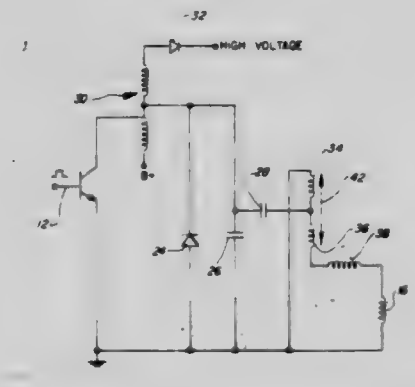
being connected to a point between said second resistor and said second capacitor.

4,334,173

HORIZONTAL WIDTH CONTROL CIRCUIT FOR IMAGE DISPLAY APPARATUS

Melvin E. Gabriel, Schaumburg, and Joseph M. Van Baalen, Vernon Hills, both of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed Sep. 22, 1980, Ser. No. 189,252
Int. Cl.³ H01J *29/70*
U.S. Cl. 315—399 **3 Claims**



1. In an image display apparatus of the type having a horizontal deflection coil responsive to a horizontal deflection circuit for horizontally deflecting an electron beam across the screen of a CRT, a horizontal width control circuit comprising:

a first inductor connected in series relationship with said horizontal deflection coil;

a second inductor connected in shunt relationship with said horizontal deflection coil; and

means manually operable for simultaneously varying the impedance of said first and second inductors in opposite directions to maintain the composite inductance thereof substantially constant, whereby to control the extent to which said electron beam is horizontally deflected across said CRT screen without detuning said horizontal deflection circuit.

4,334,174

SAWTOOTH WAVEFORM GENERATION FOR A TELEVISION RECEIVER

William R. Weissmueller, Wildwood, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Sep. 21, 1979, Ser. No. 77,684
Int. Cl.³ H01J *29/70, 29/76*
U.S. Cl. 315—408 **1 Claim**

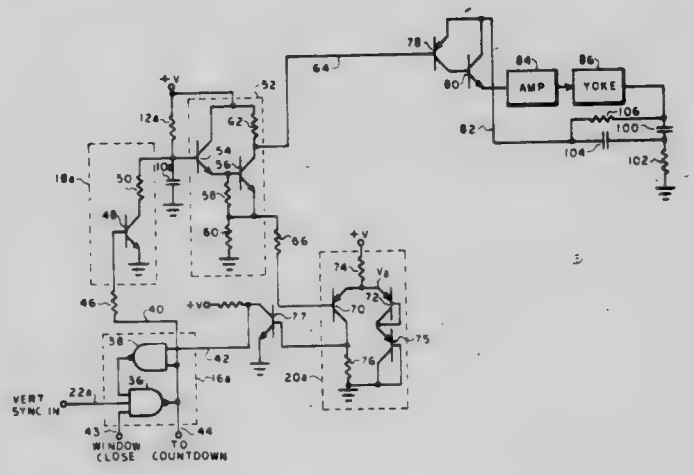
1. In a television receiver which receives vertical sync pulses as a part of a composite television signal and which includes vertical deflection circuitry responsive to an inverted sawtooth waveform, a circuit for generating an inverted sawtooth waveform for vertical deflection of a cathode ray tube's electron beam in synchronism with each such vertical sync pulse, comprising:

a capacitor for being charged and selectively discharged;

means for charging said capacitor so as to develop a ramp voltage thereacross;

a flip-flop adapted to receive a vertical sync pulse and a reset pulse for latching in a first operating condition in response to receipt of a vertical sync pulse and for latching in a second operating condition in response to receipt of a reset signal;

a transistor switch coupled between said flip-flop and said capacitor so as to discharge said capacitor in response to said first operating condition of said flip-flop and to discontinue that discharge in response to said second operating condition of said flip-flop;



a dual output inverter having an input receiving the capacitor voltage, a first output at which a non-inverted sawtooth waveform is generated and another output for coupling an inverted sawtooth waveform to the vertical deflection circuitry;

means for developing a threshold voltage; and

a comparator receiving the threshold voltage and the non-inverted sawtooth waveform from the inverter's first output for clamping the latter waveform to the threshold voltage and for developing the reset signal in response to the non-inverted sawtooth waveform being substantially equal to the threshold voltage,

whereby said capacitor charges to develop a ramp waveform during the interval between successive vertical sync pulses and discharges rapidly on receipt of each sync pulse to thereby develop a sawtooth waveform, and DC variations in the inverter's output are nullified by the comparator clamping the inverter's non-inverted output to the threshold voltage.

4,334,175

DIGITAL SPEED CONTROL METHOD AND APPARATUS

Hiroichiro Tanaka, Kunitachi, and Yasuo Nagatani, Tokyo, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Jun. 29, 1979, Ser. No. 53,271
Claims priority, application Japan, Jul. 3, 1978, 53/79758
Int. Cl.³ H02P *5/46*
U.S. Cl. 318—66 **5 Claims**

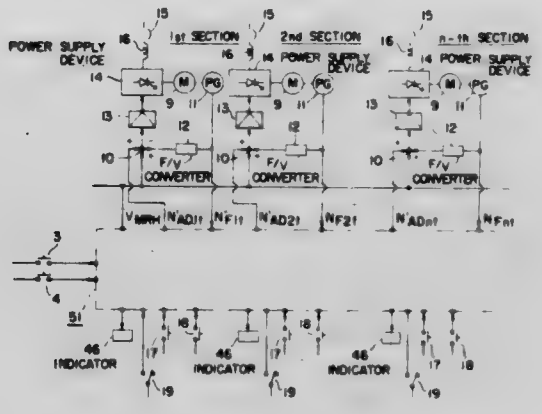
1. In a speed control method for digitally controlling the speeds of a plurality of motors provided in respective sections and operating in correlation with each other to form an operating line having an operating line speed, including the steps of:

(a) setting a line speed reference,

(b) establishing a predetermined sampling period,

(c) providing a speed difference set value for each section with respect to the line speed reference,

(d) detecting at every predetermined sampling period, the actual section speed of each section,
(e) calculating for each section a speed deviation in accordance with the line speed reference, the speed difference set value for the section, and the actual section speed for the section, and
(f) controlling the speed of the motor of each section in accordance with the speed deviation calculated for each section in step (e);

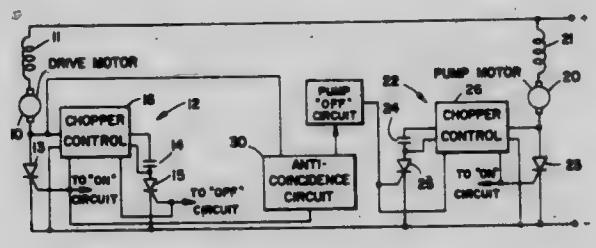


the improvement wherein said step (c) of providing a speed difference set value comprises the steps of:
(b_1) establishing a unit operation time period,
(b_2) operating a first manually operable switch to vary the speed difference set value of each section, and
(b_3) varying the speed difference set value for a section by a unit value for each unit operational time period which occurs during the manual operation of said first switch.

4,334,176
METHOD OF AND MEANS FOR CONTROLLING ELECTRICAL DEVICES

Kenneth A. Baumgartner, Peoria, Ill.; Grant C. Melocik, Chardon, Ohio, and Keith A. Stoller, Morton, Ill., assignors to Towmotor Corporation, Mentor, Ohio

PCT No. PCT/US79/00738, § 371 Date Sep. 11, 1979, § 102(e) Date Sep. 11, 1979, PCT Pub. No. WO81/00796, PCT Pub. Date Mar. 19, 1981
PCT Filed Sep. 11, 1979, Ser. No. 103,645
Int. Cl.³ H02P *1/58*
U.S. Cl. 318—102 **10 Claims**

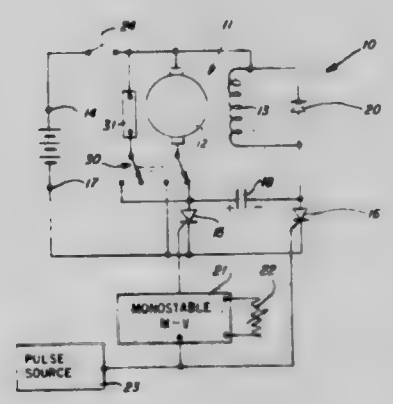


10. In a system for controlling the operation of two electric motors (**10**, **20**) powered by a common battery source and including a different SCR chopper circuit (**12**, **22**) electrically connected in series with each electric motor across said battery source, each said SCR chopper circuit having a main current carrying SCR (**13**, **23**) with a second SCR (**15**, **25**) and a commutating capacitor (**14**, **24**) connected in series with each other across said main current carrying SCR through a chopper control, said system also including means having a capacitive element (**18**) for applying an "on" actuation control signal to one of said SCR chopper circuits to trigger the main current carrying SCR thereof into conduction and independent means for applying an "off" actuation control signal to the other of said SCR chopper circuits to trigger the second SCR thereof into conduction, the improvement comprising:
(a) a first voltage comparator (**32**) having one of its inputs connected to said capacitive element (**18**) of said means for applying an "on" actuation control signal to said one of said SCR chopper circuits;
(b) a first voltage source providing a voltage (**34**, **36**) within the range of voltage change on said capacitive element (**18**) connected to the other input of said first voltage comparator (**32**);
(c) a second voltage comparator (**42**);
(d) a pair of diodes (**38**, **40**) having their anodes connected to each other with the cathode of one (**38**) connected to the output of said first voltage comparator (**32**) and the cathode of the other connected to one input of said second voltage comparator (**42**);
(e) a second voltage source providing a given voltage connected to the junction between said anodes of said diodes (**38**, **46**);
(f) a resistor (**54**) and a capacitor (**56**) connected in parallel to said one input of said second voltage comparator (**42**) across said second voltage source;
(g) a third voltage source providing a voltage (**46**, **48**) less than said given voltage of said second voltage source connected to the other input of said second voltage comparator;
(h) means (**50**) connecting the output of said second voltage comparator to inhibit the operation of said means for applying an "off" actuation control signal to the other of said SCR chopper circuits; and
(i) means (**52**) connecting the anode of said main current carrying SCR of said one of said SCR chopper circuits to said junction between said anodes of said diodes (**38**, **40**).

4,334,177
DC MOTOR CONTROL CIRCUIT

Van M. Lund, 9250 Forest View Rd., Evanston, Ill. 60203

Filed Aug. 25, 1980, Ser. No. 180,836
Int. Cl.³ H02P *5/16*
U.S. Cl. 318—345 G **4 Claims**



1. A circuit for control of a DC motor which includes an armature and a field winding, said DC motor being operative during application of a current to said armature to develop an output torque proportional to current flowing in said field winding, comprising: first and second semiconductor devices respectively connected in series with said armature and said field winding for connection between terminals of a battery or other DC source, a first electrode of said first device being connected to a first terminal of said armature, a first electrode of said second device being connected to a first terminal of said field winding, one terminal of said DC source being connected to second electrodes of said first and second devices, and the other terminal of said DC source being connected to a second terminal of said armature and to a second terminal of said field winding, a capacitor connected between said first electrodes of said semiconductor devices, and means for applying pulses to said semiconductor devices to initiate conduction of each device and thereby cut off conduction through the other, and diode means connected between said first and second terminals of said field winding for maintaining current flow through said field winding during nonconduction of said second semiconductor device connected in series therewith.

4,334,178

METHOD AND APPARATUS FOR CORRECTING TOOL LENGTHS AND TOOL RADII, PARTICULARLY FOR NUMERICALLY CONTROLLED MACHINES EQUIPPED WITH POSITION OR PATH MEASURING SYSTEMS BY MEANS OF NOMINAL-ACTUAL VALUE COMPARISON

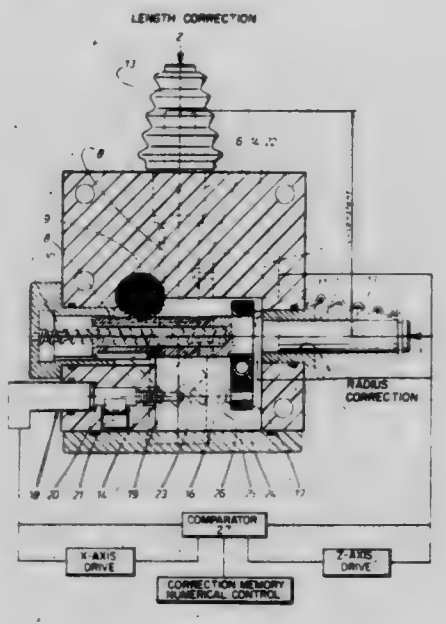
Willi Lipp, Witten-Annen, Fed. Rep. of Germany, assignor to Hüller Hille GmbH, Fed. Rep. of Germany

Filed Oct. 22, 1979, Ser. No. 86,948

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847510

Int. Cl.³ G05B *19/24*

U.S. Cl. 318—572 **7 Claims**



1. A method of correcting tool lengths and tool radii, particularly for numerically controlled machines equipped with position or path measuring systems, by means of nominal-actual value comparison of the length and radius of the tool, comprising, comparing the nominal length and radius of the tool with an actual value by means of the position or path measuring system with which the machine is equipped and which are associated with the axes of motion of the tool, storing the difference with the correct sign in a correction memory of the numerical control as a length or radius correction, wherein, the actual value comparison is effected in the zero position or at the zero passage of one of an analog and a digital transmitter which is disposed so that its zero or zero passage position in the Z-axis and in the X-axis corresponds to constant spacings from the machine (a+b).

4,334,179

APPARATUS FOR DEMODULATING A PULSE EXCITED SYNCHRO POSITION SENSOR

Terrence L. Grimes, Phoenix, and Harold L. Swartz, Glendale, both of Ariz., assignors to Sperry Corporation, New York, N.Y.

Filed Jun. 16, 1980, Ser. No. 159,425

Int. Cl.³ G05B *1/06*

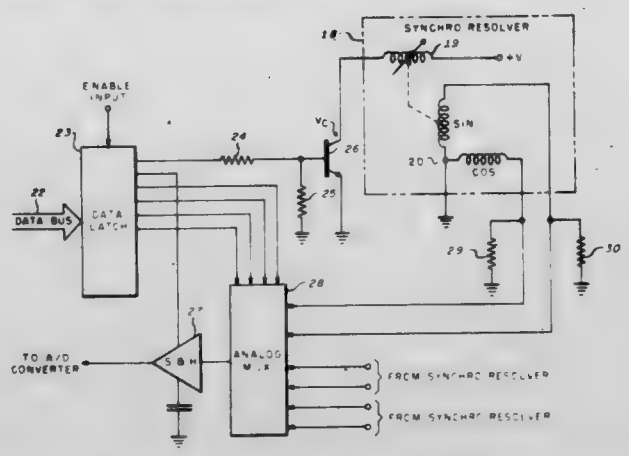
U.S. Cl. 318—661 **5 Claims**

1. Apparatus, for use with a synchro device which has excitation input winding means and at least first and second output winding means, and for providing demodulated synchro output signals, comprising:

means for applying a potential to said excitation input winding means;

switching means operatively coupled to said excitation input winding means for intermittently applying at any appropriate point in time said potential across said excitation input winding means such that at least successive first and second pulse waveforms are induced in said first and second output winding means;

sampling means selectively enabled and coupled to said first and second output winding means for sampling said successive first and second pulsed waveforms; and



means for enabling said switching means and for uniformly enabling said sampling means with respect to said switching means, such that the output signal of said sampling means provides the demodulated synchro output signals.

4,334,180

ELECTROMAGNETIC DRIVING MECHANISM FOR OSCILLATING DISPLACEMENT PUMPS

Guenter Bramm, and Pavel Novak, both of Munich, Fed. Rep. of Germany, assignors to Speidel & Keller GmbH & Co. KG, Jungingen, Fed. Rep. of Germany

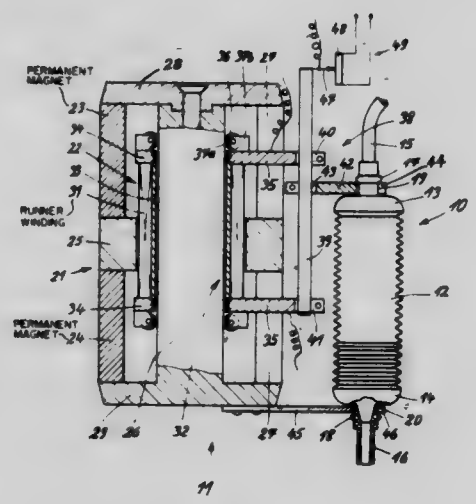
PCT No. PCT/DE79/00053, § 371 Date Jan. 17, 1980, § 102(e) Date Jan. 17, 1980, PCT Pub. No. WO79/01155, PCT Pub. Date Dec. 27, 1979

PCT Filed May 31, 1979, Ser. No. 190,323

Claims priority, application Fed. Rep. of Germany, May 31, 1978, 2823802

Int. Cl.³ G05B *11/00*

U.S. Cl. 318—687 **23 Claims**



1. An electromagnetic drive mechanism for providing a controlled back and forth driving movement, comprising stator means including magnet means for providing respective stator magnetic fields, runner means, support means supporting said runner means for a linear back and forth displacement relative to said stator magnetic fields, runner winding means (31) operatively carried by said runner means, whereby said runner winding means interact with said stator magnetic fields during the movement of said runner means, a closed loop control circuit operatively connected to said runner winding means for controlling said driving movement, said closed loop control circuit comprising sensing means for sensing an instantaneous measured value to provide a corresponding first electrical signal representing an instantaneous parameter of said runner means, reference signal means for providing a second electrical signal representing a rated value, comparator means having a first input connected to said sensing means and a second input connected to said reference signal means for

comparing said first and second electrical signals with each other, and control circuit means connecting an output of said comparator means to said runner winding means for supplying a comparator output control signal to said runner winding means whereby the control of said runner means takes place during any displacement driving and within said back and forth movement.

4,334,181

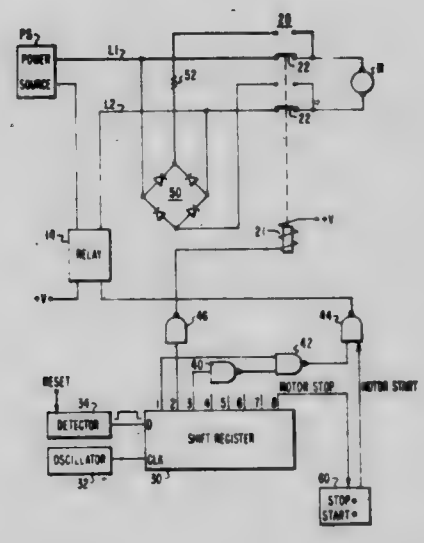
MOTOR BRAKE

Dale W. Schroeder, Iowa City, Iowa, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 25, 1979, Ser. No. 88,306

Int. Cl.³ H02P *3/24*

U.S. Cl. 318—762 **2 Claims**



1. In a system or apparatus including an a.c. system motor connected to a principal a.c. electrical excitation source, the combination of,

detector means for detecting a system malfunction and generating an output signal indicative thereof,

braking circuit means, including a secondary power source means, responding to said output signal of said detector means by transferring the excitation of the a.c. system motor from the principal a.c. electrical excitation source to said secondary power source means to bring the a.c. system motor to a controlled stop in the event of a system malfunction, said secondary power source means including circuit means for applying a predetermined level of braking current to said a.c. system motor, and

sequencing means operatively connected to said detector means, said principal a.c. electrical excitation source and said braking circuit means to generate a series of output conditions to sequentially disconnect said principal a.c. electrical excitation source from said a.c. system motor and subsequently connect said secondary power source means to said a.c. system motor in response to an output signal from said detector means, said sequencing means including a multistage output shift register means and logic circuit means connected to said output to develop said series of output conditions, the output of said detector means being the input to said shift register means.

4,334,182

MOTOR CONTROL SYSTEM

Paul J. Landino, Orange, Conn., assignor to Zero-Max Industries, Incorporated, Minneapolis, Minn.

Filed Nov. 9, 1979, Ser. No. 92,746

Int. Cl.³ H02P *5/40*

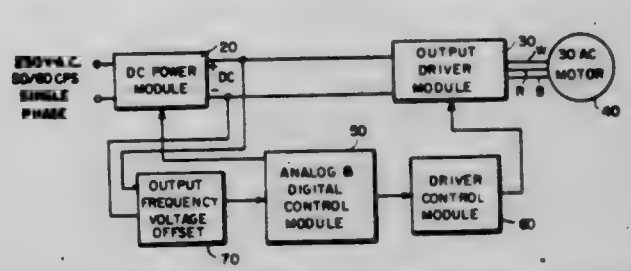
U.S. Cl. 318—808 **8 Claims**

1. A motor speed control system comprising:

(a) an output module for generating an output waveform having a selected amplitude to frequency characteristic, and for applying said waveform to the motor,

(b) a power module having an output electrically connected to the output module, said power module including a rectifier for converting an alternating voltage input substantially into a direct voltage output, said rectifier having means for controlling the amplitude of said direct voltage output in response to said firing signal, wherein said output waveform's characteristic is dependent on the amplitude of said direct voltage output;

(c) control means including a first circuit having means for switching resistance into and out of the control means depending on the amplitude of said direct voltage output, and a second circuit having an output electrically connected to the voltage controlling means of the power module for varying the firing signal in association with the



changes in resistance of the first circuit, said first circuit being electrically connected between an output of said power module and an input of said second circuit; whereby said output module, being responsive to the control means, provides an output waveform which increases with frequency from a non-zero value gradually up to a break point and more rapidly beyond the break point, and

(d) wherein the first circuit of the control means comprises a parallel arrangement of a resistor and a diode, said parallel arrangement being connected in series between the direct current output of said power module and said second circuit of said control means.

4,334,183

ELECTRONIC SENSOR ON/OFF SWITCH

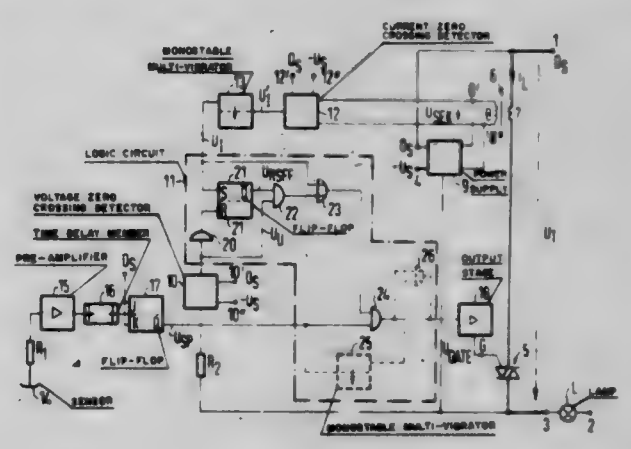
Alfred Hauenstein, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed May 21, 1980, Ser. No. 151,958

Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922219

Int. Cl.³ G05F *1/45*; H03K *17/72*

U.S. Cl. 323—235 **13 Claims**



1. Electronic sensor on/off switch for a load connected to an a-c supply network, comprising a controlled semiconductor switch connected in a series circuit with the load, a sensor for switching the load on and off, a control circuit connected from said sensor to said switch, said switch being addressable by said control circuit in a conducting state with the load switched on by a signal holding said switch in the conducting state at the zero crossing of a current passing through the load, and in a non-conducting state with the load disconnected by a signal switching said switch into the conducting state for switching

on the load at the zero crossing of an output a-c voltage at said switch, a power supply circuit connected to said control circuit, a current transformer having a primary and a secondary winding and being operable in saturation, said current transformer being connected in series with said switch, said control circuit including a first rectifier being coupled to said secondary winding and having an output producing a supply voltage with said switch in the conducting state relative to a reference potential equal to a reference potential point of the output a-c voltage, and a branch of said series circuit including said primary winding, said switch, a storage capacitor chargeable by the output a-c voltage and a second rectifier producing the supply voltage in the non-conducting state.

4,334,184

ELECTRONIC SENSOR ON/OFF SWITCH

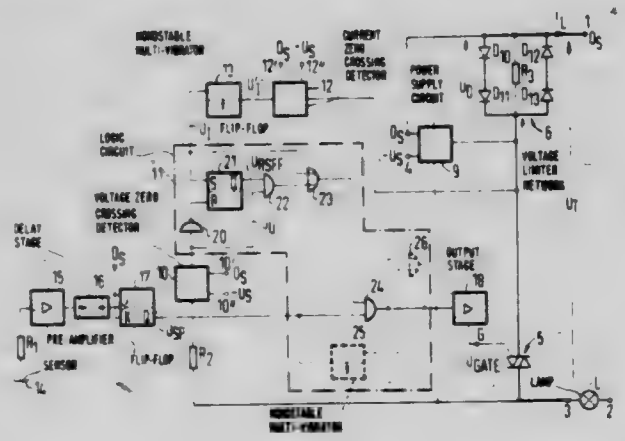
Alfred Hauenstein, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed May 21, 1980, Ser. No. 152,047

Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922309

Int. Cl.³ H03K *17/72*; G05F *1/45*

U.S. Cl. 323—235 **16 Claims**



1. Electronic sensor on/off switch for a load connected to an a-c supply network, comprising a controlled semiconductor switch connected in series with the load, a sensor for switching the load on and off, a control circuit connected from said sensor to said switch, said switch being addressable by said control circuit in a conducting state with the load switched on by a signal holding said switch in the conducting state at the zero crossing of a current passing through the load, and in non-conducting state with the load disconnected by a signal switching said switch into the conducting state for switching on the load at the zero crossing of an output a-c voltage at said switch, a power supply circuit connected to said control circuit, a two-terminal voltage limiting network connected in a series circuit with said switch for generating an amplitude-limited a-c voltage if said switch is conducting, an inductive converter conducted to said two-terminal voltage limiting network, a terminal producing a reference potential point connected to said two-terminal voltage limiting network, a storage capacitor connected to said inductive converter for producing a supply voltage for said control circuit relative to the reference potential point, a branch connected to said series circuit of said two-terminal voltage limiting network and said switch including said storage capacitor and a rectifier, and another terminal connected between said storage capacitor and said rectifier for producing the supply voltage in the non-conducting state of said switch, said storage capacitor being charged by the output a-c voltage when said switch is in the non-conducting state.

4,334,185

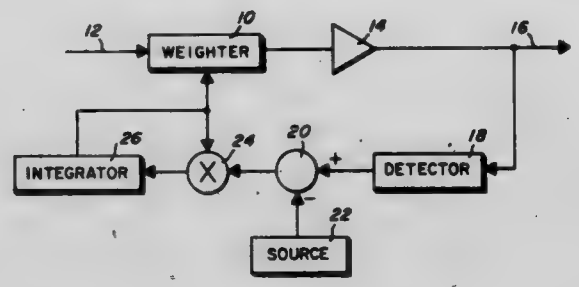
CIRCUIT FOR AUTOMATIC GAIN CONTROL WITH CONSTANT RESPONSE TIME

William J. Turney, Schaumburg, Ill., and Gregory H. Piesinger, Scottsdale, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 18, 1980, Ser. No. 217,956

Int. Cl.³ G05F *1/44*

U.S. Cl. 323—280 **5 Claims**



1. A circuit for automatic control of gain between an input terminal and an output terminal of a system having a continuous a-c signal at the input terminal, the circuit comprising:

a weighter connected to the input terminal and receiving the continuous a-c signal therefrom, the weighter attenuating the continuous a-c input signal by a controlled amount;

an amplifier connected to the weighter and to the output terminal and receiving from the weighter a signal that is amplified and delivered as an output signal to the output terminal;

a detector connected to the output terminal and responsive to a measure of amplitude of the output signal to generate therefrom a detected signal;

a controllable source of a predetermined reference electrical quantity;

a comparator connected to the detector and the controllable source to produce an output that is the difference between the reference electrical quantity and the detected signal;

a multiplier connected to the comparator and receiving as a first input the comparator difference output; and

an integrator connected to the multiplier and the weighter, the integrator receiving as an input an output signal from the multiplier, the integrator producing an integrated output signal that is taken as a second input to the multiplier and as a control signal to the weighter to determine the controlled amount of attenuation of the weighter.

4,334,186

APPARATUS FOR DRIVING HOT-WIRE TYPE FLOW SENSOR

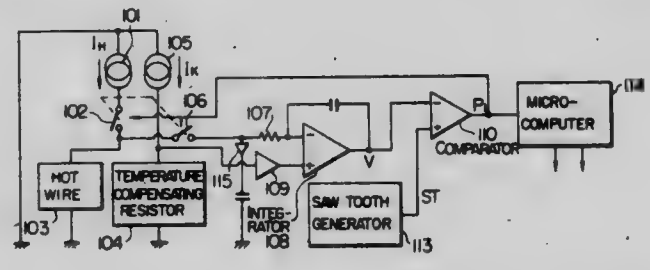
Takao Sasayama, and Shinichi Sakamoto, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 2, 1980, Ser. No. 192,994

Claims priority, application Japan, Oct. 3, 1979, 54-126786; Oct. 3, 1979, 54-126789

Int. Cl.³ F02M *51/00*

U.S. Cl. 323—365 **12 Claims**



1. An apparatus for driving a hot-wire type air-flow sensor, comprising a hot wire disposed so as to radiate heat into an air flow; a temperature sensitive compensating element for temperature compensation; constant current supply sources for

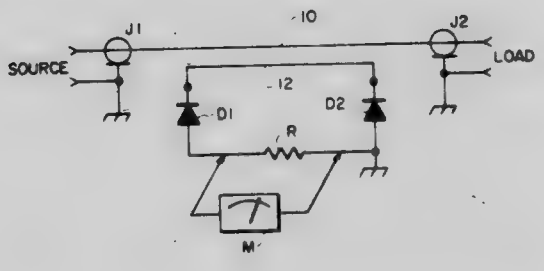
supplying constant currents to said hot wire and said temperature sensitive compensating element, respectively; electronic switch means for interrupting the constant current supplied to said hot wire from said constant current supply source; sample and hold means for sampling and holding a terminal voltage appearing across said hot wire when said constant current is being supplied thereto; integrating means for integrating a difference voltage between a terminal voltage produced across said temperature sensitive compensating element and the output voltage from said sample and hold means; and duty ratio determining means adapted to produce a train of pulses having a pulse width corresponding to the output voltage of said integrating means, wherein said electronic switch means are controlled by the pulse train produced from said duty ratio determining means.

4,334,187

PHASE SENSOR FOR R.F. TRANSMISSION LINES

Charles M. DeSantis, Neptune, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 11, 1980, Ser. No. 186,109
Int. Cl.³ G01R *27/04*
U.S. Cl. 324—58 R **2 Claims**



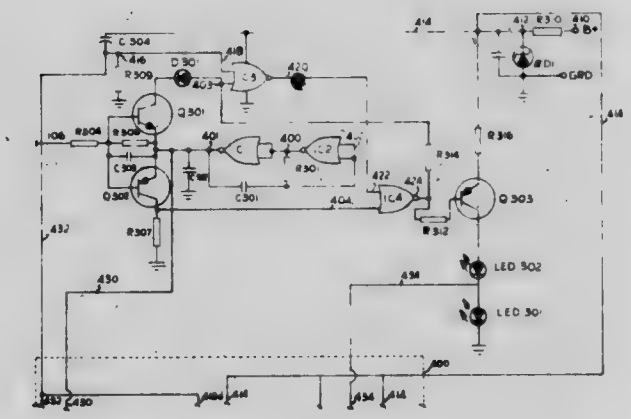
1. A phase sensor circuit comprising a transmission line coupler having an inner conductor and outer conductor means, a short pick-up wire mounted adjacent and parallel to the inner conductor, two diodes with like electrodes connected to opposite ends of the pick-up wire, and a resistor connected between the other electrodes of the two diodes, so that a meter connected across the resistor indicates the phase condition of an R.F. signal on the transmission line.

4,334,188

VOLTAGE DETECTOR USING AN OSCILLATOR AND COMPARATOR MEANS

Carl K. Dudley, Petersburg, Mich., assignor to Eltra Corporation, Toledo, Ohio

Filed Feb. 6, 1980, Ser. No. 118,943
Int. Cl.³ H04B *1/02*; G01R *31/02*; G08B *21/00*; H03K *5/153*
U.S. Cl. 324—133 **4 Claims**



1. Apparatus for detecting the presence of a voltage upon an input lead of said apparatus which is either electrically open or connected to a voltage source, comprising:

oscillator means for providing a time-varying voltage signal;

comparison means for comparing said time-varying voltage signal and the voltage upon said input lead and providing an output signal upon detecting a difference in voltage between said time-varying voltage and the voltage upon said input lead;

said oscillator means being electrically connected to said comparison means and to said input lead;

said comparison means producing a first output when said voltage on said input lead has a positive polarity and said comparison means producing a second output when said voltage on said input lead has a negative polarity;

a warning device;

means for operating said warning device in response to said output signal of said comparison means;

latching means interposed between said warning device and said comparison means for causing said warning device to provide a continued warning after said comparison means has first detected said difference in voltage;

said comparison means including a first transistor having a first polarity and a second transistor having a second polarity;

a first terminal of said first transistor and a first terminal of said second transistor being electrically interconnected at a first point and connected to said input lead;

a second terminal of said first transistor and a second terminal of said second transistor being electrically interconnected at a second point, a resistor being connected between said first point and second point;

said second point being operably connected to said oscillator means;

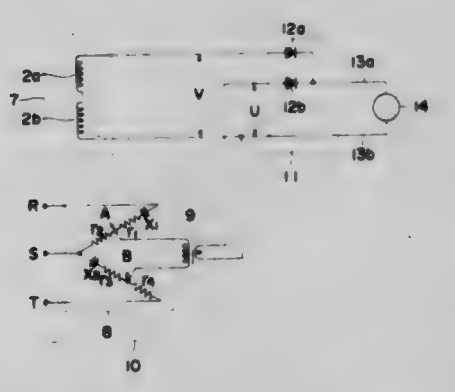
current flowing through said resistor in a first direction turning said first transistor on, and current flow through said resistor in a second direction turning said second transistor on.

4,334,189

OPERATION SUPERVISORY APPARATUS OF CANNED MOTOR

Tetsuya Sato, No. 4-34, Hirano, Shingu-Cho, Ibo-Gun, Hyogo Pref., Japan

Filed Nov. 29, 1979, Ser. No. 98,399
Claims priority, application Japan, Dec. 8, 1978, 53/152947
Int. Cl.³ G01R *31/02, 31/06*; G08B *21/00*
U.S. Cl. 324—158 MG **4 Claims**



1. An operation supervisory apparatus of a canned motor comprising: a first detection means electrically connected to a plurality of detection coils disposed in a stator core of a canned motor and detecting mechanically abnormal operation and electrically abnormal operation of said canned motor by means of a combined value of higher harmonic wave voltages induced in said coils; a second detection means disposed in said canned motor and detecting the rotating direction of said canned motor; a combining circuit combining an output signal from said first detection means and an output signal from said second detection means and taking out the greater output signal of the two; and an indicator displaying an output signal from said combining circuit; said first and second detection means being so arranged that the output signal of said second detection means at the time of reverse rotation of said canned

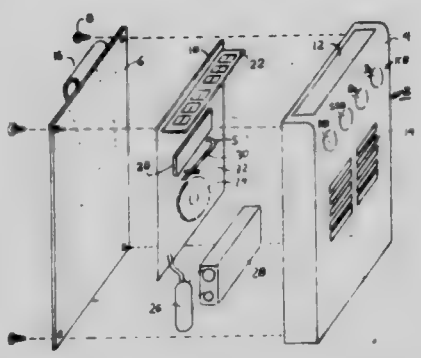
motor is set to a value greater than the output signal thereof at the time of normal rotation and than the output signal of said first detection means within the range of normal operation of said canned motor.

4,334,190

ELECTRONIC SPEED MEASURING DEVICE PARTICULARLY USEFUL AS A JOGGING COMPUTER

Aviezer Sochaczevski, 5723 Palmer Ave., Montreal, Canada

Filed Aug. 1, 1980, Ser. No. 174,672
Int. Cl.³ G01P *3/48, 3/54*
U.S. Cl. 324—171 **14 Claims**



1. An electronic device for measuring distance traversed by a body in motion per unit time, comprising:

A. a housing;

B. presetting means carried by said housing for presetting a distance constant corresponding to the distance per increment of the motion;

C. a sensor carried by said housing for sensing each increment of motion and outputting a sensor signal therefor;

D. an electronic display carried by said housing; and

E. an electronic data processor disposed within said housing and including:

(1) a central clock measuring time in a real-time manner,

(2) means for storing said preset distance constant,

(3) means including said central clock for computing the time intervals between successive sensor signals,

(4) means for computing measurements of speed by multiplying said latter time intervals by the stored distance constant

(5) and means for feeding said measurements of speed to said electronic display.

4,334,191

METAL DETECTOR CIRCUIT HAVING MOMENTARY DISABLED OUTPUT

Robert J. Podhrasky, Dallas, Tex., assignor to Garrett Electronics, Garland, Tex.

Division of Ser. No. 7,311, Jan. 29, 1979, Pat. No. 4,303,879.
This application Aug. 18, 1980, Ser. No. 178,737
Int. Cl.³ G01V *3/11, 3/165*
U.S. Cl. 324—329 **2 Claims**

1. A metal detector circuit having momentary disabled audio output, comprising:

an oscillator for generating a transmit signal,

a transmit coil connected to receive said transmit signal and generate an electromagnetic field,

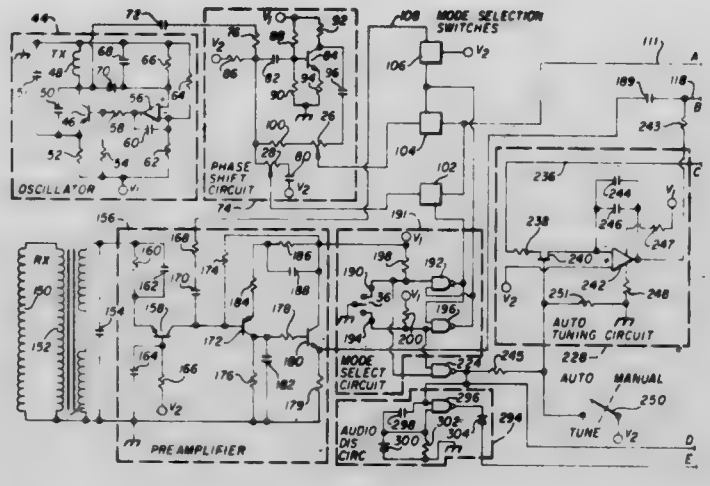
a receive coil positioned in said field for producing a received signal derived from said electromagnetic field,

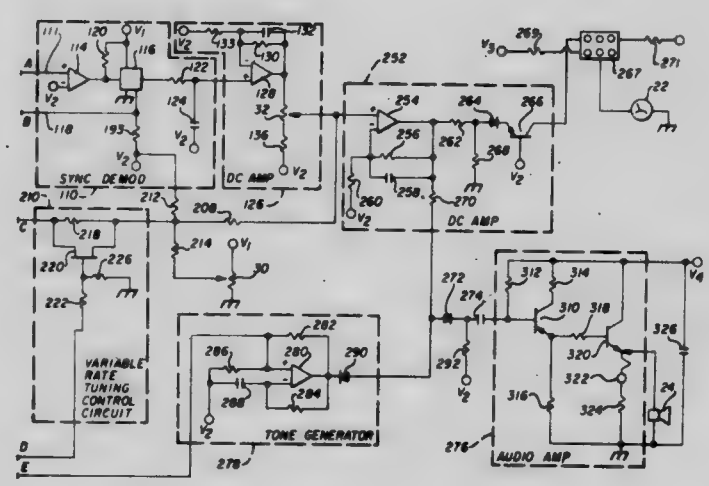
a synchronous demodulator connected to receive said transmit signal and said received signal for producing an output signal,

a phase shift means connected to receive either said transmit signal or said received signal and connected to said synchronous demodulator for providing a first relative phase shift between said transmit signal and said received signal for a ground cancellation mode of operation or for providing a second relative phase shift between said transmit signal and said received signal for a discrimination mode of operation,

switch means connected to said phase shift means for controlling said phase shift means to provide said first or said second relative phase shift between said transmit signal and said received signal,

an audio signal generator circuit connected to receive said





output signal from said synchronous demodulator for generating an audio signal in response to said output signal to indicate detection of an object by said metal detector circuit, and

means connected to said switch means and to said audio signal generator circuit for inhibiting said audio signal for a predetermined time period immediately after said switch means is operated to select one of said modes of operation.

4,334,192

METAL DETECTOR CIRCUIT HAVING AUTOMATIC TUNING WITH MULTIPLE RATES

Robert J. Podhrasky, Dallas, Tex., assignor to Garrett Electronics, Garland, Tex.

Division of Ser. No. 7,311, Jan. 29, 1979, Pat. No. 4,303,879.
This application Aug. 18, 1980, Ser. No. 178,738
Int. Cl.³ G01V *3/11, 3/165*
U.S. Cl. 324—329 **2 Claims**

1. A metal detector circuit having automatic tuning with multiple rates, comprising:

an oscillator for generating a transmit signal;

a transmit coil connected to receive said transmit signal and generate an electromagnetic field;

a receive coil in said electromagnetic field for generating a receive signal therefrom;

phase shift means connected to receive said transmit signal or said receive signal for providing a first or a second relative phase shift therebetween;

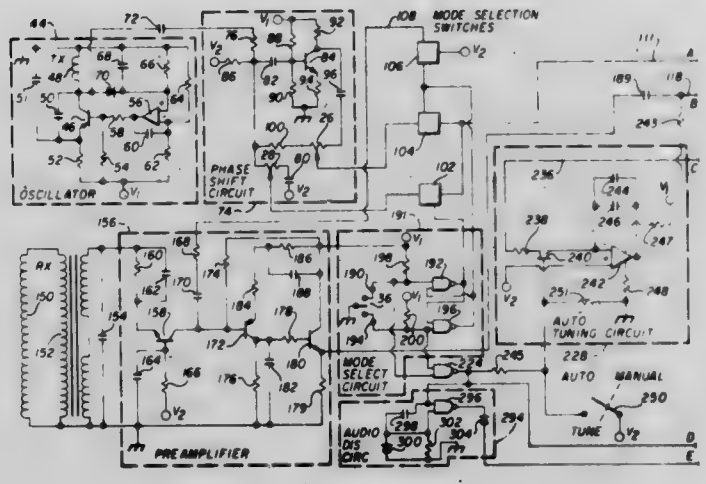
first switch means connected to said phase shift means and having first and second positions for respectively selecting

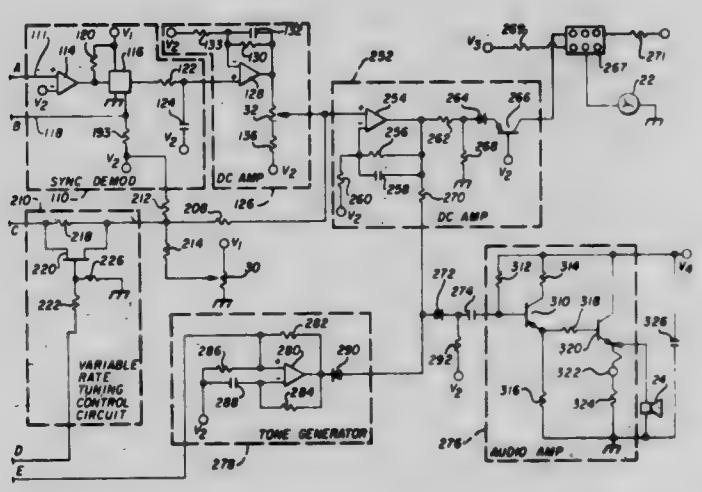
said first or said second relative phase shift between said transmit and said receive signals;

a synchronous demodulator connected to receive said transmit and receive signals after provision of said first or said second relative phase shift therebetween, said synchronous demodulator generating an output signal to indicate detection of an object within said electromagnetic field;

means for generating a tuning signal which corresponds to a selected state of said output signal;

second switch means for selecting a first or a second automatic tuning mode; and





automatic tuning means connected to said first switch means and to said second switch means, connected to receive said output signal, and connected to the input or output of said synchronous detector for driving said output signal toward said selected state at a first slew rate when said second switch means is set for said first automatic tuning mode and for driving said output signal toward said selected state at a second slew rate, faster than said first slew rate, when said first switch means is engaged in said first or said second position.

4,334,193

CELL TESTER FOR USE WITH MICROPROCESSOR

Lester A. Gordy, and David A. Poff, both of Gainesville, Fla., assignors to General Electric Company, Gainesville, Fla.

Filed Mar. 25, 1980, Ser. No. 133,802

Int. Cl.³ G01N *27/42*

U.S. Cl. 324—437 **12 Claims**

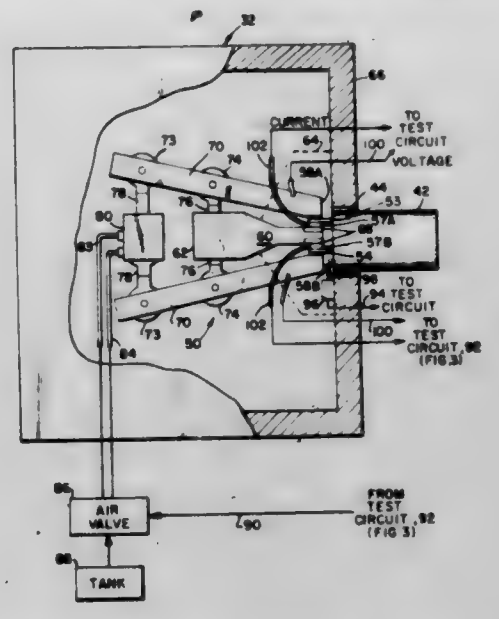
1. A tester of electrochemical storage cells comprising:

a housing for supporting a cell for making electrical connections between said cell and a test circuit;

a mechanism within said housing for bringing electrical contacts in contact with terminals of said cell;

said electrical contacts having separate wires connected thereto for the measurement of voltage and the application of current to a terminal of said cell; and wherein

said mechanism comprises a pair of arms pivoting in the manner of jaws to force the members of a Kelvin contact against a terminal of said cell, said mechanism including a stationary frame positioned between said arms, one member in each of a pair of Kelvin contacts being secured to



said stationary frame while the other members in said pair of Kelvin contacts are secured to said arms whereby the terminals of said cell can be engaged by a single pivoting of said arms relative to each other.

4,334,194

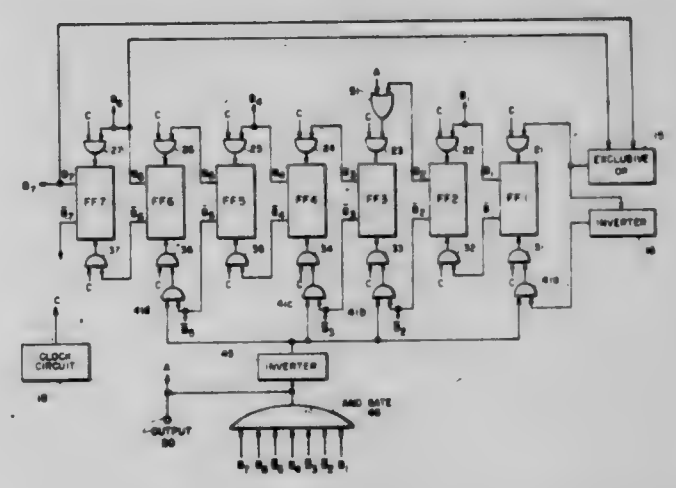
PULSE TRAIN GENERATOR OF PREDETERMINED PULSE RATE USING FEEDBACK SHIFT REGISTER

Otto E. Rittenbach, Neptune, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 973,642, Dec. 26, 1978, Pat. No. 4,237,464. This application May 9, 1980, Ser. No. 148,324

Int. Cl.³ H03K *21/34, 21/06*

U.S. Cl. 328—42 **6 Claims**



1. A pulse train generator comprising a feedback shift register having a plurality of cascaded clocked bistable stages each having complementary first and second output circuits and associated first and second input circuits, said generator producing an output pulse for each m clock pulses and having a pulse repetition rate greater than $r/(2^n-1)$ where n is the number of binary stages and r is the clock rate,

said shift register having a discrete sequence of ONEs and ZEROs appearing in successive first output circuits upon arrival of each $(m-1)$th clock pulse, and

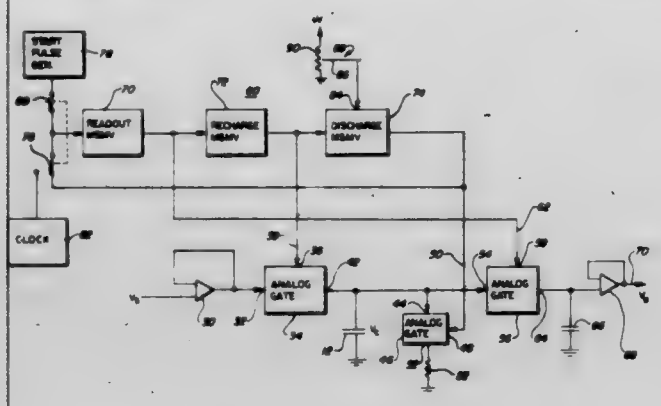
logic gating means for converting said discrete sequence to ONEs in all of said first output circuits upon arrival of each mth clock pulse.

4,334,195

VOLTAGE CONTROLLED ATTENUATOR

David A. Luce, Clarence Center, N.Y., assignor to Norlin Industries, Inc., White Plains, N.Y.

Filed May 27, 1980, Ser. No. 153,832
Int. Cl.³ H03K *5/08*; H03L *5/00*
U.S. Cl. 328—168 **15 Claims**



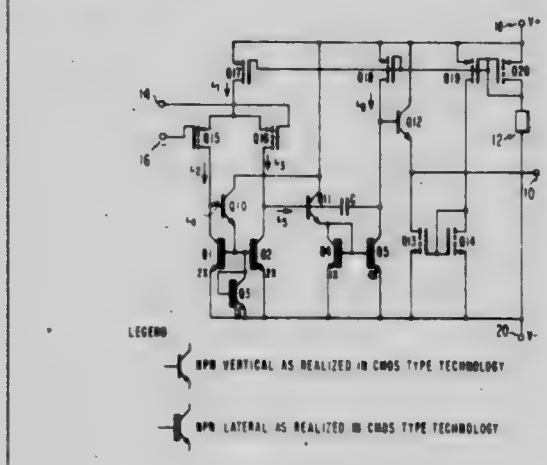
1. Apparatus for controllably attenuating an input signal voltage comprising:
capacitive means;
means for discharging said capacitive means;
switch means operable for alternately coupling said capacitive means to said input signal voltage and to said discharge means for first and second predetermined time intervals respectively; and
output means for sampling the voltage developed by said capacitive means following each of said second predetermined time intervals.

4,334,196

AMPLIFIER USING LATERAL AND VERTICAL TRANSISTORS

Otto H. Schade, Jr., North Caldwell, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 18, 1980, Ser. No. 131,518
Int. Cl.³ H03F *3/45*
U.S. Cl. 330—253 **11 Claims**



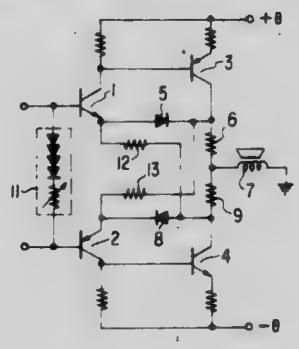
1. In a semiconductor structure having a unitary body of semiconductive material of a first conductivity type, a first plurality of semiconductor regions of a second conductivity type disposed in PN junction forming relation with said semiconductor body, a second plurality of semiconductor regions of the first conductivity type disposed in PN junction forming relation with a number of said plurality of semiconductor regions on the surface thereof remote from said semiconductor body, said first and second plurality of semiconductor regions forming substructures operable as field-effect transistors, forming substructures operable as vertical bipolar transistors of the second conductivity type wherein said semiconductor body serves as the collector region thereof, and forming substructures operable as lateral bipolar transistors of the second conductivity type, an amplifier comprising:
first and second terminals for receiving an operating potential therebetween, said first terminal being connected to said semiconductor body;
a third terminal for receiving an input signal;
a fourth terminal for providing output signal;
a vertical bipolar transistor having respective emitter, base, and collector electrodes, the base electrode of said vertical bipolar transistor being connected to said third terminal; and
a lateral bipolar transistor having respective emitter, base and collector electrodes, the base electrode of said lateral bipolar transistor being connected to the emitter electrode of said vertical bipolar transistor, the emitter electrode of said lateral bipolar transistor being connected to said second terminal, the collector electrode of said lateral transistor being connected to said fourth terminal.

4,334,197

POWER AMPLIFIER CIRCUITRY

Kazumasa Otao, Tokyo, Japan, assignor to Trio Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 12, 1980, Ser. No. 158,893
Claims priority, application Japan, Jun. 18, 1979, 54-76423; Jun. 21, 1979, 54-85217; Jun. 21, 1979, 54-85218
Int. Cl.³ H03F *3/30*
U.S. Cl. 330—268 **5 Claims**



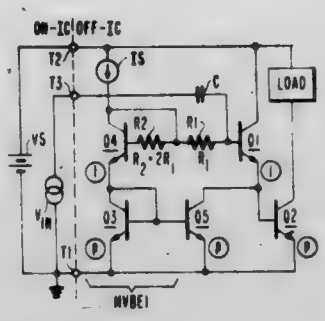
1. A singled-ended, push-pull, power amplifier circuit comprising
a first inverted Darlington circuit including a first transistor, a second transistor and a first diode connected between the emitter of the first transistor and the collector of the second transistor,
a load,
a first resistor,
the collector of the second transistor being connected to the load through the first resistor,
a second inverted Darlington circuit including a third transistor, a fourth transistor and a second diode connected between the emitter of the third transistor and the collector of the fourth transistor,
a second resistor, the collector of the fourth transistor being connected to the load through the second resistor,
a bias voltage source for applying a bias voltage of fixed value between the bases of the first and the third transistors,
a third resistor connected between the emitter of the first transistor and the collector of the fourth transistor, and
a fourth resistor connected between the collector of the second transistor and the emitter of the third transistor.

4,334,198

BIASING OF TRANSISTOR AMPLIFIER CASCADES

Max E. Malchow, Raritan Township, Hunterdon County, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 24, 1980, Ser. No. 143,504
Int. Cl.[3] H03F *3/04*
U.S. Cl. 330—296 7 Claims



1. A combination comprising:

first, second and third transistors of the same conductivity type, each having respective base, emitter and collector electrodes;

a first terminal for receiving a reference potential;

a second terminal for receiving an operating potential to which the collector electrodes of said first and third transistors are connected;

a third terminal for receiving an input signal;

a capacitor connected between said third terminal and said first transistor base electrode;

first resistive means with a first end connected to said first transistor base electrode and with a second end at a point of interconnection;

galvanic connection means connecting said point of interconnection to the base electrode of said third transistor;

current conductive means connected between said second terminal and said point of interconnection for conducting current of a first polarity to said point of interconnection to draw the potential thereat towards said operating potential;

means for direct coupling said first transistor emitter electrode to said second transistor base electrode;

means connecting said second transistor emitter electrode to said first terminal for referring the emitter potential of said second transistor to said reference potential;

means responsive to the emitter potential of said third transistor exceeding a prescribed level for supplying first and second currents, of a second polarity and with amplitudes proportionally related to each other, to said point of interconnection and to said first transistor emitter electrode; and

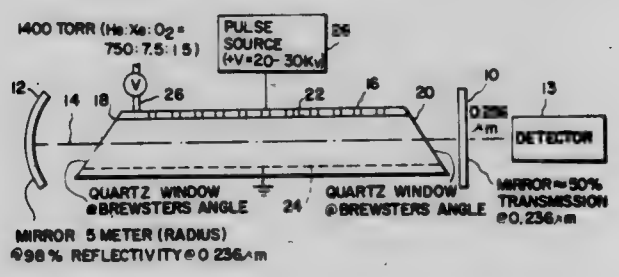
first load means to which said second transistor collector electrode is connected, including a path for quiescent current between that electrode and said second terminal.

4,334,199

EXCIMER LASER

David O. Ham, Rochester, N.Y., assignor to The University of Rochester, Rochester, N.Y.

Filed Oct. 27, 1978, Ser. No. 955,292
Int. Cl.[3] H01S *3/22, 3/223*
U.S. Cl. 372—57 18 Claims



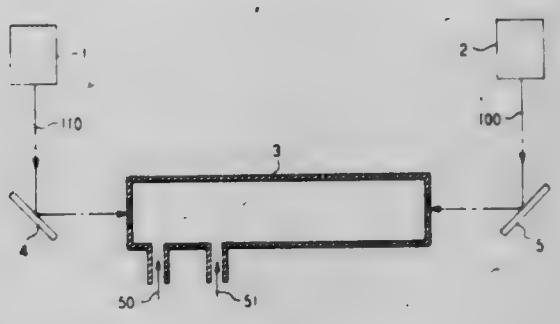
1. In a gas laser, apparatus comprising a chamber containing a mixture of at least three molecular species which produce a polyatomic excimer laser medium in a termolecular reaction when excited to raise at least one of said species to a metastable state, and means coupled to said mixture for exciting said species to said metastable state.

4,334,200

LASER INDUCED COLLISIONAL LASER PUMPING

Richard R. Freeman, Middletown, and Jonathan C. White, Eatontown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 1, 1980, Ser. No. 145,810
Int. Cl.[3] H01S *3/22*
U.S. Cl. 372—90 14 Claims



1. An apparatus comprising:

a chamber;

a storage species and a second species disposed in said chamber, said second species being a molecular material;

excitation means for exciting said storage species;

characterized in that said apparatus further includes

a laser source of laser radiation and

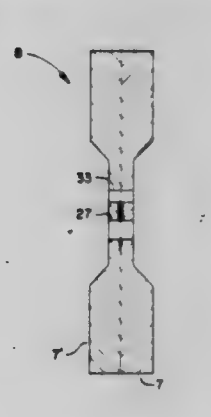
means for applying said laser radiation to said storage species and said second species in said chamber, whereby said second species is excited to a higher state by a laser-induced collisional energy transfer interaction between said excited storage species and said second species and said higher state is a dissociative molecular state, whereupon said second species decays into a first and a second fragment.

4,334,201

YIG BANDPASS FILTER INTERCONNECTED BY MEANS OF LONGITUDINALLY SPLIT COAXIAL TRANSMISSION LINES

David H. Shores, Lake Oswego, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Sep. 21, 1978, Ser. No. 944,436
Int. Cl.[3] H01P *1/217, 7/06, 1/209*
U.S. Cl. 333—202 6 Claims



1. A magnetic field-tunable filter comprising (a) a nonmagnetic metallic housing; (b) a cavity formed within said housing; (c) a ferrimagnetic resonator element supported within said cavity; (d) a passage leading from said cavity to an external surface of said housing; and (e) a coupling structure including an elongate conductor extending centrally through said pas-

sage into said cavity to couple magnetically with said resonator element;

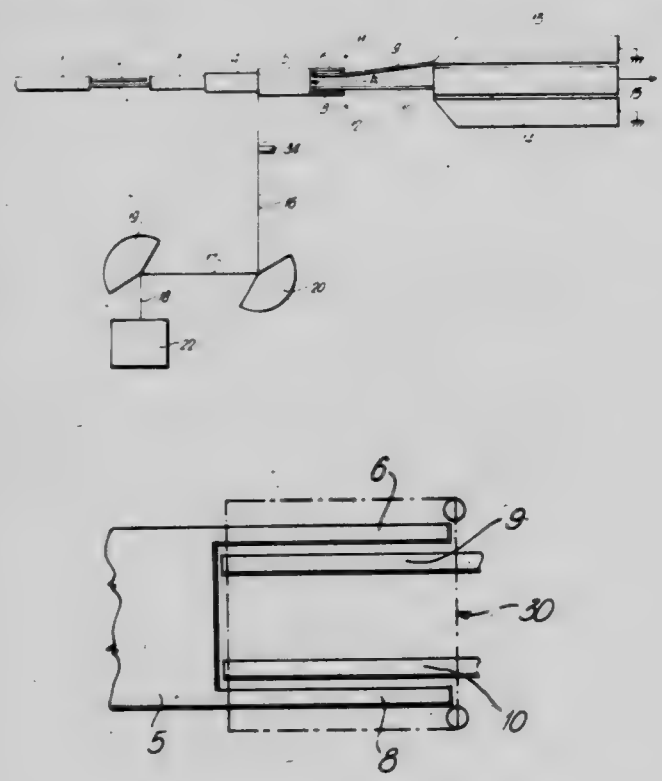
characterized in that (1) said passage is composed of plural sections of different diameter, including one section of smaller diameter communicating with said cavity, and another section of larger diameter opening into said external surface, and (2) said housing comprises first and second members joined along the longitudinal centerline of said passage.

4,334,202

BROADBAND FREQUENCY DIVIDER

William D. Cornish, Nepean, and François A. Gauthier, Gatineau, both of Canada, assignors to Her Majesty the Queen in right of Canada, as represented by Minister of National Defence of Her Majesty's Canadian Government, Canada

Filed Sep. 23, 1980, Ser. No. 189,766
Claims priority, application Canada, Nov. 16, 1979, 340023
Int. Cl.³ H01P *1/20*
U.S. Cl. 333—218 4 Claims



1. In a microwave frequency divider having a circuit resonant at a subharmonic frequency formed by a pair of input microstrip transmission lines and a pair of output microstrip transmission lines, each input line being terminated by a varactor diode, the output lines being connected to a coplanar waveguide balun, a bias supply line having a quarter wavelength section connected to the varactor diodes, the improvement comprising a metal plate, physically isolated from ground and disposed so as to be substantially co-extensive with the resonant circuit and in closely spaced relation thereto, for capacitively loading the resonant circuit and thereby increasing the resonant frequency thereof and providing an improved match for the reactive part of the input impedance.

4,334,203

SECOND HARMONIC SUPPRESSOR FOR POWER AMPLIFIER TANK CIRCUIT

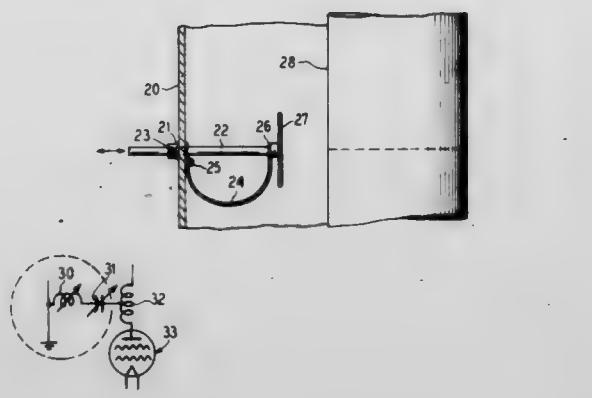
James A. Aurand, Quincy, Ill., assignor to Broadcast Electronics, Inc., Quincy, Ill.

Filed Apr. 9, 1980, Ser. No. 138,668
Int. Cl.³ H01P *1/212, 7/04*
U.S. Cl. 333—226 6 Claims

1. The combination of a power amplifier resonant transmission line having an outer conductor and an inner conductor, and a second harmonic suppressor therefor comprising:

a capacitive plate and an inductive strap;

the inductive strap being mechanically and electrically coupled from the outer conductor to the capacitive plate; and



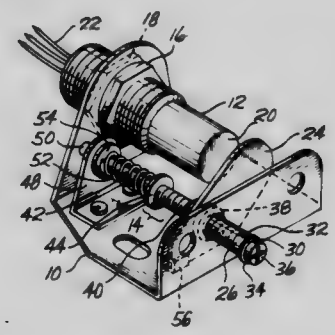
means for adjusting the position of said capacitive plate with respect to said inner conductor.

4,334,204

PROXIMITY SWITCH ASSEMBLY

John A. Buchanan, Renton, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Jun. 30, 1980, Ser. No. 164,718
Int. Cl.³ H01H *36/00*
U.S. Cl. 335—205 1 Claim



1. A proximity switch assembly comprising:

a base plate;

a sensor mounted to the base plate and producing an output signal in response to a target plate being within a predetermined distance of the pickup portion of said sensor;

a plunger mechanism mounted to the base plate for movement of a plunger with respect thereto in response to a plunger striker surface being forcibly engaged by an external object;

a target plate mounted to the plunger for movement therewith and being positioned with respect to the sensor such that a predetermined movement of said plunger positions the target plate within said predetermined distance of said sensor; and wherein the plunger has a threaded shaft and is mounted to said base plate such that it is free to rotate about its longitudinal axis and the target plate has a provided means for mounting said target plate to ride on said threaded shaft such that the static position of the target plate with respect to the sensor is adjustable by rotating said plunger.

4,334,205

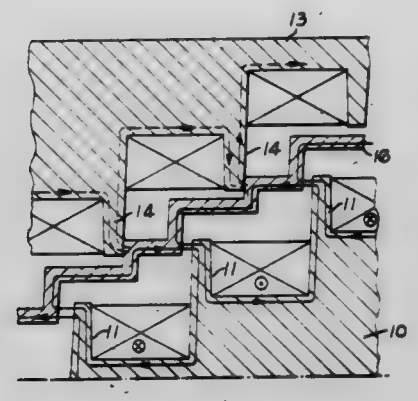
ELECTROMAGNETIC DEVICES

Alec H. Seilly, North Wembley, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Mar. 25, 1981, Ser. No. 247,333
Claims priority, application United Kingdom, May 2, 1980, 8014737
Int. Cl.³ H01F *7/08*
U.S. Cl. 335—220 5 Claims

1. An electromagnetic device comprising an elongated inner stator structure which defines a plurality of axially spaced

annular magnetisable pole pieces, said pole pieces having diameters which increases toward one end of the stator structure, a winding carried by the stator structure and which when supplied with electric current causes adjacent pole pieces to assume opposite magnetic polarity, an annular armature surrounding the stator structure said armature being formed from magnetisable material and having a generally tapered inner surface whereby when current is supplied to the winding the armature will move axially towards the one end of the stator structure, an outer stator structure which surrounds the armature, the armature having a generally tapering outer surface, said outer stator structure having a plurality of axially spaced annular magnetisable pole pieces and a winding arranged so that when electric current flows through the winding adjacent pole pieces will assume opposite magnetic polarity, the outer stator structure being axially displaced relative to the inner stator structure whereby the magnetic circuits in the armature for the flux produced by the inner and outer stator structures when the respective windings are energised are displaced relative to each other.



4,334,206

FERRITE CORE TYPE TRANSFORMER

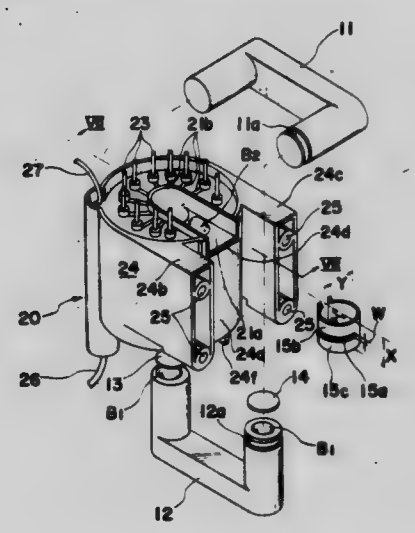
Kenzi Nakamura, Katano, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Aug. 22, 1980, Ser. No. 180,392

Claims priority, application Japan, Aug. 23, 1979, 54-116504[U]; Sep. 17, 1979, 54-119688

Int. Cl.³ H01F *27/30*

U.S. Cl. 336—96 7 Claims



1. A ferrite core type transformer which comprises:

a ferrite core unit comprising a first core member having first and second end faces, a second core member having first and second end faces, said first and second core members being positioned with respect to each other such that the first and second end faces of the first core member are aligned with the first and second end faces of said second core member thereby forming a closed magnetic path, and a first bonding agent having a quick hardening property at room temperature, said first bonding agent being applied between the first end faces of the first and second core members, and also between the second end faces of the first and second core members for rigidly connecting the first and second core members together, each of said first and second core members having a U-shaped configuration such that, when the first and second core members have been connected together, said core unit has a generally O-shape;

a coil unit comprising an inner bobbin for supporting a primary winding therearound, said inner bobbin having a bore therein for receiving said ferrite core unit, an outer bobbin for supporting a secondary winding therearound, said outer bobbin being arranged coaxially with said inner bobbin, a casing for housing said inner and outer bobbins therein and including guide means for receiving a portion of said core unit, and a thermosetting plastic filled in said casing;

a second bonding agent having a resiliency, said second bonding agent being positioned in said guide means between said guide means and one of said core members for bonding said coil unit and said core unit, the connection between the first end faces of the first and second core members being located outside the coil unit; and

a holder means for engaging said first and second core members and holding the first and second core members together at the area of connection between the first end faces of the first and second core members.

4,334,207

LINEAR DISPLACEMENT TRANSDUCER

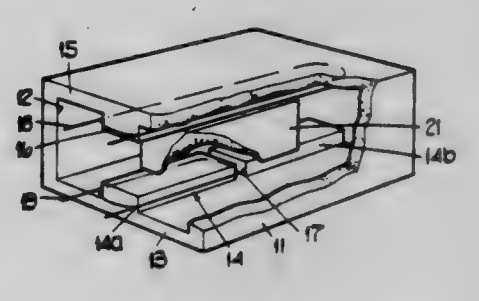
Colin S. Bill, Birmingham; Charles P. Cockshott, Coventry, and John H. Francis, Birmingham, all of England, assignors to Lucas Industries Limited, Birmingham, England

Filed Jun. 22, 1979, Ser. No. 51,243

Claims priority, application United Kingdom, Jun. 28, 1978, 28176/78; Dec. 2, 1978, 46993/78; Mar. 1, 1979, 797245

Int. Cl.³ H01F *21/06*

U.S. Cl. 336—136 13 Claims



1. A linear displacement transducer including a first elongated magnetizable member having first and second pole pieces which extend parallel with each other over the full length of said first member, and which are of substantially constant width along their length, a first winding wound around part but not all of said first member, a second winding wound around the full length of the first member, and a second elongated member having at least a part which is shorter than said first elongate member, said first and second members being movable linearly relative to each other in a direction parallel with the longitudinal axis of the first member, while maintaining a substantially constant gap between the members, to vary the magnetic coupling between said first and second windings when an a.c. signal is applied, in use, to one of the windings.

4,334,208

COIL FORMER FOR A TRANSFORMER

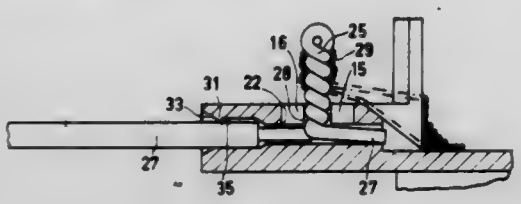
Sieghard Post, Guntersdorf, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 2, 1980, Ser. No. 193,210

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1979, 2941756

Int. Cl.[3] H01F *15/10*

U.S. Cl. 336—192 8 Claims



1. A coil former comprising a support member adapted to support a coil wire having coil wire ends, said support member including at least one connection strip member, connection pins being formed from twisted loops of connection wires, the connection strip member including duct-like inlet paths therein through which the connection wires pass and a pick-up recess which communicates with the inlet paths so that a connection wire in each inlet path can be picked up and pulled out of the pick-up recess and twisted to form said twisted loop connection pins, the twisted loop extending through the pick-up recess substantially at right angles to non-twisted portions of the connection wire positioned in the inlet path on each side of the recess, said connection strip member located at an area where the ends of connection wires and the coil wire ends are adapted to be interconnected by means of said connection pins.

4,334,209

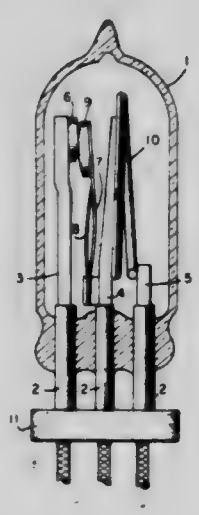
GLASS ENCLOSED THREE LEAD CIRCUIT BREAKER

Philip J. Dennis, Cape Elizabeth, Me., assignor to GTE Products Corporation, Stamford, Conn.

Continuation of Ser. No. 36,196, May 4, 1979. This application Nov. 21, 1980, Ser. No. 209,342

Int. Cl.[3] H01H *45/02, 61/02*

U.S. Cl. 337—112 2 Claims



1. A circuit breaker comprising: a hermetically sealed glass envelope; three spaced apart metal tubes sealed to one end of said envelope, said metal tubes being readily sealable to glass, a metal lead-in wire disposed within each of said metal tubes and being hermetically joined thereto and extending beyond the ends thereof; a stationary contact within the envelope attached to a first one of the lead-in wires; a theremostatic metallic element having a movable contact at one end thereof within the envelope attached to the second of the lead-in wires; a heater within the envelope isolated from said first lead-in wire and attached between said second lead-in wire and the third of the lead-in wires, the heater being in series with the thermostatic metallic element and being in heat radiating proximity thereto; the contact during normal operation being closed, the heater being operative to open the contact when starting current flows through the heater longer than a predetermined time, the thermostatic metallic element being operative to open the contacts when more than a predetermined amount of current flows through the thermostatic metallic element.

4,334,210

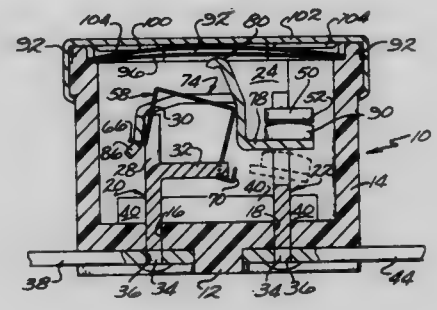
THERMOSTATIC SWITCH AND METHOD OF MAKING

Henry J. Boulanger, Cumberland, R.I., and Andrew C. McGuirk, North Attleboro, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 3, 1980, Ser. No. 203,071

Int. Cl.[3] H01H *37/54*

U.S. Cl. 337—343 7 Claims



1. An electrical switch comprising a housing defining a switch cavity therein, the housing having a bottom wall and a generally cylindrical side wall depending from the bottom wall and terminating at a distal free end, movable and stationary contacts disposed in the switch cavity, a movable contact arm mounting the movable contact and adapted to move the movable contact into and out of engagement with the stationary contact, a ledge formed at the free distal end of the side wall, a plurality of plateaus extending from the ledge and spaced around the periphery of the side wall, a thin, generally circular sheet of flexible resinous film lying in a plane having a plurality of outwardly extending tab portions disposed on the ledge with the tabs received between the plateaus, the tabs bent out of the plane of the sheet, a thermally conductive cap received over the distal free end of the side wall and a thermally responsive disc movable from one configuration to another configuration upon the occurrence of a preselected temperature disposed between the resinous sheet and the cap, a portion of the movable contact arm located adjacent the resinous film so that when the disc moves from one configuration to another its motion will be transferred to the movable contact arm through the resinous film.

4,334,211

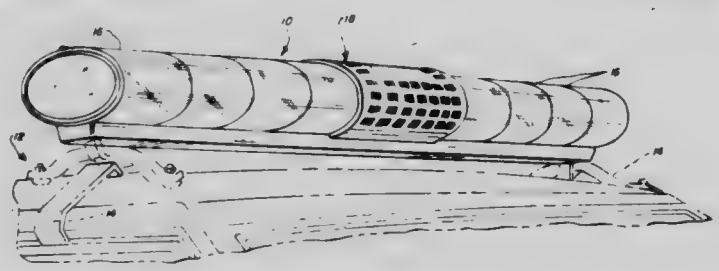
SPEAKER GRILLE FOR STREAMLINED LIGHT BAR MOUNTED ON VEHICLE ROOF

Michael V. McConnell, Park Ridge, and Paul D. Graham, Frankfort, both of Ill., assignors to Federal Signal Corporation, Oak Brook, Ill.

Filed Sep. 2, 1980, Ser. No. 182,995

Int. Cl.[3] B60Q *1/00*

U.S. Cl. 340—88 8 Claims



1. In a combination light/siren assembly of a type to be mounted across the roof of an emergency vehicle and having an elongated housing which extends across the vehicle roof in

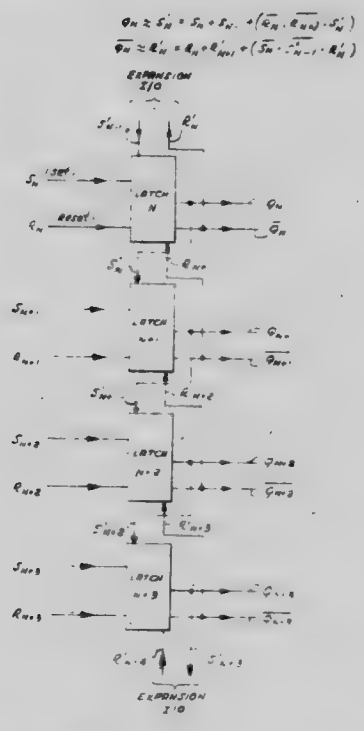
spaced relation thereto, including warning lights mounted in said housing, and a siren speaker located in said housing, the improvement comprising, a speaker grille incorporated into said housing forwardly of said siren speaker and formed with a leading portion which divides oncoming air into separate streams which flow above and below said grille, said speaker grille having a plurality of small openings formed therein for emitting sound waves from said siren speaker, said openings being provided in a non-linear profile in an upper portion of said speaker grille so as to extend to a greater height in two laterally spaced outer side areas and to a lesser height in a central area of said speaker grille, whereby air entering said housing through openings in the front of said grille will be substantially restricted from exiting upwardly into the air stream flowing above said housing, and the acoustical characteristics of said speaker grille will be enhanced by the higher level of openings at said two laterally spaced upper side areas of said grille.

4,334,212

ELECTRONIC LATCH FOR DIGITALLY ACTUATING A LOAD

Fred R. Wright, 3620 Bluff Pl. #2, San Pedro, Calif. 90731

Filed Sep. 21, 1979, Ser. No. 77,599
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 DA **7 Claims**



1. A data latch comprising

a bistable "logical" latching element, n, having a pair of input terminals coupled to be responsive to an individual triggering signal for "setting" the latching element to a preselected one of its bistable states in response to a triggering signal coupled to either one of said input terminals,

said latching element including a pair of output terminals coupled thereto to signal the state of the bistable latching element, one of the output terminals representing the "setting" and the other terminal being complementary thereto and representing the "resetting" of the latching element,

another pair of input terminals coupled to said latching element and coupled to be responsive to an individual triggering signal for "resetting" the latching element to the other one of the bistable states in response to a triggering signal coupled to either one of the another pair of input terminals,

a plurality of bistable "logical" latching elements constructed and defined as the first mentioned latching element n with the same two pairs of input terminals and the pair of output terminals,

the plurality of latching elements being arranged in sequence on the opposite sides of the n latching element and being respectively identified as n−1, n−2, etc. and n+1, n+2, etc., elements,

circuit means coupled to the "setting" one of the output terminals of the first mentioned n latching element to one of the "setting" input terminals for the n+1 latching element,

circuit means coupled to the "resetting" one of the output terminals of the first mentioned, n, latching element to one of the "resetting" input terminals for the n−1 latching element,

circuit means coupled to the "setting" one of the output terminals of the n−1 latching element to one of the "setting" input terminals for the n latching element,

circuit means coupled to a "setting" one of the input terminals of the n−1 latching element adapted to be connected to one of the terminals for a source of reference potential or the n−2 "setting" output terminal,

circuit means coupled to the "resetting" one of the output terminals of the n+1 latching element to one of the "resetting" input terminals for the n latching element,

circuit means coupled to a "resetting" one of the input terminals for the n+1 latching element adapted to be connected to one of the terminals for a source of reference potential or the n+2 "resetting" output terminal,

individual latching selection elements, the number of selection elements being one greater than the number of said latching elements, each selection element being coupled to a source of potential for applying a preselected potential to at least a single latching element when in the static condition and a triggering signal to at least one of the latching elements when selectively operated,

circuit means coupling an individual latching selection element to a "resetting" input terminal of the last of said n+1 series of elements for resetting all of the latching elements to signal the binary pattern 0000—when selectively operated,

circuit means for coupling an individual latching selection element to a "setting" input terminal of the last of said n−1 series of elements for setting all of the latching elements to signal the binary pattern 1111—when selectively operated,

individual circuit means for coupling an individual latching selection element to a "resetting" input terminal of the n latch and to a "setting" input terminal of the n+1 latch,

individual circuit means for coupling an individual latching selection element to a "setting" input terminal of the n latch and to a "resetting" input terminal of the n−1 latch,

the latches being constructed and defined to sequentially produce the binary patterns 0000, 0001, 0011, 0111, 1111 and vice-versa when sequentially operating the selection elements from one end to the opposite end, the operation is further characterized by the generation of a unique binary pattern in response to the operation of a selection element whereby the operation of a selection element to "set" the coupled latch to a binary 1 will cause all latches arranged in ascending order to be set to a binary 1 and when a selection element is operated to "reset" a latch to a binary 0 will cause all latches arranged in decending order to be reset to a binary 0.

4,334,213

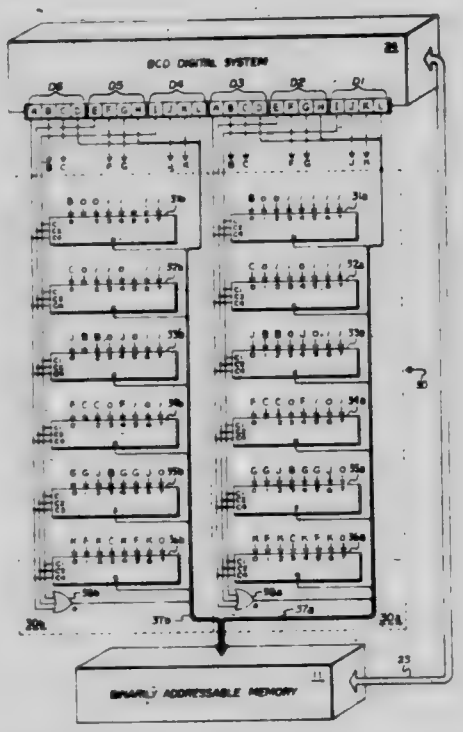
CIRCUIT FOR ADDRESSING BINARILY ADDRESSABLE MEMORIES WITH BCD ADDRESSES

Hanan Potash, La Jolla, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Feb. 4, 1980, Ser. No. 118,490
Int. Cl.³ H03K *13/24*; G06F *5/02*
U.S. Cl. 340—347 DD **6 Claims**

1. The combination of a digital system means for providing electrical signals encoded as any number of BCD digits greater than three, a memory means that is addressable with electrical signals encoded as a binary address, and a means for generating

said electrical signals that address said memory means from said electrical signals provided by said digital system means;
said generating means being comprised of:
a plurality of identical circuit modules, the number of modules in said plurality being at least one-third the number of BCD digits encoded into said electrical signals from said digital system;
each of said modules having inputs coupled to receive a respective subset of said electrical signals from said digital system, said subset of electrical signals encoding up to three BCD digits;
each of said modules including a means for forming electrical output signals as a permutation of:



(a) those electrical signals in said subset that represent the three least significant bits of each BCD digit having a most significant bit of "0",
(b) those electrical signals in said subset that represent the single least significant bit in each BCD digit having a most significant bit of "1", and
(c) encoded digital "1" and "0" signals that represent the most significant bits of all of the BCD digits encoded into all of the electrical signals in said subset; and
means for addressing said memory by concatinating together said electrical output signals from all of said modules as a single binary address.

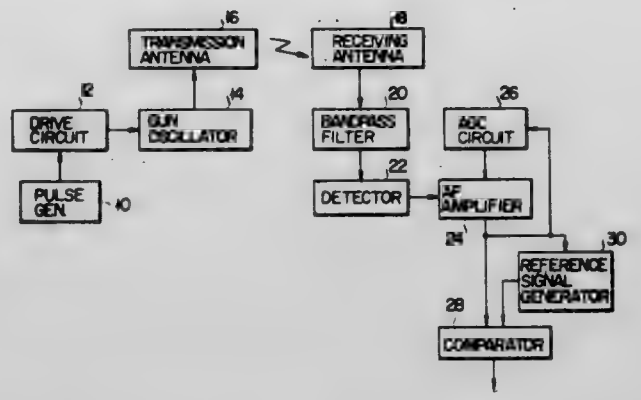
4,334,214

WARNING APPARATUS USING MICROWAVES

Shun Satou, and Yuuji Jitsumatsu, both of Omiya, Japan, assignors to Yagi Antenna Co., Ltd., Tokyo, Japan

Filed Jun. 18, 1980, Ser. No. 160,495
Int. Cl.³ G08B *13/18;* G08G *1/01*
U.S. Cl. 340—552 **6 Claims**

1. A warning apparatus using microwaves comprising:
drive means generating a rectangular pulse voltage;
means for oscillating a microwave in accordance with the rectangular pulse voltage generated from said drive means;
a transmission antenna having a first rectangular slotted waveguide and a horn which are arranged in a horizontal plane, for radiating in accordance with the microwave from said oscillating means a fan beam whose width is broad in a vertical plane;
a receiving antenna having a second rectangular slotted waveguide and a horn;
means for detecting a microwave with a given frequency band received by said receiving antenna;
an automatic gain control circuit connected to said detecting means and having a given time constant to control a gain of said detecting means;
reference signal generating means having a time constant the same as the time constant of said automatic gain control circuit and generating a reference signal according to the output signal of said detecting means; and



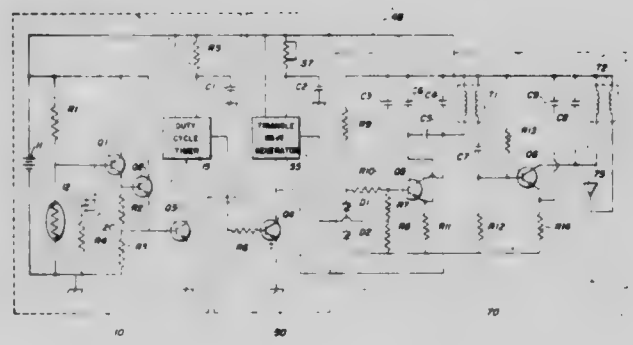
means for comparing the output signals of said detecting means and reference signal generating means to produce a detecting signal when both signals coincide with each other.

4,334,215

CONTINUOUS HEAT AND PRESSURE SURVEILLANCE SYSTEM FOR PNEUMATIC TIRES

John D. Frazier; Wilmur G. Grandfield, both of Godfrey, and Michael G. Brainerd, Grafton, all of Ill., assignors to Tire-Tronics, Inc., Alton, Ill.

Filed Apr. 27, 1979, Ser. No. 34,427
Int. Cl.³ H04Q *7/00;* G08B *1/08;* B60C *23/00*
U.S. Cl. 340—539 **1 Claim**



1. Apparatus mountable within a pneumatic tire of a motor vehicle for signaling to a receiver remote from such tire the increase of tire temperature above a selected normal and the deviation of tire pressure from a selected normal range, comprising
a radio transmitter,
a battery of the type which does not degrade substantially up to such selected normal tire temperature, and
means for making a circuit between said battery and transmitter including
pressure-sensing switch means to close upon deviation of tire pressure from such selected pressure range, and
temperature-sensing switch circuitry having a switching state controlled by a transistor, the transistor having
control electrode means to switch the transmitter from off to on in response to decrease of bias potential applied to said electrode, said circuitry further having
a voltage divider network comprising a series circuit including
(A) a substantially fixed resistance connected at one end to one terminal of the battery and
(B) a negative temperature coefficient thermistor connected at one end to the other terminal of the battery,
said resistance and said thermistor being connected together

at their opposite ends to form a circuit node therebetween, said transistor control electrode being connected to said node,

said thermistor being characterized by having such high resistance at such selected normal tire temperature as to be substantially nonconducting, and by having such decreased resistance at substantially greater temperatures as to become substantially conducting,

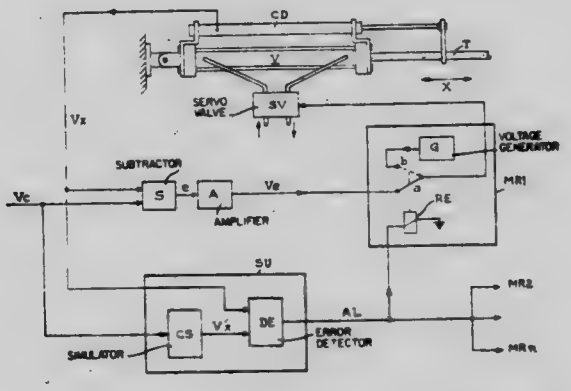
whereby at and below such selected normal tire temperature, the high resistance of the thermistor will both substantially avoid current flow through the network and maintain such a bias potential on the transistor as to avoid actuating the transmitter.

4,334,216

ELECTRONIC DEVICE FOR MONITORING THE OPERATION OF A SERVO SYSTEM INCLUDING A HYDRAULIC JACK

Michel A. B. Lacroix, Velizy, France, assignor to Le Materiel Telephonique Thomson-CSF, Colombes Cedex, France

Filed Nov. 8, 1979, Ser. No. 92,548
Claims priority, application France, Nov. 22, 1978, 78 32904
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—679 **5 Claims**



1. In a servo system including a hydraulic jack provided with a servo valve settable for alternately advancing and retracting said jack together with a load engaged thereby, actuating means for setting said servo valve in response to the difference between an externally generated position-control signal and a position-feedback signal from said jack, and monitoring means responsive to deviations between said position-feedback signal and a reference signal derived from said position-control signal for disabling said actuating means upon said deviations falling outside a predetermined tolerance range,

the improvement wherein said monitoring means comprises a simulation circuit receiving said position control signal at its input and supplying said reference signal at its output, said simulation circuit having a transfer function which is a first-order approximation of the transfer function of the combination of said jack and said actuating means, said simulation circuit including an integrating operational amplifier whose time constant substantially equals the response time of said jack, said monitoring means further including an error detector with one input receiving said position-feedback signal from said jack and with another input receiving said reference signal from said simulation circuit and supplying at its output a safety signal which disables said actuating means whenever the signals at its inputs differ by more than a predetermined amount.

4,334,217

ELECTRONIC CONTROL INDICATOR FOR CABLE HOIST EQUIPMENT

Barry J. Nield, Calgary, Canada, and Roy R. Earnshaw, Bakersfield, Calif., assignors to Rig Electronics Ltd., Calgary, Canada

Filed May 2, 1980, Ser. No. 146,327
Int. Cl.³ B66B *3/02*; E21B *45/00*; G06B *3/02*; G08B *19/00*
U.S. Cl. 340—685 **13 Claims**



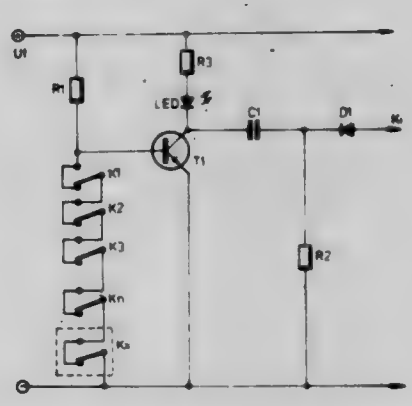
1. Indicating means for cable hoist equipment which includes a cable with load carrying means on the free end thereof movable between an uppermost position and a lowermost position and vice versa and at least one rotating member which rotates in relation to the vertical movement of the load carrying means; comprising in combination a pair of sensors secured in spaced angular relationship with one another adjacent said rotating member, sensor actuating means co-axially mounted on said rotating member and being sensed by said sensors and producing electromagnetic pulses therein, and electronic means operatively connected to said sensors to receive the pulses therefrom, said electronic means including means to receive said pulses, first means to translate said pulses and display same to indicate the total distance up and down travelled by the cable and second means to translate said pulses to indicate the position of the load carrying means relative to a reference point such as the uppermost and lowermost positions.

4,334,218

MOTION SENSING CIRCUIT ESPECIALLY FOR ALARM DEVICES

Akos Kun, Hernad u. 7., 1078 Budapest, Hungary

Filed Oct. 7, 1980, Ser. No. 194,779
Int. Cl.³ G08B *13/02*
U.S. Cl. 340—689 **6 Claims**



1. An alarm apparatus for sensing a predetermined motion of an object under surveillance, comprising an electrical circuit energized by the flow of an electric current, at least one switching device included in said circuit and being of the type having a pair of stable current conducting positions for quiescently conducting said electric current and an unstable tripping or current blocking position for interrupting said electric

current when said predetermined motion of object occurs, means for displaying the occurence of said current blocking position of said switching device as said alarm condition for said object, wherein a plurality of said switching devices are connected in series in said circuit, wherein a differentiating circuit branch is coupled before said display means, said differentiating circuit branch outputting said current blocking position of said switching device in the form of a pulse and, wherein said displaying means comprises a pulse sensing registration device.

4,334,219

OPERATION SETTING DEVICE HAVING STATIONARY TOUCH-SENSITIVE CONTROL ELEMENTS

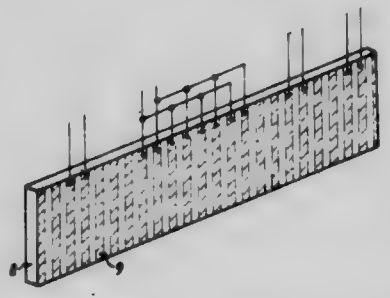
Rüdolf Paülus, and Klaus Mischo, both of Munich, Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,689

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1979, 2907811

Int. Cl.³ G09G 3/00

U.S. Cl. 340—712 **10 Claims**



1. An operation setting device having stationary control keys, comprising transparent support means of insulating material defining two opposite faces, said keys including pairs of stationary contact strips made of an electrically conductive material secured to one of said faces; means for interconnecting said contact strips outside said support means to provide for variable groups of key elements; means for releasing a switching function when said contacts in respective pairs are bridged by a lower electric resistance; and an exchangeable visual identification plate arranged opposite the other face of said transparent support means to identify the function of respective control keys.

4,334,220

DISPLAY ARRANGEMENT EMPLOYING A MULTI-ELEMENT LIGHT-EMITTING DIODE

Ryoichi Suzuki, Kawasaki; Takashi Uchiyama, Kanagawa; Kazuya Hosoe, Machida, and Tokuichi Tsunekawa, Kanagawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 22,643, Mar. 21, 1979, abandoned, which is a continuation of Ser. No. 818,217, Jul. 22, 1977, abandoned. This application Apr. 24, 1980, Ser. No. 143,448

Claims priority, application Japan, Jul. 29, 1976, 51-90737

Int. Cl.³ G06F 3/14

U.S. Cl. 340—753 **10 Claims**

1. A light-emitting display device comprising:

an electrical power source; and

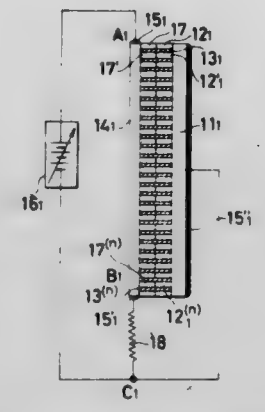
a light-emitting diode structure having:

(a) a first semiconductor layer of a first conductivity type, said layer having first and second faces;

(b) each of a plurality of second semiconductor layers having a conductivity type opposite to that of the first conductivity type being arranged alternately with each of a plurality of insulating layers along the first semiconductor layer to form respective P-N junctions with the first semiconductor layer;

(c) a first electrode arranged in contact with the face of the first semiconductor layer opposite to its face forming P-N junctions for receiving a certain voltage;

(d) a resistor arranged in contact with a face of each of the second semiconductor layers opposite to a face forming said P-N junctions and also in contact with each of said insulating layers, the conductance of the resistor being set relatively larger than the nominal direction conductance of said P-N junctions; and



(e) second and third electrodes for receiving a variable signal voltage connected to said resistor at respective end portions thereof, said end portions being arranged in a direction of the alternate arrangement of the second semiconductor layers with insulating layers,

whereby the light-emitting zone in the direction of the alternating arrangement of the light-emitting diode structure will vary with variation of the potential gradient of the resistor, which variation results from the application of said variable signal voltage.

4,334,221

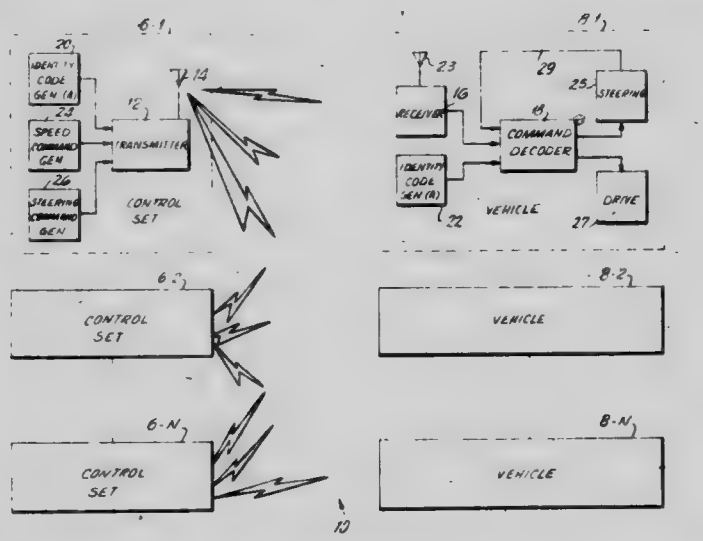
MULTI-VEHICLE MULTI-CONTROLLER RADIO REMOTE CONTROL SYSTEM

William Rosenhagen, Ossining, and George J. Whalen, New Rochelle, both of N.Y., assignors to Ideal Toy Corporation, Hollis, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,873

Int. Cl.³ H04B 7/00; A63H 30/04

U.S. Cl. 340—825.72 **8 Claims**



1. In a vehicle radio control system of the type having at least one control set to transmit command signals for commanding the operation of at least two functions of a vehicle, said vehicle including means for receiving the transmitted command signals to derive at least first and second function control signals and a brake control signal therefrom, said first and second function control signals causing first and second opposite functions to be performed and said brake control signal being selectively derived to inhibit either function from being performed; and gating means for gating one and only one

function control signal so as to prevent both of said functions from being performed concurrently.

4,334,222

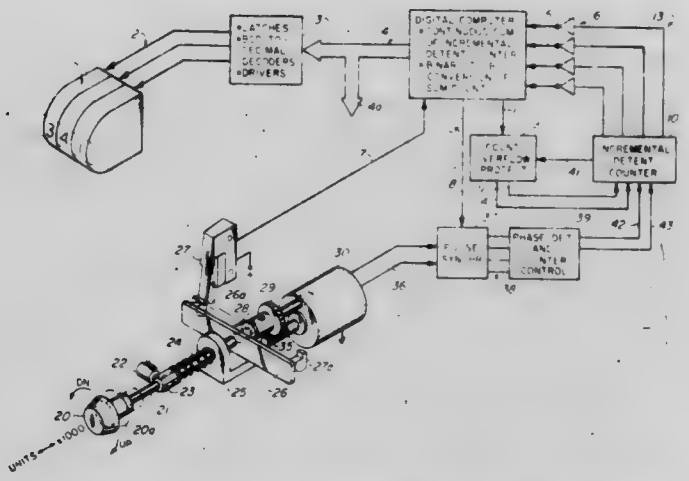
OPTICAL SELECTOR SWITCH AND DISPLAY APPARATUS

Michael R. Kelley; Jack E. Emfinger, both of Phoenix, and Michael A. Dassele, Scottsdale, all of Ariz., assignors to Sperry Corporation, New York, N.Y.

Filed Mar. 14, 1980, Ser. No. 130,310

Int. Cl.³ G08C *19/36, 19/16*

U.S. Cl. 340—870.29 **11 Claims**



1. Angle repeater means adapted for use with angular position pick-off means producing first and second pulse trains upon rotation thereof through an integral number of complete revolutions in a first or in a second direction, said repeater means including:

clock means,

first and secon bistable means responsive to said clock means cooperatively forming pulse synchronizer means and respectively responsive to said first and second pulse trains, each said bistable means having respective Q and Q outputs,

phase detector means responsive to said respective Q and Q outputs for generating a first control signal representative of the sense of said first or second directions and a second control signal representative of the number of pulses in said first or second pulse trains,

counter means responsive to said first and second control signals, and

display means responsive to said clock means and to said counter means for displaying a true numerical measure of the total angular motion of said angular position pick-off means,

wherein said phase detector means includes:

third bistable means having a data input responsive to the Q output of said first bistable means and a clocking input responsive to the Q output of said second bistable means, and

fourth bistable means having a data input responsive to the Q output of said second bistable means and a clocking input responsive to the Q output of said first bistable means.

4,334,223

MEDIAN DETECTOR

Kazuo Katagi, Woodland Hills, Calif., assignor to Sperry Corporation, New York, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,462

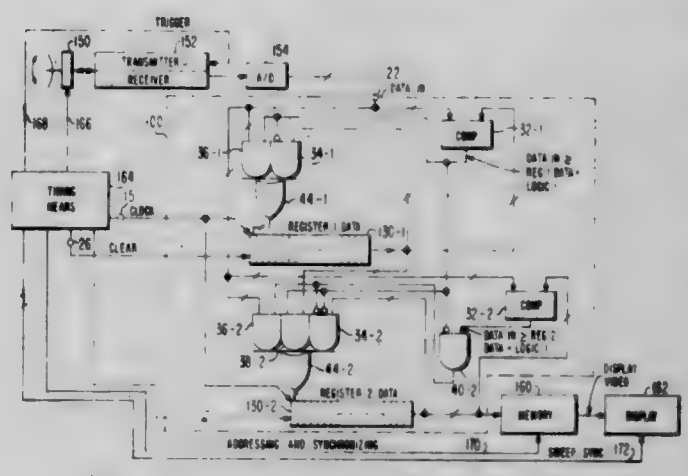
Int. Cl.³ G01S *13/95*

U.S. Cl. 343—5 W **6 Claims**

6. In a weather radar system receptive serially of digital signals of values representing weather conditions at Z succeeding ranges from the system at a given azimuth position and then in order at successive azimuth positions at the same ranges, apparatus for determining the median of digital signals at each of said Z ranges for a given number X of azimuth positions comprising in combination:

a plurality Y of registers in an ordered array, where Y is not less than the whole number portion of $(X+1)\div 2$ each having Z storage locations, all positions in all registers being initially cleared to one of a maximum or minimum value, each register being responsive to a control signal for moving data contained therein from one storage location to another;

means responsive to the value of each of said serially presented digital signals and to the value of numbers in a preselected position of each of said registers for comparing the value of each of said serially presented numbers



with the values of said numbers in said preselected position in said registers and providing a signal indicative of the results of said comparisons;

means responsive to said comparing means for placing said serially presented numbers in numerical order in a second different storage location in said registers; and

means producing said control signal for moving said numbers in said register storage locations from one location to another in correspondence with said values presented serially, whereby when Y.Z serially presented numbers have been received a preselected register will contain Z numbers representing the median values of Y azimuth positions at Z ranges.

4,334,224

SECONDARY SURVEILLANCE RADAR

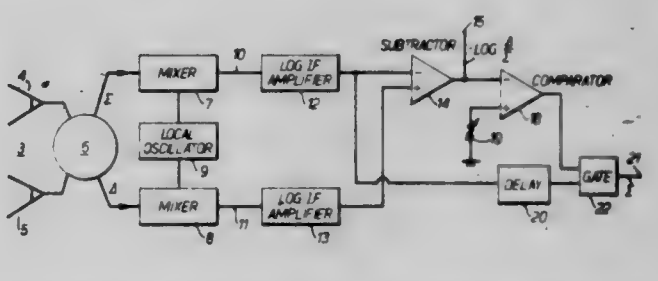
John F. Gordon, Black Notley, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Jul. 30, 1980, Ser. No. 173,910

Claims priority, application United Kingdom, Aug. 23, 1979, 7929452

Int. Cl.³ G01S *13/78, 13/44*

U.S. Cl. 343—6.5 R **6 Claims**



1. A secondary surveillance radar including a directional antenna capable of being operated in sum and difference modes and which is arranged to receive replies from targets in response to transmitted interrogations; and circuit means connected to said antenna for deriving a sum signal and a difference signal from a received reply and for inhibiting the reply unless the amplitude of the sum signal exceeds that of the

difference signal by more than a predetermined amount other than zero.

4,334,225

ANTENNA SYSTEM FOR LOCATING A MICROWAVE SIGNAL SOURCE

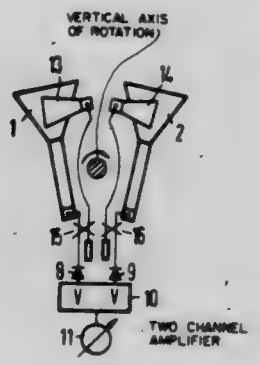
Reinhard Bredow, Gauting, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 1, 1980, Ser. No. 145,709

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1979, 2929254

Int. Cl.³ H04B *7/00*; H01Q *13/00*

U.S. Cl. 343—100 LE **8 Claims**



1. An antenna system for determining the direction of a signal source emitting microwave signals using two primary direction finding antennas designed for the same frequency with major radiation lobes which are identical and are angularly offset with respect to one another in the bearing plane with their major radiation lobes overlapping, so that the bearing direction of the signal source within the overlap range can be determined by means of signal level comparison or by means of ratio formation of the two signal voltages received by said primary antennas, characterized in that an auxiliary radiator (13, 14) is associated with each of the two primary antennas (1, 2) and the primary radiation directions of said two auxiliary radiators (13, 14) in the bearing plane are symmetrically offset by a respective specific angle relative to the primary radiation direction of the associated primary antenna (1, 2) and the primary radiation directions of said auxiliary radiators (13, 14) are in approximate opposite directions and each of the two primary antennas (1, 2) electrically connected to the associated auxiliary radiator (13, 14) such that received signal voltages are superimposed in amplitude and phase to obtain a radiation signal level which is amplified with respect to the primary radiation direction in the bearing plane for each primary antenna.

4,334,226

ANTENNA SYSTEM FOR SATELLITE COMMUNICATION

Kouichi Eguchi, and Tsuguya Inoie, both of Mitaka, Japan, assignors to Japan Radio Company, Limited, Tokyo, Japan

Filed Aug. 26, 1980, Ser. No. 181,665

Claims priority, application Japan, Oct. 6, 1978, 53-123762

Int. Cl.³ G01S *3/42*

U.S. Cl. 343—100 ST **9 Claims**

1. An antenna system for satellite communication including a directional antenna (30), an antenna support device (10) and a radome (20) for covering the entire system, characterized in that said antenna support device (10) comprises:

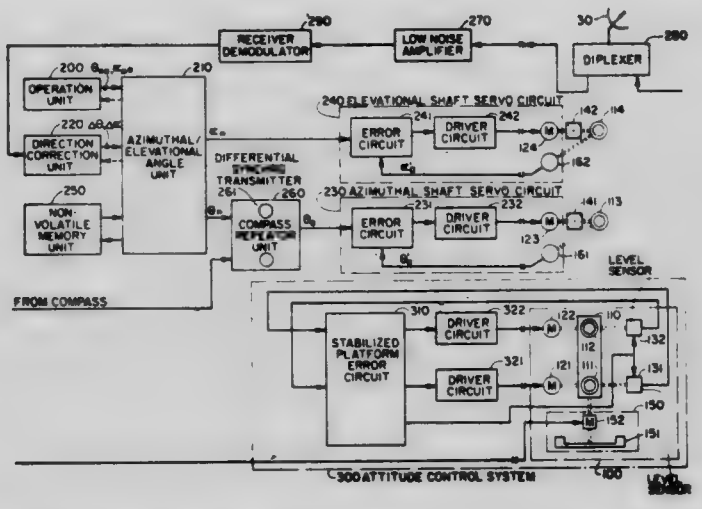
a horizontal stabilized platform (110) provided with two corrective shafts intersecting at right angles to each other;

flywheel means (150) having a spin vector that is always at right angles to a horizontal plane of said horizontal stabilized platform (110);

first tilt detector means (131) for converting a tilt of said horizontal stabilized platform (110) about the first corrective shaft (111) into an electric signal, and first control means (122) responsive to the output of said first tilt detector means (131) for controlling the second corrective shaft (112);

second tilt detector means (132) for converting a tilt of said horizontal stabilized platform (110) about the second corrective shaft (112) into an electric signal, and second control means (121) responsive to the output of said second tilt detector means (132) for controlling the first corrective shaft (111);

an azimuthal shaft (113) intersecting at right angles to the horizontal plane of said horizontal stabilized platform (110), third control means for controlling said azimuthal



shaft (113), the axes of said two corrective shafts (111, 112) and said azimuthal shaft (113) intersecting with each other substantially at one point; and

an elevational shaft (114) intersecting at right angles to said azimuthal shaft (113) for directing said directional antenna (30) in the elevational direction, and fourth control means for controlling said elevational shaft (114);

and that said horizontal stabilized platform (110) and a structure loaded thereon have such construction that torques induced by a gravity and a horizontal linear acceleration may be substantially counter-balanced within almost all the movable ranges about said corrective shafts (111, 112).

4,334,227

ELECTRONIC MARKER DEVICE AND METHOD OF MAKING SAME

Barry M. Marks, Austin, Tex., assignor to A.P.C. Industries, Inc., Austin, Tex.

Filed Sep. 26, 1980, Ser. No. 191,064

Int. Cl.³ H01Q *1/40, 1/04*

U.S. Cl. 343—719 **12 Claims**



1. An electronic marker device of the tuned circuit passive type comprising:

a. a mandrel portion of thermoplastic material having a hoop shape with the thickness of the hoop in the radial direction being substantially less than the width of the hoop in the axial direction and having outer peripheral surfaces and side edge surfaces;

b. a cover band of thermoplastic material having an inner peripheral surface that is matingly received by said mandrel portion outer peripheral surfaces, and having side edge surfaces, with said cover band being hermetically

sealingly engaged with said mandrel portion in the region of corresponding side edge surfaces;

c. a tuned circuit assembly disposed within said mandrel portion.

4,334,228

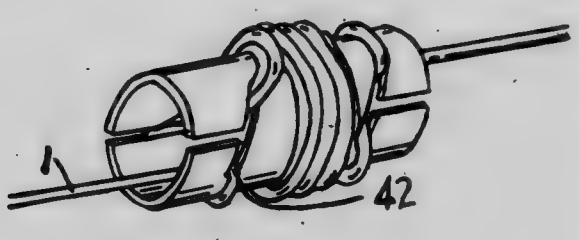
BIFILAR ANTENNA TRAP

Robert H. Johns, 3379 Papermill Rd., Huntingdon Valley, Pa. 19006

Continuation-in-part of Ser. No. 222,241, Jan. 2, 1981, which is a continuation-in-part of Ser. No. 162,928, Jul. 17, 1980. This application Mar. 31, 1981, Ser. No. 249,440

Int. Cl.³ H01Q *1/00*

U.S. Cl. 343—722 **2 Claims**



2. An antenna system having at least two wire radiating portions including a parallel resonant trap between them, said trap comprising

a bifilar winding of two capacitively coupled wire coils insulated from one another,

an electrical cross-connection between opposite ends of said bifilar coils formed by the continuation of the wire of one coil into the opposite end of the other coil,

electrical connections between said antenna radiating portions and said coils, formed by a continuation of the wire of said radiating portions into the ends of said coils that are not a part of said cross-connection, whereby the antenna system made up of traps and radiating portions is formed from a continuous length of wire,

a generally cylindrical hollow insulator having longitudinal slots in opposing cylinder walls passing inwardly from each end of said insulator for a portion of the length of the insulator, and having transverse oblique slots generally parallel to one another intersecting the inner ends of one of the longitudinal slots at each end of the insulator, whereby said bifilar coils are secured to said insulator and said antenna wire radiating portions are attached to said insulator.

4,334,229

LEAKY WAVEGUIDE CONTINUOUS SLOT ANTENNA

Arthur P. Boblett, Riverside, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 12, 1968, Ser. No. 775,997

Int. Cl.³ H01Q *13/00*

U.S. Cl. 343—767 **4 Claims**

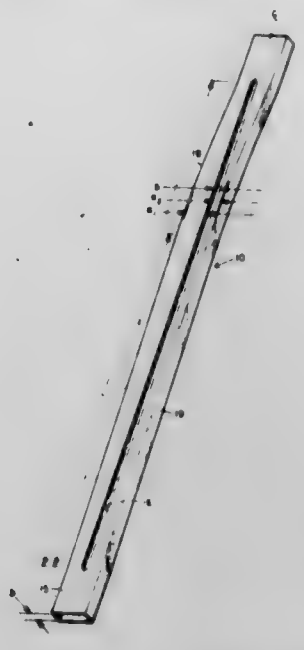
1. A continuous-slot leaky-waveguide antenna in which arbitrary current functions can be imposed which leads to improved and predictable far E-field elevation patterns, comprising:

(a) a section of rectangular waveguide,

(b) a long straight continuous slot cut in one broad face of said waveguide along the centerline passing through each end of said waveguide section,

(c) at any point along the length of said straight slot one of the narrow sides of said waveguide section being offset to form a curve away from said centerline while the other narrow side of the waveguide being offset to curve toward said centerline,

(d) the offset of each side and the total distance between said sides along the length of said slot being varied for adjusting the phase of energy radiated and determining the desired far E-field elevation pattern desired.



4,334,230

DIRECTIVITY-CONTROLLABLE ANTENNA SYSTEM

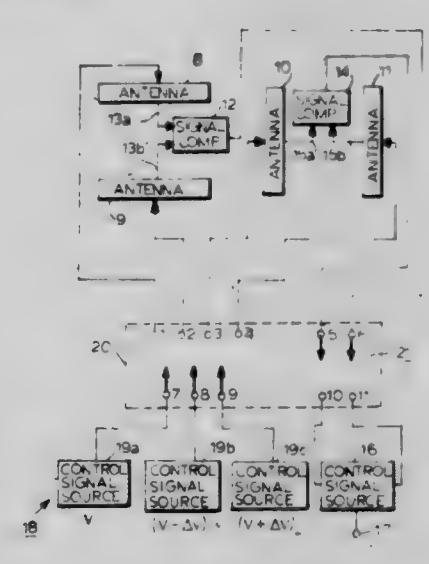
Johji Kane, Sakai, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Jul. 3, 1980, Ser. No. 165,940

Claims priority, application Japan, Jul. 9, 1979, 54-86785; Jul. 9, 1979, 54-86788

Int. Cl.³ H01Q *3/26, 21/26*

U.S. Cl. 343—797 **5 Claims**



1. A directivity control antenna system comprising: an antenna unit having first through fourth dipole antennas in which two-terminal variable reactance circuits are respectively connected to a pair of antenna elements and an impedance adjusting capacitor is connected between feed terminals of said pair of antenna elements; a first signal combiner connected to said first and second dipole antennas of said first through fourth dipole antennas, which are disposed opposite to each other, by feed lines of equal length with respect to said first and second dipole antennas for combining signals from said first and second dipole antennas; a second signal combiner connected to said third and fourth dipole antenna of said first through fourth dipole antennas, which are disposed opposite to each other are perpendicular to said first and second dipole antennas, by feed lines of equal length with respect to said third and fourth dipole antennas for combining signals from said third and fourth dipole antennas; tuning control means for supplying a plurality of DC voltages which are different from each other;

changeover control means coupled to said tuning control means for selectively supplying said plurality of DC voltages from a first through a fourth output terminal thereof to said first through fourth dipole antennas for control of the reactances of said two terminal variable reactance circuits of said first through fourth dipole antennas so as to control the directivity of said antenna system, said changeover control means being also coupled to said first and second signal combiners for selectively passing output signals from said first and second signal combiners to a fifth and a sixth output terminal thereof; and a third signal combiner coupled at two input terminals thereof to said fifth and sixth output terminals of said changeover control means for outputting, to a receiver, output signals of said first or second signal combiner or combined output signals of said first and second signal combiners, wherein connection of said first and second signal combiners to said third signal combiner via said changeover control means made is by feed lines of equal length with respect to said first and second signal combiners.

4,334,231

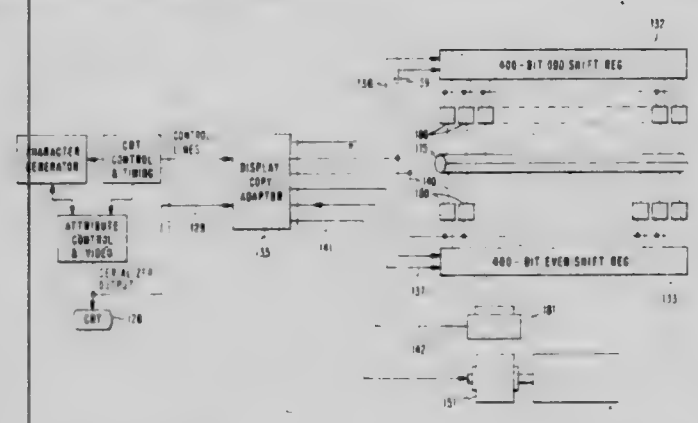
NON IMPACT DISPLAY SCREEN OUTPUT PRINTER

John L. Regehr, Stewartville, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 973,212, Dec. 26, 1978, abandoned. This application Apr. 28, 1980, Ser. No. 144,499

Int. Cl.³ G01D *9/00, 15/10*

U.S. Cl. 346—35 **7 Claims**



1. In combination with a cathode ray tube (CRT) display device of the type that generates serial digital raster display data, horizontal retract blanking data and vertical retrace blanking data which are combined into a composite video signal by CRT circuitry using a train of clock pulses with said composite video signal utilized to selectively illuminate the CRT screen by continuously refreshing horizontal rows of dot positions; thermal printer and interface means for reproducing the information shown on such CRT display screen on a thermographic medium comprising:

thermal print means including a row of thermal print elements having a print element for each dot position of a raster scan row on said CRT screen;

buffer means for retaining a line of serial digital raster display data;

print control means including gating means for selectively actuating said thermal print elements in accordance with information retained in said buffer means; and

connecting means for interfacing serial digital raster display data line by line simultaneously to said buffer means and said CRT circuitry, whereby the same raster bit data is used by both display and printer without the need to separate data bits from other information and resynchronize data for print purposes.

4,334,232

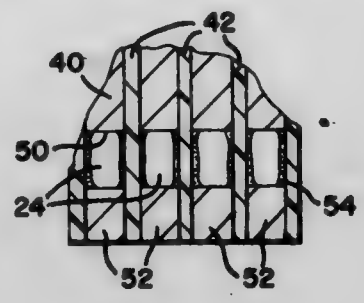
LAMINATED CHARGE PLATE FOR AN INK JET PRINTING DEVICE AND METHOD OF MANUFACTURING SAME

Donald L. Head, Kettering, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Continuation of Ser. No. 1,710, Jan. 8, 1979, abandoned. This application Jul. 14, 1980, Ser. No. 168,472

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—75 **11 Claims**



1. A charge plate for an ink jet printing device having a plurality of spaced orifices defined therein in a common plane for printing liquid discharge, comprising:

a plurality of conductive and nonconductive elements secured together in alternating sequence in a direction perpendicular to said common plane of the orifices to form an elongated charge plate of generally rectangular cross section with said conductive elements separated by said nonconductive elements a sufficient distance that said conductive elements will be in registry one each with a corresponding one of said orifices in said ink jet printing device, an edge portion of each said conductive element forming a charging surface parallel to and adjacent the flow of printing liquid from said orifices;

all of said charging surfaces being recessed between adjacent edge portions of said nonconductive elements and exposing side wall surfaces of said edge portions of said nonconductive elements; and

a coating of conductive material on said side wall surfaces and engaging said charging surface.

4,334,233

OPTICAL RECORDING ELEMENT AND ITS MANUFACTURING METHOD

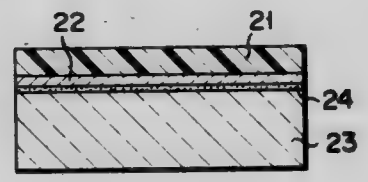
Teruo Murakami, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jul. 1, 1980, Ser. No. 165,049

Claims priority, application Japan, Jul. 16, 1979, 54-89272

Int. Cl.³ G01D *15/34, 15/10*

U.S. Cl. 346—135.1 **7 Claims**



1. An optical recording element comprising:

a light-transmitting protective layer having thickness between 200 μm and 2.0 mm;

intermediate layers including a recording layer and at least one of an aluminum layer and a silicon dioxide layer, said intermediate layers being deposited continuously onto said protective layer;

a substrate fixed to said intermediate layers; and

an adhesive layer located between said intermediate layer and said substrate to securely adhere said intermediate layer and said substrate, whereby a recording beam or a

reproduction beam is irradiated onto said recording layer through said protective layer.

4,334,234

LIQUID DROPLET FORMING APPARATUS

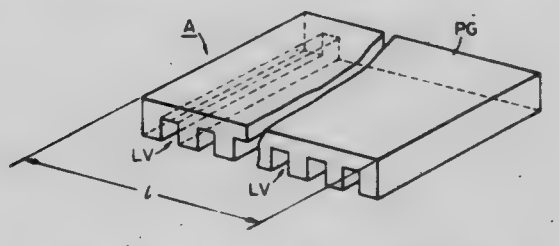
Yoshiaki Shirato, Yokohama; Yasushi Takatori, Sagamihara; Toshitami Hara, Tokyo; Yukuo Nishimura, Sagamihara, and Michiko Takahashi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 28, 1980, Ser. No. 134,769

Claims priority, application Japan, Apr. 12, 1979, 54-39479; Apr. 12, 1979, 54-39483; Apr. 12, 1979, 54-39533

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—140 R 21 Claims



1. A liquid droplet forming apparatus which comprises a predetermined number of actuating chambers each of which has an opening for ejecting a liquid droplet, and an intermediate liquid chamber for supplying the liquid to the actuating chamber, the intermediate liquid chamber being communicated with the actuating chambers, communicating ports between the intermediate liquid chamber and the actuating chambers being present at a region of the inside wall surface of the intermediate liquid chamber, and a ratio of W/S being 50–300 where W is the area of the region of the inside wall surface of the intermediate liquid chamber where the communicating ports exist and S is the total opening area of the communicating ports.

4,334,235

INSULATED GATE TYPE SEMICONDUCTOR DEVICE

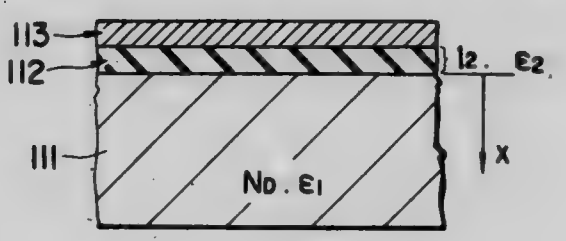
Jun-ichi Nishizawa, Sendai, Japan, assignor to Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai, Japan

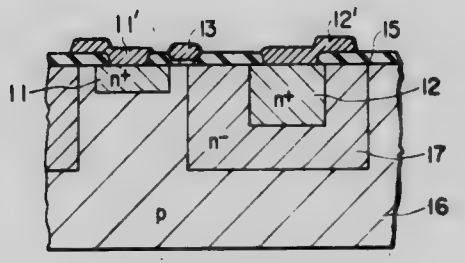
Filed Mar. 14, 1979, Ser. No. 20,498

Claims priority, application Japan, Mar. 23, 1978, 53-33942

Int. Cl.³ H01L *29/78*

U.S. Cl. 357—23 16 Claims





1. An insulated gate type transistor formed in a semiconductor chip, comprising:

a heavily-doped source semiconductor region of a first conductivity type, for supplying charge carriers;

a heavily-doped drain semiconductor region of said first conductivity type, for receiving the carriers supplied from said source;

a channel semiconductor region formed between said source and drain regions, having a second conductivity type opposite to said first conductivity type;

an insulated gate structure including an insulating film formed on said channel semiconductor region and a conductive gate electrode formed on said insulating film;

said channel region having such dimensions and a resistivity that the potential profile from said source region to said drain region for the carriers supplied from said source has a potential barrier which can be controlled by potentials of said gate structure and of said drain region, and

means provided in the neighborhood of said source region for increasing the ratio of the amount of carriers reaching said drain region to the total amount of carriers supplied from said source region.

4,334,236

ONE-TRANSISTOR DYNAMIC RAM WITH POLY BIT LINES

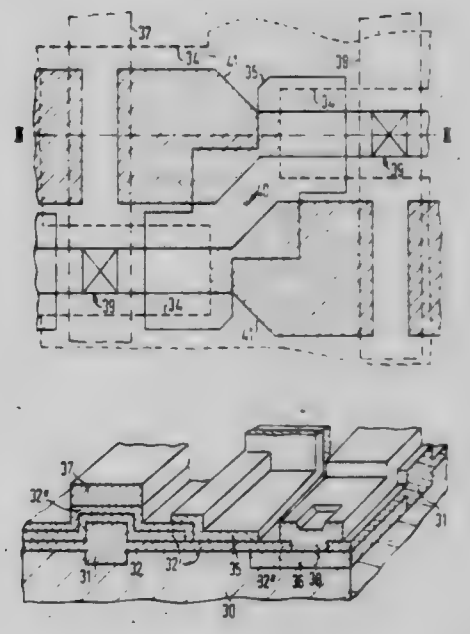
Kurt Hoffmann, Taufkirchen, and Heinrich Schulte, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 67,926

Claims priority, application Fed. Rep. of Germany, Aug. 30, 1978, 2837877

Int. Cl.³ H01L *27/10, 29/04;* G11C *11/40*

U.S. Cl. 357—59 3 Claims



1. An MOS integrated semiconductor memory, comprising: a semiconductor substrate; a plurality of memory locations arranged in lines and columns; each memory location having two one-transistor memory cells on the substate; each memory cell comprising an MOS memory capacitor and an MOS transistor; a word line running in the line direction arranged to control gates of the two one-transistor memory cells of a memory location; the two MOS transistors at each memory location each being coupled to a respective bit line which runs at one side of the memory location in the column direction and between two adjacent columns; for each one-transistor memory cell at the memory location an electrode of the MOS memory capacitor being formed by a first polysilicon layer and a gate of the MOS transistor being formed by a second polysilicon layer; the bit line associated with each one-transistor memory cell being formed by a third polysilicon layer as a polysilicon path; each bit line being coupled to the MOS transistor of each one-transistor memory cell by a respective limited doped connection zone in the semiconductor substrate; and at each mem-

ory cell one of the polysilicon layer bit lines being positioned in insulated fashion over the first polysilicon layer which forms the electrode of the memory capacitor of the respective one-transistor memory cell, the first polysilicon layer passing completely under the bit line separating the two adjacent columns of memory cells and directly connecting electrodes of the MOS memory capacitors in at least one memory cell in each of the two adjacent columns.

4,334,237

ADAPTIVE AMPLITUDE AVERAGING FOR WEIGHTING QUANTIZING NOISE

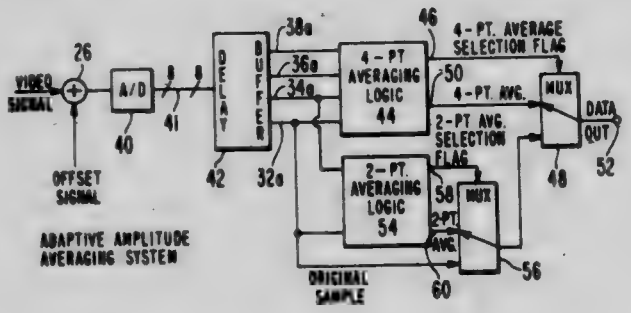
Glenn A. Reitmeier, Trenton, and Robert A. Dischert, Burlington, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed May 15, 1980, Ser. No. 149,998

Claims priority, application United Kingdom, Feb. 7, 1980, 8004196

Int. Cl.³ H04N *5/21*

U.S. Cl. 358—36 **24 Claims**



1. A method for reducing quantizing noise in a sampled quantized signal, said method comprising adding a periodic multilevel offset signal to said sampled signal prior to quantization, quantizing said signal, determining if only low frequency information is present, averaging a plurality of samples when only low frequency information is present, every plurality of averaged samples having the same average value of offset signal amplitude, whereby additional quantizing levels between the original levels are recovered in the averaged samples, thereby reducing quantizing noise.

4,334,238

COLOR IMAGE PICKUP APPARATUS WITH MULTI-SOLID-STATE IMAGE PICKUP DEVICES

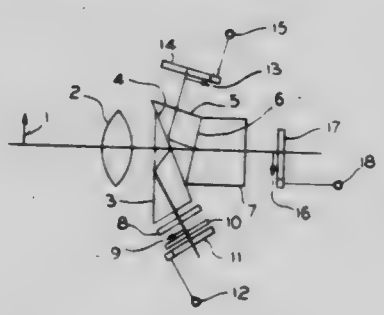
Masanobu Morishita, and Takanori Tanaka, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed May 27, 1980, Ser. No. 153,163

Claims priority, application Japan, Jun. 1, 1979, 54-69093

Int. Cl.³ H04N *9/07*

U.S. Cl. 358—43 **14 Claims**



1. A solid state color image pickup apparatus comprising:

image separating optical means for separating an incident light of an object into a plurality of light beams diverging in a plurality of directions to form images of said object in the corresponding optical paths of said light beams;

a plurality of solid state image pickup means, each of said pickup means having a plurality of picture elements displaced from each other by a predetermined distance;

first and second of said solid state image pickup means being disposed to separately receive at least two individually associated ones of said images formed by said diverging light beams, said two images having a first spectro-characteristic requiring a high visible resolution, the relative positions of the picture elements and the received image being displaced between said first and second solid state image pickup means by a distance corresponding to a half of said predetermined distance; and

a third of said solid state image pickup means being disposed to receive another image formed by said diverging light beams and having a second spectro-characteristic.

4,334,239

MONOLITHICALLY INTEGRATED CIRCUIT FOR LINEAR IMAGE SCANNING WITH MATCHABLE SENSORS

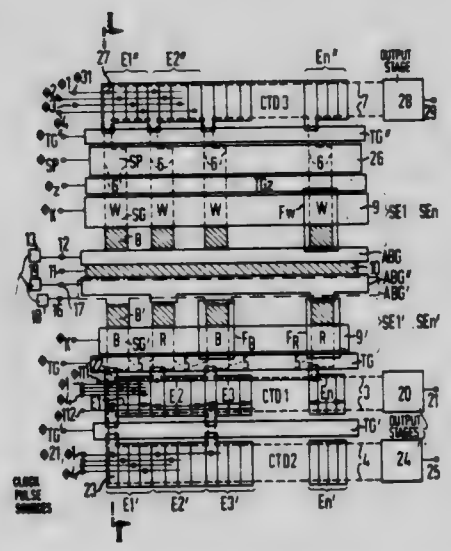
Heiner Herbst, and Matthias Niemeyer, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 24, 1980, Ser. No. 171,717

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939403

Int. Cl.³ H04N *9/07*

U.S. Cl. 358—44 **6 Claims**



1. In a circuit for linear image scanning monolithically integrated on a semiconductor substrate havig first and second parallel rows of opto-electronic sensor elements with sensor elements in said first and second rows being respectively disposed behind one of a plurality of groups of color filters, each group of color filters having a different spectral range, the improvement of:

an overflow drain zone disposed at a boundary surface of said semiconductor substrate between said first and second rows of sensor elements and having a conductivity opposite to said semiconductor substrate and connected to a constant operating potential;

a plurality of overflow gates disposed between said overflow drain zone and sensor elements disposed behind each group of color filters,

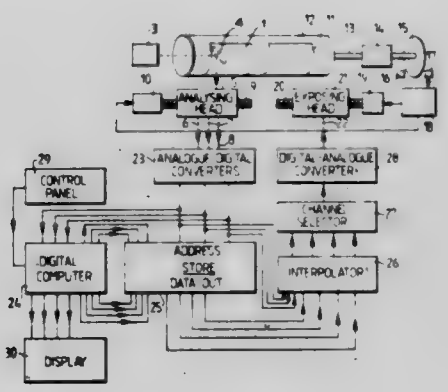
each of said overflow gates being connected to respective clock pulse voltage sources each alternating between a lower voltage value which generates a potential barrier in said substrate beneath a respective overflow gate for preventing transfer of charge from a sensor element into said overflow drain zone, and an upper voltage value for allowing transfer of said charge from a sensor element into said overflow drain zone,

whereby the respective duty times of the pulses from said clock pulse voltage sources are selected for compensating and balancing variations in sensitivity to said different spectral ranges of said sensor elements.

4,334,240
INTERPOLATION METHODS AND APPARATUS

Paul E. Franklin, London, England, assignor to Crosfield Electronics Limited, London, England

Filed Jul. 2, 1980, Ser. No. 165,435
Claims priority, application United Kingdom, Jul. 3, 1979, 7923175
Int. Cl.³ G03F 3/08
U.S. Cl. 358—78 6 Claims

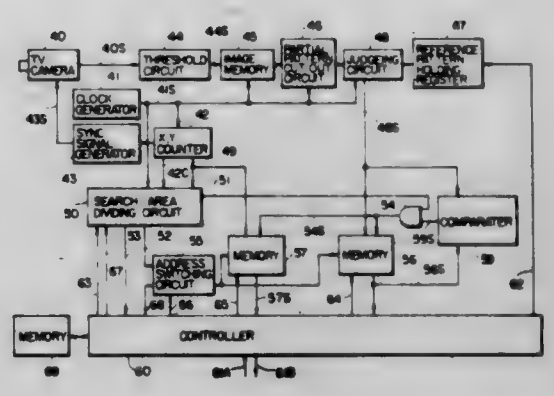


1. A method of reproducing a coloured original in which the original is scanned to obtain signals representing three colour-component densities of successively scanned picture elements of the original and in which said signals are corrected before being used to control the treatment of an output surface, said method comprising, prior to the scanning of the original, the steps of deriving, for each of a number of sets of three input digital colour-component values fewer in number than the sets of possible input digital colour-component values available from the scanner, a set of four corrected colour component values in digital form, one for each of the three colour components and one for black, and loading the sets of four corrected colour-component digital values into storage locations of a three-dimensional store, said store being represented as a cubic matrix consisting of adjacent unit interpolation cubes, each unit interpolation cube being formed by an addressed point and the seven neighbouring points which would be addressed by incrementing by one "coarse" unit, each colour-component density signal value singly and in all combinations, so that the locations of the corners of the cubes represent the three-dimensional digital colour-component values, the corresponding sets of four corrected colour-component values being stored at those locations; and thereafter addressing locations of the store by means of the succession of sets of three colour-component signals derived from the scanning of the original to obtain from the store a corresponding succession of corrected digital values, obtaining values intermediate the sets of digital values stored for unit interpolation cubes of said matrix by on-line interpolation, controlling the treatment of the output surface in accordance with the four values obtained from the interpolation, in which each of the four values for a point within a unit interpolation cube of the matrix is obtained by first determining in which of three pyramids, which together make up the unit interpolation cube and have as a common edge the "neutral axis" of the unit interpolation cube, said point is contained, and deriving a value for said point by interpolation within the pyramid, whereby each of the values for said point is the sum of predetermined functions of the values for the vertices of the pyramid, said functions also varying with the distances of said point from faces of the pyramid.

4,334,241
PATTERN POSITION DETECTING SYSTEM

Seiji Kashioka, Hachiouji; Yoshihiro Shima, Kokubunji, and Takafumi Miyatake, Tokorozawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 14, 1980, Ser. No. 140,415
Claims priority, application Japan, Apr. 16, 1979, 54-45353
Int. Cl.³ H04N 7/18
U.S. Cl. 358—107 7 Claims



1. A pattern position detecting system comprising imaging means to pick up an image of an object which includes a target pattern to-be-detected, first means connected with said imaging means and to successively cut out local patterns of an image surface on the basis of image signals delivered from said imaging means, second means to successively generate positional coordinates which indicate typical positions of the respective local patterns cut out, third means to compare the respective local patterns with a standard pattern having the same feature as that of the target pattern and to obtain degrees of coincidence, fourth means connected with said second and third means and to compare the degree of coincidence with the degrees of coincidence of the other local patterns in the vicinity of the particular local pattern so as to successively sample the local patterns whose degrees of coincidence become the maximum, said fourth means storing the positional coordinates and degrees of coincidence of the respective local patterns whose degrees of coincidence become the maximum, and fifth means connected with said fourth means and to sample positional coordinates fulfilling a positional relationship inherent to the target pattern from among the positional coordinates finally left in said fourth means, the sampled positional coordinates being identified as indicating a position of said target pattern.

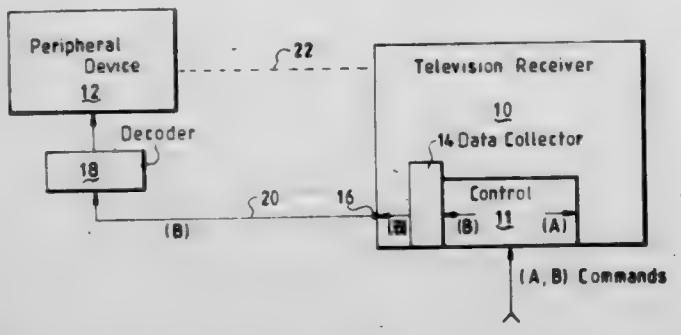
4,334,242
REMOTE CONTROL TELEVISION WITH EXTERNAL DATA BUS CONNECTION

Hans Mangold, Fuerth, Fed. Rep. of Germany, assignor to Grundig E.M.V., Fed. Rep. of Germany

Continuation of Ser. No. 887,300, Mar. 16, 1978, abandoned.
This application Jan. 14, 1980, Ser. No. 112,098
Claims priority, application Fed. Rep. of Germany, Apr. 1, 1977, 2714501
Int. Cl.³ H04N 5/76, 5/64
U.S. Cl. 358—127 4 Claims

1. A system for the use of a television receiver for external control of electronic peripheral devices, said television being of the type including a built-in integrated circuit remote control receiver, said remote control receiver being divided into two sections, one section being allocated to the remote control of the receiving and reproduction sections of the television receiver and the other section being allocated to a databus having nothing to do with the television receiver receiving and reproduction sections; an output terminal of said databus comprising an adaptor connector between said television receiver and an external peripheral device; a peripheral device external to the television receiver; cable means connecting the output of

said databus with said peripheral device; and a decoder interposed between said databus output terminal and peripheral



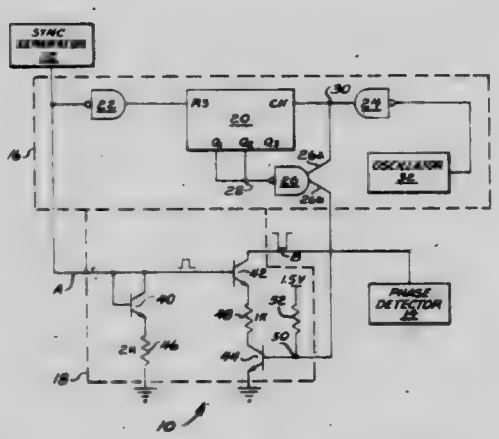
device for converting data from said databus into a form suitable for controlling functions of said peripheral device.

4,334,243

PULSE WIDTH LIMITER

Gopal K. Srivastava, Buffalo Grove, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Jan. 12, 1981, Ser. No. 224,593
Int. Cl.[3] H04N *5/08, 5/04*
U.S. Cl. 358—153 5 Claims



1. In a television receiver having a sync separator for generating a composite sync signal including horizontal sync pulses and vertical sync pulses, and having a horizontal phase detector adapted to receive horizontal sync pulses for synchronizing the latter pulses with flyback pulses generated by the receiver, a pulse width limiter for extracting the horizontal sync pulses from the composite sync signal developed by the sync separator and for applying the extracted horizontal sync pulses to the horizontal phase detector, comprising:

a signal processing path having an input terminal receiving the composite sync signal, having an output terminal coupled to the phase detector, and having switch means for coupling the input terminal to the output terminal and for decoupling the input terminal from the output terminal in response to a disabling signal; and

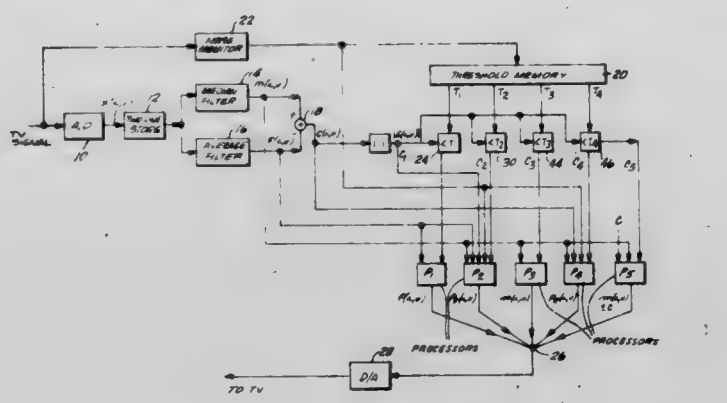
a pulse width sensor receiving the composite sync signal for detecting the width of each pulse therein and for applying a disabling signal to said switch means in response to each pulse in the composite sync signal which has a width greater than a predetermined horizontal sync pulse width so as to prevent portions of the pulses greater than the predetermined width from being coupled to the phase detector.

4,334,244

ADAPTIVE IMAGE ENHANCEMENT SYSTEM

James K. Chan, Cerritos; Curtis L. May, San Pedro, and Allan Spooner, Cypress, all of Calif., assignors to Magnavox Government and Industrial Electronics Company, Fort Wayne, Ind.

Filed Jul. 28, 1980, Ser. No. 173,005
Int. Cl.[3] H04N *5/14*
U.S. Cl. 358—166 9 Claims



4. Apparatus for enhancing the quality of an image produced from an input video signal, comprising:

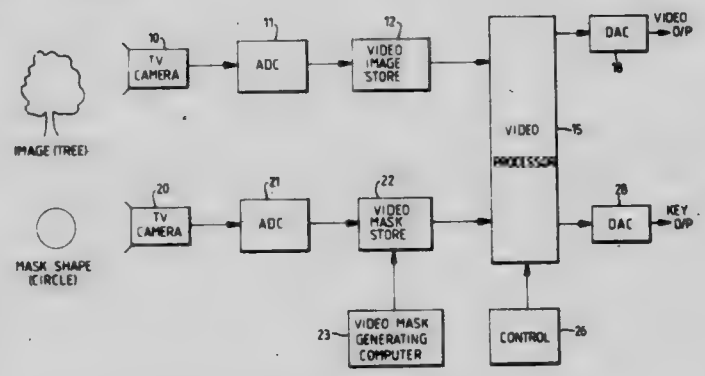
analog-to-digital converter receiving the video signal and converting the signal to a succession of digital samples of the video signal, means storing a plurality of said digital samples, means selecting a first predetermined group of stored digital samples for generating a median sample corresponding in magnitude to the median value of said first group of stored digital samples in response to each new digital sample of the video signal, means selecting a second predetermined group of stored digital samples for generating an average sample corresponding in magnitude to the average value of said second group of stored samples in response to each new digital sample of the video signal, digital processing means for selecting one of a plurality of possible output samples in response to each average sample and each median sample, each of the possible output samples being dependent on the changes in the magnitude of the difference between the median sample and the average sample, and a digital-to-analog converter for converting the output samples of said digital processing means back to an output video signal.

4,334,245

T.V. SPECIAL EFFECTS GENERATOR

Peter C. Michael, Newbury, England, assignor to Micro Consultants Limited, Berkshire, England

Continuation-in-part of Ser. No. 886,017, Mar. 13, 1978, abandoned. This application Aug. 26, 1980, Ser. No. 181,500
Claims priority, application United Kingdom, Mar. 17, 1977, 11361/77
Int. Cl.[3] H04N *5/22*
U.S. Cl. 358—183 29 Claims



1. A television special effects generator comprising:

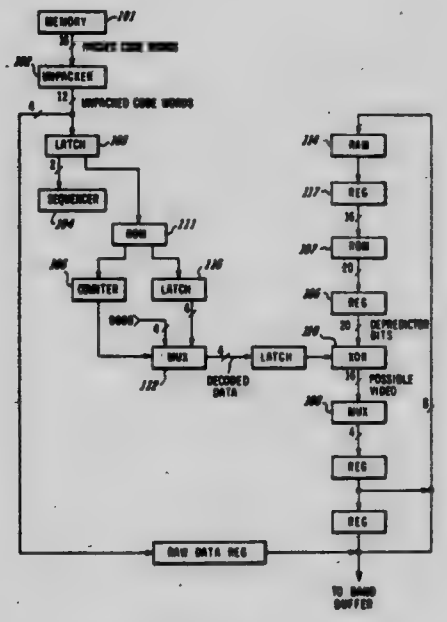
video image storage means for storing a video image;
mask data means for providing mask shape information representative of a masking shape; and
coefficient processing means for receiving and processing the stored video image to provide an image of modified shape comprised of a plurality of picture points each synthesised from adjacent picture point information in dependence on masking shape information provided by said mask data means.

4,334,246

DATA DECOMPRESSOR CIRCUIT

Amitabh Saran, Cypress, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed May 16, 1980, Ser. No. 150,505
Int. Cl.³ H04N 7/12
U.S. Cl. 358—261 **13 Claims**



1. A data decompressor for decoding and depredicting a series of scan lines of compressed video data into actual video, said data comprising variable length code words packed into fixed length compressed video data words, said code words comprising a run length portion or a terminating portion, said decompressor comprising:

an unpacker for putting together into an unlimited string a series of fixed length data words, and for separating said string into variable length code words,

a decoder for translating each of said run length portions of said code words into an output comprising a series of zeros and for translating each of said terminating portions into an output comprising a decoded video pattern for ones and zeros,

a depredictor for inspecting selected bits of the actual video in the previous scan line and in the previous bits of the current scan line, and therefrom, producing an output comprising the next set of predicted video bits, and

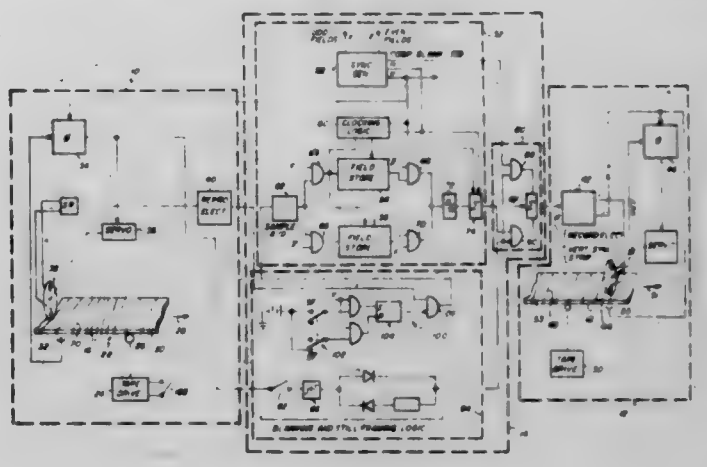
a comparator for comparing the output of said depredictor and the output of said decoder, producing therefrom actual video and for providing said depredictor with said actual video for use in the depredictor of the following sets of predicted video bits.

4,334,247

APPARATUS USEFUL FOR CONVERTING ASYNCHRONOUS VIDEO INFORMATION TO SYNCHRONOUS VIDEO INFORMATION

James U. Lemke, Del Mar, Calif., assignor to Spin Physics, Inc., San Diego, Calif.

Filed Jun. 26, 1980, Ser. No. 163,247
Int. Cl.³ H04N 5/79
U.S. Cl. 360—10 **15 Claims**



1. Apparatus useful with

(a) a first device for playing video information signals magnetically recorded along the length of a magnetic tape, and which video information signals may be periodically asynchronous with respect to a timing reference, and

(b) a second device for recording, under control of a vertical sync signal, video information signals along the length of a magnetic tape,

said apparatus comprising

(a) means for producing horizontal and vertical sync signals having respective nominal frequencies,

(b) means for receiving and temporarily storing video information signals under control of said vertical sync signal, said means for receiving and storing being adapted to receive video information signals played back by said first device,

(c) means adapted to receive said vertical and horizontal sync signals and the video information signal output of said means for receiving and temporarily storing video information signals for combining said video information signal output with said vertical and horizontal sync signals into a composite video signal,

said means for combining being coupled to said second device to apply said composite video signal to said second device, and said apparatus including means for applying said vertical sync signal to said first device for controlling its operation,

whereby despite periods of asynchronism in the video information signals played back by said first device, said second device records video information signals without periods of asynchronism therein.

4,334,248

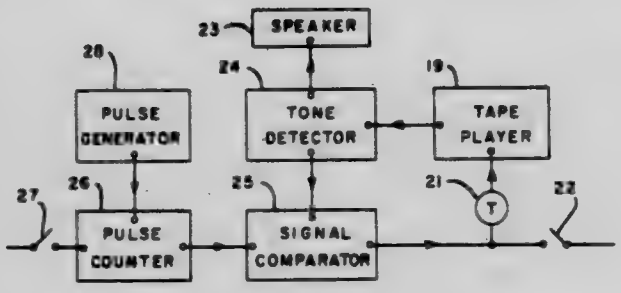
VERBAL TRAVEL INSTRUCTION SYSTEMS AND METHOD

Nicholas P. Maiocco, 58 Plankton St., Bridgeport, Conn. 06606

Filed Feb. 19, 1980, Ser. No. 122,630
Int. Cl.³ G11B 5/00
U.S. Cl. 360—12 **5 Claims**

1. A system for recording and playing back a series of travel instruction messages on a magnetic tape in a tape-recording and play-back device for use in a vehicle having an odometer, each said instruction message comprising a tone signal code representing a distance to be travelled by the vehicle to reach a location, and a verbal direction message pertinent to the operation of the vehicle when it reaches said location, said system comprising a tape-recording and play-back device;

digital means associated with said tape-recording and play-back device for recording on said magnetic tape a series of said tone signal codes, each of which is to be played back in advance of a verbal direction message pertinent thereto to form a travel instruction message; means associated with said tape-recording and play-back device for recording on said magnetic tape a series of verbal direction messages, each of said direction messages to be recorded subsequent to a pertinent tone signal code; tone detecting and decoding means associated with said tape-recording and play-back device for detecting and decoding each of said tone signal codes to set a comparing means for



a travel distance represented by said tone signal code; distance measuring means associated with the odometer of the vehicle and with said comparing means for registering in said comparing means the distance travelled by the vehicle; said comparing means causing activation of said play-back device when the distance travelled by the vehicle corresponds to the travel distance represented by the first tone signal code, whereby the first verbal direction message pertinent to said tone signal code is played back to guide the operator of the vehicle at the pertinent location, and a second tone signal code is played back to reset the comparing means for a second travel distance represented by said second tone signal code.

4,334,249

APPARATUS FOR USE IN RECORDING A PULSE SIGNAL ON A MAGNETIC RECORDING MEDIUM

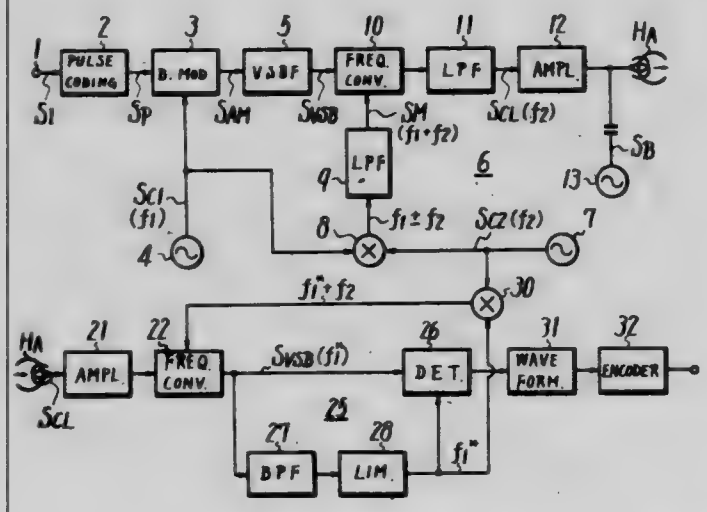
Eiichi Yokoyama, Machida, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 107,355

Claims priority, application Japan, Dec. 28, 1978, 53-165180

Int. Cl.³ G11B *5/04, 15/02*

U.S. Cl. 360—30 **15 Claims**



1. In apparatus for recording pulse signals on a magnetic recording medium, said pulse signals having gradually rising and falling edges between at least first and second information levels, said rising and falling edges exhibiting a gradient, which edges traverse a predetermined level, modulating means for modulating the amplitude of a carrier signal with said pulse signals to produce a modulated signal for recording and comprising amplitude modulating means supplied with said carrier signal and with said pulse signals, said amplitude modulating means having a modulation factor such that the modulated carrier signal is substantially suppressed at said predetermined level when traversed by said rising and falling edges but not at said at least first and second information levels.

4,334,250

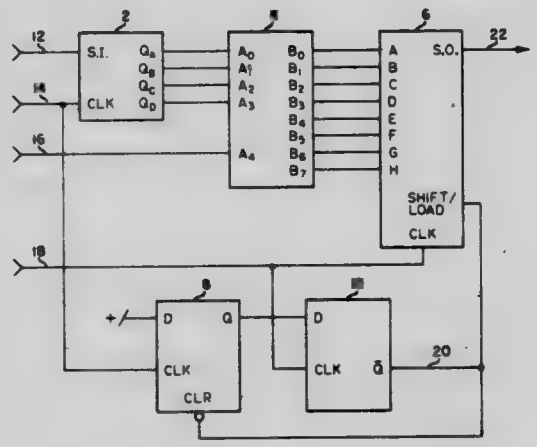
MFM DATA ENCODER WITH WRITE PRECOMPENSATION

John G. Theus, Tigard, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation of Ser. No. 887,403, Mar. 16, 1978. This application Sep. 12, 1979, Ser. No. 74,600

Int. Cl.³ G11B *5/09*

U.S. Cl. 360—45 **7 Claims**



1. An encoding circuit for converting an input stream of serial data bits to an MFM encoded output stream of serial data bits with write precompensation; said encoding circuit comprising:

means for converting the input stream of serial data bits to parallel bits;

memory means for storing therein addressable 8-bit words from which said encoded output is to be formed, each said 8-bit word representing an input bit in MFM encoding and at least one of said 8-bit words additionally including write precompensation encoding, the input of said memory means being coupled to said converting means whereby said 8-bit words are addressable by said parallel data bits;

said memory means being arranged such that for each parallel data bit a said 8-bit word representing it is made available at the output of said memory means, said word being selectable from those which include precompensation encoding when the context of said parallel data bit so required;

means coupled to the output of said memory means for converting said addressable 8-bit words from parallel to serial form providing the output stream of serial data bits; and

means for controlling the transfer of said addressable 8-bit words from said memory means to said parallel-to-serial converter means.

4,334,251

TAPE RECORDER HAVING CASSETTE REVERSING DEVICE

Masaaki Sato, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Continuation of Ser. No. 952,840, Oct. 19, 1978, abandoned. This application Jun. 6, 1980, Ser. No. 157,106

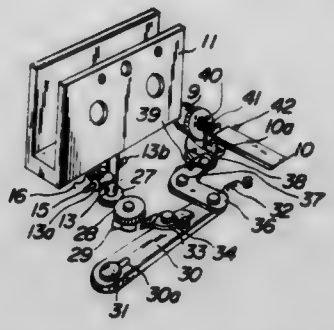
Claims priority, application Japan, Oct. 20, 1977, 52-126232; Oct. 20, 1977, 52-126233; Nov. 14, 1977, 52-136466; Nov. 14, 1977, 52-136467

Int. Cl.³ G11B *15/40*

U.S. Cl. 360—96.6 **20 Claims**

1. A cassette tape recorder comprising a housing body, a cassette chamber in the body, a cassette holder for holding a

tape cassette therein and movably mounted on the housing body for movement into and out of the chamber, at least one magnetic head for contacting tape in the cassette when the holder holds a cassette in the chamber, means for driving a magnetic tape in the tape cassette when the holder holds a cassette in the chamber, and a urging means for reversing the tape cassette when held in the cassette holder; said reversing



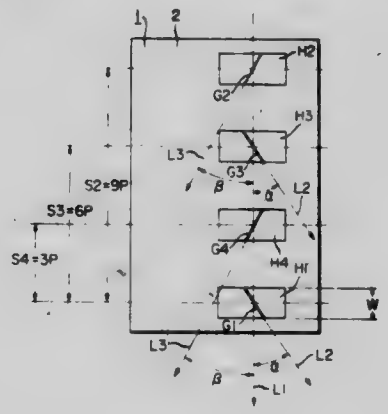
device including actuating means for actuating a holder movement and coupling means coupling the actuating means to the holder for moving the holder out of the chamber in response to a first operation of the actuating means and for rotating the thus moved holder 180° in response to a second operation of said actuating means, whereupon the cassette holder may be reinserted into the chamber and the actuating means again be actuated.

4,334,252

MAGNETIC RECORDING AND REPRODUCING HEAD ARRANGEMENT

Jirou Toriu, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 11, 1980, Ser. No. 129,409
Claims priority, application Japan, Mar. 20, 1979, 54-32569
Int. Cl.³ G11B *5/48, 21/02*
U.S. Cl. 360—104 **6 Claims**



1. A magnetic recording and reproducing head arrangement for use with a moving magnetic recording medium, comprising:

an even number 2n of magnetic heads (n being an integer not less than 1) each including a magnetic gap and spaced apart from each other at least by a distance effective for preventing magnetic interferences between said magnetic heads, said magnetic heads being so disposed with respect to the recording medium that said magnetic heads, in use, are effective for forming and tracking recorded tracks on the recording medium, said tracks having a track pitch P therebetween; and

means for both supporting said magnetic heads in a fixed positional relationship therebetween and for shifting in steps said magnetic heads, when the tracks to be recorded or reproduced are to be changed, in a direction perpendicular to the direction of movement of portions of the recording medium adjacent to said magnetic heads, each of said steps being equal to 2n times said pitch P of the tracks to be formed on the recording medium;

wherein centers of said gaps of at least two magnetic heads of said 2n magnetic heads lie in a straight line parallel to said direction of shift of said magnetic heads;

wherein said magnetic gap center of the j th magnetic head is spaced apart in the direction of shift of said magnetic heads by a distance Sj from that of an outermost magnetic head, said distance Sj satisfying the equation:

$$Sj/P=(j-1) \quad \text{modulo } 2n,$$

where

j is an integer not less than 1 but not greater than 2n; and

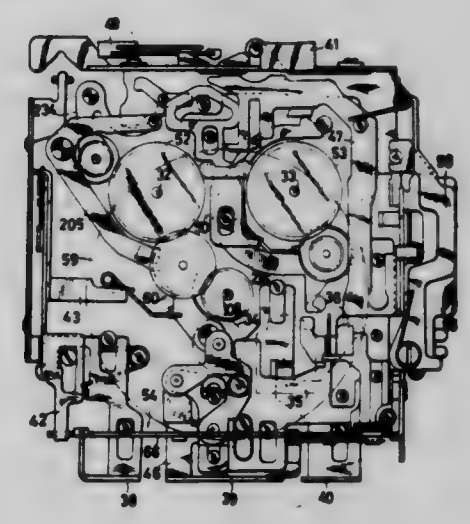
wherein the j th magnetic heads, j being an odd integer, of said 2n magnetic heads have magnetic gaps extending in an azimuth direction different from the magnetic gaps of the j th magnetic heads, j being an even integer, so as to be effective to prevent magnetic interference between adjacent tracks.

4,334,253

TAPE RECORDER

Kazuyasu Motoyama, and Toshikazu Kato, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Feb. 22, 1980, Ser. No. 123,686
Claims priority, application Japan, Mar. 2, 1979, 54-24149
Int. Cl.³ G11B *15/24*
U.S. Cl. 360—137 **17 Claims**



1. A tape recorder comprising:

playback, recording, and stop button plates urged to their respective original positions by the biasing forces of respective first, second and third biasing means and slidably mounted in parallel on a base plate; and

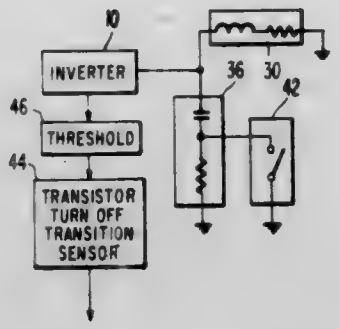
a lock mechanism including a seesaw lever disposed in a plane across the sliding direction of said playback button plate and having at one end portion thereof a lock strip capable of engaging said playback button plate,

said seesaw lever being rockably mounted to cause said lock strip to engage said playback button plate when said playback button plate is pressed and retreated from the original position thereof to a playback position against the biasing force of said first biasing means, whereby said playback button plate is prevented from returning from the playback position to the original position.

4,334,254
GATED SNUBBER CIRCUIT

Richard H. Baker, Bedford, Mass., and Arthur A. Baumgarten, Jr., Morris Plains, N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Jan. 25, 1980, Ser. No. 115,208
Int. Cl.[3] H02H 7/122
U.S. Cl. 361—9 37 Claims



1. In an inverter system of a type comprising transistor means selectively switched on and off to deliver bidirectional current flow between a D.C. power source and an inductive load, wherein a transient high voltage tends to be generated by the inductive load across the inverter system during each turnoff transition of said transistor means:

an active snubber circuit for suppressing said load generated transient voltage, comprising snubber means connected in shunt with said inductive load;

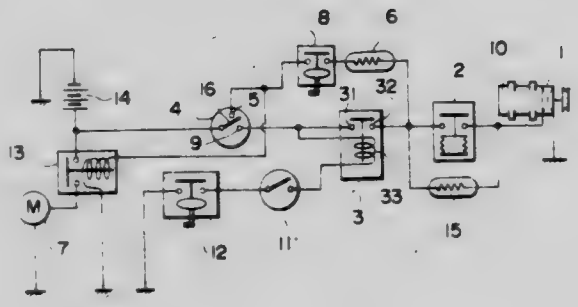
means for monitoring current flow through said transistor means; and

gating means controlled by said monitoring means for gating on said snubber means only during turn off periods of said transistor means.

4,334,255
PROTECTION DEVICE FOR A VEHICLE-MOUNTED AIR CONDITIONER COMPRESSOR

Masao Izumi, Fujisawa, Japan, assignor to Nissan Motor Company, Limited, Tokyo, Japan

Filed Oct. 14, 1980, Ser. No. 196,299
Int. Cl.[3] H02H 7/00
U.S. Cl. 361—22 3 Claims



1. A protection device for a vehicle air conditioner compressor comprising:

an electro-magnetic clutch of an air conditioner compressor;

an ignition switch having a plurality of contacts including an on contact and a starter contact;

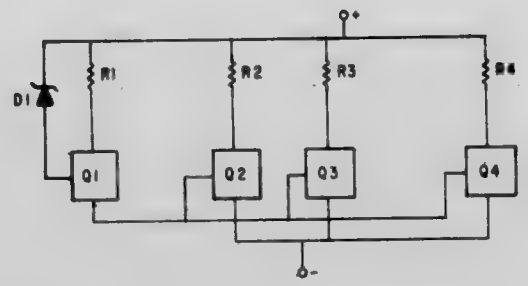
a compressor relay having a pair of relay contacts, each of which being connected respectively to the on contact of the ignition switch and a terminal of the electro-magnetic clutch, the relay coil of which is energized by an electric current flowing through the on contact of the ignition switch; and

a PTC ceramic resistor connected between the starter contact of the ignition switch and the terminal of the electro-magnetic clutch, said PTC ceramic resistor being provided for allowing a driving current of said electro-magnetic clutch for a predetermined duration after a time when said ignition switch is switched to said starter contact.

4,334,256
AUTOMOTIVE SURGE SUPPRESSOR

Joe D. Mings, McKinney, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 4, 1980, Ser. No. 137,200
Int. Cl.[3] H02H 3/22
U.S. Cl. 361—56 6 Claims



1. A circuit for protecting an electrical device or system from a transient power surge in its power source while maintaining full operating power to said device or system, comprising:

means for detecting said surge;

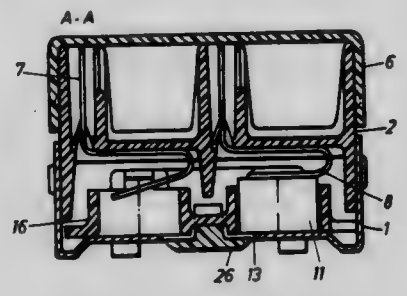
means for generating a control signal indicative of the presence of said surge;

means responsive to said control signal for directing said surge through said circuit, having a plurality of series-coupled transistor-resistor current-carrying paths in parallel, each said path self regulated in current flow, all of said plurality of paths opened to current flow equally and simultaneously by a common signal.

4,334,257
OVERVOLTAGE PROTECTION DEVICE

Per A. A. Ekdahl, Järfälla, and Fred L. Möller, Varby, both of Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

PCT No. PCT/SE80/00046, § 371 Date Oct. 14, 1980, § 102(e) Date Sep. 26, 1980, PCT Pub. No. WO80/01741, PCT Pub. Date Aug. 21, 1980
PCT Filed Feb. 14, 1980, Ser. No. 209,464
Claims priority, application Sweden, Jul. 14, 1979, 7901321
Int. Cl.[3] H02H 3/22
U.S. Cl. 361—119 4 Claims



1. An overvoltage protection device for wires, preferably telephone wires,

comprising overvoltage arresters (11) of the discharge tube type and connection clamps (7, 8) for the wires, said connection clamps being mounted in a terminal block (2) and pressed against one of the poles of the overvoltage arresters (11),

the opposite pole of the overvoltage arresters being supported against a holder (1) formed of sheet metal and providing a ground connection, characterized in that

the overvoltage arresters (11) are enclosed in a detachable

cassette (16) of insulating material placed in a space between the terminal block (2) and the holder (1),

and in that terminal block (2) is pivotal about pins (4) at one of its ends,

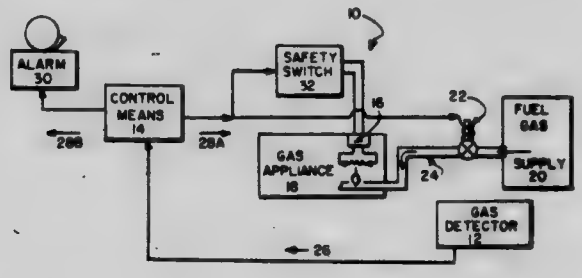
thereby allowing access to the space between the terminal block (2) and the holder (1) for insertion and removal of the cassette (16).

4,334,258

EXPLOSION PREVENTION CONTROL SYSTEM FOR A FUEL-GAS BURNING AUTOMATIC IGNITION APPLIANCE AND ASSOCIATED GAS DISTRIBUTION SYSTEM

Jeffrey L. Seeman, 263 Lakeview Ave., Brightwaters, N.Y. 11718, and James A. Dionian, 133 Moody Ave., Islip, N.Y. 11751

Filed Jun. 23, 1980, Ser. No. 161,663
Int. Cl.³ F23N *5/24*
U.S. Cl. 361—170 **11 Claims**



1. In a fuel-gas burning appliance system of the type including a fuel-gas burning appliance having an electrically activated automatic ignition device, and a fuel-gas supply distribution arrangement including a conduit for conducting fuel-gas from a fuel-gas supply to the appliance, the improvement comprising:

gas sensing means disposed outside of said distribution system and being operable to generate a sensing signal in response to the presence of fuel-gas;

control means coupled to said gas sensing means to generate a control signal in response to said sensing signal;

a latch-off safety switch connected to said ignition device and operable in response to said control signal to deactivate and maintain deactivated said ignition device until said switch receives a reset signal, reactivation of said ignition device being prevented until said reset signal is received by said switch, and

a distribution system gas shut-off valve disposed in said conduit and being switchable between an open state in which fuel-gas is permitted to pass through said conduit and a closed state in which fuel-gas is blocked from passage through said conduit, said shut-off valve including switching means connected to said control means and adapted to switch said control valve from said open to said closed state in response to said control signal;

whereby the presence of fuel-gas outside said distribution system at said gas sensing means will cause said fuel-gas burning appliance ignition system to be deactivated and the fuel supply to be shut off.

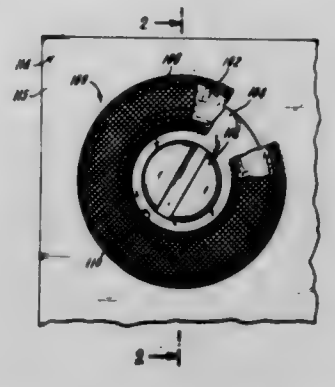
4,334,259

DISCHARGE/GROUND BUTTON

James M. Edwards, Santa Ana, Calif., assignor to Management Assistance Inc., New York, N.Y.

Filed Aug. 11, 1980, Ser. No. 177,255
Int. Cl.³ H05F *3/00*; H01G *1/00*
U.S. Cl. 361—212 **3 Claims**

1. A grounding button for providing a conductive leak path between a conductor frame and an access door of an electrical cabinet comprising a core formed of an annulus of deformable resilient material having an inside diameter forming a central opening, a planar circular mounting plate having an outside diameter sized to be intermediate the inside and outside diameter of the annular core and having an upper and lower planar surface, a portion of the resilient core being in contact with and supported by the planar upper surface of the mounting plate, a layer of knitted wire mesh electrically connected to an upper surface of the mounting plate, at least partially surrounding the exterior of said resilient core and surrounding the lower surface of the mounting plate to form a continuous electrically conductive path so that both the conductive frame and access door will be in electrical contact with the knitted wire mesh



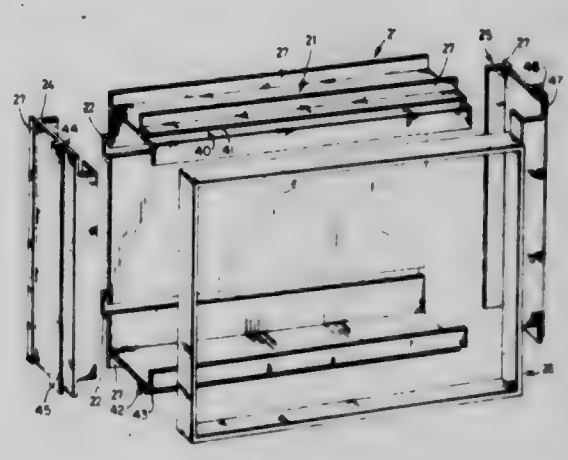
when the access door is closed, said grounding button being secured to the cabinet by a securing means to bring the knitted wire mesh surrounding the lower surface of the mounting plate into electrical conductive contact with a surface of the cabinet whereby when the access panel is closed the grounding button is deformed between the access panel and the conductive frame and both the access door and conductive frame are in electrical contact with the knitted wire mesh thereby creating direct electrical contact between the access door and conductive frame to provide a conductive leak path between the same.

4,334,260

WALL-TYPE INTERCOM STATION FOR DETENTION AND PENITENTIARY FACILITIES

Ernst A. Schmelter, Lustenbergweg 5, and Bruno W. Simmert, Bruckner-Str. 35, both of D-4404 Telgte, Fed. Rep. of Germany

Filed Jun. 17, 1980, Ser. No. 160,189
Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 8006854[U]
Int. Cl.³ H02B *1/04*
U.S. Cl. 361—360 **18 Claims**



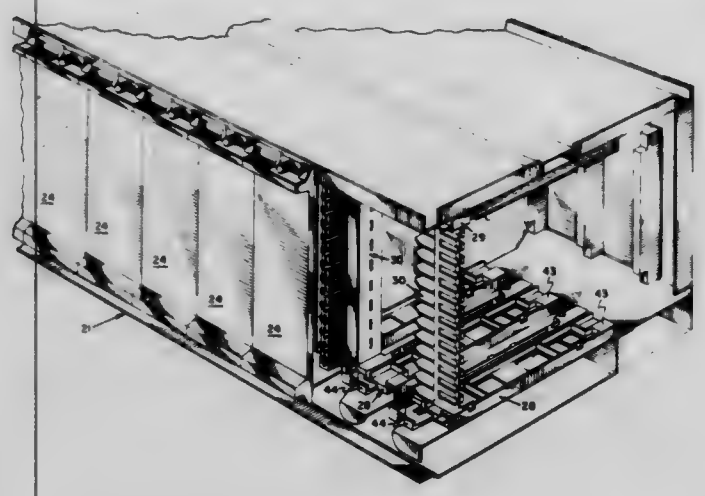
1. In a wall-type intercom station in a communications and reporting system for detection and penetentiary facilities, with a flush mounting box, a cover plate with sound penetration openings covering the box, sensor pushbutton switches arranged in the cover plate as well as fastening screws attaching the cover plate to the flush mounting box, the improvement comprising the flush mounting box forming profile elements and a front ring being installed in slots of the profile elements, whose front close-off edges are flush with the cover plate.

4,334,261

UNIVERSAL INPUT/OUTPUT SYSTEM CONSTRUCTION FOR PROGRAMMABLE CONTROLLERS

Roman Y. Gonzales, Andover, Mass., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Sep. 22, 1980, Ser. No. 189,948
Int. Cl.³ H05K *7/16*
U.S. Cl. 361—426 **15 Claims**



1. An expandable, multi-purpose input/output system interconnected with a central processor to form a machine controller interconnected with and operating external devices, comprising

A. a housing incorporating means for communicating with the central processor;

B. a printed circuit board incorporating

a. means for disengageably interconnecting said printed circuit board with the communicating means of the housing, and

b. a plurality of electrically independent contacts for communicating with the external equipment;

C. a pair of slider assemblies mounted to the housing in juxtaposed, spaced, cooperating, facing relationship, thereby forming an upper slider assembly and a lower sliding assembly, each of said slider assemblies comprising

a. a track guide member fixedly mounted to the housing, and incorporating

1. holding means for supportingly holding the printed circuit board,

2. movement limiting means for controlled sliding engagement of a slider member, and

3. retaining means for supportingly retaining a terminal block, and

b. a movable slider member

1. incorporating engagement means captively interconnected with said movement limiting means of the track guide,

2. movable relative to the track guide member between three alternate, terminal block controlling positions, and

3. incorporating retaining means cooperatively associated with the retaining means of the track guide member to movably retain a terminal connector block on the fixed track guide members,

D. a terminal connector block controllably mounted to the two fixed track guide members and comprising

a. a plurality of wire connection points for electrically connecting the external equipment to the input/output system, and

b. a plurality of quick disconnect contacts, with each of said contacts being independently conductively associated with one wire connection point; and

E. a connector panel incorporating a plurality of conductively independent contacts for electrically interconnecting the quick disconnect contacts of the terminal connector block with the plurality of electrically independent contacts of the printed circuit board;

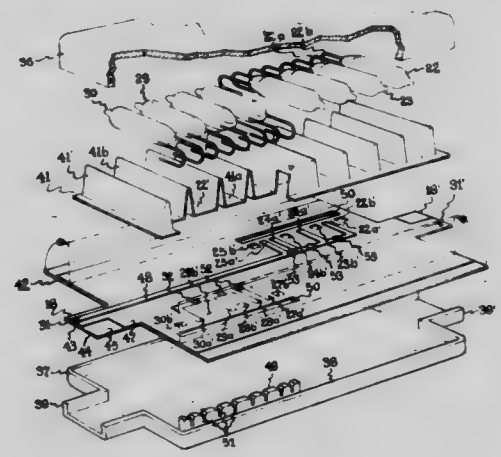
whereby an input/output system is achieved wherein the external equipment wires are easily connected to the terminal connector block, the movement of which is fully controlled by the slider assembly, wherein the printed circuit board is quickly and easily disengageably inserted and interconnected with the central processor, and wherein complete electrical interconnection of the external equipment through the printed circuit board to the central processor is made quickly and easily without requiring disassembly of the external equipment wires for removal, replacement or repair of the printed circuit board.

4,334,262

FLASH LAMP ARRAY HAVING COMPOSITE CIRCUIT BOARD AND ELECTRIC SHIELD MEMBER

Edward L. Latos, Mentor, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 2, 1980, Ser. No. 183,626
Int. Cl.³ G03B *15/02*
U.S. Cl. 362—11 **8 Claims**



1. A multiple flash lamp array utilizing a multilayer circuit board and electrical shield member in the form of a conductive sheet having an electrically insulative surface layer deposited directly thereon with electrical circuitry being deposited on said insulative surface layer to sequentially fire a plurality of high voltage flash lamps operatively associated therewith, and each of said flash lamps having a pair of lead-in wires extending therefrom with one of each pair of lead-in wires being electrically connected to the electrical circuitry and with the remaining lead-in wires being electrically connected to the underlying conductive sheet.

4,334,263

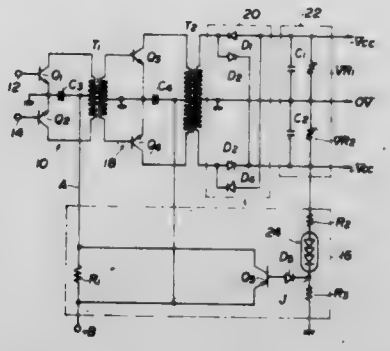
SEPARATELY EXCITED DC-DC CONVERTER HAVING FEEDBACK CIRCUIT WITH TEMPERATURE COMPENSATING EFFECT

Hiroo Adachi, Kawagoe, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Mar. 11, 1980, Ser. No. 129,207
Claims priority, application Japan, Mar. 13, 1979, 54-32262[U]
Int. Cl.³ H02P *13/22*
U.S. Cl. 363—25 **4 Claims**

1. A separately excited DC-DC converter, comprising voltage supply means for providing a first DC voltage; inverter means for converting said first DC voltage into an AC voltage in response to a drive pulse signal of a predetermined repetition frequency, said inverter means including at least one transformer for amplifying said AC voltage; rectifier means for rectifying the amplified AC voltage; a smoothing circuit for smoothing the rectified AC voltage into a second DC voltage which is higher than said first DC voltage; and feed-back means for modifying said first DC voltage in accordance with said second DC voltage, said feed-back means including a voltage divider connected to said smoothing circuit for divid-

ing said second DC voltage, the dividing ratio of said voltage divider varying in response to the ambient temperature, and variable resistance means inserted between said voltage supply means and said inverter means and including at least one resistor inserted between said voltage supply means and said inverter means, and a variable conductive element connected in parallel with said resistor and having conductivity varying in accordance with the divided voltage.

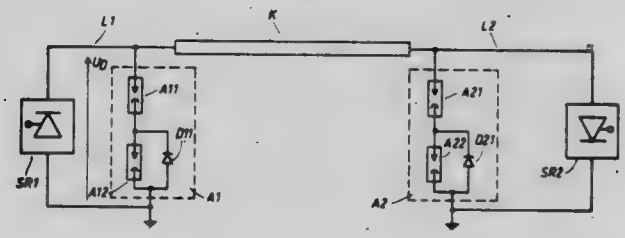


4,334,264

HIGH VOLTAGE DIRECT CURRENT TRANSMISSION APPARATUS

Lars Knudsen, Ludvika, Sweden, assignor to ASEA Aktiebolag, Vasteras, Sweden

Filed Dec. 29, 1980, Ser. No. 220,489
Claims priority, application Sweden, Dec. 28, 1979, 7910716
Int. Cl.[3] H02H *7/00*
U.S. Cl. 363—51 8 Claims



1. High voltage direct current (HVDC) transmission apparatus having a DC carrying line (L1, K, L2), the apparatus including voltage-limiting members (A1, A2) for limiting the line voltage (u_D) to a predetermined limiting level, characterised in that the limiting members (A1, A2) include means for causing the limiting level to be higher for voltage of one polarity than for voltage of the opposite polarity and to be different from zero for both polarities.

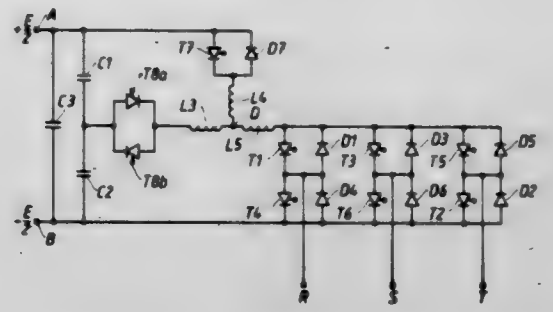
4,334,265

THYRISTOR INVERTER WITH INVERTER BRIDGE AND COMMON TURN-OFF CIRCUIT FOR INVERTER THYRISTORS

Kjeld Thorborg, Vesteras, Sweden, assignor to ASEA Aktiebolag, Vesteras, Sweden

Filed Sep. 12, 1980, Ser. No. 186,802
Claims priority, application Sweden, Jan. 19, 1979, 7900490
Int. Cl.[3] H02M *7/515*
U.S. Cl. 363—72 6 Claims

1. An inverter connection with terminals for connection to a D.C. voltage source, said inverter connection having at least one inverter bridge, in which each valve branch comprises a thyristor and a diode connected in anti-parallel therewith, the inverter bridge being connected between the terminals in series with a valve consisting of a second thyristor and a second diode connected in anti-parallel therewith, the inverter bridge being further connected to a turn-off circuit for turning off all the thyristors, said turn-off circuit comprising a capacitor connection and a turn-off thyristor means, wherein the turn-off thyristor means comprises a thyristor connection, controllable in both directions, connected in series with at least one capacitor between a point which is located between the inverter bridge and the valve and at least one of the terminals, and in



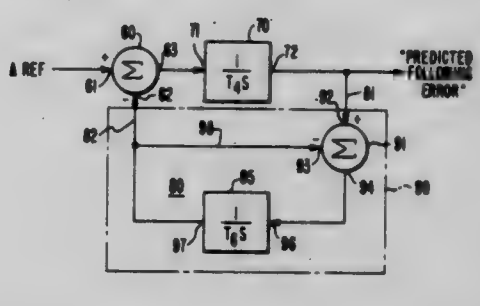
which two turn-off inductors are provided, one of which is connected in series with the valve and the other of which is connected in series with the inverter bridge.

4,334,266

NUMERICAL CONTROL SYSTEM WITH FOLLOWING ERROR MONITOR

Paul C. Merbach, Saxonburg, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 21, 1980, Ser. No. 142,521
Int. Cl.[3] G05B *19/18*
U.S. Cl. 364—167 10 Claims



1. A position monitoring system for monitoring the position of an axis in a machine controlled by a numerical control system and for providing a predicted following error signal indicative thereof, said numerical control system having a position control system for providing an output command signal, said position monitoring system comprising:

first integration means for providing said predicted following error signal as an output;

time delay means for time delaying the output of said integration means and for providing an output delay signal indicative of said time delayed output; and

negative feedback means for feeding back said time delay signal to said integration means, said negative feedback means including first summing means for summing a junction of said output command signal and the negative of said output delay signal.

4,334,267

FREE-RUNNING PUSH-PULL INVERTER

Sandor Miko, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 20, 1980, Ser. No. 198,419
Int. Cl.[3] H02M *7/537*
U.S. Cl. 363—133 6 Claims

1. A push-pull inverter power supply, comprising:

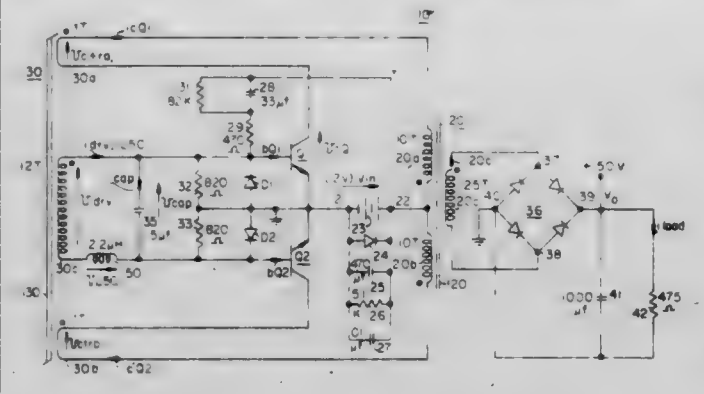
a power transformer having a plurality of windings including a primary winding and a supply winding;

first and second transistor switches coupled to said primary winding in a push-pull arrangement;

a saturable transformer having a control winding and having a drive winding coupled to a control electrode of each one of said first and second transistor switches to alternately apply forward drive to each switch, said saturable trans-

former control winding being supplied with a control current that reaches a magnitude that magnetically saturates the core of said saturable transformer to remove said forward drive from each transistor switch for developing an alternating polarity output voltage across said power transformer supply winding; and

a capacitance coupled to said saturable transformer drive



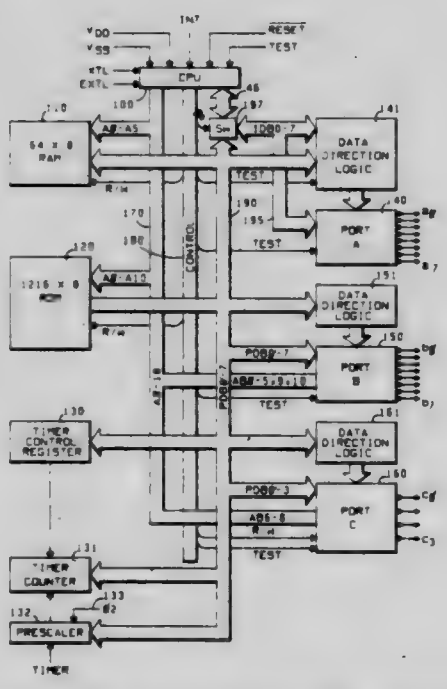
winding in such a manner that the voltage across said capacitance, upon the attainment of said control current magnitude, commences a resonant oscillation of a frequency sufficiently low so as to enable said capacitance to supply said drive winding with a magnetizing current that maintains saturation of said core beyond the cessation of forward collector current in the transistor switch subject to the forward drive removal.

4,334,268

MICROCOMPUTER WITH BRANCH ON BIT SET/CLEAR INSTRUCTIONS

Joel F. Boney; Edward J. Rupp, II, both of Austin, and James S. Thomas, Manor, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 1, 1979, Ser. No. 35,138
Int. Cl.³ G06F *9/32*
U.S. Cl. 364—200 **14 Claims**



1. In a data processing system comprising a memory having a plurality of storage locations for storing data and instructions and a processor for executing such instructions, a method of executing a conditional branch instruction, said instruction comprising an op code and a bit number, a first address portion designating a first storage location in said memory, and a second address portion designating a second storage location in said memory, said method comprising the steps of:

fetching the data stored in said first storage location using said first address portion of said instruction;

testing the state of the bit in the data fetched from said first storage location corresponding to said bit number; and

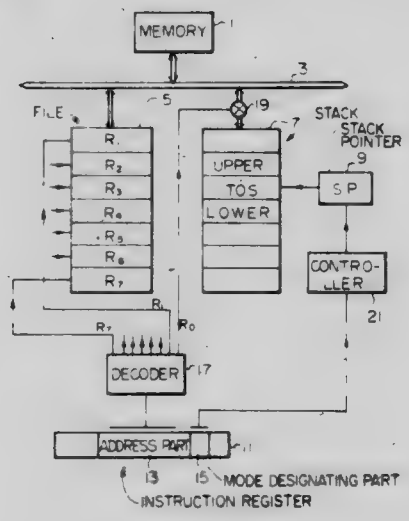
branching to said second storage location using said second address portion of said instruction if said bit is in a predetermined state.

4,334,269

DATA PROCESSING SYSTEM HAVING AN INTEGRATED STACK AND REGISTER MACHINE ARCHITECTURE

Yoshihisa Shibasaki, Sayama; Ken Sakamura, Tokyo; Waichi Sakamae, Tokyo; Koichi Nakane, Tokyo, and Hideo Aiso, Yokohama, all of Japan, assignors to Panafacom Limited, Yamato and High Level Machines Corp., Tokyo, both of, Japan

Filed Nov. 9, 1979, Ser. No. 92,859
Claims priority, application Japan, Nov. 20, 1978, 53-143101
Int. Cl.³ G06F *9/34, 13/00*
U.S. Cl. 364—200 **7 Claims**



1. A data processing system for performing operations on data, comprising:

a memory;

a general purpose register file, having a plurality of elements, operatively connected to said memory;

a stack, having a top, operatively connected to said memory;

an instruction register, operatively connected to said general purpose register file and said stack, for storing first and second operand specifiers, each of which includes an address part, for specifying an address of each of the data, and an operation code for designating an operation to be performed;

first means, operatively connected to said stack and said instruction register, for causing said top of the stack to correspond to at least one of said elements in the general purpose register file; and

second means, operatively connected to said stack and said instruction register, for controlling the operation of said stack, so that when said element, to which said top of the stack corresponds, is specified by each of said address parts, said top of the stack is selected by said first means and the operation of said stack is controlled by said second means.

4,334,270

SECURITIES VALUATION SYSTEM

Frederic C. Towers, 8033 Herb Farm Dr., Bethesda, Md. 20034

Filed Aug. 11, 1972, Ser. No. 279,781
Int. Cl.³ G06F *15/21*
U.S. Cl. 364—300 **5 Claims**

1. The method of operating a general purpose digital computer having a plurality of data files, to allow a plurality of users to simultaneously retrieve information, while allowing the computer operator to update the information in said data files, comprising:

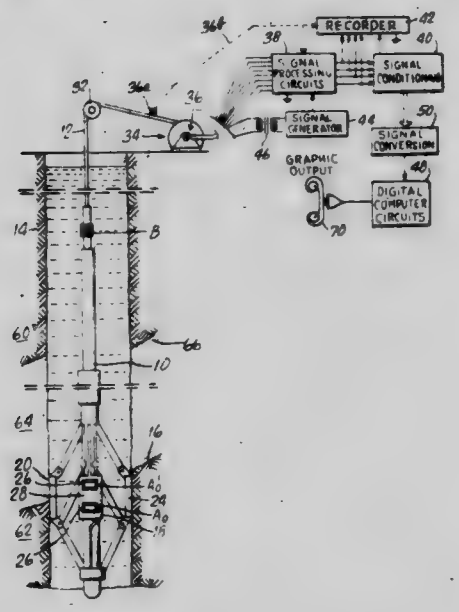
(a) providing each of said data files with a keyword through which said file is accessed,
(b) ordering said data in said data files in a sorted sequence, each data file having a separate sorted segment of data,
(c) providing an index file with a sequential string of correspondence fields containing, for each segment of sorted data, an associated keyword in a particularly sequence identifying a data file,
(d) providing a spare data file for editing the data on said files,
(e) immediately after said editing routine, exchanging the keywords in the fields of the index files corresponding to said unedited and edited data files,
(f) accessing said data files to retrieve a particular record by a comparison to determine said segment of data containing said record,
(g) searching said index file to determine the data file containing the segment of data including said record,
(h) reading the correspondence field of said segment of data to retrieve the keyword of the data file having the most recently edited version of said data segment,
(i) accessing said data file and retrieving said data record.

4,334,271

WELL LOGGING METHOD AND SYSTEM

Christian M. Clavier, Paris, France, assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Feb. 25, 1980, Ser. No. 124,527
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—422 **21 Claims**



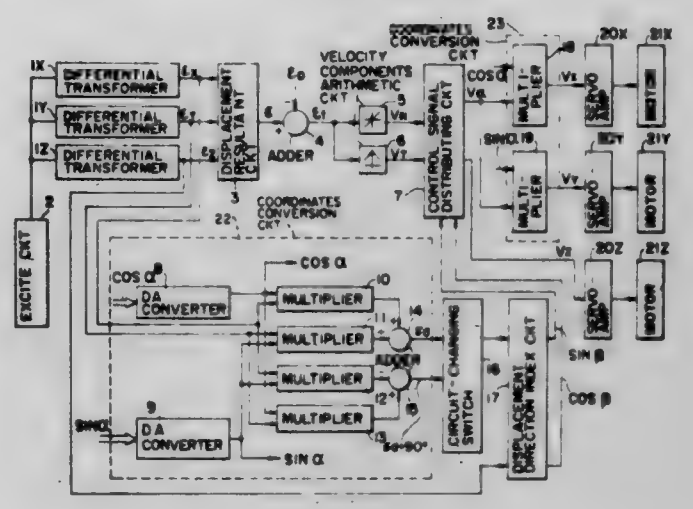
1. A machine method of exploring a subsurface earth formation comprising the steps of:
producing a respective well log for each of the paths along a borehole in the earth formation which are logged by respective well logging devices carried by a multipad investigating tool moved through the borehole;
producing a set of a dip signal and an azimuth signal for each of a number of assumed bedding surfaces which interest the borehole at a given depth at different attitudes;
for each given one of said assumed bedding surfaces, combining those portions of the logs which have selected relationships to the intersections of the log paths by the given assumed bedding surface to produce an electrical signal related to the mutual degree of fit of the combined log portions; and
utilizing said degree-of-fit signals to produce a tangible record of the attitude of an assumed bedding surface which intersects the borehole at the given depth and tends to correspond in attitude to a feature of the earth formation.

4,334,272

TRACER CONTROL SYSTEM

Ryoji Imazeki, and Etsuo Yamazaki, both of Hachioji, Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Feb. 4, 1980, Ser. No. 118,217
Claims priority, application Japan, Feb. 9, 1979, 54-14098
Int. Cl.³ G06F *15/46*; G05B *19/33*
U.S. Cl. 364—474 **6 Claims**



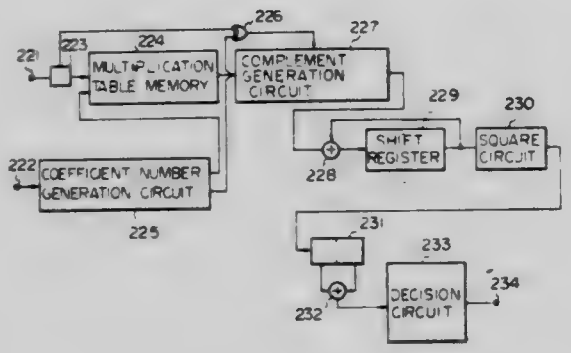
1. A tracer control system for controlling the relative position of a tracer head with respect to a model to be traced by displacement signals from said tracer head by moving said tracer head in at least one selected plane perpendicular to the X-Y plane in a coordinate system corresponding to the displacement signals of said tracer head, each said selected plane being predetermined by selecting a corresponding feed axis in said X-Y plane, the direction of each said feed axis being determined by specifying the corresponding angle of intersection of each said selected plane and the X-Z plane of said coordinate system, said system comprising:
means for providing input signals comprising selected trigonometric functions of each said angle of intersection;
a first coordinate conversion circuit comprising multipliers for selectively multiplying said input signals representative of each said angle of intersection with the respective displacement signals of the tracer head corresponding to the X and the Y axes, and adding means for selectively adding together output signals from the multipliers to output each respective component of the resultant displacement signal along each said respective selected feed axis in the X-Y plane;
a displacement direction index circuit for outputting selected trigonometric functions of the angle between the X-Y plane and the projection of said displacement signal in said at least one selected plane, said index circuit comprising means for utilizing the output from the first coordinate conversion circuit corresponding to said at least one selected plane and the tracer head displacement signal along the Z-axis to provide said output of the index circuit;
a control signal distributing circuit which is supplied with a normal velocity signal and a tangential velocity signal derived from the resultant displacement signal corresponding to the tracer head displacement signals along the X-, Y- and Z-axes and the output signal from the displacement direction index circuit to provide a velocity signal component along said at least one feed axis and a velocity signal component along the Z-axis for said tracing of said model in said at least one selected plane;
a second coordinate conversion circuit composed of multipliers for multipying the feed axis velocity signal from the control signal distributing circuit and the signals representative of the direction of said at least one selected feed axis in the X-Y plane, and means for distributing control signals indicative of the corresponding feed rates along the X- and Y-axes in accordance with the signals representative of the direction of the at least one selected feed axis.

4,334,273

SIGNAL PROCESSING SYSTEM USING A DIGITAL TECHNIQUE

Yoshikazu Ikeda, Tama, Japan, assignor to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan

Filed Apr. 17, 1980, Ser. No. 140,449
Claims priority, application Japan, Apr. 24, 1979, 54-49732; May 14, 1979, 54-58109; May 19, 1979, 54-61030
Int. Cl.[3] G01R *23/02*; G06F *15/332*
U.S. Cl. 364—484 6 Claims



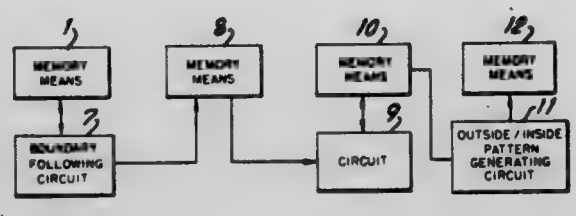
1. A signal detection system for detecting a particular frequency among a plurality of frequencies, said system comprising an input terminal receiving said plurality of frequencies including the particular frequency, a pair of multipliers for multiplying the input signal and a pair of reference signals which are orthogonal to each other and have the same period as that of the particular frequency, a pair of accumulators for accumulating the outputs of each of said multipliers, a coefficient number generator is provided for generating a plurality of groups of sequence numbers which are synchronized with a sample pulse for sampling the input signal, and said sequence of numbers has the period M_s which is the quotient T_c/T_s, where T_s is the duration for sampling the input signal and T_c is the common multiple of said T_s and the period T_i of each reference frequency signal, and is incremented or decremented by the step of M_1 which is the quotient T_c/T_i, a pair of square circuits for squaring the output of each said accumulators, an adder for summing the outputs of said square circuits, a decision circuit for comparing the output of said adder with a predetermined threshold value and detecting the particular frequency when the output of the adder is larger than the predetermined threshold value, and an output terminal connected to the output of said decision circuit for providing an output when said decision circuit detects the particular frequency, wherein said multiplier has a memory which stores the product of the sampled level of the input signal and the sampled level of the reference signal at an address which is defined by said sampled level of the input signal, and wherein the multiplication is performed by looking up in said memory according to the sampled level, the sequence of the input signal and the coefficient number of the reference signal, said memory storing the product of the sampled value of the input signal and the coefficient value which is obtained by sampling the reference signal in every sampling duration T_s at the address which is determined by the code of the sampled value of the input signal and the sequence number of said coefficient value, and said memory providing a product every time an input signal is applied to the memory from the address defined by the sampled value of the input signal and the coefficient value obtained from said coefficient number generator.

4,334,274

METHOD OF DETERMINING WHETHER OR NOT A REGION IN A PICTURE IS WITHIN A CLOSED BOUNDARY, AND AN APPARATUS THEREFOR

Takesi Agui; Masayuki Nakajima, both of Yokohama, and Koichi Iwata, Shizuoka, all of Japan, assignors to Kopia Kabushiki Kaisha, Tokyo, Japan

Filed May 25, 1979, Ser. No. 42,309
Claims priority, application Japan, Jul. 7, 1978, 53-082554
Int. Cl.[3] H04N *1/40*
U.S. Cl. 364—515 1 Claim



1. A method of determining whether or not a picture cell of a given picture is within a closed boundary, comprising the following steps:

scanning the given picture to store picture cell data thereof into memory positions of a first memory device;

storing non-boundary signs into memory positions of a second memory device, wherein non-boundary signs each indicates that the corresponding picture cell is not located on the closed boundary of the given picture, and wherein said memory positions of said second memory device correspond to the memory positions, filled by the picture cell data, of said first memory respectively;

following the picture cell data, which are representive of the picture cells on the closed boundary respectively, along a predetermined direction to obtain coordinate values of the boundary picture cell data;

comparing coordinate values of a preceding and next successive boundary picture cell data of each boundary picture cell data along one coordinate axis, developing discrimination signs each indicative of increasing, decreasing or lack of change of the compared coordinate values, writing the discrimination signs into said second memory device at the memory positions corresponding to the picture cells on the closed boundary; and

checking the discrimination signs along the other coordinate axis, which intersects said one coordinate axis, to determine whether each of the non-boundary signs corresponds to picture cell data inside or outside of the closed boundary.

4,334,275

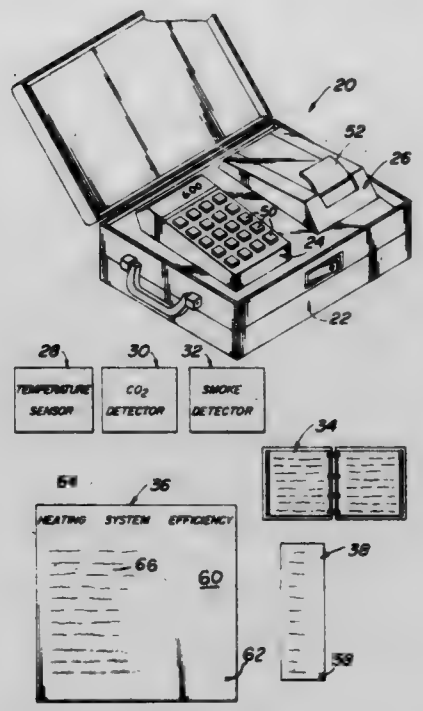
ENERGY AUDITING KIT

Marshall S. Levine, 538 Old Eagle School Rd., Wayne, Pa. 18087

Filed Sep. 11, 1980, Ser. No. 186,077
Int. Cl.[3] G06F *15/20, 3/12*
U.S. Cl. 364—551 20 Claims

1. A portable kit for on site auditing of the energy consumption characteristics of a building having a heating system and for providing a permanent, written record of said audit, said kit comprising audit form means including first and second areas, each of said first areas having indicia preprinted thereon at predetermined spaced locations from one another, each of said second areas being located immediately adjacent a respective first area and arranged for mounting a section of a printer output strip thereon, measuring means for measuring various parameters relating to building energy consumption and computing means including input means and printer means, said input means being arranged to provide input data in the form of said measured parameters and other source data to said computing means for analysis, said printer means operating in response to said computing means to produce an output strip

having plural groups of indicia printed thereon, with the indicia of each of said groups being disposed at predetermined spaced locations from one another within said group, said strip being arranged to be severed into plural sections, with each section containing a respective group of indicia, each of said



strip sections being arranged for mounting and securement within an associated second area on said form means so that the indicia printed on said strip section align with the indicia preprinted on said form means to provide a readily readable, permanent report identifying various energy consumption characteristics of said building.

4,334,276

DISC ECCENTRICITY MEASURING MEANS

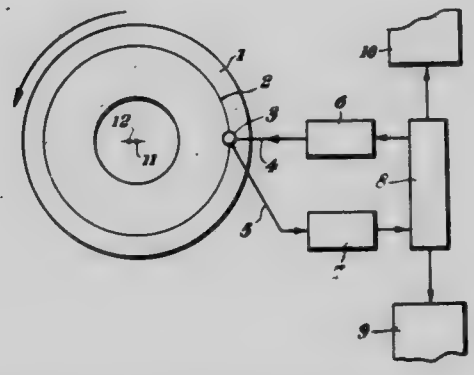
David F. Turnbull, Glenrothes, Scotland, assignor to Burroughs Corporation, Detroit, Mich.

Filed Jul. 10, 1980, Ser. No. 168,851

Claims priority, application United Kingdom, Jul. 19, 1979, 7925196

Int. Cl.³ G06F *15/20;* G11B *7/00*

U.S. Cl. 364—561 **8 Claims**



1. Apparatus for measuring the eccentricity between a desired operating position of a removable disc and a disc file and the actual position in which the disc has been filed wherein the removable disc has a plurality of concentric data storage tracks, comprising:

a first part associated with said removable disc for providing information with respect to the distance between the actual center of rotation of said removable disc and the centroid of said concentric data tracks, said first part including a circular servo track on said removable disc, said circular servo track including a circular null line which has the same centroid as said concentric data tracks, said circular servo track providing servo track signals which contain information indicative of the radial distance between the site where the signal is picked up and the position where said pick up site would by symmetrically disposed about said circular null line; and,

a second part integral with said apparatus for receiving said distance indicating information from said first part and for providing an output indicative of whether said distance indicated by said distance indicating information exceeds a predetermined distance, said second part including (a) transducing means for recovering signals from said removable disc, (b) servo track decoding means for decoding said servo track signals and for providing an output indicative of the radial distance between the zone of interaction on said removable disc of said transducing means and the position where said zone of interaction would be symmetrically disposed about said circular null line and (c) interpreter means for computing the distance between the means value and the actual value of said radial distance and for providing an output indicative of whether said difference exceeds a predetermined limit.

4,334,277

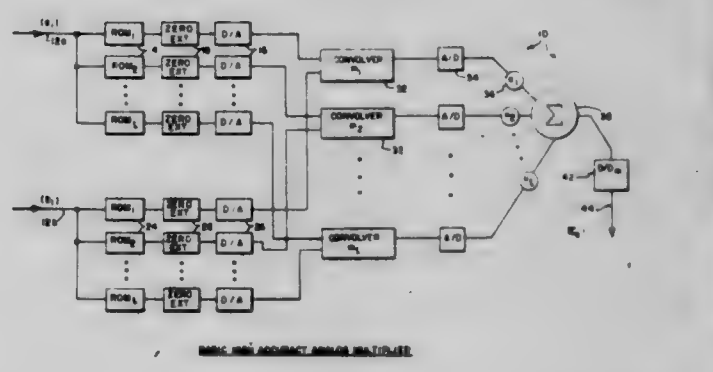
HIGH-ACCURACY MULTIPLIERS USING ANALOG AND DIGITAL COMPONENTS

James W. Bond, and Harper J. Whitehouse, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 837,342, Sep. 28, 1977, abandoned. This application Dec. 11, 1978, Ser. No. 968,603

Int. Cl.³ G06F *7/72, 7/52;* G06J *1/00*

U.S. Cl. 364—703 **9 Claims**



1. An apparatus for multiplying two sequences of N digital numbers a_i and b_i, which may represent signal pulses of various amplitudes, comprising:

a first plurality of t read-only memories (ROMs), having a common input adapted to receive the sequence of numbers a_i, each ROM coding the numbers a_i into $a_{j,i}=a_j$ modulo m_i, with $0 \leqq a_{j,i} \leqq m_i-1$;

a first plurality of t extending means, an input of each connected to an output of a read-only memory, for extending the digital signal with N-1 zero values;

a first plurality of t digital-to-analog (D/A) converters, an input of each being connected to an output of a zero extender, for converting the digital quantity received from the extender into its corresponding analog value;

a second plurality of t read-only memories (ROMs), having a common input adapted to receive the sequence of numbers b_i, each ROM coding the numbers b_i into $b_{j,i}=b_j$ modulo m_i, with $0 \leqq b_{j,i} \leqq m_i-1$;

a second plurality of t extending means, an output of each connected to an output of a read-only memory of the second plurality, for extending the digital signal with $N-1$ zero values;

a second plurality of t digital-to-analog (D/A) converters, an input of each being connected to an output of a zero extender of the second plurality, for converting the digital quantity received from the extender into its corresponding analog value;

a plurality of t means for convolving two input analog signals, one from each of the first and second D/A converters, the output of each convolving means being an analog

convolved signal, approximately equal to the convolution $(a_{j,i})$ * $(b_{j,i})$ modulo m_i;

a plurality of t analog-to-digital (A/D) converters, each having its input connected to the output of one of the convolvers, for converting the analog signal back to digital form;

a plurality of t means for multiplying by an integer u_i, each means having an input connected to an output of an A/D converter, the integer u_i being defined by the relationship $u_i=1 \bmod m_i$ and $u_j=0 \bmod m_j$ for $j\neq i$, where the m_i represent integers and the u_i represent integers pairwise relatively prime;

means for summing, whose input comprise the t multiplying means; and

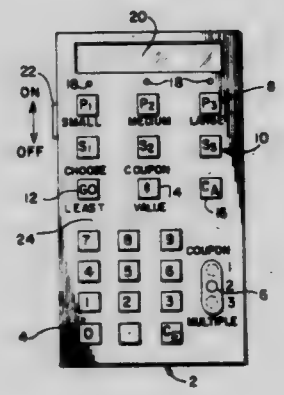
means, whose input is connected to the output of the summing means, for reducing the output of the summing means to a value between $0 \leqq m(=m_1\ m_2 \ldots m_t) - 1$ congruent to the output modulo m.

4,334,278

SHOPPERS COUPON CALCULATOR

Robert A. Marmon, 339 N. Latches La., Merion Station, Pa. 19066

Filed May 6, 1980, Ser. No. 147,002
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—709 **11 Claims**



1. An apparatus for determining the most economical purchase among products available in at least two sizes, and at different prices, in conjunction with a price reduction product coupon, comprising:

(a) a first register for storing numerical values corresponding to the product prices, the product sizes and the value of the coupon;

(b) a keyboard for entering data corresponding to the numerical values;

(c) means for deducting the stored coupon value from each of the stored prices, providing adjusted prices;

(d) an arithmetic unit for calculating price/size ratios corresponding to each of the adjusted prices and the stored sizes, the unit providing a numerical ratio for each of the product sizes which reflects the price, less the coupon value, the difference divided by the corresponding product size;

(e) a second register for storing the numerical ratios;

(f) a value comparator for determining the smallest of the numerical ratios;

(g) means for selecting the smallest numerical ratio as an output; and,

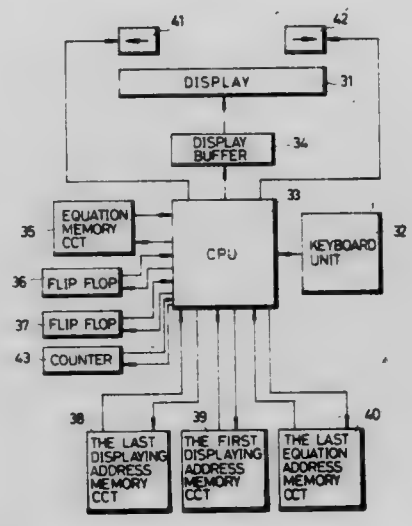
(h) an indicator corresponding to each product size, one of which indicators displays the selected output of the value comparator.

4,334,279

DISPLAY DEVICE FOR ELECTRONIC CALCULATORS OR THE LIKE

Kazumitsu Miyakoshi, and Koji Maekawa, both of Yamatokoriyama, Japan, assignors to Sharp Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1980, Ser. No. 138,910
Claims priority, application Japan, Apr. 11, 1979, 54-44611; Apr. 12, 1979, 54-45858; Apr. 16, 1979, 54-47119
Int. Cl.³ G06F *15/02, 3/14*
U.S. Cl. 364—710 **12 Claims**



1. A display device for an electronic calculator for calculating a result according to a predetermined algebraic equation stored therein, comprising:

means for storing at least two types of algebraic expressions which are entered externally;

means responsive to the storing means for detecting a space which separates the two algebraic expressions;

means responsive to the detecting means for terminating a first indication of data representing the first algebraic expression just before the position of the space; and

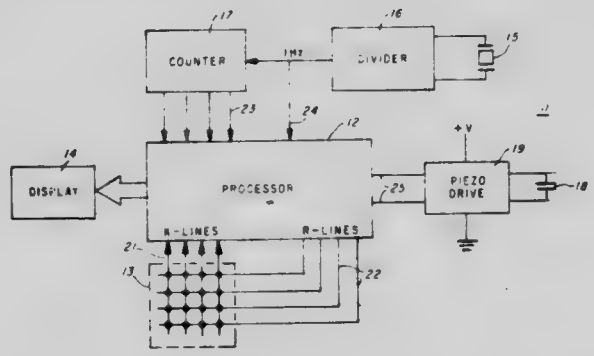
means responsive to the detecting means for initiating a second indication of data representing the second algebraic expression following the space.

4,334,280

SYSTEM AND METHOD FOR PROVIDING AN AUDIBLE SOUND AND A TACTILE FEEDBACK IN AN ELECTRONIC DATA PROCESSING SYSTEM

Wylie W. McDonald, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 9, 1980, Ser. No. 161,297
Int. Cl.³ G06F *3/16;* G04C *21/12*
U.S. Cl. 364—710 **35 Claims**



1. In an electronic data processing system having manually operable input means, means for providing an audible sound and a tactile feedback to a user when said input means is operated, comprising:

(a) control means responsive to a first electrical signal indic-

ative of the operation of said input means for generating a control signal; and

(b) transducer means responsive to said control signal for being excited into mechanical motion to generate an audible sound and provide tactile feedback for the user.

4,334,281

COMMAND GENERATION SYSTEM FOR GENERATING A SMOOTH COMMAND SIGNAL

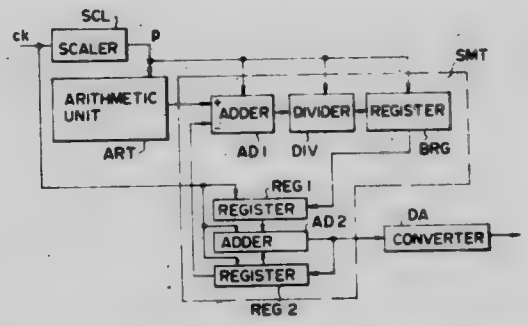
Ryoji Imazeki; Etsuo Yamazaki, and Takao Sasaki, all of Hachioji, Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Mar. 12, 1980, Ser. No. 129,562

Claims priority, application Japan, Mar. 15, 1979, 54-30372

Int. Cl.³ G05B *19/25*

U.S. Cl. 364—723 **5 Claims**



1. A command generation system, operatively connected to receive a clock signal including clock pulses, which periodically calculates values of a digital quantity at known time intervals and converts the calculated result to analog form to issue a command, said command generation system comprising:

scaler means, operatively connected to receive the clock signal and having a predetermined scaler integer value N, for generating a timing signal when the number of clock pulses received divided by the predetermined scaler value N results in an integer;

means, operatively connected to said scaler means, for obtaining a difference value between current and previous calculated values of the digital quantity and for outputting said difference value divided by N whenever the timing signal is received; and

an adder, operatively connected to receive the clock signal, for adding the output from said difference value obtaining means to the previous calculated result and for generating an added result at the receipt of each clock pulse; and

means, operatively connected to said adder for converting the added result to analog form, whereby said command generation system, at time intervals equal to 1/N of the known time interval, issues the command.

4,334,282

TESTING APPARATUS

David J. Whitehouse, Melton Mowbray, England, assignor to The Rank Organisation Limited, London, England

Filed Dec. 14, 1979, Ser. No. 103,591

Claims priority, application United Kingdom, Dec. 14, 1978, 48601/78

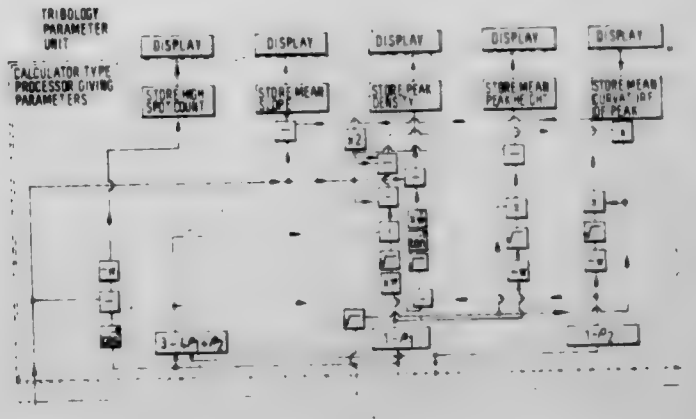
Int. Cl.³ G06F *15/336*; G06G *7/19*

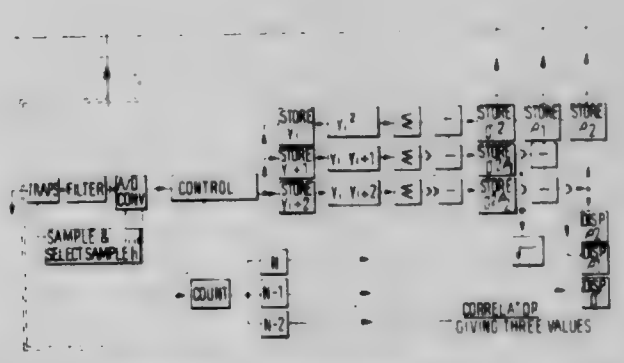
U.S. Cl. 364—728 **5 Claims**

5. Apparatus for processing an input signal representing a variable quantity to devise the value of a selected one of a plurality of parameters characterising that quantity, said apparatus comprising:

a correlator arranged to receive said input signal and to generate and store three data signals respectively representative of the value of the autocorrelation of the input signal at the origin of the autocorrelation, at a distance spaced from said origin by a predetermined sampling interval, and at a distance spaced from said origin by twice said sampling interval, the correlator being further arranged to generate a fourth data signal representative of said sampling interval,

signal combining means connected to receive said four data signals and arranged to selectively combine them to derive an output signal representative of the value of said selected one of said plurality of parameters, and combining means to effect the required selective combination of the data signals.





4,334,283

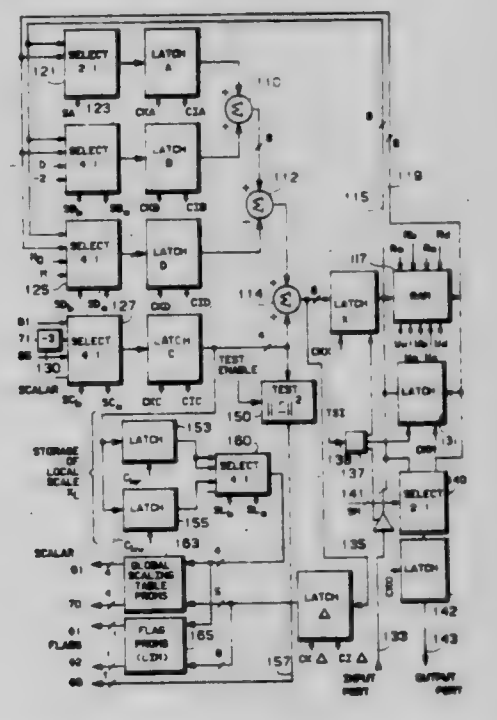
ADAPTIVE FIXED POINT ARITHMETIC CONTROLLER APPARATUS AND METHOD

Sam M. Daniel, Tempe, and Richard P. Kuivila, Phoenix, both of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jun. 13, 1980, Ser. No. 159,036

Int. Cl.³ G06F *7/38*

U.S. Cl. 364—744 **10 Claims**



1. An adaptive fixed point arithmetic controller for use with

a digital processor having bit-shifting circuitry therein comprising:

(a) storage and combining means having a plurality of inputs for receiving a plurality of digital signals thereon representative of bit-shifts accomplished in a plurality of mathematical operations in the processor, said storage and combining means providing an output signal representative of the total number of bit-shifts present subsequent to the completion of the plurality of mathematical operations, and

(b) control means connected to said storage and combining means for receiving signals representative of the bit-shifts associated with digital signals at predetermined ones of the mathematical operations and providing control signals to selected portions of the bit-shifting circuitry for controlling the portions to shift the digital signals so that the predetermined ones of the mathematical operations can be performed.

4,334,284

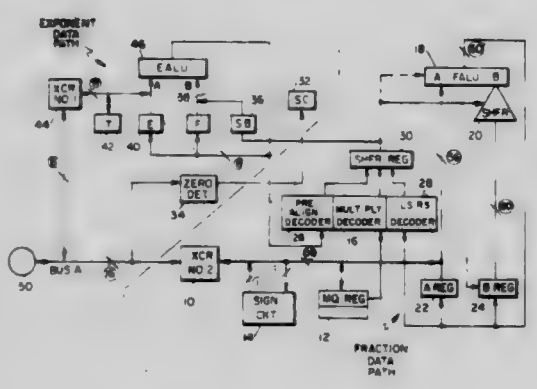
MULTIPLIER DECODING USING PARALLEL MQ REGISTER

Wilson T. C. Wong, Irvine, Calif., assignor to Sperry Corporation, New York, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,339

Int. Cl.³ G06F *7/52*

U.S. Cl. 364—748 **17 Claims**



1. A floating point processor (FPP) architecture which permits multiple bit shifting, comprising,

first register means for storing a multiplier signal,

decoder means connected to receive signals from said first register means,

arithmetic logic circuit means connected to receive signals from and supply signals to said decoder means,

second and third register means connected to supply signals to and receive signals from said arithmetic logic circuit means, and

source means for supplying signals to and receiving signals from said first and second register means.

4,334,285

DIVIDER FOR CALCULATING BY SUMMATION THE QUOTIENT AND REMAINDER OF AN INTEGER DIVIDED BY A MERSENNE NUMBER AND A PARALLEL PROCESSOR SYSTEM COMPRISING MEMORY MODULES, A MERSENNE PRIME IN NUMBER

Kenji Kawakita; Takenori Makino, and Norio Harada, all of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Jul. 8, 1980, Ser. No. 166,877

Claims priority, application Japan, Jul. 11, 1979, 54-87826

Int. Cl.³ G06F *7/52*

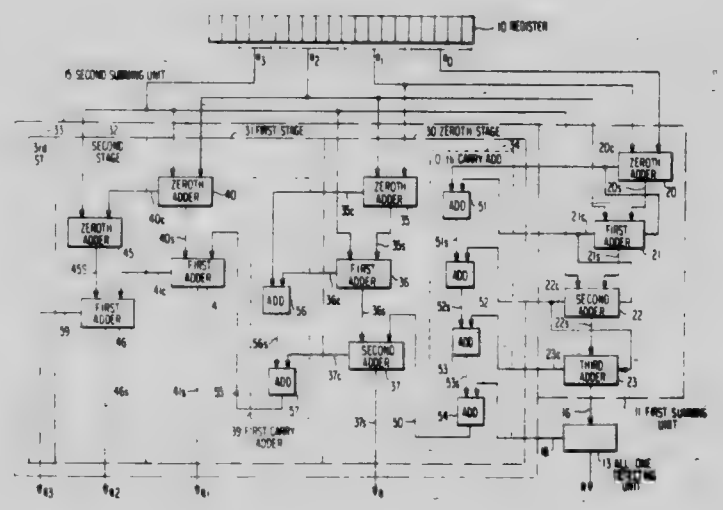
U.S. Cl. 364—761 **10 Claims**

1. A divider for dividing a natural number P by a Mersenne number to provide a quotient and a remainder, said natural number P being given by a k-digit number on the basis of a preselected radix 2^n, where n represents an integer that is greater than unity and is used to represent said Mersenne number as (2^n-1), as:

$$P=a_{k-1}(2^n)^{k-1}+a_{k-2}(2^n)^{k-2}+\ldots +a_2(2^n)^2+a_1(2^n)+a_0,$$

where a_{k-1}, a_{k-2}, . . . , a_2, a_1, and a_0 represent coefficients, each of said coefficients being not less than zero and being less than said preselected radix, at least one of said coefficients being not less than unity, said divider comprising:

first summing means for summing said coefficients a_{k-1}, a_{k-2}, . . . , a_2, a_1, and a_0 to provide an eventual sum which is not less than zero and is less than said preselected radix, said first summing means comprising a plurality of adders connected in cascade, each of said adders providing a sum given by a carry multiplied by said preselected radix and



a sum portion that is not less than zero and is less than said preselected radix, the last adder providing said eventual sum;

all-one detecting means connected to said first summing means for examining whether or not said eventual sum is equal to said divisor, to provide a zero as said remainder and an additional carry equal to unity when said eventual sum is equal to said divisor and to otherwise provide said eventual sum as said remainder with said additional carry rendered equal to zero; and

second summing means connected to said first summing means and said all-one detecting means for summing $a_{k-1}(2^n)^{k-2}+(a_{k-1}+a_{k-2})(2^n)^{k-3}+\ldots+(a_{k-1}+a_{k-2}+\ldots+a_2)(2^n)+(a_{k-1}+a_{k-2}+\ldots+a_2+a_1)$, all the carry given by said first summing means, and said additional carry to provide said quotient.

4,334,286

DATA ENTRY APPARATUS FOR ENTERING TABULAR DATA ROW BY ROW AND COLUMN BY COLUMN

Shaun C. Kerigan; Brian D. Key, both of Winchester, and James Smith, Southampton, all of England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 2, 1979, Ser. No. 26,618

Claims priority, application United Kingdom, Aug. 14, 1978, 33220/78

Int. Cl.³ G06F *3/023, 3/12*

U.S. Cl. 364—900 **1 Claim**

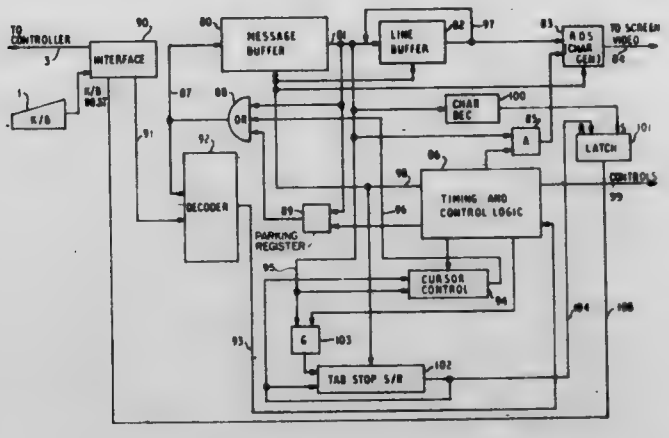
1. In a data entry apparatus including (a) a keyboard having alphanumeric character keys, a tab key and a code key, (b) a display including a cursor movable upon depression of said character and tab keys, and (c) a tab rack for storing set tab stops about which tables are to be entered, a keystroke saving method of entering lines of tables both row by row and column by column, said method comprising:

(a) entering a line of a table along one print line by depressing said character keys; and

(b) depressing said tab key following entering said line to cause movement of said cursor to the right along said one

print line to the next set tab stop if lines of different tables are to be entered row by row;

(c) depressing both said tab key and said code key to cause



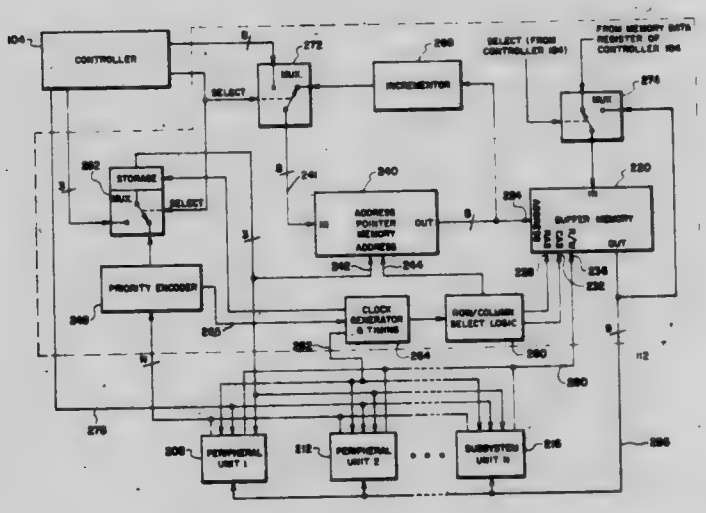
movement of said cursor down and to the left directly to the nearest set tab stop on a next print line following said one print line if the next line of said table is to be entered following entering of said line.

4,334,287

BUFFER MEMORY ARRANGEMENT

Gregory B. Wiedenman, Sandy, and Phillip W. Marsh, Granger, both of Utah, assignors to Sperry Rand Corporation, New York, N.Y.

Filed Apr. 12, 1979, Ser. No. 29,305
Int. Cl.³ G06F *3/00*
U.S. Cl. 364—900 9 Claims



1. A buffer memory arrangement for use in a system having a controller that controls a plurality of peripheral units, said controller being adapted to produce a plurality of control and address signals, including an initial address word for each peripheral unit, and each of said peripheral units being adapted to produce a request signal when it desires to supply or receive data and also to produce a corresponding write or read signal, said buffer memory arrangement including:

buffer memory means for receiving data from or supplying data to said peripheral units in response to write or read signals respectively, said data being stored in or read from locations specified by address data words;

address memory means including a plurality of memory locations, each of said memory locations being dedicated to a different peripheral unit and being adapted to store an address data word identifying a specific location in the buffer memory means, and to supply the address data word to said buffer memory means in response to a received identity signal;

priority encoder means coupled to said peripheral units and responsive to request signals received from said peripheral units for producing an identity signal which identifies a highest priority requesting peripheral unit;

means for supplying the identity signal produced by said priority encoder means to said address memory means;

means for supplying an address data word to a memory location of said address memory means identified by said identity signal;

address data word incrementing means for incrementing the address data word supplied by the address memory means to said buffer memory means, and for supplying said incremented address data word back to the means for supplying an address data word to a memory location of said address memory means;

means for supplying write or read signals from the identified peripheral unit to said buffer memory means;

first multiplexer means responsive to select control signals from the controller for supplying an address data word either from the controller or said incrementing means to a specific memory location of said address memory means as specified by said received identity signal supplied to the address memory means; and

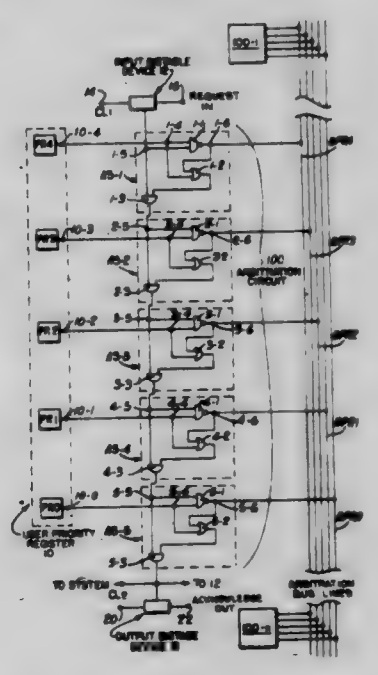
means for carrying data between the identified peripheral unit and said buffer memory means.

4,334,288

PRIORITY DETERMINING NETWORK HAVING USER ARBITRATION CIRCUITS COUPLED TO A MULTI-LINE BUS

Robert K. Booher, 24001 Muirlands, #395, El Toro, Calif. 92630

Filed Jun. 18, 1979, Ser. No. 49,729
Int. Cl.³ G06F *9/46*
U.S. Cl. 364—900 12 Claims



1. In a system to be shared by a plurality of users, each of which users being provided with respective priority numbers, the relative magnitudes of which numbers determining a priority order for enabling the user with the highest priority number to gain access to the system, a priority arbitration network wherein each competing user for the system has a priority arbitration circuit respectively connected between a user register means that stores signals which correspond to bits of a coded representation of the user's priority number and multi-line bus line means, said bus line means being coupled to the arbitration circuit of every user, each user priority arbitration circuit comprising:

a plurality of serially interconnected arbitration stages, at least some of said stages including at least first, second, and third signal gating means,

said first signal gating means connected between said user register means and one line of said multi-line bus means, said first gating means receiving at input terminal means thereof a signal from said register means that is representative of one bit of a user's coded priority number, said one bus line being common to the first gating means of the

corresponding arbitration stage of every user's arbitration circuit, said first gating means also receiving at the input terminal means thereof a command signal whereby to cause said one common bus line to be driven from output terminal means of said first signal gating means to a signal level that is representative of the corresponding one bit of the highest assigned priority number of any user,

said second signal gating means having input terminal means connected to said register means and to said one bus line to receive signals therefrom, said second signal gating means comparing the magnitude of the signal level to which said one bus line is driven with the magnitude of the signal that is representative of the one bit of the user's assigned priority number, to thereby provide a particular output signal depending upon the relative magnitudes therebetween, and

said third signal gating means having input terminal means connected to output terminal means of said second gating means and to output terminal means of the third gating means of a preceding arbitration stage to receive signals therefrom, said third gating means providing from output terminal means thereof a command signal to be supplied to input terminal means of each of the first and third gating means of a succeeding arbitration stage for controlling the operations thereof, the command signal provided by said third gating means having either a first signal level when the magnitude of the bit of the user's priority number is not lower than that of any corresponding bit of any other competing user or a second signal level when the magnitude of the bit of the user's priority number is lower than that of any corresponding bit of any other competing user,

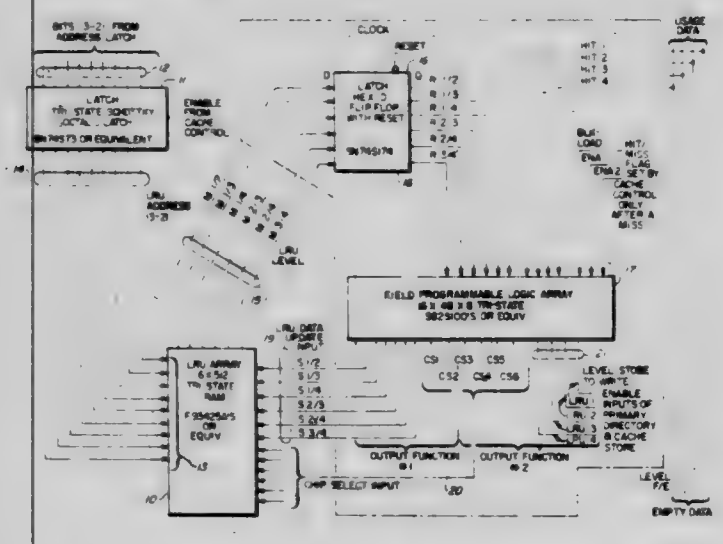
the third gating means of the arbitration stage, the first and second gating means of which are connected to receive a signal corresponding to the least significant bit of the highest priority number assigned among those users competing for access to the system, providing a command signal, the level of which is conditioned to selectively enable the user having the highest priority number to gain access to the system.

4,334,289

APPARATUS FOR RECORDING THE ORDER OF USAGE OF LOCATIONS IN MEMORY

Ronald E. Lange, and Richard J. Fisher, both of Phoenix, Ariz., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Feb. 25, 1980, Ser. No. 124,008
Int. Cl.³ G06F *7/00*
U.S. Cl. 364—900 **3 Claims**



1. An apparatus for recoding the relative order in time of usage of locations in a memory comprising:

(a) a first means for storing a plurality of LRU bits where there are a sufficient number of said LRU bits to encode therein the order of usage of the locations in said memory having data outputs and inputs;

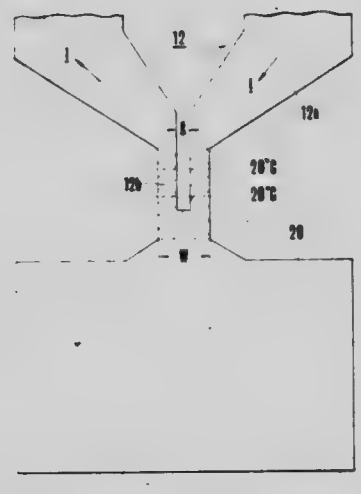
(b) a priority array of AND gates having inputs coupled by fusible links to said data outputs of said first means and to said memory for receiving data on the status of said LRU bits and the usage of various said memory locations, and having outputs coupled to an array of OR GATES by fusible links, said OR GATES having outputs coupled to said data inputs of said first means and some of said inputs for presenting output signals indicating the relative order of usage of said memory locations, where selected ones of said fusible links are destroyed to form a logic network, said priority array for decoding said LRU bits to determine the order of usage and for encoding said LRU bits to determine the order of usage and for encoding new information on the order of usage of said memory locations by changing the status of said LRU bits.

4,334,290

MAGNETIC BUBBLE MEMORY ELEMENT WITH HEAT SINK

Minoru Hiroshima; Toshio Futami, and Hirofumi Ohta, all of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 29, 1979, Ser. No. 42,995
Claims priority, application Japan, Jun. 16, 1978, 53-72157
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—1 **4 Claims**



1. In a magnetic bubble memory element wherein on a single crystalline substrate are laminated a magnetic thin film for forming and maintaining magnetic bubbles, an insulating spacer layer, a conductor pattern layer including hair pin shaped conductor loops for generating or dividing magnetic bubbles, an insulating layer, and a pattern layer including a magnetic bubble propagation circuit, in the above-mentioned order, the improvement wherein a heat sink pattern layer is integrally formed and coplanar with said conductor pattern layer, to form heat sinks extending from said hair pin loops each heat sink having a large coplanar area of said conductor material in thermal conductive contact with the tip of a loop by means of an integral conductive bridge which provides a wide heat conducting path from said tip to said large coplanar area without significant alteration of the path of flow of operating current around said loop.

4,334,291

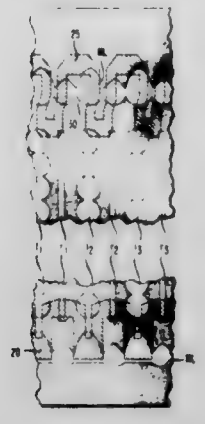
ION-IMPLANTED MAGNETIC BUBBLE MEMORY WITH DOMAIN CONFINEMENT RAILS

Joseph E. Geusic; Dirk J. Muehlner, both of Berkeley Heights, and Terence J. Nelson, New Providence, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 4, 1980, Ser. No. 184,115
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—36 **9 Claims**

1. A magnetic bubble memory comprising a layer of material

in which magnetic bubbles can be moved, a pattern of unimplanted regions in an otherwise ion-implanted area in said layer defining at least first and second propagation paths thereabout along which bubbles can be moved in response to a field reori-



enting cyclically in the plane of said layer, said memory being characterized by means comprising a protective rail between said propagation paths for preventing loss of information due to stripout therebetween.

4,334,292

LOW VOLTAGE ELECTRICALLY ERASABLE PROGRAMMABLE READ ONLY MEMORY

Harish N. Kotecha, Essex Junction, Vt., assignor to International Business Machines Corp., Armonk, N.Y.

Filed May 27, 1980, Ser. No. 153,359

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—182 **27 Claims**

1. A system comprising;

a field effect transistor having a floating gate and first and second control gates,

a charge injector having a graded band gap or stepped composition region disposed between said first control gate and said floating gate having a given capacitance value,

a capacitor disposed between said second control gate and said floating gate having a capacitance value substantially greater than said given capacitance value, and

means for applying control pulses to said control gates for controlling charge on said floating gate.

4,334,293

SEMICONDUCTOR MEMORY CELL WITH CLOCKED VOLTAGE SUPPLY FROM DATA LINES

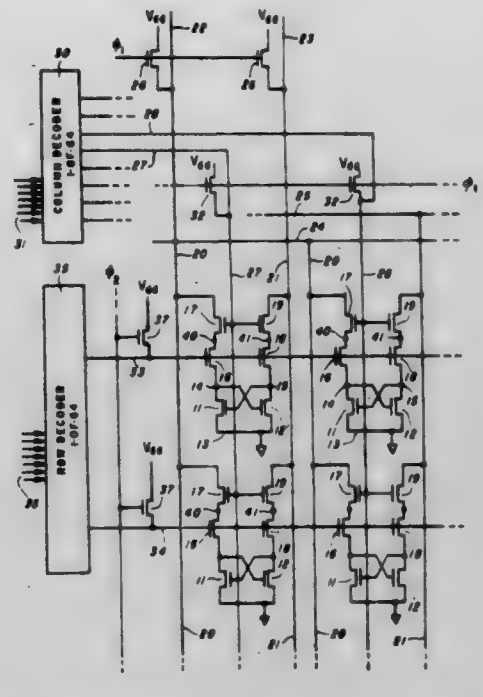
James E. Ponder, Cat Spring, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 925,893, Jul. 19, 1978, Pat. No. 4,209,851. This application May 12, 1980, Ser. No. 148,614

Int. Cl.³ G11C *7/00, 11/40*

U.S. Cl. 365—190 **8 Claims**

1. An array of rows and columns of identical static self-refresh memory cells, each cell comprising a pair of cross-coupled driver transistors and first and second pairs of coupling transistors, each of the transistors being an insulated-gate field-effect transistor of the same channel conductivity type having a source-to-drain path and a gate, each cell having a pair of storage nodes with no d.c. path from the storage nodes to a voltage supply, a plurality of pairs of complementary data lines providing the column lines for the array of cells, each of the first pair of coupling transistors having their source-to-drain paths connected between one of the data lines of a pair and one of the storage nodes of a cell, means including the second pair of coupling transistors for refreshing the pair of storage nodes during a first time period, a plurality of first conductive means providing array address lines for applying operating voltage to the gate electrodes of the second pair of transistors in each of the cells during said first time period, and second conductive means providing a row address line for applying operating voltage to the gate electrodes of the first pair of transistors in each of the cells during a second time period for a selected row in each operating cycle, the first conductive means not apply-



ing operating voltage to the control electrodes of said first pair of transistors during said second time period during a refresh cycle.

4,334,294

RESTORE CIRCUIT FOR A SEMICONDUCTOR STORAGE

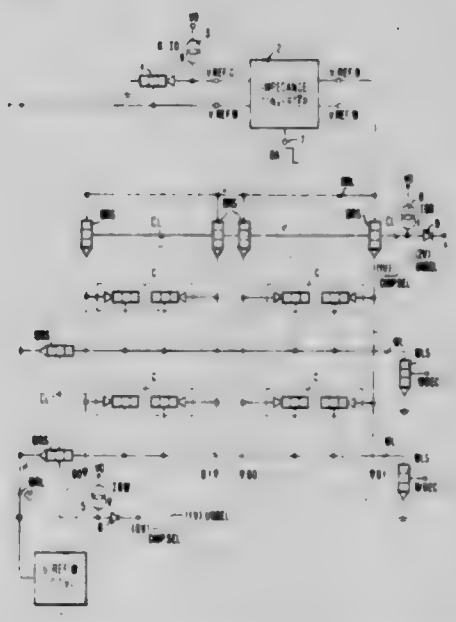
Klaus Heuber, Beoblingen, and Siegfried K. Wiedmann, Stuttgart, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 11, 1980, Ser. No. 167,560

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929384

Int. Cl.³ G11C *7/00*

U.S. Cl. 365—203 **2 Claims**



1. A circuit for restoring an integrated semiconductor storage array having storage cells consisting of bipolar transistors (and PNP load devices) at cross-points of word lines and bit line pairs comprising:

a reference voltage generator circuit including a current source connected to at least one reference storage cell and providing a first reference voltage;

impedance converting means connected to said reference voltage generating circuit and receiving as an output said first reference voltage and providing a second reference voltage at a low impedance output;

first switch means connecting said second reference voltage, by means of said bit line pairs to the PNP load devices of the array storage cells;

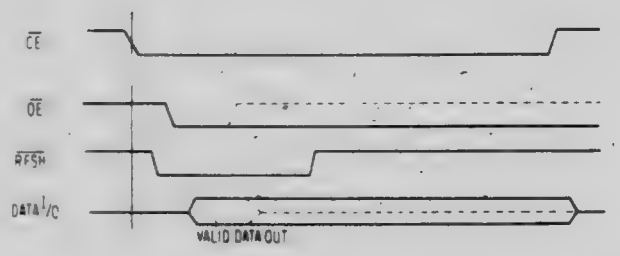
second switch means for connecting a third reference voltage, by means of said word lines, to the array storage cell load devices, said third reference potential also being connected to the at least one reference storage cell in the reference voltage generating circuit.

4,334,295

MEMORY DEVICE

Akira Nagami, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed May 1, 1980, Ser. No. 145,537
Claims priority, application Japan, May 8, 1979, 54-56160
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—222 19 Claims



1. A memory device comprising a first terminal for receiving a row strobe signal, a second terminal for receiving a column strobe signal, a set of address terminals, a third terminal for receiving a refresh control signal, first means responsive to said row strobe signal for storing address signals applied to said address terminals as row address information, second means responsive to said column strobe signal for storing address signals applied to said address terminals as column address information, a memory cell matrix including memory cells arranged in rows and columns, refresh means responsive to said row strobe signal for refreshing the memory cells on the row designated by said row address information , said refresh means taking a reset precharge state in response to absence of said row strobe signal, refresh address means for designating an address of said row to be refreshed, third means for producing a confirmation signal when said reset precharge state ends, fourth means for storing said refresh control signal when said row strobe signal is present, and a control means responsive to said confirmation signal and the lacthed refresh control signal for introducing a refresh operation based on said refresh address means.

4,334,296

SEISMIC METHOD AND APPARATUS

Ernest M. Hall, Jr., Houston, Tex., assignor to Western Geophysical Co. of America, Houston, Tex.

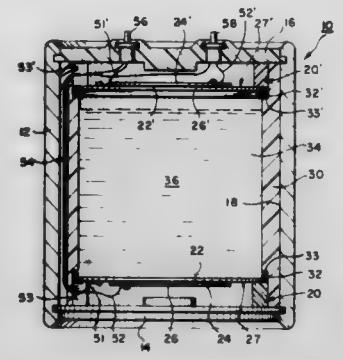
Continuation of Ser. No. 887,165, Mar. 16, 1978, abandoned, which is a continuation-in-part of Ser. No. 783,531, Apr. 1, 1977, abandoned. This application Oct. 1, 1979, Ser. No. 81,729
Int. Cl.³ G01V *1/18*
U.S. Cl. 367—180 29 Claims

1. A seismic detector comprising:

a housing including an internal chamber;

a fluid mass in the chamber; and

means for generating a pair of transducer signals in response to excitation of the fluid mass by seismic signals so that the vertical components of the seismic signals may be identified and processed separate from the horizontal components regardless of the orientation of the housing to the gravitational vertical.

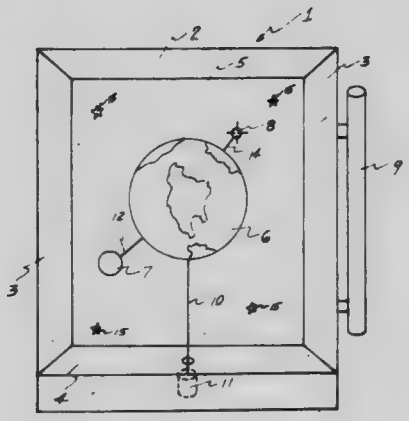


4,334,297

GLOBE CLOCK DEVICE AND METHODS OF MAKING AND USING THE SAME

Gerald D. Oros, 451 Olian, Hazelwood, Mo. 63042

Continuation-in-part of Ser. No. 28,260, Apr. 9, 1979. This application Jun. 23, 1980, Ser. No. 161,751
Int. Cl.³ G04B *19/26*
U.S. Cl. 368—18 3 Claims



1. A globe clock comprising,

housing means, said housing means provided with an enclosure comprising a vertical back wall and side walls and a top and bottom wall,

an earth sphere rotatably mounted in said enclosure, said earth sphere rotating on and about an axis which is essentially vertical and which is parallel to said back wall, the width of said walls proximate the diameter of said earth sphere,

a moon sphere rotatably mounted on a suspension arm within said enclosure means and disposed to orbit about said earth sphere, the axis of rotation of the moon sphere essentially perpendicular to said back wall and the axis of said earth sphere,

a satellite sphere rotatably mounted on a suspension arm within said enclosure means and disposed to orbit about said earth sphere, the axis of rotation of the satellite sphere essentially perpendicular to said back wall and the axis of said earth sphere,

first motor means operably mounted in said housing, connected to the axis of said earth sphere and disposed external to said enclosure,

second motor means operably mounted in said housing to the rear of the earth sphere and concealed from view by the earth sphere and connected to the axis of said moon sphere and the axis of said satellite sphere causing the moon sphere to rotate one revolution per 12 hours and causing the satellite to rotate one revolution per hour, said

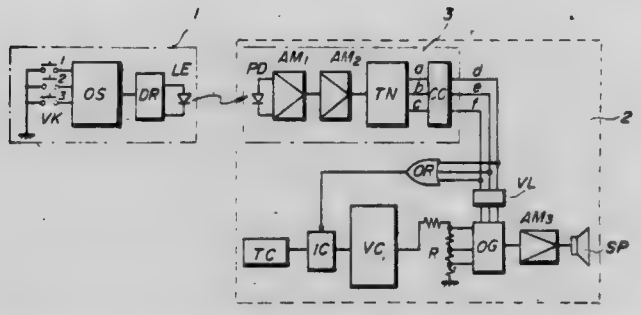
moon sphere and said satellite sphere disposed and functioning as the hour and minute indicia respectively.

4,334,298

WIRELESS SPEECH-SYNTHESIZER TIMEPIECE

Atsushi Asada, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 6, 1980, Ser. No. 127,849
Claims priority, application Japan, Mar. 9, 1979, 54-30728[U]
Int. Cl.³ G04B *21/08*; H04M *1/00*
U.S. Cl. 368—63 **1 Claim**



1. A wireless speech synthesizer timepiece for developing audible sounds indicative of updated time information, comprising:

transmitting means for transmitting a signal having a particular frequency, said transmitting means including,

a plurality of volume selection key means for selecting a volume of said audible sounds and for energizing said wireless speech synthesizer timepiece to develop said audible sounds indicative of said updated time information in response to actuation thereof;

means connected to said volume selection key means for developing output signals having a plurality of different frequencies, each of the different frequencies of the output signals corresponding to one of the plurality of volume selection key means, and

means responsive to one of the output signals from the developing means for transmitting a signal having a frequency corresponding to the frequency of the output signal from the means for developing;

receiver means unattached to and remote from said transmitting means for receiving said signal from the means for transmitting and for developing said audible sounds in response thereto, the audible sounds having a volume corresponding to the frequency of the received signal, said receiver means including,

sensing means for sensing the presence of the signal transmitted by the means for transmitting and developing an output signal indicative thereof,

amplifying means connected to the sensing means for amplifying said output signal from the sensing means,

tuned circuit means connected to the amplifying means for developing a plurality of frequency signals tuned to the output signal from the sensing means, each of the frequency signals corresponding to one of the plurality of volume selection key means,

timekeeping means for developing an output signal indicative of said updated time information,

means responsive to one of said plurality of frequency signals from said tuned circuit means and connected to said timekeeping means for enabling the transfer of said updated time information from said timekeeping means to an output terminal,

audible output control circuit means connected to said output terminal of the means for enabling for developing a sequence of audible signals indicative of said updated time information transferred from said timekeeping means,

a plurality of series connected resistors connected to an output terminal of said audible output control circuit means, said resistors having taps interposed therebetween,

circuit means connected to each of said taps and responsive to the plurality of frequency signals from the tuned circuit means for selecting one of said taps corresponding to the received frequency signal from the tuned circuit means, the selected tap defining a resistance including one or more of said plurality of series connected resistors, the sequence of audible signals from the audible output control circuit means passing through said resistance thereby defining a voltage of a certain magnitude, the magnitude of the voltage defining the volume of the audible sounds developed by the speech synthesizer timepiece,

amplifying means connected to said circuit means for amplifying said voltage, and

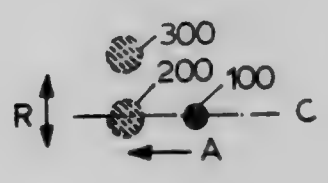
speaker means responsive to the amplified voltage for developing said audible sounds having a selected volume indicative of said updated time information.

4,334,299

OPTICAL SIGNAL RECORDING AND REPRODUCING SYSTEM

Satoshi Komurasaki; Isao Watanabe, and Osamu Ito, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 22, 1979, Ser. No. 87,302
Claims priority, application Japan, Oct. 24, 1978, 53-131367
Int. Cl.³ G11B *7/00, 7/12*
U.S. Cl. 369—44 **9 Claims**



1. An optical signal recording and reproducing device for recording information on and reproducing information from a recording surface of a recording medium moving at a constant speed and direction with respect to said device, said device comprising:

a recording light source means for producing a recording laser light;

signal generator means for generating signal representing information to be stored;

modifier means connected to said first light source means for receiving the recording laser light and to said signal generator means for modifying said recording laser light in response to said signal;

first optical path means for directing and focusing the modified recording laser light on said moving recording surface at a recording spot which is fixed with respect to said device for forming a recording pattern along a recording track on said recording surface;

a reproducing light source means, including means for producing a first reproducing laser light directed in a fixed direction with respect to said device;

second reproducing laser light producing means for producing a second reproducing laser light and for varying the direction of said second reproducing laser light with respect to said device;

second optical path means for receiving said first and second reproducing laser light and directing and focusing said first reproducing laser light along said track on said recording surface at a first reproducing spot fixed with respect to said recording spot, and for directing and focusing said second reproducing laser light on said recording surface at a second reproducing spot which is movable with respect to said recording spot by a variation of the direction of said second reproducing laser light, and for collecting said first and

second reproducing laser light reflected from said recording surface and directing it;

optical sensor means for receiving said reflected first and second reproducing laser light collected and directed by said optical path means;

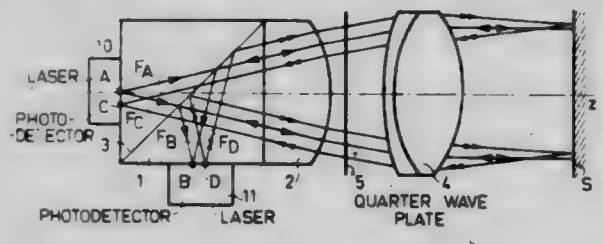
reproducing means connected to the optical sensor means receiving said reflected first reproducing laser light for reproducing the signal recorded on said recording medium and combination control and reproducing means connected to said optical sensor means for receiving the reflected second reproducing laser light for reproducing the signal recorded on said recording medium and producing a correction signal for actuating said second laser light generating means for varying the direction of said second reproducing laser light for moving said second reproducing spot toward the position of said recording track.

4,334,300

STIGMATIC OPTICAL DEVICE AND AN OPTICAL RECORDING HEAD EQUIPPED WITH SAID DEVICE

Louis Arquie; Claude Bricot; Jean-Claude Lehureau; Michel Thirouard; Jean-Pierre Le Merer, and Dominique Leterme, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 18, 1980, Ser. No. 208,005
Claims priority, application France, Nov. 21, 1979, 79 28694
Int. Cl.³ G11B *7/12*
U.S. Cl. 369—46 **11 Claims**



1. A stigmatic optical device for emission and reception of coherent radiations, comprising at least one semiconductor laser source and optoelectronic detection means, and a refracting optical block delimited by a first plane face and a convex face of spherical shape, one of the Weierstrass points of the spherical refracting surface formed by said convex face being located on said plane face, said plane face being perpendicular to the straight line which joins said Weierstrass point to the center of said convex face of spherical shape, the laser source being placed in the vicinity of said point.

4,334,301

OPTICAL READING APPARATUS WITH SCANNER LIGHT INTENSITY CONTROL

Hitoshi Kanamaru, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Division of Ser. No. 887,401, Mar. 16, 1978, abandoned, which is a division of Ser. No. 743,025, Nov. 18, 1976, Pat. No. 4,093,961.
This application Aug. 25, 1980, Ser. No. 180,741
Claims priority, application Japan, Nov. 21, 1975, 50-139314
Int. Cl.³ G11B *7/12*
U.S. Cl. 369—116 **2 Claims**

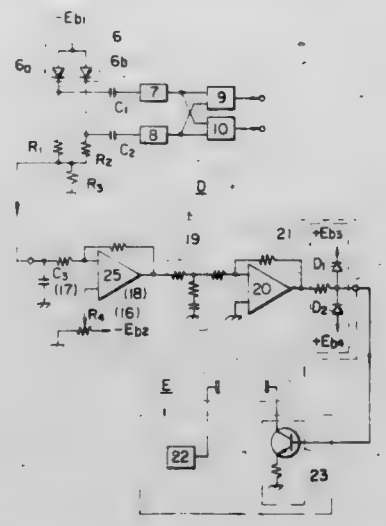
1. In an optical signal readout apparatus including a source of laser light, a rotary disc record, a photo detector, and an optical scanner for focusing light from the source onto the record and directing light reflected back from the record onto the photo detector, the improvements characterized by:

(a) means for extracting the low frequency and d.c. components from the photo detector output signal, said extracted components being proportional to the average light intensity incident on the photo detector,

(b) means for comparing the extracted components with a reference voltage to derive an error signal,

(c) means for regulating the intensity of the source of laser light in response to the error signal, to thereby maintain the light intensity on the photo detector substantially constant,

(d) means for compensating, amplifying and limiting the error signal to a predetermined range, to thereby prevent the burnout of the photo detector, and



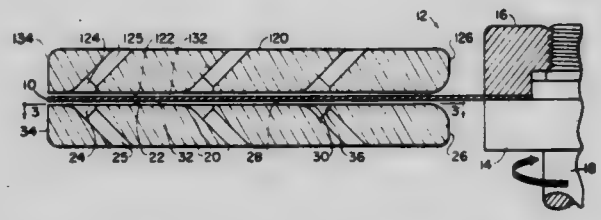
(e) means for regulating comprises a transistor circuit for controlling the discharge current from the source of laser light.

4,334,302

FLEXIBLE RECORDING DISC STABILIZING AND GUIDANCE SYSTEM

James M. Peppers, 800 W. Main #102, Arlington, Tex. 76013

Filed Jun. 2, 1980, Ser. No. 155,536
Int. Cl.³ G11B *5/52, 5/82, 25/04*
U.S. Cl. 369—261 **29 Claims**



1. In apparatus for operating a thin flexible signal disc at high rotational speeds, a system for aligning and stabilizing the rotating disc into a substantially undeviating path, comprising:

(a) a substantially annular stationary guide plate means defining a planar surface mounted parallel to one face of said rotating disc to provide a support and alignment reference for said disc;

(b) said planar surface comprising a plurality of concentrically disposed planar radial air stabilizing means and a plurality of circular air distribution passage means disposed intermediate said stabilizing means and vented to atmosphere along the length of each said passage means:

(c) each said air stabilizing means being of shape to serve as an air discharge nozzle means to direct passage of air radially out across said stabilizing means from said passage means as a substantially uniform air layer between said rotating disc and each said stabilizing means with the volume of said air increasing with additional air entering from each succeeding said passage means; and

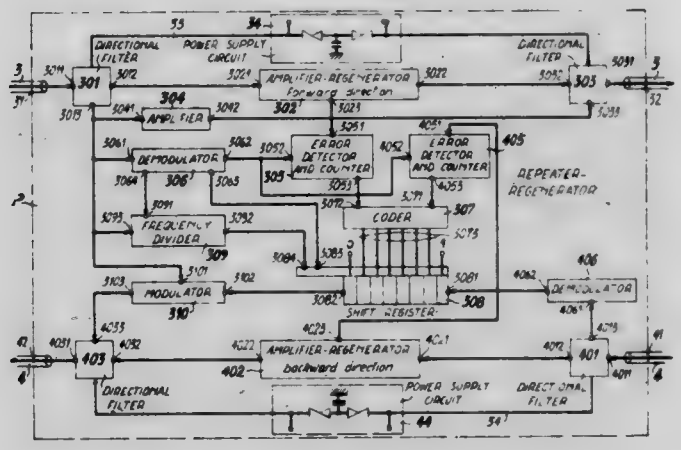
(d) air pressure urging means on the opposing side of said disc to uniformly urge said rotating disc into continued contact with said supporting air layer.

4,334,303

MONITORING SYSTEM FOR TELECOMMUNICATION LINKS EQUIPPED WITH REPEATERS-REGENERATORS

Marcel R. Bertin, Sceaux; Patrick E. Boutmy, Paris; Gilbert J. Le Fort, and Jean G. Walraet, both of Lannion, all of France, assignors to Societe Anonyme de Telecommunications, Paris, France

Filed Apr. 18, 1980, Ser. No. 141,679
Claims priority, application France, Apr. 19, 1979, 79 09840
Int. Cl.³ H04J 1/16
U.S. Cl. 370—13 7 Claims



1. Monitoring system for monitoring a performance factor of two-way repeaters-regenerators of a telecommunication link between a monitoring station and a monitored station, an exemplary performance factor being errors in the repeaters-regenerators,

said telecommunication link including a forward link for transmission of data signals in a first direction between the stations and a backward link for transmission of data signals in a second direction between the stations,

said monitoring station comprising:

sending means for sending information data and a low frequency signal modulated by control pulses through said forward link, and

receiving means for receiving information data from said monitored station and supervisory words indicative of the performance of said repeaters-regenerators, said supervisory words modulating the low frequency signal looped back in said repeaters-regenerators through said backward link;

each of said repeaters-regenerators comprising:

frequency separating means connected to said forward link for separating said control pulses modulating said low frequency signal from said forward information data,

means for detecting said performance of said repeater-regenerator with regard to errors made in an in-line code of said forward and backward information data during each modulating control pulse,

means for detecting the leading edge of said modulating control pulses,

means controlled by said control pulse detecting means for deriving a bit pattern from said detected performances after each detected control pulse,

a shift register

storing said derived bit pattern and a start bit and a stop bit as a supervisory word coupled to said shift register,

frequency dividing means responsive to said modulating control pulses and synchronized by said control pulse detecting means for generating advance pulses of said shift register having a frequency that is a submultiple of said low frequency signal;

means receiving said moulated control pulses for modulating said low frequency signal by the bits of said supervisory word derived from said shift register at said submultiple frequency, and

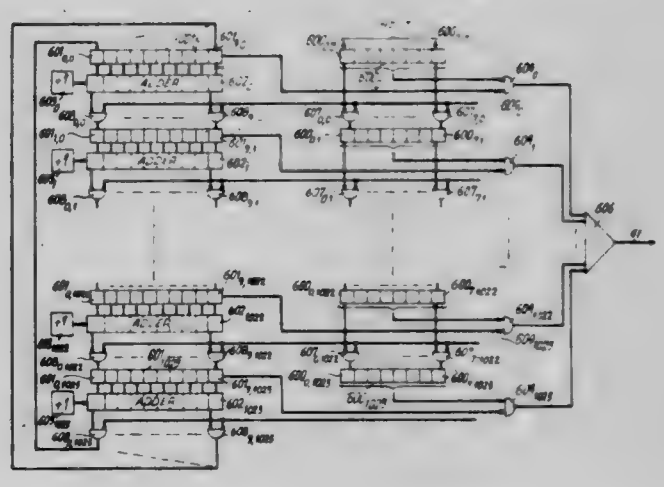
means connected to said backward link for combining said supervisory word modulating said low frequency signal with said backward information data.

4,334,304

TIME DIVISION MULTIPLEX SWITCHING NETWORK WITH AN ASSOCIATIVE BUFFER STORE OF THE REGISTER COUNTER TYPE

Michel J. Servel, Le Rhu en Servel, Lannion, France (22300)

Filed May 8, 1980, Ser. No. 148,007
Claims priority, application France, May 11, 1979, 79 12080
Int. Cl.³ H04J 3/00
U.S. Cl. 370—66 3 Claims



1. A time division multiplex switching network comprising:

in an input stage, a plurality of incoming multiplex highways and a supermultiplexer converting the said incoming multiplex highways into one incoming supermultiplex highway;

in an output stage, an out-going supermultiplex highway and a superdemultiplexer converting the said out-going supermultiplex highway into a plurality of out-going multiplex highways;

a circulating buffer store addressable by its content and comprising an input data word register and further data word registers forming a data word partial circulating store and an input random address register and further random address registers forming a random address partial circulating store, said data word partial circulating store and said random address partial circulating store operating synchronously and having associated data word registers and random address registers;

means for successively writing in the input data word register the words present in the incoming time-slots of the incoming supermultiplex highway;

means for successively writing in the input random address register addresses depending on the outgoing time slots to be connected to the incoming time slots;

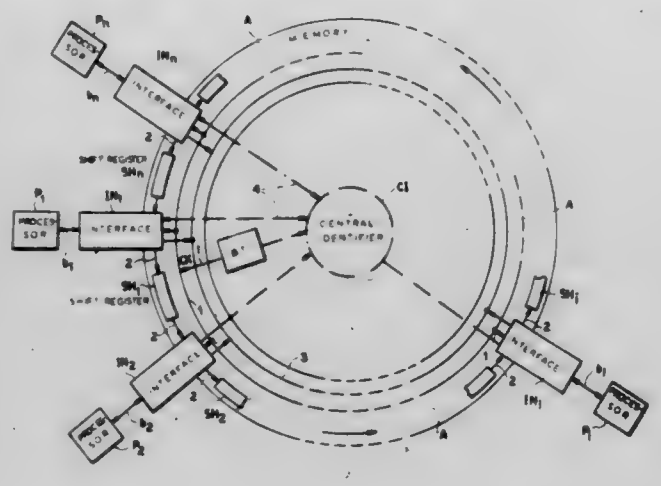
means for steppedly incrementing by 1 the addresses written in the input random address register each time said addresses pass from a random address register to the next of the random address partial circulating store, and

means for reading out the word stored in a data word register associated with a random address register when the incremented address stored therein has reached a predetermined value

4,334,305
DATA-HANDLING SYSTEM WITH OPERATIVELY INTERCONNECTED PROCESSORS

Gerardo Girardi, Turin, Italy, assignor to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Feb. 14, 1980, Ser. No. 121,445
Claims priority, application Italy, Feb. 15, 1979, 67323 A/79
Int. Cl.[3] H04J *3/08*
U.S. Cl. 370—86 6 Claims



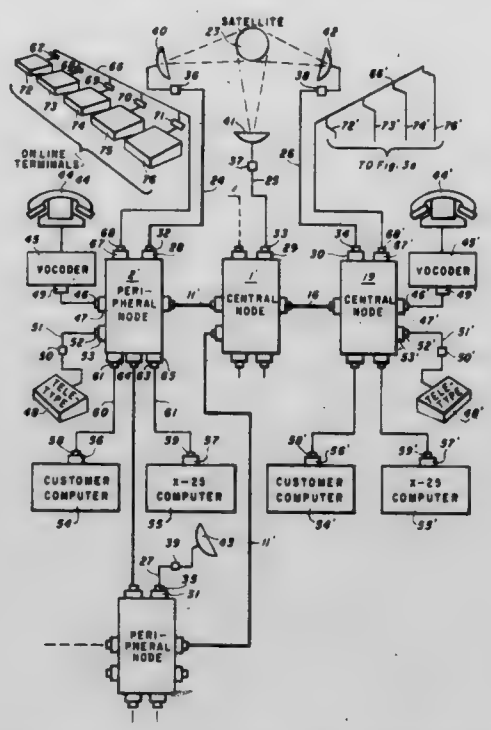
1. In a data-handling system, in combination:
a multiplicity of data processors operating independently of one another;
a ring memory including a multiplicity of cyclically interconnected shift registers;
a multiplicity of interfaces each connected to a respective processor and interposed between adjoining shift registers of said ring memory for enabling the exchange of data between the ring memory and the respective processor, each of said interfaces including a pair of data stores, circuit means for temporarily inserting one of said data stores in a series connection between said adjoining shift registers while simultaneously establishing a two-way connection between the other of said data stores and the respective processor, and switchover means for interchanging said connections in response to an instruction from the respective processor; and
a source of clock pulses common to all said interfaces for timing the circulation of data through said ring memory by way of a signal path including the series-connected data store of each of said interfaces.

4,334,306
TRANSPARENT INTELLIGENT NETWORK FOR DATA AND VOICE

Mehmet E. Ulug, Ottawa, Canada, assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 912,118, Jun. 2, 1978, abandoned. This application May 15, 1980, Ser. No. 150,033
Int. Cl.[3] H04J *6/00*
U.S. Cl. 370—94 10 Claims

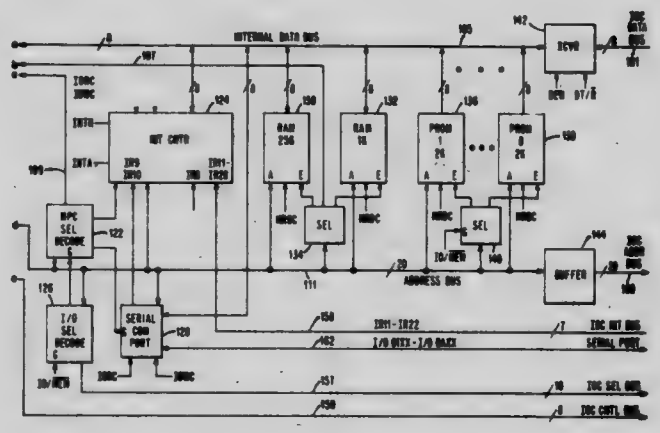
1. An integrated terrestrial/satellite communications network having a plurality of peripheral star-connected and central communications nodes, a first plurality of terrestrial communications links connecting said central nodes directly, a second plurality of terrestrial communications links individually connecting said peripheral nodes to said central nodes, a satellite, means establishing communications links via said satellite directly between each of said central nodes, means for inputting data-representing network at one node and outputting said signals from said network through another node, means at said one node for selecting certain signals to be transmitted within the network by terrestrial communications links and other signals to be transmitted within the network by satellite links, means at said another node for checking said other signals for errors and in response to an error in one or more of said signals transmitted via said satellite to transmit back to said one node via terrestrial communications links exclusively an error indicating signal, and means at said one node effective upon receipt of said error indicating signals for retransmitting by terrestrial links exclusively said one or more of said signals.



4,334,307
DATA PROCESSING SYSTEM WITH SELF TESTING AND CONFIGURATION MAPPING CAPABILITY

David R. Bourgeois, Framingham; James A. Ryan, West Boylston, and Subhash C. Varshney, W. Roxbury, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 28, 1979, Ser. No. 108,047
Int. Cl.[3] G06F *11/00*
U.S. Cl. 371—16 17 Claims



1. A logic test and configuration map control system in a data processing system including processor means and memory means comprising, in combination:
first test means responsive to said processor means for determining the functionality of a first section of said memory means;
inhibit means responsive to said first test means for issuing a control signal to said processor means to inhibit further operation of said logic test and configuration map control system if said first memory section is determined to function erroneously;
second test means in electrical communication with said first test means and said inhibit means for determining the functionality of a second section of said memory; and
means in electrical communication with said second test means for storing in a predetermined location of said first memory section the results of the operation of said second

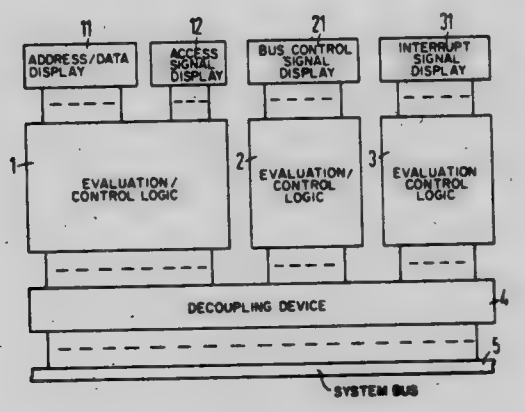
test means indicating the functionality of said second memory section.

4,334,308

TEST FACILITY FOR ERROR DIAGNOSIS IN MULTI-COMPUTER SYSTEMS, PARTICULARLY IN MULTI-MICRO-COMPUTER SYSTEMS

Hans Thinschmidt, Germering, and Eduard Scheiterer, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 19, 1980, Ser. No. 161,208
Claims priority, application Fed. Rep. of Germany, Aug. 13, 1979, 2932749
Int. Cl.³ G01R *31/28;* G06F *11/00*
U.S. Cl. 371—29 14 Claims



1. A test facility for error diagnosis in multicomputer systems in which a plurality of computers are connected to a system bus, the test facility comprising;

an address/data information optical display device;

an access signal optical display device;

a bus control signal optical display device;

an interrupt signal optical display device;

a first evaluation/control logic device connected to said address/data information device and to said access signal display device;

a second evaluation/control logic device connected to said bus control signal device;

a third evaluation/control logic device connected to said interrupt signal display device;

a coupling/decoupling device for connection to the system bus and to said first, second and third evaluation/control logic devices and operable to selectively connect the evaluation/control logic devices to the system bus;

selection switching means operable to provide a first group of selection signals corresponding to selection address;

at least one comparator in each of said evaluation/control logic devices including first inputs connected to said selection switching means to receive said first group of selection signals and second inputs connected to receive address information signals from said system bus, said comparator responsive to equality of the selection signals and the address information signals to produce an output signal for switching through an access signal on the system bus;

said address/data information display device responsive to a switched-through access signal; and

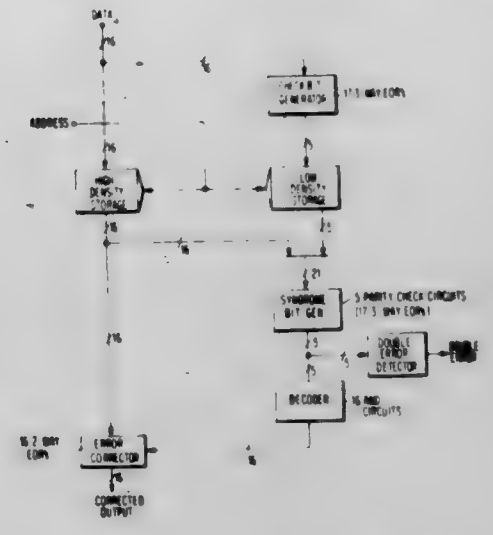
said access signal display device and said interrupt signal display device each including first display means responsive to control signals to display the momentary states of all access and interrupt signals on the system bus and second display means responsive to the last-occurring signals on the system bus to display the most recently occurring access and interrupt information.

4,334,309

ERROR CORRECTING CODE SYSTEM

Robert D. Bannon, and Mahendra M. Bhansali, both of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,397
Int. Cl.³ G06F *11/10*
U.S. Cl. 371—38 12 Claims



1. An error correcting code mechanism comprising:

a high density storage unit receiving a data word;

means responsive to said data word for generating a set of check bits;

a low density storage unit receiving said check bits; and

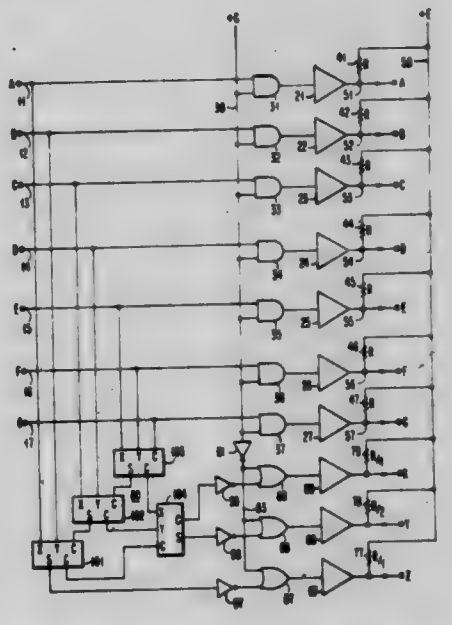
error detecting and correcting means receiving a data word from said high density storage unit together with a corresponding set of check bits from said low density storage unit for determining if an erroneous bit exists only in said data word and reversing the state of said erroneous bit.

4,334,310

NOISE SUPPRESSING BILEVEL DATA SIGNAL DRIVER CIRCUIT ARRANGEMENT

Gerald A. Maley, Fishkill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 23, 1980, Ser. No. 162,344
Int. Cl.³ H02J *1/04*
U.S. Cl. 371—64 10 Claims



1. A noise suppressing bilevel data signal driver circuit arrangement comprising

a multiple of signal input lines,

a multiple of data driver circuits having input terminals individually coupled to said signal input lines and output

terminals at which data is delivered for utilization in subsequent circuitry,

a plurality of auxiliary driver circuits having input terminals and output terminals (at which auxiliary information is available),

a common energizing potential source connected to all of said driver circuits, and

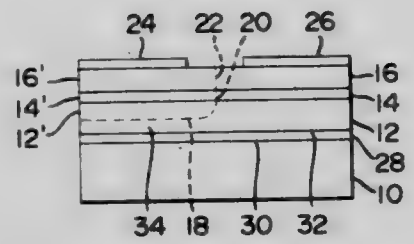
control circuitry having input terminals individually connected to said input signal lines and output terminals individually coupled to said input terminals of said auxiliary driver circuits and arranged for sensing the number of said data driver circuits coupled to signal input lines at a given level and turning on a predetermined number of said auxiliary driver circuits related to the number of data driver circuits remaining at a level other than said given level for maintaining the current drawn from said energizing potential source constant for any number of said data driver circuits at said given level.

4,334,311

TRANSVERSE JUNCTION STRIPE SEMICONDUCTOR LASER DEVICE

Etsuji Oomura; Toshio Murotani, and Makoto Ishii, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 13, 1980, Ser. No. 149,313
Int. Cl.³ H01S *3/19*
U.S. Cl. 372—47 **19 Claims**



1. In a semiconductor laser device, an improved structure comprising a semiconductor substrate, a first layer formed of a selected one of a semiconductive material of a first type conductivity and an electrically insulating material and disposed on said semiconductor substrate, a second semiconductor layer of a second type conductivity formed on said first layer, a third semiconductor layer of the second type conductivity formed on said second semiconductor layer, a fourth semiconductor layer of the second type conductivity formed on said third semiconductor layer, and a special semiconductor region having the first type conductivity changed from the second type conductivity and occupying predetermined regions of at least said second, third and fourth semiconductor layers, said special semiconductor region forming pn junctions with said second, third and fourth semiconductor layers, said third semiconductor layer being narrower in its forbidden band-width than said second and fourth semiconductor layers and including the pn junction serving as a light emitting region.

4,334,312

PHASE SYNCHRONIZING CIRCUIT FOR USE IN MULTI-LEVEL, MULTI-PHASE, SUPERPOSITION-MODULATED SIGNAL TRANSMISSION SYSTEM

Yasuharu Yoshida, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Aug. 7, 1980, Ser. No. 175,988
Claims priority, application Japan, Aug. 10, 1979, 54-101940; Feb. 12, 1980, 55-15684; Feb. 18, 1980, 55-18733
Int. Cl.³ H03D *13/00*
U.S. Cl. 375—20 **11 Claims**

1. A phase synchronizing circuit comprising:

voltage-controlled oscillator means responsive to a control signal for providing an output of varying oscillation frequency;

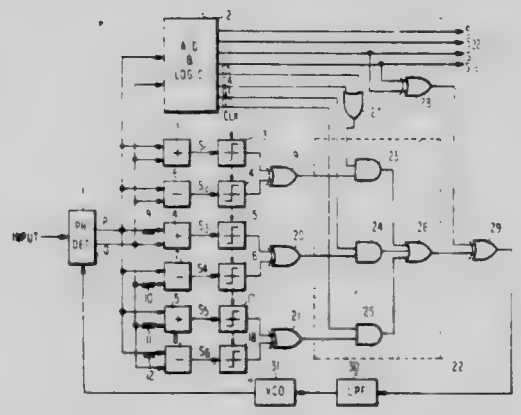
means for phase-detecting a multi-level, multi-phase superposition-modulated carrier wave with reference to the phase of the output of said voltage-controlled oscillator means the output of said phase-detecting means including at least first and second phase-orthogonal outputs;

means for demodulating the output of said phase detector means to provide a demodulated signal, the output of said demodulating means including at least one pair of mutually orthogonal demodulator outputs;

determining means responsive to said demodulated signal for providing output signals indicating the phase position of said modulated carrier wave with respect to the output phase of said voltage-controlled oscillator means;

a plurality of means for phase-shifting the output of said phase detector means by prescribed values the outputs of said phase-shifting means including at least one pair of mutually orthogonal phase-shifting means outputs;

a plurality of means for discriminating the outputs of said



plurality of phase shifter means with reference to a prescribed threshold level, the outputs of said discriminating means including at least one pair of mutually orthogonal discriminating means outputs;

a plurality of first frequency-multiplier means for frequency-multiplying each pair of mutually orthogonal outputs among the outputs of said plurality of discriminator means;

second frequency-multiplier means for frequency-multiplying each pair of mutually orthogonal outputs among the outputs of said demodulator means;

first gate means responsive to the output of said determining means for selectively passing therethrough one output among the outputs of said plurality of first frequency-multiplier means;

third frequency-multiplier means for frequency-multiplying the output of said first gate means and that of said second frequency-multiplier means; and

means for supplying said voltage-controlled oscillator means with the output of said third frequency-multiplier means as said control signal.

4,334,313

TIMING RECOVERY TECHNIQUE

Richard D. Gitlin, Monmouth Beach, and Howard C. Meadors, Jr., Ocean, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 8, 1980, Ser. No. 185,016
Int. Cl.³ H04B *3/04*
U.S. Cl. 375—106 **24 Claims**

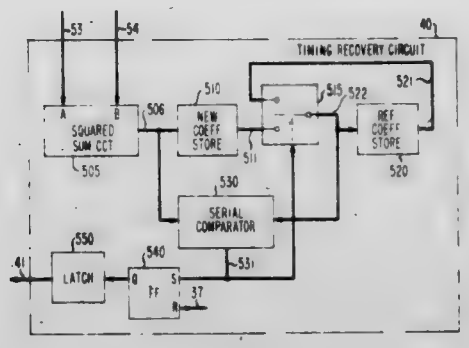
1. Apparatus comprising

means (20, 25, 35) for forming samples of a received signal which represents a succession of data symbols,

means (55, 60, 65, 251, 261, 271, 272) for forming a decision as to the value of each one of said symbols in response to the sum of the products of an ordered plurality of coefficients with respective ones of said samples and

means (60, 65, 70, 252, 262) for updating the values of said coefficients,

characterized by timing recovery means (40) for adjusting



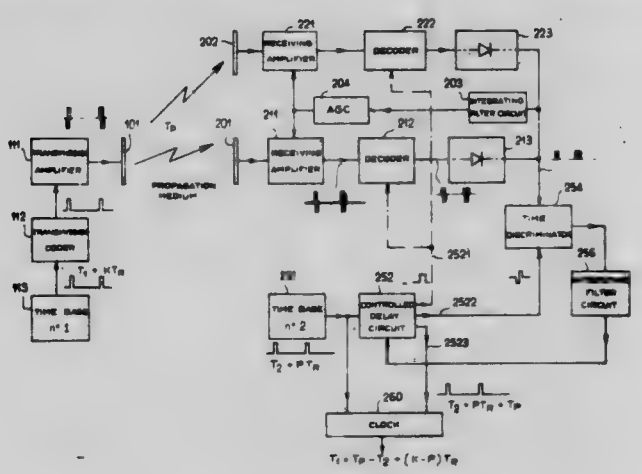
the phase of said sample forming means in such a way that a pair of coefficients in said ordered plurality are maintained substantially equal to each other in at least one aspect.

4,334,314

TRANSMISSION OF TIME REFERENCED RADIO WAVES

Georges P. Nard; Daniel J. E. Bourasseau, both of Nantes, and Jean M. Rabian, Ste-Luce S. Loire, all of France, assignors to Societe d'Etudes, Recherches et Construction Electroniques Sercel, Carquefou, France

Filed May 3, 1979, Ser. No. 37,068
Claims priority, application France, May 9, 1978, 78 13604
Int. Cl.[3] H04B *7/04;* G01S *5/06*
U.S. Cl. 375—111 22 Claims



1. A system for the radio-electrical transmission of a high-frequency signal carrying a timing-mark, comprising:

(a) transmitter circuit means for generating a first high-frequency electrical signal carrying a basic timing-mark which is predetermined and repetitive;

(b) a first antenna station coupled to said transmitter circuit means for transmitting waves corresponding to said first high-frequency electrical signal carrying said basic timing-mark;

(c) a second antenna station remote from said first antenna station, one of said first and second antenna stations having at least two spaced-apart antennae so as to define at least two different propagation paths for high-frequency waves between said first and second antenna stations, said second antenna station comprising means for receiving said transmitted waves carrying said basic timing-mark after travel thereof over said at least two different propagation paths, and for delivering corresponding high-frequency electrical signals which carry received timing-marks, said received timing-marks being the same as said basic timing-mark but being shifted in time with respect to said basic timing-mark in dependence upon the travelling time of the waves over each of said different propagation paths; and

(d) receiver circuit means coupled to said second antenna station for obtaining the received high-frequency electrical signals therefrom, said receiver circuit means comprising non-coherent combining means for

(1) separately decoding, for each of the different propagation paths, the corresponding received high-frequency electrical signals carrying the timing-marks which are delivered by the second antenna station,

(2) rectifying the separately decoded high-frequency electrical signals carrying the timing-marks in order to recover said timing-marks, and

(3) non-coherently combining together the recovered said timing-marks into a composite timing-mark,

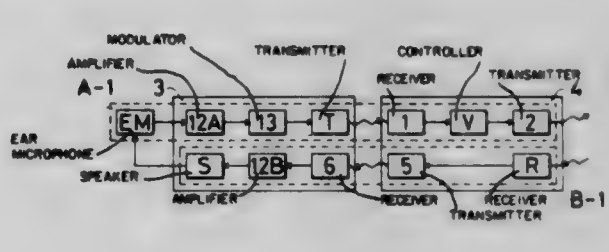
whereby said composite timing-mark is more closely related to the travelling time of the waves between said first and second antenna stations than each of the recovered timing-marks individually.

4,334,315

WIRELESS TRANSMITTING AND RECEIVING SYSTEMS INCLUDING EAR MICROPHONES

Hiroshi Ono, Tokyo, and Kazutoshi Mizoi, Mie, both of Japan, assignors to Gen Engineering, Ltd., Japan

Filed May 5, 1980, Ser. No. 146,675
Claims priority, application Japan, May 4, 1979, 54-55096
Int. Cl.[3] H04B *7/15, 1/38*
U.S. Cl. 455—11 10 Claims



1. A wireless transmitting and receiving system for use in two-way communication with a remote transmitter-receiver, comprising

an ear microphone for picking up bone-conducted voice signals through an external auditory canal wall of one ear of a wearer thereof;

a portable case having first mounting means for supporting said portable case adjacent the one ear of the wearer, and housing a first transmitter;

a wireless device having second mounting means for supporting said wireless device adjacent the wearer but spaced from said portable case and said ear microphone, and housing a second transmitter and first and second receivers;

said transmitters and receivers forming a communication loop including

a first link with said first transmitter for transmitting output signals of said ear microphone, said second receiver for receiving signals transmitted from said first transmitter and said second transmitter for transmitting signals received by said second receiver to the remote transmitter-receiver; and

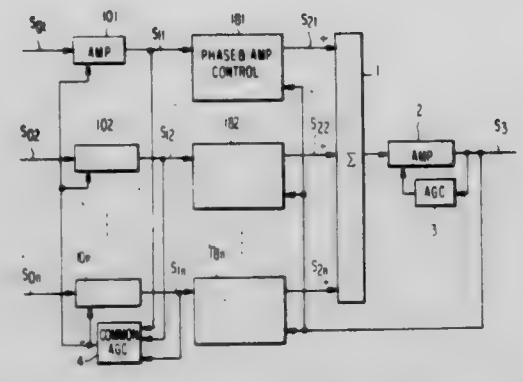
a second link with said first receiver for receiving signals transmitted from the remote transmitter-receiver;

whereby said first and second links provide a wireless connection between said portable case and said wireless device and permit wireless communication signals to be transmitted and received between the one ear of the wearer in which said ear microphone is mounted and the remote transmitter-receiver.

4,334,316
PRE-DETECTION MAXIMAL RATIO COMBINING SYSTEM FOR DIVERSITY RECEPTION OF RADIO FREQUENCY SIGNALS

Motomichi Tanaka, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Oct. 28, 1980, Ser. No. 201,642
Claims priority, application Japan, Oct. 31, 1979, 54-140557
Int. Cl.³ H04B 1/10
U.S. Cl. 455—139 3 Claims



1. A system for pre-detection maximal ratio combining of a plurality of received diversity signals, comprising:

a plurality of control means for controlling the phase and amplitude of each of a plurality of pre-detection signals, each of said control means including means to derive, from a respective pre-detection diversity signal, a set of mutually orthogonal components, means to correlate each component with a reference comparison signal and means to provide a control means output signal in response to the output of said correlation means.

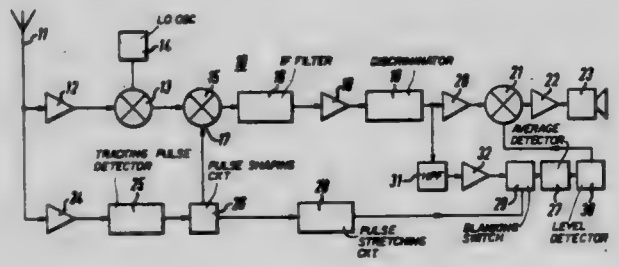
means for combining the outputs of said plurality of control means to produce a combined signal; and

means for normalizing the amplitude of the combined signal and respectively supplying this normalized signal, as said reference comparison signal, to said plurality of control means.

4,334,317
NOISE BLANKING CIRCUITRY IN A RADIO RECEIVER

Graham E. Beesley, Basingstoke, England, assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 13, 1980, Ser. No. 129,927
Claims priority, application United Kingdom, Apr. 30, 1979, 7914881
Int. Cl.³ H04B 1/10
U.S. Cl. 455—194 9 Claims

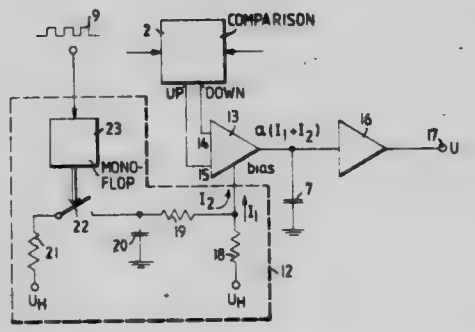


1. A radio receiver including means for receiving radio frequency signals, tuner means for processing the received radio signals and producing audio output signals in response thereto, a blanker circuit for detecting noise pulses in the received radio frequency signals and producing blanking pulses for blanking the tuner means in response thereto, an FM squelch circuit responsive to said audio output signals and to noise signals above a predetermined frequency to generate squelch signals when the noise signals exceed a predetermined amplitude to mute said audio signals, and said squelch circuit including a detector responsive to blanking pulses from said FM blanker circuit for eliminating squelch false muting of the receiver by the FM squelch circuit in response to blanking pulse spikes from the blanker circuit and thereby reducing the susceptibility of false squelching said tuner means further includes a discrimination and an averaging detector responsive to noise signals and responsive also to noise blanking signals produced in response to the receipt of radio frequency signals including noise signals, said averaging detector providing a DC output voltage proportional to the average level of the voltage waveform envelope developed at its input by the discriminator.

4,334,318
BROADCAST RECEIVER TUNING CIRCUIT

Otto Klank, Lehrte-Arpke, and Wilfried Wähling, Hanover, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 26, 1980, Ser. No. 133,988
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1979, 2912710
Int. Cl.³ H04B 1/16
U.S. Cl. 455—195 5 Claims



1. In a tuning circuit for tuning an oscillator of a receiver to a desired broadcast frequency, which tuning circuit includes a source of counting pulses indicating the magnitude of the change in the frequency value to which the circuit is to be tuned, a counter connected to the source of counting pulses to receive the counting pulses and to assume a count state corresponding to the number of counting pulses received and representative of the broadcast frequency to which the circuit is to be tuned, means for comparing the output of the counter and the oscillator to provide an output indicating the difference in frequency there between, and a timing member connected to receive the output of said comparing means for producing a tuning signal having a value determinative of the frequency to which the circuit is tuned during a tuning operation, the improvement comprising means connected to said source of counting pulses for deriving a control signal representative of the frequency of said pulses, and means connecting said control signal deriving means to said timing member for varying said tuning signal in accordance with said control signal in such a manner that as the frequency of said counting pulses increases, the rate of change of the frequency to which said circuit is tuned is increased.

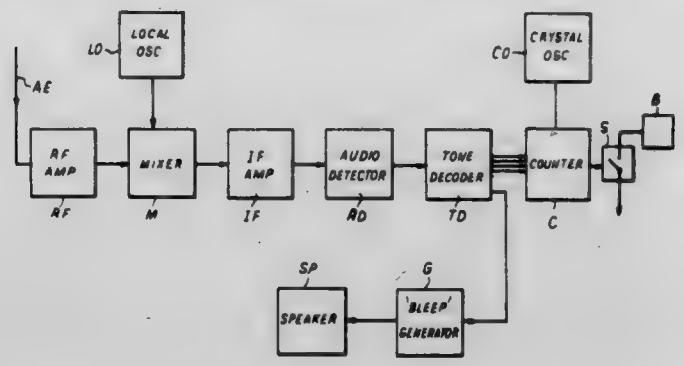
4,334,319
BATTERY-POWERED RECEIVERS

George W. Gurry, 3 Highfield Close, Danbury, Essex, England

Filed Oct. 26, 1979, Ser. No. 89,261
Claims priority, application United Kingdom, Oct. 27, 1978, 42201/78
Int. Cl.³ H04B 1/06
U.S. Cl. 455—227 3 Claims

1. A battery-powered receiver comprising a tone decoder which is adapted to sense an incoming electromagnetic signal comprising a predetermined coded address signal followed by a coded command signal, the address signal comprising at least two tone signals which are transmitted sequentially and each of which comprises an electromagnetic signal having a frequency different from the frequency of the or each adjacent tone signal

and the command signal comprising a tone signal which is an electromagnetic signal which can assume any one of at least two different predetermined frequencies, the tone decoder being adapted, upon sensing the incoming signal, to generate an output signal representative of the coded command signal, timing means, switching means for connection between a battery and other circuits components in the receiver, means



coupling the switching means to an output of the timing means, and means for applying the output signal from the decoder to the timing means, whereby the timing means generate an output which is applied to the switching means and causes the switching means to operate to disconnect the battery from at least one of the said circuit components for a predetermined interval of time represented by the coded command signal.

4,334,320

TRAFFIC INFORMATION RADIO SIGNAL RECEIVER

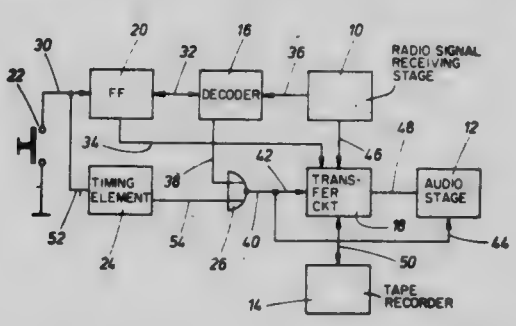
Helmut Liman, Nordstemmen, Fed. Rep. of Germany, assignor to Blaupunkt-Werke GmbH, Hildesheim, Fed. Rep. of Germany

Filed Nov. 25, 1980, Ser. No. 210,323

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1979, 2950284

Int. Cl.³ H04B *1/16*

U.S. Cl. 455—227 **6 Claims**



1. In a radio receiver having a radio signal receiving stage (10) providing program signals and traffic information signals, an audio stage providing audio output signals,

a traffic information decoder (16) responsive to predetermined signals received by said receiving stage and then providing a corresponding traffic information control signal;

a transfer circuit (18) connected to the radio receiving stage (10) and the audio stage to transfer signals from the receiving stage to the audio stage, and being connected to and controlled by the traffic information control signal to, selectively, inhibit transfer of program signals and instead transfer traffic information signals to the audio stage;

and a control switch (20, 22) controlling, respectively, response of the decoder (16) and hence selective transfer of program signals and/or information signals to the audio stage,

an information signal reproduction level simulation circuit to simulate traffic information signals for reproduction by the audio stage in the absence of said predetermined signals to which the decoder (16) responds, comprising

a timing element (24) connected to and controlled by said control switch and upon operation thereof for at least a predetermined time interval providing an output;

and connection means (54, 26) controlled by said timing element output after elapse of the predetermined interval to apply a traffic information simulating signal to said transfer circuit (16) for subsequent reproduction by the audio stage.

4,334,321

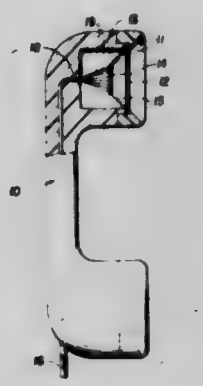
OPTO-ACOUSTIC TRANSDUCER AND TELEPHONE RECEIVER

Seymour Edelman, 9115 Glenridge Rd., Silver Spring, Md. 20910

Filed Jan. 19, 1981, Ser. No. 226,447

Int. Cl.³ H04B *9/00*

U.S. Cl. 455—614 **14 Claims**



1. A transducer element for use in a telephone receiver or the like including sound producing means and comprising at least an optical fiber element adapted to transmit and absorb modulated light and having its light transmissivity gradually decreasing from a high level at one end of the fiber element to substantially zero transmissivity at the other end of the element, whereby modulated light absorbed by the fiber element causes thermal expansion and contraction of the element longitudinally for driving said sound producing means.

4,334,322

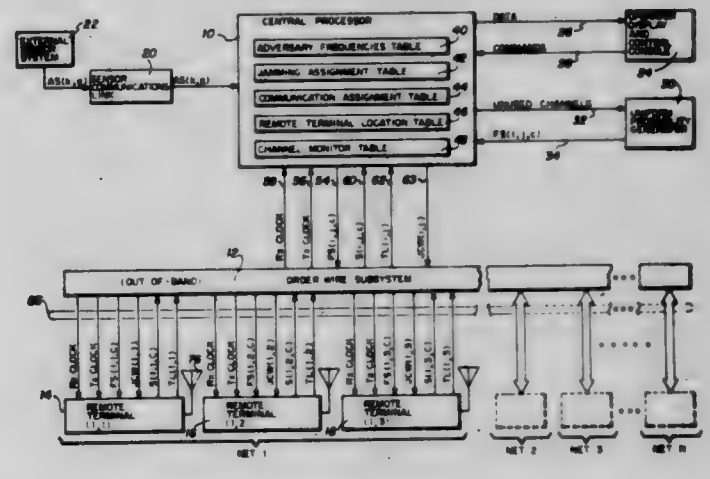
COMMUNICATION MANAGEMENT SYSTEM FOR PROVIDING ANTIJAM/PRIVACY CAPABILITIES FOR VOICE RADIO COMMUNICATIONS

Egbert B. Clark, III, Alexandria, Va., assignor to E-Systems, Inc., Dallas, Tex.

Filed Oct. 26, 1979, Ser. No. 88,523

Int. Cl.³ H04B *17/00, 3/46*

U.S. Cl. 455—62 **27 Claims**



1. Communication management apparatus for selecting radio frequency channels for use by a plurality of remote communication terminals, comprising in combination:

(a) a central processor for generating radio frequency channel assignment command for said communication terminals,

(b) an order wire communication system connected to receive said channel assignment commands from said central processor and transfer said channel assignment command through a communication channel independent of the radio frequency channels used by the communication terminals, and

(c) an interface module for each remote communication terminal, said module adapted to receive said channel assignment commands from said order wire communication system and generate control signals to tune at least one of said communication terminals to operate on the radio frequency channel designated by said channel assignment command.

4,334,323

SELF TRACKING TUNER

Frederic J. Moore, Des Plaines, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Sep. 8, 1980, Ser. No. 184,719
Int. Cl.³ H04B 1/16
U.S. Cl. 455—179 **24 Claims**

1. In a tuner circuit of the type having a tunable oscillator and tunable circuit means including a tunable circuit receiving at an input thereof a signal from an antenna or other signal input apparatus, the tunable circuits cooperating with the tunable oscillator to provide an intermediate frequency signal at an output of the tuner circuit, the tuner circuit having means associated therewith for a user to select a target frequency at which the tuner is to be tuned, the improvement comprising:

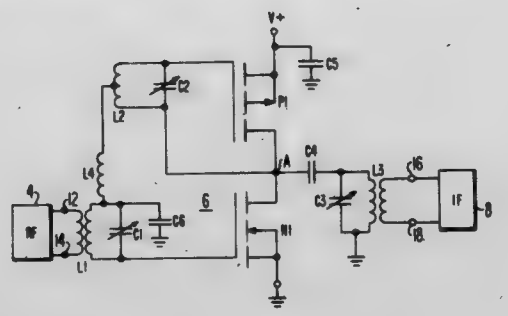
tuning means cooperatively coupled to the tunable circuit means and responsive to the target frequency selection means for individually, automatically, and successively tuning each tunable circuit to the selected target frequency.

4,334,324

COMPLEMENTARY SYMMETRY FET FREQUENCY CONVERTER CIRCUITS

Merle V. Hoover, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 31, 1980, Ser. No. 202,668
Int. Cl.³ H04B 1/28
U.S. Cl. 455—333 **12 Claims**



1. A frequency converter comprising:

first and second power supply terminals for receiving an operating potential therebetween;

first and second FET transistors of opposite conductivity type, each having respective source, gate and drain electrodes, the respective drain electrodes thereof being coupled to a circuit node;

means for coupling the source electrode of said first FET transistor to said first power supply terminal;

means for coupling the source electrode of said second FET transistor to said second power supply terminal;

feedback means connected between the gate electrode of said first FET transistor and one of said source and drain electrodes of said first FET transistor for conditioning that transistor to oscillate so as to provide an oscillator signal at said circuit node;

input means for coupling an input signal to the gate electrode of said second FET transistor; and

tuning means coupled to said circuit node for selecting signal components corresponding to a beat frequency between the frequency of said oscillator signal and the frequency of said input signal.

DESIGN PATENTS

GRANTED JUN. 8, 1982

ERRATA

For CLASS	See PATENT NO.
D25–087	264,886
D06–080	264,889

DESIGNS

JUNE 8, 1982

264,765
WOMEN'S JEAN
Ruth A. Hattori, 531 Josephine, Denver, Colo. 80206
Filed Apr. 7, 1980, Ser. No. 137,796
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—28

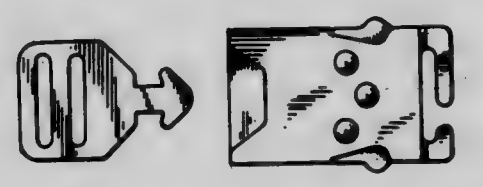


264,767
FASTENER BUCKLE
Pierre Spreter, Geneva, Switzerland, assignor to Christian Dior, S.A., Paris, France
Filed Oct. 18, 1978, Ser. No. 952,579
Claims priority, application France, Aug. 18, 1978, 76808
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—427

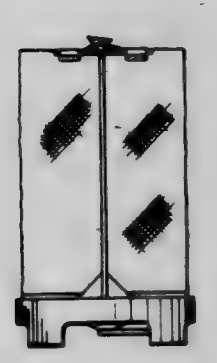




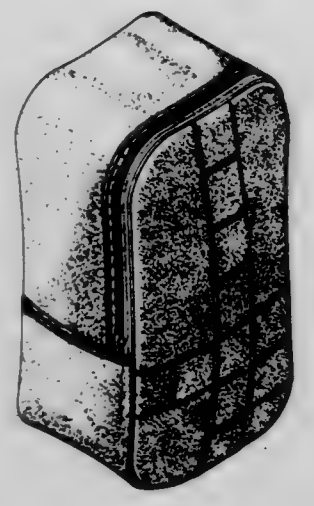
264,766
QUICK-RELEASE CONNECTOR
Philip K. Huff, 2600 H Walnut Ave., Tustin, Calif. 92680
Filed May 19, 1980, Ser. No. 150,970
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—408



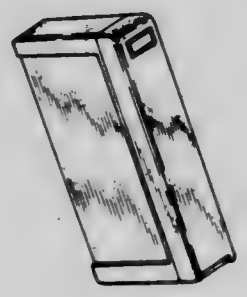
264,768
COMBINED SHIPPING AND STORAGE CONTAINER OR SIMILAR ARTICLE
Jan Öjve, Stockholm, Sweden, assignor to Revent Food Machinery AB, Stockholm, Sweden
Filed Mar. 25, 1980, Ser. No. 133,907
Claims priority, application Sweden, Sep. 26, 1979, 2115/79
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D3—30.1



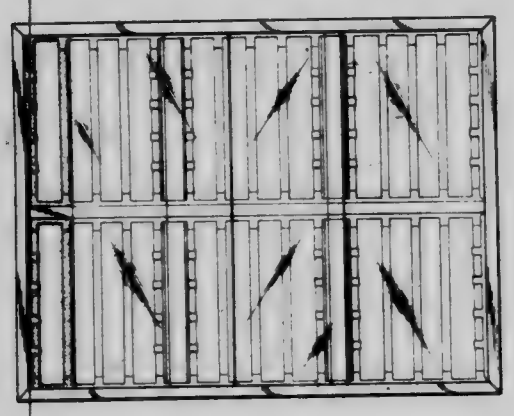
264,769
CAMERA BAG
George Koszegi, South Bend, Ind., assignor to Koszegi Leather & Vinyl Products, Inc., South Bend, Ind.
Filed Jan. 5, 1979, Ser. No. 1,378
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—33



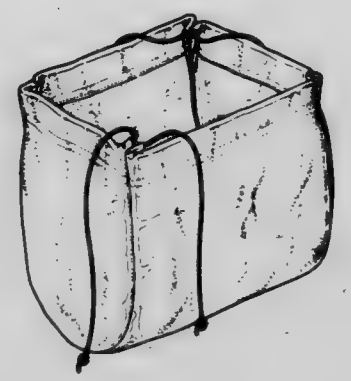
264,770
VIDEO CASSETTE STORAGE CONTAINER
Jerry M. Long, 382 Riverside Ave., Ben Lomond, Calif. 95005
Filed Oct. 2, 1978, Ser. No. 947,421
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—35



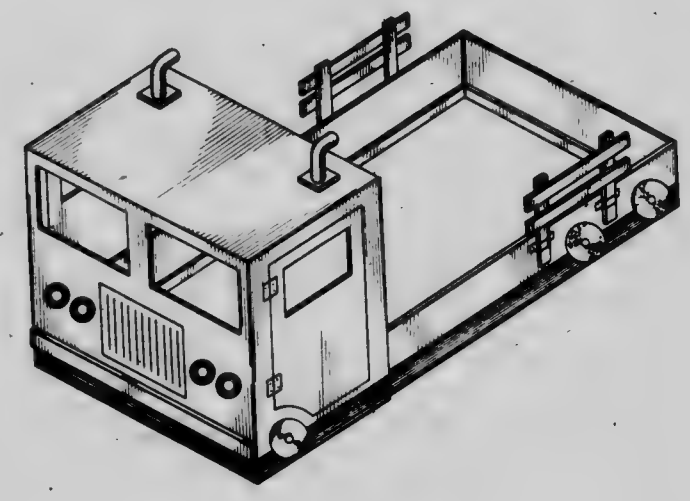
264,771
VIDEO-TAPE CASE WITH REMOVABLE PARTITIONS
Joseph L. Berkman, 48 Country Rd., Mamaroneck, N.Y. 10543
Filed Aug. 29, 1979, Ser. No. 70,789
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—35



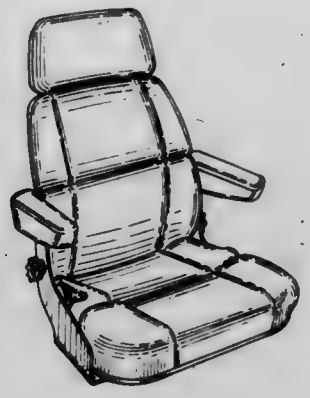
264,772
FISHING REEL POUCH
James C. Motsko, Box 737, 400 N. 6th St., Ocean City, Md. 21842
Filed Sep. 11, 1979, Ser. No. 74,552
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—38



264,773
BED
Paul H. Sutherland, 105 Green Leaf Dr., Latham, N.Y. 12110
Filed Aug. 31, 1979, Ser. No. 71,090
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—5



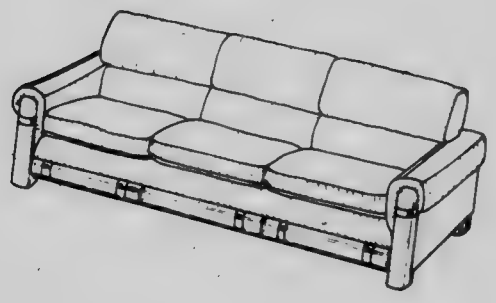
264,774
TRACTOR SEAT OR SIMILAR ARTICLE
James R. McGirk, Medinah, and Robert A. Skyer, Palatine, both of Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Oct. 19, 1979, Ser. No. 86,503
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—48



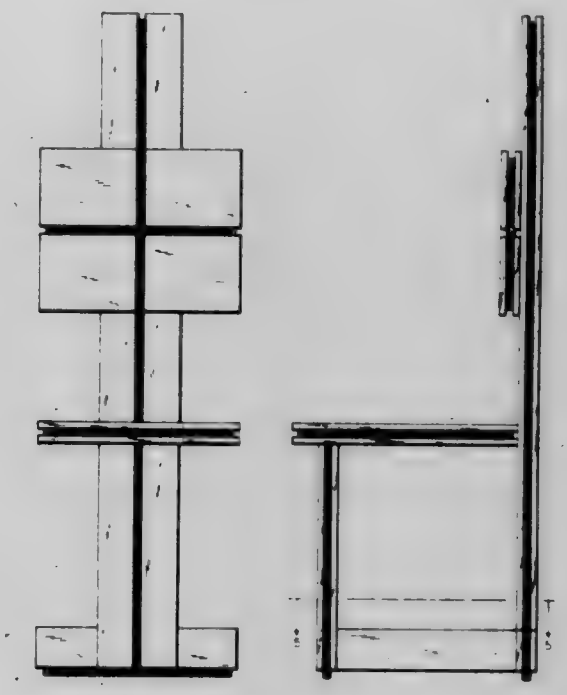
264,775
CHAIR
Henry Olko, Chicken Valley Rd., Locust Valley, N.Y. 11560
Filed Jan. 16, 1980, Ser. No. 112,634
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—57



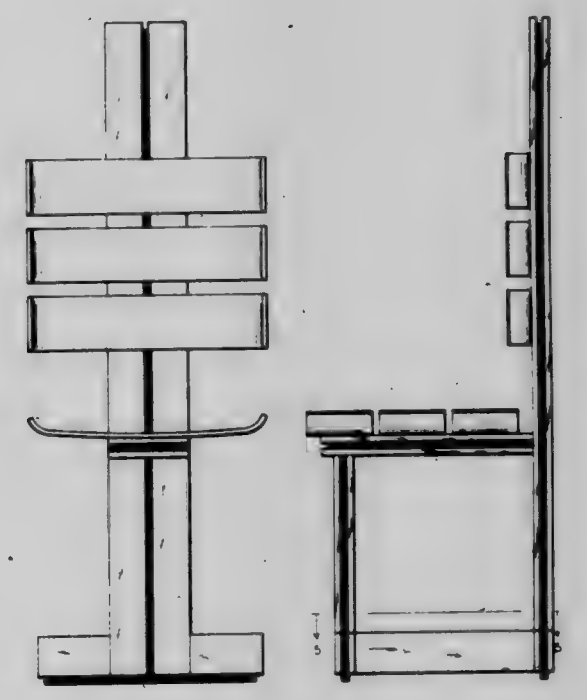
264,776
SEAT
Alan H. Friedman, Millburn, N.J., assignor to The Bean Station Furniture Factory, Bean Station, Tenn.
Filed May 5, 1980, Ser. No. 146,524
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



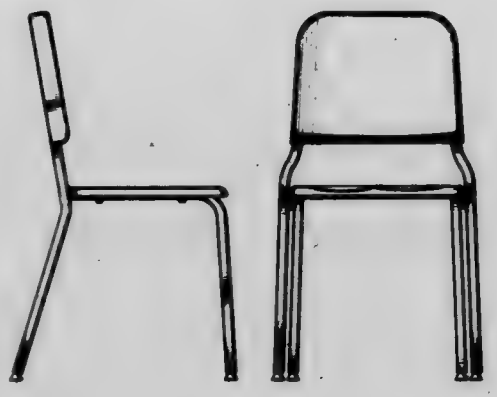
264,777
CHAIR
Steven D. Gageby, 2025 N. Bradley St., St. Paul, Minn. 55117
Filed Jul. 17, 1979, Ser. No. 58,912
The portion of the term of this patent subsequent to May 4, 1996, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—78



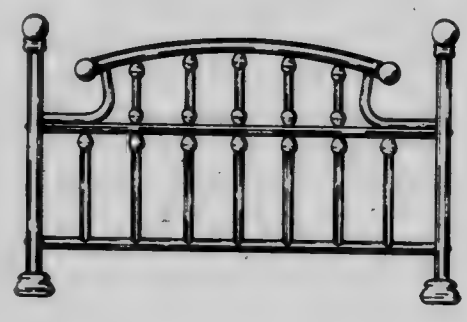
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CHAIR
Steven D. Gageby, 2025 N. Bradley St., St. Paul, Minn. 55117
Filed Jul. 19, 1979, Ser. No. 58,914
The portion of the term of this patent subsequent to May 4, 1996, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—78



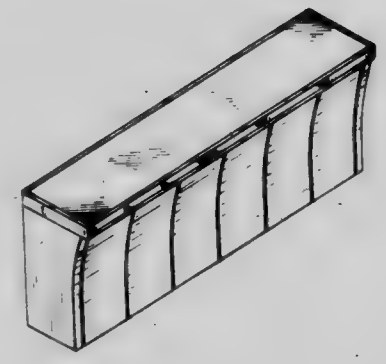
264,779
CHAIR
Jerry A. Wenger, Owatonna; Darrel E. Newell, Lakeville; Harvey M. Urch, West Concord, and Logan W. Johnson, Edina, all of Minn., assignors to Wenger Corporation, Owatonna, Minn.
Continuation-in-part of Ser. No. 877,357, Feb. 13, 1978. This application Jul. 30, 1979, Ser. No. 61,927
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—78



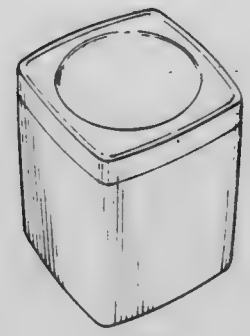
264,780
HEADBOARD
Richard D. McCarthy, 280 Halcyon Ave., Winston-Salem, N.C. 27104
Filed Oct. 23, 1979, Ser. No. 87,534
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—82



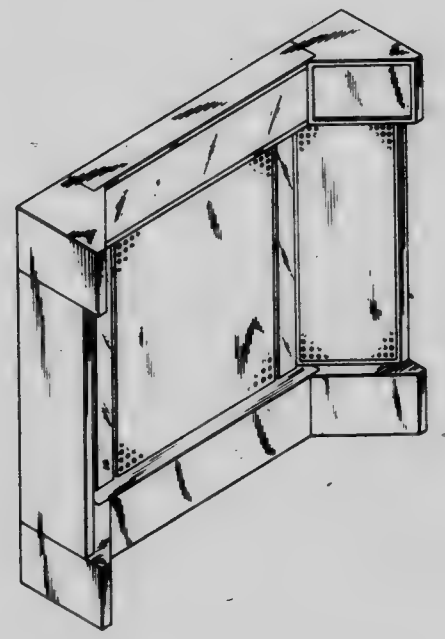
264,781
CONSOLE
Ernesto Azzalin, 411 E. 57th St., New York, N.Y. 10022
Filed Sep. 10, 1979, Ser. No. 74,161
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—85



264,782
TOILET BRUSH STAND
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Feb. 13, 1980, Ser. No. 121,213
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—86



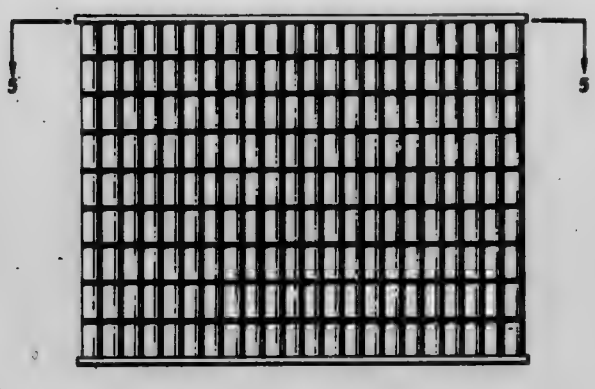
264,783
MERCHANDISE DISPLAY UNIT
Michael Wahl, Roslyn, N.Y., assignor to Marlboro Marketing, Inc., New York, N.Y.
Filed Jan. 14, 1980, Ser. No. 112,094
Term of patent 14 years
Int. Cl. D06—*99*
U.S. Cl. D6—139



264,784
BAR

Juan N. Johnson, 2027 E. 17th St., NE., Winston-Salem, N.C. 27105

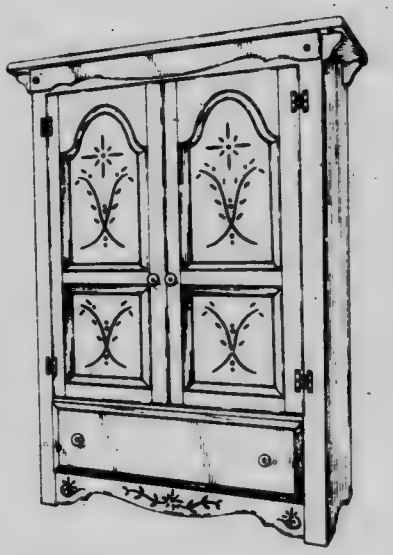
Filed Mar. 26, 1980, Ser. No. 134,169
Term of patent 14 years
Int. Cl. D06—*03*
U.S. Cl. D6—144



264,785
ARMOIRE

Melbourne F. Smith, Jr., Hickory, N.C., assignor to Broyhill Furniture Industries, Inc., Lenoir, N.C.

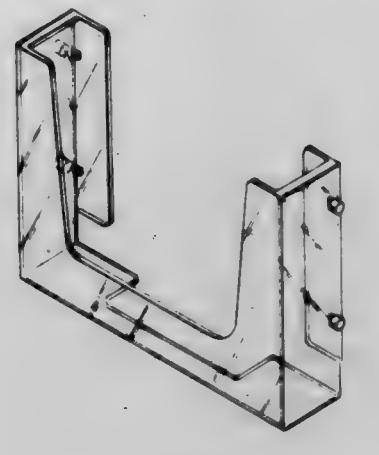
Filed Sep. 22, 1978, Ser. No. 945,139
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—154



264,786
LITERATURE HOLDER

Chuck Faas, and Zeb Billings, both of Elm Grove, Wis., assignors to Sight & Sound International, Inc., New Berlin, Wis.

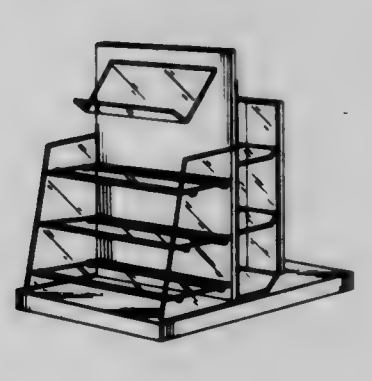
Filed Jan. 8, 1980, Ser. No. 110,504
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—184



264,787
BATHROOM DISPLAY UNIT

Nedim Savas, Wheaton, Md., assignor to Russel William, Ltd., Columbia, Md.

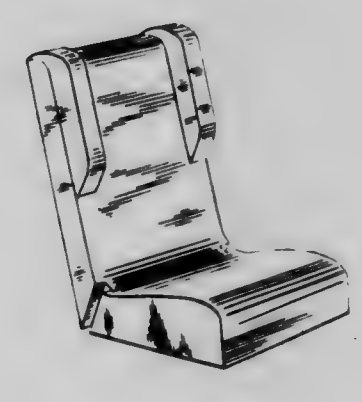
Filed May 29, 1980, Ser. No. 154,475
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—186



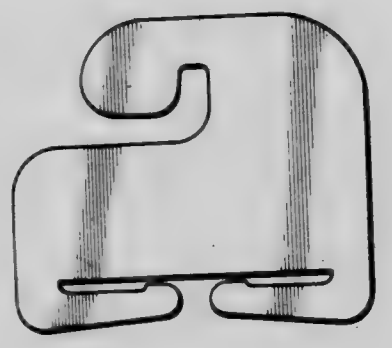
264,788
AUXILIARY SEAT FOR A CHILD

Gaynor J. Blanchard, 2 Chilton Parade, Turramurra, New South Wales 2074, Australia

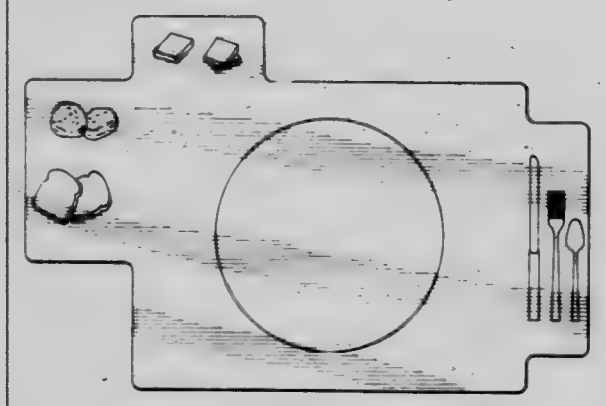
Filed Dec. 11, 1978, Ser. No. 968,143
Claims priority, application Australia, Jun. 14, 1978, 75053
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—201



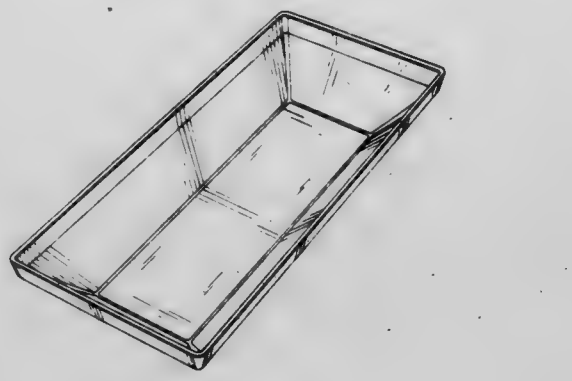
264,789
ARTICLE HANGER
John F. Zyla, 1910 Kingridge Ct., Walnut Creek, and John J. Nemec, 52 Riverton Dr., San Francisco, both of Calif. 94596
Filed Mar. 21, 1980, Ser. No. 133,487
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—254



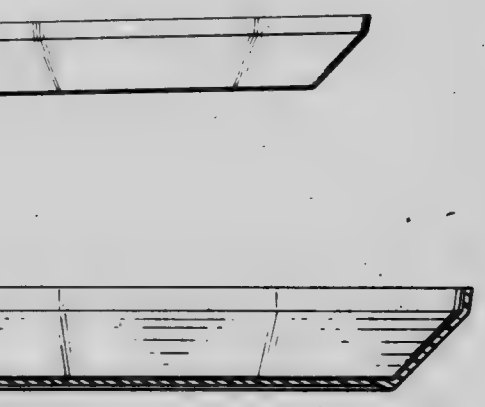
264,790
PLACE MAT
Medhat M. Kamel, Alexandria, and Mortimer R. Dock, Arlington, both of Va., assignors to T-Star Research, Inc., Alexandria, Va.
Filed Sep. 13, 1979, Ser. No. 75,506
Term of patent 14 years
Int. Cl. D6—*13*
U.S. Cl. D6—271

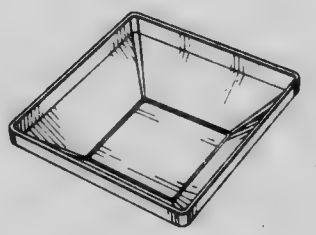


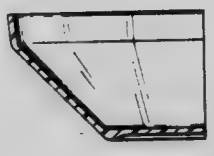
264,791
COMBINED FOOD STORAGE AND SERVICE DISH
Rino Conti, Stoughton, Mass., assignor to Dart Industries Inc., Northbrook, Ill.
Filed Feb. 12, 1979, Ser. No. 11,247
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—1



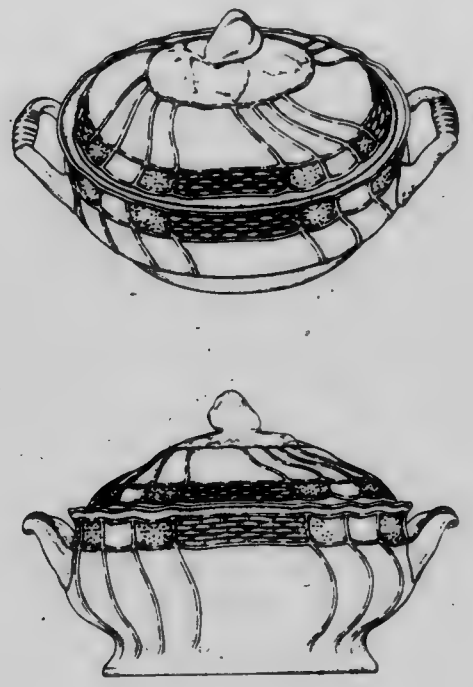
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COMBINED FOOD STORAGE AND SERVICE DISH
Rino Conti, Stoughton, Mass., assignor to Dart Industries Inc., Northbrook, Ill.
Filed Feb. 12, 1979, Ser. No. 11,248
The portion of the term of this patent subsequent to Jun. 8, 1996, has been disclaimed.
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—1



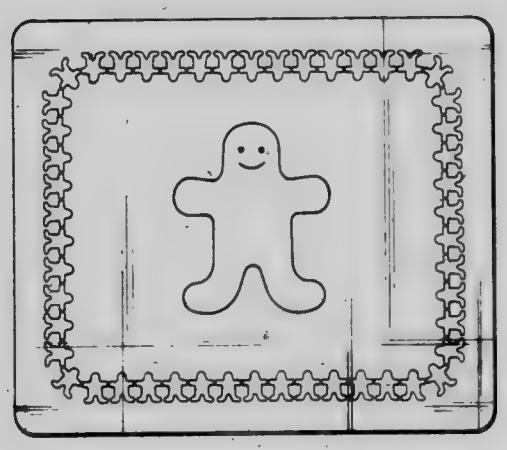




264,793
TUREEN
Alfred Blake, Hillsdale, N.J., assignor to American Commercial Inc., Secaucus, N.J.
Filed May 30, 1980, Ser. No. 154,779
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—18



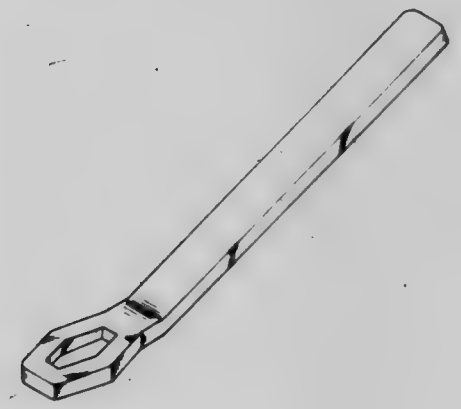
264,794
PASTRY SHEET OR THE LIKE
Ann K. Fritz, Auburndale, Mass., and Peggy J. Bridges, Orlando, Fla., assignors to Dart Industries Inc., Northbrook, Ill.
Filed Jun. 24, 1980, Ser. No. 162,452
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—41



264,795
AMUSEMENT PITCHER
Edward M. Strieber, 5400 Highland Crest Dr., Austin, Tex. 78731
Filed Jul. 9, 1979, Ser. No. 55,620
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—64



264,796
WRENCH
Steven E. Frick, Box 2011, Houston, Tex. 77001, and Douglas R. Merritt, C-2 Lawrence Apts., West Dr., Princeton, N.J. 08540
Filed Mar. 31, 1980, Ser. No. 136,107
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—17

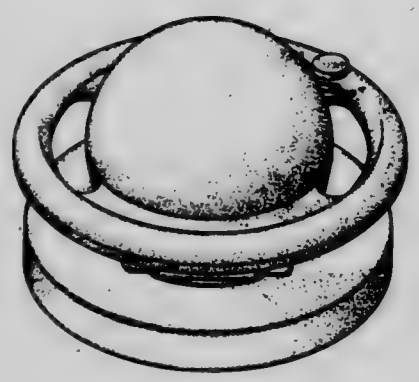


264,797

AUTOMOBILE CLEANING AND WAXING TOOL

Robert E. Burglin, 517 S. Archer, Anaheim, Calif. 92804, and Sam S. Itaya, 420 Lakeview Rd., Pasadena, Calif. 91105

Continuation of Ser. No. 785,191, Apr. 6, 1977, abandoned. This application Feb. 2, 1979, Ser. No. 8,890
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—62

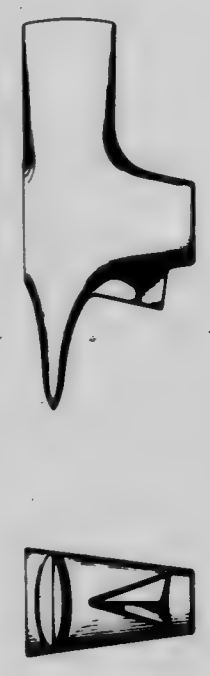


264,798

WOOD SPLITTING IMPLEMENT HEAD

Dale A. Jones, Rte. 1, Palmetto, Ga. 30268

Division of Ser. No. 857,797, Dec. 5, 1977, Pat. No. Des 257,826.
This application Apr. 4, 1980, Ser. No. 137,125
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D8—78

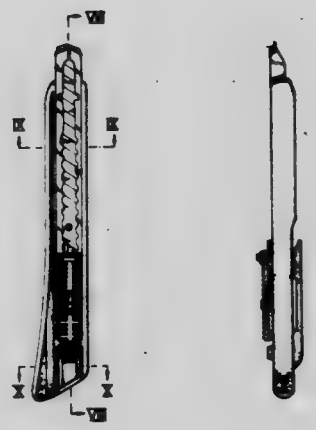


264,799

CUTTER KNIFE

Hiroshi Osada, Seki, Japan, assignor to Kai-Cutlery Center Co., Ltd., Gifu, Japan

Filed Feb. 11, 1980, Ser. No. 120,285
Claims priority, application Japan, Nov. 16, 1979, 54-48156
Term of patent 7 years
Int. Cl. D8—*03*
U.S. Cl. D8—99

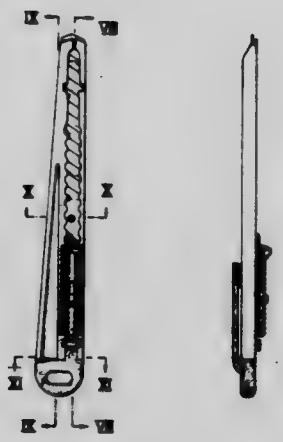


264,800

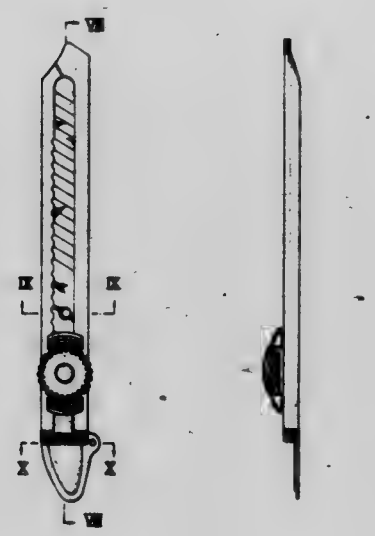
CUTTER KNIFE

Hiroshi Osada, Seki, Japan, assignor to Kai-Cutlery Center Co., Ltd., Gifu, Japan

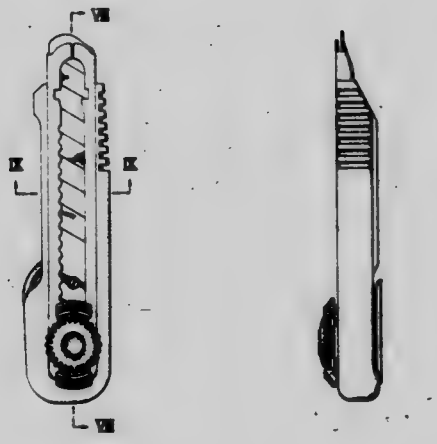
Filed Feb. 13, 1980, Ser. No. 121,283
Claims priority, application Japan, Nov. 14, 1979, 54-47604
Term of patent 7 years
Int. Cl. D8—*03*
U.S. Cl. D8—99



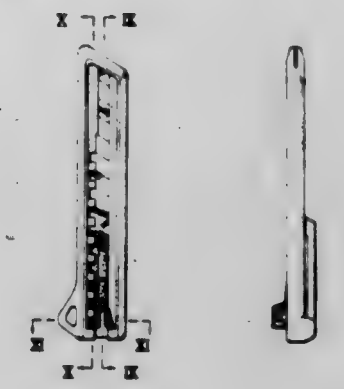
264,801
CUTTER KNIFE
Hiroshi Osada, Seki, Japan, assignor to Kai Cutlery Center Co., Ltd., Gifu, Japan
Filed Feb. 22, 1980, Ser. No. 123,732
Claims priority, application Japan, Nov. 16, 1979, 54-48154
Term of patent 7 years
Int. Cl. D8—*03*
U.S. Cl. D8—99



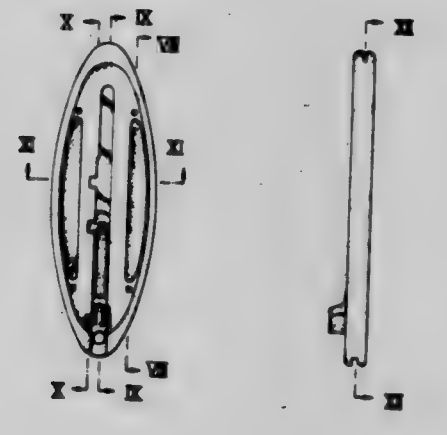
264,802
CUTTER KNIFE
Hiroshi Osada, Seki, Japan, assignor to Kai Cutlery Center Co., Ltd., Gifu, Japan
Filed Feb. 22, 1980, Ser. No. 123,733
Term of patent 7 years
Int. Cl. D8—*03*
U.S. Cl. D8—99



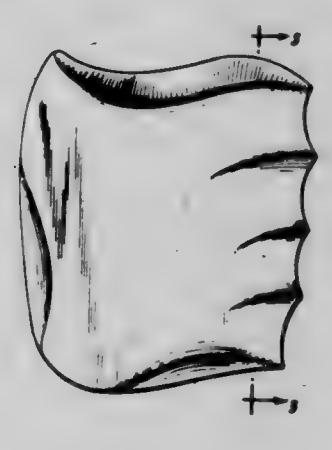
264,803
CUTTER KNIFE
Naoyoshi Machida, Seki, Japan, assignor to Kai Cutlery Center Co., Ltd., Gifu, Japan
Filed Mar. 7, 1980, Ser. No. 127,966
Claims priority, application Japan, Oct. 22, 1979, 54-44361
Term of patent 7 years
Int. Cl. D8—*03*
U.S. Cl. D8—99



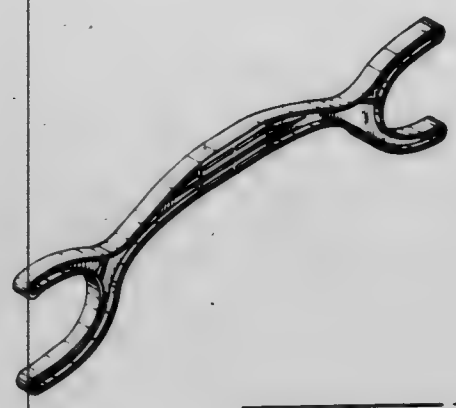
264,804
CUTTER KNIFE
Naoyoshi Machida, Seki, Japan, assignor to Kai Cutlery Center Co., Ltd., Gifu, Japan
Filed Mar. 7, 1980, Ser. No. 127,967
Claims priority, application Japan, Oct. 25, 1979, 54-44926
Term of patent 7 years
Int. Cl. D8—*03*
U.S. Cl. D8—99



264,805
GRIPPING AND HOLDING DEVICE
George Annand, 332 Mastin Pl., Ridgewood, N.J. 07450
Filed Oct. 25, 1978, Ser. No. 954,401
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—107



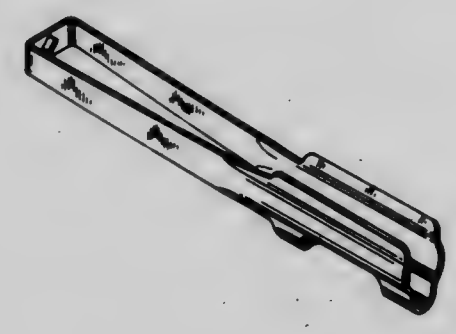
264,806
WINDER
Walter L. Russell, 9122 Birch La., Wichita, Kans. 67212
Filed Oct. 18, 1979, Ser. No. 85,904
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—358



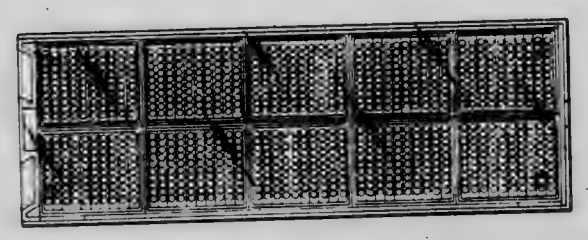
264,807
SCREW
Albert Baumgartner, Kriessern, Switzerland, assignor to SFS Stadler AG, Heerbrugg, Switzerland
Filed Sep. 19, 1979, Ser. No. 77,162
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—387



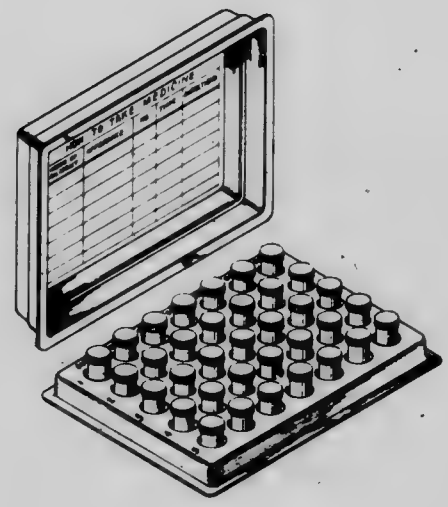
264,808
SCREW HOLDING CLIP FOR SCREW DRIVERS
Oscar B. Burgeson, Bristol, and Richard W. Phelps, Deep River, both of Conn., assignors to The Stanley Works, New Britain, Conn.
Filed Mar. 7, 1980, Ser. No. 128,045
Term of patent 14 years
Int. Cl. D8—*08, 04*
U.S. Cl. D8—395



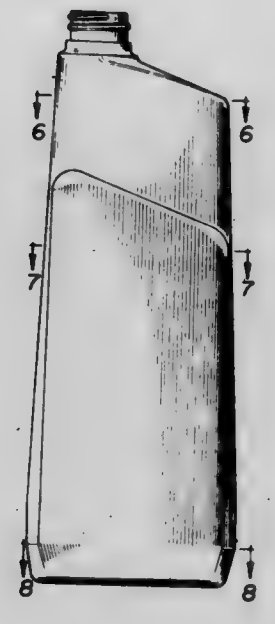
264,809
PACKAGE OF SEWING MACHINE NEEDLES
Masumi Takeuchi, Ueda, Japan, assignor to Organ Needle Col, Ltd., Japan
Filed Aug. 6, 1979, Ser. No. 63,984
Claims priority, application Japan, Feb. 7, 1979, 54-4198; Apr. 20, 1979, 54-16252
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—303



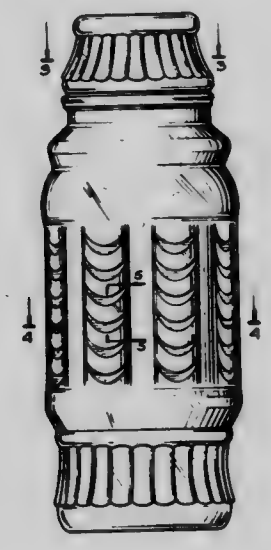
264,810
PLURAL MEDICINE VIAL SUPPORTING TRAY AND COVER
John D. Voltmann, 155 Aldren Ave., Jamestown, N.Y. 14701
Filed Jun. 22, 1979, Ser. No. 51,192
Term of patent 14 years
Int. Cl. D9—*03;* D24—*99*
U.S. Cl. D9—341



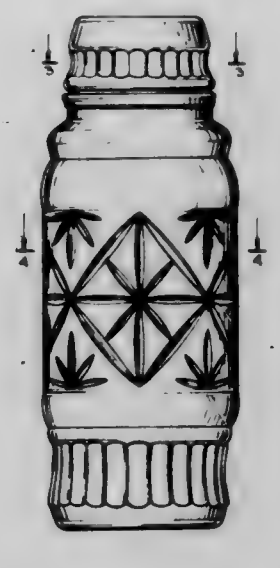
264,811
BOTTLE
Richard L. Weckman, Perrysburg, Ohio, assignor to The Clorox Company, Oakland, Calif.
Filed Oct. 29, 1979, Ser. No. 88,945
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—375



264,812
JAR OR SIMILAR ARTICLE
David M. O'Toole, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed May 23, 1980, Ser. No. 152,703
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—385



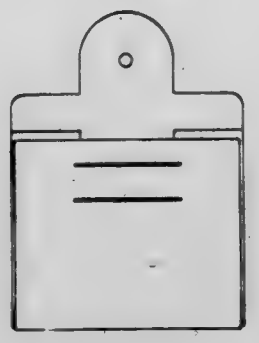
264,813
JAR OR SIMILAR ARTICLE
Jerald E. Potter, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed Jun. 12, 1980, Ser. No. 158,885
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—385



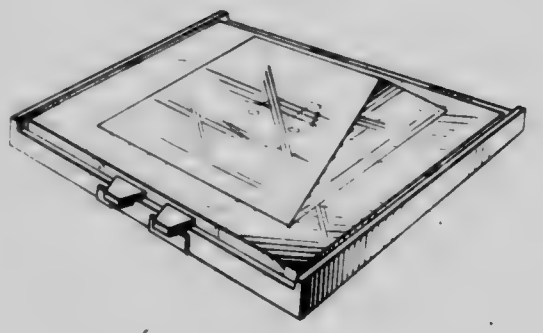
264,814
BOTTLE
Pierre Dinand, Levallios, France, assignor to Yardley of London, Inc., Chicago, Ill.
Filed Jul. 10, 1980, Ser. No. 168,384
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—389



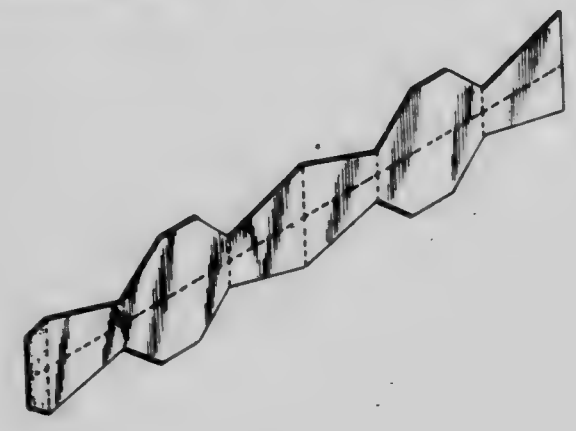
264,815
COMBINED DISPLAY HANGER AND MAILING PACKAGE OR SIMILAR ARTICLE
John H. Lincoln, 1510 Mission Canyon Rd., Santa Barbara, Calif. 93105
Filed Mar. 31, 1980, Ser. No. 135,645
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—415



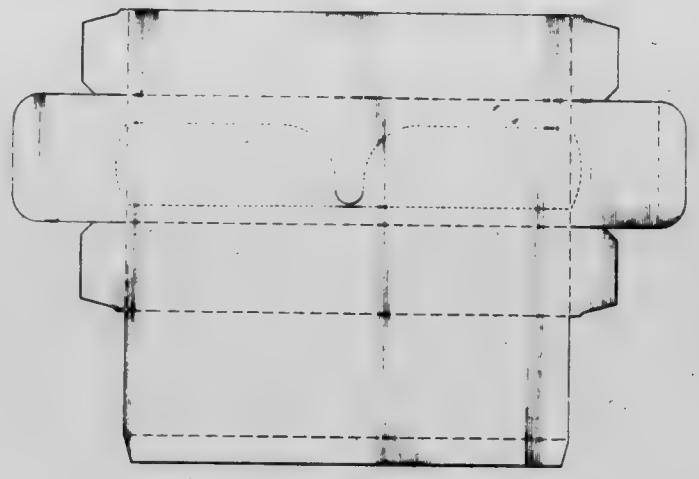
264,816
PHONOGRAPH CARTRIDGE BOX
Sanford Drelinger, White Plains; Norman H. Dieter, Jr., Pleasantville, and Lazzaro Padron, Irvington, all of N.Y., assignors to Micro-Acoustics Corporation, Elmsford, N.Y.
Filed Apr. 16, 1980, Ser. No. 140,741
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—424



264,817
SLEEVE BLANK FOR CONNECTING CONTAINERS
John J. Austin, LaGrange, Ill., assignor to Champion International Corporation, Stamford, Conn.
Filed Jan. 22, 1980, Ser. No. 114,191
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



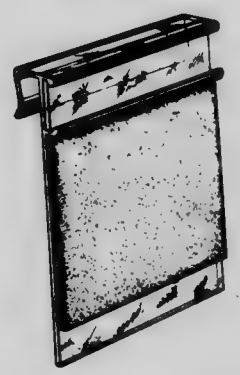
264,818
CARTON BLANK
Floyd F. Fallen, and Calvin L. Wilson, both of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.
Filed Nov. 16, 1979, Ser. No. 95,526
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



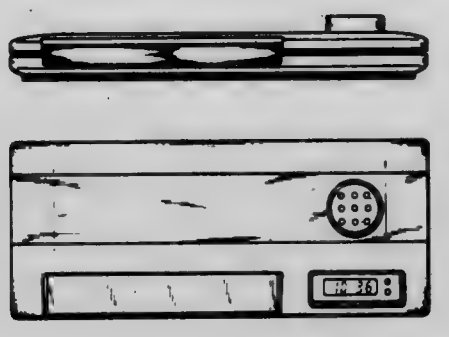
264,819
DISPENSING CAP
George E. Burnett, 1020 Josephine St., Mareinette, Wis. 54143
Filed Jun. 30, 1978, Ser. No. 921,130
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—449



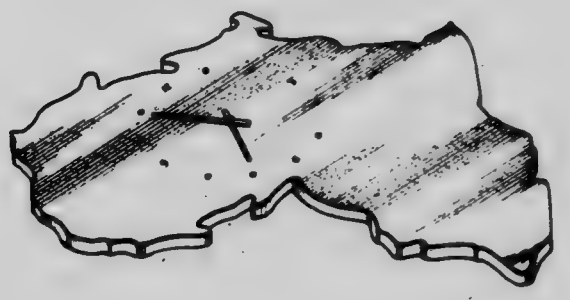
264,820
JEWELRY DISPLAY CARD
Jeffrey A. Feibelman, Cranston, R.I., assignor to A & H Mfg. Co., Johnston, R.I.
Filed Feb. 12, 1980, Ser. No. 120,935
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—457



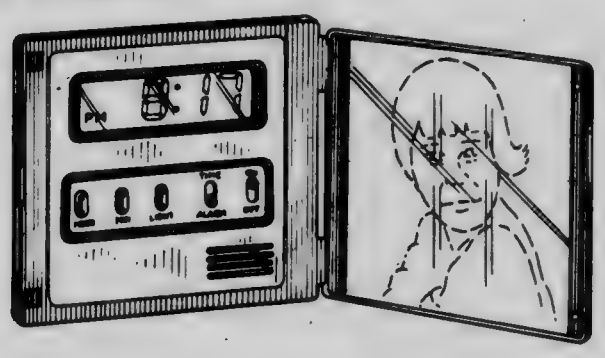
264,821
COMBINED CLOCK AND DESK HOLDER FOR NOTE PAPER AND WRITING INSTRUMENTS
Walter Henkels, Holunderweg 1, 5142 Hückelhoven, Fed. Rep. of Germany
Filed Jul. 2, 1980, Ser. No. 165,405
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1980, MR 130
Term of patent 14 years
Int. Cl. D10—*01*; D19—*02*
U.S. Cl. D10—2



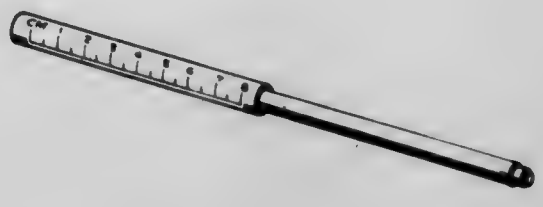
264,822
CLOCK
Guy L. Dunlap, 2328 W. 12th St., Santa Ana, Calif. 92703
Filed Nov. 5, 1979, Ser. No. 91,515
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—10



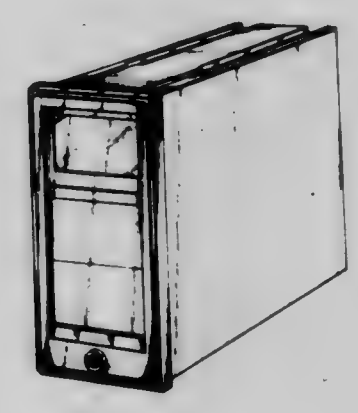
264,823
TRAVELER'S ALARM CLOCK COMPACT
Takeshi Satoh, Kawasaki, Japan, assignor to Howard Miller Clock Company, Zeeland, Mich.
Filed Jun. 2, 1980, Ser. No. 155,170
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—15



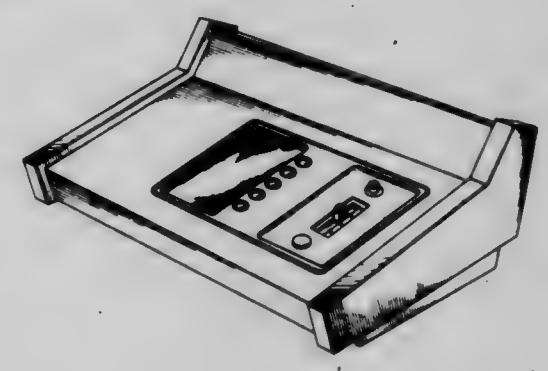
264,824
COMBINED SURGICAL RULER AND MARKING PEN
Dan Sandel, 19524 Halsted, Northridge, Calif. 91324
Filed Nov. 30, 1979, Ser. No. 99,083
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—71



264,825
WATTMETER
Kenzou Izaki, Chiba, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan
Filed Apr. 29, 1980, Ser. No. 144,843
Claims priority, application Japan, Nov. 9, 1979, 54-46778
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—75



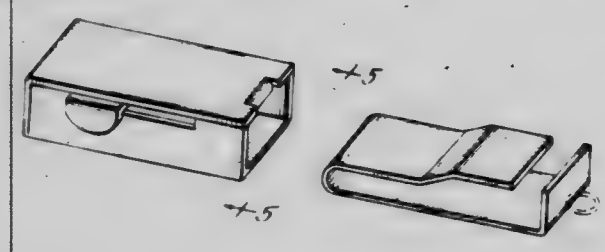
264,826
SECURITY SYSTEM CONSOLE
Frederick J. Conforti, Aurora; Philip J. Burnstein, Skokie, and Kenneth R. Fenne, Glen Ellyn, all of Ill., assignors to Pittway Corporation, Aurora, Ill.
Filed Jan. 10, 1980, Ser. No. 111,169
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D10—106



264,827
RING GUARD
Louise B. Cunningham, 1515 N. 22nd St., Corsicana, Tex. 75110
Filed May 7, 1979, Ser. No. 36,459
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—34



264,828
JEWELRY CLASP
Ernest F. Gray, 3246 San Amadeo, Apt. O, Laguna Hills, Calif. 92653
Filed Nov. 30, 1979, Ser. No. 98,740
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—87



264,829
FANCIFUL FIGURINE OF A BOXER PUP
Jesus A. Carbajales Santa-Eulalia, and Javier B. Carbajales Santa-Eulalia, both of Montevideo, Uruguay, assignors to John J. Madison Co., Inc., Laguna Hills, Calif.
Filed Dec. 17, 1979, Ser. No. 104,693
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

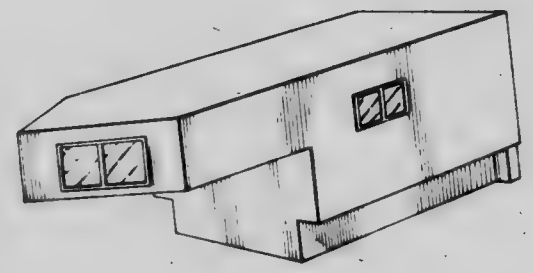




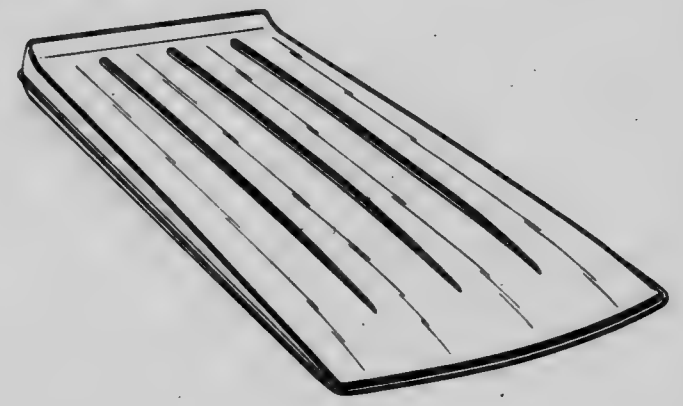
264,830
SNOWMOBILE
Atsushi Ishiyama, Tokyo, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Japan
Filed Sep. 10, 1979, Ser. No. 73,620
Claims priority, application Japan, Mar. 14, 1979, 54-10051
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D12—7



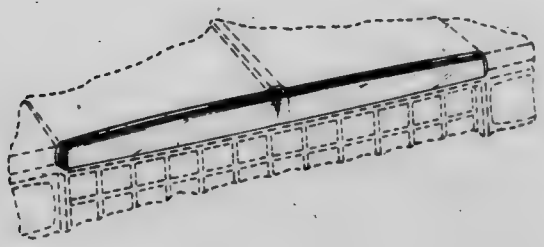
264,831
CAMPER UNIT FOR A PICK-UP TRUCK
Eugene Dulisse, 107 Grand Blvd., Sault Ste. Marie, Ontario, Canada (P6B 4S1)
Filed Aug. 2, 1979, Ser. No. 63,260
Claims priority, application Canada, Feb. 2, 1979, 02-02-79-1
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156



264,832
CONTAINER, ESPECIALLY FOR TRANSPORTING SKIS ON THE ROOF OF A CAR
Kaj Lind, Margaretagatan 5, and Lars-Olof Gustafsson, Akaregatan 38, both of S-331 00 Varnamo, Sweden
Filed Dec. 7, 1978, Ser. No. 967,437
Claims priority, application Sweden, Jun. 8, 1978, 78-1463
Term of patent 3½ years
Int. Cl. D12—*16*
U.S. Cl. D12—157



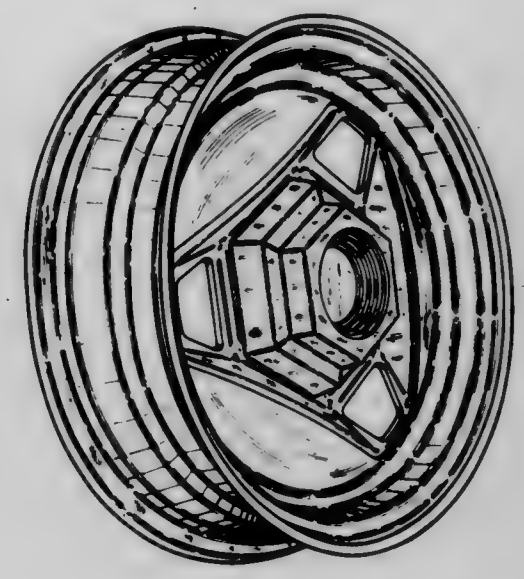
264,833
TRIM PIECE FOR AN AUTOMOBILE HOOD
Ulric W. Trombley, R.R. #1, Chisago City, Minn. 55013, and Richard J. Nozel, 354 Edith Dr., West St. Paul, Minn. 55118
Filed Mar. 20, 1980, Ser. No. 132,113
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—190



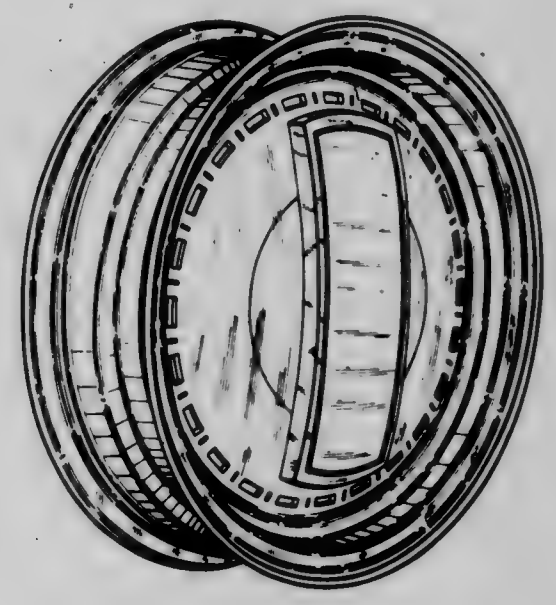
264,834
VEHICLE WHEEL
John A. Main, Plymouth, Mich., assignor to Kelsey-Hayes Co., Romulus, Mich.
Filed Jan. 14, 1980, Ser. No. 111,576
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—210



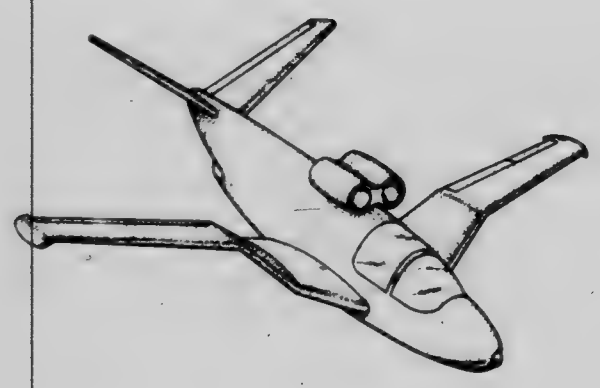
264,835
VEHICLE WHEEL
Donald J. Reid, Pleasant Ridge, Mich., assignor to Kelsey-Hayes Co., Romulus, Mich.
Filed Jan. 25, 1980, Ser. No. 115,476
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—211



264,836
VEHICLE WHEEL
John A. Main, Plymouth, and Lawrence K. Shinoda, West Bloomfield, both of Mich., assignors to Kelsey-Hayes Co., Romulus, Mich.
Filed Feb. 1, 1980, Ser. No. 117,730
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—211



264,837
AIRCRAFT
Peter Dornier, Schachenerstrasse 97, Lindau, Fed. Rep. of Germany (8990)
Filed Nov. 7, 1977, Ser. No. 849,485
The portion of the term of this patent subsequent to Jun. 10, 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—324

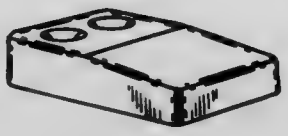


264,838
AIRCRAFT
Peter Dornier, Schachenerstrasse 97, Lindau, Fed. Rep. of Germany (8990)
Filed Sep. 5, 1979, Ser. No. 72,688
Claims priority, application Fed. Rep. of Germany,
The portion of the term of this patent subsequent to Jun. 10, 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—324





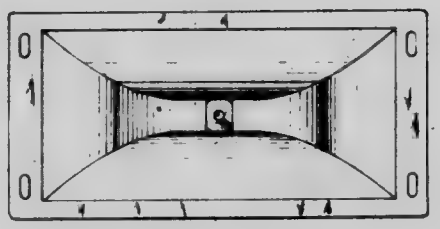
264,839
HOUSING FOR ELECTRONIC APPARATUS
Charles A. Ross, and Jerry L. Schell, both of c/o Keas Electronics, 210 W. Main St., Chanute, Kans. 66720
Filed Sep. 22, 1978, Ser. No. 944,872
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—41

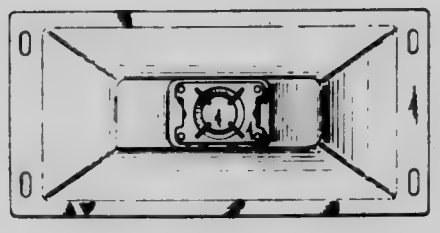


264,840
LOUD SPEAKER CABINET
Fred Feldman, 638 Coffeen St., Watertown, N.Y. 13601
Filed Jun. 3, 1980, Ser. No. 156,172
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—31

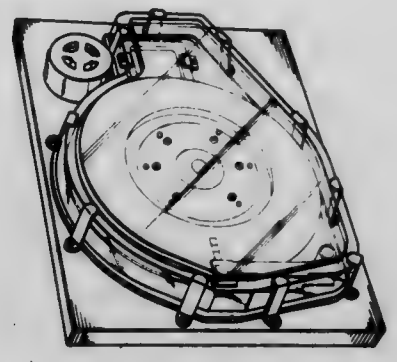


264,841
SPEAKER HORN
Charles Pickrel, Seattle, Wash., assignor to Speakerlab, Inc., Seattle, Wash.
Filed Dec. 13, 1979, Ser. No. 103,338
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—35

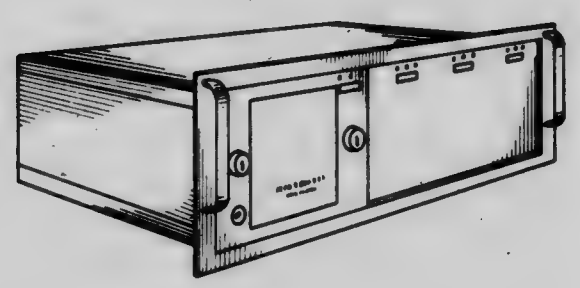




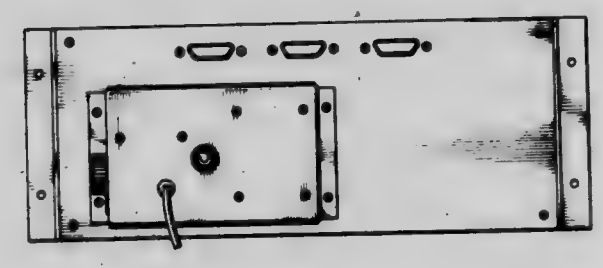
264,842
FIXED DISK DRIVE
Donald V. Daniels, Santa Cruz; Terence H. West, San Jose, and Albert S. Chou, Monte Sorreno, all of Calif., assignors to Xerox Corporation, Stamford, Conn.
Filed Dec. 4, 1978, Ser. No. 966,178
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—109



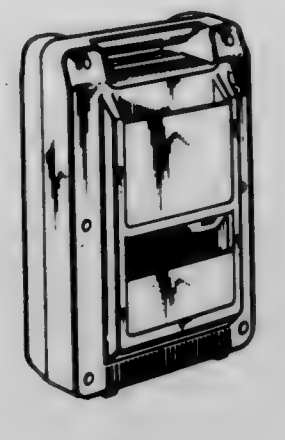
264,843
MULTIPLE MODULE SERIAL LINK ENCRYPTION UNIT OR SIMILAR ARTICLE
Joseph W. Karas; Robert F. Pfeifer, both of Phoenix, and Robert Samson, Scottsdale, all of Ariz., assignors to Motorola Inc., Schaumburg, Ill.
Filed Apr. 2, 1979, Ser. No. 25,955
Term of patent 14 years
Int. Cl. D14—*02;* D13—*03*
U.S. Cl. D14—100



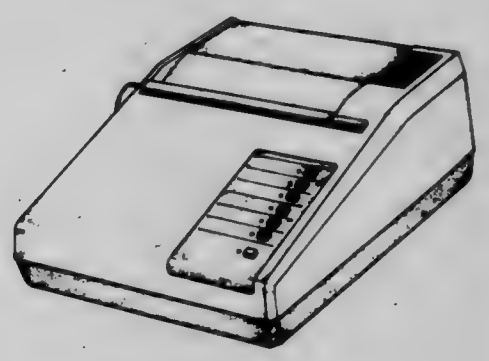
264,844
ELECTRONIC SYSTEM HOUSING FOR PRINTED CIRCUIT BOARDS AND POWER SOURCE
Winfree P. Tuck, Huntsville, Ala., assignor to Inteo Incorporated, Fairfax, Va.
Filed Jun. 28, 1979, Ser. No. 52,709
Term of patent 14 years
Int. Cl. D14—*3*
U.S. Cl. D14—100



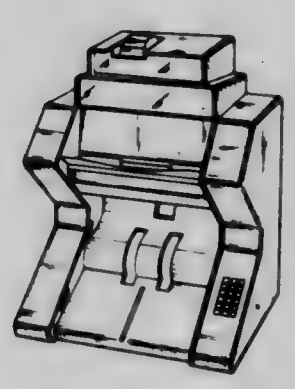
264,845
HOUSING FOR TELECOMMUNICATIONS APPARATUS
John A. Hellwig, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada
Filed Apr. 14, 1980, Ser. No. 139,982
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—68



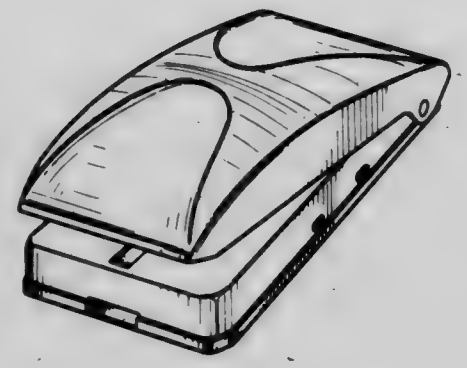
264,846
SHORT WAVE FACSIMILE RECEIVER
Shuhei Taguchi, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Nov. 27, 1979, Ser. No. 98,376
Claims priority, application Japan, May 31, 1979, 54-22473
Term of patent 14 years
Int. Cl. D14—*01;* D16—*03*
U.S. Cl. D14—94



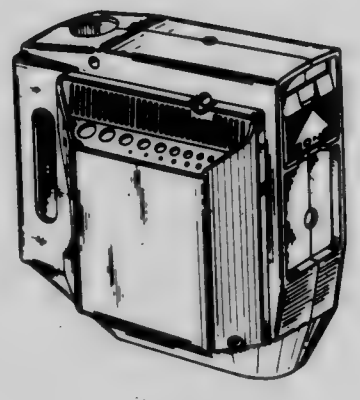
264,847
DOCUMENT HANDLING AND COUNTING DEVICE
John DiBlasio, Medford, N.J., assignor to Brandt, Inc., Currency Systems Division, Cornwells Heights, Pa.
Filed Mar. 10, 1980, Ser. No. 128,473
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D14—110



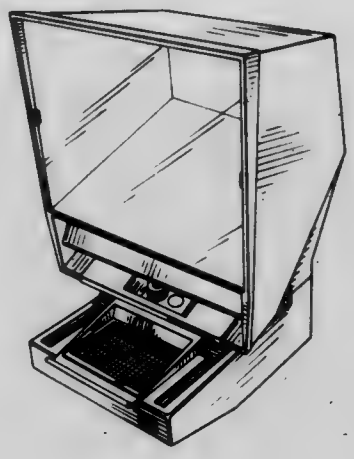
264,848
SEWING MACHINE FOOT PEDAL
Susumu Hanyu, Hachioji, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Feb. 13, 1980, Ser. No. 121,251
Claims priority, application Japan, Sep. 7, 1979, 54-37475; Sep. 12, 1979, 54-38020
Term of patent 14 years
Int. Cl. D15—*99*; D13—*99*
U.S. Cl. D15—72



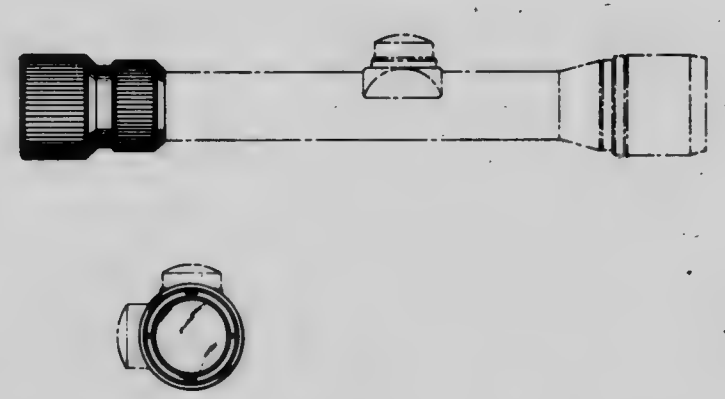
264,849
HOUSING FOR DRILL PRESS
Edward A. Irelan, Columbia, Mo., assignor to Benchmark Tool Company, Jefferson City, Mo.
Filed Apr. 9, 1979, Ser. No. 28,513
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D15—132



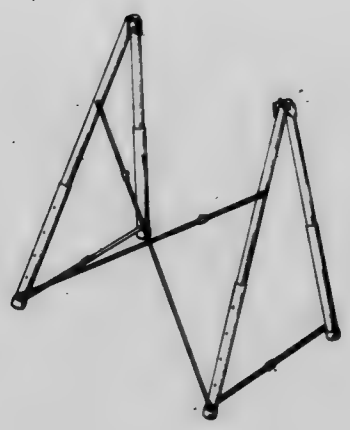
264,850
MICROFICHE READER
Peter J. Hall, Palgrave, Canada, assignor to Kibbutz Sheluchot, Habika, Israel
Filed Oct. 27, 1978, Ser. No. 955,163
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—11



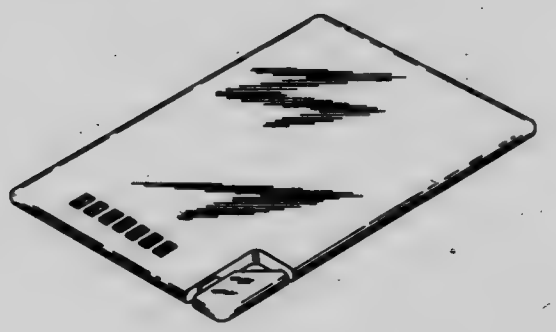
264,851
AUXILIARY OBJECTIVE LENS FOR A FIREARM SIGHT
Claus O. Huckenbeck, Westlake Village, Calif., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Nov. 30, 1979, Ser. No. 98,831
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—134



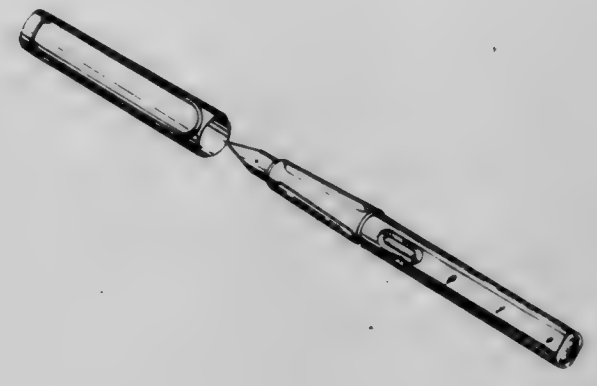
264,852
KEYBOARD STAND
Darrell A. Schoenig, 432 Clover La., Ft. Collins, Colo. 80521
Filed Jun. 2, 1980, Ser. No. 155,071
The portion of the term of this patent subsequent to Jun. 16, 1995, has been disclaimed.
Term of patent 14 years
Int. Cl. D17—*01, 99;* D6—*04*
U.S. Cl. D17—9



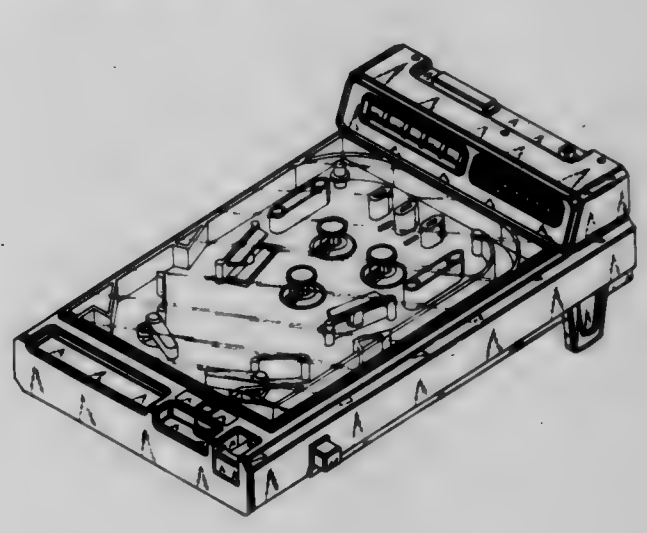
264,853
ELECTRONIC MEMORY CREDIT CARD WITH FRANGIBLE PORTION
Mario Scavino, and Giuseppe Marchisi, both of Milan, Italy, assignors to SGS-Ates Componenti Elettronici S.P.A., Agrate Brianza, Italy
Filed Dec. 3, 1979, Ser. No. 99,891
Claims priority, application Italy, Jun. 4, 1979, 21720/79[U]
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D19—10



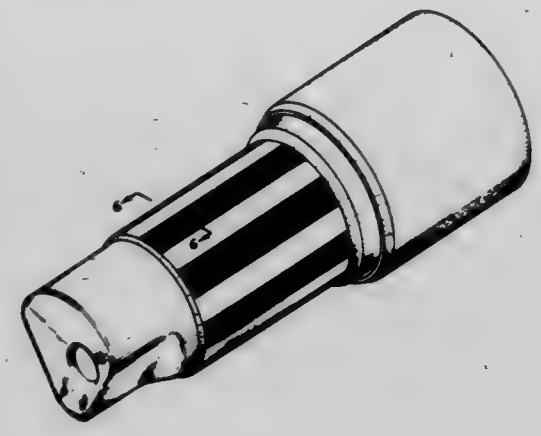
264,854
FOUNTAIN PEN
Bernt Spiegel, Edingen, Fed. Rep. of Germany, assignor to C. Joseph Lamy GmbH, Fed. Rep. of Germany
Filed Jul. 31, 1980, Ser. No. 174,219
Claims priority, application Fed. Rep. of Germany, Feb. 21, 1980, 270
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—49



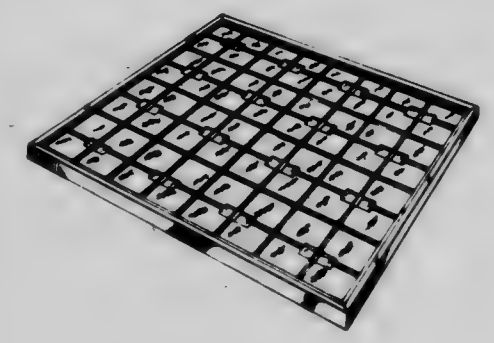
264,855
TOY PINBALL MACHINE
Tetsuo Ohkado, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Jan. 22, 1980, Ser. No. 114,189
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—10



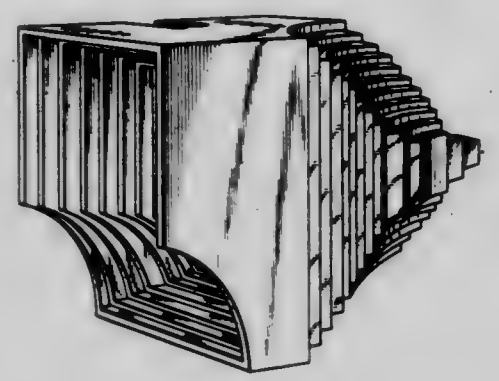
264,856
KALEIDOSCOPE
John R. Nottingham, 4875 Stacy Ct., Richmond Heights, Ohio 44143, and John W. Spirk, Jr., 2533 Euclid Heights Blvd., Cleveland Heights, Ohio 44106
Filed May 1, 1980, Ser. No. 145,795
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—60



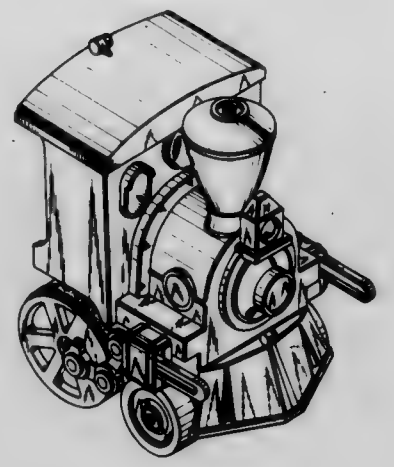
264,857
GAME BOARD
Dunbar C. Aitkens, 1460 SW. "A" St., Corvallis, Oreg. 97330
Filed Jul. 25, 1978, Ser. No. 927,900
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—16



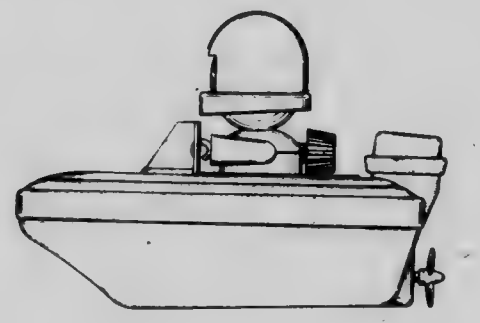
264,858
PUZZLE
Terry J. Dennis, 1602 S. Centre, San Pedro, Calif. 90731
Filed Mar. 10, 1980, Ser. No. 128,442
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—107



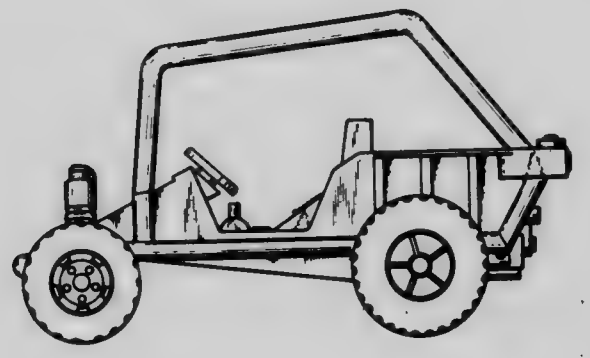
264,859
TOY LOCOMOTIVE
Masami Shiraishi, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Dec. 14, 1979, Ser. No. 103,483
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—129



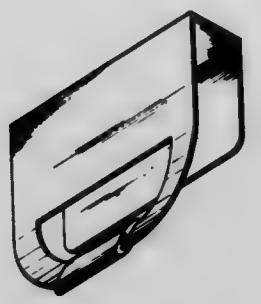
264,860
COMBINED TOY BOAT AND FIGURE THEREFOR
Naoharu Yamashina, Tokyo, Japan, assignor to Kabushiki Kaisha Bandai Overseas, Tokyo, Japan
Filed Feb. 5, 1979, Ser. No. 9,052
Claims priority, application Japan, Aug. 10, 1978, 53-33916
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—130



264,861
TOY VEHICLE
William J. Maloney, II, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Dec. 17, 1979, Ser. No. 104,318
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—137



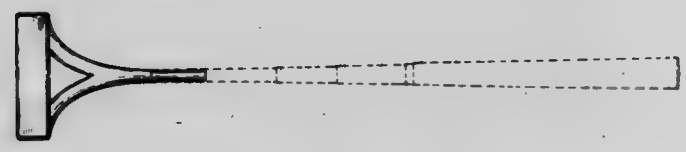
264,862
EXERCISER FOR ATTACHMENT TO DOOR OR THE LIKE
Vera Kokoska, 310 Clark St., Hot Springs, Ark. 71901
Filed Nov. 13, 1979, Ser. No. 93,285
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—191



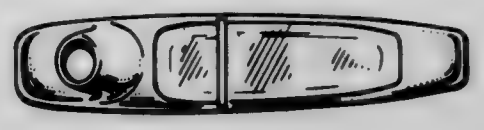
264,863
HOCKEY STICK
John A. Walmsley, 91-110 Baylor Ave., Winnipeg, Manitoba, Canada
Continuation-in-part of Ser. No. 867,376, Jan. 5, 1978, abandoned. This application Feb. 21, 1980, Ser. No. 123,125
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—210



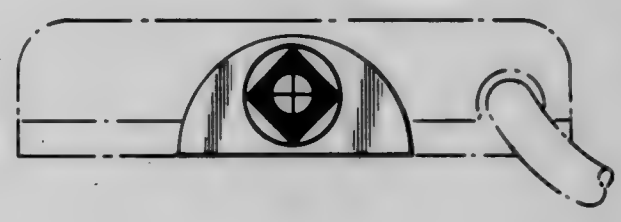
264,864
PUTTER HEAD
Victor H. Hahn, One Bratenahl Pl., Apt. 1208, Bratenahl, Ohio 44108
Filed May 9, 1980, Ser. No. 148,400
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—218



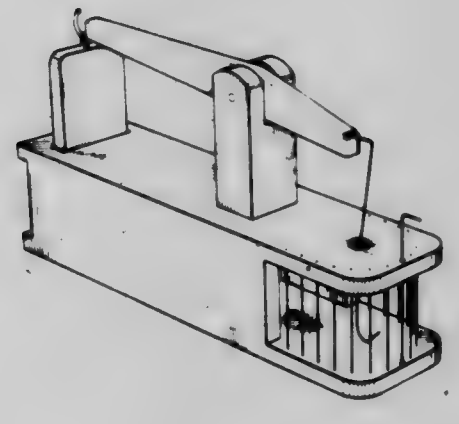
264,865
GOLF PUTTER HEAD
William H. Morgan, Sr., 26822 Via Matador, Mission Viejo, Calif. 92675
Filed Jan. 21, 1980, Ser. No. 113,693
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—219



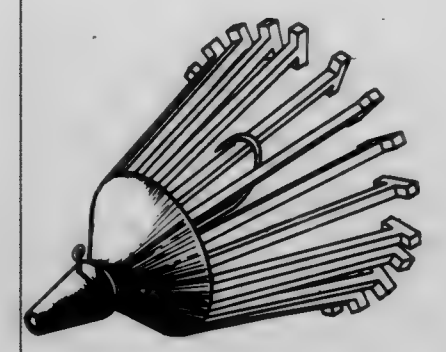
264,866
ALIGNMENT ATTACHMENT FOR A GOLF PUTTER
Frederick S. Clar, 10 Cedar La., Orinda, Calif. 94563
Filed Nov. 13, 1979, Ser. No. 93,583
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D21—221



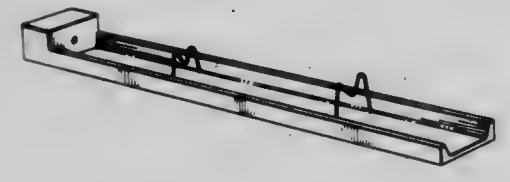
264,867
MOUSE TRAP
Roderick L. Barker, 2259 Cecelia Ter., San Diego, Calif. 92110
Filed Jun. 22, 1981, Ser. No. 276,213
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—18



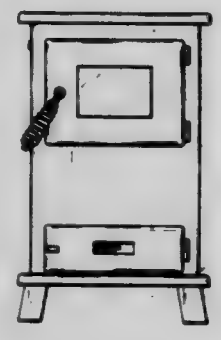
264,868
FISHING LURE
James C. Beavers, Rte. #1-Box #5, Martin, Tenn. 38237
Filed May 9, 1980, Ser. No. 148,561
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27



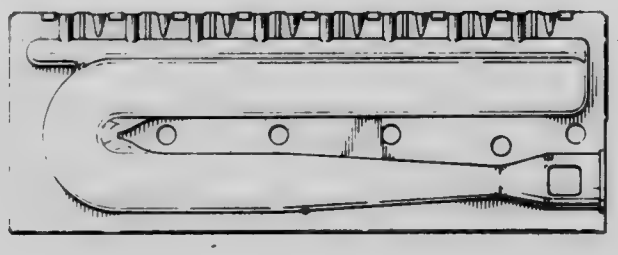
264,869
INCENSE HOLDER
Dolores L. Gordon, 7701 S. Western St., Los Angeles, Calif. 90047
Filed May 12, 1980, Ser. No. 149,110
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D23—78



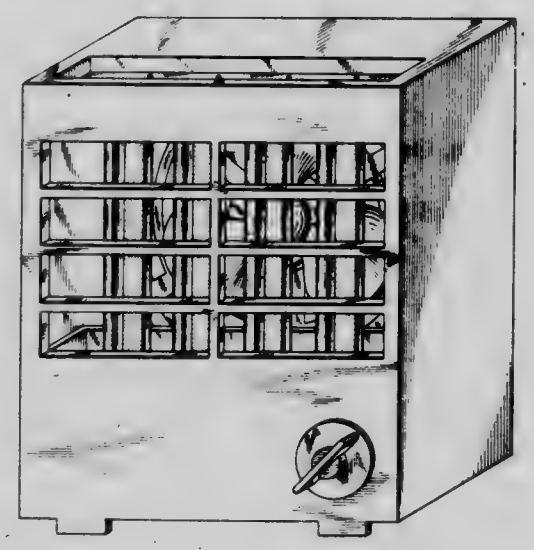
264,870
COAL BURNING STOVE
Richard A. Russo, Holbrook, Mass., assignor to Russo Manufacturing Corp., Randolph, Mass.
Filed Mar. 26, 1980, Ser. No. 134,230
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



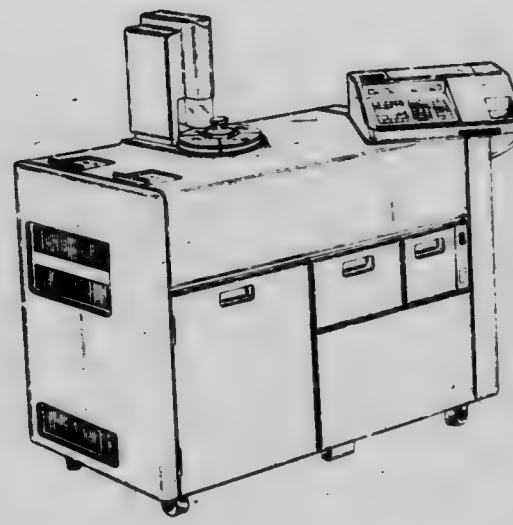
264,871
GAS BURNER
Christopher Halstead, Accrington, England, assignor to Main Gas Appliances Limited, London, England
Filed Jul. 16, 1979, Ser. No. 57,520
Claims priority, application United Kingdom, Jan. 29, 1979, 988293
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—129



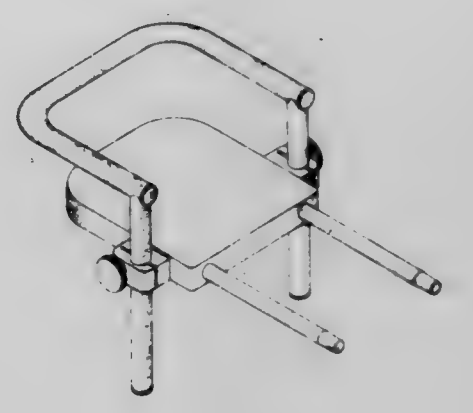
264,872
DESIGN FOR HUMIDIFIER OR THE LIKE
Steven Goodman, Teaneck, N.J., assignor to Carlan Trading Ltd., Hamilton, Bermuda
Filed Feb. 28, 1980, Ser. No. 125,717
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—146



264,873
CHEMICAL ANALYZER
Richard J. Olson, Webster, and Lawrence E. Hood, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jun. 16, 1980, Ser. No. 160,778
Term of patent 14 years
Int. Cl. D24—*01*; D10—*04*
U.S. Cl. D24—1.1



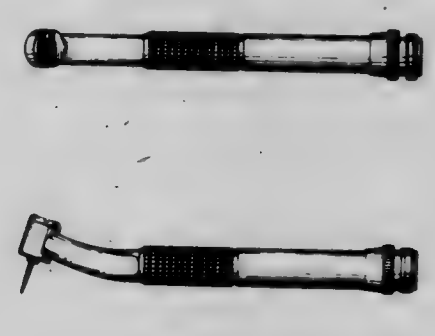
264,875
COMBINED SURGICAL HEADREST AND WRIST REST
Joseph T. Crocker, Birmingham, Ala., assignor to Surgical Engineering Co., Inc., Birmingham, Ala.
Filed Nov. 16, 1979, Ser. No. 94,834
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—7



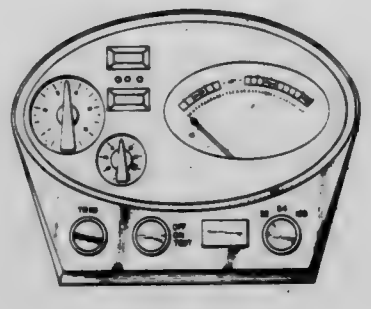
264,874
TREATMENT COUCH TOP
Nils E. Augustsson, Akarp; Kjell B. Westerlund, and Kay W. Stahl, both of Upsala, all of Sweden, assignors to Instrument AB Therados, Upsala, Sweden
Filed Aug. 24, 1979, Ser. No. 69,494
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—3



264,876
DENTAL HANDPIECE
Paul Seid, New City, N.Y., assignor to Sultan Dental Products Ltd., Englewood, N.J.
Filed Jan. 17, 1980, Ser. No. 113,128
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—12

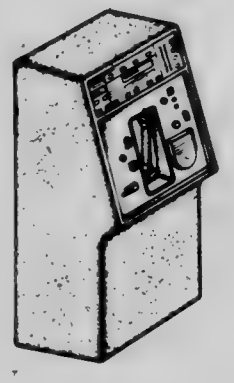


264,877
DEVICE FOR MEASURING AND INDICATING CHANGES IN RESISTANCE OF A LIVING BODY
Daniel G. Swanson, Clearwater, Fla., assignor to Lafayette R. Hubbard, East Grinstead, England
Filed Mar. 8, 1979, Ser. No. 18,845
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—17

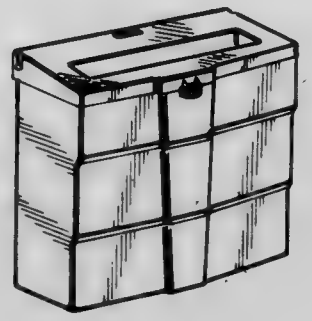




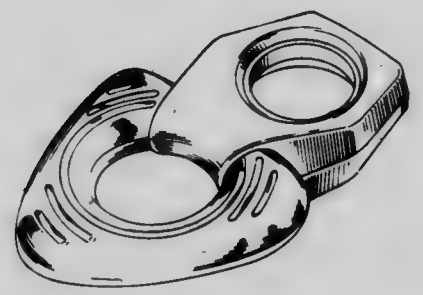
264,878
DIALYSATE DELIVERY MACHINE
Julian I. Landau, Concord, Calif., assignor to Cordis Dow Corp., Miami, Fla.
Filed May 22, 1979, Ser. No. 41,357
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—21



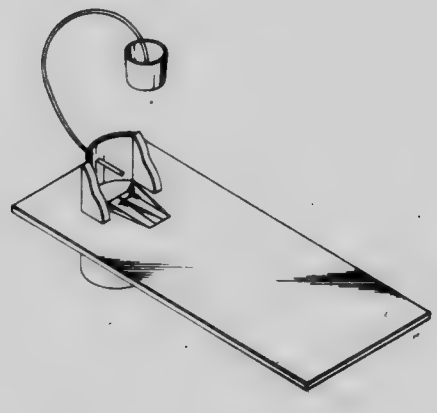
264,879
USED SYRINGE RECEPTACLE
Richard E. Baker, 2610 Creddy Way #D, Santa Ana, Calif. 92704
Filed Mar. 27, 1980, Ser. No. 134,741
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—31



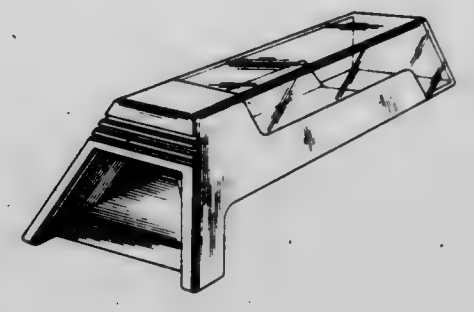
264,880
TEETHER
Richard L. Panicci, Hanover, Mass., assignor to Kiddie Products Inc., Avon, Mass.
Filed May 21, 1979, Ser. No. 40,565
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—46



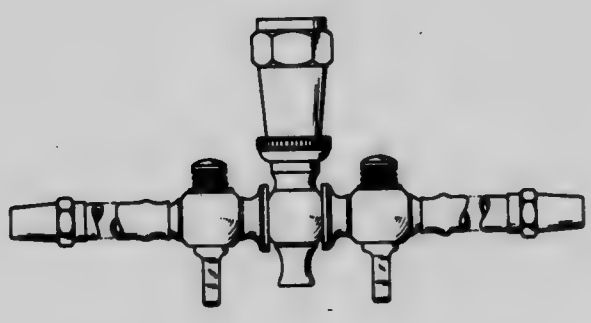
264,881
COLEMA BOARD
George A. Shaffer, 4540 Airport Rd., Redding, Calif. 96001
Filed Aug. 13, 1979, Ser. No. 66,063
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—51



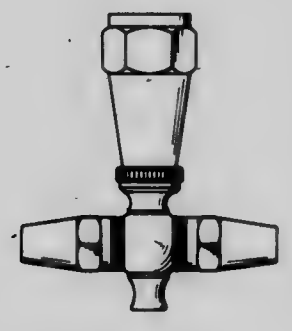
264,882
SCALPEL BLADE EXTRACTOR
Kevin Thompson, London, England, assignor to Jermed Limited, St. Helier, Channel Islands
Filed Sep. 24, 1979, Ser. No. 78,220
Claims priority, application United Kingdom, Mar. 27, 1979, 989236
Term of patent 14 years
Int. Cl. D24—*02, 99*
U.S. Cl. D24—99



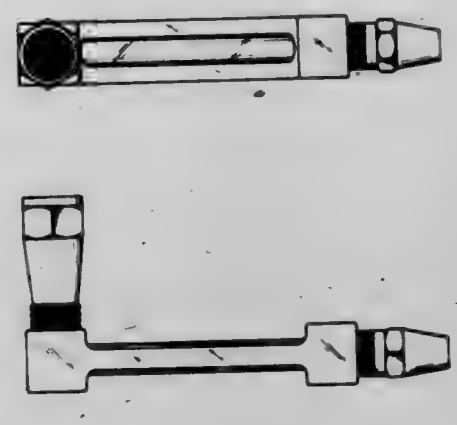
264,883
SMOKING PIPE WITH DUAL STEMS
Brad L. Irelan, 3746 S. Iowa St., St. Francis, Wis. 53207
Filed Jun. 19, 1980, Ser. No. 161,022
Term of patent 3½ years
Int. Cl. D27—*02*
U.S. Cl. D27—03



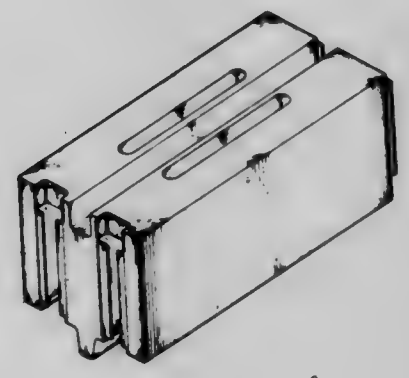
264,884
SMOKING PIPE WITH DUAL STEMS
Brad L. Irelan, 3746 S. Iowa St., St. Francis, Wis. 53207
Filed Jun. 19, 1980, Ser. No. 161,024
Term of patent 3½ years
Int. Cl. D27—*02*
U.S. Cl. D27—03



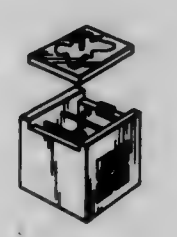
264,885
SMOKING PIPE
Brad L. Irelan, 3746 S. Iowa St., St. Francis, Wis. 53207
Filed Jun. 19, 1980, Ser. No. 161,042
Term of patent 3½ years
Int. Cl. D27—*02*
U.S. Cl. D27—3



264,886
INTERLOCKING REINFORCED BRICK
Louis Feldman, 1900 S. Palm Canyon Dr., Apt. 7, Palm Springs, Calif. 92262
Filed Apr. 30, 1980, Ser. No. 144,975
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—87



264,887
PET OBSERVATORY OR THE LIKE
Dennis O. Tweed, 420 - 21st Ave. SW., Rochester, Minn. 55901
Filed Dec. 18, 1979, Ser. No. 104,953
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—1

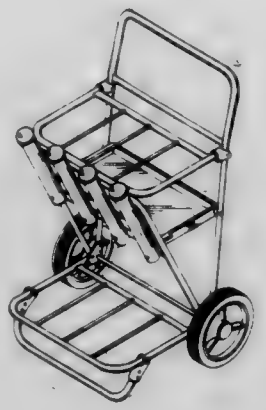


264,888

FISHERMAN'S CART

Ronald C. Watts, 4507 Rocky River Rd., Charlotte, N.C. 28205

Filed Jun. 9, 1980, Ser. No. 157,965
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—26

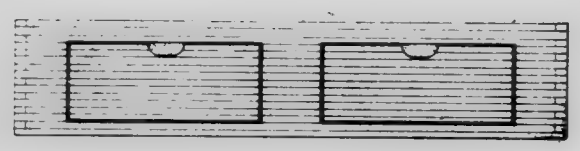


264,889

WOOD BED FRAME OR THE LIKE

John S. Thomas, II, Raleigh, N.C., assignor to Wood Products, Inc., Raleigh, N.C.

Filed May 13, 1980, Ser. No. 149,466
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—80



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 8TH DAY OF JUNE, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Aoki & Associates: *See—*
Inaba, Seiuemon; Shimajiri, Tokiji; and Toyoda, Kenichi, 4,333,363, Cl. 74-826.000.

A. H. Robins Company, Inc.: *See—*
Walsh, David A., 4,333,951, Cl. 424-319.000.

A.P.C. Industries, Inc.: *See—*
Marks, Barry M., 4,334,227, Cl. 343-719.000.

A.R.M.: *See—*
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A. W. Chesterton Company: *See—*
Kozlowski, Peter F., 4,333,380, Cl. 87-6.000.

AB Celleco: *See—*
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Abe, Haruhiko; Nagatomo, Masao; Tsubouchi, Natsuro; Harada, Hiroshi; and Mitsuhashi, Junichi, to Mitsubishi Denki Kabushiki Kaisha. Method of forming patterned refractory metal films by selective oxygen implant and sublimation. 4,333,226, Cl. 29-576.00B.

Abe, Koichi; Ishihara, Masami; and Watanabe, Thuyoshi, to Mitsubishi Gas Chemical Co., Ltd. Process for producing benzene carboxylic acid ester. 4,334,080, Cl. 560-99.000.

Abrahams, Louis; and Izod, Thomas P. J., to Waters Associates, Inc. Wear-resistant article. 4,333,977, Cl. 428-131.000.

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Hammonds, James C., 4,333,666, Cl. 280-435.000.

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Acme Resin Corporation: *See—*
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Acoustic Standards: *See—*
Niezgoda, Thomas A.; and Oppenheimer, Carl P., 4,333,377, Cl. 84-1.270.

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Magill, Robert J.; Lockley, Donald J.; and Perrin, Richard J., 4,333,489, Cl. 137-77.000.

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Adachi, Takashi: *See—*
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Adams, Andrea V. Toy. 4,333,642, Cl. 272-1.00D.

Adams, James R., Jr.; and Ogawa, Francis T., to Rollei of America, Inc. Photographic flash control circuitry having selectively operable internal sensor. 4,333,718, Cl. 354-31.000.

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Schreckenberg, Manfred; Freitag, Dieter; Burgdorfer, Hans-Heribert; Lehnert, Gunther; Adelmann, Siegfried; and Rudolph, Hans, 4,333,809, Cl. 204-159.140.

Adey, Walter H., to Smithsonian Institution, The. Algal turf scrubber. 4,333,263, Cl. 47-1.400.

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Kluczynski, Achim; and Altmann, Erik, 4,333,615, Cl. 242-71.100.
Paulus, Rudolf; and Mischo, Klaus, 4,334,219, Cl. 340-712.000.

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Muylle, Wilfried E.; and Kreiter, Heinz, 4,333,372, Cl. 83-324.000.

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Ahrendt, William A.; and Beggs, Donald, to Midrex Corporation. Method for direct reduction of iron using high sulfur gas. 4,333,761, Cl. 75-35.000.

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Feitler, David, 4,333,885, Cl. 260-549.000.
Tedeschi, Robert J., 4,334,091, Cl. 562-506.000.

Airco, Inc.: *See—*
Terrell, Ross C.; and Hansen, Kirsten, 4,334,105, Cl. 568-682.000.

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Aktiebolaget Bofors: *See—*
Bengtsson, Erik; Billingsson, Nils; Persson, Karl-Johan; and Backman, Bengt-Olov, 4,334,110, Cl. 568-932.000.

Akutsu, Eiichi: *See—*
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Alanco, Lars-Erik: *See—*
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Albertson, Robert V. Sediment indicator for liquid circulatory system. 4,333,826, Cl. 210-94.000.

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Allain, Regina Gonsoulin, administratrix: *See—*
Allain, John C., deceased, 4,333,654, Cl. 273-241.000.

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Van De Puy, Michael; Anello, Louis G.; and Robinson, Martin A., 4,334,099, Cl. 568-386.000.
Wu, Tse C.; Prevorsek, Dusan C.; and Wertz, David H., 4,334,045, Cl. 525-439.000.

Alloy Spot Welders, Inc.: *See—*
Ittner, Nelson C.; and Rooke, William I., 4,333,598, Cl. 228-181.000.

Alps Electric Co., Ltd.: *See—*
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Altenschopfer, Theodor; Schumann, Klaus; and Grodau, Dieter, to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA). Detergent composition with a mechanical cleaning effect. 4,333,771, Cl. 134-7.000.

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American Casting and Manufacturing Corporation: *See—*
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Aoki, Eiichiro: *See—*
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Aoki, Kiyoshi: *See—*
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Aoki, Kozo; Seoka, Yoshio; and Yokota, Yukio, to Fuji Photo Film Co., Ltd. Color photographic light sensitive materials. 4,334,011, Cl. 430-552.000.

Aoki, Masaki; and Ohtani, Mitsuhiro, to Matsushita Electric Industrial Co., Ltd. Thick film varistor. 4,333,861, Cl. 252-518.000.

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Aoyama, Masayoshi, to Molten Rubber Industry Co., Ltd. Inflatable game ball. 4,333,648, Cl. 273-65.0EB.

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Itoh, Takayuki; Ogawa, Ryota; and Arai, Yasunori, 4,333,711, Cl. 350-426.000.
Takami, Satoshi; Hagiwara, Teruo; Kando, Toru; and Kuroki, Yoshifumi, 4,333,719, Cl. 354-132.000.
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Ascoli, Enzo, to Gillette Company, The. DC Electric motors. 4,334,163, Cl. 310-90.000.

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Knudsen, Lars, 4,334,264, Cl. 363-51.000.
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Aspers, Arthur J., to SPS Technologies, Inc. Method and apparatus for tightening an assembly including a pre-load indicating fastener. 4,333,220, Cl. 29-407.000.

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Sweigart, Robert L., Jr., 4,333,580, Cl. 220-5.00A.

Athearn, Lee F., to Medtronic, Inc. Lithium-halogen batteries. 4,333,997, Cl. 429-218.000.

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Blommers, Elizabeth A.; Warfel, David R.; and Ingram, Alvin R., 4,333,970, Cl. 427-222.000.
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Ekwall, Carl G. B., 4,333,538, Cl. 173-104.000.

Atwood, John T., to Shepherd Products U.S. Inc. Twin wheel caster brake. 4,333,207, Cl. 16-35.00R.

Au, Anthony S. Pressure control systems. 4,333,452, Cl. 128-205.240.

Aument, Patrick E.: *See—*
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Pangritz, Dirk, 4,333,333, Cl. 374-8.000.

B&B Miniatures, The Whimsey: *See—*
Nye, LaVonne, 4,333,252, Cl. 38-144.000.

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Fisher, John M., 4,333,546, Cl. 182-48.000.
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Babo, Tivadar. Viticultural process and vine-dressing machine. 4,333,266, Cl. 47-58.000.

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Plosz, Sandor; Babos, Katalin; Rozsavolgyi, Karoly; and Felfoldy, Lajos, 4,333,837, Cl. 210-602.000.

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Backman, Bengt-Olov: *See—*
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Backo, Stevan. Power propelled reciprocating piston pump liquid sprayer. 4,333,609, Cl. 239-124.000.
Baer, Ted A.; and Labovitz, Jeffrey N., to Zoecon Corporation. Process for preparing α-ketocarboxylic acids. 4,334,087, Cl. 562-459.000.
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Bailey, Ivan. Leveling stand. 4,333,244, Cl. 33-290.000.
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Baker, Wallace L.: *See—*
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Ball Corporation: *See—*
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Ballnus, Wilhelm, to Schreiber-Klaranlagen Dr.-Ing. Aug. Schreiber GmbH & Co. KG. Method and apparatus for purifying an activated sludge-waste water mixture. 4,333,838, Cl. 210-614.000.
Baltensperger, Heinz; Buhler, Karl; and Schott, Werner, to BBC Brown, Boveri & Company, Ltd. Channel furnace having a magnetic core for generating three-dimensional magnetic fields. 4,334,119, Cl. 373-159.000.
Baltz, Richard H.; Wild, Gene M.; and Seno, Eugene T., to Eli Lilly and Company. Process for producing de(mycinosyloxy)tylosin. 4,334,019, Cl. 435-76.000.
Balzers Aktiengesellschaft: *See—*
Pulker, Hans K.; and Daxinger, Helmut, 4,333,962, Cl. 427-37.000.
Baniel, Avraham M., to Miles Laboratories, Inc. Extraction of organic acids from aqueous solutions. 4,334,095, Cl. 562-584.000.
Bannon, Robert D.; and Bhansali, Mahendra M., to International Business Machines Corporation. Error correcting code system. 4,334,309, Cl. 371-38.000.
Banyasz, Joseph L., to Philip Morris Incorporated. Process for increasing filling power of reconstituted tobacco. 4,333,482, Cl. 131-300.000.
Baratz, Brenda S.; Phillips, Robert A.; and Steward, David L., to Dow Chemical Company, The. Inhibition of enveloped viruses with phenyl ketones. 4,333,941, Cl. 424-267.000.
Bard Laboratories, Inc.: *See—*
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Barnert, Konrad: *See—*
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Barnstorf, Ingo, to Kennametal Inc. Holder for the attachment of cutters to mining and tunnelling machines. 4,333,687, Cl. 299-81.000.
Barrett, Michael G.: *See—*
Vaughan, David E. W.; and Barrett, Michael G., 4,333,859, Cl. 252-455.00Z.
Barry, James A.; and McGarry, James, to Comhlucht Siuicre Eireann Teoranta (Irish Sugar Company Limited). Process for producing dehydrated rice and product from parboiled rice. 4,333,960, Cl. 426-625.000.
Bartels, Hermann; Mez, Hans-Christian; Huber, Walter; and Stolz, Hans-Peter, to Ciba-Geigy Corporation. Mixing apparatus. 4,333,356, Cl. 73-864.210.
Barthel, Thomas C., to Medtronic, Inc. Output pulse artifact rejection in demand pacemakers. 4,333,470, Cl. 128-419.0PG.
Bartneck, Hans, to United States Shoe Corporation, The. Shoe molding process. 4,333,193, Cl. 12-142.0RS.
Basalay, Robert J.; and Udelhofen, John H., to Standard Oil Company (Indiana). Transamination process for Mannich products. 4,334,085, Cl. 564-367.000.
Bascou, Jacques, to Regie Nationale Des Usines Renault. Automatic control and locking device. 4,333,269, Cl. 49-280.000.
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Scharwaechter, Peter; Gutsche, Klaus; Kohlmann, Wilhelm; Kroemer, Gerhard, deceased; Kroemer, Norma, legal representative; Kroemer, Helmut, legal representative; and Kroemer, Maria M., legal representative, 4,333,936, Cl. 424-251.000.
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Patton, John T., Jr.; and Vogt, Herwart C., 4,334,032, Cl. 521-115.000.
Patton, John T., Jr.; Vogt, Herwart C.; and Parekh, Manher, 4,334,052, Cl. 528-52.000.
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Baumgarten, Arthur A., Jr.: *See—*
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Baumgartner, Kenneth A.; Melocik, Grant C.; and Stoller, Keith A., to Towmotor Corporation. Method of and means for controlling electrical devices. 4,334,176, Cl. 318-102.000.
Baumoel, Joseph. Two-transducer Doppler flowmeter with swept oscillator. 4,333,353, Cl. 73-861.250.
Baxter Travenol Laboratories, Inc.: *See—*
Jones, William L.; and Christensen, Jon A., 4,333,505, Cl. 141-383.000.
Bay, William P. Helmet visor. 4,333,180, Cl. 2-10.000.
Bayer Aktiengesellschaft: *See—*
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Freitag, Dieter; Reinking, Klaus; Idel, Karsten; Medem, Harald; and Bottenbruch, Ludwig, 4,334,053, Cl. 528-179.000.
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Neeff, Rutger, 4,334,068, Cl. 544-187.000.
Nickel, Horst; Muller, Friedhelm; and Mummenhoff, Peter, 4,333,874, Cl. 260-153.000.
Schreckenberg, Manfred; Freitag, Dieter; Burgdorfer, Hans-Heribert; Lehnert, Gunther; Adelmann, Siegfried; and Rudolph, Hans, 4,333,809, Cl. 204-159.140.
BBC Brown, Boveri & Company, Ltd.: *See—*
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Beaucamp, Klaus: *See—*
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Beck, Heinz; Frassek, Karl H.; Giezen, Egenius A.; and Verhulst, Eduard M., to Akzona Incorporated. Shaping of plastic materials containing polymeric lubricant. 4,334,038, Cl. 525-207.000.
Beck, James R.; and Yahner, Joseph A., to Eli Lilly and Company. Method for improving the efficiency of ruminant feed utilization. 4,333,923, Cl. 424-115.000.
Beck, Jeffrey L.; and Sweeney, William T., to Conoco Inc. Pressure dissipation apparatus. 4,333,499, Cl. 137-812.000.
Becker, Michael. Intramuscular injection device suitable for insulin injections. 4,333,459, Cl. 128-218.00F.
Becker, William J.; Farber, Sheldon; and Hoover, Troy E., to Appleton Papers Inc. Lactone compounds containing an indolizine radical. 4,334,072, Cl. 546-112.000.
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Cantello, Barrie C. C., 4,333,929, Cl. 424-246.000.
McDonald, Brian G., 4,333,952, Cl. 424-330.000.
Beesley, Graham E., to Motorola, Inc. Noise blanking circuitry in a radio receiver. 4,334,317, Cl. 455-194.000.
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Beig, Willy, to Zahnradfabrik Friedrichshafen. Gear shifter mounted on steering column of heavy-duty vehicle. 4,334,130, Cl. 200-61.540.
Beiswenger, John L.; Moon, Howard R.; Chaphalkar, Dhananjay V.; and Smiesko, Frank A., to Acme Burgess, Inc. Cartridge feeder for soluble fertilizer. 4,333,493, Cl. 137-268.000.
Belanger, Patrice C.; Rokach, Joshua; Young, Robert N.; and Scheigetz, John, to Merck & Co., Inc. Stereospecific sulfoxidation of dibenzo thiepins. 4,334,077, Cl. 549-12.000.
Bell Telephone Laboratories, Incorporated: *See—*
Boyd, Gary D.; Cheng, Julian; and Ngo, Peter D. T., 4,333,708, Cl. 350-346.000.
Freeman, Richard R.; and White, Jonathan C., 4,334,200, Cl. 372-90.000.
Geusic, Joseph E.; Muehlner, Dirk J.; and Nelson, Terence J., 4,334,291, Cl. 365-36.000.
Gitlin, Richard D.; and Meadors, Howard C., Jr., 4,334,313, Cl. 375-106.000.
Lifshitz, Nadia; Moran, Joseph M.; and Wang, David N., 4,333,793, Cl. 156-643.000.
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Bellafiore, Francis V.; Duff, Michael P.; and O'Meara, David M., to Chicago Bridge & Iron Company. Insulating machine and process. 4,333,973, Cl. 427-424.000.
Belletire, John L., to Pfizer Inc. Organic diamine therapeutic compositions and methods. 4,333,932, Cl. 424-248.560.
Ben Pearson Archery Inc.: *See—*
Roelle, David, 4,333,443, Cl. 124-24.00R.
Bendix Corporation, The: *See—*
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Hendrickson, Richard T.; and Carter, Joel S., 4,333,668, Cl. 280-703.000.
Bengtsson, Erik; Billingsson, Nils; Persson, Karl-Johan; and Backman, Bengt-Olov, to Aktiebolaget Bofors. Method of producing symmetrical trinitrobenzene. 4,334,110, Cl. 568-932.000.
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Bennett, Donald C. Composite rotary tool including hole forming means and a deburrer or chamferer. 4,333,727, Cl. 408-191.000.
Bennett, Moreland P., to General Electric Company. Bimetallic electrical connector and method for making such connector. 4,334,122, Cl. 174-94.00R.
Berger, Leo; and Olson, Gary L., to Hoffmann-La Roche Inc. Cycloalka[4,5]pyrrolo[2,3-g]isoquinolines. 4,334,070, Cl. 546-70.000.
Berger, Leo; Plati, John T.; and Ziering, Albert, to Hoffmann-La Roche Inc. Dibenzothiophenes. 4,334,078, Cl. 549-43.000.
Bergthaller, Peter; and Sommer, Helmut, to AGFA-Gevaert AG. Use of copolymers in the production of photographic emulsions and photographic materials. 4,334,013, Cl. 430-569.000.
Bergwerksverband GmbH: *See—*
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Berlin, Christian: *See—*
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Bernard, Andre: *See—*
Buathier, Bernard; and Bernard, Andre, 4,334,083, Cl. 560-226.000.
Berninger, Helmut, to Alexander Wiegand GmbH u. Co. Liquid-filled pressure gauge. 4,333,348, Cl. 73-708.000.
Bernot, Jean, to Trefilunion S.A. Process and apparatus for descaling rod. 4,333,275, Cl. 51-320.000.
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Bertea Corporation: *See—*
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Bertin, Marcel R.; Boutmy, Patrick E.; Le Fort, Gilbert J.; and Walraet, Jean G., to Societe Anonyme de Telecommunications. Monitoring system for telecommunication links equipped with repeaters-regenerators. 4,334,303, Cl. 370-13.000.
Bertolini, Guglielmo: *See—*
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BESAM-EADS, Inc.: *See—*
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Bethlehem Steel Corporation: *See—*
Wajtkowicz, Joseph A., 4,333,636, Cl. 266-68.000.
Bettarini, Franco; Massardo, Pietro; Piccardi, Paolo; and Longoni, Angelo, to Montedison S.p.A. Hydroquinone diether having juvenile hormone and acaricide activity. 4,334,104, Cl. 568-649.000.
Beyer, Klaus D.; and Logan, Joseph S., to International Business Machines Corporation. Omission of thick Si_3N_4 layers in ISA schemes. 4,333,794, Cl. 156-648.000.
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Bhattacharya, Debanshu; Quinto, Dennis T.; and Holowaty, Michael C., to Inland Steel Company. Semi-finished steel article. 4,333,776, Cl. 148-36.000.
Bhattacharyya, Arup; Chu, Wei-Kan; Howard, James K.; and Wiedman, Francis W., to International Business Machines Corporation. Method for manufacture of ultra-thin film capacitor. 4,333,808, Cl. 204-192.00D.
Bibollet, Jean-Claude. Snap-hook, particularly for mountaineering. 4,333,212, Cl. 24-233.000.
Bickford, John H., to Raymond Engineering Inc. Method and apparatus for measuring the residual tension in a stud or a bolt. 4,333,351, Cl. 73-761.000.
Bieber, Albert G.: *See—*
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Bieber, Theo: *See—*
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Bihler, Otto; and Bruller, Eduard, to Bihler, Otto. Feeder for feeding stock to machines or devices. 4,333,593, Cl. 226-122.000.
Bill, Colin S.; Cockshott, Charles P.; and Francis, John H., to Lucas Industries Limited. Linear displacement transducer. 4,334,207, Cl. 336-136.000.
Billard, Jean: *See—*
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Bengtsson, Erik; Billingsson, Nils; Persson, Karl-Johan; and Backman, Bengt-Olov, 4,334,110, Cl. 568-932.000.
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Bio Logicals Inc.: *See—*
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Bischoff, Walter, to Gelenkwellenbau GmbH. Universal joint assembly. 4,333,319, Cl. 464-26.000.
Bison-Werke Bahre und Greten GmbH & Co., KG: *See—*
Nass, Arno, 4,333,767, Cl. 106-161.000.
Bissell, Inc.: *See—*
Yonkers, Robert A., 4,333,203, Cl. 15-321.000.
BJ-Hughes Inc.: *See—*
Herst, Neil W., 4,333,209, Cl. 24-263.0DA.
Blackmore, Douglas. Skin effect pipe heating system utilizing convective and conductive heat transfer. 4,334,142, Cl. 219-301.000.
Blais, Marcel, to United States of America, Army. Reactor for the gas phase nitration of cellulose. 4,334,060, Cl. 536-35.000.
Blaupunkt-Werke GmbH: *See—*
Liman, Helmut, 4,334,320, Cl. 455-227.000.
Blickenderfer, Charles, to Weyerhaeuser Company. Positioning and feed system for cants and boards. 4,333,373, Cl. 83-419.000.
Bloch, Herman S.: *See—*
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Block, Thomas S., to McGraw-Edison Company. Floor scrubber with combined solution and recovery tank. 4,333,202, Cl. 15-320.000.
Bloeck, Siegfried; Hofling, Erich; Luthi, Rudolf; and Diemi, Werner, to Swiss Aluminium Ltd. Grooved beverage can lid. 4,333,582, Cl. 220-66.000.
Blommers, Elizabeth A.; Warfel, David R.; and Ingram, Alvin R., to Atlantic Richfield Company. Process for producing coated beads with macromonomer-styrene polymerizate coating. 4,333,970, Cl. 427-222.000.
Boblett, Arthur P., to United States of America, Navy. Leaky waveguide continuous slot antenna. 4,334,229, Cl. 343-767.000.
Boden, Richard M., to International Flavors & Fragrances Inc. 1-n-Butoxy-1-ethanol acetate and uses thereof for augmenting or enhancing the aroma or taste of consumable materials. 4,333,481, Cl. 131-276.000.
Bodicky, Raymond O., to Sherwood Medical Industries Inc. Injectable catheter and method of placing same. 4,333,455, Cl. 128-214.400.
Bodnar, Louis G.: *See—*
Gavasso, John M.; Bodnar, Louis G.; and Parker, Walter E., 4,333,426, Cl. 123-90.270.
Boeglin, Paul H.; and Chigot, Claude R., to Societe Nationale Industrielle Aerospatiale. Plate-glass fitted with an explosion-cutting device. 4,333,381, Cl. 89-1.00B.
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Boehringer Mannheim GmbH: *See—*
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Buchanan, John A., 4,334,204, Cl. 335-205.000.
Huling, Don W., 4,333,498, Cl. 137-625.620.
Shefrin, Joseph, 4,333,551, Cl. 188-372.000.
Bohlen, Harald; Engelke, Helmut; Kulcke, Werner; Nehmiz, Peter; and Greschner, Johann, to International Business Machines Corporation. Method of shadow printing exposure. 4,334,156, Cl. 250-491.000.
Boke, Karin: *See—*
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Bomatic, Inc.: *See—*
Hestehave, Borge; and Hestehave, Kjeld, 4,333,905, Cl. 264-529.000.
Bond, James W.; and Whitehouse, Harper J., to United States of America, Navy. High-accuracy multipliers using analog and digital components. 4,334,277, Cl. 364-703.000.
Bonet, Claude: *See—*
Moisset, Jacques; Bonet, Claude; Rouanet, Alain; Petit, Alain; and Delmas, Robert, 4,333,766, Cl. 106-100.000.
Boney, Joel F.; Rupp, Edward J., II; and Thomas, James S., to Motorola, Inc. Microcomputer with branch on bit set/clear instructions. 4,334,268, Cl. 364-200.000.
Booher, Robert K. Priority determining network having user arbitration circuits coupled to a multi-line bus. 4,334,288, Cl. 364-900.000.
Booth, Geoffrey, to Flexitallic Gaskets Limited. Flat gasket laminate of expanded graphite foil and metallic reinforcement layer. 4,333,975, Cl. 428-65.000.

Borg-Warner Corporation: *See—*
Krueger, Robert H.; Albertson, Clarence E.; and Miglin, Bruce P., 4,333,516, Cl. 165-1.000.
Krueger, Robert H., 4,333,850, Cl. 252-389.00A.
LaMarche, Paul E., 4,333,552, Cl. 192-3.290.
Simmons, John P., 4,333,360, Cl. 74-473.00P.

Bosch, Hubert, to Vat Aktiengesellschaft fur Vakuum-Apparate-Technik. Pipe valve assembly with metal valve slide for high vacuum installations. 4,333,631, Cl. 251-159.000.

Bossier, Joseph A., III, to Ethyl Corporation. Process for recovery of polyol fatty acid polyesters. 4,334,061, Cl. 536-119.000.

Bottenbruch, Ludwig: *See—*
Freitag, Dieter; Reinking, Klaus; Idel, Karsten; Medem, Harald; and Bottenbruch, Ludwig, 4,334,053, Cl. 528-179.000.

Bouette, Rodger D., to Repco Research Pty. Ltd. Image development method. 4,334,002, Cl. 430-103.000.

Bougaran, Alain P., to Compagnie Chambon. Device and method of trans-shipment between a ship and a fixed structure situated at sea. 4,333,196, Cl. 14-71.700.

Boulanger, Henry J.; and McGuirk, Andrew C., to Texas Instruments Incorporated. Thermostatic switch and method of making. 4,334,210, Cl. 337-343.000.

Bourasseau, Daniel J. E.: *See—*
Nard, Georges P.; Bourasseau, Daniel J. E.; and Rabian, Jean M., 4,334,314, Cl. 375-111.000.

Bourgeois, David R.; Ryan, James A.; and Varshney, Subhash C., to Honeywell Information Systems Inc. Data processing system with self testing and configuration mapping capability. 4,334,307, Cl. 371-16.000.

Boutmy, Patrick E.: *See—*
Bertin, Marcel R.; Boutmy, Patrick E.; Le Fort, Gilbert J.; and Walraet, Jean G., 4,334,303, Cl. 370-13.000.

Bowley, Inez; and Harrison, Raymond G., to Beecham Group Limited. Retinol acetate skin-care compositions. 4,333,924, Cl. 424-170.000.

Boyd, Gary D.; Cheng, Julian; and Ngo, Peter D. T., to Bell Telephone Laboratories, Incorporated. Mechanically multistable liquid crystal cell. 4,333,708, Cl. 350-346.000.

BP Chemicals Limited: *See—*
Speakman, John G.; and Wilkinson, Nicholas P., 4,333,851, Cl. 252-429.00B.

Bracco, Umberto; and Viret, Jean-Louis, to Societe d'Assistance Technique pour Produits Nestle S.A. Decholesterization of egg-yolk. 4,333,959, Cl. 426-614.000.

Brady, Michael: *See—*
Lim, John; Brady, Michael; and Stamires, Dennis, 4,333,857, Cl. 252-455.00Z.

Brain, Sally A.: *See—*
Robinson, Joseph G.; and Brain, Sally A., 4,334,055, Cl. 528-229.000.

Brainerd, Michael G.: *See—*
Frazier, John D.; Grandfield, Wilmur G.; and Brainerd, Michael G., 4,334,215, Cl. 340-539.000.

Bramm, Guenter; and Novak, Pavel, to Speidel & Keller GmbH & Co. KG. Electromagnetic driving mechanism for oscillating displacement pumps. 4,334,180, Cl. 318-687.000.

Bredow, Reinhard, to Siemens Aktiengesellschaft. Antenna system for locating a microwave signal source. 4,334,225, Cl. 343-100.0LE.

Bremer, Noel J.: *See—*
Milberger, Ernest C.; Bremer, Noel J.; and Dria, Dennis E., 4,333,853, Cl. 252-435.000.

Breslow, Jeffrey D.: *See—*
Jaworski, Eugene; Disko, Harry; and Breslow, Jeffrey D., 4,333,657, Cl. 273-376.000.

Bricot, Claude: *See—*
Arquie, Louis; Bricot, Claude; Lehureau, Jean-Claude; Thirouard, Michel; Le Merer, Jean-Pierre; and Leterme, Dominique, 4,334,300, Cl. 369-46.000.

Brink, E. R., Jr.: *See—*
Hansard, Robert C.; and Brink, E. R., Jr., 4,333,563, Cl. 206-53.000.

British Petroleum Company Limited, The: *See—*
Ellis, John F. G., 4,334,114, Cl. 585-407.000.

Broadcast Electronics, Inc.: *See—*
Aurand, James A., 4,334,203, Cl. 333-226.000.

Broerman, Arthur B., to Phillips Petroleum Company. Fluid actuated valve. 4,333,500, Cl. 137-863.000.

Bronder, David G.: *See—*
Munoz, Donald L.; Grote, Daniel A.; Bronder, David G.; and Weis, Gerald J., 4,333,678, Cl. 296-39.00R.

Brooks, Philip A. Moving picture apparatus. 4,333,715, Cl. 352-98.000.

Brorein, William J., to GK Technologies, Incorporated. Flat telephone cord plug improvements. 4,333,699, Cl. 339-61.00M.

Brother Kogyo Kabushiki Kaisha: *See—*
Onishi, Heizo, 4,333,791, Cl. 156-580.100.

Brown, Bill G.: *See—*
Schreck, Raymond M.; Brown, Bill G.; and Gilda, David A., 4,333,588, Cl. 222-164.000.

Brown, Stanford M. Method for handling and baling metallic scrap material. 4,333,394, Cl. 100-42.000.

Brown, William F.; and Bieber, Albert G., to Texaco Inc. Refining highly aromatic lube oil stocks. 4,333,824, Cl. 208-326.000.

Bruce, Calvin A.; Homola, Andrew M.; and Lorenz, Max R., to International Business Machines Corporation. Preparation of thin, aligned magnetic coatings. 4,333,961, Cl. 427-13.000.

Bruller, Eduard: *See—*
Bihler, Otto; and Bruller, Eduard, 4,333,593, Cl. 226-122.000.

Brunais, Ellsworth G.; and McCombie, Jay C., to Chrysler Corporation. Fuel injection system, control valve and electronic control circuit. 4,333,434, Cl. 123-478.000.

Brune, Heinz. Casings for heat exchangers and burner/recuperator assemblies incorporating such casings. 4,333,522, Cl. 165-69.000.

Bruns, Klaus: *See—*
Hagen, Jens; and Bruns, Klaus, 4,334,100, Cl. 568-444.000.

Brunswick Corporation: *See—*
Kusche, David W., 4,333,425, Cl. 123-73.00R.

Bryce, Jerry H.: *See—*
Kaplan, Howard I.; Bryce, Jerry H.; Johnston, Thomas J.; McMinn, Curtis J.; Willett, John T.; and Richards, Nolan E., 4,333,813, Cl. 204-243.00R.

Buathier, Bernard; and Bernard, Andre, to Rhone-Poulenc Agrochimie. Process for the preparation of an alkyl 2-chloropropionate by chlorinating an alkyl lactate. 4,334,083, Cl. 560-226.000.

Buchanan, Bobby L. Method of fabricating polysilicon/silicon junction field effect transistors. 4,333,224, Cl. 29-571.000.

Buchanan, John A., to Boeing Company, The. Proximity switch assembly. 4,334,204, Cl. 335-205.000.

Buckler, Robert T.; and Schroeder, Hartmut R., to Miles Laboratories, Inc. Chemiluminescent phthalhydrazide-labeled hapten conjugates. 4,334,069, Cl. 544-237.000.

Budzich, Tadeusz. Load responsive fluid control valve. 4,333,389, Cl. 91-446.000.

Buethe, Ingolf: *See—*
Lehner, August; Hartmann, Heinrich; Heil, Guenter; Lenz, Werner; Buethe, Ingolf; and Bachmann, Rudolf, 4,334,034, Cl. 525-28.000.

Buettner, Carl F.; and Hill, John S. Vehicle bumpers with collapsible parts. 4,333,674, Cl. 293-120.000.

Bugaut, Andree; Shahin, Majdi M.; Vandenbossche, Jean-Jacques H.; and Kalopissis, Gregoire, to Societe Anonyme dite: L'Oreal. Metaphenylenediamines, dyeing compositions in which they are present and the corresponding dyeing process. 4,333,730, Cl. 8-407.000.

Buhler, Karl: *See—*
Baltensperger, Heinz; Buhler, Karl; and Schott, Werner, 4,334,119, Cl. 373-159.000.

Buhs, Rudolf P.; Jacob, Theodore A.; Miwa, Gerald; Sestokas, Elena; Taub, Rae; and Walsh, John S., to Merck & Co., Inc. Derivatives of C-076 compounds. 4,333,925, Cl. 424-181.000.

Bukamier, Gary L.; and Rupert, Steven L. Orientation-insensitive electrode. 4,333,812, Cl. 204-195.00G.

Bulvanoski, Leo J.: *See—*
Di Martini, Carl R.; Scott, William L.; and Bulvanoski, Leo J., 4,333,762, Cl. 75-69.000.
Di Martini, Carl R.; Howe, Herbert E.; Scott, William L.; and Bulvanoski, Leo J., 4,333,763, Cl. 75-77.000.

Bunnell, Charles A.: *See—*
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Burgdorter, Hans-Heribert: *See—*
Schreckenberg; Manfred; Freitag, Dieter; Burgdorfer, Hans-Heribert; Lehnert, Gunther; Adelmann, Siegfried; and Rudolph, Hans, 4,333,809, Cl. 204-159.140.

Buriks, Rudolf S.: *See—*
Naiman, Michael I.; and Buriks, Rudolf S., 4,333,741, Cl. 44-62.000.

Burillo, Antonio; and Dane, Richard, II. Internal combustion engine. 4,333,427, Cl. 123-190.00A.

Burnett, Ralph G., to American Casting and Manufacturing Corporation. Sealing device. 4,333,210, Cl. 24-30.50R.

Burr, Orville R.: *See—*
Wyner, Elliott F.; Burr, Orville R.; and Garrison, Robert L., 4,334,172, Cl. 315-289.000.

Burrell, Gordon M. Method and finger ring device for snelling a fishhook. 4,333,257, Cl. 43-57.50R.

Burroughs Corporation: *See—*
Peter, Emmett B., III, 4,333,641, Cl. 271-289.000.
Potash, Hanan, 4,334,213, Cl. 340-347.0DD.
Turnbull, David F., 4,334,276, Cl. 364-561.000.

Bush, Randall G., to Sunbeam Plastics Corporation. Child-resistant overcap for a pressurized container. 4,333,589, Cl. 222-402.110.

Busquets, Agustin A. Faucet assembly with mixing valve. 4,333,497, Cl. 137-625.170.

Butler, Paul G.: *See—*
Ikin, David D.; Butler, Paul G.; Sassella, Christopher D.; and Oliver, James K., 4,333,525, Cl. 165-104.210.

Byers, Charles M.; and Numbers, Jody L., to Byers, Charles M. Hand grenade. 4,333,401, Cl. 102-487.000.

Byk Gulden Lomberg Chemische Fabrik Gesellschaft: *See—*
Krass, Ekkehard; and Wolf, Horst, 4,334,089, Cl. 562-463.000.

BYK Gulden Lomberg Chemische Fabrik GmbH: *See—*
Eistetter, Klaus; Kley, Hans-Peter; Menge, Heinz-Gunter; and Schaefer, Hartmann, 4,333,942, Cl. 424-267.000.

Byrne, Richard J.: *See—*
Moreno, John R.; Byrne, Richard J.; and Shakespeare, Charles B., 4,333,475, Cl. 128-711.000.

C.A. Greiner & Sohne GmbH & Co. KG: *See—*
Krieg, Karl, 4,333,478, Cl. 128-764.000.

California R & D Center: *See—*
Jones, Lawrence T.; Sims, Anson; Howden, Ashley G.; Knighton, Mark S.; Kingsbury, L. C. James; and Conroy, Richard F. M., 4,333,261, Cl. 46-257.000.

Calor Agriculture Research, Inc.: *See—*
Juengst, Fred W., Jr.; and Dika, John A., 4,333,956, Cl. 426-69.000.

Camp, Neal H.; Paetz, James E.; and Patterson, Nicholas L. Coating system. 4,333,417, Cl. 118-50.000.

Campolmi, Stefano; Carletti, Vittorio; and Marchi, Marcello, to Montedison S.p.A. Process for preparing N-methylcarbamate of methylthioacetaldoxime. 4,333,882, Cl. 260-453.300.

Canada, Her Majesty the Queen in right of, as represented by Minister of National Defence of Her Majesty's Canadian Government: *See*—
Cornish, William D.; and Gauthier, Francois A., 4,334,202, Cl. 333-218.000.

Canon Kabushiki Kaisha: *See*—
Sakane, Toshio; Hosoe, Kazuya; Tsunekawa, Tokuichi; Kinoshita, Takao; and Kawabata, Takashi, 4,333,716, Cl. 354-25.000.
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,334,234, Cl. 346-140.00R.
Suzuki, Ryoichi; and Uchiyama, Takashi, 4,333,720, Cl. 354-227.000.
Suzuki, Ryoichi; Uchiyama, Takashi; Hosoe, Kazuya; and Tsunekawa, Tokuichi, 4,334,220, Cl. 340-753.000.
Tamura, Shuichi, 4,333,717, Cl. 354-25.000.
Yoshida, Syozo; and Sugiura, Yoji, 4,333,721, Cl. 354-234.000.

Cantello, Barrie C. C., to Beecham Group Limited. Carboxamidine derivatives and hypoglycemical use. 4,333,929, Cl. 424-246.000.

Carbone, Nazzareno E. Apparatus for comparing the distance of two balls from a third ball. 4,333,237, Cl. 33-143.00R.

Cardone, Joseph T.; Shatz, Kenneth J.; and Dill, James M., to Ecological Energy Systems, Inc. Gas powered, closed loop power system and process for using same. 4,333,313, Cl. 60-649.000.

Cardoza, Richard E.; and Crowe, William D., to J. R. Schneider Co., Inc. Filter system with improved blowdown collection and recirculation means. 4,333,839, Cl. 210-777.000.

Carey, James J., to Chloride Electro Networks, Division of Chloride, Inc., N. American Operation. Process for manufacture of high voltage transformers and the like. 4,333,900, Cl. 264-85.000.

Carey, John L.; and Greenhalgh, Colin W., to Imperial Chemical Industries Limited. Substituted 2,7-dioxo-2,7-dihydrobenzo[1:2-b; 5:6-b^1]difuran or -dipyrrole dyestuffs, their preparation and their use. 4,333,877, Cl. 548-421.000.

Carl Cloos Verwaltungsgesellschaft oHG: *See*—
Cloos, Erwin, 4,333,594, Cl. 226-176.000.

Carletti, Vittorio: *See*—
Campolmi, Stefano; Carletti, Vittorio; and Marchi, Marcello, 4,333,882, Cl. 260-453.300.

Carli, Alvin J., to Alliance Manufacturing Company, Inc., The. Centrifugal switch and motor control. 4,334,161, Cl. 310-68.00E.

Carlson, Raymond A. Mailbox with lockable letter mail compartment for use in motorized delivery routes. 4,333,603, Cl. 232-17.000.

Carney, James A.; and McGregor, Adrienne R., to Technicon Instruments Corporation. Radioassay for vitamin B_{12}. 4,333,918, Cl. 424-1.000.

Carnus, Jean-Claude: *See*—
Perez, Jean; and Carnus, Jean-Claude, 4,333,438, Cl. 123-569.000.

Carr, Edward P.: *See*—
Dotson, Ronald L.; and Carr, Edward P., 4,333,913, Cl. 423-184.000.

Carraway, John B., Jr.: *See*—
Wolcott, Duane K.; and Carraway, John B., Jr., 4,333,810, Cl. 204-195.00M.

Carrier Corporation: *See*—
Lang, Richard D.; and Bolton, Theodore S., 4,333,206, Cl. 16-335.000.

Carson, Andrew B., Jr.; and Harris, Samuel C., Jr., to General Electric Company. Driving force control system for impact printer. 4,333,398, Cl. 101-93.020.

Carter, Joel S.: *See*—
Hendrickson, Richard T.; and Carter, Joel S., 4,333,668, Cl. 280-703.000.

Carver, Joseph L. Flask. 4,334,028, Cl. 435-284.000.

Case, Dorothy S. Baby backpack sack. 4,333,591, Cl. 224-160.000.

Castaneda, Fernando: *See*—
Stockli, Andre; Castaneda, Fernando; and Stockli, Jean-Louis, 4,333,192, Cl. 12-142.00E.

Catlett, John C., to BESAM-EADS, Inc. Automatic door operator. 4,333,270, Cl. 49-336.000.

Catnic Components Limited: *See*—
Robinson, Brian, 4,333,294, Cl. 52-695.000.

Center for Design Research and Development N.V.: *See*—
Ambasz, Emilio, 4,333,683, Cl. 297-292.000.

Cernansky, Joseph S.: *See*—
Rudell, Elliot A.; Cernansky, Joseph S.; and Kamrath, Richard P., 4,333,655, Cl. 273-241.000.

Chan, James K.; May, Curtis L.; and Spooner, Allan, to Magnavox Government and Industrial Electronics Company. Adaptive image enhancement system. 4,334,244, Cl. 358-166.000.

Chang, Mike S. H.; Donoghue, John T.; and Edelman, Peter G., to Pitney Bowes Inc. Cyanine and diane dye mixture provides near I. R. sensitive, charge transport layer, electrophotographic photoconductive element. 4,334,000, Cl. 430-58.000.

Chaphalkar, Dhananjay V.: *See*—
Beiswenger, John L.; Moon, Howard R.; Chaphalkar, Dhananjay V.; and Smiesko, Frank A., 4,333,493, Cl. 137-268.000.

Charles, Magalie M.; and Heiart, Robert B., to Du Pont de Nemours, E. I., and Company. Process for modifying tacky surfaces. 4,334,009, Cl. 430-291.000.

Chauvette, Robert R., to Eli Lilly and Company. Cephalosporin intermediates. 4,334,065, Cl. 544-30.000.

Cheatham, John B., Jr.: *See*—
Daniels, William H.; and Cheatham, John B., Jr., 4,333,540, Cl. 175-329.000.

Chelminski, Bohdan: *See*—
Przyluski, Jan; Madry, Kazimierz; Dolecki, Zbigniew; Kotarski, Andrzej; Drygas, Maria; Kokosinski, Jacek; Kuzma, Zygmunt; and Chelminski, Bohdan, 4,333,802, Cl. 204-54.00R.

Chemische Werke Huls AG: *See*—
Meyer, Klaus-Rudolf; Hornung, Karl-Heinz; Feldmann, Rainer; and Smigerski, Hans-Jurgen, 4,334,056, Cl. 528-496.000.

Cheng, Julian: *See*—
Boyd, Gary D.; Cheng, Julian; and Ngo, Peter D. T., 4,333,708, Cl. 350-346.000.

Chervitz, Melvin. Fever thermometer. 4,333,477, Cl. 128-736.000.

Chevron Research: *See*—
Manning, John F., 4,334,118, Cl. 585-529.000.

Chicago Bridge & Iron Company: *See*—
Bellafiore, Francis V.; Duff, Michael P.; and O'Meara, David M., 4,333,973, Cl. 427-424.000.

Chigot, Claude R.: *See*—
Boeglin, Paul H.; and Chigot, Claude R., 4,333,381, Cl. 89-1.00B.

Chimicasa GmbH: *See*—
Sampathkumar, Prathivadibhayankaram S.; and Dwivedi, Basant K., 4,333,872, Cl. 260-112.50R.

Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt.: *See*—
Toke, Laszlo; Szabo, Gabor T.; Szabo, Gabor; Nagy, Lajos; and Rusznak, Istvan, 4,334,103, Cl. 568-631.000.

Chloride Electro Networks, Division of Chloride, Inc., N. American Operation: *See*—
Carey, James J., 4,333,900, Cl. 264-85.000.

Chow, Peter C. M.; and Ringer, William N., to Grove Valve and Regulator Company. Surge reliever with increase capacity flow. 4,333,496, Cl. 137-489.000.

Chow, Tat-Sing P.; and Ghezzo, Mario, to General Electric Company. Method of making integrated circuits. 4,333,965, Cl. 427-93.000.

Christensen, Jon A.: *See*—
Jones, William L.; and Christensen, Jon A., 4,333,505, Cl. 141-383.000.

Christy, R. Steven, Sr. Wood rack. 4,333,574, Cl. 211-60.00R.

Chrysler Corporation: *See*—
Brunais, Ellsworth G.; and McCombie, Jay C., 4,333,434, Cl. 123-478.000.

Chu, Wei-Kan: *See*—
Bhattacharyya, Arup; Chu, Wei-Kan; Howard, James K.; and Wiedman, Francis W., 4,333,808, Cl. 204-192.00D.

Chynoweth, David P.; and Tarman, Paul B., to Institute of Gas Technology. Hybrid bio-thermal liquefaction. 4,334,026, Cl. 435-163.000.

Cianci, James P.: *See*—
Villari, Frank K.; and Cianci, James P., 4,333,480, Cl. 128-767.000.

Ciba-Geigy Corporation: *See*—
Bartels, Hermann; Mez, Hans-Christian; Huber, Walter; and Stolz, Hans-Peter, 4,333,356, Cl. 73-864.210.
Schmid, Wolfgang, 4,333,931, Cl. 424-248.540.
Schmidt, Andreas; Kirchmayr, Rudolf; and Randell, Donald R., 4,333,841, Cl. 252-32.70E.
Schmidt, Andreas; and Schwarzenbach, Kurt, 4,333,868, Cl. 524-152.000.
Sturm, Elmar; and Nyfeler, Robert, 4,333,949, Cl. 424-300.000.

Ciccozzi, Frederick A., to Geosource Inc. Electronic valve controller. 4,333,486, Cl. 137-1.000.

Citten Limited: *See*—
Ellis, Stephen R. M.; and Priestley, Ronald, 4,333,892, Cl. 261-94.000.

Civardi, Frank P.; Sova, Stanley G.; and Getting, Milan J., to Inmont Corporation. Laminating. 4,333,786, Cl. 156-306.600.

Clancy, Robert E. Two-sided puzzle. 4,333,652, Cl. 273-153.00S.

Clarion Co., Ltd.: *See*—
Minagawa, Shoichi; and Okamoto, Takeshi, 4,334,167, Cl. 310-313.00R.

Clark, Egbert B., III, to E-Systems, Inc. Communication management system for providing antijam/privacy capabilities for voice radio communications. 4,334,322, Cl. 455-62.000.

Clavier, Christian M., to Schlumberger Technology Corporation. Well logging method and system. 4,334,271, Cl. 364-422.000.

Clegg, John E. Conical beam concentrator. 4,333,713, Cl. 350-432.000.

Clements, Lloyd W. Grooved nozzle irrigation sprinkler. 4,333,610, Cl. 239-601.000.

Cloos, Erwin, to Carl Cloos Verwaltungsgesellschaft oHG. Planet guide roller feed arrangement for melting welding wires. 4,333,594, Cl. 226-176.000.

Cluett, Peabody & Co., Inc.: *See*—
Rockerath, John L., 4,333,409, Cl. 112-121.270.

Clyde, Robert A. High area contactor. 4,333,893, Cl. 261-94.000.

Coal Industry (Patents) Limited: *See*—
Robinson, Joseph G.; and Brain, Sally A., 4,334,055, Cl. 528-229.000.

Cobb, Raymond L., to Phillips Petroleum Company. Process for making tert-butyltoluenes. 4,334,115, Cl. 585-407.000.

Coca-Cola Company, The: *See*—
Fessler, Herman S.; and Harvill, William A., 4,333,587, Cl. 222-129.100.

Cockshott, Charles P.: *See*—
Bill, Colin S.; Cockshott, Charles P.; and Francis, John H., 4,334,207, Cl. 336-136.000.

Cole, Jack H.: *See*—
Dacus, Michael W.; and Cole, Jack H., 4,333,355, Cl. 73-861.910.

Colgate-Palmolive Company: *See—*
Muller, Ernest G., 4,333,461, Cl. 128-284.000.
Colon, Ismael, to Union Carbide Corporation. Preparation of substituted olefins. 4,334,081, Cl. 560-130.000.
Colt Industries Operating Corp: *See—*
Miller, Robert J., 4,333,891, Cl. 261-41.00D.
Comar, Dominique; Loc'h, Christian; and Maziere, Bernard, to Commissariat a l'Energie Atomique. Method of preparing a solution of gallium 68 from germanium 68. 4,333,911, Cl. 423-2.000.
Combette, Marc; and Ollivier, Jean, to Olin Corporation. Offset piston for powder actuated tools. 4,333,595, Cl. 227-10.000.
Combustion Engineering, Inc.: *See—*
Anthony, Andrew J., 4,333,798, Cl. 376-449.000.
Tanca, Michael C., 4,333,742, Cl. 48-77.000.
Comhlucht Siuicre Eireann Teoranta (Irish Sugar Company Limited): *See—*
Barry, James A.; and McGarry, James, 4,333,960, Cl. 426-625.000.
Commissariat a l'Energie Atomique: *See—*
Comar, Dominique; Loc'h, Christian; and Maziere, Bernard, 4,333,911, Cl. 423-2.000.
Duchene, Jacques, 4,333,710, Cl. 350-357.000.
Compagnie Chambon: *See—*
Bougaran, Alain P., 4,333,196, Cl. 14-71.700.
Compagnie Internationale pour l'Informatique CII Honeywell Bull (Societe Anonyme): *See—*
Miller, Jacky F. A., 4,333,640, Cl. 271-9.000.
Concept Engineering Inc.: *See—*
Geschwender, Robert C., 4,333,602, Cl. 229-44.00R.
Conti, William H., to Ohline Corporation. Sectional Venetian blinds. 4,333,509, Cl. 160-173.000.
Conner, Donald E., to Van Dyk & Company, Inc. Benzalphthalides and broad spectrum sun screens. 4,333,920, Cl. 424-59.000.
Connery, James G.; Diascro, Dominick D.; DiNapoli, Louis D.; Punis, Giancarlo; and Matour, Anthony J., to Leeds & Northrup Company. Injection-molded Doppler flowmeter transducer assembly. 4,333,352, Cl. 73-861.180.
Conoco Inc.: *See—*
Beck, Jeffrey L.; and Sweeney, William T., 4,333,499, Cl. 137-812.000.
McClaflin, Gifford G., 4,333,488, Cl. 137-13.000.
Peterson, Marvin L., 4,333,725, Cl. 403-271.000.
Conroy, Richard F. M.: *See—*
Jones, Lawrence T.; Sims, Anson; Howden, Ashley G.; Knighton, Mark S.; Kingsbury, L. C. James; and Conroy, Richard F. M., 4,333,261, Cl. 46-257.000.
Container Corporation of America: *See—*
Gardner, Jeffrey M., 4,333,600, Cl. 229-42.000.
Continental Group, Inc., The: *See—*
Stemen, Michael J., 4,333,599, Cl. 229-5.700.
Coombs, Donald W. Beveled edge trim. 4,333,288, Cl. 52-312.000.
Cooper, Andrew K. Display sign. 4,333,253, Cl. 40-10.00R.
Cooper, George. Plant spreader device for a crop harvester. 4,333,305, Cl. 56-327.00R.
Cooper, Steven R.; and Shaw, Kenneth L., to CTS Corporation. Multistage pressure switch. 4,334,131, Cl. 200-82.00R.
Cooper, Thomas W., to Dresser Industries, Inc. Rotary rock bit with improved thrust flange. 4,333,691, Cl. 308-8.200.
Cooper Tire & Rubber Company: *See—*
Klose, Karl W., 4,333,788, Cl. 156-405.00R.
Corbin, Raymond L. R.; and Reinhart, Robert F., to Manville Service Corporation. Three-tab shingle with staggered butt edge feature. 4,333,279, Cl. 52-105.000.
Cornelius Company, The: *See—*
Fessler, Herman S.; and Harvill, William A., 4,333,587, Cl. 222-129.100.
Corning Glass Works: *See—*
Cunningham, George M., 4,333,896, Cl. 264-40.500.
Domicone, Joseph J., 4,333,467, Cl. 128-303.140.
Frost, Rodney I.; McBrayer, Robert D.; and Pujari, Vimal K., 4,333,518, Cl. 165-8.000.
Lemrow, Craig M.; and Wilder, Arthur H., 4,333,447, Cl. 126-443.000.
Cornish, William D.; and Gauthier, Francois A., to Canada, Her Majesty the Queen in right of, as represented by Minister of National Defence of Her Majesty's Canadian Government. Broadband frequency divider. 4,334,202, Cl. 333-218.000.
Coronel, Paul D. Steam assisted gas turbine engine. 4,333,309, Cl. 60-39.09D.
Corriero, John. Protective structures for joints. 4,333,181, Cl. 2-24.000.
Coste, Angelo C., to UOP Inc. Separation of normally gaseous hydrocarbons from a catalytic reforming effluent and recovery of purified hydrogen. 4,333,818, Cl. 208-101.000.
CP Test Services -Valvco, Inc.: *See—*
Shope, Thomas, 4,333,494, Cl. 137-364.000.
Craig, Robert S., to Acme Resin Corporation. Catechol resins for the shell process. 4,333,513, Cl. 164-526.000.
Creuzet, Marie-Helene; Feniou, Claude; Guichard, Francoise; and Prat, Gisele, to Laboratoires Sarget. Orthoarylideneaminophenethylamines and pharmaceutical compositions. 4,333,930, Cl. 424-248.510.
Creuzet, Marie-Helene; Feniou, Claude; Prat, Gisele; and Pontagnier, Henri, to Laboratoires Sarget. Imino derivatives of 5-aminobenzodioxole-1,3 which are useful as medicaments. 4,333,938, Cl. 424-263.000.
Crico, Aurelio M., to PPG Industries, Inc. Purification and recovery of ethylene dichloride. 4,333,799, Cl. 203-67.000.
Crofts, John A.: *See—*
Mills, Alfred L.; Weatherley, Laurence R.; and Crofts, John A., 4,333,912, Cl. 423-20.000.
Crosfield Electronics Limited: *See—*
Franklin, Paul E., 4,334,240, Cl. 358-78.000.
Crowe, William D.: *See—*
Cardoza, Richard E.; and Crowe, William D., 4,333,839, Cl. 210-777.000.
Crump, John M. Device for carrying and securing skis, boots and poles. 4,333,677, Cl. 294-147.000.
CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A.: *See—*
Girardi, Gerardo, 4,334,305, Cl. 370-86.000.
CTS Corporation: *See—*
Cooper, Steven R.; and Shaw, Kenneth L., 4,334,131, Cl. 200-82.00R.
Cullen, Donald E.: *See—*
Gilden, Meyer; Cullen, Donald E.; and Grudkowski, Thomas W., 4,333,342, Cl. 73-516.00R.
Culver, W. Jay. Gun sighting apparatus. 4,333,385, Cl. 89-37.0BA.
Cummins, Charles A., II, to APT Inc. Automatic engine shut down device and systems employing the same. 4,333,827, Cl. 210-100.000.
Cummins, James P.: *See—*
Parman, Dan F.; Wiebush, LeMoey M.; Shaw, Fred M.; and Cummins, James P., 4,334,171, Cl. 315-199.000.
Cunningham, George M., to Corning Glass Works. Method and apparatus for extruding honeycomb structures with skins thereon involving the use of an adjustable extension die mask. 4,333,896, Cl. 264-40.500.
Cupit, George M. Seal device for pipe projecting through roof. 4,333,660, Cl. 277-9.000.
Curran, William V., to American Cyanamid Company. Cephalosporanic acid derivatives. 4,334,062, Cl. 544-026.000.
Cushing, Donald S., to General Electric Company. Heater protection arrangement for a washing appliance. 4,334,143, Cl. 219-333.000.
Cvengros, Jan: *See—*
Tkac, Alexander; and Cvengros, Jan, 4,333,822, Cl. 208-184.000.
Cyloflex, Inc.: *See—*
Lovas, Joseph R.; Lovas, Paul J.; and Koelmel, Carl F., 4,333,236, Cl. 30-380.000.
Czuszak, Charles C., to Elliott Turbomachinery Co., Inc. Centrifugally actuated trip mechanism. 4,333,343, Cl. 73-538.000.
Dacus, Michael W.; and Cole, Jack H.; to United States of America, Energy. Pressure balanced drag turbine mass flow meter. 4,333,355, Cl. 73-861.910.
Dagani, Michael J., to Ethyl Corporation. Process for producing substituted pyrroles. 4,333,878, Cl. 548-531.000.
Dai, Shenghong A., to Upjohn Company, The. Process for the preparation of hydroxyphenyl-indanols. 4,334,106, Cl. 568-719.000.
Daisen Industry Company Limited: *See—*
Hayashi, Tatsuo; Itoh, Ryouichi; and Tsuji, Tatsumi, 4,333,897, Cl. 264-40.600.
Dakin, John P.; and Kahn, David A., to Plessey Incorporated. Position indicating systems. 4,334,152, Cl. 250-226.000.
Dana Corporation: *See—*
Sink, William H.; and Lane, Wendell, 4,333,554, Cl. 192-70.190.
Dane, Richard, II: *See—*
Burillo, Antonio; and Dane, Richard, II, 4,333,427, Cl. 123-190.00A.
Daniel, Sam M.; and Kuivila, Richard P., to Motorola Inc. Adaptive fixed point arithmetic controller apparatus and method. 4,334,283, Cl. 364-744.000.
Daniels, Herbert E.: *See—*
Stehman, Harold E.; and Daniels, Herbert E., 4,334,153, Cl. 250-405.000.
Daniels, William H.; and Cheatham, John B., Jr., to General Electric Company. Cutter element and cutter for rock drilling. 4,333,540, Cl. 175-329.000.
Danke, Eckhard: *See—*
Hoppe, Klaus; Muller, Jurgen; Keller, Jurgen; Kulbe, Bernd; Lessig, Klaus; Berlin, Christian; and Danke, Eckhard, 4,333,894, Cl. 261-96.000.
Dassele, Michael A.: *See—*
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Davidge, Ronald V.; Queener, Carl A.; and Vanderslice, James T., to International Business Machines Corporation. Recirculating document feed for electrophotographic apparatus. 4,333,639, Cl. 271-3.100.
Davidson, Craig R.; and Sedlak, John M., to General Electric Company. Halogen evolution with improved anode catalyst. 4,333,805, Cl. 204-98.000.
Davis, Frances P. Candy-covered figurine and method of producing. 4,333,974, Cl. 428-16.000.
Davis, James W.: *See—*
Longley, Karl E.; Ratigan, Brian; and Davis, James W., 4,333,833, Cl. 210-198.100.
Davis, Lawrence E.; and Patel, Naren I., to Siecor Corporation. Filling materials for communications cable. 4,333,706, Cl. 350-96.230.
Davis, Meredith R., to Otis Elevator Company. Car blocking apparatus. 4,333,549, Cl. 187-93.000.
Davis, Ralph A.; and Pews, R. Garth, to Dow Chemical Company, The. Process for preparing substituted benzotrihalides. 4,334,111, Cl. 570-143.000.
Davis, Sydney; and Malakhoff, Alexander, to United States of America, Navy. Transversely stiffened membrane seal. 4,333,413, Cl. 114-67.00A.

Daxinger, Helmut: *See—*
Pulker, Hans K.; and Daxinger, Helmut, 4,333,962, Cl. 427-37.000.

Dayco Corporation: *See—*
Kleykamp, Donald L., 4,333,404, Cl. 105-225.000.

de la Burde, Roger Z.; Aument, Patrick E.; and Utsch, Francis V., to Philip Morris Incorporated. Tobacco product. 4,333,483, Cl. 131-352.000.

DEC International, Inc.: *See—*
Schluckbier, Gary W., 4,333,421, Cl. 119-14.080.

Decker, Harry J.; and Thorsteinson, Erlind M., to Union Carbide Corporation. Catalyst with Mo, V, Ti and process. 4,333,858, Cl. 252-455.00R.

Decker, Wilmot H.; and Theurer, Kurt, to Allied Corporation. Removing liquid hydrocarbons from polyether solvents. 4,334,102, Cl. 568-621.000.

Deere & Company: *See—*
Hentrich, Robert D., Sr., 4,333,535, Cl. 172-572.000.

Deffeyes, Robert J.; and Armstrong, Harris W., to Graham Magnetics, Inc. Method of forming a conductive metal pattern. 4,333,966, Cl. 427-96.000.

De Jong, Donald W., to International Harvester Company. Coagulation method for preparing leaf protein concentrates (LPC) from plant foliage. 4,333,871, Cl. 260-112.00R.

Del Bon, Luigi. Deep-drawn preformed closure for the hermetic sealing of a can or similar container. 4,333,585, Cl. 220-359.000.

Delmas, Robert: *See—*
Moisset, Jacques; Bonet, Claude; Rouanet, Alain; Petit, Alain; and Delmas, Robert, 4,333,766, Cl. 106-100 000.

Del Rosario, Manuel. Toothbrush. 4,333,199, Cl. 15-167.00R.

De Luca, Paul V.; Gazzo, John J.; and Hollfelder, Thomas A., to Porta Systems Corp. Telephone digital office cutover system. 4,334,129, Cl. 179-175.110.

Dembinski, Walter; and Kuhne, Karl-Joachim, to Fichtel & Sachs AG. Arrangement for moving an object. 4,333,627, Cl. 248-396.000.

Dennis, Philip J., to GTE Products Corporation. Glass enclosed three lead circuit breaker. 4,334,209, Cl. 337-112.000.

DePaolo, James F.; Hale, Joseph T.; and Holmberg, Carl F., to Nichols-Homeshield, Inc. Hurricane panel security device. 4,333,271, Cl. 49-464.000.

DeSantis, Charles M., to United States of America, Army. Phase sensor for R.F. transmission lines. 4,334,187, Cl. 324-58.00R.

Deubel, Reinhold; Opitz, Konrad; Kruse, Hubert; Schneider, Manfred; and Uhrig, Heinz, to Hoechst Aktiengesellschaft. Dyestuff preparations containing oxalkylates of modified natural rosin acids. 4,333,732, Cl. 8-527.000.

Diascro, Dominick D.: *See—*
Connery, James G.; Diascro, Dominick D.; DiNapoli, Louis D.; Punis, Giancarlo; and Matour, Anthony J., 4,333,352, Cl. 73-861.180.

Diehr, Hans-Joachim, to Bayer Aktiengesellschaft. Process for the preparation of alpha-hydroxycarboxylic acid amide compounds. 4,334,073, Cl. 546-245.000.

Diekmann, Helmut: *See—*
Dorr, Karl H.; Diekmann, Helmut; Grimm, Hugo; Sander, Ulrich; Tacke, Michael; and Weber, Waldemar, 4,333,917, Cl. 423-522.000.

Diemi, Werner: *See—*
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Diesel Kiki Company, Ltd.: *See—*
Kobayashi, Masayoshi; Sakuranaka, Toru; and Nakagawa, Sachio, 4,333,432, Cl. 123-366.000.

Dietrich, Hagen; and Fane, William J., to Norris Industries, Inc. Spring/dead bolt lock assembly. 4,333,324, Cl. 70-107.000.

Dika, John A.: *See—*
Juengst, Fred W., Jr.; and Dika, John A., 4,333,956, Cl. 426-69.000.

Dill, James M.: *See—*
Cardone, Joseph T.; Shatz, Kenneth J.; and Dill, James M., 4,333,313, Cl. 60-649.000.

Di Martini, Carl R.; Scott, William L.; and Bulvanoski, Leo J., to Asarco Incorporated. Low temperature, non-SO_2 polluting, kettle process for the separation of antimony values from material containing sulfo-antimony compounds of copper. 4,333,762, Cl. 75-69.000.

Di Martini, Carl R.; Howe, Herbert E.; Scott, William L.; and Bulvanoski, Leo J., to Asarco Incorporated. Low temperature, non-SO_2 polluting, kettle process for separation of lead from lead sulfide-containing material. 4,333,763, Cl. 75-77.000.

DiNapoli, Louis D.: *See—*
Connery, James G.; Diascro, Dominick D.; DiNapoli, Louis D.; Punis, Giancarlo; and Matour, Anthony J., 4,333,352, Cl. 73-861.180.

Di Nunzio, Giuseppe. Bottle cap having opening means. 4,333,578, Cl. 215-253.000.

Dionian, James A.: *See—*
Seeman, Jeffrey L.; and Dionian, James A., 4,334,258, Cl. 361-170.000.

DiRocco, David J.: *See—*
DiRocco, Jobbie; and DiRocco, David J., 4,333,508, Cl. 152-367.000.

DiRocco, Jobbie; and DiRocco, David J. Tire repair patch for sidewall and bead repairs. 4,333,508, Cl. 152-367.000.

Dischert, Robert A.: *See—*
Reitmeier, Glenn A.; and Dischert, Robert A., 4,334,237, Cl. 358-36.000.

Disko, Harry: *See—*
Jaworski, Eugene; Disko, Harry; and Breslow, Jeffrey D., 4,333,657, Cl. 273-376.000.

Dodson, Peter J.; and Horwood, Kenneth E., to Guardall Limited. Machines and method applicable to the manufacture of electrical and like devices. 4,333,233, Cl. 29-845.000.

Dolecki, Zbigniew: *See—*
Przyluski, Jan; Madry, Kazimierz; Dolecki, Zbigniew; Kotarski, Andrzej; Drygas, Maria; Kokosinski, Jacek; Kuzma, Zygmunt; and Chelminski, Bohdan, 4,333,802, Cl. 204-54.00R.

Dollinger Corporation: *See—*
Flood, Lawrence C., 4,333,579, Cl. 220-4.00R.

Dollond & Aitchison Services Limited: *See—*
Eadon-Allen, Stuart, 4,333,274, Cl. 51-160.000.

Domicone, Joseph J., to Corning Glass Works. Nonstick conductive coating. 4,333,467, Cl. 128-303.140.

Domzalski, Thad: *See—*
Luedicke, Oscar B.; Domzalski, Thad; and Zajac, David, 4,333,921, Cl. 424-70.000.

Donaldson, Peter A., to Imperial Chemical Industries Limited. Slurries of terephthalic acid in ethylene glycol. 4,334,090, Cl. 562-480.000.

DoNel Corporation: *See—*
Meadows, David F., 4,333,284, Cl. 52-222.000.

Donoghue, John T.: *See—*
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Donovan, William F.: *See—*
Stansbury, LeRoy, Jr.; and Donovan, William F., 4,333,383, Cl. 89-7.000.

Dooley, Larry W.: *See—*
Drees, Jan M.; Dooley, Larry W.; and Neathery, William D., 4,333,728, Cl. 416-134.00A.

Dorling, Rolf; and Hemschemeier, Hans, to L. & C. Steinmuller GmbH. Suspension for a thermally heavy load cylindrical pipe assembly. 4,333,514, Cl. 165-1.000.

Dorr, Karl H.; Diekmann, Helmut; Grimm, Hugo; Sander, Ulrich; Tacke, Michael; and Weber, Waldemar, to Metallgesellschaft Aktiengesellschaft. Process of producing sulfuric acid. 4,333,917, Cl. 423-522.000.

Dotson, Ronald L.; and Carr, Edward P., to Olin Corporation. Method of purifying aqueous solutions of metal hydroxides. 4,333,913, Cl. 423-184.000.

Doty, John G. Bumper mounted soil sampling device. 4,333,541, Cl. 175-162.000.

Dow Chemical Company, The: *See—*
Allada, Sambasiva R., 4,333,780, Cl. 156-78.000.
Baratz, Brenda S.; Phillips, Robert A.; and Steward, David L., 4,333,941, Cl. 424-267.000.
Davis, Ralph A.; and Pews, R. Garth, 4,334,111, Cl. 570-143.000.
Lee, John M.; and Bauman, William C., 4,333,846, Cl. 252-184.000.
Peterson, Russell R., 4,334,074, Cl. 546-327.000.
Wing, Phillip L.; and Sweeney, George A., 4,333,843, Cl. 252-75.000.
Wolcott, Duane K.; and Carraway, John B., Jr., 4,333,810, Cl. 204-195.00M.

Downing, Robert L.: *See—*
Musgrave, Dwight S.; McMahan, John D.; and Downing, Robert L., 4,333,291, Cl. 52-404.000.

Downing, Willis G., Jr. Comprehensive pulmonary measurement technique. 4,333,476, Cl. 128-720.000.

Doyle, Paul M.: *See—*
Patey, Daniel F.; and Doyle, Paul M., 4,333,338, Cl. 73-119.00A.

Drees, Jan M.; Dooley, Larry W.; and Neathery, William D., to Textron, Inc. Compound hub spring system for helicopters. 4,333,728, Cl. 416-134.00A.

Drehman, Lewis E.: *See—*
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Dresser Industries, Inc.: *See—*
Cooper, Thomas W., 4,333,691, Cl. 308-8.200.

Dreyer, Charles W., to Sealectro Corporation. Adapter for a coaxial connector. 4,333,697, Cl. 339-31.00R.

Dria, Dennis E.: *See—*
Milberger, Ernest C.; Bremer, Noel J.; and Dria, Dennis E., 4,333,853, Cl. 252-435.000.

Drozd, Otto, to Wollard Aircraft Equipment, Inc. Aircraft loader with revolving cab. 4,333,194, Cl. 14-71.500.

Drygas, Maria: *See—*
Przyluski, Jan; Madry, Kazimierz; Dolecki, Zbigniew; Kotarski, Andrzej; Drygas, Maria; Kokosinski, Jacek; Kuzma, Zygmunt; and Chelminski, Bohdan, 4,333,802, Cl. 204-54.00R.

Dubois, Jacques E.; Pham, Minh-Chau; and Lacaze, Pierre C., to Agence Nationale de Valorisation de la Recherche (ANVAR). Films of polyphenylene oxides. 4,334,054, Cl. 528-210.000.

Dubois, Jean-Claude; Zann, Annie; Billard, Jean; and Hareng, Michel, to Thomson-CSF. Mixture of disc-like liquid crystals, electro-optical device using such a mixture and process for orienting the molecules of the mixture. 4,333,709, Cl. 350-350.00R.

Duchene, Jacques, to Commissariat a l'Energie Atomique. Electrode system for electrolytic display means with seven segments. 4,333,710, Cl. 350-357.000.

Dudley, Carl K., to Eltra Corporation. Voltage detector using an oscillator and comparator means. 4,334,188, Cl. 324-133.000.

Duff, Michael P.: *See—*
Bellafiore, Francis V.; Duff, Michael P.; and O'Meara, David M., 4,333,973, Cl. 427-424.000.

Duggleby, Peter M.; Foster, Francis G.; and Nooi, Jacobus R., to Lever Brothers Company. Detergent compositions. 4,333,844, Cl. 252-97.000.

Duke, Max E. Anchoring means for refractive blocks. 4,333,406, Cl. 110-340.000.

Dukeshire, Robert E.: *See—*
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Dumbeck, Robert F. Energy saving electrically actuated barrier gate control means operable from solar energy. 4,333,268, Cl. 49-34.000.

Dumont, Claude: *See—*
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Du Pont de Nemours, E. I., and Company: *See—*
Charles, Magalie M.; and Heiart, Robert B., 4,334,009, Cl. 430-291.000.
Resnick, Paul R., 4,334,082, Cl. 560-180.000.
Strolle, Clifford H., 4,334,075, Cl. 548-239.000.
Zimmerman, William T., 4,333,760, Cl. 71-92.000.

Dupre, Carl R., to Monsanto Company. Process for preparing polymeric polyblends having a rubber phase as particles with a bimodal particle size distribution. 4,334,039, Cl. 525-263.000.

Durant, Graham J.; Ganellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., to Smith Kline & French Laboratories Limited. Blocking histamine H_2-receptors with imidazolylalkyl guanidine derivatives. 4,333,946, Cl. 424-273.00R.

Durbin, John A.: *See—*
Green, Frederick A.; Simpson, George R.; Avery, Stephen T.; and Durbin, John A., 4,333,723, Cl. 355-71.000.

Durkin, Gary M.: *See—*
Elkins, Robert H.; Durkin, Gary M.; and Macriss, Robert A., 4,333,524, Cl. 165-104.160.

Dwivedi, Basant K.: *See—*
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Dzus Fastener Co., Inc.: *See—*
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E.G.O. Elektro-Gerate Blanc und Fischer: *See—*
Eckert, Roland, 4,333,669, Cl. 285-21.000.

E-Systems, Inc.: *See—*
Clark, Egbert B., III, 4,334,322, Cl. 455-62.000.

Eadon-Allen, Stuart, to Dollond & Aitchison Services Limited. Machine for smoothing and/or polishing lens faces. 4,333,274. Cl. 51-160.000.

Earnshaw, Roy R.: *See—*
Nield, Barry J.; and Earnshaw, Roy R., 4,334,217, Cl. 340-685.000.

Easterling, Michael R.: *See—*
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Eastman, Alan D.: *See—*
Gardner, Lloyd E.; Farha, Floyd E., Jr.; Eastman, Alan D.; and Drehman, Lewis E., 4,333,855, Cl. 252-439.000.

Eastman Kodak Company: *See—*
Adin, Anthony; and Fleming, James C., 4,334,005, Cl. 430-211.000.
Lau, Philip T. S., 4,333,999, Cl. 430-17.000.
Lee, James K., 4,333,722, Cl. 354-234.000.
Leszyk, Gerald M., 4,333,998, Cl. 430-12.000.
Mignot, Andre G. E., 4,334,012, Cl. 430-567.000.
Sanford, Karl J.; and Eikenberry, Jon N., 4,333,733, Cl. 23-230.00B.

Eastman, Stephen B. Expandable window device. 4,333,272, Cl. 49-505.000.

Eaton Corporation: *See—*
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Ebata, Hiroyuki, to Yoshida Kogyo K.K. Double sash structure. 4,333,283, Cl. 52-202.000.

Eberhard, Hans J.: *See—*
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Eberhard, Patrick; and Mindt, Wolfgang, to Hoffmann-La Roche Inc. Apparatus for the cutaneous determination of the oxygen partial pressure in blood. 4,333,473, Cl. 128-635.000.

Ebert, Michael: *See—*
Reick, Franklin G., 4,333,840, Cl. 252-16.000.

Eckert, Roland, to E.G.O. Elektro-Gerate Blanc und Fischer. Brazed or soldered joints. 4,333,669, Cl. 285-21.000.

Ecological Energy Systems, Inc.: *See—*
Cardone, Joseph T.; Shatz, Kenneth J.; and Dill, James M., 4,333,313, Cl. 60-649.000.

Edelman, Peter G.: *See—*
Chang, Mike S. H.; Donoghue, John T.; and Edelman, Peter G., 4,334,000, Cl. 430-58.000.

Edelman, Seymour. Opto-acoustic transducer and telephone receiver. 4,334,321, Cl. 455-614.000.

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Neef, Gunter; Eder, Ulrich; Haffer, Gregor; Sauer, Gerhard; Wiechert, Rudolf; and Steinbeck, Hermann, 4,333,928, Cl. 424-243.000.

Edwards, James M., to Management Assistance Inc. Discharge/ground button. 4,334,259, Cl. 361-212.000.

Egnell, Eric R., to Nedre Norrlands Producentforening ek. for, Bangardsgatan. Method for the manufacture of whey products. 4,333,958, Cl. 426-583.000.

Eguchi, Kouichi; and Inoie, Tsuguya, to Japan Radio Company, Limited. Antenna system for satellite communication. 4,334,226, Cl. 343-100.0ST.

Eheim, Franz, to Robert Bosch GmbH. Apparatus for controlling recirculated exhaust gas quantities in self-igniting internal combustion engines. 4,333,440, Cl. 123-569.000.

Eikenberry, Jon N.: *See—*
Sanford, Karl J.; and Eikenberry, Jon N., 4,333,733, Cl. 23-230.00B.

Eistetter, Klaus; Kley, Hans-Peter; Menge, Heinz-Gunter; and Schaefer, Hartmann, to BYK Gulden Lomberg Chemische Fabrik GmbH Anti-depressant and analgesic 4-phenoxypiperidines. 4,333,942, Cl. 424-267.000.

Ekdahl, Per A. A.; and Moller, Fred L., to Telefonaktiebolaget L M Eriesson. Overvoltage protection device 4,334,257, Cl. 361-119.000.

Ekwall, Carl G. B., to Atlas Copco Aktiebolag. Pneumatic drill lubricator. 4,333,538, Cl. 173-104.000.

El Paso Polyolefins Company: *See—*
Zukowski, Edward A., 4,334,041, Cl. 525-53.000

Elbetti, Meri: *See—*
Maselli, Maria; Frullini, Alberto; Elbetti, Meri; and Frullini, Luisa, 4,333,408, Cl. 112-121.150.

Electrolux GmbH: *See—*
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Elettrochimica Marco Ginatta S.p.A.: *See—*
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Eli Lilly and Company: *See—*
Baltz, Richard H.; Wild, Gene M.; and Seno, Eugene T., 4,334,019, Cl. 435-76.000.
Beck, James R.; and Yahner, Joseph A., 4,333,923, Cl. 424-115.000.
Chauvette, Robert R., 4,334,065, Cl. 544-30.000.
Greene, James M.; and Bunnell, Charles A., 4,334,079, Cl. 560-75.000.
Kleber, John W.; and Simpson, Barbara E., 4,333,919, Cl. 424-15.000.
Shuman, Robert T., 4,333,873; Cl. 260-112.50E.
Spry, Douglas O., 4,334,063, Cl. 544-28.000.
Spry, Douglas O., 4,334,064, Cl. 544-30.000.

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Ellenberger, Michael L., to Memorex Corporation. Method of manufacturing thin film magnetic head/slider combination. 4,333,229, Cl. 29-603.000.

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Elliott Turbomachinery Co., Inc.: *See—*
Czuszak, Charles C., 4,333,343, Cl. 73-538.000.

Ellis, John F. G., to British Petroleum Company Limited, The. Production of aromatic hydrocarbons from a mixed feedstock of C_5–C_{12} olefins and C_3–C_4 hydrocarbons. 4,334,114, Cl. 585-407.000.

Ellis, Stephen R. M.; and Priestley, Ronald, to Citten Limited. Dumped packings and apparatus comprising such dumped packings. 4,333,892, Cl. 261-94.000.

Elmeskog, Alf U. Device for measurement of muscular strength. 4,333,340, Cl. 73-379.000.

Eltra Corporation: *See—*
Dudley, Carl K., 4,334,188, Cl. 324-133.000.
Mattson, Richard W., 4,333,433, Cl. 123-420.000.

Ely, Brian W.: *See—*
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Emmons, William D.; Winey, Donald A.; and Rounds, Nicholas A., to Rohm and Haas Company. Radiation curable compositions containing β-cyanoethoxyalkyl acrylates. 4,333,963, Cl. 427-44.000.

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Hurtig, Carl R., 4,333,366, Cl. 81-170.000.

Engel, John F., to FMC Corporation. (+)-4-Substituted-2-indanol insecticidal ester derivatives. 4,333,950, Cl. 424-305.000.

Engelke, Helmut: *See—*
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Enomoto, Hiroshi: *See—*
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Enter, William L., Sr. Apparatus and method for controlling a watering system. 4,333,490, Cl. 137-78.300.

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Erickson, David E., to General Tire & Rubber Company, The. Adhesion of brass to rubber. 4,333,785, Cl. 156-281.000.

Erickson, David E., to General Tire & Rubber Company, The. Adhesion of rubber to brass. 4,333,787, Cl. 156-307.300.

Erickson, John W., to Baker International Corporation. Rotary gas/liquid separator. 4,333,748, Cl. 55-202.000.

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Kubbeler, Hans-Klaus; Erpenbach, Heinz; Gehrmann, Klaus; and Schmitz, Klaus, 4,333,884, Cl. 260-546.000.

Etat Francais: *See—*
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Etoh, Yukihiro: *See—*
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Eutectic Corporation: *See*—
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Evans, Terence A. Roller bearing. 4,333,695, Cl. 308-211.000.
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Hendry, James W., 4,333,608, Cl. 239-118.000.
Excelermatic Inc.: *See*—
Kraus, Charles E., 4,333,692, Cl. 308-9.000.
Explosive Fabricators: *See*—
Hardwick, Roy, 4,333,597, Cl. 228-108.000.
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Porter, Christopher H.; and Taylor, John A., 4,333,906, Cl. 264-40.300.
Exxon Research and Engineering Company: *See*—
Baker, Richard H.; and Baumgarten, Arthur A., Jr., 4,334,254, Cl. 361-9.000.
Hardy, James E.; and Knarr, John J., 4,333,735, Cl. 23-232.00R.
Facemate Corporation: *See*—
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Fahner, Theodorus A.: *See*—
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Neely, James E., Jr.; Lin, Chia-Cheng; Falleroni, Charlene A.; and Moff, Annette, 4,333,914, Cl. 423-314.000.
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Farha, Floyd E., Jr.: *See*—
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Faris, Sadeg M., to International Business Machines Corporation. Superconducting switch and amplifier device. 4,334,158, Cl. 307-462.000.
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Arnswald, Jeffrey K., 4,333,686, Cl. 299-39.000.
Federal Signal Corporation: *See*—
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Ferrarini, Ezio. Corona effect surface treatment apparatus for sheet. 4,334,144, Cl. 219-383.000.
Ferris, David A., to Fairchild Camera and Instrument Corp. Data latch with enable signal gating. 4,334,157, Cl. 307-291.000.
Fessler, Herman S.; and Harvill, William A., to Coca-Cola Company, The; and Cornelius Company, The, part interest to each. Beverage dispenser. 4,333,587, Cl. 222-129.100.
Fey, Robert M.: *See*—
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Firey, Joseph C. Engine steam stratifier. 4,333,423, Cl. 123-23.000.
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Fischer & Porter Co.: *See*—
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Fisher, John M., to B. F. Goodrich Company, The. Escape slide. 4,333,546, Cl. 182-48.000.
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Fisons Limited: *See*—
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Fjallstrom, Bengt. Method for internal washing or cleaning and rinsing or drying of tubular materials. 4,333,773, Cl. 134-22.00C.
Flansburg, Donald G., to Howard, Henry H. Multi-compartment container with pop-top and communicating door. 4,333,581, Cl. 220-20.000.
Flax, Eli A. Whip finish knot tying aid. 4,333,614, Cl. 242-1.000.
Fleisher, Martin, to Sloan-Kettering Institute for Cancer Research. Diagnostic device for fecal occult blood and method of use. 4,333,734, Cl. 23-230.00B.
Fleming, James C.: *See*—
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Flynn, Hugh G. Method of generating energy by acoustically induced cavitation fusion and reactor therefor. 4,333,796, Cl. 376-100.000.
FMC Corporation: *See*—
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Gavasso, John M.; Bodnar, Louis G.; and Parker, Walter E., 4,333,426, Cl. 123-90.270.
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Franklin, Paul E., to Crosfield Electronics Limited. Interpolation methods and apparatus. 4,334,240, Cl. 358-78.000.
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Frisk, Oiof E., to Mo och Domsjo Aktiebolag. Apparatus for removing particulate material from a pile thereof. 4,333,560, Cl. 198-519.000.
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Frykhult, Rune H., to AB Celleco. Separation of pulp flow. 4,333,572, Cl. 209-17.000.
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Fuderer, Andrija, to Union Carbide Corporation. Two-feed pressure swing adsorption process. 4,333,744, Cl. 55-25.000.
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Fujii, Masaki; and Miyabayashi, Mitsutaka, to Mitsubishi Petrochemical Company Limited. Propylene block copolymers. 4,334,040, Cl. 525-321.000.

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Fuller, Ernest H., Gutter guard clip and method of manufacture. 4,333,208, Cl. 24-1.000.

Funamoto, Hiroyuki: *See—*
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Funcik, Jack F.; Bennet, Joseph C.; Tubbs, Joseph T.; and Schneider, Thomas E., to Molex Incorporated. Machine for making an electrical harness. 4,333,230, Cl. 29-749.000.

Furukawa, Hisao: *See—*
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Furukawa, Toru, to Wistar Institute of Anatomy and Biology, The. Human osteogenic sarcoma cell line and use thereof for immunofluorescent antibody test. 4,334,016, Cl. 435-5.000.

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Fuxelius, Kaj O. H., to Billingsfors Bruks Aktiebolag. Water barrier flotation curtain. 4,333,726, Cl. 405-72.000.

Gabriel, Melvin E.; and Van Baalen, Joseph M., to Zenith Radio Corporation. Horizontal width control circuit for image display apparatus. 4,334,173, Cl. 315-399.000.

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Gall, John C., to Sears, Roebuck and Co. Container closure. 4,333,584, Cl. 220-309.000.

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Gardner, David L. Pipe coating apparatus. 4,333,783, Cl. 156-187.000.

Gardner, Jeffrey M., to Container Corporation of America. Six-cell partition. 4,333,600, Cl. 229-42.000.

Gardner, Lloyd E.; Farha, Floyd E., Jr.; Eastman, Alan D.; and Drehman, Lewis E., to Phillips Petroleum Company. Promoted zinc titanate as catalytic agent. 4,333,855, Cl. 252-439.000.

Garner, James W., to Grow Group, Inc. Coating composition thinner for decreasing pollution resulting from the application of a coating composition. 4,333,845, Cl. 252-170.000.

Garrett Corporation, The: *See—*
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Gates, Peter S.; Baldwin, Derek; Wilson, Carol A.; and Gillon, John, to Fisons Limited. Herbicidal 5-cyano-2,3-dihydro-benzofuran-2-ones. 4,333,759, Cl. 71-88.000.

Gauhl, Helmgard; Schawohl, Georg; Seidel, Hans; and Beaucamp, Klaus, to Boehringer Mannheim GmbH. Process for obtaining cholesterol oxidase. 4,334,023, Cl. 435-190.000.

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Geist, Robert W. Mesentery tube holder apparatus. 4,333,468, Cl. 128-348.000.

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Gen Engineering, Ltd.: *See—*
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General Atomic Company: *See—*
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Holko, Kenneth H., 4,333,671, Cl. 285-173.000.

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Geosource Inc.: *See—*
Ciccozzi, Frederick A., 4,333,486, Cl. 137-1.000.

Germann, Willy, to BBC Brown, Boveri & Company, Ltd. Shielding cylinder and method of manufacture. 4,333,223, Cl. 29-447.000.

Geschwender, Robert C., to Concept Engineering Inc. Reclosable container. 4,333,602, Cl. 229-44.00R.

Getting, Milan J.: *See—*
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Geusic, Joseph E.; Muehlner, Dirk J.; and Nelson, Terence J., to Bell Telephone Laboratories, Incorporated. Ion-implanted magnetic bubble memory with domain confinement rails. 4,334,291, Cl. 365-36.000.

Ghezzo, Mario, to General Electric Company. Method of making integrated circuits. 4,333,964, Cl. 427-93.000.
Ghezzo, Mario: *See—*
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Gibb, James M. Differential pressure sensing device. 4,333,350, Cl. 73-715.000.
Gibbard, Henry F., to Gould Inc. Air cathode for air depolarized cells. 4,333,993, Cl. 429-27.000.
Gibbs, Craig A., to Garrett Corporation, The. Turbocharger shaft seal arrangement. 4,333,659, Cl. 277-1.000.
Gieschen, Kurt; and Reinger, Friedrich, to U.S. Philips Corporation. X-ray examination apparatus, comprising an examination table which can be swivelled around a horizontal axis. 4,334,155, Cl. 250-490.000.
Giezen, Egenius A.: *See—*
Beck, Heinz; Frassek, Karl H.; Giezen, Egenius A.; and Verhulst, Eduard M., 4,334,038, Cl. 525-207.000.
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Gilden, Meyer; Cullen, Donald E.; and Grudkowski, Thomas W., to United Technologies Corporation. Fluid damped saw accelerometer 4,333,342, Cl. 73-516.00R.
Gillette Company, The: *See—*
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Gillon, John: *See—*
Gates, Peter S.; Baldwin, Derek; Wilson, Carol A.; and Gillon, John, 4,333,759, Cl. 71-88.000.
Gillotti, Michael A. Massage and therapeutic body work table. 4,333,638, Cl. 269-322.000.
Ginatta, Marco, to Snamprogetti S.p.A.; and Elettrochimica Marco Ginatta S.p.A. Method and machine for recovering material from consumed accumulator batteries. 4,333,219, Cl. 29-403.300.
Giovetti, Giuliano. Sporting implement structure, particularly for soccer game practicing. 4,333,658, Cl. 273-411.000.
Girardi, Gerardo, to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A. Data-handling system with operatively interconnected processors. 4,334,305, Cl. 370-86.000.
Gitlin, Richard D.; and Meadors, Howard C., Jr., to Bell Telephone Laboratories, Incorporated. Timing recovery technique. 4,334,313, Cl. 375-106.000.
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Brorein, William J., 4,333,699, Cl. 339-61.00M.
GKN Sankey Limited: *See—*
Golding, Cyril G., 4,333,504, Cl. 141-55.000.
Gliniorz, Lothar: *See—*
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Goettl, Adam D. Automatic flushing and draining apparatus for evaporative coolers. 4,333,887, Cl. 261-27.000.
Goetze AG: *See—*
Friedrichs, Karl-Gerd, 4,333,663, Cl. 277-235.00R.
Goff, James R. Tumbling apparatus. 4,333,276, Cl. 51-422.000.
Gogins, Laird B., to Power-Matic Corporation. Variable speed transmission. 4,333,555, Cl. 192-58.00R.
Golding, Cyril G., to GKN Sankey Limited. Container filling machine. 4,333,504, Cl. 141-55.000.
Gonzales, Roman Y., to Gould Inc. Universal input/output system construction for programmable controllers. 4,334,261, Cl. 361-426.000.
Goodyear Tire & Rubber Company, The: *See—*
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Schmit, Georges J. E.; and Welter, Thomas N. H., 4,333,507, Cl. 152-359.000.
Young, Gerald T.; Easterling, Michael R.; and Dukeshire, Robert E., 4,333,901, Cl. 264-85.000.
Gordon, John F., to Marconi Company Limited, The. Secondary surveillance radar. 4,334,224, Cl. 343-6.50R.
Gordy, Lester A.; and Poff, David A., to General Electric Company. Cell tester for use with microprocessor. 4,334,193, Cl. 324-437.000.
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Gould Inc.: *See—*
Gibbard, Henry F., 4,333,993, Cl. 429-27.000.
Gonzales, Roman Y., 4,334,261, Cl. 361-426.000.
Swanger, Lee A., 4,333,215, Cl. 29-149.50S.
Govoni, Gabriele; Rubichi, Gianfranco; and Guardigli, Pierluigi, to Montedison S.p.A. Continuous process for recovering polymers from their latexes. 4,334,057, Cl. 528-500.000.
Graham Magnetics, Inc.: *See—*
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Graham, Paul D.: *See—*
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Grant Industries Incorporated: *See—*
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Herbst, Heiner; Pfleiderer, Hans-Joerg; and Grassl, Hans-Peter, 4,334,151, Cl. 250-201.000.
Grattapaglia, Giorgio P., to Fiat-Allis Macchine Movimento Terra S.p.A. Power-shift countershaft type transmission. 4,333,358, Cl. 74-359.000.
Greco, Alberto; and Bertolini, Guglielmo, to Anic S.p.A.; and Snamprogetti S.p.A. Process for reducing metal alkoxides, and the use of the compounds so obtained. 4,333,881, Cl. 260-429.00R.
Green, Frederick A.; Simpson, George R.; Avery, Stephen T.; and Durbin, John A., to Xerox Corporation. Full frame flash illumination system utilizing a diffuse integrating optical cavity. 4,333,723, Cl. 355-71.000.
Greene, James M.; and Bunnell, Charles A., to Eli Lilly and Company. Synthesis of substituted benzyl esters. 4,334,079, Cl. 560-75.000.
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Greiner, James G.; Lehman, Joseph J.; and Priepke, Edward H., to Sperry Corporation. Adjustable crop guide apparatus. 4,333,304, Cl. 56-119.000.
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Griffin, Mary T. Flower bud. 4,333,778, Cl. 156-61.000.
Grimes, Terrence L.; and Swartz, Harold L., to Sperry Corporation. Apparatus for demodulating a pulse excited synchro position sensor. 4,334,179, Cl. 318-661.000.
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Grimm, Jakob, to Inauen Machinen AG. Aluminum foil lined package, particularly suitable for oil- and fat-containing products. 4,333,601, Cl. 229-43.000.
Griswold Controls: *See—*
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Griswold, David E.; and Veit, Richard E., to Griswold Controls. Check valve assembly. 4,333,495, Cl. 137-484.200.
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Groepper, Jurgen, to Pennwalt Corporation. Metallic salt pre-treatment of crosslinkable co-polymers for eliminating tackiness. 4,334,043, Cl. 525-370.000.
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Grow Group, Inc.: *See—*
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Grudkowski, Thomas W.: *See—*
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Grundig E.M.V.: *See—*
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GTE Automatic Electric Labs Inc.: *See—*
Janda, George M., 4,334,134, Cl. 200-314.000.
GTE Products Corporation: *See—*
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Wyner, Elliott F.; Burr, Orville R.; and Garrison, Robert L., 4,334,172, Cl. 315-289.000.
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Guillaume, Jacques; Nedelec, Lucien; and Dumont, Claude, to Roussel Uclaf. Tetrahydropyridinyl-indoles. 4,333,939, Cl. 424-263.000.
Guins, Sergei G.: *See—*
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Gunther, Conrad J., to Dzus Fastener Co., Inc. Slip-on receptacle. 4,333,211, Cl. 24-221.00R.
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Kroemer, Helmut, legal representative; and Kroemer, Maria M., legal representative, 4,333,936, Cl. 424-251.000.

Guzay, Casimir M.; and Wright, James A., to Panduit Corp. Pneumatic sensor. 4,333,633, Cl. 251-320.000.

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Haag, Donald L.; and Woods, Lee O., to General Electric Company. Releasable combination and method of assembly. 4,334,162, Cl. 310-68.00C.

Haddock, Paul D. Detachable trailer hitch. 4,333,665, Cl. 280-408.000.

Haffer, Gregor: *See*—
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Hagen, Jens; and Bruns, Klaus, to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA). Production of aldehydes. 4,334,100, Cl. 568-444.000.

Hagiwara, Isao: *See*—
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Hagiwara, Teruo: *See*—
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Haikkala, Pekka O., to Oy. Tampella AB. Apparatus for continuously grinding wood under pressure and continuously discharging groundwood. 4,333,613, Cl. 241-34.000.

Hale, Joseph T.: *See*—
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Hall, Ernest M., Jr., to Western Geophysical Co. of America. Seismic method and apparatus. 4,334,296, Cl. 367-180.000.

Ham, David O., to University of Rochester, The. Excimer laser. 4,334,199, Cl. 372-57.000.

Hamano, Eizaburou: *See*—
Takenaka, Shigeo; Hamano, Eizaburou; and Koshigoe, Shinpei, 4,334,169, Cl. 313-414.000.

Hamilton, Joel A. Form fill and seal package making. 4,333,299, Cl. 53-450.000.

Hamilton, Martin B. Pin-turning articles and methods, for handling load objects. 4,333,617, Cl. 242-86.520.

Hamisch, Paul H., Jr.; and Pabodie, Robert M., to Monarch Marking Systems, Inc. Method of making print head. 4,333,399, Cl. 101-401.200.

Hammacher, Margaret F. Carrying handle for detachable containers and containers including such handle. 4,333,569, Cl. 206-431.000.

Hammond, Kenneth G., to Texaco Inc. Synthesis of 4-haloalkyl alcohols. 4,334,109, Cl. 568-841.000.

Hammonds, James C., to ACF Industries, Incorporated. Hitch head having interlocking jaw mechanism. 4,333,666, Cl. 280-435.000.

Hanada, Kazunori: *See*—
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Hancock, John C.; Winwood, John M.; and Wilkinson, Noel R., to Robert Morton D.G. Limited. Pitching mechanism for lauter tun knives. 4,333,393, Cl. 99-277.200.

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Hanotier-Bridoux, Monique J. S.: *See*—
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Hanotier, Jacques D. V.; and Hanotier-Bridoux, Monique J. S., to Labofina S.A. Production of terephthalic acid. 4,334,086, Cl. 562-413.000.

Hansard, Robert C.; and Brink, E. R., Jr. Film or tape retainer device for reels. 4,333,563, Cl. 206-53.000.

Hansen, Kirsten: *See*—
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Hara, Akio, to Sumitomo Electric Industries, Ltd. Process of producing a sintered compact. 4,333,902, Cl. 264-320.000.

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Hara, Toshitami: *See*—
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Harada, Norio: *See*—
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Hardwick, Roy, to Explosive Fabricators. Method of explosively forming bi-metal tubeplate joints. 4,333,597, Cl. 228-108.000.

Hardy, James E.; and Knarr, John J., to Exxon Research & Engineering Co. Process and apparatus for measuring gaseous fixed nitrogen species. 4,333,735, Cl. 23-232.00R.

Hardy, Raymond D.; and Van Steenwyk, William E. Vehicle top transported, self contained camper. 4,333,679, Cl. 296-161.000.

Hareng, Michel: *See*—
Dubois, Jean-Claude; Zann, Annie; Billard, Jean; and Hareng, Michel, 4,333,709, Cl. 350-350.00R.

Hargest, Thomas S., III. Automatic tubular feeding apparatus and method. 4,333,454, Cl. 128-214.00R.

Harris, Jesse W.; and Lutich, Louis L. Impact drilling tool having improved valving. 4,333,537, Cl. 173-17.000.

Harris, Samuel C., Jr.: *See*—
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Harrison, Raymond G.: *See*—
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Hart, Andrew J.: *See*—
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Hartmann, Heinrich: *See*—
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Hartzler, Harold E., to Miles Laboratories, Inc. Reflux condenser. 4,333,523, Cl. 165-73.000.

Harvill, William A.: *See*—
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Hasegawa, Kengo: *See*—
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Hashimoto, Katsuhiko; Nambu, Hirohiko; Watari, Kazuhiro; Mizuno, Kenichi; Murakami, Tadateru; Matsuoka, Yutaka; Moriyama, Mitsutoshi; and Ohno, Norio, to Mitsu Petrochemical Industries Ltd. Process and apparatus for preparation of phenols. 4,334,108, Cl. 568-803.000.

Hatano, Hajime: *See*—
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Hauenstein, Alfred, to Siemens Aktiengesellschaft. Electronic sensor on/off switch. 4,334,183, Cl. 323-235.000.

Hauenstein, Alfred, to Siemens Aktiengesellschaft. Electronic sensor on/off switch. 4,334,184, Cl. 323-235.000.

Haug, Richard. Wall hanger hooks. 4,333,625, Cl. 248-216.100.

Hauni-Werke Korber & Co. KG: *See*—
Heitmann, Uwe; and Rudszinat, Willy, 4,333,335, Cl. 73-41.000.

Haupin, Warren E.: *See*—
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Hauz, Gerhard, to Laukien, Gunther Rudi. Submersible twin-hull watercraft. 4,333,414, Cl. 114-322.000.

Hawkins, Edward, Sr. Hoop guiding and braking apparatus. 4,333,260, Cl. 46-220.000.

Hawley, Gil R.; and McDaniel, Max P., to Phillips Petroleum Company. Solubilized chromium salt in polymerization catalyst. 4,333,860, Cl. 252-458.000.

Hayashi, Hisao: *See*—
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Hayashi, Keizo, to Toyoda Gosei Co., Ltd. Method for producing a channel shaped trim. 4,333,221, Cl. 29-413.000.

Hayashi, Takeshi, to Kyoei Zoki Kabushiki Kaisha. Apparatus for storage of ice. 4,333,612, Cl. 241-33.000.

Hayashi, Tatsuo; Itoh, Ryouichi; and Tsuji, Tatsumi, to Mitsubishi Petrochemical Company Limited; and Daisen Industry Company Limited. Method and mold for molding prefoamed particulate thermoplastic synthetic resin material. 4,333,897, Cl. 264-40.600.

Head, Donald L., to Mead Corporation, The. Laminated charge plate for an ink jet printing device and method of manufacturing same. 4,334,232, Cl. 346-75.000.

Healy, Herbert C., to United Technologies Corporation. Method for producing steam from the liquid in a moist gas stream. 4,333,992, Cl. 429-17.000.

Hedger, John H. Reciprocating engine with improved piston movement stabilizing means. 4,333,388, Cl. 91-186.000.

HEF-Fenstertechnik Vetriebs GmbH: *See*—
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Hegg, Billy S., to Bendix Corporation, The. Balanced pivoted vane valve. 4,333,390, Cl. 91-467.000.

Heiart, Robert B.: *See*—
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Heider, James E., to Owens-Illinois, Inc. Merchandising package for containers. 4,333,570, Cl. 206-432.000.

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Lehner, August; Hartmann, Heinrich; Heil, Guenter; Lenz, Werner; Buethe, Ingolf; and Bachmann, Rudolf, 4,334,034, Cl. 525-28.000.

Heinze, Walter O.; and Tufts, Wesley M., to International Water Saving Systems, Inc. Water saving toilet system. 4,333,185, Cl. 4-319.000.

Heitmann, Uwe; and Rudszinat, Willy, to Hauni-Werke Korber & Co. KG. Apparatus for testing the wrappers of cigarettes or the like. 4,333,335, Cl. 73-41.000.

Helmus, Martin C.; and Baker, Wallace L. Filtration module with included illumination. 4,333,750, Cl. 55-259.000.

Hemschemeier, Hans: *See*—
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Henderson, Joe W. Multi-purpose attachment for vehicles. 4,333,250, Cl. 37-117.500.
Hendrickson, Richard T.; and Carter, Joel S., to Bendix Corporation, The. Electronic adaptive ride control system. 4,333,668, Cl. 280-703.000.
Hendry, James W., to Ex-Cell-O Corporation. Injection molding nozzle. 4,333,608, Cl. 239-118.000.
Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA): *See*—
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Henle, Ernst: *See*—
Kuttenbaum, Valentin; and Henle, Ernst, 4,333,297, Cl. 53-252.000.
Henricson, Kaj O., to Rosenblad Corporation. Method for the recovery of easily evaporable components from hot gases. 4,333,800, Cl. 203-87.000.
Hentrich, Robert D., Sr., to Deere & Company. Disc standard assembly. 4,333,535, Cl. 172-572.000.
Herbert, Leroy. Cover for truck/trailer male electrical plug. 4,333,698, Cl. 339-36.000.
Herbst, Heiner; Pfleiderer, Hans-Joerg; and Grassl, Hans-Peter, to Siemens Aktiengesellschaft. Circuit with an exposure measuring unit for sensor controlled range measurement. 4,334,150, Cl. 250-201.000.
Herbst, Heiner; Pfleiderer, Hans-Joerg; and Grassl, Hans-Peter, to Siemens Aktiengesellschaft. Circuit provided with an exposure measuring part for sensor-controlled telemetry. 4,334,151, Cl. 250-201.000.
Herbst, Heiner; and Niemeyer, Matthias, to Siemens Aktiengesellschaft. Monolithically integrated circuit for linear image scanning with matchable sensors. 4,334,239, Cl. 358-44.000.
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Herrmann, Henry O., Jr., to AMP Incorporated. Low cost high voltage connector. 4,333,702, Cl. 339-217.00R.
Herschler, Robert J. Method for the treatment of water-living animals with health modifying agents. 4,333,922, Cl. 424-89.000.
Herst, Neil W., to BJ-Hughes Inc. Rotary power slips. 4,333,209, Cl. 24-263.0DA.
Hertl, William; and Zine, Anthony R., Jr., to Sherwood Medical Industries Inc. Method of controlling rheological properties of gel-like compositions. 4,333,564, Cl. 206-216.000.
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Hestehave, Kjeld: *See*—
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Heuber, Klaus; and Wiedmann, Siegfried K., to International Business Machines Corporation. Restore circuit for a semiconductor storage. 4,334,294, Cl. 365-203.000.
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Kuttenbaum, Valentin; and Henle, Ernst, 4,333,297, Cl. 53-252.000.

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Morikawa, Minoru; Kokubu, Sadao; and Hirai, Tadashi, 4,333,325, Cl. 70-186.000.

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Yamashita, Fumio; and Kurobe, Hideharu, 4,333,306, Cl. 57-206.000.

Kanamaru, Hitoshi, to Pioneer Electronic Corporation. Optical reading apparatus with scanner light intensity control. 4,334,301, Cl. 369-116.000.

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Kanbe, Masayoshi: *See—*
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Kando, Toru: *See—*
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Kane, Johji, to Matsushita Electric Industrial Co. Ltd. Directivity-controllable antenna system. 4,334,230, Cl. 343-797.000.

Kanebo Foods, Ltd.: *See—*
Murata, Susumu; Shimizu, Noriyuki; and Kokeguchi, Sadao, 4,333,955, Cl. 426-44.000.

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Klein, Joachim; and Wagner, Fritz. Preparation of immobilized enzymatically-active substance. 4,334,027, Cl. 435-178.000.

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Komurasaki, Satoshi; Watanabe, Isao; and Ito, Osamu, to Mitsubishi Denki Kabushiki Kaisha. Optical signal recording and reproducing system. 4,334,299, Cl. 369-44.000.
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Koukal, Anton. Follow-up control means in swinging-arm flame-cutting machines. 4,333,635, Cl. 266-64.000.
Koutonen, Pauli; and Alanco, Lars-Erik, to Oy Wartsila AB. Roll wrapping arrangement. 4,333,301, Cl. 53-587.000.
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Kuraoka, Yasuo, to Hoxan Corporation. Method of liquefying Freon gas. 4,333,753, Cl. 62-9.000.
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Kuris, Arthur. Ultrasonic toothbrush. 4,333,197, Cl. 15-22.00R.
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Kusche, David W., to Brunswick Corporation. Fuel system for a two-cycle engine. 4,333,425, Cl. 123-73.00R.
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Lange, Ronald E.; and Fisher, Richard J., to Honeywell Information Systems Inc. Apparatus for recording the order of usage of locations in memory. 4,334,289, Cl. 364-900.000.
Lankheet, Jay A. Swimming pool construction. 4,333,186, Cl. 4-506.000.
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Latos, Edward L., to General Electric Company. Flash lamp array having composite circuit board and electric shield member. 4,334,262, Cl. 362-11.000.
Lau, Philip T. S., to Eastman Kodak Company. Cyan dye-forming couplers. 4,333,999, Cl. 430-17.000.
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Hauz, Gerhard, 4,333,414, Cl. 114-322.000.
Laurita, Robert A. Protective guard for the throat area. 4,333,179, Cl. 2-2.000.
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Lee, Young-Jin, to Union Carbide Corporation. Process for producing 2,5-dichloro-p-xylene. 4,334,112, Cl. 570-207.000.
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Lehner, August; Hartmann, Heinrich; Heil, Guenter; Lenz, Werner; Buethe, Ingolf; and Bachmann, Rudolf, to BASF Aktiengesellschaft. Process for the preparation of polymerizable polyurethane elastomers. 4,334,034, Cl. 525-28.000.
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Lemke, James U., to Spin Physics, Inc. Apparatus useful for converting asynchronous video information to synchronous video information. 4,334,247, Cl. 360-10.000.
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Lester, Victor E. Nebulizer-manifold. 4,333,450, Cl. 128-200.140.
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Lim, John; Brady, Michael; and Stamires, Dennis, to Filtrol Corporation. Attrition resistant zeolite containing catalyst. 4,333,857, Cl. 252-455.00Z.
Liman, Helmut, to Blaupunkt-Werke GmbH. Traffic information radio signal receiver. 4,334,320, Cl. 455-227.000.
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Lipp, Willi, to Huller Hille GmbH. Method and apparatus for correcting tool lengths and tool radii, particularly for numerically controlled machines equipped with position or path measuring systems by means of nominal-actual value comparison. 4,334,178, Cl. 318-572.000.
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Lohner, Ingolf; Barnert, Konrad; and Stein, Gunter, to Volkswagenwerk Aktiengesellschaft. Timing control apparatus for fuel injection pump. 4,333,437, Cl. 123-502.000.
Long, Alvin L. Combination motor home and house boat. 4,333,191, Cl. 114-344.000.
Longley, Karl E.; Ratigan, Brian; and Davis, James W., to Fischer & Porter Co. In-line disinfectant contactor. 4,333,833, Cl. 210-198.100.
Longnecker, Russell D. Two-stage can crusher. 4,333,396, Cl. 100-233.000.
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Lorrek, Johannes; and Jokisch, Friedrich, to Krupp-Koppers GmbH. Arrangement for discharging coke from a cooling shaft supplied with cooling gas. 4,333,910, Cl. 422-228.000.
Louzos, Demetrios V., to Union Carbide Corporation. Solid state cell in which an inert nonconductive material is dispersed in the cathode. 4,333,996, Cl. 429-191.000.
Lovas, Joseph R.; Lovas, Paul J.; and Koelmel, Carl F., to Cyloflex, Inc. Portable board mill. 4,333,236, Cl. 30-380.000.
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Patey, Daniel F.; and Doyle, Paul M., 4,333,338, Cl. 73-119.00A.
Seilly, Alec H., 4,334,205, Cl. 335-220.000.
Luce, David A., to Norlin Industries, Inc. Voltage controlled attenuator. 4,334,195, Cl. 328-168.000.
Luedicke, Oscar B.; Domzalski, Thad; and Zajac, David, to American Cyanamid Company. Hair cleansing conditioner with lathering action. 4,333,921, Cl. 424-70.000.
Lund, Van M. DC Motor control circuit. 4,334,177, Cl. 318-345.00G.
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Mahoney, Fred G. Hot fuel gas generator with dual controls. 4,333,422, Cl. 123-3.000.
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Malchow, Max E., to RCA Corporation. Biasing of transistor amplifier cascades. 4,334,198, Cl. 330-296.000.

Maley, Gerald A., to International Business Machines Corporation. Noise suppressing bilevel data signal driver circuit arrangement. 4,334,310, Cl. 371-64.000.

Mallon, Joseph R.; and Kurtz, Anthony D., to Kulite Semiconductor Products, Inc. Binary balancing apparatus for semiconductor transducer structures. 4,333,349, Cl. 73-708.000.

Malzacher, Fred H. Gripper assembly for moving drilling rigs. 4,333,634, Cl. 254-106.000.

Management Assistance Inc.: *See—*
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Manche, Emanuel P. Determination of the acceleration of gravity. 4,333,341, Cl. 73-382.00R.

Mangold, Hans, to Grundig E.M.V. Remote control television with external data bus connection. 4,334,242, Cl. 358-127.000.

Mann, Adriaan B., to Goudsche Machinefabriek B.V. Calibrating unit for calibrating a hydraulic or electric pressure gauge, especially of a probing device. 4,333,331, Cl. 73-4.00R.

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Marciandi, Franco; and Relvini, Pasquale, to Montedison S.p.A. Self-extinguishing polymeric compositions. 4,333,869, Cl. 524-100.000.

Marconi Company Limited, The: *See—*
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Gordon, John F., 4,334,224, Cl. 343-6.50R.

Marder, William Z., to RCA Corporation. Apparatus for handling deformable components supported in a matrix. 4,333,592, Cl. 226-52.000.

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Marmon, Robert A. Shoppers coupon calculator. 4,334,278, Cl. 364-709.000.

Marsh, Phillip W.: *See—*
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Martel Catala & Cie: *See—*
Karm, Robert, 4,333,502, Cl. 139-425.00A.

Martelli, Nerio, to NESPAK S.p.A. Societa' Generale per l'Imballaggio. Packaging unit for fruit or like articles. 4,333,571, Cl. 206-499.000.

Marten, John A., to Sun Electric Corporation. Method for determining the gasoline mileage for a vehicle. 4,333,337, Cl. 73-114.000.

Marugg, Max H. Apparatus for homogenizing liquid and viscous substances. 4,333,729, Cl. 417-313.000.

Maruhashi, Kenji: *See—*
Kojima, Ichiro; Maruhashi, Kenji; and Fujiwara, Yasuo, 4,334,021, Cl. 435-118.000.

Maruko Seiyaku Co., Ltd.: *See—*
Ohno, Sachio; Nagasaka, Mitsuaki; and Kato, Kazuo, 4,334,067, Cl. 544-151.000.

Maruya, Takashi: *See—*
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Marvin Glass & Associates: *See—*
Jaworski, Eugene; Disko, Harry; and Breslow, Jeffrey D., 4,333,657, Cl. 273-376.000.

Maselli, Maria; Frullini, Alberto; Elbetti, Meri; and Frullini, Luisa. Machine for manufacturing pantyhose with gusset. 4,333,408, Cl. 112-121.150.

Massachusetts Institute of Technology: *See—*
Plotkin, George M.; and Wolf, George, 4,334,017, Cl. 435-7.000.
Smith, Henry I., 4,333,792, Cl. 156-612.000.

Massardo, Pietro: *See—*
Bettarini, Franco; Massardo, Pietro; Piccardi, Paolo; and Longoni, Angelo, 4,334,104, Cl. 568-649.000.

Masuyama, Kenichi: *See—*
Yamada, Yasuyuki; Masuyama, Kenichi; and Kitamoto, Tatsuji, 4,333,988, Cl. 428-425.900.

Mathis, John S.: *See—*
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Matier, William L.: *See—*
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Matour, Anthony J.: *See—*
Connery, James G.; Diascro, Dominick D.; DiNapoli, Louis D.; Punis, Giancarlo; and Matour, Anthony J., 4,333,352, Cl. 73-861.180.

Matsuda, Eiji, to Tani Saw Mfg. Co., Ltd. Saw blades having coolant passages and apparatus for using the blades. 4,333,371, Cl. 83-169.000.

Matsukawa, Hiroharu: *See—*
Igarashi, Akira; and Matsukawa, Hiroharu, 4,333,984, Cl. 428-336.000.

Matsumoto, Mitsuo; and Tamura, Masuhiko, to Kuraray Co. Ltd. Carbonylation of olefinic compounds. 4,334,042, Cl. 525-339.000.

Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; and Shibata, Yoshihisa, to Nippon Shinyaku Co., Ltd. Benzoguanamine derivatives, their production and pharmaceutical compositions containing the same. 4,333,933, Cl. 424-249.000.

Matsuno, Kenji; and Funamoto, Hiroyuki, to Toyo Seikan Kaisha, Limited. Method of electric welding tinfree cans. 4,334,138, Cl. 219-64.000.

Matsuoka, Yutaka: *See—*
Hashimoto, Katsuhiko; Nambu, Hirohiko; Watari, Kazuhiro; Mizuno, Kenichi; Murakami, Tadateru; Matsuoka, Yutaka; Moriyama, Mitsutoshi; and Ohno, Norio, 4,334,108, Cl. 568-803.000.

Matsushima, Seiichi: *See—*
Ishida, Osamu; Uetani, Yoshio; and Matsushima, Seiichi, 4,333,995, Cl. 429-172.000.

Matsushita Electric Industrial Co., Ltd.: *See—*
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Kane, Johji, 4,334,230, Cl. 343-797.000.

Matthews, Billie J., to Kimberly-Clark Corporation. Sanitary napkin with improved panty adhesive. 4,333,466, Cl. 128-290.00R.

Mattson, Richard W., to Eltra Corporation. Electronic ignition system with mechanical advance. 4,333,433, Cl. 123-420.000.

Maurer, Helmut: *See—*
Muller, Klaus; Maurer, Helmut; Rieger, Franz; and Linder, Ernst, 4,333,439, Cl. 123-569.000.

Max Roth KG: *See—*
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May, Curtis L.: *See—*
Chan, James K.; May, Curtis L.; and Spooner, Allan, 4,334,244, Cl. 358-166.000.

May, Walder C. Glue gun holder. 4,333,623, Cl. 248-176.000.

Maynard, Michael D. San Francisco cable car puzzle. 4,333,653, Cl. 273-160.000.

Maziere, Bernard: *See—*
Comar, Dominique; Loc'h, Christian; and Maziere, Bernard, 4,333,911, Cl. 423-2.000.

McAlister, Roy E. Apparatus for manifolding multiple passage solar panel. 4,333,789, Cl. 156-499.000.

McBrayer, Robert D.: *See—*
Frost, Rodney I.; McBrayer, Robert D.; and Pujari, Vimal K., 4,333,518, Cl. 165-8.000.

McCarthy, Hubert. Machine and method for producing weather-proofed multi leaf shipping forms. 4,333,784, Cl. 156-252.000.

McCarty, Frederick B., to Garrett Corporation, The. Rotating electrical machine. 4,334,160, Cl. 310-57.000.

McCaslin, Robert E. Electronic toy. 4,333,258, Cl. 46-14.000.

McClaflin, Gifford G., to Conoco Inc. Method of transporting viscous hydrocarbons. 4,333,488, Cl. 137-13.000.

McClanathan, Robert A.: *See—*
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McCombie, Jay C.: *See—*
Brunais, Ellsworth G.; and McCombie, Jay C., 4,333,434, Cl. 123-478.000.

McConnell, Michael V.; and Graham, Paul D., to Federal Signal Corporation. Speaker grille for streamlined light bar mounted on vehicle roof. 4,334,211, Cl. 340-88.000.

McCorquodale, Robert P., to WetCom Engineering Ltd. Oil recovery process. 4,333,529, Cl. 166-267.000.

McCort, Ralph E., to Owens-Corning Fiberglas Corporation. Apparatus and method for dividing fibrous mineral blankets. 4,333,369, Cl. 83-24.000.

McDaniel, Max P.: *See—*
Hawley, Gil R.; and McDaniel, Max P., 4,333,860, Cl. 252-458.000.

McDonald, Brian G., to Beecham Group Limited. Growth promotors for ruminants. 4,333,952, Cl. 424-330.000.

McDonald, Wylie W., to Texas Instruments Incorporated. System and method for providing an audible sound and a tactile feedback in an electronic data processing system. 4,334,280, Cl. 364-710.000.

McFee, Richard. Internal combustion engine. 4,333,424, Cl. 123-39.000.

McGarry, James: *See—*
Barry, James A.; and McGarry, James, 4,333,960, Cl. 426-625.000.

McGraw-Edison Company: *See—*
Block, Thomas S., 4,333,202, Cl. 15-320.000.

McGregor, Adrienne R.: *See—*
Carney, James A.; and McGregor, Adrienne R., 4,333,918, Cl. 424-1.000.

McGuirk, Andrew C.: *See—*
Boulanger, Henry J.; and McGuirk, Andrew C., 4,334,210, Cl. 337-343.000.

McKenna, Quentin M. Spar juncture structure for wind propelled craft. 4,333,412, Cl. 114-39.000.

McLaughlin, Harry P. Latitude finder. 4,333,243, Cl. 33-268.000.
McMahan, John D.: *See—*
Musgrave, Dwight S.; McMahan, John D.; and Downing, Robert L., 4,333,291, Cl. 52-404.000.
McMinn, Curtis J.: *See—*
Kaplan, Howard I.; Bryce, Jerry H.; Johnston, Thomas J.; McMinn, Curtis J.; Willett, John T.; and Richards, Nolan E., 4,333,813, Cl. 204-243.00R.
McMurtry, David R. Coordinate measuring machine. 4,333,238, Cl. 33-174.00L.
McNeely, Gerald W.; and Tummers, Gerardus L. J., to Akzona Incorporated. Steam trap monitor. 4,333,339, Cl. 116-217.000.
McNelia, John F.; and Peterson, Carl R., to United States of America, Navy. Two stage parachute fuze recovery system. 4,333,400, Cl. 102-348.000.
McRitchie, Aalan C.: *See—*
Smith, Rory J. M.; and McRitchie, Aalan C., 4,333,862, Cl. 252-547.000.
Mead Corporation, The: *See—*
Head, Donald L., 4,334,232, Cl. 346-75.000.
Pack, Gary D.; and Weaver, Frederick D., 4,333,849, Cl. 252-316.000.
Mead, John F., to Plessey Mandel und Investments A.G. Jig for coupling of optic-waveguide elements. 4,333,705, Cl. 350-96.200.
Mead Johnson & Company: *See—*
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Meadors, Howard C., Jr.: *See—*
Gitlin, Richard D.; and Meadors, Howard C., Jr., 4,334,313, Cl. 375-106.000.
Meadows, David F., to DoNel Corporation. Extrusion and building structures. 4,333,284, Cl. 52-222.000.
Meal, John R.; and Sandmore, Donald K., to Western Electric Company, Inc. Apparatus for bonding leads to capacitor blanks. 4,333,213, Cl. 29-25.420.
Medem, Harald: *See—*
Freitag, Dieter; Reinking, Klaus; Idel, Karsten; Medem, Harald; and Bottenbruch, Ludwig, 4,334,053, Cl. 528-179.000.
Medical Concepts, Inc.: *See—*
Moreno, John R.; Byrne, Richard J.; and Shakespeare, Charles B., 4,333,475, Cl. 128-711.000.
Medlin, Richard C. Multi-layered bulletproof window. 4,333,282, Cl. 52-172.000.
Medtronic, Inc.: *See—*
Athearn, Lee F., 4,333,997, Cl. 429-218.000.
Barthel, Thomas C., 4,333,470, Cl. 128-419.0PG.
Meinel, Erhard; and Meinel, Kathe. Stringing for musical instruments. 4,333,379, Cl. 84-297.00S.
Meinel, Kathe: *See—*
Meinel, Erhard; and Meinel, Kathe, 4,333,379, Cl. 84-297.00S.
Meininger, Fritz: *See—*
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Melin, Lars E., to Antiphon AB. Method of eliminating creep in screw joints or riveted joints. 4,333,222, Cl. 29-445.000.
Melocik, Grant C.: *See—*
Baumgartner, Kenneth A.; Melocik, Grant C.; and Stoller, Keith A., 4,334,176, Cl. 318-102.000.
Memorex Corporation: *See—*
Ellenberger, Michael L., 4,333,229, Cl. 29-603.000.
Menge, Heinz-Gunter: *See—*
Eistetter, Klaus; Kley, Hans-Peter; Menge, Heinz-Gunter; and Schaefer, Hartmann, 4,333,942, Cl. 424-267.000.
Mennick, Paul E. Flexible horseshoe. 4,333,532, Cl. 168-24.000.
Mentzer, James R.; and Lofting, Hugh J. Automatic bee feeder. 4,333,189, Cl. 6-5.000.
Merbach, Paul C., to Westinghouse Electric Corp. Numerical control system with following error monitor. 4,334,266, Cl. 364-167.000.
Merck & Co., Inc.: *See—*
Belanger, Patrice C.; Rokach, Joshua; Young, Robert N.; and Scheigetz, John, 4,334,077, Cl. 549-12.000.
Buhs, Rudolf P.; Jacob, Theodore A.; Miwa, Gerald; Sestokas, Elena; Taub, Rae; and Walsh, John S., 4,333,925, Cl. 424-181.000.
Lindroth, Thomas A., 4,333,863, Cl. 523-220.000.
Meridian Industries Inc.: *See—*
Witte, Earl R., 4,333,267, Cl. 47-84.000.
Merrell, David A., to Hughes Aircraft Company. Expanding helical seal for pistons and the like. 4,333,661, Cl. 277-203.000.
Merritt, David T.: *See—*
Higgins, Robert S.; and Merritt, David T., 4,333,527, Cl. 166-117.500.
Metal Leve S.A. Industria e Comercio: *See—*
Mahrus, Duraid, 4,333,775, Cl. 148-11.50Q.
Metallgesellschaft Aktiengesellschaft: *See—*
Dorr, Karl H.; Diekmann, Helmut; Grimm, Hugo; Sander, Ulrich; Tacke, Michael; and Weber, Waldemar, 4,333,917, Cl. 423-522.000.
Metzinger, Lothar; Zipp, Otmar; and Bollmann, Heinz, to BASF Aktiengesellschaft. Process for the manufacture of polyurethane elastomers. 4,334,033, Cl. 521-159.000.
Meulenberg, Daniel R. Method and apparatus for manufacturing decals. 4,333,781, Cl. 156-152.000.
Meyer, Klaus-Rudolf; Hornung, Karl-Heinz; Feldmann, Rainer; and Smigerski, Hans-Jurgen, to Chemische Werke Huls AG. Method for polytropically precipitating polyamide powder coating compositions where the polyamides have at least 10 aliphatically bound carbon atoms per carbonamide group. 4,334,056, Cl. 528-496.000.
Mez, Hans-Christian: *See—*
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Michael, Harald. Pneumatically driven drainage facility. 4,333,487, Cl. 137-2.000.
Michael, Harald, to Electrolux GmbH. Vacuum drain system. 4,333,830, Cl. 210-170.000.
Michael, Peter C., to Micro Consultants Limited. T.V. Special effects generator. 4,334,245, Cl. 358-183.000.
Michelfelder, Sigfrid; and Leikert, Klaus, to L. & C. Steinmuller GmbH. Burner for combustion of powdered fuels. 4,333,405, Cl. 110-264.000.
Michlin Chemical Corporation: *See—*
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Michlin, Norman: *See—*
Thies, Edward J.; and Michlin, Norman, 4,333,752, Cl. 55-387.000.
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Midrex Corporation: *See—*
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Mifune, Hiroyuki; Ishiguro, Shoji; Shishido, Tadao; Fuseya, Yoshiharu; and Tsujikawa, Teruaki, to Fuji Photo Film Co., Ltd. Silver halide photographic light-sensitive element. 4,334,010, Cl. 430-551.000.
Mifune, Hiroyuki; Shishido, Tadao; Ishiguro, Shoji; and Ueyanagi, Jisaburo, to Fuji Photo Film Co., Ltd. Silver halide photographic light-sensitive elements. 4,334,014, Cl. 430-611.000.
Miglin, Bruce P.: *See—*
Krueger, Robert H.; Albertson, Clarence E.; and Miglin, Bruce P., 4,333,516, Cl. 165-1.000.
Mignot, Andre G. E., to Eastman Kodak Company. Silver halide precipitation process with deletion of materials. 4,334,012, Cl. 430-567.000.
Miko, Sandor, to RCA Corporation. Free-running push-pull inverter. 4,334,267, Cl. 363-133.000.
Milberger, Ernest C.; Bremer, Noel J.; and Dria, Dennis E., to Standard Oil Company, The. Mixed vanadium phosphorus oxide catalysts and preparation thereof. 4,333,853, Cl. 252-435.000.
Miles Laboratories, Inc.: *See—*
Baniel, Avraham M., 4,334,095, Cl. 562-584.000.
Buckler, Robert T.; and Schroeder, Hartmut R., 4,334,069, Cl. 544-237.000.
Hartzler, Harold E., 4,333,523, Cl. 165-73.000.
Kotick, Michael P.; and Polazzi, Joseph O., 4,334,071, Cl. 546-74.000.
Kurchacova, Elva; and Safdy, Max E., 4,333,943, Cl. 424-269.000.
Miller, Jacky F. A., to Compagnie Internationale pour l'Informatique CII Honeywell Bull (Societe Anonyme). Automatic document processing machine. 4,333,640, Cl. 271-9.000.
Miller, John W.: *See—*
Rinker, William R.; Ayers, Harry R.; and Miller, John W., 4,333,779, Cl. 156-73.100.
Miller, Michael E.; and Hummel, Richard J., to Sam Stein Associates, Inc. Apparatus for distributing and sifting Japanese style bread crumbs in a typical breading machine for coating edible food products. 4,333,415, Cl. 118-16.000.
Miller, Robert J., to Colt Industries Operating Corp. Tamper proof sealing plug. 4,333,891, Cl. 261-41.00D.
Miller, Roscoe E. Enema apparata improvements relating double contrast studies. 4,333,460, Cl. 128-239.000.
Mills, Alfred L.; Weatherley, Laurence R.; and Crofts, John A., to United Kingdom Atomic Energy Authority. Method for dissolving plutonium-containing nuclear fuels. 4,333,912, Cl. 423-20.000.
Minagawa, Shoichi; and Okamoto, Takeshi, to Clarion Co., Ltd. Elastic surface wave device. 4,334,167, Cl. 310-313.00R.
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Mings, Joe D., to Texas Instruments Incorporated. Automotive surge suppressor. 4,334,256, Cl. 361-56.000.
Minnesota Mining and Manufacturing Company: *See—*
Raddatz, John A., 4,333,624, Cl. 248-205.00R.
Yarian, Dean R., 4,334,015, Cl. 435-1.000.
Mischo, Klaus: *See—*
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Mita Industrial Company: *See—*
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Mitsu Petrochemical Industries Ltd.: *See—*
Hashimoto, Katsuhiko; Nambu, Hirohiko; Watari, Kazuhiro; Mizuno, Kenichi; Murakami, Tadateru; Matsuoka, Yutaka; Moriyama, Mitsutoshi; and Ohno, Norio, 4,334,108, Cl. 568-803.000.
Mitsubisha Corporation: *See—*
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Mitsubishi Chemical Industries, Ltd.: *See—*
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Mitsubishi Denki Kabushiki Kaisha: *See—*
Abe, Haruhiko; Nagatomo, Masao; Tsubouchi, Natsuro; Harada, Hiroshi; and Mitsuhashi, Junichi, 4,333,226, Cl. 29-576.00B.

Komurasaki, Satoshi; Watanabe, Isao; and Ito, Osamu, 4,334,299, Cl. 369-44.000.
Oomura, Etsuji; Murotani, Toshio; and Ishii, Makoto, 4,334,311, Cl. 372-47.000.
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Mitsubishi Gas Chemical Co., Ltd.: *See*—
Abe, Koichi; Ishihara, Masami; and Watanabe, Thuyoshi, 4,334,080, Cl. 560-99.000.

Mitsubishi-Jukogyo Kabushiki Kaisha: *See*—
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Mitsubishi Petrochemical Company Limited: *See*—
Fujii, Masaki; and Miyabayashi, Mitsutaka, 4,334,040, Cl. 525-321.000.
Fujita, Taketoshi; Ohgi, Yasuyuki; and Nemoto, Yousui, 4,334,035, Cl. 525-34.000.
Hayashi, Tatsuo; Itoh, Ryouichi; and Tsuji, Tatsumi, 4,333,897, Cl. 264-40.600.

Mitsuhashi, Junichi: *See*—
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Mitsui Toatsu Chemicals, Inc.: *See*—
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Mitsui, Tomiyoshi, to Honda Giken Kogyo Kabushiki Kaisha. Carburetor. 4,333,886, Cl. 261-18.00R.

Miwa, Gerald: *See*—
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Miwa Lock Co., Ltd.: *See*—
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Miyabayashi, Mitsutaka: *See*—
Fujii, Masaki; and Miyabayashi, Mitsutaka, 4,334,040, Cl. 525-321.000.

Miyabayashi, Toshio: *See*—
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Miyahara, Nobufumi; and Uchida, Takashi, to Kanto Kasei Kogyo Kabushiki Kaisha. Rotary magnetic sensor. 4,334,166, Cl. 310-268.000.

Miyakawa, Keizo: *See*—
Koizumi, Hajime; Toyama, Kozo; Kobayashi, Mikio; Hatano, Hajime; Saeki, Toshio; Mizukoshi, Kaoru; Tamanaga, Shinichi; Miyakawa, Keizo; and Kato, Tomoyasu, 4,333,285, Cl. 52-252.000.

Miyakawa, Nobuhiro; and Aizawa, Tatsuo, to Mita Industrial Company. Process of making a thermosensitive recording material. 4,333,967, Cl. 427-148.000.

Miyakoshi, Kazumitsu; and Maekawa, Koji, to Sharp Kabushiki Kaisha. Display device for electronic calculators or the like. 4,334,279, Cl. 364-710.000.

Miyamura, Sadao, to SS Pharmaceutical Co., Ltd. Novel substance M-9337 and process for preparing same. 4,334,025, Cl. 435-253.000.

Miyatake, Takafumi: *See*—
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Mizukoshi, Kaoru: *See*—
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Mo och Domsjo Aktiebolag: *See*—
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Mobil Oil Corporation: *See*—
Nahmias, A. Michael, 4,333,968, Cl. 427-173.000.

Mobius, Werner. Pencil sharpener. 4,333,506, Cl. 145-3.100.

Modes, Edward E. Can flattening device. 4,333,397, Cl. 100-233.000.

Moff, Annette: *See*—
Neely, James E., Jr.; Lin, Chia-Cheng; Falleroni, Charlene A.; and Moff, Annette, 4,333,914, Cl. 423-314.000.

Moffatt, William G., to General Electric Company. Copper-steel composite commutator bar. 4,334,165, Cl. 310-233.000.

Moisset, Jacques; Bonet, Claude; Rouanet, Alain; Petit, Alain; and Delmas, Robert, to Lafarge. Calcium process for manufacturing silicate and/or aluminate based products. 4,333,766, Cl. 106-100.000.

Molex Incorporated: *See*—
Funcik, Jack F.; Bennet, Joseph C.; Tubbs, Joseph T.; and Schneider, Thomas E., 4,333,230, Cl. 29-749.000.

Moller, Fred L.: *See*—
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Molten Rubber Industry Co., Ltd.: *See*—
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Monarch Marking Systems, Inc.: *See*—
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Monsanto Company: *See*—
Dupre, Carl R., 4,334,039, Cl. 525-263.000.
Van Eenam, Donald N., 4,333,971, Cl. 427-389.900.

Monson, Clifford L. Rotary flooring surface treating device. 4,333,204, Cl. 15-321.000.

Montedison S.p.A.: *See*—
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Campolmi, Stefano; Carletti, Vittorio; and Marchi, Marcello, 4,333,882, Cl. 260-453.300.
Govoni, Gabriele; Rubichi, Gianfranco; and Guardigli, Pierluigi, 4,334,057, Cl. 528-500.000.
Marciandi, Franco; and Relvini, Pasquale, 4,333,869, Cl. 524-100.000.

Montemarano, Joseph. Drinking spout cover. 4,333,583, Cl. 220-90.400.

Montgomery, Donald N., to United States of America, Army. Mechanism for selectively adjusting ammunition feed chutes. 4,333,386, Cl. 89-33.0SF.

Montgomery, Francis E.; Short, James E., Jr.; and Weaver, William J., to United States of America, Navy. Reclamation of materials from photoflash cartridges. 4,333,737, Cl. 23-297.000.

Mookherjee, Braja D.; Trenkle, Robert W.; Wilson, Richard A.; Schmitt, Frederick L.; Vock, Manfred H.; Granda, Edward J.; Vinals, Joaquin; Kiwala, Jacob; and Schreiber, William L., to International Flavors & Fragrances Inc. Trans,trans-Δ-damascone, mixtures containing major proportions of same, processes for preparing same and organoleptic uses thereof. 4,334,098, Cl. 568-347.000.

Moon, Howard R.: *See*—
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Moore, Frederic J., to Zenith Radio Corporation. Self tracking tuner. 4,334,323, Cl. 455-179.000.

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Lifshitz, Nadia; Moran, Joseph M.; and Wang, David N., 4,333,793, Cl. 156-643.000.

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Morimoto, Shigeo: *See*—
Tamai, Masaharu; Adachi, Takashi; Morimoto, Shigeo; Oguma, Kiyoshi; Hanada, Kazunori; and Omura, Sadafumi, 4,333,879, Cl. 549-549.000.

Morisawa, Kunio: *See*—
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Morishita, Masanobu; and Tanaka, Takanori, to Nippon Electric Co., Ltd. Color image pickup apparatus with multi-solid-state image pickup devices. 4,334,238, Cl. 358-43.000.

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Hashimoto, Katsuhiko; Nambu, Hirohiko; Watari, Kazuhiro; Mizuno, Kenichi; Murakami, Tadateru; Matsuoka, Yutaka; Moriyama, Mitsutoshi; and Ohno, Norio, 4,334,108, Cl. 568-803.000.

Morphet, Kerry A.: *See*—
Faryna, Myron; and Morphet, Kerry A., 4,333,889, Cl. 261-39.00B.

Morris, Robert V.: *See*—
Rogan, John B.; and Morris, Robert V., 4,334,047, Cl. 526-138.000.

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Morriss, James C., Jr., to JCM Industries, Inc. Pipe clamp with improved band connection. 4,334,140, Cl. 219-127.000.

Morton, Virgil R., to Verco Manufacturing, Inc. Shear load resistant structure. 4,333,280, Cl. 52-167.000.

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Ooki, Norihiro; Motegi, Shoji; and Watanabe, Masatoshi, 4,334,159, Cl. 310-54.000.

Motorola, Inc.: *See*—
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Boney, Joel F.; Rupp, Edward J., II; and Thomas, James S., 4,334,268, Cl. 364-200.000.
Daniel, Sam M.; and Kuivila, Richard P., 4,334,283, Cl. 364-744.000.
Turney, William J.; and Piesinger, Gregory H., 4,334,185, Cl. 323-280.000.

Motoyama, Kazuyasu; and Kato, Toshikazu, to Olympus Optical Co., Ltd. Tape recorder. 4,334,253, Cl. 360-137.000.

MTD Products Inc.: *See*—
Plamper, Gerhard R., 4,333,303, Cl. 56-11.300.

Muehlner, Dirk J.: *See*—
Geusic, Joseph E.; Muehlner, Dirk J.; and Nelson, Terence J., 4,334,291, Cl. 365-36.000.

Mueller, Wilfred; Inghram, Donald M.; and Walker, William B., to FMC Corporation. Proportional mix system and method for applying a thixotropic de-icing fluid to an aircraft. 4,333,607, Cl. 239-13.000.

Muller, Ernest G., to Colgate-Palmolive Company. Borated polysaccharide absorbents and absorbent products. 4,333,461, Cl. 128-284.000.

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Nickel, Horst; Muller, Friedhelm; and Mummenhoff, Peter, 4,333,874, Cl. 260-153.000.

Muller, Heinz; Jauchen, Peter; Szonn, Bodo; and Schulze, Rolf, to Beiersdorf Aktiengesellschaft. Water resistant adhesive strip. 4,333,449, Cl. 128-155.000.

Muller, Jurgen: *See*—
Hoppe, Klaus; Muller, Jurgen; Keller, Jurgen; Kulbe, Bernd; Lessig, Klaus; Berlin, Christian; and Danke, Eckhard, 4,333,894, Cl. 261-96.000.

Muller, Klaus; Maurer, Helmut; Rieger, Franz; and Linder, Ernst, to Robert Bosch GmbH. Apparatus for controlling the exhaust gas recirculation rate in an internal combustion engine. 4,333,439, Cl. 123-569.000.

Mulligan, William L.; and House, Thomas R., to Parks-Cramer Company. Traveling pneumatic cleaner and automatic unloading arrangement and method. 4,333,772, Cl. 134-18.000.

Mumford, George V., to Owens-Illinois, Inc. Tamperproof closure. 4,333,577, Cl. 215-246.000.

Mummenhoff, Peter: *See*—
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Munoz, Donald L.; Grote, Daniel A.; Bronder, David G.; and Weis, Gerald J., to Thermoplastics Incorporated. Truck bed liner assembly. 4,333,678, Cl. 296-39.00R.

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Murata, Susumu; Shimizu, Noriyuki; and Kokeguchi, Sadao, to Kanebo Foods, Ltd. Processed dried beans as instant food and their manufacturing method. 4,333,955, Cl. 426-44.000.

Murdock, Keith C., to American Cyanamid Company. 5,8-Dihydroxy-1,4-bis(guanidinylamino)anthraquinones. 4,333,875, Cl. 260-239.0BC.

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Musgrave, Dwight S.; McMahan, John D.; and Downing, Robert L., to Owens-Corning Fiberglas Corporation. Insulated roof structure. 4,333,291, Cl. 52-404.000.

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Muylle, Wilfried E.; and Kreiter, Heinz, to AGFA-GEVAERT N.V. Rotary cross-cutting apparatus for cutting continuously moving webs. 4,333,372, Cl. 83-324.000.

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Myerholtz, Carl A.; and Myerholtz, Ralph W., Jr., to Standard Oil Company (Indiana). Apparatus for computing flow rate of thermoplastic material. 4,333,336, Cl. 73-56.000.

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Myers, John D.; and Vollers, Charles S., to Kigre, Inc. Athermal laser glass composition. 4,333,848, Cl. 252-301.40P.

Nagami, Akira, to Nippon Electric Co., Ltd. Memory device. 4,334,295, Cl. 365-222.000.

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Nagasaka, Mitsuaki: *See*—
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Nagel, Peter; Schoettle, Klaus; Wittkamp, Reinrich; and Hauck, Karl, to BASF Aktiengesellschaft. Apparatus for the production of magnetic recording media in tape form. 4,333,418, Cl. 118-106.000.

Nagy, Lajos: *See*—
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Nahmias, A. Michael, to Mobil Oil Corporation. Thermoplastic packaging films with improved heat-seal characteristics. 4,333,968, Cl. 427-173.000.

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Naiman, Michael I.; and Buriks, Rudolf S., to Petrolite Corporation. Olefin-acrylonitrile copolymers and uses thereof. 4,333,741, Cl. 44-62.000.

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Nair, Vijay G.; and Bernstein, Seymour, to American Cyanamid Company. Rutin poly(H—)sulfate salts and related compounds. 4,334,058, Cl. 536-8.000.

Naito, Hiroyuki; Maruya, Takashi; Gotoh, Kyugó; and Ohmori, Hideyo, to Mizusawa Kazahu Kogyo Kabushiki Kaisha; Mitsubisha Corporation; and Yamato Refractives & Co. Unfired refractory composition. 4,334,029, Cl. 501-109.000.

Naito, Kenji: *See*—
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Nakada, Akira: *See*—
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Nakagawa, Sachio: *See*—
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Nakai, Tadanobu, to Tokiwa Chemical Industries, Limited. Nipple cover. 4,333,471, Cl. 128-505.000.

Nakajima, Masayuki: *See*—
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Nakajima, Yasuo; and Kikuchi, Kazuhiro, to Nissan Motor Company, Ltd. Knocking discrimination apparatus. 4,333,334, Cl. 73-35.000.

Nakamura, Kenzi, to Sanyo Electric Co., Ltd. Ferrite core type transformer. 4,334,206, Cl. 336-96.000.

Nakano, Koichi: *See*—
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Nakano, Tadao, to Zenmi Co., Ltd. Sanitary napkin. 4,333,464, Cl. 128-290.00R.

Nakao, Kenichiro: *See*—
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Nakazawa, Hidetsugu; Yamane, Ichiro; and Akutsu, Eiichi, to Ajinomoto Company Incorporated. Method of producing L-glutamic acid by fermentation. 4,334,020, Cl. 435-110.000.

Nakazeki, Tsugito; and Harada, Haruhisa, to NTN Toyo Bearing Company, Limited. Fuel injection device. 4,333,435, Cl. 123-489.000.

Nambu, Hirohiko: *See*—
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Nard, Georges P.; Bourasseau, Daniel J. E.; and Rabian, Jean M., to Societe d'Etudes, Recherches et Construction Electroniques Sercel. Transmission of time referenced radio waves. 4,334,314, Cl. 375-111.000.

Nash, Alan R. B. Adjustable spring-return actuator. 4,333,391, Cl. 92-121.000.

Nass, Arno, to Bison-Werke Bahre und Greten GmbH & Co., KG. Method for the manufacture of an adhesive from animal blood. 4,333,767, Cl. 106-161.000.

National Research Development Corp.: *See*—
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Nauerth, Karl-Heinz: *See*—
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Neef, Gunter; Eder, Ulrich; Haffer, Gregor; Sauer, Gerhard; Wiechert, Rudolf; and Steinbeck, Hermann, to Schering, Aktiengesellschaft. 16 α-Alkyl steroids, their preparation, and pharmaceutical preparations thereof. 4,333,928, Cl. 424-243.000.

Neeff, Rutger, to Bayer Aktiengesellschaft. Process for the preparation of triazinylamino-anthraquinones. 4,334,068, Cl. 544-187.000.

Neely, James E., Jr.; Lin, Chia-Cheng; Falleroni, Charlene A.; and Moff, Annette, to PPG Industries, Inc. Method for making aluminum trimetaphosphates from powder reactants. 4,333,914, Cl. 423-314.000.

Nehmiz, Peter: *See*—
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Nelson, M. Eugene. Power operated reclining wheelchair. 4,333,681, Cl. 297-83.000.

Nelson, Stephen J., to Upjohn Company, The. Preparation of N-chlorothio(methyl)carbamoyl halides. 4,333,883, Cl. 260-544.00C.

Nelson, Terence J.: *See*—
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NESPAK S.p.A. Societa' Generale per l'Imballaggio: *See*—
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Neumann, Harry C.; and Skiba, Frank G., to Western Electric Company, Inc. Wire weldment deflashing tool. 4,333,214, Cl. 29-80.000.

Neuzil, Richard W.; and Fergin, Richard L., to UOP Inc. Extraction of sucrose from molasses. 4,333,770, Cl. 127-46.300.
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Neves, Alan M. Blended ethanol fuel. 4,333,739, Cl. 44-52.000.
New York Institute of Technology: *See—*
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Seaman, William E., 4,333,618, Cl. 242-192.000.
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Nield, Barry J.; and Earnshaw, Roy R., to Rig Electronics Ltd. Electronic control indicator for cable hoist equipment. 4,334,217, Cl. 340-685.000.
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Niezgoda, Thomas A.; and Oppenheimer, Carl P., to Acoustic Standards. Tone generation system for electronic musical instrument. 4,333,377, Cl. 84-1.270.
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Nishizawa, Yasuo, to Hitachi, Ltd. Reactor power control apparatus. 4,333,797, Cl. 376-210.000.
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Ohno, Norio: *See—*
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Ohno, Sachio; Nagasaka, Mitsuaki; and Kato, Kazuo, to Maruko Seiyaku Co., Ltd. Flavan compounds and acid addition salts thereof. 4,334,067, Cl. 544-151.000.
Ohno, Syotaro: *See—*
Koyama, Kenji; Ohno, Syotaro; and Fukuda, Mitsutoshi, 4,333,870, Cl. 260-112.00B.
Ohta, Hirofumi: *See—*
Hiroshima, Minoru; Futami, Toshio; and Ohta, Hirofumi, 4,334,290, Cl. 365-1.000.
Ohtani, Mitsuhiro: *See—*
Aoki, Masaki; and Ohtani, Mitsuhiro, 4,333,861, Cl. 252-518.000.
Okajima, Yakutaro; and Sekigawa, Keiji, to Warner-Lambert Company. Capsule and process for the production of a colored gelatin capsule. 4,333,957, Cl. 426-140.000.
Okamoto, Miyoshi; and Fushida, Mineto, to Toray Industries, Incorporated. Composite woven or knitted fabric. 4,333,976, Cl. 428-91.000.
Okamoto, Takeshi: *See—*
Minagawa, Shoichi; and Okamoto, Takeshi, 4,334,167, Cl. 310-313.00R.
Okamura, Kiyohito: *See—*
Yajima, Seishi; Okamura, Kiyohito; and Shishido, Toetsu, 4,334,051, Cl. 528-25.000.

Okumura, Takatoshi; Nakada, Akira; Uchiyama, Yasuji; Aoki, Eiichiro; Yamaga, Eiichi; and Oya, Akiyoshi, to Nippon Gakki Seizo Kabushiki Kaisha. Submultiple-related-frequency wave generator. 4,333,374, Cl. 84-1.010.

Olin Corporation: *See—*
Combette, Marc; and Ollivier, Jean, 4,333,595, Cl. 227-10.000.
Dotson, Ronald L.; and Carr, Edward P., 4,333,913, Cl. 423-184.000.

Oliver, James K.: *See—*
Ikin, David D.; Butler, Paul G.; Sassella, Christopher D.; and Oliver, James K., 4,333,525, Cl. 165-104.210.

Ollivier, Jean: *See—*
Combette, Marc; and Ollivier, Jean, 4,333,595, Cl. 227-10.000.

Olson, Gary L.: *See—*
Berger, Leo; and Olson, Gary L., 4,334,070, Cl. 546-70.000.

Olympus Optical Company Limited: *See—*
Furuta, Kenji, 4,334,149, Cl. 235-92.0MP.
Motoyama, Kazuyasu; and Kato, Toshikazu, 4,334,253, Cl. 360-137.000.
Sakurai, Yoshifumi, 4,333,991, Cl. 428-702.000.
Sato, Masaaki, 4,334,251, Cl. 360-96.600.

O'Meara, David M.: *See—*
Bellafiore, Francis V.; Duff, Michael P.; and O'Meara, David M., 4,333,973, Cl. 427-424.000.

Omura, Sadafumi: *See—*
Tamai, Masaharu; Adachi, Takashi; Morimoto, Shigeo; Oguma, Kiyoshi; Hanada, Kazunori; and Omura, Sadafumi, 4,333,879, Cl. 549-549.000.

O'Neill, Joseph L.; and Scafidi, Christopher J., to Infotron Systems Corporation. Plural edge P.C. board interconnection. 4,333,696, Cl. 339-17.0LM.

Onishi, Heizo, to Brother Kogyo Kabushiki Kaisha. Ultrasonic seam welding apparatus. 4,333,791, Cl. 156-580.100.

Ono, Hiroshi; and Mizoi, Kazutoshi, to Gen Engineering, Ltd. Wireless transmitting and receiving systems including ear microphones. 4,334,315, Cl. 455-11.000.

Onofrio, David A., to Ford Motor Company. Carburetor accelerator pump stroke control. 4,333,888, Cl. 261-34.00B.

Oodera, Shigeyuki: *See—*
Yoshida, Hiroshi; Hagiwara, Isao; and Oodera, Shigeyuki, 4,333,903, Cl. 264-165.000.

Ooki, Norihiro; Motegi, Shoji; and Watanabe, Masatoshi, to Hitachi, Ltd. Slip ring cooling devices for electrical rotary machines. 4,334,159, Cl. 310-54.000.

Oomura, Etsuji; Murotani, Toshio; and Ishii, Makoto, to Mitsubishi Denki Kabushiki Kaisha. Transverse junction stripe semiconductor laser device. 4,334,311, Cl. 372-47.000.

Opitz, Konrad: *See—*
Deubel, Reinhold; Opitz, Konrad; Kruse, Hubert; Schneider, Manfred; and Uhrig, Heinz, 4,333,732, Cl. 8-527.000.

Oppenheimer, Carl P.: *See—*
Niezgoda, Thomas A.; and Oppenheimer, Carl P., 4,333,377, Cl. 84-1.270.

Optical Coating Laboratory, Inc.: *See—*
Allen, Thomas H., 4,333,983, Cl. 428-336.000.

Oros, Gerald D. Globe clock device and methods of making and using the same. 4,334,297, Cl. 368-18.000.

Orr, David A.; Gala, Hiren S.; and Scagnelli, George J., to Talon, Inc. Apparatus for forming flypiece and slide fastener chain assembly. 4,333,232, Cl. 29-767.000.

Osawa, Tadao: *See—*
Karino, Kimiji; Osawa, Tadao; Nagano, Masami; Sakuma, Tokihiko; Kanazawa, Yuiti; Kuroha, Tunemitu; and Tachibana, Kanji, 4,333,890, Cl. 261-41.00D.

Osthaus, Georg: *See—*
Zucker, Friedrich J.; Osthaus, Georg; and Zucker-Kerbler, Doris, 4,333,611, Cl. 241-1.000.

Otao, Kazumasa, to Trio Kabushiki Kaisha. Power amplifier circuitry. 4,334,197, Cl. 330-268.000.

Otis Elevator Company: *See—*
Davis, Meredith R., 4,333,549, Cl. 187-93.000.

Otis Engineering Corporation: *See—*
Higgins, Robert S.; and Merritt, David T., 4,333,527, Cl. 166-117.500.

Otsuka Kagaku Yakuhin Kabushiki Kaisha: *See—*
Shimizu, Yasuo; Takao, Hisashi; Asano, Shoji; Shimada, Shuya; and Kikkawa, Kazutoshi, 4,334,066, Cl. 544-149.000.

Otsuka, Kazuo: *See—*
Nonaka, Takeyoshi; and Otsuka, Kazuo, 4,333,558, Cl. 198-391.000.

Otten, Jay G.; Heyman, Duane A.; and Murphy, John R., to BASF Wyandotte Corporation. Flame-retardant polyurethane foam prepared by incorporating a graft polymer having a particle size greater than 0.5 micron. 4,334,031, Cl. 521-106.000.

Overlach, Knut: *See—*
Pietzsch, Ludwig; Overlach, Knut; and Eberhard, Hans J., 4,333,543, Cl. 177-134.000.

Owen, Geoffrey R.: *See—*
Durant, Graham J.; Ganellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., 4,333,946, Cl. 424-273.00R.

Owens-Corning Fiberglas Corporation: *See—*
McCort, Ralph E., 4,333,369, Cl. 83-24.000.
Musgrave, Dwight S.; McMahan, John D.; and Downing, Robert L., 4,333,291, Cl. 52-404.000.
Musgrave, Dwight S., 4,333,292, Cl. 52-404.000.
Uffner, William E., 4,333,866, Cl. 524-534.000.

Owens-Illinois, Inc.: *See—*
Heider, James E., 4,333,570, Cl. 206-432.000.
Mumford, George V., 4,333,577, Cl. 215-246.000.

Oy. Tampella AB: *See—*
Haikkala, Pekka O., 4,333,613, Cl. 241-34.000.

Oy Wartsila AB: *See—*
Koutonen, Pauli; and Alanco, Lars-Erik, 4,333,301, Cl. 53-587.000.

Oya, Akiyoshi: *See—*
Okumura, Takatoshi; Nakada, Akira; Uchiyama, Yasuji; Aoki, Eiichiro; Yamaga, Eiichi; and Oya, Akiyoshi, 4,333,374, Cl. 84-1.010.

Pabodie, Robert M.: *See—*
Hamisch, Paul H., Jr.; and Pabodie, Robert M., 4,333,399, Cl. 101-401.200.

Pack, Gary D.; and Weaver, Frederick D., to Mead Corporation, The. Encapsulation process. 4,333,849, Cl. 252-316.000.

Paetz, James E.: *See—*
Camp, Neal H.; Paetz, James E.; and Patterson, Nicholas L., 4,333,417, Cl. 118-50.000.

Palladino, Nicola: *See—*
Mantovani, Elvio; Palladino, Nicola; and Zanobi, Antonio, 4,334,101, Cl. 568-454.000.

Paluch, Bernard R. Positive pressure breathing apparatus with condensate removal. 4,333,451, Cl. 128-205.120.

Panafacom Limited: *See—*
Shibasaki, Yoshihisa; Sakamura, Ken; Sakamae, Waichi; Nakano, Koichi; and Aiso, Hideo, 4,334,269, Cl. 364-200.000.

Panduit Corp.: *See—*
Guzay, Casimir M.; and Wright, James A., 4,333,633, Cl. 251-320.000.

Pangritz, Dirk, to B.A.T. Cigaretten-Fabriken GmbH. Apparatus for determining the burning and/or glowing rates of a smokable article. 4,333,333, Cl. 374-8.000.

Panlaqui, Clayton E.: *See—*
Holt, Lloyd J.; and Panlaqui, Clayton E., 4,333,382, Cl. 89-1.806.

Parekh, Manher: *See—*
Patton, John T., Jr.; Vogt, Herwart C.; and Parekh, Manher, 4,334,052, Cl. 528-52.000.

Parker, Walter E.: *See—*
Gavasso, John M.; Bodnar, Louis G.; and Parker, Walter E., 4,333,426, Cl. 123-90.270.

Parks-Cramer Company: *See—*
Mulligan, William L.; and House, Thomas R., 4,333,772, Cl. 134-18.000.

Parman, Dan F.; Wiebush, LeMoey M.; Shaw, Fred M.; and Cummins, James P., to Power Controls Corporation. Light dimmer switch having remote load current switching. 4,334,171, Cl. 315-199.000.

Parro, James. Heat exchange method using natural flow of heat exchange medium. 4,333,517, Cl. 165-1.000.

Patel, Naren I.: *See—*
Davis, Lawrence E.; and Patel, Naren I., 4,333,706, Cl. 350-96.230.

Patey, Daniel F.; and Doyle, Paul M., to Lucas Industries Limited. Fuel pump test equipment. 4,333,338, Cl. 73-119.00A.

Patterson, Nicholas L.: *See—*
Camp, Neal H.; Paetz, James E.; and Patterson, Nicholas L., 4,333,417, Cl. 118-50.000.

Patton, John T., Jr.; and Vogt, Herwart C., to BASF Wyandotte Corporation. Foamed polymers containing low molecular weight urethane modifier compound. 4,334,032, Cl. 521-115.000.

Patton, John T., Jr.; Vogt, Herwart C.; and Parekh, Manher, to BASF Wyandotte Corporation. Rigid, non-cellular polyurethane modified with reaction product of an isocyanate and an alcohol. 4,334,052, Cl. 528-52.000.

Paulus, Rudolf; and Mischo, Klaus, to AGFA-Gevaert AG. Operation setting device having stationary touch-sensitive control elements. 4,334,219, Cl. 340-712.000.

Payne, Thomas R., to General Electric Company. Power control for appliance using high inrush current element. 4,334,147, Cl. 219-497.000.

Peche, Gerhard: *See—*
Gebel, Rudolf; Peche, Gerhard; Schindler, Heinrich; and Welly, Jurgen-Dietrich, 4,334,133, Cl. 200-279.000.

Pellegrini, John P., Jr.; Beach, David L.; and Kobylinski, Thaddeus P., to Gulf Research & Development Company. Synthetic hydrocarbon oligomers. 4,334,113, Cl. 585-18.000.

Pennwalt Corporation: *See—*
Groepper, Jurgen, 4,334,043, Cl. 525-370.000.

Peppers, James M. Flexible recording disc stabilizing and guidance system. 4,334,302, Cl. 369-261.000.

Pepsico, Inc.: *See—*
Roy, Siegfried S., 4,333,629, Cl. 249-119.000.

Perez, Jean; and Carnus, Jean-Claude, to Automobiles Peugeot; and Societe Anonyme Automobiles Citroen. Device for recycling exhaust gases for a diesel engine. 4,333,438, Cl. 123-569.000.

Peroutka, Fritz; and Hirschfelder, Helmut, to Voith S.A. Cellular drum filter for the dewatering of fiber suspensions. 4,333,836, Cl. 210-404.000.

Perrin, Richard J.: *See—*
Magill, Robert J.; Lockley, Donald J.; and Perrin, Richard J., 4,333,489, Cl. 137-77.000.

Perry, Robert G. Power pipe tongs. 4,333,365, Cl. 81-57.160.

Persson, Karl-Johan: *See—*
Bengtsson, Erik; Billingsson, Nils; Persson, Karl-Johan; and Backman, Bengt-Olov, 4,334,110, Cl. 568-932.000.

Peter, Emmett B., III, to Burroughs Corporation. Duplex printing/paper handling apparatus for cut sheet printing. 4,333,641, Cl. 271-289.000.
Peter, Joseph E., to Vortec Corporation. Anti-icing noise-suppressing vortex tube assembly. 4,333,754, Cl. 62-5.000.
Peters, Kenneth R., to American Stabilis, Inc. Variable input-resistance power supply circuit. 4,333,605, Cl. 236-78.00R.
Peterson, Carl R.: *See—*
McNelia, John F.; and Peterson, Carl R., 4,333,400, Cl. 102-348.000.
Peterson, Marvin L., to Conoco Inc. Compression stressed weld joints on offshore platforms. 4,333,725, Cl. 403-271.000.
Peterson, Russell R., to Dow Chemical Company, The. Method of recovering 3,6-dichloropicolinic acid from basic aqueous solutions of salts thereof. 4,334,074, Cl. 546-327.000.
Petit, Alain: *See—*
Moisset, Jacques; Bonet, Claude; Rouanet, Alain; Petit, Alain; and Delmas, Robert, 4,333,766, Cl. 106-100.000.
Petri, Nello J. Glue applicator. 4,333,420, Cl. 118-411.000.
Petrillo, Gary M. Economic energy control. 4,333,604, Cl. 236-46.00R.
Petrolite Corporation: *See—*
Naiman, Michael I.; and Buriks, Rudolf S., 4,333,741, Cl. 44-62.000.
Pettigrew, James P.: *See—*
Lemmon, Ernest M.; and Pettigrew, James P., 4,333,688, Cl. 301-36.00R.
Petzinger, Manfred W. A. Evaporation septic tank sewage system. 4,333,831, Cl. 210-170.000.
Pews, R. Garth: *See—*
Davis, Ralph A.; and Pews, R. Garth, 4,334,111, Cl. 570-143.000.
Pfeilsticker, Robert. Tennis practice and training aid. 4,333,646, Cl. 273-29.00A.
Pfizer Inc.: *See—*
Belletire, John L., 4,333,932, Cl. 424-248.560.
Pfleiderer, Hans-Joerg: *See—*
Herbst, Heiner; Pfleiderer, Hans-Joerg; and Grassl, Hans-Peter, 4,334,150, Cl. 250-201.000.
Herbst, Heiner; Pfleiderer, Hans-Joerg; and Grassl, Hans-Peter, 4,334,151, Cl. 250-201.000.
Pham, Minh-Chau: *See—*
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Philip Morris Incorporated: *See—*
Banyasz, Joseph L., 4,333,482, Cl. 131-300.000.
de la Burde, Roger Z.; Aument, Patrick E.; and Utsch, Francis V., 4,333,483, Cl. 131-352.000.
Keritsis, Gus D., 4,333,484, Cl. 131-359.000.
Phillips Petroleum Company: *See—*
Broerman, Arthur B., 4,333,500, Cl. 137-863.000.
Cobb, Raymond L., 4,334,115, Cl. 585-407.000.
Gardner, Lloyd E.; Farha, Floyd E., Jr.; Eastman, Alan D.; and Drehman, Lewis E., 4,333,855, Cl. 252-439.000.
Hawley, Gil R.; and McDaniel, Max P., 4,333,860, Cl. 252-458.000.
Phillips, Robert A.: *See—*
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Piccardi, Paolo: *See—*
Bettarini, Franco; Massardo, Pietro; Piccardi, Paolo; and Longoni, Angelo, 4,334,104, Cl. 568-649.000.
Pieniak, Heinz A., to Johnson & Johnson Baby Products Company. Method of making laminated structures having gathered and ungathered marginal portions. 4,333,782, Cl. 156-164.000.
Piesinger, Gregory H.: *See—*
Turney, William J.; and Piesinger, Gregory H., 4,334,185, Cl. 323-280.000.
Pietzsch, Ludwig; Overlach, Knut; and Eberhard, Hans J., to Pietzsch, Ludwig. Wheel or axle load measuring device for road vehicles. 4,333,543, Cl. 177-134.000.
Pin-Huang, Lin, to Te-Son, Chen. Wall-clambering toy space bug. 4,333,259, Cl. 46-132.000.
Pioneer Electronic Corporation: *See—*
Adachi, Hiroo, 4,334,263, Cl. 363-25.000.
Kanamaru, Hitoshi, 4,334,301, Cl. 369-116.000.
Shimada, Kunihiko; and Tsuchiya, Yukio, 4,334,127, Cl. 179-115.50R.
Pitney Bowes Inc.: *See—*
Chang, Mike S. H.; Donoghue, John T.; and Edelman, Peter G., 4,334,000, Cl. 430-58.000.
Plamper, Gerhard R., to MTD Products Inc. Clutch and brake mechanism. 4,333,303, Cl. 56-11.300.
Plati, John T.: *See—*
Berger, Leo; Plati, John T.; and Ziering, Albert, 4,334,078, Cl. 549-43.000.
Platt, John D., to A.R.M. Access identification apparatus. 4,333,328, Cl. 70-278.000.
Plessey Incorporated: *See—*
Dakin, John P.; and Kahn, David A., 4,334,152, Cl. 250-226.000.
Plessey Mandel und Investments A.G.: *See—*
Mead, John F., 4,333,705, Cl. 350-96.200.
PLM AB: *See—*
Jakobsen, Kjell M., 4,333,904, Cl. 264-323.000.
Plosz, Sandor; Babos, Katalin; Rozsavolgyi, Karoly; and Felfoldy, Lajos, to Varosepitesi Tudomanyos es Tervezolntezet. Water purification process and apparatus. 4,333,837, Cl. 210-602.000.
Plotkin, George M.; and Wolf, George, to Massachusetts Institute of Technology. Method for detecting cancer in mammalian tissue. 4,334,017, Cl. 435-7.000.
Podhrasky, Robert J., to Garrett Electronics. Metal detector circuit having momentary disabled output. 4,334,191, Cl. 324-329.000.
Podhrasky, Robert J., to Garrett Electronics. Metal detector circuit having automatic tuning with multiple rates. 4,334,192, Cl. 324-329.000.
Poff, David A.: *See—*
Gordy, Lester A.; and Poff, David A., 4,334,193, Cl. 324-437.000.
Polazzi, Joseph O.: *See—*
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Politechnika Warszawska: *See—*
Przyluski, Jan; Madry, Kazimierz; Dolecki, Zbigniew; Kotarski, Andrzej; Drygas, Maria; Kokosinski, Jacek; Kuzma, Zygmunt; and Chelminski, Bohdan, 4,333,802, Cl. 204-54.00R.
Ponder, James E., to Texas Instruments Incorporated. Semiconductor memory cell with clocked voltage supply from data lines. 4,334,293, Cl. 365-190.000.
Pontagnier, Henri: *See—*
Creuzet, Marie-Helene; Feniou, Claude; Prat, Gisele; and Pontagnier, Henri, 4,333,938, Cl. 424-263.000.
Poole, William F., to General Electric Company. Switch with shaft positioning arrangement. 4,334,132, Cl. 200-153.0LB.
Poponiak, Michael R.: *See—*
Horng, Cheng T.; Poponiak, Michael R.; Rupprecht, Hans S.; and Schwenker, Robert O., 4,333,227, Cl. 29-580.000.
Popper, Karel. Deodorizing methods and articles using ion exchange manufacture. 4,333,183, Cl. 2-400.000.
Porta Systems Corp.: *See—*
De Luca, Paul V.; Gazzo, John J.; and Hollfelder, Thomas A., 4,334,129, Cl. 179-175.110.
Porter, Christopher H.; and Taylor, John A., to Extracorporeal Medical Specialties, Inc. Process for producing hollow fibers having a non-uniform wall thickness and a non-uniform cross-sectional area. 4,333,906, Cl. 264-40.300.
Porter, Thomas M., to H. K. Porter, Inc. Spreader tool. 4,333,330, Cl. 72-392.000.
Post, Sieghard, to U.S. Philips Corporation. Coil former for a transformer. 4,334,208, Cl. 336-192.000.
Potash, Hanan, to Burroughs Corporation. Circuit for addressing binarily addressable memories with BCD addresses. 4,334,213, Cl. 340-347.0DD.
Power Controls Corporation: *See—*
Parman, Dan F.; Wiebush, LeMoey M.; Shaw, Fred M.; and Cummins, James P., 4,334,171, Cl. 315-199.000.
Power-Matic Corporation: *See—*
Gogins, Laird B., 4,333,555, Cl. 192-58.00R.
PPG Industries, Inc.: *See—*
Crico, Aurelio M., 4,333,799, Cl. 203-67.000.
Neely, James E., Jr.; Lin, Chia-Cheng; Falleroni, Charlene A.; and Moff, Annette, 4,333,914, Cl. 423-314.000.
Prat, Gisele: *See—*
Creuzet, Marie-Helene; Feniou, Claude; Guichard, Francoise; and Prat, Gisele, 4,333,930, Cl. 424-248.510.
Creuzet, Marie-Helene; Feniou, Claude; Prat, Gisele; and Pontagnier, Henri, 4,333,938, Cl. 424-263.000.
Pray, Winston C., to Flexible Steel Lacing Company. Apparatus for stapling belt. 4,333,217, Cl. 29-243.510.
Preuss, Wolfgang; Bahn, Michael; Schmid, Rolf; and Wagner, Rudiger, to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA). 3-Oxo-pregna-1,14,17-trien-20-carboxylates and process. 4,333,880, Cl. 260-397.100.
Prevorsek, Dusan C.: *See—*
Wu, Tse C.; Prevorsek, Dusan C.; and Wertz, David H., 4,334,045, Cl. 525-439.000.
Priegnitz, James W., to UOP Inc. Process for the separation of water from ethanol. 4,333,740, Cl. 44-56.000.
Priepke, Edward H.: *See—*
Greiner, James G.; Lehman, Joseph J.; and Priepke, Edward H., 4,333,304, Cl. 56-119.000.
Priestley, Ronald: *See—*
Ellis, Stephen R. M.; and Priestley, Ronald, 4,333,892, Cl. 261-94.000.
Princiotta, Raymond A. Garment hanger. 4,333,590, Cl. 223-85.000.
Privalov, Petr L. Differential scanning microcalorimeter. 4,333,332, Cl. 374-10.000.
Procter & Gamble Company, The: *See—*
Smith, Rory J. M.; and McRitchie, Aalan C., 4,333,862, Cl. 252-547.000.
Przyluski, Jan; Madry, Kazimierz; Dolecki, Zbigniew; Kotarski, Andrzej; Drygas, Maria; Kokosinski, Jacek; Kuzma, Zygmunt; and Chelminski, Bohdan, to Politechnika Warszawska. Method of electrochemical obtaining of bright tin coatings. 4,333,802, Cl. 204-54.00R.
Pugh, William E., III, to Bell Telephone Laboratories, Incorporated. Insulation-penetrating slotted beam contact element. 4,333,700, Cl. 339-97.00R.
Pujado, Peter R., to UOP Inc. Recovery of a cumene/alpha-methylstyrene fraction from a mixture thereof with phenol and water. 4,333,801, Cl. 203-94.000.
Pujari, Vimal K.: *See—*
Frost, Rodney I.; McBrayer, Robert D.; and Pujari, Vimal K., 4,333,518, Cl. 165-8.000.
Pulker, Hans K.; and Daxinger, Helmut, to Balzers Aktiengesellschaft. Method for producing gold color coatings. 4,333,962, Cl. 427-37.000.

Punis, Giancarlo: *See—*
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Puropore, Inc.: *See—*
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Quast, Kenneth J.: *See—*
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Queener, Carl A.: *See—*
Davidge, Ronald V.; Queener, Carl A.; and Vanderslice, James T., 4,333,639, Cl. 271-3.100.

Quinto, Dennis T.: *See—*
Bhattacharya, Debanshu; Quinto, Dennis T.; and Holowaty, Michael O., 4,333,776, Cl. 148-36.000.

Quinton, Gary F.: *See—*
Smith, Dean C.; and Quinton, Gary F., 4,333,234, Cl. 30-2.000.

Quittkat, Jorg: *See—*
Lang, Raimund; Quittkat, Jorg; Fischer, Gert; and Lather, Dieter, 4,333,347, Cl. 73-642.000.

Rabian, Jean M.: *See—*
Nard, Georges P.; Bourasseau, Daniel J. E.; and Rabian, Jean M., 4,334,314, Cl. 375-111.000.

Raddatz, John A., to Minnesota Mining and Manufacturing Company. Hanger assembly. 4,333,624, Cl. 248-205.00R.

Rakhit, Sumanas; and Bagli, Jehan F., to American Home Products Corp. 2-(Piperazinyl)-4-pyrimioinamines. 4,333,937, Cl. 424-251.000.

Ramlow, Gerhard G.; Heyman, Duane A.; and Moore, Richard A., to BASF Wyandotte Corporation. Process for the preparation of finely divided solid polymers in polyol. 4,334,049, Cl. 526-202.000.

Rand, Edward R., to Lainiere de Picardie. Fusible interlining of a textile sheet and a heat-sealable film for washable garments. 4,333,982, Cl. 428-245.000.

Randell, Donald R.: *See—*
Schmidt, Andreas; Kirchmayr, Rudolf; and Randell, Donald R., 4,333,841, Cl. 252-32.70E.

Rank Organisation Limited, The: *See—*
Whitehouse, David J., 4,334,282, Cl. 364-728.000.

Ratigan, Brian: *See—*
Longley, Karl E.; Ratigan, Brian; and Davis, James W., 4,333,833, Cl. 210-198.100.

Raychem Corporation: *See—*
Kampe, Andrew J., 4,334,148, Cl. 219-553.000.

Raymond Engineering Inc.: *See—*
Bickford, John H., 4,333,351, Cl. 73-761.000.

RCA Corporation: *See—*
Hoover, Merle V., 4,334,324, Cl. 455-333.000.
Malchow, Max E., 4,334,198, Cl. 330-296.000.
Marder, William Z., 4,333,592, Cl. 226-52.000.
Miko, Sandor, 4,334,267, Cl. 363-133.000.
Reitmeier, Glenn A.; and Dischert, Robert A., 4,334,237, Cl. 358-36.000.
Schade, Otto H., Jr., 4,334,196, Cl. 330-253.000.

Redpath, Bruce B.: *See—*
Ricketts, Thomas E.; and Redpath, Bruce B., 4,333,684, Cl. 299-2.000.

Regehr, John L., to International Business Machines Corporation. Non impact display screen output printer. 4,334,231, Cl. 346-35.000.

Regie Nationale Des Usines Renault: *See—*
Bascou, Jacques, 4,333,269, Cl. 49-280.000.

Reick, Franklin G., to Ebert, Michael, a part interest. Hybrid PTFE lubricant for weapons. 4,333,840, Cl. 252-16.000.

Reinger, Friedrich: *See—*
Gieschen, Kurt; and Reinger, Friedrich, 4,334,155, Cl. 250-490.000.

Reinhart, Robert F.: *See—*
Corbin, Raymond L. R.; and Reinhart, Robert F., 4,333,279, Cl. 52-105.000.

Reinking, Klaus: *See—*
Freitag, Dieter; Reinking, Klaus; Idel, Karsten; Medem, Harald; and Bottenbruch, Ludwig, 4,334,053, Cl. 528-179.000.

Reist, Walter, to Ferag AG. Apparatus for infeeding flat products, especially printed products, arriving in an imbricated stream to a transport device. 4,333,559, Cl. 198-461.000.

Reitmeier, Glenn A.; and Dischert, Robert A., to RCA Corporation. Adaptive amplitude averaging for weighting quantizing noise. 4,334,237, Cl. 358-36.000.

Relvini, Pasquale: *See—*
Marciandi, Franco; and Relvini, Pasquale, 4,333,869, Cl. 524-100.000.

Renzel, Peter; and Kroesen, Klaus, to Krautkramer-Branson, Inc. Display of ultrasound test data. 4,333,345, Cl. 73-606.000.

Renzel, Peter, to Krautkramer-Branson, Inc. Display device for non-destructive testing apparatus. 4,333,346, Cl. 73-606.000.

Repco Research Pty. Ltd.: *See—*
Bouette, Rodger D., 4,334,002, Cl. 430-103.000.

Resnick, Paul R., to Du Pont de Nemours, E. I., and Company. Dialkyl perfluoro-ω-fluoroformyl diesters and monomers and polymers therefrom. 4,334,082, Cl. 560-180.000.

Reynolds Metals Company: *See—*
Kaplan, Howard I.; Bryce, Jerry H.; Johnston, Thomas J.; McMinn, Curtis J.; Willett, John T.; and Richards, Nolan E., 4,333,813, Cl. 204-243.00R.

Rhone-Poulenc Agrochimie: *See—*
Buathier, Bernard; and Bernard, Andre, 4,334,083, Cl. 560-226.000.

Rice, John F.; Yundt, Albert P.; and Quast, Kenneth J., to Bard Laboratories, Inc. Photosensitive compositions of polymer polynitrate ester and basic aromatic amine. 4,334,008, Cl. 430-270.000.

Richards, Nolan E.: *See—*
Kaplan, Howard I.; Bryce, Jerry H.; Johnston, Thomas J.; McMinn, Curtis J.; Willett, John T.; and Richards, Nolan E., 4,333,813, Cl. 204-243.00R.

Richardson, Edwin A., to Shell Oil Company. Nitrogen-gas-stabilized cement and a process for making and using it. 4,333,764, Cl. 106-87.000.

Richardson Graphics Company: *See—*
Jones, Thomas H., 4,334,003, Cl. 430-156.000.

Richner, Hans, to Hatebur Umformmaschinen AG. Cross transport press. 4,333,329, Cl. 72-3.000.

Ricketts, Thomas E.; and Redpath, Bruce B., to Occidental Oil Shale Inc. Method of uniform rubblization for limited void volume blasting. 4,333,684, Cl. 299-2.000.

Rieger, Franz: *See—*
Muller, Klaus; Maurer, Helmut; Rieger, Franz; and Linder, Ernst, 4,333,439, Cl. 123-569.000.

Rig Electronics Ltd.: *See—*
Nield, Barry J.; and Earnshaw, Roy R., 4,334,217, Cl. 340-685.000.

Ringer, William N.: *See—*
Chow, Peter C. M.; and Ringer, William N., 4,333,496, Cl. 137-489.000.

Ringwald, Erwin, to Sandoz Ltd. Thiazoline and imidazoline derivatives useful as minor tranquilizers. 4,333,945, Cl. 424-270.000.

Rinker, William R.; Ayers, Harry R.; and Miller, John W., to B. F. Goodrich Company, The. Apparatus and process for manufacturing bio-oxidation and nitrification modules. 4,333,779, Cl. 156-73.100.

Rinn Corporation: *See—*
Stevenson, Charles F., 4,333,254, Cl. 40-158.00B.

Rinnai Kabushiki Kaisha: *See—*
Takagi, Hidehiko; Hayashi, Hisao; Ogawa, Kazuo; and Kanaya, Yoshihiro, 4,334,137, Cl. 219-10.55F.

Rittenbach, Otto E., to United States of America, Army. Pulse train generator of predetermined pulse rate using feedback shift register. 4,334,194, Cl. 328-42.000.

Robbins, James M., to Jamestown Metal Mfg. Corp. Device for varying number of coins needed to permit operation of a coin-operated mechanism. 4,333,556, Cl. 194-92.000.

Robbins, Robert E.: *See—*
Woodward, James C.; and Holland, Marion D., 4,333,205, Cl. 15-345.000.

Robert Bosch GmbH: *See—*
Eheim, Franz, 4,333,440, Cl. 123-569.000.
Kopse, Odon; and Ziesche, Kurt, 4,333,436, Cl. 123-502.000.
Muller, Klaus; Maurer, Helmut; Rieger, Franz; and Linder, Ernst, 4,333,439, Cl. 123-569.000.

Robert Morton D.G. Limited: *See—*
Hancock, John C.; Winwood, John M.; and Wilkinson, Noel R., 4,333,393, Cl. 99-277.200.

Roberts, Peter, to Thrush Incorporated. Back-fire resistant lock seam for muffler shells. 4,333,545, Cl. 181-282.000.

Robinson, Brian, to Catnic Components Limited. Herringbone struts. 4,333,294, Cl. 52-695.000.

Robinson, Joseph G.; and Brain, Sally A., to Coal Industry (Patents) Limited. Resin derived from acenaphthene, process for its production and intermediates in its production. 4,334,055, Cl. 528-229.000.

Robinson, Martin A.: *See—*
Van De Puy, Michael; Anello, Louis G.; and Robinson, Martin A., 4,334,099, Cl. 568-386.000.

Rockerath, John L., to Cluett, Peabody & Co., Inc. Fabric label feeding means. 4,333,409, Cl. 112-121.270.

Rockwell International Corporation: *See—*
Searcy, Eugene S., 4,333,240, Cl. 33-174.00G.

Rockwell, Robert G., to Zenith Radio Corporation. Means and method for providing optimum resolution of T.V. cathode ray tube electron guns. 4,334,170, Cl. 315-16.000.

Rodder, Jerome A. Respirator valve. 4,333,453, Cl. 128-205.240.

Roelle, David, to Ben Pearson Archery Inc. Compound bow and bow cabling system. 4,333,443, Cl. 124-24.00R.

Rogan, John B.; and Morris, Robert V., to Standard Oil Company (Indiana). Polymerization catalysts. 4,334,047, Cl. 526-138.000.

Rohm and Haas Company: *See—*
Emmons, William D.; Winey, Donald A.; and Rounds, Nicholas A., 4,333,963, Cl. 427-44.000.

Rohner, Joachim, to W. Schlafhorst & Co. Device for preventing the discharge of dust and fiber particles from the work zones of a textile machine. 4,333,201, Cl. 15-301.000.

Rohr, Robert D.: *See—*
Schulte, Harold F.; Leliaert, Raymond M.; and Rohr, Robert D., 4,333,278, Cl. 51-434.000.

Rokach, Joshua: *See—*
Belanger, Patrice C.; Rokach, Joshua; Young, Robert N.; and Scheigetz, John, 4,334,077, Cl. 549-12.000.

Rolf C. Hagen (USA) Corp.: *See—*
Holbrook, Arthur J., 4,333,626, Cl. 248-360.000.

Rollei of America, Inc.: *See—*
Adams, James R., Jr.; and Ogawa, Francis T., 4,333,718, Cl. 354-31.000.

Roller, Hanno; Ohnmacht, Helmut; Lieber, Ludwig; and Nauerth, Karl-Heinz, to Fritz Eichenauer, Firma. Combined electric water heating and vessel support plate for a beverage preparation device. 4,334,141, Cl. 219-283.000.

Romero, Eduardo: *See—*
Rotolico, Anthony J.; and Romero, Eduardo, 4,333,416, Cl. 118-47.000.
Romey, Ingo: *See—*
Kolling, Georg; Romey, Ingo; and Kokot, Hellmut, 4,333,816, Cl. 208-91.000.
Rooke, William I.: *See—*
Ittner, Nelson C.; and Rooke, William I., 4,333,598, Cl. 228-181.000.
Rosellini, Bruno: *See—*
Keefe, Tom; and Rosellini, Bruno, 4,333,690, Cl. 308-3.800.
Rosenblad Corporation: *See—*
Henricson, Kaj O., 4,333,800, Cl. 203-87.000.
Rosenhagen, William; and Whalen, George J., to Ideal Toy Corporation. Multi-vehicle multi-controller radio remote control system. 4,334,221, Cl. 340-825.720.
Rosquist, Von D. Engine brake. 4,333,430, Cl. 123-321.000.
Rotolico, Anthony J.; and Romero, Eduardo, to Eutectic Corporation. Extension nozzle attachment for a flame-spray torch. 4,333,416, Cl. 118-47.000.
Rouanet, Alain: *See—*
Moisset, Jacques; Bonet, Claude; Rouanet, Alain; Petit, Alain; and Delmas, Robert, 4,333,766, Cl. 106-100.000.
Roucau, Gilles; and Roussy, Emilien. Electric knife sharpener. 4,333,273, Cl. 51-102.000.
Rounds, Nicholas A.: *See—*
Emmons, William D.; Winey, Donald A.; and Rounds, Nicholas A., 4,333,963, Cl. 427-44.000.
Roussel Uclaf: *See—*
Barnes, Alan C.; and Rowlands, David A., 4,333,934, Cl. 424-250.000.
Guillaume, Jacques; Nedelec, Lucien; and Dumont, Claude, 4,333,939, Cl. 424-263.000.
Roussy, Emilien: *See—*
Roucau, Gilles; and Roussy, Emilien, 4,333,273, Cl. 51-102.000.
Rowlands, David A.: *See—*
Barnes, Alan C.; and Rowlands, David A., 4,333,934, Cl. 424-250.000.
Roy, Siegfried S., to Pepsico, Inc. Floating manifold for multi-cavity injection mold. 4,333,629, Cl. 249-119.000.
Rozsavolgyi, Karoly: *See—*
Plosz, Sandor; Babos, Katalin; Rozsavolgyi, Karoly; and Felfoldy, Lajos, 4,333,837, Cl. 210-602.000.
Rubichi, Gianfranco: *See—*
Govoni, Gabriele; Rubichi, Gianfranco; and Guardigli, Pierluigi, 4,334,057, Cl. 528-500.000.
Rudell, Elliot A.; Cernansky, Joseph S.; and Kamrath, Richard P., to Rudell, Elliot A. Mountain climber game with moveably attached pieces. 4,333,655, Cl. 273-241.000.
Rudolph, Hans: *See—*
Schreckenberg, Manfred; Freitag, Dieter; Burgdorfer, Hans-Heribert; Lehnert, Gunther; Adelmann, Siegfried; and Rudolph, Hans, 4,333,809, Cl. 204-159.140.
Rudszinat, Willy: *See—*
Heitmann, Uwe; and Rudszinat, Willy, 4,333,335, Cl. 73-41.000.
Ruettiger, Wilhelm; Suetsch, Franz; and Wuerz, Albrecht, to BASF Aktiengesellschaft. Process for extracting water from desizing liquors. 4,333,190, Cl. 8-151.000.
Rupert, Steven L.: *See—*
Bukamier, Gary L.; and Rupert, Steven L., 4,333,812, Cl. 204-195.00G.
Rupp, Edward J., II: *See—*
Boney, Joel F.; Rupp, Edward J., II; and Thomas, James S., 4,334,268, Cl. 364-200.000.
Rupprecht, Hans S.: *See—*
Horng, Cheng T.; Poponiak, Michael R.; Rupprecht, Hans S.; and Schwenker, Robert O., 4,333,227, Cl. 29-580.000.
Russell, Robert J., to Mail-Ex Corporation. Envelope processing machine and method. 4,333,300, Cl. 53-569.000.
Russell, William M., to Facemate Corporation. Multi-ply fabric structure including interliner. 4,333,980, Cl. 428-192.000.
Rusznak, Istvan: *See—*
Toke, Laszlo; Szabo, Gabor T.; Szabo, Gabor; Nagy, Lajos; and Rusznak, Istvan, 4,334,103, Cl. 568-631.000.
Ryan, James A.: *See—*
Bourgeois, David R.; Ryan, James A.; and Varshney, Subhash C., 4,334,307, Cl. 371-16.000.
Ryan, John W., to Agrowplow Pty. Limited. Plow shank and digging blade attached to lower extremity thereof by adaptor. 4,333,536, Cl. 172-721.000.
Sack, Ernst T., to Sack GmbH. Method and plant for slitting a hot slab emerging from a continuous casting plant. 4,333,370, Cl. 83-56.000.
Sack GmbH: *See—*
Sack, Ernst T., 4,333,370, Cl. 83-56.000.
Saeki, Toshio: *See—*
Koizumi, Hajime; Toyama, Kozo; Kobayashi, Mikio; Hatano, Hajime; Saeki, Toshio; Mizukoshi, Kaoru; Tamanaga, Shinichi; Miyakawa, Keizo; and Kato, Tomoyasu, 4,333,285, Cl. 52-252.000.
Safdy, Max E.: *See—*
Kurchacova, Elva; and Safdy, Max E., 4,333,943, Cl. 424-269.000.
Saffire, Victor. Javelin. 4,333,643, Cl. 272-106.000.
Saito, Kohji; and Shibata, Hidenori, to Asahi Glass Company, Ltd. Method of preventing deterioration of palladium oxide anode. 4,333,804, Cl. 204-98.000.
Sakamae, Waichi: *See—*
Shibasaki, Yoshihisa; Sakamura, Ken; Sakamae, Waichi; Nakano, Koichi; and Aiso, Hideo, 4,334,269, Cl. 364-200.000.
Sakamoto, Shinichi: *See—*
Sasayama, Takao; and Sakamoto, Shinichi, 4,334,186, Cl. 323-365.000.
Sakamura, Ken: *See—*
Shibasaki, Yoshihisa; Sakamura, Ken; Sakamae, Waichi; Nakano, Koichi; and Aiso, Hideo, 4,334,269, Cl. 364-200.000.
Sakane, Toshio; Hosoe, Kazuya; Tsunekawa, Tokuichi; Kinoshita, Takao; and Kawabata, Takashi, to Canon Kabushiki Kaisha. Focus detection system. 4,333,716, Cl. 354-25.000.
Sakuma, Tokihiko: *See—*
Karino, Kimiji; Osawa, Tadao; Nagano, Masami; Sakuma, Tokihiko; Kanazawa, Yuiti; Kuroha, Tunemitu; and Tachibana, Kanji, 4,333,890, Cl. 261-41.00D.
Sakurai, Yoshifumi, to Olympus Optical Co., Ltd. Magnetic garnet film and manufacturing method therefor. 4,333,991, Cl. 428-702.000.
Sakuranaka, Toru: *See—*
Kobayashi, Masayoshi; Sakuranaka, Toru; and Nakagawa, Sachio, 4,333,432, Cl. 123-366.000.
Sam Stein Associates, Inc.: *See—*
Miller, Michael E.; and Hummel, Richard J., 4,333,415, Cl. 118-16.000.
Sampathkumar, Prathivadibhayankaram S.; and Dwivedi, Basant K., to Chimicasa GmbH. Method of producing α-L-aspartyl-L-phenylalanine methylester. 4,333,872, Cl. 260-112.50R.
Samuels, Samuel. Protective shoe. 4,333,248, Cl. 36-72.00R.
Sander, Ulrich: *See—*
Dorr, Karl H.; Diekmann, Helmut; Grimm, Hugo; Sander, Ulrich; Tacke, Michael; and Weber, Waldemar, 4,333,917, Cl. 423-522.000.
Sandland, Paul, to General Electric Company. Tomographic scanning apparatus. 4,334,154, Cl. 250-445.00T.
Sandmore, Donald K.: *See—*
Meal, John R.; and Sandmore, Donald K., 4,333,213, Cl. 29-25.420.
Sandoz Ltd.: *See—*
Ringwald, Erwin, 4,333,945, Cl. 424-270.000.
Sanford, Karl J.; and Eikenberry, Jon N., to Eastman Kodak Company. Continuous release of reagent in an analytical element to reduce assay interference. 4,333,733, Cl. 23-230.00B.
Sanka, Tsugio: *See—*
Iiyama, Masahiko; Sanka, Tsugio; and Naito, Kenji, 4,333,429, Cl. 123-274.000.
Sanyo Electric Co., Ltd.: *See—*
Nakamura, Kenzi, 4,334,206, Cl. 336-96.000.
Yamano, Masaru; and Kuwano, Yukinori, 4,334,120, Cl. 136-248.000.
Saran, Amitabh, to Xerox Corporation. Data decompressor circuit. 4,334,246, Cl. 358-261.000.
Sarcia, Domenico S., to Oerlikon-Buhrle U.S.A. Inc. Cryogenic apparatus. 4,333,755, Cl. 62-6.000.
Sasaki, Takao: *See—*
Imazeki, Ryoji; Yamazaki, Etsuo; and Sasaki, Takao, 4,334,281, Cl. 364-723.000.
Sasayama, Takao; and Sakamoto, Shinichi, to Hitachi, Ltd. Apparatus for driving hot-wire type flow sensor. 4,334,186, Cl. 323-365.000.
Sassella, Christopher D.: *See—*
Ikin, David D.; Butler, Paul G.; Sassella, Christopher D.; and Oliver, James K., 4,333,525, Cl. 165-104.210.
Satake, Tosimi: *See—*
Yamato, Noboru; and Satake, Tosimi, 4,333,990, Cl. 428-531.000.
Sato, Hideo: *See—*
Horie, Seiji; and Sato, Hideo, 4,334,001, Cl. 430-83.000.
Sato, Masaaki, to Olympus Optical Company Limited. Tape recorder having cassette reversing device. 4,334,251, Cl. 360-96.600.
Sato, Tetsuya. Operation supervisory apparatus of canned motor. 4,334,189, Cl. 324-158.0MG.
Satou, Shun; and Jitsumatsu, Yuuji, to Yagi Antenna Co., Ltd. Warning apparatus using microwaves. 4,334,214, Cl. 340-552.000.
Sattler, Joseph P.: *See—*
Morrison, Clyde A.; and Sattler, Joseph P., 4,333,344, Cl. 73-584.000.
Sauer, Gerhard: *See—*
Neef, Gunter; Eder, Ulrich; Haffer, Gregor; Sauer, Gerhard; Wiechert, Rudolf; and Steinbeck, Hermann, 4,333,928, Cl. 424-243.000.
Sauntson, Barry J.; to Scott Bader Company Limited. Ceramic tile adhesives. 4,333,867, Cl. 524-547.000.
Sawada, Hidekazu: *See—*
Suzuki, Takashi; Sawada, Hidekazu; and Asai, Tsunetomo, 4,334,022, Cl. 435-119.000.
Sawyer, George N., to General Electric Company. Superheat controller. 4,333,317, Cl. 62-212.000.
Scafidi, Christopher J.: *See—*
O'Neill, Joseph L.; and Scafidi, Christopher J., 4,333,696, Cl. 339-17.0LM.
Scagnelli, George J.: *See—*
Orr, David A.; Gala, Hiren S.; and Scagnelli, George J., 4,333,232, Cl. 29-767.000.
Scarfone Construction Limited: *See—*
Scarfone, Santo, 4,333,281, Cl. 52-169.500.
Scarfone, Santo, to Scarfone Construction Limited. Basement wall draining molding. 4,333,281, Cl. 52-169.500.
Schade, Otto H., Jr., to RCA Corporation. Amplifier using lateral and vertical transistors. 4,334,196, Cl. 330-253.000.

Schaefer, Hans-Joachim. Convertible sports device. 4,333,249, Cl. 36-115.000.

Schaefer, Hartmann: *See*—
Eistetter, Klaus; Kley, Hans-Peter; Menge, Heinz-Gunter; and Schaefer, Hartmann, 4,333,942, Cl. 424-267.000.

Schaefer, William J. Arm control device for athlete. 4,333,647, Cl. 273-54.00B.

Schaffron, Helmut T. Rotary bag sealing and perforating machine. 4,333,790, Cl. 156-510.000.

Scharwaechter, Peter; Gutsche, Klaus; Kohlmann, Wilhelm; Kroemer, Gerhard, deceased; by Kroemer, Norma, legal representative; by Kroemer, Helmut, legal representative; and by Kroemer, Maria M., legal representative, to BASF Aktiengesellschaft. Novel amidinobenzylpyrimidines, processes for their manufacture and antibacterial and antiprotozoal use thereof. 4,333,936, Cl. 424-251.000.

Schawohl, Georg: *See*—
Gauhl, Helmgard; Schawohl, Georg; Seidel, Hans; and Beaucamp, Klaus, 4,334,023, Cl. 435-190.000.

Scheifele, Clifford A., Jr., to UOP Inc. Separation and recovery of hydrogen and normally gaseous hydrocarbons from net excess hydrogen from a catalytic reforming process. 4,333,819, Cl. 208-101.000.

Scheifele, Clifford A., Jr., to UOP Inc. Recovery of normally gaseous hydrocarbons from net excess hydrogen in a catalytic reforming process. 4,333,820, Cl. 208-101.000.

Scheigetz, John: *See*—
Belanger, Patrice C.; Rokach, Joshua; Young, Robert N.; and Scheigetz, John, 4,334,077, Cl. 549-12.000.

Scheiterer, Eduard: *See*—
Thinschmidt, Hans; and Scheiterer, Eduard, 4,334,308, Cl. 371-29.000.

Scheler, Siegfried, to Hoechst Aktiengesellschaft. Light-sensitive diazotype material with 2-hydroxy-3-naphthoic acid amides having 6-sulfonic acid amide substitution. 4,334,004, Cl. 430-176.000.

Schering, Aktiengesellschaft: *See*—
Neef, Gunter; Eder, Ulrich; Haffer, Gregor; Sauer, Gerhard; Wiechert, Rudolf; and Steinbeck, Hermann, 4,333,928, Cl. 424-243.000.

Schick, Henry, to Gilbert Mfg., Co., Inc. In line cartridge type fuse holder. 4,333,701, Cl. 339-97.00P.

Schindler, Heinrich: *See*—
Gebel, Rudolf; Peche, Gerhard; Schindler, Heinrich; and Welly, Jurgen-Dietrich, 4,334,133, Cl. 200-279.000.

Schindlmayr, Peter; and Zapfel, Horst, to Arenco-BMD Maschinenfabrik GmbH. Method and apparatus for the manufacture of tanned hides and skins. 4,333,731, Cl. 8-436.000.

Schlegel, Hans J. Elevator head material guide means. 4,333,561, Cl. 198-703.000.

Schleyer, Herbert; and Bieber, Theo, to Fag Kugelfischer Georg Schafer & Co. False-twist system switchable between S-twist and Z-twist. 4,333,308, Cl. 57-339.000.

Schluckbier, Gary W., to DEC International, Inc. Milking unit support and detacher mechanism. 4,333,421, Cl. 119-14.080.

Schlumberger Technology Corporation: *See*—
Clavier, Christian M., 4,334,271, Cl. 364-422.000.

Schmelter, Ernst A.; and Simmert, Bruno W. Wall-type intercom station for detention and penitentiary facilities. 4,334,260, Cl. 361-360.000.

Schmid, Rolf: *See*—
Preuss, Wolfgang; Bahn, Michael; Schmid, Rolf; and Wagner, Rudige., 4,333,880, Cl. 260-397.100.

Schmid, Wolfgang, to Ciba-Geigy Corporation. Method of combatting harmful microorganisms using quinoxaline compounds. 4,333,931, Cl. 424-248.540.

Schmidt, Andreas; Kirchmayr, Rudolf; and Randell, Donald R., to Ciba-Geigy Corporation. Dithiophosphate lubricant additives. 4,333,841, Cl. 252-32.70E.

Schmidt, Andreas; and Schwarzenbach, Kurt, to Ciba-Geigy Corporation. Phosphite ester stabilizers. 4,333,868, Cl. 524-152.000.

Schmidt, Erwin, to Hoechst Aktiengesellschaft. Process for the preparation of N-α-alkoxyalkyl-carboxamides, and some representatives of this class of compounds and secondary products obtained therefrom. 4,334,097, Cl. 564-201.000.

Schmidtchen, Hans-Martin, to Kabel und Metallwerke Gutehoffnungshutte A.G. Method of making a foamed plastic. 4,333,898, Cl. 264-45.900.

Schmit, Georges J. E.; and Welter, Thomas N. H., to Goodyear Tire & Rubber Company, The. Tire with composite reinforcement cord. 4,333,507, Cl. 152-359.000.

Schmitt, Frederick L.: *See*—
Mookherjee, Braja D.; Trenkle, Robert W.; Wilson, Richard A.; Schmitt, Frederick L.; Vock, Manfred H.; Granda, Edward J.; Vinals, Joaquin; Kiwala, Jacob; and Schreiber, William L., 4,334,098, Cl. 568-347.000.

Schmitz, Klaus: *See*—
Kubbeler, Hans-Klaus; Erpenbach, Heinz; Gehrmann, Klaus; and Schmitz, Klaus, 4,333,884, Cl. 260-546.000.

Schneider, Manfred; and Schubert, Frank, to Veb Wirkmaschinenbau Karl-Marx-Stadt. Knitware structure. 4,333,321, Cl. 66-192.000.

Schneider, Manfred: *See*—
Deubel, Reinhold; Opitz, Konrad; Kruse, Hubert; Schneider, Manfred; and Uhrig, Heinz, 4,333,732, Cl. 8-527.000.

Schneider, Thomas E.: *See*—
Funcik, Jack F.; Bennet, Joseph C.; Tubbs, Joseph T.; and Schneider, Thomas E., 4,333,230, Cl. 29-749.000.

Schoettle, Klaus; and Gliniorz, Lothar, to BASF Aktiengesellschaft. Recording medium and leader assembly. 4,333,619, Cl. 242-195.000.

Schoettle, Klaus: *See*—
Nagel, Peter; Schoettle, Klaus; Wittkamp, Reinrich; and Hauck, Karl, 4,333,418, Cl. 118-106.000.

Schott, Werner: *See*—
Baltensperger, Heinz; Buhler, Karl; and Schott, Werner, 4,334,119, Cl. 373-159.000.

Schrader, Jimmy, to Mathis, John S., a part interest. Synthetic fire log and method for making same. 4,333,738, Cl. 44-15.00B.

Schreck, Raymond M.; Brown, Bill G.; and Gilda, David A., to General Electric Company. Ice dispenser assembly. 4,333,588, Cl. 222-164.000.

Schreckenberg, Manfred; Freitag, Dieter; Burgdorfer, Hans-Heribert; Lehnert, Gunther; Adelmann, Siegfried; and Rudolph, Hans, to Bayer Aktiengesellschaft. Cross-linkable polycarbonate elastomers, a process for their preparation and use for packaging medicines. 4,333,809, Cl. 204-159.140.

Schreiber-Klaranlagen Dr.-Ing. Aug. Schreiber GmbH & Co. KG: *See*—
Ballnus, Wilhelm, 4,333,838, Cl. 210-614.000.

Schreiber, William L.: *See*—
Mookherjee, Braja D.; Trenkle, Robert W.; Wilson, Richard A.; Schmitt, Frederick L.; Vock, Manfred H.; Granda, Edward J.; Vinals, Joaquin; Kiwala, Jacob; and Schreiber, William L., 4,334,098, Cl. 568-347.000.

Schroeder, Dale W., to Westinghouse Electric Corp. Motor brake. 4,334,181, Cl. 318-762.000.

Schroeder, Hartmut R.: *See*—
Buckler, Robert T.; and Schroeder, Hartmut R., 4,334,069, Cl. 544-237.000.

Schubert, Frank: *See*—
Schneider, Manfred; and Schubert, Frank, 4,333,321, Cl. 66-192.000.

Schuler, Bob A. Shower curtain. 4,333,187, Cl. 4-608.000.

Schulte, Harold F.; Leliaert, Raymond M.; and Rohr, Robert D., to Wheelabrator-Frye Inc. Bladed centrifugal blasting wheel. 4,333,278, Cl. 51-434.000.

Schulte, Heinrich: *See*—
Hoffmann, Kurt; and Schulte, Heinrich, 4,334,236, Cl. 357-59.000.

Schulz, Johann G. D., to Gulf Research & Development Company. Organic acids and process for preparing same. 4,334,084, Cl. 562-410.000.

Schulze, Rolf: *See*—
Muller, Heinz; Jauchen, Peter; Szonn, Bodo; and Schulze, Rolf, 4,333,449, Cl. 128-155.000.

Schumann, Klaus: *See*—
Altenschopfer, Theodor; Schumann, Klaus; and Grodau, Dieter, 4,333,771, Cl. 134-7.000.

Schuster, Friedrich; and Hermanns, Hans, to Kugelfischer Georg Schafer & Co. Friction rotor. 4,333,307, Cl. 57-334.000.

Schwarzenbach, Kurt: *See*—
Schmidt, Andreas; and Schwarzenbach, Kurt, 4,333,868, Cl. 524-152.000.

Schwenker, Robert O.: *See*—
Horng, Cheng T.; Poponiak, Michael R.; Rupprecht, Hans S.; and Schwenker, Robert O., 4,333,227, Cl. 29-580.000.

Sciaraffa, Michael A.; Thome, David G.; and Vogt, Clifford M., to Kimberly-Clark Corporation. Soft, bulky, lightweight nonwoven web and method of producing; the web has both fused spot bonds and patterned embossments. 4,333,979, Cl. 428-179.000.

Scott Bader Company Limited: *See*—
Sauntson, Barry J., 4,333,867, Cl. 524-547.000.

Scott, William L.: *See*—
Di Martini, Carl R.; Scott, William L.; and Bulvanoski, Leo J., 4,333,762, Cl. 75-69.000.
Di Martini, Carl R.; Howe, Herbert E.; Scott, William L.; and Bulvanoski, Leo J., 4,333,763, Cl. 75-77.000.

Sealectro Corporation: *See*—
Dreyer, Charles W., 4,333,697, Cl. 339-31.00R.

Seaman, William E., to Newell Research Corporation. Apparatus for reducing tape tension variations in a peripheral belt drive tape transport system. 4,333,618, Cl. 242-192.000.

Searcy, Eugene S., to Rockwell International Corporation. Inspection device for measuring the contour and/or angular tolerance of a part. 4,333,240, Cl. 33-174.00G.

Sears, Roebuck and Co.: *See*—
Gall, John C., 4,333,584, Cl. 220-309.000.

Sedlak, John M.: *See*—
Davidson, Craig R.; and Sedlak, John M., 4,333,805, Cl. 204-98.000.

Seeger, Walter, to Max Roth KG. Muffler for combustion engines. 4,333,544, Cl. 181-266.000.

Seeman, Jeffrey L.; and Dionian, James A. Explosion prevention control system for a fuel-gas burning automatic ignition appliance and associated gas distribution system. 4,334,258, Cl. 361-170.000.

Seeman, Thomas A. Method for producing a pressed glass article. 4,333,756, Cl. 65-25.100.

Seger, Edward J.; and Haupin, Warren E., to Aluminum Company of America. Method and apparatus for controlling the heat balance in aluminum reduction cells. 4,333,803, Cl. 204-67.000.

Seibt, Judith. Button anchor method and apparatus. 4,333,182, Cl. 2-265.000.

Seidel, Hans: *See*—
Gauhl, Helmgard; Schawohl, Georg; Seidel, Hans; and Beaucamp, Klaus, 4,334,023, Cl. 435-190.000.

Seilly, Alec H., to Lucas Industries Limited. Electromagnetic devices. 4,334,205, Cl. 335-220.000.

Seitz, Clyde R., to Bertea Corporation. Anti-jam hydraulic servo valve. 4,333,387, Cl. 91-1.000.
Sekigawa, Keiji: *See—*
Okajima, Yakutaro; and Sekigawa, Keiji, 4,333,957, Cl. 426-140.000.
Sell, Irving W.: *See—*
Sell, Roger I.; and Sell, Irving W., 4,333,444, Cl. 126-417.000.
Sell, Roger I.; and Sell, Irving W., to Sell, Roger I. Solar powered ice melter for roofs. 4,333,444, Cl. 126-417.000.
Semiconductor Research Foundation: *See—*
Nishizawa, Jun-Ichi; and Kimura, Kitsuhiro, 4,333,989, Cl. 428-446.000.
Seno, Eugene T.: *See—*
Baltz, Richard H.; Wild, Gene M.; and Seno, Eugene T., 4,334,019, Cl. 435-76.000.
Seoka, Yoshio: *See—*
Aoki, Kozo; Seoka, Yoshio; and Yokota, Yukio, 4,334,011, Cl. 430-552.000.
Servel, Michel J. Time division multiplex switching network with an associative buffer store of the register counter type. 4,334,304, Cl. 370-66.000.
Sestokas, Elena: *See—*
Buhs, Rudolf P.; Jacob, Theodore A.; Miwa, Gerald; Sestokas, Elena; Taub, Rae; and Walsh, John S., 4,333,925, Cl. 424-181.000.
Shachar, Sraya, to Solmat Systems Ltd. Method of utilizing solar ponds for effecting controlled temperature changes of solutions particularly in processes involving the dissolution and/or precipitation of salts. 4,333,736, Cl. 23-295.00S.
Shafrir, Doron; and Lamb, Jeffrey. Controller for air conditioning units, heating units and the like. 4,333,519, Cl. 165-12.000.
Shahin, Majdi M.: *See—*
Bugaut, Andree; Shahin, Majdi M.; Vandenbossche, Jean-Jacques H.; and Kalopissis, Gregoire, 4,333,730, Cl. 8-407.000.
Shakespeare, Charles B.: *See—*
Moreno, John R.; Byrne, Richard J.; and Shakespeare, Charles B., 4,333,475, Cl. 128-711.000.
Sharp Kabushiki Kaisha: *See—*
Asada, Atsushi, 4,334,298, Cl. 368-63.000.
Miyakoshi, Kazumitsu; and Maekawa, Koji, 4,334,279, Cl. 364-710.000.
Shatz, Kenneth J.: *See—*
Cardone, Joseph T.; Shatz, Kenneth J.; and Dill, James M., 4,333,313, Cl. 60-649.000.
Shaw, Arthur. Sandless concrete. 4,333,765, Cl. 106-98.000.
Shaw, Fred M.: *See—*
Parman, Dan F.; Wiebush, LeMoey M.; Shaw, Fred M.; and Cummins, James P., 4,334,171, Cl. 315-199.000.
Shaw, Kenneth L.: *See—*
Cooper, Steven R.; and Shaw, Kenneth L., 4,334,131, Cl. 200-82.00R.
Shefrin, Joseph, to Boeing Company, The. Load limiter. 4,333,551, Cl. 188-372.000.
Shell Oil Company: *See—*
Richardson, Edwin A., 4,333,764, Cl. 106-87.000.
Shelton, Robert B. Chiropractic table with paper retainer. 4,333,637, Cl. 269-322.000.
Shepherd Products U.S. Inc.: *See—*
Atwood, John T., 4,333,207, Cl. 16-35.00R.
Shepherd, Robert G., to American Cyanamid Company. Ring-fluorinated 4-(monosubstituted-amino) phenyl compounds in inhibiting atherosclerotic lesion development. 4,333,940, Cl. 424-263.000.
Sherlock, William H.: *See—*
Still, Thomas W.; and Sherlock, William H., 4,333,441, Cl. 123-590.000.
Sherwood Medical Industries Inc.: *See—*
Bodicky, Raymond O., 4,333,455, Cl. 128-214.400.
Hertl, William; and Zine, Anthony R., Jr., 4,333,564, Cl. 206-216.000.
Shibasaki, Yoshihisa; Sakamura, Ken; Sakamae, Waichi; Nakano, Koichi; and Aiso, Hideo, to Panafacom Limited; and High Level Machines Corp. Data processing system having an integrated stack and register machine architecture. 4,334,269, Cl. 364-200.000.
Shibata, Hidenori: *See—*
Saito, Kohji; and Shibata, Hidenori, 4,333,804, Cl. 204-98.000.
Shibata, Yoshihisa: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; and Shibata, Yoshihisa, 4,333,933, Cl. 424-249.000.
Shima, Yoshihiro: *See—*
Kashioka, Seiji; Shima, Yoshihiro; and Miyatake, Takafumi, 4,334,241, Cl. 358-107.000.
Shimada, Kunihiko; and Tsuchiya, Yukio, to Pioneer Electronic Corporation. Magnetic circuit for planar diaphragm type loudspeaker. 4,334,127, Cl. 179-115.50R.
Shimada, Shuya: *See—*
Shimizu, Yasuo; Takao, Hisashi; Asano, Shoji; Shimada, Shuya; and Kikkawa, Kazutoshi, 4,334,066, Cl. 544-149.000.
Shimada, Yukio; Suzuki, Naoyoshi; Ohashi, Toshio; and Inoshita, Yasushi, to Nissan Motor Company, Limited. Air intake control system in air conditioning system. 4,333,606, Cl. 237-12.30A.
Shimajiri, Tokiji: *See—*
Inaba, Seiuemon; Shimajiri, Tokiji; and Toyoda, Kenichi, 4,333,363, Cl. 74-826.000.
Shimizu, Noriyuki: *See—*
Murata, Susumu; Shimizu, Noriyuki; and Kokeguchi, Sadao, 4,333,955, Cl. 426-44.000.
Shimizu, Yasuo; Takao, Hisashi; Asano, Shoji; Shimada, Shuya; and Kikkawa, Kazutoshi, to Otsuka Kagaku Yakuhin Kabushiki Kaisha. Heterocyclic containing 5-oxo pyrans. 4,334,066, Cl. 544-149.000.
Shinko Electric Co., Ltd.: *See—*
Nonaka, Takeyoshi; and Otsuka, Kazuo, 4,333,558, Cl. 198-391.000.
Shinozaki, Fumiaki: *See—*
Kitajima, Masao; Tachikawa, Hiromichi; Shinozaki, Fumiaki; and Ikeda, Tomoaki, 4,334,006, Cl. 430-254.000.
Shinto Paint Co., Ltd.: *See—*
Suzuki, Tameyuki; and Kubo, Akira, 4,333,807, Cl. 204-181.00T.
Shiplee, Lewis D., III. Disposable needle assembly. 4,333,479, Cl. 128-766.000.
Shirahata, Ryuji; Yanai, Akio; and Kitamoto, Tatsuji, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 4,333,985, Cl. 428-336.000.
Shirai, Kenji, to Toyota Jidosha Kogyo Kabushiki Kaisha. Brake shoe and support structure for a disc brake. 4,333,550, Cl. 188-72.200.
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, to Canon Kabushiki Kaisha. Liquid droplet forming apparatus. 4,334,234, Cl. 346-140.00R.
Shishido, Tadao: *See—*
Mifune, Hiroyuki; Ishiguro, Shoji; Shishido, Tadao; Fuseya, Yoshiharu; and Tsujikawa, Teruaki, 4,334,010, Cl. 430-551.000.
Mifune, Hiroyuki; Shishido, Tadao; Ishiguro, Shoji; and Ueyanagi, Jisaburo, 4,334,014, Cl. 430-611.000.
Shishido, Toetsu: *See—*
Yajima, Seishi; Okamura, Kiyohito; and Shishido, Toetsu, 4,334,051, Cl. 528-25.000.
Shope, Thomas, to CP Test Services - Valvco, Inc. Valve box. 4,333,494, Cl. 137-364.000.
Shores, David H., to Tektronix, Inc. YIG Bandpass filter interconnected by means of longitudinally split coaxial transmission lines. 4,334,201, Cl. 333-202.000.
Short, James E., Jr.: *See—*
Montgomery, Francis E.; Short, James E., Jr.; and Weaver, William J., 4,333,737, Cl. 23-297.000.
Shuman, Robert T., to Eli Lilly and Company. Pharmacologically active peptides. 4,333,873, Cl. 260-112.50E.
Siecor Corporation: *See—*
Davis, Lawrence E.; and Patel, Naren I., 4,333,706, Cl. 350-96.230.
Siemens Aktiengesellschaft: *See—*
Bredow, Reinhard, 4,334,225, Cl. 343-100.0LE.
Gebel, Rudolf; Peche, Gerhard; Schindler, Heinrich; and Welly, Jurgen-Dietrich, 4,334,133, Cl. 200-279.000.
Hauenstein, Alfred, 4,334,183, Cl. 323-235.000.
Hauenstein, Alfred, 4,334,184, Cl. 323-235.000.
Herbst, Heiner; Pfleiderer, Hans-Joerg; and Grassl, Hans-Peter, 4,334,150, Cl. 250-201.000.
Herbst, Heiner; Pfleiderer, Hans-Joerg; and Grassl, Hans-Peter, 4,334,151, Cl. 250-201.000.
Herbst, Heiner; and Niemeyer, Matthias, 4,334,239, Cl. 358-44.000.
Hoffmann, Kurt; and Schulte, Heinrich, 4,334,236, Cl. 357-59.000.
Thinschmidt, Hans; and Scheiterer, Eduard, 4,334,308, Cl. 371-29.000.
Simmert, Bruno W.: *See—*
Schmelter, Ernst A.; and Simmert, Bruno W., 4,334,260, Cl. 361-360.000.
Simmons, Catherine J.: *See—*
Tran, Danh C.; Macedo, Pedro B.; Simmons, Joseph H.; Simmons, Catherine J.; and Lagakos, Nicholas, 4,333,847, Cl. 252-629.000.
Simmons, John P., to Borg-Warner Corporation. Transmission shift control apparatus. 4,333,360, Cl. 74-473.00P.
Simmons, Joseph H.: *See—*
Tran, Danh C.; Macedo, Pedro B.; Simmons, Joseph H.; Simmons, Catherine J.; and Lagakos, Nicholas, 4,333,847, Cl. 252-629.000.
Simpson, Barbara E.: *See—*
Kleber, John W.; and Simpson, Barbara E., 4,333,919, Cl. 424-15.000.
Simpson, George R.: *See—*
Green, Frederick A.; Simpson, George R.; Avery, Stephen T.; and Durbin, John A., 4,333,723, Cl. 355-71.000.
Sims, Anson: *See—*
Jones, Lawrence T.; Sims, Anson; Howden, Ashley G.; Knighton, Mark S.; Kingsbury, L. C. James; and Conroy, Richard F. M., 4,333,261, Cl. 46-257.000.
Singer Company, The: *See—*
Lerner, David A., 4,333,411, Cl. 112-278.000.
Yatsushiro, Kenji; and Kuchuris, George F., 4,334,164, Cl. 310-114.000.
Sink, William H.; and Lane, Wendell, to Dana Corporation. Self-aligning clutch plate drive apparatus. 4,333,554, Cl. 192-70.190.
Siwecki, Thomas L.; and Andeen, Gerry B., to Siwecki, Thomas L. Rotating solution separation system. 4,333,832, Cl. 210-195.200.
Sjobom, Axel H. Axle bearing. 4,333,693, Cl. 308-176.000.
Skiba, Frank G.: *See—*
Neumann, Harry C.; and Skiba, Frank G., 4,333,214, Cl. 29-80.000.
Skinner, Richard E.: *See—*
Mahan, Douglas P.; Skinner, Richard E.; and McClanathan, Robert A., 4,334,136, Cl. 219-10.55B.
Sky-Top Sunroofs Ltd.: *See—*
Wolf, Ernest; and Amos, John, 4,333,680, Cl. 296-216.000.
Slaughter, Edward R., to United Technologies Corporation. Method for manufacturing a sandwich panel structure. 4,333,216, Cl. 29-157.00R.
Slingsby, Barry, to Stromberg-Carlson Corporation. Control circuit for concurrently monitoring and controlling functions and frequency

modulating status information in a digital data network. 4,334,126, Cl. 179-18.0ES.

Sloan-Kettering Institute for Cancer Research: *See—*
Fleisher, Martin, 4,333,734, Cl. 23-230.00B.

Slovenska vysoka skola technicka: *See—*
Tkac, Alexander; and Cvengros, Jan, 4,333,822, Cl. 208-184.000.

Smiesko, Frank A.: *See—*
Beiswenger, John L.; Moon, Howard R.; Chaphalkar, Dhananjay V.; and Smiesko, Frank A., 4,333,493, Cl. 137-268.000.

Smigerski, Hans-Jurgen: *See—*
Meyer, Klaus-Rudolf; Hornung, Karl-Heinz; Feldmann, Rainer; and Smigerski, Hans-Jurgen, 4,334,056, Cl. 528-496.000.

Smith, Dean C.; and Quinton, Gary F. Paper slitting device. 4,333,234, Cl. 30-2.000.

Smith, Donald H.: *See—*
Thomas, Ronald; and Smith, Donald H., 4,333,302, Cl. 56-10.500.

Smith, Henry I., to Massachusetts Institute of Technology. Enhancing epitaxy and preferred orientation. 4,333,792, Cl. 156-612.000.

Smith, James: *See—*
Kerigan, Shaun C.; Key, Brian D.; and Smith, James, 4,334,286, Cl. 364-900.000.

Smith, Julian M.: *See—*
Turner, Milton; and Smith, Julian M., 4,333,664, Cl. 280-261.000.

Smith Kline & French Laboratories Limited: *See—*
Durant, Graham J.; Ganellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., 4,333,946, Cl. 424-273.00R.

Smith, Peter H., to General Electric Company. Utensil location sensor for induction surface units. 4,334,135, Cl. 219-10.49R.

Smith, Peter H.: *See—*
Stottman, Richard L.; and Smith, Peter H., 4,333,521, Cl. 165-63.000.

Smith, Rory J. M.; and McRitchie, Aalan C., to Procter & Gamble Company, The. Detergent compositions comprising mixture of cationic, anionic and nonionic surfactants. 4,333,862, Cl. 252-547.000.

Smith, Russell G., to Xomox Corporation. Lip seal. 4,333,632, Cl. 251-214.000.

Smithsonian Institution, The: *See—*
Adey, Walter H., 4,333,263, Cl. 47-1.400.

Smrt, Thomas J. Tree nursery clip. 4,333,264, Cl. 47-42.000.

Smyth Aerodynamics, Inc.: *See—*
Smyth, Jerry S., 4,333,446, Cl. 126-438.000.

Smyth, Jerry S., to Smyth Aerodynamics, Inc. Solar concentrator. 4,333,446, Cl. 126-438.000.

Snamprogetti S.p.A.: *See—*
Ginatta, Marco, 4,333,219, Cl. 29-403.300.
Greco, Alberto; and Bertolini, Guglielmo, 4,333,881, Cl. 260-429.00R.
Mantovani, Elvio; Palladino, Nicola; and Zanobi, Antonio, 4,334,101, Cl. 568-454.000.

Snijders, Wilfred A. M., to U.S. Philips Corporation. Echo canceler for homochronous data transmission systems. 4,334,128, Cl. 179-170.200.

Sochaczevski, Aviezer. Electronic speed measuring device particularly useful as a jogging computer. 4,334,190, Cl. 324-171.000.

Societe Anonyme Automobiles Citroen: *See—*
Perez, Jean; and Carnus, Jean-Claude, 4,333,438, Cl. 123-569.000.

Societe Anonyme de Telecommunications: *See—*
Bertin, Marcel R.; Boutmy, Patrick E.; Le Fort, Gilbert J.; and Walraet, Jean G., 4,334,303, Cl. 370-13.000.

Societe Anonyme dite: L'Oreal: *See—*
Bugaut, Andree; Shahin, Majdi M.; Vandenbossche, Jean-Jacques H.; and Kalopissis, Gregoire, 4,333,730, Cl. 8-407.000.

Societe d'Assistance Technique pour Produits Nestle S.A.: *See—*
Bracco, Umberto; and Viret, Jean-Louis, 4,333,959, Cl. 426-614.000.

Societe d'Etudes, Recherches et Construction Electroniques Sercel: *See—*
Nard, Georges P.; Bourasseau, Daniel J. E.; and Rabian, Jean M., 4,334,314, Cl. 375-111.000.

Societe Nationale Industrielle Aerospatiale: *See—*
Boeglin, Paul H.; and Chigot, Claude R., 4,333,381, Cl. 89-1.00B.

Sogoh, Kiyoshi, to Nihon-Hammond Kabushiki Kaisha. Electronic musical instrument having time multiplexed keying system. 4,333,375, Cl. 84-1.010.

Solmat Systems Ltd.: *See—*
Shachar, Sraya, 4,333,736, Cl. 23-295.00S.

Sommer, Helmut: *See—*
Bergthaller, Peter; and Sommer, Helmut, 4,334,013, Cl. 430-569.000.

Sommer, Steven. Deck of playing cards. 4,333,656, Cl. 273-299.000.

Sony Corporation: *See—*
Yokoyama, Eiichi, 4,334,249, Cl. 360-30.000.

Soong, Tsai C. String load apportioned racket. 4,333,650, Cl. 273-73.00D.

Sorensen, Jens O., to Trade Finance International. Thermodynamic energy conversion system and method, utilizing a thermodynamic working fluid of encased expandites. 4,333,312, Cl. 60-641.700.

Southam, Barry, to Wahlco, Inc. Gas conditioning means for a plurality of boilers. 4,333,746, Cl. 55-106.000.

Southern California Gas Company: *See—*
Elkins, Robert H.; Durkin, Gary M.; and Macriss, Robert A., 4,333,524, Cl. 165-104.160.

Sova, Stanley G.: *See—*
Civardi, Frank P.; Sova, Stanley G.; and Getting, Milan J., 4,333,786, Cl. 156-306.600.

Speakman, John G.; and Wilkinson, Nicholas P., to BP Chemicals Limited; and University of Nottingham, The. Olefin polymerization catalyst, process and polyolefin product. 4,333,851, Cl. 252-429.00B.

Spease, Arthur L., to Teleflex Incorporated. Remote control (swivel joint). 4,333,361, Cl. 74-501.00P.

Speidel & Keller GmbH & Co. KG: *See—*
Bramm, Guenter; and Novak, Pavel, 4,334,180, Cl. 318-687.000.

Spencer, Gerald: *See—*
Strawson, Kenneth H.; and Spencer, Gerald, 4,333,895, Cl. 264-24.000.

Speranza, Donald: *See—*
Hoppie, Lyle O.; and Speranza, Donald, 4,333,553, Cl. 192-4.00A.

Sperry Corporation: *See—*
Greiner, James G.; Lehman, Joseph J.; and Priepke, Edward H., 4,333,304, Cl. 56-119.000.
Grimes, Terrence L.; and Swartz, Harold L., 4,334,179, Cl. 318-661.000.
Katagi, Kazuo, 4,334,223, Cl. 343-5.00W.
Kelley, Michael R.; Emfinger, Jack E.; and Dassele, Michael A., 4,334,222, Cl. 340-870.290.
Wong, Wilson T. C., 4,334,284, Cl. 364-748.000.

Sperry Rand Corporation: *See—*
Wiedenman, Gregory B.; and Marsh, Phillip W., 4,334,287, Cl. 364-900.000.

Spin Physics, Inc.: *See—*
Lemke, James U., 4,334,247, Cl. 360-10.000.

Spooner, Allan: *See—*
Chan, James K.; May, Curtis L.; and Spooner, Allan, 4,334,244, Cl. 358-166.000.

Spry, Douglas O., to Eli Lilly and Company. Cephalosporin vinyl halides. 4,334,063, Cl. 544-28.000.

Spry, Douglas O., to Eli Lilly and Company. Cephalosporin vinyl halides. 4,334,064, Cl. 544-30.000.

SPS Technologies, Inc.: *See—*
Aspers, Arthur J., 4,333,220, Cl. 29-407.000.

Srivastava, Gopal K., to Zenith Radio Corporation. Pulse width limiter. 4,334,243, Cl. 358-153.000.

SS Pharmaceutical Co., Ltd.: *See—*
Miyamura, Sadao, 4,334,025, Cl. 435-253.000.

Stainless Steel Sinks, Inc.: *See—*
Jensen, Harald W., deceased; and Jensen, Christen V., 4,333,188, Cl. 4-514.000.

Stamires, Dennis: *See—*
Lim, John; Brady, Michael; and Stamires, Dennis, 4,333,857, Cl. 252-455.00Z.

Stamp, Custis L., Jr.; and Herzog, Rollie R., to General Electric Company. Automatic control apparatus for a heat pump system. 4,333,316, Cl. 62-126.000.

Standard Oil Company, The: *See—*
Milberger, Ernest C.; Bremer, Noel J.; and Dria, Dennis E., 4,333,853, Cl. 252-435.000.
Velenyi, Louis J.; and Krupa, Andrew S., 4,334,116, Cl. 585-440.000.

Standard Oil Company (Indiana): *See—*
Basalay, Robert J.; and Udelhofen, John H., 4,334,085, Cl. 564-367.000.
Myerholtz, Carl A.; and Myerholtz, Ralph W., Jr., 4,333,336, Cl. 73-56.000.
Rogan, John B.; and Morris, Robert V., 4,334,047, Cl. 526-138.000.

Stansbury, LeRoy, Jr.; and Donovan, William F., to United States of America, Army. Primer device. 4,333,383, Cl. 89-7.000.

Steel Web Corporation: *See—*
Jackson, Edgar D., 4,333,293, Cl. 52-692.000.

Stefiuk, John. System and methods with scavenging capabilities for simultaneously filling and evacuating a plurality of separate pressure vessels. 4,333,503, Cl. 141-8.000.

Stehman, Harold E.; and Daniels, Herbert E., to General Electric Company. X-Ray tube grid bias supply. 4,334,153, Cl. 250-405.000.

Stein, Gunter: *See—*
Lohner, Ingolf; Barnert, Konrad; and Stein, Gunter, 4,333,437, Cl. 123-502.000.

Steinbeck, Hermann: *See—*
Neef, Gunter; Eder, Ulrich; Haffer, Gregor; Sauer, Gerhard; Wiechert, Rudolf; and Steinbeck, Hermann, 4,333,928, Cl. 424-243.000.

Steinberg, Hyman. Solar alignment device. 4,333,704, Cl. 350-96.100.

Stemen, Michael J., to Continental Group, Inc., The. Crimped-on drum cover handle. 4,333,599, Cl. 229-5.700.

Sterling Drug Inc.: *See—*
Margulies, Herman, 4,333,457, Cl. 128-218.00R.
Margulies, Herman; and Webb, William G., 4,333,458, Cl. 128-218.00R.
Webb, William G., 4,333,456, Cl. 128-218.00R.

Steuernagel, Hans H.; Hoyer, Ernst; and Meininger, Fritz, to Hoechst Aktiengesellschaft. Process for the preparation of sulfuric acid semiester ethylsulfonyl compounds of aminophenols, aminobenzanilides or phenylpyrazolones by esterification with sulfuric acid and/or sulfur trioxide in a kneader. 4,334,076, Cl. 548-375.000.

Stevenson, Charles F., to Rinn Corporation. Multipurpose dental X-ray film mount arrangement. 4,333,254, Cl. 40-158.00B.

Steward, David L.: *See—*
Baratz, Brenda S.; Phillips, Robert A.; and Steward, David L., 4,333,941, Cl. 424-267.000.

Stewart, Robert D.; and Gamble, Robert L., to Foster Wheeler Energy Corporation. Fluidized bed boiler utilizing precalcination of acceptors. 4,333,909, Cl. 422-141.000.

Still, Thomas W.; and Sherlock, William H. Device for improving the fuel-gas air mixture and the operation of an internal combustion engine. 4,333,441, Cl. 123-590.000.
Stockli, Andre; Castaneda, Fernando; and Stockli, Jean-Louis. Method of making boots for aquatic activities. 4,333,192, Cl. 12-142.00E.
Stockli, Jean-Louis: *See—*
Stockli, Andre; Castaneda, Fernando; and Stockli, Jean-Louis, 4,333,192, Cl. 12-142.00E.
Stokes, Vijay K., to General Electric Company. Washing machine. 4,333,323, Cl. 68-171.000.
Stoller, Keith A.: *See—*
Baumgartner, Kenneth A.; Melocik, Grant C.; and Stoller, Keith A., 4,334,176, Cl. 318-102.000.
Stolz, Hans-Peter: *See—*
Bartels, Hermann; Mez, Hans-Christian; Huber, Walter; and Stolz, Hans-Peter, 4,333,356, Cl. 73-864.210.
Stottman, Richard L.; and Smith, Peter H., to General Electric Company. Apparatus for thawing frozen food. 4,333,521, Cl. 165-63.000.
Stowe, Michael W.: *See—*
Wyland, Donald J.; and Stowe, Michael W., 4,333,825, Cl. 209-223.00A.
Strange, Robert R. Mold bottom and stool protector construction. 4,333,630, Cl. 249-135.000.
Strawson, Kenneth H.; and Spencer, Gerald, to National Research Development Corp. Apparatus for moulding magnet compacts. 4,333,895, Cl. 264-24.000.
Street, Peter C., to Tenneco Chemicals, Inc. Chemical compositions useful as paper sizing agents and method of making same. 4,333,795, Cl. 162-168.00N.
Strickland, James K., to Strickland Systems, Inc. Concrete form support structure. 4,333,289, Cl. 52-364.000.
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Strolle, Clifford H., to Du Pont de Nemours, E. I., and Company. Oxazoline diesters. 4,334,075, Cl. 548-239.000.
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Slingsby, Barry, 4,334,126, Cl. 179-18.0ES.
Strouse, Joseph: Collapsible core plate construction. 4,333,616, Cl. 242-72.00R.
Stuckler, Gerd. Insertion machine for integrated circuits. 4,333,586, Cl. 221-106.000.
Sturm, Elmar; and Nyfeler, Robert, to Ciba-Geigy Corporation. 1H-Inden-1-one derivatives, their use in microbicidal compositions, and for combating microorganisms. 4,333,949, Cl. 424-300.000.
Sturm, Werner. Method and apparatus for joining thermoplastic line elements. 4,334,146, Cl. 219-492.000.
Suetsch, Franz: *See—*
Ruettiger, Wilhelm; Suetsch, Franz; and Wuerz, Albrecht, 4,333,190, Cl. 8-151.000.
Sugioka, Masumi; and Ogawa, Norihiro, to Asahi Malleble Iron Co., Ltd. Speed-shift apparatus for sheet winch. 4,333,362, Cl. 74-812.000.
Sugiura, Taku; Fukuoka, Katsuya; Inoue, Tomihiko; Kanbe, Masayoshi; and Iwama, Toshio, to Yahagi Iron Co., Ltd. Method of quickly predicting the degree of nodularity of spheroidal graphite cast iron from a molten iron sample. 4,333,512, Cl. 164-453.000.
Sugiura, Yoji: *See—*
Yoshida, Syozo; and Sugiura, Yoji, 4,333,721, Cl. 354-234.000.
Suling, Carlhans: *See—*
Konig, Joachim; and Suling, Carlhans, 4,334,046, Cl. 526-93.000.
Sullivan, Richard W.; and Nguyen, Tuan A., to Ball Corporation. Apparatus and method for drying can closures. 4,333,246, Cl. 34-23.000.
Sulzer Brothers Limited: *See—*
Hintsch, Otto, 4,333,501, Cl. 139-1.00R.
Sumitomo Electric Industries, Ltd.: *See—*
Hara, Akio, 4,333,902, Cl. 264-320.000.
Tsuji, Kazuo; Yazu, Shuji; and Hara, Akio, 4,333,986, Cl. 428-402.000.
Sumitomo Heavy Industries, Ltd.: *See—*
Iwamura, Seiji; and Tanaka, Hiromi, 4,333,751, Cl. 55-390.000.
Sun Electric Corporation: *See—*
Marten, John A., 4,333,337, Cl. 73-114.000.
Sunbeam Plastics Corporation: *See—*
Bush, Randall G., 4,333,589, Cl. 222-402.110.
Suzuki, Naoyoshi: *See—*
Shimada, Yukio; Suzuki, Naoyoshi; Ohashi, Toshio; and Inoshita, Yasushi, 4,333,606, Cl. 237-12.30A.
Suzuki, Ryoichi; and Uchiyama, Takashi, to Canon Kabushiki Kaisha. Stop control device. 4,333,720, Cl. 354-227.000.
Suzuki, Ryoichi; Uchiyama, Takashi; Hosoe, Kazuya; and Tsunekawa, Tokuichi, to Canon Kabushiki Kaisha. Display arrangement employing a multi-element light-emitting diode. 4,334,220, Cl. 340-753.000.
Suzuki, Takashi; Sawada, Hidekazu; and Asai, Tsunetomo, to Takeda Chemical Industries, Ltd. Method for producing mildiomycin. 4,334,022, Cl. 435-119.000.
Suzuki, Tameyuki; and Kubo, Akira, to Shinto Paint Co., Ltd. Reverse coating process. 4,333,807, Cl. 204-181.00T.
Swain, Richard S.: *See—*
Moore, Douglas R.; and Swain, Richard S., 4,333,376, Cl. 84-1.270.
Swanger, Lee A., to Gould Inc. Bearing material and method of making. 4,333,215, Cl. 29-149.50S.
Swanson, Guy J.; and Swanson, Morton C. Agricultural tool carrier. 4,333,534, Cl. 172-464.000.
Swanson, Morton C.: *See—*
Swanson, Guy J.; and Swanson, Morton C., 4,333,534, Cl. 172-464.000.
Swartz, Harold L.: *See—*
Grimes, Terrence L.; and Swartz, Harold L., 4,334,179, Cl. 318-661.000.
Sweeney, George A.: *See—*
Wing, Phillip L.; and Sweeney, George A., 4,333,843, Cl. 252-75.000.
Sweeney, William T.: *See—*
Beck, Jeffrey L.; and Sweeney, William T., 4,333,499, Cl. 137-812.000.
Sweigart, Robert L., Jr., to Associated Plastics, Inc. Mechanism for locking two halves of an underground vault. 4,333,580, Cl. 220-5.00A.
Swiss Aluminium Ltd.: *See—*
Bloeck, Siegfried; Hofling, Erich; Luthi, Rudolf; and Diemi, Werner, 4,333,582, Cl. 220-66.000.
Sybron Corporation: *See—*
Kocache, Riad M. A.; and Holman, Danny F., 4,333,811, Cl. 204-195.00S.
Szabo, Gabor: *See—*
Toke, Laszlo; Szabo, Gabor T.; Szabo, Gabor; Nagy, Lajos; and Rusznak, Istvan, 4,334,103, Cl. 568-631.000.
Szabo, Gabor T.: *See—*
Toke, Laszlo; Szabo, Gabor T.; Szabo, Gabor; Nagy, Lajos; and Rusznak, Istvan, 4,334,103, Cl. 568-631.000.
Szonn, Bodo: *See—*
Muller, Heinz; Jauchen, Peter; Szonn, Bodo; and Schulze, Rolf, 4,333,449, Cl. 128-155.000.
Tachibana, Kanji: *See—*
Karino, Kimiji; Osawa, Tadao; Nagano, Masami; Sakuma, Tokihiko; Kanazawa, Yuiti; Kuroha, Tunemitu; and Tachibana, Kanji, 4,333,890, Cl. 261-41.00D.
Tachikawa, Hiromichi: *See—*
Kitajima, Masao; Tachikawa, Hiromichi; Shinozaki, Fumiaki; and Ikeda, Tomoaki, 4,334,006, Cl. 430-254.000.
Tack, Carl E.; and Guins, Sergei G., to TransDyne, Inc. Retainer railway car truck bolster spring. 4,333,403, Cl. 105-197.00R.
Tacke, Michael: *See—*
Dorr, Karl H.; Diekmann, Helmut; Grimm, Hugo; Sander, Ulrich; Tacke, Michael; and Weber, Waldemar, 4,333,917, Cl. 423-522.000.
Tada, Naofumi; Kimura, Hiroshi; and Ogata, Hisanao, to Hitachi, Ltd. Internal cooling type superconductor. 4,334,123, Cl. 174-15.00S.
Taffer, Brenda W. Feed control system for automatic fastener drivers. 4,333,367, Cl. 81-430.000.
Taga, Yutaka; and Morisawa, Kunio, to Toyota Jidosha Kogyo Kabushiki Kaisha. Lubricating oil transfer construction in an automatic transmission for vehicles. 4,333,359, Cl. 74-467.000.
Tager, Steven E. Compensatory-corrective orthopedic foot devices. 4,333,472, Cl. 128-581.000.
Taisho Pharmaceutical Co., Ltd.: *See—*
Tamai, Masaharu; Adachi, Takashi; Morimoto, Shigeo; Oguma, Kiyoshi; Hanada, Kazunori; and Omura, Sadafumi, 4,333,879, Cl. 549-549.000.
TAK PLAST Company: *See—*
Marinelli, Lamberto, 4,333,247, Cl. 36-11.500.
Takagi, Hidehiko; Hayashi, Hisao; Ogawa, Kazuo; and Kanaya, Yoshihiro, to Rinnai Kabushiki Kaisha. Arrangement for cooking either with a heat source or a microwave source. 4,334,137, Cl. 219-10.55F.
Takahashi, Michiko: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,334,234, Cl. 346-140.00R.
Takaishi, Takeo: *See—*
Maki, Hiroya; Furusawa, Taketoshi; and Takaishi, Takeo, 4,333,908, Cl. 422-61.000.
Takami, Satoshi; Hagiwara, Teruo; Kando, Toru; and Kuroki, Yoshifumi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Multiple flash adaptor. 4,333,719, Cl. 354-132.000.
Takao, Hisashi: *See—*
Shimizu, Yasuo; Takao, Hisashi; Asano, Shoji; Shimada, Shuya; and Kikkawa, Kazutoshi, 4,334,066, Cl. 544-149.000.
Takatori, Yasushi: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,334,234, Cl. 346-140.00R.
Takeda Chemical Industries, Ltd.: *See—*
Suzuki, Takashi; Sawada, Hidekazu; and Asai, Tsunetomo, 4,334,022, Cl. 435-119.000.
Takemura, Yasuhiko: *See—*
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Takenaka, Shigeo; Hamano, Eizaburou; and Koshigoe, Shinpei, to Tokyo Shibaura Denki Kabushiki Kaisha. Electron gun structure. 4,334,169, Cl. 313-414.000.
Taketomi, Bunsaku. Sewing machine. 4,333,410, Cl. 112-162.000.
Takeuchi, Hiroshi: *See—*
Ito, Yukio; Nagatsuma, Kazuyuki; Jyomura, Sigeru; Ashida, Sakichi; and Takeuchi, Hiroshi, 4,333,842, Cl. 252-62.900.
Takeuchi, Osamu; Aoki, Kiyoshi; and Fujii, Yuichi, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Method and apparatus for compensating for local temperature difference of steel product. 4,333,777, Cl. 148-128.000.
Talon, Inc.: *See—*
Orr, David A.; Gala, Hiren S.; and Scagnelli, George J., 4,333,232, Cl. 29-767.000.
Tamai, Masaharu; Adachi, Takashi; Morimoto, Shigeo; Oguma, Kiyoshi; Hanada, Kazunori; and Omura, Sadafumi, to Taisho Pharmaceu-

tical Co., Ltd. Epoxysuccinic acid derivatives. 4,333,879, Cl. 549-549.000.
Tamanaga, Shinichi: *See—*
Koizumi, Hajime; Toyama, Kozo; Kobayashi, Mikio; Hatano, Hajime; Saeki, Toshio; Mizukoshi, Kaoru; Tamanaga, Shinichi; Miyakawa, Keizo; and Kato, Tomoyasu, 4,333,285, Cl. 52-252.000.
Tamura, Masuhiko: *See—*
Matsumoto, Mitsuo; and Tamura, Masuhiko, 4,334,042, Cl. 525-339.000.
Yoshimura, Noriaki; and Tamura, Masuhiko, 4,334,117, Cl. 585-509.000.
Tamura, Shuichi, to Canon Kabushiki Kaisha. Camera having focus detection device. 4,333,717, Cl. 354-25.000.
Tanaka, Hiroichiro; and Nagatani, Yasuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Digital speed control method and apparatus. 4,334,175, Cl. 318-66.000.
Tanaka, Hiromi: *See—*
Iwamura, Seiji; and Tanaka, Hiromi, 4,333,751, Cl. 55-390.000.
Tanaka, Kimio: *See—*
Ishida, Toshihiko; and Tanaka, Kimio, 4,333,620, Cl. 242-199.000.
Tanaka, Motomichi, to Nippon Electric Co., Ltd. Pre-detection maximal ratio combining system for diversity reception of radio frequency signals. 4,334,316, Cl. 455-139.000.
Tanaka, Takanori: *See—*
Morishita, Masanobu; and Tanaka, Takanori, 4,334,238, Cl. 358-43.000.
Tanaka, Toshiaki; and Etoh, Yukihiro, to Nissan Motor Company, Limited. Internal combustion engine. 4,333,428, Cl. 123-198.00F.
Tanca, Michael C., to Combustion Engineering, Inc. Soot blower using fuel gas as blowing medium. 4,333,742, Cl. 48-77.000.
Tani Saw Mfg. Co., Ltd.: *See—*
Matsuda, Eiji, 4,333,371, Cl. 83-169.000.
Tarman, Paul B.: *See—*
Chynoweth, David P.; and Tarman, Paul B., 4,334,026, Cl. 435-163.000.
Tasedan, Robert T. Combination sand-blasting and vacuum apparatus. 4,333,277, Cl. 51-425.000.
Taub, Rae: *See—*
Buhs, Rudolf P.; Jacob, Theodore A.; Miwa, Gerald; Sestokas, Elena; Taub, Rae; and Walsh, John S., 4,333,925, Cl. 424-181.000.
Taylor, Donald F. Automatic dump valve. 4,333,828, Cl. 210-113.000.
Taylor, John A.: *See—*
Porter, Christopher H.; and Taylor, John A., 4,333,906, Cl. 264-40.300.
Taylor, William T. Downhole fishing jar mechanism. 4,333,542, Cl. 175-299.000.
TDK Electronics Co., Ltd.: *See—*
Ishida, Toshihiko; and Tanaka, Kimio, 4,333,620, Cl. 242-199.000.
Technicon Instruments Corporation: *See—*
Carney, James A.; and McGregor, Adrienne R., 4,333,918, Cl. 424-1.000.
Tedeschi, Robert J., to Air Products and Chemicals, Inc. Process for preparing halovinyl cyclopropane carboxylic acid salts. 4,334,091, Cl. 562-506.000.
Teitin Limited: *See—*
Urasaki, Takanori; Hirabayashi, Yasuji; Ogasawara, Makoto; and Inata, Hiroo, 4,333,907, Cl. 264-290.200.
Tektronix, Inc.: *See—*
Shores, David H., 4,334,201, Cl. 333-202.000.
Theus, John G., 4,334,250, Cl. 360-45.000.
Telectronics Pty. Ltd.: *See—*
Jeffcoat, Keith W.; and Wickham, Geoffrey G., 4,333,469, Cl. 128-419.00F.
Teleflex Incorporated: *See—*
Spease, Arthur L., 4,333,361, Cl. 74-501.00P.
Telefonaktiebolaget L M Ericsson: *See—*
Ekdahl, Per A. A.; and Moller, Fred L., 4,334,257, Cl. 361-119.000.
Tenneco Chemicals, Inc.: *See—*
Street, Peter C., 4,333,795, Cl. 162-168.00N.
Terrell, Ross C.; and Hansen, Kirsten, to Airco, Inc. Method for the dehalogenation of ethers. 4,334,105, Cl. 568-682.000.
Te-Son, Chen: *See—*
Pin-Huang, Lin, 4,333,259, Cl. 46-132.000.
Texaco Inc.: *See—*
Brown, William F.; and Bieber, Albert G., 4,333,824, Cl. 208-326.000.
Hammond, Kenneth G., 4,334,109, Cl. 568-841.000.
Knifton, John F., 4,334,092, Cl. 562-517.000.
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Texas Instruments Incorporated: *See—*
Boulanger, Henry J.; and McGuirk, Andrew C., 4,334,210, Cl. 337-343.000.
McDonald, Wylie W., 4,334,280, Cl. 364-710.000.
Mings, Joe D., 4,334,256, Cl. 361-56.000.
Ponder, James E., 4,334,293, Cl. 365-190.000.
Ulug, Mehmet E., 4,334,306, Cl. 370-94.000.
Textron, Inc.: *See—*
Drees, Jan M.; Dooley, Larry W.; and Neathery, William D., 4,333,728, Cl. 416-134.00A.
Howe, Ralph S., Jr., 4,333,694, Cl. 308-187.200.
Zeanwick, Ernest J., 4,333,745, Cl. 55-97.000.
Thermoplastics Incorporated: *See—*
Munoz, Donald L.; Grote, Daniel A.; Bronder, David G.; and Weis, Gerald J., 4,333,678, Cl. 296-39.00R.
Theurer, Kurt: *See—*
Decker, Wilmot H.; and Theurer, Kurt, 4,334,102, Cl. 568-621.000.
Theus, John G., to Tektronix, Inc. MFM data encoder with write precompensation. 4,334,250, Cl. 360-45.000.
Thieman, Graham F.: *See—*
Arthur, James C.; and Thieman, Graham F., 4,333,672, Cl. 285-382.200.
Thies, Edward J.; and Michlin, Norman, to Michlin Chemical Corporation. Adsorbent cartridge for the exhaust of diazo process machines. 4,333,752, Cl. 55-387.000.
Thinschmidt, Hans; and Scheiterer, Eduard, to Siemens Aktiengesellschaft. Test facility for error diagnosis in multi-computer systems, particularly in multi-micro-computer systems. 4,334,308, Cl. 371-29.000.
Thirouard, Michel: *See—*
Arquie, Louis; Bricot, Claude; Lehureau, Jean-Claude; Thirouard, Michel; Le Merer, Jean-Pierre; and Leterme, Dominique, 4,334,300, Cl. 369-46.000.
Thomas, James S.: *See—*
Boney, Joel F.; Rupp, Edward J., II; and Thomas, James S., 4,334,268, Cl. 364-200.000.
Thomas, Ronald; and Smith, Donald H., to Thomas, Ronald. Combined A.C./D.C. electric lawn mower. 4,333,302, Cl. 56-10.500.
Thome, David G.: *See—*
Sciaraffa, Michael A.; Thome, David G.; and Vogt, Clifford M., 4,333,979, Cl. 428-179.000.
Thomson-Brandt: *See—*
Tinet, Claude; and Lemonon, Claire, 4,334,007, Cl. 430-270.000.
Thomson-CSF: *See—*
Arquie, Louis; Bricot, Claude; Lehureau, Jean-Claude; Thirouard, Michel; Le Merer, Jean-Pierre; and Leterme, Dominique, 4,334,300, Cl. 369-46.000.
Dubois, Jean-Claude; Zann, Annie; Billard, Jean; and Hareng, Michel, 4,333,709, Cl. 350-350.00R.
Thorborg, Kjeld, to ASEA Aktiebolag. Thyristor inverter with inverter bridge and common turn-off circuit for inverter thyristors. 4,334,265, Cl. 363-72.000.
Thorsteinson, Erlind M.: *See—*
Decker, Harry J.; and Thorsteinson, Erlind M., 4,333,858, Cl. 252-455.00R.
Thrush Incorporated: *See—*
Roberts, Peter, 4,333,545, Cl. 181-282.000.
Thumm, Heinz, to Thumm Olhydraulische Antriebe GmbH, Firma. Rotational mechanism for an excavator grab bucket. 4,333,676, Cl. 294-88.000.
Thumm Olhydraulische Antriebe GmbH, Firma: *See—*
Thumm, Heinz, 4,333,676, Cl. 294-88.000.
Thurow, Russel E. Chimney cleaner. 4,333,200, Cl. 15-243.000.
Tinet, Claude; and Lemonon, Claire, to Thomson-Brandt. Process of making an optically recordable and readable information carrier and the carrier obtained by this process. 4,334,007, Cl. 430-270.000.
Tire-Tronics, Inc.: *See—*
Frazier, John D.; Grandfield, Wilmur G.; and Brainerd, Michael G., 4,334,215, Cl. 340-539.000.
Tkac, Alexander; and Cvengros, Jan, to Slovenska vysoka skola technicka. Method of treating waste engine oils. 4,333,822, Cl. 208-184.000.
TMC Corporation: *See—*
Leichtfried, Friedrich; and Himmetsberger, Alois, 4,333,667, Cl. 280-605.000.
Todd, Michael A. Capsule for storing written information. 4,333,562, Cl. 206-37.000.
Toke, Laszlo; Szabo, Gabor T.; Szabo, Gabor; Nagy, Lajos; and Ruszнak, Istvan, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. Process for heterogeneous nucleophilic substitution reactions. 4,334,103, Cl. 568-631.000.
Tokiwa Chemical Industries, Limited: *See—*
Nakai, Tadanobu, 4,333,471, Cl. 128-505.000.
Tokuse, Masahiro: *See—*
Iwai, Tadashi; Kawahito, Takashi; and Tokuse, Masahiro, 4,333,915, Cl. 423-324.000.
Iwai, Tadashi; Kawahito, Takashi; and Tokuse, Masahiro, 4,333,916, Cl. 423-371.000.
Tokyo: *See—*
Watanabe, Kenkichi, 4,333,296, Cl. 53-64.000.
Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Murakami, Teruo, 4,334,233, Cl. 346-135.100.
Takenaka, Shigeo; Hamano, Eizaburou; and Koshigoe, Shinpei, 4,334,169, Cl. 313-414.000.
Tanaka, Hiroichiro; and Nagatani, Yasuo, 4,334,175, Cl. 318-66.000.
Tomori, Yasumasa, to Asahi Kogaku Kogyo Kabushiki Kaisha. Change-over device for zoom lens. 4,333,712, Cl. 350-430.000.
Toray Industries, Incorporated: *See—*
Okamoto, Miyoshi; and Fushida, Mineto, 4,333,976, Cl. 428-91.000.
Toriu, Jirou, to Mitsubishi Denki Kabushiki Kaisha. Magnetic recording and reproducing head arrangement. 4,334,252, Cl. 360-104.000.
Towers, Frederic C. Securities valuation system. 4,334,270, Cl. 364-300.000.
Towmotor Corporation: *See—*
Baumgartner, Kenneth A.; Melocik, Grant C.; and Stoller, Keith A., 4,334,176, Cl. 318-102.000.
Toyama, Kozo: *See—*
Koizumi, Hajime; Toyama, Kozo; Kobayashi, Mikio; Hatano, Hajime; Saeki, Toshio; Mizukoshi, Kaoru; Tamanaga, Shinichi; Miyakawa, Keizo; and Kato, Tomoyasu, 4,333,285, Cl. 52-252.000.

Toyo Engineering Corporation: *See—*
Konoki, Keizo; Nobue, Michio; Fukui, Akito; and Inoue, Shigeru, 4,334,096, Cl. 564-72.000.
Toyo Seikan Kaisha, Limited: *See—*
Matsuno, Kenji; and Funamoto, Hiroyuki, 4,334,138, Cl. 219-64.000.
Toyo Soda Manufacturing Co., Ltd.: *See—*
Koyama, Kenji; Ohno, Syotaro; and Fukuda, Mitsutoshi, 4,333,870, Cl. 260-112.00B.
Toyoda Gosei Co., Ltd.: *See—*
Hayashi, Keizo, 4,333,221, Cl. 29-413.000.
Toyoda, Kenichi: *See—*
Inaba, Seiuemon; Shimajiri, Tokiji; and Toyoda, Kenichi, 4,333,363, Cl. 74-826.000.
Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Shirai, Kenji, 4,333,550, Cl. 188-72.200.
Taga, Yutaka; and Morisawa, Kunio, 4,333,359, Cl. 74-467.000.
Trade Finance International: *See—*
Sorensen, Jens O., 4,333,312, Cl. 60-641.700.
Trailigaz, Compagnie Generale de l'Ozone: *See—*
Werner, Brandin, 4,333,834, Cl. 210-219.000.
Tran, Danh C.; Macedo, Pedro B.; Simmons, Joseph H.; Simmons, Catherine J.; and Lagakos, Nicholas, to Macedo, P. B.; and Litovitz, T. A. Fixation by anion exchange of toxic materials in a glass matrix. 4,333,847, Cl. 252-629.000.
TransDyne, Inc.: *See—*
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Trefilunion S.A.: *See—*
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Trenkle, Robert W.: *See—*
Mookherjee, Braja D.; Trenkle, Robert W.; Wilson, Richard A.; Schmitt, Frederick L.; Vock, Manfred H.; Granda, Edward J.; Vinals, Joaquin; Kiwala, Jacob; and Schreiber, William L., 4,334,098, Cl. 568-347.000.
Trio Kabushiki Kaisha: *See—*
Otao, Kazumasa, 4,334,197, Cl. 330-268.000.
Trzecieski, Jan, to Kirk Chemicals. Creamy milk ice cream and process for the production thereof. 4,333,953, Cl. 426-34.000.
Trzecieski, Jan, to Kirk Chemicals. Soft ice cream and process for production thereof. 4,333,954, Cl. 426-41.000.
Tsubouchi, Natsuro: *See—*
Abe, Haruhiko; Nagatomo, Masao; Tsubouchi, Natsuro; Harada, Hiroshi; and Mitsuhashi, Junichi, 4,333,226, Cl. 29-576.00B.
Tsuchiya, Yukio: *See—*
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Tsuji, Kazuo; Yazu, Shuji; and Hara, Akio, to Sumitomo Electric Industries, Ltd. Diamond sintered compact wherein crystal particles are uniformly orientated in a particular direction and a method for producing the same. 4,333,986, Cl. 428-402.000.
Tsuji, Tatsumi: *See—*
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Tsujikawa, Teruaki: *See—*
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Tsunekawa, Tokuichi: *See—*
Sakane, Toshio; Hosoe, Kazuya; Tsunekawa, Tokuichi; Kinoshita, Takao; and Kawabata, Takashi, 4,333,716, Cl. 354-25.000.
Suzuki, Ryoichi; Uchiyama, Takashi; Hosoe, Kazuya; and Tsunekawa, Tokuichi, 4,334,220, Cl. 340-753.000.
Tu, Hosheng, to UOP Inc. Process for use of a high octane FCC catalysts. 4,333,821, Cl. 208-120.000.
Tubbs, Joseph T.: *See—*
Funcik, Jack F.; Bennet, Joseph C.; Tubbs, Joseph T.; and Schneider, Thomas E., 4,333,230, Cl. 29-749.000.
Tufts, Wesley M.: *See—*
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Tummers, Gerardus L. J.: *See—*
McNeely, Gerald W.; and Tummers, Gerardus L. J., 4,333,339, Cl. 116-217.000.
Turnbull, David F., to Burroughs Corporation. Disc eccentricity measuring means. 4,334,276, Cl. 364-561.000.
Turner, Milton; and Smith, Julian M. Recumbent vehicle. 4,333,664, Cl. 280-261.000.
Turney, William J.; and Piesinger, Gregory H., to Motorola, Inc. Circuit for automatic gain control with constant response time. 4,334,185, Cl. 323-280.000.
Tyree, Lewis, Jr. CO_2 Freezer. 4,333,318, Cl. 62-374.000.
UBE Industries, Ltd.: *See—*
Iwai, Tadashi; Kawahito, Takashi; and Tokuse, Masahiro, 4,333,915, Cl. 423-324.000.
Iwai, Tadashi; Kawahito, Takashi; and Tokuse, Masahiro, 4,333,916, Cl. 423-371.000.
Uchida, Motokazu: *See—*
Yanadori, Michio; Hasegawa, Kengo; and Uchida, Motokazu, 4,333,520, Cl. 165-59.000.
Uchida, Takashi: *See—*
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Uchiyama, Yasuji: *See—*
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Udelhofen, John H.: *See—*
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Uetani, Yoshio: *See—*
Ishida, Osamu; Uetani, Yoshio; and Matsushima, Seiichi, 4,333,995, Cl. 429-172.000.
Ueyanagi, Jisaburo: *See—*
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Uffner, William E., to Owens-Corning Fiberglas Corporation. Asphalt composition. 4,333,866, Cl. 524-534.000.
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Ulug, Mehmet E., to Texas Instruments Incorporated. Transparent intelligent network for data and voice. 4,334,306, Cl. 370-94.000.
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Colon, Ismael, 4,334,081, Cl. 560-130.000.
Decker, Harry J.; and Thorsteinson, Erlind M., 4,333,858, Cl. 252-455.00R.
Fuderer, Andrija, 4,333,744, Cl. 55-25.000.
Lee, Young-Jin, 4,334,112, Cl. 570-207.000.
Louzos, Demetrios V., 4,333,996, Cl. 429-191.000.
Urry, Lewis F., 4,333,994, Cl. 429-94.000.
Warren, Barbara K., 4,333,852, Cl. 252-429.00R.
United Kingdom Atomic Energy Authority: *See—*
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Agriculture: *See—*
Kurtzman, Ralph H., Jr., 4,333,757, Cl. 71-5.000.
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Blais, Marcel, 4,334,060, Cl. 536-35.000.
DeSantis, Charles M., 4,334,187, Cl. 324-58.00R.
Montgomery, Donald N., 4,333,386, Cl. 89-33.0SF.
Morrison, Clyde A.; and Sattler, Joseph P., 4,333,344, Cl. 73-584.000.
Rittenbach, Otto E., 4,334,194, Cl. 328-42.000.
Stansbury, LeRoy, Jr.; and Donovan, William F., 4,333,383, Cl. 89-7.000.
Energy: *See—*
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Vermeulen, Theodore; Grens, Edward A., II; and Holten, Ronald R., 4,333,815, Cl. 208-10.000.
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Boblett, Arthur P., 4,334,229, Cl. 343-767.000.
Bond, James W.; and Whitehouse, Harper J., 4,334,277, Cl. 364-703.000.
Davis, Sydney; and Malakhoff, Alexander, 4,333,413, Cl. 114-67.00A.
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McNelia, John F.; and Peterson, Carl R., 4,333,400, Cl. 102-348.000.
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Post, Sieghard, 4,334,208, Cl. 336-192.000.
Snijders, Wilfred A. M., 4,334,128, Cl. 179-170.200.
Wittekoek, Stefan; and Fahner, Theodorus A., 4,334,139, Cl. 219-121.0EW.
United States Shoe Corporation, The: *See—*
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United Technologies Corporation: *See—*
Arrigoni, John P., 4,333,239, Cl. 33-174.00C.
Gilden, Meyer; Cullen, Donald E.; and Grudkowski, Thomas W., 4,333,342, Cl. 73-516.00R.
Healy, Herbert C., 4,333,992, Cl. 429-17.000.
Slaughter, Edward R., 4,333,216, Cl. 29-157.00R.
Universal-Maschinenfabrik Dr. Rudolf Schieber GmbH & Co. KG: *See—*
Kuhnert, Gottfried, 4,333,320, Cl. 66-63.000.
University of Nottingham, The: *See—*
Speakman, John G.; and Wilkinson, Nicholas P., 4,333,851, Cl. 252-429.00B.
University of Rochester, The: *See—*
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UOP Inc.: *See—*
Antos, George J., 4,333,854, Cl. 252-439.000.
Antos, George J., 4,333,856, Cl. 252-441.000.
Coste, Angelo C., 4,333,818, Cl. 208-101.000.
Kulprathipanja, Santi; and Bloch, Herman S., 4,333,768, Cl. 127-46.200.
Kulprathipanja, Santi; and Neuzil, Richard W., 4,333,769, Cl. 127-46.200.
Neuzil, Richard W.; and Fergin, Richard L., 4,333,770, Cl. 127-46.300.
O'Brien, Dennis E., 4,333,817, Cl. 208-101.000.
Priegnitz, James W., 4,333,740, Cl. 44-56.000.
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Scheifele, Clifford A., Jr., 4,333,819, Cl. 208-101.000.
Scheifele, Clifford A., Jr., 4,333,820. Cl. 208-101.000.
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Winter, George R., III, 4,333,823, Cl. 208-325.000.

Upjohn Company, The: *See—*
Dai, Shenghong A., 4,334,106, Cl. 568-719.000.
Nelson, Stephen J., 4,333,883, Cl. 260-544.00C.

Uram, Robert, to Westinghouse Electric Corp. Combined cycle electric power plant with feedforward afterburner temperature setpoint control. 4,333,310, Cl. 60-39.18B.

Urasaki, Takanori; Hirabayashi, Yasuji; Ogasawara, Makoto; and Inata, Hiroo, to Teitin Limited. Biaxially oriented wholly aromatic polyester film. 4,333,907, Cl. 264-290.200.

Urry, Lewis F., to Union Carbide Corporation. Cell employing a coiled electrode assembly. 4,333,994, Cl. 429-94.000.

Utagawa, Giichi: *See—*
Iseya, Shigeo; and Utagawa, Giichi, 4,333,245, Cl. 33-438.000.

Utsch, Francis V.: *See—*
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Van Dyk & Company, Inc.: *See—*
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Van Baalen, Joseph M.: *See—*
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Vandenbossche, Jean-Jacques H.: *See—*
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Van De Puy, Michael; Anello, Louis G.; and Robinson, Martin A., to Allied Corporation. Preparation of hexafluoroacetone from hexafluorothioacetone dimer. 4,334,099, Cl. 568-386.000.

van der Burg, Willem J., to Akzona Incorporated. Antianxiety compositions of 10-hydroxy 1,2,3,4,10,14b-hexahydrodibenzo[c,f]pyrazino-1,2a azepines and a method of use thereof. 4,333,935, Cl. 424-250.000.

Vanderslice, James T.: *See—*
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Van Eenam, Donald N., to Monsanto Company. Substrate treating compositions. 4,333,971, Cl. 427-389.900.

Van Peppen, Jan F., to Allied Chemical Corporation. Catalytic purification of phenol. 4,334,107, Cl. 568-749.000.

Van Steenwyk, William E.: *See—*
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Varadhachary, Seevaram N.: *See—*
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Varel, Daniel W., to Varel Manufacturing Company. Method for manufacturing a rotary drill bit having a solid forged, unitary body. 4,333,364, Cl. 76-108.00A.

Varel Manufacturing Company: *See—*
Varel, Daniel W., 4,333,364, Cl. 76-108.00A.

Varosepitesi Tudomanyos es TervezoIntezet: *See—*
Plosz, Sandor; Babos, Katalin; Rozsavolgyi, Karoly; and Felfoldy, Lajos, 4,333,837, Cl. 210-602.000.

Varshney, Subhash C.: *See—*
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Vat Aktiengesellschaft fur Vakuum-Apparate-Technik: *See—*
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Vaughan, David E. W.; and Barrett, Michael G., to W. R. Grace & Co. High silica faujasite polymorph - CSZ-3 and method of synthesizing. 4,333,859, Cl. 252-455.00Z.

Vaughn, George A.; and Fuchs, Francis J., Jr., to AMF Incorporated. Racket string clamp. 4,333,649, Cl. 273-73.00D.

Veb Chemieanlagenbaukombinat Leipzig-Grimma: *See—*
Hoppe, Klaus; Muller, Jurgen; Keller, Jurgen; Kulbe, Bernd; Lessig, Klaus; Berlin, Christian; and Danke, Eckhard, 4,333,894, Cl. 261-96.000.

Veb Wirkmaschinenbau Karl-Marx-Stadt: *See—*
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Veit, Richard E.: *See—*
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Velenyi, Louis J.; and Krupa, Andrew S., to Standard Oil Company. Dehydrogenation using promoted molybdenum-copper-tin catalysts. 4,334,116, Cl. 585-440.000.

Verco Manufacturing, Inc.: *See—*
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Verhulst, Eduard M.: *See—*
Beck, Heinz; Frassek, Karl H.; Giezen, Egenius A.; and Verhulst, Eduard M., 4,334,038, Cl. 525-207.000.

Vermeulen, Theodore; Grens, Edward A., II; and Holten, Ronald R., to United States of America, Energy. Coal liquefaction in an inorganic-organic medium. 4,333,815, Cl. 208-10.000.

Vianova Kunstharz, A.G.: *See—*
Zuckert, Bertram, 4,333,864, Cl. 525-501.500.
Zuckert, Bertram, 4,333,865, Cl. 523-410.000.

Villari, Frank K.; and Cianci, James P., to Kendall Company, The. Urine receptacle with a tubular section to retain an antimicrobial agent. 4,333,480, Cl. 128-767.000.

Vinals, Joaquin: *See—*
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Vinther, Knud. Expansion element. 4,333,357, Cl. 74-110.000.

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Vock, Manfred H.: *See—*
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Vogt, Clifford M.: *See—*
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Patton, John T., Jr.; Vogt, Herwart C.; and Parekh, Manher, 4,334,052, Cl. 528-52.000.

Voith S.A.: *See—*
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Volkswagenwerk Aktiengesellschaft: *See—*
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Vortec Corporation: *See—*
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W. R. Grace & Co.: *See—*
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W. Schlafhorst & Co.: *See—*
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Wagner, Rudiger: *See—*
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Wahlco, Inc.: *See—*
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Wahling, Wilfried: *See—*
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Wajtkowicz, Joseph A., to Bethlehem Steel Corporation. Cutting-torch holder. 4,333,636, Cl. 266-68.000.

Wake, Kiyoyasu, to Miwa Lock Co., Ltd. Magnetic tumbler lock. 4,333,327, Cl. 70-276.000.

Walker, William B.: *See—*
Mueller, Wilfred; Inghram, Donald M.; and Walker, William B., 4,333,607, Cl. 239-13.000.

Walraet, Jean G.: *See—*
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Walsh, David A., to A. H. Robins Company, Inc. 2-Amino-6-biphenylacetic acids. 4,333,951, Cl. 424-319.000.

Walsh, John S.: *See—*
Buhs, Rudolf P.; Jacob, Theodore A.; Miwa, Gerald; Sestokas, Elena; Taub, Rae; and Walsh, John S., 4,333,925, Cl. 424-181.000.

Walther, Gerhard. Aquaria inlet means. 4,333,829, Cl. 210-169.000.

Wang, David N.: *See—*
Lifshitz, Nadia; Moran, Joseph M.; and Wang, David N., 4,333,793, Cl. 156-643.000.

Wang, Hsian. Multi-function closet stool. 4,333,184, Cl. 4-313.000.

Ward, James C., to Ward Outdoor Advertising. Advertising display apparatus. 4,333,255, Cl. 40-524.000.

Ward Outdoor Advertising: *See—*
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Warfel, David R.: *See—*
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Warner-Lambert Company: *See—*
Okajima, Yakutaro; and Sekigawa, Keiji, 4,333,957, Cl. 426-140.000.

Warren, Barbara K., to Union Carbide Corporation. Catalyst for the selective production of ethanol and methanol directly from synthesis gas. 4,333,852, Cl. 252-429.00R.

Wasik, Janice E.: *See—*
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Wasik, Ronald J.; and Wasik, Janice E. Pasta measurer. 4,333,241, Cl. 33-174.00T.

Watanabe, Isao: *See—*
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Watanabe, Kenkichi, to Tokyo. Coin wrapping machine. 4,333,296, Cl. 53-64.000.

Watanabe, Masatoshi: *See—*
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Watanabe, Masayoshi: *See—*
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Waters Associates, Inc.: *See—*
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Watkins, Bruce J., to Hughes Tool Company. Annulus valve. 4,333,526, Cl. 166-87.000.

Watt, Gordon J., to Kollmorgen Technologies Corporation. Method and apparatus for generating aspherical surfaces of revolution. 4,333,368, Cl. 82-1.00C.

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Weatherley, Laurence R.: *See—*
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Weaver, Frederick D.: *See—*
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Weaver, William J.: *See—*
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Webb, William G., to Sterling Drug Inc. Self-aspirating hypodermic syringe and self-aspirating assembly therefor. 4,333,456, Cl. 128-218.00R.

Webb, William G.: *See—*
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Weber, Karl-Heinz; Langbein, Adolf; Lehr, Erich; Boke, Karin; and Kuhn, Franz J., to Boehringer Ingelheim GmbH. 8-Halo-6-phenyl-4H-s-triazolo (3,4-c) thieno 1,4-diazepin-1-ones. 4,333,944, Cl. 424-269.000.

Weber, Waldemar: *See—*
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Weinar, Roger N. Walls and partitions and concealed fasteners for assembly thereof. 4,333,286, Cl. 52-281.000.

Weis, Gerald J.: *See—*
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Weisman, Roland E., to International Harvester Co. Automatic bucket leveler. 4,333,251, Cl. 37-118.00R.

Weissmueller, William R., to Zenith Radio Corporation. Sawtooth waveform generation for a television receiver. 4,334,174, Cl. 315-408.000.

Weithmann, Klaus U., to Hoechst Aktiengesellschaft. Pharmaceutical formulations containing prostaglandin. 4,333,948, Cl. 424-285.000.

Weldin, Karl D., to Epps, Jerre E., a part interest. Cassette tape dust cover. 4,333,568, Cl. 206-387.000.

Welebir, Andrew J. 1-Triacontanol plant growth stimulator formulations. 4,333,758, Cl. 71-80.000.

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Welter, Thomas N. H.: *See—*
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Wentworth, Alan W. Method of repairing a box beam. 4,333,218, Cl. 29-402.160.

Werner, Brandin, to Trailigaz, Compagnie Generale de l'Ozone. Device for dispersing a fluid in a liquid and in particular ozonized air in water. 4,333,834, Cl. 210-219.000.

Wertz, David H.: *See—*
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West, Joe E. Liquid inertia tool. 4,333,492, Cl. 137-119.000.

West, Laurice J. Method of image enhancement. 4,333,707, Cl. 350-144.000.

Western Electric Company, Inc.: *See—*
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Westinghouse Electric Corp.: *See—*
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WetCom Engineering Ltd.: *See—*
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Whalen, George J.: *See—*
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White, Dwain M., to General Electric Company. Arene polysulfonyl halide coupled block polymers of polyphenylene oxide and aromatic polyformals. 4,334,050, Cl. 525-390.000.

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Whitehouse, David J., to Rank Organisation Limited, The. Testing apparatus. 4,334,282, Cl. 364-728.000.

Whitehouse, Harper J.: *See—*
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Wickham, Geoffrey G.: *See—*
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Wiechert, Rudolf: *See—*
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Wiedenman, Gregory B.; and Marsh, Phillip W., to Sperry Rand Corporation. Buffer memory arrangement. 4,334,287, Cl. 364-900.000.

Wiedman, Francis W.: *See—*
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Wiedmann, Siegfried K.: *See—*
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Wiegner, Georg. Hygienic sanitary towel. 4,333,465, Cl. 128-290.00R.

Wild, Gene M.: *See—*
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Wilder, Arthur H.: *See—*
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Wilgood Corporation: *See—*
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Wilkinson, William H.; and Hanna, William T., to Battelle Development Corp. Process and system for boosting the temperature of sensible waste heat sources. 4,333,515, Cl. 165-1.000.

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Wilson, Richard A.: *See—*
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Winfield, Armand G.; and Winfield, Barbara L. Abrasion resistant impact absorbent animal stall floor and wall covering. 4,333,981, Cl. 428-215.000.

Winfield, Barbara L.: *See—*
Winfield, Armand G.; and Winfield, Barbara L., 4,333,981, Cl. 428-215.080.

Wing, Phillip L.; and Sweeney, George A., to Dow Chemical Company, The. Glycol compositions containing a hydrolyzate of an organo phosphorus-silicon compound. 4,333,843, Cl. 252-75.000.

Winter, George R., III, to UOP Inc. Corrosion inhibition in aromatic liquid extraction. 4,333,823, Cl. 208-325.000.

Winters, Robert E. Brake and clutch lock assembly. 4,333,326, Cl. 70-203.000.

Winwood, John M.: *See—*
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Wirkkala, Ben. Cable connector. 4,333,675, Cl. 294-78.00R.

Wistar Institute of Anatomy and Biology, The: *See—*
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Witte, Earl R., to Meridian Industries Inc. Protective sleeve for plants. 4,333,267, Cl. 47-84.000.

Wittekoek, Stefan; and Fahner, Theodorus A., to U.S. Philips Corporation. Apparatus for writing patterns in a layer on a substrate by means of a beam of electrically charged particles. 4,334,139, Cl. 219-121.0EW.

Wittkamp, Reinrich: *See—*
Nagel, Peter; Schoettle, Klaus; Wittkamp, Reinrich; and Hauck, Karl, 4,333,418, Cl. 118-106.000.
Wolcott, Duane K.; and Carraway, John B., Jr., to Dow Chemical Company, The. Analyzer for chemical oxidizing or reducing agents. 4,333,810, Cl. 204-195.00M.
Wolf, Ernest; and Amos, John, to Sky-Top Sunroofs Ltd. Vehicle sunroof installation. 4,333,680, Cl. 296-216.000.
Wolf, George: *See—*
Plotkin, George M.; and Wolf, George, 4,334,017, Cl. 435-7.000.
Wolf, Horst: *See—*
Krass, Ekkehard; and Wolf, Horst, 4,334,089, Cl. 562-463.000.
Wolf, Ronald J., to Wabash, Inc. Capacitor discharge ignition system and method of manufacture thereof. 4,333,442, Cl. 123-599.000.
Wollard Aircraft Equipment, Inc.: *See—*
Drozd, Otto, 4,333,194, Cl. 14-71.500.
Wong, Joseph. Collapsible hanger device. 4,333,575, Cl. 211-118.000.
Wong, Wilson T. C., to Sperry Corporation. Multiplier decoding using parallel MQ register. 4,334,284, Cl. 364-748.000.
Woodman, Daniel C., to Hughes Tool Company. Seal assembly releasing tool. 4,333,528, Cl. 166-117.500.
Woods, Larry N. Anti-static package for electronic chips. 4,333,565, Cl. 206-329.000.
Woods, Lee O.: *See—*
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Woodward, James C.; and Holland, Marion D., to Robbins, Robert E. Vacuum cleaner with soil agitator and compressed air means. 4,333,205, Cl. 15-345.000.
Wright, Fred R. Electronic latch for digitally actuating a load. 4,334,212, Cl. 340-347.0DA.
Wright, Harold A.; and Ingram, Alvin R., to Atlantic Richfield Company. Process for producing styrenic polymer beads of preferred bead size. 4,333,969, Cl. 427-222.000.
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Wu, Hann C., to Horng Meei Spring Enterprise Co. Ltd. Exercising apparatus with gas resistance. 4,333,645, Cl. 272-130.000.
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Wuerz, Albrecht: *See—*
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Wyland, Donald J.; and Stowe, Michael W., to Industrial Magnetics, Inc. Dump pit magnet assembly. 4,333,825, Cl. 209-223.00A.
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Xerox Corporation: *See—*
Green, Frederick A.; Simpson, George R.; Avery, Stephen T.; and Durbin, John A., 4,333,723, Cl. 355-71.000.
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Yajima, Seishi; Okamura, Kiyohito; and Shishido, Toetsu, to Yajima, Seishi. Heat resistant polyvanadiosiloxanes and a process for their production. 4,334,051, Cl. 528-25.000.
Yamada, Yasuyuki; Masuyama, Kenichi; and Kitamoto, Tatsuji, to Fuji Photo Film Co., Ltd. Magnetic recording media. 4,333,988, Cl. 428-425.900.
Yamaga, Eiichi: *See—*
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Yamane, Ichiro: *See—*
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Yamaoka, Yuusaku: *See—*
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Yamato, Noboru; and Satake, Tosimi, to Jujo Patper Co., Ltd. Heat-sensitive recording paper. 4,333,990, Cl. 428-531.000.
Yamato Refractives & Co.: *See—*
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Yanadori, Michio; Hasegawa, Kengo; and Uchida, Motokazu, to Hitachi, Ltd. Heating and cooling ventilating system with heat recovery. 4,333,520, Cl. 165-59.000.
Yanai, Akio: *See—*
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Yang, Chiu H.; and Hong, Zuu C. Apparatus for rapidly and continuously defoaming liquid material. 4,333,747, Cl. 55-178.000.
Yarian, Dean R., to Minnesota Mining and Manufacturing Company. Imaging compositions. 4,334,015, Cl. 435-1.000.
Yatsushiro, Kenji; and Kuchuris, George F., to Singer Company, The. Multi-speed permanent magnet motor. 4,334,164, Cl. 310-114.000.
Yazu, Shuji: *See—*
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Yeh, Keming W., to Xerox Corporation. Method of making a circular high voltage field effect transistor. 4,333,225, Cl. 29-571.000.
Yokota, Yukio: *See—*
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Yokoyama, Eiichi, to Sony Corporation. Apparatus for use in recording a pulse signal on a magnetic recording medium. 4,334,249, Cl. 360-30.000.
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Yonkers, Robert A., to Bissell, Inc. Conversion attachment for a wet-dry vacuum cleaner. 4,333,203, Cl. 15-321.000.
Yoshida, Hiroshi; Hagiwara, Isao; and Oodera, Shigeyuki, to Yoshida Kogyo K.K. Row of continuous slide fastener coupling elements and method of making the same. 4,333,903, Cl. 264-165.000.
Yoshida Kogyo K.K.: *See—*
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Yoshida, Syozo; and Sugiura, Yoji, to Canon Kabushiki Kaisha. Electromagnetically driven shutter. 4,333,721, Cl. 354-234.000.
Yoshida, Yasuharu, to Nippon Electric Co., Ltd. Phase synchronizing circuit for use in multi-level, multi-phase, superposition-modulated signal transmission system. 4,334,312, Cl. 375-20.000.
Yoshimura, Noriaki; and Tamura, Masuhiko, to Kuraray Co., Ltd. Process for producing alkadienes. 4,334,117, Cl. 585-509.000.
Young, Gerald T.; Easterling, Michael R.; and Dukeshire, Robert E., to Goodyear Tire & Rubber Company, The. Molding articles of thermoplastic rubber. 4,333,901, Cl. 264-85.000.
Young, Robert N.: *See—*
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Young, Rodney C.: *See—*
Durant, Graham J.; Ganellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., 4,333,946, Cl. 424-273.00R.
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Zahnradfabrik Friedrichshafen: *See—*
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Zahra, Frank G.; and Binder, Johann V. Weeder for row crops. 4,333,533, Cl. 172-155.000.
Zaidan Hojin Handotai Kenkyu Shinkokai: *See—*
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Zann, Annie: *See—*
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Zapfel, Horst: *See—*
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Zeanwick, Ernest J., to Textron, Inc. Workbench filtering station and method. 4,333,745, Cl. 55-97.000.
Zemelman, Valery B.; Kleiner, Fredric; and Kuchman, Michael J., to General Foods Corporation. Process for preparing a gasified ice product. 4,333,315, Cl. 62-1.000.
Zenith Radio Corporation: *See—*
Gabriel, Melvin E.; and Van Baalen, Joseph M., 4,334,173, Cl. 315-399.000.
Moore, Frederic J., 4,334,323, Cl. 455-179.000.
Rockwell, Robert G., 4,334,170, Cl. 315-16.000.
Srivastava, Gopal K., 4,334,243, Cl. 358-153.000.
Weissmueller, William R., 4,334,174, Cl. 315-408.000.
Zenmi Co., Ltd.: *See—*
Nakano, Tadao, 4,333,464, Cl. 128-290.00R.
Zero-Max Industries, Incorporated: *See—*
Landino, Paul J., 4,334,182, Cl. 318-808.000.
Ziering, Albert: *See—*
Berger, Leo; Plati, John T.; and Ziering, Albert, 4,334,078, Cl. 549-43.000.
Ziesche, Kurt: *See—*
Kopse, Odon; and Ziesche, Kurt, 4,333,436, Cl. 123-502.000.
Zimmerman, William T., to Du Pont de Nemours, E. I., and Company. Herbicidal sulfonamides. 4,333,760, Cl. 71-92.000.

Zine, Anthony R., Jr.: *See*—
Hertl, William; and Zine, Anthony R., Jr., 4,333,564, Cl. 206-216.000.
Zipp, Otmar: *See*—
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Zoecon Corporation: *See*—
Baer, Ted A.; and Labovitz, Jeffrey N., 4,334,087, Cl. 562-459.000.
Zucker, Friedrich J.; Osthaus, Georg; and Zucker-Kerbler, Doris, to Zucker, Friedrich Josef. Process for decomposing cells of biomasses or the like. 4,333,611, Cl. 241-1.000.
Zucker, Friedrich Josef: *See*—
Zucker, Friedrich J.; Osthaus, Georg; and Zucker-Kerbler, Doris, 4,333,611, Cl. 241-1.000.
Zucker-Kerbler, Doris: *See*—
Zucker, Friedrich J.; Osthaus, Georg; and Zucker-Kerbler, Doris, 4,333,611, Cl. 241-1.000.
Zuckert, Bertram, to Vianova Kunstharz, A.G. Process for producing improved alkyd resin emulsions. 4,333,864, Cl. 525-501.500.
Zuckert, Bertram, to Vianova Kunstharz, A.G. Aqueous emulsion of air drying and stoving alkyd resins and process for producing said resins. 4,333,865, Cl. 523-410.000.
Zukowski, Edward A., to El Paso Polyolefins Company. Two-phase ethylene-propylene block copolymerization process. 4,334,041, Cl. 525-53.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 8TH DAY OF JUNE, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Aktieselskabet Niro Atomizer: *See*—
Moller, Aage; and Straarup, Orla, Re. 30,963, Cl. 239-224.000.

Aladdin Industries, Incorporated: *See*—
Bridges, John A., Re. 30,962, Cl. 220-23.600.

Anderson, John S.; and Anderson, Virginia B. Scheduling board. Re. 30,959, Cl. 40-374.000.

Anderson, Virginia B.: *See*—
Anderson, John S.; and Anderson, Virginia B., Re. 30,959, Cl. 40-374.000.

Bridges, John A., to Aladdin Industries, Incorporated. Insulated trays for food or the like. Re. 30,962, Cl. 220-23.600.

Butner, Dean C.; and Clark, Douglas C., to R. J. Reynolds Tobacco Company. Package inspection and handling system. Re. 30,964, Cl. 209-536.000.

Clark, Douglas C.: *See*—
Butner, Dean C.; and Clark, Douglas C., Re. 30,964, Cl. 209-536.000.

Hitzman, Donald O., to Provesta Corporation. Fermentation of oxygenated hydrocarbon compounds with thermophilic microorganisms and microorganisms therefor. Re. 30,965, Cl. 435-68.000.

Moller, Aage; and Straarup, Orla, to Aktieselskabet Niro Atomizer. Atomizer wheel with wear-resistant, sintered bushings. Re. 30,963, Cl. 239-224.000.

NJM, Inc.: *See*—
White, Rollin T., Re. 30,958, Cl. 40-310.000.

Provesta Corporation: *See*—
Hitzman, Donald O., Re. 30,965, Cl. 435-68.000.

R. J. Reynolds Tobacco Company: *See*—
Butner, Dean C.; and Clark, Douglas C., Re. 30,964, Cl. 209-536.000.

Robbins, Roland W. Solar-energy-powered sun tracker. Re. 30,961, Cl. 126-425.000.

Sommer, Warren T. Central receiver solar collector using mechanically linked mirrors. Re. 30,960, Cl. 126-424.000.

Straarup, Orla: *See*—
Moller, Aage; and Straarup, Orla, Re. 30,963, Cl. 239-224.000.

White, Rollin T., to NJM, Inc. Package label and manufacture of same. Re. 30,958, Cl. 40-310.000.

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A & H Mfg. Co.: *See*—
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Aitkens, Dunbar C. Game board. 264,857, 6-8-82, Cl. D21-16.000.

American Commercial Inc.: *See*—
Blake, Alfred, 264,793, Cl. D7-18.000.

Anchor Hocking Corporation: *See*—
O'Toole, David M., 264,812, Cl. D9-385.000.
Potter, Jerald E., 264,813, Cl. D9-385.000.

Annand, George. Gripping and holding device. 264,805, 6-8-82, Cl. D8-107.000.

Augustsson, Nils E.; Westerlund, Kjell B.; and Stahl, Kay W., to Instrument AB Therados. Treatment couch top. 264,874, 6-8-82, Cl. D24-3.000.

Austin, John J., to Champion International Corporation. Sleeve blank for connecting containers. 264,817, 6-8-82, Cl. D9-433.000.

Azzalin, Ernesto. Console. 264,781, 6-8-82, Cl. D6-85.000.

Baker, Richard E. Used syringe receptacle. 264,879, 6-8-82, Cl. D24-31.000.

Barker, Roderick L. Mouse trap. 264,867, 6-8-82, Cl. D22-18.000.

Baumgartner, Albert, to SFS Stadler AG. Screw. 264,807, 6-8-82, Cl. D8-387.000.

Bausch & Lomb Incorporated: *See*—
Huckenbeck, Claus O., 264,851, Cl. D16-134.000.

Bean Station Furniture Factory, The: *See*—
Friedman, Alan H., 264,776, Cl. D6-63.000.

Beavers, James C. Fishing lure. 264,868, 6-8-82, Cl. D22-27.000.

Benchmark Tool Company: *See*—
Irelan, Edward A., 264,849, Cl. D15-132.000.

Berkman, Joseph L. Video-tape case with removable partitions. 264,771, 6-8-82, Cl. D3-35.000.

Billings, Zeb: *See*—
Faas, Chuck; and Billings, Zeb, 264,786, Cl. D6-184.000.

Blake, Alfred, to American Commercial Inc. Tureen. 264,793, 6-8-82, Cl. D7-18.000.

Blanchard, Gaynor J. Auxiliary seat for a child. 264,788, 6-8-82, Cl. D6-201.000.

Brandt, Inc., Currency Systems Division: *See*—
DiBlasio, John, 264,847, Cl. D14-110.000.

Bridges, Peggy J.: *See*—
Fritz, Ann K.; and Bridges, Peggy J., 264,794, Cl. D7-41.000.

Broyhill Furniture Industries, Inc.: *See*—
Smith, Melbourne F., Jr., 264,785, Cl. D6-154.000.

Burgeson, Oscar B.; and Phelps, Richard W., to Stanley Works, The. Screw holding clip for screw drivers. 264,808, 6-8-82, Cl. D8-395.000.

Burglin, Robert E.; and Itaya, Sam S. Automobile cleaning and waxing tool. 264,797, 6-8-82, Cl. D8-62.000.

Burnett, George E. Dispensing cap. 264,819, 6-8-82, Cl. D9-449.000.

Burnstein, Philip J.: *See*—
Conforti, Frederick J.; Burnstein, Philip J.; and Fenne, Kenneth R., 264,826, Cl. D10-106.000.

C. Joseph Lamy GmbH: *See*—
Spiegel, Bernt, 264,854, Cl. D19-49.000.

Carlan Trading Ltd.: *See*—
Goodman, Steven, 264,872, Cl. D23-146.000.

Champion International Corporation: *See*—
Austin, John J., 264,817, Cl. D9-433.000.

Chou, Albert S.: *See*—
Daniels, Donald V.; West, Terence H.; and Chou, Albert S., 264,842, Cl. D14-109.000.

Christian Dior, S.A.: *See*—
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Clar, Frederick S. Alignment attachment for a golf putter. 264,866, 6-8-82, Cl. D21-221.000.

Clorox Company, The: *See*—
Weckman, Richard L., 264,811, Cl. D9-375.000.

Conforti, Frederick J.; Burnstein, Philip J.; and Fenne, Kenneth R., to Pittway Corporation. Security system console. 264,826, 6-8-82, Cl. D10-106.000.

Conti, Rino, to Dart Industries Inc. Combined food storage and service dish. 264,791, 6-8-82, Cl. D7-1.000.

Conti, Rino, to Dart Industries Inc. Combined food storage and service dish. 264,792, 6-8-82, Cl. D7-1.000.

Cordis Dow Corp.: *See*—
Landau, Julian I., 264,878, Cl. D24-21.000.

Crocker, Joseph T., to Surgical Engineering Co., Inc. Combined surgical headrest and wrist rest. 264,875, 6-8-82, Cl. D24-7.000.

Cunningham, Louise B. Ring guard. 264,827, 6-8-82, Cl. D11-34.000.

Daniels, Donald V.; West, Terence H.; and Chou, Albert S., to Xerox Corporation. Fixed disk drive. 264,842, 6-8-82, Cl. D14-109.000.

Dart Industries Inc.: *See*—
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Conti, Rino, 264,792, Cl. D7-1.000.
Fritz, Ann K.; and Bridges, Peggy J., 264,794, Cl. D7-41.000.

Dennis, Terry J. Puzzle. 264,858, 6-8-82, Cl. D21-107.000.

DiBlasio, John, to Brandt, Inc., Currency Systems Division. Document handling and counting device. 264,847, 6-8-82, Cl. D14-110.000.

Dieter, Norman H., Jr.: *See*—
Drelinger, Sanford; Dieter, Norman H., Jr.; and Padron, Lazzaro, 264,816, Cl. D9-424.000.

Dinand, Pierre, to Yardley of London, Inc. Bottle. 264,814, 6-8-82, Cl. D9-389.000.

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Kamel, Medhat M.; and Dock, Mortimer R., 264,790, Cl. D6-271.000.

Dornier, Peter. Aircraft. 264,837, 6-8-82, Cl. D12-324.000.
Dornier, Peter. Aircraft. 264,838, 6-8-82, Cl. D12-324.000.
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160 4,333,274
298 4,333,743
320 4,333,275
422 4,333,276
425 4,333,277
434 4,333,278

CLASS 52

105 4,333,279
167 4,333,280
169.5 4,333,281
172 4,333,282
202 4,333,283
222 4,333,284
252 4,333,285
281 4,333,286
311 4,333,287
312 4,333,288
364 4,333,289
376 4,333,290
404 4,333,291
4,333,292
692 4,333,293
695 4,333,294
730 4,333,295

CLASS 53

64 4,333,296
252 4,333,297
447 4,333,298
450 4,333,299
569 4,333,300
587 4,333,301

CLASS 55

25 4,333,744
97 4,333,745
106 4,333,746
178 4,333,747
202 4,333,748
257 PV 4,333,749
259 4,333,750
387 4,333,752
390 4,333,751

CLASS 56

10.5 4,333,302
11.3 4,333,303
119 4,333,304
327 R 4,333,305

CLASS 57

206 4,333,306
334 4,333,307
339 4,333,308

CLASS 60

39.09 D 4,333,309
39.18 B 4,333,310
496 4,333,311
641.7 4,333,312
649 4,333,313
675 4,333,314

CLASS 62

1 4,333,315
5 4,333,754
6 4,333,755
9 4,333,753
126 4,333,316
212 4,333,317
374 4,333,318

CLASS 65

25.1 4,333,756

CLASS 66

63 4,333,320
192 4,333,321

CLASS 68

23.2 4,333,322
171 4,333,323

CLASS 70

107 4,333,324
186 4,333,325
203 4,333,326
276 4,333,327
278 4,333,328

CLASS 71

5 4,333,757
80 4,333,758
88 4,333,759
92 4,333,760

CLASS 72

3 4,333,329
392 4,333,330

CLASS 73

4 R 4,333,331
35 4,333,334
41 4,333,335
56 4,333,336
114 4,333,337
119 A 4,333,338
379 4,333,340
382 R 4,333,341
516 R 4,333,342
538 4,333,343
584 4,333,344
606 4,333,345
4,333,346
642 4,333,347
708 4,333,348
4,333,349
715 4,333,350
761 4,333,351
861.18 4,333,352
861.25 4,333,353
861.77 4,333,354
861.91 4,333,355
864.21 4,333,356

CLASS 74

110 4,333,357
359 4,333,358
467 4,333,359
473 P 4,333,360
501 P 4,333,361
812 4,333,362
826 4,333,363

CLASS 75

35 4,333,761
69 4,333,762
77 4,333,763

CLASS 76

108 A 4,333,364

CLASS 81

57.16 4,333,365
170 4,333,366
430 4,333,367

CLASS 82

1 C 4,333,368

CLASS 83

24 4,333,369
56 4,333,370
169 4,333,371
324 4,333,372
419 4,333,373

CLASS 84

1.01 4,333,374
4,333,375
1.27 4,333,376
4,333,377
280 4,333,378
297 S 4,333,379

CLASS 87

6 4,333,380

CLASS 89

1 B 4,333,381
1.803 4,333,384
1.806 4,333,382
7 4,333,383
33 SF 4,333,386
37 BA 4,333,385

CLASS 91

1 4,333,387
186 4,333,388
446 4,333,389
467 4,333,390

CLASS 92

121 4,333,391

CLASS 98

1 4,333,392

CLASS 99

277.2 4,333,393

CLASS 100

42 4,333,394
233 4,333,395
4,333,396
4,333,397

CLASS 101

93.02 4,333,398
401.2 4,333,399

CLASS 102

348 4,333,400
487 4,333,401
505 4,333,402

CLASS 105

197 R 4,333,403
225 4,333,404

CLASS 106

87 4,333,764
98 4,333,765
100 4,333,766
161 4,333,767

CLASS 110

264 4,333,405
340 4,333,406

CLASS 112

121.15 4,333,408
121.27 4,333,409
162 4,333,410
237 4,333,407
278 4,333,411

CLASS 114

39 4,333,412
67 A 4,333,413
322 4,333,414
344 4,333,191

CLASS 116

217 4,333,339

CLASS 118

16 4,333,415
47 4,333,416
50 4,333,417
106 4,333,418
405 4,333,419
411 4,333,420

CLASS 119

14.08 4,333,421

CLASS 123

3 4,333,422
23 4,333,423
39 4,333,424
73 R 4,333,425
90.27 4,333,426
190 A 4,333,427
198 F 4,333,428
274 4,333,429
321 4,333,430
323 4,333,431
366 4,333,432
420 4,333,433
478 4,333,434
489 4,333,435
502 4,333,436
4,333,437
569 4,333,438
4,333,439
4,333,440
590 4,333,441
599 4,333,442

CLASS 124

24 R 4,333,443

CLASS 126

417 4,333,444
424 Re.30,960
425 Re.30,961
436 4,333,445
438 4,333,446
443 4,333,447
452 4,333,448

CLASS 127

46.2 4,333,768
4,333,769
46.3 4,333,770

CLASS 128

155 4,333,449
200.14 4,333,450
205.12 4,333,451
205.24 4,333,452
4,333,453
214 R 4,333,454
214.4 4,333,455
218 F 4,333,459
218 R 4,333,456
4,333,457
4,333,458
239 4,333,460
284 4,333,461
287 4,333,462
4,333,463
290 R 4,333,464
4,333,465
4,333,466
303.14 4,333,467
348 4,333,468
419 F 4,333,469
419 PG 4,333,470
505 4,333,471
581 4,333,472
635 4,333,473
660 4,333,474
711 4,333,475
720 4,333,476
736 4,333,477
764 4,333,478
766 4,333,479
767 4,333,480

CLASS 131

276 4,333,481
300 4,333,482
352 4,333,483
359 4,333,484

CLASS 134

7 4,333,771
18 4,333,772
22 C 4,333,773
60 4,333,485

CLASS 136

248 4,334,120

CLASS 137

1 4,333,486
2 4,333,487
13 4,333,488
77 4,333,489
78.3 4,333,490
116.3 4,333,491
119 4,333,492
268 4,333,493
364 4,333,494
484.2 4,333,495
489 4,333,496
625.17 4,333,497
625.62 4,333,498
812 4,333,499
863 4,333,500

CLASS 139

1 R 4,333,501
425 A 4,333,502

CLASS 141

8 4,333,503
55 4,333,504
383 4,333,505

CLASS 145

3.1 4,333,506

CLASS 148

1.5 4,333,774
11.5 Q 4,333,775
36 4,333,776
128 4,333,777

CLASS 152

359 4,333,507
367 4,333,508

CLASS 156

61 4,333,778
73.1 4,333,779
78 4,333,780
152 4,333,781
184 4,333,782
187 4,333,783
252 4,333,784
281 4,333,785
306.6 4,333,786
307.3 4,333,787
405 R 4,333,788
499 4,333,789
510 4,333,790
580.1 4,333,791
612 4,333,792
643 4,333,793
648 4,333,794

CLASS 160

173 4,333,509
177 4,333,510
267 R 4,333,511

CLASS 162

168 N 4,333,795

CLASS 164

453 4,333,512
526 4,333,513

CLASS 165

1 4,333,514
4,333,515
4,333,516
4,333,517
8 4,333,518
12 4,333,519
59 4,333,520
63 4,333,521
69 4,333,522
73 4,333,523
104.16 4,333,524
104.21 4,333,525

CLASS 166

87 4,333,526
117.5 4,333,527
4,333,528
267 4,333,529
289 4,333,530
341 4,333,531

CLASS 168

24 4,333,532

CLASS 172

155 4,333,533
464 4,333,534
572 4,333,535
721 4,333,536

CLASS 173

17 4,333,537
104 4,333,538

CLASS 174

15 S 4,334,123
68 C 4,334,121
94 R 4,334,122

CLASS 175

61 4,333,539
62 4,333,541
299 4,333,542
329 4,333,540

CLASS 177

34 4,333,543

CLASS 178

19 4,334,124

CLASS 179

1 GE 4,334,125
18 ES 4,334,126
15.5 R 4,334,127
70.2 4,334,128
75.11 4,334,129

CLASS 181

266 4,333,544
282 4,333,545

CLASS 182

48 4,333,546
90 4,333,547

CLASS 185

33 4,333,548

CLASS 187

93 4,333,549

CLASS 188

72.2 4,333,550
372 4,333,551

CLASS 192

3.29 4,333,552
4 A 4,333,553
58 R 4,333,555
70.19 4,333,554

CLASS 194

92 4,333,556
97 A 4,333,557

CLASS 198

391 4,333,558
461 4,333,559
519 4,333,560
703 4,333,561

CLASS 200

61.54 4,334,130
82 R 4,334,131
153 LB 4,334,132
279 4,334,133
314 4,334,134

CLASS 203

67 4,333,799
87 4,333,800
94 4,333,801

CLASS 204

54 R 4,333,802
67 4,333,803
98 4,333,804
4,333,805
129.1 4,333,806
159.14 4,333,809
181 T 4,333,807
192 D 4,333,808
195 G 4,333,812
195 M 4,333,810
195 S 4,333,811
243 R 4,333,813
298 4,333,814

CLASS 206

37 4,333,562
53 4,333,563
216 4,333,564
329 4,333,565
343 4,333,566
368 4,333,567
387 4,333,568
431 4,333,569
432 4,333,570
499 4,333,571

CLASS 208

10 4,333,815
91 4,333,816
101 4,333,817
4,333,818
4,333,819
4,333,820
120 4,333,821
184 4,333,822
325 4,333,823
326 4,333,824

CLASS 209

17 4,333,572
223 A 4,333,825
536 Re.30,964

CLASS 210

94 4,333,826
100 4,333,827
113 4,333,828
169 4,333,829
170 4,333,830
4,333,831
195.2 4,333,832
198.1 4,333,833
219 4,333,834
305 4,333,835
404 4,333,836
602 4,333,837
614 4,333,838
777 4,333,839

CLASS 211

11 4,333,573
60 R 4,333,574
118 4,333,575

CLASS 213

61 4,333,576

CLASS 215

246 4,333,577
253 4,333,578

CLASS 219

10.49 R 4,334,135
10.55 B 4,334,136
10.55 F 4,334,137
64 4,334,138
121 EW 4,334,139
127 4,334,140
283 4,334,141
301 4,334,142
333 4,334,143
383 4,334,144
453 4,334,145
492 4,334,146
497 4,334,147
553 4,334,148

CLASS 220

4 R 4,333,579
5 A 4,333,580
20 4,333,581
23.6 Re.30,962
66 4,333,582
90.4 4,333,583
309 4,333,584
359 4,333,585

CLASS 221

106 4,333,586

CLASS 222

129.1 4,333,587
164 4,333,588
402.11 4,333,589

CLASS 223

85 4,333,590

CLASS 224

160 4,333,591

CLASS 226

52 4,333,592
122 4,333,593
176 4,333,594

CLASS 227

10 4,333,595
67 4,333,596

CLASS 228

108 4,333,597
181 4,333,598

CLASS 229

5.7 4,333,599
42 4,333,600
43 4,333,601
44 R 4,333,602

CLASS 232

17 4,333,603

CLASS 235

92 MP 4,334,149

CLASS 236

46 R 4,333,604
78 R 4,333,605

CLASS 237

12.3 A 4,333,606

CLASS 239

13 4,333,607
118 4,333,608
124 4,333,609
224 Re.30,963
601 4,333,610

CLASS 241

1 4,333,611
33 4,333,612
34 4,333,613

CLASS 242

1 4,333,614
71.1 4,333,615
72 R 4,333,616
86.52 4,333,617
192 4,333,618
195 4,333,619
199 4,333,620

CLASS 244

138 R 4,333,621

CLASS 248

176 4,333,623
188.8 4,333,622
205 R 4,333,624
216.1 4,333,625
360 4,333,626
396 4,333,627
551 4,333,628

CLASS 249

119 4,333,629
135 4,333,630

CLASS 250

201 4,334,150
4,334,151
226 4,334,152
405 4,334,153
445 T 4,334,154
490 4,334,155
491 4,334,156

CLASS 251

159 4,333,631
214 4,333,632
320 4,333,633

CLASS 252

16 4,333,840
32.7 E 4,333,841
62.9 4,333,842
75 4,333,843
97 4,333,844
170 4,333,845
184 4,333,846
301.4 P 4,333,848
316 4,333,849
389 A 4,333,850
429 B 4,333,851
429 R 4,333,852
435 4,333,853
439 4,333,854
4,333,855
441 4,333,856
455 R 4,333,858
455 Z 4,333,857
4,333,859
458 4,333,860
518 4,333,861
547 4,333,862
629 4,333,847

CLASS 254

106 4,333,634

CLASS 260

112 B 4,333,870
112 R 4,333,871
112.5 E 4,333,873
112.5 R 4,333,872
153 4,333,874
239 BC 4,333,875
245.73 4,333,876
397.1 4,333,880
429 R 4,333,881
453.3 4,333,882
544 C 4,333,883
546 4,333,884
549 4,333,885

CLASS 261

18 R 4,333,886
27 4,333,887
34 B 4,333,888
39 B 4,333,889
41 D 4,333,890
4,333,891
94 4,333,892
4,333,893
96 4,333,894

CLASS 264

24 4,333,895
40.3 4,333,906
40.5 4,333,896
40.6 4,333,897
45.9 4,333,898
51 4,333,899
85 4,333,900
4,333,901
165 4,333,903
290.2 4,333,907
320 4,333,902
323 4,333,904
529 4,333,905

CLASS 266

64 4,333,635
68 4,333,636

CLASS 269

322 4,333,637
4,333,638

CLASS 271

3.1 4,333,639
9 4,333,640
289 4,333,641

CLASS 272

1 D 4,333,642
106 4,333,643
118 4,333,644
130 4,333,645

CLASS 273

29 A 4,333,646
54 B 4,333,647
65 EB 4,333,648
73 D 4,333,649
4,333,650
129 V 4,333,651
153 S 4,333,652
160 4,333,653
241 4,333,654
4,333,655
299 4,333,656
376 4,333,657
411 4,333,658

CLASS 277

1 4,333,659
9 4,333,660
203 4,333,661
207 A 4,333,662
235 R 4,333,663

CLASS 280

261 4,333,664
408 4,333,665
435 4,333,666
605 4,333,667
703 4,333,668

CLASS 285

21 4,333,669
173 4,333,670
4,333,671
382.2 4,333,672

CLASS 292

59 4,333,673

CLASS 293

120 4,333,674

CLASS 294

78 R 4,333,675
88 4,333,676
147 4,333,677

CLASS 296

39 R 4,333,678
161 4,333,679
216 4,333,680

CLASS 297

83 4,333,681
192 4,333,682
292 4,333,683

CLASS 299

2 4,333,684
39 4,333,685
4,333,686
81 4,333,687

CLASS 301

36 R 4,333,688

CLASS 307

291 4,334,157
462 4,334,158

CLASS 308

3 R 4,333,689
3.8 4,333,690
8.2 4,333,691
9 4,333,692
176 4,333,693
187.2 4,333,694
211 4,333,695

CLASS 310

54 4,334,159
57 4,334,160
68 C 4,334,162
68 E 4,334,161
90 4,334,163
114 4,334,164
233 4,334,165
268 4,334,166
313 R 4,334,167
343 4,334,168

CLASS 313

414 4,334,169

CLASS 315

16 4,334,170
199 4,334,171
289 4,334,172
399 4,334,173
408 4,334,174

CLASS 318

66 4,334,175
102 4,334,176
345 G 4,334,177
572 4,334,178
661 4,334,179
687 4,334,180
762 4,334,181
808 4,334,182

CLASS 323

235 4,334,183
4,334,184
280 4,334,185
365 4,334,186

CLASS 324

58 R 4,334,187
133 4,334,188
158 MG 4,334,189
171 4,334,190
329 4,334,191
4,334,192
437 4,334,193

CLASS 328

42 4,334,194
168 4,334,195

CLASS 330

253 4,334,196
268 4,334,197
296 4,334,198

CLASS 333

202 4,334,201
218 4,334,202
226 4,334,203

CLASS 335

205 4,334,204
220 4,334,205

CLASS 336

96 4,334,206
136 4,334,207
192 4,334,208

CLASS 337

112 4,334,209
343 4,334,210

CLASS 339

17 LM 4,333,696
31 R 4,333,697
36 4,333,698
61 M 4,333,699
97 P 4,333,701
97 R 4,333,700
217 R 4,333,702
217 S 4,333,703

CLASS 340

88 4,334,211
347 DA 4,334,212
347 DD 4,334,213
539 4,334,215
552 4,334,214
679 4,334,216
685 4,334,217
689 4,334,218
712 4,334,219
753 4,334,220
825.72 4,334,221
870.29 4,334,222

CLASS 343

5 W 4,334,223
6.5 R 4,334,224
100 LE 4,334,225
100 ST 4,334,226
719 4,334,227
722 4,334,228
767 4,334,229
797 4,334,230

CLASS 346

35 4,334,231
75 4,334,232
135.1 4,334,233
140 R 4,334,234

CLASS 350

96.10 4,333,704
96.20 4,333,705
96.23 4,333,706
144 4,333,707
346 4,333,708
350 R 4,333,709
357 4,333,710
426 4,333,711
430 4,333,712
432 4,333,713
460 4,333,714

CLASS 352

98 4,333,715

CLASS 354

25 4,333,716
4,333,717
31 4,333,718
132 4,333,719
227 4,333,720
234 4,333,721
4,333,722

CLASS 355

71 4,333,723

CLASS 356

437 4,333,724

CLASS 357

23 4,334,235
59 4,334,236

CLASS 358

36 4,334,237
43 4,334,238
44 4,334,239
78 4,334,240
107 4,334,241
127 4,334,242
153 4,334,243
166 4,334,244
183 4,334,245
261 4,334,246

CLASS 360

10 4,334,247
12 4,334,248
30 4,334,249
45 4,334,250
96.6 4,334,251
104 4,334,252
137 4,334,253

CLASS 361

9 4,334,254
22 4,334,255
56 4,334,256
119 4,334,257
170 4,334,258
212 4,334,259
360 4,334,260
426 4,334,261

CLASS 362

11 4,334,262

CLASS 363

25	4,334,263
51	4,334,264
72	4,334,265
133	4,334,267

CLASS 364

167	4,334,266
200	4,334,268
	4,334,269
300	4,334,270
422	4,334,271
474	4,334,272
484	4,334,273
515	4,334,274
551	4,334,275
561	4,334,276
703	4,334,277
709	4,334,278
710	4,334,279
	4,334,280
723	4,334,281
728	4,334,282
744	4,334,283
748	4,334,284
761	4,334,285
900	4,334,286
	4,334,287
	4,334,288
	4,334,289

CLASS 365

1	4,334,290
36	4,334,291
182	4,334,292
190	4,334,293
203	4,334,294
222	4,334,295

CLASS 367

180	4,334,296

CLASS 368

18	4,334,297
63	4,334,298

CLASS 369

44	4,334,299
46	4,334,300
116	4,334,301
261	4,334,302

CLASS 370

13	4,334,303
66	4,334,304
86	4,334,305
94	4,334,306

CLASS 371

16	4,334,307
29	4,334,308
38	4,334,309
64	4,334,310

CLASS 372

47	4,334,311
57	4,334,199
90	4,334,200

CLASS 373

159	4,334,119

CLASS 374

8	4,333,333
10	4,333,332

CLASS 375

20	4,334,312
106	4,334,313
111	4,334,314

CLASS 376

100	4,333,796
210	4,333,797
449	4,333,798

CLASS 403

271	4,333,725

CLASS 405

72	4,333,726

CLASS 408

191	4,333,727

CLASS 416

134 A	4,333,728

CLASS 417

313	4,333,729

CLASS 422

61	4,333,908
141	4,333,909
228	4,333,910

CLASS 423

2	4,333,911
20	4,333,912
184	4,333,913
314	4,333,914
324	4,333,915
371	4,333,916
522	4,333,917

CLASS 424

1	4,333,918
15	4,333,919
59	4,333,920
70	4,333,921
89	4,333,922
115	4,333,923
170	4,333,924
181	4,333,925
182	4,333,926
238	4,333,927
243	4,333,928
246	4,333,929
248.51	4,333,930
248.54	4,333,931
248.56	4,333,932
249	4,333,933
250	4,333,934
	4,333,935
251	4,333,936
	4,333,937
263	4,333,938
	4,333,939
	4,333,940
267	4,333,941
	4,333,942
269	4,333,943
	4,333,944
270	4,333,945
273 R	4,333,946
	4,333,947
285	4,333,948
300	4,333,949
305	4,333,950
319	4,333,951
330	4,333,952

CLASS 426

34	4,333,953
41	4,333,954
44	4,333,955
69	4,333,956
140	4,333,957
583	4,333,958
614	4,333,959
625	4,333,960

CLASS 427

13	4,333,961
37	4,333,962
44	4,333,963
93	4,333,964
	4,333,965
96	4,333,966
148	4,333,967
173	4,333,968
222	4,333,969
	4,333,970
244	4,333,972
389.9	4,333,971
424	4,333,973

CLASS 428

16	4,333,974
65	4,333,975
91	4,333,976
131	4,333,977
158	4,333,978
179	4,333,979
192	4,333,980
215	4,333,981
245	4,333,982
336	4,333,983
	4,333,984
	4,333,985
402	4,333,986
419	4,333,987
425.9	4,333,988
446	4,333,989
531	4,333,990
702	4,333,991

CLASS 429

17	4,333,992
27	4,333,993
94	4,333,994
172	4,333,995
191	4,333,996
218	4,333,997

CLASS 430

12	4,333,998
17	4,333,999
58	4,334,000
83	4,334,001
103	4,334,002
156	4,334,003
176	4,334,004
211	4,334,005
254	4,334,006
270	4,334,007
	4,334,008
291	4,334,009
551	4,334,010
552	4,334,011
567	4,334,012
569	4,334,013
611	4,334,014

CLASS 435

1	4,334,015
5	4,334,016
7	4,334,017
13	4,334,018
68	Re.30,965
76	4,334,019
110	4,334,020
118	4,334,021
119	4,334,022
163	4,334,026
178	4,334,027
190	4,334,023
232	4,334,024
253	4,334,025
284	4,334,028

CLASS 455

11	4,334,315
62	4,334,322
139	4,334,316
179	4,334,323
194	4,334,317
195	4,334,318
227	4,334,319
	4,334,320
333	4,334,324
614	4,334,321

CLASS 464

26	4,333,319

CLASS 501

109	4,334,029

CLASS 521

90	4,334,030
106	4,334,031
115	4,334,032
159	4,334,033

CLASS 523

220	4,333,863
410	4,333,865

CLASS 524

100	4,333,869
152	4,333,868
534	4,333,866
547	4,333,867

CLASS 525

28	4,334,034
34	4,334,035
53	4,334,041
102	4,334,036
199	4,334,037
207	4,334,038
263	4,334,039
321	4,334,040
339	4,334,042
370	4,334,043
379	4,334,044
390	4,334,050
439	4,334,045
501.5	4,333,864

CLASS 526

93	4,334,046
138	4,334,047
170	4,334,048
202	4,334,049

CLASS 528

25	4,334,051
52	4,334,052
179	4,334,053
210	4,334,054
229	4,334,055
496	4,334,056
500	4,334,057

CLASS 536

8	4,334,058
23	4,334,059
35	4,334,060
119	4,334,061

CLASS 544

28	4,334,063
30	4,334,064
	4,334,065
026	4,334,062
149	4,334,066
151	4,334,067
187	4,334,068
237	4,334,069

CLASS 546

70	4,334,070
74	4,334,071
112	4,334,072
245	4,334,073
327	4,334,074

CLASS 548

239	4,334,075
375	4,334,076
421	4,333,877
531	4,333,878

CLASS 549

12	4,334,077
43	4,334,078
549	4,333,879

CLASS 560

75	4,334,079
99	4,334,080
130	4,334,081
180	4,334,082
226	4,334,083

CLASS 562

410	4,334,084
413	4,334,086
459	4,334,087
462	4,334,088
463	4,334,089
480	4,334,090
506	4,334,091
517	4,334,092
	4,334,093
	4,334,094
584	4,334,095

CLASS 564

72	4,334,096
201	4,334,097
367	4,334,085

CLASS 568

347	4,334,098
386	4,334,099
444	4,334,100
454	4,334,101
621	4,334,102
631	4,334,103
649	4,334,104
682	4,334,105
719	4,334,106
749	4,334,107
803	4,334,108
841	4,334,109
932	4,334,110

CLASS 570

143	4,334,111
207	4,334,112

CLASS 585

18	4,334,113
407	4,334,114
	4,334,115
440	4,334,116
509	4,334,117
529	4,334,118

CLASSIFICATION OF DESIGNS

D2—	28	264,765
	408	264,766
	427	264,767
D3—	30.1	264,768
	33	264,769
	35	264,770
		264,771
	38	264,772
D6—	5	264,773
	48	264,774
	57	264,775
	63	264,776
	78	264,777
		264,778
		264,779
	80	264,889
	82	264,780
	85	264,781
	86	264,782
	139	264,783
	144	264,784
	154	264,785
	184	264,786
	186	264,787
	201	264,788
	254	264,789
	271	264,790
D7—	1	264,791
		264,792
	15	264,793
	41	264,794
	64	264,795
D8—	17	264,796
	62	264,797
	78	264,798
	99	264,799
		264,800
		264,801
		264,802
		264,803
		264,804
	107	264,805
	358	264,806
	387	264,807
	395	264,808
D9—	303	264,809
	341	264,810
	375	264,811
	385	264,812
		264,813
	389	264,814
	415	264,815
	424	264,816
	433	264,817
		264,818
	449	264,819
	457	264,820
D10—	2	264,821
	10	264,822
	15	264,823
	71	264,824
	75	264,825
	106	264,826
D11—	34	264,827
	87	264,828
	158	264,829
D12—	7	264,830
	156	264,831
	157	264,832
	190	264,833
	210	264,834
	211	264,835
		264,836
	324	264,837
		264,838
D13—	41	264,839
D14—	31	264,840
	35	264,841
	68	264,845
	94	264,846
	100	264,843
		264,844
	109	264,842
	110	264,847
D15—	72	264,848
	132	264,849
D16—	11	264,850
	134	264,851
D17—	9	264,852
D19—	10	264,853
	49	264,854
D21—	10	264,855
	16	264,857
	60	264,856
	107	264,858
	129	264,859
	130	264,860
	137	264,861
	191	264,862
	210	264,863
	218	264,864
	219	264,865
	221	264,866
D22—	18	264,867
	27	264,868
D23—	78	264,869
	97	264,870
	129	264,871
	146	264,872
D24—	1.1	264,873
	3	264,874
	7	264,875
	12	264,876
	17	264,877
	21	264,878
	31	264,879
	46	264,880
	51	264,881
	99	264,882
D25—	87	264,886
D27—	3	264,885
	03	264,883
		264,884
D30—	1	264,887
D34—	26	264,888

CLASSIFICATION OF PLANTS

P.—	11	4,855
	47	4,856

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PATENTS

01 :	4,333,813		4,333,528		4,334,288		4,333,214		4,334,085		4,334,132
	4,334,124		4,333,532	08 :	4,333,246		4,333,217		4,334,134		4,334,135
02 :	4,333,591		4,333,562		4,333,279		4,333,230		4,334,162		4,334,143
04 :	4,333,231		4,333,563		4,333,395		4,333,252		4,334,164		4,334,147
	4,333,288		4,333,580		4,333,597		4,333,254		4,334,170	22 :	4,333,654
	4,333,290		4,333,581		4,333,639		4,333,264		4,334,173		4,333,810
	4,333,401		4,333,598		4,333,684		4,333,302		4,334,174		4,333,878
	4,333,603		4,333,607		4,333,718		4,333,318		4,334,176		4,334,061
	4,333,653		4,333,610	09 :	4,333,239		4,333,326		4,334,177	23 :	4,334,157
	4,333,789		4,333,618		4,333,315		4,333,336		4,334,185		4,334,209
	4,333,887		4,333,622		4,333,342		4,333,337		4,334,203	24 :	Re.30,959
	4,334,145		4,333,634		4,333,351		4,333,376		4,334,211		4,333,344
	4,334,179		4,333,638		4,333,368		4,333,377		4,334,215		4,333,383
	4,334,222		4,333,651		4,333,549		4,333,397		4,334,243		4,333,400
	4,334,283		4,333,655		4,333,604		4,333,403		4,334,323		4,333,413
	4,334,289		4,333,659		4,333,694		4,333,451	18 :	4,333,207		4,333,636
05 :	4,333,355		4,333,661		4,333,697		4,333,462		4,333,278		4,333,827
	4,333,443		4,333,664		4,333,742		4,333,463		4,333,360		4,333,847
	4,333,642		4,333,670		4,333,798		4,333,480		4,333,390		4,334,270
06 :	Re.30,961		4,333,671		4,333,992		4,333,493		4,333,442		4,334,321
	4,333,183		4,333,681		4,334,000		4,333,513		4,333,446	25 :	4,333,224
	4,333,191		4,333,703		4,334,106		4,333,516		4,333,460		4,333,330
	4,333,195		4,333,746		4,334,182		4,333,524		4,333,523		4,333,366
	4,333,225		4,333,748		4,334,248		4,333,576		4,333,554		4,333,380
	4,333,227		4,333,757	10 :	4,333,568		4,333,584		4,333,589		4,333,605
	4,333,229		4,333,790		4,333,760		4,333,599		4,333,668		4,333,626
	4,333,253		4,333,812		4,333,987		4,333,600		4,333,672		4,333,700
	4,333,256		4,333,815		4,334,082		4,333,628		4,333,737		4,333,755
	4,333,258		4,333,832	12 :	4,333,180		4,333,633		4,333,873		4,333,792
	4,333,261		4,333,839		4,333,182		4,333,647		4,333,919		4,333,977
	4,333,277		4,333,857		4,333,194		4,333,657		4,333,923		4,333,980
	4,333,280		4,333,863		4,333,199		4,333,740		4,333,941		4,334,017
	4,333,293		4,333,905		4,333,208		4,333,768		4,333,943		4,334,030
	4,333,312		4,333,961		4,333,216		4,333,769		4,334,019		4,334,039
	4,333,313		4,333,972		4,333,271		4,333,770		4,334,063		4,334,172
	4,333,314		4,333,983		4,333,289		4,333,776		4,334,064		4,334,254
	4,333,328		4,334,028		4,333,305		4,333,782		4,334,065		4,334,261
	4,333,382		4,334,074		4,333,354		4,333,801		4,334,071		4,334,307
	4,333,386		4,334,087		4,333,474		4,333,817		4,334,079	26 :	4,333,186
	4,333,387		4,334,118		4,333,479		4,333,818		4,334,088		4,333,202
	4,333,388		4,334,148		4,333,641		4,333,819		4,334,131		4,333,203
	4,333,417		4,334,154		4,333,677		4,333,820		4,334,267		4,333,255
	4,333,420		4,334,160		4,333,704		4,333,821	19 :	4,333,535		4,333,361
	4,333,427		4,334,212		4,333,713		4,333,823		4,333,617		4,333,385
	4,333,441		4,334,213		4,333,765		4,333,835		4,334,181		4,333,394
	4,333,450		4,334,223		4,334,126		4,333,850	20 :	4,333,685		4,333,426
	4,333,453		4,334,229		4,334,193		4,333,854		4,333,686		4,333,434
	4,333,472		4,334,244		4,334,309		4,333,856		4,333,749		4,333,497
	4,333,476		4,334,246	13 :	4,333,565		4,333,973	21 :	4,333,205		4,333,552
	4,333,495		4,334,247	15 :	4,333,204		4,333,993		4,333,322		4,333,553
	4,333,496		4,334,259	16 :	4,333,448		4,334,003		4,333,588		4,333,678
	4,333,509		4,334,277	17 :	4,333,188		4,334,026		4,333,738		4,333,745
	4,333,526		4,334,284		4,333,213		4,334,047		4,333,831		4,333,750

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27 : 4,333,200
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32 : 4,333,234
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34 : Re.30,958
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37 : Re.30,964
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39 : 4,333,193
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40 : Re.30,965
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4,333,715
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41 : 4,334,136
4,334,201
4,334,250
42 : 4,333,185
4,333,189
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4,333,232
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4,333,248
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4,333,969
4,333,970
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4,334,075
4,334,084
4,334,113
4,334,228
4,334,266
4,334,275
4,334,278
44 : 4,333,218
4,334,210
45 : 4,333,454
4,334,121
47 : Re.30,962
4,333,235
4,333,270
4,333,365
4,333,608
4,333,913
4,333,974
48 : 4,333,187
4,333,209
4,333,242
4,333,257
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June 15, 1982 Volume 1019 Number 3

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

Jan. 19, 1982.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,685,787, Re. S.N. 256,707, Filed Aug. 10, 1981, Cl. 251/6, APPARATUS FOR REGULATING FLUID FLOW THROUGH PLASTIC TUBING, Marvin Adelberg, Owner of Record: *Security National Bank, Encino, Calif.*, Attorney or Agent: Edward A. Sokolski, Ex. Gp.: 341

3,998,916, Re. S.N. 315,139, Filed Oct. 26, 1981, Cl. 264/22, METHOD FOR THE MANUFACTURE OF AN ELECTRET FIBROUS FILTER, Jan Van Turnhout, Owner of Record: *Minnesota Mining and Mfg. Co., Rotterdam, Netherlands,* Attorney or Agent: Cruzan Alexander, Ex. Gp.: 147

4,018,677, Re. S.N. 354,064, Filed Mar. 2, 1982, Cl. 210/33, METHOD OF STRIPPING SOLID PARTICLES, Alexander Himsley, Owner of Record: *Himsley Engineering Ltd., Toronto, Ontario, Canada,* Attorney or Agent: W. L. Hayhurst, et al., Ex. Gp.: 176

4,054,793, Re. S.N. 280,845, Filed July 6, 1981, Cl. 362/127, LIGHTING SYSTEM, Sylvan R. Shemitz, Owner of Record: *Sylvan R. Shemitz and Asso., Inc., West Haven, Conn.*, Attorney or Agent: Anthony P. Delio, et al., Ex. Gp.: 221

4,073,426, Re. S.N. 365,080, Filed Apr. 5, 1982, Cl. 228/122, METHOD FOR JOINING AN ANODE TARGET COMPRISING TUNGSTEN TO A GRAPHITE SUBSTRATE, Thomas M. Devine, Jr., Owner of Record: *General Electric Co., Schenectady, N.Y.*, Attorney or Agent: Leo I. Malossi, et al., Ex. Gp.: 322

4,119,879, Re. S.N. 365,078, Filed Apr. 5, 1982, Cl. 313/330, GRAPHITE DISC ASSEMBLY FOR A ROTATING X-RAY ANODE TUBE, Thomas Maurice Devine, Jr., Owner of Record: *General Electric Co., Schenectady, N.Y.*, Attorney or Agent: Leo I. Malossi, et al., Ex. Gp.: 256

4,161,342, Re. S.N. 344,554, Filed Feb. 1, 1982, Cl. 308/6R, ANTI-FRICTION GIBS FOR PRESSES, Roger J. Nelsen, Owner of Record: *Gulf & Western Mfg. Co., Southfield, Mich.*, Attorney or Agent: James H. Tilberry, et al., Ex. Gp.: 243

4,195,669, Re. S.N. 363,648, Filed Mar. 30, 1982, Cl. 138/178, METHOD OF ARRESTING CRACK PROPAGATION IN LINE PIPE CHARACTERIZED BY DUCTILE FRACTURE, Kenneth D. Ives, et al., Owner of Record: *United States Steel Corp., Pittsburgh, Pa.*, Attorney or Agent: James P. Hume, Ex. Gp.: 243

4,196,076, Re. S.N. 363,407, Filed Mar. 30, 1982, Cl. 210/21, SEPARATION OF COBALT AND NICKEL BY SOLVENT EXTRACTION, Akihiro Fujimoto, et al., Owner of Record: *Daihachi Chemical Industry Co.; Ltd., Osaha, Japan,* Attorney or Agent: Herbert B. Keil, Ex. Gp.: 176

4,206,519, Re. S.N. 354,232, Filed Mar. 2, 1982, Cl. 3/27, STABILIZED ARTIFICIAL KNEE MECHANISM, Brian G. Blatchford, Owner of Record: *Charles A. Blatchford & Son, Ltd., Basingstoke, England,* Attorney or Agent: Bryan H. Davidson, Ex. Gp.: 337

4,238,143, Re. S.N. 366,813, Filed Apr. 8, 1982, Cl. 352/72, AUTOFOCUS MOVIE CAMERA HAVING PULSED TERMINAL DRIVE MEANS, Edwin K. Shenk, Owner of Record: *Polaroid Corp., Cambridge, Mass.*, Attorney or Agent: David R. Thornton, Ex. Gp.: 211

4,246,327, Re. S.N. 362,493, Filed Mar. 26, 1982, Cl. 429/105, HIGH ENERGY-DENSITY BATTERY SYSTEM, Paul M. Skarstad, et al., Owner of Record: *Medtronic, Inc., Minneapolis, Minn.*, Attorney or Agent: Everett J. Schroeder, et al., Ex. Gp.: 111

4,289,770, Re. S.N. 350,233, Filed Feb. 19, 1982, Cl. 424/248.54, 2-BENZOYL-4-NITROANILIDES AND THEIR USE AS MEDICAMENTS, Henri Cousses, et al., Owner of Record: *Pierre Fabre S. A., Paris, France,* Attorney or Agent: Gordon W. Hueschen, Ex. Gp.: 125

4,313,464, Re. S.N. 362,111, Filed Mar. 26, 1982, Cl. 137/544, FLUID CONTROL APPARATUS, Emery Major, Owner of Record: *Inventors,* Attorney or Agent: Thomas R. Lampe, Ex. Gp.: 341

4,315,731, Re. S.N. 367,381, Filed Apr. 12, 1982, Cl. 431/254, ELONGATED IGNITING DEVICE, Robert W. Moore, Owner of Record: *Inventor,* Attorney or Agent: William E. Lucas, et al., Ex. Gp.: 345

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b).

3,790,476, Reexam. No. 90/000,197, Requested: May 10, 1982, Cl. 210/374, LATICES FOR INDUSTRIAL WASTE COAGULATION, F. Steven Spoerle, et al., Owner of Record: *Nalco Chemical Co., Oak Brook, Ill.*, Attorney or Agent: John J. Premo, Ex. Gp.: 170, Requester: Lawrence Rosen, New York, N.Y.

4,029,450, Reexam. No. 90/000,200, Requested: May 18, 1982, Cl. 425/71, PLANT FOR VULCANIZING A CONTINUOUS LENGTH OF CURABLE MATERIAL ARTICLES OF ELASTOMERIC MATERIALS, Gustavo Caser, Owner of Record: *Officine Termo-*

meccaniche Succcessori Carello S.p.A., Gaglianico, Italy, Attorney or Agent: Ladas, Parry, Von Gehr, Goldsmith & Deschamps, Ex. Gp.: 147, Requester: George E. Oram, Jr., Washington, D.C.

4,216,767, Reexam. No. 90/000,201, Requested: May 18, 1982, Cl. 128/6.00, ENDOSCOPE WITH CLOSED PRESSURIZED INNER CAVITY, Histake Aoshiro, Owner of Record: *Machida Endoscope Co., Ltd., Tokyo, Japan,* Attorney or Agent: Peter L. Berger, Ex. Gp.: 330, Requester: Victor M. Wigman, Arlington, Va.

4,254,165, Reexam. No. 90/000,198, Requested: May 13, 1982, Cl. 427/183, METHOD OF FORMING A FILLED POLYMER COATING ON AN INTERNAL CYLINDRICAL SURFACE AND ARTICLE PRODUCED THEREBY, Edwin H. Phelps, et al., Owner of Record: *Requester,* Attorney or Agent: Kerkam, Stowell, Kondracki & Clarke, P. C., Ex. Gp.: 162, Requester: American Cast Iron Pipe Co., Birmingham, Ala.

Examination

Pursuant to the provisions of 37 C.F.R. 1.341(c), an examination for persons seeking registration before the United States Patent and Trademark Office as patent attorneys or agents will be held on Tuesday, October 5, 1982.

With the exception of those former patent examiners for whom the examination is waived, all persons recognized for practice before the Patent and Trademark Office in patent cases must pursuant to the noted rule, pass the examination. Those passing the examination do not thereby qualify for recognition for practice before the Patent and Trademark Office in trademark cases. Recognition for practice in trademark cases is governed by Rule 2.12 of the Trademark Rules of Practice, which does not require the passing of an examination.

37 C.F.R. 1.341(f) provides, in pertinent part, "Officers and employees of the United States who are disqualified by statute (18 U.S.C. 203, 205) from practicing as attorneys or agents in proceedings or other matters before Government departments or agencies, may not be registered, * * * but officers or employees whose official duties require the preparation and prosecution of applications for patent may be registered (on compliance with the regulations in this part) or recognized to practice, to the extent necessary to carry out their official duties." If you are an officer or employee of the United States who is not disqualified for registration under 37 CFR 1.341(f) when you apply to take the examination, your application for registration *must* be accompanied by your supervisor's *verified statement* that your official duties as a United States officer or employee require that you prepare and prosecute applications for patent. After passing the examination, you will be considered eligible for registration. If you are disqualified for registration under 37 CFR 1.341(f) when you apply, approval of your application to take the examination will be subject to the following conditions.

1. If you pass the examination, you will not be registered so long as you remain disqualified for registration under 37 CFR 1.341(f). However, if within one (1) year from the date notification of passing is mailed, your status changes and you are no longer disqualified under 37 CFR 1.341(f), you will be considered eligible for registration upon satisfactory proof of your change in status.
2. If you have not become registered within one (1) year from the date notification of passing is mailed, you may not become registered thereafter except upon taking and passing another regularly scheduled examination.

The examination will be given under the supervision of the Office of Personnel Management (formerly Civil Service Commission), and may be taken in any of the cities in which the Office of Personnel Management regularly conducts examinations. Applications to take the examination must be filed in the Patent and Trademark Office together with a $35 fee not later than January 31, 1982.

Application blanks may be obtained from the Clerk of the Committee on Enrollment, Bldg. 3, 11th Floor, Room C16, Crystal Plz., Arlington, Va. or by mail addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, and directed to the attention of the Clerk of the Committee on Enrollment.

DONALD J. QUIGG,
Chairman, Committee on Enrollment.

May 18, 1982

Patent Suits

Notices under 35 USC 290; Patent Act of 1952

2,985,648, Beecham Group Ltd., ALPHA-AMINOBENZYLPENICILLINS; **3,157,640,** Bristol-Myers Co., D-(-)-A-AMINOBENZYLPENICILLIN TRIHYDRATE, **filed** Nov. 17, 1981, D.C. District of Columbia (Wash. D.C.), Doc. 81-2769, *Premo Pharmaceutical Laboratories, Inc.* v. *Bristol-Myers Co., et al.* Notice of Dismissal without prejudice filed by plaintiff on Feb. 22, 1982.

3,157,640. **(See 2,985,648.)**

3,182,952, Mark Controls Corp., BALL VALVES, **filed** Aug. 12, 1981, D.C., W.D. Mich. (Grand Rapids), Doc. G81-629CA1, *Mark Controls Corp.* v. *Conbraco Industries, Inc.* Action transferred to the W.D.N.C. (Charlotte), on Feb. 25, 1982.

3,298,550, Daffin Corp., HAYSTACK TRANSPORTING DEVICE, **filed** Mar. 21, 1980, D.C.N.D. (Fargo), Doc. A3-80-38, *Farmhand, Inc.* v. *Haybuster Mfg., Inc.* Defendant is enjoined from making, having made, using or selling chain-type movers covered by one or more of the claims of Pat. No. 3,298,550. Filed June 5, 1980. **Same, filed** Oct. 3, 1980, D.C. Colo. (Denver), Doc. 80-C-1333, *Farmhand, Inc.* v. *Hawkins Mfg., Inc.* Ordered that action terminated administratively with right to reopen proceedings for good cause. Filed Sept. 14, 1981.

3,330,405, Creative Displays, Inc., COLLAPSIBLE DISPLAY BIN, **filed** Mar. 3, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1276, *Thomson-Leeds Co., Inc.* v. *Creative Displays, Inc.*

3,338,482, Clarence W. Jordan, DISPENSING BOTTLES, **filed** Feb. 5, 1982, D.C., W.D. Okla. (Oklahoma City), Doc. 82-180-E, *Continental Plastics Co.* v. *Clarence W. Jordan.*

3,366,158, Rosenblad Corp., FALLING FILM EVAPORATOR, **filed** Apr. 29, 1980, D.C., S.D.N.Y., Doc. 80 CIVIL 2041 RJW, *Celleco-Rosenblads, Inc., et ano* v. *Rosenblad Corp.* Complaint and counterclaims dismissed without prejudice on Oct. 14, 1981.

3,380,697, Norman J. Melcher, PORTABLE STEPS FOR CLIMBING TREES OR POLES, **filed** Feb. 23, 1982, D.C., M.D.N.C. (Greensboro), Doc. C-82-234-S, *S & S Graham Archery Sales, Inc.* v. *Graham Archery, Inc., et al.*

3,396,542, Construction Techniques, Inc., METHOD AND ARRANGEMENTS FOR PROTECTING SHORELINES; **3,396,545, same,** METHOD OF FORMING CONCRETE BODIES, **filed** Jan. 15, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70180, *Construction Techniques, Inc.* v. *Holloway Construction Co., Inc.* Notice of voluntary dismissal without prejudice filed Feb. 23, 1982.

3,396,545. **(See 3,396,542.)**

3,446,199, Arthur L. Saveca, SPRING ACTUATED BALL PROJECTING DEVICE, **filed** Aug. 8, 1978, D.C. Minn. (Minneapolis), Doc. 4-78 Civil 328, *K-Tel International, Inc.* v. *Arthur L. Saveca.* Defendant is per-

manently enjoined and restrained from asserting that the K-Tel Batting Trainer Devices manufactured, used and/or sold by plaintiff infringed Pat. No. 3,466,199. Filed Feb. 11, 1982.

3,485,797, Ashland Oil Inc., PHENOLIC RESINS CONTAINING BENZYLIC ETHER LINKAGES AND UNSUBSTITUTED PARA POSITIONS, **filed** Mar. 18, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70966, *Ashland Oil, Inc.* v. *Delta Resins & Refractories, Inc.*

3,507,861, Eli Lilly and Co., CERTAIN 3-METHYL-CEPHALOSPORIN COMPOUNDS, **filed** July 10, 1979, D.C., S.D. Fla. (Ft. Lauderdale), Doc. 79-6411-Civ-NCR, *Eli Lilly and Co.* v. *Generix Drug Corp.* Defendant is permanently enjoined from further infringing Plaintiff's patent. Action dismissed with prejudice and without costs to any party on Feb. 9, 1982.

3,510,391, Grefco, Inc., PERLITE BOARD BONDED TO ORGANIC PLASTIC FOAM, **filed** Aug. 24, 1977, D.C. Del. (Wilmington), Doc. 77-327, *Grefco, Inc.* v. *Kewanee Industries, Inc.* Action dismissed with prejudice on Mar. 2, 1982.

3,560,284, Wisotzky and Peterson, METHOD OF MAKING FOAM-BACKED TUFTED CARPET; **3,695,987, same,** FOAM-BACKED CARPETS, **filed** July 17, 1981, D.C. Del. (Wilmington), Doc. 81-323, *Compo Industries, Inc., et al.* v. *Collins & Aikman Corp.* Plaintiff Compo Industries, Inc. dismissed action without prejudice on Feb. 26, 1982.

3,593,782, Draves, Garrison and Skiba, HEAT EXCHANGER, **filed** Mar. 18, 1982, D.C., N.D. Okla. (Tulsa), Doc. 82-C-334-C, *Bas-tex Corp.* v. *Smithco Engineering, Inc.*

3,659,284, W. T. Rusch, TELEVISION GAMING APPARATUS; **Re. 28,507, same, filed** Jan. 29, 1981, D.C., S.D.N.Y., Doc. 81-Civ-0564, *North American Foreign Trading Corp.* v. *The Magnavox Co., et al.* Plaintiff is permanently enjoined and restrained from infringing Re. 28,507. Filed Sept. 16, 1981.

3,685,217, Belanger, Inc., ROTARY FINISHING WHEEL OR TOOL; **3,807,099, same; 3,820,291, same,** REPLACEABLE HINGE TYPE ABRASIVE UNITS OR PACKS FOR CYLINDRICAL HUB STRUCTURES; **3,846,942, same,** ROTARY FINISHING WHEELS, **filed** Mar. 16, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70926, *Belanger, Inc.* v. *Formax Mfg., Corp.*

3,696,952, Sea-Land Service, Inc., BULK CARGO HANDLING SYSTEM AND METHOD, **filed** Mar. 1, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1180, *Insta-Bulk, Inc.* v. *Tri-Wall Containers.*

3,695,987. (See 3,560,284.)

3,702,484, Aqua Therm Products Corp., LIGHTWEIGHT, MINIMUM-VOLUME WATER PAD, **filed** Feb. 16, 1982, D.C., N.D.N.Y. (Utica), Doc. 82-Civ-161, *Aqua Therm Products Corp.* v. *Akros Mfg., Inc., et al.*

3,736,036, Data Packaging Corp., STORAGE SYSTEM FOR TAPE CASSETTES, **filed** Feb. 12, 1982, D.C. Minn. (St. Paul), Doc. 3-82-137, *Data Packaging Corp.* v. *Hartzell Corp., et al.*

3,766,851, Sun Chemical Corp., CONTINUOUS CAN PRINTER AND HANDLING APPARATUS, **filed** Mar. 18, 1981, D.C., N.D. Ohio (Toledo), Doc. C81-146, *Sun Chemical Corp.* v. *Stroh Container, Inc.* **Same, filed** Dec. 18, 1978, D.C. Colo. (Denver), Doc. 78-M-1318, *Coors Container Co.* v. *Sun Chemical Corp.* Plaintiff's Complaint and Defendant's Counterclaims dismissed with prejudice. Filed Aug. 12, 1981. **Same, filed** Jan. 23, 1981, D.C. Colo. (Denver), Doc. 81-F-87, *Sun Chemical Corp.* v. *Ragsdale Bros., Inc.* Plaintiff's Complaint and Defendant's Counterclaims dismissed with prejudice. Filed Aug. 12, 1981.

3,807,099. (See 3,685,217.)

3,808,895, John Herman Fitzwater, ELECTRIC FAIL-SAFE ACTUATOR, **Re. 30,135, same, filed,** June 26, 1981, D.C., N.D. Ill. (Chicago), Doc. 81C3601, *Ewol, Inc.* v. *Brunswick Corp.* Cause dismissed. Filed Feb. 18, 1982.

3,819,921, Texas Instruments, Inc., MINIATURE ELECTRONIC CALCULATOR; **3,904,862, same** CALCULATOR SYSTEM HAVING A CONSTANT MEMORY; **3,932,846, same** ELECTRONIC CALCULATOR HAVING INTERNAL MEANS FOR TURNING OFF DISPLAY; **4,074,351, same,** VARIABLE FUNCTION PROGRAMMED CALCULATOR; **4,164,037, same,** ELECTRONIC CALCULATOR OR MICROPROCESSOR SYSTEM HAVING COMBINED DATA AND FLAG BIT STORAGE SYSTEM; **4,208,720, same,** CALCULATOR WITH ALGEBRAIC OPERATING SYSTEM, **filed** July 9, 1981, D.C.N.J. (Newark), Doc. 81-2157, *Casio Keisanki Kabushiki Kaisha* v. *Texas Instruments, Inc.*

3,819,921, Texas Instruments, Inc., MINIATURE ELECTRONIC CALCULATOR, **filed** Feb. 17, 1981, D.C., N.D. Tex. (Dallas), Doc. CA-3-81-0238G, *Texas Instruments, Inc.* v. *Casio Keisanki Kabushiki Kaisha, doing business as Casio Computer Co., Ltd.*

3,820,291. (See 3,685,217.)

3,846,942. (See 3,685,217.)

3,884,068, International Measurement & Control Co., LOAD SENSING DEVICE; **4,048,848, same,** LOAD MONITORING SYSTEM; **4,064,055, same** LOAD MONITORING SYSTEM WITH HIGH AND LOW LOAD CONTROL; **4,171,646, same,** LOAD DIFFERENTIAL MONITORING SYSTEM, **filed** Feb. 5, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 728, *International Measurement & Control Co.* v. *Production Engineering Co.*

3,895,738, Dataq, Inc., GASOLINE DISPENSING SYSTEM **filed** Sept. 29, 1978, D.C., N.D. Okla. (Tulsa), Doc. 78-C-484-E, *Dataq, Inc.* v. *Tokheim Corp.* Judgment entered in favor of Defendant and against Plaintiff, on Defendant's Counterclaim, and that Pat. No. 3,895,738 is declared by the Court to be void and invalid. Filed Feb. 3, 1982.

3,904,862. (See 3,819,921.)

3,919,516, Ag Fur Industrielle Elektronik, MOTION TRANSLATION MECHANISM FOR THE TOOL DRIVE OF A MACHINING EQUIPMENT; **3,975,608, same,** METHOD AND APPARATUS FOR REGULATING THE GAP DISTANCE IN ELECTRO-EROSION MACHINING, **filed** Mar. 4, 1982, D.C.N.J. (Newark), Doc. 82-675, *System 3R USA, Inc.* v. *Ag Fur Industrielle Elektronik.*

3,932,846. (See 3,819,921.)

3,961,858, Independent Die Association, Inc., COMPOUND ANGLE CUTTING EDGE, **filed** Dec. 12, 1980, D.C., E.D. Mich. (Detroit), Doc. 80-74653, *Independent Die Association, Inc.* v. *Ford Motor Co.* Case reassigned to different judge. New case number is 80-40449. Filed Jan. 19, 1982.

3,969,079, Warner-Lambert Co., DUAL CHANNEL PHOTO-OPTICAL CLOT DETECTION APPARATUS, **filed** Aug. 31, 1979, D.C.N.J. (Newark), Doc. 79-2653, *Warner-Lambert Co.* v. *Curtin Matheson Scientific, Inc.* Stipulation and Order dismissing Plaintiff's Complaint and Defendant's Counterclaims filed Mar. 8, 1982.

3,973,282, Marvin I. May, WATER BED LINER HOLDER, **filed** Feb. 19, 1982, D.C., W.D. Mo. (Kansas City), Doc. 82-0120-CV-W-7, *Tite Nites, Inc., et al.* v. *M. D. Wheat, Inc., doing business as E-Z Sleep Waterbeds, et al.*

3,975,608. (See 3,919,516.)

4,008,552, Lawrence F. Biebuyck, WALL STRUCTURE AND ELEMENTS THEREFOR, **filed** Mar.19, 1982, D.C., N.D. Tex. (Dallas), Doc. 3-82-0426G, *Howmet Aluminum Corp.* v. *U.S. Aluminum Corp.*

4,048,848. (See 3,884,068.)

4,062,055. (See 3,884,068.)

4,073,296, Francis J. McCall, APPARATUS FOR ACUPRESSURE TREATMENT, **filed** Mar. 15, 1982, D.C., S.D. Fla. (Miami), Doc. 82-502-Civ-WMH, *Acu Form Weight Control Centers, Inc. and Francis J. McCall* v. *Acu-Thin Weight Control Centers of Ga., Inc., et al.*

4,074,351. (See 3,819,921.)

4,081,879, Chemcast Corp., SEALING MEMBER, **filed** Mar. 15, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70902, *Chemcast Corp.* v. *Arco Industries Corp.*

4,096,484, Edo Western Corp., GRAPHIC RECORDING SYSTEM, **filed** Nov. 24, 1980, D.C. Mass. (Boston), Doc. 80 2621, *Edo Western Corp.* v. *EPC Laboratories, Inc.*

4,132,181, Smith, Davis and Heiniger, FERTILIZER APPLYING KNIFE ASSEMBLY; **D. 252,506,** Charles J. Clark, WEAR POINT FOR AGRICULTURAL FERTILIZER SHANK; **D. 252,574,** Charles J. Clark, WEAR POINT FOR AGRICULTURAL FERTILIZER SHANK, **filed** Feb. 5, 1982, D.C., W.D. Okla. (Oklahoma City), Doc. 82-179-T, *Adams Hard-Facing Co.* v. *Ace Service Corp.*

4,144,733, Billy L. Whitten, PIPE GROOVING APPARATUS, **filed** Mar. 11, 1981, D.C., N.D. Ga. (Rome), Doc. 81-72R, *Billy L. Whitten* v. *Douglas Cordle, et al.* Plaintiff's Pat. No. 4,144,733 is valid. Defendant's are permanently enjoined and restrained from further infringing Plaintiff's patent. Filed Feb. 17, 1982.

4,164,037. (See 3,819,921.)

4,171,013, Robert C. Clark, RETRACTABLE AWNING ASSEMBLY, **filed** Sept. 30, 1981, D.C. Colo. (Denver), Doc. 81-C1721, *Scott & Fetzer Corp., doing business as Carefree of Colorado Div.* v. *A & E Systems, Inc., et al.* Order dismissed without prejudice on Feb. 2, 1982.

4,171,646. (See 3,884,068.)

4,173,314, Cary Metal Products, Inc., CONTINUOUS WEB SUPPLY APPARATUS, **filed** Mar. 10, 1982, D.C., N.D. Ill. (Chicago), Doc. 82C1511, *Cary Metal Products, Inc.* v. *Enkel Corp.*

4,186,393, William Leventer, DIGITAL CHARACTER FONT ENHANCEMENT DEVICE, **filed** Mar. 3, 1982, D.C. Mass. (Boston), Doc. 82-0604-Mc, *Sterling Television Presentations, Inc.* v. *Shintron Co., Inc.*

4,191,792, Robert I. Janssen, PAINT ROLLER, **filed** Nov. 5, 1981, D.C., N.D. Ohio (Akron), Doc. C81-2220 A, *Padco, Inc.* v. *Wooster Brush Co.* **Same, filed** Nov. 4, 1981, D.C., E.D. Tenn. (Greenville), Doc. Civ-2-81-229, *Padco, Inc.* v. *Thomas Industries, Inc.* Pat. No. 4,191,792 issued to Plaintiff is good and valid in law. Defendant is permanently enjoined against further infringing Plaintiff's patent. Filed Feb. 18, 1982.

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4,208,720. (See 3,819,921.)

4,235,442, Fidelity Electronics, Ltd., ELECTRONIC BOARD GAME SYSTEM, **filed** Mar. 19, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1749, *Scisys Computer, Inc.* v. *Fidelity Electronics, Ltd.*

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4,279,326, Sam W. Meineke, EXHAUST MUFFLER, **filed** Mar. 2, 1982, D.C., N.D. Tex. (Fort Worth), Doc. CA4-82-105, *Meineke Discount Muffler Shops, Inc.* v. *APX Group, Inc.*

4,301,040, Charleswater Products, Inc., ELECTRICALLY CONDUCTIVE FOAM AND METHOD OF PREPARATION AND USE, **filed** Jan. 19, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 0240, *Charleswater Products, Inc.* v. *Isles Industries, Inc., et al.*

Re. 28,507. (See 3,659,284.)

Re. 29,922, Sidney O. Sampson, TRACK SELECTION CONTROL MEANS FOR MAGNETIC SIGNAL RECORDING AND REPRODUCING SYSTEMS, **filed** Mar. 26, 1980, D.C., S.D.N.Y., Doc. 80 Civ 1715, *Sidney O. Sampson* v. *104 Camera World, Inc., doing business as Camera World & Sound.* Complaint dismissed without prejudice on July 24, 1980. **Same, filed** Jan. 27, 1981, D.C., S.D.N.Y., Doc. 81 Civ 0504, *Sidney O. Sampson* v. *Tandberg of America, Inc.* **Same, filed** Dec. 29, 1980, D.C., S.D.N.Y., Doc. 80 Civ 7401 MJL, *Sidney O. Sampson* v. *North American Philips Corp.* Complaint dismissed on May 29, 1981. **Same, filed** June 24, 1981, D.C., E.D. Tenn. (Knoxville), Doc. 3-81-322, *Sidney O. Sampson* v. *Philips High Fidelity Laboratories, Ltd.*

Re. 30,135. (See 3,808,895.)

D. 245,461, Jack Jones, Jr., SHOULDER WALLET, **filed** Dec. 30, 1981, D.C., S.D. Calif. (San Diego), Doc. 81-1340-GT(M), *Samuel J. Jason* v. *Gilbert Jacobo, doing business as San Mex.*

D. 252,506. (See 4,132,181.)

D. 252,574. (See 4,132,181.)

D. 256,802, Jacobus E. Hazenbroek, EVISCERATOR TOOL, **filed** Feb. 12, 1982, D.C., N.D. Ga. (Gainesville), Doc. C82-027G, *Cagles, Inc.* v. *Centennial Machine Co., Inc.*

D. 257,663, Scott & Fetzer Corp., BRACKET DESIGN FOR RETRACTABLE AWNINGS, **filed** Sept. 30, 1981, D.C. Colo. (Denver), Doc. 81-C-1722, *Scott & Fetzer Corp., doing business as Carefree of Colorado Div.* v. *A & E Systems, Inc.* Action dismissed without prejudice on Jan. 27, 1982.

D. 259,413, John Rehkopf, TOOL BOX FOR A VEHICLE OR THE LIKE, **filed** Mar. 9, 1982, D.C., N.D. Ohio (Cleveland), Doc. C82-703, *John Rehkopf* v. *Alco Standard Corp.*

D. 261,439, S. Franklin Sher, PIPE; **D. 261,813, same; D. 262,143, same; D. 262,144, same, filed** Mar. 18, 1982, D.C., N.D. Calif. (San Francisco), Doc. C82-1099RHS, *NEA Enterprises* v. *Vitrico Corp.*

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D. 261,813. (See D. 261,439.)

D. 262,143. (See D. 261,439.)

D. 262,144. (See D. 261,439.)

Errata

In the Official Gazette of Jan. 25, 1977 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 420, "903,211. EBCOA. U.S. Cl. 101" should be deleted.

In the Official Gazette of Dec. 16, 1980 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 128, "986,917. N-30. (U.S. Cl. 34). Reg. 6-25-74" should be deleted.

In the Official Gazette of Mar. 17, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 365, "974,508. BUTZ-CHOQUIN. (U.S. Cl. 8). Reg. 12-11-73" should be deleted.

In the Official Gazette of May 12, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 298, "1,000,043. CAPTAIN ALEXANDERS MOONRAKER. (U.S. Cl. 100). Reg. 12-17-74" should be deleted.

In the Official Gazette of Aug. 4, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 142, "1,006,187. KIWI. (Int. Cl. 2). Reg. 3-11-75" should be deleted.

In the Official Gazette of Oct. 6, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 156, "1,010,546. RHEINKRONE. (Int. Cl. 33). Reg. 5-13-75" should be deleted.

In the Official Gazette of Oct. 20, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 476, "1,010,177. GOFF. (U.S. Cl. 46). Reg. 5-27-75" should be deleted.

In the Official Gazette of Oct. 13, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 321, "1,011,061. CRYSTAL PLUS AND DESIGN. (Int. Cl. 25). Reg. 5-20-75" should be deleted.

In the Official Gazette of Nov. 3, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 164, "1,013,116. HAYMATES AND DESIGN. (U.S. Cl. 1). Reg. 6-10-75" should be deleted.

In the Official Gazette of Nov. 3, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 164, "1,013,123. BEAN. (U.S. Cls. 2, 13, 19, 23, 26 and 35). Reg. 6-10-75" should be deleted.

In the Official Gazette of Nov. 17, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 398, "1,014,263. PANORAMA AND DESIGN. (Int. Cls. 35, 36 and 42). Reg. 6-24-75" should be deleted.

In the Official Gazette of Dec. 1, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 117, "1,015,109. CHOLFAC. (Int. Cl. 5). Reg. 7-8-75" should be deleted.

In the Official Gazette of Dec. 1, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 118, "1,015,300. VILLA STAIR. (Int. Cl. 19). Reg. 7-8-75" should be deleted.

In the Official Gazette of Feb. 16, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 201, "1,018,559. JAGENBERG. (U.S. Cl. 23). Reg. 8-19-75" should be deleted.

In the Official Gazette of Feb. 16, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 201, "1,019,836. EPPY/N. (Int. Cl. 5). Reg. 9-9-75" should be deleted.

In the Official Gazette of Mar. 9, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 158, "1,022,402. LIME-OUT. (Int. Cl. 3). Reg. 10-14-75" should be deleted.

In the Official Gazette of Mar. 23, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 391, "1,018,310. SIERRA DESIGN (PLUS OTHER NOTATIONS) AND DESIGN. (U.S. Cl. 39). Reg. 8-12-75" should be deleted.

In the Official Gazette of Mar. 23, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 391, "1,018,541. SIERRA DESIGNS (PLUS OTHER NOTATIONS) AND DESIGN. (U.S. Cls. 3, 22 and 42). Reg. 8-19-75" should be deleted.

In the Official Gazette of Apr. 20, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 419, "1,025,584. CLEAR MORN AND DESIGN. (Int. Cl. 3). Reg. 11-25-75" should be deleted.

In the Official Gazette of May 4, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 141, "1,025,542. SOLDER BRITE. (Int. Cl. 1). Reg. 12-9-75" should be deleted.

In the Official Gazette of May 4, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 142, "1,026,808. STYLED BY SYDEL AND DESIGN. (Int. Cl. 25). Reg. 12-9-75" should be deleted.

In the Official Gazette of May 4, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 144, "1,027,031. ESE AND DESIGN. (U.S. Cl. 26). Reg. 12-9-75" should be deleted.

Notice of Application for Recordation of Trade Name

"BRITCHES GREAT OUTDOORS"

Application has been filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name "BRITCHES GREAT OUTDOORS," used by Canterbury Tales, Inc., 1321 Leslie Dr., Alexandria, Va. 22301.

The application states that the trade name is used in connection with the following merchandise which is manufactured in Hong Kong and Taiwan: men's and women's clothing; shoes, slippers, down booties and shoe trees; umbrellas; key rings; brass accessories; gift items; wallets; leather goods; attaches; luggage; clocks, watches and watch bands; sunglasses; razors; smoker's accessories; knives; games; books; food products; pens and ink; fabric; camping equipment; and retail clothing store services, in U.S. Patent and Trademark Office Classes 3; 11; 22; 27; 39; 40; 46; and 101. Appropriate accompanying papers were submitted with the application.

Before final action is taken on the application, consideration will be given to any relevant data, views, or arguments submitted in writing by any person in opposition to the recordation of this trade name. Any such submission should be addressed to the Commissioner of Customs, Entry, Licensing and Restricted Merchandise Branch, Washington, D.C. 20229, in time to be received no later than 60 days from the date of publication of this notice in the Federal Register.

For Further Information Contact:

Harriet Lane, Entry, Licensing and Restricted Merchandise Branch, U.S. Customs Service, 1301 Constitution Ave., NW., Washington, D.C. 20229 (202-566-5765).

Notice of the action taken on the application for recordation of this trade name will be published in the Federal Register.

DONALD W. LEWIS,
Director Entry Procedures and Penalties Division.

May 13, 1982

Notice of Application for Recordation of Trade Name

"MEAD JOHNSON & COMPANY"

Application has been filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name "MEAD JOHNSON & CO.," a corporation organized under the laws of the State of Delaware, located at 2404 Pennsylvania Street, Evansville, Ind. 47721.

The application states that the trade name is used in connection with the following merchandise manufactured in numerous foreign countries: pharmaceuticals and medicines; chemicals; toiletries; vitamins; medical appliances; foods for infants and invalids and other nutritional foods. Appropriate accompanying papers were submitted with the application.

Before final action is taken on the application, consideration will be given to any relevant data, views, or arguments submitted in writing by any person in opposition to the recordation of this trade name. Any such submission should be addressed to the Commissioner of Customs, Entry, Licensing and Restricted Merchandise Branch, Washington, D.C. 20229, in time to be received no later than 60 days from the date of publication of this notice in the Federal Register.

For Further Information Contact:

Harriet Lane, Entry, Licensing and Restricted Merchandise Branch, U.S. Customs Service, 1301 Constitution Ave., NW., Washington, D.C. 20229 (202-566-5765).

Notice of the action taken on the application for recordation of this trade name will be published in the Federal Register.

DONALD W. LEWIS,
Director, Entry Procedure and Penalties Division.

May 13, 1982

Notice of Recordation of Trade Name

SON-EXPORT, S.A. de C.V.

On Dec. 17, 1981, there was published in the Federal Register (46 FR 61532) a notice of application for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name "SON-EXPORT, S.A. de C.V." The notice advised that prior to final action on the application, filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), consideration would be given to relevant data, views, or arguments submitted in opposition to the recordation and recieved not later than 30 days from the date of publication of the notice. No responses were received in opposition to the application.

The name "SON-EXPORT S.A. de C.V." is hereby recorded as the trade name of Son-Export S.A. de C.V., a company governed by the laws of The Republic of Mexico, located at Plutarco Elias Calles y Rosales #124, Desp. 3003, Hermosillo, Sonora, Mexico. The trade name is applied to fresh frozen shellfish (shrimp).

DONALD W. LEWIS,
Director, Entry Procedures and Penalties Division

Apr. 27, 1982

Government—Owned Inventions
Availability for Licensing

The inventions listed below are assigned to the United States Government as represented by the Secretary of the Navy and are made available for licensing by the Department of the Navy.

For further information contact:

DR. A. C. WILLIAMS
Staff Patent Adviser
Office of Naval Research
Ballston Tower No. 1
Arlington, Va., 22217
Telephone No. 202-696-4005

Patent application 128,593. An Optimally Loaded Electrohyrodynamic Power Generator. Filed Mar. 4, 1980.

Patent application 131,341. High Velocity Exhaust Diffuser and Water Baffle. Filed Mar. 18, 1980.

Patent application 137,172. A Multiple Scanivalve Control Device. Filed Mar. 28, 1980.

Patent application 144,707. Apparatus for Vertically Stacking Flat Weights. Filed Apr. 25, 1980.

Patent application 160,051. Blasting Cap Container. Filed June 16, 1980.

Patent application 168,988. Time Encoded Spatial Display. Filed July 14, 1980.

Patent application 175,118. Electronic Component Colling. Filed Aug. 4, 1980.

Patent application 181,524. Cable Connector. Filed Aug. 26, 1980.

Patent application 184,513. Bi-Planar Swirl Combustor. Filed Sept. 5, 1980.

Patent application 187,672. Improved Field-Effect Transistor. Filed Sept. 16, 1980.

Patent application 193,324. Cross Reinforcement in a Graphite-Epoxy Laminate. Filed Oct. 2, 1981.

Patent application 194,168. Adaptive Correlator. Filed Oct. 6, 1981.

Patent application 200,728. Frequency Generator with Digitally Controlled Phase Modulation. Filed Oct. 27, 1982.

Patent application 201,669. Multiple-Quantum Interference Superconducting Analog-to-Digital Conversion.

Patent application 203,006. Lithium-6 Neutron Detector. Filed Nov. 3, 1980.

Patent application 203,086. Loss-of-Phase-Lock Indicator Circuit. Filed Oct. 31, 1980.

Patent application 206,424. Coil Device for Underwater Magnetic Testing. Filed Nov. 13, 1980.

Patent application 208,596. Non-Alloyed Heterojunction Ohmic Contacts. Filed Nov. 19, 1981.

Patent application 208,754. Tunnel Wedge. Filed Nov. 20, 1980.

Patent application 211,011. Multiplex System Tester. Filed Nov. 28, 1980.

Patent application 211,960. Improved Radiation Resistant Projectile Cainster Liner. Filed Dec. 1, 1980.

Patent application 211,981. Snubber Assembly. Filed Dec. 1, 1980.

Patent application 214,545. Flush Mounted Low Impendance Grounding Cone. Filed Dec. 9, 1980.

Patent application 216,357. Direct Image Conversion Display System. Filed Dec. 15, 1981.

Patent application 216,722. Rotary Latch. Filed Dec. 15, 1980.

Patent application 221,964. Switching Regulated Power Supply. Filed Jan. 2, 1981.

Patent application 222,114. Spherical Segment Insertion Apparatus. Filed Jan. 2, 1981.

Patent application 223,635. Magnetostrictive Optical Fiber Cable and Magnetic Field Detector and Method Thereof. Filed Jan. 12, 1981.

Patent application 224,775. Ball Bearing Assembly Device. Filed Jan. 13, 1981.

Patent application 225,182. Insulated Fiber Brush. Filed Apr. 17, 1981.

Patent application 225,883. Height Adjustable Cargo Container Locking Mechanism. Filed Jan. 19, 1981.

Patent application 226,668. Electro-Ceramic Stack. Filed Jan. 21, 1981.

Patent application 226,980. Computer Generated Hologram Mask. Filed Jan. 21, 1981.

Patent application 227,285. Carbon Dioxide Absorbent Canister with Breathing Gas Temperature and Flow Control. Filed Jan. 22, 1981.

Patent application 228,425. Annealing of Ion-Implanted GaAs and InP Semiconductors. Filed Jan. 26, 1981.

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Patent application 228,429. Microstrip Backfire Antenna. Filed Jan. 26, 1981.

Patent application 230,246. An Optical Lithographic Technique for Fabricating Submicro-Sized Josephson Microbridges. Filed Feb. 2, 1981.

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Patent application 230,955. Integrated Dual Taper Waveguide Expansion Joint. Filed Feb. 3, 1981.

Patent application 231,636. Coherent Anti-Stokes Raman Device. Filed Feb. 4, 1981.

Patent application 234,059. Sunsubsatcom. Filed Feb. 12, 1981.

Patent application 235,213. Least Squares Adaptive Lattice Equalizer. Filed Feb. 17, 1981.

Patent application 235,287. Rotating Electric Machine Having a Toroidal Wound Motor Winding. Filed Feb. 17, 1981.

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Patent application 236,474. Solid State Commutator Switch. Filed Feb. 20, 1981.

Patent application 236,476. Underwater Vehicle Porting System. Filed Feb. 20, 1981.

Patent application 236,478. Variable Speed Reducing and Torque Transmitting System. Filed Feb. 20, 1981.

Patent application 236,948. 360° Closed Circuit Television System. Filed Feb. 23, 1981.

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Patent application 241,289. Optical Fiber Magnetic Field Sensor. Filed Mar. 6, 1981.

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Patent application 241,307. Dual-Gate Deep-Depletion Technique for Generation-Lifetime Measurement. Filed Mar. 9, 1981.

Patent application 241,309. Electro-Optical Modulator for an Electro-Optical Modulated Laser. Filed Mar. 6, 1981.

Patent application 242,086. Flush Mountable Plasma Density Profile Probe Device. Filed Mar. 9, 1981.

Patent application 242,199. Shock Simulator. Filed Mar. 10, 1981.

Patent application 243,416. A Waveplate for Correcting Thermally Induced Stress Birefringence in Solid State Lasers. Filed Mar. 13, 1981.

Patent application 244,175. Feed-Forwarded Amplifier. Filed Mar. 16, 1981.

Patent application 244,380. Delay Cartridge With Temperature Programmed Flash. Filed Mar. 16, 1981.

Patent application 244,463. A Safety Mooring Line. Filed Mar. 16, 1981.

Patent application 244,947. Free Electron and Cyclotron Resonance Distributed Feedback Lasers and Masers. Filed Mar. 18, 1981.

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Patent application 246,350. Power Meter for High Energy Lasers. Filed Mar. 23, 1981.

Patent application 246,529. Electrochemical Deoxygenation for Liquid Phase Epitaxial Growth. Filed Mar. 19, 1981.

Patent application 246,781. Emergency Lighting Unit. Filed Mar. 23, 1981.

Patent application 246,840. Niobium Tunnel Junctions and Its Fabrication by Reactive Ion Beam Oxidation. Filed Mar. 23, 1981.

Patent application 247,420. Intense Pulsed Ion Beams Driven Tokamak. Filed Mar. 25, 1981.

Patent application 248,932. Booster for Missile Fuze. Filed Mar. 30, 1981.

Patent application 249,574. Spring Safety Retainer. Filed Mar. 30, 1981.

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Patent application 250,978. Programmable Fuze. Filed Apr. 3, 1981.

Patent application 250,997. Separation of Carbon Isotopes. Filed Apr. 3, 1981.

Patent application 250,998. Separation of Hydrogen Isotopes. Filed Apr. 3, 1981.

Patent application 251,617. Aircraft Self-Protection Radar. Filed Apr. 27, 1981.

Patent application 251,806. Radiosonde. Filed Apr. 7, 1981.

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Patent application 252,712. Synthesis of Hydrocarbon Soluble Vanadium Catalyst. Filed Apr. 9, 1981.

Patent application 252,725. Diving Suit with Neck and Wrist Seals. Filed Apr. 10, 1981.

Patent application 253,417. Laser Beam Steering Device. Filed Apr. 13, 1981.

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Patent application 254,576. Internally Electrode Ceramic Piezoelectric Transformer. Filed Apr. 16, 1981.

Patent application 254,706. New Microwave Dissociation Source. Filed Apr. 16, 1981.

Patent application 254,809. A Self-Deploying Buoy System. Filed Apr. 16, 1981.

Patent application 255,081. Gold Based Electrical Contact Materials, and Method Therefor. Filed Apr. 17, 1981.

Patent application 255,122. Calibrating Device for Ionizing Radiation Dosimeters. Filed Apr. 17, 1981.

Patent application 255,621. An N-Way Summing Network Characterization System. Filed Apr. 20, 1981.

Patent application 256,230. 1, 9-Diazido-2,4,6, 8-Tetranitro-2,4,6, 8-Tetrazanonane. Filed Apr. 21, 1981.

Patent application 256,289. Pressure Insensitive Optical Fiber. Filed Apr. 22, 1981.

Patent application 256,327. Test Apparatus for Fluid Level Control Valves. Filed Apr. 22, 1981.

Patent application 256,330. Electrical Connection. Filed Apr. 22, 1981.

Patent application 256,355. Composite Video Signal Separator. Filed Apr. 22, 1981.

Patent application 256,750. Apparatus and Method for Quantitative Nondestructive Wire Testing. Filed May 23, 1981.

Patent application 256,868. Low Power Driver for Flux Gate Magnetometer. Filed Apr. 24, 1981.

Patent application 257,028. Selected Photoinduced Condensation Technique for Producing Semiconducting Compounds. Filed Apr. 24, 1981.

Patent application 257,302. In-Situ Leach Rate Measuring System. Filed Apr. 24, 1981.

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Patent application 258,134. Gold Based Material for Electrical Contact Materials. Filed Apr. 27, 1981.

Patent application 258,157. Gold Based Electrical Contact Materials. Filed Apr. 27, 1981.

Patent application 258,345. Recessed Interdigital Integrated Capacitor and Method Therefor. Filed Apr. 28, 1981.

Patent application 258,346. Radar Clutter Reduction by Use of Frequency-Diverse, Wideband Pulse-Compression Waveforms. Filed Apr. 28, 1981.

Patent application 258,704. Transmission Line Biased Coherent Array of Josephson Oscillators. Filed Apr. 29, 1981.

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Patent application 262,153. Helmet Mounted Eye Tracker Using a Position Sensing Detector. Filed May 11, 1981.

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Patent application 262,362. Adaptive Quantizer for Acoustic Binary Information Transmission. Filed May 11, 1981.

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Patent 4,300,468. Position Interlock System for Submarine Masts and Closure. Filed Mar. 24, 1980. Patented Nov. 17, 1981.

Patent 4,300,930. Minimum Dispersion at 1.55 μM For Single-Mode Step-Index Optical Fibers. Filed Oct. 31, 1980. Patented Nov. 17, 1981.

Patent 4,301,426. Solid State Laser and Material. Filed Nov. 19, 1979. Patented Nov. 17, 1981.

Patent 4,301,523. Measurement and Compensation System for Beam Forming Array. Filed June 6, 1980. Patented Nov. 17, 1981.

Patent 4,301,708. Launch Tube Closure. Filed July 25, 1979. Patented Nov. 24, 1981.

Patent 4,301,983. High Accerleration Protective Seat. Filed Oct. 29, 1979. Patented Nov. 4, 1981.

Patent 4,303,410. Light Burst Activity Analyzer. Filed Nov. 3, 1980. Patented Dec. 1, 1981.

Patent 4,304,189. Telescopic Launch and Retrieval Chute. Filed Oct. 25, 1979. Patented Dec. 8, 1981.

Patent 4,305,280. Rainfall Intensity Sensor. Filed Feb. 1, 1980. Patented Dec. 15, 1981.

Patent 4,305,284. Method and Means for Indicating Fluid Level by Fluid Pressure. Filed Jan. 29, 1980. Patented Dec. 15, 1981.

Patent 4,306,301. Wide Band Frequency Shifter in Variable Amounts. Filed July 14, 1964. Patented Dec. 15, 1981.

Patent 4,306,552. Plasticized Poly-&-Caprolactone Film. Filed Aug. 12, 1980. Patented Dec. 22, 1981.

Patent 4,307,160. Lithium-Thionyl Chloride Battery with Niobium Pentachloride Electrolyte. Filed Dec. 17, 1980. Patented Dec. 22, 1981.

Patent 4,307,583. Fixture for Aligning Shafts for Connection. Filed May 16, 1980. Patented Dec. 29, 1981.

Patent 4,317,797. A Resin Purger. Filed Aug. 25, 1980. Patented Mar. 2, 1982.

PATENT NOTICES

Certificates of Correction for the Week of June 15, 1982,

Re. 29,792	4,273,608	4,305,218	4,314,920
Re. 30,871	4,276,284	4,305,467	4,315,112
Re. 30,880	4,282,282	4,305,746	4,315,828
D 261,455	4,285,695	4,306,035	4,316,177
D 263,038	4,288,341	4,306,312	4,316,381
3,713,659	4,288,829	4,306,787	4,316,532
3,950,529	4,289,168	4,307,408	4,317,438
4,021,431	4,290,323	4,307,418	4,317,789
4,021,448	4,290,538	4,307,471	4,317,869
4,079,430	4,290,739	4,307,474	4,318,197
4,124,376	4,292,435	4,308,113	4,318,204
4,152,673	4,294,221	4,308,154	4,318,523
4,157,398	4,294,408	4,308,170	4,319,099
4,159,278	4,294,585	4,308,369	4,319,125
4,160,057	4,294,713	4,308,588	4,319,137
4,172,147	4,296,100	4,308,624	4,319,195
4,188,711	4,296,215	4,308,823	4,319,440
4,202,811	4,297,899	4,308,995	4,319,845
4,208,326	4,298,827	4,309,160	4,319,900
4,217,506	4,298,846	4,310,023	4,320,323
4,219,212	4,299,679	4,310,155	4,320,575
4,224,401	4,299,773	4,310,341	4,321,029
4,229,516	4,300,212	4,310,345	4,321,586
4,229,585	4,300,356	4,310,518	4,321,606
4,234,269	4,300,659	4,310,534	4,321,632
4,240,232	4,301,130	4,310,891	4,322,146
4,247,194	4,301,217	4,311,176	4,322,301
4,248,194	4,301,606	4,311,293	4,322,522
4,248,698	4,301,748	4,311,727	4,322,771
4,248,859	4,302,144	4,311,840	4,323,209
4,248,863	4,302,380	4,311,921	4,323,651
4,252,886	4,302,553	4,312,579	4,323,799
4,258,184	4,302,687	4,312,713	4,326,003
4,259,393	4,302,779	4,312,724	4,326,166
4,261,000	4,303,398	4,312,870	4,326,251
4,262,678	4,303,586	4,313,211	4,326,300
4,264,914	4,304,285	4,313,876	4,326,398
4,265,040	4,304,757	4,314,291	
4,268,872	4,305,106	4,314,492	

Disclaimers

4,063,101.—*Emanuel H. Duden,* Mortsel, Belgium. PACKAGE FOR FILMS. Patent dated Dec. 13, 1977. Disclaimer filed Apr. 9, 1982, by the assignee, *Agfa-Gevaert, N.V.*

Hereby enters this disclaimer to all claims of said patent.

4,076,312.—*Chang Yul Cha,* Bakersfield, Calif.; *Richard D. Ridley* and *Robert S. Burton, III,* Grand Junction, Colo. METHOD AND APPARATUS FOR RETORTING OIL SHALE AT SUBATMOSPHERIC PRESSURE. Patent dated Feb. 28, 1978. Disclaimer filed Aug. 31, 1981, by the assignee, *Occidental Oil Shale, Inc.*

Hereby enters this disclaimer to all claims of said patent.

4,195,849.—*Morris E. Taft,* Metamora, Ill. PISTON FLUID SEAL MOUNTING. Patent dated Apr. 1, 1980. Disclaimer filed June 18, 1981, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

4,196,588.—*Howard L. Johnson,* Joliet, Ill. MARGIN VALVE. Patent dated Apr. 8, 1980. Disclaimer filed Oct. 13, 1981, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1 and 20 of said patent.

4,293,734.—*William Pepper, Jr.,* Bethesda, Md. TOUCH PANEL SYSTEM AND METHOD. Patent dated Oct. 6, 1981. Disclaimer filed Apr. 7, 1982, by the assignee, *Peptek, Inc.*

Hereby enters this disclaimer to claims 23, 24 and 27 of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
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Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 573-5152 Ext. 222
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
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Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 15, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-04-80
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-04-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	4-09-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-08-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	4-15-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	8-29-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-20-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	6-04-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	8-11-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	10-02-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	1-07-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	6-26-80

Expiration of patents: The patents within the range of numbers indicated below expire during May 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,181,175 to 3,186,003, inclusive

Plant Patents ..... Numbers 2,502 to 2,521 inclusive

REISSUES

JUNE 15, 1982

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

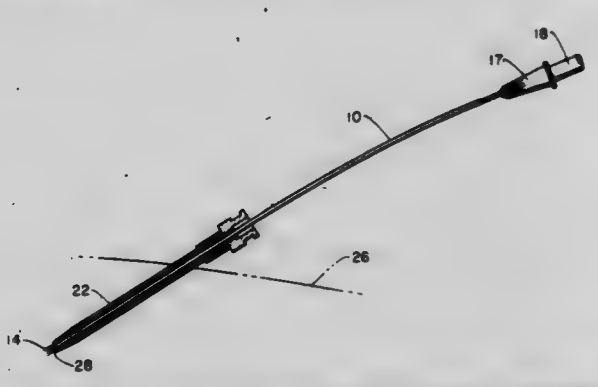
Re. 30,966
WICK CATHETER PRESSURE SENSING PROBE AND METHOD OF USE

Alan R. Hargens, and Scott J. Mubarak, both of San Diego, Calif., assignors to Regents of the University of California, Berkeley, Calif.

Original No. 4,192,319, dated Mar. 11, 1980, Ser. No. 838,187, Sep. 30, 1977. Application for reissue Dec. 8, 1980, Ser. No. 214,591

Int. Cl.[3] A61B *5/02;* A61M *5/00*

U.S. Cl. 128—748 7 Claims



1. A method of measuring interstitial pressures comprising:
inserting a sheathed placement needle through the skin and through any other region of relatively high penetration resistance;
partially withdrawing the needle into the sheath so that the tip of the needle is within the sheath;
further inserting the sheath and needle to a desired placement within a tissue of interest;
withdrawing the needle, leaving the sheath in place;
attaching a tether to a wick;
positioning the wick partially in one end of a catheter which has an adapter attached to its other end;
filling the catheter with a [sterilized heparinized] solution;
inserting the catheter tube with wick into the sheath until the one end thereof resides at the desired placement within the body tissue;
connecting a pressure-sensing and indicating means to the adapter on said other end.

Re. 30,967
AUTOMATICALLY CONTROLLED WEIGH FEEDING APPARATUS

Angelo Ferrara, Fairfield; Ronald J. Ricciardi, Garfield, and Alexander A. Urban, Park Ridge, all of N.J., assignors to Acrison, Inc., Moonachie, N.J.

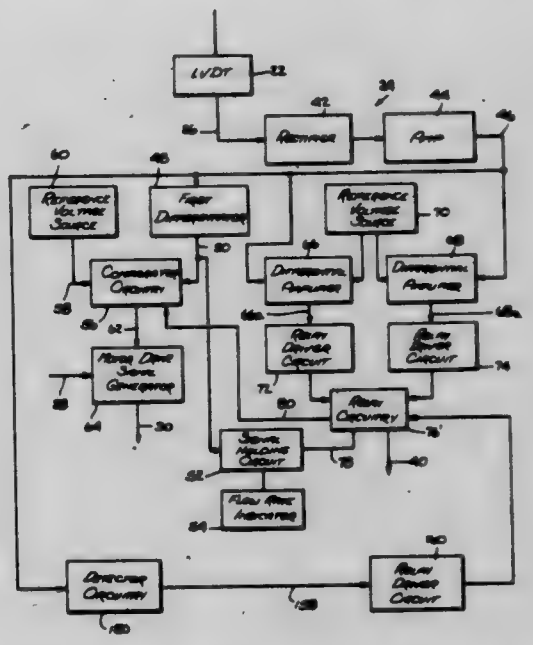
Original No. 3,967,758, dated Jul. 6, 1976, Ser. No. 550,639, Feb. 18, 1975. Continuation-in-part of Ser. No. 345,587, Mar. 28, 1973, Pat. No. 3,889,848, which is a continuation-in-part of Ser. No. 274,844, Jul. 25, 1972, abandoned. Application for reissue Feb. 25, 1980, Ser. No. 124,052

The portion of the term of this patent subsequent to Jun. 17, 1992, has been disclaimed.

Int. Cl.[3] G01G *11/14*

U.S. Cl. 222—58 16 Claims

9. A weigh feeding apparatus comprising a container for a prefilled substance, means for discharging the substance from the container at a controllable rate, means for weighing the container and its contents for producing an electrical signal proportional to the weight, said electrical signal exhibiting excessive excursions in response to disturbances impinging on said weighing means, means actuated by said electrical signal for controlling the discharge of the substance from the container, detector circuit means actuated by said electrical signal for producing an output which is responsive to predetermined excessive excursions of said electrical signal, and means responsive to said output for locking the discharge control means against deviation during the time of said predetermined excessive excursions.



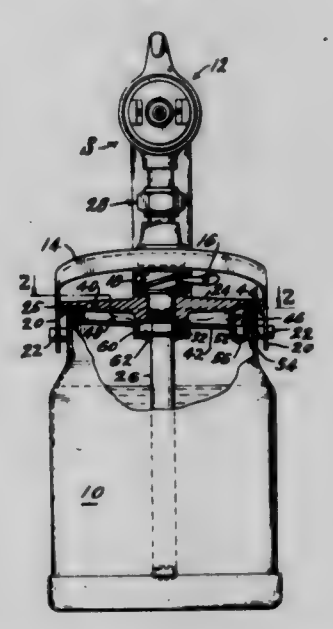
Re. 30,968
ATTACHMENT FOR PAINT SPRAY GUN SYSTEMS

Colonel E. Grant, Toledo, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio

Original No. 3,990,609, dated Nov. 9, 1976, Ser. No. 666,192, Mar. 12, 1976. Application for reissue Sep. 24, 1979, Ser. No. 60,822

Int. Cl.[3] B05B *1/28*

U.S. Cl. 222—111 3 Claims



1. An attachment for a spray painting apparatus comprising a spray gun and an open-mouth paint cup, a lid seated on said paint cup to close the same with a peripheral seal against leakage, said lid having a vent opening therein, a delivery tube extending from the lower side of said paint cup to said spray gun, means to attach said delivery tube to said lid for removal therewith, *said attaching means including a locknut;* said attachment consisting of a diaphragm having a peripheral flange for engagement between the peripheral seal of said lid and said paint cup, a downwardly extending wall inwardly of said

flange and of progressively increasing length forming with said diaphragm a chamber that is deeper at one side than at the opposite side, said deeper side being oriented away from the vent opening in said lid and having a second vent opening in the lower surface thereof, and means in the center portion of said diaphragm to engage said delivery tube and delivery tube [retaining] *attaching* means in a substantially liquid-tight connection *said engaging means including a formed boss which mates with said locknut for maintaining said diaphragm second vent opening in a spaced relationship to said lid vent opening.*

Re. 30,969

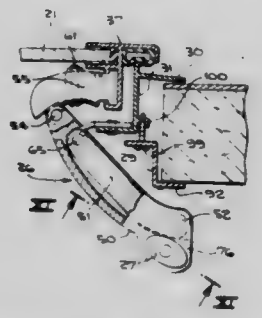
DEVICE FOR OPENING, CLOSING AND LATCHING A VENT CLOSURE MEMBER

Elwood W. Buck, Jr., Pasadena, Calif., assignor to D G Shelter Products Company, City of Industry, Calif.

Original No. 4,120,524, dated Oct. 17, 1978, Ser. No. 813,502, Jul. 7, 1977. Application for reissue Jan. 21, 1980, Ser. No. 113,716

Int. Cl.[3] **E05C** *17/32*

U.S. Cl. 292—263 **12 Claims**



1. In a means for opening, closing, and latching a closure member hinged at one side of an opening defined by a frame provided in a wall, the combination of:

an upper latch member having one end provided with a pivotal connection to said closure member;

a lower latch member having one end provided with a pivotal connection to said frame; the other ends of said latch members being pivotally interconnected together; the pivotal connection of the lower latch member to said frame having a pivotal axis adjacent the plane of the frame opening;

and actuating means connected to said upper latch member and said pivotal connection of said latch members to said closure and to said frame being at the side of said opening opposite to said hinged connection of said closure member to said frame;

the pivotal interconnections of the other ends of said latch members lying beneath the framed opening when the closure member is closed and the latch members are collapsed and in nested relation;

said pivotal connections providing pivotal axis having a toggle relationship in closed position of said closure member;

and means to adjust clearance of said nested latch members with respect to the interior surface of said wall, said adjustment means including

a bolt carried by said closure members;

and a connecting block threaded on said bolt and providing a pivotal connection for said upper latch member.

Re. 30,970

POLYMERIZATION CATALYST

David L. Hyde, East Pleen, and Kenneth C. Kirkwood, Larbert, both of Scotland, assignors to BP Chemicals Limited, London, England

Original No. 4,087,380, dated May 2, 1978, Ser. No. 706,759, Jul. 19, 1976. Application for reissue Dec. 3, 1980, Ser. No. 212,695

Claims priority, application United Kingdom, Jul. 30, 1975, 31891/75

Int. Cl.[3] **B01J** *31/02, 31/12*

U.S. Cl. 252—429 B **7 Claims**

1. A process for the production of a supported Ziegler catalyst component comprising reacting a transition metal compound which is a chloride, chloro-alkoxide or oxychloride of titanium, vanadium or zirconium, with an aliphatic alcohol containing 1–6 carbon atoms and impregnating a magnesium oxide support material *having an hydroxyl content of less than 0.2 OH groups per magnesium atom* with the product of said reaction, said reaction and impregnation being carried out under substantially anhydrous conditions.

Re. 30,971

COMPOSITIONS CONTAINING PLATINUM

Martin L. Tobe, Northwood, England; Abdul R. Khokhar, Burlington, Vt., and Peter D. M. Braddock, Maidenhead, England, assignors to Rustenburg Platinum Mines Limited, Johannesburg, South Africa

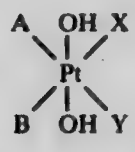
Original No. 4,119,654, dated Oct. 10, 1978, Ser. No. 770,313, Feb. 22, 1977. Application for reissue Feb. 20, 1980, Ser. No. 119,656

Claims priority, application United Kingdom, Feb. 26, 1976, 7650/76

Int. Cl.[3] **C07F** *15/00*

U.S. Cl. 260—429 R **8 Claims**

1. A co-ordination compound of platinum having the structure:



in which X and Y are halogen and A and B are the same or different branched chain aliphatic amine groups or C-substituted branched chain aliphatic amine groups co-ordinated to the Pt through their N atoms each having the general formula

$$C_nR_{2n+1}NH_2$$

in which n may vary from 3 to 9 and in which all of the R groups are the same or different and are selected from the group consisting of hydrogen, alkyl, aryl, alkaryl, aralkyl, halogen, pseudohalogen, hydroxy, carbonyl, formyl, nitro, amido, amino, sulphonic acid, sulphonic acid salt, carboxylic acid and carboxylic acid salt.

Re. 30,972

MANAGEMENT OF INCONTINENCE

William Kyle, Lower Templestowe, and Bruce H. Lee, Mount Waverly, both of Australia, assignors to Nicholas Proprietary Limited, Victoria, Australia

Original No. 4,128,686, dated Dec. 5, 1978, Ser. No. 759,549, Jan. 14, 1977. Application for reissue Feb. 21, 1980, Ser. No. 123,426

Claims priority, application Australia, Feb. 3, 1976, PC4702; Feb. 12, 1976, PC4831; Apr. 1, 1976, PC5435

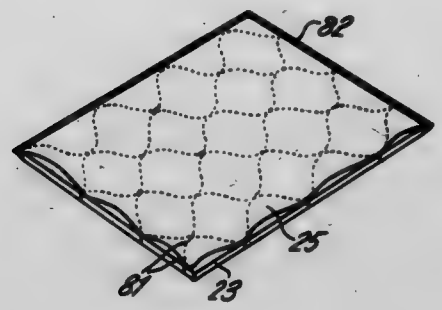
Int. Cl.[3] **B32B** *5/02;* **A61F** *13/16;* **B32B** *5/06*

U.S. Cl. 428—219 **19 Claims**

1. In an assembly for the management of incontinence comprising at least one layer of non-absorbent hydrophobic textile material through which urine can freely pass and at least one

layer of absorbent hydrophilic textile material behind the said at least one non-absorbent layer to receive and absorb urine passing through the said at least one non-absorbent layer,

the improvement comprised in that the absorbent layer is formed of aligned cellulosic staple fibers of at least 0.5 inch length and denier in the range 2 to 7 formed into a



cross-laid web and [needled at 1500 to 2000 punchings per square inch] *consolidated by needling to a thickness no greater than 1.25 centimeter* to form a felt*weighing in the range of 500–850 g/m²* which will absorb at least 350% by weight of urine based upon its dry weight and will disperse urine laterally by capillarity throughout the felt.

Re. 30,973

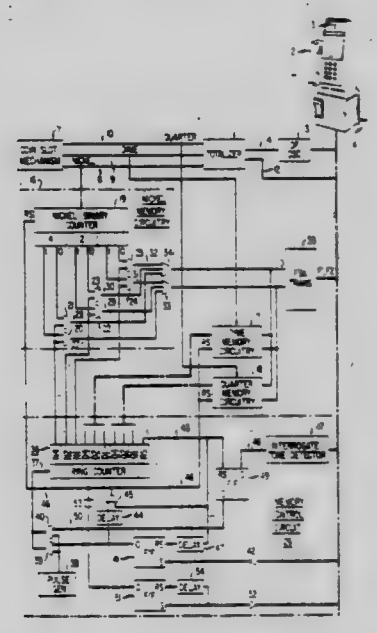
TELEPHONE STATION COIN MEMORY AND CONTROL SYSTEM

Alfred Zarouni, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Original No. 4,124,774, dated Nov. 7, 1978, Ser. No. 819,244, Jul. 27, 1977. Application for reissue Nov. 6, 1980, Ser. No. 204,557

Int. Cl.³ H04M *17/00*

U.S. Cl. 179—6.3 R **35 Claims**



32. A coin box arrangement comprising:

memory means for registering signals indicating the number of each denomination of coins deposited in the coin box,

memory control means for sequentially reading out of said memory means registered signals indicating the number of each denomination of coins deposited, and

means responsive to the signals readout of said memory means for sequentially transmitting signals specifying the number of each denomination of coins deposited.

Re. 30,974

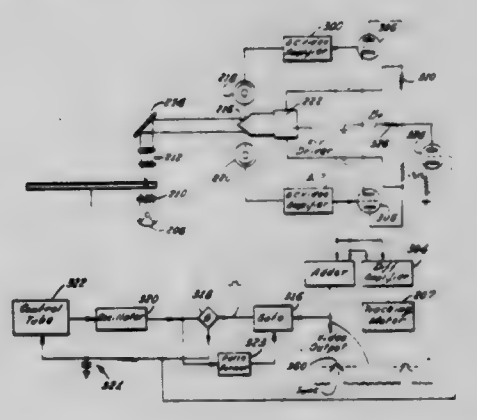
PRODUCTION OF TELEVISION SIGNALS FROM PHOTOGRAPHIC DISC RECORDINGS

Dean L. De Moss, Glendale, Calif., David P. Gregg, Los Angeles, Calif., and Wayne R. Johnson, deceased, late of Los Angeles, Calif., by Minnesota Mining and Manufacturing Company, Saint Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Original No. 3,381,086, dated Apr. 30, 1968, Ser. No. 217,408, Aug. 16, 1962. Continuation-in-part of Ser. No. 181,392, Mar. 21, 1962, abandoned. Application for reissue May 15, 1979, Ser. No. 39,286

Int. Cl.³ G11B *7/02, 25/04*

U.S. Cl. 369—44 **13 Claims**



6. In combination in a system for reproducing *video* information from a rotatable medium where the medium has characteristics at progressive positions along a spiral path for modifying energy directed at the medium in representation of *video* information previously recorded on the medium where the information recorded on the medium at each successive position along the spiral path represents substantially less than a complete visual image,

means operatively coupled to the medium for producing a continuous rotation of the medium,

pickup means disposed relative to the medium including,

means for directing [energy] *a beam of energy having a radius not greater than approximately one micron to enable the reproduction of the video information* at the medium at each instant to obtain a modification of the energy passing from the medium at that instant in accordance with the variations in the characteristics of the medium at the progressive positions along the spiral path, and

means responsive to the modified energy at each instant for producing signals having characteristics representative at that instant of the information recorded at the progressive positions along the spiral path on the medium, [and]

means operatively coupled to the pickup means for varying in synchronism at each instant the position of the means for directing energy and the means responsive to the modified energy in a direction having a radial component to obtain a *coarse* tracking at each instant of the characteristics at the progressive positions along the spiral path on the medium, *and means for varying in synchronism at each instant the position of the signal producing means relative to the energy directing means to obtain a fine tracking along the spiral path on the medium.*

PLANT PATENTS

GRANTED JUNE 15, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,857

ROSE PLANT

Dorothy J. S. Bailey, Bakersfield, Calif., assignor to San Joaquin Rose Co., McFarland, Calif.

Filed Sep. 9, 1980, Ser. No. 185,443
Int. Cl.[3] A01H 5/00
U.S. Cl. Plt.—22 1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described, characterized particularly by a floriferous, vigorous, free branching spreading plant with abundant foliage and superior disease resistance producing many flowers of overall lavender tonality borne singly and in large sprays.

4,858

CHRYSANTHEMUM PLANT

Dennis E. Miller, and William E. Duffett, both of Salinas, Calif., assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 27, 1980, Ser. No. 125,191
Int. Cl.[3] A01H 5/00
U.S. Cl. Plt.—76 1 Claim

1. A new and distinct cultivar of *Chrysanthemum morifolium*, Ramat., plant known by the cultivar name Temptation, as described and illustrated, and particularly characterized as to uniqueness by the combined characteristics of flat capitulum form; decorative capitulum type; dark purple ray floret color, with minimal color oxidation; diameter across face of capitulum ranging from 90 to 110 mm. at maturity; uniform nine week flowering response; tall plant height; and semi-spreading branching pattern.

PATENTS

GRANTED JUN. 15, 1982

ERRATA

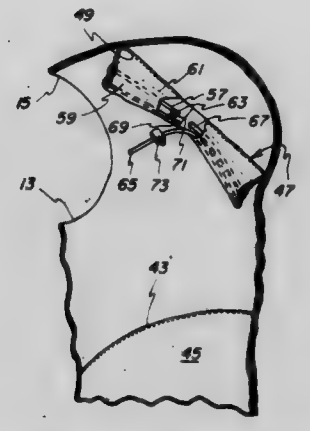
For CLASS	See PATENT NO.
312–111	4,334,359
464–134	4,334,414
464–130	4,334,415
413–006	4,334,487
241–171	4,334,626
524–088	4,334,878
524–191	4,334,932
524–271	4,335,026
528–281	4,335,027
524–504	4,335,028
524–589	4,335,029
523–408	4,335,030
524–504	4,335,031
524–269	4,335,032
524–525	4,335,033
524–423	4,335,034
523–212	4,335,035
524–376	4,335,036
524–504	4,335,037
524–188	4,335,038
524–108	4,335,039
548–475	4,335,044
548–566	4,335,045
549–392	4,335,046
549–369	4,335,047
549–402	4,335,048
549–483	4,335,049
525–089	4,335,221
526–234	4,335,237
526–254	4,335,238
373–083	4,335,265
372–046	4,335,362

PATENTS

GRANTED JUNE 15, 1982

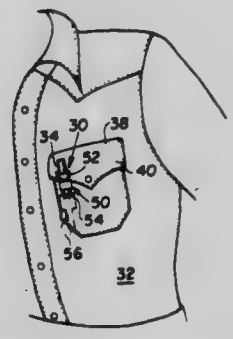
GENERAL AND MECHANICAL

4,334,325
GARMENT HOOD
Joseph Walkuski, 133 Acorn Dr., Scotia, N.Y. 12302
Filed Oct. 23, 1980, Ser. No. 199,694
Int. Cl.[3] A42B *1/04*
U.S. Cl. 2—202 7 Claims



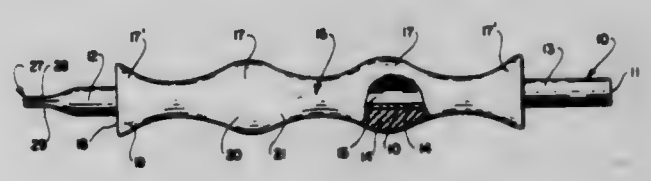
1. A hood for use with a garment, said hood having a casing which encircles and follows around the crown of the wearer's head for clamping action therewith such that said hood will move along with the wearer's head whenever the head is moved and such that said casing affords the wearer unrestricted, side to side, pivotal head movement, said casing having top and bottom channels being separated from each other over at least a portion of their length, freely receiving and carrying a drawstring, said drawstring being threaded and disposed through said top and bottom channels, one end of said drawstring being disposed through said top channel and fixed to said casing, the other end of said drawstring being free and exiting through said bottom channel, said casing being narrower at the sides of the wearer's head above the wearer's ears, said free end of said drawstring being pulled forward to tighten said drawstring to thereby effect the clamping action of said casing on and with the crown of the wearer's head by said casing gathering around the wearer's ears and by said casing grabbing the wearer's forehead and by grabbing around the hump in the back of the wearer's head.

4,334,326
KEY HOLDER
Thomas T. Mallow, 1133 Fifth Ave., New York, N.Y. 10028
Filed Oct. 8, 1980, Ser. No. 195,190
Int. Cl.[3] A41D *27/20*
U.S. Cl. 2—249 3 Claims



1. An improved key holder for a garment or the like comprising, in combination, a fabric having an operative area delineated thereon for the attachment of a pocket, a closed loop having an operative condition of having an end in stitched attachment to said fabric at a selected location below a horizontally oriented reference line coincident with an upper edge of said pocket when in attached relation thereto, means for removably connecting a key to said closed loop, a pocket patch attached in covering relation over said loop having an upper unattached edge bounding the opening into said pocket operatively disposed above said attached end of said loop and along said horizontally oriented reference line so as to mask the presence of said loop, and said pocket patch having an opening oriented in the width direction of said closed loop and sized to permit said unattached end of said loop to be projected therethrough located in aligned relation to said closed loop, whereby said closed loop and any key attached thereto can be worn either in an external display position projected through said pocket patch opening or in an unrevealed position within said pocket.

4,334,327
URETERAL PROSTHESIS
Donald J. Lyman, and Richard G. Middleton, both of Salt Lake City, Utah, assignors to University of Utah, Salt Lake City, Utah
Filed Dec. 21, 1979, Ser. No. 106,175
Int. Cl.[3] A61F *1/24*
U.S. Cl. 3—1 18 Claims

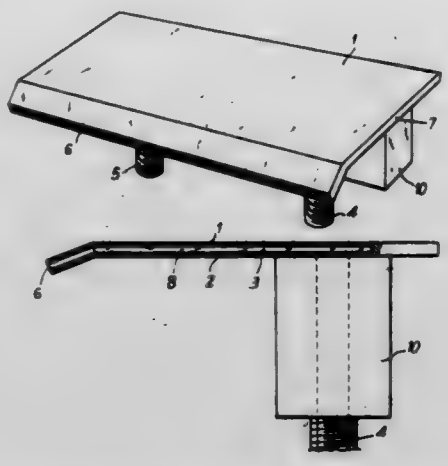


1. A distal ureter prosthesis comprising:
a. a substantially straight, flexible, elongate duct formed of block copolymers and having a lumen with an inner diameter approximately ranging from a normal human ureter diameter to as much as four times this size as seen in some diseased conditions, and an interior surface of said block copolymer which is ultrasmooth based on microscopic inspection;
b. one-way valve means coupled at one end of said duct for permitting outflow of fluid therefrom, while preventing backflow from fluids exterior to the duct;
c. terminal sewing projections formed around the ends of the duct except for exposed terminal segments of the duct which project beyond the terminal sewing projections; and
d. at least one sewing projection integrally attached to said duct at an intermediate location between the terminal sewing projections and including a site for suturing to provide means for secure fixation of the prosthesis within the patient.

4,334,328
WIDE-MOUTHED SPOUT FOR FLOW OF LIQUID
Jean C. Delepine, 23 rue Clapeyron, 75008 Paris, France
Filed Nov. 17, 1980, Ser. No. 207,609
Claims priority, application France, Nov. 16, 1979, 79 28285
Int. Cl.[3] E03C *1/00*
U.S. Cl. 4—191 9 Claims

1. A wide-mouthed flow spout connected to at least one liquid delivery pipe for emitting a curtain of liquid from the spout comprising a wide flat chamber in the form of a blade into which said at least one liquid delivery pipe opens, said chamber being in communication with the outside via a long

narrow slot in a side of the chamber, the length of the slot being substantially equal to the length of the cross-section of



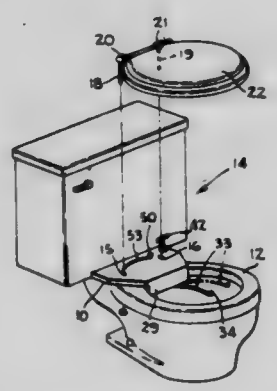
the chamber transversely to the flow of liquid from said chamber.

4,334,329

ATTACHMENT FOR A WATER CLOSET

Frank H. Miyanaga, 720 Las Animas Ave., Gilroy, Calif. 95020

Filed Jun. 2, 1980, Ser. No. 155,773
Int. Cl.[3] A61H *35/00;* E03D *9/08*
U.S. Cl. 4—443 5 Claims



1. In a water closet having a bowl with an annular upper surface, a toilet seat, and means detachably securing said seat to the upper surface of said bowl at the rear thereof,

a bidet attachment therefor comprising:

a mounting plate having a substantially planar upper portion for engagement with the underside of said seat, and having depending side flanges for engaging the upper surface of the bowl to space said upper portion theefrom and a depending transverse forward flange therebetween to extend within the bowl,

means on said plate for cooperative association with said seat and bowl securing means for fixing said plate between said seat and bowl,

a spray conduit pivotally mounted to said plate, said conduit including a nozzle portion extending forwardly therefrom beneath said forward flange and a control lever portion extending rearwardly beneath said mounting plate upper portion for manual engagement, whereby movement of said control portion of said spray conduit swings said forward nozzle portion relative to said plate for appropriate positioning with respect to said bowl and seat, and,

a valve-controlled water supply line connected to said conduit,

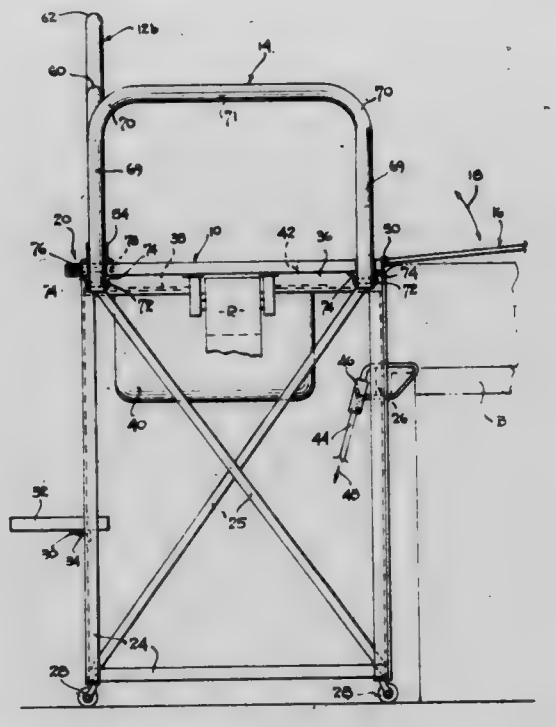
whereby said attachment provides a bidet for a water closet without alteration of said bowl or seat thereof.

4,334,330

BEDSIDE COMMODE

Arthur K. Marshall, 149 N. Carmelina Ave., Los Angeles, Calif. 90049

Filed Nov. 3, 1980, Ser. No. 203,278
Int. Cl.[3] A47K *11/06;* A61G *7/02*
U.S. Cl. 4—480 16 Claims



1. A mobile bedside commode which is removably attachable to a bed of a patient, comprising in combination:

a frame structure;

a platform attached to said frame structure, said platform including a toilet cutout and means for holding a toilet bowl underneath said cutout;

peripheral railing means attachably connected to said platform and extending upwardly therefrom along the front and side edges of said platform for preventing the patient from falling from said platform seat and for providing a gripping handle for the patient; and

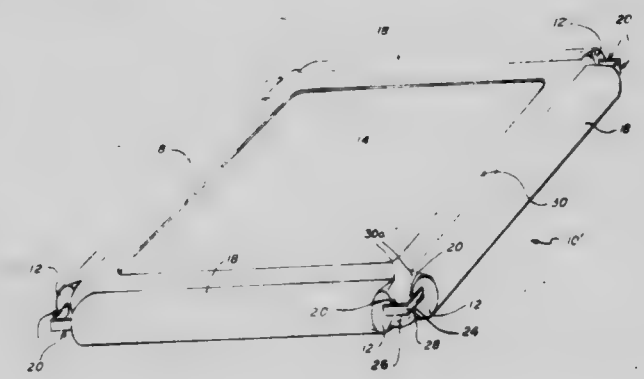
ramp means connected to and extending laterally from the back edge of said platform to provide a bridge between said platform and the bed, to allow the patient to move with minimal or no assistance back and forth between the bed and said commode.

4,334,331

PERIMETER SUPPORT FOR A WATERBED MATTRESS

Philip J. Santo, 3750 Monroe Ave., Pittsford, N.Y. 14534

Filed Apr. 3, 1980, Ser. No. 136,822
Int. Cl.[3] A47C *27/08*
U.S. Cl. 5—452 12 Claims



1. In a waterbed mattress having fluid-filled flexible bladder, means for supporting the perimeter of such bladder providing improved structural rigidity, said supporting means comprising:

at least two self-contained chambers, each such chamber including a compressible medium and an elongated rigid member substantially surrounded by said compressible medium and extending therethrough;

at least two flexible dimensionally stable sleeves attached to the flexible bladder to be coextensive with opposing perimeter portions of said bladder for releasably retaining said chambers respectively in contact with such perimeter of the bladder;

means for interconnecting said rigid members whereby the bladder is supported with an improved degree of structural rigidity by said chambers, the ends of said rigid members terminating beyond the respective ends of the chambers thereby facilitating the replacement of damaged chambers.

4,334,332

MOTOR-DRIVEN CAP-GRIPPER AND CAN-OPENER

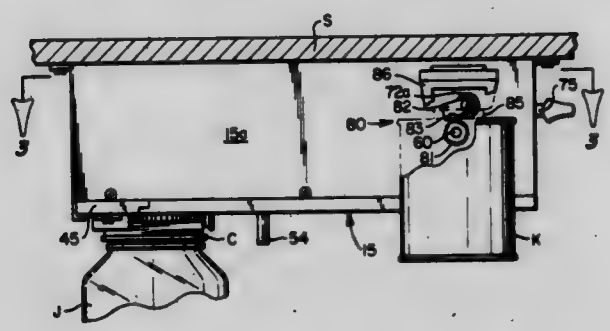
Edgar S. Downs, 907 Oxford Dr., Worthington, Ohio 43085

Filed Aug. 6, 1980, Ser. No. 175,933

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.[3] B25F *1/00*

U.S. Cl. 7—150 9 Claims



1. An appliance comprising a jar cap-gripper and a can-opener actuated by the same electric motor, said cap-gripper comprising relatively movable jaws which are moved between clamping and non-clamping positions relative to a cap inserted therebetween, a drive for moving said jaws relatively by said motor, a can-opener including a driver wheel driven directly from said motor, said can-opener also including a cutting member movable into cooperative relationship with the driver wheel, can-opener actuating means for moving the cutting member into said relationship, a clutch normally engaged to complete the drive from said motor to said cap-gripper but being capable of disengagement to interrupt the drive to said cap-gripper from said motor, said clutch being disengaged by actuation of said can-opener actuating means.

4,334,333

METHOD OF DYEING TREATMENT FOR A FABRIC AND APPARATUS THEREFOR

Kazuo Yamada, Oharu; Hiroshi Yamashita, Nagoya; Hiroshi Mizutani, Mie, and Mitsuru Sugimura, Tsushima, all of Japan, assignors to Nihon Senshoku Kikai Kabushiki Kaisha, Aichi, Japan

Continuation of Ser. No. 7,761, Jan. 29, 1979, abandoned. This application Jun. 13, 1980, Ser. No. 159,208

Claims priority, application Japan, Feb. 10, 1978, 53-13601

Int. Cl.[3] D06B *3/10, 17/02*

U.S. Cl. 8—152 2 Claims

1. A method of dyeing a fabric, which comprises

providing a residence vessel having a perforated bottom plate, perforated side plates and an open top, said residence vessel being positioned within a dyeing tank equipped with dye liquor,

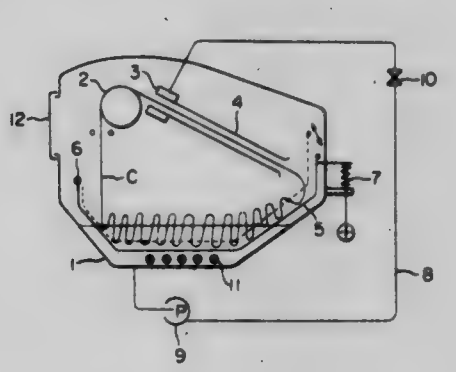
positioning an endless form of said fabric in said dyeing tank so as to be repeatedly circulated through said dyeing tank and said residence vessel,

applying said dye liquor to said fabric at an upper portion of said dyeing tank,

reciprocating said residence vessel as a whole substantially in a vertical direction, to forcibly forward said fabric within said residence vessel and also to cause dye liquor in a bottom portion of said dyeing tank to flow into and out of perforations in said residence vessel, in a manner such that, in the length of said fabric between the initial point of entry of said fabric into said dye liquor in said residence vessel and the final point of exit of said fabric from said dye liquor in said residence vessel, there are portions of said length of fabric which are above the level of said dye liquor in said residence vessel, and

recirculating said dye liquor from said bottom portion of said dyeing tank to said upper portion of said dyeing tank.

2. A dyeing apparatus for dyeing a fabric, said apparatus comprising



a dyeing tank for accommodating a fabric to be dyed,

a residence vessel having a perforated bottom plate, perforated side plates and an open top, said residence vessel being pivotably supported at one end thereof within said dyeing tank so as to be freely reciprocated as a whole substantially in a vertical direction to forcibly forward the fabric within said residence vessel,

means associated with said dyeing tank for driving said residence vessel substantially in a vertical direction about the pivotably supported one end thereof,

means for repeatedly circulating the fabric in endless form through said dyeing tak and said residence vessel,

means for applying a dye liquor to the fabric and positioned in an upper portion of said dyeing tank, and

means for recirculating the dye liquor from a bottom portion of said dyeing tank to said means for applying the dye liquor to the fabric.

4,334,334

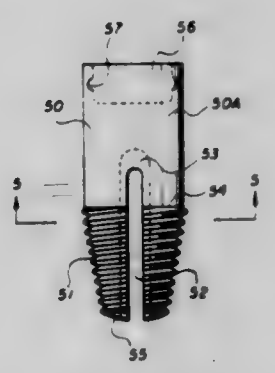
THREAD CLEANING DEVICE

David E. Wendell, 118 Warwick Dr., #58, Benicia, Calif. 94510

Division of Ser. No. 64,772, Aug. 8, 1979. This application Aug. 28, 1980, Ser. No. 182,014

Int. Cl.[3] B23G *5/00*

U.S. Cl. 15—236 R 4 Claims



1. A thread chaser comprising a solid body having:

(a) a cylindrical portion which has means to attach to a drive shaft therein,

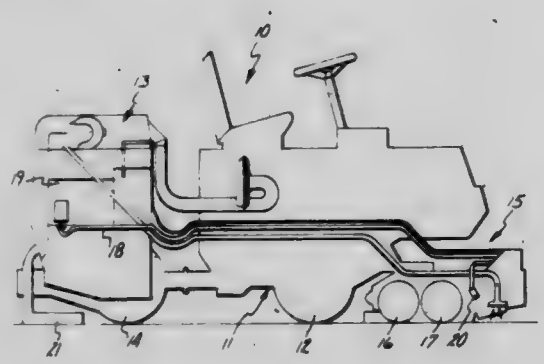
(b) a conical section being distal to said drive shaft attaching means and having pipe threads thereover, a chamfer at the terminus thereof and at least one slot extending through said conical section and dividing said conical section.

4,334,335

SCRUBBER WITH HYDRAULIC SQUEEGEE LIFT

Neil F. Brown, Minneapolis; Keith N. Krier, Tonka Bay, and Ranjan K. Nirgude, New Hope, all of Minn., assignors to Tennant Company, Minneapolis, Minn.

Filed Sep. 3, 1980, Ser. No. 183,727
Int. Cl.³ A47L *7/00*
U.S. Cl. 15—319 **17 Claims**



1. A scrubbing device, comprising a body structure; front and rear wheel means for movably supporting the body structure; steering means for controlling the direction traversed by the scrubbing device; scrubbing brush means carried by the body for wetting and scrubbing a path; scrubbing brush lift means for raising and lowering the scrubbing brush means; vacuum squeegee means carried by the body and disposed rearwardly of the brush means for picking up scrubbing solution from the wetted path; squeegee lift means for hydraulically raising and lowering the vacuum squeegee means; hydraulic power source means carried by the body, said power source means serving to pump a flow of hydraulic fluid in a first direction for driving said wheel means in a forward direction; said power source means serving to pump said hydraulic fluid in a reverse direction for driving said wheel means in a reverse direction; said power source means further serving to drive said scrubbing brush means, said scrubbing brush lift means, said vacuum squeegee means, and said squeegee lift means; solenoid operated hydraulic valve means for actuating said squeegee lift means and hydraulically powered flow-sensing electrical switch means for driving said solenoid valve means, said hydraulic switch means serving to sense the flow direction of the hydraulic fluid in reverse and to then activate said squeegee lift means.

4,334,336

SURFACE CLEANING VACUUM NOZZLE

Martin E. Harbeck, and Henry C. Harbin, both of Anderson, S.C., assignors to The Singer Company, Stamford, Conn.

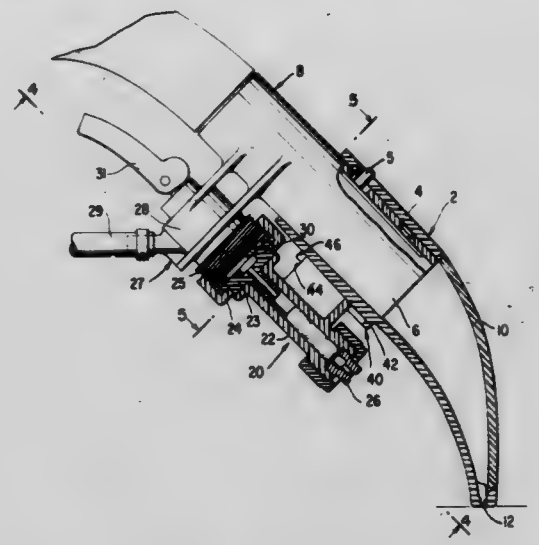
Filed May 2, 1980, Ser. No. 145,645
Int. Cl.³ A47L *9/02*
U.S. Cl. 15—322 **10 Claims**

5. An upholstery cleaning nozzle adapted for use in conjunction with a hot water extraction carpet cleaning system or the like, said cleaning nozzle having:

a. a body having a suction port formed in one end thereof and an intake orifice formed in another end thereof, said intake orifice being in vacuum communication with said suction port for engaging upholstery and removing dirt and debris therefrom;

b. a spray head assembly having a cleaning fluid connector portion for attachment to a cleaning fluid source wherein said spray head assembly is in fluid communication with said fluid source for dispensing cleaning fluid on the upholstery in proximity to said intake orifice; and

c. attachment means for slidingly attaching said spray head assembly to said body so that said suction port may be connected to said suction source independent of and prior to connecting said cleaning fluid connector portion to said cleaning fluid source, wherein said attachment means comprises:



a slot formed in said body, said slot having two spaced apart side surfaces converging in a direction away from said body;

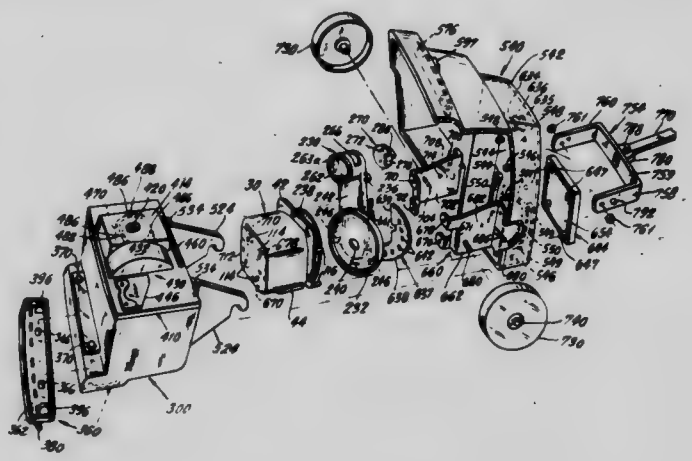
a projection formed in said spray head assembly and adapted for sliding engagement with said slot, said projection having a flared surface arranged for interlocking engagement with one of said side surfaces.

4,334,337

COMPACT WET-DRY ELECTRIC VACUUM CLEANER

Jonathan Miller; Richard Fegan, both of Williamsport; Robert C. Berfield, Jersey Shore; Kenneth R. Hiester, Cogan Station, and Rudolph W. Wacek, Montoursville, all of Pa., assignors to Shop-Vac Corporation, Williamsport, Pa.

Filed Mar. 28, 1980, Ser. No. 134,776
Int. Cl.³ A47L *5/32*
U.S. Cl. 15—326 **83 Claims**



1. A vacuum cleaner, comprising:

a suction inlet;

a blower fan in communication with said suction inlet for drawing air and other materials into said suction inlet; an outlet path for air from said blower fan; a motor for driving said blower fan;

a tank interposed between said suction inlet and said blower fan for receiving materials drawn in through said suction inlet; said tank having an inlet nozzle communicating with said suction inlet; said inlet nozzle having a smaller cross-section than the cross-section of said tank, whereby air flow is slowed in said tank so that collected materials

settle in said tank; an air outlet from said tank communicating with said blower fan;

said tank has upstanding side walls and has a bottom and a top; said suction inlet being located at said tank bottom; said tank inlet nozzle extending up from said suction inlet toward said tank top; said inlet nozzle terminating in an exit located toward said top of said tank;

an auxiliary inlet to said tank located away from said suction inlet and said inlet nozzle; closing means for selectively closing one of said inlet nozzle to said tank and said auxiliary inlet to said tank, while causing the other of said inlet nozzle and said auxiliary inlet to remain open;

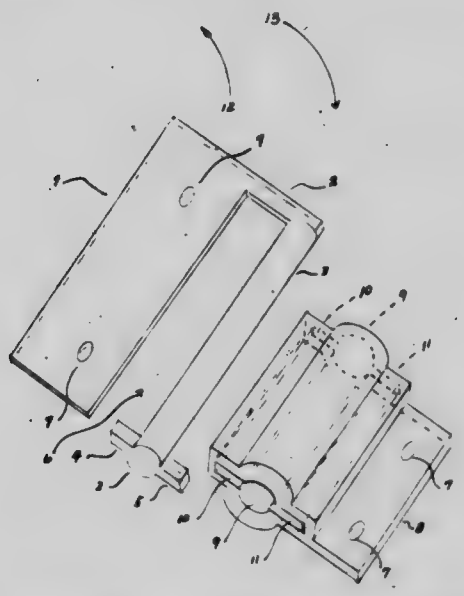
a housing for said blower fan motor; separable attachment means for separably attaching said tank to said housing, whereby said housing and said tank are operated together as a vacuum cleaner and said tank may also be separated from said housing.

4,334,338

SEPARABLE HINGE

John L. Conn, P.O. Box 4501-Sta. B, Spartanburg, S.C. 29303

Filed Dec. 29, 1980, Ser. No. 220,691
Int. Cl.³ E05D *7/10*
U.S. Cl. 16—266 1 Claim



1. A hinge assembly comprising two interfitting portions wherein the first portion includes a first base plate having an arm extending from one side that integrally connects to a first end of a cylinderical shaft, said shaft extending parallel to said base plate's one side and having a second free end with external keys thereon, said shaft and base plate being coplaner; and the second portion including a hollow cylinder affixed to a second base plate with the longitudinal axis of said cylinder being substantially coplaner thereto and wherein said cylinder includes internal keyway grooves adapted to slidingly receive the shaft's external keys, with the length of said cylinder being less than the length of said shaft and said shaft being sufficiently spaced from said base plate edge to allow said second portion to rotate almost 360 degrees around said shaft.

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MOLD DEVICE WITH MOVABLE COMPRESSION INSERT

James A. Holly, Crestwood, Ill., assignor to Hollymatic Corporation, Park Forest, Ill.

Filed May 12, 1980, Ser. No. 149,050
Int. Cl.³ A22C *7/00*
U.S. Cl. 17—32 17 Claims

1. An apparatus for molding a patty of plastic food material, such as ground meat and the like, comprising:

supply means for providing said food material under pressure;

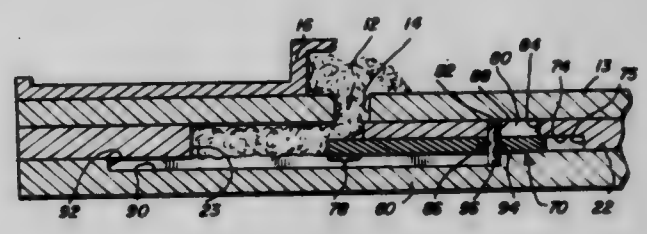
a bottom plate;

a fill plate spaced from and disposed over said bottom plate and fixed relative to said bottom plate, said fill plate defining therein a fill opening communicating with said food material supply means and adapted to permit the passage of pressurized food material from said supply means through said fill plate;

a mold plate slidably disposed between said fill and bottom plates and having a mold opening for receiving said food material under pressure through said fill plate opening, said mold plate being adapted to be reciprocated relative to said fill and bottom plates between a retracted mold filling position and an extended molded patty ejecting position;

means for reciprocating said mold plate between said mold filling and patty ejecting positions;

a mold opening insert slidably mounted for reciprocative movement relative to said fill and bottom plates in a direction parallel to the movement of said mold plate and adapted to permit relative movement of said mold plate so that a portion of said insert projects into said mold opening when said mold plate is in said mold filling position and so that said portion of the insert is retracted from said mold opening when said mold plate is in said patty ejecting position;



said mold plate including first engaging means for engaging a portion of said insert after said mold plate is moved a predetermined distance relative to said insert from said patty ejecting position toward said mold filling position, at which predetermined distance said insert projects into said mold opening a predetermined amount; and

said mold plate further including second engaging means for engaging a portion of said insert after said mold plate is moved said predetermined distance relative to said insert away from said mold filling position toward said patty ejecting position to thereby move said insert with said mold plate with said insert retracted from said mold opening, whereby pressurized food material in said mold opening can expand to fill the volume previously occupied by said insert portion within said mold opening.

4,334,340

SYSTEM AND METHOD FOR DISPERSING FILAMENTS

Imants Reba, Vancouver, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

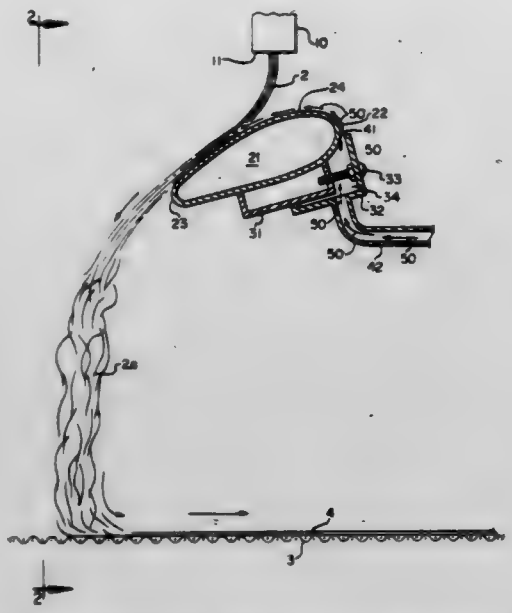
Filed Jan. 25, 1980, Ser. No. 115,308
Int. Cl.³ D04H *3/03*
U.S. Cl. 19—299 26 Claims

1. A system for dispersing a plurality of closely associated filaments capable of deposition in a convoluted, random pattern on a moving web-forming surface to produce a substantially uniform, high machine-direction strength web comprising:

a. Means for discharging said closely associated filaments in a stream of air and in an essentially downward direction; and

b. A fluid-dynamically-assisted, contoured deflection means comprising a two-dimensional Coanda nozzle including a curved downwardly-inclined deflection element which is continuously traversed, generally codirectionally with the filament flow, by a further stream of air, said deflection means being positioned in the path of said filaments for impingement thereagainst, the filaments, on impingement

against said deflection means being laterally dispersed by the latter air stream, the dispersed filaments being im-



pelled in a controlled trajectory, in a convoluted, random state.

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BUCKLE FOR A SAFETY BELT

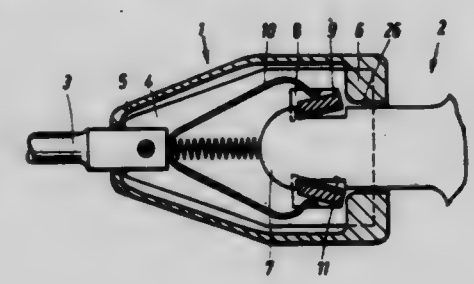
Kurt Krautz, Rosengarten, and Erhard Ender, Hamburg-Lurup, both of Fed. Rep. of Germany, assignors to Autoslug Stakupress GmbH & Co., Fed. Rep. of Germany

Filed Apr. 25, 1980, Ser. No. 143,794

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929394

Int. Cl.³ A44B *11/26*

U.S. Cl. 24—230 AT **3 Claims**



1. A safety belt buckle assembly having an insertable tongue plate and a tongue lock with a pair of opposed spaced plates forming a guide channel therebetween for forward longitudinal insertion of the tongue plate into and rearward longitudinal withdrawal of the tongue plate from a locking position therein, the pair of opposed plates having laterally spaced pairs of opposed latch member openings on opposite sides of the longitudinal axis of insertion and withdrawal of the tongue plate, a pair of swivel members having latching members extending across the guide channel and received within the pairs of opposed latch member openings respectively for engagement by the tongue plate upon longitudinal insertion thereof into the guide channel, the pairs of opposed openings being contoured to provide pairs of aligned generally forwardly facing pivot shoulders for engagement by the latch members for lateral pivotal movement of the swivel members about axes symmetrically located relative to said longitudinal axis, spring means pivotally biasing the swivel members inwardly toward each other to inner pivotal locking positions thereof, the latching members and tongue plate having, with the tongue plate inserted to its locking position and the latching members in their inner pivotal locking positions, pairs of longitudinally opposed locking shoulders for latching the tongue plate against rearward longitudinal withdrawal from the tongue lock, the swivel members having respective lever members, with respective laterally spaced release followers longitudinally forwardly of the locking shoulders of the latching members and means coacting to provide for combined pivotal operation of the swivel members, and a lock release slide longitudinally reciprocable for engaging the release followers and pivot the swivel members outwardly from their inner locking positions to release the tongue plate.

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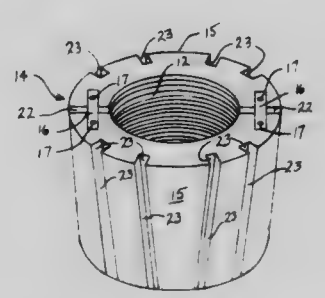
CASING HANGER AND STABILIZER

Gregory G. Hall, 7800 Youree Dr., Apt. 231, Shreveport, La. 71105

Filed Feb. 1, 1980, Ser. No. 117,392

Int. Cl.³ F16L *21/00*; A44B *21/00*

U.S. Cl. 24—263 D **5 Claims**



1. A casing hanger and stabilizer comprising a pair of matching, wedge-shaped slip segments characterized by a straight taper from a selected maximum diameter at the top thereof to a selected minimum diameter at the bottom, each of said slip segments having a top surface and an internal bore in matching relationship to the other, and provided with threads in said internal bore, and further provided with a plurality of slots in the longitudinal external surface thereof, and a pair of plate slot apertures in the top surface of said slip segments, a pair of plates in registration with said plate slot apertures, and cooperating plate bolts for removably joining said plates to said slip segments.

4,334,343

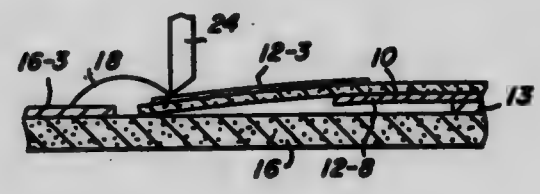
METHOD OF MAKING CRYSTAL MOUNTING AND CONNECTION ARRANGEMENT

Emory Wakat, Jr., Plantation; Lawrence N. Dworsky, Coral Springs; Leo V. Krolak, Plantation; Jeffery A. Whalin, Palm Springs, all of Fla., and Harold W. Mech, Bloomingdale, Ill., assignors to Motorola Inc., Schaumburg, Ill.

Division of Ser. No. 33,774, Apr. 27, 1979, Pat. No. 4,282,454. This application Aug. 25, 1980, Ser. No. 180,761

Int. Cl.³ H01L *41/22*

U.S. Cl. 29—25.35 **3 Claims**



1. A method of supporting and making connections to a crystal plate as for use in an electronic device and comprising the steps of:

providing an insulating base member;

forming on said base member a plurality of conductive areas;

attaching a low insulating pedestal to said base member;

forming at least one conductive area extending from the upper surface of said pedestal and along a portion of the side of said pedestal to contact respective ones of the conductive areas on the base member;

providing a crystal plate and conductive areas on said plate, a first area being formed on a first surface of the plate, and others of said areas being formed on a second surface and

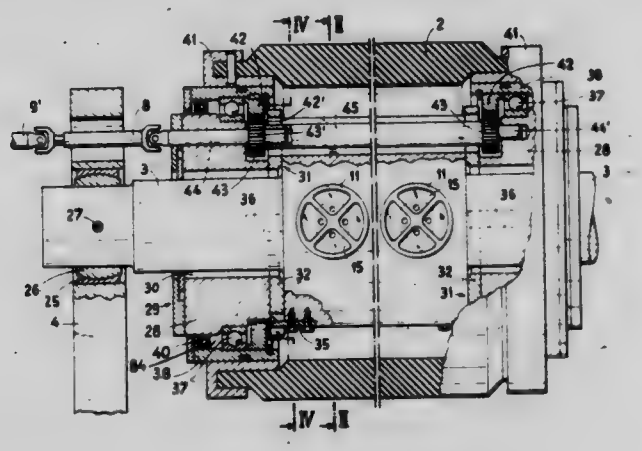
extending toward the edge of said plate each pair of areas having opposed, active portions;
fixedly attaching said plate to said pedestal with said first conductive area on said plate making electrical contact with said conductive area on said pedestal;
wire bonding one end of each of a plurality of wires to respective ones of said conductive areas on said base member;
bending down respective edge portions of said plate to mechanically contact said base member;
making a wire bond with the other end of each of said wires to respective ones of said conductive areas on the second surface of said crystal plate while the plate is supported by the base member; and
releasing the pressure on said plate to allow the plate to resume planar form.

4,334,344

CONTROLLED DEFLECTION ROLL

Mario Biondetti, Schio, Italy, assignor to Escher Wyss Ltd., Zurich, Switzerland

Filed Sep. 9, 1980, Ser. No. 185,530
Claims priority, application Switzerland, Sep. 19, 1979, 8451/79
Int. Cl.³ B21B *13/02*
U.S. Cl. 29—116 AD **7 Claims**



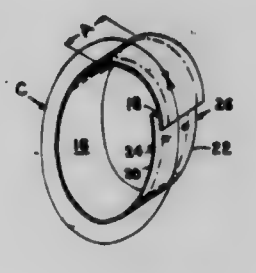
1. A controlled deflection roll comprising:
a stationary roll support;
a roll shell;
means for mounting said roll shell to be rotatable about said stationary roll support;
at least one support arrangement for supporting the roll shell upon the roll support;
said roll shell having opposite end regions;
a respective substantially ring-shaped closure element provided for each end region of said roll shell;
means for rotatably mounting each said closure element in said roll shell;
sealing means provided for said roll shell;
each closure element being provided with an opening surrounding the related end of the roll shell in spaced relationship such that said roll shell together with said sealing means is movable in relation to the roll support in a number of radial directions;
a toothed rim having internal teeth provided for said roll shell;
a pinion having pinion teeth meshing with said internal teeth of said toothed rim;
a drive shaft with which there is connected said pinion;
said drive shaft cooperating with a related one of said closure elements and extending through said related closure element;
a torque coupling serving to transmit a torque for connecting the closure element with the roll support; and
said torque coupling preventing rotation of the closure element relative to the roll support but enabling parallel displacement of such closure element in relation to the roll support.

4,334,345

METHODS FOR LINING THE INTERNAL WALLS OF A CONDUIT FOR CONVEYING FLUID CARRYING MARINE FOULING ORGANISMS WITH A LINER OF ANTI-FOULING MATERIAL

Richard H. Jenks, Sauquoit, N.Y., assignor to Revere Copper and Brass Incorporated, New York, N.Y.

Division of Ser. No. 14,486, Feb. 23, 1979, Pat. No. 4,257,459.
This application May 30, 1980, Ser. No. 155,158
Int. Cl.³ B21D *53/00*; B21K *29/00*; B23P *15/26*
U.S. Cl. 29—157 R **1 Claim**



1. The method of lining the internal walls of a sea water conveying conduit with anti-fouling material which material prevents marine fouling organisms carried by the sea water from contacting said internal walls and which material also upon exposure to said sea water provides a slow solution for substantially preventing said marine fouling organisms from adhering thereto, comprising the steps of:
providing a plurality of generally annularly shaped bands of anti-fouling material, and
providing each of said bands with predetermined circumferential and axial lengths and with a split across the entire axial length thereof to permit the radially outward expansion of the band, and terminating each of said bands axially in a pair of spaced apart, generally circular transverse edges, each of said bands having predetermined outer axial portions adjacent said generally circular transverse edges;
inserting said plurality of bands of anti-fouling material into said conduit and aligning said bands axially internally of said conduit adjacent each other and positioning said aligned bands of anti-fouling material with their respective adjacent generally circular transverse edges adjacent each other and thereby forming generally circular edge lines transverse of said conduit;
providing a plurality of generally annularly shaped bands of predetermined material, providing each of said bands of predetermined material with a predetermined circumferential length substantially equal to the circumferential length of said bands of anti-fouling material and providing said bands of predetermined material with an axial length substantially less than said axial length of said bands of anti-fouling material, and providing said bands of predetermined material with a split across the entire axial length thereof to permit said bands of predetermined material to be expanded radially outwardly;
inserting said bands of predetermined material into said axially aligned bands of anti-fouling material and positioning each of said bands of predetermined material generally over one of said generally circular edge lines and overlying respective predetermined axial portions of said adjacent bands of said anti-fouling material;
expanding said bands of predetermined material radially outwardly to force at least said respective predetermined outer axial portions of said adjacent bands of anti-fouling material into tight engagement with said internal walls of said conduit and with sufficient force to prevent said

bands of anti-fouling material from moving with respect to said conduit upon said fluid flowing therethrough; and

maintaining said bands of predetermined material expanded radially outwardly.

4,334,346

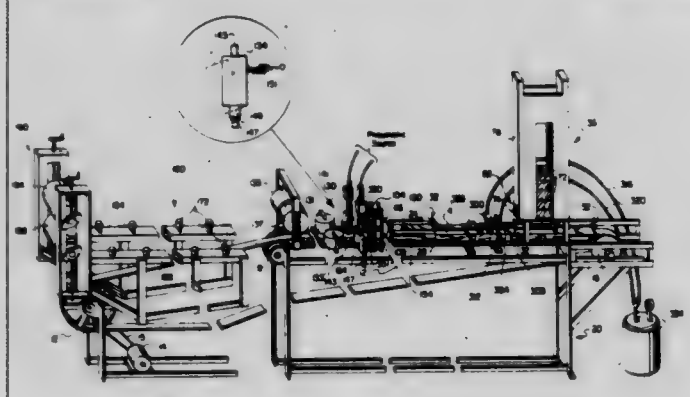
METHOD AND APPARATUS FOR FABRICATING STUDS, JOISTS AND THE LIKE

Keith A. Jensen, Sandy, Utah, assignor to A. Park Smoot, Murray and Reese J. Goodwin, Provo, both of, Utah

Filed Sep. 4, 1979, Ser. No. 72,349

Int. Cl.³ B23P *19/00, 21/00;* **B23Q** *15/00;* **B27F** *7/02*

U.S. Cl. 29—429 **26 Claims**



1. A method of manufacturing studs, joists, and the like which have a pair of side-by-side chords, and blocks disposed between the chords, said method including

(a) providing a conveying surface having a plurality of block holders spaced apart generally in a line along the direction of movement, each block holder including means for holding a block and for maintaining separation of the block from adjacent blocks and also including an upstanding finger disposed at the rear end of the holder,

(b) providing contacting elements on the conveying surface to be generally in line with the block holders for contacting and moving chords placed along each side of the line of block holders,

(c) providing a block holding bin adjacent to the conveying surface for holding a plurality of blocks in a stack, and moving the block holders past the bin so that each upstanding finger contacts the bottommost block in the bin and forces the block from the bin into the corresponding block holder so that at least two blocks are carried in respective adjacent block holders,

(d) placing in a generally parallel relationship a pair of chords on each side of a line of two or more block holders which are holding blocks so that the contacting elements contact the ends of the chords and move the chords,

(e) forcing the chords into contact with the blocks, and

(f) moving the chords and blocks through securing apparatus which secures the chords to the blocks.

12. Apparatus for use in assembling studs, joists, and the like which have a pair of side-by-side chords, and blocks disposed between the chords, said apparatus including

a conveying surface having a plurality of block holders positioned thereon and spaced apart generally in a line along the direction of movement, each block holder including means for holding a block in a fixed position on the conveying surface, and an upstanding finger disposed at the rear end of the holder,

a plurality of contacting elements positioned on the conveying surface and spaced apart generally in line with the block holders for contacting the rear ends of the chords placed on each side of the block holders to move the chords as the conveying surface is moved,

guide means disposed on each side of the line of travel of the blocks and chords for guiding and urging the chords into contact with the blocks,

block holding bin means disposed adjacent the conveying surface for holding a plurality of blocks in a stack, said bin means including

side walls for maintaining the blocks in a stack,

support rails disposed at the bottom of the side walls for supporting the blocks at the sides thereof and for allowing the bottommost block to slide forwardly of the bin means, and

a front wall joined to the side walls and having an opening at the bottom thereof of a size sufficient to allow the bottommost block in the stack to be slid forwardly of the bin means and out of the bin means while preventing the other blocks from sliding forwardly, and

securing means for driving fastening elements such as staples, nails or the like through the chords into the blocks.

4,334,347

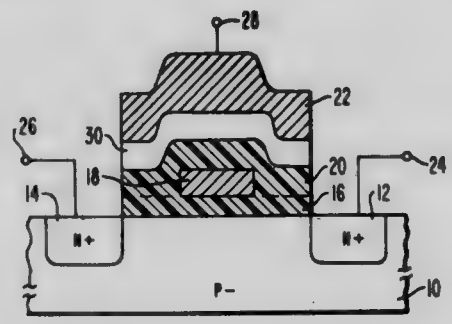
METHOD OF FORMING AN IMPROVED GATE MEMBER FOR A GATE INJECTED FLOATING GATE MEMORY DEVICE

Norman Goldsmith, East Brunswick, and Sheng T. Hsu, Lawrenceville, both of N.J., assignors to RCA Corporation, New York, N.Y.

Division of Ser. No. 86,313, Oct. 19, 1979, Pat. No. 4,253,106. This application Aug. 6, 1980, Ser. No. 175,757

Int. Cl.³ H01L *29/78*

U.S. Cl. 29—571 **6 Claims**



1. In a process for forming a floating gate storage device, the device having:

a. a body of semiconductor material with a pair of semiconductor regions of a first conductivity type embeded therein and spaced a given distance one from the other;

b. an intermediate semiconductor region of opposite conductivity type defining the space between the pair of regions; and

c. a floating gate structure having a floating gate member disposed over the intermediate region and insulated therefrom and a control gate member disposed over the floating gate member and insulated therefrom; an improved method of forming the gate structure, comprising the steps of:

growing a first insulating layer over at least the intermediate region;

forming a floating gate member on the first insulating layer over the intermediate region;

growing a second insulating layer over the gate member and the first insulating layer;

depositing a layer of semi-insulating polycrystalline silicon over the second insulating layer; and

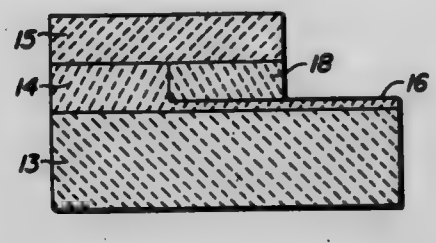
depositing a conductive control gate member over the semi-insulating layer.

4,334,348

RETRO-ETCH PROCESS FOR FORMING GATE ELECTRODES OF MOS INTEGRATED CIRCUITS

Dale T. Trenary, San Jose; Allen H. Frederick, Pacifica, both of Calif., and Robert M. Whelton, Paradise Valley, Ariz., assignors to Data General Corporation, Westboro, Mass.

Division of Ser. No. 170,833, Jul. 21, 1980. This application Mar. 5, 1981, Ser. No. 240,879
Int. Cl.[3] H01L *21/22, 21/28*
U.S. Cl. 29—571 8 Claims



6. A method of forming a MOS transistor within a silicon body comprising:

A. forming a silicon dioxide layer upon the silicon body;

B. forming a silicon nitride layer upon the silicon dioxide layer;

C. forming a retro-etched area by etching the silicon dioxide layer to a predetermined area under the silicon nitride layer;

D. forming a polysilicon layer over the silicon body to substantially fill the retro-etched area;

E. removing the polysilicon as applied in step D except in the retro-etched area;

F. removing the remaining silicon nitride;

G. removing all silicon dioxide in the areas not covered by the polysilicon; and

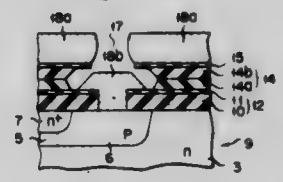
H. diffusing a dopant into the silicon body in the areas not covered by the polysilicon.

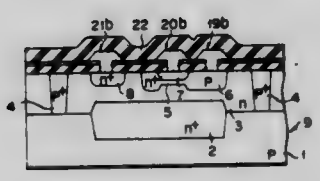
4,334,349

METHOD OF PRODUCING SEMICONDUCTOR DEVICE

Masaharu Aoyama; Jiro Ohshima, both of Yokohama, and Toshio Yonezawa, Yokosuka, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Jun. 3, 1980, Ser. No. 155,975
Claims priority, application Japan, Jun. 6, 1979, 54-71043
Int. Cl.[3] H01L *21/225, 21/312;* B44C *1/22*
U.S. Cl. 29—579 14 Claims





1. A method of producing a semiconductor device, comprising the steps of:

(a) forming a first insulating layer comprising a lower silicon oxide film and an upper silicon nitride film on a surface of a semiconductor substrate;

(b) forming a contact hole through said first insulating layer;

(c) forming a second insulating layer consisting of silicon oxide on the first insulating layer;

(d) forming a third insulating layer consisting of silicon nitride on the second insulating layer;

(e) selectively removing the third insulating layer to form a mask used for forming a hole for an interconnection electrode;

(f) etching away the exposed portion of the second insulating layer by using the mask to form the hole for the interconnection electrode;

(g) forming a conductive material layer on the entire surface of the structure obtained by step (f), the contact hole formed in the first insulating layer being filled with the conductive material to allow the conductive material layer disposed on the first insulating layer to be connected to the semiconductor substrate; and

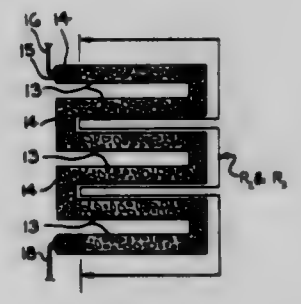
(h) removing the second insulating layer by etching to lift-off the third insulating layer and the conductive material layer laminated on the second insulating layer, the remaining conductive material layer providing the interconnection electrode.

4,334,350

METHOD UTILIZING A POROUS VITREOUS CARBON BODY PARTICULARLY FOR FLUID HEATING

Warren A. Rice, Dexter; Clarence S. Vinton, Ann Arbor; Charles H. Franklin, Ann Arbor, and Christopher J. Torbett, Ann Arbor, all of Mich., assignors to Chemotronics International, Inc. Shareholders, Ypsilanti, Mich.

Division of Ser. No. 928,051, Jul. 26, 1978, Pat. No. 4,220,846. This application Mar. 7, 1980, Ser. No. 128,191
Int. Cl.[3] H05B *3/00*
U.S. Cl. 29—611 1 Claim



1. A method for the preparation of an electrical resistance element which comprises:

(a) shaping a rigid body of interconnected, multidirectional, continuous strands of reticulated vitreous carbon forming a rigid, porous, three dimensional skeletal structure to provide current conductive paths between at least two regions of the body, said body having been heat treated at least about 1800° C. in a non-reactive atmosphere; and

(b) mounting at least two electrical connector means to the body at the regions so that an electrical current can flow through the body.

4,334,351

NOVEL PTC DEVICES AND THEIR PREPARATION

Umesh K. Sopory, San Jose, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed May 19, 1980, Ser. No. 150,910
Int. Cl.[3] H05B *3/00*
U.S. Cl. 29—611 18 Claims

1. A method of making a flexible electrical device which comprises

(a) an elongate flexible PTC element composed of a PTC conductive polymer composition which exhibits PTC behavior and which comprises

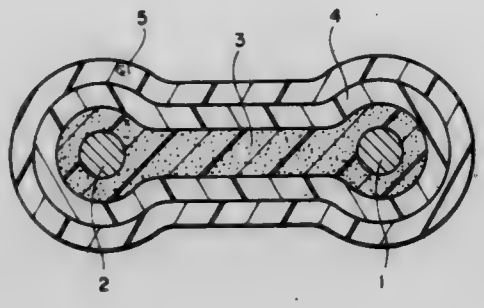
(i) a polymer component which comprises a mixture of a first crystalline polymer having a first melting point T_1

and a second crystalline polymer having a second melting point T_2 which is at least $(T_1+25)^\circ$ C., and

(ii) a particulate filler component which has been dispersed in said polymer component and which comprises a conductive filler; and

(b) at least one metal electrode; which method comprises

(1) forming said PTC element by melt-shaping said conductive polymer composition adjacent said electrode so



that the electrode is in electrical contact with said PTC element;

(2) forming on the surface of said PTC element a layer of a second polymeric composition having substantially greater flexibility at 23° C. than said PTC composition; and

(3) heating said layer to cause melt fusion of said second polymeric composition and said PTC composition at the interface between said layer and said PTC element.

4,334,352

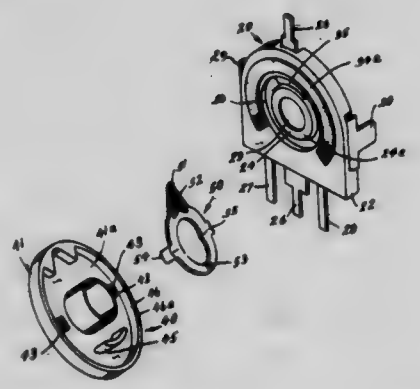
METHOD OF MAKING A VARIABLE RESISTANCE CONTROL

John D. VanBenthuysen, Elkhart, Ind., assignor to CTS Corporation, Elkhart, Ind.

Division of Ser. No. 899,116, Apr. 24, 1978, Pat. No. 4,210,896. This application Nov. 16, 1979, Ser. No. 94,846

Int. Cl.³ H01C *17/06*

U.S. Cl. 29—620 **7 Claims**



1. A method for making a variable resistance control comprising the steps of:

(a) blanking terminals and a structure plate having a collector and stop means;

(b) molding a body onto the structure plate;

(c) depositing a resistance element onto a surface of the body and onto portions of the terminals; and

(d) attaching a moveable contactor means in cooperative engagement with the resistance element to effect a variable resistance control.

4,334,353

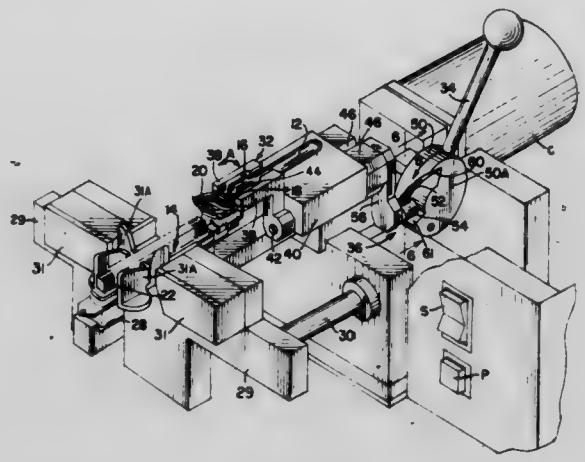
APPARATUS FOR ASSEMBLING ELECTRICAL CABLES TO ELECTRICAL CONNECTORS

Harley R. Holt, Forest Park, Ill., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Mar. 14, 1980, Ser. No. 130,295

Int. Cl.³ H01R *43/04*

U.S. Cl. 29—753 **16 Claims**



1. Apparatus for assembling electrical cables, or the like, to an electrical connector which has cable clamp means for clamping a cable in position with its conductors terminated to contact means on the connector, comprising:

a base having locator means for properly locating a connector in position for receiving an electrical cable;

a pair of jaw members mounted on said base for movement in a given direction toward and away from a properly positioned connector to engage said cable clamp means for clamping a cable to provide strain relief therefor;

an actuator member mounted on said base for moving said jaw members;

motion transmitting means operatively associated between said actuator member and only one of said jaw members for moving said one jaw member in response to movement of said actuator member; and

means interconnecting said jaw members for conjoint movement thereof in unison toward and away from said cable clamp means in response to movement of said actuator member.

4,334,354

METHOD OF FABRICATING A SOLAR ARRAY

Werner Luft, Palos Verdes Peninsula; Robert E. Kennedy, Torrance, and Hans G. Mesch, Manhattan Beach, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation of Ser. No. 7,130, Jan. 2, 1979, abandoned, which is a division of Ser. No. 814,949, Jul. 12, 1977, Pat. No. 4,154,998. This application Oct. 20, 1980, Ser. No. 198,384

Int. Cl.³ H05K *3/32, 3/34*

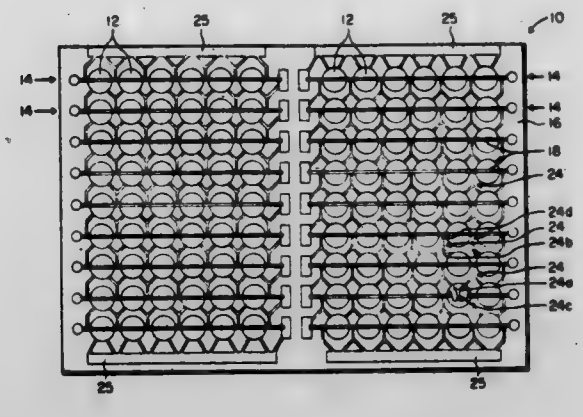
U.S. Cl. 29—840 **8 Claims**

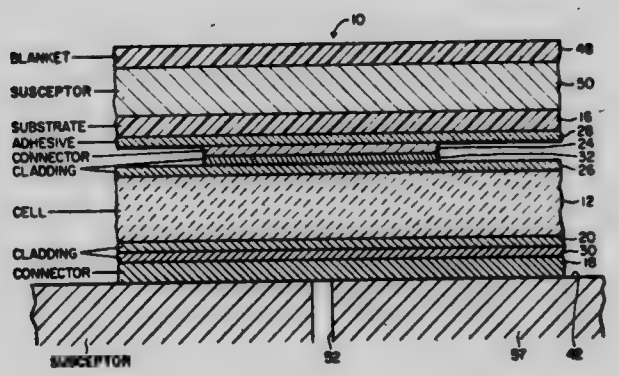
1. The method of joining a plurality of assembled components such as solar cells, cell connectors, and a cell-mounting substrate, having regions of contact between the components and a bonding medium at each region for joining the contacting components at said regions in response to momentary heating of the medium to a bonding temperature, said method comprising the steps of:

placing metallic susceptors in thermal conductive relation to said regions, and

exposing the susceptors to a high frequency electromagnetic field to effect induction heating of said susceptors and thereby heating of said bonding medium at said contact regions to its bonding temperatures by thermal conduc-

tion from said susceptors while retaining said components and susceptors in firm contact with one another to effect





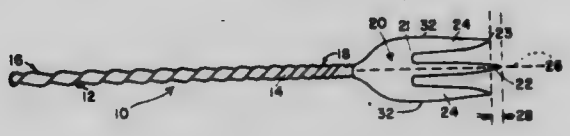
bonding of the contacting components to one another at said regions.

4,334,355

SPAGHETTI EATING UTENSIL

H. Worthington Kalt, 173 N. Mountain Ave., Montclair, N.J. 07042

Filed Feb. 19, 1981, Ser. No. 236,004
Int. Cl.³ A47J *43/28*
U.S. Cl. 30—322 3 Claims



1. A fork for simplifying the operation of picking up spaghetti, comprising:

(a) an elongated handle with a length much greater than its diameter;

(b) support plate means disposed at one end of said elongated handle;

(c) prongs disposed at the end of said support plate means opposite from said elongated handle, said prongs being oriented with their length substantially parallel to the axis of said elongated handle; and

(d) a spirally configured track disposed along the length of said elongated handle, said spirally configured track being of variable pitch, with more turns per unit length adjacent said support plate means.

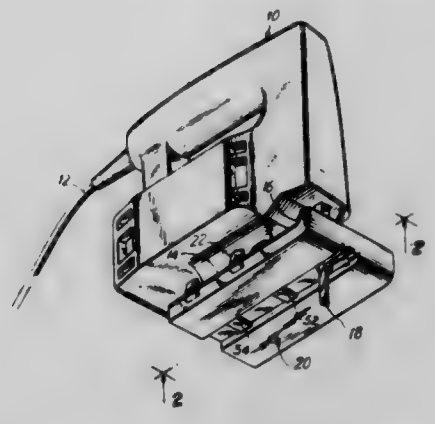
4,334,356

ANTI-MAR BASE FOR SABER- AND BAYONET-TYPE SAWS AND THE LIKE

Peter Krosunger, 19 Clinton St., Port Jefferson, N.Y. 11776

Filed Jul. 14, 1980, Ser. No. 168,868
Int. Cl.³ B27B *11/00*
U.S. Cl. 30—374 6 Claims

1. In combination with a saw including a rigid base having a front, rear and two sides, a source of motive power on said base, a blade coupled to said source of motive power and extending below said base, an anti-mar base, and means on said anti-mar base for detachably holding the same on said rigid base, said means including clips resiliently engaging the sides of the base, the anti-mar base including a generally planar section in face-to-face contact with the lower surface of the rigid base, the anti-mar base including an upwardly turned toe section to brace against the front of said rigid base, said blade



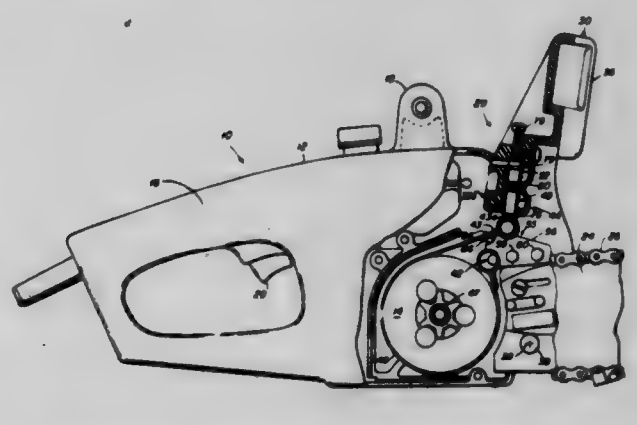
extending through said rigid base and said anti-mar base being provided with an opening through which said blade passes, said anti-mar base being provided with a slot forming a keyhole with said opening and extending forwardly thereof, the anti-mar base being provided with a downwardly open longitudinally extending groove into which said opening and slot open, and strips extending transversely through said anti-mar base and supporting said clips, the strips being exposed in said groove.

4,334,357

SAFETY BRAKING APPARATUS FOR A PORTABLE CHAIN SAW

John Baricevic, Redondo Beach, Calif., assignor to Black & Decker Inc., Newark, Del.

PCT No. PCT/US80/01013, § 371 Date Oct. 30, 1980, § 102(e) Date Oct. 30, 1980, PCT Pub. No. WO82/00438, PCT Pub. Date Feb. 18, 1982
PCT Filed Aug. 8, 1980, Ser. No. 201,413
Int. Cl.³ B27B *17/00*
U.S. Cl. 30—381 11 Claims



1. In a manually portable chain saw having

a housing with a gripping handle,

a cutting chain,

a support bar projecting forwardly from the housing for supporting the cutting chain for endless movement, and

a motive force means carried by the housing for driving the cutting chain,

a safety brake means for stopping movement of the cutting chain comprising:

a sensing arm mounted on said housing for swinging movement, a portion of said sensing arm being located forward of said gripping handle during operation of the chain saw

and arranged to be swung in a forward direction in response to being struck by an operator of the chain saw,

a flexible brake band,

means for anchoring a first end of said brake band,

releasable bistate means for capturing a second end of said brake band for longitudinal and transverse movement in response to movement of said sensing arm,

said second end in said longitudinal movement direction having a first state when said sensing arm is in said forward direction wherein said flexible brake band moves into frictional braking engagement with said motive means to stop said cutting chain and a second state when said sensing arm is in a normal operating rearward direction wherein said flexible brake band is loosely and non-interferingly spaced with respect to said motive means,

said second end in said transverse movement having a rest position wherein said second end is yieldingly constrained in said second state and a brake position wherein said second end can unimpededly move to said first state,

a first spring arranged for urging said sensing arm to move in the forward direction for effecting movement of said second end to said first state for braking movement, and

said bistate means having

a fixed latch plate having an edge surface mounted in operative relation to said movable second end, and

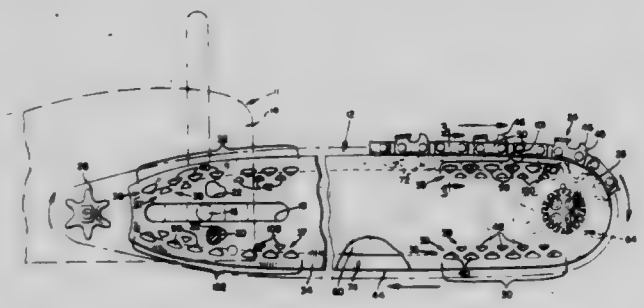
a second spring arranged to provide a yieldable transversely directed latching force for urging said flexible brake band, at said second end, toward said latch plate, whereby, in said second state the yieldable force of said second spring effects resilient resistance to movement of said second end toward said first state along said edge surface.

4,334,358

VIBRATION DAMPENED SAW BARS

Michael J. Reynolds, Oregon City, Oreg., assignor to Omark Industries, Inc., Portland, Oreg.

Filed Aug. 18, 1980, Ser. No. 179,086
Int. Cl.[3] B27B *17/04*
U.S. Cl. 30—387 30 Claims



1. A chain saw bar having rail portions and a body portion bounded by the rail portions, the rail portions having high impact areas,

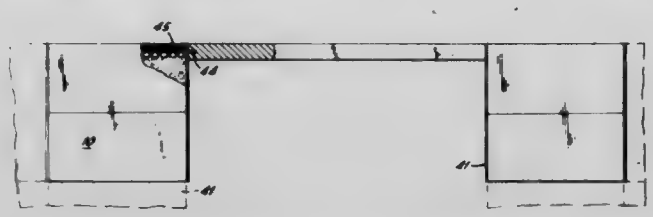
the bar having vibration dampening portions interposed between the rail portions and the inner body portion to retard transmission of vibrations from the rail portions to the body portion, said vibration dampening portions comprising rows of slots wherein said rows are generally parallel to the adjacent portions of the rail portions and the slots overlap one another such that perpendicular joinder of said rail portions to said body portion by noncompliant saw bar zones is avoided in said vibration dampening portions.

4,334,359

CONTAINERS

Ernest J. Kump, 6-7 Grosvenor Pl., London, SW1, England

Continuation of Ser. No. 956,276, Oct. 31, 1978, abandoned.
This application Mar. 10, 1980, Ser. No. 128,843
Claims priority, application United Kingdom, Nov. 4, 1977, 46013/77; May 31, 1978, 24986/78
Int. Cl.[3] F16B *12/00;* B65D *6/00*
U.S. Cl. 312—111 1 Claim



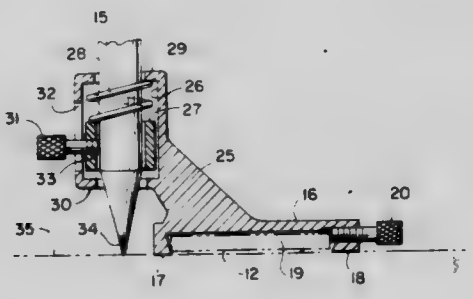
1. A desk comprising a desk top and at least two modular containers each comprising a hollow open-ended polygonal box, said box being divided into a plurality of wall components along lines contained in the planar portions of the walls of the box so that at least some of the wall components include portions of at least two walls, in which means are provided on adjacent wall components for locating the said adjacent wall components together along said lines, means are provided to lock said wall components together once so located, at least one pair of opposed side walls are provided with a multiplicity of nodules arranged in rows in at least two directions over at least a substantial portion of the inside surfaces of said opposed walls for locating shelves, drawers and the like within the container in any of a number of positions, and means for connecting the disk top to said containers comprising planar members slidable between rows of nodules within the containers and engageable in slots formed in the ends of the desk top.

4,334,360

PENCIL MARKING JIG

Anthony G. Burns, c/o George Spector 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of, New York, N.Y. 10007

Filed May 12, 1980, Ser. No. 149,240
Int. Cl.[3] B43L *13/02*
U.S. Cl. 33—42 1 Claim



1. A pencil marking jig, comprising in combination, a clamp integral with a collar holding a pencil, said clamp being adjustably locked along a calibrated rule of a carpenter's square, and said collar being positioned along an axis perpendicular to a flat plane of said rule, and aligned with one side edge of said clamp wherein said clamp comprises a flat plate with parallel opposite side edges projecting from said plate for providing a groove therebetween receiving said rule adjustably and a set screw through one said edge for locking said clamp at a desired location, including means biasing said pencil vertically towards said plane wherein said means includes a ring slidable in said collar, a pencil extending vertically through said ring, said collar provided with upper and lower stops at the ends thereof to hold said ring therein, a spring affixed in said collar between said upper stop and said ring to urge said ring and pencil downwardly, an elongated slot in said collar and a set

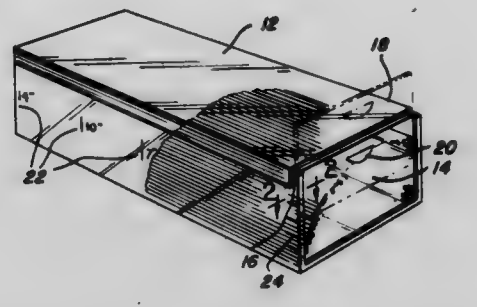
screw extending through said slot and threadably engaging a hole in said ring for locking said ring and pencil together.

4,334,361

PASTA GAUGE

Carol A. Gorski, and Saul B. Gorski, both of 123 S. Blanchard St., Wheaton, Ill. 60187

Filed Apr. 23, 1979, Ser. No. 32,509
Int. Cl.³ G01B *5/00*
U.S. Cl. 33—174 T **2 Claims**



2. A pasta gauge and container for selecting a predetermined portion of a plurality of elongated, dried pasta members from a larger bundle of elongated, dried pasta members of substantially equal length comprising

an elongated container which is rectangular in cross-section and has planar bottom, top and side walls for holding said larger bundle of pasta members,

said container being open at one end and closed at the other end,

a plurality of portion indicating graduations provided on one of said side walls in proximity to said one end,

a plurality of length indicating graduations provided on one of said walls to show the length of the pasta members disposed in said container,

at least said one of said walls being transparent in the vicinity of said length indicating graduations,

a planar closure member slidably mounted over said one end to enable the selective positioning of said closure member at a plurality of predetermined portion selecting positions corresponding to predetermined open areas at said one-end uncovered by said closure member,

the distance between said ends being greater than the respective lengths of said pasta members, and

the diagonal distance across said container being substantially less than said respective lengths of said pasta members to hold said pasta members in substantially mutually parallel relationship in said container.

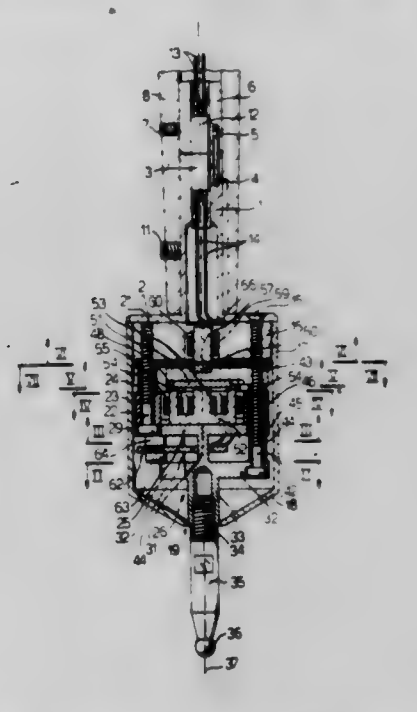
4,334,362

BIDIMENSIONAL TRACER OF MACHINE TOOLS OR MEASURING MACHINES

Francesco Germano, Turin, and Ugo Cavicchioli, Borgaro Torinese, both of Italy, assignors to DEA Digital Electronic Automation SpA, Turin, Italy

Filed May 3, 1979, Ser. No. 35,591
Claims priority, application Italy, May 9, 1978, 68052 A/78
Int. Cl.³ G01B *7/02*
U.S. Cl. 33—174 L **14 Claims**

1. A bidimensional tracer for machine tools or measuring machines, comprising a body for connection to said machine, a detection bar extending outwardly from said connection body arranged to come into contact with a surface, and means for emitting signals of detection of the movements of said detection bar along two orthogonal directions produced by the contact of the detection bar with said surface, wherein said means comprises two separate detector elements for simultaneously detecting said movements along said two directions, said two detector elements comprising each a portion stationary relative to said connection body and a portion movable as a function of said movements of said detection bar, wherein said movable portion of said detector elements is rigidly connected to said detection bar by means of a first portion of a one-piece intermediate body, of which a second portion is rigidly connected to said connection body, the connection between said first and said second portions of said intermediate body being obtained by means of a third portion of reduced cross section in a plane parallel to the plane of said two orthogonal directions, relative to the cross sections of said first and said second portions, so as to allow a resilient movement of



said first portion relative to said second portion when said detection bar comes into contact with said surface,

said tracer further comprising a support body, said movable portions of said detector elements being rigidly fastened to said support body, and means for rigidly connecting said support body in a spaced apart relation to the first portion of the intermediate body, said last mentioned means three equal height columns extending between said support body and the first portion of the intermediate body.

4,334,363

TOOL SETTING APPARATUS

Noel J. Stegemeyer, Pewaukee, and Vernon W. Naker, New Berlin, both of Wis., assignors to Kearney & Trecker Corporation, West Allis, Wis.

Filed Nov. 17, 1980, Ser. No. 207,256
Int. Cl.³ G01B *3/30*
U.S. Cl. 33—185 R **7 Claims**

1. An apparatus for setting the position of a cutting tool in a machine tool comprising:

a support having a base adapted to be placed on the worktable of the machine tool;

an indicator mounted on said support;

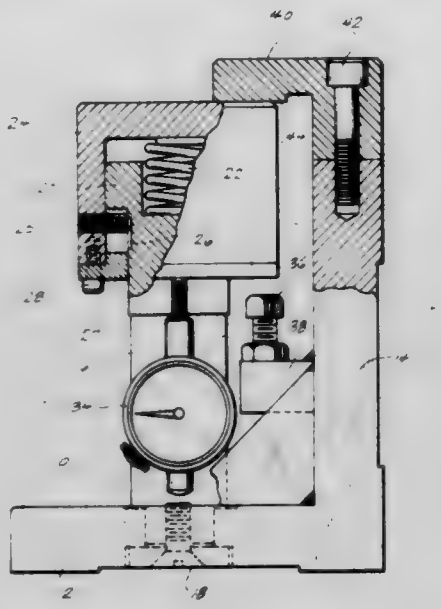
an actuator carried by said support and positioned to actuate said indicator, said actuator having a top surface that is parallel to said base and which moves in a path perpendicular to the base between a home position a known distance from the bottom surface of said base and an outward position further from said base bottom surface than said home position;

means disposed between said actuator and the base of said support for biasing said actuator means away from said home position and away from said base;

means attached to said indicator on said indicator when said actuator is at said home position; and

setting means affixed to said support for movement between a first position at which said setting means engages said actuator and biases said actuator to said home position so that said top surface of said actuator is at the known distance from the bottom surface of said base and a second

position at which said setting means is still in engagement with said support but disengaged from said actuator enabling said actuator to be biased towards said outer position and away from said home position and away from said base so that when the cutting edge of the cutting tool



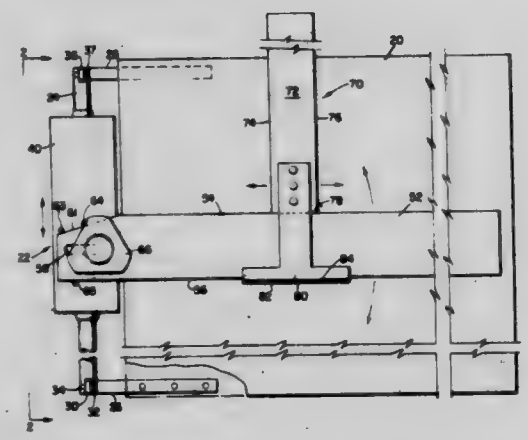
is brought into engagement with the top surface of said actuator, said actuator is forced against said biasing means until the home position is shown on said indicator wherein the cutting edge of the cutter will be the same distance from any surface engaged by said base.

4,334,364

ADJUSTABLE STRAIGHT EDGED DEVICE FOR USE WITH DRAFTING BOARD

John E. Nelson, Mountaintop, Pa., assignor to Eberhard Faber, Inc., Wilkes-Barre, Pa.

Filed Jan. 24, 1980, Ser. No. 115,047
Int. Cl.³ B43L *13/02*
U.S. Cl. 33—438 **8 Claims**



1. An adjustable straight edged device for use with a drafting board, comprising:
a support bar;
means for attaching said support bar to the drafting board in a position parallel to one of its sides;
a carrier plate slidably mounted for movement along said support bar and provided with a pivot pin and three guide pins spaced apart thereon; and
a straight edged blade including an elongated slot extending coaxially with a portion of the longitudinal axis of said blade, formed at an end thereof, for receiving said pivot pin to slidably and pivotally attach said blade to said carrier plate, one end edge portion of said blade forming an acute angle with the longitudinal axis of said blade in alignment with said elongated slot with two of said guide pins being disposed to abut the angled edge portion while the third of said pins abuts an opposite edge of said blade to maintain said blade in a horizontal orientation across the drafting board extending at a perpendicular angle from said support bar when the edges thereof abut said pins.

4,334,365

METHODS OF DRYING WET ITEMS OF TEXTILE MATERIALS

Frantz M. J. Boucraut, Troyes, France, assignor to Valton S.A., Troyes, France

Filed Oct. 15, 1980, Ser. No. 197,122
Claims priority, application France, Oct. 18, 1979, 79 25912
Int. Cl.³ F26B *5/08*
U.S. Cl. 34—8 **8 Claims**

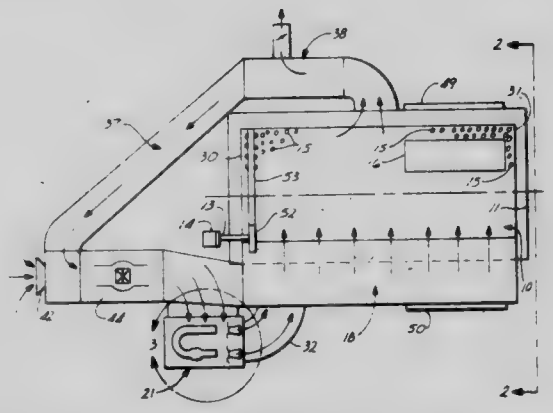
1. A method of drying a wet item of textile material, said method comprising rolling said item up onto a roller and subjecting said item to a width-increase transversely thereof of at least 15% before introducing said item rolled up on said roller into a perforated, annular retaining sleeve drivable to rotate within a protective casing, said rolling taking place at a rate such that the item is not subjected to tension longitudinally thereof, said rolling being continued until a series of layers of said item are on said roller, and said item and roller has an external diameter substantially equal to the internal diameter of said retaining sleeve, whereby upon subjecting said item on said roller to a centrifugal force, outermost layers of said item are urged against said retaining sleeve and inner layers are pressed against said outermost layers to dry said item.

4,334,366

SONIC ENERGY PERFORATED DRUM FOR ROTARY DRYERS

Raymond M. Lockwood, Palo Alto, Calif., assignor to Jetsonic Processes, Ltd., Sacramento, Calif.

Filed Sep. 24, 1980, Ser. No. 190,296
Int. Cl.³ F26B *5/02*
U.S. Cl. 34—17 **27 Claims**



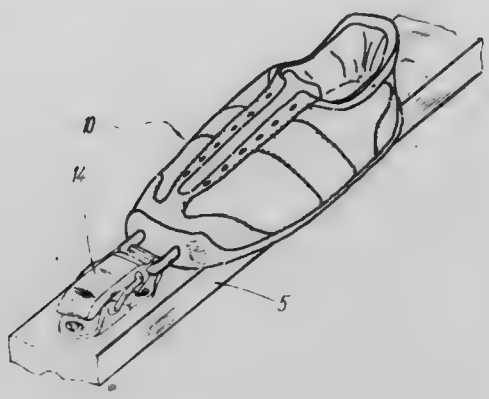
1. Apparatus for drying particles, the apparatus comprising:
a cylindrical drum having a substantially horizontal axis and a perforated surface extending circumferentially of the drum over a selected portion of the length of the drum;
means for introducing moist particles into the drum;
means for rotating the drum about the axis to tumble the particles inside the drum;
a stationary gas plenum structure cooperating with a selected portion of the drum circumference and length in association with the drum perforated surface, for supply of gas into the drum via the perforated surface during rotation of the drum;
a pulse jet engine arranged to supply pulsating hot gas and broad band sonic energy to the plenum, whereby such gas and broad band sonic energy enter the drum and contact the tumbling particles to cause them to dry; and
means for withdrawing dry particles from the drum.

4,334,367

PROCESS FOR MANUFACTURING A SPORTS SHOE AND THE SHOE ITSELF

Georges P. J. Salomon, Annecy, France, assignor to Ets. Francois Salomon et Fils, S. A., Annecy, France

Filed Dec. 12, 1979, Ser. No. 103,066
Claims priority, application France, Dec. 13, 1978, 78 35079
Int. Cl.[3] A43B *5/04*; A43D *9/00*
U.S. Cl. 36—117 35 Claims



1. Process of making a boot or shoe for use in sports comprising an upper portion, a walking sole joined at its periphery to said upper portion at a junction, an intermediate element positioned between said walking sole and the region adapted to receive the foot of the user, and at least one portion projecting beyond said junction to the outside of said boot or shoe, said process comprising the steps of:

(a) integrating said projecting portion and said intermediate element to form an integral assembly; and

(b) integrating said integrating assembly with said upper portion and said walking sole to form said shoe.

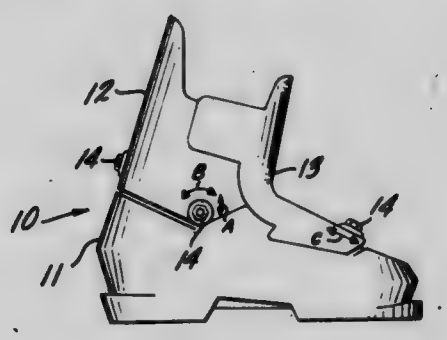
7. The process as defined by claim 1 wherein said shoe or boot comprises a first sole and said process comprises folding the lower front of said upper portion between said first sole and said intermediate element.

4,334,368

ADJUSTABLE FASTENER FOR PLASTIC SKI BOOTS

Edward L. Chalmers, II, and Wayne L. Shugart, Sr., both of Boulder, Colo., assignors to Lange International S.A., Fribourg, Switzerland

Filed Oct. 31, 1980, Ser. No. 202,453
Int. Cl.[3] A43B *5/04*
U.S. Cl. 36—121 15 Claims



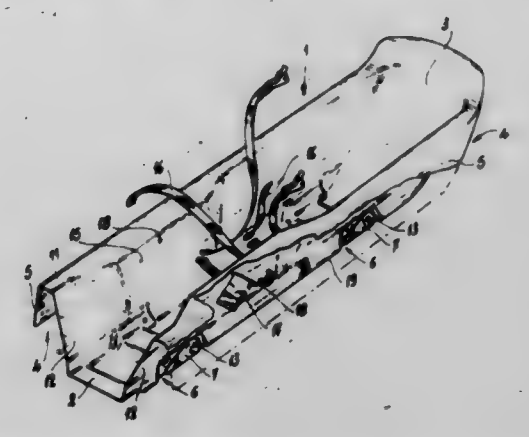
1. An adjustable fastener for securing one portion of a plastic ski boot to another portion in a manner that facilitates selective and limited relative movement between the two portions comprising anchor means mounted in the one boot portion and adapted to extend through a slot in the other boot portion, friction means through which the anchor means extends, and a clamping device cooperating with the anchor means for urging the boot portions together and forcing the friction means into engagement with the one boot portion to secure the two boot portions in a selected position after desired relative movement.

4,334,369

SKI-SHOE

Paul H. Brunel, "Le Meleze"-Residence Charriere Blanche, Ecully (Rhone), France

Filed Sep. 3, 1980, Ser. No. 183,924
Claims priority, application France, Sep. 5, 1979, 79 22722
Int. Cl.[3] A43B *5/04*
U.S. Cl. 36—124 10 Claims



1. A ski-shoe comprising:

an elongated and generally flat base plate having an upwardly curved front end, a rear end, and a pair of longitudinally extending side edges;

respective upright sides extending the full length of said base plate having lower edges joined to said side edges and upper edges;

a pair of side rails extending outwardly and downwardly from said upper edges of said sides and having lower edges lying above said base plate, said side rails forming downwardly open channels with the respective sides;

means for securing the foot of a user to said base plate between said ends and between said sides;

at least one flap underneath said base plate; and

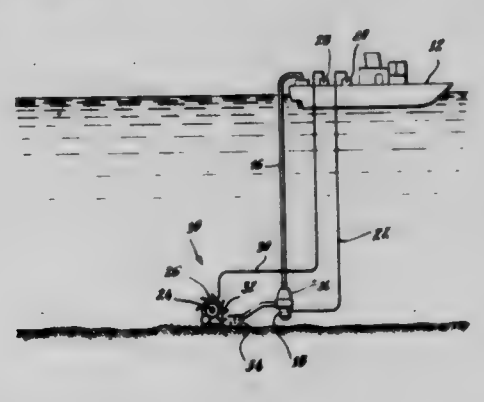
pivot means for mounting said flap for pivotal movement about a horizontal axis transverse to said sides between said flap and said front end relative to said base part and sides between an up position lying generally against said base plate and a down position extending transversely downwardly from said base plate.

4,334,370

METHOD OF TRANSPORTING FLOWABLE MEDIA OF CHANGING CONSISTENCIES

Kurt Holzenberger, Frankenthal/Pfalz, Fed. Rep. of Germany, assignor to Klein, Schanzlin & Becker Aktiengesellschaft, Frankenthal/Pfalz, Fed. Rep. of Germany

Filed Apr. 17, 1980, Ser. No. 140,967
Claims priority, application Fed. Rep. of Germany, Apr. 24, 1979, 2916469
Int. Cl.[3] E02F *3/88*
U.S. Cl. 37—195 12 Claims



1. A method of transporting a flowable medium in a carrier fluid, especially a flowable solid such as manganese nodules and the like obtained in ocean bottom mining, comprising

conveying said medium and fluid from a pressurized source of the same along an ascending path at least generally in accordance with a characteristic control line along which the following relation is satisifed:

$$\Delta p_1 - \Delta p_2 \leqq \Delta p_3$$

where

Δp_1 is the calculated maximum possible pressure reduction in said source corresponding to the largest possible change in the concentration of said medium in said fluid,

Δp_2 is the pressure differential along a characteristic curve of said source between a predetermined operating point corresponding to a characteristic curve of said path and the intersection with a line of constant flow passing through a minimum of said characteristic curve of said path, and

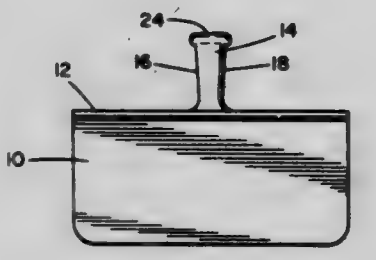
Δp_3 is the pressure differential between said predetermined operating point and said minimum.

4,334,371

UNITARY HANDLE AND DISPLAY TAG

Gordon R. Winders, and Fredric M. MacKay, both of Raleigh, N.C., assignors to Rheem Manufacturing Company, New York, N.Y.

Filed Mar. 13, 1980, Ser. No. 130,037
Int. Cl.³ G09F *3/16*
U.S. Cl. 40—2 R **5 Claims**



1. An improved display tag and handle for attachment by a metal clip to a casing or bagged product, said tag comprising in combination:

a flat planar flexible display panel having at least one straight edge,

a rib defining said straight edge, said panel projecting from one side of the rib; and

a stem projecting from the other side of the rib in the opposite direction from the panel, said stem being adapted to be clipped by a clip which is used to close the casing, said stem defining a plurality of surfaces which gradually converge from the distal free end of the stem toward the rib whereby the stem tends to become tightly wedged in the clip as the tag is pulled in the direction of the rib and panel;

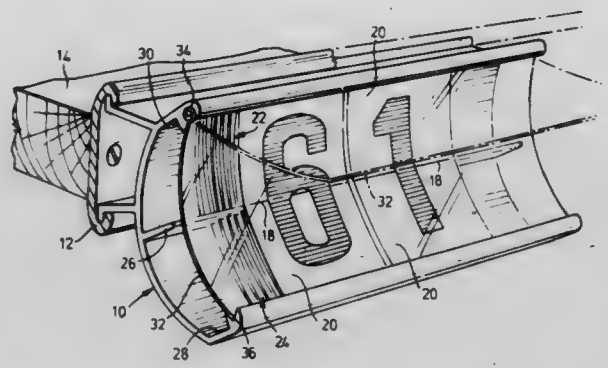
said rib is a generally inflexible rigid bar member and extends on opposite sides of the stem a sufficient distance to permit manual gripping of the rib on each side of the stem, for use as a handle, said stem is defined by a width dimension and a thickness dimension transverse to the stem and a length dimension generally perpendicular to the rib, said width dimension and said thickness dimension decreasing from a maximum adjacent the end of the stem to a minimum adjacent the connection of the stem to the rib, and a molded knob at the distal end of the stem.

4,334,372

MOVABLE WEB VARIABLE EXHIBITOR

Jack E. Colmar, 106 Marchington Cir., Scarborough, Ontario, Canada

Continuation-in-part of Ser. No. 127,890, Mar. 6, 1980, abandoned. This application May 4, 1981, Ser. No. 259,902
Int. Cl.³ G09F *3/18*
U.S. Cl. 40—16.2 **1 Claim**



1. A display device comprising:

a strip of flexible sheet material formed with a series of transverse folds to divide it into panels of equal size, the panels being arranged in two stacks, the top panel of each stack being adjacent panels joined at the fold line between them;

a housing for said panels having two retainer channels the outside edge of one of said stacks being contained by one retainer channel and the outside edge of the other of said stacks being contained by the other of said channels;

said housing having a support bar between said retainer channels underlying said fold line between the top panel of each of said stacks;

said retainer channels being spaced to hold the top panels of each stack with said fold line between the top panel of each of said stacks against said support whereby to present the top panels to open view;

said support bar having a height greater than the edge thickness of the stack of panels beneath it and greater than the depth of said retainer channels; the plane of the upper edge of the retainer channels being spaced above the upper edge of said support bar whereby to relax the panels in said stacks and urge the fold line between the top panel of each of the stacks against said support bar and provide for the manual manipulation of the top panel in one stack to move said fold line between the top panel of both stacks from the support a distance to pull the top panel of the other stack from its retainer channel, said top panel so removed from one retainer channel being insertable in the other retainer channel to display two different panels of said strip as top panels to open view;

said panels having display materials thereon, the display materials being visible when they are top panels in said stacks in said housing and in open view as aforesaid.

4,334,373

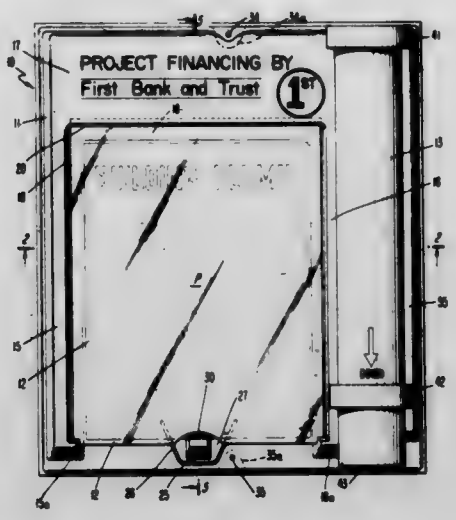
COMBINED FLAT SHEET DISPLAY DEVICE AND ROLLED SHEET HOLDER

Carl N. Bryan, P.O. Box 325, Winter Haven, Fla. 33880

Filed Dec. 19, 1979, Ser. No. 105,283
Int. Cl.³ G09F *3/18, 11/18*
U.S. Cl. 40—19 **3 Claims**

1. A combination flat sheet display and rolled sheet holder device adapted for vertical mounting outdoors comprising a base member, said base member being adapted to receive said flat sheet for display, means to retain said flat sheet on said base member, and holding means positioned on base member to hold said rolled sheet separate from said flat sheet, said holding means being removable from said device for receiving said rolled sheet, said retainer means including a raised frame on said base member including side pieces and a translucent cover within said frame adapted to cover said flat sheet, said base

member being an integral sheet of molded plastic, said frame being formed by raised molded areas on said plastic sheet, and said frame serving to reinforce said plastic sheet, a raised reinforcement rail extending along the side of base member opposite said frame, said holding means for said rolled sheet being positioned between said rail and the adjacent side piece of said frame.

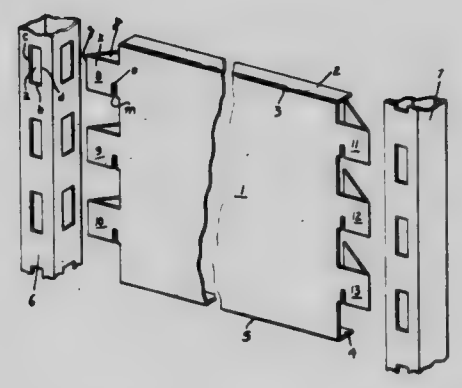


4,334,374

MEANS FOR ATTACHING A PANEL TO AN UPRIGHT

William S. Spamer, Roswell, and Robert C. Barker, Lilburn, both of Ga., assignors to The Mead Corporation, Dayton, Ohio

Filed Mar. 26, 1981, Ser. No. 247,765
Int. Cl.[3] G09F *15/00*
U.S. Cl. 40—606 9 Claims



1. Means for attaching a panel to an upright comprising an upright, at least one aperture formed in said upright, a panel disposed adjacent said upright, a first bracket element joined to one side edge of said panel, a second bracket element joined to said first bracket element remote from said panel and disposed at an acute angle to said first bracket element, a pair of notches formed respectively in said bracket elements, and said notches being disposed in said aperture and in an interlocking relationship with said upright.

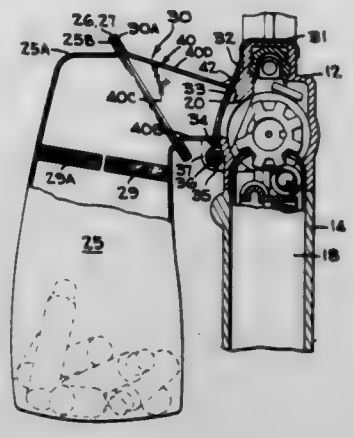
4,334,375

APPARATUS FOR COLLECTING CARTRIDGE CASINGS

Marvin C. Olson, San Jose, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed Jan. 28, 1980, Ser. No. 116,331
Int. Cl.[3] F41C *27/00*
U.S. Cl. 42—1 T 7 Claims

1. Apparatus for collecting empty casings discharged through an ejection port in a wall of a gun comprising a container, means for attaching the entrance end of said container to the section of the wall of the gun surrounding the ejection port, and means for establishing a gas-tight seal between the wall of said gun around the ejection port and the entrance end of said container.

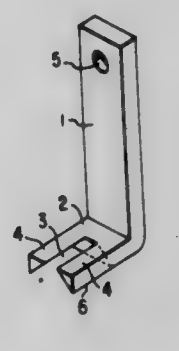


4,334,376

PERCUSSION CAP REMOVER

Jack M. Winslow, Caldwell, Id., assignor to Amanda Kimberly Winslow; Marjorie Ann Winslow; Francis Mae Winslow; Jennifer Jean Winslow and Marjorie Ellen Winslow, all of Caldwell, Id.

Filed Mar. 31, 1980, Ser. No. 136,092
Int. Cl.[3] F41C *27/00*
U.S. Cl. 42—90 9 Claims



1. A device for removing a percussion cap having a skirt from the primer nipple of a firearm, said nipple being provided with lugs spaced from said skirt, comprising:

a bifurcated plate including parallel upper and lower surfaces and a pair of substantially coplanar arms having opposing inner edges defining an elongated slot open at one end of said plate and closed at the other end, the distance between said inner edges at the upper surface of said plate being constant over the length of said slot and less than the distance between said inner edges at the lower surface of said plate, less than the outer diameter of said percussion cap at the skirt of said cap and greater than the diameter of said nipple at the point where the nipple meets the skirt of said cap, said inner edges forming predetermined angles with the upper surface of said plate; and

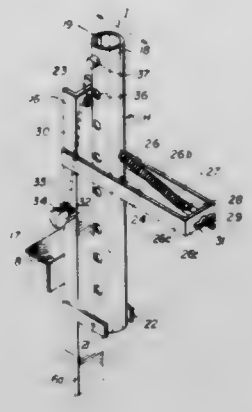
a handle joined to the other end of said bifurcated plate, the angle between said handle and the upper surface of said plate being such that sufficient leverage may be generated to remove said cap, said percussion cap being removed from said primer nipple by resting the lower surface of said plate on a lug of said nipple with said nipple inside said elongated slot and the upper surface of said plate pressing against the skirt of said percussion cap, and rotating said handle about the contact area between the lower surface of said plate and said lug.

4,334,377

FISHING POLE HOLDER

Edward L. Hartwig, 5636 North Ave., Carmichael, Calif. 95608

Filed Mar. 14, 1980, Ser. No. 130,350
Int. Cl.[3] A01K *85/01*
U.S. Cl. 43—17 8 Claims



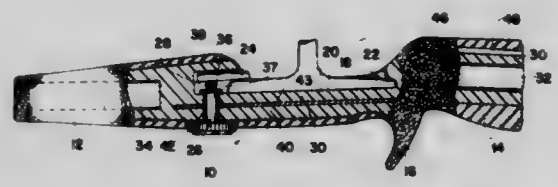
1. A fishing pole holder comprising, in combination, an elongated support member adapted to be disposed in an upstanding position on a supporting surface, a tubular member having a central bore for accommodating the handle of a fishing pole, means for pivotally mounting said tubular member at one end on said support member for movement in an angular path between a rest position and an operative position by the pulling action of a fish caught on said fishing pole, a bracket horizontally mounted on said support member, stop means on said bracket for limiting the pivotal movement of said tubular member to said rest position, means on said bracket horizontally disposed for yieldingly urging said holder into said rest position and normally inoperative alarm means on said support member for engagement by said tubular member in said operative position for operatively conditioning said alarm means to indicate the presence of a fish on said fishing pole, wherein said bracket is of U-shaped configuration having a pair of leg portions and a bight portion and including means for attaching the outer ends of said leg portions to said support member with said tubular member therebetween for pivotal movement of said tubular member in said angular path.

4,334,378

LIGHT WEIGHT CASTING ROD HANDLE

Charles C. Worth, 136 Cypress Ave., Kentfield, Calif. 94904

Filed Jun. 10, 1980, Ser. No. 158,232
Int. Cl.[3] A01K *87/06*
U.S. Cl. 43—22 5 Claims



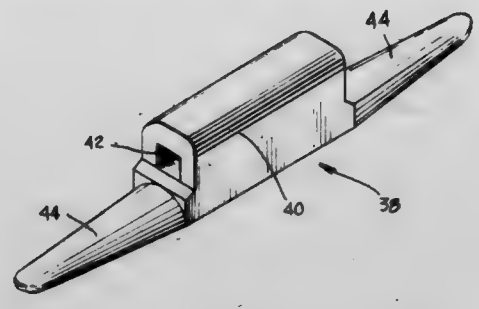
1. A lightweight casting rod handle comprising:
an elongated, generally cylindrical core of a rigid plastic;
a recess intermediate the ends of said core adapted to receive the foot of a reel;
a hole from the bottom of said core open into said recess at the forward portion thereof;
a hand-operated threaded member extending through said hole; and
a reel-foot clamp threadedly engaged with said member;
the improvement comprising:
a tubular extension of said core extending rearward from the forward end of said recess to overlie said hole and provide an integral annular hood surrounding same.

4,334,379

FISH LINE GUIDE ASSEMBLY

Pierre Nelli, 146 Main St., Westport, Conn. 06880

Continuation-in-part of Ser. No. 120,212, Feb. 11, 1980, Pat. No. 4,277,906. This application Jun. 22, 1981, Ser. No. 275,644
Int. Cl.[3] A01K *87/04*
U.S. Cl. 43—24 8 Claims



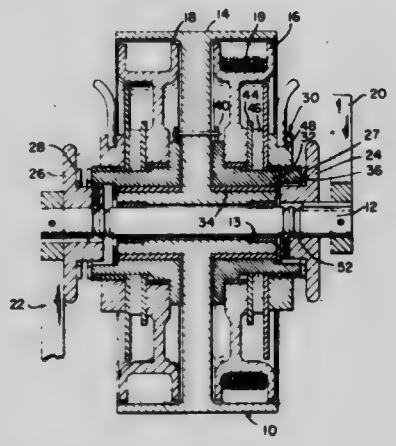
1. A fish-line guide assembly having a removable wire loop member, said assembly being adapted for attachment to a fish rod to confine and guide the fish line along the same and comprising in combination:
(a) a plastic mounting clip having an elongate body portion and a pair of attachment tabs integral with the body portion and extending in opposite directions from the ends thereof, said tabs being adapted for placement against the fish rod with the tabs parallel to and overlying the rod for securement thereto by wrappings,
(b) said clip body portion being tubular, having a bore with a cross-sectional configuration adapted to closely confine a single thickness, rod-like member,
(c) a one-piece wire loop member having solely one integral supporting single-thickness rod-like base constituted of a completely straight, solid, single-thickness wire tine which is of non-circular cross section and is adapted to be frictionally received in the body portion of the mounting clip,
(d) said bore of the body portion defining a friction passage for receiving the single-thickness wire tine of the loop member and at said passage conforming to the non-circular cross section of said tine.

4,334,380

TROLLING RIG

Dennis Daniels, Quilecene, Wash.

Filed Feb. 21, 1979, Ser. No. 13,318
Int. Cl.[3] A01K *89/015*
U.S. Cl. 43—27.4 7 Claims



1. A trolling rig comprising:
a base adapted to be fastened to a boat;
a pair of closely spaced weight line drums rotatably mounted on said base and axially fixed on said base;
a disengageable drive assembly for rotating each drum;
a common crankshaft selectively drivingly engageable with each said drive assembly;

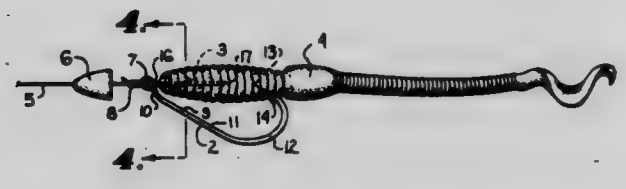
means for rotating said crankshaft;
overrunning clutch means for precluding rotation of said drive assembly in one direction only;
drag means for selectively allowing rotation of a drum relative to the drive assembly in the direction precluded by the overrunning clutch when disengaged and precluding rotation of the drum relative to the drive assembly when engaged; and
means for drivingly coupling said crankshaft to each drive assembly for rotating each of said drums independently of one another, said drag means being located on axially outer sides of said drums externally of both drums for access by the user.

4,334,381

FISHHOOK AND WORM LURE COMBINATION

Robert G. Carver, Minden, La., and Clarence Steward, Keller, Tex., assignors to Carver Manufacturing Incorporated, Linden, La.

Continuation of Ser. No. 17,547, Mar. 5, 1979, abandoned. This application Oct. 15, 1980, Ser. No. 197,260
Int. Cl.³ A01K *83/06, 85/00*
U.S. Cl. 43—42.29 **4 Claims**



1. In combination with a plastic worm lure, an improved fishhook and connector device for rigging and retaining said plastic worm lure thereon comprising:
(a) a fishhook comprising a length of wire formed to present successively an eye, an elongated shank, a re-entrant curved bight and a barbed point, said shank further having a bend adjacent the eye thereof whereby the eye is offset from the shank in the same direction as the barbed point, said eye, shank, curved bight and barbed point being substantially in a single plane; said eye being adjacent a head of the worm and the elongated shank at an acute angle relative to the longitudinal axis of the worm with the barbed point embedded in said worm to assume a bite responsive position under an exterior surface of the worm, said fishhook eye being the line attaching eye;
(b) an elongate straight and substantially rigid anchor member having a shank with eye at one end and a pointed end at the other end, said anchor member pointed end generally pointed toward said fishhook barbed point; said anchor rod being of a length approximately one-half to three-fourths of a distance between said fishhook eye and barbed point, said anchor member shank extending into the worm lure from the head end with the anchor rod eye positioned exteriorly of and adjacent said head end; said anchor member shank having a plurality of laterally outwardly extending projections spaced apart along the length thereof to resist retraction from the worm lure; and
(c) said fishhook being swingably connected to the anchor member by swingably joining the fishhook eye to the anchor member eye.

4,334,382

INFANT DEVELOPMENT RING TOY

Richard A. Chase; Danny E. Simpson, both of Baltimore, Md., and David M. Williams, Montreal, Canada, assignors to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Continuation-in-part of Ser. No. 884,780, Mar. 8, 1978. This application Apr. 30, 1980, Ser. No. 145,168
The portion of the term of this patent subsequent to Feb. 10, 1998, has been disclaimed.
Int. Cl.³ A63H *33/00*; A61J *17/00*
U.S. Cl. 46—1 R **3 Claims**



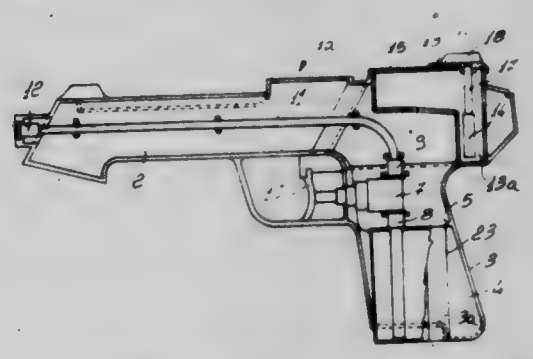
1. An infant development toy comprising:
a plurality of rings of varying diameter; including a largest ring, a next largest ring, a central object, and flexible connecting means connecting said central object and said plurality of rings in such a manner that, when the toy is freely suspended from the point of connection of the largest ring and the connecting means, the connecting means is disposed vertically as the toy assumes a configuration wherein the rings are concentric about the central object, said flexible connecting means being the sole means connecting said rings, and said connecting means being sufficiently flexible that the next largest ring is readily movable out of the plane defined by the largest ring;
said flexible connecting means extending outwardly of the rings to form a primary handle;
said primary handle having attached thereto an end object.

4,334,383

WATER SPRINKLING TOY PISTOL WITH BUBBLE-BLOWING RING

Athos Melotti, Via dello Spalto 3 -, Bologna, Italy

Filed Sep. 29, 1980, Ser. No. 191,967
Claims priority, application Italy, Oct. 15, 1979, 26498 A/79
Int. Cl.³ A63H *33/28*
U.S. Cl. 46—7 **5 Claims**



1. A water sprinkling toy pistol of the type which comprises a water magazine adapted for insertion into the pistol grip and in operative communication with means for ejecting a sprinkle of water from the pistol barrel, characterized in that it further comprises, located above said magazine, a reservoir intended for containing a liquid effective to produce bubbles of the type of soap bubbles, a bubble blowing ring immersed in said reservoir, said ring being movably mounted on said pistol and adapted to be raised by supporting means therefor guided

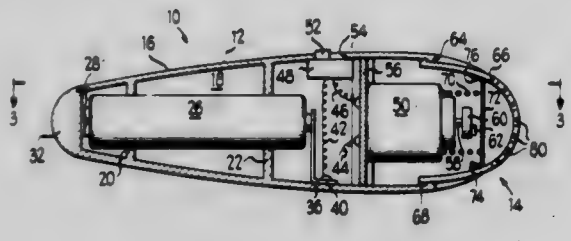
within the pistol grip to a position to deliver bubbles in the direction of the pistol barrel.

4,334,384

TOY RAZOR

Gregory B. Rogers, Hollywood, Calif.; John R. Wildman, North Riverside, and Jeffrey D. Breslow, Highland Park, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 6, 1981, Ser. No. 232,408
Int. Cl.[3] A63H *33/30*
U.S. Cl. 46—39 12 Claims



1. A toy razor comprising:

a housing;

a razor head slideably mounted on said housing to allow movement of said head relative to said housing from a first position to a second position upon engagement of said head with an object;

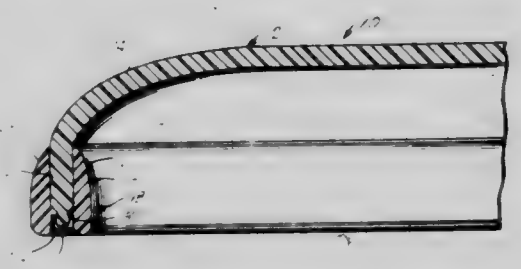
first means for producing a first sound while said head is in said first position, and second means for producing a second sound upon movement of said head relative to said housing.

4,334,385

FLYING DISC

Arthur K. Melin; Richard L. Gillespie, both of San Gabriel, and Douglas A. Geller, Monrovia, all of Calif., assignors to Wham-O Mfg. Co., San Gabriel, Calif.

Filed Nov. 5, 1979, Ser. No. 91,580
Int. Cl.[3] A63H *27/00*
U.S. Cl. 46—74 D 12 Claims



1. An aerodynamically-shaped circular flying disc comprising

a domed body having a circular central portion of a generally uniform cross-section and a downwardly depending skirt portion; and

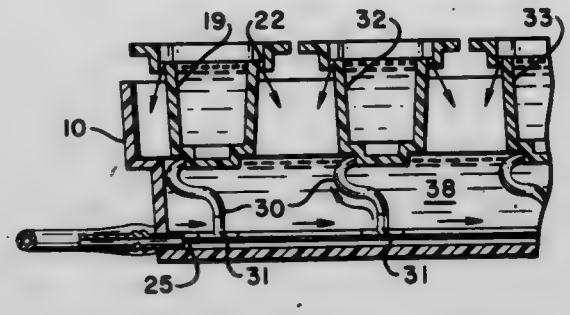
a separately integral circular rim portion having an upwardly opening passage extending annularly around the rim portion and a generally greater cross-sectional area than said central portion, said rim portion being secured to the skirt portion at the annular passage such that the rim portion brackets the skirt portion, the cross-sectional profile of the central portion and rim portion conforming to that of an airfoil.

4,334,386

SOILESS GARDENING SYSTEM

Douglas A. Burcombe, P.O. Box 1432, Orange, Calif. 92668, and Jean M. Wills, Orange, CA, assignors to Douglas Arthur Burcombe, Shingletown, Calif.

Filed Jun. 16, 1980, Ser. No. 160,075
Int. Cl.[3] A01G *23/02*
U.S. Cl. 47—62 9 Claims



1. A modular soilless gardening system, including, in combination:

(a) a portable sump tank of molded plastic material having an open top and a stable bottom for level seating on a flat surface;

(b) a hose connecting nipple extending into a lower side portion of said sump tank adjacent to said bottom;

(c) a portable grow tank of molded plastic material having an open top and a formed bottom, said sump tank including internal step means for supporting said grow tank above the bottom of the sump tank for seating the grow tank at a level higher than said sump tank, said grow tank including an overflow opening in its upper half;

(d) a hose connecting nipple extending into a lower side portion of said grow tank adjacent to its bottom;

(e) hose means for connecting the hose connecting nipples of the sump tank and grow tank together; and

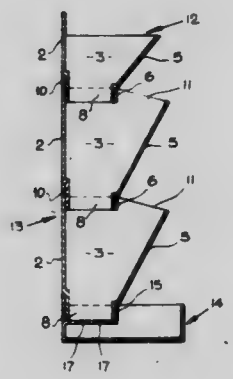
(f) a pump for pumping nutrient solution from said sump tank through said hose means into the lower side of said grow tank through said hose connecting nipple, said solution overflowing through said overflow opening in said grow tank to pass back into said sump tank whereby said grow tank can be periodically irrigated with treated water in said sump tank to promote growth of plant life in said grow tank.

4,334,387

RETAINER FOR GROWTH SUPPORTING MEDIUM

Ladislay S. Karpisek, 86 Woodfield Blvd., Caringbah, N.S.W., Australia

Filed Jul. 11, 1980, Ser. No. 167,724
Int. Cl.[3] A01G *9/02*
U.S. Cl. 47—83 3 Claims



1. A retainer growth supporting medium such as soil, said retainer being for tiered assembly with like retainers, each said retainer being elongated and having two sides, two ends joining said sides, an open top and open bottom, the width of the

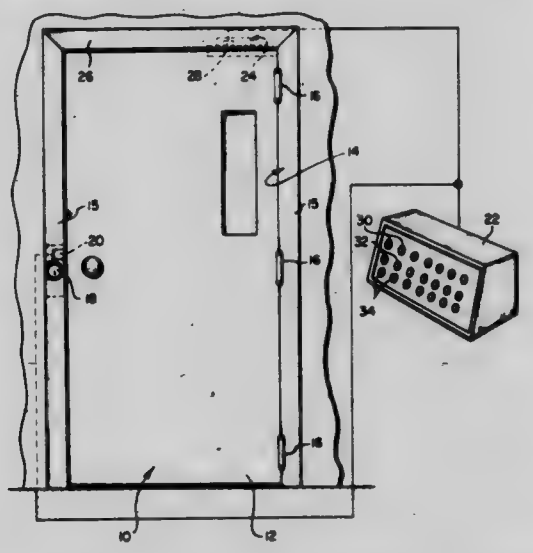
open top between the said sides being greater than the overall width of the retainer bottom, the length of the open top between the said ends approximating but being greater than the overall length of the retainer bottom, one of said sides inclined inwardly downwardly relative to the other side, said ends parallel to each other, said ends and said inclined side adjacent the retainer bottom being instepped to provide first shoulders spaced at a uniform distance from said retainer bottom and the other side being instepped adjacent the retainer bottom to form a second shoulder spaced further from the retainer bottom than said first shoulders, the top edge of said other side standing above the top edges of said ends by an amount less than the difference between the distance of said first shoulders from said retainer bottom and the distance of the second shoulder from the retainer bottom, locating means projecting into the said open top of said retainer to laterally divide said open top into receiving and growing zones and to also laterally stabilize the lower end of a superimposed retainer when it is inserted into the receiving zone of an underlying retainer in a tiering operation.

4,334,388

DOOR POSITION MONITORING ASSEMBLY

Raymond V. Kambic, Joiliet, Ill., assignor to Brink's Locking Systems, Inc., Plainfield, Ill.

Filed Aug. 18, 1980, Ser. No. 179,265
Int. Cl.³ G08B *13/08*
U.S. Cl. 49—14 **27 Claims**



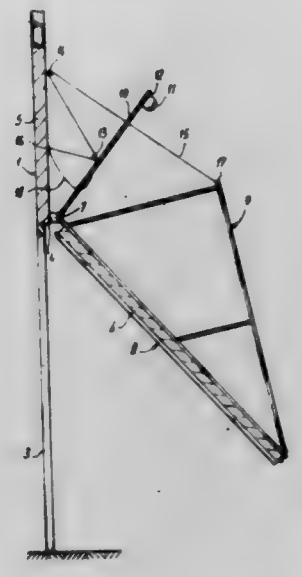
1. A door position monitoring assembly for a security door installation, comprising, track means for mounting with respect to a horizontal edge of a door and movable therewith; a circuit component mountable with respect to a stationary surface of the door installation, such as the door frame or the threshold, which surface extends generally parallel to said horizontal edge of door, said circuit component being capable of being operated to attain a first condition, and a second condition which can be detected by suitable circuit means; a control arm having one end thereof slidably connected to said track means, and being pivotally mounted proximate the other end thereof, such that movement of said door will produce pivotal movement of said control arm; and actuator means interconnecting said pivotally mounted end of the control arm and said circuit component such that when the door is open said circuit component will be in a first condition, with rotation of said control arm upon movement of the door to the substantially closed position, producing a second condition for said circuit component, with initial movement of the door away from the fully closed position producing pivotal movement of the control arm in an opposite direction permitting said circuit component to return to said first condition.

4,334,389

PANEL WITH COUNTERWEIGHT

Frederiks T. L. Visser, Amersfoort, Netherlands, assignor to Poly-Pro, B.V., Maartensdijk, Netherlands

Filed Mar. 11, 1980, Ser. No. 129,256
Claims priority, application Netherlands, Mar. 13, 1979, 7901983
Int. Cl.³ E05F *1/00*
U.S. Cl. 49—387 **6 Claims**



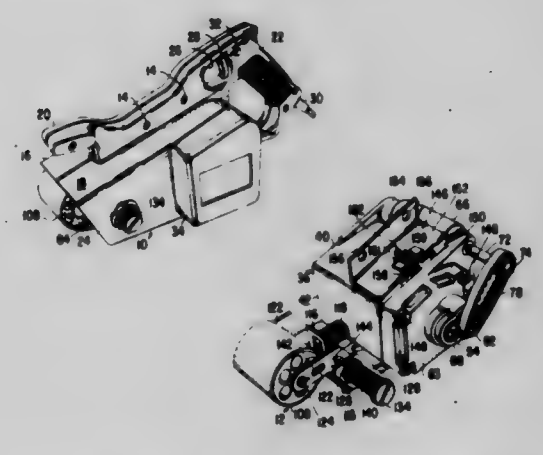
1. In combination: a panel for opening and closing an opening surrounded by a structure defining a space, a pivot pivoting said panel to said structure at the side thereof facing away from the space, a member rigidly connected to said panel and extending a certain distance away from the surface of the panel, a flexible element one end of which is connected to said member and the other end of which is connected to said structure at a fixed point, a counterweight, bar means pivotally connecting said counterweight to said structure at or adjacent to said pivot, and two guide means, said flexible element being secured to said guide means intermediate its ends, one guide means being mounted on said bar and the other guide means being disposed on said structure.

4,334,390

BELT SANDER

Russell Sumerau, Easley, S.C., assignor to The Singer Company, Stamford, Conn.

Filed Sep. 24, 1980, Ser. No. 190,544
Int. Cl.³ B24B *23/06*
U.S. Cl. 51—170 EB **8 Claims**



1. A portable electric belt sander comprising a combined housing and handle assembly of clam shell construction of mating housing and handle cover halves, defining a hand grip area for the operator's hand and carrying a trigger switch adjacent said hand grip portion, and a self-contained belt support and drive module assembly connected therewith, said belt support and drive module assembly being of generally trape-

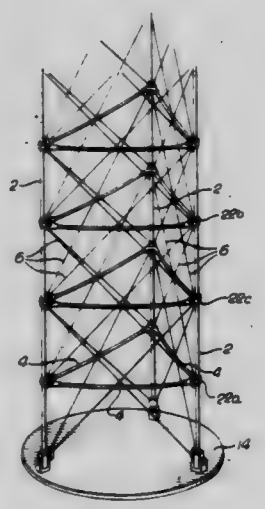
zoidal configuration and including a belt drive roller at an upper rear position, a belt idler roller at a lower rear position, and a spring biased nose idler roller with a drive motor therebetween together with a combined wear strip and support bracket extending generally upwardly therefrom adapted to be engaged between the housing and handle cover halves and secured thereto by fastener means extending through said housing and handle cover halves and said support bracket and wear strip.

4,334,391

REDUNDANT DEPLOYABLE LATTICE COLUMN

John M. Hedgepeth; Ronald L. Samuels, and John Stammreich, all of Carpinteria, Calif., assignors to Astro Research Corporation, Carpinteria, Calif.

Filed Apr. 21, 1980, Ser. No. 142,221
Int. Cl.[3] E04H *12/18*
U.S. Cl. 52—108 10 Claims



1. A deployable lattice column including:
a plurality of continuous longeron elements,
a plurality of flexible lateral elements connected between adjacent longeron elements, the lateral elements including flexible diagonal members, pairs of first diagonal members being cross-connected between two pairs of generally laterally opposed points along said longeron elements and defining adjacent bays of the column,
second flexible diagonal members being connected to the longerons at least one of said connections being intermediate said laterally opposed points, and
the longeron and lateral elements being constructed and connected to constitute a structure movable between a deployed orientation defining a column of substantial length and a second, coil-collapsed orientation defining a structure of smaller length.

4,334,392

MODULAR SCREW ANCHOR HAVING LEAD POINT NON-INTEGRAL WITH HELIX PLATE

Edward Dziedzic, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.

Filed Apr. 3, 1980, Ser. No. 136,881
Int. Cl.[3] E02D *5/80*
U.S. Cl. 52—157 19 Claims

1. In combination:
an elongated rod;
an anchor member including a hub presenting a bore therein, and an outwardly extending, load-bearing element affixed to the exterior of said hub,
said rod extending into said hub bore;
means for operably coupling said anchor member to said rod;
a wrench including an elongated, tubular shank telescoped over said rod and extending into said hub bore such that the portion of said shank extended into the hub bore is disposed between said rod and hub;
structure for drivingly connecting said shank to both of said rod and said anchor member such that axial rotation of said shank effects corresponding rotation of said rod and



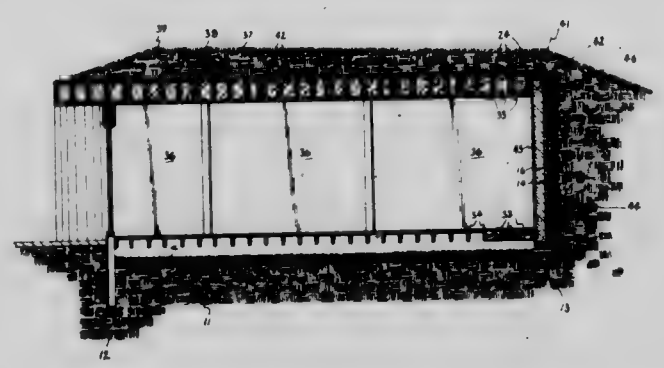
anchor member and distribution of driving forces from said shank to said rod and anchor member, whereby installation of the rod and anchor member into the earth is facilitated without breakage thereof; and
means defining an earth-penetrating lead adjacent one end of said rod.

4,334,393

EARTH-SHELTERED STRUCTURE

Kenneth R. U'Ren, Morton, Minn., assignor to Everstrong Marketing, Inc., Redwood Falls, Minn.

Filed Mar. 3, 1980, Ser. No. 126,657
Int. Cl.[3] E02D *27/00*
U.S. Cl. 52—169.6 11 Claims

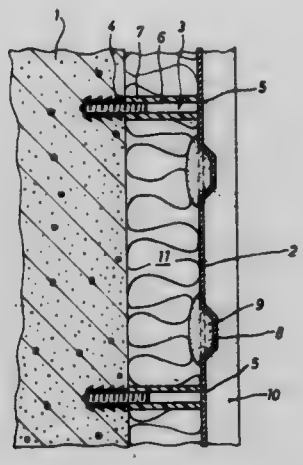


1. In an earth-sheltered structure:
(a) a wall including a plurality of vertically exposed studs;
(b) one or more top plate members disposed and affixed atop the wall and supported by the studs; and
(c) a plurality of parallel ceiling joist members having notches formed therein for at least partial disposition about the top plate members and each being directly supported above a stud, and a rim joist member disposed atop said top plate member and being connected to said ceiling joist members.

4,334,394
INSULATED OUTER COATING OF WALLS OF BUILDING STRUCTURES

Karl Mäder, Rapperswil, Switzerland, assignor to IDC Chemie AG, Rapperswil, Switzerland

Filed May 30, 1980, Ser. No. 155,011
Claims priority, application Switzerland, Jun. 5, 1979, 5228/79
Int. Cl.³ E04B *1/88*
U.S. Cl. 52—309.12 3 Claims



1. An improved outer coating for vertically extending walls of building structures, including

a cured foamed insulation material consisting of urea-formaldehyde applied in a flowable state;

an outer plaster material;

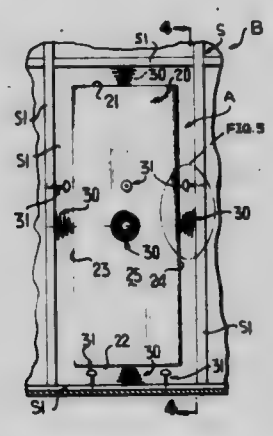
metal plates acting as a molding form means for said foamed urea-formaldehyde and simultaneously as a carrier means for said outer plaster material, which metal plates comprise pattern-like arranged protrusions having perforations extending through said protrusions;

wherein said metal plates are provided with screw bolts for connecting same with said vertical walls of the building structures, which said screw bolts are surrounded each by a sleeve made of a plastics material, which sleeves act as distance pieces for said metal plates and simultaneously as a supporting means for said foamed urea-formaldehyde insulation material.

4,334,395
THERMAL INSULATING SYSTEM PARTICULARLY ADAPTED FOR BUILDING CONSTRUCTION

Harrison G. Dyar, P.O. Box 185, Tampa, Fla. 33601

Filed Dec. 10, 1980, Ser. No. 215,083
Int. Cl.³ E04B *1/78*
U.S. Cl. 52—407 25 Claims

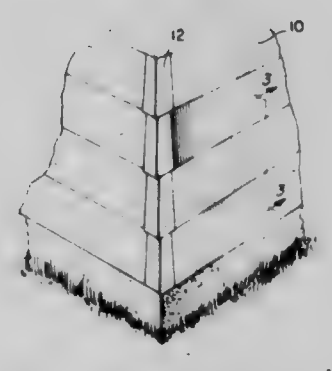


1. A system for insulating building walls, ceilings, floors or like structure comprising wall means for forming a hollow insulating panel defining an interior chamber under negative pressure, means contacting a limited exterior surface area of said panel for supporting said panel in generally spaced relationship from an associated building wall, ceiling, floor or like structure, means normally spaced from the exterior surface of said panel for contacting a limited exterior surface area of said panel only upon said first-mentioned contacting means becoming inoperative which would in the absence of said second-mentioned contacting means result in direct contact between said panel and the associated building wall, ceiling, floor or like structure, and said second-mentioned contacting means being an elongated pin-like element of relatively small cross-sectional configuration whereby thermal conduction transfer therethrough is substantially negligible.

4,334,396
INTERCONNECTING LOCK CONSTRUCTION FOR SIDING, SOFFITS AND RELATED CONSTRUCTION ELEMENTS

John G. Hagopian, New Philadelphia, Ohio, assignor to The Anaconda Company, New York, N.Y.

Continuation-in-part of Ser. No. 910,756, May 30, 1978, abandoned. This application May 15, 1979, Ser. No. 38,561
Int. Cl.³ E04C *2/38, 2/40*
U.S. Cl. 52—522 11 Claims



1. A panel construction having a surface covering face, an overlapping first edge therealong folded over to provide a double thickness and having a terminally disposed gripping portion, said double thickness of said first edge providing a nail hem having a plurality of slots evenly spaced along and through both thicknesses of said nail hem for receiving installation nails, and a second edge oppositely disposed to said first edge, said second edge also having a terminally disposed gripping portion for mating engagement with said first-mentioned gripping portion in the securement of a panel of an upper course with a panel of a lower course of panels when said second-mentioned gripping portion is entered through an opening between said first-mentioned gripping portion and said surface covering face into a pocket, said first-mentioned gripping portion formed to a loop extending throughout a substantial major extent of a closed loop and terminating in a bite portion toward said surface covering face of said lower panel for interacting with the second-mentioned gripping portion of said upper panel when received in said pocket, said first and second-mentioned gripping portions having dissimilar contours thereby to reduce surface friction between gripping portions and permit sliding adjustment of a panel of an upper course on a panel of a lower course.

4,334,397
MASONRY STRUCTURE AND APPARATUS AND PROCESS FOR SPACING BLOCK IN THE STRUCTURE

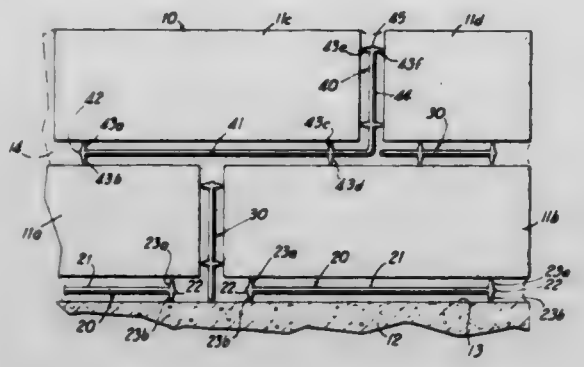
George R. Hitz, 509 N. Cobb St., Milledgeville, Ga. 31061

Filed Apr. 25, 1980, Ser. No. 143,537
Int. Cl.³ E04C *5/16*
U.S. Cl. 52—687 24 Claims

1. An apparatus, for spacing apart adjacent masonry blocks, comprising:

(a) a frame in a first plane, said frame being formed of spaced, longitudinal struts and a transverse strut joining said longitudinal struts and spacing them apart; and

(b) a plurality of spaced spacer fingers extending in opposite directions from opposite sides of the struts, said spacer fingers on one side of said frame terminating with the outer ends in a substantially common second plane and



said spacer fingers on the other side of said frame terminating with their outer ends in a common third plane, the thickness of said frame being substantially less than the distance between the spaced apart adjacent masonry blocks.

4,334,398

INSULATING ELEMENT FOR A MULTI-PANED WINDOW

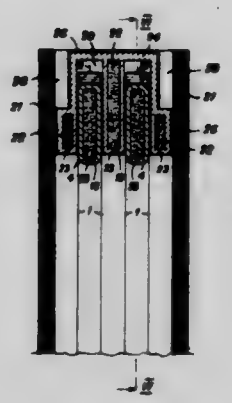
Paul Grether, Seuzach, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Nov. 8, 1979, Ser. No. 92,368

Claims priority, application Switzerland, Nov. 17, 1978, 11822/78

Int. Cl.³ E04C *1/42, 2/34*

U.S. Cl. 52—789 **17 Claims**



1. An insulation element for use between the panels of a multi-pane window comprising

a pair of transparent films disposed in overlying sandwiched relation to each other and joined together along a major part of each side thereof; and

clamping means for biaxially stretching said films, said means including a plurality of elongated elements with each elongated element being disposed along a respective side of said joined films whereby in unclamped state said elongated elements and respective sides of said joined films are disposed with at least one of said elements and sides bent along an arcuate line relative to the other of said elements and sides to obtain a uniform tensioning of said films whereby each said elongated element is free to move relative to said films and to expand and contract at a different rate from said films.

4,334,399

APPARATUS FOR TRANSFERRING STRIP-LIKE PLASTICS BAG MATERIAL IN PACKAGING MACHINE

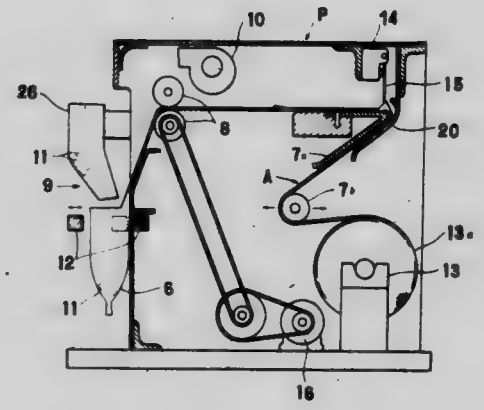
Masami Onishi, Tokyo, Japan, assignor to Taiyo Shokai Co., Ltd., Japan

Filed May 16, 1980, Ser. No. 150,369

Claims priority, application Japan, May 17, 1979, 54-59668; Sep. 14, 1979, 54-118270

Int. Cl.³ B65B *43/12*

U.S. Cl. 53—69 **4 Claims**



1. An apparatus for conveying an elongated strip-like bag material of a collapsed plastic film tube in a packing machine, said bag material being of the type having a series of interconnected bags each having on one side thereof a transversely extending heat-sealed bottom portion and a transversely extending opposite opening portion located at a portion adjacent to and parallel with said heat-sealed portion, each bag of said material having a flap-like margin formed transversely across the bag material between said opening portion and said heat-sealed portion and also an easily severable fragile portion formed transversely across the bag material on the other side thereof at a portion opposite to said opening portion, the packing machine being of the type having goods-charging means for charging goods into the bags, and the material being mounted in a roll, said apparatus comprising a pair of intermittently operated pinching rollers for intermittently conveying said bag material extending from the roll of said bag material for a distance, at a time, corresponding to the length of a single bag towards the goods-charging device of said packing machine, guide means mounted upstream of said pinching rollers for guiding said bag material through a travel path, said guide means having a curved surface for carrying said bag material so that respective opening portion of the bag material is directed outwardly of said guide means and said flap-like margin is caused to be raised when passing over said curved surface, detecting means for detecting said flap-like margin, said detecting means comprising a microswitch having an elongated contact mounted adjacent the curved surface of said guide means and arranged to be releasably engageable with said margin responsive to the raising of said margin during travel of said bag material, means for stopping travel of said bag material for sequential packing operations in response to detection by said microswitch of said flap-like portion, and means for smoothing wrinkles formed in said bag-material, said smoothing means comprising a plate mounted adjacent said guide means and upstream of said microswitch to form a passage between said guide means and said plate for allowing said bag material to pass therethrough, said passage having a clearance capable of smoothing said wrinkles as said bag material travels through said passage.

4,334,400

APPARATUS FOR MAKING A YARN

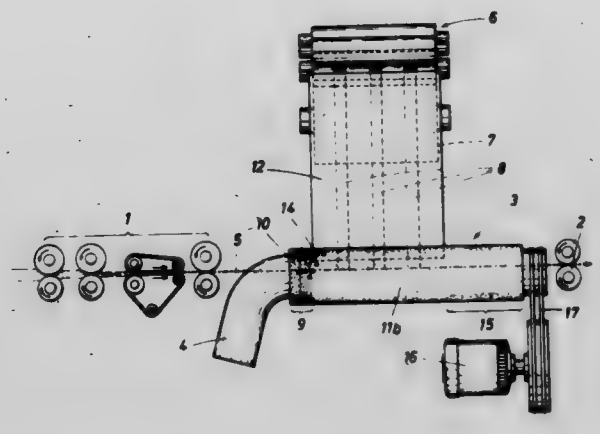
Ernst Fehrer, Auf der Gugl 28, Linz, Austria

Filed Jan. 22, 1981, Ser. No. 227,366

Claims priority, application Austria, Jan. 28, 1980, 427/80; Feb. 19, 1980, 902/80; Mar. 3, 1980, 1147/80

Int. Cl.[3] D01H *1/135;* D02G *3/36*

U.S. Cl. 57—5 8 Claims



1. In apparatus for making a yarn having at least a predetermined diameter, comprising

two juxtaposed, closely spaced apart suction drums having respective peripheral suction zones which face each other and define a generally triangular space between said drums,

a drawing frame for delivering a drawn roving to said triangular space at one end thereof,

means for twisting said roving and for fixing the resulting twist, including means for rotating said drums in the same sense and covering fiber-delivering means comprising a delivery duct which protrudes into said triangular space and has an exit adjacent to said suction zones, said covering fiber-delivering means being operable to deliver singled covering fibers through said exit to said roving, whereby said roving is wrapped with said covering fibers to form a yarn in said triangular space, and

withdrawing means for withdrawing said yarn from said triangular space at the other end thereof,

the improvement residing in that

each of said suction drums has a rough peripheral surface which defines said triangular space and which has a microstructure that prevents a positive coupling between said peripheral surface and individual covering fibers and which has a peak-to-valley height that is up to one-half of said predetermined diameter.

4,334,401

PROCESS FOR MAKING TEXTURED YARN

Hardev S. Bahia, Coventry, England, assignor to Courtaulds Limited, London, England

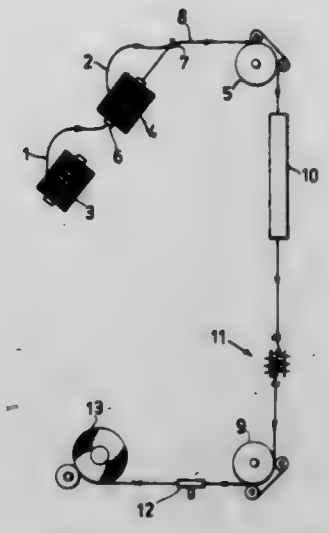
Filed May 1, 1980, Ser. No. 145,703

Claims priority, application United Kingdom, May 3, 1979, 15464

Int. Cl.[3] D02G *1/02, 3/00, 3/34*

U.S. Cl. 57—6 7 Claims

1. A process for making a textured yarn comprising combining a carrier yarn component with an extensible yarn component comprising continuous filaments of a synthetic polymeric material and having an extensibility of greater than 60 percent, and false-twisting the combined yarn under tension using a false-twist texturising unit employing rotary friction elements so as to break at least some of the filaments of the extensible yarn component intermittently along the length of the yarn



whilst maintaining the carrier yarn component substantially intact.

4,334,402

APPARATUS FOR LUBRICATING A RING TRAVELLER OF A RING SPINNING OR RING TWISTING FRAME

Emil Stutz, Winterthur, Switzerland, assignor to Bräcker AG, Pfäffikon, Switzerland

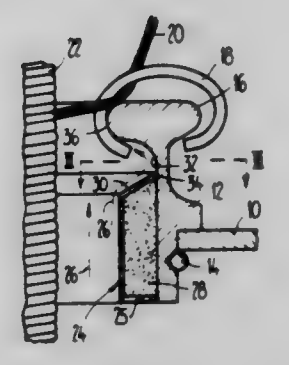
PCT No. PCT/CH79/00106, § 371 Date Apr. 7, 1980, § 102(e) Date Mar. 25, 1980, PCT Pub. No. WO80/00355, PCT Pub. Date Mar. 6, 1980

PCT Filed Jul. 26, 1979, Ser. No. 199,511

Claims priority, application Switzerland, Aug. 7, 1978, 8366/78

Int. Cl.[3] D01H *7/62*

U.S. Cl. 57—120 8 Claims



1. An apparatus for lubricating a ring traveller on a spinning or twisting ring of a ring spinning or ring twisting frame, comprising:

a store containing a lubricant and at least one lubricant outlet opening connected to said store;

said at least one lubricant outlet opening being spaced apart from the contact surface between the ring traveller and the spinning or twisting ring in the direction of flow of the air current which occurs during spinning or twisting;

said spinning or twisting ring upon which said ring traveller is arranged being shaped to provide an underpressure zone facing said lubricant store a distance away therefrom; and

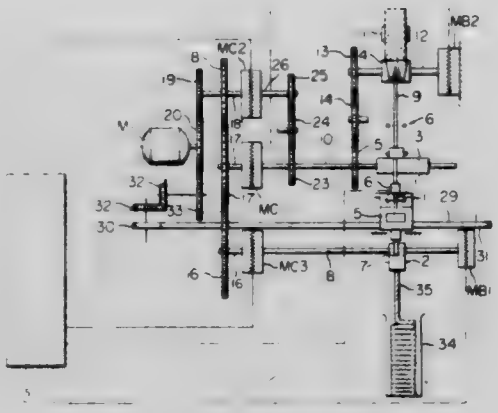
said at least one lubricant outlet being arranged in said underpressure zone.

4,334,403

SPINNING UNITS IN AN OPEN END SPINNING MACHINE

Toshio Yoshizawa, Chiryu; Osamu Suzuki, and Yoshiaki Yoshida, both of Ohbu, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Jun. 4, 1980, Ser. No. 156,856
Claims priority, application Japan, Jun. 6, 1979, 54/69950
Int. Cl.[3] D01H *15/02*
U.S. Cl. 57—263 8 Claims



1. In an open end spinning machine including a plurality of spinning units, each said spinning unit including a spinning rotor for forming fibers into a yarn, and means for supplying fibers into said spinning rotor, the improvement wherein:

each said spinning unit includes first yarn break sensing means for detecting breakage of said yarn when said spinning machine is in a normal spinning operation and for stopping the respective said fiber supplying means in response thereto, and thus for preventing the respective said spinning rotor from being filled with fibers, said first yarn break sensing means assuming an operative yarn sensing position in contact with said yarn when said spinning unit is in a normal spinning operation, and said first yarn break sensing means assuming an inoperative position out of contact with said yarn when said spinning unit is in a transient condition either from or to the normal spinning operation; and

each said spinning unit includes a second yarn break sensing means for detecting breakage of said yarn when said spinning machine is in said transient condition and for stopping the respective said fiber supplying means in response thereto, and thus for preventing the respective said spinning rotor from being filled with fibers, said second yarn break sensing means assuming a yarn sensing condition at least when said spinning unit is in said transient condition.

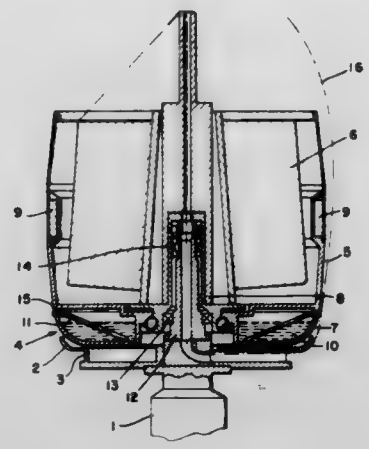
4,334,404

TWO-FOR-ONE TWISTING SPINDLE WITH A SUPPLY RECEPTACLE FOR A LUBRICANT

Gustav Franzen, Willich, Fed. Rep. of Germany, assignor to Palitex Project-Company GmbH, Krefeld, Fed. Rep. of Germany

Filed Jul. 29, 1980, Ser. No. 173,668
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1979, 2931391
Int. Cl.[3] D01H *13/30, 7/86*
U.S. Cl. 57—296 4 Claims

1. A two-for-one twisting spindle for supporting a thread supply package and having an inside support for a thread balloon comprising; a protective pot enclosing said supply package and having a sidewall, a base and a hollow hub, a stationary supply receptacle having thread lubricant in said protective pot base said protective pot having an outer circumferential thread-engaging surface over which the ballooning thread drawn from said supply package passes during spindle operation whereby lubricant from said supply receptacle is fed



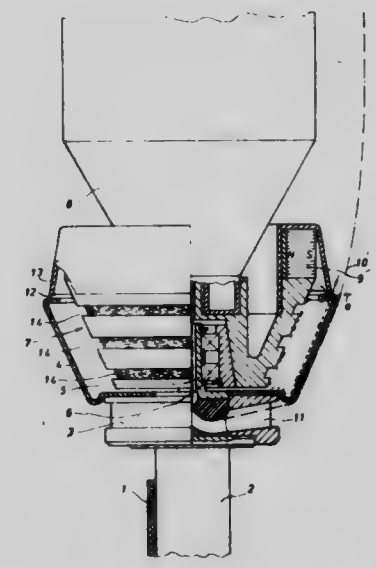
to said circumferential surface for contact with said ballooning thread.

4,334,405

STATOR SECTION FOR A SPINDLE, MORE ESPECIALLY A TWO-FOR-ONE SPINNING OR TWISTING SPINDLE

Godehard von Colson, Kempen, Fed. Rep. of Germany, assignor to Palitex Project-Company GmbH, Krefeld, Fed. Rep. of Germany

Filed Aug. 11, 1980, Ser. No. 176,703
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939645
Int. Cl.[3] D01H *11/00, 7/86*
U.S. Cl. 57—300 8 Claims



1. A two-for-one spinning or twisting spindle comprising; spindle bearings for supporting said spindle for rotation, said spindle having a stator section and a spindle rotor at least partly enclosing said spindle section, said stator section having surfaces thereon located opposite said spindle rotor, and catching means for retaining and collecting fluff, threads and other foreign particles carried by ambient air thereby preventing said particles from reaching said spindle bearings.

4,334,406

FUEL SUPPLY SYSTEM

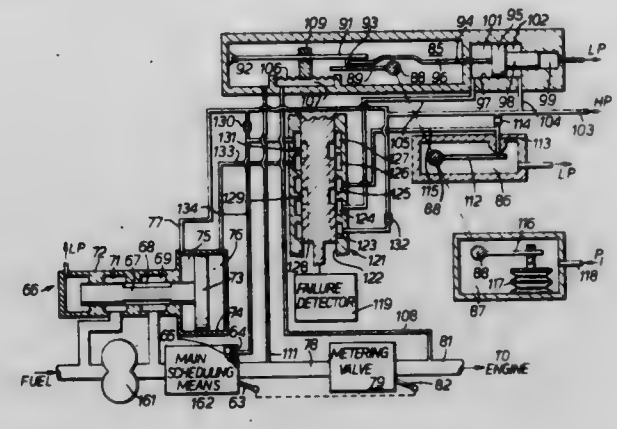
Geoffrey C. Todd, Evesham, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England

Continuation of Ser. No. 952,254, Oct. 17, 1978. This application Apr. 24, 1981, Ser. No. 257,249

Claims priority, application United Kingdom, Mar. 15, 1978, 10192/78

Int. Cl.[3] F02C *9/08*

U.S. Cl. 60—223 3 Claims



1. In a liquid fuel supply system for an engine, pump means for supplying fuel under pressure, normally-operative main supply control means for controlling the supply of fuel under pressure to the engine in accordance with the setting of a primary control and in accordance with at least one secondary control signal derived from an operational condition of the engine, normally-inoperative auxiliary supply control means for controlling the supply of fuel under pressure to the engine in accordance at least with the setting of said primary control, said auxiliary supply control means being inoperative to control the supply of fuel when the main supply control means is operative to control the supply of fuel, being subject to the setting of said primary control both when inoperative and when operative, and having a metering valve through which fuel from the main supply control means passes when the auxiliary supply control means is inoperative; change-over valve means operable to render, substantially instantaneously, the main supply control means inoperative to control the supply of fuel and the auxiliary supply control means operative to control the supply of fuel, movable means subject to the pressure drop across the metering valve when the main supply control means is operative to control the supply of fuel and operable on the auxiliary supply control means whereby, in combination with the setting due to said primary control, the amount of fuel supplied to the engine by the auxiliary supply control means at the instant of operation of the change-over means will be the same as that amount which was being supplied by the main supply control means at that instant and fuel flow restricting means in said auxiliary supply control means operable to ensure that immediately after operation of the change-over means the amount of fuel supplied to the engine by the auxiliary supply control means can change from that amount only at a slow rate in the absence of any change in the setting of the primary control.

4,334,407

COMPRESSED GAS OPERATED TURBINE

Ulpiano Barnes, Laguna Garden 3, Apt. 12L, Loiza Sta., P.R. 00913

Filed Jan. 22, 1980, Ser. No. 114,365

Int. Cl.[3] F15B *11/06*

U.S. Cl. 60—407 1 Claim

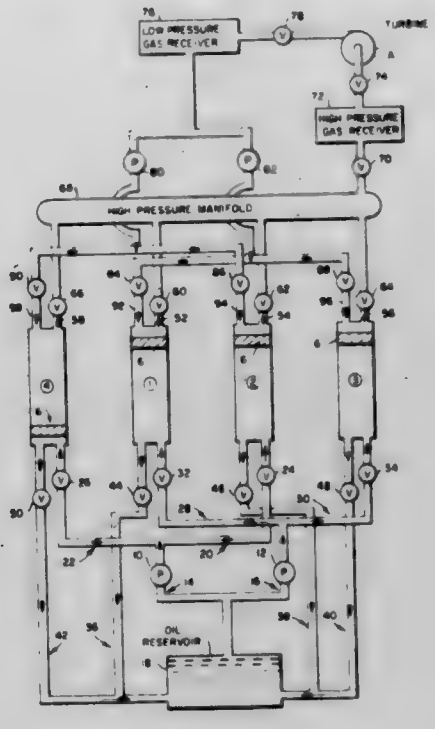
1. A turbine having an inlet and an outlet, and means for operating the turbine comprising:

at least three cylinders each having a free piston therein dividing the cylinder into an oil chamber and a gas chamber,

means for supplying oil under pressure to the oil chambers of the cylinders in a pre-determined sequence to operate the pistons and compress the gas in the gas chambers in that sequence,

a plurality of conduits, each conduit connecting one of the gas chambers to the inlet of the turbine,

means for causing high pressure compressed gas to flow



through the conduits to the inlet of the turbine in the same pre-determined sequence, and means for causing low pressure gas to flow from the outlet of the turbine solely to the gas chamber of that one of the cylinders which is next to be supplied with oil under pressure, said gas chambers, conduits, and turbine defining a closed gas filled system.

4,334,408

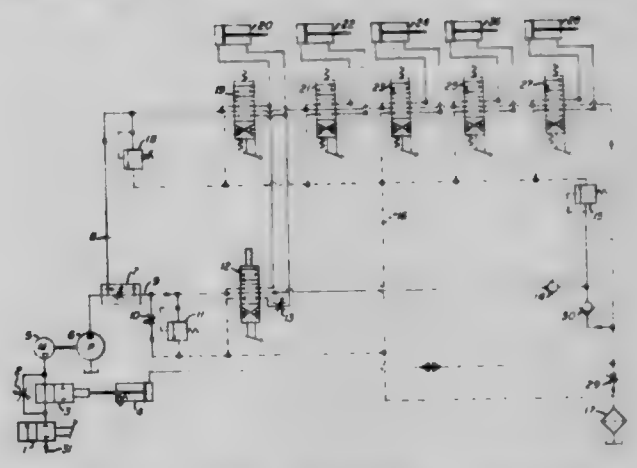
PNEUMATIC AND HYDRAULIC POWER CONTROL OF DRILL

Roland R. LaPointe, Claremont, N.H., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Sep. 19, 1979, Ser. No. 77,244

Int. Cl.[3] F16D *31/02*

U.S. Cl. 60—423 25 Claims



1. An apparatus for the operation of a mechanism having varying power requirements comprising:

means for providing a source of pressurized gas having control means for selectively varying the flow of the gas over a predetermined range in response to a pressurized hydraulic fluid;

pump means operably connected to the output of said control means for providing a source of pressurized hydraulic fluid generally responsive to the flow of the varying gas flow from said control means;

at least one hydraulically actuated mechanism means for translating hydraulic energy into mechanical energy;

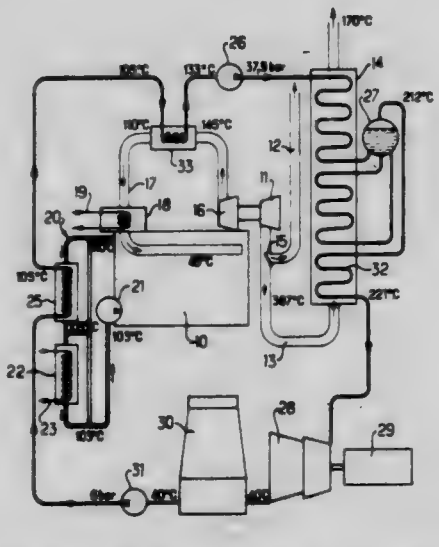
at least one valve means for alternatively selectively communicating at least a portion of the pressurized hydraulic source to said mechanism means or to said control means as a hydraulic signal such that said control means reduces the flow of the gas when said valve means is not placing the hydraulic source in communication with said mechanism means.

4,334,409

DEVICE FOR RECOVERING HEAT ENERGY IN A SUPERCHARGED INTERNAL-COMBUSTION ENGINE

Claude Daugas, Les Clayes sous Bois, France, assignor to Societe d'Etudes de Machines Thermiques S.E.M.T., Saint-Denis, France

Filed Feb. 20, 1980, Ser. No. 123,003
Claims priority, application France, Feb. 22, 1979, 79 04555
Int. Cl.³ F01K *23/08, 23/10*
U.S. Cl. 60—618 **2 Claims**



1. Thermodynamic apparatus operating on a Rankine cycle for recovering heat energy from a supercharged liquid cooled internal combustion engine, the apparatus including a closed circuit for a working fluid and means for preheating, pressurizing, vaporizing, superheating, expanding, condensing and recirculating the working fluid in the closed circuit, the preheating means comprising a first heat exchanger traversed by the heated cooling liquid from the engine and a second heat exchanger traversed by the air issuing from a supercharging compressor, the pressurizing means comprising a feed pump, the vaporizing and superheating means comprising a third heat exchanger traversed by the engine exhaust gas, the expanding means comprising a turbine, the condensing means comprising a condensor, and the recirculating means comprising a condensate pump, connected together by said closed working fluid circuit, wherein the three heat exchangers are mounted in series, the condensate pump is located between the condenser and the first heat exchanger, and the feed pump is located between the second heat exchanger and the third heat exchanger.

4,334,410

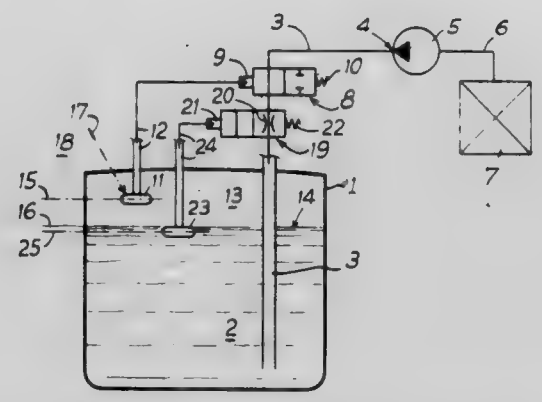
TANK DESIGNED TO CONTAIN A LIQUEFIED GAS

Huguette Drumare, 28 rue du Commandant Vesco, Sainte Adresse, France (76310)

Filed Dec. 3, 1980, Ser. No. 212,426
Int. Cl.³ F17C *13/02*
U.S. Cl. 62—49 **8 Claims**

1. A tank for receiving liquefied gas, a feed pipe connected to said tank for supplying said liquefied gas to the interior of said tank, a first control valve and a second control valve connected to said feed pipe for controlling the flow of said gas through said feed pipe into said tank and control means for controlling the operation of said valves and thereby controlling the level of the liquefied gas in said tank, said control means comprising:

a first temperature responsive device mounted within said tank at the filling level to which said tank is to be filled with the liquefied gas, said device having thermal leak means extending to the exterior of said tank and said device being connected to said first valve for closing said first valve, and thereby to stop the flow of gas into said tank, when the liquefied gas is at said filling level and cools said device and for causing said first valve to open, and thereby to permit the flow of gas into said tank, when the liquefied gas is below said filling level and permits the temperature of said device to rise; and



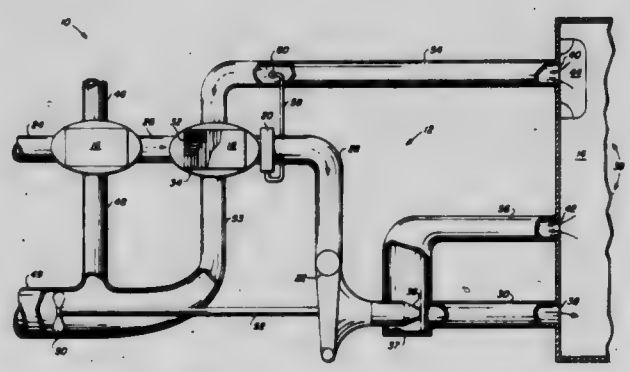
a second temperature responsive device mounted within said tank at a lower level below said filling level, said second device having thermal leak means extending to the exterior of said tank and said second device being connected to said second valve for partially closing said second valve, and thereby to reduce the flow of the gas into said tank, when the liquefied gas is at said lower level and cools said second device and for causing said second valve to change to a more open condition, and thereby to increase the flow of the gas into said tank, when the liquefied gas is below said lower level and permits the temperature of said second device to rise.

4,334,411

UNIQUE AIR CYCLE REFRIGERATION SYSTEM

George K. Payne, Rancho Palos Verdes, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Mar. 11, 1980, Ser. No. 129,545
Int. Cl.³ F25B *9/00*
U.S. Cl. 62—86 **36 Claims**



1. A fluid conditioning system for working fluid provided by a source thereof and to be supplied to a substantially enclosed space having fluid inlet and a plurality of fluid outlet port means, comprising:

(a) heat exchange means having first and second fluid passageways in heat exchange relationship, each of said fluid passageways having fluid inlet and outlet means, said fluid inlet means of said first fluid passageway being coupled to the working fluid source;

(b) fluid energy extraction means defining a fluid passageway having fluid inlet and outlet means;

(c) first duct means coupled between said fluid outlet means of said first fluid passageway of said heat exchange means

and said fluid inlet means of said fluid energy extraction means;

(d) second duct means coupled between one of the outlet port means of the enclosed space and said fluid inlet means of said second fluid passageway of said heat exchange means; and

(e) third duct means having an inlet means coupled to said fluid outlet means of said fluid energy extraction means and having fluid outlet means coupled to the fluid inlet port means of the enclosed space, said third duct means having fluid inlet port means disposed intermediate said outlet means of said fluid energy extraction means and said fluid outlet means of said third duct means.

4,334,412

COOLING SYSTEM

Robert Wildfeuer, 85 Floral Dr. W., Plainview, N.Y. 11803

Filed Nov. 15, 1979, Ser. No. 94,742
Int. Cl.[3] F25D *17/00*
U.S. Cl. 62—333 10 Claims



1. In a system for cooling an enclosure having a cooling load comprising:

(a) A cooling zone containing a conduit in said enclosure for cooling fluid, said conduit encountering said load, means in said conduit for propelling said cooling fluid through said conduit and cooling fluid within said conduit;

(b) A refrigeration zone containing a closed refrigeration circuit for refrigerant, chiller means in said circuit for extracting energy from said refrigerant, means in said circuit for circulating said refrigerant and refrigerant within said circuit; and

(c) Collection means connected to said refrigerant zone for removing energy extracted by said chiller means;

said refrigeration and cooling zones being connectable by a exchanger means for transfering energy from said cooling fluid to said refrigerant;

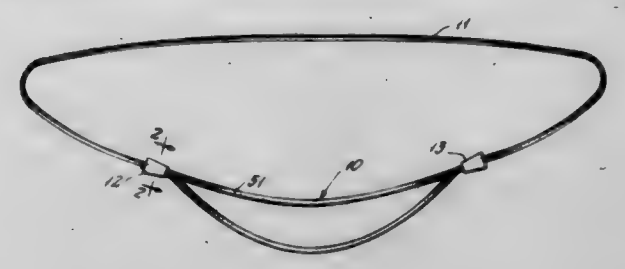
the improvement wherein said refrigerant in said closed circuit comprises a slurry of ice and water subject to cyclic differentials in the amounts thereof and said circuit includes a reservoir for storage of said slurry.

4,334,413

ADJUSTABLE NECKLACE CONSTRUCTION

Paul Gaston, 99 Alta Ave., Yonkers, N.Y. 10705, and Morton W. Schwartz, 305 E. 24th St., New York, N.Y. 10010

Filed Nov. 10, 1980, Ser. No. 205,106
Int. Cl.[3] A44C *25/00*
U.S. Cl. 63—2 4 Claims



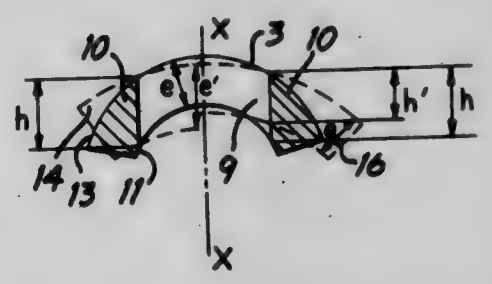
1. In an improved adjustable length necklace, including a single length of chain and first and second adjustment elements, each mounting an end of said chain and having resilient means bearing upon a segment of said chain adjacent an opposite end, the improvement comprising: said adjustment elements including first and second casing members, said first casing member including a main wall of generally planar trapezoidal configuration, a pair of converging side walls defining openings at each end thereof; said second casing member including a main wall, first and second converging side walls defining corresponding openings at each end thereof; said walls on said first and second casing members having cooperating latching means thereon including an elongated opening in each of one pair of walls and a resilient tongue on each of a second pair of walls, said tongues including a first offset portion and a second rectilinear portion lying in a plane substantially parallel to that of a respective wall; said first and second casing members being maintained in nested relation by the mutual engagement of said latching means; and a trapezoidally-shaped terminal block attached to each end of said chain, and maintained in position between said first and second casing members.

4,334,414

UNIVERSAL JOINT YOKES

Gerard Stephan, Croissy, France, assignor to Nadella, France

Filed Dec. 27, 1979, Ser. No. 107,518
Claims priority, application France, Jan. 17, 1979, 79 01080
Int. Cl.[3] F16D *3/26*
U.S. Cl. 464—134 9 Claims



1. A universal joint yoke having arms of which the axial cross-sections in the region of the bores have end portions that are inturned towards the yoke's rotational axis to enable a bore depth to be obtained that is greater than that of the bores of a yoke of equivalent radial size formed from the same thickness material and having arms wherein the corresponding section is part circular.

4,334,415

UNIVERSAL COUPLING SPIDER BEARING AND YOKE

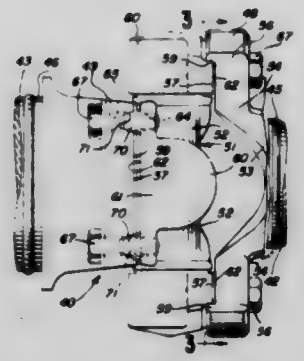
Michael F. Hopkins, Aurora, and Alvin D. Mayerchin, Oswego, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00083, § 371 Date Jan. 27, 1980, § 102(e) Date Jan. 27, 1980, PCT Pub. No. WO81/02187, PCT Pub. Date Aug. 6, 1981

PCT Filed Jan. 28, 1980, Ser. No. 165,832

Int. Cl.[3] F16D *3/40*

U.S. Cl. 464—130 7 Claims



1. A spider bearing and yoke assembly (60,48,49) for a universal coupling (40) having a spider element (51) with plural legs (52) connecting two opposed rotatable shafts (42,43), the assembly comprising:

a yoke (48,49) carried adjacent the opposed ends (45,46) of each of the shafts (42,43) and having spaced parts (54);

a spider cap (60) located on each of said yoke parts (54) providing a journal for each leg (52) of the spider element (51);

one of said spider caps (60) and yoke parts (54) having a tapered key (70) extending axially outward toward the mating spider cap (60) and yoke part (54);

said mating spider cap (60) and yoke parts (54) defining a tapered keyway (71) adapted for cooperation with said key (70), said tapered keyway is smaller than said tapered key to prevent said key from moving completely into said keyway;

said tapered key (70) and keyway (71) lying parallel to an axis of the leg (52) of the spider element (51) and being displaced radially outward from said axis; and

securing means (67) for moving each of said spider caps (60) toward its respective yoke parts (54) to draw the spider cap (60) and yoke part (54) together into fixed axial relation, the tapers of said key (70) and keyway (71) being frictionally engaged to prevent relative radial and axial movement between the spider cap (60) and yoke part (54).

4,334,416

CONTAINER FOR SOAKING AND PRESERVING PAINT ROLLER COVERS

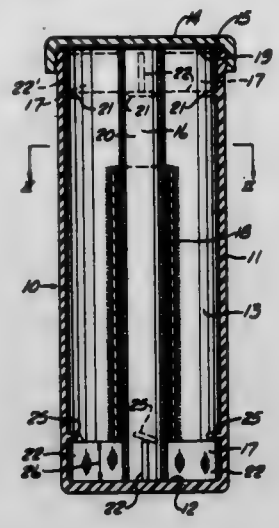
Peter S. Turano, 424 Argonne Dr., New Kensington, Pa. 15068

Filed May 11, 1981, Ser. No. 262,333

Int. Cl.[3] D06F *1/12, 3/00*

U.S. Cl. 68—213 6 Claims

1. A container for soaking and preserving paint roller cover sleeves or the like, comprising in combination, an open top receptacle having bottom and side walls for holding a quantity of solvent, a removable cap for sealing said open top, a post having an enlarged foot at the bottom end thereof for engaging the inside bottom of said receptacle to removably support said post in an upright position in said receptacle, said post being short enough to fit upright in said receptacle with said removable cap secured thereto and small enough in diameter to receive a paint roller cover sleeve thereover.



4,334,417

METHOD FOR MANUFACTURING VEHICLE-WHEELS BY A MAGNETO-FORMING PROCESS AND WHEELS OBTAINED BY THIS METHOD

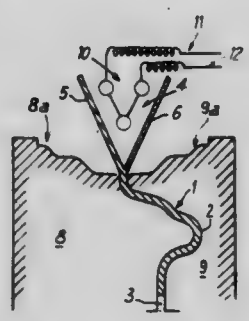
Rene Victor, Nogent-sur-Marne, France, assignor to Etablissements Letang & Remy, Paris, France

Filed Nov. 5, 1980, Ser. No. 204,387

Claims priority, application France, Apr. 29, 1980, 80 09637

Int. Cl.[3] B21D *26/14*

U.S. Cl. 72—56 4 Claims



1. A method of manufacturing vehicle wheels by a magneto-forming process, comprising the steps of: starting from a wheel blank consisting of a circular shaped flange surrounded by a split rim; placing inside this rim, means as regular as possible supplied from electrical capacitances which discharge at high frequency to form a rapidly variable magnetic discharge; then placing around the lower portion of said split rim, cylindrical conformers having an outer wall reproducing the shape of the rim; and, when said conformers are in position, subjecting said split portion adapted to form the rim of the wheel to said rapidly-variable magnetic discharge so that the two components of said split rim are strongly applied by the discharge onto the outer surface of the conformers in order to make the rim.

4,334,418

PORTABLE STRIP STEEL CAMBER STRAIGHTENING MACHINE

William A. Grandell, Oak Lawn, Ill., assignor to Siegrand Corporation, Chicago, Ill.

Filed Jul. 18, 1980, Ser. No. 169,976

Int. Cl.[3] B21D *3/02*

U.S. Cl. 72—164 8 Claims

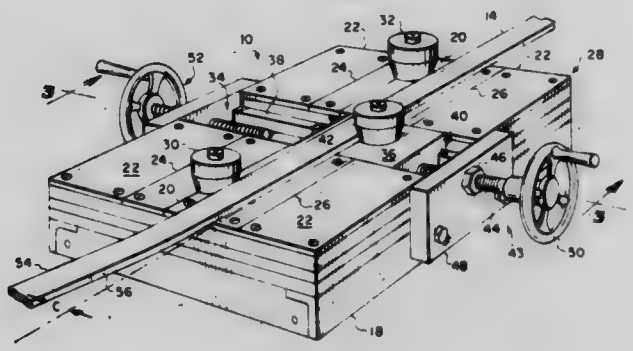
1. A portable machine for straightening cambered strip material passing therethrough as a continuous web, the cambered strip material having two opposed lateral edges and

being concave along one of the two edges, the machine comprising:

a. a base providing a substantially planar top having a longitudinal axis and a lateral axis, a guideway or slot extending along the lateral axis;

b. at least a pair of guide rollers mounted on the top aligned along said longitudinal axis and at a level spaced above the top, the rollers of the pair being on opposite sides of the lateral axis and being engageable with the concave one of said edges, the pair of rollers being rotatable around rotational axes normal to the top;

c. a mounting block slidable along the slot and a third guide roller fixedly mounted on the block and movable with the block along the lateral axis at the same level as the two



guide rollers and being engageable with the opposite lateral edge, the third guide roller being rotatable around a rotational axis normal to the top, and being selectively adjustable in position on opposite sides of said longitudinal axis; and

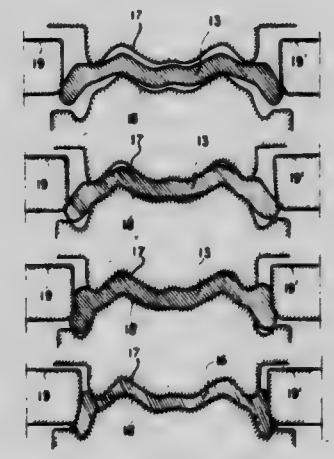
d. means for selectively moving the third guide roller relative to the guide roller pair into engagement with said opposite lateral edge so that the strip material is retained between the pair of guide roller and the third guide roller, said means serving to maintain the third guide roller frictionally engaged against said opposite edge sufficiently to bend the strip material against the camber and remove the camber as the strip material passes through the machine between the guide rollers.

4,334,419

METHOD FOR ROLLING STEEL SECTIONS HAVING FLANGES OR FLANGE-LIKE PORTIONS

Kanichi Kishikawa; Kazuo Watanabe; Hideki Tokita; Taneharu Nishino, all of Kitakyusyushi, and Seiichi Nagasoe, Munakatamachi, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Mar. 23, 1979, Ser. No. 23,236
Claims priority, application Japan, Mar. 29, 1978, 53/35566
Int. Cl.³ B21B *1/08*
U.S. Cl. 72—225 **5 Claims**



1. A method for rolling a steel section having flanges or flange-like portions from a steel bloom of rectangular cross section in a rolling mill comprising a series of roughing shaping rolling stands for roughing the bloom, a universal rolling mill stand having a pair of opposed horizontal rolls and a pair of opposed vertical rolls, and a series of finishing shaping rolling stands for finishing the shape rolled in the universal rolling mill, which method comprises: rolling the bloom in the roughing shaping rolling stands for roughing the bloom to a rough shape having a width greater than the shortest distance between the outer circumferences of the opposed vertical rolls in the universal rolling mill stand and having a reduced cross-section which is relatively flat as compared with the finished steel section, said rough shape portions to be shaped into flanges or flange-like portions in the finished steel section; rolling the thus obtained rough shape in the universal rolling mill stand for causing the pair of vertical rolls and the pair of horizontal rolls to carry out bending deformation mainly of the portions to be shaped into the flanges or flange-like portions; and finish rolling the thus deformed shape in the finishing shaping rolling stands for finishing the shape into the finished steel sections.

4,334,420

TUBE GUIDE

William M. Faulconer, Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla.

Filed May 6, 1980, Ser. No. 147,402
Int. Cl.³ B21B *41/00*
U.S. Cl. 72—250 **17 Claims**



1. In a pipe straightening machine comprising a pipe straightening unit having a pipe inlet end and a machine axis defining the location of the pipe axis in the straightening unit the improvement comprising a noise level reducing pipe end guiding unit comprising

(a) a first elongated section of essentially C-shaped cross section made from thermoplastic material,

(b) a second elongated section of essentially C-shaped cross section made from thermoplastic material, said first and second cross section together in the closed position of the unit forming a cylindrical compartment confining the whipping end of pipes straightened in said straightening unit, said cylindrical compartment having an internal diameter which is at least twice as large as the largest diameter of the pipe or tubing to be treated in said straightening unit, and having an open end facing said unit,

(c) hinging means connected to said first and said second sections with the hinge axis being parallel to the axis of said sections, to allow the opening of said cylindrical compartment,

(d) support means supporting said first elongated section,

(e) stiffening means associated with said second elongated section.

4,334,421

DISCHARGE ROLL TABLE WITH A TOP COVER

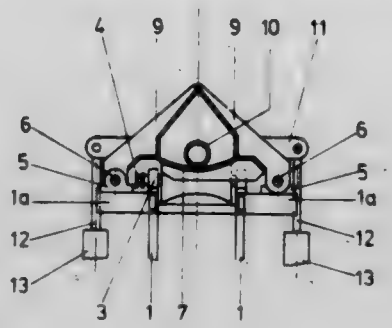
Günter Ostlinning, and Alfred Steinmetz, both of Dusseldorf, Fed. Rep. of Germany, assignors to Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Sep. 9, 1980, Ser. No. 185,553

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939606

Int. Cl.³ B21C *35/00;* B21B *39/14;* B21D *45/00;* B65G *47/10*

U.S. Cl. 72—257 3 Claims



1. A discharge roll table for guiding a bar or tube discharged from an extrusion press, the table comprising a plurality of rollers for receiving the discharged bar or tube; a top cover extending along the table above the rollers, the cover being of substantially inverted V-shape cross section with a longitudinal top edge along which said cover is divided into two half covers pivotable on said table to the left and right thereof, respectively, each half cover being divided into cover sections aligned end to end; and lifting means arranged between the rollers, said half covers being fixedly connected at an angle to said lifting means for pivotable movement therewith, whereby extruded product may be lifted upwardly and to the left or right of said table.

4,334,422

KNOCK DETECTING APPARATUS

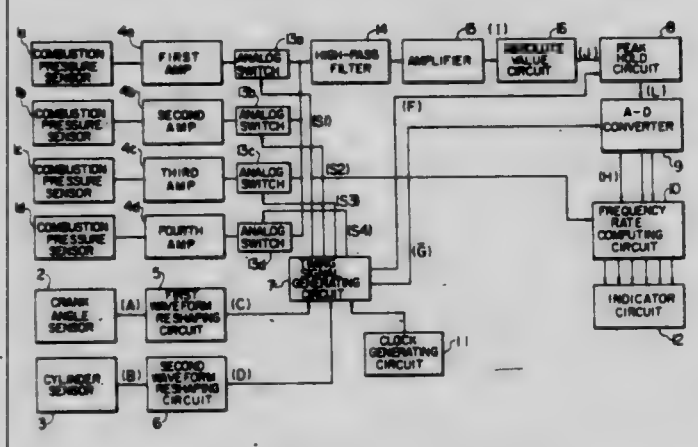
Hisasi Kawai, Toyohashi; Hidetaka Nohira, Mishima, and Kanimasa Yoshimura, Susono, all of Japan, assignors to Nippon Soken, Inc., Nishio and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Nov. 5, 1980, Ser. No. 203,571

Claims priority, application Japan, Nov. 9, 1979, 54-145803

Int. Cl.³ G01L *23/22*

U.S. Cl. 73—35 2 Claims



1. A knock detecting apparatus for an internal combustion engine having a plurality of cylinders, comprising:

vibration detecting means for detecting vibrations produced by a combustion event in each of the cylinders of said engine to generate an analog output corresponding to said vibrations, a peak value of said analog output being detected by sample-and-holding;

a sampling A-D converter circuit whereby a peak value of an analog vibration output generated from said vibration detecting means during a predetermined period near the top dead center of each said cylinder is extracted and converted to a digital quantity;

a frequency rate computing circuit for storing said digital quantity output from said sampling A-D converter circuit a predetermined number of times for each of said cylinders, producing an average value of said output data stored for each of said cylinders and determining a proportion of those of said stored data of each said cylinder which are greater than said average value by predetermined times to obtain an individual-cylinder frequency rate, said frequency rate computing circuit further producing an average value of said individual-cylinder frequency rates by the number of said cylinders to obtain an all-cylinder frequency rate; and

an indicator circuit for indicating an output of said frequency rate computing circuit representing said individual-cylinder frequency rate or said all-cylinder frequency rate.

4,334,423

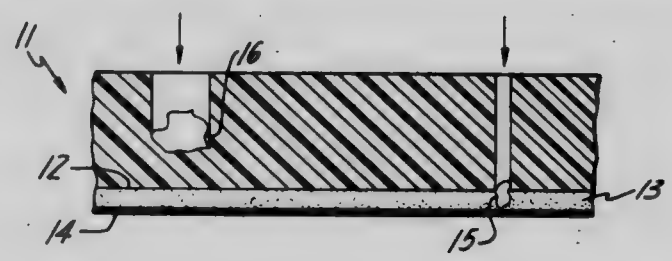
WARHEAD FRAGMENTOMETER

Albert E. Rainis, Forest Hill, and J. Terrence Klopcic, Bel Air, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 28, 1980, Ser. No. 210,957

Int. Cl.³ G01N *33/22*

U.S. Cl. 73—35 4 Claims



1. A method of determining the fragment mass and patterns from an exploded warhead, which comprises:

(a) placing a stack of non-magnetic, penetratable panels in the path of the projecting fragments;

(b) disassembling the stack of panels; and

(c) feeding each panel through a reading device that determines the mass and location of each fragment in the respective panel.

4,334,424

PROCESS FOR DETERMINING THE RHEOMETRIC PROPERTIES OF MATERIALS AND APPARATUS CARRYING OUT SAID PROCESS

André Kepes, 22 Av. de la Prise d'Eau, Le Vesinet, France (78110)

Filed Feb. 19, 1980, Ser. No. 122,473

Claims priority, application France, Feb. 22, 1979, 79 04585

Int. Cl.³ G01N *11/14*

U.S. Cl. 73—59 3 Claims

1. Apparatus for determining the rheological properties of a fluid material comprising:

a first component having a cavity therein;

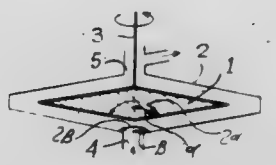
a second component mounted within said cavity, said second component being biconical in shape;

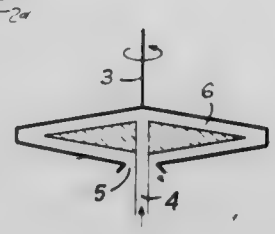
said first and second components being relatively rotatable with respect to each other;

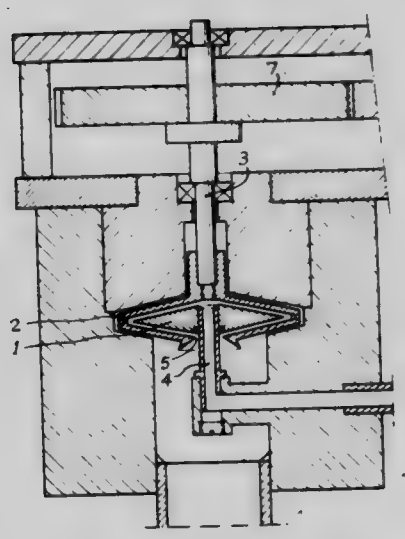
means for effecting rotation of said first component relative to the other;

and conduit means for introducing and removing said fluid material from said cavity, said conduit means including an

inlet passage extending through the bottom of said cavity and through the second component, said conduit means







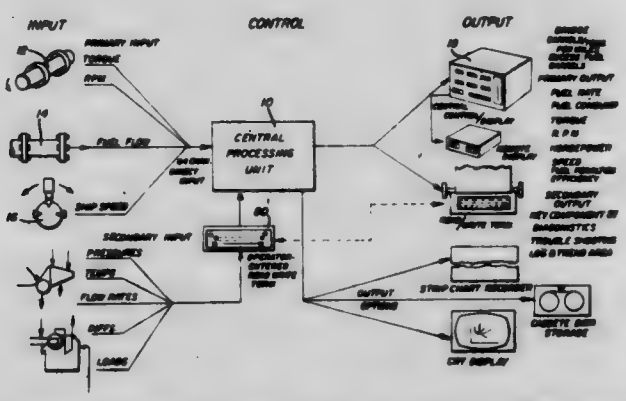
including an outlet passage disposed at the bottom of said cavity around and separated from said inlet passage.

4,334,425

SHIP EFFICIENCY ANALYZER

Harold E. Crane, 5015 River Rd., New Orleans, La. 70123

Filed Apr. 18, 1980, Ser. No. 142,372
Int. Cl.³ G01L 3/26
U.S. Cl. 73—112 10 Claims



1. In a power plant having at least one main power transmitting drive shaft, a power plant efficiency monitoring system comprising:

RPM sensor means for sensing the rpm's of said drive shaft;

torque sensing means for sensing the torque transmitted by said drive shaft;

fuel flow sensing means for sensing the rate of fuel supplied to said power plant;

first calculation means for calculating fuel use of said power plant in terms of power transmitted by said drive shaft;

display means for displaying said sensed rpm, said second torque, and said calculated fuel use in terms of power transmitted;

storage means for storing indications of said calculated fuel use in terms of power transmitted;

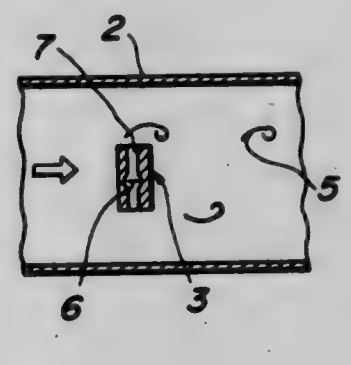
secondary sensor means for measuring levels of internal parameters of said power plant; and means for storing said measured levels of said internal parameters and correlating changes in said internal parameters with changes in said calculated fuel use in terms of power transmitted.

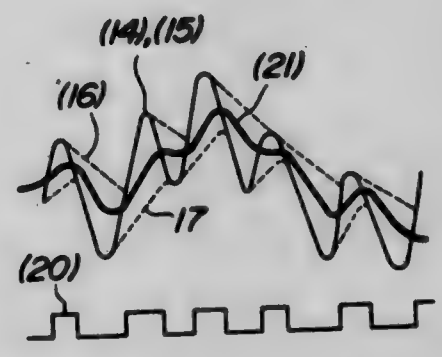
4,334,426

KARMAN VORTEX TYPE FLOW MEASURING APPARATUS

Toru Kita, Yokohama, and Hiroshi Kobayashi, Yokosuka, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 22, 1980, Ser. No. 123,570
Claims priority, application Japan, Feb. 26, 1979, 54/20774
Int. Cl.³ G01F 1/32
U.S. Cl. 73—118 3 Claims





1. A Karman vortex type flow measuring apparatus including a duct through which flows a fluid whose flow rate or flow velocity is to be measured, and a columnar vortex shedding member extending within the conduit transversely of the flow direction of the fluid, the flow rate or flow velocity of the fluid being measured by detecting the frequency of the vortex shedding induced by the vortex shedding member, comprising:

means to detect the frequency of the vortex shedding and convert the detected frequency into an electrical signal;

a comparator having a pair of input terminals, one of which is supplied with the converted electrical signal, and the other with a slice level signal with which the converted electrical signal is compared; and

means to determine the slice level such that the slice level is varied in accordance with the fluctuation of the converted electrical signal;

said slice level determining means comprising a highest peak holding circuit and a lowest peak holding circuit which respectively hold the highest and the lowest peak voltage levels of the output electrical signal of the detecting means, the slice level determining means generating an output voltage signal which is between the highest and lowest peak voltage levels held by the peak holding circuits, respectively;

said peak holding circuits each comprising a delay circuit having a mutually different charging and discharging time constant, which is varied in response to variation in an operating parameter of a vehicle engine, e.g. revolutional

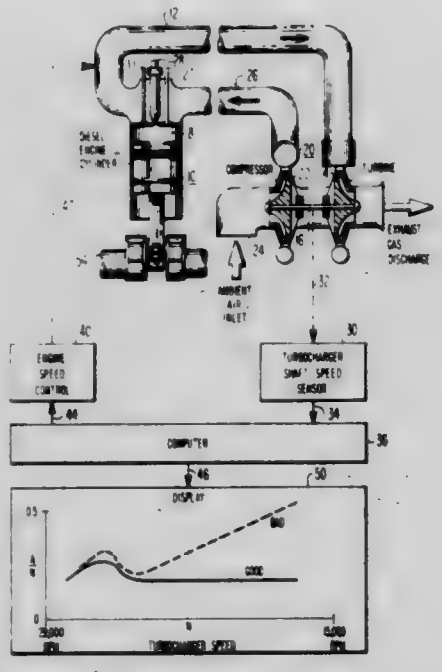
speed of the engine, throttle opening or boosted vacuum pressure in a suction air conduit.

4,334,427

TESTING THE CONDITION OF A TURBOCHARGER

Lee R. Armstrong, Newtonville, Mass., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 20, 1980, Ser. No. 198,457
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—118 **2 Claims**



1. The method of testing the condition of a turbocharger in a turbocharged internal combustion engine, comprising the steps of:

operating the engine at a high idle speed,

shutting off the fuel to the engine and allowing the engine and turbocharger to decelerate,

measuring the speed of the turbocharger as it decelerates,

determining the D/N vs. N characteristic, where N is the turbocharger shaft speed and D/N is the absolute value of the turbocharger deceleration divided by turbocharger shaft speed, and

comparing the slope of the D/N vs. N characteristic with a nearly zero slope of a normal turbocharger to see whether there is an excessive slope due to sliding friction in the turbocharger.

4,334,428

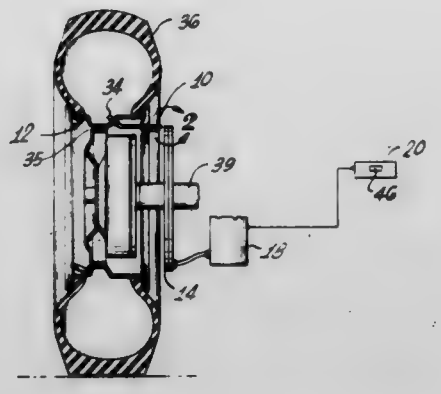
APPARATUS FOR INDICATING PARAMETERS SENSED ON A ROTATABLE WHEEL

Raoul G. Fima, 24901 Cienega La., Mission Viejo, Calif. 92675, and Jacques E. Mahieux, 24 Rue des Bleuets, 91440 - Bures, Yvette, France

Continuation-in-part of Ser. No. 902,967, May 4, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,633
Int. Cl.³ B60C *23/02*
U.S. Cl. 73—146.5 **34 Claims**

1. For use in a vehicle having a wheel and axle structure, an apparatus for providing on the non-rotatable structure of the vehicle a signal representing a parameter measured on said wheel, said apparatus comprising:

first and second electro-magnetically coupled components, one of said components being mounted on said wheel and the other of said components being mounted on said non-rotatable structure, said first component being a coil formed by at least one loop and arranged to oppose said second component as said wheel rotates, the configuration of said coil being such that it produces a directional magnetic field extending toward said second component to interact therewith, said field extending in a direction other than toward said axle; and



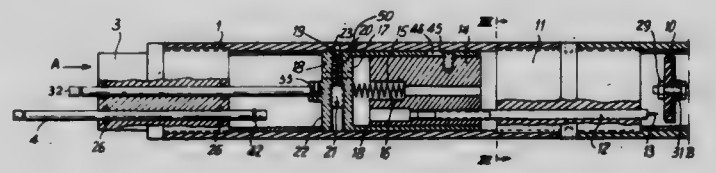
interrogation means mounted on said non-rotatable structure for supplying a signal to one of said components and for measuring the combined electrical response of said first and second components.

4,334,429

METHOD AND APPARATUS FOR LOCATING THE POSITION OF A DRILL CORE SAMPLE

Jean-Paul R. H. Breton, Jargeau; Pierre C. Thomassin, Salbris, and Bernard E. Villeneuve, Romorantin, all of France, assignors to Bureau de Recherches Geologiques et Minieres, Paris, France

Filed Jun. 23, 1980, Ser. No. 161,991
Claims priority, application France, Jun. 26, 1979, 79 16444
Int. Cl.³ E21B *49/00*
U.S. Cl. 73—151 **13 Claims**



1. An apparatus for locating the position of a drill core sample relative to the lower line of greatest slope of a drilling, comprising at least one means for locating impressions of the tip of the core, and means for locating the line of greatest slope relative to said means for locating impressions, said apparatus being lowered on a cable and determining said impressions and said line of greatest slope independently of the position thereof relative to the core cutting device.

4,334,430

DEVICE FOR METERING THE ANGULAR POSITION OF A DIRECTION INDICATOR

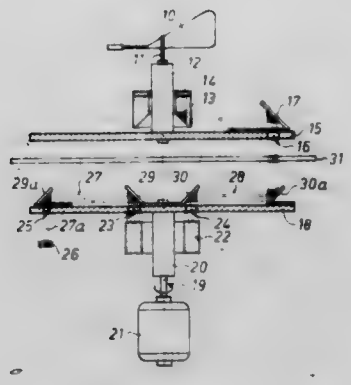
John A. Hansen, Byagervej 129, DK-3460 Birkerod, and Steen Hogh, Fasanvaenget 94, DK-2791 Dragor, both of Denmark

PCT No. PCT/DK80/00002, § 371 Date Sep. 8, 1980, § 102(e) Date Sep. 3, 1980, PCT Pub. No. WO80/01416, PCT Pub. Date Jul. 10, 1980
PCT Filed Jan. 8, 1980, Ser. No. 209,703
Claims priority, application Denmark, Jan. 8, 1979, 69/79
Int. Cl.³ G01P *13/02, 5/07*
U.S. Cl. 73—189 **10 Claims**

1. A device for metering the angular position of a direction indicator (10) mounted rotatably about an axis, said device comprising a reference member (18) mounted rotationally about said axis and having driving means (21,44) for continuously rotating said reference member in a predetermined direction, means (26) for providing a reference signal at least once each revolution of said reference member, means (14) for providing once each said revolution a measuring signal in a timed relationship to said reference signal, said relationship

being a function of said angular position of said direction indicator, and means (**40**) for determining said angular position on the basis of said reference and measuring signals,

characterized in that said reference and measuring signal providing means comprise a radiation source (**45**; **56**) extending about said axis, first radiation beam directing means (**23–25**, **29**, **29***a*, **30**, **30***a*; **46**, **47**; **51**) rotating with said reference member (**18**) so as to direct once each



revolution a reference radiation beam and a measuring radiation beam from said radiation source to a first radiation sensing means (**26**) and to second radiation beam directing means (**13**, **16**, **17**; **48**; **60**), respectively, said second directing means being rotatable with said direction indicator (**10**) and adapted to direct said measuring radiation beam received from said first directing means to a second radiation sensing means (**14**).

4,334,431

ULTRASONIC MEASURING INSTRUMENT

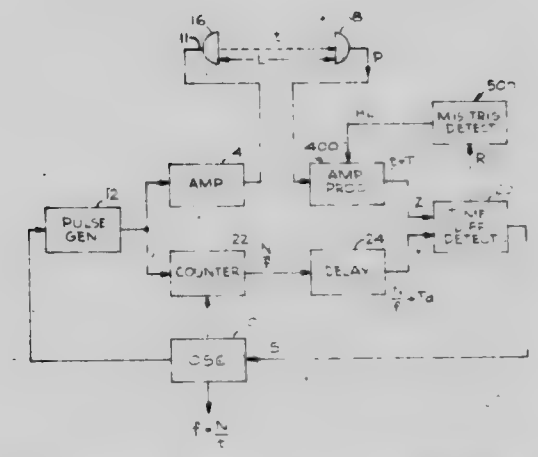
Masaru Kohno; Yukio Nakagawa; Takeo Kada, and Gunzi Okawara, all of Kawasaki, Japan, assignors to Fuji Electric Company, Ltd., Tokyo, Japan

Filed Aug. 8, 1979, Ser. No. 64,820

Claims priority, application Japan, Aug. 9, 1978, 53/96953

Int. Cl.[3] **G01F** *1/66*; **G01N** *29/02*

U.S. Cl. 73—597 **6 Claims**



1. An ultrasonic-signal transit-time measuring instrument, including:

a voltage-controlled oscillator having an output terminal and a control terminal;

a synchronized pulse generator having a signal input terminal coupled to said output terminal of said oscillator and having a pulse output terminal;

a transmitting transducer adapted for acoustic coupling to a medium to be tested, said transmitting transducer having an excitation terminal;

said excitation terminal being coupled to said pulse output terminal for generating an acoustical pulse from said transmitting transducer in response to an electrical pulse applied to said excitation terminal;

a receiving transducer having an electrical signal output terminal and being responsive to said acoustical pulse, upon its travel through said medium to produce a cyclical electrical signal at said electrical signal output terminal, said receiving transducer being adapted for acoustical coupling to said medium to be tested;

an amplifier-processor having a first input terminal coupled to said electrical signal output terminal of said receiving transducer, second and third input terminals and a signal-arrival-signal output terminal;

a counter having first and second input terminals and an output terminal, said first input terminal being connected to said pulse output terminal of said pulse generator, said second input terminal being coupled to said output terminal of said oscillator for the application of an oscillation signal to said second input terminal of said counter;

means coupled between said second input terminal of said counter and said output terminal thereof for producing, in response to the application of a pulse to said first input terminal from said pulse generator an end-of-count signal corresponding to the end of counting of a pre-determined number of cycles of said oscillation signal applied to said input terminal of said counter;

a time-difference detector coupled to said output terminal of said counter to receive said end-of-count signal therefrom, said time-difference detector being also coupled to said signal-arrival-signal output terminal of said amplifier-processor to receive a signal-arrival-signal therefrom, said time-difference detector having a correction-signal output terminal and being responsive to said end-of-count signal and said signal-arrival-signal to produce, at its correction-signal output terminal a correction signal corresponding to the time difference between the application of said end-of-count signal and said signal-arrival-signal to said time-difference detector, said correction-signal output terminal of said time-difference detector being coupled to said control terminal of said oscillator, the sign of said correction signal being such as to, when applied to said oscillator, reduce said correction signal;

said amplifier-processor including first and second comparators, each having a signal input terminal, a comparison voltage terminal, an output terminal and a strobe terminal, each of said signal input terminals being coupled to said electrical signal output terminal of said receiving transducer;

said comparison voltage terminal of said first comparator being connected to a source of a first reference voltage greater than zero;

said comparison voltage terminal of said comparator being connected to zero potential;

said output terminal of said first comparator exhibiting a "one" condition when said output signal from said receiving transducer exceeds said first reference voltage;

said output terminal of said second comparator exhibiting a "one" condition when said output signal from said receiving transducer is negative;

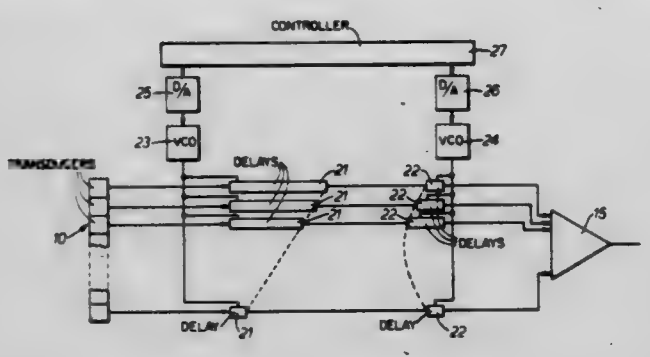
second counting means coupled to said output terminal of said second comparator and responsive to signals therefrom to produce an output signal following the occurrence of a predetermined number of output signals from said second comparator;

and NAND-gate means responsive to said output signal from said second counting means for producing a signal representing the arrival time of said acoustical signal at said receiving transducer.

4,334,432
ULTRASONIC LINEAR ARRAY BEAMFORMING METHOD AND APPARATUS

Robert W. Gill, Rozelle, Australia, assignor to The Commonwealth of Australia - Dept. of Health, Australia

Filed Feb. 19, 1980, Ser. No. 122,602
Claims priority, application Australia, Feb. 20, 1979, PD7760
Int. Cl.[3] G01N *29/00*
U.S. Cl. 73—602 8 Claims



1. A method of steering and focusing a linear array of acoustic transducers comprising applying an independent delay to the signal received by each transducer of the array in accordance with a relationship which has both linear and quadratic terms in x, characterised in that

(a) the linear term is a combination of a steering component which is a function of sin θ and x, together with a linear correction function; and

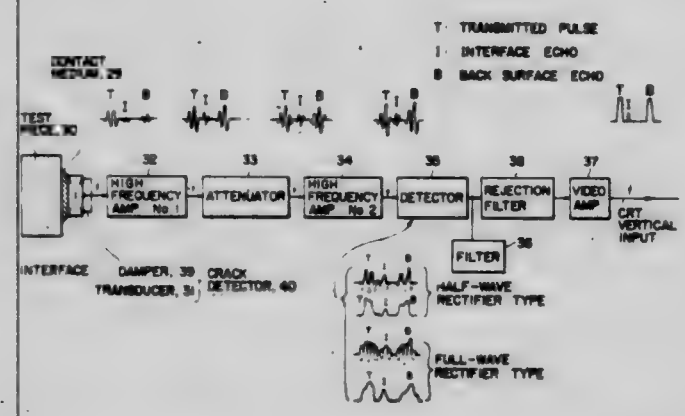
(b) the quadratic term is a combination of a focusing component, which is a function of r and x^2 with a quadratic correction function;

where θ is the steering angle of the beam, r is the distance of the desired focus point of the beam from the centre of the array, and x is the distance of a transducer from the centre of the array.

4,334,433
METHOD AND APPARATUS FOR MEASURING THICKNESS OF CLAD STEEL

Shizuo Takahashi; Satoru Matsumi; Toshiyuki Sugiyama, and Susumu Takeda, all of Muroran, Japan, assignors to Japan Steel Works, Ltd., Tokyo, Japan

Filed May 20, 1980, Ser. No. 152,053
Claims priority, application Japan, Nov. 25, 1978, 53-145520
Int. Cl.[3] G01N *29/00*
U.S. Cl. 73—629 4 Claims



1. A method for measuring the thickness of various layers of a multilayered metal member having at least a first surface, a second surface and an interface surface between said first and second surface comprising the steps of:

providing contact detecting terminal means having wide-band and high damping means and supersonic wave crack detector means having wide-band amplifying means at a position adjacent said first surface of said metal member;

coupling said crack detector to an oscilloscope having a continuously adjustable time scale;

displaying pulses representative of said first and second surfaces on said oscilloscope by operation of said contact detecting terminal means and said supersonic wave crack detector means;

maintaining a displaying pulse representative of said first surface at a zero level by appropriate rejection of signals produced by said crack detector and increasing the gain thereof so that an interface echo can be seen between said displayed signals representative of said first surface and said second surface;

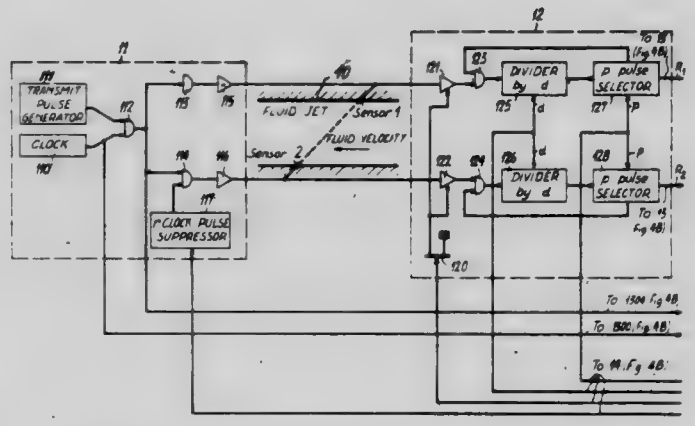
adjusting the time axis scale of said oscilloscope to increase the pulse width of said interface echo so that said interface echo increases in amplitude; and

increasing said rejection of signals produced by said crack detector to thereby delete noise echos generated from said increase in the pulse width of said interface echo to cause said interface echo to be displayed as a clear wave shape whereby said clear wave shape is representative of said interface surface between said first and second surfaces.

4,334,434
ULTRASONIC FLOW RATE METER

Jean G. Appel, Le Plessis Robinson, and Francois M. Dunand, Paris, both of France, assignors to Office National d'Etudes et de Recherches Aerospatiales O.N.E.R.A., Chatillon, France

Filed Apr. 8, 1980, Ser. No. 138,580
Claims priority, application France, Apr. 11, 1979, 79 09207
Int. Cl.[3] G01F *1/66*
U.S. Cl. 73—861.29 3 Claims



1. A device for measuring the flow of a fluid in a tube comprising:

two ultrasonic electro-acoustic transducers in said tube, spaced apart from each other along a line oblique with respect to the tube axis;

pulse generating means for respectively energizing said transducers with first and second transmitted electrical pulse groups having a recurrent frequency between pulses in each group;

said transducers producing first and second received electrical pulse groups at said recurrent frequency responsive to reception by each transducer of an acoustic pulse group from the other transducer;

frequency divider means connected to said pulse generating means and said transducers for dividing the recurrent frequency of the first and second transmitted and received electrical pulse groups by a given factor d for respectively converting each pulse of each group of pulses into a respective pulse train characterized by said d factor;

circuit measuring means for measuring a first delay between the beginning of the first transmitted pulse train and the first received pulse train and for measuring a second delay between the beginning of the second transmitted pulse train and the beginning of the second received pulse train;

said circuit measuring means further measuring a third delay between the beginnings of the first and second received

pulse trains and also measuring a fourth delay between the beginnings of the first and second transmitted pulse trains;

flip-flop means for subtracting the fourth delay from the third delay to thereby obtain a corrected delay; and

said circuit measuring means dividing said corrected delay by the product of said first and second delay to provide a result which is proportional to the fluid flow.

4,334,435

SEALING APPARATUS

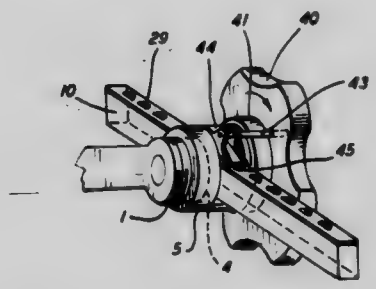
Günter T. Tkatschenko, Muhlheim, and Gunther Franke, Darmstadt, both of Fed. Rep. of Germany, assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Aug. 4, 1980, Ser. No. 174,782

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1979, 2934434

Int. Cl.³ G01N *31/08*

U.S. Cl. 73—864.86 **15 Claims**



1. A sealing apparatus adapted to be punctured by a needle; said apparatus comprising:

an injection block having a passage therein adapted to receive a needle, said block having a sealing face at one end thereof;

a unitary sealing body of self-sealing material, said body having one major surface thereof facing said sealing face of said block; said major surface being complementary to said sealing face of said block;

a cap releasably mounted to said block at said one end thereof, said cap having an injection port therein aligned with said injection passage, said cap being adapted to accept said unitary sealing body between said injection port thereof and said injection passage of said block;

means, integral with said cap, for urging said unitary sealing body against said sealing face whereby a pressure seal can be formed therebetween, said urging means including an urging member having an urging face adapted to abut said unitary sealing body, said urging member being cooperatively directed by a guide sleeve; said urging member being a handwheel guided on an external thread on said guide sleeve and including a central pin directed towards the interior of said guide sleeve; and

means, cooperatively engaged with said unitary sealing body for controlling the position thereof with respect to said sealing face.

4,334,436

BEARING ARRANGEMENT FOR OSCILLATING SHAFTS

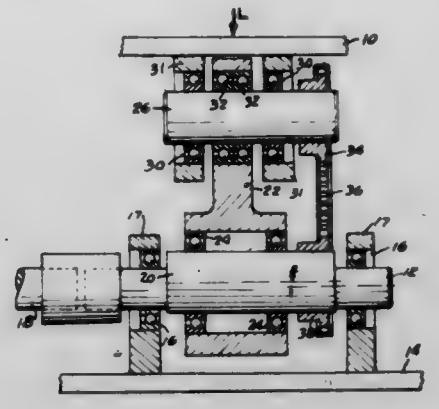
Eugene P. Bonzack, Livonia, Mich., assignor to F. Jos. Lamb Company, Warren, Mich.

Filed Aug. 21, 1980, Ser. No. 180,125

Int. Cl.³ F16H *21/22, 57/04*

U.S. Cl. 74—44 **7 Claims**

1. In combination, a support, a rotatable shaft having a central axis, first lubricated bearing means journalling said shaft on said support for rotation about said central axis, an arm, second bearing means journalling one portion of said arm on said shaft for oscillation about the axis of the shaft, means applying a unidirectional radial load on said first and second bearing means, means for oscillating said arm about the axis of the shaft through an angle of substantially less than 180°, means for rotating said shaft while said arm is being oscillated, a second support, a second shaft spaced generally parallel to said first shaft, third bearing means journalling the second shaft on



a second support, fourth bearing means journalling another portion of said arm on said second shaft, said arm transmitting said load to said third and fourth bearing means and means for rotating the second shaft while said arm is being oscillated.

4,334,437

ARRANGEMENT FOR THE COMPENSATION OF INERTIA FORCES IN THE RECIPROCATING DRIVING OF A MACHINE ELEMENT

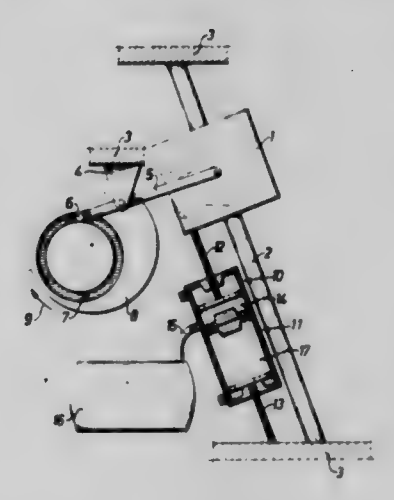
Pär M. Andersson, Bjärred, Sweden, assignor to Tetra Pak International AB, Lund, Sweden

Filed Oct. 17, 1979, Ser. No. 85,733

Claims priority, application Sweden, Oct. 25, 1978, 7811076

Int. Cl.³ B60G *11/26*; F16H *25/08*

U.S. Cl. 74—53 **1 Claim**



1. An apparatus for compensating inertia forces comprising:

means for driving an element in a predetermined repeated reciprocating motion between substantially fixed first and second end points, said reciprocating motion having a vertical component;

first spring means for balancing the weight of the element, the first spring means comprises a first piston reciprocable in a first pneumatic cylinder having a first working chamber, the first piston being connected to the element;

second spring means for aiding movement of the element away from the second end point towards the first end point, the second spring means comprises a second pneumatic cylinder having a second working chamber, the second cylinder being reciprocable about a second piston, said second piston being connected to a fixed frame;

said working chambers being contained in a continuous cylinder having a wall fixed with respect to the continuous cylinder therebetween; and

the stroke length of the first piston is less than the distance between the first and second end points whereby the second cylinder moves after the first piston has moved

within the first cylinder to contact the fixed wall between the first and second working chambers.

4,334,438

CLEARANCE ADJUSTING MECHANISM

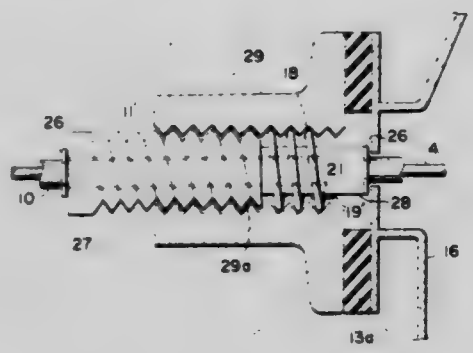
Haruo Mochida, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Feb. 28, 1980, Ser. No. 125,458

Claims priority, application Japan, Mar. 9, 1979, 54-27344; Apr. 25, 1979, 54-51638

Int. Cl.³ F16C *1/22*

U.S. Cl. 74—501 R **9 Claims**



1. A clearance adjusting mechanism comprising:

a first member having an external thread;

a second member having an internal thread screwed with said external thread of said first member; and

a locking coil for locking the relative movement between said first and second members only in case of a predetermined rotation direction thereof, said locking coil being screwed with the internal thread of said second member, said first member having a projection which one end of said locking coil may contact.

4,334,439

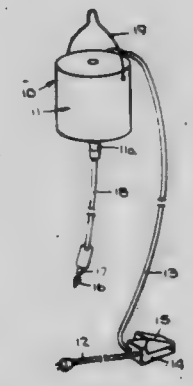
POWER TRANSMISSION DEVICE FOR PLURAL POWER-DRIVEN HAND-HELD TOOLS

Jack Kadymir, 3030 Brighton 12th St., Brooklyn, N.Y. 11235

Filed May 5, 1980, Ser. No. 146,407

Int. Cl.³ F16H *57/00, 37/06*

U.S. Cl. 74—665 GA **18 Claims**



1. A power transmission device for a plurality of power-driven hand-held tools, comprising

(a) a main drive gear,

(b) a plurality of operating gears corresponding to said plurality of tools and each adapted to be driven by said main drive gear and to be connected to an associated one of said tools, and

(c) a plurality of gear shifting units for shifting said operating gears, respectively, into and out of meshing relation with said main drive gear, each of said gear shifting units comprising

(i) first means rotatably supporting the associated one of said operating gears, said first means being movable reciprocally for displacing said operating gear into and out of meshing relation with said main drive gear,

(ii) second means carried by said first means for reciprocal movement jointly therewith as well as lateral movement relative thereto, said second means having at least one projecting element movable therewith,

(iii) third means juxtaposed to said second means and providing a plurality of stop faces located so as to enable one or the other thereof to be engaged by said element upon movement of the latter with said second means and said first means in one direction of said reciprocal movement, said stop faces providing a pair of spaced end positions for said element and thereby for said first means and said associated operating gear one of which positions corresponds to that operating gear being out of, and the other of which positions corresponds to that operating gear being in, meshing engagement with said main drive gear, and

(iv) fourth means juxtaposed to said second means and constituting camming means engageable by said element upon movement of the latter with said second means and said first means in the other direction of said reciprocal movement for effecting a lateral movement of said second means relative to said first means so that upon each such engagement said element is shifted out of juxtaposition to either one of said stop faces and into juxtaposition to the other of said stop faces.

4,334,440

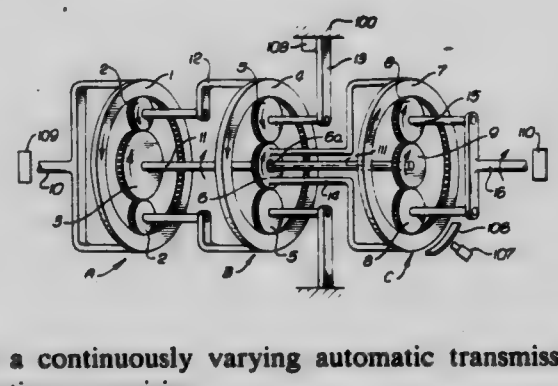
AUTOMATIC TRANSMISSION

Hugo Fonck, 200 Richardson Dr., Mill Valley, Calif. 94941

Continuation-in-part of Ser. No. 950,128, Oct. 10, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 128,670

Int. Cl.³ F16H *57/10, 3/44, 3/74*

U.S. Cl. 74—789 **10 Claims**



1. In a continuously varying automatic transmission, the combination comprising

(a) first, second and third gear sets spaced apart coaxially in that sequence, each including sun, planet and ring gears,

(b) the sun gears of the first and third gear sets being interconnected to rotate together, and the sun gear of the second set connected to the ring gear of the third set to rotate as a unit,

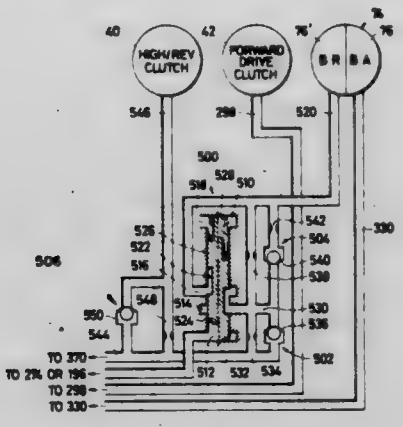
(c) and the planet gear or gears of the first set directly connected by planet gear carrier structure to the ring gear of the second set to rotate bodily therewith as a unit, said planet gear or gears of the first set being carried only by said carrier structure to allow rotation of said first set planet gear or gears relative to said carrier structure and relative to the ring gear of the second set, about an axis or axes defined by said planet gear or gears, the planet gear or gears of the second set at all times held by holding structure against rotation about an axis defined by said second gear.

4,334,441

GEARSHIFT TIMING CONTROL ARRANGEMENT FOR AUTOMATIC POWER TRANSMISSION

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Mar. 14, 1979, Ser. No. 20,591
Claims priority, application Japan, Aug. 7, 1978, 53-95918
Int. Cl.[3] B60K *41/10*
U.S. Cl. 74—868 6 Claims



1. In an automatic power transmission having at least two forward drive range ratios consisting of lower and higher forward drive gear ratios and including a transmission mechanism having a fluid operated first frictional unit contributive to the shifting to the higher forward drive gear ratio when it is engaged and a fluid operated second frictional unit contributive to the shifting to the higher gear ratio when it is disengaged and a hydraulic control system including actuating fluid pressure generating means for producing an actuating fluid pressure to be supplied selectively to the first and second frictional units, control pressure generating means for producing a control fluid pressure, first passageway means for passing said actuating fluid pressure toward said first frictional unit for causing engagement of the first frictional unit, second passageway means for passing said actuating fluid pressure therethrough toward said second frictional unit for causing disengagement of the second frictional unit, a gear shift valve means for permitting said actuating fluid pressure through said first passageway and through said second passageway means in accordance with a predetermined schedule which is determined in response to said control fluid pressure, a gearshift timing control arrangement for incorporation into said hydraulic control system, comprising:

first and second one-way flow restriction means arranged in series between said first passageway means and said second frictional unit, the first one-way flow restriction means intervening between the first passageway means and the second one-way flow restriction means and operative to pass fluid away from the second one-way flow restriction means toward said first passageway means without flow restriction therethrough and restrict the flow rate of the fluid to be passed in the opposite direction therethrough, the second one-way flow restriction means intervening between the first one-way flow restriction means and said second frictional unit and operative to restrict the flow rate of the fluid to be passed therethrough toward said second frictional unit,

bypass passageway means bypassing the second one-way flow restrictor means of the series combination of said first and second one-way flow restriction means; and

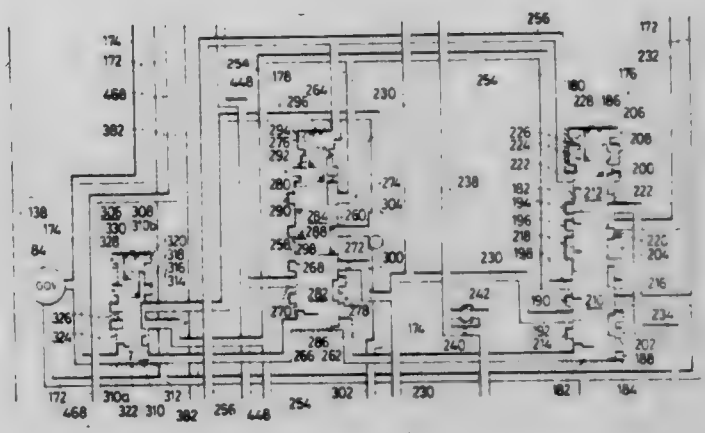
a gearshift timing valve provided in said bypass passageway means and responsive to said control fluid pressure for allowing said bypass passageway means to open when the control fluid pressure is lower than a predetermined value and closing the bypass passageway means when the control fluid pressure is higher than the predetermined value.

4,334,442

SHIFT VALVE ARRANGEMENT OF HYDRAULIC TRANSMISSION CONTROL SYSTEM

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Feb. 6, 1979, Ser. No. 9,626
Claims priority, application Japan, Sep. 29, 1978, 53-120982
Int. Cl.[3] B60K *41/06*; B60K *41/10*
U.S. Cl. 74—869 6 Claims



1. In an automatic power transmission system including fluid operated frictional units to be selectively made operative to produce a plurality of forward drive gear ratios and a hydraulic control system including a source of an actuating fluid pressure to actuate each of the frictional units, a source of first control pressure indicative of the vehicle speed, a source of a second control pressure indicative of the throttle opening, and a source of kickdown pressure:

a shift valve arrangement for incorporation into the hydraulic control system comprising:

a shift valve including a switching valve element and a control valve element which are axially arranged in series and which have end faces, respectively, which are adjacent and opposite to each other,

said switching valve element being responsive to the first pressure for switching the directions in which the actuating fluid pressure is to be passed through said shift valve,

said control valve element being formed with a first pressure acting area to be acted upon by the second control pressure when said control valve element is in a first position, a second pressure acting area to be acted upon by the kickdown pressure when said control valve element is in a second position and a third pressure acting area to be acted upon by the kickdown pressure when said control valve element is in the first position;

a downshift valve including a valve member formed with a first pressure acting area to be acted upon by the first control pressure for urging said valve member to move in a first direction and a second pressure acting area to be acted upon by the second control pressure for urging said valve member to move in a second direction opposite to said first direction, and resilient biasing means urging said valve member to move in said second direction,

said downshift valve being responsive to the first control pressure and the second control pressure for providing a fifth pressure when a predetermined relationship between the first and second control pressures is satisfied; and

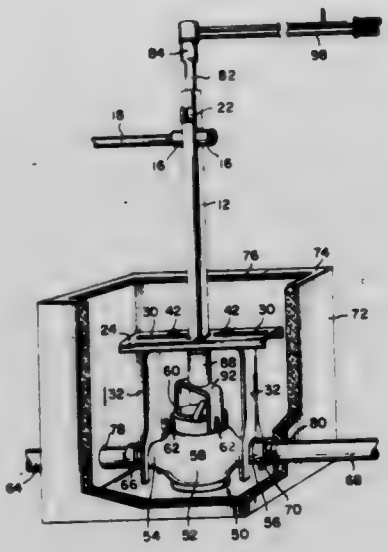
passageway means providing communication between said shift valve and said downshift valve for directing the fifth pressure from said downshift valve to said shift valve and applying the fifth pressure onto said end faces of said valve elements of said shift valve to urge said switching valve element toward the first position thereof when said valve member is moved in said second direction.

4,334,443

TORQUE STABILIZED WATER METER WRENCH

Bernard E. Pearson, 16445 9th SW., Seattle, Wash. 98166

Filed Feb. 7, 1980, Ser. No. 119,220
Int. Cl.[3] B25B *13/00*
U.S. Cl. 81—55 14 Claims



1. A torque stabilized wrench for the disassembly and reassembly of water meters without requiring the removal of said water meter from its installed location, usually in a meter box below ground level, wherein said water meter is of the general type having:

a water meter body means having meter inlet and outlet means secured by connections to a water supply line and water delivery line, respectively;

metering means within said meter body for metering the water passing through said water meter; and

box ring means secured to said meter body means by a torqued connection means, said box ring means being for providing access to said metering means;

wherein said torque stabilized wrench comprises:

drive means for engaging and torquing said box ring means in a first direction;

means which rotatably carry said drive means and which are for engaging and torquing the meter body in a second direction opposed to said first direction;

wherein said means for engaging and torquing the meter body include a pair of forks which define a pair of meter body recesses adapted to fit over and engage said meter body adjacent said meter inlet and outlet means, and further include a main stem and a support means which extends generally transversely with respect to said main stem and which defines a pair of elongated slots adapted to receive fastener means therethrough, said fastener means selectively and adjustably mounting said forks to said support means to enable the distance between said forks to be selectively adjusted to engage different sizes of water meter bodies; and

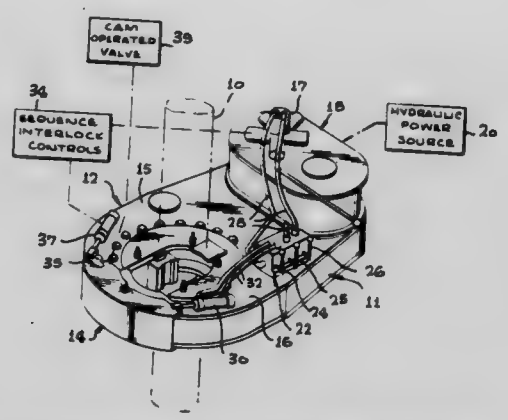
wherein during use of said wrench when the user torques said drive means in said first direction to in turn torque said box ring means in said first direction, the user simultaneously torques said means for engaging the meter body in said second direction to in turn torque said meter body in said second direction to prevent any significant rotation of said meter body, thereby preventing damage to said water meter, said water supply and delivery lines, and said connections during the torquing of the box ring while said meter is connected to said water supply and delivery lines.

4,334,444

POWER TONGS

Kenneth J. Carstensen, and John J. Staudt, III, both of Odessa, Tex., assignors to Bob's Casing Crews, Odessa, Tex.

Continuation of Ser. No. 919,365, Jun. 26, 1978, Pat. No. 4,215,602. This application Jul. 31, 1980, Ser. No. 174,040
The portion of the term of this patent subsequent to Aug. 5, 1997, has been disclaimed.
Int. Cl.[3] B25B *17/00*
U.S. Cl. 81—57.18 4 Claims



1. A power tong system for gripping and rotating a cylindrical element comprising:

a pair of spaced apart upper and lower head plates including oppositely facing guide slots disposed along a selected axis, the guide slots defining spaced apart and parallel side bearing surfaces;

a rotary member disposed between the head plates and movable relative thereto, the rotary member including an internal cam surface and outer teeth;

a pair of opposed heads between the head plates, each slidable in a facing pair of the guide slots along the selected axis, and each including a pair of spaced apart die means for engaging an interior cylindrical element and cam follower means for engaging the internal cam surfaces of the rotary member; and

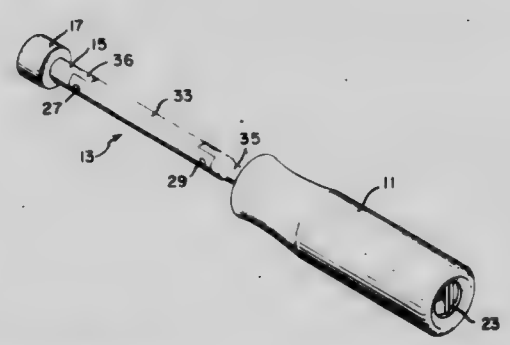
drive means engaging the outer teeth of the rotary member and rotating the rotary member, whereby the cam follower means shifts the position of the heads radially relative to engage each pair of die means symmetrically relative to the cylindrical element and lock the head plates to the rotary member, the side bearing surfaces in the guide slots resisting torsional moments acting on the heads under load.

4,334,445

Z STYLE SPEED WRENCH

Richard R. Timewell, Seattle, Wash., assignor to R. T. Tool Co. Ltd., Canada

Continuation of Ser. No. 21,847, Mar. 19, 1979, abandoned. This application Mar. 12, 1981, Ser. No. 243,250
Int. Cl.[3] B25B *13/00*
U.S. Cl. 81—177 PP 3 Claims



1. A tool, comprising:

an elongated, articulated shank having exactly two-swivel like joints which divide said shank lengthwise into, in

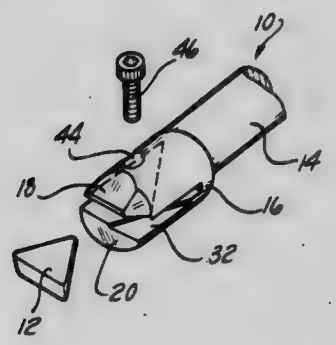
sequence, a head section, a middle section, and a base section, each of said sections being substantially straight and movable relative to each other in but a single plane, said head section including means permitting the joining of said head section to a nut or the like, said base section including a handle means which is rotatable relative to said base section, wherein the outermost end of said base section terminates within said handle means and wherein the combination of said base section and said handle means is substantially longer than said middle and head sections, respectively, so that, in operation, said head section, and hence the nut or similar article to which it is joined, may be rotated rapidly by revolving said handle means about a tool centerline.

4,334,446

CUTTING TOOL AND HOLDER THEREFOR

Peter Field, Miami, Fla., assignor to Approved Performance Tooling, Inc., Troy, Mich.

Filed Jul. 7, 1980, Ser. No. 166,717
Int. Cl.³ B23B *27/16, 27/22*
U.S. Cl. 82—36 R **3 Claims**



1. A cutting tool holder adapted for holding a cutting tool having a cutting face, comprising:

an elongate body having a pair of gripping members on one end thereof and having opposed, spaced apart faces for gripping said cutting tool therebetween,

one of said gripping members including a pair of outer edges extending toward each other and a third outer edge connecting said pair of edges to define a truncated corner, said cutting face extending outwardly beyond said truncated corner,

said gripping members being provided with relieved surface areas in the respective faces thereof defining a pair of retaining walls extending transverse to each other, one of said retaining walls communicating with said third outer edge,

said gripping member further including a chip breaking surface at said truncated corner and inclined with respect to said cutting face, said chip breaking surface having a height above said cutting face sufficient to engage a substantial portion of the length of a chip being cut by said cutting tool so as to deflect said chip.

4,334,447

CUTTER ASSEMBLY FOR DOUGH STRIPS

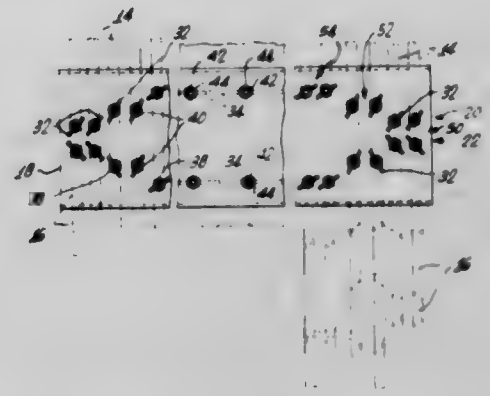
William E. Martin, and Harold E. Sumrall, both of Caldwell, Id., assignors to J. R. Simplot Company, Boise, Id.

Filed Jun. 9, 1980, Ser. No. 157,251
Int. Cl.³ A21C *5/00;* B26D *3/20*
U.S. Cl. 83—111 **14 Claims**

1. A cutter assembly for cutting a plurality of parallel dough strips each into a plurality of relatively short strip segments, comprising:

cutter blade mounting means for stroking motion toward and away from the dough strips; and

at least two rows of cutter blades mounted on said blade mounting means extending toward the dough strips for cutting engagement therewith upon stroking motion of said blade mounting means toward the dough strips, each of said rows of cutter blades including a plurality of relatively small blades positioned and angularly set at different angles with respect to said blade mounting means for cutting the different ones of the dough strips to form strip segments with ends cut at a variety of different angles, each of said small blades of each row being aligned with one of said small blades of the other row to form a plural-



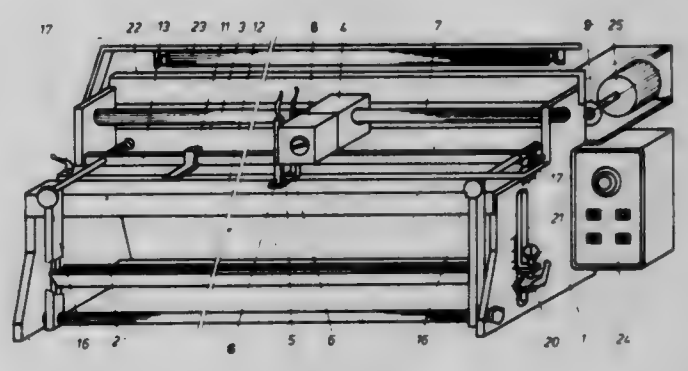
ity of small blade pairs each for cutting engagment with a different one of the dough strips, and each of said rows of cutter blades further including a relatively large blade for cutting engagement with a plurality of the dough strips, said large blade of each row being aligned with said large blade of the other row for cutting engagement with the same dough strips.

4,334,448

DEVICE FOR SHARPENING AND/OR FORMING THE PROFILE OF A SCREEN PRINTING SQUEEGEE

Elmar Messerschmitt, Paul-Hösch-Strasse 13, 8000 München 60, Fed. Rep. of Germany

Filed Sep. 27, 1979, Ser. No. 79,350
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1978, 2843904
Int. Cl.³ B26D *7/10;* B26F *3/12*
U.S. Cl. 83—171 **7 Claims**



1. A device for forming the profile of a silk screen printing squeegee which includes:

A. clamping means for resiliently holding the squeegee without deformation, which comprises:

1. a receiving member having a longitudinally disposed groove for grasping the edge of a squeegee which is not to be worked.

2. a vertically adjustable mounting means for supporting said receiving member and the squeegee carried thereby so that the working height of the edge of the squeegee to be worked can be vertically adjusted.

3. a front and rear lateral holding bar for firm but non-deforming engagement of said squeegee along its long axis and near the surface of the edge to be worked and along the cutting direction;

B. a heated cutting tool movable in a set horizontal plane along the long axis of said clamped squeegee.

4,334,449

APPARATUS FOR SEVERING PAPER WEBS OR THE LIKE

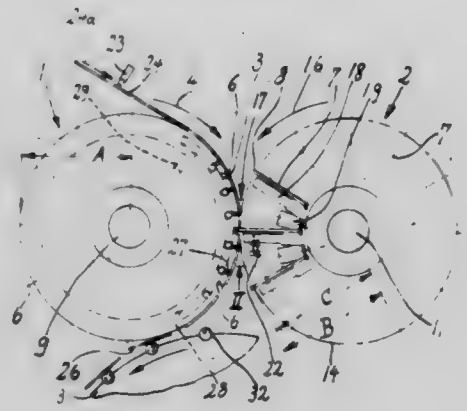
Werner Hinz, Hamburg, and Nikolaus Häusler, Oststeinbek, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. K.G., Hamburg, Fed. Rep. of Germany

Filed Nov. 18, 1980, Ser. No. 207,962

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947438

Int. Cl.³ A24C 5/58

U.S. Cl. 83—342 17 Claims



1. Apparatus for subdividing a running web into discrete sections, particularly for transverse severing of an adhesive-coated web which is to yield a succession of uniting bands for draping around groups of coaxial rod-shaped articles, comprising first and second carriers rotatable about parallel axes and respectively having a plurality of first and second elongated cutting edges disposed in substantial parallelism with the respective axes, each of said first cutting edges cooperating with a second cutting edge during rotation of said carriers to sever a web which is fed between said carriers, said first carrier further having axially parallel recesses adjacent to the respective first cutting edges and successive second cutting edges penetrating into the oncoming recesses during rotation of said carriers relative to each other; and means for rotating said carriers in opposite directions including mating first and second gears which are respectively coaxial with said first and second carriers, said first cutting edges being disposed at the periphery of a first cylinder having a radius which at least approximates the radius of the pitch circle of said first gear and said second cutting edges being disposed at the periphery of a second cylinder having a radius exceeding the radius of the pitch circle of said second gear.

4,334,450

SAWING MACHINES

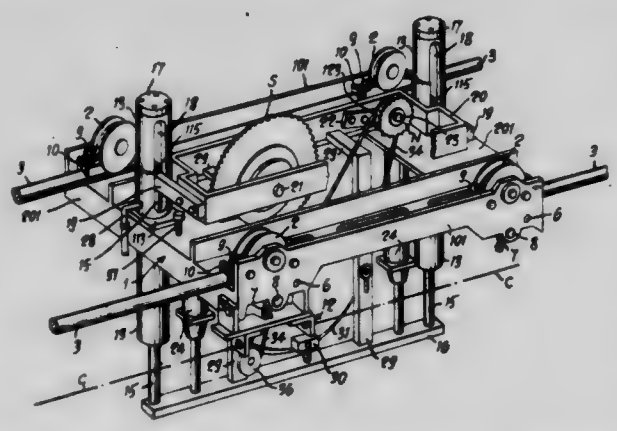
Gino Benuzzi, Bologna, Italy, assignor to Giben Impianti S.p.A., Pianoro, Italy

Filed Jun. 9, 1980, Ser. No. 158,020

Claims priority, application Italy, Jun. 20, 1979, 15215/79[U]

Int. Cl.³ B26D 1/18; B27B 5/18

U.S. Cl. 83—471.2 4 Claims



1. Sawing apparatus of the type comprising a horizontal workpiece support table having a longitudinal slot defining a cutting line, and a circular saw mounted on a carriage reciprocably movable along a path parallel to and beneath said cutting line, said carriage having a supporting frame (1) movable along horizontal guides (3), wherein

(a) said circular saw and means for rotatably driving said saw are mounted on a structure which is vertically movable on said supporting frame means being provided for effecting up-and-down movement of said structure;

(b) said structure comprising at least a pair of vertical parallel rods (15) slidable within vertical tubular guides (13) secured to said supporting frame;

(c) said vertical rods (15) having conically shaped upper ends, and said vertical tubular guides (13) having, at their upper ends, downwardly facing hollow conical seats;

(d) whereby, at the end of the upward stroke of said structure with respect to said supporting frame, said conical ends of said vertical rods snugly fit into said conical seats of said tubular guides.

4,334,451

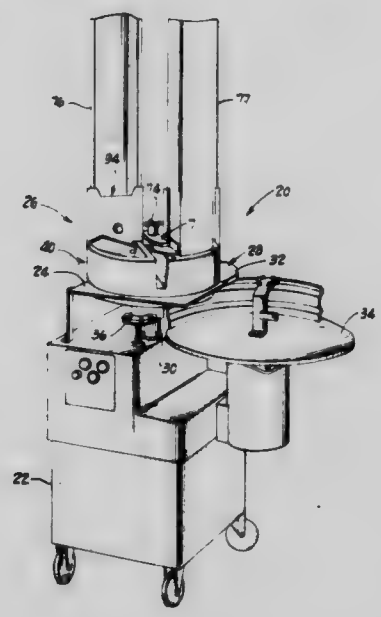
SLICING APPARATUS HAVING ROTARY MAGAZINE

Louis A. Bettcher, Amherst, Ohio, assignor to Bettcher Industries, Inc., Birmingham, Ohio

Filed Jul. 28, 1980, Ser. No. 172,657

Int. Cl.³ B26D 7/01

U.S. Cl. 83—703 13 Claims

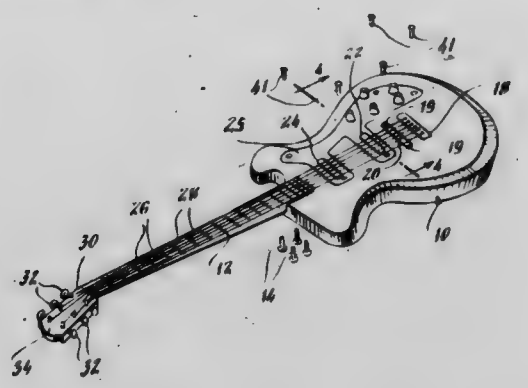


1. A machine for slicing comestible products, comprising a stand, a rotary knife, a product-holding magazine for moving a product past the knife, and means for rotatably supporting and driving the magazine; said magazine including a base member rotatable about a central axis, an opening through the base member for passage of product, a separable product receptacle supported by the base member, aligned with the opening, and means securing the product receptacle to the base member for convenient removal, said securing means including a location pin fixed to one of the base member and receptacle, and a receptacle retainer spaced from the pin, said receptacle pivotably engaging the locating pin and said retainer having parts on both the base member and receptacle interengageable through relative pivoting of the base member and receptacle about the pin.

4,334,452
PLASTIC MUSICAL INSTRUMENT BODY HAVING STRUCTURAL INSERT

White H. Morrison, III, Franklin, Tenn., and Everette L. Vest, High Point, N.C., assignors to Norlin Industries, Inc., White Plains, N.Y.

Filed Jul. 11, 1980, Ser. No. 158,536
Int. Cl.[3] G10D *1/08, 3/00;* G10H *3/18*
U.S. Cl. 84—1.16 19 Claims



1. A solid body for a stringed musical instrument, said body having a predetermined shape including a profile shape, comprising:

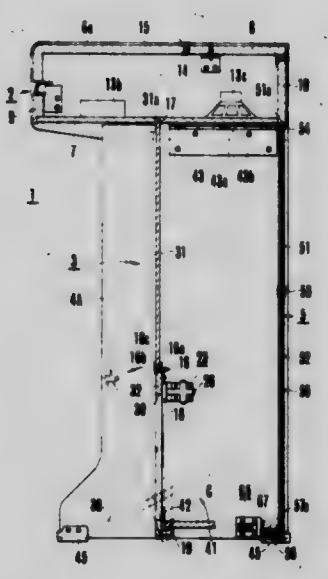
a body molded of a plastic material in the shape of said musical instrument body; and

a structural support member substantially embedded within said plastic body, said member having a profile shape and being dimensioned such that it is generally a reduced scale version of the profile shape of said body.

4,334,453
KEYBOARD MUSICAL INSTRUMENT WITH REMOVABLE BOX LEG

Shinji Kumano, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Feb. 28, 1980, Ser. No. 125,802
Claims priority, application Japan, Mar. 9, 1979, 54/29214[U]
Int. Cl.[3] G10C *3/02*
U.S. Cl. 84—177 12 Claims

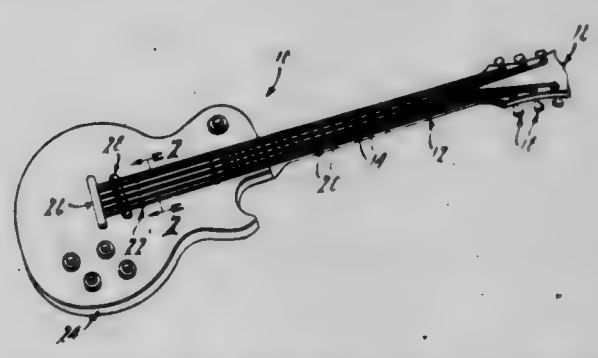


1. A keyboard musical instrument housing designed for easy assembly and disassembly, said housing comprising a main body and a box-shaped leg portion for supporting said main body, said main body including a keyboard portion and an enclosure for housing electronic components to work in combination with said keyboard portion, said leg portion including a pair of laterally spaced parallel side boards for supporting said main body, mutually spaced front and back boards bridging said side boards and being arranged in laterally spaced parallel fashion and connecting means mounted at respective corners created between said boards constituting said leg portion, said connecting means including hinges for connecting said side boards to said main body so that said side boards are adapted to be folded in parallel with the underside of the main body, and spring biased locking means for connecting said front and back boards to said side boards, the front and back boards being detachably fixed to the main body and the side boards in cooperation with said spring biased locking means.

4,334,454
GUITAR BRIDGE

Rendal Wall, Parchment, Mich., assignor to Norlin Industries, Inc., White Plains, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,714
Int. Cl.[3] G10D *3/04*
U.S. Cl. 84—299 20 Claims



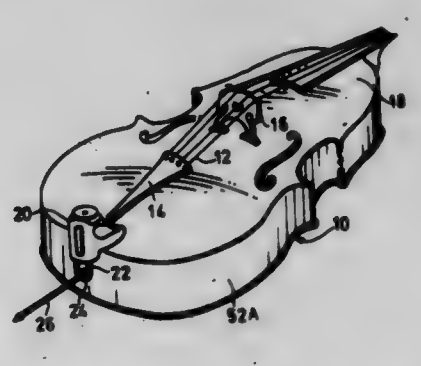
1. An improved guitar bridge adapted to extend laterally under the longitudinally extending strings of a guitar for the support thereof, said bridge having a plurality of longitudinally spaced mounting apertures on opposite ends thereof for effecting primary control of the fundamental frequency of said guitar strings, said bridge also having a plurality of individual secondary control means for adjusting the frequency of each of said guitar strings, whereby said longitudinally spaced mounting apertures provide a plurality of ranges over which said secondary control means may be used for said adjusting of the frequency of each of said guitar strings.

12. An improved guitar bridge adapted to extend laterally under the longitudinally extending strings of a guitar for the support thereof, said bridge having a plurality of string saddle seats, a plurality of longitudinally movable string saddles in said seats, screw means associated with each of said string saddles adjustable to effect locking of said saddles in said seats, and an insert associated with each of said string saddles to permit positioning of the associated string at more than one height.

4,334,455
TONE IMPROVING DEVICE FOR A STRINGED MUSICAL INSTRUMENT

Jonathan Beecher, 95 Old Rd., Headington, Oxford, England

Filed Jul. 7, 1980, Ser. No. 166,375
Int. Cl.[3] G10D *3/12*
U.S. Cl. 84—302 7 Claims



1. A tone improving device for a stringed musical instrument of the type in which the strings extend over a bridge resting on the table of the instrument and are secured to a tailpiece, comprising adjustable means adapted to modify the angle between

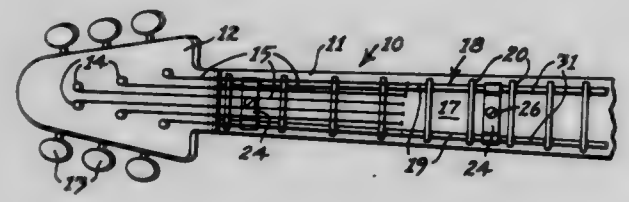
the table of the instrument and the part of the strings extending from the bridge to the tailpiece thereby to control the force exerted by the bridge on the table of the instrument due to the tension in the strings without substantially varying the tension in the strings, wherein the angle modifying means comprises spacer means adapted to engage with the edge of the table adjacent to the tailpiece and to support the tailgut attached to the tailpiece of the instrument at a distance above the table which may be varied in accordance with the force required to be exerted by the bridge on the table.

4,334,456

GUITAR NECK FRET ASSEMBLY

James O. Martin, 249 Ridgewood Rd., Goodlettsville, Tenn. 37072; Rex D. Fathergill, Rte. 6, Frankfort, Ky. 40601, and David L. Krimm, 286 Tangley Way, Lexington, Ky. 40503

Continuation-in-part of Ser. No. 944,927, Sep. 22, 1978, Pat. No. 4,189,974. This application Dec. 10, 1979, Ser. No. 102,371
The portion of the term of this patent subsequent to Feb. 26, 1997, has been disclaimed.
Int. Cl.[3] G10D *3/06*
U.S. Cl. 84—314 R 7 Claims



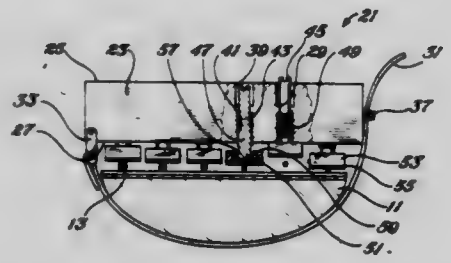
1. A fret assembly for a stringed musical instrument including an elongated neck body having a top surface, comprising:
(a) a pair of elongated, substantially parallel, support rods,
(b) a plurality of elongated fret members fixed transversely parallel to each other and longitudinally spaced on, and raised from one longitudinal surface of, said support rods,
(c) clamp means for mounting said support rods longitudinally on the top surface of the elongated neck body of a stringed musical instrument to support said fret members transversely of said neck body and at least partially raised above said support rods and said top surface, but beneath the strings of said stringed musical instrument.

4,334,457

CAPO

Paul R. A. Spoonts, III, 5948 Callston La. No. 2030, Fort Worth, Tex. 76112

Filed Jun. 26, 1981, Ser. No. 277,705
Int. Cl.[3] G10D *3/04*
U.S. Cl. 84—318 7 Claims



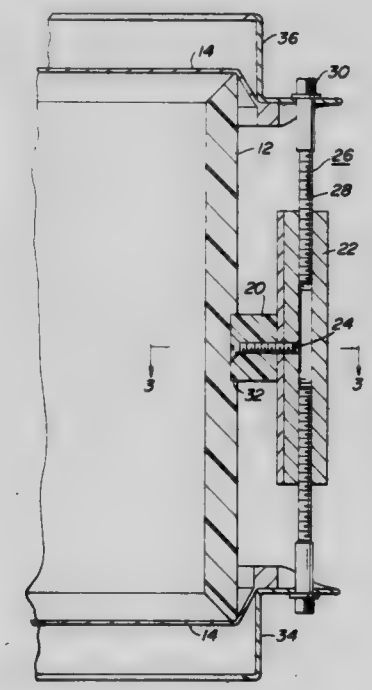
1. A capo for a musical instrument of the type having a neck and strings, comprising:
a pressure bar having an upper and lower surface and being adapted to extend across said neck;
mounting means for removably attaching said pressure bar on said neck;
an adjusting screw for each string extending through said pressure bar, each of said adjusting screws having an adjusting head accessible from said pressure bar upper surface and a lower end, the lower ends being located in a single line transverse to the lengths of the strings;
a pad mounted on each of said adjusting screw lower ends, each of said pads being adapted to contact a select one of said strings; and
indexing means for indexing said adjusting screws individually upward and downward with respect to the pressure bar to position each adjusting screw for depressing each string against the neck.

4,334,458

SUSPENSION BAND DRUM

Robert N. Grauso, R.D. 1, Mountain Ave., Pen Argyl, Pa. 18072

Filed Feb. 20, 1981, Ser. No. 236,393
Int. Cl.[3] G10D *13/02*
U.S. Cl. 84—411 R 13 Claims



1. A musical drum which comprises:
(a) a body shell having an open end at top and bottom and having inner and outer circumferential surfaces, said shell having a slotted channel on the outer circumferential surface of said shell,
(b) heads disposed over said open ends of said shell,
(c) hoops disposed circumferentially around said heads,
(d) a spacer ring of a rigid, flexible material disposed within said slotted channel,
(e) a suspension band having an inner and outer circumferential surface, said band encircling said spacer ring, said suspension band comprising clamping means positioned on the outer circumferential surface of said suspension band attaching said hoops to said suspension band so as to tautly maintain said heads on said shell without requiring any piercing of said shell.

4,334,459

MECHANICALLY CONTROLLED VACUUM BOOSTER

Peter Riedel, Hattersheim, and Lucas H. Haar, Niddatal, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

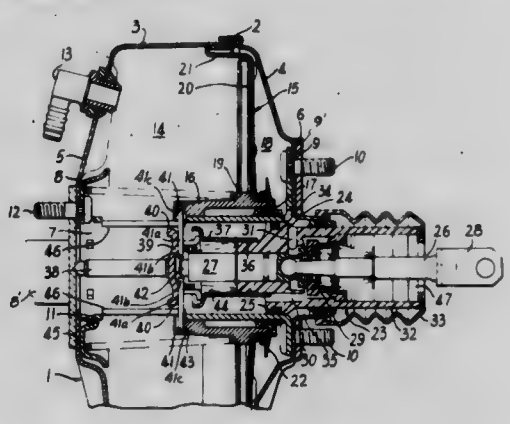
Filed Apr. 24, 1980, Ser. No. 143,384
Claims priority, application Fed. Rep. of Germany, May 10, 1979, 2918909
Int. Cl.[3] F15B *9/10;* F16J *3/02*
U.S. Cl. 91—369 B 11 Claims

1. A mechanically controlled vacuum booster comprising:
a low pressure housing having a longitudinal axis, one end wall for mounting said booster to a support wall and the other end wall for mounting a force receiving device to said booster;
a tube disposed in said pressure housing coaxial of said axis

interconnecting both said end walls of said pressure housing, said tube having longitudinal slots therein adjacent said other end wall;

a movable wall disposed in said pressure housing coaxial of said axis slidably sealed to the outer surface of said tube and dividing said pressure housing into a working chamber and a vacuum chamber, said moveable wall acting, via connecting members projecting through said slots, on a pressure bar disposed in the interior of said tube extending to said force receiving device;

a control housing disposed coaxial of said axis in a slidably sealed relationship with the interior surface of said tube, said control housing containing therein a pressure controlling valve operable by a control bar normally spaced from said pressure bar and in an operative relation with said connecting members; and



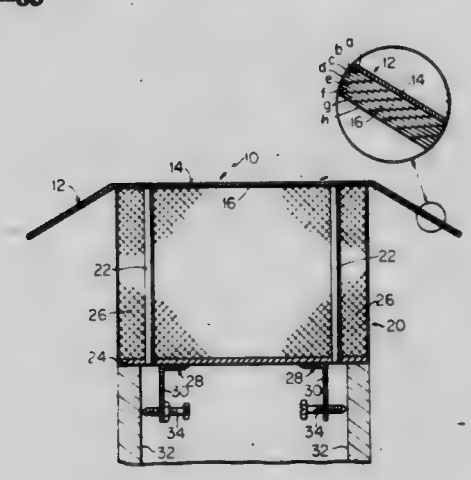
said connecting members being only reaction levers having one surface facing said one end wall of said pressure housing and the other surface facing said other end wall of said pressure housing, the radially outer end of said one surface of said levers abutting said moveable wall, the radially inner end of said one surface of said levers abutting said control bar and the intermediate area of said other surface of said levers between the inner and outer ends thereof abutting said pressure bar said movable wall including a sliding casing guided on the outer surface of said tube extending parallel to said axis toward said other and wall of said pressure housing, said sliding casing having an end thereon facing said other end wall of said pressure housing, and said radially outer end of said one surface of said levers abut said end of said sliding casing.

4,334,460

CAP FOR A CHIMNEY

John J. Simmons, Cleveland, and Douglas W. Hutson, Englewood, both of Tenn., assignors to Giles Arthur Ellis, Cleveland, Tenn., a part interest

Filed Jun. 3, 1980, Ser. No. 156,126
Int. Cl.³ F23L *17/02*
U.S. Cl. 98—83 **1 Claim**



1. A cap for a chimney comprising:

a heat resistant cover having a topside and an underside extending across the chimney in superposed and spaced relation thereto;

a support means attached to the underside of the cover for supporting the cover in superposed and predetermined spaced relation above the chimney;

a plurality of adjustable detachable mounting means attached to the support means for detachably mounting the cover to the chimney, said mounting means being adjustable to accommodate the opening in the chimney, the cover comprising heat resistant layers, from the topside to the underside:

(a) a gelatinous heat resistant layer,

(b) a heat resistant polyester resin containing antimony trioxide,

(c) a fiberglass reinforced mat,

(d) a heat resistant polyester resin containing antimony trioxide,

(e) a fiberglass reinforced mat,

(f) a heat resistant polyester resin containing antimony trioxide,

(g) a ceramic fiber, and

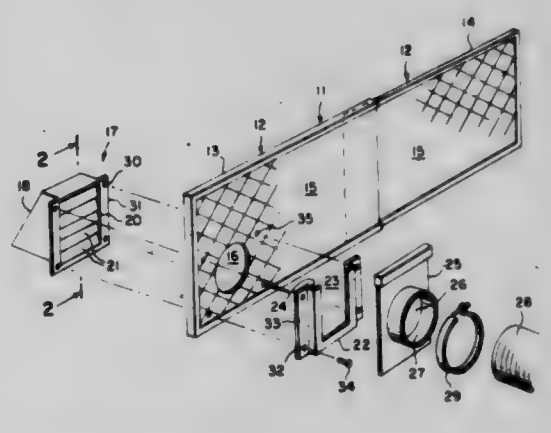
(h) a heat resistant polyester resin containing antimony trioxide.

4,334,461

PORTABLE WINDOW DRYER VENT

Arthur Ferguson, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Nov. 15, 1979, Ser. No. 94,449
Int. Cl.³ F24F *13/18*
U.S. Cl. 98—119 **2 Claims**



1. A portable window dryer vent unit comprising a window insert assembly adapted for removable insertion in a window opening, said assembly comprising a screen with a bracket mounted on the inner side of said screen and an exterior exhaust vent mounted on the outer side of said screen in alignment with said bracket, said vent and bracket including means extending through said screen securing said bracket and vent on said screen, including an opening through said screen aligned with an opening through said bracket and the inlet to said vent in further combination with a plate removably mounted on said bracket having a flange surrounding an outlet through said plate aligned with said opening through said screen, in further combination with means for mounting a hose on said flange.

4,334,462

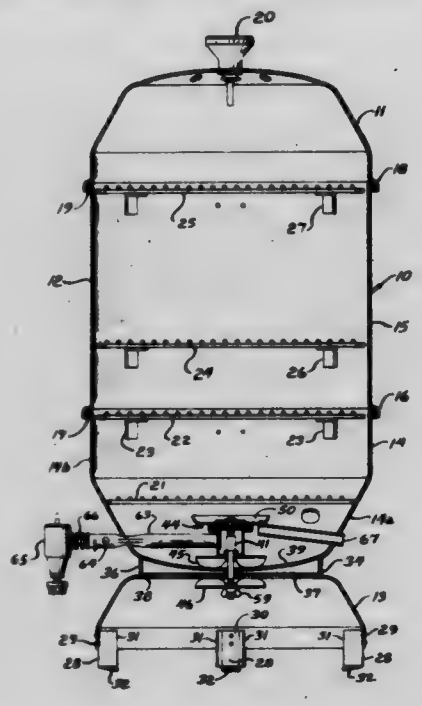
GAS-FIRED COOKING APPARATUS

Dennis V. Hefling, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.

Filed Nov. 13, 1980, Ser. No. 208,829
Int. Cl.³ A47J *37/06*
U.S. Cl. 99—385 **7 Claims**

1. A cooking apparatus comprising a base having an upper surface, a cooking container above the base, the cooking con-

tainer having a lower surface, support means between the cooking container and the base for supporting the cooking container above the base, each of the upper surface of the base and the lower surface of the cooking container being provided with a central air opening, a first spring plate below the central opening in the upper surface of the base, a second spring plate above the central opening in the lower surface of the cooking container, said first spring plate being compressible and resilient and being provided with at least one air passage for permitting air to flow from the base through the central opening in the upper surface of the base, said second spring plate being compressible and resilient and being provided with at least one air passage for permitting air to flow from the central opening in the lower surface of the cooking container to the cooking container, and connecting means extending through the central openings for urging said spring plates together whereby said base and said cooking container are held against said support means to form an assembly.

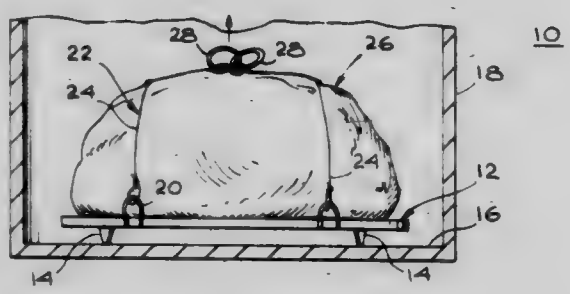


4,334,463

FOOD COOKING AND LIFTING DEVICE

Elizabeth L. Goldie, 734 E. Stepney St., Inglewood, Calif. 90302

Filed Nov. 28, 1980, Ser. No. 211,077
Int. Cl.[3] A47J *43/18*
U.S. Cl. 99—426 7 Claims



1. An improved food cooking and handling device, said device comprising, in combination:

(a) a perforated food rack having a plurality of depending legs secured thereto for support of said rack in a cooking container above the bottom thereof; and

(b) securing means including

(i) a plurality of strings adapted to releasably tie a bulky item of food in place on said rack for cooking in said cooking container and to facilitate lifting of said food from said container while tied to said rack and transferring it to another location, the lower ends of said strings being connected to said rack, and

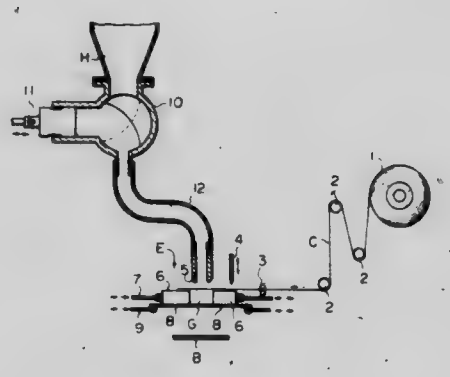
(ii) means securing the upper ends of said strings together to support and hold said bulky item of food in place on said rack.

4,334,464

APPARATUS FOR ENCRUSTING JAM

Tatsuo Shinriki, Chiba, Japan, assignor to Height Inc., Matsudo, Japan

Filed Jan. 13, 1981, Ser. No. 224,833
Claims priority, application Japan, Jan. 16, 1980, 55-3197
Int. Cl.[3] A21C *9/00*
U.S. Cl. 99—450.6 4 Claims



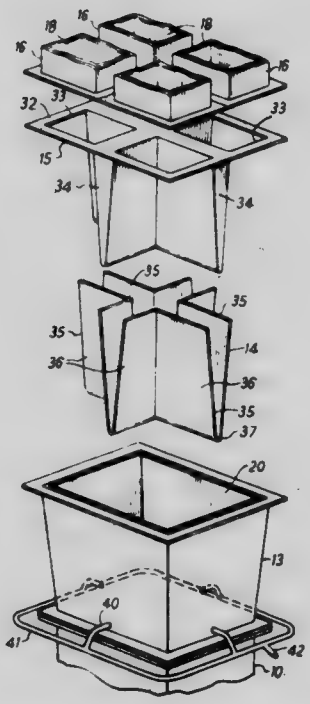
1. An apparatus for covering jam or the like characterized by being composed of a jam ball supply section for delivering a series of jam balls or the like each in a predetermined amount on a conveyer belt, a wafer-film supply section for supplying a series of wafer-films each in a predetermined dimension beneath said jam balls, a rolled dough skin supply section for conveying and putting rolled dough skins on said jam balls on said conveyer belt, and encrusting means including a clamp mechanism for puckering skirt portions so that each of said jam balls or the like primitively stuck with said wafer-film is then encrusted in each of said rolled dough skin.

4,334,465

METHOD AND APPARATUS FOR PROCESSING AND PACKAGING CHEESE

Ian P. Brockwell, Wyckoff, N.J., and Karl J. G. Martensson, Lund, Sweden, assignors to Alfa-Laval Cheddar Systems Limited, Yeovil, England

Filed Jul. 8, 1980, Ser. No. 166,833
Claims priority, application Australia, Jul. 26, 1979, PD9739
Int. Cl.[3] A01J *25/11;* A23C *19/02*
U.S. Cl. 99—454 7 Claims



1. Apparatus for forming large blocks of cheese from pre-

pared cheese curd for packaging and maturing, comprising an upright hollow trunk of rectangular cross section, said trunk having internal transverse dimensions substantially equal to that of the desired blocks of cheese, a tubular frusto-conical casing of rectangular cross section mounted in an inverted position on said trunk, a partition of cruciform shape mounted inside the frusto-conical casing, four upright tubular casings of rectangular cross-section mounted on the frusto-conical casing, a perforated lining on the inside walls of each of the upright casings, said linings forming four hollow columns and said partition sub-dividing the interior of the frusto-conical casing into four ducts connecting the interiors of the columns with the interior of said trunk, means for feeding prepared cheese curd into said columns so as to fill the trunk with a mass of curd and at least partly fill the columns with curd supported on the mass of curd in the trunk, vacuum means for maintaining the interiors of the columns at a sub-atmospheric pressure during feeding of the curd therein whereby some of the moisture in the curd is "flashed off" together with air entering with the curd, said linings co-operating with their casings to form drainage passages therebetween for whey expressed from the curd in the lower end portions of the columns due to the weight of curd superimposed thereon, means for lowering the mass of curd in the trunk so that the curd in the lower end portions of the columns flows into the trunk and fuses with the curd therein to form a pillar of curd, and means for severing the lower end of said pillar of curd to form a block of cheese.

4,334,466

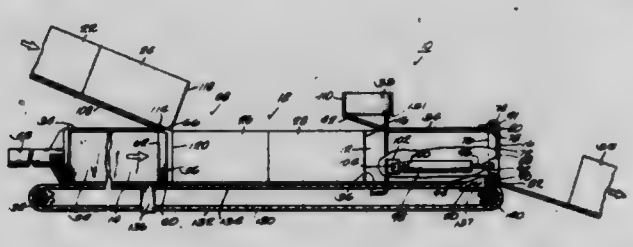
HIGH PRESSURE HAY REBALER

Delvin A. Spiegelberg, Box 46, Rte. 2, Hortonville, Wis. 54944

Filed Sep. 2, 1980, Ser. No. 183,602

Int. Cl.³ B65B *13/20*

U.S. Cl. 100—4 **9 Claims**



1. A rebaling press adapted to produce a highly compressed bale of fibrous material from slightly compressed bales of fibrous material, comprising:

a. a longitudinally extending compression chamber having substantially rigid top, bottom, and side lateral walls, an upstream end wall comprising a ram longitudinally movable between upstream and downstream extremes of movement, and a downstream end wall comprising an exit gate, said compression chamber having an upstream portion, an intermediate portion, a downstream portion, and a downstream direction of flow;

b. feed means adapted to feed slightly compressed bales of fibrous material to said upstream portion of said compression chamber, comprising:

i. a feed opening in the top wall of said compression chamber sized to accomodate a predetermined number of said slightly compressed bales and having an upstream end nearly adjacent the upstream extreme of movement of said ram and a downstream end upstream of the downstream extreme of movement of said ram;

ii. a generally horizontal measuring platform within said compression chamber attached to the top of said ram, disposed generally upstream thereof, and positioned to substantially cover said feed opening when said ram is at its downstream extreme of movement and to substantially uncover said feed opening when said ram is at its upstream extreme of movement; and

iii. means to continuously supply said slightly compressed bales via said feed opening onto said measuring platform responsive to downstream movement of the measuring platform;

c. means to reciprocate said ram between its upstream and downstream extremes of movement, whereby to alternately load said compression chamber with a pre-determined number of slightly compressed bales and to compress said pre-determined number of slightly compressed bales to form a single highly compressed bale;

d. binding means adapted to prevent said highly compressed bale from re-expanding substantially;

e. means to open and close said exit gate; and

f. ejection means to eject said highly compressed bale from said rebaling press.

4,334,467

ROTARY BALER WITH SIDE PRESSURE RELEASE

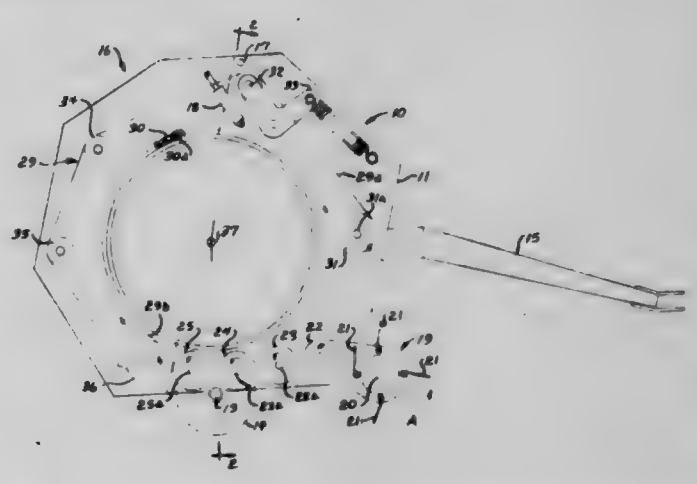
Kazuteru Nishibe, Sapporo, and Naoji Furukawa, Hokkaido, both of Japan, assignors to Farmhand Inc., Grinnell, Iowa

Filed Jun. 16, 1980, Ser. No. 159,818

Claims priority, application Japan, Jun. 22, 1979, 54-86299

Int. Cl.³ B30B *5/04*

U.S. Cl. 100—89 **7 Claims**



1. In a baling apparatus of the type which includes a wheeled frame adapted to span a windrow of hay and be moved forwardly therealong, two opposed plates mounted at the sides of said frame to define the sides of a baling chamber and confine the ends of a forming bale, means in said chamber for forming the windrow into a spiral bale as the apparatus is moved forwardly, said means including endless means which has a lower bale rolling run that may contact hay in the chamber and roll it forwardly, and means for releasing a finished bale for discharge from said chamber, the improvement comprising:

guide means mounted on the frame;

a boss to which the central part of one of said plates is affixed, said boss being mounted for lateral movement in said guide means;

and a hydraulic cylinder unit mounted on the frame with a piston rod operatively connected to the boss to move said one of said plates laterally outwardly from a normal position to reduce confining force on the ends of the bale at the time of bale discharge, and to return said one of said plates to normal position after a bale is discharged.

4,334,468

DOUBLE BELT PRESS

Manfred Güttinger, Stuttgart, and Konrad Schermutzki, Remseck, both of Fed. Rep. of Germany, assignors to Sandvik Conveyor GmbH, Fellbach, Fed. Rep. of Germany

Filed Apr. 24, 1980, Ser. No. 143,518

Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922151

Int. Cl.³ B30B *5/06*

U.S. Cl. 100—93 RP **6 Claims**

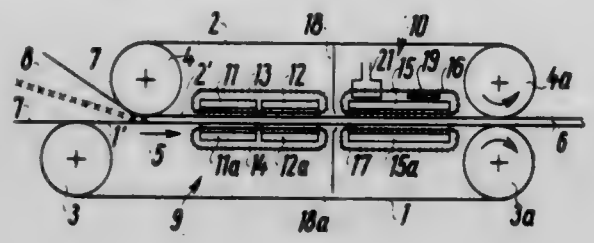
1. A double belt press comprising:

a pair of endless steel belts revolving in opposite directions

with mutually facing sides thereof forming a nip through which material is to be passed,

a plurality of treating assemblies spaced along said nip for pressing said belts together and controlling the temperature of said belts, each of said assemblies comprising:

a pair of temperature-controlled stationary press plates disposed within respective ones of said belts for pressing such belts against material passing through the nip, said press plates including means for controlling the temperature thereof, and



a pair of revolving chains traveling around respective ones of said press plates, each chain defining a working side disposed in said nip and a return side, each chain including a plurality of rotating rolls which travel between and in contact with said press plate and said belt to transmit pressing forces and thermal energy from the former to the latter,

one of said treating assemblies including heat transfer means arranged to act upon said rolls along said return side and adjacent the entry to said nip for controlling the temperature of said rolls.

4,334,469

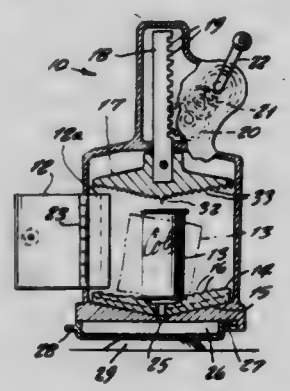
CAN CRUSHER

Douglas Tanner, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed May 30, 1980, Ser. No. 154,902

Int. Cl.³ B30B *9/04, 9/32*

U.S. Cl. 100—110 **5 Claims**



1. A can crusher, comprising in combination, a hollow housing, a side door on said housing, a conical base inside said housing and upon which a tin can may be rested, and a vertically movable pressure plate correspondingly conical mounted in said housing and movable from an upper position above said door to a lower position below said door including means for moving said plate located above said plate, in further combination with a door hinge located between opposite vertical edges of said door providing an inwardly disposed door portion which functions as a stop for said plate when the door is opened, said base having stepped surfaces with drainage holes therethrough.

4,334,470

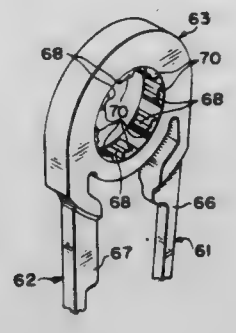
PRINT HEAD WITH ENDLESS BANDS AND SPACER

Paul H. Hamisch, Jr., Franklin, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Continuation-in-part of Ser. No. 801,886, May 31, 1977, abandoned. This application Jun. 13, 1980, Ser. No. 159,021

Int. Cl.³ B41J *1/20*

U.S. Cl. 101—111 **14 Claims**



1. A print head, comprising: two spaced sets of axially aligned and rotatably mounted drive wheels, each drive wheel having a central hole, a series of teeth disposed at the inner periphery of the central hole of each wheel, a support having means providing a supporting surface, two spaced sets of printing bands received under tension about the supporting surface and the respective drive wheels of each set, each print band having a series of printing elements, means for detenting the printing bands so that the printing elements are registerable with a printing zone, a stationary non-printing spacer disposed between the sets of wheels, the spacer including an annular portion having a hole, a series of teeth disposed at the inner periphery of the spacer hole, the central holes and the spacer hole being axially aligned to provide an axially extending opening, the drive wheel teeth and the spacer teeth being aligned when the drive wheels are detented, the support being effective to support a printing element of each printing band at a printing zone, a rotatable and shiftable selector movable axially in the opening, the selector having teeth cooperable with the teeth of any drive wheel to rotate the selected drive wheel to advance the respective printing band, the teeth on the spacer being cooperable with the teeth of the selector to provide smooth transition of the selector from cooperation with the drive wheel teeth of one set to the drive wheel teeth of the adjacent set, the spacer further including a pair of depending spacer members joined to the annular portion, straddling the support and extending between adjacent sets of printing bands, each spacer member having a free end portion, the spacer being of one-piece molded plastics construction, the free end portions extending close to but terminating short of the supporting face, the spacer members being flexible and resilient, the spacing between the free end portions before assembly with the support being less than the thickness of the support so that when assembled the spacer members are spread slightly to resilient hold the spacer to the support.

4,334,471

REFERENCE PRINTING ON MOVING SURFACE

Mark S. Noyes, Keene, and Andrew G. Perra, Jr., North Swanzey, both of N.H., assignors to Markem Corporation, Keene, N.H.

Filed Aug. 18, 1980, Ser. No. 179,237

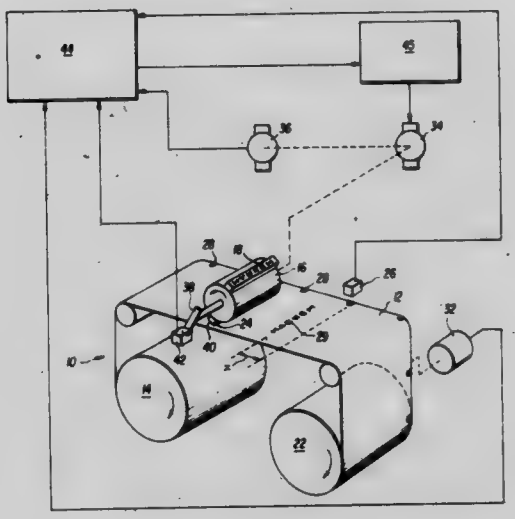
Int. Cl.³ B41F *13/02*

U.S. Cl. 101—228 **12 Claims**

1. A printing system for use in printing indicia on a moving web having a series of evenly spaced web marks for controlling the spacing between the indicia printed on the web, said web moving from a position upstream of a printing position, to the printing position where the indicia are formed, and to a position downstream from the printing position, comprising:

(a) a rotary print head having at least one printing element disposed thereon for printing the indicia on the moving web;

(b) means for rotating the print head at a velocity substantially equal to the velocity of the moving web to form the indicia on the moving web when the printing elements contact the moving web at the printing position;
(c) means for detecting each web mark to produce a web signal in response to the movement of each web mark past a detection position;
(d) means for generating a START signal after the closest downstream web mark has moved a predetermined percentage of the distance between adjacent web marks from the printing position;
(e) means for detecting when each printing element rotates



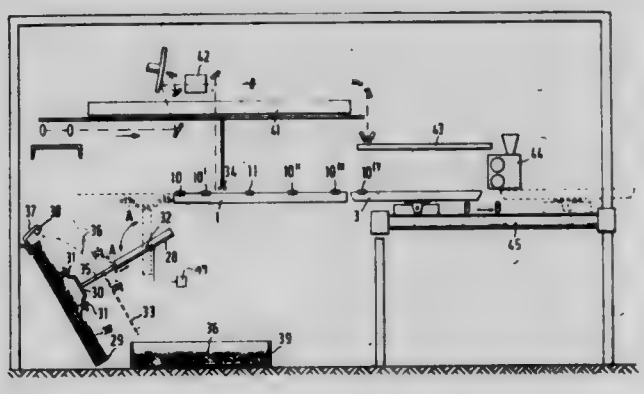
to a predetermined rest position at which the printing element is not in contact with the web, and for producing a STOP signal in response to the detection of said rest position;
(f) means for activating the means for rotating in response to the START signal to cause the leading edge of the indicia to be printed on the web at the printing position when the printing position is separated from the closest downstream web mark by a distance which is equal to the predetermined percentage of the distance between adjacent web marks; and
(g) means for stopping the means for rotating in response to the STOP signal.

4,334,472

MECHANISM FOR FEEDING AND TRANSPORTING PRINTING PLATES

Günter Back, Diedenbergen, and Klaus-Peter Schön, Wiesbaden, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 2, 1981, Ser. No. 250,126
Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012761
Int. Cl.³ B41B *15/32*
U.S. Cl. 101—382 MV **18 Claims**



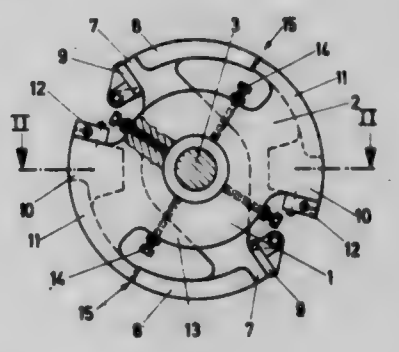
1. A mechanism for feeding printing plates to an exposure table, which exposure table includes a suction plate for holding a printing plate in place, the printing plates being fed to the exposure table in a transport direction, each printing plate having a forward part which approaches the exposure table first during feeding of the printing table in the transport direction, each printing plate having a pair of lateral edges, the mechanism comprising:
a plurality of transport rollers;
a plurality of drive rollers, said transport and drive rollers cooperating with each other;
said transport and drive rollers being mutually so arranged as to include two rows of rollers with a space between each row, each row including a plurality of transport rollers and at least one drive roller, said rollers being arranged so as to be in generally parallel relationship with the lateral edges of a printing plate which may be disposed in said space between said rows, said rows extending in the transport direction, each row including a transport roller which is the first roller relative to the transport direction in such row, whereby said two rows together include two first rollers; and
means for effecting swiveling movement of said two first rollers in an outward direction relative to said space between said rows to enable the forward part of each printing plate to be deposited on the suction plate of the exposure table without damage.

4,334,473

STORAGE CYLINDER

Willi Becker, and Arno Wirz, both of Bammental, Fed. Rep. of Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Fed. Rep. of Germany

Division of Ser. No. 46,058, Jun. 6, 1979, Pat. No. 4,303,014.
This application Apr. 16, 1981, Ser. No. 254,592
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2824733
Int. Cl.³ B41F *1/30*
U.S. Cl. 101—409 **4 Claims**

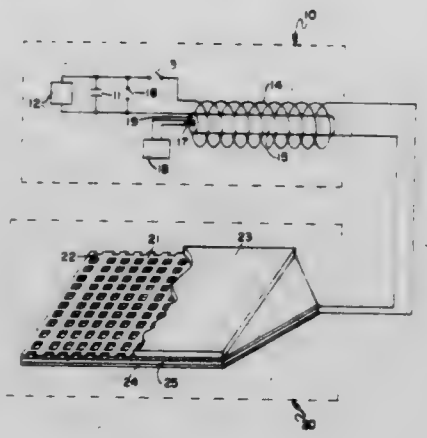


1. In a transfer cylinder for perfector printing machines having two diametrically opposed sheet-supporting surfaces formed from two groups, respectively, of sheet supports engaging comb-like one within the other, one of the two sheet-supporting groups of one sheet-supporting surface having a device for gripping the leading edge of a sheet, and both of the sheet-supporting groups forming one sheet-supporting surface being adjustable relative to one another about the rotary shaft of the transfer cylinder, each of said sheet supports of a respective sheet-supporting surface being firmly connected to a diametrically opposing sheet support of the other sheet-supporting surface and being disposed on the shaft of the transfer cylinder, the improvement therein comprising means for mounting together at least a plurality of the diametrically opposing, mutually firmly connected sheet supports so as to be radially adjustable.

4,334,474
WARHEAD INITIATION SYSTEM

David R. Coltharp, Vicksburg, Miss., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 21, 1976, Ser. No. 690,208
Int. Cl.[3] F42C 11/00
U.S. Cl. 102—206 4 Claims



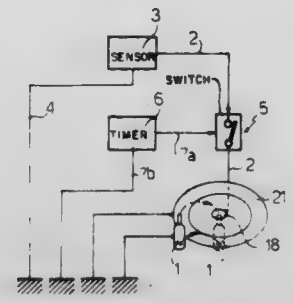
1. A warhead initiation system comprising:
an explosive filled warhead casing;
a copper mesh initiator embedded within said explosive filled casing formed of a chemically etched copper foil wherein there are formed bridgewires and a secondary explosive which coats said foil and is detonated thereby; and
a helical magnetic fluxtrapper power supply electrically connected to said copper mesh initiator for exploding said copper mesh initiator and thereby detonating the explosive within the warhead casing; said helical magnetic fluxtrapper power supply comprising:
a capacitor;
a first power supply for charging said capacitor;
a magnetic fluxtrapper including:
a detonator;
an explosive;
a hollow metal rod filled with said explosive and containing said detonator and said rod is connected to said copper mesh initiator; and
a coil of wire surrounding said rod and connected to said copper mesh initiator;
a first switch connected between said capacitor and said coil, which when closed, allows current from said capacitor to flow through said coil, said copper mesh initiator and said metal rod;
a second switch, which when closed, shorts out said capacitor; and
a second power supply which fires said fluxtrapper detonator at the time said second switch is closed, whereupon the fluxtrapper explosive is detonated and said hollow rod expands to short out said coil.

4,334,475
PROXIMITY FUSES

Enrico Turchi, Milan, Italy, assignor to Fratelli Borletti S.p.A., Milan, Italy

Filed Feb. 7, 1980, Ser. No. 119,443
Int. Cl.[3] F42C 15/40
U.S. Cl. 102—206 5 Claims

1. A fuse provided with a detonator which is ignited by an electrical ignition signal, said detonator having a first terminal normally connected to earth and being supported by a rotatable member which can move said detonator from a first position in which it is substantially non-aligned with the first element of a pyrotechnic chain, and is therefore unable to transmit ignition to the chain, to a second position in which it is aligned with said first element and in which a second terminal of the detonator is in contact with a contact element at which said ignition signal arrives, said rotatable member being rotated by the centrifugal and inertia forces acting on the fuse and being controlled by a delay device arranged to allow said member to rotate in a predetermined time, wherein



during at least part of the rotation of said rotatable member, said second terminal of the detonator is maintained in electrical contact with said earth so as to make said detonator electrically inactive during said part of the rotation.

4,334,476
PRIMER CUP

John T. Day, Sandy, and Lex L. Udy, Holladay, both of Utah, assignors to Mining Services International Corporation, Salt Lake City, Utah

Filed Jul. 2, 1980, Ser. No. 165,431
Int. Cl.[3] C06C 5/04
U.S. Cl. 102—275.7 32 Claims



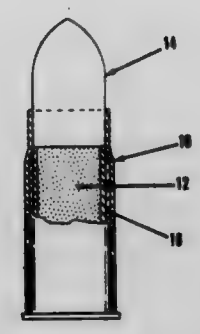
1. A primer cup for containing explosives comprising:
a cylindrical container;
a sealable top member which is initially removable to permit introduction of said explosives into said container;
a first conduit having thin wall construction extending through said container between the ends thereof with apertures at each end for providing a passage therethrough;
means attached to said first conduit for providing structural support thereto;
a second conduit having thin wall construction extending into said container from one end only, with an end piece capping its internal end and with an aperture at its mouth end, said second conduit providing a chamber for the positioning and retaining of blasting caps adjacent to said container contents;
means for sealing said sealable top member to said cylindrical container, said sealing means comprising:
a first downwardly extending flange positioned upon and completely around the outer circumference of said sealable top member;
a second downwardly extending flange positioned upon said top member so as to be interior from and parallel to said first downwardly extending flange with the adjacent edges of said first and second flanges forming a first groove therebetween;
a stepped top edge which extends around the entire top of said container, so as to conformably attach to said first groove in a nesting relationship.

4,334,477

WEAR REDUCER

Sydney Axelrod, 66 W. 94th St., New York, N.Y. 10025; Walter Brenner, 974 Columbus Dr., Teaneck, N.J. 07666, and Barry A. Rugg, 380 Riverside Dr., New York, N.Y. 10025

Filed Apr. 21, 1980, Ser. No. 142,196
Int. Cl.[3] F42B 5/02, 9/02
U.S. Cl. 102—435 6 Claims



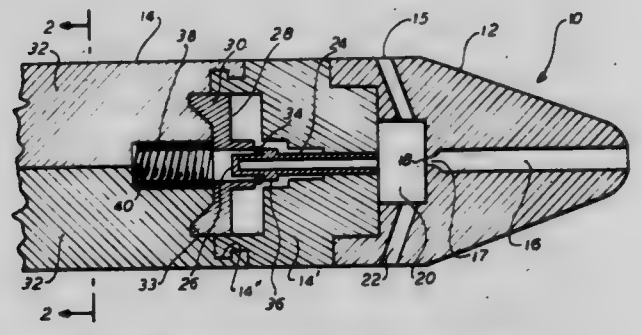
1. A propellant charge for ammunition having a propellant and an additive for reducing gun member thermal erosion upon ignition of said propellant, said additive comprising a sheet of highly water absorbent starch-acrylonitrile copolymer which has been subjected to alkaline saponification and a major amount of absorbed water disposed around said propellant and adapted to produce a relatively cool laminar layer of gas on adjacent gun members upon ignition of said propellant.

4,334,478

FLUIDIC RANGE-SAFE DEVICE

Michael J. Goes, Mine Hill; John R. Masly, Landing, and Albertus E. Schmidlin, Caldwell, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 3, 1980, Ser. No. 126,802
Int. Cl.[3] F42B 9/20
U.S. Cl. 102—529 3 Claims



1. Fluidic range safe device which comprises;

a projectile having a leading nose portion and a generally cylindrical body portion located therebehind, said body portion including;

at least two complementary longitudinal segments adjacently disposed to form a cylindrically shaped body assembly, said body assembly having a plurality of cylindrical recesses axially located therein and a tongue-in-groove end;

a cylindrical forward body portion operatively disposed intermediate said longitudinal segments and said nose portion, said forward body portion snapfittably engaging said tongue-in-groove end of said longitudinal segments and to said nose portion;

means for thermally inducing disintegration of said body portion of said projectile further comprising;

a nozzle element axially disposed in said nose portion, said nozzle element tapering to a reduced diameter orifice;

an air vent assembly communicating with said orifice, said air vent assembly comprising an air collection chamber and air escape channels radiating therefrom;

temperature responsive fragmentation means located in said body portion in fluid registry with said air vent assembly, said fragmentation means adapted to respond to elevated temperature to cause said body portion to disintegrate which includes;

temperature transmitter means disposed within said body, said temperature transmitter adapted to absorb and transmit thermal energy, said transmitter means includes a temperature absorptive tube having an open end communicating with said air collection chamber, and an opposed closed end; and

fragmentation promoter means, disposed in registry with said closed end of said temperature absorptive tube, for overcoming the cohesive forces maintaining the integrity of said body portion, said promoter means includes;

retainer means for releaseably holding said longitudinal segments and said forward body portions together during projectile launch and flight, and for mechanically an non-explosively- allowing said longitudinal segments to separate from said forward body portion after said projectile has traveled a specified distance down range,

release means for biasedly urging said retainer means to maintain said longitudinal segments in engagement with said forward body portion during flight, and for releasing said longitudinal segments from said forward body portion after said projectile has traveled said specified distance; and

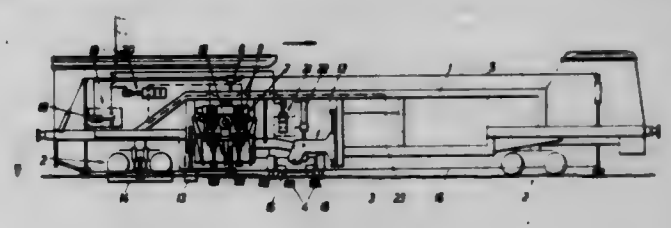
restraining means comprising a thermal responsive collapsive-element operatively coupled to said retainer means for preventing said release means from acting against said retainer means to cause unlocking of said longitudinal segments from said forward body portion prior to said restraining means reaching said elevated temperature.

4,334,479

METHOD AND APPARATUS FOR OBTAINING A CONTROLLED DEGREE OF BALLAST COMPACTION IN THE TAMPING AND LEVELING OF A TRUCK

Josef Theurer, Vienna, Austria, assignor to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Division of Ser. No. 438,264, Jan. 31, 1974, Pat. No. 3,910,195.
This application Mar. 6, 1975, Ser. No. 556,177
Claims priority, application Austria, Apr. 26, 1973, 3742
Int. Cl.[3] E01B 27/17, 33/02
U.S. Cl. 104—12 17 Claims



1. A method of obtaining a controlled degree of ballast compaction in the tamping and levelling of a track consisting of rails mounted on ties having two elongated edges extending transversely of the rails and two ends extending in the direction of the rails, the rails and ties intersecting at points spaced in the direction of elongation of the track and the ties resting on ballast, the tract being lifted to a leveled position in relation to a reference system and ballast being tamped under the ties independently of the lifting, comprising the steps of

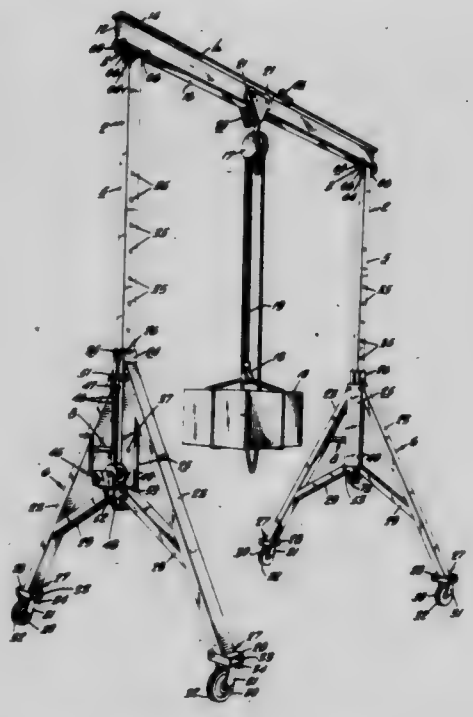
(1) compacting the ballast under the points of the intersection by vibratory pressure exerted upon the ballast under the ties inwardly from the two longitudinal tie edges and from the tie ends whereby the progressively more compacted ballast raised the track, and

(2) holding the track in the region of tamping locked against upward movement in the leveled position determined by the reference system,

(a) the ballast being tamped against the held track until it has reached the controlled degree of compaction and

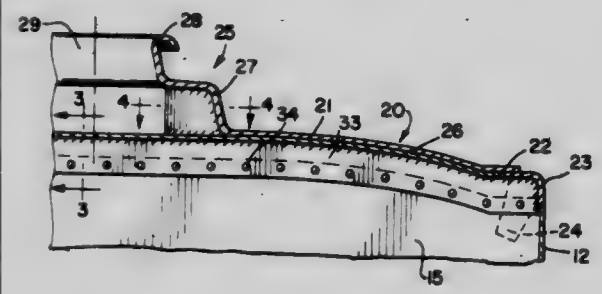
the track being held against upward movement out of the leveled position under the tamping pressure.

4,334,480
GANTRIES
Bernard E. Wallace, deceased, late of Malvern, Pa. (Kathryn Wallace and Philadelphia National Bank, executors)
Division of Ser. No. 944,733, Sep. 22, 1978, Pat. No. 4,227,464.
This application Aug. 19, 1980, Ser. No. 179,671
Int. Cl.³ B66C 5/02
U.S. Cl. 104—126 **7 Claims**



1. In a portable gantry having a horizontally extending load-carrying member supported by legs, the leg structure comprising a vertical post portion and diagonal members extending outwardly and downwardly on opposite sides of the post portion from points adjacent the lower part of the post portion, said diagonal members lying in a plane which is at right angles with respect to the longitudinal axis of the load carrying member, and having ground engaging roller means at the bottom thereof, and reinforcing struts connected to each diagonal member, each reinforcing strut extending from the post portion from points adjacent the bottom of the post portion to points intermediate the ends of the diagonal members, said inclined members and said struts providing ground clearance for elongated objects in vertical planes beneath said load-carrying member.

4,334,481
FATIGUE RESISTANT PARTITION SHEET ASSEMBLY
Phillip Przybylinski, Schererville, Ind.; Babgaunda A. Patil, Birmingham, Ala., and Gerald B. Anderson, Evergreen Park, Ill., assignors to Pullman Incorporated, Chicago, Ill.
Filed Apr. 28, 1980, Ser. No. 144,753
Int. Cl.³ B61D 7/00
U.S. Cl. 105—248 **10 Claims**



1. A railway hopper car including a body having sidewalls, a hopper, and a roof sheet including flanges at its outer edges connected to the sidewalls, said roof sheet including an elongated roof step portion having an upstanding coaming defining an elongated hatch opening, and a transversely extending top framing bar connected to and beneath said roof sheet, the improvement comprising:

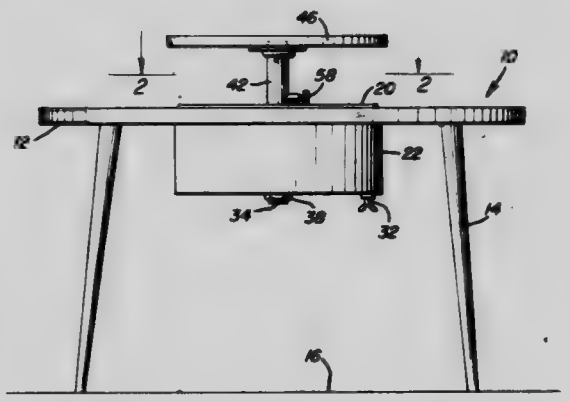
a partition sheet assembly extending vertically within said hopper,

means for connecting said partition sheet assembly at its upper end portion to said top framing bar,

said means for connecting including a means for fatigue resistance,

said fatigue resistance means comprising plate means extending transversely beneath said roof step portion and said hatch opening, said plate means including a top edge portion weldingly connected to said top framing bar and a bottom edge portion connected to said partition sheet assembly by mechanical fastener means whereby fatigue stress in said connecting means outwardly of said hatch opening is reduced to improve resistance to premature fatigue cracking of said partition sheet assembly.

4,334,482
TABLE WITH ELEVATOR TYPE LAZY SUSAN
Leo J. Bolduc, 45 NW. Irving, Bend, Oreg. 97701
Filed May 20, 1980, Ser. No. 151,884
Int. Cl.³ A47B 57/00
U.S. Cl. 108—95 **3 Claims**



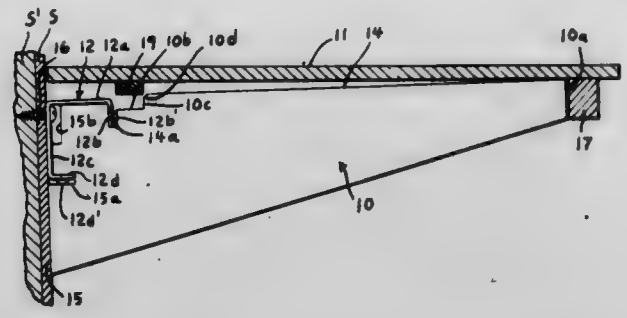
1. A table including a top and depending leg means anchored relative to the top for support of the latter in elevated position above a flooring surface, said top including a central vertical opening therein, a pair of upper and lower vertically spaced panels, means extending between and interconnecting said panels and supported from said table for rotation about a vertical axis passing centrally through said opening and free vertical shifting relative to said table along said axis between a lowered position with said upper panel at least substantially downwardly toward said top and said lower panel downwardly retracted below said opening and an upper position with said upper panel appreciably spaced above said opening and said lower panel extended upwardly into and rotatably received in said opening, said panels being of substantially the same plan shape, said opening being of substantially the same plan shape but slightly larger than said lower panel, said table including an upwardly opening housing supported from the underside of the top thereof in vertical registry with said opening, said lower panel being downwardly receivable within said housing when said upper and lower panels are in their lower positions, said housing including a bottom wall, an upstanding support mounted on said bottom wall and projecting upwardly toward said table top, said means extending between and interconnecting said panels including a tubular member telescopingly engaged with said upstanding support, the upper end of said upstanding support including a thrust bearing assembly, said tubular member including a radially outwardly retractable inwardly projecting abutment downwardly abuttingly engaged with an upper portion of said thrust bearing assembly.

4,334,483

INTERLOCKING SHELF AND BRACKET CONSTRUCTION

Harlan F. Kellogg, 1617 Sprucewood, Rockford, Ill. 61107

Filed Jul. 28, 1980, Ser. No. 173,153
Int. Cl.³ A47B 5/02
U.S. Cl. 108—152 4 Claims



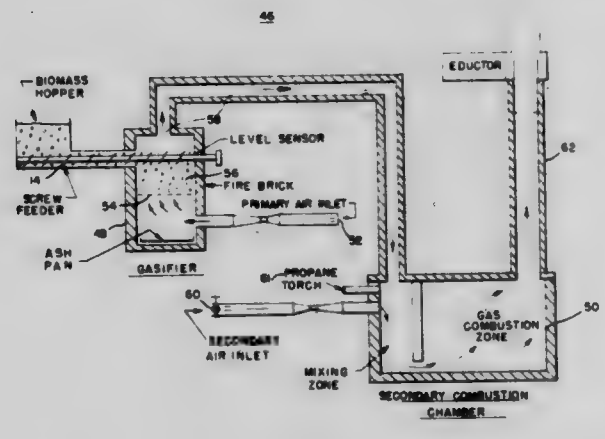
1. An interlocking shelf and shelf bracket construction comprising, at least two shelf brackets each having an upper shelf supporting surface, means for mounting the rear end of the shelf brackets on a supporting surface to extend forwardly therefrom in cantilever fashion, the shelf brackets each having a forwardly facing first abutment face extending transverse to the upper shelf supporting surface adjacent the forward end of the shelf bracket and a rearwardly facing second abutment face extending transverse to the upper shelf supporting surface at a location spaced rearwardly from the first abutment face, a shelf adapted to extend between and overlie the upper shelf support surfaces on the several shelf brackets for support thereby, the shelf having a first abutment strip extending therebelow and generally paralleling the forward edge thereof for engaging the first abutment faces on the several shelf brackets, the shelf having a second abutment strip extending therebelow and spaced from the first abutment strip a distance no greater than the minimum spacing between the first and second abutment faces on the shelf brackets, at least one of said strips being laterally resilient and attached to the shelf only at locations spaced along the shelf from the shelf brackets to allow portions of said one abutment strip intermediate the attached locations to shift relative to the other abutment strip during assembly of the shelf on the shelf brackets.

4,334,484

BIOMASS GASIFIER COMBUSTOR

Fredrick A. Payne, Versailles, and Ira J. Ross, Lexington, both of Ky., assignors to University of Kentucky Research Foundation, Lexington, Ky.

Filed Jan. 18, 1980, Ser. No. 113,339
Int. Cl.³ F23B 5/00; F23K 3/00
U.S. Cl. 110—210 13 Claims



1. An apparatus for producing a clean combustion gas in response to combustion of a biomass mixture disposed therein and for drying an object using said clean combustion gas, comprising:

screw feeder means for feeding said biomass mixture into said apparatus, said feeder means being horizontally disposed for feeding said biomass mixture into said apparatus along a horizontal direction and having an augered configuration for forcedly feeding said biomass mixture into said apparatus;

first combustion chamber means for receiving said biomass mixture from said feeder means and burning said biomass mixture therein thereby producing a first combustion gas, said feeder means extending transversely within said first combustion chamber means for levelling the biomass mixture received therein, said feeder means being horizontally disposed in a plane within said first combustion chamber means, said plane substantially corresponding to the maximum desired level of said biomass mixture in said first combustion chamber means, said feeder means sealing said first combustion chamber means from said atmosphere;

level sensing means extending into said first combustion chamber means and connected to said feeder means for sensing the level of the biomass mixture in said first combustion chamber and for terminating the feed of said screw feeder means when said biomass mixture reaches a predetermined level;

second combustion chamber means for receiving said first combustion gas and burning said first combustion gas therein thereby producing a second combustion gas;

nozzle means for forcedly directing said second combustion gas from said second combustion chamber means onto said object, said second combustion gas drying said object;

pump means communicating with said second combustion chamber means for creating a negative pressure region within said apparatus, said negative pressure region drawing said first combustion gas into said second combustion chamber means and forcedly directing said second combustion gas through said nozzle means and onto said object; said biomass mixture comprises a highly porous fuel having a low moisture content; means for producing a primary flow of air; primary air inlet port means responsive to the means for producing for permitting said primary flow of air to flow into said first combustion chamber means, the primary air flowing from said primary inlet port means through the porous fuel in said first combustion chamber means thereby burning the porous biomass mixture therein; and first gas outlet port means for permitting said first combustion gas to exit from said first combustion chamber means to said second combustion chamber means;

whereby the level sensing means stops the feed of said screw feeder means when the biomass mixture in said first combustion chamber has reached a predetermined level, an even biomass distribution being achieved in said first combustion chamber means when the biomass mixture is levelled thereby permitting an even burn of said biomass in said first combustion chamber means.

4,334,485

METHOD FOR GENERATING HEAT ENERGY BY INTERMITTENT SMOKE CHARGE COMBUSTION

Frank C. Guida, 50 Allen St., Walpole, Mass. 02081

Continuation of Ser. No. 61,945, Jul. 30, 1979, abandoned. This application Apr. 20, 1981, Ser. No. 255,805
Int. Cl.³ F23D 1/00
U.S. Cl. 110—347 6 Claims

1. An intermittent process of overall low temperature operation for producing and utilizing thermal energy, said process comprising:

(a) intermittently forming a smoke charge containing a mixture of an internal phase of a dispersion of fine solid particles and an external phase of air;

(b) said solid particles being composed of slowly igniting

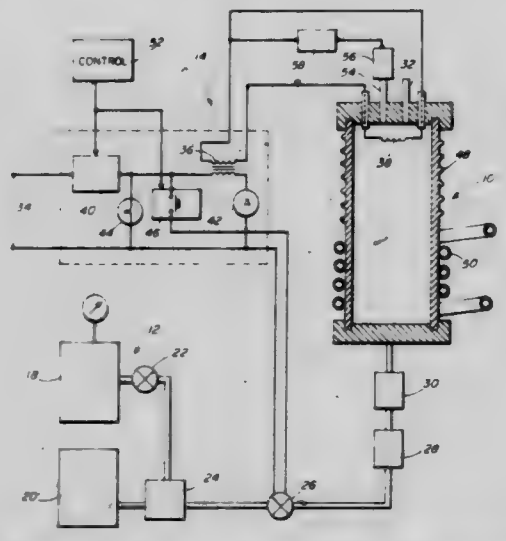
organic material selected from the class consisting of agricultural, fossil, vegetation, and resinous materials;

(c) said particles having an average diameter in the range of from 1 micron to 200 mesh;

(d) said smoke being of at least atmospheric pressure and having a minimum concentration of at least 25 ounces of said solid particles per 1000 cubic feet of air at atmospheric pressure;

(e) introducing said smoke charge, while maintained substantially at said atmospheric pressure, into a chamber;

(f) intermittently energizing said smoke charge, while initially under said substantially atmospheric pressure within



said chamber, with an electric current having an energy of at least 15 millijoules in order to cause exploding of said smoke charge of limited duration and at high temperature, the intermittency of said energizing and of said exploding of said smoke charge being of sufficient lengths to enable substantially complete dissipation of heat generated by said exploding into a heat exchange system;

(g) powering an appliance with thermal energy generated by said exploding and transmitted through said heat exchange system;

(h) and scavenging the residue of said energizing and exploding from said chamber.

4,334,486

ELECTRONIC SEWING MACHINE

Kume Toshiaki, Tachikawa; Hideaki Takenoya, Hachioji; Toshihide Kakinuma, Tokyo; Hachiro Makabe, Fussa, and Kazuo Watanabe, Hachioji, all of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

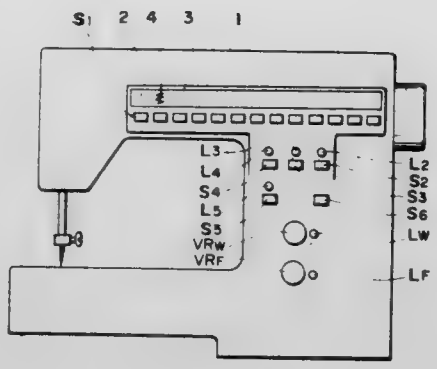
Filed Mar. 24, 1980, Ser. No. 133,126

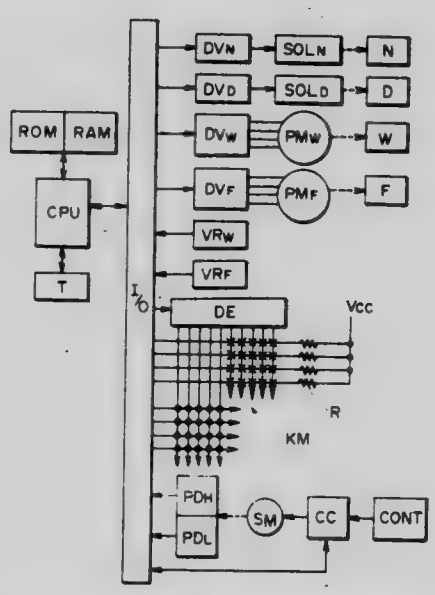
Claims priority, application Japan, Mar. 26, 1979, 54-35212

Int. Cl.³ D05B *3/02*

U.S. Cl. 112—158 E **8 Claims**

1. In an electronic sewing machine having stitch forming and feeding instrumentalities and a pattern panel and employing an electronic memory and an electronic circuit for controlling a needle amplitude and a fabric feed so as to form a plurality of stitching patterns, a combination comprising a pattern selecting controller which selects desired patterns in said plurality of stitching patterns; a memory controller which stores a combination of plural patterns; a function selector which selects a function of the sewing machine in accordance with the formation of selected patterns, including the operation for selecting twin-needle stitching; a function cancelling means operative for removing the selection of the function by said function selector; and a calculation processing device which, when said function cancelling means is operated, controls the respective functions of the sewing machine by way of program control signals stored in said electronic memory, and carries out the control to maintain designation of the patterns selected





by said pattern selecting controller or designations of patterns during stitching patterns.

4,334,487

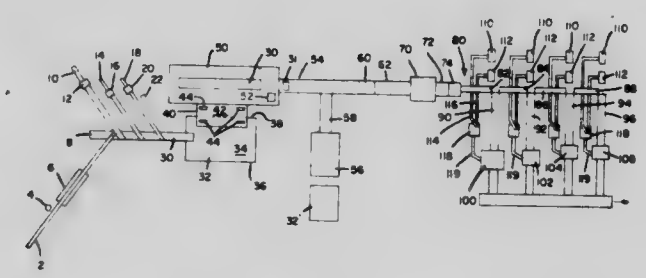
METHOD OF MANUFACTURING COMPOSITE CONTAINERS

Jay T. Elston, Urbana, Ohio, assignor to Kardon Industries, Inc., Philadelphia, Pa.

Filed Jan. 14, 1980, Ser. No. 111,618

Int. Cl.³ B21D *51/16*

U.S. Cl. 413—6 **1 Claim**



1. An assembly method for forming a composite container having in one end thereof a closure, said method comprising the steps of:

(a) forming a stick on a mandrel;

(b) collecting the stick of step (a) in a hopper;

(c) conveying the stick from the hopper of step (b), on a figured conveyor means to a recutter;

(d) cutting said stick in said recutter into a plurality of containers having a predetermined length;

(e) conveying in an elevator conveyor the containers of step (d) to a predetermined height above said recutter;

(f) conveying by gravity said containers from said predetermined height to a flarer station;

(g) flaring at least one end of said container in said flarer;

(h) providing a seamer;

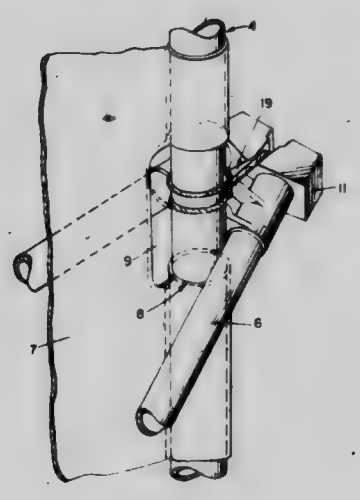
(i) providing a ring and plunger closure assembly apparatus for supplying ring and plunger closures;
(j) conveying in an elevator conveyor said containers of step (f) to a predetermined height above said seamer;
(k) providing said containers of step (j) and said closure of step (i) to said seamer; and
(l) seaming said closure to said container in said seamer.

4,334,488

FIXTURE FOR ATTACHING THE WISHBONE TO THE MAST OF A SAIL-BOARD

Christiane Jolivet, 23, rue Salvador Allende, 76610 Le Havre, France

Filed Jan. 8, 1980, Ser. No. 110,312
Int. Cl.³ B63H *9/04, 9/08*
U.S. Cl. 114—39 2 Claims



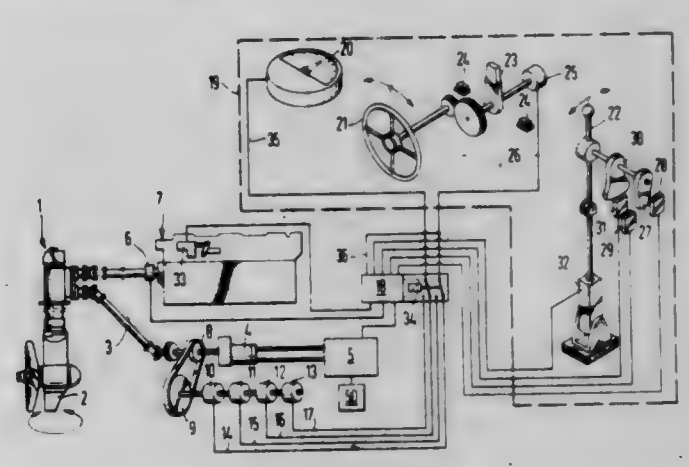
1. Fixture for attaching a wishbone element to a mast of a sheet of sail on a sail-board comprising a unitary member having a pair of holes or sockets at one end thereof for reception and retention of free ends of the wishbone element to be assembled therewith and an endless flexible strap: wherein said unitary member includes a notch with a cylindrical surface extending between and separating said pair of holes or sockets, first and second sides extending radially away from said notch, a gap extending between said first and second sides and facing away from said notch, and a hook extending from said second side with said hook being open in the direction toward said notch and away from said gap; also wherein said endless flexible strap includes two side-by-side portions with opposite ends thereof being integral with each other in first and second closed loops; and further wherein in assembly of the wishbone element on the mast said cylindrical surface of said notch is placed against a portion of the mast which is retained therein in seated relationship, the free ends of the wishbone element are disposed in said holes or sockets of said unitary member and retained therein, said endless flexible member is wrapped with both of said side-by-side portions around said mast, with said first closed loop passed inward of said second closed loop and said mast in slip knot fashion, with said first closed loop being drawn tightly beyond said first radially extending side of said unitary member, turned substantially vertically through and against said gap, turned back toward said mast at said second radially extending side of said unitary member, with said first closed loop disposed in and retained in said hook, and with said endless strap being in taut condition.

4,334,489

REVERSING MECHANISM FOR STEERABLE PROPELLERS, JET RUDDERS OR OTHER DRIVE MECHANISMS OF SHIPS

Kurt Seitzinger, Koblenz-Karthause, and Siegfried Lais, Spay, both of Fed. Rep. of Germany, assignors to Schottel-Werft Josef Becker GmbH & Co., KG, Spay, Fed. Rep. of Germany

Continuation of Ser. No. 826,055, Aug. 19, 1977, abandoned.
This application May 7, 1979, Ser. No. 36,543
Claims priority, application Fed. Rep. of Germany, Aug. 19, 1976, 2637345
Int. Cl.³ B63H *25/42*
U.S. Cl. 114—144 R 11 Claims



1. A control device for controlling the direction of applied thrust from a steerable drive means rotatably supported on a watercraft for 360° movement about a vertical axis, said watercraft including drive means thereon for generating said applied thrust, said control device comprising:
drive transmitting means connected to said steerable drive means for selectively driving said steerable drive means about said vertical axis;
steering control means operatively connected to said drive transmitting means for steering the direction of applied thrust through a first range of movement of about 180° limited to within about ±90° swing from the longitudinal axis of said watercraft and with said range orientable either forward or rearward of said vertical axis; and
reversing control means movable between two areas, said reversing control means being operatively connected to said drive transmitting means only in response to location thereof in either one of said two areas location in either one of said two areas effecting, independent of said steering control means, through said drive transmitting means a one-step movement of said steerable drive means about said vertical axis completely through a second range of movement of 180° at a speed higher than providable by said steering control means.

4,334,490

BIKE FOR TRAVELING OVER WATER

Naeem B. Gabriel, 20 Smith St., Jersey City, N.J. 07306

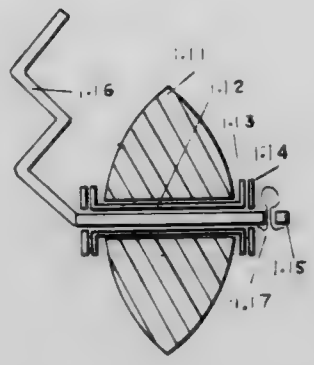
Filed May 23, 1979, Ser. No. 41,704
Int. Cl.³ B60F *3/00*
U.S. Cl. 114—270 4 Claims

1. A bike for traveling over land and water comprising:
a front wheel;
a rear wheel used for powering the bike and having spokes;
a frame for holding the front wheel and a frame for holding the rear wheel;
four bouyancy means each having the shape of a convex lens;
four support means each having an axle for supporting one of said buoyancy means and a W-shaped extension for fixing the buoyancy means to the bike;
said W-shaped extension fixing said buoyancy means to said bike such that one of said buoyancy means is located on each side of said frame holding the front wheel, and one of

said buoyancy means is located on each side of said frame for holding the rear wheel;

cylindroids for powering the bike over water, each cylindroid being attached to a spoke of said rear powering wheel,

two platens, each having a flat horizontal surface and each having a downwardly extending curved surface, said curved surface extending from the forward edge of said flat surface;



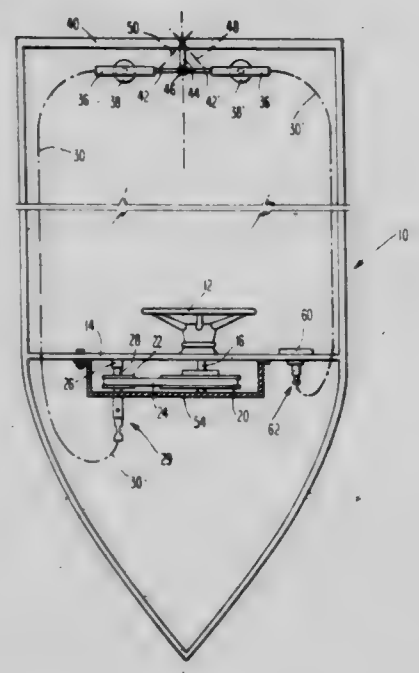
two flat bars for each of said platens, said two flat bars being used to fix each one of said platens to a pedal of said bike, said pedal being clamped between said two flat bars and the horizontal flat surface of one of said platens; and wherein said buoyancy means supports said bike on the water surface and said cylindroids, and platens are used to propel said bike over the water surface.

4,334,491

GEARLESS POSITION INDICATOR

Walter Kulischenko, East Brunswick, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Nov. 10, 1980, Ser. No. 205,483
Int. Cl.[3] B63H *25/24;* B60Q *1/42*
U.S. Cl. 116—31 **7 Claims**



1. In combination with a marine vessel steering system wherein manually-operable steering control means effects rotation of rotatable means for controlling angular disposition of a steering member through pivot means, said steering member connected through first screw means to said steering control means, said first screw means converting rotary motion from said rotatable means to linear motion, said linear motion effecting angular disposition of said steering member which controls direction of travel of said marine vessel, the improvement comprising

position indicating means connected to said steering member through a second screw member oppositely arranged and similar to said first screw means for indicating said angular disposition of said steering member,

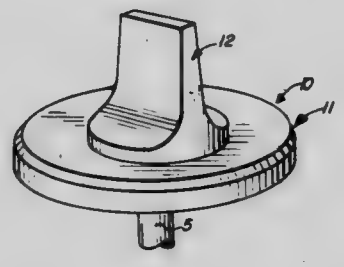
said second screw means connected to said pivot means and responsive to movement of said first screw means for indicating said angular disposition of said steering member on said indicating means.

4,334,492

MANIPULATING ROTARY CONTROL DEVICE

Michael R. Klingler, 1238 S. Courtland, Park Ridge, Ill. 60068

Continuation-in-part of Ser. No. 11,202, Feb. 12, 1979, Pat. No. 4,213,416. This application Jun. 11, 1980, Ser. No. 158,491
Int. Cl.[3] G09F *11/04, 11/02*
U.S. Cl. 116—309 **17 Claims**



5. A manipulating rotary control device comprising:

a one-piece dial-knob element defining a dial portion having a peripheral portion, and a manipulating knob portion, said dial-knob element being formed of a thermal insulation material;

a hub defining a socket arranged for selective removable coaxial mounting thereof onto a control shaft end, and a peripheral connecting portion adapted to be connected to said dial peripheral portion for effecting rotation of said dial as a result of manual rotation of said knob about the axis of said socket; and

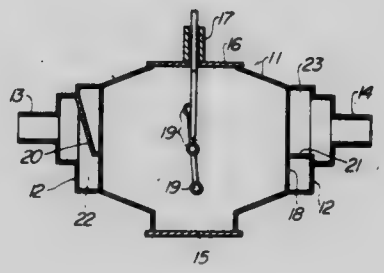
means interconnecting said dial and hub peripheral portions for rotating said shaft about the axis thereof as an incident of said manual rotation of the knob, said dial-knob element being formed of synthetic resin.

4,334,493

ROTARY DRUM TYPE APPARATUS FOR APPLYING A COATING TO TABLETS

Mikio Okawara, Shizuoka, Japan, assignor to Ohkawara Mfg. Co., Ltd., Shizuoka, Japan

Filed Feb. 5, 1981, Ser. No. 231,908
Claims priority, application Japan, Feb. 6, 1980, 55/13327
Int. Cl.[3] A23G *3/20*
U.S. Cl. 118—19 **3 Claims**



1. A rotary drum type apparatus for applying a coating to tablets, comprising:

a drum having the tablets placed therein to apply a coating thereto;

a support frame for supporting said drum for rotation;

an air inlet tube and an air outlet tube connected to said support frame; and

a drive mounted on a rear surface of said drum; wherein the improvement resides in that said air inlet tube and said air

outlet tube are disposed in positions slightly displaced from the center line of the support frame extending perpendicular to the center axis of the drum toward the rear surface of the drum whereby the apparatus including the drum, the support frame and the drive can be balanced.

4,334,494

DUSTING APPARATUS

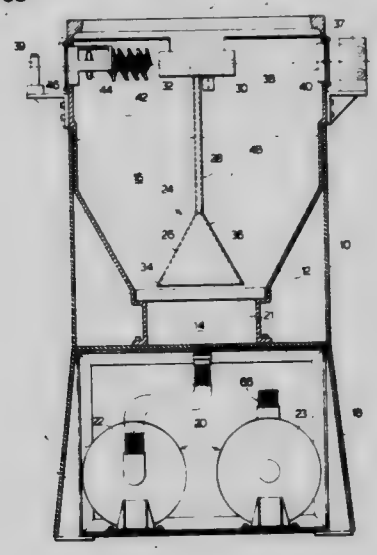
Gary Kane, Stoke-On-Trent, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Jul. 17, 1980, Ser. No. 169,645

Claims priority, application United Kingdom, Jul. 21, 1979, 7925517

Int. Cl.³ B05C *11/06, 19/02*

U.S. Cl. 118—63 **12 Claims**



1. Dusting apparatus comprising a casing defining a chamber adapted to contain a quantity of a dusting powder, means whereby an air flow can be passed through said chamber to maintain a fluidized bed of the dusting powder within the chamber, and a conveying nozzle arranged to cause powder-laden air to pass, in use of the apparatus, from the bed to a body to be dusted outside the bed, the nozzle comprising an entry portion positioned within the bed to receive a portion of the air flow, a discharge portion positioned outside the bed adjacent a body to be dusted, and a convergent portion between the entry and discharge portions and arranged to cause said portion of the air flow to propel powder to the discharge portion.

4,334,495

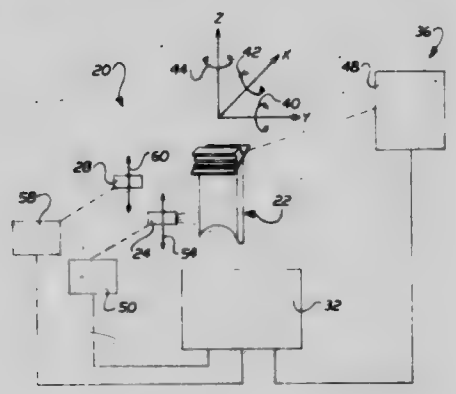
METHOD AND APPARATUS FOR USE IN MAKING AN OBJECT

Thomas Derkacs, Mayfield; Charles W. Fetheroff, Willowick; Istvan M. Matay, North Royalton, and Istvan J. Toth, Richmond Heights, all of Ohio, assignors to TRW Inc., Cleveland, Ohio

Filed Jul. 11, 1978, Ser. No. 923,693

Int. Cl.² B05B *3/14, 12/00*

U.S. Cl. 118—669 **177 Claims**



1. An apparatus for applying a covering of material to at least a portion of a workpiece, said apparatus comprising spray means for directing a flow of material toward the workpiece, first means for effecting relative movement between said spray means and the workpiece along each of three transversely extending axes, second means for effecting rotational movement between said spray means and the workpiece about each of three transversely extending axes, sensor means for detecting the thickness of a covering of material applied to the workpiece by said spray means, and control means connected with said sensor means and said spray means for comparing the detected thickness of the covering of material with a desired thickness and for regulating the operation of said spray means as a function of the difference between the detected thickness of the covering and the desired thickness of the covering.

4,334,496

APPARATUS FOR RIGIDIFYING TEXTILE PIECES BY COATING WITH PLASTICS

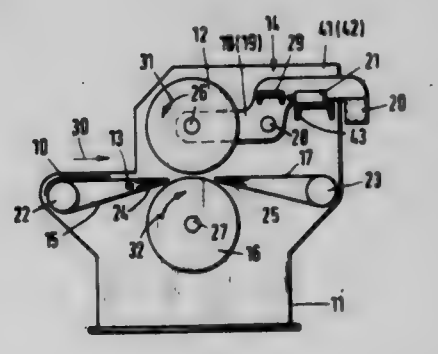
Richard Juraschek, Vlotho, Fed. Rep. of Germany, assignor to Herbert Kannegiesser GmbH & Co., Vlotho, Fed. Rep. of Germany

Division of Ser. No. 35,662, May 3, 1979, Pat. No. 4,259,380. This application Apr. 2, 1980, Ser. No. 136,609

Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819547

Int. Cl.³ B05C *1/02*

U.S. Cl. 118—679 **7 Claims**



1. An apparatus for rigidifying outerwear pieces of textile material of different configurations for the production of clothing by coating them with plastic, wherein the textile pieces are serially fed in one behind the other on a transport conveyor, and the plastic is transferred onto the pieces by a compressing cylinder which bears against the textile pieces under pressure during the coating, characterized by: means for continuously sensing the width of each incoming textile piece in a direction transverse to the direction of delivery of the conveyor, and means for automatically and continuously adjusting the force with which the compressing cylinder (12) bears against said each textile piece (10) in direct proportion to the sensed width whereby the greater the sensed width the greater the cylinder force, and vice versa, to thereby achieve a uniform coating pressure on each piece regardless of its shape or orientation.

4,334,497

MAGNETIC BRUSH DEVELOPING APPARATUS

Tateki Oka; Kenichi Wada, and Kenji Tabuchi, all of Sakai, Japan, assignors to Minolta Camera Kabushiki Kaisha, Japan

Filed Sep. 26, 1980, Ser. No. 191,121

Claims priority, application Japan, Oct. 11, 1979, 54/131368

Int. Cl.³ G03G *15/09*

U.S. Cl. 118—698 **7 Claims**

1. A magnetic brush developing apparatus for developing latent electrostatic images with a particulate magnetic developer which comprises

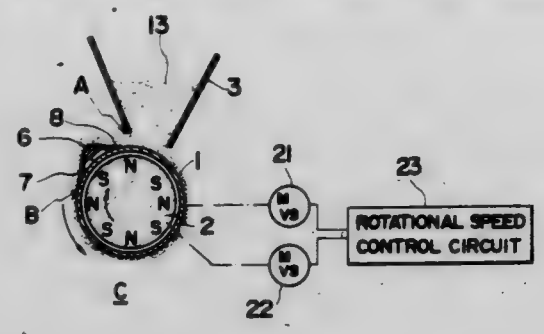
(a) a rotatable non-magnetic developing sleeve,

(b) first drive means connected to said sleeve for rotating said developing sleeve in a specified direction,

(c) a magnetic roller rotatably disposed within the developing sleeve,

(d) second drive means connected to said magnetic roller for rotating the magnetic roller in the same direction as the developing sleeve to transport said magnetic developer along the peripheral surface of the developing sleeve in a direction opposite to the direction of rotation of the developing sleeve,

(e) a plate member having one end in pressing contact with the peripheral surface of said sleeve and a surface thereof forming a developer guide surface, which developer guide surface is at an acute angle with respect to a tangent to



said sleeve, said tangent extending in the direction of rotation of said sleeve, for scraping developer particles moving in the direction of rotation of said sleeve, from said sleeve,

(f) a developer supplying means for supplying developer particles to the peripheral surface of said sleeve to form bristles thereon and

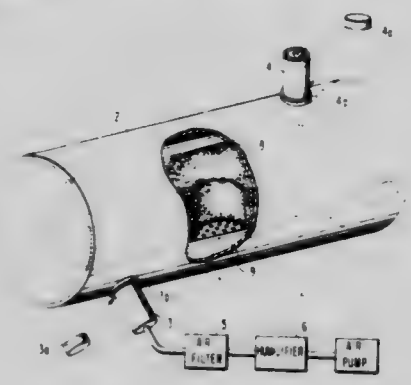
(g) a control means for controlling the rotational speeds of said sleeve and said roller with respect to each other, whereby the bristle height can be controlled while maintaining the developer speed substantially constant.

4,334,498

ASSEMBLAGE FOR REARING NEMATODES

Robyn A. Bedding, Taroona, Australia, assignor to Commonwealth Scientific and Industrial Research, Campbell, Australia

Continuation of Ser. No. 57,151, Jul. 12, 1979, abandoned, which is a continuation-in-part of Ser. No. 909,404, Feb. 21, 1978, which is a continuation of Ser. No. 715,590, Aug. 18, 1976, abandoned. This application Apr. 6, 1981, Ser. No. 251,435
Claims priority, application Australia, Aug. 26, 1975, PC2930
Int. Cl.³ A01K *67/00*
U.S. Cl. 119—1 **6 Claims**



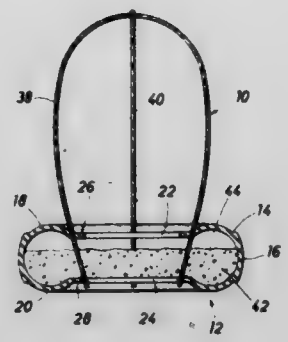
1. A method for rearing nematodes comprising introducing a growth medium into a sealable container having a suitable support medium therein, sterilizing the contents of said container, inoculating said growth medium with a symbiotic bacteria for said nematodes, inoculating said growth medium with a nematode culture and incubating said nematode culture in said container.

4,334,499

ARTIFICIAL REEF CONSTRUCTION

Allen J. Baass, Rt. 3, Box 60-B, Victoria, Tex. 77901

Filed Nov. 19, 1980, Ser. No. 208,144
Int. Cl.³ A01K *61/00*
U.S. Cl. 119—3 **11 Claims**



1. An artificial reef construction, comprising:

a discarded inflatable rubber vehicle tire which, when lying on its side, defines a circular upper side wall and a circular lower side wall, each surrounding respective upper and lower rim openings;

a quantity of concrete being disposed within said rubber vehicle tire, said vehicle tire and said concrete cooperating to define a base structure; and

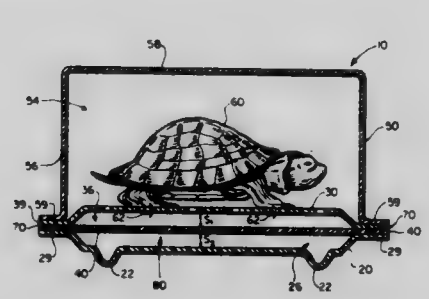
a plurality of lengths of multistrand wire rope having end portions thereof extending through said upper side wall of said vehicle tire and embedded within and retained by said concrete, said lengths of wire rope protruding upwardly from said base structure forming upper portions and cooperating with said base structure to define a centrally oriented protective habitat for marine life.

4,334,500

SHIPPING CONTAINER FOR LIVE ANIMALS

Henry H. Ziller, Rte. 2, Box G56, Hammond, La. 70404

Filed Sep. 6, 1979, Ser. No. 72,909
Int. Cl.³ A01K *1/00*
U.S. Cl. 119—15 **12 Claims**



12. An animal shipping container comprising:

a. a self-supporting animal container housing comprising an outer wall portion having an inner space and an animal support floor attached to said container housing at the lower portion of said inner space;

b. an entrance opening in said container housing wall;

c. a gas transfer chamber attached to and covering said entrance opening, said support floor being attached at least in part to said as transfer chamber;

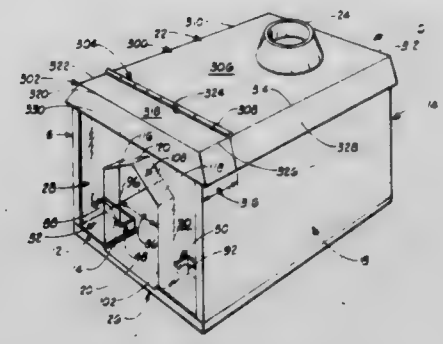
d. a polymer film membrane attached to the inner portion of said gas transfer chamber, said polymer film membrane preventing the travel of microorganisms across said membrane to or from said inner space.

4,334,501

ANIMAL SHELTER AND FEED DISPENSER

Diana G. McDaniel, and Bruce M. McDaniel, both of 427 NW. 20th St., Oklahoma City, Okla. 73103

Filed Jul. 21, 1980, Ser. No. 170,823
Int. Cl.[3] A01K *1/02*
U.S. Cl. 119—16 50 Claims



1. An improved animal shelter comprising:

a floor;

a first side wall having a first side, a second side, an upper end, a lower end, a first end, and a second end, the first side wall being connected to the floor via the lower end thereof such that the first side wall is disposed substantially perpendicular to the plane of the floor;

a second side wall having a first side, a second side, an upper end, a lower end, a first end and a second end, the second side wall being connected to the floor via the lower end thereof such that the second side wall is disposed substantially perpendicular to the plane of the floor in a parallel, spatial relationship with the first side wall;

a rear wall having a first side, a second side, an upper end, a lower end, a first end and a second end, the rear wall being disposed between the first and second side walls and interconnecting the second ends of the first and second side walls;

a feed dispenser assembly having an opening extending therethrough, the feed dispenser assembly having an upper end, a lower end, a first end and a second end, the feed dispenser assembly further characterized as having a cavity formed in at least a portion thereof, the cavity extending through the feed dispenser assembly from the upper end to the lower end, the feed dispenser assembly being disposed between the first and second side walls and forming the front wall of the shelter; and

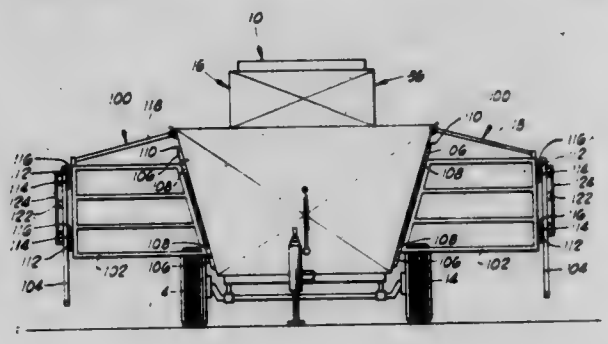
a roof positionable upon and supported by the upper end of each of the first side walls, the second side wall, and the rear wall.

4,334,502

LIVESTOCK FEEDER APPARATUS

Richard D. Cox, P.O. Box 387, Carrollton, Mo. 64633

Filed Apr. 4, 1977, Ser. No. 784,027
Int. Cl.[3] A01K *5/00*
U.S. Cl. 119—53 1 Claim



1. In a feeder apparatus for livestock which includes an enclosure for containing feed, at least one feeding trough positioned adjacent said enclosure and at least one slidable side door disposed adjacent at outside surface of said enclosure and over an opening of said enclosure for unloading feed from said enclosure to said trough, the improvement comprising:

said enclosure including a pair of bars attached thereto adjacent the outwardly facing side of said slidable side door, said bars being positioned parallel to the direction of slide of said door and in close proximity to each other so that an elongated slot is formed between said bars;

said door including two vertically spaced apart, outwardly projecting threaded posts attached to said outwardly facing side thereof and positioned to extend through said slot;

two wing nuts, one of said wing nuts threadedly connected to one of said threaded posts and the other of said wing nuts connected to the other of said threaded posts whereby said wing nuts can be tightened on said posts against said bars thereby locking said door in a selected position and maintaining said door in a horizontal position to prevent said door from jamming; and

a pen, including:

a pair of vertically positioned, outwardly extending side panels removably attached to said enclosure, said side panels positioned one on each side of said feed trough;

a vertical end panel attached to said side panels, said end panel including a plurality of spaced apart vertical bars forming openings therein for admitting livestock therethrough and a horizontal bar positioned across said openings for limiting the height of said openings and said end panel being hinged at its ends to the ends of said side panels whereby upon removal from said enclosure, said side panels can be folded inwardly to positions adjacent said end panel, and further said side and end panels being of a size whereby upon being removed from said enclosure and folded, they can be positioned within said feed trough for transport with said feeder when said feeder is moved;

means for selectively adjusting the height of said horizontal bar attached to said end panel and to said bar; and

two support members for stabilizing said pen during both stationary and non-stationary use, said members each having one end thereof removably attached to a different respective one of two spaced apart points of said enclosure and each having the other end thereof removably attached to a single central point of said vertical end panel.

4,334,503

ANIMAL CONTROL DEVICE

Sam H. Carey, Jr., P.O. Box 14031, Orlando, Fla. 32807

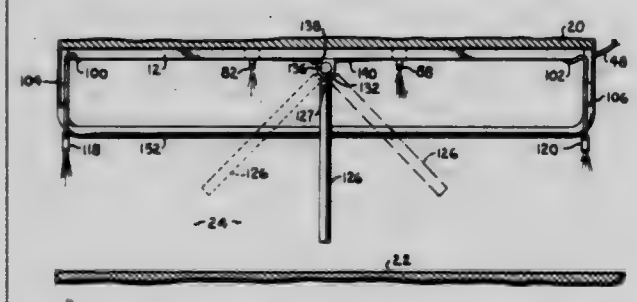
Filed May 19, 1980, Ser. No. 151,146
Int. Cl.[3] A01K *3/00*
U.S. Cl. 119—121 4 Claims



1. An animal control device for staking out a dog comprising a main upright tubular post having a lower portion to be buried underground and an upper portion to extend a predetermined distance above ground level, flange means surrounding and extending outwardly from said post intermediate said lower and upper portions and including a lower face to engage the ground surface, an enlarged top end on said upper portion, said tubular upright post including a beveled lower end portion to

define a pointed lower tip end, an enlarged member comprising a plate companionately shaped relative to a flat face defined by said bevel on an enlarged scale and being fixed thereto, a leash having a first end secured centrally to an inner face of said plate and extending upwardly through said tubular post and emerging from said top end of said upper portion and extending outwardly therefrom and having its opposite end adapted to engage a restraining device worn by a dog.

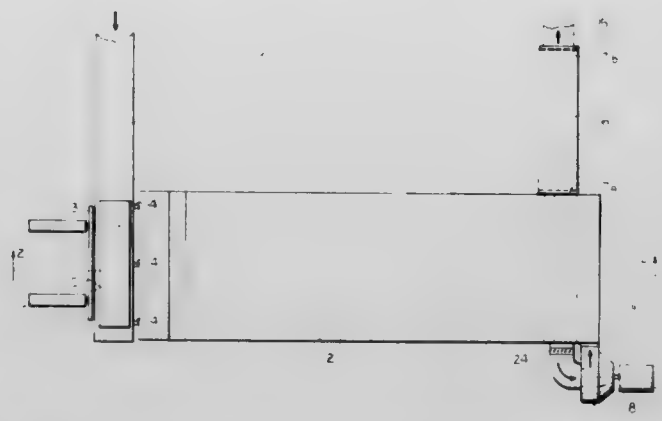
4,334,504
ANIMAL SPRAYING APPARATUS
Lloyd J. Matthews, Rte. 2, Warrensburg, Mo. 64093
Filed Jun. 15, 1981, Ser. No. 273,927
Int. Cl.³ A01K *13/00, 29/00*
U.S. Cl. 119—159 **10 Claims**



1. Animal spray apparatus for installation on one side of an animal passageway, said apparatus comprising:
a frame adapted to be mounted on said one side of the passageway;
spaced apart first and second spray means on said frame each normally deactivated and each located and oriented to spray the side portion of an animal passing thereby in the passageway;
a source of spray fluid communicating with said first and second spray means to apply the spray fluid thereto; and
animal operated actuator means in the passageway for controlling said first and second spray means, said actuator means activating said first spray means and maintaining said second spray means in the deactivated condition when an animal passes through the passageway in a first direction and said actuator means activating said second spray means and maintaining said first spray means in the deactivated condition when an animal passes through the passageway in a second direction opposite said first direction,
whereby one side portion of an animal is sprayed by said first spray means when the animal passes through the passageway in said first direction and the other side portion of the animal is sprayed by said second spray means when the animal passes through the passageway in said second direction.

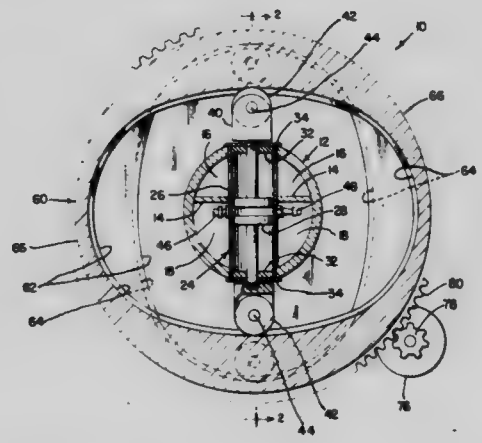
4,334,505
COOLING METAL SLABS AND OTHER METAL PRODUCTS
Richard Jablin, P.O. Box 514, Winchester, Va. 22601
Filed Jul. 14, 1977, Ser. No. 815,744
Int. Cl.³ F22B *1/02*
U.S. Cl. 122—27 **10 Claims**

1. A process for cooling metal products that are hot from a shaping process and converting the heat from said products into a useful form of energy comprising:
(a) sequentially transporting a plurality of said metal products through a cooling chamber in substantially a single direction;
(b) circulating a cooling gas between said metal products and heat transfer surfaces that extend along substantially the entire length of said cooling chamber in countercurrent flow with said metal products and recycling said cooling gas in a concurrent direction in contact with the side of said heat-transfer surfaces opposite the side facing said metal products thereby transferring heat from said metal products to said cooling gas and from said cooling gas to said heat transfer surfaces;
(c) transferring heat from said metal products to said heat transfer surfaces directly by radiation; and



(d) transferring heat from said heat transfer surfaces into water to thereby convert said water into steam.

4,334,506
RECIPROCATING ROTARY ENGINE
Albert F. Albert, 422-101st Southeast, Bellevue, Wash. 98004
Continuation of Ser. No. 914,927, Jun. 12, 1978, abandoned, which is a continuation of Ser. No. 632,485, Nov. 17, 1975, abandoned, which is a continuation of Ser. No. 494,633, Aug. 5, 1975, abandoned. This application Sep. 11, 1979, Ser. No. 74,338
Int. Cl.³ F02B *75/22*
U.S. Cl. 123—55 AA **41 Claims**



1. A reciprocating, rotary, combustion engine, comprising:
(a) a hollow, non-rotatable support block member of predetermined length and adapted to be supported in an operative position,
(b) at least one cylinder member support in said block member such that the ends of said cylinder open to the outside of said block member and whereby within said block member there is space externally of the cylinder, said cylinder including opposed pistons with piston rods extending out of the opposed ends of said cylinder and said piston rods being provided at their outer ends with follower bearing means for engaging a driven cam surface,
(c) a rotary output member mounted for rotation around said support block member and including a generally round exterior surface and a continuous interior driven cam surface for said cylinder, pistons and piston rods spaced from said support block, said driven cam surface being engaged by said follower bearing means to rotate said output member,
(d) said driven cam being shaped such that it includes predetermined arcuate areas of constant radius from the axis of the rotary member at least for radially opposed top dead center positions for said pistons in order to allow for predetermined periods of time and degrees of rotation at which the chamber between the pistons is at constant

volume, said cam also providing at least radially opposed bottom dead center positions, and said cam further being so shaped that every radius therein has an equal and opposite counterpart radius,

(e) said cam also being shaped after the top dead center constant volume areas to provide radially opposed rapid expansion areas of a predetermined number of degrees of rotation of the rotary output member in which a first portion of each of said rapid expansion areas moves the piston away from top dead center at an accelerating velocity and a second portion moves the pistons away at a decelerating velocity toward bottom dead center, and

(f) said cylinder being provided with means for admitting fuel thereto, means for timed ignition of the same and further provided with air intake and exhaust gas manifolds and means for selectively opening and closing said cylinder to said intake and exhaust manifolds.

4,334,507

PISTON FOR AN INTERNAL COMBUSTION ENGINE AND METHOD FOR PRODUCING SAME

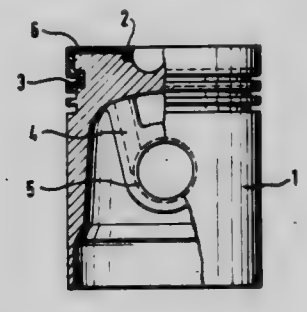
Hans J. Köhnert, Esslingen; Walter Graf, Stuttgart; Ladislaus Jakl-Banka, Korb, and Manfred Röhrle, Ostfildern, all of Fed. Rep. of Germany, assignors to Mahle GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 829,677, Sep. 1, 1977, abandoned. This application May 29, 1980, Ser. No. 154,133

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1977, 2639294

Int. Cl.³ F02F *3/06*

U.S. Cl. 123—193 P **11 Claims**



1. A piston for an internal combustion engine, comprising: a piston body formed of a material selected from the group consisting of aluminum and aluminum base alloys; and at least one insert formed of a material different to that of said piston body, said at least one insert having a portion connected to said piston body, said portion being formed of a porous material with a mean pore diameter of between 3 and 200 μm and a thickness of at least 20 times said mean pore diameter, said portion having its pores in the form of open pores, said at least one insert being connected to said piston body by the material of said piston body occupying the open pores of said porous material throughout said thickness.

4,334,508

INTERNAL COMBUSTION ENGINE HAVING AN ENGINE DRIVEN OIL PUMP

Hiroshi Sasaki, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

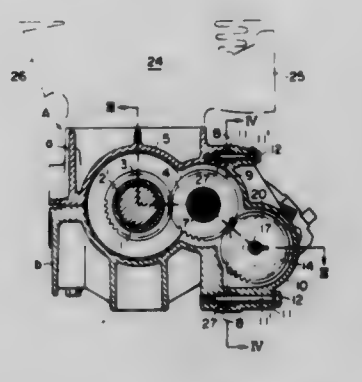
Filed Sep. 11, 1979, Ser. No. 74,510

Claims priority, application Japan, Sep. 12, 1978, 53-112637

Int. Cl.³ F02F *7/00*

U.S. Cl. 123—195 A **10 Claims**

1. A two stroke engine for a snow mobile comprising a crankcase, a crankshaft provided in said crankcase and having one end extending outwardly from the crankcase, a driving pulley assembly mounted on said one end of the crankshaft adapted for transmitting driving force to a driven member of the snow mobile, a power take-off gear housing section provided at an end of the crankcase adjacent to said pulley assembly, said gear housing section having a first opening at a position sidewardly apart from said crankshaft, casing means removably mounted through bolt means extending substantially perpendicularly to said crankcase on said gear housing section at said first opening and containing a second opening aligned with said first opening and oil pump means, said bolt means being accessible when said driving pulley assembly is mounted on said one end of the crankshaft so as to permit removal and installation of said casing means while said driving pulley



assembly is mounted on said one end of the crankshaft, and gear means extending between said gear housing section and said casing means and having a driving gear extending into said casing means through said second opening for transmitting a driving power from said crankshaft to said oil pump means, said oil pump means including a driven gear in meshing engagement with said driving gear and extending through said first opening into said gear housing section.

4,334,509

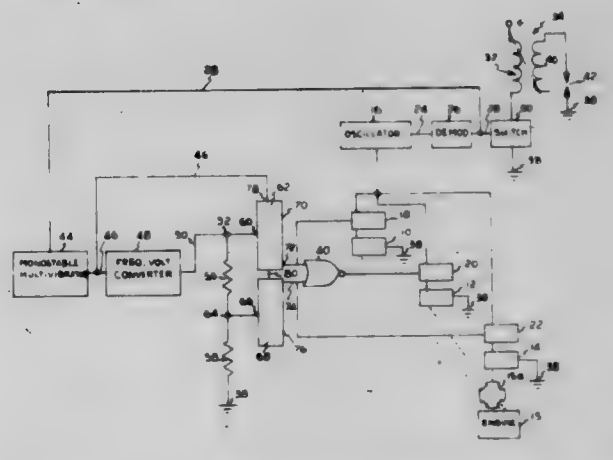
ELECTRONIC IGNITION WITH STEP ADVANCE

Donald R. Nash, Berkey, Ohio, assignor to Eltra Corporation, Toledo, Ohio

Filed Apr. 4, 1980, Ser. No. 137,158

Int. Cl.³ F02P *5/04*

U.S. Cl. 123—414 **8 Claims**



voltage divider means electrically connected to said converter means;

at least one logic means having an input and complimentary outputs, said input having a threshold, said complimentary outputs being responsive to a voltage above and below said threshold;

said voltage divider means being connected to said input and providing said voltage to said input; and

logic gate means for selecting and controlling one of said first switch means in response to said outputs of said logic means.

4,334,510

ELECTROCHEMICAL SENSOR FOR MEASURING RELATIVE CONCENTRATIONS OF REACTIVE SPECIES IN A FLUID MIXTURE AND A SYSTEM COMPRISING SAID SENSOR, ESPECIALLY FOR REGULATION

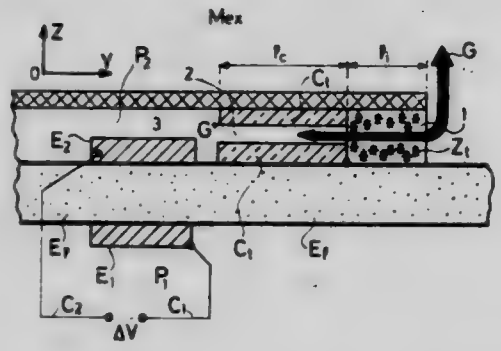
Michel Croset, and Gonzalo Velasco, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 19, 1979, Ser. No. 95,308

Claims priority, application France, Nov. 21, 1978, 78 32764

Int. Cl.³ F02M *7/00*; G01N *27/46*

U.S. Cl. 123—440 13 Claims



1. An electrochemical sensor for measuring relative concentrations of reactive species contained in a fluid mixture, comprising:

first catalyst means for bringing the fluid mixture to be analyzed into thermodynamic equilibrium;

second means in cascade with said first means including an electrochemical cell which is sensitive to an excess of one of the reactive species with respect to the stoichiometry of the reaction; and

additional means located upstream of said second means for selectively impeding the transfer of species of the fluid mixture to be analyzed, the ratio of relative concentrations of the reactive species contained in the fluid mixture to be analyzed being modified in predetermined proportions by said transfer-impeding means to obtain a substantial and predetermined shift of the stoichiometric concentration measured at said cell.

4,334,511

FUEL INJECTION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Minoru Atsumi, Kawagoe; Toshio Nomura, Niiza, and Jiro Kawahara, Tokyo, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

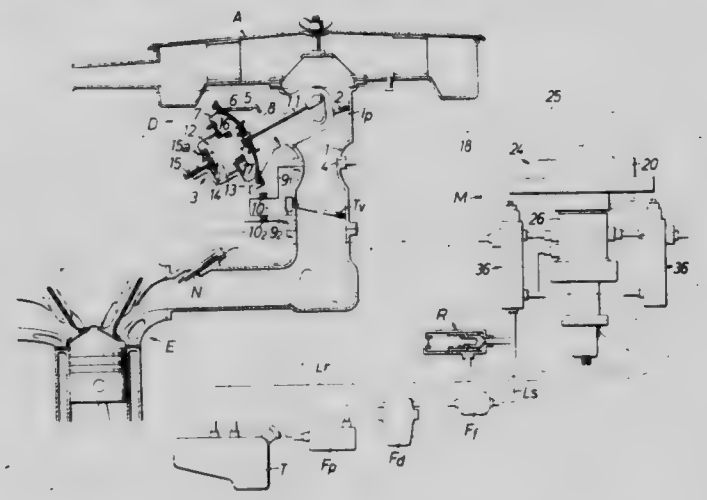
Filed Mar. 20, 1979, Ser. No. 22,272

Claims priority, application Japan, Mar. 23, 1978, 53-33363

Int. Cl.³ F02M *39/00, 1/02*

U.S. Cl. 123—454 12 Claims

1. An improved fuel injection system for an internal combustion engine comprising an intake passage, an air valve, said air valve being in the intake passage normally biased to a closed position, a throttle valve disposed in the intake passage downstream of the air valve, an intake-air flow detecting device for detecting a flow rate of engine intake air as a value of vacuum pressure, a fuel injection nozzle opening to the intake passage at a location downstream of the throttle valve adjacent the engine, a fuel feed pump in a fuel line interconnecting a fuel tank and the fuel injection nozzle, a fuel metering device in the fuel line for metering the fuel delivered from the fuel pump in response to vacuum pressure transmitted from the intake-air flow detecting device to supply a metered amount of fuel to the fuel injection nozzle, the intake-air flow detecting device having a vacuum-operated actuator operable to move the air valve into an open position and restoring spring means arranged to normally bias the air valve in a closing direction, the improvement wherein: a vacuum detecting port communicating with the fuel metering device is open to the intake passage at a location between the air valve and the throttle valve, for controlling the operation of the fuel metering device in re-



sponse to vacuum pressure in the intake passage; and the vacuum-operated actuator has a vacuum chamber which is in communication with the intake passage, both at a location between the air valve and the throttle valve through a first vacuum passage and at a location on the downstream side of the throttle valve through a second vacuum passage whereby, in low load operation of the engine in which the opening degree of the throttle valve is small, high vacuum pressure in the intake passage downstream of the throttle valve is introduced into the vacuum chamber of the vacuum-operated actuator by way of the second vacuum passage to increase the opening degree of the air valve to control vacuum pressure in the intake passage between the air valve and the throttle valve in a decreasing sense.

4,334,512

CONNECTING CONDUIT ARRANGEMENT

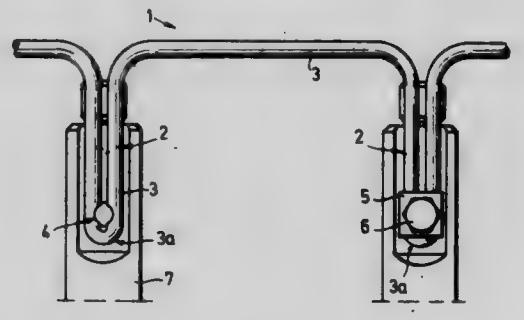
Siegfried Biernath, Bonn, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Cologne, Fed. Rep. of Germany

Filed Oct. 12, 1979, Ser. No. 84,422

Claims priority, application Fed. Rep. of Germany, Oct. 12, 1978, 2844489

Int. Cl.³ F02B *77/00*

U.S. Cl. 123—469 6 Claims



1. A connecting conduit arrangement for connecting a drain conduit with hollow attachment screws to the drains of fuel injection nozzle holders of an internal combustion engine, the arrangement comprising:

a tube comprising a substantially straight section extending

between two fuel injection nozzle holders, the straight section having U-shaped sections each formed of two opposed legs joined by a bight and extending at approximately 90° to the straight section, the U-shaped sections connecting the straight section to adjacent straight sections and extending to the drains of the nozzle holders with the bight portions of the U-shaped sections positioned adjacent the drains, the opposed legs of the U-shaped sections having opposed cut-outs through the walls thereof in alignment with the drains to establish communication therewith and through which is received one of the hollow attachment screws;

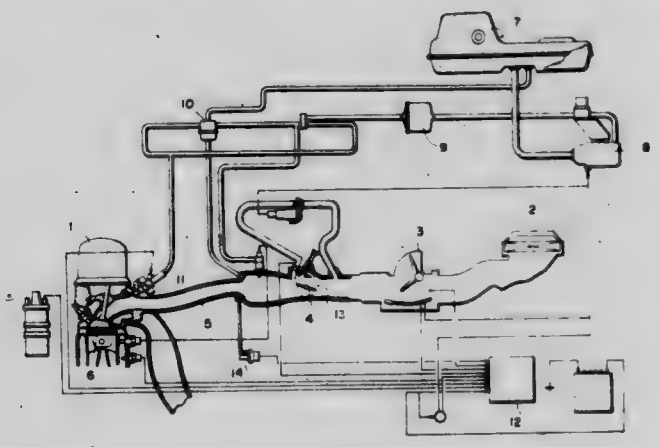
a connecting part fitting over the opposed legs, the connecting part having having a hole therethrough aligned with the opposed cut-outs and a flat surface against which the head of the hollow attachment screw seals, whereby communication between the drain and conduit is established through the hollow attachment screw.

4,334,513

ELECTRONIC FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Makoto Nakajima, Oiso, and Masaru Naramura, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jun. 27, 1980, Ser. No. 163,505
Claims priority, application Japan, Jun. 29, 1979, 54-82229
Int. Cl.³ F02B *3/00*
U.S. Cl. 123—494 **7 Claims**



1. In an electronic fuel injection system for an internal combustion engine, the system having means for sensing the engine speed, means for measuring the rate of air flow entering the engine, means for calculating optimum fuel injection quantity in accordance with the sensed engine speed and the measured air flow rate and producing a command signal based on the calculation and fuel injector means for injecting a regulated quantity of fuel into the engine in response to the command signal, the improvement comprising;

vacuum sensing means for sensing the absolute value of the intake manifold pressure and producing a first actuating signal when the sensed absolute value of the intake manifold pressure is below a predetermined value,

throttle position sensing means for sensing the opening degree of the throttle valve and producing a second actuating signal when the sensed opening degree is beyond a predetermined degree, and

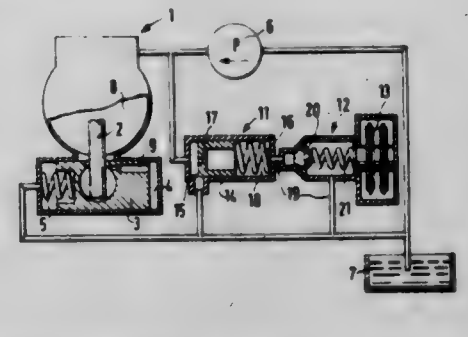
means for achieving fuel enrichment by modifying the command signal of said calculating means in response to said first and said second actuating signals when either or both of said first and said second actuating signals are present.

4,334,514

FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINE

Karl Konrath, Ludwigsburg, and Gerhard Brink, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul: 30, 1980, Ser. No. 173,514
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1979, 2931938
Int. Cl.³ F02M *59/32*
U.S. Cl. 123—502 **6 Claims**



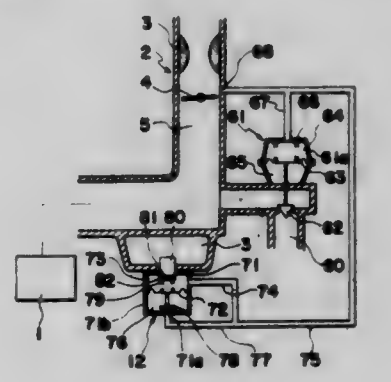
1. A fuel injection pump for internal combustion engines having a piston adjustable counter to a restoring force by means of fluid from a supply pump in proportion to rpm for adjusting injection onset and having rpm-proportional control of the fluid pressure via a pressure control valve, a control piston displaceable between a pressure chamber and a restoring chamber counter to a restoring force and arranged to determine a spill cross section, and a pressure valve, said pressure valve arranged to influence the fluid pressure in accordance with operational characteristics of the engine and further having at least one valve spring, characterized in that said pressure valve includes a pressure actuated maintenance valve having an opening pressure, said opening pressure arranged to be established by means of varying the initial tension of said valve spring, which is supported on a stop means, said stop means being displaceable in accordance with the air pressure via a barometric box.

4,334,515

TEMPERATURE RESPONSIVE, PRESSURE OPERATED DIAPHRAGM VALVE ASSEMBLY FOR AUTOMOBILE ENGINE

Kazutoshi Otsuka, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Jan. 24, 1980, Ser. No. 116,607
Claims priority, application Japan, Jan. 29, 1979, 54-10386[U]
Int. Cl.³ F02M *25/06*
U.S. Cl. 123—568 **7 Claims**



1. A temperature responsive, pressure operated diaphragm valve assembly for use in association with an automobile internal combustion engine having an intake duct leading to at least one combustion chamber, said intake duct having a throttle valve disposed therein for pivotal movement between a substantially closed position and a full open position, and an exhaust manifold leading from the combustion chamber towards

the atmosphere, said temperature responsive, pressure operated diaphragm valve assembly comprising, in combination:

a first valve actuator housing;

a first diaphragm member housed within the first valve actuator housing and dividing the interior of the first valve actuator housing into a first chamber, and a second chamber communicated to the atmosphere;

a first passage means between said first chamber and a portion of the intake duct;

a first biasing spring housed within the first chamber and exerting a biasing force on the first diaphragm member to displace the latter in one direction;

a first valving element carried by the first diaphragm member and positioned on one side of the first diaphragm member opposite to the first biasing spring, second passage means having one end communicated to the intake duct and the other end communicated to a source of fluid medium, said first valving element being movable by said first diaphragm member for selectively opening and closing said second passage means when and so long as the first diaphragm member is displaced in said one direction and opening said second passage when the first diaphragm member is displaced in the other direction opposite to said one direction; and

means operable in response to change in an engine reference temperature for adjusting the biasing force of the first biasing spring according to a change in the engine reference temperature and including a first temperature sensing element having a parameter, the magnitude of said parameter being variable as a function of the engine reference temperature, and a first push rod supported for axial movement between projected and retracted positions and having one end connected to the first biasing spring and the other end operatively associated with the first temperature sensing element for, as the temperature sensed by the first temperature sensor increases, moving said first push rod from the retracted position towards the projected position adjusting the first biasing spring to change the biasing force thereof.

3. A valve assembly as claimed in claim 1, wherein said one end of the second passage is communicated to the intake duct by way of the first passage and said fluid source is constituted by the atmosphere, and further comprising an exhaust gas recirculating system including a recirculating passage having one end communicated to a portion of the intake duct and the other end communicated to the exhaust passage, and a diaphragm control valve assembly including a further valve actuator housing and dividing the interior of the further valve actuator housing into a working chamber and an atmospheric chamber a third passage having one end communicated to the working chamber and the other end fluid connected to the first passage, a further biasing spring housed within the working chamber and exerting a biasing force on the further diaphragm member, and a further valving element rigidly carried by the further diaphragm member for displacement together with the further diaphragm member, said further valving element being adapted to selectively open and close the recirculating passage, said further valving element closing the recirculating passage when the further diaphragm member is biased in one direction by the further biasing spring, but opening the recirculating passage when the negative pressure sufficient to overcome the biasing force of the further biasing spring is introduced into the working chamber.

4,334,516

COLLAPSIBLE, PORTABLE BARBECUE GRILL

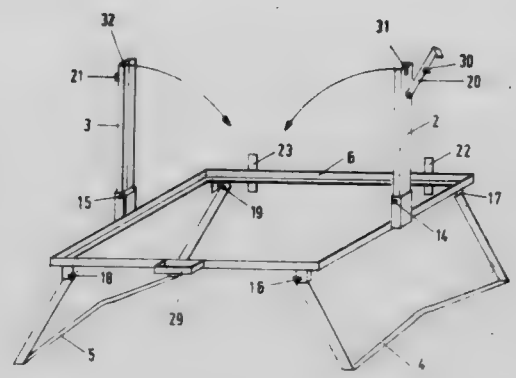
Ellen Dittmer, Urspringerstr. 2, 8021 Strasslach, and Lothar Pietryga, Krüner Str. 43, 8000 München 70, both of Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 93,814

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1978, 2849626

Int. Cl.³ F24C *1/16;* A47J *37/00*

U.S. Cl. 126—9 R 11 Claims



1. A collapsible, portable barbecue grill comprising:

(a) a frame member having a pair of upwardly extending guide rails hingedly affixed at opposite ends thereof, and an inwardly extending peripheral lip, said guide rails being provided with receiving means at the distal free ends thereof;

(b) a pair of generally U-shaped downwardly extending legs hingably affixed to said frame member;

(c) fuel tray means removably receivable by said frame member and being supported on said inwardly extending frame lip for supporting fuel thereon;

(e) a rotisserie bar journaled in said guide rail receiving means;

(f) grill means disposed above said frame member and said fuel tray means, said grill means slidably cooperating with said guide rails for upward and downward movement; and

(g) means affixed to said grill means and said rotisserie bar for moving said grill means upwardly and downwardly by rotation of said rotisserie bar.

4,334,517

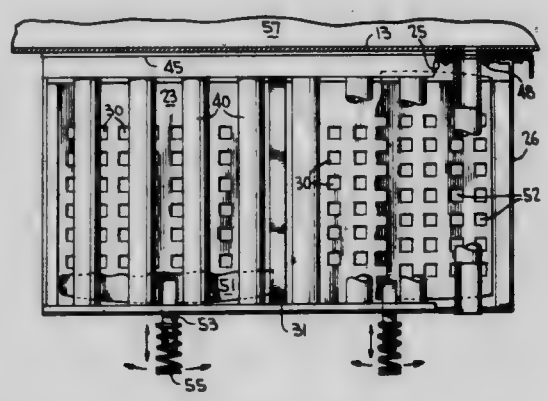
HEAT EXCHANGER UNIT

Bruce Sweitzer, Rte. 2, Box 20-A, Swanton, Md. 21561

Filed Jun. 27, 1979, Ser. No. 52,609

Int. Cl.³ F24B *7/00, 1/02;* F23J *1/06*

U.S. Cl. 126—121 9 Claims



1. A heat exchanger unit suitable for placement along the floor of a fireplace and for connection to a fireplace heat form or heatalator, said heat exchanger unit comprising:

(a) a unitary frame including front and rear walls extending upwardly from opposite sides of a generally rectangular wall;

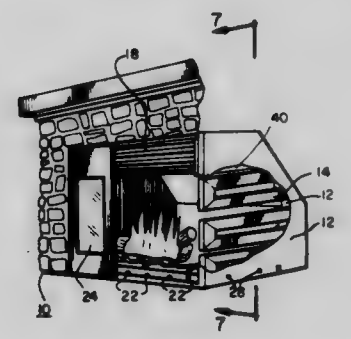
(b) means for supporting said frame above the floor of said fireplace;
(c) means for attaching said rear wall to a fireplace wall;
(d) means for conducting air from an adjacent room through the frame and into said heat form or heatalator comprising a plurality of generally cylindrical open-ended tubes connected to said front and rear walls wherein the open ends of each of said tubular elements are attached to apertures in said front and rear walls, with one open end of each of said tubular elements placed within one of said front wall apertures and the other open end of each tubular element attached to one of said rear wall apertures, with said rear wall apertures being positioned at a greater height from said bottom wall than said front wall apertures so that said tubular elements slant upwardly from said front wall toward said rear wall for connection to a fireplace heat form or heatalator; and
(e) means positioned along said bottom wall for removing ashes from the bottom of said unit.

4,334,518

HEATING SYSTEM

Sterling L. Ort, Lewisberry, Pa., assignor to Sol-Fire Inc., Lewisberry, Pa.

Filed May 28, 1980, Ser. No. 153,992
Int. Cl.[3] F24B *9/04*; F24D *3/00*
U.S. Cl. 126—132 10 Claims



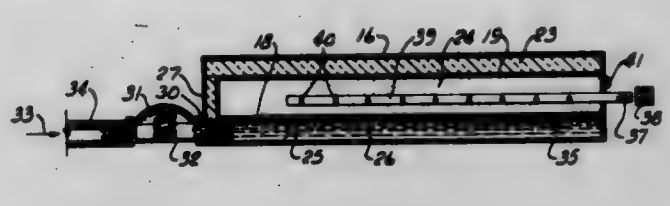
1. A heating system for fireplaces and the like, having a fuel combustion area and an exhaust path for hot gases, comprising:
(a) A combustion air supply providing air at a lower portion of the fuel combustion area;
(b) A hollow metal jacket enclosing the fuel combustion area on three sides, said jacket having lower air holes along a lower edge thereof for drawing oxygen-rich air from the fuel combustion area, and upper air holes for discharging the oxygen-rich air into the exhaust path;
(c) A first heat exchanger placed loosely in the hollow of said jacket and having channels for carrying a heat transfer fluid, said fluid accumulating heat energy from contact with the first heat exchanger, the first heat exchanger from contact with the metal jacket, and the metal jacket from the combusting fuel, a portion of the heat energy serving to heat the oxygen-rich air passing through the jacket;
(d) A second heat exchanger disposed in the exhaust path, and connected to said first heat exchanger via an input pipe and an output pipe, the heat transfer fluid accumulating further heat energy within the second heat exchanger from the exhaust gases passing through the exhaust path;
(e) A source of heat transfer fluid, in fluid communication with the first and second heat exchangers, whereby the system may be charged with heat transfer fluid; and,
(f) Means for transferring the accumulated heat energy in said fluid to an object or space to be heated, said means for transferring accumulated heat energy connected in a fluid loop including the first and second heat exchangers.

4,334,519

PORTABLE HEATER FOR GENERATING AND CIRCULATING HEAT IN WEARING APPAREL

Stanley Cieslak, 14 Creek Rd., and Leonard K. Cieslak, 15 Creek Rd., both of McKees Rocks, Pa. 15136

Continuation-in-part of Ser. No. 49,059, Jun. 18, 1979, Pat. No. 4,281,418, which is a continuation-in-part of Ser. No. 875,815, Feb. 7, 1978, Pat. No. 4,180,922. This application Sep. 15, 1980, Ser. No. 186,954
Int. Cl.[3] A61F *7/08*
U.S. Cl. 126—204 3 Claims



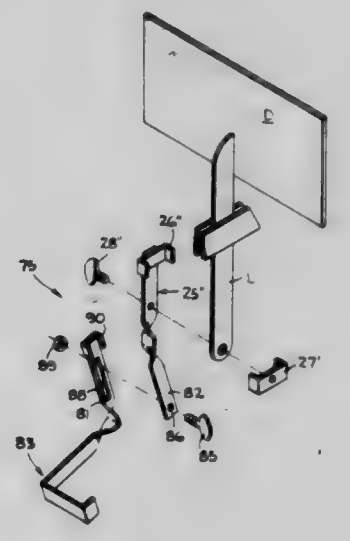
1. A portable heater for generating and circulating heat in wearing apparel or the like comprising a compact case capable of being carried on a person and having a cavity therein adapted to receive a chemical heat cartridge, a chemical heat cartridge removably received in said cavity, a liquid reservoir in said case positioned for radiant heat transfer from said chemical heat cartridge through an inside heat exchanger wall of said case, a flexible liquid conduit having both ends thereof connected for circulation of the heated liquid from said reservoir through said conduit in a closed circuit, and pump means connected to said conduit to circulate heated liquid from said reservoir through said conduit on demand, said chemical heat cartridge consisting of a sealed container containing a chemical composition which reacts with an activating chemical when mixed therewith to provide an exothermic chemical reaction, and an access on said container and having a closure which is removable to provide access to the interior of said container for the insertion of an activating chemical.

4,334,520

ACCESSORY FOR FIREPLACE DAMPER

Henry A. La Pointe, 111 Almaden Blvd., San Jose, Calif. 95198

Filed Aug. 8, 1980, Ser. No. 176,475
Int. Cl.[3] F23L *13/02*
U.S. Cl. 126—288 9 Claims

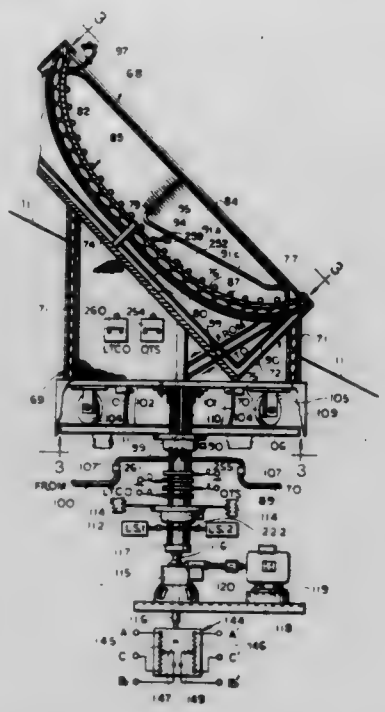


1. An accessory for a fireplace damper having an actuating member connected thereto comprising an accessory handle, an intermediate member connected to and projecting away from said handle, an attachment member connected to said intermediate member and forming an extension thereof, a pair of clamp members mounted on said attachment member in spaced relation for gripping the actuating member of the fireplace damper at spaced points, whereby the movement of said accessory handle controls the opening and closing of the damper.

4,334,521
SOLAR ENERGY SYSTEM

Walter Jacoby, Toms River, N.J., assignor to Solar Optimizing Systems, Inc., Toms River, N.J.

Filed Feb. 6, 1978, Ser. No. 875,176
Int. Cl.[3] F24J 3/02
U.S. Cl. 126—425 12 Claims



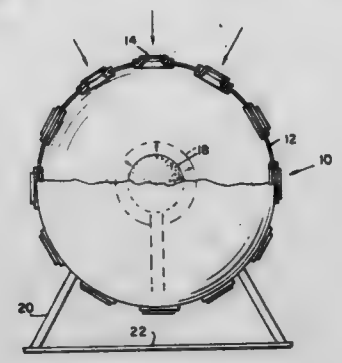
1. In combination, a solar tracing sensor comprising a support mounted to have successive zones thereof facing the sun in its travel across the sky during the day, and a plurality of similar heat-responsive elements mounted on the support in angularly spaced relationship so that successive elements during the day are the most highly heated by the sun during successive predetermined time periods, and a dirigible solar heat collector controlled by the solar tracking sensor, comprising a reflector having a reflecting side, means mounting the reflector so that its reflecting side faces the sun, solar heat collecting means disposed on the reflector to receive heat reflected therefrom, means for turning the reflector in a forward direction about an axis so that it follows the sun in its travel across the sky including a stepping motor, means connecting the motor to the reflector to rotate the latter about said axis, means responsive to successive heat-responsive elements for controlling the motor to drive the reflector forwardly in respective successive steps so that it generally follows the sun in its travel, means for automatically returning the collector to its starting, morning position when the temperature of the collector exceeds a predetermined value, the solar heat collecting means including tubing made of heat conducting material, means for introducing a heat collecting liquid into the tubing and exhausting it therefrom, means for automatically emptying the tubing of liquid when the temperature of the liquid in the tubing falls below a predetermined value, and means for de-energizing the means for turning the collector when the temperature of the liquid in the tubing falls below a predetermined value.

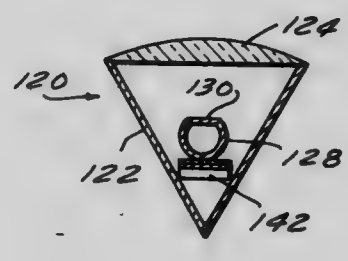
4,334,522
SOLAR HEAT APPARATUS

Joseph Dukess, 931 Greacen Point Rd., Mamaroneck, N.Y. 10543

Continuation-in-part of Ser. No. 794,448, May 6, 1977, Pat. No. 4,166,769. This application Aug. 15, 1979, Ser. No. 66,751
The portion of the term of this patent subsequent to Sep. 4, 1996, has been disclaimed.
Int. Cl.[3] F24J 3/02
U.S. Cl. 126—440 10 Claims

1. A solar energy device comprising:
a member adapted to contain a liquid,
at least one lens spaced from the member for concentrating rays from the sun on a surface of the member;
means for introducing relatively cold liquid into the member and withdrawing liquid at a higher temperature from the member, and



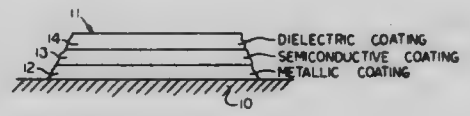


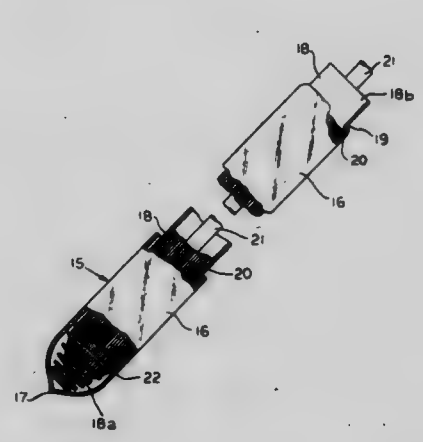
means for relatively moving the member surface and lens toward and away from each other in response to changes in temperature of the liquid within the member so as to move said surface of the member into and out of coincidence with the focal point of the lens.

4,334,523
SOLAR ENERGY COLLECTOR HAVING SOLAR SELECTIVE COATING OF LOW REFLECTANCE

Louis Spanoudis, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Jun. 23, 1980, Ser. No. 162,220
Int. Cl.[3] F24J 3/07
U.S. Cl. 126—443 7 Claims





1. A solar energy absorber comprising a substrate with a multiple coating including a coating of aluminum, a coating of black chrome overlying said aluminum coating and a coating of magnesium fluoride overlying said black chrome coating, the thickness of said magnesium fluoride coating being of a magnitude to decrease reflectance from said aluminum coating by destructive interference.

4,334,524

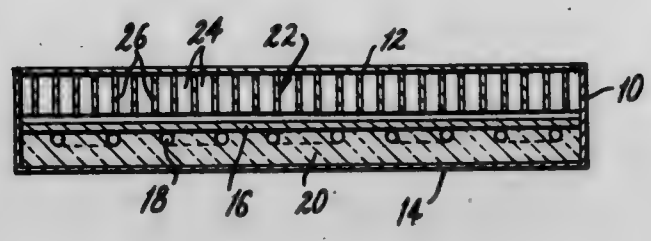
SOLAR HEATER WITH BONDLESS HONEYCOMB HEAT TRAP

Robert W. McCullough, Tarrytown, and Thomas A. Hewett, Chappaqua, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 824,105, Aug. 12, 1977, abandoned. This application Apr. 18, 1980, Ser. No. 141,475

Int. Cl.[3] F24J *3/02*

U.S. Cl. 126—449 13 Claims



1. In a solar air heater comprising in combination:

a housing having a light-transmitting front wall for passing incident solar radiation and including an inlet and an outlet for establishing a flow path for a gaseous medium to be heated,

a gas permeable radiation absorbent collector element positioned across the flow paths in said housing and arranged to accept incident solar radiation passing through said front wall and to transfer the absorbed heat to said gaseous medium passing along said flow path through said collector element, and

a heat trap disposed in said housing adjacent to the surface of said front wall facing said collector element, said heat trap comprising a cellular honeycomb structure containing a multiplicity of open cells in communication with said flow path and having cell walls that are substantially perpendicular to said front wall and which serve as baffle elements to inhibit the flow of said gaseous medium through said heat trap in a direction substantially parallel to the plane of said front wall, said cellular structure being maintained in at least firm mechanical contact with said front wall and being composed of a light-transmitting material which is opaque to infrared radiation emitted from said collector element in a direction toward said front wall, such that said heat trap is integrally formed as a unitary member thereby eliminating interfacial surfaces, joints or adhesive bonds therebetween which can act as scattering sites for incidental light.

4,334,525

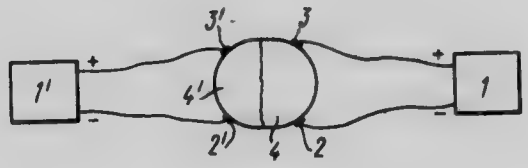
METHOD OF AFFECTING CENTRAL NERVOUS SYSTEM BY PULSE CURRENTS

Eduard M. Kastrubin, Frunzenskaya naberezhnaya, 36, kv. 105, Moscow, U.S.S.R.

Filed Nov. 12, 1980, Ser. No. 205,982

Int. Cl.[3] A61N *1/34*

U.S. Cl. 128—1 C 4 Claims



1. A method of affecting the central nervous system by pulse currents consisting in that the region of the forehead and the neck under the mastoid processes is affected by a combination of pulse current and an additional d-c component, wherein, according to the invention, current is initially applied to the left hemisphere after which the right hemisphere is affected simultaneously and separately at the moment complex resistance of the left hemisphere decreases, the mean current in the region of the right hemisphere being constantly maintained greater than the mean current in the region of the left hemisphere.

4,334,526

METHOD FOR ADMINISTERING A DISSOCIATIVE, UNCONSCIOUS TYPE OF ANESTHESIA

Edward N. Hamacher, Suite 660, Southcenter Medical Bldg., West 105, 8th Ave., Spokane, Wash. 99204

Continuation of Ser. No. 42,027, May 24, 1979, Pat. No. 4,246,894. This application Dec. 22, 1980, Ser. No. 218,580

The portion of the term of this patent subsequent to Jan. 27, 1998, has been disclaimed.

Int. Cl.[3] A61B *19/00*

U.S. Cl. 128—1 R 17 Claims

1. A method of inducing a dissociative type of sedation in a patient for surgical procedures which is safe and capable of being used in an office and being administered by a nurse or physician without anesthesia training, the process allowing a minimal recovery period for the patient, comprising:

administering intravenously a therapeutic dose of an anticholinergic agent to stabilize heart action, reduce and prevent laryngeal spasm,

administering intravenously a therapeutic dose of a basal hypnotic sufficient to relieve patient stress reaction, and

administering intravenously a dissociative and general analgesic drug in an effective dose to induce a state of dissociation in the patient so that the patient is free of pain during infiltration of a local anesthetic into the skin and subcutaneous tissue of the patient where the surgical procedure is to take place and can be given and respond to commands during the surgical procedure.

4,334,527

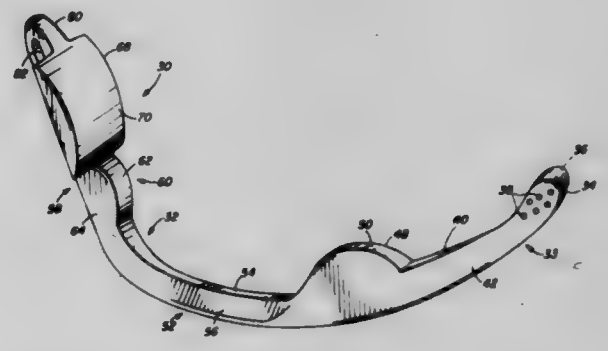
SUPPORT APPARATUS FOR PROSTHETIC APPLIANCE

Robert E. Clinton, 6403 S. 5th Ave., Phoenix, Ariz. 85041

Filed Jan. 8, 1981, Ser. No. 223,253

Int. Cl.[3] A61F *5/00*

U.S. Cl. 128—79 10 Claims



1. Support apparatus for securing a penile prosthesis to a user, comprising in combination:

base means, including

a forward portion having a forward tip,

a forward positioning protuberance for positioning the forward portion against the user's torso,

an intermediate portion extending rearwardly from the forward portion, and

a rear portion connected to the intermediate portion and including a rear positioning protuberance; and

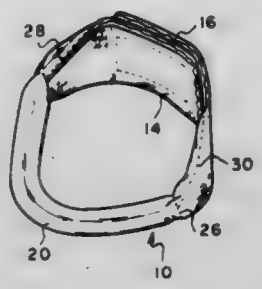
fastening means for securing the base means to the prosthesis.

4,334,528

KNEE STRAP

George R. Gauvry, Hainesport, N.J., assignor to Cho-Pat, Inc., Hainesport, N.J.

Filed Jul. 21, 1980, Ser. No. 170,711
Int. Cl.[3] A41D *13/06*
U.S. Cl. 128—80 C 4 Claims



1. A knee strap for aiding in the alignment of a patient's patella for reducing trauma on the undersurface of the patella comprising:

an elongated fabric strap member having a length at least as long as the circumference of the patient's leg at a point immediately below the patella so that said strap member can be wrapped there around;

said member including a pair of end portions and a substantially tubularly shaped center portion of circular cross section, said center portion being comprised of part of said fabric wrapped about a compressible tubular member, said end portions extending from either end of said center portion and also being comprised of said fabric;

each of said end portions being substantially flat and substantially flexible;

Velcro fastening means associated with said end portions for fastening the same together when the knee strap is in place on a patient's leg so as to form a closed loop;

said center portion being more rigid than said end portions and having a diameter which is less than the height of said end portions.

4,334,529

WIRTH'S STERILE, DISPOSABLE SURGICAL DRAPE

Carl R. Wirth, Slingerlands, N.Y., assignor to Caroline G. Wirth, Slingerlands and Roberta H. Wessendorf, Guilderland, both of, N.Y., a part interest

Filed Apr. 14, 1981, Ser. No. 253,944
Int. Cl.[3] A61F *13/00*
U.S. Cl. 128—132 D 1 Claim



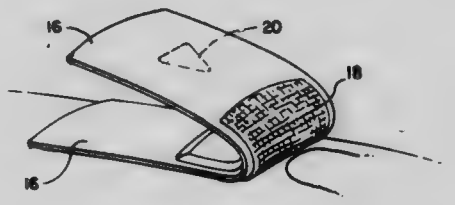
1. A sterile, disposable surgical drape for covering a surgical patient on the operating table, and for providing and maintaining a sterile field in which a surgeon can operate or perform other diagnostic procedures requiring the use of tubing, wiring, cables, or the like, operatively connected to non-sterile equipment; said surgical drape comprising top and bottom layers, elastic material, very small holes, openings and covering tabs, said top and bottom layers sandwiching said elastic material therebetween, said very small holes being in said elastic material, said very small holes being substantially, equally-spaced thereon, said very small holes functioning to tightly hold and retain said tubing, cables, wiring and the like, said openings being in said top and bottom layers, said openings being in aligned relationship, said openings exposing said elastic material and said very small holes, said very small holes being substantially centered within said openings, said covering tabs having sealing tabs to seal said openings and maintain the sterile condition of said drape, said covering tabs having lift tabs engageable in manipulative relationship to pull away and remove said sealing tabs sealing said openings and to thereby expose said very small holes; and whereby said tubing, wiring, cables, and the like, may be sterilized, and neatly arranged and carried by said very small holes, whereby those portions of said tubing, wiring, cables, and the like, exposed in such sterile operating field, may be restricted to workable and practicable lengths to both perform their intended functions and to prevent same from being disposed below the operating-table plane and from thereby introducing the condition of non-sterility or bacterial contamination into such sterile operating field, and whereby said tubing, wiring, cables, and the like, being disposed through and carried by said very small holes, prevents same from lifting said sterile drape away from or moving said sterile drape away from such patient to bacterially contaminate such sterile operating field, and whereby such drape, so arranged and constructed, cooperatively functions to prevent bacterial contamination of such sterile operating field regardless of whether said non-sterile equipment is disposed or located under said drape or away from such sterile operating field.

4,334,530

INDICIA-BEARING ADHESIVE BANDAGES

Donald S. Hassell, 37 Westdale Rd., Holbrook, Mass. 02343

Filed Sep. 12, 1980, Ser. No. 186,759
Int. Cl.[3] A61L *15/00*
U.S. Cl. 128—156 5 Claims



1. In an adhesive bandage comprising a flexible backing, a pressure-sensitive adhesive on one side of said backing, an absorbent pad carried by said backing on said adhesive-faced side, said absorbent pad being positioned intermediate transverse edges of said backing;

the improvement wherein the other non-adhesive side of said backing is provided with markings indicating which transverse edge of said backing should be removed first when removing said bandage from a wound.

4,334,531

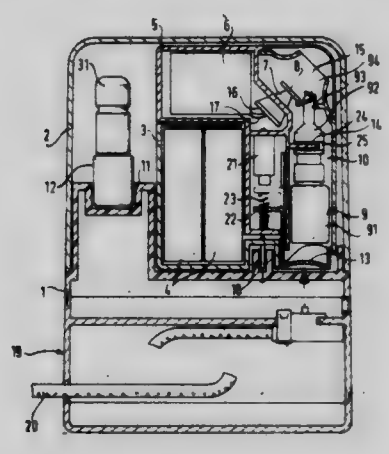
INHALATOR

Ernst Reichl, Munich, and Herbert Marloth, Siegertsbrunn, both of Fed. Rep. of Germany, assignors to Bosch-Siemens Hausgeräte GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 18, 1980, Ser. No. 160,621
Claims priority, application Fed. Rep. of Germany, Jun. 19, 1979, 7917568[U]
Int. Cl.[3] A61M *11/00*
U.S. Cl. 128—200.14 3 Claims

1. An inhalator comprising a housing having a lower portion and a removable cap portion mounted on said lower portion thereby defining a space therein, wall means in said space defining a compartment, said compartment having an outlet opening, a cover removably mounted over said outlet opening wherein said cap and cover are removable to allow access into said space and compartment from outside said housing, a first fluid container having an outlet and pump means for pumping fluid from said outlet of said first fluid container when said

pump means and first fluid container are compressed, a second fluid container having an outlet with means for emitting fluid from said outlet mounted therein, said second fluid container having a length shorter than the length of said first fluid container, receptacle means mounted in said compartment for removably receiving and holding one of said containers such that the outlet of said respective container is adjacent said outlet opening of said compartment, electrically operated atomizing means mounted in said compartment adjacent said outlet of one of said fluid containers for receiving and atomizing fluid emitted from the outlet of one of said containers, electrical source means mounted in said space, a switch mounted in said compartment and electrically connected between said electrical source means and said atomizing means, holding means mounted in said space for receiving and storing



one of said containers, said first and second fluid containers being removably and interchangeably mounted between said receptacle means and said holding means, manually operable actuating means slidably mounted in said compartment and operable, when said first fluid container is mounted in said receptacle means, for simultaneously actuating said switch for turning said atomizing means on and off and for impinging upon said first fluid container for driving said pump means and pumping fluid from said first fluid container toward said atomizing means, and operable, when said second fluid container is mounted in said receptacle means, for solely actuating said switch for turning said atomizing means on and off as fluid is transferred to said atomizing means from said fluid emitting means, whereby one of said containers is mounted in said receptacle means for use while the other is mounted in said holding means for storage.

4,334,532

VALVES AND BREATHING APPARATUS INCORPORATING SUCH VALVES

Peter J. Jackson, Dorking, England, assignor to Chubb Panorama Limited, Bognor Regis, England

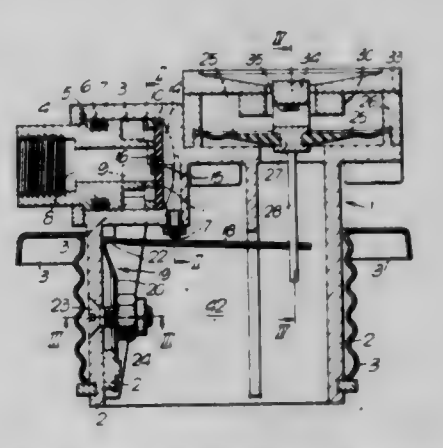
Filed Jun. 20, 1980, Ser. No. 161,624

Claims priority, application United Kingdom, Jun. 21, 1979, 7921698; Sep. 26, 1979, 7933304

Int. Cl.³ A62B *7/04*

U.S. Cl. 128—204.26 **11 Claims**

1. A breathing gas demand valve comprising means defining an inlet chamber for receiving gas from a breathing gas supply; means defining an outlet chamber for delivering gas to breathing interface means; valve means provided in the gas flowpath between said inlet and outlet chambers and constructed and arranged to control the main gas flow through the valve from the inlet chamber to the outlet chamber; means defining a control chamber adapted to have a gas pressure therein; said valve means being responsive to the gas pressure in said control chamber whereby said main gas flow is controlled by said valve means responsive to the gas pressure in the control chamber; an inlet orifice connecting the control chamber with the inlet chamber and through which gas is substantially continuously bled from the inlet chamber to the control chamber; an outlet orifice connecting the control chamber with the outlet chamber and through which a jet of gas is substantially continuously vented from the control chamber into the outlet chamber; a pressure-responsive member bounding on one side thereof the outlet chamber and exposed on the other side to a reference pressure, said pressure-responsive member being constructed and arranged to deflect in response to pressure changes within the outlet chamber consequent to the respiration of a user of the valve; and a control member which is distinct from but coupled to said pressure-responsive member, and located within the outlet chamber; the control member comprising a two-armed, spring element a first arm of which is held firmly to a fixed part of the valve structure and the second arm of which is coupled to the pressure-responsive member with a portion of the second arm lying adjacent to the outlet orifice in the path of the jet of gas vented from the control chamber through the outlet orifice; the second arm of the control member being deflectable relative to the first arm about a flexural pivot established in said control member and



arranged to deflect with deflection of the pressure-responsive member to move the said portion of said second arm towards or away from the outlet orifice in dependence upon pressure changes within said outlet chamber, thereby to control the rate of venting of gas from the control chamber and thereby the gas pressure within said control chamber; the control member being so constructed and arranged that the aforesaid movement of said portion of the second arm thereof controls the rate of venting of gas from the control chamber by variable interaction with said jet and is arranged to establish such gas pressure in the control chamber as to shut off the main gas flow through the valve without said portion of said second arm seating physically over said outlet orifice; the control member being self-biasing, resiliently, towards a position in which said portion of the second arm thereof is at a set spacing from said outlet orifice; and means associated with said first arm and said valve structure for applying a variable force to a portion of said first arm to vary said set spacing between said portion of said second arm and said outlet orifice.

4,334,533

BREATHING METHOD AND APPARATUS FOR SIMULATING HIGH ALTITUDE CONDITIONS

Melvyn L. Henkin, 5011 Donna Ave., Tarzana, Calif. 91356

Continuation-in-part of Ser. No. 901,621, May 1, 1978, Pat. No. 4,210,137, which is a continuation-in-part of Ser. No. 646,424, Jan. 5, 1976, Pat. No. 4,086,923. This application Jun. 2, 1980, Ser. No. 155,193

Int. Cl.³ A62B *7/10*

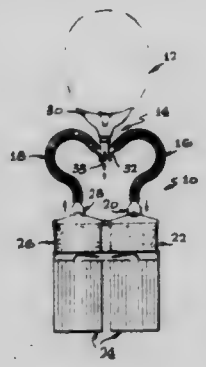
U.S. Cl. 128—205.28 **18 Claims**

1. Apparatus for supplying an air mixture for inspiration by a user comprised solely of the user's previously expired air and ambient air, which mixture has a lower oxygen concentration than the ambient air, said apparatus comprising:

inspiratory path means having open first and second ends and including valve means therein for permitting air flow only in the direction from said second to said first end;

expiratory path means having first and second ends and including valve means therein for permitting air flow only in the direction from said first to said second end;

air reservoir means;
means coupling said expiratory path means second end to said reservoir means for supplying air thereto;
means coupling said inspiratory path means second end to said reservoir means for drawing air therefrom;
CO_2 absorber means incorporated in said expiratory and/or inspiratory path means; and
user breathing means communicating with the first ends of said inspiratory and expiratory path means and including an orifice providing bi-directional flow communication



with the environment located between said inspiratory and expiratory valve means proximate to the first ends of said inspiratory and expiratory path means, said orifice and inspiratory and expiratory path means sized to divide flow therebetween for permitting a user during inspiration to draw air through said orifice from the environment to mix with air drawn through said inspiratory path means from said reservoir means and during expiration to exhaust a portion of the user's expired air through said orifice to the environment and a portion through said expiratory path means into said reservoir means.

4,334,534

EMERGENCY AIRWAY MANAGEMENT DEVICE

George T. Ozaki, San Diego, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed Sep. 18, 1980, Ser. No. 188,180
Int. Cl.[3] A61M *25/00*
U.S. Cl. 128—207.15 1 Claim



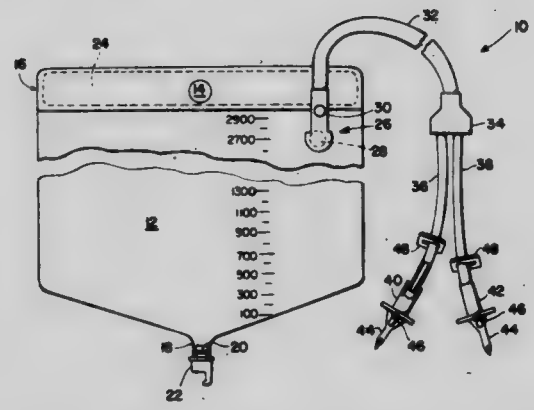
1. A flexible emergency airway device for insertion through the mouth and randomly lodging either in the trachea or esophagus for resuscitating a patient, which comprises:
an outer tube having a distal end and a proximal end and having at least one air port in the wall of said outer tube located intermediate the distal and proximal ends of said outer tube, said distal end of said outer tube being angularly cut and having a side port in the wall of said outer tube opposite from said angular cut;
inner tube means for providing an airway through the mouth of a patient, placed longitudinally along and within the bore of said outer tube and terminating adjacent the distal end of said outer tube;
interior sealing means for forming an airtight seal between the exterior wall of said inner tube means and interior wall of said outer tube and placed between said air port and the distal end of said inner tube means;
exterior sealing means for forming an effective seal with the walls of the trachea or esophagus depending upon which passage said outer tube is lodged in, and attached adjacent said distal end and encircling said outer tube;
a pilot balloon connected to said exterior sealing means by a passageway for indicating the amount of pressure in said exterior sealing means, and providing a means for inflating and deflating said exterior sealing means.

4,334,535

CONDUIT DEVICE FOR RAPID PRIMING AND FLOW OF LIQUID

David A. Wilson, Novato, and Frank J. Serany, Danville, both of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Aug. 12, 1980, Ser. No. 177,700
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—214 D 22 Claims

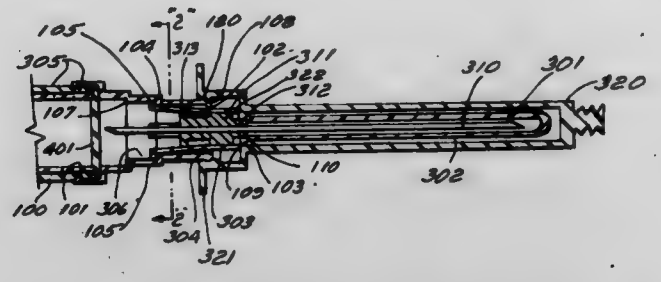


1. A pooling and dispensing container set for parenteral solutions having an inlet port and an outlet port, the outlet port having closure means adapted for being opened by a cannula on a parenteral solution administration set, the inlet port being connected to a pooling system comprising a length of enlarged inner diameter tubing one end of which is connected to the inlet port and the other end being connected to an adaptor having a first and a second inlet, first and second pooling conduits each connected at its one end to the first and second inlets, respectively, the inner diameters of the pooling conduits being smaller than the inner diameter of the enlarged tubing, the other ends of the pooling conduits each being joined to a first and a second primer tube, respectively, each primer tube being connected at its outer end to a hollow coupler having means at one end for entry into a container of parenteral solution and an exit orifice at the other end, the primer tube surrounding the orifice and having an inner diameter larger than the diameter of a drop of the solution released from the orifice, the inner diameter of the pooling conduit being smaller than the inner diameter of the primer tube and at least no greater than the diameter of the drop of solution.

4,334,536
HYPODERMIC SYRINGE NEEDLE ASSEMBLY

Frederick W. Pfleger, 1152 Barbara Dr., Cherry Hill, N.J. 08003

Filed Nov. 5, 1980, Ser. No. 204,319
Int. Cl.³ A61M 5/00
U.S. Cl. 128—218 DA 15 Claims

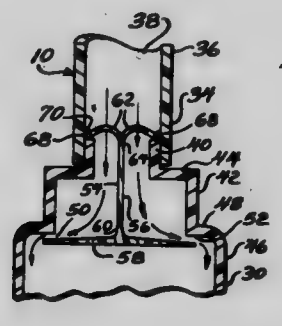


1. A unitized cover for a hypodermic syringe needle having an outer end, an inner end, and a middle section comprising; a first cover for said outer end, a second cover for said inner end, a third cover for said middle section, a first breakable means connecting said first cover and said third cover, a second breakable means connecting said second cover and said third cover, said first breakable means and said second breakable means connecting said first cover, said second cover, and said third cover to form a unitized structure.

4,334,537
DRAINAGE RECEPTACLE WITH ANTI-REFLUX VALVE

James J. Peterson, Elgin, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Jan. 28, 1981, Ser. No. 229,382
Int. Cl.³ A61F 5/44
U.S. Cl. 128—275 6 Claims



1. An anti-reflux device, comprising:

a drainage receptacle having a chamber and a wall defining a lumen communicating with the chamber, said receptacle having an annular valve seat facing away from the lumen; and

an elastic valve element having an elongated stem, a disc connected to one end of said stem and having an upper surface normally sealingly engaging against said seat, and means for retaining the other end of the stem to the wall with the disc biased against the seat and with the retaining means defining opening means to permit passage of liquid therethrough, said disc moving away from the seat responsive to passage of liquid onto the disc, the retaining means comprising a plurality of arcuate elastic radial retaining arms extending from the other end of the stem and being spaced peripherally around the stem to define openings between the arms, said arms being connected to the wall and biasing the disc against the seat.

4,334,538
ASPIRATOR FOR COLLECTING LIQUID SAMPLES

Steven K. Juhn, 2624 Rice Creek Ter., New Brighton, Minn. 55112

Filed Dec. 12, 1979, Ser. No. 103,072
Int. Cl.³ A61M 1/00
U.S. Cl. 128—276 7 Claims

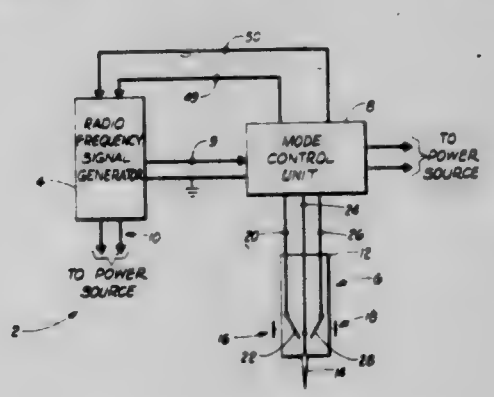


1. An aspirator for manually collecting samples of fluids from remote human body cavities comprising an elongated axially extending handle having a top surface, a bottom surface, a forward end, a rearward end, a centrally located cavity opening through said bottom surface of said handle, said handle between said cavity and said rearward end providing means for manually gripping thereof, a rigid passageway extending through said handle communicating said cavity with said forward end and said rearward end, said handle having an aspiration control finger vent located directly above the cavity and communicating with said cavity and said passageway through said top surface; a removably attached specimen collecting vial having an open top in air-tight attachment to said cavity; a separate removable flexible tube means extending from within said cavity and vial through said passageway and outwardly beyond said forward end for a predetermined distance, said tube means including means for providing an air-tight seal with said passageway; a removable length of a metal hollow tube extending outwardly from said forward end and encircling said flexible tube in an air-tight manner; and said rearward end including means for connecting said passageway to a source of vacuum.

4,334,539
ELECTROSURGICAL GENERATOR CONTROL APPARATUS

Warren L. Childs, Blanchard, and William T. Cronenwett, Norman, both of Okla., assignors to Cimarron Instruments, Inc., Oklahoma City, Okla.

Filed Apr. 28, 1980, Ser. No. 144,363
Int. Cl.³ A61B 17/36
U.S. Cl. 128—303.14 21 Claims



1. An apparatus for controlling an electronic surgical instrument which includes an alternating current signal generator means and a workpiece engaging means, said apparatus comprising:

first channel circuit means for providing a first control signal to said alternating current signal generator means;

second channel circuit means for providing a second control signal to said alternating current signal generator means;

means for providing said first channel circuit means and said second channel circuit means with an alternating current to; and

channel select means for selectably actuating either said first channel circuit means or said second channel circuit means so that when said first channel circuit means is actuated, the first control signal is provided to said alternating current signal generator means to activate the generation thereby of a first alternating current signal surgically usable by said workpiece engaging means and so that when said second channel circuit means is actuated, the second control signal is provided to said alternating current signal generator means to activate the generation thereby of a second alterating current signal surgically usable by said workpiece engaging means.

4,334,540

METHOD OF DIAGNOSING PERIODONTAL DISEASE THROUGH THE DETECTION OF PYRIDINE COMPOUNDS

George Preti, Philadelphia; James G. Kostelc, Glenside, and Philip R. Zelson, Drexel Hill, all of Pa., assignors to Monell Chemical Senses Center, Philadelphia, Pa.

Filed May 1, 1979, Ser. No. 35,018

Int. Cl.[3] A61B *5/00;* G01N *1/00, 33/48*

U.S. Cl. 128—630 17 Claims

1. A method of evaluating an individual to determine and diagnose the existence of periodontal disease in the oral cavity of that individual, comprising the steps of:

(a) collecting a test substance from the oral cavity of the individual to be evaluated; and

(b) presenting that test substance to an indicator means for selectively responding at least qualitatively to the presence of at least one indicative diagnostic pyridine compound in that test substance, whereby a qualitative response of said indicator means diagnoses the existence of periodontal disease in said individual.

4,334,541

THERMAL PROTECTIVE CIRCUIT FOR A HYPEREMIA-INDUCING PHYSIOLOGICAL SENSOR

Helmut Leist, and Georg J. Ullrich, both of Freiburg im Breisgau, Fed. Rep. of Germany, assignors to Hellige, GmbH, Freiburg im Breisgau, Fed. Rep. of Germany

Filed Mar. 17, 1980, Ser. No. 130,639

Claims priority, application Fed. Rep. of Germany, Mar. 24, 1979, 2911601

Int. Cl.[3] A61B *5/00*

U.S. Cl. 128—632 4 Claims

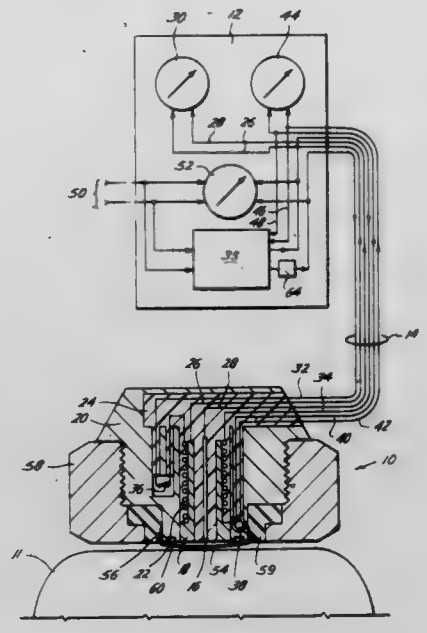
1. A physiological sensor for the transcutaneous determination of physiological phenomena, comprising

a heater element;

a remote source of power for energizing the heater element;

control means, including the power source, the heater element and a first temperature-responsive device, for thermostatically maintaining the temperature of the sensor substantially constant during normal use of the sensor; and

safety means, including a second temperature-responsive device, for interrupting energization of the heater element by maintaining the heater element disconnected from the power source whenever, due to failure of the control means, the temperature of the sensor exceeds a predetermined ceiling level, until intervention by an operator restores energization conditions.



4,334,542

ARTIFICIAL PALATE DEVICE FOR ELECTROPALATOGRAPH

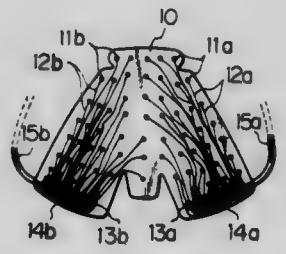
Kiyotoshi Takinishi, Koganei, and Masato Nakamura, Fuchu, both of Japan, assignors to Rion Co., Ltd., Tokyo, Japan

Filed May 8, 1980, Ser. No. 148,171

Claims priority, application Japan, May 10, 1979, 54/57341; Aug. 23, 1979, 54/107377

Int. Cl.[3] A61B *5/10;* G09B *19/04*

U.S. Cl. 128—642 6 Claims



1. An artificial palate device for use in electropalatograph speech training and the like comprising a flexible electrically insulative base board substantially in the shape and dimensions of a human hard palate, a plurality of tongue contact sensing electrodes provided as spaced from each other on one surface of said base board, a plurality of lead wires corresponding in number to said electrodes and provided on said one surface of the base board, said lead wires being connected respectively at one end to each of the electrodes and led out of the base board as insulated from each other and from other electrodes, and means for covering substantially the said one surface of the base board and having a plurality of through holes made at positions corresponding to those of the electrodes for exposing at least a part of the respective electrodes out of said layer, said device being capable of intimately fitting a human hard palate and being retained therein.

4,334,543

METHOD AND APPARATUS FOR FLOW VELOCITY DETERMINATION

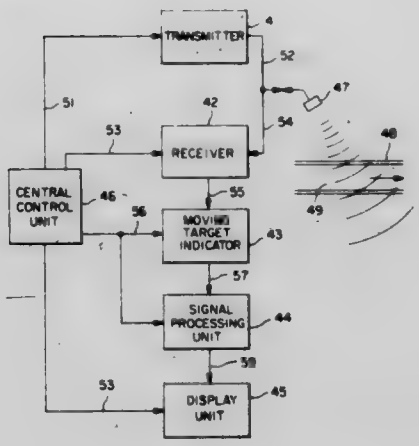
Rainer Fehr, Reinach, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Nov. 28, 1979, Ser. No. 97,978

Claims priority, application Switzerland, Dec. 4, 1978, 12361/78

Int. Cl.[3] A61B *10/00*

U.S. Cl. 128—663 9 Claims



1. A method of determining flow velocities of flow material by measuring the phase difference between Doppler signals derived from wave pulses which are reflected by substantially one and the same reflector, which is an element of the flow material, at two different times, the interval between the times being predetermined, the Doppler signals carrying flow velocity information, each Doppler signal being demodulated in quadrature to produce a pair of electrical signals which jointly bear information representative of the phase of the Doppler signal, characterized in that it comprises:

(a) combining at least a first and a second pair of said electrical signals to produce a third pair of electrical signals which together bear information representative of the magnitude and sign of the phase difference between the Doppler signals from which the first and second pair of electrical signals are derived;

(b) forming mean-value signals, each corresponding to the mean value of one of the signals from said third pair of electrical signals; and (c) combining the mean-value signals to form an output signal which corresponds to the magnitude and sign of the average value of the phase difference between the Doppler signals, and thereby is representative of the flow velocity at the location of the reflector.

4,334,544

EAR LOBE CLIP WITH HEART BEAT SENSOR

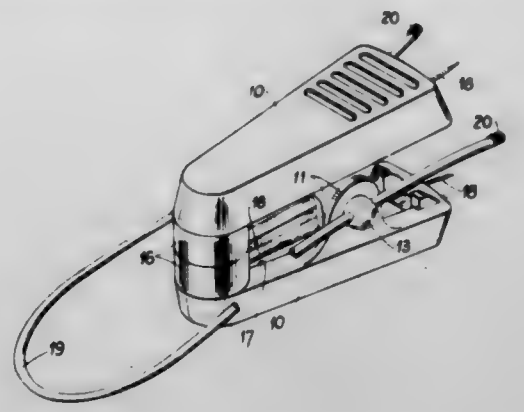
Loran R. Hill, Olney, Ill., and Steven E. Titcomb, Milton, Mass., assignors to AMF Incorporated, White Plains, N.Y.

Filed Apr. 28, 1980, Ser. No. 144,720

Int. Cl.[3] A61B *5/02*

U.S. Cl. 128—664 3 Claims

1. An ear lobe clip with heart beat sensor means therein, comprising a pair of equal length plastic material pivot arms, said pair of arms facing each other in spaced and generally parallel relationship, said pair of arms having a pivotal connection with each other at their respective central portions for pivotal movement of each of their two pairs of opposite ends towards and away from each other, a spring at said pivotal connection, said spring being operative to bias one of said pair of opposite ends into light engagement with each other for clipping said one pair of opposite ends on to an ear lobe, heart beat sensor means at each of said one pair of opposite ends, wires electrically connected to each of said sensor means and extending along said arms and out therefrom at the other pair of opposite ends of said arms, adjustable means for hanging said arms off the ear of the lobe to which said arms are clipped, said adjustable means comprising a pair of apertures formed on said arms, a flexible strip of plastic material, opposite ends of said strip extending into said apertures whereby the remainder



of said strip comprises an open loop for hanging said arms on said ear, and said strip opposite ends having a friction fit in said apertures to pull said opposite strip ends in either direction through said apertures to adjustably set the size of said loop.

4,334,545

BIOFEEDBACK SYSTEM

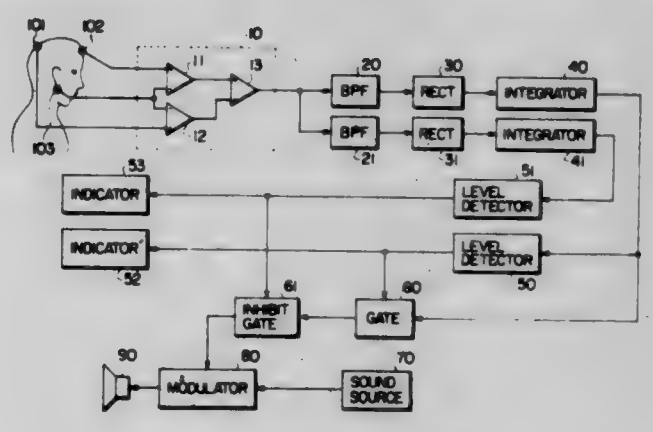
Kazumasa Shiga, Kawasaki, Japan, assignor to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Nov. 28, 1979, Ser. No. 97,985

Claims priority, application Japan, Nov. 28, 1978, 53-147449

Int. Cl.[3] A61B *5/04*

U.S. Cl. 128—732 22 Claims



1. A biofeedback system comprising, means for sensing electrical activity within a human body to generate a single source signal representing the sensed electrical activity, means for deriving from said source signal a first physiological signal normally indicative of the presence of a desired state of mind and a second physiological signal indicative of the absence of said desired state of mind, indicator means, and gate means for applying said first physiological signal to said indicator means to derive an indication in the absence of said second physiological signal and inhibiting said first physiological signal in the presence of said second physiological signal.

4,334,546

COSMETIC PENCIL

David T. Floyd, Milford; John H. Murphy, Matamoras, and John J. Brodzinski, Milford, all of Pa., assignors to Kolmar Laboratories Inc., Port Jervis, N.Y.

Filed Sep. 8, 1980, Ser. No. 185,229

Int. Cl.[3] A45D *40/30*

U.S. Cl. 132—88.5 11 Claims

1. A cosmetic pencil, comprising an outer tubular barrel having an axial bore, and an inner core composed of a composition for topical application disposed within the bore, said barrel comprising from 5% to 20% by weight of hydrogenated castor oil with the degree of hydrogenation being such that the

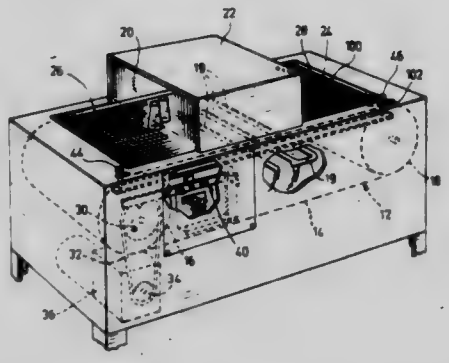
hydrogenated castor oil has a softening point above 50° C., and the balance being polyethylene, said barrel having improved toughness, improved sharpenability and increased resistance to stress cracking.

4,334,547

WASHING MACHINE FOR GLASSES AND THE LIKE

Howard Diebel, St. Catharines, and Albert deMan, Vineland, both of Canada, assignors to Moyer Diebel Limited, Jordan Station, Canada

Filed Apr. 14, 1980, Ser. No. 140,371
Claims priority, application Canada, Apr. 20, 1979, 326022
Int. Cl.³ B08B *3/02*
U.S. Cl. 134—46 **9 Claims**



1. A washing machine comprising a conveyor for conveying glasses and other utensils from a loading zone, through a washing zone including spray means to an unloading zone and control means associated with said spray means and conveyor means operable selectively to permit the continuous operation of the spray means and conveyor, to permit the intermittent operation of the spray means and conveyor on a timed cycle and to permit intermittent operation of the spray means and conveyor means to providing means sensing the arrival of a glass or utensil at the unloading zone of the conveyor means and effective to switch off the spray means and conveyor means in response to such arrival, wherein said control means comprise a slide bar mounted for longitudinal movement;

a pivoted lever mounted for movement with the slide bar;

a switch that in one state permits operation of the conveyor and the spray means and not in another state, movement of the slide bar in one direction operating the switch to one state and in the other direction operating the switch to the other state, and means for alternatively moving the said pivoted lever between;

a first position in which it engages a timing device that will move the lever and the slide bar to operate the switch after a predetermined period of time;

a second position in which the lever is movable by hand alone to operate the switch, and

a third position in which the lever is urged to operate the switch to operate the conveyor and the spray means until moved in the opposite direction by a conveyed glass engaging a stop member coupled in the slide bar.

4,334,548

APPARATUS FOR DEFATTING TREATMENT OF CONTAINERS

Takeshi Konagaya, Yaizu, and Shunji Yano, Sagamihara, both of Japan, assignors to Daiwa Can Company, Japan

Filed Feb. 13, 1981, Ser. No. 234,417
Int. Cl.³ B08B *9/08*
U.S. Cl. 134—170 **6 Claims**

1. An apparatus for subjecting containers being open at one end to defatting treatment with a volatile cleaning liquid for defatting treatment which is a pot assembly composed of a body and a crown,

the body being composed of a centering ring, a core and a shell;

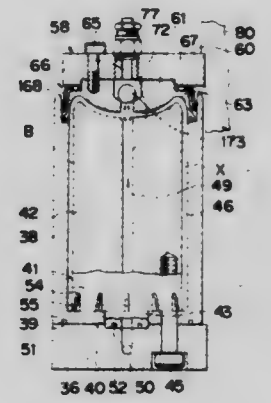
the centering ring being provided with a plurality of fins at the lower end thereof, said fins having projections for receiving and supporting the open end of the container,

the core having outer and top surfaces of figures similar to the body and bottom surfaces of said container and being fitted with said centering ring at the lower end thereof,

the shell being outside of said centering ring and said core, the inner surface of the shell being of a figure similar to that of the body surface of said container and a narrow gap being formed between the inner surface of the container and the outer surfaces of the centering ring and core;

a cavity for the reception of said container being defined by said centering ring, core, shell and crown;

the crown being fitted with the open end of said shell to seal said cavity;



the cavity being divided into two chambers by receiving said container into said cavity at a predetermined place;

the cavity being of a size enough to admit said volatile cleaning liquid for defatting treatment to fill up these two chambers and flow along the inner and outer surfaces of said container; and

the pot assembly being provided with inlet and outlet passages for said cleaning liquid for defatting treatment;

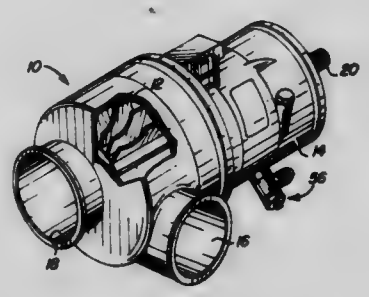
the characteristic aspect being in that, when said cavity is sealed, at least said shell and said crown form a sealing portion, and the inner surfaces of said shell and crown adjacent to the sealing portion are smooth and form substantially one plane.

4,334,549

PNEUMATIC STARTER OVERTEMPERATURE CONTROL

Darrel W. Burch, and James P. Wojciehowski, both of Phoenix, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 886,381, Mar. 13, 1978, Pat. No. 4,220,439. This application Feb. 8, 1980, Ser. No. 119,620
Int. Cl.³ F16K *12/40*
U.S. Cl. 137—72 **12 Claims**



1. A fusible plug for relieving pressure in a gas duct in response to the heat of a liquid within a housing, comprising:

an elongate hollowed body threadably secured to said housing with an inner end of said body immersed in said liquid, said body having an outer end disposed exteriorly of said housing in substantially axial alignment with said inner

end and having a longitudinally extending outer counter bore presenting an open exhaust port, said body having an inlet port communicating with said duct and opening into the interior of said body at a location exteriorly of said housing and intermediate said inner and outer ends;

an elongated stem valve positioned within the interior of said body and including a valve section movably received in said outer counter bore, said valve section normally being in a closed position in sealing engagement with said body to prevent flow of gas from said duct and inlet port to said exhaust port, said stem valve including an inner end exposed to said liquid;

spring means extending between said body and said stem valve for urging said valve section longitudinally in a direction toward said outer end of said body toward an open position permitting exhaust of pressurized gas from said duct through said inlet port to said exhaust port; and

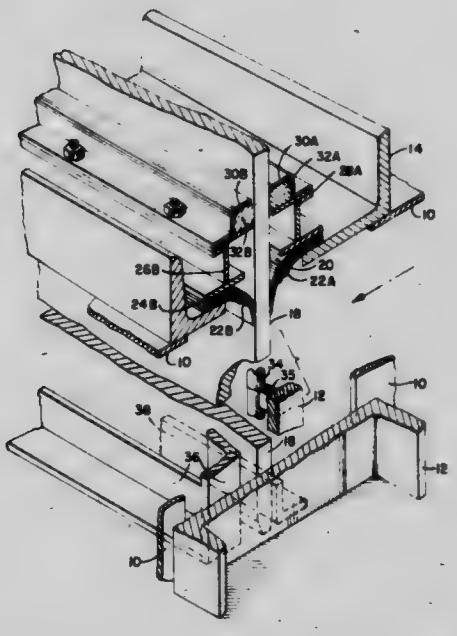
a fusible metal exposed to said liquid and normally securing said inner end of the stem valve to said body to hold said valve in said closed position when said fusible metal is in a solid state, said fusible metal melting whenever said temperature of the liquid exceeds a preselected value to permit said spring means to shift said valve section to said open position in a direction away from sealing engagement with said body to relieve pressure in said duct.

4,334,550

SEALING MEANS FOR SLIDING GATE VALVE

Peter J. Connor, Bethlehem, and Donald K. Hagar, Macungie, both of Pa., assignors to Mosser Industries, Inc., Bethlehem, Pa.

Filed Dec. 10, 1975, Ser. No. 639,871
Int. Cl.³ F16K *3/312, 3/02, 25/00*
U.S. Cl. 137—242 13 Claims



1. An apparatus for controlling the flow of a fluid comprising:

(a) a conduit for the transport and containment of the said fluid, said conduit having an aperture in its wall, generally transverse to the direction of fluid flow through the conduit and extending approximately the entire width of the conduit;

(b) a gate member adapted for sliding movement through the aperture between conduit-open position, wherein the gate member is withdrawn completely from the conduit, and conduit-closed position, wherein the gate member extends through the aperture and into the conduit to restrict the flow of the said fluid through the conduit;

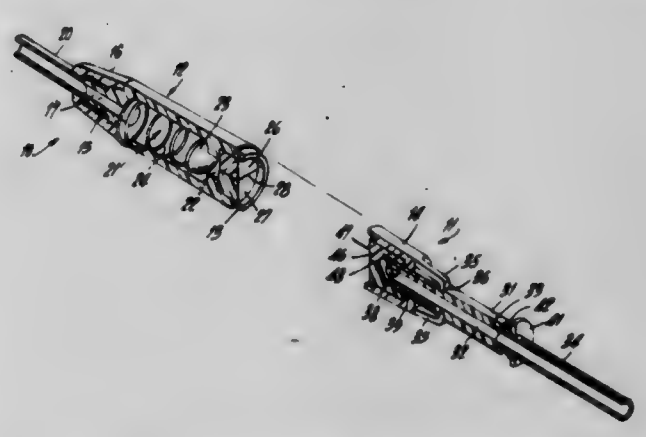
(c) each conduit-transversing side of the aperture having one or more cooperating, flat sealing strips made of fluid-impermeable, resilient material, the strips being fixedly mounted in the apparatus, the combined width across the aperture of one or more of the said fixedly mounted opposing sealing strips in a plane perpendicular to the plane of the said gate member being greater than the width of the said aperture, such that when the gate member is withdrawn completely from the conduit one or more of the opposed sealing strips overlap in flat, sealing engagement, effectively closing the aperture and preventing the escape of fluid therethrough, and when the gate member is inserted through the aperture into the conduit the said flat sealing strips are bent aside by the gate member and biased against the opposite faces of the gate member in sealing engagement therewith.

4,334,551

CONNECTOR

Robert D. Pfister, Cary, N.C., assignor to Becton Dickinson & Company, Paramus, N.J.

Filed Apr. 30, 1979, Ser. No. 34,855
Int. Cl.³ A61M *3/00*
U.S. Cl. 137—614.03 13 Claims



1. A sterile connection assembly, comprising:

a pair of terminal connectors for connection to each other, each of said connectors including a housing having a sterile interior and an open connecting end; each of said connectors including an openable closure means for closing the housing interior from the open connecting end and maintaining sterile integrity, each of said closure means comprising a deformable resilient barrier means including at least one preformed opening which is normally closed and which is opened upon deforming the barrier means and which is closed upon release of deformation by the resiliency of the barrier means, and one of said housings including an integral movable deforming means in the interior thereof, said deforming means after connection of the connectors being movable relative to said one of said housings to apply a releasable deformation force to the barrier means in each of said connectors which deformation force opens the at least one preformed openings in the barrier means of each of said connectors.

4,334,552

DIVERTER VALVE

Robert Blanchard, Brusly, La., assignor to HR Textron Inc., Valencia, Calif.

Filed Apr. 11, 1980, Ser. No. 139,307
Int. Cl.³ F16K *11/06, 3/18*
U.S. Cl. 137—625.48 15 Claims

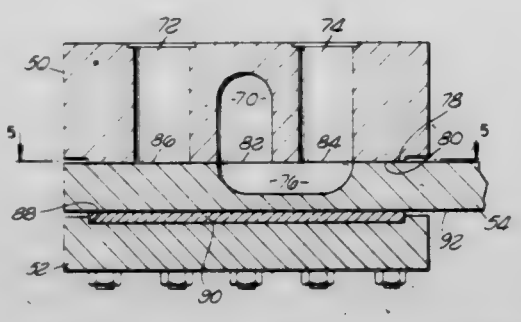
1. A slide plate diverter valve for use with high viscosity fluids at temperatures in excess of about 400 degrees Fahrenheit and pressures in excess of about 1000 PSI comprising:

a unitary manifold block capable of withstanding temperatures in excess of about 400 degrees Fahrenheit and defining fluid inlet and outlet flow areas and having a first sealing face, said flow areas defining inlet and outlet ports at said first sealing face;

a unitary metallic slide plate capable of withstanding temperatures in excess of about 400 degrees Fahrenheit and defining a fluid flow passageway in one surface thereof for receiving the fluid flowing through said inlet flow area

and diverting the same to said outlet flow to provide a continuous flow path for said fluid having no isolated regions subject to stagnation, said one surface having a second sealing face;

a metal backing plate capable of withstanding temperatures in excess of about 400 degrees Fahrenheit and with said



slide plate sandwiched between said backing plate and said manifold block; and

means for applying a clamping pressure to said manifold block and said backing plate to urge said first and second sealing faces into metal-to-metal sealing engagement with sufficient force to preclude leakage of said fluid therebetween at pressures in excess of about 1000 PSI.

4,334,553

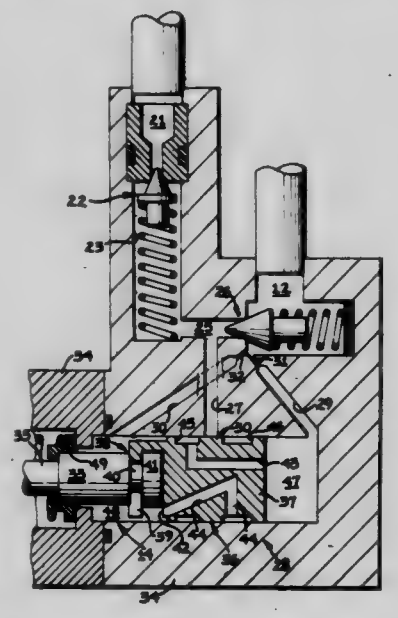
RESETTABLE VALVE SPOOL WITH KICK-OUT MEMBER

Thomas J. Hajek, II, Lockport, and Larry W. Lorimor, Joliet, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 939,526, Sep. 5, 1978, abandoned. This application Apr. 7, 1980, Ser. No. 137,652

Int. Cl.³ F15B *13/042*; F16K *31/143*

U.S. Cl. 137—625.66 **1 Claim**



1. In combination, a resettable valve spool (33) including a manual actuation means, said resettable spool valve (33) being an inlet and exhaust valve having two control positions and a neutral position and sequentially movable to various linear positions to control fluid flow therethrough,

a valve kick-out member (36) having pressure responsive first and second ends,

attachment means (38) for detachably connecting said valve kick-out member (36) to an end of said valve spool (33) by relative lateral movement between said kick-out member (3*b*) and said valve spool (33),

first passage means (43) for communicating fluid from an inlet (45) thereof to the first end of said valve kick-out member (36),

second passage means (44) for communicating fluid from an inlet (46) thereof to the second end of said valve kick-out member (36), each of said first (43) and second (44) passage means being formed in said kick-out member (36),

an annular land (50) formed on the periphery of said kick-out member (36) to longitudinally separate the inlets (45,46) to said first (43) and second (44) passage means, and

a pair of longitudinally-spaced annular first and second grooves formed on said kick-out member (36) on either side of said land (50) to define the inlets (45,46) to the first (43) and second (44) passage means, respectively, said first (43) and second (44) passage means terminating at said first and second grooves, respectively, on opposite sides of said land (50).

4,334,554

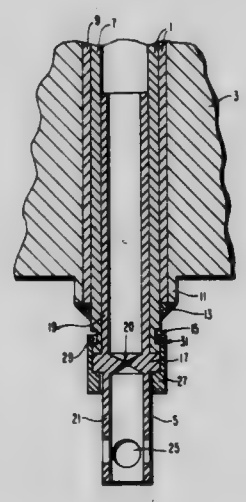
REMOVABLE ORIFICE

Walter R. Geiger, Madison Borough, and Boyd A. Kessinger, Murrysville Borough, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 20, 1980, Ser. No. 180,051

Int. Cl.³ F15D *1/02*

U.S. Cl. 138—44 **5 Claims**



1. A removable orifice for a tube having a circumferential groove in its outer surface, said orifice comprising:

an orifice block having an orifice disposed therein and having an outer diameter generally equal to the outer diameter of the tube surface;

a skirt extending from one side of the orifice block and fitting inside said tube; and

a continuous sleeve having a counterbore which fits over the outer diameter of said orifice block, the counterbore end of said sleeve extending beyond the outer edge of said circumferential groove and said sleeve being bent at a plurality of locations so as to engage said groove, said bent positions being the only fasteners utilized to hold said orifice adjacent said tube, whereby said sleeve and orifice may be quickly removed by pulling on the orifice.

4,334,555

CURLING EYE HEDDLE

Carolyn S. Hoagland, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Aug. 8, 1980, Ser. No. 176,352

Int. Cl.³ D03C *9/04*

U.S. Cl. 139—95 **10 Claims**

1. A curling eye heddle for use on a weaving loom with spaced apart upper and lower heddle frames, said heddle comprising:

an elongated member having opposite longitudinal end loops for surrounding said upper and lower heddle frames; said end loops being in a common vertical plane;

a curling eye formed in said heddle intermediate said opposite ends thereof, said curling eye comprising a helically coiled member having a horizontal axial central axis extending obliquely with respect to said common vertical plane of said loops; and further having opposite sides;

guard means located adjacent said curling eye, said guard means having opposite side members extending laterally



outwardly beyond the opposite sides of said curling eye to prevent said wire end from catching or snagging adjacent warp threads.

4,334,556

WOVEN SLIDE FASTENER STRINGER

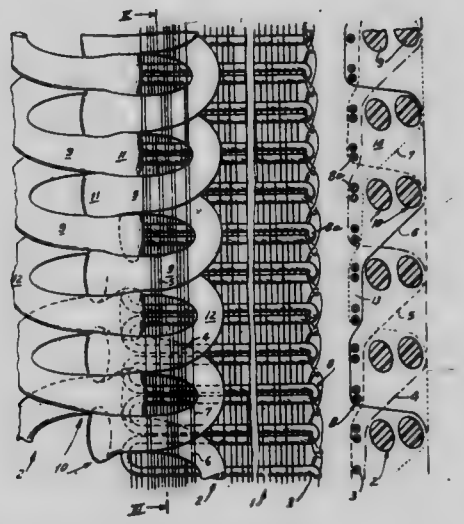
Alfons Fröhlich, and Karl Griessbaum, both of Essen, Fed. Rep. of Germany, assignors to Opti Patent-, Forschungs- und Fabrikations-AG, Riedern-Allmeind, Switzerland

Filed Apr. 25, 1979, Ser. No. 33,224

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1978, 2818508; Apr. 27, 1978, 2818509; Apr. 27, 1978, 2818838

Int. Cl.³ D03D *1/00*

U.S. Cl. 139—384 B **4 Claims**



1. A slide-fastener stringer half comprising a woven tape and a continuous monofilament coupling element interwoven with said tape, said tape being formed with a ground weft comprised of a plurality of double-pick weft insertions extending transversely of said tape and interlaced with warp yarns, said coupling element being formed of double-pick weft insertions and is provided with a multiplicity of coupling members each having a head overhanging an edge of said tape and a pair of shanks extending inwardly from said edge, said warp yarns including connective warp threads interlaced with the double-pick weft insertions of said ground weft and with the double-pick weft insertions of said coupling element inwardly of said edge of said tape such that the warp threads pass over and under said double-pick weft insertions in a staggered pattern and each of said warp threads passes in succession over a double-pick weft insertion of said coupling element, under two successive double-pick weft insertions of the ground weft, and between the next two double-pick weft insertions of the ground weft and a double-pick weft insertion of said coupling element before entering a pattern repeat, a respective double-pick weft insertion underlying each double-pick weft insertion of said coupling element, and a further double-pick weft insertion of said ground weft being disposed between successive double-pick weft insertions of said coupling element.

4,334,557

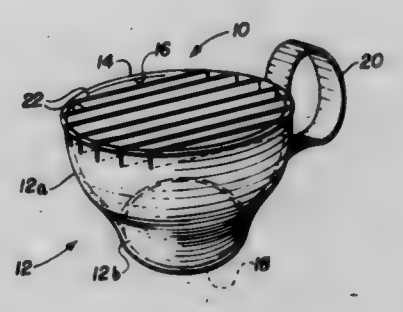
CANNING UTENSIL

Kathryn H. YaSenka, 1409 Elk St., Franklin, Pa. 16323

Filed May 5, 1980, Ser. No. 146,296

Int. Cl.³ B65B *3/04*

U.S. Cl. 141—98 **10 Claims**



1. A canning utensil for use in filling canning jars with food product wherein said utensil serves the dual function of severing the food product and funneling the severed food product into a canning jar, said canning utensil comprising:

(a) a funnel-like body structure having an upper portion with atop opening and a lower portion with a bottom opening adapted to be inserted into the mouth of a canning jar for restably supporting said utensil on said jar, said top opening being of a larger diameter than said bottom opening and said body structure being so shaped to guide food product down from the top opening, through said bottom opening, and into the canning jar; and

(b) severing means extending across said upper portion adjacent said top opening for severing the food product into pieces upon insertion of the food product against said severing means whereby the severed food product is then directed down through said body structure and into said canning jar.

4,334,558

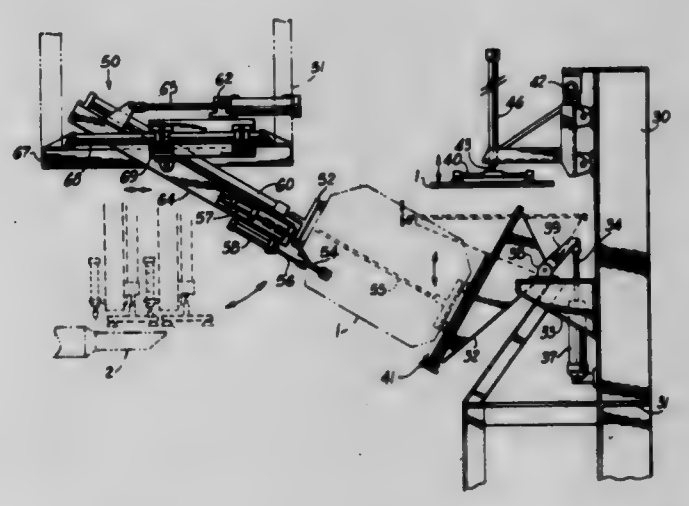
VALVE BAG PLACER

Will G. Durant, 148 N. C St., Tustin, Calif. 92680

Filed Jun. 3, 1980, Ser. No. 155,920

Int. Cl.³ B65B *43/18, 43/30*

U.S. Cl. 141—114 **14 Claims**



1. An improved bag placer apparatus for placing a bag or the like having a valve at an end thereof upon a filler spout through which the bag is to be filled with a flowable material, the apparatus of the type having means for withdrawing one such bag at a time from a plurality of such bags and having

means for gripping the valve end of the withdrawn bag for opening the valve prior to placement thereof on the filler spout; the improvement comprising:

a bag registration apparatus for receiving each said one bag in a substantially horizontal position from said withdrawing means and for presenting each said one bag to said gripping means, and having means for automatically registering each said one bag for location of said valve end in precise position and alignment relative to said gripping means,

wherein said means for automatically registering comprises:

means for utilizing the force of gravity to align a first edge of said bag in a first dimension, and

means for forceably aligning a second edge of said bag in a second dimension, said first and second edges of said bag being perpendicular to one another and lying in the plane of said bag, and

wherein said means for utilizing the force of gravity comprises:

a tiltable table adapted to receive said bag in a sustantially horizontal position and to tilt at an angle with respect to said horizontal position, said angle being sufficient to cause said bag to slide in the direction of said tilt, and

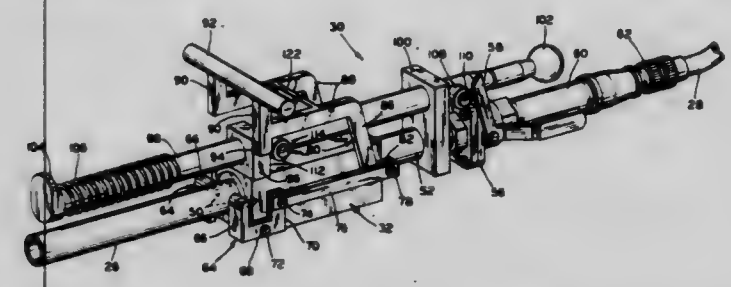
said tiltable table having an indexing means mounted to the top surface of said table for receiving the edge of said sliding bag in substantial alignment therewith.

4,334,559

PIPE COUPLING

Larry D. Deem, 8619 Furnace Rd., Vermilion, Ohio 44089

Filed Jun. 13, 1980, Ser. No. 159,218
Int. Cl.[3] B65B *3/04*
U.S. Cl. 141—346 20 Claims



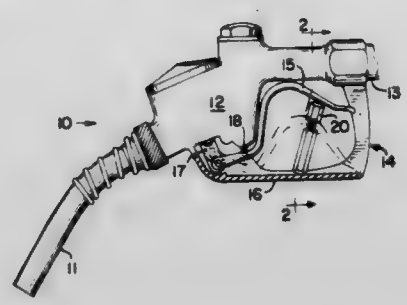
1. In combination, a pipe for supplying fluid, a first end of said pipe being subject to burning off, means for moving the pipe longitudinally along a predetermined path, a coupling comprising a housing for receiving a second end of said pipe, means carried by the housing for connecting said housing to said pipe, said connecting means having a first position in which said housing is connected to the pipe and a second position in which the pipe is releaseable from said housing, said housing moving with said pipe when connected thereto, a valve, operating means connected with said valve for opening and closing said valve, said valve being opened when said operating means is in a first position and said valve being closed when said operating means is in a second position, said valve being connected to and moveable with said housing and communicating with an end of said housing opposite said pipe for supplying fluid through the housing to the pipe when the valve is opened, an operating member moveably carried by said housing and moveable rearwardly from a forward position when engaging a stationary object as the pipe is moving along the predetermined path, said operating member having means for engaging said valve-operating means when moving rearwardly to move said operating means from the first position to the second position to close said valve, and said member having additional means for engaging said connecting means for moving said connecting means from the first position to the second position for releasing said pipe from said housing when said valve is closed.

4,334,560

LOCKING BRACE FOR GASOLINE DISPENSING NOZZLES

Frank J. Lockwood, 7011 W. Archer Ave., Chicago, Ill. 60638

Filed Jun. 12, 1978, Ser. No. 914,733
Int. Cl.[3] B65B *3/04*
U.S. Cl. 141—392 7 Claims



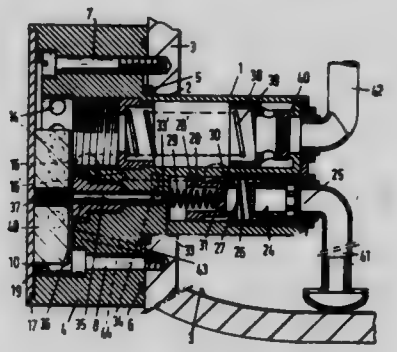
1. An adjustable and portable prop means to be carried by a user for use with a fuel dispensing nozzle, said nozzle having a nozzle lever and lever guard, said nozzle lever being movable from a normally closed position to an open position for dispensing fuel, said portable prop means allowing the automatic control of the fuel-flow rate and the automatic and precise shut-off of the nozzle to thereby allow the unattended filling of a fuel tank and assure the automatic shut-off of said fuel flow without spillage when said fuel tank is full, said portable prop means being capable of insertion between said nozzle lever and said lever guard of said nozzle for exerting a continuous force against each of said nozzle lever and said lever guard in said open position, said portable prop means comprising opposing first and second portions of a non-sparking material, said first and second portions being connected by an adjusting means for varying the length of said portable prop means from a fully extended first position to a closed second position, and retaining said portable prop means at a desired length, opposing ends of said prop means being rounded to form a spherical segment to make said prop means responsive for precise shut-off of said fuel flow by automatic disengagement from said nozzle lever and said lever guard, whereby the fuel-flow rate of said nozzle may be controlled by biasing said opposing rounded ends of said portable prop means against each of said portable prop means being preadjusted to a desired length for effecting a desired flow rate, said flow rate being automatically shut-off by the response of said nozzle to the filling of the fuel tank.

4,334,561

HEAD PIECE FOR A TANK FOR LIQUEFIED GAS

Andre S. J. Van Coillie, Ucele, Belgium, assignor to Valico P.v.b.a., Tienen, Belgium

Filed Dec. 21, 1979, Ser. No. 106,242
Claims priority, application Belgium, Jan. 3, 1979, 192745
Int. Cl.[3] B65B *3/04*
U.S. Cl. 141—392 8 Claims



1. A head piece for a tank for liquefied gas adapted to be mounted in the luggage compartment of a vehicle between an inlet conduit and an outlet conduit, and comprising an overpressure safety valve, a filling valve with one-way protection,

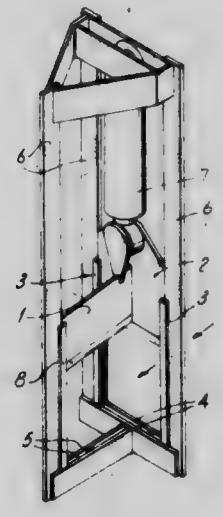
a delivery valve with a flow limiter, and a level meter, said valves functioning generally independently of each other, characterized in that said valves are integrated in the head piece in a compact and space-saving array, which head piece fits at least partly in an opening provided in said tank, said head piece comprising at least a first compartment communicating through at least one tube with the atmosphere outside said luggage compartment, the arrangement being such that the over-pressure safety valve opens into said first compartment, while any leakage from the inlet conduit is collected in said tube, and leakage in the outlet conduit is collected in a tube provided around said outlet conduit, said tube being in turn in communication with said first compartment whereby any leakage from said first compartment in vented to atmosphere.

4,334,562

APPARATUS FOR CUTTING AND SPLITTING LOGS

Per Granlund, Moelv, Norway, assignor to A/S Moelven Brug, Moelv, Norway

Filed Dec. 11, 1980, Ser. No. 215,368
Claims priority, application Norway, Jan. 25, 1980, 800177
Int. Cl.³ B27L *7/00*
U.S. Cl. 144—193 A **3 Claims**



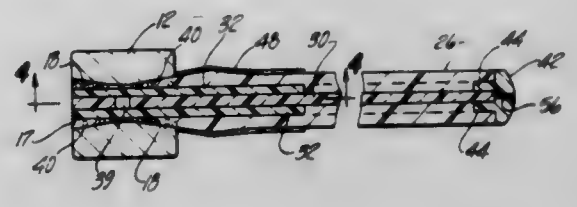
1. A combined log cutting and splitting apparatus for cutting and splitting firewood comprising a T-shaped foundation base member, a plurality of upstanding support posts attached to and extending from said base member, bracing members attached to the tops of said posts to interconnect them to form a rigid frame, a hydraulic piston-cylinder power drive member supported on said rigid frame adjacent to and depending from the top thereof so that said cylinder is disposed substantially between said posts, a cross-cutting knife attached to the lowef end of said piston-cylinder member to be reciprocated substantially vertically thereby to cross-cut a log placed on said base member in the area between said posts, a splitting knife attached to the lower end of said piston-cylinder member, and to said cross-cutting knife to form a substantially T-shaped configuration therewith and to split the cut-off section of the log substantially simultaneously with the cross-cutting, said cross-cutting knife being downwardly displaced with respect to said splitting knife so that cross-cutting begins before splitting and said cross-cutting knife retains said log in position during splitting, and guide means on at least one of said posts engaging the adjacent side edge of said cross-cutting knife.

4,334,563

SWINGABLE IMPACT TOOL

Joseph N. Epel, Southfield; Robert E. Wilkinson, Birmingham; Probir K. Guha, Mt. Clemens, all of Mich., and Albert S. Crandon, Jr., Pittsburgh, Pa., assignors to The Budd Company, Troy, Mich.

Filed Jul. 21, 1980, Ser. No. 170,418
Int. Cl.³ B26B *23/00*
U.S. Cl. 145—2 R **10 Claims**



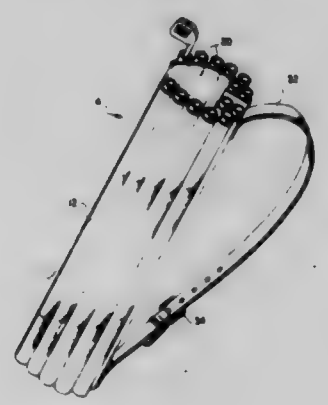
1. A swinging impact tool comprising: a metallic head member forming a handle receiving socket, a handle including the stem portion at one end, said stem portion being supported in the socket of said head member, said handle including a core member extending longitudinally the full length of said handle, said core member having a substantially uniform I-shaped cross section having a web extending in the plane of swinging movement of said tool and being formed of a polymerized thermosetting resinuous binder reinforced with fiberglass filaments, a resilient molded cover extending from said head and enveloping said core member, said cover being disposed symmetrically relative to said core member, said socket of said head member containing said stem portion to form a space between the walls of said socket and said stem, a pair of reinforcing members bonded to opposite sides of said web to extend within said socket member in an area adjacent said head for reinforcing said handle, and a polymerized resin filling the space between said head member and stem to bond said handle in fixed relationship to said head member.

4,334,564

GOLF CLUB BAG

Charles R. Clayton, 606 Coolidge, Midvale, Utah 84070

Filed Oct. 6, 1980, Ser. No. 194,618
Int. Cl.³ A63B *55/02*
U.S. Cl. 150—1.5 C **8 Claims**



1. A golf bag comprising:
a plurality of generally elongate receptacles, each of a dimension sufficient to receive the handle of a golf club,
means flexibly joining the receptacles together in a first side-by-side array and generally in a row,
an additional plurality of generally elongate receptacles, fewer in number than the first-mentioned plurality or receptacles, each of a dimension sufficient to receive the handle of a golf club,
means flexibly joining the additional receptacles together in a second generally side-by-side array and generally in a row,
means connecting the second array of receptacles at a cen-

tral location thereof and in common orientation with the first array of receptacles and at a central location thereof in a generally back-to-back relationship so that the first array of receptacles may substantially encircle the second array, and

handle means coupled centrally to said first array of receptacles or flexible joining means to enable holding the two arrays of receptacles.

4,334,565

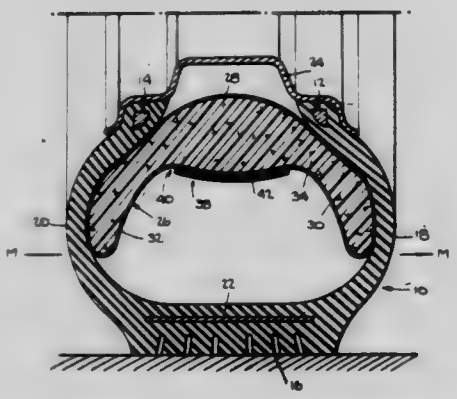
TIRE INSERT

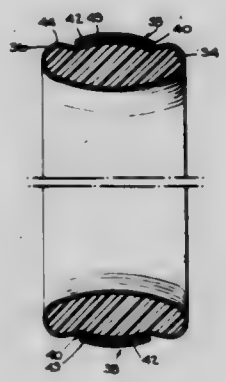
Leonard S. Stokes, Mt. Clemens, Mich., assignor to Uniroyal, Inc., New York, N.Y.

Continuation of Ser. No. 884,656, Mar. 8, 1978, abandoned. This application Jun. 25, 1980, Ser. No. 162,972

Int. Cl.³ B60C *17/04*

U.S. Cl. 152—158 **9 Claims**





1. A toroidal insert for a tubeless, pnuematic tire consisting of:

a preformed, torus-like cellular or foam core having a central axis, a radially inner surface portion with respect to said central axis, a radially outer surface portion with respect to said central axis;

tire cord radially wound around said core; and

at least one belt-like load bearing member having tire cord therein, said belt-like member being wound around the outer diametrical surface portion of said torus-like core such that the insert, in cross-section, has a relatively thick, substantially oval middle portion and a pair of relatively thin leg portions each extending from a respective side of the substantially oval middle portion, said belt-like member surrounding said substantially oval middle portion but not extending into said leg portions.

4,334,566

TIRE TRACTION DEVICE

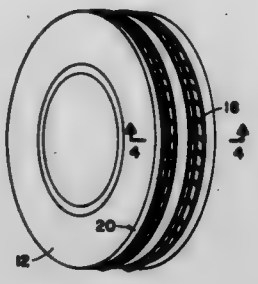
Leo Augustine, 235 The Donway West, Apt. 3, Don Mills, Ontario, Canada (M3B 2V7)

Filed Sep. 4, 1980, Ser. No. 184,061

Claims priority, application Canada, May 4, 1977, 277678

Int. Cl.³ B60C *27/00*

U.S. Cl. 152—208 **1 Claim**



1. A tire traction device comprising at least two continuous circumferentially extending tread groove bead members adapted to nest within corresponding circumferential tread grooves of a vehicle tire; a plurality of circumferentially spaced transverse traction elements of triangular cross-section integrally connected to said bead members; said traction elements being configured and dimensioned to overlie the tread of the tire and to project outwardly therefrom, and a continuous circumferentially extending traction element of triangular cross-section positioned between said bead members and connected thereto by said transverse traction elements such that said traction elements are disposed with an apex of said triangle directed outwardly, circumferentially spaced pairs of said transverse traction elements being connected between said bead members and said continuous circumferentially extending traction element in a V-shape both laterally and vertically.

4,334,567

TIRES

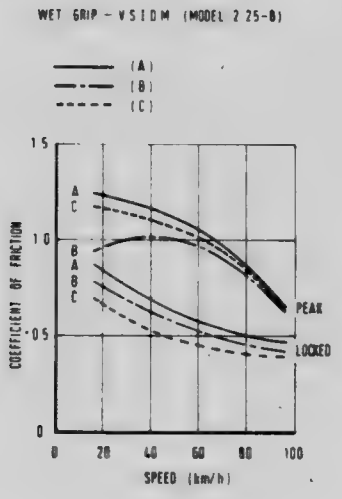
Robert Bond, Lichfield, England, assignor to Dunlop Limited, London, England

Continuation-in-part of Ser. No. 949,276, Oct. 6, 1978, abandoned. This application Mar. 26, 1980, Ser. No. 134,091

Claims priority, application United Kingdom, Oct. 8, 1977, 41979/77

Int. Cl.³ B60C *11/00*

U.S. Cl. 152—209 R **12 Claims**



1. A tire comprising sidewalls, beads, and a tread, whose tread composition having improved wet grip and rolling resistance is formed of an elastomer composition containing as the elastomer a styrene-butadiene copolymer or a styrene-isoprene copolymer, the unvulcanized polymer forming the elastomer having a glass transition temperature of above about minus 50° C. to about minus 20° C., and said vulcanized tread composi-

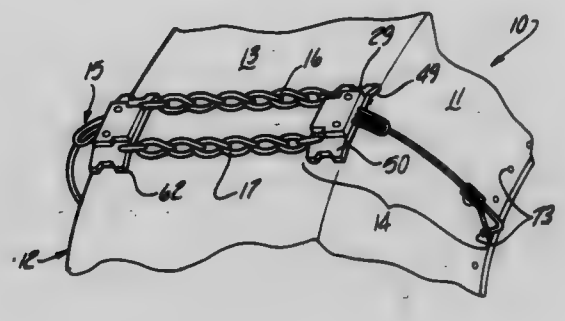
tion having a rebound resilience of about 55% to about 95% measured using the Dunlop Pendulum at 50° C., according to B.S. 903/1950.

4,334,568

TIRE CHAIN

Walter H. Thorpe, 9403 Somerset, Detroit, Mich. 48224

Filed Nov. 28, 1980, Ser. No. 211,065
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—218 **32 Claims**



1. An improved tire chain for use on automotive-type tires having an inner sidewall, an outer sidewall, and a tread portion, and being mounted on a rim, said improved tire chain including at least one inner gripper portion having a flexible spring-like inner wire form complementary in shape to said inner sidewall, at least one outer gripper portion having a flexible spring-like outer wire form complementary in shape to said outer sidewall and being adapted to be mounted in a 180 degree opposed relationship to said inner wire form, and one or more flexible chains fixedly mounted between said outer gripper portion and said inner gripper portion, said flexible chains being the only connection between said inner gripper portion and said outer gripper portion.

16. In combination with an automobile tire of the type having an inner and an outer sidewall with a tread portion and a rim, an improved tire chain including an inner gripper portion having a flexible spring-like inner wire form complementary in shape to said inner sidewall, an outer gripper portion including a flexible spring-like outer wire form complementary in shape to said outer sidewall, one or more flexible chains fixedly mounted between said outer gripper portion and said inner gripper portion, said flexible chains being the only connection between said inner gripper portion and said outer gripper portion, each of said wire forms including a pin portion, and a plurality of indentations provided on said inner and said outer sidewalls of said tire proximate the rim thereof and adapted to receive said pin portions of said inner and outer wire forms.

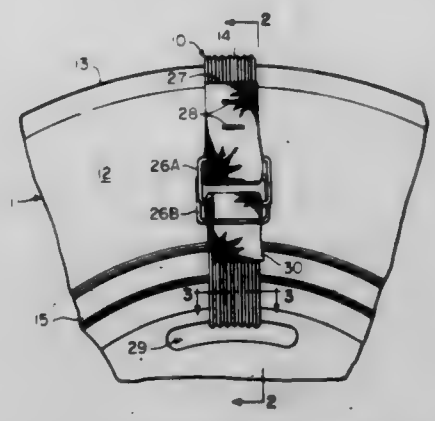
4,334,569

TRACTION ASSEMBLY

Richard J. Jacob, Dayton, Ohio; Jack D. White, Springfield, and Kenneth D. Richmond, Nixa both of Mo., assignors to Dayco Corporation, Dayton, Ohio

Continuation-in-part of Ser. No. 63,878, Aug. 3, 1979, abandoned. This application Oct. 16, 1980, Ser. No. 197,421
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—221 **2 Claims**

1. A traction device adapted to be mounted on a tire mounted on a wheel, said tire having a pair of opposed side walls and a peripheral road-contacting outer circumferential surface, which comprises a single strap having a width greater than its thickness extending around said tire and through an aperture in said wheel, and means for demountably connecting one end portion of said strap to the opposite end portion of said strap; said strap being composed of a one piece unitary body having an inner tire-contacting surface and an outer road-contacting surface, said body comprising a strength section having inner and outer surfaces, a ribbed section adjacent said outer surface, and a fabric layer adjacent said inner surface and forming said tire-contacting surface; said strength section primarily composed of elastomeric material and having a single layer of reinforcing cords embedded therein and extending generally in the lengthwise direction of and for the full length of said strap; said ribbed section defined by a plurality of alternating ribs and recesses extending generally in the lengthwise



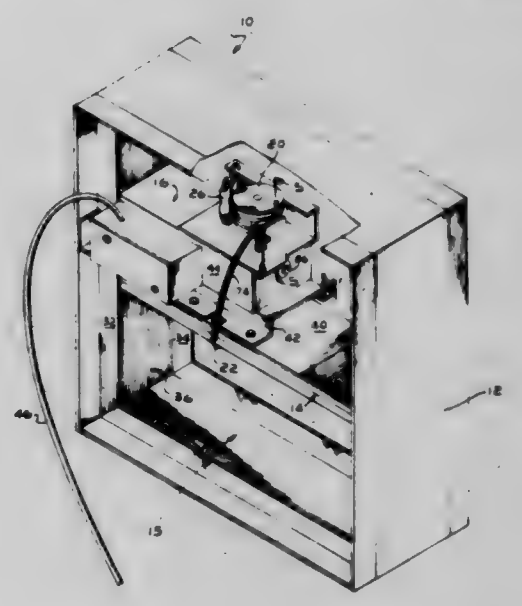
direction of and for the full length of said strap, said ribs forming said outer road-contacting surface and primarily composed of elastomeric material and having a plurality of discrete fibers dispersed homogeneously therein, at least 50 percent of said fibers being oriented at 90 degrees to the direction of length of said strap.

4,334,570

FIRE AND SMOKE DAMPER

Rudolph J. Adams, Chicopee, Mass., assignor to Reed National Corp., Westfield, Mass.

Filed Sep. 22, 1980, Ser. No. 189,603
Int. Cl.³ E05F *15/20*
U.S. Cl. 160—1 **10 Claims**



1. A fire and smoke damper of the type mounted within an air duct and movable from an open position which defines a duct opening to a closed position wherein the duct opening is closed, comprising:

(a) a pulley;

(b) a motor adapted to rotate the pulley;

(c) clutch means for transmitting torque from the motor to the pulley to rotate the pulley, said means including a coil spring surrounding a portion of the pulley;

(d) a curtain movable from a first position wherein the duct opening is closed to a raised position wherein the duct opening is open;

(e) cable means for raising and lowering the curtain to open and close the duct opening, said cable means including a cable windable about the pulley;

(f) primary stop means including a stationary member and a fusible link interconnecting the member and the clutch

means to restrict a portion of the spring and permit the spring to wrap down on said portion of the pulley to transmit torque from the motor to the pulley to raise the curtain; and

(g) secondary stop means for restricting the spring portion to permit the spring to wrap down on said pulley portion and transmit torque to raise the curtain when the stationary member and the clutch means are not interconnected by the fusible link.

4,334,571

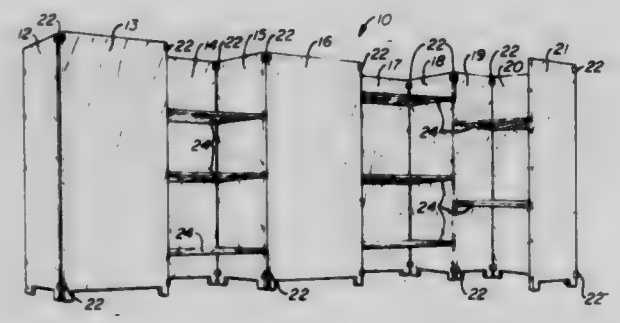
SCREEN AND SHELVING SYSTEM

Patricia S. Heller, and Stephen M. Heller, both of 2300 Bridgeway, Sausalito, Calif. 94965

Continuation-in-part of Ser. No. 935,224, Aug. 21, 1978, abandoned. This application May 19, 1980, Ser. No. 151,067

Int. Cl.³ A47G 5/00

U.S. Cl. 160—135 **4 Claims**



1. A room dividing system comprising:

a plurality of generally planar vertical panels, certain of said panels having a width equal to a fixed dimension A and the remainder of said panels having a width equal to a fixed dimension B, B being less than A, said panels having a plurality of vertically spaced holes along their vertical edge surfaces;

a plurality of hinge plates each including a plate portion attached to a vertical edge surface of one of the panels, a screw fastener fixing the plate portion to one said hole, and a vertical loop projecting from the plate portion;

a plurality of connector links connecting adjacent loop portions of respective hinge plates to hingeably interconnect the planar panels at their lateral edges so that each panel is pivotable about a vertical axis through at least 180° relative to each adjacent panel, said connected panels forming a series of rectangular alcoves;

a plurality of support elements each having a first portion overlying an edge surface of one of the panels, a screw fastener fixing said first portion to one said hole, and a second portion projecting outwardly from the face of the panel and including an upwardly directed projection; and

a plurality of rectangular shelves having dimensions generally equal to the inside dimensions of said alcoves for mounting therein, said shelves each including underlying recesses proximate their corners and engaged by the upwardly directed projections so that the shelves provide structural rigidity to the panels and prevent collapse of the system.

4,334,572

VENETIAN BLIND CONSTRUCTION

Paul Frei, Elgg, Switzerland, assignor to Griesser AG, Switzerland

Filed Nov. 26, 1980, Ser. No. 210,625

Claims priority, application Switzerland, Jan. 24, 1980, 559/80

Int. Cl.³ E06B 9/30

U.S. Cl. 160—170 **10 Claims**

1. A venetian blind construction comprising:

a housing;

drive shaft means rotatably mounted in said housing;

a lifting strap connected to said drive shaft means and windable thereon with rotation of said drive shaft means;

a bottom rail connected to said lifting strap which is lifted with winding of said lifting strap on said drive shaft means;

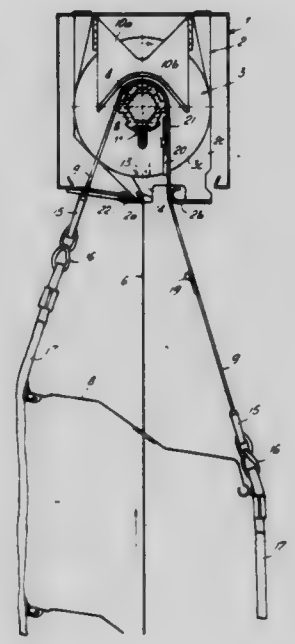
at least one setting strap in coupling contact with and wrapped over said drive shaft means having ends connected to said bottom rail;

at least one slat connected to said setting strap on opposite sides of said drive shaft means;

said setting strap being moved by rotation of said drive shaft means to tilt said slat;

first and second stop lugs connected to said housing;

first and second spaced stop members connected to said setting strap;



said first stop member abutting said first stop lug with rotation of said drive shaft means to wind and lift said lifting strap, to move said setting strap and bring said slat into a first position;

said second stop member abutting said second stop lug with rotation of said drive shaft means to unwind and lower said lifting strap, to move said setting strap and bring said slat into a second position; and

stop release means connected to said drive shaft means, operable with a full unwinding of said lifting strap to release said second stop member from said second stop lug to permit further movement of said setting member to bring said slat into a third position.

4,334,573

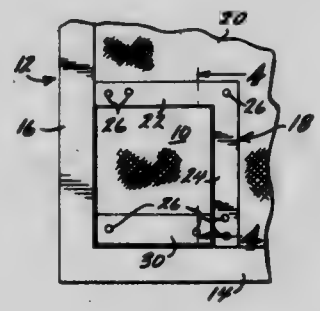
PET ACCESS DOOR KIT AND METHOD OF INSTALLATION

La Vona R. Hackman, and James M. Hackman, both of 7816 Topia St., Long Beach, Calif. 90808

Filed Aug. 31, 1979, Ser. No. 71,754

Int. Cl.³ E06B 7/28

U.S. Cl. 160—180 **2 Claims**



1. A screen door including a pet access door, said screen door comprising:

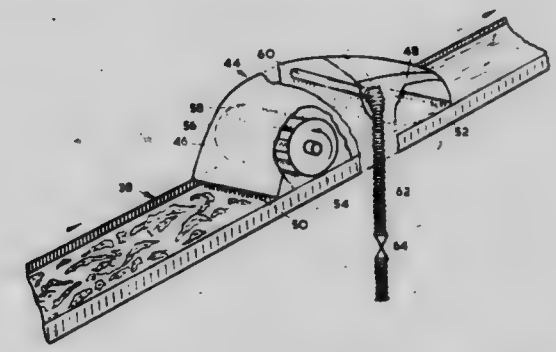
a finely apertured screen;
a horizontal lower rail;
a vertical stile intersecting said rail;
a pair of L-shape members engaged upon opposite sides of said screen in confronting relation, each of said members having a rail portion abutting at its free end against said stile without attachment thereto, and a stile portion abutting at its free end against said rail without attachment thereto;
means attaching said pair of members together, said screen being vertically cut along a line adjacent and parallel to said stile and along a line adjacent and parallel to said stile portion, and horizontally cut along a line adjacent and parallel to said rail, whereby a generally rectangular access flap is defined in which the screen of said access flap forms said pet access door and the screen at the upper horizontal extremity of said flap constitutes a hinge portion enabling pivotal movement of said flap between an open and a closed position; and
weight means attached to the lower extremity of said flap and tending to orient said flap in said closed position.

4,334,574

COOLING METHOD

Andrew L. Rennie, Stirling, and Alexander Davis, Hamilton, both of Scotland, assignors to BOC Limited, London, England

Continuation of Ser. No. 959,408, Nov. 9, 1978, abandoned. This application Jun. 3, 1980, Ser. No. 155,911
Claims priority, application United Kingdom, Nov. 9, 1977, 46715/77; Jul. 14, 1978, 29888/78
Int. Cl.³ B22C *5/08*
U.S. Cl. 164—4.1 **5 Claims**



1. A method for making moulds comprising the steps of obtaining sand from used moulds at a temperature above that temperature that is desired for making new moulds; passing said sand to a mould station where moulds are formed therefrom; spraying liquefied gas selected from the group consisting of liquid nitrogen, liquid argon and liquid carbon dioxide into direct contact with said sand to thereby cool said sand as it is passed to the mould station; monitoring the temperature of said sand as it is passed to said mould station; and controlling the flow of said liquefied gas in response to said monitored temperature to establish the temperature of said sand below a predetermined value prior to making moulds from the cooled sand.

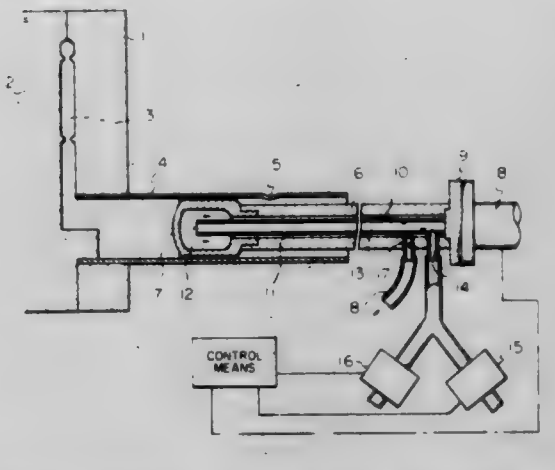
5. In the manufacture of metal casting moulds from a composition of preselected water content comprising foundry sand recovered from a prior casting operation and which is at an undesirably high temperature from heat absorbed by the mould from the hot metal of a prior casting operation the improvement which comprises removing heat from the sand by direct exchange of heat with a liquefied gas selected from the group consisting of liquid nitrogen, liquid argon and liquid carbon dioxide sprayed onto the sand in an amount controlled by a sensed temperature of the sand to thereby obtain the desired sand temperature for the formation of metal casting moulds without altering the water content thereof.

4,334,575

METHOD FOR COOLING A PLUNGER TIP IN A DIE CASTING MACHINE OF THE COLD CHAMBER TYPE AND APPARATUS THEREFOR

Isao Miki, and Tsutomu Nagi, both of Shimizu, Japan, assignors to Nippon Light Metal Co., Ltd., Tokyo, Japan

Filed Mar. 18, 1980, Ser. No. 131,553
Int. Cl.³ B22D *17/20*
U.S. Cl. 164—113 **14 Claims**



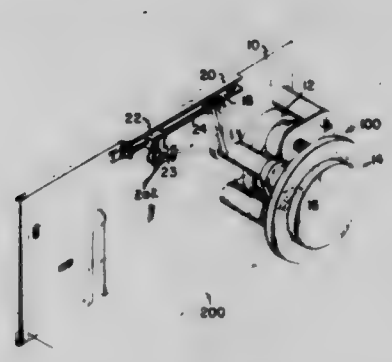
1. Method of cooling a plunger tip in a die casting machine of the cold chamber type including the steps of supplying a stream of cooling fluid to a hollow space formed in the tip for a predetermined time period, wherein the improvement comprises supplying said stream of cooling fluid in timed relationship to the actuation of the tip during the die casting operation so as to effect forced cooling of the tip, and completely purging all of said cooling fluid from said hollow space by supplying a stream of pressurized gas to the hollow space in the tip for a predetermined time period immediately after the termination of the supply of the stream of the cooling fluid in the hollow space in the tip so that said cooling fluid may uniformly cool the tip.

4,334,576

THERMOSTAT CONTROL

Linus C. Fuchek, 4019 93rd Ave., Southeast, Mercer Island, Wash. 98040

Filed Jun. 24, 1981, Ser. No. 276,962
Int. Cl.³ F25B *29/00*
U.S. Cl. 165—12 **13 Claims**



1. A thermostat control for a heat pump thermostat which allows the heat pump to change its temperature setting automatically and systematically minimizing the use of resistive heating with the heat pump as a backup to accomplish the temperature change, the heat pump thermostat control comprising:
(a) a clock motor;
(b) a cam operatively associated with the motor to turn with time as the motor turns;
(c) means associated with the cam to move the heat pump thermostat through a desired temperature differential at a rate less than that rate at which resistive heating will be used

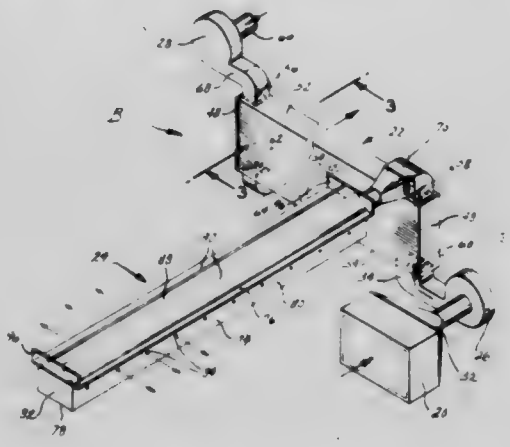
as a backup to aid the change unless the heat pump is operating at full capacity.

4,334,577

VENTILATING SYSTEM FOR LIVESTOCK HOUSES

Robert M. George, 1208 W. Worley St., Columbia, Mo. 65201

Filed Jan. 11, 1980, Ser. No. 111,292
Int. Cl.³ F24H *3/02*
U.S. Cl. 165—54 **8 Claims**



1. In combination with a livestock house having a ceiling, a living area for livestock beneath the ceiling, and fans for exhausting air from the living area, an improved ventilation system comprising: an elongated opening in the ceiling; a horizontal surface directly below the opening, and a rigid and generally flat baffle located adjacent to the opening and extended downwardly toward the horizontal surface at an oblique angle, the baffle being hinged along its upper edge with respect to the ceiling so that it can swing outwardly from a closed position, in which its lower edge is against the horizontal surface, to open positions, in which its lower edge is elevated above the horizontal surface, the baffle, when in its closed position, isolating the opening from the living area so that warm moist air in the living area will not rise through the opening and, when in its open position, permitting air from the opening to escape into the living area through the space between the lower edge and the horizontal surface, the material of the baffle being for the most part rigid and light weight and also being distributed such that normal movement of the baffle does not significantly change the length of the moment arm created by the weight of the baffle acting about the hinge axis, the inclination of the baffle being such that the lower edge is ahead of the upper edge in terms of the direction of the air that flows from the opening into the living area, the lower edge of the baffle further being located inwardly from the edge of the horizontal surface so that air after passing beyond the lower edge still flows along the horizontal surface, whereby when the exhaust fans are energized, a pressure differential occurs across the baffle and this differential causes the baffle to swing upwardly to allow air from the opening to escape into the living area, with the velocity of the air having relatively little variation over wide fluctuations in the volume of the air flow.

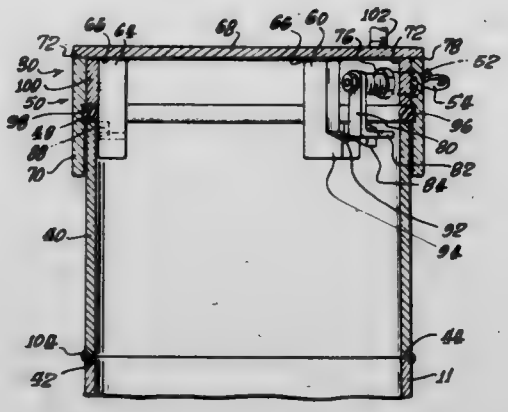
4,334,578

WELL CASING CLOSURE

Warren W. Labrum, P.O. Box 543, Dayton, Nev. 89403

Filed May 12, 1980, Ser. No. 149,017
Int. Cl.³ B65D *55/14;* E21B *33/02*
U.S. Cl. 166—75 R **10 Claims**

1. A well casing closure to close the open end of a well casing which comprises: an elongated cylidrical member of a larger interior diameter than the exterior diameter of a well casing and having a cover plate means closing one end of said cylindrical member; means associated with said well casing to receive means associated with said elongated cylindrical member to hold said elongated cylindrical member in place upon said well casing, and securing means to retain said elongated



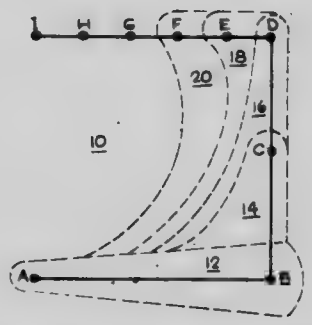
cylindrical member in place upon said well casing in such a manner so as not to perforate said well casing.

4,334,579

METHOD FOR GASIFICATION OF DEEP, THIN COAL SEAMS

David W. Gregg, Moraga, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 29, 1980, Ser. No. 182,561
Int. Cl.³ E21B *43/243, 43/30;* E21C *43/00*
U.S. Cl. 166—256 **8 Claims**



1. A method for underground gasification of coal in a coal removal area in a deep, thin, substantially horizontal coal seam comprising:

injecting combustion supporting gas at an injection point into the coal seam and igniting the coal to produce product gases;

causing and controlling bending subsidence of overburden to sweep across the coal removal area adjacent to unprocessed coal by combustion of the coal by sequentially moving the injection point for the combustion supporting gas around the coal removal area away from a recovery well to confine gas flow to a region close to unprocessed coal between the unprocessed coal and the subsided overburden; and

removing the product gases.

4,334,580

CONTINUOUS BOREHOLE FORMED HORIZONTALLY THROUGH A HYDROCARBON PRODUCING FORMATION

Roy R. Vann, Houston, Tex., assignor to Geo Vann, Inc., Houston, Tex.

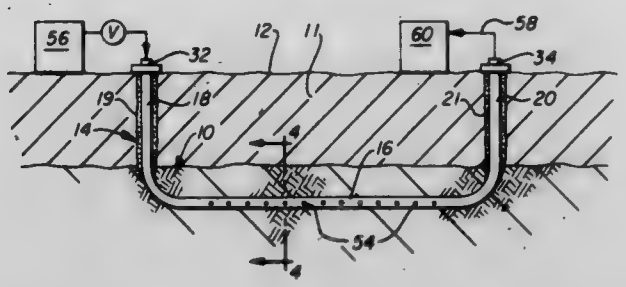
Filed Mar. 24, 1980, Ser. No. 132,765
Int. Cl.³ E21B *7/04, 43/24, 43/117, 43/119*
U.S. Cl. 166—268 **7 Claims**

3. Method of producing viscous hydrocarbons from a pay zone located in a thin strata, comprising the steps of:

(1) forming a borehole with a drill bit which is attached to the end of a drill string by extending the borehole down into the ground to form a borehole inlet; and, turning the borehole towards the horizontal to form a substantially

horizontal borehole portion which extends through the pay zone; and, turning the borehole up towards the surface of the ground to form a borehole outlet;

(2) attaching a casing string to the end of the drill string at said borehole outlet; rotating the casing with the drill string while pulling the drill string back through the borehole so that the casing string extends from said outlet to said inlet; and circulating drilling fluid down through the



drill string and into the borehole annulus while the casing is being pulled into the borehole to thereby reduce the frictional forces between the casing and the borehole wall;

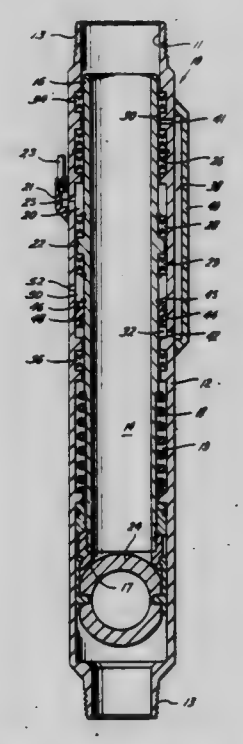
(3) removing the end of the drill string from the casing string; forming a multiplicity of flow paths which extend from the pay zone, through the wall of the casing, and into the interior of the casing; and, producing the well through one of said inlet or outlet.

4,334,581

BALANCED AREA SAFETY VALVE

Henry P. Arendt, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Sep. 12, 1980, Ser. No. 186,587
Int. Cl.³ E21B *34/10*
U.S. Cl. 166—324 **10 Claims**



1. A subsurface safety valve comprising

a tubular housing having a longitudinal bore extending therethrough defining a flow path,

closure means disposed in said bore for controlling flow through said flow path,

operator means longitudinally movable with respect to said tubular housing for moving said closure means and having a first position wherein said closure means closes said flow path and having a second position wherein said closure means opens said flow path,

a sealed variable capacity pressure chamber for receiving control pressure fluid from a source exterior to said housing,

control fluid pressure responsive means for moving said operator means from said first position to said second position when affected by fluid pressurized above a selected value,

biasing means for urging said operator means to move to its first position,

annular areas, between said operator means and said housing sealed from exposure to well pressures in said bore, said annular areas being positioned with respect to said variable capacity pressure chamber so as to intercept well pressure, in said bore, in the event of said annular area seal failure,

fluid communication means connecting said annular areas, and

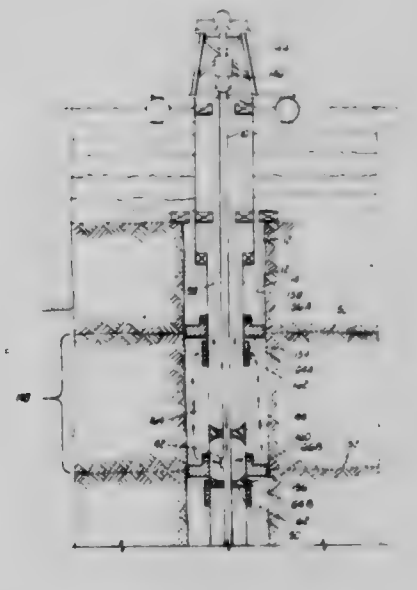
pressure responsive means engageable with said operator means and exposable to well bore pressure entering at least one of said annular areas to assist said operator means in moving to its first position.

4,334,582

METHOD OF CEMENTING FROM A FLOATING VESSEL

Eugene E. Baker, and Ernest E. Carter, Jr., both of Duncan, Okla., assignors to Halliburton Services, Duncan, Okla.

Division of Ser. No. 958,706, Nov. 8, 1978. This application Aug. 4, 1980, Ser. No. 174,559
Int. Cl.³ E21B *33/124, 33/16, 43/01*
U.S. Cl. 166—355 **8 Claims**



1. A method of cementing the annular cavity between a well casing and a well borehole, from a floating vessel, wherein the casing contains a casing valve, the method comprising the steps of:

running a drill string into the casing, said drill string including an opening positioner for opening said casing valves, an anchor means, and an isolation packer located below said opening positioner;

engaging said opening positioner with said casing valve;

lifting said drill string to open said casing valve;

positioning said drill string to align said isolation packer with said casing valve, so that an upper packer assembly of said isolation packer sealingly engages the casing above said casing valve and a lower packer assembly of said isolation packer sealingly engages the casing below said casing valve;

setting said anchor means against said casing to provide sufficient resistance between said drill string and casing to operate a motion compensator on the floating vessel; and

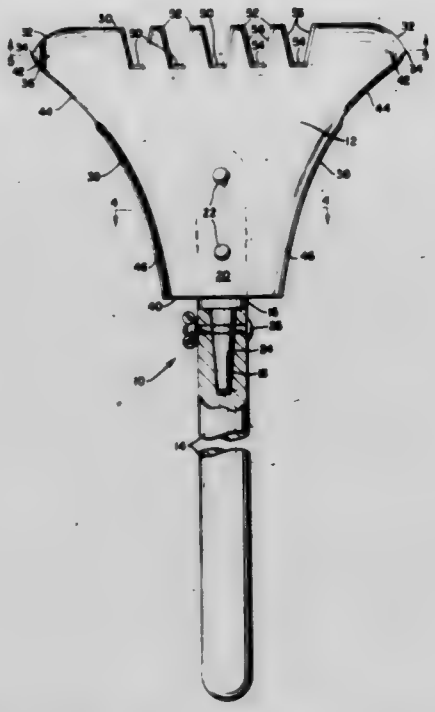
pumping a cement slurry into said drill string, out a port of said isolation packer between said upper and lower packer assemblies, through the opened casing valve into the annular cavity between the casing and the well borehole.

4,334,583

MULTI-PURPOSE LIGHT DUTY GARDEN TOOL

George A. Parker, 3810 Carpenter St., S.E., Washington, D.C. 20020

Filed Jan. 19, 1981, Ser. No. 225,998
Int. Cl.[3] A01B *1/20, 1/14*
U.S. Cl. 172—375 7 Claims



1. A light-weight, multi-purpose light-duty yard tool comprising a small sheet metal blade part secured to one end of a pole handle: said blade part being essentially planar and shaped like a truncated triangle, the wide part at the front and the narrow heel part at the rear, and the front being substantially wider than the heel part, the blade part having bent up side edge portions extending along a portion of the sides thereof from the heel part and providing a shovel aspect, said front having edge cutouts providing teeth for a rake function, forward portions of both of the side edges of said blade part, forward of the bent up side edge portions, being substantially free of the upward bending of the side edge portions, said forward portions also being sharpened to provide edging and slicing functions; the ends of said front edge have a rearwardly curving arc and the end portions including said curving arc and the terminal portions of the side edges are slightly cupped upwardly relative to said forward portions of said side edges; and means securing the heel of said blade part to said pole handle.

4,334,584

METHOD AND APPARATUS FOR INSTALLING A SEA-FLOOR CELLAR IN A SUBSEA BOTTOM HAVING COMPACTED SOIL CONDITIONS

James M. Magill, Houston, Tex., assignor to Atwood Oceanics, Inc., Houston, Tex.

Filed Feb. 11, 1980, Ser. No. 120,375
Int. Cl.[3] E21B *7/12*
U.S. Cl. 175—5 9 Claims

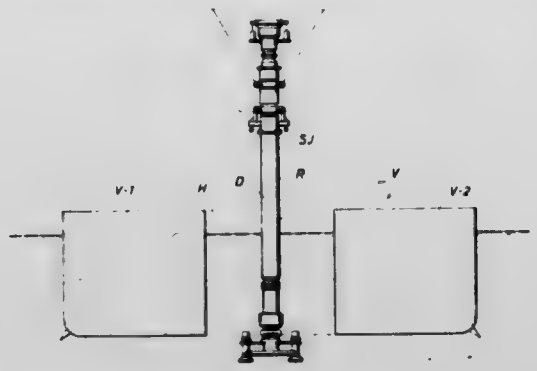
1. A method of installing a sea-floor cellar in shallow water areas in order to position a blowout preventer stack substantially below the surface of the sea floor, which has a hard or compacted soil structure, comprising the steps of:

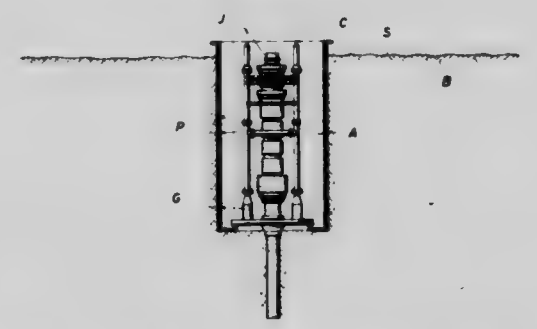
drilling a first pattern of first bore holes in a configuration generally the same as the sea-floor cellar to be installed in order to produce a first honeycomb soil structure of substantially the same configuration and depth as the sea-floor cellar to be installed;

drilling a second pattern of bore holes into said first honeycomb wherein each bore hole of said second pattern has a larger diameter than the bore holes in said first pattern thereby producing a second honeycomb soil structure;

inserting a bar member into said second honeycomb of bore holes, and rotating said bar member therein to eliminate standing walls in said second honeycomb to produce a substantially cleared recessed area;

utilizing fluid jetting action to further loosen and suspend said particles during and after use of said rotating bar





member in said second honeycomb of holes to create a clear, recessed area having outer walls of a configuration and sufficient depth to receive said sea-floor cellar; and

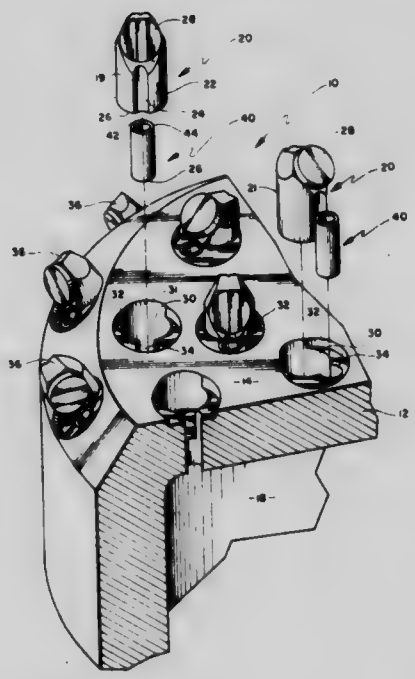
implanting such sea-floor cellar in said recess while simultaneously removing at least some of such suspended particulate.

4,334,585

INSERT RETENTION AND COOLING APPARATUS FOR DRAG BITS

Robert G. Upton, Dana Point, Calif., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Jul. 14, 1980, Ser. No. 168,863
Int. Cl.[3] E21B *10/46*
U.S. Cl. 175—329 8 Claims



1. A rock bit comprising:

a drag bit portion of said rock bit having a first cutting end, said drag bit portion forming a face at said first cutting end, said drag bit portion further forming a first chamber therein that communicates with a second chamber defined

in a body of said rock bit, said second chamber communicating with an opening formed in an inlet end of said body of said rock bit,

one or more diamond insert stud retention holes is strategically formed in said face of said drag bit portion to position one or more diamond studded inserts within said holes for maximum penetration of an earth formation,

a groove formed in a wall of a grip length of said diamond insert stud, said groove being substantially axially aligned with said stud, said groove being oriented substantially in line with a diamond cutting disk attached to said insert,

a second aperture formed in each wall of said insert holes in said face of said drag bit portion, said second aperture being substantially axially aligned with said insert holes, said second aperture is in communication with said first chamber formed by said drag bit portion, said second aperture being closed out when said diamond insert stud is inserted within said one or more stud retention holes, said groove in said wall of said stud is aligned with said second aperture in said wall of said insert retention hole, and

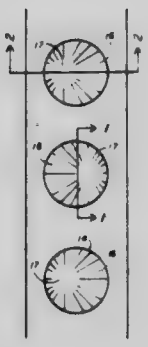
a longitudinally extending insert retention pin having first and second ends, said pin forming a longitudinal conduit therethrough from said first to said second end, the outside surface of said pin means being shaped to fit within said second aperture formed between said drag bit portion and said groove in said wall of said diamond insert stud, said pin serving to lock said diamond insert stud within said face of said rock bit, said longitudinal conduit in said pin serving to direct a fluid in said first chamber over the diamond cutting disk of said diamond insert stud during operation of said rock bit.

4,334,586

INSERTS FOR DRILLING BITS

Percy W. Schumacher, Houston, Tex., assignor to Reed Rock Bit Company, Houston, Tex.

Filed Jun. 5, 1980, Ser. No. 156,719
Int. Cl.³ E21B *10/16, 10/56*
U.S. Cl. 175—374 **10 Claims**



1. In a rolling cutter drill bit of the type having a central body, an upper threaded pin end, a plurality of downwardly extending legs on said body, each said leg having a bearing journal protruding therefrom, and a generally frusto-conical cutter rotatably mounted on each said bearing journal, at least one of said cutters having a gage row and at least one nongage row of hard metal cutting elements inserted therein and protruding therefrom, the improvement comprising:

a majority of said cutting elements in at least one of said rows comprises asymmetrical elements having a generally cylindrical base portion and an asymmetrical protruding portion; and,

wherein said asymmetrical portions of at least two of said elements in said one row are arranged at different angular orientations in relation to a circumference of said cutter.

9. A hard metal insert for use as a cutting element in rock cutting and drilling apparatus said insert comprising:

a generally cylindrical base section having a central longitudinal axis; and,

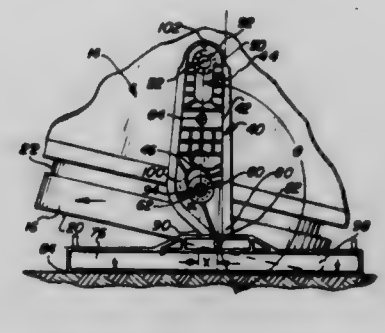
a frusto-conical protruding section having a rounded top end, said protruding section consisting of a non-right-circular cone having a central axis non-aligned with the central axis of said base section, and said top end being radially displaced from said base section central axis.

4,334,587

OFFSET WALKING SPUD

Krishnaswamy Rangaswamy, Wheaton, Ill., assignor to Page Engineering Company, Chicago, Ill.

Filed Jul. 22, 1980, Ser. No. 171,259
Int. Cl.³ B62D *57/02*
U.S. Cl. 180—8 R **6 Claims**



1. In a walking mechanism for an excavator or the like, said excavator comprising a main frame having a center of gravity, said walking mechanism comprising:

a hinge pin and a rotatable eccentric crank pin projecting substantially horizontally from a side of said main frame, said pins being spaced generally vertically from each other and defining a generally vertical axis pivotal about the horizontal axis defined by said hinge pin and spaced longitudinally from said center of gravity;

an upright leg having a lower end and means mounting said leg to said pins for movement of said leg with said vertical axis; and

a longitudinally extending shoe mounted to said lower leg end for movement therewith, the improvement wherein said shoe is attached to said leg lower end at a point spaced longitudinally from said vertical axis toward said center of gravity.

5. A walking spud for use in a walking dragline excavator or the like, said excavator including a hinge pin and a rotatable eccentric crank pin spaced vertically from said hinge pin, said spud comprising an upright leg mounted to said hinge pin, said crank pin and an attachment point on a longitudinally extending shoe such that said attachment point is displaced longitudinally from an axis extending through said hinge and crank pins.

4,334,588

VEHICLE ENGINE NOISE REDUCING ASSEMBLY

Toru Tezuka, Sagamihara, and Akira Matsuda, Atsugi, both of Japan, assignors to Caterpillar Mitsubishi Ltd., Tokyo, Japan

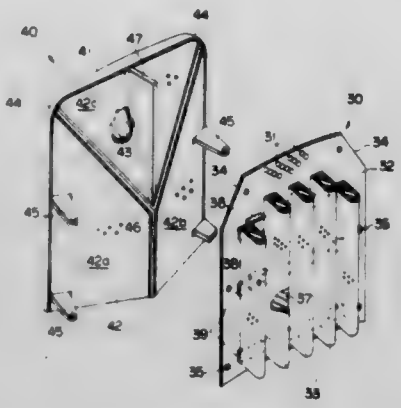
Filed Feb. 14, 1980, Ser. No. 121,347
Claims priority, application Japan, Apr. 27, 1979, 54-052279
Int. Cl.³ B60K *11/04*
U.S. Cl. 180—68 P **13 Claims**

1. A noise reducing assembly for use in an earthmoving vehicle (20) provided with a cooling fan (23), a radiator (24), a radiator guard (21) disposed in front of said radiator (24), having left and right upper shoulder portions, and having an air exhaust opening (22), the assembly comprising:

a sound absorbing grille (30) including a perforated panel (32) sized for covering at least a portion of said air exhaust opening (22), a plurality of sound absorbing louvers (33) and means for mounting said louvers on said perforated panel; and,

a sound and air diverting unit (40) disposed in spaced relationship in front of said sound absorbing grille (30), including means (42*a*,42*b*,42*c*) for diverting the sound and air from said sound absorbing grille (30) vertically and transversely of the vehicle body, said sound and air diverting

means includes left and right slopes (42*a*, 42*b*) extending from a vertical ridge (46) in substantially the central portion of the rear surface of said sound and air diverting unit (40) to the left and right vertical edges of said unit (40), respectively, thereby being inclined toward the front of the vehicle body (20), said sound and air diverting unit



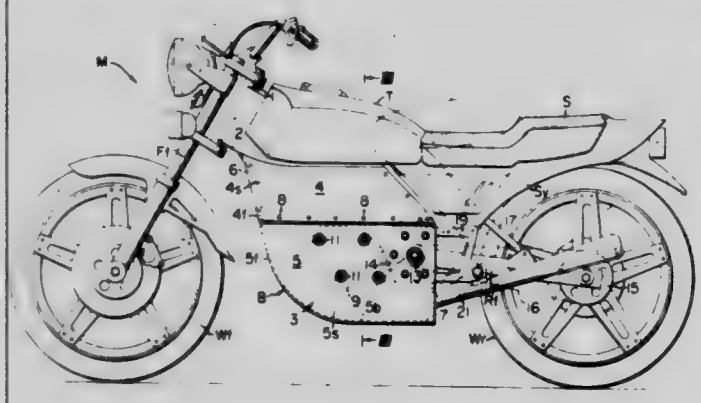
(40) further including an upper slope (42*c*) extending from substantially the central portion of the rear surface of said sound and air diverting unit (40) to the upper edge thereof, thereby being inclined toward the front of the vehicle body, said sound and air diverting unit (40) containing a sound absorbing material.

4,334,589

TWO-WHEELED MOTORCYCLE WITH COMBINED FRAME AND COWLING STRUCTURE

Toshimitsu Asakura, Wako, and Azusa Noda, Tokyo, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 18, 1980, Ser. No. 170,974
Claims priority, application Japan, Jul. 20, 1979, 54/92415
Int. Cl.³ B62K *11/08, 19/08*
U.S. Cl. 180—219 **6 Claims**



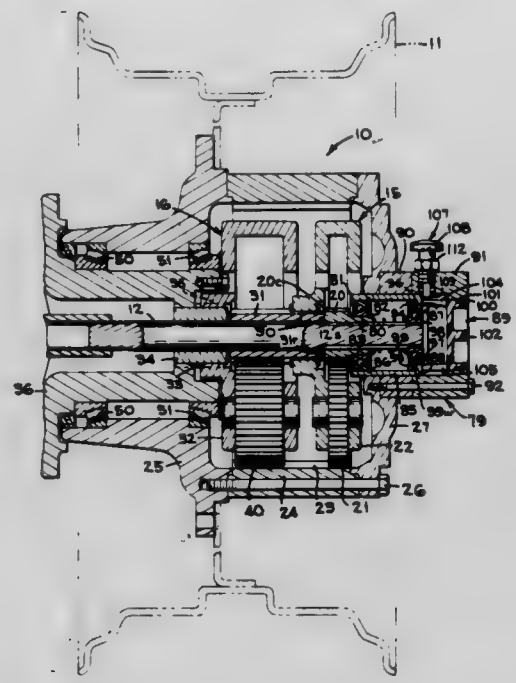
1. A two-wheeled motorcycle in combination with a combined frame and cowling structure, said motorcycle having a head pipe mounting thereon a front fork, a rear fork for supporting a rear wheel, and a power unit for driving said rear wheel, said combined frame and cowling structure comprising a shell in the form of a streamlined configuration entirely enclosing therein said power unit, said shell being formed of an upper shell half, having a top plate and a pair of opposite side plates, and a lower shell half, having a bottom plate and a pair of opposite side plates, said upper and lower shell halves being detachably joined together at the peripheral edges of said upper and lower side plates, said head pipe being attached to said upper shell half at its front end, said power unit being secured at its opposite sides to the opposite side plates of said lower shell half for reinforcing transverse rigidity of said shell, said rear fork being pivotally mounted on said power unit.

4,334,590

QUICK DISENGAGEMENT APPARATUS FOR WHEEL DRIVE MECHANISMS

Bruce E. Plumb, Salinas, Calif., assignor to Bud Antle Inc., Salinas, Calif.

Filed Feb. 19, 1980, Ser. No. 122,504
Int. Cl.³ B60K *17/26*
U.S. Cl. 180—247 **4 Claims**



1. In a wheel drive mechanism of the class for installation in a vehicle wheel hub for transmitting power from a driven shaft supported centrally of the hub to the wheel, said mechanism having a sun gear mounted on the shaft for rotation therewith, a planetary gear set having at least one pinion for meshing with the sun gear in driven relation thereto, a vehicle wheel hub geared to said planetary gear for rotating said wheel, said sun gear operably detachable from said planetary gear; an improved sun gear comprising in combination: a second shaft joined to said driven shaft at one end; having an elongated splined portion formed on the other end; said sun gear having a splined opening for engagement with said splined portion of said second shaft so as to be moveable longitudinally of the shaft into and out of engagement with the pinion, means for resiliently biasing said sun gear longitudinally of said splined portion to a position at which said sun gear meshes with said pinion, and means accessible exterior of said hub for moving said sun gear longitudinally of said splined portion and for rotative movement independent of said splined portion against said biasing means for selectively disengaging said sun gear from said pinion.

4,334,591

TRANSPORTER FOR LOW ENERGY SEISMIC SOURCE

Philip N. Martin, Tulsa, Okla., assignor to Mapco, Inc., Tulsa, Okla.

Continuation-in-part of Ser. No. 963,982, Nov. 27, 1978, Pat. No. 4,223,759. This application Sep. 18, 1980, Ser. No. 188,370
Int. Cl.³ G01V *1/104*
U.S. Cl. 181—116 **20 Claims**

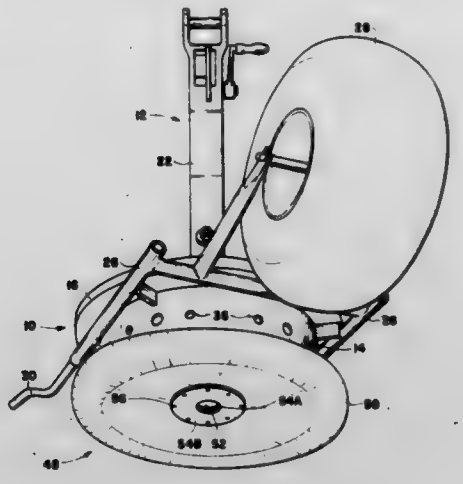
1. An improved seismic energy source comprising:

a base having an opening therethrough and having a lower and upper end;

a gun mounted on said base upper end for firing a projectile to impact the earth's surface and generate a seismic signal; and

a flexible diaphragm affixed at its periphery to said base

lower end, the diaphragm having an opening through which projectiles fired by said gun pass, the diaphragm



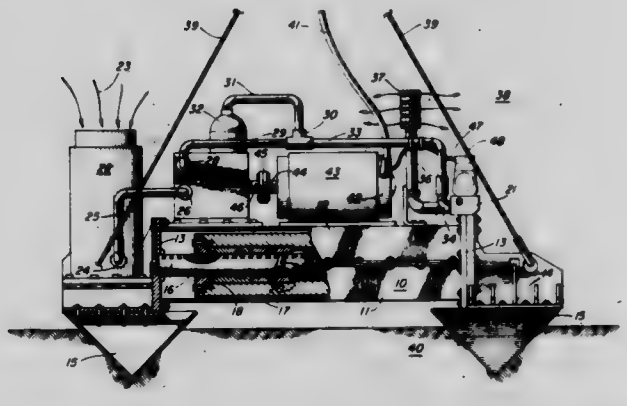
serving to intercept material dislodged from the earth when a projectile is fired.

4,334,592

SEA WATER HYDRAULIC FLUID SYSTEM FOR AN UNDERGROUND VIBRATOR

Delbert W. Fair, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Dec. 4, 1980, Ser. No. 212,938
Int. Cl.[3] G01V *1/145, 1/053*
U.S. Cl. 181—121 4 Claims



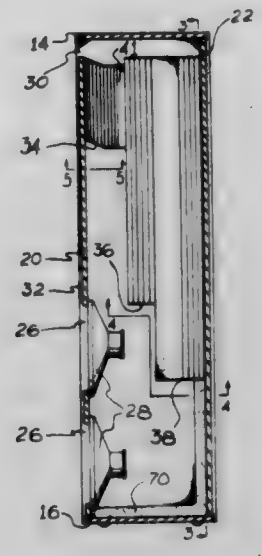
1. A hydraulic drive system for an underwater vibrator having a housing including a top, sidewall means, and a bottom; seabed engaging means attached to said bottom; positioning means coupled to said housing; vibratory means including a mass member which has pistons and cylinder means, inside said housing with said piston rods extending outside said mass and attached to the inside of said housing; and hydraulic drive means including a hydraulic fluid pump which has an inlet port and an outlet port; a motor means coupled to drive said hydraulic fluid pump; a control valve having an inlet port, an outlet port, and a control signal input, said hydraulic drive system comprising a filter having an inlet adapted for communication with said water; conduit means coupled from the outlet port of said filter to the inlet port of said fluid pump; a conduit coupled from said outlet port of said fluid pump to the inlet port of said control valve; and means, coupled to the outlet port of said control valve which is adapted to exhaust the outlet port from said control valve to said water, whereby fluid sucked into said filter will be substantially cleared of particulate matter, compressed by said fluid pump, controllably applied to said pistoncylinder combination through said control valve and exhausted from said control valve to said water, thereby eliminating most of the accumulator, fluid coolers, and sump necessary for a confined hydraulic system.

4,334,593

SOUND REPRODUCTION SYSTEM

Edward L. Sechrist, 30446 County Rd., 12 West, Elkhart, Ind. 46514

Filed Nov. 18, 1980, Ser. No. 207,746
Int. Cl.[3] H05K *5/00*
U.S. Cl. 181—144 10 Claims



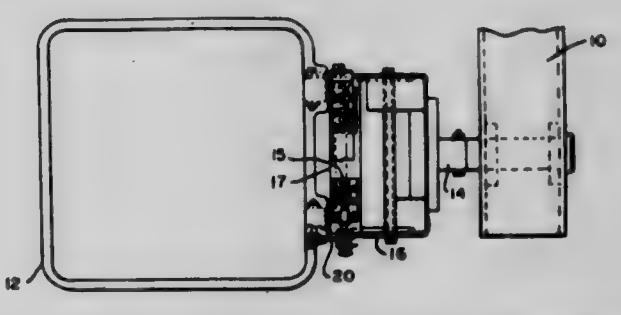
1. In a sound reproduction system including a closed housing having a front wall, a sound reproduction speaker, an opening through said front wall, said speaker mounted adjacent said opening to project sound therethrough, an elongated sound transmitting slot through said front wall adjacent the upper end thereof, and sound resonating chambers mounted on said front wall between said speakers and said sound transmitting slot, the improvement wherein said sound resonating chambers are a series of panels having tapered sides and spaced from one another parallel to said front wall, said panels separated from one another by spacers having a thickness greater than the thickness of said panels, a pair of said spacers positioned along said tapered sides of each of said panels to form compartments between said panels, the small end of said panels adjacent said speaker and the large end of the panels adjacent said sound transmitting slot, said panels divided into three juxtaposed sections, each section having multiple panels of the same length, said section having three different lengths, a first section having the shortest length forming a treble chamber, a second section having the intermediate length forming a midrange chamber, a third section having the longest length forming a bass chamber, said first panel section located nearest said housing front wall, said panel third section located furthest from said housing front wall, said second panel section located between said first and third panel sections.

4,334,594

AERIAL DEVICE

Richard P. Jost, St. Louis, Mo., assignor to McCabe Powers Body Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 969,169, Dec. 13, 1978, abandoned. This application Sep. 27, 1979, Ser. No. 79,456
Int. Cl.[3] B66F *11/04*
U.S. Cl. 182—2 4 Claims



1. An articulated aerial device comprising a movable beam,

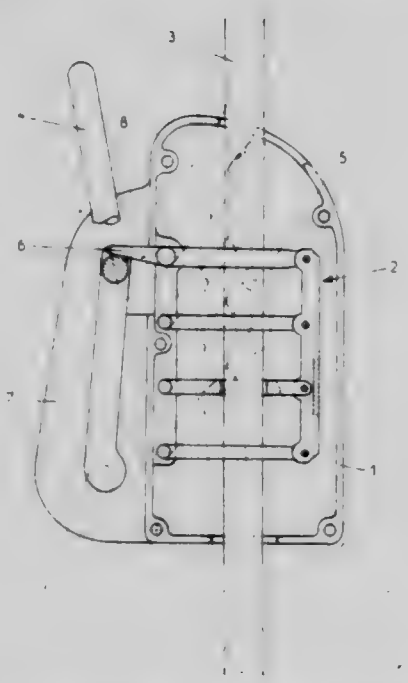
a workman's basket, means attaching the basket to said beam permitting the basket to depend therefrom and pivot about an axis therethrough, biasing means attached to the basket to resist pivoting of the basket around said axis, and releasable locking means for locking said beam and basket together, release of the locking means permitting the basket to be pivoted against the bias of said biasing means, said releasable locking means including releasable clamp means having a locked position locking said beam and said basket together and an unlocked position unlocking said basket from said beam, said locking means also including safety means which in a latched position prevent said clamp means from moving from the locked position to the unlocked position.

4,334,595

FALL PREVENTING DEVICES

Albert Koch, Doux Sejour, 67860 Lutzelhouse (Bas-Rhin), France

Filed Sep. 18, 1980, Ser. No. 188,534
Claims priority, application France, Jan. 10, 1979, 79 25271
Int. Cl.³ A62B *1/14*; A63B *27/00*
U.S. Cl. 182—5 **2 Claims**



1. An instantaneously acting fall preventing device, essentially comprising a box containing a locking mechanism in the form of a series of rings, said mechanism being adapted to co-operate with a retaining cord, and a connecting element adapted to attach said box to a harness or safety belt, wherein a ring at one end of said series of rings is provided with a lever which passes through a wall of said box and passes out beyond said wall into a guidance member for the connecting element and when the device is in the unlocked position this lever is applied against an abutment within the guidance member and moves away from this abutment when the cord is in the locked position in the case of a fall by cancelling out the weight action of the device.

4,334,596

HYDRAULIC FLUID-OPERATED RAILWAY TRACK LUBRICATING APPARATUS

Stephen M. Lounsberry, Jr., deceased, late of Nichols, N.Y., assignor to Moore and Steele Corporation, Owego, N.Y.

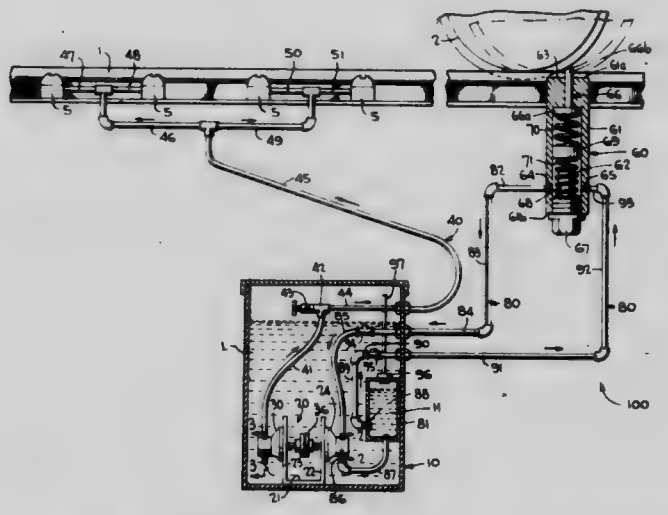
Filed Nov. 26, 1980, Ser. No. 210,621
Int. Cl.³ B61K *3/00*
U.S. Cl. 184—3 A **7 Claims**

1. In a railway track lubricating apparatus which includes at least one applicator element for applying lubricant to a rail of a railway track, a supply tank containing lubricant positionable near the rail, a lubricant pump mounted in said supply tank, a lubricant delivery system connecting said lubricant pump and each applicator element, an actuator element mountable along the length of the rail to be activated by the wheel of a railway vehicle passing thereover, and a hydraulic fluid recirculation system connected between said actuator element and said lubricant pump to operate said lubricant pump when said actuator element is activated, the improvement wherein

said lubricant pump includes a gear drive element, a gear pump element and a rotatable, flexible coupling element connected therebetween; said gear drive element including a hollow, elliptically-shaped housing having hollow couplings extending outwardly from opposite sides and a pair of rotatable toothed gears mounted therein which are intermeshed with one another; said gear pump element including a hollow, elliptically-shaped housing having hollow couplings extending outwardly from opposite sides and a pair of rotatable toothed gears mounted therein which are intermeshed with one another; and said rotatable, flexible coupling element connecting one of the toothed gears in said gear drive element housing with one of the toothed gears in said gear pump element housing,

the end of said lubricant delivery system which is connected to said lubricant pump being connected to one of said hollow couplings of said gear pump housing,

said actuator element comprising an elongated block having a top surface and a bottom surface and including a internal-piston chamber extending inwardly from the bottom surface of said housing and a bore communicating between said piston chamber and the top surface of said



housing, the piston chamber being larger in dimensions than said bore, said block including threads near said bottom surface and two radial openings communicating with said piston chamber, a T-shaped plunger having a base and a stem mounted in said block such that the base is movable along said piston chamber and the stem is movable along said bore, a plug threadingly connected to the threads on said block to enclose the opening of said piston chamber at the bottom surface of said block, a piston located in said piston chamber to be axially movable therealong, a first coiled spring positioned between said base of said plunger and said piston, and a second coiled spring positioned between said plunger and said plug, and

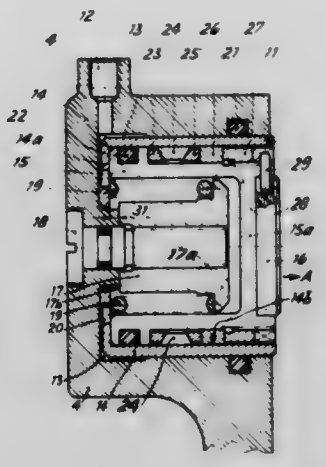
said hydraulic fluid recirculation system comprising a fluid-containing storage receptacle having a bottom, sides and a top mounted in said supply tank, a first conduit means connecting one of said radial openings in said actuator element block with one of the hollow couplings of said gear drive element housing, a second conduit means connecting the other of said hollow couplings of said gear drive element housing with the bottom of said storage receptacle; and a third conduit means connecting a side of the storage receptacle with the other of said radial openings in said actuator element block, each of said first and third conduit means including a one-way check valve so as to allow hydraulic fluid in said recirculation system to flow therethrough in only one direction.

4,334,597

BRAKE WEAR COMPENSATING DEVICE

Costantino Tovagliaro, Milan, Italy, assignor to Magnaghi Oleodinamica S.p.A., Milan, Italy

Filed Jul. 5, 1979, Ser. No. 54,702
Claims priority, application Italy, Jul. 10, 1978, 25485 A/78
Int. Cl.³ F16D 65/52
U.S. Cl. 188—71.8 1 Claim



1. In a disc brake comprising two brake jaws and a hydraulic brake actuating system including a cylinder fixed to one of the brake jaws, a first cup-shaped piston slidably mounted in the cylinder, the first piston having a ring-shaped bottom, a second cup-shaped piston slidably mounted in the first piston, the second piston having a closed bottom opposite the ring-shaped bottom of the first piston, and resilient means arranged between the first piston and the cylinder, the resilient means being biased to hold the first piston normally at a rest position: a brake wear compensating device which comprises a friction means mounted between the first and second pistons and effective to hold the second piston substantially stationary with respect to the first piston by an axial loading force exceeding the bias of the resilient means, the friction means consisting of a pair of closed rings, the closed rings having radially inwardly tapering faces facing each other, an open ring arranged between the closed rings and having opposite faces in contact with the radially inwardly tapering faces of the closed rings whereby the open ring is axially wedged between the closed rings, the open ring having a first cylindrical surface facing the first piston and a second cylindrical surface facing the second piston, the first cylindrical surface being greater than the second cylindrical surface, and means for pressing the closed rings axially together under said axial loading force for radially expanding the open ring therebetween, the first piston and the closed rings being of a material having the same thermal expansion coefficient and the closed rings defining a radial clearance with the first and second pistons.

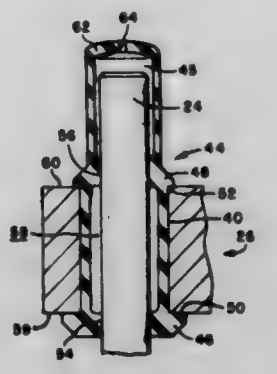
4,334,598

DISC BRAKE ASSEMBLY AND RESILIENT MEMBER THEREFOR

Larry A. Portolese, Granger, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jun. 2, 1980, Ser. No. 155,356
Int. Cl.³ F16D 65/02
U.S. Cl. 188—73.44 1 Claim

1. In a disc brake, a torque plate disposed adjacent a rotor to be braked, a pair of friction elements disposed on opposite sides of the rotor, a caliper cooperating with the pair of friction elements to bias the latter into engagement with the rotor during braking, a pin extending between the torque plate and the caliper to movably support the caliper relative to the torque plate, the caliper including an aperture for receiving the pin, and a resilient member carried by the caliper within the aperture to accommodate a clearance between the pin and the wall of the aperture, characterized by said resilient member including an opening for receiving said pin, said resilient member also including a pair of inwardly extending ribs being disposed at an axial location within said opening spaced from but substantially adjacent the aperture, said pair of ribs cooperating with said pin to define an annular cavity within the aperture so as to maintain said pin in spaced relation to said resilient member within the aperture, said pair of ribs fixedly engaging said pin to move with said pin when said caliper moves relative to said pin during braking, one of said pair of ribs moving with



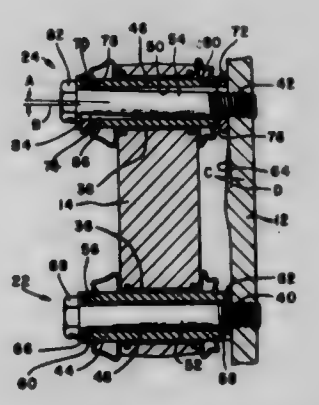
said pin to deflect into the aperture during braking so that the wall of the aperture maintains a tight engagement between said one rib and said pin, the tight engagement providing for retraction of the caliper by said one rib upon termination of braking, and said resilient member further including a cap substantially enclosing said pin but remaining spaced therefrom to avoid interferring with movement between said pin and said resilient member.

4,334,599

DISC BRAKE AND MOUNTING PIN ASSEMBLY THEREFOR

Irving R. Ritsema, and Ji Y. Woo, both of South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Aug. 18, 1980, Ser. No. 179,322
Int. Cl.³ F16D 65/02
U.S. Cl. 188—73.45 1 Claim



1. In a disc brake assembly, the combination of, a torque member disposed adjacent a rotor to be braked, a pair of pin assemblies extending from the torque member in a direction opposite the rotor, a caliper slidable on said pin assemblies and cooperating with a pair of friction elements to urge the latter into engagement with the rotor, each of said pair of pin assemblies including a sleeve defining an opening, a bolt extending through said opening to engage said torque member, and a pair of washers, said bolts being secured to said torque member in order to retain said sleeves fixedly disposed relative to said torque member, said washers of one pin assembly engageable respectively with opposite ends of said sleeve of said one pin assembly and cooperating therewith to substantially prevent lateral movement of said sleeve of said one pin assembly relative to said bolt of said one pin assembly, said washers of the other pin assembly engageable respectively with opposite ends of said sleeve of said other pin assembly and cooperating therewith to permit angular orientation of said sleeve of said other

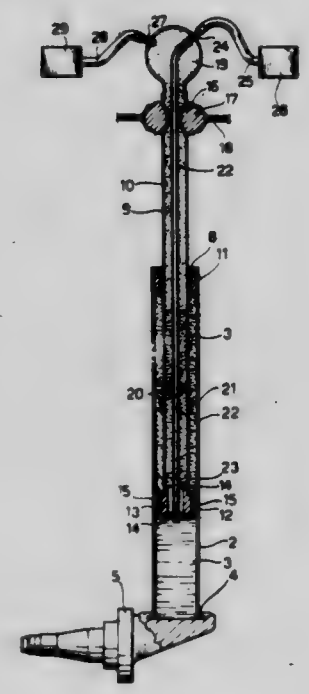
pin assembly relative to said bolt of said other pin assembly, said washers of said other pin assembly also permitting lateral movement of said sleeve of said other pin assembly relative to said bolt of said other pin assembly, said washers of said other pin assembly defining openings therethrough substantially equal in diameter to said opening in said sleeve of said other pin assembly to form a large clearance with said bolt of said other pin assembly, said washers of said one pin assembly defining openings therethrough substantially equal in diameter to said bolt of said one pin assembly to form a close fit therewith, said washers of said one pin assembly being formed with conically tapered surfaces and said opposite ends of said sleeve of said one pin assembly being tapered to receive said tapered surfaces of said washers of said one pin assembly therein to thereby prevent said lateral movement, said washers of said other pin assembly being formed with arcuate surfaces and said opposite ends of said sleeve of said other pin assembly having corresponding arcuate surfaces engageable with said arcuate surfaces of said washers of said other pin assembly to thereby permit said angular orientation and lateral movement.

4,334,600

OLEO-PNEUMATIC SHOCK ABSORBER

Mauro Palitto, Collegno, Italy, assignor to Fiat Auto S.p.A., Turin, Italy

Filed Jun. 26, 1980, Ser. No. 163,140
Claims priority, application Italy, Jul. 26, 1979, 68555 A/79
Int. Cl.³ F16F 9/06
U.S. Cl. 188—314 **2 Claims**



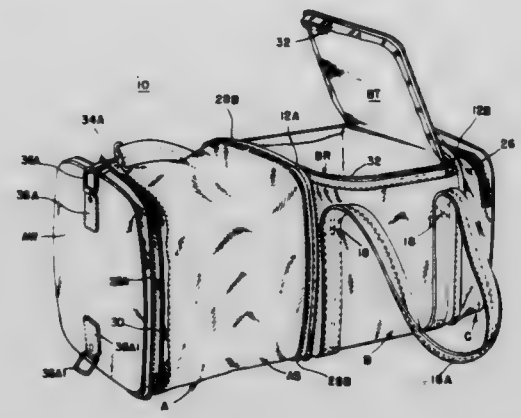
1. An oleo-pneumatic shock absorber for use as a load-bearing element in a vehicle wheel-suspension arrangement comprising an oil-containing cylinder arranged for connection to the hub of a wheel, a drowned piston located in said cylinder and provided with flow determining means for determining fluid flow past the piston during operation of the shock absorber, a piston rod extending from said piston out of said cylinder for connection at the external end thereof to the body of a vehicle, said piston and piston rod being hollow in construction and having closure means at the external end thereof and a supply of gas and oil therein, and a tube extending through the interior of said hollow rod which projects from the end thereof located inside said cylinder and means providing access to said tube externally of said rod adjacent the external end of said rod and connected to a unit for the selective supply and removal of oil to said cylinder.

4,334,601

UTILITY BAG

Johnnie G. Davis, Mexico, Mexico, assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Jun. 5, 1980, Ser. No. 156,644
Int. Cl.³ A45C 7/00
U.S. Cl. 190—44 **11 Claims**



1. A multiple compartment utility bag comprising in combination:

a central section having wall means defining a central compartment, said central compartment comprising a top wall, bottom wall, parallel side walls and parallel end walls; and

first and second flexible end sections secured at the respective end walls of said central compartment such that said end walls of said central compartment form respective common walls between said central compartment and each of said first and second flexible end sections, each of said sections being further defined by a first end wall and one of said common end walls;

said first flexible end section comprising a collapsible and extensible first end compartment between said first end wall of said first flexible end section and said opposite common end wall of said central compartment, retained in its collapsed state by a fully peripheral slide fastener means, said end compartment housing a collapsed and extensible sleeve which, when said peripheral slide fastener means is in its opened state, is extendable so as to provide for the expansion of said flexible end section thereby defining an elongated end compartment adjacent said central compartment, said extensible sleeve having an access slide fastener means adjacent the first end wall of said first flexible section such that when said access fastener is in its opened state said first end wall can be opened outward so as to permit full access to said elongated end compartment;

said second flexible end section comprising a fixed dimension second collapsible end compartment including a slide fastener means extending across the entire top surface thereof and portions of the side surfaces providing access to said second end compartment;

said top wall of said central compartment including a slide fastener means therein defining a flap configuration for providing access to said central compartment.

4,334,602

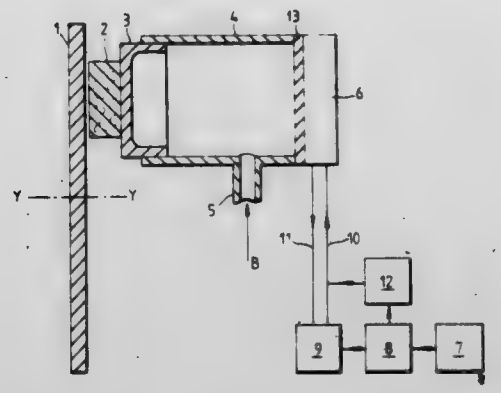
FRICTION CONTROLLER

John S. Armour, Farnborough, and Peter M. F. Watson, Wokingham, both of England, assignors to The Minister of Transport in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Apr. 1, 1980, Ser. No. 136,218
Claims priority, application United Kingdom, Sep. 26, 1979, 7933380
Int. Cl.³ B60T 8/04; F16D 43/24
U.S. Cl. 192—103 F **15 Claims**

1. A friction controller assembly comprising a rotatable disc member, a pad of high friction material arranged selectively to

contact the disc member, a transducer disposed so as to apply ultrasonic vibration to the pad, a sensor adapted to monitor an



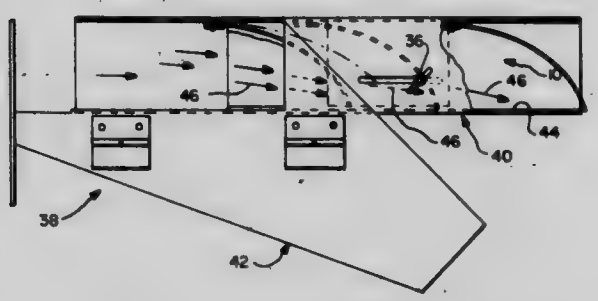
external parameter and connected to apply a signal to the transducer, and an ultrasonic generator and another funtion generator in circuit between the sensor and the transducer.

4,334,603

ARTICLE DECELERATING ASSEMBLY AND METHOD

Howard J. Carter, Santa Clara, and William C. Staiger, Cupertino, both of Calif., assignors to Acurex Corporation, Mountain View, Calif.

Filed Jul. 28, 1980, Ser. No. 172,565
Int. Cl.³ B65G *11/20*
U.S. Cl. 193—32 **16 Claims**



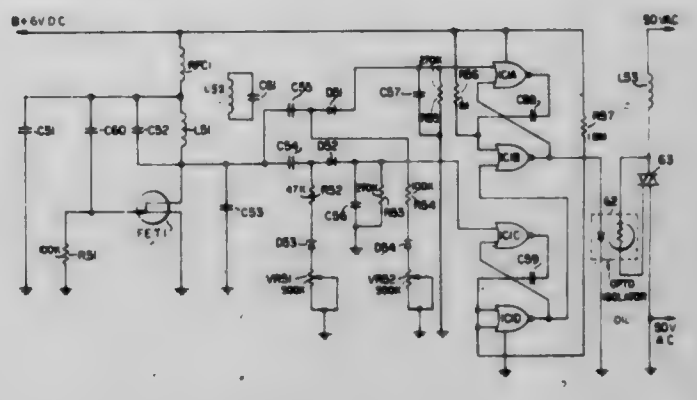
1. In an apparatus of the type in which relatively small and fragile articles such as shelled peanuts move along a path and initially into a given section of the latter at a downward angle towards an article support surface, an assembly for decelerating movement of said articles along the given section of said path, said assembly comprising first and second elongated, flexible flap means having top and bottom ends, means for supporting said flap means at their top ends such that the flap means extend downward in spaced apart confronting relationship with one another, and means for maintaining said support means in a fixed position relative to said given path section such that said first and second flap means extend downward into said path section for successively intercepting said articles as the latter move through the path section said first flap means being positioned to intercept said articles before the latter reach said surface and being sufficiently flexible such that impingement of said articles onto said first flap means causes the latter to deflect upwardly and rearwardly in the direction of movement of said articles such that some other articles first entering said path section in flight pass under said first flap means while in fight without impinging on the latter, and said second flap means being located sufficiently close to said first flap means so as to intercept said other articles before the latter reach said article support surface.

4,334,604

COIN DETECTING APPARATUS FOR DISTINGUISHING GENUINE COINS FROM SLUGS, SPURIOUS COINS AND THE LIKE

Ronald C. Davies, Las Vegas, Nev., assignor to Casino Investment Limited, Hong Kong

Filed Mar. 15, 1979, Ser. No. 21,305
Int. Cl.³ G07F *3/02*
U.S. Cl. 194—100 A **5 Claims**



1. A coin detecting apparatus for distinguishing genuine coins from slugs, spurious coins and the like, comprising an oscillator circuit having a resonant tank circuit including a single inductance and capacitance means for varying the amplitude of a signal produced by the oscillator circuit in accordance with the losses of the tank circuit; and coin directing means of non-magnetic material for guiding coins, slugs, spurious coins and the like to a predetermined locality, the single inductance means of the resonant tank circuit being positioned completely around the coin directing means in close proximity with an area of the coin directing means in a manner whereby the inductance means forms an air core coil and the coins and the like pass completely through the coil from one end to the other and said losses are determined by the metal content of a coin and the like passing through the coin directing means and through the coil, the coin and the like forming the core of the coil when passing through the coil; characterized in that there is also provided a passive resonant circuit in close proximity to but electrically unconnected to the air core coil for sensing the dimensions of the coin, said passive resonant circuit being adapted to resonate at the frequency to which the oscillator rises when a desired coin passes through the air core coil, whereby the losses due to material content and the frequency rise due to dimensions are combined to check genuine coins as compared with spurious coins; and direction switching means in said coin directing means at said predetermined locality for selectively accepting and rejecting coins and the like in accordance with the signal produced by said resonant tank circuit and said passive resonant circuit.

4,334,605

TECHNIQUE FOR HANDLING AND TREATING HEAVY WASTE HYDROCARBONS

Franz A. Hitt, 345 Clifford, Corpus Christi, Tex. 78404

Filed Jan. 16, 1981, Ser. No. 225,738
Int. Cl.³ C10G *21/14*
U.S. Cl. 196—46 **15 Claims**

1. A system for recovering hydrocarbons from a heavy hydrocarbon waste having water therein, from a pit, comprising

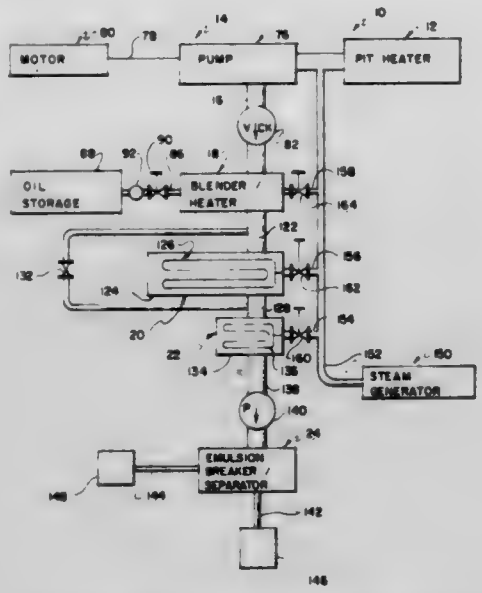
a pit heater for at least partially liquifying the heavy hydrocarbon waste and means for lowering the pit heater into the pit;

a pump having an inlet carried by the pit heater for withdrawing the hydrocarbon waste from the pit and an outlet;

a blender for mixing the hydrocarbon waste with a mixing oil of higher API gravity having an inlet connected to the pump outlet and an outlet, including

a storage tank for holding a mixing oil of higher API gravity than the waste,

means for injecting the mixing oil into the blender, and
means for heating the mixed hydrocarbon waste and the mixing oil; and



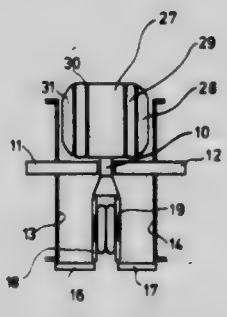
means, in material receiving relation with the blender outlet, for separating water from the mixed hydrocarbon waste and mixing oil.

4,334,606

ALLOCATING MEANS FOR SAWMILLS

Sven E. Östberg, Söderhamm, Sweden, assignor to Kockums Industri AB, Sweden

Filed Feb. 26, 1980, Ser. No. 124,846
Claims priority, application Sweden, Feb. 27, 1979, 7901728
Int. Cl.³ B65G *47/12, 47/26*
U.S. Cl. 198—443 **5 Claims**



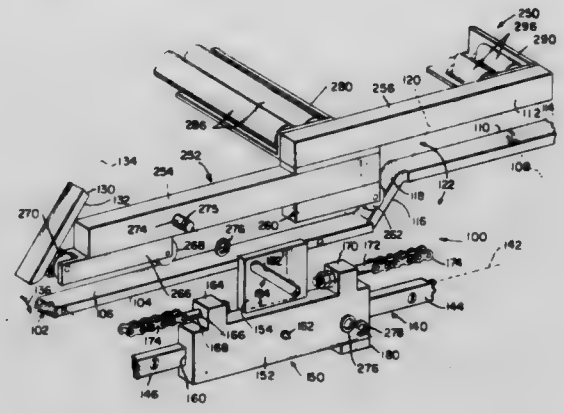
1. An allocating means for handling individual side boards immediately after a log has been sawed into a main yield and a number of sideboards on each side thereof, comprising:
(a) a longitudinal conveyor for transporting the main yield lengthwise;
(b) a pair of retractable sideboard supports respectively disposed at each side of said longitudinal conveyor for supporting the sideboards from below until retracted;
(c) a pair of stationary lateral guide means for laterally guiding the sideboards on said supports;
(d) a number of releasable gripping members between said pair of guide means and below said retractable supports, one for each pair of the sideboards, disposed at a level below said longitudinal conveyor, and adapted to momentarily grip one of each pair of the sideboards while permitting the other one to fall further; and
(e) a cross-conveyor disposed below said gripping members, and having compartments receptive of individual falling sideboards.

4,334,607

LOAD-ENTRY ASSEMBLY FOR CONVEYOR SYSTEMS

Thomas A. Dyer, Greenwood, Ind., assignor to Pentak Corporation, Indianapolis, Ind.

Filed Sep. 22, 1980, Ser. No. 189,130
Int. Cl.³ B65G *25/00, 37/00*
U.S. Cl. 198—487 **18 Claims**



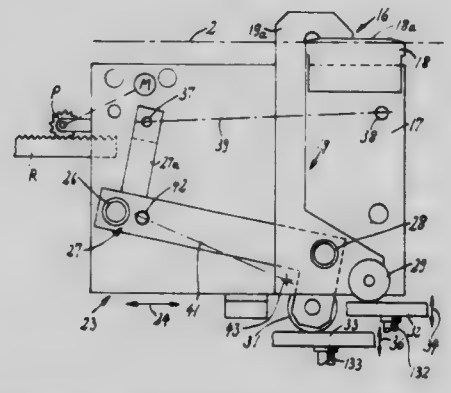
17. In a load-entry assembly for a conveyor system including laterally spaced side frame members supporting a plurality of load-carrying rollers in a common plane to transport a load in a longitudinal direction, and a trolley for pushing the load off the load-carrying rollers at one end of the assembly, a mechanism for moving the trolley from a first plane below the plane of the load-carrying rollers to a second plane above the load-carrying rollers and vice versa, the mechanism including at least one multi-level track having track surfaces in at least two different planes for horizontally carrying the trolley in its first and second planes, and means movable horizontally in a single plane for vertically moving the trolley between its first and second planes in generally constant spaced parallel relationship thereto and for horizontally moving the trolley in its two planes.

4,334,608

APPARATUS FOR TRANSPORTING STACKS OF PAPER SHEETS OR THE LIKE

Paul Fabrig, Neuffen, Fed. Rep. of Germany, assignor to Womako Maschinenkonstrucktionen GmbH, Nürtingen, Fed. Rep. of Germany

Filed Jun. 4, 1980, Ser. No. 156,353
Claims priority, application Fed. Rep. of Germany, Dec. 15, 1979, 2950617
Int. Cl.³ B65G *47/86, 25/00*
U.S. Cl. 198—650 **11 Claims**



1. Apparatus for transporting commodities, especially stacks of paper sheets, between spaced apart first and second stations, comprising support means having an exposed first side and a second side and defining an elongated path extending between the first and second stations, said support means further having an elongated opening extending between the first and second stations; a tongs having first gripper means and second gripper

means movable relative to said first gripper means; a carriage supporting said tongs, located at said second side of said support means and movable along said path from the first station to the second station and back to the first station so as to advance to the second station a commodity which is engaged by said gripper means at the first side of said support means during dwell of said carriage at the first station, and to return to the first station after said tongs opens at the second station so that the thus advanced commodity need not share the movement of said tongs back to the first station, said first gripper means being affixed to said carriage; means for moving said second gripper means relative to said first gripper means between a first position in which said second gripper means extends beyond said first side of said support means and cooperates with said first gripper means to engage and advance a commodity from the first to the second station, a second position in which said second gripper means is located at said second side of said support means during movement of said carriage toward the first station and an intermediate position in which said tongs is open and said second gripper means extends beyond said first side of said support means, said moving means including means for moving said second gripper means through said intermediate position during movement of said second gripper means between said first and second positions, said second gripper means including a commodity-engaging portion which is located at a level above said first gripper means in said first position of said second gripper means and said second gripper means extending through said opening and beyond said first side of said support means in the first and intermediate positions of said second gripper means, said moving means including a lever pivoted to said carriage, means for pivotally connecting said lever with said second gripper means, means for pivoting said lever and said second gripper means relative to said carriage and means for pivoting said second gripper means relative to said lever; and means for moving the pivoting means for said lever independently of the pivoting means for said second gripper means to thereby move said second gripper means to and from said second position.

4,334,609

CHAIN MECHANISM

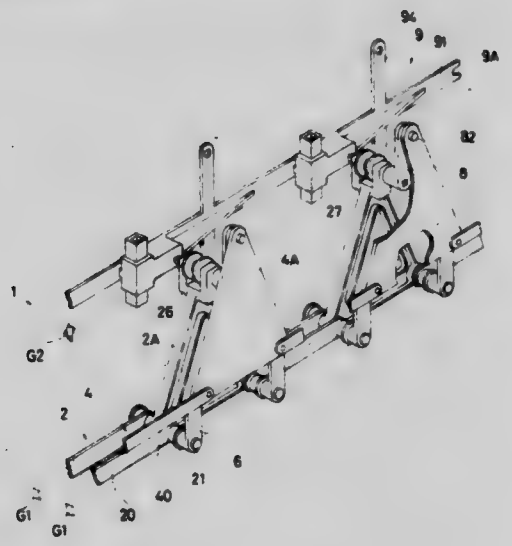
Keiichi Akashi, Toyonaka, Japan

Filed Dec. 4, 1979, Ser. No. 100,149

Claims priority, application Japan, Dec. 30, 1978, 53-164000; Apr. 1, 1979, 54-42553[U]

Int. Cl.³ B65G *17/16*

U.S. Cl. 198—797 **8 Claims**



1. A chain mechanism, comprising:

a main chain provided with triangular links disposed at a certain pitch interval and formed with a pivot in triangular disposition cooperatively with joints thereof;

an auxiliary chain having the same pitch and pitch number as said main chain and provided with triangular links arranged in opposite relationship to said triangular links of said main chain and formed with a pivot located identically to said triangular links of said main chain;

said auxiliary chain consisting of said triangular links, outer links and joint pins;

said joints of said main chain and joints of said auxiliary chain being coupled through a coupling link as well as said pivot of said main chain being coupled with said pivot of said auxiliary chain by a support link provided with a support rod for securing a carriage and having the same effective length as said coupling link;

said triangular links of said main chain being equipped with a roller at said pivot and said roller being guided along a guide plate arranged opposite to another guide plate on which rollers positioned at said joint of said main chain are guided.

4,334,610

METHOD OF STORING A SOLID CHLORINATING AGENT AND AN ARTICLE FOR STORING SAME

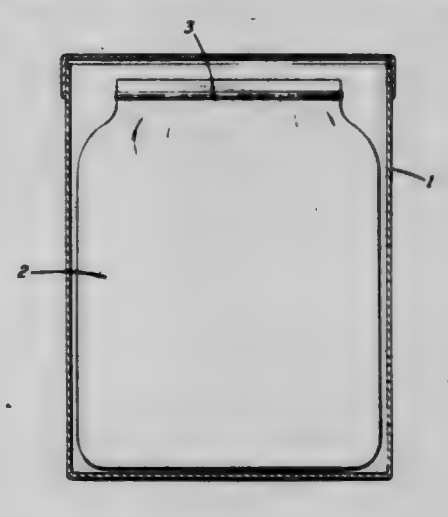
Masanori Ota; Toshiki Mori, and Tokuyuki Taniguchi, all of Funabashi, Japan, assignors to Nissan Chemical Industries, Ltd., Japan

Filed Jan. 17, 1980, Ser. No. 112,915

Claims priority, application Japan, Jan. 23, 1979, 54-6455; Nov. 16, 1979, 54-148366

Int. Cl.³ B65D *81/24*; C01B *11/02*; C11D *3/395, 7/54*

U.S. Cl. 206—205 **28 Claims**



1. A method of storing a solid chlorinating agent selected from the group consisting of trichlorinated isocyanuric acid, dichlorinated isocyanuric acid, sodium or potassium dichlorinated isocyanurate, calcium hypochlorite or sodium chlorite in a closed container comprising storing said solid chlorinating agent together with a storage stabilizer selected from the group consisting of trisodium phosphate, ferrous oxide, melamine, ammeline, ammelide and a mixture thereof, said storage stabilizer being brought into contact with the gases from said solid chlorinating agent within the container but not with said solid chlorinating agent itself.

4,334,611

ENVELOPE TYPE CARTON

William H. Watson, and Chauncey Young, both of St. Louis, Mo., assignors to Container Corporation of America, Chicago, Ill.

Filed Dec. 22, 1980, Ser. No. 218,504

Int. Cl.³ B65D *85/02*

U.S. Cl. 206—303 **2 Claims**

1. A multi-layered, self-locking, envelope type carton, formed of a unitary blank of paperboard, comprising:

(a) a pair of top and bottom retaining panels;

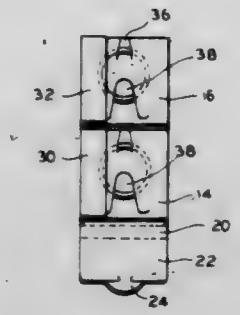
(b) a pair of first and second intermediate retaining panels, of substantially the same dimensions as said top and bottom panels, interposed therebetween and defining a plurality of compartments for holding packaged articles;

(c) said compartments being closed at the front and rear by

front and rear end panels extending between said top and bottom panels;

(d) said compartments being closed at the sides by side panels extending between said intermediate panels and said top and bottom panels;

(e) a closure panel foldably joined to said front end panel and having interlocking engagement with said top panel;



(f) first retaining means formed in the edges of said top, first intermediate and second intermediate retaining panels and adapted to serve as protective dividers between the packaged articles; and

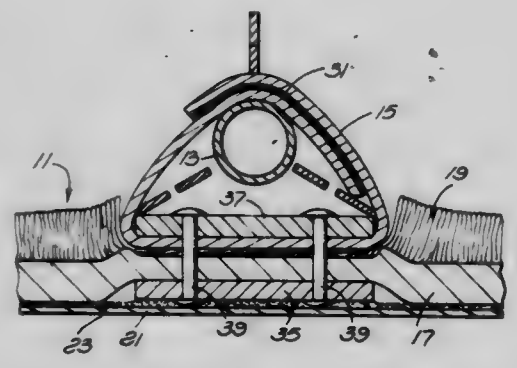
(g) second retaining tabs of a generally inverted V-shape formed in said first and second intermediate retaining panels on edges opposite to said first retaining tabs and adapted to separate the packaged articles.

4,334,612

COMBINATION SUPPORT SURFACE AND CARRIER FOR ELONGATED EQUIPMENT

Fernando J. Beato, 2424 W. 239th St., Torrance, Colo. 90501

Filed Mar. 11, 1980, Ser. No. 129,224
Int. Cl.³ A45C *11/26*
U.S. Cl. 206—314 **8 Claims**



1. Apparatus for protecting elongated objects, such as drum stands, during transport and for substantially immovably supporting such objects when the latter are in normal use, comprising:

a carpet means which is pliable so as to be selectively formed into a planar configuration and a substantially cylindrical configuration, the carpet means having
a generally skid-proof exposed surface and
a backing;

a substantially fluid impervious protective material, of a size approximately equal to the carpet means, located against the backing;

means for causing the protective material to closely adhere to the backing in both selective configurations;

means fastened to the exposed surface of the carpet for releasably fastening objects to be held thereon comprising at least one elongated strap means;

means for releasably fastening the ends of the at least one strap means together;

first support means located adjacent to the backing on one side of the carpet means and second support means on the side at the at least one strap means away from the exposed surface of the carpet means on the other side thereof; and

anchor means extending through the first and second support means, strap means, and carpet means, but not through the fluid impervious protective material, to hold the support means, strap means, and carpet means in fixed relationship; and

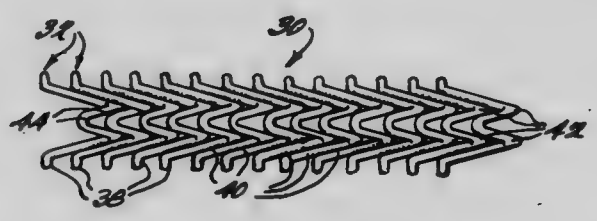
fastening means for releasably holding the carpet means in its cylindrical configuration.

4,334,613

STICK PACKAGE OF SPRING CLIP FASTENERS

Robert E. Males, West Warwick, and Edward A. Colechia, East Greenwich, both of R.I., assignors to Textron Inc., Providence, R.I.

Filed Mar. 14, 1980, Ser. No. 130,588
Int. Cl.³ B65D *85/24*
U.S. Cl. 206—340 **18 Claims**



1. A fastener package comprising a multiplicity of one-piece fasteners for attaching a spring member to a frame or the like, each of said fasteners including a bent length of metal providing

(1) a pair of frame penetrating portions disposed generally parallel with respect to one another and having free ends configured to facilitate simultaneous entry thereof into the frame,

(2) a pair of relatively short driving portions connected at one of their ends with the opposite ends of said frame penetrating portions and extending therefrom at generally right angles in directions generally toward one another, and

(3) a nestable portion connected with said driving portions bent to define a hook for receiving the spring member therein,

said multiplicity of fasteners being disposed in abutting row formation with the nestable portions thereof disposed in nested relation, all of the frame penetrating portions of said fasteners being parallel with one another and extending transversely to the direction of extent of the row formation, and

means for securing said multiplicity of fasteners in said row formation permitting release of a leading fastener in the row formation in response to a driving movement in the direction of extent of said frame penetrating portions thereof imparted to the driving portions thereof.

4,334,614

WINDINGS USING WATER-SOLUBLE WIND STABILIZATION SEGMENTS

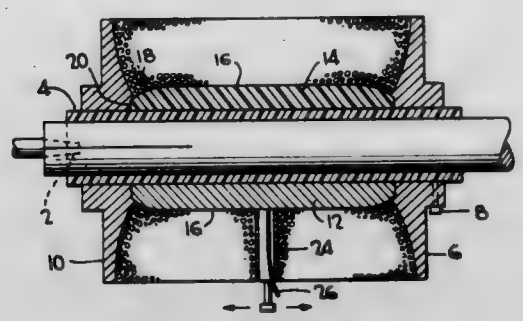
Ronald E. Zajac, Goldens Bridge, N.Y., assignor to Windings, Inc., Goldens Bridge, N.Y.

Filed Oct. 15, 1980, Ser. No. 197,255
Int. Cl.³ B65B *11/00, 53/02, 63/04;* B65D *85/672*
U.S. Cl. 206—389 **4 Claims**

1. A package of wound material, comprising:

a winding wound in a figure-8 configuration with a radial opening from the side of the winding into the inner axial

opening thereof through which the inner end of the material is brought out for unwinding; and



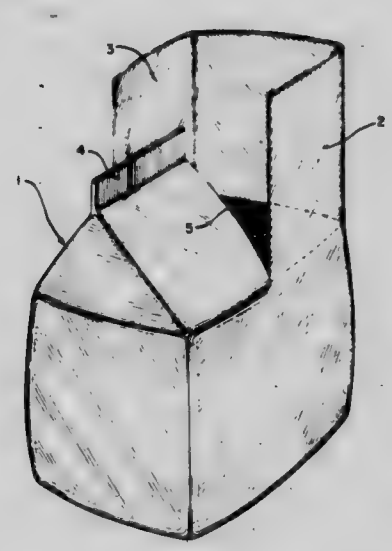
water-soluble stabilization segments mounted at spaced intervals along the inside diameter of the winding.

4,334,615

PACKAGE FOR COMPOUNDING RUBBER AND COMPOUNDED RUBBER

Kim D. Butler, Uniontown; Ray A. Young, East Sparta, and Alfred L. Brown, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 59,804, Jul. 23, 1979, Pat. No. 4,248,348. This application Oct. 6, 1980, Ser. No. 194,527
The portion of the term of this patent subsequent to Feb. 3, 1998, has been disclaimed.
Int. Cl.³ B65D *81/00, 85/00*
U.S. Cl. 206—447 **2 Claims**



1. A bag of ethylene/vinyl acetate film having an opening at its top which can be heat sealed; where said film has a thickness in the range of about 0.5 to about 10 mils and is comprised of a thermoplastic ethylene/vinyl acetate copolymer containing an anti-block agent and having a vinyl acetate content in the range of about 11 to about 22 percent and further characterized, when having a thickness of about 2 to 4 mils, by a melting point in the range of about 85° C. to about 95° C., a minimum ultimate tensile strength at 25° C. of about 1850 psi, an oil solubility melt index of about 63° C. to about 75° C. and a minimum 300 percent modulus at 25° C. of about 700 psi.

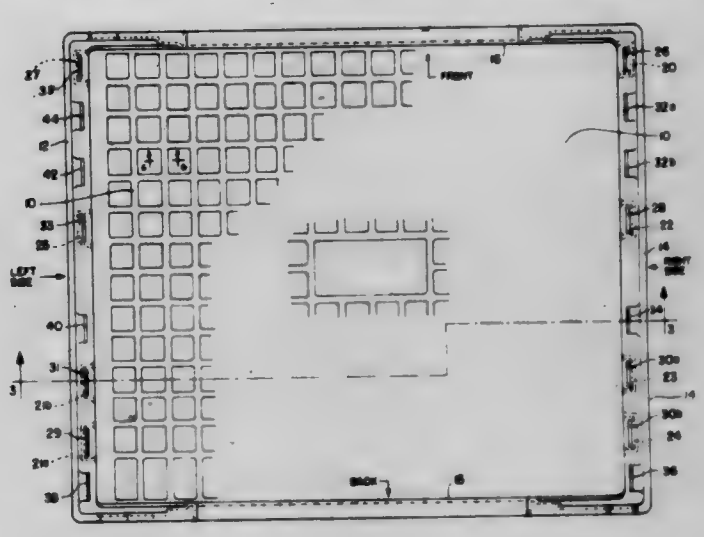
4,334,616

NESTABLE-STACKABLE PLASTIC RECEPTACLE

James D. Wilson, 421 Vista Suerte, Newport Beach, Calif. 92660

Continuation-in-part of Ser. No. 123,664, Feb. 22, 1980, abandoned. This application Jun. 12, 1981, Ser. No. 273,242
Int. Cl.³ B65D *21/04*
U.S. Cl. 206—505 **5 Claims**

1. A receptacle adapted to be stacked at a plurality of different stacking levels on a like receptacle, said receptacle comprising: a bottom; a pair of opposing side walls integral with said bottom; a plurality of discrete upper stacking lugs formed on the inner surface of each of said side walls at the upper edge thereof at spaced positions along said upper edge; a plurality of discrete lower stacking lugs formed at the lower edge of each of said side walls on the outer surface thereof at spaced positions along said lower edge; and a plurality of discrete intermediate stacking lugs formed on the inner surface of each of said side walls between the upper and lower edges thereof and disposed at spaced positions along each of said side walls and displaced longitudinally from corresponding ones of said upper stacking lugs, two of the intermediate stacking lugs on



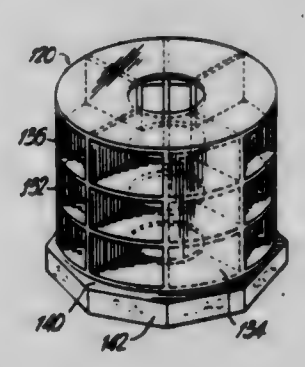
each of said walls being interposed between two of the upper stacking lugs thereon, and two of the upper stacking lugs on each side wall being interposed between two of the intermediate stacking lugs thereon; said lower stacking lugs being positioned in vertical alignment with the stacking lugs of one of the other pluralities; and said side walls defining openings therein located under the stacking lugs of said upper and intermediate stacking lugs for receiving the stacking lugs of the like receptacle.

4,334,617

MEDICATION DISPENSER

William Rossmo, 158 Mount Allison Crescent, Saskatoon, Saskatchewan, Canada

Continuation of Ser. No. 29,428, Apr. 12, 1979, Pat. No. 4,245,742. This application Oct. 10, 1980, Ser. No. 195,960
Claims priority, application Canada, Sep. 19, 1978, 311617
The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.
Int. Cl.³ B65D *83/04*
U.S. Cl. 206—534 **1 Claim**



1. A medication dispenser comprising a plurality of members coaxially mounted with respect to one another and including a container having at least three circular rows of compartments adapted to contain medication;
a first indexing member coaxially positioned with respect to the container and which, in response to movement between the container and the first indexing member, is capable of indexing positions that are representative of a series of time periods, an elongated opening in the first indexing member for communication with a plurality of aligned compartments

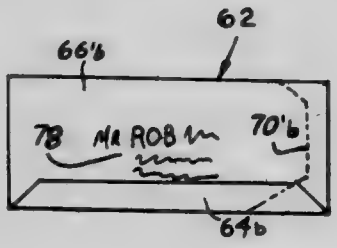
in said circular rows of the container and which contain medication to be dispensed within one of such time periods;
and a second movable indexing member coaxially mounted with respect to the first indexing member and adapted to be indexed to positions representing subsidiary time periods with the first-mentioned time periods and apertures in the second indexing member which, by rotation of the second indexing member, can be placed into registry with part of the elongated aperture in the first indexing member to give access to one of the compartments in the container; there being sufficient apertures in the second indexing member to communicate with the compartments in each of the rows;
said container comprising a circular member having a plurality of coaxially arranged circular walls spaced from one another by radially extending partitions to define a plurality of compartments;
and a central longitudinally extending tubular opening in the container, the compartments having inner ends communicating with said tubular opening.

4,334,618

STATIONERY HAVING SNAP-OPEN ENVELOPE WITH REMAILABLE PORTION

Eugene J. Buescher, Lake St. Louis, Mo., assignor to William R. O'Meara, Florrisant, Mo.

Division of Ser. No. 872,467, Jan. 26, 1978, Pat. No. 4,190,162, which is a continuation of Ser. No. 480,621, Jun. 19, 1974, abandoned. This application Sep. 18, 1979, Ser. No. 76,604
Int. Cl.[3] B65D *27/06*
U.S. Cl. 206—623 **16 Claims**



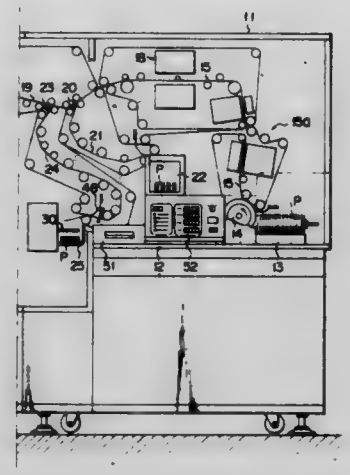
1. A mailing envelope comprising three sheets superimposed in facing relation, two of said sheets being front and back outer sheets of the mailing envelope with said front sheet having mailing address means thereon for mailing the mailing envelope, return address means on one of said three sheets, the third of said sheets being disposed between said two outer sheets, two of said sheets each having a tear line of perforations extending between a pair of opposite sides of the mailing envelope, said tear lines of perforations dividing the last named two sheets into left and right envelope portions separable from each other at said tear lines of perforations upon applying a force tending to separate said envelope portions when opening the mailing envelope, one of said envelope portions, after the mailing envelope is opened, including a part of one of said outer sheets and a part of one of the other of said three sheets with one of said parts of said one envelope portion being longer than the other of said parts of said one envelope portion to provide an end closure flap foldable over said other part for closing said one envelope portion, said one and other parts of said one envelope portion defining a return envelope which is usable to contain and mail an element therein, said mailing and return address means being so located relative to said tear lines of perforations that said mailing address means is essentially eliminated as a mailing address for said return envelope and said return address becomes the mailing address for said return envelope.

4,334,619

APPARATUS FOR PROCESSING PAPER SHEETS

Shigeo Horino, and Yoshiro Hashimoto, both of Tokyo, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 27, 1979, Ser. No. 98,328
Claims priority, application Japan, Nov. 30, 1978, 53-147266
Int. Cl.[3] B07C *5/344*
U.S. Cl. 209—551 **8 Claims**



1. An apparatus for processing paper sheets comprising:
a supplying section adapted to receive a predetermined number of paper sheets to be processed said sheets being inserted into said supplying section as one lot;
a take-out and transfer means for removing and transferring paper sheets one after another from said supplying section;
detecting means for detecting paper sheets transferred by said take-out and transfer means;
discriminating means, connected to said detecting means, for sorting paper sheets at least into fit sheets and unfit sheets according to an output signal from said detecting means;
counting means for counting at least paper sheets determined by said discriminating means to be fit sheets;
sorting and transferring means for sorting paper sheets and transferring the individual sorted paper sheets in accordance with the result of discrimination by said discriminating means;
collecting sections for separately receiving respective paper sheets sorted by said sorting and transferring means said collecting sections including at least an unfit paper collecting section;
input means for manually inputting data representing the actual number of unfit paper sheets collected in said unfit paper sheet collecting section of said collecting sections;
checkup means for adding the number of fit paper sheets as counted by said counting means to the number of unfit paper sheets manually inputted via said input means and checking the resultant sum against a preset number corresponding to the number of sheets loaded into said supply section; and
display means for displaying the number of paper sheets inputted via said input means and the added result obtained from said checkup means.

4,334,620

KEY STORAGE RACK

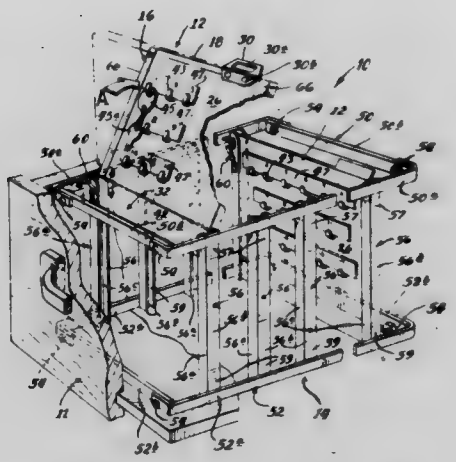
Mitchell L. Block, Highland Park, Ill., assignor to Block and Company, Inc., Wheeling, Ill.

Filed Sep. 29, 1980, Ser. No. 191,852
Int. Cl.[3] A47F *7/00*
U.S. Cl. 211—13 **6 Claims**

1. A key control system for storing and indexing keys which includes a key rack support frame and at least one key rack for selective movable positioning in the frame or for removal from the frame, said system comprising, in combination:
a support frame including vertically spaced, generally rect-

angularly shaped, upper and lower casements, interconnected by at least a pair of elongated, key rack-receiving slide channel means arranged in a plane transverse to the upper and lower casements;

and a key rack adapted to be slidably disposed in the pair of slide channels and comprising a generally rectangularly shaped upper plate having opposed, planar end faces; a generally rectangularly shaped lower plate having opposed, planar end faces; said upper plate being pivotably



connected to said lower plate; and a plurality of key-supporting hooks secured to one face of said upper plate;

said upper plate of the key rack being pivotable relative to the lower plate, when the upper plate is withdrawn to a position above the upper ends of the channel means, to a position where the upper panel will engage means on the key rack support frame for holding the key rack in an elevated position which is inclined relative to the plane of the channels.

4,334,621

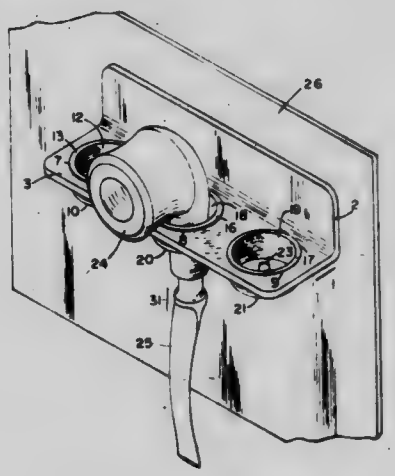
HOLDER

Girard M. Weber, 221 Dutch Sq., Columbia, S.C. 29210

Continuation of Ser. No. 956,615, Nov. 1, 1978, abandoned. This application Oct. 4, 1979, Ser. No. 81,834

Int. Cl.[3] A47F *5/08*

U.S. Cl. 211—60 M 8 Claims



1. A device, which attaches to a flat surface, for holding small objects comprising:

a. a vertical surface;

b. a horizontal surface physically secured to said vertical surface, said horizontal surface being constructed in a single solid piece on one plane;

c. an opening in said horizontal surface;

d. an insert operable to be secured within said opening in said horizontal surface, wherein said insert comprises an upper lip extending beyond said opening in said horizontal surface, and a ribbed outside surface comprising a plurality of ribs, extending below said horizontal surface, operable to press against said opening in said horizontal surface and to secure said insert in said opening; and

e. a bottom opening in said insert operable to secure any one of said small objects which is placed through said bottom opening;

wherein the depth of said bottom opening below said horizontal surface is adjustable by moving said insert vertically, wherein said insert is secured to said horizontal surface by different ribs of said plurality of ribs depending on the depth of said insert.

4,334,622

STAND FOR HOLDING AND SEALINGLY RETAINING INDIA INK DRAWING IMPLEMENTS

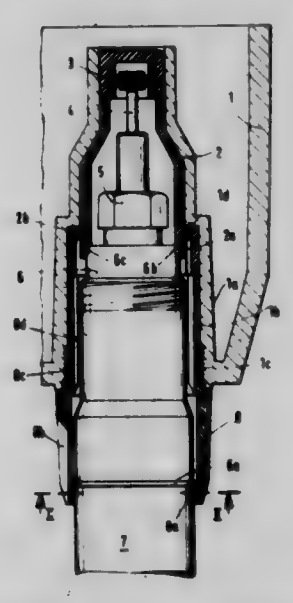
Otto Mutschler, Ludolf-Krehl-Str. 21, D-6900 Heidelberg, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,639

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849939

Int. Cl.[3] A47F *7/00*

U.S. Cl. 211—69.5 6 Claims



1. A stand for holding and sealingly retaining a plurality of India ink drawing implements each comprising a tubular drawing point, a grip having a front end to which the tubular drawing point is attached and an annular bead on the grip rearwardly of the front end, the stand including a like plurality of sleeves for holding the drawing implements and for sealingly retaining the implements to prevent India ink therein from drying, a tubular packing in each sleeve, the tubular packing having an annular sealing lip in the interior thereof, a packing insert in the interior of the tubular packing, and a tubular clamping element inserted in each sleeve rearwardly of the tubular packing, the tubular clamping element having inwardly projecting camming means, the packing insert, the sealing lip and the camming means being arranged respectively for sealing and seating the drawing point, the front end of the grip and the annular bead on the grip when a respective one of the drawing implements is inserted into the clamping element and packing in a respective one of the sleeves.

4,334,623

RACK FOR THE DISPLAY AND STORAGE OF STEMMED DRINKING GLASSES

Frank Geary, 96 Moss La., Platt Bridge, Near Wigan, Lancashire, England

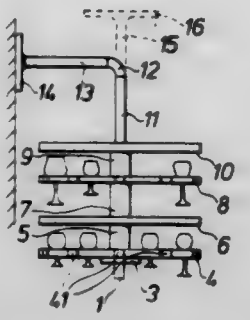
Filed Sep. 4, 1979, Ser. No. 72,321

Int. Cl.[3] A47G *29/00*

U.S. Cl. 211—71 9 Claims

1. A rack for the display and storage of stemmed drinking glasses comprising at least one glass support means adapted to be mounted substantially horizontally and defining slots opening to the periphery thereof and adapted to accept the stems of

glasses and having at least one circular enlargement to form a seating for the bowls of glasses inserted by their stems into the slots with their bowls uppermost and their feet beneath the plate, and a cover arranged over each said support means and spaced therefrom by an amount sufficient to accomodate the bowls of stemmed drinking glasses in said slots during insertion, storage and removal of said drinking glasses, whereby said glasses can be horizontally inserted into and removed from said rack, and the bowls thereof are protected by said cover; and



securement means connecting said support means and cover, said securement means being adapted to fix said rack to a portion of a room.

4,334,624

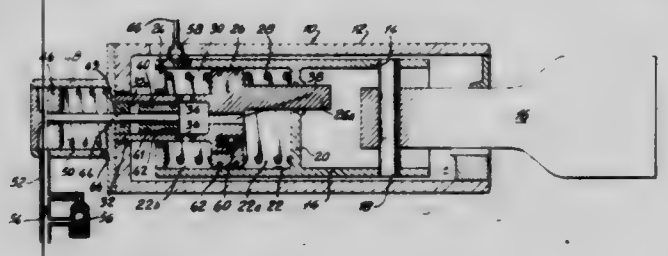
DRAFT GEAR LOCKING DEVICE

Peter J. Detmold, 40 St. Andrews Rd., Baie d'Urfe, Quebec, Canada (H9X 2V1)

Continuation-in-part of Ser. No. 41,827, May 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 900,164, Apr. 26, 1978, abandoned. This application Sep. 26, 1979, Ser. No. 79,051

Int. Cl.³ B61G *9/08, 9/16*

U.S. Cl. 213—43 **15 Claims**



1. A lock-out apparatus for shock absorbing draft gear on a railway car provided with a conventional single pipe fluid brake system, which draft gear has a housing adapted to be fixed to one end of the railway car and shock absorbing means in the housing to cushion shock on the coupler of the railway car at the one end, the shock absorbing means including at least one movable shock absorbing member operatively connected to the coupler and cushion means cooperating with the movable member to cushion shock; a lockout apparatus having a locking member slidably mounted in the housing for movement between locking and unlocking positions, piston and cylinder means for moving the locking member, and conduit means connecting the piston and cylinder means to the single pipe of the fluid brake system on the railway car whereby an increase in the pressure of the fluid in the brake line will automatically operate the piston and cylinder means to move the locking member to a locking position to prevent movement of the movable shock absorbing member and to thus lock out the draft gear whenever the train is fully assembled and running in a normal manner.

4,334,625

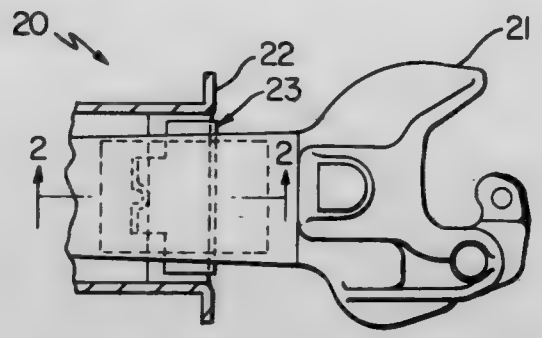
WEAR MEMBER FOR RAILWAY VEHICLE

Donald L. Kleykamp, Dayton, Ohio, assignor to Dayco Corporation, Dayton, Ohio

Filed Jun. 25, 1980, Ser. No. 162,864

Int. Cl.³ B61G *7/10, 5/00, 9/20*

U.S. Cl. 213—61 **12 Claims**



1. In a wear member for a railway vehicle wherein said vehicle comprises a pair of relatively movable components and said wear member is supported by one of said components and protects said components from wear during relative movement thereof; said wear member comprising; a metal support having a substantially planar sheet portion which has a continuous supporting surface and a surface opposite said supporting surface; an ultra high molecular weight polymeric material having an antifriction wear surface engageable by the other of said components and an inside surface engaging said supporting surface on a common interface; and means attaching said polymeric material to said support and supporting same against said supporting surface; the improvement in said attaching means comprising cooperating formed means in said sheet portion of said support and in said polymeric material at said interface which attach and interlock same together free of additional components, said cooperating formed means in said sheet portion comprising at least one displaced part of said sheet portion defining opening means therein and said cooperating formed means in said polymeric material comprising an integral mass of said polymeric material extending through said opening means, said polymeric material serving to embed said displaced part therein, and said integral displaced part embedded in said polymeric material cooperating with said integral mass to provide said attaching and interlocking of said support and polymeric material free of said additional components.

4,334,626

DISCHARGE CONE ASSEMBLY FOR A ROTARY GRINDING MILL OR THE LIKE

William J. Butler, Duluth, Minn., assignor to Vermillion Equipment & Supply Co., Inc., Hibbing, Minn.

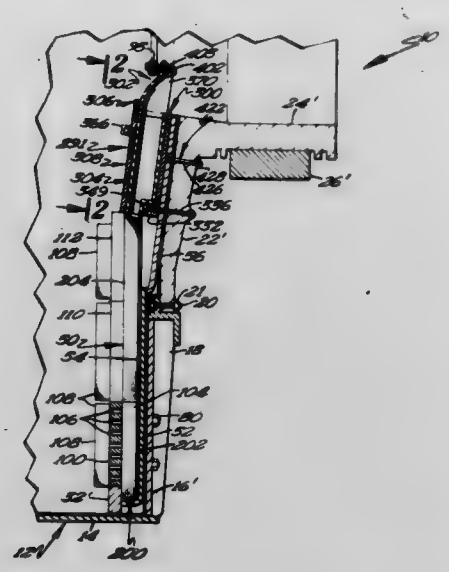
Filed Mar. 28, 1980, Ser. No. 134,740

Int. Cl.³ B02C *17/18*

U.S. Cl. 241—171 **23 Claims**

1. A discharge cone assembly adapted to be mounted inside a rotary grinding mill or the like, with the mill including at least first and second discharge assemblies, with the discharge assemblies including a discharge chamber and a grate for allowing access for the ground material in the interior of the mill into the discharge chamber, comprising, in combination: a first member including a discharge passageway having a first open end and a second open end, with the second open end of the first member being in ground material communication with the discharge chamber of the first discharge assembly; a second member including a discharge passageway having a first open end and a second open end, with the second open end of the second member being in ground material communication with the discharge chamber of the second discharge assembly; means for securing the first and second members in the mill; a third member comprising a nosepiece including an interior, a first end having a first opening, a second end having a second

opening, and an open unitary outlet, with the first open end of the first member being in ground material communication with the first opening of the nosepiece, with the first open end of the second member being in ground material communication with the second opening of the nosepiece, with the unitary outlet



discharging the ground material from the interior of the nosepiece out of the mill; and means for securing the nosepiece to the first and second members allowing removal of the nosepiece from the mill without unsecuring or removal of the first and second members from the mill.

4,334,627

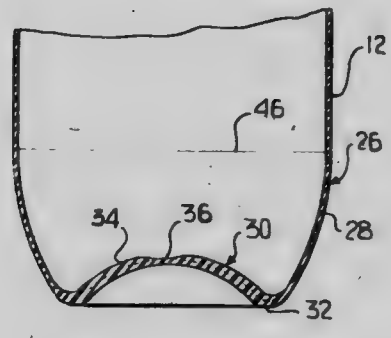
BLOW MOLDED PLASTIC BOTTLE

Suppayan M. Krishnakumar, Nashua, N.H., and John F. E. Pocock, Neu-Isenburg, Fed. Rep. of Germany, assignors to The Continental Group, Inc., New York, N.Y.

Continuation of Ser. No. 97,605, Nov. 27, 1979, Pat. No. 4,261,948. This application Mar. 24, 1981, Ser. No. 247,044

Int. Cl.³ B65D *1/02*

U.S. Cl. 215—1 C **5 Claims**



1. A blow molded plastic bottle for beverages, said bottle being of the type including a tubular body portion and an integral bottom structure, said bottom structure including an internal axially inwardly directed generally conical part and a generally arcuate cross-sectional axially inwardly opening base ring, said bottom structure being improved by said generally conical part and said base ring being reinforced by a plurality of circumferentially spaced radially extending ribs integrally formed on the interior of both said generally conical part and said base ring and bridging said base ring and terminating in said bottom structure, and said ribs forming means resisting thinning of said generally conical part and said base ring during blow molding of said bottle and providing for a greater wall thickness of said generally conical part and said base ring between said ribs than in a like bottle formed in the same blow mold with the same preform but without ribs.

4,334,628

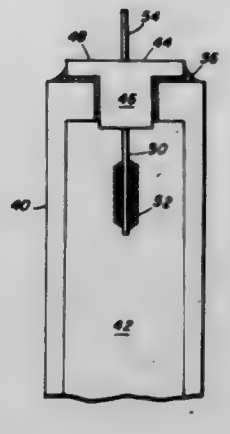
VACUUM-TIGHT ASSEMBLY

Carl F. Buhrer, and Alfred E. Feuersanger, both of Framingham, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 21, 1980, Ser. No. 209,162

Int. Cl.³ H01J *61/30*; F16D *1/00*; H05K *15/06*; H01B *17/06*

U.S. Cl. 220—2.1 R **10 Claims**



1. A vacuum-tight assembly comprising:

a high density polycrystalline ceramic body having a cavity; and

means for sealing said cavity from the atmosphere;

said ceramic body having a thermal coefficient of expansion between about 55×10^{-7}/°C. and 90×10^{-7}/°C.;

said means for sealing comprising

a sintered closure member formed from a molybdenum alloy containing between 2 and 70 atom percent titanium and between 0.1 and 5 weight percent of a metal selected from the group consisting of nickel, cobalt, copper and mixtures thereof; and

a sealing material interposed between said ceramic body and said closure member for providing a seal therebetween,

said closure member and said sealing material having thermal coefficients of expansion closely matched to the thermal coefficients of expansion of said ceramic body over a wide temperature range.

4,334,629

COUNTERBALANCE MECHANISM FOR INCUBATOR HOOD

Robert J. Koch, McFarland; Douglas D. Carden, Barneveld, and Michael H. Mackin, McFarland, all of Wis., assignors to Airco, Inc., Montvale, N.J.

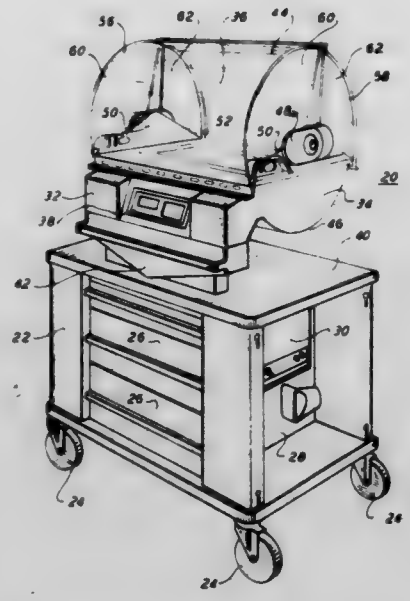
Filed Jan. 14, 1981, Ser. No. 225,089

Int. Cl.³ B65D *43/14*

U.S. Cl. 220—252 **4 Claims**

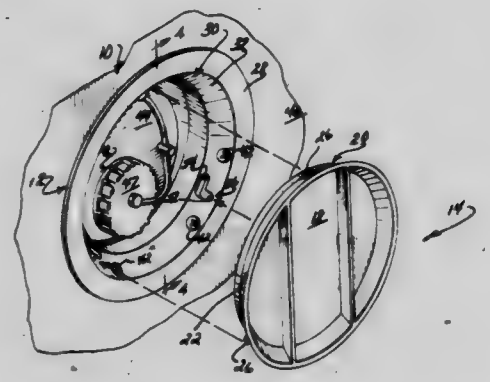
1. A counterbalance mechanism adapted to counteract the force of gravity acting upon a cylindrical hood, rotatable between open and closed positions of an infant incubator, said mechanism comprising a cam having a predetermined cam profile, said cam being fixed with respect to said rotatable hood, a cam follower carried by said rotatable hood and rotatable therewith, spring bias means of predetermined tension acting to force said cam follower against said cam profile, said cam follower thereby adapted to move along the said profile as

the hood is rotated, said cam profile and spring bias adapted to be formed such as to counteract the gravitational forces acting



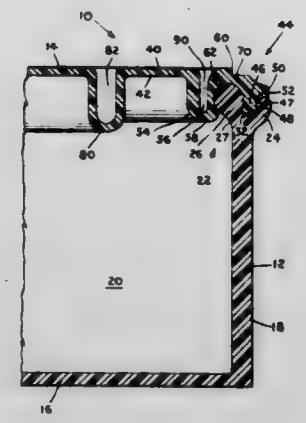
upon the hood by providing about an equal force in the opposite direction of the gravitational force.

4,334,630
HATCH COVER
Paul F. Bergin, 58471 Fir Rd., South, Mishawaka, Ind. 46544
Filed Jan. 26, 1981, Ser. No. 228,291
Int. Cl.[3] B65D *41/06, 41/36*
U.S. Cl. 220—300 3 Claims



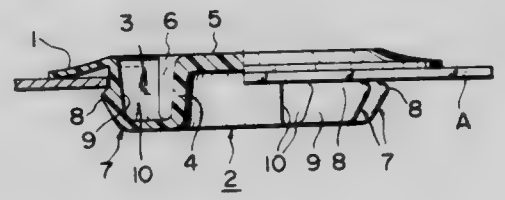
1. A hatch comprising a circular cover and a base plate, said cover including an inner face and an outer face, the perimeter of said cover being defined by a lateral surface, said base plate adapted for securement to a wall member and including a circumferential outer flange for mounting against said wall member, said base plate including a side wall defining in conjunction with said outer flange an opening into the base plate, said cover adapted to span said base plate opening, said cover lateral surface being juxtaposed with said base plate side wall when said cover spans said base plate opening, lock means for securing said cover to said base plate, said lock means including a plurality of co-operating interlocking pins and grooves, said pins carried by one of said base plate sidewall and said cover lateral surface, said grooves formed in the other of said base plate side wall and said cover lateral surface, said pins positioned to fit into and interlock with said grooves upon rotation of said cover relative to said base plate with the cover spanning said base plate opening.

4,334,631
COVER AND CONTAINER ASSEMBLY
Jose F. Ballester, GPO Box 4523, San Juan, P.R. 00936
Filed Nov. 24, 1980, Ser. No. 209,823
Int. Cl.[3] B65D *41/16, 41/18*
U.S. Cl. 220—306 6 Claims



1. An improved cover and container assembly comprising:
(a) a container having a bottom wall and a cylindrically shaped side wall, said side wall having a first annular locking member projecting outwardly from a terminus thereof and a second annular locking member projecting inwardly therefrom and cooperatively defining an interlocking means; and
(b) a cover having a downwardly projecting annular locking member circumferentially formed thereabout, said cover having an outer exterior U-shaped wall member forming an annular groove having an outwardly directed abutting part on a bottom of said outer exterior U-shaped wall member, said outwardly directed abutting part cooperatively defining with said downwardly projecting annular locking member an interlocking means, said interlocking means of said container cooperatively engaging said interlocking means of said cover to provide a snap-lock fit to hermetically seal said cover to said container.

4,334,632
STOPPER FOR OPENING
Koji Watanabe, Fujisawa, Japan, assignor to Nifco Inc., Tokyo, Japan
Filed Mar. 2, 1981, Ser. No. 239,830
Claims priority, application Japan, Mar. 3, 1980, 55/26146[U]
Int. Cl.[3] B65D *39/00*
U.S. Cl. 220—307 1 Claim



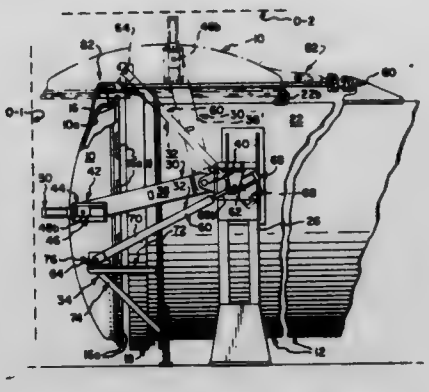
1. A stopper for plugging an opening formed in a panel, which comprises a flange portion for pressed contact with the surface of the panel and an insertion portion extended downwardly from the lower surface of said flange portion and adapted for insertion into the opening in the panel, said insertion portion being formed in the shape of a boss, being provided in the interior thereof with an annular groove opening into the upper surface of said insertion portion and giving rise to outer circumferential walls of a small thickness, said outer circumferential walls being provided with a plurality of internally hollowed engaging projections disposed in the radial direction, and the outer wall surfaces of said outer circumferential walls being provided with engaging claws adapted for fast engagement with the opening in the panel.

4,334,633

ARTICULATED DOOR

Henry J. Piegza, Clarence, N.Y., assignor to WSF Industries, Inc., Tonawanda, N.Y.

Filed Apr. 6, 1981, Ser. No. 251,170
Int. Cl.[3] B65D *43/14, 51/04*
U.S. Cl. 220—332 10 Claims



1. In a pressure vessel having a side wall and an opening formed in one end of said side wall, a door for closing said opening, said door being characterized as having a cavity intended to face inwardly of said vessel when said door is in closed position and defined by a concave inner surface bounded by a locking rim portion, a locking ring mounted on said side wall adjacent said opening for rotation between a locking position, wherein it is adapted to enclose and engage with said locking rim portion for locking said door in said closed position, and a release position, wherein it frees said locking rim portion for movement from within the confines thereof in a direction axially of said one end of said side wall, and means for mounting said door for movement successively between said closed position and a partially open position, wherein said door is spaced axially from said one end of said side wall with said locking rim portion removed from within the confines of said locking ring and said door extends generally transversely of said side wall, and between said partially open position and open position, wherein said inner surface of said door is arranged to face relatively towards said side wall with said door having been swung through an arc of approximately 90 degrees from the position it assumes when in said closed position, the improvement for minimizing the clearance distances between obstructions spaced from said one end of said side wall and transversely of said side wall required to permit movement of said door between said closed and open positions, wherein said means for mounting said door comprise in combination:

guide means for guiding said door for movement essentially lengthwise of said side wall between said closed position and said partially open position;

a pair of support arms having first and second ends;

a pair of control arms having first and second ends;

a pair of bearing means for mounting said first ends of said support and control arms for pivotal movement about a pair of parallel axes positionally fixed relative to said side wall and extending transversely thereof;

a pair of other bearing means for mounting said second ends of said support and control arms for relative pivotal movement about another pair of parallel axes positionally fixed relative to said door and disposed parallel to the first said pair of axes;

means to effect simultaneous relative separating movements of said other bearing means relative to said bearing means for moving said door along said guide means between said closed and partially open positions, said bearing means and said other bearing means associated with said support arms and control arms being spaced apart first and second relative distances when said door is disposed in said closed and partially open positions, respectively, the last said means including means for selectively retaining said bearing means and said other bearing means spaced apart at said second relative distance; and

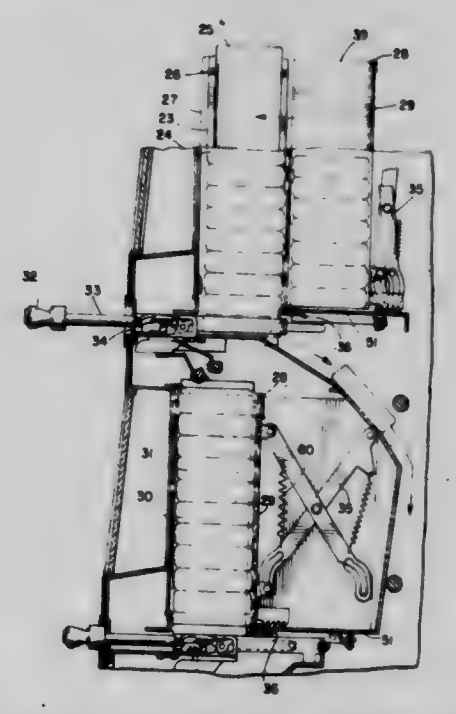
means for moving said door from said partially open position into said open position, as an incidence to which said bearing means and other bearing means are retained in said second relative distance and said first ends of said support and control arms undergo pivotal movement relative to said side wall about the first said pair of axes and said second ends of said support and control arms undergo pivotal movement relative to said door about said other pair of axes.

4,334,634

CIGARETTE DISPENSER ADAPTOR

Jose R. J. Fernandez, Box 112, Carolina, P.R. 00630, and Fernando B. Gonzalez, Calle 6 Bloque L-3, Urb. Cupey Gardens, R. P., P.R. 00928

Filed Sep. 30, 1980, Ser. No. 192,240
Int. Cl.[3] B65G *59/00*
U.S. Cl. 221—131 5 Claims



1. An apparatus for adapting a conventional mechanical cigarette vending machine, in which the machine includes a plurality of magazines for containing primary stacks and reserve stacks of cigarettes and pusher plates to move said reserve stacks forward, to vend half packs of cigarettes said apparatus comprising:

(a) a generally elongate L-shaped element having a short narrow panel and a longer wider panel said short panel having downwardly extending ears on the top thereof, said longer wider panel having the same width as the length of a pack of cigarettes, said wider longer panel having a flange extending the full length of thereof on one side and extending from the lower end of the shorter narrower panel the balance of the length of said L-shaped element;

(b) a second elongate flat U-shaped element, the front panel of said element having narrow L-shaped flanges on either side thereof, said L-shaped flanges having at least four small clips punched out of the portion of the L-shaped flanges parallel to the flat panel, the main portion of the panel having the same length as the width of a pack of cigarettes, a portion of the panel extending a short distance above said L-shaped flanges, a part of the panel extending below said L-shaped flanges being formed into a flange that exends forward a short distance from the surface of the panel and having a portion bent downwardy parallel to the panel;

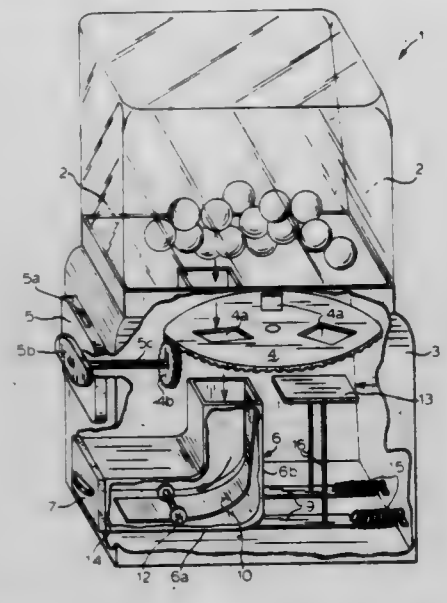
(c) a clip element having three prongs extending laterally in side-by-side relationship, the outer two of these prongs being bent slightly at the forward end thereof, the clip having a flange extending the full width thereof.

4,334,635

MACHINE FOR DISPENSING BULK MERCHANDISE

Martin Grab, Hildastrasse 6, D-6921 Michelfeld, Angelbachtal, Fed. Rep. of Germany

Filed Jun. 16, 1980, Ser. No. 159,645
Int. Cl.³ B65H *3/00*; G07F *11/16*
U.S. Cl. 221—194 **3 Claims**



1. A machine for dispensing bulk merchandise, which comprises

(a) a housing defining a bottom discharge opening,

(b) a hopper storing the bulk merchandise,

(c) a merchandise dispensing chute mounted in the housing and extending between the hopper and the discharge opening, the chute comprising

(1) a substantially horizontally extending wall part and a merchandise dispensing portion attached thereto, and

(2) a substantially vertically extending wall part extending upwardly from the horizontally extending wall part, the dispensing portion being movable through the discharge opening between a retracted and a forward, dispensing position, and the vertically extending wall part being pivotally connected to the horizontally extending wall part for movement therewith upon movement of the merchandise dispensing portion,

(d) a merchandise distributing device arranged between the hopper and the chute for delivering the bulk merchandise from the hopper into the chute,

(e) a cut-off slide movable with the merchandise dispensing portion between a retracted position and a forward, cut-off position, the slide being arranged between the merchandise distributing device and the dispensing chute for cutting off delivery of the merchandise into the chute when the merchandise dispensing portion with the horizontally extending wall part is moved into the forward position, and

(f) a stop arranged to prevent the horizontally extending wall part from projecting beyond the discharge opening when the same is moved into the forward position wherein the merchandise dispensing portion projects therebeyond.

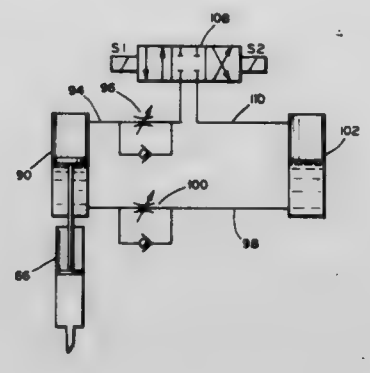
4,334,636

APPARATUS FOR HANDLING GASKET-FORMING MATERIAL

William A. Paul, 1808 Parkside Blvd., Toledo, Ohio 43607

Filed Dec. 27, 1979, Ser. No. 107,548
Int. Cl.³ G01F *11/00*
U.S. Cl. 222—642 **11 Claims**

1. Apparatus for supplying gasket-forming material to shaping means for shaping the material into a gasket configuration, said apparatus comprising a cartridge of gasket-forming material having dispensing means at one end, a cartridge holder having means at one end to receive the cartridge dispensing means, a plunger at the other end of said cartridge holder and having a plunger rod extending outwardly therefrom, a fluid-operated cylinder aligned with said plunger rod, said cylinder having a piston therein, said piston being connected to said plunger rod, means including valve means for supplying a first fluid under pressure to the blind end of said cylinder, a reservoir communicating with the rod end of said cylinder for



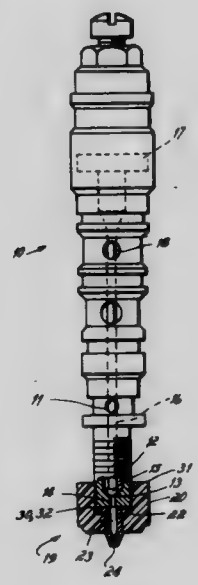
supplying a second fluid under pressure to the rod end of said cylinder and for receiving the second fluid from the rod end of said cylinder, and means including said valve means for supplying the first fluid under pressure to said reservoir above said second fluid to supply the second fluid back to the rod end of the cylinder.

4,334,637

EXTRUSION NOZZLE ASSEMBLY

Robert G. Baker, Buford, and Dario J. Ramazzotti, Atlanta, both of Ga., assignors to Nordson Corporation, Amherst, Ohio

Filed Aug. 25, 1980, Ser. No. 180,803
Int. Cl.³ B60D *5/62*
U.S. Cl. 222—146 H **6 Claims**



1. An extrusion nozzle adapted to be removably secured to the end of a heated hot melt adhesive dispenser of the type having a valve contained therein, said nozzle comprising

a heat insulative holder having connector means formed thereon for removably securing said holder to said dispenser, said holder having an axial bore extending therethrough,

a heat transmitting metal insert, said insert having an axial passage extending therethrough terminating in an outlet orifice, said insert having a generally tubular section and a radial flange extending outwardly from said tubular section at one end remote from said outlet orifice, said insert flange having a flat end surface adapted to be placed in metal to metal surface contact with a flat heated surface of said dispenser when said holder is secured to said dispenser so as to facilitate transfer of heat from said flat heated surface of said dispenser to said insert flange,

said flange and the major portion of said tubular section of

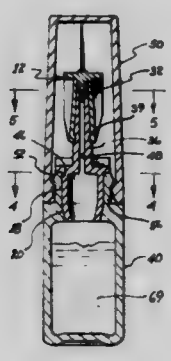
said metal insert being contained within said bore of said holder so that heat transferred from said dispenser to said flange of said insert is readily transferred to the outlet orifice end of said insert with a minimum of heat loss, and resilient sealing means contacting said flange of said insert for forming a seal between said insert and said dispenser.

4,334,638

CHILD PROOF DISPENSER

Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.

Filed Feb. 7, 1980, Ser. No. 119,635
Int. Cl.³ B67B *5/00*; B67D *5/32*; B65D *55/02*
U.S. Cl. 222—153 **12 Claims**



1. A two phase lock for securing a cap to the hollow neck section of a container, said lock comprising in combination:

(a) lug means disposed about the hollow neck section of the container, said lug means being located upon and extending radially outwardly of the exterior surface of the hollow neck section;

(b) a flexible side wall formed as part of the cap for circumscribing the hollow neck section of the container;

(c) flange means disposed within said side wall for disengageably engaging said lug means upon angular displacement of the cap relative to the container, said flange means being located upon and extending radially inwardly of said side wall and positionally disposed upon said side wall to urge the lower edge of the cap against a shoulder of the container extending about the hollow neck section and impart a compressive force to the portion of the cap intermediate said flange means and the lower edge of the cap on engagement with said lug means; and

(d) key means and keyway means disposed intermediate said side wall common to said flange means and the container for precluding rotation of the cap relative to the container, said key means and said keyway means being laterally displaceable relative to one another by flexing of said sidewall to effect disengagement of said key means from said keyway means and permit angular displacement of the cap relative to the container, said keyway means including at least one channel disposed upon the hollow neck section and extending parallel to the longitudinal axis of the hollow section and including an opening, said key means including at least a rib extending from said sidewall for engagement with said opening of one of said channels;

whereby, the cap may be removed from the container upon rotation of the cap relative to the container after disengagement of said rib with said channel.

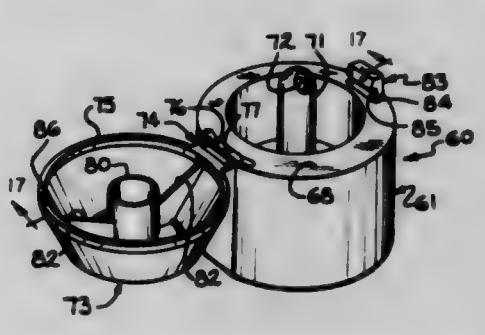
4,334,639

CHILD-RESISTANT DISPENSING CLOSURE

Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Continuation-in-part of Ser. No. 108,642, Dec. 31, 1979, abandoned. This application May 8, 1980, Ser. No. 143,819
Int. Cl.³ B65D *47/02*
U.S. Cl. 222—153 **11 Claims**

1. A child resistant dispensing closure for a container fabricated of flexible material, said closure comprising: a cup shaped body member adapted for attachment to a container, said body member having a top surface bounded by a circumferential edge, a lid member overlying said body member, a nozzle formed integrally with said body member and forming a dispensing orifice, a cover for closing the orifice in said nozzle being formed on said lid member, a flexible hinged web connecting said lid member to said body member and providing for angular swinging movement of said lid member relative to said body member from a closed position in which said cover is engaged with said nozzle and a lower surface of said lid member engages the top surface of said body member with no portion of said lid member extending beyond said circumferential edge of said body member, said web also providing for lateral translatory movement in a direction transverse to



the direction of said angular movement from said closed position relative to said body member to an opening position wherein an edge of said lid member extends beyond the circumferential edge of said body member while said nozzle and cover remain engaged in closed position, said nozzle being connected to said body member by flexible portions to thereby resiliently urge said lid in a return direction from said opening position to said closed position, and cooperating catch means on said body and lid members engaged when said lid member is in a closed position and being partially disengageable upon said lateral movement of said lid member from said closed position to said opening position, whereby said edge of said member affords a grip for disengaging said catch means and swinging said lid member to a fully open position.

4,334,640

EXCHANGEABLE CONCENTRATE CONTAINER FOR BEVERAGE DISPENSING MACHINES

Garardus J. J. van Overbruggen, Vianen; Richard A. van Beaumont, Harmelen, and Henricus A. C. Thijssen, Son, all of Netherlands, assignors to Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V., Joure, Netherlands

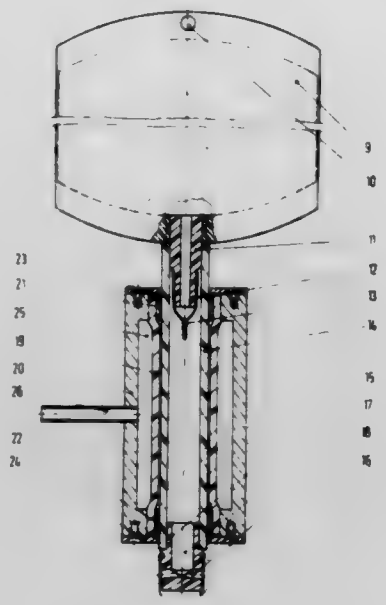
Continuation of Ser. No. 930,538, Aug. 2, 1978, abandoned. This application Oct. 14, 1980, Ser. No. 196,564
Claims priority, application Netherlands, Aug. 8, 1977, 7708746; Oct. 6, 1977, 7710961
Int. Cl.³ B65D *37/00*
U.S. Cl. 222—207 **1 Claim**

1. An apparatus for storing and transporting coffee concentrate and dispensing increments of the concentrate comprising:

an exchangeable disposable dispensing unit including a reservoir containing coffee concentrate and having a rigid neck with an open end defining an outlet, means on the open end forming a first non-return valve, an inner collapsible tube disposed about said neck and forming with said reservoir an integral unit for receiving concentrate from said reservoir via said first non-return valve, said tube extending longitudinally and being of resiliency so as to be collapsible, and a one-way outwardly opening valve on the free end of said inner tube,

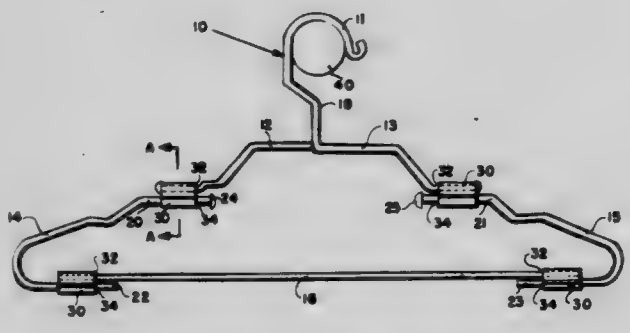
means for dispensing a metered amount of concentrate including an outer collapsible tube disposed about said inner tube, a housing mounted about said tubes and spaced from said outer tube to form an annular space, and a pipe for

supplying fluid to said space at a pressure in the range of 1–6 atomospheres to collapse said tube and dispense an



increment of concentrate wherein said increment does not vary in volume with further increases in pressure.

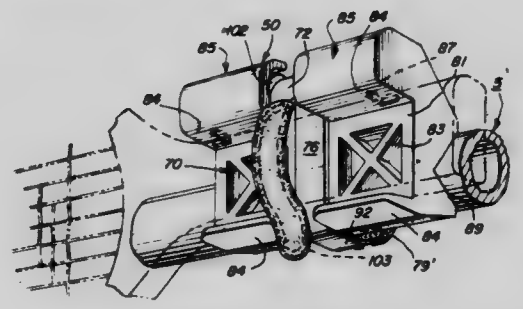
4,334,641
ADJUSTABLE HANGER
William Narcum, 2303 Grove La., Cary, Ill. 60013
Filed Feb. 19, 1980, Ser. No. 122,579
Int. Cl.³ A47J *51/13*
U.S. Cl. 223—94 **5 Claims**



1. An adjustable garment hanger comprising, in combination, a support member including a suspension hook portion, a pair of angle members attached to said support member, and a connecting rod attached to said angle members, wherein:
(a) said pair of angle members is movable relative to or from one another;
(b) each of said angle members is adjustably attached to said support member and said connecting rod by a duplex sleeve connector;
(c) each of said angle members has an oblique arm and a base arm wherein said oblique arm is attached to said support member and said base arm is attached to said connecting rod;
(d) an end portion of said oblique arm is parallel to said base arm and parallel to a horizontal axis of said hanger; and
(e) and said support member, said connecting rod, and said angle members are in substantially the same plane.

5. An adjustable garment hanger comprising a support member, a pair of angle members slidably connected to said support member, and a connecting rod slidably connected to said angle members, wherein:
(a) said support member is comprised of a suspension hook portion and a pair of downwardly diverging leg members which form an angle substantially the same as an angle of a neck and shoulder portion of a garment;
(b) a first set of duplex sleeve connectors, said sleeve connectors being formed in a substantially "S" configuration so as to have two loop portions, a first loop portion of said sleeve connector being fixedly attached to each of said leg members of said support member;
(c) each of said pair of angle members being substantially "V" shaped so as to form two arm members, one end of a first arm member of said angle member being slidably engaged in a second loop portion of said sleeve connectors;
(d) said connecting rod being slidably engaged with said angle members by having each end of said connecting rod fixedly attached to one loop portion of a second set of duplex sleeve connectors, and the second loop portion of each of said duplex sleeve connectors being slidably engaged with a second arm member of each of said angle members further wherein:
(i) said first arm member being an oblique arm and second arm member being a base arm;
(ii) an end portion of said oblique arm being substantially parallel to said base arm and substantially parallel to a horizontal axis of said hanger;
(iii) said oblique arm having a second portion substantially parallel to said end portion;
(iv) said second portion and said end portion being separated by an angle portion; and
(v) said angle members, said support member, and said connecting rod being substantially co-planar; and
(e) a stopping means for limiting movement on each of said angle members.

4,334,642
ATHLETIC EQUIPMENT MOUNTING APPARATUS
Franz Reisch, Freeport, Ill., assignor to Omega Products, Downers Grove, Ill.
Filed Feb. 16, 1979, Ser. No. 12,856
Int. Cl.³ B62J *7/00*
U.S. Cl. 224—37 **4 Claims**

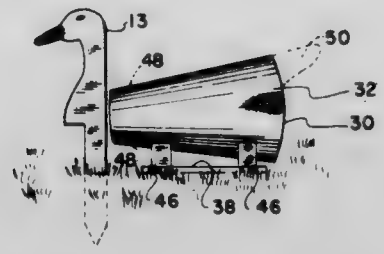


1. An apparatus for mounting athletic equipment to the frame of a wheeled vehicle, comprising:
a generally rigid body portion including a flattened surface for engaging and supporting said carried athletic equipment, retaining lip means for preventing said equipment from slipping from said surface and selectively operable biasing means for engaging said equipment for securely holding the same in contact with said body, said selectively operable biasing means comprising a continuous length of generally resilient material including at least one biasing portion and at least one extension extending transversely across said surface, said extension means selectively movable between a clamped position engaging the equipment and a released position facilitating removal of said equipment therefrom, said biasing portion comprising a cylindrically shaped coiled length of said resilient material and said extension comprising a generally transversely oriented concave arcuate section of said length; and
means for removably securing said body portion to the frame of a wheeled vehicle comprising a length of banding of generally rigid material possessing a degree of deformability and screw means for urging the ends of said banding toward each other, a flattened portion for engaging said flattened surface and including a bore for receiving said screw means and a depending curved portion for contacting said frame.

4,334,643
GOOSE DECOY BACK PACK

Thomas E. Farmer, P.O. Box 748, Galveston, Tex. 77553

Filed Jul. 11, 1980, Ser. No. 168,936
Int. Cl.[3] A01M *31/06;* A45F *3/04*
U.S. Cl. 224—153 6 Claims



1. A back pack device for storing and transporting a plurality of goose decoy units, comprising a back pack unit which is of a size and shape to serve as a body of a goose decoy unit in a free-standing position, together with

a head unit that serves as a head section of a said goose decoy unit, in which

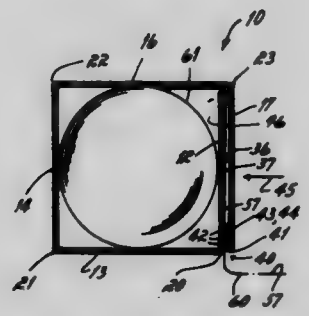
the back pack unit is formed with a container body in the form of a section of sheet, rolled substantially in the shape of a conic section, with said container body open at least at the larger end of said conic section, and in which

a pair of longitudinally extending spaced apart bars are mounted externally to the container body via spacer means so that each of said bars extends substantially parallel to the axis of the conic section of the container body at a distance from the container body, so as to serve as back pack supports.

4,334,644
DISPENSER CARTON

Donald P. Hauser, Cincinnati, Ohio, assignor to The C. W. Zumbiel Co., Cincinnati, Ohio

Filed May 19, 1980, Ser. No. 151,188
Int. Cl.[3] B26D *1/02*
U.S. Cl. 225—43 2 Claims



1. A carton comprising:

a panel having structure that defines a cutting edge,

a finger flap formed out of said panel, adjacent said cutting edge, said finger flap being connected on a fold line interiorly of said panel, and said finger flap being configured to preclude significant contact of said finger flap with sheet material being torn through use of said cutting edge during the tearing step,

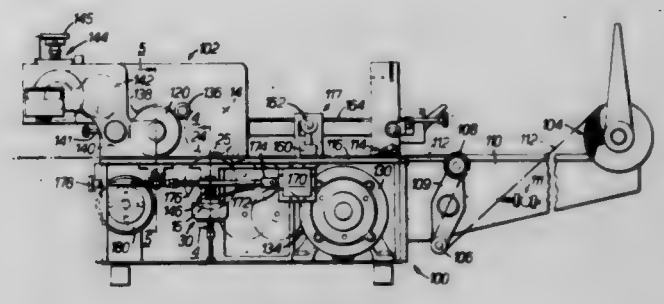
structure defining a notch in the cutting edge of said panel, said finger flap being positioned within said notch, and

a backing strip which partially defines said cutting edge, said backing strip being connected to said panel at least in the area of said notch for maintaining a continuous cutting edge across said notch.

4,334,645
WEB INDEXING APPARATUS AND OVERPRINTING MACHINE

Harry Cunnington, Boston, England, assignor to Norcros Investments Limited, Reading, England

Filed Jul. 15, 1980, Ser. No. 169,176
Claims priority, application United Kingdom, Jul. 19, 1979, 7925235
Int. Cl.[3] B65H *17/26*
U.S. Cl. 226—137 8 Claims



1. In web-indexing apparatus,

a first rotary member having an interrupted periphery defining a step,

a second rotary member arranged to define a web nip in cooperation with the first rotary member,

means mounting one of said rotary members for movement towards and away from the other rotary member so that when the members are brought into proximity with the interrupted periphery opposite the periphery of the other member, the step of the first rotary member will subsequently engage the web and the periphery of the second rotary member at a predetermined instant to thereby advance the web,

solenoid means operative to bring the rotary members into and remove them from their cooperating, nip-forming, position,

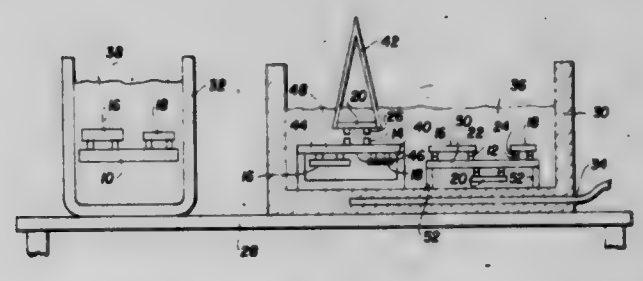
switch means operable in dependence upon the operational cycle of the apparatus to change the condition of the solenoid, and

photo-electric cell means effective to change the condition of the solenoid in dependence upon a predetermined location detected on the advancing web.

4,334,646
METHOD OF SOLDER REFLOW ASSEMBLY

Henry J. Campbell, Melbourne Beach, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Apr. 17, 1980, Ser. No. 141,100
Int. Cl.[3] B23K *1/12, 1/02;* H01L *21/60*
U.S. Cl. 228—180 A 15 Claims



1. A method of attaching and aligning elements on a substrate comprising:

providing a metallic pattern on a planar surface of a substrate;

providing a metallic pattern on an element;

immersing said substrate in a hot liquid bath having a temperature sufficient to melt said metallic pattern;

after said metallic pattern on said substrate has melted, immersing said element in said bath and positioning said element with its metallic pattern on the metallic pattern of

said substrate without traversing said planar surface of said substrate so that the metallic pattern of said substrate and said element are aligned solely by capillary action of said melted metallic patterns; and

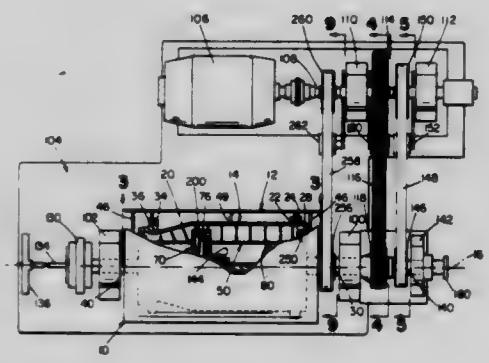
removing said assembled substrate and element from said bath to cool.

4,334,647

CENTRIFUGES

Edward S. Taylor, Lincoln, Mass., assignor to Bird Machine Company, Inc., South Walpole, Mass.

Filed Dec. 3, 1980, Ser. No. 212,364
Int. Cl.³ B04B *1/20, 9/10*
U.S. Cl. 233—7 **43 Claims**



1. In a centrifuge having a bowl with an annular treating zone within the outer portion of said bowl,

means for rotating said bowl about an axis for forming material within said zone into an annular pool to subject material in said pool to centrifugal force treatment,

feed means for supplying material flowable as a liquid to be treated to said annular treating zone, and

discharge means for discharging material flowable as a liquid from said treating zone and said bowl while said bowl is rotating,

the improvement for conserving energy wherein at least one of said feed means and said discharge means comprises:

a power exchange rotor mounted for rotation about an axis and provided with at least one material flow direction changing channel member spaced from the rotor axis less than the maximum radius of said bowl in the area of said treating zone,

said channel member constructed and arranged to guide flow of material therethrough from an inlet end to a discharge end while changing the direction of flow of said material therein at least about 90 degrees in a manner to effect energy transfer from one of said material and rotor to the other with at least about 70 percent efficiency,

transfer means arranged to direct transfer of material between said annular pool in said treatment zone and one end of said channel member, along a path which is substantially tangential to the surface of said annular pool at its interface therewith and substantially tangential to the path of rotation of said channel member end at its interface therewith, while maintaining the kinetic energy of the material being transferred substantially unchanged; and

power means connected to said rotor for translating said energy transfer into power saving.

4,334,648

AIRFLOW LIMITER AND MEASUREMENT DEVICE

Randy L. Buth, Rogers, and Robert A. Essig, Plymouth, both of Minn., assignors to McQuay-Perfex Inc., Minneapolis, Minn.

Filed Oct. 27, 1980, Ser. No. 200,960
Int. Cl.³ F24F *7/06*
U.S. Cl. 236—49 **6 Claims**

5. An air flow control system for an air conditioning system for maintaining the temperature of a space comprising, in combination:

a chamber extending from an inlet to an outlet for flow of conditioned air at superambient pressure from said inlet through said outlet to said space;

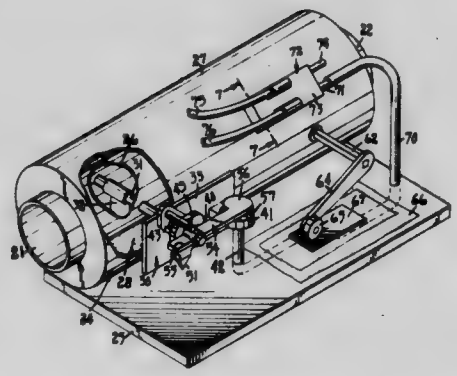
a damper in said chamber actuable to vary the rate of said flow between maximum and minimum values, said damper including a shaft extending outside said chamber and carrying an actuating lever;

means outside said chamber, including an inflatable member having inlet and venting openings, for engaging said actuating lever to actuate said damper in accordance with the state of inflation of said inflatable member;

fluidic means for supplying air from said chamber to said inlet opening, to inflate said inflatable member, and for enabling deflation of said inflatable member;

condition responsive means connected in controlling relation to said fluidic means;

an unbalanced vane pivotally mounted in said chamber for angular movement from an initial position in accordance with the rate of said flow, including a shaft extending outside said chamber;



a flapper valve comprising a seat connected to said venting opening and a flapper arm pivotally movable into and out of sealing engagement with said seat to close and open said valve;

means mounting said flapper arm for normally free rotary movement of said shaft of said vane with respect thereto;

a radial flange extending axially of said shaft along said flapper arm;

a lost motion member rotatable on said shaft and having a cog extending axially for engagement with said flange upon relative rotation between said member and said arm;

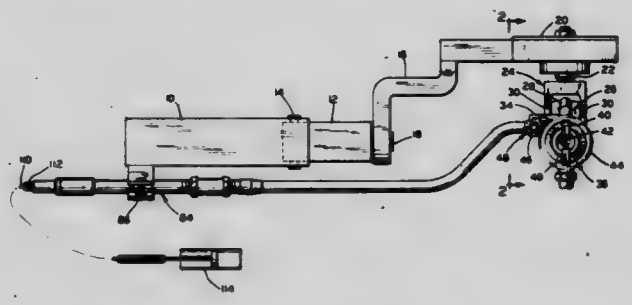
and means adjustably fixing the rotative position of said lost motion member to said shaft such that said cog comes into engagement with said flange at a predetermined point in the movement of said vane from said initial position.

4,334,649

APPARATUS FOR MANIPULATING A SPRAY HEAD OF A SPRAY GUN

Richard A. Dooley, 400 S. Westwood Ave., Toledo, Ohio 43609

Filed Apr. 18, 1980, Ser. No. 141,298
Int. Cl.³ B05B *15/08*
U.S. Cl. 239—587 **7 Claims**



1. Apparatus for manipulating the spray from a spray gun relative to a workpiece, said apparatus comprising a spray head, means for supporting said spray head for rotatable movement about a central axis, said spray head having means for

emitting a spray of coating material in a noncircular pattern, and means for rotating said spray head about the central axis, said rotating means, comprising driven means connected to said spray head and rotatable therewith, rotatable drive means rotatably supported near said spray head for rotating said driven means when said rotatable drive means is rotated, and means for rotating said rotatable drive means comprising a housing mounted on said spray gun and moveable therewith, a rotatable elongate member rotatably carried by said housing and connected to said rotatable drive means, a longitudinally moveable member slidably carried by said housing and having means engagable with said elongate member to cause said elongate member to rotate when said longitudinally moveable member moves longitudinally, a flexible tubular shaft extending at least partly through said longitudinally-moveable member and received over said elongate member as said shaft and said longitudinally-moveable member move in said housing toward said rotatable drive means, and remotely located means for moving said flexible shaft longitudinally.

4,334,650

SHREDDING MACHINES

John P. Hardwick, 50 Aldelaide St., Crewe, Cheshire CW1 3DT; Michael J. Pezet, 17 Woodside Grange, Quorn, Leicestershire, both of England; Asadollah A. Sarvestany, S. Danshgah Ave., Mestah Alley No. 28, Tehran, Iran, and Dayananda Satharasinghe, 204J Block B, Clementi Rd., Singapore, Singapore (5)

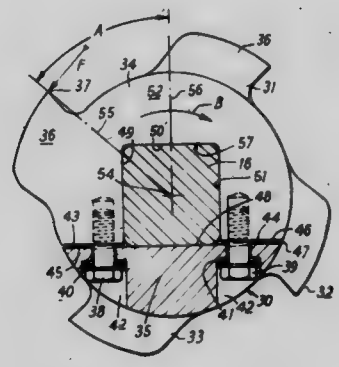
PCT No. PCT/GB79/00110, § 371 Date Mar. 5, 1980, § 102(e) Date Mar. 4, 1980, PCT Pub. No. WO80/00129, PCT Pub. Date Feb. 7, 1980

PCT Filed Jul. 4, 1979, Ser. No. 190,881

Claims priority, application United Kingdom, Jul. 5, 1978, 28953/78

Int. Cl.[3] B02C *18/18*

U.S. Cl. 241—236 9 Claims



1. A cutter for a rotary shredding machine comprising a generally disc-like body, the body defining a coaxial shaft aperture therethrough adapted to accommmodate a shaft and defining a cutting axis, said body including a plurality of cutter body members and releasable fastening means for holding the body members together, at least one of said body members having at least one radially projecting peripheral tooth having a cutting edge along a leading edge thereof, each cutter body member having two first surface portions extending chordally from the body periphery and joined by a second surface portion adapted for engaging a shaft, said second surface portions together defining the shaft aperture, and each said first surface portion being juxtaposed with, but spaced from, a parallel, corresponding said first surface portion of the next adjacent body member thereby to permit limited tilting movement of said toothed body member circumferentially about the cutter axis with simultaneous momentary deformation of that body member when a sufficiently high impact force is applied to this tooth, the said fastening means being constructed and arranged to permit such circumferential tilting.

4,334,651

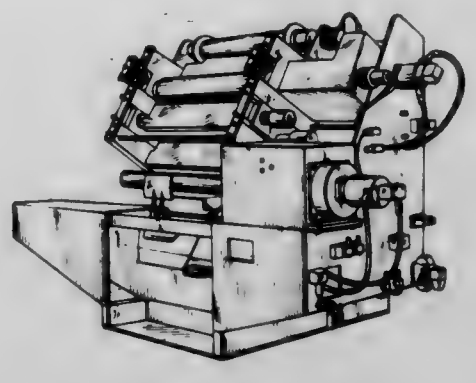
AUTOMATIC HYDRAULIC ROLL WINDER

Charles A. McKinnon, 60 Woodland Hills, Tuscaloosa, Ala. 35405

Filed Jun. 20, 1980, Ser. No. 161,378

Int. Cl.[3] B65H *19/20, 17/02*

U.S. Cl. 242—56 R 9 Claims



1. In a machine for winding sheet material into a product roll:

a guide roller means,

a pair of pull roller means,

a sheet severing means including a knife and an anvil to cut said sheet to produce a back end and a front end thereof,

a sheet guide means,

a mandrel means with a sheet securing slot means incorporated therein and a pair of collapsible plates mounted thereon, whereby rotation of said mandrel will form said sheet into a product roll,

said sheet guide means directing the front end edge cut by said knife into said slot means on said mandrel,

means for retaining the back end edge cut by the knife against said product roll following the cut by the knife during deceleration of the mandrel for the removal of the product roll, and

means for ejecting said product roll from said mandrel;

the alignment of the aforesaid means being such that the sheet material is maintained with the supply source of such sheet material so as to provide minimum bending of and minimum contact with said sheet material on its way to the mandrel.

4,334,652

EXPANDIBLE DEVICES FOR INTERNALLY GRIPPING CORES OR THE LIKE

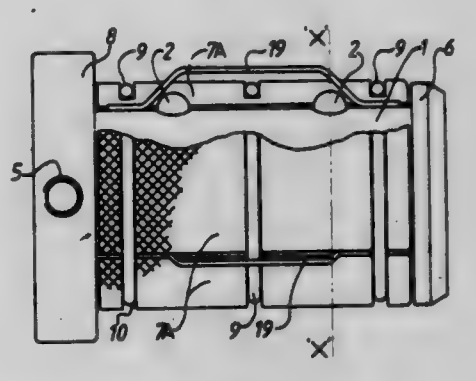
David Blackburn, 10, The Finches, Sittingbourne, Kent, ME10 4PY, England

Filed Nov. 6, 1979, Ser. No. 91,857

Claims priority, application United Kingdom, Nov. 8, 1978, 43644/78; Jan. 10, 1979, 7900829

Int. Cl.[3] B65H *75/24*

U.S. Cl. 242—72 R 16 Claims



1. A-self-expandible device for internally gripping hollow cores or the like to impart torque thereto; said device comprising a body member, a cylindrical structure surrounding the

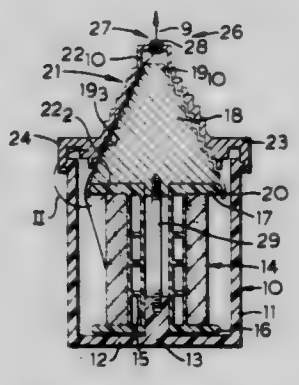
body member for effecting frictional drive contact with a hollow core, the body member and the cylindrical structure being relatively rotatable about an axis of the device, the body member and the cylindrical structure having curvilinear confronting surfaces, the cylindrical structure being composed of a plurality of jaw segments, means for retaining the jaw segments on the body member, balls between the confronting surfaces and slender elongate, arcuate circumferential grooves formed in one of the confronting surfaces in registry with the balls, wherein each groove has a tapered depth which varies around the axis of rotation and is described with a radius of curvature similar in magnitude to that of the other confronting surface and the balls are positionally secured in relation to the other confronting surface to locate in said grooves; wherein rotation or relative partial rotation between the cylindrical structure and the body member causes shallower regions of the grooves to engage with the balls to move the jaw segments progressively outwardly from the body member to effect said frictional drive contact with the hollow core.

4,334,653

FILAMENT TENSIONING APPARATUS

Geoffrey E. Whellams, 3 Spruce Ave., Greenstead, Colchester, Essex, England

Filed Mar. 25, 1980, Ser. No. 133,840
Int. Cl.[3] B65H *49/00*
U.S. Cl. 242—129.8 **13 Claims**



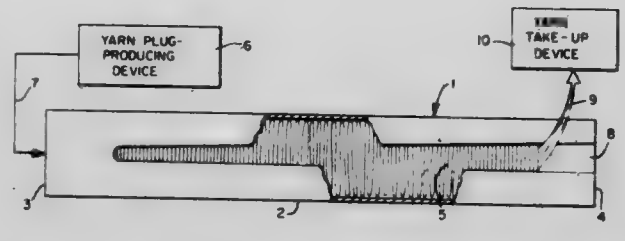
1. A device for imparting a tension to wire drawn from a reel, which device comprises holding means for holding a reel of wire, first and second circular tensioning elements, and support means for supporting said elements in a relatively spaced disposition to lie adjacent one end of a reel held by said holding means, each of said tensioning elements having at least one annular surface which said annular surfaces on said two elements co-operate with each other thereby to define a non-linear passage of circular form between said elements and along which wire may pass generally radially inwardly, said support means supporting both of said elements with said annular surfaces substantially co-axial with and adjacent one end of a reel held by the holding means and at least one of said elements having a central aperture through which wire drawn from the reel and passing radially inwardly through said passage may leave the device, whereby the wire wound on a held reel may be drawn from the reel to pass generally radially inwardly along said passage there to be constrained by said annular surfaces of said tensioning elements to follow a non-linear path and out of said aperture, said non-linear path imparting tension to the wire and the wire being able to enter said passage at any point around the circular periphery thereof as the wire comes off a held reel.

4,334,654

APPARATUS AND METHOD FOR CONTROLLING THE TENSION ON A YARN BUNDLE WITHDRAWN FROM A MASS OF COMPACTED YARN

Elbert K. Warren, Candler, and William D. Porter, Asheville, both of N.C., assignors to Akzona, Incorporated, Asheville, N.C.

Filed May 13, 1980, Ser. No. 149,546
Int. Cl.[3] B65H *59/10*
U.S. Cl. 242—147 R **31 Claims**



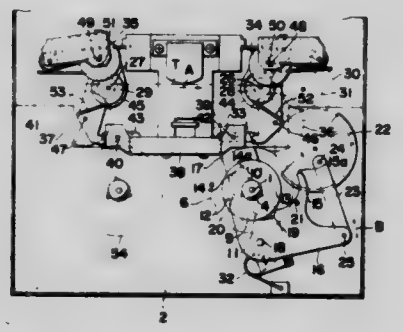
1. An apparatus for controlling the tension on yarn withdrawn from a mass of compacted yarn within a confined space which comprises a yarn guide means having a tubular cylindrical wall portion defining a confined space for guiding and for accumulating a compacted mass of yarn therein, an inlet opening for entry of the compacted mass of yarn into one end of the confined space and an outlet opening for allowing withdrawal of the yarn in the form of a yarn bundle from the confined space; said outlet opening being an elongated slot that is provided in the cylindrical wall portion of the yarn guide means and that applies tension to the yarn bundle being withdrawn from the confined space, said slot having a preselected configuration so that the slot provides means for varying the tension applied to the yarn bundle and for varying the density of the yarn bundle as the yarn mass moves from one end of the confined space to the other end.

4,334,655

AUTOMATIC TAPE FEEDING DIRECTION REVERSING DEVICE IN A TAPE RECORDER

Kyohei Naito, Tokyo, Japan, assignor to Shinwa Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 31, 1980, Ser. No. 135,916
Claims priority, application Japan, Apr. 3, 1979, 54/40187
Int. Cl.[3] B65H *59/38*; G03B *1/02*; G11B *15/13*
U.S. Cl. 242—191 **4 Claims**



1. An automatic tape feeding direction reversing device in a tape recording comprising: a tape winding power source; a reel support (3) rotated by said tape winding power source; a detection disk (9) mounted on said reel support, said detection disk being adapted to rotate with the reel support when the tape is being fed and to stop rotating together with the reel support when the tape winding is completed; a reversing lever (17); a movable shaft (18) on said reversing lever; an actuator (16) which is oscillated about said movable shaft by the said power source and which, when said disk stops rotating, is brought into engagement with said detection disk and then moved together with said movable shaft about the engaging point between said disk and said actuator; said reversing lever being connected through said movable shaft to said actuator and being turned by the displacement of said movable shaft; and a

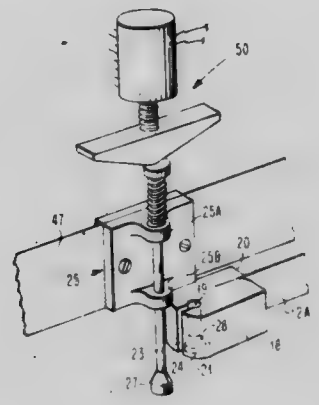
reversing mechanism (38, 44, 45) connected with and actuated by the reversing lever to reverse the tape winding direction.

4,334,656

AUTOMATIC TAPE THREADING APPARATUS FOR MAGNETIC TAPE TRANSPORTS

Roy P. Crawford; Paul A. Gilovich, both of Saratoga, Calif., and David H. McMurtry, Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,733
Int. Cl.³ G03B *1/04*; G11B *15/32*
U.S. Cl. 242—195 8 Claims



1. In combination with a web transport which transfers elongated flexible web material wound on a supply reel to a web take-up reel having a hub for receiving said material over a predefined nonlinear web path which includes a web processing station,

an automatic threading apparatus for moving a leader block attached to the leading end of the web material wrapped on said supply reel over said web path from a first predefined position to a second position which couples said leader block to said take-up reel for subsequent conjoint rotational movement with said take-up reel about the axis of rotation of said take-up reel during winding and unwinding of web material on and off said take-up reel, said apparatus comprising:

a device adapted to selectively couple said leader block to said device at said first predetermined position which permits rotation of said block relative to said device about a first axis parallel to the axis of said reels;

a mechanism for moving said device and said coupled leader block from said first predetermined position to said second position to dispose said first axis coaxially with the axis of said take-up reel and said web material in winding relationship to the hub of said take-up reel, and for guiding said coupling device during movement over a predetermined path which corresponds to said tape path; and

means for permanently attaching said coupling device to said mechanism.

4,334,657

DEVICE FOR FIN-STABILIZED SHELL OR THE LIKE

Kjell Mattson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Continuation of Ser. No. 876,090, Feb. 8, 1978, abandoned. This application Oct. 24, 1979, Ser. No. 87,835
Claims priority, application Sweden, Feb. 9, 1977, 7701406
Int. Cl.³ F42B *13/32*
U.S. Cl. 244—3.28 7 Claims

1. A fin-stabilized projectile assembly adaptable for delivering a charge along a predetermined trajectory, and comprising:

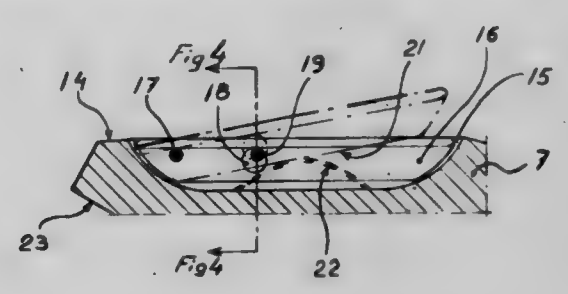
a projectile body having a nose section, a middle section and a tail section, with said middle section including a substantially cylindrically-shaped forward end portion engaging said nose section and further including a tapered rear end portion extending between said cylindrically-shaped forward end portion and said tail section;

with said forward end portion extending substantially 85%–95% of the full caliber of said projectile;

an outer surface of said tapered rear end portion of said middle section forming an acute angle α with an imaginary plane extending parallel to said cylindrically-shaped forward end portion;

said tail section including a substantially cone-shaped forward end portion forming a direct juncture with said tapered portion of said middle section, said cone-shaped forward end portion forming an acute angle β with a further imaginary plane extending parallel to said imaginary plane, wherein acute angle α is at least 15° and no larger than 20° and acute angle β is greater than acute angle α to maintain a stable trajectory for said projectile; and

separate elongated fin means each extending outwardly from said tail section, said fin means circumferentially spaced from one another about the periphery of said tail section, each of said fin means including a forward end portion overlapping said cone-shaped portion of said tail section, with each fin means having a forward edge extending outwardly from a position adjacent the juncture formed by said tapered portion of said middle section and said cone-shaped portion of said tail section for smoothly sweeping air between said elongated fin means to stabilize the projectile in its trajectory even during supersonic flight.

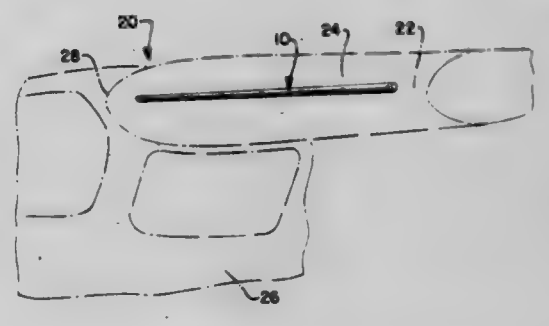


4,334,658

STALLING AERODYNAMICS OF THE CESSNA MODELS 150 AND 152 SERIES AIRCRAFT

Sprague B. Mackenzie, 3847 Bassett Rd., Rootstown, Ohio 44272

Filed Apr. 6, 1979, Ser. No. 27,812
Int. Cl.³ B64C *3/58, 21/10*
U.S. Cl. 244—198 6 Claims



1. An improvement to the stalling aerodynamics and stall characteristics of Cessna 150/152 series aircraft having a fuselage and two wings having a span, leading edges, wing tips and wing roots, the leading edge of each wing having a centerline, wherein the improvement comprises:

the fixed securement of an immovable, non-pivoting, rigid strip, on substantially the centerline of the leading edge of each wing, on that portion of each said wing substantially adjacent to each wing root to passively trigger the separation of air flow against the wing at the wing root;

said strip of unchanging triangular shape having two termini defining a length thereinbetween, two substantially even

raised surfaces, a contour surface and a plurality of recesses having securement orifices;

said substantially even raised surfaces of said strip intersecting at a permanently determined raised surface junction, said raised surface junction having an angle substantially from about 80° to about 100°; and

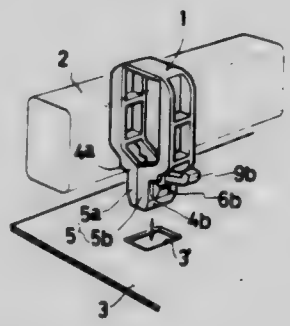
said contour surface intersecting both said raised surfaces of said strip at raised-contour surface junctions having an angle substantially from about 35° to about 55°, said contour surface and said raised-contour surface junctions fixedly secured to a small chordwise portion of said leading edge of said wing about said centerline, said strip immovably extending the leading edge of the wing into the airflow over a portion of the wing within four feet of the wing root, whereby said immovable, non-pivoting securement of said strip on substantially the centerline of the narrow chordwise portion of each said wing at a distance within four feet of said wing root minimizes the incidence of unintentional roll into spin entry by forcing the wing root to stall prior to the wing tip without affecting the handling properties and the normal aerodynamic properties of the aircraft at a speed above stall speed for the aircraft.

4,334,659

PLASTIC RETAINING-FASTENING DEVICE

Takuo Yuda, Yokohama, Japan, assignor to Nifco Inc., Tokyo, Japan

Filed Jul. 11, 1980, Ser. No. 168,955
Int. Cl.³ F16L *3/08*
U.S. Cl. 248—73 **6 Claims**



1. A plastic retaining-fastening device comprising a retaining piece adapted to be wrapped around an article subjected to fastening and a pair of leg segments projecting from the opposite ends of the retaining piece and adapted so that the leg segments, when juxtaposed to and pressed against each other, form one leg means suitable for insertion into a fitting hole bored in a support plate, each of the leg segments provided with check claws adapted to securely retain the device relative to the support plate, the improvement which comprises providing the leg segments with operating pieces adapted to release the check claws belonging to each respective leg segment from the fast engagement thereof with the edges of the fitting hole in the support plate.

4,334,660

COLLAPSIBLE BIN STRUCTURE

Theodore R. Zeigler, 205 S. Columbus St., Alexandria, Va. 22314

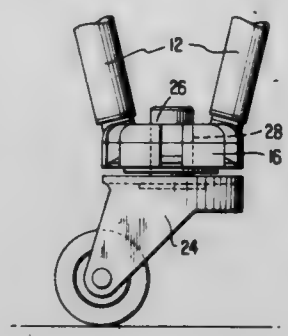
Filed Dec. 28, 1979, Ser. No. 108,013
Int. Cl.³ A63B *55/04*
U.S. Cl. 248—97 **7 Claims**

1. A collapsible, free standing bag holder for sustaining a bag in generally upright, open mouthed position comprising;

a surrounding frame of latticed rigid struts pivotally joined at each intersection and having a vertical central passage whereby said passage expands radially as said frame collapses vertically;

a bag positioned within said frame having its mouth generally aligned with the upper opening of said passage such that its body is distensible down into said passage;

means for attaching said bag to said frame at points about said upper opening to maintain the mouth of said bag open and prohibiting the radial expansion of said opening so as to maintain a vertical height of said frame that will substantially accommodate the distended body of the bag, said frame comprising a first set of rigid struts joined



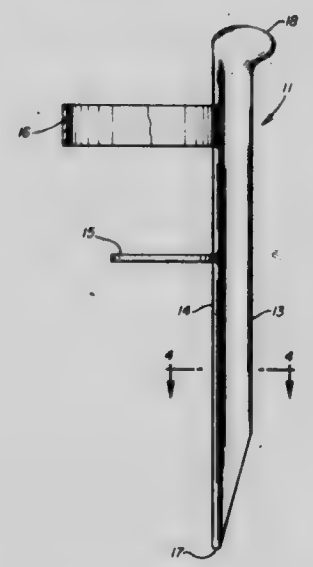
end-to-end by hubs to which each strut is independently pivotally attached to form a closed loop, a second set of an equal number of struts that are joined end-to-end in the same manner as the first set of struts and with each strut intersecting one strut of the first set where they are pivotally attached such that the adjacent hubs of the first and second sets are alternately disposed in two horizontally superposed circular patterns in parallel upper and lower horizontal planes.

4,334,661

DRINK CONTAINER MOUNTING GROUND STAKE

Samuel G. Pitt, Rte. 1, Box 136 A, Carlsbad, N. Mex. 88220

Filed Sep. 14, 1978, Ser. No. 942,466
Int. Cl.³ A47G *23/02*
U.S. Cl. 248—146 **3 Claims**



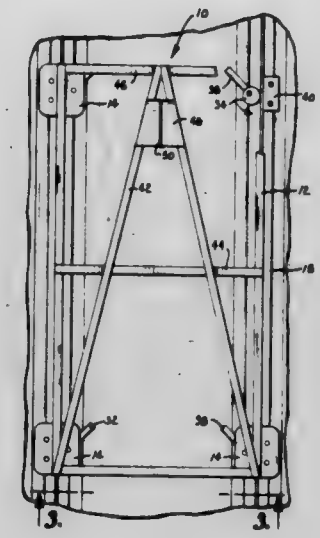
1. A holder for containers in the form of fluid drink containers with the holder in the form of a stake comprising: a stake body having a pointed lower end for being driven into the ground; a laterally extended foot for supporting containers; a ring, integrally a part of the stake, spaced above the foot for lateral support of a container the ring encircles and that is supported by the foot; and wherein said stake body, the laterally extended foot and the ring are a unitary structure of tough cast plastic; and wherein said stake body is formed with a blunted enlarged top in other than vertical alignment with said foot and said ring to facilitate driving of the stake into the ground and removal from the ground and non-interference with an article held by said foot and said ring.

4,334,662

LANYARD SUPPORT FOR METAL BUILDING ROOF

Thomas R. Davis, and Charles D. Bostian, both of Pettis County, Mo., assignors to Tempel-Callison Company, Sedalia, Mo.

Filed Sep. 5, 1980, Ser. No. 184,781
Int. Cl.³ E04G *3/12*
U.S. Cl. 248—237 8 Claims



1. A device for supporting a load on a standing seam roof, said device comprising:

platform means for spanning the distance between two parallel roof seams;

camming means mounted on opposite sides of said platform means for engaging said parallel roof seams,

each of said camming means being coupled with said platform for movement toward and away from the respective seams;

backup means mounted on opposite sides of said platform means in alignment with said camming means and disposed for positioning against said roof seams on the opposite sides from said camming means to provide backup support for said camming means when the latter engages said roof seam; and

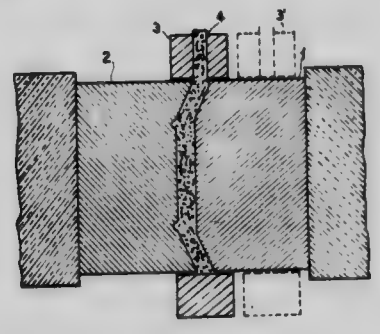
means for locking said camming means against said roof seams.

4,334,663

MOLDS FOR THE PRODUCTION OF DISHES AND THE LIKE FROM POWDERED CERAMIC MATERIALS

Franco Ponginibbio, Milan, Italy, assignor to Welko Industriale S.p.A., Milan, Italy

Filed Nov. 21, 1980, Ser. No. 209,290
Claims priority, application Italy, Dec. 7, 1979, 27939 A/79
Int. Cl.³ B29C *1/00, 5/00;* B29F *1/022*
U.S. Cl. 249—105 4 Claims



1. A mold for pressing ceramic dishes and the like from powder ceramic material, comprising two cylindrical dies of substantially identical diameters, each having a longitudinal axis and being coaxially positioned with each other, at least one of said dies being displaceable with respect to the other between an open and closed positions, said dies having end walls being shaped as to reproduce, in negative, respectively the front and the rear walls of the dish to be produced and to define a cavity between said walls when said dies are in said closed position; a main die-box encircling said cylindrical dies and adapted to slide along said longitudinal axes for peripherally closing said cavity, said main die-box including a conduit for feeding the powdered ceramic material into said first cavity; and an auxiliary die-box encircling at least one of said dies and adapted to be displaced along said longitudinal axes towards and from of said main die-box, said main die-box and said auxiliary die-box formed with annular grooves facing towards each other and open towards said dies, said grooves being conformed with each other, so that in said closed position they form an annular cavity being in registry with said cavity and radially extending therefrom whereby said annular cavity forms the peripheral border of the dish to be produced.

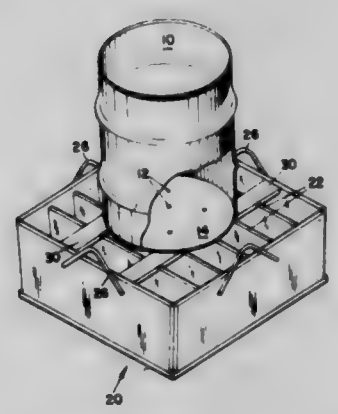
4. The mold of claim 1, wherein said conduit is formed by a channel extending normal to said longitudinal axis.

4,334,664

APPARATUS FOR RECOVERING TIN FROM TIN DROSS

Robert M. Gancarz, Sr., 98 Szetela Dr., Chicopee, Mass. 01013

Division of Ser. No. 844,809, Oct. 25, 1977, Pat. No. 4,119,136.
This application Jun. 8, 1978, Ser. No. 913,844
Int. Cl.³ B22D *0/00*
U.S. Cl. 249—108 1 Claim



1. In tinning, apparatus for recovering tin from tin dross upon insertion into an annealing furnace under prescribed conditions of duration and operating temperature preliminary to removal therefrom and cooling thereof comprising in combination:

a tin dross charging barrel having apertures through its bottom for the flow of molten free tin therethrough,

a collecting tin mold having opposite side and end walls secured to a horizontally disposed base,

the side and end walls of the mold being disposed at a slight angle from perpendicularity relative to the base,

a plurality of vertically-extending partitions extending from side wall to side wall of the mold,

means for positioning the partitions in spaced relation as to each other and as to the end walls of the mold,

the partitions having a slight bevel at their opposite edges,

the partitions and side walls of the mold defining less than liquid-tight joints for the free flow of molten tin around the partitions in operational use.

4,334,665

REPLACEABLE CUP FOR ENGLISH MUFFIN PROOFING TRAYS

Eugene M. Noel, 1215 S. Portofino Dr., #106, Siesta Key, Sarasota, Fla. 33581

Filed Apr. 16, 1980, Ser. No. 140,824
Int. Cl.³ B29C *1/00;* F26B *25/18*
U.S. Cl. 249—134 3 Claims

1. A proofing cup formed of felt sheeting approximately

1/16 inch thick having a minimum of 95% wool, a maximum of 2¼% trichloroethane extractable materials, and a tensile



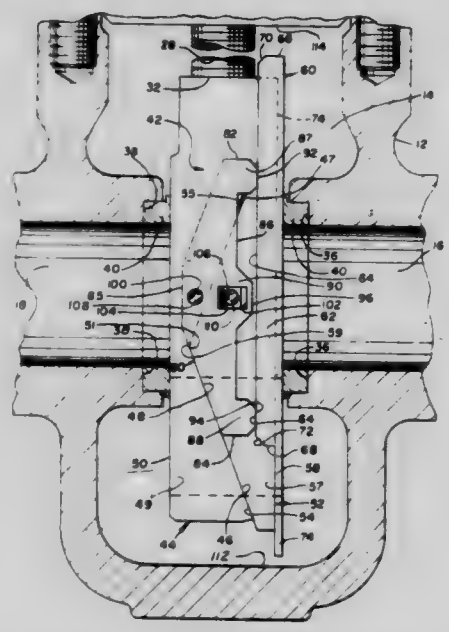
strength of at least 500 psi, said cup having a substantially flat bottom and sidewalls tapering inwardly with a minimum draft.

4,334,666

EXPANDING GATE VALVE WITH POSITION RESPONSIVE INTERLOCK

Patricio D. Alvarez, Rosenberg, and Robert J. Trevino, Houston, both of Tex., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed May 2, 1980, Ser. No. 145,903
Int. Cl.³ F16K *25/00*
U.S. Cl. 251—167 **4 Claims**



1. In a gate valve structure of the expanding type having a valve chamber and an expanding gate assembly mounted in the valve chamber for movement between open and closed positions, the gate assembly including a gate member connected to a valve stem and a segment member carried by the gate member with wedging surfaces between the members permitting a wedging action to provide lateral expansion therebetween at fully open and closed positions, where the improvement comprises:

an elongate member pivotally mounted to a side of one of said gate and segment members and having opposite ends, said elongate member having a slot and an aperture, a bearing member slidably received in said slot, and a bearing pin extending from a side of said other of said gate and segment members and journaled within said bearing member;

means, contained within said valve chamber and engaging said elongate member, for governing the ability of said elongate member to pivot thereby allowing said gate and segment members to expand from each other only at a preselected position in the travel of the gate assembly;

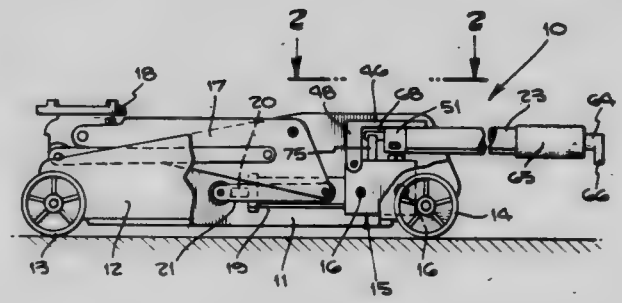
a pivot pin extending from said one of said gate and segment members and being journaled within said aperture when said gate assembly is in a fully collapsed position, said aperture and slot being aligned in a direction generally transverse of the direction of movement of the gate assembly with said slot being adjacent said governing means and said aperture being remote from said governing means such that the moment arm of the force couple which acts on said pivot pin and said elongate member at its point of engagement with said governing means for initiating the collapsing movement of said gate assembly exceeds the moment arm of the force couple which acts on said bearing member and said elongate member at its point of engagement with said govering means to thereby minimize the longitudinal force to be applied to said elongate member by said gate assembly in commencing travel of the gate assembly from its fully open and fully closed positions.

4,334,667

HYDRAULIC RELEASE SYSTEM FOR LIFTING JACK

Robert Fox, Wilmington, Calif., assignor to Norco Industries, Inc., Gardena, Calif.

Filed Jul. 7, 1980, Ser. No. 166,238
Int. Cl.³ B66F *3/00*
U.S. Cl. 254—8 B **6 Claims**



1. A hydraulic actuator system for a lifting jack wherein the lifting jack has a carriage including a block, a hydraulic reservoir supported by said block, a power ram in operating engagement with a lifting linkage and a pump between the reservoir and the ram having a reciprocating pump handle with a horizontal pivot axis tiltably mounting the pump handle on said carriage for operation throughout a range of positions in a vertical plane to activate the pump, said system comprising a hydraulic fluid return line from the ram to the reservoir, a valve seat in said return line acting upstream relative to flow from the ram, a valve element adapted to engage said seat under pressure from said ram, a release pin reciprocatably mounted on said carriage and in operating engagement with said valve element, a manually actuated release member rotatably mounted on said pump handle, a cam element on said release member normally clear of engagement with said release pin throughout the range of positions of said pump handle and having progressively acting camming engagement positions with said release pin upon rotation of said release member throughout the range of positions of said pump handle whereby to effect controlled release of pressure in said ram to lower the elevating linkage.

4,334,668

PORTABLE FOLDABLE HOIST

Daniel D. Caris, 3540 Court St., Redding, Calif. 96003

Filed Feb. 17, 1980, Ser. No. 235,009
Int. Cl.³ B66F *5/02*
U.S. Cl. 254—8 B **4 Claims**

1. A foldable apparatus for lifting and moving heavy objects, comprising:

a base having a front end and a rear end;

a plurality of legs attached to and extending horizontally from said base;

a vertical member pivotally connected at its lower end to

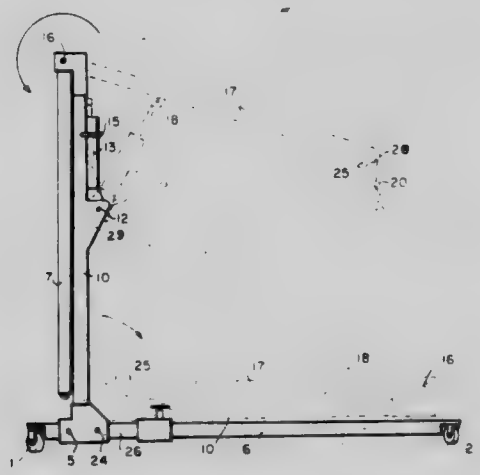
said base whereby it folds down against said base, and having:

a substantially horizontal extension rigidly attached to the upper end of said vertical member and extending substantially parallel to and in the direction of the rear end of said base; and

means for locking said vertical member with respect to said base;

a lifting beam pivotally connected at one end to said substantially horizontal extension such that the pivot point is offset from said vertical member toward the rear end of said base, while said lifting beam extends over the top of said vertical member in the direction of the front end of said base, whereby the downward movement of said lifting beam is limited when it comes to rest on said vertical member, and whereby said lifting beam swings over the upper end of said vertical member and folds down against the side of said vertical member closest to the rear end of said base; and

a jack unit pivotally connected at one end to said vertical member and having quick disconnect means pivotally connecting the other end to said lifting beam, whereby said jack unit easily attaches to and disconnects from said lifting beam.

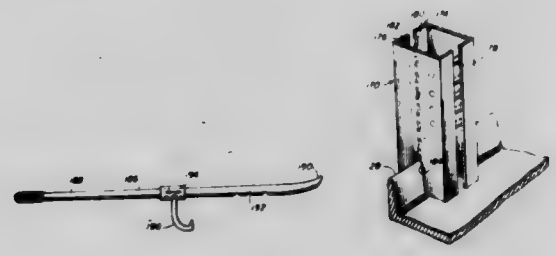


4,334,669

JACKING MECHANISM FOR A PORTABLE SAWMILL

Warren K. Ross, Main St., W. Hampstead, N.H. 03841

Division of Ser. No. 76,905, Sep. 16, 1979, Pat. No. 4,275,632.
This application May 22, 1981, Ser. No. 266,185
Int. Cl.³ B66F *15/00*
U.S. Cl. 254—130 **6 Claims**



1. A jack for raising and lowering heavy objects, comprising

(a) a fulcrum, and,

(b) a lever,

(c) said fulcrum being formed with a pair of spaced apart parallel vertical walls, one wall having at least one fulcrum edge

(d) the other vertical wall spaced from said edge and defining a vertical slot opposite said edge and at least one recess in said wall along said slot,

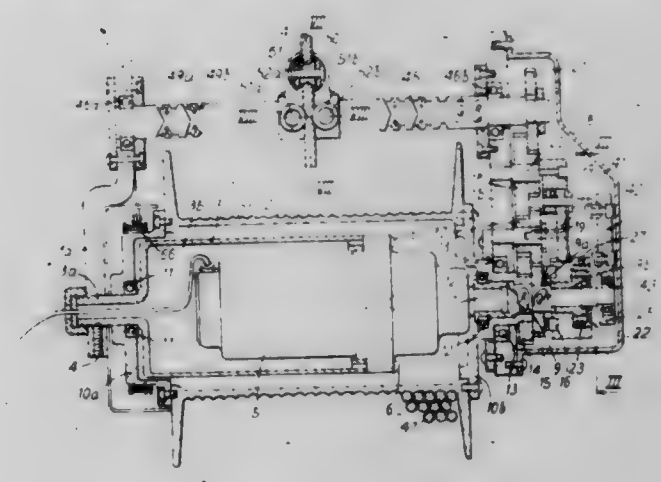
(e) said lever including a sleeve movable lengthwise of said lever and adapted to engage said recess when said lever is against said edge and aligned with said recess whereby said lever may be locked in position against said fulcrum.

4,334,670

ANCHOR WINCH EQUIPMENT

Motoyuki Kawabe, Onomichi, Japan, assignor to Taiyo Sengu Co., Ltd., Japan

Filed Jan. 16, 1980, Ser. No. 112,675
Claims priority, application Japan, Jan. 17, 1979, 54-4106
Int. Cl.³ B65D *1/14*
U.S. Cl. 254—346 **2 Claims**



1. An anchor winch comprising:

(i) a support structure

(ii) a winding drum journalled in said structure for rotation about an axis and having a coaxial drive pinion

(iii) a reversible motor carrier by said structure and having a drive shaft with a quick-thread thereon

(iv) a ratchet gear coaxial with said drive shaft and coupled to said drive pinion

(v) a change-over ratchet wheel mounted coaxially on the quick thread of the drive shaft, said wheel having means at one axial end to engage a stop carried by the support structure, said wheel having means at the other axial end to engage with said ratchet gear, whereby upon rotation of said drive shaft in one direction said changeover ratchet wheel is thrust by said quick-thread in one axial direction to engage said stop and disengage from said ratchet gear, and upon rotation of said drive shaft in the other direction said changeover ratchet wheel is thrust by said quick thread in the other axial direction to disengage from said stop and engage with said ratchet gear,

(vi) a feed cam shaft journalled in said support structure for rotation about an axis parallel to said axis of the drum,

(vii) a cam-follower rope guide engaged on said feed cam shaft for reciprocal axial traversing movement as said cam shaft is rotated, and

(viii) means rotationally coupling said feed cam shaft and winding drum drive pinion.

4,334,671

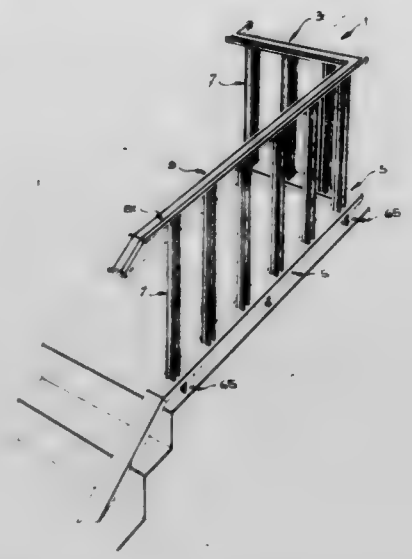
GUARD-RAILS ASSEMBLY

Yvon De Guise, 37 Fleury, Vimont, Laval, Quebec, Canada

Continuation-in-part of Ser. No. 962,553, Nov. 20, 1978, abandoned. This application Jul. 30, 1979, Ser. No. 61,862
Claims priority, application Canada, Dec. 9, 1977, 292830
Int. Cl.³ B21F *27/00*
U.S. Cl. 256—65 **4 Claims**

1. An improved railing having at least a rail and a plurality of bars extending perpendicularly to the rail; the rail having an inner rail member and an outer rail member nested within the inner rail member; each inner and outer rail member being channel shaped with a web and flanges extending from the web; the web of the inner rail having spaced-apart openings through which the ends of the bars pass snugly; cooperating means on the ends of the bars and on the flanges of the outer

rail member for engaging slots near the ends of the bars and outer rail members together and cooperating means on the flanges of the inner rail members and on the outer rail members for connecting the rail members together in nesting relation,



wherein the outer rail member is made in two longitudinal sections, each section having a web portion, and means for joining the web portions together to provide the channel shape.

4,334,672

APPARATUS FOR AUTOMATICALLY APPLYING SHEET UNITS TO ENDLESS WEB

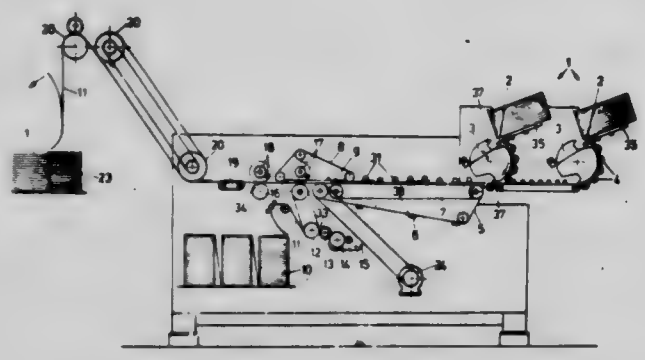
Willi Felix, Strengelbach, Switzerland, assignor to Jos. Hunkeler AG Fabrik fur graphischë Maschinen, Wikon, Switzerland

Continuation of Ser. No. 68,740, Aug. 22, 1979, abandoned. This application Apr. 8, 1981, Ser. No. 252,189

Claims priority, application Switzerland, Jun. 25, 1979, 5913/79

Int. Cl.³ B42B *2/00*

U.S. Cl. 270—53 **3 Claims**



1. Apparatus by which individual sheet units are brought into flatwise proximity to a substantially elongated web for adhesion to the web at locations along its length that are spaced apart by predetermined distances, said apparatus being characterized by:

A. transport means for supporting sheet units for edgewise motion in a forward horizontal direction, accelerating them to a predetermined velocity and establishing them in positions relative to one another that they are to have on a web, said transport means comprising

(1) endless carrier means having an upper stretch extending in said direction and driven for movement in said direction at said velocity,

(2) abutment means on said endless carrier means, operative in said upper stretch thereof to provide upwardly extending rearwardly facing surfaces against which front edge portions of sheet units on said transport means can be engaged, and

(3) acceleration means driven for movement in said direction at a speed faster than said velocity and arranged to frictionally engage sheet units on said transport means to urge them towards engagement on their front edge portions against said surfaces;

B. an endless belt having perforations therethrough that open to inner and outer faces thereof and having a horizontal bottom stretch extending in said direction, said belt

(1) being driven for movement of its bottom stretch in said direction at said velocity and

(2) having a rear portion of its bottom stretch upwardly adjacent to a front portion of said upper stretch of the endless carrier means;

C. suction means at said bottom stretch of the belt, adjacent to the inner surface thereof, for drawing air upwardly through the perforations therein to lift sheet units from said transport means and attach them to said bottom stretch by suction for movement therewith without change in their edgewise velocity;

D. web guide means for guiding an elongated web upwardly towards said bottom stretch of the belt from beneath the same and thence forwardly along and in close flatwise proximity to said bottom stretch of the belt to be flatwise contiguous to sheet units attached thereto; and

E. web drive means near the front end of said bottom stretch of the belt for pulling said web lengthwise at said velocity.

4,334,673

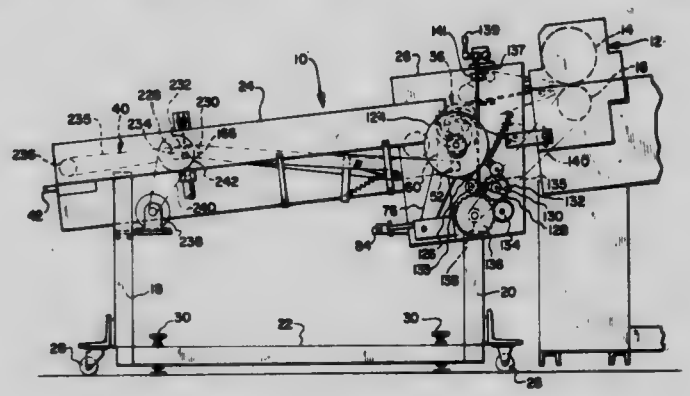
DELIVERY MECHANISM

Kenneth C. Clifton, Pittsburgh, Pa., assignor to Harris Corporation, Dayton, Ohio

Filed Aug. 1, 1980, Ser. No. 174,461

Int. Cl.³ B65H *29/66*

U.S. Cl. 271—65 **7 Claims**



1. Apparatus for delivering business forms selectably in a face up or face down position, comprising:

a stationary frame;

a pair of horizontally spaced vertically extending parallel plates mounted to said frame for rotation about a fixed horizontal axis;

a shaft mounted at its ends to said plates for independent rotation in spaced parallel relation to said axis of said plates;

a plurality of creels secured at spaced intervals along said shaft for rotation therewith;

a plurality of endless delivery belts having adjacent flights in a common plane for receiving and transporting said forms;

a plurality of pulleys supporting said belts for rotation;

a first set of said pulleys being mounted to said plates for rotation along a common axis in spaced parallel relation to said fixed horizontal axis of said plates and remote from said shaft;

a second set of said pulleys being mounted for rotation to said frame; and

means for rotating said plates about said fixed horizontal axis of said plates between a position in which said creels are disposed for receiving forms, inverting them and depositing them on said delivery belts, and a position in which said creels are in an inoperative position and said delivery

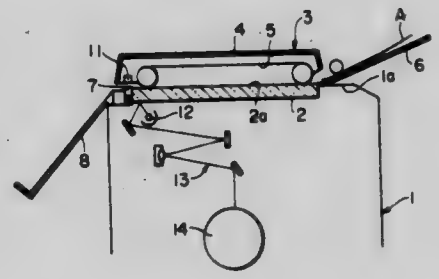
belts are disposed for receiving and transporting forms in their original face up or face down position.

4,334,674

AUTOMATIC FEEDING DEVICE FOR COPYING MACHINES

Shoichi Ishii, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Aug. 27, 1980, Ser. No. 181,557
Claims priority, application Japan, Sep. 11, 1979, 54-115721
Int. Cl.[3] B65H *9/04*
U.S. Cl. 271—245 4 Claims



1. A registration device for an automatic feeding device for original documents comprising: an elongated registration member disposed adjacent one edge of a platen member for supporting an original document in a copying position, a leading edge of said original document abutting an upper portion of said registration member in said copying position, said registration member comprising a permanent magnet extending substantially the length thereof; guide means disposed along at least one edge of said registration member wherein said registration member is movable between an upper position with said upper portion extending above the upper edge of said platen and a lower position below said upper surface of said platen; spring means for biasing said registration member toward said upper position; cover means disposed above said platen and registration member; and electromagnet means, said electromagnet means extending substantially the length of said registration member, said electromagnet means producing a magnetic field in response to an exciting signal applied thereto for urging said registration member to move to a position below said upper surface of said platen.

4,334,675

GYMNASIUM APPARATUS

Charles G. Parry, 208 Greenbriar Rd., North Syracuse, N.Y. 13212, and David L. Sherwood, 3630 S. Maplewood Dr., Apt. B, Tulsa, Okla. 74135

Filed Oct. 22, 1979, Ser. No. 86,650
Int. Cl.[3] A63B *3/00*
U.S. Cl. 272—63 11 Claims

10. A gymnastic device that includes

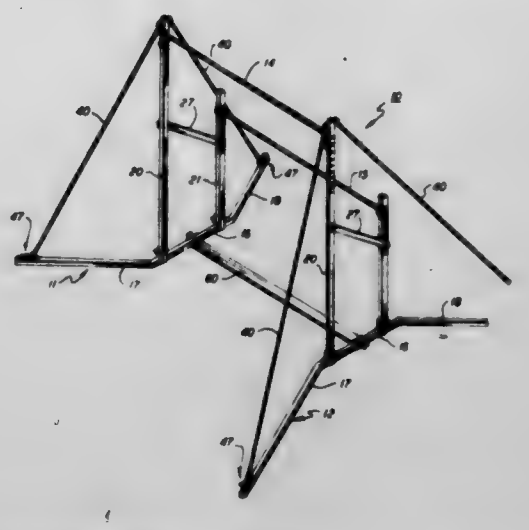
a base that is capable of resting upon a horizontal support surface,

a pair of parallel posts secured in the base and rising upwardly therefrom in a vertical direction,

an exercise bar supported between the post,

a pair of opposed rods secured to the upper part of each post above the exercise bar and extending obliquely to the base, and

means for locking each of the rods in compression against the base with sufficient force to establish a closed system in which the compression rods are prestressed in assembly so as to continually deliver a holding force to the base to



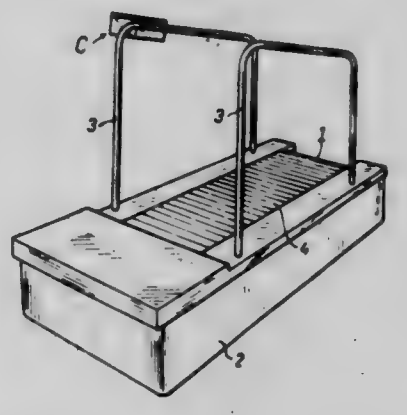
hold the latter against the support surface when a gymnast is exercising on the bar.

4,334,676

MOVABLE SURFACE APPARATUS, PARTICULARLY FOR PHYSICAL EXERCISE AND TRAINING

Rolf Schönenberger, Zurich, Switzerland, assignor to Wilhelm Schonenberger, Pratteln, Switzerland

Continuation-in-part of Ser. No. 616,951, Sep. 26, 1975, abandoned. This application Jul. 19, 1978, Ser. No. 926,149
Claims priority, application Switzerland, Oct. 11, 1974, 13691/74; Oct. 23, 1974, 14169/74; Sep. 23, 1977, 11880/77
Int. Cl.[3] A63B *23/06*
U.S. Cl. 272—69 22 Claims



1. Movable surface apparatus for physical exercise and training comprising:

an essentially rectangular support frame (2);

two rotatable end roller means (10; 25) having parallel axes of rotation supported on said frame (2), located adjacent the narrow sides of the frame, at least one of the end roller means having a toothed or ribbed circumference;

two endless toothed or ribbed connecting belt means (5, 5') looped about said toothed or ribbed end roller means (10, 25) and located laterally spaced adjacent the lateral sides, and in alignment with said rollers;

the end roller means having a diameter large with respect to the thickness of the toothed or ribbed connecting belt means,

the ribs on the connecting belt means being in engagement with the gaps between the ribs or teeth on the surfaces of the end roller means and, in the course of travel about the end roller means, being aligned and oriented perpendicularly to the axes of rotation of said end roller means;

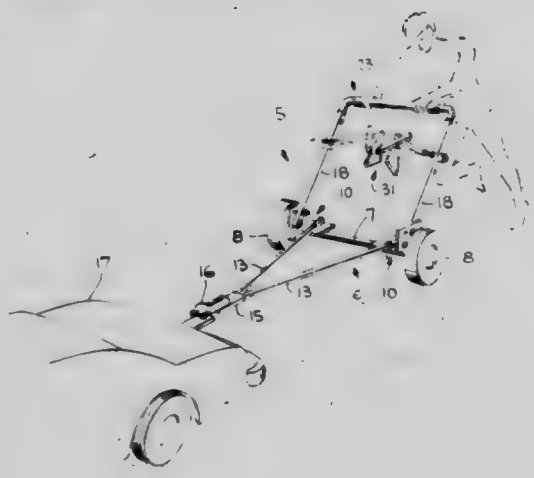
a plurality of closely adjacent transversely positioned step elements (4, 4', 114) secured to the toothed or ribbed connecting belt means, and forming with said connecting belt means an endless continuous movable, essentially

even surface assembly looped about said rotatable end roller means to form an upper run and a lower run;

a plurality of support rollers (**12**, **12'**) located beneath the upper run with their axes of rotation parallel to each other and to the axes of rotation of the toothed or ribbed end roller means (**10**, **25**), said plurality of support rollers being located in at least two lines adjacent the lateral sides of the frame and secured thereto, the axes of rotation of said support rollers being independent of the axes of rotation of the toothed or ribbed end roller means, said support rollers having a diameter which is small with respect to that of the toothed or ribbed end roller means, and at least one lateral end face of at least some of the support rollers in each line being formed with a radially projecting flange (**112**);

and at least two resilient, endless belts (**13**) looped about the terminal support rollers (**12***a*) of said lines of the plurality of support rollers (**12**, **12'**, **12***a*) and located between said rollers and the underside (**14**) of the upper run of said support surface to support the step elements throughout their travel lengthwise of the frame, and hence of the apparatus, upon rotation of at least one of said end roller means and provide a yielding, resilient, independently movable cushion support between the step elements and the support rollers.

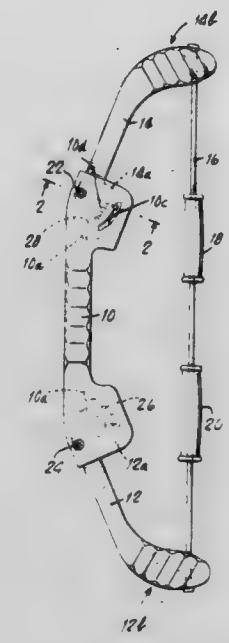
4,334,677
TRACK TRAINER
Robert Tata, 4536 Gleneagle Dr., Virginia Beach, Va. 23462
Filed Sep. 19, 1980, Ser. No. 188,729
Int. Cl.³ A63B *69/00*
U.S. Cl. 272—100 **12 Claims**



1. A track training device comprising a trailer unit including an axle, wheels, a frame having transversely remote mounting brackets and a tow hitch; and a support unit carried by said frame, said support unit including a pair of upwardly and rearwardly extending arms and including means for adjusting the length of said arms, a transverse bar carried by said arms, means for securing said arms to said mounting brackets in different upwardly sloping positions whereby the height of said bar may be selectively varied, and grip means on said bar, said transverse bar and grip means being sized and constructed to permit grasping by the hands of a human being positioned behind said trailer unit.

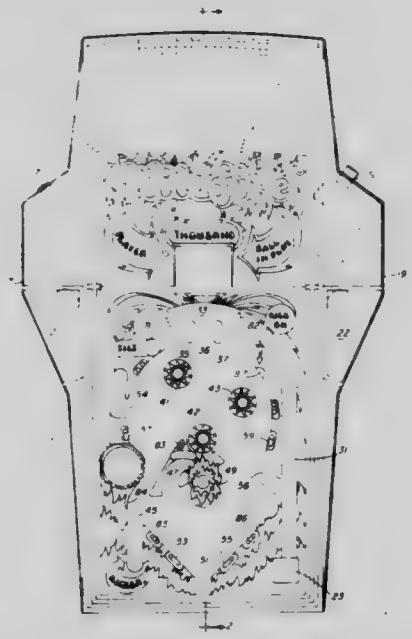
4,334,678
EXERCISER
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011
Continuation-in-part of Ser. No. 901,183, Apr. 28, 1978, abandoned. This application Mar. 12, 1979, Ser. No. 19,916
Int. Cl.³ A63B *21/00*
U.S. Cl. 272—141 **1 Claim**

1. An exerciser comprising a bow-like structure including a central bar having a left and a right end, a left arm having a free end and an end connected pivotally to the left end of the central bar, a right arm having a free end and an end connected pivotally to the right end of the central bar, a cord connecting the free ends of the arms to each other and resilient means connected to the arms to resist pivoting of the arms toward each other, the free ends of the arms being formed into hand-grasp means particularly adapted to be hand-grasped by a user, whereby in use of the exerciser the free ends of the arms may be moved toward each other against the force of the resilient



means by exerting force directly on the arms to move them toward each other and/or by exerting force directly on the cord and/or the central bar so as to similarly move the arms toward each other, in which the gauge comprises a cutout in one end of the central bar and one of the arms and a tab mounted on the other end of said central bar and one of the arms and extending through said cutout to move relative thereto upon pivoting of the last recited central bar and arm.

4,334,679
HAND-HELD PINBALL GAME
Holly T. Doyle; Robert O. Doyle, both of 77 Huron Ave., Cambridge, Mass. 02138, and Wendl Thomis, 383 Old Beaver Brook Rd., Acton, Mass. 01718
Filed Jan. 24, 1980, Ser. No. 114,882
Int. Cl.³ A63F *9/00*
U.S. Cl. 273—1 E **5 Claims**



1. A handheld pinball simulation game comprising:
a faceplate carrying indicia corresponding to a pinball machine and having a plurality of discrete features;
behind said faceplate an array of discrete light sources dis-

posed along and at intersections of predetermined ball paths connecting said features;

on each side of said faceplate, manually operable control pushbuttons, said indicia including at least a pair of flipper features which associate respectively with said pushbuttons, said array including light sources at each of said flipper locations;

a play-initiating pushbutton;

a loudspeaker;

electronic digital circuit means interconnecting said pushbuttons, said light sources and said loudspeaker, said electronic digital circuit means including a processor, writable memory, and read only memory;

wherein said read only memory contains fixed data representing the relative locations of the elements of said array and an algorithm which is started by operation of said play-initiating pushbutton for simulating ball movement from feature to feature by lighting said sources in sequence, the initial velocity of the simulated ball being variable as a function of the length of time said play-initiating pushbutton is operated, said algorithm including also a repertory of said programs for energizing said speaker to generate sounds appropriately characterizing the arrival of the simulated ball at each feature.

4,334,680

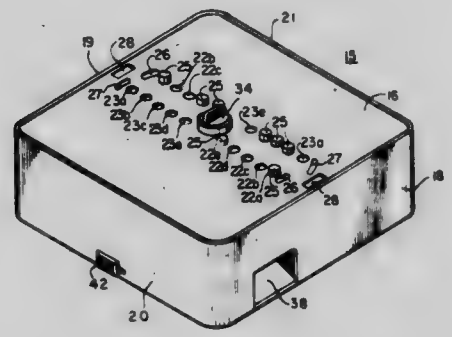
GAME APPARATUS

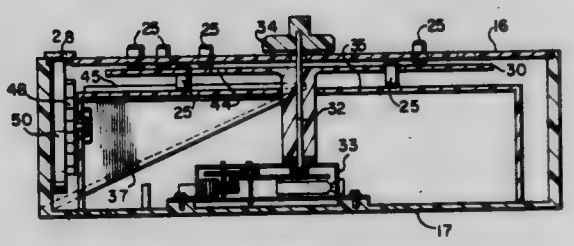
Thomas K. Liversidge, Crescent Surf, Kennebunk, Me. 04043

Filed Sep. 2, 1980, Ser. No. 182,998

Int. Cl.[3] **A63F** *3/00, 9/00*

U.S. Cl. 273—1 GE **7 Claims**





1. Game apparatus comprising

a housing having a top wall provided with openings for insertion of game pieces,

said game pieces comprising pins of predetermined length,

a rotatable disc below said top wall having indicia for indicating the insertion of pins in said openings and normally providing a support for inserted pins,

means for continuously rotating said disc in a predetermined direction, and

a fixedly mounted supporting wall for said pins beneath said rotatable disc for movement of said pins therealong,

said disc having a plurality of openings for permitting downward movement of said pins for support by said supporting wall and movement therealong,

said game pieces being of a length when in engagement with said supporting wall being beneath said top wall for movement by said openings in said disc.

4,334,681

GAME APPARATUS FOR USE WITH A PADDLE AND A BALL

Carl E. Scheie, Libertyville, Ill., assignor to Brunswick Corporation, Skokie, Ill.

Filed Nov. 26, 1979, Ser. No. 97,736

Int. Cl.[3] **A63B** *67/04, 71/04*

U.S. Cl. 273—30 **13 Claims**



1. A game apparatus for use with a paddle and a ball, comprising:

a first planar member having a generally vertical substantially flat playing surface lying substantially perpendicular to a floor upon which two players stand;

a second planar member having a playing surface intersecting along one edge with said first planar member, said playing surface of said second planar member being above said first planar member and being disposed at an angle within the range of 115° and 135° with the playing surface of said first planar member; and

a third planar member having a playing surface intersecting along one edge with said first planar member, said playing surface of said third planar member being below said first planar member and being disposed at an angle within the range of 95° and 105° with the playing surface of said first planar member; and

means for supporting said apparatus in spaced relation from the floor with the lower edge of the first planar member being at normal table height and with the forward edge of said third planar member being freely suspended above the floor; said support means being such as to allow the players to stand on the floor immediately in front of the forward edge of said third planar member;

said playing surfaces of said second and third planar members being of substantially the same vertical dimension and being wider than they are high; said three playing surfaces constituting the only playing surfaces of the apparatus; the angle between the playing surfaces of said second and first planar members being such as to rebound a ball served with a paddle into contact with said playing surface of said second planar member generally downward into contact with the playing surface of said third planar member; and said angle between the playing surfaces of the first and third planar members being such as to rebound said ball in the general direction of the two players.

4,334,682

SIMULATED BALL SPORT AMUSEMENT INSTRUMENT

Young S. Ham, Dong II Apartment, Room No. 516, 234-84, Sung In 2-dong, Jongro-ku, Seoul, Rep. of Korea

Filed Aug. 14, 1979, Ser. No. 66,311

Int. Cl.[3] **A63F** *7/07, 7/20*

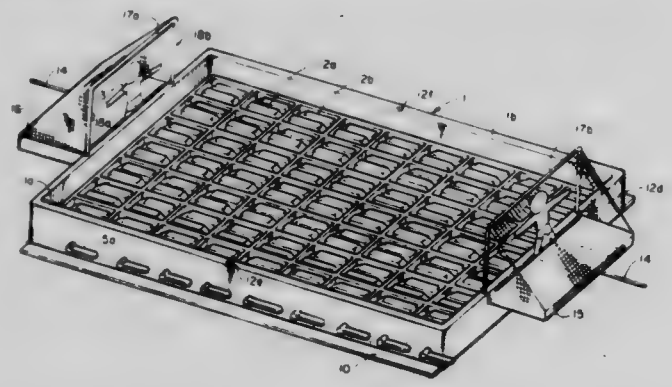
U.S. Cl. 273—85 E **6 Claims**

1. A ball sport amusement instrument for optionally playing one of several different games comprising:

a rectangular frame having vertical side walls interconnecting vertical end walls; each of said side walls having a longitudinally-extending series of openings formed therein, the openings in one of the series being in alignment with the openings in the other of the series to form pairs of aligned openings;

a plurality of hitting units, each unit having a hitting surface disposed in the interior of said frame and hinge bars formed at outer ends thereof extending through respective pairs of said openings;

handle levers connected to said outer ends of said hinge bars, the hitting surfaces being movable from rest positions into hitting positions by rotation of the handle levers, said hitting surfaces defining a playing surface extending between said side and said end walls such that a ball lying anywhere on the playing surface can be hit by at least one hitting surface;



means carried by said end walls for receiving poles of goal gates for football and basketball;

means carried by said side walls for receiving poles of a net for volleyball;

a grille disposed in the interior of said frame and having an upper horizontal surface substantially planer with the rest positions of the hitting surfaces, the grille defining a plurality of openings in which the hitting surfaces are positioned; and

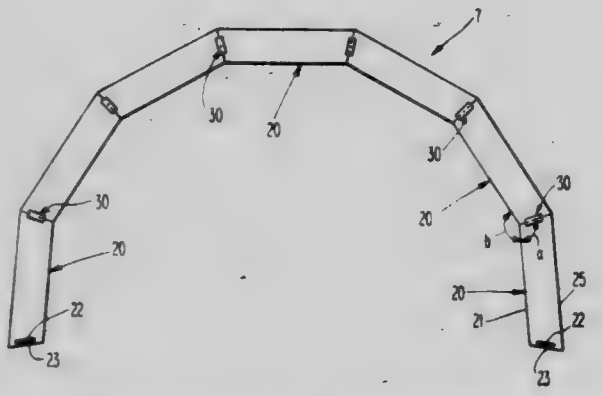
said hitting units having a plurality of separate hitting surfaces spaced from each other in the shape of teeth of a comb, the hitting surfaces of adjacent pairs of hitting units being interleaved with each other so that a ball can be simultaneously hit by a hitting surface of each of the adjacent pairs of hitting units.

4,334,683

DISC GAME APPARATUS

James B. Campbell, P.O. Box 6, Malvern, Pa. 19355

Filed Jul. 30, 1980, Ser. No. 173,480
Int. Cl.[3] A63F *3/00*
U.S. Cl. 273—126 R 5 Claims



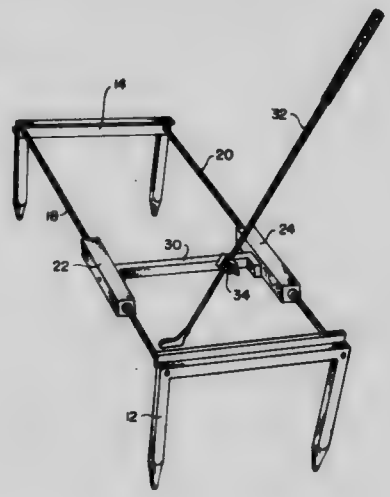
1. In game apparatus having an open-ended stadium structure generally semicircular in plan for mounting on a flat playing surface and a plurality of pucks for propelling along such a flat playing surface into the open end of the stadium structure, the improvement comprising a modular stadium structure assembled from a plurality of structural pieces disengageably secured end-to-end, each such structural piece having a generally vertical front face intersecting the flat playing surface and facing inward of the assembled stadium, the exterior angle so formed between adjacent front faces being less than a straight angle by less than thirty degrees but more than half that much, the assembled stadium structure circumscribing an arc less than a half circle by at most about twenty-five degrees.

4,334,684

GOLF PUTTING TRAINING DEVICE

Robert H. Sterling, 121 S. Bentley Ave., Los Angeles, Calif. 90049

Filed May 8, 1981, Ser. No. 262,025
Int. Cl.[3] A63B *69/36*
U.S. Cl. 273—192 4 Claims



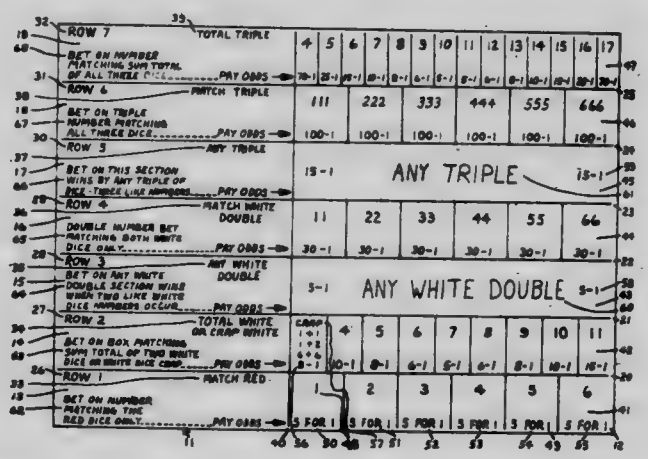
1. A putting training device comprising: first and second end brackets for supporting the device on a putting surface; first and second side bars extending in spaced and parallel relationship from one of the end brackets to the other and displaced upwardly by the end brackets from the putting surface; first and second bushings respectively mounted on the side bars and slidable in either direction along the side bars; a transverse arm pivotally coupled at its ends to the bushings and extending between the bushings perpendicular to the axes of the side bars; and a mounting bracket attached to said transverse arm for clamping the shaft of a putter to the transverse arm with the blade of the putter adjacent to the putting surface.

4,334,685

THREE DICE WAGERING GAME

Anthony Robbins, 1801 S. Dixie Hwy., Lot 207, Pompano Beach, Fla. 33060; Omero C. Catan, and Jeanne Catan, both of 1901 S.W. 87 Terr., Fort Lauderdale, Fla. 33324

Filed Nov. 20, 1980, Ser. No. 155,101
Int. Cl.[3] A63F *9/04*
U.S. Cl. 273—274 2 Claims



1. In a new table game of chance device:

game having a table surface comprised of fourteen rectangular areas or spaces with said spaces being arrayed into two groups of seven spaces each with one of the two being adjacent to the other group directed from the top to the bottom of the playing surface and, further, a black line running in a vertical direction, directed from the top of the playing surface to te bottom thereof, demarcates the one group of spaces from the second group;

each space of the group of seven spaces on the left side is co-related to its counterpart space of the group of seven spaces at its right side, the area or space at the left having indicia thereon explanatory in nature as to the type of bet available or offered when a bet is placed on its counterpart space which is the actual betting area at its right, and

further, the spaces at the left having, among other things, indicia thereon specifically identifying and attaching itself as being indigenous to the space at the right by the title ROW, ergo, Rows 1 thru 7 are comprised of all of the fourteen areas of the playing surface, however, while the left areas of Rows 1 thru 7 are essentially identical in format the right side or betting areas of Rows 1 thru 7 are not all alike in format since Rows 1, 2, 4, 6 and 7 are comprised of a plurality of betting stalls divided into two components each, the upper component representing the 'number' bet and the lower component stating the odds offered and the betting areas of Rows 3 and 5 respectively having the center spaces therein emblazoned with the type of bet and, at either side thereof, the odds offered, and

three dice, each of said dice having six surfaces with indicia thereon identifying the faces with a different one of the numbers one to six, two of said dice being white in color and the third dice being red in color, and in each game which consists only of one throw of all three dice simultaneously, the total of all three dice's numbers facing skywards is represented by Row 7, and, further, if the numbers on the three dice are alike Row 5 and Row 6 are also represented, further, and still pertaining to the same throw and game, the two white dice are represented in tandem or collectively in Rows 2, 3, and 4 respectively, still further, the red dice is represented in Row 1, again, in the same throw and game.

4,334,686

APPARATUS FOR PLAYING A GAME OF CHANCE

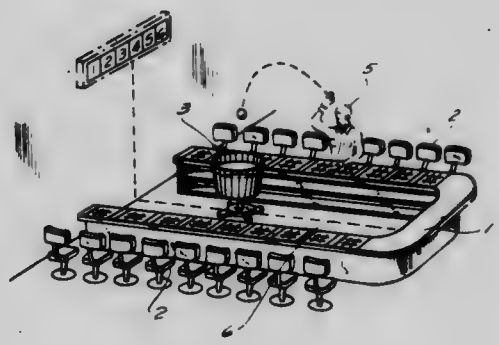
Attilo Pennachio, 14 Amber Cir., Las Vegas, Nev. 89106

Continuation-in-part of Ser. No. 947,630, Oct. 2, 1978, Pat. No. 4,232,866. This application Nov. 10, 1980, Ser. No. 205,097

The portion of the term of this patent subsequent to Nov. 11, 1997, has been disclaimed.

Int. Cl.³ A63B *63/02*; A63F *5/02*; F41J *5/04*

U.S. Cl. 273—374 **10 Claims**



1. A gambling apparatus comprising a generally U-shaped table member having a pair of spaced apart substantially parallel table sections and a plurality of seats disposed along the outside portions of said sections for accommodating numerous participators; receptacle means disposed between said table sections, said receptacle means including a basket and a generally circular base member, said base member having formed therein seven or more equally spaced circular recesses, the centers of said recesses defining a circle concentric with the periphery of the base member, said base member further including a central closed mound encircled by said recesses, each of the recesses being associated with a number from 1 to a number corresponding to the total number of recesses, each of said numbers being indicated on the outside of the receptacle adjacent its associated recess, each of said numbers being further indicated on said mound portion adjacent its respective associated recess; a ball which may be directed by one of said participators to said receptacle for randomly falling into one of said recesses; means for leveling said base member to ensure the completely random entry of said ball into one of said recesses; visual display means for displaying each and all of said numbers corresponding to said recesses; electrical control means associated with each recess for communicating the presence of the ball in such recess to said display means for displaying the number corresponding to the respective ball containing recess; and a plurality of individual betting layouts disposed on said table sections, each of said layouts including a plurality of separate betting zones each of which denotes a manner of winning and the payoff for the respective manner of winning, said betting zones including zones for each number and various groups or combinations of numbers.

4,334,687

SHAFT SEAL WITH MULTI-SLITTED SLEEVE

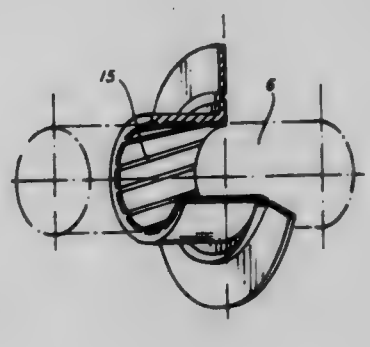
Helmut Hölzer, and Ernst M. von Arndt, both of Weinheim, Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim an der Bergstrasse, Fed. Rep. of Germany

Filed Nov. 20, 1980, Ser. No. 208,774

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 2949839

Int. Cl.³ F16J *15/24, 15/32*

U.S. Cl. 277—151 **17 Claims**



1. A shaft seal for preventing leakage around a rotating shaft, which comprises:

a contact pressure ring of elastic material, and

a multi-slitted, thin sleeve of polytetrafluoroethylene permanently joined to the inner wall of the ring,

The slits forming an angle with the axis of shaft rotation of from about 5° to about 45° and extending radially through the complete sleeve and axially from one end of the sleeve to the other, and

the inside diameter of the sleeve being smaller than the diameter of the shaft so that when the seal is assembled onto the shaft, the slits open to form channels through

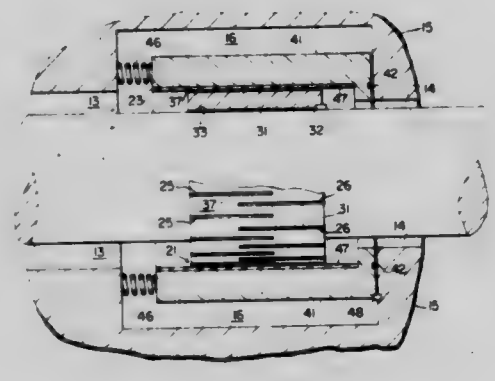
which the elastic material of the ring expands to contact the shaft.

4,334,688

FLUID LUBRICATED FLOATING BUSHING SEAL

John D. Spargo, and Kenneth R. Sasdelli, both of Annapolis, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 8, 1980, Ser. No. 147,795
Int. Cl.[3] F16J *15/16*
U.S. Cl. 277—175 16 Claims



1. A shaft seal assembly positioned between a rotating shaft and a housing therefore comprising:

a cylindrical rotor portion affixed to a shaft having an axis of rotation;

a floating bushing element radially enclosing said rotor wherein adjacent bearing surfaces on said rotor and said bushing define a fluid lubricated interface therebetween, one of said bearing surfaces consists of a plurality of first and second grooves extending substantially parallel with said shaft axis and arranged in an axially overlapping and offset relationship with each other, wherein a first groove extends between two adjacent second grooves, and the other of said bearing surfaces being a compliant surface cooperating with said first and second grooves to promote flow of fluid from said first grooves to said second grooves; and

means for maintaining a fluid seal between said bushing and a housing while accomodating radial displacements of said bushing relative to the housing.

4,334,689

Patent Not Issued For This Number

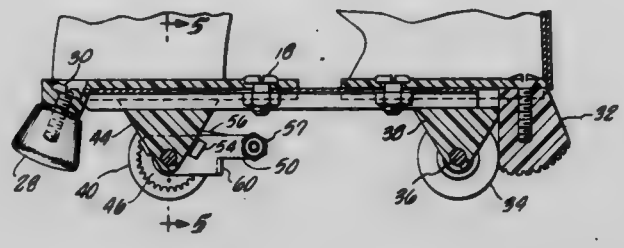
4,334,690

TRAINER/LEARNER SKATE

Reuben B. Klamer, Los Angeles, and Robert J. Mortonson, Seal Beach, both of Calif., assignors to Trend Products Group, Los Angeles, Calif.

Filed Nov. 5, 1979, Ser. No. 90,890
Int. Cl.[3] A63C *17/14*
U.S. Cl. 280—11.21 4 Claims

1. A skate comprising in combination a base plate comprising a front plate and a rear plate attached to, and adjustable on, central rail means; a pair of wheels rotatably attached to said front plate and a second pair of wheels rotatably attached to said rear plate; a ratchet gear fixedly attached to the interior of at least one of said front wheels, said ratchet gear having a plurality of teeth, said front wheels being journaled to said front plate by means of a mounting pedestal which is attached to said front plate and depends downwardly therefrom, through which said front wheels are journaled; a pawl, for



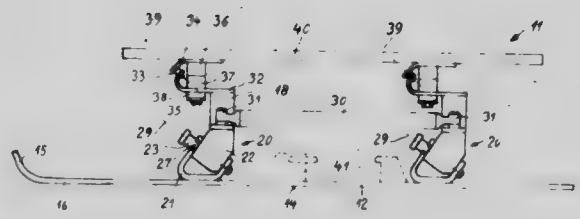
engaging said ratchet to prevent rotation of said front wheels in a rearward direction, attached to said mounting pedestal by means of an operation bracket which is securely fastened to said mounting pedestal by nut and bolt means; said pawl having a plurality of teeth; said operation bracket having a stop tab extending therefrom to restrict the rotation of said pawl thereby restricting the rotation of said front wheels; and means for quickly attaching the shoe or bare foot of a skater to said base plate.

4,334,691

SLEDGE WITH TILTABLE RUNNERS

Rudi Scheib, Panoramastrasse 13, D-7900 Ulm, Donau, Fed. Rep. of Germany

Filed May 9, 1979, Ser. No. 37,252
Claims priority, application Fed. Rep. of Germany, May 12, 1978, 2820803; Nov. 11, 1978, 2848959; Feb. 21, 1979, 2906628
Int. Cl.[3] B62B *13/12*
U.S. Cl. 280—21 A 30 Claims



1. A sledge, comprising:

at least two runners defining a longitudinal axis of the sledge;

at least two connecting members having joints at each end for interconnecting the runners; and,

at least one of the joints on each runner having means defining a tilt axis inclined in a generally vertical plane, each tilt

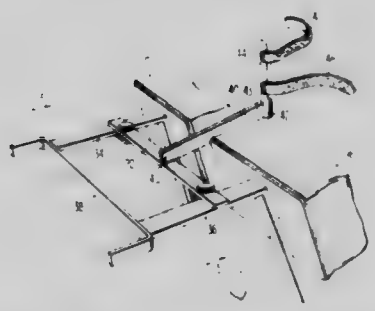
axis providing compound rotational components, whereby upon relative rotational movement of the runners and at least one of the connecting members about effective vertical axes, during which the tilt axis means of the respective runners necessarily move in opposite longitudinal directions together with the runners relative to one another, the runners simultaneously tilt about effective horizontal axes.

4,334,692

DETACHABLE UMBRELLA SUPPORT ASSEMBLY FOR A GOLF CART

Marvin P. Lynch, 11 Brice Rd., Pendennis Mount, Annapolis, Md. 21401

Filed Oct. 18, 1979, Ser. No. 86,101
Int. Cl.³ B60R *11/00*
U.S. Cl. 280—79.1 A **7 Claims**



1. An umbrella support assembly for attachment to a golf cart of the type having side-by-side seats and respective seat back support members, said assembly comprising:

first elongated horizontal support means adapted to be attached at opposite ends thereof to the seat back support members;

second elongated horizontal support means secured at one end thereof substantially perpendicularly to said first support means at a point intermediate said opposite ends thereof, and having a free end for projecting forwardly between the seats of the golf cart; and

bracket means secured to said free end of said second support means for detachably mounting an umbrella in a substantially vertical position such that the umbrella's canopy will cover the heads of occupants of the golf cart seats.

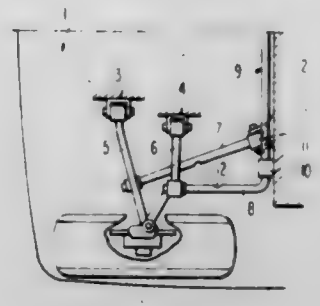
4,334,693

INDEPENDENT FRONT WHEEL SUSPENSION FOR MOTOR VEHICLES

Guntram Huber, Aidlingen, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 82,936
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1978, 2845345
Int. Cl.³ B60G *3/00*
U.S. Cl. 280—95 R **6 Claims**

1. An independent wheel suspension for a motor vehicle, characterized in that the independent front wheel suspension comprises at least two cross guide arms connected to a vehicle support member and to a wheel carrier, a guide element extending in a vehicle longitudinal direction is connected to each cross guide arm and at the vehicle end wall, one end of each of the guide elements is respectively connected to the cross guide arm at a position intermediate the vehicle support member and the wheel carrier, the second end of each of the guide elements is pivotally connected within an area of the vehicle end wall, each of the longitudinal guide elements includes means for enabling the guide element to deform under compression with a predetermined deformation characteristic, and in that one of



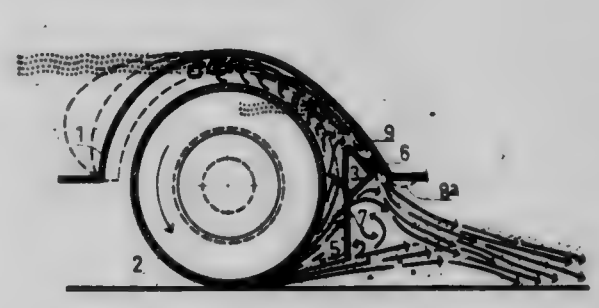
the guide elements is an arm of a U-shaped stabilizer pivotally connected to the vehicle end wall.

4,334,694

SPLASH PROTECTION ASSEMBLY FOR VEHICLES EQUIPPED WITH MUDGUARDS

Andrzej T. Iwanicki, Östrandsvägen 72, S-122 43 Enskede, Sweden

PCT No. PCT/SE78/00016, § 371 Date Mar. 12, 1979, § 102(e) Date Mar. 12, 1979, PCT Pub. No. WO79/00039, PCT Pub. Date Feb. 8, 1979
PCT Filed Jul. 11, 1978, Ser. No. 23,192
Claims priority, application Sweden, Jul. 11, 1977, 7778063
Int. Cl.³ B62D *25/18*
U.S. Cl. 280—154.5 R **15 Claims**



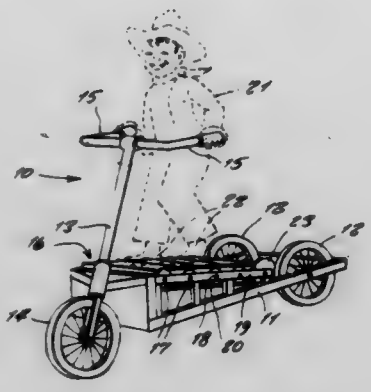
1. A splash protection assembly for vehicles with mudguards, comprising means arranged between the wheel of the vehicle and the mudguard for lessening the spread of dust and splash as a result of the vehicle travel, said means including at least one guide member extending between said wheel and said mudguard substantially across the entire width of the mudguard and in the airstream occurring as a result of the rotation of the wheel and being provided with one guide surface to form at least a part of a channel for an airstream along the inside of the mudguard, wherein said guide member comprises a guide body with three guide surfaces, one of which is arranged to form said part of the channel, a second forming the lower side of the guide body and adapted to redirect a part of the airstream occurring as a result of the rotation of the wheel and the thus formed splash, and a third guide surface forming an edge of incidence together with the second guide surface, said edge of incidence being directed towards the airstream occurring as a result of the rotation of the wheel and the thus formed splash and splitting this airstream into two partial airstreams, one of which is guided by the second guide surface, and wherein the third guide surface together with the first guide surface form the upper side of the guide body and are adapted to redirect the second partial airstream so that the two partial airstreams enter the channel with directions which are substantially in parallel with one another and with the airstream in the channel.

4,334,695

WALKING BUGGY

Walter Ashby, 1049 Whitehurst Landing Rd., Virginia Beach, Va. 23462

Filed Mar. 10, 1980, Ser. No. 129,093
Int. Cl.[3] B62M *1/00*
U.S. Cl. 280—228 1 Claim



1. A walking buggy vehicle, comprising, in combination, a main frame, supported at its rear upon a pair of rear wheels, and supported, at its front, on a steering post of a front wheel, a treadmill upon said main frame including an endless belt, for a rider to walk thereupon, and a transmission, between said treadmill and an axle on which said rear wheels are affixed; said treadmill being upwardly inclined in a forwardly direction; and means to adjust said upwardly incline, said treadmill additionally including a pair of side rails, between which a plurality of rollers are supported rotatably free, said endless belt extending around all said rollers, and said adjustment means comprises the rear ends of said side rails being pivoted on a transverse pin, supported in brackets mounted on said main frame, while the forward ends of said side rails are integral with a transverse bar supported upon a screw extending downward through said main frame, and vertically adjustably secured thereto at selected height by nuts adjacent a lower and upper side of said main frame being engaged on said screw.

4,334,696

REAR WHEEL MOUNTING FOR MOTOR VEHICLES WITH A RIGID REAR AXLE

Carl-Ingvar A. Bergström, Västra Frölunda, Sweden, assignor to AB Volvo, Gothenburg, Sweden

Filed Jun. 4, 1980, Ser. No. 156,391
Int. Cl.[3] B60G *11/14*
U.S. Cl. 280—725 9 Claims

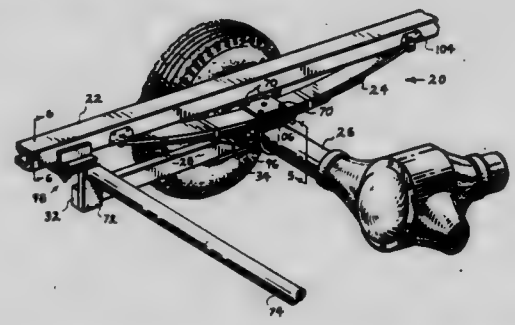
1. In a rear wheel mounting for motor vehicles with a rigid rear axle, comprising a pair of longitudinal, spaced support arms which are joined to the axle and are journalled for pivoting relative to the vehicle body, spring and shock absorbing means acting between the respective support arms and the body, and a pair of torque stays acting between the axle and the body and which are arranged to contribute to the transmission of driving and braking torque to the body; the improvement in which the torque stays form a cooperating pair and are articulated to frame means flexibly joined to the body, the frame means having a forward point of attachment to the body, said point being situated in front of the articulation of the support arms in the body, and a rear point of attachment to the body, said point lying approximately above the rear axle.

4,334,697

TORSION BAR SUSPENSION ASSEMBLY

Vernon D. Deweese, Rte. 8, Box 664, Joplin, Mo. 64801

Filed Mar. 31, 1980, Ser. No. 135,365
Int. Cl.[3] B60G *21/04*
U.S. Cl. 280—689 8 Claims



1. In a vehicle having a pair of laterally spaced-apart wheels, an axle housing interconnecting said wheels, a vehicle frame, a pair of spring means connected to said frame and contiguous to said axle housing at the lateral ends thereof, a vehicle suspension assembly comprising:

first and second laterally spaced-apart arms with each arm having front and rear ends, said arms being vertically disposed below said frame;

a torsion bar transversely extending between said arms and joined thereto at said rear ends thereof;

means for linking said rear end of each arm to said vehicle frame to provide a transverse extension of said joined torsion bar below said vehicle frame;

a bracket responsive to movement of said associated spring means and axle housing for connecting said front end of each arm to the corresponding juncture presented by said connection of said spring means and said axle housing;

means in each bracket for sandwiching a portion thereof between said contiguous axle housing and said spring means and including:

a generally horizontal plate interposed between said adjacent spring means and said axle housing, said interposed plate member being configured to minimize the vertical displacement of said initially contiguous spring means and axle housing;

a generally vertical bolt passing through each of said spring means near the longitudinal center thereof;

a recess in said plate for receiving an end of said bolt, said recess being configured to receive a bolt end in a swivel type registration about its longitudinal axis in response to lateral forces acting on said associated spring means,

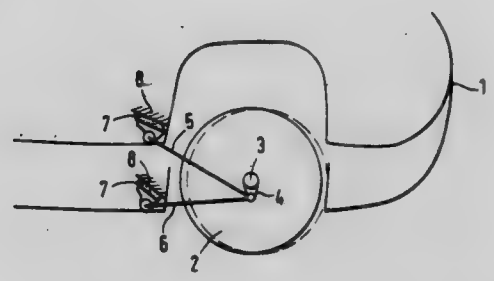
said interposed horizontal plate responsive to vertical displacement of said juncture of said adjacent spring means and said axle housing and cooperating with said associated swivel bolt whereby to transfer a vertical displacement of said juncture to said arms while inhibiting transference of lateral displacement of said spring means to the same.

4,334,698

REAR AXLE SUSPENSION FOR AUTOMOTIVE VEHICLES

Gebhard Ruf, Weissach, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Apr. 7, 1980, Ser. No. 138,093
Claims priority, application Fed. Rep. of Germany, Apr. 5, 1979, 2913651
Int. Cl.[3] B60G *3/00*
U.S. Cl. 280—690 16 Claims



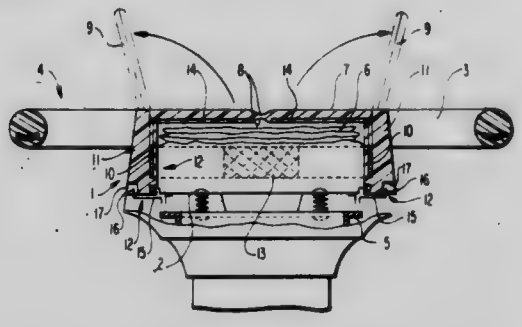
1. Rear axle suspension for automotive vehicles with a driven rear axle guided on longitudinal control arms with elastic joints, characterized in that the elastic joints are arranged relative to said axles and control arms and are constructed in a manner creating a means for causing said suspension to be less resilient in a vehicle longitudinal direction when a vehicle body portion to which said joints are mounted is deflected downwardly relative to a neutral position and for causing said suspension to be more resilient in said vehicle longitudinal direction when the body portion is in an upwardly deflected position relative to said neutral position.

4,334,699

CAP-LIKE COVER FOR AN AIR BAG INSTALLATION

Helmut Patzelt, Fellbach; Albert Seybold, Wendlingen, and Volker Budde, Grosskarlbach, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Feb. 14, 1980, Ser. No. 121,457
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905618
Int. Cl.[3] B60R *21/08*
U.S. Cl. 280—731 7 Claims



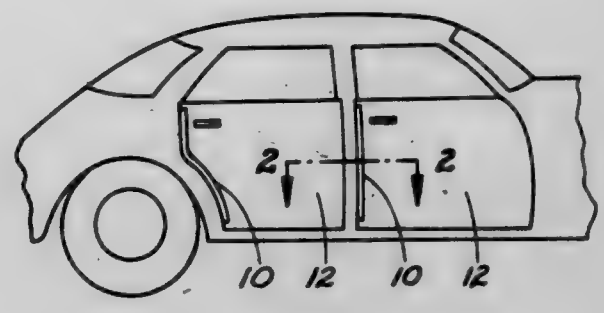
1. A cap-like cover member for covering an air bag installation disposed inside a steering wheel of a motor vehicle, the cover member being made of an elastic material and being adapted to rip open along predetermined tearing lines so as to open along hinges when an air bag of the air bag installation is deployed, characterized in that the cover member includes downwardly bent edges adapted to be clipped on a baseplate mounted at the steering wheel, and in that retainer means are provided on the cover member for preventing the cover member from being subjected to deformation phenomena when the air bag is deployed, the retainer means includes a continuous band of highly tear-resistant material embedded in the elastic material of the cover member in a vicinity of the bent edge of the cover member.

4,334,700

DOOR EDGE GUARD

Robert Adell, Novi, Mich., assignor to U.S. Product Development Co., Novi, Mich.

Filed Feb. 4, 1980, Ser. No. 118,475
Int. Cl.[3] B60J *5/00*
U.S. Cl. 280—770 2 Claims



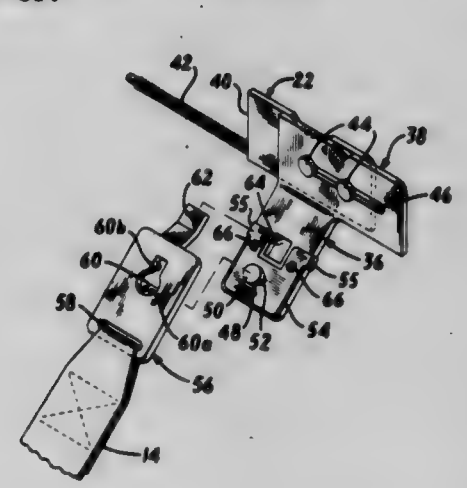
1. For installation of the marginal edge of a sheet metal closure of a vehicle body, such as a door, a self-retaining ornamental and protective edge guard comprising a metallic strip of generally U-shaped cross section having inner and outer legs which are adapted to be disposed on opposite sides of and exert a retention force on said marginal edge and including the improvement which comprises a strip of non-metallic insulating material and of generally U-shaped cross section disposed on the free edge of one of said legs of said metallic edge guard strip along at least a portion of the length thereof and providing an insulating layer separating said portion from contact with said closure when said metallic edge guard strip is applied to said closure wherein said free edge of said one leg includes an integral turned bead adapted to bear against the corresponding side of said marginal edge when said metallic edge guard strip is applied to said closure, said non-metallic strip is disposed over said bead and includes an integral interlocking portion which interlocks behind the far end edge of the bead to secure the non-metallic strip to said one leg.

4,334,701

COUPLING FOR A VEHICLE SEAT BELT

Juichiro Takada, 3-12-1, Shinmachi Setagayaku, Tokyo, Japan (105)

Filed Apr. 7, 1980, Ser. No. 137,735
Claims priority, application Japan, Apr. 11, 1979, 54-046846[U]; Aug. 27, 1979, 54-116788[U]
Int. Cl.[3] A62B *35/02*
U.S. Cl. 280—804 7 Claims



1. In a passive vehicle occupant restraint belt system which includes a belt leading from a retractor located inboard of the seat to an anchor outboard of the seat, a coupling arrangement for connecting the belt to the anchor comprising a first plate member connected to the anchor, a second plate member connected to the belt, releasable coupling means for coupling the first and second plates and including a pin projecting from

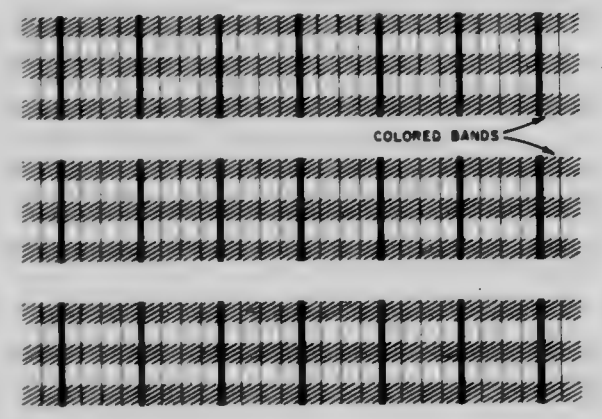
one of the plates and having a head portion and a shank portion that is smaller in at least one dimension than the head portion and a key-type hole in the other plate that includes a larger portion through which the head portion can pass and a smaller portion which accepts the shank portion but through which the head portion cannot pass, and retainer means for blocking the pin in the smaller portion of the hole and preventing manual release of the coupling means including a substantially flat spring member affixed substantially flatwise to one of the first and second plate members having a portion engageable with a portion of the other of the first and second plate members when the pin is accepted in the smaller portion of the hole.

4,334,702

SHORTHAND PAPER

Thomas E. Wilson, Jr., 927 2nd Ave. NW., Great Falls, Mont. 59404

Continuation of Ser. No. 843,040, Oct. 17, 1977, abandoned. This application Apr. 17, 1979, Ser. No. 34,013
Int. Cl.³ G09B *11/04*
U.S. Cl. 283—45 **1 Claim**



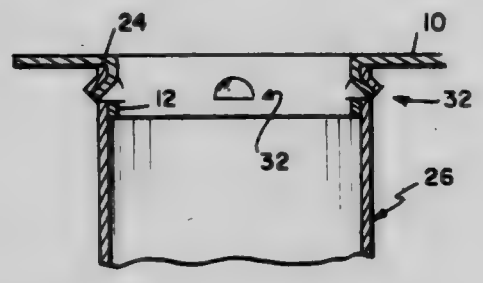
1. A writing page having a plurality of writing lines thereon, each line comprising a plurality of segments having a plurality of horizontal bands with a plurality of vertical lines superimposed thereon to form a plurality of wiring squares, the segments being separated from each other by vertical lines of different character than the vertical lines contained within each segment, each writing line being vertically spaced from an adjacent writing line by a non-printed portion.

4,334,703

TUBE-TO-PLATE CONNECTION

James C. Arthur, and Graham F. Thieman, both of Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind.

Filed Aug. 9, 1979, Ser. No. 65,131
Int. Cl.³ F16L *13/14, 41/08*
U.S. Cl. 285—222 **15 Claims**



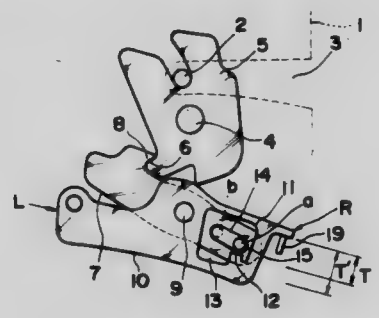
1. A mechanical connection, comprising a plate having a tubular flange extending therefrom, said flange having a radially inner surface and a radially outer surface, a tubular member extending alongside said flange, and means for mechanically joining said plate and said tubular member including at least two staked segments in generally the same plane about the axes of said tubular member and said flange, each staked segment comprising a circumferentially extending strip of the tubular member side wall and a registering strip of the flange wall, with at most one of the axially facing side edges of the strip of each of the tubular member wall and flange wall being sheared and the sheared axially facing side edge of one of the tubular member and flange walls protruding at least substantially to the region of the wall of the other of the tubular member and flange surrounding the strip, whereby rotational and longitudinal movement of the tubular member with respect to the flange is prevented.

4,334,704

AUTOMOBILE DOOR LOCKING MECHANISM

Shinjiro Yamada, Tokyo, Japan, assignor to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 31, 1980, Ser. No. 135,902
Int. Cl.³ E05C *3/26*
U.S. Cl. 292—216 **5 Claims**



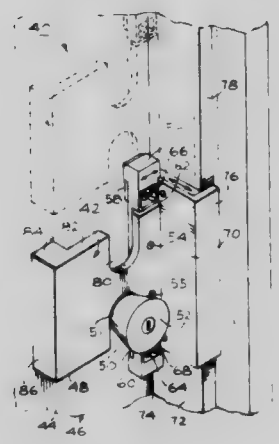
1. An automobile door locking mechanism comprising a latch rotatable with the engagement with a striker, a ratchet for preventing the rotation of the latch in the direction for releasing its engagement with the striker, an actuator plate for releasing the engagement of rachet with latch, connecting means for effecting and releasing the engagement of the actuator plate with the rachet, and a rotary lever operable to actuate the actuator plate with the operation of an interior door handle, in which to a shaft which pivotally fixes the rotary lever, another lever is pivotally fitted, either one of said levers being formed with a slot opening which extends radially to the shaft and the other being formed with a slot opening having an idle opening which extends about the shaft, and connector means having a part which passes through the slot openings at a right angle to the rotary plane of the levers, said connector means being connected to a child lock change lever so as to slidingly change its location within the slot openings and said another lever being connected to the interior door handle.

4,334,705

DOOR LOCK

Joel D. Rumph, 8875 Armaria Ct., Elk Grove, Calif. 95624

Filed Mar. 6, 1979, Ser. No. 18,064
Int. Cl.³ E05C *19/18*
U.S. Cl. 292—288 **7 Claims**



1. An improved door lock for outwardly opening doors, said lock comprising, in combination:

a. doorknob-engaging means adapted to releasably grip a doorknob; and,
b. retaining means secured to said doorknob-engaging means and adapted to releasably grip the edge of a doorframe adjacent a doorknob gripped by said doorknob-engaging means, so as to prevent a door to which said doorknob is secured from being outwardly opened, said retaining means comprising a plate having one side thereof adapted to overlie a doorjamb, said plate including a front lip adapted to overlie and grip the leading edge of a doorjamb, said doorknob-engaging means extending out from the side of said plate opposite that adapted to overlie a doorjamb, said doorknob-engaging means comprising a wall about perpendicular to said retaining means, said wall including an inverted generally U-shaped doorknob-gripping opening adjacent the lower end thereof, said lock being adapted to be slid down into doorknob-locking position and up out of doorknob engagement.

4,334,706

GUARD MOLDING FOR OUTER SURFACES OF A CAR

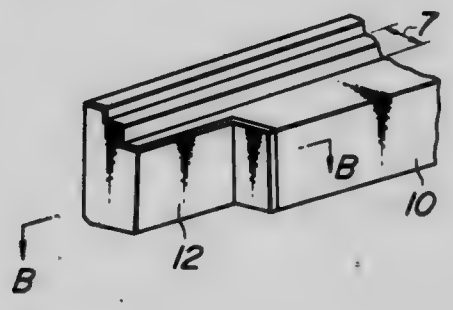
Shojiro Seki, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed May 27, 1980, Ser. No. 153,525

Claims priority, application Japan, May 28, 1979, 54/71988[U]

Int. Cl.³ B60R *13/04*

U.S. Cl. 293—126 **10 Claims**



1. A guard molding adhered along an outer surface of a vehicle, comprising:
(a) a single piece outer shell in direct attachment to the outer surface;
(b) an end portion of said outer shell stepped to form a recess; and
(c) an end cap of constant thickness, said end cap conforming with and being adhered on the end portion and the outer surface of the stepped recess of the guard molding.

4,334,707

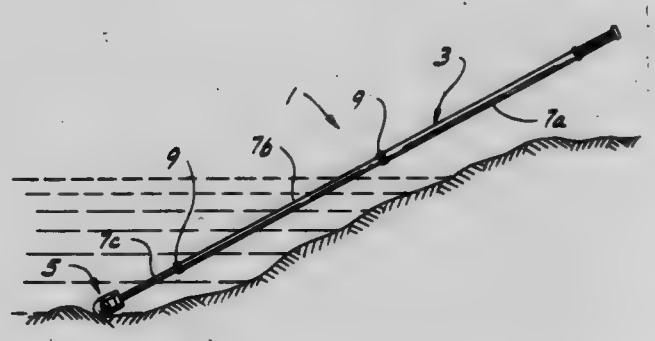
GOLF BALL RETRIEVER

Chester S. Phillips, 19 Claire Ct., Florissant, Mo. 63031

Continuation of Ser. No. 9,862, Feb. 7, 1979, abandoned. This application Nov. 14, 1980, Ser. No. 206,834

Int. Cl.³ A63B *47/02*

U.S. Cl. 294—19 A **1 Claim**



1. A golf ball retriever comprising an elongate handle and a ball gripping and retention means on one end of the handle, said gripping and retention means including a base of a curable synthetic resin material being so sized as to have a width approximately the diameter of a golf ball, said base being of square shape when viewed from the end of the retriever, and four golf ball engaging loops of flexible, resilient, light gauge spring wire extending from the base in a direction generally parallel to the handle and being directly engageable with a golf ball to be retrieved, said loops each being a one-piece member having two spaced apart legs and an end portion connecting the outer ends of the legs, said legs and said end portion being substantially coplanar, said legs each having a respective foot at the other end thereof extending generally perpendicularly to the plane of said legs and said end portion, said feet being imbedded in said base thereby to rigidly cantilever mount said loop to said base, said loops being equally spaced around the base and being adapted to surround a golf ball to be picked up, said end portion of each of said loops being spaced from the base a distance somewhat greater than the radius of a golf ball but less than the diameter of a golf ball, said end portions of said loops on opposite sides of the base being spaced apart a distance somewhat less than the diameter of a golf ball and said loops being movable independently of one another upon said loops engaging said golf ball so that upon the end portions of said loops engaging a golf ball and upon the loops being pushed onto the golf ball, said loops being resiliently and readily forced apart by the golf ball and by the relatively low application of axial force to said handle and, upon the golf ball moving toward the base a distance greater than the radius of the golf ball, the end portions of the loops resiliently moving toward one another thereby to force the ball toward the base and to hold the ball captive between the loops and the base, said handle being telescopically extensible, said gripping and retention means being pivotal with respect to said handle, said retriever further including means for selectively locking said gripping and retention means in any desired angular position with respect to said handle.

4,334,708

ELECTROMAGNET FOR MOVING IRON OBJECTS

Karl H. Westin, c/o Janas, Kvickrotsgränd 158, S-162 42 Vällingby, Sweden

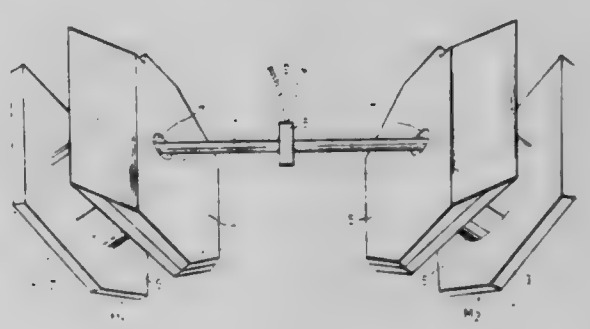
PCT No. PCT/SE79/00202, § 371 Date Jun. 6, 1980, § 102(e) Date Jun. 6, 1980, PCT Pub. No. WO80/00693, PCT Pub. Date Apr. 17, 1979

PCT Filed Oct. 9, 1979, Ser. No. 195,421

Claims priority, application Fed. Rep. of Germany, Oct. 11, 1978, 7810640

Int. Cl.³ B66C *1/06*

U.S. Cl. 294—65.5 **18 Claims**



1. An electromagnet for automatic handling of objects comprising:
a carrying shaft;
two opposing magnetic heads each including more than one electric winding, said magnetic heads being rotatably mounted on said carrying shaft for assuming angular positions relative to each other;
an attachment member positioned at approximately a midpoint of said carrying shaft;

a lifting means connected to said attachment member for raising and lowering the magnetic heads;

said magnetic heads each including a central portion and an inner pole plate having an aperture therein;

said carrying shaft including ends positioned within respective apertures of said magnetic heads to rotatably connect said magnetic heads to said carrying shaft and to permit said magnetic heads to assume angular positions relative to each other;

first windings on each of the respective magnetic heads being connectable to an electrical source for seeking out a metallic object by inducing a voltage in a second winding on each of the respective magnetic heads when the metallic object is approached; and

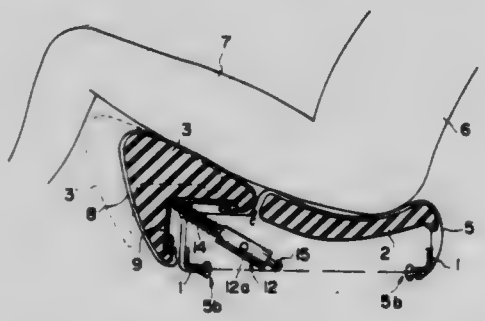
at least one of said first windings on the respective magnetic heads being connectable to a powerful electrical source to twist the magnetic heads towards the metallic object and after a predetermined time said at least one of said first windings being connectable to at least a normal electrical source to effect a lifting of said metallic object.

4,334,709

SEAT FOR VEHICLE

Yoshinori Akiyama, and Shyichi Ueno, both of Yokohama, Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Jan. 7, 1980, Ser. No. 110,325
Claims priority, application Japan, Nov. 19, 1979, 54-6315[U]
Int. Cl.[3] A47C 7/02
U.S. Cl. 297—284 5 Claims



1. A vehicle seat having a bottom cushion portion comprising a rear pad and an independently moving front pad, a bottom cushion frame having means for resiliently mounting said rear pad thereon, and a front pad adjusting means associated with said bottom cushion frame for adjustably moving said front pad along a straight path away from and back towards said rear pad, said front pad straight movement path forming an angle with the horizontal, said front pad moving forwardly and upwardly, and moving rearwardly and downwardly, relative to said rear pad, said front pad adjusting means including spring means continuously urging said front pad away from said rear pad, and operating handle means for permitting controlled inclined straight movement of said front pad.

4,334,710

COLLAPSIBLE, PORTABLE DENTAL CHAIR

William E. Milner, Jr., 103 S. Elm St., Asheboro, N.C. 27203

Continuation-in-part of Ser. No. 57,509, Jul. 16, 1979. This application May 27, 1980, Ser. No. 153,332
Int. Cl.[3] A61G 15/00; A47C 4/00
U.S. Cl. 297—440 5 Claims

1. A collapsible, portable and lightweight chair particularly adapted for use in dental examinations, comprising:

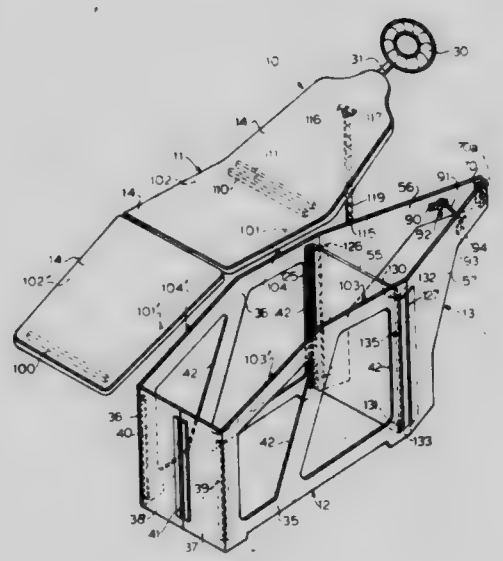
(a) a base frame unit comprising:

(i) a pair of uniform size vertical side panels having vertical outer and inner end edges, bottom support edge surfaces and top edges converging inwardly from the end edges at an upwardly directed obtuse angle;

(ii) a pair of uniform size outer vertical rectangular end panels hinged together along their respective inner vertical edges and in a manner permitting inward folding thereof, said end panels being equal in height to the length of said side panel outer vertical end edges and each end panel having a hinge connection on its respective outer vertical edge to a respective outer end edge of a said side panel so as to establish a generally U-shaped base frame unit with said pair of end panels serving to join said side panels and being hinged thereto in a manner permitting inward folding of said end panels between said side panels for transport, the bottom edges of said end panels providing bottom support surfaces and the top edges of said end panels being horizontally aligned with the tops of said side panel outer end edges;

(b) a back support frame, comprising:

(i) a pair of uniform size vertical back panel members converging outwardly and having opposed elevated vertical outer edges secured together with manually removable fastener means, inwardly located bottom support edge surfaces, vertical inner end edges, horizontal top edges, and other edges defining a cut out portion below said top edges and outwardly from panel portions bounded by said top edges and end edges to provide free standing room under outer portions of said back support frame;



(ii) an inner rectangular panel member joined with detachable fastening means along its outer vertical edges to respective inner vertical edges of said vertical back panel members and additionally joined by detachable fastening means along its said outer vertical edges to the inner vertical end edges of said side panels, said inner panel member having a bottom support edge surface and a top edge surface coinciding with the top edges of said back panel members; and

(c) a platform member detachably mounted on said base frame and comprising a substantially rectangular-shaped leg section, a seat section hinged to said leg section along an inner transverse edge thereof, a rectangular bend section having a width equal to the width of said seat section and having a substantially short length as compared to the length of said leg and seat sections, said bend section being hinged transversely along one end thereof to the end of said seat section, and a back section hinged to an opposite end of said bend section and having an inwardly tapered shape as viewed in plan; and

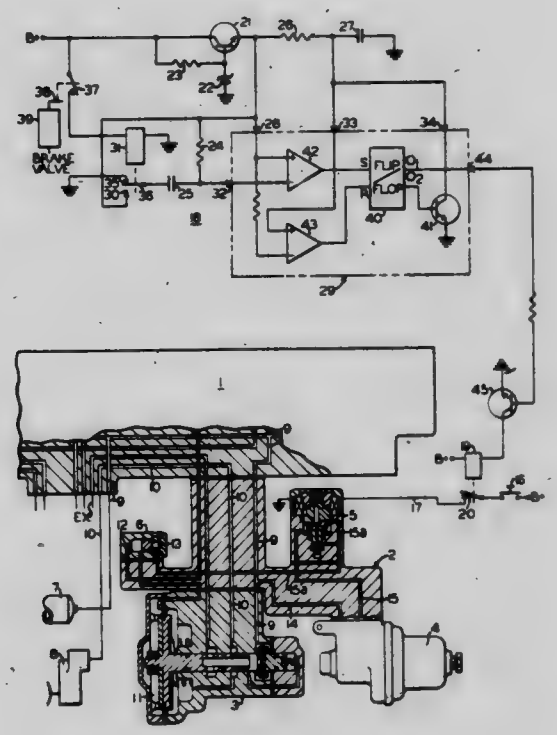
(d) adjustable support means on said back support frame for said head section.

4,334,711

SYSTEM FOR AUTOMATICALLY DELAYING APPLICATION OF A SNOW BRAKE FOR A RAILWAY VEHICLE

Richard J. Mazur, Pittsburgh; Robert D. Dimsa, Irwin, and John T. Pekarcik, Murrysville, all of Pa., assignors to American Standard Inc., Wilmerding, Pa.

Filed Oct. 27, 1980, Ser. No. 201,094
Int. Cl.[3] B60T 7/12
U.S. Cl. 303—16 5 Claims



1. A "snow brake" control system for a railway vehicle having brake apparatus to apply and release the vehicle brakes, said brake apparatus including a slack adjuster that is operative in response to movement of said brake apparatus from a brake application position to a brake release position, said "snow brake" control system comprising:

(a) means for providing a first brake control pressure in accordance with the degree of brake desired during a normal brake application;

(b) means for providing a second brake control pressure at a predetermined level to provide a "snow brake" application during release of said normal brake application;

(c) relay valve means subject to said first and second brake control pressures for effecting operation of said brake apparatus;

(d) valve means for connecting one or the other of said first and second brake control pressures to said relay valve means;

(e) electro-pneumatic valve means for establishing or interrupting the communication of said second brake control pressure with said valve means; and

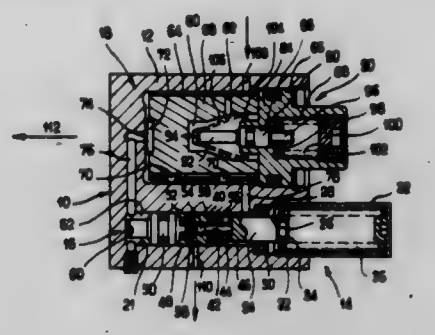
(f) timing means operative in response to the release of said first brake control pressure for controlling said electro-pneumatic valve so as to interrupt said communication of said second brake control pressure with said valve means for a predetermined time period and thereby delay said "snow brake" application for a period of time sufficient to allow said brake apparatus to move from said brake application position to said brake release position.

4,334,712

BRAKING COMPENSATOR DEPENDENT ON THE DECELERATION

Jean-Jacques Carre, Montreuil, and Guy Meynier, Bondy, both of France, assignors to Societe Anonyme D.B.A., Paris, France

Filed Oct. 1, 1979, Ser. No. 80,810
Claims priority, application France, Sep. 28, 1978, 78 28550
Int. Cl.[3] B60T 8/26
U.S. Cl. 303—24 C 6 Claims



1. For an automotive vehicle, a brake pressure compensator of the type having a housing defining an inlet receiving pressurized fluid from a source thereof and an outlet communicating pressurized fluid to a vehicle brake, a flow path defined within said housing communicating said inlet and said outlet, a pressure responsive valve member in a first position opening said flow path and in a second position closing said flow path, first resilient means for yieldably biasing said pressure responsive valve member to said first position, said pressure responsive valve member moving to said second position in response to a determined fluid pressure and shuttling between said first and said second positions in response to the pressure of said pressurized fluid at said inlet increasing to a value greater than said determined fluid pressure to communicate a proportion of said increasing fluid pressure to said outlet, and means for varying said determined fluid pressure in response to deceleration of said vehicle, the improvement therein comprising said varying means including a movable pressure responsive pilot communicating with said flow path between said inlet and said pressure responsive valve member and also communicating with said flow path between said pressure responsive valve member and said outlet, said pilot piston movably cooperating with said valve member to open communication between said inlet and said outlet in response to a fluid pressure differential therebetween.

4,334,713

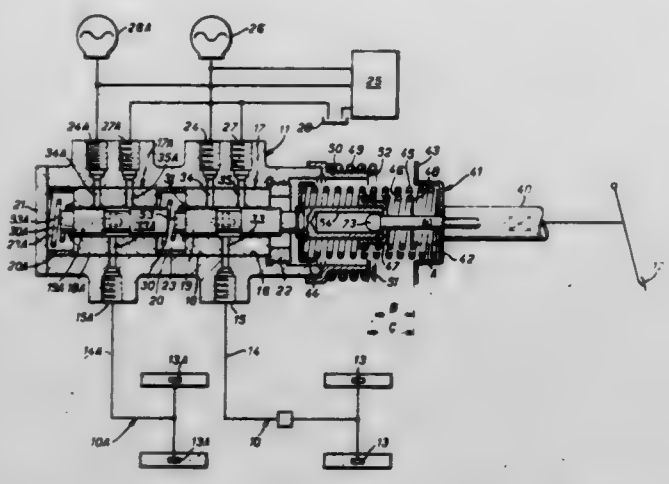
HYDRAULIC CONTROL SYSTEM

Jean L. R. Dauvergne, Fosses, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

Filed May 13, 1980, Ser. No. 150,410
Claims priority, application France, May 21, 1979, 79 12854
Int. Cl.[3] B60T 15/06
U.S. Cl. 303—54 13 Claims

1. A hydraulic control system for a motor vehicle braking apparatus having at least one hydraulic braking circuit, said hydraulic control system comprising a control unit housing, a brake pedal, a hydraulic booster having a fluid pressure source and a reservoir, a distributor valve having a slide movably mounted in said control unit between a rest position for bringing said braking circuit into communication with said reservoir and an operative position for bringing said braking circuit into communication with said fluid pressure source, said slide being subjected to two opposing forces, one of said opposing forces being developed by said pedal and urging said slide to said operative position and the other opposing force being developed by pressure in said braking circuit and urging said slide to the rest position, first resilient stroke simulator means interposed between said pedal and said slide, said first resilient stroke simulator means comprising a spring member operative substantially throughout the pedal stroke, and second resilient

buffer means interposed between said pedal and said control unit housing comprising end-of-stroke buffer spring means



operative near the end of the pedal stroke to relieve further force exerted by said pedal against the slide and to increase resistance to further displacement of the pedal.

4,334,714

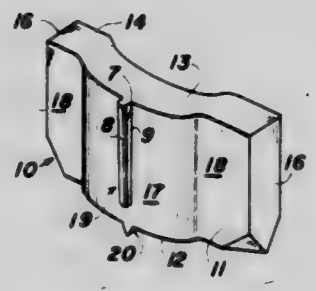
KEY TYPE CONNECTOR AND BEARING DEVICE

Robert J. Gargrave, 4717 James Hill Rd., Dayton, Ohio 45429

Filed Apr. 30, 1980, Ser. No. 145,124

Int. Cl.³ F16C *33/00*

U.S. Cl. 308—3 R **17 Claims**



1. Apparatus for insertion in a bore, recess or cavity to provide a fixing or bearing surface for a portion of a shaft or a shaft-like element comprising a plate device including an inner surface portion which disposes most adjacent the central axis of the bore, recess or cavity and an outer surface portion arranged to apply, at least in part, to the wall of the bore, recess or cavity, said device having a leading edge portion and a trailing portion, having regard to the direction of its application, said leading edge portion being provided with spaced anchoring means formed to engage wall portions of the bore, recess or cavity to which said plate device is applied.

4,334,715

TOTE GUIDE

Charles P. Schreiner, Saugatuck, Mich., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

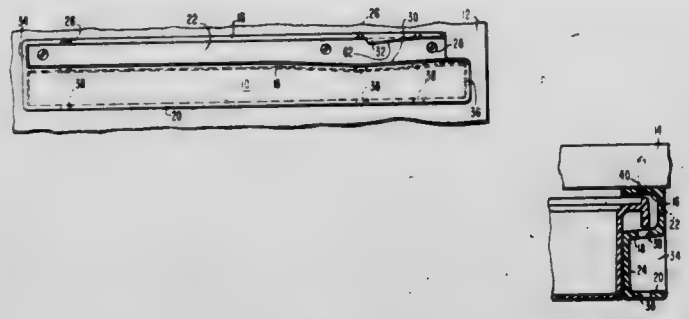
Filed Dec. 4, 1980, Ser. No. 212,945

Int. Cl.³ F16C *29/02*

U.S. Cl. 308—3.6 **8 Claims**

1. A tote guide forming one side of a tote supporting means, said tote guide comprising:

a top rail, a middle rail, and a bottom rail, a first side member interconnecting said top rail and one side of said middle rail and a second side member interconnecting the other side of said middle rail and said bottom rail, each of said top rail and said first side member including a plurality of mounting apertures therethrough; and each of said middle



and bottom rails including access apertures therethrough aligned with said mounting apertures in said top rail.

4,334,716

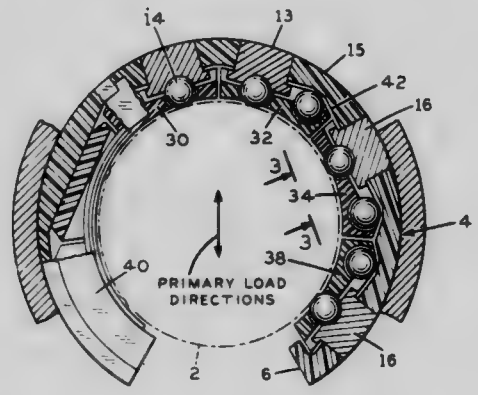
LINEAR BEARINGS

Robert C. Magee, Manhasset, and Alfred M. Rogers, III, Huntington, both of N.Y., assignors to Thomson Industries, Inc., Manhasset, N.Y.

Filed Jun. 25, 1980, Ser. No. 162,863

Int. Cl.³ F16C *29/06*

U.S. Cl. 308—6 C **11 Claims**



1. A linear ball bearing adapted for use where bearing is subjected to radial forces, comprising:

(a) a bearing sleeve having an opening therein;

(b) a plurality of bearing retainer segments having a closed circuit including a straight track portion containing load carrying balls and a second straight track portion containing non-load carrying balls;

(c) load bearing plates operatively associated with said balls, and

(d) means positioning said bearing retainer segments within said bearing sleeve so that the load carrying balls are positioned such that the critical ball bearing capacity is in two radial directions approximately 180° apart.

4,334,717

BALL SLIDE

Edward C. Polidor, Port St. Lucy, Fla., assignor to Automation Gages, Inc., Rochester, N.Y.

Filed Dec. 8, 1980, Ser. No. 214,180

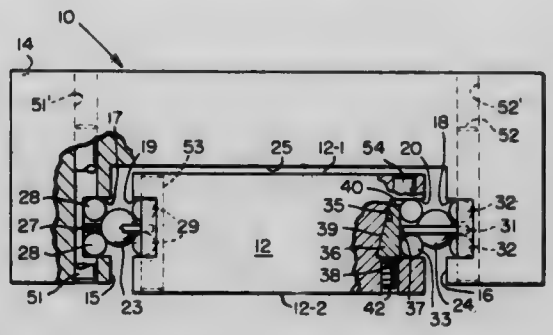
Int. Cl.³ F16C *29/04*

U.S. Cl. 308—6 R **6 Claims**

1. In a ball slide including an elongate female section, an elongate male section positioned in a recess in said female section and having in opposite sides thereof a pair of opposed, elongate grooves each of which is disposed in spaced, confronting, parallel registry with one of a pair of similar grooves formed in the opposed sidewalls of said recess, and a keeper plate positioned in the space between each pair of confronting grooves, and housing a plurality of roller elements which have rolling engagement with a pair of elongate bearing rods that are mounted in each of said grooves, thereby operatively to

support said male section for reciprocation relative to said female section, the improvement wherein said keeper plates extend transversely across the spaces between said confronting grooves, and project at opposite sides thereof, respectively, into each groove of a confronting pair thereof, and between the pair of bearing rods in the last-named groove,

one of said grooves in one of said sections is deeper than the other of said grooves and has a sloping bottom surface disposed in a plane which extends parallel to the length of said grooves, and which is inclined to a plane extending parallel to said keeper plates,



a tapered gib is mounted in said one groove between said sloping surface and the bearing rods in said one groove, and has thereon an inclined camming surface disposed in coplaner, sliding engagement with said sloped bottom surface on said one groove, and

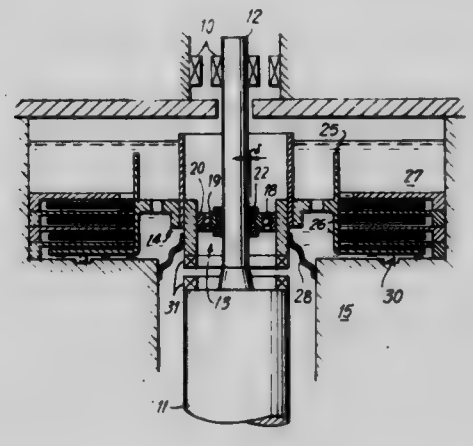
adjustable means is mounted on said one section for engagement with said gib and is operable to effect sliding adjustment of said camming surface relative to said sloped bottom surface of said one groove thereby to effect preloading of said ball bearings.

4,334,718

COUPLING BEARING FOR ROTORS ABOVE CRITICAL SPEED

Dieter Hirt, Augsburg; Richard Steigenberger, Friedberg, and Peter Meinke, Grossinzemoos, all of Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 886,916, Mar. 10, 1978, abandoned.
This application Aug. 13, 1980, Ser. No. 177,803
Claims priority, application Fed. Rep. of Germany, Mar. 14, 1977, 2711065
Int. Cl.³ F16C *39/06*
U.S. Cl. 308—10 **7 Claims**



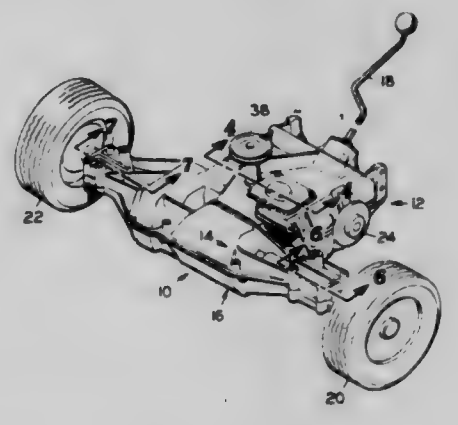
1. An auxiliary bearing mechanism for stabilizing a substantially vertical rotor undergoing radial deflections due to vibration amplitudes produced at speeds at which bending of the rotor takes place, said mechanism comprising a stationary housing; a bearing element supported by said housing and surrounding said rotor and defining with said rotor an annular gap having a radial width at least equal to the maximum radial deflection of said rotor above said speeds at which bending of the rotor takes place; a damping device associated with said bearing element; spring means connecting said bearing element to said housing for centering said bearing element relative to said housing; and two axially spaced magnet rings, one magnet ring encircling said rotor and supported by said bearing element and the other magnet ring attached to said rotor, said magnet rings preventing by mutual interaction contact between said rotor and said bearing element at speeds other than those at which bending of the rotor takes place.

4,334,719

TRANSAXLE

Hans Hauser, Fredericktown, and William J. Clayborne, Mount Vernon, both of Ohio, assignors to The J. B. Foote Foundry Co., Fredericktown, Ohio

Division of Ser. No. 849,011, Nov. 7, 1977, Pat. No. 4,232,569.
This application Nov. 19, 1979, Ser. No. 95,377
Int. Cl.³ F16C *33/10*
U.S. Cl. 308—121 **12 Claims**



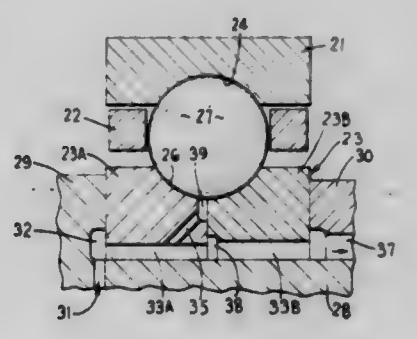
1. A transaxle comprising an upper housing part and a lower housing part, two output shafts extending out of opposite sides of said housing parts, said upper housing part forming upper bearing surfaces for rotatably supporting outer portions of said output shafts, said lower housing part forming grease cavities always positioned below said upper bearing surfaces during operation of the transaxle, said lower housing part also forming lower bearing surfaces inwardly of said grease cavities, and said upper housing part forming grease cavities inwardly of said upper bearing surfaces and always positioned above said lower bearing surfaces during operation of the transaxle.

4,334,720

SPLIT-INNER-RING BALL BEARING WITH LUBRICATION STRUCTURE

Hans R. Signer, Fullerton, Calif., assignor to Industrial Tectonics, Inc., Ann Arbor, Mich.

Filed Feb. 11, 1980, Ser. No. 120,448
Int. Cl.³ F16C *33/66, 37/00*
U.S. Cl. 308—187 **14 Claims**



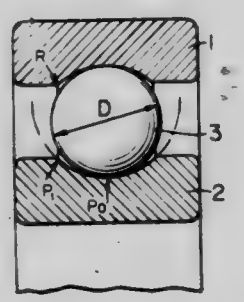
1. In a split-inner-ring ball bearing comprising an outer ring having an outer ball raceway, an inner ring comprised of two annular, adjacent, ring parts which mate to define an inner ball raceway, a plurality of bearing balls located between said inner and outer rings and disposed in said raceways for rolling therealong and a bearing ball retainer located between said inner

and outer rings for retaining or spacing said bearing balls, the improvement which comprises: both of said inner ring parts have a plurality of circumferentially spaced apart, axially extending grooves in the radially inner surfaces thereof, a lubricant supply for supplying lubricant to said grooves in one said ring part, said ring parts have abutting adjacent axial end surfaces forming a radially inner annular chamber located between them out of communication with said inner ball raceway but in communication with the adjacent axial ends of the grooves in both ring parts so that lubricant flowing from the grooves in said one ring part flows into said chamber and thence into the grooves in the other ring part, said one ring part having one or a plurality of first passageways extending outwardly from a selected one or ones of said grooves therein to the inner ball raceway for intercepting a portion of the lubricant flowing in the grooves of said one ring part before it reaches said radially inner annular chamber and the grooves of the other ring part.

4,334,721
BALL BEARING

Hisashi Satoh, Hiratsuka; Yukihiro Akabane, Tokyo; Yukio Shiraiwa, Yokohama, and Shuyou Tsuchiya, Fujisawa, all of Japan, assignors to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 21, 1980, Ser. No. 170,717
Claims priority, application Japan, Aug. 23, 1979, 54-106603
Int. Cl.[3] F16C *33/58, 19/06*
U.S. Cl. 308—193 2 Claims



1. In a ball bearing including an outer race, an inner race and ball-like rolling members interposed between said two races, the improvement residing in that said outer race has a circular arcuate orbit groove and that when the orbit groove coefficient of the inner race is expressed as

$$F = \frac{\frac{\rho_1}{D} - 0.5}{\frac{\rho_0}{D} - 0.5}$$

where ρ_0 is the curvature radius of the groove bottom of the orbit groove of the inner race, ρ_1 is the curvature radius of the groove edge of said orbit groove and D is the diameter of said rolling members,

$10 \leqq F \leqq 70$.

4,334,722
DESK MOUNTED CHAIR STOP

Willard D. Brittin, 1507 Elder La., Des Moines, Iowa 50315

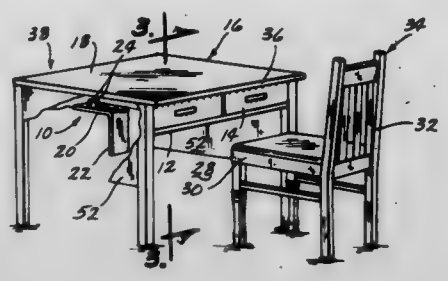
Filed Feb. 22, 1980, Ser. No. 123,735
Int. Cl.[3] A47B *83/02;* F16M *13/00*
U.S. Cl. 312—194 4 Claims

1. An unattached desk and chair in combination wherein the desk and chair are freestanding and independent thereof, comprising,

a desk having a knee space defined by a top and opposite side walls,

a stop mounted on said desk extending downwardly from the bottom of the desk top into the center of said knee space, and

a chair having back and seat portions, with said seat portion having a forward edge, said chair adapted to be positioned

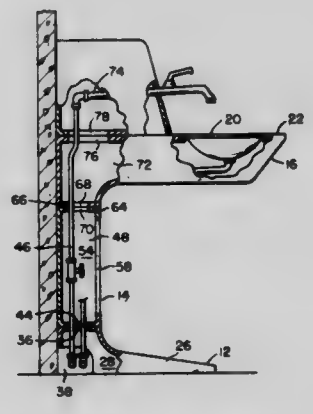


with said seat in said knee space with said seat portion engaging along its forward edge only, said stop and said stop being positioned such that the back of the chair is permitted to move closely adjacent the back edge of desk top without making contact therewith.

4,334,723
DENTAL CABINET

Hans C. Grunert, Adelberg, Fed. Rep. of Germany, assignor to Sybron Corporation, Rochester, N.Y.

Filed May 8, 1980, Ser. No. 147,918
Int. Cl.[3] A47B *77/08;* E03C *1/04*
U.S. Cl. 312—209 9 Claims



1. A dental cabinet having free accesses to utility service lines running through the cabinet, said cabinet comprising:

(a) a base section including a bottom for resting on a floor surface, upstanding sides and a top, said sides each having a portion overhanging said bottom at the rear thereof so that said base can be set down on the floor surface over a horizontal utility line running across the floor surface and through said base, said top having an opening to permit the passage of a vertical branch of said horizontal utility line;

(b) an intermediate section having a top bottom, front, rear and side walls enclosing an internal space, the bottom of said intermediate section resting on and being attachable to the top of said base section and the top and bottom of said intermediate section each having an opening which aligns with the opening in the top of said bottom section so that a vertical branch of said horizontal utility line can pass upwardly through said intermediate section; and

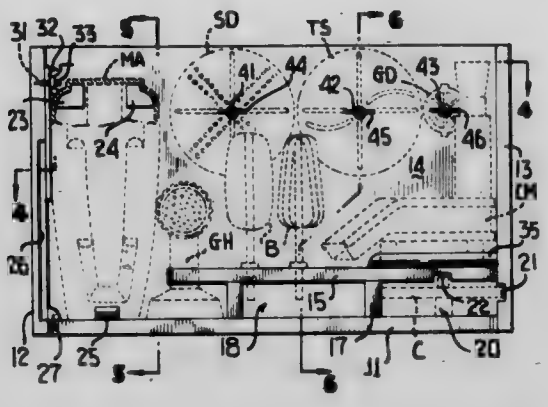
(c) a top section having a bottom wall resting on and attachable to the top of said intermediate section, the bottom wall of said top section having an opening which aligns with the opening in the top of said intermediate section so that the vertical branch of said horizontal utility line can pass into said top section.

4,334,724

CABINET FOR A KITCHEN BLENDER, MIXER, GRINDER, ET AL

Henry F. Rogers, Sr., 9707 Cinamon Creek Dr., Vienna, Va. 22180

Filed Oct. 9, 1979, Ser. No. 83,161
Int. Cl.[3] A47B *81/02*; A47F *7/00*
U.S. Cl. 312—280 30 Claims



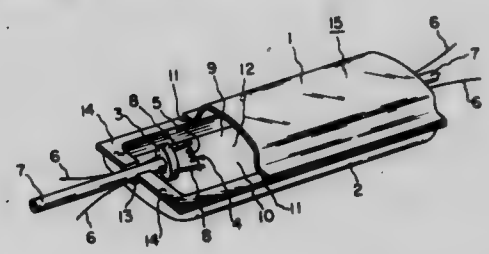
1. A cabinet for kitchen appliance components comprising a bottom wall, a pair of spaced upstanding sidewalls and a rear wall, an intermediate wall disposed above said bottom wall, means on said rear wall for locating a powered mixer arm in supported relationship upon said bottom wall, means on said intermediate wall for locating a grinder in supported relationship upon said bottom wall, means on said intermediate wall for locating a cutter unit on said intermediate wall, means for locating a blender container upon said intermediate wall, means for supporting a plurality of cutting discs upon said rear wall, means for supporting a plurality of beaters relative to said intermediate wall, and means for supporting an instruction book against one of said side walls.

4,334,725

METHOD FOR MAKING A FLUORESCENT LAMP

Toru Teshima, Hadano; Kazuo Ariga, Tokyo; Norimasa Oinuma, Machida, and Mitunari Yoshida, Yokohama, all of Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan

Division of Ser. No. 870,853, Jan. 19, 1978, Pat. No. 4,272,702.
This application Sep. 2, 1980, Ser. No. 183,294
Claims priority, application Japan, Jan. 28, 1977, 52-8949; Jan. 28, 1977, 52-10248
Int. Cl.[3] H01J *9/18*
U.S. Cl. 316—19 2 Claims



1. A method of making a fluorescent lamp comprising the steps of:

molding a pair of similarly shaped glass shells having a flat configuration, each of said shells being formed with bonding surfaces peripherally thereof and with a pair of semicircular recesses in said bonding surfaces, with each of said recesses being spaced from the other of said recesses;

affixing a stem to one end of each one of a pair of exhaust tubes;

supporting an electrode filament and a getter plate from each stem, the getter plate being electrically insulated from its associated exhaust tube and electrode filament;

connecting a pair of lead wires to each electrode filament, each pair of lead wires extending longitudinally of an associated one of the exhaust tubes;

coating interior surfaces of said shells with a fluorescent substance;

applying a low-melting point glass adhesive to said bonding surfaces of said shells;

bonding said shells together along said bonding surfaces by fusion welding to form an interior space, said shells being bonded together so that each recess formed on bonding surfaces of one of said shells is disposed opposite an associated recess formed on the bonding surfaces of the other of said shells to form a pair of circular openings;

sealing into each of said openings one of said exhaust tubes having a stem affixed thereto and an electrode filament and a getter plate supported from the affixed stem, and a pair of said lead wires connected to the supported electrode filament, the associated stem, getter plate and electrode filament being sealed with said space, said sealing step being simultaneous with said bonding step;

exhausting through said exhaust tube impure gases from said space;

injecting through said exhaust tube into said space a predetermined amount of mercury and an inert gas; and

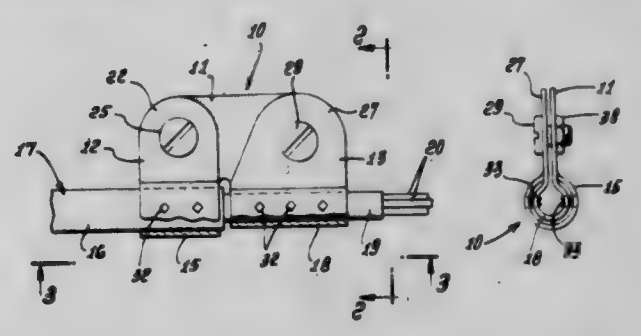
closing said exhaust tube, said lead wires being adapted to be electrically connected to connector pins externally of said lamp.

4,334,726

BONDING DEVICE

August Kund, Glendale, Calif., assignor to Communications Technology Corporation, Los Angeles, Calif.

Filed May 12, 1980, Ser. No. 148,811
Int. Cl.[3] H01R *11/10*
U.S. Cl. 339—14 L 3 Claims



1. A bonding device for an electrical cable having a plurality of conductors enclosed by an inner metal sheath which is enclosed by an outer electrical insulating sheath, comprising a generally U-shaped metal plate having first and second arms joined by a center section,

with said first arm having a central curved section for wrapping around said outer sheath, and

with said second arm having a central curved section for wrapping around said inner sheath,

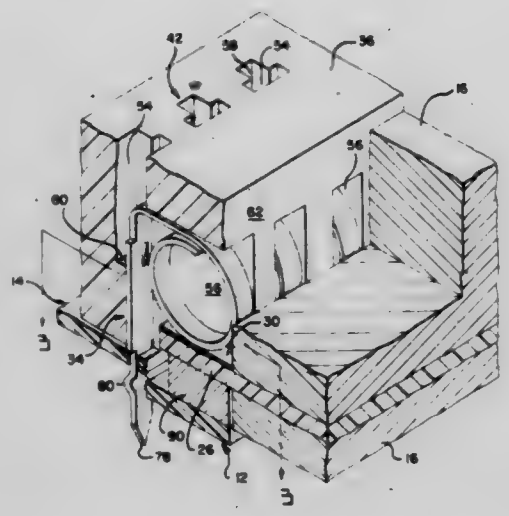
said first arm having a first opening therethrough adjacent the end of said first arm, said second arm having a second opening therethrough adjacent the end of said second arm, and said center section having third and fourth openings therethrough aligned with said first and second openings, respectively,

with said first and third aligned openings adapted for receiving first fastening means for clamping said device onto said outer sheath and with said second and fourth aligned openings adapted for receiving second fastening means for clamping said device onto said inner sheath.

4,334,727
CONNECTOR FOR A LEADLESS ELECTRONIC PACKAGE

William S. Scheingold, Palmyra, and Frank C. Youngfleish, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 28, 1980, Ser. No. 182,266
Int. Cl.[3] H01R *13/22*
U.S. Cl. 339—17 CF 9 Claims



1. A connector for an electronic package of the type having spaced conductive pads on tabs projecting outwardly from two opposing sides, said connector comprising:

a. a frame-shaped housing having four spaced apart walls joined at the ends thereof to define the frame-shape and further to define a central opening therebetween with the distance between two opposing walls being approximately equal to the dimension of the electronic package between the outwardly projecting tabs, further, said two opposing walls having terminal-receiving cavities spaced along therein, said cavities having a vertical slot located in the lower portion of the walls and opening downwardly therefrom, said housing being of an insulating material; and

b. a number of conductive terminals having a circular contact section and connecting means extending from and adapted for connecting the circular contact section to a printed circuit board, said terminals being positioned in the cavities with the circular contact sections being in the vertical slots and extending downwardly therefrom so that upon an electronic package being inserted into the central opening from below, the circular contact sections contact the pads on the tabs which extend below the two opposing walls.

4,334,728
ZERO INSERTION FORCE CONNECTOR CLIP ASSEMBLY

Charles E. Reynolds, Mechanicsburg, and Robert N. Whiteman, Jr., Middletown, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

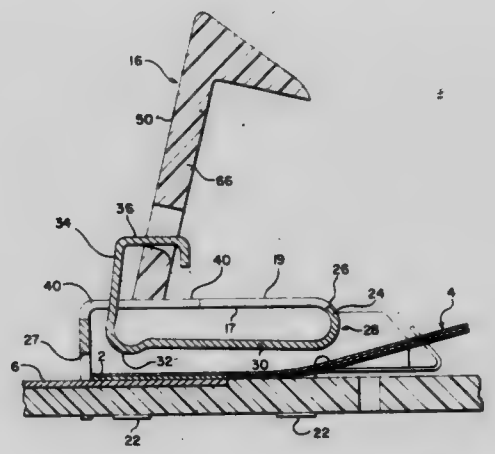
Filed May 7, 1980, Ser. No. 147,667
Int. Cl.[3] H01R *13/50*
U.S. Cl. 339—74 R 7 Claims

1. A zero insertion force electrical connector clip for connecting spaced-apart film conductors on a film to spaced-apart circuit board conductors on a circuit board, said zero insertion force electrical connector clip being of the type comprising a stamped and formed member having a rectangular clip bar, said clip bar having oppositely directed first and second major surfaces, having mounting and supporting means extending from the ends thereof and having first and second side edges extending between said ends, and a plurality of spaced apart cantilever springs extending from said first side edge, said springs having spring arm portions and having bearing portions on said spring arm portions which are between said mounting means and are spaced from said first major surfaces, said clip being characterized in that:

said springs extend from said bearing portions towards said clip bar and beyond said second major surface of said clip bar, said springs having free end portions which are proximate to said second major surface, and

spring lifting means on said second major surface extending between said free ends of said springs and said second major surface, said lifting means comprising a member movably mounted relative to said clip bar

and effective upon movement to move said free ends

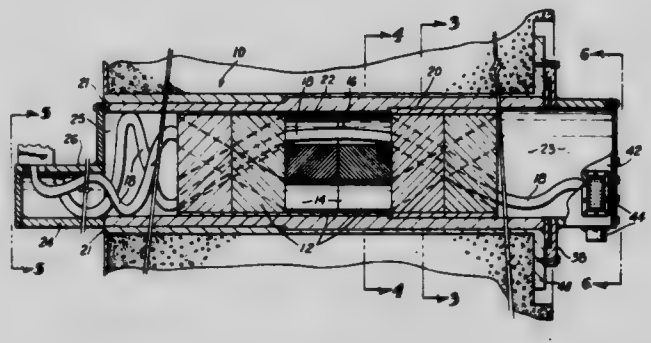


away from said second major surface whereby, upon mounting said clip on said circuit board in straddling relationship to said circuit board conductors, said bearing portions of said springs will bear against said circuit board conductors, and said springs can be lifted from said circuit board by said lifting means to permit positioning of said film beneath said springs whereby upon return of said springs to their normal positions, said film conductors will be pressed against said circuit board conductors by said springs.

4,334,729
PENETRATOR ASSEMBLY

Ralph A. Allen, Covina; Donald S. Madden, Norco, and John T. Zylkowski, Diamond Bar, all of Calif., assignors to Kortech Engineering, Inc., Fullerton, Calif.

Filed Feb. 11, 1980, Ser. No. 120,066
Int. Cl.[3] H02G *3/22*
U.S. Cl. 339—125 R 10 Claims



6. A modular penetration apparatus for extension through an aperture in a wall for providing a passageway through said wall within said aperture but skewed relative to the longitudinal axis of said aperture; the apparatus comprising:

a plurality of substantially solid disks coaxially aligned for serial relationship along the longitudinal axis of said aperture;

at least one opening in each said disk, the combination of such openings defining said passageway; and

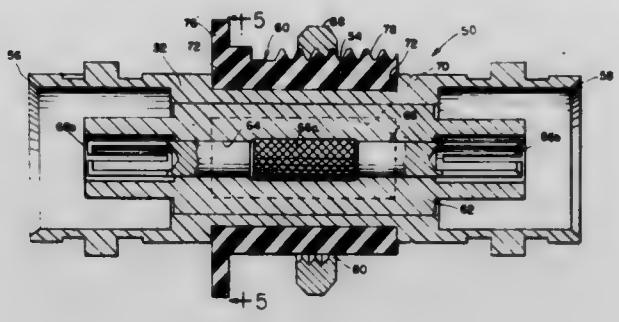
circumambient means retaining said disks in substantially fixed relation to one another within said aperture.

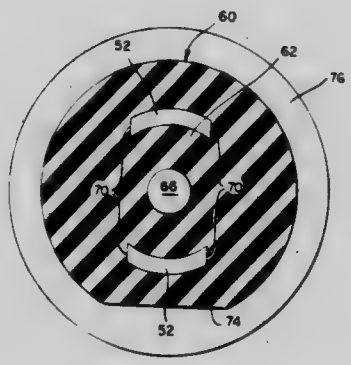
4,334,730

INSULATED FROM GROUND BULKHEAD ADAPTER

William L. Colwell, Norwalk, and Carl W. Schmelzle, Westport, both of Conn., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Nov. 26, 1979, Ser. No. 97,459
Int. Cl.[3] H01R *13/40*
U.S. Cl. 339—130 C 17 Claims





1. A coupling for insulated from ground mounting through an opening in a panel, comprising:

an outer shell dimensioned and shaped to extend axially through said opening in said panel, said outer shell having an interruption in the outer surface thereof, said interruption being located intermediate the ends of said outer shell and being defined by an undercut dimensioned to span said panel opening with opposed axially spaced facing shoulders on opposite sides of the opening; and

means for mounting said outer shell to said panel in insulated from ground relationship, said mounting means being disposed in said undercut between said opposed shoulders and being dimensioned and shaped such that at least a portion thereof extends through said opening in said panel, said mounting means thereby cooperating with said interruption so as to be in integral relationship with said outer shell.

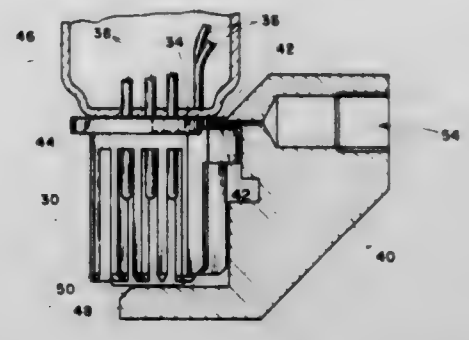
4,334,731

MEANS AND METHOD FOR INJECTING TELEVISION PICTURE TUBE BASES

Ramesh G. Amin, Itasca; Walter C. Hartman, Bolingbrook, and Robert V. Husk, Wooddale, all of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed May 27, 1980, Ser. No. 153,663
Int. Cl.[3] H01R *33/74*
U.S. Cl. 339—144 T 6 Claims

1. In a television cathode ray picture tube having a narrow neck terminated by a number of electrically conductive low-voltage pins and at least one high-voltage pin extending axially from the neck terminus, said tube being characterized by having a base for passing and isolating said pins, said base including a port in the side of said base and adjacent to said terminus leading to a cavity surrounding said high-voltage pin, said cavity opening onto said terminus over a substantial portion of the area of said terminus, said port having acceptance means for connection to mating injector means for injecting said cavity with a metered amount of electrically insulative adhesive, such that said base provides for the injection of said adhesive in the exact location desired, and in an amount effective to fill said cavity and electrically isolate said high-voltage pin and adhere said base to said neck terminus.

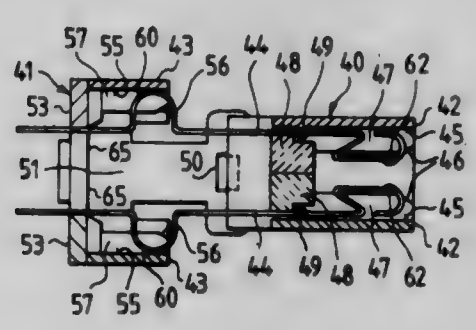


4,334,732

ELECTRICAL CONNECTOR UNIT

Rolf Roeschlein, Paderborn; Udo Tewes, Paderborn-Elsen, and Rüdolf Schmeykal, Neuenbeken, all of Fed. Rep. of Germany, assignors to Nixdorf Computer AG, Paderborn, Fed. Rep. of Germany

Filed Apr. 10, 1980, Ser. No. 138,776
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2915046; Mar. 25, 1980, 3011508
Int. Cl.[3] H01R *13/54*
U.S. Cl. 339—176 MP 28 Claims



1. Electrical connector unit with a female multipoint connector attachable onto a frame, the contact clips of which connector, which are constructed flexibly yielding in a plurality of directions and situated opposite one another by pairs in two rows, on the one hand are electrically connected, for example by soldering, with printed conductors of a printed wiring board and on the other hand are capable of making contact with electrical plug-in modules which can be plugged into the female multipoint connector, characterized in that the contact clips (6) show deformations (24), producing flexibility, in the region between the female multipoint connector (5) and a contact clip guide (36), which guide is arranged in front of the printed wiring board (2) and can be coupled with the female multipoint connector (5), and the clips are directly connected with the printed conductors of the printed wiring board (2).

4,334,733

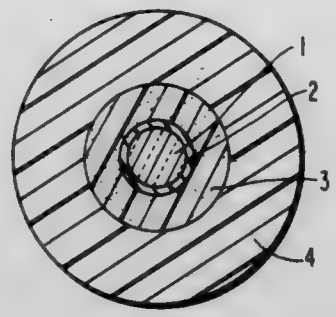
COATED GLASS FIBERS FOR OPTICAL TRANSMISSION

Mikio Takeshima; Masaaki Kawase, both of Mito; Toru Yamanishi, and Masaaki Yoshida, both of Yokohama, all of Japan, assignors to Nippon Telegraph & Telephone Public Corp., Tokyo and Sumitomo Electric Industries, Ltd., Osaka, both of, Japan, part interest to each

Filed Jan. 23, 1980, Ser. No. 114,460
Claims priority, application Japan, Jan. 23, 1979, 54-6722
Int. Cl.[3] G02B *5/172*
U.S. Cl. 350—96.33 6 Claims

1. In a glass fiber for optical transmission comprising a primary coat, a thermoplastic resin coat, and a buffer coat be-

tween the primary coat and the thermoplastic resin coat, the improvement which comprises said thermoplastic resin being a



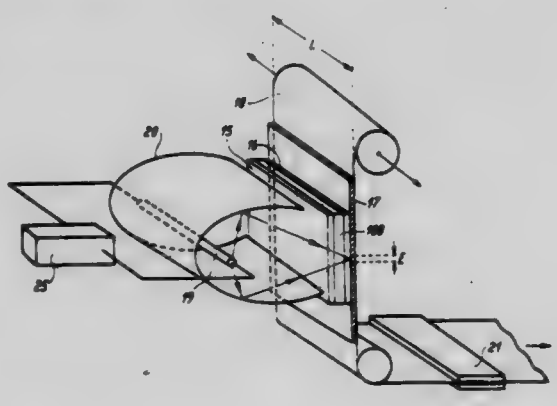
polyamide having a modulus of elasticity of about 2,000 to 8,000 kg/cm^2 at a temperature in the range of 20° to 23° C.

4,334,734

OPTICAL APPARATUS FOR THE REPRODUCTION OF IMAGES USING A LIQUID CRYSTAL CELL

Michel Hareng, and Serge Le Berre, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Oct. 26, 1979, Ser. No. 88,355
Claims priority, application France, Oct. 31, 1978, 78 30852
Int. Cl.^{3} G02F *1/133*
U.S. Cl. 350—331 R **7 Claims**



1. An apparatus for reproducing onto light sensitive paper an image coded as an electrical signal, comprising:

a light source,

projection means for forming a line of light from said light source for exposing said paper;

a linear array of N liquid crystal cells optically interposed between said projection means and said light sensitive paper for modulating the intensity of light transmitted by said cells to said paper, each cell comprising a layer of nematic liquid crystal and electrode means for controlling the transmissivity of the cell and therefore the intensity of light from said projection means transmitted therethrough;

means for transporting said paper past said linear array of liquid crystal cells, so that for any particular position of said paper, light transmitted by said array of N cells defines one line of said image to be reproduced onto said paper;

series-parallel conversion means for receiving said coded electrical signal defining the image to be reproduced and providing to said cells, set of N simultaneous control voltages, each set of control voltages corresponding to one line of said image, one control voltage of ech set being coupled to one of said N cells, each set of control voltages being applied across said cells for a first predetermined duration of time, said sets of control voltages being applied one after another at fixed intervals of time; and

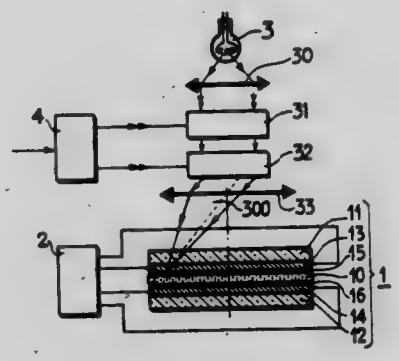
means for causing said light source to emit flashes of light, synchronized with the application of sets of control voltages by said series-parallel conversion means to said cells, each flash having a second predetermined duration substantially shorter than said first predetermined duration and occurring substantially near the end of said first duration, allowing time for said cells to reach a point of maximum contrast define a line of said image, whereby a line of said paper is exposed by a flash of light modulated at maximum contrast by said cells.

4,334,735

THERMO-OPTIC LIQUID-CRYSTAL DEVICE FOR REAL-TIME DISPLAY OF ANIMATED IMAGES

Michel Hareng, and Serge Le Berre, both of Paris, France, assignors to Thomson-CSF, Paris, France

Division of Ser. No. 632,955, Nov. 18, 1975, Pat. No. 4,099,857.
This application Jan. 18, 1978, Ser. No. 870,526
Claims priority, application France, Nov. 21, 1974, 74 38281
The portion of the term of this patent subsequent to Jul. 11, 1995, has been disclaimed.
Int. Cl.^{3} G02F *1/137*
U.S. Cl. 350—351 **2 Claims**



1. A thermo-optical liquid-crystal device for displaying images transmitted in the form of a video signal, the display being a real-time self-erasing display of successive images in the form of transitorily light-scattering points in a transparent medium, comprising:

a cell including a layer exhibiting a nematic state and two substrates for enclosing said layer, said layer being maintained in said nematic state and having a transparent uniformly ordered structure in said nematic state;

selective heating means for delivering heat pulses to points of said layers, said pulses temporarily heating said points into a transparent isotropic liquid state, the selective heating means including:

a radiation source,

optical modulating means for modulating the intensity of said radiation,

optical focussing means for concentrating said radiation on a point located inside said layer, said

optical deflecting means for scanning said layer by said point; and

control means for receiving the video signal and controlling the modulating means and deflecting means responsive to the video signal.

4,334,736

WET CORNEA MICROSCOPE

M. Linton Herbert, 762 E. Michigan Ave., #204, Orlando, Fla. 32806

Filed May 23, 1980, Ser. No. 152,695
Int. Cl.^{3} G02B *3/12, 21/00*
U.S. Cl. 350—418 **21 Claims**

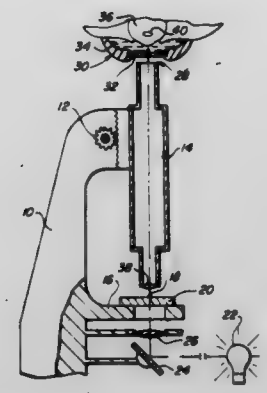
1. A wet cornea microscope for enabling a viewer to see a substantially magnified image of a sample, comprising:

a. a microscope barrel having a hollow tubular interior and first and second ends;

b. an objective lens coupled to the first end of said barrel and positionable in close proximity to the sample; and

c. means, including flat, optically transparent, non-refractive window means, positionable in alignment with the second

end of said barrel for forming an optically transparent, fluid-filled chamber around the cornea of one of the viewer's eyes;



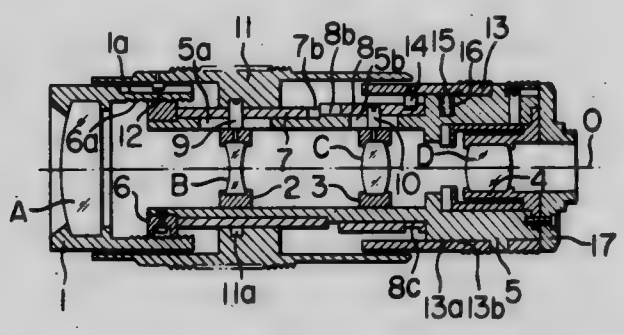
whereby said fluid-filled chamber means effectively eliminates the refractive effect of the cornea aqueous humor interface in the viewer's eye and permits said microscope to form a substantially magnified image of the sample on the retina of the viewer's eye.

4,334,737

ZOOM LENS CAPABLE OF MACRO-PHOTOGRAPHY

Hideyo Nozawa, Ohmiya, and Tsutomu Mitsuishi, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed May 15, 1980, Ser. No. 150,188
Claims priority, application Japan, Jun. 29, 1979, 54-89433[U]
Int. Cl.³ G02B *7/10*
U.S. Cl. 350—430 **12 Claims**



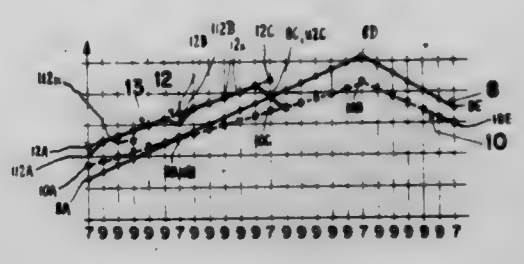
1. A zoom lens capable of macro-photography comprising first and second movable lens means; first and second cam rings rotatably disposed with respect to the optical axis of the lens and coupled to the first and second lens means, respectively, such that rotation of the first and second cam rings is effective to move the first and second lens means along the optical axis for zooming; means for operatively associating the first and second cam rings so that they rotate as a unit about the optical axis but are capable of relative axial movement with respect to one another; operating means for rotating the first and second cam rings to move the first and second lens means for zooming; and an axially movable change-over member having a pin received in an annular groove on one of said cam rings, movement of said member being effective for moving said one cam ring axially with respect to the other cam ring and for moving one lens means relatively to the other lens means for macro-photography.

4,334,738

METHOD OF PERIMETRIC EXAMINATION OF VISUAL FIELDS

Erich Seckinger, Dübendorf, Switzerland, assignor to Interzeag AG, Schlieren, Switzerland

Filed Aug. 15, 1978, Ser. No. 933,851
Claims priority, application Switzerland, Sep. 9, 1977, 11059/77; Sep. 9, 1977, 11060/77
Int. Cl.³ A61B *3/02, 3/00*
U.S. Cl. 351—39 **10 Claims**



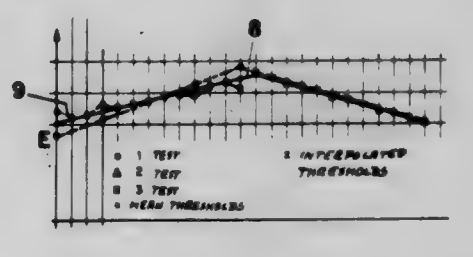
1. A method of testing the visual field of a subject, comprising the steps of presenting to the subject spots of light constituting a group of initial stimulus values at selected test locations of a test field having a predetermined orientation relative to the direction of gaze of the subject; adjusting stimulus values of the respective spots of light until the threshold values which acted as stimuli to the subject at the respective test locations are ascertained; modifying at least some of the initial stimulus values of said group as a function of the corresponding ascertained threshold values; storing the thus modified stimulus values of said group; and repeating at least said presenting step using said stored values instead of said initial stimulus values during a subsequent test of the same subject.

4,334,739

METHOD OF GRAPHICALLY DISPLAYING THE RESULTS OF REPEATED PERIMETRIC EXAMINATION OF VISUAL FIELDS

Erich Seckinger, Dübendorf, Switzerland, assignor to Interzeag AG, Schlieren, Switzerland

Filed Aug. 15, 1978, Ser. No. 933,852
Claims priority, application Switzerland, Sep. 9, 1977, 11059/77
Int. Cl.³ A61B *3/00, 3/02*
U.S. Cl. 351—39 **9 Claims**



1. A method of making records of the results of perimetric examinations of the visual field of a subject, comprising the steps of presenting to the subject during each of at least two separate examinations a group of variable intensity stimuli at selected points of a test field which covers an area of the visual field that is individually selected for each of said examinations as to its outline and orientation with respect to the direction of gaze of the subject; storing, during each examination, the perceived threshold values of the stimuli of the respective group; and forming a single composite graphical display with data denoting said stored threshold values obtained during said separate examinations.

4,334,740

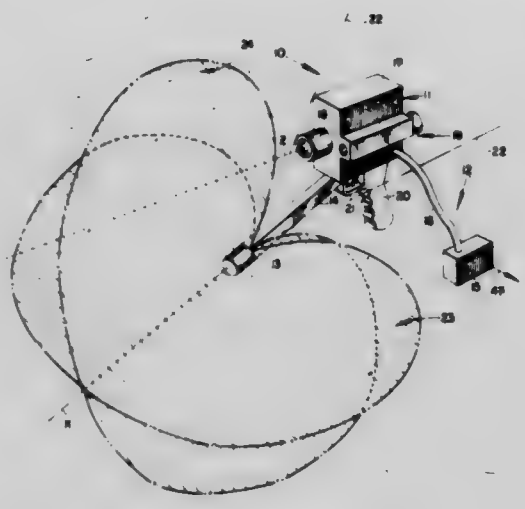
RECEIVING SYSTEM HAVING PRE-SELECTED DIRECTIONAL RESPONSE

William R. Wray, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 941,729, Sep. 12, 1978, abandoned, which is a continuation-in-part of Ser. No. 737,347, Nov. 1, 1976, abandoned. This application Apr. 24, 1979, Ser. No. 32,914

Int. Cl.³ G03B *31/00*

U.S. Cl. 352—11 60 Claims



18. A sound photographic system comprising:

a camera having a lens assembly with a predetermined field of view which defines the camera taking axis, said camera during its operation providing sound extending over a given range of frequencies; and

a sound recording apparatus associated with said camera, said sound apparatus comprising:

an array of microphones fixed to said camera outside of said predetermined field of view such that said camera sound is oriented at a predetermined angle of incidence to said array; and

means for spacing the microphones in said array and for combining the output signals thereof so that array preferentially rejects sound from said camera when the latter is made operative, said spacing and combining means includes means for subtracting the output signals of a pair of said microphones to obtain a difference signal, and an integrating channel for integrating said difference signal with respect to time.

4,334,741

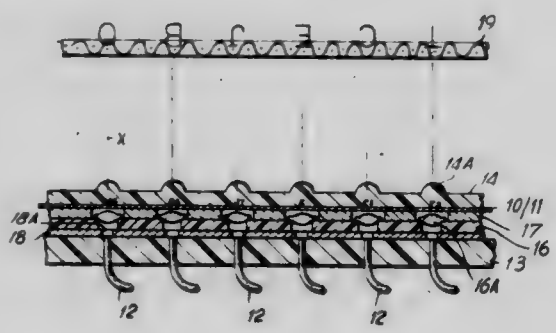
MELDING MASK

Carmine Masucci, Eastchester, N.Y., assignor to Izon Corporation, New York, N.Y.

Filed Sep. 6, 1979, Ser. No. 72,928

Int. Cl.³ G03B *21/11*

U.S. Cl. 353—38 3 Claims



1. A reader for displaying a distributed-optical microfiche in which each page or document of recorded intelligence is constituted by a reduced scale image thereof, dissected to form a pattern of dispersed bits, the reader comprising:

(a) a view screen;

(b) means for illuminating said dispersed bits of dissected information on said microfiche;

(c) melding mask means adjoining said illuminating means, said melding mask means inhibiting overlap of information displayed on said view screen and providing substantially equal light distribution at every point in any image projected upon said view screen;

(d) an array of condenser lenses;

(e) microfiche carrier means;

(f) a lens matrix formed by an array of equidistant lenslet;

(g) a plurality of optical paths, said paths defined by the cooperation of said illuminating means, said melding mask means, said array of condenser lenses, said microfiche carrier means and said lens matrix, each of said paths traversing said illuminating means, said melding means, a respective one of said array of condenser lenses, microfiche carrier means, and a respective one of said lenslets of said lens matrix, for projection of said bits onto said view screen;

(h) said array of condenser lenses arranged upon a planar surface, said array being interposed between said melding mask means and microfiche carrier means, each condenser lens within said array aligned with a respective one of said optical paths; and

(i) said lens matrix being interposed between said microfiche carrier means and said view screen, each said lenslet of said lens matrix being aligned with a respective one of said optical paths.

4,334,742

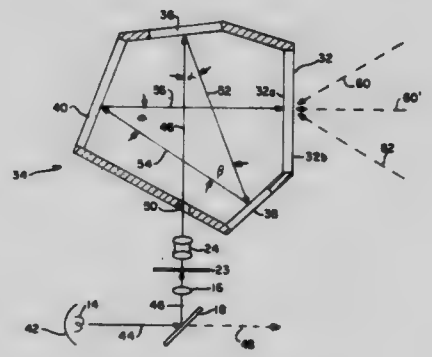
MICROFICHE READER ASSEMBLY AND METHOD

William T. Link, Berkeley, Calif., assignor to Datagraphix, Inc., San Diego, Calif.

Filed Mar. 4, 1980, Ser. No. 127,240

Int. Cl.³ G03B *21/22*

U.S. Cl. 353—78 10 Claims



1. A microfiche reader assembly, comprising:

(a) a housing including an inner chamber;

(b) a generally vertically extending projector screen supported by said housing and having a back side facing into said chamber and an opposite front side for viewing from outside said housing;

(c) means for supporting a microfiche in a predetermined position below said chamber;

(d) means for passing a beam of light through at least a segment of said microfiche and generally vertically upwards into said housing chamber at a field angle between about 7° and 13°; and

(e) an optical arrangement for directing said passed through beam of light through said chamber and to and through said screen from its backside to its front side for viewing said microfiche segment on said screen, said arrangement including a plurality of light reflecting surfaces located within said housing chamber on different sides of the latter for dividing said passed through beam into at least three straight-line segments between said microfiche and said screen, the longest of said segments contributing no more than about 25 to 40% of the total length of all said seg-

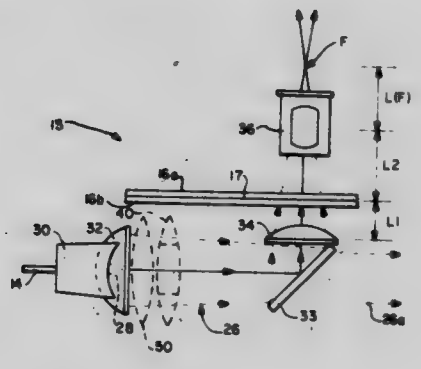
ments and each of said segments extending entirely across said chamber and across at least one other segment, said light reflecting surfaces being positioned relative to said screen and one another such that any high angle light passing into said housing chamber through said screen and onto any of said surfaces is not reflected by said surfaces from said chamber back through said screen, said high angle light consisting of any ambient light passing into said chamber through said screen along paths normal to and at downwardly directed angles with said screen.

4,334,743

OPTICAL ARRANGEMENT FOR USE IN A MICROFICHE READER AND METHOD

William T. Link, Berkeley, Calif., assignor to Datagraphix, Inc., San Diego, Calif.

Filed Mar. 4, 1980, Ser. No. 127,228
Int. Cl.[3] G03B *21/14*
U.S. Cl. 353—97 **8 Claims**



1. In a microfiche reader including means for supporting a microfiche in a given area of a predetermined plane and a rectangular projection screen, an optical arrangement for providing an image onto said screen for viewing thereon, said arrangement comprising:

(a) means including a light source for directing a beam of light along a predetermined path through said given area and towards said screen;

(b) a condenser lens located on said beam path between said given area and said light source and including a focal point located on said path between said given area and said screen;

(c) a projection lens assembly located on said path between said given area and the focal point of said condenser lens, said focal point being spaced a predetermined distance from said projection lens; and

(d) means located on said beam path between said light source and said condenser lens for insuring that substantially all of said light from said beam is directed onto the backside of said screen, said last-named means including a correction lens located on said path between said light source and said condenser lens, said correction lens including a rectangular through hole for passing freely a section of said beam sufficient to illuminate just the confines of the backside of said screen and only said confines, and light refracting means around the periphery of said through hole for redirecting onto said screen substantially all of the light from said beam which would otherwise not fall within the confines of said screen.

4,334,744

PHOTOGRAPHIC APPARATUS HAVING SYNCHRONIZED FLASH

William A. Shelton, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 145,614, May 1, 1980, abandoned. This application Jul. 28, 1980, Ser. No. 172,861
Int. Cl.[3] G03B *15/05, 13/20*
U.S. Cl. 354—27 **10 Claims**



1. A camera for use solely when the ambient light level is low enough that no appreciable exposure is made upon a film unit by the ambient light while the shutter is open, comprising:

means for initiating an exposure cycle;

ranging means for providing an output representative of the range of a subject to be photographed;

a shutter responsive to actuation of said initiating means for exposing a film unit located in position for exposure to the low ambient light;

an objective lens assembly mounted for movement between first and second positions, said objective lens assembly, when located between said first and second positions, being adapted to focus an image of a subject located at varying distances from said camera at the focal plane of said camera;

means for driving said objective lens assembly from said first position to said second position, said driving means being rendered operative substantially simultaneous with or subsequent to the actuation of said initiating means and said shutter;

a source of artificial illumination;

means for comparing the output of said ranging means with movement of said objective lens assembly as it moves from said first to said second position so as to fire said source of artificial illumination at substantially the same time that said objective lens assembly passes through a zone wherein the subject to be photographed is correctly focused at said focal plane; and

means for stopping said objective lens assembly subsequent to the firing of said source of artificial illumination.

4,334,745

EXPOSURE INDICATING DEVICE FOR A CAMERA UTILIZING ANALOG-DIGITAL CONVERTER

Osamu Maida, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Division of Ser. No. 907,613, May 19, 1978, Pat. No. 4,262,282. This application Apr. 18, 1980, Ser. No. 141,587
Claims priority, application Japan, May 20, 1977, 52/57555; Jul. 15, 1977, 52/84040
Int. Cl.[3] G03B *7/00;* H03K *13/02*
U.S. Cl. 354—60 L **7 Claims**

1. An exposure indication device in a camera comprising:

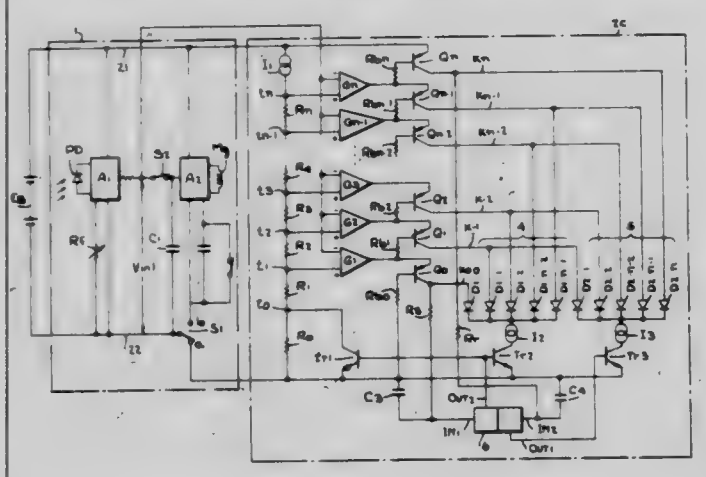
photometering means for generating an analog voltage corresponding to the brightness of a subject;

a plurality of comparators (G1-Gn) for comparing said ana-

log voltage which is received as a common input with respective different digitalized voltages, where the comparator (Gn) which compares said analog input voltage with the highest one of said digitalized voltages is referred to as a first comparator and the comparator (G1) which compares said analog input voltage with the lowest one of said digitalized voltage is referred to as a second comparator;

control means having first and second control states occuring alternatively for permitting said plurality of comparators to perform a comparison of the analog input voltage in a first voltage range when said control means is in the first control state and for permitting said plurality of comparators to perform a comparison of the analog input voltage in a second voltage range when said control means is in the second control state, and the upper limit of the first voltage range is substantially equal to the lower limit of the second voltage range;

display means for digitally indicating the analog input voltage in first and second display modes, the first display



mode being performed with the comparator's outputs other than the first comparator's output which represents that the analog input voltage is above the highest digitalized voltage, and the second display mode being performed with the comparator's outputs other than the second comparator's output which represents that the analog input voltage is below the lowest digitalized voltage; and

operation means for setting said control means and said display means into the second control state and the second display mode, respectively, in response to the first comparator's output which represents that the analog input voltage is above the highest digitalized voltage when said control means is in the first control state and setting said control means and said display means into the first control state and the first display mode, respectively, in response to the second comparator's output which represents that the analog input voltage is below the lowest digitalized voltage when said control means is in the second control state.

4,334,746

PHOTOGRAPHIC LENS BARREL

Hideyo Nozawa, Ohmiya, and Hideshi Naito, Tokyo, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Jun. 18, 1980, Ser. No. 160,535
Claims priority, application Japan, Jul. 13, 1979, 54/88196
Int. Cl.³ G03B *15/02, 3/00*
U.S. Cl. 354—126 **8 Claims**

1. A photographic lens comprising:

(a) a first image forming optical system for imaging an object to be photographed, said first image forming optical system including focusing lens means movable along the optical axis of said first image forming optical system for focusing on the object;

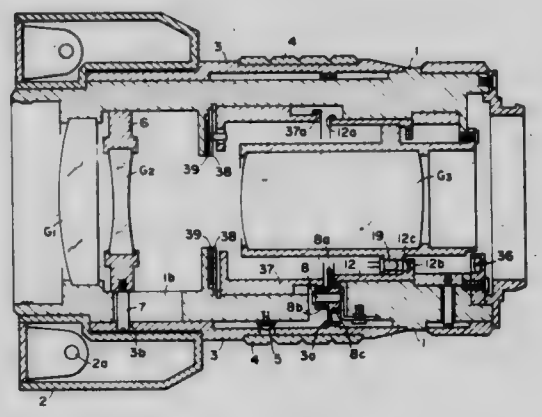
(b) operating means for driving said focusing lens means;

(c) display means capable of displaying the magnification of the object by said first image forming optical system;

(d) a second image forming optical system for imaging the magnification display effected by said display means;

(e) a diaphragm device for controlling the quantity of light passed through said first image forming optical system; and

(f) drive means operatively associated with said operating means for causing said display means to vary said magnification display in accordance with the position of said focusing lens means and for driving said diaphragm device so as to vary the aperture of said diaphragm device in a predetermined manner in accordance with the position of said focusing lens means.



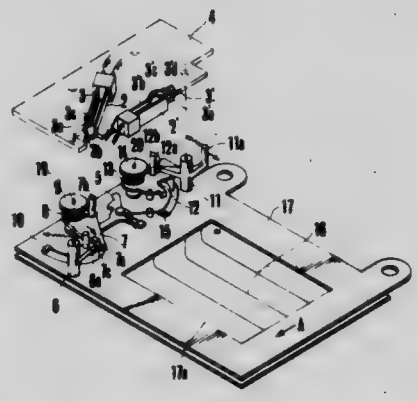
3. A photographic lens according to claim 1, wherein said drive means comprises a relay gear rotatable in response to said operating means about an axis parallel to and radially displaced from the optical axis of said first image forming optical system, the relay gear having first and second output gears, a first member having a gear engaged with the first output gear for rotation therewith, the first member being coupled to the diaphragm device for varying said aperture in accordance with the rotation of the first output gear, and a second member having a gear engaged with the second output gear for rotation therewith, the second member being associated with the display means for varying the magnification display in accordance with the rotation of the second output gear.

4,334,747

DEVICE FOR PREVENTING SPRING-BACK OF SHUTTER BLADE

Fumio Shimada, and Teiji Hashimoto, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo and Canon Denshi Kabushiki Kaisha, Saitama, both of, Japan, part interest to each

Filed Jul. 6, 1981, Ser. No. 280,996
Claims priority, application Japan, Jul. 7, 1980, 55-92893
Int. Cl.³ G03B *15/03, 13/02, 9/08*
U.S. Cl. 354—147 **2 Claims**



1. A device for a camera for preventing spring-back of the shutter blade of a camera shutter having a shutter operation

member connected to the shutter blade so as to make the shutter blade run for exposure within a certain determined field, comprising:

first and second conductive plate springs, said springs being arranged in the neighborhood of the motion path of the shutter operation field and each including a projection engageable with the operation member; and

a fixed contact, said contact being arranged so as to be brought in contact with the second plate spring and forming a switch for the electrical circuit of the camera together with the plate spring;

whereby in synchronization with its motion during exposure the shutter operation member pushes the projection of the first plate spring and then the projection of the second plate spring so as to be braked, while at the end of the motion spring-back is prevented by means of the first plate spring, when the shutter operation member operates the switch through the second plate spring.

4,334,748

PHOTOGRAPHIC CAMERA LIGHT CONTROLLING APPARATUS

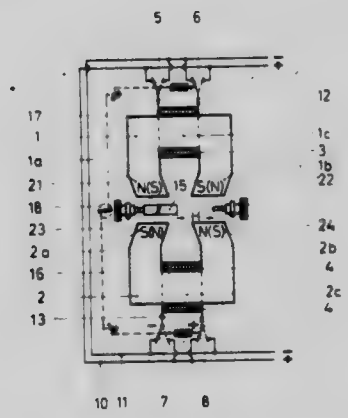
Horst Stacklies, Langerstrasse 35, 7080 Aalen 1, Wildbad 5, and Achim Schindler, Jenaer Strasse 7, 7082 Oberkochen, Wildbad 5, both of Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,687

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1978, 2853232

Int. Cl.³ G03B 9/08

U.S. Cl. 354—234 **10 Claims**



1. Photographic camera light controlling apparatus for electromagnetically driving a light admitting system of the type having diaphragm aperture and/or shutter exposure blades which are guided for translatory motion or mounted for rotary motion to admit photographic light to the camera along the optical axis thereof, comprising

four spaced apart stator electromagnetic pole means defining therebetween an intervening field space containing a linear path and including first and second transversely opposed stator pole means disposed at opposite sides of such path at one linear end of the path and third and fourth transversely opposed stator pole means disposed at opposite sides of such path at the other linear end of the path and linearly spaced from the first and second pole means, such that the linear path extends from the first and second pole means at the one end of the path to the third and fourth pole means at the other end of the path and is laterally bounded on one transverse side of the path by the first and third pole means and on the opposite transverse side of the path by the second and fourth pole means,

field coil means for electromagnetically energizing the four pole means and arranged for energization alternately in one current flow direction and in the opposite current flow direction and coordinated with the four pole means to energize the first and fourth pole means with one polarity and the second and third pole means with the opposite polarity and alternately to energize the first and fourth pole means with such opposite polarity and the second and third pole means with such one polarity and thereby providing in the intervening field space containing such path oppositely polarized electromagnetic fields which are generated in concordance with the change in current flow direction of the field coil means,

a permanent magnet adapted for operative driving connection with the light admitting system to admit photographic light to the camera and arranged for reciprocal movement along the linear path between the four stator pole means and having the corresponding North and South permanent magnet poles thereof arranged in opposed relation to each other transversely of the linear path and forming a surface magnetized permanent magnet with one permanent magnetic pole facing toward the first and third pole means and the opposite permanent magnet pole facing toward the second and fourth pole means, for permitting the permanent magnet to move reciprocally linearly between a fully immersed electromagnetic field position transversely between the first and second pole means at one end of the path and a fully immersed electromagnetic field position transversely between the third and fourth pole means at the other end of the path, and

one stop means in the vicinity of the first and second pole means at the one end of the path and another stop means in the vicinity of the third and fourth pole means at the other end of the path, the stop means being arranged to stop the movement of the permanent magnet in the corresponding movement direction at a selective corresponding point in the path within the operative range of the electromagnetic field of the transversely opposed pole means at the corresponding end of the path thereat and prior to the reaching of the fully immersed position of the permanent magnet transversely between the opposed pole means at that end of the path, the permanent magnet having sufficient magnetic field strength to urge itself toward such fully immersed position at the respective stop means and thereby independently self-retaining its disposition thereat after deenergization of the field coil means.

4,334,749

CAMERA HAVING AN ELECTROMAGNETICALLY DRIVEN SHUTTER

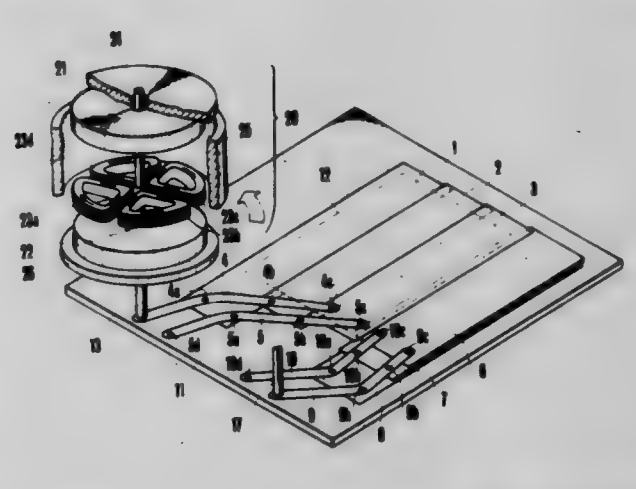
Syuichiro Saito; Nobuaki Date; Ryoichi Suzuki, all of Kawasaki, and Yoji Sugiura, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 26, 1981, Ser. No. 228,318

Claims priority, application Japan, Jan. 25, 1980, 55-7644

Int. Cl.³ G03B 9/08

U.S. Cl. 354—234 **2 Claims**



1. A camera having an electromagnetically driven focal plane shutter, when comprises:

a camera body including a front plate a portion of which forms a lens mount, said front plate extending generally in a front plane defined by said camera body on the object side of said camera body;

a film advancing sprocket mounted in said camera body at a

given distance from said front plate in the direction toward the rear of the camera body;

a shutter base plate mounted in said camera body and having a film exposure window, said shutter base plate extending generally parallel to and spaced a certain distance apart from said front plate;

a shutter driving arm supported for pivotal movement on said shutter base plate;

a shutter blade group including a plurality of thin plate-like blades pivoted on said shutter driving arm for shutter movement relative to the film exposure window in said shutter base plate; and

a flat motor mounted in said camera body at a position between said front plate and said film advancing sprocket for operatively driving said shutter blade group;

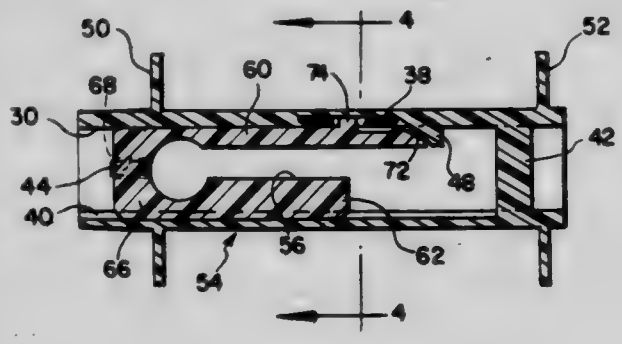
said motor comprising a rotor including one of a permanent magnet and a coil, and a stator including the other one of the permanent magnet and the coil; and an output shaft fixed to said rotor and coupled to said shutter driving arm, said permanent magnet being arranged to provide magnetic flux which is parallel to the axis of said output shaft for interacting with said coil to apply driving torque to said output shaft when current flows through said coil.

4,334,750

FILM ASSEMBLAGE HAVING FILM RELEASABLY ATTACHED TO FILM SPOOL

Peter K. Fichter, Canton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 29, 1980, Ser. No. 220,909
Int. Cl.³ G03B *17/26*; B65H *75/28*
U.S. Cl. 354—275 **3 Claims**



1. A photographic film assemblage adapted for use in a hand-held camera, comprising:

a film cassette;

a spool rotatably supported within said film cassette, said spool including means for defining a slot for receiving a trailing end portion of an elongate strip of film, and means for defining a passageway in communication with said slot;

an elongate strip of unexposed film coiled about said spool with a trailing end portion which is adapted to be received within said slot in said spool; and

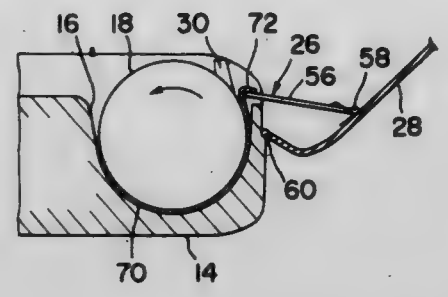
means for releasably securing said trailing end portion of said film to said spool, said securing means including means engageable by an element of a film processor for moving said securing means to a film release position, said securing means being mounted within said passageway for movement between a first operative position, wherein a protrusion thereon extends into said slot and through said trailing end portion of said film so as to secure said trailing end portion to said spool, and a second inoperative or film release position wherein said protrusion of said securing means is no longer extending through said trailing end portion, said securing means further including means cooperative with said spool for preventing the movement of said securing means from said second position to said first position.

4,334,751

EASY-TO-LOAD ROLL-FILM CAMERA

Sei Jinsenji, Tanashi, and Yubao Jibiki, Kawasaki, both of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Oct. 3, 1980, Ser. No. 193,451
Claims priority, application Japan, Oct. 9, 1979, 54-130411; Oct. 9, 1979, 54-130412
Int. Cl.³ G03B *17/28*
U.S. Cl. 354—288 **3 Claims**



1. In a camera for use with a perforated strip of film rolled in a magazine formed to include a mouth protruding tangentially therefrom for feeding out the film, in combination:

(a) a body having a magazine chamber and a spool chamber at opposite ends thereof, the magazine chamber being for accommodating the magazine;

(b) a takeup spool rotatably mounted in the spool chamber for winding up the film unrolled from the magazine in the magazine chamber;

(c) at least one film catcher blade of arcuate cross section pivotally mounted on the takeup spool along one edge of said blade extending parallel to the axis of the takeup spool, the opposite edge of the film catcher blade being biased away from and normally held separated from the surface of the takeup spool;

(d) at least one projection formed on the outer surface of the film catcher blade in the vicinity of said opposite edge thereof for engagement, upon rotation of the takeup spool in a predetermined direction, in one of the perforations in the film unrolled from the magazine, the film catcher blade being held against the surface of the takeup spool in spite of the biasing force when the film is wound up by the takeup spool;

(e) a back cover pivotally mounted on the end of the body where the magazine chamber is disposed;

(f) a magazine orienting member pivotally mounted on the inside surface of the back cover and biased to press the magazine into the magazine chamber, the magazine orienting member being effective, during the closure of the back cover, to engage the mouth of the magazine so as to correctly orient the magazine in the magazine chamber; and

(g) a magazine cradle rotatably fitted in the magazine chamber so as to make frictional contact with the magazine, the magazine cradle being operatively coupled to the magazine orienting member and coacting therewith to correctly orient the magazine in the magazine chamber when the back cover is closed.

4,334,752

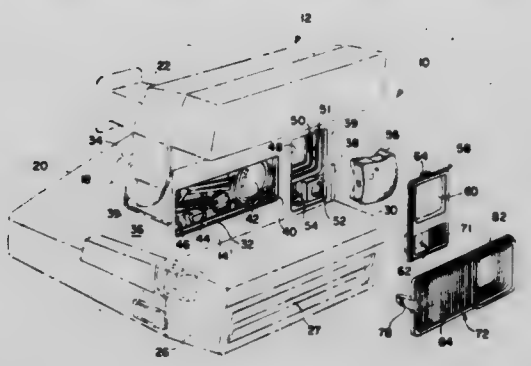
METHOD OF CAMERA MANUFACTURE AND CAMERA APPARATUS

Bruce K. Johnson, Andover, and Fred M. Finnemore, North Reading, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Nov. 28, 1980, Ser. No. 211,333
Int. Cl.³ G03B *17/02, 13/02*
U.S. Cl. 354—288 **3 Claims**

1. In a photographic camera having a housing and a plurality of operational components mounted interiorly of said housing, at least one of said components requiring a final adjustment to

alter its operation to the particular camera into which it is assembled prior to completion of camera assembly and another component being a lens located adjacent said one component and being mountable on said housing, the improvement wherein said housing includes means defining an opening in an exterior front wall surface of the camera and defining a portion for mounting the lens over a part of the opening and wherein said opening is in aligned relation to said one component so as to allow access to said one component and final adjustment thereof by a tool extendable through said opening, and a panel



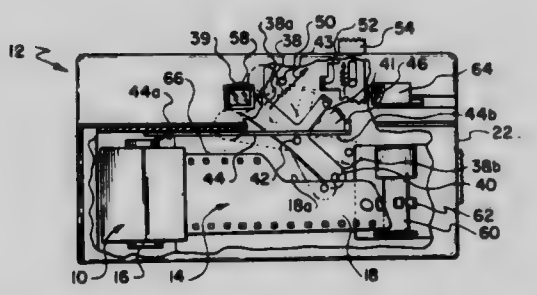
mounted on said housing front wall surface in covering relation to said opening, said panel having a lens opening in aligned relationship to said lens and being constructed to maintain the lens in the mounted condition when assembled, whereby following assembly of said components and said housing into a substantially complete camera, said one component can be finally adjusted by a tool extendable through said opening, and said panel then mounted in covering relation over said opening in said housing and to maintain the lens in the mounted condition.

4,334,753

CAMERA WITH FILM THREAD INDICATING MECHANISM

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 18, 1981, Ser. No. 264,304
Int. Cl.³ G03B *17/00, 1/00*
U.S. Cl. 354—289 **2 Claims**



1. In a photographic camera adapted for use with a film cassette containing an elongate strip of roll film having a full-width exposure portion and a narrower leader portion, the camera having a film supply chamber for receiving the film cassette, a film take-up chamber, a film passageway extending between the supply chamber and the take-up chamber, a film transport mechanism for transporting the film through the passageway and into the take-up chamber, and a shutter mechanism for controlling the exposure interval of the film, the improvement comprising:

a moveable detecting member having a sensing element and a blocking element, the detecting member being movable (1) to a first position in which the blocking element permits operation of the shutter mechanism; (2) to a second position determined by the engagement of the sensing element with a lateral edge of the leader portion of a film located in the film passageway, in which second position the blocking element prevents operation of the shutter release mechanism, and; (3) to a third position determined by the engagement of the sensing element with a lateral edge of the exposure portion of a film located in the film passageway, in which third position the blocking element again permits operation of the shutter mechanism; and

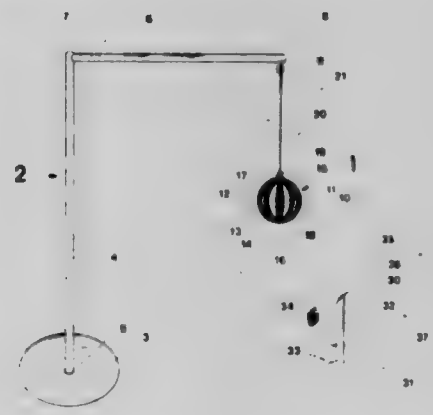
spring means resiliently urging the detecting member to the first position.

4,334,754

STROBOSCOPIC POSING AID

Timothy W. Thompson, 105 S. Madison, Anderson, Ind. 46011

Filed Jan. 30, 1981, Ser. No. 229,826
Int. Cl.³ G03B *15/06*
U.S. Cl. 354—290 **5 Claims**



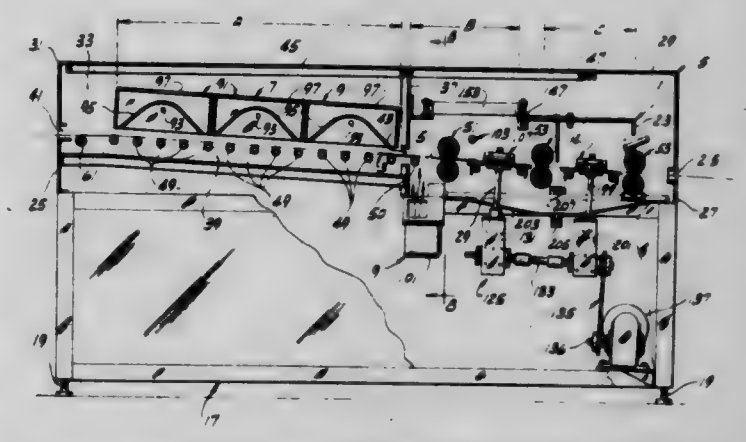
5. A photographer's posing aid comprising a sphere having an outer surface and having provided on the said outer surface thereof a plurality of zones of alternating contrasting colors, wherein the number of said zones is an even integer determined by dividing twice the flicker frequency of a fluorescent light source by a sphere rotational velocity, the said sphere being adapted to be suspended under the force of gravity by a flexible cord means from a support means; support means adapted to support the aforesaid sphere; flexible cord means having two ends wherein one end is connected to the aforesaid support means and the other end is connected to the aforesaid sphere, which cord means is adapted to support and suspend the aforesaid sphere from the aforesaid support means under the force of gravity; and a fluorescent light source adapted to illuminate the aforesaid outer surface of the aforesaid sphere.

4,334,755

APPARATUS AND METHOD FOR PROCESSING LITHOGRAPHIC PLATES

Robert E. Harrell, Manchester; Tedd L. Harrell, Springfield, and Edward H. Parker, Ballwin, all of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Filed Mar. 31, 1980, Ser. No. 135,252
Int. Cl.³ G03D *5/04*
U.S. Cl. 354—299 **29 Claims**



1. Apparatus for processing lithographic plates which have been exposed and developed and which have in their printing

areas a thermal curing agent or agents adapted on being heated to cure to a more abrasion resistant and solvent resistant state, comprising:

means for feeding plates forward one after another in a predetermined path with the exposed and developed face of the plate facing up;

means in a first zone along said path for heating each plate to a temperature such as to effect the curing of the curing agent or agents;

means in a second zone along said path for temperate cooling of each plate without wrinkling the plate;

said feeding means, at least in said second zone, comprising rolls spaced along said path; and

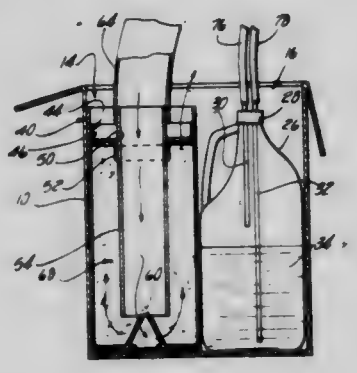
means in a third zone along said path for applying a preservative on said face of each plate.

4,334,756

SELF-CONTAINED DISPOSABLE DEVELOPER/ABSORBER PACKAGE

Norman Michlin, Southfield, and Edward J. Thies, Warren, both of Mich., assignors to Universal Developer Corporation, Detroit, Mich.

Filed Jul. 25, 1980, Ser. No. 172,105
Int. Cl.³ G03D *7/00*
U.S. Cl. 354—300 **15 Claims**



1. A self-contained disposable package for a diazo copy machine of the type including a developer chamber supplied with a development vapor and degassing means for drawing off the ammonia vapors emanating from developed copy, the package comprising:

a carton;

a quantity of developer liquid disposed in a container received within said carton;

a separate quantity of ammonia vapor absorbent material disposed in said carton;

supply and exhaust tubes disposed in said developer container;

a flow tube disposed extending into said carton to direct degassing flow through said ammonia vapor absorbent material;

whereby said carton encloses both a developer liquid and an absorbent material for supply of development vapor to a diazo copy machine and to receive air flow from degassing of said developed copy.

4,334,757

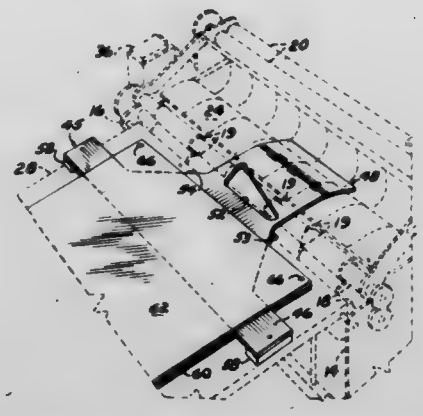
DIFFUSION TRANSFER SHEET REGISTRATION

Thomas L. Byers, P.O. Box 26624, Oklahoma City, Okla. 73126

Filed Sep. 2, 1980, Ser. No. 183,135
Int. Cl.³ G03D *3/08*
U.S. Cl. 354—301 **7 Claims**

1. In combination with a diffusion transfer processor having an elongated entrance opening for admitting a pair of superposed sheets to be processed, a tray containing a chemical bath, a guide overlying the tray for guiding the sheets into and out of the chemical bath and having at least one pair of elongated rollers for progressively advancing the sheets through the processor, the improvement comprising:

a generally T-shaped sheet separator having at least one stem portion projecting, at one end, into the processor intermediate the length of the entrance opening and interposed at its innermost end portion in the chemical bath between the tray and guide,



said separator having a bar portion at least coextensive with the length of the entrance opening and disposed in spaced relation outwardly of the entrance opening; and,

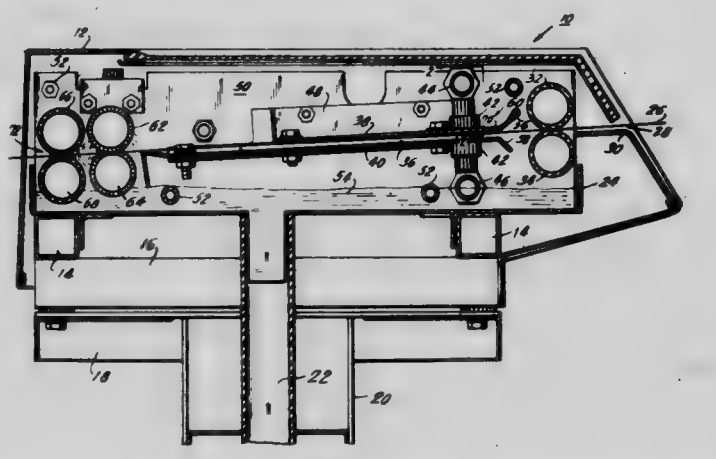
register pin means for joining the edge portion of the sheets adjacent the processor and respectively over and underlying the bar portion on opposing sides of the stem portion.

4,334,758

PLATE PROCESSOR

Joseph Leveille, Chappaqua, N.Y., assignor to Polychrome Corporation, Yonkers, N.Y.

Filed Apr. 10, 1981, Ser. No. 252,732
Int. Cl.³ G03D *5/04*
U.S. Cl. 354—319 **4 Claims**



1. An apparatus for developing offset printing plates, said apparatus comprising:

a developing station including two parallel soaker plates, made of textured stainless steel, defining a developing chamber between them, said soaker plates each having an upstream end and a downstream end and being inclined at a predetermined angle to the horizontal, said upstream end of each said soaker plate being higher than said downstream end thereof, and each said soaker plate having a plurality of ports disposed in a row transverse to the direction in which the printing plates move through said developing chamber whereby developing solution is sprayed on to each surface of the printing plates as they pass through said developing chamber;

reservoir means for containing a supply of developing solution;

means for delivering the developing solution from said reservoir means to the ports of said soaker plates; and

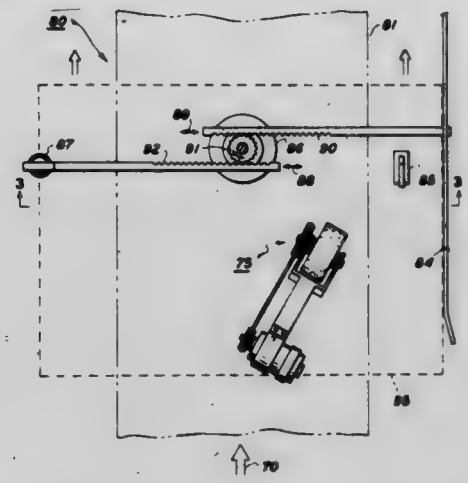
feeding means for delivering a plate to said developing station.

4,334,759

PRECISE CENTER LINE REGISTRATION OF A SUBSTRATE

Don P. Clausing, Brighton, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 3, 1980, Ser. No. 137,081
Int. Cl.³ G03G *15/00*; B65H *9/16, 25/26*
U.S. Cl. 355—3 SH **2 Claims**



1. In a copier having a center line, a document feeding means for feeding documents for copying in seriation, copy processor means for copying each document and sorter means for receiving and sorting the copies, the improvement of precise copier center line registration means, comprising:

side guide means adapted to register copy sheets forwarded toward said processor;

sensor means located opposite said side guide means;

said side guide means and said switch means being symmetrically disposed on either side of the center line and being movable relative thereto at the same speed of movement, and

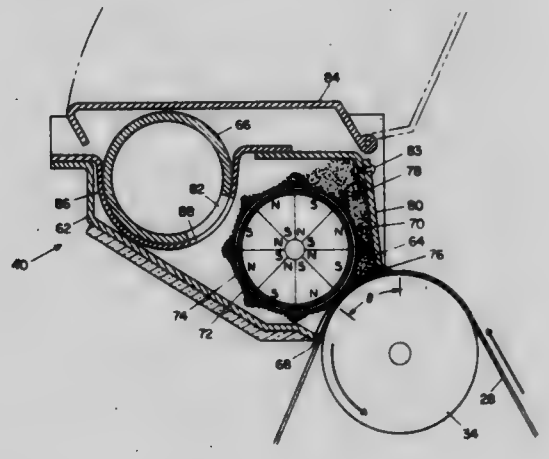
switch means adapted to be actuated by the copy sheet passing along said side guide means, said switch means causing said side guide means and said sensor means to move in unison until said sensor means senses an edge of the copy sheet, and to terminate said moving when the center line registration is achieved.

4,334,760

TONER MECHANISM FOR ELECTROPHOTOGRAPHIC RECORDER

Erwin Rodger, Locust Valley, N.Y., assignor to Litton Systems, Inc., Melville, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,773
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 DD **8 Claims**



3. An electrophotographic recorder for recording an image upon a sheet of paper having charged surface areas thereon, comprising:

a toner reservoir having an opening therein,

a rotatable toner brush assembly mounted within said opening, and

a rotatable paper roller for conveying said paper to said toner brush assembly within said reservoir opening and for exposing said charged surface areas thereon to said toner,

said rotatable toner brush assembly and said rotatable paper roller moving said toner and said paper in the same direction,

said rotatable toner brush assembly and said rotatable paper roller spaced one from the other to permit said paper and that portion of said toner which adheres to said charged surface areas thereon to pass there between while preventing the passage of additional toner,

said additional toner forming a meniscus upon said paper as said paper passes between said toner brush assembly and said paper roller the size of which controls the length of said paper exposed to said toner, and

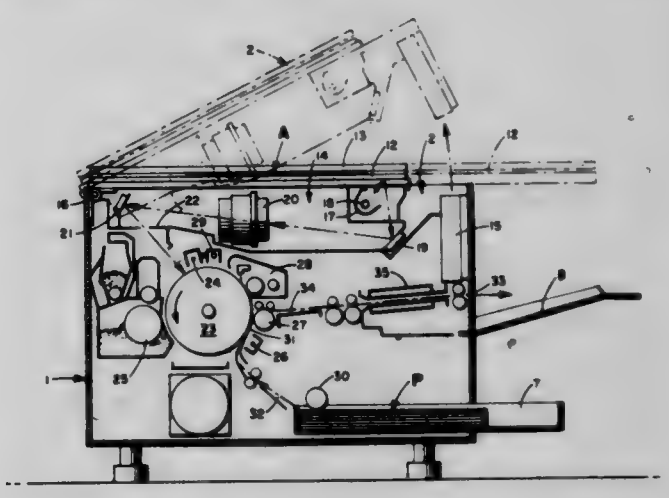
said toner reservoir including an adjustable gate for adjusting the size of said reservoir opening and thereby the size of said meniscus.

4,334,761

ELECTROPHOTOGRAPHIC COPYING MACHINE

Masao Saito, Kamakurashi; Hiroshi Aoya, Ayaseshi, and Naruhito Yoshida, Fujisawashi, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Sep. 17, 1980, Ser. No. 188,100
Claims priority, application Japan, Nov. 16, 1979, 54-158869[U]
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 R **4 Claims**

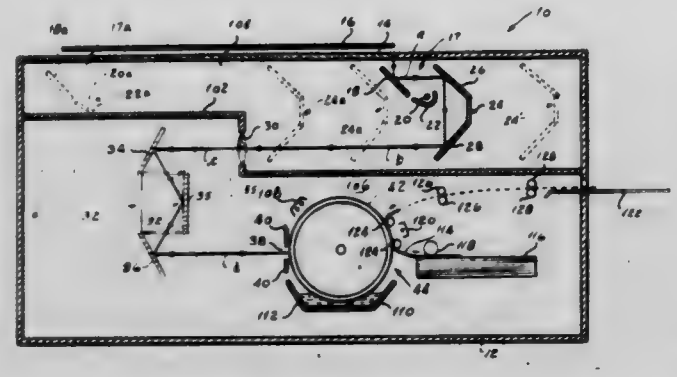


1. In an electrophotographic copying machine having a machine body including first and second sides opposite each other, an upper unit having a reciprocating original holder for holding an original placed thereon, said upper unit being pivotally mounted on said machine body and movable between a closed position during normal operation and an open inclined position when the machine is not operating, a copy paper supply device on said machine body for supplying copy paper to the machine and a receptacle on said machine body for receiving the developed copy paper, the improvement comprising said upper unit being pivotally mounted to said first side of said machine body, said reciprocating original holder of said upper unit extending over only said second side of said machine body and not said first side during reciprocation of said reciprocating holder on said machine body and said copy paper supply device and said receptacle both being located on said second side of said machine body.

4,334,762
SINGLE FIXED POSITION LENS VARIABLE COPY SIZE OPTICAL SYSTEM FOR COPYING MACHINE

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Oct. 15, 1979, Ser. No. 85,110
Int. Cl.[3] G03G *15/28*; G03B *27/52*
U.S. Cl. 355—8 12 Claims

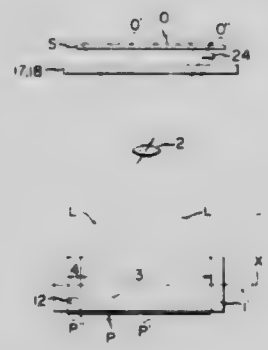


1. An electrophotographic copier including in combination a lens having a pair of refracting surfaces, means including one of said refracting surfaces for forming a first compartment, means including the other of said refracting surfaces for forming a second compartment, means disposed in said first compartment for illuminating a document to be copied, a photosensitive imaging surface disposed in said second compartment, means including said lens for forming on said imaging surface a focused optical image of said document, said image forming means providing an optical path through said lens between said document and said imaging surface, and means disposed in said second compartment for applying a liquid developer to said imaging surface to form a developed image thereon, said means for forming said first and second compartments forming an optical and thermal seal between said compartments isolating said illuminating means from said liquid developer.

4,334,763
ELECTROPHOTOGRAPHIC COPYING APPARATUS

Haruhisa Honda; Shinji Murata, both of Tokyo; Tsutomu Toyono, Higashi Ohizumimachi; Yoshiaki Sone, Tokyo, and Teruo Morikawa, Sagamihara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 21, 1980, Ser. No. 141,920
Claims priority, application Japan, Apr. 24, 1979, 54-51127
Int. Cl.[3] G03G *15/28*; G03B *27/54, 27/72*
U.S. Cl. 355—8 30 Claims

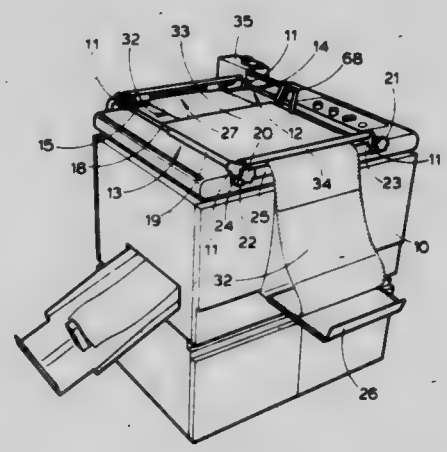


25. An electrophotographic copying apparatus comprising:
original supporting means for supporting thereon an original to be copied;
a movable electrophotographic photosensitive medium having an image bearing area and a non-image bearing area set thereon, said non-image bearing area being set on the side edge portion of said photosensitive medium;
charging means for charging both of said two areas of said photosensitive medium at a charging station;
original scanning means, including illuminating means movable relative to the original for illuminating the original;
a projection optical system for projecting the optical image of said original illuminated by said illuminating means upon said image bearing area of said photosensitive medium charged by said charging means;
reflecting means disposed at a position between said illuminating means and said original supporting means and below the side edge of said original supported by said original supporting means, said reflecting means moving relative to the original during the operation of said original scanning means, wherein the light from said illuminating means reflected by said reflecting means passes through said projection optical system and impinges on said non-image bearing area of said photosensitive medium charged by said charging means.

4,334,764
SHEET FEEDING APPARATUS

Lionel E. J. Rawson, Fairhill, Ash Priors, Taunton, Somerset, and John Wray, Westwood House, Pitney, Langport, Somerset, both of England

Filed Apr. 29, 1980, Ser. No. 144,891
Claims priority, application United Kingdom, May 8, 1979, 7915789
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—14 SH 16 Claims



7. Apparatus for automatically feeding sheet material to a photocopier for reproduction comprising means for removably connecting the apparatus to a photocopier, means for feeding the sheet material, said feeding means comprising tooth rollers which are driven so as to rotate by one complete revolution and then stop whereby to feed said sheet material discontinuously so that whilst the sheet material is stationary it may be reproduced, and signal receiving means for receiving signals from the photocopier for controlling operation of the feeding means.

4,334,765
BOOKLET PREPARATION UTILIZING AN ELECTROPHOTOGRAPHIC APPARATUS

Gary A. Clark, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 9, 1980, Ser. No. 158,036
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—14 SH 17 Claims

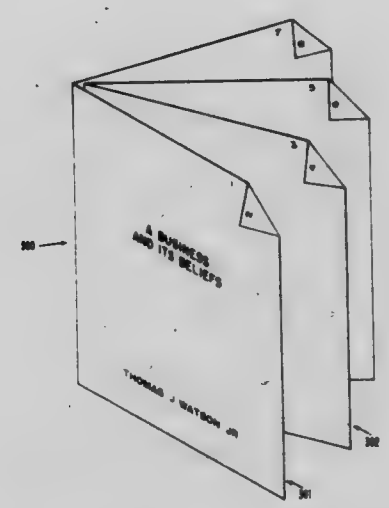
1. In combination, a copier for providing copy sheets carrying images of indicia from a plurality of original documents, including:
an input stack comprising a plurality of original documents carrying indicia to be copied;
a reproduction position capable of holding one original document at a time;
an automatic document feed for automatically feeding successive ones of the original documents from the input stack to the reproduction position;

an imaging surface, capable of receiving at an image area an image of the indicia on the original document at the reproduction position;

optics, intermediate the reproduction position and the imaging surface, for impressing on a plurality of selectable portions of the imaging surface image area the image of the indicia on the original document at the reproduction position;

a source of blank copy sheets;

reproduction means for providing, at an output, copy sheets carrying reduced images of the indicia on original documents;



first controls, operable to cause the document feed to alternately feed odd-numbered and even-numbered original documents from the input stack to the reproduction position;

second controls, operable to cause the optics to select one portion of the imaging surface image area for odd-numbered original documents and another portion for even-numbered original documents; and

third controls, operable to cause the reproduction means to provide, at the reproduction means output, copy sheets, each carrying a reduced image of the indicia from two original documents.

4,334,766

BLADE-TYPE CLEANING DEVICE FOR ELECTROPHOTOGRAHIC COPYING MACHINE

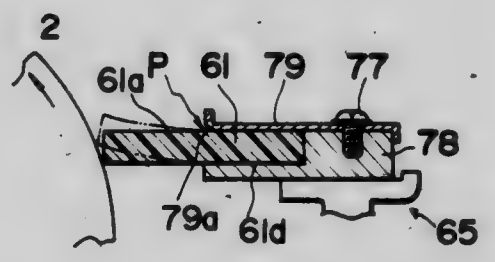
Takashi Sugiyama; Masaya Ogawa, both of Osaka, and Hiroshi Murasaki, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 71,794, Aug. 31, 1979, Pat. No. 4,284,345. This application May 8, 1980, Ser. No. 149,126

Claims priority, application Japan, Sep. 19, 1978, 53-115256; Sep. 19, 1978, 53-115257; Apr. 13, 1979, 54-50010[U]; May 31, 1979, 54-74588[U]

Int. Cl.³ G03G *21/00*

U.S. Cl. 355—15 **6 Claims**



1. A blade-type cleaning device for use in an electrophotographic copying machine having a rotating photoconductor member, said cleaning device comprising:

an elastic blade member held in pressing contact with the surface of the rotating photoconductive member for removing residual toner from the surface thereof during the movement of said photoconductive member; and

holder means for holding said blade member at an angle θ defined by $65° \leqq \theta \leqq 85°$ relative to the portion of a tangent to said surface and which portion extends on the side of the blade toward which the uncleaned portion of said surface is moving, said holder means having a leading edge portion towards said photoconductor and toward which said blade member is urged by said pressing contact, and said holder means holding said blade member for providing a degree of freedom of movement between the surface of said blade member confronting said leading edge portion and said leading edge portion for preventing generation of abnormal noise resulting from vibration of said blade member.

4,334,767

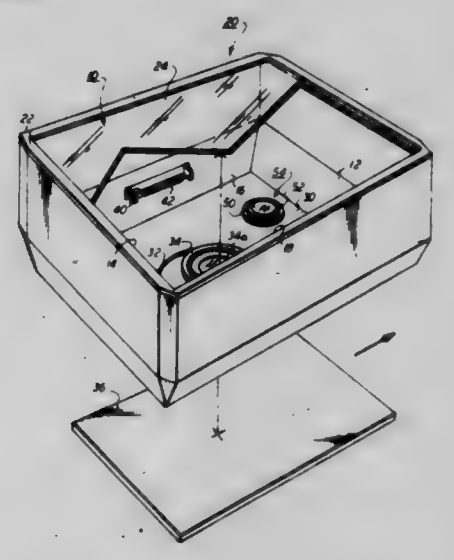
FLASH EXPOSURE SYSTEM

Richard F. Lehman, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 29, 1979, Ser. No. 53,603

Int. Cl.³ G03B *27/80*

U.S. Cl. 355—68 **3 Claims**



1. An automatic exposure control system for a document copying machine comprising:

a housing having a top surface defining an object plane and containing a platen for supporting a document to be copied, a bottom surface having a first aperture accommodating a lens for focusing an image of a document on a photoconductor image plane, the interior surface of said housing being diffusely reflective to light incident thereon;

a flash illumination source located within said housing;

means to pulse said illumination source to produce light flashes which undergo multiple reflections within said housing surfaces to provide a uniformly diffuse irradiation at the platen and

light intensity sensing means positioned below a second aperture in said bottom surface, so as to image only a portion of the document through said aperture.

4,334,768

RECEPTACLE FOR NEGATIVE CARRIERS

Michael H. Parik, San Francisco, Calif., assignor to Professional Photo Products, Inc., San Rafael, Calif.

Filed Jul. 28, 1980, Ser. No. 172,773

Int. Cl.³ G03B *27/62*

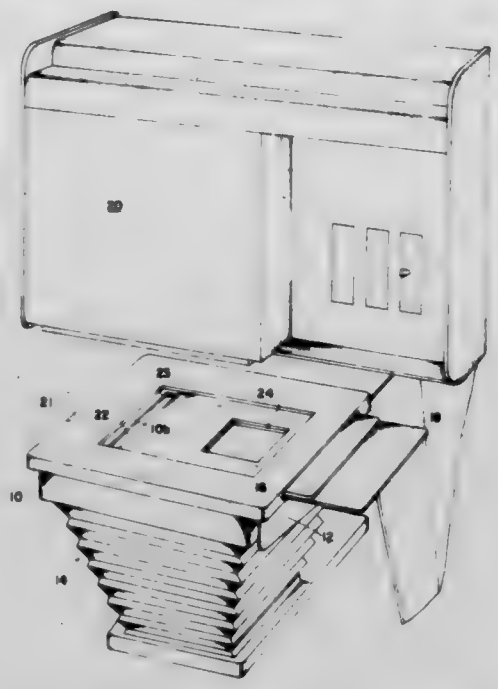
U.S. Cl. 355—75 **4 Claims**

1. For installation in a photographic enlarger wherein a negative in a rigid frame-carrier is positioned between a light source housing and a bellows:

a flat receptacle having rectangular top and bottom walls with openings therein for transmission of light;

blocks on the lower surface of said bottom wall on opposite sides of the opening therein adapted to engage snugly in

and interlock with the opening in the top mounting plate of an enlarger bellows with the outer edges of said blocks



engaging the inner edges of said mounting plate opening to prevent horizontal displacement of said receptacle, and a slot in a side wall to receive a negative carrier.

4,334,769

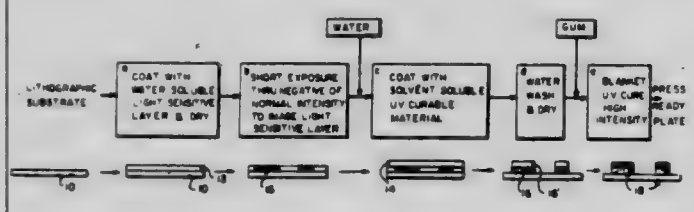
APPARATUS FOR MAKING A LITHOGRAPHIC PRINTING PLATE WITH REINFORCED IMAGE

Howard A. Fromson, 15 Rogues Ridge Rd., Weston, Conn. 06880, and Robert F. Gracia, Scituate, Mass., assignors to Howard A. Fromson, Weston, Conn.

Continuation-in-part of Ser. No. 972,561, Dec. 22, 1978, abandoned. This application Apr. 21, 1980, Ser. No. 142,519

Int. Cl.[3] G03F *7/08;* G03B *27/30;* B41M *5/00*

U.S. Cl. 355—100 4 Claims



4. Apparatus for making a lithographic printing plate which comprises:

(a) means for exposing to actinic light a lithographic plate having a water soluble light sensitive layer thereon to form an image in said layer;

(b) means for removing the non-image areas of said layer from the exposed plate from paragraph (a);

(c) means for applying a solvent soluble UV material to the image areas of the plate from paragraph (b); and

(d) means for exposing the plate to a UV source having an intensity greater than the imaging light means of paragraph (a), said UV source having an intensity sufficient to cure the UV material to form a press-ready plate having a durable, reinforced cured image thereon.

4,334,770

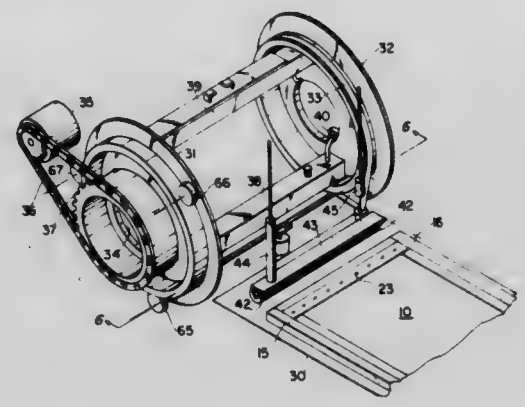
METHOD AND APPARATUS FOR MANIPULATING AND TRANSPORTING IMAGE MEDIA

Robert M. Landsman, Annandale, Va., assignor to LogEtronics, Inc., Springfield, Va.

Division of Ser. No. 972,628, Dec. 22, 1978, Pat. No. 4,262,594. This application Jul. 7, 1980, Ser. No. 166,433

Int. Cl.[3] G03B *27/22*

U.S. Cl. 355—104 17 Claims



1. An apparatus for transporting and forming a flat image receiving medium to a precise curvature for recording an image thereon, said apparatus comprising:

(a) a pair of spaced cylindrical reference discs mounted for rotation about a common axis, the periphery of said discs defining a precise cylindrical plane therebetween;

(b) a flexible carrier having a first leading edge, said flexible carrier being rigid in a first planar axis parallel to said leading edge and flexible in a second planar axis at right angles to said first axis, said carrier having a pair of reference strips positioned to engage the spaced cylindrical discs, thereby to define a neutral axis of curvature at their respective points of contact with the discs, said carrier also defining a planar surface for supporting and transporting an image receiving media;

(c) gripping means carried by said cylindrical discs for engaging and gripping said first leading edge of said carrier and securing it tangentially to the periphery of said discs; and

(d) means for rotating said discs after said gripping means have engaged said carrier to wrap said carrier around said discs, whereby the planar surface of said carrier is formed into a precise cylindrical plane concentric with the axis of said discs.

4,334,771

VISUALLY DESCRIPTIVE INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL SET

LeRoy J. Ryan, Jr., 5300 W. Hutchinson St., Chicago, Ill. 60641

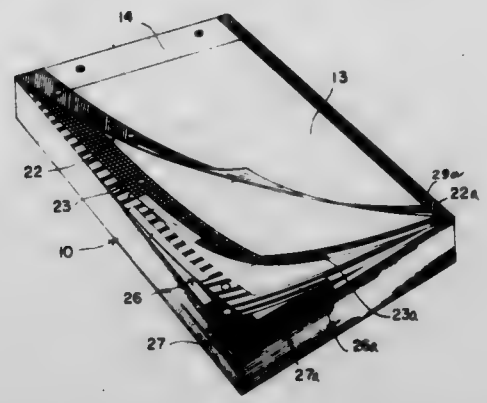
Division of Ser. No. 892,104, Mar. 31, 1978, Pat. No. 4,241,994, which is a continuation of Ser. No. 483,634, Jun. 27, 1974, abandoned. This application Nov. 21, 1980, Ser. No. 209,000

Int. Cl.[3] G03B *00/00*

U.S. Cl. 355—133 1 Claim

1. A visually descriptive information transmission, storage, and retrieval set comprising a plurality of stacked sheets of substantially white paper, means for separably connecting said sheets together along one edge whereby each sheet may be separated from the set, an image area substantially centrally located on each sheet within which information may be inserted, means for transferring at least a portion of information recorded on the first sheet of the set during use thereof to a predetermined number of other sheets in the set, and colored printed coding means of a different nature on each sheet in the set outside of and between the image area and at least the bottom and side edges of each sheet, so that each sheet may be readily visually identified for routing to and filing in a predetermined place, said colored printed coding means being distinctive for each sheet by having differences from each other in

pattern, color, or saturation, and including at least one substantially rectangular block on each sheet in said coding area between said bordered image area and an edge of said sheet, said



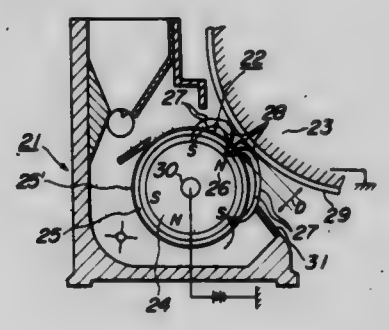
block having printed indicia therein for further determination of at least one of the following: to whom the sheet goes, location of the sheet final resting place, the organizations which send and receive the sheet, and the purpose of the sheet.

4,334,772

ELECTROPHOTOGRAPHIC APPARATUS OF RETENTIVE TYPE

Yoshiro Suzuki, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Jan. 30, 1980, Ser. No. 116,826
Claims priority, application Japan, Feb. 2, 1979, 54/11137
Int. Cl.³ G03G *15/00, 15/09*
U.S. Cl. 355—3 DD **6 Claims**



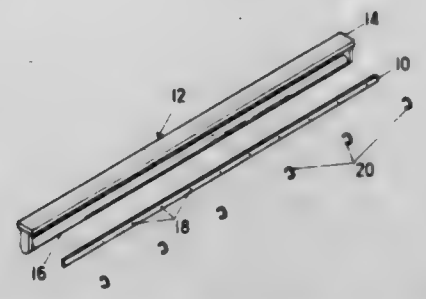
1. In an electrophotographic apparatus for printing a plurality of duplicated copies from the same and single electrostatic charge image once formed on the surface of an electrostatic charge retentive member by repeating developing and transferring operations in succession, a magnetic brush development device comprising: an electrically conductive sleeve; an electrically insulating layer applied on said sleeve, said insulating layer having a magnetic flux density in the range of about 600 to 800 Gauss, a surface resistance higher than about $10^{10}\Omega$-cm, and being positioned a distance in the range of about 2 to 5 mm from the surface of the charge retentive member; a magnet device arranged inside said sleeve to form on a surface of said insulating layer a magnetic brush of a two component developing agent consisting of magnetic carriers having a surface resistance lower than about $10^{8}\Omega$-cm and insulating toners, said toners representing greater than 6% of the total weight of said agent; a doctor blade for defining furs of said magnetic brush, said furs for developing said charge image with said toners to form a toner image on the surface of said charge retentive member, each of said furs having a length less than approximately 6 mm, the difference between said fur length and the distance between said sleeve and said surface of the charge retentive member being less than about 2.0 mm; and a device for transferring said toner image onto a record paper to form a copy.

4,334,773

CLIP-ON LENS TARGET

Norman N. Goldberg, 1408 Baskerville, Madison, Wis. 53716

Filed Jun. 4, 1980, Ser. No. 156,506
Int. Cl.³ G01B *9/00*
U.S. Cl. 356—124 **6 Claims**



1. A photographic lens test target (10) adapted to be mounted on an elongated flourescent light tube (12), comprising:

an elongated strip of opaque, sheet material sized so that it can be fitted over the flourescent light tube (12) with acurvature similar to that of the tube (12),

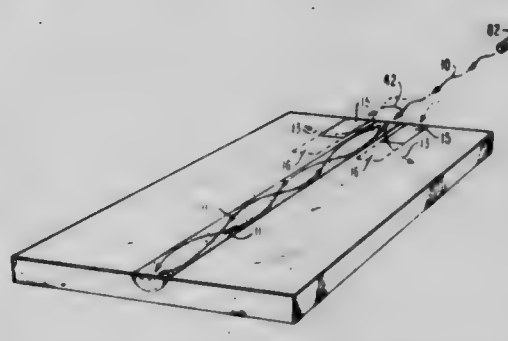
the strip being sufficiently flexible that it can be coiled into a small coil for easy and compact carrying, the strip having a plurality of accurately spaced and sized holes (18) formed therein so that when the strip is fitted over the light source (12) a standard light pattern is created so that photographs taken of the standard light pattern can be analyzed to determine the accuracy of the optics of the camera making the photographs.

4,334,774

ALIGNMENT OF OPTICAL COMPONENTS

Alastair M. Glass, Rumson; Ivan P. Kaminow, Tinton Falls, and Donald H. Olson, Colts Neck, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 31, 1979, Ser. No. 108,950
Int. Cl.³ G01B *11/26*; G01J *1/00*; H01L *31/08*; G02B *5/14*
U.S. Cl. 356—152 **9 Claims**



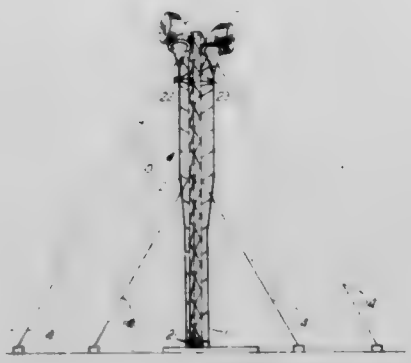
1. A process for aligning an optical component having an output of electromagnetic radiation with a wavepath that comprises a pyroelectric material and that is capable of guiding said electromagnetic radiation, comprising the steps of modulating said output of electromagnetic radiation, directing said output of electromagnetic radiation onto said wavepath, guiding at least a portion of said electromagnetic radiation through said wavepath monitoring a similarly modulating current produced at electrodes in proximity to said wavepath due to a change in dielectric polarization in said pyroelectric material induced by said guiding of said electromagnetic radiation, and adjusting the relative position of said optical component to said pyroelectric material to increase said current.

4,334,775

METHOD FOR DYNAMICALLY DETERMINING THE HORIZONTAL MOTION AND TWIST OF A MICROWAVE TOWER

Jerry D. Breecher, Worcester County, Mass., and Bruce E. Truax, Plainsboro Township, Middlesex County, N.J., assignors to Western Electric Co., Inc., New York, N.Y.

Filed Apr. 3, 1980, Ser. No. 136,843
Int. Cl.[3] G01B *11/26*
U.S. Cl. 356—152 2 Claims



1. A method for dynamically determining the twist and sway of a microwave radio tower, comprising the steps of:

(a) directing a laser beam at a first galvanometer controlled rotatable mirror positioned proximate the base of the tower;

(b) reflecting the beam from the first mirror to a second galvanometer controlled rotatable mirror having an axis of rotation orthogonal to that of the first mirror to scan an area in a plane which is substantially perpendicular to the axis of the tower, which plane contains a first and second retroreflector fixedly mounted, in spaced relation, on the tower;

(c) searching the area by scanning said plane with the laser beam in a predetermined pattern;

(d) reflecting the beam over the same path from whence it came from the beam impinges on the first retroreflector;

(e) detecting the beam reflected from the first retroreflector to initiate interrogation of the galvanometer control apparatus to obtain the positions of the mirrors at the time the beam was reflected by the first retroreflector;

(f) processing the positional information of the mirrors to determine the direction of the beam impinging on the first retroreflector;

(g) repeating steps (c), (d), (e) and (f) to determine the direction of the beam impinging on the second retroreflector;

(h) calculating the position of the first and second retroreflectors based upon the laser beam directions determined in steps (f) and (g); and

(i) determining the twist and sway of the tower using the position of the first and second retroreflectors.

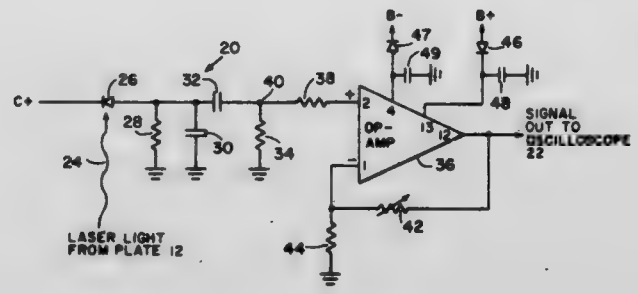
4,334,776

HOLOGRAPHIC PLATE EXPOSURE METER

Robert W. Jones, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 3, 1980, Ser. No. 109,379
Int. Cl.[3] G01J *1/42*
U.S. Cl. 356—218 1 Claim

1. A photographic plate exposure meter for detecting the presence or absence of a single pulse of laser energy impinging on a photographic plate comprising: detector means, an integrating circuit, an amplifier, and display means; said detector means being a photodiode for detecting the presence of laser light from a pulse of laser light energy that is reflected or scattered by said plate and providing an electrical output; said display means being an oscilloscope display means; said amplifier being an operational amplifier having an input and an output, said output being coupled to provide an amplified electrical output to said display means, and said integrating circuit being a passive, resistance-capacitance, integrating circuit coupled between said photodiode electrical output and



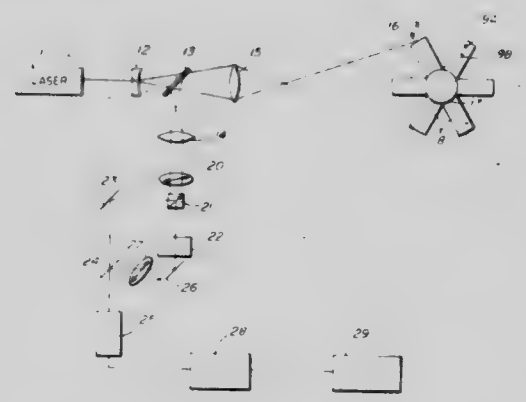
said operational amplifier input for integrating the single pulse signal coupled therethrough and blocking any direct current interference signal.

4,334,777

METHOD OF MONITORING MOTION

Fritz Bien, Billerica, and Morton Camac, Lexington, both of Mass., assignors to Aerodyne Research, Inc., Bedford, Mass.

Continuation-in-part of Ser. No. 708,307, Jul. 26, 1976, Pat. No. 4,086,808. This application Sep. 1, 1977, Ser. No. 829,928
Int. Cl.[3] G01B *9/02*
U.S. Cl. 356—349 6 Claims



2. In a method of monitoring motion of a mechanical element including determining the direction of motion toward or away from a source, the steps comprising:

mounting on said mechanical element at least a pair of retroreflectors characterized by reflecting beams of light to a fixed detector position independently of the position of said retroreflectors during the motion being monitored,

moving said element through a path of motion to be monitored,

directing coherent light to each of said pair of retroreflectors, and reflecting beams of light to said detector position,

establishing a different carrier frequency of one of said beams relative to the other of said beams, whereby each reflected beam includes a carrier frequency modulated by a signal frequency corresponding to motion of said reflector,

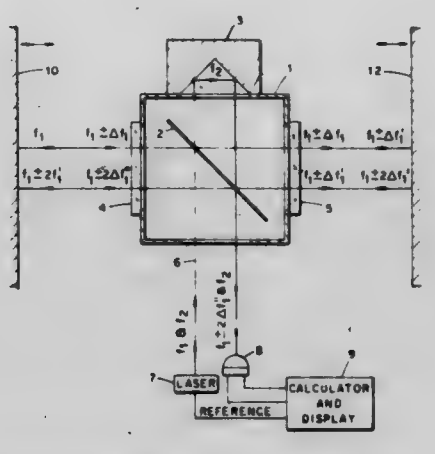
beating the resulting beams at said fixed detector position,

thereby identifying direction of motion as a function of increasing or decreasing beat frequency.

4,334,778
DUAL SURFACE INTERFEROMETER

Robert M. Pardue, Knoxville, and Richard R. Williams, Oak Ridge, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 12, 1980, Ser. No. 186,870
Int. Cl.[3] G01B *9/02*
U.S. Cl. 356—349 3 Claims



1. An interferometer for measuring relative displacement between opposed parallel plane mirror surfaces along a displacement path perpendicular to said surfaces, comprising:

a polarized beam splitter disposed between said opposed surfaces at a 45° angle with respect to said path of displacement of said surfaces;

a first plane mirror converter disposed between said beam splitter and a first one of said surfaces;

a second plane mirror converter disposed between said beam splitter and the second one of said surfaces;

means for generating and directing a beam of coherent light including two different beam frequencies (f_1 and f_2) orthogonally polarized onto a first area of said beam splitter so that the beam f_1 is transmitted to and reflected from said first and second surfaces sequentially along a first beam path perpendicular to said surfaces, and passing through said first area of said beam splitter; and

a retroreflector disposed in a fixed relationship with respect to said beam splitter to intercept said transmitted and reflected beam f_1 so that said beam f_1 is retroreflected onto said beam splitter at a second area thereof to be further transmitted to and reflected from said first and second surfaces sequentially along a second beam path parallel to said first beam path and passing through said second area of said beam splitter, and said beam f_2 passing through said beam splitter is intercepted and retroreflected onto said second area of said beam splitter to combine with said beam f_1 following said further transmission and reflection of said beam f_1 along a common exit beam path perpendicular to said first and second beam paths, said exit beam including a Doppler frequency shift of said beam f_1 corresponding to relative displacement of said surfaces.

4,334,779
NON-CONTACT OPTICAL APPARATUS FOR MEASURING THE LENGTH OR SPEED OF A RELATIVELY MOVING SURFACE

Jacques Domey, and Marc Rioux, both of Ottawa, Canada, assignors to Canadian Patents & Dev. Limited, Ottawa, Canada

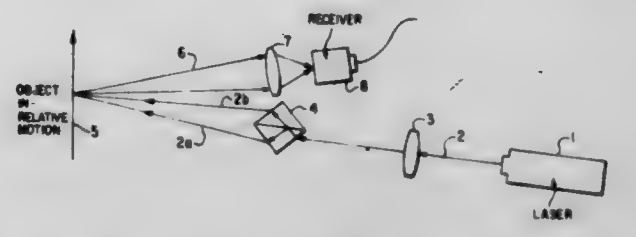
Filed Aug. 4, 1980, Ser. No. 174,574
Int. Cl.[3] G01B *9/02*
U.S. Cl. 356—358 6 Claims

1. A non-contact optical measurement apparatus for measuring the length or speed of a solid surface in relative motion with the apparatus comprising:

means for producing an optical interference pattern on the surface;

means for receiving modulated light reflected from the surface; and

signal processing means coupled to the receiving means, the signal processing means including converter means for converting the modulated light to a pulse train, detector

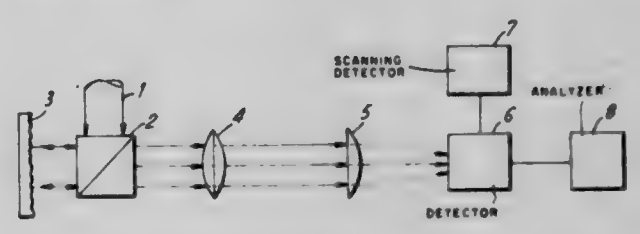


means for detecting a break in the sequence of pulses in the pulse train, correction means for adding pulses to the pulse train during the break in the pulse sequence, and indicator means for indicating the length of the surface or the speed of the relative motion as a function of the corrected pulse train.

4,334,780
OPTICAL SURFACE ROUGHNESS DETECTION METHOD AND APPARATUS

Benjamin J. Pernick, Hampton Bays, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,331
Int. Cl.[3] G01B *11/30;* G01N *21/47*
U.S. Cl. 356—359 11 Claims



1. A method for optically evaluating the surface roughness characteristics of a specimen having a surface characterized by Gaussian statistics comprising the steps of:

(a) illuminating the surface of the specimen with a source of coherent light;

(b) forming on detecting means located in the far field a joint one-dimensional image and orthogonal Fourier transform spectrum distribution of the light scattered by the surface of the specimen, said joint distribution being characterized by a one-dimensional Gaussian function; and

(c) analyzing the shape of the joint one-dimensional image and orthogonal Fourier transform spectrum distribution to determine the surface roughness characteristics of the specimen.

4,334,781
OPTICAL SENSING SYSTEM

Takeshi Ozeki, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 3, 1980, Ser. No. 156,258
Claims priority, application Japan, Jun. 8, 1979, 54/71282; Jun. 21, 1979, 54/77505
Int. Cl.[3] G01J *4/00;* G02B *5/23*
U.S. Cl. 356—368 17 Claims

1. An optical sensing system comprising:

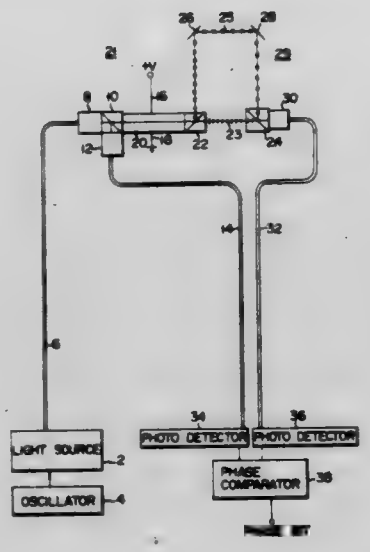
means for generating an input optical signal whose intensity is modulated by an oscillating input signal with a fixed frequency f;

first means for transferring the input optical signal;

sensing means for splitting the input optical signal into two light components, the splitting ratio between the two light

components being varied by a physical quantity to be sensed;

optical power subtracting means for providing a time delay $\tau=(2m+1)/2f$ ($m=0, 1, 2, \ldots n$) between the two light components and composing the two light components to supply an output optical signal having an intensity difference between the two light components modulated by the frequency f;



second means for transferring the output optical signal;

means for detecting the output optical signal supplied from the second means; and

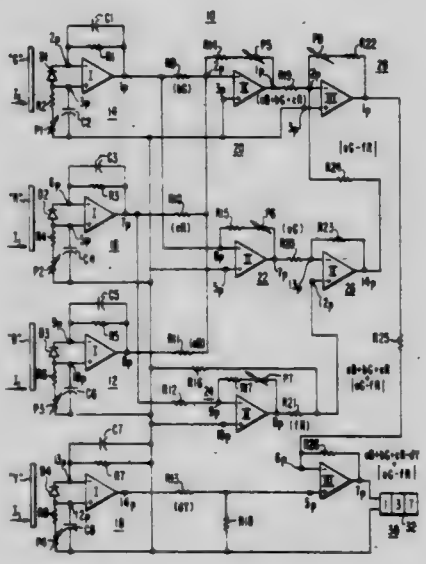
means for comparing the phase of the output optical signal with that of the input signal to generate an in-phase signal or an out-of-phase signal.

4,334,782

METHOD AND APPARATUS FOR EXPRESSING RELATIVE BRIGHTNESS OF ARTIFICIAL ILLUMINATION AS PERCEIVED BY THE AVERAGE OBSERVER

William A. Thornton, Jr., Cranford; Edward Chen, Glen Rock; Edward W. Morton, Teaneck, and Dorothy Rachko, Passaic, all of N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 25, 1980, Ser. No. 181,338
Int. Cl.³ G01J *3/50*
U.S. Cl. 356—406 **7 Claims**



4. Apparatus for expressing as a number the relative brightness of artificial illumination as it is perceived by the average observer, which apparatus comprises:

means for extracting from the illumination to be measured, portions of the illumination spectrum which fall within the following radiation bands: a blue-appearing narrow band having a mean wavelength of from about 440 nm to about 460 nm, a green-appearing narrow band having a mean wavelength of from about 520 nm to about 540 nm, a yellow-appearing narrow band having a mean wavelength of from about 570 nm to about 590 nm, and a red-orange-appearing narrow band having a mean wavelength of from about 610 nm to about 630 nm;

means for generating from said four extracted radiation bands, a series of six signals which bear the following proportional relationship to one another: a signal expressed as (aB) where (a) is a coefficient of about $0.23\pm10\%$ and (B) is the watts of radiation energy in said blue-appearing band, a signal expressed as (bG) where (b) is a coefficient of about $0.97\pm10\%$ and (G) is the watts of radiation energy in said green-appearing band, a signal expressed as (cR) where (c) is a coefficient of about $0.33\pm10\%$ and (R) is the watts of radiation energy in said red-orange-appearing band, a signal expressed as (dY) where (d) is a coefficient of about $0.19\pm10\%$ and (Y) is the watts of radiation energy in said yellow-appearing band, a signal expressed as (eG) where (e) a coefficient of about $0.25\pm10\%$ and (G) is the watts of radiation energy in said green-appearing band, and a signal expressed as (fR) where (f) is a coefficient of about $0.25\pm10\%$ and (R) is the watts of radiation energy in said red-orange-appearing band; and

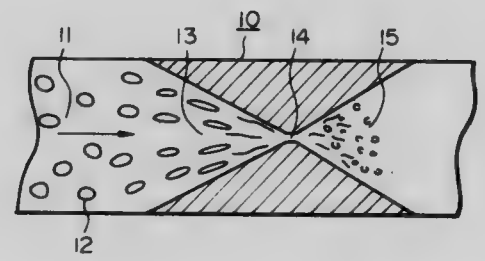
means for combining the generated signals in the following manner: aB plus bG plus cR minus dY plus (the larger of eG and fR minus the smaller of eG and fR), and means for expressing said combined signals as a number.

4,334,783

MIXING DEVICE

Yukinori Suzaka, Ooita, Japan, assignor to Showa Denko Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 17, 1979, Ser. No. 104,100
Claims priority, application Japan, Dec. 21, 1978, 53-156921; Oct. 26, 1979, 54-137737
Int. Cl.³ B28C *1/16*; B01F *5/06*
U.S. Cl. 366—69 **3 Claims**



1. A mixing device suitable for use in the uniform mixing of polymer substances in a molten state, said mixing device including at least one mixing nozzle comprising (i) an orifice portion and (ii) at least one zone selected from an upstream compression zone and a downstream diffusion zone, wherein

the ratio of the maximum opening cross-sectional area of said zone to the minimum opening cross-sectional area of the orifice portion is 100 or more; and the axial length of said zone is not less than $2\sqrt{S_2/\pi}$ mm, wherein S_2 is the minimum opening cross-sectional area of said orifice portion.

4,334,784

METHOD FOR PROCESSING THERMOPLASTICS OR THERMOSETTING PLASTICS

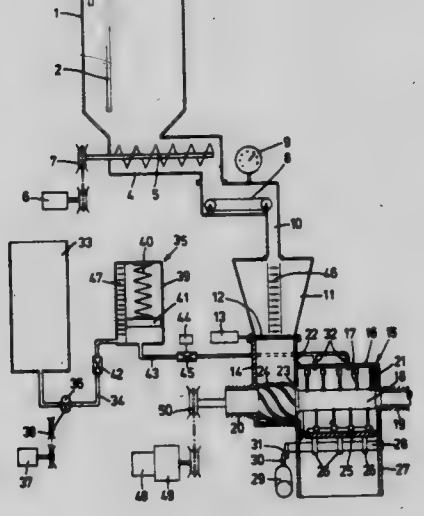
Kaspar Engels, Mannheim, Fed. Rep. of Germany, assignor to Draiswerke GmbH, Mannheim-Waldorf, Fed. Rep. of Germany

Continuation of Ser. No. 811,185, Jun. 29, 1977, abandoned. This application Aug. 3, 1979, Ser. No. 63,401

Claims priority, application Fed. Rep. of Germany, May 11, 1977, 2721169

Int. Cl.[3] B28C *7/04*

U.S. Cl. 366—76 7 Claims



1. In a method of processing plastics comprising supplying a batch comprising a predetermined quantity of material to be processed to a container having mixing members therein, causing the batch of material to be gelled by heat produced by friction as the mixing members are moved through the batch of material, expelling the entire batch of processed material from the container, and, only after said expelling step, repeating the supplying, causing and expelling steps with another batch of material, the improvement by which a batch of material may be continuously formed while another batch is being processed, comprising the steps of:

continuously providing material to be processed in a continuous, constant, gravimetrically-determined quantity stream, whereby a constant weight of material is provided per unit of time, wherein the rate of material being provided is sufficient to provide said predetermined quantity batch of material in approximately the time necessary to complete said supplying, causing and expelling steps;

temporarily storing the material being continuously provided in said providing step until a batch of approximately said predetermined quantity has been accumulated; and

feeding the entire amount of temporarily stored material to the container at predetermined cyclic time intervals corresponding to the accumulation of a batch of approximately said predetermined quantity during said temporarily storing step, whereby said time intervals will also necessarily approximate the time necessary to complete said supplying, causing and expelling steps, and wherein said feeding step constitutes said supplying step.

4,334,785

SHAFT FOR WORKING MATERIAL ON MACHINES FOR WORKING MATERIALS OF SOLID, LIQUID, PLASTIC AND/OR HIGHLY VISCOUS CONSISTENCY

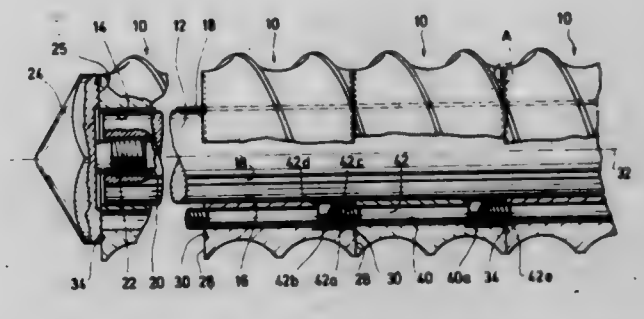
Josef A. Blach, Asperg, Fed. Rep. of Germany, assignor to Automatik Apparate-Maschinenbau H. Hench GmbH, Groossostheim, Fed. Rep. of Germany

Filed Jun. 18, 1980, Ser. No. 160,593

Claims priority, application Fed. Rep. of Germany, Jun. 18, 1979, 2924462

Int. Cl.[3] B01F *7/08;* B29B *1/04*

U.S. Cl. 366—79 11 Claims



1. Processing shaft for working materials of solid, liquid, plastic and/or highly viscous consistency, comprising:

(a) a driving shaft and at least three sleeve-type work segments arranged to be mounted on said driving shaft for rotation therewith;

(b) each of said work segments including end faces, adjacent end faces of adjacent work segments abutting against each other;

(c) at least one clamping device associated with each two of said adjacent end faces for sealingly pressing said adjacent end faces against each other in axial direction;

(d) at least one of each of said adjacent end faces being provided with an endless groove extending around the driving shaft; and

(e) a washer received in said groove for being compressed between adjacent end faces.

4,334,786

PROCESS AND MECHANISM FOR EVOLUTIVE PULP FLOW REGULATION

Adrien Delcoigne, Chantilly, and Jacques Lanneau, Breuil le Vert, both of France, assignors to Saint Gobain Industries, Neuilly, France

Filed Jan. 15, 1979, Ser. No. 3,415

Claims priority, application France, Feb. 8, 1978, 78 03473; Feb. 8, 1978, 78 03474; Feb. 8, 1978, 78 03475

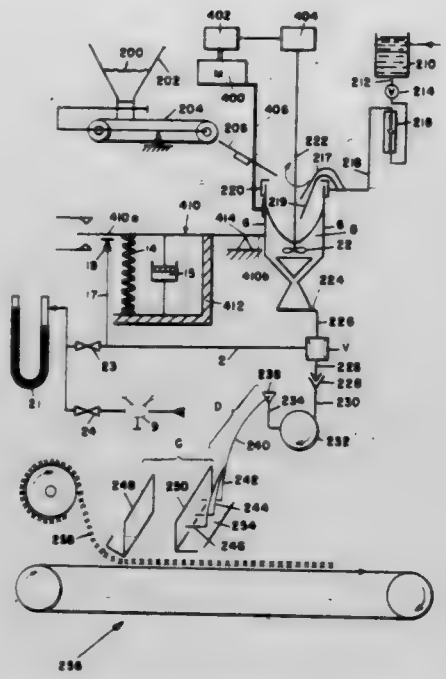
Int. Cl.[3] B01F *7/22, 11/00, 15/02, 15/04*

U.S. Cl. 366—132 31 Claims

1. For evolutive pulp flow rate setting through piping, a process preventing deposits of said pulp in a narrow channel in said piping comprising:

subjecting piping portions adjacent the said narrow channel where deposit is likely to occur to constantly varying change of shape while maintaining a continuous flow of pulp through said narrow channel,

subjecting said piping portions to a star shape with sharp angles,



and constantly varying the position of said sharp angles to position the sharp angles under any deposits to remove them from the piping.

4,334,787

TWO-COMPONENT DOSING APPARATUS

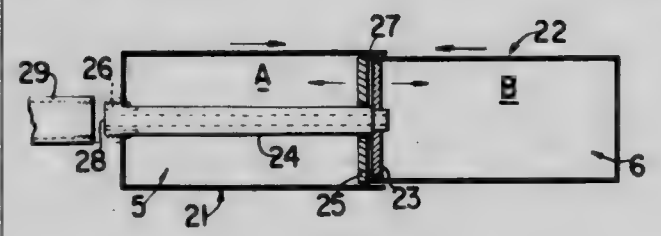
Hermann Kluth; Robert Bachmann, and Jürgen Wegner, all of Düsseldorf, Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Jun. 23, 1980, Ser. No. 162,206

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1979, 2927584

Int. Cl.³ B01F *15/02, 15/04*

U.S. Cl. 366—162 **6 Claims**



1. An apparatus for dosing a two-component product having a predetermined mixing ratio, which comprises two chambers separated by a pair of sealing pistons, the pistons being displaced simultaneously in opposite directions from a centrum, a mixer means arranged at the outer longitudinal end of a first chamber and communicating with the second chamber, and a component line connecting the second chamber with the mixer means and leading centrally through the first chamber,

wherein each chamber comprises a cylinder pot having a sealing piston, the diameter of the first cylinder pot being greater than that of the second cylinder pot, the cylinder pots being arranged so that the first pot slides over the second cylinder pot; wherein the component line comprises a tube leading through the first cylinder, said tube being rigidly connected to and emptying into the mixer means, which is arranged at the closed end of the first cylinder pot, and the piston of the first cylinder pot being entrained upon the tube; and wherein the piston of the second cylinder is rigidly connected to the tube, the second cylinder pot opening into the tube.

4,334,788

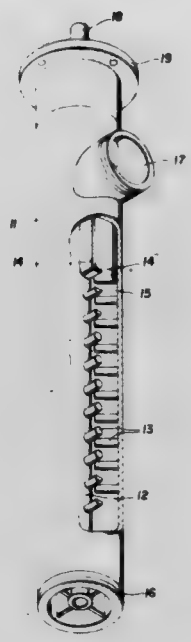
PIN ACTION MIXING PUMP

Robert M. Miner, 1855 Gendale, Casper, Wyo. 82601

Filed Jul. 15, 1980, Ser. No. 169,138

Int. Cl.³ B01F *7/18*

U.S. Cl. 366—303 **2 Claims**



1. A pin action mixing pump for thorough mixing of materials without significant frothing comprising in combination,

a rotor having extending therefrom a set of substantially cylindrical pins,

a stator having extending therefrom in positions meshing with the rotor pins a set of substantially cylindrical pins so that the rotor carried pins pass through the stator carried pins, thereby establishing a set of mixer pins,

a fluid transmission passageway extending between said rotor and stator pins, and

sets of semi-cylindrically shaped pins located on each end of said rotor to comprise pumping pins for engaging fluid in said passageway to move it along said passageway in response to rotation of said rotor with the flat surfaces of said semi-cylindrically shaped pins disposed at an angle urging the materials through the mixing pins at a proper rate for intimately mixing without unnecessary frothing.

4,334,789

MIXING AND KNEADING TOOL

Friedhelm Eusterbarkey, Bad Pyrmont, Fed. Rep. of Germany, assignor to A. Stephan u. Söhne GmbH & Co., Hameln, Fed. Rep. of Germany

Continuation of Ser. No. 19,433, Mar. 12, 1979, abandoned. This application Apr. 18, 1980, Ser. No. 141,566

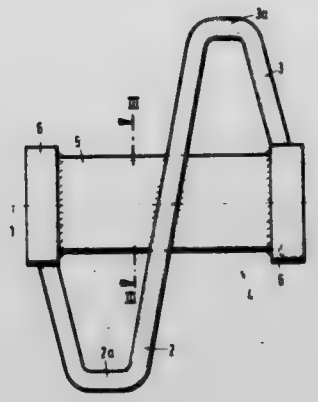
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843369

Int. Cl.³ B01F *7/32*

U.S. Cl. 366—343 **10 Claims**

1. A blade adapted for use on a driving shaft which rotates around an axis, the blade being further adapted for mixing and kneading dough and the like, comprising: an element with a first end and a second end, the element being shaped such that the element defines a continuous curve having a first loop and a second loop, and which extends around the axis of the shaft in a manner that an imaginary straight line segment connecting the ends is parallel to the axis, the first loop and the second loop are mirror images of each other and are serially connected to each other between the first end and the second end, and wherein the curve, as viewed normal to the axis, traces out a generally sinusoidal projection of period equal to the straight

line segment with the loops approximately apices of the sinusoid, and wherein the curve, as viewed along the axis, traces out



an elongated generally rectangular projection, the projection having rounded ends.

4,334,790

TYPE DISC TYPEWRITER WITH ELECTRONIC POSITIONING CONTROL

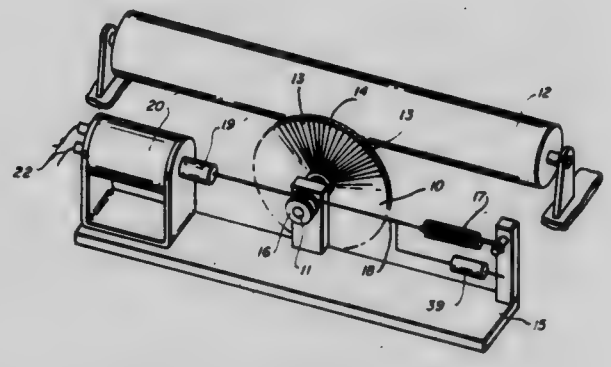
Manfred Link; Diethelm Puch, both of Nuremberg, Fed. Rep. of Germany; Peter Zahner, Schwab-hausen, Austria, and Karel Suc, Furth Kreutles, Fed. Rep. of Germany, assignors to Triumph Werke Nurnberg A.G., Nuremberg, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,541

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832954

Int. Cl.³ B41J *1/30*

U.S. Cl. 400—144.2 **4 Claims**



1. In a typewriter comprising

a shaft,

means supporting said shaft for rotation;

a print disc mounted for rotation with said shaft, said disc having an array of radial spokes bearing characters to be printed,

a keyboard for generating signals representing characters on said disc to be printed,

means for digitally encoding said signals,

means for converting said encoded signals into voltages whose magnitude represents the amount of rotation to be imparted to said disc to position a selected character thereon at a printing position opposite a printing hammer, and

positioning means for rotatably moving said shaft to position a selected character on said disc at said printing position in response to said voltages,

said positioning means comprising a balanced force system including spring means connected to apply forces urging said shaft in one rotational direction, and drive means energized by said voltages connected to apply forces uring said shaft in the opposite rotational direction thereby to establish an equilibrium of forces at a selected position in a given time.

4,334,791

DEVICE FOR CONTROLLING THE TYPING ACTION OF A SINGLE TYPE CARRYING ELEMENT FOR TYPEWRITERS

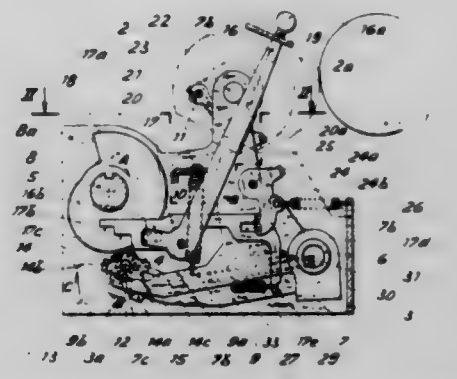
Gian P. Barozzi, and Giancarlo Horeschi, both of Tokyo, Japan, assignors to Xelavis S.A., Panama City, Panama

Filed Jul. 10, 1980, Ser. No. 168,275

Claims priority, application Italy, Jul. 11, 1979, 24282 A/79

Int. Cl.³ B41J *1/60, 7/92*

U.S. Cl. 400—166 **7 Claims**



1. In a printing machine having a platen, a printing element juxtaposed with said platen and formed with a multiplicity of type characters including large and small characters selectively juxtaposable with said platen for printing upon a paper interposed between said element and said platen, selector means operable by respective keys for selectively rotating said element to juxtapose each character with the platen, and a mechanism for impacting said element against said platen, the improvement wherein said mechanism comprises:

a support for said element pivotally mounted for swinging movement about an axis parallel to said platen;

a spring stressable to generate impact energy;

means for coupling said spring to said support for imparting inertial displacement to said suppport about said axis;

means for decoupling said spring from said support prior to full impact of said element against said platen whereby inertial displacement of said support free from action by said spring continues beyond the point at which said spring is decoupled from said support;

manual control means operatively connected to said decoupling means for varying said point to adjust the degree of impact; and

automatic control means responsive to said selector means and operatively connected to said decoupling means for varying said point to modify said impact in accordance with the size of the character juxtaposed with said platen.

4,334,792

DESTINATION-REFERENCED TAB, OPERATIONS FOR TYPEWRITERS THAT STORE TEXT

William F. Joest, III; William R. McCray, and Edward V. Rutkowski, Jr., all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 27, 1979, Ser. No. 79,627

Int. Cl.³ B41J *25/18*

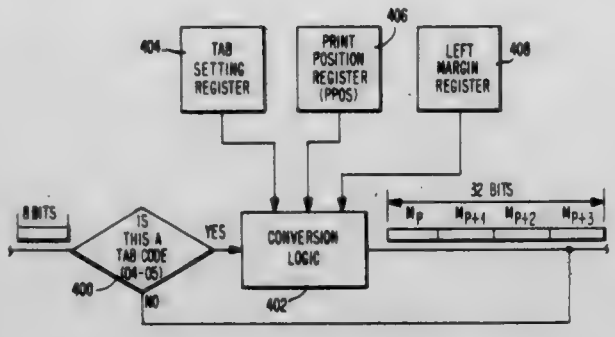
U.S. Cl. 400—279 **8 Claims**

1. For use in a typewriter that stores text and includes means for identifying printing positions along a line according to position numbers and means for storing a code representative of a present printing position, means for associating position numbers in storage with tab selections, and key means for generating a predefined tab code responsive to an operator actuation, a tab code converter comprising:

logic means, responsive to the tab code for initiating a code conversion;

means, responsive to said initiating means, for producing in a set of storage locations a composite tab code that includes, at one end, a first series of bits in a predefined pattern that includes the composite code is a tab code and

a second series of bits in a predefined pattern at the other end of the composite code that indicates the composite coded is a tab code, said code producing means including means for accessing, from a tab storage, the code repre-



sentative of the destination printing position for an initiated tab operation and for storing such code at a storage location between said first and second series of bits as part of the composite code.

4,334,793

PORTABLE SKI WAX APPLICATOR

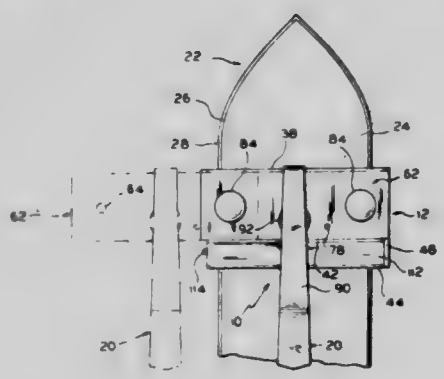
Arnold M. Thompson, Wheaton, Ill., assignor to Gold Lode, Inc., Lisle, Ill.

PCT No. PCT/US79/00167, § 371 Date Mar. 27, 1980, § 102(e) Date Mar. 27, 1980, PCT Pub. No. W080/01880, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 16, 1979, Ser. No. 196,731

Int. Cl.³ A63C *11/08*

U.S. Cl. 401—1 **7 Claims**



1. A portable ski wax applicator which comprises: a container having heat-conductive walls defining a wax-receiving well and a removable cover rendering the container substantially splash-proof in normal use, said walls including a flat bottom wall and an end wall extending obliquely from said bottom wall and having an orifice extending therethrough, valve means extending through said orifice and projecting outwardly from said end wall, spring means resiliently urging said valve means outwardly to close said orifice, whereby pressure exerted on the outer end of said valve means serves to meter liquid wax from said well through said orifice and to the exterior of said end wall, an electrical heating element mounted on said container for heating the walls and liquefying wax contained in said well when energized, a handle adapted to be grasped manually for moving the applicator along a ski surface with said end wall generally parallel to the surface while pressing the outer end of said valve means against the surface to deposit liquid wax thereon, and then for moving the applicator along the surface with said bottom wall adjacent to and generally parallel to the surface for spreading the deposited wax on the surface, means for connecting said handle directly to said cover, whereby the cover may be removed by grasping and moving the handle relative to said walls, and means for removably connecting said cover to said walls alternatively in covering and uncovering positions with respect to said well.

4,334,794

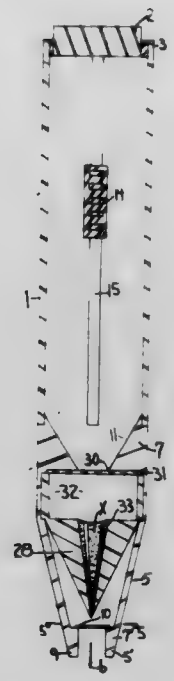
SELF SHARPENING PENCILS

William W. Rader, Gates Mills, Ohio, assignor to Cal W. Hay, Gates Mills and Frederick Mann, Columbus, both of, Ohio

Filed Aug. 11, 1980, Ser. No. 176,933

Int. Cl.³ B43K *29/06*

U.S. Cl. 401—50 **10 Claims**



1. In a self-sharpening pencil, a tubular casing having an elongated slot in said casing, at least one lead guide, positioned within said casing, advance and retract means comprising a manually operable slide, a lead carrier secured to said slide and disposed within said casing, the extent of linear movement of the advance and retract means carrying the lead being restricted by the ends of the slot in which the slide is adapted to advance or retract the said lead, a sharpener positioned in the tapered tip end of said casing, said sharpener having an abrasive member having inner, conically shaped abrasive surfaces, the said lead being adapted to be linearly translocated through the sharpener and in contact with said surfaces during movement of the slide to simultaneously file all surfaces of the outer end of said lead, a reservoir provided in the casing between the lead guide and the sharpener to accommodate filings from said lead.

4,334,795

BALL AND SOCKET JOINT

Paul Westphal, Lemförde, Fed. Rep. of Germany, assignor to Lemförder Metallwaren AG, Fed. Rep. of Germany

Filed Apr. 9, 1981, Ser. No. 252,344

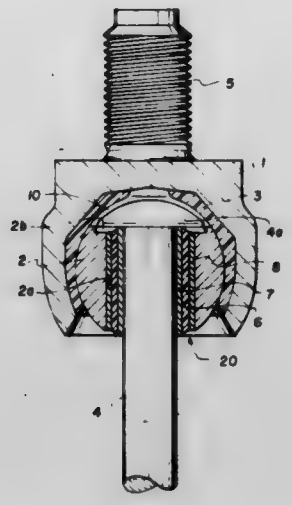
Claims priority, application Fed. Rep. of Germany, Jul. 30, 1980, 3028869

Int. Cl.³ F16C *11/06*

U.S. Cl. 403—131 **4 Claims**

4. A ball and socket joint for elastically connecting steering linkages of motor vehicles steering devices, the joint being of the type having a thrust spring for transmitting axial forces, comprising a housing having an open end with an interior generally spherical recess, a semi-spherical bearing body in the recess having a cylindrical bore aligned with the open end, a link pin having a cylindrical shank portion extending through the cylindrical bore and having an inner end terminating in a semi-spherical head portion overlying said semi-spherical bearing body, the thrust spring embracing said pin in the cylindrical bore and elastically supporting said pin in said bearing body, and said thrust spring comprising an elastomer material wherein said bearing body includes an annular recess adjacent

one end so that said semi-spherical head portion is spaced from said one end of said bearing body, said interior generally spher-



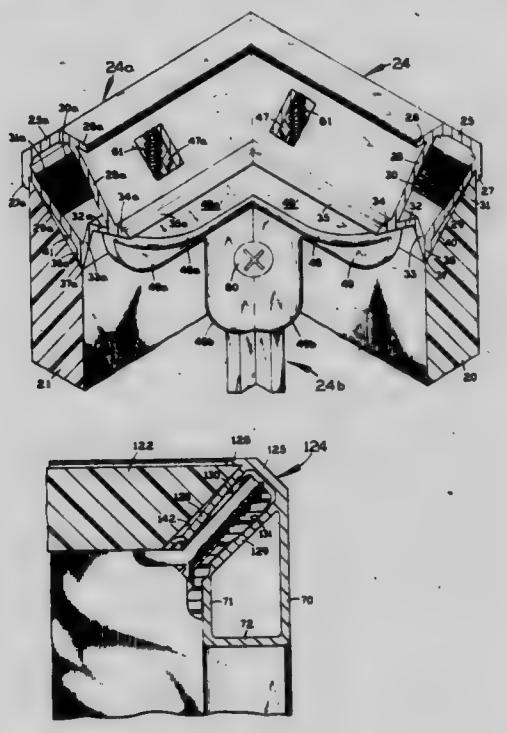
ical recess providing a gap between said spherical head portion and the spherical end of said recess.

4,334,796

FURNITURE EDGE ASSEMBLY

Jim S. Latchinian, 444 Brickell Ave., Miami, Fla. 33131

Filed Oct. 30, 1980, Ser. No. 202,191
Int. Cl.³ F16D *1/00, 3/00;* F16G *11/00*
U.S. Cl. 403—217 **18 Claims**



1. An edge assembly for an article of furniture having three mutually transverse edges adjoining each other at a corner, said edge assembly comprising:

three edge pieces respectively extending along the edges of the furniture article which form said corner;

each of said edge pieces in the vicinity of said corner having a spaced pair of opposite legs extending generally parallel to each other diagonally inward from the corresponding edge of the article of furniture and separated from each other at the inside of said corner, said pair of legs defining a recess which is open at the inside of said corner;

a unitary corner piece having three obliquely disposed legs which adjoin each other at their inner ends and extend outward snugly into said recesses in said edge pieces, said corner piece at each of said legs having at least one hole therein which is open at the inner end of the respective leg;

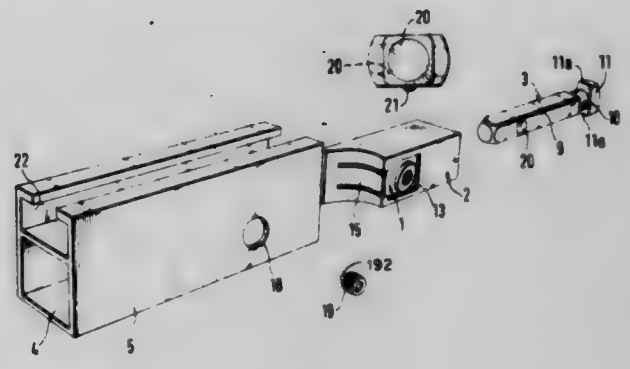
and fastener members insertable into said holes in said legs of the corner piece to force said legs of the corner piece into locking engagement with said opposite legs of the respective edge pieces.

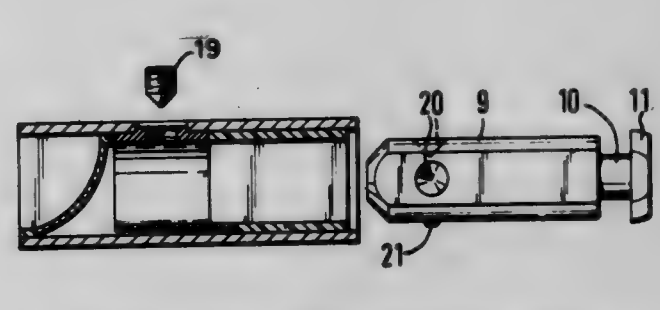
4,334,797

COUPLING ELEMENT

Bo. O. Wahlin, Hinsholmsgatans 7, S-421 77 Västra Frölunda, Sweden

Filed Apr. 17, 1980, Ser. No. 141,195
Claims priority, application Sweden, Apr. 27, 1979, 7903736
Int. Cl.³ B25G *3/00;* F16B *9/00;* F16L *41/00*
U.S. Cl. 403—252 **4 Claims**





1. A coupling system for the detachable assembly of two building elements, the first having a slot for receiving the head of a lock bolt and the second having an elongated cavity for receiving the shank of said lock bolt and a lock assembly comprising an elongated casing adapted to fit within said cavity, the inner portion thereof being provided with an insert body movable in a direction lateral to said casing and the innermost portion thereof being provided with a leaf spring engaging said insert during assembly of the system, said insert body being provided with a central axial opening for receiving said lock bolt shank and a threaded bore connecting an outerface thereof and said central opening for receiving a locking screw for said bolt and an annular projection on said outer face surrounding said threaded bore for engaging a hole provided in a face of said second building element, said leaf spring being adapted to engage during assembly first said insert body to urge the same laterally to facilitate engagement of said annular projection with the hole in said second building element to lock the same axially and later to engage the inner end of said bolt shank and urge the same outwardly in the longitudinal direction of the bolt.

4,334,798

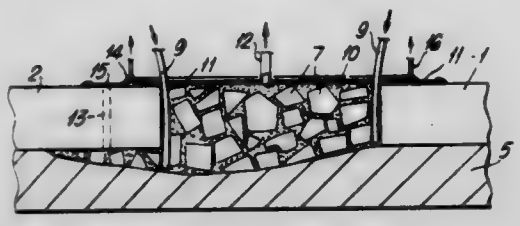
METHOD OF FILLING A HOLE IN THE GROUND

James Milne, Stonegarth, Curthwaite, Wigton, Cumbria, England

Filed Nov. 20, 1978, Ser. No. 962,132
Int. Cl.³ E01C *7/32*
U.S. Cl. 404—75 **10 Claims**

7. A method of at least partly filling a hole in the ground which comprises partly filling the hole with a plurality of separate bodies of solid material selected from the group consisting of concrete, rock, granite, stone and other manufactured and natural solid materials; partly filling interstices between the separate bodies with a multiplicity of separate small bodies of solid material; applying over the partially filled hole

a flexible fluid-impermeable covering and sealing the covering to the surface of the ground around the hole to form a substantially fluid-tight enclosure; evacuating air and any other fluid from the fluid-tight enclosure; allowing a hardenable mixture of cold setting synthetic resin in a flowable state and a filler to



enter the evacuated enclosure until hardenable mixture substantially fills the interstices between said separate bodies and at least partially fills the remaining space in the hole; and permitting the hardenable mixture to set and bond firmly to the surfaces of said separate bodies.

4,334,799

IMPACT ROLLER

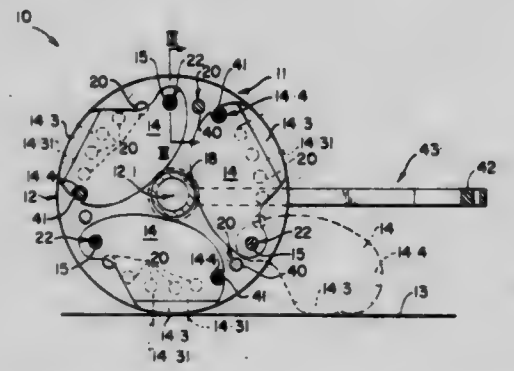
Jacobus J. Rautenbach, deceased, late of Krugersdorp, South Africa, and by Aletta C. Rautenbach, executrix, 3 Cecil Knights St., Kruggrsdorp 1740 Transvaal Province, South Africa

Filed Feb. 22, 1980, Ser. No. 123,596

Claims priority, application South Africa, Feb. 22, 1979, 79/0850

Int. Cl.³ E01C *19/28, 23/12*

U.S. Cl. 404—124 **11 Claims**



1. An impact roller for applying blows cyclically to a surface over which it is rolling, which comprises a roller assembly adapted to roll along a surface, and which includes

a roller body portion comprising a plurality of roller subunits mounted in series axial relationship on an axle, each roller subunit comprising a pair of axially spaced flanges and at least one flail member having an impact surface, the flail member being pivotally connected between the flanges at a region remote from the impact surface about an axis parallel to the roller assembly rolling axis, the sub-units being mounted to be independently rotatable relative to each other about the axis of the axle, and the flail members being adapted in use while the roller assembly is rolling, to have the impact surfaces impart cyclic downward blows to the surface along which the roller assembly is rolling.

4,334,800

TUNNEL DRIVE SHIELD

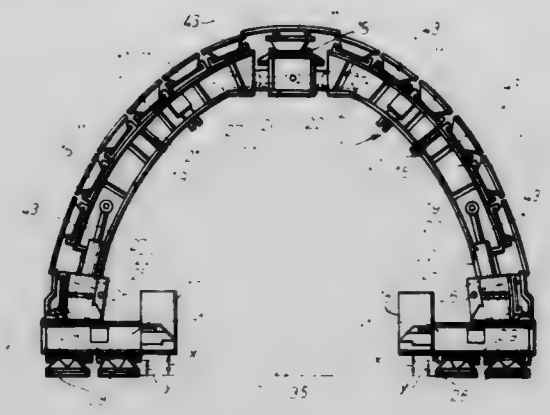
Dieter Stuckmann, Selm, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Fed. Rep. of Germany

Filed Sep. 17, 1980, Ser. No. 188,073

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1979, 2937826

Int. Cl.³ E21D *19/00*

U.S. Cl. 405—145 **26 Claims**



1. A tunnel drive shield having an arcuate support frame including a pair of foot segments and a plurality of main segments supported by the foot segments, the foot segments being engageable with the tunnel floor, and the main segments being braceable outwardly towards the tunnel walls, each foot segment being provided with at least one floor skid displaceably mounted on the base thereof, wherein each foot segment is provided with at least one vertical-movable support foot, the support feet being movable into contact with the tunnel floor to relieve, at least partially, the load on the floor skids.

4,334,801

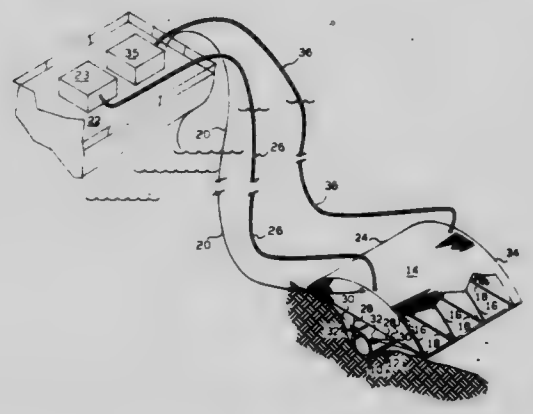
METHOD AND APPARATUS FOR COVERING A PIPELINE

Lew T. Gray, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 29, 1979, Ser. No. 98,422

Int. Cl.³ F16L *57/00*

U.S. Cl. 405—157 **29 Claims**



1. A method for covering a pipeline, comprising:

(a) continuously depositing a fluid-solid fill mixture over said pipeline; and

(b) continuously and simultaneously removing at least a portion of said fluid from the thus deposited fluid-solid fill mixture and forming said solid fill in a predetermined contour over said pipeline.

11. Apparatus for covering a pipeline, comprising:

(a) a frame member adapted to be continuously drawn along the surface of the earth, to extend over and above said pipeline and to continuously form an in-place body of loose, fluid-solid fill into a body of solid fill, having a predetermined cross-sectional contour, over said pipeline; and

(b) an extended filter surface means mounted on said frame, covering at least a part of said frame member and adapted to continuously separate at least a portion of said fluid from said fluid-solid fill simultaneously with said formation of said body of solid fill over said pipeline.

4,334,802

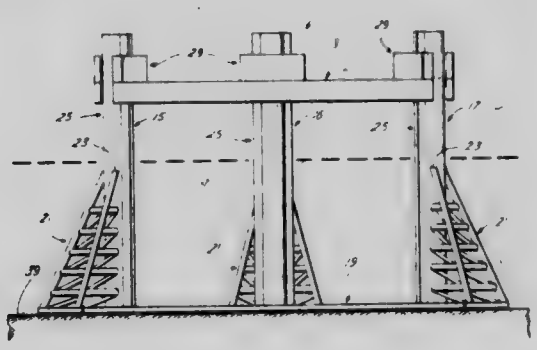
SUPPORT STRUCTURE FOR OFFSHORE PLATFORMS

Edward D. Dysarz, Houston, Tex., assignor to James G. Brown & Associates, Inc.

Continuation-in-part of Ser. No. 73,308, Sep. 7, 1979, abandoned. This application Nov. 15, 1979, Ser. No. 94,360

Int. Cl.³ E02B *17/02, 17/08*

U.S. Cl. 405—196 **6 Claims**



1. A rig for use in supporting and using equipment above the ocean bottom, comprising:

a body;

leg means connected to said body for supporting said body above such ocean bottom;

said leg means including elevation means for elevating said body above such ocean bottom and connection means for connecting said elevation means to said body and at least three legs, each of said legs having

a first end and a second end, said first end having means for landing the bottom of said first end on such ocean bottom, a first portion of variable cross-sectional area extending from said first end to a point intermediate said first end and said second end and a second portion of substantially constant cross-sectional area extending from said intermediate point to said second end, the cross sectional area of said first portion being greatest at said first end and decreasing moving from said first end to said intermediate point, the cross-sectional area of said second portion being no greater than the cross-sectional area of said first portion at said intermediate point.

4,334,803

MINE ROOF BOLT

Patrick C. Westlake, 415 Vernon Ave., Steubenville, Ohio 43952; Keith Fish, R.D. #1, Box 235, Chester, W. Va. 26034, and James D. Mallory, Westwood Dr., Steubenville, Ohio 43952

Filed Nov. 23, 1979, Ser. No. 96,837

Int. Cl.³ E21D *20/00*

U.S. Cl. 405—259 **3 Claims**

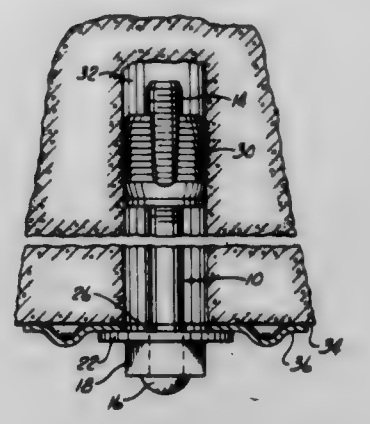
1. A mine roof bolt comprising

an elongated shaft having threads formed at least on one end thereof;

an outer stop member provided at the other end of said shaft and integrally formed with said shaft, said stop member extending laterally outwardly of said shaft;

a bolt head having an axially extending passageway provided therethrough, the inner radial dimensions of said passageway being slightly less than the outer radial dimensions of said shaft, said bolt head being force-fitted onto said shaft in abutment with said outer stop member, the force-fit between said bolt head and said shaft being such that said bolt head will disengage from said shaft and rotate with respect to said shaft when a torque of above a pre-determined magnitude is applied to said bolt head;

a generally flat washer member having outer radial dimensions greater than those of said bolt head and provided with an axial opening therethrough of generally the same size as said passageway, said washer member being force-fitted onto said shaft with the outer face thereof in abutment with said bolt head; and



said outer stop member, said bolt head, and said washer being constructed and arranged with respect to each other such that when a force exceeding a pre-determined magnitude is applied to said bolt head and said washer in the direction of said outer stop member, said bolt head and said washer will move longitudinally of said shaft and said bolt head will creep over said outer stop member until it becomes free of the outer stop member.

4,334,804

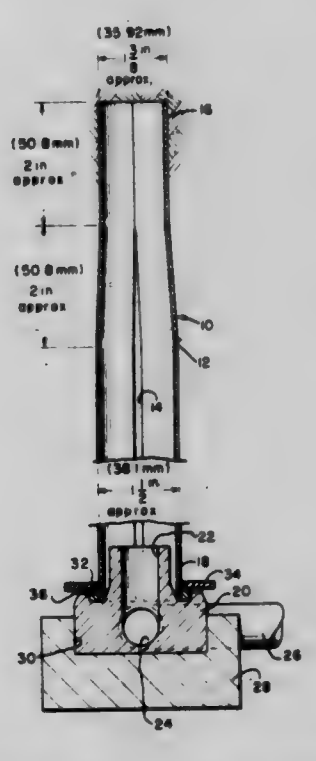
FRICTION ROCK STABILIZER AND METHOD OF INSTALLING SAME IN AN EARTH STRUCTURE

Herman Lindeboom, Ringoes, N.J., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Apr. 7, 1980, Ser. No. 138,168

Int. Cl.³ E21D *20/00, 21/00*

U.S. Cl. 405—259 **9 Claims**



1. A method of installing a friction rock stabilizer in an earth structure for stabilizing the structure, comprising the steps of:

forming a borehole in an earth structure for installation therein of a friction rock stabilizer; and

installing a friction rock stabilizer in the formed borehole; wherein

said forming and installing steps are performed simultaneously; and

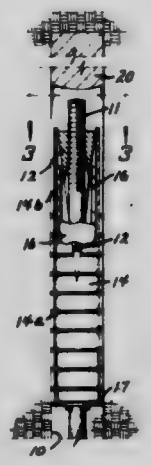
said installing step comprises compressing the stabilizer while installing the latter in the borehole.

4,334,805

ROOF BOLT AND CRADLE ARRANGEMENT

Bennie E. Morgan, Morganfield, Ky., assignor to Roof Control, Inc., Morganfield, Ky.

Filed Sep. 22, 1980, Ser. No. 189,027
Int. Cl.[3] E21D *20/02*
U.S. Cl. 405—261 9 Claims



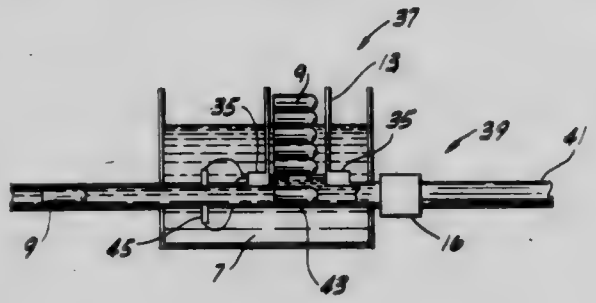
1. A mine roof bolt assembly for a bolt hole comprising a roof bolt threadedly engaging a wedge member, a plastic inner seal tube surrounding the shaft of said roof bolt, a plastic anchor tube surrounding said plastic inner seal tube, said plastic anchor tube having an upper portion flexing into anchoring engagement with the wall of said bolt hole in response to axial movement of said wedge member along said shaft of said roof bolt, and a grouting material container selectively rupturable upon rotation of said roof bolt to define a grouting material flow path between said plastic anchor tube and the inner surface of said bolt hole.

4,334,806

CAPSULE INJECTION SYSTEM FOR A HYDRAULIC CAPSULE PIPELINING SYSTEM

Henry Liu, Columbia, Mo., assignor to The Curators of the University of Missouri, Columbia, Mo.

Filed Apr. 28, 1980, Ser. No. 144,414
Int. Cl.[3] B65G *51/30*
U.S. Cl. 406—31 7 Claims



1. An injection system for injecting generally cylindrical capsules into a hydraulic capsule pipelining system, said pipelining system comprising a pipeline adapted for flow of a carrier liquid therethrough and capsules adapted to be transported through the pipeline by the carrier liquid flowing therethrough, said injection system comprising a reservoir of carrier liquid, the pipeline extending within the reservoir below the level of the carrier liquid in the reservoir and extending downstream out of the reservoir, and a magazine in the reservoir for holding capsules in a series, one above another, for injection into the pipeline in the reservoir, said magazine having a lower end in communication with the pipeline in the reservoir for delivery of capsules from the magazine into the pipeline, the magazine being arranged to hold the capsules with the lowermost capsule in the magazine having its longitudinal axis generally parallel to the axis of the pipeline for entry of the lowermost capsule into the pipeline lined up with the pipeline for being transported away from the lower end of the magazine by the carrier liquid, the magazine having side walls spaced apart a distance somewhat greater than the capsule diameter and upstream and downstream end walls spaced apart a distance somewhat greater than the capsule length, the downstream end wall being apertured and the side and upstream end walls being substantially free of openings therein for directing the flow of carrier liquid entering the magazine from the reservoir down along the downstream end wall to effect tilting of the lowermost capsule down toward its downstream end as it enters the pipeline.

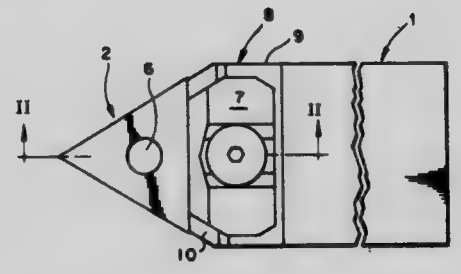
2. An injection system for injecting elongate, generally cylindrical capsules into a hydraulic capsule pipelining system, said pipelining system comprising a pipeline adapted for flow of a carrier liquid therethrough and capsules adapted to be transported through the pipeline by the carrier liquid flowing therethrough, said injection system comprising a reservoir of carrier liquid, the pipeline extending within the reservoir below the level of the carrier liquid in the reservoir and extending completely through the reservoir, a magazine in the reservoir for holding capsules in a series, one above another, for injection into the pipeline in the reservoir, said magazine having a lower end in communication with an intermediate section of the pipeline in the reservoir for delivery of capsules from the magazine into the pipeline, the magazine being arranged to hold the capsules with the lowermost capsule in the magazine having its longitudinal axis generally parallel to the axis of the pipeline for entry of the lowermost capsule into the pipeline lined up with the pipeline for being transported away from the lower end of the magazine by the carrier liquid, the magazine having side walls spaced apart a distance somewhat greater than the capsule diameter and corresponding generally to the pipeline diameter and upstream and downstream end walls spaced along the pipeline a distance somewhat greater than the capsule length, means at the lower end of the magazine for releasably holding the capsules up in the magazine, said means being operable to release the lowermost capsule to descend into the pipeline and to allow the remainder of the series to descend into position for subsequent release of the next capsule, and having means for deactivating said capsule release means in response to the presence of a capsule in the pipeline upstream from its said intermediate section.

4,334,807

TOOL HOLDER

Eliezer Nessel, Haifa, Israel, assignor to Iscar Ltd., Nahariya, Israel

Filed Sep. 4, 1980, Ser. No. 183,876
Claims priority, application Israel, Oct. 3, 1979, 58378
Int. Cl.[3] B26D *1/12*
U.S. Cl. 407—103 4 Claims



1. A tool holder for a cutting insert comprising, an insert receiving base member; a locating pin projecting out of the base member so as to extend through a central bore formed in the insert when the latter is located on the base member; a clamping member juxtaposed with respect to the base member

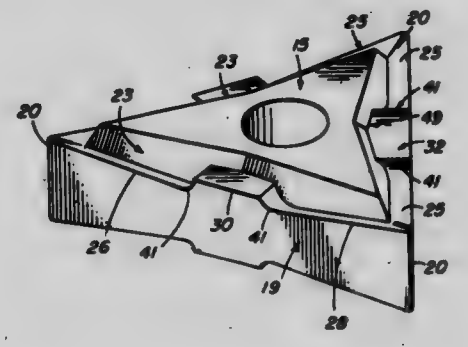
so as to be supported by a support zone of the tool holder; a first support surface of the support zone located substantially parallel to the base member; a second wedging surface of the support zone; as elongated recessed portion between the base member and the first surface and into which the wedging surface slopes towards the base member; a rearwardly disposed elongated heel portion of the clamping portion; a forwardly disposed nose portion of the clamping member; a curved abutting surface of the nose portion; an elongated tail portion formed integrally with the nose portion so as to project into the recessed portion in abutting relationship with the wedging surface; and screw biasing means located intermediate said heel portion and said nose portion for screw biasing the clamping member towards the support zone with the heel portion in sliding engagement with the first support surface, with the tail portion in abutting engagement with the wedging surface and with the curved abutting surface adapted to be in a clamping abutting engagement with an edge surface of the insert remote from a cutting portion thereof when the latter is located on the base member.

4,334,808

CUTTING INSERT

Heinz H. Seidel, Troy, Mich., assignor to GTE Products Corporation, Stamford, Conn.

Filed Jul. 7, 1980, Ser. No. 166,737
Int. Cl.³ B26D *1/00*
U.S. Cl. 407—114 **1 Claim**



1. A cutting insert comprising a polygonal body having substantially parallel surfaces and peripheral side surfaces substantially normal to said parallel surfaces joining to form corners of said polygon, at least one of said parallel surfaces having grooved recesses merging at and descending from respective corners of said polygon adjacent respective peripheral side surfaces, inner land portions extending downwardly and outwardly from a parallel surface toward side surfaces, each inner land portion comprising a pair of substantially planar face portions intersecting at a common juncture, each grooved recess including a planar outer land portion joining a respective planar face portion, said planar outer land extending inwardly and downwardly at an acute angle from a side surface to form a cutting edge therewith, each side surface having associated therewith a pair of planar outer land portions and an intermediate planar land portion, said intermediate land portion extending to said inner land portion and to said outer land portions along a plane at an angle of ninety degrees or greater to a respective side surface for terminating respective grooved recesses, said intermediate land portion being interposed said one parallel surface and the lowermost portion of said channel.

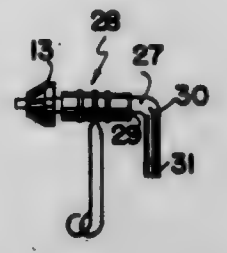
4,334,809

ARTICLE HOLDER

Jim Zavislake, Box 626, Canora, Saskatchewan, Canada

Filed Aug. 4, 1980, Ser. No. 175,032
Int. Cl.³ B23B *45/00*
U.S. Cl. 408—241 R **8 Claims**

1. A wire holder for detachably securing articles such as drill chuck keys to the flexible power cord of an electric drill or the like; comprising in combination a length of resilient wire, a partial loop formed intermediate the ends thereof having each end extending therefrom to form a leg, preformed inwardly extending notches in the wire adjacent the junction of the legs with the ends of the loop, means on the distal ends of said legs to detachably secure same to a flexible power cord or the like, a resilient sleeve engaged around the inner end of an angulated



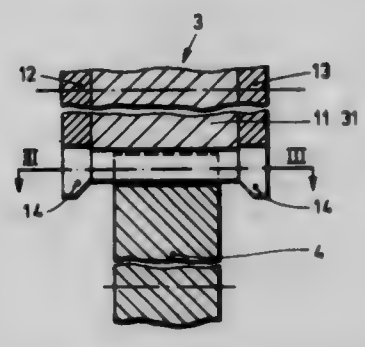
drill chuck key, said sleeve being split lengthwise through the wall thereof, said partial loop engaging around said sleeve and means extending from the surface of said sleeve to retain said wire holder thereon, said last mentioned means incuding a pair of spaced and parallel beads formed on the surface of said sleeve.

4,334,810

GEAR DEBURRING APPARATUS AND METHOD

Horst Behnke, Zorneding; Herbert Loos, Dorfen; Udo Luhmer, Munich; Manfred Heckmaier, and Rudolf Kerschl, both of Unterpfaffenhofen, all of Fed. Rep. of Germany, assignors to Carl Hurth Maschinen- und Zahnradfabrik GmbH & Co., Munich, Fed. Rep. of Germany

Filed Feb. 5, 1980, Ser. No. 118,819
Claims priority, application Fed. Rep. of Germany, Feb. 8, 1979, 2904717; Dec. 18, 1979, 2950879
Int. Cl.³ B23F *19/00*
U.S. Cl. 409—9 **10 Claims**

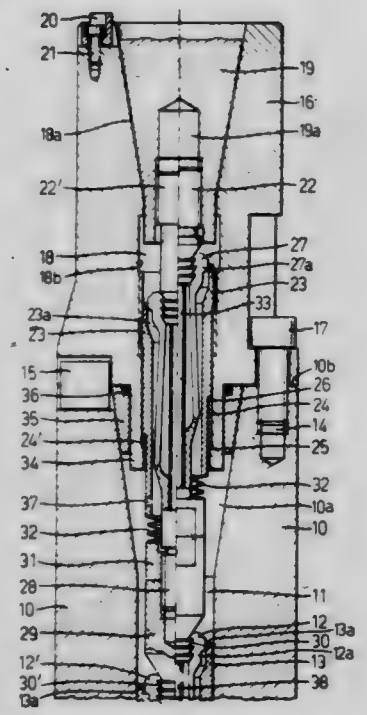


1. In a device for deburring or chamfering the axial edges of teeth on a workpiece, said device comprising a tool having a toothed, noncutting guide gear and at least one toothed cutting tool fixedly mounted on an axially facing side of said guide gear, the teeth on said guide gear being axially aligned with the teeth on said cutting tool, each tooth on said cutting tool having on the edges thereof adjacent said guide gear a beveled surface facing axially toward said guide gear, said beveled surface having cutting means thereon, the improvement comprising wherein the width of said guide gear is larger than the width of said workpiece which must be deburred, and means are provided for moving said guide gear and said cutting tool thereon axially to cause said cutting means on said cutting tool to engage said workpiece whereby a meshing engagement of said cutting tool with said workpiece will effect an engagement of said beveled surface and said cutting means thereon and a cutting of a beveled edge on the corresponding axially facing edge of the teeth on said workpiece.

4,334,811
SPINDLE EXTENSION, ESPECIALLY FOR DRILLING AND MILLING MACHINES

Jakob Trumpf, Buchs, and Hansueli Keller, Hegnau, both of Switzerland, assignors to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zürich, Switzerland

Filed Sep. 9, 1980, Ser. No. 185,529
Claims priority, application Switzerland, Oct. 12, 1979, 9206/79
Int. Cl.³ B23C 5/26
U.S. Cl. 409—233 2 Claims



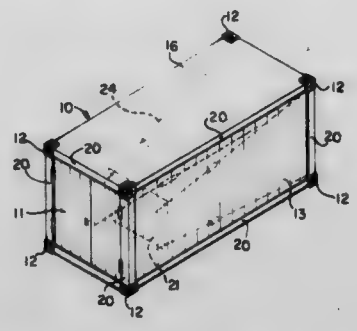
1. A spindle extension, especially for a drilling and milling machine, comprising:
a spindle provided for an automatic tool chucking device,
a chucking clamp provided for said spindle,
a spindle extension element,
said spindle being provided with an internal conical portion for receiving therein part of the spindle extension element,
said spindle extension element having an internal conical portion adapted to receive a tool cone of a tool,
said tool cone having a clamping pin,
said spindle extension element being provided with a clamping chuck for engaging said clamping pin of the tool cone,
said clamping chuck being provided with a clamping pin engageable by the chucking clamp of the spindle,
said clamping chuck together with said clamping pin of said spindle extension element being arranged to be displaceable within said spindle extension element,
spring means,
a bushing secured within the spindle extension element,
a nut member provided for the clamping pin engageable by the chucking clamp of the spindle,
said spring means bearing at one end at said bushing and at the other end at said nut member, and
said spring means striving to retain said clamping chuck in a rearward position.

4,334,812
ADJUSTABLE CONTAINER BULKHEAD ASSEMBLY

John J. Delatush, Freehold, N.J., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 3, 1979, Ser. No. 63,605
Int. Cl.³ B60P 1/64, 7/14; B61D 45/00; B63B 25/24
U.S. Cl. 410—52 4 Claims

1. A universal restraint system for positively securing a cargo comprising, in combination:
an intermodal shipping container having an exterior front panel with reinforcing members along the vertical edge thereof, said members having holes formed at the respective corners of said panel communicating between the interior and exterior of said panel;
rear bulkhead means movable along the length of the container having a bearing surface formed to engage the rearward surface of the cargo; and
a plurality of cable restraint means, each having one end

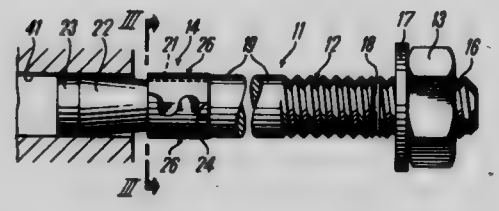


extending through respective ones of said holes and releasably secured to the exterior of said panel, and the other end connected to one of a plurality of corresponding vertically spaced positions of said bulkhead means, and operatively connected to said members for adjusting the position of said bulkhead along the length of said container for maintaining said bulkhead against the cargo.

4,334,813
DEVICE FOR FASTENING AN OBJECT AGAINST A WALL OR THE LIKE

Reinhold Oettl, Nufringen, Fed. Rep. of Germany, assignor to Stumpp & Kurz GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Aug. 15, 1979, Ser. No. 66,742
Claims priority, application Fed. Rep. of Germany, Aug. 19, 1978, 2836347
Int. Cl.³ F16B 13/06
U.S. Cl. 411—68 19 Claims



1. A device for fastening an object to a wall, or the like, as a plug-in mounting, comprising:
a bolt having an externally threaded portion at one end and an expander element mounting portion at the other end, the expander element mounting portion including a partially conical section, the maximum diameter of which is equal to the maximum diameter of the bolt;
a nut for threadedly engaging the threaded portion; and
an expander element including a pair of substantially half-shell parts each having a body part with opposed longitudinal edges and opposed transverse edges, each opposed longitudinal edge having at least one end lobe and at least one central lobe formed thereon, such that each half-shell part is transversely symmetrical, and, when viewed in development, is point symmetrical, and further such that a radial form-locking connection of the half-shell parts with the expander element mounting portion of the bolt is achieved, the half-shell parts being retained near their transverse edges and restrained from relative longitudinal displacement.

4,334,814

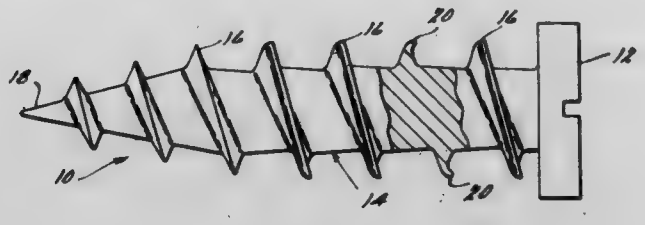
SELF-TAPPING SCREW FOR USE IN PLASTICS

Arthur J. McKewan, Rochester, Mich., assignor to Microdot Inc., Darien, Conn.

Continuation of Ser. No. 947,822, Oct. 2, 1978, abandoned. This application Jul. 21, 1980, Ser. No. 170,552

Int. Cl.[3] F16B *39/30*

U.S. Cl. 411—311 1 Claim



1. A threaded fastener having a rolled threadform comprising an elongated threaded shank and a torque receiving head at one end thereof, the threads of said fastener being characterized by a negative rake formed at the crest of at least some of said threads so that axial force exerted by the threads of said fastener on a workpiece in the direction of said head is in part translated inwardly toward the axis of said fastener, the crest of said negatively raked threads extending axially toward the head of said fastener an amount sufficient to intercept a radial plane drawn through the juncture of the negatively raked flank and the root of said thread, the root of said threads being of truncated conical configuration tapering radially inwardly toward said head so as to create a slight wedge angle in said shank between adjacent threads whereby an axial force exerted by a rolling die on the crest of said threads in the direction of the head of said fastener to create said negative rake is countered by an axial force exerted by said rolling die on the root of the threadform of said fastener in a direction away from the head of said fastener.

4,334,815

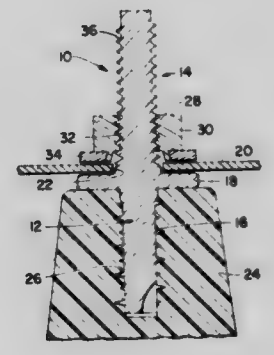
FASTENER WITH A MODIFIED THREAD FORM

Rudolph E. Knohl, Bartlett, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Jun. 23, 1980, Ser. No. 161,962

Int. Cl.[3] F16B *25/00*

U.S. Cl. 411—368 5 Claims



1. In combination a double-ended stud having a first thread configuration on one end for tapping into relatively soft material and a second cylindrical thread configuration on the other end, an internally threaded nut cooperatively adapted to engage said second thread configuration in order to secure said soft material to a base member, said two thread configurations being separated by a laterally extending flange, said second thread configuration having a first series of thread convolutions of a predetermined axial extent and which mate with and have normal full engagement with, the internal thread of said nut, said nut having a washer associated therewith, said first series of thread convolutions predetermined axial extent being defined by a distance extending axially along said second stud end to a point which is spaced from said flange a distance which is not greater than the sum of the height of the nut plus the thickness of said washer plus the thickness of said base member, a second series of thread convolutions in excess of one thread turn in said second thread configuration and positioned along said second stud end at an axial location which is farther from said flange than said first series of thread convolutions, said second series of convolutions having a thread diameter which is less than that of said first convolutions but of a diameter which will still provide partial engagement with the internal thread of the nut whereby, when the nut is removed from the second stud end, the reduced diameter of said second series of convolutions will provide substantially circumferentially continuous clearance for paint particles and the like, so as to avoid loosening of said first stud end in said comparatively soft material.

4,334,816

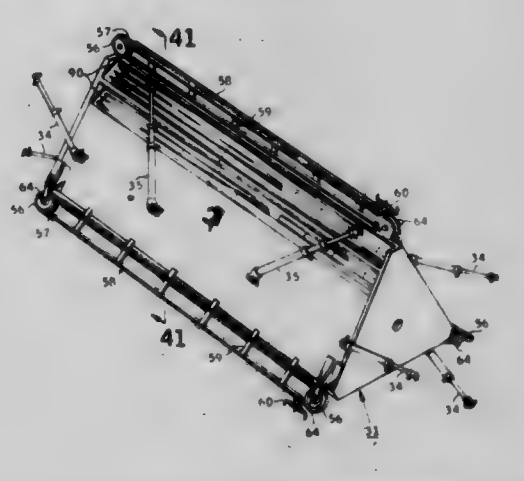
DEVICE AND METHOD FOR ASSEMBLING LARGE SPACE STRUCTURES

Paul Slysh, San Diego, Calif., assignor to General Dynamics Corporation, San Diego, Calif.

Filed Aug. 3, 1978, Ser. No. 930,823

Int. Cl.[3] B64G *4/00*

U.S. Cl. 414—10 19 Claims



1. An assembler trolley for the construction of a structure comprising:

a forward crawler;

a rear crawler;

a crawler coupler, said coupler telescopically connected between said forward crawler and said rear crawler;

a plurality of transport belts mounted on each of said crawlers;

gripping means mounted on said transport belts for gripping said structure; and

manipulator arms disposed on at least one of said crawlers for maneuvering elements of said structure.

4,334,817

BACK LOADER FOR BIG HAY BALES

Julius D. Vansickle, and Major J. Vansickle, both of Rte. 3, Boswell, Okla. 74727

Continuation of Ser. No. 961,134, Nov. 16, 1978, abandoned. This application Dec. 11, 1980, Ser. No. 215,561

Int. Cl.[3] A01D *87/12*

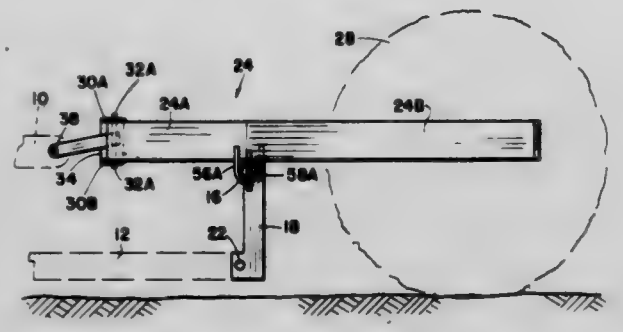
U.S. Cl. 414—24.5 1 Claim

1. Apparatus for use with a tractor for lifting and transporting objects such as large cylindrical hay bales, the tractor having a three-point hitch including a stationary pivot point and a pair of opposed, generally paralleled lifting arms below the pivot point, the lifting arms being simultaneously pivotal in paralleled vertical planes by hydraulic action, the apparatus comprising:

(1) a horizontal lifting bar;

(2) means of supporting said horizontal lifting bar to the lifting arms of a tractor, the lifting bar being thereby vertically positionable by the tractor arms;

(3) a short horizontal member having the inner end pivotally attached to the tractor pivot point;
(4) a first wing member having an inner portion and an outer portion;
(5) a second wing member having an inner portion and an outer portion, the inner end of each wing member being pivotally attached to said horizontal member whereby the wing members are free to pivot towards and away from each other, the wing members slidably resting on said lifting bar intermediate their ends;



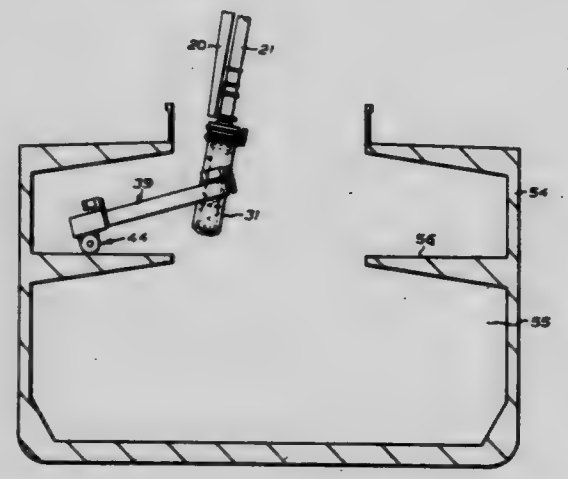
(6) a hydraulic grasping cylinder-piston pivotally connected at opposite ends to the wing members wherein the outer ends of the wing members may be spaced apart from each other to receive an object therebetween and in which condition the tractor lifting arms may be pivoted upwardly to lift said lifting bar and thereby said wing members to lift the grasped object; and
(7) means affixed to each said wing member slidably receiving said lifting bar through the full pivotal displacement of said wing members.

4,334,818

FINAL UNLOADING APPARATUS

Karl A. L. Tingskog, Helsingborg, Sweden, assignor to AB Siwertell, Sweden

Filed Jul. 6, 1979, Ser. No. 55,651
Claims priority, application Sweden, Jul. 11, 1978, 7807715
Int. Cl.³ B65G *63/00, 67/00*
U.S. Cl. 414—139 **6 Claims**



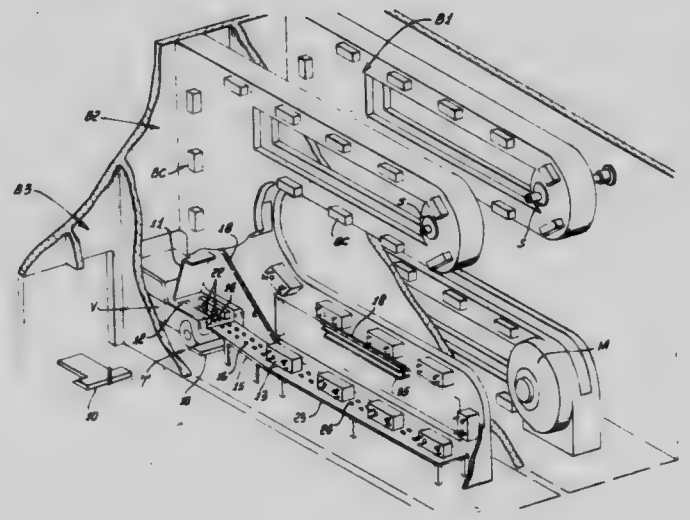
1. A final unloading apparatus connectable to the lower inlet end portion of a vertical conveyor (21) which is disposed to carry off particulate material (52) in an upward direction from a base (51) and whose inlet end portion is vertically and laterally movable, comprising
a sleeve (31) arranged to be mounted about the inlet end portion of the vertical conveyor (21),
an elongate feed conveyor (39) pivotally connected at its discharge end to said sleeve, connecting said elongate feed conveyor to the interior of said sleeve,
a first pivotal means connecting said discharge end of said elongate feed conveyor to said sleeve to allow pivoting of said elongate feed conveyor in a plane approximately parallel to the longitudinal axis of said sleeve about an axis approximately perpendicular to the longitudinal axis of said sleeve,
an elongate collector (44) disposed transversely of the longitudinal direction of said elongate feed conveyor and pivotally journalled on said feed conveyor,
a second pivotal means connecting said elongate collector to said feed conveyor to allow pivoting of said elongate collector in a plane transverse to the longitudinal axis of said feed conveyor and about an axis substantially coaxial with the longitudinal axis of said feed conveyor,
said collector adapted for movement transverse of its longitudinal direction and having means to feed the particulate material in its longitudinal direction to the inlet end of said feed conveyor.

4,334,819

BATTERY CHARGING SYSTEM

Julius G. Hammerslag, 27011 Calle Esperanza, San Juan Capistrano, Calif. 92675

Filed Mar. 27, 1980, Ser. No. 134,648
Int. Cl.³ B65G *67/02*
U.S. Cl. 414—395 **6 Claims**



1. A battery charging system for electric vehicles comprising: a battery transfer station for receiving a vehicle; means operable at said transfer station to remove a spent battery from the vehicle and for installing a charged battery in said vehicle, means providing a plurality of charging stations; in a continuous path from and to said transfer station and means for moving spent batteries from said battery transfer station through said charging stations and returning charged batteries to said transfer stations; including an endless conveyor connectable to said batteries, and extending along said path, said charging stations being spaced along the path of said endless conveyor, said conveyor having means to engage and transport the batteries through said path.

4,334,820

BUCKET SYSTEM PROVIDED WITH TILTING MEANS APPLICABLE TO FORK LIFT

Kanematsu Homura, 30-1 Yagi 1 chome, Kanazawa-shi, Ishikawa-ken, Japan

Filed Jul. 18, 1979, Ser. No. 58,465
Claims priority, application Japan, Aug. 17, 1978, 53-111972[U]; Oct. 5, 1978, 53-122806
Int. Cl.³ B65G *67/00;* B65B *21/02*
U.S. Cl. 414—607 **8 Claims**

1. A bucket system adapted to be attached to a fork lift having a stationary mast and a mast movable therealong for elevation and formed integrally with a two-pronged platform, which system comprises
(a) a bucket-supporting frame composed of a pair of sheath-like horizontal arms having leading ends and rear ends capable of receiving the two-pronged platform, a pair of

unitary and rigid stanchions extending vertically from the horizontal arms, each stanchion having a lower end fixedly connected to a respective one of the horizontal arms near the rear end thereof and a leading end opposite the lower end arcuately bent forwardly away from the rear end, and beams serving to brace the horizontal arms and stanchions for maintaining them at a fixed distance;

(b) at least one pair of pulleys mounted on the leading ends of the stanchions;

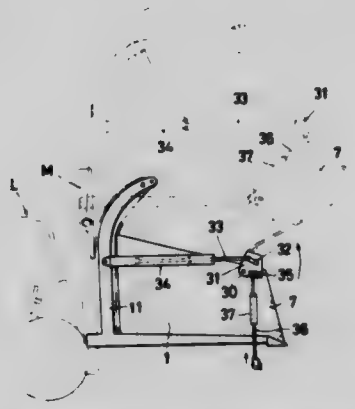
(c) a bucket having a bottom, a rear side and defining a front opening, the bottom having a front end remote from the stanchions;

(d) a front cover disposed in the front opening;

(e) a shaft freely pivotally suspending the front cover on the bucket for opening and closing the front opening;

(f) an arm plate integrally joined to the shaft and defining a slot;

(g) a pivoting control means for the front cover,



(l) one end of the control means being slidably set in the slot of the arm plate and another end thereof being fastened to a respective one of the stanchions whereby the pivoting of the front cover on forward tilting of the bucket is controlled to allow the front opening of the bucket to be opened widely;

(h) means rotatably attaching the front bottom end of the bucket to the leading ends of the horizontal arms;

(i) a pair of cables connected at one end thereof to the rear side of the bucket near the bottom thereof, trained over the pulleys and having another end thereof fastened to the stationary mast of the fork lift whereby elevation of the two-pronged platform stretches the cables until they pull up the rear side of the bucket near the bottom thereof and tilt the bucket forwardly about the means rotatably attaching the front bottom end of the bucket to the leading ends of the horizontal arms.

4,334,821

REGENERATIVE ROTODYNAMIC MACHINES

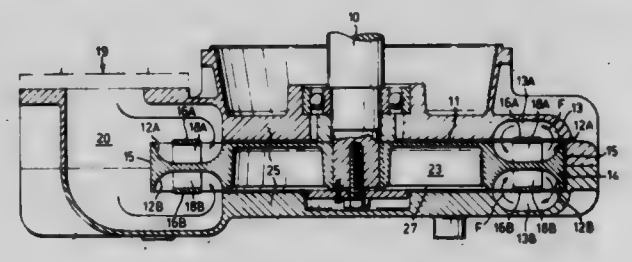
Herbert Sixsmith, Oxford; Keith Thurlow, Nr. Ipswich; Geoffrey K. Soar, Ipswich, and James W. Burton, Ipswich, all of England, assignors to Compair Industrial Ltd., Ipswich, England

Filed Nov. 28, 1979, Ser. No. 97,956

Claims priority, application United Kingdom, Nov. 28, 1978, 46419/78

Int. Cl.³ F04B *5/00*

U.S. Cl. 415—53 T **7 Claims**



1. A regenerative rotodynamic machine comprising a casing, a rotor mounted to rotate within the casing and having at least one ring of blades thereon concentric with the axis of rotation, said blades rotating in an annular chamber in the casing that is likewise concentric with the axis of rotation, the annular chamber having a dimension in the radial direction greater than the radial extent of the blades and providing a channel alongside the blades in which fluid passing through the blades can recirculate, and wherein the blades are curved and profiled aerodynamic blades each having a concave inner surface which leads in the direction of rotation of the blades, and a convex outer surface which trails in the direction of rotation, the curvatures being chosen such that in operation the angle $(\beta_1+\beta_2)$ between the entry and exit flows of each aerodynamic blade, in the plane containing the curvature of the blade, is greater than 90°.

4,334,822

CIRCUMFERENTIAL GAP SEAL FOR AXIAL-FLOW MACHINES

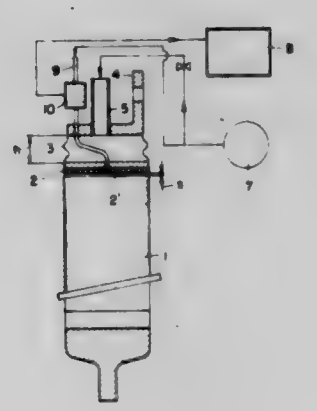
Axel Rossmann, Karlsfeld, Fed. Rep. of Germany, assignor to MTU Motoren- und Turbinen-Union Munchen GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 4, 1980, Ser. No. 156,499

Claims priority, application Fed. Rep. of Germany, Jun. 6, 1979, 2922835

Int. Cl.³ F01D *11/00*

U.S. Cl. 415—113 **4 Claims**



1. Circumferential gap seal for axial-flow machines, comprising a flow machine casing; a metallic retaining flange fastened to said casing; a metallic ring; an abradable contact lining provided on said ring; flexible side walls, said metallic ring being connected to said retaining flange through said flexible side walls, said metallic ring forming a circumferential gap with the tips of rotor blades of said machines, said flexible side walls, said metallic ring and said retaining flange being subdivided into a plurality of segments in the circumferential direction thereof; a radially directed gap being formed intermediate each said segment; flexible radial walls sealing said radial gaps over the radial height of said side walls; and sensor means arranged on said metallic ring for varying the radial height as a function of the size of said circumferential gap measured by said sensor means.

4,334,823

WIND OR FLUID CURRENT TURBINE

Peter A. Sharp, 520 Utah St., San Francisco, Calif. 94110

Filed Dec. 16, 1980, Ser. No. 217,154

Int. Cl.³ F03D *3/06*

U.S. Cl. 416—119 **27 Claims**

1. A turbine responsive to a moving fluid comprising:

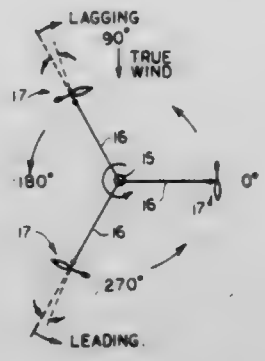
(a) a rotatable central shaft,

(b) supporting means operably mounted on said central shaft and having a free end extending in a radial direction from said central shaft,

(c) a blade assembly pivotally supported on said free end of said supporting means whereby interaction between a

moving fluid and said blade assembly causes rotation of said central shaft,

(d) said blade assembly comprising at least one rocking arm means pivoted on said supporting means, a blade member attached to said rocking arm means, at least one counter-



weight arm attached to said blade, and a counterweight fixed to said counterweight arm

(e) said attachment of said rocking arm means on said supporting means being articulated in response to said interaction between said moving fluid and said blade.

4,334,824

FLEXIBLE FAN DEVICE

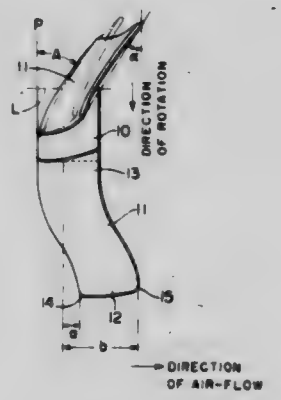
Shunzo Tsuchikawa, Ichinomiya, and Massharu Hayashi, Toyota, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jul. 17, 1980, Ser. No. 169,667

Claims priority, application Japan, Jul. 27, 1979, 54-104465[U]

Int. Cl.³ F04D *29/38*

U.S. Cl. 416—132 R **2 Claims**



1. A flexible fan device comprising: a power-driven rotating boss having an axis of rotation and a plurality of flexible blades extending radially outward therefrom, each of said blades having a root portion and a tip portion, the root portion gradually curving away in the downstream direction from a plane perpendicular to said axis of rotation to form an attachment angle of said root portion to said boss, wherein said tip portion is axially offset from said root portion toward the downstream side, the trailing edge of said tip portion is axially offset farther than the leading edge of the tip portion, and both the leading edge and the trailing edge of said tip portion lie on the downstream side of a plane through the center of said root portion and perpendicular to said axis of rotation, the cross-section of said blade thereby forming an S curve, whereby each blade is flexibly twisted under a centrifugal force so that the tip portion of each blade makes a variable angle with respect to the plane perpendicular to the axis of rotation of the boss means, said variable angle decreasing in response to an increase in speed of rotation of the boss means.

4,334,825

ELASTOMERIC DAMPING DEVICE ESPECIALLY FOR THE NECK OF HELICOPTER WING BLADES

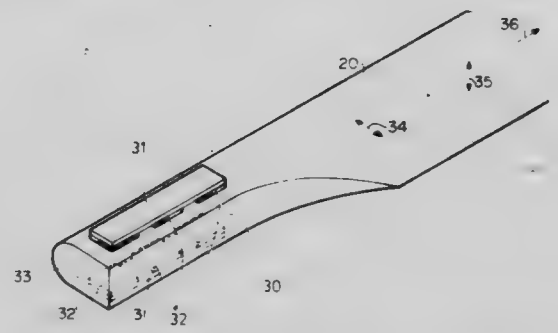
Dieter Braun, Oberpframmern; Wolfgang Buchs, Valley, and Andreas Kirchner, Oedenstockach, all of Fed. Rep. of Germany, assignors to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed Jan. 29, 1981, Ser. No. 229,538

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1980, 3004451

Int. Cl.³ B64C *27/38*

U.S. Cl. 416—134 A **3 Claims**



1. In a hingeless rotor wing blade, especially for helicopters, including a blade, a blade root and a blade neck operatively interconnecting the blade to the blade root, said blade neck being flexible at least in the lead-lag direction, and damping means operatively secured to said blade neck in the region subject to the largest dynamic deformations resulting from blade movements, the improvement wherein said damping means comprise at least two longitudinal plates which are stiff against bending in the direction in which a damping force is to be effective, and intermediate connecting members made of a visco-elastic material having a high damping capacity operatively connecting the respective plate to said blade neck at the suction side and at the pressure side of the blade neck so that said plates extend in parallel to the longitudinal blade axis, said intermediate connecting members being spaced from each other in the direction of the longitudinal blade axis and forming the sole connecting means between the plates and the blade neck.

4,334,826

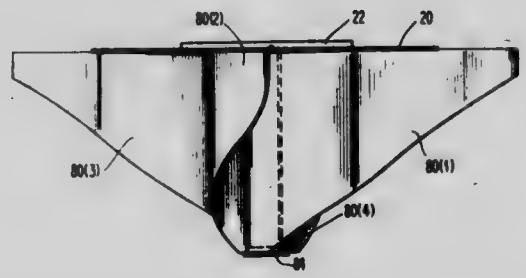
SURFACE AERATOR IMPELLER

John R. Connolly, 107 Orchard Rd., Paoli, Pa. 19301; David E. Gibson, Washington Park Apts., D-3, Ft. Washington, Pa. 19034; Edward L. Heimark, 649 S. Henderson Rd., Apt. C-206, King of Prussia, Pa. 19406; Jerome B. Quinn, R.D. #2, Kennett Square, Pa. 19348; Richard E. Speechley, 3625 W. Moreland Rd., Apt. E-1, Willow Grove, Pa. 19090, and Richard L. Winter, 500 Wyncotte Cir., Berwyn, Pa. 19312

Division of Ser. No. 28,486, Apr. 9, 1979, which is a division of Ser. No. 825,486, Aug. 17, 1977, Pat. No. 4,163,631. This application Feb. 4, 1980, Ser. No. 118,109

Int. Cl.³ B01F *3/04*

U.S. Cl. 416—185 **3 Claims**



1. A surface aerator impeller for aeration of liquids said impeller comprising;

(a) a large flat horizontal upper disc;

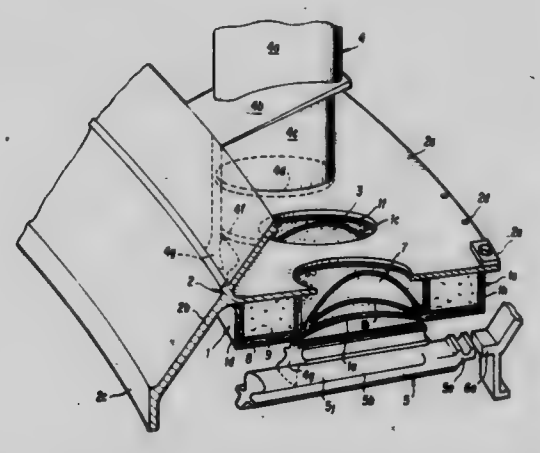
(b) means adapted for securing said disc to the lower end of a vertical rotatable drive shaft for rotation therewith about the center axis of said disc;
(c) a plurality of vertical impeller blades secured to the underside of said disc at uniformly angular spacings about the center axis of said disc;
(d) each blade having a major area surface having a reverse curve, as viewed vertically, an inward portion being curved in a retreating direction and an outward portion being curved in an advancing direction relative to the direction of rotation of said disc;
(e) each blade having an inner vertical edge of said major area surface located off and forward of the center axis of said disc.

4,334,827

DEVICE FOR ATTACHING BLADES TO A COMPRESSOR ROTOR FOR A TURBOJET

Jean G. Bouiller, Brunoy, and Raymond J. M. Joubert, Savigny sur Orge, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "SNECMA", Paris, France

Filed Apr. 3, 1980, Ser. No. 137,010
Claims priority, application France, Apr. 4, 1979, 79 08487
Int. Cl.³ F01D 5/30
U.S. Cl. 416—220 R **8 Claims**



1. An apparatus for attaching blades to a compressor rotor for a turbojet comprising:
a rotor drum in which are formed holes having walls extending radially and within which said blades are inserted, said blades forming successive platforms by means of which said blades receive support from said walls of said holes; and
a cotter pin inserted between foot portions of two adjacent blades wherein said blades are locked in place radially on said drum by means of said cotter pin and draw support from an interior surface portion of said drum.

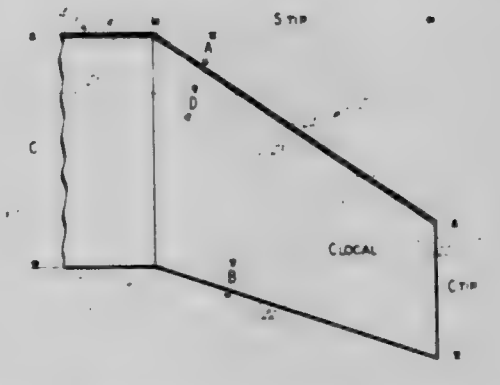
4,334,828

HELICOPTER BLADE WITH A TIP HAVING A SELECTED COMBINATION OF SWEEP, TAPER AND ANHEDRAL TO IMPROVE HOVER EFFICIENCY

Robert C. Moffitt, Seymour, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jan. 21, 1980, Ser. No. 114,137
Int. Cl.³ F01D 5/12
U.S. Cl. 416—228 **9 Claims**

1. A helicopter blade having moderate blade twist, a leading edge, a trailing edge, a root, a tip, a chord dimension extending between said edges, and being fabricated so that aerodynamic blade loading during rotor hover operation will induce torsional deflection of the blade to a preferred pitch position and thereby improve rotor performance and reduce the total power required to drive the rotor and including:
a root section adapted to be connected to a helicopter rotor hub for rotation therewith about an axis of rotation,
a central portion of selected aerodynamic shape connected to and extending outwardly from the blade root portion,
a tip portion connected to and extending outwardly from the blade central portion to establish a blade radius between the axis of rotation and the blade tip, said blade tip portion being selectively shaped to improve helicopter hover performance by diminishing the intensity of the tip vortex generated during hover operation and directing the tip vortex away from the following blade to minimize interference therewith,
said tip portion extending for approximately 8%±2% of blade radius for blades to be used in rotors of four or more blades, and 13%±2% for blades to be used in two bladed rotors,



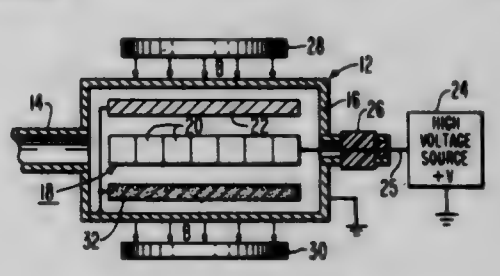
said tip portion being swept rearwardly to reduce the velocity of the air in the perpendicular to tip local quarter chord line to thereby reduce blade tip loading and the strength of the tip vortex generated in hover,
said tip portion leading edge being swept rearwardly approximately an angle of twice the magnitude of the rearward sweep of the tip portion trailing edge,
said tip portion also being tapered so that the chord dimension at its outboard end is approximately ½ the chord dimension at its inboard end to reduce tip portion area and to thereby further reduce blade tip loading and the strength of the tip vortex generated in hover, and
said tip portion also being deflected downwardly throughout a portion of the blade tip equal to at least one blade chord dimension so as to direct the tip vortex away from the following blade in hover.

4,334,829

SPUTTER-ION PUMP FOR USE WITH ELECTRON TUBES HAVING THORIATED TUNGSTEN CATHODES

Willis E. Harbaugh, Leola, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 15, 1980, Ser. No. 121,877
Int. Cl.³ F04B 37/02
U.S. Cl. 417—49 **24 Claims**



1. In a sputter-ion pump for use in combination with an electron tube having at least one thoriated tungsten cathode, said sputter-ion pump comprising a vacuum envelope permanently in communication with the interior of said tube, a getter-cathode within said envelope, an anode structure, means for establishing an electric field between said anode structure and said cathode and means for establishing a magnetic field substantially parallel to said electric field, the improvement wherein said getter cathode comprises:
a cathode member including a mixture of at least one reac-

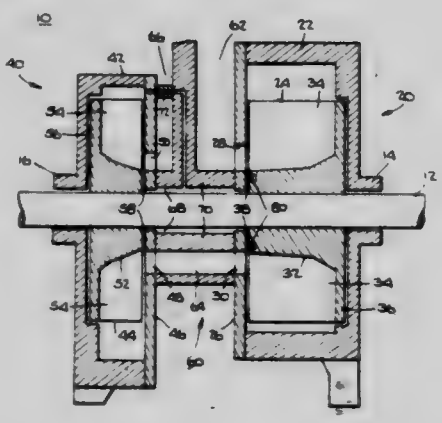
tive material and carbon for forming, in situ, a tungsten carbide layer on the thoriated tungsten cathode of said electron tube so as to increase the life of said electron tube.

4,334,830

TWO-STAGE LIQUID RING PUMP WITH IMPROVED INTRASTAGE AND INTERSTAGE SEALING MEANS

Harold K. Haavik, South Norwalk, Conn., assignor to The Nash Engineering Company, Norwalk, Conn.

Filed Mar. 24, 1980, Ser. No. 133,628
Int. Cl.[3] F04C *19/00*
U.S. Cl. 417—68 9 Claims



1. In a two-stage liquid ring pump of the center head type, the pump including (1) first and second stages each having (a) a cylindrical housing, (b) a rotor eccentrically mounted for rotation in the housing, and (c) a port plate on the end of the housing adjacent the other stage, each port plate having an intake port and a discharge port, the first stage discharge port being connected to the second stage intake port, both of the rotors being mounted on a common shaft which extends through both of the port plates, the portion of the shaft intermediate the port plates passing through and being enclosed by an interstage housing structure which extends between the port plates, each rotor including an annular hub and a plurality of radially extending circumferentially spaced blades, (2) a first annular clearance extending radially outward from the shaft between the first stage port plate and the adjacent end of the first stage rotor hub and communicating with the interior of the interstage housing structure adjacent the shaft, and (3) a second annular clearance extending radially outward from the shaft between the second stage port plate and the adjacent end of the second stage rotor hub and communicating with the interior of the interstage housing structure adjacent the shaft, improved gas sealing means comprising:

an annular seal member disposed in the first annular clearance, the annular seal member surrounding the shaft and being radially spaced therefrom to define an enclosed portion of the first annular clearance; and

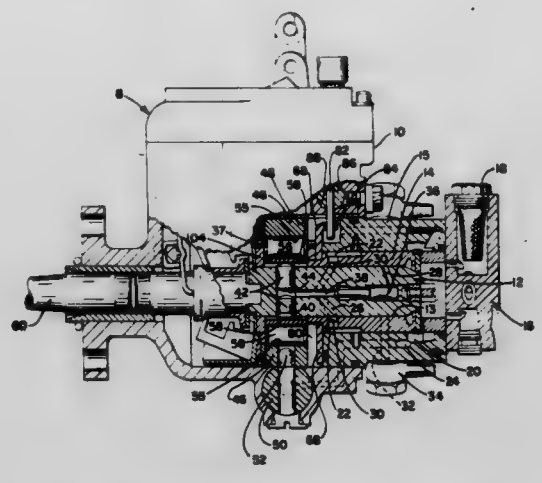
means for supplying pressurized sealing liquid to the enclosed portion of the first annular clearance to substantially fill the enclosed portion with pressurized sealing liquid, the pressure of the sealing liquid being at least equal to the final discharge pressure of the pump, the annular seal member and the pressurized sealing liquid in the enclosed portion cooperating to substantially prevent gas leakage through the enclosed portion from the high pressure side of the first stage to the low pressure side of the first stage, and also substantially preventing gas leakage from the second stage to the first stage via the second annular clearance, the interior of the interstage housing structure, and the first annular clearance.

4,334,831

ROTARY FUEL INJECTION PUMP

Leonard N. Baxter, Windsor, Conn., assignor to Stanadyne, Inc., Windsor, Conn.

Filed Mar. 5, 1980, Ser. No. 127,322
Int. Cl.[3] F04B *1/10, 19/02*
U.S. Cl. 417—214 9 Claims



1. In a rotary fuel injection pump for an internal combustion engine having a housing with inlet and outlet passages; a rotor journaled in the housing having a rotor body with a plurality of angularly spaced radially extending bores and a fuel passage in communication with the inner ends of the bores having inlet and outlet ports which communicate alternately with said inlet and outlet passages during rotation of the rotor for alternately conducting fuel to and from the bores respectively, a plunger assembly for each bore comprising a pump plunger reciprocably mounted in the bore to sequentially receive charges of fuel from and deliver them to said inlet and outlet passages respectively, and a plunger operating roller and roller shoe at the outer end of the plunger; a cam ring with an inner cam contour surrounding the rotor in the plane of revolution of the rollers and engageable therewith to translate the cam contour into reciprocable movement of the plungers; and a plunger stroke limit mechanism for limiting the outward stroke of the plungers and thereby regulate the quantity of fuel injected during each inward pumping stroke thereof; the improvement wherein the plunger stroke limit mechanism comprises a separate abutment slide for each plunger assembly reciprocably mounted on the rotor for axial adjustment adjacent and relative to the respective plunger assembly and having first abutment means for limiting the outward stroke of the plunger assembly radially adjustable relative to the respective plunger assembly upon axial adjustment of the abutment slide, each plunger assembly having second abutment means engageable with the first abutment means of the respective abutment slide to adjustably limit the outward stroke of the respective plunger in relationship to said relative radial adjustment of the first abutment means and therefore the adjusted axial position of the respective abutment slide, and control means connected to axially adjust the abutment slides equally.

4,334,832

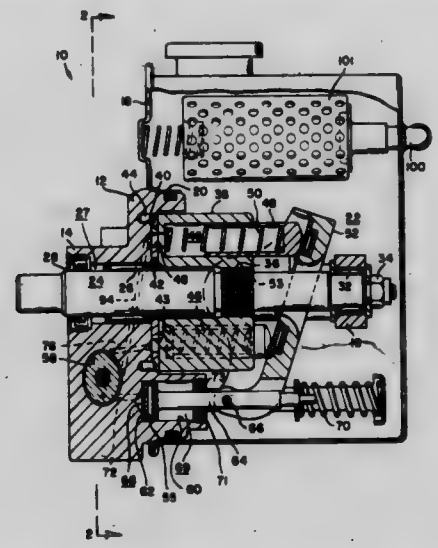
CONSTANT OUTPUT FLUID PUMP

Arthur K. Brown; Richard T. Hendrickson, and Jerome T. Ewald, all of South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Mar. 6, 1980, Ser. No. 127,680
Int. Cl.[3] F04B *1/26*
U.S. Cl. 417—218 1 Claim

1. In a pump, a reservoir, an outlet, and variable displacement pumping means for pumping fluid from said reservoir to said outlet via a flow path, said variable displacement pumping means pumping a varying quantity of fluid as a function of the displacement of said pumping means, fluid pressure responsive means for controlling the displacement of said pumping means

as a function of a pressure level communicated to said fluid pressure responsive means, differential pressure responsive valve means controlling communication between said pumping means and said fluid pressure responsive means and between said fluid pressure responsive means and said reservoir whereby said pressure level is controlled as a function of the differential pressure across the valve means, and means for creating a pressure differential across said valve means as a function of the volume of fluid pumped through said flow path by said pumping means, said valve means including a housing defining a bore therewithin and a valve member slidably mounted in said bore and cooperating with the latter to define a pair of pressure chambers, one of said chambers being communicated with the pumping means, said valve means also



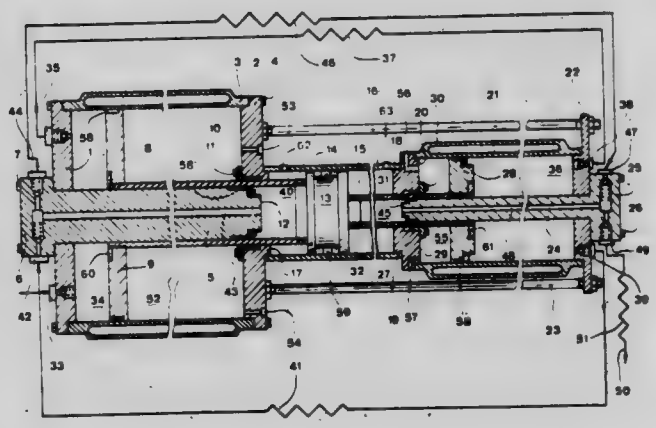
including passage means distinct from said flow path for communicating said one chamber with the other chamber, said pressure differential being defined by the differential between a fluid pressure in said one chamber and a fluid pressure in said other chamber, said pressure differential creating means includes means defining a flow restricting orifice in said flow path having high and low pressure sides, said high pressure side communicating with said pumping means, said low pressure side communicating with said outlet, and said valve member further comprises a body portion and a neck portion extending from said body portion, said neck portion and a portion of the bore wall surrounding said neck portion defining an annular space therebetween, said annular space comprising said flow-restricting orifice.

4,334,833

FOUR-STAGE GAS COMPRESSOR

Antonio Gozzi, Via Giordano, 14, Montale Castelnuovo Rangone, Modena, Italy

Filed Oct. 28, 1980, Ser. No. 202,356
Int. Cl.[3] F04B *25/04, 23/10, 19/02*
U.S. Cl. 417—258 2 Claims



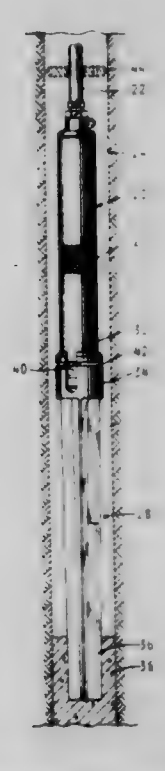
1. A four-stage compressor including: a double-acting piston operable by pressurized oil and provided with first and second hollow opposed piston rods the first of which is connected to a first-stage piston and the second of which is connected to a second-stage piston; said first- and second-stage pistons being arranged to slide in first and second jackets respectively and being a sliding fit upon first and second cylindrical bodies respectively; said first and second cylindrical bodies respectively being fixed to first and second opposed heads; a first axial suction and delivery duct leading to an end face of said first cylindrical body, a third stage chamber being defined between said end face and one face of the double-acting piston; and a second axial suction and delivery duct leading to an end face of said second cylindrical body, a fourth stage chamber being defined between said end face of said second cylindrical body and the other face of the double-acting piston.

4,334,834

SUBMERSIBLE PUMP STABILIZER

Werner R. Werner, and Bruno R. Werner, both of 309 Schoolhouse Rd., Old Saybrook, Conn. 06475

Filed Sep. 28, 1979, Ser. No. 79,790
Int. Cl.[3] F04B *35/04, 17/00*
U.S. Cl. 417—360 1 Claim



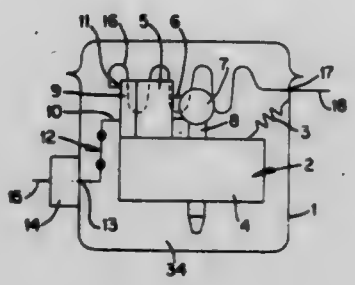
1. A stabilizer for positioning a pump vertically and for resisting torsional forces in a well bore having sandy penetrable material at its bottom, comprising a rigid structure having a first end and a second end along an axis; the first end having means to receive and non-rotatably engage the body of the pump and to receive axial and lateral force therefrom; and, the second end having means for contacting and frictionally engaging the bottom of the well, to resist vertical, rotational, and lateral motion; the structure being of an axial length sufficient to support the pump above entrainable debris, characterized by a first end shaped to provide a cylindrical cavity in proximity to the body where it is engaged by the first end; passages connecting the cavity with the liquid being pumped, to allow circulation within the cavity of liquid for cooling the pump body; the structure further having a taper extending substantially along the length of the structure, the cross section of the taper increasing from the second end to the first, thereby enabling the stabilizer to first easily penetrate material at the bottom of a well bore, to provide engagement therewith for resisting rotational motion, the cross section providing increasing resistance with further penetration, thereby providing engagement for resisting vertical motion.

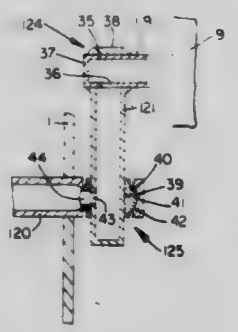
4,334,835

ENCAPSULATED REFRIGERATOR

Jan Dyhr, Sonderborg, and Ole J. Nissen, Augustenborg, both of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Division of Ser. No. 22,985, Mar. 22, 1979, Pat. No. 4,242,056, which is a division of Ser. No. 849,308, Nov. 7, 1977, Pat. No. 4,160,625. This application Apr. 7, 1980, Ser. No. 138,162
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1976, 2650937
Int. Cl.[3] F04B *39/12*
U.S. Cl. 417—363 1 Claim





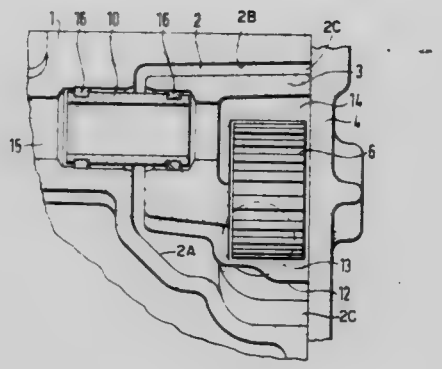
1. An encapsulated refrigerator assembly, comprising a capsule, an integrated motor and compressor unit resiliently mounted in said capsule with said motor unit having a generally vertically extending axis, a compressor inlet port, an inlet port in said capsule in circumferential alignment with said compressor inlet port but axially and radially offset therefrom relative to said motor axis, pipe fittings for said ports having free ends in axially offset relation to each other, a connecting pipe between said fittings, upper and lower articulated joint means between said pipe and said fittings, one of said articulated joint means being a universal joint, said universal joint including a sleeve element having a spherical outer surface, the associated one of said pipe fittings and said connecting pipe being a pair of relatively movable members, said sleeve element being journalled on one of said members and journalled in the other of said members, said sleeve element and one of said members having aligned holes to provide fluid communication between said members, both of said articulated joint means having engaging journal and bearing sections with each said journal section having a hole which provides fluid communication between the interiors of said journal and bearing sections, and the other of said articulated joint means forming a sliding joint to allow relative movement between said pipe and said other articulated joint means to compensate for axial variations in the spacing of said fittings and to allow relative axial vibrational movement between said compression unit and said capsule.

4,334,836

OIL PUMP ARRANGEMENT

Heribert Kubis, and Karl Schott, both of Nuremberg, Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nuremberg, Fed. Rep. of Germany

Filed Aug. 15, 1979, Ser. No. 66,627
Claims priority, application Fed. Rep. of Germany, Aug. 17, 1978, 2836094
Int. Cl.[3] F04B *17/00;* F04C *2/08;* F02B *77/14*
U.S. Cl. 417—364 2 Claims



1. An oil pump arrangement for the pressure oil supply for internal combustion engines, which comprises in combination:

an internal combustion engine, one side of a portion of which is provided with a rough-cast unmachined recess therewith;

a pump housing having an outlet and a center arranged in said recess;

impeller gears which are provided in said pump housing and which mesh with one another;

driving means operatively connected to said internal combustion engine for driving at least one of said impeller gears, said pump housing being open toward that part of said side portion which faces said driving means;

closure means to which said pump housing is connected for closing off the open side of said pump housing and said recess and for providing support for said driving means;

a suction pipe connected to and communicating with said pump housing; and

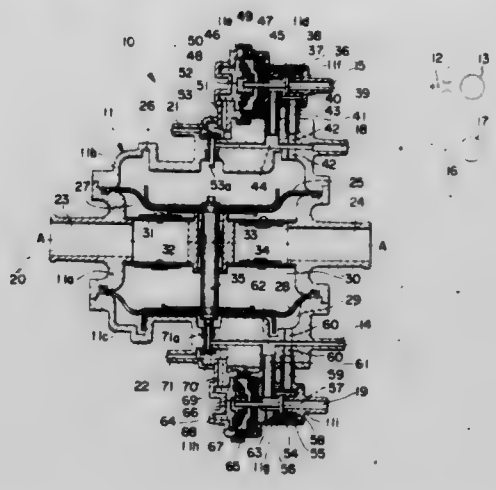
a pressure pipe connected to and communicating with said pump housing as well as having a center so that slight variations in the centers between the pump housing outlet and said pressure pipe can be compensated by having the connecting pipe in an oblique position for accurate maintenance of center distances, said recess forming the suction space for said oil pump, said side portion of said internal combustion engine including a bore for providing communication between said suction space and said suction pipe, and said pump housing including an opening for providing communication between said suction space and the interior of said pump housing, a connecting pipe for providing communication between the pressure side of said pump housing and said pressure pipe, said connecting pipe being adapted to assume a skewed position for compensating for slight misalignment of connecting ducts, said driving means comprising a drive wheel connected to one of said impeller gears and said closure means comprising a timing gear case, and further including an idler gear supported by said timing gear case and serving to drive a fuel injection pump or the ignition distributor and the camshaft, said drive wheel meshing with said idler gear.

4,334,837

DIAPHRAGM AIR PUMP ASSEMBLY

Masami Inada, Kariya; Yasuhiro Kawabata, Anjo, and Noriyoshi Shibata, Nagoya, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jan. 17, 1980, Ser. No. 113,238
Claims priority, application Japan, Jan. 19, 1979, 54/5225
Int. Cl.[3] F04B *43/06;* F01L *25/02*
U.S. Cl. 417—393 8 Claims



1. A diaphragm air pump assembly adapted for use and association with a vacuum source and an atmospheric air source, comprising in combination:

a body,

axially aligned inlet and outlet ports in said body and defining a central axis of said body,

first and second diaphragms for defining first and second pump chambers and first and second vacuum operational chambers in said body,

a rod interconnecting said first and second diaphragms to move in unison therewith, said diaphragms and said rod moving transversely of said central axis,

first and second valve means mounted on said body, each said valve means including a port connected to said vacuum source, a port connected to said atmospheric air pressure, and a passage allowing alternative admission of vacuum and atmospheric air to said first and second vacuum operational chambers by communicating one of said ports with said passage, each of said valve means being disposed in symmetrical arrangement with respect to the central axis of said body,

first and second actuating means symmetrically mounted on said body with respect to said central axis, each of said actuating means including a variable pressure chamber, an atmospheric pressure chamber in normal communication with atmospheric air, and a reciprocal member operatively connected to each of said first and second valve means in accordance with pressure differential between said variable pressure chamber and said atmospheric pressure chamber, thereby admitting a vacuum alternatively to said first and second vacuum operational chambers, and

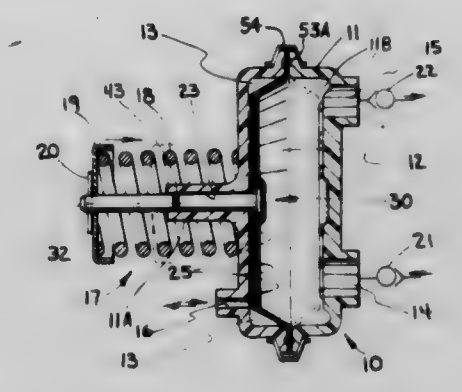
passage means connected at one end to said vacuum source and at the other end to said atmospheric air source, said passage means including first and second normally closed valves mounted on said body to control alternative admission of vacuum and atmospheric air into said variable pressure chambers, said first and second normally closed valves being symmetrically disposed with respect to the central axis of said body and actuated in response to movement of said first and second diaphragms in unison with said rod, whereby the alternative admission of vacuum into said first and second vacuum operational chambers causes the alternative decrease of capacity in said first and second pump chambers to affect the pumping operation due to reciprocation of said first and second diaphragms in unison with said rod.

4,334,838

DIAPHRAGM TYPE FLUID PUMP HAVING A FLEXIBLE DIAPHRAGM WITH AN INTERNAL REINFORCING PLATE

Herman S. Fessler, Coon Rapids, Minn.; William S. Credle, Jr., and William A. Harvill, both of Stone Mountain, Ga., assignors to The Coca-Cola Company, Atlanta, Ga. and The Cornelius Company, Anoka, Minn.

Filed Jan. 29, 1980, Ser. No. 116,505
Int. Cl.[3] F04B *43/06*
U.S. Cl. 417—395 5 Claims



1. A diaphragm assembly for a diaphragm type fluid pump, comprising:

a substantially planar and rigid diaphragm plate having a front and rear side, a central aperture therethrough, and a pattern of perforations around and generally concentric to the central aperture;

an integral one-piece elongate and rigid motor stem mounted in and through the plate aperture, said stem having an elongate body extending from the plate rear side;

a diametrically enlarged head on the stem, said head being of a larger diameter than the elongate body and being abutted against and protruding forward of the plate front side;

a relatively flexible elastomeric diaphragm molded to the plate and stem, said diaphragm having an imperforate layer covering the entirety of the plate front side and the stem head; and in which the diaphragm has

(a) an imperforate monolithic front layer secured to the plate, and covering the entirety of the plate front side and the stem head;

(b) integral pins extending from the front layer and through the plate perforations;

(c) a rear layer integrally connected to the front layer by and through the pins; and

(d) perforations through the rear layer, the plate perforations and the diaphragm pins therein being spaced from any of the diaphragm rear layer perforations.

4,334,839

HAND OPERATED, DUAL CHAMBERED, PNEUMATIC PUMP

Rodger H. Flagg, 1415 Lynn Ave., Fort Wayne, Ind. 46805

Filed Sep. 22, 1978, Ser. No. 944,847
Int. Cl.[3] F04B *23/06, 33/00*
U.S. Cl. 417—536 4 Claims

1. An inflating apparatus comprising:

a plurality of cylinders;

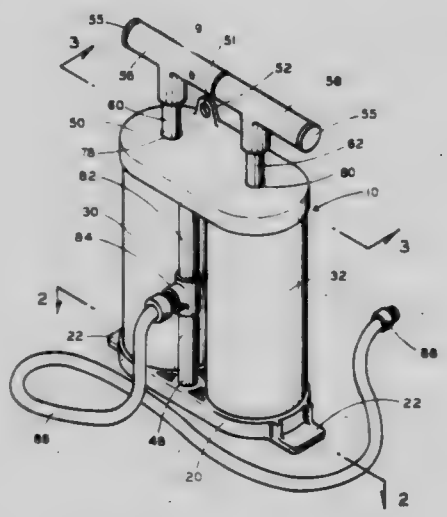
a plurality of pistons, each piston being reciprocably driven by a piston rod in a respective cylinder; each of said pistons being in sliding contact with its respective cylinder wall to form a first chamber on one side of said each piston and a second chamber on the other side of said each piston opposite to said one side; each of said first and second chambers being volumetrically variable and proportional to the axial position of its respective piston in its cylinder;

first means comprising a check valve for admitting fluid to each of said first chambers upon movement of the respective pistons in one direction that volumetrically enlarges said first chambers;

second means comprising a check valve for exhaust of fluid from said first chambers upon movement of the respective pistons in a second direction opposite to said one direction that volumetrically reduces said first chambers;

a plurality of elongated handles, a handle being attached to each said piston rod and each handle having a portion extending transversely from said rod to provide for manual force application to reciprocate each piston in its respective cylinder;

third means for longitudinally aligning and releasably holding said handles in longitudinal alignment whereby said handles may be conjointly operated and move their respective piston rods and pistons in unison, and for releasing said handles from one another whereby said handles are manually movable independently of one another, to



provide a variable flow inflating apparatus, wherein said third means comprises means for rotating each of said handles about its respective piston rod axis into mechanically held transverse longitudinal alignment, and to rotate said handles out of said mechanically held alignment by releasing said handles from one another, whereby said handles may be moved independently of one another, wherein said handles are rotatable about their respective piston rod axis into and out of said mechanically locked alignment; one of said handles being rotatable into a predetermined axial position from said longitudinal alignment; and

a fourth means for releasably holding said one handle in said predetermined axial position, to provide interference-free operation of the other handle.

4,334,840

GEAR PUMP OR MOTOR WITH SERRATED GROOVES ON INNER WALL FOR BREAK-IN OPERATION

Hideo Teruyama, Shobu, Japan, assignor to Kayaba Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 24, 1980, Ser. No. 114,884
Claims priority, application Japan, Jan. 26, 1979, 54/7251
Int. Cl.³ F01C *1/18, 21/10;* F03C *2/08;* F04C *2/18*
U.S. Cl. 418—1 **7 Claims**

1. A method of providing in a gear pump or motor a minimal clearance between a relatively smooth inner wall surface on the low pressure side of a bower and the crest of the gear teeth comprising the steps of

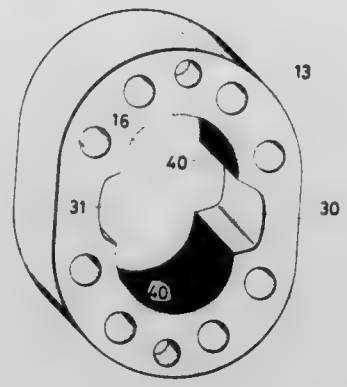
rotating the inter-meshing gears made of ferrous material having a pre-determined co-efficient of expansion at the maximum operational speed

in a bower made of ferrous material having a co-efficient of expansion substantially identical with the co-efficient of expansion of said gear teeth;

said bower having at least on the low pressure side of its inner wall surface serrations cut transverse to the rotation of said gear teeth;

allowing the crest of the gear teeth to impact on said serrations to wear down said serrations;

creating built-up edges on the crest of said gear teeth; and



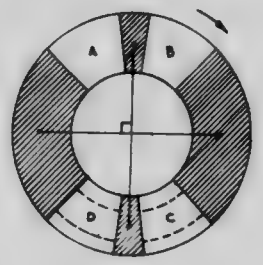
breaking off said built-up edges by impacting said crests on the angular part of said serrations.

4,334,841

MECHANICAL DEVICES FORMING AN ENGINE

Henry A. Barlow, 1189 Guildwood Blvd., London, Ontario, Canada

Filed Apr. 2, 1979, Ser. No. 26,241
Int. Cl.³ F01C *1/067, 21/04*
U.S. Cl. 418—38 **1 Claim**



1. A causal mechanism comprising in part three coaxial shafts, said shafts being called inner, outer and a final drive shaft, the outer drive shaft shall partly enclose the inner drive shaft and they shall each at the same end have a pair of radial arms extending outwards, these arms to be offset in such a manner that each pair will be centred to the other and the linkage that will enclose them on either side and to a surrounding stationary cam, the said linkage to consist of eight links of equal length, pivoted at their centres in pairs about each side of the radial arms, further each pair of links will be pivotally joined at the ends to the adjacent pairs of links; these sets of links will also support at their pivotal ends four sets of rollers held firmly by the said links on either side, the said rollers to be held to the enclosing cam; (variously the pairs of links may be integrated into single end wise surrounding units;) the radial arms, links and rollers form the rhomboid mechanism, the angular relationship of the components of the rhomboid mechanism being determined by the said cam, the pivotal ends of the rhomboid mechanism will also support, on one side, drive rollers, the said drive rollers being held outwards from the linkage into the slideways of a power-take-off coupling, the said power-take-off coupling will have mutually perpendicular slideways radiating out from its centre; variously the drive rollers may be replaced by slideblocks, the said power-take-off coupling will be firmly affixed about its centre to the final drive shaft, the said final drive shaft together with the power-take-off coupling is driven by or drives the rhomboid mechanism through the drive rollers, the mechanisms linkage will in turn derive or sustain torque from the combinational effect of opposing and or differing torque of the three drive shafts, together with the regimentation of movement imposed by the stationary cam through the cam rollers; the inner and outer

drive shaft extend away from the causal mechanism along the principal axis of a stationary cylinder of toroid or annular form, the said cylinder forming a chamber to enclose four movable partitions or pistons that separate the chamber into four sealed interspaces, the cylinder will have suitably located intake and exhaust ports together with provision for fuel injection and, or ignition of a combustible gas mixture; the cylinder will also have provision for the intrusion of a forward and rear driving disc, the said driving discs are immediately adjacent to each other with the forward and rear driving disc firmly affixed to inner and outer drive shafts respectively; each of the said driving discs will have a pair of diametrically opposed radial arms extended outwards into the cylinder cavity and so formed as to be offset and centred to the cylinder, the arms to pass within hollow pistons, the said pistons will be hollow and attachable to radial arms of the discs in such a manner that the loading to the arms by the pistons will be centred to the cylinder thus avoiding a twisting action of the pistons towards the cylinder walls; the said inner and outer drive shafts will impose, by means of the causal mechanism, to the pistons through the discs a uniform angular motion together with an angular harmonic motion; the rear driving disc shall be modified; the said modification to consist of two elements each of which will be a series of grooves contained within the disc face that laps the forward disc, the first element to be in part a complete annular groove of outer diameter slightly less than the outer diameter of the disc face from this groove a second groove will run into a cavity between the inner part of the forward and rear disc faces; the second element will consist of a groove in the form of an arc, the said arc to be of lesser diameter than the annular groove of the first element, the arc groove will not extend into the second groove of the first element; a series of grooves will extend from the arc groove into the cavity between the two discs, this series of grooves, the arc groove together with one or several holes cut through the disc from the arc grooves, form the second element; the combination of the said elements meet the imperative needs of an engine of this type, the first element preventing a separation of the mating faces of the discs by virtue of pressure between the faces; the said second element distributes lubrication entering the cavity between the disc by escapage between the drive shafts and returns excess amounts to the causal mechanism casing, variously the elements so described may be incorporated into the forward driving disc; this combination of components and mechanism conform to the principal unit of a radial flow internal combustion engine or variously a compressor or pump.

4,334,842

ROTARY PUMP WITH RADIAL YIELDABLE PARTITIONS AND ROTATABLE SIDE PLATE

Yoshi Ikeda, No. 3-3-17, Sekimae, Musashino-shi, Tokyo; Kenji Osada, No. 3-7-15, Asagaya-Minami, Suginami-ku, Tokyo, and Kazumi Doi, No. 2-14-21-203, Mure, Mitaka-shi, Tokyo, all of Japan

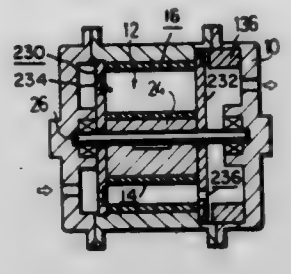
Continuation of Ser. No. 730,303, Oct. 7, 1976, abandoned, which is a division of Ser. No. 464,926, Apr. 29, 1974, Pat. No. 4,004,865. This application Feb. 1, 1979, Ser. No. 8,506

Claims priority, application Japan, May 1, 1973, 48-49511; Nov. 16, 1973, 48-129061; Dec. 3, 1973, 48-135960; Feb. 13, 1974, 49-17924

Int. Cl.³ F04C *5/00, 15/02*

U.S. Cl. 418—45 **4 Claims**

1. A volume pump having a pump chamber formed between inner and outer concentrically arranged sleeves, a plurality of generally radially directed yieldable sheet-like partitions spaced circumferentially and extending between and engaging said inner and outer sleeves, said partitions forming with said inner and outer sleeves, respectively, a plurality of compartments each extending in radial direction the full extent between said sleeves, separate side plates for closing opposite ends of said compartments defined by said sleeves and said generally radially directed partitions, one of said side plates being stationary and the other of said side plates being rotatable, one of said plates having suction inlet means for the compartments formed therein and the other of said side plate having delivery outlet means for the compartments formed therein and rotatable deflection means within said inner sleeve to successively change the volume of said compartments.



4,334,843

GEROTOR MACHINE WITH VALVE PLATES ATTACHED TO WHEEL GEAR

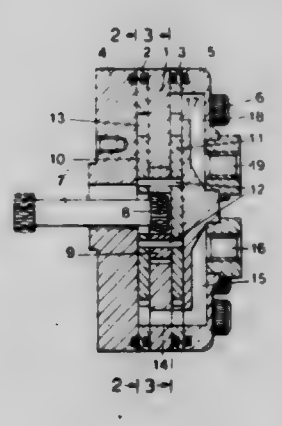
Christian B. Hansen, Nordborg, Denmark, and Carl D. Flagstad, Sonderborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Filed May 5, 1980, Ser. No. 146,346

Claims priority, application Fed. Rep. of Germany, May 17, 1979, 2919871

Int. Cl.³ F01C *1/10, 21/12;* F03C *2/08;* F04C *2/10*

U.S. Cl. 418—61 B **1 Claim**



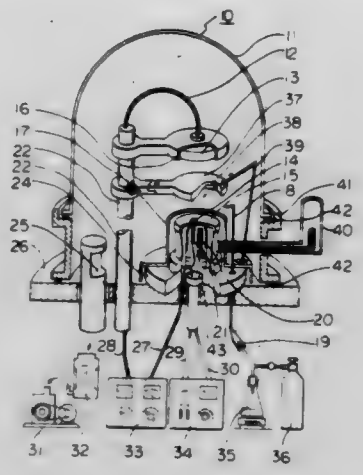
1. A rotary piston machine, comprising, a casing, radially inner and outer gerotor type wheel and ring gears having rotatable and orbital movement relative to each other and being operable to form expansible chambers therebetween with the orbital movement of said wheel gear relative to said ring gear causing the line of eccentricity therebetween to rotate relative to the axis of said ring gear, said ring gear being in fixed relation to said casing, drive means connected to said wheel gear, said wheel gear having distributor valve plates attached to opposite sides thereof, said casing forming axially spaced sidewalls engaging said valve plates in sealing engagement and forming with said casing and said ring gear first and second chambers respectively and radially surrounding said plates, inlet and outlet ports in said casing respectively connected to said chambers, said valve plates having peripheral recesses with edges which are cooperable with said ring gear so that when said drive means rotates in one direction one of said valve plates sequentially opens said expansible chambers on one side of said line of eccentricity while the other of said valve plates sequentially opens said expansible chambers on the other side of said line of eccentricity, and vice versa.

4,334,844

REPLICA FILM OF SPECIMEN FOR ELECTRON MICROSCOPY APPARATUS

Akira Tanaka, Souka, Japan, assignor to Tokyo Metropolitan Government, Tokyo, Japan

Filed Dec. 5, 1979, Ser. No. 100,280
Int. Cl.³ H05H *1/00*
U.S. Cl. 425—2 **3 Claims**



1. An apparatus for preparing a replica film of a specimen for electron microscopy comprising:

(a) a pair of electrodes one being an upper positive electrode and the other being a lower negative electrode which parallelly face each other with a distance therebetween and which are placed in a vacuum vessel on a base plate, said both electrodes being electrically and thermically insulated from the vacuum vessel and the base plate and being surrounded by minute discharge prevention cylinders;

(b) a direct high-voltage electric source connected to said negative and positive electrodes for effecting a glow discharge between the two electrodes; and

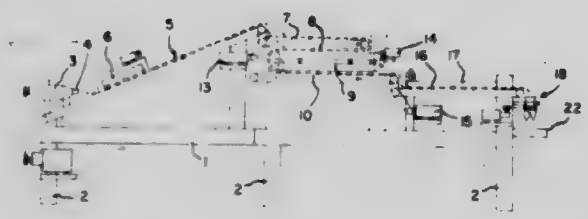
(c) means for forming a polymer substance film derived from organic monomer vapors on the surface of a specimen placed on the surface of the negative electrode by plasma polymerization.

4,334,845

MACHINE FOR PRODUCING ROLLS OF BAKERY PRODUCTS

Teijo T. T. Tamminen, Julkujarvi, Finland, assignor to Henberg Oy, Helsinki, Finland

Filed Mar. 4, 1980, Ser. No. 127,026
Int. Cl.³ B29C *17/00, 23/00*; B29F *3/00*
U.S. Cl. 425—104 **20 Claims**



1. A machine assembly for producing continuous rolls of uniformly sized bakery products such as biscuits and the like, and comprising:

a machine framework supporting an inlet work station and an outlet work station spaced from one another;

said inlet work station including a dressing means having at least one outlet nozzle for forming at least one continuous bar of dough;

said outlet work station including steering funnel means for shaping said at least one continuous bar of dough into a continuous spiral;

a conveyor assembly providing a continuous passageway moving in a direction parallel to a longitudinal axis of said continuous bar of dough between said inlet work station and said outlet work station, thereby transporting a portion of said continuous bar of dough to said outlet work station while simultaneously transporting a further portion of said continuous bar of dough from said inlet work station; and

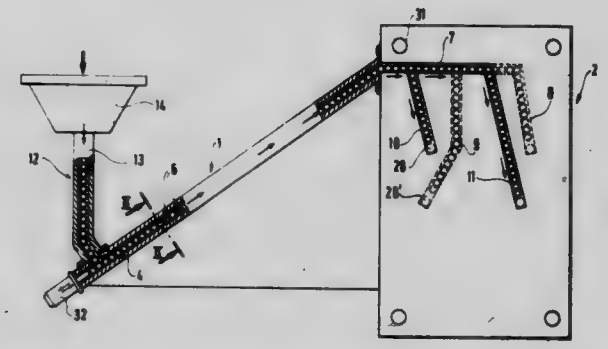
means for kneading and rolling said at least one continuous bar of dough during passage between said inlet and outlet work stations, respectively.

4,334,846

APPARATUS FOR AUTOMATICALLY FEEDING BUSHINGS INTO A PRESS FOR MOULDING COVERS FOR STORAGE BATTERIES

Jean-Paul Boniface, Flamicourt, and Gilbert Ponceblanc, Amiens, both of France, assignors to Societe Anonyme dite Compagnie Europeenne d'Accumulateurs, Paris, France

Filed Mar. 24, 1981, Ser. No. 247,129
Claims priority, application France, Mar. 27, 1980, 80 06835
Int. Cl.³ B79C *6/00*
U.S. Cl. 425—126 R **5 Claims**



1. Apparatus for automatically feeding bushings into a press for moulding covers for storage batteries wherein the apparatus includes a pipe for conveying the bushings, said pipe having at least one bushing-conveying compartment and being substantially horizontal inside the press, the or each of its compartments being subdivided into at least one descending branch each of which communicates with a bore provided in a first moving part of said press, push rods being linked to the stationary part of the press, which push rods can each be inserted in one of said bores during the translation movement of said moving part, studs being provided on a second moving part of the press and each being disposed adjacent to one of said bores so that firstly before moulding, when the press is closed by the translation movement of the two moving parts such that they abut against the stationary part of the press the push rods push a bushing into each bore until the bushing mates with the stud, and secondly, after moulding when the press is opened, another bushing drops by gravity into the bore at the end of said push rod.

4,334,847

INJECTION MOLDING DEVICE FOR MOLDING BODIES OF NATURAL OR SYNTHETIC RUBBER

Gunther Schauffele, Walheim, Fed. Rep. of Germany, assignor to Werner & Pfleiderer, Stuttgart, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 53,548, Jun. 28, 1979, abandoned, which is a continuation of Ser. No. 737,843, Nov. 1, 1976, abandoned. This application Apr. 7, 1980, Ser. No. 137,584
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1975, 2549813
Int. Cl.³ B29F *1/03, 1/05*
U.S. Cl. 425—227 **6 Claims**

1. An injection molding device for producing molded bodies of natural or synthetic rubber type plasticized material, said device comprising a vertical press including in combination:

a stationary lower cross head,

a movable upper cross head,

uprights supporting the upper cross head for movement with respect to the lower cross head,

a heatable pressure mold including upper and lower mold halves respectively supported by the cross heads for being opened and closed upon movement of the upper cross head;

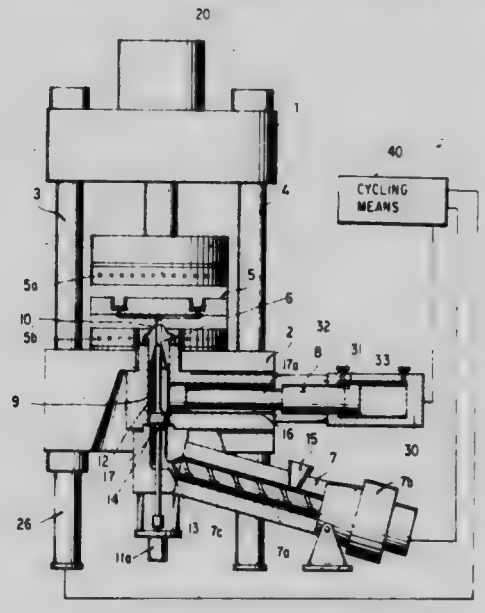
a feed duct mounted in said lower cross head for feeding the material to said mold;

plasticizing feed means engaged with said lower cross head and directly communicatng with one end of said duct for feeding plasticized material into said duct;

a removable nozzle in the other end of said duct communicating directly with said mold for feeding material from said duct into said mold, said nozzle comprising a body having a nozzle opening of determined length and width and a conically flared passageway joined to said nozzle opening and extending therefrom towards said feed duct;

injection means supported by and within said lower cross head in superposed relation above said plasticizing feed means for injecting plasticized material in said duct into said mold via said nozzle, said injection means including a casing mounted in said lower cross head directly communicating with said duct at a point intermediate said nozzle and said plasticizing feed means;

valve means for controlling the feeding of plasticized material from said plasticizing means into said duct and said



injection means, said valve means including a valve head and a valve seat provided in the duct intermediate the connections with said plasticizing feed means and said injection means, said valve head being reciprocable so that movement towards said nozzle opens said duct for feeding material by said plasticizing feed means into said duct and movement towards said one end blocks such feed of material, said valve means further including a piston connected to said valve head for reciprocating said valve head;

a nozzle cleaning member fitting the width and length of the nozzle opening;

a coupling rod connecting said cleaning member to said valve head so as to insert said cleaning member into the nozzle opening when the valve head is moved into its open position and to withdraw the cleaning member from the nozzle opening upon closing of said valve head, said nozzle cleaning member being disposed in said flared passageway with its end in proximity to said nozzle opening with the valve head in closed position, said nozzle cleaning member penetrating into said nozzle opening and extending the full length thereof in tight-fitting manner with the valve head in open position to constitute a means for fully cleaning said nozzle opening of residues of plasticized residual material; and

control means coacting with said piston for opening and closing said valve head, wherein the length of said rod and the axial movement of the valve head are so correlated that the axial displacement of the valve head upon opening of the valve moves said cleaning member into the nozzle opening and the closing movement of the valve head withdraws the cleaning member therefrom.

4,334,848

APPARATUS FOR CENTRIFUGAL MOLDING OF CONCRETE PIPE

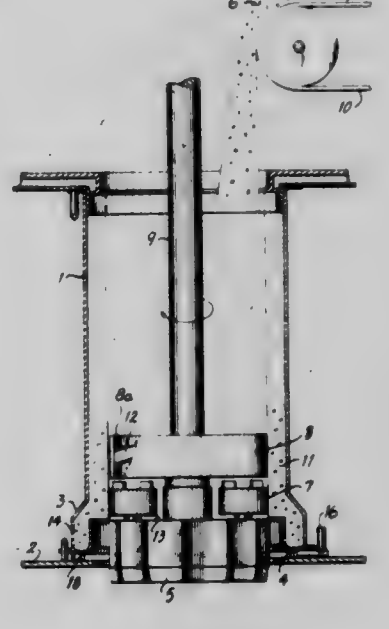
Paul Gross, Neftenbach, and Ruedi Kleeli, Winterthur, both of Switzerland, assignors to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland

Filed Mar. 4, 1980, Ser. No. 127,073

Claims priority, application Switzerland, Mar. 8, 1979, 2230/79

Int. Cl.³ B28B *21/24*

U.S. Cl. 425—262 **11 Claims**



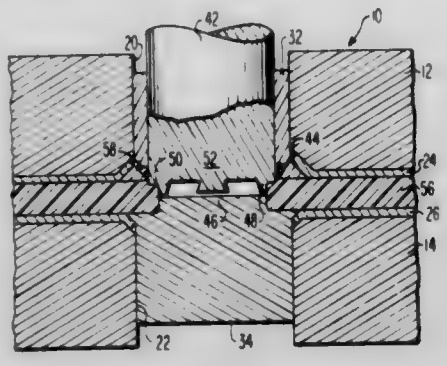
1. Apparatus for the radial centrifugal molding of axially extending sections of concrete pipe having a bell at one end thereof comprising an upwardly extending mold for forming the radially outer axially extending circumferential surface of the section of concrete pipe, the lower end of said mold being shaped to form the bell end of the section of concrete pipe, an upwardly extending shaft located within and spaced inwardly from said mold, a drum mounted on said shaft for rotation within said mold, said drum having a radially outer circumferential surface spaced radially inwardly from the inner surface of said mold, a plurality of rotatable rollers located around said shaft above said drum, said rollers arranged to press the inside surface of the concrete poured into said mold in the radially outward direction against the inner surface of said mold, wherein the improvement comprises a pressure wheel located within said mold extending around said shaft and positioned upwardly from said rollers, said pressure wheel having a tubular circumferential surface part extending in the axial direction of and encircling said shaft and spaced radially outwardly from said shaft and radially inwardly from the inner surface of said mold so that said circumferential surface part contacts a tubular-like axially extending portion of the inner surface of the concrete pressed against the inner surface of said mold for limiting the upward flow of the poured concrete and increasing the concrete pressure in the space in the bottom of said mold forming the bell of the section of concrete pipe, and said pressure wheel forming open spaces between said circumferential surface part thereof and said shaft so that the concrete poured into the mold passes downwardly through the open spaces to said drum.

4,334,849

APPARATUS FOR MOLDING A RECORDED DISC

Marvin D. Bock, Greenwood, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 3, 1981, Ser. No. 231,264
Int. Cl.[3] B29D *17/00*
U.S. Cl. 425—290 6 Claims



1. In an apparatus for molding a recorded disc from a plastic material which includes a pair of mold plates having opposed surfaces and adapted to form therebetween a disc mold cavity, a center plate in one of said mold plates, said center plate having a surface at the opposed surface of the one mold plate and a passage therethrough from said surface, and a center hole forming pin slidable in the passage in the center plate, the improvement comprising

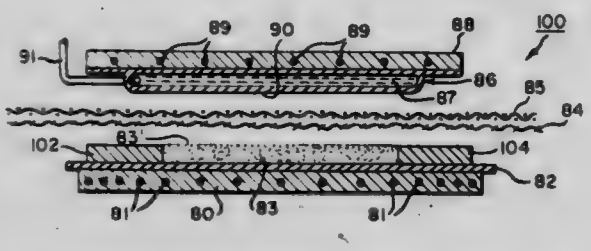
said center plate having an annular groove in the surface of the passage adjacent said surface of the center plate, said groove adapted to receive some of the plastic material to form a seal between the surface of the passage and the center hole forming pin.

4,334,850

APPARATUS FOR MAKING A STRESS-FREE PLASTIC ARTICLE

Armen Garabedian, 8-22 Astoria Blvd., Long Island City, N.Y.

Division of Ser. No. 929,304, Jul. 31, 1978, Pat. No. 4,243,368, which is a continuation-in-part of Ser. No. 817,048, Jul. 19, 1977, Pat. No. 4,104,101, and Ser. No. 647,832, Jan. 9, 1976, abandoned, which is a continuation of Ser. No. 424,654, Dec. 14, 1973, abandoned, which is a continuation of Ser. No. 141,495, May 10, 1971, abandoned, which is a division of Ser. No. 805,093, Feb. 14, 1969, abandoned, which is a continuation of Ser. No. 536,140, Mar. 21, 1966, abandoned, which is a continuation-in-part of Ser. No. 473,342, Jul. 20, 1965, Pat. No. 3,383,265, said Ser. No. 817,048, is a continuation of Ser. No. 279,964, Aug. 11, 1972, abandoned, which is a continuation-in-part of Ser. No. 141,495, , abandoned. This application Dec. 23, 1980, Ser. No. 219,436
Int. Cl.[3] A01J *21/00*
U.S. Cl. 425—388 8 Claims



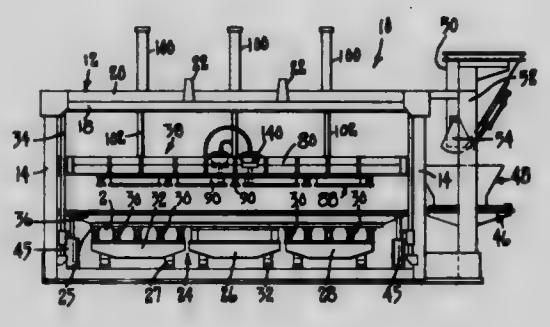
1. An apparatus for making a plastic article from finely divided plastic particles utilizing heat and pressure comprising: a pair of members movable relative to each other, the first of said members including a flexible diaphragm positioned in opposed relationship to the second of said members, a microporous air release and parting means positioned between said flexible diaphragm and said second member, means for applying fluid pressure to said diaphragm to cause said diaphragm to press against plastic particles positioned between said diaphram and said second member, and means for heating said plastic particles while applying pressure thereto to melt and consolidate the same and to produce thereby a stress-free plastic article.

4,334,851

CONCRETE FORMING APPARATUS

Joseph H. Wieser, Rte. 2, Maiden Rock, Wis. 54750

Continuation of Ser. No. 11,316, Feb. 12, 1979, abandoned. This application Sep. 19, 1980, Ser. No. 188,432
Int. Cl.[3] B28B *7/00*; B29C *1/16*
U.S. Cl. 425—412 1 Claim



1. An apparatus for forming concrete products on a substantially planar pallet of the type having a support frame for supporting the pallet in a substantially horizontal orientation; a vertically movable mold table defined by an enclosing peripheral wall and having a mold carried therein for forming the concrete product, wherein the mold includes a plurality of rigidly interconnected, laterally extending beams disposed within the wall to define a plurality of spaces between the beams and within the wall, the spaces normally being open at the top and bottom, wherein the mold table is movable into engagement with the pallet to engage the mold therewith and close the spaces at their bottoms, the pallet being located beneath the mold table to support the concrete product being formed; means for filling the mold in the mold table with uncured concrete; and a vertically movable platen for engaging and compacting the concrete placed into the mold, by entering the spaces at their tops, to form the concrete product; and wherein the improvement comprises:

means located on the platen for engaging and holding the mold down on the pallet during a concrete compaction process, wherein the mold holding means comprises a plurality of fluid cylinders fixedly located on the platen, wherein each cylinder has a reciprocal piston rod which extends downwardly through the platen and is movable relative to the cylinder and the platen for engaging various of the beams and forcing the mold in a downward direction, and further including means for simultaneously supplying a pressurized fluid to the cylinders for moving the piston rods downwardly to engage against the mold and force it against the pallet, and wherein the cylinders are of sufficient number and are spaced sufficiently far apart on the platen so as to hold the mold on the pallet without movement during the concrete compaction process.

4,334,852

APPARATUS FOR BLOW MOLDING A HOLLOW PLASTIC ARTICLE HAVING A RELATIVELY WIDE NECK

Thomas R. Haubert, Holland Landing, Canada, assignor to Supreme Casting & Tooling, Rexdale, Canada

Division of Ser. No. 55,204, Jul. 5, 1979, abandoned. This application Mar. 30, 1981, Ser. No. 248,734
Int. Cl.[3] B29C *17/07*
U.S. Cl. 425—525 6 Claims

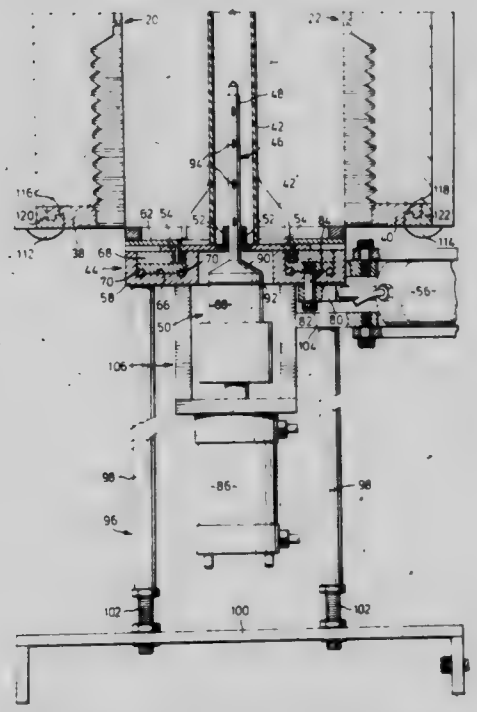
1. Apparatus for moulding hollow plastic articles, each

having a body portion and a relatively wide neck at one end, the apparatus comprising;

a partible mould comprising mould parts movable between open and closed positions and defining in said closed position a mould cavity of a shape appropriate to the required external shape of the article and extending about a generally upright longitudinal axis, said mould cavity having adjacent one end thereof surface portions for defining said neck of the article;

means for positioning between the open mould parts generally on said axis a relatively narrow mouldable tubular parison with an open lower end portion of the parision extending beyond the said one end of the mould cavity;

means mechanically engageable with said end portion of the parison and adapted to expand said portion to a size approximating the required final size of the neck of the article while leaving said open lower end of the parison unobstructed, said means including: a plurality of parison engaging elements arranged to project into said open end portion of the parison generally parallel to said longitudinal axis of the mould cavity; a plurality of slide members corresponding to said plurality of parison engaging elements, each member supporting one of said elements at an inner end thereof with the element projecting upwardly from the member, generally normally therefrom; an annu-



lar housing defining a central opening and supporting said slide members for horizontal sliding movement radially of the housing along rectilinear paths disposed normal to said axis between first positions in which the elements are disposed closely adjacent one another to permit a parison to be positioned over said elements, and second positions in which the elements have been displaced outwardly to expand the parison; and means for simultaneously moving the elements between said first and second positions comprising an actuator ring supported by said housing for turning movement about an axis of said central opening defined by the housing; actuator means for turning said ring through a predetermined angular amount; and cam means coupling said actuator ring and said slide members and arranged to cause longitudinal sliding movement of the members in response to turning movement of the ring;

a mandrel movable through said central opening of the annular housing and into said open lower end of the parison between a retracted position clear of said mould parts and an advanced position within the parison, said mandrel being shaped to co-operate with said surface portions of the mould cavity when the mould is closed, to form the neck of the article;

means for closing the end of the parison opposite said one end; and,

means for introducing air into the interior of the parison to cause the parison to expand, whereby the parison adopts the shape of the mould cavity.

4,334,853

METHOD OF BURNING INCENSE

Samuel M. Gardner, Sparta, N.J., assignor to Genieco, Inc., Chicago, Ill.

Filed Feb. 28, 1980, Ser. No. 125,470

Int. Cl.³ F23Q 2/32

U.S. Cl. 431—2 **10 Claims**



1. A method of burning incense comprising the steps of providing a stand including a carrier rod, providing a supply of incense beads each being a solid body with a hole therethrough and perfumed with a fragrance, said supply including a plurality of each of several different fragrances, selecting from the supply a number of beads including beads of different fragrances, removably threading the selected beads onto the carrier rod in a stack in a predetermined order, then igniting one of said beads at one end of the stack, whereby said beads will burn continuously one after another to emit a plurality of different fragrances in the predetermined order.

4,334,854

METHOD OF CONTROLLING THE COMBUSTION OF LIQUID FUEL

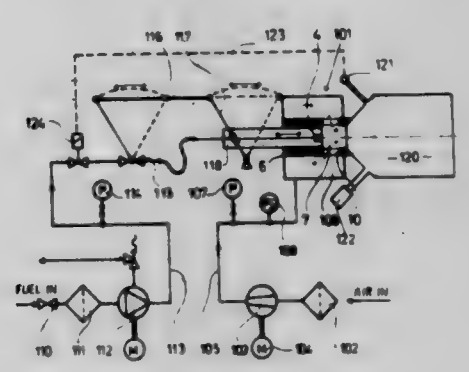
Johannes W. Graat, Overasselt, and Hans J. Remie, Nijmegen, both of Netherlands, assignors to Smit Ovens Nijmegen B.V., Nijmegen, Netherlands

Filed Jun. 21, 1978, Ser. No. 917,539

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1977, 2729321

Int. Cl.³ F23C 5/00, 5/06

U.S. Cl. 431—8 **2 Claims**



1. A method of mixing combustion air and liquid fuel for obtaining substantially stoichiometric combustion of the liquid

fuel in a burner assembly having a slideable fuel nozzle moveable to vary the size of a fuel and air mixing chamber and a fuel valving means variable over a wide range of fuel flow rates and having a control means for sliding said nozzle and operating said fuel valving means so that the ratio of fuel and air will be substantially constant with changes in the flow rate of fuel flowing in a fuel stream from the nozzle;

said method comprising the steps of:

regulating the flow rate of fuel to said nozzle by the valving means;

introducing a part of the combustion air at the side of the axis of the fuel stream issuing from the fuel nozzle to aid in atomization of the fuel and to maintain fuel particle size in a predetermined range;

operating said control means to slide said fuel nozzle in one direction to change the size of the air inlet opening and to operate said fuel valving means to reduce the fuel flow rate and automatically decreasing the size of the mixing chamber and increasing the velocity of said part of combustion air to provide greater energy for fuel atomization and decreasing the volume of combustion air supplied to the mixing chamber to maintain said ratio of fuel and air; and

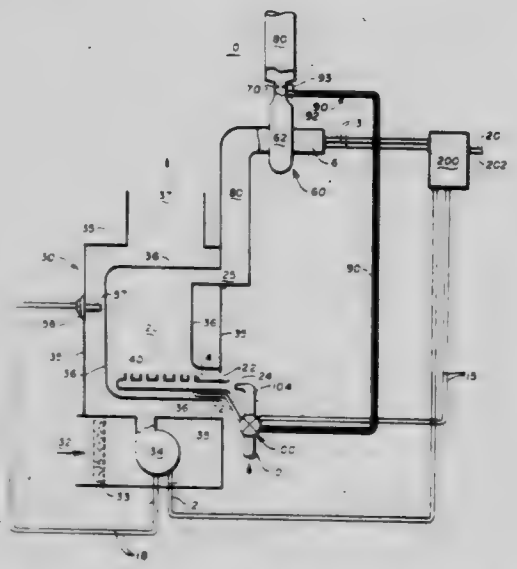
operating said control means to slide said fuel nozzle in the opposite direction to change the size of the air inlet opening and to operate said fuel valving means to increase the fuel flow rate and automatically increasing the size of said mixing chamber and lowering the velocity of said part of combustion air to provide less energy for fuel atomization and increasing the volume of combustion supplied to the mixing chamber to maintain said ratio of fuel to air.

4,334,855

FURNACE CONTROL USING INDUCED DRAFT BLOWER AND EXHAUST GAS DIFFERENTIAL PRESSURE SENSING

Lorne W. Nelson, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 21, 1980, Ser. No. 170,358
Int. Cl.³ F23J *3/00, 1/08*
U.S. Cl. 431—20 **13 Claims**



1. In a heating system of the type having a combustion chamber with a fuel burner, an inlet for combustion air, and an exhaust stack for exhaust gas, the improvement comprising:

a blower connected to the exhaust stack for inducing exhaust gas flow through the exhaust stack and for drawing combustion air into the combustion chamber;

means for variably controlling the flow of exhaust gas such that flow of exhaust gas through the exhaust stack and of combustion air into the combustion chamber are simultaneously regulated; means adapted to be mounted in the exhaust stack for forming a flow restriction in the exhaust stack on one side of the blower, said flow restriction, in cooperation with said blower, causing a pressure differential between the exhaust gas pressures on either side of the flow restriction;

first fuel supply control means having an "on" state and an "off" state and being adapted to control the supply of fuel to the burner responsive to a control signal representative of the exhaust gas pressure differential across the flow restriction, whereby said first control means is turned "on" when the pressure differential exceeds a first, predetermined value and is turned "off" when the pressure differential falls below a second, predetermined value, which is less than said first predetermined value;

second fuel supply control means adapted to variably control the supply of fuel to the burner responsive to the state of the first fuel supply control means and to a control signal representative of the exhaust gas pressure differential across the flow restriction, whereby the supply of fuel is regulated to a rate proportional to the magnitude of the pressure differential during the period when said first control means is "on"; and

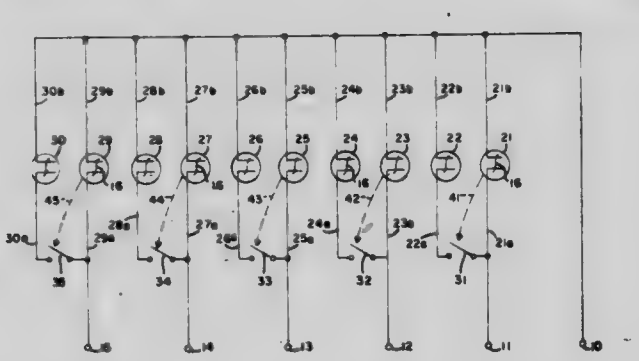
means for sensing the exhaust gas pressure differential across the flow restriction and for communicating said sensed pressure differential as a control signal to the first and second fuel supply control means.

4,334,856

PHOTOFLASH ARRAY WITH SELECTIVE PAIRING OF LAMPS

David R. Broadt, Lewisburg, Pa., and Emery G. Audesse, Beverly, Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jun. 6, 1980, Ser. No. 156,983
Int. Cl.³ F21K *5/02*
U.S. Cl. 431—359 **8 Claims**



1. A photoflash lamp array comprising, in combination:

a plurality of 2n flashlamps, each having a pair of lead-in wires;

a common terminal means electrically connected to one lead-in wire of each of said 2n lamps;

a plurality of n selective terminal means, each associated with a respective pair of said 2n lamps and directly connected in electrical circuit to the non-common lead-in wire of one of the lamps of the respective pair; and

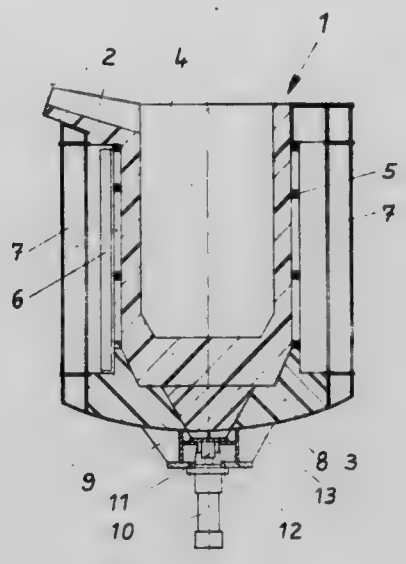
a plurality of n normally open switches, each coupled in electrical circuit between the non-common lead-in wires of an associated one of said respective pairs of 2n lamps;

said common and selective terminal means being adapted for connection to a source of firing pulses, and each of said switches being responsive to the flashing of the directly connected lamp of an associated pair so as to electrically connect the other lamp of said associated pair to the associated selective terminal means.

4,334,857
CRUCIBLE FURNACE

Artur Smitka, Schwerte, and Josef Rabe, Dortmund, both of Fed. Rep. of Germany, assignors to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed May 14, 1980, Ser. No. 149,751
Claims priority, application Fed. Rep. of Germany, May 16, 1979, 2919705
Int. Cl.³ F27D *7/00*; F27B *14/00*
U.S. Cl. 432—3 7 Claims

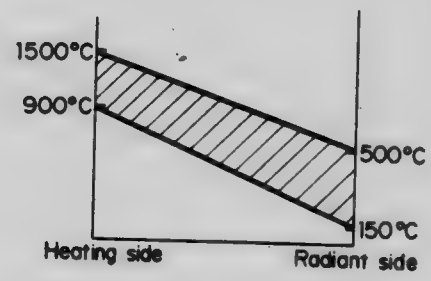


1. A crucible furnace comprising:
a furnace body including side walls having heating means;
a fireproof furnace floor;
a crucible formed of pulverized sinterable fireproof material, said crucible resting on said furnace floor, said crucible also contacting and being supported by said heating means of said side walls of said furnace; and
a crucible ejection device acting on the underside of said furnace floor,
whereby said crucible is at least partially sintered in use and contracts upon cooling so that said ejection device may lift said crucible out of said furnace.

4,334,858
PREVENTION OF THERMAL SPALLING IN CERAMIC PRODUCTS

Makoto Iiyama, and Yasujiro Koyama, both of Yokohama, Japan; assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 24, 1980, Ser. No. 171,988
Claims priority, application Japan, Aug. 6, 1979, 54-99423
Int. Cl.³ F27D *3/00, 5/00*
U.S. Cl. 432—9 10 Claims

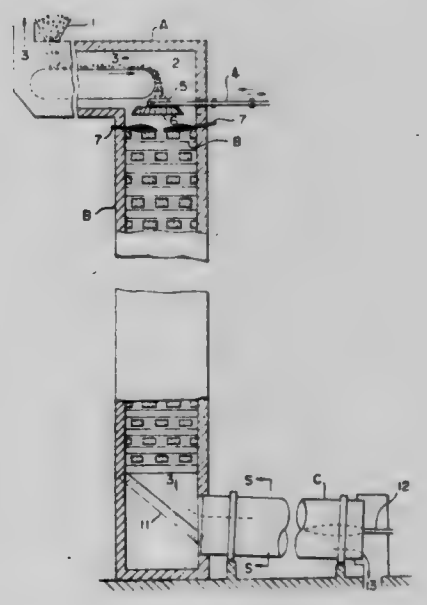


1. A method for heat treating ceramic products to prevent spalling when they are subsequently heated consisting essentially of
heating one side of said ceramic product to a temperature of least 800° C. at which the portion of said ceramic product adjacent said heated side will re-sinter while maintaining an opposed side of said ceramic product at a temperature of at least 400° C. lower than the temperature of said heated side to provide a temperature gradient between said sides and cooling said ceramic product to provide a residual stress in the interior of said ceramic product which acts to prevent thermal spalling on reheating.

4,334,859
METHOD AND APPARATUS FOR MELTING MATRIX MATERIALS

Susumu Minegishi, and Mikio Minegishi, both of Higashiterao-cho 4-17-25, Tsurumi-ku, Yokohama-shi, Japan

Filed Jul. 20, 1978, Ser. No. 926,397
Int. Cl.³ F27B *14/00*
U.S. Cl. 432—13 2 Claims



1. A process for melting matrix materials which form highly viscous liquids in an apparatus including a drying conveyor, a vertical shaft furnace and a direct fired rotary kiln which are serially connected and adapted to conduit combustion gases from the rotary kiln upwardly through the vertical furnace and across the drying conveyor countercurrent to the flow of matrix material, the steps comprising feeding solid particulate matrix material onto the drying conveyor, distributing dried and heated material from the conveyor across the top of the vertical furnace to contact upwardly rising hot combustion gases from the rotary kiln, cascading melting matrix material downwardly through the vertical furnace over a series of gas-liquid contact means comprising a plurality of vertically spaced rows of parallel refractory bars, said bars spaced apart horizontally about one bar width with adjacent rows being angularly displaced by about 90° and alternate rows being offset horizontally about one bar width whereby open gas channels are maintained from the top to the bottom of the vertical furnace, and passing viscous, molten matrix material from the furnace bottom into the rotary kiln for further heating and mixing.

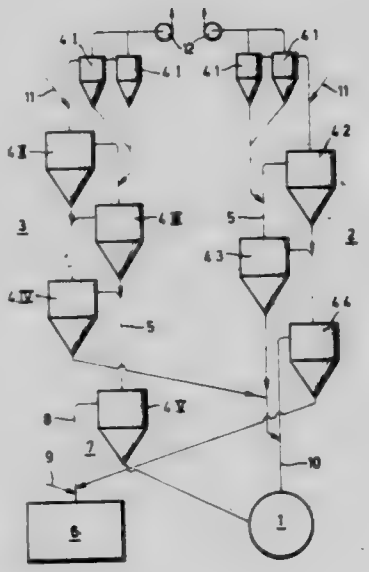
2. Apparatus for melting matrix materials which form highly viscous liquids comprising a drying conveyor, a vertical shaft furnace and a direct fired rotary kiln all serially connected and adapted to conduct combustion gases from the rotary kiln upwardly through the vertical furnace and across the drying conveyor countercurrent to the flow of matrix materials, said furnace containing gas-liquid contact means, said means comprising a plurality of vertically spaced rows of parallel refractory bars, said bars spaced apart horizontally about one bar width, adjacent rows of bars being angularly displaced by approximately 90° and alternate rows being offset horizontally approximately one bar width to thereby create and maintain a large surface area for gas-liquid contact while allowing free passage of gas upwardly through the furnace.

4,334,860

SYSTEM AND METHOD FOR THE HEAT TREATMENT OF FINE GRAINED MATERIALS

Horst Herchenbach, Troisdorf, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Continuation of Ser. No. 874,497, Feb. 2, 1978, Pat. No. 4,218,210. This application Apr. 11, 1980, Ser. No. 139,407
Claims priority, application Fed. Rep. of Germany, Feb. 10, 1977, 2705566
The portion of the term of this Patent subsequent to Nov. 19, 1997, has been disclaimed.
Int. Cl.[3] F27B *15/00, 7/02*
U.S. Cl. 432—14 1 Claim



1. A method for heat treatment of fine grained material to be used in the manufacture of cement which comprises the steps of:

passing a first portion of said fine grained material successively through a first row of cyclone separator stages operating at successively higher temperatures in each stage,

passing said first portion after the last stage of said first row of cyclone separator stages into a calcination furnace,

passing a second portion of said fine grained material successively through a second row of cyclone separators containing one more stage than said first row,

passing said second portion after the last cyclone separator stage in said second row into a material cooler,

adjusting the temperature of the gases from the hottest cyclone separator stage in said second row of cyclone separators to at least 100° C. higher than the gases from the hottest cyclone separator stage in said first row,

distributing the fine grained material between the first and second rows such that the temperature levels of the exhaust gases of a penultimate cyclone separator stage in each said row are substantially the same,

combining the fine grain materials discharged from the penultimate cyclone separators in each row,

passing the combined discharged materials into the hottest cyclone separator stage in said first row,

separately pre-calcining said combined fine grained discharged material, and

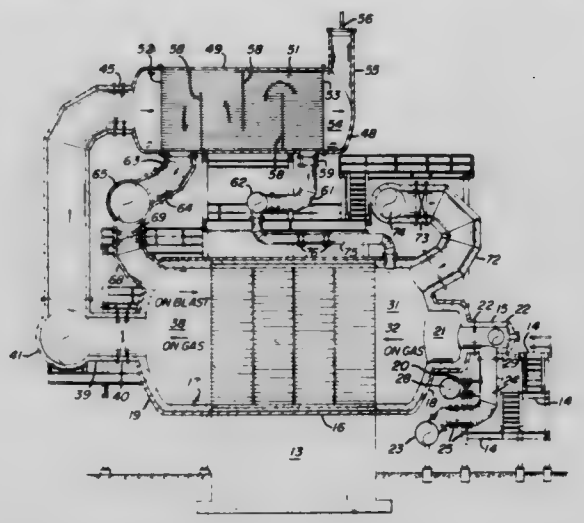
introducing the pre-calcined fine grained material into the hottest cyclone separator stage in said second row for completing the calcination of said pre-calcined material.

4,334,861

METHOD AND APPARATUS FOR GENERATING A HOT AIR BLAST

Francis H. Bricmont, Pittsburgh, Pa., assignor to Bricmont & Associates, Inc., McMurray, Pa.

Continuation-in-part of Ser. No. 191,141, Sep. 26, 1980, abandoned. This application Mar. 4, 1981, Ser. No. 240,281
Int. Cl.[3] F24H *7/00;* F28C *3/10*
U.S. Cl. 432—30 10 Claims



6. A method of generating a hot air blast including the steps of:

feeding media for combustion into one end of a first of a plurality of horizontal regenerators to generate hot products of combustion,

passing said hot products of combustion along horizontal surfaces of regenerative heat storage refractory within the first horizontal regenerator to heat the refractory to a desired temperature,

discharging waste products of combustion into a recuperator from the opposite and second end of the first horizontal regenerator,

using said recuperator to preheat an air blast,

passing the preheated air blast along highly heated horizontal surfaces of regenerative heat storage refractory within a second horizontal regenerator to further heat the air blast to a temperature above a minimum desired temperature.

terminating the flow of the preheated air blast to the second horizontal regenerator when the minimum desired air blast temperature is no longer attainable,

terminating the supply of combustion media to said first horizontal regenerator when the heat storage refractory therein is highly heated,

passing the preheated air blast along the highly heated horizontal surfaces of regenerative heat storage refractory with said first horizontal regenerator for further heating to a temperature above a minimum desired temperature, and

conducting the blasts of hot air from each of the plurality of regenerators in a hot blast main.

4,334,862

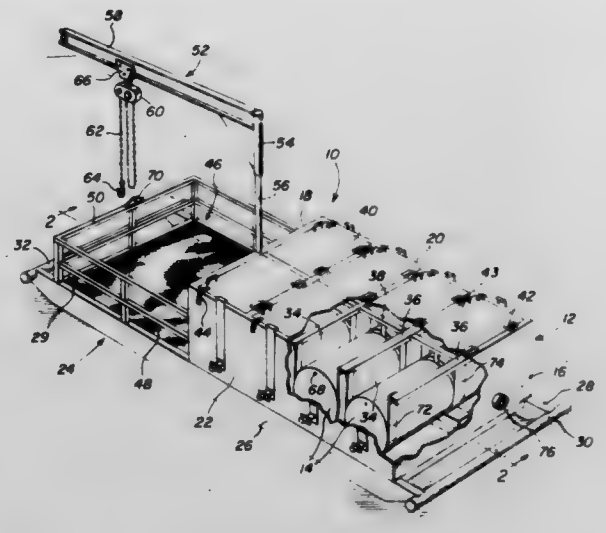
BARREL WARMER FOR DRILLING RIGS

Ernest R. Muckelrath, Tioga, N. Dak., assignor to Tioga Air Heaters, Inc., Tioga, N. Dak.

Filed Aug. 26, 1980, Ser. No. 182,395
Int. Cl.[3] F27B *9/02;* E01C *19/45*
U.S. Cl. 432—128 10 Claims

1. A barrel warming device for storing a plurality of oil barrels comprising an enclosed housing adapted to hold in the interior thereof a plurality of oil barrels and placed on a transportable support, the interior of said housing comprising a plurality of individual compartments, each of said compartments capable of supporting a single barrel of oil and including a door which enables the barrels to be moved into and out of

said compartments, said device further including means to move said barrels into and out of said compartments, said housing including a heating means for supplying heat to barrels



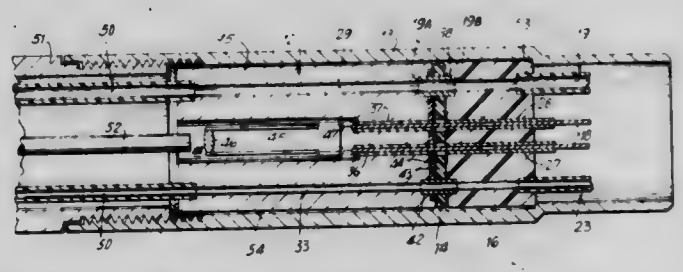
contained within said housing, the surface area of said transportable support being larger than said housing, the space on said support not enclosed by said housing comprising a storage space.

4,334,863

ILLUMINATOR FOR DENTAL HANDPIECE

Kenneth S. Magid, Somers, and William J. Becker, Hauppauge, both of N.Y., assignors to Kinetic Instruments Inc., Bethel, Conn.

Continuation of Ser. No. 129,511, Mar. 11, 1980, abandoned, and a continuation-in-part of Ser. No. 953,726, Oct. 19, 1978, abandoned. This application Mar. 16, 1981, Ser. No. 244,364
Int. Cl.[3] A61C *3/00*
U.S. Cl. 433—29 30 Claims



1. Illuminator for a dental handpiece, said illuminator, when in use, generating a quantity of heat such that provision for preventing excessive temperature rise at the exterior thereof must be made while maintaining a high enough temperature in the interior thereof for satisfactory operation of same, comprising: replaceable plug-in unit means of generally cylindrical shape with a proximal and a distal end, said unit means including a cylindrical housing of a metal of high thermal conductivity, said unit means having an axially directed socket in one end thereof, said unit means including a quartz-halogen bulb seated in said socket with clearance between the wall of said socket and said bulb, said socket being open at said one end for transmission of light in a generally axial direction toward said handpiece, said unit means having at least one channel leading therethrough from said proximal to said distal end for transit of fluid therethrough, alignment tube means seated in the proximal end of each said channel, and pins protruding from said proximal end of said unit means for seating in jacks for bringing current to said pins;

connector means of an insulating material, said connector means having a proximal and a distal end, and including electrical jacks for receiving said pins for making contact therewith, said connector means having at least one channel therethrough for receiving each of said alignment tubes in the distal end thereof for transit of fluid between said connector means and said unit means and for receiving in the proximal end thereof supply tubing whereby fluid may be transferred between said supply tubing and said dental handpiece through said connector means and said unit means; and

generally cylindrical, hollow shield means arranged and constructed for holding said connector means and for holding said unit means with clearance, said shield means being of a material of low thermal conductivity and having a proximal end and a distal end, said shield means having an internal shoulder for bearing against the proximal end of said connector means, and said shield means including attachment means for receiving a dental handpiece and drawing the proximal end thereof into tight contact with the distal end of said unit means.

4,334,864

DENTAL INSTRUMENTS

Victor H. Rubino, 38 Brookridge Rd., Avon, Conn. 06001

Filed Dec. 2, 1980, Ser. No. 212,136
Int. Cl.[3] A61C *3/00*
U.S. Cl. 433—158 11 Claims



1. A tooth extracting instrument comprising a longitudinally extending unitary handle having a forward part and a pair of grips having forward end portions integrally connected in fixed relation to each other and to said forward part and extending rearwardly from said forward part in fixed spaced relation to each other, said handle having a rear part integrally connected in fixed relation to and extending transversely between the rear ends of said grips, a first beak supported in fixed position on said forward part, a second beak supported by said handle for movement generally toward and away from said first beak, and means for moving said second beak generally toward said first beak and including an elongated operating rod supported by said forward part and said rear part for longitudinal sliding movement relative to said handle and extending longitudinally of said handle between and in spaced relation to said grips, said operating rod extending through said rear part and having a rear portion extending rearwardly beyond said rear part, and manually operable means engaged with said rear portion of said operating rod and supported by said rear part for moving said operating rod relative to said handle, said manually operable means cooperating with said operating rod to maintain said first and second beaks in selected position relative to each other.

4,334,865

DENTAL OBTURATION SCREW

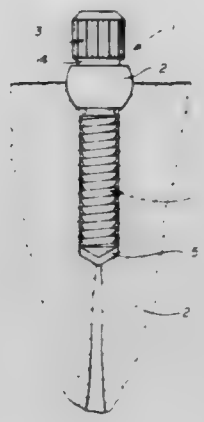
Jean-Pierre Borle, Rue Camille-Martin No. 20, 1203 Geneve, Switzerland

Filed Oct. 30, 1980, Ser. No. 202,434

Claims priority, application Switzerland, Nov. 5, 1979, 9901/79

Int. Cl.[3] A61C *5/08*

U.S. Cl. 433—221 5 Claims



1. A dental obturation screw for inserting in the root canal of a natural tooth, said screw having a threaded cylindrical rod and a screw head, said screw head comprising a crown part allowing to actuate the screw and to fasten thereon an artificial tooth part, and comprising a solid uninterrupted bearing part of convex shape symmetrically arranged about the screw axis between said threaded rod and said crown part and having a greatest diameter substantially greater than the diameter of the threaded rod, whereby said bearing part is adapted to rest on a corresponding bearing surface to obturate the root canal of the natural tooth.

4,334,866

RADAR SIGNAL SIMULATOR

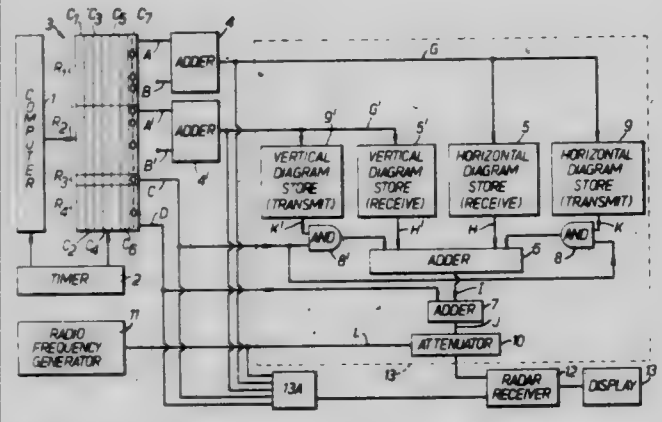
Michael J. Burrows, Braintree, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Feb. 11, 1980, Ser. No. 120,516

Claims priority, application United Kingdom, Feb. 14, 1979, 7905258

Int. Cl.[3] G01S *13/00, 7/40*

U.S. Cl. 434—2 17 Claims



1. A radar signal simulator comprising means for producing first and second signals defining the values of respective first and second angular co-ordinates together defining the direction of an imaginary object relative to a real or imaginary antenna system; a first store for storing different antenna gain-related values for different values of the first co-ordinate, the first signal being effective to read from the first store a first antenna gain-related value associated with the value of the first co-ordinate; a second store for storing different antenna gain-related values for different values of the second co-ordinate, the second signal being effective to read from the second store a second antenna gain-related value associated with the value of the second co-ordinate; and output circuitry adapted to receive the first and second antenna gain-related values and to give an output signal which represents a combined effect of these.

4,334,867

EARTH PHOTO GLOBE WITH OVERLAY AND MAGNIFICATION ASSEMBLY

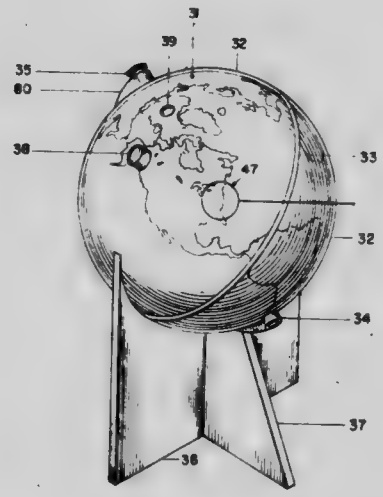
Jon Friedman, 312 Prince St., Freeport, N.Y. 11520

Division of Ser. No. 27,937, Apr. 6, 1979, Pat. No. 4,276,561.

This application Mar. 10, 1980, Ser. No. 128,624

Int. Cl.[3] G09B *27/08*

U.S. Cl. 434—145 2 Claims



1. A globe characterized in that the geographical indicia comprise LANDSAT or other remote sensing data reproduced on the globe sphere with a definition smaller than that resolvable by the unaided human eye, said indicia comprising quantized image dots each corresponding to an average value of plural adjacent or overlapped LANDSAT or other remote sensing pixels, together with a generally spherical "cloud layer" overlay surrounding said globe sphere, said overlay containing a representation of the cloud cover of the earth, portions of said overlay being transparent to permit viewing therethrough of said geographical indicia, and wherein:

said "cloud layer" overlay is rigid and moveable with respect to said globe sphere, together with an optical magnification assembly mounted to said overlay to permit more detailed inspection of said geographical indicia on said globe sphere, said assembly having a magnification sufficient to enable resolution by the human eye of the full definition of said reproduced sensing data, and wherein:

said cloud layer overlay comprises two interlocking hemispheres ,

said cloud layer overlay being arbitrarily positionable about said globe,

said optical magnification assembly comprising a magnifying eyepiece which is small compared to the overall size of said cloud layer overlay so as to permit viewing of said globe without magnification through the majority of said overlay,

said magnifying eyepiece being integrally supported by said overlay so as to be locatable at any position on said globe by correspondingly positioning said overlay.

4,334,868

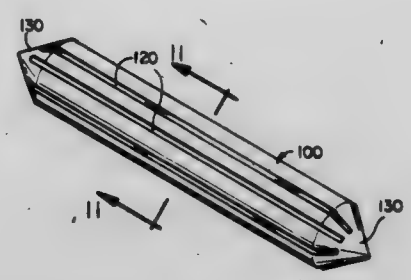
CONSTRUCTIONAL KITS

Maxim D. Levinrad, 103 San Vito, George Ave., Fairvale, Johannesburg 2001, Transvaal, South Africa

Continuation-in-part of Ser. No. 11,629, Feb. 12, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,457

Int. Cl.[3] A63H *33/08*

U.S. Cl. 434—172 11 Claims



1. A constructional kit, comprising:

a plurality of elongated connectors, each having a substantially uniform cross-section defining a smooth exterior surface broken only by longitudinal grooves formed therein, each of the grooves running substantially the length of the connector, and each connector having conically shaped, tapered ends having smooth surfaces broken only by end portions of the grooves opening therein, the smooth exterior surfaces precluding direct attachment of the elongated connectors one to another; and,

a plurality of flat panels, each having smooth edges and substantially smooth surfaces, the smooth edges and substantially smooth exterior surfaces precluding direct attachment of the panels one to another, but facilitating attachment of the panels to the elongated connectors and of the elongated connectors to the panels, the edges of the panels being pressibly fitted into the grooves and held therein by frictional engagement, whereby self-supporting structures may be built by inter-engagement of the elongated connectors and the panels, the elongated connectors being attached only to the panels and the panels being attached only to the elongated connectors.

4,334,869

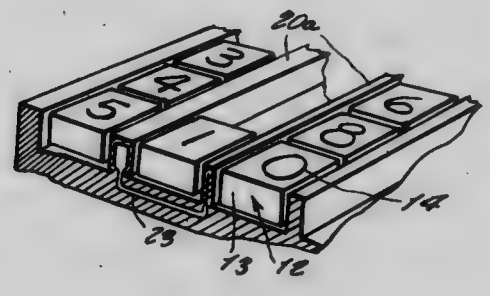
EDUCATIONAL MATHEMATICS GAME

Charles E. Wilcox, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed May 30, 1980, Ser. No. 154,904

Int. Cl.[3] G09B *1/04, 19/02*

U.S. Cl. 434—208 3 Claims



1. An educational game comprising in combination, a gameboard and a plurality of playing piece blocks movable on said gameboard, each block having a numerical digit thereon said gameboard including a plurality of bays defining between a plurality of parallel spaced apart partitions, said blocks being slidable into said bays so to form horizontal and parallel rows of said blocks, said numerical digits on said blocks thus defining a mathematical table, and means whereby said partitions are adjustable in thickness.

4,334,870

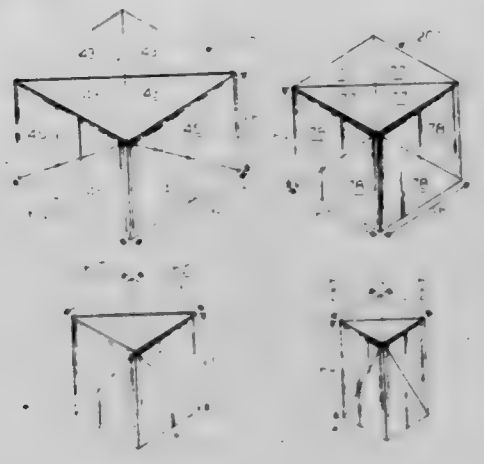
TETRAHEDRON BLOCKS CAPABLE OF ASSEMBLY INTO CUBES AND PYRAMIDS

Patricia A. Roane, 1100 Fulton St. #7, San Francisco, Calif. 94117

Division of Ser. No. 11,114, Feb. 12, 1979, Pat. No. 4,258,479. This application Oct. 24, 1980, Ser. No. 200,602

Int. Cl.[3] A63H *33/04*

U.S. Cl. 434—211 13 Claims



1. A group of tetrahedron blocks, comprising:

a plurality of sets of twelve tetrahedron blocks each, each face of each block being a right triangle,

each set being capable of assembly as

(a) a rectangular parallelepiped with upper and lower square faces made up of twelve blocks, and, alternatively,

(b) a combination of a square-base pyramid made up of eight blocks, with four identical isosceles triangular faces and a tetrahedron made up of four blocks, with four identical isosceles triangular faces, all the parallelepipeds and pyramids having the same height,

the faces of the tetrahedrons all being mirror images of the faces of the pyramid of its set.

4,334,871

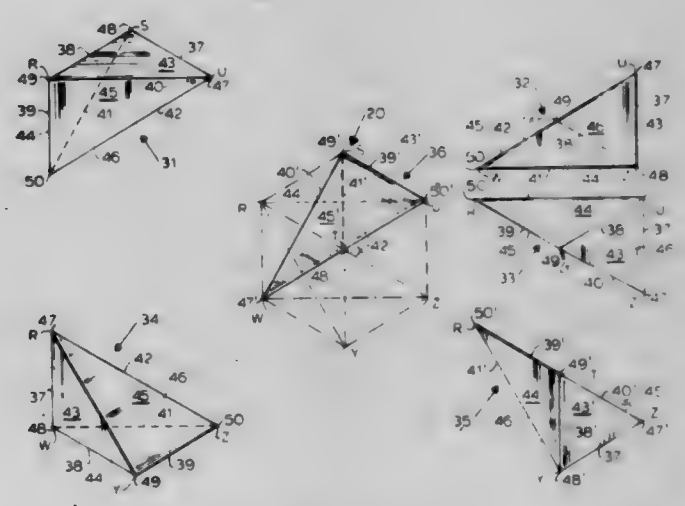
TETRAHEDRON BLOCKS CAPABLE OF ASSEMBLY INTO CUBES AND PYRAMIDS

Patricia A. Roane, 1100 Fulton St. #7, San Francisco, Calif. 94117

Division of Ser. No. 11,114, Feb. 12, 1979, Pat. No. 4,258,479. This application Nov. 28, 1980, Ser. No. 211,100

Int. Cl.[3] A63H *33/04*

U.S. Cl. 434—211 17 Claims



1. A set of tetrahedrons that can be assembled to make a cube, consisting of:

6n tetrahedrons, where n is an integer divided into an even number of subsets groupable in pairs where

each tetrahedron in one of each said pair of subsets is symmetric to each tetrahedron in the other said pair of subsets.

4,334,872

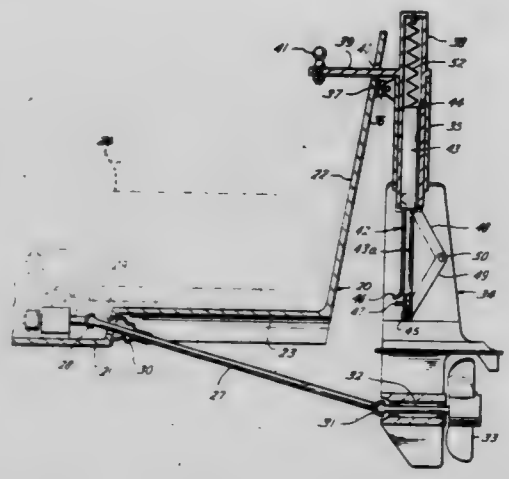
MOTOR BOAT

William D. Gaston, 2508 Pecos, Austin, Tex. 78703

Continuation-in-part of Ser. No. 840,721, Oct. 11, 1977, abandoned. This application Sep. 8, 1978, Ser. No. 939,134

Int. Cl.[3] B63H *5/12*

U.S. Cl. 440—61 45 Claims



1. A motor boat, comprising a boat hull having a transom, a motor mounted in the hull, a housing and a propeller having a shaft rotatably mounted in the housing, means supporting the housing from the hull and rearwardly of its transom, means extending sealably through a hole in the hull to connect the motor to the propeller shaft, including a drive shaft having a flexible joint near the hole which connects to the motor to permit the drive shaft to swing about a horizontal axis generally transverse to the length of the hull, and a universal joint at its opposite end which connects it to the propeller shaft, said supporting means including a first part mounted on the transom for pivoting about a horizontal axis transverse to the direction of travel of the hull, a second part connected to the propeller housing and so supported from the first part as to permit said housing to be rotated with respect to the hull about an axis which is fixed against lateral displacement and raised and lowered with respect to said first part generally along said axis of rotation, and steering means connectable to the second part and restrained for limited vertical movement with respect to said hull, whereby the boat may be steered by means of the propeller.

4,334,873

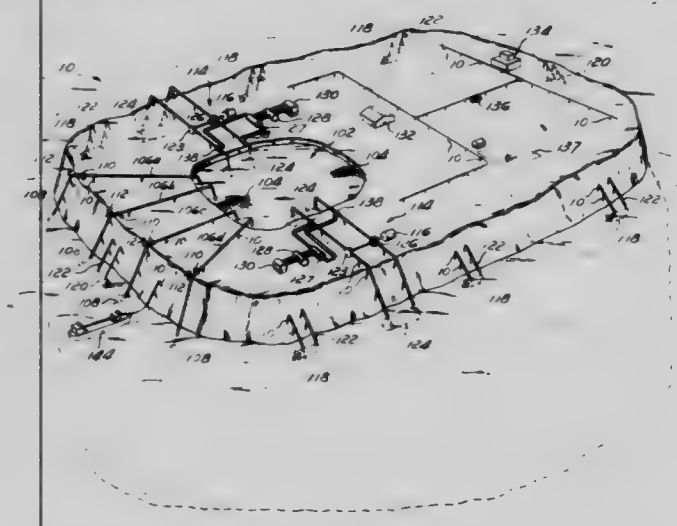
ICEBERG PROPULSION SYSTEM

Joseph A. Connell, P.O. Box 168, Harbor City, Calif. 90710

Filed Nov. 16, 1979, Ser. No. 95,070

Int. Cl.[3] B63H *23/32*

U.S. Cl. 440—113 27 Claims



1. A self-propelled iceberg, comprising:

first means for converting potential energy associated with said iceberg into kinetic energy at least a portion of said potential energy being gravitational energy; and

second means for utilizing said kinetic energy to propel said iceberg.

4,334,874

LAUNCHING SHEET FOR WINDSURFERS

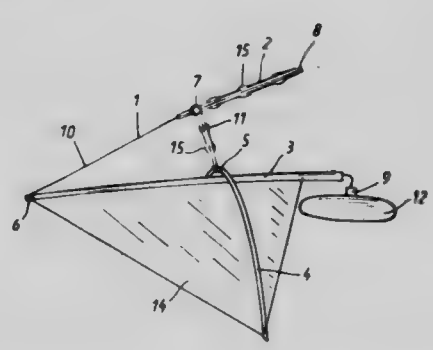
Ulrich Kador, Josef-Fischhaberstr.8e, 8130 Starnberg, Fed. Rep. of Germany

Filed Feb. 15, 1980, Ser. No. 121,781

Claims priority, application Fed. Rep. of Germany, Feb. 19, 1979, 2906348; May 9, 1979, 2918698

Int. Cl.[3] A63C *15/05;* B63B *15/00*

U.S. Cl. 441—74 13 Claims



1. In a windsurfer having a board, a mast, a wishbone-shaped boom for gripping the windsurfer and a sail, the improvement comprising a launching sheet comprising an elongated member having a first end extending from an attachement point at the front end of said wishbone-shaped boom and a second end extending from an attachment point on said mast above said wishbone-shaped boom.

4,334,875

PROCESS FOR FORMING A SLEEVE BY WINDING AND A DEVICE FOR EXECUTING THE METHOD

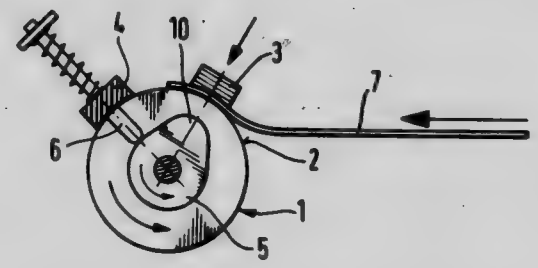
Eugen Eckert, Holm, Fed. Rep. of Germany, assignor to Maschinenfabrik Rissen GmbH, Hamburg and 4P Nicolaus Kempten GmbH, Kempten, both of, Fed. Rep. of Germany

Filed Apr. 14, 1980, Ser. No. 142,142

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1979, 2917304

Int. Cl.[3] B31C *1/00*

U.S. Cl. 493—303 5 Claims



1. A process for forming a sleeve from a flat blank, particularly rectangular cardboard blank, having a leading edge and a trailing edge, by winding the blank around a rotating mandrel having a circumferential surface at least once and utilizing a clamp to secure the leading edge of said blank against said mandrel and a presser member to apply force against said blank during said winding, comprising the steps of clamping the said leading edge of said blank against said circumferential surface of said mandrel; raising said presser member with respect to said mandrel for a limited time interval so that said clamp may pass beneath it; lowering said presser member so that stress is placed upon said blank while it is wound, said raising and lowering ocurring as often as is necessitated by rotations of the clamp; joining said leading edge and said trailing edge together to form a sleeve; and releasing said presser member and said clamp for removal of the sleeve.

4,334,876

PROCESS FOR PRODUCING LEATHER

William C. Beier, Short Hills, N.J., and James J. Hodder, Doylestown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 69,470, Aug. 24, 1979. This application Aug. 21, 1980, Ser. No. 180,175

The portion of the term of this patent subsequent to Feb. 9, 1999, has been disclaimed.

Int. Cl.³ C14C *3/06, 3/08*

U.S. Cl. 8—94.19 C 4 Claims

1. A multiple-stage tanning process for producing an improved tanned leather suitable for use for shoe soles, belts, straps, bags and cases, comprising the steps, carried out in a series of aqueous tanning baths, of:

(1) providing a piece of wet leather stock selected from the group consisting of pickled leather stock, bated leather stock, and limed leather stock;

(2) adjusting the pH of the leather stock provided in step (1) to obtain a pH of the leather stock in the range of 4.5–5.5;

(3) treating the leather stock from step (2), while establishing and maintaining the pH thereof at 4.5–5.5, with 1–50% by weight, based on the initial wet weight of the leather stock, of a first tanning composition comprising an aqueous dispersion or solution comprising 5–40% by weight of a dispersion or solution of a polymer polymerized from a monomer mixture comprising at least one member selected from a group consisting of acrylic acid, methacrylic acid, mixtures of acrylic acid and methacrylic acid, and mixtures of a major portion of at least one member selected from the group consisting of acrylic acid and methacrylic acid with a minor proportion of at least one member selected from the group consisting of alkyl esters of acrylic acid, alkyl esters of methacrylic acid, and partially sulfated unsaturated drying oils, until the leather stock is penetrated therewith;

(4) adjusting the pH of the leather stock from step (3) to 1.5–3.3 to exhaust the first tanning composition and to obtain an optimal pH for the subsequent second tanning treatment;

(5) treating the leather stock of step (4), while establishing and maintaining the pH thereof at 1–3.3, with 5.5–20% by weight, based on the initial wet weight of the leather stock, of a second tanning composition selected from a buffered aluminum sulfate tanning compound or a mixture of the buffered aluminum sulfate tanning compound and a zirconium tanning compound having 0–45% basicity calculated on the Schorlemmer scale, the amount of the buffered aluminum sulfate tanning compound or mixture thereof with the zirconium tanning compound being sufficient to provide an amount of aluminum or mixture of aluminum and zirconium, calculated as the oxide, of about 1.8–6.6% by weight, based on the initial wet weight of the leather stock, until the leather stock is tanned to the desired extent;

(6) neutralizing the tanned leather stock from step (5) to a pH of 3.5–5 by the addition to the tanning bath of an aqueous solution of a weak base; and

(7) washing the tanned leather stock from step (6) with water, optionally further treating the washed tanned leather stock with conventional adjuvants, and drying the tanned leather stock in conventional operations.

4,334,877

FABRIC TREATMENT COMPOSITIONS

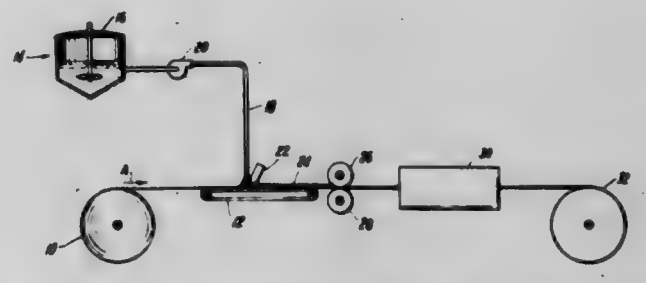
Razmic S. Gregorian, Aiken, and Chettoor G. Namboodri, North Augusta, both of S.C., assignors to United Merchants & Manufacturers Inc., New York, N.Y.

Continuation of Ser. No. 928,743, Jul. 27, 1978, Pat. No. 4,208,173, which is a continuation-in-part of Ser. No. 794,627, May 6, 1977, abandoned, which is a continuation of Ser. No. 584,389, Jun. 6, 1975, Pat. No. 4,118,526. This application Feb. 20, 1980, Ser. No. 122,862

The portion of the term of this patent subsequent to May 12, 1998, has been disclaimed.

Int. Cl.³ C09K *3/18;* D06M *13/32*

U.S. Cl. 8—477 14 Claims



1. In a foamable composition suitable for treating fabrics with a finishing agent comprising a fabric finishing agent in an amount effective to impart the properties of the finishing agent to a fabric, a foam stabilizer, and a liquid diluent; the improvement comprising about 0.01 to about 10 percent foam stabilizer and in an amount sufficient to form said composition into a stable foam having a blow ratio in the range from about 2:1 to 20:1, a foam density in the range from about 0.5 gm/cc to 0.05 gm/cc, and which is sufficiently stable to substantially retain its characteristics during application until a mechanical force is applied thereto.

4,334,878

INK JET INK COMPOSITION

Robert S. Cutler, Boulder, and Michael T. Moore, Longmont, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 5, 1981, Ser. No. 240,636

Int. Cl.³ C08L *25/08*

U.S. Cl. 524—88 8 Claims

1. A blue ink jet ink composition which is both waterfast and lightfast, and which consists essentially of an aqueous solution of a copolymer of styrene and acrylic acid of a molecular weight about 10,000, and in about a 2 to 1 ratio;

a volatile base capable of solubilizing said copolymer;

a blue dye in a wt. % range 1.75 to 2.5, said dye being compatible with said copolymer in that particles are not formed in the water, volatile base and copolymer solution, and in that said dye remains associated with said copolymer in the subsequent dry state; and

a second noncompatible, lightfast, copper phthalocyanine water-soluble blue dye in a wt. % range 2.25 to 3.0.

4,334,879

SAMPLE APPLICATOR

Ryo Fujimori, Hachiouji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 2, 1980, Ser. No. 146,182

Claims priority, application Japan, May 4, 1979, 54/59754[U]

Int. Cl.³ G01N *1/10, 27/26*

U.S. Cl. 23—230 R 1 Claim

1. A new use for a blade of porous, liquid-absorptive material having a straight edge protruding at one end of a holder in which the blade of porous material is mounted,

said new use comprising:

dipping the protruding blade edge into a liquid that is to be

subjected to electrophoresis, in order to absorb a quantity of said liquid therein; and



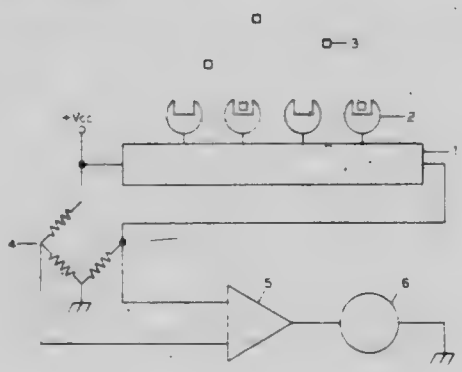
pushing the protruding blade edge against an electrically-energizable film sufficiently to express from the blade onto the film a fine, uniform, straight line sample of said liquid.

4,334,880

ANALYTICAL DEVICE HAVING SEMICONDUCTIVE POLYACETYLENE ELEMENT ASSOCIATED WITH ANALYTE-BINDING SUBSTANCE

Mark K. Malmros, Box 106, Washington Crossing, Pa. 18977

Filed Oct. 20, 1980, Ser. No. 198,782
Int. Cl.³ G01N *27/12, 33/54*
U.S. Cl. 23—230 B **12 Claims**



1. A device for determining the concentration of an analyte in a medium, comprising:

(a) sensor means including an element whose resistance varies in response to the presence of an analyte, where said element includes a binding substance which has specific affinity for the analyte,

(b) means including spaced-apart electrodes contacting the element for measuring the resistance of the element,

(c) means for bringing the medium in contact with the sensor, wherein the improvement comprises: said element being constructed of polyacetylene.

4,334,881

METHOD AND APPARATUS FOR AUTOMATIC END-POINT DETECTION IN TRIPOLYPHOSPHATE SEQUESTRATION OF HARDNESS

Raymond L. Reinert, Louisville, and Charles D. Kaufman, Crestwood, both of Ky., assignors to General Electric Company, Louisville, Ky.

Filed Jan. 9, 1981, Ser. No. 223,661
Int. Cl.³ G01N *33/18*; B08B *3/10*
U.S. Cl. 23—230 A **24 Claims**

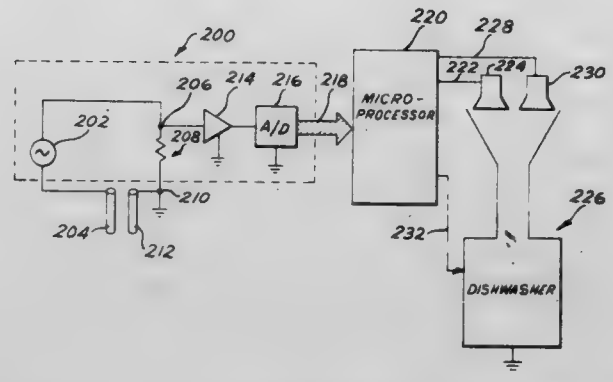
1. A sequestration method for sequestering the calcium and magnesium hardness elements in a wash water solution containing such hardness, comprising the steps of:

(a) adding sodium tripolyphosphate to said wash water solution at a preselected rate slow enough to permit the determination of the effect upon the conductivity of said wash water solution of incremental amounts of said sodium tripolyphosphate;

(b) periodically sensing, at time intervals which are constant relative to the rate of addition of said sodium tripolyphosphate, the electrical conductivity of said wash water solution to obtain thereby a plurality of conductivity values;

(c) determining a plurality of rates of change in said conductivity from said plurality of conductivity values;

(d) detecting from said plurality of rates of change the substantially maximum rate of change of said conductivity



values which occurs approximately when a 1:1 molar ratio of hardness elements to sodium tripolyphosphate is reached; and

(e) terminating the addition of sodium tripolyphosphate to said wash water solution when said substantially maximum rate of change of said conductivity values is detected.

4,334,882

DETERMINATION OF PYRITE AND SIDERITE CONTENT OF FORMATION DEPOSITS

Joseph T. Edwards, Grand Prairie, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 1, 1981, Ser. No. 249,778
Int. Cl.³ G01J *3/30*; G01N *3/24*
U.S. Cl. 23—230 R **3 Claims**

1. A method for determining the concentration of pyrite in a sample comprising the steps of:

placing said sample in a hydrochloric acid solution;

dissolving a portion of said sample in said hydrochloric acid solution;

removing said sample from said hydrochloric acid solution;

placing said sample in a nitric acid solution;

dissolving a second portion of said sample in said nitric acid solution;

removing said sample from said nitric acid solution; and

performing an inductively coupled plasma spectrometer analysis of said nitric acid solution and said hydrochloric acid solution to determine the concentration of iron in each solution.

4,334,883

ISOTOPE SEPARATION BY LASER MEANS

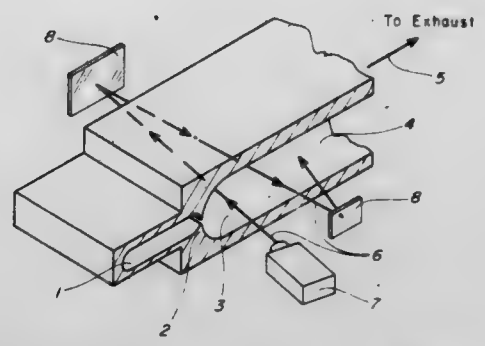
C. Paul Robinson; Reed J. Jensen; Theodore P. Cotter; Norman R. Greiner, and Keith Boyer, all of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 270,800, Jul. 7, 1972, abandoned. This application Aug. 14, 1973, Ser. No. 387,859
Int. Cl.³ B01D *59/00*
U.S. Cl. 23—293 R **1 Claim**

1. A method of achieving spectrum simplification of UF_6 while retaining sufficient vapor pressure to allow gas-phase, laser-induced photochemical reaction of said UF_6 to occur with a reasonable optical path length which comprises:

(a) obtaining said UF_6 in a gaseous state with a carrier gas admixed therewith to form a gaseous mixture; and,

(b) adiabatically expanding said gaseous mixture into a region of uniform pressure by supersonically flowing said



gaseous mixture through a convergent-divergent slit nozzle into a constant area duct.

4,334,884

PROCESS FOR THE CONTINUOUS PREPARATION OF PHOTOGRAPHIC EMULSIONS

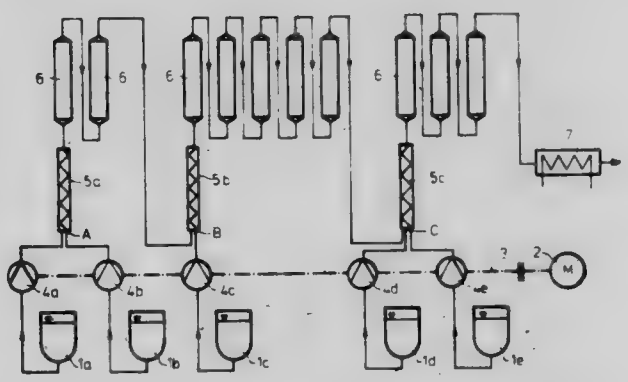
Werner Wilke, Starnberg; Hans Gref, Cologne, and Hans Frenken, Odenthal-Osenau, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 967,778, Dec. 8, 1978, Pat. No. 4,241,023. This application Aug. 14, 1980, Ser. No. 178,145

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1977, 2755166

Int. Cl.³ B01J *13/00*

U.S. Cl. 23—293 R **3 Claims**



1. A process for the continuous preparation of photographic emulsion consisting of halide solution, gelatin and silver salt in which a stream flows through a pipe system having successively arranged a pumping volume, a mixing section volume, and a ripening section volume and connecting conduit volumes,

said mixing section volume and connecting conduit volumes being relatively smaller than the ripening section volume, comprising the steps of

piston metering the emulsions consisting of halide, silver salt and gelatin through the pumping section volume in unison, and selecting the flow characteristics of the ripening section volume relative to the operating characteristics of the piston metering pumps and the kinematic viscosity of the streams of emulsion so that the delivery of the stream in the ripening sections always occurs in coordination with the starting flow in the metering pumps, and has a rectangular velocity profile,

and the flow from the mixing section volume to the ripening section volume is slight relative to the flow in the ripening section volume whereby the flow in the ripening section is isolated from the mixing section,

and the influence on flow in the ripening section volume from the mixing section volume and connecting conduits volumes is minimized.

4,334,885

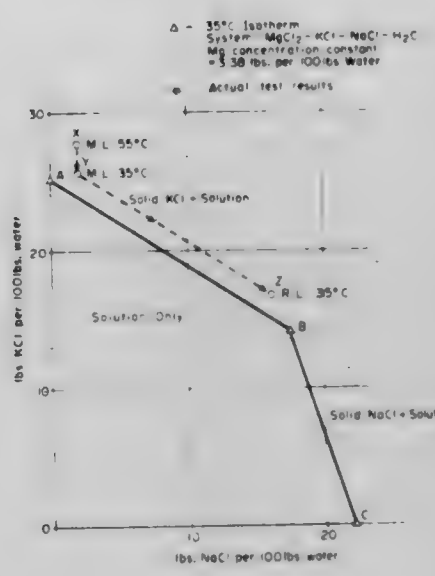
PRODUCTION OF POTASSIUM CHLORIDE FROM LANGBEINITE

Marvin H. Harrison, and William B. Dancy, both of Carlsbad, N. Mex., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Oct. 20, 1980, Ser. No. 198,391

Int. Cl.³ C01D *3/08, 3/24*

U.S. Cl. 23—300 **15 Claims**



1. In an improved process for obtaining potassium sulfate from potassium bearing ores in which a primary potassium bearing ore refining process includes the step of adding potassium chloride to langbeinite ($K_2SO_4.2Mg\text{-}SO4$) to form a reaction mixture which produces potassium sulfate salt crystals and a mother liquor containing dissolved chloride and sulfate salts of potassium and magnesium which remains after the removal of potassium sulfate salt crystals therefrom, the improvement comprising adding sodium chloride to said mother liquor up to an amount just below the saturation point for sodium chloride in said mother liquor to cause precipitation of potassium chloride crystals from said mother liquor, and thereafter separating the potassium chloride crystals from said mother liquor leaving an end liquor containing salts of magnesium, potassium and sodium.

4,334,886

METHOD OF MANUFACTURING TABLE SALT

Katsuhiko Tani, and Tamio Sakamoto, both of Aza-Mabuse, Nomasu, Oshima-cho, Tokyo, 100-01, Japan

PCT No. PCT/JP79/00044, § 371 Date Oct. 24, 1979, § 102(e) Date Oct. 24, 1979, PCT Pub. No. WO79/00713, PCT Pub. Date Oct. 4, 1979

PCT Filed Feb. 23, 1979, Ser. No. 187,839

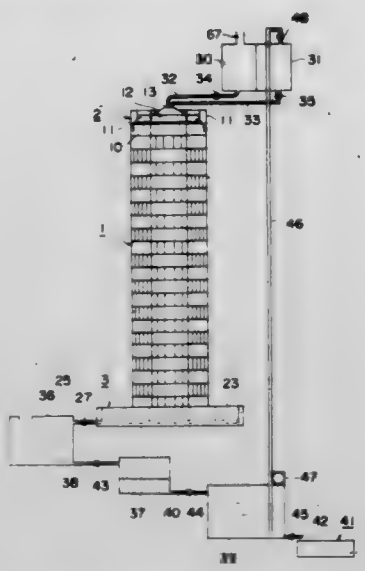
Claims priority, application Japan, Feb. 24, 1978, 53-20563

Int. Cl.³ C01D *3/06*

U.S. Cl. 23—303 **3 Claims**

1. A method of manufacturing table salt comprising a sprinkling system providing sea water to a hollow tower built with many ventilation openings and made of liquid permeable materials, allowing said sea water to infiltrate and flow down from the upper part to the bottom part of the said tower, and producing primary salt water of about 5°–8° Bé having low solubility components in an evaporation pool installed at the bottom part of the said tower, adding sufficient raw table salt to said primary salt water to supersaturate said primary salt water and cause said low solubility components in said primary salt water to separate and precipitate leaving residual salt water,

repeating said infiltration from the top to the bottom of the tower until said residual salt water reaches 10°-15° Bé, and



evaporating the moisture from said secondary salt water at ambient temperature and humidity to produce table salt.

4,334,887

METHOD FOR FLOCCULATING METAL OXIDE PARTICLES IN AN ORGANIC MEDIUM

Dieter Frank, Naperville, and Lincoln D. Metcalfe, La Grange, both of Ill., assignors to Akzona Incorporated, Asheville, N.C.

Continuation of Ser. No. 118,270, Feb. 5, 1980, abandoned. This application Jan. 26, 1981, Ser. No. 228,524

Int. Cl.³ C05B *19/00*; C22B *1/14*

U.S. Cl. 23—313 R **11 Claims**

1. A method for flocculating metal oxide particles in an organic medium comprising incorporating into said medium an effective amount of 1-(N-morpholino)-2-amino-2-methylpropane.

4,334,888

COAL DESULFURIZATION

William H. Corcoran, San Gabriel, Calif.; Nicholas P. Vasilakos, Austin, Tex., and Daniel D. Lawson, Arcadia, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Apr. 3, 1981, Ser. No. 250,646

Int. Cl.³ C10G *1/00*; C10L *9/12*

U.S. Cl. 44—1 SR **16 Claims**

1. A method for enhancing the mass transfer of reactive agents into and reaction products out of coal comprising the steps of:

suspending particulate coal in a solvent media having a solubility parameter between 10 to 20 Hildebrand units, said coal having a solubility parameter spectrum exhibiting one or more maximum peaks and the solubility parameter of said media being within 1 Hildebrand unit of one of said peaks.

12. A method of desulfurizing particulate coal having a solubility parameter spectrum exhibiting a first lower maximum peak and a second higher maximum peak comprising the steps of:

suspending the coal in a mass transfer and solvent media having a solubility parameter between 10 and 20 Hildebrand units and within 1 Hildebrand unit on either side of said first maximum peak;

oxidizing the sulfur in said coal by passing an oxidizing gas through said slurry at a temperature below about 150° C. to form water soluble sulfur compounds; and

separating said oxidized coal from the water soluble sulfur compounds and from the mass transfer and solvent media.

4,334,889

METHOD FOR IMPROVING COMBUSTIBILITY OF LIQUID FUEL

Toshiaki Takabayashi, 4-2, Kugayama 2-chome, Suginami-ku, Tokyo, Japan

PCT No. PCT/JP78/00063, § 371 Date Aug. 30, 1979, § 102(e) Date Aug. 30, 1979, PCT Pub. No. WO79/00487, PCT Pub. Date Jul. 26, 1979

PCT Filed Dec. 22, 1978, Ser. No. 165,121

Claims priority, application Japan, Jan. 9, 1978, 53-525

Int. Cl.³ C10L *1/00*

U.S. Cl. 44—50 **8 Claims**

1. A method for improving the combustibility of liquid hydrocarbon fuel inclusive of gasoline comprising the step of injecting oxygen gas from a high pressure source of oxygen into the liquid hydrocarbon fuel contained in a vessel outwardly surrounded by permanent magnets of at least 700 gauss magnetic flux density.

4,334,890

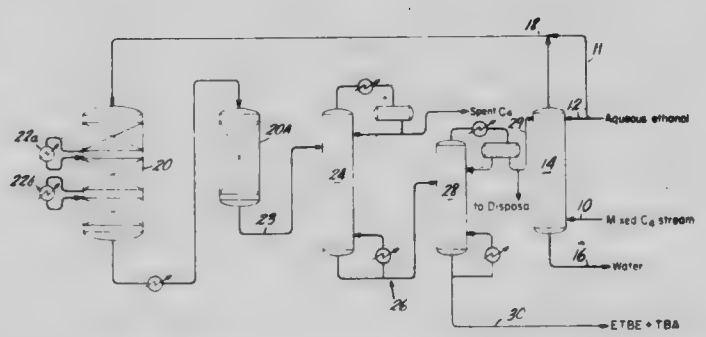
PROCESS FOR GASOLINE BLENDING STOCKS

Nand K. Kochar, Bronx, N.Y., and Richard L. Marcell, Bergenfield, N.J., assignors to The Halcon SD Group, Inc., New York, N.Y.

Filed Feb. 3, 1981, Ser. No. 231,205

Int. Cl.³ C10L *1/02*

U.S. Cl. 44—53 **5 Claims**



1. A process for the preparation of a gasoline blending stock comprising a tertiary alcohol and an alkyl tertiary alkyl ether comprising:

(a) reacting a liquid feed stream comprising water, at least one aliphatic alcohol, and at least one tertiary olefin in the presence of a catalyst capable of both etheration and hydration and simultaneously producing a mixture containing the corresponding tertiary alcohols and alkyl tertiary alkyl ethers;

(b) separating the tertiary alcohols and alkyl tertiary alkyl ethers from the mixture produced in (a) to produce a gasoline blending stock.

4,334,891

MODIFICATION OF LIQUID HYDROCARBONS

Herbert Brooks, Twyford, and Frederick A. Waite, Farnham Common, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 146,411, May 5, 1980, Pat. No. 4,292,045. This application Jun. 5, 1981, Ser. No. 270,813

Claims priority, application United Kingdom, May 10, 1979, 7916311

Int. Cl.³ C10L *1/22*

U.S. Cl. 44—62 **9 Claims**

1. A composition suitable for addition to a liquid aliphatic hydrocarbon fuel in order to impart to the fuel a resistance towards mist formation when the fuel is subject to conditions of shock, the composition comprising (A) a copolymer of a mixture of monomers consisting of (i) at least 75% by weight of tert-butylstyrene as one monomer, (ii) from 1% to 24% by weight of a second monomer selected from the acrylic and methacrylic esters of aliphatic monohydric alcohols containing

from 1 to 4 carbon atoms, 2-ethoxyethyl methacrylate, acrylonitrile, vinyl acetate, styrene and vinyltoluene, and (iii) from 1% to 10% by weight of methacrylic acid as a third monomer, the aggregate of monomers (i), (ii) and (iii) being 100% and the copolymer having the following characteristics:

(a) it is soluble in AVTUR 50 aviation kerosene;

(b) a 0.3% by weight solution of the copolymer in AVTUR 50 aviation kerosene has a relative viscosity in the range 1.3 to 2.6 and a differential orifice flow rate in the range 3 to 7 ccs per 30 seconds,

and (B) a hydroxylic liquid which is a non-solvent for the copolymer or only a weak swellant therefor but which is miscible to the extent of at least 1% by weight with the fuel.

4,334,892

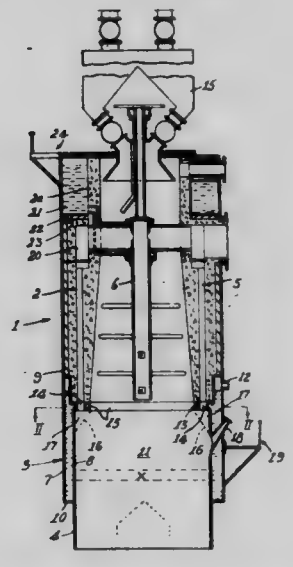
GAS PRODUCER APPARATUS INCLUDING A WATER JACKET

Gerald S. V. Livemore, Parkmore, South Africa, assignor to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Jul. 31, 1980, Ser. No. 174,283

Int. Cl.³ C10J *3/76*

U.S. Cl. 48—76 **6 Claims**



1. A gas producer comprising a vertically extending water jacket enveloping the lower portion of the gas producer characterized by an inwardly projecting collar containing coolant spaced from and interior of the vertical inner wall of the upper extremity of the water jacket, and a plurality of apertures extending through the collar, and a steam outlet positioned between the upper extremity of the water jacket and the collar, wherein the collar assists in supporting the refractory material of the wall of the gas producer and each aperture is located above a surface of the fire bed of the producer and constitutes an inlet to a flue extending inside said refractory wall for directing product gas upwardly through the refractory so that water can be maintained within the water jacket at a level between the collar and the steam outlet to protect by the refractory the portion of the water jacket not cooled by water.

4,334,893

RECOVERY OF ALKALI METAL CATALYST CONSTITUENTS WITH SULFUROUS ACID

Robert J. Lang, Baytown, Tex., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

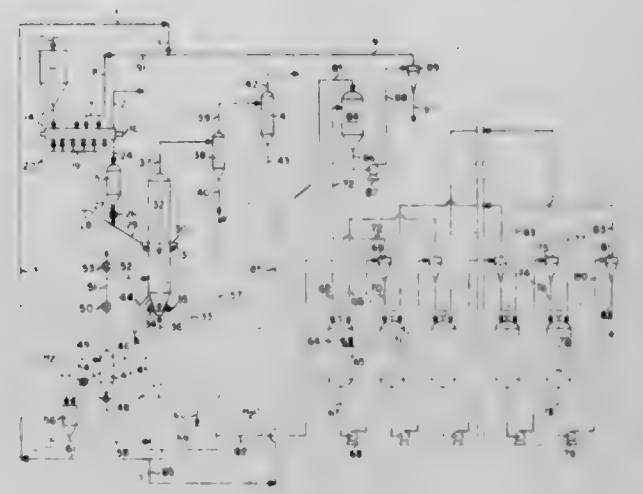
Continuation of Ser. No. 52,055, Jun. 25, 1979, abandoned. This application Nov. 24, 1980, Ser. No. 210,089

Int. Cl.³ C10J *3/06, 3/54*

U.S. Cl. 48—202 **11 Claims**

1. In a process for the catalytic steam gasification of coal in the presence of a potassium-containing catalyst at a temperature between about 1100° F. and about 1400° F. wherein particles containing potassium residues are produced, the improvement which comprises:

(a) treating said particles containing said potassium residues with a solution of sulfurous acid thereby converting water-insoluble potassium constituents in said residues into water-soluble potassium sulfites and bisulfites and producing an aqueous solution containing water-soluble potassium constituents including said potassium sulfites and bisulfites; and



(b) using said potassium sulfites and bisulfites in said aqueous solution in said catalytic steam gasification process as at least a portion of the potassium constituents comprising said potassium-containing catalyst.

4,334,894

PROCESS FOR PRODUCING SYNTHESIS GAS FROM WOOD

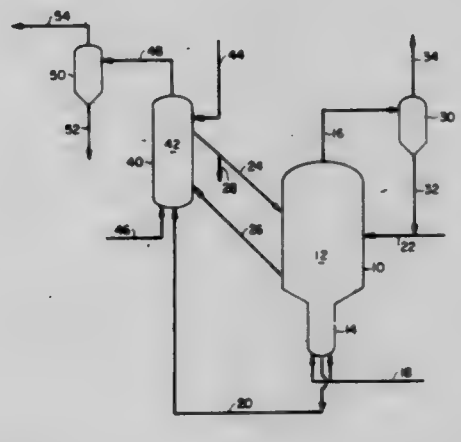
Michael S. Lancet, and George P. Curran, both of Pittsburgh, Pa., assignors to Conoco Inc., Stamford, Conn.

Continuation-in-part of Ser. No. 20,005, Mar. 12, 1979, Pat. No. 4,231,760. This application Apr. 14, 1980, Ser. No. 139,915

The portion of the term of this patent subsequent to Nov. 4, 1997, has been disclaimed.

Int. Cl.³ C10J *3/12, 3/54*

U.S. Cl. 48—209 **4 Claims**



1. In a process for producing synthesis gas by reacting a solid carbonaceous fuel with steam in the presence of a carbon dioxide acceptor to produce a synthesis gas rich in hydrogen with at least a major portion of the carbon dioxide so produced being reacted with said carbon dioxide acceptor to produce calcium carbonate and to provide sufficient heat to maintain a desired reaction temperature, an improvement comprising; the use of finely-divided wood as said solid carbonaceous fuel and using as the CO_2 acceptor, a CO_2 acceptor consisting essentially of calcium oxide supported in a refractory carrier matrix, said carrier having the general formula $Ca_5(SiO_4)_2CO_3$ and wherein said calcium oxide is present in an effective amount up to about 50 weight percent based on the weight of said synthetic CO_2 acceptor.

4,334,895

GLASS BONDED ABRASIVE TOOL CONTAINING METAL CLAD GRAPHITE

Paul P. Keat, Shrewsbury, Mass., assignor to Norton Company, Worcester, Mass.

Filed May 29, 1980, Ser. No. 154,356
Int. Cl.[3] B24D 3/02
U.S. Cl. 51—309 1 Claim

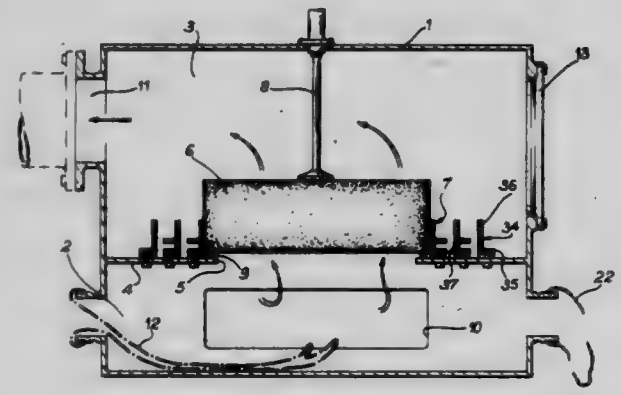
1. A grinding wheel having a grinding face including abrasive particles selected from the group consisting of diamond, cubic boron nitride, alumina, and silicon carbide, said abrasive particles being held in a glass matrix, said glass matrix including therein particles of an oxygen reactive dry film, lubricant, said lubricant particles being encapsulated in a metal coating selected from the group consisting of nickel, cobalt, silver, copper, and alloys thereof, said coating being of sufficient thickness to protect said lubricant particles from oxidation during manufacture of the wheel.

4,334,896

FILTER REPLACEMENT PROCESS AND APPARATUS

Georges Müller, Dijon, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Jul. 27, 1981, Ser. No. 287,359
Claims priority, application France, Aug. 6, 1980, 80 17376
Int. Cl.[3] B01D 46/00
U.S. Cl. 55—96 6 Claims



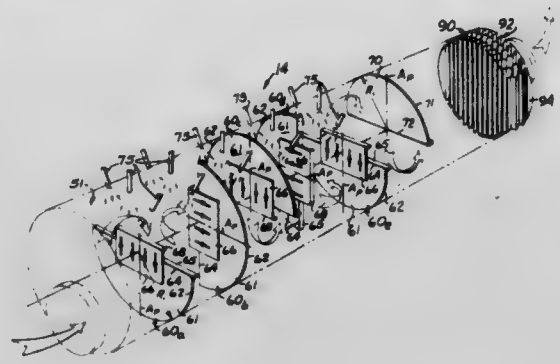
1. A process for the replacement of a filter placed in a vessel having at least one contaminated area and at least one uncontaminated area separated by a plugging sheet without any break in the confinement of the contaminated area, the plugging sheet having at least one opening in front of which is fixed the filter from the side of the uncontaminated area, said filter being guided into position over the opening by a supporting frame and sealingly applied thereto, the supporting frame being itself sealingly fixed to the plugging sheet around the opening from the side of the uncontaminated area, wherein the process comprises the following stages: the filter is surrounded by a tightly sealed bag made from a flexible material as from the uncontaminated area and this bag is sealingly fixed to the outer periphery of the supporting frame, the filter is removed from the supporting frame and placed on the bottom of the tightly sealed bag, the bag is welded at two points and cut between the two welds so as to obtain on the one hand a hermetically sealed bag containing the filter and on the other a tight diaphragm separating the contaminated and uncontaminated areas of the vessel, the filter is then removed from the vessel as from the uncontaminated area and a supplementary supporting frame is sealingly fixed to the supporting frame, a replacement filter is fitted from the uncontaminated area of the vessel and being sealingly applied to the supplementary supporting frame which will serve the same function as the first-mentioned supporting frame during the next replacement and the tight diaphragm is removed from the contaminated area of the vessel.

4,334,897

GAS SCRUBBING APPARATUS

Jack D. Brady, Fayetteville, and Kenny M. Graves, Jonesboro, both of Ga., assignors to Andersen 2000, Inc., Atlanta, Ga.

Filed Feb. 24, 1981, Ser. No. 237,292
Int. Cl.[3] B01D 47/00
U.S. Cl. 55—257 PV 9 Claims



1. Gas scrubbing apparatus for removing sulfur dioxide from a gas stream with a cleaning liquid capable of absorbing the sulfur dioxide in the gas stream comprising:

a housing defining an elongate scrubbing chamber therein along a central axis, an inlet to said scrubbing chamber through one end of said housing, and an outlet from said scrubbing chamber through the opposite end of said housing so that the gas stream enters said scrubbing chamber through said inlet, flows along the length of said scrubbing chamber and passes out of said scrubbing chamber through said outlet; said scrubbing chamber having a cross-sectional area larger than the cross-sectional area of said inlet;

a plurality of first baffles mounted on said housing within said scrubbing chamber at longitudinally spaced positions along said scrubbing chamber, each of said first baffles oriented generally perpendicular to the central axis of said scrubbing chamber, defining an outer peripheral edge thereon attached to said housing and extending around about one-half of the cross-sectional periphery of said scrubbing chamber, defining a generally straight inner edge thereon extending between opposite ends of said outer peripheral edge so that said inner edge extends through the middle of said scrubbing chamber, and having a size such that each of said first baffles blocks about fifty percent of the transverse cross-sectional area of said scrubbing chamber, each of said first baffles being rotated in a first direction about said chamber central axis ninety degrees with respect to the next adjacent first baffle upstream thereof so that said inner edge on each of said first baffles is oriented perpendicular to said inner edges of said first baffles adjacent thereto whereby each of said first baffles rotates the gas stream flowing thereby approximately ninety degrees and so that all of said first baffles rotate the gas stream in the same direction about said central axis to effectively rotate the gas stream about three hundred sixty degrees about said central axis as said gas stream flows past said first baffles;

a second baffle mounted in said housing downstream of the downstreammost of said first baffles; said second baffle oriented generally perpendicular to the central axis of said scrubbing chamber, defining an outer peripheral edge thereon attached to said housing and extending around about one-half of the cross-sectional periphery of said scrubbing chamber, defining a generally straight inner edge thereon extending between opposite ends of said outer peripheral edge so that said inner edge extends through the middle of said scrubbing chamber, and having a size such that said second baffle blocks about fifty percent of the transverse cross-sectional area of said scrubbing chamber; and said second baffle being rotated about said chamber central axis about one hundred eighty degrees with respect to the downstreammost of said first

baffles so that said second baffle arrests rotation of the gas stream about said central axis; and

spray means for directing sprays of the cleaning liquid between said first baffles for contacting the gas stream with the cleaning liquid to absorb the sulfur dioxide from the gas stream.

4,334,898

DEVICE FOR THE PRODUCTION OF SOLID ALUMINUM CHLORIDE

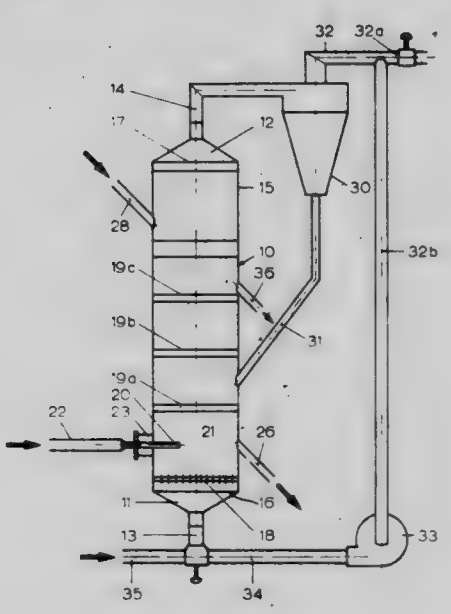
Gerhard Zhuber-Okrog; Ernst Kowolik, both of Rheinfelden, Fed. Rep. of Germany; Hanspeter Alder, Flurlingen, and Hans P. Mueller, Magden, both of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Feb. 4, 1980, Ser. No. 117,849

Claims priority, application Switzerland, Feb. 16, 1979, 1510/79

Int. Cl.³ B01D *59/08, 7/02;* **F16K** *15/04*

U.S. Cl. 55—269 **20 Claims**



1. Device for producing solid aluminum chloride from gas containing gaseous aluminum chloride comprising a fluidized bed condenser having an inlet pipe for the supply of carrier gas and an outlet pipe for waste or residual gas, said condenser including between the inlet and outlet pipes, a distributor plate with openings, at least one cooling facility spaced from said distributor plate between the distributor plate and the outlet pipe, an inlet facility communicating with said fluidized bed condenser for the supply of gas containing gaseous aluminum chloride and an outlet facility communicating with said fluidized bed condenser for removing solid aluminum chloride, wherein openings in the distributor plate are in the form of nozzles which are provided with valves constructed and arranged to close said openings when the carrier gas supply is off, and wherein said valves include means for removing material encrusting the openings.

4,334,899

SNAP FILTER GRILL AND ASSEMBLY

Paul A. McConnell, 806 Tabor, Houston, Tex. 77009

Filed Apr. 9, 1981, Ser. No. 252,373

Int. Cl.³ B01D *50/00*

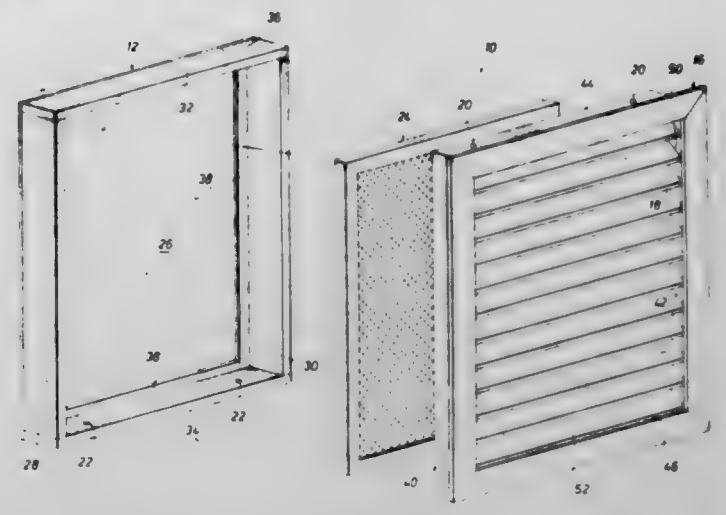
U.S. Cl. 55—321 **18 Claims**

5. A filter assembly, comprising:

a fixable frame member defining a compartment having a flange means therein;

a louvered grill detachably positioned in said compartment, said grill comprising a rectangular grill frame bounding a louver structure secured to said grill frame;

lock means associated with said fixable frame and said grill interiorly of the former to retain said grill in position in said fixable frame, said lock means being self-releasing in response to axial movement of said grill relative to said fixable frame; and



a filter medium removably seated in said fixable frame and sandwiched between said flange means and said grill, the louvers of said grill serving as a handle for insertion and withdrawal of said grill relative to said fixable frame.

4,334,900

FILTER ELEMENTS ARRANGED IN WASTE TANKS FOR SEPARATING SUBSTANCES WHICH ARE HARMFUL TO THE HEALTH FROM FLOWING AIR IN CONNECTION WITH NUCLEAR INSTALLATIONS

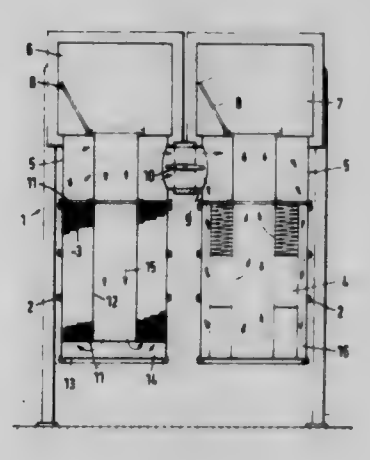
Gerhard-Max Neumann, Berlin, Fed. Rep. of Germany, assignor to Delbag-Luftfilter GmbH, Fed. Rep. of Germany

Filed Jan. 12, 1981, Ser. No. 224,636

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1980, 3001289

Int. Cl.³ B01D *46/14*

U.S. Cl. 55—350 **12 Claims**

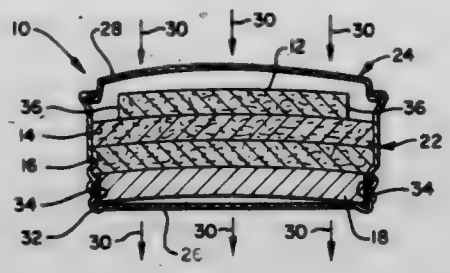


1. Filter elements with changing devices and contamination protection, installed in waste tanks and serving to separate substances which are prejudicial to the health from the breathing or process air of ventilation systems used in nuclear installations, wherein a filtration plant comprises two series-arranged waste tanks within each series a coarse material filter and a fine material filter interconnected by a detachable cover constructed for air guidance purposes by means of a lockable, air-carrying pipe connecting piece and whose projecting central pipes closable by means of flaps for carrying the supply and spent air respectively are in each series fixed in stationary manner to a superimposed, inclined, juxtaposed air duct partitioned for dustladen and clear air respectively with lateral connections.

4,334,901
RESPIRATOR CARTRIDGE

Adolfo V. Ayes, Hartford, Conn., and John A. Jones, Wilbraham, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Aug. 10, 1979, Ser. No. 65,656
Int. Cl.³ B01D *50/00*; A61M *15/08*; B01D *39/02*
U.S. Cl. 55—487 **8 Claims**



1. A respirator cartridge for protection against aerosols comprising:

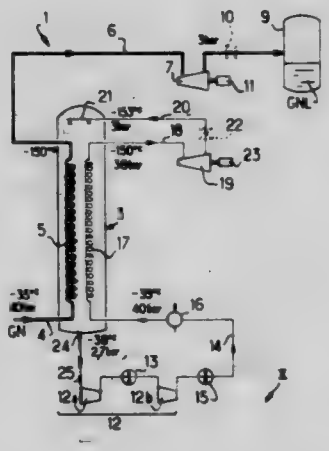
a main supporting shell having an inner wall of given diameter and spaced perforated bottom and cover portions;

a succession of filter components within said shell between said bottom and cover portions, at least one of which affords final filtering of air containing an aerosol passing through said shell, said one final filtering component being of substantially the same diametral dimension as said inner wall of said shell and disposed adjacent said perforations in one of said cover and bottom portions, remaining filter components constituting prefilters of which one is of appreciably smaller diametral dimension than said given diameter of said shell and disposed centrally within said shell adjacent perforations in the other of said cover and bottom portions, said one prefilter component thereby doming said succession of filter components with its edge and surrounding surface portions of the next of said succession of components immediately exposed to said aerosol containing air entering said shell through said perforations for the purpose of providing increased area of distribution of cartridge aerosol loading without increasing cartridge shell diameter whereby resistance to inhalation (airflow) is enhanced.

4,334,902
METHOD OF AND SYSTEM FOR REFRIGERATING A FLUID TO BE COOLED DOWN TO A LOW TEMPERATURE

Henri Paradowski, Cergy Pontoise, France, assignor to Compagnie Francaise d'Etudes et de Construction "Technip", Paris La Defense, France

Filed Dec. 4, 1980, Ser. No. 213,164
Claims priority, application France, Dec. 12, 1979, 79 30490
Int. Cl.³ F25J *1/02*
U.S. Cl. 62—9 **14 Claims**

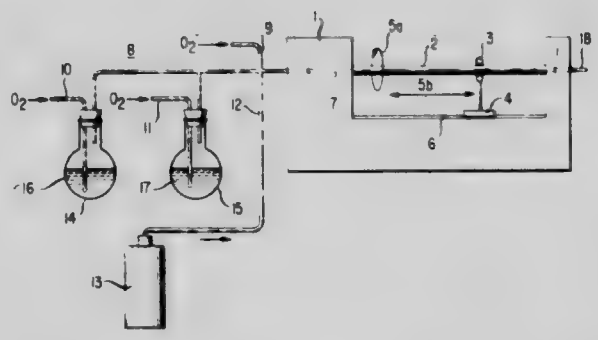


1. A method of refrigerating at least one fluid to be cooled down to a low temperature, in particular lower than −30° C., through heat exchange with at least one refrigerating fluid, each refrigerating fluid consisting of a mixture of several different components substances evolving according to a closed-loop cooling cycle while undergoing successively therein: at least one compression in the gaseous state, at least one precooling with at least partial high pressure condensation, at least one self-refrigeration with sub-cooling of at least one liquid fraction through heat exchange in counter-current relationship with the low pressure vapor originating from at least the same sub-cooled liquid fraction of said same refrigerating fluid, at least one expansion of at least said same low pressure fraction and at least one conversion of said vapor which is recompressed thereafter, wherein the improvement consists in the step of reducing, for a same amount of treated products, the power absorbed by said compression by performing at least one aforesaid expansion dynamically so as to produce an outer mechanical work.

4,334,903
OPTICAL FIBER FABRICATION

John B. MacChesney, Stirling, and Paul B. O'Connor, Plainfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 828,617, Aug. 29, 1977, Pat. No. 4,217,027, which is a continuation of Ser. No. 444,705, Feb. 22, 1974, abandoned. This application Feb. 1, 1980, Ser. No. 117,522
The portion of the term of this patent subsequent to Aug. 12, 1997, has been disclaimed.
Int. Cl.³ C03B *37/07, 37/075*
U.S. Cl. 65—3.12 **8 Claims**



1. A process for fabrication of an optical fiber transmission line comprising a core section and a cladding, wherein the cladding has an index of refraction of a value lower than the maximum index of the core for energy of the wavelength to be transmitted comprising:

introducing a moving stream of a vapor mixture including at least one compound glass-forming precursor together with an oxidizing medium into a tube while heating the tube so as to react the said mixture and produce a glassy deposit on the inner surface of the tube,

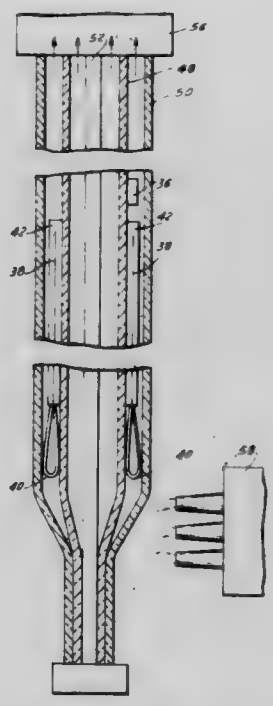
characterized in that the heating of tube and contents are by a moving hot zone produced by a correspondingly moving heat source external to the tube, and in that temperature within the hot zone, composition of the vapor mixture, and rate of introduction of the vapor mixture are maintained at values such that at least a part of the reaction takes place within the gaseous mixture at a position spaced from the inner walls of the said tube thereby producing a suspension of oxidic reaction product particulate material, which deposits on the inner surface of the tube and in that said particulate material is consolidated to produce said glassy deposit on the inner surface of the tube.

4,334,904

GLASS CAPTIVATED HEATING UNIT FOR STILL OR THE LIKE AND METHOD OF FABRICATING SAME

Richard L. Apothaker, Northfield; James Reed, Newfield; Carmen L. Croce, Vineland, and Frederick B. Wagner, III, Elmer, all of N.J., assignors to Kontes Glass Company, Vineland, N.J.

Filed Mar. 6, 1981, Ser. No. 241,055
Int. Cl.³ C03C *27/00*
U.S. Cl. 65—36 16 Claims



1. A method of fabricating a glass captivated heating unit comprising the steps of:

(a) aligning the surfaces of first and second glass layers in face-to-face relation, with a wire element interposed therebetween, to form an assembly;

(b) heating said assembly to a temperature sufficient to cause the glass to become workable and to expand the portion of the element from an unexpanded condition to an expanded condition;

(c) joining and fusing the glass surfaces, around the expanded element portion, to form a body with a channel therein, defined by the contours of the expanded element; and

(d) causing the element to return to its unexpanded condition, resulting in a space within the body, between the channel walls and the element.

4,334,905

AGROCHEMICAL AGENTS AND THEIR USE

Kuno Wagner; Johannes Niggemann, both of Leverkusen; Kurt Findeisen, Odenthal, and Hans Scheinpflug, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 11,541, Feb. 12, 1979, Pat. No. 4,251,255. This application Sep. 22, 1980, Ser. No. 189,261
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1978, 2806097
Int. Cl.³ C05C *11/00*
U.S. Cl. 71—27 5 Claims

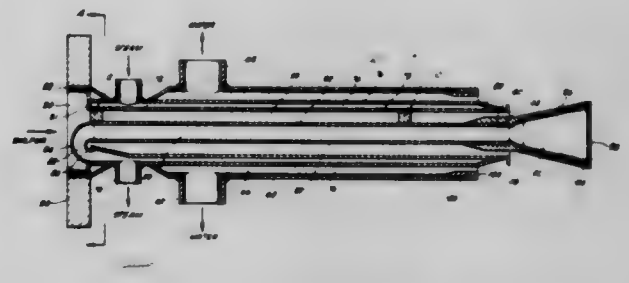
5. A method of improving soil comprising applying to the soil a composition comprising an azulmic acid stabilized by condensation with a carbonyl compound.

4,334,906

SLOW RELEASE SOIL AMENDMENT AND MICRONUTRIENT SOURCE

Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Continuation of Ser. No. 134,021, Mar. 25, 1980, abandoned, which is a continuation of Ser. No. 962,165, Nov. 20, 1978, abandoned, which is a continuation of Ser. No. 569,484, Apr. 18, 1975, abandoned. This application Nov. 28, 1980, Ser. No. 211,205
Int. Cl.³ C05D *11/00*
U.S. Cl. 71—33 12 Claims



1. A combination porous particulate soil amendment and micronutrient source comprising porous sulfur particles characterized by a bulk density of about 1.9 grams per cc or less, an open pore volume of at least about 0.04 cc per gram and an internal surface area of at least about 20 cm^2 per gram, and containing within said particles a dispersed agronomic amount of one or more micronutrient elements.

4,334,907

PHOSPHORIC ACID AMMONIATION PROCESS TO PRODUCE LIQUID FERTILIZERS

John D. Ellis, Upland, Calif.; George Crichton, Guadalajara, N. Mex.; Millard C. Godwin, and George C. Morris, both of Lakeland, Fla., assignors to Leather's Chemical Company, Limited, Yeadon, Leeds, England

Continuation of Ser. No. 11,973, Feb. 14, 1979, abandoned, which is a continuation of Ser. No. 475,956, Jun. 3, 1974, abandoned, which is a continuation of Ser. No. 384,192, Jul. 31, 1973, abandoned, which is a continuation of Ser. No. 117,152, Feb. 19, 1971, abandoned, which is a division of Ser. No. 853,683, Aug. 28, 1969, abandoned, which is a continuation-in-part of Ser. No. 684,348, Nov. 20, 1967, abandoned, and a continuation-in-part of Ser. No. 785,321, Dec. 19, 1968, abandoned. This application Jan. 7, 1980, Ser. No. 110,152
Int. Cl.³ C05B *7/00*
U.S. Cl. 71—34 20 Claims

1. A continuous process for the manufacture of a liquid ammonium polyphosphate fertilizer, by a rapid ammoniation which minimizes loss of polyphosphates, from water, ammonia, and a phosphoric acid selected from the group consisting of orthophosphoric acid, polyphosphoric acid and mixtures thereof, said process comprising the steps:

(a) forming, in a reaction zone in a reaction vessel, an entrained co-current stream reaction mass comprising water, ammonia and phosphoric acid, said water comprising water present in a phosphoric acid solution or added water;

(b) permitting the ammonia to react exothermically with the phosphoric acid in said entrained stream reaction mass in said reaction zone to liberate heat and form a reaction product mixture comprising ammonium salts of the phosphoric acid and steam, said steam comprising both water converted to steam and water of constitution driven from at least two molecules of a material selected from the

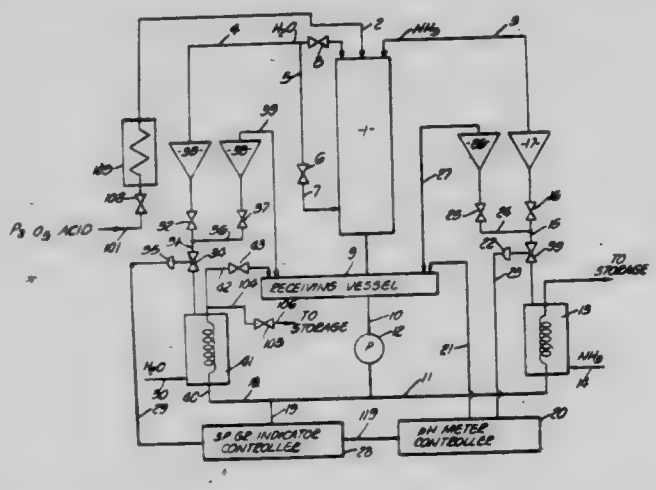
group consisting of phosphoric acid, polyphosphoric acid, ammonium phosphate, ammonium polyphosphate, and mixtures thereof, the pressure of said steam aiding in propelling the reaction mixture through and expelling it from said reaction zone;

(c) quenching said reaction mixture with water to form a quenched reaction mixture;

(d) separating steam from said quenched reaction mixture to produce a steam-separated reaction product; and

(e) further cooling said steam-separated reaction product by heat exchange with air to a temperature in the range of about 80° F. to about 150° F. to form a cooled product comprising an aqueous solution of ammoniated species of both ortho and polyphosphoric acids.

18. In a continuous process for manufacture of an ammonium polyphosphate fertilizer solution, the steps comprising:



(a) introducing ammonia, water and superphosphoric acid analyzing at least about 69% P_2O_5 into a reaction zone in a reaction vessel;

(b) permitting the ammonia to react exothermically within said reaction zone with said superphosphoric acid to liberate heat and form an entrained co-current stream reaction mass comprising steam and ammonium salts of superphosphoric acid;

(c) allowing said steam to rapidly move said reaction mass through said reaction zone and cause a liquid ammonium superphosphoric acid solution to be discharged from said reaction vessel, said fertilizer containing at least a majority of the polyphosphates contained in said superphosphoric acid.

4,334,908

VITREOUS FERTILIZER COMPOSITIONS

Jacques Duchateau, Recquignies, and Christien Van den Bossche, Wavrin, both of France, assignors to BFG Glassgroup, Paris, France

Filed Sep. 28, 1979, Ser. No. 79,987

Claims priority, application United Kingdom, Sep. 29, 1978, 38762/78

Int. Cl.³ C05B *7/00, 19/00;* C05D *9/02*

U.S. Cl. 71—52 **16 Claims**

1. A composition of matter for use as a plant fertilizer comprising water soluble vitreous plant nutrient release material and a silicate binder chemically integrated with said vitreous material, to form a unitary mass of glass in expanded or cellular form, wherein said soluble vitreous plant nutrient release material comprises 35 to 55 moles % P_2O_5; 5 moles % K_2O or less; and the balance to 100 moles %, CaO and/or MgO.

2. A composition of matter for use as a vitreous fertilizer constituent comprising a water soluble vitreous constitutent comprising:

35 to 55 moles %, P_2O_5;

less than 5 moles %, K_2O; and

the balance to 100 moles %, CaO and/or MgO,

wherein said composition comprises a first phase containing said soluble vitreous constituent and a second phase of substantially insoluble cellular vitreous material.

15. A method of cultivating plants or seeds in soil comprising placing in contact with such soil, a composition of matter according to claim 2.

4,334,909

N-(ALKOXYMETHYL)-2'-NITRO-6'-SUBSTITUTED-2-HALOACETANILIDES AND THEIR USE AS HERBICIDES AND PLANT GROWTH REGULANTS

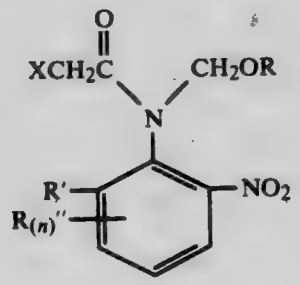
John P. Chupp, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 25, 1980, Ser. No. 133,761

Int. Cl.³ A01N *37/22;* C07C *103/32*

U.S. Cl. 71—76 **33 Claims**

26. A herbicidal composition which comprises from about 1 to about 50 parts by weight surface-active agent, from about 4 to about 94 parts by weight of solvent or inert adjuvant and from about 5 to about 95 parts by weight of a compound having the formula



wherein X is chloro, bromo or iodo; R is C_{1-5} alkyl, C_{3-5} alkenyl, C_{3-5} alkynyl or C_{1-5} alkyl substituted by one to three C_{1-5} alkoxy moieties; R' is NO_2; R'' is C_{1-5} alkyl, halogen, C_{1-5} alkoxy, halo (C_{1-5}) alkyl or NO_2; n is zero, one or two.

4,334,910

PLANT-PROTECTIVE AND PEST-CONTROL AGENT

Csaba Lorincz; Eva Lorincz nee Csapo; Istvan Gebhardt; Antal Gimesi; Bela Stefko; Erik Bogsch; Zsuzsanna Földesi nee Szasz, and Kalman Szasz, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

Filed Aug. 30, 1976, Ser. No. 718,990

Claims priority, application Hungary, Sep. 1, 1975, RI 576; Sep. 1, 1975, RI 578

Int. Cl.³ A01N *59/02*

U.S. Cl. 71—82 **14 Claims**

1. A herbicidal composition for application to a plant site to promote the growth of potatoes or soybeans and limit the growth of weeds, said composition consisting essentially of a carrier and an amount of 0.01 to 98 by percent of a herbicidally effective component consisting essentially of a mixture of an organic herbicide selected from the group which consists of 2-ethylamino-4-isopropylamino-6-methylthio-1,3,5-triazine; 2,4-di-(isopropylamino)-6-methylthio-1,3,5-triazine; and 2-tert-butylamino-4-ethylamino-6-methylthio-1,3,5-triazine, and at least one inorganic compound selected from the group which consists of sodium bisulfate and potassium bisulfate, the weight ratio of the inorganic compound to the organic compound being substantially 0.1:1 to 15:1.

4,334,911

HERBICIDAL COMPOSITIONS AND METHODS

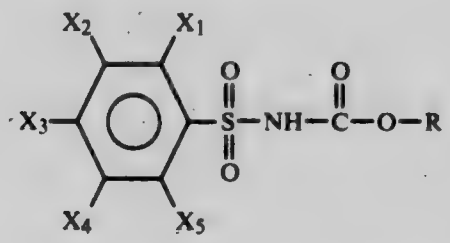
Edmund J. Gaughan, Berkeley and Ferenc M. Pallos, Walnut Creek, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation-in-part of Ser. No. 721,721, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 619,114, Oct. 2, 1975, abandoned. This application Nov. 7, 1977, Ser. No. 849,140

Int. Cl.[3] A01N *25/32*

U.S. Cl. 71—93 10 Claims

1. A herbicidal composition comprising a herbicidally effective amount of a herbicidal mixture comprising a thiocarbamate and a triazine having a weight ratio of about 0.01–50:1, respectively, and an antidotally effective amount of a N-benzenesulfonyl carbamate of the formula



wherein each of X_1, X_2, X_3, X_4 and X_5 is independently selected from the group consisting of hydrogen, halogen and lower alkyl, with the proviso that when X_3 is lower alkyl, X_1 and X_5 are not both hydrogen; and R is selected from the group consisting of lower alkyl, alkenyl, alkynyl and alkyl and alkenyl radicals substituted with up to five halo atoms and wherein said N-benzenesulfonyl carbamate is present in proportion to the herbicide from about 0.01 to about 20 parts by weight, said N-benzenesulfonyl carbamates being antidotally active towards soybeans with said thiocarbamate and triazine herbicide mixture.

4,334,912

UREA DERIVATIVES, AND THEIR PRODUCTION AND USE

Ryo Yoshida, Kawanishi; Haruhiko Katoh, Takarazuka; Seizo Sumida, Nishinomiya; Ichiki Takemoto; Junya Takahashi, both of Takarazuka, and Katsuzo Kamoshita, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

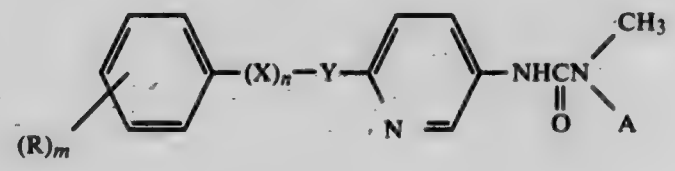
Filed Mar. 12, 1980, Ser. No. 129,980

Claims priority, application Japan, Mar. 13, 1979, 54-29549; Aug. 31, 1979, 54-112313

Int. Cl.[3] A01N *43/40;* C07D *213/62, 213/64*

U.S. Cl. 71—94 14 Claims

1. A compound of the formula:



wherein A is a hydrogen atom, a methyl group or a methoxy group, X is a straight or branched C_1–C_4 alkylene chain, Y is an oxygen atom or a sulfur atom, R, which may be the same or different, is a lower alkyl group, a lower alkoxy group, a trifluoromethyl group, a chlorine atom, a bromine atom or a fluorine atom, m is an integer of 0 to 5 and n is an integer of 0 or 1, provided that in case of R being a fluorine atom, m is an integer of 0 to 5 and in case of R being other than a fluorine atom, m is an integer of 0 to 3.

4,334,913

SUBSTITUTED 3-HYDROXY-2-CYCLOHEXENE-1-ONE COMPOUNDS AS SUGAR ENHANCERS FOR PLANTS

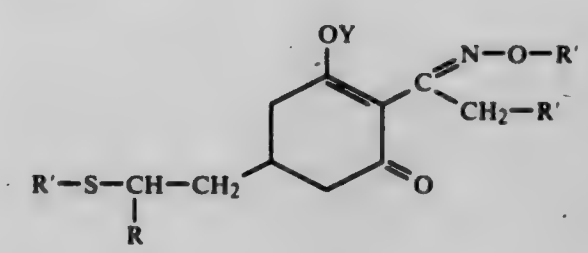
John F. Koerwer, Perkasie, Pa., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 31, 1981, Ser. No. 249,649

Int. Cl.[3] A01N *31/04*

U.S. Cl. 71—98 33 Claims

1. A method for increasing the sugar content of sugarcane or sorghum plants which comprises applying to such plants from 1 to 7 weeks prior to harvesting an effective amount of a compound of the formula



wherein:

R is an alkyl group having from 1 to 4 carbon atoms;

R′ is an alkyl group having from 2 to 4 carbon atoms, and

Y is a hydrogen atom or an alkanoyl group having up to 12 carbon atoms.

4,334,914

BENZOATE DERIVATIVE, METHOD OF PREPARING THE SAME AND USE THEREOF AS A HERBICIDE

Kunikazu Hiraga, Izumi; Katsumasa Okawa, Kawachinagano; Kenichi Ikeda, Toyonaka, and Masanori Hikawa, Kawachinagano, all of Japan, assignors to Nihon Nohyaku Co., Ltd., Tokyo, Japan

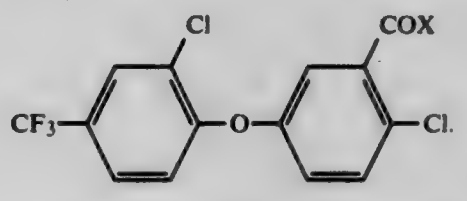
Filed Feb. 12, 1981, Ser. No. 234,104

Claims priority, application Japan, Feb. 13, 1980, 55/16347

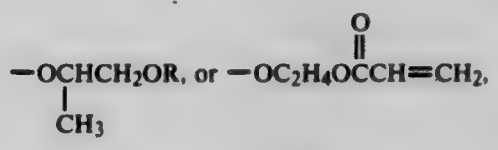
Int. Cl.[3] A01N *37/36, 37/00;* C07C *153/11, 69/76*

U.S. Cl. 71—100 16 Claims

1. Benzoate derivative represented by the formula

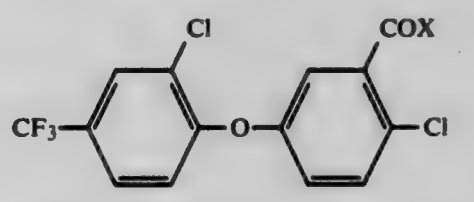


wherein X is —SR, —O—$CH_2CH_2O_nR$, —OCH_2CH_2SR,



herein R being lower alkyl and n being an integer of 1 to 3.

6. A herbicidal composition comprising an effective amount of a benzoate derivative represented by the formula



wherein X is —SR, —O—$CH_2CH_2O_nR$, —OCH_2CH_2SR,

$$-OCHCH_2OR, \text{ or } -OC_2H_4OCCH{=}CH_2,$$
$$\quad\quad\quad

a non-ferrous metal, heat generated during the oxidation step being recovered by the molten carrier composition and being transmitted thereby to endothermic sites in the circuit including said ore receiving station, removing at least said non-ferrous metal to be extracted, and removing said molten slag at the slag removing station.

4,334,919

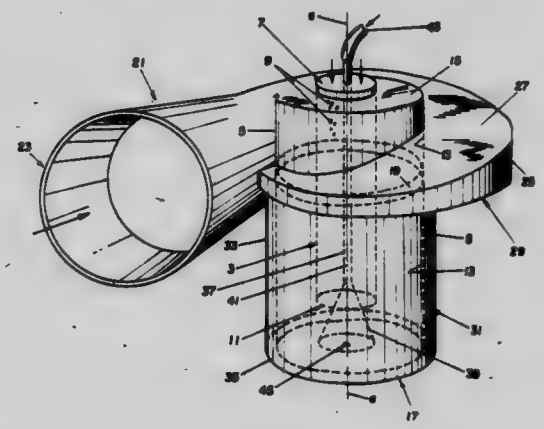
METHOD OF INTRODUCING PARTICULATE MATERIAL AND A GAS INTO A REACTOR

Paul E. Queneau, Cornish, N.H. 03746; Horst J. Richter, P.O. Box 59, Norwich, Vt. 05055, and Reinhardt Schuhmann, Jr., 1206 Hayes St., West LaFayette, Ind. 47906

Division of Ser. No. 86,659, Oct. 22, 1979. This application May 16, 1980, Ser. No. 150,451

Int. Cl.³ C22B *1/10, 5/14, 15/00;* C21B *11/00*

U.S. Cl. 75—23 **7 Claims**



1. In a method for introducing a suspension of solid particulate material in a gas as a paraboloidal suspension into a reactor, wherein a supply of solid particulate material is introduced by gravity through a vertical tubular member and spread therefrom, the improvement comprising:

directing said gas tangentially between said tubular member and a coaxial outer cylindroidal member so as to form a suspension of solid particulate material, emitted from the central tubular member, in said gas, while preventing contact of said particulate material with said coaxial outer cylindroidal member, and discharging said gas from said outer cylindroidal member at a tangential spreading velocity greater than one-half of the vertical downward velocity thereof.

4,334,920

INTEGRATED PROCESS FOR THERMAL CRACKING OF HEAVY OIL AND REDUCTION OF IRON ORES

Kenji Mori, Nishinomiya; Eiji Miura, Mitaka; Reijiro Nishida, Matsudo, and Kiyohiko Koizumi, Tokyo, all of Japan, assignors to Kobe Steel, Ltd. and Koa Oil Co., Ltd., both of, Japan

Filed Apr. 8, 1980, Ser. No. 138,427

Claims priority, application Japan, Apr. 11, 1979, 54/43804

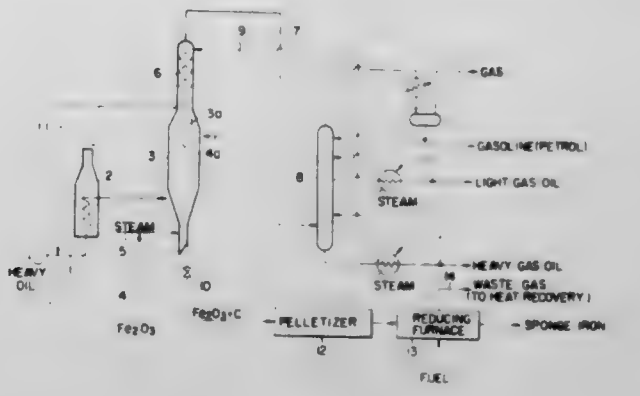
Int. Cl.³ C22B *1/10*

U.S. Cl. 75—26 **7 Claims**

1. An integrated process for thermal cracking of hydrocarbon oil and production of iron which consists essentially of:

(a) thermally cracking the hydrocarbon oil in the presence of iron ore particles of a particle size suitable for fluidization in a fluidized state in a thermal cracking reactor at a temperature of from 400° C. to 630° C. thereby to produce and recover light oils and cracked gases; at the same time causing by-product carbon thus formed to deposit on the iron ore particles; said hydrocarbon oil being a vacuum distillation residue oil having a Conradson carbon value of 5 to 40 percent and a specific gravity of 0.9 to 1.10 and,

(b) introducing said carbon-deposited iron ore with or without additional carbon, into a reducing furnace and heating the thus introduced mixture of the carbon deposited iron ore with or without the additional carbon at a temperature of from 800° C. to 1,200° C. in the reducing furnace, while



maintaining said mixture in the solid state, to thereby produce sponge iron.

4,334,921

CONVERTER STEELMAKING PROCESS

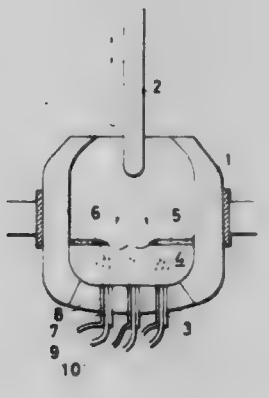
Masazumi Hirai; Kazuo Okohira; Shozo Murakami, and Hajime Nakagawa, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Apr. 9, 1980, Ser. No. 138,511

Claims priority, application Japan, Apr. 16, 1979, 54-46162; Aug. 6, 1979, 54-100009

Int. Cl.³ C21C *5/32, 5/34*

U.S. Cl. 75—60 **13 Claims**



1. A steelmaking process comprising supplying oxygen from a top-blowing lance and a bottom-blowing nozzle substantially throughout the refining operation, with 2 vol% to 17 vol% of a predetermined total oxygen flow rate being supplied from the bottom-blowing nozzle whereas the remaining part of the oxygen is blown onto the surface of the melt from the top-blowing lance.

4,334,922

PROCESS FOR METAL-BATH REFINING

Paul Metz, Luxembourg; Francois Schleimer, Esch; Lucien Lorang, Differdange; Ferdinand Goedert; Romain Henrion, both of Esch, and Fernand Thill, Kockelscheuer, all of Luxembourg, assignors to ARBED S.A., Luxembourg, Luxembourg

Filed Jan. 5, 1981, Ser. No. 222,716

Claims priority, application Luxembourg, Jan. 9, 1980, 82070

Int. Cl.³ C21C *5/30*

U.S. Cl. 75—60 **5 Claims**

1. A process for refining a ferrous melt forming a metallic bath overlain by a supernatant slag layer in a vessel of diameter DC in a steel-making plant,

comprising the steps of:

(a) positioning an oxygen lance above the bath;

(b) injecting a main oxygen jet from said lance through said slag layer into the bath for oxidizing carbon present in the melt;

(c) concurrently directing a secondary oxygen jet from said lance onto the bath surface for afterburning evolving carbon monoxide;

(d) concurrently blowing an inert gas from the bottom of said vessel through the bath for controlling the thickness and consistency of the slag layer in a manner enabling passage of a requisite amount of oxygen therethrough;

(e) continuously monitoring the thickness HSC of said slag layer with reference to bath height HB, the rate of decarburization DCDT of the melt and an afterburning factor X determined as the ratio of carbon dioxide to the sum of carbon monoxide and carbon dioxide released from the bath; and

(f) adjusting, from time to time, the elevation HL of the lance above the bath level, the total rate DOT of oxygen emission from said lance, the flow rate DOS of the secondary oxygen jet and the discharge rate F of said inert gas to satisfy, substantially, the following equation for the time-varying ratio $(HSC/HB)_t$:

$$\left(\frac{HSC}{HB}\right)_t = K + a_1\left(\frac{HL}{DC}\right)^{\alpha 1} - a_2\left[\frac{DOT}{(1+X)DCDT}\right]^{\alpha 2}\cdot\left(1 - a_3\frac{DOS}{DOT}\right)^{\alpha 3} - a_4\left(\frac{F}{DOT}\right)^{\alpha 4}\cdot\left(1 - a_5\frac{DC}{HB}\right)^{\alpha 5}$$

wherein K, a_1, a_2, a_3, a_4, a_5, α_1, α_2, α_3, α_4 and α_5 are parameters which are constant in a given steel-making plant operating with a predetermined ratio of total volume of oxygen introduced into the slag layer to the total volume of oxygen blown from the lance.

4,334,923

OXIDATION RESISTANT STEEL ALLOY

Andrew M. Sherman, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Feb. 20, 1980, Ser. No. 122,915
Int. Cl.³ C22C *38/02, 38/06*
U.S. Cl. 75—124 **4 Claims**

1. An oxidation resistant ferritic steel consisting of up to 0.05% carbon, 0.1–2% silicon, 2–8% aluminum, 0.01–1.0% yttrium, and the balance substantially iron and normal impurities, characterized by the balance of catastrophic oxidation failure when subjected to at least 10 cyclic temperature excursions maximized between about 800° C. and about 1000° C., each cycle comprising at least 200 hours at said temperatures.

3. A ferritic steel resistant to catastrophic oxidation at thermal cycling maximized between 600° C.–1000° C., said steel composition consisting essentially of less than 0.05% carbon, 0.1–1% silicon, 5–7% aluminum, 0.7–0.8% yttrium and the balance being substantially iron and normal impurities characterized by the ability to be cold rollable, and by the absence of catastrophic oxidation failure when subjected to temperatures of 600° C. or greater for periods of up to 500 hours.

4,334,924

PYROMETALLURGICAL OXIDATION OF MOLYBDENUM RICH MATTE

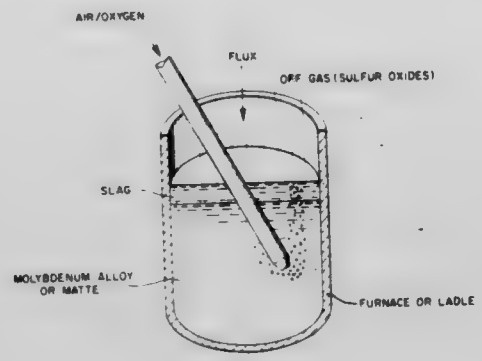
Jonathan J. Kim, Chelmsford, and Paul R. Ammann, Boxford, both of Mass., assignors to Kennecott Corporation, Stamford, Conn.

Filed Dec. 15, 1980, Ser. No. 216,655
Int. Cl.³ C22C *33/00*
U.S. Cl. 75—133.5 **8 Claims**

1. A process for producing a molybdenum product from a material containing molybdenum values comprising the following steps:

(a) selecting an oxidic material that has the following composition:

0.05–3% molybdenum, 0–10% copper, and the remainder being comprised of FeO, Fe_3O_4, SiO_2, CaO, MgO, Al_2O_3, S, and impurities selected from the group of arsenic, lead, zinc and mixtures thereof;



(b) reacting the molten oxidic material of step (a) with an iron-sulfur reductant, said reaction being performed at a temperature between the slag melting point and 1600° C.;

(c) separating an iron sulfur matte or alloy as a reaction product from the reaction of step (b), said matte having the following composition:

Constituent	Percent by Weight
Mo	1–30
Cu	0–20
S	2–15
impurities	0–5
Fe	balance

(d) delivering said matte product of step (c) to a ladle or furnace and injecting oxygen into the matte in said ladle or furnace while it is molten to selectively oxidize the iron and sulfur in said matte or alloy to produce an iron slag phase and a molybdenum phase having the following composition:

Constituent	Percent by Weight
Mo	up to 35
Cu	0–35
S	0–2%
impurities	less than 1%
Fe	balance

and,

(e) removing the molybdenum product of step (d) which separates from the iron slag phase which forms in step (d).

4,334,925

COMBINED CARBURIZATION AND SULFURIZATION/DESULFURIZATION OF MOLYBDENUM-RICH MATTE

Jonathan J. Kim, Chelmsford, and John F. Elliott, Winchester, both of Mass., assignors to Kennecott Corporation, Stamford, Conn.

Filed Dec. 15, 1980, Ser. No. 216,680
Int. Cl.³ C22C *33/00*
U.S. Cl. 75—133.5 **12 Claims**

1. A pyrometallurgical process for recovering a molybdenum-rich alloy from an oxidic material containing molybdenum, copper and iron oxide, the recovery process comprising:

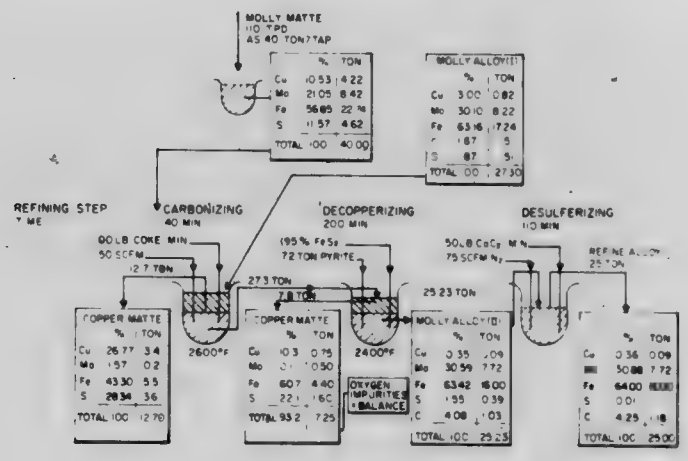
(a) reacting the molten oxidic material with an iron-sulfur reductant to cause a phase separation whereby an iron-molybdenum-copper-sulfur material forms as it separates

from the remainder of the oxidic material which forms a slag;

(b) separating the iron-molybdenum-copper-sulfur material from the remaining slag phase;

(c) adding carbon to the molten iron-molybdenum-copper-sulfur material to cause a liquid phase separation and to produce a first copper-rich sulfide matte as the upper liquid phase and a molybdenum-enriched alloy as the lower liquid phase;

(d) separatng the first copper rich sulfide matte from the molybdenum enriched alloy phase;



(e) adding sulfur or an iron-sulfide reductant to the molten molybdenum-enriched alloy phase formed in c) to cause liquid phase separation and to produce a second copper-rich sulfide matte as the upper liquid phase and a molybdenum-enriched alloy as the lower liquid phase;

(f) separating the second copper-rich sulfide matte from the molybdenum-enriched alloy phase; and

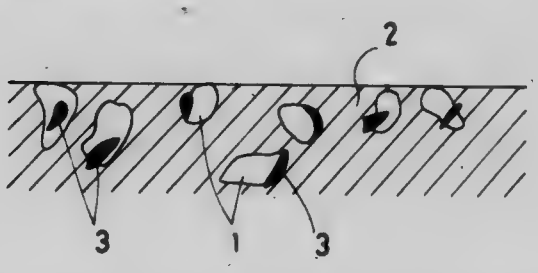
(g) desulfurizing the molybdenum-enriched alloy to produce the molybdenum-rich iron alloy product.

4,334,926

BEARING MATERIAL

Kenichiro Futamura, and Tatsuhiko Fukuoka, both of Toyota, Japan, assignors to Taiho Kogyo Co., Ltd., Toyota, Japan

Filed Mar. 12, 1980, Ser. No. 129,802
Claims priority, application Japan, Mar. 14, 1979, 54/29483
Int. Cl.³ B22F *3/00*
U.S. Cl. 75—230 **9 Claims**



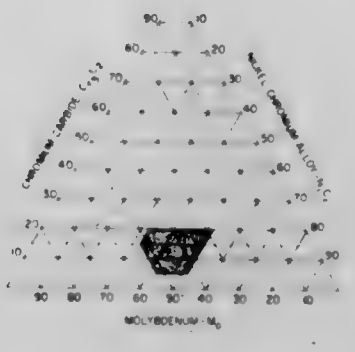
1. In a bearing material comprising a steel backing sheet having a sintered Cu-Pb base alloy layer thereon, wherein said Cu-Pb base alloy layer consists essentially of islands of Pb dispersed in a Cu matrix, the improvement which comprises: said Cu-Pb base alloy layer contains dispersed therein from 1 to 30 wt.%, based on the total weight of said copper-lead base alloy layer, of particles of one or more hard materials selected from the group consisting of Mo, Co, Fe_3P, Fe_2P, FeB, Fe_2B, FeCr, FeMn, FeSi, Cr, W, SiC, TiC, WC, B_4C, TiN, BN, Si_2N_4, SiO_2 and ZrO_2.

4,334,927

PISTON RING COATINGS

Glenn F. Hyde, 203 Medbury Rd., Timonium, Md. 21093, and John E. Cromwell, 911 W. 38th St., Baltimore, Md. 21211

Filed Dec. 8, 1980, Ser. No. 214,121
Int. Cl.³ C22C *19/03, 29/00, 32/00*
U.S. Cl. 75—240 **4 Claims**



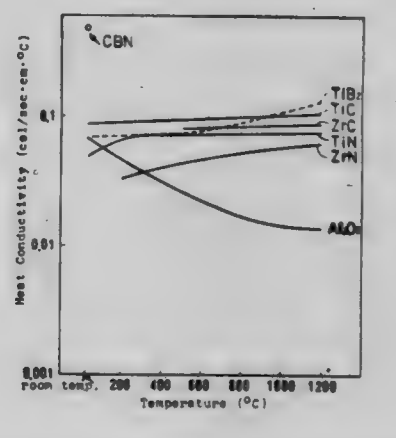
1. A composition for coating the wearing surfaces of piston rings and the like consisting of a physical admixture of primary particles having a size of about 5 to 100 microns, said admixture comprised of 5 to 20 percent by weight chromium carbide (Cr_3C_2), 32 to 51 percent by weight nickel chromium alloy and 29 to 51 percent by weight molybdenum.

4,334,928

SINTERED COMPACT FOR A MACHINING TOOL AND A METHOD OF PRODUCING THE COMPACT

Akio Hara, and Shuji Yazu, both of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 862,988, Dec. 20, 1977, abandoned. This application Feb. 8, 1980, Ser. No. 119,771
Claims priority, application Japan, Dec. 21, 1976, 51-154570; May 12, 1977, 52-54666; Sep. 21, 1977, 52-113987; Nov. 7, 1977, 52-133783; Nov. 8, 1977, 52-134486; Nov. 22, 1977, 52-140486
Int. Cl.³ B22F *3/00*
U.S. Cl. 75—238 **9 Claims**



1. A sintered compact for use in a tool consisting essentially of:

80 to 20 volume % of high pressure from boron nitride; and the balance being a matrix of at least one binder compound material selected from the group consisting of a carbide, a nitride, a carbonitride, a boride and a silicide of a IVa a Va transition metal of the periodic table, mixtures thereof and their solid solution compounds; the matrix forming a continuous bonding structure in a sintered body and where the high pressure boron nitride is interspersed within a continuous matrix.

4,334,929

USE OF NICKEL-COBALT SINTERED MATERIALS FOR ELECTRIC RELAY CONTACTS

Horst Schreiner; Reinhard Tusche, both of Nuremberg, Fed. Rep. of Germany, and Sjouke Zijlstra, SE Geldrop, Netherlands, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jul. 23, 1980, Ser. No. 171,369

Claims priority, application Fed. Rep. of Germany, May 28, 1980, 3020277

Int. Cl.³ B22F 5/00

U.S. Cl. 75—246 5 Claims

1. An electrical relay contact made of a sintered material which consists of 50 to 85% nickel and 50 to 15% cobalt.

4,334,930

MORTARS FOR THERMAL INSULATING JOINTS

Francis Gagneraud, Villa Montmorency, 6, avenue des Tilleuls, F-75016 Paris, France

Filed Oct. 17, 1980, Ser. No. 198,252

Claims priority, application France, Oct. 24, 1979, 79 26354

Int. Cl.³ C04B 7/02

U.S. Cl. 106—97 3 Claims

1. In a mortar for thermally insulating joints between building or masonry elements, comprising a base of a cementitious binder and fine aggregates or light sand, the improvement wherein said fine aggregates or light sand is a pelleted blast furnace slag having a vitreous or vitrocrystalline microstructure, of granulometry between 0 and 3 mm with spherically shaped grains whose pores are closed for the most part and having an apparent specific gravity, in the dry state, between 1,300 and 2,000 kg/m^3 and a thermal conductivity between 0.20 and 0.60 W/m°C.

4,334,931

METHOD FOR PRODUCING ASBESTOS FREE MACHINABLE CALCIUM SILICATE HIGH HEAT-RESISTANT MATERIAL

Hiroshi Asaumi, Kamakura; Kazuo Kubota, Yokosuka; Hisanori Yokoo, and Mitsuo Yamamoto, both of Yokohama, all of Japan, assignors to Nippon Asbestos Co., Ltd., Japan

Continuation-in-part of Ser. No. 147,545, May 7, 1980, abandoned. This application Mar. 16, 1981, Ser. No. 244,072

Claims priority, application Japan, May 15, 1979, 54-58689

Int. Cl.³ C04B 1/00

U.S. Cl. 106—120 5 Claims

1. Asbestos-free calcium silicate heat-resistant green material composition, which comprises:

(A) 100 parts by weight of a mixture of lime and siliceous material having a CaO/SiO_2 mole ratio of 0.6–1.2;

(B) 20–170 parts by weight of xonotlite obtained by hydrothermal synthesis;

(C) 15–150 parts by weight of fibrous wollastonite; and

(D) water in an amount of 2–8 times as much as that of the total solid contents.

4,334,932

PIGMENT FORMULATIONS, PROCESSES FOR THEIR PREPARATION AND THEIR USE FOR PIGMENTING AQUEOUS, ALCOHOLIC OR AQUEOUS-ALCOHOLIC PRINTING INK SYSTEMS AND COLORED LACQUER SYSTEMS

Armand Roueche, Bottmingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Apr. 6, 1981, Ser. No. 251,423

Claims priority, application Switzerland, Apr. 23, 1980, 3129/80

Int. Cl.³ C09D 17/00

U.S. Cl. 524—191 9 Claims

1. A pigment formulation which contains

(1) 10–90% by weight, based on the whole formulation, of a pigment mixture of

(a) 99.5–90 mol %, based on the pigment mixture, of at least one monoazo pigment of the general formula I

$$A—N=N—B \quad (I)$$

(b) 0.5–10 mol %, based on the pigment mixture, of at least one monoazo pigment of the general formula II

$$(A'—N=N—B'—X)_m \quad (II)$$

in which A and A′ are radicals of a diazo component of the benzene or naphthalene series, B and B′ are radicals of a coupling component of the acetoacetic acid arylamide, naphthol or naphthoic acid arylamide series, X is —COOH, —SO_3H or a group of the formula III

$$—COO^{\ominus}\ \frac{Me^{n\oplus}}{n} \quad (III)$$

or of the formula IV

$$—SO_3^{\ominus}\ \frac{Me^{n\oplus}}{n} \quad (IV)$$

in which Me is a metal, and m and n independently of one another are the numbers 1, 2 or 3, and

(2) 90—10% by weight, based on the whole formulation, of a polyacrylate resin containing carboxylic acid groups.

4,334,933

PROCESS FOR PREPARING STABLE INORGANIC PIGMENT

Nobuyoshi Abe, Urawa; Syozo Takatsu, Kamagaya; Kiyoshi Kanemaru, Urawa, and Minoru Yokoyama, Tokyo, all of Japan, assignors to Toho Ganryo Kogyo Co., Ltd. and Nippon Chemical Industrial Co., Ltd., both of Tokyo, Japan, part interest to each

Filed Dec. 31, 1979, Ser. No. 108,938

Claims priority, application Japan, May 21, 1979, 54-61599

Int. Cl.³ C09C 1/00

U.S. Cl. 106—305 4 Claims

1. A process for preparing a stable inorganic pigment composition having improved pigment characteristics wherein a fine amorphous silica is coated as a non-porous, continuous film on the surface of an inorganic pigment, said process comprising

reacting sodium silicate and CO_2 in an aqueous slurry of said inorganic pigment by separately and gradually adding an aqueous solution of said sodium silicate and said CO_2 to said slurry simultaneously at rates which do not vary the pH of said slurry more than ±0.5, with the silica coating being formed under atmospheric pressure, under conditions such that the temperature is not lower than about 60° C. and under a pH of between 7 and 11 and with said inorganic pigment being ultramarine.

4,334,934

APPARATUS FOR PRODUCING A GASIFIED FUSIBLE SUGAR COMPOSITION

J. Ray Barnes, Warson Woods; Robert E. Holdegraver, St. Louis, and Raymond K. Meibaum, Florissant, all of Mo., assignors to Sunmark, Inc., St. Louis, Mo.

Division of Ser. No. 37,852, May 10, 1979, Pat. No. 4,282,263. This application Apr. 24, 1981, Ser. No. 257,341

Int. Cl.³ C13G 1/00

U.S. Cl. 127—9 10 Claims

1. Apparatus for use in a continuous process for producing a gasified solid product comprising an undissolved gas in a matrix of solid material comprising a fusible sugar, the apparatus comprising:

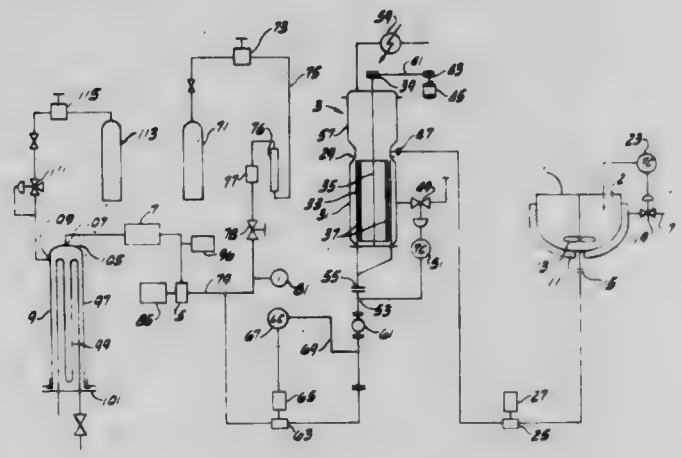
a tank having agitation and heating means for preparing an aqueous solution of fusible sugar;

a positive displacement feed solution pump for transferring said aqueous solution to an evaporator;

an evaporator comprising means for heating a liquid moving continuously therethrough and means for separating from the liquid phase water vapor produced by such heating so as to concentrate said liquid and produce a fused sugar composition, said evaporator having an inlet and an outlet for said liquid with the discharge of said feed solution pump being connected to said inlet;

a positive displacement evaporator underflow pump for continuously transferring fused sugar composition produced in said evaporator;

a discharge pipe line connected to the discharge of said evaporator underflow pump, said discharge line containing a gas sparger therewithin for introduction of a gas into a fused sugar composition stream discharged from said underflow pump;



a supply of gas under pressure connected to said sparger for delivery of gas thereto at a pressure of at least about 400 psig;

an in-line mixer connected to said discharge pipe line downstream of said sparger for intimate mixing of said gas and fused sugar composition stream;

a cooler downstream of said in-line mixer for receiving gasified fused sugar composition and cooling it to produce a solid product, said cooler having a gas connection; and

means for alternately connecting said gas connection to a vent to the atmosphere and to a source of the same gas used for gasification of said sugar composition so that gas pressure may be maintained in said cooler at a level high enough to prevent substantial escape of gas from said gasified sugar composition but low enough to permit flow of gasified sugar composition from said in-line mixer to said cooler.

4,334,935

PRODUCTION OF ALUMINUM ALLOY SHEET

Larry R. Morris, Yarker, Canada, assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada

Filed Apr. 28, 1980, Ser. No. 144,438

Int. Cl.³ C22F *1/04*

U.S. Cl. 148—2 **9 Claims**

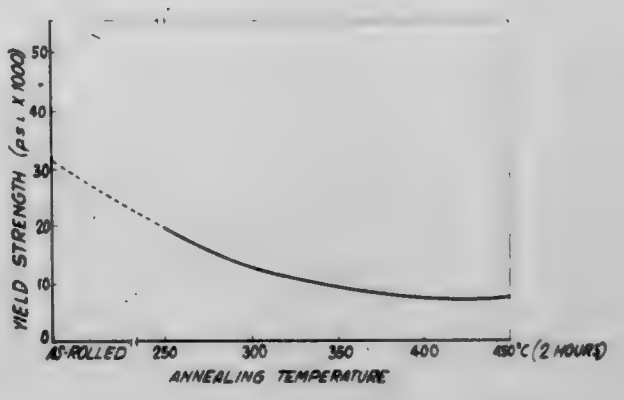
1. A process for producing aluminum alloy sheet, comprising the successive steps of

(a) strip casting a workpiece in slab form, having a thickness of not more than about 25 mm., of an aluminum alloy consisting essentially of 1.3–2.3% Mn, up to 0.5% each of Fe, Mg, and Cu, up to 0.3% Si, up to 2.0% Zn, less than 0.1% each of Zr, Cr, and Ti, other elements up to 0.3% each and up to 1.0% total, balance Al;

(b) slab annealing the workpiece by heating the workpiece for precipitating a major proportion of the Mn in intermetallic particles having an average particle size, at the completion of the slab annealing step, between about 0.1 and about two microns;

(c) initially cold rolling the workpiece in slab-annealed condition, for reducing its thickness;

(d) interannealing the workpiece by heating it for reducing the amount of Mn in solid solution in the aluminum matrix of the workpiece to not more than about 0.2% of the weight of the matrix while maintaining the workpiece substantially free of recrystallization, such that the work-



piece upon completion of interannealing contains not more than about 20% by volume of recrystallized grains;

(e) further cold rolling the workpiece for additionally reducing its thickness to provide the workpiece in the form of sheet of desired final gauge; and

(f) annealing the sheet, thereby producing a sheet having a fine grain or subgrain structure.

4,334,936

LIQUID COMPOSITION FOR PHOSPHATING METAL SURFACES

Jannes J. Goolkate, Enschede, Netherlands, assignor to Akzo N.V., Arnhem, Netherlands

Filed Feb. 13, 1981, Ser. No. 234,401

Claims priority, application Netherlands, Feb. 14, 1980, 8000916

Int. Cl.³ C23F *7/08*

U.S. Cl. 148—6.15 R **13 Claims**

1. A liquid composition for phosphating metal surfaces, which composition contains

a major amount of methylene chloride,

a phosphating proportion of phosphoric acid,

water in an amount exceeding the proportion of phosphoric acid,

an aliphatic solvent which has an alcohol function, contains less than six carbon atoms and is present in an amount sufficiently high for the phosphoric acid and water in the methylene chloride to be solubilized to a homogeneous, liquid phase, and

a minor amount of an agent sufficient for improving the structure of the phosphate coating, characterized in that said agent is a surface active substance of the anionic or amphoteric type.

4,334,937

PROCESS FOR IMPROVING DECARBURIZATION RESISTANCE OF CHROME-MOLYBDENUM STEEL IN SODIUM

Shunichi Yuhara; Naruo Hasegawa; Takashi Nakasuji, all of Mito, and Norichika Aoki, Atsugi, all of Japan, assignors to Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, Japan

Filed Jun. 24, 1980, Ser. No. 162,612

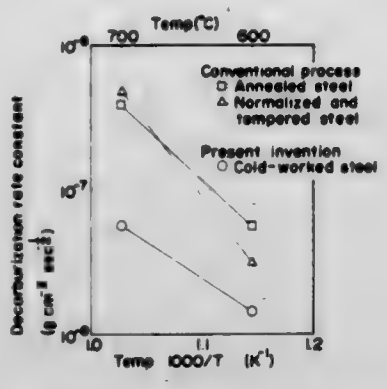
Claims priority, application Japan, Jul. 12, 1979, 54-88572

Int. Cl.³ C22F *0/00*

U.S. Cl. 148—12 R **4 Claims**

1. A process for improving the decarburization resistance of a chrome-molybdenum steel, comprising subjecting the

chrome-molybdenum steel to warm working at a temperature of 600° to 750° C. to attain a working ratio of not less than 5% to form a large quantity of stable, fine carbide particles in the steel material.



4,334,938

INHIBITED ANNEALING OF FERROUS METALS CONTAINING CHROMIUM

Robert H. Shay, Kutztown, and Thomas L. Ellison, Slatington, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Aug. 22, 1980, Ser. No. 180,241
Int. Cl.³ C21D *1/48*
U.S. Cl. 148—16.7 5 Claims

1. In a process for annealing ferrous metal articles containing at least 8% chromium by weight in a furnace heated to a temperature in excess of 1700° F. and in an atmosphere containing greater than 25% by volume nitrogen balance hydrogen the improvement comprising:

adding to said furnace atmosphere an amount of nitrous oxide inhibitor; and

monitoring said furnace atmosphere to maintain the ratio of the partial pressure of the inhibitor to the partial pressure of hydrogen as defined in the formula

$$P_{inhibitor}/P_{H2}$$

at a minimum value of 10×10^{-5} for nitrous oxide, whereby nitrogen pick-up by said article is held to below 0.3%.

4,334,939

TL-78 EXPLOSIVE COMPOSITION

Ted E. Bushman, Granger, Utah, assignor to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Nov. 25, 1980, Ser. No. 210,456
Int. Cl.³ C06B *45/02*
U.S. Cl. 149—21 7 Claims

1. An explosive composition suitable for small diameter bore holes consisting of comminuted ammonium nitrate 83–91% by weight, nitropropane 1–9%, flake aluminum sensitizer 1∝4%, comminuted coal 1–4%.

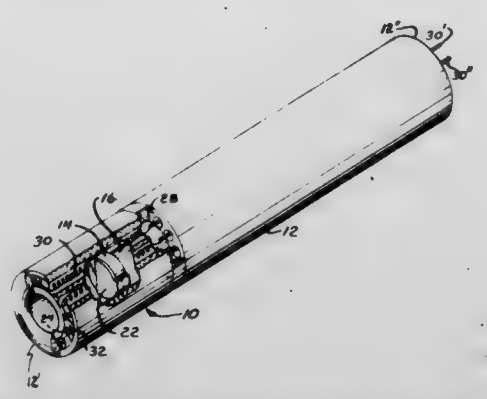
4,334,940

METHOD OF MAKING SOLID ELECTROLYTE OXYGEN SENSOR WITH INTEGRAL HEATER

Edward P. Habdas, and Jon D. Aaron, both of Decatur, Ala., assignors to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 57,624, Jul. 16, 1979, Pat. No. 4,251,342. This application Nov. 17, 1980, Ser. No. 207,301
Int. Cl.³ C04B *39/00*
U.S. Cl. 156—89 1 Claim

1. A method of sealing a disc of solid electrolyte in the sensing end of a tubular ceramic oxygen sensor body comprising the steps of forming a recess in the end of the tube, applying a glass frit paste to the bottom and side surfaces of the recess, heating the tube to evaporate the solvent and leave a caked fillet of glass powder, inserting the disc against the glass powder, turning the assembly upside down and placing it on a support so that the disc rests on the support while the weight of the tube is supported solely by the disc, and firing the supported assembly to melt the glass and seal the disc to the tubular body.

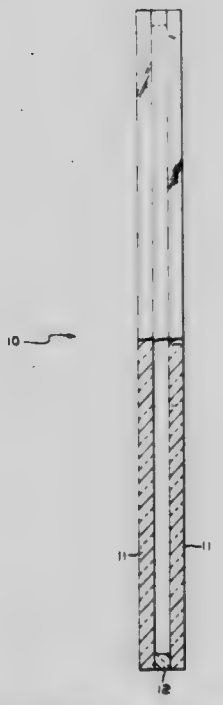


4,334,941

MULTIPLE GLAZED UNIT BONDED WITH SILICATE CEMENT

James E. Neely, Jr., Butler, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 142,492, Apr. 21, 1980, Pat. No. 4,288,252, which is a continuation of Ser. No. 973,479, Dec. 26, 1979, abandoned. This application Jul. 27, 1981, Ser. No. 286,993
Int. Cl.³ C09J *1/02*; E06B *3/24*
U.S. Cl. 156—107 6 Claims



1. A method for bonding two sheets of glass in spaced relationship comprising the steps of:

a. mixing sodium silicate, potassium silicate and B-form of aluminum trimetaphosphate with water to from a cement composition;

b. applying said cement composition between two spaced glass sheets to be bonded;

c. exposing said cement composition to sufficient temperature for sufficient time to dry and cure the cement composition, thereby bonding said glass sheets in spaced relationship.

4. An article of manufacture which comprises:

a. at least two glass sheets in spaced relationship;

b. a cement composition consisting essentially of sodium silicate, potassium silicate and B-form of aluminum trimetaphosphate,

wherein said glass sheets are bonded together and held in spaced relationship by said cement composition.

4,334,942
METHOD FOR FORMING A PLASTIC FLUID CONTAINER WITH AN INTEGRAL HANDLE

Kenneth P. Thompson, Canton, N.C., assignor to Champion International Corporation, Stamford, Conn.

Filed Aug. 15, 1980, Ser. No. 178,525
Int. Cl.³ B29D *23/10*
U.S. Cl. 156—217 4 Claims



1. A process for forming a handle structure in a fluid container comprising the steps of:

forming a thermoplastic container blank into a tube having opposed open ends,

inserting a mandrel provided with half of a substantially toroidal-shaped cavity into the interior of said tube through each of the opposite open ends thereof until said mandrels contact each other with their cavities in mirror-image relation to form a substantially toroidal cavity in said mandrel within the interior of said container tube,

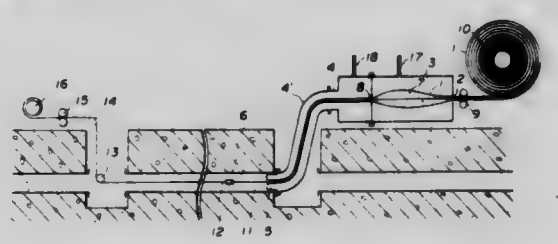
heating the thermoplastic container tube adjacent the toroidal shaped cavity in said mandrel, and

rotating a pair of complementary dies exterior to said container tube into contact with spaced portions of said tube so that the thermoplastic material of said tube deforms and enters said substantially toroidal shaped cavity in said mandrels.

4,334,943
METHOD FOR SMOOTHLY EVAGINATING A TUBULAR MATERIAL UNDER PRESSURE

Katsuaki Zenbayashi; Akio Morinaga, both of Fujisawa; Masao Hirayama, and Akira Morita, both of Settsu, all of Japan, assignors to Tokyo Gas Kabushiki Kaisha and Ashimori Kogyo Kabushiki Kaisha, both of Osaka, Japan

Filed Jul. 29, 1980, Ser. No. 173,656
Claims priority, application Japan, Jul. 30, 1979, 54-97565; Jan. 23, 1980, 55-7251
Int. Cl.³ B29C *27/16*; F16L *55/18*
U.S. Cl. 156—287 15 Claims

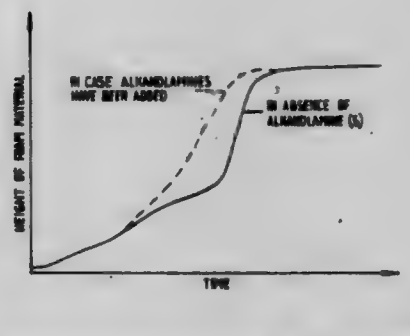


8. A method for smoothly evaginating a tubular lining material within a pipe line and at the same time bonding the evaginated tubular lining material onto the inner surface of said pipe line under pressure, which comprises placing in a pressure container having a discharge pipe a part or whole of a tubular lining material with one terminal end thereof being connected to a first rope-like material having a length at least equal to that of said tubular lining material and the other terminal end thereof being opened, forming a reservoir of a binder enclosed in the interior of said tubular lining material placed in said pressure container to apply said binder onto the inner surface of said tubular lining material, fixing said other leading terminal end in evaginated state to an annular fastener of said discharge pipe, and applying a pressurized fluid to said pressure container to evaginate said tubular lining material over its full length as it is propelled from said discharge pipe and moved forward within said pipe line and at the same time bonding the evaginated tubular lining material onto the inner surface of said pipe line with said binder being interposed therebetween, characterized in that a second rope-like material attached to the same terminal end of the tubular lining material as the first rope-like material and previously passed through said tubular lining material beyond its full length is drawn from the opposite end of said pipe line while applying said pressureized fluid into said pipe line through said discharge pipe.

4,334,944
METHOD OF PREPARING POLYUREA FOAM MATERIALS

Hubert S. Creyf, Brugge, Belgium, assignor to PRB N.V., Brussels, Belgium

Filed May 7, 1979, Ser. No. 36,452
Claims priority, application Netherlands, May 8, 1978, 7804908
Int. Cl.³ B29D *27/04*; B32B *5/18*
U.S. Cl. 156—308.2 31 Claims



1. A method of preparing polyurea foam materials, comprising reacting in the presence of at least one catalyst, at least one polyisocyanate with water, 0.5 to 50 parts by weight of at least one plasticizer per 100 parts by weight of polyisocyanate, 0.5 to 50 parts by weight, per 100 parts by weight of polyisocyanate, of at least one alkanolamine having a molecular weight of from 47 up to 2000, and having at least one hydroxyl group and at least one amine group to form a foam material and solidifying the foam as a semi-rigid polyurea foamed product characterized by a rise profile with an increased slope as compared with conventional polyurea foams.

6. A method according to claims 1 or 2 characterized in dividing the foam material into pieces by cutting it in the rise direction transverse to the machine direction of the foam material.

4,334,945
METHOD AND DEVICE FOR SEPARATING PARTS FROM A STRIP OF MATERIAL

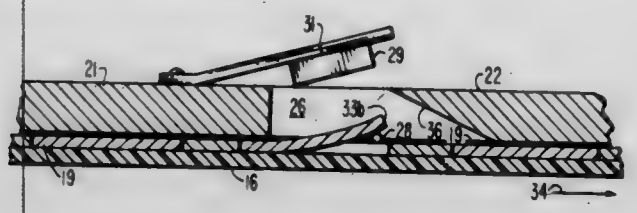
Russell G. Raush, Conestoga, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 3, 1980, Ser. No. 212,445
Int. Cl.³ B32B *31/16*
U.S. Cl. 156—344 10 Claims

10. A method of separating parts from a strip of thin material comprising the steps of:

providing a conveyor for moving said strip in a direction parallel to the longitudinal axis of said strip;

providing a first and second loading plate above and substantially parallel to said conveyor;
separating said plates by a space angularily disposed with respect to said axis;
providing a tensioned wire in said space;



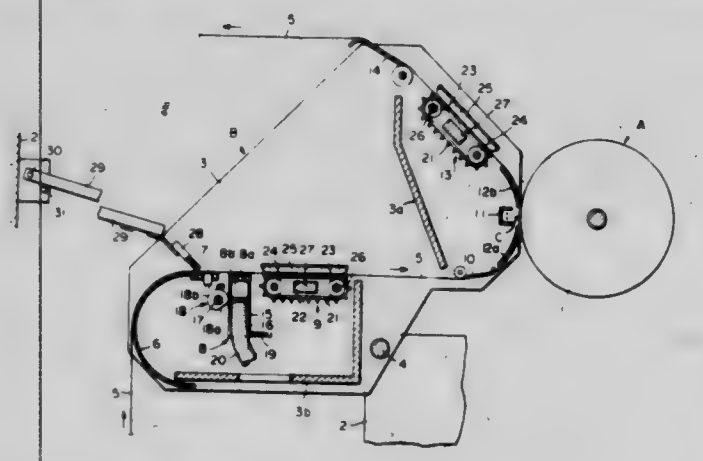
providing a magnet in the proximity of said space; and
feeding said strip between said conveyor and said first and second loading plates and raising a portion of said parts with said magnet to pass said parts over said tensioned wire to separate said parts from said strips.

4,334,946

PAPER SPLICER WITH UPSTREAM SPLICING TABLE

Masanobu Kanoto, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 8, 1980, Ser. No. 194,989
Claims priority, application Japan, Oct. 16, 1979, 54-133104
Int. Cl.³ B25B *31/00*
U.S. Cl. 156—352 3 Claims



1. A paper splicer, comprising:
tractor means for transporting paper, said tractor means having a plurality of movable pins for engagement with perforations formed at a lateral side of the paper;
a paper splicing table for splicing a terminal end portion of the paper with a new supply of paper, said paper splicing table being located upstream of said tractor means with respect to the direction of paper transport;
control means for stopping the terminal end portion of the paper on said paper splicing table, said control means being located upstream of said splicing table with respect to the direction of paper transport, such that the new supply of paper is registered, on said tractor means within the paper transport path, with the terminal end portion of the paper by engaging perforations of the new supply of paper with the pins of said tractor means; and
splicing means, in said splicing table, adapted for receiving an adhesive splicing tape.

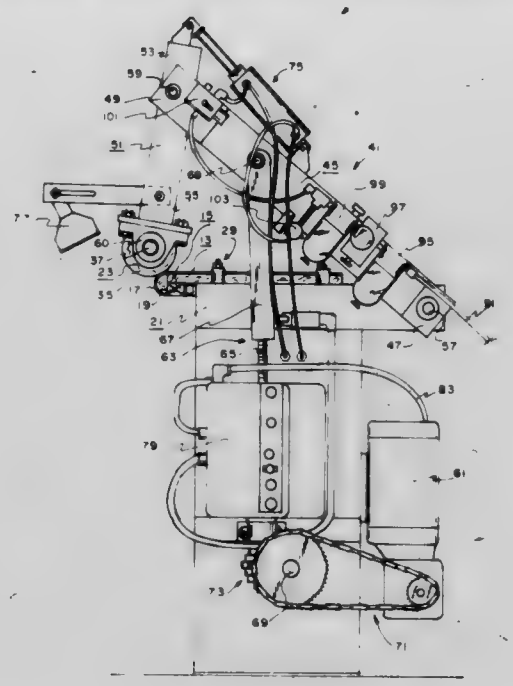
4,334,947

PRESS APPARATUS

Richard J. Zaino, 3280 McCorkle Rd., Memphis, Tenn. 38116

Filed Oct. 16, 1980, Ser. No. 197,623
Int. Cl.³ B29C *17/00*
U.S. Cl. 156—486 4 Claims

1. An apparatus for causing a sheet member to extend around the edge of a base member, said apparatus comprising:
(a) a bed means for securely holding said base member;
(b) roller means for rolling said sheet member around said edge of said base member as said base member is securely held by said bed means; and
(c) drive means for causing said roller means to roll around said edge of said base member, said drive means including



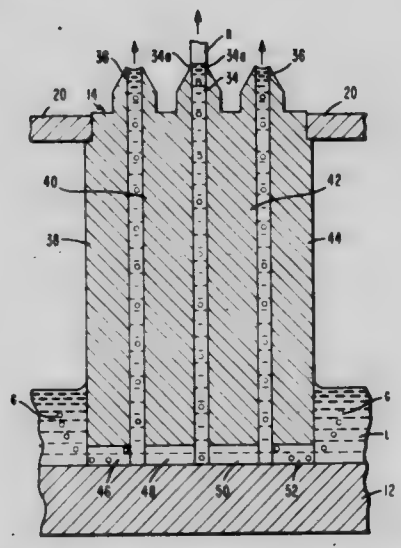
piston means for forcing said roller means against said edge of said base member as said roller means rolls around said edge of said base member, including a pressure regulator for controlling the extension of said piston means and for causing said drive means to be variable for allowing said apparatus to be used with base members of different thicknesses.

4,334,948

METHOD OF AND APPARATUS FOR GROWING CRYSTAL RIBBON

Samuel Berkman, Florham Park, and Robert Metzl, Hamilton Square, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Feb. 23, 1981, Ser. No. 237,414
Int. Cl.³ C30B *15/34*
U.S. Cl. 156—608 12 Claims



1. Apparatus for growing a ribbon of crystal material, said apparatus comprising:
a crucible adapted to contain a liquid melt;
a die located in said crucible, said die having at least one capillary passage, a pair of gas scrubbing passages, and lateral passages between said capillary passage and said gas scubbing passages for diffusing gas in said capillary passage to

said gas scrubbing passages, one of said gas scrubbing passages being adjacent each side of said capillary passage, one end of said passages being adjacent the bottom of said crucible whereby said one ends are submerged in any liquid melt therein, the other end of said passages being located above the liquid melt whereby any liquid melt in said crucible establishes a column of liquid in said passages with gases trapped therein diffusing upwardly along said gas scrubbing passages;

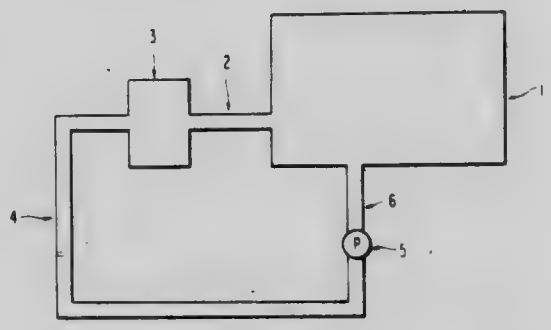
crystal seed pulling means adjacent said capillary passage only for pulling a crystal seed away from said capillary passage at a rate to grow the ribbon.

4,334,949

REDUCING CARBONATE CONCENTRATION IN AQUEOUS SOLUTION

Joseph G. Ameen, Apalachin; Nelson P. Franchak, Binghamton; John Rasile, and Dennis L. Rivenburgh, both of Endicott, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 25, 1980, Ser. No. 210,193
Int. Cl.³ B29C *17/08*; B01D *15/04*
U.S. Cl. 156—642 **6 Claims**



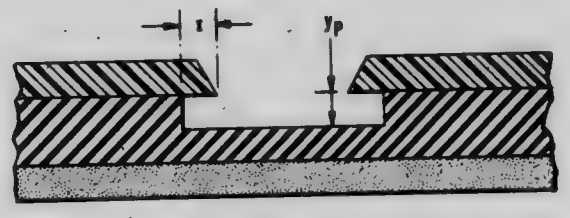
1. A process for etching a polyimide which comprises contacting said polyimide with an aqueous etchant containing about 0.6 to about 1.6% by weight of an alkali metal hydroxide whereby a portion of the hydroxide is consumed in etching and is consumed in reacting with CO_2 absorbed from the atomsphere and dissolved in the aqueous etchant to form carbonate, and then contacting the used carbonate containing etchant with a strongly basic ion-exchange resin bed in the hydroxide form wherein carbonate ions in the etchant are exchanged with hydroxide ions, thereby maintaining the hydroxide concentration is said etchant substantially constant and filtering polyimide which may be present in undissolved form in the solution, and wherein the flow rate of said etchant through said ion-exchange resin is about 2.5 to about 6 liters per minute per cubic foot of resin bed, and then reusing the treated solution for etching.

4,334,950

ADVANTAGEOUS FABRICATION TECHNIQUE FOR DEVICES RELYING ON MAGNETIC PROPERTIES

Bernard J. Roman, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 58,297, Jul. 17, 1979, abandoned. This application Jan. 30, 1981, Ser. No. 230,255
Int. Cl.³ B44C *1/22*
U.S. Cl. 156—643 **9 Claims**



1. A process for fabricating a device that relies on magnetic properties comprising the steps of forming an electrically conducting layer in a desired pattern on a first electrically insulating layer and depositing a second layer of electrically insulating material onto said metal layer CHARACTERIZED IN THAT said electrically conducting layer is formed by

(a) masking said first electrically insulating layer with a delineating material having a thickness less than 1.5 μm such that the area left exposed by said delineating material forms said desired pattern,

(b) subjecting said masked first electrically insulating layer to a media that etches said electrically insulating layer, to form an etch pit where the fraction obtained by dividing the distance said delineating material extends beyond the extremity of the wall of said etch pit by the depth of said etch pit is greater than or equal to Δ but smaller than or equal to 1.5,

(c) depositing said metal in an appropriate thickness onto said masked first insulating layer such that an essentially planar geometry is formed substantially across the entire width of said etch pit, wherein there is a substantial absence of gaps between said deposited metal and the wall of said etch pit that extend to the bottom of said etch pit, and

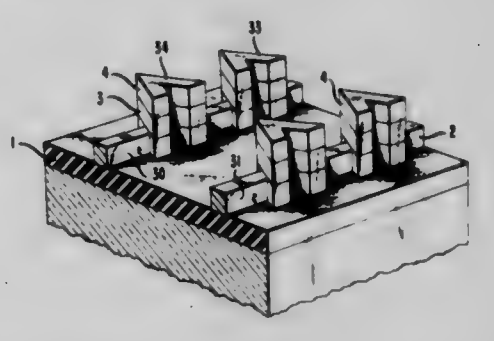
(d) removing said delineating materials.

4,334,951

FABRICATION TECHNIQUE FOR THE PRODUCTION OF DEVICES WHICH DEPEND ON MAGNETIC BUBBLES

Richard S. Wagner, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 129,564, Mar. 12, 1980, abandoned. This application Jul. 22, 1981, Ser. No. 285,848
Int. Cl.³ C23F *1/02*; G11C *11/14*
U.S. Cl. 156—643 **8 Claims**



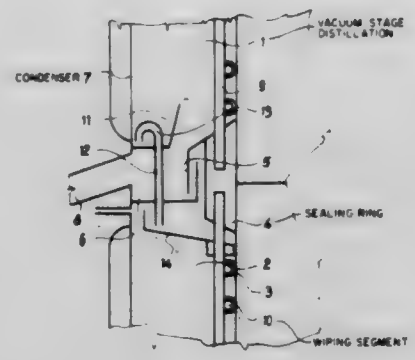
1. A process for fabricating a device comprising a substrate material of garnet structure capable of supporting a uniaxial magnetic domain, a patterned uniaxial magnetic domain propagation control layer, a patterned metallic layer between said garnet substrate and said patterned propagation control layer, and a patterned insulating layer between said patterned metallic layer and said patterned propagation control layer, said process comprising the steps of depositing said layers in sequence in overlying relation to said substrate and then sequentially patterning said propagation control layer, said insulating layer, and said metallic layer characterized in that said propagation control layer is first patterned, said patterned propagation control layer is used as a mask to etch said insulating layer and then said metallic layer is delineated in a pattern different from that of said propagation control layer.

6. The process of claim 1 wherein said metallic layer is patterned by reactive plasma etching.

4,334,952
MULTISTAGE MOLECULAR EVAPORATOR WITH WIPED OFF FILM AND CONTINUOUS REDISTILLATION

Alexander Tkac, and Jan Cvengros, both of Bratislava, Czechoslovakia, assignors to Slovenska vysoka skola technicka, Bratislava, Czechoslovakia

Filed Nov. 10, 1980, Ser. No. 205,626
Int. Cl.³ B01D *1/22*
U.S. Cl. 159—11 R **2 Claims**



1. A liquid seal for a multistage molecular evaporator having an evaporator vessel with a convex evaporating surface adapted to carry out a continuous redistillation, comprising in combination,

a first vacuum stage having a first cylindrical portion surrounding the evaporating surface,

a second vacuum stage having a second cylindrical portion mounted below said first stage;

an inwardly projecting first trough mounted on said first cylindrical portion and adapted to collect distillate formed therein,

an overflow tube extending from said first trough downwardly into said second stage;

an overflow collecting and separating means mounted in said second stage below said overflow tube and adapted to receive distillate from the first vacuum stage; said inwardly projecting first trough, overflow tube and overflow collecting and separating means forming a first liquid seal;

an inwardly projecting second trough mounted on said first cylindrical portion below said first trough;

a member mounted in said first stage and extending into said second trough, said member adapted to collect distilland from said first stage and conduct it into said second trough; said second trough and member extending therein adapted to form a second liquid seal;

said first and second stages having evaporator means; and

sealing ring means disposed between the evaporator means of said first and second stages to sealingly connect them to each other.

4,334,953
APPARATUS FOR EVAPORATING RADIOACTIVE LIQUID AND CALCINATING THE RESIDUE

T. Sampat Sridhar, Pinawa, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Canada

Filed Nov. 24, 1980, Ser. No. 210,038
Claims priority, application Canada, Mar. 18, 1980, 348326
Int. Cl.³ B01D *1/22*
U.S. Cl. 159—11 R **4 Claims**

1. Radioactive liquid evaporating and residue calcinating apparatus, comprising:

(a) an upwardly extending casing having at least one radioactive liquid inlet to the interior of an upper portion of the casing, a vapour and gas outlet from the interior of an intermediate portion of the casing, and a calcinated residue outlet from the lower end of a bottom portion of the casing,

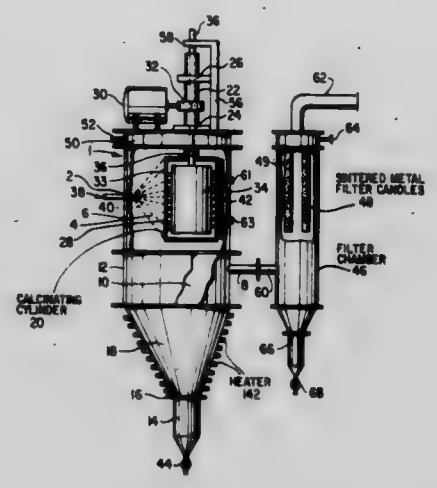
(b) a hollow, calcinating cylinder within the casing,

(c) mounting means rotatably mounting the hollow cylinder within the intermediate portion of the casing with a portion of the curved external surface of the hollow cylinder facing the at least one radioactive liquid inlet from across the interior of the intermediate portion,

(d) driving means for rotating the hollow cylinder,

(e) heating means within the hollow cylinder for heating the said portion of the curved, external surface of the hollow cylinder to a calcinating temperature for the radioactive liquid,

(f) atomizing means, mounted in the at least one radioactive liquid inlet, for directing an atomized spray of the radioactive liquid across the interior of the upper portion of the casing and on to the said portion of the curved external surface of the hollow cylinder,



(g) scraping means mounted in the upper portion of the casing, for scraping calcinated residue from the curved external surface of the hollow cylinder,

(h) a valve attached to the calcinated residue outlet for releasing calcinated residue from the casing, and

(i) calcinated residue filtering means connected to the vapour and gas outlet.

4,334,954
APPARATUS FOR DESALTING SEA WATER OR BRACKISH WATER

Vincenzo Lagana'; Riccardo Pasero, both of Milan, and Pietro Tiraboschi, Gussago, all of Italy, assignors to Snamprogetti S.p.A., Milan, Italy

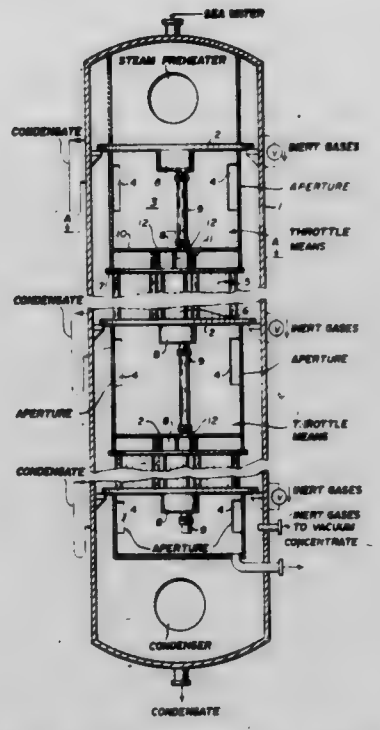
Filed Nov. 27, 1979, Ser. No. 97,785
Claims priority, application Italy, Dec. 15, 1978, 30885 A/78
Int. Cl.³ B01D *1/26*
U.S. Cl. 159—18 **3 Claims**

1. In an apparatus for the desalination of sea water or brine, comprising one or more vertical columns divided into a number of cylindrical sections, each section constituting one stage, and each stage having one or more film evaporators in the form of vertical tube bundles connected to upper and lower tube plates, a syphon tube for withdrawing condensate collected at the base of each section and for feeding said condensate to the next stage, a preheater that uses steam as the heating medium, connection pipes between each stage and the next for transferring any inert gas present to a vacuum pump, and a final tube bundle condenser to condense all the steam produced in the last stage, the improvement comprising:

a brine collection tank in each evaporator section, the base of said tank being constituted by the upper tube plate of the underlying evaporator, with the exception of the lowermost tank which is connected at its bottom to a brine extraction pipe, and the top of said tank being constituted by the bottom of the overlying brine collection tank, except that the uppermost tank is connected at its top to a salt water feed pipe, from which tank the brine passes to the underlying film evaporator or, in the case of the lowermost tank, to a brine extraction pipe;

apertures in the side wall of the brine collection tank, with the exception of the uppermost section;

throttle means disposed at the base of each brine collection tank, to allow the brine to pass from said tank to the underlying section in order to dissipate the positive pressure difference between the brine collection tank and the underlying section;



and wherein said preheater in each section comprises a vertical tube bundle, said bundle being connected to the same tube plates as the tube bundle of the film evaporator, and said preheater being connected to the preheaters of adjacent stages by pipes and waterboxes situated within the collection tanks.

4,334,955

DEVICE FOR CONTROLLING EVAPORATION OF A LIQUID

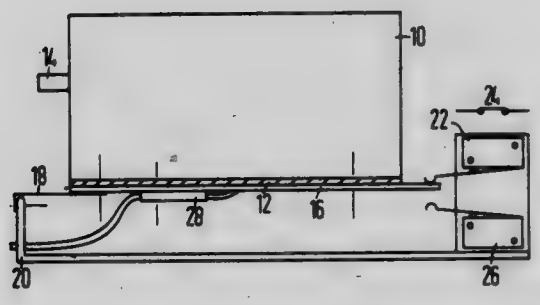
Siegfried Zoeke, Munich, and Anton Stuerzer, Grafing, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 4, 1980, Ser. No. 183,945

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1979, 2936895

Int. Cl.³ B01D *1/02*

U.S. Cl. 159—44 **3 Claims**



1. A device for controlling evaporation of a liquid comprising:

a container for receiving liquid to be evaporated;

a heating element in contact with said container for heating liquid therein and evaporating said liquid;

a base plate on which said container and heating element are disposed;

a leaf spring interconnected between a support and said base plate for supporting said base plate at one end thereof and said container and permitting movement of an opposite free end of said base plate in response to an amount of liquid in said container;

a normally closed microswitch disposed beneath said free end of base plate for interrupting flow of current to said heating element upon said container being supplied with an amount of liquid sufficient to move said free end of said base plate into engagement with said normally closed switch; and

a normally open microswitch disposed above said free end of base plate and engaged therewith when no liquid is present in said container, whereby upon liquid being supplied to said container said free end of said base plate is moved out of engagement with said normally open microswitch closing said normally open microswitch and permitting flow of current to said heating element.

4,334,956

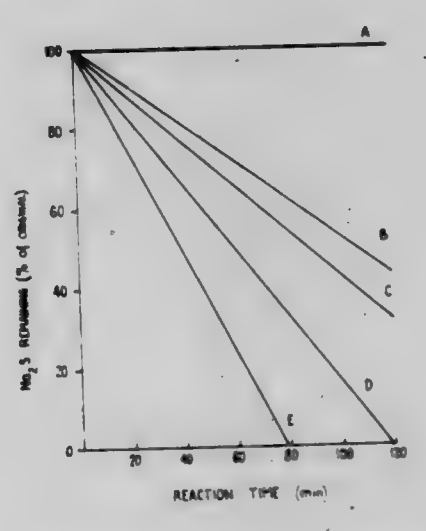
METHOD OF REUTILIZING KRAFT SPENT LIQUOR

Alan Farrington, Donvale, and Peter F. Nelson, Kew, both of Australia, assignors to Australian Paper Manufacturers Limited, South Melbourne, Australia

Filed Nov. 20, 1980, Ser. No. 208,662

Int. Cl.³ D21C *11/02, 11/04*

U.S. Cl. 162—30.11 **6 Claims**



1. A method of reutilizing kraft process spent black liquor which consists of recovering from the kraft process, spent black liquor; converting the kraft black liquor to green liquor; oxidizing the green liquor, which contains sodium sulfide, with an oxygen containing gas and an effective amount of an additive consisting of spent neutral sulphite semi chemical (NSSC) black liquor to convert said green liquor sodium sulfide to sodium thiosulphate; and utilizing the thus oxidized green liquor as part of the digesting liquor in a neutral sulphite semi chemical (NSSC) pulping process.

4,334,957

MICROBICIDAL COMPOSITIONS FOR INDUSTRIAL USE

Sakae Katayama, Kobe, and Osamu Umekawa, Nagoshi, both of Japan, assignors to Katayama Chemical Works Co. Ltd. and Yoshitomi Pharmaceutical Industries Ltd., both of Osaka, Japan

Continuation-in-part of Ser. No. 22,955, Mar. 23, 1979. This application Jul. 29, 1980, Ser. No. 173,404

Claims priority, application Japan, Apr. 5, 1978, 53-40620; Apr. 11, 1978, 53-43697

The portion of the term of this patent subsequent to Sep. 15, 1998, has been disclaimed.

Int. Cl.³ D21D *3/00;* C02F *1/50;* A61K *31/385*

U.S. Cl. 162—161 **11 Claims**

11. In a method for controlling slime formation in wood pulp or paper manufacture and industrial cooling water systems, the improvement comprising adding a slimicide composition which is composed of 3–20 parts by weight of 4,5-dichloro-1,2-dithiol-3-one as active ingredient, at least 0.2 part by weight per 10 parts by weight of said active ingredient of a surfactant

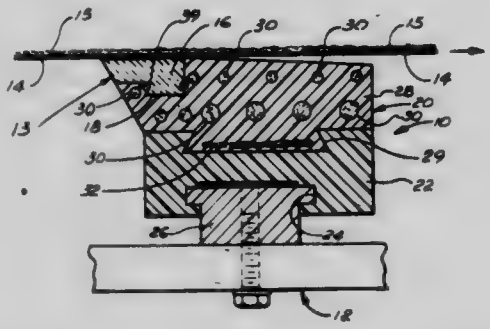
selected from the group consisting of N, N, N', N'-polyoxyethylene polypropylene-ethylenediamines and alkylolamine type nonionic surfactants, and a sufficient amount of a hydrophilic organic solvent consisting essentially of a solvent selected from the group consisting of propylene glycol monomethyl ether, dipropylene glycol monomethyl ether, tripropylene glycol monomethyl ether, and mixtures thereof to make 100 parts by weight of the composition, said composition being substantially free from water.

4,334,958

PRODUCTION OF CONVEYOR SUPPORT BARS FOR PAPER MAKING MACHINERY

Gerald F. Baluha, Flat Rock, and Bernard E. Flanagan, Hendersonville, both of N.C., assignors to Fred W. Meyers, Gilbert, S.C.

Filed Aug. 25, 1980, Ser. No. 180,829
Int. Cl.³ D21F *1/54*
U.S. Cl. 162—352 **9 Claims**



1. A relatively rigid elongate bar for transversely supporting the undersurface of a moving conveyor of a paper making machine, said bar comprising an elongate base portion of synthetic polymeric material, an elongate nose portion of wear-resistant material adhesively secured directly in said base portion of synthetic polymeric material and having a smooth, hard surface for supportably engaging the undersurface of the conveyor across its width, and a plurality of flexible, elongate strands of filamentary material of high tensile strength embedded in said base portion of synthetic polymeric material and extending in generally parallel spaced relation along the longitudinal axis of the bar to reinforce and support the same, said bar being further characterized by the absence of any metal exposed along the length of the bar for support of the same.

4,334,959

MIXING METHOD AND APPARATUS

Norman W. Green, Redwood City, Calif., assignor to Occidental Petroleum Corporation, Los Angeles, Calif.

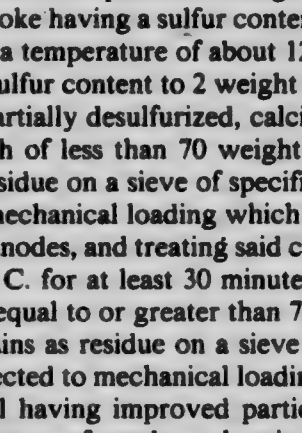
Continuation-in-part of Ser. No. 944,345, Sep. 21, 1978, which is a continuation of Ser. No. 633,898, Nov. 20, 1975, Pat. No. 4,163,693, which is a continuation of Ser. No. 449,073, Mar. 7, 1974, abandoned. This application Apr. 18, 1980, Ser. No. 141,756
The portion of the term of this patent subsequent to Aug. 7, 1996, has been disclaimed.
Int. Cl.³ C10B *3/00*
U.S. Cl. 201—12 **18 Claims**

1. A process for mixing solid particulate materials comprising:

a. introducing a first solid particulate material downwardly and in turbulent flow into a mixing zone;

b. simultaneously and separately fluidizing a second solid particulate material in a fluidizing zone with a fluidizing fluid and causing said second solid particulate material to flow upwardly while being suspended in said fluidizing fluid and causing said second solid particulate material to overflow a weir means within said fluidizing zone while in the fluidized state and to pass from said fluidizing zone to said mixing zone, said second solid particulate material being different in substance from said first solid particulate material, said weir means forming an inlet boundary of said mixing zone;

c. introducing said second solid particulate material into said mixing zone substantially completely around said first solid particulate material as said first solid particulate material is first introduced into said mixing zone; and



d. mixing said first solid particulate material and said second solid particulate material in said mixing zone and causing by said mixing an appreciable chemical or physical change in said first or second solid particulate material.

4,334,960

PROCESS FOR TREATING PARTIALLY DESULFURIZED COKE

Kurt Brandenberger, Neuhausen; Alfred Feichtinger, Sins, and Werner Fischer, Venthone, all of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Sep. 22, 1980, Ser. No. 189,067
Claims priority, application Switzerland, Aug. 21, 1980, 6316/80
Int. Cl.³ C10B *53/00, 57/02*
U.S. Cl. 201—17 **4 Claims**

1. A process for manufacturing partially desulfurized coke manufactured from green coke starting material for the production of anodes for the fused salt electrolytic production of aluminum to improve the particle strength thereof which comprises: heating coke having a sulfur content of greater than 2 weight percent to a temperature of about 1250° C. or higher so as to reduce the sulfur content to 2 weight percent or lower thereby obtaining partially desulfurized, calcined coke having low particle strength of less than 70 weight percent of coke which remains as residue on a sieve of specific mesh size after being subjected to mechanical loading which is inadequate for the manufacture of anodes, and treating said coke at a temperature of 1300°–1600° C. for at least 30 minutes to improve the particle strength to equal to or greater than 70 weight percent of coke which remains as residue on a sieve of specific mesh size after being subjected to mechanical loading with the resultant treated material having improved particle strength suitable for the manufacture of anodes, wherein said treatment is an after-treatment applied after the green coke has been subjected to partial desulfurization and calcination.

4,334,961

PAIRED STAGE FLASH EVAPORATOR HAVING IMPROVED CONFIGURATION

David L. Moen, Glen Mills, and Ray D. Peterson, Upper Providence Township, Delaware County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

PCT No. PCT/US81/00851, § 371 Date: Jun. 19, 1981, § 102(e), Jun. 19, 1981
PCT Filed Jun. 19, 1981, Ser. No. 288,954
Int. Cl.³ B01D *3/06*; C02F *1/06*
U.S. Cl. 202—173 **19 Claims**

1. A multistage flash evaporator unit for a multistage flash evaporation plant wherein successive evaporation stages are operated at successively decreasing pressures to evaporate a solvent from a solution, said evaporator unit comprising:

a generally elongated enclosure having opposed end walls

and elongated side and top and bottom walls extending therebetween;

said enclosure having a lower portion where the solvent is evaporated and an upper portion where the distillate is condensed;

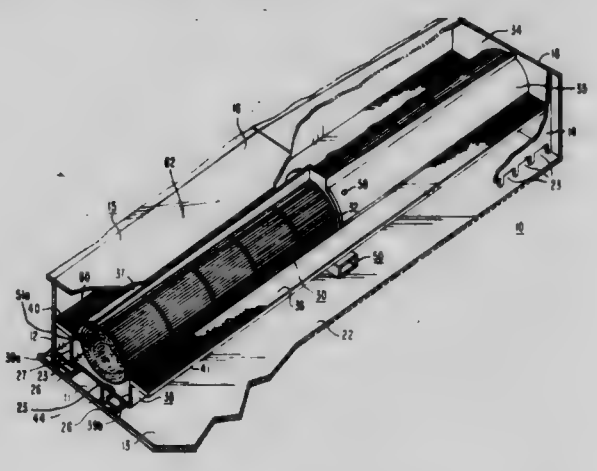
means for dividing said upper enclosure portion into a pair of separate condenser chambers staged in the longitudinal direction;

condenser means including an array of elongated heat exchanger tubes extending between said end walls to provide tube coolant flow in the longitudinal direction, said tubes extending through apertures in said dividing means;

means for collecting distillate for outflow from the condenser chambers;

means for partitioning said enclosure lower portion to define a pair of separate longitudinally extending evaporation chambers through which the solution is successively directed in the cross-enclosure direction;

means for separating said condenser chambers from said



evaporation chambers and for directing flow of evaporated solvent from one of said evaporation chambers to one of said condenser chambers in one higher temperature evaporation stage and from the other evaporation chamber to the other condenser chamber in the next lower temperature evaporation stage;

means for supporting liquid separating means in the vaporized solvent path above each evaporation chamber;

each of said liquid separating means being substantially coextensive with its associated evaporation chamber and both of said condenser chambers to direct the solvent into space thereabove in said upper enclosure portion where a major portion thereof flows generally directly in the transverse direction into the associated condenser chamber and the rest first flows generally in the longitudinal direction and then generally transversely into the associated condenser chamber; and

means for directing vapor in a path through said condenser tubes and for venting noncondensables from each condenser stage to a lower pressure location.

4,334,962

APPARATUS FOR STRIPPING IMMISCIBLE MATERIALS

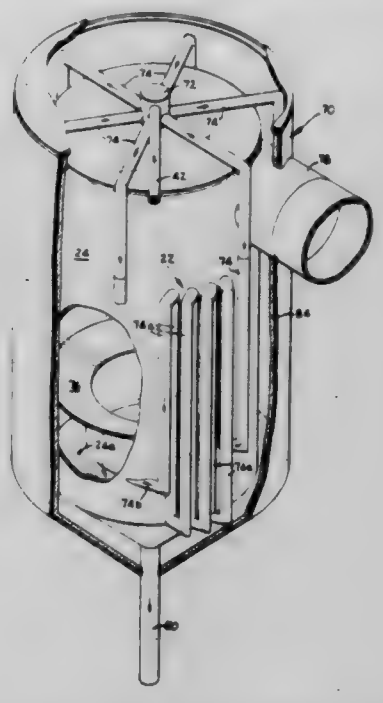
Gordon P. Gerow, Davenport, Fla., assignor to FMC Corporation, Chicago, Ill.

Division of Ser. No. 865,150, Dec. 28, 1977, which is a division of Ser. No. 399,238, Sep. 20, 1973, Pat. No. 4,113,573. This application 1978, Ser. No. 926,596

Int. Cl.³ B01D *3/06*

U.S. Cl. 202—185 R **19 Claims**

1. Apparatus for steam stripping a volatile constituent from a liquid mixture including a pump for continuously pumping said mixture and causing it to flow under superatmospheric pressure, a mixer valve for adding steam to said flowing mixture to bring the temperature thereof to a predetermined level, a back pressure valve connected so as to receive said mixture from said mixer valve, means for controlling the operation of said back pressure valve so that the pressure upstream of said valve is maintained at a predetermined level whereby a major portion of said superatmospheric pressure of said mixture is substantially and abruptly reduced in order to rapidly vaporize a constituent of said mixture, a relatively long conduit arranged to receive the mixture after it has passed through said



back pressure valve, said conduit being provided with a series of protuberances throughout the length of the passage therethrough for creating extreme turbulence in the flowing mixture, a vapor separation tank connected to the outlet end of said conduit, said tank having an upper outlet for collecting the vapors in said mixture and a lower outlet for collecting the liquid phase of the mixture, and means for condensing said vapors and separating the volatile constituent from the water.

4,334,963

EXHAUST HOOD FOR UNLOADING ASSEMBLY OF COKE-OVEN BATTERY

Wilhelm Stog, Waltrop, Fed. Rep. of Germany, assignor to WSW Planungs-GmbH, Waltrop, Fed. Rep. of Germany

Filed 1980, Ser. No. 182,651

Claims priority, application Fed. Rep. of Germany, 1979, 2938893; 1979, 2952179

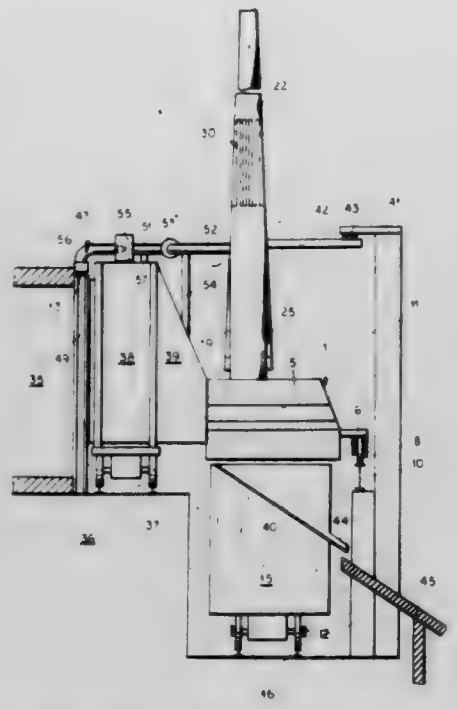
Int. Cl.³ C10B *33/00, 33/14*

U.S. Cl. 202—263 **10 Claims**

1. In an unloading assembly for a coke-oven battery wherein a carriage is displaceable on a first track along a row of coking chambers for receiving their charges and transferring same to a quenching wagon displaceable on a second track alongside said first track,

the combination therewith of an exhaust hood displaceable above said second track and arrestable in line with a coking chamber for coupling with said carriage in an unloading position thereof via a lateral channel enabling the transfer of a charge to said quenching wagon upon positioning thereof below said hood, an open-topped flue rising above said hood, duct means extending from the top of said hood to a junction with said flue, a dry dust filter disposed in said flue above said junction, and a downward extension of said flue forming a bunker below said junction for receiving solids intercepted by said dust filter, said extension having a normally closed bottom outlet openable to discharge accumulated solids, said quenching wagon being provided with a pair of lateral rails, said hood having first support means at one end with wheels riding said rails and further having second support means

at the opposite end with wheels riding said second track, said hood being alternately connectable with and disconnectable from said quenching wagon for positive entrainment thereby and for limited relative displacement.



4,334,964

PROCESS FOR SEPARATING THE REACTION PRODUCTS OBTAINED FROM ETHERIFYING LOWER ISOOLEFINS WITH METHANOL

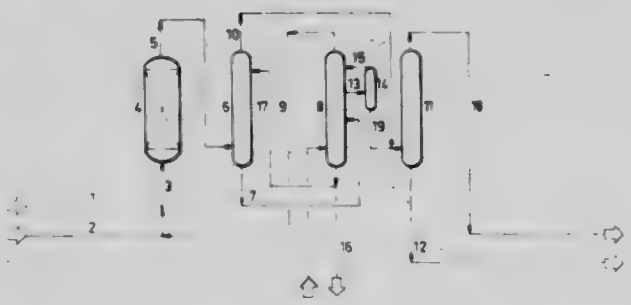
Milan Prezelj, Frankfurt am Main; Günter Osterburg, Duisburg, and Joachim E. Putz, Dreieich-Offenthal, all of Fed. Rep. of Germany, assignors to Edeleanu Gesellschaft mbH, Frankfurt am Main, Fed. Rep. of Germany

Filed 1981, Ser. No. 273,171

Claims priority, application Fed. Rep. of Germany, 1980, 3024147

Int. Cl.³ B01D *3/34*

U.S. Cl. 203—14 **11 Claims**



1. In a method for the production of an ether from the reaction of methanol and an isoolefin hydrocarbon feed stream in which the hydrocarbons have from 4 to 7 carbon atoms in a catalytic reactor wherein water is added to the reaction product from said reaction resulting in the formation of an organic hydrocarbon phase comprising said ether and unreacted hydrocarbons and an aqueous phase comprising methanol and a tertiary alcohol, and wherein said organic hydrocarbon phase is separated into an ether fraction and said aqueous phase is distilled in a distillation column to separate a methanol fraction overhead from said aqueous phase, the improvement which comprises withdrawing a side stream rich in tertiary alcohol from said distillation column, introducing said side stream into a stripping column and separating a second methanol fraction overhead and a tertiary alcohol bottoms fraction from said side stream, and recycling said methanol overhead fraction from the stripping column to the upper part of the distillation column and recycling the overhead methanol fraction from the distillation column to the feed stream to said reactor.

4,334,965

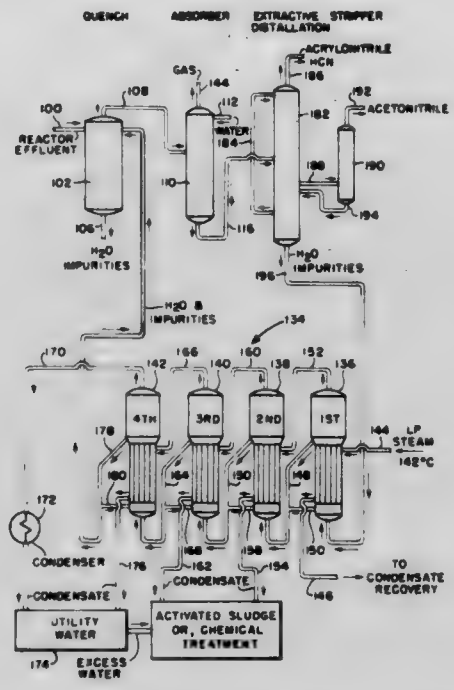
PROCESS FOR RECOVERY OF OLEFINIC NITRILES

Hsin-Chih Wu, Parma, Ohio, assignor to Standard Oil Company, Cleveland, Ohio

Filed 1980, Ser. No. 221,666

Int. Cl.³ B01D *3/40*; C07C *121/32*

U.S. Cl. 203—25 **11 Claims**



1. In a process for the recovery and purification of acrylonitrile or methacrylonitrile from an ammoxidation reactor effluent containing acrylonitrile or methacrylonitrile, acetonitrile and heavy organic impurities which comprises:

(a) contacting said reactor effluent with an aqueous quench liquid to produce a gaseous quench effluent and a liquid quench bottoms product,

(b) absorbing said gaseous quench effluent with water to produce a first aqueous solution containing acrylonitrile or methacrylonitrile, acetonitrile and said impurities,

(c) extractively distilling said first aqueous solution with a water-containing stream to produce a gaseous effluent containing acrylonitrile or methacrylonitrile and a liquid bottoms product containing water, acetonitrile and said heavy organics,

(d) stripping acetonitrile from said liquid bottoms product thereby producing a stripper bottoms product containing water and said heavy organic impurities, and

(e) recycling said stripper bottoms product to step (a) to serve as said quench liquid,

the improvement comprising removing water from said stripper bottoms product by multi-effect evaporation prior to returning said stripper bottoms to step (a).

4,334,966

METHOD OF COPPER PLATING GRAVURE CYLINDERS

Sidney C. Beach, Parma, and C. Richard Frisby, Strongsville, both of Ohio, assignors to McGean Chemical Company, Inc., Cleveland, Ohio

Filed 1981, Ser. No. 265,143

Int. Cl.³ C25D *3/38, 7/00*

U.S. Cl. 204—25 **10 Claims**

1. A method of depositing on gravure rolls a layer of copper especially adapted to receive electronic engraving comprising the steps of placing a gravure roll in an electroplating bath comprising from about 150 to about 225 grams/liter of copper sulfate, from about 35 to about 90 grams/liter of sulfuric acid, from about 1 to about 15 grams/liter of a polyether having a molecular weight from about 4,000 to about 10,000, from about 0.3 to about 3.0 milligrams/liter of 1-lower alkyl-2-mercapto imidazole, and from about 1 to about 100 milligrams/liter of a sulfonated, sulfurized benzene compound.

4,334,967

METHOD FOR PREPARING 1,2-DICHLOROETHANE

Gurami A. Tedoradze, proezd Shokalskogo, 67, korpus 2, kv. 268, Moscow; Valentina A. Paprotskaya, mikroraion Serebryanka, 3, kv. 90, Moskovskaya oblast, Pushkino; Andrei P. Tomilov, 5 Parkovaya ulitsa, 56, korpus 6, kv. 59, Moscow; Evegnia A. Ponomarenko, shosse Entuziastov, 100, kv. 148, Moscow, and Jury M. Sokolov, Okruzhnoi proezd, 33, korpus 1, kv. 72, Moscow, all of U.S.S.R.

PCT No. PCT/SU79/00001, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/01686, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 252,976
Int. Cl.³ C25B *3/06*
U.S. Cl. 204—81 5 Claims

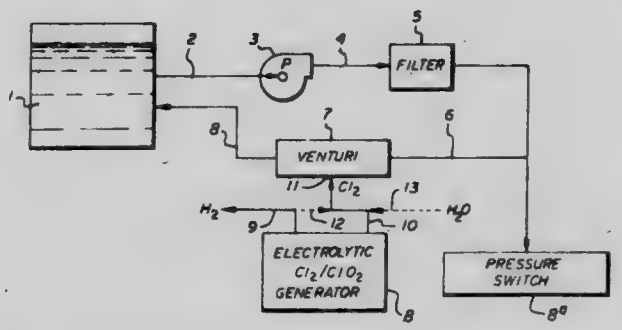
1. A method for preparing 1,2-dichloroethane by electrolysis of a 12–36% aqueous solution of hydrochloric acid at a temperature of from 45° to 70° C. simultaneously with admission of ethylene into the anodic space, which comprises, prior to electrolysis, an additive comprising a metal of the group of ion, or a compound of a metal of said group, or an alloy containing at least one metal of the group of iron, or any mixtures of said substances, is introduced into an aqueous solution of hydrochloric acid in such an amount that the concentration of ions of metals of the group of iron in the aqueous solution of hydrochloric acid is at least 0.006 g-ion per liter of said solution.

4,334,968

APPARATUS FOR GENERATION OF CHLORINE/CHLORINE DIOXIDE MIXTURES

Charles T. Sweeney, 448 Earle Rd., Hewitt, Tex. 76643

Continuation-in-part of Ser. No. 92,645, Nov. 8, 1979, Pat. No. 4,256,552. This application 1980, Ser. No. 121,114
The portion of the term of this patent subsequent to 1998, has been disclaimed.
Int. Cl.³ C25B *1/46, 9/00;* C02F *1/76;* F04H *3/16*
U.S. Cl. 204—96 28 Claims



28. A method for treating a body of water which comprises providing a chlorine/chlorine dioxide generator comprising a hollow container having a wall dividing the same into two compartments and including an ion-permeable membrane permitting flow of cations therethrough,

a cathode in one of said compartments,

an anode in the other of said compartments,

a bipolar electrode in said other compartment positioned adjacent to said anode or between said anode and said membrane, said bipolar electrode being of a size and shape permitting free circulation of electrolyte therearound and being exposed on all sides to the same aqueous electrolyte, and

providing water to said cathode compartment,

providing a concentrated water solution of a chloride salt to said anode compartment so that said anode and said bipolar electrode are surrounded by said aqueous chloride salt solution,

passing sufficient direct current through said water and said chloride salt solution to produce chlorine/chlorine dioxide at said anode and at said bipolar electrode and to produce hydrogen and a hydroxide at said cathode,

collecting said chlorine/chlorine dioxide, and

mixing said chlorine/chlorine dioxide at a predetermined rate with part of said body of water and returning the resulting mixture to said body of water.

4,334,969

PHOTOCHEMICAL PROCESS FOR THE SYNTHESIS OF STROBILURIN

Wolfgang Steglich, Bonn-Röttgen; Georg Schramm, Hennef-Lichtenberg; Timm Anke, and Franz Oberwinkler, both of Tübingen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed 1981, Ser. No. 279,737
Claims priority, application Fed. Rep. of Germany, 1980, 3025368
Int. Cl.³ B01J *19/08*
U.S. Cl. 204—158 R 1 Claim

1. A process for the manufacture of synthetic strobilurin in the (E) configuration, which comprises condensing a correspondingly substituted cinnamaldehyde with 2-oxo-butyric acid in methanolic KOH to give the correspondingly substituted potassium salt of 3(Z), 5(E)-3-methyl-2-oxo-6-phenyl-3,5-hexadienic acid, converting this potassium salt with methanol/thionyl chloride to the corresponding methyl ester, converting the reaction product with methoxymethylene-triphenylphosphorane to 9(Z) strobilurin, and after chromatographic purification on silica gel irradiating the crude product by means of a mercury vapor lamp in acetone with addition of a small amount of benzene.

4,334,970

RADIATION CURABLE SOLVENT-FREE COMPOSITIONS RECOVERY SYSTEM

Louis J. Lombardi, Roselle, and Roy J. Coyne, Hometown, both of Ill., assignors to The Richardson Company, Des Plaines, Ill.

Division of Ser. No. 739,183, Nov. 5, 1976, Pat. No. 4,201,842, which is a continuation of Ser. No. 405,407, Oct. 11, 1973, abandoned. This application 1979, Ser. No. 106,556
Int. Cl.³ C08F *2/50;* C08J *3/28;* C08K *5/03;* C08L *29/08*
U.S. Cl. 204—159.15 9 Claims

1. An improved photosensitive resin system ink which is essentially solvent-free and which comprises: pigment; between about 25 and about 75 weight percent of an ester of an ethylenically unsaturated organic acid and polyhydric material selected from the group consisting of pentaerythritol, dipentaerythritol, and polypentaerythritol; between about 1 and about 35 weight percent of a photoinitiator selected from the group consisting of halogenated paraffins and esters and containing a sensitizer selected from the group consisting of Michler's ketone and benzoin ethers; and between about 5 and about 35 weight percent of a copolymer of styrene and an unsaturated alcohol having 3 carbon atoms, the relative amounts of said styrene and said unsaturated alcohol in the copolymer being sufficient to provide improved wet rub resistance, gloss and toughness to the resin system ink when cured.

4,334,971

MANUFACTURE OF RESILIENT FOAMS BASED ON A MELAMINE-FORMALDEHYDE CONDENSATE

Harald Mahnke; Guenter Kreibiehl, both of Ludwigshafen; Heinz Weber, Gruenstadt, and Frank P. Woerner, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Del.X

Filed 1981, Ser. No. 242,561
Claims priority, application Fed. Rep. of Germany, 1980, 3011769
Int. Cl.³ C08G *2/02*
U.S. Cl. 204—159.21 4 Claims

1. A process for the manufacture of a resilient foam, based on a melamine-formaldehyde condensate, by foaming an aqueous or alcoholic solution or dispersion which contains a melamine-formaldehyde precondensate, an emulsifier, a blowing agent and a hardener, with or without conventional additives, and then crosslinking the precondensate, wherein, to effect foaming and crosslinking, the solution or dispersion is heated by ultra-high-frequency irradiation in the form of microwaves in

the frequency range of from 0.2 GHz to 100 GHz in such a manner that the power uptake of the solution or dispersion is from 5 to 200 KW per kg of water or alcohol in the solution or dispersion.

4,334,972

AMPHOLYTE AND ITS USE IN SEPARATION PROCESSES

John L. Söderberg, Upsala, Sweden, assignor to Pharmacia Fine Chemicals AB, Upsala, Sweden

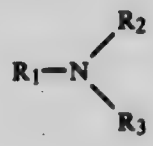
Continuation of Ser. No. 64,359, Aug. 7, 1979, abandoned, which is a continuation of Ser. No. 891,105, Mar. 28, 1978, abandoned.
This application 1980, Ser. No. 199,232
Claims priority, application Sweden, 1977, 7704783
Int. Cl.[3] B01D *57/02*; C07C *101/00*
U.S. Cl. 204—180 R **8 Claims**

1. In a separation process selected from the group consisting of chromatographic processes and electrophoretic processes, including isoelectric focusing and isotachophoresis, in which process an ampholyte is used, the improvement which comprises using as said ampholyte a water-soluble ampholyte containing carboxyl groups and amino groups and comprising a mixture of amphoteric substances, said ampholyte comprising the reaction product obtained by reacting (a) at least two compounds selected from a group containing

(A) amino acids,

(B) hydroxylamine,

(C) an amine of the formula



wherein

—R_1 is

(i) hydrogen, or

(ii) the group H_2—N—$(CH_2)_n$—, wherein n is an integer 2–6, or

(iii) the group H_2N—$(CH_2)_3$—NH—$(CH_2)_3$—R_2 and R_3 are the same or different and each representing either

(1) hydrogen,

(2) methyl,

(3) ethyl,

(4) hydroxyethyl, or

(5) together with the intermediate nitrogen atom form an imidazolyl, morpholinyl- or piperazinyl group, and

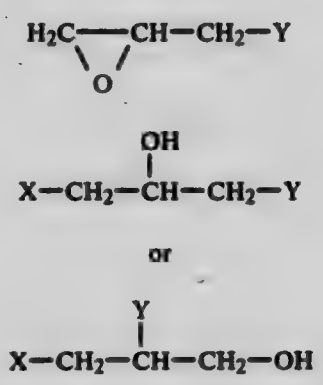
(D) di- and tripeptides

said amino acids and said di- and tripeptides containing at least one nitrogen atom having one or two hydrogen atoms bound thereto and not containing aromatic groups other than imidazolyl and having molecular weight of at most 200,

at least one of said at least two compounds being one which contains at least one carboxyl group,

and/or salts of the aforementioned compounds, and

(b) at least one bifunctional alkylating agent having the formula



where X and Y are the same or different and each represents a halogen atom,

the molar relationship between (b) and (a) being within the range of 1:2–9:10,

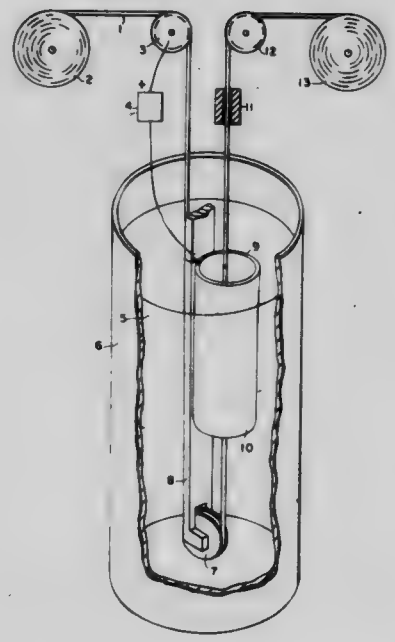
in an aqueous alkaline medium.

4,334,973

PROCESS FOR ELECTROPHORETICALLY FORMING AN IMIDE COATING ON WIRE

Nancy W. Carlson, Murrysville; Dean C. Westervelt, Acme, and Luciano C. Scala, Murrysville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 171,932
Int. Cl.[3] C25D *13/06, 13/10, 13/16*
U.S. Cl. 204—181 R **17 Claims**



1. A method of continuously electrophoretically forming an imide containing polymeric coating on a wire comprising:

(1) forming an emulsion which comprises:

(a) about 0.5 to about 1% by weight based on total emulsion weight of a polymer selected from the group consisting of polysulfones, polyamic acids, polyamide-amic acids, polyamide-amic acid esters, and mixtures thereof;

(b) sufficient amine to form a salt with said polymer or to place a charge on emulsion droplets:

(c) an organic aprotic solvent for said polymer; and

(d) a polar precipitant which forms an emulsion with said solvent and in which said polymer is insoluble, selected from the group consisting of hydroxyethyl acetate, ethylene glycol monomethyl ether, and mixtures thereof, where the lowest boiling liquid in said emulsion boils at at least 120° C. and the highest boiling liquid in said emulsion boils at least 30° C. higher than said lowest boiling liquid;

(2) passing said wire through a conductive tube immersed in said emulsion while applying a D.C. electrical current to said tube and said wire, thereby coating said wire with said polymer; and

(3) curing said polymer coating on said wire.

4,334,974

ELECTROCHEMICAL OXYGEN SENSOR, PARTICULARLY FOR USE WITH EXHAUST GASES OF INTERNAL COMBUSTION ENGINES, AND ESPECIALLY FOR POLAROGRAPHIC APPLICATION

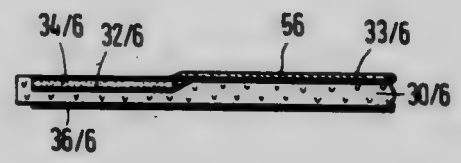
Klaus Muller, Tramm; Helmut Maurer, Schwieberdingen; Ernst Linder, Mühlacker; Franz Rieger, Aalen; Karl H. Friese, Leonberg; Harald Reber; Hermann Dietz, both of Gerlingen; Hermann Ziener, Möglingen; Friedrich Esper, Leonberg, and Gerhard Holfelder, Ditzingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed 1980, Ser. No. 121,598

Claims priority, application Fed. Rep. of Germany, 1979, 2907032

Int. Cl.[3] G01N *27/58*

U.S. Cl. 204—195 S 14 Claims



1. Polarographic electrochemical sensor to determine the oxygen content in gases, particularly in the exhaust gases from an internal combustion engine, comprising

a plane, elongated plate-like oxygen ion conductive solid electrolyte sensor element body;

first and second gas pervious electrodes located on, and in contact with, respectively, opposite plane surfaces of the body, said electrodes and said body therebetween being exposed to the gases;

a porous cover positioned on one of the electrodes, said cover having a predetermined diffusion resistance to oxygen molecules;

a flat insulating element having at least approximately the same dimensions as said solid electrolyte body and positioned parallel to said body;

a flat layer-like electrical heating element secured on said flat insulating element and positioned closely adjacent to said electrodes and parallel to the plane surfaces of the body;

means for applying an electrical voltage to said electrodes;

means for connecting electrical energy to said heating element,

said plane sensor element, said electrodes, said porous cover, said flat insulating element and said flat heating element being assembled in a stacked, laminar package;

a housing retaining said package and permitting access of the gas to a sensing portion thereof;

the solid electrolyte body is formed with a depression or recess beneath one of the electrodes;

one of the electrodes being located at the bottom of the recess and at a level below the remainder of the surface of the body,

and wherein the porous cover is fitted within the recess and over the electrode therein and essentially fills the recess or depression and entirely covers the electrode.

4,334,975

APPARATUS FOR ELECTROLYTIC PRODUCTION OF MAGNESIUM METAL FROM ITS CHLORIDE

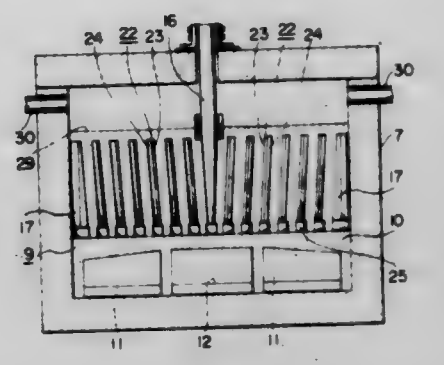
Hiroshi Ishizuka, 19-2, Ebara 6-chome, Shinagawa-ku, Tokyo, Japan

Filed 1980, Ser. No. 188,589

Claims priority, application Japan, 1979, 54-124890; 1979, 54-127710; 1980, 55-123910

Int. Cl.[3] C25C *3/04, 3/22, 7/02*

U.S. Cl. 204—247 16 Claims



1. In an apparatus for electrolytic production of magnesium metal from magnesium chloride which apparatus comprises:

(1) a closed electrolysis chamber which is capable of holding in fused state a bath material substantially containing magnesium chloride;

(2) at least one anode and cathode pair contained in said chamber substantially vertically with one end, respectively, outside the chamber for electrical connection;

(3) means for individually recovering the products of magnesium metal and chlorine gas; and

(4) at least one externally unwired intermediate electrode arranged substantially parallel to and between each anode and cathode pair;

an improvement which comprises said anode, cathode and intermediate electrode each being mounted onto a raised top of a platform of an electrically non-conductive refractory material constructed.

4,334,976

UPGRADING OF RESIDUAL OIL

Tsoung Y. Yan, Philadelphia, Pa., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 186,927, Sep. 12, 1980. This application 1981, Ser. No. 224,778

Int. Cl.[3] C10G *1/00, 45/00, 17/00*

U.S. Cl. 208—8 LE 16 Claims

1. A process for heavy hydrocarbon oil conversion which comprises (1) heating an admixture of heavy hydrocarbon oil and particulate coal under visbreaking conditions, wherein the average particle size of the coal is less than about 2000 microns; (2) cooling the heat-treated admixture in a settling zone to a temperature in the range between about 400°–700° F. to provide an oil fraction and a fraction of asphaltene flocculated fine solids; and (3) separating and recovering the oil fraction and the solids fraction.

4,334,977

METHOD FOR THE GENERATION OF RECYCLE SOLVENTS IN COAL LIQUEFACTION

Francis J. Derbyshire, Ewing; Philip Varghese, Trenton, and Darrell D. Whitehurst, Titusville, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

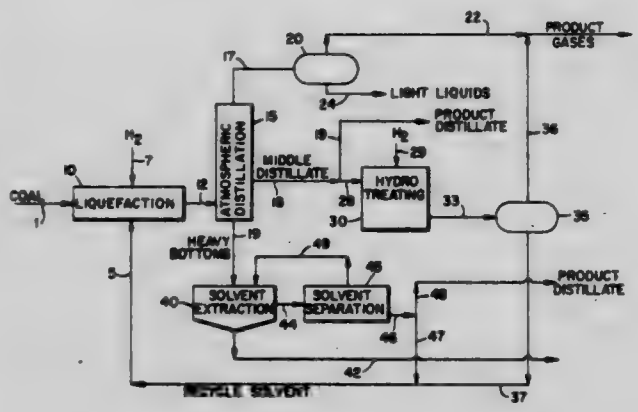
Filed 1981, Ser. No. 225,283

Int. Cl.[3] C10G *1/00*

U.S. Cl. 208—8 LE 5 Claims

1. A process for the liquefaction of solid carbonaceous material which comprises:

(a) forming a slurry of the solid carbonaceous material in a recycle liquefaction solvent;
(b) heating said slurry in the presence of hydrogen at a temperature and pressure sufficient to obtain a conversion of said solid carbonaceous material to at least 60% of soluble product;
(c) distilling the converted mixture of solid carbonaceous material and recycle solvent to recover a light fraction comprising gases and light liquids boiling below 250° to 400° F., a middle distillate fraction boiling below 600° to 700° F. and a heavy bottoms fraction;



(d) hydrotreating at least a portion of the middle distillate fraction and recovering recycle hydrogen donor solvent;
(e) extracting the heavy bottoms fraction with naphtha containing from about 10 to 50 wt.% aromatics;
(f) separating from said naphtha the components soluble therein as a recycle hydrogen transfer solvent; and
(g) combining said recycle hydrogen donor solvent and said recycle hydrogen transfer solvent to form said recycle solvent recited in step (a).

4,334,978

DEWAXING AND WAX FILTERABILITY BY REDUCING SCRAPER SPEED IN SCRAPED SURFACE CHILLING UNITS

Thomas E. Broadhurst, Sarnia, Canada, assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 86,455, Oct. 19, 1979, abandoned. This application 1980, Ser. No. 209,475
Int. Cl.³ C10G *73/32*
U.S. Cl. 208—33 **24 Claims**

1. In a process for dewaxing hydrocarbon oils wherein said oil is introduced at a temperature above its cloud point into a first chilling zone divided into a plurality of stages and cooled by contact with a cold dewaxing solvent injected into said stages, passing the oil from stage-to-stage of said chilling zone, introducing said cold dewaxing solvent into at least a portion of said stages, whereby a solvent-oil mixture is formed, maintaining a high degree of agitation in at least a portion of the stages containing solvent and oil thereby effecting substantially instantaneous mixing of said cold solvent and said oil so as to cool said solvent-oil mixture as it progresses through said first chilling zone to a temperature greater than the temperature at which the wax is separated from the oil, i.e., the wax separation temperature but at least about 30° F. above but less than about 40° to 45° F. above said separation temperature, whereby a substantial portion of the wax is precipitated from said oil under conditions of said high agitation and forming a slurry containing the solvent-oil mix and precipitated wax, withdrawing said slurry containing precipitated wax from said first chilling zone and cooling same to separation temperature in a second chilling zone comprising scraped surface chillers thereby precipitating a further portion of said wax from said oil and separating said wax from the solvent-oil mixture in solid-liquid separation means, the improvement comprising operating the scraped surface chillers of the second chilling zone at a chilling temperature range of at least 30° F. and at a rotating element speed of from 1.5 to 6 RPM.

4,334,979

HYDROCARBON CRACKING PROCESS USING A CATALYST CONTAINING GERMANIUM

Brent J. Bertus, and Dwight L. McKay, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed 1980, Ser. No. 139,483
Int. Cl.³ C10G *11/05*
U.S. Cl. 208—114 **22 Claims**

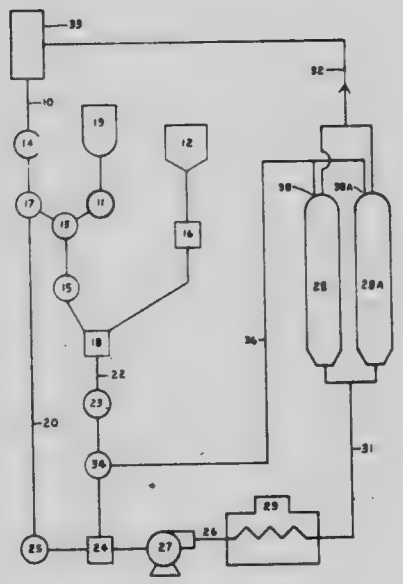
1. In a catalytic cracking process wherein a zeolite-containing cracking catalyst is circulated in a cracking unit between a cracking zone and a regeneration zone in a cyclic fashion, said process comprising:
(a) introducing the cracking catalyst and a hydrocarbon feedstock into the cracking zone, said hydrocarbon feedstock containing contaminants selected from the group consisting of nickel, vanadium, and iron;
(b) contacting the cracking catalyst with the hydrocarbon feedstock in the cracking zone under cracking conditions wherein at least a portion of the contaminants in the feedstock become deposited on the cracking catalyst;
(c) withdrawing an effluent of cracking catalyst and cracked hydrocarbon feedstock from the cracking zone;
(d) separating the cracking catalyst from the effluent;
(e) introducing the cracking catalyst into a regeneration zone;
(f) regenerating the cracking catalyst under elevated temperatures and in the presence of free oxygen-containing gas wherein contaminants deposited on the catalyst from the feedstock prevent complete regeneration of the cracking catalyst; and
(g) recycling the cracking catalyst to the cracking zone; the improvement comprising
circulating a germanium-treated cracking catalyst in the cracking unit, said germanium-treated cracking catalyst having been contacted with a germanium-containing treating agent under conditions to deposit thereon a sufficient amount of germanium or a germanium compound to at least partially passivate the at least one contaminant deposited on the catalyst from the feedstock.

4,334,980

NON-PUFFING PETROLEUM COKE

Harry L. Hsu, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 8,838, Feb. 2, 1979, abandoned. This application 1980, Ser. No. 135,717
Int. Cl.³ C10G *9/14*
U.S. Cl. 208—125 **9 Claims**



1. In a process for the manufacture of non-puffing needle coke having a graphite CTE characteristic of not higher than 7×10^{-7}/°C. over the range of 0° to 50° C. by delayed coking of petroleum feedstock having a level of sulfur content com-

bined molecularly in components of said feedstock sufficiently high enough to contribute to an irreversible volumetric expansion on heating to a temperature of 1400° C. or higher, the improvement consisting of the addition of from 0.05 to 0.5% by wt. of puffing inhibitor selected from the group consisting of iron oxide and calcium fluoride or mixtures thereof to said feedstock prior to or during the coking of said feedstock in a delayed coker, thereby rendering said coke non-puffing.

4,334,981

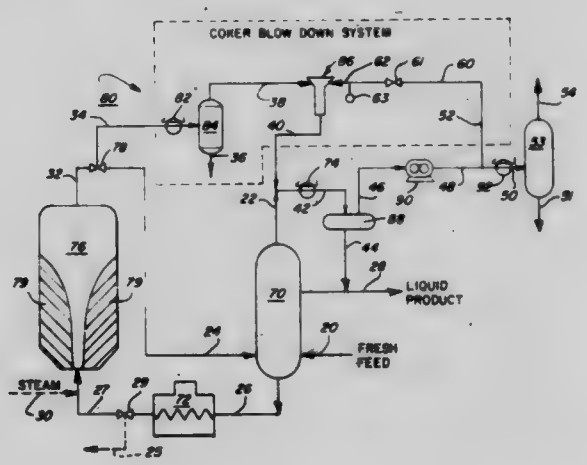
COKER BLOW DOWN RECOVERY SYSTEM

Richard L. Holloway, Bellingham, Wash.; John A. Miller, Seabrook, Tex., and Jerald E. Winters, El Toro, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Division of Ser. No. 43,940, May 30, 1979, Pat. No. 4,261,954. This application 1980, Ser. No. 202,954

Int. Cl.³ C10G 9/14

U.S. Cl. 208—131 **3 Claims**



1. A process for recovering nonliquefiable components separated from a coker means during clean up of the coker means, said process comprising:

stripping hydrocarbons with a stripping stream from a coke deposit to form a mixture of said hydrocarbons and said stripping stream,

cooling said mixture and separating liquefiable from nonliquefiable components,

mixing said nonliquefiable components with a second stream at a higher pressure than said nonliquefiable components to produce a first pressurized stream,

separating said first pressurized stream into liquefiable and nonliquefiable components,

pressurizing said nonliquefiable components separated from said first pressurized stream to form a second pressurized stream and

separating said second pressurized stream into liquefiable and nonliquefiable components; whereby additional components of hydrocarbon can be recovered from hydrocarbons stripped from coke deposits during clean up.

4,334,982

PROCESS FOR THE SELECTIVE DESULFURIZATION OF OLEFINIC CUTS

Yves Jacquin, Sevres, and Jean-Francois Le Page, Rueil Malmaison, both of France, assignors to Institut Francais du Petrole, Rueil Malmaison, France

Filed 1980, Ser. No. 152,215

Claims priority, application France, 1979, 79 13067

Int. Cl.³ C10G 23/02

U.S. Cl. 208—216 R **18 Claims**

1. A process for the catalytic hydrodesulfurization of a catalytic cracking effluent boiling at least in major part in the gasoline range and containing 15 to 45% by weight of olefins, without substantial decrease in the octane number of said effluent, and without decreasing the bromine number of said effluent by more than 10%, said process comprising contacting said effluent, in the presence of hydrogen, at a temperature between about 260° and 310° C., with a catalyst comprising (a) a non-acidic carrier, and (b) cobalt and at least one of tungsten and molybdenum; wherein the total weight of cobalt, tungsten and molybdenum in said catalyst, expressed as oxides, is from 2 to 30% of the total catalyst weight; and wherein the atomic ratio

$$R = \frac{\text{cobalt}}{\text{cobalt + molybdenum and/or tungsten}}$$

is higher than 0.55; and recovering an effluent having a lower sulfur content, substantially the same octane number and at most a 10% reduction in bromine number.

4,334,983

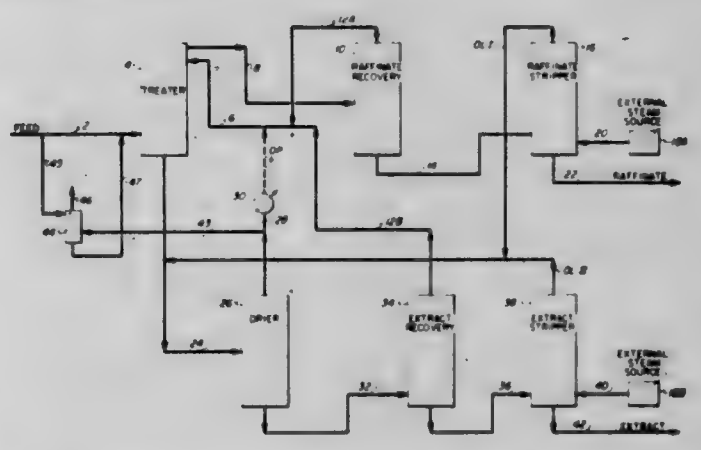
STRIPPING STEAM RECYCLE FOR SOLVENT RECOVERY PROCESSES

David Mentzer, Lake Hiawatha, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed 1980, Ser. No. 164,802

Int. Cl.³ C10G 21/20

U.S. Cl. 208—326 **10 Claims**



6. In a solvent extraction process wheren a feed stream is separated by contact with a solvent and water, into a raffinate stream and an extract stream and wherein either of said streams is dried in a drier to drive off the water in the form of steam and to yield an extract or raffinate stream which is water free and further wherein the extract or raffinate water free stream is further processed to separate a major portion of the solvent from either the water free raffinate or extract stream and wherein the resulting stream containing minor residual amounts of solvent is vapor stripped in a stripper to remove the residual solvent using steam as the stripping agent, the improvement comprising using as stripping steam steam generated in the raffinate or extract drier which drier is operated under conditions sufficient to produce a steam stream of high enough quality for use as stripping steam said conditions being the use of sufficient stages and sufficient pressure to produce an upgraded pure steam stream of high enough pressure and temperatures to be used for said stripping.

4,334,984

APPARATUS FOR PROCESSING LOW-GRADE WASTE PAPER

Svetozar Vagac; Anton Kostka; Milan Carsky; Lubor Sedlacek; Jaroslav Navratil, all of Bratislava; Jiri Mueller, Litovel; Rudolf Kmeco, Litovel, and Vaclav Knob, Litovel, all of Czechoslovakia, assignors to Vyzkumny ustav papieru a celulozy, Bratislava, Czechoslovakia

Continuation-in-part of Ser. No. 87,929, Oct. 25, 1979, abandoned. This application 1981, Ser. No. 230,313

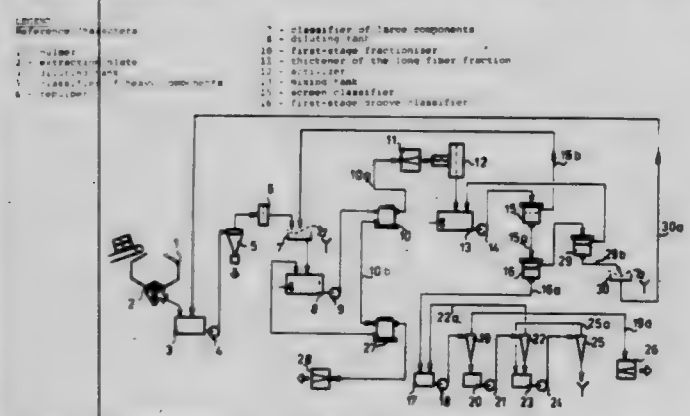
Claims priority, application Czechoslovakia, 1978, 6953-78

Int. Cl.³ B03B 7/00, 9/06

U.S. Cl. 209—3 **4 Claims**

1. An arrangement for processing low-grade collected waste paper, comprising means for pulping and pre-classifying low-

grade waste paper material, a diluting tank, conduit means connecting the means for pulping and pre-classifying the low-grade waste paper material to the diluting tank to forward the pulped and pre-classifying waste paper material to the diluting tank, the arrangement having a first section comprising a first-stage fractionizer with an outlet for the short fraction of the waste paper material delivered thereto from the diluting tank and an outlet for the long fraction of the waste paper material delivered thereto from the diluting tank, conduit means for feeding the pulped and pre-classifying waste paper from the diluting tank to the first-stage fractionizer, a second-stage fractionizer, the second-stage fractionizer having an outlet for the short fraction and an outlet for the long fraction of the material fed thereto from the first-stage fractionizer, conduit means connecting the outlet for the short fraction of the first-stage fractionizer to an inlet of the second-stage fractionizer, a first thickener of the short fiber fraction, and conduit means



connecting the outlet of the short fiber fraction of the second-stage fractionizer to the first thickener, the arrangement having a further, second section adapted for the processing of the long fiber fraction separated from the pulped and pre-classified waste paper material by the first-stage fractionizer, such second section comprising a second thickener of the long fiber fraction, an activizer of the long fiber fraction, a second mixing tank, a mixing pump, and a screen classifier connected in that order, conduit means connecting the long fiber outlet of the first stage fractionizer to the second thickener, a groove classifier with an outlet for the classified suspension and an outlet for the flushed-out components, a system of tanks, pumps, and centrifugal separators, and a third thickener for the long fraction, conduit means connecting in that order the outlet of the screen classifier with the inlet of the groove classifier and the groove classifier with the system of tanks, pumps, centrifugal separators, and thickener of the long fraction.

4,334,985

SELECTIVE RHEOLOGICAL SEPARATION OF CLAYS

Ralph E. Turner, Jr., Tennille, Ga., assignor to Anglo-American Clays Corporation, Sandersville, Ga.

Filed 1980, Ser. No. 216,652
Int. Cl.³ B03B *1/00*
U.S. Cl. 209—5 **12 Claims**

1. A method for treating a kaolin clay which has relatively poor high shear viscosity in a high-solids suspension so as to obtain therefrom a fraction having a value of high shear viscosity in said high-solids suspension which is low relative to the starting clay, thereby being desirable for use in coating of paper, said method comprising the steps of: forming said kaolin clay pigment into a dilute aqueous suspension having from 10% to 20% solids by weight; and

mixing said suspension with from about 0.001% to 0.1% by weight of dry clay, of a high molecular weight anionic polyacrylamide polymer or derivative thereof to selectively flocculate aggregates of minute kaolin platelets, and allowing the thereby treated supension to separate into a sedimented phase containing a clay fraction of relatively high high-shear viscosity characteristics and into a supernatant phase which is substantially free of aggregates and which contains in suspension a fraction of said clay pigment possessing relatively low high-shear viscosity properties; and



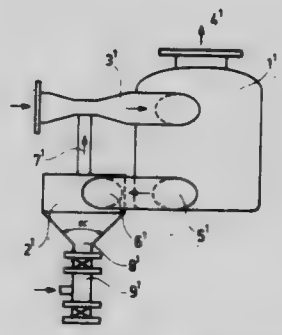
separating the supernatant phase to recover in suspension the said kaolin fraction displaying said low high-shear viscosity properties.

4,334,986

SEPARATOR FOR A MIXTURE OF A SUSPENSION AND COARSE HEAVY PARTICLES

Rune H. Frykhult, Huddinge, Sweden, assignor to AB Celleco, Tumba, Sweden

Filed 1981, Ser. No. 238,114
Claims priority, application Sweden, 1980, 8001440
Int. Cl.³ B04C *9/00*
U.S. Cl. 209—17 **18 Claims**



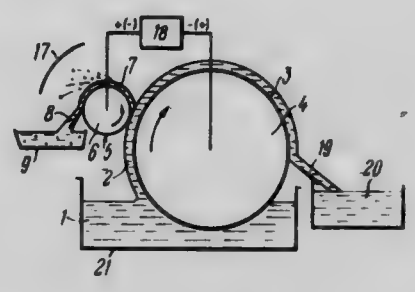
1. A separator for separating a mixture into a light fraction consisting of a suspension, such as a cellulose pulp suspension, and a heavy fraction of coarse particles, the separator comprising means forming a first separation chamber having a first inlet for said mixture, a first outlet for the light fraction, and an outlet for an intermediate fraction enriched in coarse particles, said means also forming a second separation chamber having a second inlet, a second outlet for a light return fraction, and an outlet for separated heavy fraction, said outlet for an intermediate fraction being connected to the second inlet and leading from a first zone in the first separation chamber, said zone having a higher pressure than a second zone connected to the second outlet, said second zone communicating with the first separating chamber, the first and second separating chambers communicating to form a circuit, said second outlet for a light return fraction being located between an inlet region in said second separation chamber and an outlet region in said first separation chamber, the separator including stationary means for maintaining in said inlet region a pressure sufficiently higher than the pressure in said outlet region to induce flow of said light return fraction from said second chamber to said first chamber by way of said second outlet, said inlet region and outlet region being free of any moving part.

4,334,987

METHOD OF SEPARATION OF SOLID PHASE IN DRILLING MUD

Ulmas D. Mamadzhanov, Ts-I, dom 19, kv. 25; Vitold M. Bakhir, proezd Gaidara, 7"A", kv. 17; Vladimir I. Klimenko, Chilanzar, kvartal 23, dom 3, kv. 37; Jury G. Zadorozhny, Chilanzar, kvartal 2, dom 59, kv. 12, and Stanislav A. Alekhin, Chilanzar, kvartal 24, dom 53, kv. 89, all of Tashkent, U.S.S.R.

PCT No. PCT/SU79/00128, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/02041, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 212,087
Claims priority, application U.S.S.R., 1979, 2736503; 1979, 2736504
Int. Cl.[3] B03B *5/00*
U.S. Cl. 209—210 10 Claims



1. A method of separating the solid phase in a drilling mud, comprising the steps of:

forming an adhesion layer of the drilling mud onto a main curvilinear closed surface which partly projects into a vessel containing the mud by rotating said main curvilinear surface through the mud in said vessel;

separating a portion of said adhesion layer onto an auxiliary rotating curvilinear closed surface positioned adjacent to said main curvilinear surface to contact a portion of said adhesion layer; and

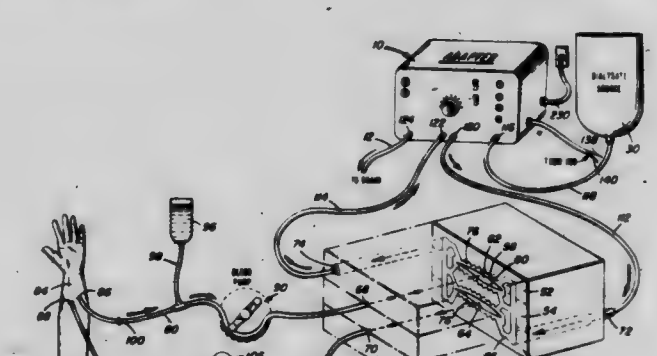
independently rotating said main curvilinear surface and said auxiliary curvilinear surface at speeds of rotation such that the linear speed in the area of contact of said adhesion layer on said main curvilinear surface is the same as the linear speed of the surface of said auxiliary rotating curvilinear closed surface.

4,334,988

CONTROL OF DIALYSIS AND ULTRAFILTRATION

Lee J. Milligan, Englewood, Colo., assignor to Hospal Medical Corp., Littleton, Colo.

Continuation-in-part of Ser. No. 750,151, Dec. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 668,420, Mar. 19, 1976, abandoned, and a continuation-in-part of Ser. No. 645,427, Dec. 30, 1975, abandoned. This application 1980, Ser. No. 174,856
Int. Cl.[3] B01D *31/00*
U.S. Cl. 210—87 8 Claims



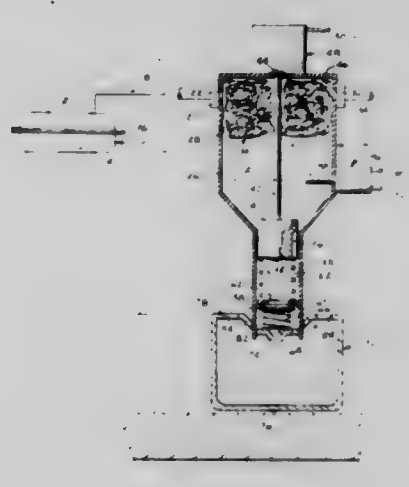
1. A dialysis and ultrafiltration control system for controlling ultrafiltration taking place across a semipermeable membrane device, which comprises a dialysis liquid tank for containing dialysis liquid and which is open to the atmosphere, a level sensor for detecting the level of dialysis liquid contained in the open dialysis liquid tank, dialysis liquid withdrawal means in communication with the open dialysis liquid tank for withdrawing determined volumes of dialysis liquid, means for effecting the circulation of the stream of dialysis liquid which means includes two positive-flow pumps, one disposed upstream and the other downstream of the dialyzer so that the ultrafiltration of liquid being treated is adjusted, and feedback means leading from said level sensor to said positive-flow pumps, wherein the means for controlling ultrafiltration constitutes controlling the operation of the two pumps in relation to each other in response to the level of dialysis liquid sensed in the tank in such manner as to maintain a substantially constant level of dialysis liquid in said tank at a determined rate of withdrawal of dialysis liquid.

4,334,989

FUEL-WATER SEPARATOR WITH PISTON-CHECK VALVE WATER DISPOSAL TO EVAPORATOR

John F. Hall, Bloomfield Hills, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed 1980, Ser. No. 221,140
Int. Cl.[3] B01D *35/02*
U.S. Cl. 210—114 3 Claims



1. In a vehicle including an engine with an exhaust manifold, an automatic fuel-water separator and disposal assembly for series insertion in the engine fuel supply line, comprising: thin wall enclosure means defining a generally hollow interior space, the enclosure means having a generally elongate configuration with first and second end portions; fuel inlet and outlet means of the enclosure for connection to the fuel line at the first end portion to permit fuel to flow through the interior space; the second end portion of the enclosure means having a depending cylindrically walled portion axially projecting downward from the first portion for the purpose of collecting water which may be separated from fuel passing between the inlet and outlet; diffusion means between the fuel inlet and outlet to promote separation of water from fuel and to permit settling of water into the depending cylindrical portion of the enclosure means; a cylindrical piston valve encircling surrounded by the depending cylindrical portion of the enclosure means with a bottom surface movable therewith toward and away from the first portion of the enclosure means; yieldable means engaging the piston valve and normally holding it positioned toward the first end portion thereby defining a purge chamber for water beneath the bottom surface of the piston valve; the depending cylindrical portion defining a discharge opening located downward from the bottom surface of the piston valve for the discharge of water from the purge chamber; check valve means across the discharge opening to normally prevent the flow of water from the purge chamber but to

permit such flow only when the bottom surface of the piston valve moves toward the check valve means which thereby decreases the volume of the purge chamber to eject the water; the piston valve having normally open passage means therein connecting the purge chamber with the interior space above the piston valve; the piston valve and cylindrical portion of the enclosure means being cooperative to close the passage means when the piston valve is moved to decrease the volume of the purge chamber; means operably connected to the piston valve to selectively produce movement thereof to decrease the volume of the purge chamber whenever ejection of water from the assembly is necessary; water catch means associated with the engine exhaust manifold to temporarily collect water which has been ejected from the purge chamber whereby exhaust heat subsequently boils the ejected water and releases it to the atmosphere thus avoiding undesirable ejection upon the ground.

4,334,990

CARTRIDGE FOR ACTIVE FILTRATION AND TREATMENT OF LIQUID METALS AND ALLOYS

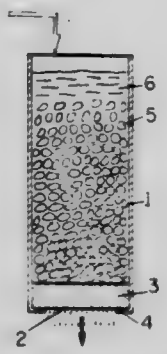
Pierre du Manoir de Juaye, Cognin; Pierre Guerit, Chambery; Gilbert Pollet, La Ravoire, and Jean-Marie Hicter, Voiron, all of France, assignors to Servimetal, Paris, France

Filed 1980, Ser. No. 178,432

Claims priority, application France, 1979, 79 21957

Int. Cl.³ B01D *27/02, 27/04*

U.S. Cl. 210—186 **21 Claims**



1. An apparatus for physico-chemical purification of a flow of liquid metal, comprising a detachable cartridge containing an upstream aperture through which the metal to be purified enters and a downstream aperture through which the purified metal is discharged, characterized in that the downstream aperture is closed by a porous slab obtained by sintering individual elements, at least the external part of which consists of an alkali or alkaline earth metal fluoride and a fluoride of a metal selected from the group consisting of magnesium, aluminum and manganese and that the cartridge is at least partially filled with grains of solid flux, at least the external part of which consists of at least one metallic halide.

4,334,991

BAFFLES FOR SEPTIC TANK PORTS

Earl R. Beede, R.F.D. #3, Concord, N.H. 03301

Continuation of Ser. No. 47,758, Jun. 12, 1979, abandoned. This application 1980, Ser. No. 207,956

Int. Cl.³ B01D *21/24*

U.S. Cl. 210—232 **10 Claims**

1. A baffle for septic tank inlet or outlet ports, said baffle of a plastic inert with respect to reagents normally found within a septic tank and dimensioned to extend downwardly from the top of the tank across and below the path of entering or exiting flows with side edges engageable with the interior of the tank to block lateral flow, means to anchor said baffle to the interior of the tank, said anchoring means including external anchoring flanges secured to the baffle at locations spaced a substantial distance inwardly from the side edges and between the ends thereof, each projecting laterally in a plane parallel to the appropriate one of said side edges, each anchoring flange of a material inert with respect to said reagents and that is resilient whereby when said flanges are brought into seated engagement with and anchored to the interior of the tank, the side edges of the baffle are in tight linear sealing engagement with said interior, and hangers, each attached to the upper edge of the baffle and including a hook portion extending beyond the appropriate one of the side edges of the baffle and shaped and dimensioned to fit over the upper end of the tank wall to hold the baffle in position while the flanges are being anchored against the interior surface of the tank wall.

4,334,992

MODULAR BLOCK FOR OSMOTIC METHODS OF SEPARATION

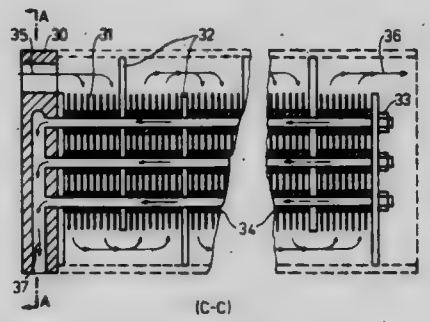
Wulf von Bonin, Leverkusen; Jürgen Lahrs, and Eberhard Born, both of Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed 1980, Ser. No. 118,333

Claims priority, application Fed. Rep. of Germany, 1979, 2907319

Int. Cl.³ B01D *31/00*

U.S. Cl. 210—241 **3 Claims**



1. A modular block for osmotic methods of separation of a permeate from a fluid, comprising: a frame including end plates having respective fluid inlet and outlet openings therein and means mounting the end plates in a spaced apart and parallel condition; a pressure tube having a membrane filter candle removably mounted therein comprising a base plate having a fluid inlet passage communicating with one end plate fluid inlet and a permeate outlet passage and an outside diameter at least equal to that of the pressure tube, a plurality of spaced apart membrane filter plates which define interior spaces which communicate with said permeate outlet passage supported on the base plate in parallel therewith and configured to be slidably received in the pressure tube with the base plate abutting one of said end plates and one end of the pressure tube; wherein the means mounting the end plates includes means for adjusting the distance therebetween to slidably receive the pressure tube and filter candle base plate therebetween and to press the end plates, base plate and pressure tube together to form a fluid-tight seal therebetween; and means mounting the pressure tube to the frame for pivotal movement, when the end plates permit the sliding movement thereof, about an axis spaced from and parallel to the longitudinal axis of the pressure tube between an operative position wherein the end plates, base plate and tube are aligned to enable sealing and a flipped

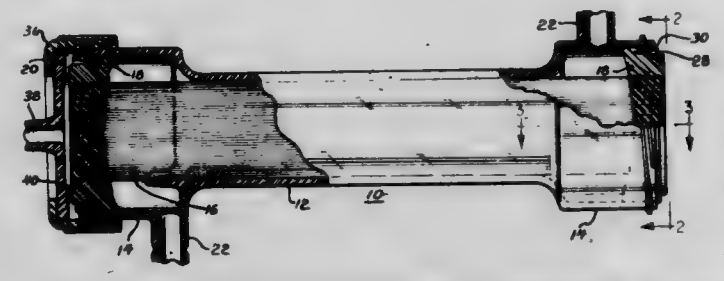
out position wherein the ends of the pressure tube are accessible to permit the removal and insertion of a filter candle.

4,334,993

POTTED-TYPED SEAL WITH STRESS RELIEF AND METHOD OF MAKING SAME

William W. Norton, Lincolnshire, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed 1979, Ser. No. 100,684
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—321.3 **7 Claims**



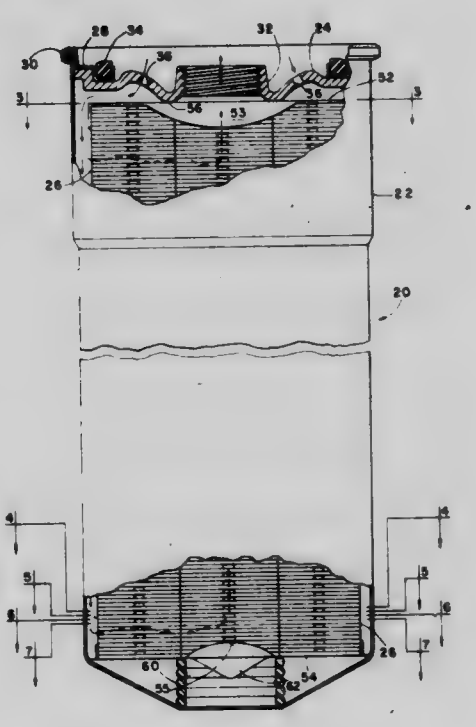
1. A relatively rigid housing having a peripheral surface defining an opening, and comprising a curable sealing composition disposed within said peripheral surface and filling said opening, said sealing composition including stress-relief means comprising a groove defined in the sealing composition and extending axially from one end face thereof over a substantial portion of the axial dimension of said sealing composition, whereby the stresses induced on curing are substantially reduced in the portion of the sealing composition adjacent the open end of the groove which is bonded to said peripheral surface, said groove forming a lip portion of the sealing composition and a central mass portion spaced from the lip portion by the groove, said groove being located close enough to said peripheral surface to allow the central mass portion of the sealing composition, that is located inward of the groove, to shrink upon curing but maintaining a bond between said lip portion and said peripheral surface of the housing.

4,334,994

DISPOSABLE FLUID FILTERS

Richard V. Jensen, Cookeville, Tenn., assignor to Fleetguard, Inc., Columbus, Ind.

Continuation-in-part of Ser. No. 865,544, Dec. 29, 1977, abandoned. This application 1978, Ser. No. 970,731
Int. Cl.³ B01D *25/02*
U.S. Cl. 210—336 **6 Claims**



1. A disposable fluid filter cartridge comprising,

an elongated shell of generally circular cross section having an integral closed end,

closure means sealingly connected to the open end of said shell,

a stack of porous filter elements disposed within said shell,

rigid end plates at opposite ends of said stack of filter elements,

said stack of filter elements having a polygonal outline with the corners thereof in contiguous relation with the interior of said shell, thereby defining fluid flow passageways along the length of the stack of filter discs between the sides thereof and the interior of said shell,

said end plates having tabs extending into embracing relation with the end portions of said stack of filter elements, said tabs embracing a plurality of the polygonal sides of said stack and having edge portions engageable with the interior surfaces of said shell to laterally position said stack within said shell while providing lengthwise flow passages for the fluid,

said stack of filter elements having, on its exterior surface, a plurality of entrances, a central discharge passageway and a plurality of tortuous passageways connecting said entrances, by way of flow through the thickness of said elements, with said central passageway,

said closure means having at least one inlet port through which fluid passes to surround the exterior of said stack of filter elements and an outlet port in fluid communication with the central passageway of stack of filter elements for the discharge of filtered fluid from said cartridge,

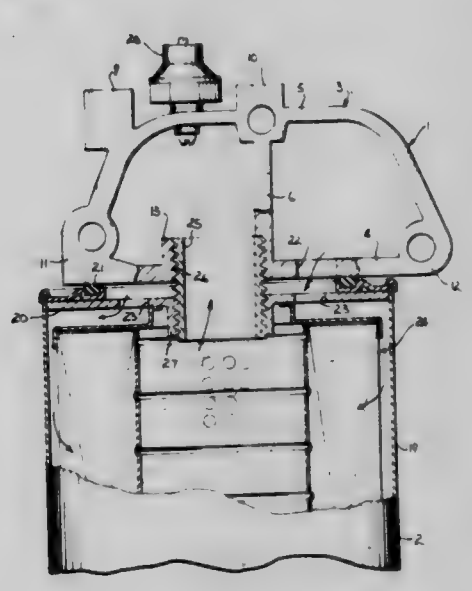
said filter cartridge being further characterized in that the closure means holds the stack of filter elements in compressed relation by engagement with one of said end plates and exerting a compressive force through said stack and the other of said end plates which engages the closed end of said shell, thereby maintaining the integrity of said tortuous passageways.

4,334,995

FILTER ASSEMBLY HAVING AN EXTRUDED FILTER HEAD

Robert M. Mahon, Stoughton, Wis., assignor to Nelson Industries, Inc., Stoughton, Wis.

Filed 1980, Ser. No. 180,877
Int. Cl.³ B01D *29/24*
U.S. Cl. 210—340 **7 Claims**



5. A filter assembly, comprising an elongated extruded filter head composed of a housing including a generally flat base and an outer section connected to the side edges of said base, said housing also including a central wall extending between the base and said outer section and dividing said housing into a pair of longitudinal side-by-side chambers, each chamber extending the full length of the housing and having a uniform non-circular cross section throughout its length, one of said chambers being an inlet chamber and the other of said chambers being an

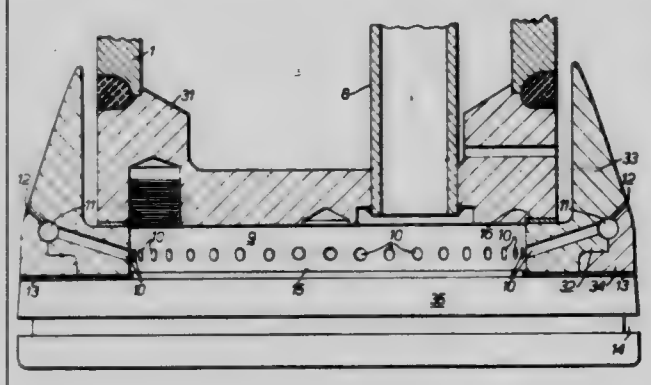
outlet chamber, inlet means connected to one end of the inlet chamber for supplying a fluid to be filtered to said inlet chamber, outlet means connected to one end of the outlet chamber for withdrawing the fluid from the outlet chamber, a filter mounted on the underside of the base, said filter having a fluid inlet opening and a fluid outlet opening, an inlet port formed in the base and connecting the inlet chamber with the fluid inlet opening of the filter, whereby fluid can flow from the inlet chamber to the filter, and an outlet port formed in the base and connecting the outlet chamber with the fluid outlet opening of the filter, whereby fluid from the filter can flow through the outlet port to the outlet chamber, a nipple mounted in one of said ports and extending outwardly of the base, the outer end of said nipple being threaded, one of said openings being threaded to receive the nipple, threading of said one opening on said nipple bringing said filter into tight sealing engagement with the outer surface of said base.

4,334,996

TUBE PRESSURE FILTERS

Bernard H. Broad, St. Austell, England, assignor to English Clays Lovering Pochin & Co. Limited, Cornwall, England

Continuation of Ser. No. 924,802, Jul. 14, 1978, abandoned, which is a continuation of Ser. No. 748,188, Dec. 7, 1976, abandoned. This application 1979, Ser. No. 97,934
Claims priority, application United Kingdom, 1975, 51974/75
Int. Cl.³ B01D *25/12;* B30B *9/06*
U.S. Cl. 210—350 **7 Claims**



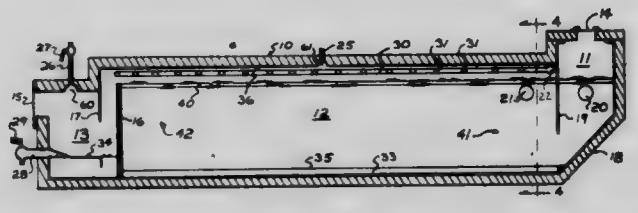
1. In a tube pressure filter which comprises:
(a) a pair of generally coaxial tubular bodies arranged one within the other and adapted to be supported in a generally upright position;
(b) an impermeable elastic sleeve disposed within and secured to the outer tubular body;
(c) a filter element disposed around and supported by the inner tubular body;
(d) outlet means for the discharge of filtrate which has passed through the filter element; and
(e) means for displacing the tubular bodies axially relative to one another between first and second positions;
wherein the arrangement is such that (i) in the first position of said tubular bodies they cooperate with each other to define a closed annular chamber which is divided into generally coaxial and non-intercommunicating inner and outer compartments by said impermeable elastic sleeve, the inner compartment having an inlet for feed material comprising a mixture of a liquid and a particulate solid material and the outer compartment having an inlet for a hydraulic fluid under pressure, and in the second position of said tubular bodies said annular chamber is open to enable particulate solid material to be discharged from the inner compartment, (ii) the inlet of the inner compartment extends around the lower end of the tubular body and debouches into the inner compartment, and (iii) the inlet is in communication with an ante-chamber into which a mixture to be pressure filtered can be introduced under pressure through a feed conduit;
the improvement wherein said inlet comprises a substantially annular, upwardly inclined passage with an outlet aperture which has a width in the range of from 0.5 to 3.00 mm so that, in use, the feed material debouching from said passage has an upward component of velocity, and said feed conduit has a non-return valve associated therewith for preventing the flow back along the feed conduit of feed material to be pressure filtered which is under high pressure, said ante-chamber having a roof and wherein the outlet aperture of said substantially annular passage being located so that, in use, said outlet is higher than said roof.

4,334,997

ANAEROBIC DIGESTER TECHNOLOGY

Richard E. Peterson, 382 Pierce Ave., St. Paul, Minn. 55104

Filed 1981, Ser. No. 231,959
Int. Cl.³ C02F *3/28*
U.S. Cl. 210—603 **11 Claims**



1. In an anaerobic digester having an input end for ingress of matter, a holding chamber for stratification and transformation of the matter, and an output end for removal of predetermined components of the stratified and transformed matter, said digester having an interior top area, opposing side wall areas and an interior bottom area, a removal system for said digester to provide means to transfer the predetermined components from said holding chamber to said output end with minimal disturbance on the matter in said holding chamber, said removal system comprising:
(a) an output chamber for sealing said output end from said holding chamber, said output chamber having a lower partition extending generally upward from said interior bottom area congruously with said opposing side wall areas and having a generally horizontal edge spacially removed from said interior top area, and an upper partition disposed generally parallel to and being essentially placed towards said output end relative to said lower partition, said upper partition extending generally downward from said interior top area congruously with said opposing side wall areas and having a lower edge spacially removed from said interior bottom area of said digester, and,
(b) an upper stratum displacement means for transporting an upper stratum of matter from said holding chamber over said horizontal edge of said lower partition and into said output chamber by spraying fluid on the upper stratum, whereby a seal is formed between said output chamber and said holding chamber subsequent to the transfer of upper stratum matter from said holding chamber by said upper stratum displacement means as the level of the displaced matter reaches at least said lower edge of said upper partition to permit the removal of the displaced matter from said output chamber with minimal disturbance to the remaining matter in said holding chamber.

4,334,998

PROCESS FOR PLACING A GAS PHASE, AT LEAST ONE LIQUID PHASE, AND AT LEAST ONE COMMINUTED SOLID PHASE IN CONTACT

Gilbert M. Rios; Henri Gibert, and Jean-Louis Baxerres, all of Montpellier, France, assignors to Agence Nationale de Valorisation de la Recherche (A.N.V.A.R.), Neuilly sur Seine, France

Filed 1980, Ser. No. 163,168
Claims priority, application France, 1979, 79 17430
Int. Cl.³ C02F *3/08;* B01J *47/10*
U.S. Cl. 210—617 **12 Claims**

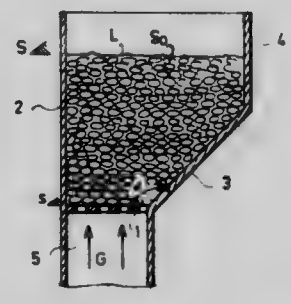
1. A process for placing in contact at least three phases

comprising a gaseous phase, a liquid phase and a solid phase wherein said solid phase comprises a particulate solid having a density between the density of said liquid phase and 1.4 times the density of said liquid phase, the process comprising

providing a compartment having a base comprising feeder means including distributor means of a cross-section area σ and a deflector means comprising a sloping side wall rising from said distributor means at an obtuse angle thereto so that the cross-sectional area of the compartment increases from a minimum area s at the level of the distributor means to a maximum area S where

$$s \geqq \sigma \text{ and } 0.15 \leqq s/S \leqq 0.75,$$

supplying said solid phase to said compartment such that the volume V_s of the solid phase is sufficient to cover said distributor means to a depth equivalent to at least two layers of the said particles,



supplying said compartment with a volume V_l of said liquid sufficient at least to cover said solid phase at rest and at most equal to five times the volume V_s of the solid phase,

feeding a gas through said distributor means into said compartment so as to generate a periodic pulsing in said liquid as said gas passes therethrough,

maintaining the flow rate of said gas such that the average gas velocity U at the narrowest cross-section of said compartment is at least equal to a critical boundary value U_c between a continuous flow state of the gas in the form of microbubbles through the solid product layer and a state of accumulation at the base of the solid product layer and at most equal to a maximum value U_E above which the liquid phase is entrained in the gas,

whereby said gas flow produces a generally circulatory motion of said liquid and solid phases in said compartment about an approximately horizontal axis.

4,334,999

PROCESS FOR THE EXTRACTION OF METAL IONS

David A. Cornwell, Okemos, Mich., assignor to Board of Trustees, Michigan State University, East Lansing, Mich.

Continuation of Ser. No. 99,019, Nov. 30, 1979, abandoned, which is a continuation-in-part of Ser. No. 25,321, Mar. 30, 1979, abandoned. This application 1981, Ser. No. 240,186

Int. Cl.³ B01D *11/00*; C02F *1/26, 1/42*

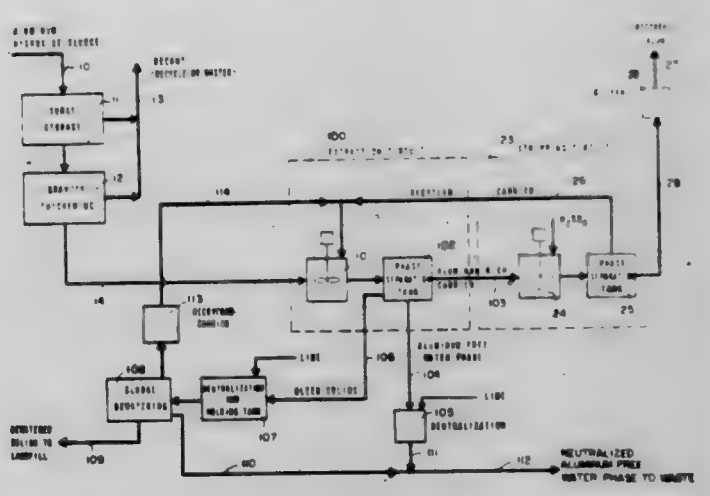
U.S. Cl. 210—638 **19 Claims**

14. The process for aluminum sulfate recovery from a sludge produced during aluminum sulfate coagulation treatment of potable water which comprises:

(a) providing an aqueous sludge mixture containing dispersed flocculated aluminum hydroxide and containing between about 0.5 to 12 percent suspended solids by weight and having a pH between about 4 and 8, wherein the aluminum hydroxide has been precipitated as a floc in the aqueous solution by the addition of the aluminum sulfate and once precipitated is not dissolved to form aluminum ions by the addition of acid to the aqueous solution;

(b) providing a water immiscible organic solvent containing an alkyl phosphoric acid ester or an alkyl phosphate acid ester as an extractant dissolved therein as a liquid ion exchange extractant mixture;

(c) contacting the aqueous mixture with the extractant mixture by providing the aqueous mixture in admixture with the extractant mixture so that aluminum reacts with the extractant to form an alkyl phosphate aluminum salt in the organic solvent, a hydrogen ion is transferred to the aqueous mixture and the pH of the aqueous solution is lowered, wherein the contacting is without prior acidification of the aqueous solution to dissolve the flocculated aluminum hydroxide with an acid other than the extractant and



wherein the aluminum from the hydroxide is preferentially extracted from the aqueous solution;

(d) separating the aqueous mixture and the extractant mixture containing the alkyl phosphate aluminum salt; and

(e) contacting the extractant mixture with aqueous sulfuric acid so that aluminum sulfate forms in an aqueous phase which can be reused as a coagulant and the alkyl phosphoric acid-ester or alkyl phosphate acid ester is regenerated in the organic solvent.

4,335,000

CHROMATE ION REMOVAL FROM AQUEOUS SOLUTIONS

Jesse G. Grier, Gilbertsville, Ky., and Jimmie R. Hodges, Downington, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 956,755, Nov. 1, 1978, abandoned, which is a continuation of Ser. No. 832,866, Sep. 13, 1977, abandoned. This application 1980, Ser. No. 118,047

Int. Cl.³ C02F *1/42*

U.S. Cl. 210—662 **17 Claims**

1. A process for removing chromate ions from aqueous feed solution comprising (a) passing said feed through an ion exchange resin bed comprising an intimate mixture of an anion exchange resin in the chloride form and a weak cation exchange resin in the conditioned hydrogen form, in which (i) the total amount of exchange sites on the anion resin is sufficient to remove the chromate ions from the feed and (ii) the cation exchange resin has a number of exchange sites not substantially less than the number of exchange sites present in the anion exchange resin (b) monitoring the pH of the effluent aqueous solution and (c) halting the feed whenever the pH of the effluent rises above about 2.

4,335,001

PROCESS AND DEVICE FOR SEPARATION OF EMULSIONS BY COALESCENCE

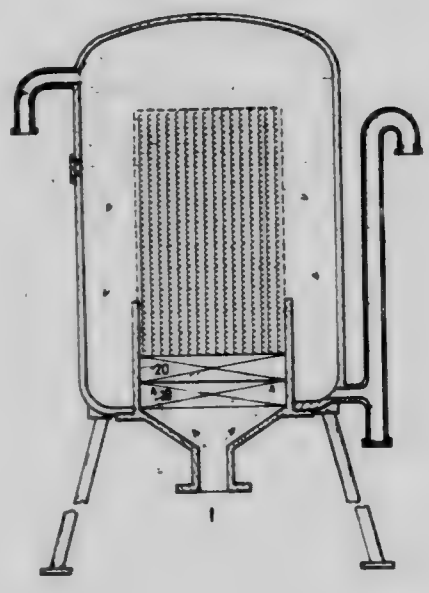
Yves Aurelle, Aucamville; Jean-Paul Calteau, Saint-Louis, and Henri Roques, Portet-sur-Garo, all of France, assignors to Agence Nationale de Valorisation de la Recherche (A.N.-V.A.R.), Neuilly-sur-Seine, France

Continuation of Ser. No. 866,817, Jan. 4, 1978, abandoned. This application 1979, Ser. No. 96,580

Claims priority, application France, 1977, 77 00203

Int. Cl.[3] B01D *17/04*

U.S. Cl. 210—708 13 Claims



1. A process for the continuous separation of a secondary emulsion of at least one dispersed phase comprising droplets of a diameter of between 0.5 and 20 microns emulsified in at least one continuous phase of different density comprising:

providing a vessel having an emulsion inlet and outlets for the separated dispersed and continuous phases and a fixed coalescing bed adjacent said emulsion inlet, said coalescing bed having a closed periphery so that supplied emulsion passes substantially solely axially through said bed,

providing guide means in contact with said bed and extending downstream away from said bed, said guide means comprising a packing of a particulate or porous material of high porosity and less density than said bed and being wettable by said dispersed phase,

causing said emulsion to flow vertically through said emulsion inlet and through said bed for achieving a good coalescence of microdroplets of said dispersed phase and continuing the flow of said emulsion vertically whereby the coalesced dispersed phase is directly axially by said guide means to the end thereof away from said bed where a layer of said coalesced phase is established in contact with said end guide means away from said bed, and the continuous phase flows radially outwardly from said guide means into a peripheral space between said guide means and said vessel, said separated phases thereby forming two layers in said vessel,

withdrawing said separated phases through the respective outlets at a rate of such that the interface between said layers remains substantially axially midway between the ends of said guide means.

4,335,002

COMPOSITIONS OF MATTER CONTAINING CIS-3-HEXENAL

Cynthia J. Mussinan, Bricktown; Braja D. Mookherjee, Holmdel; Manfred H. Vock, Locust; Frederick L. Schmitt, Holmdel; Edward J. Granda, Englishtown; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 85,707, Oct. 17, 1979, Pat. No. 4,241,098. This application 1980, Ser. No. 169,678

Int. Cl.[3] A23L *1/226, 2/26;* A61K *7/46;* C11B *9/00*

U.S. Cl. 252—1 1 Claim

1. The composition of matter consisting of:

Cis-3-hexenal from 20% up to 80%;

Trans-2-hexenal from 5% up to 40%;

Cis-3-hexenyl formate from 0% up to 20%;

Cis-3-hexenol from 0% up to 40%;

Cis-3-hexenyl-cis-3-hexenoate from 1% up to 10%;

said percentages being "mole" percentages.

4,335,003

PREPARATION AGENT FOR THE PRODUCTION OF SYNTHETIC FILAMENTS

Christlieb Nordschild, Stuttgart; Paul Rathfelder, Boeblingen; Horst Rieckert, Calw, and Dieter Wolber, Magstadt, all of Fed. Rep. of Germany, assignors to Schill & Seilacher GmbH & Co., Boeblingen, Fed. Rep. of Germany

Filed 1980, Ser. No. 165,569

Claims priority, application Fed. Rep. of Germany, 1979, 2927170

Int. Cl.[3] D06M *13/18;* C10M *3/22;* D06M *15/08*

U.S. Cl. 252—8.9 8 Claims

1. A composition for use as an auxiliary agent in the production of synthetic fibers and filaments, comprising a butylene oxide adduct of a fatty alcohol oxyethylate having the formula

$$R—O—(C_2H_4O)_n—(C_4H_8O)_mH$$

wherein

R = C_8–C_{26}

n = 1–20, and

m = 1–5

and at least one additional component of spinning preparations for the synthetic fibers and filaments.

4,335,004

LUBRICATING COMPOSITIONS CONTAINING DIESTERS OF DIMERCAPTO ETHERS

Howard F. Efner, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed 1980, Ser. No. 111,414

Int. Cl.[3] C10M *1/38*

U.S. Cl. 252—48.6 8 Claims

1. A lubricating oil composition comprising a major proportion of a mineral lubricating oil containing a small, but effective, amount, sufficient to impart lower coefficient of friction, of a diester having the general formula $RCOS(CH_2)_nO(CH_2)_nSCOR'$ where R and R' are alkyl radicals having from 7 to 25 carbon atoms, n can have values between 1–6 and the radicals need not be identical.

5. A method for reducing the coefficient of friction of mineral lubricating oils which comprises incorporating therein a small, but effective, amount sufficient to lower the coefficient of friction of a diester having the general formula $RCOS(CH_2)_nO(CH_2)_nSCOR'$ where R and R' are alkyl radicals having from 7 to 25 carbon atoms, n can have values between 1–6 and the radicals need not be identical.

4,335,005

LUBRICANT COMPOSITIONS CONTAINING METAL ANTIFATIGUE ADDITIVES

Eldon L. Armstrong, Mullica Hill, and Phillip S. Landis, Woodbury, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1980, Ser. No. 186,095
Int. Cl.³ C10M *1/10, 3/02, 7/02, 7/48*
U.S. Cl. 252—49.6 5 Claims

1. A lubricant composition comprising a major proportion of an oil selected from the group consisting of mineral oils and synthetic oils, said synthetic oils being selected from the group consisting of polyisobutylene, polybutenes, hydrogenated polydecenes, di-dodecylbenzene, polypropylene glycol, polyethylene glycol, trimethylol propane esters, neopentyl and pentaerythritol esters, di(2-ethylhexyl) sebacate, di(2-ethyl hexyl) adipate, dibutylphthalate, fluorocarbons, silicate esters, silanes, esters of phosphorous-containing acids, liquid ureas, ferrocene derivatives, hydrogenated mineral oils, chain-type polyphenyls, siloxanes and silicones, polysiloxanes, alkyl-substituted diphenyl ethers, butyl-substituted bis(p-phenoxyphenyl)ether, phenoxy phenylethers, and greases thereof containing, in an amount sufficient to improve metal-fatigue, a compound selected from the group consisting of arylboronic acids and hydrocarbyl group substituted arylboronic acids.

4,335,006

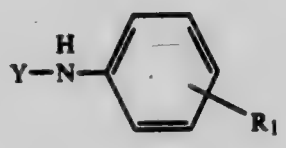
METHOD OF STABILIZING LUBRICATING FLUIDS

Baldev K. Bandlish, Middlebury; Frederick C. Loveless, Cheshire, and Walter Nudenberg, Newtown, all of Conn., assignors to Uniroyal, Inc., New York, N.Y.

Continuation of Ser. No. 43,995, May 31, 1979, abandoned. This application 1980, Ser. No. 194,326
Int. Cl.³ C10M *1/10, 1/54*
U.S. Cl. 252—49.7 16 Claims

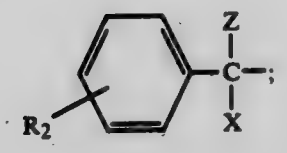
1. A method for stabilizing a lubricating oil which comprises utilizing as a stabilizer system an effective amount of:

(A) An amine compound of the general formula



(I)

wherein Y is



(II)

wherein Z and X are each H or C_1-C_2 alkyl;
provided however that both X and Z are not simultaneously H; R_1 is $COOC_2H_5$, CH_3O, or p-Cl and R_2 is selected from the group consisting of H, CH_3, CH_3O, octyl and nonyl;
(B) a metal deactivator; and
(C) a metal compound wherein the metal compound is a metal or a metal salt, said metal salt being soluble in the lubricating fluid wherein (A) is present in amounts of from about 0.5 to 5.0 parts per 100 parts oil, (B) is present in amounts of about 0.05 to about 1.0 part by weight per 100 parts of oil, and (C) is present in an amount of from 1 to about 25 parts of metal per million parts of oil.

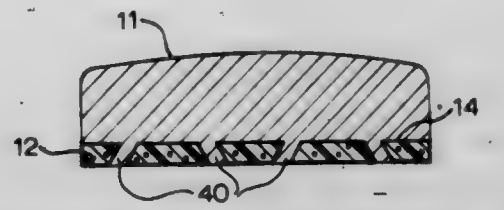
4,335,007

SOAP BAR

Dovie A. Owens, Rte. 2, Box 460, Fulton, Miss. 38843

Filed 1981, Ser. No. 240,543
Int. Cl.³ C11D *17/00, 17/04*
U.S. Cl. 252—92 1 Claim

1. A soap cake comprising a base member formed of a water stable material, said base member having a top surface, a plurality of surface interruptions formed in said top surface extending into said base member, said surface interruptions having wall portions extending into said base member at a non-perpendicular angle to the surface, a soap bar formed above said base on said base having portions thereof extending into said surface interruptions and filling said surface interruptions, said



surface interruptions formed as bores extending into the base having bore walls lying at a non-perpendicular angle to the base, a first plurality of said bores having walls lying at a first angle to the perpendicular to the base and a second plurality of said bores having walls lying at a second angle to the perpendicular to said base, said second angle being different than said first angle and opposed thereto.

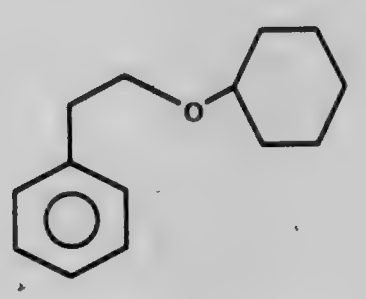
4,335,008

PROCESS FOR AUGMENTING OR ENHANCING THE AROMA OF DETERGENTS USING CYCLOHEXYL PHENETHYLETHER

Jacob Kiwala, Brooklyn, N.Y.; Richard J. Tokarzewski, Keyport, N.J.; Frederick L. Schmitt, Holmdel, N.J., and Mark A. Sprecker, Sea Bright, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 192,238, Sep. 30, 1980, Pat. No. 4,306,096. This application 1981, Ser. No. 267,900
Int. Cl.³ C11D *3/50*
U.S. Cl. 252—174.11 1 Claim

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic, or zwitterionic, detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base an aroma augmenting or enhancing quantity of cyclohexyl phenethylether having the structure:



4,335,009

MIXTURE OF ALIPHATIC C_{10} BRANCHED OLEFIN EPOXIDES AND USE THEREOF IN AUGMENTING OR ENHANCING THE AROMA OF PERFUMES AND/OR ARTICLES

Richard M. Boden, Monmouth Beach; Lambert Dekker, Wyckoff; Frederick L. Schmitt, Holmdel, all of N.J., and Augustinus G. Van Loveren, Rye, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 160,788, Jun. 19, 1980, Pat. No. 4,287,084. This application 1980, Ser. No. 195,630
Int. Cl.³ C11D *3/395, 3/39, 7/54*
U.S. Cl. 252—187.27 2 Claims

1. A process for augmenting or enhancing the aroma of a liquid bleach containing a hypochlorite ion comprising the step of adding to a liquid bleach composition one or more diisoamylene epoxide-containing compositions produced by the steps of (i) reacting two moles of isoamylene in the presence of an acid catalyst to produce a diisoamylene composition and (ii) epoxi-

dizing the resulting diisoamylene with a peracid to produce a diisoamylene epoxide-containing composition, said diisoamylene epoxide-containing composition being in an organoleptic property modifying amount.

4,335,010

PREPARATION OF MUCONIC ACID MONONITRILES AND COPPER(II)-AMMONIA REAGENT THEREFOR

Timothy R. Demmin, Randolph, and Milorad M. Rogic, Whippany, both of N.J., assignors to Allied Corporation, Morristown, N.J.

Division of Ser. No. 74,442, Sep. 11, 1979, Pat. No. 4,277,419, which is a continuation-in-part of Ser. No. 942,507, Sep. 15, 1978, abandoned. This application 1981, Ser. No. 230,761

Int. Cl.³ C01G *3/14*; C07C *120/00*

U.S. Cl. 252—189 **13 Claims**

1. A method of forming a copper(II)-ammonia reagent which comprises oxidizing a soluble cuprous salt with oxygen in an organic solvent containing a nitrogen with an unshared electron pair and reacting the product with ammonia or ammonium hydroxide.

4,335,011

CYCLOHEXYL-DIOXANE LIQUID CRYSTALLINE COMPOUNDS

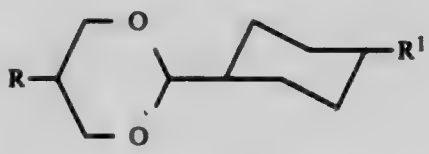
Nicholas L. Sethofer, San Jose, Calif., assignor to Timex Corporation, Waterbury, Conn.

Division of Ser. No. 135,381, Mar. 28, 1980, Pat. No. 4,298,528. This application 1981, Ser. No. 268,464

Int. Cl.³ C09K *3/34*; G02F *1/13*; C07D *319/04*

U.S. Cl. 252—299.1 **7 Claims**

1. In an electrooptical display including a liquid crystalline material, the improvement wherein the liquid crystalline material comprises a compound of the formula:



where R and R^1 can be the same or different straight chain alkyl or alkoxy group.

4,335,012

5-SUBSTITUTED-2-(4-CYANOPHENYL)-1,3-DIOXANES

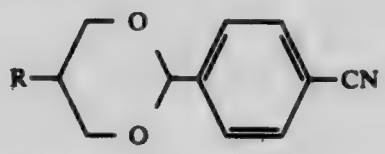
Howard Sorkin, Berkeley Heights, N.J., assignor to Timex Corporation, Waterbury, Conn.

Division of Ser. No. 136,855, Apr. 3, 1980, Pat. No. 4,322,354, which is a continuation-in-part of Ser. No. 17,635, Mar. 5, 1979, abandoned. This application 1981, Ser. No. 280,762

Int. Cl.³ C09K *3/34*; C02F *1/13*

U.S. Cl. 252—299.61 **3 Claims**

1. In an electrooptical display including a liquid crystalline material, the improvement wherein the liquid crystalline material comprises a compound of the formula:



where R is an alkyl group.

4,335,013

SOLVENTS USEFUL IN PRESSURE-SENSITIVE MARK-RECORDING SYSTEMS

Pierre J. Allart, Brussels, and Claude A. Guillaume, Jodoigne, both of Belgium, assignors to Monsanto Company, St. Louis, Mo.

Filed 1980, Ser. No. 179,414

Claims priority, application United Kingdom, 1979, 7929565

Int. Cl.³ B01F *1/00*

U.S. Cl. 252—364 **11 Claims**

1. A solvent suitable for use in a pressure-sensitive mark-recording system, said solvent comprising a blend of an aromatic hydrocarbon component and a diester component, the former being a hydrocarbon in which at least half the carbon atoms are benzenoid or a mixture of such hydrocarbons, characterized in that the diester component is a diester of either of the formulas

$$ROOC(C_nH_{2n})COOR^1 \text{ or } R^2COO(C_nH_{2n})OOCR^3$$

wherein n is an integer from 1 to 20, R is an aliphatic hydrocarbon group containing up to 18 carbon atoms or a cycloaliphatic hydrocarbon group containing from 5 to 10 carbon atoms and R^1 is an aliphatic hydrocarbon group containing up to 18 carbon atoms or a cycloaliphatic hydrocarbon group containing from 5 to 10 carbon atoms or a benzyl group or an alkylbenzyl group containing up to 3 carbon atoms substituted onto the benzene nucleus and each of R^2 and R^3 is an aliphatic hydrocarbon group containing up to 18 carbon atoms or a mixture of such diesters, and the weight ratio of the aromatic hydrocarbon component to the diester component in the blend is from 85:15 to 10:90.

4,335,014

PROCESS FOR IMPROVING THE ACTIVITY OF SUPPORTED SILVER CATALYSTS

Josef Alfranseder, Marktl; Sigmund Mayer, Burgkirchen; Siegfried Rebsdat, Burg; Josef Riedl, Burgkirchen, and Iwo Schaffelhofer, Burghausen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed 1980, Ser. No. 188,237

Claims priority, application Fed. Rep. of Germany, 1979, 2938245

Int. Cl.³ B01J *23/96, 23/48*

U.S. Cl. 252—412 **2 Claims**

1. In the process for improving the activity of used supported silver catalysts used in the direct oxidation of ethylene to ethylene oxide by means of molecular oxygen or air in which the used catalyst is (a) firstly washed with an inert liquid and (b) on the washed catalyst is then deposited 1 to 1,000 parts, per 1 million parts of catalyst, of cesium, rubidium or a mixture thereof: the improvement which comprises using as said inert washing liquid a solution consisting of 10 to 50 percent by weight of water, 30 to 89 percent by weight of an aliphatic alcohol having 1 to 6 carbon atoms or an aliphatic ketone having 3 to 10 carbon atoms and 1 to 20 percent by weight of an amine selected from the group consisting of propylamine, butylamine, secondary butylamine, monoethanolamine, and ethylenediamine, the percentages by weight being in each case relative to the solution.

2. In the process for improving the activity of used supported silver catalyst used in the direct oxidation of ethylene to ethylene oxide by means of molecular oxygen or air in which the used catalyst is (a) firstly washed with an inert liquid and (b) on the washed catalyst is then deposited 1 to 1,000 parts, per 1 million parts of catalyst, of cesium, rubidium or a mixture thereof: the improvement which comprises using as said inert washing liquid a solution consisting of

(a) an aqueous ammonia solution or an alcoholic ammonia solution having an NH_3 concentration of 1 to 10 percent by weight; or

(b) an aqueous alcoholic ammonia solution or an aqueous

ketonic ammonia solution having an NH_3 concentration of 1 to 10 percent by weight, a water concentration of 10 to 50 percent by weight and a concentration of alcohol or ketone of 40 to 89 percent by weight, the percentage by weight in each case relating to the solution; the alcohol in (a) and (b) being an aliphatic alcohol having 1 to 6 carbon atoms and the ketone in (b) being an aliphatic ketone having 3 to 10 carbon atoms.

4,335,015

CATALYST COMPONENT FOR POLYMERIZATION OF ALPHA-OLEFINS AND METHOD OF USING IT

Masafumi Imai, Ooi; Hiroshi Ueno, Namekawa, and Naomi Inaba, Ooi, all of Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 161,978
Claims priority, application Japan, 1979, 54/93681
Int. Cl.³ C08F *4/64*
U.S. Cl. 252—429 B **26 Claims**

1. A supported titanium-containing catalyst component adaptable for use in the polymerization of alpha-olefins comprising a solid component which has been co-pulverized with and/or subjected to contacting treatment by forming a slurry in the presence of an inert hydrocarbon with a mixture comprising an organoaluminum compound and an electron donor compound, said solid component comprising co-pulverized and/or slurry contacted magnesium halide and a titanium halide treated under activating conditions with a halogen compound.

4,335,016

CATALYST AND METHOD

Robert A. Dombro, Clinton, Iowa, assignor to Chemplex Company, Rolling Meadows, Ill.

Filed 1981, Ser. No. 237,297
Int. Cl.³ C08F *4/06, 4/16*
U.S. Cl. 252—429 B **14 Claims**

1. A catalyst prepared by (1) forming a mixture of a finely divided porous support comprising silica, alumina, zirconia, thoria, or magnesia or mixtures thereof and an alkyl magnesium compound; (2) heating said mixture for a time and at a temperature sufficient to react said support and said alkyl magnesium compound; (3) reacting, by heating, the product of (2) with a hydrocarbylhydrocarbyloxysilane; (4) reacting, by heating, the product of (3) with a titanium compound that contains a halide; or (5) reacting the product of (2) with the reaction product of a hydrocarbylhydrocarbyloxysilane and a titanium compound that contains halide; and (6) activating the catalyst product of (4) or (5) with a cocatalyst comprising hydrogen or an alkyl lithium, alkyl magnesium, alkyl aluminum, alkyl aluminum halide or alkyl zinc.

4,335,017

COMPOSITE MATERIALS COMPRISING DEFORMABLE XEROGEL WITHIN THE PORES OF PARTICULATE RIGID SUPPORTS USEFUL IN CHROMATOGRAPHY

Brynley J. Miles, Cirencester, and Alan Rosevear, Faringdon, both of England, assignors to United Kingdom Atomic Energy Authority, Oxfordshire, England

Continuation-in-part of Ser. No. 750,706, Dec. 15, 1976, abandoned. This application 1977, Ser. No. 858,798
Claims priority, application United Kingdom, 1975, 51345/75; 1976, 52432/76; 1976, 52433/76
Int. Cl.³ B01J *20/32, 20/26, 20/14*; B01D *15/08*; B01J *31/06*; B01J *31/02*; B01J *21/08*
U.S. Cl. 252—430 **40 Claims**

1. A particulate material comprising a plurality of discrete porous rigid support particles and a deformable xerogel retained within and substantially filling the pore structure of the support particles, said deformable xerogel being capable of sorbing chemical species from solution.

13. A composite material as claimed in claim 1 wherein a component of the deformable xerogel is a polysaccharide gel or a synthetic polymer gel.

15. A composite material as claimed in claim 13 wherein the synthetic polymer gel is a polymer of an acrylate or a polyvinyl alcohol polymer gel.

4,335,018

CATALYST FOR THE PRODUCTION OF MALEIC ANHYDRIDE

Gerhard Franz; Franz Nierlich, and Hans-Josef Ratajczak, all of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Division of Ser. No. 114,448, Jan. 22, 1980, Pat. No. 4,268,448. This application 1980, Ser. No. 202,281
Claims priority, application Fed. Rep. of Germany, 1979, 2902986
Int. Cl.³ B01J *27/14, 29/00*
U.S. Cl. 252—435 **13 Claims**

1. A catalyst, suitable for the catalyzed oxidation of ethylenically unsaturated C_4-n-hydrocarbons to maleic anhydride, of the formula

$$W_aMo_bSb_cY_dX_eO_x$$

wherein Y represents phosphorus and/or silicon; X is at least one of vanadium, bismuth, tellurium and an alkali metal; a and b are each independently a number from 1 to 12; c is a number from 2 to 20; d is a number from 0.2 to 2; e is a number from 0 to 10; and x is the number of oxygen atoms required to satisfy the remaining valences of the other elements present, which catalyst is produced by mixing a compound of trivalent antimony and, when e is other than 0, at least one of a vanadium, bismuth, tellurium and alkali metal compound, with a solution of a mixture of the heteropoly acids of molybdenum and of tungsten to form a blue, gel-like precursor, drying, and then calcining.

4,335,019

PREPARATION OF NATURAL FERRIERITE HYDROCRACKING CATALYST AND HYDROCARBON CONVERSION WITH CATALYST

Emmerson Bowes, Woodstown, and Bruce P. Pelrine, Trenton, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1981, Ser. No. 225,079
Int. Cl.³ B01J *29/30, 37/00*
U.S. Cl. 252—450 **12 Claims**

1. A catalyst composition comprising natural ferrierite treated by contact with oxalate ion under conditions effective to impart to said ferrierite a Constraint Index from about 1 to 12, and at least one hydrogenation component selected from the metals of Group VIA and Group VIII of the periodic table.

2. The composition described in claim 1 wherein said contacting comprises first contacting said ferrierite with oxalic acid and then contacting the resultant oxalic acid treated-ferrierite with an aqueous diammonium oxalate solution.

4,335,020

METHOD OF PREPARATION OF COMPOSITE ZEOLITE CATALYSTS

Pochen Chu, West Deptford, N.J.; Francis G. Dwyer, West Chester, and Albin Huss, Chadds Ford, both of Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1981, Ser. No. 222,848
Int. Cl.³ B01J *29/06, 29/28*
U.S. Cl. 252—455 Z **23 Claims**

1. A method of removing organic species from an organic cation-containing zeolite to improve the dispersive properties thereof, in turn, resulting in catalysts of enhanced catalytic and physical properties which comprises contacting said zeolite with a solution of a compound having a standard oxidation potential of at least 0.25 volt for a period of time sufficient to

effect oxidation of said organic cation, said contact being conducted at temperatures below 100° F.

11. A method according to claim 1 wherein said compound is a hypochlorite.

4,335,021

CATALYST REGENERATION

Dwight L. McKay, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed 1980, Ser. No. 117,927

Int. Cl.³ B01J *21/12, 29/16, 29/38*

U.S. Cl. 252—455 R **5 Claims**

1. In a combustion process wherein carbonaceous material on silica or silica/alumina base cracking catalyst particles containing both manganese and antimony is at least partly removed by contacting the catalyst particles with a free oxygen containing gas

the improvement comprising carrying out said combustion process at a temperature in the range of 1260° to 1280° F. in order to achieve a high CO_2/CO ratio in the combustion gas.

4. A cracking catalyst useful for the cracking of hydrocarbons in the absence of added hydrogen and being based upon silica or silica/alumina containing both manganese and antimony in a weight ratio of 2:1 to 1:2.

5. A catalyst in accordance with claim 4 comprising a zeolite modified silica or silica/alumina material being rare earth ion exchanged and containing both manganese and antimony in a weight ratio of 2:1 to 1:2.

4,335,022

MODIFIED SILICA COMPOSITION

Lynn H. Slaugh, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 61,205, Jul. 27, 1979, abandoned. This application 1980, Ser. No. 219,279

Int. Cl.³ B01J *21/12*

U.S. Cl. 252—455 R **12 Claims**

1. A process for preparing a siliceous composition which comprises impregnating a substantially dehydrated amorphorous silica gel with aluminum hydride dissolved in an anhydrous, non-hydroxyl containing organic solvent, drying the impregnated silica to remove the solvent and subsequently heating the impregnated silica at a temperature of about 300° to about 900° C. in a non-oxidizing atmosphere.

5. The process of claim 1 wherein the impregnated silica before heating contains from about 1 to about 10 percent by weight of aluminum hydride measured as the metal.

6. The process of claim 5 wherein the aluminum hydride is $AlH_3.\frac{1}{3}(CH_3CH_2)_2O$ dissolved in tetrahydrofuran or diethyl ether.

4,335,023

MONOLITHIC CATALYST MEMBER AND SUPPORT THEREFOR

Joseph C. Dettling, Jackson; John J. Mooney, Wyckoff; Robert M. Skomoroski, Paterson, and Saul G. Hindin, Mendham, all of N.J., assignors to Engelhard Corporation, Iselin, N.J.

Filed 1980, Ser. No. 114,807

Int. Cl.³ B01J *21/04, 23/40, 35/04*

U.S. Cl. 252—466 PT **32 Claims**

1. In a carrier member adapted to have a catalytic promoting material deposited as a coating thereon and comprising a monolithic body having opposite end faces, a plurality of fluid flow channels extending through said body from one of said end faces to the other to provide fluid flow communication through said body, said channels being formed by channel walls dimensioned and configured to define along their length a nominally polygonal shaped cross section profile of said channels, the improvement comprising that the juncture of adjacent walls within said channels are formed by fillet portions of said walls, said fillet portions extending along the length of said channels and defining in cross section concave profiles of a depth sufficient to extend at least to the midpoint of a segment of a circle taken as disposed tangentially with respect to the two channel walls whose juncture is provided by said fillet and which segment subtends between about 1.5% to 40% of the nominal width of each of the two channel walls adjacent to said juncture.

4,335,024

LIQUID DETERGENT COMPOSITIONS COMPRISED OF MIXTURES OF ALKYL POLYGLYCOL ETHERS AND QUATERNARY AMMONIUM COMPOUNDS

Manfred Hennemann, Hilden; Albrecht Loehr, Eggerscheid; Peter Krings, Krefeld, and Rudolf Weber, Düsseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Continuation of Ser. No. 32,462, Apr. 23, 1979, abandoned. This application 1981, Ser. No. 243,431

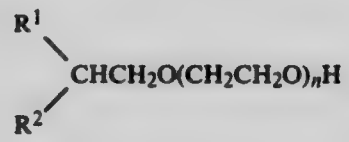
Claims priority, application Fed. Rep. of Germany, 1978, 2824024

Int. Cl.³ C11D *1/835, 1/62;* D06M *13/46*

U.S. Cl. 252—545 **11 Claims**

1. A liquid detergent composition comprised of:

(a) from about 5 to 18% by weight of a mixture of alkyl polyglycol ethers of the formula

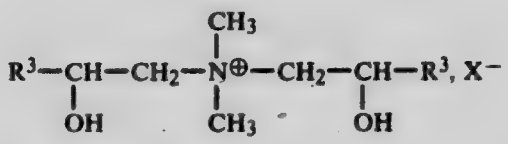


(I)

wherein R^1 represents a linear alkyl radical; R^2, in from about 20 to 75% of said alkyl polyglycol ethers, represents a C_1 to C_4 alkyl group and, in from about 25 to 80% of said alkyl polyglycol ethers, represents a hydrogen atom, the total number of carbon atoms in R^1 and R^2 together being from about 11 to 15; and n represents an average value of from about 5 to 9, n being a value such that the ethylene oxide content represents from about 50 to 65% by weight, based on the total weight of the mixture of alkyl polyglycol ethers;

(b) from about 5 to 18% by weight of a mixture of polyglycol ethers of Formula I, wherein R^1 represents a linear alkyl radical; R^2 is a hydrogen atom or, in from about 20 to 75% of said alkyl polyglycol ethers, represents a C_1 to C_4 alkyl group and, in from about 25 to 80% of said alkyl polyglycol ethers, represents a hydrogen atom, the total number of carbon atoms in R^1 and R^2 together being from about 6 to 10; and n represents an average value of from about 3 to 8, n being of such a value that the ethylene oxide content represents from about 55 to 70% by weight, based on the total weight of the mixture of alkyl polyglycol ethers, the quantitative ratio of (a) to (b) being from about 2:1 to 1:2, and

(c) from about 2.5 to 10% by weight, of a compound of the formula



(II)

wherein R^3 represents a linear or branched alkyl radical having substantially from about 14 to 16 carbon atoms and X^- represents an anion selected from the group comprised of chloro, bromo, methyl sulfato, ethyl sulfato, methane sulfonato, ethane sulfonato, and toluene sulfonato groups, or a mixture of the compounds.

4,335,025

PROCESS FOR THE PREPARATION OF SYNTHETIC DETERGENT BARS, AND PRODUCTS PRODUCED THEREBY

Graham Barker, Fair Lawn; Leopold Safrin, East Orange, and Martin J. Barabash, Montvale, all of N.J., assignors to Witco Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 122,538, Feb. 19, 1980, abandoned. This application 1981, Ser. No. 239,931
Int. Cl.[3] C11D *1/04, 1/12, 11/04, 17/00*
U.S. Cl. 252—550 13 Claims

1. A process for in situ preparation of synthetic detergent compositions suitable for direct utilization in the processing of syndet bars having improved soap-like properties which comprises blending, at elevated temperatures and at a controlled rate, about a stoichiometric amount of a C_8–C_{16} alkyl monoester of butenedioic acid with an alkali metal sulfite in an aqueous dispersion of a water-soluble anionic surfactant in a molten waxy extender, the water concentration being between about 5 and about 12 percent, by weight, based upon the total weight of the reaction mass, said mass being kept fluid throughout the reaction and maintained at a temperature below about 85° C.; and, likewise based upon the total weight of the reaction mass, the surfactant being present in the concentration of about 4 to about 20 percent, and the waxy extender in the concentration of about 18 to about 45 percent, the anionic surfactant being selected from water-soluble alkali metal salts of C_{12}–C_{14} alkaryl sulfonate, C_{14}–C_{16} olefin sulfonate, C_{10}–C_{16} acyl isethionate, C_{10}–C_{16} alkyl sulfoacetate, C_{12}–C_{16} alkyl sulfate, C_{12}–C_{14} alkane sulfonate, and mixtures thereof; and recovering resulting mono-alkyl sulfocsuccinate-containing syndet composition.

4,335,026

PRESSURE-SENSITIVE ADHESIVE COMPOSITIONS HAVING HIGH SHEAR AND LOW PEEL RESISTANCE

Ivan J. Balinth, Cranford, N.J., assignor to Johnson & Johnson Products Inc., New Brunswick, N.J.

Filed 1981, Ser. No. 248,595
Int. Cl.[3] C08L *7/02*
U.S. Cl. 524—271 14 Claims

1. A pressure-sensitive adhesive composition comprising (1) from about 25% to about 42% by weight of the total composition of an elastomeric blend consisting of a rubber and an olefin terpolymer of ethylene, propylene and 1,4-hexadiene, wherein the weight ratio of ethylene monomer to propylene monomer is approximately 3:1 and said hexadiene is present in an amount of from about 1% to about 8% by weight, having a modulus, M_{60}, at 60% elongation of from about 1 to about 1.5 megapascals and a polydisparity of up to about 10, the weight ratio of said natural rubber to said terpolymer in said blend being from about 7.5:1 to about 2:1; (2) from about 5% to about 15% by weight of the total composition of a liquid plasticizer component selected from the group consisting of isomeric liquid polybutenes, mineral oils, low molecular weight polyterpenes, low viscosity rosins and mixtures thereof, with the proviso that when mineral oil is utilized, it comprises no more than 50% of the liquid plasticizer component; (3) from about 12% to about 20% by weight of the total composition of a reinforcing filler; and (4) from about 30% to 50% by weight of the total composition of a solid tackifier component, selected from the group consisting of normally solid polyterpenes, solid rosins and mixtures thereof, said pressure-sensitive adhesive composition having a Williams plasticity of from about 2 mm to about 3 mm.

4,335,027

AIR-DRIABLE ALKYD RESINS AND PROCESS FOR THEIR PREPARATION

George E. Cremeans, Groveport, and Richard A. Markle, Columbus, both of Ohio, assignors to Battelle Development Corporation, Columbus, Ohio

Filed 1981, Ser. No. 257,532
Int. Cl.[3] C09D *3/28, 3/58, 3/64*
U.S. Cl. 528—281 26 Claims

1. A process for preparing an air-driable alkyd resin which comprises polymerizing an anhydride of a dicarboxylic acid with a glycidyl compound selected from the group comprising glycidyl esters of primary fatty acids, at least part of said esters having at least two —CH=CH— linkages in the fatty acid residue thereof not $\alpha'\beta$ to the carboxyl group residue, mixtures of said glycidyl ester and glycidyl ether, and mixtures of said glycidyl ester and epichlorohydrin.

4,335,028

CATHODIC ELECTROCOATING COMPOSITIONS CONTAINING BASE-FUNCTIONAL GRAFT POLYMERS HAVING EPOXY RESIN BACKBONES, AND SUBSTRATES COATED THEREWITH

Vincent W. Ting, Boulder, Colo.; James T. K. Woo, Medina, and David A. Borovicka, Sr., Parma, both of Ohio, assignors to SCM Corporation, New York, N.Y.

Filed 1980, Ser. No. 188,996
Int. Cl.[3] C08L *63/00*
U.S. Cl. 524—504 32 Claims

1. A coating composition of matter comprising a graft polymer, an ungrafted epoxy polymer, and ungrafted addition polymer, said graft polymer having as one component a 1,2-epoxy resin that has aliphatic backbone carbons that in the ungrafted state have one or two hydrogens bonded thereto, and as another component, at least one addition polymer component of polymerized ethylenic monomers wherein said addition polymer component is grafted by carbon-to-carbon bonding to at least one of said aliphatic backbone carbons of the said 1,2-epoxy resin, said graft polymer having in said addition polymer component copolymerized ethylenically unsaturated amine monomer to provide at least one base-reacting amine group that renders the graft polymer base-functional and said composition having a Base Number of at least 20.

4,335,029

AQUEOUS POLYURETHANE COMPOSITIONS

Shmuel Dabi, Fair Lawn; Peter Loewrigkeit, Wyckoff, and Kenneth A. Van Dyk, Stockholm, all of N.J., assignors to Witco Chemical Corporation, New York, N.Y.

Filed 1980, Ser. No. 216,721
Int. Cl.[3] C08L *75/06*
U.S. Cl. 524—589 18 Claims

1. A stable aqueous dispersion of a room temperature curing polurethane forming films resistant to water and organic solvents, prepared by

a. dispersing in water an NCO-terminated polyurethane prepolymer containing units derived from melamine in the prepolymer chain and pendant water-dispersing carboxylic salt groups,

b. chain extending the dispersed prepolymer by mixing into the dispersion an aliphatic polyamine chain extender more reactive with NCO groups than water,

c. end capping the resulting dispersed polyurethane by mixing into the dispersion an organic dihydrazide, and

d. reacting the resulting dispersed end capped polyurethane by mixing formaldehyde into the dispersion to convert hydrazide end caps into N-methylol groups;

the resulting N-methylol terminated polyurethane containing about 1% to about 5% by weight of units derived from melamine.

4,335,030

AQUEOUS DISPERSION OF FLUOROPOLYMERS IN COMBINATION WITH EPOXY-TYPE FILM FORMERS

Thomas P. Concannon, Newtown Square, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 279,162
Int. Cl.³ C08K 5/17
U.S. Cl. 523—408 31 Claims

1. An aqueous coating composition having a dispersed phase which consists essentially of:

(A) 90 to 10% by weight, based on the weight of (A) plus (B), of the reaction product of:

(1) at least 50%, based on the weight of (1) plus (2), of an epoxy resin containing, on the average, two terminal 1,2-epoxy groups per molecule and having an epoxy equivalent weight of 750–5000;

(2) a carboxyl-functional polymer in an amount sufficient to provide at least 2.50 equivalents of carboxyl groups, when the source of the carboxyl group is a mono-protic acid, and at least 4.0 equivalents of carboxyl groups, when the source of such groups is a diprotic acid, per equivalent of 1,2-epoxy groups in the epoxy resin, said polymer having a weight average molecular weight (determined by light scattering) of about 10,000–50,000 and an acid number of 200–500;

(3) an aqueous solution of at least 1.50 equivalents of a tertiary amine per equivalent of 1,2-epoxy groups in the epoxy resin, said tertiary amine being selected from the group consisting of $R_1R_2R_3N$, pyridine, N-methylpyrrole, N-methyl piperidine, N-methyl pyrrolidine, N-methyl morpholine, and mixtures thereof and wherein R_1 and R_2 are substituted or unsubstituted monovalent alkyl groups containing one or two carbon atoms in the alkyl portion and R_3 is a substituted or unsubstituted monovalent alkyl group containing 1–4 carbon atoms; and

(4) 10–90% of the amount required for stoichiometric reaction with the carboxyl-functional polymer of (2), of at least one primary, secondary or tertiary amine or monofunctional quaternary ammonium hydroxide, such that the pH of the reaction product of (A) is greater than 8.5;

Y being at least about $6+0.75\ (2^x)$, where Y is the milliequivalent of carboxyl groups neutralized by primary, secondary or tertiary amine or monofunctional quaternary ammonium hydroxide per 100 grams of acid polymer plus epoxy, and X is the epoxy equivalent weight divided by 1000;

and wherein for increasing ratios of carboxyl groups to 1,2-epoxy groups, the amount of amine is increased to keep the carboxyl-functional polymer water dispersible;

(B) 10–90% by weight, based on the weight of (A) plus (B), of a fluorocarbon polymer; and

(C) optionally, up to 20% by weight, based on the weight of (A), of a nitrogen or phenolic cross-linking agent.

4,335,031

ELECTROCOATING COMPOSITION WITH POLYHYDROXYAMINE AND POLYBUTADIENE

Isidor Hazan, Clementon, N.J., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 106,254, Dec. 21, 1979, abandoned. This application 1980, Ser. No. 220,953
Int. Cl.³ C08L 29/02, 39/00
U.S. Cl. 524—504 11 Claims

1. An aqueous cathodic electrodeposition coating composition comprising a first polymer, a second polymer, enough of an organic acid to give the composition a pH about in the range of 6 to 7, and optionally a nitrogen resin crosslinker, said coating composition containing, by weight based on the first and second polymers, about 20–70% of a first polymer which is a copolymer comprising a backbone and a graft pendent to the backbone, said backbone containing amine functional groups and hydroxy functional groups, characterized in that said backbone contains at least about 0.13 equivalent of amine groups per 100 grams of first polymer and at least about 0.03 equivalent of hydroxyl groups per 100 grams of first polymer, and containing, by weight, the equivalent of about:

(a) 35–90% amine functional monomers,

(b) 10–60% hydroxy functional monomers,

(c) 0–40% nonfunctional acrylic or methacrylic monomers, and

(d) 0–5% chain-terminating monomers

the total of (a), (b), (c) and (d) being 100% of said backbone, said graft comprising a monoglycidyl ester of at least one tertiary carboxylic acid containing 9–20 carbon atoms and being grafted to said amine groups in said backbone, said copolymer containing about 1–30% by weight of said graft, and, by weight based on the first and second polymers, about 80–30% of a second polymer which is polybutadiene.

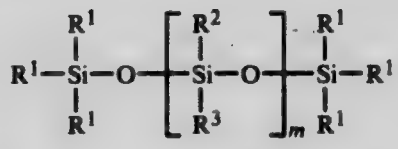
4,335,032

POLYCARBONATE RESIN IMPACT MODIFIED WITH POLYOLEFINS AND CONTAINING POLYORGANOSILOXANE FLUIDS

Niles R. Rosenquist, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed 1980, Ser. No. 221,934
Int. Cl.³ C08L 69/00
U.S. Cl. 524—269 9 Claims

1. A polycarbonate composition comprising in admixture a high molecular weight aromatic carbonate polymer and a minor amount of a polyolefin and a polyorganosiloxane of the following formula:



wherein R^1 is a radical selected from the group consisting of alkyl, haloalkyl, aryl, aralkyl, alkaryl, alkoxy, aryloxy, and halogenated derivatives of the aforesaid aryl, aralkyl, alkaryl, alkoxy or aryloxy radicals; R^2 and R^3 are radicals selected from the group consisting of straight chain or branched lower alkyl radicals containing from 1 to about 10 carbon atoms and phenyl radicals; and m is an integer of such value that the polyorganosiloxane is a fluid at ambient temperatures.

4,335,033

ERASER AND PROCESS FOR ITS MANUFACTURE

Werner Handl, Altdorf, Fed. Rep. of Germany, assignor to J. S. Staedtler, Nuremberg, Fed. Rep. of Germany

Filed 1979, Ser. No. 67,001
Claims priority, application Fed. Rep. of Germany, 1978, 2837159
Int. Cl.³ C08K 5/10
U.S. Cl. 524—525 6 Claims

6. An eraser consisting essentially of 30 to 60 parts by weight of polyvinyl chloride, 10 to 20 percent of a softener, 10 to 40 percent of a filler and 10 to 60 percent of a cross-linked natural or synthetic rubber in the form of particles embedded in and distributed throughout the polyvinyl chloride.

4,335,034

THERMOPLASTIC COMPOSITIONS AND AUTOMOTIVE CARPETING BACKED THEREWITH

Joseph L. Zuckerman, Livingston, and John W. Bzik, North Haledon, both of N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.

Division of Ser. No. 970,693, Dec. 18, 1978, Pat. No. 4,242,395.
This application 1980, Ser. No. 149,091
Int. Cl.[3] C08K *3/24, 3/26, 5/01;* C08L *9/00*
U.S. Cl. 524—423 6 Claims

1. A thermoplastic composition useful as a backing material for carpeting, said thermoplastic composition consisting of by weight:

(a) About 5–25 percent of an ethylene containing polymer which is polyethylene or an ethylene/mono-unsaturated ester copolymer having a melt index of about 1 to 10,

(b) About 1–10 percent of a non-vulcanized elastomer having a Mooney viscosity of about 20–90, which is a styrene-butadiene rubber, polybutylene, a nitrile-butadiene rubber, a copolymer of ethylene and propylene or a terpolymer of ethylene, propylene and a minor amount of a diene monomer or mixtures thereof, and the diene is selected from the class consisting of 1,4-pentadiene, 2-methyl-1, 4-pentadiene, 1,5-hexadiene, 1,4-hexadiene, 2-methyl-1, 5-hexadiene, dicyclopentadiene, norbornadiene, methylenenorbornene and 1,5-cyclooctadiene.

(c) About 60–90 percent of an inert mineral filler, and

(d) About 1–15 percent of a plasticizer for the ethylene containing polymer selected from the class consisting of hydrocarbon oils and polyvinyl chloride plasticizers.

4,335,035

SILICONE RUBBER COMPOSITION

Masayuki Hatanaka, Ouramachi, and Atsushi Kurita, Ohta, both of Japan, assignors to Toshiba Silicone Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 173,523
Claims priority, application Japan, 1979, 54-116499
Int. Cl.[3] C08L *83/06;* C08G *77/12*
U.S. Cl. 523—212 12 Claims

1. A silicone rubber composition consisting essentially of

(A) 100 parts by weight of polyorganosiloxane having the formula:

$$\left[R_a^1SiO_{\frac{4-a}{2}}\right]_n$$

wherein R^1 is a substituted or unsubstituted monovalent hydrocarbon group, with the proviso that from 0.01 to 0.3% of the total R^1 groups are vinyl groups, a is a number of from 1.98 to 2.001, and n is a number of at least 3,000,

(B) 10 to 100 parts by weight of finely divided silica,

(C) from more than 5 parts by weight up to 20 parts by weight of polyorganohydrogensiloxane having the formula:

$$\left[R_b^2H_cSiO_{\frac{4-(b+c)}{2}}\right]_m$$

wherein R^2 is a substituted or unsubstituted monovalent hydrocarbon group with the proviso that from 0.2 to 2.5% of the total R^2 groups are vinyl groups, b is a number of from 1.5 to 2.0, c is a number of from 0.01 to 0.5, the value of (b+c) is in the range of from 1.8 to 2.1, and m is a number of from 30 to 3,000, and

(D) 0.01 to 3 parts by weight of an organic peroxide effective for curing silicone rubber compositions.

4,335,036

PLASTICIZED POLYVINYL BUTYRAL EMPLOYING PROPYLENE OXIDE OLIGOMERS

Peter A. Fowell, Chadds Ford, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 154,852
Int. Cl.[3] C08F *16/34, 16/06;* C08K *5/05;* C03C *27/12*
U.S. Cl. 524—376 8 Claims

1. Plasticized polyvinyl butyral compositions comprising polyvinyl butyral having a hydroxyl content of about from 15–30% by weight, calculated as vinyl alcohol, and, in compatible admixture therewith, about from 10 to 70 parts per hundred parts weight of resin of at least one propylene oxide oligomer of the general formula

$$R\left[O(CH_2CH(CH_3)O)_nH\right]_m$$

wherein R is a linear or branched aliphatic, cycloaliphatic, aralkyl, aromatic, alkoxy alkyl or heterocyclic radical of 1 to 14 carbon atoms, n is an integer of 1 to 30 and has an average value of about from 1 to 20, and m is an integer of from 1 to 3, and wherein the oligomer has an average molecular weight of about from 300 to 2500.

4,335,037

BLEND OF STYRENE-MALEIC ANHYDRIDE AND HIGH IMPACT POLYSTYRENE

Frank E. Lordi, West Chester, and Peter S. Francis, Rose Valley, both of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed 1981, Ser. No. 247,689
Int. Cl.[3] C08L *51/00;* C08K *3/40*
U.S. Cl. 524—504 2 Claims

1. A molding composition of a hotworked blend of A and B as follows:

A. from about 75 to 95% of a styrene-maleic anhydride interpolymer resin consisting essentially of the product of copolymerizing

(a) from about 80 to about 94% styrene

(b) from about 5 to about 15% maleic anhydride, and,

(c) from about 1 to about 5% rubber;

B. from about 5 to 25% of a high impact polystyrene consisting of a radial block graft interpolymer of alkadiene and styrene, the alkadiene contact being from about 4 to 16% and the styrene content being from about 84 to 96%, and the average molecular weight of such high impact polymer being at least 20% greater than the molecular weight of said styrene-maleic anhydride interpolymer resin

said blend having outstanding green toughness, whereby molded parts are removed from molds with less breakage than for some conventional molding compositions lacking high impact polystyrene, said blended composition having heat resistance superior to conventional molding compositions lacking the maleic anhydride component.

4,335,038

POLYCARBONATE CONTAINING A METAL PERFLUOROBORATE AND AN ORGANOSILANE AS IGNITION DEPRESSANTS

Lowell S. Thomas, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed 1980, Ser. No. 191,207
Int. Cl.[3] C08K *3/38, 5/54*
U.S. Cl. 524—188 4 Claims

1. A composition comprising a carbonate polymer having dispersed therein an alkali metal perfluoroborate and an organosilane wherein the alkali metal perfluoroborate is employed in an amount sufficient to retard combustion when the composition is exposed to a low temperature ignition source

and the organosilane is employed in an amount sufficient to enhance the ability of the alkali metal perfluoroborate to reduce the combustibility of the composition.

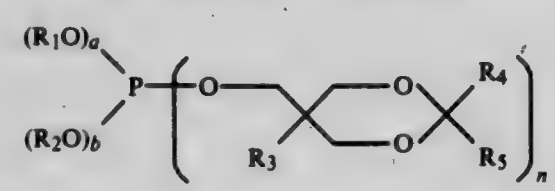
4,335,039

THERMALLY STABLE POLYCARBONATE COMPOSITIONS

Ronald L. Markezich, Mt. Vernon, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed 1978, Ser. No. 957,427
Int. Cl.³ C08K *5/15, 5/52*
U.S. Cl. 524—108 **7 Claims**

1. A thermally stabilized aromatic polycarbonate composition comprising an admixture of a high molecular weight aromatic polycarbonate and a stabilizing amount of a dioxane phosphite stabilizer represented by the general structure:



wherein n is 1 to 3; a plus b equal 3-n; R_1 and R_2 can be the same or different and can each independently be an alkyl of C_1 to C_{30} or an aryl of C_6 to about C_{30}; and, R_3, R_4 and R_5 can be the same or different and can each independently be hydrogen, alkyl, aryl, aralkyl, halomethyl, cyanomethyl, alkoxymethyl, aryloxymethyl, aralkyloxymethyl or acyloxymethyl.

4,335,040

THERAPEUTIC PRODUCT AND METHOD

William S. Livingston, Woodland Hills, Calif., assignor to Livingston Labs., Van Nuys, Calif.

Continuation of Ser. No. 583,724, Jun. 4, 1975, abandoned, which is a continuation-in-part of Ser. No. 602,434, Oct. 6, 1966, Pat. No. 3,526,697, which is a continuation-in-part of Ser. No. 207,146, Jun. 26, 1962, abandoned, which is a continuation-in-part of Ser. No. 660,559, May 21, 1957, abandoned, and Ser. No. 655,320, Apr. 26, 1957, abandoned, which is a continuation-in-part of Ser. No. 623,711, Nov. 21, 1956, abandoned, which is a continuation-in-part of Ser. No. 256,334, Nov. 14, 1951, abandoned, which is a continuation-in-part of Ser. No. 127,799, Nov. 16, 1949, abandoned. This application 1977, Ser. No. 775,225
Int. Cl.³ A61K *35/12, 35/50;* C07G *7/00*
U.S. Cl. 260—112 R **10 Claims**

1. A method for the production of a therapeutically active substance which comprises:

(a) Placing in a pressure vessel a quantity of material comprising animal tissues selected from the group consisting of fresh human placenta or other normal or malignant animal tissues;

(b) Enclosing and sealing said pressure vessel;

(c) Maintaining the temperature within said vessel from about 5° C. to less than about 65° C., and the pressure within said vessel greater than about 15 psig but less than about 45 psig for at least about 2 weeks;

(d) Opening said vessel at the conclusion of said period;

(e) Recovering a liquid portion of the semi-liquid contents of said vessel; and

(f) Sterilizing the said liquid portion.

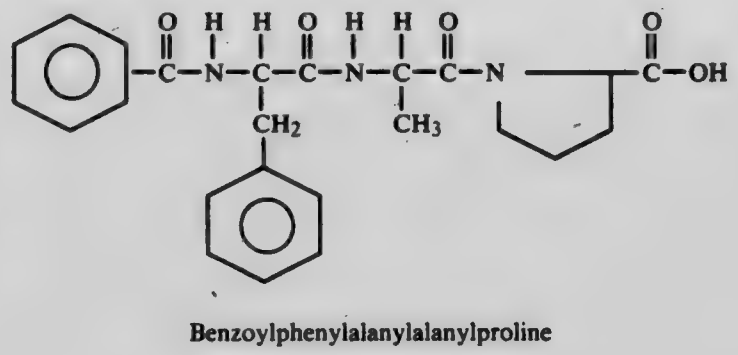
4,335,041

HIGH SENSITIVITY ASSAYS FOR ANGIOTENSIN CONVERTING ENZYME

James W. Ryan, and Alfred Chung, both of Miami, Fla., assignors to Ventrex Laboratories, Inc., Portland, Me.

Division of Ser. No. 854,538, Nov. 25, 1977. This application 1980, Ser. No. 191,029
Int. Cl.³ C07C *103/52*
U.S. Cl. 260—112.5 R **3 Claims**

1. A composition of matter consisting essentially of:



Benzoylphenylalanylalanylproline

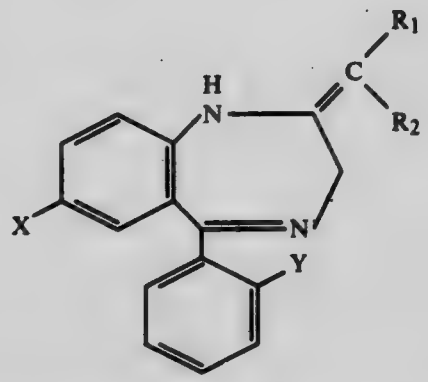
4,335,042

PROCESS TO PRODUCE IMIDAZOBENZODIAZEPINE INTERMEDIATES

Henry J. Niemczyk, Wayne, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed 1980, Ser. No. 142,581
Int. Cl.³ C07D *243/16, 401/04*
U.S. Cl. 260—239 BD **3 Claims**

1. A process to produce a compound of the formula

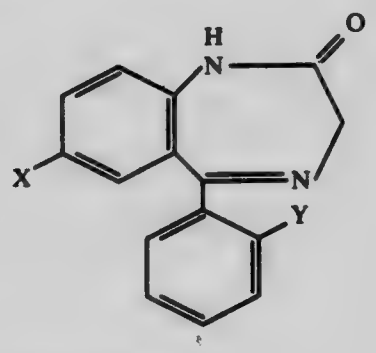


wherein R_1 and R_2 are selected from the group consisting of the groups C_2H_5OOC—, CH_3OOC— and N≡C— with the limitation that R_1 and R_2 cannot both be N≡C—, Y is hydrogen or halogen and X is selected from the group consisting of hydrogen, halogen and nitro

which comprises

(A) reacting an alkali metal hydride with a compound selected from the group consisting of diethylmalonate, ethylcyanoacetate and dimethylmalonate, followed by reaction with diethyl chlorophosphate and

(B) reacting the product of (A) with a benzodiazepin-2-one of the formula



wherein X and Y are as above

to produce the final product.

4,335,043

SUBSTITUTED N-METHYLENE DERIVATIVES OF THIENAMYCIN

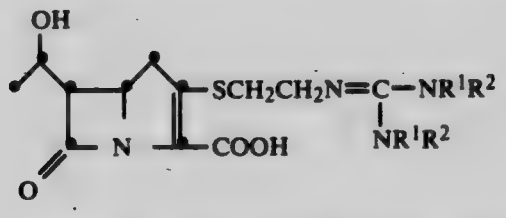
Burton G. Christensen, Metuchen; William J. Leanza, Berkeley Heights, and Kenneth J. Wildonger, Somerville, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 852,425, Nov. 17, 1977, Pat. No. 4,194,047, which is a continuation-in-part of Ser. No. 733,654, Oct. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 676,261, Apr. 12, 1976, abandoned, which is a continuation-in-part of Ser. No. 634,296, Nov. 21, 1975, abandoned. This application 1979, Ser. No. 84,013

Int. Cl.³ C07D *487/04*; A61K *31/40*

U.S. Cl. 260—245.2 T **3 Claims**

1. The compound having the following structure



wherein R^1 and R^2 are independently selected from the group consisting of: hydrogen, substituted and unsubstituted: alkyl having 1–6 carbon atoms; alkenyl having 3–6 carbon atoms; cycloalkyl, cycloalkylalkyl, cycloalkenyl, and cycloalkenylalkyl having 3–6, 4–7, 4–6 and 4–7 carbon atoms, respectively; nitro; amino; mono- or di-alkylamino, wherein the alkyl moieties each comprises 1–6 carbon atoms; or benzyl, thienylalkyl, furylalkyl or pyridylalkyl, wherein alkyl is 1–3 carbon atoms; wherein the ring or chain substituent or substituents relative to the definition of R^1 and R^2 are mono-substituents or disubstituents selected from the group consisting of chloro, fluoro, hydroxyl, alkoxyl having 1–3 carbon atoms, dialkylamino having 1–3 carbon atoms in each alkyl moiety, and alkylthio having 1–3 carbon atoms.

4,335,044

PLANT GROWTH REGULATING PERFLUOROACYL ARYLTHIOUREIDO ISOINDOLEDIONES

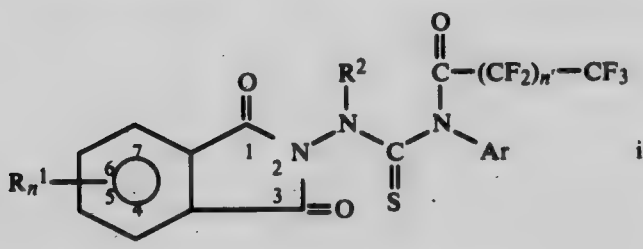
Loren W. Hedrich, Orange, Tex., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Division of Ser. No. 175,000, Aug. 4, 1980, Pat. No. 4,289,527. This application 1981, Ser. No. 262,279

Int. Cl.³ C07D *209/48*

U.S. Cl. 548—475 **24 Claims**

1. Compounds which have the general structural formula:



in which

R^1 is; C_1 to C_4 alkyl, nitro or halo and n is zero or an integer from 1 to 4

R^2 is C_1 to C_4 alkyl, or benzyl, n′ is zero, 1 or 2 and

Ar is; naphthyl, phenyl or phenyl bearing thereon from one to three of the substituents: cyano, benzyloxy, nitro, bromo, chloro, trifluoromethyl and C_1 to C_4 alkyl, alkenyl, alkoxy, alkylthio and alkyl-substituted amino.

4,335,045

PREPARATION OF N-ALKENYL-2-AMINOMETHYL-PYRROLIDINES

Eric-Alain Denzler, Zurich, Switzerland, assignor to Sachim S.A., Geneva, Switzerland

Filed 1976, Ser. No. 669,967

Claims priority, application Switzerland, 1975, 16485/75

Int. Cl.³ C07D *207/09*

U.S. Cl. 548—566 **4 Claims**

1. A process of preparing an N-alkenyl-2-amino-methyl-pyrrolidine comprising the steps of

(a) reacting tetrahydrofurfurylamine with gaseous hydrochloric acid and thionyl chloride at temperatures up to 110° C. to produce 2,5 dichloropentylamine hydrochloride,

(b) acetylizing the 2,5 dichloropentylamine hydrochloride with acetyl chloride to form N-acetyl-2,5-dichloropentylamine,

(c) condensing the N-acetyl-2,5-dichloropentylamine with an alkenylamine to form an N-alkenyl-2-acetylaminomethyl pyrrolidine,

(d) then removing the acetyl group from the N-alkenyl-2-acetylaminomethyl pyrrolidine by acidifying, and then

(e) alkalizing the product of step (d),

(f) and recovering said N-alkenyl-2-aminomethyl-pyrrolidine.

4,335,046

POLYESTER COMPOSITIONS, SHAPED ARTICLES OBTAINED FROM THEM AND PROCESSES FOR PREPARING THEM

Patrick J. Horner, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 43,424, May 29, 1979, Pat. No. 4,284,756. This application 1981, Ser. No. 257,227

Claims priority, application United Kingdom, 1978, 26606/78

Int. Cl.³ C07D *311/86*

U.S. Cl. 549—392 **1 Claim**

1. 3,6-bis(hydroxyethoxy)xanth-9-one.

4,335,047

PREPARATION OF CYCLIC ACETALS OF TRANS-4-CHLORO-3-METHYL-BUT-2-EN-1-AL, AND PREPARATION OF TRANS-3-METHYL-BUT-2-ENE-1,4-DIAL-1-MONOACETALS

Hagen Jaedicke, Ludwigshafen, and Joachim Paust, Neuhofen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

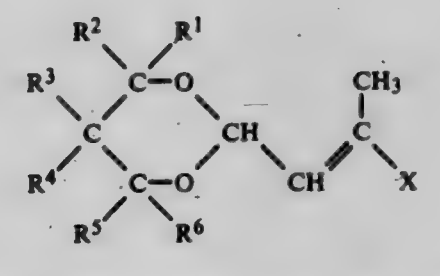
Filed 1980, Ser. No. 138,411

Claims priority, application Fed. Rep. of Germany, 1979, 2917413

Int. Cl.³ C07D *319/04*

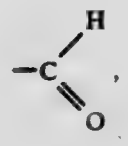
U.S. Cl. 549—369 **6 Claims**

1. A process for the preparation of an acetal of the general formula I



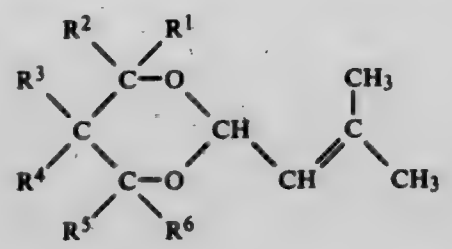
(I)

wherein R^1 to R^6 are independently —H, —CH_3 or —C_2H_5 and X is —CH_2Cl or



wherein

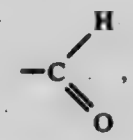
(A) a molar amount or slight excess of sulfuryl chloride is introduced slowly into a solution of the corresponding acetal of 3-methyl-but-2-en-1-al of the formula II



(II)

in a halohydrocarbon of boiling point 50°–120° C., at 50°–120° C., at the rate at which the sulfuryl chloride is consumed in the reaction mixture, and

(B) where X is



the resulting 4-chloro-3-methyl-but-2-en-1-al-acetal is oxidized under mild reaction conditions.

4,335,048

5-(2-HYDROXYPROPOXY)-8-PROPYL-4H-1-BENZOPYRAN-4-ONE-2-CARBOXYLIC ACID

Hugh Cairns, Loughborough; Richard Hazard, Cropston; John King, and Thomas B. Lee, both of Loughborough, all of England, assignors to Fisons Limited, London, England

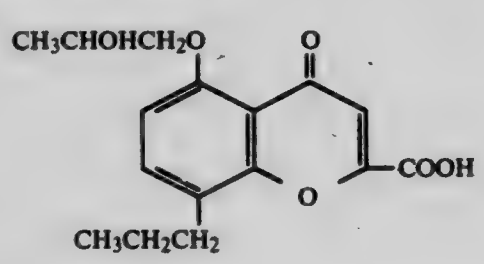
Continuation of Ser. No. 594,836, Jul. 10, 1975, abandoned. This application 1980, Ser. No. 122,284

Claims priority, application United Kingdom, 1974, 30647/74

Int. Cl.³ C07D *311/24*

U.S. Cl. 549—402 **2 Claims**

1. A compound selected from the group consisting of the compound having the formula



and pharmaceutically acceptable salts and C1–C10 alkyl esters thereof.

4,335,049

PROCESS FOR PRODUCING 5-METHYLFURFURAL

Kazuhiko Hamada; Goufu Suzukamo, both of Ibaraki, and Koichi Fujisawa, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed 1981, Ser. No. 279,004

Claims priority, application Japan, 1980, 55-98086; 1981, 56-41111; 1981, 56-41024

Int. Cl.³ C07D *307/46*

U.S. Cl. 549—483 **6 Claims**

1. A process for producing 5-methylfurfural which comprises that 5-chloromethylfurfural is reduced with hydrogen in an organic solvent in the presence of a palladium catalyst.

4,335,050

PROCESS FOR THE PREPARATION OF THE 5- AND 6-NITRO DERIVATIVES OF 1,2,3,4-TETRAHYDRO-ANTHRAQUINONE FROM 1,2,3,4,4A,9A-HEXAHYDRO-9,10-ANTHRACENE-DIONE

Serge Delavarenne, Francheville le Haut, and Pierre Tellier, Sainte Foy les Lyon, both of France, assignors to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed 1979, Ser. No. 80,030

Claims priority, application France, 1978, 78 29507

Int. Cl.³ C07C *50/18*

U.S. Cl. 260—369 **7 Claims**

1. A process for preparing mononitro derivatives substituted in positions 5 or 6 of 1,2,3,4-tetrahydroanthraquinone which comprises reacting 1,2,3,4,4a,9a-hexahydro-9,10-anthracenedione with nitric acid to simultaneously oxidize and nitrate 1,2,3,4,4a,9a-hexahydro-9,10-anthracene-dione to produce 5-nitro-1,2,3,4-tetrahydroanthraquinone and/or 6 nitro-1,2,3,4-tetrahydroanthraquinone.

4,335,051

PROCESS FOR THE PREPARATION OF DIMETHYL CARBONATE

Hans-Josef Buysch; Heinrich Krimm, both of Krefeld, and Siegfried Böhm, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed 1980, Ser. No. 155,036

Claims priority, application Fed. Rep. of Germany, 1979, 2925209

Int. Cl.³ C07C *68/00*

U.S. Cl. 260—463 **8 Claims**

1. In a process for the preparation of of dimethyl carbonate by reacting methanol with phosgene and/or methyl chloroformate, the improvement wherein the reaction is carried out in the presence of a 15 to 50 percent by weight aqueous alkali metal hydroxide solution and in the presence of an inert, water-immiscible organic solvent, at a temperature in the range from −20° C. to +40° C., employing 2 to 2.6 mols, per mol of phosgene, or 1 to 1.3 mols, per mol of methylchloroformate, of said alkali metal hydroxide.

4,335,052

METHOD OF PREPARING SUBSTITUTED BENZALDEHYDES

Günther Bernhardt, St. Augustin; Egon-Norbert Petersen, Neunkirchen, and Gerhard Daum, Cologne, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed 1980, Ser. No. 210,469

Claims priority, application Fed. Rep. of Germany, 1979, 2948058

Int. Cl.³ C07C *121/76, 45/28*

U.S. Cl. 260—465 R **13 Claims**

1. In a process for the preparation of a benzaldehyde substituted in the nucleus by oxidation of the corresponding benzyl halides, the improvement which comprises performing the oxidation in the presence of water with an aminoxide of a tertiary amine at a temperature between 20° and 140° C.

4,335,053

N-CYANOBENZYL HALOACETAMIDES

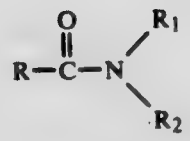
Francis H. Walker, Mill Valley, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 73,392, Sep. 7, 1979, Pat. No. 4,288,384. This application 1981, Ser. No. 256,321

Int. Cl.³ C07C *121/78*

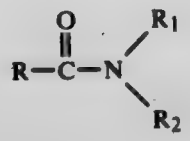
U.S. Cl. 260—465 D **6 Claims**

1. A compound of the formula



in which R is haloalkyl having 1 to 4 carbon atoms, inclusive, R_1 is hydrogen, and R_2 is 1-cyanobenzyl.

4. A compound of the formula



in which R is haloalkyl having 1 to 4 carbon atoms, inclusive, R_1 is methyl and R_2 is 1-cyanobenzyl.

4,335,054

PROCESS FOR THE PREPARATION OF ALKENYLBENZENECARBOXYLIC ACID DERIVATIVES AND ALKENYLNAPHTHALENECARBOXYLIC ACID DERIVATIVES

Hans-Ulrich Blaser, Ettingen, Switzerland; Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Alwyn Spencer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

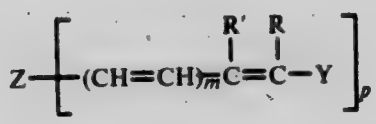
Filed 1981, Ser. No. 262,000

Claims priority, application Switzerland, 1980, 3732/80

Int. Cl.³ C07C *121/70, 49/217, 69/618, 103/22*

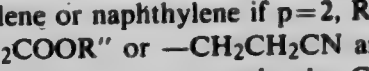
U.S. Cl. 260—465 G **12 Claims**

1. A process for the preparation of a compound of the formula I



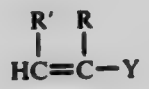
(I)

in which m is zero or 1, p is 1 or 2, Z is substituted or unsubstituted phenyl or naphthyl if p=1, and substituted or unsubstituted phenylene or naphthylene if p=2, R is hydrogen, C_{1-4}-alkyl, $-CH_2COOR''$ or $-CH_2CH_2CN$ and R′ is hydrogen, or, if p=1 and m=zero, can also be C_{1-4}-alkyl, —CN or —COOR″, but at least one of R and R′ must be hydrogen, Y is —CN, —COOR″, $-CON(R'')_2$ or —COR″ and the radicals R″, independently of one another, are C_1–C_{12}-alkyl or phenyl, which comprises reacting a compound of the formula II



(II)

in which Z, m and p are as defined for formula I and X is chlorine, bromine or iodine, with a compound of the formula III or if desired, where p=2, with a mixture of two different compounds of the formula III



(III)

in which R, R′ and Y are as defined for formula I, in the presence of a base and with the addition, as a catalyst, of palladium metal or of a palladium compound which under the reaction conditions forms a phosphorus-free labile palladium(O) compound.

4,335,055

PROCESS FOR THE PREPARATION OF ALKENYLBENZENE DERIVATIVES OR ALKENYLNAPHTHALENE DERIVATIVES

Hans-Ulrich Blaser, Ettingen, Switzerland; Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Alwyn Spencer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

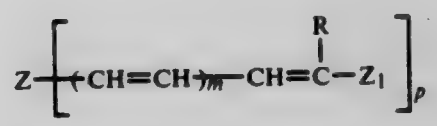
Filed 1981, Ser. No. 262,002

Claims priority, application Switzerland, 1980, 3731/80

Int. Cl.³ C07C *121/70, 15/52, 25/24, 49/217*

U.S. Cl. 260—465 K **13 Claims**

1. A process for the preparation of a compound of the formula I



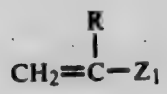
(I)

in which, if p=1, Z is substituted or unsubstituted phenyl or naphthyl and, if p=2, Z is substituted or unsubstituted phenylene, naphthylene or p-biphenylene, Z_1 is substituted or unsubstituted phenyl or naphthyl, R is hydrogen or C_{1-4}-alkyl, m is zero or 1 and p is 1 or 2, wherein a compound of the formula II



(II)

in which Z, m and p are as defined under formula I and X is chlorine, bromine or iodine, is reacted, in the presence of a base and with the addition, as a catalyst, of palladium metal or of a palladium compound which under the reaction conditions forms a phosphorus-free labile palladium-(O) compound, with a compound of the formula III or, if p=2, alternatively with a mixture of two different compounds of the formula III



(III)

in which R and Z_1 are as defined under formula I.

13. 4-Vinylcinnamonitrile.

4,335,056

PROCESSING ACRYLONITRILE WASTE GAS

James L. Callahan, Wooster; Wilfrid G. Shaw, Lyndhurst, and David B. Terrill, Bedford, all of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Filed 1981, Ser. No. 222,448

Int. Cl.³ C07C *120/14, 51/215, 45/35*

U.S. Cl. 260—465.3 **5 Claims**

1. In a process for recovering acrylonitrile from the gross reaction product produced by the fluid-bed ammoxidation of propylene, said gross reaction product being cooled to separate acrylonitrile and HCN therefrom thereby producing an ammoxidation waste gas containing at least 65% nitrogen, propylene and carbon dioxide, the improvement comprising passing said ammoxidation waste gas through a catalytic converter containing a fixed-bed of catalyst capable of converting the propylene in said ammoxidation waste gas to valuable product selected from the group consisting of acrolein, acrylic acid and acrylonitrile to thereby convert said propylene to at least one of said valuable products.

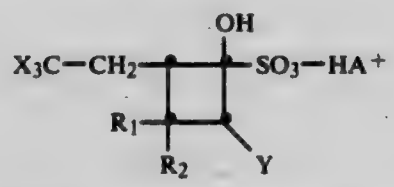
4,335,057

4-(2′,2,2′-TRIHALOGENOETHYL)-CYCLOBUTANE-1-SULFONIC ACID SALTS WITH OPTICALLY ACTIVE BASES

John G. Dingwall, Sale, England; Hans Greuter, Cos Cob, Conn.; Pierre Martin, Rheinfelden, Switzerland; Peter Ackermann, Reinach, Switzerland, and Laurenz Gsell, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 103,983, Dec. 17, 1979, Pat. No. 4,299,967.
This application 1980, Ser. No. 219,803
Claims priority, application Switzerland, 1978, 12784/73
Int. Cl.³ C07C *143/20*
U.S. Cl. 260—501.19 3 Claims

1. A compound of the formula [III]



in which X is chlorine or bromine; one of R_1 and R_2 is methyl and the other is hydrogen or methyl, or R_1 and R_2 together are alkylene having 2–4 C atoms; A is an optically active base selected from the group consisting of S(+)-2-amino-1-butanol, R(−)-2-aminobutanol, L(+)-threo-2-amino-1-phenyl-1,3-propanediol, (−)-brucine, (+)-quinidine, (−)-quinine, (−)-cinchonidine, (+)-cinchonine, (+)-dehydroabietylamine, (+)-yohimbine, (−)-nicotine, (−)-ephedrine, (+)-ephedrine, (−)-N-methyl-ephedrine, R(+)-1-naphthyl-1-ethylamine, S(−)-1-naphthyl-1-ethylamine, S(−)-1-phenylethylamine, R(+)-1-phenylethylamine, (+)-pseudoephedrine, (−)-α-phenyl-β-p-tolylethylamine and (−)-and (+)-threo-1-(p-nitrophenyl)-2-N,N-dimethylaminopropane-1,3-diol; and Y is chlorine, bromine or a group $—OSO_2R'$; in which R′ is alkyl having 1–4 C atoms, halogenalkyl having 1–4 C atoms, benzyl, naphthyl phenyl, methylphenyl, ethylphenyl, nitrophenyl, chlorophenyl or bromophenyl.

4,335,058

PREPARATION OF CARBOXYLIC ACID ANHYDRIDES

Nabil Rizkalla, River Vale, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.

Continuation-in-part of Ser. No. 219,788, Dec. 24, 1980. This application 1981, Ser. No. 267,962
Int. Cl.³ C07C *51/56, 51/54, 53/12*
U.S. Cl. 260—546 4 Claims

1. A process for the preparation of carboxylic acid anhydrides which comprises reacting an olefin and a carboxylic acid with carbon monoxide in the presence of a catalytically-effective quantity of a molybdenum-nickel or tungsten-nickel co-catalyst component, in the presence of a halide and in the presence of a promoter comprising an organo-phosphorus compound or an organo-nitrogen compound wherein the phosphorus and nitrogen are trivalent.

4,335,059

PREPARATION OF CARBOXYLIC ACID ANHYDRIDES

Nabil Rizkalla, River Vale, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.

Filed 1980, Ser. No. 219,788
Int. Cl.³ C07C *51/56, 51/54, 53/12*
U.S. Cl. 260—549 4 Claims

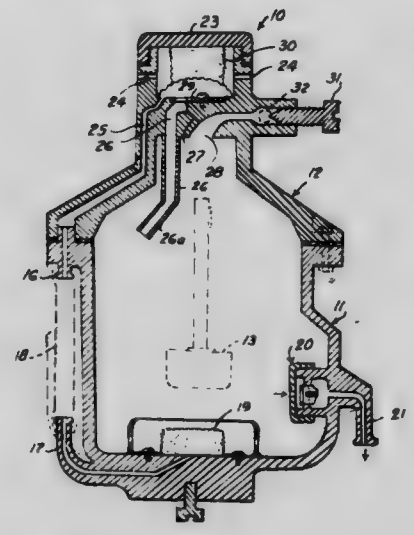
1. A process for the preparation of carboxylic acid anhydrides which comprises reacting a carboxylate ester and/or a hydrocarbyl ether with carbon monoxide in the presence of a catalytically-effective quantity of a molybdenum-nickel or tungsten nickel co-catalyst component, in the presence of an iodide and in the presence of a promoter comprising an organo-phosphorus compound or an organo-nitrogen compound wherein the phosphorus and nitrogen are trivalent.

4,335,060

MULTI-FUEL VAPOR CHARGE CARBURETION SYSTEM AND DEVICE THEREFOR

Adolfo P. Alegre, No. 119 Bignay St., Project II, Quezon City; Armando E. Guidote, Antipolo, Rizal, and Alfonso G. Puyat, No. 7 Caimito St., Forbes Park, Makati, Metro Manila, all of Philippines

Filed 1980, Ser. No. 132,988
Claims priority, application Philippines, 1979, 23009; 1979, 23189
Int. Cl.³ F02M *17/22*
U.S. Cl. 261—23 R 2 Claims



1. A fuel vapor producing device comprising a liquid fuel or mixture bowl-shape container; an associated cover for said container having a fuel inlet valve; and a float secured in said device, said cover integrally incorporating therewith a cylindrical air filter housing disposed vertically and concentrically on top thereof; an air agitator duct integrated in said device extending from the air filter housing to the bottom thereof to agitate the fuel or mixture therein; another air duct in said air filter housing, said air duct extending to the inside of said container having an outwardly bent portion to produce a swirling effect of the air to achieve a higher degree of mixture; a multi air jet selector disc provided on said air filter housing, said selector disc having a plurality of spaced holes of gradually increasing apertures adapted to the air duct opening on said housing, the opening of said air ducts depending on the requirement of an engine piston displacement to control the air-fuel mixture of the engine; a baffle inside the device to minimize the fuel splashing; a vapor outlet directly connected to the intake manifold and an air bleed jet provided on said vapor outlet to feed sufficient flow of air vapor mixture to the intake manifold.

4,335,061

AUXILIARY FUEL SUPPLY DEVICE FOR INTERNAL COMBUSTION ENGINES

Hiroto Kobayashi, Kamakura, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan

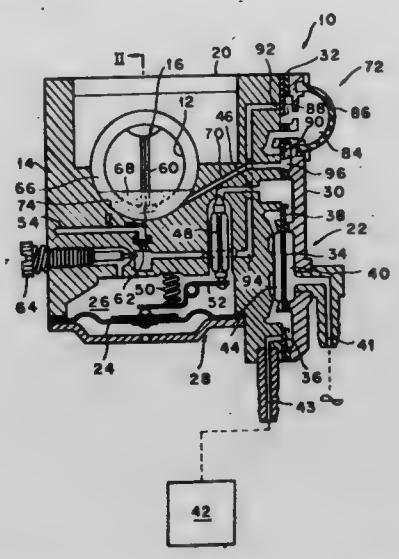
Filed 1980, Ser. No. 156,167
Claims priority, application Japan, 1979, 54-082180[U]
Int. Cl.³ F02M *1/16*
U.S. Cl. 261—44 G 3 Claims

1. In a carburetor body having a fuel and air mixing passage for supplying fuel to an internal combustion engine, said carburetor body having a fuel chamber, an air inlet passage, a main fuel nozzle to said air inlet passage, a throttle valve and an outlet for fuel and air mixture, a design to improve the fuel flow to assist in the starting of an engine in the absence of a choke valve which comprises:

(a) a body of porous absorbent material in the carburetor body upstream of said throttle valve to serve as a fuel retaining storage reservoir located on one side of the air

inlet passage in the body of said carburetor and upstream from the main fuel inlet,

(b) a fuel passage in said carburetor body independent of the main fuel inlet to carry liquid fuel to the interior of said porous body, and



(c) a pressure means on said body to direct liquid fuel from said fuel chamber in said body through said fuel passage to the interior of said body of porous absorbent material preparatory to the starting of an engine.

4,335,062

CARBURETOR WITH ROTARY THROTTLE

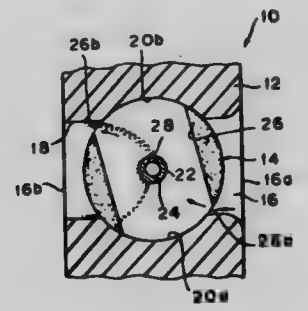
Hiroto Kobayashi, Kamakura, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan

Filed 1980, Ser. No. 156,179

Claims priority, application Japan, 1979, 54-075883[U]

Int. Cl.³ F02M *9/08*

U.S. Cl. 261—44 G **1 Claim**



1. In a carburetor utilizing a cylindrical valve with a venturi bore that opens in the direction of the diameter of the throttle valve and wherein portions of the valve serve as bearings in a carburetor body as the cylinder rotates, that improvement which comprises utilizing a cylindrical valve formed of porous material in the area of the venturi bore, the carburetor valve being formed as a cylinder of solid metal having one portion reduced in diameter where the venturi bore passes through the cylinder, and a sleeve of porous material on said reduced portion to complete the cylindrical valve.

4,335,063

METHOD AND APPARATUS FOR PRESSURE CONTROL IN A PRESS

Dieter Kolb; Eugen Kopp, both of Stuttgart, and Manfred Müller-Sybrichs, Shöckingen, all of Fed. Rep. of Germany, assignors to Werner & Pfleiderer, Stuttgart, Fed. Rep. of Germany

Filed 1979, Ser. No. 47,780

Claims priority, application Fed. Rep. of Germany, 1978, 2825795

Int. Cl.³ C06B *21/00*; B29C *3/06*

U.S. Cl. 264—3 B **5 Claims**

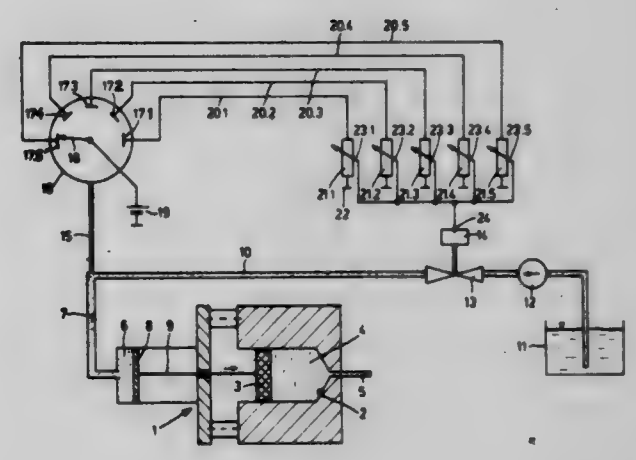
1. A method for controlling the compression of, and plastic or elastic, explosive mass which may have gas therein and contained in the pressure cylinder of a press, especially of an extrusion press, which includes a pressure piston, comprising the steps of:

advancing said pressure piston against said explosive mass at an arbitrarily high rate (FIG. 2, v_o) until a preliminary pressure level (FIG. 2, p_1) is reached:

reducing the rate of advance of said pressure piston against said explosive mass to a substantially lower value (FIG. 2, v_1); and

continuing the advance of said pressure piston against said explosive mass in sequential stages (FIG. 2, v_2-v_5) until extrusion pressure is reached, each stage of said sequential stages having a respective, higher rate of advance than the immediately preceding stage of said sequential stages and the respective rate of advance being substantially constant during each respective stage of said sequential stages.

3. An apparatus for controlling the compression of a plastic or elastic explosive mass which may have gas therein and is contained in the pressure cylinder of a press, especially of an extrusion press, which includes a pressure piston actuated by a hydraulic system, comprising:



a flow regulator in said hydraulic system for regulating the flow-rate of hydraulic fluid which actuates said pressure piston;

a plurality of pressure-sensitive signal generators, for generating input signals for a controller in dependence of pressure in said hydraulic system; and

a controller for controlling said flow regulator in dependence on a first and subsequent input signals from said signal generators, said controller initially effecting advance of said pressure piston at an arbitrarily high rate until a preliminary pressure level, as sensed by said pressure-sensitive signal generators, is reached, then effecting a reduction of the rate of advance of said pressure piston to a substantially lower value, and thereafter effecting a continuation of the advance of said pressure piston in sequential steps determined by sequential appearances of said subsequent input signals from respective ones of said signal generators, each step of said sequential steps having a higher rate of advance than the preceding step of said sequential steps, and the respective rate of advance being substantially constant during each respective step of said sequential steps.

4,335,064

PROCESS FOR PACKING ELECTROLYSIS CELLS FOR THE PRODUCTION OF ALUMINUM

Benoit Sulmont, Paralia Distomon, Greece, and Gerard Hudault, St. Jean de Maurienne, France, assignors to Aluminium Pechiney, Lyons, France

PCT No. PCT/FR79/00101, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00978, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 206,540
Claims priority, application France, 1978, 78 32055
Int. Cl.³ F27D *1/16*
U.S. Cl. 264—30 6 Claims

1. A process for packing electrometallurgical furnaces and, in particular, cells for the production of aluminum by electrolysis of alumina dissolved in molten cryolite, characterized by the following stages:

(a) forming a setting cement having a low water retention capacity and low open porosity after setting comprising as essential constituents from about 25% to about 30% by weight of an aluminous cement, from about 35% to about 40% of vitreous silica in particles of from about 0.01 to about 0.1 micrometers, from about 35% to about 45% of an inert charge in particles of from about 1 to about 100 micrometers, and from about 10% to about 15% of CaO;

(b) adding an aggregate of which at least a fraction is constituted by a carbonaceous product while the other fraction is constituted by a non-carbonaceous product;

(c) adding a quantity of water not exceeding 10% and preferably 6% of the dry composition;

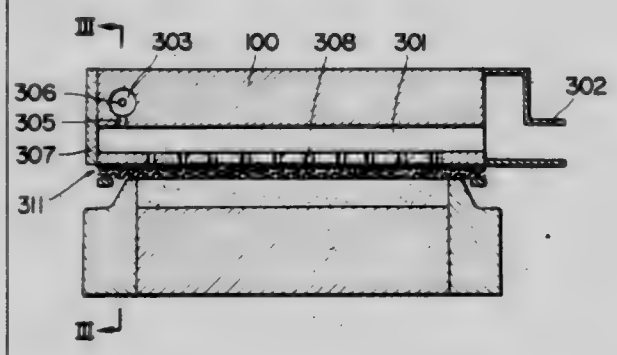
(d) applying the concrete thus obtained to use.

4,335,065

METHOD AND APPARATUS FOR PRODUCING MOULDINGS OF CEMENT MORTAR

Shigeo Ando, 272, Suehirocho 5 chome, Choshi-shi, Chiba 288, Japan

Filed 1980, Ser. No. 166,919
Claims priority, application Japan, 1979, 54-162671; 1980, 55-036180; 1980, 55-037381; 1980, 55-045163
Int. Cl.³ B28B *1/26*
U.S. Cl. 264—87 17 Claims



1. A method of producing cement mortar mouldings comprising the steps of:

(a) supplying cement mortar material onto a lower mould at a first position;

(b) bringing said lower mould into a vertical alignment with an upper mould at a second position;

(c) pressing both upper and lower moulds to each other by means of a high-pressure press cylinder to compress said cement mortar material therebetween into a moulding;

(d) dehydrating said compressed material by subjecting the same to suction through filtering means including a drainer plate from above;

(e) separating the lower mould from the moulding while maintaining said suction to retain the moulding on the upper mould;

(f) bringing the upper mould into a vertical alignment with a conveyor;

(g) contacting the upper mould and the conveyor;

(h) stopping the suction to land the moulding onto the conveyor; and

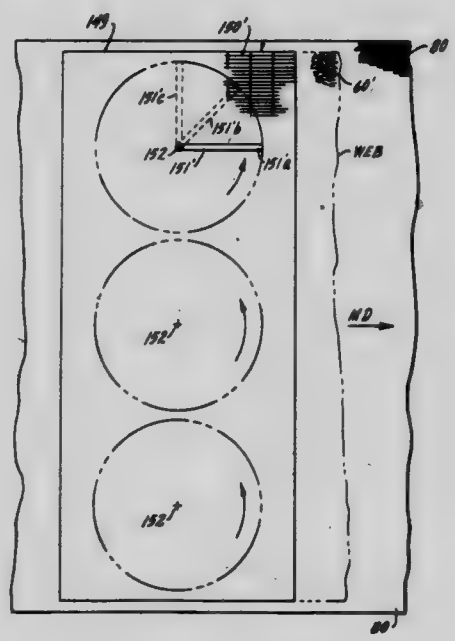
(i) restoring the upper mould to the first position.

4,335,066

METHOD OF FORMING A FIBROUS WEB WITH HIGH FIBER THROUGHPUT SCREENING

James H. Dinius, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Continuation-in-part of Ser. No. 106,142, Dec. 21, 1979, abandoned. This application 1981, Ser. No. 266,753
Int. Cl.³ B29C *13/00*
U.S. Cl. 264—121 9 Claims



1. In a method of forming an air-laid web of dry fibers on a high speed production basis comprising:

(a) delivering dry fibrous materials to a fiber distributing head of the type employing a plurality of rotors mounted for rotation about vertical axes with their blades rotating in at least one horizontal plane above a screened discharge opening;

(b) agitating the fibrous materials within the fiber distributing head with said plurality of rotating rotors to stratify the fibers with relatively coarse fibers rising within the head and being discharged therefrom through a fiber recycle outlet and relatively fine fibers being discharged through said screened discharge opening;

(c) sifting the relatively fine fibers through a screen member; and,

(d) collecting said fibers sifted through said screen member on a forming surface moving in a machine direction, wherein said fibers are collected on said forming surface in the form of a web of dry fibers,

the improvement comprising:

said screen member being provided in the form of a slotted screen, with screen openings having a long slot dimension and a short slot dimension.

4,335,067

PRODUCING REPLICAS OF BODY PARTS

George Castanis, and Thaddeus T. Castanis, both of 444 6th Ave., New York, N.Y. 10011

Filed 1981, Ser. No. 263,349
Int. Cl.³ B29C *1/02*
U.S. Cl. 264—222 7 Claims

1. A method of synthetically cloning a body part or other member to produce a replica thereof having flesh-like properties, the method comprising the steps of:

A mixing a charge of alginate powder taken from a supply thereof with water to produce a quick-setting flowable molding compound;

B pouring the molding compound into a mold form and inserting the part to be cloned therein to create an impression cavity:

C holding the inserted part in the compound until it has gelled, the part then being removed to expose the impression cavity in the gelled mold;



D mixing a charge of alginate powder taken from a supply thereof with water to produce a quick-setting casting compound;

E pouring the casting compound into the cavity; and

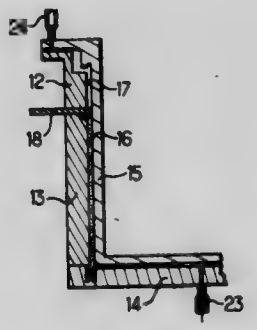
F after the casting compound has gelled to form the replica, removing it from the cavity.

4,335,068

METHOD OF MOULDING CONTAINERS FROM AT LEAST TWO DIFFERENT PLASTIC MATERIALS, MACHINE FOR CARRYING OUT THIS METHOD AND CONTAINERS OBTAINED THEREBY

Andre Hemery, Les Andelys, France, assignor to Allibert Exploitation, France

Filed 1978, Ser. No. 970,181
Claims priority, application France, 1977, 77 39069
Int. Cl.³ B29F *1/06, 1/12*
U.S. Cl. 264—245 **6 Claims**



1. A method of moulding hollow objects such as containers from plastic material consisting of at least two compatible plastic materials which are sealable to each other and which differ in either of their nature and their colour, said method including the steps of providing a mould and a counter-mould, as well as arranging them so as to leave an injection space between the wall of said mould and the wall of said counter-mould and injecting said component material of said article of manufacture into said injection space, wherein the improvement comprises the following operating steps:

a—defining within said space through separating means at least one first sub-space and one second sub-space which are contiguous to each other at a junction zone in the region of said separating means;

b—injecting into said first sub-space a first one of said two materials in a predetermined volume computed to be just that required to fill said first sub-space substantially;

c—injecting into said second sub-space a second one of said two materials;

d—removing said separating means while said first material is still fluid in said junction zone; and

e—continuing injection of said second material under a predetermined pressure such that the total volume of said second material injected is larger than that of said second sub-space so as to achieve a local interpenetration of said second material into said first material within said junction zone between said spaces.

4,335,069

FLAT SHEET PROCESS FOR PRODUCTION OF POLYOLEFIN SHRINK FILM

Stanley B. Levy, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 278,434
Int. Cl.³ B29C *17/02*
U.S. Cl. 264—290.2 **5 Claims**

1. A process for manufacturing biaxially oriented polyolefin film with substantially balanced shrinkage of 45 to 65 percent at 120° C. to 140° C. and a shrink force of about 6.9×10^5 to 1.4×10^6 pascal comprising the sequential steps of:

(i) conducting a previously extruded and quenched flat polyolefin film of an indefinite length along a predetermined treatment path;

(ii) heating a portion of the film in the path substantially evenly to a temperature at least 10° C. above the film's line drawing temperature while not exceeding the film's crystalline melt temperature;

(iii) transversely stretching the heated film to a width of from 7 to 10 times the width of the unstretched film;

(iv) cooling the film to a temperature below which the film is subject to shrinkage while holding the film in the transverse stretch of step (iii);

(v) heating the film substantially evenly to a temperature at least equal to the film's line drawing temperature while not exceeding the film's crystalline melt temperature;

(vi) longitudinally stretching the film 1.5 to 4 times the length of the unstretched film so that the ratio of the transverse stretch of step (iii) to the longitudinal stretch is at least 2.0;

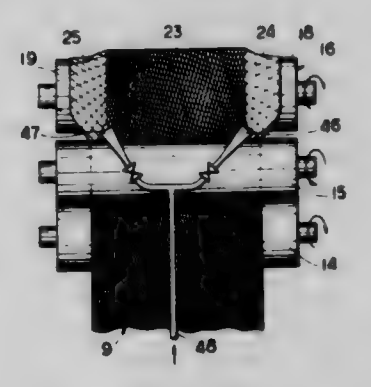
(vii) cooling the film to a temperature below which the film is subject to shrinkage while holding the film in the longitudinal stretch of step (vi).

4,335,070

METHOD OF MANUFACTURING A RETICULAR WEB HAVING REINFORCED SELVAGES

Masahide Yazawa; Hiroshi Yazawa, both of Kunitachi; Haruhisa Tani, and Kazuhiko Kurihara, both of Tokyo, all of Japan, assignors to Nippon Petrochemicals Co., Ltd. and Polymer Processing Research Institute, Ltd., both of, Japan

Filed 1981, Ser. No. 222,972
Claims priority, application Japan, 1980, 55-2315
Int. Cl.³ B29D *00/00, 7/14*
U.S. Cl. 264—555 **9 Claims**

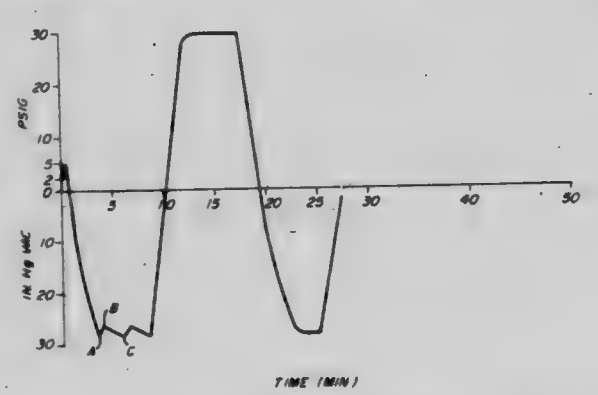


1. A method of manufacturing a reticular web having reinforced and dimensionally stabilized selvages, comprising the steps of:

(a) feeding a longitudinally stretched reticular web of thermoplastic resin composed of warpwise split or slit fibers;

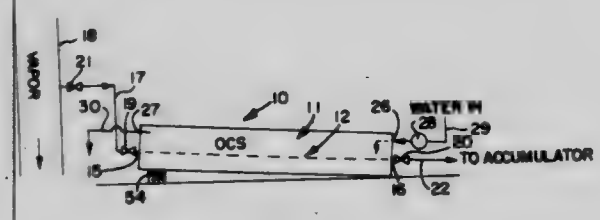
(b) tranversely spreading opposite selvages only of the reticular web;
(c) thereafter, attaching at least one dimensionally stable thread to each of said selvages along the length thereof;
(d) transversely spreading the middle portion of the reticular web between said selvages at a magnification which is smaller than that of said selvages; and
(e) heat-shrinking said middle portion longitudinally until it has substantially the same length as that of said selvages, with each selvage having a basis weight which is substantially the same as or smaller than that of said middle porton.

4,335,071
PRESSURE-VACUUM PURGE CYCLE
David C. Thornton, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.
Filed 1980, Ser. No. 194,690
Int. Cl.[3] A61L *2/06*
U.S. Cl. 422—26 2 Claims



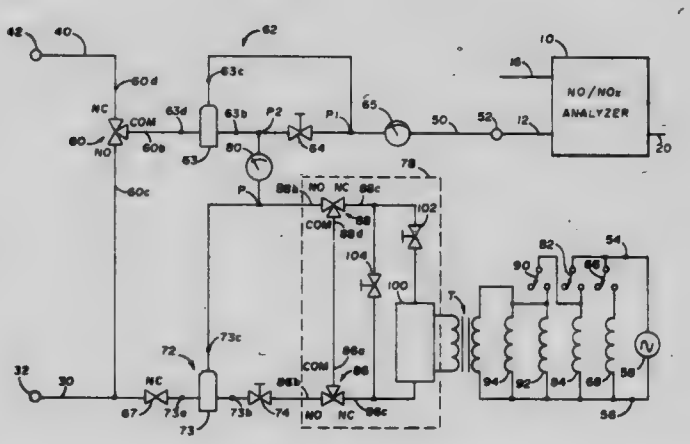
1. An improvement in the conditioning phase of a dry goods load sterilization cycle rendering maximum energy and cycle efficiency for use in a steam sterilization process, which conditioning phase removes air from a sterilization chamber and said load therein and humidifies said load, said improvement comprising the steps of:
introducing steam into said chamber above the air therein by at least one positive pressure pulse having a predetermined maximum positive pressure of about five pounds per square inch gauge and subsequently venting air therefrom to a predetermined minimum positive pressure of about two pounds per square inch gauge at both of which pressures steam and air will stratify and said steam will thereby displace said vented air in said chamber in a predetermined time;
terminating said introduction of steam and substantially simultaneously applying a vacuum of no less than 26 inches of mercury; and
terminating said application of vacuum and substantially simultaneously commencing one of at least two predetermined vacuum pulses for a predetermined time.

4,335,072
OVERHEAD CORROSION SIMULATOR
Jack W. Barnett, and Roy D. Sawyer, both of Missouri City, Tex., assignors to Nalco Chemical Company, Oak Brook, Ill.
Filed 1981, Ser. No. 293,620
Int. Cl.[3] G01N *17/00*; C23F *14/02*
U.S. Cl. 422—53 10 Claims



1. In a petroleum refinery having a fractionation tower interconnected by an overhead vapor line to condensing and/or heat exchange equipment, an overhead corrosion simulator for simulating and measuring the corrosion activity on the internal surfaces of said equipment, said simulator comprising a water box having a cooling coil therein, said coil having an inlet connected to said overhead vapor line to take a slip stream of hydrocarbon vapors at a temperature substantially higher than the dew point of water in the stream, and an outlet connected to a point in the refinery such that a sufficient pressure drop is established across the simulator to assure movement of the stream through the coil, said water box having an inlet and an outlet for cooling water to cause counterflow to the stream, and a plurality of corrosion probes mounted along the coil to measure corrosion rate of the stream at various temperatures.

4,335,073
NOX CONVERSION EFFICIENCY DETECTOR
Loran D. Sherwood, Walled Lake, Mich.; Jack J. Keegan, La Habra, and Stephen A. Gniewek, Glendora, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.
Filed 1981, Ser. No. 260,238
Int. Cl.[3] G01N *21/76*
U.S. Cl. 422—83 23 Claims



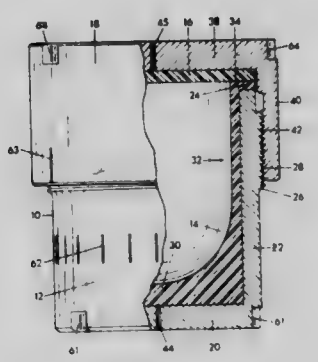
1. In a conversion efficiency detector having a first inlet for connection to a source of a nitric oxide containing standard gas, a second inlet for connection to a source of an oxygen containing zero gas, an outlet for connection to the sample inlet of an oxides of nitrogen analyzer, and an ozone generator for converting to ozone a portion of the oxygen in the zero gas, the improvement comprising:
(a) first and second adjustable flow regulating means for regulating the flow of gases therethrough,
(b) means for connecting the first flow regulating means between the first inlet and the outlet, and
(c) means for connecting the second flow regulating means and the ozone generator between the second inlet and the first flow regulating means, so that the rate of flow of gas through the second flow regulating means may be adjusted without changing the rate of flow of gas through the first regulating means.

4,335,074
LIQUID AND VAPOR-TIGHT VESSEL FOR PERFORMING DECOMPOSITION REACTIONS
Bedrich Bernas, 13 Soroka St., Haifa, Israel
Continuation-in-part of Ser. No. 960,539, Nov. 14, 1978, abandoned. This application 1980, Ser. No. 219,492
Claims priority, application Israel, 1977, 53370
Int. Cl.[3] B01L *3/00*
U.S. Cl. 422—102 7 Claims

1. A liquid-and vapor-tight decomposition vessel and closing tool kit comprising
a rigid integral, cylindrical supporting member having a bottom, peripheral sides and an upstanding ledge surrounding an opening, a raised circumferential outer thread

provided on its outside below said ledge, at least three longitudinal, spaced-apart recesses on its outside at the bottom end,

a rigid integral cap releasably secured to said supporting member, having a closed top portion, a downwardly depending skirt portion provided with internal thread adapted to cooperate with said outer thread on said supporting member, at least three longitudinal, spaced-apart recesses on the outside at the top end, means for determining the tightening torque of said cap relative to said supporting member within a range of 1 kg.m to 3 kg.m, said means including a mark on the outside peripheral side of said supporting member and a mark on the outside skirt portion of said cap,



a rigid, integral bucket of a plastic material formed of polytetrafluoroethylene including a bottom, peripheral sides and an upstanding rim, closely fitting into said opening of said supporting member,

a sealing disc of a plastic material formed of polytetrafluoroethylene, interposed between the top of said cap and said upstanding rim of said bucket,

a closing tool provided with at least three projections adapted to engage with said recesses in said supporting member, and

a closing tool provided with at least three projections adapted to engage with said recesses in said cap.

4,335,075

DOOR SEAL FOR STERILIZER

Edward M. Kackos, Belmar, N.J., assignor to Vernitron Corporation, Lake Success, N.Y.

Filed 1980, Ser. No. 218,934
Int. Cl.³ A61L *2/06, 2/26;* B65D *53/02*
U.S. Cl. 422—112 **4 Claims**

1. Door sealing means for a sterilizer having an open wall providing communication with an interior chamber closable by a door, and means for retaining said door in place at said wall to close said chamber, comprising:

an endless, hollow sealing ring having outer elastic walls;

a partition inside said ring dividing said ring into two separate, endless, inflatable channels expansible to seal said door to said wall of said sterilizer;

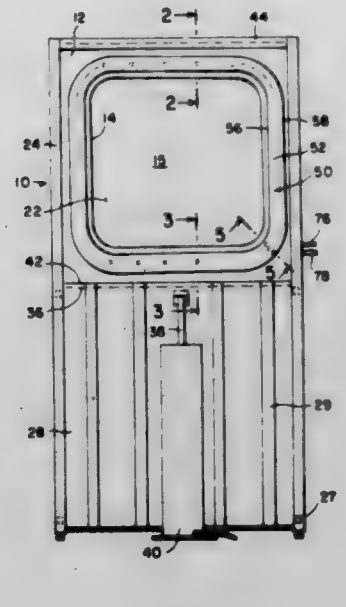
two flexible tubes integral with said ring and communicating with said channels respectively;

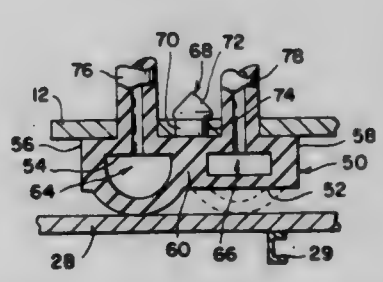
quickly detachable attachment means on one of said outer walls for attaching said ring to said open wall of said sterilizer;

a source of compressed air;

valve means having two outlets alternately providing communication between said source of compressed air, and said channels respectively to inflate one channel at a time; and

pressure responsive means arranged to actuate said valve means to cut off communication between said source of compressed air and one of said two channels automatically when pressure therein falls below a certain predetermined magnitude, and to provide communication between said source of compressed air and the other of said two





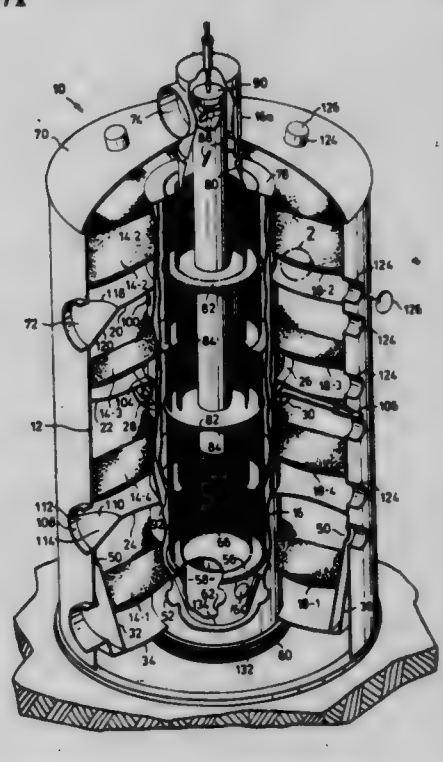
channels automatically to inflate the same, for maintaining said seal between said door and said wall of said sterilizer.

4,335,076

CONVERTER FOR CONVERTING SULFUR DIOXIDE TO SULFUR TRIOXIDE

John McFarland, Campbellville, Canada, assignor to Chemetics International Ltd., Montreal, Canada

Filed 1981, Ser. No. 224,154
Claims priority, application Canada, 1980, 360774
Int. Cl.³ B01D *50/00*
U.S. Cl. 422—171 **26 Claims**



2. A converter having an exterior shell, at least two catalyst beds within said shell, one above the other, each catalyst bed having a support plate for the catalyst thereof, a division plate

between said beds, said support and division plates extending to and being sealingly secured to said shell, said division plate and said support plate of said one bed defining a space therebetween, said shell having an opening therein below said support plate of said one bed for flow of gas between said space and the exterior of said converter, the diameter of said opening being greater than the height of said space, said division plate having a slot therein, the periphery of said slot meeting the edges of said opening, and a transition plate extending between the periphery of said slot and the periphery of that part of said opening located below said transition plate.

21. A converter having foundation means, an exterior shell of stainless steel supported on said foundation means, an interior core tube of stainless steel extending vertically within said shell and being concentric therewith, said core tube being supported by said foundation means independently of said shell, a plurality of annular catalyst beds within said shell and located one above the other, a plurality of support plates one supporting each of said beds from said shell and from said core tube, a plurality of division plates one between each adjacent pair of said beds, said support plates and said division plates each being preformed in substantially the configuration of a trough-shaped toroidal section to reduce sagging of said support plates and division plates in use.

4,335,077

CATALYZER FOR DETOXIFYING EXHAUST GASES FROM INTERNAL COMBUSTION ENGINES

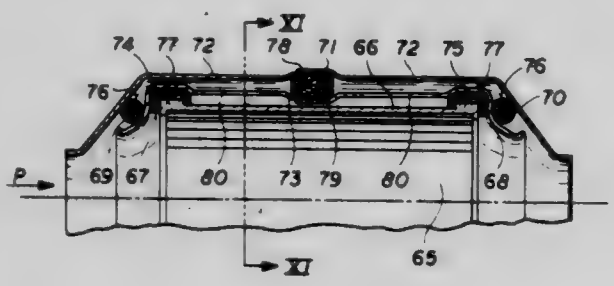
Andres Santiago, and Enrique Santiago, both of Augsburg, Fed. Rep. of Germany, assignors to Zeuna-Staerker KG, Augsburg, Fed. Rep. of Germany

Filed 1973, Ser. No. 342,540

Claims priority, application Fed. Rep. of Germany, 1973, 2303789

Int. Cl.[3] **F01N** *3/15;* **B01J** *8/06*

U.S. Cl. 422—179 **8 Claims**



1. In a catalyzer for detoxifying exhaust gases from internal combustion engines wherein a monolithic catalyst body having an outer surface and facing ends is supported in a housing having an inner surface, by support means arranged between said inner surface of said housing and said outer surface of said monolithic catalyst body, the improvement wherein said support means comprise elastically yielding means, and holding means for locating said elastically yielding means at least partially between each facing end of said monolithic catalyst body and said housing whereby the monolithic catalyst body is elastically restrained in said housing against movement in all three dimensions of space, and wherein said housing comprises an inner housing member and an outer housing member, said elastically yielding means comprising first and second ring means made of gas tight non-combustible material, said holding means comprising means for locating said first ring means between said facing ends of the monolithic catalyst body and said inner housing member, and further means for locating said second ring means between said inner and outer housing members substantially adjacent the ends of said monolithic catalyst body.

4,335,078

CATALYTIC REACTOR FOR AUTOMOTIVE EXHAUST LINE

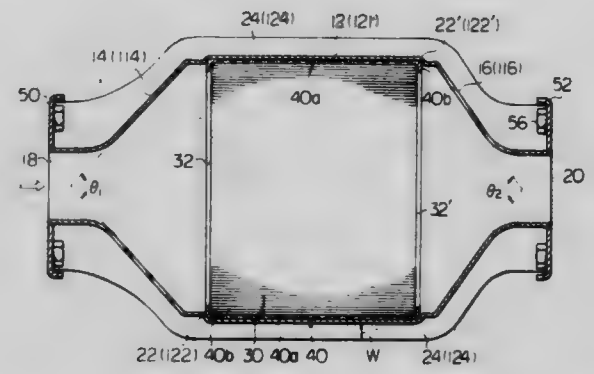
Takashi Ushijima, Tokyo; Hajime Kawasaki, Yokohama; Takayuki Yamazaki, Tokyo, and Yoshio Iwasa, Nagareyama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Continuation of Ser. No. 919,791, Jun. 28, 1978, abandoned. This application 1980, Ser. No. 123,572

Claims priority, application Japan, 1977, 52-122411[U]; 1977, 52-135155[U]

Int. Cl.[3] **F01N** *3/28;* **B01J** *35/04*

U.S. Cl. 422—179 **5 Claims**



1. A catalytic reactor for treating exhaust gas of an automotive engine in an exhaust line for the engine, the reactor comprising:

a tubular housing having an inlet at one end thereof and an outlet at the other end thereof;

a monolithic and porous core treated with a catalytic material and confined in a mid-portion of said housing between a vacant fore-portion of said housing extending from said inlet to said mid-portion and diverging in longitudinal section toward said mid-portion and a vacant aft-portion of said housing extending from said mid-portion to said aft-portion, and converging in longitudinal section from said mid-portion, the angle of convergence of said aft-portion being greater than the angle of divergence of said fore-portion, said core having a cross-sectional shape generally similar to the cross-sectional shape of said mid-portion; and

a buffer layer of wire mesh which covers the outer periphery of said core so as to be tightly interposed between said core and the inner surface of said housing;

said housing consisting of a pair of shells assembled together along a plane intersecting the longitudinal axis of said housing and two coupling flanges welded to said shells respectively at foremost and aftmost locations of said housing for coupling of the reactor with other tubular components of the exhaust line, each of said shells being a one-piece member having two side flanges extending outwards along said plane substantially over the entire length of each shell such that said housing is integrated by welding said side flanges of one shell to the corresponding side flanges of the other shell and welding each of said coupling flanges both to the peripheral surfaces of endmost regions of said shells and to end faces of said side flanges, the width of each of said side flanges becoming gradually larger both in said fore-portion and in said aft-portion than in said mid-portion and terminating in a maximum width at both the fore-end and aft-end of each side flange, each of said coupling flanges being provided with at least two bolt holes outwardly spaced from the welded portions of said coupling flanges with said fore and aft portions of said housing and in a plane distant from the plane of said side flanges, said shells being shaped so as to form two peripheral shoulders in the inside of said housing respectively at fore- and aft- boundaries of said mid-portion and having a plurality of parallel and spaced circumferential corrugations formed in a mid-region of said mid-portion of said housing each terminating at a

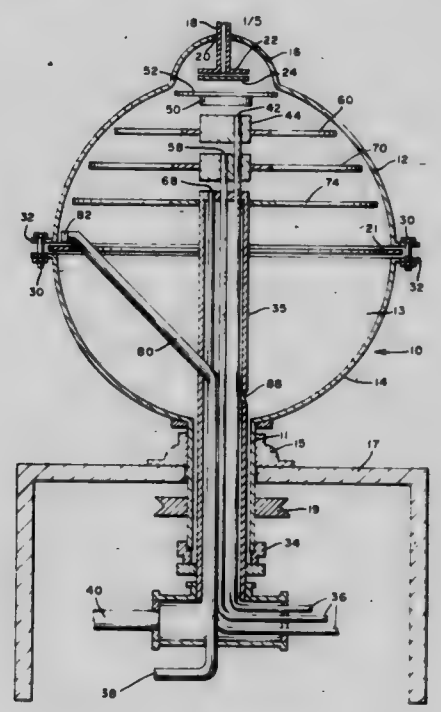
short distance from each of said side flanges, whereby said buffer layer is pressed against the outer periphery of said core by inwardly projected portions of said corrugations, said buffer layer consisting of a central major region and two marginal regions which are formed of a wire finer than the wire used as the material of said central major region so as to become more ductile than said central major region and more finely meshed than said central major region and respectively protrude beyond end faces of said core such that the protruded portion of each of said marginal regions is forced to be folded inwardly along the edge of one end of said core by contact with one of said two peripheral shoulders whereby axial movement of said core is precluded.

4,335,079

APPARATUS FOR THE SULFONATION OR SULFATION OF ORGANIC LIQUIDS

John E. Vander Mey, 78 Winding Way, Stirling, N.J. 07980

Filed 1980, Ser. No. 198,779
Int. Cl.³ B01J *3/02, 10/02*
U.S. Cl. 422—194 **15 Claims**



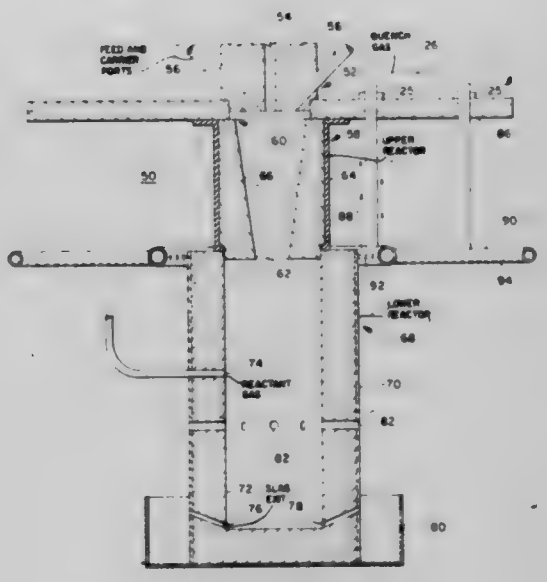
1. A rotatable reactor for reacting a thin film of an organic liquid with a gaseous reactant comprising an oblate or substantially spheroidal reaction chamber mounted on a supporting frame for rotation on its axis in a substantially horizontal position, with an inner reaction surface; evacuating means for maintaining said reaction chamber under subatmospheric pressure; separating means comprising a plurality of parallel discs to divide said reaction surface into successive reaction areas, thus forming corresponding individual chambers to which said reaction areas are exposed; said discs being perpendicular to said axis of rotation, a first depositing means to deposit said organic liquid on said reaction surface, a second depositing means for depositing controlled quantities of said gaseous reactant within said individual chambers; rotating means to rotate said reaction chamber at a speed such that said organic liquid is continuously moved by centrifugal force as a thin film, successively over said successive reaction areas for exposure to said gaseous reactant, and the resultant reaction product is continuously moved to the inner periphery of said reaction chamber where it accumulates, cooling means for controlling the reaction temperature; and means for removing said reaction product from the reactor.

4,335,080

APPARATUS FOR PRODUCING SELECTIVE PARTICLE SIZED OXIDE

Robert D. Davis, Costa Mesa, and Roy L. Blizzard, Mission Viejo, both of Calif., assignors to Thermo Electron Corporation, Waltham, Mass.

Continuation-in-part of Ser. No. 820,536, Aug. 1, 1977, abandoned. This application 1980, Ser. No. 104,387
Int. Cl.³ B01D *5/00*
U.S. Cl. 422—244 **8 Claims**



1. Plasma reactor apparatus for the formation of particulates from a feed material comprising:

a plasma reactor;

means forming a first plasma reaction chamber communicating with the plasma reactor;

said plasma reactor being operable to generate a plasma arc and to deliver the tail flame of said arc to said first reaction chamber to establish in said first reaction chamber a plasma environment at a temperature effective to vaporize such feed material and form an effluent;

means defining an inlet to said first reaction chamber for receiving the tail flame from said reactor;

means defining entrance ports for delivering feed material to the tail flame of said plasma reactor;

means defining an outlet from said first reaction chamber having a smaller cross-sectional area than said inlet;

means forming a second reaction chamber having an inlet in fluid communication with the outlet of said first reaction chamber;

a single effluent outlet means formed in said second reaction chamber;

a valve cooperating with said single outlet means for varying the effective size thereof to vary the amount of effluent passing therethrough;

means forming a quenching chamber in fluid communication with and enclosing said single effluent outlet means;

means in said quenching chamber forming at least one quench medium discharging passageway spaced from and surrounding said single effluent outlet means and positioned to supply and direct quenching medium to effluent emerging from said effluent outlet means for condensing from said effluent particulate material having particle size characteristics functionally related to the distance between said quench medium discharging passageway and said effluent outlet means; and

means to collect such particulate material from said quenching chamber.

4,335,081

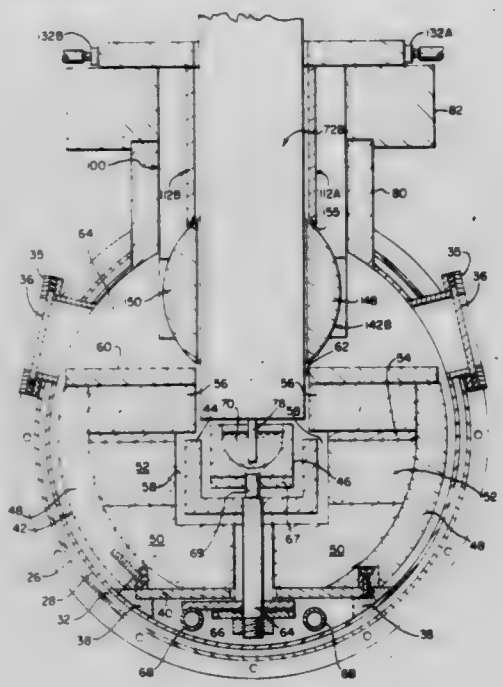
CRYSTAL GROWTH FURNACE WITH TRAP DOORS

Emanual M. Sachs, Watertown, and Brian H. Mackintosh, Lexington, both of Mass., assignors to Mobil Tyco Solar Energy Corporation, Waltham, Mass.

Continuation of Ser. No. 3,765, Jan. 15, 1979, abandoned. This application 1981, Ser. No. 232,570

Int. Cl.[3] C30B *15/34*

U.S. Cl. 422—246 25 Claims



1. A furnace for use in growing crystals from a melt comprising:

enclosure means defining a heating chamber for containing a melt, said enclosure means having an upper side thereto;

means defining a port in said upper side of said enclosure means so as to provide access to said heating chamber;

means for heating a melt contained within said heating chamber;

closure support means mounted to said enclosure and extending vertically into said heating chamber;

closure means disposed within and rotatably mounted to said closure support means within said heating chamber for closing off said port;

remotely controlled means for rotating said closure means within said closure support means so as to selectively open or close off said port; and

a pulling mechanism for pulling a crystalline body from a melt in said heating chamber via said port.

4,335,082

METHOD OF DECREASING THE ORGANIC SUBSTANCE CONTENT OF ALUM EARTH PRODUCTION CYCLE PERFORMED ACCORDING TO THE BAYER TECHNOLOGY

Jozsef Matyasi, Budapest; Ferenc Toth, Almasfuzito-felso; Laszlo Revesz, Almasfuzito-felso; Benjaminne Toth, Almasfuzito-felso; Miklos Schlegel, Tata; Jozsef Zoldi, Budapest; Janosne Losonczi, Tata; Lajos Szoke, Almasfuzito-felso, and Maria Orban nee Kelemen, Budapest, all of Hungary, assignors to Magyar Aluminiumipari Troszt, Budapest, Hungary

Filed 1980, Ser. No. 201,722

Claims priority, application Hungary, 1979, AA 940

Int. Cl.[3] C01F *7/06, 7/46*

U.S. Cl. 423—122 5 Claims

1. A method of reducing the organic substance content of the alum earth produced in a Bayer cycle, comprising caustifying with lime the soda present in the hydrate wash and/or in the soda salt solution of said Bayer cycle, removing the resulting precipitate, evaporating the resulting liquid to a total sodium oxide concentration of 200 to 400 g/l, separating the precipitated solid containing the organic impurities and removing it from the system, and recycling the remaining liquid.

4,335,083

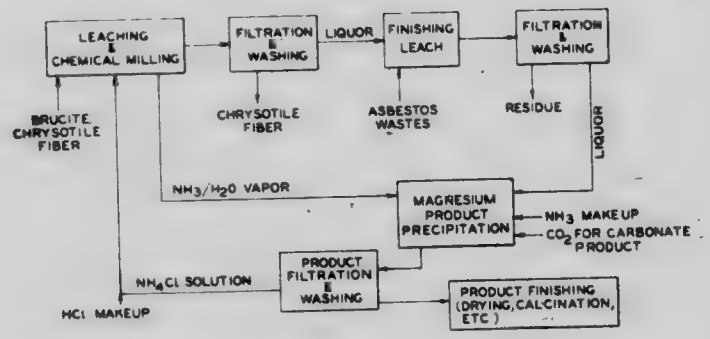
METHOD FOR LEACHING MAGNESIUM FROM MAGNESIUM HYDROXIDE-CONTAINING COMPOSITION

Robert F. Benson, St. Peterburg, Fla., assignor to Carey Canada Inc., Quebec, Canada

Filed 1981, Ser. No. 240,712

Int. Cl.[3] C01F *5/20, 5/24*

U.S. Cl. 423—167 16 Claims



1. A method for leaching magnesium from brucite containing chrysotile asbestos fibers which comprises the steps of:

(a) contacting said asbestos fibers with an aqueous solution of an ammonium salt whose corresponding magnesium salt is soluble in said aqueous solution, said aqueous solution being a nonsolvent for a major portion of the remainder of said asbestos fibers, whereby a soluble product containing said soluble magnesium salt and ammonia and an insoluble product are formed, the magnesium of said soluble magnesium salt being derived from said brucite;

(b) removing a substantial portion of said ammonia from said aqueous solution;

(c) separating said aqueous solution containing said soluble magnesium salt from said insoluble product; and

(d) transforming the magnesium of said soluble magnesium salt into an insoluble magnesium product.

4,335,084

METHOD FOR REDUCING NO_x EMISSIONS FROM COMBUSTION PROCESSES

Thomas R. Brogan, Charlestown, Mass., assignor to Roldiva, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 106,534, Jan. 24, 1980. This application 1981, Ser. No. 275,096

Int. Cl.[3] B01D *53/34*

U.S. Cl. 423—235 6 Claims

1. A method for reducing the NO_x present in combustion gases which results from the combustion of fossil fuels with air, said method comprising the steps of

a. controlling the air/fuel mixture for combustion to obtain fuel rich combustion gases in the combustion zone;

b. maintaining or cooling the temperature of the combustion gas downstream of said combustion zone in a first zone at between about 2500° F. and 3000° F.;

c. injecting ammonia in a molar ratio of 1:1 to 4:1 (NH_3/NO_x) into the combustion gases at the first zone;

d. reducing the temperature of the combustion gases at a second zone to between 1900° F. and 2400° F.; and

e. injecting secondary air into the combustion gases at the second zone to complete combustion of the fuel.

4,335,085

PROCESS FOR THE PREPARATION OF PHOSPHORUS PENTACHLORIDE

Hans-Peter Rieck, and Jürgen Russow, both of Kelkheim, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed 1981, Ser. No. 239,455

Claims priority, application Fed. Rep. of Germany, 1980, 3008194

Int. Cl.³ C01B *25/10*

U.S. Cl. 423—300 17 Claims

1. A process for the preparation of highly pure phosphorus pentachloride in the form of a free-flowing crystalline powder by reaction of phosphorus trichloride with chlorine, which comprises carrying out the reaction in two stages, the first stage including phosphorus trichloride being combined with 0.1 to 0.999 times the molar amount of chlorine at a temperature of 0° to 150° C., while stirring, 0 to 0.9 times the amount of the phosphorus trichloride added being distilled off and the remainder thereby being converted into a PCl_3/PCl_5 crystal sludge comprising 50–99.9 mole % of phosphorus pentachloride, and the second stage including this sludge being reacted with an excess of chlorine at 0° to 150° C. to give phosphorus pentachloride.

4,335,086

HYDROXYAPATITE AND ITS PREPARATION

Michael Spencer, 34 Bayham Rd., Sevenoaks, Kent, United Kingdom

PCT No. PCT/GB79/00118, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00247, PCT Pub. Date 1980

PCT Filed 1979, Ser. No. 190,883

Claims priority, application United Kingdom, 1979, 30646/78

Int. Cl.³ C01B *25/32*

U.S. Cl. 423—308 6 Claims

1. A process for preparing hydroxyapatite, comprising the steps of

(a) adding an aqueous solution of $CaCl_2$ to an excess of sodium phosphate to produce an aqueous suspension of brushite;

(b) heating the aqueous suspension of brushite from step (a) at a temperature of between 60° and 95° C. and maintaining the pH of the heated system at from 6 to 7.5 by the addition of alkali to produce hydroxyapatite or a mixture of hydroxyapatite and octacalcium phosphate; and

(c) if octacalcium phosphate is present in the product of step (b), converting the octacalcium phosphate to hydroxyapatite by the further addition of alkali.

6. Essentially pure hydroxyapatite characterised by the capability of allowing a flow rate of from 40 to 80 ml/hour at room temperature in a 9×75 mm bed under a pressure head of 250 mm; a molar Ca/P ratio of from 1.49 to 1.62; a weight-specific binding capacity for bovine serum albumin of at least 30 mg/g; and a tRNA elution peak of at least 0.06 molar.

4,335,087

PROCESS FOR PREPARING CIS-$Pt(NH_3)_2Cl_2$

Richard N. Rhoda, Suffern, N.Y., assignor to MPD Technology Corporation, Wyckoff, N.J.

Division of Ser. No. 65,553, Aug. 16, 1979, Pat. No. 4,273,755. This application 1980, Ser. No. 206,883

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ C01G *55/00*

U.S. Cl. 423—413 4 Claims

1. A process for preparing cis-$Pt(NH_3)_2Cl_2$ by reacting cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$ with KCl comprising adding KCl rapidly to a solution of cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$ at room temperature, elevating the temperature of the reacting medium to about 70° C. for a period of time sufficient to maximize the reaction, cooling the resultant product while stirring to a temperature no lower then about 10° C., cis-$Pt(NH_3)_2Cl_2$ having precipitated from solution, separating the precipitate from solution substantially immediately.

4,335,088

PROCESS FOR PRODUCING AMMONIUM CARBONATE

Vladimir M. Efimov, ulitsa Tsjurupy, 8, korpus 2, kv. 1; Tatyana N. Naumova, ulitsa Festivalnaya, 27, kv. 39; Irina G. Bykova, Otkrytoe shosse, 1, korpus 7, kv. 66, all of Moscow, and Larisa A. Stroganova, poselok Firsanovka, ulitsa Rechnaya, 6, kv. 14, Moskovskaya oblast, all of U.S.S.R.

Filed 1981, Ser. No. 238,615

Int. Cl.³ C01C *1/26*

U.S. Cl. 423—420 1 Claim

1. In a process for producing ammonium carbonate salts comprising interaction of gaseous ammonia, gaseous carbon dioxide and water vapor, the improvement wherein hydrogen halide is introduced into the reaction zone in a concentration in said carbon dioxide ranging from 1×10^{-3} to 1×10^{-6} percent by mass.

4,335,089

PROCESS FOR PRODUCING CARBON FIBERS

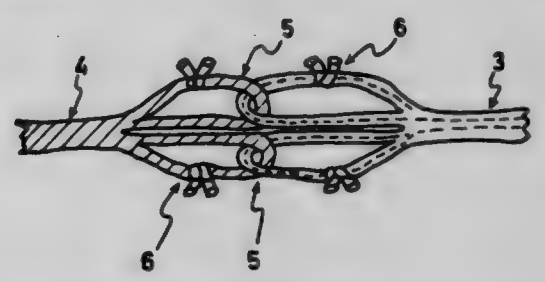
Kunio Maruyama, and Akira Okazaki, both of Okayama, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Filed 1980, Ser. No. 182,611

Claims priority, application Japan, 1979, 54-112314

Int. Cl.³ D01F *9/14, 9/22*

U.S. Cl. 423—447.4 2 Claims



1. A method for the continuous production of carbon fibers from two or more cheese-like articles of organic polymer fibers having yarn ends at the top portion and tail portion, characterized by preliminarily heat-treating the yarn ends of each cheese-like article so that said yarn end portions have a elongation of 5% or more, a tensile strength of 1 gram/denier or more, and a specific gravity of 1.30 to 1.45; connecting the tail end of a cheese-like article with the top end of another cheese-like article in such a manner that the tail and top ends are divided into at least two portions and connected in the form of loop portions and knot portions, said loop portions and knot portions being disposed at different positions; and thereafter causing the yarn to pass through heat-treating furnaces.

4,335,090

PREPARING CALCIUM HYPOCHLORITE FROM TRIPLE SALT

Walter J. Sakowski, Cleveland; Larry G. Carty, Charleston, and Craig A. Foster, Cleveland, all of Tenn., assignors to Olin Corporation, New Haven, Conn.

Filed 1981, Ser. No. 240,339

Int. Cl.³ C01B *11/06*

U.S. Cl. 423—474 9 Claims

1. In a process for preparing granular calcium hypochlorite particles, wherein hydrated triple salt crystals of calcium hypochlorite, sodium hypochlorite, and sodium chloride are reacted with a chlorinated lime slurry to form particles of calcium hypochlorite dihydrate, the resulting slurry is processed to separate the calcium hypochlorite dihydrate particles and the resulting particles are dried to form granular calcium hypochlorite particles, the improvement which comprises:

a. continuously feeding triple salt crystals and a chlorinated

lime slurry to a paste reactor containing an aqueous paste slurry of calcium hypochlorite dihydrate particles to form additional aqueous paste slurry of calcium hypochlorite dihydrate particles,

b. continuously removing a portion of the paste slurry from the paste reactor,

c. continuously dividing the removed portion of paste slurry into a first part and a second part,

d. continuously recycling said first part of the paste slurry to the paste reactor,

e. separating said second part into particles of calcium hypochlorite in the form of a wet cake and a resulting clarified mother liquor, and

f. drying said wet cake to form granular particles of calcium hypochlorite.

4,335,091

PROCESS FOR THE MANUFACTURE OF HYDROXYLAMMONIUM PERCHLORATE

Eugen Scholz, Garbsen, and Wolfgang Sievert, Wunstorf, both of Fed. Rep. of Germany, assignors to Riedel-de Haen Aktiengesellschaft, Seelze/Hannover, Fed. Rep. of Germany

Filed 1981, Ser. No. 281,844

Claims priority, application Fed. Rep. of Germany, 1980, 3026293

Int. Cl.³ C01B *11/16*

U.S. Cl. 423—476 **2 Claims**

1. A process for the manufacture of hydroxylammonium perchlorate comprising the steps of

(a) loading a cation exchanger with a perchlorate-free hydroxylammonium salt dissolved in water; and

(b) eluating the loaded exchanger with an aqueous solution of a perchlorate ions - donating compound to obtain an aqueous hydroxylammonium perchlorate solution.

4,335,092

SYNTHESIS OF HYDROGEN PEROXIDE

Augustine I. Dalton, Jr., and Ronald W. Skinner, both of Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed 1980, Ser. No. 195,827

Int. Cl.³ C01B *15/02*

U.S. Cl. 423—584 **9 Claims**

1. In the process of preparing hydrogen peroxide by contacting hydrogen and oxygen with a palladium catalyst on a solid support in the presence of a liquid medium, the improvement wherein the liquid medium is methanol without added water.

8. In the process of preparing hydrogen peroxide by contacting hydrogen and oxygen with a palladium catalyst on a solid support in the presence of a liquid medium, the improvement wherein the liquid medium is aqueous methanol containing at least 75% by volume of methanol and 0.1-1.0% by weight of formaldehyde.

4,335,093

PROCESS OF CONVERTING WIND ENERGY TO ELEMENTAL HYDROGEN AND APPARATUS THEREFOR

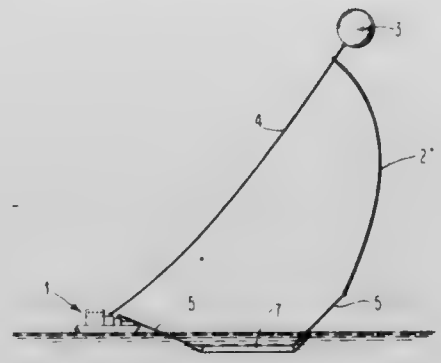
Robert E. Salomon, Dresher, Pa., assignor to Temple University, Philadelphia, Pa.

Filed 1980, Ser. No. 198,449

Int. Cl.³ F03B *13/00*

U.S. Cl. 423—644 **8 Claims**

1. An apparatus for converting wind energy to elemental hydrogen comprising incombination, an ocean going vessel, water driven propeller means fixedly mounted below the waterline and outboard of the hull of said vessel, D.C. electrical generating means carried upon said vessel, linkage means connecting said water driven propeller means in driving relationship to said generator means, water electrolysis means carried upon said vessel, electrical connecting means adapted to supply said electrolysis means with the output of said generating means, metal alloy storage means carried upon said vessel, a hydride forming metal alloy contained in said storage means, conduit means adapted to collect the hydrogen output of said electrolysis means and to deliver said output to said metal alloy storage means, gas compression means positioned within said conduit, a sail carried by said vessel, tether lines



adapted to be attached to said sail, power winch means carried upon said vessel adapted to mechanically ease and retract said tether lines when said sail is aloft and attached to said tether lines, a lighter than air balloon having a lifting capacity sufficient to carry said sail aloft, attached to said sail.

4,335,094

MAGNETIC POLYMER PARTICLES

Klaus H. Mosbach, Lackalänga 31-38, S-240 20 Furulund, Sweden

PCT No. PCT/SE78/00001, § 371 Date 1979, § 102(e) Date 1979, PCT Pub. No. W078/00005, PCT Pub. Date 1978

PCT Filed 1978, Ser. No. 21,603

Int. Cl.³ G01N *33/56*

U.S. Cl. 424—1 **39 Claims**

1. Magnetic polymer particles as carriers of biologically active substance comprising

particles of a polymer having a lattice or pores;

a biologically active substance associated with said polymer particles, and

magnetic material deposited in said lattice or pores wherein said magnetic material is deposited by contacting the polymer particles with a colloidal solution comprising said magnetic material.

4,335,095

INDIUM-111 OXINE COMPLEX COMPOSITION

James D. Kelly, Buckinghamshire, England, assignor to The Radiochemical Centre Limited, England

Filed 1980, Ser. No. 128,923

Claims priority, application United Kingdom, 1979, 7909867

Int. Cl.³ A61K *49/00, 43/00*

U.S. Cl. 424—1 **8 Claims**

1. An indium-111 composition comprising a complex of indium-111 with a quinoline compound carrying a hydroxyl group in the 8-position, present in an aqueous medium which also contains 10 μg/ml to 1000 μg/ml of a surface active agent.

4,335,096

ABSORBENT FOR USE IN PASSIVE AGGLUTINATION TEST

Yoshikatsu Tsuji, Kawasaki, Japan, assignor to Fujizoki Pharmaceutical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 122,998, Feb. 20, 1980, abandoned. This application 1980, Ser. No. 188,894

Claims priority, application Japan, 1979, 54/19092

Int. Cl.³ G01N *1/28, 1/34, 33/50, 33/54*

U.S. Cl. 424—12 **11 Claims**

1. An absorbent for use in passive agglutination tests comprising erythrocytes of animals or cells of microorganisms

fixed with an aldehyde and, on a dry weight basis, for every 100 parts by weight of carrier, from 100 to 400 parts by weight of aluminum hydroxide and 50 to 200 parts by weight of calcium phosphate.

4,335,097

STABILIZED, PROSTAGLANDIN-CONTAINING TABLETS WITH CONTROLLED RATE OF SOLUBILITY, FOR LOCAL USE AND PROCESS FOR THE PREPARATION THEREOF

Agoston David; Tibor Horvath; Csaba Kiss; Gabor Nagy; Kalman Simon; Ilona Simonidesz nee Vermes; Agnes Udvardi, and Sandor Virag, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Budapest, Hungary

Filed 1981, Ser. No. 225,361

Int. Cl.[3] **A61K** *9/00, 31/215, 31/19*

U.S. Cl. 424—14 **9 Claims**

1. A stablized, prostaglandin-containing tablet with controlled rate of solubility, for local use, comprising 0.2 to 20% by weight of at least one natural or synthetic prostaglandin, 0.4 to 40% by weight of a non-toxic buffer for adjusting the pH of the liquid film formed on the surface of the solid phase due to air humidity to 3 to 5, 1 to 50% by weight of stearic acid, 0 to 15% by weight of an alkali earth metal stearate, 10 to 95% by weight of lactose and/or mannite, 0 to 15% by weight of a further granulation aid, 1 to 30% by weight of a disintegrating agent and optionally 0.5 to 10% by weight of a flavoring and aromatizing substance, tabletted under a pressure of 500 to 2000 kp/cm^2.

3. A process for the preparation of stabilized, prostaglandin-containing tablets with controlled rate of solubility, for local use, which comprises granulating 0.2 to 20% by weight of at least one natural or synthetic prostaglandin, 0.4 to 40% by weight of a non-toxic buffer, which adjusts the pH of the liquid film formed on the surface of the solid phase due to air humidity, to 3 to 5, 1 to 50% by weight of stearic acid, 0 to 15% by weight of an alkali metal stearate, 10 to 95% by weight of lactose and/or mannite, 0 to 15% by weight of a further granulation aid, 1 to 30% by weight of a disintegrating agent and optionally 0.5 to 10% by weight of a flavouring and aroma substance, and tabletting the granulate obtained under a pressure of 500 to 2000 kp./cm^2.

4,335,098

ACYLATED FURANYL AND THIENYL ACRYLIC ACIDS

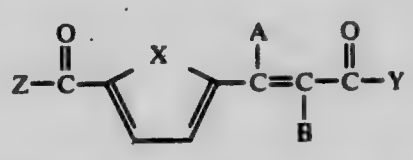
Roger A. Parker, Cincinnati, Ohio, assignor to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 181,917, Aug. 27, 1980, abandoned. This application 1981, Ser. No. 267,236

Int. Cl.[3] **A61K** *31/38, 31/34;* **C07D** *307/12, 333/24*

U.S. Cl. 424—275 **8 Claims**

1. A compound of the structural formula



and the pharmaceutically acceptable amine and metal salts thereof, wherein

X is oxygen or a divalent sulfur atom;

A is hydrogen or lower alkyl;

B is hydrogen or lower alkyl;

Y is OR_1, NR_1R_1, SR_1 or $—SCH_2CH_2NHCOR$ wherein R_1 is hydrogen or lower alkyl and R is lower alkyl; and

Z is a saturated or olefinically unsaturated hydrocarbyl moiety having 3 to 20 carbon atoms.

4,335,099

EMPLOYMENT OF ENTERIC COATED IGA FOR HYPOPROTEINEMIA IN INTESTINAL INFECTIOUS DISEASES

Satoshi Funakoshi, Katano; Katuhiro Uriyu, Sakai; Yahiro Uemura; Katashi Nakane, both of Hirakata, and Akio Yamane, Takatsuki, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Continuation of Ser. No. 667,193, Mar. 15, 1976, abandoned. This application 1980, Ser. No. 185,929

Claims priority, application Japan, 1975, 50-64713

Int. Cl.[3] **A61K** *9/32, 9/34, 9/36, 9/40, 31/78, 31/79, 31/74, 39/00*

U.S. Cl. 424—32 **6 Claims**

1. A method of treating hypoproteinemia caused by diarrhea and anorexia due to bacillary intestinal infectious diseases, said method comprising orally administering an effective amount therefor of an enteric film-coated IgA rich gamma globulin originated in human serum or plasma to a person suffering from hypoproteinemia.

4. The method as claimed in claim 1 wherein said pharmaceutical dosage has a subcoating of a water-soluble film and a top enteric coating of an organic solvent soluble film.

4,335,100

METHOD OF INHIBITING DEXTRANSUCRASE AND ORAL COMPOSITIONS FOR USE THEREIN

John F. Robyt, Ames, Iowa, and John N. Zikopoulos, Phoenix, Ariz., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Continuation-in-part of Ser. No. 32,398, Apr. 23, 1979, Pat. No. 4,228,150. This application 1980, Ser. No. 175,635

Int. Cl.[3] **A61K** *7/16, 9/68, 31/10;* **C07H** *5/02*

U.S. Cl. 424—48 **14 Claims**

1. The method of inhibiting dextransucrase synthesis of dextran from sucrose, comprising introducing into an aqueous substrate containing sucrose and dextransucrase an inhibitory amount of a substituted sucrose compound, said substituted sucrose compound having bonded to the 5-position ring carbon a group selected from the class consisting of $—CH_2X$, $=CH_2$, —CHO, and —H, wherein X is selected from the class consisting of —Br, —I, $—N_3$, $—NH_2$, $—OCH_3$, and —H.

4,335,101

ORAL HYGIENE ENZYMES AND METHOD FOR PREPARATION

Thomas H. Stoudt, Westfield, and Karl H. Nollstadt, Clark, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 170,642, Aug. 10, 1971, abandoned. This application 1973, Ser. No. 372,137

Int. Cl.[3] **A61K** *7/28;* **C12N** *9/24*

U.S. Cl. 424—50 **7 Claims**

1. A dental treating composition comprising a dental treating carrier, dextranase, and an effective amount of an enzyme capable of hydrolyzing a streptococci derived dental plaque glucan having a majority of α-(1→3)glucosidic bonds.

3. A process for preparing an enzyme capable of hydrolyzing a streptococci devised dental plaque glucan having a majority of α-(1-3)glucosidic bonds which comprises:

(a) growing a microorganism selected from the the group consisting of a fungus, NRRL No. 5305; a Streptomyces sp., NRRL No. 5306; a Streptomyces sp., NRRL no. 5307; a Streptomyces sp., NRRL No. 5308; a Streptomyces sp., NRRL No. 5309; a Bacillus sp., NRRL No. B-5300; a Bacillus sp., NRRL No. B-5301; a Bacillus sp., NRRL No. B-5302 a Bacillus sp., NRRL No. B-5303; or a Corynebacterium sp., NRRL No. B-5310; in a suitable nutrient medium.

(b) removing insolubles from the broth; and

(c) isolating the protein from the clarified broth, which protein comprises the desired enzyme.

4,335,102

ORAL COMPOSITION FOR CARIES PROPHYLAXIS

Syozi Nakashima, Hatano; Tosiyuki Ozawa, Minami-ashigara; Takeshi Naganuma, Odawara; Takashi Ujiie, Ninomiya; Satoshi Hayashi, Hiratsuka, and Yoshihito Ochiai, Fujisawa, all of Japan, assignors to Lion Corporation, Tokyo, Japan

Filed 1980, Ser. No. 185,964

Claims priority, application Japan, 1979, 54-121194

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.[3] A61K *7/18, 9/68*

U.S. Cl. 424—52 16 Claims

1. An oral composition for caries prophylaxis, comprising: a highly soluble stannous compound selected from the group consisting of stannous fluoride, stannous chloride, stannous chloride fluoride, sodium stannous fluoride, potassium stannous fluoride, stannous acetate, stannous hexafluorozirconate, stannous sulfate, stannous tartrate, stannous gluconate and mixtures thereof, said highly soluble stannous compound being present in the range of 0.03% to 5% by weight of the composition as stannous tin; a difficulty soluble stannous compound selected from the group consisting of stannous pyrophosphate, stannous metaphosphate, stannous oxide, stannous oxalate, stannous phosphate and mixtures thereof, said difficulty soluble stannous compound being present in the range of 0.05% to 10% by weight of the composition as stannous tin; and 0.1% to 20% by weight of the composition of a phytic acid compound selected from the group consisting of phytic acid, sodium phytate, potassium phytate, lithium phytate, ammonium phytate, magnesium phytate, zinc phytate, calcium phytate, aluminum phytate, phytin, double salts thereof and mixtures thereof, said composition being acidic.

4,335,103

MULTIPHASE COSMETIC COMPOSITION

Patricia I. M. Barker, Apex; Nathan A. Ziskin, and Michael J. Grossfeld, both of Raleigh, all of N.C., assignors to Almay, Inc., Apex, N.C.

Filed 1977, Ser. No. 781,573

Int. Cl.[3] A61K *7/021, 7/42, 7/48, 7/50*

U.S. Cl. 424—59 15 Claims

1. A multiphase cosmetic composition comprising two generally separately stable and visual distinct gel and cream phases combined to form a cosmetic composition; said cream phase being an emulsified composition and including an emulsifier, a thickening agent, an oil phase, and water, with the oil phase making up generally 10–80% by weight of said cream phase and the water making up generally 20–70% by weight of said cream phase; said gel phase including a thickening agent and a phase including water soluble material ranging from 50–99% by weight of said gel phase; and wherein said cream and gel phases are disposed side by side throughout the multiphase cosmetic composition formed by said cream and gel phases.

10. A duophase cleansing cream composition including two generally separate and stable composition phases intimately combined to yield a cleanser type cosmetic composition that may be applied to the subject's face or body in one single application, said duophase cleansing cream composition comprising: a water miscible cleansing cream phase composition having a pH in the range of 5–8 and a viscosity of 40,000 to 150,000 centipoise and wherein said cream phase composition itself includes an oil phase making up about 40–65% by weight of the cream phase composition, water making up about 20–50% by weight of the cream phase composition, a thickening agent making up about 0.25–1.70% by weight of the cleansing cream composition, and an emulsifier making up about 1.00 to 9.00% by weight of the cleansing cream composition; a water miscible gel phase composition having a pH in the range of 5–8 and a viscosity of 40,000 to 150,000 centipoise and wherein said gel phase composition itself includes water which makes up about 80–90% by weight of the gel phase composition, and a thickening agent making up about 0.50–4.00% by weight of said gel phase composition; and wherein said cream phase composition and said gel phase composition are intimately combined throughout to form a continuous duophase cosmetic composition with the cream and gel phases remaining generally stable, separate, and visually distinct relative to each other but combined in a swirl like pattern such that the cream and gel phases occur and are present throughout the total formed duophase composition.

4,335,104

ANHYDROUS MULTI-PURPOSE MOISTURIZING COMPOSITION

Jon S. VanCleave, West Des Moines, Iowa, assignor to United Chemical Corporation, Des Moines, Iowa

Filed 1978, Ser. No. 934,097

Int. Cl.[3] A61K *7/42, 31/60, 47/00*

U.S. Cl. 424—59 11 Claims

1. A multi-purpose anhydrous topical cosmetic composition comprising from about 20% to about 90% of a water insoluble non-ionic surfactant or blend of surfactants, the molecules of which have a hydrophilic portion and a lipophilic portion and have a hydrophilic-lipophilic balance of 12 or less, in combination with a small but effective amount of an active ingredient which is soluble in said surfactant.

4,335,105

SPECIFIC ANTIGEN VACCINE FOR TGE IN SWINE

Patricia M. Gough, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Continuation-in-part of Ser. No. 253,070, Apr. 10, 1981, abandoned, which is a continuation of Ser. No. 93,070, Nov. 13, 1979, abandoned. This application 1981, Ser. No. 262,768

Int. Cl.[3] A61K *39/12, 39/215*

U.S. Cl. 424—89 10 Claims

1. A vaccine for protecting swine against transmissable gastroenteritis (TGE), wherein the vaccine is in an injectable dose form including an adjuvant and is characterized by containing a protection-effective amount of a specific antigenic protein (SPA) which has been separated from TGE virus, said SPA being soluble in water and having a buoyant density of 1.02 to 1.03 grams per milliliters (gms/ml) as determined in aqueous sucrose, and being further characterized by its lactogenic immunizing property of protecting the baby pig offspring against TGE infection when administered to a TGE non-immune pregnant sow.

4,335,106

PROCESSES FOR THE GROWTH OF A MODIFIED *PASTEURELLA MULTOCIDA* BACTERIA AND PREPARATION OF A VACCINE THEREFROM

Carrell J. Kucera, Lincoln, Nebr., assignor to Norden Laboratories Inc., Lincoln, Nebr.

Division of Ser. No. 135,828, Mar. 31, 1980, Pat. No. 4,293,545. This application 1981, Ser. No. 255,144

Int. Cl.[3] A61K *39/02*

U.S. Cl. 424—92 10 Claims

1. A process for preparing a modified live *Pasteurella multocida* vaccine capable of inducing immunity in bovine, porcine and ovine animal species without serious side effects which comprises chemically modifying virulent *Pasteurella multocida* strain ATCC No. 31609 by passaging it in the presence of an acridinium salt and combining the modified bacteria with a carrier.

4,335,107

MIXTURE TO PROTECT POULTRY FROM SALMONELLA

Glenn H. Snoeyenbos, 42 Hills Rd., Amherst, Mass. 01002; Olga M. Weinack, 179 Woodbridge St., South Hadley, Mass. 01075, and Charles F. Smyser, 49 Harlow Dr., Amherst, Mass. 01002

Filed 1978, Ser. No. 912,829
Int. Cl.[3] A61K *35/12, 35/66, 35/74, 39/295*
U.S. Cl. 424—93 47 Claims

1. A mixture of avian intestinal microflora treated to prevent inactivation thereof,

said microflora having the property of blocking subsequent colonization in the intestinal tract of poultry by paratyphoid salmonella,

said mixture being substantially free of pathogens.

4,335,108

PAULOMYCIN A AND B AND PREPARATION THEREOF

Alexander D. Argoudelis, Portage; Vincent P. Marshall, Kalamazoo, and Leroy E. Johnson, Kalamazoo Township, Kalamazoo County, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed 1980, Ser. No. 180,682
Int. Cl.[3] A61K *35/00;* C12P *1/06;* C12N *1/20*
U.S. Cl. 424—117 10 Claims

1. Essentially pure crystalline paulomycin A, which is characterized as follows:

(a) active against Gram-positive bacteria;

(b) melting point: 95°–105° C.;

(c) optical rotation $[\alpha]_D^{25}$, −22° (c, 0.9555, methanol); $[\alpha]_D^{25}$, +27° (C, 0.9435, $CHCl_3$);

(d) elemental analysis: C, 48.77; H, 5.73; N, 3.29; S, 4.39; O (by difference), 37.82;

(e) titration: pKa, 7.4; Eq.wt. 808, in 60% aqueous EtOH; titrant, KOH;

(f) a characteristic infrared absorption spectrum as shown in FIG. 1 of the drawings;

(g) a characteristic ultraviolet absorption spectrum as shown in FIG. 2 of the drawings; and,

(h) a characteristic proton magnetic resonance spectrum as shown in FIG. 3 of the drawings, or inorganic cationic salts thereof.

4,335,109

WATER REPELLENT AQUEOUS WOOD TREATING SOLUTIONS

Robert E. Hill, Webster Groves, Mo., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 96,333, Nov. 21, 1979, abandoned. This application 1980, Ser. No. 216,123
Int. Cl.[3] A01N *59/20, 59/06*
U.S. Cl. 424—140 2 Claims

1. A method for controlling fungi consisting essentially of treating said fungi with a fungicidal amount of an aluminum halohydrate wherein the halogen is selected from chlorine, bromine and iodine and a water soluble salt of a mono or divalent cation selected from copper, zinc, barium, lithium, lead, mercury, cadmium, calcium, sodium, and potassium, and a monovalent anion selected from formate, acetate, haloacetate, acrylate, methacrylate, propionate, chloro and bromopropionate, butyrate, isobutyrate, nitrate, sulfamate, iodide, bromide, and chloride, said water soluble salt excluding the sulfamates, nitrates, chlorides and bromides of sodium, potassium, lithium and calcium.

4,335,110

PHARMACEUTICAL COMPOSITIONS OF SANGUINARIA GALANGAL AND ZINC CHLORIDE

Keith R. Collins, Estoril, Portugal, assignor to Orewa Inc., Estoril, Portugal

Filed 1980, Ser. No. 179,159
Claims priority, application United Kingdom, 1979, 7929364
Int. Cl.[3] A01N *59/16, 65/00;* A61K *33/30, 35/78*
U.S. Cl. 424—145 11 Claims

7. A method of treatment of peridontal or carious disease, comprising administering to the gums or teeth of a patent a pharmacologically effective amount of the composition as claimed in claim 1 and allowing said composition to remain in contact with the gums or teeth for a period of time sufficient to effectively treat said disease.

4,335,111

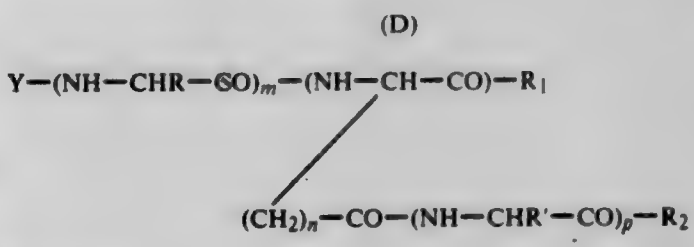
COMPOUNDS ASSOCIATING PEPTIDYL OF AMINOACYL RESIDUES TO LIPOPHILIC GROUPS AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAID NEW COMPOUNDS

Pierre Lefrancier, Bures sur Yvette; Edgar Lederer, Sceaux; Jean Choay, and Louis Chedid, both of Paris, all of France, assignors to Agence National de Valorisation de la Recherche (ANVAR), Neuilly Sur Seine, France

Filed 1979, Ser. No. 106,022
Claims priority, application United Kingdom, 1978, 49887/78
Int. Cl.[3] A61K *37/00, 37/02;* C07C *103/52*
U.S. Cl. 424—177 36 Claims

1. A compound of formula

(D) (I)



in which

(NH—CHR—CO) is glycyl, beta-alanyl, L-alanyl, L-seryl, L-valyl or L-prolyl and (NH—CHR'—CO) is glycyl, L-alanyl, beta-alanyl, L-arginyl, L-asparagyl, L-cystyl, L-glutaminyl, L-histidyl, L-hydroxyprolyl, L-isoleucyl, L-leucyl, L-methionyl, L-phenylalanyl, L-prolyl, L-seryl, L-threonyl, L-tryptophyl and L-valyl,

m is zero or 1,

n is 1 or 2,

p is 0 or 1,

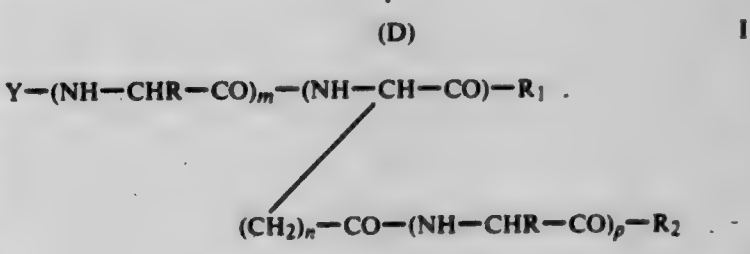
Y is either H or an acyl group with up to 4 carbon atoms,

R_1 is selected from —OH, alkoxy groups up to $—OC_9H_{19}$, NH_2, or an amino group mono or disubstituted by lower alkyl group having up to 9 carbon atoms,

R_2 is a lipophilic group having the formula —OX, $—OCH_2—CH_2O—COX$ or $—OCH_2—CHOH—CH_2OX$ wherein X is an alkyl linear or branched, saturated or unsaturated group, optionally substituted with hydroxy, carbonyl, carboxyl or aryl groups or a cyclopropane ring, said X containing at least 30 carbon atoms, or the pharmaceutically acceptable salts thereof.

31. The therapeutic method for controlling bacterial infection which comprises administering a biologically active composition comprising a compound of the formula:

(D) I



in which

(NH—CHR—CO) is glycyl, beta-alanyl, L-alanyl, L-seryl, L-valyl or L-prolyl and (NH—CHR'—CO) is glycyl, L-alanyl, beta-alanyl, L-arginyl, L-asparagyl, L-cystyl, L-glutaminyl, L-histidyl, L-hydroxyprolyl, L-isoleucyl, L-leucyl, L-methionyl, L-phenylalanyl, L-prolyl, L-seryl, L-threonyl, L-tryptophyl and L-valyl,

m is zero or 1,

n is 1 or 2,

p is 0 or 1,

Y is either H or an acyl group with up to 4 carbon atoms,

R_1 is selected from —OH, alkoxy groups up to $—OC_9H_{19}$, NH_2, or an amino group mono or disubstituted by lower alkyl group having up to 9 carbon atoms,

R_2 is a lipophilic group having the formula —OX, $—OCH_2—CH_2O—COX$ or $—OCH_2CHOH—CH_2OX$ wherein X is an alkyl linear or branched, saturated or unsaturated group, optionally substituted with hydroxy, carbonyl, carboxyl or aryl groups or a cyclopropane ring, said X containing at least 30 carbon atoms, or the pharmaceutically acceptable salts thereof in a biologically acceptable carrier, the composition being administered in an effective amount to control the bacterial infection.

4,335,112

METHOD OF TREATING MITES IN POULTRY

Joseph R. Childers, 1123 N. Main St., Mocksville, N.C. 27028

Filed 1981, Ser. No. 245,568

Int. Cl.[3] A61K *37/00*

U.S. Cl. 424—177 **5 Claims**

1. A method for eliminating mites in poultry infected with mites comprising administering the antibiotic bacitracin in an effective amount orally to the poultry.

4,335,113

TRITERPENIC SAPONIN HAVING PHARMACOLOGICAL POTENCY

Henri Combier, Rilleux le Pape; Gisele Prat, Talence, and Henri Pontagnier, Pessac, all of France, assignors to Laboratoires Sarget, Merignac, France

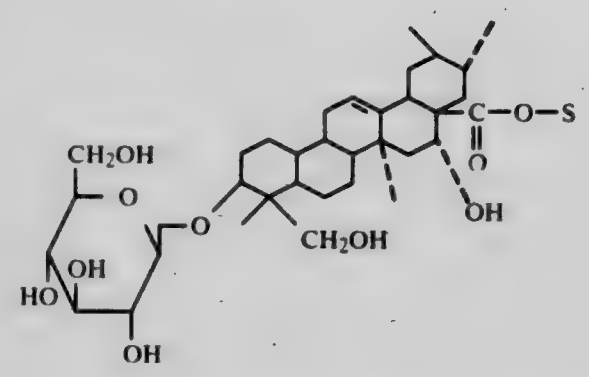
Filed 1980, Ser. No. 148,932

Claims priority, application France, 1979, 79 11964

Int. Cl.[3] A61K *31/70*; C07H *15/20*

U.S. Cl. 424—180 **7 Claims**

1. A substantially pure saponin which is the ester of O-β-D-glycosyl-3β-caulophyllogenin and an oligosaccharide comprising two units of L-rhamnose and two units of D-xylose having the formula



wherein S is the oligosaccharide comprising two units of L-rhamnose and two units of D-xylose.

7. A pharmacological composition comprising an amount of the saponin according to claim 1 effective to increase capillary resistance while simultaneously reducing capillary permeability and a pharmaceutically acceptable diluent.

4,335,114

1-N-ALKYLSISOMICIN DERIVATIVES, THEIR PRODUCTION AND THEIR MEDICINAL USE

Eckart Voss, Cologne; Karl G. Metzger, Wuppertal; Hans-Joachim Zeiler, Velbert; Uwe Petersen, Leverkusen, and Peter Stadler, Haan, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

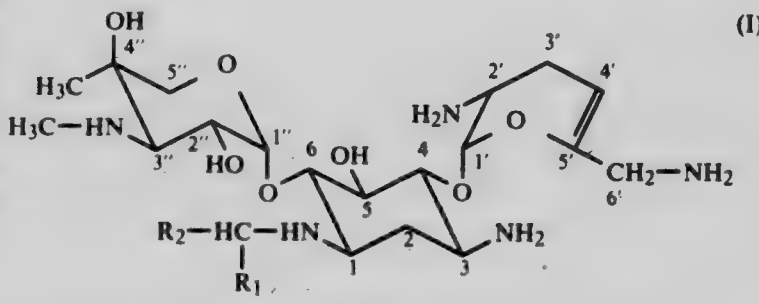
Filed 1980, Ser. No. 161,527

Claims priority, application Fed. Rep. of Germany, 1979, 2928183

Int. Cl.[3] A61K *31/71*; C07H *15/22*

U.S. Cl. 424—180 **17 Claims**

1. A compound which is a sisomicin derivative of the formula



(I)

or a pharmaceutically acceptable salt thereof, in which

R_1 is a C_1 to C_6 alkyl group, substituted by hydroxyl, C_1 to C_4 alkoxy, amino, C_1 to C_4 alkylamino, di-C_1 to C_4 alkylamino, C_1 to C_4 alkylcarbonyl, C_1 to C_4 alkylcarbonylamino, N-C_1 to C_4 alkyl-N-C_1 to C_4 alkylcarbonylamino, carboxyl, C_1 to C_4 alkoxy-carbonyl, aminocarbonyl, C_1 to C_4 alkylamino-carbonyl or di-C_1 to C_4 alkylaminocarbonyl and R_2 is C_1 to C_6 alkyl which is unsubstituted or substituted by hydroxyl, C_1 to C_4 alkoxy, amino, C_1 to C_4 alkylamino, di-C_1 to C_4 alkylamino, C_1 to C_4 alkylcarbonyl, C_1 to C_4 alkyl-carbonylamino, N-C_1 to C_4 alkyl-N-C_1 to C_4 alkylcarbonylamino, carboxyl, C_1 to C_4 alkoxycarbonyl, aminocarbonyl, C_1 to C_4 alkylamino-carbonyl or di-C_1 to C_4 alkylaminocarbonyl or radical R_1-C-R_2 denotes a 4-hydroxycyclohex-1-yl group or a piperidin-4-yl group.

14. A method of combating bacterial infections in warm-blooded animals which comprises administering to the animals an antibacterially effective amount of an active compound according to claim 1 either alone or in admixture with a diluent in the form of medicament.

4,335,115

ANTI-ACNE COMPOSITION

Edward D. Thompson; Stephen B. Carter, both of Cincinnati, and Gary L. Manring, Oxford, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 737,315, Nov. 1, 1976, abandoned. This application 1977, Ser. No. 842,767

Int. Cl.[3] A61K *31/71*

U.S. Cl. 424—181 **2 Claims**

1. A water-free antimicrobial composition for topical application which consists essentially of:

(1) from about 2% to about 5% erythromycin;

(2) from about 1% to about 5% glycerol monooleate;

(3) from about 30% to about 45% ethanol; and

(4) about 45% to about 60% isopropyl myristate.

4,335,116

MINERAL-CONTAINING THERAPEUTIC COMPOSITIONS

James R. Howard, Brawley, Calif., assignor to University Patents, Inc., Norwalk, Conn.

Filed 1980, Ser. No. 194,808

Int. Cl.[3] A61K *31/68, 31/315*

U.S. Cl. 424—201 **19 Claims**

1. A stable aqueous solution adpated for substantially non-

inflammatory, non-immunogenic parenteral administration to domesticated animals to enhance micromineral-dependent metabolic function and facilitate resistance to infectious disease, said aqueous solution consisting of:

(a) a water soluble source of selenium ions in the form of an organometallic complex with an amino acid metal-ion-complexing agent; and,

(b) water soluble sources of zinc, copper, manganese and chromium ions in the form of organometallic complexes with ethylenedinitrilotetraacetic acid,

said stable aqueous solution containing, per milliliter volume, from about 0.1 to about 25 mg zinc ions, from about 0.1 to about 10.0 mg copper ions, from about 0.1 to about 20.0 mg manganese ions, from about 0.1 to about 5.0 mg chromium ions, and from about 0.1 to about 12.0 mg selenium ions.

4,335,117

1-HYDROXY-2,2,2-TRICHLOROETHANE-THIONO-PHOSPHONIC ACID DIMETHYL ESTERS AS INSECTICIDE

Reimer Cölln, Wuppertal; Wilhelm Sirrenberg, Sprockhövel; Wolfgang Behrenz, Overath-Steinenbrueck, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

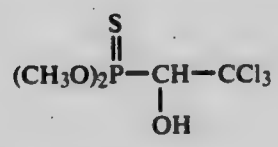
Continuation of Ser. No. 665,344, Mar. 9, 1976, abandoned. This application 1977, Ser. No. 865,084

Claims priority, application Fed. Rep. of Germany, 1975, 2512375

Int. Cl.[3] **C07F** *9/40;* **A01N** *57/20*

U.S. Cl. 424—217 **2 Claims**

1. The compound 1-hydroxy-2,2,2-trichloroethane-thiono-phosphonic acid dimethyl ester of the formula



having a boiling point of 116° C./2 mm Hg.

2. A method of combating arthropods which comprises applying to the arthropods or an arthropod habitat an arthropodicidally effective amount of a compound according to claim 1.

4,335,118

INSECTICIDAL α-CYANO-3-PHENOXY-BENZYL-2-(4-AZIDOPHENYL)-3-METHYLBUTYRATES

Hanspeter Fischer, Bottmingen; Rudolph C. Thummel, Courgenay, and Rudolf Wehrli, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

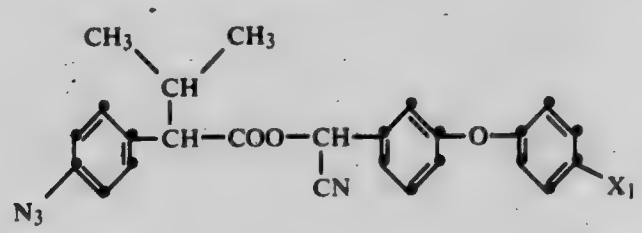
Filed 1980, Ser. No. 195,712

Claims priority, application Switzerland, 1979, 9335/79; 1980, 4332/80

Int. Cl.[3] **A01N** *47/08;* **C07C** *69/76, 121/86*

U.S. Cl. 424—226 **5 Claims**

1. A compound of the formula



wherein X_1 is hydrogen, fluorine or chlorine.

2. A method for controlling insects and acarids which comprises applying to the locus thereof an insecticidally or acaricidally effective amount of a compound according to claim 1.

4,335,119

QUICK-ACTING DIURETIC COMPOSITIONS

Andreas Johnsen, Griesheim, Fed. Rep. of Germany, assignor to Rohm, Pharma GmbH, Darmstadt, Fed. Rep. of Germany

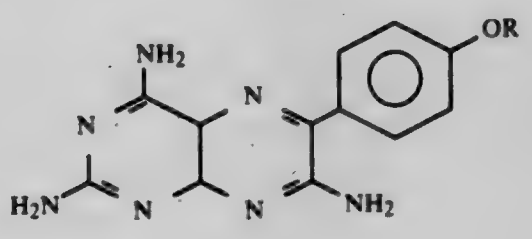
Filed 1979, Ser. No. 25,586

Claims priority, application Fed. Rep. of Germany, 1978, 2815442

Int. Cl.[3] **A61K** *31/505, 31/52, 31/625*

U.S. Cl. 424—229 **3 Claims**

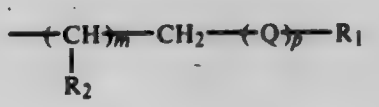
1. A diuretically active pharmacological composition, which is effective to produce a sodium uretic effect and at the same time a potassium neutral diuresis, which comprises 4-chloro-N-furfuryl-5-sulfamoyl anthranilic acid (furosemide) together with at least one compound of formula I:



wherein

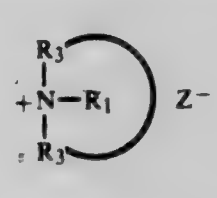
R is a radical R′, wherein:

R′ is selected from the group consisting of a radical of the formula:



wherein

R_1 is hydrogen, methyl or ethyl, R_2 is a OH group, hydrogen or an alkyl group with 1 to 4 carbon atoms, Q is oxygen, sulfur or a radical of the formula $—NR_3$, wherein R_3 has the same meaning as R_1, or Q together with the radical R_1 forms an ammonium ion of the formula



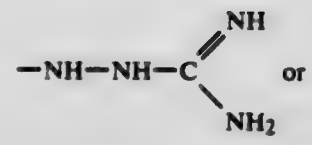
or

Q together with the radical R_1 forms a heterocyclic ring selected from the group consisting of pyrrolidinyl, piperidinyl, morpholinyl and piperazinyl, wherein Z^- is a pharmacologically unobjectionable anion and m is 0, 1, 2 or 3; p is 0 or 1;

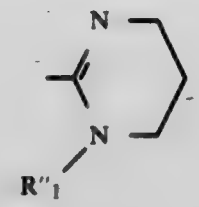
or

R′ is a radical of the formula $—(CH_2)_nC(O)Y$, wherein n=0, 1, 2, 3 or 4; and Y is a —OH-group or a pharmacologically unobjectionable salt thereof, or Y stands for a group of the formula $—NR_4R_5$, wherein R_4 and R_5 independently of each other stand for hydrogen or a branched or unbranched alkyl radical of 1 to 4 carbon atoms, or they are a radical of the formula $—(O)_r—R_6$, wherein R_6 stands for an alkyl radical with 1 to 6 carbon atoms; or they are a radical of the formula $—(CH_2)_q—R_7$, wherein q is 0, 1 or 2, and R_7 is a heterocyclic ring selected from the group of morpholinyl-, pyrrolidinyl-, piperidinyl, or piperazinyl, which may be bound through a carbon atom or through a nitrogen atom, wherein in the latter case q is not equal to 0, and which formally form an ammonium compound through juxtaposition of a compound of the formula $R_1'Z'$, wherein R_1' and Z' have the same meanings as R_1 and Z, and r equals 0 or 1, or

R′ stands for a radical of the formula

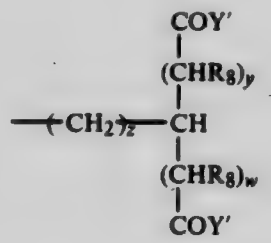


or it stands for a radical of the formula



wherein

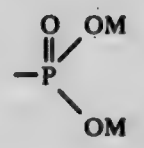
R_1'' has the same meaning as R_1 or R′ stands for a radical of the formula



wherein

Y′ has the same meaning as Y, R_8 stands for hydrogen or an OH-group; v, w and z are 0, 1 or 2, or

R′ stands for a radical of the formula —C(O)—$(CHR'_8)_s$—C(O)—Y″, wherein s=1, 2 or 3, and R_8' and Y″ have the same meaning as R_8 and Y respectively, or R′ stands for a radical of the formula



wherein M is hydrogen or a physiologically unobjectionable cation.

4,335,120

ADMINISTRATION OF BIOLOGICALLY ACTIVE VITAMIN D_3 AND VITAMIN D_2 MATERIALS

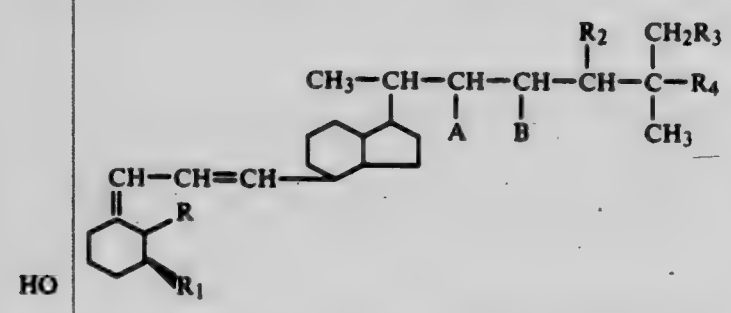
Michael F. Holick, Sudbury, Mass., and Milan R. Uskokovic, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 137,673, Apr. 4, 1980, abandoned, which is a division of Ser. No. 22,393, Mar. 21, 1979, Pat. No. 4,230,701. This application 1980, Ser. No. 203,291

Int. Cl.³ A61K *31/59, 31/56*

U.S. Cl. 424—236 **27 Claims**

1. A process of administering a therapeutic amount of a biologically active vitamin D material comprising providing to the skin of a subject a therapeutically effective amount of a biologically active vitamin D_2 or D_3 material of the formula:



wherein R is methylidene or methyl; R_2 is hydrogen, hydroxy or methyl; R_1, R_3 and R_4 are hydrogen, hydroxy or halogen; A and B are individually hydrogen or taken together form a carbon to carbon bond; with the proviso that at least one of R_1, R_2, R_3 or R_4 is hydroxy and with the further proviso that when A and B form a carbon to carbon bond, R_2 is methyl

and allowing the material to transport through the skin into the bloodstream.

4,335,121

ANDROSTANE CARBOTHIOATES

Gordon H. Phillipps, Wembley; Brian M. Bain, Chalfont St. Peter; Ian P. Steeples, Ruislip Manor, and Christopher Williamson, Cobham, all of England, assignors to Glaxo Group Limited, London, England

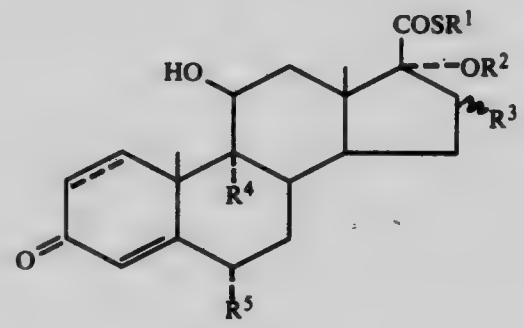
Filed 1981, Ser. No. 234,113

Claims priority, application United Kingdom, 1980, 8005174

Int. Cl.³ C07J *7/00;* A61K *31/56*

U.S. Cl. 424—241 **25 Claims**

1. Compounds of the formula



(I)

wherein R^1 represents a fluoro-, chloro- or bromo-methyl group or a 2′-fluoroethyl group, R^2 represents a group COR^6 where R^6 is a C_{1-3} alkyl group or OR^2 and R^3 together form a 16α,17α-isopropylidenedioxy group; R^3 represents a hydrogen atom, a methyl group (which may be in either the α- or β-configuration) or a methylene group; R^4 represents a hydrogen, chlorine or fluorine atom; R^5 represents a hydrogen or fluorine atom and the symbol represents a single or double bond.

4,335,122

DIHYDRO-DIBENZOXEPINES-THIEPINES AND -MORPHANTHRIDONES, COMPOSITIONS AND USE

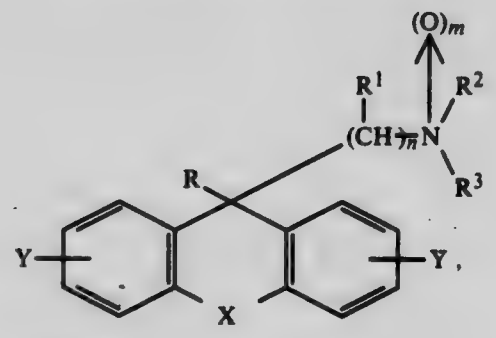
Arthur R. McFadden, East Brunswick, and Daniel E. Aultz, Middlesex, both of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Filed 1981, Ser. No. 225,122

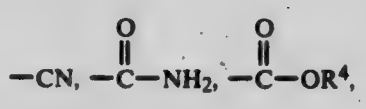
Int. Cl.³ A61K *31/335, 31/55;* C07D *223/20, 313/12*

U.S. Cl. 424—244 **87 Claims**

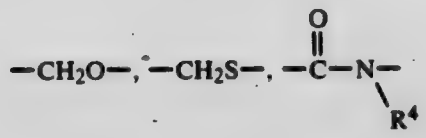
1. A compound depicted by the formula,



where R is selected from

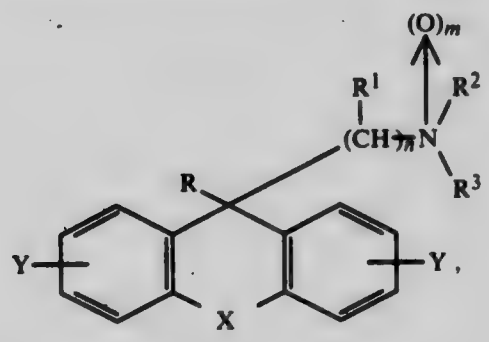


where R^4 is selected from H or alkyl; R^1 is hydrogen or alkyl; R^2 and R^3 are the same or different and are selected from H, and alkyl or R^2 and R^3 are fused to form the pyrrolidinyl, morpholino, piperidinyl and azepinyl group; Y is selected from H, halogen and alkoxy; X is selected from

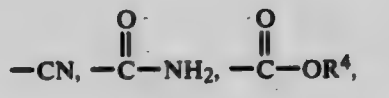


where R^4 is as defined above; m is an integer of 0 or 1 and n is an integer of 2 or 3, and the pharmaceutically acceptable salts thereof.

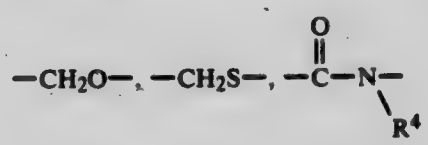
30. A diuretic composition which comprises a diuretically effective amount of a compound



where R is selected from



where R^4 is selected from H, and alkyl; R^1 is selected from H and alkyl; R^2 and R^3 are the same or different and are selected from H and alkyl or R^2 and R^3 are fused to form the pyrrolidinyl, morpholino, piperidinyl and azepinyl ring substituent; Y is selected from H, halogen and alkoxy; X is selected from



where R^4 is as defined above; m is an integer of 0 or 1; and n is an integer of 2 or 3, and the pharmaceutically acceptable salts thereof.

4,335,123

1-ACYL-8-(3-AMINO-2-HYDROXYPROPOXY)-1,2,3,4-TETRAHYDROQUINOLINES, COMPOSITIONS AND USE

Otto Gräwinger, Frankfurt am Main; Thomas Raabe, Rodenbach; Rudi Beyerle, Frankfurt am Main; Josef Scholtholt, Hanau-Mittelbuchen, and Rolf-Eberhard Nitz, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

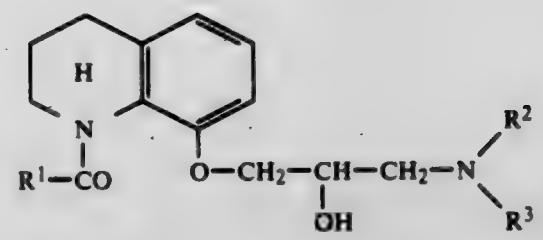
Filed 1980, Ser. No. 178,475

Claims priority, application Fed. Rep. of Germany, 1979, 2934609

Int. Cl.[3] **A61K** *31/54, 31/47;* **C07D** *215/26, 417/12*

U.S. Cl. 424—246 **17 Claims**

1. A pharmacologically-active and physiologically-acceptable compound of the formula



(I)

wherein

R^1 is lower alkyl, heteroaryl (having 4 or 5 ring carbon atons and 1 ring hereto atom selected from the group consisting of nitrogen, oxygen and sulfur), phenyl or substituted phenyl (any substituent of which is, independently, a member selected from the group consisting of lower alkyl, lower alkoxy, halo and trifluoromethyl),

R^2 is —H, lower alkyl or, together with R^3 and the nitrogen atom to which both are bound, a 5-membered or 6-membered ring having at most one further ring hetero-atom grouping (selected from the group consisting of —O—, —S— and —NH—), and

R^3 is —H, lower alkyl or, together with R^2 and the nitrogen atom to which both are bound, a 5-membered or 6-membered ring having at most one further ring hetero-atom grouping (selected from the group consisting of —O—, —S— and —NH—),

or a physiologically-acceptable acid-addition salt thereof.

11. A pharmaceutical formulation useful for treating cardiac arrhythmia and/or hypertension and which has, per unit dose, an effective amount of a tetrahydroquinoline according to claim **1** or of a pharmaceutically-acceptable acid-addition salt thereof, in addition to pharmaceutically-acceptable excipient and/or additive.

4,335,124

1-ALKYL, 1-PHENYL-BUTENES

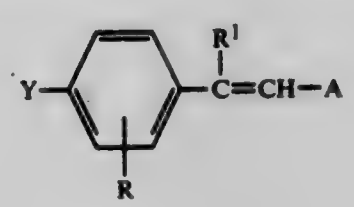
Eugene E. Galantay, Liestal, Switzerland, assignor to Sandoz, Inc., E. Hanover, N.J.

Division of Ser. No. 65,277, Aug. 9, 1979, Pat. No. 4,273,787, which is a continuation of Ser. No. 656,785, Feb. 10, 1976, abandoned, which is a continuation-in-part of Ser. No. 626,943, Oct. 29, 1975, abandoned, which is a continuation-in-part of Ser. No. 390,032, Aug. 20, 1973, abandoned. This application 1980, Ser. No. 196,474

Int. Cl.[3] **A61K** *31/03;* **C07C** *25/24;* **A61K** *31/535*

U.S. Cl. 424—248.4 **8 Claims**

1. A compound of the formula

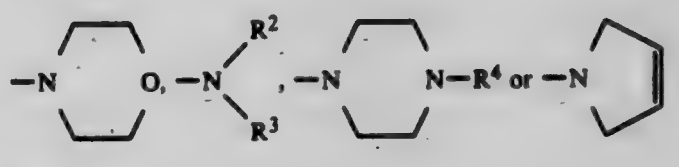


wherein

R is a hydrogen atom or halo having an atomic weight of from about 19 to 80;

R^1 is alkyl, having from 1 to 3 carbon atoms;

Y is halo having an atomic weight of from about 80 to 127, isobutyl, tert.-butyl, cyclohexyl, cyclohexenyl, a radical of the formula

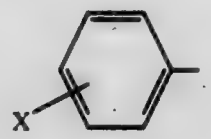


wherein

each of R^2 and R^3 independently, is alkyl having 1 to 3

carbon atoms, or R^2 and R^3 are joined to form with the nitrogen atom a pyrrolidino or piperidino ring, and

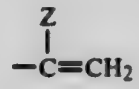
R^4 is a hydrogen atom or alkyl having 1 to 3 carbon atoms; or a radical of the formula



wherein

X is a hydrogen atom, halo having an atomic weight of from about 19 to 80, or alkoxy, having from 1 to 4 carbon atoms; and

A is



wherein

Z is halo having an atomic weight of from about 35 to 80; or a pharmaceutically acceptable acid addition salt thereof.

6. A pharmaceutical composition suitable for use as antiinflammatory comprising a compound of claim **1** and a pharmaceutically acceptable carrier for said compound.

4,335,125

1-(1,3-DIOXOLAN-2-YLMETHYL)-1H-IMIDAZOLES

Jan Heeres, Vosselaar; Leo J. J. Backx, Arendonk, and Joseph H. Mostmans, Antwerp, all of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

Division of Ser. No. 853,728, Nov. 21, 1977, Pat. No. 4,144,346, which is a continuation-in-part of Ser. No. 764,263, Jan. 31, 1977, abandoned. This application 1979, Ser. No. 1,613

Int. Cl.[3] **A61K** *405/14*

U.S. Cl. 424—250 **11 Claims**

9. A chemical compound selected from the group consisting of cis-1-acetyl-4-{4-[2-(2,4-dichlorophenyl)-2-(1H-imidazol-1-yl-methyl)-1,3-dioxolan-4-ylmethoxy]phenyl} piperazine and the pharmaceutically acceptable acid addition salts and stereochemically isomeric forms thereof.

4,335,126

1-[3-(3,4,5-TRIMETHOXYPHENOXY)-2-HYDROXY-PROPYL]-4-ARYL-PIPERAZINE-DERIVATIVES HAVING PHARMACEUTICAL ACTIVITY

Axel Kleemann, Hanau; Vladimir Jakovlev, Maintal; Klaus Thiemer, Hanau, and Jürgen Engel, Alzenau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

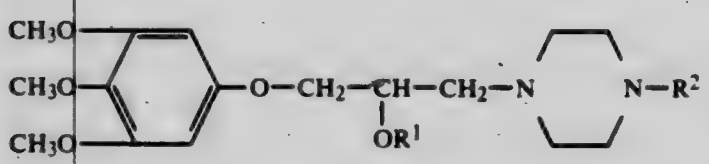
Continuation-in-part of Ser. No. 891,382, Mar. 29, 1978, abandoned. This application 1980, Ser. No. 193,482

Claims priority, application United Kingdom, 1977, 10100/77

Int. Cl.[3] **A61K** *31/495;* **C07D** *295/08*

U.S. Cl. 424—250 **43 Claims**

1. A compound corresponding to the formula



I

in which R^1 is hydrogen atom or C_2 to C_6-alkanoyl group, and R^2 represents phenyl substituted by the groups R^3 and R^4, the R^3 and R^4 each representing hydrogen, hydroxyl, C_1 to C_6-alkanoxy group, C_2 to C_6-alkanoyloxy group, amino group or C_2-C_6-alkanoylamino group with proviso at least one of R_3 and R_4 is not hydrogen and their salts.

30. A method of imparting a neuroleptic or tranquilizing effect in a mammal comprising administering to the mammal an amount of a compound of claim **1** sufficient to cause said effect.

4,335,127

PIPERIDINYLALKYL QUINAZOLINE COMPOUNDS, COMPOSITION AND METHOD OF USE

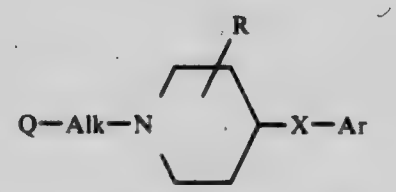
Jan Vandenberk, Beerse; Ludo Kennis, Vosselaar; Marcel Van der Aa, and Albert Van Heertum, both of Vosselaar, all of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

Continuation-in-part of Ser. No. 1,493, Jan. 8, 1979, abandoned. This application 1979, Ser. No. 84,272

Int. Cl.[3] **C07D** *401/06;* **A61K** *31/445*

U.S. Cl. 424—251 **15 Claims**

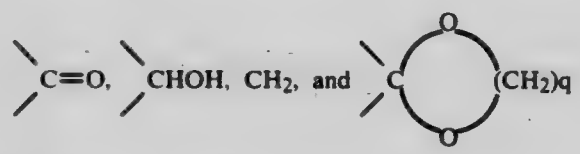
1. A chemical compound selected from the group consisting of a quinazoline compound having the formula



and the pharmaceutically acceptable acid addition salts thereof, wherein;

Ar is a number selected from the group consisting of aryl, thienyl, and pyridinyl radicals;

X is a member selected from the group consisting of



wherein said q is the integer 2 or 3;

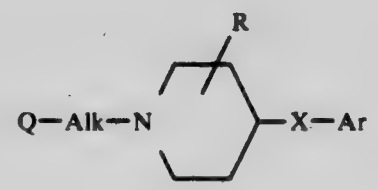
R is a member selected from the group consisting of hydrogen, hydroxy and lower alkyl;

Alk is an alkylene chain having from 1 to 4 carbon atoms; and

Q is a quinazolinyl radical, the 1-, 2-, 3- or 4-position of which is connected with the alkylene side chain, said quinazolinyl radical bearing in one or both of its 2- and 4-positions a oxo or thioxo group, wherein the benzene ring of said quinazolinyl radical is optionally substituted with 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl, nitro and cyano, and wherein the pyrimidino ring of said quinazolinyl radical may be partly or fully saturated, said pyrimidino ring being optionally substituted with 1 to 3 substituents independently selected from the group consisting of lower alkyl, aryl, aryl(lower alkyl), thienyl, pyridinyl, thienyl(loweralkyl), and pyridinyl (loweralkyl);

wherein said aryl as used in the definition of said Ar and of said Q is a member selected from the group consisting of phenyl substituted with from 1 to 2 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl and amino.

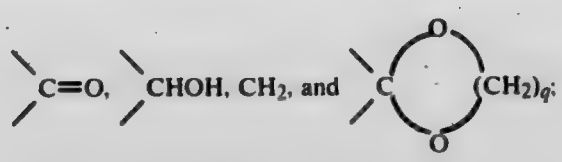
11. A method of treating congestion in warm-blooded animals which comprises the administration thereto of an effective anticongestive amount of a chemical compound selected from the group consisting of a quinazoline compound having the formula



and the pharmaceutically acceptable acid addition salts thereof, wherein:

Ar is a member selected from the group consisting of aryl, thienyl, and pyridinyl radicals;

X is a member selected from the group consisting of



wherein said q is the integer 2 or 3;

R is a member selected from the group consisting of hydrogen, hydroxy and lower alkyl;

Alk is an alkylene chain having from 1 to 4 carbon atoms; and

Q is a quinazolinyl radical, the 1-, 2-, 3- or 4-position of which is connected with the alkylene side chain, said quinazolinyl radical bearing in one or both of its 2- and 4-positions a oxo or thioxo group, wherein the benzene ring of said quinazolinyl radical is optionally substituted with 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl, nitro and cyano, and wherein the pyrimidino ring of said quinazolinyl radical may be partyly or fully saturated, said pyrimidino ring being optionally substituted with 1 to 3 substituents independently selected from the group consisting of lower alkyl, aryl, aryl(loweralkyl), thienyl, pyridinyl, thienyl (loweralkyl), and pyridinyl (lower alkyl);

wherein aryl as used in the definition of said Ar and of said Q is a member selected from the group consisting of penyl and phenyl substituted with from 1 to 2 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl and amino.

4,335,128

PROCESS FOR THE TREATMENT OF PATIENTS SUFFERING FROM DREPANOCYTOSIS

Jean Blanchard, Toulouse, and Monique Verry, Saint-Cloud, both of France, assignors to Omnium Financier Aquitaine pour l'Hygiene et la Sante (Sanoli), Paris, France

Continuation of Ser. No. 917,374, Jun. 20, 1978, Pat. No. 4,210,649. This application 1980, Ser. No. 150,890

Claims priority, application France, 1977, 77 19161

The portion of the term of this patent subsequent to 1997, has been disclaimed.

Int. Cl.³ A61K *31/435*

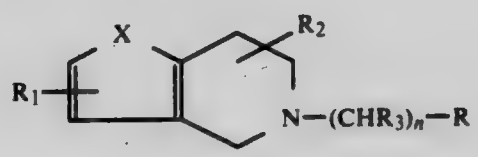
U.S. Cl. 424—256 **10 Claims**

1. A method for the treatment of a patient suffering from drepanocytic anemia and showing the symptoms of drepanocytosis caused by the presence of S-hemoglobin in drepanocytes, which comprises:

administering to said patient a compound of formula I below, thus inducing reversal of the drepanocytosis by causing the drepanocytes to lose their sickle shape and revert to their disk-like shape,

increasing the hemoglobin content and causing a remission of the symptoms of said patient;

said compound being administered in a daily dosage of from about 400 to about 1000 mg. as the active medicament, and having the formula:



(I)

in which X is oxygen or sulfur; R is selected from the group consisting of hydrogen, phenyl, phenyl substituted with at least one group selected from the group consisting of halogen, lower alkyl, lower alkoxy, nitro, amino, sulfonylamino, aryl, carboxyl, alkoxycarbonyl, cyano, hydroxymethyl and methylenedioxy; stryryl, naphthyl, thienyl, benzhydryl, each of the latter being optionally substituted with at least one group selected from the group consisting of halogen, lower alkyl, lower alkoxy, aryl, nitro, amino, sulfonylamino, carboxyl, alkoxycarbonyl, cyano, hydroxymethyl and methylenedioxy; benzoyl, and benzoyl substituted with at least one group selected from the group consisting of halogen, lower alkyl, lower alkoxy, nitro, amino and sulfonylamino; R_1 and R_2 each represent at least one atom or group selected from the group consisting of hydrogen, halogen, hydroxy, lower alkyl, lower alkoxy, nitro and amino; R_3 is selected from the group consisting of hydrogen, halogen, hydroxy, lower alkyl, lower alkoxy, nitro and amino; and n is zero or an integer from 1 to 15; and R_3 may have a different meaning in each CHR_3 group when n is greater than 1; or a pharmaceutically acceptable acid addition salt or quaternary ammonium derivative of said compound.

4,335,129

THIAZOLO[3,2-6]ISOQUINOLINES, COMPOSITIONS AND USE THEREOF

Kazuo Kubo, Urawa; Noriki Ito, Iwatsuki; Isao Souzu, Urawa; Yasuo Isomura, Yokohama, and Hiroshige Homma, Omiyu, all of Japan, assignors to Yamanouchi Pharmaceutical Co. Ltd., Tokyo, Japan

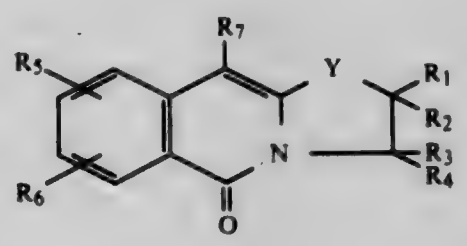
Continuation of Ser. No. 29,000, Apr. 11, 1979, abandoned, which is a division of Ser. No. 861,980, Dec. 19, 1977, Pat. No. 4,163,844. This application 1981, Ser. No. 229,183

Claims priority, application Japan, 1976, 51-157867; 1977, 52-121666

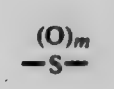
Int. Cl.³ A61K *31/47*; C07D *513/04*

U.S. Cl. 424—258 **17 Claims**

1. Nitrogen-containing heterocyclic compounds represented by the formula



wherein Y represents



wherein m is 1 or 2; R_1 and R_4, which may be the same or different, each represents a hydrogen atom, a lower alkyl group, or a lower alkenyl group; R_2 and R_3, which may be the same or different, each represents a hydrogen atom, a hydroxyl group, a lower alkanoyloxy group, a lower alkyl group or a lower alkenyl group; said R_2 and R_3 may further form together a double bond; R_5 and R_6, which may be the same or different, each represents a hydrogen atom, a halogen atom, a hydroxyl group, a nitro group, an amino group, a lower alkoxy group, a mono or di lower alkylamino group, or a lower alkyl group; said R_5 and R_6 may further form together a lower alkylenedioxy group; and R_7 represents a hydrogen atom, a halogen atom, a lower alkanoyl group, a phenyl group, a phenyl lower alkyl group, a lower alkyl group, a hydroxy lower alkyl group, a di-lower alkylamino lower alkyl group, a pyrrolidino lower alkyl group, a piperidino lower alkyl group, a morpholine lower alkyl group, or a 4-lower alkylpiperazino lower alkyl group; and the pharmacologically acceptable non-toxic salts thereof.

14. An analgesic antiinflammatory composition which contains a therapeutically effective amount of the compound of claim 1 and a pharmacologically acceptable diluent.

4,335,130

ANTIFUNGAL COMPOSITION

Thomas J. Schwan, and Joseph E. Gray, both of Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.

Filed 1981, Ser. No. 263,071
Int. Cl.³ A01N *43/42*
U.S. Cl. 424—258 **1 Claim**

1. An antifungal mixture of pyrido[3,4-g]isoquinoline (A) and 3,8-phenanthroline (B) in which the A:B ratio is 37:63.

4,335,131

AMRINONE-N-GLUCURONIDE, SALTS AND CARDIOTONIC USE THEREOF

James F. Baker, East Greenbush, and Bernard W. Chalecki, Jr., Sand Lake, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed 1980, Ser. No. 209,393
Int. Cl.³ A61K *31/44*; C07D *405/14*
U.S. Cl. 424—263 **5 Claims**

2. A cardiotonic composition for increasing cardiac contractility, said composition comprising a pharmaceutically-acceptable inert carrier and, as the active component thereof, a cardiotonically-effective amount of amrinone-N-glucuronide or pharmaceutically-acceptable acid-addition or cationic salt thereof.

4. The method for increasing cardiac contractility in a patient requiring such treatment which comprises administering orally or parenterally in a solid or liquid dosage form to such patient a cardiotonically-effective amount of amrinone-N-glucuronide or pharmaceutically-acceptable acid-addition or cationic salt thereof.

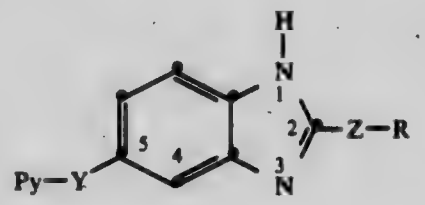
4,335,132

5-(PY-Y)-1H-BENZIMIDAZOL-2-OLS AND 5-(PY-Y-)-1H-BENZIMIDAZOLE-2-THIOLS

George Y. Lesher, Schodack, and Baldev Singh, East Greenbush, both of N.Y., assignors to Sterling Drug, Inc., New York, N.Y.

Filed 1980, Ser. No. 220,977
Int. Cl.³ A61K *31/46*; C07D *487/02*
U.S. Cl. 424—263 **12 Claims**

1. 5-(Py-Y)-1H-benzimidazol-2-ol or 5-(Py-Y)-1H-benzimidazole-2-thiol or lower-alkyl ether or thioether thereof having the formula



where Z is O or S, Y is a direct linkage or lower-alkylene having one or two carbon atoms, R is hydrogen or lower-alkyl, and Py is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents or 1-oxide thereof, or pharmaceutically-acceptable acid-addition salt thereof.

9. A cardiotonic composition for increasing cardiac contractility, said composition comprising a pharmaceutically-acceptable inert carrier and, as the active component thereof, a cardiotonically-effective amount of 5-(Py-Y)-1H-benzimidazol-2-ol, 5-(Py-Y)-1H-benzimidazole-2-thiol or lower-alkyl ether or thioether thereof or pharmaceutically-acceptable acid-addition salt thereof, where Z is O or S, Y is a direct linkage or lower-alkylene having one or two carbon atoms, R is hydrogen or lower-alkyl, and Py is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents or 1-oxide thereof.

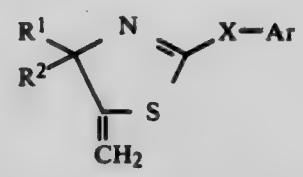
4,335,133

ARYLAMINO-4,4-DIALKYL-5-METHYLENE-1,3-THIAZOLINES

Edward I. Aoyagi, Petaluma, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 115,654, Jan. 28, 1980, Pat. No. 4,271,306. This application 1980, Ser. No. 204,437
Int. Cl.³ C07D *277/08*
U.S. Cl. 424—270 **7 Claims**

1. A compound of the formula



(I)

wherein R^1 and R^2 are independently alkyl of 1 to 4 carbon atoms or R^1 and R^2 are joined to form cycloalkyl of 5 to 8 carbon atoms;

X is



wherein R^3 is alkyl of 1 to 6 carbon atoms, alkenyl or alkynyl of 2 to 4 carbon atoms or cycloalkyl of 5 to 6 carbon atoms;

Ar is an aromatic group of 6 to 12 carbon atoms, optionally substituted with 1 to 5 halo groups, two nitro groups, or 1 to 5 haloalkyl groups containing 1 to 3 carbon atoms and 1 to 7 halogen atoms.

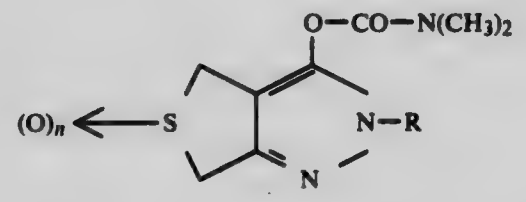
4,335,134

PESTICIDALLY ACTIVE N,N-DIMETHYL-CARBAMIC ACID O-(4,6-DIHYDRO-2H-THIENO[3,4-C]PYRAZOL-3-YL) ESTERS AND 5-OXIDES AND 5,5-DIOXIDES THEREOF

Fritz Maurer, Wuppertal; Ingeborg Hammann, Cologne, and Bernhard Homeyer, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed 1981, Ser. No. 225,548
Claims priority, application Fed. Rep. of Germany, 1980, 3003019
Int. Cl.³ A01N *43/56*; C07D *495/04*
U.S. Cl. 424—273 P **8 Claims**

1. An N,N-dimethyl-carbamic acid O-(4,6-dihydro-2H-thieno[3,4-c]pyrazol-3-yl) ester or 5-oxide or 5,5-dioxide thereof of the formula



in which

R is C_{1-5}-alkyl optionally substituted by cyano, or C_{3-6}-cycloalkyl, and

n is 0, 1 or 2.

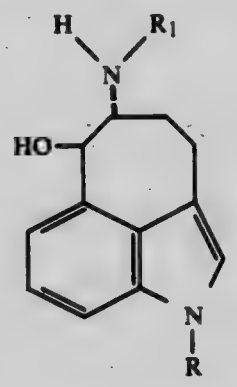
7. A method of combating insects and nematodes which comprises applying to the pests, or to a habitat thereof, an insecticidally or nematocidally effective amount of a compound according to claim 1.

4,335,135
5 AMINO-3,4,5,6 TETRAHYDRO-1H-[-6-]CYCLOHEPT(c,d]INDOLOLS AND A METHOD FOR THEIR USE AS HYPOTENSIVES

Lucien Nédelec, Le Raincy; Daniel Frechet, Paris; Claude Dumont, Nogent sur Marne; Guy Plassard, Savigny sur Orge, and Neil L. Brown, Paris, all of France, assignors to Roussel Uclaf, Paris, France

Filed 1981, Ser. No. 236,610
Claims priority, application France, 1980, 80 04198; 1980, 80 24406
Int. Cl.³ A61K *31/40;* C07D *209/80*
U.S. Cl. 424—274 12 Claims

1. A compound selected from the group consisting of trans cyclohept[c,d] indolols of the formula



I

wherein R is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms and optionally substituted aralkyl of 7 to 12 carbon atoms and R_1 is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms, cycloalkylalkyl of 4 to 7 carbon atoms and optionally substituted aralkyl of 7 to 12 carbon atoms substituted with at least one member selected from the group consisting of bromine, chlorine, methyl, ethyl, methoxy, trifluoromethyl, and methylthio, and their non-toxic, pharmaceutically acceptable acid addition salts.

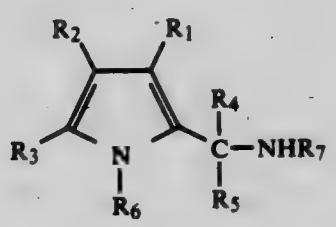
9. A method of inducing hypotensive activity in warm-blooded animals comprising administering to warm-blooded animals an hypotensively effective amount of at least one compound of claim 1.

4,335,136
ANTI-INFLAMMATORY 4,5-DIARYL-α-(POLYFLUOROALKYL)-1H-PYRROLE-2-METHANAMINES

Saul C. Cherkofsky, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

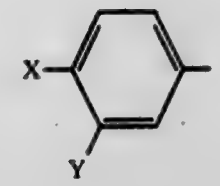
Continuation-in-part of Ser. No. 141,664, Apr. 18, 1980, abandoned. This application 1981, Ser. No. 237,638
Int. Cl.³ A61K *31/40, 31/44;* C07D *207/335, 401/04*
U.S. Cl. 424—274 32 Claims

1. A compound of the formula



(I)

wherein
R_1 = H or C_1–C_2 alkyl;
R_2 and R_3 independently = 3-pyridyl or



where
X = H, F, Cl, Br, C_1–C_2 alkyl, C_1–C_2 alkoxy, di(C_1–C_2 alkyl-)amino or $CH_3S(O)_n$— where n = 0, 1 or 2; and
Y = H, F or Cl; with the proviso that when Y is F or Cl, then X is F or Cl;
R_4 and R_5 independently = H, CF_3, CF_2H, CF_2Cl, $CFCl_2$ or CF_2CF_3, with the proviso that no more than one of R_4 and R_5 can be H; and the further proviso that no more than one of R_4 and R_5 can be CF_2CF_3;
R_6 and R_7 independently = H, C_1–C_6 alkyl, benzyl or benzyl substituted with up to two atoms selected from the group consisting of F, Cl, Br, NO_2, and CF_3; with the proviso that when R_4 or R_5 is H, then R_7 must be H also; or
a pharmaceutically suitable acid addition salt thereof.

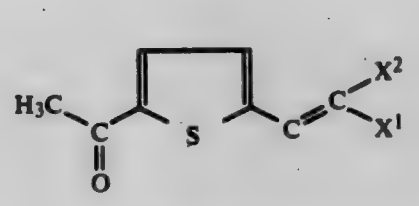
11. A pharmaceutical composition consisting essentially of a suitable pharmaceutical carrier and an effective antiinflammatory amount of a compound of claim 1.

4,335,137
HALOETHENYLTHIENYLETHANONES FOR SYSTEMIC NEMATODE CONTROL

Donald R. James, Lockport, N.Y., assignor to FMC Corporation, Philadelphia, Pa.

Filed 1980, Ser. No. 130,937
Int. Cl.³ A01N *43/02*
U.S. Cl. 424—275 6 Claims

1. A method for systemic control of nematodes which comprises applying to the above-ground portions of an agricultural plant a nematicidally effective amount of a compound of the formula



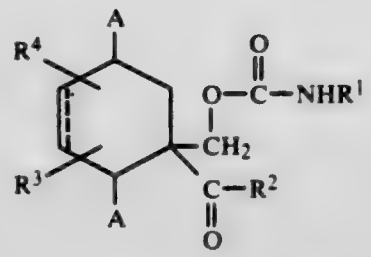
in which X^1 and X^2 are each halogen selected from bromine, chlorine, and fluorine.

4,335,138
NOVEL CARBAMATES, THEIR PREPARATION, AND PHARMACEUTICAL FORMULATIONS CONTAINING THESE COMPOUNDS

Walter-Wielant Wiersdorff, Mutterstadt; Karl-Heinz Geiss, Beindersheim; Harald Weifenbach, Ludwigshafen; Wolfgang Worstmann, Gruenstadt; Dieter Lenke, Ludwigshafen, and Rolf Kretzschmar, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed 1980, Ser. No. 186,841
Claims priority, application Fed. Rep. of Germany, 1979, 2939660
Int. Cl.³ C07C *125/065, 125/04;* C07D *339/08, 339/06, 333/36, 307/66;* A01N *47/12, 47/20*
U.S. Cl. 424—275 15 Claims

1. A compound of the formula I



(I)

where the broken line is a double bond which may or may not be hydrogenated and the radicals A are each hydrogen, or the two radicals A together are a bridge, joining the two carbon atoms, of the formula $-(CH_2)_m-$, where m is an integer from 1 to 3, and which may or may not be substituted by 1, 2 or 3 lower alkyl, or a bridge of the formula



where n is an integer from 2 to 4, and R^1 is hydrogen, or is a saturated straight-chain or branched alkyl radical of 1 to 12 carbon atoms, which is unsubstituted, or is monosubstituted, disubstituted or trisubstituted by halogen, lower alkoxy or lower alkylthio, or is monosubstituted by cyano or by cycloalkyl of 3 to 6 carbon atoms in the ring, which ring is unsubstituted or substituted by 1, 2 or 3 lower alkyl and may, in the case of a 5-membered or 6-membered ring, have 1 or 2 carbon atoms replaced by oxygen or sulfur, or by bicycloalkyl of 5 to 8 carbon atoms in the bicyclic system, which is unsubstituted or substituted by 1, 2 or 3 lower alkyl, or is monosubstituted or disubstituted by phenyl, furyl or thienyl, which are unsubstituted or substituted by halogen, lower alkyl or lower alkoxy, or is alkenyl or alkynyl of 2 to 12 carbon atoms, alkenyl being unsubstituted or substituted by 1, 2 or 3 chlorine atoms, or is cycloalkyl of 3 to 7 carbon atoms in the ring, which ring is unsubstituted or substituted by 1, 2, 3 or 4 lower alkyl or by phenyl and may, in the case of a 5-membered or 6-membered ring, have 1 or 2 carbon atoms replaced by oxygen or sulfur, or is bicycloalkyl of 5 to 8 carbon atoms in the bicyclic system, which is saturated or unsaturated and is unsubstituted or substituted by 1, 2 or 3 lower alkyl, or is phenyl, furyl or thienyl, which is unsubstituted or monosubstituted or disubstituted by halogen, lower alkyl or lower alkoxy, R^2 is saturated straight-chain or branched alkyl of 1 to 6 carbon atoms and R^3 and R^4 independently of one another are each hydrogen or lower alkyl.

13. A hypnotic or sedative composition containing a hypnotic or sedative effective amount of a compound of the formula I as claimed in claim **1**, as the active compound, together with conventional carriers and diluents.

4,335,139

PHARMACEUTICAL FORMULATIONS CONTAINING PROSTACYCLIN COMPOUNDS

Ian S. Watts, Sidcup, and Peter H. Marsden, Dartford, both of England, assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Continuation of Ser. No. 39,645, May 16, 1979, abandoned. This application 1980, Ser. No. 182,054

Claims priority, application United Kingdom, 1978, 20175/78

Int. Cl.[3] **A61K** *31/34*

U.S. Cl. 424—285 **34 Claims**

1. A pharmaceutical formulation comprising an active compound selected from prostacyclin, 15-methylprostacyclin, 16, 16-dimethylprostacyclin or a pharmaceutically acceptable salt of any one of these in association with a pharmaceutically acceptable buffer having a pH of at least 9 and based on a pharmaceutically acceptable amino acid as a buffering acid in the buffer and, optionally, a further pharmaceutically acceptable carrier.

4,335,140

INSECTICIDAL TRIFLUOROETHANIMIDOTHIOATE DISULFIDES

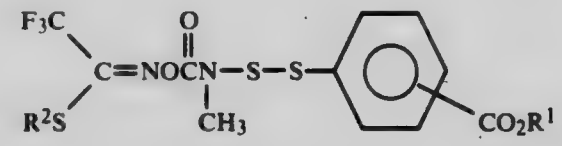
Marcus P. Moon, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 232,565

Int. Cl.[3] **A01N** *37/06;* **C07C** *119/20*

U.S. Cl. 424—298 **37 Claims**

1. A compound of the formula:



wherein

R^2 is C_1–C_4 alkyl, C_3–C_4 alkenyl, or benzyl;

R_1 is C_1–C_{20} alkyl or C_5–C_8 cycloalkyl.

14. An insecticidal composition consisting essentially of a surfactant, diluent or mixtures thereof and an insecticidally effective amount of a compound of claim **1**.

4,335,141

2-SUBSTITUTED-AMINOPROPENE-AND PROPANENITRILE ANTIMICROBIAL AND ANTI-INFLAMMATORY AGENTS

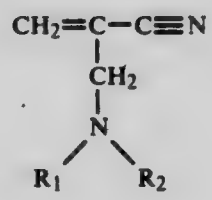
Nathaniel Grier, Englewood; Richard A. Dybas, Somerville, and Bruce E. Witzel, Rahway, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed 1979, Ser. No. 106,616

Int. Cl.[3] **C07C** *121/45, 121/48, 121/43;* **A61K** *31/275*

U.S. Cl. 424—304 **10 Claims**

5. A method of treating sympotms of pain, fever, and inflammation, comprising administering to a patient in need of such treatment an effective amount of a compound of the formula:



wherein

R_1 is straight or branched C_8–C_{20}alkyl;

R_2 is selected from the group consisting of hydrogen; straight or branched C_1–C_{20} alkyl; hydroxy C_{1-4} alkyl; C_{1-4}alkoxy C_{1-4} alkyl; halo C_{1-4} alkyl; and C_{3-8} cycloalkyl;

or a pharmaceutically acceptable acid addition salt thereof.

4,335,142

ARYL (1-ARYLSULFONYL) VINYL SULFONES

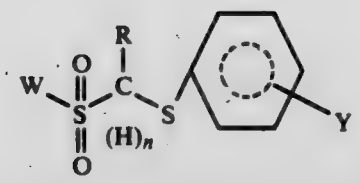
Douglas I. Relyea, and Robert A. Davis, both of New Haven, Conn., assignors to Uniroyal, Inc., New York, N.Y.

Filed 1979, Ser. No. 74,271

Int. Cl.[3] **C07C** *147/06;* **A01N** *31/08*

U.S. Cl. 424—337 **21 Claims**

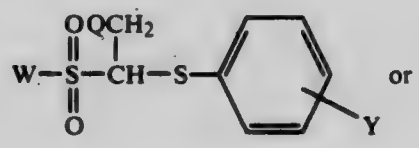
1. A microbicide having the general formula



wherein n is 0 or 1; R is a halomethyl or methylene radical; W is cyclohexyl, or meta or para substituted phenyl wherein the substituents are selected from the group consisting of C_1–C_4 alkyl, halogen and nitro; Y is hydrogen, halogen, nitro or C_1–C_4 alkyl; provided that when R is halomethyl, n is 1, and when R is methylene, n is 0.

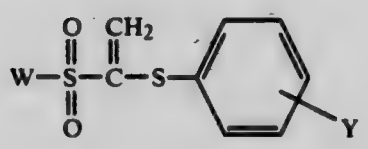
18. A method for controlling microbes which comprises applying to a plant to be protected against attack by such microbes, a microbicidally effective amount of a compound selected from the formula

(a)



or

(b)



wherein Q is halogen, W is cyclohexyl, phenyl, or meta or para substituted phenyl wherein the substituents are C_1–C_4 alkyl, halogen or nitro, Y is hydrogen, halogen, nitro or C_1–C_4 alkyl.

4,335,143

DRIED ALBEDO CLOUDING AGENT AND PROCESS THEREFOR

Claire Wiener, Spring Valley, N.Y., and Gerhard J. Haas, Woodcliff Lake, N.J., assignors to General Foods Corporation, White Plains, N.Y.

Filed 1980, Ser. No. 192,262
Int. Cl.³ A23L *1/212, 2/00*
U.S. Cl. 426—50 **10 Claims**

1. A process for producing a dried albedo clouding agent from albedo-containing material which comprises:

(a) comminuting the albedo-containing material and forming a slurry;

(b) separating said slurry to obtain a liquid filtrate which contains fine suspended and colloidal particles of albedo clouding agent of an average particle size less than 3 microns together with soluble pectinaceous material and soluble carbohydrates and a coarse residue which is discarded;

(c) isolating the fine suspended and colloidal particles of albedo clouding agent from the liquid phase of the filtrate;

(d) washing said isolated particles from step (c) with water, a water-miscible solvent or a combination thereof to remove unwanted flavors; and

(e) drying the washed particles to obtain the dried albedo clouding agent.

4,335,144

PREPARATION OF POROUS ACTIVE YEAST GRANULES

Franz-Josef Carduck, Haan; Dietrich Kloetzer, Dusseldorf, and Gerard Veldman, Brueggen, all of Fed. Rep. of Germany, assignors to Deutsche Hefewerke GmbH, Hamburg-Wandsbek, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 21,781, Mar. 19, 1979, abandoned. This application 1981, Ser. No. 226,146
Int. Cl.³ C12C *11/18, 11/32*
U.S. Cl. 426—62 **10 Claims**

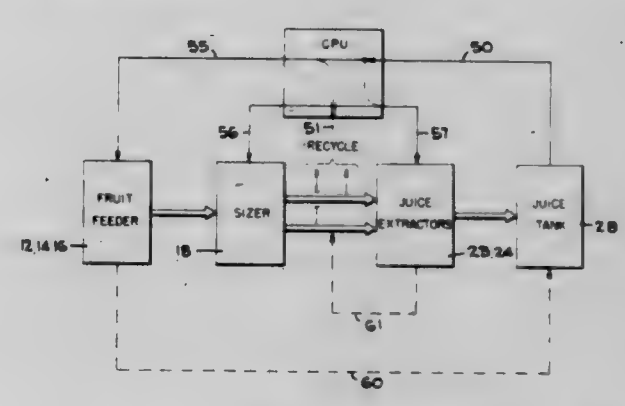
1. A process for the production of porous granules of compressed yeast which comprises the steps of introducing a moist yeast having a solids content of 30% to 40%, introducing from 0.2 to 2.0 times the volume of said yeast, of a gas, admixing said gas with said moist yeast to form a uniform mass, extruding said gas-yeast mass at a pressure of compression of from 1 to 10 atmospheres through orifices having a length to diameter ratio of approximately 1:1 to 4:1, allowing the escape of the gas from the interior of the extrudate to form pores communicating with the surface and recovering porous granules of compressed yeast.

4,335,145

METHOD FOR CONTROLLING THE FLOW OF FRUIT AND FRUIT JUICE THROUGH A JUICE EXTRACTION FACILITY

Robert C. Stanley, Lakeland, Fla., assignor to FMC Corporation, Chicago, Ill.

Filed 1980, Ser. No. 171,917
Int. Cl.³ G01N *33/14*
U.S. Cl. 426—231 **3 Claims**



1. A method for controlling the flow of fruit and fruit juice through a juice extraction facility, said juice extraction facility including a fruit storage location for storing the fruit in bulk, a sizer for separating the fruit into at least two size categories, said sizer being adjustable to vary the size limits of each category, a feeder for feeding the fruit from the fruit storage location to the sizer, a plurality of juice extractors, said extractors arranged in two or more groups with each group of extractors adapted to extract juice from fruit in one of said size categories, means for conveying the fruit from the sizer to the extractors according to size, means for recycling excess fruit from each group of extractors back to said storage location upstream of said group, and a juice storage location adapted to receive juice collected from all extractors, said method comprising the steps of:

measuring the amount of juice held at the juice storage location;

adjusting the number of extractors operating to maintain a preselected amount of juice at the juice storage location;

measuring the number of fruit recycled to said storage location from each group of extractors;

adjusting the size limits on the sizer so that the numbers of excess fruit recycled from each group of extractors are made substantially equal; and

varying the feed rate of the feeder so that a preselected number of excess fruit are recycled from the extractors, said preselected number chosen to be the smallest number

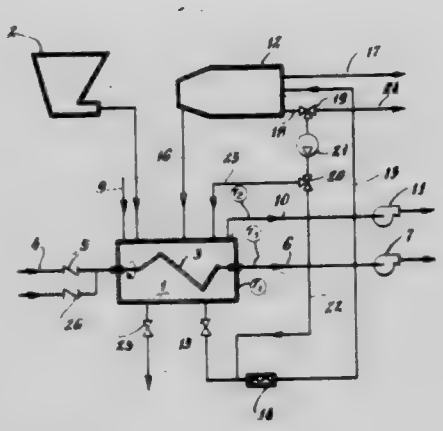
of fruit, whereby all operating extractors have fruit available at all times with a small excess of fruit.

4,335,146

PROCESSING FISH RAW MATERIAL

Per V. H. Bladh, Jarna, Sweden, assignor to Alfa-Laval, Inc., Poughkeepsie, N.Y.

Filed 1981, Ser. No. 230,702
Int. Cl.³ A01K *43/00*
U.S. Cl. 426—231 **13 Claims**



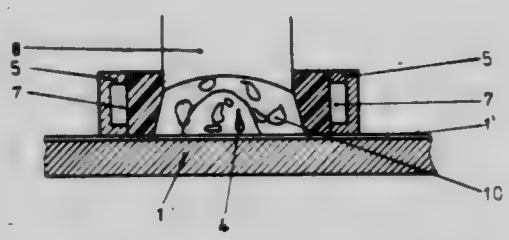
1. In a process for the recovery of meal and oil from raw fish, the steps comprise boiling a mass of the raw fish, separating and removing oil from the boiled fish mass by centrifuging in a centrifugal separator having a rotating feed screw and three separate outlets for a sludge phase, a heavier liquid phase and a lighter liquid phase, respectively, and then drying the sludge phase to fish meal, wherein the improvement comprises charging finely divided raw fish mass into a heat exchanger equipped for indirect heating, stirring and steam removal, then effecting a combined boiling and drying procedure in the heat exchanger while substantially continuously supplying heat thereto and removing steam therefrom until the heat exchanger contains fish meal with a desired low water content and oil content, removing oil during part of the period for said boiling and drying procedure by feeding said centrifugal separator with fish mass from the heat exchanger while continuously returning to the heat exchanger a sludge mass separated in said separator and while discharging separated oil from said separator and removing separated stick water from said separator and recirculating, at least part of the stick water to at least one of said heat exchanger and the fish mass removed from the heat exchanger for feeding into the separator.

4,335,147

METHOD FOR MAKING CONFECTIONS

Helmut Sollich, Albernberg 194, 4925 Kalletal-Talle, Fed. Rep. of Germany

Filed 1980, Ser. No. 129,672
Int. Cl.³ A23G *3/00*
U.S. Cl. 426—295 **7 Claims**



1. A method of making confections of substantially uniform size, comprising the steps of depositing a gob of flowable confectionary substance onto a surface; surrounding the gob in spaced relationship with an annular mold, said mold surrounding said gob only around the periphery of said gob, said mold surrounding said gob with clearance therebetween; depositing at least one additive loosely on the gob; exerting pressure upon the gob to cause it to spread apart within the borders of the mold so that a gap is left between the spread gob and the mold, pressure being also exerted on the additives to press said additives into said gob; causing the gob to set so as to form a confectionary body in the mold; and separating the confectionary body and the mold from one another, the shape of the confectionary body being substantially independent of the shape of said annular mold.

4,335,148

METHODS OF PREVENTING GRAIN SPROUTING AFTER HARVEST THROUGH THE APPLICATION OF SULFUR DIOXIDE, NITROGEN AND AMMONIA GASES

Frederick D. Vidal, Englewood Cliffs, and Anantharman Jayaraman, Nutley, both of N.J., assignors to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 156,501, Jun. 4, 1980, Pat. No. 4,309,451, which is a division of Ser. No. 50,162, Jun. 20, 1979, abandoned, and a continuation-in-part of Ser. No. 38,739, May 14, 1979, abandoned. This application 1980, Ser. No. 176,708
Int. Cl.³ A23B *9/00*; A23L *3/34*
U.S. Cl. 426—319 **6 Claims**

1. A method of treating storage grain, such as corn, wheat and sorghum to prevent sprouting of said grain under suitable moisture conditions comprising applying nitrogen gas to said grain in amounts sufficient to enhance the anti-sprouting activity of sulfur dioxide with respect to said grain and at about the same time applying sulfur dioxide gas to said grain in amounts effective to prevent said sprouting, whereby the anti-sprouting activity of said sulfur dioxide is effectively enhanced by said nitrogen gas.

4,335,149

DIRECT CONDENSATION OF FOOD VOLATILES ONTO A FOOD SUBSTRATE AT CRYOGENIC TEMPERATURES

Gordon K. Stipp, West Chester, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed 1980, Ser. No. 155,709
Int. Cl.³ A23F *5/24*
U.S. Cl. 426—386 **19 Claims**

1. A method for aromatizing a food substrate, comprising the steps of:

placing a particulate solid food substrate in a vessel;

cooling the vessel with a cryogenic fluid;

mechanically fluidizing the food substrate by mixing at a tip speed of at least about 200 ft./min., to provide an absorbent bed thereof having a porosity of at least about 0.73; and

contacting the fluidized, cooled bed of food substrate at a temperature below about −100° F. with gaseous food volatiles at a rate of at least about 42 ft.³/hr. per ft.³ of food substrate, whereby the food volatiles condense on and are adsorbed by the food substrate.

4,335,150

LOW TEMPERATURE FOOD DRYING PROCESS

Hideaki Hosaka, Fukuyama, and Setuya Kuri, Kamakura, both of Japan, assignors to Chlorine Engineers Corp. and Kun Chemical Engineers, both of Tokyo, Japan

Continuation of Ser. No. 50,131, Jun. 19, 1979, abandoned. This application 1980, Ser. No. 196,672
Int. Cl.³ A23B *4/04, 7/02, 9/00*; F26B *5/00*
U.S. Cl. 426—465 **8 Claims**

1. A process for drying food at low temperatures by blowing a drying gas into the food, which comprises the steps of

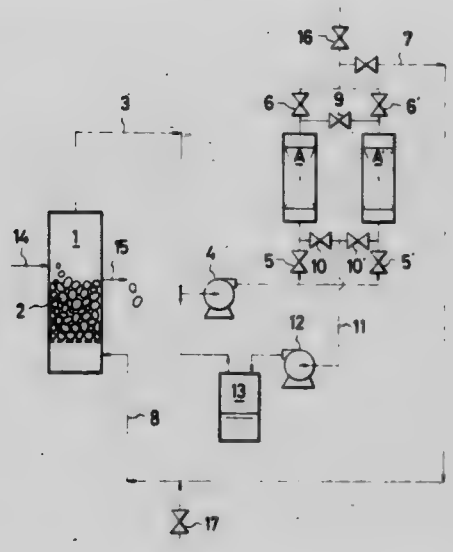
(a) feeding a food to a drying vessel,

(b) blowing a low humidity drying gas having a dew point of −75° to 0° C. into the drying vessel,

(c) contacting the food with the drying gas while maintaining the food at a temperature ranging from −30° to 60° C. and higher than the dew point of the drying gas, thereby drying the food and producing a water-containing gas,

(d) introducing and passing the water-containing gas into one of a pair of adsorbing beds packed with a dehumidifying agent selected from the group consisting of silica gel, alumina gel, molecular sieve and active carbon, thereby to effect dehumidification of the water-containing gas and to regenerate the gas to a low humidity drying gas having a dew point of −75° to 0° C.,

(e) switching over the introducing and passing of the water-containing gas to the other adsorbing bed before said one adsorbing bed becomes saturated with the adsorbed water,



(f) feeding a part of the regenerated drying gas as a purge gas into the water-adsorbed adsorbing bed while maintaining the water-adsorbed adsorbing bed at a pressure lower than the pressure of the water-containing gas, thereby to effect desorption,

(g) repeating the steps (d), (e) and (f), thereby to effect the regeneration of the water-containing gas to the low humidity drying gas stimultaneously with regeneration of the paired adsorbing beds,

(h) recycling the other part of the regenerated low humidity gas to the step (b), and

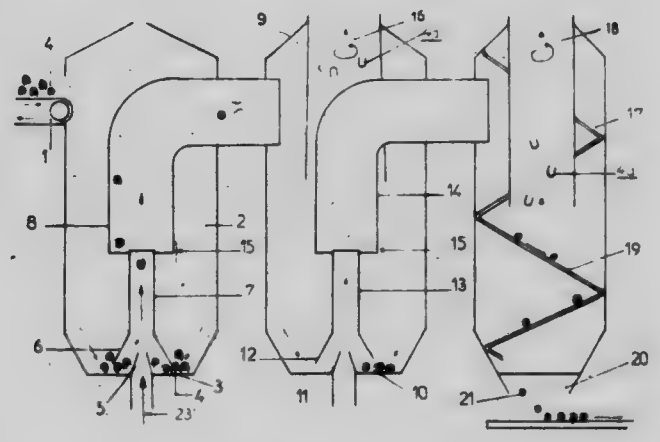
(i) recovering the dried food from the drying vessel.

4,335,151

METHOD FOR DECORTICATING SEEDS

Jacques-Jean Caubet, St. Etienne, France, assignor to Centre Stephanois de Recherches Mecaniques Hydro-Mecanique et Frottement, France

Continuation of Ser. No. 909,801, May 26, 1978, abandoned, which is a continuation-in-part of Ser. No. 696,462, Jun. 16, 1976, abandoned. This application 1980, Ser. No. 137,385
Claims priority, application France, 1975, 75 19495
Int. Cl.³ B02B *3/00*
U.S. Cl. 426—482 **7 Claims**



1. A method of decorticating seeds having a kernel enclosed within a seed hull comprising the steps of:

(a) rapidly accelerating the seeds by introducing the seeds into a turbulent stream of compressed air in a first flow passage;

(b) passing said seeds and said stream of air as a seed stream from said first flow passage into a smaller cross sectional second flow passage whereby the seed hulls are accelerated relative to the seed kernels and flowing said seed stream in said second passage until the seeds are traveling at substantially the same velocity as the air stream;

(c) passing said seeds and stream of air from said second flow passage into a substantially larger cross sectional third flow passage producing a great reduction in air stream pressure and velocity;

(d) adjusting the pressure and flow conditions in said air stream to produce a sufficiently great reduction in pressure and velocity when said air stream passes into said third flow passage to produce separation of the kernel and hull of a substantial proportion of said seeds in said third flow passage by deceleration and depressurization of said seeds such that the speed of the seed kernel increases relative to the speed of the seed hull such that said seeds are decorticated by the change in flow conditions; and

(e) repeatedly subjecting said seeds to said steps so as to produce a complete decortication of said seeds.

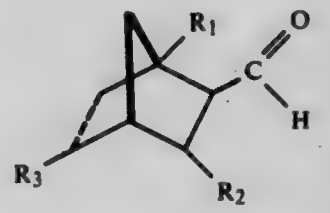
4,335,152

METHYL SUBSTITUTED NORBORNANE CARBOXALDEHYDES, ORGANOLEPTIC USES THEREOF AND PROCESS FOR PREPARING SAME

Philip T. Klemarczyk, Old Bridge; James M. Sanders, Eatontown; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank; Frederick L. Schmitt, Holmdel, and Edward J. Granda, Englishtown, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 152,187, May 22, 1980, Pat. No. 4,284,824. This application 1980, Ser. No. 220,646
The portion of the term of this patent subsequent to 1999, has been disclaimed.
Int. Cl.³ A23L *2/26*
U.S. Cl. 426—538 **2 Claims**

1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising the step of adding to a foodstuff from 0.05 parts per million up to about 300 parts per million based on the foodstuff of at least one methyl substituted norbornane carboxaldehyde derivative defined according to the structure:



wherein the dashed line represents a carbon-carbon single bond or a carbon-carbon double bond; and wherein R_1, R_2 and R_3 are each selected from the group consisting of methyl and hydrogen with the proviso (i) when R_1 is hydrogen, R_2 is methyl and (ii) when R_1 is methyl, R_3 is hydrogen.

4,335,153

IMITATION COCOA POWDER AND METHOD OF PREPARING SAME

Steven M. Rikon, Strongsville, Ohio, and Frank del Valle, St. Ann, Ill., assignors to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 46,156, Jun. 5, 1979, abandoned. This application 1980, Ser. No. 156,618
Int. Cl.³ A23G *1/00*
U.S. Cl. 426—540 **15 Claims**

1. An imitation cocoa powder formulation having essentially the same physico-chemical and functional properties as natural cocoa powder, capable of replacement of natural cocoa pow-

der on a 100% pound-for-pound basis in applications traditionally using cocoa powder comprising based on the weight, dry basis, of the total formulation;

about 60–85% of a mixture of bland, finely ground, degerminated and/or defatted flours in proportion to provide a carbohydrate content of about 40–65%, a crude fiber content of 1–10%, a protein content of about 15–30%, and an ash content of about 2–7%;

about 1–25% fat;

the remainder being essentially water, flavor and colorant, the flavor and colorant being present in effective amounts to substantially duplicate the flavor and color of natural cocoa powder;

said formulation having a water solubility approximately the same as for natural cocoa powder.

4,335,154

METHOD FOR PREPARING A BAKED PRODUCT CONTAINING ALKALI METAL ALUMINUM PHOSPHATE

Robert E. Benjamin, and Thomas E. Edging, both of Nashville, Tenn., assignors to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 972,097, Dec. 21, 1978, Pat. No. 4,260,591. This application 1980, Ser. No. 176,882

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ A21D *8/00*

U.S. Cl. 426—551 **10 Claims**

1. In a method for preparing a a baked good which is leavened with the aid of a leavening acid and subsequently baked, the improvement which comprises using for at least a portion of said leavening acid an alkali metal aluminum phosphate prepared by a process which comprises:

(a) contacting a food grade phosphoric acid having a concentration of about 70.0 to about 90.0 weight percent H_3PO_4 with a sufficient amount of an alkali metal ion selected from the group consisting of sodium, potassium and mixtures thereof and aluminum ion to form an alkali metal aluminum phosphate in a slurry;

(b) contacting said alkali metal aluminum phosphate slurry with calcium sulfate subsequent to the initial formation of the alkali metal aluminum phosphate slurry; and

(c) drying the alkali metal aluminum phosphate.

4,335,155

COMPOSITION FOR AERATED FROZEN DESSERTS CONTAINING FRUIT PUREE AND METHOD OF PREPARATION

Jon R. Blake, Brooklyn Center; Richard K. Knutson, Corcoran, and Deon L. Strommer, Minneapolis, all of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed 1981, Ser. No. 241,293

Int. Cl.³ A23G *9/02*

U.S. Cl. 426—565 **14 Claims**

1. A non-dairy composition useful in the preparation of an aerated frozen dessert containing whole fruit puree which is spoonable at freezer temperatures and which is heat-shock stable, comprising:

A. from about 35% to 80% by weight of a cooked, fruit base consisting essentially of,

(1) from about 20% to 80% by weight of the base of a puree of whole fruit,

(2) from 20% to 80% by weight of the base of a nutritive carbohydrate sweetening agent, and wherein the fruit base has been cooked for about 30 to 60 minutes at from about 180° F. to 210° F.;

B. sufficient acid-stable whipping agent to enable aeration of the composition to a density ranging from about 0.2 to 0.95 g./cc.;

C. from about 0.05% to 0.5% by weight of an acid-stable polysaccharide gum;

D. from about 1% to 15% of an edible fatty triglyceride;

E. from about 1% to 15% by weight of a malto dextrin bodying agent; and

F. sufficient water to provide the composition with a moisture content of about 45% to 75%.

4,335,156

EDIBLE FAT PRODUCT

Lawrence Kogan, Stamford, and Turiddu A. Pelloso, Danbury, both of Conn., assignors to Nabisco Brands, Inc., New York, N.Y.

Filed 1980, Ser. No. 188,657

Int. Cl.³ A23D *3/02*; C11C *3/10*

U.S. Cl. 426—603 **19 Claims**

1. A process for rapidly increasing the solids content in a triglyceride oil which comprises: (a) subjecting a liquid triglyceride oil to interesterification at a temperature between a few degrees celsius below the initial cloud point of the oil and a few degrees celsius above that cloud point in the presence of a catalyst active at the temperatures involved; (b) continuing the interesterification for a period of time effective to increase by at least 1% the quantity of triglycerides which solidify at the initial cloud point; (c) cooling the triglyceride oil to a temperature below its initial cloud point to form a liquid fraction and a solid fraction; (d) removing a portion of the liquid fraction, (e) adding additional triglyceride oil; and (f) continuing the interesterification under conditions of time and temperature-cycling effective to direct the interesterification toward the production of increased solid triglycerides.

4,335,157

FLUID SHORTENING

R. Douglas Varvil, Olmsted Falls, Ohio, assignor to SCM Corporation, New York, N.Y.

Filed 1980, Ser. No. 175,432

Int. Cl.³ A21D *2/16*; A23D *5/02*

U.S. Cl. 426—606 **6 Claims**

1. A stabilized fluid shortening suitable for dough conditioning havng beta-fat crystals dispersed in liquid vegetable oil, for use in combination with ingredients of a yeast-raised product, comprising

about 4 to about 10 weight parts of a soft or hard mono- and diglyceride derived from vegetable oil;

about 2 to about 8 weight parts of fatty acid esters of polyglycerol

about 2 to about 8 weight parts of a solid beta-phase fine crystalline food emulsifier component; and

about 40 to about 100 weight parts of liquid vegetable oil, wherein said soft or hard mono- and diglycerides, said fatty acid esters of polyglycerol; said solid beta-phase crystalline food emulsifier component, and said liquid vegetable oil are dispersed by heating to form a liquified molten mixture followed by quick chilling to about 75° to 105° F. and fluidization to form beta-fat crystals and a stabilized substantially uniform dispersion within said liquid vegetable oil; said fatty acid ester of polyglycerol being selected from the group consisting of octaglycerol monooleate and octaglycerol monostearate.

4,335,158

BANDAGE CARRYING ION-LEACHABLE CEMENT COMPOSITIONS

Charles H. Beede, East Brunswick, and Richard N. Zirnite, Somerset, both of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.

Filed 1980, Ser. No. 204,983

Int. Cl.³ A61F *5/04*

U.S. Cl. 427—2 **9 Claims**

1. A method for producing a substrate carrying a cementitious composition comprising:

dispersing a mixture comprising an ion-leachable inorganic component and a poly(carboxylic acid) in a liquid to form

a coating mixture, said liquid comprising a non-aqueous, non-reactive liquid in which said poly(carboxylic acid) is substantially soluble; said liquid being selected from the group consisting of methanol, dioxane, tetrahydrofuran, 2-ethoxyethanol, 2-methoxyethanol, and mixtures thereof; and

applying said coating mixture to said substrate.

4,335,159

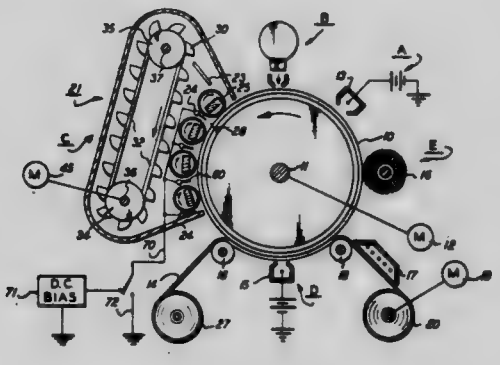
METHOD FOR DEVELOPING LATENT ELECTROSTATIC IMAGES

Delmer G. Parker, Irondequoit, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 728,803, Oct. 1, 1976, abandoned, which is a division of Ser. No. 615,658, Sep. 22, 1975, Pat. No. 4,050,413. This application 1979, Ser. No. 94,530

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—14.1 **3 Claims**



1. A method for improving a magnetic brush development system for developing latent electrostatic images carried by an imaging surface of an electrostatographic processor; said development system including a sump for storing a supply of developer having toner and carrier components, a plurality of magnetic brush rollers located in a development zone adjacent the imaging surface for depositing developer on the imaging surface and means for circulating said developer along a predetermined path running from said sump, through the development zone, and back to said sump, the improved method including the steps of:

placing a member in the region between and spaced from the rollers where developer is transferred from one roller to the next, and

oscillating said member in order to translate developer laterally to maintain the homogeneity thereof.

4,335,160

CHEMICAL PROCESS

Michael P. Neary, 409 E. Coronado, #2, Santa Fe, N. Mex. 87501, and Thomas A. Wilson, 14 Bayview Ct., Manhasset, N.Y. 11030

Continuation-in-part of Ser. No. 962,770, Nov. 21, 1978, abandoned. This application 1980, Ser. No. 213,039

Int. Cl.³ B05D *3/06*; C23C *11/00, 13/00*

U.S. Cl. 427—38 **18 Claims**

1. A method for producing ultra-pure coatings of metal, non-metal, organics, inorganics and other substances, which comprises passing a flow of a reagent gas of helium, or argon, through two annular electrodes across which a voltage of 200 to 300 volts is applied and bringing said reagent gas into contact with a sample gas selected from the group of $W(CO)_6$, $Ni(CO)_6$, silanes, perfluorobutane, whereby the reagent gas being metastable transfers its excess energy to the sample gas to produce the metal, non-metal, or other molecule in neutral high energy state, setting a laser pumped pulse tunable dye laser to the wavelength corresponding to the exact energy necessary to cause ionization of the sample gas given the energy of its high neutral high energy state, said foregoing procedure taking place in a container cavity such that an electric or magnetic field is applied so as to couple a uniform film of the particular ions involved to the site of their deposition whereby at least one layer of the selected product substance is deposited in controlled thickness on a selected target substrate, the deposit amount being controlled by controlling the rate at which the sample gas ions are formed.

4,335,161

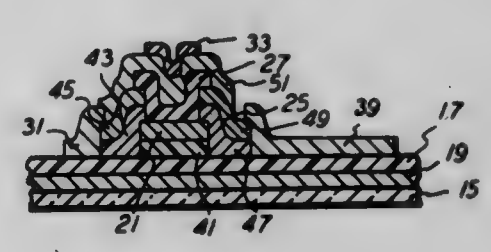
THIN FILM TRANSISTORS, THIN FILM TRANSISTOR ARRAYS, AND A PROCESS FOR PREPARING THE SAME

Fang C. Luo, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed 1980, Ser. No. 203,218

Int. Cl.³ H01L *21/285*

U.S. Cl. 427—86 **6 Claims**



1. In a process for the preparation of a thin film transistor array including a plurality of thin film transistors, each transistor having a source electrode, a drain electrode and an insulated gate electrode positioned with respect to a semiconductor pad, said plurality of thin film transistors arranged in rows and columns, each source electrode of each transistor in any given row being connected to a common bus conductor, each gate of each transistor in any given column being connected to a common bus conductor to form a matrix whereby any given transistor of the array can be addressed, each transistor having at least the interface of the semiconductor pad with the next adjacent subsequently deposited layers formed in a single vacuum pump-down, the improvement which comprises forming the semiconductor pads by depositing a semiconductor material through a mask having openings therein commensurate to the size, shape and relative position of the semiconductive pads to be deposited, moving the mask in a first direction parallel to the longest dimension of the openings therein a distance of from about ⅛ to about ⅞ of the longest dimension of the openings, depositing a conductive material through the openings in the mask to form a first electrical contact to each semiconductive pad, moving the mask in a direction 180° with respect to said first direction a distance of about twice the distance of the initial movement and depositing a conductive material through the openings in the mask to form a second electrical contact to each semiconductive pad, depositing an insulating layer over at least the areas occupied by the semiconductor pads, removing the prepared structure from vacuum, applying discrete areas of conductive material over the insulating layer to form the gate electrode of each transistor of the array and forming the source bus conductors and the gate bus conductors.

4,335,162

METHOD OF PRODUCING A FAULT TRANSPARENT BUBBLE MEMORY BY DIFFUSING MANGANESE IN PRESELECTED PERMALLOY ELEMENTS

James A. Cunningham, Saratoga, and Anthony M. Tuxford, San Francisco, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed 1980, Ser. No. 143,624

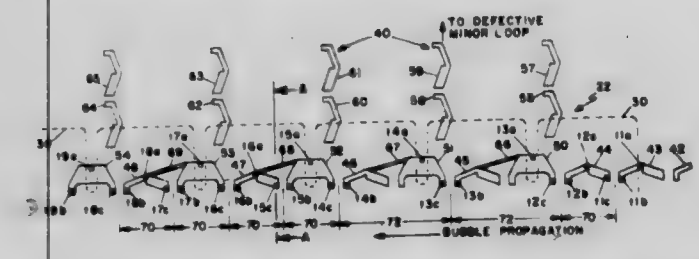
Int. Cl.³ G11C *19/08*; B05D *5/12*

U.S. Cl. 427—130 **1 Claim**

1. A method of fabricating a magnetic bubble memory comprising the steps of:

forming a layer of garnet;

depositing a first insulating layer over the garnet layer;
forming a pattern of control conductors over the first insulating layer;
depositing a second insulating layer over the pattern of control conductors and over the first insulating layer;
forming a pattern of elements, each made of a layer of permalloy and a layer of manganese, over the second insulating layer to define a plurality of paths for propagating magnetic bubble domains under the influence of a Z bias magnetic field and a rotating XY magnetic drive field, the elements being configured and positioned so that the



magnetic bubble domains can be selectively routed by creating barriers over which the magnetic domains will not propagate; and
heating preselected ones of the elements to a predetermined temperature to diffuse the manganese in the permalloy sufficiently to quench the magnetization in the permalloy to thereby create the barriers, the relative thicknesses of the permalloy and manganese layers in each of the elements being such that the predetermined temperature is approximately 75% to 90% of the melting point of the permalloy.

4,335,163

HIGH GLOSS WATER-BASE COATING COMPOSITION

Jack Y. Wong, 10173 Miner Pl., Cupertino, Calif. 95014

Filed 1980, Ser. No. 190,604
Int. Cl.³ B05D *5/00*
U.S. Cl. 427—256 **18 Claims**

1. A water-base coating composition comprising:
(a) 25% to 75% water by volume;
(b) 20 to 75% by weight of an alkyd of vinyltoluene copolymer containing a medium weight safflower oil fatty acid, isophthalic acid polyester and trimellitic acid and an alkyd of isophthalic acid medium weight soy bean oil compound in an approximately 1:1 ratio;
(c) 1 to 10% by weight of a basic solution having a pH of 7.8 to 10.5;
(d) 1.0 to 10% by weight co-solvent;
(e) 0.1 and 1.5% by weight water soluble drying agents;
(f) 0.1 to 1.0% by weight defoamer; and
(g) pigments.

9. An improved method of commercial sign painting wherein the improvement lies in the application of a water-base coating composition comprising:
(a) 25% to 75% water by volume;
(b) 20 to 75% by weight of an alkyd of vinyltoluene copolymer containing a medium weight safflower oil fatty acid, isophthalic acid polyester and trimellitic acid and an alkyd of isophthalic acid medium weight soy bean oil compound in an approximately 1:1 ratio;
(c) 1 to 10% by weight of a basic solution having a pH of 7.8 to 10.5;
(d) 1.0 to 10% by weight co-solvent;
(e) 0.1 and 1.5% by weight water soluble drying agents;
(f) 0.1 to 1.0% by weight defoamer; and
(g) pigments.

4,335,164

CONDITIONING OF POLYAMIDES FOR ELECTROLESS PLATING

David A. Dillard, Diamond Bar; Eileen Maguire, Arcadia, and Lawrence P. Donovan, III, Monrovia, all of Calif., assignors to Crown City Plating Co., El Monte, Calif.

Continuation-in-part of Ser. No. 159,585, Jun. 16, 1980, which is a continuation-in-part of Ser. No. 970,923, Dec. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 159,503, Jun. 16, 1980, Pat. No. 4,309,462, which is a continuation-in-part of Ser. No. 970,929, Dec. 19, 1978, abandoned. This application 1980, Ser. No. 218,513
Claims priority, application United Kingdom, 1979, 7948565
Int. Cl.³ B05D *3/10*
U.S. Cl. 427—304 **32 Claims**

1. In a process for preparing the surface of a polyamide substrate for electroless plating which includes the step of etching the polyamide substrate with an aqueous acid etch solution comprising at least one organic acid containing from 2 to about 10 carbon atoms in the molecule and present in the aqueous solution in a concentration of at least about 3 percent by weight of the solution and sufficient to render the polyamide substrate directly receptive to an electroless plating catalyst and depositing a metal electroless plating catalyst on the surface of the etched polyamide substrate, the improvement which comprises including in the aqueous acid etch solution from about 1 to about 10 percent by weight of solution of at least one inorganic acid which is nondeleteriously reactive with respect to said organic acid.

4,335,165

SNAP TOGETHER ORNAMENT

Roy A. Powers, 18537 Arrow Hwy., Covina, Calif. 91722

Filed 1981, Ser. No. 245,942
Int. Cl.³ A47G *33/08*
U.S. Cl. 428—8 **5 Claims**



1. An ornamental structure comprising:
a. A first planar member having a centered opening, said opening being adapted to allow said member to temporarily spring inward and four (4) equally angularly spaced peripheral notches;
b. A second planar member having a centrally disposed elongate slot adapted to receive said first member and a pair of opposed peripheral notches on a line perpendicular to and bisecting the axis of said elongate slot, such that upon insertion of said first member into said elongate slot, the distal ends of said elongate slot lockingly engage a pair of said peripheral notches on said first member to secure said first and said second member together in intersecting, interlocking relationship;
c. A third planar member having a centered X-shaped opening adapted to receive said intersected, interlocked first and second members such that upon insertion of said intersected, interlocked first and second members into said X-shaped opening the distal ends of said X-shaped opening lockingly engage said pair of opposed peripheral notches on said second member and the remaining pair of said opposed peripheral notches on said first member to secure said first, second and third members in a rigid intersectioning relationship.

4,335,166

METHOD OF MANUFACTURING A MULTIPLE-PANE INSULATING GLASS UNIT

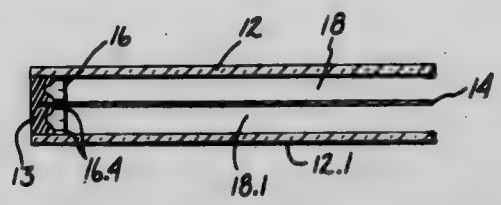
Renato A. Lizardo, Minnetonka, and Roger D. O'Shaughnessy, Chaska, both of Minn., assignors to Cardinal Insulated Glass Co., Minneapolis, Minn.

Filed 1981, Ser. No. 262,424

Claims priority, application Fed. Rep. of Germany, 1980, 3043973

Int. Cl.[3] E06B *3/24*

U.S. Cl. 428—34 10 Claims



1. Method of manufacturing a multiple-pane insulating glass assembly characterized by the steps of

(a) Forming a substantially sealed integral unit comprising supporting a flexible, heat-shrinkable plastic sheet between parallel, spaced glass panes, the sheet being substantially parallel to but spaced from confronting surfaces of the panes and being fixed at its edges with respect to edges of the panes; and

(b) Heating the unit to cause the plastic sheet to shrink and become taut and wrinkle-free between the panes.

4. Method of manufacturing a multiple-pane insulated glass assembly comprising the steps of

(a) Providing a pair of glass panes;

(b) Attaching an elongated spacer to one surface of each pane about the periphery of the pane, each spacer having a generally flattened, continuous surface lying in a plane parallel to but spaced from the surface of the pane to which it is attached, and the spacer attached to one pane being congruent to the spacer attached to the other pane;

(c) Supporting between the flattened surfaces of the spacers a heat-shrinkable plastic sheet and providing a sealant between adjacent edges of said panes to provide an integral substantially sealed unit; and

(d) Heating the integral unit to cause the heat-shrinkable plastic sheet to shrink and to become taut and wrinkle-free between the glass panes.

9. Method of manufacturing a multiple-pane insulating glass assembly comprising the steps of:

(a) Forming a substantially sealed integral unit comprising a pair of spaced, parallel glass panes and a heat-shrinkable plastic sheet substantially parallel to the panes but spaced equidistant from confronting surfaces of the panes, the sheet being fixed at its edges with respect to edges of the panes;

(b) Heating the unit to cause the plastic sheet to shrink and to become taut and wrinkle-free between the panes, and then cooling the unit, the glass panes protecting the plastic film from temperature extremes during the heating and cooling steps.

10. The multiple-pane insulating glass assembly produced by the method of claim 1.

4,335,167

BRAKE FLUID RESERVOIR COMPRISING POLYMETHYLPENTENE AND 10–20% GLASS FIBERS

John W. Kolditz, Alton, Ill., assignor to Edison International, Inc., Rolling Meadows, Ill.

Filed 1980, Ser. No. 155,453

Int. Cl.[3] B65D *6/34;* B32B *27/20;* C08K *7/14*

U.S. Cl. 428—35 8 Claims

1. In a brake fluid reservoir for a hydraulic brake system, the improvement comprising at least a portion of said brake fluid reservoir being formed of a composition consisting essentially of polymethylpentene resin and from about 10% to about 20% of glass fibers by weight of the resin.

4,335,168

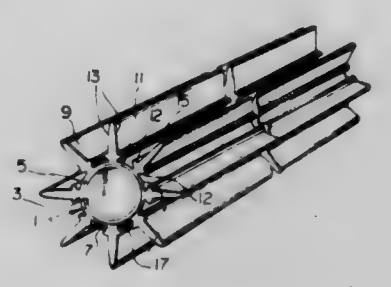
HAIR STYLER EXTRUSION

Rayko Ergaver, Nassau, The Bahamas, assignor to Capella Inc., Freeport, The Bahamas

Filed 1980, Ser. No. 181,508

Int. Cl.[3] B32B *1/08*

U.S. Cl. 428—36 10 Claims



1. An extrusion forming a hair styler consisting of a generally cylindrical tube having a circular outer cross section, a plurality of radially, outwardly extending elongate ridges spaced equidistantly around the tube and extending longitudinally along the tube, the base of each ridge being integral with the tube, and a groove between each pair of adjacent ridges, each groove being formed between ridge projections extending transversely from adjacent sides of adjacent ridges and spaced from and adjacent to said base, said ridge projections each being defined by a pair of walls extending outwardly from the respective ridge.

4,335,169

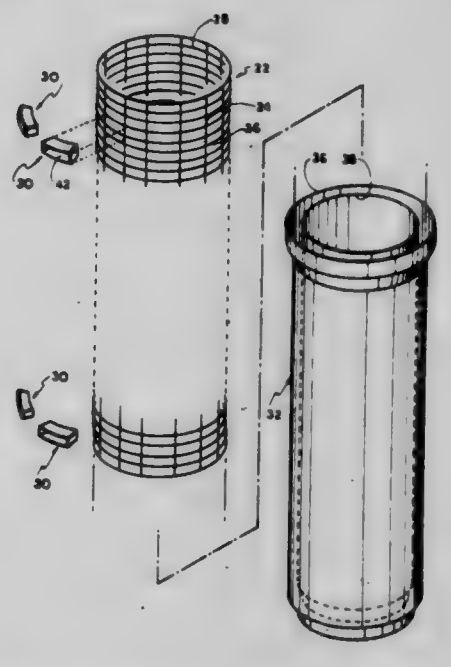
SLOTTED CONCRETE PIPE

Vincent A. Saggese, 15 Pleasant View Dr., Bayville, N.Y. 11709

Division of Ser. No. 89,955, Oct. 31, 1979, abandoned. This application 1980, Ser. No. 219,379

Int. Cl.[3] F16L *9/00;* E02B *11/00*

U.S. Cl. 428—36 8 Claims



1. An insert for use with other similar inserts in forming slotted concrete pipe of the type including a hollow tube of concrete with a grid of reinforcing bars embedded therein and a plurality of spaced slots therein, each insert comprising; a hollow member open at both ends and adapted to be arranged with the bars of the grid in position to communicate with the interior and exterior of the concrete pipe, and means for affixing each insert in predetermined position with respect to the grid and the other similar inserts prior to and during formation

of the pipe therearound and within the formed concrete pipe thereafter so that a slotted concrete pipe of predetermined configuration is provided with a plurality of spaced slots over its surface area.

4,335,170

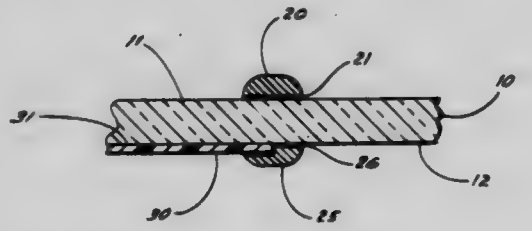
SIMULATED STAINED AND LEADED GLASS WINDOWS

Donald Butler, Costa Mesa, Calif., assignor to Stained Glass Overlay, Inc., Mission Viejo, Calif.

Division of Ser. No. 962,123, Nov. 20, 1978, abandoned. This application 1980, Ser. No. 158,919

Int. Cl.[3] **B44F** *1/06*

U.S. Cl. 428—38 **12 Claims**



1. A process for producing a simulated stained and leaded glass structure from a pane of glass or plastic having a front side and a reverse side comprising the steps of:

a. adhering extruded lead strips to the front side of the pane thereby forming closed design segments thereof.

b. providing at least one sheet of polyester material with adhesive on one side thereof;

c. covering the adhesive on said one side of said polyester material with a lubricant whereby the adhesive is temporarily rendered inactive;

d. positioning said one side of said sheet to said pane correspondingly coinciding with the closed design segments formed on said front side thereof;

e. trimming the edges of said sheet to correspond to said closed design segments; and,

f. removing said lubricant by squeezing said sheets against the pane whereby said sheet is permanently bonded to said pane.

4,335,171

TRANSFER TAPE HAVING ADHESIVE FORMED FROM TWO LAMINAE

Robert E. Zenk, River Falls, Wis., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed 1980, Ser. No. 194,460

Int. Cl.[3] **A61F** *13/02;* **B32B** *27/00;* **C09U** *7/02*

U.S. Cl. 428—40 **4 Claims**

1. An adhesive transfer tape particularly adapted for the application of cushioned vinyl fabric to enameled automobile roofs, said fabric comprising a textured vinyl film, a resilient nonwoven synthetic fibrous layer, and a thin layer of polymeric foam bonding said fibrous layer to one face of said film, said transfer tape comprising in combination:

a. a release liner having a low energy surface, to one face of which is removably adhered

b. a composite laminated pressure-sensitive adhesive layer comprising

(1) a first lamina of 100 parts by weight of a soft pressure-sensitive adhesive, on the order of 50–125 micrometers thick, having an average tack value of at least about 800 grams per centimeter width, consisting essentially of a 95.5:4.5 isooctyl acrylate:acrylic acid copolymer tackified with about 50 parts by weight of a hydrogenated rosin ester or hydrogenated rosin acid, and

(2) a second lamina of a firm pressure-sensitive adhesive, on the order of 5–50 micrometers thick, consisting essentially of a 57.5:35:3.5 isooctyl acrylate:methyl acrylate:acrylic acid terpolymer, said adhesive characterized by a low initial tack of not more than about 100 grams per centimeter width and ease of separation when inadvertently briefly placed in contact with itself, but a buildup to a high adhesion level, greater than 700 grams per centimeter width, within 30 minutes after application to an automobile enamel surface,

whereby said first lamina is adapted to penetrate and bond to the nonwoven fibrous layer of said vinyl fabric, even when the nonwoven layer has been treated with a fluorochemical to retard the penetration of moisture, and said second lamina is adapted to bond lightly enough to an enameled automobile roof to permit repositioning within 30 seconds after application without delaminating the vinyl fabric but to bond so firmly to such enameled surface after having been in intimate contact therewith for 72 hours or more that the vinyl fabric cannot be removed without delamination.

4,335,172

PRESSURE SENSITIVE LABEL STRIP

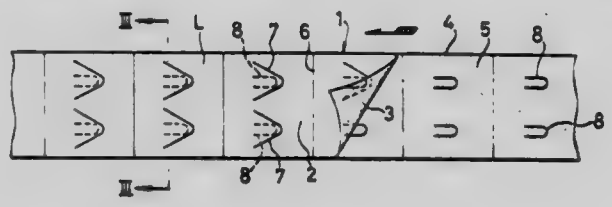
Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato, Japan

Continuation-in-part of Ser. No. 926,704, Jul. 20, 1978, Pat. No. 4,210,688, which is a continuation-in-part of Ser. No. 867,007, Jan. 5, 1978, abandoned. This application 1979, Ser. No. 93,634

Claims priority, application Japan, 1978, 53/155772[U]

Int. Cl.[3] **G09F** *3/00;* **B65D** *65/30;* **B32B** *3/16*

U.S. Cl. 428—42 **9 Claims**



1. A pressure sensitive label strip comprising:

a tape-like strip of label material, said label material strip being divided by transverse parting lines into a plurality of individual label pieces, each said label piece having a periphery and having at least one feeding cut line provided elsewhere than in said periphery of said label piece; and

a tape-like strip of backing material, said strip of label material being releasably adhered to one surface of said strip of backing material, said backing material strip being provided with at least one feeding cut line corresponding to and generally in registry with to be overlaid by a respective said feeding cut line in said label material strip,

said feeding cut line in said backing material strip having a shape different from the shape of said feeding cut line in said label material strip, each of said feeding cut lines defines a tongue in its respective said strip, and each of said tongues defined by said feeding cut lines in said label material strip has a greater surface area than the respective said tongue defined by said feeding cut lines in said backing material strip.

4,335,173

METHOD AND MEANS FOR REDUCING UNDESIRABLE EFFECTS OF DIRT PARTICLES ON A FLEXIBLE RECORD DEVICE

Angel Caraballo, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed 1980, Ser. No. 189,503

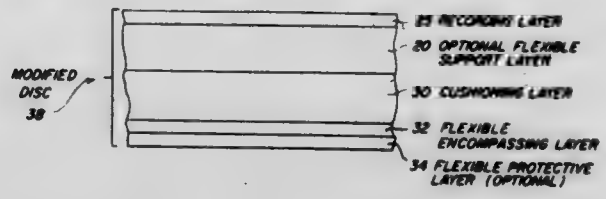
Int. Cl.[3] **B32B** *3/02, 27/30;* **H04N** *5/76*

U.S. Cl. 428—65 **9 Claims**

1. In a flexible record device comprising a flexible support layer having a recording layer on one side thereof,

the improvement wherein said flexible record device has superposed on the opposite side of said recording layer a cushioning layer having an average thickness of from about 0.17 millimeter to about 0.64 millimeter completely

enveloped either by a flexible encompassing layer or by a flexible encompassing layer and said flexible support layer; said cushioning layer comprising an amorphous



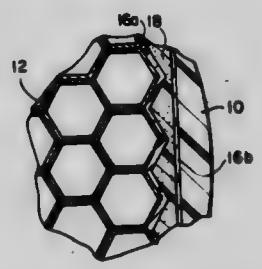
film-forming material and said flexible encompassing layer being immiscible with and inhibiting diffusion therethrough of said amorphous film-forming material.

4,335,174

HONEYCOMB STRUCTURE END CLOSURE

Raymond P. Belko, Blackwood, N.J., assignor to The Boeing Company, Seattle, Wash.

Filed 1980, Ser. No. 183,939
Int. Cl.³ B32B *3/12, 5/18*
U.S. Cl. 428—73 **6 Claims**



1. In a honeycomb structure, a method of securing and sealing an end closure to an otherwise exposed honeycomb core end section which comprises:

positioning a tape adhesive adjacent the exposed honeycomb core;

placing a foam adhesive adjacent the tape adhesive;

positioning the end closure material outboard from the foam adhesive; and

curing said adhesives whereby said foam adhesive forces said tape adhesive to conform with the contours of the honeycomb core.

4,335,175

THERMOPLASTIC FILM LAMINATES

James L. Webb, Simpsonville, S.C., assignor to W. R. Grace & Co., Duncan, S.C.

Filed 1980, Ser. No. 193,245
Int. Cl.³ B32B *27/08, 27/18*
U.S. Cl. 428—213 **4 Claims**

1. A thermoplastic film laminate having improved delamination resistance comprising:

(a) a first layer comprising an ethylene-vinyl acetate copolymer;

(b) a second layer comprising an ethylene-acrylic acid copolymer, one surface of said first layer being bonded to one surface of the second layer;

(c) a third layer comprising an ionomer, said third layer being bonded to the other surface of the second layer; and,

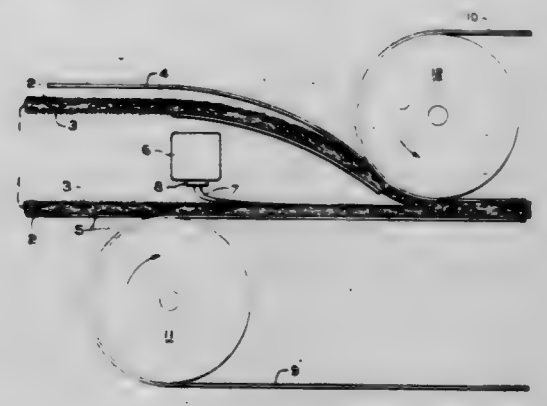
(d) said first, second, and third layers being melt joined without adhesive therebetween.

4,335,176

BONDED NEEDLED FIBER GLASS THERMOPLASTIC REINFORCED MATS

John A. Baumann, Lower Burrell, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed 1980, Ser. No. 209,442
Int. Cl.³ D04H *3/10, 3/12*
U.S. Cl. 428—228 **12 Claims**



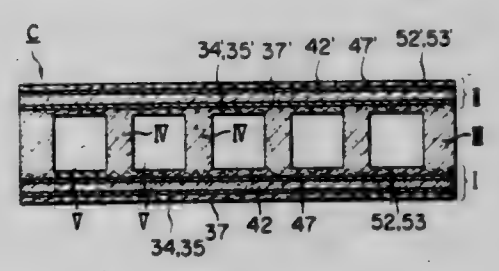
1. A stampable laminate product comprising two mats of glass fibers, said mats being constructed from continuous strands which have been needled and which have a spike surface and a non-spike surface, said mats being oriented in the laminate so that the spike surface of each mat faces the surface of the laminate and wherein the needled mats are impregnated with molten thermoplastic resin which is subsequently coated to provide a laminate having thermoplastic resin surfaces.

4,335,177

GLASS FIBER-REINFORCED CEMENT PLATES

Shigeru Takeuchi, Osaka, Japan, assignor to Kurimoto Iron Works, Ltd., Osaka, Japan

Filed 1980, Ser. No. 191,801
Claims priority, application Japan, 1979, 54-129019; 1980, 55-99041; 1980, 55-99647
Int. Cl.³ B32B *5/12, 5/14, 5/28, 13/14*
U.S. Cl. 428—247 **11 Claims**



1. A laminated, glass fiber-reinforced, hydraulic cement plate, comprising:

a core of hydraulic cement mortar containing regulated set hydraulic cement, said core having two opposite faces; two laminated layer structures each bonded to a respectively opposite face of said core, each layer structure comprising a first layer of chopped glass fiber strands, said first layer having an inner surface and an outer surface, the inner surface of said first layer being disposed adjacent to the associated face of said core, a second layer of continuous glass fibers, said second layer having an inner surface and an outer surface, the inner surface of said second layer being disposed adjacent to the outer surface of said first layer and a third layer of chopped glass fiber strands, said third layer having an inner surface and an outer surface, the inner surface of said third layer being disposed adjacent to the outer surface of said second layer, said layer structures being impregnated with said mortar and being integral with said core.

7. A cement plate according to claim 1 wherein said continuous glass fiber layers are woven or knitted net materials having a pitch of about 10 mm.

4,335,178

TEXTILES CONTAINING A POLY(OXYORGANOPHOSPHATE/PHOSPHONATE) FLAME RETARDANT

Ralph B. Fearing, Bardonia, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

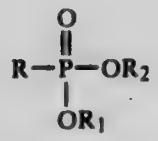
Division of Ser. No. 73,836, Sep. 10, 1979, Pat. No. 4,268,633, which is a division of Ser. No. 898,241, Apr. 20, 1978, Pat. No. 4,199,534. This application 1981, Ser. No. 224,430

Int. Cl.³ D06M *9/00, 13/32;* B32B *27/00*

U.S. Cl. 428—253 **2 Claims**

1. Textile incorporating an adherent resin binder containing a flame retardant effective amount of the product formed by a two step sequential reaction which comprises:

(1) reacting diorgano organophosphonate represented by the formula:



wherein R, R_1 and R_2 are the same or different organic radicals selected from saturated hydrocarbon radical, alkaryl radical, aralkyl radical, and aryl radical; with reactant consisting of (i) phosphorus oxide reagent, or (ii) phosphorus oxide reagent with an alcohol, to yield a metaphosphate/phosphonate reaction product, wherein the mole ratio of said diorgano organophosphonate to said phosphorus oxide reagent (as P_2O_5) is in the range from about 1:1 to about 2.5:1, and said optionally employed alcohol is not in excess of one mole of alcohol hydroxyl per three moles of phosphorus anhydride unit formed by the reaction of phosphorus oxide reactant with diorgano organophosphonate, and;

(2) reacting the reaction product of step (1) with reactant comprising (I) epoxide, or (II) epoxide with an alcohol to yield poly(oxyorganophosphate/phosphonate) product.

4,335,179

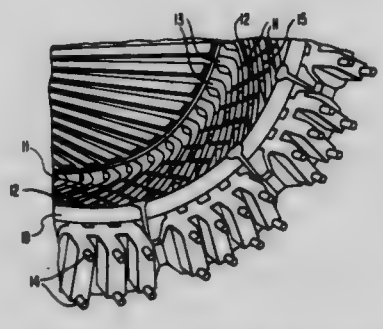
IMPREGNATED HIGH VOLTAGE SPACERS

Morris A. Mendelsohn, Wilkins Township, Allegheny County, and Francis W. Navish, East Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1981, Ser. No. 230,489

Int. Cl.³ B32B *7/00*

U.S. Cl. 428—273 **12 Claims**



1. A resin impregnated spacer, useful for bracing electrical conductors, comprising a porous, flexible, heat resistant material impregnated with a resin consisting essentially of:

(A) 100 parts by weight of an epoxy resin system having a viscosity at 25° C. of up to about 6,000 cps.,

(B) about 2 parts by weight to about 8 parts by weight of a Lewis acid curing agent, and

(C) about 0.3 parts by weight to about 7 parts by weight of dibutylphosphite, where said resin system can cure at room temperature.

4,335,180

MICROWAVE CIRCUIT BOARDS

G. Robert Traut, South Killingly, Conn., assignor to Rogers Corporation, Rogers, Conn.

Continuation-in-part of Ser. No. 972,994, Dec. 26, 1978, abandoned. This application 1980, Ser. No. 213,876

Int. Cl.³ B32B *27/00*

U.S. Cl. 428—303 **14 Claims**

1. A circuit board comprising:

a sheet of dielectric material, the dielectric material comprising a composite of polymer binder, particulate ceramic dielectric filler material and fibers selected from the group consisting of glass, fibrous aluminum silicate, fibrous micro-crystalline materials, quartz and zirconia, said fibers having an average diameter which is less than 3 micrometers and an average length which is less than 3 millimeters, the ratio of the weight of the fibers to the weight of non-filler in the material being in the range of 0.07 to 0.2; and

a sheet of conductive foil directly adhered to each of the surfaces of the sheet of dielectric material.

4,335,181

MICROWAVEABLE HEAT AND GREASE RESISTANT CONTAINERS

John P. Marano, Jr., Princeton, and Maya S. Farag, North Brunswick, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1980, Ser. No. 164,993

Int. Cl.³ B32B *5/18, 7/00, 27/00*

U.S. Cl. 428—319.3 **7 Claims**

1. Shaped articles of a laminate of non-crosslinked heat resistant film and a substrate of foamed or unfoamed sheet of polymers or copolymers with a softening temperature below 190° F., in which the heat resistant film is on the interior surface; said articles being resistant to hot fats when heated in microwave oven.

4,335,182

METHOD OF PRODUCING A MOLDED COMPOSITE FOAM BODY PROVIDED WITH A COVER LAYER AND THE RESULTANT PRODUCT

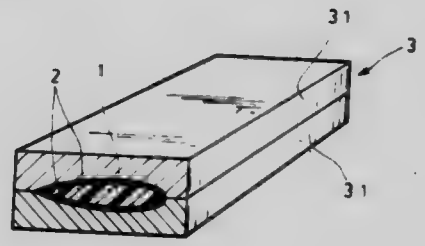
Konrad Brand, Hoehenkirchen, and Dieter Franz, Jettenbach, both of Fed. Rep. of Germany, assignors to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed 1981, Ser. No. 224,658

Claims priority, application Fed. Rep. of Germany, 1980, 3002584

Int. Cl.³ B29D *27/00*

U.S. Cl. 428—319.3 **4 Claims**



1. A method for producing a mold body by combining a core blank of heat moldable hard foam material with a cover layer made at least partially of heat curable synthetic material in a common mold having at least one mold cavity, comprising the following steps, starting with said foam core blank having dimensions larger than said mold cavity, mechanically densify-

ing said core blank prior to its insertion into said mold cavity whereby said core blank has a tendency to elastically expand in response to heating, said mechanically densifying step taking place under a pressure substantially corresponding to the pressure required to be applied for the shaping of the cover layer in the presence of a shaping and curing temperature, said mechanical densifying step producing said core in a predensified form with dimensions substantially corresponding to the dimensions of the mold cavity, lining said mold cavity with said cover layer to form a lined mold cavity, inserting said predensified core into said lined mold cavity, closing the mold cavity and exposing said cover layer in the mold to said shaping and curing temperature whereby said shaping and curing temperature triggers the tendency of said predensified core into an elastic expansion of the predensified core inside said mold to press the core against said cover layer as the cover layer is curing to thereby intimately bond the coverlayer to the core due to said curing under pressure caused by said elastic expansion of said core.

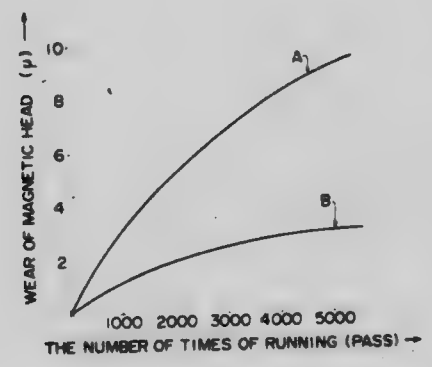
4. A mold body when manufactured by the steps of claim 1 or 2 or 3.

4,335,183

MAGNETIC RECORDING MEDIUM AND METHOD OF FABRICATING IT

Hiroshi Hosaka, Tokyo, Japan, assignor to Tokyo Magnetic Printing Co., Ltd., Japan

Filed 1981, Ser. No. 257,944
Int. Cl.³ B05D *3/06*
U.S. Cl. 428—336 **8 Claims**



1. A magnetic recording medium comprising a substrate of paper sheet and a magnetic recording layer applied to said substrate, said layer containing a magnetic material and an ultraviolet-curing binder resin.

5. A method of fabricating a magnetic recording medium comprising the steps of preparing a substrate of paper sheet, applying to said substrate a magnetic paint containing a magnetic material and an ultraviolet-curing binder resin, and irradiating said applied paint film with ultraviolet rays to cause said paint film to cure and to thereby form a magnetic film.

4,335,184

RECORDING PAPER

Shigehiko Miyamoto, Kamagaya, and Yoshinobu Watanabe, Matsudo, both of Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 196,560
Claims priority, application Japan, 1979, 54-132542
Int. Cl.³ B41M *5/00*; G01D *15/34*
U.S. Cl. 428—342 **8 Claims**

1. An ink-jet recording paper improved in image quality, comprising a base paper containing substantially no sizing agent and size-fixing agent, the pH of its cold water extract being 5.0 to 10.0, and, disposed thereon, a coating layer containing a saponified-type petroleum resin sizing agent obtained by introducing an α,β-unsaturated carboxylic acid or anhydride into a polymerizate or modified polymerizate of C_4–C_{11} fraction from naphtha cracking and saponifying the polar groups, the application rate of the coating layer being from 0.10 to 1.04 g/m² in terms of said saponified-type petroleum resin sizing agent.

4,335,185

INDIGO-DYEABLE POLYESTER FIBERS

Robert L. Adelman, and John J. P. Turner, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 220,809
Int. Cl.³ D02G *3/00*
U.S. Cl. 428—361 **4 Claims**

1. Indigo-dyeable polyester fiber comprising polyester fiber coated with the cross-linked product of polyvinyl alcohol and a water-soluble polyamide containing secondary amino groups in the polymer chain which have been reacted with epichlorohydrin.

4,335,186

CHEMICALLY MODIFIED ASPHALT COMPOSITIONS

Alfred Marzocchi; Michael G. Roberts, and Charles E. Bolen, all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Division of Ser. No. 852,898, Nov. 18, 1977, Pat. No. 4,166,752.
This application 1979, Ser. No. 40,368
Int. Cl.³ C08L *95/00*; D02G *3/18, 3/36*
U.S. Cl. 428—375 **3 Claims**

1. Glass fibers coated with a chemically modified asphalt prepared by reaction at a temperature of 100° to 500° C. of an asphalt with a nitrogen-containing compound selected from the group consisting of (a) ammonia, (b) a polyalkylene polyamine and (c) an aromatic diamine having the formula H_2N—R—NH_2 wherein R is a divalent aromatic group containing 6–15 carbon atoms.

4,335,187

METHOD FOR BONDING POLYCARBONATE TO METAL

Thomas G. Rukavina, Lower Burrell, and Alfred L. Maryland, Pittsburgh, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed 1981, Ser. No. 239,854
Int. Cl.³ B32B *27/36*
U.S. Cl. 428—412 **10 Claims**

1. A method for bonding metal to polycarbonate comprising the steps of:

a. preparing a reaction mixture comprising substantially equivalent proportions of
   (1) an isocyanate terminated polyester urethane prepolymer; and
   (2) a trifunctional species capable of crosslinking said prepolymer;
b. applying said reaction mixture at the interface of the metal and polycarbonate surfaces to be bonded; and
c. curing said reaction mixture.

4,335,188

LAMINATES

Keishiro Igi, Kurashiki, and Ishii Masao, Ibara, both of Japan, assignors to Kuraray Company, Limited, Kurashiki, Japan

Filed 1980, Ser. No. 152,320
Claims priority, application Japan, 1979, 54/71867
Int. Cl.³ B32B *15/08*
U.S. Cl. 428—458 **14 Claims**

1. A laminated structure comprising at least two adherends bonded together with a polyester made from terephthalic acid or a dicarboxylic acid mixture containing at least 85 mole % of terephthalic acid, 0.65 to 0.97 mole per mole of said terephthalic acid or dicarboxylic acid mixture of 1,4-butanediol or a polymethylene glycol mixture containing at least 80 mole % of 1,4-butanediol and 0.030 to 0.35 mole per mole of said tereph-

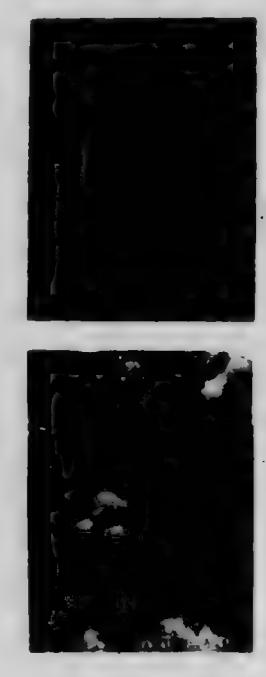
thalic acid or dicarboxylic acid mixture of polyethylene glycol having a molecular weight of 150 to 550, the total amount of the diol constituents being one mole per mole of said terephthalic acid or dicarboxylic acid mixture, said polyester having a crystallinity of not less than 25% and being substantially free from spherulites.

4,335,189

RESOLUTION STANDARD FOR SCANNING ELECTRON MICROSCOPE COMPRISING PALLADIUM SPINES ON A METAL SUBSTRATE

Carmelo F. Aliotta, Beacon, and Morris Anschel, Carmel, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed 1980, Ser. No. 172,577
Int. Cl.³ H01F *1/00*; G01N *31/00*
U.S. Cl. 428—611 **5 Claims**



1. A resolution standard for a scanning electron microscope, comprising,

a metal substrate,

clusters of palladium formed on the substrate, the clusters being generally spaced apart for ease of acquisition by the operator of a scanning electron microscope and having spines with dimensions on the order of 50 Angstroms at their tips.

4,335,190

THERMAL BARRIER COATING SYSTEM HAVING IMPROVED ADHESION

Robert C. Bill, Rocky River, and James S. Sovey, Strongsville, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed 1981, Ser. No. 229,233
Int. Cl.³ B32B *15/04*; B21D *39/00*
U.S. Cl. 428—623 **10 Claims**

1. A coated article of manufacture having a thermal barrier coating system comprising

a substrate selected from the group consisting of nickel- and cobalt-based superalloys, dispersion-strengthened alloys, composites, and directional eutectics,

a bond coating consisting essentially of a material selected from the group consisting of NiCrAlY and CoCrAlY covering said substrate, said bond coating having an ion sputter cleaned surface,

a primer film consisting essentially of ZrO_2 stablized with another oxide bonded to said textured surface, and

a ceramic thermal barrier coating bonded to said primer film.

4,335,191

LITHIUM CELLS

Emanuel Peled, Even Yehuda, Israel, assignor to Tadiran Israel Electronics Industries Ltd., Tel-Aviv, Israel

Filed 1980, Ser. No. 172,688
Int. Cl.³ H01M *4/00*
U.S. Cl. 429—94 **5 Claims**

1. In a lithium cell of the wound-electrode high power type comprising an oxidizable lithium anode, a current collector, an electrolyte comprising a solute selected from the group consisting of $LiAlCl_4$, $LiBCl_4$ and mixtures thereof dissolved in an oxyhalide solvent, the improvement which comprises employing a concentration of the solute in the electrolyte of between about 0.1 M to 0.6 M, whereby the short-circuit current is reduced, thereby rendering the cell resistant to explosion upon short-circuiting.

4,335,192

METHOD OF PREPARING A SINTERED IRON ELECTRODE

Antony Oliapuram, Frankfurt, Fed. Rep. of Germany, assignor to Varta Batterie A.G., Hanover, Fed. Rep. of Germany

Filed 1980, Ser. No. 197,216
Claims priority, application Fed. Rep. of Germany, 1979, 2941765
Int. Cl.³ H01M *4/26, 4/52*
U.S. Cl. 429—221 **14 Claims**

1. The process of producing a highly active metallic sintered iron electrode which is provided with a metallic support insert comprising

treating a mixture of iron powder and an ammonium halogenide as the activating substance by first maintaining it for about ½ to one hour at a temperature which is closely below the decomposition temperature of the ammonium halogenide, and

subsequently completing the sintering at the actual sintering temperature,

whereby the ammonium halogenide starts to function in activating manner before reaching sintering temperature and disappears from the electrode at the beginning of the actual sintering.

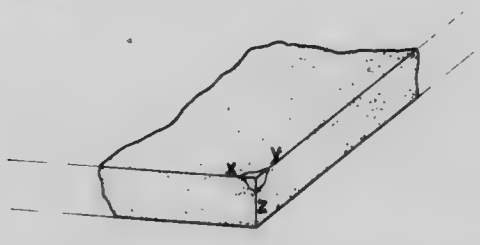
12. The sintered iron electrode made by the process of claim **1**.

4,335,193

MICROPOROUS FILM, PARTICULARLY BATTERY SEPARATOR, AND METHOD OF MAKING

Yoshinao Doi, Kanagawa; Shigeo Kaneko, Tokyo; Takeo Hanamura, Kanagawa; Osamu Fujii, Tokyo; Katsumi Yoshitake; Tetsuhiko Hirata, both of Kanagawa, and Yasuhiro Tanabe, Shizuoka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 694,173, Jun. 9, 1976, abandoned. This application 1979, Ser. No. 16,176
Claims priority, application Japan, 1975, 50/73031
Int. Cl.³ H01M *2/16*
U.S. Cl. 429—251 **29 Claims**



1. A microporous film having improved mechanical strength and electrical resistance which comprises 50 to 80% volume percent of a polyolefin having a number average molecular weight of 15,000 or more, a weight average molecular weight of 85,000 to 250,000 and a standard load melt index of at least

0.01, and 20 to 50 volume percent of an inorganic filler; and which has a void space rate of 30 to 75 volume percent based on the volume of the film.

4,335,194

TWO COLOR ELECTROPHOTOGRAPHIC PROCESS AND MATERIAL

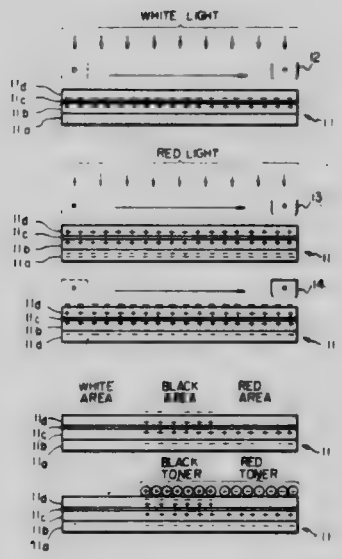
Katsuo Sakai, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed 1979, Ser. No. 12,571

Claims priority, application Japan, 1978, 53-18754; 1978, 53-49671; 1978, 53-146998; 1978, 53-146999

Int. Cl.³ G03G *13/01, 13/22*

U.S. Cl. 430—42 **21 Claims**



1. A two color electrophotographic process comprising the steps of:

(a) providing a material including a first photoconductive layer which is insensitive to light of a predetermined color and sensitive to light of at least one other color, a second photoconductive layer which is sensitive to light of the predetermined color and a first transparent electrically insulating layer;

(b) forming uniform electrostatic charges of opposite polarities at outer surfaces of the first and second photoconductive layers respectively;

(c) radiating a color light image onto an outer surface of the material; and

(d) applying two toners of different colors which are charged to opposite electrostatic polarities respectively to the outer surface of the material.

4,335,195

ELECTROPHOTOSENSITIVE ELEMENT HAS RESIN ENCAPSULATED CDS PARTICLES IN BINDING RESIN

Yuji Nishigaki, Yokohama, and Hirokuni Kawashima, Sakurashin, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 175,021

Claims priority, application Japan, 1979, 54-102488

Int. Cl.³ G03G *5/087*

U.S. Cl. 430—94 **2 Claims**

1. An electrophotosensitive member having a photoconductive layer consisting essentially of cadmium sulfide powder particles encapsulated in a thermoplastic resin, said encapsulated particles dispersed in a binding resin, wherein the weight ratio of said thermoplastic resin to said powder particles is from 0.03:100 to 3:100.

4,335,196

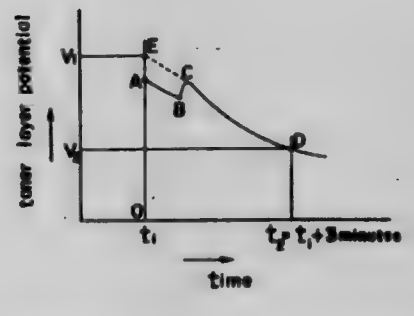
ELECTROSTATIC IMAGE DEVELOPING AND TRANSFER METHOD USES SINGLE COMPONENT MAGNETIC DEVELOPER

Yuzo Ohmuro, Machida; Nin-ichi Kamogawa, Tokyo; Shigeru Uetake, Sayama, and Yoshio Yamazaki, Hino, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 25,783, Apr. 2, 1979, Pat. No. 4,295,427, which is a continuation of Ser. No. 829,795, Sep. 1, 1977, abandoned. This application 1980, Ser. No. 211,344

Int. Cl.³ G03G *13/09*

U.S. Cl. 430—122 **2 Claims**



1. An image forming method whereby a single-component type developer is employed to transfer a sharp image to plain paper comprising the steps of:

providing a developer comprising ferromagnetic and insulating toner particles and free of carrier particles, and having a volume specific resistance of at least 10^{14} Ωcm and a potential decay ratio of less than 50% when measured by

(1) forming on zinc oxide photoconductive material a layer of the developer of a predetermined thickness,

(2) erasing the electrostatic latent image on said photoconductive material which served to form said layer, so as to reveal the potentials of said layer,

(3) measuring the potentials V_1 and V_2 of said layer after one minute from dark decay and after three minutes from the succeeding light decay, respectively, and

(4) determining the decay ratio on the basis of $(V_1-V_2)/V_1\times 100(\%)$;

electrostatically charging said toner particles;

contacting said charged toner particles with photoconductive material on which an electrostatic latent image is provided in order to develop said latent image;

and transferring the developed image onto plain paper.

4,335,197

PHOTOIMAGING PROCESS

William J. Chambers, and Louis Plambeck, Jr., both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 210,232

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—271 **17 Claims**

1. A method for forming a polymer photoimage, comprising:

(a) exposing, imagewise, a photosensitive element to actinic radiation, the element comprising a substrate coated with a photosensitive layer containing dispersed silver halide particles in operative association with a continuous film-forming phase of polymeric coupler, the coupler characterized by

(i) a number average molecular weight of about 2,000 to 100,000;

(iii) a content of about 10 to 100 milliequivalents per 100 g of polymeric coupler of coupler groups and about 15 to 175 milliequivalents per 100 g of polymeric coupler of at least one of carboxylic, sulfonic and phosphonic acid groups; and

(iii) the ability to couple with a monofunctional develop-

ing agent and thereby become insoluble in aqueous solvents;

(b) developing the layer containing the latent image with a monofunctional developing agent capable of selectively reducing the silver halide in the latent image area and, in its oxidized state, of coupling with the polymeric coupler in the latent image area, thereby insolubilizing the coupler in the form of an image; and

(c) removing the undeveloped, soluble areas of the polymeric coupler by washing with aqeuous solvent.

4,335,198

PROCESS FOR RECORDING

Hiroshi Hanada, Yokohama; Masanao Kasai; Hitoshi Hanadate, both of Tokyo, and Yoko Oikawa, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

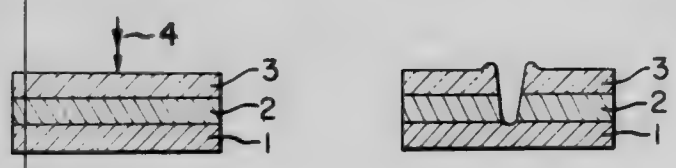
Division of Ser. No. 858,161, Dec. 6, 1977, abandoned, which is a continuation of Ser. No. 579,700, May 21, 1975, abandoned.

This application 1979, Ser. No. 38,840

Claims priority, application Japan, 1974, 49-59215; 1974, 49-90568; 1974, 49-108357

Int. Cl.³ B05D *3/02, 3/06;* G01D *15/10*

U.S. Cl. 430—348 **10 Claims**



1. A method of recording information comprising the steps of:

forming information bearing high intensity radiation; and

applying the high intensity radiation to a nonpoisonous recording member having a recording layer which absorbs the high intensity radiation, said recording layer comprising a radiation absorption layer, and an anti-reflection layer comprising a compound consisting of S and Ge and capable of preventing the reflection of the radiation applied to the radiation absorption layer wherein the radiation absorption layer deforms in response to the heat caused by the absorption of the radiation, and the anti-reflection layer deforms in response to said heat to define the recorded information, wherein said high intensity radiation forms a spot or hole on the recording member no greater than about 1.5 microns in diameter.

4,335,199

HIGH CONTRAST BY IMAGEWISE IODIDE INFECTION IN A MIXED SILVER HALIDE SYSTEM

Daniel J. Mickewich, Arden, Del.; John R. Shock, Plainsboro, N.J., and Daniel F. Juers, Fairport, N.Y., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 122,502

Int. Cl.³ G03C *1/84, 5/24*

U.S. Cl. 430—434 **13 Claims**

1. A photographic element comprising a support, and a mixture of two non-fogged silver halide emulsions on said support:

(1) an internally sensitized core-shell emulsion having an internal sensitivity equal to or greater than that of emulsion (2);

(2) a surface-sensitized silver iodobromide or trihalide emulsion capable of releasing iodide ions upon being developed in a stable developer, which iodide ions serve to produce infectious development of exposed grains of emulsion (1).

9. A process wherein a photographic silver halide emulsion film coated upon a support is exposed, and the resulting latent image is translated into a visible silver image by action of a continuous tone developer, characterized in that the silver halide emulsion is composed of a mixture of two non-fogged silver halide emulsions (1) and (2), emulsion (1) being an internally sensitized core-shell emulsion having an internal sensitivity equal to or greater than that of emulsion (2); emulsion (2) being a surface-sensitized silver iodobromide or trihalide emulsion capable of releasing iodide ions upon being developed in a stable developer, and wherein during the development process iodide is released from the surface-sensitized iodobromide or trihalide emulsion to induce development of the exposed areas in the internally sensitized core-shell emulsion, whereby a high contrast photographic image suitable for lithographic use is obtained.

4,335,200

SILVER HALIDE PHOTOGRAPHIC MATERIALS

Minoru Ohashi, and Katsuaki Iwaosa, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

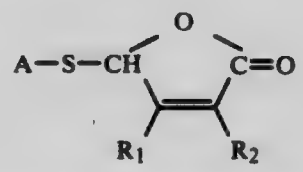
Filed 1981, Ser. No. 297,419

Claims priority, application Japan, 1980, 55/152772

Int. Cl.³ G03C *1/34*

U.S. Cl. 430—446 **4 Claims**

1. A silver halide photosensitive material characterized in that at least one silver halide emulsion layer and/or a layer contiguous to said emulsion layer contains at least one antifoggant of the general formula (I)



wherein A represents the heterocyclic group of a mercapto antifoggant; R_1 and R_2, which may jointly form a benzene ring, represent each a halogen atom or an alkyl, aryl or aryloxy group.

4,335,201

ANTISTATIC COMPOSITIONS AND ELEMENTS CONTAINING SAME

Donald N. Miller, Penfield, and Richard A. Kydd, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed 1980, Ser. No. 209,554

Int. Cl.³ G03C *1/84, 1/38;* C09K *3/16*

U.S. Cl. 430—527 **19 Claims**

1. A coating composition for use in forming an antistatic layer in a radiation sensitive element, said composition comprising an aqueous solution of:

(a) a hydrophilic binder;

(b) an anionic fluorinated surfactant; and

(c) an inorganic nitrate.

4,335,202

TETRAAZAUNDECANE AND COMPLEXES AS SENSITIZERS FOR SILVER HALIDE EMULSION

Rolf Hengel, Heilbronn, Fed. Rep. of Germany, and David F. Eaton, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 292,261

Int. Cl.³ G03L *1/28*

U.S. Cl. 430—604 **10 Claims**

1. A negative-working gelatino-silver halide emulsion containing a sensitizing amount of a linear polyamine selected from the group consisting of tetraazaundecane (TAU), an acid salt thereof, and a divalent metal complex thereof.

4,335,203

METHOD FOR IDENTIFYING POTENTIAL CONTRAST MEDIA REACTORS

Elliott C. Lasser, La Jolla, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed 1980, Ser. No. 167,278
Int. Cl.³ C12Q *1/38*
U.S. Cl. 435—23 **4 Claims**

1. In a method of administering an iodinated X-ray contrast medium to a host, of the type wherein the host is tested for sensitivity to said contrast medium before internal administration, the improvement comprising:

assaying for prekallikrein activation by combining a prekallikrein activator with plasma sample of said host to produce kallikrein;

determining the kallikrein activity in said plasma sample over a predetermined period of time by combining said plasma sample with a kallikrein substrate under conditions effective for measuring said activity;

comparing the kallikrein activity obtained to the kallikrein activity in a host known to be sensitive to said contrast medium to determine said sensitivity.

4,335,204

EASILY SPLIT SUBSTRATES FOR THE QUANTIFICATION OF PROTEASES

Karl G. Claeson, Lidingö; Leif E. Aurell, Särö; Leif R. Simonsson, Hising Backa, and Salo Arielly, Kungsbacka, all of Sweden, assignors to Kabi AB, Stockholm, Sweden

Division of Ser. No. 7,447, Jan. 29, 1979, Pat. No. 4,279,810.
This application 1981, Ser. No. 247,488
Claims priority, application Sweden, 1978, 7801373
Int. Cl.³ C12Q *1/38*
U.S. Cl. 435—23 **3 Claims**

1. A diagnostic method for the determination of proteases in a substance which comprises contacting the substance with a compound of the formula:

$$R_1—p\text{-}Glu—A_1—A_2—NH—R_2,$$

wherein

R_1 is H or a protective group;

A_1 is Gly, Ala, Val, Leu, Ile, Ser, Thr, Pro, Pip, Phe or Tyr;

A_2 is Arg or Lys; wherein —NH—Rz is a chromogenic or fluorogenic group which is capable of being split by enzymatic hydrolysis to form a cleavage product of the formula $H_2N—R_2$, the amount of which can be quantified; and then determining the amount of said cleavage product which is formed.

4,335,205

LOW PROTEIN DEGRADATION PRODUCT BASAL MEDIUM FOR IDENTIFICATION OF NON-FERMENTATIVE GRAM-NEGATIVE BACILLI AND OTHER MICROORGANISMS

James R. Greenwood, 1275 Barry Ave., Apt. #4, Los Angeles, Calif. 90025

Filed 1979, Ser. No. 27,843
Int. Cl.³ C12Q *1/04*
U.S. Cl. 435—34 **11 Claims**

1. A single low organic nitrogen basal growth medium for the relatively rapid identification of non-fermentative Gram-negative bacilli (NFB) and other microorganisms including the family Enterobacteriaceae, and cytochrome oxidase positive fermenters, comprising:

about 0.5 to about 1.5 gm. of an ammonium ion source,

about 0.1 to about 0.3 gm. of a potassium salt,

about 0.1 to about 0.3 gm. of a magnesium salt,

about 0.2 to about 1.0 gm. of yeast extract,

about 0.2 to about 1.0 gm. of an organic nitrogen source,

0.0 to about 60.0 gm. of agar,

about 0.002 to about 0.060 gm. of an indicator selected from the group consisting of brom cresol purpose, brom thymol blue, and phenol red, and

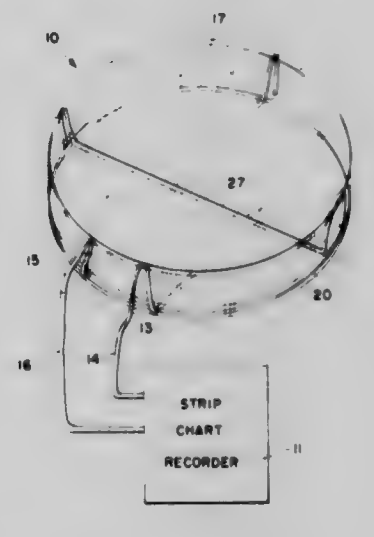
water sufficient to make 1000 ml.

4,335,206

APPARATUS AND PROCESS FOR MICROBIAL DETECTION AND ENUMERATION

Judd R. Wilkins, and David C. Grana, both of Hampton, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed 1981, Ser. No. 235,796
Int. Cl.³ C12Q *1/04*
U.S. Cl. 435—34 **9 Claims**



1. An electrochemical detection method for determining the presence and quantity of specific microorganisms in a sample solution comprising:

filtering the sample solution through a membrane filter impervious to the organism to be detected and quantified;

assembling a pair of electrodes in spaced adjacency relative to each other and each electrode being positioned in abutting relationship with the membrane filter;

positioning the membrane filter and electrodes between two absorbent pads adapted to fit within an open container;

positioning the absorbent pad-filter-electrode assembly within the container so as to leave at least one exposed end of each electrode extending from the container;

providing a retaining clip extending over and contacting the edges of the container and having portions thereof abutting and retaining the absorbent pad-filter-electrode assembly within the container;

sealing a cover over the container so as to leave the exposed end of each electrode extending from the container; and,

attaching a strip chart recorder to the exposed ends of the electrodes to detect and record the electrical output of the electrodes as a function of the presence and quantity of the specific microorganism obtained on the filter from the sample solution.

4,335,207

PROCESS FOR THE PRODUCTION OF HIGH FRUCTOSE SYRUPS AND ETHANOL

Robert E. Heady, Park Forest, Ill., assignor to CPC International Inc., Englewood Cliffs, N.J.

Filed 1980, Ser. No. 156,152
Int. Cl.³ C12P *7/14, 19/02, 19/04*
U.S. Cl. 435—94 **14 Claims**

1. A process for the production of ethyl alcohol and fructose polymers comprising the sequential steps of contacting a sucrose-containing substrate with an effective amount of a fructosyl transferase enzyme to produce a secondary substrate followed by fermenting said secondary substrate with an effective amount of a yeast preparation, that does not hydrolyze

sucrose or fructose polymers or ferment fructose polymers, to ferment the glucose in the secondary substrate to alcohol.

4,335,208

SACCHARIFICATION OF STARCH HYDROLYSATES

Barrie E. Norman, Farum, Denmark, assignor to Novo Industri A/S, Denmark

Filed 1980, Ser. No. 129,314
Int. Cl.[3] C12P *19/16, 19/20;* C12R *1/38, 1/685*
U.S. Cl. 435—96 8 Claims

1. In a process for saccharifying a starch hydrolysate to a high DX glucose syrup with glucoamylase, the improvement which comprises saccharifying at pH 3–5 in the presence of an enzyme mixture comprising effective amounts of glucoamylase and an acidophilic isoamylase to convert the starch hydrolysate to at least about 96 DX glucose syrup, the glucoamylase dosage being in the range of 0.05–0.15 AG units per gram of dry substance in the hydrolysate.

4,335,209

PROCESS FOR PREPARATION OF L-TRYPTOPHAN BY ENZYME

Yoshiyuki Asai, Yokohama; Masao Shimada, Yamato, and Kenji Soda, Uji, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed 1980, Ser. No. 145,267
Claims priority, application Japan, 1979, 54-55645; 1979, 54-79619; 1980, 55-36197
Int. Cl.[3] C12P *13/22*
U.S. Cl. 435—108 10 Claims

1. A process for the enzymatic preparation of L-tryptophan which comprises reacting indole with L-serine in the presence of tryptophan synthetase or tryptophanase, wherein DL-serine or D-serine is used as the starting material and DL-serine or D-serine is reacted with serine racemase which does not racemize tryptophan to convert at least a part of D-serine to L-serine, said serine racemase being present with tryptophan synthetase or trytophanase to simultaneously react L-serine with indole.

4,335,210

METHOD OF PRODUCING L-CYSTEINE

Alton Meister, New York, and Joanne M. Williamson, Roosevelt Island, both of N.Y., assignors to Cornell Research Foundation, Ithaca, N.Y.

Filed 1981, Ser. No. 233,564
Int. Cl.[3] C12P *13/12*
U.S. Cl. 435—113 1 Claim

1. Method for the production of L-cysteine which comprises subjecting L-2-oxothiazolidine-4-carboxylate to the action of 5-oxo-L-prolinase in the presence of adenosine triphosphate.

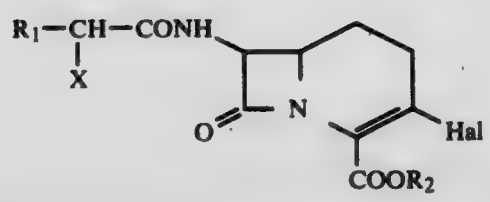
4,335,211

PROCESS FOR PRODUCING OPTICALLY ACTIVE CEPHALOSPORIN ANALOGS

Yukio Hashimoto, Yamato; Seigo Takasawa, Hadano; Tadashi Hirata, Yokohama; Ikuo Matsukuma, Yokkaichi, and Shigeo Yoshiie, Sakai, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

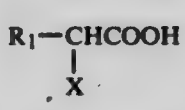
Filed 1980, Ser. No. 206,556
Claims priority, application Japan, 1979, 54-146489
Int. Cl.[3] C12P *17/18*
U.S. Cl. 435—119 4 Claims

1. A process for producing optically active compounds of cephalosporin analogs represented by the formula (I)



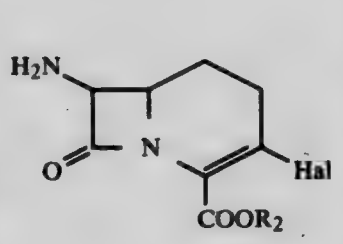
(I)

wherein R_1 represents a substituted or unsubstituted, saturated or unsaturated six-membered carbocyclic or five-membered hexacyclic group, R_2 represents a hydrogen or a protective group of carboxylic acid, Hal represents a halogen atom, the hydrogens at the 6- and 7-positions have cis configuration and X represents a hydrogen, a lower alkyl group, a hydroxy group, a carboxyl group or an amino group, which comprises reacting α,α-disubstituted carboxylic acid represented by the formula (II)

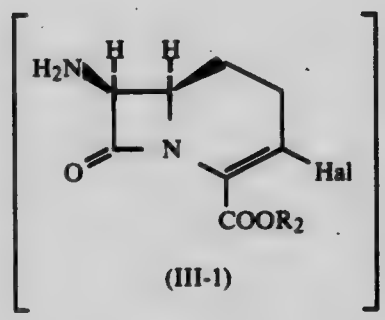


(ii)

(wherein R_1 and X have the same significance as defined above) or a reactive derivative thereof and an optically inactive dl compound represented by the formula (III)



(III)



(III-1)

(wherein R_2 and Hal have the same significance as defined above) in the presence of (1) a microorganism having an ability of producing optically active compounds of the cephalosporin analog represented by the formula (I), from the α,α-disubstituted carboxylic acid or reactive derivative thereof and the compound represented by the formula (III) and belonging to the genus Pseudomonas, Xanthomonas, Escherichia, Aeromonas, Achromobacter, Arthrobacter, Acetobacter, Alcaligenes, Kluyvera, Gluconobacter, Clostridium, Comamonas, Corynebacterium, Sarcina, Staphylococcus, Spirillum, Bacillus, Falvobacterium, Brevibacterium, Protaminobacter, Beneckea, Micrococcus, Proteus, Mycoplana or Rhodopseudomonas, (2) the culture broth of said microorganism, (3) matter recovered from the culture broth of said microorganism capable of causing the production of said optically active compounds or (4) an enzyme produced by said microorganism capable of causing the production of said optically active compounds.

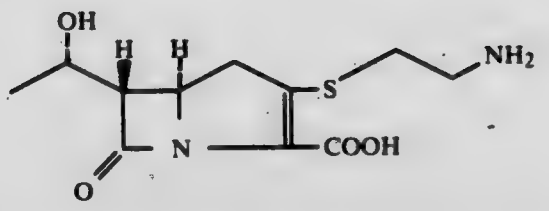
4,335,212

FERMENTATION PROCESS FOR (5R,6S,8S)-3-(2-AMINOETHYLTHIO)-6-(1-HYDROXYETHYL)-7-OXO-1-AZABICYCLO[3.2.0]HEPT-2-ENE-2-CARBOXYLIC ACID

Kenneth E. Wilson, Westfield, N.J., and August J. Kempf, Staten Island, N.Y., assignors to Merck & Co., Inc., Rahway, N.J.

Filed 1981, Ser. No. 274,702
Int. Cl.[3] C12P *17/18, 17/10*
U.S. Cl. 435—119 2 Claims

1. A process for preparing 8-epi-thienamycin having the structure:



which comprises cultivating a thienamycin-producing strain of *Streptomyces cattleya* in an aqueous nutrient medium containing assimilable sources of carbohydrate, nitrogen and inorganic salts under submerged aerobic conditions and recovering the 8-epi-thienamycin so produced in substantially pure form.

4,335,213

PROCESS FOR THE PREPARATION OF GALACTOSE OXIDASE

Osamu Terada, and Kazuo Aisaka, both of Machida, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 164,523
Claims priority, application Japan, 1979, 54-84407
Int. Cl.³ C12N *9/04*
U.S. Cl. 435—190 **6 Claims**

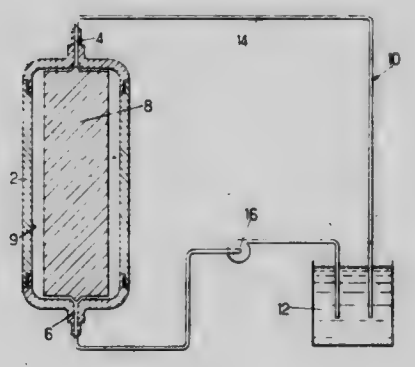
1. A process for producing galactose oxidase which comprises culturing a microorganism belonging to the species Gibberella fujikuroi or Gibberella zeae which is capable of producing said enzyme in a nutrient medium, until substantial enzymatic activity is detected in the culture liquor, and thereafter recovering said enzyme from the culture liquor.

4,335,214

PROCESS FOR PURIFYING PARTICLES OF BIOLOGICAL ORIGIN, PARTICULARLY THE SURFACE ANTIGEN OF THE VIRUS OF HEPATITIS B (AGHBS)

Philippe J. Adamowicz, Garches; Alberte Platel nee Bonnet, La Garenne Colombes, and Ludwig Muller, Plessis Robinson, all of France, assignors to Institut Pasteur, Paris, France

Filed 1980, Ser. No. 213,315
Claims priority, application France, 1979, 79 30135
Int. Cl.³ A61K *39/12*; C12K *7/00*
U.S. Cl. 435—239 **16 Claims**



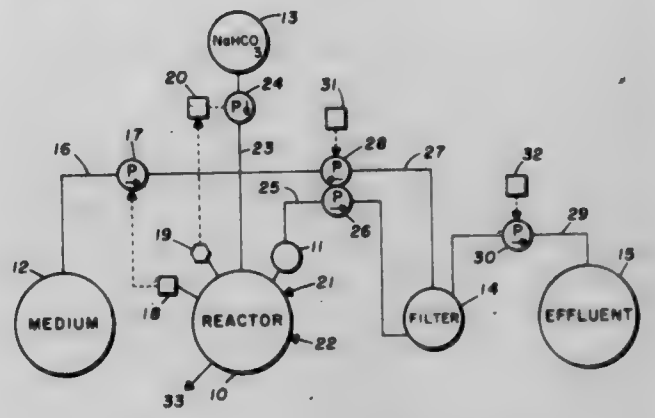
1. In a process for purifying or concentrating biological particles in a liquid composition containing said biological particles in a solution or suspension wherein said liquid composition is subjected to rate zonal banding by centrifugation in a gradient within a centrifuge, the improvement which comprises purifying said liquid composition by continuously circulating said liquid composition in a closed circuit into and out from the centrifuge, wherein said centrifuge is part of said closed circuit, the continuous circulation is carried out at the same time as the centrifugation is carried out and the rate and period of circulation are such that said liquid composition is recirculated through said centrifuge and part of the particles in said liquid composition is collected by the gradient at each passage.

4,335,215

METHOD OF GROWING ANCHORAGE-DEPENDENT CELLS

William R. Tolbert, Manchester; Mary M. Hitt, St. Louis; Joseph Feder, University City, and Richard C. Kimes, Creve Coeur, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed 1980, Ser. No. 181,582
Int. Cl.³ C12N *5/02*; C12M *3/02, 1/24*; C12P *1/00*
U.S. Cl. 435—241 **10 Claims**



1. In a method of growing anchorage-dependent cells in agitated microcarrier suspension culture, the improvement comprising aggregating the microcarriers and cells by periodically providing a temporary residence of said microcarriers and cells outside the main cell culture reactor agitation zone and in a separate compartment wherein they are subjected to a gentle tumbling action within a confined space having substantially the same environmental conditions as in said main cell culture reactor agitation zone and thereafter recycling said microcarriers and cells to said main cell culture reactor agitation zone.

4,335,216

LOW TEMPERATURE FIRED DIELECTRIC CERAMIC COMPOSITION AND METHOD OF MAKING SAME

Charles E. Hodgkins, Lewiston, and Mark J. Giermek, Tonawanda, both of N.Y., assignors to TAM Ceramics, Inc., Niagara Falls, N.Y.

Filed 1981, Ser. No. 259,520
Int. Cl.³ C04B *35/00, 35/46*
U.S. Cl. 501—32 **14 Claims**

1. A dielectric ceramic composition formed from about 92 to about 96.5 percent by weight of a base ceramic preparation which base ceramic preparation consists essentially of from about 72 to about 80 weight percent barium titanate, from about 6 to about 15 weight percent strontium titanate, from about 6 to about 15 weight percent barium zirconate, from about 0.4 to about 0.8 weight percent titanium dioxide, and from about 0.1 to about 0.4 weight percent manganese dioxide, wherein the combined weight percent of strontium titanate and barium zirconate is from about 20 to about 28 percent by weight; and from about 3.5 to about 8 percent by weight of a glass frit which consists essentially of from about 5 to about 10 weight percent zinc oxide, from about 5 to about 10 weight percent silicon dioxide, from about 9 to about 15 percent boron oxide, from about 35 to about 45 weight percent lead oxide, from about 15 to about 25 percent bismuth trioxide, and from about 10 to about 19 weight percent cadmium oxide.

4,335,217

SIC-Si_3N_4 COMPOSITE SYSTEM FOR SPECIAL HEAT-RESISTING CERAMIC MATERIALS AND ITS FABRICATION METHOD

Tokuaki Hatta; Haruyuki Ueno; Yuji Katsura; Kazushige Fukuda, and Hiroshi Kubota, all of Kitakyushu, Japan, assignors to Kurosaki Refractories Co., Ltd., Fukuoka, Japan

Filed 1980, Ser. No. 210,647

Claims priority, application Japan, 1979, 54-156032

Int. Cl.³ C04B *35/56, 35/58*

U.S. Cl. 501—92 **11 Claims**

1. An SiC-Si_3N_4 composite system for heat resistant materials, comprising crystals of β-SiC, α-Si_3N_4 and β-Si_3N_4, said α-Si_3N_4 and β-Si_3N_4 crystals being surrounded by said β-SiC crystals forming interwoven textures of β-SiC among said α-Si_3N_4 and β-Si_3N_4 crystals without chemical bonding to provide micro gaps between said β-SiC and said α-Si_3N_4 and β-Si_3N_4 crystals for absorption of thermal stresses.

4,335,218

PROCESS FOR THE PREPARATION OF A FOAM-CORED LAMINATE HAVING METAL FACERS AND RIGID POLYISOCYANURATE FOAM CORE PREPARED IN THE PRESENCE OF A DIPOLAR APROTIC ORGANIC SOLVENT

David T. DeGuiseppi, Hamden, Conn., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed 1980, Ser. No. 201,137

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—99 **6 Claims**

1. In a process for the preparation of a foam-cored laminate having metal facers and rigid polyisocyanurate foam as the core material the improvement which comprises lowering the cure temperature necessary to assure good adhesion between metal facer and foam core by incorporating, into the polyisocyanurate foam forming reaction mixture which is employed to prepare the foam core, a dipolar aprotic solvent in an amount from about 1 percent by weight to about 10 percent by weight based on total weight of the foam forming mixture.

4,335,219

PROCESS FOR REACTING ISOCYANATES IN THE PRESENCE OF QUATERNARY AMMONIUM ZWITTERIONS

Donald H. Clarke, Essexville; George J. Pomranky, and Donald L. Schmidt, both of Midland, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed 1981, Ser. No. 251,628

Int. Cl.³ C08G *18/18*

U.S. Cl. 521—128 **12 Claims**

1. A process for reacting an organic isocyanate with itself or another organic isocyanate which process comprises contacting an organic isocyanate or a mixture of organic isocyanates with an ar-ammonium zwitterion which is soluble in the isocyanate under conditions such that the ammonium zwitterion initiates the reaction of the isocyanate moieties of the organic isocyanate or mixture of organic isocyanates.

4,335,220

SEQUESTERING AGENTS AND COMPOSITIONS PRODUCED THEREFROM

Charles H. Coney, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed 1981, Ser. No. 251,646

Int. Cl.³ C08J *3/02*; C08L *35/02*

U.S. Cl. 523—414 **23 Claims**

1. Composition comprising an aqueous dissipation of a linear, water-dissipatable polymer having carbonyloxy linking groups in the linear molecular structure wherein up to 80% of the linking groups may be carbonylamido linking groups, the polymer having an inherent viscosity of at least about 0.1 measured in a 60/40 parts by weight solution of phenol/tetrachloroethane 25° C. and at a concentration of about 0.25 gram of polymer in 100 ml. of the solvent, the polymer containing substantially equimolar proportions of acid equivalents (100 mole percent), the polymer comprising the reaction products of (a), (b), (c) and (d) from the following components or ester forming or esteramide forming derivatives thereof;

(a) at least one difunctional dicarboxylic acid;

(b) from about 4 to about 25 mole percent, based on a total of all acid, hydroxyl and amino equivalents being equal to 200 mole percent, of at least one difunctional sulfomonomer containing at least one metal sulfonate group attached to an aromatic nucleus wherein the functional groups are hydroxy, carboxyl or amino;

(c) at least one difunctional reactants selected from a glycol or a mixture of a glycol and diamine having two —NRH groups, the glycol containing two —CH_2—OR groups of which at least 0.1 mole percent based on the total mole percent of hydroxy or hydroxy and amino equivalents, is a poly(ethylene glycol) having the structural formula:

$$H\text{—}(\text{—}OCH_2CH_2\text{—})\text{—}_nOH$$

n being an integer of between 2 and about 500; and

(d) from none to at least one difunctional reactant selected from a hydroxy-carboxylic acid having one —CR_2—OH, an aminocarboxylic acid having one —NRH group, an amino-alcohol having one

$$-CR_2OH$$

group and one —NRH or mixtures thereof, wherein each R is an H atom or an alkyl group of 1 to 4 carbon atoms, said composition further comprising a water insoluble, hydrophobic deformable organic substance sequestered therein which is not reactive with said polyester or polyesteramide, said organic substance being nonmiscible with water.

4,335,221

PREPARATION OF MIXTURES OF LINEAR THREE-BLOCK COPOLYMERS, AND MOLDINGS PRODUCED THEREFROM

Karl Gerberding, Wachenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed 1980, Ser. No. 185,531

Claims priority, application Fed. Rep. of Germany, 1979, 2940861

Int. Cl.³ C08F *257/02*

U.S. Cl. 525—89 **4 Claims**

1. A composition from a process for the preparation of a mixture of block copolymers which essentially contain from 70 to 80% by weight of a monovinyl-aromatic monomer and from 20 to 30% by weight of a conjugated diene, the mixture essentially containing the two linear three-block copolymers A^1-A^2-B→A^3 and A^2-B→A^3 where A^1, A^2 and A^3 are non-elastomeric polymer segments of different molecular weight or different structure, and are based on a monovinyl-aromatic compound, and B is an elastomeric polymer segment based on a conjugated diene of 4 to 8 carbon atoms, and the transitions between the polymer segments B and A^3 are gradual and the other transitions are all sharp, by effecting the following process stages in an inert solvent:

(a) in a first process stage, polymerizing 40 to 80% by weight of the total monovinyl-aromatic monomer(s) in the presence of an initial amount of a monolithium-hydrocarbon as the initiator, (Ia), until the monomer(s) has been substantially completely converted to A^1-Li, thereafter

(b) in a second process stage, adding the remaining amount of initiator, (Ib), the molar ratio of Ia:Ib being from 1:2 to 1:7, adding further a proportion of 15 to 30% by weight of the total monovinyl-aromatic monomer(s) to the solution, and continuing the polymerization until the monomer(s) has been substantially completely converted to a mixture of A^1-A^2-Li and A^2-Li, and finally

(c) in a third process stage, adding to the reaction solution a

mixture of from 10 to 30% by weight of the total amount of monovinyl-aromatic monomer(s) to be employed, and from 20 to 30% by weight of conjugated diene monomer, based on the total amount of all monomers to be employed, and after complete conversion of the monomers the mixture of the lithium-terminated block copolymers A^1-A^2-B→A^3-Li and A^2-B→A^3-Li is treated with protonactive compounds and the resulting mixture of block copolymers A^1-A^2-B→A^3 and A^2-B-A^3 is isolated by removing the solvent.

4,335,222

ADHESIVE SYSTEMS AND LAMINATES

Darrell A. Klemme, South Lyndeboro, N.H., assignor to USM Corporation, Farmington, Conn.

Filed 1980, Ser. No. 170,071
Int. Cl.³ C08L *63/00*
U.S. Cl. 523—454 **13 Claims**

1. A heat curable adhesive system comprising an adhesive composition and a curing agent for the composition, said adhesive composition comprising a dispersion of from about 10 to about 30 percent by weight of a polyester, from about 1 to about 6 percent by weight of a polyvinylchloride which comprises from about 25 to 100 percent by weight of a carboxylated polyvinylchloride and from about 1 to about 6 percent by weight of a polyepoxide, said polyester being the product of a reaction between a combination of diols, a combination of phthalic acids and, a combination of phthalic acid anhydrides where:

a. the combination of diols represents from about 30 to about 50 percent by weight of the reactants and consists essentially of 1,4 butane diol and neopentyl glycol and the neopentyl glycol represents from about 55 to about 85 percent by weight of the combination of diols,

b. the combination of phthalic acids represents from about 40 to about 60 percent by weight of the reactants and consists essentially of isophthalic acid and terephthalic acid and the isophthalic acid represents from about 40 to about 80 percent by weight of the phthalic acid combination and,

c. the combination of phthalic acid anhydrides represents from about 5 to about 15 percent by weight of the reactants and consists essentially of hexahydrophthalic anhydride and trimellitic anhydride and the hexahydrophthalic anhydride represents from about 55 to about 95 percent by weight of the phthalic acid anhydride combination and,

a curing agent dispersible in said adhesive composition and capable of initiating cure of said adhesive composition.

4,335,223

HIGH IMPACT MOLDING COMPOSITIONS

Paul W. Flood, Lake Hopatcong; Charles D. Mason, Chatham Township, Morris County, and Stephen R. Schulze, West Caldwell, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 46,536, Jun. 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 914,705, Jun. 12, 1978, abandoned. This application 1980, Ser. No. 209,182
Int. Cl.³ C08L *77/00*
U.S. Cl. 525—179 **32 Claims**

1. A melt-blended polyamide composition comprising:

from 60 to 98 percent by weight of the composition of a polyamide selected from the group consisting of polyhexamethyleneadipamide, polyepsiloncaprolactam, and a mixture of polyhexamethyleneadipamide and polyepsiloncaprolactam,

an acid copolymer of an α-olefin having 2 to 5 carbons, with 1 to 20 mol percent of an unsaturated carboxylic acid having 3 to 8 carbons;

an ester copolymer of an α-olefin having 2 to 5 carbons, with 1 to 20 mol percent of an alkyl ester of an unsaturated carboxylic acid having 3 to 8 carbons and the alkyl group having 1 to 4 carbon atoms, the weight proportions between the acid copolymer and ester copolymer being from 1 part of acid copolymer to 10 parts of ester copolymer up to 30 parts acid copolymer to 1 part ester copolymer;

from about 0.05 to 1.0 percent by weight based on the weight of the composition of a metal oxide having the cation of a metal selected from group IA, IB, IIA, IIB, IIIA, IVA, VA, VIB, VIIB, and VIIIB of the Periodic Table of the Elements, wherein the notched Izod impact resistance of the composition is higher than for a like composition not containing the metal oxide, the composition being blended under conditions wherein the metal compound remains substantially unreacted with the copolymer acid.

4,335,224

POLYMER COMPOSITIONS COMPRISING ETHYLENE POLYMER BLENDS

Kazuo Matsuura, Tokyo; Noboru Yamaoka; Sinichi Yanahashi, both of Yokohama; Katumi Usui, Yokosuka, and Mituji Miyoshi, Kanagawa, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Filed 1981, Ser. No. 239,555
Claims priority, application Japan, 1980, 55/24136
Int. Cl.³ C08L *23/06, 23/08*
U.S. Cl. 525—240 **6 Claims**

1. A polymer composition having a melt index of 0.01 to 5.0 and a density of 0.880 to 0.940, said polymer composition comprising a blend of:

(1) 45 to 70 parts by weight of an ethylene/α-olefin copolymer having an intrinsic viscosity determined in decalin at 135° C. of 2.0 to 10 dl/g and a density of 0.850 to 0.905 which copolymer is obtained by copolymerizing ethylene with an α-olefin having 3 to 12 carbon atoms in a substantially solvent-free vapor phase condition and in the presence of a catalyst comprising a solid substance and an organoaluminum compound, said solid substance containing magnesium and titanium and/or vanadium, and

(2) 55 to 30 parts by weight of an ethylene polymer having an intrinsic viscosity determined in decalin at 135° C. of not higher than 1.7 dl/g and a density not less than 0.950.

4,335,225

ELASTOMERIC POLYPROPYLENE

John W. Collette, Wilmington, Del., and Charles W. Tullock, Landenburg, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 917,282, Jun. 20, 1978, abandoned, which is a continuation-in-part of Ser. No. 814,878, Jul. 12, 1977, abandoned. This application 1981, Ser. No. 240,138
Int. Cl.³ C08F *10/06*
U.S. Cl. 525—240 **15 Claims**

1. As a new product, a fractionable elastic polymer consisting essentially of units derived from propylene which has an inherent viscosity of 1.5–9, a major melting point between about 135°–155° C., exhibits no yield point, has a tensile set not exceeding 150% and contains 10–80% by weight of a diethyl ether-soluble fraction which has an inherent viscosity exceeding 1.50, said diethyl ether-soluble fraction having an isotactic crystalline content of about 0.5% to about 5% by weight and exhibiting birefringence when a film formed from said fraction is viewed under crossed Nicol prisms in a polarizing microscope at about 25° C.

7. A polymer consisting essentially of a blend of about 5–95 parts by weight of the polymer of claim 1 and about 95–5 parts by weight of highly isotactic polypropylene.

4,335,226

ADSORBENT FOR THE AFFINITY-SPECIFIC SEPARATION OF MACROMOLECULAR MATERIALS

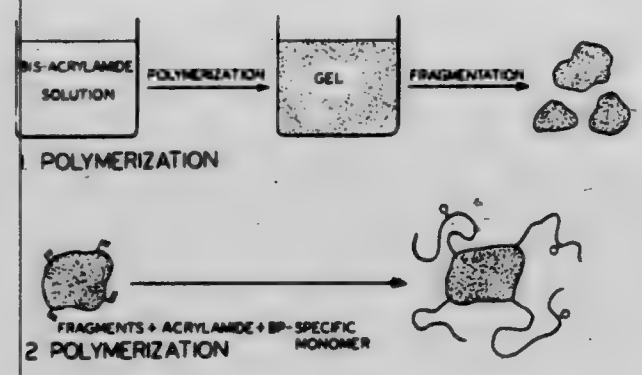
Werner Müller, Bielefeld and Hans Bünemann, Steinhagen, both of Fed. Rep. of Germany, assignors to Boehringer, Mannheim-Waldhof, Fed. Rep. of Germany

Filed 1978, Ser. No. 880,914

Claims priority, application Fed. Rep. of Germany, 1977, 2709094

Int. Cl.³ C08F *279/00*

U.S. Cl. 525—281 **13 Claims**



1. Adsorbent for the affinity-specific separation of nucleic acids, comprising a polymeric carrier material onto which an affine residue group, consisting of a base and/or structure specific complex former for nucleic acids, is covalently bound.

13. Adsorbent as claimed in claim 1 wherein the affine residue group carrying a free double bond is covalently bound to the polymeric carrier material in the presence of acrylamide by copolymerization via the free double bond of the poly-bisacrylamide.

4,335,227

RUBBER COMPOSITIONS AND METHOD OF VULCANIZING SAME IN ULTRAHIGH-FREQUENCY FIELD

Ruediger F. Bender, Marl, Fed. Rep. of Germany, and Gerardus J. van Veersen, Gouda, Netherlands, assignors to Emery Industries, Inc., Cincinnati, Ohio

Filed 1980, Ser. No. 172,349

Claims priority, application Netherlands, 1979, 7905944

Int. Cl.³ C08J *3/28*

U.S. Cl. 525—333 **13 Claims**

1. A rubber composition capable of being vulcanized in an ultrahigh-frequency field comprising a non-polar synthetic rubber selected from the group consisting of styrene-butadiene rubber and polyolefin rubber, conventional vulcanizing agents and additives and 0.1 to 100 phr of an organic nitrile selected from heptyl cyanide, octyl cyanide, pelargonic nitrile, 2-phenylpropyl nitrile, naphthonitrile, stearyl nitrile, adipic dinitrile, azelaic dinitrile, and nitriles of monomer and polymer fatty acids.

4,335,228

ISOCYANATE BLOCKED IMIDAZOLES AND IMIDAZOLINES FOR EPOXY POWDER COATING

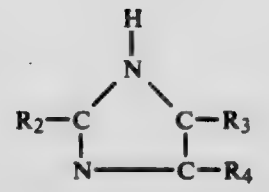
Burton D. Beitchman, Springfield, and Philip J. Zaluska, Schnecksville, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed 1978, Ser. No. 881,339

Int. Cl.³ C08G *18/58, 59/40*

U.S. Cl. 525—528 **16 Claims**

1. In a process for curing a finely divided 1-2 epoxy resin having a lower softening point of not less than 40° C. by heating said epoxy resin to an elevated temperature in the presence of a catalyst, the improvement which comprises heating said epoxy resin in the presence of a blocked adduct formed by reacting a polyisocyanate with a secondary amine represented by the formula:



wherein

R_2 is hydrogen, hydrocarbyl, or inertly-substituted hydrocarbyl; and

R_3 and R_4 are each independently hydrogen, hydrocarbyl or inertly-substituted hydrocarbyl provided that R_3 and R_4 are not fused into an aromatic ring.

4,335,229

PROCESS FOR POLYMERIZING AN α-OLEFIN

Hisaya Sakurai; Yoshihiko Katayama; Tadashi Ikegami, and Masayasu Furusato, all of Kurashiki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed 1980, Ser. No. 177,546

Claims priority, application Japan, 1979, 54-123015; 1979, 54-124912

Int. Cl.³ C08F *4/64, 10/00*

U.S. Cl. 526—122 **40 Claims**

1. A process for polymerizing an α-olefin comprising contacting the olefin in liquid phase at a temperature of about 120° to 320° C. with a catalyst comprising a component (A) and an organometal component (B), the component (A) being produced by reacting a hydrocarbon-soluble organomagnesium component (i) of the formula,

$$M_\alpha MgR_p^1R_q^2X_r^1X_s^2D_t$$

wherein

α, p, q, r and s each independently is 0 or a number greater than 0,

t is about 0.05 to about 10,

$p+q+r+s=m\alpha+2$,

$0 \leqq (r+s)/(\alpha+\beta) < 2$,

m is the valence of M,

M is a metal of the 1st to 3rd groups of the Periodic Table,

R^1 and R^2 each independently is a hydrocarbon group having 1 to 20 carbon atoms,

X^1 and X^2 each independently is a hydrogen atom, a halogen atom or an organic electronegative group containing 0, N or S,

D is an electron donor,

with (ii) a halide boron, silicon, germanium, tin, phosphorus, antimony, bismuth or zinc, and contacting the product of (i)+(ii) in an inert reaction solvent with (iii) a compound of tetravalent titanium and/or a compound of pentavalent or tetravalent vanadium at a concentration of titanium plus vanadium of at most about 2 mols per liter of the inert reaction solvent, the atomic ratio of Mg/(Ti+V) in (A) being about 3 to about 500.

4,335,230

NOVEL COMPOSITIONS COMPRISING ASYMMETRICAL PEROXYDICARBONATES AND METHODS FOR THEIR USE

James R. Kolczynski, Clarence Center, and Gerald A. Schultz, Lockport, both of N.Y., assignors to Akzona Incorporated, Asheville, N.C.

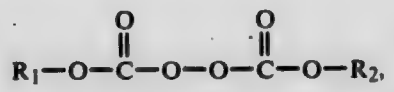
Division of Ser. No. 107,999, Dec. 26, 1979, Pat. No. 4,269,726. This application 1980, Ser. No. 212,941

Int. Cl.³ C08F *4/38*

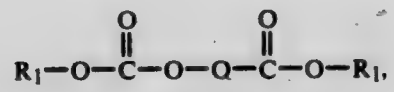
U.S. Cl. 526—228 **4 Claims**

1. A method for polymerizing ethylenically unsaturated monomers, or a mixture of said monomers, comprising contacting said monomers or mixture under free-radical initiating conditions with an effective amount of a composition compris-

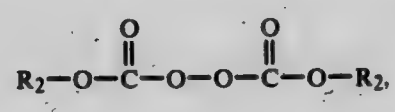
ing from about 25 to about 70 molar percent of an asymmetrical peroxydicarbonate of the formula



from about 15 to about 45 molar percent of a first symmetrical peroxydicarbonate of the formula



and from about 15 to about 45 molar percent of a second symmetrical peroxydicarbonate of the formula



wherein R_1 is isopropyl and R_2 is sec-butyl.

4,335,231

SULFUR CURABLE MILLABLE POLYURETHANE GUM

Ajaib Singh, Shelton, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Filed 1981, Ser. No. 251,007
Int. Cl.³ C08G *18/67*
U.S. Cl. 528—49 **8 Claims**

1. A sulfur curable polyurethane millable elastomeric gum comprising a reaction product of

(a) a polyester or polyether glycol having a melting point not greater than 75° C.

(b) a diisocyanate

(c) a diamine

(d) an unsaturated glycol selected from glyceryl-alpha-allyl ether, monoallyl ether of trimethylolpropane, 1,1-dihydroxymethylcyclohex-3-ene and 1,2-dihydroxymethylcyclohex-4-ene.

(e) optionally a monohydric alcohol having 2 to 20 carbon atoms.

(f) a catalyst effective to accelerate the reaction between (a) (b) and (c) wherein the equivalent ratio of (b) to combined (a), (c), (d) and (e) is from 0.9 to 1.2, the equivalent ratio of (c) to (a) is from 0.05 to 0.4, the equivalent ratio of (d) to (a) is from 0.2 to 1.0 and the equivalent ratio of (e) to (a) is from 0–0.2, and (f) is present in an effective amount.

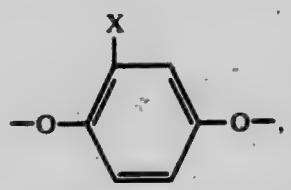
4,335,232

OPTICALLY ANISOTROPIC MELT FORMING POLYESTERS

Robert S. Irwin, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

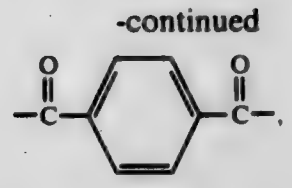
Filed 1981, Ser. No. 281,200
Int. Cl.³ C08G *63/02, 63/18*
U.S. Cl. 528—128 **9 Claims**

1. Fiber-forming melt-spinnable copolyesters that exhibit optical anisotropy in the melt consisting essentially of Units I, II, IIIA or IIIB having the structural formulas:

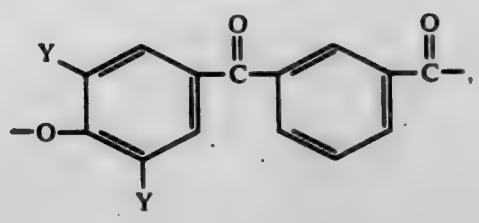


I

-continued

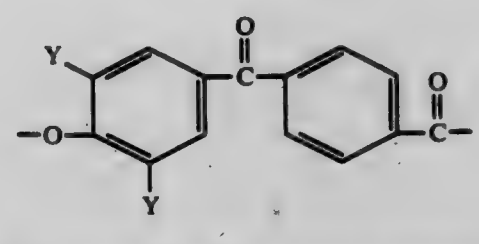


II



IIIA

or



IIIB

where X is selected from the group consisting of hydrogen, halo or lower alkyl, Y is selected from the group consisting of hydrogen, chloro- and methyl, and wherein said polyesters comprise from about 25 to 45 mole % of Unit I, from about 25 to 45 mole % of Unit II and from about 10 to 50 mole % of Unit IIIA or IIIB, the number of dioxy units in the polyester being substantially equal to the number of dicarbonyl units.

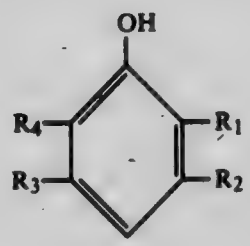
4,335,233

POLYPHENYLENE ETHER COPOLYMERS

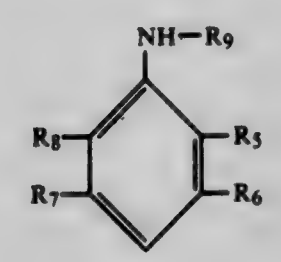
Akiyoshi Somemiya, Akashi; Shunitsu Miyashita, and Masaaki Azuma, both of Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed 1981, Ser. No. 249,996
Claims priority, application Japan, 1980, 55/42171
Int. Cl.³ C08G *65/44*
U.S. Cl. 528—211 **5 Claims**

1. A polyphenylene ether copolymer produced by oxidative coupling of 60 to 99.9 mol % of a phenol represented by formula (1) hereinbelow, and 0.1 to 40 mol % of an aniline represented by formula (2) hereinbelow:



(1)



(2)

wherein R_1 to R_8 each represents hydrogen, a hydrocarbon group or a substituted hydrocarbon group, and R_9 represents a hydrocarbon or substituted hydrocarbon group.

4,335,234

USE OF MANGANESE CHELATE TO OXIDATIVELY COUPLE PHENOLIC COMPOUND IN A SELF-PRECIPITATING SYSTEM

Walter K. Olander, Mt. Vernon, Ind., and Otto S. Zamek, Schenectady, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed 1979, Ser. No. 89,999
Int. Cl.³ C08G *65/44*
U.S. Cl. 528—214 **17 Claims**

1. In a process for the preparation of a polyphenylene ether resin which comprises the steps of

oxidatively coupling a phenolic monomer to form a polyphenylene oxide in the presence of a self-precipitating solvent comprising an aromatic hydrocarbon and an alcohol and a manganese chelate complex of the formula

$(L)_xMn$

wherein L is a ligand derived from an ω-hydroxyoxime, Mn is the transition metal manganese and x is at least equal to about 0.5, the improvement which comprises using as the alcohol component of said solvent a substantially water-immiscible alkanol of from about 4 to about 10 carbon atoms.

4,335,235

CRYSTALLINE CO-POLYBENZYLS PREPARATION

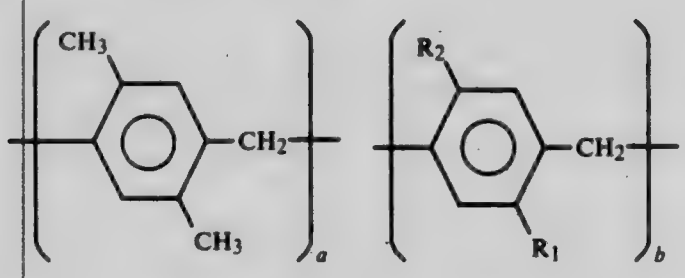
John E. Chandler, Stamford, Conn., and Robert W. Lenz, Amherst, Mass., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 25,225, Mar. 29, 1979, Pat. No. 4,255,562. This application 1980, Ser. No. 198,402

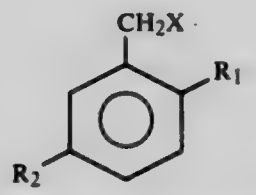
Int. Cl.³ C08G *61/02*

U.S. Cl. 528—397 **1 Claim**

1. A process of preparing crystalline polybenzyls represented by the structural formula:



wherein R_1 and R_2 are the same or different C_1–C_6 alkyl groups, when one of R_1 or R_2 is methyl the other of R_1 and R_2 is a C_2–C_6 alkyl group, a is 98.9% to about 82 mol percent, b is 1.1 to about 18 mol percent, comprising copolymerizing 2,5-dimethylbenzyl halide with a benzyl halide represented by the structural formula:



wherein R_1 and R_2 are as above and X is a halogen atom, in the presence of a catalyst comprising an alkylaluminum compound and a transition metal halide selected from the group consisting of titanium halides and oxyhalides and vanadium halides and oxyhalides, the molar ratio of alkylaluminum compound to transition metal halide not exceeding 1.

4,335,236

α-D-GALACTURONIDE DERIVATIVES

Shinji Tsuyumu, and Keiichi Ota, both of Shizuoka, Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Japan

PCT No. PCT/JP79/00155, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00082, PCT Pub. Date 1980

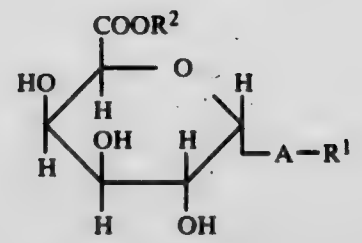
PCT Filed 1979, Ser. No. 192,513

Claims priority, application Japan, 1978, 53/74093; 1978, 53/74094; 1978, 53/86071; 1978, 53/86072

Int. Cl.³ C07H *15/04, 5/10*

U.S. Cl. 536—18.2 **1 Claim**

1. An α-D-galacturonide derivative represented by the formula



wherein R^1 is alkyl having 1 to 8 carbon atoms, alkenyl having 2 to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms, phenyl, P-nitrophenyl, O-nitrophenyl, naphthyl, furyl, thienyl, pyrol, pyridyl, α-pyranyl and 4-methyl-umbellifenyl, R^2 is a hydrogen atom or methyl, A is an oxygen atom or sulfur atom with the proviso that when R^1 is alkyl having 1 to 8 carbon atoms, A is a sulfur atom, and the hydroxyl attached to the carbon atom at the 4-position of the galacturonide skeleton and the hydrogen atom attached to the carbon atom at the 5-position may be eliminated to form a double bond between the carbon atoms at the 4- and 5-positions.

4,335,237

ADIABATIC POLYMERIZATION OF ACRYLAMIDE IN THE PRESENCE OF SODIUM SULFATE DECAHYDRATE

Edward G. Ballweber, Glenwood, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

Filed 1980, Ser. No. 173,108

Int. Cl.³ C08F *2/00, 20/56*

U.S. Cl. 526—234 **2 Claims**

1. In a process of preparing acrylamide polymers by a polymerization reaction which occurs exothermically, the improvement which comprises mixing acrylamide monomer with sodium sulfate decahydrate and effecting the polymerization reaction at a temperature such that said sodium sulfate decahydrate is heated to its melting point, the amount of sodium sulfate decahydrate being sufficient to counterbalance the major part of the exothermic heat of reaction.

4,335,238

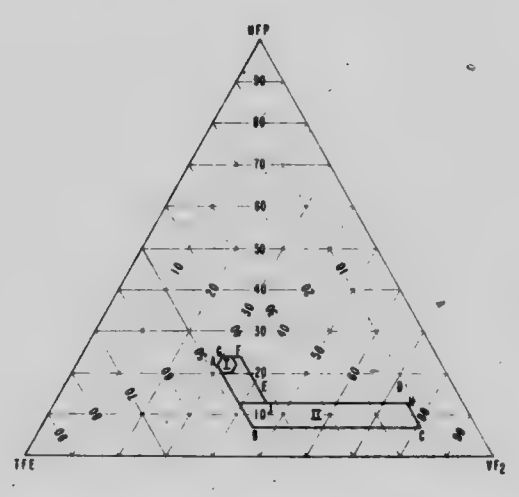
FLUOROPOLYMER HEXAFLUOROPROPENE, TETRAFLUORETHENE AND 1,1-DIFLUOROETHENE

Albert L. Moore; Clare A. Stewart, Jr., and Isadore Swerlick, all of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 193,375

Int. Cl.³ C08F *214/28*

U.S. Cl. 526—254 **3 Claims**



1. A terpolymer consisting of 12 to 48% by weight of polymerized tetrafluoroethylene units, 7 to 24% by weight of polymerized hexafluoropropylene units and 30 to 81% by weight of polymerized vinylidene fluoride units, provided that when the content of tetrafluoroethylene units is less than 42% by weight,

the content of hexafluoropropylene units is less than 13% by weight.

4,335,239

POLYRIBONUCLEOTIDES CAPABLE OF PROMOTING THE GENESIS OF LEUCOCYTES AND BLOOD PLATELETS

Mirko Beljanski, 46 Bd de Port Royal, Paris, France (75005)

Division of Ser. No. 800,435, May 25, 1977, Pat. No. 4,190,649.
This application 1979, Ser. No. 54,960
Claims priority, application France, 1976, 76 16875
Int. Cl.³ C07H *21/02*
U.S. Cl. 536—27 **2 Claims**

1. A process for the preparation of single-stranded chain polyribonucleotides having 20 to 80 ribonucleotide units and in which the sequence units G-A predominate, the overall ratio of purine bases to pyrimidine bases (G+A)/(C+U) in said polyribonucleotides being between 1.0 and 2.5, comprising the steps of: extracting ribosomic ribonucleic acids from a microorganism having a ratio (G+A)/(C+U) from 1.0 to 2.5, degrading said ribonucleic acid extract by mixing it with a sodium or potassium hydroxide solution at a molar concentration of 0.1 N, incubating the resulting reaction mixture for 30 minutes at 36° C., immediately neutralizing said mixture with an equal volume of 0.1 N hydrochloric acid, dialysing the solution obtained against distilled water for about 16 hours, collecting the non-dialysable fraction, and lyophilising said fraction.

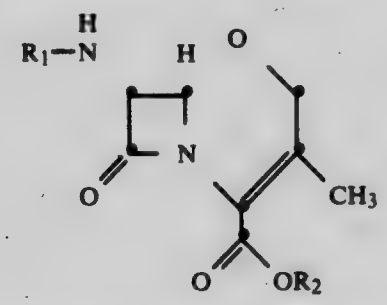
4,335,240

PROCESS FOR CYCLIZATION

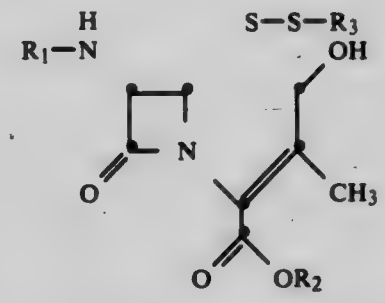
Stjepan Kukolja, Carmel, and Janice L. Pfeil, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 137,862, Apr. 7, 1980, Pat. No. 4,293,493.
This application 1981, Ser. No. 264,263
Int. Cl.³ C07D *498/02*
U.S. Cl. 544—90 **26 Claims**

1. The process for preparing a 7α-acylamino-3-methyl 1-oxa β-lactam compound of the formula



which comprises reacting a compound of the formula

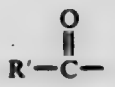


with a cyclization reagent selected from the group consisting of

(a) a divalent mercury compound of the formula $Hg(X)_2$ wherein X is chloro, bromo or trifluoroacetato; and

(b) a phosphine compound of the formula $(R_5)_3P$ wherein each R_5 is independently C_1 to C_7 alkyl, phenyl or phenyl substituted with C_1 to C_4 alkyl or C_1 to C_4 alkoxy, in an inert organic solvent with between about 1 to about 5 moles of said cyclizing reagent per mole of said azetidinone alcohol disulfide compound;

wherein the above formulae R_1 is an acyl group of the formula



wherein R′ is

(a) C_1-C_7 alkyl, cyanomethyl, C_1-C_6 haloalkyl, 4-protected amino-4-protected carboxybutyl; or

(b) C_1-C_6 alkoxy, phenoxy, benzyloxy or 4-methoxybenzyloxy; or

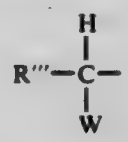
(c) the group —R″ wherein R″ is phenyl, or substituted phenyl wherein the substituents are 1 or 2 halogens, protected hydroxy, cyano, trifluoromethyl, C_1-C_4 alkyl, C_1-C_4 alkoxy, protected carboxy, protected carboxymethyl, protected hydroxymethyl or protected aminomethyl; or

(d) an arylalkyl group of the formula

$$R''—(O)_m—CH_2$$

wherein m is 0 or 1; or

(e) a substituted arylalkyl group of the formula



wherein R‴ is R″ as defined above; 2-thienyl, 3-thienyl, 2-furyl or 3-furyl; W is protected hydroxy, protected carboxy, protected amino, or

(f) a heteroarylmethyl group of the formula

$$R''''—CH_2—$$

wherein R‴′ is 2-thienyl, 3-thienyl, 2-furyl, 3-furyl, 2-thiazolyl, 5-tetrazolyl, 1-tetrazolyl;

R_2 is a carboxy protecting group and R_3 is another identically substituted substituted azetidinone alcohol moiety bonded to the opposite end of the disulfide group, or is phenyl or a mono-substituted phenyl, where the substituents are chloro, methoxy, methyl or acetoxy.

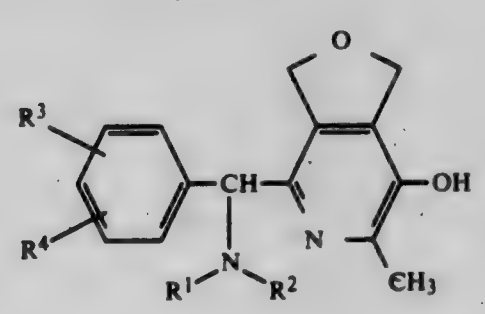
4,335,241

4-α-AMINO-ARYLMETHYL-6-METHYL-1,3-DIHYDRO-FURO[3,4-C]PYRIDIN-7-OLS

Walter Boell, Dannstadt-Schauernheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed 1981, Ser. No. 236,904
Claims priority, application Fed. Rep. of Germany, 1980, 3008522
Int. Cl.³ C07D *491/048*
U.S. Cl. 544—127 **1 Claim**

1. A 4-α-amino-arylmethyl-6-methyl-1,3-dihydrofuro[3,4-c]pyridin-7-ol of the formula I



(I)

where

R^1 and R^2 together are selected from the group consisting of piperidine, 3-methylpiperidine, 4-methylpiperidine, morpholine, 3-methylmorpholine, piperazine, N-methyl-pip-

erazine, hexamethyleneimine, pyrrolidine, 3-methylpyrrolidine, 1,3-propyleneimine and ethyleneimine, and
R^3 and R^4 are hydrogen, hydroxyl, C_{1-3}-alkyl, C_{1-3}-alkoxy or halogen.

4,335,242

TRIAZINE DERIVATIVES

Hartmut Wiezer, Gersthofen, and Gerhard Pfahler, Augsburg, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

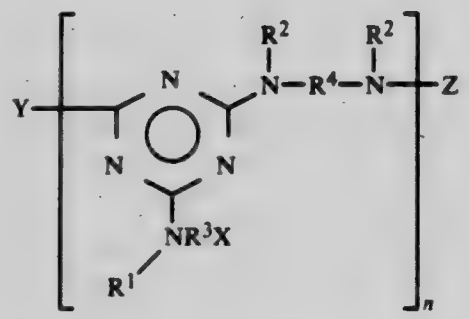
Filed 1980, Ser. No. 177,861

Claims priority, application Fed. Rep. of Germany, 1979, 2933078

Int. Cl.³ C07D *251/50, 251/70*

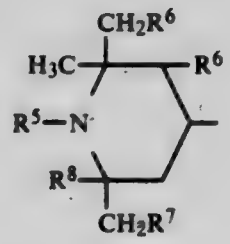
U.S. Cl. 544—198 **2 Claims**

1. Triazine compounds of the formula (I)



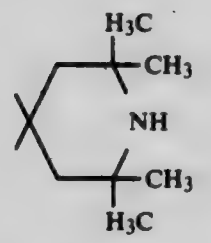
(I)

in which
n is a number of from 1 to 20, preferably 3 to 10;
R^1 means hydrogen or a group of the formula (II)

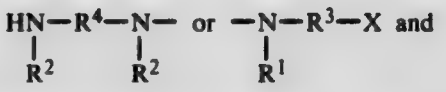


(II)

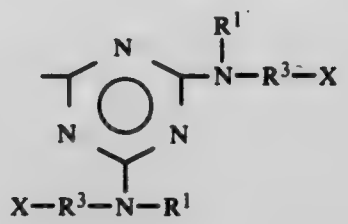
wherein
R^5 is hydrogen or C_1–C_{18}-alkyl,
R^6 and R^7 either are identical and represent hydrogen or a C_1–C_5-alkyl group,
in which case
R^8 is a methyl group, or
R^6 is hydrogen or C_1–C_5-alkyl; and
R^7 and R^8 together with the carbon atoms, to which they are bound, form a C_5- or C_6-cycloalkyl ring or a group of the formula



R^2 is hydrogen, C_1–C_{12}-alkyl or a group of the formula (II), with the proviso that at least one of the radicals R^1 and R^2 must be a group of the formula (II);
X means a hydroxyl group or a group of the formulae $-OR^9$ or $-N(R^{10})_2$;
R^9 standing for a C_1–C_{18}-alkyl group and
R^{10} for a methyl or ethyl group;
R^3 is an alkylene group with from 2 to 4 carbon atoms in the chain, and
R^4 means an alkylene group with from 2 to 18 carbon atoms, a dimethylene cyclohexane, a phenylene or a C_7–C_{13}-aralkylene group;
Y is preferably halogen or a group of the formulae



Z stands preferably for hydrogen or the group



4,335,243

OXIMES OF 11-(3-OXOOCTYL)-HEXAHYDRO-2,6-METHANO-3-BENZAZOCINES

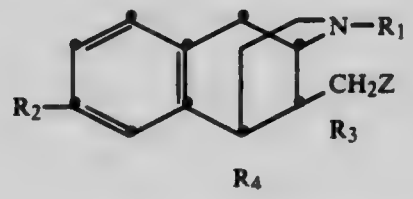
William F. Michne, Poestenkill, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 147,084, May 7, 1980, Pat. No. 4,296,238, which is a division of Ser. No. 9,594, Feb. 5, 1979, Pat. No. 4,255,579, which is a continuation-in-part of Ser. No. 877,166, Feb. 13, 1978, Pat. No. 4,180,667, which is a continuation-in-part of Ser. No. 741,227, Nov. 12, 1976, Pat. No. 4,100,164, which is a continuation-in-part of Ser. No. 695,977, Jun. 14, 1976, abandoned, which is a continuation-in-part of Ser. No. 576,313, May 12, 1976, which is a continuation-in-part of Ser. No. 471,571, May 20, 1974, Pat. No. 3,932,422. This application 1981, Ser. No. 243,031

Int. Cl.³ C07D *221/26*

U.S. Cl. 546—97 **4 Claims**

1. A compound having the formula



where R_1, R_3 and R_4 are each lower-alkyl; R_2 is hydrogen or hydroxy; and Z is the oxime or O-carboxymethyloxime (=$NOCH_2COOH$) of a compound where Z is CH_2COR_5, where R_5 is lower-alkyl; or an acid-addition salt thereof.

4,335,244

MONOLACTATE SALTS OF 4'-(9-ACRIDINYLAMINO)METHANESULFON-M-ANISIDIDE

Murray A. Kaplan, Syracuse, and Alphonse P. Granatek, Baldwinsville, both of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Continuation-in-part of Ser. No. 99,163, Nov. 30, 1979, abandoned. This application 1980, Ser. No. 150,401

Int. Cl.³ C07D *219/10;* A61K *31/47*

U.S. Cl. 546—106 **7 Claims**

1. The crystalline mono L(+)-lactate hemiacetonate of m-AMSA.

4. A stable, solid, water-soluble pharmaceutical dosage form for reconstitution with water or aqueous vehicle as a stable solution of m-AMSA, said dosage form being prepared by the steps of
(1) forming an aqueous solution of crystalline L(+)-monolactate hemiacetonate of m-AMSA, crystalline m-AMSA DL-monolactate acetone solvate containing from

about 0.6 to 0.7 moles of acetone per mole of lactate salt or crystalline m-AMSA D(−)-monolactate hemiacetonate; and

(2) lyophilizing the so-produced aqueous solution.

4,335,245

PROCESS FOR PREPARING CERTAIN PYRIDINE 2,3,6-TRIONES

William E. Long, Brentwood, England, assignor to Ciba-Geigy AG, Basel, Switzerland

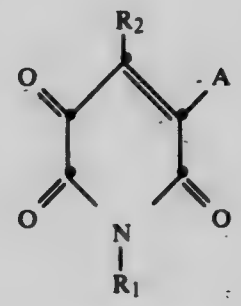
Division of Ser. No. 123,867, Feb. 22, 1980, Pat. No. 4,288,598. This application 1981, Ser. No. 238,346

Claims priority, application United Kingdom, 1979, 7910539

Int. Cl.³ C07D *213/56, 213/57*

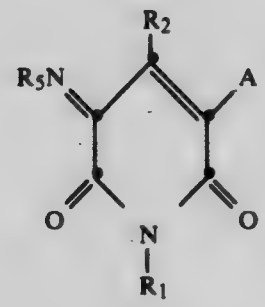
U.S. Cl. 546—288 **6 Claims**

1. A process for the preparation of a compound of the formula



(1)

which comprises hydrolysing, using aqueous acid, an azomethine compound of the formula



(7)

wherein R_5 is a N,N-dimethylaniline residue, A is cyano or carboxamide, and R_1 and R_2 are hydrogen, alkyl of 1 to 6 carbon atoms, alkyl substituted by hydroxy, halogen or alkoxy of 1 to 4 carbon atoms, phenyl or phenyl substituted by hydroxy, halogen, alkyl or alkoxy of each 1 to 4 carbon atoms.

4,335,246

SUBSTITUTED ARYLAMINE INTERMEDIATES FOR DYES

Francesco De Feo, Milan; Giovanni Burei, Seregno, and Roberto Cipolli, Novara, all of Italy, assignors to Aziende Colori Nazionali Affini ACNA S.p.A., Milan, Italy

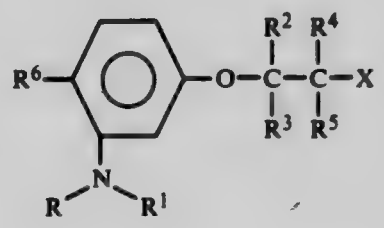
Division of Ser. No. 934,676, Aug. 18, 1978, abandoned. This application 1979, Ser. No. 78,378

Claims priority, application Italy, 1977, 26872 A/77

Int. Cl.³ C07D *213/74;* C07C *125/065, 143/78*

U.S. Cl. 546—309 **11 Claims**

1. A compound having the formula



wherein:

R and R^1, either like or unlike each other, may be H; or alkyl C_1-C_4;

R^2 is H; or alkyl C_1-C_{18};

R_3, R_4 and R_5 are H;

R^6 is H; halogen; alkyl C_1-C_4; or alkoxy C_1-C_4; and

X is OCOHN alkyl C_1-C_4; OCOHN halogen alkyl C_1-C_4; OCOHN phenyl optionally substituted by one or more of the following groups: halogen, alkyl C_1-C_4, alkoxyl C_1-C_4, SO_3H, COOH, SO_2NH_2, and SO_2NH acyl; or —OCON(C_1-C_4 alkyl)$_2$.

4,335,247

NOVEL NITROSOUREA DERIVATIVES AND PROCESS FOR THEIR PRODUCTION

Kichitaro Takatori, Nagoya; Takashi Yamaguchi, Urawa, and Masahiko Nagakura, Sayama, all of Japan, assignors to Kowa Co., Ltd., Nagoya, Japan

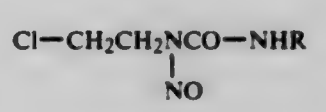
Filed 1981, Ser. No. 237,273

Claims priority, application Japan, 1980, 55-24491

Int. Cl.³ C07C *127/1*

U.S. Cl. 548—140 **2 Claims**

1. A nitrosourea derivative represented by the formula,



wherein —NHR represents a 2-(1,3,4-thiadiazolyl)amino group; an amino residue of a neutral α-amino acid, or an amino residue of a neutral α-amino acid whoe carboxyl group is amidated with 2-(1,3,4-thiadiazolyl)amine, or a pharmaceutically acceptable acid addition salt thereof.

4,335,248

FLUORINATED POLYENES

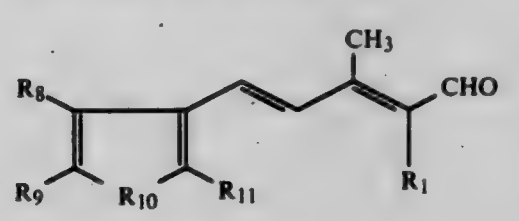
Ka-Kong Chan, Hopatcong, and Beverly A. Pawson, Verona, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 149,389, May 13, 1980, Pat. No. 4,299,995, which is a division of Ser. No. 37,803, May 10, 1979, Pat. No. 4,231,944, which is a division of Ser. No. 936,466, Aug. 24, 1978, Pat. No. 4,171,318, which is a continuation-in-part of Ser. No. 809,738, Jun. 24, 1977, Pat. No. 4,137,246, which is a continuation-in-part of Ser. No. 722,939, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 632,028, Nov. 14, 1975, abandoned. This application 1981, Ser. No. 278,224

Int. Cl.³ C07D *333/16, 307/12;* A61K *31/38, 31/34*

U.S. Cl. 549—78 **6 Claims**

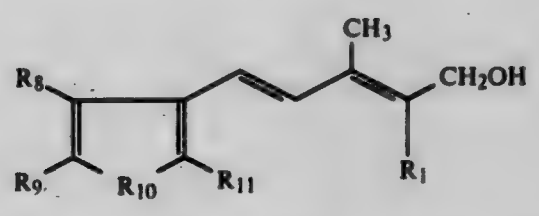
1. A compound of the formula:



XXXII

wherein R_1 is fluorine; R_8 and R_{11} each are lower alkyl; R_9 is hydrogen or lower alkyl; and R_{10} is oxygen or sulphur.

4. A compound of the formula:



XXXIII

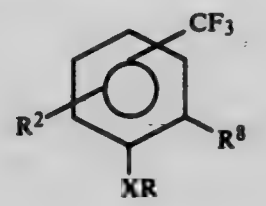
wherein R_1 is fluorine; R_8 and R_{11} each are lower alkyl; R_9 is hydrogen or lower alkyl; R_{10} is oxygen or sulphur.

4,335,249
HERBICIDAL DIPHENYL ETHERS, SULFIDES, SULFOXIDES AND SULFONES

Wayne O. Johnson, Warminster, and Roy Y. Yih, Doylestown, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 610,481, Sep. 3, 1975, abandoned. This application 1976, Ser. No. 710,074
Int. Cl.³ C07C *69/76*
U.S. Cl. 560—11 **19 Claims**

1. A compound of the formula

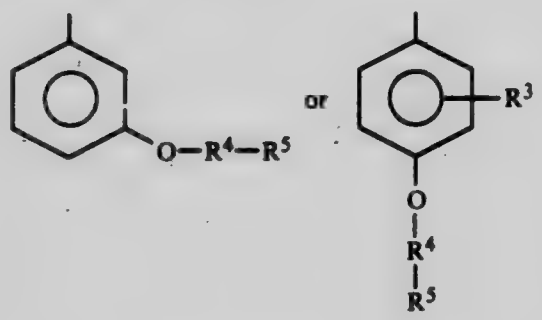


wherein

R^8 is a hydrogen atom, a halogen atom, a cyano group, a (C_1–C_4) alkyl group, a (C_1–C_4) alkoxy group, or a trifluoromethyl group,

R^2 is a hydrogen atom, a halogen atom or a cyano group

R is a group of the formula



wherein

R^3 is a hydrogen atom, a halogen atom, a (C_1–C_4) alkyl group, or a (C_1–C_4) alkoxy group,

R^4 is a divalent (C_1–C_5) alkylene group,

R^5 is a cyano group or a group of the formula —COR^6, wherein R^6 is a (C_1–C_{10}) alkoxy group, a hydroxy group or an agronomically-acceptable salt thereof, a (C_1–C_4) alkoxy (C_1–C_4) alkoxy group, an amino group, a (C_1–C_4) alkylamino group, a di(C_1–C_4) alkylamino group, an amino (C_1–C_4) alkoxy group, a (C_1–C_4) alkylamino (C_1–C_4) alkoxy group, or a di(C_1–C_4) alkylamino (C_1–C_4) alkoxy group, and

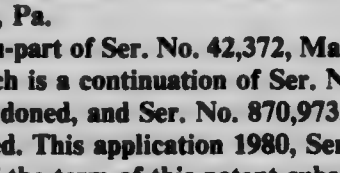
X is a sulfur atom, a sulfinyl group, or a sulfonyl group.

4,335,250
COMPOUND WITH IMMUNOPOTENTIATING ACTIVITY AND PRODUCTION AND USES THEREOF

Hamao Umezawa; Tomio Takeuchi, both of Tokyo; Takaaki Aoyagi, Fujisawa; Masaaki Ishizuka, Tokyo; Hajime Morishima, Tokyo; Takuzo Yamamoto, Tokyo; Junji Yoshizawa, Tokyo; Masaaki Hosoi, Kawasaki, and Ikuo Matsumoto, Tokyo, all of Japan, assignors to Banyu Pharmaceutical Co., Ltd., Tokyo, Japan

Filed 1979, Ser. No. 57,014
Claims priority, application Japan, 1978, 53/86178
Int. Cl.³ C07C *69/88*
U.S. Cl. 560—67 **7 Claims**

1. A compound of the general formula:



(I)

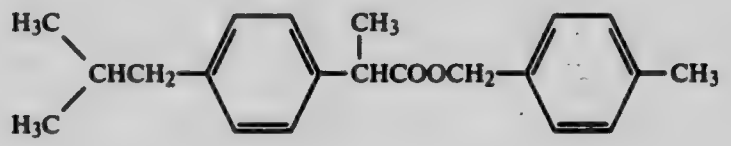
wherein R represents hydrogen atom or a linear or branched lower alkyl proup, and pharmaceutically acceptable salts and hydrates of the compound and pharmaceutically acceptable salts of the hydrates.

4,335,251
PHENYL-I-PROPIONIC ACID ESTERS AND PHARMACEUTICAL USE THEREOF

Kanji Noda, Chikushino; Akira Nakagawa; Yuji Ishikura, both of Tosu, and Hiroyuki Ide, Fukuoka, all of Japan, assignors to Hisamitsu Pharmaceutical Co. Inc., Saga, Japan

Continuation of Ser. No. 956,446, Nov. 1, 1978, abandoned, which is a continuation of Ser. No. 748,454, Dec. 8, 1976, abandoned. This application 1980, Ser. No. 175,498
Int. Cl.³ C07B *69/76*
U.S. Cl. 560—105 **6 Claims**

1. A composition of the following formula:



4,335,252
INSECTICIDAL PYRETHROID ENANTIOMER PAIR

John F. Engel, Medina, N.Y., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 42,372, May 24, 1979, Pat. No. 4,263,319, which is a continuation of Ser. No. 927,198, Jul. 24, 1978, abandoned, and Ser. No. 870,973, Jan. 20, 1978, abandoned. This application 1980, Ser. No. 221,581
The portion of the term of this patent subsequent to 1998, has been disclaimed.
Int. Cl.³ A01N *53/00*; C07C *69/743*
U.S. Cl. 560—124 **1 Claim**

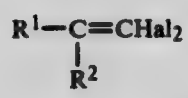
1. An insecticidal enantiomer pair consisting essentially of a substantially equimolar mixture of S-4-phenyl-2-indanyl 1R,cis-3-(2-chloro-3,3,3-trifluoro-1-propenyl) -2,2-dimethylcyclopropanecarboxylate and R-4-phenyl-2-indanyl 1S,cis-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate.

4,335,253
PREPARATION OF DIHALOVINYL COMPOUNDS

Petrus A. Kramer, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Filed 1981, Ser. No. 266,578
Claims priority, application United Kingdom, 1980, 8017697
Int. Cl.³ C07C *67/317, 45/65, 41/48*
U.S. Cl. 560—124 **9 Claims**

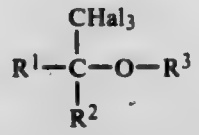
1. A process for the preparation of a 2,2-dihalovinyl compound of the formula:



(I)

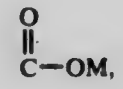
wherein R^1 represents a 2′-(2,2-dimethoxyethyl)-3′,3′-dimethylcyclopropyl group, a 2′-(2-oxopropyl)-3′,3′-dimethylcyclopropyl group or a 2′-(alkoxycarbonyl)-3,3-dimethylcyclopropyl group in which the alkoxy group contains from 1 to 10 carbon atoms; R^2 represents a hydrogen atom; and each Hal is

selected from fluorine, chlorine or bromine, which process comprises reacting a trihalo compound of the formula:



(II)

wherein R^1 and R^2 have the same meaning as in formula I, at least one Hal is bromine, the other Hal's having the same meaning as in formula I, and R^3 is hydrogen, or



wherein M is an alkali metal atom, with $PHal_3$, wherein Hal is selected from bromide and chlorine.

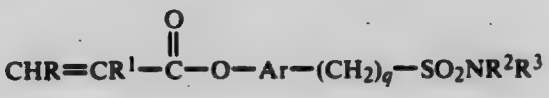
4,335,254

POLYMERIZABLE ACRYLOYLOXYARYLENESULFONAMIDES

John C. Wilson, and Paul D. Yacobucci, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 22,406, Mar. 21, 1979, Pat. No. 4,289,865.
This application 1981, Ser. No. 268,547
Int. Cl.³ C07C *69/54, 69/653*
U.S. Cl. 560—138 **3 Claims**

1. A compound having the formula:



wherein:

R and R^1 are independently hydrogen, halide, or alkyl having 1 to 4 carbon atoms;

R^2 and R^3 are independently hydrogen, alkyl having 1 to 10 carbon atoms, cycloalkyl having 4 to 10 carbon atoms, aryl having 6 to 18 carbon atoms or aralkyl having 7 to 20 carbon atoms;

q is 0 or 1; and

Ar is arylene having 6 to 18 carbon atoms wherein no more than one of R^2 and R^3 is hydrogen.

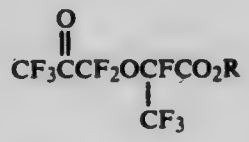
4,335,255

ALKYL PERFLUORO (2-METHYL-5-OXO-3-OXAHEXANOATE)

Carl G. Krespan, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 136,991
Int. Cl.³ C07C *69/708, 69/716, 121/34*
U.S. Cl. 560—174 **15 Claims**

1. Compound of the formula



wherein R is alkyl of 1 to 8 carbon atoms.

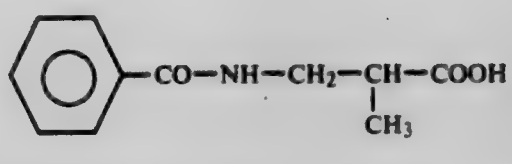
4,335,256

PROCESS FOR MANUFACTURING d,l-β-BENZOYLAMINO-ISOBUTYRIC ACID

Paolo de Witt, and Enrico Diamanti, both of Rome, Italy, assignors to Sigma-Tau Industrie Farmaceutiche Riunite S.p.A., Rome, Italy

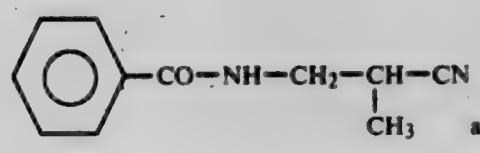
Filed 1978, Ser. No. 961,102
Claims priority, application Italy, 1977, 52004 A/77
Int. Cl.³ C07C *101/12*
U.S. Cl. 562—450 **7 Claims**

1. In a process for preparing d,l-β-benzoylamino-isobutyric acid, having the formula



which comprises:

(a) reacting benzamide with methacrylonitrile in the presence of an alkaline catalyst in an anhydrous solvent medium, at a temperature of about 80° to 100° C., thus obtaining d,l-β-benzoylamino-isobutyronitrile, having the formula:



and

(b) hydrolyzing said d,l-β-benzoylamino-isobutyronitrile to d,l-β-benzoylamino-isobutyric acid in an alkaline medium in the presence of a lower alkanol having from 1 to 4 carbon atoms at a temperature of about 40° to 60° C., the improvement wherein the reaction of said benzamide with methacrylonitrile is carried out in the presence of an alkaline catalyst which is a quaternary ammonium base selected from the group consisting of benzyl-trimethylammonium hydroxide, benzyl-triethyl-ammonium hydroxide, tetrabutylammonium hydroxide and mixtures thereof.

4,335,257

PREPARATION OF THE CALCIUM SALT OF ALPHA-HYDROXY-GAMMA-METHYLMERCAPTOBUTYRIC ACID

Earl W. Cummins; Steven I. Gleich, and Robert M. Vigilant, all of Wilmington, Del., assignors to E. I. Du Pont De Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 184,210
Int. Cl.³ C07C *149/20*
U.S. Cl. 562—581 **14 Claims**

1. A process for preparing the calcium salt of α-hydroxy-γ-methylmercaptobutyric acid (MHBA) which comprises forming a reaction mass by contacting an aqueous solution of MHBA in the liquid phase at a temperature of about 25° to 120° C. with solid calcium oxide or calcium hydroxide, mixing the resulting reaction mass at a temperature of about 45° to 130° C., and recovering therefrom the product calcium salt of MHBA.

4,335,258

PROCESS FOR PRODUCING METHACRYLIC ACID

Takeru Onoda; Masayuki Otake, both of Yokohama, and Jutaro Yamaguchi, Yamato, all of Japan, assignors to Mitsubichi Chemical Industries, Ltd., Los Angeles, Calif.

Filed 1980, Ser. No. 109,219
Claims priority, application Japan, 1979, 54-3488
Int. Cl.³ C07C *51/377, 57/05*
U.S. Cl. 562—599 **3 Claims**

1. A process for producing methacrylic acid which comprises oxidatively dehydrogenating isobutyric acid in vapor

phase in the presence of a lithium salt of a heteropolyacid having the general formula:

$$H_{3+x-z}Li_zMo_{12-x-y}W_yV_xPO_{40}$$

wherein
X is 0, 1, 2 or 3;
y is 0, 1, 2 or 3;
$0 \leqq x+y \leqq 4$; and
$0.05 \leqq z \leqq 3$;
or a reduced form of the heteropolyacid having the general formula:

$$H_{3+x-z+n}Li_zMo_{12-x-y}W_yV_xPO_{40}$$

wherein x, y and z are as defined herein above and n is an integer of 1 to 8.

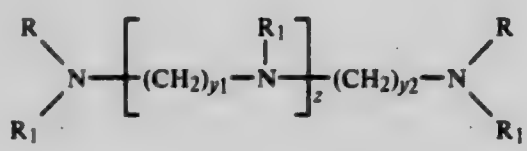
4,335,259

QUATERNIZED POLYAMINES

Hans-Peter Baumann, Ettingen, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

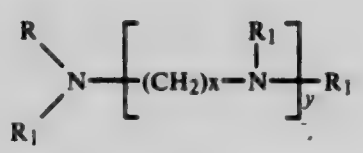
Continuation-in-part of Ser. No. 50,881, Jun. 21, 1979, Pat. No. 4,297,296. This application 1981, Ser. No. 222,483
Claims priority, application Switzerland, 1978, 6933/78
Int. Cl.³ C07C *87/30*
U.S. Cl. 564—290 **11 Claims**

1. A mixture of quaternized amines comprising at least one amine of basic structure of formula I,



I

in which
each R, independently, is $(C_{10\text{-}22})$alkyl, $(C_{10\text{-}22})$alkenyl, phenyl$(C_{1\text{-}3})$alkyl or naphthyl$(C_{1\text{-}3})$alkyl,
each R_1, independently, is phenyl$(C_{1\text{-}3})$alkyl or naphthyl $(C_{1\text{-}3})$alkyl,
z is 1 to 5,
each y_1, independently, is an integer from 2 to 8,
y_2 is an integer from 2 to 8, with the proviso that when $z=1$ $y_1 \neq y_2$ and when $z>1$ and the y_1's are the same $y_2 \neq y_1$
and at least one amine of basic structure of formula I_x,



I_x

in which
R and R_1, respectively, are as defined in formula I, above,
x is 2 to 8 and
y is 1 to 5,
such quaternized amine mixture having an average of 0.5 to 2.0 nitrogen atoms in each amine quaternized with $(C_{1\text{-}6})$alkyl radicals.

4,335,260

PROCESS FOR THE PREPARATION OF N-DI-N-PROPYL-2,6-DINITRO-4-TRIFLUOROMETHYLANILINE HAVING A LOW CONTENT OF NITROSAMINES

Mario Bornengo, Massa, and Sergio Bacciarelli, Orzonovo, both of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed 1981, Ser. No. 263,508
Claims priority, application Italy, 1980, 22073 A/80
Int. Cl.³ C07C *85/04*
U.S. Cl. 564—406 **1 Claim**

1. Process for producing herbicidal N-di-n-propyl-2,6-dinitro-4-trifluoromethylaniline containing nitrosamines in an amount lower than 1 ppm, characterized in that 4-trifluoromethyl-2,6-dinitro-chlorobenzene is reacted with di-n-propylamine in the presence of an alkali metal hydroxide or an alkali metal carbonate introduced contemporaneously with the di-n-propylamine so that the pH is maintained constant at a value comprised between 7 and 7.5; in that the temperature is regulated in such a way so as not to exceed 70° C.; and in that the reaction is carried out with at least 50% by weight of water present in the reaction mass.

4,335,261

PROCESS FOR PURIFYING MACROCYCLIC KETONES

Yoichiro Ueda, Ohimachi, Japan, assignor to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed 1981, Ser. No. 274,682
Claims priority, application Japan, 1980, 55-98258
Int. Cl.³ C07C *45/83*
U.S. Cl. 568—366 **9 Claims**

1. In a process for preparing a macrocyclic ketone having from 15 to 17 carbon atoms in the ring by effecting base-catalyzed intramolecular cyclization of an α,ω-long chain aliphatic dicarboxylic acid ester according to the Dieckmann condensation reaction to form a macrocyclic keto carboxylic acid ester, followed by hydrolysis and decarboxylation to obtain a crude macrocyclic ketone and then by purification of said crude macrocyclic ketone, the improvement which comprises: the purification treatment comprises injecting open steam into the crude macrocyclic ketone, in the presence of a non-volatile base, to effect steam distillation and recovering the purified macrocyclic ketone as the distillate.

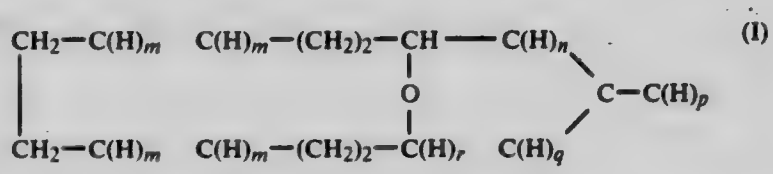
4,335,262

PROCESS FOR THE PREPARATION OF MUSCONE

Karl H. Schulte-Elte, Onex/Ge; Joseph J. Becker, and Walter Schenk, both of Geneva, all of Switzerland, assignors to Firmenich SA, Geneva, Switzerland

Filed 1980, Ser. No. 183,722
Claims priority, application Switzerland, 1979, 8293/79
Int. Cl.³ C07C *45/57*
U.S. Cl. 568—361 **1 Claim**

1. Process for the preparation of muscone which comprises treating a bicyclic compound having the formula:



(I)

wherein the dotted lines stand for a single or a double bond, and wherein
m stands for the integer 1 or 2,
$n=1$ and $p=3$ or $n=2$ and $p=2$, and
$r=1$ and $q=2$ or $r=0$ and $q=1$,
with hydrogen in an inert organic solvent and in the presence of platinum or palladium metal deposited on charcoal at a temperature of between about 100° and about 300° C.

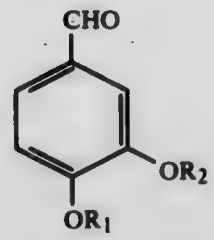
4,335,263

PROCESS FOR PREPARING AROMATIC ALDEHYDES

Masayoshi Minai, Moriyama, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

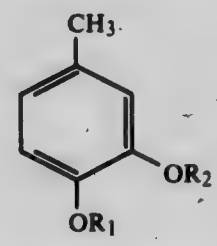
Filed 1980, Ser. No. 218,135
Claims priority, application Japan, 1979, 54/167013
Int. Cl.³ C07C *45/43, 37/01*
U.S. Cl. 568—437 **15 Claims**

1. A process for preparing an aromatic aldehyde represented by the following general formula:

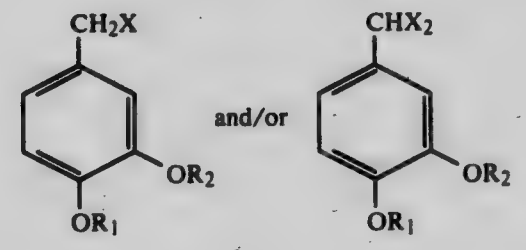


wherein R_1 and R_2 each represents a hydrogen atom or a lower alkyl group or R_1 and R_2 may jointly form an alkylene group, provided that R_1 and R_2 do not represent a hydrogen atom at the same time,

which comprises oxidizing 2-hydroxy-4-methylacetophenone and/or 2-hydroxy-5-methylacetophenone with hydrogen peroxide and an alkali in a heterogeneous solvent system of a water-insoluble or slightly water-soluble organic solvent and water in the presence of a catalyst to obtain 4-methylcatechol, condensing the 4-methyl-catechol with an alkylating agent to obtain a methylbenzene derivative represented by the following general formula:



wherein R_1 and R_2 are the same as defined above, halogenating the methylbenzene derivative to obtain a halide compound represented by the following general formula:



wherein R_1 and R_2 are the same as defined above, and X represents a halogen atom, and

oxidizing and/or hydrolyzing the halide compound.

4,335,264

HIGH YIELD, LOW BYPRODUCT α, β-UNSATURATED ALDEHYDES FROM OLEFINS

Paul C. Yates, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1976, Ser. No. 703,285

Int. Cl.³ C07C *45/34*

U.S. Cl. 568—479 **32 Claims**

1. The vapor phase selective oxidation process for the preparation of an α,β-unsaturated aldehyde and less than 2% α,β-unsaturated acids based on the unsaturated aldehyde which comprises contacting a reactant gas containing 1 to 30 volume percent of an olefin of 3 to 5 carbon atoms, from 0 to 40 volume percent of H_2O, from 0.25 to 2 times the concentration of olefin but within the range of 2 to 15 volume percent of oxygen and 15 to 97 volume percent of one or more inert gases selected from the group consisting of carbon dioxide, carbon monoxide, nitrogen and hydrogen with a catalyst of the general formula:

$$R_aCo_bFe_cNi_dQ_eM_fY_gZ_hO_x$$

where

R = Bi or Sb

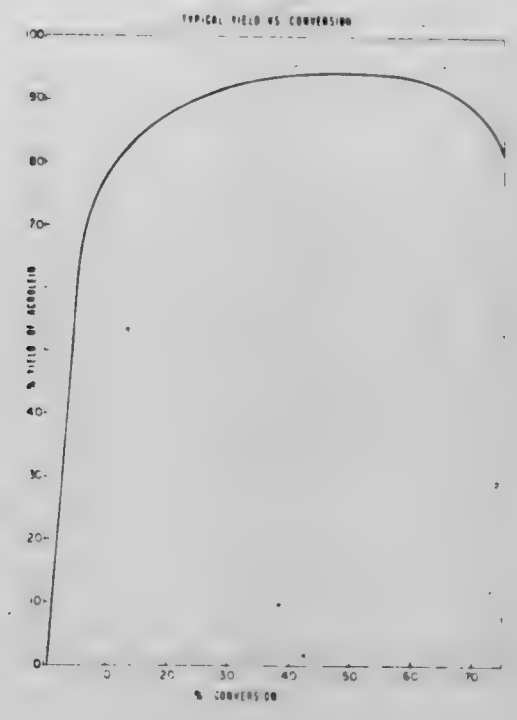
Q = Mo, W, V or mixtures thereof

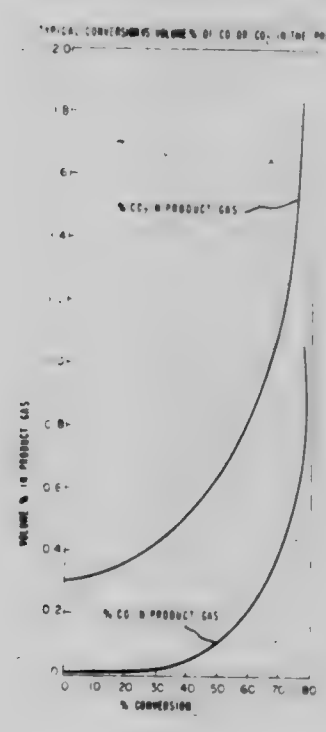
M = P, Si or Te

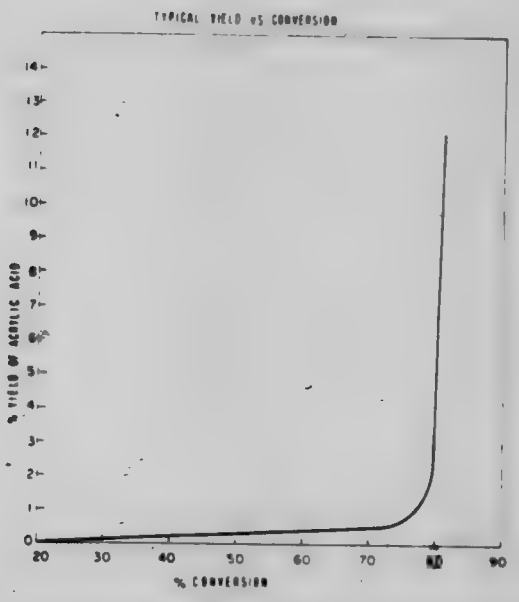
Y = alkali or alkaline earth metals

Z = Ag or Tl

and a is 0.6 to 6.0; b is 0 to 3.9; c is 0 to 10.2; d is 0 to 10.2; e is







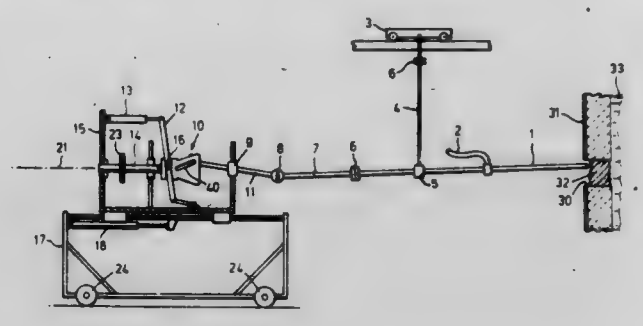
12; f is 0 to 2.0; g is 0 to 2.0; h is 0 to 0.20 and x is as required to satisfy valence of the other elements with the proviso that

$\Sigma b+c+d$ must be >6, and
$\Sigma b+d$ must be >5
for a contact time and at a temperature of from 300° to 500° C. and pressure of from atmosphere to 10 atmospheres to obtain a gaseous product stream comprising an α,β-unsaturated aldehyde at a conversion of from 25 to 80%, a mixture of acids and other aldehydes and a byproduct inert gas or moderator comprising mixtures of gases selected from the group consisting of carbon dioxide, carbon monoxide, water, hydrogen, nitrogen, unreacted olefin with a C_1 to C_4 saturated hydrocarbon impurity mixture and at least 1% by volume oxygen, separating the byproduct gas from the product stream, recycling said byproduct gas to contact the catalyst together with additional propylene, oxygen and water to achieve the initial gas composition and separating and recovering the α,β-unsaturated aldehyde.

4,335,265
ROBOT TAPPING ELECTRODE FOR ELECTRIC ARC FURNACES

Serge Roberge, Shawinigan Nord, and Jacques Normand, Shawinigan Sud, both of Canada, assignors to Gulf Canada Limited, Toronto, Canada

Filed 1980, Ser. No. 216,886
Int. Cl.[3] C21B *11/10, 13/12*
U.S. Cl. 373—83 4 Claims



1. An apparatus for controlling movement of a tapping electrode to tap the molten charge from an electric furnace, comprising:

(a) a rotatable drive means, adapted to be moved in both directions along its axis of rotation,

(b) a means to control the position of said rotatable drive means along its axis of rotation,

(c) a rotatable shaft retained in a non-rotating bearing member at a point in its length between its ends in such manner

(i) that said rotatable shaft can rotate about its longitudinal axis and said longitudinal axis can pivot at said bearing member to any position in a cone coaxial with the axis of rotation of said rotatable drive means, the cone tip angle being no greater than substantially 45°, and

(ii) that said rotatable shaft cannot move along its own axis through the bearing member,

said rotatable shaft being adapted to engage said rotatable drive means in such manner that the amount of displacement of the axis of said rotatable shaft is controlled by the distance of said rotatable drive means from said non-rotating bearing member,

(d) a supporting shaft pivotally supported between its ends and attached to said rotatable shaft by a coupling means permitting both rotation of said rotatable shaft and angular displacement of the two shafts relative to each other, and

(e) an elongated electrode fixed to said supporting shaft near its end opposite to the end at which said rotatable shaft is coupled.

4,335,266
METHODS FOR FORMING THIN-FILM HETEROJUNCTION SOLAR CELLS FROM I-III-VI_2 CHALCOPYRITE COMPOUNDS, AND SOLAR CELLS PRODUCED THEREBY

Reid A. Mickelsen, Bellevue, and Wen S. Chen, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

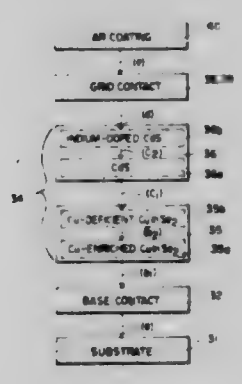
Filed 1980, Ser. No. 221,761
Int. Cl.[3] H01L *31/06, 31/18*
U.S. Cl. 136—260 147 Claims

1. In a method of forming a photovoltaic light-to-electrical energy transducer of the type including a thin-film A-B-type heterojunction where "A" and "B" are selected from the group of semiconductor materials consisting of:

A	and	B
(i) a p-type ternary material	and	an n-type material;
(ii) an n-type ternary material	and	a p-type material;
(iii) an n-type material	and	a p-type ternary material;
(iv) a p-type material	and	an n-type ternary material;

and wherein the transducer includes a substrate, a first contact deposited on the substrate, a first semiconductor layer formed of A-type material deposited on the first contact, a second semiconductor layer formed of B-type material deposited on the first semiconductor layer and defining therewith the thin-film A-B-type heterojunction, and a second contact deposited on the second semiconductor layer, the improvement comprising a method wherein:

(a) the one of the first and second semiconductor layers formed of a ternary semiconductor material is formed by simultaneous elemental evaporation of the ternary semiconductor material to form a semiconductor layer having two composition graded regions sequentially formed one upon the other with one region having a first preselected ratio of two of the elements in the ternary semiconductor material so as to form a low resistivity semiconductor



region and the other of the regions having a different preselected ratio of the same two elements so as to form a high resistivity transient semiconductor region and with the two regions defining a transient homojunction; and,

(b) the other of the first and second semiconductor layers is formed by deposition of a semiconductor material in face-to-face contact with respect to the high resistivity transient semiconductor region of the transient homojunction so as to permit the high resistivity transient semiconductor region to evolve through elemental interdiffusion into a region of relatively high resistivity semiconductor material of the same type as the low resistivity region formed in step (a) to thereby form a thin-film A-B-type heterojunction photovoltaic light-to-electrical energy transducer.

15. The product produced by the method set forth in claims 1, 2, 3, 4 or 5.

4,335,267
GAS INSULATED TRANSMISSION LINE INCLUDING PROVISIONS FOR MINIMIZING PARTICLE GENERATION

Melvyn D. Hopkins, Grafton, Mass., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

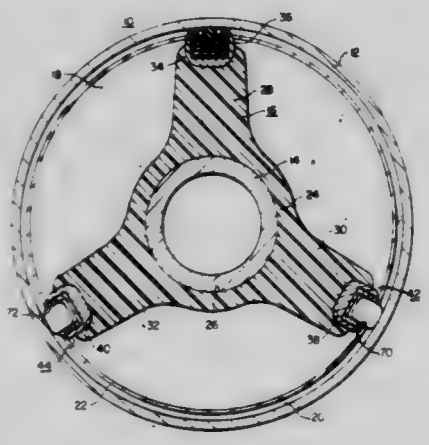
Filed 1979, Ser. No. 88,740
Int. Cl.[3] H01B *9/06*
U.S. Cl. 174—14 R 9 Claims

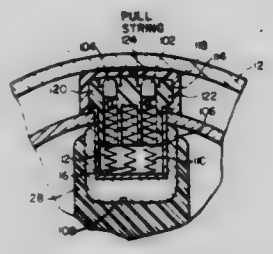
1. A gas-insulated transmission line of the type including a cylindrical outer sheath, an inner conductor disposed within said outer sheath, an insulating gas electrically insulating said inner conductor from said outer sheath, and support means for insulatably supporting said inner conductor within said outer sheath, said support means including a plurality of legs extending from said inner conductor towards said outer sheath, the improvement comprising:

at least one of said legs having an opening therein adjacent said outer sheath; and

a wheel assembly disposed within said leg opening, said wheel assembly including a rotatable wheel extending outwardly of said leg opening and contacting said outer sheath, said wheel being rotatable only in the direction of said outer sheath elongation, said wheel assembly comprising an insert disposed in said leg opening and fixedly secured to said leg, a wheel holder cup disposed within said insert and secured thereto, said wheel, having a centrally disposed opening therethrough, disposed within said wheel holder cup, and a wheel axle extending through said wheel central opening and being held by said wheel holder cup.

7. A gas-insulated transmission line of the type including a cylindrical outer sheath, an inner conductor disposed within





said outer sheath, an insulating gas electrically insulating said inner conductor from said outer sheath, support means for insulatably supporting said inner conductor within said outer sheath, a particle trapping ring disposed adjacent said supporting means and spaced-apart from said outer sheath, and a contact assembly including a spring-biased contact button disposed within said support means and extending outwardly to said outer sheath, said contact button providing an electrical connection between said outer sheath and said particle trapping ring, the improvement comprising:

a non-metallic contact button cover longitudinally-removably secured to said contact assembly; and

means for longitudinally removing said contact button cover from said contact assembly.

4,335,268

PARTICLE TRAP WITH DIELECTRIC BARRIER FOR USE IN GAS INSULATED TRANSMISSION LINES

Steinar J. Dale, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 206,753

Int. Cl.³ H01B *9/06, 9/04;* H02G *5/06*

U.S. Cl. 174—14 R **9 Claims**

1. A gas insulated transmission line comprising:

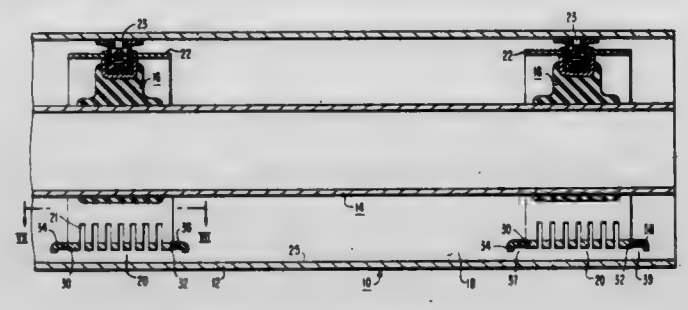
a cylindrical outer sheath at low electric potential;

an inner conductor at high electric potential with respect to said outer sheath disposed within said outer sheath;

an insulating gas electrically insulating said inner conductor from said outer sheath;

means for insulatably supporting said inner conductor within said outer sheath;

an electrode disposed within, and electrically connected to, said outer sheath, said electrode being spaced-apart from said outer sheath to form a low field region therebetween, said electrode having first and second longitudinal ends; and



a first dielectric member secured to said electrode first longitudinal end and extending longitudinally outwardly therefrom.

4,335,269

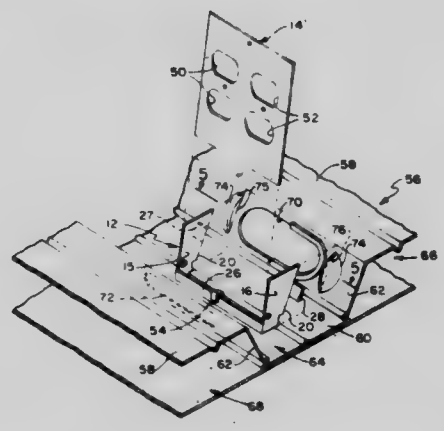
ISOLATOR DEVICE AND WIRE DISTRIBUTING SYSTEM UTILIZING THE SAME

Paul L. Haskins, Aliquippa, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa.

Filed 1980, Ser. No. 188,852

Int. Cl.³ H02G *3/28*

U.S. Cl. 174—48 **14 Claims**



1. An insert for use in an electrical wiring distributing system, said insert including an isolator device having a generally U-shaped configuration including

spaced-apart sidewalls having corresponding forward edges, rear edges, lower edges and upper edges;

a connecting front wall extending between said forward edges;

tabs, one on each of said rear edges, said tabs extending in opposite directions from and generally normal to said sidewalls;

abutments, one on each of said sidewalls and spaced from said front wall; and

a partition plate having a portion captively retained between said front wall and said abutments, and a portion extending upwardly beyond said upper edges.

4,335,270

SWITCH HOUSING INCORPORATING FLEXIBLY ATTACHED MOUNTING PLATE

Thomas J. Holce, Portland, and Charles M. Huckins, Tigard, both of Oreg., assignors to Sentrol, Inc., Portland, Oreg.

Filed 1980, Ser. No. 197,522

Int. Cl.³ H05K *5/00*

U.S. Cl. 174—52 R **5 Claims**

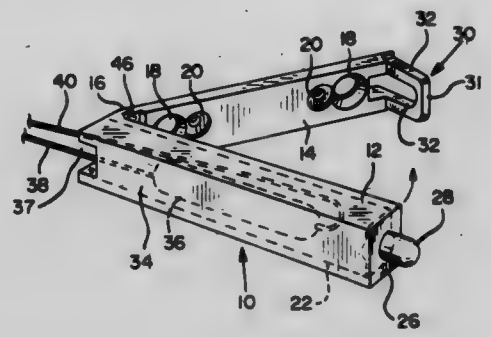
5. A protective housing for a fragile electrical component, comprising:

(a) an elongate protective body, said body having an exterior surface, an open end, and a closed end and including elongate generally tubular cavity means extending along

the length thereof from said open end toward said closed end, for receiving said fragile electrical component;

(b) an elongate generally planar mounting plate including aperture means for receiving fasteners for attaching said mounting plate to a surface;

(c) a flexible member interconnecting said open end of said elongate protective body with an end of said mounting plate and permitting a portion of said exterior surface of said body to be positioned parallel with and in contact with said mounting plate;



(d) latch means associated with said closed end for retaining said protective body in a position wherein said portion of said exterior surface is located parallel with and closely alongside said mounting plate and wherein said tubular cavity means is oriented parallel to said mounting plate; and

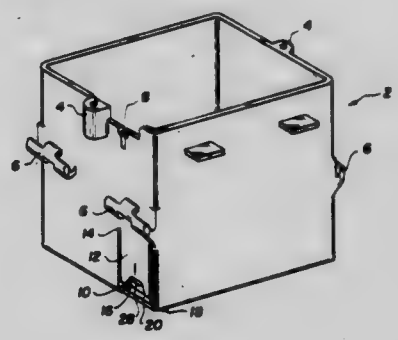
(e) means defining a relief opening in said body located adjacent to said open end for permitting electrical conductors to extend from said electrical component in a direction perpendicular to the length of said generally tubular cavity means.

4,335,271

ELECTRICAL BOX

Joseph Haslbeck, West Vancouver, Canada, assignor to Highland Mfg. Company Ltd., Burnaby, Canada

Filed 1980, Ser. No. 113,850
Claims priority, application Canada, 1979, 321962
Int. Cl.³ H02G *3/08*
U.S. Cl. 174—65 R **7 Claims**



1. An electrical box molded in one piece from a plastic material and comprising:

a cable inlet opening formed in the box;

a flap positioned within the opening and resiliently hingedly mounted at a first edge of the opening to tend to resile to the closed position;

stops positioned within the box to restrict the inward movement of the flap;

an indent in the edge of the flap, remote from the hinged mount, to contact and grip a cable when such a cable is positioned in the inlet opening;

a lip projecting into the box from that edge of opening remote from the first edge of the opening, the flap acting to force the cable against the lip; and

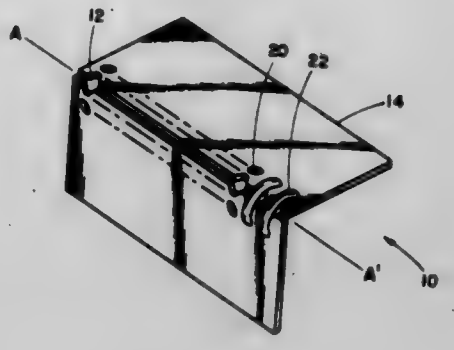
the edge of the opening adjacent said indent being substantially non-deformable by a cable forced into the inlet.

4,335,272

BREAKAWAY CIRCUIT BOARD WITH FLEXIBLE COUPLING

Daniel I. Pittenger, Libertyville, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed 1980, Ser. No. 172,921
Int. Cl.³ H05K *1/02*
U.S. Cl. 174—68.5 **8 Claims**



1. A flexible circuit board including a plurality of first conductors positioned thereon comprising:

a plurality of paired terminals connected to said first conductors and forming two parallel linear arrays on said circuit board, each of said terminals including an aperture passing through said circuit board;

a plurality of elongated, double-tapered perforations in said circuit board defining an axis passing medially between paired terminals with each of said perforations positioned midway between each pair of said terminals, wherein each of said perforations is of varying width, with the widest portion being positioned on said axis and the narrowest portions located adjacent each of said terminals; and

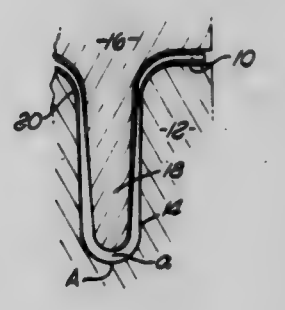
a plurality of second wire conductors inserted in the apertures of each of said paired terminals and electrically connected to said terminals by solder such that upon the bending of said circuit board along the axis defined by said perforations to a predetermined angular displacement, the two circuit board sections thus formed are maintained in semi-rigid self-supporting relative orientation with each of said second conductors guided into wedging contact with a respective perforation by the tapered edges thereof and wherein said two circuit board sections are electrically connected with the angular displacement between said two circuit board sections determined by the length of said second conductors between said paired terminals.

4,335,273

ELECTRICALLY INSULATING SEAL ASSEMBLY

Harry P. Levin, N. Hollywood, Calif., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed 1979, Ser. No. 42,670
Int. Cl.³ F16J *15/10*
U.S. Cl. 174—52 S **15 Claims**



1. An electrical insulating static seal assembly comprising:

a first member having a first seal surface;

a second member having a second seal surface;

a deformable gasket positioned between the first and second seal surfaces for being pressed between the first and second seal surfaces, to provide a sealed region between the

first and second members, the distance between the first and second seal surfaces being minimum at a central location of the sealed region and continuously increasing toward the edge of the sealed region, the gasket having a thickness, prior to compression, which is maximum at the central location and continuously decreasing toward the edge of the gasket; and

means for pressing and holding the first and second seal surfaces together.

4,335,274

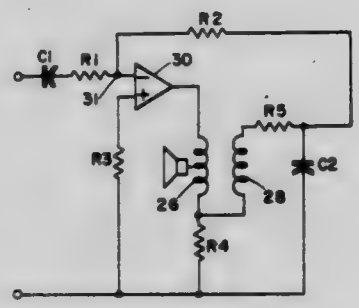
SOUND REPRODUCTION SYSTEM

Richard A. Ayers, 10801 De Witt Ct., El Cajon, Calif. 92020

Filed 1980, Ser. No. 111,232

Int. Cl.³ H04R *3/08, 9/06*

U.S. Cl. 179—1 F **11 Claims**



1. A sound reproduction system having an audio amplifier and a speaker coupled to the output of the audio amplifier, said speaker having an acoustic cone and a coil mandrel with a drive coil wound thereon, characterized by

first feedback means for applying degenerative feedback to said audio amplifier in proportion to the current flowing through said drive coil;

a feedback coil wound either under or over said drive coil on said coil mandrel;

second feedback means including said feedback coil for applying degenerative feedback to said audio amplifier in proportion to the voltage induced in said feedback coil by the motion at the speaker cone; and

said first and second feedback means being arranged in an additive relationship so that the total degenerative feedback applied to said audio amplifier is proportional to the sum of the output of said first and second feedback means for preventing acoustical peaks from being produced in the audio spectrum of said speaker by either a peak in the impedance versus frequency characteristic curve of said drive coil caused by a mechanical resonance of said speaker's moving parts or a valley in said curve caused by an electromechanical resonance in the series circuit comprising the electrical self-inductance of said drive coil and the apparent capacitance of the moving mass due to said cone, said mandrel and said coils.

4,335,275

SYNCHRONOUS METHOD AND APPARATUS FOR SPEECH SYNTHESIS CIRCUIT

George L. Brantingham, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 901,151, Apr. 28, 1978. This application 1980, Ser. No. 117,911

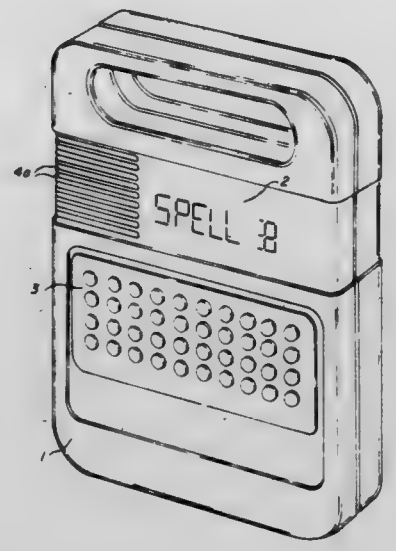
Int. Cl.³ G10L *1/00*

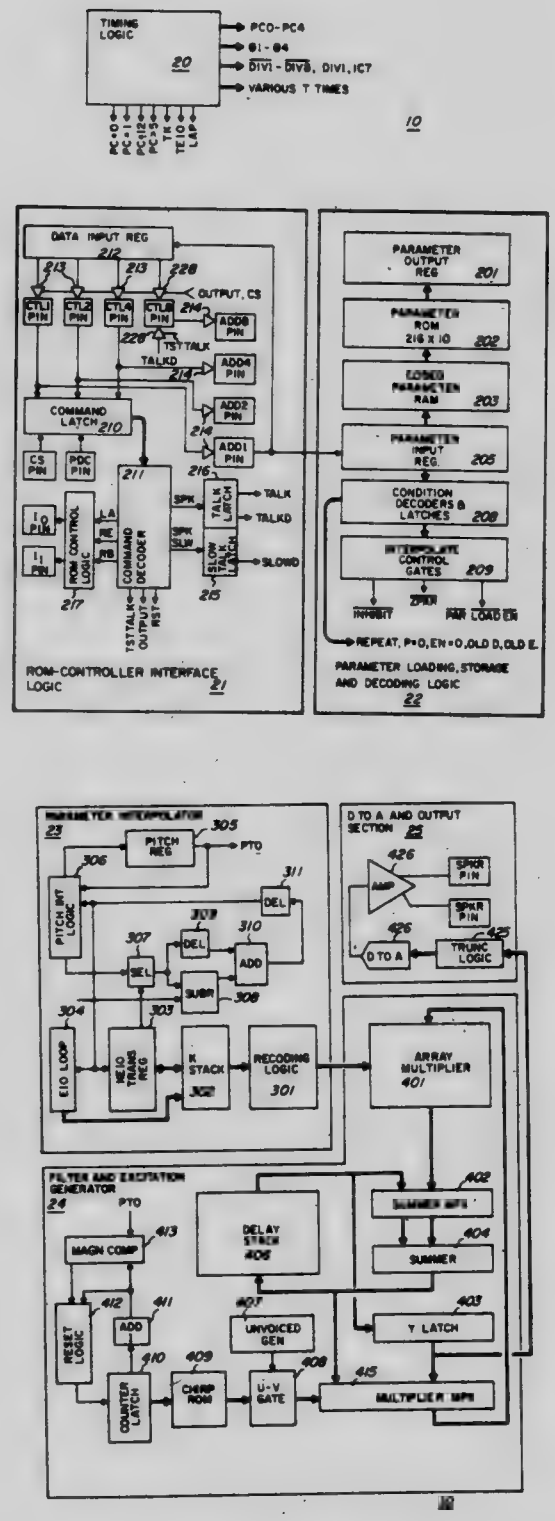
U.S. Cl. 179—1 SM **17 Claims**

1. A method of controlling a speech synthesis circuit which is responsive to frames of speech data respectively containing speech parameter values representative of digital speech coefficients to produce digital speech signals representative of human speech, said method comprising:

sequentially generating data frame timing signals with a fixed constant time period between successive data frame timing signals;

initiating a new frame of speech data containing specific speech parameter values representative of digital speech coefficients at the input of the speech synthesis circuit in





response to the generation of a data frame timing signal;

sequentially generating a series of interpolation count timing signals within each fixed constant time period between

successive data frame timing signals with a fixed constant interpolation time period between successive interpolation count timing signals in the series thereof, the rate of generation of said interpolation count timing signals being a multiple of the rate of generation of said data frame timing signals;

sequentially generating a plurality of parameter count timing signals within each fixed constant interpolation time period, the rate of generation of said parameter count timing signals being a multiple of the rate of generation of said interpolation count timing signals; and

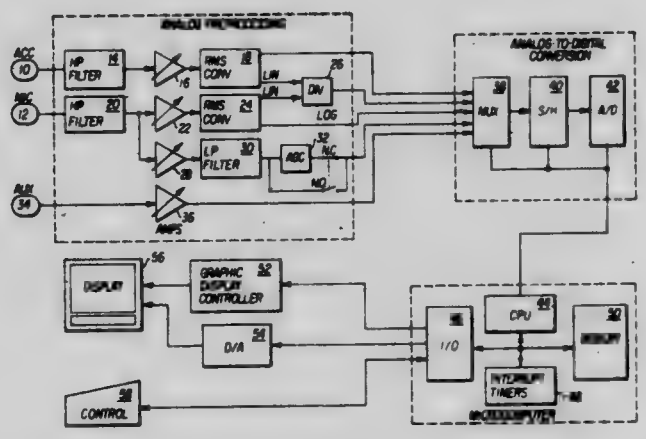
sequentially interpolating between the specific speech parameter values representative of digital speech coefficients as contained in a current frame of speech data and the specific speech parameter values as contained in the frame of speech data immediately previous thereto during each fixed constant interpolation time period as defined within said series of interpolation count timing signals in timed relation as determined by said parameter count timing signals to obtain interpolated intermediate values representative of digital speech coefficients corresponding to at least one of the speech parameters for each interpolation time period.

4,335,276

APPARATUS FOR NON-INVASIVE MEASUREMENT AND DISPLAY NASALIZATION IN HUMAN SPEECH

Glen L. Bull; Wesley E. McDonald, both of Charlottesville, and Milton T. Edgerton, Timbercreek, all of Va., assignors to The University of Virginia, Charlottesville, Va.

Filed 1980, Ser. No. 140,951
Int. Cl.[3] G10L *1/00*
U.S. Cl. 179—1 SP 20 Claims



1. An apparatus for the acquisition of a raw speech signal and essentially simultaneous acquisition of a transform of the speech signal, wherein said transform covaries as a function of changes in one or more parameters in the speech signal, comprising:

microphone means for producing first signals representative of raw speech;

means for generating second signals essentially simultaneous to the production of said first signals, said second signals indicative of a selected parameteric characteristic of the human speech;

data processing means coupled to said microphone means and said second signal generating means for analyzing said first and second signals to produce transform signals based thereon;

display means for providing videographic and alphanumeric display of said transform signals and for synchronously auditorily displaying said first signals

amplifying means for amplifying said first and said second signals to produce respective third and fourth signals based on the RMS average of said first and said second signals; and

means for coupling said first, second, third and fourth signals to said data processing means; and said data processing means comprising,

a memory for storing said first, second, third and fourth signals,

means for producing first display signals based on selected of said second, third, fourth and transform signals generated over a predetermined time period, said data processing means applying said first display signals to said display means where said first display signals are displayed as a static graphic plot,

means for generating a cursor for display by said display means such that said cursor traverses said static plot, and

means for synchronously reading-out said memory respective first signals acquired essentially simultaneously with the selected signals represented in that portion of said static graphic plot being traversed by said moving cursor; and

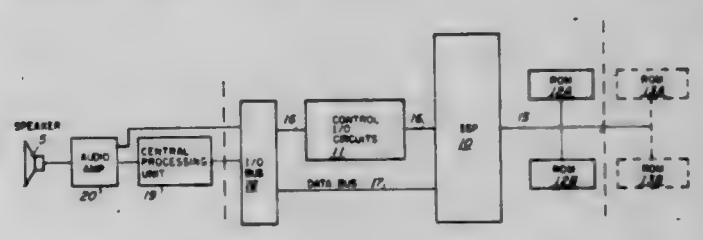
means for auditorily displaying said respective first display signals.

4,335,277

CONTROL INTERFACE SYSTEM FOR USE WITH A MEMORY DEVICE EXECUTING VARIABLE LENGTH INSTRUCTIONS

Ajay K. Puri, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 36,928, May 7, 1979, abandoned. This application 1981, Ser. No. 250,982
Int. Cl.[3] G10L *1/00*
U.S. Cl. 179—1 SM 6 Claims



1. An interface system for selectively interactively interfacing between a control device providing variable length instructions and a memory device which initiates and executes respective ones of said variable length instructions over a longer time period as compared to the time period required for the control device to provide a variable length instruction to the memory device, said interface system comprising:

first circuit means interposed between said control device and said memory device for enabling said control device to provide a variable length instruction for reception by said memory device;

second circuit means operatively coupled to said first circuit means and providing a control signal changeable from a first state to a second state in response to said memory device receiving said variable length instruction from said control device to inform said control device that execution of the variable length instruction by said memory device has not been completed, the second state of said control signal being returned to the first state of said control signal in response to completed reception of the variable length instruction by said memory device from said control device while said memory device continues to execute the variable length instruction;

gating circuit means for selectively electrically coupling said control device to said memory device in order to provide said variable length instructions to said memory device, said control device being released from active interaction with said memory device in response to said control signal changing from its second state to its first state to free said control device to perform other control tasks independent of said memory device while said memory device continues to execute the variable length instruction to its completion following which said memory device is available

to receive a subsequent variable length instruction from said control device; and

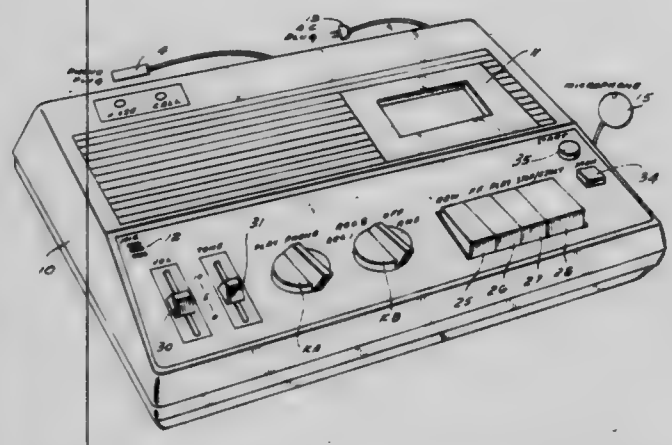
said second circuit means being responsive to an attempt at access of said memory device from said control device during the execution of a variable length instruction by said memory device to change the first state of said control signal to the second state thereof to inhibit interaction between said control device and said memory device and to inhibit action by said control device independent of said memory device until said memory device has completed execution of the current variable length instruction with which said memory device is concerned.

4,335,278

COMBINED TAPE RECORDING AND PLAYBACK APPARATUS AND TELEPHONE ANSWERING APPARATUS CONTROLLED BY PRE-RECORDED SIGNALS

Tseng Chee, Kowloon, Hong Kong, assignor to Elite Electrical Products Limited, Kowloon, Hong Kong

Filed 1980, Ser. No. 112,992
Int. Cl.³ H04M *1/64*
U.S. Cl. 179—6.06 **1 Claim**



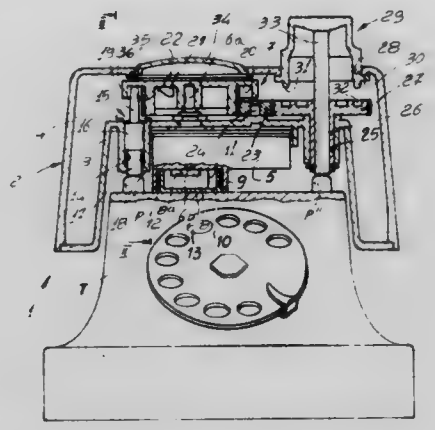
1. In a telephone answering apparatus for use with a magnetic tape having first and second tracks, the apparatus including a drive for said tape, means upon the receipt of an incoming call for applying said announcements to a telephone line, and means for recording messages received from said telephone line; the improvement wherein said apparatus has a record/-playback head positioned to be aligned with said first track, circuit means for recording messages from said telephone line on said first track and applying messages from said first track to said telephone line via said record/playback head, and a control head positioned to be aligned with said second track, said apparatus further comprising circuit means connected to said control head for controlling the direction of signal transfer between said record/playback head and said telephone line, a microphone, means recording signals on said first track via said record/playback head from said microphone and including switch means for selectively enabling and inhibiting control of said drive by the output of said control head, said switch means having a first position enabling recording of messages on said first track independently of control signals on said second track, and a second position wherein the drive is stopped prior to a position on the first track at which a message is to be prerecorded, and a start switch for starting said drive.

4,335,279

MECHANICAL TELEPHONE CONVERSATION TIME LIMITING DEVICE

Donato Colombo, Via S. Ammirato, 61, and Lapo Baldacci, Via Lungo l'Affrico, 212, both of Florence, Italy

Filed 1980, Ser. No. 141,745
Claims priority, application Italy, 1979, 22110 A/79
Int. Cl.³ H04M *1/00*
U.S. Cl. 179—7.1 R **7 Claims**



1. A mechanical telephone conversation time limiting device comprising a casing, combination means for attaching said casing to a telephone set so as to prevent access to the telephone shut-off push buttons arranged thereon, a timer arranged within said casing and having a movable member, means for setting said timer, means operatively connected to said movable member for interrupting the telephone communication at the end of a predetermined time period of operation by engaging with one of said push buttons wherein according to the improvement a manually operated knob is provided extending outwardly from said casing through an opening thereof and rotatably and axially movable from a raised to a depressed condition, first transmission means between said knob and said timer setting means and operable in the depressed condition of said knob, second transmission means between said knob and one of said shut-off push buttons and operable in the depressed condition of said knob, so as to cause said timer setting means to get in transmissive engagement with said knob and to set thereby said timer setting means according to said predetermined time period of operation and to simultaneously depress one of said shut-off push buttons, when said knob is in its depressed condition and to set free said timer setting means and said shut-off push button when said knob is in its raised condition.

4,335,280

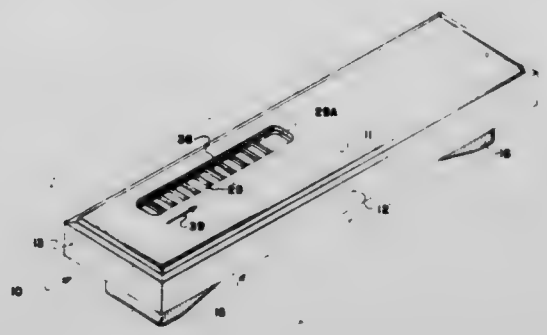
TELEPHONE CONSTRUCTION

Joseph J. Butchko, P.O. Box G-747, Station "G", Calgary, Alberta, Canada

Continuation-in-part of Ser. No. 43,169, May 29, 1979, abandoned. This application 1980, Ser. No. 197,002
Int. Cl.³ H04M *1/31, 1/35*
U.S. Cl. 179—90 R **5 Claims**

5. A dialing mechanism for telephones comprising in combination a rotary assembly, said rotary assembly including a rotary portion and means to rotate said rotary assembly, said means including a longitudinally extending slider bar and means operatively connecting said slider bar with the rotary portion of said rotary assembly, said means including a plurality of gear teeth extending along one side of said slider bar and extending parallel to the horizontal plane of the slider bar, and corresponding teeth formed upon the periphery of the rotary portion of said rotary assembly, said corresponding teeth meshing with the gear teeth of said slider bar, said means to move said slider bar lengthwise including a plurality of spaced and parallel transversely extending ribs formed on the upper side of said slider bar and indicia on the upper side of the said slider bar between adjacent ribs, said rotary assembly including

a connect and disconnect switch, means on said rotary portion to operate said switch, a rotary impulse switch assembly within said casing movable from a switch open to a switch closed position as it rotates, gear means operatively connecting said rotary portion with said impulse switch assembly and a brake control component in said casing operatively connected to said impulse switch assembly, said impulse switch assembly including a skew gear rotatable therewith and a worm gear shaft engaging said skew gear, said brake control assembly being operatively connected to said worm gear shaft and means on said rotary portion operatively engaging said impulse switch assembly to maintain said impulse switch assembly in the closed position when said dial mechanism is in the released and stationary position.

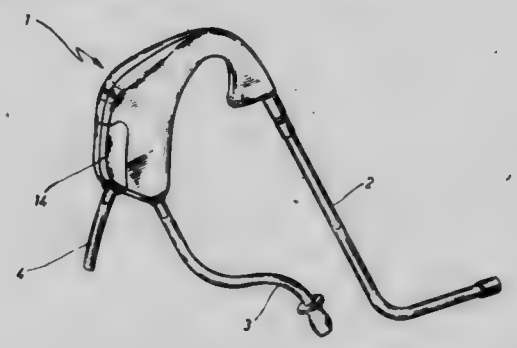


4,335,281

POST-AURICLE CONTOURED HEADSET FOR TWO-WAY VOICE COMMUNICATION

Charles G. Scott, Aptos; James B. Robertson, Soquel, and Robert L. Harris, Aptos, all of Calif., assignors to Plantronics, Inc., Santa Cruz, Calif.

Filed 1980, Ser. No. 162,634
Int. Cl.³ H04M *1/04*
U.S. Cl. 179—156 A **6 Claims**



1. A two-way voice communication headset, comprising:
(a) a post-auricle housing;
(b) means, including a microphone, for converting the wearer's speech to electrical signals, said means being connected to said housing;
(c) means, including a receiver, for converting received electrical signals into sounds and conveying said sounds to the wearer's ear, said means being connected to said housing;
said housing having a lower portion narrowed on both sides, said narrowed portion being adapted to fit adjacent the mastoid process on either side of the wearer's head.

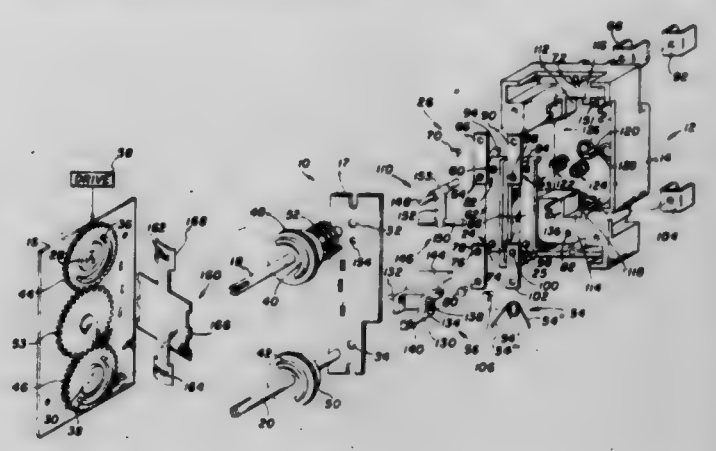
4,335,282

TIMER SWITCH MODULE

Richard E. Adams, Indianapolis, and Richard W. Stafford, Clayton, both of Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.

Filed 1980, Ser. No. 133,532
Int. Cl.³ H01H *7/00*
U.S. Cl. 200—38 R **9 Claims**

1. In a timing mechanism comprising at least first and second sets of electrical contacts opened and closed in response to axial indexing of corresponding first and second shafts; and a coupling means between said sets of electrical contacts and said shafts providing alternative conditions of said sets of electrical contacts whereby three electrical contact conditions are provided:
(1) with both said first and second shafts indexed out, said first set of electrical contacts is closed and said second set of electrical contacts is open;



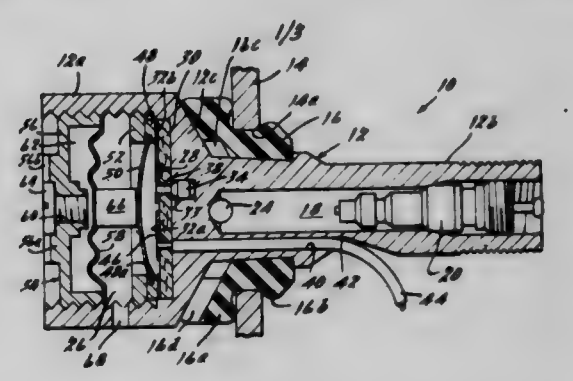
(2) with both said shafts indexed in, said first set of electrical contacts is open and said second set of electrical contacts is closed;
(3) with said first shaft indexed out and said second shaft indexed in, both said first and second sets of electrical contacts are closed.

4,335,283

TEMPERATURE COMPENSATED FILL VALVE/PRESSURE SWITCH

Robert S. Migrin, Dearborn, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed 1979, Ser. No. 100,687
Int. Cl.³ H01H *35/24*
U.S. Cl. 200—61.25 **37 Claims**



1. An improved fluid pressure monitoring switch of the type including a housing adapted for mounting within a container, at least one moving contact and at least one fixed contact both disposed within said housing, said switch operative to monitor the fluid pressure within the container and to shift from a first contact state to a second contact state when the fluid pressure falls below a selected level, the improvement comprising;
a capsule comprising a substantially rigid wall member and a compliant wall member, said wall members defining therebetween a sealed cavity pressurized to a predetermined value, means whereby said compliant wall member is operative to virtually effect a preselectable compensation characteristic by substantially varying the volume of said cavity as a function of cavity and container fluid pressures, said compliant wall member operatively engaging said moving contact for displacement with respect to said fixed contact as a function of fluid temperature within

said capsule, and thereby varying said selected level as a function of said fluid temperature; and

capsule retention means operative to maintain said rigid wall member in a fixed relationship with said housing.

4,335,284

SWITCH FOR DIRECTION INDICATOR OF VEHICLE

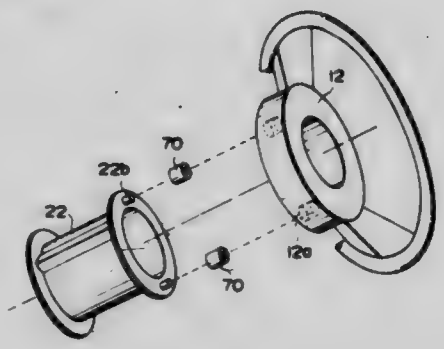
Takeshi Ochiai, Toyota; Jun Ohta, Nagoya; Minoru Izawa, Okazaki, and Takashi Haneda, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed 1980, Ser. No. 114,367

Claims priority, application Japan, 1979, 54-8076[U]

Int. Cl.[3] H01H *3/16*

U.S. Cl. 200—61.27 11 Claims



1. A switch for a direction indicator of a vehicle, comprising:

a. a bracket having a main body operationally connected with a control lever for a direction indicator and rotatable through a predetermined angle in dependence on a direction selected;

b. a ratchet opposed to said main body of said bracket, opposite end portions of which are constantly biased in a direction for engaging with opposite end portions of the main body of said bracket, and rotatable through a predetermined angle in dependence on a direction selected;

c. a cancel cam formed at the periphery thereof with projections capable of releasing engagement between the end portions of the main body of said bracket and said ratchet in response to the rotation of a steering wheel, said cam having means biased in a direction for engaging the steering wheel through a slight clearance with the steering wheel in the direction of rotation and rotating along with the steering wheel; and

d. a frictional sound dampening means interposed between abutting surfaces of said cancel cam and said steering wheel whereby striking noises occurring between the ratchet and bracket are reduced.

4,335,285

FLOAT OPERATED ELECTRICAL SWITCH ASSEMBLY

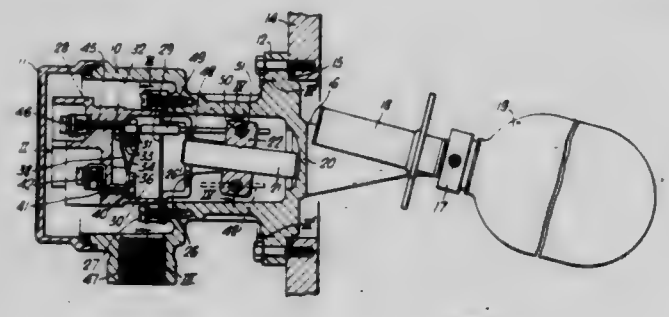
Norman West, High Wycombe, England, assignor to Bestobell Mobrey Limited, Slough, England

Filed 1980, Ser. No. 122,046

Claims priority, application United Kingdom, 1979, 7905876

Int. Cl.[3] H01H *35/18*

U.S. Cl. 200—84 C 10 Claims



1. In a float-operated switch assembly having a float mounted with a primary magnet on a wet side of said assembly so that said primary magnet moves, in use, upon movement of said float, said primary magnet controlling the movement of a secondary switch magnet by magnetic influence through a non-magnetic wall, and said secondary magnet being mounted on a dry side of said assembly and its movement controlling the operation of electrical switch contacts; the improvement wherein said secondary magnet swings between two stable end positions under the control of said primary magnet, said secondary magnet operating at least one pair of switch contacts of which a first contact is fixed and a second contact is mounted on a contact carrier and is resiliently urged into engagement with said first contact to complete part of an electrical circuit, and said secondary magnet being coupled to said contact carrier by a longitudinally movable control rod directly engaging the contact carrier and which, in one of said end positions of said secondary magnet, does not interfere with the resilient engagement of said first and second contacts but which, when said secondary magnet swings to the other of said end positions, moves longitudinally and moves said contact carrier against said resilient urging to disengage said second contact from said first contact and open said circuit part, and in the one end position of the secondary magnet the resilient engagement of the first and second contacts being independent of any connection of the contacts to the secondary magnet or of the exact position of the secondary magnet.

4,335,286

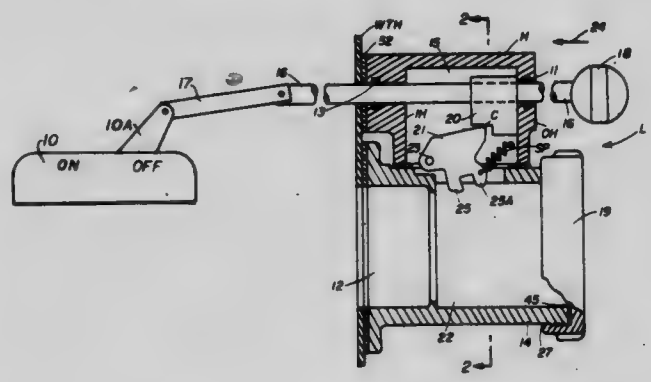
WATERPROOF ELECTRICAL SWITCH

Gunnar Nelson, P.O. Box 2847, Marathon Shores, Fla. 33052

Filed 1980, Ser. No. 124,067

Int. Cl.[3] H01H *9/04*

U.S. Cl. 200—302 11 Claims



1. In a waterproof device having means for opening and closing an electrical circuit and an electrical receptacle for receiving an electrical plug, the improvement which comprises:

a watertight housing, said watertight housing having a first passage means and a second passage means;

electrical means for opening and closing an electric circuit, said electrical means being contained within said watertight housing;

plug means, said first passage means providing communication between said watertight housing and said plug means;

first waterproof means for providing a waterproof seal between said plug means and said watertight housing means;

electrical connection means for electrically connecting said plug means and said electrical circuit;

safety lock housing, said second passage means providing communication between said electrical means and said safety lock housing;

first shaft means, said first shaft means extending from said watertight housing through said second passage means into said safety lock housing and through a third passage means to the exterior of said safety lock housing;

a rotating lock member, said rotating lock member being positioned in said safety lock housing and biased for rotation about a second shaft, lock means afixed to said first shaft and capable of movement from a first position to a

second position, said first position being open and said second position corresponding to said circuit being closed, said first shaft including connecting means, for connecting said first shaft to said electrical means and causing said electrical means to open and close said electrical circuit;

a plug receiving region, said region being positioned such that a first portion of said rotating lock member extends into said plug receiving region, in the path of the plug during insertion into said plug receiving region, the insertion of said plug causing said rotating lock member to rotate;

said rotating lock member having a second portion positioned between said first position and said second position of said lock means when in its biased position;

said lock means being positioned when in its second position, such that said rotating lock member is precluded from rotating to its biased position;

interlocking means, interlocking said rotating lock and said plug when said plug is in engagement with said plug means, said interlocking means preventing withdrawal of said plug when said rotating lock member is not in its biased position;

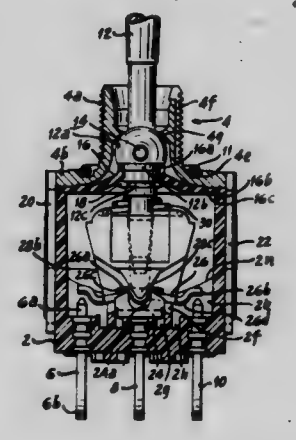
whereby, said plug cannot be moved until the shaft is moved such that said electrical circuit is open and said rotating lock member can be rotated to its biased position and said plug cannot be inserted unless rotating lock member is in its biased position.

4,335,287

LEVER SEAL FOR MINIATURE SEALED TOGGLE SWITCH

Louis F. Aschenbach, Menomonee Falls, and Selami Y. Pusatcioglu, Milwaukee, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed 1981, Ser. No. 244,486
Int. Cl.³ H01H *9/04, 21/04*
U.S. Cl. 200—302 **7 Claims**



1. A miniature environmentally-sealed toggle switch comprising:

a housing having a base provided with a contact compartment and a cover having a bushing extending therefrom;

stationary contacts in said compartment having terminals extending through said base to the outside;

a movable contactor supported on one of said stationary contacts serving as a pivot therefor and being rockable in opposite directions to engage and disengage at least one other stationary contact;

a toggle lever extending down through said bushing and means pivotally supporting said toggle lever in said bushing for limited pivotal movement;

an actuator engaging said contactor and being slidable therealong to rock the same;

means coupling said toggle lever to said actuator comprising a hole in said actuator into which the inner end portion of said toggle lever extends and a frustoconical compression spring biasing said actuator against said contactor so that said actuator slides along said contactor and concurrently rocks in unison with said toggle lever as the latter is pivotally operated from one operating position to another;

sealing means comprising a gasket hugging said toggle lever below its pivot and means responsive to clamping of said cover for stretching said gasket outwardly toward the periphery of said base and said cover

and an adhesive-sealant between and about said toggle lever and said gasket.

4,335,288

ELECTRIC SWITCHING APPARATUS PARTICULARLY A CAM SWITCH

Bernd Ludwig, Marienheide, and Jürgen Donner, Gummersbach, both of Fed. Rep. of Germany, assignors to Starkstrom Gummersbach GmbH, Marienheide, Fed. Rep. of Germany

Filed 1980, Ser. No. 147,092
Claims priority, application Fed. Rep. of Germany, 1979, 2918289
Int. Cl.³ H01H *9/02*
U.S. Cl. 200—307 **14 Claims**



1. An electric switching apparatus, particularly a cam switch including a driving unit, a detent chamber unit, and at least one switch chamber unit, said units having a modular construction and being consecutively arranged in axial direction one after the other, comprising snap action arresting means integrally formed on opposite side walls of each unit and including on respective side walls resilient arresting pieces, and rigid arresting points, said points on one unit being releasably engageable with the arresting pieces in the adjoining unit, and recesses formed in said side walls of respective units opposite the free edge of each arresting piece to accommodate a screwdriver-like tool for lifting said arresting pieces during the disassembly of respective units, said side walls in each unit being asymmetrically staggered relative to each other to define a central step for preventing angular displacement of said unit.

4,335,289

MICROWAVE OVEN

Duaine W. Smith, Tiffin, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa

Filed 1978, Ser. No. 971,717
Int. Cl.³ H05B *6/72*
U.S. Cl. 219—10.55 F **24 Claims**

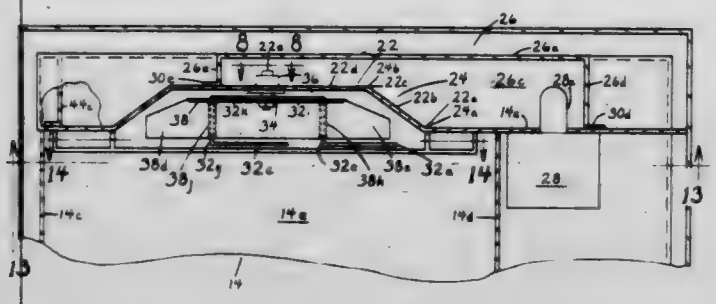
1. Antenna assembly for a microwave oven having a flow of air circulating through a microwave oven cavity comprising:

a. directional rotating antenna means;

b. probe antenna means connected to a common junction of said directional rotating antenna means; and,

c. antenna rotating means including a dielectric bearing axially supporting said probe antenna means and a dielectric bushing rotatably supporting said bearing, said bushing including means for locking said antenna rotating means into engagement is a wall of said microwave oven cavity, said locking means including a plurality of out-

wardly extending key means and said wall including an equal plurality of keyway means, each of said keyway means including a tooth whereby said probe antenna means excites said directional rotating antenna means with



microwave currents providing uniform energy distribution and consistent heating within said microwave oven cavity and said key means inserts through said keyway means and each of said key means engages with each of said tooth of said keyway means.

4,335,290

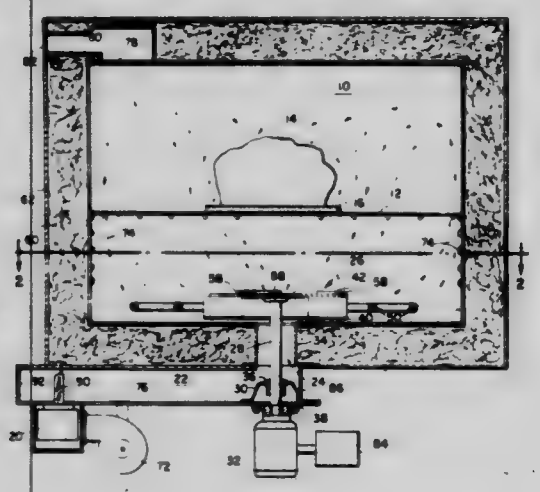
MICROWAVE OVEN BLOWER RADIATOR

Wesley W. Teich, Wayland, Mass., assignor to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 866,970, Jan. 5, 1978, abandoned. This application 1979, Ser. No. 69,479

Int. Cl.[3] H05B *6/72*

U.S. Cl. 219—10.55 F 10 Claims



1. In combination:

a microwave oven comprising a metallic enclosure supplied with microwave energy through a coaxial line coupled through a wall of said enclosure to a rotating microwave energy radiator in said enclosure;

a resistive heating element in said enclosure;

means for circulating air heated in said oven by said resistive heating element, said circulating means comprising means rigidly connected to said rotating radiator for blowing said air past said resistive heating element;

said radiator being supplied by said microwave energy from a magnetron through said coaxial line, the central conductor of said coaxial line supporting said radiator, said radiator being rotated by said central conductor; and

said radiator comprising a plurality of radiating elements simultaneously radiating separate patterns of microwave energy into said enclosure.

4,335,291

POPPED CORN MAKING APPARATUS USED IN A MICROWAVE OVEN

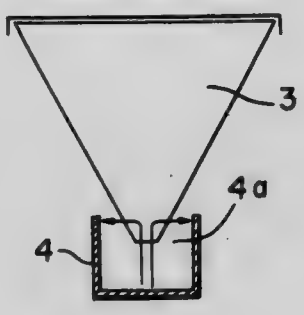
Ken Ishino; Taro Miura, and Yasuo Hashimoto, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 137,257

Claims priority, application Japan, 1979, 54-92596

Int. Cl.[3] H05B *6/80*

U.S. Cl. 219—10.55 E 6 Claims



1. A popped corn making apparatus used in a microwave oven which comprises a bowl having an opening at the upper part and a narrow closed bottom and a substantially conical shape; and a resonator placed at the bottom of said bowl whereby electric field resulted by resonance of said resonator under an application of microwave, is applied to grains of corn contained in said bowl to produce a popped corn.

4,335,292

HIGH FREQUENCY OVEN WITH DRAWER TYPE DOOR

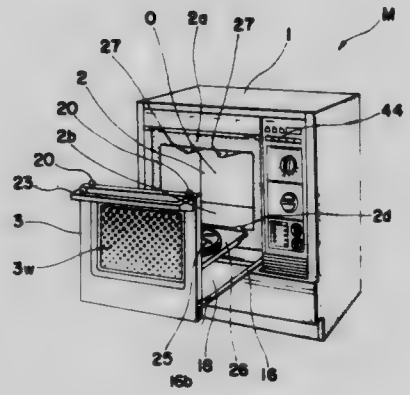
Junzo Tanaka, Fujiidera; Chikao Nakano, and Hitoshi Kurita, both of Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed 1980, Ser. No. 137,444

Claims priority, application Japan, 1979, 54-57329; 1979, 54-62072[U]

Int. Cl.[3] H05B *6/78*

U.S. Cl. 219—10.55 F 9 Claims



1. A high frequency heating apparatus comprising:

a main body having a heating chamber therein;

said heating chamber having an access opening in one side thereof and a bottom wall;

a high frequency energy oscillating means for supplying high frequency energy into said heating chamber;

a drawer type door having a substantially horizontal and vertical portion defining an L shaped cross section in a vertical plane parallel to a longitudinal axis of said door, said horizontal portion being longitudinally slidably received into said main body for allowing said vertical portion to close said access opening;

a pair of metallic plates, said plates being attached to the side of said vertical portion facing said heating chamber and being spaced from one another;

each of said metallic plates having a projecting wall extending toward said heating chamber;

pin members respectively secured to each said projecting wall and respectively having an electrically insulating material therearound;

a cantilever shelf member having claw members at one end thereof, said claw members being adapted to respectively engage at least one of said pin members of each projecting wall and said shelf member one end being adapted to abut at least one of said pin members to detachably mount said shelf member to said vertical portion in a substantially horizontal position;

said shelf member being slidably received within said heating chamber and an end opposite said one end being supported by said bottom wall when said door is moved toward said opening, said shelf member being supported only at said one end when said door is in its furthermost position away from said opening;

said shelf member being electronically insulated from said main body and said door;

a turntable rotatably mounted on said shelf member;

a magnetic coupling means operatively associated with said turntable for rotating said turntable; and

a driving means operatively associated with said magnetic coupling means for driving said coupling means and thereby rotating said turntable.

4,335,293

HEATING CONTROL APPARATUS BY HUMIDITY DETECTION

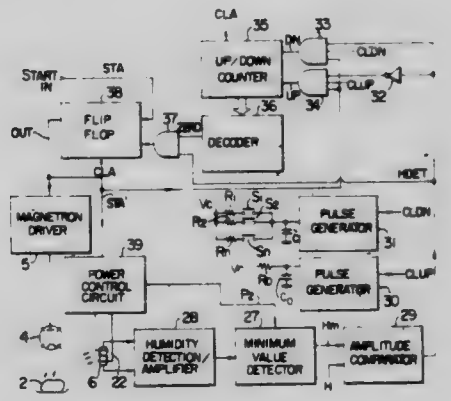
Tetsu Kobayashi; Takato Kanazawa, both of Nara, and Makoto Tsuboi, Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 768,191, Feb. 14, 1977, abandoned. This application 1980, Ser. No. 157,171

Claims priority, application Japan, 1976, 51-16737; 1976, 51-18116; 1976, 51-115288

Int. Cl.³ H05B *6/68*

U.S. Cl. 219—10.55 B **11 Claims**



1. A heating control apparatus comprising:

heating means for heating food;

humidity sensor means for detecting relative humidity, said relative humidity having a minimum value and changing with the amount of water vapor emanating from said food as said food is heated;

humidity change detecting means connected to said humidity sensor means for detecting when an abrupt rise occurs in the value of relative humidity with respect to said minimum relative humidity value, the output of said humidity change detecting means being substantially unaffected by changes in the surrounding temperature and humidity conditions, said humidity change detecting means detecting when said relative humidity has risen by a predetermined threshold value from said minimum relative humidity value, said humidity change detecting means including,

an amplifier circuit for amplifying the output signal of said humidity sensor,

a minimum value detector circuit for holding the minimum value of the output signal of said amplifier circuit and providing a difference signal corresponding to the difference between the output of said amplifier circuit and said minimum value, and

a comparator circuit for comparing said difference signal with said predetermined threshold value, said comparator circuit providing a signal when said difference signal reaches said predetermined threshold value; and

heating time determining means connected to said humidity change detecting means for determining the total heating time including an additional heating time which commences after said humidity change detecting means detects that the change in the relative humidity has reached the predetermined threshold value.

4,335,294

EDM METHOD AND APPARATUS HAVING A GAP DISCHARGE CIRCUIT CONSTRUCTED WITH LIMITED STRAY CAPACITANCES

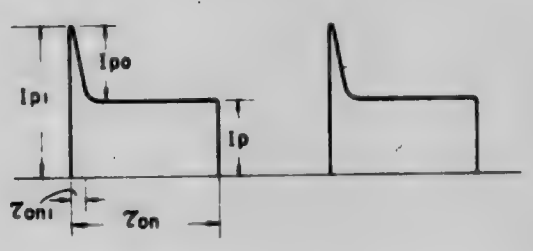
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed 1980, Ser. No. 171,943

Claims priority, applications Japan, 1979, 54/94737; 1979, 54-94738; 1979, 54-106164

Int. Cl.³ B23P *1/08*

U.S. Cl. 219—69 M **25 Claims**



1. A method of the electrical-discharge-machining of a workpiece electrode juxtaposed with a tool electrode across a machining gap flooded with a liquid dielectric, said method comprising the steps of:

applying a succession of machining current pulses across the machining gap through a gap discharge circuit by repetitively pulsing the output of a DC source by means of a semiconductor switching unit, said gap discharge circuit including said semiconductor switching unit, leads in said unit, cables which connect said DC source to said unit, and said DC source and said unit to a vicinity of said machining gap, conductors in said vicinity which lead from said cables for directly energizing said tool electrode and said workpiece electrode and having stray capacitances distributed therein, each of said machining current pulses having an increased peak current at an initial portion thereof due to the fact that an electrostatic energy stored on said distributed stray capacitances during the preceding pulse interval is discharged through said machining gap when said machining pulse is delivered to said gap; and

controlling said initial increased peak current to a minimum by limiting the total value of said distributed stray capacitances in said gap discharge circuit not to exceed 0.01 microfarad.

4,335,295

METHOD OF MARKING A METAL DEVICE

Gary J. Fowler, 121 31st St., Manhatten Beach, Calif. 90266

Filed 1979, Ser. No. 37,341

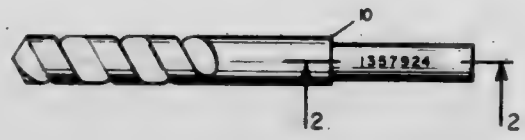
Int. Cl.³ B23K *27/00*

U.S. Cl. 219—121 LM **2 Claims**

1. A method of marking a metal device, which has been formed from a metal with alloying materials with an identification symbol or a serial number that is not detectable by a visual examination comprising the steps of:

a. locally heating a designated area on the surface of the metal device to a temperature in the range of 1000° C. to

1100° C. so that the microstructure of the surface of the metal device is altered; and



b. using a selected chemical etching solution to etch away the altered microstructure in the designated area at a different rate than the unaltered microstructure outside the designated area thereby exposing the designated area.

4,335,296

MACHINE TOOL WITH A LASER BEAM CUTTING DEVICE

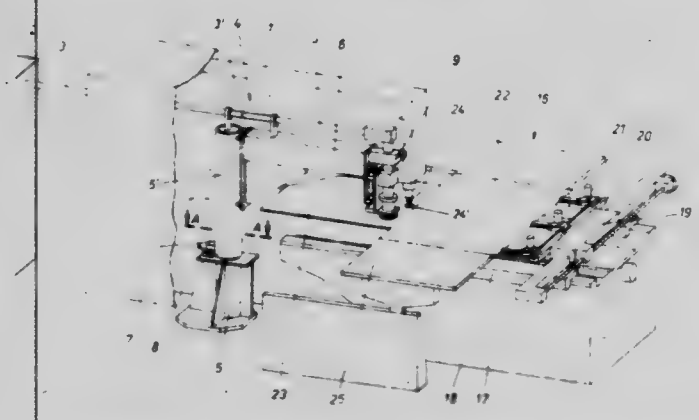
Walter Bredow, Alfeld, Fed. Rep. of Germany, assignor to C. Behrens AG, Alfeld, Fed. Rep. of Germany

Filed 1980, Ser. No. 172,845

Claims priority, application Fed. Rep. of Germany, 1979, 2933700

Int. Cl.³ B23K *27/00*

U.S. Cl. 219—121 LG **9 Claims**



1. A machine tool comprising a horizontally arranged coordinate table; means for moving a workpiece on the table in two directions normal to each other; an elongated machine tool body; at least one vertically reciprocatable tool located in said machine tool body for punching a workpiece moved under the tool by the table; a laser beam cutting device including a laser beam cutting head; an overhang beam carrying at one end thereof said laser beam cutting head above a plane in which a workpiece on the table is movable; and means supporting said overhang beam independent of and disassociated from the machine tool body supporting the reciprocating tool so that vibrations created during operation of the tool are not transmitted to the laser beam cutting device.

4,335,297

ELECTRON BEAM PROCESSOR

Roger G. Little, Bedford, Mass., assignor to Spire Corporation, Bedford, Mass.

Division of Ser. No. 76,592, Sep. 18, 1979, Pat. No. 4,306,272.
This application 1980, Ser. No. 218,067
Int. Cl.³ B23K *15/00*

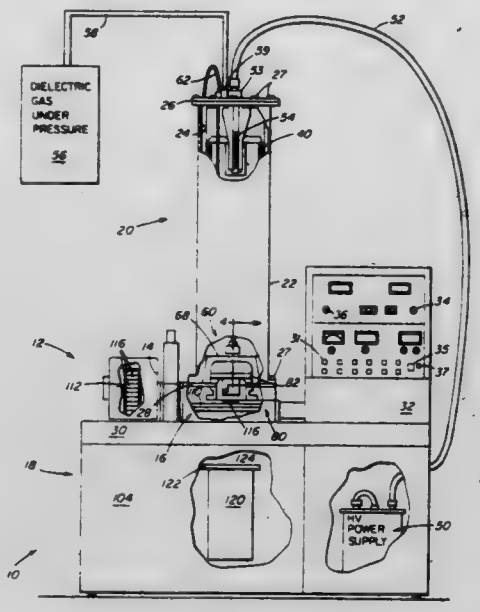
U.S. Cl. 219—121 EQ **10 Claims**

1. An electron beam pulsing means comprising:

(a) an electrical energy store of a single tubular construction having an inner electrode, an insulating means formed of an epoxy-resin cast about said electrode and having reinforced tapered ends extending beyond said electrode, and an outer electrode formed about said insulating means;

(b) trigger means mounted concentrically in one end of said inner electrode; and

(c) field emission diode structure mounted in operative association with said one end of said inner electrode housing said trigger means;



(d) said electrical energy store serving as a transmission line during discharge of said electron beam pulsing means to said field emission diode structure.

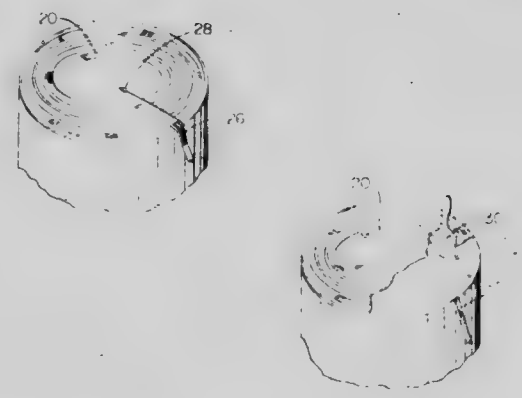
4,335,298

REINFORCED PLASTIC CONTAINER WITH AN INTEGRAL HEATING ELEMENT

Robert W. Newbold, Jr., Cincinnati, Ohio, assignor to Plas-Tanks Industries, Inc., Fairfield, Ohio

Division of Ser. No. 34,775, Apr. 30, 1979, Pat. No. 4,287,663.
This application 1981, Ser. No. 251,150
Int. Cl.³ F27D *11/02*

U.S. Cl. 219—441 **3 Claims**



1. A plastic fiberglass reinforced container with integral heating means, comprising:

(a) a corrosion liner, said corrosion liner including:

(i) a continuous molded internal surface of C-grade fiberglass, said molded surface being adapted to interface with the container contents; and

(ii) a backup layer of E-grade fiberglass bonded to said C-grade fiberglass;

(b) a structural lamina of E-grade fiberglass bonded to said backup layer;

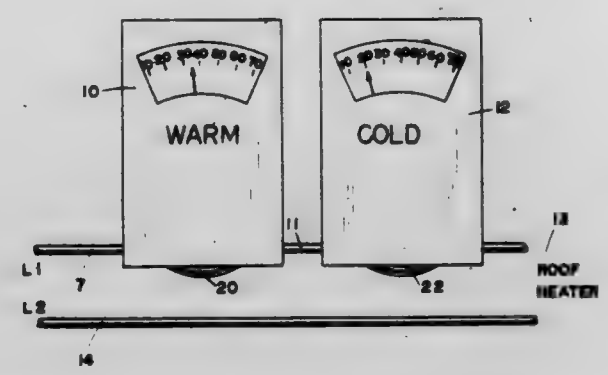
(c) an electrical heating element encapsulated in E-grade fiberglass positioned between said corrosion liner and said structural lamina, said heating element being bonded to both the corrosion liner and the structural lamina and being adapted to heat the container contents; and

(d) electrical lead wires extending through said structural lamina and being adapted to connect said heating element to an external electrical power source.

4,335,299
THERMOSTATIC CONTROL FOR ELECTRIC ROOF HEATING CABLE

James F. Belohlavek, 647 Range Line Rd., Mosinee, Wis. 54455

Filed 1980, Ser. No. 191,919
Int. Cl.[3] H05B *1/02*
U.S. Cl. 219—510 4 Claims



1. Differential thermostatic control for a roof heating tape comprising

a first electric circuit component embodying contact points and temperature responsive biasing means wherein said contact points are opened by said biasing means by increase in ambient air temperature sensed above an upper temperature control limit,

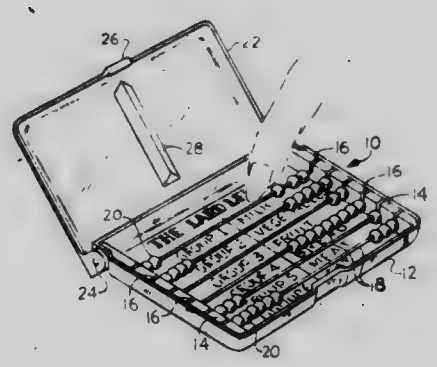
a second electric circuit component embodying contact points and temperature responsive biasing means wherein said contact points are opened by said biasing means by decrease in ambient air temperature sensed below a lower temperature control limit,

said first electric circuit component and said second electric circuit component being connected in series circuit without substantial voltage drop thereacross for controlling energization of load.

4,335,300
DIET CONTROL APPARATUS AND METHOD

William C. Shepherd, 725 Palomares Ave., San Dimas, Calif. 91773

Filed 1980, Ser. No. 181,867
Int. Cl.[3] G06C *1/00*
U.S. Cl. 235—123 4 Claims



1. Apparatus for recording and visually indicating the consumption of various nutrients which comprises:

a box having first and second elongated members disposed in spaced relationship, said box including a plurality of members disposed in generally rectangular relationship, first and second members of said plurality of members being disposed in generally parallel relationship;

a cover maintained on said box and movable between open and closed positions;

a plurality of wires intermediate said first and second members in generally mutually parallel relationship;

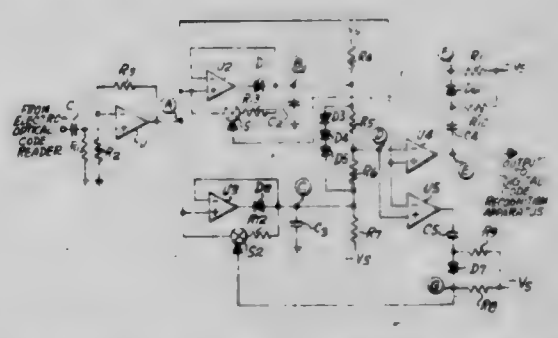
a plurality of beads carried on each of said wires, each bead having a central aperture engaging a wire, said apertures and said wires being dimensioned to allow free movement of each bead on the wire on which it is mounted; and

means for constraining said beads on each wire from moving past a predetermined line defining first and second axial sections of each of said wires, said means for constraining comprises a member carried on said cover and configured to prevent axial movement of said beads on said wires past said line only when said cover is closed, said means for constraining allowing free movement of said beads when said cover is open.

4,335,301
WAVE SHAPING CIRCUIT FOR ELECTRO-OPTICAL CODE READERS

Roger C. Palmer, and William J. Purdue, both of Edmonds, Wash., assignors to Interface Mechanisms, Inc., Lynnwood, Wash.

Filed 1979, Ser. No. 79,326
Int. Cl.[3] G06K *7/10*
U.S. Cl. 235—462 34 Claims



1. A wave shaping circuit for producing a circuit output signal, which alternates between first and second logic levels, from a code reader electrical output signal whose voltage alternates in a substantially sinusoidal manner between positive and negative peak levels as a coded record is scanned by the code reader, said circuit comprising:

(A) first means responsive to the code reader electrical output signal for providing a first signal whose voltage is related to that of the code reader electrical output signal;

(B) a positive peak detector responsive to said first signal for providing a second signal, said positive peak detector being operative to cause the voltage level of said second signal to follow that of said first signal, as the voltage level of said first signal increases from the time that the voltage level of said second signal is brought substantially equal to that of said first signal to the time that the voltage level of said first signal begins to decrease, and being further operative to thereafter maintain the voltage level of said second signal substantially constant;

(C) a negative peak detector responsive to said first signal for providing a third signal, said negative peak detector being operative to cause the voltage level of said third signal to follow that of said first signal, as the voltage level of said first signal decreases from the time that the voltage level of said third signal is brought substantially equal to that of said first signal to the time that the voltage level of said first signal begins to increase, and being further operative to thereafter maintain the voltage level of said third signal substantially constant;

(D) second means combining said second and third signals to provide a reference signal whose voltage level is between those of said second and said third signals;

(E) third means for providing said circuit output signal in response to a comparison of the voltage levels of said first and said reference signals, said circuit output signal having said first logic level when the voltage level of said first signal exceeds that of said reference signal and having said second logic level when the voltage level of said reference signal exceeds that of said first signal; and,

(F) fourth means for bringing the voltage level of said second signal substantially to that of said first signal at the

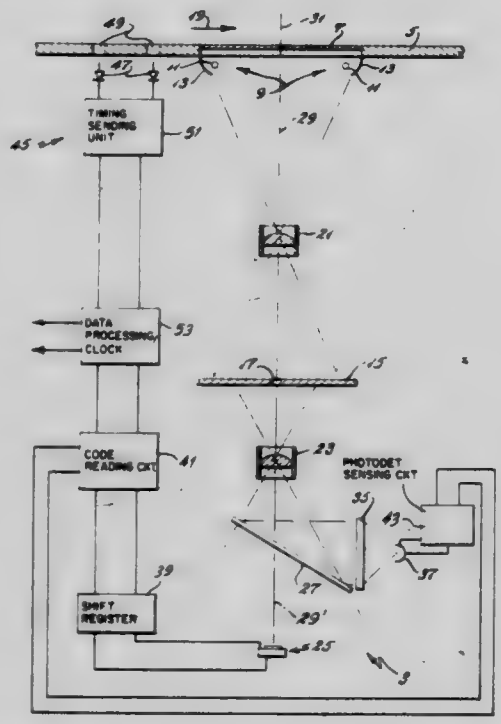
time that the voltage level of said first signal goes above that of said reference signal, and for bringing the voltage level of said third signal substantially to that of said first signal at the time that the voltage level of said first signal goes below that of said reference signal.

4,335,302

BAR CODE SCANNER USING NON-COHERENT LIGHT SOURCE

Jean J. Robillard, Amherst, Mass., assignor to R.L.S. Industries, Inc., Elk Grove, Ill., a part interest

Filed 1980, Ser. No. 179,754
Int. Cl.³ G06K *7/10*
U.S. Cl. 235—462 **15 Claims**



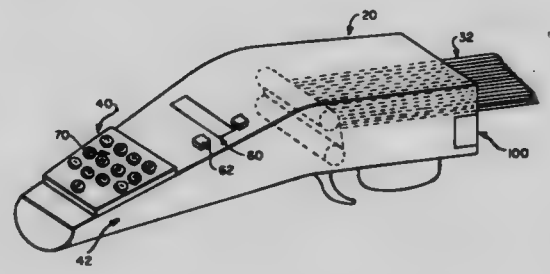
1. A label-scanning apparatus comprising:
(a) a top window at a top surface level;
(b) a non-coherent light source below the level;
(c) an optically opaque lower surface, located below the top surface, having a longitudinal slit therein, the slit being transparent to light;
(d) a first optical lens located between the top surface and the lower surface, the lens adapted to focus an image along a horizontal line on a package label resting on the top surface into the slit;
(e) a diode array located below the lower surface, the array having a plurality of photodiodes aligned longitudinally in a single row, the photodiodes changing their resistances proportionally to the illumination on their surfaces, the diode array being formed as an integrated circuit;
(f) a photocell;
(g) a partially transparent mirror located below the lower surface, the partially transparent mirror being adapted to reflect a portion of light impinging thereon and to transmit a remaining portion of light impinging thereon;
(h) a second optical lens, located between the lower surface and the partially transparent mirror, the second optical lens cooperating with the partially transparent mirror to focus the image focused on the slot by the first optical lens onto the diode array and to transmit a portion of the image focused on the slot to the photocell;
(i) a third optical lens located between the partially transparent mirror and the photocell, the third optical lens cooperating with the second optical lens and the partially transparent mirror to focus a portion of the image focused on the slit by the first optical lens onto the photocell;
(j) a shift register operable to register the light sensed by the diodes on the digital array;
(k) a photocell-monitoring circuit responsive to the light sensed by the photodetector;
(l) a data processing means, the data processing means receiving signals from the shift register and the photocell monitoring circuit, and producing an output, the output corresponding to a pattern of the image along the horizontal line of the package label and the change of the image of the package label as the package is moved along the top surface provided that the pattern coincides with predetermined code parameters.

4,335,303

METHOD FOR COLLECTING MARKET SURVEY DATA FROM UNIVERSAL PRODUCT TYPE CODED ITEMS

James Call, 8 Soundview Dr., Larchmont, N.Y. 10538

Division of Ser. No. 970,986, Dec. 19, 1978, Pat. No. 4,290,688. This application 1979, Ser. No. 87,476
Int. Cl.³ G06K *15/12*; G03B *27/00*
U.S. Cl. 235—463 **8 Claims**



1. Method for collecting market survey data in a data recorder for universal product type code encoded market data, comprising:
providing said data recorder with a housing having an exposure aperture therein for admitting a source of light therethrough;
controllably advancing a photographic recording medium past said exposure aperture for optically aligning a different predetermined portion of said photographic recording medium with said exposure aperture each time said medium is advanced, said exposure aperture being optically alignable with a universal product type code on a market item for which said survey data is to be collected;
photographically recording said universal product type code data on said medium for said market item in response to the reflection of the image of said universal product type code on to said medium through said exposure aperture when exposed to said light source;
selectively inserting, by means of keyboard means, a photographic recording of ancillary market survey data on said photographic recording medium corresponding to said market item adjacent said photographically recorded universal product type code; and
providing, on said keyboard means, prompting indicator means for alerting the user of the keyboard to a predetermined sequence of insertion and recording of said market survey data on said photographic recording medium.

4,335,304

SIGNAL DETECTION MECHANISM FROM ELECTRON MULTIPLIER

Paul W. Palmberg, Minneapolis, Minn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed 1980, Ser. No. 174,022
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—207 **8 Claims**

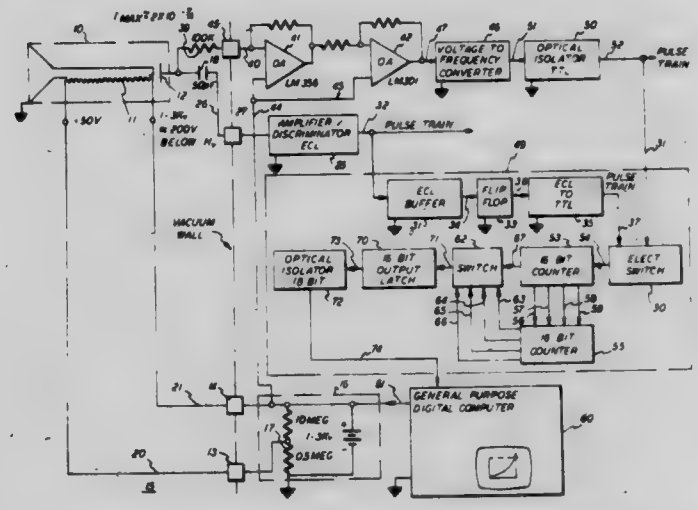
1. An electron multiplier detection mechanism comprising:
(a) a high-vacuum chamber having a plurality of electrical feedthrough devices disposed in a wall of said chamber;
(b) an electron multiplier disposed within said high-vacuum chamber and adapted to be coupled at its input to the output of a charged particle analyzer, said electron multiplier including collector and excitation means;

(c) floating operational amplifier means disposed outside said high-vacuum chamber;

(d) a high voltage power supply disposed outside said high-vacuum chamber connected to the excitation means and collector of said electron multiplier through said plurality of electrical feedthrough devices, the voltage appearing at the excitation means being substantially lower than the voltage magnitude on the collector;

(e) an amplifier-discriminator disposed outside said high-vacuum chamber to provide output data proportional to the pulse rate of said electron multiplier;

(f) resistance coupling means disposed within said high-vacuum chamber coupling said collector to the input of said operational amplifier means through said plurality of electrical feedthrough devices;



(g) capacitance coupling means disposed within said high-vacuum chamber coupling said collector to the input of said amplifier discriminator through said plurality of electrical feedthrough devices;

(h) a voltage-to-frequency converter disposed outside said high-vacuum chamber operably connected to said operational amplifier means and providing an output signal having a frequency proportional to the voltage magnitude at the input;

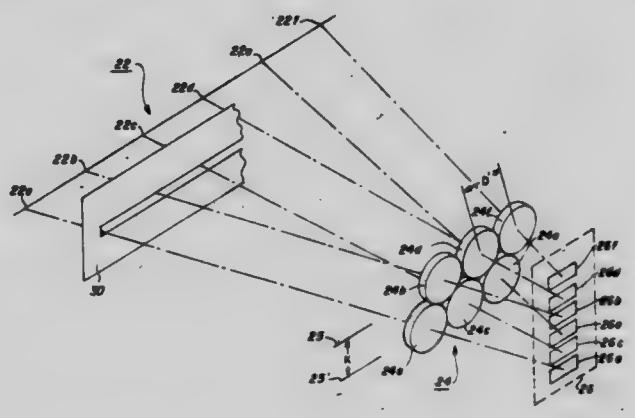
(i) and an input-to-output isolator disposed outside said high-vacuum chamber having its input operably connected to the output of said voltage-to-frequency converter and providing an electrically isolated output signal representative of the pulse rate of said electron multiplier.

4,335,305

TWISTING GEOMETRY SCANNER UTILIZING STAGGERED LENS ARRAY

Ned J. Seachman, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed 1980, Ser. No. 179,204
Int. Cl.³ H01J *3/14*
U.S. Cl. 250—216 **8 Claims**



1. An optical system wherein a line is scanned by a light source and the reflected light is projected by a plurality of lenses onto an area detector array, said system including:

a first array of lenses having their centers lying on a first axis tilted with respect to the axial direction of the scan line, each lens adapted to project images of a first group of alternating segments of said scan line onto a first group of tiered linear detector arrays, and

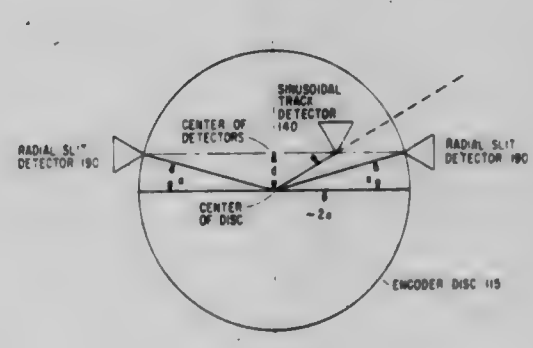
a second array of lenses having their centers lying on a second axis parallel to said first lens array axis, each lens of said second array adapted to project a second group of alternating line segments onto a second group of tiered linear detector arrays.

4,335,306

SURVEYING INSTRUMENT

Alfred F. Gort, Loveland, Colo., and Charles E. Moore, Rochester, N.Y., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 842,864, Oct. 17, 1977, abandoned, which is a division of Ser. No. 742,938, Nov. 18, 1976, Pat. No. 4,108,539.
This application 1979, Ser. No. 89,007
Int. Cl.³ G01D *5/34*
U.S. Cl. 250—231 SE **10 Claims**



1. A shaft angle encoder comprising:

an encoder disc for periodically modulating first and second signals, the signals being modulated as a function of angular displacement;

first, second and third detectors linearly aligned, said first and second detectors having inputs coupled to receive the first signal, said third detector coupled to receive the second signal, each detector having an output, each detector generating a signal upon its respective output responsive to the signal input thereto;

processor means coupled to the outputs of said first, second and third detectors for determining the eccentricity error from signals responsive to the outputs of said first and second detectors, modifying the measurement of the angular displacement determined from said third detector in response to the determined error, and combining angular displacements derived from said detectors to obtain a single angular displacement.

4,335,307

RADIOGRAPHIC APPARATUS AND METHOD WITH AUTOMATIC EXPOSURE CONTROL

Richard C. DeVries, Aurora, and Edwin R. Hill, Chardon, both of Ohio, assignors to Technicare Corporation, Solon, Ohio

Filed 1980, Ser. No. 142,187
Int. Cl.³ G03B *41/16*; N05G *1/30*; A61B *6/00*; H04N *5/32*
U.S. Cl. 250—322 **10 Claims**

1. A method of reducing a patient's exposure to x-radiation in a radiographic diagnostic apparatus comprising the steps of:

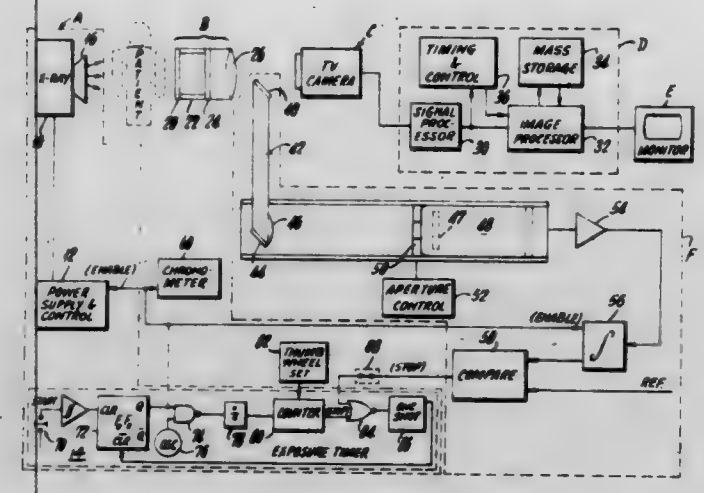
(a) irradiating a region of the patient with x-radiation to generate a shadowgraphic projection through the region;

(b) converting the x-radiation which has traversed the region to an optical image of the shadowgraphic projection;

(c) converting the optical image to a video signal of the shadowgraphic projection;

(d) determining the average intensity of light over at least a part of the optical image;

(e) integrating the intensity with respect to time to determine the exposure to light since the beginning of the integration;



(f) when the exposure reaches a predetermined level, stopping the irradiation of said region with x-radiation; and

(g) determining the exposure time between the commencing of irradiating the region with x-radiation and the exposure reaching the predetermined level.

4,335,308

INSPECTION OF UNDERWATER STRUCTURES

Leonard R. Caldecourt, Faringdon; Gordon V. Evans, Blewbury, and Tony V. Parsons, Didcot, all of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed 1980, Ser. No. 110,406

Claims priority, application United Kingdom, 1979, 7900845

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—358 R **11 Claims**



1. A radiation detector for use in a deep water off-shore underwater environment, comprising a hermetically sealed outer casing having a waterproof plug and socket connection for a telemetry cable, and within the outer casing, a radiation detector tube having a hermetically sealed metal case out of one end of which extends an output lead, wherein the said end of the radiation detector tube through which the output lead passes, the output lead and a portion of the plug connected to the output end are encapsulated in a resilient impervious material so as to prevent the ingress of water to the part of the radiation detector tube where the output lead emerges, and means for mechanically isolating the radiation detector tube from the outer casing.

4,335,309

METHOD AND DEVICE FOR THE RAPID DEFLECTION OF A PARTICLE BEAM

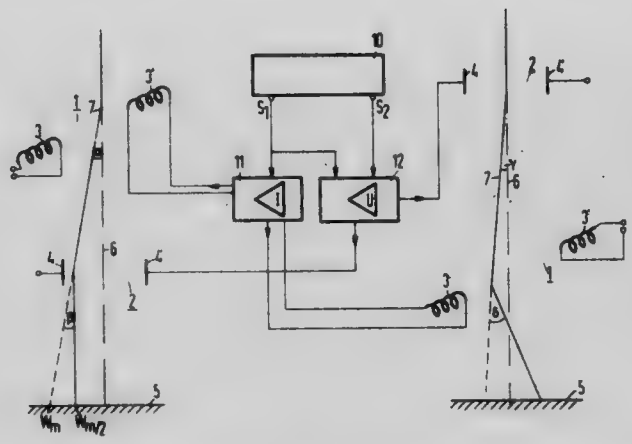
Klaus Anger, and Jüergen Frosien, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 172,085

Claims priority, application Fed. Rep. of Germany, 1979, 2937136

Int. Cl.³ H01J *37/00, 36/147*

U.S. Cl. 250—396 R **4 Claims**



1. A method for deflecting a particle beam in a particle radiation optical device, particularly an electron beam writer, wherein for producing the deflection, an electrostatic and a magnetic deflection means are generally in crossed relationship to one another and are arranged one behind the other in the beam direction, characterized in that for the purpose of compensation of extra-axial chromatic errors to a maximum degree: both deflection means (1, 2) are simultaneously driven with a first frequency (f_1) in such manner that the electrostatic deflection of the particle beam (7) is antiparallel and half as great as the magnetic deflection; and in that the electrostatic deflection means (2) is additionally driven with a second higher frequency (f_2; $f_2 > f_1$) whose amplitude is such as to produce a smaller deflection amplitude than the amplitude of the electrostatic deflection produced by the first frequency (f_1).

4,335,310

X-RAY DIAGNOSTIC GENERATOR COMPRISING ADJUSTMENT MEANS FOR THE X-RAY TUBE VOLTAGE

Kurt Franke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed 1981, Ser. No. 226,847

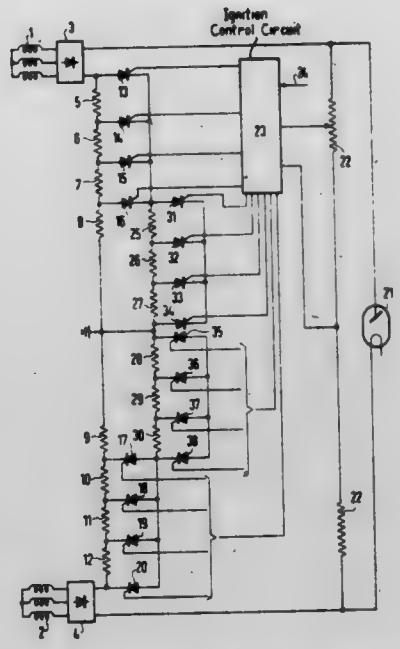
Claims priority, application Fed. Rep. of Germany, 1980, 3005182

Int. Cl.³ H05G *1/32*

U.S. Cl. 250—408 **3 Claims**

1. An x-ray diagnostic generator comprising an x-ray tube having a high voltage circuit, adjustment means for adjusting the x-ray tube voltage comprising a variable ohmic resistance in the high voltage circuit of the x-ray tube, said resistance

comprising a series of individual resistances (5 through 12), and electronic switches (13 through 20) individually actuatable to



bypass selected ones of said individual resistances (5 through 12).

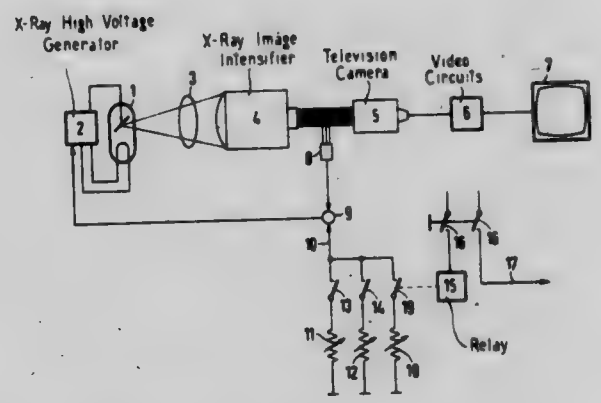
4,335,311

X-RAY DIAGNOSTIC APPARATUS WITH AN IMAGE-INTENSIFIER TV CHAIN

Herbert Lutz, Seukendorf, and Rolf Pfeifer, Erlangen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 969,193, Dec. 13, 1978, abandoned.
This application 1980, Ser. No. 164,053
Claims priority, application Fed. Rep. of Germany, 1978, 2803913

Int. Cl.³ H05G *1/30*
U.S. Cl. 250—409 1 Claim



1. An x-ray diagnostic apparatus comprising:
(a) an x-ray source,
(b) an x-ray high voltage generator for energizing said x-ray source to produce an x-ray beam with an input x-ray dose rate of adjustable value,
(c) an x-ray image intensifier-TV chain comprising an x-ray image intensifier requiring an input x-ray dose rate above a predetermined value to provide an image quality suitable for medical diagnostic purposes,
(d) dose rate sensing means for supplying an actual value signal in accordance with the actual value of the input x-ray dose rate supplied by said x-ray source to said x-ray image intensifier-TV chain, and
(e) control means comprising comparator circuitry for connection with said x-ray high voltage generator for controlling the input x-ray dose rate to said x-ray image intensifier-TV chain and thus for controlling the mean brightness of the output from the x-ray image intensifier,
(f) said control means comprising a plurality of rated value storage means (11, 12) for selectively supplying respective rated value signals to said comparator circuitry for selectively establishing respective input x-ray dose rate values greater than said predetermined value and selectively connectable with said comparator circuitry for controlling the input x-ray dose rate supplied to the x-ray image intensifier-TV chain in accordance with the respective rated value signal from a selected one of said rated value storage means, a further rated value storage means, (18) for selectively supplying a fixed rated value signal to said comparator circuitry, for selectively connectable with said comparator circuitry for selectively establishing an input x-ray rate at a preprogrammed fixed rated value less than said predetermined value required for a medical diagnosis but sufficient to provide an output image from said x-ray image intensifier-TV chain for purposes of visual observation to facilitate positioning a patient, and switching means (15, 16, 19) selectively operable for connecting said further rated value storage means (18) with said comparator circuitry for controlling the input dose rate supplied to said x-ray intensifier-TV chain in accordance with said preprogrammed fixed rated value, such that the patient can be positioned with the assistance of a visual observation of an x-ray generated image of the patient with minimal radiation exposure of the patient.

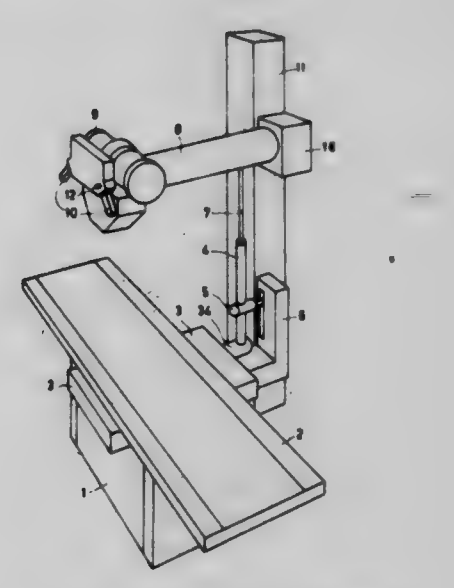
4,335,312

COUPLING BAR FOR X-RAY TOMOGRAPHY APPARATUS

Volker Onken, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed 1980, Ser. No. 165,176
Claims priority, application Fed. Rep. of Germany, 1979, 2927380

Int. Cl.³ G03B *41/16*
U.S. Cl. 250—445 T 3 Claims



1. An X-ray examination apparatus comprising:
a patient table;
a supporting arm, extending in a horizontal direction, movable over the patient table in a plane which extends in a horizontal direction;
an X-ray source mounted on the supporting arm;
an image recording device movable underneath the patient table in a plane which extends in a horizontal direction; and
a coupling device having two parts, one part being connected to the image recording device and the other part being detachably connected to the supporting arm, said coupling device being rotatable around a horizontal axis, said two parts being telescopically movable with respect to each other;
characterized in that:
the coupling device comprises a coupling rod having a first

end and a second end, said first end being detachably connected to the supporting arm; and

the apparatus further comprises:

a blocking device, mounted on the supporting arm, for engaging the first end of the coupling rod, said blocking device disengaging the first end of the coupling rod whenever the first end moves upward with respect thereto;

an abutment, positioned so that when the supporting arm and coupling rod connected thereto are moved downward, the second end of the coupling rod bears on the abutment so that the first end of the coupling rod moves upward with respect to the supporting arm; and

a manually operable latch device for maintaining the blocking device in a disengaged state after the blocking device is disengaged from the first end of the coupling rod.

4,335,313

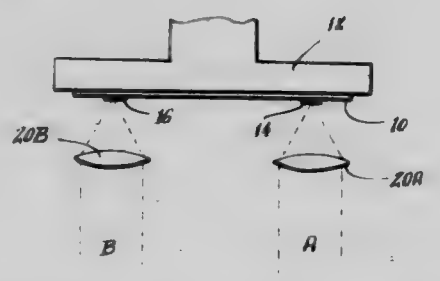
METHOD AND APPARATUS FOR ALIGNING AN OPAQUE MASK WITH AN INTEGRATED CIRCUIT WAFER

Justin L. Kreuzer, Trumbull, and David H. Kittell, Stamford, both of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed 1980, Ser. No. 149,106

Int. Cl.³ G01N *21/00, 23/00*

U.S. Cl. 250—491 **13 Claims**



1. The method of aligning a lithographic mask to a substrate wafer which comprises:

providing a plurality of alignment targets on one surface of each of said mask and wafer;

providing a plurality of microscope optical channels positioned to view portions of a reference plane;

positioning said wafer with its alignment surface in said reference plane and with each of its alignment targets aligned with the optical axis of a different one of said optical channels;

displacing said wafer from said reference plane to an exposure plane parallel thereto while retaining its alignment relative to said optical axes;

positioning said mask in said reference plane with each of its alignment targets aligned with a different one of said optical channels; and

retaining the alignment between wafer and mask for subsequent exposure of said wafer through said mask.

4,335,314

GENERATOR FOR PULSED ELECTRON BEAMS

Jochen Geerk, Stutensee, and Fritz Ratzel, Linkenheim-Hochstetten, both of Fed. Rep. of Germany, assignors to Kernforschunggszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

Filed 1980, Ser. No. 175,833

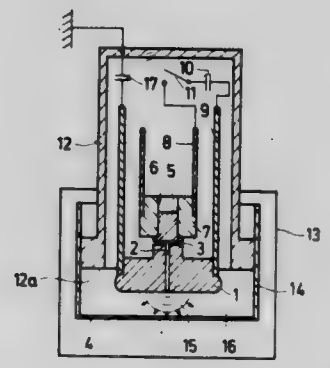
Claims priority, application Fed. Rep. of Germany, 1980, 3014151

Int. Cl.³ H01J *3/00*

U.S. Cl. 250—492.3 **11 Claims**

1. In a generator for pulsed electron beams including: a vacuum chamber; a sample carrier for receiving a sample to be subjected to accelerated electron radiation mounted in said vacuum chamber; spaced cathode and anode electrodes for emitting charge carriers and for accelerating charge carriers mounted in said vacuum chamber with said anode electrode being disposed between said cathode electrode and said sample carrier; a first high voltage capacitor connected between said cathode electrode and said anode electrode to serve as the energy source for a high voltage discharge, particularly for a metal vapor discharge between said cathode and anode electrodes, and means for generating an auxiliary discharge which initiates the discharge process between said cathode and anode electrodes, said means including a trigger electrode mounted in said vacuum chamber adjacent to and coaxial with said cathode electrode on the side of same opposite said anode electrode, and a second high voltage capacitor, which serves as a voltage source for the auxiliary discharge, connected between said cathode electrode and said trigger electrode by means of a normally open switch; the improvement further comprising a first protective metal tube which is connected to ground potential, is closed at one end and has its other end extending into said vacuum chamber in a vacuum tight manner to approximately the level of said cathode electrode, a second metal tube disposed within and coaxial with said first tube, and a metal conductor disposed within said coaxial with said second tube; and wherein:

the distance between said cathode electrode and said trigger electrode is such that when said second capacitor is connected between same by closing of said switch, a sparkover is produced between said trigger electrode and said cathode electrode and causes a trigger plasma to be formed which initiates said high voltage discharge between said cathode and anode electrodes; said cathode electrode is mounted on one end of said second tube in an electrically conductive manner and has a central bore through which the trigger plasma can exit into the discharge chamber formed between said cathode and anode electrodes; said trigger electrode is mounted on the end of said metal conductor which faces said cathode electrode in an electrically conductive manner; said anode electrode is mounted on said other end of said first tube in an electrically conductive manner and is a metal network which is highly transparent to electrons and through which fly the electrons which have been accelerated by means of the electric field existing between said cathode and anode electrodes due to the voltage of said first capacitor applied therebetween; said first capacitor has one terminal conductively connected to said one end of said first tube and its other terminal conductively connected to the other end of said second tube; and said second capacitor has one terminal conductively connected to said second tube and its other terminal connected via said switch to said metal conductor.



4,335,315

X-RAY EXAMINATION APPARATUS

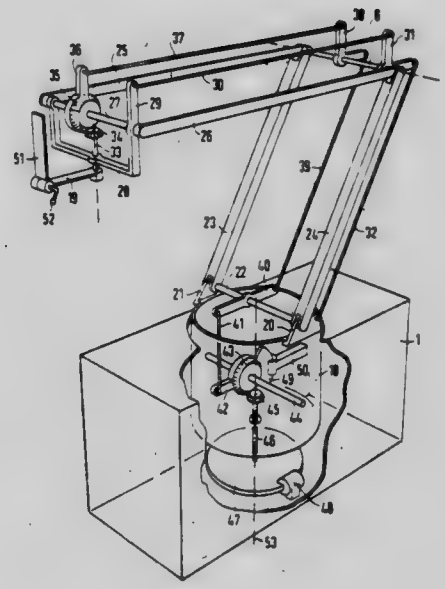
Hans Waerve, Sollentuna, and Sten Djurson, Stockholm, both of Sweden, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Division of Ser. No. 942,413, Sep. 14, 1978, Pat. No. 4,223,230. This application 1980, Ser. No. 112,337

Claims priority, application Fed. Rep. of Germany, 1977, 2745883

Int. Cl.³ H01J *35/16*

U.S. Cl. 250—523 5 Claims



1. In an x-ray apparatus with a base and a two-part articulated support means, each part of the articulated support means includes a rigid elongated member with a first rigid elongated member pivotably connected at a first end by a connection means to the base for rotation about a vertical axis and for rotation about a first horizontal axis, a second end of the first member is pivotably connected to a first end of a second member for rotation about a second horizontal axis, parallel to the first axis, a second end of the second member is connected to an x-ray tube support means, the x-ray tube support means is movable vertically and horizontally with respect to the base, an improvement comprising:

linkage means,

first and second rotation sensing means;

said first rotation sensing means is mounted within the base, and is connected to the base, the connection means and said linkage means;

said first rotation sensing means senses rotation of the first elongated member about the vertical axis and transmits a measure of the sensed rotation to said linkage means;

said second rotation sensing means is connected to the x-ray tube support means, the second end of the second member and said linkage means;

said second rotation sensing means senses the measure of sensed rotation transmitted by said first rotation sensing means to said linkage means and rotates the x-ray tube support means with respect to the second end of the second rigid elongated member such that an x-ray tube supported thereon maintains a constant angular position with respect to the base as the first rigid elongated member is rotated about the vertical axis.

4,335,316

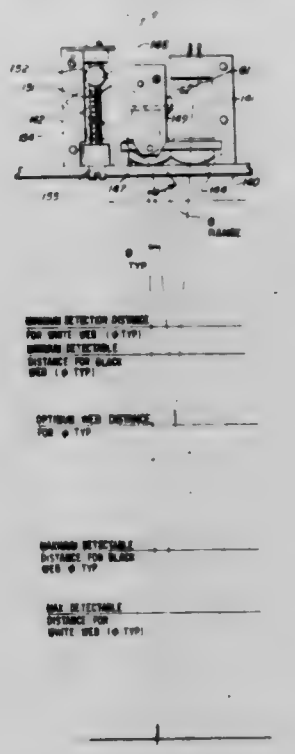
WEB BREAK DETECTOR WITH ADJUSTABLE SCANNING HEAD

Richard Glanz, Crystal Lake, and Sun C. Chang, Naperville, both of Ill., assignors to Baldwin-Korthe Web Controls, Inc., Addison, Ill.

Filed 1980, Ser. No. 138,499

Int. Cl.³ G01N *21/88*

U.S. Cl. 250—572 17 Claims



1. A system for signalling the occurrence of discontinuities in a moving web in a printing press or the like wherein the web position perpendicular to its direction of travel varies within a predetermined range, comprising:

a radiation source positioned and aimed so that its beam intersects the web path;

means for activating said radiation source at a predetermined pulse frequency such that its beam intersects said web path in a pulsating manner;

optical receiver means positioned to receive at least a portion of the beam reflected from said radiation source so long as the web is within said predetermined lateral range and adapted to produce an electrical output signal which varies in accordance with the received radiation;

frequency detector means coupled to said receiver means for producing an output signal indicative of the presence of said predetermined frequency in the frequency spectrum of said receiver output signal; and,

means responsive to said detector output for instantaneously manifesting the occurrence of a web break whenever said predetermined frequency is not present in the spectrum of said receiver output signal.

4,335,317

CIRCUIT FOR SENSOR-CONTROLLED TELEMETRY

Hans-Peter Grassl, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 173,195

Claims priority, application Fed. Rep. of Germany, 1979, 2936521

Int. Cl.³ H01J *40/14*

U.S. Cl. 250—578 11 Claims

1. A circuit for sensor-controlled telemetry for use with a post-connected output device for converting signals from said circuit into signals operational for range indication or for range adjustment, said circuit comprising:

two linear image sensors each having a plurality of opto-electronic sensor elements for generating charge carriers

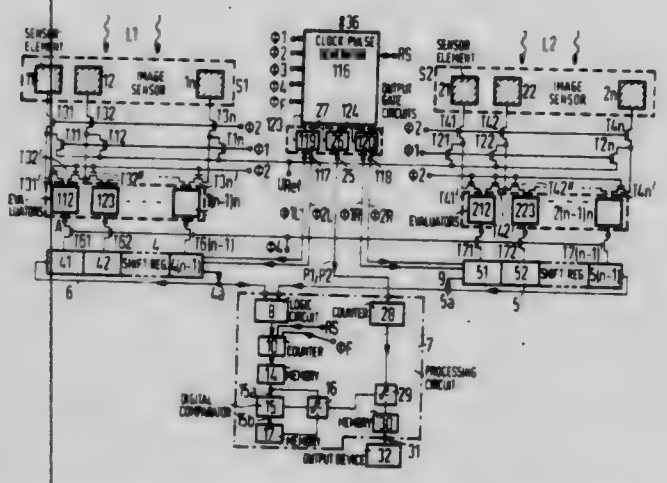
and a corresponding potential in an amount proportional to radiation incident on said sensor elements,

corresponding lines of two separately obtained imagings of an object being respectively projected onto said image sensors;

a group of evaluators associated with each image sensor, each evaluator having a pair of inputs individually connected to the respective outputs of two closely disposed sensor elements,

said evaluators being digital comparators switchable at an output between two digital logic stages as a function of a comparison of the amounts of charge carriers generated by the sensors connected thereto;

a plurality of gate-controlled switching transistors interconnected between said sensors and said evaluators for con-



trolling an integration time during which charge carriers are collected in said sensor elements;

at least two shift registers having stages respectively post-connected to each said group of evaluators associated with each image sensor;

each said shift register shifting the information contained therein a pre-determined number of times during a readout cycle; and

a processing stage post-connected to each shift register including a counter and associated logic circuitry for counting the number of coincident digital signals from said shift registers after each shift of information therein and determining therefrom a maximum position correlation of said signals from said image sensors, and having an output from which the maximum correlation is supplied to said output device.

4,335,318

ENGINE-DRIVEN MODEL TOY

Kenichi Mabuchi, and Tatsuo Katsunuma, both of Matsudo, Japan, assignors to Mabuchi Motor Co., Ltd., Japan

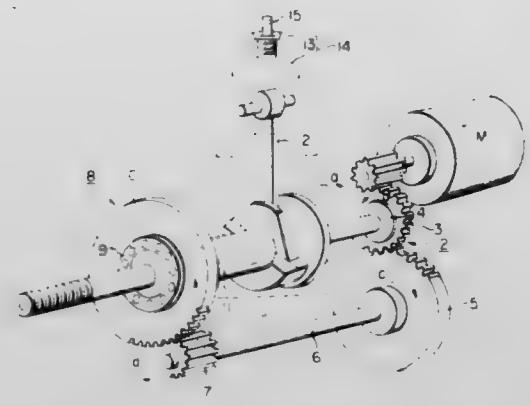
Filed 1980, Ser. No. 135,996

Claims priority, application Japan, 1979, 54-50442; 1979, 54-66624[U]

Int. Cl.³ A63H *27/14*

U.S. Cl. 290—31 **11 Claims**

1. An engine-driven model toy airplane flown by at least one propeller and having an engine drivingly coupled to said propeller, an electric motor connected to said engine and a power source battery, and characterized in that said engine is connected to said electric motor by means of a transmission mechanism capable of changing the ratio of revolution between said engine and said electric motor to predetermined values as required, respectively, by the starting and continuous operation modes of said engine, and in that said electric motor is capable of starting said engine by receiving the power of said battery at the starting mode of operation of said engine, and charging said battery during the continuous mode of operation of said engine



by receiving the revolution of said engine to operate as a dynamo.

4,335,319

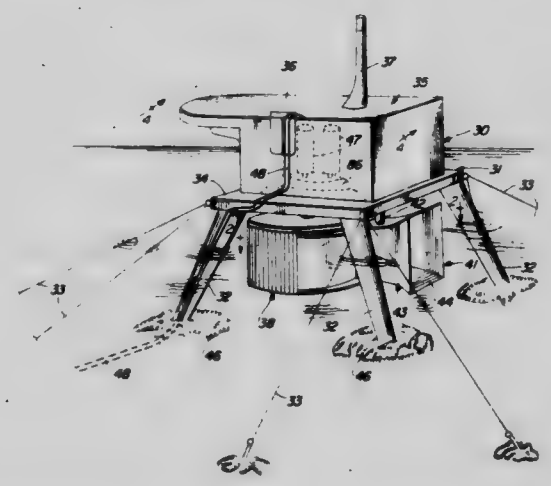
HYDRO-ELECTRIC POWER APPARATUS UTILIZING OCEAN CURRENTS

John H. Mettersheimer, Jr., Sanford, Fla., assignor to Charles B. Cannon, Chicago, Ill.

Filed 1980, Ser. No. 181,718

Int. Cl.³ F03B *13/10*

U.S. Cl. 290—54 **13 Claims**



1. Hydro-electric power generating apparatus for utilization of the hydraulic force of ocean or other water currents for driving a hydraulic turbine and an electrical generator operated thereby for generating electrical power comprising:

(a) a combination supporting platform and housing having therein

(1) an electrical generator;

(b) means for securing the said combination supporting platform and housing above the surface of an ocean or other body of water;

(c) a hydraulic turbine disposed below the said combination supporting platform and submergible in the said ocean or other body of water;

(d) mounting means for rotatably mounting the said hydraulic turbine on and suspending it below the said combination supporting platform and housing;

(e) electrical generator driving means coacting with the said hydraulic turbine mounting means and with the said hydraulic turbine for driving the said electrical generator;

(f) a water intake or inlet nozzle suspended from the said combination supporting platform and housing and submergible in the said body of ocean or other water and having

(1) an inlet for the intake of water from the water current in the area of the said body of water in which the said nozzle is submerged; and having

(2) a water outlet for directing the said water current from

the said nozzle into the said hydraulic turbine to rotate the said hydraulic turbine and the said electrical generator and thereby generate electrical power;

(g) means for suspending the said water intake or inlet nozzle from and below the said combination supporting platform and housing;

(h) means for transmitting the said electrical power from the said electrical generator to a point of use of the said electrical power;

(i) water current flow direction and fluid velocity sensing means for sensing the direction of flow and the velocity of the water current in the area of the said body of water in which the said water intake or inlet nozzle is submerged having the maximum velocity and resulting hydraulic force; and

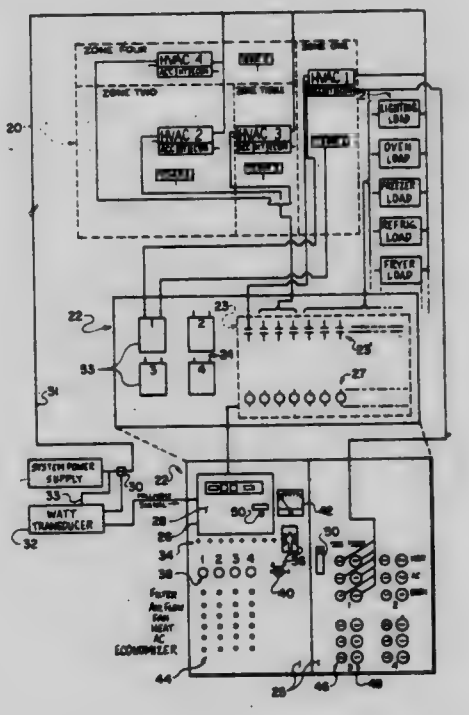
(j) means cooperating with the said water current flow direction and velocity sensing means for positioning the said water intake or inlet nozzle for the reception of the said water current having the maximum velocity and hydraulic force in the said area in which the said water intake or inlet nozzle is submerged and directing the said water current having the maximum velocity and hydraulic force from the said water intake or inlet nozzle into the said hydraulic turbine.

4,335,320

MULTI-ZONE ENERGY SUPPLY CONTROLLER

Thomas L. Garver, Kannapolis, N.C., assignor to W. A. Brown & Son, Inc., Salisbury, N.C.

Filed 1980, Ser. No. 121,158
Int. Cl.³ G05B *11/00*; H02J *13/00*
U.S. Cl. 307—39 **6 Claims**



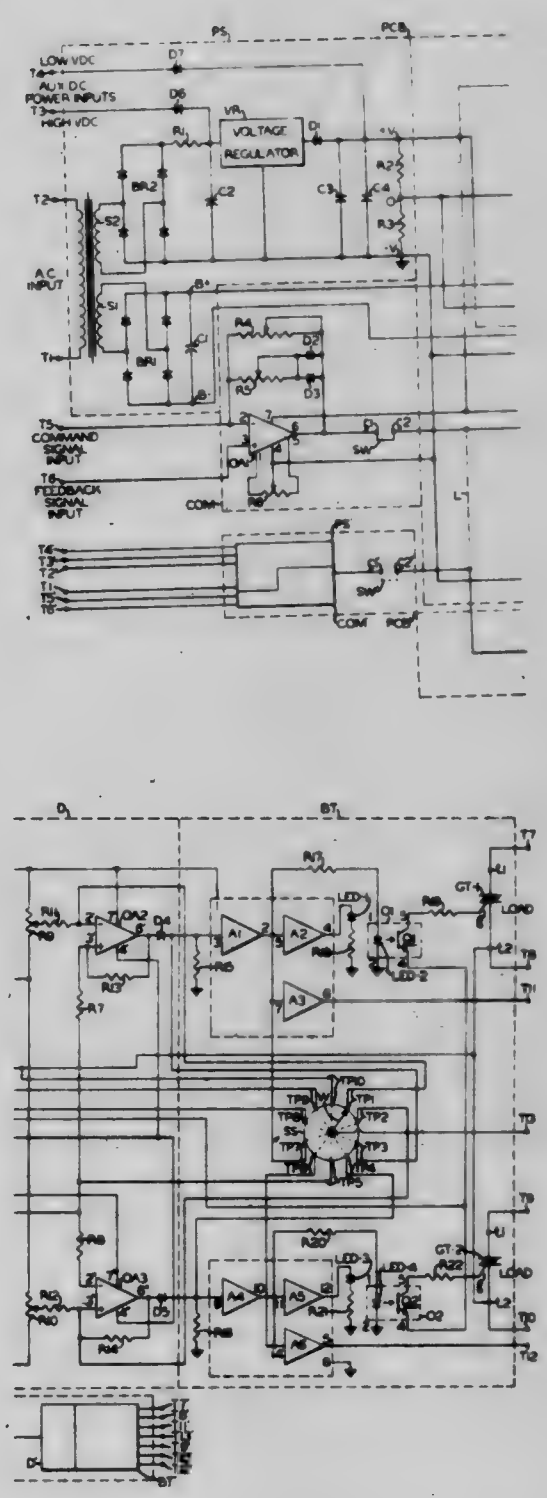
1. A controller for the power supply system of a structure having multiple zones therein with separate heating, ventilating and air-conditioning apparatus for individual zones, said structure having other separate apparatus associated therewith and having means at said controller for automatically selectively controlling the availability for operation of individual elements of said separate apparatus on power demand and time bases, wherein the improvement comprises means at said controller for selectively overriding said availability controlling means for selectively allowing individual elements of said separate apparatus to be available to operate independent of said controlling on said time bases, means associated with said separate apparatus for individually monitoring environmental conditions in at least some of said zones, means responsive to said monitoring means and connected thereto for causing the corresponding separate apparatus to operate during the existence of predetermined environmental conditions in a zone so monitored subject to said availability, selective means at said controller for determining and displaying the measure of said environmental conditions in a zone so monitored as sensed by said monitoring means, and said selective means at said controller comprises means for simultaneously for a selected zone (a) disconnecting said monitoring means from said responsive means, (b) connecting said monitoring means to said determining and displaying means for said determining and displaying said sensed environmental condition measure, and (c) connecting a dummy load to said responsive means while said monitoring means is so disconnected therefrom.

4,335,321

ELECTRONIC BALANCE CONTROL CIRCUIT ARRANGEMENT

Michael D. Lyons, and Richard A. Strobel, both of Lexington, Ky., assignors to American Standard Inc., Lexington, Ky.

Filed 1979, Ser. No. 103,800
Int. Cl.³ H03K *17/72, 5/153*
U.S. Cl. 307—252 B **14 Claims**



1. An electronic balance control circuit comprising, a comparator circuit having a command signal input and a feedback signal input and producing a positive, a negative, and a zero output in response to the comparative value of the feedback signal relative to the command signal, a first detector circuit

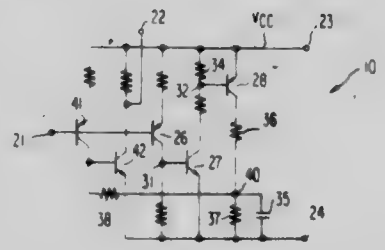
responsive to the positive output, a second detector responsive to the negative output, a first buffer trigger circuit coupled to said first detector circuit for actuating a first gate circuit which includes a gate controlled semiconductive switch when the feedback signal is less than the command signal to increase the feedback signal until said comparator circuit produces a zero output, and a second buffer trigger circuit coupled to said second detector circuit for actuating a second gate circuit which includes a gate controlled semiconductive switch when the feedback signal is greater than the command signal to decrease the feedback signal until said comparator circuit produces a zero output.

4,335,322

PULSE GENERATOR FOR PRODUCING A PULSE HAVING A PULSE WIDTH DEPENDENT ON AN INPUT SIGNAL

Kouichi Tanaka, Tokyo, and Masaharu Mori, Warabi, both of Japan, assignors to Nippon Electric Co., Ltd. and Clarion Co., Ltd., both of Tokyo, Japan

Filed 1979, Ser. No. 75,872
Int. Cl.[3] H03K *5/00, 17/28*
U.S. Cl. 307—542 **7 Claims**



1. A pulse generator for use in a noise canceller responsive to a variable noise pulse for producing a corresponding variable output pulse simultaneously with said input pulse for application to said noise canceller, wherein the improvement comprises:

first means responsive to said noise pulse for producing a charging signal during presence of said noise pulse;

a time constant circuit responsive to said charging signal and having a first time constant for charge and a second time constant for discharge which is greater than said first time constant, said time constant circuit being charged in accordance with said first time constant when said charging signal is supplied thereto and discharged in accordance with said second time constant when said noise pulse disappears, said time constant circuit thereby producing a variable level signal having a variable level between a first and a second predetermined level;

second means (41) responsive to said noise pulse for producing an energizing signal during presence of said noise pulse; and

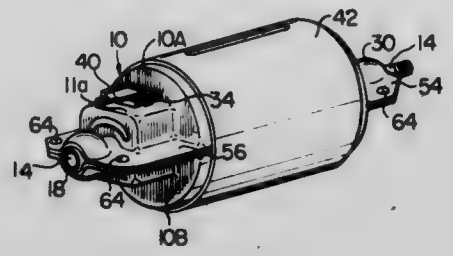
an output transistor (42) coupled directly to said second means and energized by said energizing signal in timed relation to a leading edge of said noise pulse, said output transistor having a base, an emitter and a collector, said variable level signal being coupled to said base a determined reference level being provided between said base and said emitter for switching said output transistor in response to said variable level signal, said preselected level being intermediate between said first and said second predetermined levels, said output transistor producing, through said collector, a widened pulse in timed relation to a trailing edge of said noise pulse, said widened pulse being wider than said noise pulse in pulse width and lasting until said variable level becomes equal to said preselected level during the discharge of said time constant circuit, wherein a trailing edge of said widened pulse occurs a predetermined fixed time after said trailing edge of said noise pulse.

4,335,323

STAMPED SHEET METAL FRAME FOR DYNAMOELECTRIC MACHINE

Earl R. Kebbon, Farmington, Me.; Bobby E. McMillen, Columbus, Miss.; Kenneth W. Stewart, Sr., Columbus, Miss., and Dennis A. Bloodworth, Jr., Columbus, Miss., assignors to AMBAC Industries, Incorporated, Farmington, Conn.

Filed 1980, Ser. No. 113,078
Int. Cl.[3] H02K *5/00*
U.S. Cl. 310—40 R **23 Claims**



1. A dynamoelectric machine comprising:

an armature, including a winding on an iron core supported on a rotatable shaft, said winding being connected to a commutator supported on the shaft;

first and second bearings in which the shaft is journaled;

brush holders containing brushes for contacting the commutator, resilient means to urge the brushes into the commutator and means to provide electrical contact and connection with the brushes;

permanent magnet field means conforming to the shape of the armature for generating a magnetic field interlinking the armature and producing the desired dynamoelectric effect;

a support frame and housing comprising two cooperating fabricated sheet metal members which includes means providing support for the brush holders to be in position for the brushes to contact the commutator and for supporting the field means relative to the armature and when assembled together provide support for the bearings and enclose the armature and commutator and which permit the brushes to be mounted to engage the commutator after assembly of said frame and housing; and

means for holding the fabricated sheet metal members of the support frame and housing together, and, in turn, to support the bearings.

4,335,324

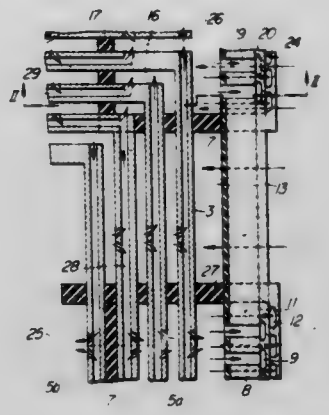
ROTOR FOR HYDROGEN-COOLED ROTARY ELECTRIC MACHINES

Kazumasa Fujioka, Shimoinayoshi, and Wataru Nakayama, Kashiwa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 175,699
Claims priority, application Japan, 1979, 54-100261
Int. Cl.[3] H02K *1/32*
U.S. Cl. 310—61 **1 Claim**

1. In a rotor for hydrogen-cooled rotary electric machines including a rotor shaft, a retaining ring for holding laminated windings in position, a center ring secured to said retaining ring, radially extending partition walls, gas inlet and outlet chambers disposed in a region between said rotor shaft and retaining ring and circumferentially partitioned by said center ring and radially extending partition walls, and a plurality of fan-like ventilating means provided on the outer side of the rotor end for discharging outside of the rotor gases which have been introduced from said gas inlet chamber to the laminated windings for the cooling of the same and flowed into said gas outlet chamber, the improvement comprising circumferentially extending partition walls; L-shaped insulating spacers; said gas outlet chamber being divided into first and second zones each located near the polar axis and a third zone located

near the interpolar axis by means of said circumferentially extending partition walls, radially extending partition walls and said L-shaped insulating spacers; said plurality of fan-like ventilating means including first fan-like ventilating means disposed on the outer side of said center ring and communicated with the first zone of the gas outlet chamber through first axially extending passages provided on the outer periphery of said center ring, second fan-like ventilating means disposed on the outer side of said center ring and communicated with the second zone of the gas outlet chamber through second axially



extending passages provided below said center ring, third fan-like ventilating means disposed on the outer side of said center ring and communicated with the third zone of the gas outlet chamber through third axially extending passages on the outer periphery of said center ring and fourth axially extending passages on the periphery of said center ring, and fourth fan-like ventilating means; said gas inlet chamber communicated with gas inlet ports through fifth axially extending passages which are circumferentially isolated from said second axially extending passages and radially isolated from said fourth axially extending passages.

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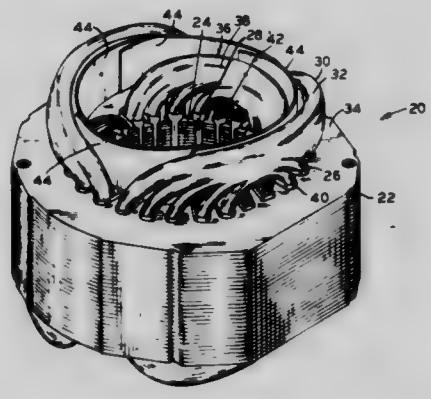
DYNAMOELECTRIC MACHINE STATOR ASSEMBLY

Sammy L. Miller, Bowling Green, Ky., and Alan L. Kindig, Holland, Mich., assignors to General Electric Company, Fort Wayne, Ind.

Division of Ser. No. 918,055, Jun. 22, 1978, Pat. No. 4,216,571. This application 1980, Ser. No. 140,739

Int. Cl.³ H02K *3/48*

U.S. Cl. 310—214 **3 Claims**



1. A dynamoelectric machine stator assembly comprising: a core having faces, a longitudinally extending bore, and a plurality of longitudinally extending slots disposed radially around and opening into the bore; at least two windings, each having side turns thereof disposed within selected slots of the core and end turns thereof disposed about the faces of the core; and a plurality of phase insulators having end turn insulating portions disposed between the end turns of the at least two windings and having at least two connectors extending through slots of the core; said end turn insulating portions of the plurality of phase insulators also being disposed in an overlapping pinwheel configuration about at least one face of the core with overlapping portions of the insulators being sandwiched between portions of end turns of the at least two windings, whereby one part of each of the end turn insulating portions lies radially inwardly, relative to the bore, of the end turn insulating portion of a first adjacent phase insulator and another part of each of the end turn insulating portions lies radially outwardly, relative to the bore, of the end turn insulating portion of a second adjacent phase insulator.

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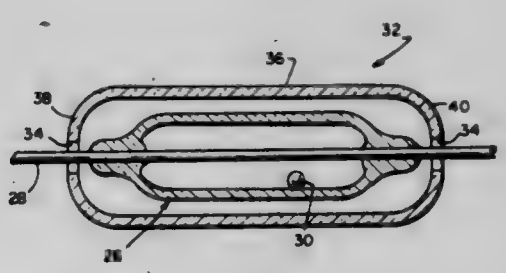
MERCURY DISPENSER FOR DISCHARGE LAMPS

Frank M. Latassa, Magnolia; John G. Ray, Topsfield, and Joseph A. Roy, Danvers, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed 1980, Ser. No. 142,904

Int. Cl.³ H01J *61/28*

U.S. Cl. 313—177 **6 Claims**



1. In an arc discharge lamp having a glass mount at one end with a cathode supported on the mount, a disintegration shield encircling the cathode except for a gap between the ends of the shield, a mercury containing glass capsule disposed at about the gap region of said disintegration shield, said mercury containing capsule having an axially disposed wire sealed therein, said wire having protruding ends, each end of said wire being connected to a respective side of said disintegration shield, said glass capsule being rupturable and forming particles upon receipt of energy from a source external of said lamp to release said mercury and establish a mercury vapor pressure in said lamp, the improvement comprising: a particle shield for containing said particles from said capsule surrounding said glass capsule and containing at least one opening for the release of said mercury, said opening having a diameter substantially smaller than the diameter of said mercury containing capsule whereby said particles are retained within said particle shield.

4,335,327

X-RAY TUBE TARGET HAVING PYROLYTIC AMORPHOUS CARBON COATING

John S. Waugh, Wellesley, Mass., and Richard G. Weber, Stamford, Conn., assignors to The Machlett Laboratories, Incorporated, Stamford, Conn.

Continuation of Ser. No. 965,764, Dec. 4, 1978, abandoned. This application 1980, Ser. No. 141,525

Int. Cl.³ H01J *35/08*

U.S. Cl. 313—330 **11 Claims**

1. An X-ray target comprising:

a body having a first surface portion made of X-ray emissive material and a second surface portion coated with pyrolytic amorphous carbon material.

11. A method for providing an X-ray target body with a heat emissive coating of amorphous carbon material and comprising the steps of:

masking one or more surface areas of the target body;

placing the target body in a furnace chamber;

heating the target body to a temperature greater than twelve

hundred degrees Centigrade and less than eighteen hundred degrees Centigrade; and



flowing a carbonaceous gas over the target body to produce a coating of amorphous carbon material on unmasked surface areas of the target body.

4,335,328

SELECTIVELY ERASABLE STORAGE TARGET WITH INSULATED WEB COLLECTOR

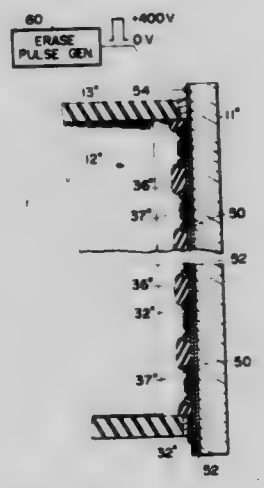
Duane A. Haven, Banks, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation-in-part of Ser. No. 42,172, May 24, 1979, abandoned, which is a continuation-in-part of Ser. No. 6,146, Jan. 24, 1979, abandoned. This application 1981, Ser. No. 236,489

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ H01J *29/39, 31/08*

U.S. Cl. 313—395 **12 Claims**



1. A bistable storage target for a cathode-ray tube, comprising

an electrically conductive layer forming a first electrode,

a first layer of electrically insulative material having a support surface,

a second, mesh electrode of conductive material disposed on said support surface, said electrode being substantially insulated from said first electrode and including a first pattern of openings,

a storage component of secondary electron emissive material in contact with said support surface, said component comprising a multiplicity of spaced deposits of such material within the openings of said first pattern, and

a second layer of insulating material overlying said mesh electrode, said second layer including a second pattern of openings substantially in register with said first pattern, the individual openings of said second pattern being smaller in size than corresponding openings of said first pattern, with portions of said second insulating layer engaging regions of said support surface surrounding said deposits of storage material and insulating them from said mesh electrode.

4,335,329

MASK SUPPORT FOR SHADOW MASK ASSEMBLY

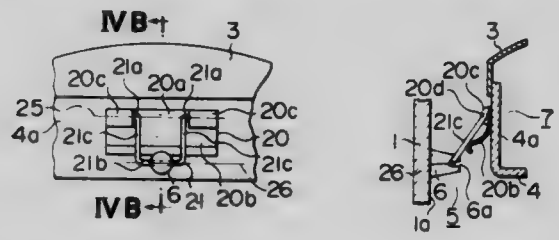
Kenichi Fukuzawa, Mobara, and Tetsuo Kumazawa, Dejimamura, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 147,962

Claims priority, application Japan, 1979, 54-60438

Int. Cl.³ H01J *29/07*

U.S. Cl. 313—406 **8 Claims**



1. A support arrangement including a multiplicity of retainers for supporting a shadow mask assembly at predetermined positions inside the tube envelope of a color picture tube, said shadow mask assembly consisting of a shadow mask disposed in facing relationship to a fluorescent screen of the tube and in a plane perpendicular to the axis of the tube envelope and a frame having side walls facing internal surfaces of the tube envelope which are substantially parallel to said tube axis for holding said shadow mask, each of said retainers comprising:

a spring member secured on the side wall of said frame, having a fixed axis extending in a predetermined direction parallel to said side wall surface and in a plane perpendicular to said tube axis, and having a portion biased to provide a pivotal force about said fixed axis;

a fixed member securely provided on the internal surface of said tube envelope; and

a rigid member with one end thereof being attached to said spring member and another end thereof engaging said fixed member, said rigid member being pivotally displaceable towards said internal surface of said tube envelope about said fixed axis by means of said pivotal force.

4,335,330

LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP

Robert C. Peters; Louis E. Vrenken; Winston D. Couvbenberg, and Franciscus A. S. Ligthart, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 38,616, May 14, 1979, abandoned, which is a continuation of Ser. No. 845,926, Oct. 27, 1977, abandoned. This application 1980, Ser. No. 120,602

Claims priority, application Netherlands, 1976, 7612157; 1976, 7612158; 1977, 7709263

Int. Cl.³ H01J *61/44*

U.S. Cl. 313—486 **7 Claims**



1. A low-pressure mercury vapour discharge lamp having a vacuum-tight, radiation-transmissive envelope, provided with a luminescent layer and a gas filling comprising mercury and a rare gas wherein mercury radiation at 254 nm is generated, and furthermore provided with means for maintaining a column discharge in the gas filling, the power consumed by the column

being at least 500 W per m^2 surface area of the luminescent layer, characterized in that the luminesent layer contains a luminescent material which has the property of having a 254 nm-excitation a luminous flux which, after the material has been subjected for 15 minutes to ultraviolet radiation of a wavelength of mainly 185 and 254 nm and a radiation density between 150 and 500 W/m^2 and a ratio of 185 nm power to 254 nm power between 0.20 and 0.40, is not more than 5% lower than the initial luminous flux of the material also at 254 nm excitation and measured under identical circumstances, and in that the combination of cations in the luminescent material has an electronegativity of not more than 1.4.

4,335,331

LOW PRESSURE METAL VAPOR DISCHARGE LAMP

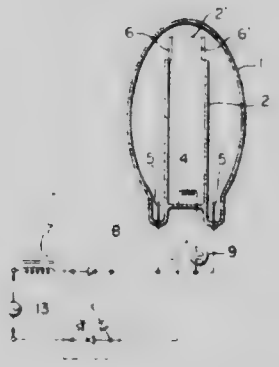
Yoshio Watanabe, Tokyo; Mikiya Yamane, and Teruichi Tomura, both of Kunitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 932,546, Aug. 10, 1978, abandoned. This application 1980, Ser. No. 158,264

Claims priority, application Japan, 1977, 52-95041; 1977, 52-115622; 1977, 52-115623; 1977, 52-115624

Int. Cl.³ H05B *41/16*

U.S. Cl. 315—334 **18 Claims**



1. A low pressure metal vapor discharge lamp comprising:

an outer glass envelope defining an enclosed discharge space;

an inner glass tube disposed within said outer glass envelope, said tube being open at one end thereof and closed at the other end thereof;

a single cathode disposed in said inner glass tube;

a plurality of anodes disposed in said outer glass envelope outside said inner glass tube;

circuit means for simultaneously applying the same voltage to all of said anodes at a value above the voltage value of said cathode, said circuit means including ballast means in the form of a single ballast having one end which is commonly connected in series with all of said anodes for effecting self-excitation switching between said anodes so as to form a plurality of discharge plasmas in said discharge space.

4,335,332

FOCUS MESH STRUCTURE AND BIASING TECHNIQUE FOR FLAT PANEL DISPLAY DEVICES

Thomas L. Credelle, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

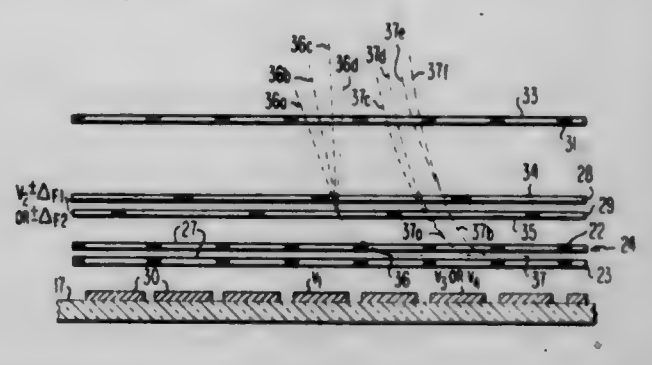
Filed 1981, Ser. No. 230,362

Int. Cl.³ H01J *29/70, 29/72*

U.S. Cl. 315—366 **7 Claims**

1. In a flat panel display device having a display area where the sequential impingement of electrons along successive lines effects a visual display, and including a beam guide structure having electron beam propagation means for propagating at least one electron beam along paths substantially parallel to said display area, and having means for focusing electron beams traveling toward said display area, said display device also including extraction means arranged substantially perpendicular to said beam propagation means and substantially parallel to said successive lines for repelling said at least one electron beam from said beam propagation means toward said display area for scanning along said lines, an improvement wherein

said means for focusing includes a plurality of apertured focus meshes arranged in a spaced and parallel relationship with respect to one another and with respect to said electron beam propagation means, each of said focus



meshes including apertures arranged in at least one column along the length of said meshes and in the direction of electron beam propagation, the apertures in the respective focus meshes being off set in the direction of electron beam propagation, said extraction means including a plurality of extraction electrodes extending along one dimension of said display area and perpendicular to said at least one column.

4,335,333

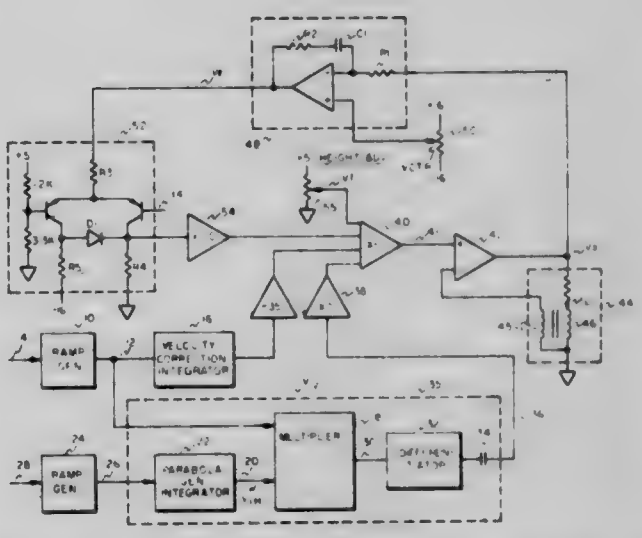
RASTER SCAN COLOR DISPLAY SYSTEM AND METHOD HAVING IMPROVED PIN CUSHION NON-LINEARITY CORRECTION

Michael Ramsay, San Jose, Calif., and Warren Pratt, Loveland, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed 1980, Ser. No. 116,421

Int. Cl.³ H01J *29/70*

U.S. Cl. 315—371 **11 Claims**



6. Deflection apparatus for a display system having a first deflection scanning rate in a first direction and a second deflection scanning rate in a second direction comprising:

first means for producing a parabolic signal having a repetition rate at the first deflection scanning rate;

second means for producing a ramp signal having a repetition rate at the second deflection scanning rate;

third means coupled to the first means and the second means for multiplying the parabolic signal and the ramp signal and producing the product as an output; and

fourth means coupled to the third means for differentiating the third means output and producing a second direction deflection signal.

4,335,334

HORIZONTAL SCANNING CIRCUIT

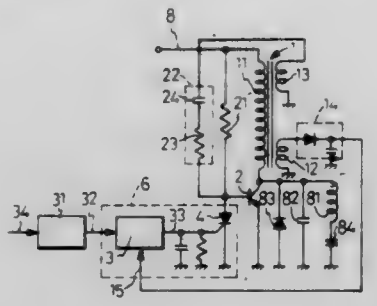
Nobukazu Hosoya, Nara, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan

Filed 1980, Ser. No. 188,149

Claims priority, application Japan, 1979, 54-122442; 1980, 55-123602[U]

Int. Cl.[3] H01J *29/70, 29/76*

U.S. Cl. 315—408 5 Claims



1. A horizontal scanning circuit comprising:

(a) a flyback transformer;

(b) a horizontal scanning coil connected to said flyback transformer;

(c) a power transistor connected to said flyback transformer and said horizontal scanning coil for controlling the current flow therethrough;

(d) control circuit means connected to said power transistor for controlling the control current thereto, wherein said control circuit means provides a pulse signal for switching said power transistor between ON and OFF states at a frequency f_H which is higher than f_0, the natural frequency of said scanning circuit, said control circuit means comprising a horizontal oscillation circuit means for varying the frequency f_H in response to a control signal applied thereto, a switching means having a control input connected to the output of said horizontal oscillation circuit means and one electrode thereof connected to ground, a capacitor means having one side thereof connected to said switching means and the other side thereof connected to said power transistor, and a resistor connected in parallel with said capacitor means, wherein said capacitor means is charged when said power transistor is ON and, when said switching means turns ON in response to an output pulse from said horizontal oscillation circuit means, one side of said resistor is grounded through said switching means whereby the voltage across said capacitor means is applied to said horizontal power transistor such that said horizontal power transistor is reverse biased and thereby turned OFF; and

(e) a feedback winding included in said flyback transformer for feeding back a signal to said horizontal power transistor for causing the self-oscillation thereof.

4,335,335

TELEVISION RECEIVER HIGH VOLTAGE PROTECTION CIRCUIT

Donald H. Willis, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 120,473

Int. Cl.[3] H01J *29/80*

U.S. Cl. 315—411 15 Claims

1. A high voltage generation circuit with high voltage protection for a television display system requiring an ultor accelerating potential and drawing ultor beam current from said high voltage generation circuit, comprising:

a high voltage generator responsive to an alternating current voltage for developing said ultor accelerating potential at an output terminal of said generator;

means coupled to said high voltage generator for developing a signal representative of said ultor accelerating potential;

means responsive to said ultor beam current for developing a signal representative of said ultor beam current;

a comparator;

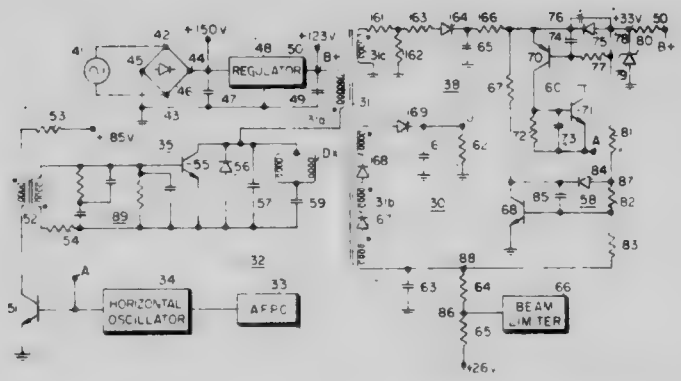
means coupled to an output terminal of said comparator for developing a disabling signal when energized by said comparator;

means coupled to said disabling signal developing means for applying said disabling signal to said television display system such that an abnormal television display is produced when said disabling signal developing means is energized;

means for applying a reference voltage to an input terminal of said comparator;

means for applying said ultor beam current representative signal to an input terminal of said comparator; and

means for applying said ultor accelerating potential representative signal to an input terminal of said comparator for developing an output signal at said output terminal of said



comparator which energizes said disabling signal developing means when said ultor accelerating potential exceeds a predetermined value;

characterized in that said ultor beam current representative signal developing means comprises an amplifier having said ultor beam current representative signal developed at an output terminal of said amplifier, means for applying to an input terminal of said amplifier an input signal representative of ultor beam current, and means for biasing said amplifier into substantially linear operation for ultor beam current values within a substantial predetermined range for varying said predetermined value of ultor accelerating potential as said input signal varies and for biasing said amplifier into nonlinear operation for ultor beam current values without said predetermined range in order to develop said comparator output signal substantially independently of said predetermine value of ultor accelerating potential when said ultor beam current exceeds a set amount.

4,335,336

DEVICE FOR CONTROLLING SPEED

Fulvio Filippini, Versailles, France, assignor to Enertec, Montrouge, France

Filed 1980, Ser. No. 152,005

Claims priority, application France, 1979, 79 13211

Int. Cl.[3] H02P *5/16*

U.S. Cl. 318—6 13 Claims

1. A device for controlling the speed of rotation of a DC electric motor to a nominal speed VM, comprising:

(a) means for generating a measuring signal representative of the real speed vm of the motor;

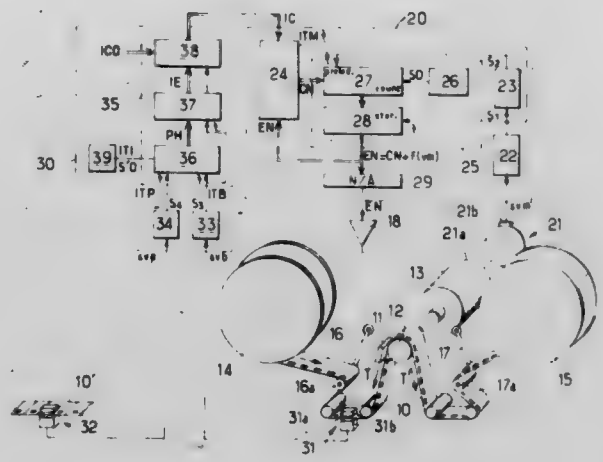
(b) an operating circuit for receiving the measuring signal and for generating and supplying said motor with a DC drive signal having an operating value EN, comprising:

(i) means for storing a digital representative of a prepositioning value CN;

(ii) a function generator responsive to said measuring signal and said prepositioning value CN for calculating said operating value EN as the sum of said preposition-

ing value CN and of a single-valued and monotonic function f of said real speed vm of the motor; and

(iii) means, connected to the function generator for continuously calculating and modifying said prepositioning value CN as the difference between said operating value EN and a single-valued and monotonic function f of said nominal value VM; and



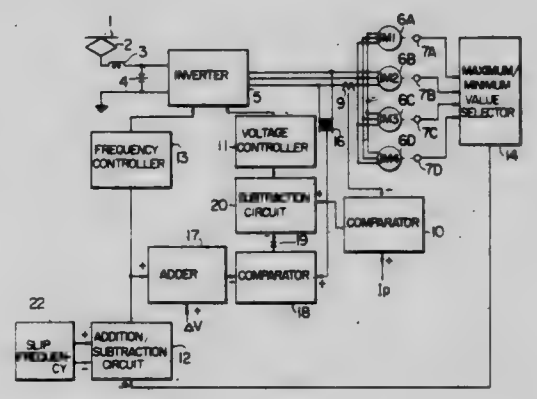
(c) a circuit for receiving said operating value EN from the function generator and for driving the motor with a current directly proportional to said operating value, whereby said real motor speed is continuously maintained at said nominal value VM despite variations in loading of said motor.

4,335,337

CONTROL SYSTEM FOR ELECTRIC MOTOR VEHICLE

Shigetoshi Okamatsu; Takashi Tsuboi; Masahiko Ibamoto, and Hiroshi Narita, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1979, Ser. No. 59,559
Claims priority, application Japan, 1978, 53-88454
Int. Cl.³ B61C *15/08*
U.S. Cl. 318—52 **3 Claims**



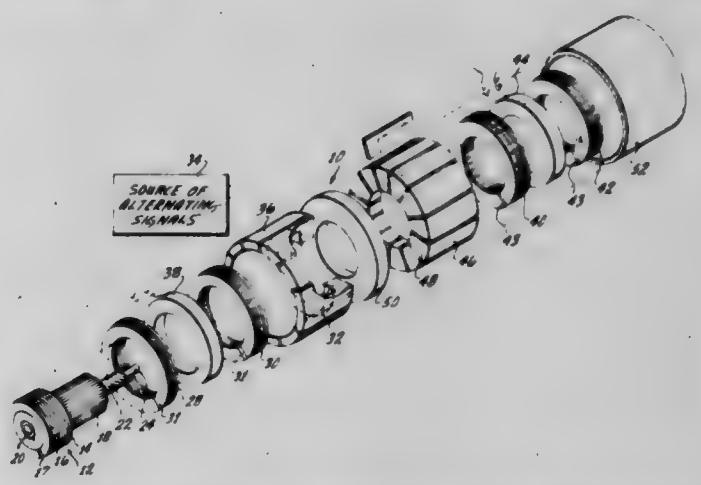
3. A control system for a vehicle driven by a plurality of induction motors, said system comprising: a power converter for producing and supplying to said induction motors a three-phase a.c. electric power of variable frequency and variable voltage; means for detecting individually the rotation speeds of at least two of said induction motors; means for selecting the minimum one or maximum one of the rotation speeds detected by said detecting means depending on whether the vehicle is in the power running mode or the regenerative braking mode, respectively; means for setting a slip frequency signal representing a predetermined slip frequency to be applied to said induction motors; adding/subtracting means for adding to said selected minimum rotation speed or subtracting from said selected maximum rotation speed the said slip frequency signal; frequency control means for controlling said power converter so as to cause said three-phase a.c. electric power produced by said power converter to have a frequency corresponding to the output of said adding/subtracting means; means for presetting a current command for current supplied to said induction motors; means for detecting current supplied to said induction motors; means for comparing the current represented by said preset current command with the current detected by said detecting means thereby to produce a current difference therebetween; means for controlling the output voltage of said power converter according to said current difference; first means connected to the output of said adding/subtracting means for producing a voltage proportional to the output frequency of said power converter and second means connected to said power converter, said first means and said output voltage control means for controlling said output voltage control means so as to prevent the output voltage of said power converter from exceeding a voltage proportional to the output frequency of said power converter by more than a predetermined voltage.

4,335,338

LINEAR MOTOR

Bruce A. Sawyer, Santa Rosa, Calif., assignor to Xynetics, Inc., Santa Clara, Calif.

Filed 1980, Ser. No. 164,827
Int. Cl.³ B64C *13/18*
U.S. Cl. 318—135 **37 Claims**



1. In combination in a linear motor, a stator disposed axially to provide for magnetizable properties in alternate laminations and nonmagnetizable properties in the other laminations and to provide for a flow of magnetic flux through the stator, and

a head disposed annularly relative to the stator and in magnetically coupled relationship to the stator and movable axially along the stator, the head including magnet means providing a magnetic flux and further including first and second assemblies,

each assembly including:

at least one winding disposed to produce magnetic flux having a radial component,

first and second magnetizable portions disposed in axially spaced relationship to each other and in magnetizable relationship to the stator and responsive to the magnetic flux produced by the winding and the magnetic flux from the magnet means for reinforcing, in one of the first and second magnetizable portions, the magnetic flux from the magnet means with the magnetic flux provided by the winding and for opposing, in the other one of the first and second magnetizable portions, the magnetic flux from the magnet means with the magnetic flux provided by the winding,

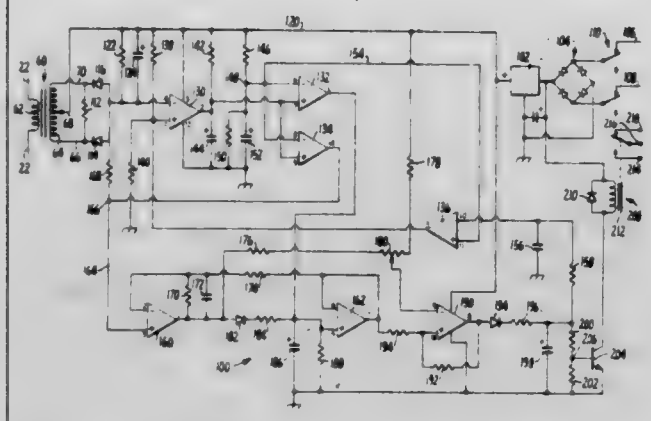
the first and second magnetizable portions in each assembly being disposed in a first phase relationship to each other and in a second phase relationship to the first and second magnetizable portions in the other assembly.

4,335,339

ELECTRONIC SAFETY DEVICE

Joseph L. Brickner, 2215 S. Grand Ave., Santa Ana, Calif. 92705

Filed 1979, Ser. No. 95,936
Int. Cl.³ E05F *15/10*; H02H *7/09*; H02P *3/00*
U.S. Cl. 318—282 **15 Claims**



3. A detector circuit for detecting abrupt changes in current drawn by an electrical device, comprising:

an operational amplifier having an output terminal and plural input terminals;

an isolation amplifier;

feedback means connecting an output terminal of said isolation amplifier with one of said input terminals;

input means for supplying to one of said input terminals a signal respresenting said current;

a capacitance connected to an input terminal of said isolation amplifier for storing an amount of electrical charge representative of said current; and

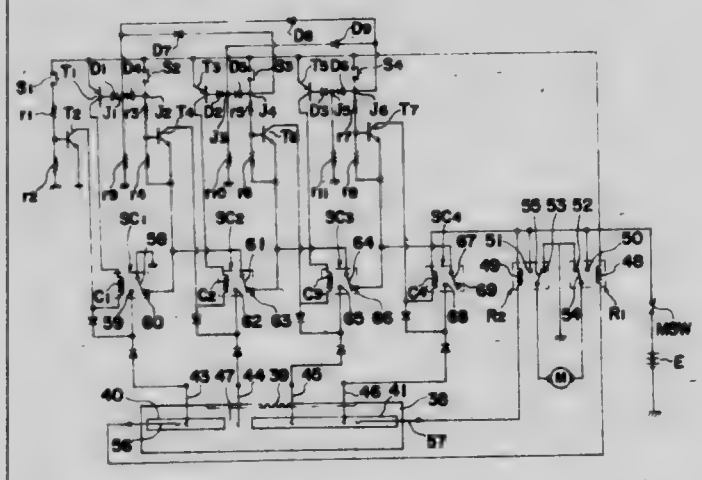
a comparator-connected amplifier having an output terminal and first and second input terminals, first coupling means for coupling an input terminal of said isolation amplifier to said first input terminal of said comparator-connected amplifier, and second coupling means for coupling said output terminal of said operational amplifier to said second input terminal of said comparator-connected amplifier.

4,335,340

ELECTRIC REVERSIBLE MOTOR CONTROL

Takanori Hara, Hiroshima, and Yoshihiro Shimamura, Kosai, both of Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima and ASMO Co., Ltd., Shizuoka, both of, Japan

Filed 1980, Ser. No. 192,838
Claims priority, application Japan, 1979, 54/130627
Int. Cl.³ H02P *1/00*
U.S. Cl. 318—282 **6 Claims**



1. A motor control apparatus comprising, in combination:

an electric reversible motor;

a movable member operatively coupled to the motor for movement in each of the opposite directions depending on the directon of rotation of the motor;

first and second electroconductive bridge members carried by the movable member for movement together therewith, said first and second bridge members being spaced at a predetermined distance from each other to define an electrically insulating region therebetween;

a plurality of electric switch means;

electroconductive feelers equal in number to the number of the switch means, each of said feelers having one end connected to the corresponding switch means and the other end arranged on the path of movement of the first and second bridge members and resiliently urged to slidingly contact any one of the first and second bridge members, said predetermined distance between the first and second bridge members being so selected as to be smaller than the maximum possible space between the two neighboring feelers;

a first circuit means for supplying an electric power from a source of electric power to the first bridge member irrespective of the position of the movable member and also for supplying the electric power to the motor to rotate said motor in one of the opposite directions when said first circuit means is electrically energized; and

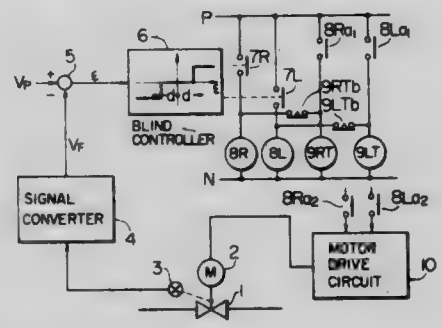
a second circuit means for supplying the electric power from the power source to the second bridge member irrespective of the position of the movable member and also for supplying the electric power to the motor to rotate said motor in the other of the opposite directions when said second circuit means is electrically energized, whereby when a selected one of the switch means is closed, said first and second circuit means are energized one at a time in the event that said selected switch means so closed is connected to the first circuit means through the first bridge member and in the event that said selected switch means so closed is connected to the second circuit means through the second bridge member, respectively.

4,335,341

AUTOMATIC CONTROL METHOD AND APPARATUS

Hitoshi Ogasawara, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 166,703
Claims priority, application Japan, 1979, 54/85005
Int. Cl.³ G05B *5/01*
U.S. Cl. 318—624 **6 Claims**



1. An automatic control apparatus for controlling an object to be controlled in a closed control loop, comprising comparing means for comparing a controlled quantity of said object with a set quantity, blind controller means to which the output from said comparing means is supplied and which has a dead zone, and operation holding means for allowing control operation of said object to be carried out continuously for a predetermined time when the output from said comparing means comes out beyond said dead zone, said control operation being continued even after the output from said comparing means falls again within said dead zone unless said predetermined time has elapsed.

4,335,342

RECIPROCATING DRIVE SYSTEM FOR A BODY SUCH AS A CARRIAGE SUPPORTING ELECTROSTATIC MEANS FOR SPRAYING A PULVERIZED MATERIAL, THE SYSTEM INCLUDING AN ASYNCHRONOUS SQUIRREL CAGE MOTOR

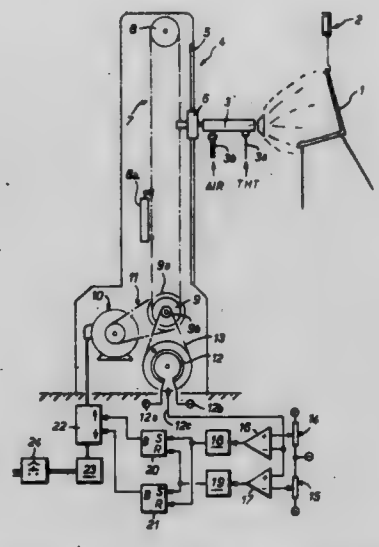
Roger Tholome, La Tronche, France, assignor to Air Industrie, Societe Anonyme, Courbevoie, France

Filed 1979, Ser. No. 105,526

Claims priority, application France, 1978, 78 36615

Int. Cl.³ G05G *5/00*

U.S. Cl. 318—627 **9 Claims**



1. A reciprocating drive system for moving a body of defined inertia, such as for example a carriage supporting electrostatic means for spraying a pulverized coating material, at full speed between two points at which the direction of movement is reversed, said drive system including:

an electric motor with polyphase stator windings and a squirrel cage rotor;

a stator phase switching system;

transducers responsive to the arrival of the moving body at the aforementioned points at which the direction of movement is reversed and producing output signals controlling said phase switching system to reverse the direction of rotation of the motor rotor so that the reversal of the motor torque reverses the direction of movement of the moving body at full speed within a given travel and within a given time interval; and

current limiting means of the type which provides a positive coupling in an operative condition for limiting stator current during motor startup, and no coupling in an inoperative condition when the motor is running at full speed; the drive system being characterised in that the motor is selected so that its nominal power is substantially equal to the power sufficient to reverse the moving body and the rotor coupled thereto, within said given time interval, and in that said current limiting means remains in the operative condition irrespective of the position of the moving body.

4,335,343

CIRCUIT FOR GENERATING AN ELECTRIC SIGNAL PROPORTIONAL TO A FLUX COMPONENT OF A ROTATING-FIELD MACHINE

Walter Dreiseitl; Dieter Köllensperger; Theodor Salzmann, all of Erlangen; Thomas Schlegel, Hemhofen, and Wolf-Dieter Weigel, Kleinsendelbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed 1979, Ser. No. 58,832

Claims priority, application Fed. Rep. of Germany, 1978, 2833593

Int. Cl.³ H02P *5/28, 5/34*

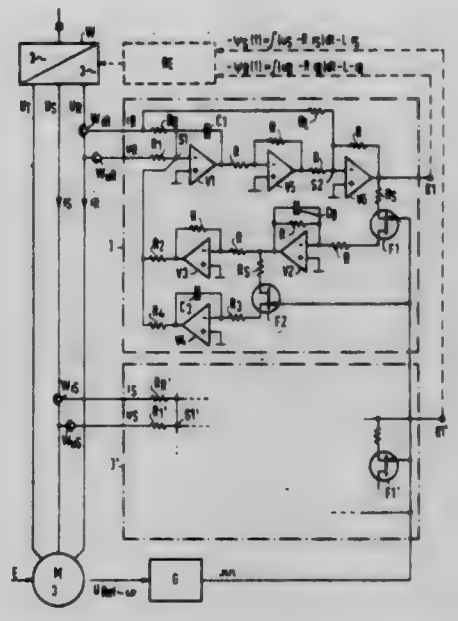
U.S. Cl. 318—798 **8 Claims**

1. An AC voltage integrating circuit, useful for forming an electric voltage signal proportional to a flux component in a rotating field machine from a voltage which is proportional to a Y voltage corresponding to the flux component and which contains a DC component, comprising:

an integrator having an input to which the voltage proportional to the Y voltage is fed and an output at which the signal voltage proportional to the flux component in the machine is taken off;

a summing point at the input of the integrator;

a zero-controller for suppressing the DC component comprising a P-controller and an I-controller, each having an output fed to the summing point and each having an input;



first means having a first input coupled to the output of the integrator, a second input to which a signal having a value between zero and one which is proportional to the frequency of the machine is coupled, and providing an output signal coupled to the P-controller which is proportional to the frequency of the machine; and

second means having a first input coupled to the output of the integrator and a second input to which the signal which is proportional to the frequency of the machine is coupled and providing a signal to the I-controller which is proportional to the square of the frequency of the machine.

4,335,344

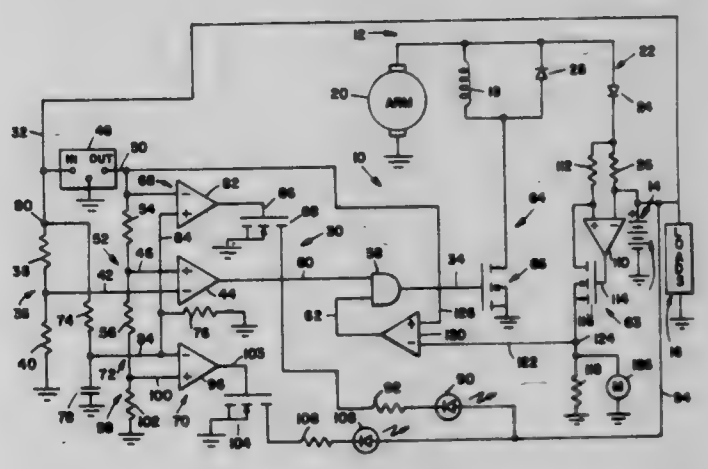
VOLTAGE REGULATOR FOR A CONTROLLED FIELD GENERATOR

Leroy A. Gant, 521 Jasmine La., Santa Maria, Calif. 93454

Filed 1980, Ser. No. 183,184

Int. Cl.³ H02J *7/14*

U.S. Cl. 322—25 **7 Claims**



1. A voltage regulator for regulating a controlled field generator which generates current to charge an electrical storage device, the generator having a field winding, comprising:

(a) means for sensing the voltage of the electrical storage

device and for generating a first or second logic control signal in response to the voltage of the electrical storage device being above or below a predetermined level, respectively, including

(i) means for generating a first reference voltage representing the predetermined level of voltage of the electrical storage device,

(ii) means for generating a second voltage proportional to the voltage of the electrical storage device, and

(iii) a first comparator for comparing the first reference voltage and the second proportional voltage and for producing the first logic control signal of one value in response to the second proportional voltage exceeding the first reference voltage and for producing the second logic control signal of another value in response to the first reference voltage exceeding the second proportional voltage;

(b) means for sensing charging current produced by the controlled field generator and for generating a third or fourth logic control signal in response to the charging current being above or below a predetermined level, including

(i) means for generating a third reference voltage representing the predetermined level of charging current,

(ii) means for generating a fourth voltage proportional to the charging current, and

(iii) a second comparator for comparing the third reference voltage and the fourth proportional voltage and for producing the third logic control signal of one value in response to the fourth proportional voltage exceeding the third reference voltage and for producing the fourth logic control signal of another value in response to the third reference voltage exceeding the fourth proportional voltage;

(c) a control path having a transistor for controlling energization and deenergization of the field winding; and

(d) an AND gate having first and second inputs connected, respectively, to said first comparator and said second comparator, and an output connected to said transistor to control turning on and off said transistor.

4,335,345

CURRENT LIMITING CIRCUIT FOR SWITCHING REGULATOR

Merle E. Converse, Helotes, Tex., assignor to Transaction Control Industries, Bryan, Tex.

Filed 1980, Ser. No. 195,666

Int. Cl.³ G05F *1/44*

U.S. Cl. 323—278 **5 Claims**

1. A current limiting circuit for a switching regulator comprising:

a source of unregulated power having at least one positive terminal connected through a first switching means to a load;

switching regulator means having at least one shut-down signal position for adjusting downward the duty cycle of the switching regulator, and at least one output, said output being operably connected to said first switching means whereby said switching means opens and closes in response to the output of said switching regulator, thereby alternately connecting and disconnecting said source of unregulated power to said load;

current limiting means operably connected between the positive terminal of said source of unregulated power and said shut-down signal position of said switching regulator for adjusting downward the duty cycle of said switching regulator when current in the positive terminal of said source of unregulated power exceeds a predetermined value wherein said current limiting means comprises;

current sensing means operably connected to the positive terminal of said source of unregulated power;

circuit means for operably connecting said positive terminal to said shut-down signal position of said switching regulator when said current sensing means detects current in said positive terminal exceeding a predetermined value, wherein said circuit means comprises second switching means for connecting the positive terminal of said source of unregulated power to said shut-down signal position of said switching regulator and operably connected to said current sensing means whereby said second switching means connects said positive terminal to said shut-down



signal position when said current sensing means detects current in said positive terminal exceeding a predetermined value; and

filter means operably connected between said current sensing means and said second switch means for removing high-frequency spikes thereby preventing premature operation of said second switch means.

4,335,346

TEMPERATURE INDEPENDENT VOLTAGE SUPPLY

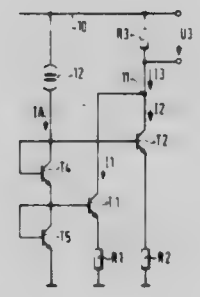
Klaus Streit, Tubingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed 1981, Ser. No. 235,757

Claims priority, application Fed. Rep. of Germany, 1980, 3006598

Int. Cl.³ G05F *3/20*

U.S. Cl. 323—313 **8 Claims**



1. Circuit for generating a temperature independent output voltage, comprising

means for supplying an operating voltage;

a reference resistor (R3) connected to said operating voltage supply means;

a first and second transistor respectively having a first and second emitter-collector circuit connected to said reference resistor and a first and second base;

a first and second resistor (R1, R2) respectively connecting said first and second emitter-collector circuit to reference potential;

voltage divider means (T4, T5) having a first and second

voltage divider tap respectively connected to said base of said first and second transistor, and

means for creating a constant current flow through said voltage divider means.

4,335,347

POWER COMBINING OR DIVIDING ARRANGEMENTS

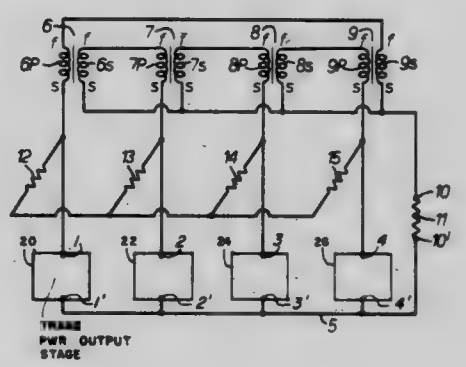
John W. Heaviside, Hurstpierpoint, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed 1980, Ser. No. 143,734

Claims priority, application United Kingdom, 1979, 7914571

Int. Cl.³ H01Q *23/00*

U.S. Cl. 323—328 **7 Claims**



1. An n-way combining arrangement comprising an array of n-transformers the start of the primary winding of each of which is connected to a different one of n-input terminals and wherein the finish of each primary winding is connected to the finish of the secondary winding of a different one of said transformers, the starts of all of the secondary windings are connected together and to an output terminal and each input terminal is connected to one end of a respective one of n-balancing loads the other ends of which are connected together.

4,335,348

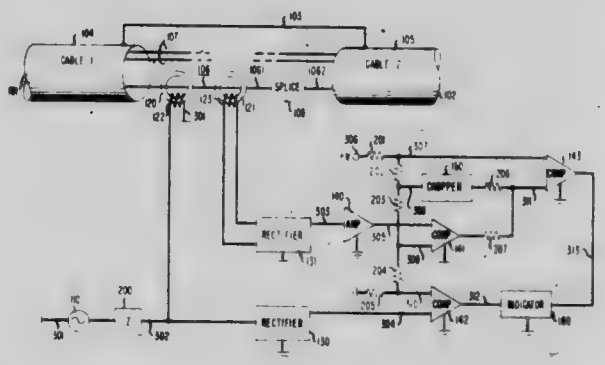
CABLE CONDUCTOR CONTINUITY TESTER WITH MAGNETICALLY COUPLED DRIVE MEANS AND SENSOR

William C. Reed, Lilburn, and Donald T. Smith, Norcross, both of Ga., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed 1980, Ser. No. 139,100

Int. Cl.³ G01R *31/02*

U.S. Cl. 324—51 **1 Claim**



1. Apparatus for verifying the continuity of a splice path (**106**), said path comprising a first wire (**1061**) emanating from a first cable segment (**101**) joined to a second wire (**1062**) emanating from a second cable segment (**102**), said first segment and said second segment having continuous metallic shields (**104,105**) electrically interconnected (**103**), said apparatus characterized by

a source comprising an oscillator (**110**) and a reference impedance (**200**) connected in series with said oscillator,

a drive transformer comprising a first split core (**120**) for coupling to said path and a drive winding (**122**) connected to said source,

a sense transformer comprising a second split core (**121**) for coupling to said path and a sense winding (**123**) coupled to said second core,

first averaging means (**130**), connected to said source, for providing a first signal level (**304**) indicative of the voltage developed across said impedance,

second averaging means (**131,140**), coupled to said sense winding, for providing a second signal level (**305**) indicative of the magnitude of the signal induced in said sense winding,

means (**201–205,306**) for generating a first reference level (**310**) indicative of a closed magnetic path in said first core; and a second reference level (**309**) indicative of a closed magnetic path in said second core and said continuity of said splice path,

first comparison means (**142**), responsive to said first averaging means and said means for generating, for providing a first activation signal (**312**) whenever said first signal level exceeds said first reference level,

second comparison means (**141,143,150**), responsive to said second averaging means and said means for generating, for providing a second activation signal (**313**) whenever said second signal level exceeds said second reference level, and

means (**160**), coupled to said first comparison means and said second comparison means, for indicating said continuity upon sensing the presence of both said first activation signal and said second activation signal.

4,335,349

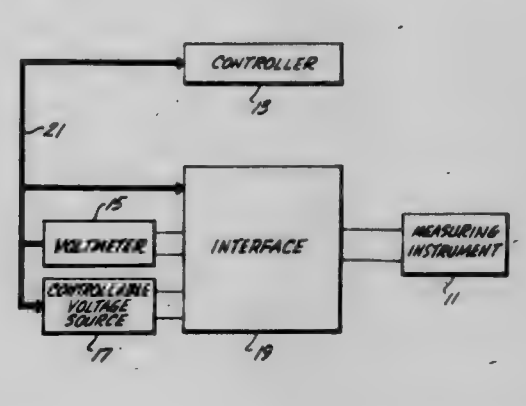
SIMULATED OHMS GENERATION METHOD AND APPARATUS FOR CALIBRATING RESISTANCE TYPE MEASURING INSTRUMENTS

K. Paul Baldock, Marysville, and J. Craig Smith, Jr., Everett, both of Wash., assignors to John Fluke Mfg. Co., Inc., Mountlake Terrace, Wash.

Filed 1980, Ser. No. 156,569

Int. Cl.³ G01R *27/02*

U.S. Cl. 324—62 **25 Claims**



1. A simulated ohms generation method of calibrating resistance type measuring instruments comprising the steps of:

determining the current or voltage nature of the internal power supply of the resistance type measuring instrument to be calibrated;

adjusting the output of a voltage source connected in series with a fixed resistance so that the combination simulates a predetermined resistance value;

applying said voltage source connected in series with said fixed resistance to the input of said resistance type measuring instrument;

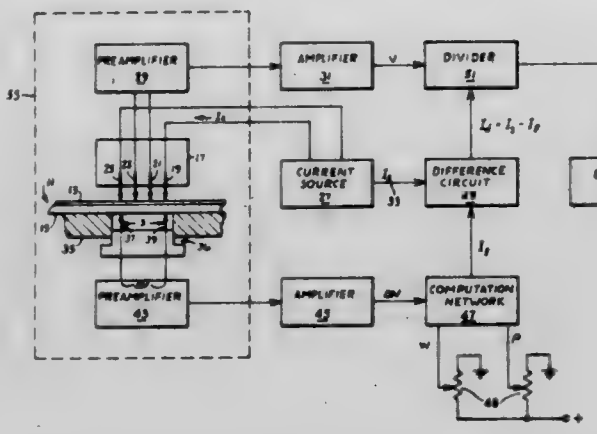
changing the value of the voltage source so that the measuring instrument reading is slewed toward the predetermined resistance value; and,

determining the calibration error when the measuring instrument reading is the same as the predetermined resistance value.

4,335,350
APPARATUS FOR PROBING SEMICONDUCTOR WAFERS

James T. C. Chen, 1526 Cherrywood Dr., San Mateo, Calif. 94403

Filed 1980, Ser. No. 152,664
Int. Cl.[3] G01R *27/14*
U.S. Cl. 324—64 12 Claims



1. Apparatus for determining sheet resistivity of a semiconductor sample having a layer disposed on a substrate comprising:

a first probe disposed on one side of said sample and having four spaced-apart electrodes positionable in contact with the surface of said layer;

first circuit means coupled to said probe for applying a determinable injected current to said layer through a selected two of said electrodes and for indicating the voltage difference on said layer between the other two of said electrodes;

a second probe disposed in alignment with said first probe and on the opposite side of the sample, said second probe having two spaced-apart electrodes positionable in contact with the surface of said substrate; and

second circuit means coupled to the electrodes of said second probe for determining the magnitude of leakage current flowing through the substrate which is a portion of said injected current applied to said layer.

10. Apparatus for positioning measuring electrodes in contact with a semiconductor sample comprising:

a perforated planar platen having a top surface for supporting the sample;

a chamber disposed below said platen;

a piston contained within said chamber and movable along an axis perpendicular to the plane of said platen;

two tubes disposed in said piston in spaced-apart relation parallel to the axis of movement of said piston, each of said tubes having an end terminating adjacent to said platen; and

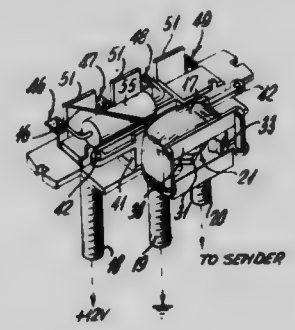
two electrodes disposed in said two tubes, respectively, each of said two electrodes having an electrically conductive tip resiliently biased to extend from the corresponding tube, said electrodes being movable through perforations in said platen into engagement with the semiconductor sample in response to movement of said piston.

4,335,351
MOVING MAGNET ELECTRICAL METER WITH SINGLE PIVOT PIN FOR THE MOVING MAGNET AND A FIXED RETURN MAGNET

Thomas G. Faria, 17 Park Dr., Waterford, Conn. 06385

Division of Ser. No. 892,032, Mar. 31, 1978, abandoned. This application 1980, Ser. No. 138,530
Int. Cl.[3] G01R *5/16, 1/04*
U.S. Cl. 324—146 10 Claims

9. In a moving-magnet electrical meter, comprising a frame and movable indicator means having an indicator portion and a permanently magnetized hub portion, said hub portion being pivotally mounted to said frame, a polarized return magnet carried by said frame, and a coil fixedly carried by said frame and surrounding both said magnetized hub portion and said return magnet, the improvement (a) wherein said frame comprises separate upper and lower single-piece bobbin parts one of which is integrally formed with a terminal-mounting base portion, each of said parts including a portion defining a bobbin channel and said parts having coacting spacing and locating formations which cooperatively position said channels in spaced parallel relation with side walls of the respective channels extending in opposite directions, whereby said one part may constitute a chassis for initial assembly of terminal and other elements thereto when the bobbin channel thereof is facing downward, (b) wherein terminal elements including spaced conductive strips are assembled to said mounting base portion, and said return magnet and an upstanding pivot pin are mounted to the base of the bobbin channel of said one part,

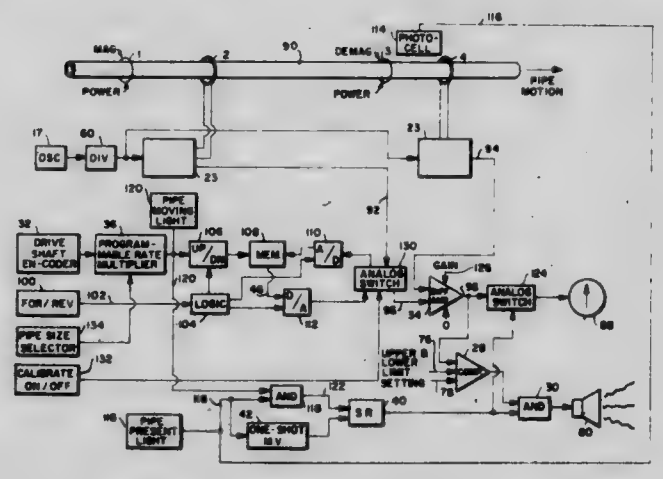


(c) wherein said hub portion has a pivot bore of limited depth, said pin locating in said bore and positioning said hub portion in close clearance with said return magnet, (d) said other part being fitted to said one part with the channel base thereof in close clearance relation with said hub portion, and (e) wherein said coil holds the assembled relation of said parts, with the turns of the coil received and located by and between the sidewalls of said channels, the respective ends of the coil having electrical connection to different terminal strips, all of the respective terminal strips being severed parts of the same single terminal strip blank, said strips being initially retained by a common elongate connection strip which initially interconnects said strips at said single alignment, whereby all further terminal assembly may be made to said base and strip blank prior to severance along said alignment.

4,335,352
YIELD STRENGTH DETERMINATION OF FERROMAGNETIC MATERIALS

David D. Stephen, Houston, Tex., assignor to Homco International Inc., Houston, Tex.

Filed 1979, Ser. No. 102,790
Int. Cl.[3] G01R *33/12;* G01N *27/72;* B07C *5/344*
U.S. Cl. 324—228 28 Claims



20. A circuit for determining the magnetic qualities of a ferrous material comprising means to generate signals corresponding to a magnetized state and a demagnetized state of said

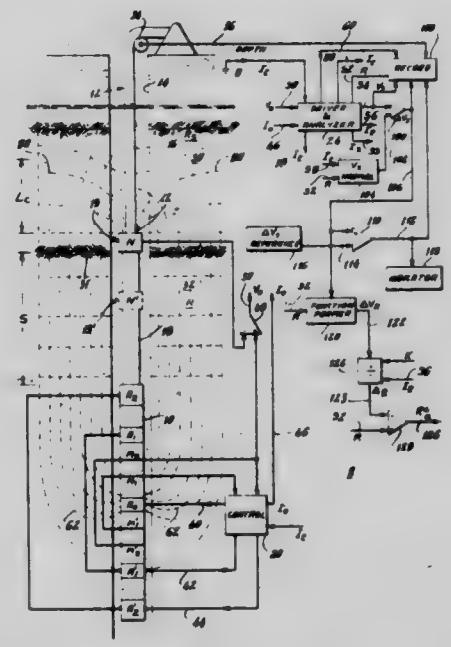
material, means to compare said signals to each other comprising a differential amplifier, means for feeding said signals into said differential amplifier, indicating means, means for tabling values corresponding to different types of said ferrous materials on said indicating means, and means for supplying the output signal of said differential amplifer to said indicating means, whereby the indicating means provides a reading which can be compared to readings for known ferrous materials to thereby identify said ferrous material.

4,335,353

METHOD AND APPARATUS FOR DETECTING AN ANOMALY IN A RESISTIVITY MEASUREMENT OF AN EARTH FORMATION

Philippe J. Lacour-Gayet, Ridgefield, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed 1979, Ser. No. 49,382
Int. Cl.³ G01V *3/24*
U.S. Cl. 324—366 **43 Claims**



1. In a method for electrically investigating earth formations traversed by a borehole where the earth formations may include a highly resistive formation bed overlying a formation layer characterized by a low resistivity relative to that of the formation bed and in which the investigation is made with a resistivity investigating sonde suspended from a cable surrounded by an exposed conductive sheath and with a reference electrode located between the sonde and the conductive sheath and with current electrodes located on the sonde to introduce alternating currents into the adjoining formation for a resistivity measurement thereof and return to a surface located return electrode, the improvement comprising the steps of

measuring an electrical signal between an electrode on the sonde and the reference electrode;

deriving from the measured electric signal a phase sensitive signal which varies in response to a short circuit effect by said conductive sheath upon said reference electrode while remaining relatively insensitive to variations of the resistivity of the adjoining earth formation; and

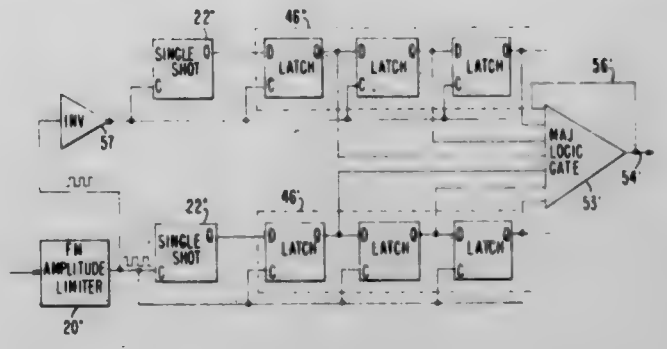
applying said phase sensitive signal to indicate the presence of an error in a resistivity measurement of the earth formation.

4,335,354

SENSITIVE DEMODULATOR FOR FREQUENCY SHIFT KEYED CARRIER SIGNALS

Kenneth C. Crandall, Foster City, and Michael A. Robinton, Palo Alto, both of Calif., assignors to Robinton Products, Inc., Sunnyvale, Calif.

Filed 1980, Ser. No. 137,488
Int. Cl.³ H03D *3/00*
U.S. Cl. 329—126 **16 Claims**



1. A demodulator for extracting digital information from a frequency shift keyed carrier signal having cycles of at least two differing frequencies respectively representing two different digital indicia, cycles of said carrier signal of each of said differing frequencies having a first pair of selected voltage characteristic points separated in a cycle by time intervals of occurrence distinctive of which of said two differing frequencies is represented thereby, comprising:

A. means responsive to occurrence of a first one of said first pair of voltage characteristic points in a cycle of said carrier signal by generating an intermediate signal indicative thereof; and

B. means for furnishing a first state output signal representative of said intermediate signal for a predetermined period of time falling between the time intervals distinctive of cycles of said two frequencies and responsive to occurrence of the second one of said first pair of voltage characteristics by conforming said first state output signal to one representative of the state of said furnishing means at the time of said occurrence of said second one of said characteristic points;

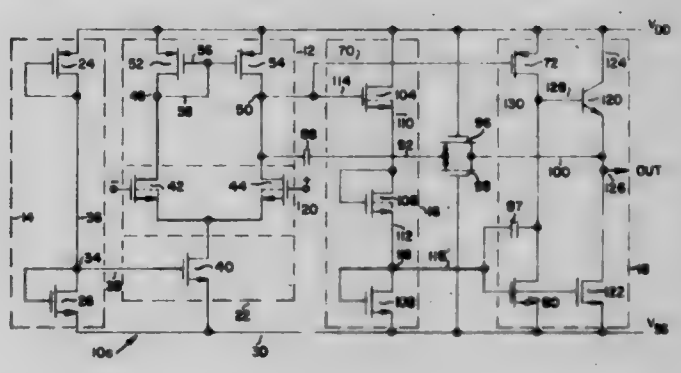
whereby said state output signal is representative of the frequency of the carrier signal cycle having said first pair of voltage characteristic points.

4,335,355

CMOS OPERATIONAL AMPLIFIER WITH REDUCED POWER DISSIPATION

Yusuf A. Haque, San Jose, Calif., assignor to American Microsystems, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 80,153, Sep. 28, 1979, Pat. No. 4,284,957. This application 1981, Ser. No. 234,239
Int. Cl.³ H03F *3/45*
U.S. Cl. 330—253 **3 Claims**



1. An operational amplifier comprising:

a first and a second conductor, said first conductor con-

nected to a first voltage source and said second conductor connected to a second voltage source;

a bias section connected between said pair of conductors, said bias section having an output terminal;

a differential amplifier section, connected between said first and second conductors including a constant current element connected to said output terminal of said bias section, said differential amplifier section including an input section for receiving positive and negative input signals and an output terminal;

a Class A–B output section connected between said first and second conductors, said output section comprising a pair of complementary MOS transistors connected in series each transistor including a control terminal, and said output section having an output terminal for providing an output signal related to said input signals;

first means for connecting said output terminal of said differential amplifier directly to the control terminal of one of said transistors of said output section;

a level shift section connected between said pair of conductors, said level shift section having an output terminal, wherein said level shift section comprises three MOS transistors connected in series between said first and second conductors, each of said three MOS transistors having a gate electrode and one of said three MOS transistors having its gate electrode connected to said differential amplifier output terminal by a second means for connecting;

third means for connecting said level shift section output terminal to the control terminal of the other transistor of said output section; and

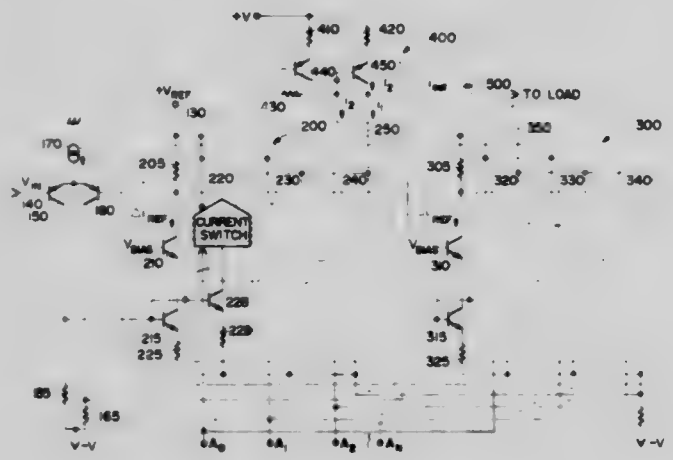
a supplementary output stage having an output terminal, said supplementary output stage comprising a bipolar transistor having its base connected to said output node of said output stage,

whereby said supplementary output stage provides a relatively low output impedance on said output terminal.

4,335,356
PROGRAMMABLE TWO-QUADRANT TRANSCONDUCTANCE AMPLIFIER

Philip S. Crosby, Portland, OR, assignor to Tektronix, Inc., Beaverton, Oreg.

Filed 1980, Ser. No. 113,857
Int. Cl.³ H03F *3/45*; H03G *3/30*
U.S. Cl. 330—254 **5 Claims**



1. A controllable gain amplifier, comprising

input means responsive to an input signal for providing phase-opposed first and second signals,

current amplifying means for producing at an output thereof a current substantially equal in magnitude to that provided at an input thereof,

a first multiplying digital-to-analog converter having (a) an input coupled to receive said first signal, (b) an output coupled to the input of said current amplifying means, and (c) a plurality of control signal terminals,

a second multiplying digital-to-analog converter having (a) an input coupled to receive said second signal, (b) an output coupled to the output of said current amplifying means, and (c) a plurality of control signal terminals, each one connected in parallel with a corresponding control terminal of said first converter, and

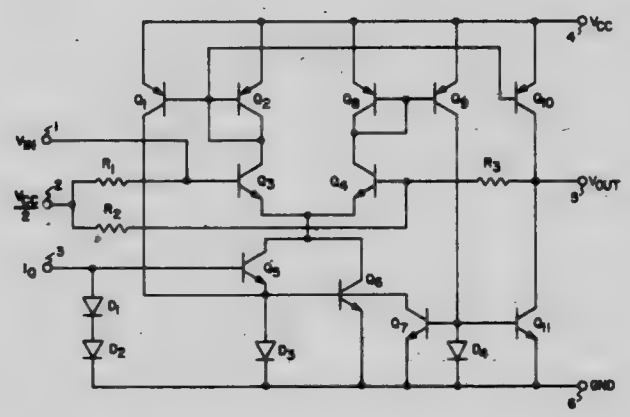
output means coupled to the output of said current amplifying means for providing an output signal at a gain determined by a signal applied to said control terminals.

4,335,357
Patent Not Issued For This Number

4,335,358
CLASS "B" TYPE AMPLIFIER

Werner H. Hoeft, Santa Clara County, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed 1980, Ser. No. 113,928
Int. Cl.³ H03F *3/30, 3/45*
U.S. Cl. 330—255 **6 Claims**



1. A Class "B" type amplifier circuit, which comprises:

differential amplifier input circuit means having a single-

ended signal input terminal, a current bias terminal and first and second differential output terminals;

Class "B" converter circuit means having an input terminal for receiving a DC bias input current, an AC current summing node, a converter output terminal and a common terminal, said converter output terminal being connected to the current bias terminal of said differential amplifier to provide a modulated DC bias signal thereto, and said first and second differential output terminals being operatively coupled to said current summing node; and

output amplifier circuit means having first and second input terminals operatively coupled to said first and second differential output terminals, respectively, and a single-ended output terminal for providing an amplified output signal with respect to said common terminal.

4,335,359

MONOLITHICALLY INTEGRABLE LOWPASS FILTER CIRCUIT

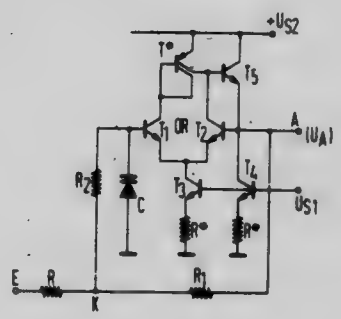
Hans Kriedt, and Andreas Dietze, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 115,257

Claims priority, application Fed. Rep. of Germany, 1979, 2903299

Int. Cl.[3] H03F *1/34*

U.S. Cl. 330—257 7 Claims



1. Monolithically integrable lowpass filter circuit comprising a signal input, a circuit node, a first series resistor connected between said signal input and circuit node, an operational amplifier, a signal output connected to the output of said operational amplifier, a second resistor connected between said circuit node and said signal output, a third resistor connected between said circuit node and the non-inverting input of said operational amplifier, and a capacitor directly connected between the non-inverting input and ground, said signal output being further directly connected to the inverting input of said operational amplifier, the circuit components being bipolar semiconductor components.

4,335,360

CLASS AB PUSH-PULL AMPLIFIERS

Merle V. Hoover, R.D. #6, Box 220, Flemington, N.J. 08822

Filed 1979, Ser. No. 97,040

Int. Cl.[3] H03F *3/16, 3/30*

U.S. Cl. 330—264 9 Claims

1. A Class AB push-pull amplifier comprising:

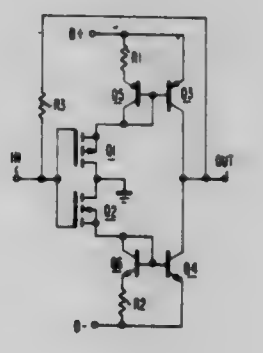
a signal input terminal and a signal output terminal;

first and second supply terminals for receiving a relatively positive first operating voltage and a relatively negative second operating voltage respectively;

first and second field effect transistors respectively of p-channel and of n-channel conductivity types, each having respective source and drain electrodes defining the ends of its channel for conducting current and having a respective gate electrode; said first and second field effect transistors having matched current conduction versus source-to-gate voltage characteristics;

means connecting said first and second field effect transistors for operating them as source followers between said signal input terminal and their respective source electrodes; and

first and second current amplifiers of complementary conductivity having respective input connections to the



source electrode of said first field effect transistor and to the source electrode of said second field effect transistor, having respective common connections to said first supply terminal and to said second supply terminal, having respective output connections to said signal output terminal, and having matched current gains between their respective input and output connections for levels at least as large as the quiescent levels of conduction in said first and second field effect transistors, wherein said first and second current amplifiers are non-linear current amplifiers each having a current gain between its input and output connections which increases with increasing current through its input connection.

4,335,361

VARIABLE GAIN AMPLIFIER

William F. Acker, Seminole, Fla., assignor to Honeywell Inc., Minneapolis, Minn.

Division of Ser. No. 829,705, Sep. 1, 1977. This application 1979, Ser. No. 102,600

Int. Cl.[3] H03G *3/30;* H03F *1/34*

U.S. Cl. 330—285 15 Claims

1. A variable gain amplifier having a variable gain amplifier input terminal and a variable gain amplifier output terminal, said amplifier comprising:

an input transistor means having an input transistor control terminal and first and second input transistor terminals;

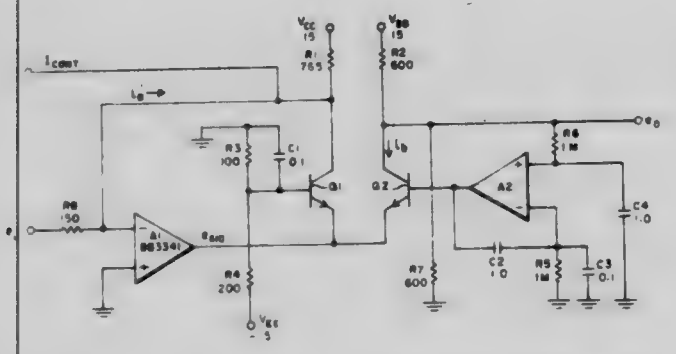
an output transistor means having an output transistor control terminal and first and second output transistor terminals, said second input transistor terminal being electrically connected to said second output transistor terminal; and

a maintaining means to maintain selected non-zero fre-

quency voltage components occurring between said input transistor control terminal and said second input transistor terminal substantially equal to corresponding non-zero frequency voltage components occurring between said output transistor control terminal and said second output transistor terminal including:

an input maintaining means electrically connected between said first and second input transistor terminals, said input maintaining means also being electrically connected to said variable gain amplifier input terminal;

an output maintaining means electrically connected between said first output transistor terminal and said output transistor control terminal;



first interconnection means adapted to be electrically connected to a voltage source; and

first and second capacitive means, each of said capacitive means having first and second terminals, said first capacitive means first terminal being electrically connected to said input transistor control terminal and said first capacitive means second terminal being electrically connected to said first interconnection means, said second capacitive means first terminal being electrically connected to said output transistor control terminal and said second capacitive means second terminal being electrically connected to said first interconnection means.

4,335,362

SEMICONDUCTOR DEVICE AND A METHOD OF CONTACTING A PARTIAL REGION OF A SEMICONDUCTOR SURFACE

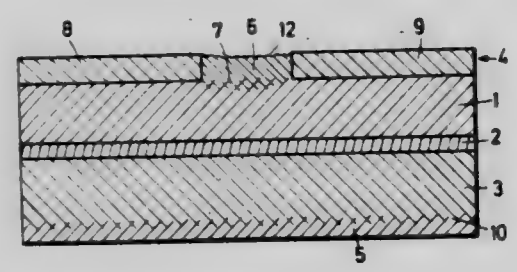
Rene P. Salathe, Bern; E. Gerhard Badertscher, Bolligen, and Willy A. R. Lüthy, Köniz, all of Switzerland, assignors to Institut fur Angewandte Physik der Universitat Bern, Bern, Switzerland

Filed 1979, Ser. No. 94,236

Claims priority, application Switzerland, 1978, 11827/78

Int. Cl.³ H01S *3/19*

U.S. Cl. 372—46 **5 Claims**



1. A semiconductor device comprising, a plurality of semiconductive layers having an outer semiconductive layer, and a contact layer consisting of one or more metal or semiconductor materials uniformly and entirely covering said outer semiconductive layer and having over its entire surface the same material composition and abutting over its entire surface directly against said outer semiconductive layer but having only on a partial region of its surface a conductive transition to said outer semiconductive layer, said partial region being only a fraction of the entire surface of said contact layer and said conductive transition being obtained by alloying said partial region by means of a focused laser beam pulse heating only said partial region of the contact layer to the alloying temperature of said one or more metals or semiconductor materials, whereby alloy constituents of the melted contact material wetting said outer semiconductive layer diffuse only in a superficial zone of said outer semiconductive layer.

4,335,363

AMPLITUDE MODULATOR USING A CARRIER TUBE AND A PEAKING TUBE

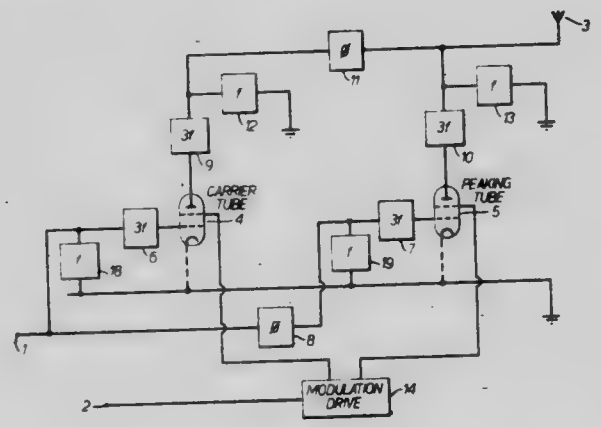
Douglas F. Bowers, Chelmsford, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed 1980, Ser. No. 175,832

Claims priority, application United Kingdom, 1979, 7928255

Int. Cl.³ H03C *1/24*

U.S. Cl. 332—37 R **9 Claims**



1. A radio frequency amplifier including first and second electron discharge tubes each having a cathode, a control grid and an anode; means for applying to each control grid a signal comprising the fundamental carrier frequency of a signal to be amplified and harmonics thereof; first filter means connected in the grid-cathode current path of each tube and arranged to present a low impedance to said fundamental frequency whilst presenting a high impedance to a harmonic thereof to attenuate the voltage of said harmonic which is applied to the control grid; second filter means associated with each tube and connected in the anode output current path, and having frequency characteristics similar to said first filter means and being so arranged that substantially only said fundamental frequency appears at output terminals of the amplifier; first phase shift means arranged so that the signals applied to the control grid of said second tube are delayed by a quarter wavelength of the fundamental frequency relative to those signals applied to the control grid of said first tube; second phase shift means arranged to couple together the anode circuits of the first and second tubes such that amplified signals provided by said first tube are in phase at the output terminals with the amplified signals provided by said second tube; and means for applying modulation signals to both first and second tubes so as to modulate said carrier frequency.

4,335,364

TRANSITION FROM A COAXIAL CABLE TO A MULTIPOLE PLUG-IN CONNECTOR

Johannes Schmitz, and Roland Röhrbein, both of Backnang, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed 1980, Ser. No. 211,787

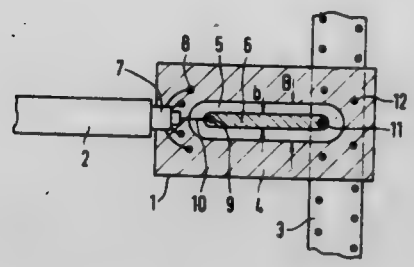
Claims priority, application Fed. Rep. of Germany, 1979, 2949013

Int. Cl.³ H01P *5/08*

U.S. Cl. 333—33 **4 Claims**

1. A transition piece for establishing a transition between a coaxial cable having an inner conductor and an outer conduc-

tor and a plug-in connector component having a plurality of terminals disposed adjacent one another, comprising a coupling member in the form of a coplanar stripline presenting a conductive strip and a conductive surface surrounding, and electrically insulated from, said conductive strip, means connecting the inner conductor of the cable to a point at one end



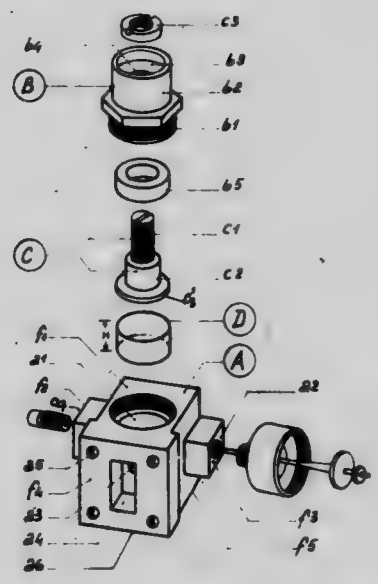
of said conductive strip, means connecting the outer conductor of the cable to said conductive surface, means connecting a first terminal of the connector component to a point at the end of said conductive strip opposite its said one end, and means connecting at least one terminal adjacent the first terminal to said conductive surface.

4,335,365

TEMPERATURE STABILIZED AND FREQUENCY ADJUSTABLE MICROWAVE CAVITIES

Enzo Pome', Sesto S. Giovanni, Italy, assignor to Telettra-Telefonica Electronica e Radio S.p.A., Milan, Italy

Filed 1980, Ser. No. 190,566
Claims priority, application Italy, 1979, 26491 A/79
Int. Cl.³ H01P *7/06*
U.S. Cl. 333—229 **4 Claims**



1. A frequency adjustable, highly temperature-stabilized resonant wave guide cavity for microwave oscillators, comprising:

a metal body having a hollow cylindrical interior with a predetermined inside diameter forming said cavity;

a tuning screw extending into said cavity;

a plug member threadedly engaging said body and through which said tuning screw extends;

a first lateral coupling member for coupling a diode to said cavity;

a second lateral termination coupling; and

a preformed solid cylinder of amorphous quartz having an outer diameter substantially equal to the predetermined inside diameter of the hollow metal body interior and disposed in said cavity, said quartz cylinder filling said cavity to a height which determines the resonant frequency of the cavity and being replaceable with other quartz cylinders of different heights.

4,335,366

COLOR TELEVISION DISPLAY SYSTEM HAVING IMPROVED CONVERGENCE

Roger C. Alig, Princeton Junction; William H. Barkow, Pennsauken, and Josef Gross, Princeton, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 119,132
Int. Cl.³ H01F *3/12, 7/00*
U.S. Cl. 335—211 **5 Claims**

1. In a television receiver comprising a kinescope having a neck region, a display screen and an intermediate funnel region; a deflection yoke, disposed about said kinescope neck and funnel region, having a pair of vertical deflection coils toroidally-wound about a core, said coils producing a magnetic deflection field comprising a portion located within the interior of said yoke and an external portion located within a first field region generally disposed at the rear of said yoke, and within a second field region generally disposed at the sides of said yoke; an electron gun assembly for producing three horizontal in-line electron beams, disposed within said kinescope neck region in the vicinity of said first field region, said electron gun assembly incorporating a magnetically-permeable focusing electrode for reducing defocusing of said beam caused by said field located in said first external field region, said magnetically-permeable electrode interacting with said field located within said first external field region in a manner tending to cause overconvergence of said electron beams at the ends of the minor axis on said kinescope display screen in the absence of compensation therefor; compensation apparatus comprising:

a pair of magnetically-permeable field formers located on opposite sides of said yoke, each comprising a first elongated portion disposed adjacent said yoke within said second external field region, and a second portion angled with respect to said first portion; each of said second field former portions having a termination disposed adjacent to said kinescope neck in the vicinity of the exit end of said electron gun assembly for causing interaction of said electron beams with a magnetic field formed between said second field former portions in a manner compensating for said overconvergence.

4,335,367

ELECTRICALLY INSULATED COIL

Hisayasu Mitsui; Ryozi Kumazawa; Yoshiyuki Inoue; Shuichi Suzuki, all of Yokohama; Takeo Ito, Kawasaki; Sinichi Sanada, and Shuzi Hayase, both of Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

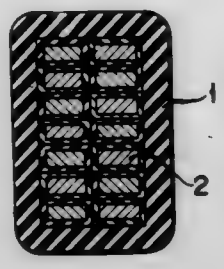
Filed 1980, Ser. No. 178,154
Claims priority, application Japan, 1979, 54/104074; 1979, 54/104075
Int. Cl.³ H01F *27/32;* **B32B** *19/00, 27/38*
U.S. Cl. 336—205 **10 Claims**

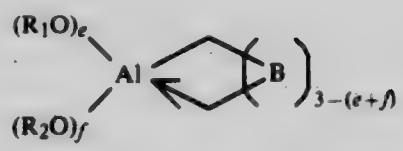
1. An electrically insulated coil, comprising:

a coil; and

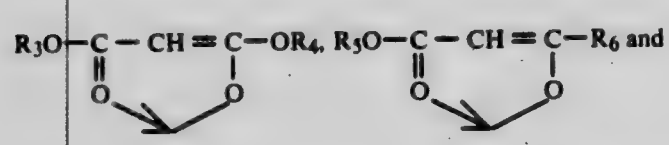
a mica tape containing a resinous composition wound upon said coil, said resinous composition containing a malei-

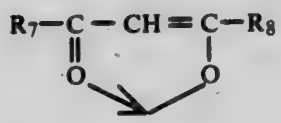
mide compound, an epoxy resin, a curing catalyst consisting of an aluminum compound of the formula:



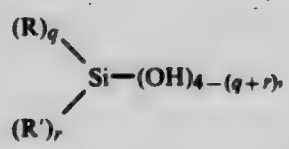


wherein R_1 and R_2 independently are alkyl, e and f are zero or integers from 1 to 3 such that the value of $e+f$ does not exceed 3 and B is a ligand selected from the group consisting of

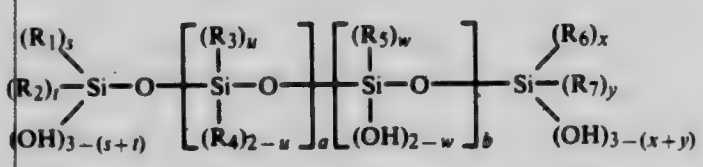




wherein each R_3–R_8 radical is alkyl, and a curing accelerator selected from the group consisting of a silane compound of the formula:



wherein each R and R′ radical independently is alkyl, phenyl, aralkyl, vinyl or allyl, q and r are each O or an integer of 1 to 3 with the sum of q and r not exceeding 3 and a polysiloxane compound of the formula:



wherein each of the radicals R_1–R_7 independently is a monovalent organosiloxane each optionally substituted by alkyl, phenyl, vinyl, aralkyl, allyl or hydroxyl, each of s, t, x and y being 0, 1 or 2, the sum of s and t and the sum of x and y not exceeding 2, each of u and w being 0, 1 or 2 and each of a and b being 0 or 1 or more;

said curing catalyst and said curing accelerator each being present in an amount of approximately 0.001 to 5% by weight based on the total amount of said maleimide compound and said epoxy resin; and

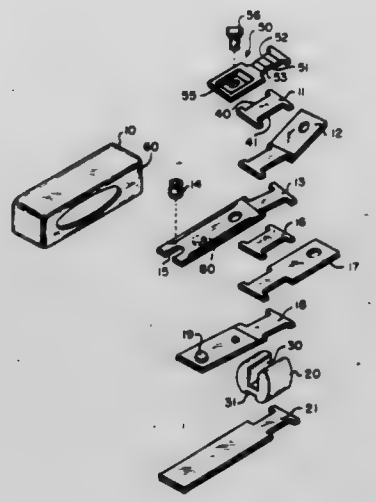
curing said resinous composition by heating after said mica tape is wound around the coil.

4,335,368

DEAD CASE THERMOSTAT ASSEMBLY

Omar R. Givler, North Canton, Ohio, assignor to Portage Electric Products, Inc., North Canton, Ohio

Filed 1981, Ser. No. 234,242
Int. Cl.³ H01H *37/04, 37/52*
U.S. Cl. 337—372 **7 Claims**



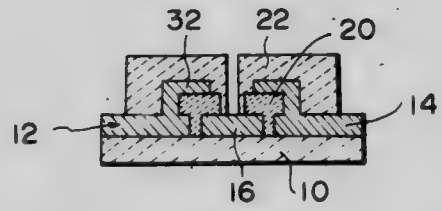
1. In a dead case thermostat having operating members including a bimetallic actuator, contact arms, connector members, and insulators held within a ceramic block insulator, the improvement which comprises a spring member placed within the block insulator, in a position to bear directly against the case into which the block insulator, with the operating members in place, is inserted, whereby the operating members of the thermostat are held in place within the case by a friction fit.

4,335,369

OXYGEN SENSOR

Harutaka Taniguchi; Kenichi Hara, and Hideo Shiraishi, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

PCT No. PCT/JP79/00195, § 371 Date 1980, § 102(e) Date 1980
PCT Filed 1979, Ser. No. 194,242
Claims priority, application Japan, 1978, 53/91203
Int. Cl.³ H01L *7/00*
U.S. Cl. 338—34 **9 Claims**

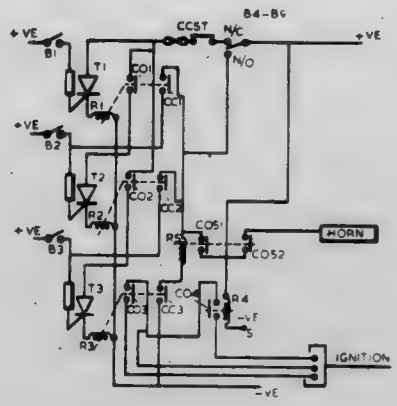


1. An oxygen sensor for detecting a change of an oxygen partial pressure in an ambient atmosphere through a change of an electric resistance of a transition-metal oxide, characterized in that a porous thick membrane of transition-metal oxide having a thickness of 50 to 100 μm and electrode metal thick membranes divided into two parts in contact with said porous thick membrane are arranged on a ceramic base and all free surfaces of said thick membrane of transition-metal oxide and at least part of free surfaces of said electrode metal thick membranes are coated with a ceramic protective layer.

4,335,370
VEHICLE SECURITY DEVICE

Douglas M. Scalley, 21 McGregor Rd., Ravenswood, Cumbernauld, and John M. Mullin, 11 Kirriemuir Gdns., Bishopbriggs, Glasgow, both of Scotland

Filed 1981, Ser. No. 265,726
Int. Cl.[3] B60R *25/04, 25/10*
U.S. Cl. 340—64 12 Claims



1. A security device for controlling the ignition circuit of a vehicle provided with a steering lock having locked and unlocked positions and a starter motor circuit, said device comprising an electrical circuit having: a security ignition circuit switch means for opening and closing said ignition circuit, in use of the device, independently of any manually operable ignition circuit switch means; a steering lock control switch means connectable to said steering lock, in use of the device, and having disabling and non-disabling operating conditions, corresponding respectively to locked and unlocked positions of the steering lock, for respectively disabling and not disabling said vehicle with respect to starting thereof; a plurality of first switch means actuable by a vehicle user and arranged in a security circuit so that operation of each of said first switch means is necessary in said predetermined sequence to close said security ignition circuit switch means; and connection means for connection of said electrical circuit to a power supply means; and an alarm connection means, at least one of said vehicle having an audible warning and/or lighting system connectable to said alarm connection means, and said alarm connection means being connected to a separate alarm means, said alarm connection means being arranged for activation thereof in response to actuation of said first switch means in an incorrect sequence, whereby in use of the device the vehicle can only be started when said first switch means have been actuated in said predetermined sequence and said steering lock has been placed in its unlocked position.

4,335,371
DIGITAL ERROR CORRECTING TRIMMING IN AN ANALOG TO DIGITAL CONVERTER

Joseph J. Connolly, Jr.; Thomas P. Redfern, and Thomas M. Frederiksen, all of San Jose, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed 1979, Ser. No. 28,464
Int. Cl.[3] H03K *13/08*
U.S. Cl. 340—347 CC 7 Claims

1. A digitally trimmed analog-to-digital converter that provides a plural bit digital output word representative of an analog input voltage, said converter comprising:

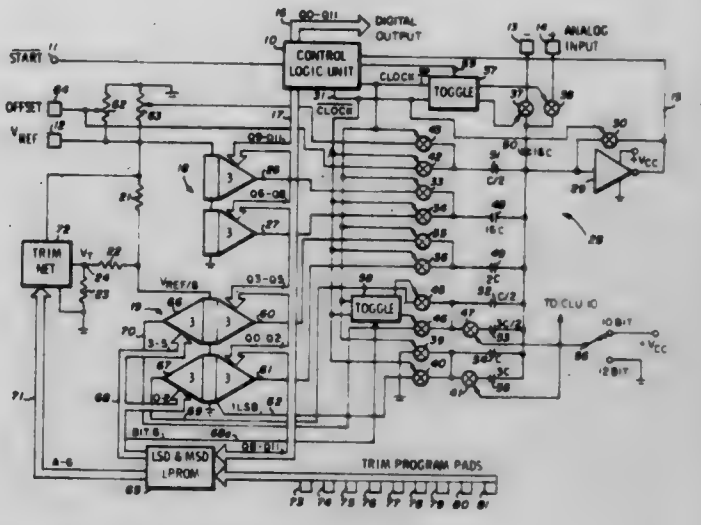
an analog-to-digital converter capable of supplying a plurality of digital output words, each one of which represents a different analog input voltage, said converter including a plurality of dual digital-to-analog converter elements commonly coupled to a comparator having a plurality of capacitor weighted charge balanced input pairs;

means for varying the values of said analog voltages representative of particular ones of said digital output words in response to digital trim words by applying correcting voltages to selected inputs of said comparator said digital trim words including an individual trim word for each one of said particular ones of said digital output words;

read only memory means for storing said digital trim words;

means for addressing said read only memory means with said particular ones of said digital output words;

means for applying the digital trim words in said read only memory to said means for varying;



means for temporarily bypassing said read only memory;

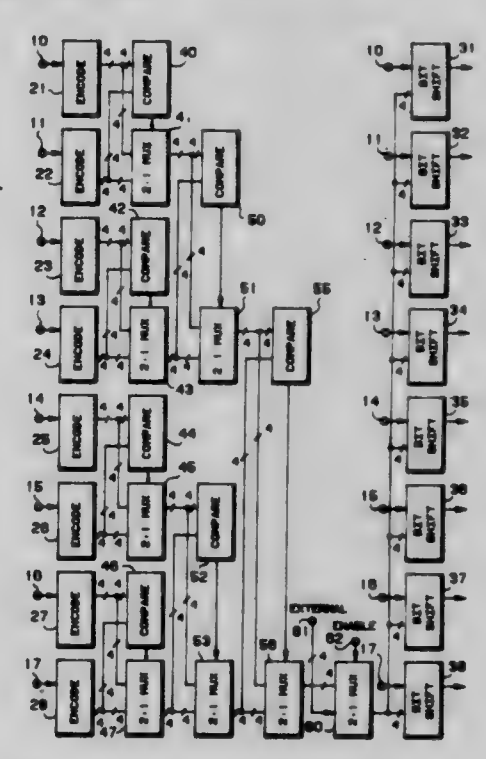
means for applying an externally generated digital trim word to said converter wherein said externally generated word can be manipulated to select a desired trim word; and

means for entering said desired trim word into said read only memory.

4,335,372
DIGITAL SCALING APPARATUS

Maurice B. Aufderheide, Scottsdale, and Sam M. Daniel, Tempe, both of Ariz., assignors to Motorola Inc., Schaumbur, Ill.

Filed 1980, Ser. No. 134,859
Int. Cl.[3] G06F *3/00*
U.S. Cl. 340—347 DD 11 Claims



1. Digital scaling apparatus comprising:

(a) encoding means adapted to receive a plurality of digital words each composed of a plurality of bits and provide a digital shift command for each digital word representative of the number of bits the digital word must be shifted to left-justify it;

(b) comparing means for comparing each of the shift commands to all of the remaining shift commands and select-

ing the shift command representative of the fewest number of bits to be shifted; and

(c) bit shifting means connected to receive the plurality of digital words and the selected shift command for shifting each of the plurality of digital words the number of bits represented by the selected shift command.

4,335,373

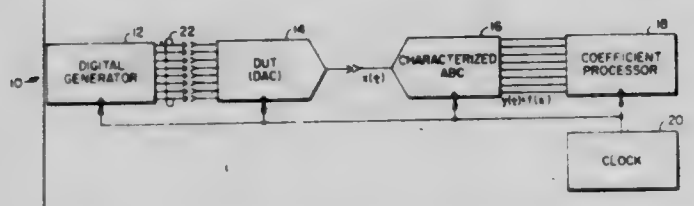
METHOD FOR ANALYZING A DIGITAL-TO-ANALOG CONVERTER WITH A NONIDEAL ANALOG-TO-DIGITAL CONVERTER

Edwin A. Sloane, Los Altos, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Continuation-in-part of Ser. No. 204,979, Nov. 7, 1980. This application 1981, Ser. No. 264,928

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 CC **10 Claims**



1. A method for calibrating a digital-to-analog converter (DAC) comprising the steps of:

exciting inputs of the DAC under test from an excitation means generating known digital excitation signals, each said excitation signal being applied at a single digital bit input of the DAC under test and each said excitation signal being binary and orthogonal with respect to all other ones of said excitation signals, the sum of said excitation signals consisting of a maximum entropy sequence of uniform amplitude probability, said DAC under test producing an analog output signal;

providing said analog output signal of the DAC under test at an analog input of an analog-to-digital converter (ADC), the transfer function of said ADC having been characterized by premeasured weighting values of a set of binary orthogonal functions, said ADC producing digital output signals;

transforming said digital output signals from time domain digital signals into binary transform domain digital signals to obtain an output response weighting coefficient for each bit of the converter under test; and

correcting each said output response weighting coefficient for bias errors induced by said ADC by multiplying each output response weighting coefficient by the reciprocal of each corresponding said premeasured weighting values in a bias correction means in order to obtain unbiased weighting values of each bit specifying the transfer characteristic of the digital-to-analog converter under test.

4,335,374

KEY DISCRIMINATION CIRCUIT

Tomoaki Nyuji, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation-in-part of Ser. No. 964,438, Nov. 28, 1978, abandoned. This application 1980, Ser. No. 157,834

Claims priority, application Japan, 1977, 52-145234

Int. Cl.³ G06F *3/02*

U.S. Cl. 340—365 S **2 Claims**

1. A key discrimination circuit comprising:

a plurality of key input signal lines;

a plurality of key output signal lines mutually crossed with said plurality of key input signal lines in a matrix;

a plurality of key switches each coupled to a corresponding one of said key input signal lines and to a corresponding one of said key output signal lines for manually switching an electrical connection between said corresponding key input signal lines and said corresponding key output signal lines;

a plurality of first OR gates, each having an output terminal connected to a corresponding one of said key input signal lines, a first input terminal and a second input terminal;

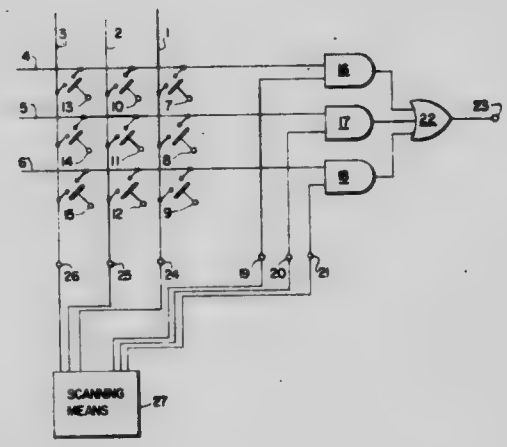
a R-S flip-flop having an output terminal connected to said first input terminal of each of said first OR gates, a set terminal and a reset terminal;

a second OR gate, having a plurality of input terminals each connected to a corresponding one of said key output signal lines and an output terminal, for producing an output signal "1" at said output terminal when one of said key switches is manually operated to connect said corresponding key input signal line and said corresponding key output signal line, and for producing an output signal "0" at said output terminal when none of said key switches is manually operated;

a plurality of AND gates, each having a first input terminal connected to a corresponding one of said key output signal lines, a second input terminal and an output terminal;

a third OR gate having a plurality of input terminals, each connected to said output terminal of a corresponding one of said AND gates, and an output terminal;

a first stage discrimination detector connected to said output terminal of said second OR gate and said reset terminal of said R-S flip-flop and having a trigger output terminal, for



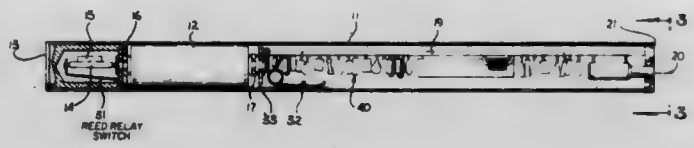
resetting said R-S flip-flop and for generating a trigger signal at said trigger output terminal when said second OR gate produces an output signal "1" at said output terminal thereof; and

a scanning means connected to said second input terminals of said plurality of first OR gates, said set terminal of said R-S flip-flop, said second input terminals of said plurality of AND gates, said output terminal of said third OR gate, and said trigger output terminal of said first stage discrimination detector, and having an output terminal, for scanning said plurality of key switches by application of a "1" level pulse signal to successive ones of said second input terminals of said plurality of first OR gates for a predetermined period, during which period said scanning means further applies a "1" level signal to each of said second input terminals of said plurality of AND gates successively in turn, and thereafter applying a "1" level pulse signal to said set terminal of said R-S flip-flop when said first stage discrimination detector generates said trigger signal and for generating an output signal at said output terminal of said scanning means indicative of the key switches among said plurality of key switches manually switched from the time of generation of a "1" level signal at said output terminal of said third OR gate relative to said scan of said plurality of key switches.

4,335,375
CONTAINER FOR AN ALARM TRANSMITTER ADAPTED FOR INSERTION INTO A WALL

Daniel D. Schaeffer, 757 Ocean Ave., Santa Monica, Calif. 90402

Filed 1978, Ser. No. 877,377
Int. Cl.[3] G08B *1/08, 13/08*
U.S. Cl. 340—539 7 Claims



1. A combination of an improved end cap and a container for an alarm transmitter and components of a transmitter circuitry, having two power input terminals, said combination comprising:

a. a tubular member which is to be inserted into a hole in a frame for a door or window;

b. an elongated, rectangular member which is to be inserted into said tubular member and also which has the components of the transmitter circuitry placed thereon;

c. a battery having a first terminal which is electrically coupled to one of the power input terminals of the transmitter circuitry and second terminal;

d. a pair of mated battery connectors which are mechanically coupled to the first and second terminals of said battery;

e. supporting means for supporting said pair of mated battery connectors within said tubular member on said elongated, rectangular member;

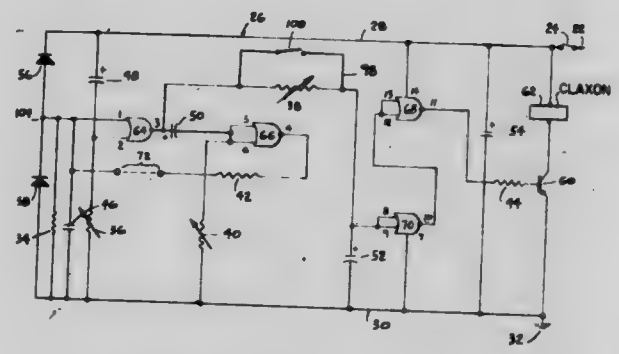
f. an improved end cap which is a cylindrical member having an open end with a cavity and a closed, flat end, said cylindrical member having a shoulder of a diameter which is equal to the outer diameter of said tubular member at said closed, flat end to provide a stop for said improved end cap and the rest of said cylindrical member is slightly tapered so that said improved end cap may be press fit into said tubular member; and

g. a reed relay switch which is disposed in said cavity of said improved end cap and which is electrically coupled to one of said pair of mated battery connectors.

4,335,376
ELECTRONIC CONTROL DEVICE

Ralph E. Marquardt, 2020 Eagle St. North, Cambridge, Ontario, Canada

Filed 1979, Ser. No. 29,558
Int. Cl.[3] G08B *13/08*
U.S. Cl. 340—547 9 Claims



1. An electronic control device comprising the following elements:

(a) three separate time delays each creating a time delay period;

(b) a suitable direct current power source;

(c) means for switching the device on and off;

(d) a loop having an open position and a closed position;

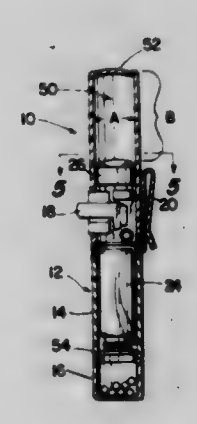
(e) an integrated circuit;

(f) detecting means that becomes activated for a period of time when the loop has been opened, said elements being connected by electronic circuit means so that said power source is connected to said detecting means, switching means and time delays, said time delays and loop being connected to said integrated circuit so that said integrated circuit can control the sequential operation of said time delays in such a manner that when said device is turned on, the first time delay having a first time delay period and preventing the activation of the detecting means even if the loop is open so long as the loop is closed before said first delay period expires, said device being in standby position with a low direct current flowing through the loop when the loop is closed, the device is turned on, and said first delay period has expired; the device moving out of standby to a detection position when the loop is or has been opened, the second time delay having a second time delay period and preventing the activation of the detecting means so long as the device is turned off before said second delay period expires, the detecting means being activated if the device is not turned off within said second delay period, said detecting means continuing to be activated so long as the loop is left open and sufficient power is available, with a third time delay means having a third time delay period to delay the shut down of the detecting means after the loop has been closed, said detecting means shutting down and said device automatically returning to the standby position when said third time period has expired.

4,335,377
MEDICAL ALERT ALARM

John S. Bostic, Parma Heights, Ohio, assignor to Joseph E. Belavich, Plant City, Fla.

Filed 1980, Ser. No. 167,786
Int. Cl.[3] G08B *3/00*
U.S. Cl. 340—573 11 Claims



1. A portable medical alert alarm comprising:

(a) a housing for carrying electrical components necessary to produce a distinctive signal on the order of 640 Hertz capable of alerting bystanders to the fact of a medical emergency;

(b) audio oscillator circuitry disposed within the housing for producing an aural signal;

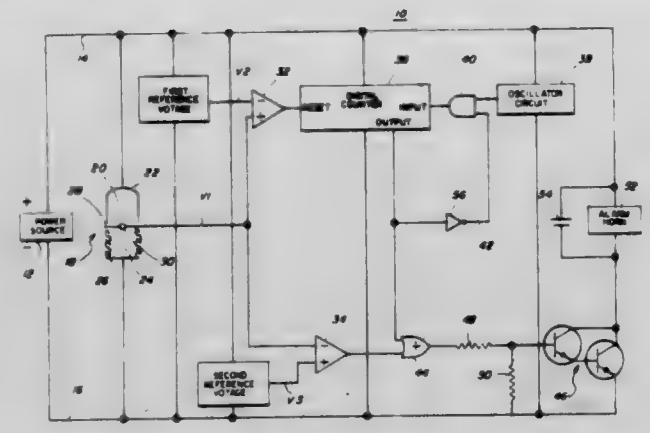
(c) a switch extending outwardly of the housing and having on and off positions for activating the alarm, the switch being connected to the audio oscillator circuitry; and,

(d) a generally cylindrical resonant cavity included as part of the housing disposed adjacent to the audio oscillator circuitry for amplifying the sound emitted by the alarm, the cavity being located toward one end of the housing and having an open end located at the end of the housing, the ratio of resonant cavity length to diameter being approximately 2:1.

4,335,378
TIMED DUAL COMPARATOR ALARM

Charles Coleman, Lakewood, Colo., assignor to Emerson Electric Company, St. Louis, Mo.

Filed 1978, Ser. No. 971,510
Int. Cl.[2] G08B *17/10*
U.S. Cl. 340—629 11 Claims

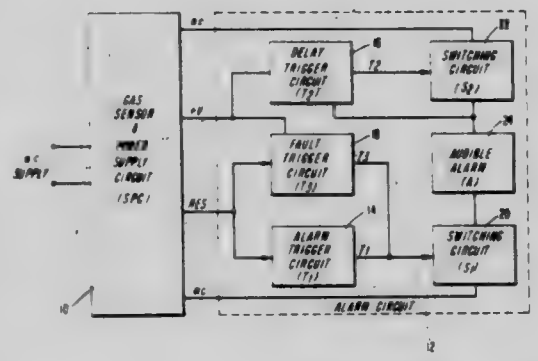


1. A combustion products detection apparatus, comprising:
sensing means for monitoring the concentration of combustion products in a region to be monitored and generating a sensed signal corresponding to the concentration;
first comparator means for comparing the sensed signal with a first reference signal and generating a first output indicating whether at least a first predetermined concentration of combustion products is present in the region to be monitored;
second comparator means for comparing said sensed signal with a second reference signal and generating a second output indicating whether at least a second predetermined concentration of combustion products is present in the region to be monitored, the second predetermined concentration of combustion products being greater in magnitude than the first predetermined concentration of combustion products;
timing means responsive to said first comparator means for monitoring the continuous time elapsed while at least the first predetermined concentration of combustion products is present in the region to be monitored; and
alarm means responsive to said timing means for producing a perceptible alarm signal when the first predetermined concentration of combustion products is sensed by said sensing means for a continuous preestablished period of time and for producing a perceptible output signal when the second predetermined concentration of combustion is present in the region to be monitored.

4,335,379
METHOD AND SYSTEM FOR PROVIDING AN AUDIBLE ALARM RESPONSIVE TO SENSED CONDITIONS

John R. Martin, 2345 W. Mill Rd., Milwaukee, Wis. 53209

Filed 1979, Ser. No. 75,218
Int. Cl.[3] G08B *17/10*
U.S. Cl. 340—634 5 Claims



1. An alarm system for providing an alarm upon the occurrence of a predetermined concentration of gaseous hydrocarbon in an area comprising:
a sensor including a gaseous hydrocarbon responsive variable resistance element connected between two electrodes and means for heating said variable resistance element, the resistance between said electrodes being related in value to the resistance of said variable resistance element, the resistance of said variable resistance element assuming a predetermined, relatively stable resistance value upon energization of said heating means beyond an initial heating period, and said resistance value decreasing from said relatively stable value as a function of the concentration of gaseous hydrocarbons in the vicinity of said sensor, and a decrease in said resistance value to an initial action resistance value substantially below said stable value during the initial heating period;
a series circuit arrangement comprising first and second switching means connected in series with a power source, each of said switching means being operable between conductive and non-conductive conditions in response to a trigger signal, said switching means producing an alarm signal with both the first and second switching means in the conductive condition;
alarm means for sounding an audible alarm in response to said alarm signal;
first trigger circuit means for triggering said first switching means into its conductive condition in response to said variable resistance element decreasing at least to a predetermined resistance value, which resistance value is below said stable value by an amount signifying a predetermined concentration of gaseous hydrocarbons in the vicinity of said resistance element, said predetermined resistance value being above said initial action resistance value occurring during said initial heating period;
second trigger circuit means including a capacitor having a charging path which includes said first switching means and connected to be charged to at least a predetermined charge level upon energization of said heating means, said second trigger circuit means triggering said second switching means into its conductive condition in response to said capacitor achieving said predetermined charge level; and
third trigger circuit means connected to said first switching circuit means for intermittently triggering said first switching circuit means into its conductive condition in response to the occurrence of an abnormal condition of said sensor.

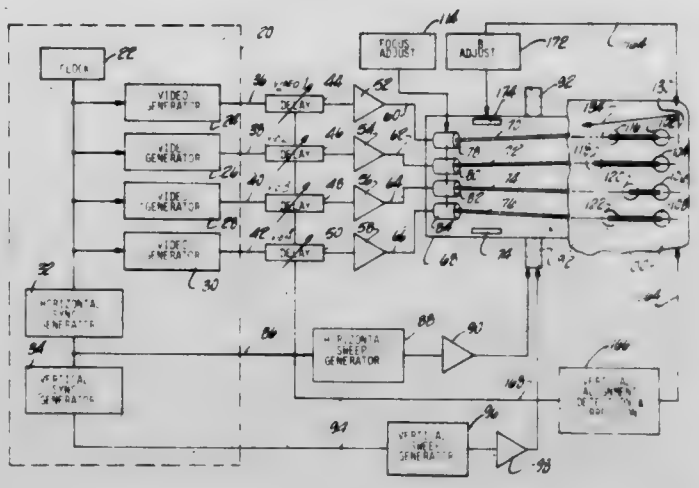
4,335,380
MULTI-BEAM RASTER SCAN DISPLAY MONITOR

David Y. Wright, 560 McMunn, South Lyon, Mich. 48178

Filed 1980, Ser. No. 159,570
Int. Cl.[3] H01J *46/00*
U.S. Cl. 340—744 24 Claims

1. A high definition raster scan image display system, comprising:
a cathode ray tube including a screen on which images may be displayed,
said cathode ray tube further including means for producing a plurality of individual electron beams defining an array thereof adapted to scan said screen to produce images thereon, said beams in said array thereof being vertically spaced apart a predetermined distance at the corresponding points of impingement thereon on said screen;
a plurality of individual sources of video signals respectively associated with said plurality of electron beams and operatively coupled with said beam producing means;
means for directing each of said beams in said array thereof onto said screen and for causing said beam array to scan said screen; and
means operatively coupled with said beam producing means and with said plurality of video signal sources for adjust-

ing the vertical alignment of the beams in said array thereof at said corresponding points of impingement of



said beams on said screen during scanning by said beam array.

4,335,381

REMOTE CONTROL OF ELECTRICAL DEVICES

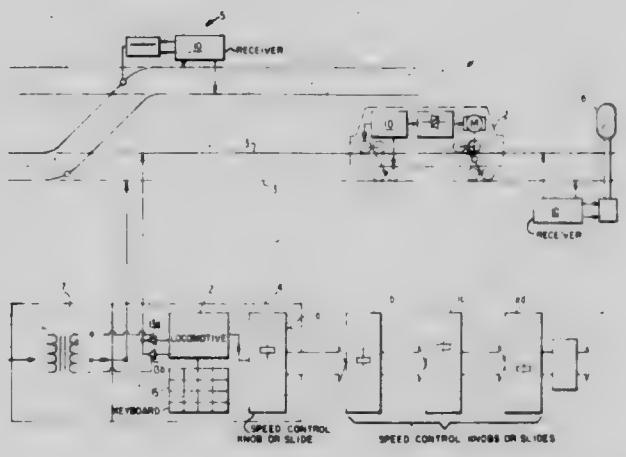
Robin Palmer, Harlow, England, assignor to Rovex Limited, England

Filed 1979, Ser. No. 66,550

Claims priority, application United Kingdom, 1978, 33372/78; 1979, 7917702

Int. Cl.³ H04Q *9/00*

U.S. Cl. 340—825.21 **36 Claims**



1. A remote control system for controlling one or more electrical devices via power supply lines used to energise the device or devices, in use there being applied across the same supply lines a composite waveform comprising control signals and a cyclically repeating power supply waveform, the control signals comprising address information signals designating the device to which the control signal is addressed and control information signals individually designating the action required of the addressed device, each cycle of the power supply waveform comprising one or more intervals during which it is substantially zero in amplitude, the system comprising a transmitter for producing the control signals in timed relationship with the power supply waveform so that each control signal is transmitted in its entirety during a respective one of said intervals after the power supply waveform has achieved a zero amplitude, and at least one receiver adapted to receive said composite waveform and to identify received control signals assigned thereto and to appropriately control an associated electrical device, said at least one receiver including storage means for storing the control signal assigned thereto until updated during the next respective interval. •

4,335,382

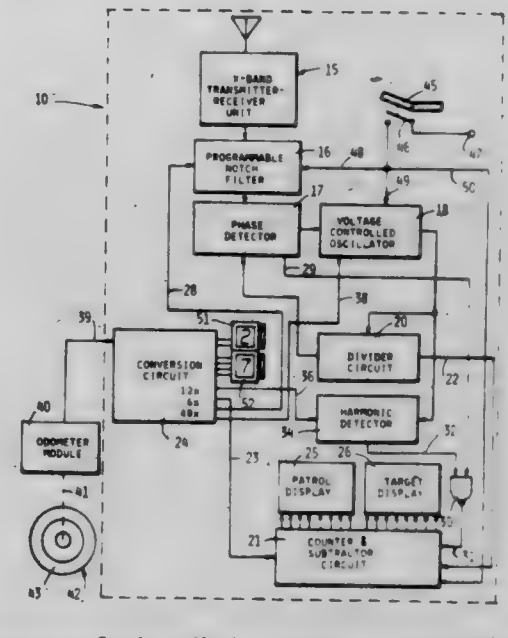
TRAFFIC RADAR SYSTEM

Bryce K. Brown, Decatur; Stephen Correll, Sadorus; Jay Schreiber, Villa Grove; Lawrence E. Mayfield, Decatur, and Darrell D. Jenkins, Argenta, all of Ill., assignors to Decatur Electronics, Inc., Decatur, Ill.

Filed 1980, Ser. No. 128,510

Int. Cl.³ G01S *13/60, 7/40*

U.S. Cl. 343—8 **12 Claims**



1. Apparatus for installation on a movable platform structure and for determining the speed of a target structure while both structures are in motion, comprising: energy transmitting and receiving means for transmitting energy toward and receiving energy from reflecting surfaces for developing a first signal having components indicating the relative speed of said platform structure and said reflecting surfaces, platform structure speed measuring means operable independently of said energy transmitting and receiving means for developing a second signal corresponding to the speed of said platform structure relative to stationary objects, second speed measuring means including means for comparing said second signal and components of said first signal which are produced from reflections from a moving target structure for measuring the speed of the target relative to stationary objects, and calibration adjustment means associated with said platform structure speed measuring means for adjustment thereof to insure an accurate relationship between said second signal and the actual speed of movement of said platform structure relative to stationary objects.

4,335,383

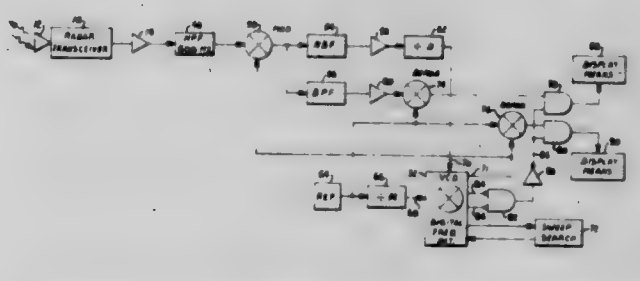
METHOD AND APPARATUS FOR DIGITALLY DETERMINING THE SPEED OF A TARGET VEHICLE WHILE THE RADAR PLATFORM VEHICLE IS IN MOTION

Fred M. Berry, Lenexa, Kans., assignor to Kustom Electronics, Inc., Lenexa, Kans.

Continuation of Ser. No. 11,210, Feb. 12, 1979, abandoned. This application 1980, Ser. No. 204,587

Int. Cl.³ G01S *13/58*

U.S. Cl. 343—8 **35 Claims**



1. A frequency discriminator for use in a doppler radar device operable to determine the speed of a target vehicle

when the radar platform vehicle is moving, said doppler radar device having a receiving means operable to receive a composite doppler signal having frequency components relating to the speed of said target vehicle and the speed of said radar platform vehicle, said frequency discriminator comprising:

means for frequency translating the received doppler signal to lock one of the frequency translated components to a preselected reference frequency;

means for separating the frequency translated doppler signal into a first frequency translated component and a second frequency translated component;

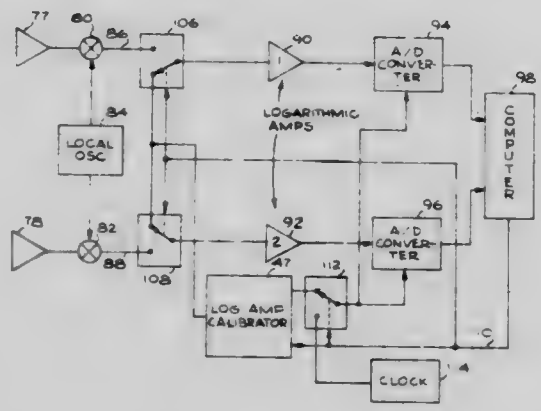
means for frequency translating said first frequency translated component to produce a signal suitable for a first speed measurement display.

4,335,384

LOGARITHMIC AMPLIFIER CALIBRATION MEANS

John C. Roos, Thousand Oaks, Calif., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed 1980, Ser. No. 110,892
Int. Cl.³ G01S 5/02
U.S. Cl. 343—114 **14 Claims**



1. In an amplitude comparison, direction finding receiving system having at least two channels, each channel of which includes a receiver and an associated logarithmic amplifier, a calibration means for said logarithmic amplifiers comprising:

first means for generating an exponentially decaying calibration signal;

second means for generating a plurality of sample pulses each separated by a time increment corresponding to a predetermined db change in said calibration signal;

means for connecting said calibration signal to said logarithmic amplifiers; and

means for determining the output of each of said logarithmic amplifiers at the time of each of said sample pulses, thereby providing a plurality of calibration points for each of said logarithmic amplifiers.

4,335,385

STRIPLINE ANTENNAS

Peter S. Hall, Swindon, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

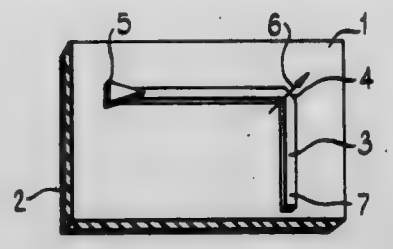
Filed 1979, Ser. No. 55,259
Claims priority, application United Kingdom, 1978, 29460/78
Int. Cl.³ H01Q 1/38
U.S. Cl. 343—700 MS **16 Claims**

1. A stripline antenna array comprising:

a pattern of conducting material on an insulating substrate having a conducting backing;

said pattern including at least one strip having an input connection at one end thereof for supplying energy to said array, said array having a longitudinal axis, said strip being configured to turn through successive right-angle corners to form a plurality of transverse sections that are substantially normal to the longitudinal axis of, and spaced along, the array, each transverse section being connected to the next succeeding transverse section by one of a plurality of longitudinal sections that are substantially parallel to the longitudinal axis of the array;

the array being substantially divisible longitudinally into a plurality of similar successive strip-portions all containing the same number of corresponding right-angle corners,



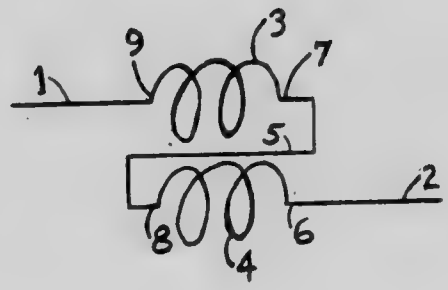
the angular configuration of the corners and the section lengths between successive corners being such in relation to a given operating wavelength in said strip that, when said strip is appropriately terminated, the phases of the resultant diagonally-polarized radiation from the corners in each strip-portion produce, in sum, the same predetermined polarization direction from all the cells.

4,335,386

BIFILAR ANTENNA TRAP

Robert H. Johns, 3379 Papermill Rd., Huntingdon Valley, Pa. 19006

Continuation-in-part of Ser. No. 162,928, Jul. 17, 1980. This application 1981, Ser. No. 222,241
Int. Cl.³ H01Q 9/20, 1/14
U.S. Cl. 343—722 **5 Claims**



5. An antenna system having at least two wire radiating portions including a parallel resonant trap between them, said trap comprising

a bifilar winding of two capacitively coupled wire coils insulated from one another,

an electrical cross-connection between opposite ends of said bifilar coils formed by the continuation of the wire of one coil into the opposite end of the other coil,

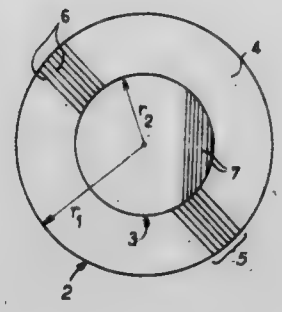
electrical connections between said antenna radiating portions and said coils, formed by a continuation of the wire of said radiating portions into the ends of said coils that are not a part of said cross-connection, whereby the antenna system made up of traps and radiating portions is formed from a continuous length of wire.

4,335,387

RADAR ANTENNA WITH ROTATING LINEAR POLARIZATION DESIGNED TO REDUCE JAMMING

Francois Salvat; Jean Bouko, and Jean Le Foll, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed 1980, Ser. No. 158,794
Claims priority, application France, 1979, 79 15139
Int. Cl.[3] H01Q *15/24;* G01S *7/36;* H01Q *19/00*
U.S. Cl. 343—756 5 Claims



1. A Cassegrain-type radar antenna with rotating linear polarization, comprising:

a source of linearly polarized outgoing radiation centered on an axis;

a paraboloidal principal reflector centered on said axis, said principal reflector including a solid concave mirror and a first array of linear conductors disposed in parallel planes including an angle of 45° with the direction of polarization of said outgoing radiation, said first array being spaced from said mirror by a distance differing substantially from a quarter wavelength at the midfrequency of said outgoing radiation; and

an auxiliary reflector centered on said axis opposite said source and said principal reflector, said auxiliary reflector being formed from a second array of linear conductors disposed in planes parallel to one another and to said direction of polarization for directing the outgoing radiation from said source toward said principal reflector from which said radiation is sent out with elliptical polarization in an axially extending beam, said auxiliary reflector having a radius less than that of said principal reflector for intercepting only a central part of said beam and passing only a component of the radiation thereof with linear polarization perpendicular to said direction, the radiation in an annular part of said beam not intercepted by said auxiliary reflector retaining said elliptical polarization.

4,335,388

NULL CONTROL OF MULTIPLE BEAM ANTENNA

William G. Scott, Saratoga; Edgar W. Matthews, Jr., Los Altos; Howard H. S. Luh, Sunnyvale, all of Calif., and Charles A. Klein, Centerburg, Ohio, assignors to Ford Aerospace & Communications Corp., Dearborn, Mich.

Continuation of Ser. No. 13,597, Feb. 21, 1979, abandoned. This application 1980, Ser. No. 168,964
Int. Cl.[3] H01Q *3/30*
U.S. Cl. 343—854 21 Claims

1. An antenna assembly comprising:

a plurality of antenna elements for radiating and receiving electromagnetic energy;

a single processing means, such as a transmitter or receiver, for processing signals acted upon by said antenna assembly;

a beam forming network including a plurality of ports associated with said antenna elements and phase rotation means coupled between said processing means and said antenna elements for producing a substantially frequency-independent null by adjusting the phase of a signal applied to each of said antenna elements so that with respect to a null point there are equidistant rings of beams with equal amplitude and phase increments of



$$(M)\frac{360°}{N_R},$$

wherein N_R is the number of beams per equidistant ring set and M is an integer;

said beam forming network including variable power divider means for splitting and combining power two ways in any ratio;

said beam forming network including variable phase shifter means coupled to said plurality of ports for adjusting the phase of the signal exciting each one of said plurality of ports associated with said antenna elements;

said variable phase shifter means being adapted to adjust the phase of adjacent beams in an equidistant ring with respect to the null point so that the phase difference between adjacent beams is

$$(M)\frac{(360°)}{N_R},$$

the phase of the signal applied to one of said antenna elements being equal to the amount of rotation of the center of the antenna element about the null with respect to a reference line; and

said variable power divider means being adapted to adjust the amplitude of phasors associated with the beams in an equidistant ring so that there are sequentially phased signal phasors adding to zero amplitude to form a null and any constituent beam sidelobe frequency changes remain balanced at the intended null direction thus cancelling out and maintaining an advantageously deep null in spite of a frequency change or increased bandwidth of a given signal.

4,335,389

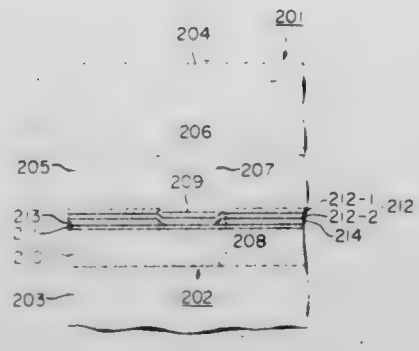
LIQUID DROPLET EJECTING RECORDING HEAD

Yoshiaki Shirato, Yokohama; Yasushi Takatori, Sagamihara; Toshitami Hara, Tokyo; Yukuo Nishimura, Sagamihara, and Michiko Takahashi, Higashi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 133,140
Claims priority, application Japan, 1979, 54-36041; 1979, 54-171335
Int. Cl.[3] G01D *15/18*
U.S. Cl. 346—140 R 11 Claims

1. A liquid droplet ejecting recording head comprising a liquid ejecting portion including an orifice for ejecting liquid droplets and a heat actuating portion communicated with the orifice, and an electrothermal transducer as a means for generating heat energy, the heat energy acting on the liquid at the heat actuating portion for ejecting liquid droplets, characterized in that the part contacting the liquid of the heat actuating portion is made of a material whose ΔW is not more than one-tenth of 1 mg/cm^2 where ΔW is a decrement weight of the material per unit area in mg/cm^2 at a time "t", when subjected

to a weight decreasing test, the "t" being a time at which $\Delta W(Al)$ is 1 mg/cm^2 where $\Delta W(Al)$ is a decrement weight of



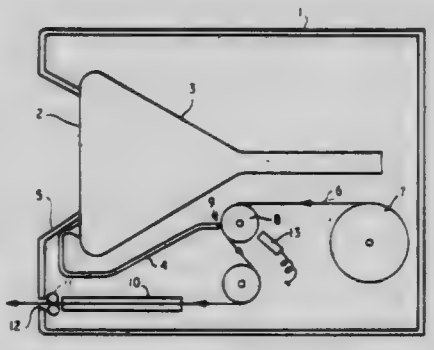
an aluminum plate of 99.9% in purity per unit area of the tested surface when subjected to the weight decreasing test.

4,335,390

CATHODE RAY TUBE PRINTING APPARATUS AND METHOD

John G. Axford, Winchester, England, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed 1979, Ser. No. 101,343
Claims priority, application United Kingdom, 1978, 49993/78
Int. Cl.[3] G01D *15/06*
U.S. Cl. 346—158 13 Claims



1. Apparatus for producing hard copy of an optical image displayed on a faceplate of a raster-scanned CRT display device comprising in combination:

a raster-scanned CRT display device having a faceplate;

a plurality of light fibers supported in a row along a preselected scan line position on said faceplate arranged to collect light emitted from contiguous regions along said scan line position and to transmit any such light to corresponding positions along a print row remote from said CRT faceplate;

means for supporting a print receiving medium at said print row, the arrangement being such that, in use, an image of the light transmitted by said fibers is produced in said medium;

means for moving said medium supported at said print row in a direction transverse to said print row;

display logic operable to produce successive cycles of operation, each cycle including a display mode and a print mode, said display logic operable to display a raster screened image on the faceplate of said CRT during said display mode and operable in said print mode, in response to the rate of movement of said medium, to control the supply of successive raster-scanned lines of said image to said preselected scan line position, so that images resulting therefrom representing successive raster scan lines of the image are produced in corresponding print line positions in said medium; and

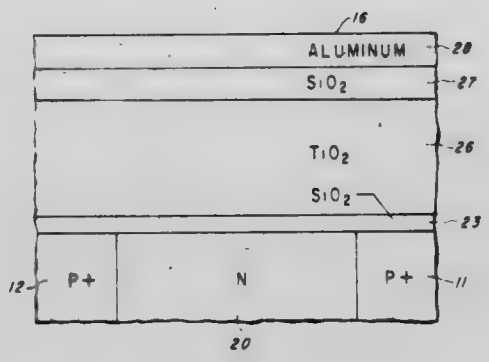
means operable to develop images so produced.

4,335,391

NON-VOLATILE SEMICONDUCTOR MEMORY ELEMENTS AND METHODS OF MAKING

Henry B. Morris, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed 1978, Ser. No. 968,544
Int. Cl.[3] H01L *29/78*
U.S. Cl. 357—23 11 Claims



1. A memory element comprising:

a semiconductor body, comprising source and drain regions formed therein, and comprising a channel region which connects said source region with said drain region within said semiconductor body;

a first insulating layer, disposed upon said body above said channel region;

a second insulating layer, on said first insulating layer, said second insulating layer having a dielectric constant which is greater than 15;

a third insulating layer on said second insulating layer, said third insulating layer comprising silicon dioxide; and

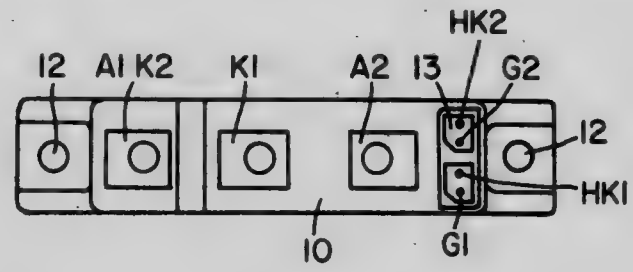
a conducting layer on said third insulating layer.

4,335,392

SEMICONDUCTOR DEVICE WITH AT LEAST TWO SEMICONDUCTOR ELEMENTS

Karl Reiter, Mannheim, Fed. Rep. of Germany, assignor to Brown, Boveri & Cie Aktiengesellschaft, Mannheim, Fed. Rep. of Germany

PCT No. PCT/DE79/00020, § 371 Date 1979, § 102(e) Date 1979, PCT Pub. No. WO79/00817, PCT Pub. Date 1979
PCT Filed 1979, Ser. No. 175,208
Claims priority, application Fed. Rep. of Germany, 1978, 7808801[U]
Int. Cl.[3] H01L *23/16, 23/32, 29/74*
U.S. Cl. 357—75 5 Claims



1. In a semiconductor device, including a housing having a surface, at least two semiconductor elements in the housing in the form of wafers at least one of which being controllable, electrodes for said semiconductor elements being insulated and passivated at the peripheries of the elements and being electrically connected to each other, said electrodes being in the form of main anode and cathode terminals as well as a main center tap terminal provided if said semiconductor elements are connected in series, said main terminals being provided for connection to relatively heavy wires and to first relatively thin wires, and control terminals for connection to second relatively thin wires, each of said terminals being disposed so as to extend through said surface of said housing, wherein the im-

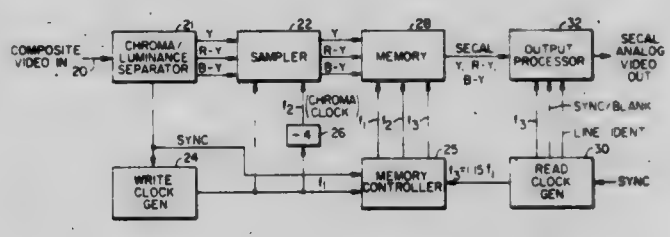
provement comprising an additional auxiliary cathode connection terminal disposed in said housing and extending through said surface thereof as separate terminals for each cathode of said controllable semiconductor elements for connection to the first relatively thin wires normally connected to said main terminals, each of said auxiliary cathode terminals and the corresponding control terminal of each of said semiconductor elements being disposed adjacent to one of said main terminals and relatively far from each other.

4,335,393

METHOD AND SYSTEM USING SEQUENTIALLY ENCODED COLOR AND LUMINANCE PROCESSING OF VIDEO TYPE SIGNALS TO IMPROVE PICTURE QUALITY

Gilbert J. Pearson, Sunnyvale, Calif., assignor to Harris Video Systems, Inc., Sunnyvale, Calif.

Filed 1980, Ser. No. 140,550
Int. Cl.³ H04N *5/76, 9/42, 9/32, 9/535*
U.S. Cl. 358—4 **75 Claims**



68. Apparatus for recording video signals comprising:

means for receiving video signals having a line scan format that includes, in serial form, a timing signal, a color reference signal, and a superimposed luminance and chrominance signal, each signal occupying a predetermined portion of each line;

means for modifying said video signals into a line scan format having a time duration that is a function of the duration of each line of said received signals and including in serial form, a timing signal, a separate luminance signal, and a separate chrominance signal, wherein the time duration of each modified line is substantially equal to the time duration of each line of the received signals, the combined time duration of the luminance and chrominance signals of each modified line is greater than the time duration of the superimposed luminance and chrominance signals and less than the time duration of each line of the received signals, and the time duration of the luminance signal of each modified line is less than the time duration of the superimposed luminance and chrominance signals, and

means for recording said modified video signals.

4,335,394

CROSSTALK FILTERING ARRANGEMENT WITH VARIABLE FREQUENCY FILTERING TO REMOVE EFFECTS OF FM CARRIER

Henry R. Warren, Belle Mead, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1979, Ser. No. 105,111
Int. Cl.³ H04N *5/795*
U.S. Cl. 358—8 **15 Claims**

1. An improved two-channel arrangement comprising:

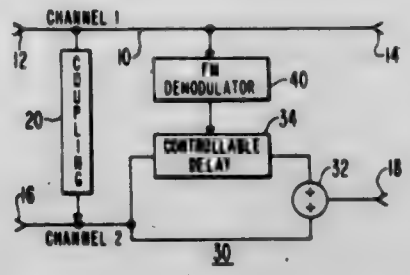
a first signal channel carrying a frequency-modulated carrier signal;

a second signal channel;

coupling means coupling said first and second signal channels together whereby said frequency-modulated carrier signal appears in said second signal channel;

wherein the improvement comprises

variable-frequency filter means coupled to said first and second signal channels for filtering from said second signal channel signals at the instantaneous frequency of said frequency-modulated carrier signal.

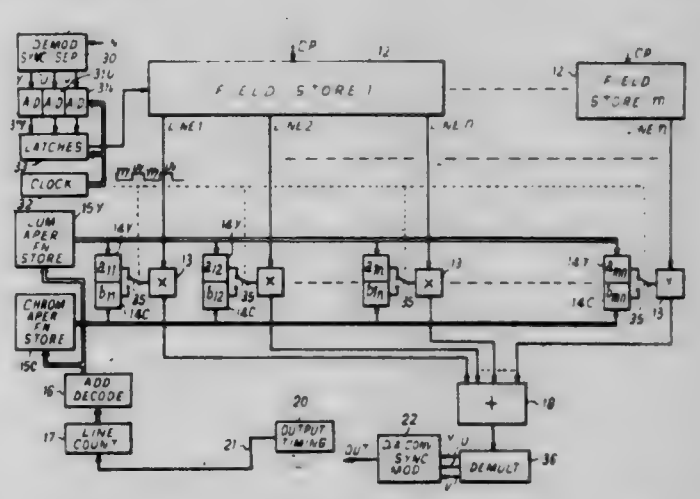


4,335,395

STANDARDS CONVERSION OF COLOR TELEVISION SIGNALS

Christopher K. P. Clarke, Crawley, England, assignor to British Broadcasting Corporation, London, England

Filed 1980, Ser. No. 185,068
Claims priority, application United Kingdom, 1979, 7934695
Int. Cl.³ H04N *9/42*
U.S. Cl. 358—11 **4 Claims**



1. Apparatus for conversion of colour television signals between standards using different numbers of lines per field and fields per second, comprising first storage means storing separately luminance and chrominance information pertaining to a plurality of lines of a plurality of fields of an input signal, second storage means storing in respect of each line of an output signal a set of luminance weighting coefficients and a set of chrominance weighting coefficients providing separate interpolation aperture functions for luminance and chrominance information, and means arranged to form luminance and chrominance signals on an output line-by-line basis by summing the products of the coefficients of the respective set and the stored information to which the coefficients apply.

4,335,396

AUTOMATIC EQUALIZATION SYSTEM FOR TELEVISION RECEIVER

Theodore S. Rzeszewski, Lombard, Ill., assignor to Matsushita Electric Corporation, Franklin Park, Ill.

Filed 1980, Ser. No. 206,648
Int. Cl.³ H04N *9/535*
U.S. Cl. 358—21 R **8 Claims**

1. An equalization circuit for a television receiver for automatically compensating for linear waveform distortion occurring in the composite television signal, which includes a VIR reference signal as a part thereof, said circuit including in combination:

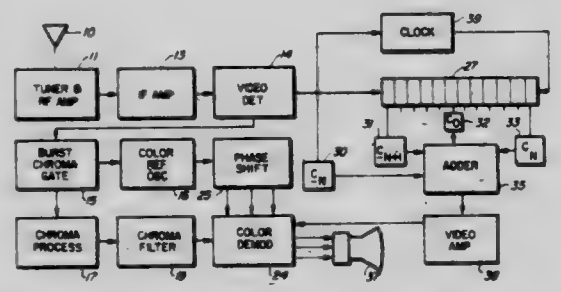
transversal filter means having an input and including delay

means with a plurality of output taps for providing output signals at successively increased delay times with predetermined time intervals between them;

reference signal generating means for generating a reference signal corresponding to a predetermined portion of said VIR signal and having the same characteristics as such predetermined portion of said VIR signal as originally transmitted;

timing means responsive to said received television signal and coupled with said reference signal generating means for causing the reference signal generated thereby to be generated with the same timing as said predetermined portion of said VIR signal in the received composite television signal;

means for applying the received composite television signal to the input of said filter means and to said timing means;



a plurality of adjustment circuit means coupled to the respective output taps of said transversal filter means for controlling predetermined characteristics of the signals applied thereto from said transversal filter means;

adder circuit means with a plurality of inputs coupled with the outputs of said adjustment circuit means for adding together the signals from said adjustment circuit means to produce a combined signal on an output thereof;

comparison circuit means coupled with the output of said adder circuit means and the output of said reference circuit generating means for producing an error signal representative of the difference between the input signals applied thereto; and

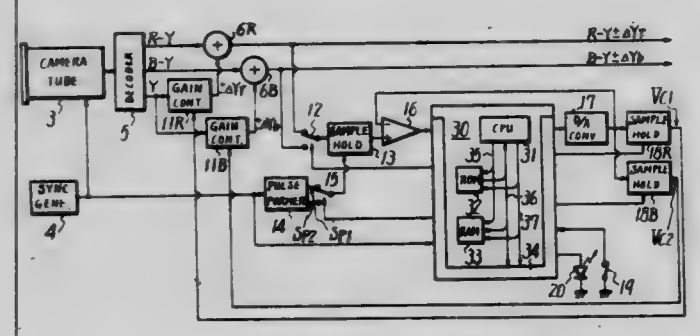
means coupling said comparison circuit means with said plurality of adjustment circuit means for varying the outputs thereof corresponding to the characteristics of the error signal produced from said comparison circuit means.

4,335,397

METHOD AND APPARATUS FOR DIGITALLY ADJUSTING WHITE BALANCE

Eiji Tamura, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed 1980, Ser. No. 162,640
Int. Cl.³ H04N 9/535
U.S. Cl. 358—29 **10 Claims**



1. A method of adjusting the white balance of a video signal formed of a luminance component and at least a first color difference signal, and having video scanning intervals and blanking intervals; and which uses a microcomputer including a memory device having at least first and second addressable storage locations, comprising the steps of:

sampling a reference video signal during one of said blanking intervals;

analog-to-digitally converting the sampled reference video signal to form a digital reference signal;

storing said digital reference signal in said first storage location of said memory device;

sampling said first color difference signal during one of said video scanning intervals;

analog-to-digitally converting the sampled first color difference signal to form a first digital color difference signal;

storing said first digital color difference signal in said second storage location of said memory device;

modifying the stored first digital color difference signal stored in said second storage location so that the modified stored first digital color difference signal has a digital value related to the difference between said stored first digital color difference signal and said digital reference signal stored in said first storage location;

forming a first color difference correction signal that varies with the luminance component and is proportional to the value of the modified stored first digital color difference signal; and

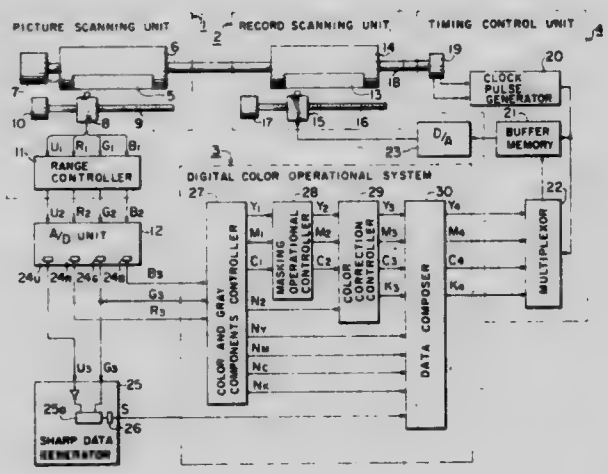
combining said first color difference signal with said first color difference correction signal.

4,335,398

DIGITAL COLOR CONTROL METHOD AND MACHINE

Mitsuhiko Yamada, Kyoto, Japan, assignor to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan

Filed 1980, Ser. No. 142,650
Claims priority, application Japan, 1979, 54-49077; 1979, 54-49078; 1979, 54-49079
Int. Cl.³ G03F 3/00
U.S. Cl. 358—80 **36 Claims**



1. A digital color control method for use in a picture reproducing process, comprising the steps of:

(a) obtaining original picture color signals of primary colors by photo-electrically scanning an optical picture;

(b) carrying out a gray component separation process comprising the steps of:

(i) providing first memory tables each having one-to-one relation between its input and output for effecting desired correction and compensation in the final finish in the reproduction of the original picture,

(ii) determining a reference highlight level of the original picture signals,

(iii) setting up an under-color reduction ratio,

(iv) obtaining a gray component data signal as the difference between the reference highlight level of the original picture color signals and the maximum of the levels of the primary color components of the original picture color signals,

(v) obtaining a first signal corresponding to the amount of black ink to be used in the reproduction of the original

picture as the product of the undercolor reduction ratio and the level of gray component data signal,

(vi) obtaining a second signal corresponding to the level of the gray component data signal remaining after subtracting the first signal therefrom,

(vii) obtaining third signals corresponding to the levels of the primary components remaining after subtracting the full gray component from the corresponding primary color components, and

(viii) supplying the second signal to the first memory tables for obtaining from their outputs the amount of the ink of each of the primary colors and the amount of black ink for attaining a desired black color through the combined use of the ink of the primary colors and the black color;

(c) a color masking process, comprising the steps of:

(i) providing second memory tables each corresponding to one of the primary colors and having one-to-one relation between its input and output,

(ii) supplying the third signals to the inputs of the second memory tables, and

(iii) obtaining masking color signals as the sums of the outputs from the second memory tables;

(d) a color correction process, comprising the steps of:

(i) providing third memory tables, each having one-to-one relation between its input and output, for effecting a desired color correction and compensation in the finish of the reproduction of the original picture,

(ii) determining which of a plurality of sectors in a color plane the masking color signals are identified with,

(iii) carrying out an arithmetic process between the masking color signals,

(iv) supplying the result of the arithmetic process to the inputs of the third memory tables each corresponding to the each of color data signals which are usable for the reproduction of the original picture, and

(v) adding each of the outputs of the third memory tables to each one of the masking color signals to which the third memory table corresponds; and

(e) composing the color data signals by combining the outputs from the second and third memories corresponding to the primary color of each of the color data signals for each of the primary colors.

28. A digital color control machine for use in a picture reproducing machine, for correcting the color tone of an original picture in the reproduction of the original picture, comprising:

a first discriminator for identifying which of a plurality of sectors in a color plane color signals obtained from the original picture are located in,

a second discriminator for carrying out an arithmetic process between two primary color components of the original picture signals, and

a plurality of memory tables, each corresponding to one of the sectors in the color plane, for associating the output from the second discriminator with a set of certain color correction data.

4,335,399

NORMALIZING CIRCUIT FOR COLOR PRINTING SYSTEM

Fumio Matsumoto, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed 1980, Ser. No. 159,620

Claims priority, application Japan, 1979, 54-76626

Int. Cl.³ G03F *3/00*

U.S. Cl. 358—80 **12 Claims**

1. A normalizing circuit for conducting sensitivity correction and gamma correction in accordance with a sensitivity correcting signal and a gamma correcting signal from a computer, and in accordance with a density signal, comprising:

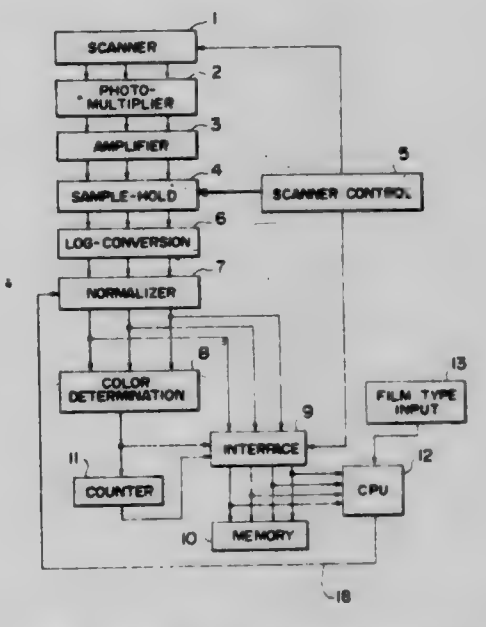
first latching means for latching said sensitivity correcting signal from said computer,

D-A converter means connected to said first latching means for converting the latched sensitivity correcting signal into an analog signal comprising an output current,

current-voltage conversion means connected to said D-A converter means for converting the output current of the analog signal of the D-A converter means to a voltage output,

first operational amplifier means connected to said current-voltage conversion means for combining the signal from the current-voltage conversion means with said density signal to provide an amplifier output signal,

second latching means for latching said gamma correcting signal from said computer,



an analog switch circuit connected to said second latching means and comprising a plurality of analog switches switchably operated by the latched gamma correcting signal,

a resistor array comprising a plurality of resistors connected to said analog switches so as to be selectively connected in series or in parallel with each other as selectively connected by said analog switches, and

second operational amplifier means connected to said first operational amplifier means for amplifying the amplifier output signal from said first operational amplifier means, said second operational amplifier means being connected to said resistor array.

4,335,400

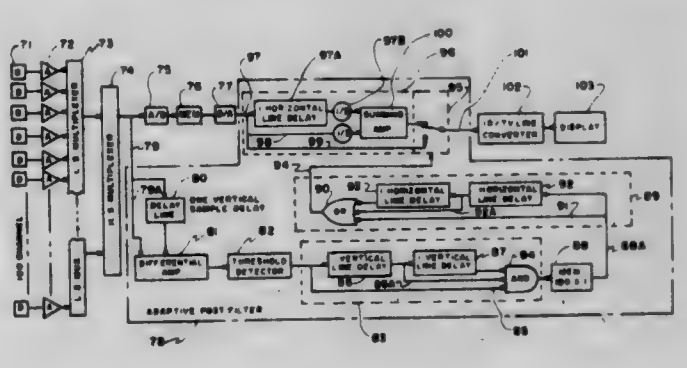
ADAPTIVE POST-FILTER FOR INFRARED SCAN CONVERTER

Sen-Te Chow, Alexandria, and Tsan H. Lin, Vienna, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed 1980, Ser. No. 199,419

Int. Cl.³ H04N *5/14, 5/21, 5/33*

U.S. Cl. 358—113 **2 Claims**



1. In a FLIR system having a vertical line array of detectors over which an IR image is scanned over horizontally each field period with a multiplexer coupled to and sampling said detec-

tors sequentially and periodically many times over each said field period to generate pixels at a multiplexer output terminal and having a digital-scan-converter coupled to said multiplexer output terminal which stores said pixels for an integral number of field periods and regenerates them at a converter output terminal at the same field rate but in a sequential horizontal line format; an adaptive postfilter circuit comprising:

a pulse actuated solid state single pole double throw terminal switch with a first normally open and a second normally closed throw terminal, a control terminal responsive to an input control pulse to reverse the state of said throw terminals for one sequential horizontal line period, said single pole being the postfilter output terminal, and said normally closed throw terminal being directly connected to said converter output terminal;

a low pass filter connected between said converter output terminal and said first normally open throw terminal;

a threshold detector means having an input terminal coupled to said multiplex output terminal to generate a control pulse at a threshold output terminal when the difference in the level of two successive pixels in time exceeds a preselected level; and

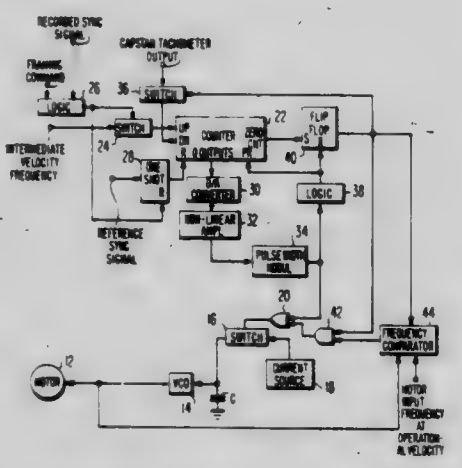
a field delay means connected between said threshold output and said control terminal to delay said control pulse at least until the beginning of a subsequent field period.

4,335,401

RAPID CORRELATION OF RECORDED INFORMATION

George S. Zorbalas, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 181,998
Int. Cl.[3] G11B *15/46*
U.S. Cl. 358—127 5 Claims



1. In a replay system of the type wherein a recorded medium having a sync signal recorded thereon to identify discrete segments of information is accelerated to its operational velocity from an intermediate velocity during a framing cycle in which the acceleration is accomplished in distinct intervals between which a constant velocity interval is maintained to phase lock the recorded sync signal with an external reference sync signal when the operational velocity is reached, the improvement comprising:

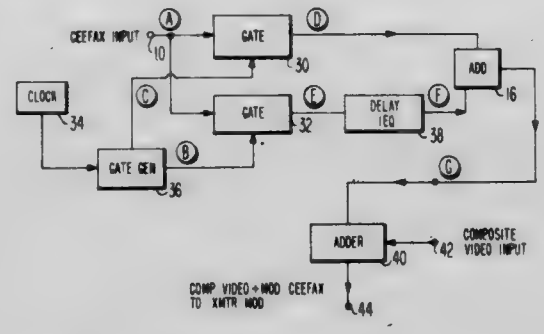
control means for establishing the total duration of the acceleration and constant velocity intervals to correspond with the time taken by the recorded medium to travel through a distance equal to two consecutive spaces between recorded sync signal pulses.

4,335,402

INFORMATION TRANSMISSION DURING FIRST-EQUALIZING PULSE INTERVAL IN TELEVISION

David D. Holmes, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 206,946
Claims priority, application United Kingdom, 1980, 8021570
Int. Cl.[3] H04N *7/08*
U.S. Cl. 358—147 10 Claims



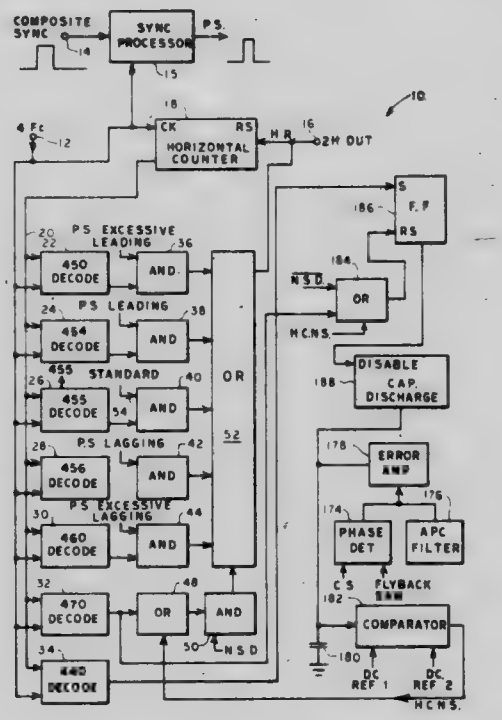
1. A method comprising transmitting a standard television signal, and transmitting an additional information signal during the first equalizing pulse interval of said standard television signal by dividing said additional signal into first and second time intervals separated in time by the duration of an equalizing pulse.

4,335,403

HORIZONTAL COUNTDOWN SYSTEM FOR TELEVISION RECEIVERS

Gopal K. Srivastava, Buffalo Grove, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed 1981, Ser. No. 223,611
Int. Cl.[3] H04N *5/04*
U.S. Cl. 358—148 14 Claims



1. In a television receiver which receives composite sync and which supplies a color oscillator signal and a flyback pulse to a horizontal countdown system for use in generating horizontal scan drive pulses, an improved horizontal countdown system, comprising:

a counter for counting the cycles of the color oscillator signal;

a plurality of decoders, each of which senses a different selected state of the counter for developing a decoder output pulse in response to such sensing, one of said decoders being a standard decoder selected to sense a standard state indicative of a standard relationship between

the frequency of the color oscillator signal and the frequency of the composite sync;

gate means having an input for receiving input pulses and an output at which each input pulse is translated to a horizontal scan drive pulse;

error detection means receiving the flyback pulse and a signal representative of composite sync for sensing their relative phases, for developing a "standard" signal when the signal representing composite sync is in phase with the flyback pulse, and for developing a "non-standard" signal when non-standard composite sync is sensed;

means responsive to the "standard" signal for coupling the standard decoder's output pulse to the input of said gate means so as to develop a horizontal scan drive pulse;

means coupling each horizontal scan drive pulse to the counter for resetting the counter;

phase correction means including an analog phase locked loop responsive to the composite sync and the flyback pulse for sensing phase error therebetween and for generating a phase-corrected pulse; and

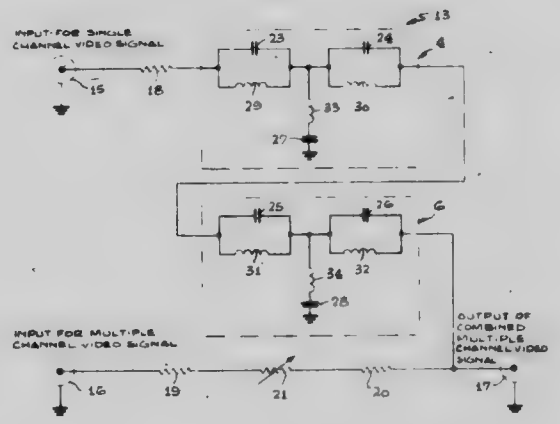
means responsive to the "non-standard" signal for deselecting the standard decoder and for coupling the phase-corrected pulse to the input of said gate means so as to reset the counter and develop a horizontal scan drive pulse which is phase locked to composite sync.

4,335,404

VIDEO SIGNAL MIXER APPARATUS AND METHOD

John R. Martinson, Jr., 453 N. Doheny Dr., Apt. C, Beverly Hills, Calif. 90210

Filed 1980, Ser. No. 195,797
Int. Cl.[3] H04N *5/44*
U.S. Cl. 358—188 **12 Claims**



1. A video signal mixer for imposing a single channel video signal onto an unused channel of a multiple channel video signal comprising:

(a) single channel input means for connection to a single channel video signal;

(b) multiple channel input means for connection to a multiple channel video signal;

(c) attenuator means for attenuating the signal strength of the multiple channel video signal, said attenuator means having an input connected to said multiple channel input means and an output; and

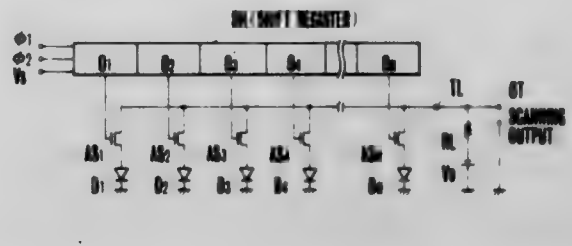
(d) mixer means for mixing the output from said attenuator means with the single channel video signal, said mixer means having a first input connected to said single channel input means, a second input connected to the output of the said attenuator means, and output means for delivering the combined multiple channel signal which is produced.

4,335,405

MOS-IMAGE SENSOR

Toshio Sakane, and Tokuichi Tsunekawa, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 142,749
Claims priority, application Japan, 1979, 54-52621
Int. Cl.[3] H04N *3/15*
U.S. Cl. 358—213 **14 Claims**



1. In a solid state linear MOS-image sensor comprising:

a one-dimensional array of a plurality of radiation sensitive elements each responsive to radiation and each integrating and storing electrical information relating to received radiation;

a readout switching arrangement coupled to each of said elements for reading out electrical information stored in the respective elements; and

readout switching control means coupled to said readout switching arrangement for controlling the readout switching arrangement so as to read out electrical information stored in the respective elements in a time-seriated manner;

the improvement comprising:

a reset switching arrangement coupled to each of said elements for resetting the respective elements; and

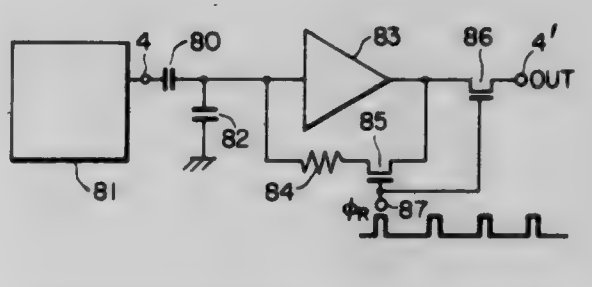
reset switching control means coupled to said reset switching arrangement for controlling the reset switching arrangement so as to reset the respective elements in a time-seriated manner.

4,335,406

SOLID-STATE IMAGING DEVICE

Shinya Ohba, Kokubunji; Masaharu Kubo, Hachioji; Iwao Takemoto, Tokyo; Shoji Hanamura, Kokubonji, and Masakazu Aoki, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 163,298
Claims priority, application Japan, 1979, 54-82630
Int. Cl.[3] H04N *3/15*
U.S. Cl. 358—213 **6 Claims**



1. A solid-state imaging device having a sensor part in which optical signals detected in a plurality of photoelectric conversion elements disposed in a surface region of a semiconductor body are read out through first switching elements that are turned "on" and "off" by discontinuous scanning pulses having fixed interval times, and an amplifier which amplifies output signals of the sensor part, characterized by a feedback circuit connected between an output and input of said amplifier for feeding output signals of said amplifier back to said input thereof, a second switching element connected in said feedback circuit, and a third switching element connected between said output of said amplifier and an amplified signal-output terminal of said solid-state imaging device, said second and

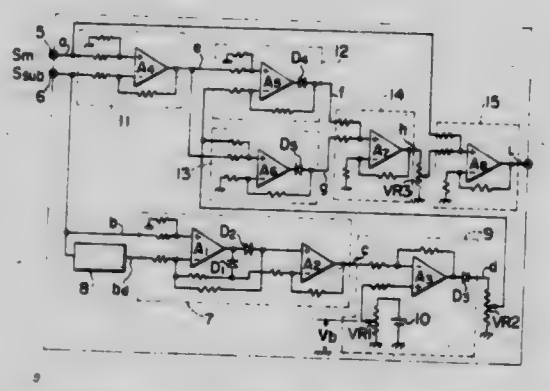
third switching elements being rendered conductive when said first switching elements are nonconductive.

4,335,407

SHARPNESS EMPHASIZING METHOD AND MACHINE USED IN A PICTURE REPRODUCING MACHINE

Hitomi Atoji, Kyoto; Masuo Kunisawa, Uji; Atsuro Hirata, Kyoto, and Yasuaki Araki, Kyoto, all of Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Tenjin-kitamachi, Japan

Filed 1980, Ser. No. 145,443
Claims priority, application Japan, 1979, 54-53507
Int. Cl.[3] H04N *1/40*
U.S. Cl. 358—284 10 Claims



1. A sharpness emphasizing method used in a picture reproducing machine wherein an original picture is photoelectrically scanned to produce a main signal and an unsharp signal, comprising the steps of:

(a) obtaining a sharpness emphasizing signal by subtracting the unsharp signal from said main signal;

(b) obtaining a slice signal, from the unsharp signal by determining the difference between the unsharp signal with a certain delay and the unsharp signal without any delay, said slice signal suppressing the sharpness emphasizing signal except for when the unsharp signal makes a leap of a predetermined magnitude;

(c) selectively suppressing the sharpness emphasizing signal to produce a corrected sharpness emphasizing signal; and

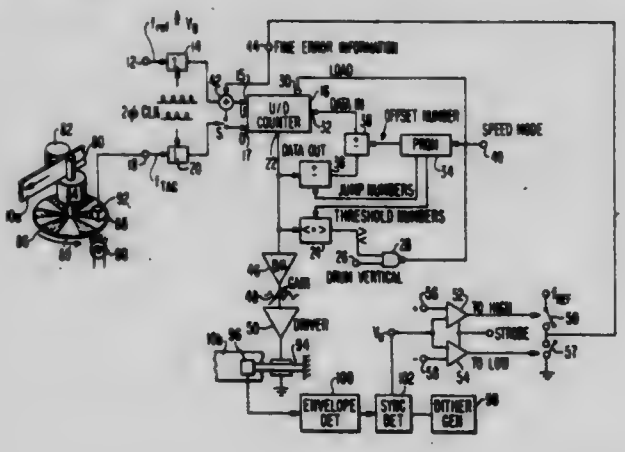
(d) adding the corrected sharpness emphasizing signal to the main signal to emphasize the sharpness thereof.

4,335,408

DIGITAL TRACKING SYSTEM

Konrad M. Dinter, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 153,969
Claims priority, application United Kingdom, 1980, 8011560
Int. Cl.[3] G11B *21/10*
U.S. Cl. 360—77 17 Claims



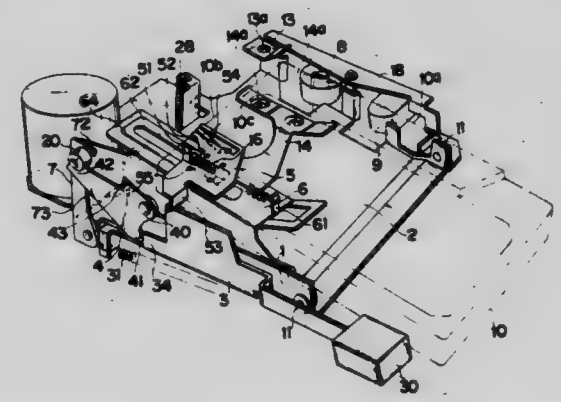
1. A method for generating a playback head position control signal, said method comprising measuring the playback speed of a record prerecorded at a nominal speed by using a tachometer coupled to a means for driving said record, comparing said measured speed to a reference signal having a frequency in accordance with said nominal record speed by counting in a first direction in accordance with the frequency of the signal from said tachometer, and counting in a second opposing direction in accordance with said reference signal frequency, and producing said control signal in accordance with said comparison.

4,335,409

TAPE PACK EJECTING MECHANISM FOR TAPE PLAYER

Tadashi Yokota; Wataru Watanabe, and Makoto Kondo, all of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 123,197
Claims priority, application Japan, 1979, 54-020765
Int. Cl.[3] G11B *15/66, 5/78*
U.S. Cl. 360—96.6 5 Claims



1. A tape pack ejecting mechanism which comprises: a chassis; a tape pack receiving structure pivotally connected to said chassis so as to be tiltable thereto; a manually operable eject lever provided on said chassis; an engaging member pivotally connected to said chassis and adapted to engage with said eject lever; a guide member provided on said tape pack receiving structure for guiding a tape pack to be loaded and unloaded; an eject-operating member slidably mounted on said guide member for movement by insertion of the tape pack on said structure; and an ejecting spring anchored to said eject-operating member to urge the same into a tape pack ejecting position; said eject-operating member having a portion adapted to be stretched according to the insertion of said tape pack in the tape pack receiving structure; said engaging member being adapted to be rotated through engagement with the eject lever to tilt said tape pack receiving structure and to let the stretched spring recover its original position, resetting said eject-operating member and ejecting said tape pack.

4,335,410

THIN FILM MAGNETIC TRANSDUCER

William F. Neu, Oklahoma City, Okla., assignor to Magnex Corporation, San Jose, Calif.

Division of Ser. No. 3,380, Jan. 15, 1979, Pat. No. 4,260,450.
This application 1980, Ser. No. 137,137
Int. Cl.[3] G11B *5/20*
U.S. Cl. 360—123 5 Claims

1. A thin film magnetic transducer, comprising:

a first conductive thin film having a configuration defining a lead portion, a throat portion, and a contact area portion terminating at a first position relative to the plane of the thin film;

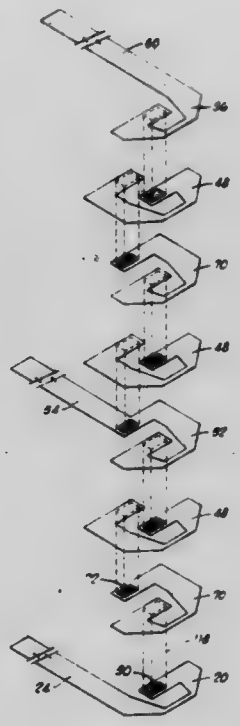
at least one even layer conductive thin film having a configuration beginning at said first position and extending to overlay a part of said lead portion, said throat portion, and terminating at a second position relative to the plain of the thin film that is adjacent said first position;

at least one odd layer conductive thin film having a configuration beginning at said second position and extending to

overlay a part of said lead portion, said throat portion, and terminating at said first position in superposition to the contact area of said first conductive thin film;

a last conductive thin film having a configuration beginning at said first position and extending to overlay a part of said lead portion, said throat portion, and terminating in a second lead portion;

insulative thin film means disposed between all of said conductive thin films;



means providing conductive contact between the first position of all odd layer conductive thin films and the similar position of the overlaid even layer conductive thin film; and

means providing conductive contact between the second position of all even layer conductive thin films and the similar position of the overlaid odd layer conductive thin film.

4,335,411

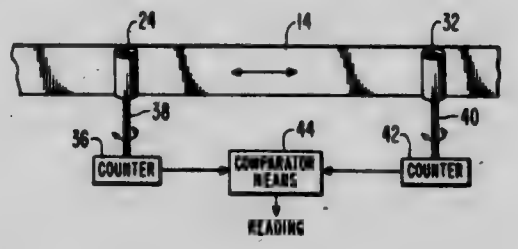
LENGTH COUNTER FOR WEB TRANSPORT SYSTEM

William A. Dischert, Camden, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 116,253

Int. Cl.³ G11B *15/18, 15/48;* B65H *23/08, 59/00*

U.S. Cl. 360—137 **2 Claims**



1. In a capstan drive, bi-directional web transport system of the type wherein the web travels between storage reels and a first tachometer is disposed toward one end of the web path for measuring web travel in the system, and in which the first tachometer includes a first roller in contact with the web, the improvement comprising:

a second roller disposed in contact with the web toward the other end of the web path and connected to drive a second tachometer whereby a different magnitude of slippage is encountered between each roller and the web for each direction of web movement to cause each tachometer to have a different accuracy for each direction of web movement, the second roller cooperating with the first roller through a comparator means for determining the more accurate tachometer reading from the readings of the first and second tachometers.

4,335,412

TRIAX SAFETY CIRCUIT

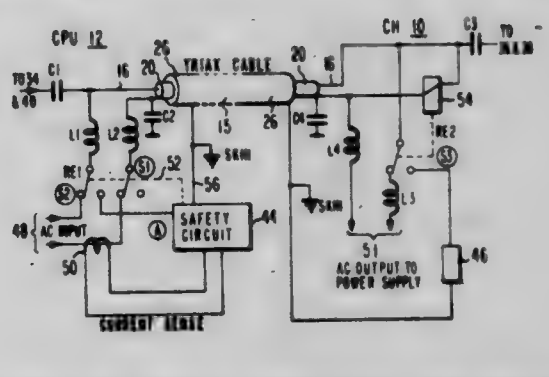
Felix Aschwanden, Thawil, Switzerland, assignor to RCA Corporation, Princeton, N.J.

Filed 1981, Ser. No. 234,541

Claims priority, application United Kingdom, 1980, 8029527

Int. Cl.³ H02H *3/16*

U.S. Cl. 361—50 **11 Claims**



1. A method for applying power from a first unit through a transmission line to a second unit, said method comprising applying a current to said transmission line at said first unit, sensing if said current is interrupted, ceasing the application of said current to said line upon sensing that said current has been interrupted, applying a selected impedance to said line at said second unit, sensing said selected impedance at said first unit, and reapplying power to said line at said first unit upon sensing at said first unit said selected impedance.

4,335,413

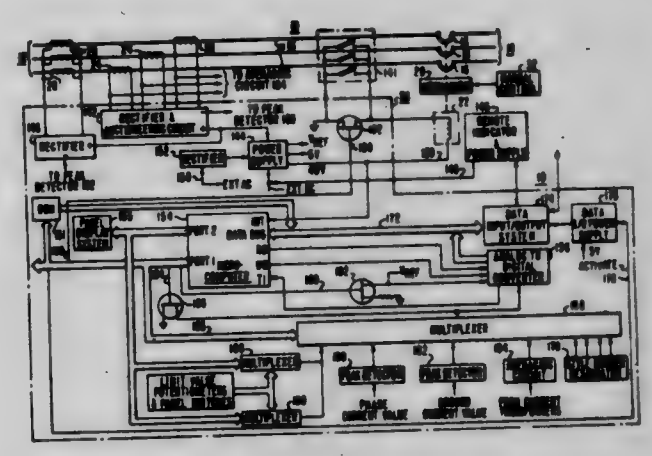
CIRCUIT INTERRUPTER WITH REMOTE INDICATOR AND POWER SUPPLY

Joseph C. Engel, Monroeville; John A. Wafer, Beaver; Bernard J. Mercier, Pittsburgh, and Joseph J. Matsko, Beaver, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 140,556

Int. Cl.³ H02H *3/04*

U.S. Cl. 361—93 **10 Claims**



1. Circuit interrupter apparatus, comprising:

interrupter means for conducting current through an associated circuit and for operating to interrupt current flow therethrough on command;

sensing means for sensing current flow through said interrupt means;

trip unit means connected to said sensing means and said interrupter means for comparing current flow through said interrupter means to a predetermined time-current trip characteristic and for operating said interrupter means when current flow therethrough exceeds said time-current trip characteristic, said trip circuit means comprising

output means for connecting said trip unit means to associated apparatus; said trip unit means further comprising means for monitoring power flow through said interrupter means, and for generating a demand alarm signal when said power flow exceeds a predetermined demand limit, and means for supplying said demand alarm signal to said output means; and

a remote indicator unit connected to said output means and located at a distance therefrom, said remote indicator unit comprising demand indicator means for indicating occurrence of said demand alarm signal.

4,335,414

AUTOMATIC RESET CURRENT CUT-OFF FOR AN ELECTROSTATIC PRECIPITATOR POWER SUPPLY

William G. Weber, West Chester, Ohio, assignor to United Air Specialists, Inc., Cincinnati, Ohio

Filed 1980, Ser. No. 202,314
Int. Cl.³ H02H *3/24*
U.S. Cl. 361—100 **15 Claims**



1. In a two stage electrostatic precipitator air cleaner of the type having an ionizer for charging airborne particles, a collecting cell for collecting the charged particles and power supply means responsive to a primary voltage for providing relatively high voltage to said ionizer and said cell comprising a ferroresonant transformer having a primary winding, a secondary winding for producing relatively high voltage, and means utilizing said high voltage to charge said ionizer and said collecting cell, the improvement in combination therewith comprising automatic electronic protection circuitry for said power supply including:

electronic switch means connected in series with said transformer primary winding for permitting current flow through the primary winding upon application of an enabling signal to said switch means;

timing means shunting said switch means for producing said enabling signal a predetermined time after primary voltage is initially applied to said power supply or said switch means operates to inhibit current flow through said primary winding;

attenuator means for producing a sense voltage representative of the voltage applied to said ionizer;

comparison means for comparing said sense voltage to a reference voltage to produce an inhibit signal when said sense voltage falls outside normal operating ranges; and

means responsive to said inhibit signal for inhibiting operation of said switch means to prevent current flow through said transformer primary winding to shut down power supply operation.

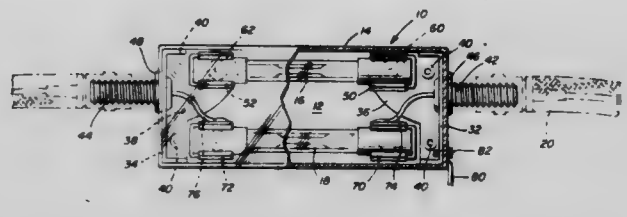
4,335,415

ANTENNA LIGHTNING ARRESTOR

William D. Hooberry, 114 Enterprise St., Brunswick, Ga. 31520

Filed 1980, Ser. No. 119,465
Int. Cl.³ H02H *7/20, 3/08*
U.S. Cl. 361—104 **2 Claims**

1. An antenna lightning arrestor including, in combination, a substantially planar non-conductive base having opposite ends and first and second side faces, a first conductive sheet overlying and mounted from one end of one side of said base, a second conductive sheet overlying and mounted from the other end of said one side of said base in insulative spaced relation relative to said first sheet, a first pair of opposite end fuse mounting clips conductively supported from and overlying the sides of said sheets remote from said base, a second pair of opposite end fuse mounting clips mounted from and overlying said one side of said base in non-conductive relation with said sheets, said first and second sheets including conductive outstanding first and second wall means supported therefrom and projecting outwardly of the sides of said sheets remote



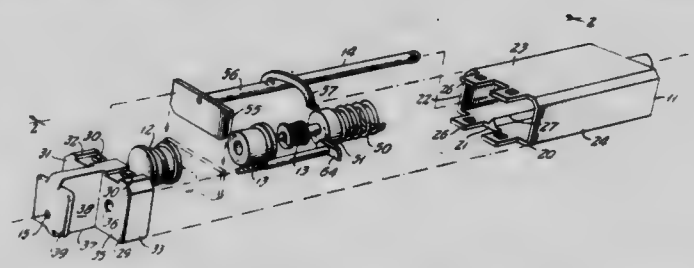
from said base, first and second connector means supported from said first and second wall means and comprising coaxial connectors each having external and internal portions non-conductively supported relative to each other, said external portions of said first and second conductor means being conductively supported from said first and second wall means and means electrically connecting the internal portions of said first and second connector means to said second pair of fuse mounting clips, and a transparent cover removably snap-fittingly engaged with said first and second wall means and enclosing said one side of said base, said fuse clips and said wall means therewithin.

4,335,416

TELEPHONE PROTECTOR MODULE HAVING FLAG INDICATOR

Thomas A. Hollfelder, Huntington, and Paul V. De Luca, Plandome Manor, both of N.Y., assignors to Porta Systems Corp., Syosset, N.Y.

Filed 1981, Ser. No. 234,209
Int. Cl.³ H02H *3/22*
U.S. Cl. 361—119 **3 Claims**



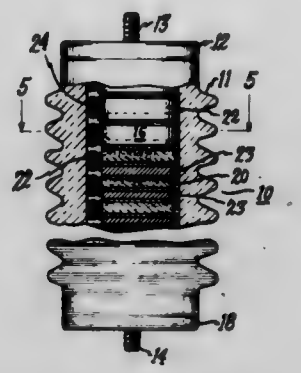
1. In a telephone protector module, including a casing element having an outer end wall with a manually engageable handle thereon, first and second resilient heat sensitive protector devices disposed in mutually parallel relation within said protector module, each separately actuable upon the occurrence of an excessive current surge sufficient to melt a fused component thereof to longitudinally shift a movable component thereon, the improvement comprising: a single flag indicator means including an elongated longitudinally shiftable rod-like member and a transversely extending member mounted upon an inner end thereof, said transversely extending member having first and second extremities each lying in the path of movement of a movable component of a heat sensitive protector device, and being otherwise free of engagement therewith, resilient means urging said rod-like member inwardly of said casing element, said handle having a longitudinally extending bore therein, said rod-like member having an outer terminal slidably disposed within said bore, and selectively projectable outwardly of said bore upon actuation of either of said heat sensitive protector devices.

4,335,417

HEAT SINK THERMAL TRANSFER SYSTEM FOR ZINC OXIDE VARISTORS

Eugene C. Sakshaug, Lanesborough, and Earl W. Stetson, Pittsfield, both of Mass., assignors to General Electric Company

Continuation-in-part of Ser. No. 939,792, Sep. 5, 1978, abandoned. This application 1980, Ser. No. 138,169
Int. Cl.³ H02H 3/22
U.S. Cl. 361—127 6 Claims



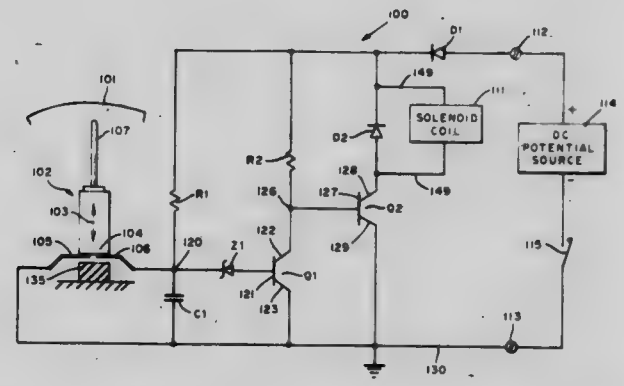
1. A voltage surge arrester comprising, in combination:
a generally cylindrical housing;
terminals mounted at opposed ends of said housing;
a plurality of zinc oxide disks, each disk having electrodes situated on opposed faces thereof; and
a plurality of heat sinks, each formed of an alloy of iron and having a volume equal to at least 25 percent of the volume of said individual disks and a thermal capacity at least equal to said individual disks, said disks and heat sinks being arranged in alternating fashion to create a stack situated within said housing and electrically connected as a serial array between said terminals, said heat sinks being in closely coupled, thermal relation with adjacent pairs of said disks and in electrical connection with said electrodes thereof;
whereby said heat sinks rapidly absorb heat from said disks to effectively limit the temperature rise thereof during the conduction of current therethrough under surge voltage conditions.

4,335,418

ELECTRONIC INTERRUPTER

Mark W. P. Clement, Owen Sound, Canada, assignor to General Signal Corporation, Stamford, Conn.

Filed 1980, Ser. No. 201,100
Int. Cl.³ H01H 47/32
U.S. Cl. 361—152 11 Claims



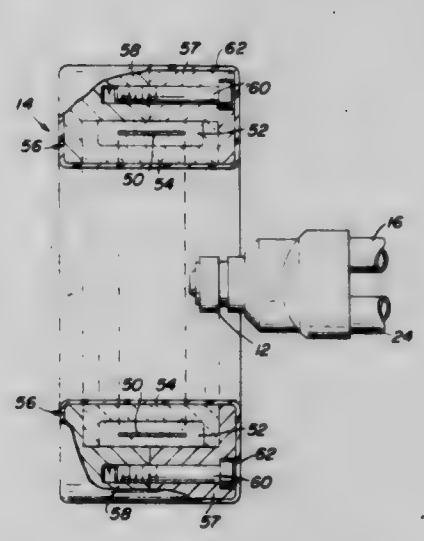
1. An electronic control means for controlling the application of dc potential to a control device, such as a solenoid actuating a reciprocally moving member moveable between rest and active positions and comprising in combination:
(a) a source of dc potential;
(b) the electronic control means being in circuit with said control device for selectively coupling said dc potential to said control device to actuate said moveable member and move it from a rest position to said active position;
(c) said electronic control means including a contact pair which is maintained closed and open when said moveable member is positioned at said rest and active positions, respectively;
(d) a capacitor included in said electronic control means and coupled in circuit with said contact pair for discharging and charging said capacitor when said contact pair is closed and open respectively; and wherein
(e) said electronic control means responds to the discharged and charged state of said capacitor by permitting and restricting, respectively, the flow of current from said dc source to said control device.

4,335,419

INSULATED DUST CONTROL APPARATUS FOR USE IN AN EXPLOSIVE ENVIRONMENT

Edward E. Hastings, 28 Wistar Rd., Villanova, Pa. 19085

Filed 1980, Ser. No. 198,739
Int. Cl.³ B05B 5/02
U.S. Cl. 361—228 15 Claims



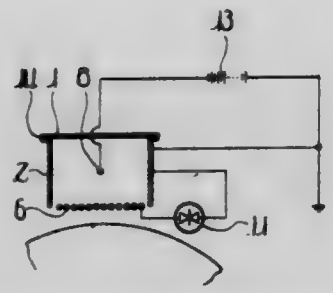
1. Apparatus for producing a spray of atomized and electrostatically charged particles of liquid to remove oppositely charged pollutants from an atmosphere, said apparatus being particularly suited for use in a potentially explosive atmosphere, comprising:
(a) a nozzle for receiving the liquid from a liquid supply and producing a spray of atomized liquid particles;
(b) a ring electrode coaxially surrounding the spray near the nozzle, the ring being chargeable to a high electrostatic potential relative to the nozzle whereby the liquid particles of the spray are inductively charged by passing through the ring, the electrode being fully encased in a ring of insulating material whereby liquid particles cannot contact the electrode;
(c) a metal housing surrounding the ring of insulating material on all sides except the radially interior side thereof, the housing being connected to ground potential; and
(d) a coating of insulating material covering the exposed surfaces of the metal housing and the ring of insulating material.

4,335,420

CORONA DISCHARGE DEVICE

Tanaka Mitsuo, Machida; Tagawa Kazuaki, and Yano Takashi, both of Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

PCT No. PCT/JP79/00183, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00276, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 209,101
Claims priority, application Japan, 1978, 53-84689
Int. Cl.³ H01T *19/04*
U.S. Cl. 361—230 **4 Claims**



1. A corona discharge device comprising a discharger having a wire for corona discharging, an electrically conductive shielding plate and grid wires; and an impedance element which is connected in series between said grid wires and the ground and which generates a voltage responsive to a corona current flowing into said grid wires; wherein said impedance element is connected between said grid wires and said electrically conductive shielding plate and is formed as a unitary structure with said discharger.

4,335,421

LIGHT FIXTURE, LIGHT APERTURE AND METHOD OF UNIFORMLY ILLUMINATING AN OPTICALLY DIFFUSIVE VIEWING AREA

Joseph W. Modia, and James McCarthy, III, both of 1508 Edenton Ct., Fort Wayne, Ind. 46804

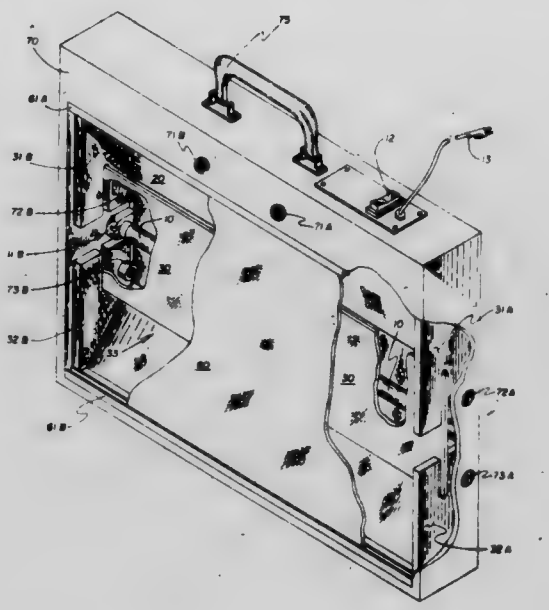
Filed 1980, Ser. No. 130,743
Int. Cl.³ G09F *13/10*; G02B *5/08, 27/14*; F21L *3/00*; F21V *7/12*
U.S. Cl. 362—223 **22 Claims**

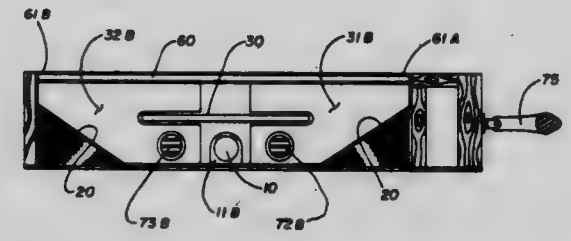
1. A light fixture comprising an optically diffusive element having a surface including a viewing area, a light source spaced from said diffusive element, a reflector spaced from said light source, said light source being between said reflector and said diffusive element, said reflector redirecting light incident thereon to said viewing area of said diffusive element, a tralucent substrate mounted between said light source and said diffusive element, said substrate having portions thereof which reflect light incident thereon to said reflector, said substrate having other portions thereof which transmit light therethrough onto said viewing area of said diffusive element, the light from said light source being also directly incident on said viewing area of said diffusive element, the light on said viewing area from said reflector being generally between said light on said viewing area transmitted through said substrate and said light on said viewing area directly incident thereon whereby said viewing area is generally uniformly illuminated.

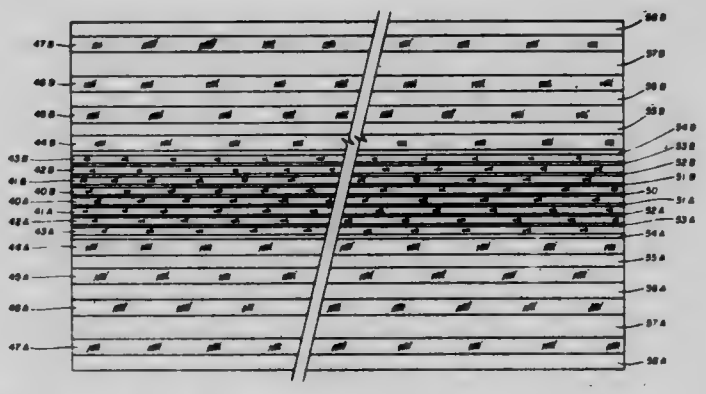
5. A method of uniformly illuminating a viewing area of an optically diffusive element by a light source comprising the steps of dividing the light from said light source into at least four portions, transmitting a first portion of light through a tralucent material and onto said viewing area, reflecting a second portion of light from said light source onto said tralucent material and transmitting said second portion of light through said tralucent material and onto said viewing area, reflecting a third portion of light from said light source directly onto said viewing area, permitting a fourth portion of light from said light source to shine directly on said viewing area, and arranging said second and third portions on said viewing area generally between said first and fourth portions.

15. A light aperture for use in generally uniformly illuminating a viewing area of an optically diffusive element of a light fixture, the aperture comprising:

a sheet of tralucent material adapted to be mounted between the viewing area and a light source with one surface of said sheet facing said light source, said sheet having portions of said one surface which are reflective of light incident thereon, said sheet having other portions of said one surface which allow light incident thereon to pass through said sheet, the concentration of said reflective portions decreasing away from said light source.







4,335,422

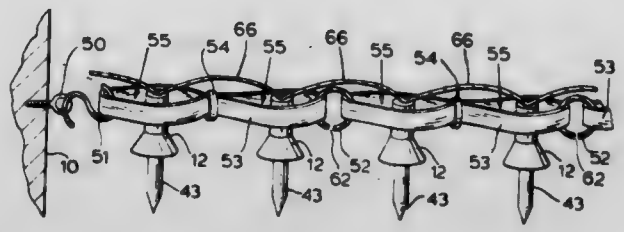
ELASTIC LIGHT MOUNTING TAPES

John C. Van Ess, Chicago, Ill., assignor to Walter A. Ross, Schiller Park, Ill.

Continuation of Ser. No. 14,225, Feb. 22, 1979, abandoned, which is a continuation-in-part of Ser. No. 966,439, Dec. 4, 1978, Pat. No. 4,244,014. This application 1980, Ser. No. 171,321
The portion of the term of this patent subsequent to 1998, has been disclaimed.
Int. Cl.³ F21V *21/00, 21/08*
U.S. Cl. 362—388 **12 Claims**

1. A mounting device for electric light sockets adapted to be strung along window frames and the like to position light bulbs in the sockets for display in the window or the like which comprises a tape having an elastic section adapted to be stretched to hold the tape in a taut condition along the window or the like, means along the length of said tape defining exter-

nally accessible pockets for releasably receiving the electric light sockets to project electric lights carried by the sockets



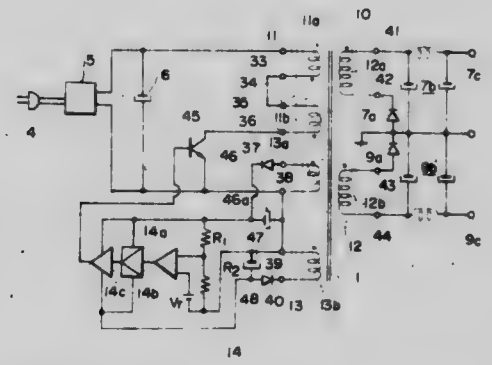
laterally from the tape, and fastener means for securing said tape to said window frame or the like and cooperating with said elastic tape section to maintain the tape in a taut condition.

4,335,423

TRANSFORMER

Akio Koizumi; Hiroshi Nakazawa, both of Tokyo, and Akira Endo, Tagajyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed 1980, Ser. No. 198,451
Claims priority, application Japan, 1979, 54-135801
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—21 **15 Claims**



1. A transformer comprising:

a magnetic core;

a primary winding structure associated with said magnetic core and including first and second primary winding portions;

a secondary winding structure associated with said magnetic core and including first and second secondary winding portions; and

a tertiary winding structure associated with said magnetic core and including first and second tertiary winding portions, said first tertiary winding portion being comprised of first and second windings connected in series and arranged in close proximity to said primary and secondary winding structures so as to provide a high degree of magnetic coupling between the first and second primary and secondary winding portions and the first tertiary winding portion.

4,335,424

CYCLING FIRING METHOD FOR BYPASS OPERATION OF BRIDGE CONVERTERS

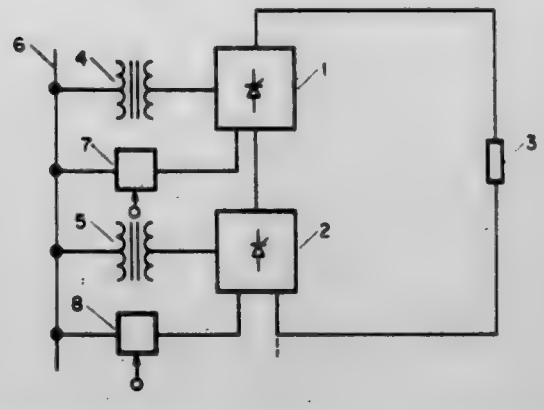
Zivan Zabar, 99-72 66th Rd., Apt. 9N, Forest Hills, N.Y. 11375

Filed 1980, Ser. No. 181,067
Int. Cl.³ H02H *7/125*
U.S. Cl. 363—54 **1 Claim**

1. A cyclic firing method for bypass operation of bridge converter, whereby a pair of the switching elements of the bridge itself, connected to the same phase, is fired simultaneously at a submultiple of the ac supply frequency, is performed in the following sequence:

a. gating pulses are transmitted to the elements in the first phase while all the others are fire-suppressed,

b. gating pulses are transmitted to the elements in the second phase while all the others are fire-suppressed,



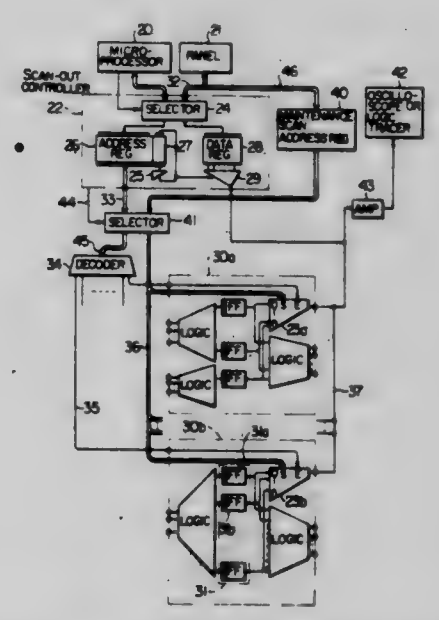
and so on, depending on the number of phases and then back in a cyclic order.

4,335,425

DATA PROCESSING APPARATUS HAVING DIAGNOSIS FUNCTION

Humio Goto; Chikahiko Izumi, and Riujiro Imai, all of Hadano, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1979, Ser. No. 103,405
Claims priority, application Japan, 1978, 53-165216
Int. Cl.³ G06F *11/32*
U.S. Cl. 364—200 **9 Claims**



1. A data processing apparatus having flip-flop circuits with a self-diagnosis function to permit diagnosis of internal states of operation of the data processing apparatus while the data processing apparatus is in the course of operation comprising:

(a) scan-out controlling means for generating a first scan-out address which designates first groups of said flip-flop circuits and receiving scan-out data which are outputs of flip-flop circuits designated by said first scan-out address, each of said first groups consisting of a plurality of second groups of said flip-flop circuits,

(b) an address generating circuit receiving said first scan-out address and generating in sequence second scan-out addresses for said second groups of each of said first groups designated by said first scan-out address,

(c) bit address generating means for generating a bit address which designates one of said flip-flop circuits,

(d) selector means selecting one of said second scan-out address and said bit address,

(e) outputting means responsive to said selector means for outputting outputs of said flip-flop circuits,

(f) transfer means for transferring said outputs to said scan-out controlling means, and

(g) observing means for observing said outputs.

4,335,426

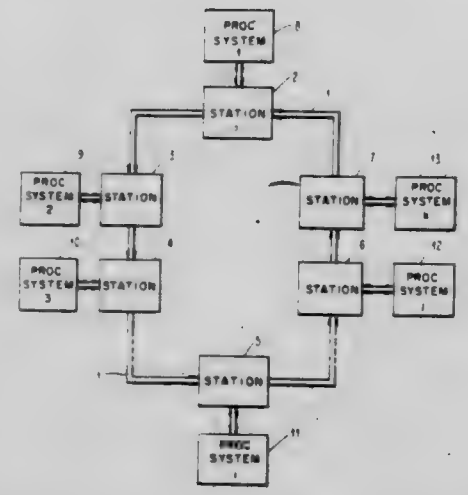
REMOTE PROCESSOR INITIALIZATION IN A MULTI-STATION PEER-TO-PEER INTERCOMMUNICATION SYSTEM

Hiram M. Maxwell; Roger E. McKay; Niconedi P. Nacheber, Jr., and Daniel T. Sze, all of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed 1980, Ser. No. 129,004

Int. Cl.[3] **G06F** *3/04, 15/16;* **H04M** *11/00*

U.S. Cl. 364—200 **6 Claims**



1. An initialization arrangement for a communications system having a communications link and a plurality of processors, each of said processors having at least one Input/Output I/O channel and each of said processors requiring program initialization data provided by way of an initial program load IPL operation, said processors being respectively predesignated as IPL source processors that provide IPL data and IPL acceptor processors that receive IPL data from an IPL source processor to which said IPL acceptor processors are assigned, said system comprising:

a corresponding plurality of stations interconnected by way of said communications link, each of said stations being attached to a respective one of said processors via its associated I/O Channel for controlling transfer of command and data information between said processors over said communications link, such information being arranged in accordance with a variety of information frames, and each of said stations incorporating a modem connected to said communication link, said modem handling technology-dependent functions including information coding and modulation, link drive and receive, frame synchronization and data insertion, clock extraction, frame and data checking at the link level, and link initialization and available frame insertion, and the like, a link manager, said link manager connected to said modem providing logical frame management functions such as frame structuring, address decode and encode, control field encode and decode, data blocking and deblocking, physical interface protocol sequencing and checking, and data pacing, and the like, a storage section connected to said link manager, said storage section incorporating a control storage array including a respectively assigned storage subsection for each station in the system for storing control information for the respective stations, said storage section further incorporating a data storage array, including a respectively assigned storage subsection for each station in the system for storing data for the respective stations, said storage section further incorporating a work queue storage for storing work queues, and a channel interface controller connected to said storage section, said channel interface controller providing interfacing for its station with its respective processor I/O channel, said channel interface controller providing an individual subchannel for communication with the individual stations in said system and further providing facilities for synchronizing with the channel I/O interface for data transfer, presenting the station logic interface to the processor, multiplexing control required among the subchannels, and device address mapping between its respective processor I/O Interface and the station address;

initialization circuitry at each of said stations, said circuitry including means for monitoring its respectively associated processor to determine when an initial program load operation is required by its attached processor when operating as an IPL acceptor processor, said circuitry including means for generating and transmitting upon determination of such requirement a general broadcast Request Initialization frame RIF for requesting initialization from an individual one of said processors operating as an IPL source processor, said circuitry at each station including means for detecting Request Initialization frames from any other station on said link and upon receipt of a said Request Initialization frame to determine if its attached processor is assigned to serve as said IPL source processor for said requesting IPL acceptor processor for transmission of IPL data, and IPL transmission means at each station for thereupon transmitting to transmit an IPL frame sequence including a Set Initialization frame SIF, a plurality of Initialization Data frame IDF containing initialization data from its attached IPL source processor, and an Initialization Termination frame ITF to provide complete initialization of said requesting IPL acceptor processor.

4,335,427

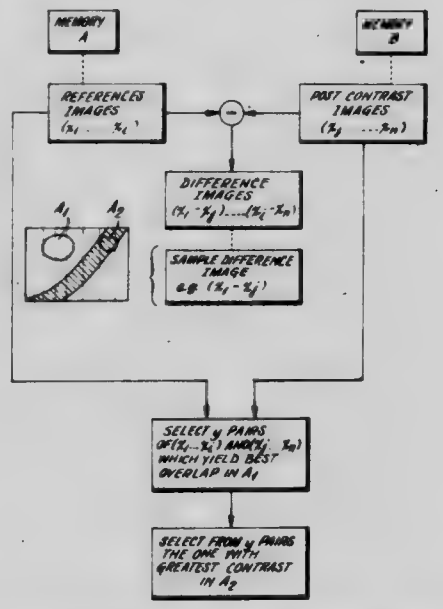
METHOD OF SELECTING A PREFERRED DIFFERENCE IMAGE

Willard F. Hunt, Cleveland, and Robert H. McCarthy, Chagrin Falls, both of Ohio, assignors to Technicare Corporation, Solon, Ohio

Filed 1980, Ser. No. 142,188

Int. Cl.[3] **G06F** *15/42;* **H04N** *5/32*

U.S. Cl. 364—414 **8 Claims**



1. A method of selecting one or more x-ray difference images from a group of x-ray images, which comprises the steps of:

(a) obtaining first and second pluralities of x-ray images of a patient or subject, each x-ray image being obtained at a different time;

(b) obtaining a sample difference image representing the difference between one of the images of the first plurality of images and one of the images of the second plurality of images;

(c) selecting a region of the sample difference image, the region being less than the entire area of the sample difference image;

(d) pairing images selected from the first plurality of images with images selected from the second plurality of images;

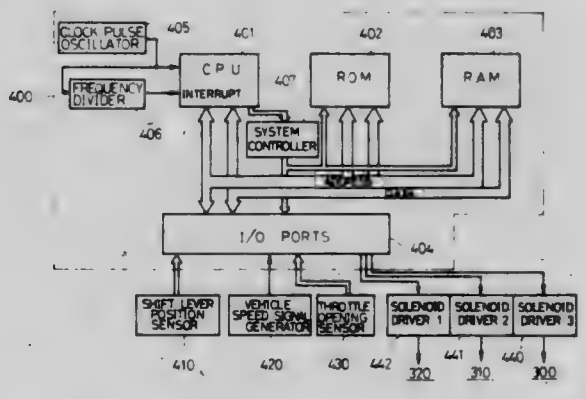
(e) obtaining a plurality of difference images each representing the difference between the images of one of the pairs of images;
(f) searching regions of the difference images, the searched regions corresponding, respectively, to the selected region of the sample difference image; and
(g) selecting one or more difference images, the selected difference images having searched regions that satisfy a predetermined condition or index.

4,335,428

ELECTRONIC SYSTEM FOR CONTROLLING AN AUTOMATIC TRANSMISSION IN RESPONSE TO CHANGES IN SLOPE

Nobuaki Miki; Mutsumi Kawamoto, both of Nagoya; Hiroyuki Amano, Chiryu; Tsuneo Hida, Toyokawa, and Tsuyoshi Yoshida, Toyota, all of Japan, assignors to Aisin-Waker Kabushiki Kaisha, Aichi, Japan

Filed 1980, Ser. No. 115,166
Claims priority, application Japan, 1979, 54-16483
Int. Cl.³ G06F *15/20*; B60K *41/08*
U.S. Cl. 364—424 **8 Claims**



1. A system for controlling an automatic variable speed transmission including a hydraulic circuit having a plurality of oil pressure control valves and flow path switching means for selectively engaging or disengaging clutches and brakes of the transmission, and a plurality of solenoid valves associated with a shift operation, said system comprising electronic control means responsive to shift lever position, vehicle speed and throttle opening, and having gear ratio change reference data for providing control signals to said solenoid valves to thereby control the operation of the transmission wherein:

said electronic control means includes memory means having shared therein slope detecting reference data indicative of the upper and the lower limit value of vehicle speed corresponding to a throttle opening for each of a selected number of slope running loadings and for each speed stage: gear ratio means for detecting and comparing the actual speed stage, the actual throttle opening, the actual speed of the vehicle and the change rate of the actual speed against said slope detecting reference data and means to modify the gear ratio change reference data to inhibit up-shifting on a slope to prevent hunting of gear ratios on an up slope and an undue need for braking on a down slope.

4,335,429

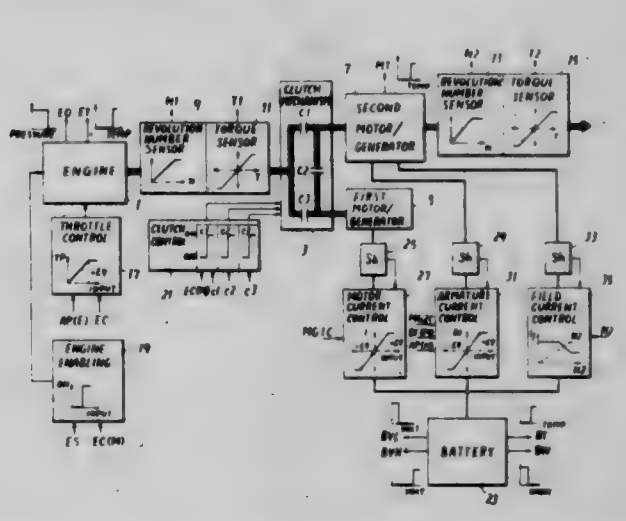
CONTROL APPARATUS FOR ENGINE/ELECTRIC HYBRID VEHICLE

Shiro Kawakatsu, Suita, Japan, assignor to Daihatsu Motor Co., Ltd., Ikeda, Japan

Filed 1980, Ser. No. 129,718
Claims priority, application Japan, 1979, 54-34977
Int. Cl.³ B60K *1/00*
U.S. Cl. 364—424 **26 Claims**

24. An apparatus for controlling a hybrid vehicle having an output shaft and wheels coupled thereto, comprising:

an internal combustion engine having an engine shaft and a throttle,
throttle control means for controlling opening of said throttle as a function of a given first variable,
a first electric motor,
a second electric motor having a motor shaft coupled to said output shaft of said vehicle,
a battery for supplying electric power to said first and second motors,
first motor control means for controlling power flow from said battery to said first motor,
second motor control means for controlling power flow from said battery to said second motor,
speed adjustment operating means for adjusting the speed of said hybrid vehicle,



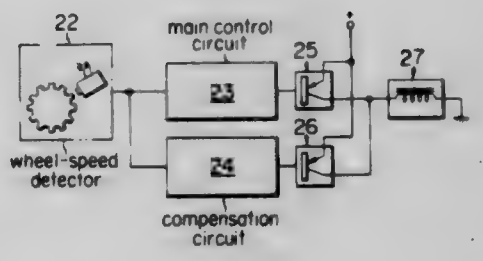
mode selecting means for selecting an operation mode of said hybrid vehicle from a group of operation modes which includes a motoring mode and an internal combustion engine mode,
first enabling means for interconnecting said speed adjustment operating means with at least said second motor control means to operate said second motor, in response to a selection of a motoring mode by said mode selecting means, and
second enabling means for connecting said speed adjustment operating means to said throttle control means to operate said throttle, in response to a selection of said internal combustion engine mode by said mode selecting means.

4,335,430

CONTROL AND COMPENSATION DEVICE IN AN ANTI-SKID CONTROL SYSTEM

Taiji Ohmori, Kawagoe, and Makoto Sato, Kamifukuoka, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Shibuya, Japan

Filed 1980, Ser. No. 121,585
Claims priority, application Japan, 1979, 54-30723
Int. Cl.³ B60T *8/00*
U.S. Cl. 364—426 **7 Claims**



1. A control and compensation device in an anti-skid control system including wheel speed detector means for detecting a peripheral speed of each of wheels to produce wheel speed signals related to the peripheral speeds of wheels; a main con-

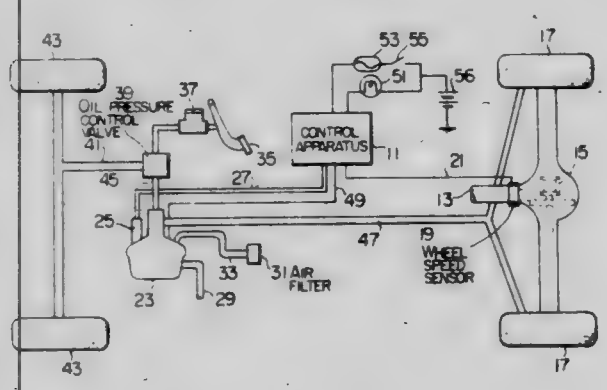
trol circuit for receiving, as input signals, wheel speed signals produced by said wheel speed detector means to produce an anti-skid control signal for controlling the braking force of wheels; an electromagnetic actuator for actuating the anti-skid control device so as to release the braking force of wheels when said electromagnetic actuator is brought into an energized state in accordance with the control signal produced by said main control circuit; an input element for receiving, as input signals, wheel speed signals produced by said wheel speed detector means; a control and compensation circuit connected to said input element for immediately generating an output signal only for a predetermined time when said wheel speed signals indicate a locked state of wheels continuously more than a predetermined time; and an output element for applying an output signal generated by said control and compensation circuit to said electromagnetic actuator for placing said actuator in an energized state.

4,335,431

SKID CONTROL METHOD

Junichi Takahashi, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 128,863
Claims priority, application Japan, 1979, 54-30447
Int. Cl.³ B60T *8/02*
U.S. Cl. 364—426 **11 Claims**



1. A skid control method utilizing a wheel speed sensor; a control circuit including therein a microcomputer for calculating the wheel speed in accordance with pulse signals from said wheel speed sensor and calculating a slip rate of the wheel in accordance with the calculated wheel speed, for delivering a brake releasing signal when the calculated slip rate reaches a predetermined ON slip rate, and for delivering a brake releasing cancelling signal when the calculated slip rate decreases to a predetermined OFF slip rate; and a brake oil pressure control apparatus for controlling the pressure of the oil supplied to a wheel braking means in response to the signal from said control circuit in such a manner that the brake is released when the brake releasing signal is delivered and the brake is applied to the wheel when the brake releasing cancelling signal is delivered, wherein

said microcomputer is provided with free-running counter means for counting clock pulses and memory means for storing the contents of said free-running counter means; and

said wheel speed is calculated by completing:

a first step of forming a first interrupt processing signal in accordance with said pulse signal from said wheel speed sensor;

a second step of storing in said memory means the contents of said free-running counter means in response to the delivery of the first interrupt processing signal through an interrupt processing;

a third step of storing in said memory means the contents of said free-running counter means in response to a second interrupt processing signal formed in accordance with the pulse signal which was delivered an integral number of cycles of said pulse signal after said delivery of said first interrupt processing signal; and

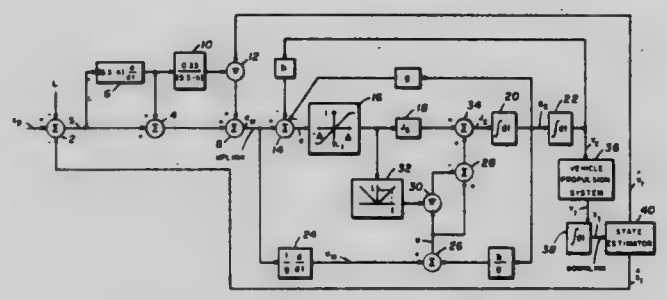
a fourth step of obtaining the wheel speed through the subtraction of one value from another stored in said memory means; and wherein said first to fourth steps are executed in each half cycle of an alternating waveform of a wheel speed.

4,335,432

OPTIMAL VEHICLE FOLLOWING CONTROL SYSTEM

Alan J. Pue, Columbia, Md., assignor to United States of America, Washington, D.C.

Filed 1980, Ser. No. 115,651
Int. Cl.³ B61L *23/00*
U.S. Cl. 364—436 **9 Claims**



1. In a vehicle-follower, short headway control system wherein the actual spacing S between a preceding vehicle and a trailing vehicle which travel on a guideway differs from an optimal spacing S_{min} based on kinematic constraints, the combination comprising:

apparatus for generating a signal ϵ_w which is a component part of a signal ϵ which is the difference between the actual spacing S and an approximate optimal spacing S'_{min}, said signal generating means including,

means for determining and conveying a signal corresponding to the actual spacing S, means for differentiating the actual spacing signal S over time and multiplying the derivative signal of the actual spacing signal S by a first gain factor (5.3-headway),

means for multiplying the differentiated and multiplied signal by a second gain factor equal to

$$\left(\frac{.33}{5.3 - \text{headway}}\right),$$

means for providing a signal indicative of the velocity of the trailing vehicle,

means for generating the product of the trailing vehicle velocity signal by the output from the second gain factor multiplying means, and

means for summing the generated product signal, the actual spacing signal, and the output from the differentiating and multiplying means to provide the ϵ_w signal, and

control means responsive to said ϵ_w signal for controlling said trailing vehicle to maintain said approximate optimal spacing S'_{min}.

4,335,433

METHOD FOR CORRECTING NAVIGATION ERRORS DUE TO WATER CURRENTS

Russell H. Bauer, Glendale, Md., and Madeleine Heidkamp, Buena Park, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed 1980, Ser. No. 160,049
Int. Cl.³ G06F *15/20, 15/50*
U.S. Cl. 364—443 **5 Claims**

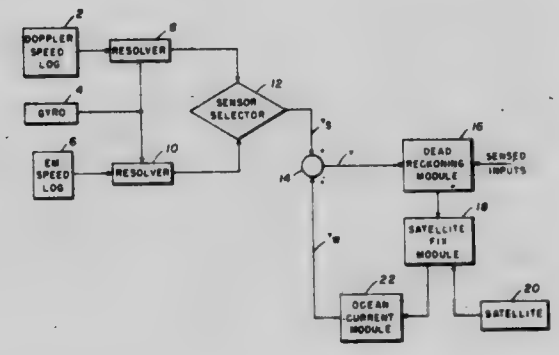
1. In a system having a satellite fix position determining means and a dead-reckoning means for continuously estimating position between satellite fixes, a method for correcting ocean

vessel navigation errors due to essentially constant water currents, comprising the steps of:

periodically locking on to a satellite and determining present vessel position in latitude (ϕ_{F2}) and longitude (λ_{F2}) using satellite fixes at lock-on,

comparing satellite fix latitude (ϕ_{F2}) and longitude (λ_{F2}) with dead-reckoned latitude (ϕ_{DR}) and longitude (λ_{DR}), respectively, at the time of fix to yield update corrections in latitude (ϕ_u) and in longitude (λ_u),

defining differential functions (A_{ij}) which relate respective changes in current satellite fix position in latitude (ϕ_{F2}) and longitude (λ_{F2}) to respective changes in velocity in the north (v_N) and east (v_E) directions,



partially predicting satellite fix errors in latitude (ϕ_E) and longitude (λ_E) at current and previous satellite updates as a function of the velocity changes (v_N and v_E) and the differential functions (A_{ij}),

determining the values for the differential functions A_{ij}, comprising the steps of introducing known velocity errors in the north and east directions and measuring variations in satellite fix latitude (ϕ_{F2}) and longitude (λ_{F2}) positions resulting from the introduced known velocity errors,

measuring the time (T) between satellite updates, and

determining the velocity north and velocity east errors (v_N and v_E) as a function of: time between satellite updates, update corrections (ϕ_u and λ_u), and differential functions (A_{ij}).

4,335,434

ELECTRONICALLY CONTROLLED FRANKING MACHINE

Kurt Baumann; Peter Kusche, both of Berlin, and Reinhard Redecker, Bielefeld, all of Fed. Rep. of Germany, assignors to Postalia GmbH, Berlin, Fed. Rep. of Germany

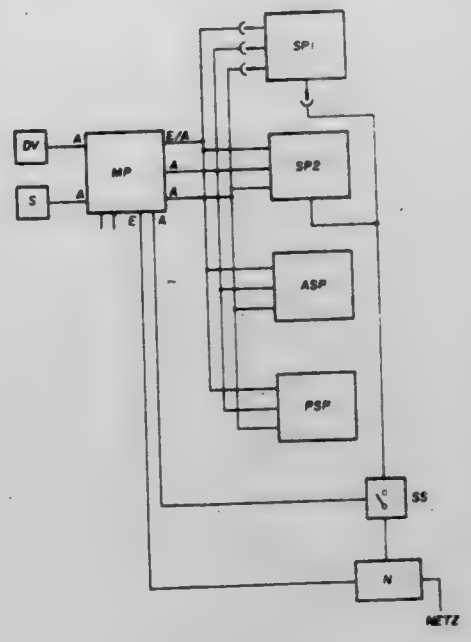
Filed 1980, Ser. No. 144,337

Claims priority, application Fed. Rep. of Germany, 1979, 2916840

Int. Cl.³ G06F *15/20*

U.S. Cl. 364—464 **6 Claims**

1. Electronic control for franking machines such as postage meters and stamping machines having a printing device, a postage value printing selection device, a total postal charge storage register and a settable subtracting value counter, comprising a microprocessor, a volatile main memory for storing data, and non-volatile semiconductor memories for storing data and the number of writing cycles performed, said memories being connected to said microprocessor, a line voltage power supply, supply capacitors disposed in said power supply, switch means controlled by said microprocessor for connecting said non-volatile memories to said supply capacitors of said power supply exclusively in the event of an interruption of the line voltage to cause said non-volatile memories to take over data stored in said main memory, and register means connected to one of said non-volatile memories for preventing



the exceeding of a predetermined number of writing cycles of said one non-volatile memory after the power supply resumes.

4,335,435

METHOD OF CHANGING ROLLING SCHEDULE DURING ROLLING IN TANDEM ROLLING MILL

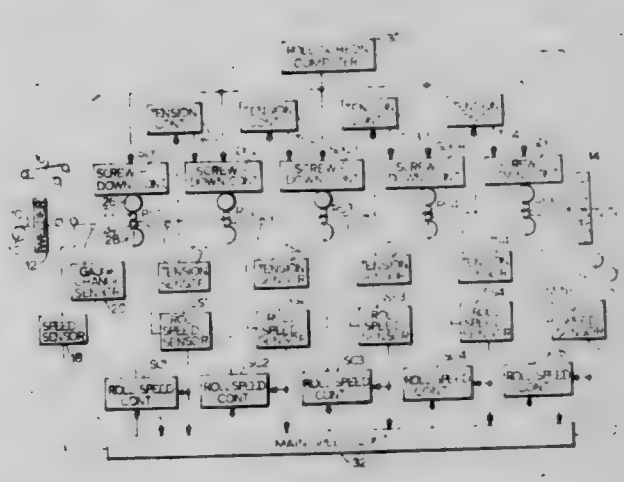
Keiichi Miura, Kobe, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed 1979, Ser. No. 90,311

Claims priority, application Japan, 1978, 53-135395

Int. Cl.³ G06F *15/46*; B21B *37/00*

U.S. Cl. 364—469 **3 Claims**



1. A method of changing a rolling schedule on the passage of a work strip having a gauge change point through a tandem rolling mill including a plurality of roll stands without stopping the rolling mill comprising changing roll speeds on all of the plurality of roll stands when the gauge change point of the work strip arrives at one of the plurality of roll stands, wherein a roll speed pattern is arranged for maintaining the steady-state mass flow constant and for minimizing a sum of changes in roll speed on the basis of a function expressing a total amount of the changes in roll speeds on the plurality of roll stands; and wherein the roll speed pattern is arranged for maintaining the steady-state mass flow constant so that, each time the gauge change point arrives at one of the plurality of roll stands, the roll speeds on all of the plurality of roll stands are uniformly changed so as to minimize a total amount of the changes in roll speeds and then, the roll speeds on the roll stand at which the gauge change point arrives and the roll stands disposed upstream of the roll stand at which the gauge change point arrives are changed to speed ratios according to a new rolling schedule while the roll speed on the roll stand at which the

gauge change point arrives and the roll stands disposed downstream thereof are held at speed ratios according to the just preceding rolling schedule.

4,335,436

MICROPROCESSOR-CONTROLLED EDM SYSTEM

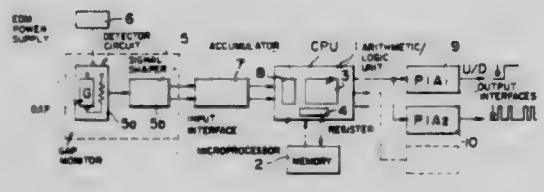
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed 1979, Ser. No. 101,080

Claims priority, application Japan, 1978, 53-152500; 1979, 53-154822

Int. Cl.³ G06F *15/46*; B23P *1/08*

U.S. Cl. 364—474 **8 Claims**



1. A method of controlling a plurality of different mutually independent machining parameters across a single machining gap in the operation of an EDM machine having a plurality of control devices for variable regulating the different mutually independent machining parameters, respectively, the method comprising the steps of:

microprogramming a set of information each representing a predetermined set of values for each of said different mutually independent machining parameters in a memory of a microprocessing unit;

deriving from said machining gap in said EDM machine a gap status signal representing a measure of characteristic thereof;

applying said gap status signal through a single channel to an input interface and in turn to said microprocessing unit;

cyclically processing said set of microprogrammed information with said gap status signal in said microprocessing unit while applying predetermined weights to said parameters, respectively, during microprocessing to provide through an output interface a plurality of control signals each individually representing a respective command to retrieve a preselected one of said predetermined set of values of each of said different mutually independent machining parameters in each of said control devices;

applying the resulting plurality of control signals to said plurality of control devices, respectively, so that each control device individually establishes said retrieved value of the particular parameter.

4,335,437

CIRCUIT INTERRUPTER WITH ENERGY MANAGEMENT FUNCTIONS

John T. Wilson; John A. Wafer, both of Beaver, and Joseph C. Engel, Monroeville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 140,554

Int. Cl.³ H02H *3/08*; G06F *15/56*

U.S. Cl. 364—483 **10 Claims**

1. Self-contained circuit interrupter apparatus, comprising:

interrupter means for conducting current flow in an associated circuit and for operating to interrupt the current flow therethrough on command;

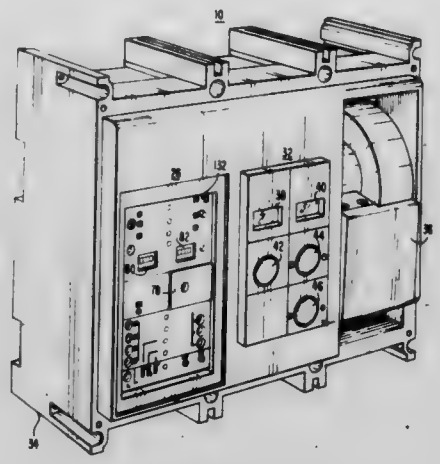
sensing means for sensing current flow through said interrupter means and for supplying operating power to said apparatus;

trip unit means connected to said interrupter means and said sensing means for operating said interrupter means when current flow therethrough exceeds predetermined limits;

voltage means for obtaining the value of line voltage on the associated circuit;

power factor means for obtaining the value of power factor on the associated circuit;

arithmetic means connected to said current sensing means, said voltage means, and said power factor means for calculating real power flow through the associated circuit;



a housing enclosing said apparatus; and

display means visible from the exterior of said housing and connected to said arithmetic means for displaying the numeric value of said product as real power being delivered by the associated circuit.

4,335,438

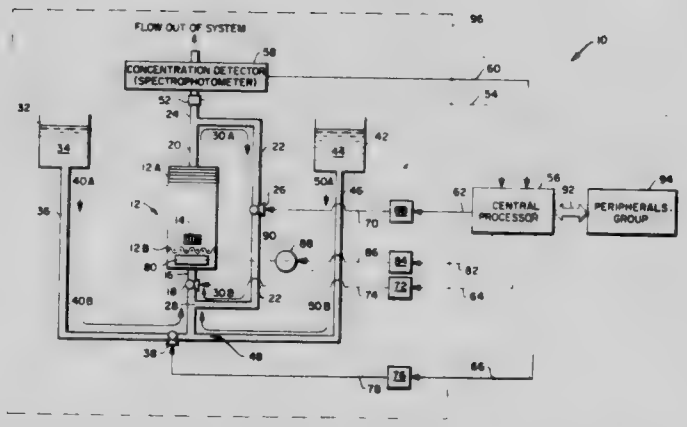
METHOD AND APPARATUS FOR AUTOMATIC DISSOLUTION TESTING OF PRODUCTS

Victor F. Smolen, 227 Timbercrest Rd., West Lafayette, Ind. 47906

Filed 1980, Ser. No. 141,093

Int. Cl.³ G06F *15/46*; G01N *31/00*

U.S. Cl. 364—497 **15 Claims**



1. Apparatus for the automated dissolution testing of products whose solubility and dissolution rate properties affect product performance comprising:

(a) a dissolution cell having an input line, an output line, and a filtering chamber therebetween;

(b) at least two reservoirs connected to said input line through a like number of media supply lines for providing dissolution media from said reservoirs to said filtering chamber;

(c) first flow control means responsive to a first control signal and positioned in said input line for controlling the flow of dissolution media through said filtering chamber, and second flow control means responsive to a second control signal and positioned in at least one of said media supply lines for controlling the flow of dissolution media therethrough;

(d) recirculating means including third flow control means responsive to a third control signal and connected to said input and output lines for controlling recirculatory flow therebetween;

(e) system output means connected to said output line and

containing means for measuring output parameters therein including a concentration parameter of particular constituents flowing therethrough, and for providing a time series of system output signals corresponding to said measured output parameters;

(f) memory means for providing a time series of stored control signals to said apparatus; and

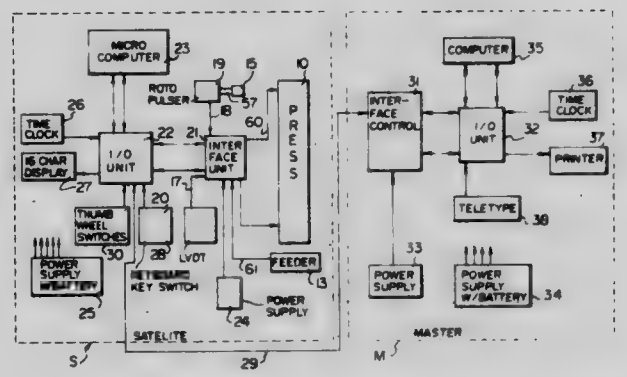
(g) a multimode electronic control system having a separate feedback control channel for providing each of said first, second and third control signals, said control system connected to said first, second and third flow control means, and to said system output means, and using negative feedback circuitry in a first mode to form a difference error signal between said stored control signals and said system output signals for automatically determining said first, second and third control signals so as to continuously tend to minimize the value of said difference error signal, and further operative in a second mode for automatically providing said first, second and third control signals in the absence of said stored control signals.

4,335,439

WEIGHT MONITORING DEVICE FOR STRIP METAL STOCK

Andrew R. St. Denis, 3541 Rankin Ave., Windsor, Ontario, Canada

Filed 1980, Ser. No. 143,729
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—562 **10 Claims**



5. A device for automatically monitoring the thickness, length and weight of strip metal stock being fed from a roll feeder to a metal processing machine comprising:

(a) a pair of rollers mounted on the feeder above and below the path of travel of the strip stock, said rollers being mounted on support arms which are pivotally mounted on the feeder to permit movement of the rollers in a substantially vertical direction and spring means mounted between said support arms to bias the rollers toward each other,

(b) a rotary transducer operatively connected to an end of one of said rollers, said transducer being adapted to generate electrical signals proportional to the actual advancement of the strip stock,

(c) a linear vertical differential transformer probe mounted between said support arms and adapted to generate electrical signals proportional to the distance between the rollers and thus the thickness of the strip stock passing between the rollers, and

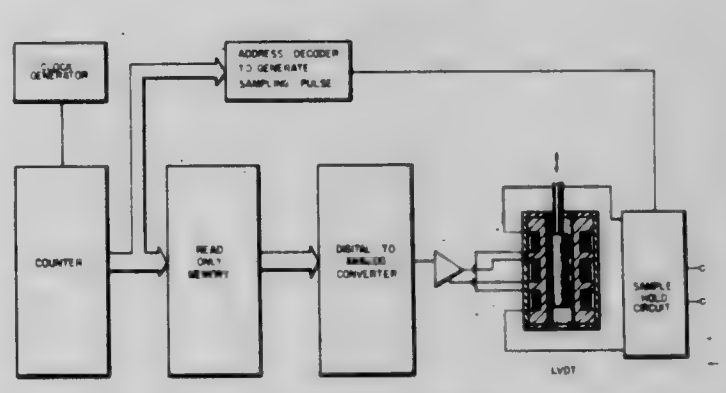
(d) a data processor adapted to count electric pulses from the rotary transducer and provide a reading of the actual length of strip stock fed by the feeder, to convert electric pulses received from the linear vertical differential transformer into readings of the actual thickness of the strip stock fed by the feeder, said processor being further adapted to store data based on the predetermined width and density of the strip stock and to calculate the actual weight of stock fed as computed from the width and density data stored and the actual length and thickness of the strip stock obtained from the rotary transducer and liner vertical differential transformer.

4,335,440

SIGNAL ENHANCEMENT CIRCUIT

Vance B. Gold, Lombard, Ill., assignor to American Can Company, Greenwich, Conn.

Filed 1979, Ser. No. 105,533
Int. Cl.³ G06G *7/12*; G06J *1/00*
U.S. Cl. 364—571 **4 Claims**



1. A method for enhancing and adjusting a plurality of variable signals from output devices of the same type each having different characteristics to overcome the pecularities of each and to relate and tune each to its maximum linearity over a preset range including the steps of:

finding the most substantially linear portion of each of series of signals emanating from each device over said range by plotting the characteristics of each over said range,

calibrating each said device against a known straight line function to approximate the variance of the output characteristic for each of said series of signals relative to said function, and

correcting said signals for producing an output adjusted and enhanced by performing translation and rotation of said straight line function to account for the peculiar characteristic of each said device.

4,335,441

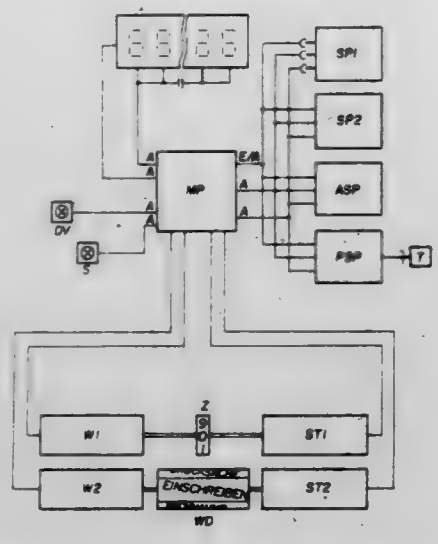
ELECTRONICALLY CONTROLLED INDICATOR AND TESTING DEVICE FOR FRANKING MACHINES

Kurt Baumann; Peter Kusche, both of Berlin, and Reinhard Redecker, Bielefeld, all of Fed. Rep. of Germany, assignors to Postalia GmbH, Offenbach am Main, Fed. Rep. of Germany

Filed 1980, Ser. No. 144,336
Claims priority, application Fed. Rep. of Germany, 1979, 2916811
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—580 **4 Claims**

1. Electronically controlled indicator and testing device for the denominational printing of franking machines, comprising a numerical display, a microprocessor for setting values or assigned charecteristics in said numerical display, means for sequentially visualizing all numerals in said numerical display after the franking machine is turned on, a program memory, a main memory, a data memory, and an exchangeable memory each connected to said microprocessor, a printing mechanism, a selectable option printing drum, electro-mechanical means cooperating with said microprocessor for setting denominations in said printing mechanism and option printing drum, electronic setting test means independent of said electro-mechanical means for comparing set values in said printing mechanism and option printing drum with said set values or assigned characteristics in said numerical display and for re-

leasing an option print only if said set values agree, and key means for triggering an additional run of all numerals of said



numerical display at any time and for sequentially reproducing said set values on said numerical display in selectable order.

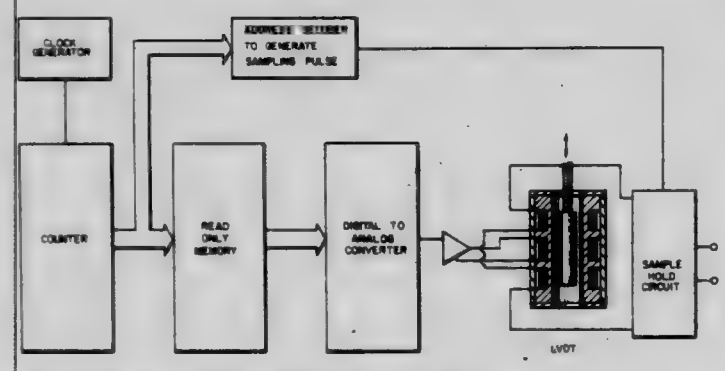
4,335,442

SYNCHRONOUS OSCILLATOR DEMODULATOR SYSTEM

Soren B. Backe, Dundee, Ill., assignor to American Can Company, Greenwich, Conn.

Filed 1979, Ser. No. 105,532
Int. Cl.³ G06J *1/00*
U.S. Cl. 364—608 **10 Claims**

LVDT SIGNAL CONDITIONER



1. An electronic circuit apparatus for generating a waveform to drive a transformer primary circuit and to signal the time at which a prearranged point on said waveform occurs for measuring the output amplitude of the transformer secondary circuit at that point comprising:

a means for dividing up time into uniform equal components of a frequency adequate to provide a plurality of segments within a prescribed time cycle,

a means connected to said dividing means to receive said segments for accumulating a predefined number of said segments which make up one said waveform and for assigning an address to each side segment,

a first electronic operating device connected to receive said addressed segments being a read only memory set to associate an output being data defining that amplitude of a waveform with each set of said addressed segments, and

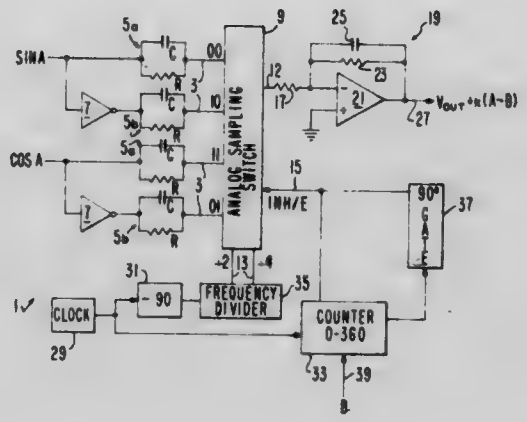
a second electronic operating device also connected to receive said addressed segments from said receiving means for identifying preselected addressed segments for signalling a point in time on each waveform cycle for use to initiate the monitoring of a respective output of said transformer secondary circuit, said point signal from said second electronic operating device being transmitted to a sample and hold circuit connected to said transformer secondary circuit for measuring the transformer secondary output held by said circuit at that respective point in time.

4,335,443

ELECTRONIC ANGLE RESOLVER

Baron C. Dickey, 982 Yorktown Dr., Sunnyvale, Calif. 94087

Filed 1979, Ser. No. 106,044
Int. Cl.³ G06G *7/22*; G06J *1/00*
U.S. Cl. 364—815 **16 Claims**



12. An angle resolver for providing an approximate electrical representation of the difference between a pair of angles A and B, the angle A represented by electrical signals provided by a source and which correspond to the sin A and cos A, comprising:

sampling means for selectively sampling electrical signals for a selected interval received at an input thereof responsive to the sin A and cos A electrical signals provided by the source of same to produce sampler output signals at an output; said source and sampling means coupled together to define a signal path from said source to said output;

differentiator means for generating differentiated forms of received electrical signals connected to the signal path between the source and the output to effect the production of sampler output signals corresponding to differentiated forms of the sin A and cos A electrical signals; and

timing means coupled to the sampling means and responsive to the value of the angle B to cause said sampling means to sample said sin A and cos A electrical signals for said selected interval at a time determined by the value of said angle B to effect the production of sampler signals, with the effects of differentiation, corresponding to the angular difference between angles A and B.

4,335,444

MULTIPLE PULSE-WIDTH MULTIPLIER

Felix Blaschke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 148,141
Claims priority, application Fed. Rep. of Germany, 1979, 2919786
Int. Cl.³ G06G *7/22*
U.S. Cl. 364—815 **9 Claims**

1. Apparatus for calculating a sum of products, each product having two factors, comprising:

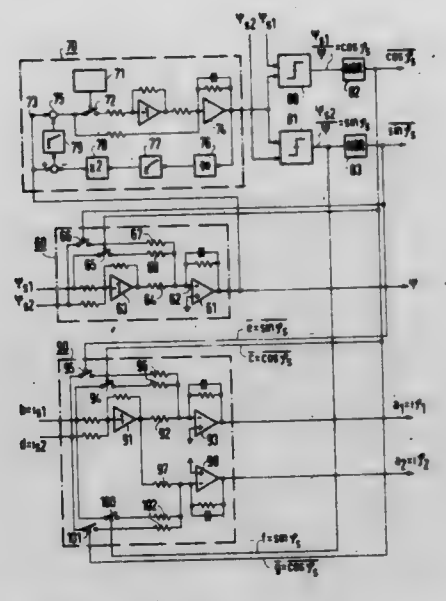
a junction point;

a smoothing stage having an input coupled to the junction point and having an output at which the sum of the products is taken off;

an inverter having an output coupled to the junction point and having as inputs a plurality of input voltages, each input voltage corresponding to a first factor of each of the products;

a plurality of switches, equal in number to the number of products being summed, each switch having an output and each switch having one of the plurality of input voltages as an input;

means for generating switching pulses proportional to voltages corresponding to the respective second factors of the products, the pulses being coupled as control inputs to the switches; and



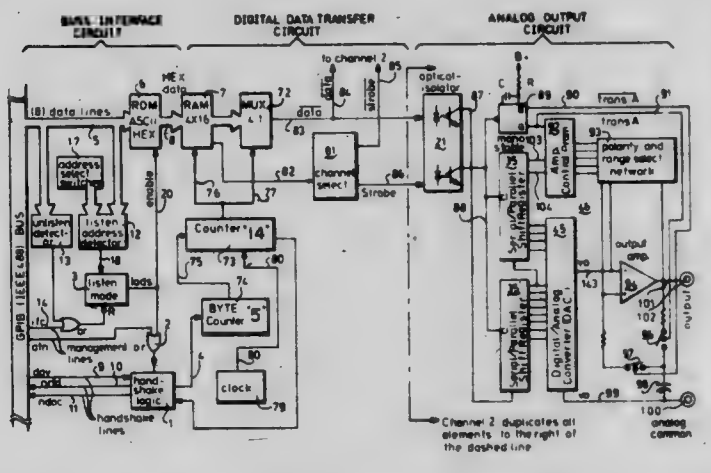
a proportional stage coupling the output of each switch and of the inverter to the junction point.

4,335,445

SYSTEM FOR INTERFACING COMPUTERS WITH PROGRAMMABLE POWER SUPPLIES

Sarkis Nercessian, Flushing, N.Y., assignor to Kepco, Inc., Flushing, N.Y.

Filed 1979, Ser. No. 15,453
Int. Cl.³ G06F *3/00*
U.S. Cl. 364—900 **3 Claims**



1. In a digital information interfacing system for utilizing data bytes from a plurality of data lines to provide analog voltage control of voltage/current programmable power supplies, the combination of;

means coupled to said data lines for temporary storage of said data bytes received from said data lines to provide stored data bytes;

means coupled to said data lines and said temporary storage means for controlling a predetermined number of bytes being accepted by said temporary storage means;

means coupled to said temporary storage means for serializing said stored data bytes;

means for passing said serialized data bytes through optical isolation means to provide isolated data;

means including a series to parallel shift register for converting said serial isolated data to parallel form;

means including a digital to analog converter for converting said parallel data to analog form;

means responsive to said analog form data for generating an analog voltage;

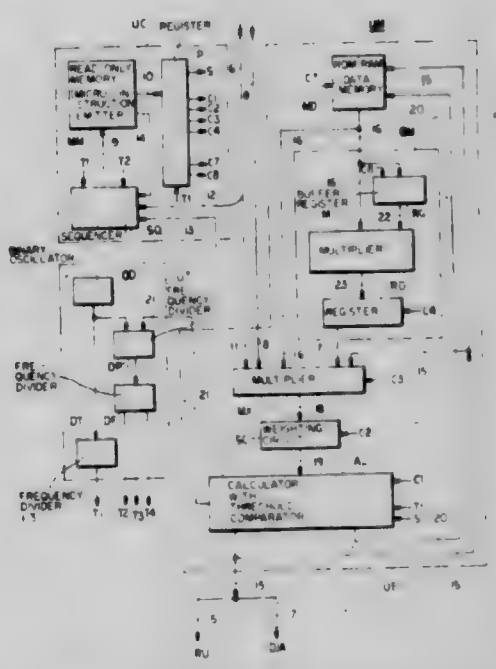
and means for using said analog voltage to control said programmable power supplies.

4,335,446

TERMINAL EQUIPMENT FOR DATA-TRANSMISSION NETWORK INCLUDING DIGITALLY OPERATING MODEM

Francesco Gandini, Turin; Giuseppe Giandonato, Rivalba-Turin; Enrico Impallomeni, and Roberto Montagna, both of Turin, all of Italy, assignors to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Continuation of Ser. No. 902,164, May 2, 1978, abandoned. This application 1979, Ser. No. 100,908
Claims priority, application Italy, 1977, 67967 A/77
Int. Cl.³ H04B *12/00*; G06F *7/48*
U.S. Cl. 364—900 **7 Claims**



1. Terminal equipment communicating with a data network by way of a transmission link designed for a carrier wave modulated by a succession of binary signals forming multibit envelopes each consisting of a predetermined number of said binary signals and having a characteristic bit in a predetermined time position, comprising:

receiving means for deriving a succession of analog samples at predetermined intervals from an incoming modulated carrier wave, said binary signals recurring during time periods of predetermined length each encompassing a multiplicity of sampling intervals;

analog/digital conversion means connected to said receiving means for translating said analog samples into digitized form;

memory means for storing precalculated digital values of trigonometric functions of amplitude samples of a predetermined carrier oscillation;

arithmetic means connected to said analog/digital conversion means and to said memory means for demodulating the incoming carrier wave by performing mathematical operations on the digitized samples, including multiplication thereof by the corresponding stored digital values to produce a series of signal samples during each of said time periods, and reconstructing the original binary signals from the results of said operations by selecting during each of said time periods the signal sample of highest absolute value in the series, said highest absolute value being determined by said arithmetic means from a calculation of the derivatives of said signal samples, said arithmetic means including a threshold comparator emitting an error signal upon detecting a magnitude of the derivative of said signal sample of highest absolute value exceeding a predetermined level;

a generator of timing pulses establishing said sampling intervals, said generating being responsive to said error signal for modifying the cadence of said timing pulses to resynchronize same with the timing of said data network; and

a microinstruction emitter stepped by said timing pulses and programmed to control said arithmetic means with detec-

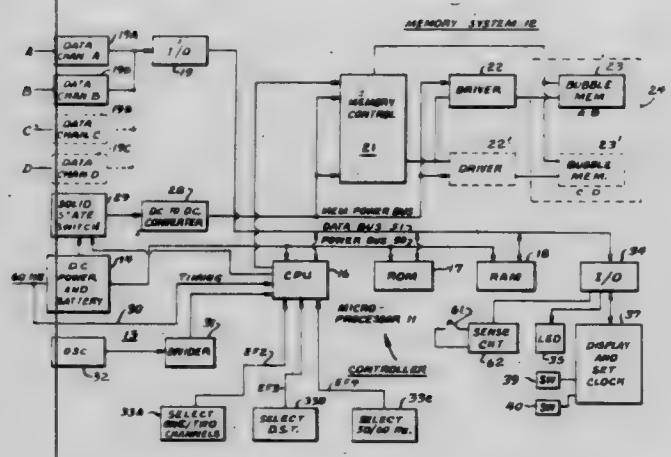
tion of said characteristic bit among the reconstructed binary signals to reconstitute said envelopes.

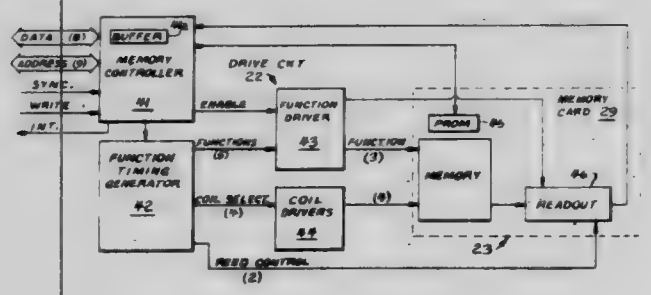
4,335,447

POWER OUTAGE RECOVERY METHOD AND APPARATUS FOR DEMAND RECORDER WITH SOLID STATE MEMORY

John W. Jerrim, Lilburn, Ga., assignor to Sangamo Weston, Inc., Atlanta, Ga.

Filed 1980, Ser. No. 118,830
Int. Cl.³ G11C *11/00, 7/00*
U.S. Cl. 364—900 **9 Claims**





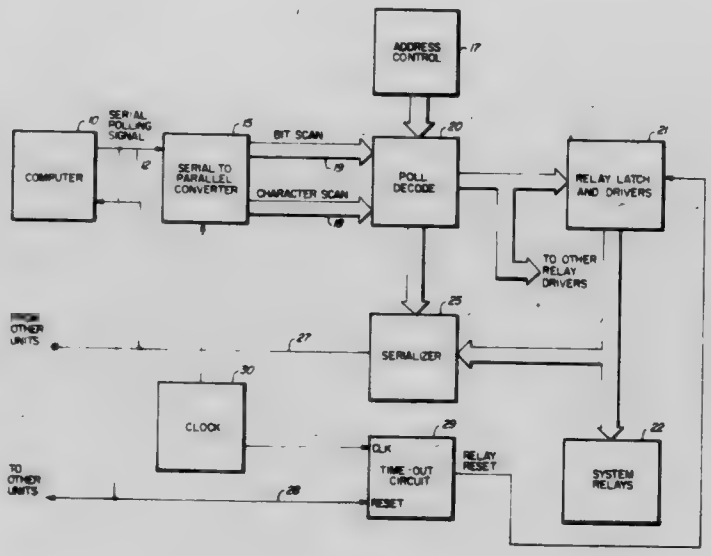
1. In a demand recorder including controller circuit means receiving data pulses representative of measured events and including random memory means having primary and secondary storage locations, said controller circuit means generating data words representative of received event data for predetermined demand intervals and storing the same in said primary storage locations of said random memory means for a collection period comprising a predetermined number of said demand intervals; solid state memory means, said controller circuit means transferring said event data from said random memory means at the end of a collection period of more permanent storage in said solid state memory means, said solid state memory means being removably associated with said controller circuit means to enable remote processing of event data stored therein, said controller circuit means being responsive to a power outage to inhibit data transfers from said random memory means to said solid state memory means, the improvement characterized in that said controller circuit means responds to a power outage to transfer the data from said primary storage locations of said random memory means to said secondary storage locations of said random memory means at the end of the first collection period during which a power outage has occurred, and when the power outage spans into the next collection period, said controller circuit means stores incoming event data in said primary storage locations of said random memory means in a compacted format comprising an index data word representative of the number of demand intervals of said next collection period for which the power outage lasts and event data representative of measured events which occurred during the demand interval of said next collection period during which restoration of power occurs.

4,335,448

ELECTRONIC CONTROL SYSTEM

Bradford O. VanNess, Paradise Valley, Ariz., assignor to Engineered Systems, Inc., Tempe, Ariz.

Continuation of Ser. No. 13,007, Feb. 21, 1979, abandoned. This application 1981, Ser. No. 251,310
Int. Cl.³ G06F *3/04, 15/20*
U.S. Cl. 364—900 **10 Claims**



1. An electronic control system having a central source of control and polling signals interconnected with a plurality of controlled terminal locations, the controlled terminal locations including in combination:

utilization circuit means at each controlled terminal location identified by a unique polling signal and having a control signal input terminal and responsive to signals applied thereon to be selectively rendered operative or inoperative thereby;

polling signal decoder means at each controlled terminal location for said utilization circuit means and having an input and at least one output terminal, and responsive to the unique polling signal identifying the controlled terminal location in which said polling signal decoder means is located when such unique polling signal is applied to the input terminal of said polling signal decoder means to produce an output signal on the output terminal thereof;

driver circuit means at each controlled terminal location connected between the output terminal of said polling signal decoder means and the input terminal of said utilization circuit means for such terminal location to selectively render said utilization circuit means operative or inoperative in response to the signals on the output terminal of said polling signal decoder means for such terminal location;

polling signal supply means coupled to the input terminals of all of said polling signal decoder means for applying polling signals thereto from the central source; and

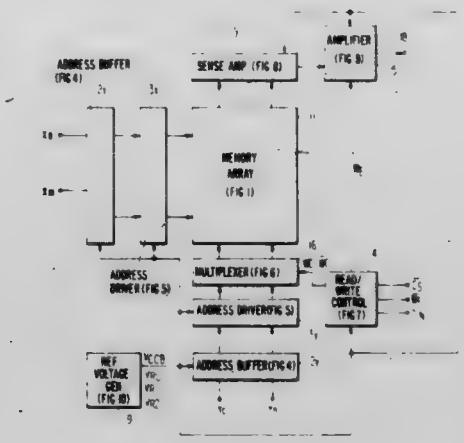
separate control circuit means at each controlled terminal location coupled to receive signals from said polling signal supply means and coupled to one of said driver circuit means and said utilization circuit means at such controlled terminal location for rendering said utilization circuit means at only such controlled terminal location inoperative in response to the absence of the receipt of polling signals by such control circuit means for a predetermined time interval from said polling signal supply means; each of said control circuit means at each of said controlled terminal locations operating independently of the control circuit means at other controlled terminal locations.

4,335,449

SEMICONDUCTOR MEMORY DEVICE

Jyoji Nokubo, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 133,999
Claims priority, application Japan, 1979, 54/3518
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—177 **10 Claims**



1. A memory device comprising:

a plurality of memory cells arrayed in rows and columns, each of said memory cells having a pair of cross-coupled insulated-gate field effect transistors,

at least one address inverter circuit for generating true and complement signals of an address signal, said address inverter circuit including first and second bipolar transistors having commonly connected emitters, a constant current source coupled to said commonly connected emitters, a first field effect transistor connected between a predetermined voltage and the collector of said first bipolar transistor, a second field effect transistor connected between said predetermined voltage and the collector of said second transistor, means for connecting the gate of said first field effect transistor to the collector of said second bipolar transistor, means for connecting the gate of said second field effect transistor to the collector of said first bipolar transistor, means for supplying the base of said first bipolar transistor with said address signal, and means for supplying the base of said second transistor with a reference voltage, said true and complement signals being derived from the collectors of said second and first bipolar transistors respectively,

row drive means responsive to the output of said address inverter for selectively energizing one of said rows, said row drive means including an emitter coupled logic circuit, and

a read circuit for sensing data stored in selected ones of said memory cells, and read circuit including third and fourth bipolar transistors having commonly connected emitters, a constant current source coupled to said commonly connected emitters of said third and fourth bipolar transistors, and means for supplying the bases of said third and fourth bipolar transistors with a differential signal derived from selected memory cell.

4,335,450

NON-DESTRUCTIVE READ OUT FIELD EFFECT TRANSISTOR MEMORY CELL SYSTEM

Donald R. Thomas, Westford, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

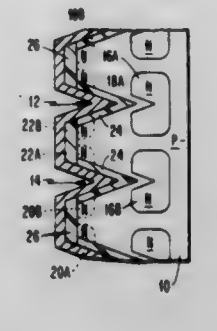
Filed 1980, Ser. No. 116,736
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—182 **19 Claims**

1. A non-destructive read out memory cell system comprising:

a semiconductor substrate of a given type conductivity,

a field effect transistor having source and drain regions of a conductivity opposite to said given type conductivity defining a channel region having first and second threshold sections disposed within said semiconductor substrate and a gate electrode isolated from said channel region,

a storage node region having said opposite type conductivity disposed within said substrate adjacent to the first threshold section of said channel regions,



means coupled to said gate electrode and to said source and drain regions for selectively charging and discharging said storage node region, and

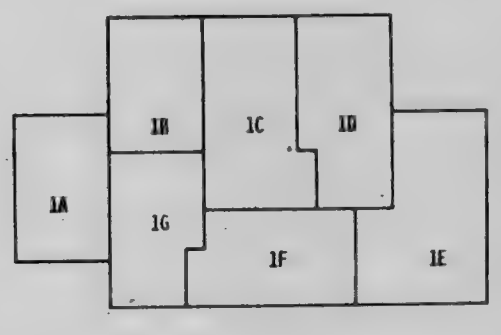
means for indicating the flow of current passing through said channel region.

4,335,451

SIGNALLING METHOD AND APPARATUS FOR ENHANCING ECHO IMAGES

Mervyn L. Feuer, Grass Valley, Calif., assignor to Leonard Frazier, Suisun, Calif.

Continuation of Ser. No. 942,965, Sep. 18, 1978, abandoned. This application 1980, Ser. No. 133,525
Int. Cl.³ G01S *15/06*
U.S. Cl. 367—115 **15 Claims**



1. The method of enhancing the output indication of a reflective object in an echo-responsive device, the method comprising the steps of:

initiating a transmit pulse directed toward a reflective object;

receiving an echo of a transmit pulse which is reflected from a reflective object;

expanding in time duration the echo received from the reflective object;

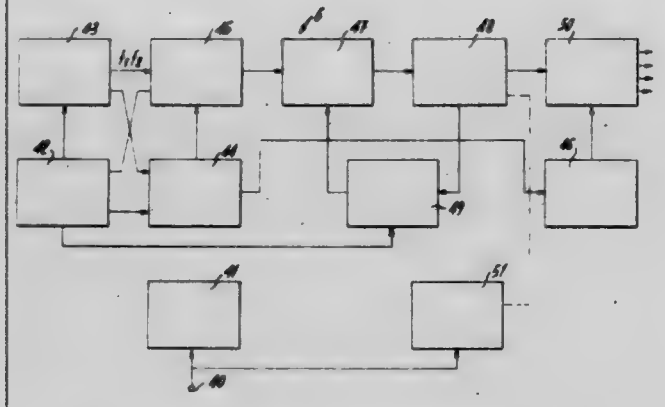
producing a plurality of samples of the expanded echo at successive intervals for storage in successively addressed memory locations; and

simultaneously initiating a period during which an output indication is produced and initiating the successive addressing of the samples stored in the plurality of memory locations for producing output indications thereof in succession during said period.

4,335,452
ELECTRO-ACOUSTIC DEVICE FOR THE UNDERWATER SIGNALLING AND IDENTIFICATION OF A VESSEL

Philippe Eberlin, Geneva, and Mario Rossi, Lausanne, both of Switzerland, assignors to Blanchut & Bertrand S.A., Switzerland

Filed 1980, Ser. No. 178,379
Claims priority, application Switzerland, 1979, 7424/79
Int. Cl.³ H04B *11/00*
U.S. Cl. 367—134 **10 Claims**



1. An electro-acoustic device for the underwater signalling and identification of a vessel, comprising:

an emitter having at least one electro-acoustic transducer mounted at subaqueous parts of the hull of the vessel, and an electronic circuit for controlling said transducer, the emitter being designed to emit, at audio-frequency, an identification signal specific to the vessel, said signal being constituted by a series of letters or figures emitted in code and preceded by a start-of-emission signal, the emitter and its control circuit being so rated that the signal is emitted at at least one frequency selected for each vessel and being within the range 4 to 6 kHz and simultaneously in the proper sound spectrum of the vessel, but above the discrete frequencies of the vertical lines of said spectrum and different from their harmonics and at a strength such that the level of acoustic intensity LI_{s1} (dB), by unit of distance, of the identification signal of mean frequency f_s (Hz), is greater than or equal to the level of acoustic intensity LI_{b1}, by unit of distance, of the sound band, centered on the frequency f_b (Hz), resulting in the detection, from a great distance, of the carrier vessel by its particular underwater noise in the ambient background noise of the sea, increased by a parameter Δ the value of which in decibels is calculated by means of the relationship:

$$\Delta = 40a_s + 10 \log (B_{cs}/B_{cb}) - 15 \log (f_s/f_b) + 6,$$

wherein:

a_s = the coefficient of absorption of sound in the sea at the frequency f_s,

B_{cs} and B_{cb} (Hz) = the critical screening bands at the frequencies f_s and f_b respectively.

4,335,453
ELECTRONIC WATCH

Jean-Claude Fatton, Le Landeron, Switzerland, assignor to Ebauches Electroniques S.A., Marin, Switzerland

Filed 1980, Ser. No. 151,780
Claims priority, application Switzerland, 1979, 5133/79
Int. Cl.³ G04B *19/24, 19/30;* G04C *19/00*
U.S. Cl. 368—30 **4 Claims**

1. An electronic watch comprising:

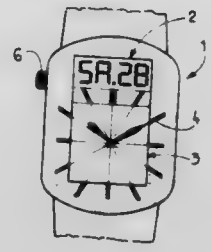
(a) means providing present time-of-day information and also other information;

(b) first passive electro-optic display means for displaying in analog form said present time-of-day information;

(c) second passive electro-optic display means for continuously displaying in digital form one of said present time-of-day information and said other information;

(d) lamp means for illuminating only said second display means;

(e) selector means for applying to said second display means



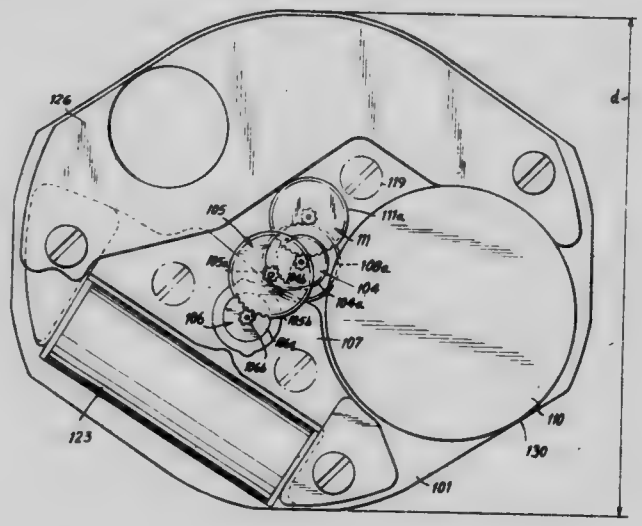
either said present time-of-day information or said other information;

(f) manually operable push-button means for concurrently operating said selector means to display said present time-of-day information on said second display means and to activate said lamp means.

4,335,454
GEAR TRAIN MECHANISM FOR A TIMEPIECE

Haruyoshi Yamada, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed 1979, Ser. No. 93,097
Claims priority, application Japan, 1978, 53-141891
Int. Cl.³ G04B *19/02*
U.S. Cl. 368—220 **9 Claims**



1. A gear train mechanism for a timepiece including means for timekeeping and a rotating second hand for display, comprising:

a fourth wheel and pinion assembly having a tenon for support of said fourth wheel and pinion assembly in said timepiece, said second hand being attached to said fourth wheel and pinion assembly for rotation therewith;

an intermediate wheel and pinion assembly for transmitting motion to said fourth wheel and pinion assembly, the outer radius of said intermediate wheel overlapping said tenon of said fourth wheel and pinion assembly.

4,335,455

METHOD AND APPARATUS FOR FOUR-WIRE TYPE TRANSMISSION OF DIGITAL MESSAGE SIGNALS

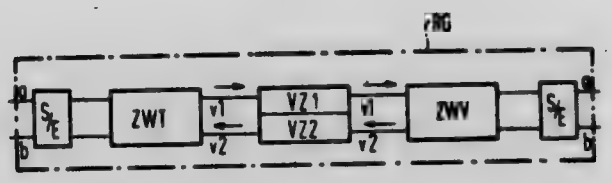
Peter Hirschmann, Puchheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 155,389

Claims priority, application Fed. Rep. of Germany, 1979, 2927228

Int. Cl.³ H04M *3/00*

U.S. Cl. 370—29 14 Claims



1. A method for the two-wire transmission of digital message signals on a two-wire transmission line between a superordinate system, such as a digital exchange, and a subordinate system, such as a digital subscriber station, in the form of message signal blocks which comprise at least one message signal word and signalling bits in both transmission directions, as well as sychronization bits in the transmission direction from the superordinate system to the subordinate system, and which are repeatedly and alternately transmitted between said superordinate system and said subordinate system with a prescribed transmission period (P) initiated by the transmission of a message signal block by said superordinate system, said subordinate system transmitting a subordinate message signal block (NBT) in response to the receipt of each superordinate message signal block (NBV) transmitted by said superordinate system, possibly after expiration of a prescribed delay, said method comprising the steps of:

(a) passing said message signal blocks through a regenerator located in said two-wire transmission line at such a point that each subordinate message signal block (NBT) which is sent within a first transmission period (P1) arrives at said regenerator no later than a time period τ following the beginning of the next subsequent transmission period (P2), where said time period τ is the transmission time period between said superordinate system and said regenerator; and

(b) delaying the subordinate message signal blocks (NBT) in said regenerator by a delay time period which is chosen to be sufficiently long that the superordinate message signal blocks (NBV) transmitted by the superordinate system pass said point in the transmission line during the delay time period, but not so long that the delayed subordinate message signal blocks are received at said superordinate system during the time periods of transmission of said superordinate message signal blocks.

4,335,456

SWITCH-THROUGH UNIT FOR BIT GROUPS WITHIN A PROGRAM CONTROLLED, ELECTRONIC DATA SWITCHING SYSTEM

Rainer Gaiser, Munich; Rolf Hagen, Unterhaching, and Bernhard Schaffer, Lochham, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 887,964, Mar. 20, 1978, abandoned, which is a continuation of Ser. No. 660,939, Feb. 24, 1976, abandoned. This application 1980, Ser. No. 116,235

Claims priority, application Fed. Rep. of Germany, 1975, 2508323

Int. Cl.³ H04J *3/00*

U.S. Cl. 370—58 2 Claims

1. A method for program controlled switching of data transmitted in bit groups and interleaved within a time division multiplex (TDM) frame, wherein the bit group position within the TDM frame corresponds to a channel assignment, comprising the steps of:

communicating a request signal to a data switching system upon reception of bit groups to be switched through,

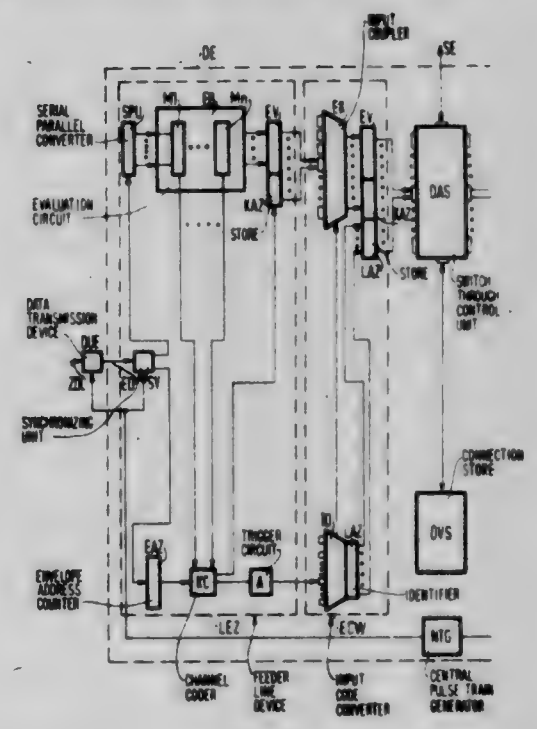
comparing received bit groups with predetermined bit configurations,

producing a comparison result signal having a first value if identical bit configurations are received in successive cycles in a channel, the comparison result signal of the first value being communicated to the data switching system,

forming a feeder channel address and a feeder line address for each bit group from that bit group's position within the TDM frame,

storing the feeder channel address and the feeder line address in a register means,

selecting a feeder cell in a connection store on the basis of the feeder channel and line addresses, the selected feeder cell being permanently assigned to each feeder.



entering the feeder channel and line addresses for each bit group in its respective feeder cell in response to signalling characteristics contained in the bit groups,

reading out from said feeder cell the trunk line and channel addresses forming the trunk address of a desired trunk for a switching through connection, said feeder cell being read with each succeeding bit group,

selecting a trunk corresponding to the read-out trunk line address,

coupling each bit group and corresponding trunk channel address to a trunk line identified by the corresponding trunk line address,

writing the bit groups into a switch-through store prior to transmission so a TDM frame can be seized at a point determined by the corresponding trunk channel address,

reading the bit group from said switch-through store as frequently as it is received and,

transmitting the contents of said switch-through store for all channels when said writing step is completed.

4,335,457

METHOD FOR SEMICONDUCTOR MEMORY TESTING

James M. Early, Palo Alto, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed 1980, Ser. No. 176,353

Int. Cl.³ G01R *31/28;* G11C *29/00*

U.S. Cl. 371—28 7 Claims

1. A method for testing a semiconductor memory device, containing a plurality of memory cells, each cell being capable of storing one bit, said method including the use of a computer

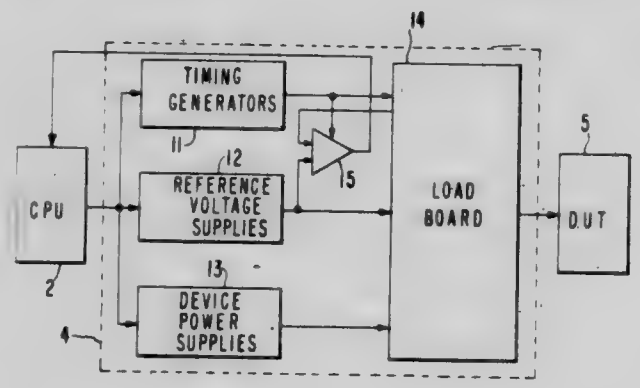
and a set of instructions to said computer, said method comprising the steps of:

testing the semiconductor memory device with a first set of tests utilizing simple test patterns;

determining if said device functions properly during said first set of tests;

classifying said device as a failed device if said device does not function properly during said first set of tests;

further testing said device if said device functions properly during said first set of tests, with a second set of tests which comprises testing said device with one or more simple test patterns while one or more device operating conditions are altered beyond the limits specified for proper functioning of the device until one or more cells in said device fail to function properly, said one or more cells



in said device which fail to function properly being the one or more weakest cells of said device;

storing the location or locations of said weakest cells in the memory of said computer;

testing only said weakest cells using a third set of tests, wherein said third set of tests utilizes test patterns which are more complex than the test patterns utilized in said second set of tests and wherein the operating conditions of said device during said third set of tests are within those specified for proper operation of said device;

determining if said weakest cells properly function during said third set of tests; and

classifying said device if its functions properly during said first set of tests, as an acceptable or failed device based on the results of said third set of tests.

4,335,458

MEMORY INCORPORATING ERROR DETECTION AND CORRECTION

Thijs Krol, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed 1979, Ser. No. 34,096

Claims priority, application Netherlands, 1978, 7804674

Int. Cl.³ G06F *11/10*

U.S. Cl. 371—38 **11 Claims**

1. A word-organized memory system having a first memory bank, said memory bank having a first plurality of memory locations each accommodating a memory word of a first uniform length; each memory location having within said first uniform length a second plurality of user word locations each accommodating a user word of a second uniform length; said memory system furthermore comprising:

addressing means having an address input for receiving a user address specifying a memory location and within a memory location a user word location;

a data line for transporting an addressed user word;

each user word location having a uniform number of data bit locations and at least one location for a parity bit for detecting a single-bit-error in the associated user word;

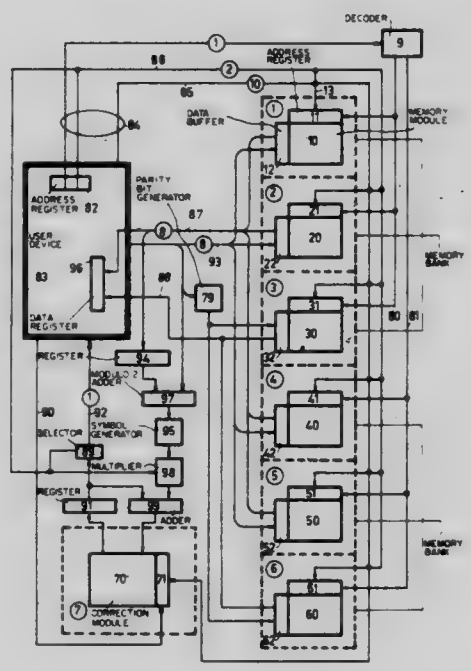
wherein the data bits in corresponding bit positions of the user words within a memory location form a plural-bit user symbol and the parity bits in corresponding bit positions of the user words within a memory location form a plural-bit parity symbol;

each memory location furthermore accommodating a plurality of correction bits equal to said second plurality to form a plural bit corrector symbol;

all said symbols forming elements of the same Galois field;

said memory having a detector device having an input connected to the data line for receiving a user word with an associated parity bit for detecting a single-bit error therein and thereupon generating a detection signal on a detection signal output connected to an input of said addressing means for then addressing the further user word locations of the same memory word inclusive of parity bits and corresponding corrector symbol;

said memory system furthermore comprising a corrector device having an activation signal input connected to said detection signal output and furthermore having:



multiplying means having an input connected to the data line for receiving the read and incorrect memory word and multiplying this memory word by a parity matrix that consists of elements of the same Galois field to generate an error symbol and a product symbol of error symbol and locator symbol;

extractor means having an input connected to an output of said multiplying means for receiving said error symbol and said product symbol for therefrom extracting an error locator quantity;

correcting means having an input connected to the data line, to an output of the multiplying means, and to an output of the extracting means for correcting the incorrect memory word at a bit position located by said error locator quantity for an error amounting to said error symbol; and

output means for outputting a corrected user word from said correcting means.

4,335,459

SINGLE CHIP RANDOM ACCESS MEMORY WITH INCREASED YIELD AND RELIABILITY

Richard L. Miller, P.O. Box 489, Harvard Square Post Office, Cambridge, Mass. 02238

Filed 1980, Ser. No. 151,690

Int. Cl.³ G11C *29/00*

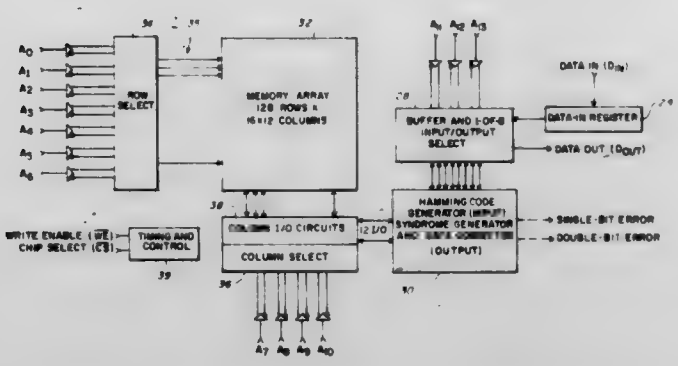
U.S. Cl. 371—38 **28 Claims**

1. A random access integrated circuit memory device of a nominal capacity comprising, on a single semiconductor chip:

a memory array of capacity greater than the nominal capacity of the memory device;

address decoding circuitry for selecting a code word of data and error correction bits from the memory array in accordance with an addressing input signal; and

error correction decode logic circuitry for receiving the selected bits from the memory array and for generating corrected data bits less in number than the selected bits, the number of said corrected data bits and the error correction logic being such that the memory device demonstrates an increased theoretical yield over a like memory device having a memory array of capacity equal to said nominal capacity of the device.

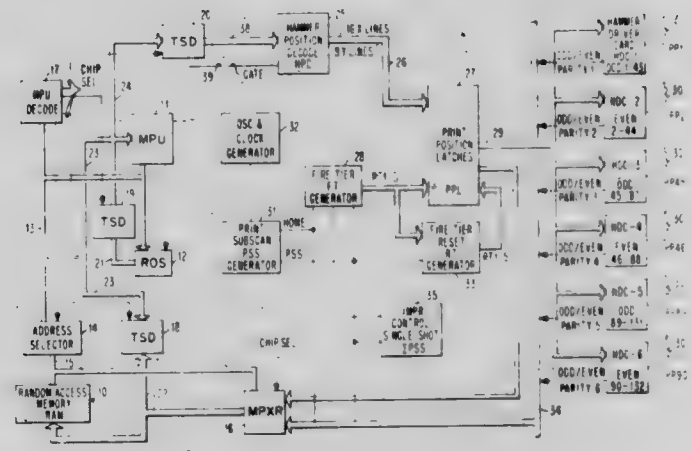


4,335,460

PRINTER SYSTEM HAVING PARITY CHECKING OF PRINT HAMMERS USING SOFTWARE CONTROL

Richard D. Bolcavage, Kirkwood; Armand J. Ferraro, Endicott, both of N.Y., and Arthur E. Fleek, Cary, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed 1980, Ser. No. 115,841
Int. Cl.³ G06F *11/10*
U.S. Cl. 371—49 **16 Claims**



1. In a printer system, the combination comprising

a plurality of print hammers and a plurality of operating circuits operable for individually actuating said plurality of said print hammers;

a moving type belt or the like having characters alignable with said hammers in a plurality of subscan sequence arrangements; and

a printer control means for selectively operating said print hammers in timed relation with the alignment of said characters with said print hammers including

print hammer selection means connected to said operating circuits and operable in a plurality of successive subscans for selectively activating various combinations of said operating circuits in accordance with said sequence arrangements; and checking means for periodically checking the condition of said operating circuits including

parity circuit means operatively connected with said operating circuits and operable in response to the operative condition of said operating circuits for generating an actual parity signal indicative of the actual condition of said operating circuits,

said actual parity signal from said parity circuit means being continuously updated by said parity circuit means in response to changes in the operative condition of said operating circuits resulting from the operation of said print hammer selection means in the activation and deactivation of said operating circuits in the course of a plurality of subscans,

said actual parity signal from said parity circuit means representing the instantaneous operative condition of said plurality of operating circuits,

storage means for storing expected parity information representing print hammers to be activated for each of said plurality of subscans,

processor means connected to said storage means for periodically deriving composite parity information from said expected parity information in said storage means for said plurality of subscans,

said derived composite parity information representing the expected condition of said plurality of operating circuits for said plurality of subscans,

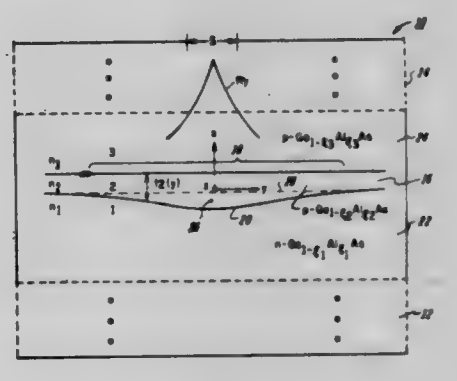
and means controlled by said processor means for periodically comparing said actual parity signal from said parity circuit means with said derived composite parity information for said plurality of said subscans and for providing an error signal in the event of an inequality between said actual parity signal and said derived composite parity information.

4,335,461

INJECTION LASERS WITH LATERAL SPATIAL THICKNESS VARIATIONS (LSTV) IN THE ACTIVE LAYER

William Streifer, Palo Alto; Donald R. Scifres, Los Altos, and Robert D. Burnham, Los Altos Hills, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed 1980, Ser. No. 181,262
Int. Cl.³ H01S *3/19*
U.S. Cl. 372—45 **5 Claims**



1. In an injection laser comprising a plurality of contiguous layers of semiconductor material, one of said layers fabricated to form an active layer for optical wave propagation under lasing conditions, a cladding layer contiguous with each surface of said active layer and each having a higher bandgap and a lower refractive index than said active layer, said active layer having an active region with a lateral spatial variation in thickness extending from a central point of maximum thickness to adjacent points of minimum thickness, the improvement comprising.

means in said cladding layers to produce a quantitative difference in their relative refractive indices and

the lateral spatial variation of the thickness of said region governed by the ratio of the difference between said maximum and minimum thicknesses relative to said maximum thicknesses in conjunction with the rapidity from said maximum thickness to said minimum thickness being in the range of 0.01 to 0.05.

4,335,462
APPARATUS AND METHOD FOR GENERATING A GLOW DISCHARGE

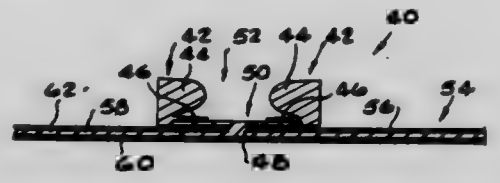
Victor H. Hasson, and Hubertus M. Von Bergmann, both of Pretoria, South Africa, assignors to The South African Inventions Development Corporation, Pretoria, South Africa

Continuation of Ser. No. 958,858, Nov. 8, 1978, abandoned. This application 1980, Ser. No. 207,095

Claims priority, application South Africa, 1977, 77/7022; 1978, 78/0669

Int. Cl.³ H01S *3/097*

U.S. Cl. 372—85 38 Claims



1. An apparatus for generating a transversely excited high pressure glow discharge in a gas, including;

two spaced-apart main discharge electrodes which define between them a main discharge gap;

a means for immersing the main discharge electrodes in a pressurized gas;

a discharge inducing member that is of an insulating material and which provides a trigger discharge surface adjacent the electrodes and bridging the main discharge gap; and

an auxiliary conductor located on the other side of the discharge inducing member to the main discharge electrodes which is significantly capacitively coupled with at least a first one of the main discharge electrodes for initiating a self-triggered low order trigger discharge across at least a portion of the trigger discharge surface when an excitation pulse is applied across the main discharge electrodes to photoionize the gas in the main discharge gap and cause a glow discharge between the main electrodes.

4,335,463
SIMULTANEOUS INTEGRAL MULTI-ACCESS TRANSMISSION SYSTEM ON TRANSMISSION LINES BY OPTICAL FIBRES

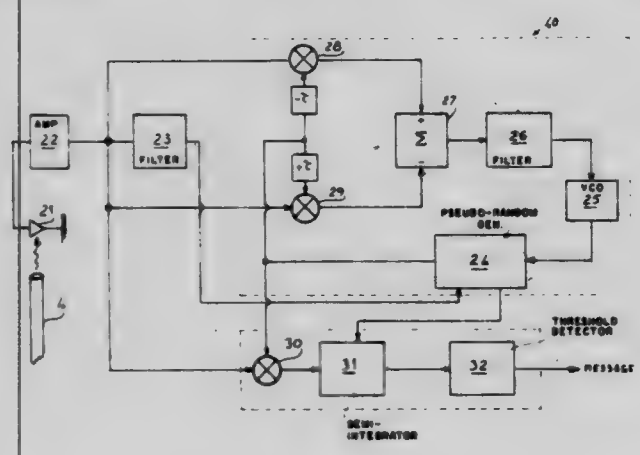
Joseph Foucard, Valence, France, assignor to Crouzet, Paris, France

Filed 1980, Ser. No. 194,906

Claims priority, application France, 1979, 79 25741

Int. Cl.³ H04K *1/04*

U.S. Cl. 375—1 1 Claim



1. A system for transmitting information in the form of electrical signals from an emitter to a receiver by an optical fiber transmission medium, said system being characterized in that

said emitter comprises:

shaper means for shaping said electrical signals; code generator for generating a pseudo-random code; modulator means connected to said shaper means and said generator for deriving a product of said shaped electrical signals and said pseudo-random code so that the spectrum of the information contained in the electrical signals to be transmitted is spread over all the pass-band availabe at the emitter side of said transmission medium; a power adapter connected to receive said product from said modulator means; and transducer means connected to said power adapter for transducing output signals from said power adapter into light pulses to be introduced into optical fiber transmission medium; and

said receiver comprises:

transducer means receiving said light pulses from said optical fiber transmission medium for transducing said light pulses into received electrical signals; an amplifier with automatic gain control connected to said transducer means of said receiver for amplifying said received electrical signals; a synchronization acquisition passive filter connected to receive amplified signals from said amplifier; a further pseudo-random code generator connected to receive filtered signals from said passive filter; a voltage controlled oscillator connected to provide a clock signal to said further generator for controlling the latter; servo-control means connected between said amplifier and said oscillator for synchronizing said voltage controlled oscillator; a multiplier connected to said further generator and to said amplifier for deriving a further product of output signals of said further generator and said amplifier; a semi-integrator connected to receive said further product from said multiplier; and a threshold detector connected to said semi-integrator for restoring the electrical signals transmitted by the emitter.

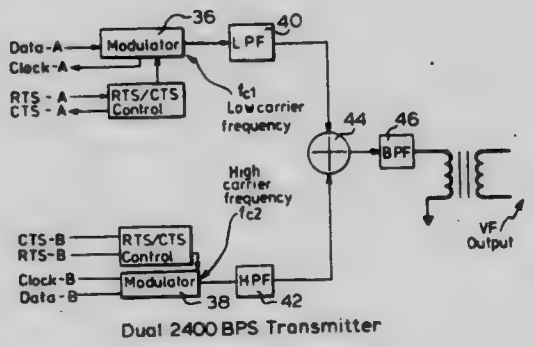
4,335,464
DUAL MULTIPOINT DATA TRANSMISSION SYSTEM MODEM

Thomas R. Armstrong, Largo; Gordon Bremer, Clearwater; Williams Betts, Maderia Beach, all of Fla., assignor to Paradyne Corporation, Largo, Fla.

Filed 1980, Ser. No. 115,118

Int. Cl.³ H04J *1/18*

U.S. Cl. 375—43 2 Claims



Dual 2400 BPS Transmitter

1. A data communication system comprising at least two independent multipoint networks sharing common user site locations and a common communications link connecting said common user site locations, said system comprising:

a first network terminal at each of said common site locations;

a second network terminal at each of said common site locations;

and a modem at each of said common site locations, each of said modems including:

a transmitter having a first modulator connected to said first network terminal and a second modulator connected to said second network terminal;

first high pass filter means connected to the output of one of said modulators and first low pass filter means connected to the output of the other of said modulators;

means for combining the outputs of said first high pass and

first low pass filters and feeding the combined output to said common communications link;

a receiver having a first demodulator connected to said first network terminal and a second demodulator connected to said second network terminal; and,

second high pass filter means interposted between said communications link and said first demodulator and second low pass filter means interposed between said communications link and said second demodulator whereby each of said modems receives and transmits data over said common communications link within a high frequency spectrum defined by said first and second high pass filter means for said first network and within a low frequency spectrum defined by said first and second low pass filter means for said second network.

4,335,465

METHOD OF PRODUCING AN ACCELLERATING ELECTRONS AND IONS UNDER APPLICATION OF VOLTAGE AND ARRANGEMENTS CONNECTED THEREWITH

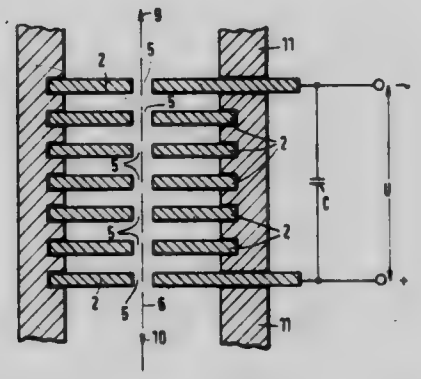
Jens Christiansen, An den Hornwiesen 4, 8521 Erlangen-Buckenhof, and Christoph Schultheiss, Schleifweg 19, 8521 Erlangen-Uttenreuth, both of Fed. Rep. of Germany

Filed 1979, Ser. No. 8,162

Claims priority, application Fed. Rep. of Germany, 1978, 2804393

Int. Cl.³ G21G *1/06*; H01J *17/00*

U.S. Cl. 376—156 **23 Claims**



1. An apparatus for producing and accelerating electrons and ions under the application of a voltage, said apparatus comprising:

electrode means comprising at least two spaced electrodes, each of said electrodes including a peripheral region and an interior region and means defining at least one aperture in said interior region, said means defining at least one aperture being aligned at each electrode and defining a gas-discharging path;

gas supply means for providing an ionizable low pressure gas in said gas-discharge path;

insulator means for preventing a spark-like gas-discharge between said electrodes at the peripheral regions of said electrodes; and

further means for producing separate and oppositely-directed accelerated flows of ions and electrons, respectively, along said gas-discharge path, said further means comprising voltage supply means connected to said at least two electrodes, for establishing an electrical potential therebetween such that a high current spark-like gas-discharge occurs in said ionizable gas concentrated along said gas-discharge path;

wherein the product of the pressure in mbar of the ionizable gase and the distance between the two spaced electrodes in mm is in the range of 0.05 to 0.50 mbar×mm, and wherein said electrical potential is at least approximately five kilovolts.

4,335,466

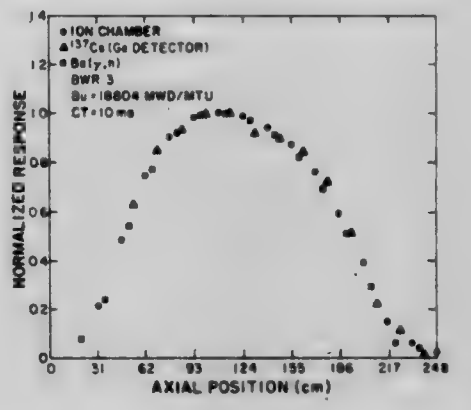
METHOD AND APPARATUS FOR MEASURING IRRADIATED FUEL PROFILES

David M. Lee, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed 1980, Ser. No. 134,352

Int. Cl.³ G21C *17/00*

U.S. Cl. 376—257 **16 Claims**



1. A method of substantially instantaneously measuring the axial gross gamma activity profile of a irradiated fuel assembly, said method comprising:

using a multielement detector requiring no collimator and requiring no scanning, said detector comprising a plurality of spaced apart substantially identical individual current-measuring (as opposed to pulse-measuring) detectors to measure substantially instantaneously a profile of gross gamma activity as a function of axial position along said fuel assembly.

4,335,467

LIQUID METAL COOLED NUCLEAR REACTOR

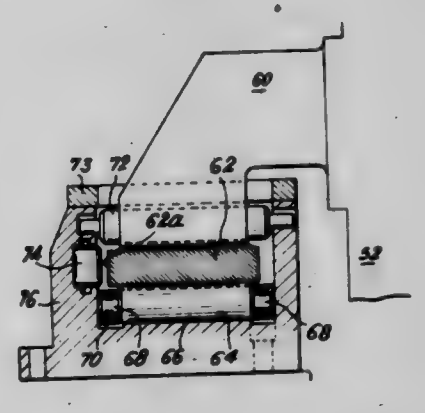
Marcel Robin, Sevres, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed 1979, Ser. No. 51,520

Claims priority, application France, 1978, 78 18821

Int. Cl.³ G21C *9/00*

U.S. Cl. 376—285 **3 Claims**



1. A liquid metal cooled nuclear reactor comprising in combination

(a) a vessel for receiving the reactor core and said liquid metal;

(b) at least one heat exchanger for ensuring a heat exchange between said liquid metal and a second fluid;

(c) a first duct for connecting said vessel with the inlet of the heat exchanger, said duct opening into said vessel above the core; and

(d) a second duct for connecting said vessel with the outlet of said heat exchanger said vessel being provided, along the outer periphery thereof, with a first supporting means situated between said ducts said first duct being substantially rectilinear and horizontal and opening into said

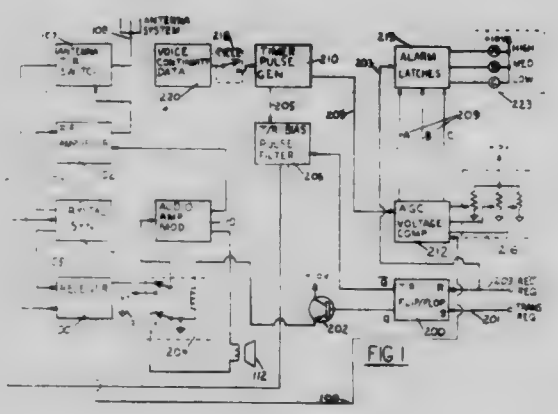
vessel above, and in the vicinity of, said first supporting means, said heat exchanger provided with a second supporting means at a level that is above the reactor support level wherein the stresses resulting from differential expansions of the ducts are reduced and constituted by at least two supporting members diametrically opposed with respect to the vertical axis of the exchanger outer cover, each of said supporting members comprising a horizontal fixed support plate, a horizontal backing plate integral with said exchanger and situated above said support plate, and a first plurality of rollers between said plates, the axes of revolution of said rollers being at right angles to the direction of said tubing; and wherein each supporting member comprises a second series of rollers parallel to said first series, said second rollers being arranged above said backing plate and bound to said supporting plate so mounted that there is a clearance between said rollers and said backing plate such supporting member also comprising a horizontal upper plate for the abutment of the rollers of said second series, said plate being integral with said support plate and so arranged that whenever the heat exchanger assumes an abnormal movement, said rollers of the second series come into abutment with said horizontal upper plate as well as a third series of rollers with vertical axis with respect to the reactor, adapted to form an abutment, in the case of horizontal movements, between said backing plate and a vertical extension of said supporting plate.

4,335,468

SIMULTANEOUS TRANSMISSION SIGNAL DETECTION SYSTEM

George B. Foster, 7140 Linworth Rd., Worthington, Ohio 43085, and David E. Harris, 193 Clinton Hts., Columbus, Ohio 43202

Continuation-in-part of Ser. No. 928,825, Jul. 28, 1978, abandoned. This application 1980, Ser. No. 110,623
Int. Cl.[3] H04B *1/44*
U.S. Cl. 455—67 38 Claims



11. In a communication system wherein multiple radio stations communicate with one another over a single channel, a method for indicating to the operator of a first station who is transmitting over the channel that there is a simultaneous transmission occurring on the channel by another user, possibly blocking or interferring with transmission by the first user comprising the steps of:

disabling the first station's transmission;

monitoring said communication channel for a signal above a predetermined threshold level;

annunciating an alarm in response to a signal exceeding said predetermined threshold level; and

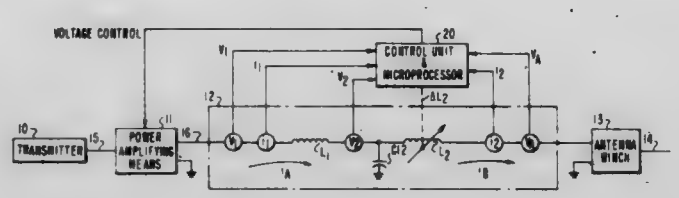
resuming transmission by the first user.

4,335,469

METHOD AND SYSTEM FOR RADIATING RF POWER FROM A TRAILING WIRE ANTENNA

Nelson B. Tharp, Ellicott City, and Harry F. Hartley, Glen Burnie, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 160,354
Int. Cl.[3] H01Q *1/30*
U.S. Cl. 455—125 7 Claims



1. A method of applying the output of a transmitter power amplifier means to a trailing wire antenna of an airborne RF transmitter system to effect optimum message transmission during extension and retraction toward and from the optimum length of the antenna, comprising

varying the inductance of the antenna coupler in response to the antenna change of length to provide a high-resistance load having minimal reactance to the power amplifier means, and

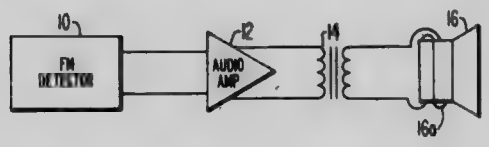
varying the value of the power output of the power amplifier means as a function of the voltage amplitude sensed at the feed end of the antenna and the voltage and current sensed at opposite sides of the coupler.

4,335,470

AUDIO DE-EMPHASIS CIRCUIT

James C. Marsh, Jr., and Marcus L. Snell, Jr., both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 201,829
Int. Cl.[3] H04B *1/10*
U.S. Cl. 455—205 9 Claims



1. Audio signal processing apparatus responsive to a source of carrier waves frequency modulated in accordance with audio signals occupying a given frequency band and subject to a preemphasis increasing with frequency over a given high frequency portion of said band comprising:

an FM detector responsive to said modulated carrier waves for recovering said pre-emphasized audio signals therefrom;

a load circuit including a loudspeaker voice coil, and having a response characteristic exhibiting a response which declines with increasing frequency over at least a segment of said high frequency portion of said band, said loudspeaker voice coil contributing significantly to said response characteristic and which decline is complementary to the preemphasis of said audio signals over said band segment; and

audio signal processing means, having an input coupled to said detector to receive said recovered preemphasized audio signals, for providing an amplified version of said audio signals to said load circuit substantially without disturbance of said preemphasis over said band segment.

DESIGN PATENTS

GRANTED JUN. 15, 1982

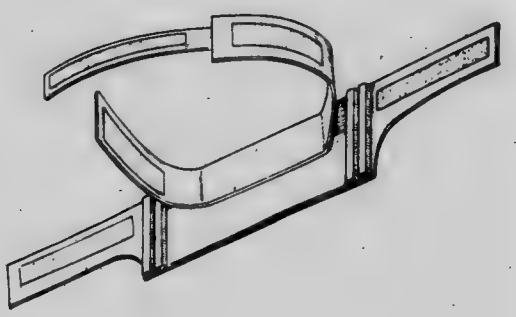
ERRATA

For CLASS	See PATENT NO.
D04–038	264,897
D08–050	264,925
D27–041	264,999

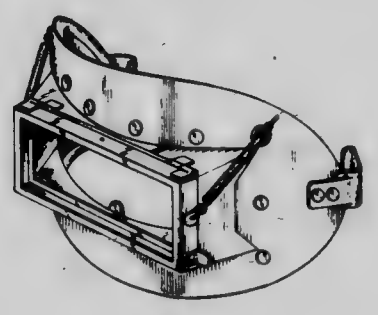
DESIGNS

JUNE 15, 1982

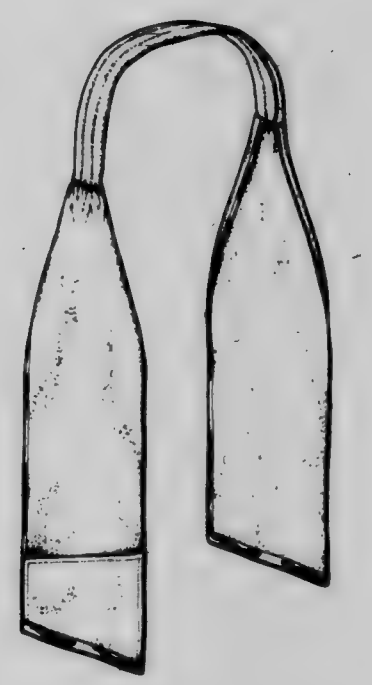
264,890
PATIENT SUPPORTING HARNESS
Rutger Nandorf, S-593 00 Västervik, Sweden
Filed 1979, Ser. No. 102,572
Claims priority, application Sweden, 1979, 79-1435
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—27

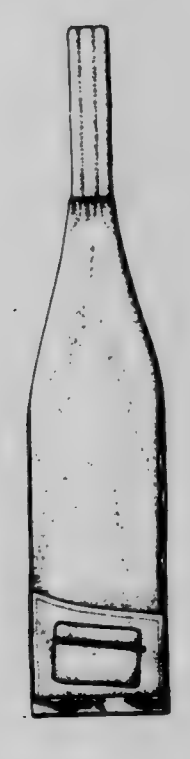


264,891
WELDING SHIELD
Claes E. Rosenius, Malmö, Sweden, assignor to Tegma AB, Malmö, Sweden
Filed 1979, Ser. No. 94,022
Claims priority, application Sweden, 1979, 79-1280
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—233

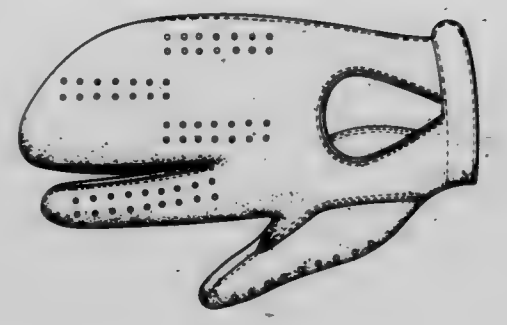


264,892
TIE OR SIMILAR ARTICLE
Dennis T. Stewart, Jr., 2801 Byron St., Wheaton, Md. 20902, and Jerome N. Corbett, 12406 Applecross Dr., Clinton, Md. 20735
Filed 1980, Ser. No. 111,032
Term of patent 14 years
Int. Cl. D2—*99*
U.S. Cl. D2—343

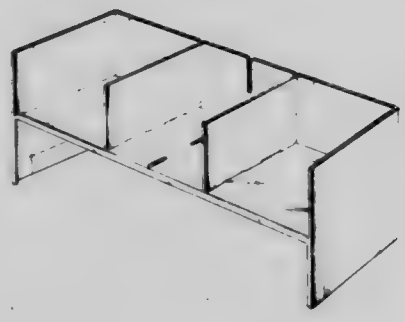




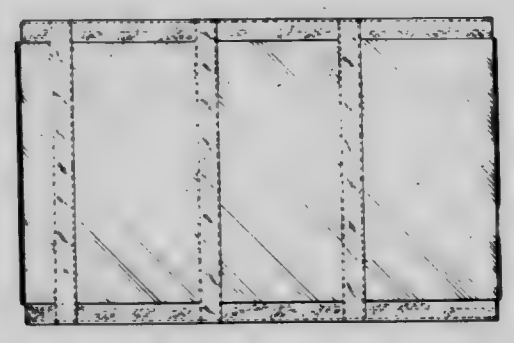
264,893
ATHLETIC GLOVE FOR GOLF, TENNIS, BASEBALL AND RACQUETBALL
Carl Schroeder, 289 NW. Cerritos Dr., Palm Springs, Calif. 92262
Filed 1980, Ser. No. 113,711
Term of patent 14 years
Int. Cl. D2—*06*
U.S. Cl. D2—361



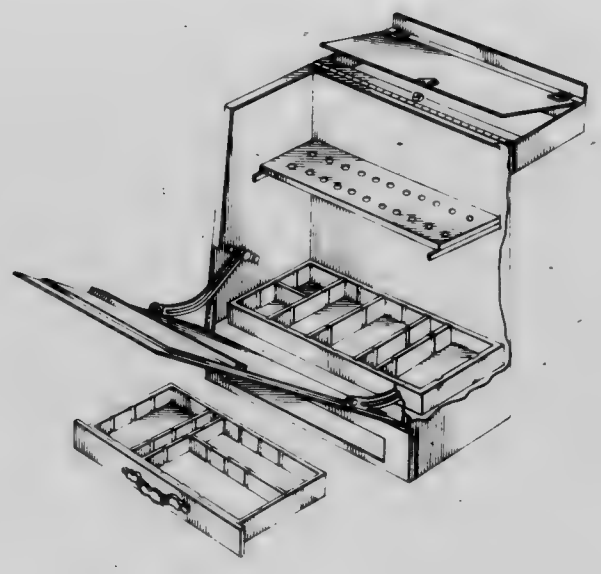
264,894
GLOVE BOX ORGANIZER
Marilyn F. Halder, 25956 Vista Dr. East, Capistrano Beach, Calif. 92624
Filed 1981, Ser. No. 115,008
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—40



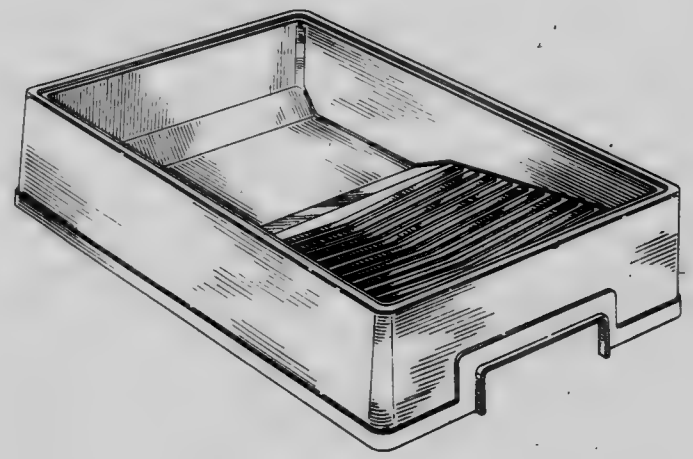
264,895
FLEXIBLE HOSIERY CADDY CASE
Doris H. Hoefert, 188 River Dr., Cary, Ill. 60013
Filed 1979, Ser. No. 97,224
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—48



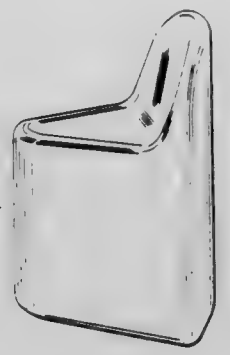
264,896
TOOL BOX
Donald R. Perkins, 6 Hammond Rd., Natick, Mass. 01760
Filed 1979, Ser. No. 78,100
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—74



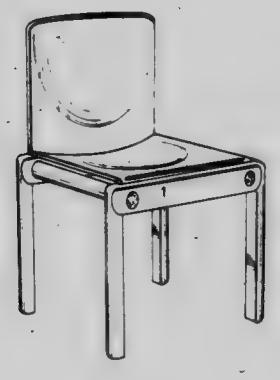
264,897
PAINT TRAY AND LINER THEREFOR
Morley L. Smith, Beaconsfield, Canada, assignor to T. S. Simms & Co. Limited, Saint John, Canada
Filed 1980, Ser. No. 129,811
Claims priority, application Canada, 1980, 04-02-80-10
Term of patent 14 years
Int. Cl. D4—*99*
U.S. Cl. D4—38.2



264,898
CHAIR
Richard Baker, and Steven Baker, both of 880 Dillingham Rd., Pickering, Ontario, Canada (L1W 1Z6)
Filed 1979, Ser. No. 101,909
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—26



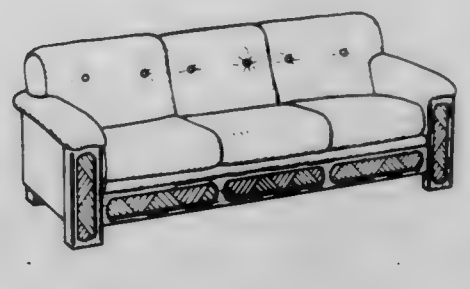
264,899
CHAIR
Gerd Lange, Kapsweyer, Fed. Rep. of Germany, assignor to Schlapp Moebel GmbH & Co. KG, Neu-Anspach, Fed. Rep. of Germany
Filed 1979, Ser. No. 22,157
Claims priority, application Fed. Rep. of Germany, 1978, 59
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—47



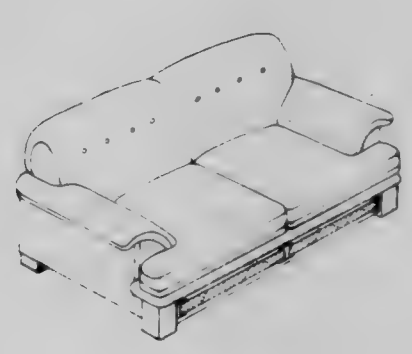
264,900
CHAIR
Leon Rosen, Scarsdale, N.Y., assignor to The Pace Collection, New York, N.Y.
Filed 1979, Ser. No. 46,646
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—56



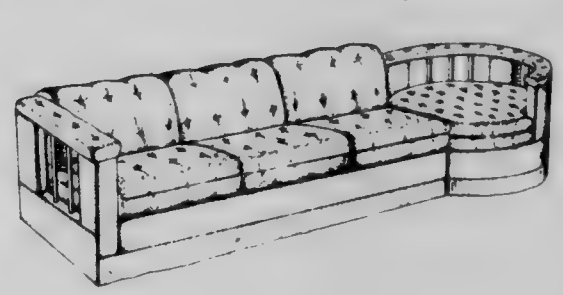
264,901
SEAT
Alan H. Friedman, Millburn, N.J., assignor to The Bean Station Furniture Factory, Bean Station, Tenn.
Filed 1979, Ser. No. 84,997
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



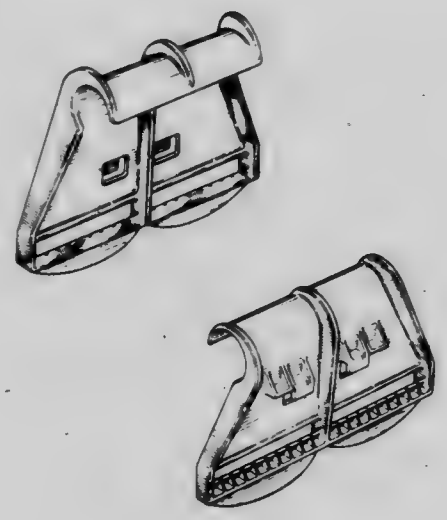
264,902
SEAT
Alan H. Friedman, Millburn, N.J., assignor to The Bean Station Furniture Factory, Bean Station, Tenn.
Filed 1979, Ser. No. 85,028
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



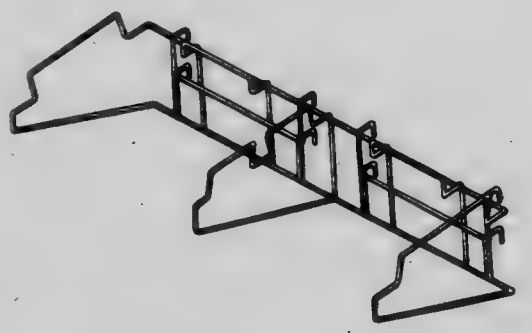
264,903
SOFA
Walter F. Dybal, Westminister, and Robert D. Anderson, Orange, both of Calif., assignors to Shelly & Anderson Furniture Mfg. Co., Compton, Calif.
Filed 1980, Ser. No. 140,566
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



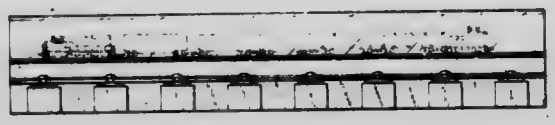
264,904
CLOTHES HANGER HOLDER
Rolf W. Helbig, 24-6679 Shelter Bay Rd., Mississauga, Ontario, Canada (L5N 2A2)
Filed 1979, Ser. No. 56,349
Claims priority, application Canada, 1979, 220679
Term of patent 14 years
Int. Cl. D6—*08*; D8—*08*
U.S. Cl. D6—113



264,905
PLASTIC BAG HOLDING RACK
Gerhard Adamson, West Milford, N.J., assignor to Union Carbide Corporation, Danbury, Conn.
Filed 1980, Ser. No. 142,733
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—114

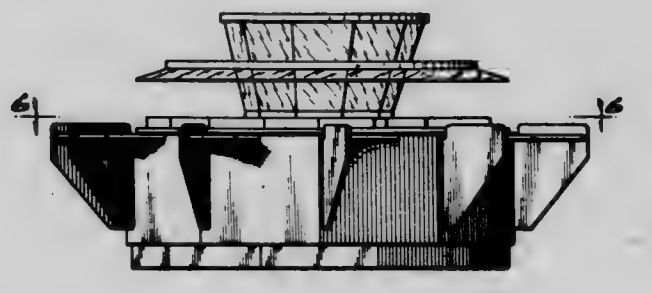


264,906
COMBINED DISPLAY AND STORAGE UNIT FOR A MODEL TRAIN
Ollie N. Franklin, Rte. 1, Box 265A, Anderson, Mo. 64831
Filed 1979, Ser. No. 108,678
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—127

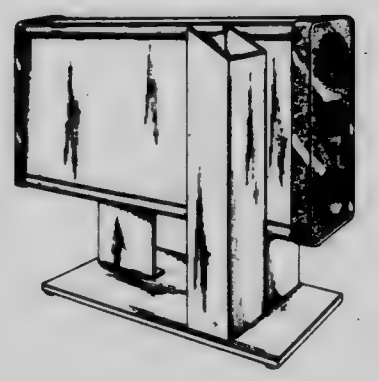




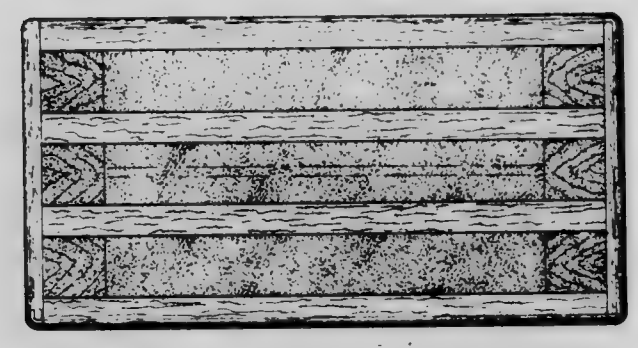
264,907
COMBINED ROTATING CAFETERIA TYPE FOOD SERVICE COUNTER AND DISPLAY SHELF
Donald R. Barnhill, Hamilton, Ohio, assignor to B&W Metals Company, Inc., Fairfield, Ohio
Filed 1979, Ser. No. 63,931
Term of patent 14 years
Int. Cl. D6—*03, 04*
U.S. Cl. D6—146



264,908
COMBINED CUP DISPENSER AND STRAW HOLDER
Jonathan Cooper, Clarke County, Ga., assignor to Royston Manufacturing Corporation, Royston, Ga.
Filed 1980, Ser. No. 153,432
Term of patent 14 years
Int. Cl. D9—*99*; D7—*06*
U.S. Cl. D6—157



264,909
TABLE
John W. Caldwell, 1829 Warwick Rd., San Marino, Calif. 91108
Filed 1979, Ser. No. 93,212
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



264,910
COMBINED SEAT AND BACKREST FOR A CHAIR
William I. Stephens, Emmaus, Pa., assignor to Knoll International, Inc., New York, N.Y.
Filed 1979, Ser. No. 38,124
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—197



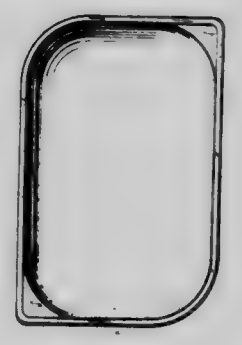
264,911
HANGER FOR ORGANIZING JEWELRY
George R. Annis, Hurst, and Warren E. Persky, Dallas, both of Tex., assignors to Item House, Inc., Dallas, Tex.
Filed 1980, Ser. No. 130,265
Term of patent 14 years
Int. Cl. D6—*04, 08*
U.S. Cl. D6—248



264,912
GARMENT HANGER
Malcolm Bliss, Ridgefield, Conn., and David McCalmont, Bloomfield, N.J., assignors to J. C. Penney Co., Inc., New York, N.Y.
Filed 1980, Ser. No. 164,940
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—254



264,913
FOOD DISH
James F. Pomroy, St. Paul, Minn., assignor to Plastics, Inc., St. Paul, Minn.
Filed 1977, Ser. No. 841,694
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—21





264,914

DINNER PLATE OR SIMILAR ARTICLE

Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

Filed 1980, Ser. No. 161,117
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23



264,915

DINNER PLATE OR SIMILAR ARTICLE

Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

Filed 1980, Ser. No. 161,118
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

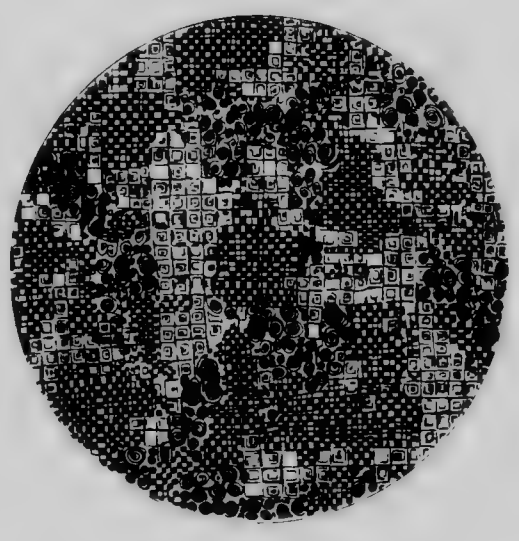


264,916

DINNER PLATE OR SIMILAR ARTICLE

Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

Filed 1980, Ser. No. 172,145
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23



264,917

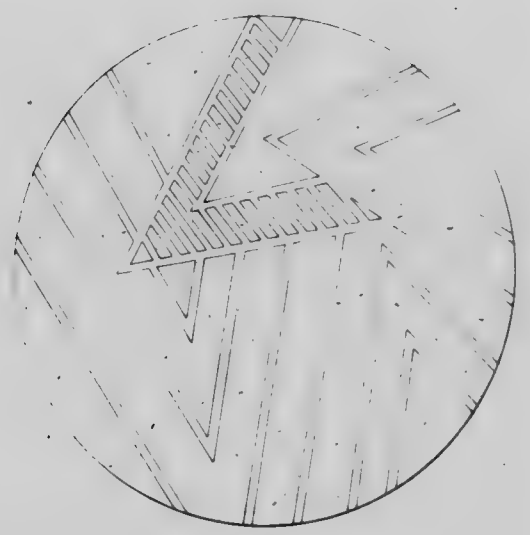
DINNER PLATE OR SIMILAR ARTICLE

Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

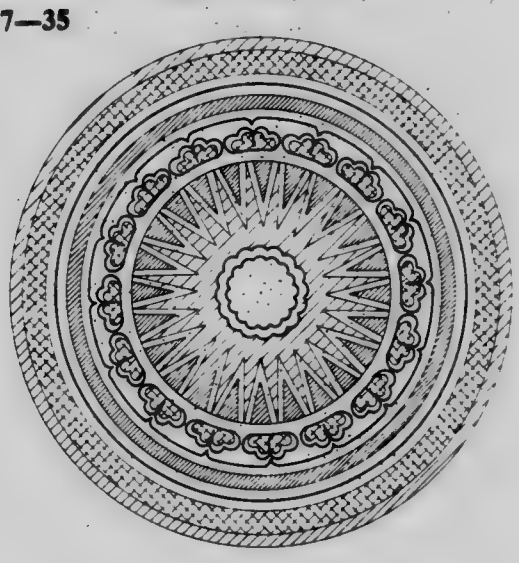
Filed 1980, Ser. No. 172,146
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23



264,918
DINNER PLATE OR SIMILAR ARTICLE
David P. G. Williams, Englewood, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 187,210
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23



264,919
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,119
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35



264,920
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,120
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35



264,921
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,121
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

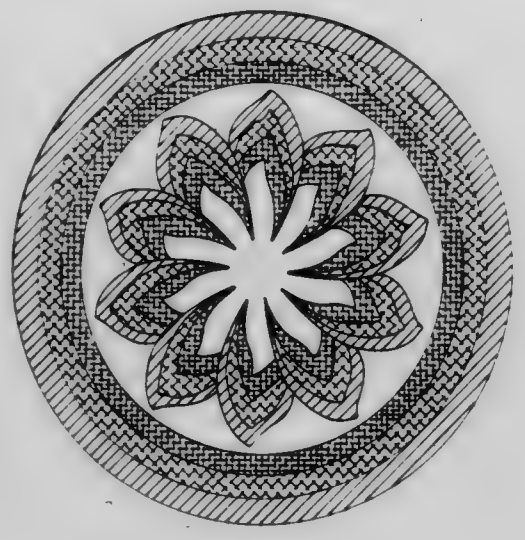


264,922

DINNER PLATE OR SIMILAR ARTICLE

Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

Filed 1980, Ser. No. 168,692
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35



264,923

DINNER PLATE OR SIMILAR ARTICLE

Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

Filed 1980, Ser. No. 168,695
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

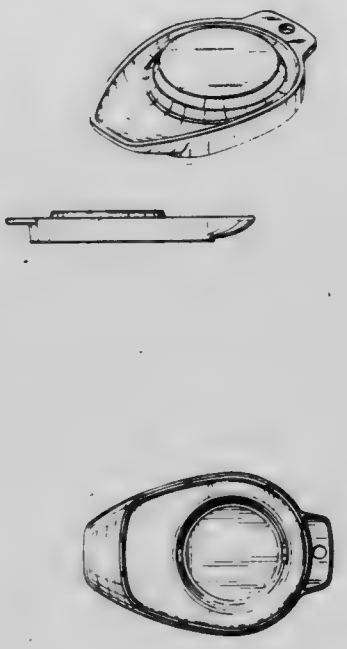


264,924

CUTTING AND SERVING BOARD OR THE LIKE

James B. Swett, Altamonte Springs, Fla., assignor to Dart Industries, Inc., Northbrook, Ill.

Filed 1980, Ser. No. 144,467
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—46

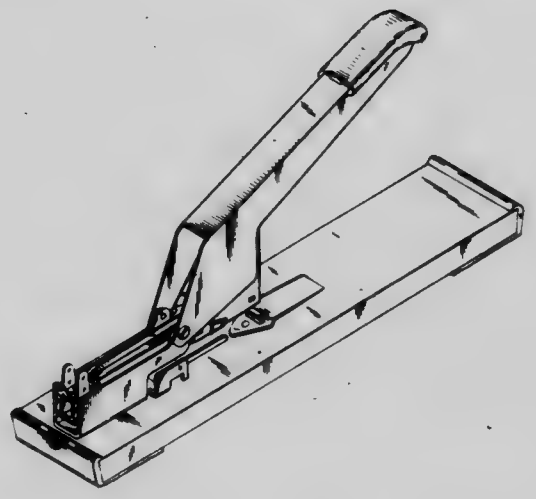


264,925

STAPLER

Michael Bass, North Plainfield, and Charles P. Housel, Hackettstown, both of N.J., assignors to The Bates Manufacturing Company, Hackettstown, N.J.

Filed 1979, Ser. No. 81,385
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D8—50



264,926

PITCHER WITH SCREW TOP

Donald R. McClelland, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio

Filed 1980, Ser. No. 164,549
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—65



264,927

CAN HOLDER

Karl A. Kurzius, 4246 Eubank, NE, Albuquerque, N. Mex. 87111

Filed 1980, Ser. No. 179,342
Term of patent 14 years
Int. Cl. D07—*99*
U.S. Cl. D7—70



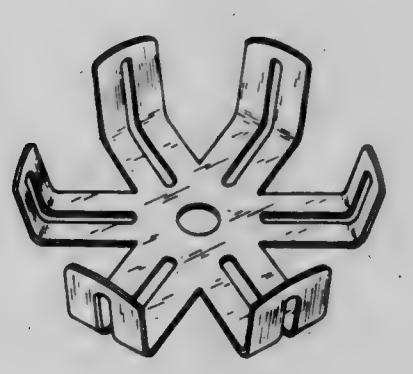
264,928

POT OR PAN RESTRAINT WITH SLOTTED BASE FOR ENGAGING RADIAL BARS OF RECREATION VEHICLE STOVE TOP GRATING

Dominic J. DiFede, 2431 Tartarian Way, Union City, Calif. 94587

Filed 1980, Ser. No. 138,157
Term of patent 14 years
Int. Cl. D07—*99*
U.S. Cl. D7—136



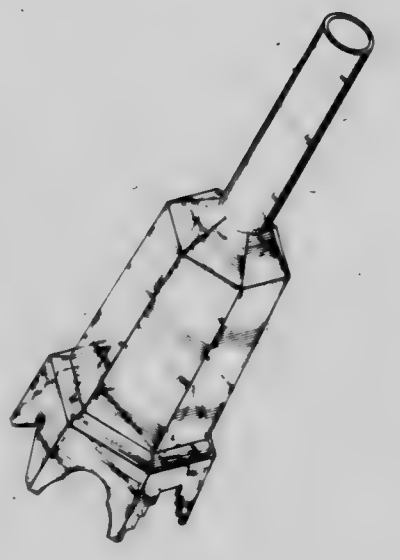


264,929
GARDEN TOOL
Peter Haddad, 118 Taylor St., Titusville, Fla. 32780
Filed 1978, Ser. No. 966,102
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—09





264,930
DRILL GUIDE
Raymond Lindsay, Arcadia, Calif., assignor to The La-Bar Co., Inc., Duarte, Calif.
Filed 1979, Ser. No. 60,507
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—70

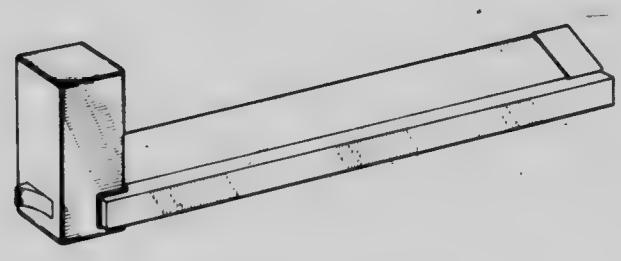


264,931
HAMMER IMPLEMENT HEAD
Dale A. Jones, Rte. One, Palmetto, Ga. 30268
Division of Ser. No. 857,797, Dec. 5, 1977, Pat. No. Des. 257,826. This application 1980, Ser. No. 137,377
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D8—78

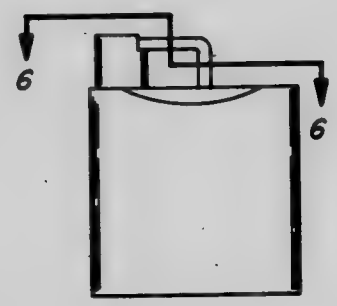




264,932
EMERGENCY EXIT DOOR LATCH WITH PANIC BAR
Joseph T. Miller, Frederick, and Roy E. VanDerLinden, New Windsor, both of Md., assignors to Reliable Security Systems, Cockeysville, Md.
Filed 1979, Ser. No. 80,251
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—315



264,933
METER BOX PADLOCK
Marvin G. Woempner, Rte. 4, Box 707, Thomasville, N.C. 27360
Filed 1980, Ser. No. 146,912
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—334



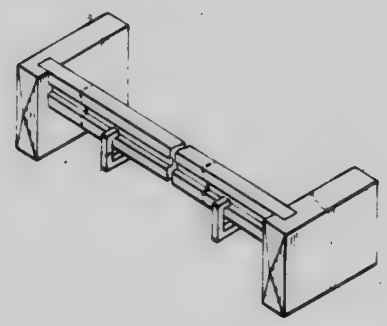
264,934
ROPE HOOK
Kenneth Brooks, 469 S. Delaware Ave., Lindenhurst, N.Y. 11757
Filed 1980, Ser. No. 150,315
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—367



264,935
COMBINED SUPPORT AND DISPLAY BRACKET FOR A SELF-CONTAINED BREATHING APPARATUS
Theodore Ziaylek, Jr., Yardley, Pa., assignor to Ziamatic Corporation, Yardley, Pa.
Filed 1980, Ser. No. 159,033
Term of patent 14 years
Int. Cl. D6—*04;* D8—*08*
U.S. Cl. D8—373



264,936
CURTAIN ROD
Damien Ross, 1615 Gouin Blvd. West, Montreal, Quebec, Canada
Filed 1980, Ser. No. 144,176
Claims priority, application Canada, 1980, 13-02-80-1
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—376



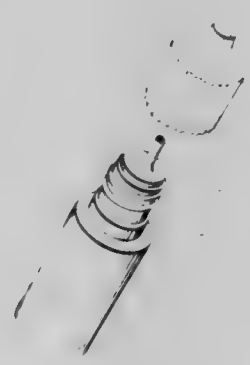
264,937
BOTTLE
James B. Groark, London, England, assignor to Seagram United Kingdom Limited, Great Britain
Filed 1980, Ser. No. 163,575
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—349



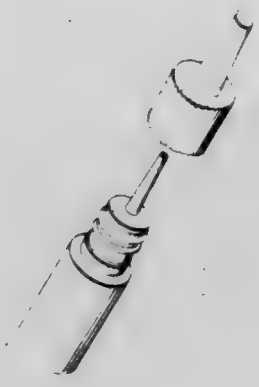
264,938
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology & Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 170,518
Term of patent 14 years
Int. Cl, D9—*01*
U.S. Cl. D9—352



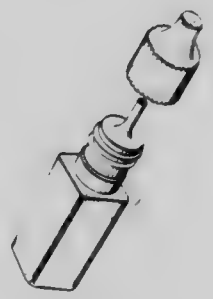
264,939
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology & Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 170,519
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352



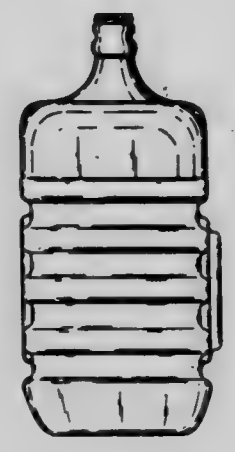
264,940
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 180,649
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352



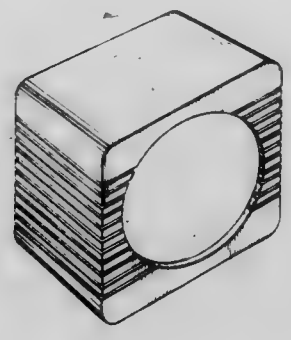
264,941
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 180,665
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—370



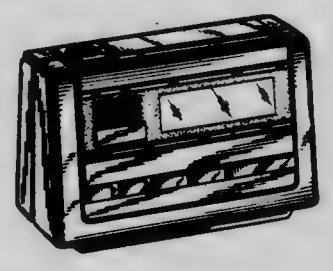
264,942
BOTTLE
Warren J. Schieser, Dublin, and Craig L. Duffey, Galena, both of Ohio, assignors to Liqui-Box Corporation, Worthington, Ohio
Filed 1980, Ser. No. 153,191
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—401



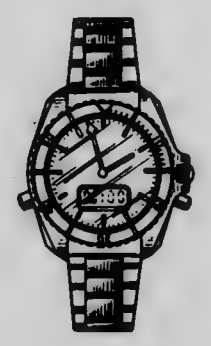
264,943
HOUSING FOR CLOCK OR TIMER
Gene R. Hammond, Torrington, Conn., assignor to Cole & Mason U.S.A., Ltd., Great Neck, N.Y.
Filed 1980, Ser. No. 147,403
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—1



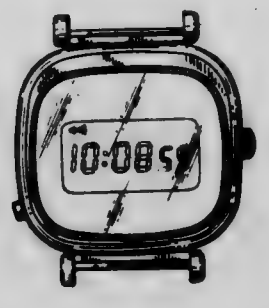
264,944
CLOCK
Gerald C. Palmer, Eagan, Minn., assignor to Sakon Industries, Inc., New York, N.Y.
Filed 1980, Ser. No. 159,683
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—15



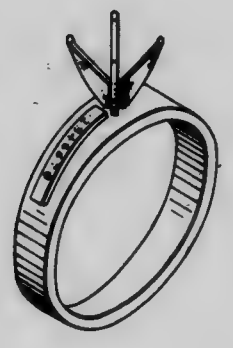
264,945
WRISTWATCH
Brian Pennell, 9 Cod Fish La., Weston, Conn. 06883
Filed 1980, Ser. No. 118,497
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—32



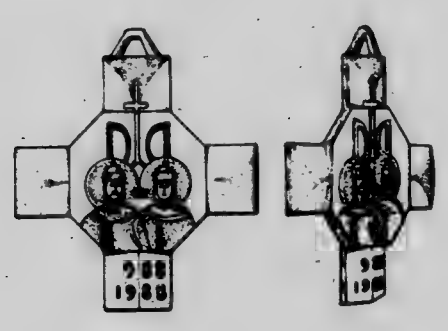
264,946
WATCHCASE
Yoshio Hirabayashi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed 1980, Ser. No. 148,334
Claims priority, application Japan, 1979, 47297
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38



264,947
RING
George J. Solow, 7 Fieldstone La., Great Neck, N.Y. 11020; Jack Guttschneider, 200 E. 71st St., New York, N.Y. 10021, and Peter H. Solow, 6 Madison Ave., Jericho, N.Y. 11753
Filed 1980, Ser. No. 136,295
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—36



264,948
MEDALLION
Thaddeus Krawchuk, and Christine Opalinski, both of Winnipeg, Canada, assignors to Ukrainian Catholic Mission of the Most Holy Redeemer, Winnipeg, Canada
Filed 1980, Ser. No. 142,074
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—96



264,949
TREE ORNAMENT
Lucy Smart, 229 51st St., Lindenhurst, N.Y. 11791
Filed 1980, Ser. No. 152,654
Term of patent 14 years
Int. Cl. D11—*05*
U.S. Cl. D11—118



264,950
FIGURINE OF A KOALA BEAR
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed 1979, Ser. No. 19,229
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158



264,951
FIGURINE OF A HUSKY PUP
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed 1979, Ser. No. 81,912
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158



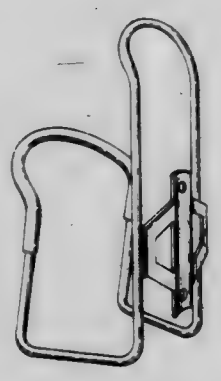
264,952
FIGURINE OF A SEAL
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed 1979, Ser. No. 104,694
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158



264,953
MOTORTRICYCLE
Hiroshi Shimoyama, Fujimi, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed 1979, Ser. No. 62,227
Claims priority, application Japan, 1979, 54/4217
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—110



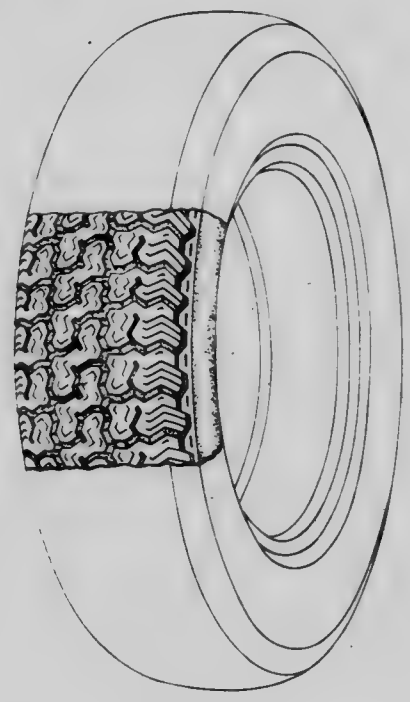
264,954
BICYCLE BOTTLE CAGE
James R. Blackburn, Campbell, Calif., assignor to Jim Blackburn Designs, Campbell, Calif.
Filed 1979, Ser. No. 70,854
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—114



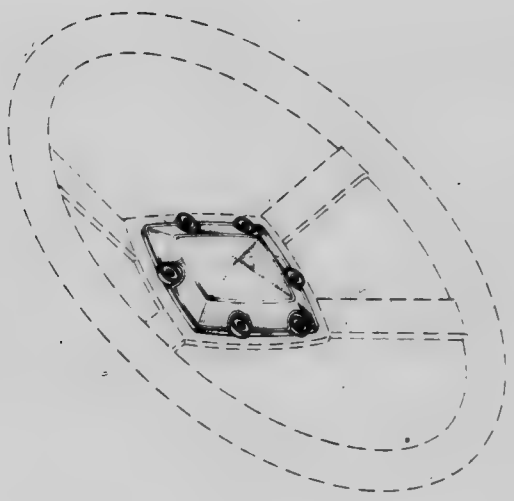
264,955
STROLLER
Frederick M. Johnson, 762 Lazy Circle Dr., Vista, Calif. 92083
Filed 1980, Ser. No. 149,822
Term of patent 14 years
Int. Cl. D12—*12*
U.S. Cl. D12—129



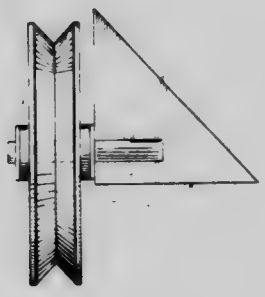
264,956
TIRE
Claude A. Hart, Sutton Coldfield, England, assignor to Dunlop Limited, London, England
Filed 1980, Ser. No. 167,062
Claims priority, application United Kingdom, 1980, 80993439
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



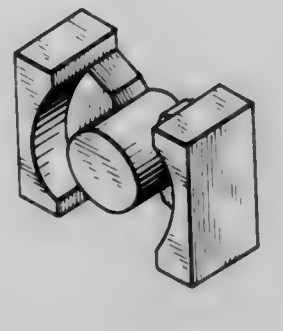
264,957
CENTER HUB FOR A STEERING WHEEL
John R. Schinella, 3317 Greentree Dr., Bloomfield Hills, Mich. 48013, and Herbert L. Adams, III, 1036 San Carlos Rd., Pebble Beach, Calif. 93953
Filed 1979, Ser. No. 20,659
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—176



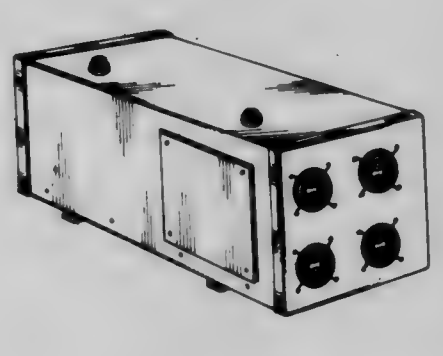
264,958
WHEEL ASSEMBLY FOR POULTRY CAGE-TOP SERVICE VEHICLE
Gerald L. Kitson, 9709 Belding Rd. NE., Rockford, Mich. 49341
Continuation of Ser. No. 577,196, May 14, 1975, abandoned, which is a continuation of Ser. No. 315,288, Dec. 15, 1972, abandoned, which is a division of Ser. No. 160,244, Jun. 6, 1971, Pat. No. Des. 288,024. This application 1976, Ser. No. 755,580
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—204



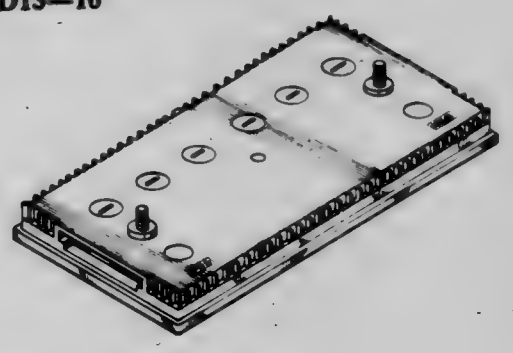
264,959
TRANSFORMER CORE MEMBER
Junpei Ota, Matsudo; Masaru Wasaki, Chiba, and Tadashi Mitsui, Tokyo, all of Japan, assignors to TDK Electronics Co. Ltd., Tokyo, Japan
Filed 1979, Ser. No. 51,005
Claims priority, application Japan, 1979, 54-002041
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—4



264,960
HOUSING FOR A SILICON CONTROLLED RECTIFIER DEVICE
Ronald Secrest, P.O. Box 61, Langhorne, Pa. 19047
Filed 1979, Ser. No. 82,500
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—4



264,961
COVER FOR BATTERY CASE
Terry Oxenreider, Wernersville, Pa., assignor to General Battery Corporation, Reading, Pa.
Filed 1980, Ser. No. 127,730
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—10



264,962

PORTABLE POWER SOURCE FOR A GRASS CUTTER

Ruedi Fellmann, Dietlikon, Switzerland, assignor to Max Langenstein Feld- und Gartelgeräte, Illertissen, Fed. Rep. of Germany

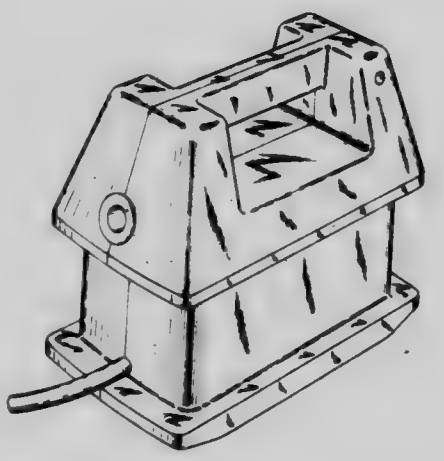
Filed 1980, Ser. No. 133,329

Claims priority, application Fed. Rep. of Germany, 1979, MR898

Term of patent 14 years

Int. Cl. D13—*01*

U.S. Cl. D13—11



264,963

COMPONENT MOUNTING PLATE FOR A PC BOARD INDICATOR AND CONTROL DEVICE

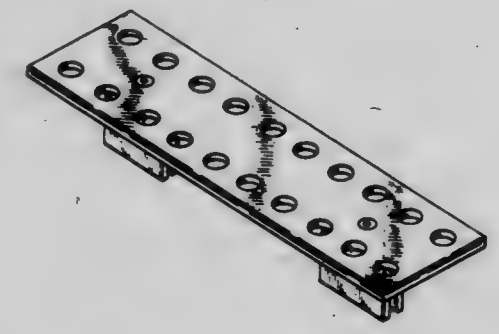
Ralph J. McComas, Boulder Creek, Calif., assignor to Perception Electronics, Inc., San Jose, Calif.

Filed 1979, Ser. No. 44,523

Term of patent 14 years

Int. Cl. D13—*03*

U.S. Cl. D13—12



264,964

HEAT SINK OR SIMILAR ARTICLE

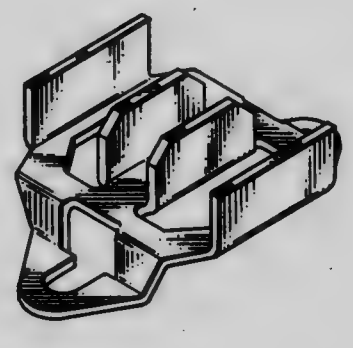
Howard G. Hinshaw, Dallas, Tex., assignor to Thermalloy Incorporated, Dallas, Tex.

Filed 1980, Ser. No. 168,541

Term of patent 14 years

Int. Cl. D13—*03*

U.S. Cl. D13—23



264,965

ELECTRICAL CONNECTOR ADAPTER

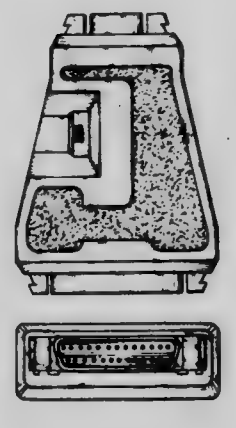
Robert H. Frantz, Newville, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed 1979, Ser. No. 103,875

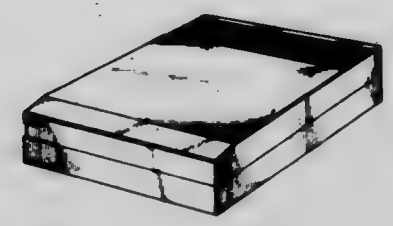
Term of patent 14 years

Int. Cl. D13—*03*

U.S. Cl. D13—24

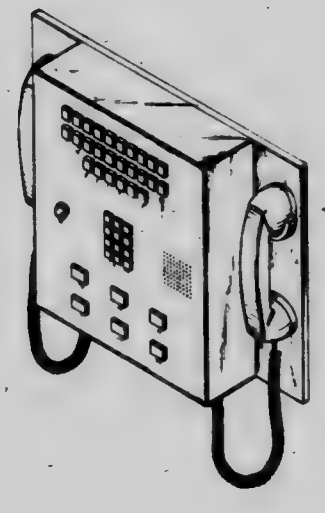


264,966
VIDEO TAPE MAGAZINE
Kimiyoshi Ban, Kasukabe, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed 1980, Ser. No. 161,306
Claims priority, application Japan, 1979, 54-54358
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—11

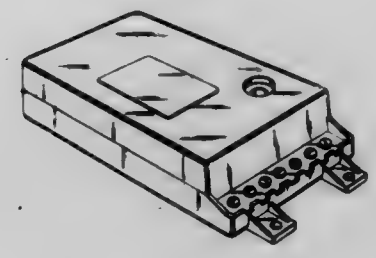




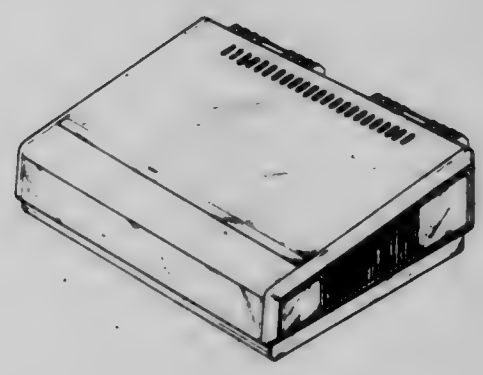
264,967
TELEPHONE CONSOLE
Alfred R. Ender, West Windsor Township, Mercer County, and Robert F. Iacullo, Tenafly, both of N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed 1980, Ser. No. 147,779
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—56



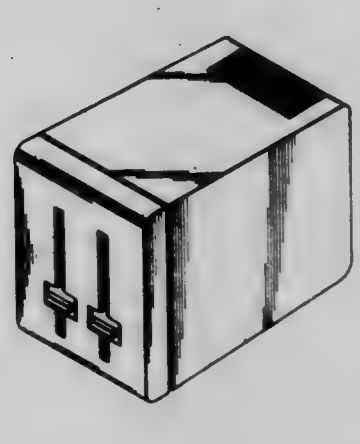
264,968
RADIO TRANSMITTER
Keisuke Iwata, Tokyo, Japan, assignor to Iwata Electric Co., Ltd., Tokyo, Japan
Filed 1979, Ser. No. 59,987
The portion of the term of this patent subsequent to 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—95



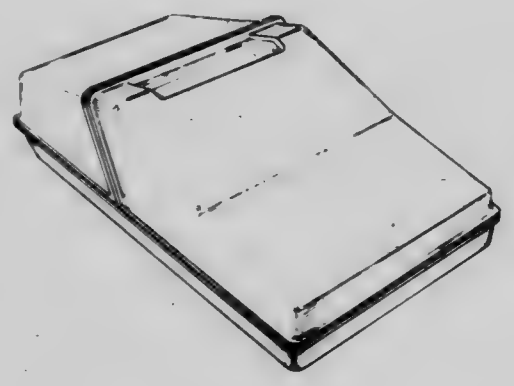
264,969
CABINET FOR ELECTRONIC EQUIPMENT
Michael J. McGourty, Littleport, England, assignor to Pye (Electronic Products) Limited, Cambridge, England
Filed 1979, Ser. No. 10,878
Claims priority, application United Kingdom, 1978, 985888/78; 1978, 985889/78
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—96



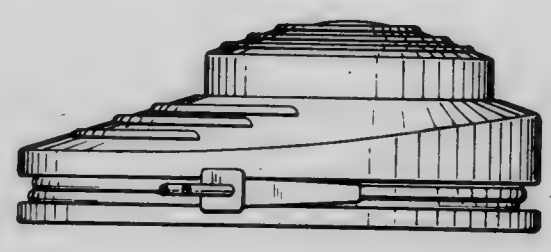
264,970
FLOPPY DISK READER/RECORDER OR THE LIKE
Vincent Giannotti, Jr., Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed 1980, Ser. No. 159,714
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—109

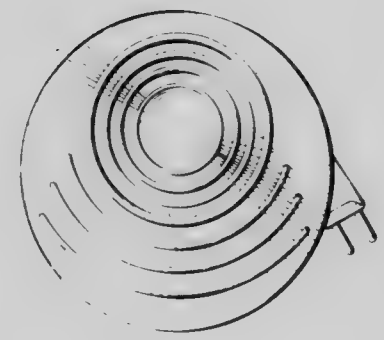


264,971
MODULAR COMPUTER SYSTEM PRINTER
George E. Chadima, Jr., Cedar Rapids, Iowa, assignor to Norand Corporation, Cedar Rapids, Iowa
Filed 1979, Ser. No. 91,184
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—111

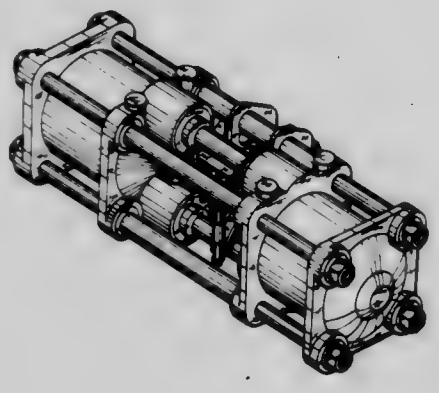


264,973
SEWING MACHINE CONTROLLER
Susumu Hanyu, Hachioji, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed 1979, Ser. No. 90,484
Claims priority, application Japan, 1979, 54-37475
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—72

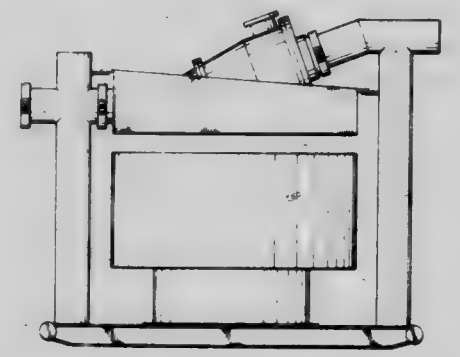




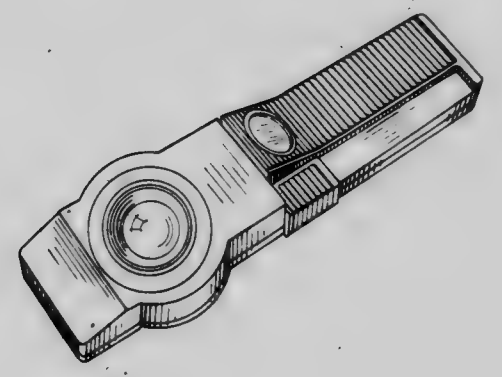
264,972
FLUID PUMP
John R. McMillin, Maplewood, Minn., and Gene A. Tracy, Amery, Wis., assignors to The Coca-Cola Company, Atlanta, Ga. and The Cornelius Company, Anoka, Minn.
Filed 1980, Ser. No. 117,339
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D15—7



264,974
APPARATUS FOR CLEANING DRILLING MUD AND FLUIDS
Don D. Summers, P.O. Box 30106, Lafayette, La. 70503
Filed 1980, Ser. No. 119,092
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—199



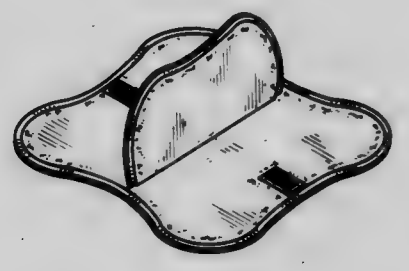
264,975
PHOTOGRAPHIC CAMERA
Norbert Schlagheck; Herbert Schultes, both of Fuerstenfeldbruck, and Karlheinz Rubner, Munich, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany
Filed 1979, Ser. No. 102,322
Claims priority, application Fed. Rep. of Germany, 1979, 5MR559G163791
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—1



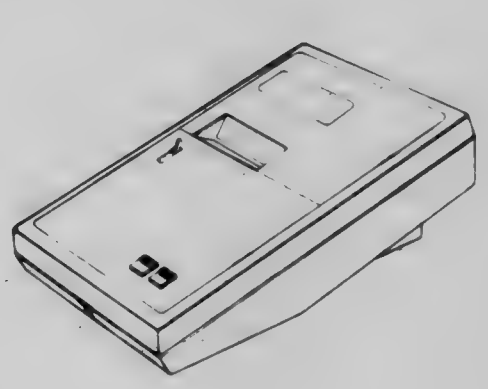
264,977
DRUM MALLET
Robert Starks, 1831 N. Gramercy Pl., Hollywood, Calif. 90028
Filed 1980, Ser. No. 131,145
Term of patent 14 years
Int. Cl. D17—*04*
U.S. Cl. D17—22



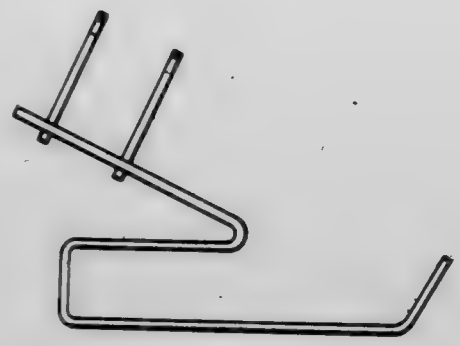
264,976
EYE GLASS CASE
Dorothy R. Greene, 28064 Fairacres La., P.O. Box 69, Helendale, Calif. 92342
Filed 1980, Ser. No. 135,707
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D16—129



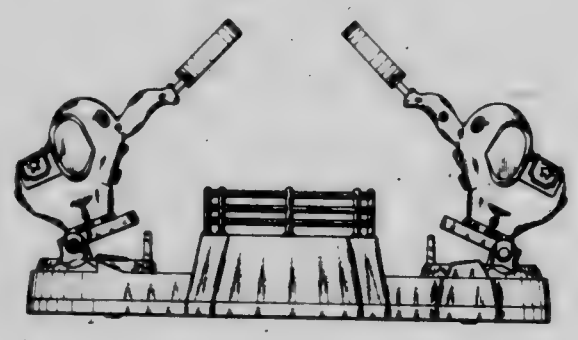
264,978
PRINTING DEVICE
Toshiro Ohno, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed 1980, Ser. No. 184,190
Claims priority, application Japan, 1980, 55-009698
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D18—13



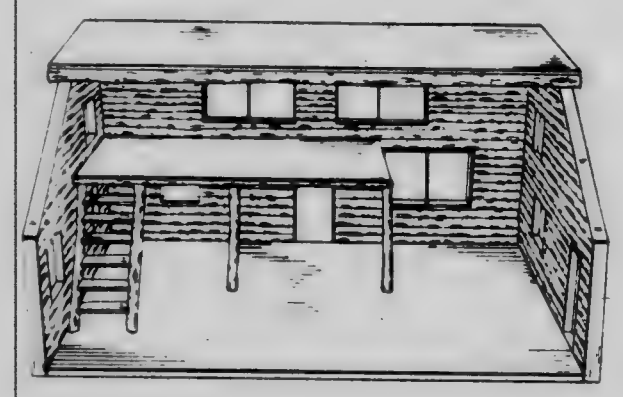
264,979
CALENDAR HOLDER
Edward J. Goldman, P.O. Box 2113, Mansfield, Mass. 02048
Filed 1980, Ser. No. 173,088
Term of patent 14 years
Int. Cl. D19—*03*
U.S. Cl. D19—20



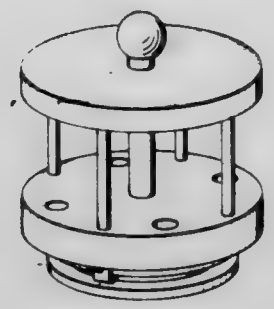
264,980
MECHANICAL GAME
Michael W. Nuttall, Pasadena, Calif., assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed 1979, Ser. No. 40,598
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—2



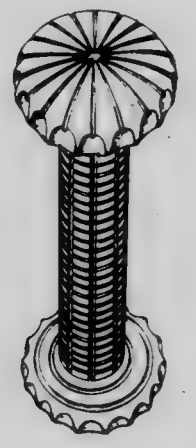
264,981
DOLL HOUSE OR SIMILAR ARTICLE
Charles L. Clemons, 2180 Hillside Dr., Eau Claire, Wis. 54701
Filed 1980, Ser. No. 128,954
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—114



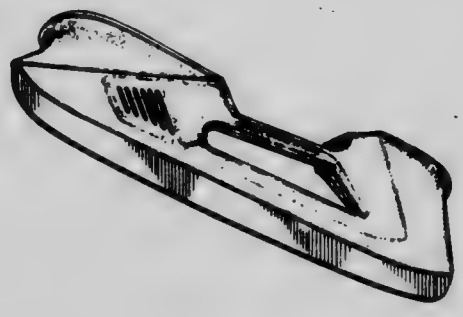
264,982
TOY CAROUSEL
Hubert H. Jackson, 1875 Catalpa Way, Hayward, Calif. 94545
Filed 1980, Ser. No. 135,520
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—124



264,983
EXERCISER
Terry Logan, 1004 Michigan Ave., Santa Monica, Calif. 90404
Filed 1979, Ser. No. 77,736
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198



264,984
ICE SKATE BLADE
Icaro Olivieri, Montebelluna, Italy, assignor to Gamebridge Inc., St. Jerome, Canada
Filed 1980, Ser. No. 162,602
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—225



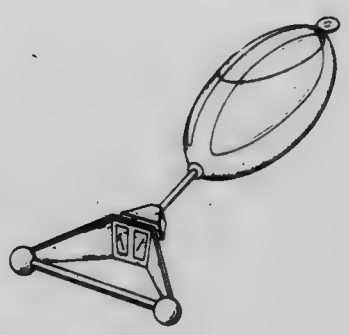
264,985

SKI ROPE HANDLE AND HOLDER

Terry M. Haber, Santa Ana, Calif.; James H. Wilson, 29962 Happy Sparran, Laguna Niguel, Calif. 92677, and Edward E. Darrow, 1811 Bridal Path Way, Santa Ana, Calif. 92705, assignors to James H. Wilson and Edward E. Darrow, both of Laguna Niguel, Calif., a part interest

Filed 1980, Ser. No. 151,198
Term of patent 14 years
Int. Cl. D21—*02*

U.S. Cl. D21—230

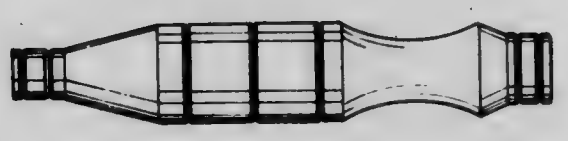


264,986

BOWLING PIN CORE

Herbert J. Booms, 1723 S. Van Dyke, Bad Axe, Mich. 48413
Filed 1980, Ser. No. 145,581
Term of patent 14 years
Int. Cl. D21—*02*

U.S. Cl. D21—233

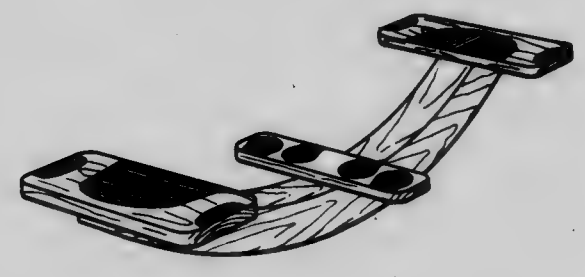


264,987

ROCKING TOY

Maebelle C. Wise, P.O. Box 453, Munday, Tex. 76371
Filed 1980, Ser. No. 171,085
Term of patent 14 years
Int. Cl. D21—*03*

U.S. Cl. D21—251



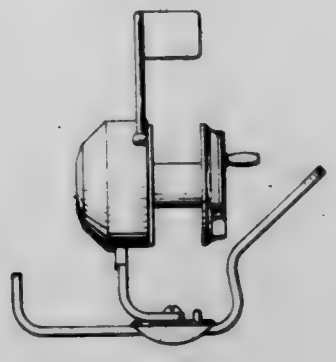
264,988

FISHING REEL FOR MOUNTING ON ARCHERY BOW

Robert L. Finlay, Emporia, Kans., assignor to BPE, Inc., Emporia, Kans.

Filed 1980, Ser. No. 180,868
Term of patent 14 years
Int. Cl. D22—*05*

U.S. Cl. D22—25



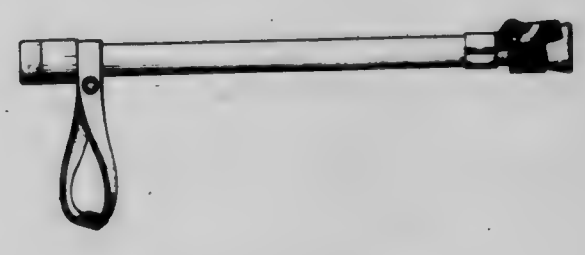
264,989

SUPPORT DEVICE FOR SIGHTING FIREARMS

Sixten Wohlfahrt, deceased, late of 561 Nockeby backe 8, S–161 51 Bromma, Sweden by Agneta S. Palm, Née Wohlfahrt, Harnösand; Lars Wohlfahrt, Stockholm; Thomas Wohlfahrt, Viken, all of Sweden, legal representatives

Filed 1978, Ser. No. 948,443
Claims priority, application Sweden, 1978, 78-909
Term of patent 14 years
Int. Cl. D22—*99*

U.S. Cl. D22—99

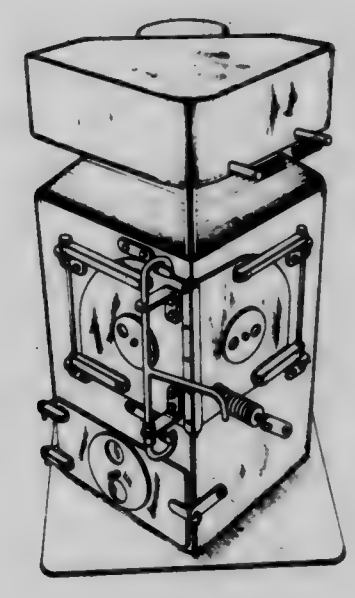


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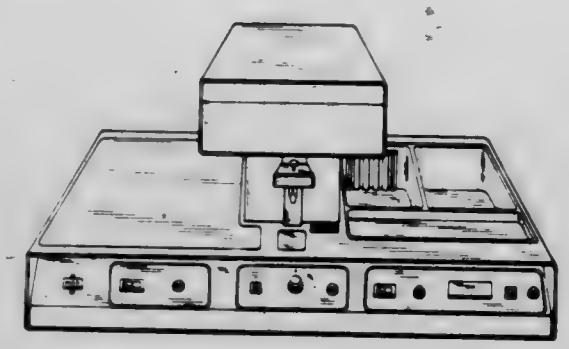
WOOD AND COAL BURNING STOVE

Peter Kilham, Box 98, Mill Rd., Foster, R.I. 02825
Filed 1980, Ser. No. 160,101
Term of patent 14 years
Int. Cl. D23—*03*

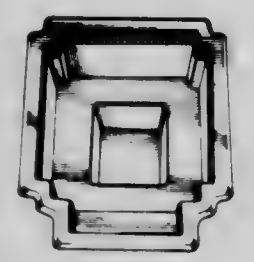
U.S. Cl. D23—97



264,991
APPARATUS FOR PREPARING SPECIMENS FOR HISTOLOGICAL EXAMINATION
Robert S. Quandt, Libertyville, Ill., assignor to Sybron Corporation, Rochester, N.Y.
Filed 1980, Ser. No. 158,855
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—8

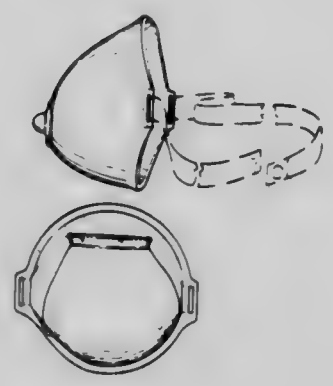


264,992
HYDROTHERAPY SPA
Lino Z. Topete, 1845 E. San Antonio St., San Jose, Calif. 95116
Filed 1979, Ser. No. 95,206
Term of patent 14 years
Int. Cl. D24—*01*; D23—*02*; D25—*99*
U.S. Cl. D24—38

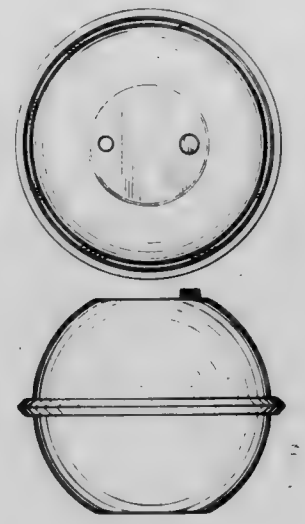




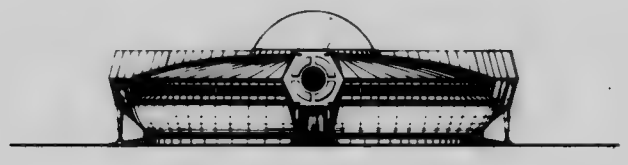
264,993
SIMULATED BREAST NURSER
Judith Kestenberg, New York, N.Y., assignor to Child Development Research, Sands Point, N.Y.
Filed 1979, Ser. No. 88,042
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—47



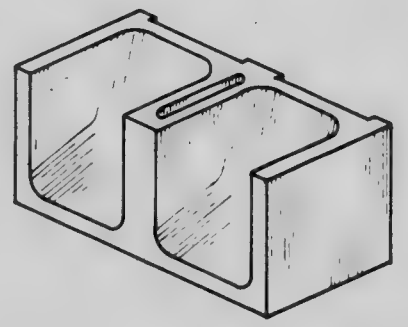
264,994
CANISTER FOR LIQUID MEDICATION AND WATER
S. Mark Rippley, 302 Island Dr., Richardson, Tex. 75081
Filed 1980, Ser. No. 139,355
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—56



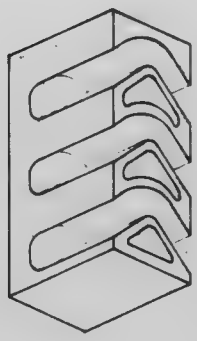
264,995
RESTAURANT BUILDING
John E. Gearhart, Mt. Wolf, Pa.
Filed 1980, Ser. No. 165,364
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—11



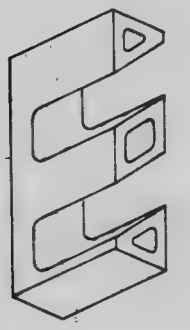
264,996
SCULPTURED VENTILATING CONCRETE BLOCK
Arnold C. Siedschlag, 3219 E. Earll Dr., Phoenix, Ariz. 85018
Filed 1980, Ser. No. 139,351
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—91



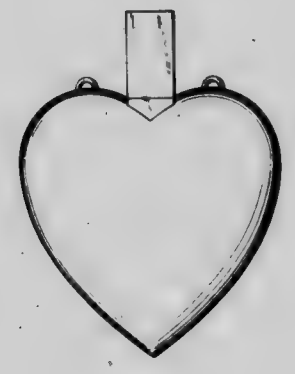
264,997
VENTILATING CONCRETE BLOCK
Arnold C. Siedschlag, Phoenix, Ariz., assignor to Warren F. B. Lindsley, Phoenix, Ariz., a part interest
Filed 1980, Ser. No. 139,279
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—97



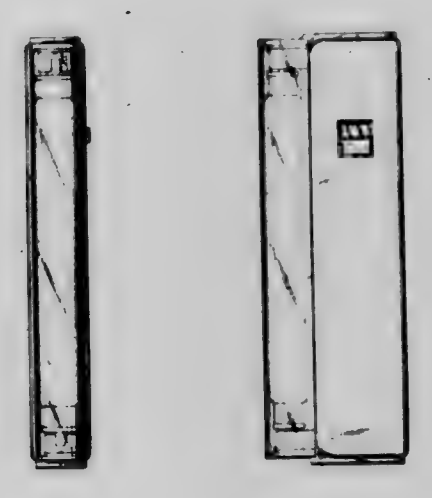
264,998
LOUVERED CONCRETE BLOCK
Arnold C. Siedschlag, Phoenix, Ariz., assignor to Warren F. B. Lindsley, Phoenix, Ariz., a part interest
Filed 1980, Ser. No. 139,350
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—97



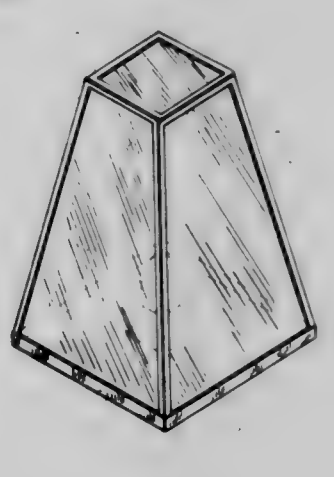
264,999
CIGARETTE LIGHTER
Laura S. Eisenberg, Mt. Vernon, N.Y., assignor to Seymour C. Yuter, Briarcliff Manor, N.Y.
Filed 1979, Ser. No. 105,716
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D27—41



265,000
PORTABLE FLUORESCENT LIGHT
Noel E. Zeller, White Plains, N.Y., assignor to Zelco Industries, Inc., Mt. Vernon, N.Y.
Filed 1980, Ser. No. 120,131
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—42



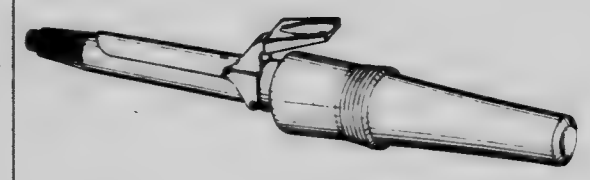
265,001
LAMP
Ellis M. Graham, 6316 Linwood Ave., Norfolk, Va. 23513
Filed 1979, Ser. No. 6,334
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—104



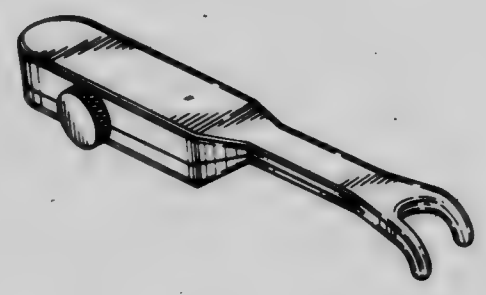
265,002
RADIANT HEAT HAIR DRYER
Otto Hubner, Mauerkircher Strasse 199, Herzog Park, Munich (8000 Munchen 81), Fed. Rep. of Germany
Filed 1980, Ser. No. 114,850
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—13



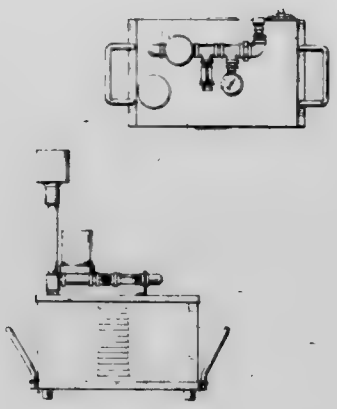
265,003
CURLING IRON
Steven R. Groner, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed 1980, Ser. No. 167,587
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—35



265,004
DENTAL FLOSS HOLDER
Michael D. Davis, Box 25, Sadorus, Ill. 61872
Filed 1980, Ser. No. 138,200
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D28—64



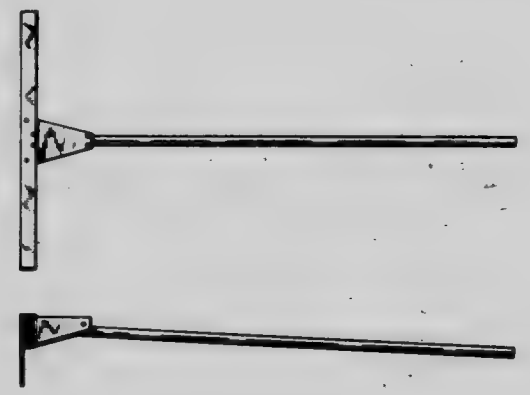
265,005
ELECTRIC AMBIENT AIR BREATHING PUMP
Edwin Reinhorn, 8402-E N. Magnolia, Santee, Calif. 92071
Filed 1980, Ser. No. 149,277
Term of patent 14 years
Int. Cl. D24—*01;* D15—*02*
U.S. Cl. D29—7



265,006
FILTERING FACE PIECE
William T. Levy, London, England, assignor to Martindale Protection Limited, London, England
Filed 1979, Ser. No. 81,441
Claims priority, application United Kingdom, 1979, 989357
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D29—8



265,007
SNOW REMOVAL DEVICE
Robert J. Cuta, 5017 Twin Oaks Dr., Madison, Wis. 53714
Filed 1980, Ser. No. 125,691
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D32—49



265,008

APPLIQUE FOR A SHIRT OR THE LIKE

E'Su B. O'Bassey, Newcastle upon Tyne, England, assignor to Continents Five Agencies Limited, Newcastle upon Tyne, England

Filed 1979, Ser. No. 101,683

Claims priority, application United Kingdom, 1979, 990313

Term of patent 14 years

Int. Cl. D5—*04*

U.S. Cl. D33—32 R



265,009

BOTTLE CRATE

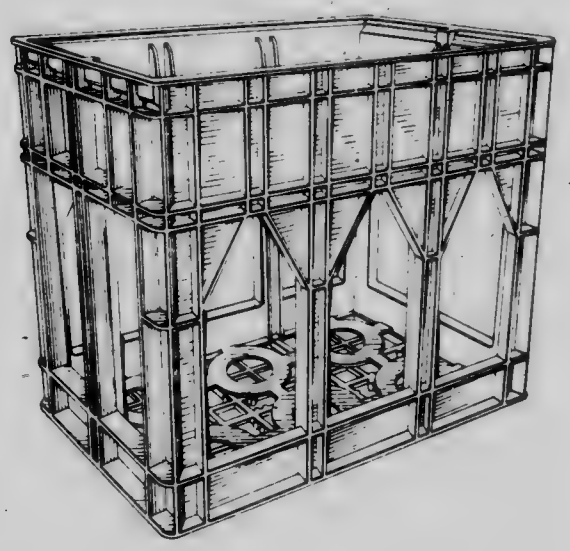
Theodor M. Box, Brielle, N.J., assignor to Cities Service Company, Tulsa, Okla.

Filed 1980, Ser. No. 145,490

Term of patent 14 years

Int. Cl. D9—*04*

U.S. Cl. D34—40



265,010

CARRIER FOR CONTAINERS OR THE LIKE

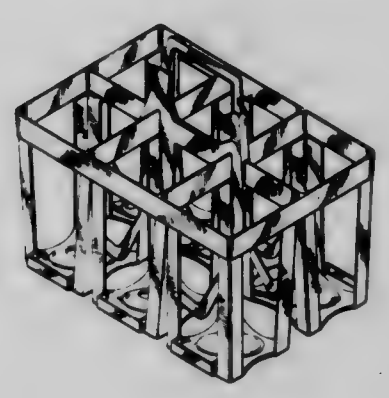
Prentice J. Wood, Hapeville, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed 1980, Ser. No. 151,532

Term of patent 14 years

Int. Cl. D9—*04*

U.S. Cl. D34—44



265,011

EXPANDED PANEL OF EXTRUDED METAL

William L. Jury, Royal Park, Australia, assignor to John McIlwraith Industries, Ltd., Royal Park, Australia

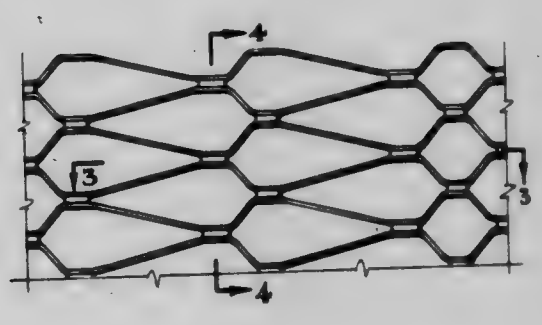
Filed 1980, Ser. No. 134,790

Claims priority, application Australia, 1979, 79,143

Term of patent 14 years

Int. Cl. D25—*01*

U.S. Cl. D92—26



265,012
SAFE WITH DEPOSIT BOX

Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

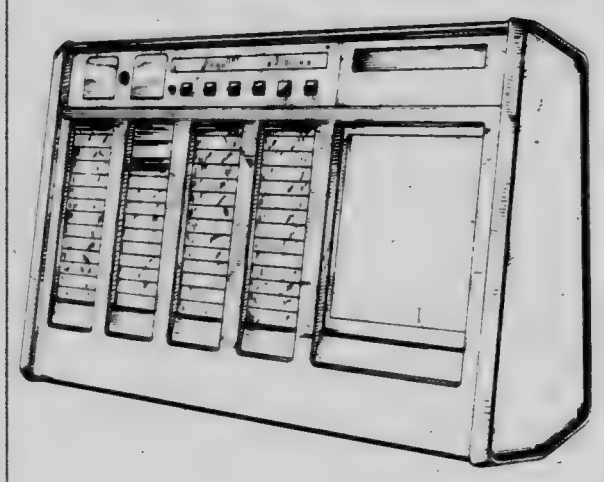
Filed 1980, Ser. No. 145,045

Claims priority, application Fed. Rep. of Germany, 1979, MR 10887

Term of patent 14 years

Int. Cl. D99—*00*

U.S. Cl. D99—28



265,013
SAFE

Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

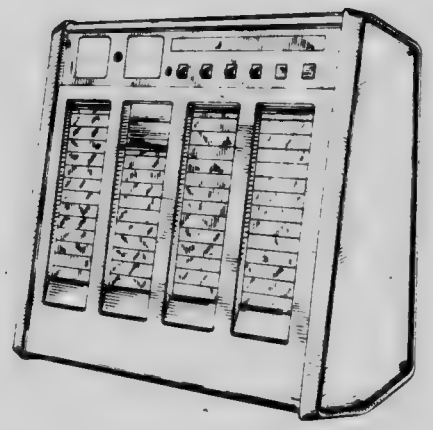
Filed 1980, Ser. No. 145,046

Claims priority, application Fed. Rep. of Germany, 1979, MR 10887

Term of patent 14 years

Int. Cl. D99—*00*

U.S. Cl. D99—28



265,014
SAFE DEPOSIT BOX

Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

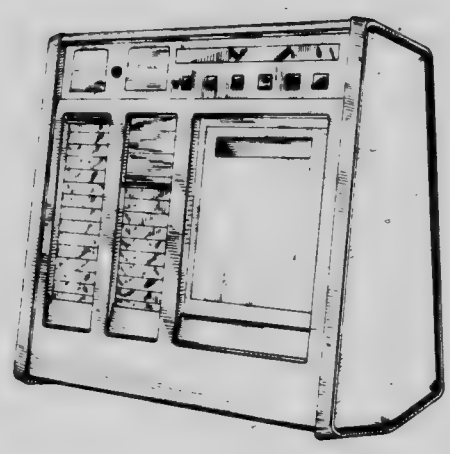
Filed 1980, Ser. No. 145,047

Claims priority, application Fed. Rep. of Germany, 1979, 10887

Term of patent 14 years

Int. Cl. D99—*00*

U.S. Cl. D99—28



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF JUNE, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. B. Chance Company: *See—*
Dziedzic, Edward, 4,334,392, Cl. 52-157.000.

A/S Moelven Brug: *See—*
Granlund, Per, 4,334,562, Cl. 144-193.00A.

A. Stephan u. Sohne GmbH & Co.: *See—*
Eusterbarkey, Friedhelm, 4,334,789, Cl. 366-343.000.

Aaron, Jon D.: *See—*
Habdas, Edward P.; and Aaron, Jon D., 4,334,940, Cl. 156-89.000.

AB Celleco: *See—*
Frykhult, Rune H., 4,334,986, Cl. 209-17.000.

AB Siwertell: *See—*
Tingskog, Karl A. L., 4,334,818, Cl. 414-139.000.

AB Volvo: *See—*
Bergstrom, Carl-Ingvar A., 4,334,696, Cl. 280-725.000.

Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, to Toho Ganryo Kogyo Co., Ltd.; and Nippon Chemical Industrial Co., Ltd., part interest to each. Process for preparing stable inorganic pigment. 4,334,933, Cl. 106-305.000.

ACF Industries, Incorporated: *See—*
Alvarez, Patricio D.; and Trevino, Robert J., 4,334,666, Cl. 251-167.000.

Acker, William F., to Honeywell Inc. Variable gain amplifier. 4,335,361, Cl. 330-285.000.

Ackermann, Peter: *See—*
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.

Acurex Corporation: *See—*
Carter, Howard J.; and Staiger, William C., 4,334,693, Cl. 193-32.000.

Adamowicz, Philippe J.; Platel nee Bonnet, Alberte; and Muller, Ludwig, to Institut Pasteur. Process for purifying particles of biological origin, particularly the surface antigen of the virus of hepatitis B (AgHBs). 4,335,214, Cl. 435-239.000.

Adams, Richard E.; and Stafford, Richard W., to Emhart Industries, Inc. Timer switch module. 4,335,282, Cl. 200-38.00R.

Adams, Rudolph J., to Reed National Corp. Fire and smoke damper. 4,334,570, Cl. 160-1.000.

Adell, Robert, to U.S. Product Development Co. Door edge guard. 4,334,700, Cl. 280-770.000.

Adelman, Robert L.; and Turner, John J. P., to Du Pont de Nemours, E. I., and Company. Indigo-dyeable polyester fibers. 4,335,185, Cl. 428-361.000.

Aerodyne Research, Inc.: *See—*
Bien, Fritz; and Camac, Morton, 4,334,777, Cl. 356-349.000.

Agence National de Valorisation de la Recherche (ANVAR): *See—*
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.

Agence Nationale de Valorisation de la Recherche (A.N.V.A.R.): *See—*
Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, 4,335,001, Cl. 210-708.000.

Agence Nationale de Valorisation de la Recherche (ANVAR): *See—*
Rios, Gilbert M.; Gibert, Henri; and Baxerres, Jean-Louis, 4,334,998, Cl. 210-617.000.

AGFA-Gevaert AG: *See—*
Wilke, Werner; Gref, Hans; and Frenken, Hans, 4,334,884, Cl. 23-293.00R.

Air Industrie, Societe Anonyme: *See—*
Tholome, Roger, 4,335,342, Cl. 318-627.000.

Air Products and Chemicals, Inc.: *See—*
Beitchman, Burton D.; and Zaluska, Philip J., 4,335,228, Cl. 525-528.000.
Dalton, Augustine I., Jr.; and Skinner, Ronald W., 4,335,092, Cl. 423-584.000.
Shay, Robert H.; and Ellison, Thomas L., 4,334,938, Cl. 148-16.700.

Airco, Inc.: *See—*
Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., 4,334,629, Cl. 220-252.000.

Aisaka, Kazuo: *See—*
Terada, Osamu; and Aisaka, Kazuo, 4,335,213, Cl. 435-190.000.

Aisin Seiki Kabushiki Kaisha: *See—*
Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, 4,334,837, Cl. 417-393.000.
Tsuchikawa, Shunzo; and Hayashi, Masaharu, 4,334,824, Cl. 416-132.00R.

Aisin-Waker Kabushiki Kaisha: *See—*
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.

Akabane, Yukihiro: *See—*
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.

Akashi, Keiichi. Chain mechanism. 4,334,609, Cl. 198-797.000.

Akiyama, Yoshinori; and Ueno, Shyichi, to Nissan Motor Company, Ltd. Seat for vehicle. 4,334,709, Cl. 297-284.000.

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Mattson, Kjell, 4,334,657, Cl. 244-3.280.

Akzo N.V.: *See—*
Goolkate, Jannes J., 4,334,936, Cl. 148-6.15R.

Akzona Incorporated: *See—*
Frank, Dieter; and Metcalfe, Lincoln D., 4,334,887, Cl. 23-313.00R.
Kolczynski, James R.; and Schultz, Gerald A., 4,335,230, Cl. 526-228.000.
Warren, Elbert K.; and Porter, William D., 4,334,654, Cl. 242-147.00R.

Albert, Albert F. Reciprocating rotary engine. 4,334,506, Cl. 123-55.0AA.

Alcan Research and Development Limited: *See—*
Morris, Larry R., 4,334,935, Cl. 148-2.000.

Alder, Hanspeter: *See—*
Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., 4,334,898, Cl. 55-269.000.

Alegre, Adolfo P.; Guidote, Armando E.; and Puyat, Alfonso G. Multi-fuel vapor charge carburetion system and device therefor. 4,335,060, Cl. 261-23.00R.

Alekhin, Stanislav A.: *See—*
Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A., 4,334,987, Cl. 209-210.000.

Alfa-Laval Cheddar Systems Limited: *See—*
Brockwell, Ian P.; and Martensson, Karl J. G., 4,334,465, Cl. 99-454.000.

Alfa-Laval, Inc.: *See—*
Bladh, Per V. H., 4,335,146, Cl. 426-231.000.

Alfranseder, Josef; Mayer, Sigmund; Rebsdat, Siegfried; Riedl, Josef; and Schaffelhofer, Iwo, to Hoechst Aktiengesellschaft. Process for improving the activity of supported silver catalysts. 4,335,014, Cl. 252-412.000.

Alig, Roger C.; Barkow, William H.; and Gross, Josef, to RCA Corporation. Color television display system having improved convergence. 4,335,366, Cl. 335-211.000.

Aliotta, Carmelo F.; and Anschel, Morris, to International Business Machines Corp. Resolution standard for scanning electron microscope comprising palladium spines on a metal substrate. 4,335,189, Cl. 428-611.000.

Allart, Pierre J.; and Guillaume, Claude A., to Monsanto Company. Solvents useful in pressure-sensitive mark-recording systems. 4,335,013, Cl. 252-364.000.

Allen, Ralph A.; Madden, Donald S.; and Zylkowski, John T., to Kortech Engineering, Inc. Penetrator assembly. 4,334,729, Cl. 339-125.00R.

Allibert Exploitation: *See—*
Hemery, Andre, 4,335,068, Cl. 264-245.000.

Allied Corporation: *See—*
Demmin, Timothy R.; and Rogic, Milorad M., 4,335,010, Cl. 252-189.000.
Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., 4,335,223, Cl. 525-179.000.

Almay, Inc.: *See—*
Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., 4,335,103, Cl. 424-59.000.

Aluminium Pechiney: *See—*
Sulmont, Benoit; and Hudault, Gerard, 4,335,064, Cl. 264-30.000.

Alvarez, Patricio D.; and Trevino, Robert J., to ACF Industries, Incorporated. Expanding gate valve with position responsive interlock. 4,334,666, Cl. 251-167.000.

Amana Refrigeration, Inc.: *See—*
Smith, Duaine W., 4,335,289, Cl. 219-10.55F.

Amano, Hiroyuki: *See—*
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.

AMBAC Industries, Incorporated: *See—*
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., 4,335,323, Cl. 310-40.00R.

Ameen, Joseph G.; Franchak, Nelson P.; Rasile, John; and Rivenburgh, Dennis L., to International Business Machines Corporation. Reducing carbonate concentration in aqueous solution. 4,334,949, Cl. 156-642.000.

American Can Company: *See—*
Backe, Soren B., 4,335,442, Cl. 364-608.000.
Gold, Vance B., 4,335,440, Cl. 364-571.000.

American Microsystems, Inc.: *See—*
Haque, Yusuf A., 4,335,355, Cl. 330-253.000.

American Optical Corporation: *See—*
Ayes, Adolfo V.; and Jones, John A., 4,334,901, Cl. 55-487.000.

American Standard Inc.: *See—*
Lyons, Michael D.; and Strobel, Richard A., 4,335,321, Cl. 307-252.00B.
Mazur, Richard J.; Dimsa, Robert D.; and Pekarcik, John T., 4,334,711, Cl. 303-16.000.
American Sterilizer Company: *See—*
Thornton, David C., 4,335,071, Cl. 422-26.000.
AMF Incorporated: *See—*
Hill, Loran R.; and Titcomb, Steven E., 4,334,544, Cl. 128-664.000.
Amin, Ramesh G.; Hartman, Walter C.; and Husk, Robert V., to Zenith Radio Corporation. Means and method for injecting television picture tube bases. 4,334,731, Cl. 339-144.00T.
Ammann, Paul R.: *See—*
Kim, Jonathan J.; and Ammann, Paul R., 4,334,924, Cl. 75-133.500.
AMP Incorporated: *See—*
Reynolds, Charles E.; and Whiteman, Robert N., Jr., 4,334,728, Cl. 339-74.00R.
Scheingold, William S.; and Youngfleish, Frank C., 4,334,727, Cl. 339-17.0CF.
Anaconda Company, The: *See—*
Hagopian, John G., 4,334,396, Cl. 52-522.000.
Andersen 2000, Inc.: *See—*
Brady, Jack D.; and Graves, Kenny M., 4,334,897, Cl. 55-257.0PV.
Anderson, Gerald B.: *See—*
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Aoya, Hiroshi: *See—*
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Aoyagi, Edward I., to Chevron Research Company. Arylamino-4,4-dialkyl-5-methylene-1,3-thiazolines. 4,335,133, Cl. 424-270.000.
Aoyagi, Takaaki: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.
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Appel, Jean G.; and Dunand, Francois M., to Office National d'Etudes et de Recherches Aerospatiales O.N.E.R.A. Ultrasonic flow rate meter. 4,334,434, Cl. 73-861.290.
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Field, Peter, 4,334,446, Cl. 82-36.00R.
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Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.
Arendt, Henry P., to Otis Engineering Corporation. Balanced area safety valve. 4,334,581, Cl. 166-324.000.
Argoudelis, Alexander D.; Marshall, Vincent P.; and Johnson, Leroy E., to Upjohn Company, The. Paulomycin A and B and preparation thereof. 4,335,108, Cl. 424-117.000.
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Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,335,204, Cl. 435-23.000.
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Armour, John S.; and Watson, Peter M. F., to United Kingdom of Great Britain and Northern Ireland, The Minister of Transport in Her Britannic Majesty's Government of the. Friction controller. 4,334,602, Cl. 192-103.00F.
Armstrong, Eldon L.; and Landis, Phillip S., to Mobil Oil Corporation. Lubricant compositions containing metal antifatigue additives. 4,335,005, Cl. 252-49.600.
Armstrong, Lee R., to RCA Corporation. Testing the condition of a turbocharger. 4,334,427, Cl. 73-118.000.
Armstrong, Thomas R., to Paradyne Corporation. Dual multipoint data transmission system modem. 4,335,464, Cl. 375-43.000.
Arthur, James C.; and Thieman, Graham F., to Arvin Industries, Inc. Tube-to-plate connection. 4,334,703, Cl. 285-222.000.
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Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.
Asai, Yoshiyuki; Shimada, Masao; and Soda, Kenji, to Mitsui Toatsu Chemicals, Inc. Process for preparation of L-tryptophan by enzyme. 4,335,209, Cl. 435-108.000.
Asakura, Toshimitsu; and Noda, Azusa, to Honda Giken Kogyo Kabushiki Kaisha. Two-wheeled motorcycle with combined frame and cowling structure. 4,334,589, Cl. 180-219.000.
Asaumi, Hiroshi; Kubota, Kazuo; Yokoo, Hisanori; and Yamamoto, Mitsuo, to Nippon Asbestos Co., Ltd. Method for producing asbestos free machinable calcium silicate high heat-resistant material. 4,334,931, Cl. 106-120.000.
Aschenbach, Louis F.; and Pusatcioglu, Selami Y., to Eaton Corporation. Lever seal for miniature sealed toggle switch. 4,335,287, Cl. 200-302.000.
Aschwanden, Felix, to RCA Corporation. Triax safety circuit. 4,335,412, Cl. 361-50.000.
Ashby, Walter. Walking buggy. 4,334,695, Cl. 280-228.000.
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Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.
ASMO Co., Ltd.: *See—*
Hara, Takanori; and Shimamura, Yoshihiro, 4,335,340, Cl. 318-282.000.
Astro Research Corporation: *See—*
Hedgepeth, John M.; Samuels, Ronald L.; and Stammreich, John, 4,334,391, Cl. 52-108.000.
Atlantic Richfield Company: *See—*
Holloway, Richard L.; Miller, John A.; and Winters, Jerald E., 4,334,981, Cl. 208-131.000.
Lordi, Frank E.; and Francis, Peter S., 4,335,037, Cl. 524-504.000.
Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, 4,335,258, Cl. 562-599.000.
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, to Dainippon Screen Seizo Kabushiki Kaisha. Sharpness emphasizing method and machine used in a picture reproducing machine. 4,335,407, Cl. 358-284.000.
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, to Honda Giken Kogyo Kabushiki Kaisha. Fuel injection system for an internal combustion engine. 4,334,511, Cl. 123-454.000.
Atwood Oceanics, Inc.: *See—*
Magill, James M., 4,334,584, Cl. 175-5.000.
Audesse, Emery G.: *See—*
Broadt, David R.; and Audesse, Emery G., 4,334,856, Cl. 431-359.000.
Aufderheide, Maurice B.; and Daniel, Sam M., to Motorola Inc. Digital scaling apparatus. 4,335,372, Cl. 340-347.0DD.
Augustine, Leo. Tire traction device. 4,334,566, Cl. 152-208.000.
Aultz, Daniel E.: *See—*
McFadden, Arthur R.; and Aultz, Daniel E., 4,335,122, Cl. 424-244.000.
Aurell, Leif E.: *See—*
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Australian Paper Manufacturers Limited: *See—*
Farrington, Alan; and Nelson, Peter F., 4,334,956, Cl. 162-30.110.
Automatik Apparate-Maschinenbau H. Hench GmbH: *See—*
Blach, Josef A., 4,334,785, Cl. 366-79.000.
Automation Gages, Inc.: *See—*
Polidor, Edward C., 4,334,717, Cl. 308-6.00R.
Autoslug Stakupress GmbH & Co.: *See—*
Krautz, Kurt; and Ender, Erhard, 4,334,341, Cl. 24-230.0AT.
Axelrod, Sydney; Brenner, Walter; and Rugg, Barry A. Wear reducer. 4,334,477, Cl. 102-435.000.
Axford, John G., to International Business Machines Corporation. Cathode ray tube printing apparatus and method. 4,335,390, Cl. 346-158.000.
Ayers, Richard A. Sound reproduction system. 4,335,274, Cl. 179-1.00F.
Ayes, Adolfo V.; and Jones, John A., to American Optical Corporation. Respirator cartridge. 4,334,901, Cl. 55-487.000.
Aziende Colori Nazionali Affini ACNA S.p.A.: *See—*
De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, 4,335,246, Cl. 546-309.000.
Azuma, Masaaki: *See—*
Somemiya, Akiyoshi; Miyashita, Shunitsu; and Azuma, Masaaki, 4,335,233, Cl. 528-211.000.
Baass, Allen J. Artificial reef construction. 4,334,499, Cl. 119-3.000.
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Bornengo, Mario; and Bacciarelli, Sergio, 4,335,260, Cl. 564-406.000.

Bachmann, Robert: *See*—
Kluth, Hermann; Bachmann, Robert; and Wegner, Jurgen, 4,334,787, Cl. 366-162.000.
Back, Gunter; and Schon, Klaus-Peter, to Hoechst Aktiengesellschaft. Mechanism for feeding and transporting printing plates. 4,334,472, Cl. 101-382.0MV.
Backe, Soren B., to American Can Company. Synchronous oscillator demodulator system. 4,335,442, Cl. 364-608.000.
Backx, Leo J. J.: *See*—
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,335,125, Cl. 424-250.000.
Badertscher, E. Gerhard: *See*—
Salathe, Rene P.; Badertscher, E. Gerhard; and Luthy, Willy A. R., 4,335,362, Cl. 372-46.000.
Bahia, Hardev S., to Courtaulds Limited. Process for making textured yarn. 4,334,401, Cl. 57-6.000.
Bain, Brian M.: *See*—
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, 4,335,121, Cl. 424-241.000.
Baker, Eugene E.; and Carter, Ernest E., Jr., to Halliburton Services. Method of cementing from a floating vessel. 4,334,582, Cl. 166-355.000.
Baker, James F.; and Chalecki, Bernard W., Jr., to Sterling Drug Inc. Amrinone-N-glucuronide; salts and cardiotonic use thereof. 4,335,131, Cl. 424-263.000.
Baker, Robert G.; and Ramazzotti, Dario J., to Nordson Corporation. Extrusion nozzle assembly. 4,334,637, Cl. 222-146.00H.
Bakhir, Vitold M.: *See*—
Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A., 4,334,987, Cl. 209-210.000.
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Colombo, Donato; and Baldacci, Lapo, 4,335,279, Cl. 179-7.10R.
Baldock, K. Paul; and Smith, J. Craig, Jr., to John Fluke Mfg. Co., Inc. Simulated ohms generation method and apparatus for calibrating resistance type measuring instruments. 4,335,349, Cl. 324-62.000.
Baldwin-Korthe Web Controls, Inc.: *See*—
Glanz, Richard; and Chang, Sun C., 4,335,316, Cl. 250-572.000.
Balinth, Ivan J., to Johnson & Johnson Products Inc. Pressure-sensitive adhesive compositions having high shear and low peel resistance. 4,335,026, Cl. 524-271.000.
Ballester, Jose F. Cover and container assembly. 4,334,631, Cl. 220-306.000.
Ballweber, Edward G., to Nalco Chemical Company. Adiabatic polymerization of acrylamide in the presence of sodium sulfate decahydrate. 4,335,237, Cl. 526-234.000.
Baluha, Gerald F.; and Flanagan, Bernard E., to Meyers, Fred W. Production of conveyor support bars for paper making machinery. 4,334,958, Cl. 162-352.000.
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, to Uniroyal, Inc. Method of stabilizing lubricating fluids. 4,335,006, Cl. 252-49.700.
Banyu Pharmaceutical Co., Ltd.: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.
Barabash, Martin J.: *See*—
Barker, Graham; Safrin, Leopold; and Barabash, Martin J., 4,335,025, Cl. 252-550.000.
Baricevic, John, to Black & Decker Inc. Safety braking apparatus for a portable chain saw. 4,334,357, Cl. 30-381.000.
Barker, Graham; Safrin, Leopold; and Barabash, Martin J., to Witco Chemical Corporation. Process for the preparation of synthetic detergent bars, and products produced thereby. 4,335,025, Cl. 252-550.000.
Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., to Almay, Inc. Multiphase cosmetic composition. 4,335,103, Cl. 424-59.000.
Barker, Robert C.: *See*—
Spamer, William S.; and Barker, Robert C., 4,334,374, Cl. 40-606.000.
Barkow, William H.: *See*—
Alig, Roger C.; Barkow, William H.; and Gross, Josef, 4,335,366, Cl. 335-211.000.
Barlow, Henry A. Mechanical devices forming an engine. 4,334,841, Cl. 418-38.000.
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., to Sunmark, Inc. Apparatus for producing a gasified fusible sugar composition. 4,334,934, Cl. 127-9.000.
Barnes, Ulpiano. Compressed gas operated turbine. 4,334,407, Cl. 60-407.000.
Barnett, Jack W.; and Sawyer, Roy D., to Nalco Chemical Company. Overhead corrosion simulator. 4,335,072, Cl. 422-53.000.
Barozzi, Gian P.; and Horeschi, Giancarlo, to Xelavis S.A. Device for controlling the typing action of a single type carrying element for typewriters. 4,334,791, Cl. 400-166.000.
BASF Aktiengesellschaft: *See*—
Boell, Walter, 4,335,241, Cl. 544-127.000.
Gerberding, Karl, 4,335,221, Cl. 525-89.000.
Jaedicke, Hagen; and Paust, Joachim, 4,335,047, Cl. 549-369.000.
Mahnke, Harald; Kreibiehl, Guenter; Weber, Heinz; and Woerner, Frank P., 4,334,971, Cl. 204-159.210.
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.
Battelle Development Corporation: *See*—
Cremeans, George E.; and Markle, Richard A., 4,335,027, Cl. 528-281.000.
Bauer, Russell H.; and Heidkamp, Madeleine, to United States of America, Navy. Method for correcting navigation errors due to water currents. 4,335,433, Cl. 364-443.000.
Baumann, Hans-Peter, to Sandoz Ltd. Quaternized polyamines. 4,335,259, Cl. 564-290.000.
Baumann, John A., to PPG Industries, Inc. Bonded needled fiber glass thermoplastic reinforced mats. 4,335,176, Cl. 428-228.000.
Baumann, Kurt; Kusche, Peter; and Redecker, Reinhard, to Postalia GmbH. Electronically controlled franking machine. 4,335,434, Cl. 364-464.000.
Baumann, Kurt; Kusche, Peter; and Redecker, Reinhard, to Postalia GmbH. Electronically controlled indicator and testing device for franking machines. 4,335,441, Cl. 364-580.000.
Baxerres, Jean-Louis: *See*—
Rios, Gilbert M.; Gibert, Henri; and Baxerres, Jean-Louis, 4,334,998, Cl. 210-617.000.
Baxter, Leonard N., to Stanadyne, Inc. Rotary fuel injection pump. 4,334,831, Cl. 417-214.000.
Baxter Travenol Laboratories, Inc.: *See*—
Norton, William W., 4,334,993, Cl. 210-321.300.
Bayer Aktiengesellschaft: *See*—
Buysch, Hans-Josef; Krimm, Heinrich; and Bohm, Siegfried, 4,335,051, Cl. 260-463.000.
Colln, Reimer; Sirrenberg, Wilhelm; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,335,117, Cl. 424-217.000.
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, 4,335,134, Cl. 424-273.00P.
von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, 4,334,992, Cl. 210-241.000.
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.
Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, 4,334,905, Cl. 71-27.000.
BBC Brown, Boveri & Company, Limited: *See*—
Smitka, Artur; and Rabe, Josef, 4,334,857, Cl. 432-3.000.
Beach, Sidney C.; and Frisby, C. Richard, to McGean Chemical Company, Inc. Method of copper plating gravure cylinders. 4,334,966, Cl. 204-25.000.
Beato, Fernando J. Combination support surface and carrier for elongated equipment. 4,334,612, Cl. 206-314.000.
Becker, Joseph J.: *See*—
Schulte-Elte, Karl H.; Becker, Joseph J.; and Schenk, Walter, 4,335,262, Cl. 568-361.000.
Becker, Willi; and Wirz, Arno, to Heidelberger Druckmaschinen Aktiengesellschaft. Storage cylinder. 4,334,473, Cl. 101-409.000.
Becker, William J.: *See*—
Magid, Kenneth S.; and Becker, William J., 4,334,863, Cl. 433-29.000.
Beckman Instruments, Inc.: *See*—
Sherwood, Loran D.; Keegan, Jack J.; and Gniewek, Stephen A., 4,335,073, Cl. 422-83.000.
Becton Dickinson & Company: *See*—
Pfister, Robert D., 4,334,551, Cl. 137-614.030.
Bedding, Robyn A., to Commonwealth Scientific and Industrial Research. Assemblage for rearing nematodes. 4,334,498, Cl. 119-1.000.
Beecher, Jonathan. Tone improving device for a stringed musical instrument. 4,334,455, Cl. 84-302.000.
Beede, Charles H.; and Zirnite, Richard N., to Johnson & Johnson. Bandage carrying ion-leachable cement compositions. 4,335,158, Cl. 427-2.000.
Beede, Earl R. Baffles for septic tank ports. 4,334,991, Cl. 210-232.000.
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, to Carl Hurth Maschinen- und Zahnradfabrik GmbH & Co. Gear deburring apparatus and method. 4,334,810, Cl. 409-9.000.
Behrenz, Wolfgang: *See*—
Colln, Reimer; Sirrenberg, Wilhelm; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,335,117, Cl. 424-217.000.
Beier, William C.; and Hodder, James J., to Rohm and Haas Company. Process for producing leather. 4,334,876, Cl. 8-94.19C.
Beitchman, Burton D.; and Zaluska, Philip J., to Air Products and Chemicals, Inc. Isocyanate blocked imidazoles and imidazolines for epoxy powder coating. 4,335,228, Cl. 525-528.000.
Belavich, Joseph E.: *See*—
Bostic, John S., 4,335,377, Cl. 340-573.000.
Beljanski, Mirko. Polyribonucleotides capable of promoting the genesis of leucocytes and blood platelets. 4,335,239, Cl. 536-27.000.
Belko, Raymond P., to Boeing Company, The. Honeycomb structure end closure. 4,335,174, Cl. 428-73.000.
Bell Telephone Laboratories, Incorporated: *See*—
Glass, Alastair M.; Kaminow, Ivan P.; and Olson, Donald H., 4,334,774, Cl. 356-152.000.
MacChesney, John B.; and O'Connor, Paul B., 4,334,903, Cl. 65-3.120.
Reed, William C.; and Smith, Donald T., 4,335,348, Cl. 324-51.000.
Roman, Bernard J., 4,334,950, Cl. 156-643.000.
Wagner, Richard S., 4,334,951, Cl. 156-643.000.
Belohlavek, James F. Thermostatic control for electric roof heating cable. 4,335,299, Cl. 219-510.000.
Bender, Ruediger F.; and van Veersen, Gerardus J., to Emery Industries, Inc. Rubber compositions and method of vulcanizing same in ultrahigh-frequency field. 4,335,227, Cl. 525-333.000.

Bendix Corporation, The: *See—*
Brown, Arthur K.; Hendrickson, Richard T.; and Ewald, Jerome T., 4,334,832, Cl. 417-218.000.
Portolese, Larry A., 4,334,598, Cl. 188-73.440.
Ritsema, Irving R.; and Woo, Ji Y., 4,334,599, Cl. 188-73.450.

Benjamin, Robert E.; and Edging, Thomas E., to Stauffer Chemical Company. Method for preparing a baked product containing alkali metal aluminum phosphate. 4,335,154, Cl. 426-551.000.

Benson, Robert F., to Carey Canada Inc. Method for leaching magnesium from magnesium hydroxide-containing composition. 4,335,083, Cl. 423-167.000.

Benuzzi, Gino, to Giben Impianti S.p.A. Sawing machines. 4,334,450, Cl. 83-471.200.

Berfield, Robert C.: *See—*
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.

Bergin, Paul F. Hatch cover. 4,334,630, Cl. 220-300.000.

Bergstrom, Carl-Ingvar A., to AB Volvo. Rear wheel mounting for motor vehicles with a rigid rear axle. 4,334,696, Cl. 280-725.000.

Berkman, Samuel; and Metzl, Robert, to RCA Corporation. Method of and apparatus for growing crystal ribbon. 4,334,948, Cl. 156-608.000.

Bernas, Bedrich. Liquid and vapor-tight vessel for performing decomposition reactions. 4,335,074, Cl. 422-102.000.

Bernhardt, Gunther; Petersen, Egon-Norbert; and Daum, Gerhard, to Dynamit Nobel Aktiengesellschaft. Method of preparing substituted benzaldehydes. 4,335,052, Cl. 260-465.00R.

Berry, Fred M., to Kustom Electronics, Inc. Method and apparatus for digitally determining the speed of a target vehicle while the radar platform vehicle is in motion. 4,335,383, Cl. 343-8.000.

Bertus, Brent J.; and McKay, Dwight L., to Phillips Petroleum Company. Hydrocarbon cracking process using a catalyst containing germanium. 4,334,979, Cl. 208-114.000.

Bestobell Mobrey Limited: *See—*
West, Norman, 4,335,285, Cl. 200-84.00C.

Bettcher Industries, Inc.: *See—*
Bettcher, Louis A., 4,334,451, Cl. 83-703.000.

Bettcher, Louis A., to Bettcher Industries, Inc. Slicing apparatus having rotary magazine. 4,334,451, Cl. 83-703.000.

Beyerle, Rudi: *See—*
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.

BFG Glassgroup: *See—*
Duchateau, Jacques; and Van den Bossche, Christien, 4,334,908, Cl. 71-52.000.

Bien, Fritz; and Camac, Morton, to Aerodyne Research, Inc. Method of monitoring motion. 4,334,777, Cl. 356-349.000.

Biernath, Siegfried, to Klockner-Humboldt-Deutz AG. Connecting conduit arrangement. 4,334,512, Cl. 123-469.000.

Bill, Robert C.; and Sovey, James S., to United States of America, National Aeronautics and Space Administration. Thermal barrier coating system having improved adhesion. 4,335,190, Cl. 428-623.000.

Biondetti, Mario, to Escher Wyss Ltd. Controlled deflection roll. 4,334,344, Cl. 29-116.0AD.

Bird Machine Company, Inc.: *See—*
Taylor, Edward S., 4,334,647, Cl. 233-7.000.

Blach, Josef A., to Automatik Apparate-Maschinenbau H. Hench GmbH. Shaft for working material on machines for working materials of solid, liquid, plastic and/or highly viscous consistency. 4,334,785, Cl. 366-79.000.

Black & Decker Inc.: *See—*
Baricevic, John, 4,334,357, Cl. 30-381.000.

Blackburn, David. Expandible devices for internally gripping cores or the like. 4,334,652, Cl. 242-72.00R.

Bladh, Per V. H., to Alfa-Laval, Inc. Processing fish raw material. 4,335,146, Cl. 426-231.000.

Blake, Jon R.; Knutson, Richard K.; and Strommer, Deon L., to General Mills, Inc. Composition for aerated frozen desserts containing fruit puree and method of preparation. 4,335,155, Cl. 426-565.000.

Blanchard, Jean; and Verry, Monique, to Omnium Financier Aquitaine pour l'Hygiene et la Sante (Sanoli). Process for the treatment of patients suffering from drepanocytosis. 4,335,128, Cl. 424-256.000.

Blanchard, Robert, to HR Textron Inc. Diverter valve. 4,334,552, Cl. 137-625.480.

Blanchut & Bertrand S.A.: *See—*
Eberlin, Philippe; and Rossi, Mario, 4,335,452, Cl. 367-134.000.

Blaschke, Felix, to Siemens Aktiengesellschaft. Multiple pulse-width multiplier. 4,335,444, Cl. 364-815.000.

Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, to Ciba-Geigy Corporation. Process for the preparation of alkenylbenzenecarboxylic acid derivatives and alkenylnaphthalenecarboxylic acid derivatives. 4,335,054, Cl. 260-465.00G.

Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, to Ciba-Geigy Corporation. Process for the preparation of alkenylbenzene derivatives or alkenylnaphthalene derivatives. 4,335,055, Cl. 260-465.00K.

Blizzard, Roy L.: *See—*
Davis, Robert D.; and Blizzard, Roy L., 4,335,080, Cl. 422-244.000.

Block and Company, Inc.: *See—*
Block, Mitchell L., 4,334,620, Cl. 211-13.000.

Block, Mitchell L., to Block and Company, Inc. Key storage rack. 4,334,620, Cl. 211-13.000.

Bloodworth, Dennis A., Jr.: *See—*
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., 4,335,323, Cl. 310-40.00R.

Board of Trustees, Michigan State University: *See—*
Cornwell, David A., 4,334,999, Cl. 210-638.000.

Bob's Casing Crews: *See—*
Carstensen, Kenneth J.; and Staudt, John J., III, 4,334,444, Cl. 81-57.180.

BOC Limited: *See—*
Rennie, Andrew L.; and Davis, Alexander, 4,334,574, Cl. 164-4.100.

Bock, Marvin D., to RCA Corporation. Apparatus for molding a recorded disc. 4,334,849, Cl. 425-290.000.

Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., to International Flavors & Fragrances Inc. Mixture of aliphatic C_{10} branched olefin epoxides and use thereof in augmenting or enhancing the aroma of perfumes and/or articles: 4,335,009, Cl. 252-187.270.

Boehringer Mannheim GmbH: *See—*
Muller, Werner; and Bunemann, Hans, 4,335,226, Cl. 525-281.000.

Boeing Company, The: *See—*
Belko, Raymond P., 4,335,174, Cl. 428-73.000.
Mickelsen, Reid A.; and Chen, Wen S., 4,335,266, Cl. 136-260.000.

Boell, Walter, to BASF Aktiengesellschaft. 4-α-Amino-arylmethyl-6-methyl-1,3-dihydro-furo[3,4-c]pyridin-7-ols. 4,335,241, Cl. 544-127.000.

Bogsch, Erik: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.

Bohm, Siegfried: *See—*
Buysch, Hans-Josef; Krimm, Heinrich; and Bohm, Siegfried, 4,335,051, Cl. 260-463.000.

Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., to International Business Machines Corporation. Printer system having parity checking of print hammers using software control. 4,335,460, Cl. 371-49.000.

Bolduc, Leo J. Table with elevator type lazy susan. 4,334,482, Cl. 108-95.000.

Bolen, Charles E.: *See—*
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,335,186, Cl. 428-375.000.

Bond, Robert, to Dunlop Limited. Tires. 4,334,567, Cl. 152-209.00R.

Boniface, Jean-Paul; and Ponceblanc, Gilbert, to Societe Anonyme dite Compagnie Europeenne d'Accumulateurs. Apparatus for automatically feeding bushings into a press for moulding covers for storage batteries. 4,334,846, Cl. 425-126.00R.

Bonzack, Eugene P., to F. Jos. Lamb Company. Bearing arrangement for oscillating shafts. 4,334,436, Cl. 74-44.000.

Borle, Jean-Pierre. Dental obturation screw. 4,334,865, Cl. 433-221.000.

Born, Eberhard: *See—*
von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, 4,334,992, Cl. 210-241.000.

Bornengo, Mario; and Bacciarelli, Sergio, to Montedison S.p.A. Process for the preparation of N-di-n-propyl-2,6-dinitro-4-trifluoromethylaniline having a low content of nitrosamines. 4,335,260, Cl. 564-406.000.

Borovicka, David A., Sr.: *See—*
Ting, Vincent W.; Woo, James T. K.; and Borovicka, David A., Sr., 4,335,028, Cl. 524-504.000.

Bosch-Siemens Hausgerate GmbH: *See—*
Reichl, Ernst; and Marloth, Herbert, 4,334,531, Cl. 128-200.140.

Bostian, Charles D.: *See—*
Davis, Thomas R.; and Bostian, Charles D., 4,334,662, Cl. 248-237.000.

Bostic, John S., to Belavich, Joseph E. Medical alert alarm. 4,335,377, Cl. 340-573.000.

Boucraut, Frantz M. J., to Valton S.A. Methods of drying wet items of textile materials. 4,334,365, Cl. 34-8.000.

Bouiller, Jean G.; and Joubert, Raymond J. M., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "SNECMA". Device for attaching blades to a compressor rotor for a turbojet. 4,334,827, Cl. 416-220.00R.

Bouko, Jean: *See—*
Salvat, Francois; Bouko, Jean; and Le Foll, Jean, 4,335,387, Cl. 343-756.000.

Bowers, Douglas F., to Marconi Company Limited, The. Amplitude modulator using a carrier tube and a peaking tube. 4,335,363, Cl. 332-37.00R.

Bowes, Emmerson; and Pelrine, Bruce P., to Mobil Oil Corporation. Preparation of natural ferrierite hydrocracking catalyst and hydrocarbon conversion with catalyst. 4,335,019, Cl. 252-450.000.

Boyer, Keith: *See—*
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.

Bozarth, Gene A., to Shell Oil Company. Use of N-cyclopropyl-N'-(2-Fluorophenyl)urea as a selective herbicide. 4,334,916, Cl. 71-120.000.

Bracker AG: *See—*
Stutz, Emil, 4,334,402, Cl. 57-120.000.

Brady, Jack D.; and Graves, Kenny M., to Andersen 2000, Inc. Gas scrubbing apparatus. 4,334,897, Cl. 55-257.0PV.

Brand, Konrad; and Franz, Dieter, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Method of producing a molded composite foam body provided with a cover layer and the resultant product. 4,335,182, Cl. 428-319.300.

Brandenberger, Kurt; Feichtinger, Alfred; and Fischer, Werner, to Swiss Aluminium Ltd. Process for treating partially desulfurized coke. 4,334,960, Cl. 201-17.000.

Brantingham, George L., to Texas Instruments Incorporated. Synchronous method and apparatus for speech synthesis circuit. 4,335,275, Cl. 179-1.0SM.

Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Elas-

tomeric damping device especially for the neck of helicopter wing blades. 4,334,825, Cl. 416-134.00A.

Bredow, Walter, to C. Behrens AG. Machine tool with a laser beam cutting device. 4,335,296, Cl. 219-121.0LG.

Breecher, Jerry D.; and Truax, Bruce E., to Western Electric Co., Inc. Method for dynamically determining the horizontal motion and twist of a microwave tower. 4,334,775, Cl. 356-152.000.

Brenner, Walter: *See—*
Axelrod, Sydney; Brenner, Walter; and Rugg, Barry A., 4,334,477, Cl. 102-435.000.

Breslow, Jeffrey D.: *See—*
Rogers, Gregory B.; Wildman, John R.; and Breslow, Jeffrey D., 4,334,384, Cl. 46-39.000.

Breton, Jean-Paul R. H.; Thomassin, Pierre C.; and Villeneuve, Bernard E., to Bureau de Recherches Geologiques et Minieres. Method and apparatus for locating the position of a drill core sample. 4,334,429, Cl. 73-151.000.

Brickner, Joseph L. Electronic safety device. 4,335,339, Cl. 318-282.000.

Bricmont & Associates, Inc.: *See—*
Bricmont, Francis H., 4,334,861, Cl. 432-30.000.

Bricmont, Francis H., to Bricmont & Associates, Inc. Method and apparatus for generating a hot air blast. 4,334,861, Cl. 432-30.000.

Brink, Gerhard: *See—*
Konrath, Karl; and Brink, Gerhard, 4,334,514, Cl. 123-502.000.

Brink's Locking Systems, Inc.: *See—*
Kambic, Raymond V., 4,334,388, Cl. 49-14.000.

Bristol-Myers Company: *See—*
Kaplan, Murray A.; and Granatek, Alphonse P., 4,335,244, Cl. 546-106.000.

British Broadcasting Corporation: *See—*
Clarke, Christopher K. P., 4,335,395, Cl. 358-11.000.

Brittin, Willard D. Desk mounted chair stop. 4,334,722, Cl. 312-194.000.

Broad, Bernard H., to English Clays Lovering Pochin & Co. Limited. Tube pressure filters. 4,334,996, Cl. 210-350.000.

Broadhurst, Thomas E., to Exxon Research & Engineering Co. Dewaxing and wax filterability by reducing scraper speed in scraped surface chilling units. 4,334,978, Cl. 208-33.000.

Broadt, David R.; and Audesse, Emery G., to GTE Products Corporation. Photoflash array with selective pairing of lamps. 4,334,856, Cl. 431-359.000.

Brockwell, Ian P.; and Martensson, Karl J. G., to Alfa-Laval Cheddar Systems Limited. Method and apparatus for processing and packaging cheese. 4,334,465, Cl. 99-454.000.

Brodzinski, John J.: *See—*
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., 4,334,546, Cl. 132-88.500.

Brogan, Thomas R., to Roldiva, Inc. Method for reducing NO_x emissions from combustion processes. 4,335,084, Cl. 423-235.000.

Brooks, Herbert; and Waite, Frederick A., to Imperial Chemical Industries Limited. Modification of liquid hydrocarbons. 4,334,891, Cl. 44-62.000.

Brown, Alfred L.: *See—*
Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., 4,334,615, Cl. 206-447.000.

Brown, Arthur K.; Hendrickson, Richard T.; and Ewald, Jerome T., to Bendix Corporation, The. Constant output fluid pump. 4,334,832, Cl. 417-218.000.

Brown, Boveri & Cie Aktiengesellschaft: *See—*
Reiter, Karl, 4,335,392, Cl. 357-75.000.

Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., to Decatur Electronics, Inc. Traffic radar system. 4,335,382, Cl. 343-8.000.

Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., to Tennant Company. Scrubber with hydraulic squeegee lift. 4,334,335, Cl. 15-319.000.

Brown, Neil L.: *See—*
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.

Brunel, Paul H. Ski-shoe. 4,334,369, Cl. 36-124.000.

Brunswick Corporation: *See—*
Scheie, Carl E., 4,334,681, Cl. 273-30.000.

Bryan, Carl N. Combined flat sheet display device and rolled sheet holder. 4,334,373, Cl. 40-19.000.

Buchs, Wolfgang: *See—*
Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, 4,334,825, Cl. 416-134.00A.

Bud Antle Inc.: *See—*
Plumb, Bruce E., 4,334,590, Cl. 180-247.000.

Budd Company, The: *See—*
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., 4,334,563, Cl. 145-2.00R.

Budde, Volker: *See—*
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, 4,334,699, Cl. 280-731.000.

Buescher, Eugene J., to O'Meara, William R. Stationery having snap-open envelope with remailable portion. 4,334,618, Cl. 206-623.000.

Buhrer, Carl F.; and Feuersanger, Alfred E., to GTE Laboratories Incorporated. Vacuum-tight assembly. 4,334,628, Cl. 220-2.10R.

Bull, Glen L.; McDonald, Wesley E.; and Edgerton, Milton T., to University of Virginia, The. Apparatus for non-invasive measurement and display nasalization in human speech. 4,335,276, Cl. 179-1.0SP.

Bunemann, Hans: *See—*
Muller, Werner; and Bunemann, Hans, 4,335,226, Cl. 525-281.000.

Bunker Ramo Corporation: *See—*
Colwell, William L.; and Schmelzle, Carl W., 4,334,730, Cl. 339-130.00C.
Holt, Harley R., 4,334,353, Cl. 29-753.000.
Roos, John C., 4,335,384, Cl. 343-114.000.

Burch, Darrel W.; and Wojciehowski, James P., to Garrett Corporation, The. Pneumatic starter overtemperature control. 4,334,549, Cl. 137-72.000.

Burcombe, Douglas A.; and Wills, Jean M., to Burcombe, Douglas Arthur. Soiless gardening system. 4,334,386, Cl. 47-62.000.

Burcombe, Douglas Arthur: *See—*
Burcombe, Douglas A.; and Wills, Jean M., 4,334,386, Cl. 47-62.000.

Bureau de Recherches Geologiques et Minieres: *See—*
Breton, Jean-Paul R. H.; Thomassin, Pierre C.; and Villeneuve, Bernard E., 4,334,429, Cl. 73-151.000.

Burei, Giovanni: *See—*
De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, 4,335,246, Cl. 546-309.000.

Burnham, Robert D.: *See—*
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., 4,335,461, Cl. 372-45.000.

Burns, Anthony G.; and Spector, George. Pencil marking jig. 4,334,360, Cl. 33-42.000.

Burroughs Wellcome Co.: *See—*
Watts, Ian S.; and Marsden, Peter H., 4,335,139, Cl. 424-285.000.

Burrows, Michael J., to Marconi Company Limited, The. Radar signal simulator. 4,334,866, Cl. 434-2.000.

Burton, James W.: *See—*
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Bushman, Ted E., to International Minerals & Chemical Corp. TL-78 Explosive composition. 4,334,939, Cl. 149-21.000.

Butchko, Joseph J. Telephone construction. 4,335,280, Cl. 179-90.00R.

Buth, Randy L.; and Essig, Robert A., to McQuay-Perfex Inc. Airflow limiter and measurement device. 4,334,648, Cl. 236-49.000.

Butler, Donald, to Stained Glass Overlay, Inc. Simulated stained and leaded glass windows. 4,335,170, Cl. 428-38.000.

Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., to Goodyear Tire & Rubber Company, The. Package for compounding rubber and compounded rubber. 4,334,615, Cl. 206-447.000.

Butler, William J., to Vermillion Equipment & Supply Co., Inc. Discharge cone assembly for a rotary grinding mill or the like. 4,334,626, Cl. 241-171.000.

Buysch, Hans-Josef; Krimm, Heinrich; and Bohm, Siegfried, to Bayer Aktiengesellschaft. Process for the preparation of dimethyl carbonate. 4,335,051, Cl. 260-463.000.

Byers, Thomas L. Diffusion transfer sheet registration. 4,334,757, Cl. 354-301.000.

Bykova, Irina G.: *See—*
Efimov, Vladimir M.; Naumova, Tatyana N.; Bykova, Irina G.; and Stroganova, Larisa A., 4,335,088, Cl. 423-420.000.

Bzik, John W.: *See—*
Zuckerman, Joseph L.; and Bzik, John W., 4,335,034, Cl. 524-423.000.

C. Behrens AG: *See—*
Bredow, Walter, 4,335,296, Cl. 219-121.0LG.

C. W. Zumbiel Co., The: *See—*
Hauser, Donald P., 4,334,644, Cl. 225-43.000.

Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., to Fisons Limited. 5-(2-Hydroxypropoxy)-8-propyl-4H-1-benzopyran-4-one-2-carboxylic acid. 4,335,048, Cl. 549-402.000.

Caldecourt, Leonard R.; Evans, Gordon V.; and Parsons, Tony V., to United Kingdom Atomic Energy Authority. Inspection of underwater structures. 4,335,308, Cl. 250-358.00R.

California Institute of Technology: *See—*
Corcoran, William H.; Vasilakos, Nicholas P.; and Lawson, Daniel D., 4,334,888, Cl. 44-1.0SR.

Call, James. Method for collecting market survey data from universal product type coded items. 4,335,303, Cl. 235-463.000.

Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., to Standard Oil Company. Processing acrylonitrile waste gas. 4,335,056, Cl. 260-465.300.

Calteau, Jean-Paul: *See—*
Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, 4,335,001, Cl. 210-708.000.

Camac, Morton: *See—*
Bien, Fritz; and Camac, Morton, 4,334,777, Cl. 356-349.000.

Campbell, Henry J., to Harris Corporation. Method of solder reflow assembly. 4,334,646, Cl. 228-180.00A.

Campbell, James B. Disc game apparatus. 4,334,683, Cl. 273-126.00R.

Canada, Atomic Energy of, Limited: *See—*
Sridhar, T. Sampat, 4,334,953, Cl. 159-11.00R.

Canadian Patents & Dev. Limited: *See—*
Domey, Jacques; and Rioux, Marc, 4,334,779, Cl. 356-358.000.

Cannon, Charles B.: *See—*
Mettersheimer, John H., Jr., 4,335,319, Cl. 290-54.000.

Canon Denshi Kabushiki Kaisha: *See—*
Shimada, Fumio; and Hashimoto, Teiji, 4,334,747, Cl. 354-147.000.

Canon Kabushiki Kaisha: *See—*
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.
Kanoto, Masanobu, 4,334,946, Cl. 156-352.000.

Nishigaki, Yuji; and Kawashima, Hirokuni, 4,335,195, Cl. 430-94.000.
Saito, Syuichiro; Date, Nobuaki; Suzuki, Ryoichi; and Sugiura, Yoji, 4,334,749, Cl. 354-234.000.
Sakane, Toshio; and Tsunekawa, Tokuichi, 4,335,405, Cl. 358-213.000.
Shimada, Fumio; and Hashimoto, Teiji, 4,334,747, Cl. 354-147.000.
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

Capella Inc.: *See—*
Ergaver, Rayko, 4,335,168, Cl. 428-36.000.

Caraballo, Angel, to Eastman Kodak Company. Method and means for reducing undesirable effects of dirt particles on a flexible record device. 4,335,173, Cl. 428-65.000.

Carden, Douglas D.: *See—*
Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., 4,334,629, Cl. 220-252.000.

Cardinal Insulated Glass Co.: *See—*
Lizardo, Renato A.; and O'Shaughnessy, Roger D., 4,335,166, Cl. 428-34.000.

Carduck, Franz-Josef; Kloetzer, Dietrich; and Veldman, Gerard, to Deutsche Hefewerke GmbH. Preparation of porous active yeast granules. 4,335,144, Cl. 426-62.000.

Carey Canada Inc.: *See—*
Benson, Robert F., 4,335,083, Cl. 423-167.000.

Carey, Sam H., Jr. Animal control device. 4,334,503, Cl. 119-121.000.

Caris, Daniel D. Portable foldable hoist. 4,334,668, Cl. 254-8.00B.

Carl Freudenberg, Firma: *See—*
Holzer, Helmut; and von Arndt, Ernst M., 4,334,687, Cl. 277-151.000.

Carl Hurth Maschinen- und Zahnradfabrik GmbH & Co.: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.

Carlson, Nancy W.; Westervelt, Dean C.; and Scala, Luciano C., to Westinghouse Electric Corp. Process for electrophoretically forming an imide coating on wire. 4,334,973, Cl. 204-181.00R.

Carre, Jean-Jacques; and Meynier, Guy, to Societe Anonyme D.B.A. Braking compensator dependent on the deceleration. 4,334,712, Cl. 303-24.00C.

Carsky, Milan: *See—*
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.

Carstensen, Kenneth J.; and Staudt, John J., III, to Bob's Casing Crews. Power tongs. 4,334,444, Cl. 81-57.180.

Carter, Ernest E., Jr.: *See—*
Baker, Eugene E.; and Carter, Ernest E., Jr., 4,334,582, Cl. 166-355.000.

Carter, Howard J.; and Staiger, William C., to Acurex Corporation. Article decelerating assembly and method. 4,334,603, Cl. 193-32.000.

Carter, Stephen B.: *See—*
Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., 4,335,115, Cl. 424-181.000.

Carty, Larry G.: *See—*
Sakowski, Walter J.; Carty, Larry G.; and Foster, Craig A., 4,335,090, Cl. 423-474.000.

Carver Manufacturing Incorporated: *See—*
Carver, Robert G.; and Steward, Clarence, 4,334,381, Cl. 43-42.290.

Carver, Robert G.; and Steward, Clarence, to Carver Manufacturing Incorporated. Fishhook and worm lure combination. 4,334,381, Cl. 43-42.290.

Casino Investment Limited: *See—*
Davies, Ronald C., 4,334,604, Cl. 194-100.00A.

Cassella Aktiengesellschaft: *See—*
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.

Castanis, George; and Castanis, Thaddeus T. Producing replicas of body parts. 4,335,067, Cl. 264-222.000.

Castanis, Thaddeus T.: *See—*
Castanis, George; and Castanis, Thaddeus T., 4,335,067, Cl. 264-222.000.

Catan, Jeanne: *See—*
Robbins, Anthony; Catan, Omero C.; and Catan, Jeanne, 4,334,685, Cl. 273-274.000.

Catan, Omero C.: *See—*
Robbins, Anthony; Catan, Omero C.; and Catan, Jeanne, 4,334,685, Cl. 273-274.000.

Caterpillar Mitsubishi Ltd.: *See—*
Tezuka, Toru; and Matsuda, Akira, 4,334,588, Cl. 180-68.00P.

Caterpillar Tractor Co.: *See—*
Hajek, Thomas J., II; and Lorimor, Larry W., 4,334,553, Cl. 137-625.660.
Hopkins, Michael F.; and Mayerchin, Alvin D., 4,334,415, Cl. 464-130.000.

Caubet, Jacques-Jean, to Centre Stephanois de Recherches Mecaniques Hydro-Mecanique et Frottement. Method for decorticating seeds. 4,335,151, Cl. 426-482.000.

Cavicchioli, Ugo: *See—*
Germano, Francesco; and Cavicchioli, Ugo, 4,334,362, Cl. 33-174.00L.

Centre Stephanois de Recherches Mecaniques Hydro-Mecanique et Frottement: *See—*
Caubet, Jacques-Jean, 4,335,151, Cl. 426-482.000.

Chalecki, Bernard W., Jr.: *See—*
Baker, James F.; and Chalecki, Bernard W., Jr., 4,335,131, Cl. 424-263.000.

Chalmers, Edward L., II; and Shugart, Wayne L., Sr., to Lange International S.A. Adjustable fastener for plastic ski boots. 4,334,368, Cl. 36-121.000.

Chambers, William J.; and Plambeck, Louis, Jr., to Du Pont de Nemours, E. I., and Company. Photoimaging process. 4,335,197, Cl. 430-271.000.

Champion International Corporation: *See—*
Thompson, Kenneth P., 4,334,942, Cl. 156-217.000.

Chan, Ka-Kong; and Pawson, Beverly A., to Hoffmann-La Roche Inc. Fluorinated polyenes. 4,335,248, Cl. 549-78.000.

Chandler, John E.; and Lenz, Robert W., to Exxon Research & Engineering Co. Crystalline co-polybenzyls preparation. 4,335,235, Cl. 528-397.000.

Chang, Sun C.: *See—*
Glanz, Richard; and Chang, Sun C., 4,335,316, Cl. 250-572.000.

Chase, Richard A.; Simpson, Danny E.; and Williams, David M., to Johnson & Johnson Baby Products Company. Infant development ring toy. 4,334,382, Cl. 46-1.00R.

Chedid, Louis: *See—*
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.

Chee, Tseng, to Elite Electrical Products Limited. Combined tape recording and playback apparatus and telephone answering apparatus controlled by pre-recorded signals. 4,335,278, Cl. 179-6.060.

Chemetics International Ltd.: *See—*
McFarland, John, 4,335,076, Cl. 422-171.000.

Chemische Werke Huels Aktiengesellschaft: *See—*
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, 4,335,018, Cl. 252-435.000.

Chemotronics International, Inc. Shareholders: *See—*
Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., 4,334,350, Cl. 29-611.000.

Chemplex Company: *See—*
Dombro, Robert A., 4,335,016, Cl. 252-429.00B.

Chen, Edward: *See—*
Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, 4,334,782, Cl. 356-406.000.

Chen, James T. C. Apparatus for probing semiconductor wafers. 4,335,350, Cl. 324-64.000.

Chen, Wen S.: *See—*
Mickelsen, Reid A.; and Chen, Wen S., 4,335,266, Cl. 136-260.000.

Cherkofsky, Saul C., to Du Pont de Nemours, E. I., and Company. Anti-inflammatory 4,5-diaryl-α-(polyfluoroalkyl)-1H-pyrrole-2-methanamines. 4,335,136, Cl. 424-274.000.

Chevron Research Company: *See—*
Aoyagi, Edward I., 4,335,133, Cl. 424-270.000.

Childers, Joseph R. Method of treating mites in poultry. 4,335,112, Cl. 424-177.000.

Childs, Warren L.; and Cronenwett, William T., to Cimarron Instruments, Inc. Electrosurgical generator control apparatus. 4,334,539, Cl. 128-303.140.

Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt.: *See—*
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Chlorine Engineers Corp.: *See—*
Hosaka, Hideaki; and Kuri, Setuya, 4,335,150, Cl. 426-465.000.

Cho-Pat, Inc.: *See—*
Gauvry, George R., 4,334,528, Cl. 128-80.00C.

Choay, Jean: *See—*
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.

Chow, Sen-Te; and Lin, Tsan H., to United States of America, Army. Adaptive post-filter for infrared scan converter. 4,335,400, Cl. 358-113.000.

Christensen, Burton G.; Leanza, William J.; and Wildonger, Kenneth J., to Merck & Co., Inc. Substituted N-methylene derivatives of thienamycin. 4,335,043, Cl. 260-245.20T.

Christiansen, Jens; and Schultheiss, Christoph. Method of producing an accellerating electrons and ions under application of voltage and arrangements connected therewith. 4,335,465, Cl. 376-156.000.

Chrysler Corporation: *See—*
Hall, John F., 4,334,989, Cl. 210-114.000.

Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, to Mobil Oil Corporation. Method of preparation of composite zeolite catalysts. 4,335,020, Cl. 252-455.00Z.

Chubb Panorama Limited: *See—*
Jackson, Peter J., 4,334,532, Cl. 128-204.260.

Chung, Alfred: *See—*
Ryan, James W.; and Chung, Alfred, 4,335,041, Cl. 260-112.50R.

Chupp, John P., to Monsanto Company. N-(Alkoxymethyl)-2'-nitro-6'-substituted-2-haloacetanilides and their use as herbicides and plant growth regulants. 4,334,909, Cl. 71-76.000.

Ciba-Geigy AG: *See—*
Long, William E., 4,335,245, Cl. 546-288.000.

Ciba-Geigy Corporation: *See—*
Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,054, Cl. 260-465.00G.
Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,055, Cl. 260-465.00K.
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.
Fischer, Hanspeter; Thummel, Rudolph C.; and Wehrli, Rudolf, 4,335,118, Cl. 424-226.000.
Roueche, Armand, 4,334,932, Cl. 524-191.000.

Cieslak, Leonard K.: *See—*
Cieslak, Stanley; and Cieslak, Leonard K., 4,334,519, Cl. 126-204.000.

Cieslak, Stanley; and Cieslak, Leonard K. Portable heater for generating and circulating heat in wearing apparel. 4,334,519, Cl. 126-204.000.

Cimarron Instruments, Inc.: *See—*
Childs, Warren L.; and Cronenwett, William T., 4,334,539, Cl. 128-303.140.

Cipolli, Roberto: *See—*
De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, 4,335,246, Cl. 546-309.000.

Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, to Kabi AB. Easily split substrates for the quantification of proteases. 4,335,204, Cl. 435-23.000.

Clarion Co., Ltd.: *See—*
Tanaka, Kouichi; and Mori, Masaharu, 4,335,322, Cl. 307-542.000.
Yokota, Tadashi; Watanabe, Wataru; and Kondo, Makoto, 4,335,409, Cl. 360-96.600.

Clark, Gary A., to International Business Machines Corporation. Booklet preparation utilizing an electrophotographic apparatus. 4,334,765, Cl. 355-14.0SH.

Clarke, Christopher K. P., to British Broadcasting Corporation. Standards conversion of color television signals. 4,335,395, Cl. 358-11.000.

Clarke, Donald H.; Pomranky, George J.; and Schmidt, Donald L., to Dow Chemical Company, The. Process for reacting isocyanates in the presence of quaternary ammonium zwitterions. 4,335,219, Cl. 521-128.000.

Clausing, Don P., to Xerox Corporation. Precise center line registration of a substrate. 4,334,759, Cl. 355-3.0SH.

Clayborne, William J.: *See—*
Hauser, Hans; and Clayborne, William J., 4,334,719, Cl. 308-121.000.

Clayton, Charles R. Golf club bag. 4,334,564, Cl. 150-1.50C.

Clement, Mark W. P., to General Signal Corporation. Electronic interrupter. 4,335,418, Cl. 361-152.000.

Clifton, Kenneth C., to Harris Corporation. Delivery mechanism. 4,334,673, Cl. 271-65.000.

Clinton, Robert E. Support apparatus for prosthetic appliance. 4,334,527, Cl. 128-79.000.

Coca-Cola Company, The: *See—*
Davis, Johnnie G., 4,334,601, Cl. 190-44.000.
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.

Colechia, Edward A.: *See—*
Males, Robert E.; and Colechia, Edward A., 4,334,613, Cl. 206-340.000.

Coleman, Charles, to Emerson Electric Company. Timed dual comparator alarm. 4,335,378, Cl. 340-629.000.

Coleman Company, Inc., The: *See—*
Hefling, Dennis V., 4,334,462, Cl. 99-385.000.

Collette, John W.; and Tullock, Charles W., to Du Pont de Nemours, E. I., and Company. Elastomeric polypropylene. 4,335,225, Cl. 525-240.000.

Collins, Keith R., to Orewa Inc. Pharmaceutical compositions of sanguinaria galangal and zinc chloride. 4,335,110, Cl. 424-145.000.

Colln, Reimer; Sirrenberg, Wilhelm; Behrenz, Wolfgang; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. 1-Hydroxy-2,2,2-trichloroethane-thionophosphonic acid dimethyl esters as insecticide. 4,335,117, Cl. 424-217.000.

Colmar, Jack E. Movable web variable exhibitor. 4,334,372, Cl. 40-16.200.

Colombo, Donato; and Baldacci, Lapo. Mechanical telephone conversation time limiting device. 4,335,279, Cl. 179-7.10R.

Coltharp, David R., to United States of America, Navy. Warhead initiation system. 4,334,474, Cl. 102-206.000.

Colwell, William L.; and Schmelzle, Carl W., to Bunker Ramo Corporation. Insulated from ground bulkhead adapter. 4,334,730, Cl. 339-130.00C.

Combier, Henri; Prat, Gisele; and Pontagnier, Henri, to Laboratoires Sarget. Triterpenic saponin having pharmacological potency. 4,335,113, Cl. 424-180.000.

Commissariat a l'Energie Atomique: *See—*
Muller, Georges, 4,334,896, Cl. 55-96.000.
Robin, Marcel, 4,335,467, Cl. 376-285.000.

Commonwealth of Australia - Dept. of Health, The: *See—*
Gill, Robert W., 4,334,432, Cl. 73-602.000.

Commonwealth Scientific and Industrial Research: *See—*
Bedding, Robyn A., 4,334,498, Cl. 119-1.000.

Communications Technology Corporation: *See—*
Kund, August, 4,334,726, Cl. 339-14.00L.

Compagnie Francaise d'Etudes et de Construction "Technip": *See—*
Paradowski, Henri, 4,334,902, Cl. 62-9.000.

Compair Industrial Ltd.: *See—*
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Concannon, Thomas P., to Du Pont de Nemours, E. I., and Company. Aqueous dispersion of fluoropolymers in combination with epoxy-type film formers. 4,335,030, Cl. 523-408.000.

Coney, Charles H., to Eastman Kodak Company. Sequestering agents and compositions produced therefrom. 4,335,220, Cl. 523-414.000.

Conn, John L. Separable hinge. 4,334,338, Cl. 16-266.000.

Connell, Joseph A. Iceberg propulsion system. 4,334,873, Cl. 440-113.000.

Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L. Surface aerator impeller. 4,334,826, Cl. 416-185.000.

Connolly, Joseph J., Jr.; Redfern, Thomas P.; and Frederiksen, Thomas M., to National Semiconductor Corporation. Digital error correcting trimming in an analog to digital converter. 4,335,371, Cl. 340-347.0CC.

Connor, Peter J.; and Hagar, Donald K., to Mosser Industries, Inc. Sealing means for sliding gate valve. 4,334,550, Cl. 137-242.000.

Conoco Inc.: *See—*
Fair, Delbert W., 4,334,592, Cl. 181-121.000.
Lancet, Michael S.; and Curran, George P., 4,334,894, Cl. 48-209.000.

Container Corporation of America: *See—*
Watson, William H.; and Young, Chauncey, 4,334,611, Cl. 206-303.000.

Continental Group, Inc., The: *See—*
Krishnakumar, Suppayan M.; and Pocock, John F. E., 4,334,627, Cl. 215-1.00C.

Converse, Merle E., to Transaction Control Industries. Current limiting circuit for switching regulator. 4,335,345, Cl. 323-278.000.

Corcoran, William H.; Vasilakos, Nicholas P.; and Lawson, Daniel D., to California Institute of Technology. Coal desulfurization. 4,334,888, Cl. 44-1.0SR.

Cornelius Company, The: *See—*
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.

Cornell Research Foundation: *See—*
Meister, Alton; and Williamson, Joanne M., 4,335,210, Cl. 435-113.000.

Cornwell, David A., to Board of Trustees, Michigan State University. Process for the extraction of metal ions. 4,334,999, Cl. 210-638.000.

Correll, Stephen: *See—*
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Cotter, Theodore P.: *See—*
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.

Courtaulds Limited: *See—*
Bahia, Hardev S., 4,334,401, Cl. 57-6.000.

Couvbenberg, Winston D.: *See—*
Peters, Robert C.; Vrenken, Louis E.; Couvbenberg, Winston D.; and Ligthart, Franciscus A. S., 4,335,330, Cl. 313-486.000.

Cox, Richard D. Livestock feeder apparatus. 4,334,502, Cl. 119-53.000.

Coyne, Roy J.: *See—*
Lombardi, Louis J.; and Coyne, Roy J., 4,334,970, Cl. 204-159.150.

CPC International Inc.: *See—*
Heady, Robert E., 4,335,207, Cl. 435-94.000.

Crandall, Kenneth C.; and Robinton, Michael A., to Robinton Products, Inc. Sensitive demodulator for frequency shift keyed carrier signals. 4,335,354, Cl. 329-126.000.

Crandon, Albert S., Jr.: *See—*
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., 4,334,563, Cl. 145-2.00R.

Crane, Harold E. Ship efficiency analyzer. 4,334,425, Cl. 73-112.000.

Crawford, Roy P.; Gilovich, Paul A.; and McMurtry, David H., to International Business Machines Corporation. Automatic tape threading apparatus for magnetic tape transports. 4,334,656, Cl. 242-195.000.

Credelle, Thomas L., to RCA Corporation. Focus mesh structure and biasing technique for flat panel display devices. 4,335,332, Cl. 315-366.000.

Credle, William S., Jr.: *See—*
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.

Cremeans, George E.; and Markle, Richard A., to Battelle Development Corporation. Air-driable alkyd resins and process for their preparation. 4,335,027, Cl. 528-281.000.

Creyf, Hubert S., to PRB N.V. Method of preparing polyures foam materials. 4,334,944, Cl. 156-308.200.

Crichton, George: *See—*
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.

Croce, Carmen L.: *See—*
Apothaker, Richard L.; Reed, James; Croce, Carmen L.; and Wagner, Frederick B., III, 4,334,904, Cl. 65-36.000.

Cromwell, John E.: *See—*
Hyde, Glenn F.; and Cromwell, John E., 4,334,927, Cl. 75-240.000.

Cronenwett, William T.: *See—*
Childs, Warren L.; and Cronenwett, William T., 4,334,539, Cl. 128-303.140.

Crosby, Philip S., to Tektronix, Inc. Programmable two-quadrant transconductance amplifier. 4,335,356, Cl. 330-254.000.

Croset, Michel; and Velasco, Gonzalo, to Thomson-CSF. Electrochemical sensor for measuring relative concentrations of reactive species in a fluid mixture and a system comprising said sensor, especially for regulation. 4,334,510, Cl. 123-440.000.

Crouzet: *See—*
Foucard, Joseph, 4,335,463, Cl. 375-1.000.

Crown City Plating Co.: *See—*
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, 4,335,164, Cl. 427-304.000.

Crown Zellerbach Corporation: *See—*
Reba, Imants, 4,334,340, Cl. 19-299.000.

CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A.: *See—*
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.

CTS Corporation: *See—*
VanBenthuysen, John D., 4,334,352, Cl. 29-620.000.

Cummins, Earl W.; Gleich, Steven I.; and Vigilant, Robert M., to Du Pont de Nemours, E. I., and Company. Preparation of the calcium salt of alpha-hydroxy-gamma-methylmercaptobutyric acid. 4,335,257, Cl. 562-581.000.

Cunningham, James A.; and Tuxford, Anthony M., to National Semiconductor Corporation. Method of producing a fault transparent bubble memory by diffusing manganese in preselected permalloy elements. 4,335,162, Cl. 427-130.000.

Cunnington, Harry, to Norcros Investments Limited. Web indexing apparatus and overprinting machine. 4,334,645, Cl. 226-137.000.

Curran, George P.: *See—*
Lancet, Michael S.; and Curran, George P., 4,334,894, Cl. 48-209.000.

Cutler, Robert S.; and Moore, Michael T., to International Business Machines Corporation. Ink jet ink composition. 4,334,878, Cl. 524-88.000.

Cutter Laboratories, Inc.: *See—*
Wilson, David A.; and Serany, Frank J., 4,334,535, Cl. 128-214.00D.

Cvengros, Jan: *See—*
Tkac, Alexander; and Cvengros, Jan, 4,334,952, Cl. 159-11.00R.

Dabi, Shmuel; Loewrigkeit, Peter; and Van Dyk, Kenneth A., to Witco Chemical Corporation. Aqueous polyurethane compositions. 4,335,029, Cl. 524-589.000.

Daicel Chemical Industries, Ltd.: *See—*
Ueda, Yoichiro, 4,335,261, Cl. 568-366.000.

Daihatsu Motor Co., Ltd.: *See—*
Kawakatsu, Shiro, 4,335,429, Cl. 364-424.000.

Daimler-Benz Aktiengesellschaft: *See—*
Huber, Guntram, 4,334,693, Cl. 280-95.00R.
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, 4,334,699, Cl. 280-731.000.

Dainippon Screen Seizo Kabushiki Kaisha: *See—*
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, 4,335,407, Cl. 358-284.000.
Yamada, Mitsuhiko, 4,335,398, Cl. 358-80.000.

Daiwa Can Company: *See—*
Konagaya, Takeshi; and Yano, Shunji, 4,334,548, Cl. 134-170.000.

Dale, Steinar J., to Westinghouse Electric Corp. Particle trap with dielectric barrier for use in gas insulated transmission lines. 4,335,268, Cl. 174-14.00R.

Dalton, Augustine I., Jr.; and Skinner, Ronald W., to Air Products and Chemicals, Inc. Synthesis of hydrogen peroxide. 4,335,092, Cl. 423-584.000.

Dancy, William B.: *See—*
Harrison, Marvin H.; and Dancy, William B., 4,334,885, Cl. 23-300.000.

Danfoss A/S: *See—*
Dyhr, Jan; and Nissen, Ole J., 4,334,835, Cl. 417-363.000.
Hansen, Christian B.; and Flagstad, Carl D., 4,334,843, Cl. 418-61.00B.

Daniel, Sam M.: *See—*
Aufderheide, Maurice B.; and Daniel, Sam M., 4,335,372, Cl. 340-347.0DD.

Daniels, Dennis. Trolling rig. 4,334,380, Cl. 43-27.400.

Data General Corporation: *See—*
Trenary, Dale T.; Frederick, Allen H.; and Whelton, Robert M., 4,334,348, Cl. 29-571.000.

Datagraphix, Inc.: *See—*
Link, William T., 4,334,742, Cl. 353-78.000.
Link, William T., 4,334,743, Cl. 353-97.000.

Date, Nobuaki: *See—*
Saito, Syuichiro; Date, Nobuaki; Suzuki, Ryoichi; and Sugiura, Yoji, 4,334,749, Cl. 354-234.000.

Daugas, Claude, to Societe d'Etudes de Machines Thermiques S.E.M.T. Device for recovering heat energy in a supercharged internal-combustion engine. 4,334,409, Cl. 60-618.000.

Daum, Gerhard: *See—*
Bernhardt, Gunther; Petersen, Egon-Norbert; and Daum, Gerhard, 4,335,052, Cl. 260-465.00R.

Dauvergne, Jean L. R., to Societe Anonyme Francaise du Ferodo. Hydraulic control system. 4,334,713, Cl. 303-54.000.

David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. Stabilized, prostaglandin-containing tablets with controlled rate of solubility, for local use and process for the preparation thereof. 4,335,097, Cl. 424-14.000.

Davies, Ronald C., to Casino Investment Limited. Coin detecting apparatus for distinguishing genuine coins from slugs, spurious coins and the like. 4,334,604, Cl. 194-100.00A.

Davis, Alexander: *See—*
Rennie, Andrew L.; and Davis, Alexander, 4,334,574, Cl. 164-4.100.

Davis, Johnnie G., to Coca-Cola Company, The. Utility bag. 4,334,601, Cl. 190-44.000.

Davis, Robert A.: *See—*
Relyea, Douglas I.; and Davis, Robert A., 4,335,142, Cl. 424-337.000.

Davis, Robert D.; and Blizzard, Roy L., to Thermo Electron Corporation. Apparatus for producing selective particle sized oxide. 4,335,080, Cl. 422-244.000.

Davis, Thomas R.; and Bostian, Charles D., to Tempel-Callison Company. Lanyard support for metal building roof. 4,334,662, Cl. 248-237.000.

Day, John T.; and Udy, Lex L., to Mining Services International Corporation. Primer cup. 4,334,476, Cl. 102-275.700.

Dayco Corporation: *See—*
Jacob, Richard J.; White, Jack D.; and Richmond, Kenneth D., 4,334,569, Cl. 152-221.000.
Kleykamp, Donald L., 4,334,625, Cl. 213-61.000.

DEA Digital Electronic Automation SpA: *See—*
Germano, Francesco; and Cavicchioli, Ugo, 4,334,362, Cl. 33-174.00L.

Decatur Electronics, Inc.: *See—*
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Deem, Larry D. Pipe coupling. 4,334,559, Cl. 141-346.000.

De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, to Aziende Colori Nazionali Affini ACNA S.p.A. Substituted arylamine intermediates for dyes. 4,335,246, Cl. 546-309.000.

De Guise, Yvon. Guard-rails assembly. 4,334,671, Cl. 256-65.000.

DeGuiseppi, David T., to Upjohn Company, The. Process for the preparation of a foam-cored laminate having metal facers and rigid polyisocyanurate foam core prepared in the presence of a dipolar aprotic organic solvent. 4,335,218, Cl. 521-99.000.

Degussa Aktiengesellschaft: *See—*
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.

Dekker, Lambert: *See—*
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,335,009, Cl. 252-187.270.

Delatush, John J., to United States of America, Navy. Adjustable container bulkhead assembly. 4,334,812, Cl. 410-52.000.

Delavarenne, Serge; and Tellier, Pierre, to PCUK Produits Chimiques Ugine Kuhlmann. Process for the preparation of the 5- and 6-nitro derivatives of 1,2,3,4-tetrahydro-anthraquinone from 1,2,3,4,4a,9a-hexahydro-9,10-anthracene-dione. 4,335,050, Cl. 260-369.000.

Delbag-Luftfilter GmbH: *See—*
Neumann, Gerhard-Max, 4,334,900, Cl. 55-350.000.

Delcoigne, Adrien; and Lanneau, Jacques, to Saint Gobain Industries. Process and mechanism for evolutive pulp flow regulation. 4,334,786, Cl. 366-132.000.

Delepine, Jean C. Wide-mouthed spout for flow of liquid. 4,334,328, Cl. 4-191.000.

De Luca, Paul V.: *See—*
Hollfelder, Thomas A.; and De Luca, Paul V., 4,335,416, Cl. 361-119.000.

del Valle, Frank: *See—*
Rikon, Steven M.; and del Valle, Frank, 4,335,153, Cl. 426-540.000.

deMan, Albert: *See—*
Diebel, Howard; and deMan, Albert, 4,334,547, Cl. 134-46.000.

Demmin, Timothy R.; and Rogic, Milorad M., to Allied Corporation. Preparation of muconic acid mononitriles and copper(II)-ammonia reagent therefor. 4,335,010, Cl. 252-189.000.

Denzler, Eric-Alain, to Sachim S.A. Preparation of N-alkenyl-2-aminomethyl-pyrrolidines. 4,335,045, Cl. 548-566.000.

Derbyshire, Francis J.; Varghese, Philip; and Whitehurst, Darrell D., to Mobil Oil Corporation. Method for the generation of recycle solvents in coal liquefaction. 4,334,977, Cl. 208-8.0LE.

Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., to TRW Inc. Method and apparatus for use in making an object. 4,334,495, Cl. 118-669.000.

Detmold, Peter J. Draft gear locking device. 4,334,624, Cl. 213-43.000.

Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., to Engelhard Corporation. Monolithic catalyst member and support therefor. 4,335,023, Cl. 252-466.0PT.

Deutsche Hefewerke GmbH: *See—*
Carduck, Franz-Josef; Kloetzer, Dietrich; and Veldman, Gerard, 4,335,144, Cl. 426-62.000.

DeVries, Richard C.; and Hill, Edwin R., to Technicare Corporation. Radiographic apparatus and method with automatic exposure control. 4,335,307, Cl. 250-322.000.

Deweese, Vernon D. Torsion bar suspension assembly. 4,334,697, Cl. 280-689.000.

de Witt, Paolo; and Diamanti, Enrico, to Sigma-Tau Industrie Farmaceutiche Riunite S.p.A. Process for manufacturing d,l-β-benzoylamino-isobutyric acid. 4,335,256, Cl. 562-450.000.

Diamanti, Enrico: *See—*
de Witt, Paolo; and Diamanti, Enrico, 4,335,256, Cl. 562-450.000.

Dickey, Baron C. Electronic angle resolver. 4,335,443, Cl. 364-815.000.

Diebel, Howard; and deMan, Albert, to Moyer Diebel Limited. Washing machine for glasses and the like. 4,334,547, Cl. 134-46.000.

Dietz, Hermann: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Dietze, Andreas: *See—*
Kriedt, Hans; and Dietze, Andreas, 4,335,359, Cl. 330-257.000.

Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, to Crown City Plating Co. Conditioning of polyamides for electroless plating. 4,335,164, Cl. 427-304.000.

Dimsa, Robert D.: *See—*
Mazur, Richard J.; Dimsa, Robert D.; and Pekarcik, John T., 4,334,711, Cl. 303-16.000.

Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, to Ciba-Geigy Corporation. 4-(2',2,2'-

Trihalogenoethyl)-cyclobutane-1-sulfonic acid salts with optically active bases. 4,335,057, Cl. 260-501.190.
Dinius, James H., to Kimberly-Clark Corporation. Method of forming a fibrous web with high fiber throughput screening. 4,335,066, Cl. 264-121.000.
Dinter, Konrad M., to RCA Corporation. Digital tracking system. 4,335,408, Cl. 360-77.000.
Dischert, William A., to RCA Corporation. Length counter for web transport system. 4,335,411, Cl. 360-137.000.
Dittmer, Ellen; and Pietryga, Lothar. Collapsible, portable barbecue grill. 4,334,516, Cl. 126-9.00R.
Djurson, Sten: *See—*
Waerve, Hans; and Djurson, Sten, 4,335,315, Cl. 250-523.000.
Dr. Ing. h.c.F. Porsche Aktiengesellschaft: *See—*
Ruf, Gebhard, 4,334,698, Cl. 280-690.000.
Doi, Kazumi: *See—*
Ikeda, Yoshi; Osada, Kenji; and Doi, Kazumi, 4,334,842, Cl. 418-45.000.
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu: Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, to Asahi Kasei Kogyo Kabushiki Kaisha. Microporous film, particularly battery separator, and method of making. 4,335,193, Cl. 429-251.000.
Dombro, Robert A., to Chemplex Company. Catalyst and method. 4,335,016, Cl. 252-429.00B.
Domey, Jacques; and Rioux, Marc, to Canadian Patents & Dev. Limited. Non-contact optical apparatus for measuring the length or speed of a relatively moving surface. 4,334,779, Cl. 356-358.000.
Donner, Jurgen: *See—*
Ludwig, Bernd; and Donner, Jurgen, 4,335,288, Cl. 200-307.000.
Donovan, Lawrence P., III: *See—*
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, 4,335,164, Cl. 427-304.000.
Dooley, Richard A. Apparatus for manipulating a spray head of a spray gun. 4,334,649, Cl. 239-587.000.
Doryokuro Kakunenryo Kaihatsu Jigyodan: *See—*
Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, 4,334,937, Cl. 148-12.00R.
Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V.: *See—*
van Overbruggen, Garardus J. J.; van Beaumont, Richard A.; and Thijssen, Henricus A. C., 4,334,640, Cl. 222-207.000.
Dow Chemical Company, The: *See—*
Clarke, Donald H.; Pomranky, George J.; and Schmidt, Donald L., 4,335,219, Cl. 521-128.000.
Thomas, Lowell S., 4,335,038, Cl. 524-188.000.
Downs, Edgar S. Motor-driven cap-gripper and can-opener. 4,334,332, Cl. 7-150.000.
Dowty Fuel Systems Limited: *See—*
Todd, Geoffrey C., 4,334,406, Cl. 60-223.000.
Doyel, John S. Exerciser. 4,334,678, Cl. 272-141.000.
Doyle, Holly T.; Doyle, Robert O.; and Thomis, Wendl. Hand-held pinball game. 4,334,679, Cl. 273-1.00E.
Doyle, Robert O.: *See—*
Doyle, Holly T.; Doyle, Robert O.; and Thomis, Wendl, 4,334,679, Cl. 273-1.00E.
Draiswerke GmbH: *See—*
Engels, Kaspar, 4,334,784, Cl. 366-76.000.
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, to Siemens Aktiengesellschaft. Circuit for generating an electric signal proportional to a flux component of a rotating-field machine. 4,335,343, Cl. 318-798.000.
Drumare, Huguette. Tank designed to contain a liquefied gas. 4,334,410, Cl. 62-49.000.
Duchateau, Jacques; and Van den Bossche, Christien, to BFG Glassgroup. Vitreous fertilizer compositions. 4,334,908, Cl. 71-52.000.
Dukess, Joseph. Solar heat apparatus. 4,334,522, Cl. 126-440.000.
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, to Servimetal. Cartridge for active filtration and treatment of liquid metals and alloys. 4,334,990, Cl. 210-186.000.
Dumont, Claude: *See—*
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.
Dunand, Francois M.: *See—*
Appel, Jean G.; and Dunand, Francois M., 4,334,434, Cl. 73-861.290.
Dunlop Limited: *See—*
Bond, Robert, 4,334,567, Cl. 152-209.00R.
Du Pont de Nemours, E. I., and Company: *See—*
Adelman, Robert L.; and Turner, John J. P., 4,335,185, Cl. 428-361.000.
Chambers, William J.; and Plambeck, Louis, Jr., 4,335,197, Cl. 430-271.000.
Cherkofsky, Saul C., 4,335,136, Cl. 424-274.000.
Collette, John W.; and Tullock, Charles W., 4,335,225, Cl. 525-240.000.
Concannon, Thomas P., 4,335,030, Cl. 523-408.000.
Cummins, Earl W.; Gleich, Steven I.; and Vigilant, Robert M., 4,335,257, Cl. 562-581.000.
Fowell, Peter A., 4,335,036, Cl. 524-376.000.
Hazan, Isidor, 4,335,031, Cl. 524-504.000.
Hengel, Rolf; and Eaton, David F., 4,335,202, Cl. 430-604.000.
Irwin, Robert S., 4,335,232, Cl. 528-128.000.
Krespan, Carl G., 4,335,255, Cl. 560-174.000.
Levy, Stanley B., 4,335,069, Cl. 264-290.200.
Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., 4,335,199, Cl. 430-434.000.
Moon, Marcus P., 4,335,140, Cl. 424-298.000.
Moore, Albert L.; Stewart, Clare A., Jr.; and Swerlick, Isadore, 4,335,238, Cl. 526-254.000.
Yates, Paul C., 4,335,264, Cl. 568-479.000.
Durant, Will G. Valve bag placer. 4,334,558, Cl. 141-114.000.
Dworsky, Lawrence N.: *See—*
Wakat, Emory, Jr.; Dworsky, Lawrence N.; Krolak, Leo V.; Whalin, Jeffery A.; and Mech, Harold W., 4,334,343, Cl. 29-25.350.
Dwyer, Francis G.: *See—*
Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, 4,335,020, Cl. 252-455.00Z.
Dyar, Harrison G. Thermal insulating system particularly adapted for building construction. 4,334,395, Cl. 52-407.000.
Dybas, Richard A.: *See—*
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,335,141, Cl. 424-304.000.
Dyer, Thomas A., to Pentak Corporation. Load-entry assembly for conveyor systems. 4,334,607, Cl. 198-487.000.
Dyhr, Jan; and Nissen, Ole J., to Danfoss A/S. Encapsulated refrigerator. 4,334,835, Cl. 417-363.000.
Dynamit Nobel Aktiengesellschaft: *See—*
Bernhardt, Gunther; Petersen, Egon-Norbert; and Daum, Gerhard, 4,335,052, Cl. 260-465.00R.
Dysarz, Edward D., to James G. Brown & Associates, Inc. Support structure for offshore platforms. 4,334,802, Cl. 405-196.000.
Dziedzic, Edward, to A. B. Chance Company. Modular screw anchor having lead point non-integral with helix plate. 4,334,392, Cl. 52-157.000.
Early, James M., to Fairchild Camera & Instrument Corp. Method for semiconductor memory testing. 4,335,457, Cl. 371-28.000.
Eastman Kodak Company: *See—*
Caraballo, Angel, 4,335,173, Cl. 428-65.000.
Coney, Charles H., 4,335,220, Cl. 523-414.000.
Harvey, Donald M., 4,334,753, Cl. 354-289.000.
Miller, Donald N.; and Kydd, Richard A., 4,335,201, Cl. 430-527.000.
Wilson, John C.; and Yacobucci, Paul D., 4,335,254, Cl. 560-138.000.
Eaton Corporation: *See—*
Aschenbach, Louis F.; and Pusatcioglu, Selami Y., 4,335,287, Cl. 200-302.000.
Migrin, Robert S., 4,335,283, Cl. 200-61.250.
Eaton, David F.: *See—*
Hengel, Rolf; and Eaton, David F., 4,335,202, Cl. 430-604.000.
Ebauches Electroniques S.A.: *See—*
Fatton, Jean-Claude, 4,335,453, Cl. 368-30.000.
Eberhard Faber, Inc.: *See—*
Nelson, John E., 4,334,364, Cl. 33-438.000.
Eberlin, Philippe; and Rossi, Mario, to Blanchut & Bertrand S.A. Electro-acoustic device for the underwater signalling and identification of a vessel. 4,335,452, Cl. 367-134.000.
Eckert, Eugen, to Maschinenfabrik Rissen GmbH; and 4P Nicolaus Kempten GmbH. Process for forming a sleeve by winding and a device for executing the method. 4,334,875, Cl. 493-303.000.
Edeleanu Gesellschaft mbH: *See—*
Prezelj, Milan; Osterburg, Gunter; and Putz, Joachim E., 4,334,964, Cl. 203-14.000.
Edgerton, Milton T.: *See—*
Bull, Glen L.; McDonald, Wesley E.; and Edgerton, Milton T., 4,335,276, Cl. 179-1.0SP.
Edging, Thomas E.: *See—*
Benjamin, Robert E.; and Edging, Thomas E., 4,335,154, Cl. 426-551.000.
Edison International, Inc.: *See—*
Kolditz, John W., 4,335,167, Cl. 428-35.000.
Edwards, Joseph T., to Mobil Oil Corporation. Determination of pyrite and siderite content of formation deposits. 4,334,882, Cl. 23-230.00R.
Efimov, Vladimir M.; Naumova, Tatyana N.; Bykova, Irina G.; and Stroganova, Larisa A. Process for producing ammonium carbonate. 4,335,088, Cl. 423-420.000.
Efner, Howard F., to Phillips Petroleum Company. Lubricating compositions containing diesters of dimercapto ethers. 4,335,004, Cl. 252-48.600.
Electric Power Research Institute, Inc.: *See—*
Levin, Harry P., 4,335,273, Cl. 174-52.00S.
Eli Lilly and Company: *See—*
Kukolja, Stjepan; and Pfeil, Janice L., 4,335,240, Cl. 544-90.000.
Elite Electrical Products Limited: *See—*
Chee, Tseng, 4,335,278, Cl. 179-6.060.
Elliott, John F.: *See—*
Kim, Jonathan J.; and Elliott, John F., 4,334,925, Cl. 75-133.500.
Ellis, Giles Arthur: *See—*
Simmons, John J.; and Hutson, Douglas W., 4,334,460, Cl. 98-83.000.
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., to Leather's Chemical Company, Limited. Phosphoric acid ammoniation process to produce liquid fertilizers. 4,334,907, Cl. 71-34.000.
Ellison, Thomas L.: *See—*
Shay, Robert H.; and Ellison, Thomas L., 4,334,938, Cl. 148-16.700.
Elston, Jay T., to Kardon Industries, Inc. Method of manufacturing composite containers. 4,334,487, Cl. 413-6.000.
Eltra Corporation: *See—*
Nash, Donald R., 4,334,509, Cl. 123-414.000.

Emerson Electric Company: *See—*
Coleman, Charles, 4,335,378, Cl. 340-629.000.
Emery Industries, Inc.: *See—*
Bender, Ruediger F.; and van Veersen, Gerardus J., 4,335,227, Cl. 525-333.000.
Emhart Industries, Inc.: *See—*
Adams, Richard E.; and Stafford, Richard W., 4,335,282, Cl. 200-38.00R.
Ender, Erhard: *See—*
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Endo, Akira: *See—*
Koizumi, Akio; Nakazawa, Hiroshi; and Endo, Akira, 4,335,423, Cl. 363-21.000.
Enertec: *See—*
Filippini, Fulvio, 4,335,336, Cl. 318-6.000.
Engel, John F., to FMC Corporation. Insecticidal pyrethroid enantiomer pair. 4,335,252, Cl. 560-124.000.
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., to Westinghouse Electric Corp. Circuit interrupter with remote indicator and power supply. 4,335,413, Cl. 361-93.000.
Engel, Joseph C.: *See—*
Wilson, John T.; Wafer, John A.; and Engel, Joseph C., 4,335,437, Cl. 364-483.000.
Engel, Jurgen: *See—*
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.
Engelhard Corporation: *See—*
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.
Engels, Kaspar, to Draiswerke GmbH. Method for processing thermoplastics or thermosetting plastics. 4,334,784, Cl. 366-76.000.
Engineered Systems, Inc.: *See—*
VanNess, Bradford O., 4,335,448, Cl. 364-900.000.
English Clays Lovering Pochin & Co. Limited: *See—*
Broad, Bernard H., 4,334,996, Cl. 210-350.000.
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., to Budd Company, The. Swingable impact tool. 4,334,563, Cl. 145-2.00R.
Ergaver, Rayko, to Capella Inc. Hair styler extrusion. 4,335,168, Cl. 428-36.000.
Escher Wyss Ltd.: *See—*
Biondetti, Mario, 4,334,344, Cl. 29-116.0AD.
Esper, Friedrich: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.
Essig, Robert A.: *See—*
Buth, Randy L.; and Essig, Robert A., 4,334,648, Cl. 236-49.000.
Etablissements Letang & Remy: *See—*
Victor, Rene, 4,334,417, Cl. 72-56.000.
Ets. Francois Salomon et Fils, S. A.: *See—*
Salomon, Georges P. J., 4,334,367, Cl. 36-117.000.
Eusterbarkey, Friedhelm, to A. Stephan u. Sohne GmbH & Co. Mixing and kneading tool. 4,334,789, Cl. 366-343.000.
Evans, Gordon V.: *See—*
Caldecourt, Leonard R.; Evans, Gordon V.; and Parsons, Tony V., 4,335,308, Cl. 250-358.00R.
Everstrong Marketing, Inc.: *See—*
U'Ren, Kenneth R., 4,334,393, Cl. 52-169.600.
Ewald, Jerome T.: *See—*
Brown, Arthur K.; Hendrickson, Richard T.; and Ewald, Jerome T., 4,334,832, Cl. 417-218.000.
Exxon Research & Engineering Co.: *See—*
Broadhurst, Thomas E., 4,334,978, Cl. 208-33.000.
Chandler, John E.; and Lenz, Robert W., 4,335,235, Cl. 528-397.000.
Lang, Robert J., 4,334,893, Cl. 48-202.000.
Mentzer, David, 4,334,983, Cl. 208-326.000.
F. Jos. Lamb Company: *See—*
Bonzack, Eugene P., 4,334,436, Cl. 74-44.000.
Fabrig, Paul, to Womako Maschinenkonstrucktionen GmbH. Apparatus for transporting stacks of paper sheets or the like. 4,334,608, Cl. 198-650.000.
Fair, Delbert W., to Conoco Inc. Sea water hydraulic fluid system for an underground vibrator. 4,334,592, Cl. 181-121.000.
Fairchild Camera & Instrument Corp.: *See—*
Early, James M., 4,335,457, Cl. 371-28.000.
Sloane, Edwin A., 4,335,373, Cl. 340-347.0CC.
Farag, Maya S.: *See—*
Marano, John P., Jr.; and Farag, Maya S., 4,335,181, Cl. 428-319.300.
Faria, Thomas G. Moving magnet electrical meter with single pivot pin for the moving magnet and a fixed return magnet. 4,335,351, Cl. 324-146.000.
Farmer, Thomas E. Goose decoy back pack. 4,334,643, Cl. 224-153.000.
Farmhand Inc.: *See—*
Nishibe, Kazuteru; and Furukawa, Naoji, 4,334,467, Cl. 100-89.000.
Farrington, Alan; and Nelson, Peter F., to Australian Paper Manufacturers Limited. Method of reutilizing kraft spent liquor. 4,334,956, Cl. 162-30.110.
Fathergill, Rex D.: *See—*
Martin, James O.; Fathergill, Rex D.; and Krimm, David L., 4,334,456, Cl. 84-314.00R.
Fatton, Jean-Claude, to Ebauches Electroniques S.A. Electronic watch. 4,335,453, Cl. 368-30.000.
Faulconer, William M., to Phillips Petroleum Co. Tube guide. 4,334,420, Cl. 72-250.000.
Fearing, Ralph B., to Stauffer Chemical Company. Textiles containing a poly(oxyorganophosphate/phosphonate) flame retardant. 4,335,178, Cl. 428-253.000.
Feder, Joseph: *See—*
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.
Fegan, Richard: *See—*
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.
Fehr, Rainer, to Hoffmann-La Roche Inc. Method and apparatus for flow velocity determination. 4,334,543, Cl. 128-663.000.
Fehrer, Ernst. Apparatus for making a yarn. 4,334,400, Cl. 57-5.000.
Feichtinger, Alfred: *See—*
Brandenberger, Kurt; Feichtinger, Alfred; and Fischer, Werner, 4,334,960, Cl. 201-17.000.
Felix, Willi, to Jos. Hunkeler AG Fabrik fur graphische Maschinen. Apparatus for automatically applying sheet units to endless web. 4,334,672, Cl. 270-53.000.
Ferguson, Arthur; and Spector, George. Portable window dryer vent. 4,334,461, Cl. 98-119.000.
Fernandez, Jose R. J.; and Gonzalez, Fernando B. Cigarette dispenser adaptor. 4,334,634, Cl. 221-131.000.
Ferraro, Armand J.: *See—*
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,335,460, Cl. 371-49.000.
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., to Coca-Cola Company, The; and Cornelius Company, The. Diaphragm type fluid pump having a flexible diaphragm with an internal reinforcing plate. 4,334,838, Cl. 417-395.000.
Fetheroff, Charles W.: *See—*
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.
Feuer, Mervyn L., to Frazier, Leonard. Signalling method and apparatus for enhancing echo images. 4,335,451, Cl. 367-115.000.
Feuersanger, Alfred E.: *See—*
Buhrer, Carl F.; and Feuersanger, Alfred E., 4,334,628, Cl. 220-2.10R.
Fiat Auto S.p.A.: *See—*
Palitto, Mauro, 4,334,600, Cl. 188-314.000.
Fichter, Peter K., to Polaroid Corporation. Film assemblage having film releasably attached to film spool. 4,334,750, Cl. 354-275.000.
Field, Peter, to Approved Performance Tooling, Inc. Cutting tool and holder therefor. 4,334,446, Cl. 82-36.00R.
Filippini, Fulvio, to Enertec. Device for controlling speed. 4,335,336, Cl. 318-6.000.
Fima, Raoul G.; and Mahieux, Jacques E. Apparatus for indicating parameters sensed on a rotatable wheel. 4,334,428, Cl. 73-146.500.
Findeisen, Kurt: *See—*
Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, 4,334,905, Cl. 71-27.000.
Finnemore, Fred M.: *See—*
Johnson, Bruce K.; and Finnemore, Fred M., 4,334,752, Cl. 354-288.000.
Firmenich SA: *See—*
Schulte-Elte, Karl H.; Becker, Joseph J.; and Schenk, Walter, 4,335,262, Cl. 568-361.000.
Fischer, Hanspeter; Thummel, Rudolph C.; and Wehrli, Rudolf, to Ciba-Geigy Corporation. Insecticidal α-cyano-3-phenoxy-benzyl-2-(4-azidophenyl)-3-methylbutyrates. 4,335,118, Cl. 424-226.000.
Fischer, Werner: *See—*
Brandenberger, Kurt; Feichtinger, Alfred; and Fischer, Werner, 4,334,960, Cl. 201-17.000.
Fish, Keith: *See—*
Westlake, Patrick C.; Fish, Keith; and Mallory, James D., 4,334,803, Cl. 405-259.000.
Fisons Limited: *See—*
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.
Flagg, Rodger H. Hand operated, dual chambered, pneumatic pump. 4,334,839, Cl. 417-536.000.
Flagstad, Carl D.: *See—*
Hansen, Christian B.; and Flagstad, Carl D., 4,334,843, Cl. 418-61.00B.
Flanagan, Bernard E.: *See—*
Baluha, Gerald F.; and Flanagan, Bernard E., 4,334,958, Cl. 162-352.000.
Fleek, Arthur E.: *See—*
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,335,460, Cl. 371-49.000.
Fleetguard, Inc.: *See—*
Jensen, Richard V., 4,334,994, Cl. 210-336.000.
Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., to Allied Corporation. High impact molding compositions. 4,335,223, Cl. 525-179.000.
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., to Kolmar Laboratories Inc. Cosmetic pencil. 4,334,546, Cl. 132-88.500.
FMC Corporation: *See—*
Engel, John F., 4,335,252, Cl. 560-124.000.
Gerow, Gordon P., 4,334,962, Cl. 202-185.00R.
James, Donald R., 4,335,137, Cl. 424-275.000.
Olson, Marvin C., 4,334,375, Cl. 42-1.00T.
Stanley, Robert C., 4,335,145, Cl. 426-231.000.

Foldesi nee Szasz, Zsuzsanna: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.
Fonck, Hugo. Automatic transmission. 4,334,440, Cl. 74-789.000.
Ford Aerospace & Communications Corp.: *See—*
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.
Ford Motor Company: *See—*
Sherman, Andrew M., 4,334,923, Cl. 75-124.000.
Foster, Craig A.: *See—*
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Foster, George B.; and Harris, David E. Simultaneous transmission signal detection system. 4,335,468, Cl. 455-67.000.
Foster Wheeler Energy Corporation: *See—*
Livemore, Gerald S. V., 4,334,892, Cl. 48-76.000.
Foucard, Joseph, to Crouzet. Simultaneous integral multi-access transmission system on transmission lines by optical fibres. 4,335,463, Cl. 375-1.000.
Fowell, Peter A., to Du Pont de Nemours, E. I., and Company. Plasticized polyvinyl butyral employing propylene oxide oligomers. 4,335,036, Cl. 524-376.000.
Fowler, Gary J. Method of marking a metal device. 4,335,295, Cl. 219-121.0LM.
Fox, Robert, to Norco Industries, Inc. Hydraulic release system for lifting jack. 4,334,667, Cl. 254-8.00B.
Franchak, Nelson P.: *See—*
Ameen, Joseph G.; Franchak, Nelson P.; Rasile, John; and Rivenburgh, Dennis L., 4,334,949, Cl. 156-642.000.
Francis, Peter S.: *See—*
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Frank, Dieter; and Metcalfe, Lincoln D., to Akzona Incorporated. Method for flocculating metal oxide particles in an organic medium. 4,334,887, Cl. 23-313.00R.
Franke, Gunther: *See—*
Tkatschenko, Gunter T.; and Franke, Gunther, 4,334,435, Cl. 73-864.860.
Franke, Kurt, to Siemens Aktiengesellschaft. X-ray diagnostic generator comprising adjustment means for the x-ray tube voltage. 4,335,310, Cl. 250-408.000.
Franklin, Charles H.: *See—*
Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., 4,334,350, Cl. 29-611.000.
Franz, Dieter: *See—*
Brand, Konrad; and Franz, Dieter, 4,335,182, Cl. 428-319.300.
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, to Chemische Werke Huels Aktiengesellschaft. Catalyst for the production of maleic anhydride. 4,335,018, Cl. 252-435.000.
Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See—*
Theurer, Josef, 4,334,479, Cl. 104-12.000.
Franzen, Gustav, to Palitex Project-Company GmbH. Two-for-one twisting spindle with a supply receptacle for a lubricant. 4,334,404, Cl. 57-296.000.
Fratelli Borletti Sp.A.: *See—*
Turchi, Enrico, 4,334,475, Cl. 102-206.000.
Frazier, Leonard: *See—*
Feuer, Mervyn L., 4,335,451, Cl. 367-115.000.
Frechet, Daniel: *See—*
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.
Frederick, Allen H.: *See—*
Trenary, Dale T.; Frederick, Allen H.; and Whelton, Robert M., 4,334,348, Cl. 29-571.000.
Frederiksen, Thomas M.: *See—*
Connolly, Joseph J., Jr.; Redfern, Thomas P.; and Frederiksen, Thomas M., 4,335,371, Cl. 340-347.0CC.
Frei, Paul, to Griesser AG. Venetian blind construction. 4,334,572, Cl. 160-170.000.
Frenken, Hans: *See—*
Wilke, Werner; Gref, Hans; and Frenken, Hans, 4,334,884, Cl. 23-293.00R.
Friedman, Jon. Earth photo globe with overlay and magnification assembly. 4,334,867, Cl. 434-145.000.
Friese, Karl H.: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.
Frisby, C. Richard: *See—*
Beach, Sidney C.; and Frisby, C. Richard, 4,334,966, Cl. 204-25.000.
Frohlich, Alfons; and Griessbaum, Karl, to Opti Patent-, Forschungs- und Fabrikations-AG. Woven slide fastener stringer. 4,334,556, Cl. 139-384.00B.
Fromson, Howard A.; and Gracia, Robert F., to Fromson, Howard A. Apparatus for making a lithographic printing plate with reinforced image. 4,334,769, Cl. 355-100.000.
Frosien, Juergen: *See—*
Anger, Klaus; and Frosien, Juergen, 4,335,309, Cl. 250-396.00R.
Frykhult, Rune H., to AB Celleco. Separator for a mixture of a suspension and coarse heavy particles. 4,334,986, Cl. 209-17.000.
Fuchek, Linus C. Thermostat control. 4,334,576, Cl. 165-12.000.
Fuji Electric Company, Ltd.: *See—*
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.
Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, 4,335,369, Cl. 338-34.000.
Fuji Photo Film Co., Ltd.: *See—*
Matsumoto, Fumio, 4,335,399, Cl. 358-80.000.
Fuji Xerox Co., Ltd.: *See—*
Ishii, Shoichi, 4,334,674, Cl. 271-245.000.
Fujii, Osamu: *See—*
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.
Fujimori, Ryo, to Olympus Optical Co., Ltd. Sample applicator. 4,334,879, Cl. 23-230.00R.
Fujioka, Kazumasa; and Nakayama, Wataru, to Hitachi, Ltd. Rotor for hydrogen-cooled rotary electric machines. 4,335,324, Cl. 310-61.000.
Fujisawa, Koichi: *See—*
Hamada, Kazuhiko; Suzukamo, Goufu; and Fujisawa, Koichi, 4,335,049, Cl. 549-483.000.
Fujizoki Pharmaceutical Co., Ltd.: *See—*
Tsuji, Yoshikatsu, 4,335,096, Cl. 424-12.000.
Fukuda, Kazushige: *See—*
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.
Fukuoka, Tatsuhiko: *See—*
Futamura, Kenichiro; and Fukuoka, Tatsuhiko, 4,334,926, Cl. 75-230.000.
Fukuzawa, Kenichi; and Kumazawa, Tetsuo, to Hitachi, Ltd. Mask support for shadow mask assembly. 4,335,329, Cl. 313-406.000.
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, to Green Cross Corporation, The. Employment of enteric coated IgA for hypoproteinemia in intestinal infectious diseases. 4,335,099, Cl. 424-32.000.
Furukawa, Naoji: *See—*
Nishibe, Kazuteru; and Furukawa, Naoji, 4,334,467, Cl. 100-89.000.
Furusato, Masayasu: *See—*
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.
Futamura, Kenichiro; and Fukuoka, Tatsuhiko, to Taiho Kogyo Co., Ltd. Bearing material. 4,334,926, Cl. 75-230.000.
Gabriel, Naeem B. Bike for traveling over water. 4,334,490, Cl. 114-270.000.
Gach, Peter P., to Sunbeam Plastics Corporation. Child-resistant dispensing closure. 4,334,639, Cl. 222-153.000.
Gagneraud, Francis. Mortars for thermal insulating joints. 4,334,930, Cl. 106-97.000.
Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, to Siemens Aktiengesellschaft. Switch-through unit for bit groups within a program controlled, electronic data switching system. 4,335,456, Cl. 370-58.000.
Galantay, Eugene E., to Sandoz, Inc. 1-Alkyl, 1-phenyl-butenes. 4,335,124, Cl. 424-248.400.
Gancarz, Robert M., Sr. Apparatus for recovering tin from tin dross. 4,334,664, Cl. 249-108.000.
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A. Terminal equipment for data-transmission network including digitally operating modem. 4,335,446, Cl. 364-900.000.
Gant, Leroy A. Voltage regulator for a controlled field generator. 4,335,344, Cl. 322-25.000.
Garabedian, Armen. Apparatus for making a stress-free plastic article. 4,334,850, Cl. 425-388.000.
Gardner, Samuel M., to Genieco, Inc. Method of burning incense. 4,334,853, Cl. 431-2.000.
Gargrave, Robert J. Key type connector and bearing device. 4,334,714, Cl. 308-3.00R.
Garrett Corporation, The: *See—*
Burch, Darrel W.; and Wojciehowski, James P., 4,334,549, Cl. 137-72.000.
Payne, George K., 4,334,411, Cl. 62-86.000.
Garver, Thomas L., to W. A. Brown & Son, Inc. Multi-zone energy supply controller. 4,335,320, Cl. 307-39.000.
Gaston, Paul; and Schwartz, Morton W. Adjustable necklace construction. 4,334,413, Cl. 63-2.000.
Gaston, William D. Motor boat. 4,334,872, Cl. 440-61.000.
Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., to Stauffer Chemical Company. Herbicidal compositions and methods. 4,334,911, Cl. 71-93.000.
Gauvry, George R., to Cho-Pat, Inc. Knee strap. 4,334,528, Cl. 128-80.00C.
Geary, Frank. Rack for the display and storage of stemmed drinking glasses. 4,334,623, Cl. 211-71.000.
Gebhardt, Istvan: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.
Geerk, Jochen; and Ratzel, Fritz, to Kernforschunggszentrum Karlsruhe GmbH. Generator for pulsed electron beams. 4,335,314, Cl. 250-492.300.
Geiger, Walter R.; and Kessinger, Boyd A., to Westinghouse Electric Corp. Removable orifice. 4,334,554, Cl. 138-44.000.
Geiss, Karl-Heinz: *See—*
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.

Geller, Douglas A.: *See—*
Melin, Arthur K.; Gillespie, Richard L.; and Geller, Douglas A., 4,334,385, Cl. 46-74.00D.
General Dynamics Corporation: *See—*
Slysh, Paul, 4,334,816, Cl. 414-10.000.
General Electric Company: *See—*
Markezich, Ronald L., 4,335,039, Cl. 524-108.000.
Miller, Sammy L.; and Kindig, Alan L., 4,335,325, Cl. 310-214.000.
Olander, Walter K.; and Zamek, Otto S., 4,335,234, Cl. 528-214.000.
Reinert, Raymond L.; and Kaufman, Charles D., 4,334,881, Cl. 23-230.00A.
Rosenquist, Niles R., 4,335,032, Cl. 524-269.000.
Sakshaug, Eugene C.; and Stetson, Earl W., 4,335,417, Cl. 361-127.000.
General Foods Corporation: *See—*
Wiener, Claire; and Haas, Gerhard J., 4,335,143, Cl. 426-50.000.
General Mills, Inc.: *See—*
Blake, Jon R.; Knutson, Richard K.; and Strommer, Deon L., 4,335,155, Cl. 426-565.000.
General Signal Corporation: *See—*
Clement, Mark W. P., 4,335,418, Cl. 361-152.000.
Genieco, Inc.: *See—*
Gardner, Samuel M., 4,334,853, Cl. 431-2.000.
Geo Vann, Inc.: *See—*
Vann, Roy R., 4,334,580, Cl. 166-268.000.
Georg Fischer Aktiengesellschaft: *See—*
Gross, Paul; and Kleeli, Ruedi, 4,334,848, Cl. 425-262.000.
George, Robert M. Ventilating system for livestock houses. 4,334,577, Cl. 165-54.000.
Gerberding, Karl, to BASF Aktiengesellschaft. Preparation of mixtures of linear three-block copolymers, and moldings produced therefrom. 4,335,221, Cl. 525-89.000.
Germano, Francesco; and Cavicchioli, Ugo, to DEA Digital Electronic Automation SpA. Bidimensional tracer of machine tools or measuring machines. 4,334,362, Cl. 33-174.00L.
Gerow, Gordon P., to FMC Corporation. Apparatus for stripping immiscible materials. 4,334,962, Cl. 202-185.00R.
Gewerkschaft Eisenhutte Westfalia: *See—*
Stuckmann, Dieter, 4,334,800, Cl. 405-145.000.
Giandonato, Giuseppe: *See—*
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.
Giben Impianti S.p.A.: *See—*
Benuzzi, Gino, 4,334,450, Cl. 83-471.200.
Gibert, Henri: *See—*
Rios, Gilbert M.; Gibert, Henri; and Baxerres, Jean-Louis, 4,334,998, Cl. 210-617.000.
Gibson, David E.: *See—*
Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.
Giermek, Mark J.: *See—*
Hodgkins, Charles E.; and Giermek, Mark J., 4,335,216, Cl. 501-32.000.
Gill, Robert W., to Commonwealth of Australia - Dept. of Health, The. Ultrasonic linear array beamforming method and apparatus. 4,334,432, Cl. 73-602.000.
Gillespie, Richard L.: *See—*
Melin, Arthur K.; Gillespie, Richard L.; and Geller, Douglas A., 4,334,385, Cl. 46-74.00D.
Gilovich, Paul A.: *See—*
Crawford, Roy P.; Gilovich, Paul A.; and McMurtry, David H., 4,334,656, Cl. 242-195.000.
Gimesi, Antal: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.
Givler, Omar R., to Portage Electric Products, Inc. Dead case thermostat assembly. 4,335,368, Cl. 337-372.000.
Glanz, Richard; and Chang, Sun C., to Baldwin-Korthe Web Controls, Inc. Web break detector with adjustable scanning head. 4,335,316, Cl. 250-572.000.
Glass, Alastair M.; Kaminow, Ivan P.; and Olson, Donald H., to Bell Telephone Laboratories, Incorporated. Alignment of optical components. 4,334,774, Cl. 356-152.000.
Glaxo Group Limited: *See—*
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, 4,335,121, Cl. 424-241.000.
Gleich, Steven I.: *See—*
Cummins, Earl W.; Gleich, Steven I.; and Vigilant, Robert M., 4,335,257, Cl. 562-581.000.
Gniewek, Stephen A.: *See—*
Sherwood, Loran D.; Keegan, Jack J.; and Gniewek, Stephen A., 4,335,073, Cl. 422-83.000.
Godwin, Millard C.: *See—*
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.
Goedert, Ferdinand: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.
Goes, Michael J.; Masly, John R.; and Schmidlin, Albertus E., to United States of America, Army. Fluidic range-safe device. 4,334,478, Cl. 102-529.000.
Gold Lode, Inc.: *See—*
Thompson, Arnold M., 4,334,793, Cl. 401-1.000.
Gold, Vance B., to American Can Company. Signal enhancement circuit. 4,335,440, Cl. 364-571.000.
Goldberg, Norman N. Clip-on lens target. 4,334,773, Cl. 356-124.000.
Goldie, Elizabeth L. Food cooking and lifting device. 4,334,463, Cl. 99-426.000.
Goldsmith, Norman; and Hsu, Sheng T., to RCA Corporation. Method of forming an improved gate member for a gate injected floating gate memory device. 4,334,347, Cl. 29-571.000.
Gonzalez, Fernando B.: *See—*
Fernandez, Jose R. J.; and Gonzalez, Fernando B., 4,334,634, Cl. 221-131.000.
Goodwin, Reese J.: *See—*
Jensen, Keith A., 4,334,346, Cl. 29-429.000.
Goodyear Tire & Rubber Company, The: *See—*
Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., 4,334,615, Cl. 206-447.000.
Goolkate, Jannes J., to Akzo N.V. Liquid composition for phosphating metal surfaces. 4,334,936, Cl. 148-6.15R.
Gorski, Carol A.; and Gorski, Saul B. Pasta gauge. 4,334,361, Cl. 33-174.00T.
Gorski, Saul B.: *See—*
Gorski, Carol A.; and Gorski, Saul B., 4,334,361, Cl. 33-174.00T.
Gort, Alfred F.; and Moore, Charles E., to Hewlett-Packard Company. Surveying instrument. 4,335,306, Cl. 250-231.0SE.
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, to Hitachi, Ltd. Data processing apparatus having diagnosis function. 4,335,425, Cl. 364-200.000.
Gough, Patricia M., to Iowa State University Research Foundation, Inc. Specific antigen vaccine for TGE in swine. 4,335,105, Cl. 424-89.000.
Gozzi, Antonio. Four-stage gas compressor. 4,334,833, Cl. 417-258.000.
Graat, Johannes W.; and Remie, Hans J., to Smit Ovens Nijmegen B.V. Method of controlling the combustion of liquid fuel. 4,334,854, Cl. 431-8.000.
Grab, Martin. Machine for dispensing bulk merchandise. 4,334,635, Cl. 221-194.000.
Gracia, Robert F.: *See—*
Fromson, Howard A.; and Gracia, Robert F., 4,334,769, Cl. 355-100.000.
Graf, Walter: *See—*
Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, 4,334,507, Cl. 123-193.00P.
Grana, David C.: *See—*
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Granatek, Alphonse P.: *See—*
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Granda, Edward J.: *See—*
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.
Grandell, William A., to Siegrand Corporation. Portable strip steel camber straightening machine. 4,334,418, Cl. 72-164.000.
Granlund, Per, to A/S Moelven Brug. Apparatus for cutting and splitting logs. 4,334,562, Cl. 144-193.00A.
Grassl, Hans-Peter, to Siemens Aktiengesellschaft. Circuit for sensor-controlled telemetry. 4,335,317, Cl. 250-578.000.
Grauso, Robert N. Suspension band drum. 4,334,458, Cl. 84-411.00R.
Graves, Kenny M.: *See—*
Brady, Jack D.; and Graves, Kenny M., 4,334,897, Cl. 55-257.0PV.
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, to Cassella Aktiengesellschaft. 1-Acyl-8-(3-amino-2-hydroxypropoxy)-1,2,3,4-tetrahydroquinolines, compositions and use. 4,335,123, Cl. 424-246.000.
Gray, Joseph E.: *See—*
Schwan, Thomas J.; and Gray, Joseph E., 4,335,130, Cl. 424-258.000.
Gray, Lew T., to Phillips Petroleum Company. Method and apparatus for covering a pipeline. 4,334,801, Cl. 405-157.000.
Great Lakes Carbon Corporation: *See—*
Hsu, Harry L., 4,334,980, Cl. 208-125.000.
Green Cross Corporation, The: *See—*
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.
Green, Norman W., to Occidental Petroleum Corporation. Mixing method and apparatus. 4,334,959, Cl. 201-12.000.
Greenwood, James R. Low protein degradation product basal medium for identification of non-fermentative gram-negative bacilli and other microorganisms. 4,335,205, Cl. 435-34.000.
Gref, Hans: *See—*
Wilke, Werner; Gref, Hans; and Frenken, Hans, 4,334,884, Cl. 23-293.00R.
Gregg, David W., to United States of America, Energy. Method for gasification of deep, thin coal seams. 4,334,579, Cl. 166-256.000.
Gregorian, Razmic S.; and Namboodri, Chettoor G., to United Merchants & Manufacturers Inc. Fabric treatment compositions. 4,334,877, Cl. 8-477.000.
Greiner, Norman R.: *See—*
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.
Grether, Paul, to Sulzer Brothers Limited. Insulating element for a multi-paned window. 4,334,398, Cl. 52-789.000.

Greuter, Hans: *See—*
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.

Grier, Jesse G.; and Hodges, Jimmie R., to Pennwalt Corporation. Chromate ion removal from aqueous solutions. 4,335,000, Cl. 210-662.000.

Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., to Merck & Co., Inc. 2-Substituted-aminopropene-and propanenitrile antimicrobial and anti-inflammatory agents. 4,335,141, Cl. 424-304.000.

Griessbaum, Karl: *See—*
Frohlich, Alfons; and Griessbaum, Karl, 4,334,556, Cl. 139-384.00B.

Griesser AG: *See—*
Frei, Paul, 4,334,572, Cl. 160-170.000.

Gross, Josef: *See—*
Alig, Roger C.; Barkow, William H.; and Gross, Josef, 4,335,366, Cl. 335-211.000.

Gross, Paul; and Kleeli, Ruedi, to Georg Fischer Aktiengesellschaft. Apparatus for centrifugal molding of concrete pipe. 4,334,848, Cl. 425-262.000.

Grossfeld, Michael J.: *See—*
Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., 4,335,103, Cl. 424-59.000.

Grumman Aerospace Corporation: *See—*
Pernick, Benjamin J., 4,334,780, Cl. 356-359.000.

Grunert, Hans C., to Sybron Corporation. Dental cabinet. 4,334,723, Cl. 312-209.000.

Gsell, Laurenz: *See—*
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.

GTE Laboratories Incorporated: *See—*
Buhrer, Carl F.; and Feuersanger, Alfred E., 4,334,628, Cl. 220-2.10R.

GTE Products Corporation: *See—*
Broadt, David R.; and Audesse, Emery G., 4,334,856, Cl. 431-359.000.
Latassa, Frank M.; Ray, John G.; and Roy, Joseph A., 4,335,326, Cl. 313-177.000.
Seidel, Heinz H., 4,334,808, Cl. 407-114.000.

Guerit, Pierre: *See—*
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, 4,334,990, Cl. 210-186.000.

Guha, Probir K.: *See—*
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., 4,334,563, Cl. 145-2.00R.

Guida, Frank C. Method for generating heat energy by intermittent smoke charge combustion. 4,334,485, Cl. 110-347.000.

Guidote, Armando E.: *See—*
Alegre, Adolfo P.; Guidote, Armando E.; and Puyat, Alfonso G., 4,335,060, Cl. 261-23.00R.

Guillaume, Claude A.: *See—*
Allart, Pierre J.; and Guillaume, Claude A., 4,335,013, Cl. 252-364.000.

Gulf Canada Limited: *See—*
Roberge, Serge; and Normand, Jacques, 4,335,265, Cl. 373-83.000.

Gulf Oil Corporation: *See—*
Hedrich, Loren W., 4,335,044, Cl. 548-475.000.

Guttinger, Manfred; and Schermutzki, Konrad, to Sandvik Conveyor GmbH. Double belt press. 4,334,468, Cl. 100-93.0RP.

H. H. Robertson Company: *See—*
Haskins, Paul L., 4,335,269, Cl. 174-48.000.

Haar, Lucas H.: *See—*
Riedel, Peter; and Haar, Lucas H., 4,334,459, Cl. 91-369.00B.

Haas, Gerhard J.: *See—*
Wiener, Claire; and Haas, Gerhard J., 4,335,143, Cl. 426-50.000.

Haavik, Harold K., to Nash Engineering Company, The. Two-stage liquid ring pump with improved intrastage and interstage sealing means. 4,334,830, Cl. 417-68.000.

Habdas, Edward P.; and Aaron, Jon D., to UOP Inc. Method of making solid electrolyte oxygen sensor with integral heater. 4,334,940, Cl. 156-89.000.

Hackman, James M.: *See—*
Hackman, La Vona R.; and Hackmán, James M., 4,334,573, Cl. 160-180.000.

Hackman, La Vona R.; and Hackman, James M. Pet access door kit and method of installation. 4,334,573, Cl. 160-180.000.

Hagar, Donald K.: *See—*
Connor, Peter J.; and Hagar, Donald K., 4,334,550, Cl. 137-242.000.

Hagen, Rolf: *See—*
Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, 4,335,456, Cl. 370-58.000.

Hagopian, John G., to Anaconda Company, The. Interconnecting lock construction for siding, soffits and related construction elements. 4,334,396, Cl. 52-522.000.

Hajek, Thomas J., II; and Lorimor, Larry W., to Caterpillar Tractor Co. Resettable valve spool with kick-out member. 4,334,553, Cl. 137-625.660.

Halcon Research and Development Corp.: *See—*
Rizkalla, Nabil, 4,335,058, Cl. 260-546.000.
Rizkalla, Nabil, 4,335,059, Cl. 260-549.000.

Halcon SD Group, Inc., The: *See—*
Kochar, Nand K.; and Marcell, Richard L., 4,334,890, Cl. 44-53.000.

Hall, Gregory G. Casing hanger and stabilizer. 4,334,342, Cl. 24-263.00D.

Hall, John F., to Chrysler Corporation. Fuel-water separator with piston-check valve water disposal to evaporator. 4,334,989, Cl. 210-114.000.

Hall, Peter S., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Stripline antennas. 4,335,385, Cl. 343-700.0MS.

Halliburton Services: *See—*
Baker, Eugene E.; and Carter, Ernest E., Jr., 4,334,582, Cl. 166-355.000.

Ham, Young S. Simulated ball sport amusement instrument. 4,334,682, Cl. 273-85.00E.

Hamacher, Edward N. Method for administering a dissociative, unconscious type of anesthesia. 4,334,526, Cl. 128-1.00R.

Hamada, Kazuhiko; Suzukamo, Goufu; and Fujisawa, Koichi, to Sumitomo Chemical Company, Limited. Process for producing 5-methylfurfural. 4,335,049, Cl. 549-483.000.

Hamisch, Paul H., Jr., to Monarch Marking Systems, Inc. Print head with endless bands and spacer. 4,334,470, Cl. 101-111.000.

Hammann, Ingeborg: *See—*
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, 4,335,134, Cl. 424-273.00P.

Hammerslag, Julius G. Battery charging system. 4,334,819, Cl. 414-395.000.

Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, to Canon Kabushiki Kaisha. Process for recording. 4,335,198, Cl. 430-348.000.

Hanadate, Hitoshi: *See—*
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.

Hanamura, Shoji: *See—*
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, 4,335,406, Cl. 358-213.000.

Hanamura, Takeo: *See—*
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Handl, Werner, to Staedtler, J. S. Eraser and process for its manufacture. 4,335,033, Cl. 524-525.000.

Haneda, Takashi: *See—*
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.

Hansen, Christian B.; and Flagstad, Carl D., to Danfoss A/S. Gerotor machine with valve plates attached to wheel gear. 4,334,843, Cl. 418-61.00B.

Hansen, John A.; and Hogh, Steen. Device for metering the angular position of a direction indicator. 4,334,430, Cl. 73-189.000.

Haque, Yusuf A., to American Microsystems, Inc. CMOS Operational amplifier with reduced power dissipation. 4,335,355, Cl. 330-253.000.

Hara, Akio; and Yazu, Shuji, to Sumitomo Electric Industries, Ltd. Sintered compact for a machining tool and a method of producing the compact. 4,334,928, Cl. 75-238.000.

Hara, Kenichi: *See—*
Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, 4,335,369, Cl. 338-34.000.

Hara, Takanori; and Shimamura, Yoshihiro, to Toyo Kogyo Co., Ltd.; and ASMO Co., Ltd. Electric reversible motor control. 4,335,340, Cl. 318-282.000.

Hara, Toshitami: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

Harada, Tatsuo: *See—*
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.

Harbaugh, Willis E., to RCA Corporation. Sputter-ion pump for use with electron tubes having thoriated tungsten cathodes. 4,334,829, Cl. 417-49.000.

Harbeck, Martin E.; and Harbin, Henry C., to Singer Company, The. Surface cleaning vacuum nozzle. 4,334,336, Cl. 15-322.000.

Harbin, Henry C.: *See—*
Harbeck, Martin E.; and Harbin, Henry C., 4,334,336, Cl. 15-322.000.

Hardwick, John P.; Pezet, Michael J.; Sarvestany, Asadollah A.; and Satharasinghe, Dayananda. Shredding machines. 4,334,650, Cl. 241-236.000.

Hareng, Michel; and Le Berre, Serge, to Thomson-CSF. Optical apparatus for the reproduction of images using a liquid crystal cell. 4,334,734, Cl. 350-331.00R.

Hareng, Michel; and Le Berre, Serge, to Thomson-CSF. Thermo-optic liquid-crystal device for real-time display of animated images. 4,334,735, Cl. 350-351.000.

Harrell, Robert E.; Harrell, Tedd L.; and Parker, Edward H., to Western Litho Plate & Supply Co. Apparatus and method for processing lithographic plates. 4,334,755, Cl. 354-299.000.

Harrell, Tedd L.: *See—*
Harrell, Robert E.; Harrell, Tedd L.; and Parker, Edward H., 4,334,755, Cl. 354-299.000.

Harris Corporation: *See—*
Campbell, Henry J., 4,334,646, Cl. 228-180.00A.
Clifton, Kenneth C., 4,334,673, Cl. 271-65.000.

Harris, David E.: *See—*
Foster, George B.; and Harris, David E., 4,335,468, Cl. 455-67.000.

Harris, Robert L.: *See—*
Scott, Charles G.; Robertson, James B.; and Harris, Robert L., 4,335,281, Cl. 179-156.00A.

Harris Video Systems, Inc.: *See—*
Pearson, Gilbert J., 4,335,393, Cl. 358-4.000.

Harrison, Marvin H.; and Dancy, William B., to International Minerals & Chemical Corp. Production of potassium chloride from langbeinite. 4,334,885, Cl. 23-300.000.

Hartley, Harry F.: *See—*
Tharp, Nelson B.; and Hartley, Harry F., 4,335,469, Cl. 455-125.000.

Hartman, Walter C.: *See—*
Amin, Ramesh G.; Hartman, Walter C.; and Husk, Robert V., 4,334,731, Cl. 339-144.00T.

Hartwig, Edward L. Fishing pole holder. 4,334,377, Cl. 43-17.000.

Harvey, Donald M., to Eastman Kodak Company. Camera with film thread indicating mechanism. 4,334,753, Cl. 354-289.000.

Harvill, William A.: *See—*
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.

Hasegawa, Naruo: *See—*
Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, 4,334,937, Cl. 148-12.00R.

Hashimoto, Teiji: *See—*
Shimada, Fumio; and Hashimoto, Teiji, 4,334,747, Cl. 354-147.000.

Hashimoto, Yasuo: *See—*
Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, 4,335,291, Cl. 219-10.55E.

Hashimoto, Yoshiro: *See—*
Horino, Shigeo; and Hashimoto, Yoshiro, 4,334,619, Cl. 209-551.000.

Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, to Kyowa Hakko Kogyo Co., Ltd. Process for producing optically active cephalosporin analogs. 4,335,211, Cl. 435-119.000.

Haskins, Paul L., to H. H. Robertson Company. Isolator device and wire distributing system utilizing the same. 4,335,269, Cl. 174-48.000.

Haslbeck, Joseph, to Highland Mfg. Company Ltd. Electrical box. 4,335,271, Cl. 174-65.00R.

Hassell, Donald S. Indicia-bearing adhesive bandages. 4,334,530, Cl. 128-156.000.

Hasson, Victor H.; and Von Bergmann, Hubertus M., to South African Inventions Development Corporation, The. Apparatus and method for generating a glow discharge. 4,335,462, Cl. 372-85.000.

Hastings, Edward E. Insulated dust control apparatus for use in an explosive environment. 4,335,419, Cl. 361-228.000.

Hatanaka, Masayuki; and Kurita, Atsushi, to Toshiba Silicone Co., Ltd. Silicone rubber composition. 4,335,035, Cl. 523-212.000.

Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, to Kurosaki Refractories Co., Ltd. SiC-Si_3N_4 Composite system for special heat-resisting ceramic materials and its fabrication method. 4,335,217, Cl. 501-92.000.

Haubert, Thomas R., to Supreme Casting & Tooling. Apparatus for blow molding a hollow plastic article having a relatively wide neck. 4,334,852, Cl. 425-525.000.

Hauni-Werke Korber & Co. K.G.: *See—*
Hinz, Werner; and Hausler, Nikolaus, 4,334,449, Cl. 83-342.000.

Hauser, Donald P., to C. W. Zumbiel Co., The. Dispenser carton. 4,334,644, Cl. 225-43.000.

Hauser, Hans; and Clayborne, William J., to J. B. Foote Foundry Co., The. Transaxle. 4,334,719, Cl. 308-121.000.

Hausler, Nikolaus: *See—*
Hinz, Werner; and Hausler, Nikolaus, 4,334,449, Cl. 83-342.000.

Haven, Duane A., to Tektronix, Inc. Selectively erasable storage target with insulated web collector. 4,335,328, Cl. 313-395.000.

Hay, Cal W.: *See—*
Rader, William W., 4,334,794, Cl. 401-50.000.

Hayase, Shuzi: *See—*
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.

Hayashi, Masaharu: *See—*
Tsuchikawa, Shunzo; and Hayashi, Masaharu, 4,334,824, Cl. 416-132.00R.

Hayashi, Satoshi: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.

Hazan, Isidor, to Du Pont de Nemours, E. I., and Company. Electrocoating composition with polyhydroxyamine and polybutadiene. 4,335,031, Cl. 524-504.000.

Hazard, Richard: *See—*
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.

Heady, Robert E., to CPC International Inc. Process for the production of high fructose syrups and ethanol. 4,335,207, Cl. 435-94.000.

Heaviside, John W., to Marconi Company Limited, The. Power combining or dividing arrangements. 4,335,347, Cl. 323-328.000.

Heckmaier, Manfred: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.

Hedgepeth, John M.; Samuels, Ronald L.; and Stammreich, John, to Astro Research Corporation. Redundant deployable lattice column. 4,334,391, Cl. 52-108.000.

Hedrich, Loren W., to Gulf Oil Corporation. Plant growth regulating perfluoroacyl arylthioureido isoindolediones. 4,335,044, Cl. 548-475.000.

Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., to Janssen Pharmaceutica, N.V. 1-(1,3-Dioxolan-2-ylmethyl)-1H-imidazoles. 4,335,125, Cl. 424-250.000.

Hefling, Dennis V., to Coleman Company, Inc., The. Gas-fired cooking apparatus. 4,334,462, Cl. 99-385.000.

Heidelberger Druckmaschinen Aktiengesellschaft: *See—*
Becker, Willi; and Wirz, Arno, 4,334,473, Cl. 101-409.000.

Heidkamp, Madeleine: *See—*
Bauer, Russell H.; and Heidkamp, Madeleine, 4,335,433, Cl. 364-443.000.

Height Inc.: *See—*
Shinriki, Tatsuo, 4,334,464, Cl. 99-450.600.

Heimark, Edward L.: *See—*
Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.

Heller, Patricia S.; and Heller, Stephen M. Screen and shelving system. 4,334,571, Cl. 160-135.000.

Heller, Stephen M.: *See—*
Heller, Patricia S.; and Heller, Stephen M., 4,334,571, Cl. 160-135.000.

Hellige, GmbH: *See—*
Leist, Helmut; and Ullrich, Georg J., 4,334,541, Cl. 128-632.000.

Hemery, Andre, to Allibert Exploitation. Method of moulding containers from at least two different plastic materials, machine for carrying out this method and containers obtained thereby. 4,335,068, Cl. 264-245.000.

Henberg Oy: *See—*
Tamminen, Teijo T. T., 4,334,845, Cl. 425-104.000.

Hendrickson, Richard T.: *See—*
Brown, Arthur K.; Hendrickson, Richard T.; and Ewald, Jerome T., 4,334,832, Cl. 417-218.000.

Hengel, Rolf; and Eaton, David F., to Du Pont de Nemours, E. I., and Company. Tetraazaundecane and complexes as sensitizers for silver halide emulsion. 4,335,202, Cl. 430-604.000.

Henkel Kommanditgesellschaft auf Aktien: *See—*
Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, 4,335,024, Cl. 252-545.000.
Kluth, Hermann; Bachmann, Robert; and Wegner, Jurgen, 4,334,787, Cl. 366-162.000.

Henkin, Melvyn L. Breathing method and apparatus for simulating high altitude conditions. 4,334,533, Cl. 128-205.280.

Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, to Henkel Kommanditgesellschaft auf Aktien. Liquid detergent compositions comprised of mixtures of alkyl polyglycol ethers and quaternary ammonium compounds. 4,335,024, Cl. 252-545.000.

Henrion, Romain: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.

Herbert Kannegiesser GmbH & Co.: *See—*
Juraschek, Richard, 4,334,496, Cl. 118-679.000.

Herbert, M. Linton. Wet cornea microscope. 4,334,736, Cl. 350-418.000.

Herchenbach, Horst, to Klockner-Humboldt-Deutz AG. System and method for the heat treatment of fine grained materials. 4,334,860, Cl. 432-14.000.

Hewett, Thomas A.: *See—*
McCullough, Robert W.; and Hewett, Thomas A., 4,334,524, Cl. 126-449.000.

Hewlett-Packard Company: *See—*
Gort, Alfred F.; and Moore, Charles E., 4,335,306, Cl. 250-231.0SE.
Ramsay, Michael; and Pratt, Warren, 4,335,333, Cl. 315-371.000.

Hicter, Jean-Marie: *See—*
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, 4,334,990, Cl. 210-186.000.

Hida, Tsuneo: *See—*
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.

Hiester, Kenneth R.: *See—*
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.

Highland Mfg. Company Ltd.: *See—*
Haslbeck, Joseph, 4,335,271, Cl. 174-65.00R.

Hikawa, Masanori: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.

Hill, Edwin R.: *See—*
DeVries, Richard C.; and Hill, Edwin R., 4,335,307, Cl. 250-322.000.

Hill, Loran R.; and Titcomb, Steven E., to AMF Incorporated. Ear lobe clip with heart beat sensor. 4,334,544, Cl. 128-664.000.

Hill, Robert E., to Koppers Company, Inc. Water repellent aqueous wood treating solutions. 4,335,109, Cl. 424-140.000.

Hindin, Saul G.: *See—*
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.

Hinz, Werner; and Hausler, Nikolaus, to Hauni-Werke Korber & Co. K.G. Apparatus for severing paper webs or the like. 4,334,449, Cl. 83-342.000.

Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, to Nihon Nohyaku Co., Ltd. Benzoate derivative, method of preparing the same and use thereof as a herbicide. 4,334,914, Cl. 71-100.000.

Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, to Nihon Nohyaku Co. Ltd. Phenoxyphthalates and herbicide containing the same. 4,334,915, Cl. 71-108.000.

Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, to Nippon Steel Corporation. Converter steelmaking process. 4,334,921, Cl. 75-60.000.

Hirata, Atsuro: *See*—
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, 4,335,407, Cl. 358-284.000.

Hirata, Tadashi: *See*—
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.

Hirata, Tetsuhiko: *See*—
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Hirayama, Masao: *See*—
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.

Hirschmann, Peter, to Siemens Aktiengesellschaft. Method and apparatus for four-wire type transmission of digital message signals. 4,335,455, Cl. 370-29.000.

Hirt, Dieter; Steigenberger, Richard; and Meinke, Peter, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Coupling bearing for rotors above critical speed. 4,334,718, Cl. 308-10.000.

Hisamitsu Pharmaceutical Co. Inc.: *See*—
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.

Hitachi, Ltd.: *See*—
Fujioka, Kazumasa; and Nakayama, Wataru, 4,335,324, Cl. 310-61.000.
Fukuzawa, Kenichi; and Kumazawa, Tetsuo, 4,335,329, Cl. 313-406.000.
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, 4,335,425, Cl. 364-200.000.
Ogasawara, Hitoshi, 4,335,341, Cl. 318-624.000.
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, 4,335,406, Cl. 358-213.000.
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.
Takahashi, Junichi, 4,335,431, Cl. 364-426.000.
Watanabe, Yoshio; Yamane, Mikiya; and Tomura, Teruichi, 4,335,331, Cl. 315-334.000.

Hitt, Franz A. Technique for handling and treating heavy waste hydrocarbons. 4,334,605, Cl. 196-46.000.

Hitt, Mary M.: *See*—
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.

Hitz, George R. Masonry structure and apparatus and process for spacing block in the structure. 4,334,397, Cl. 52-687.000.

Hoagland, Carolyn S., to Iowa State University Research Foundation, Inc. Curling eye heddle. 4,334,555, Cl. 139-95.000.

Hodder, James J.: *See*—
Beier, William C.; and Hodder, James J., 4,334,876, Cl. 8-94.19C.

Hodges, Jimmie R.: *See*—
Grier, Jesse G.; and Hodges, Jimmie R., 4,335,000, Cl. 210-662.000.

Hodgkins, Charles E.; and Giermek, Mark J., to TAM Ceramics, Inc. Low temperature fired dielectric ceramic composition and method of making same. 4,335,216, Cl. 501-32.000.

Hoechst Aktiengesellschaft: *See*—
Alfranseder, Josef; Mayer, Sigmund; Rebsdat, Siegfried; Riedl, Josef; and Schaffelhofer, Iwo, 4,335,014, Cl. 252-412.000.
Back, Gunter; and Schon, Klaus-Peter, 4,334,472, Cl. 101-382.0MV.
Rieck, Hans-Peter; and Russow, Jurgen, 4,335,085, Cl. 423-300.000.
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, 4,334,969, Cl. 204-158.00R.
Wiezer, Hartmut; and Pfahler, Gerhard, 4,335,242, Cl. 544-198.000.

Hoechst-Roussel Pharmaceuticals Inc.: *See*—
McFadden, Arthur R.; and Aultz, Daniel E., 4,335,122, Cl. 424-244.000.

Hoeft, Werner H., to Signetics Corporation. Class "B" type amplifier. 4,335,358, Cl. 330-255.000.

Hoffmann-La Roche Inc.: *See*—
Chan, Ka-Kong; and Pawson, Beverly A., 4,335,248, Cl. 549-78.000.
Fehr, Rainer, 4,334,543, Cl. 128-663.000.
Holick, Michael F.; and Uskokovic, Milan R., 4,335,120, Cl. 424-236.000.
Niemczyk, Henry J., 4,335,042, Cl. 260-239.0BD.

Hogh, Steen: *See*—
Hansen, John A.; and Hogh, Steen, 4,334,430, Cl. 73-189.000.

Holce, Thomas J.; and Huckins, Charles M., to Sentrol, Inc. Switch housing incorporating flexibly attached mounting plate. 4,335,270, Cl. 174-52.00R.

Holdegraver, Robert E.: *See*—
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., 4,334,934, Cl. 127-9.000.

Holfelder, Gerhard: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Holick, Michael F.; and Uskokovic, Milan R., to Hoffmann-La Roche Inc. Administration of biologically active vitamin D_3 and vitamin D_2 materials. 4,335,120, Cl. 424-236.000.

Hollfelder, Thomas A.; and De Luca, Paul V., to Porta Systems Corp. Telephone protector module having flag indicator. 4,335,416, Cl. 361-119.000.

Holloway, Richard L.; Miller, John A.; and Winters, Jerald E., to Atlantic Richfield Company. Coker blow down recovery system. 4,334,981, Cl. 208-131.000.

Holly, James A., to Hollymatic Corporation. Mold device with movable compression insert. 4,334,339, Cl. 17-32.000.

Hollymatic Corporation: *See*—
Holly, James A., 4,334,339, Cl. 17-32.000.

Holmes, David D., to RCA Corporation. Information transmission during first-equalizing pulse interval in television. 4,335,402, Cl. 358-147.000.

Holt, Harley R., to Bunker Ramo Corporation. Apparatus for assembling electrical cables to electrical connectors. 4,334,353, Cl. 29-753.000.

Holzenberger, Kurt, to Klein, Schanzlin & Becker Aktiengesellschaft. Method of transporting flowable media of changing consistencies. 4,334,370, Cl. 37-195.000.

Holzer, Helmut; and von Arndt, Ernst M., to Carl Freudenberg, Firma. Shaft seal with multi-slitted sleeve. 4,334,687, Cl. 277-151.000.

Homco International Inc.: *See*—
Stephen, David D., 4,335,352, Cl. 324-228.000.

Homeyer, Bernhard: *See*—
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, 4,335,134, Cl. 424-273.00P.

Homma, Hiroshige: *See*—
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.

Homura, Kanematsu. Bucket system provided with tilting means applicable to fork lift. 4,334,820, Cl. 414-607.000.

Honda Giken Kogyo Kabushiki Kaisha: *See*—
Asakura, Toshimitsu; and Noda, Azusa, 4,334,589, Cl. 180-219.000.
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, 4,334,511, Cl. 123-454.000.
Ohmori, Taiji; and Sato, Makoto, 4,335,430, Cl. 364-426.000.

Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, to Canon Kabushiki Kaisha. Electrophotographic copying apparatus. 4,334,763, Cl. 355-8.000.

Honeywell Inc.: *See*—
Acker, William F., 4,335,361, Cl. 330-285.000.
Nelson, Lorne W., 4,334,855, Cl. 431-20.000.

Hooberry, William D. Antenna lightning arrestor. 4,335,415, Cl. 361-104.000.

Hoover, Merle V. Class AB push-pull amplifiers. 4,335,360, Cl. 330-264.000.

Hopkins, Melvyn D., to Westinghouse Electric Corp. Gas insulated transmission line including provisions for minimizing particle generation. 4,335,267, Cl. 174-14.00R.

Hopkins, Michael F.; and Mayerchin, Alvin D., to Caterpillar Tractor Co. Universal coupling spider bearing and yoke. 4,334,415, Cl. 464-130.000.

Horeschi, Giancarlo: *See*—
Barozzi, Gian P.; and Horeschi, Giancarlo, 4,334,791, Cl. 400-166.000.

Horino, Shigeo; and Hashimoto, Yoshiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for processing paper sheets. 4,334,619, Cl. 209-551.000.

Horner, Patrick J., to Imperial Chemical Industries Limited. Polyester compositions, shaped articles obtained from them and processes for preparing them. 4,335,046, Cl. 549-392.000.

Horvath, Tibor: *See*—
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Hosaka, Hideaki; and Kuri, Setuya, to Chlorine Engineers Corp.; and Kun Chemical Engineers. Low temperature food drying process. 4,335,150, Cl. 426-465.000.

Hosaka, Hiroshi, to Tokyo Magnetic Printing Co., Ltd. Magnetic recording medium and method of fabricating it. 4,335,183, Cl. 428-336.000.

Hosoi, Masaaki: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Hosoya, Nobukazu, to Sanyo Electric Co., Ltd. Horizontal scanning circuit. 4,335,334, Cl. 315-408.000.

Hospal Medical Corp.: *See*—
Milligan, Lee J., 4,334,988, Cl. 210-87.000.

Howard, James R., to University Patents, Inc. Mineral-containing therapeutic compositions. 4,335,116, Cl. 424-201.000.

HR Textron Inc.: *See*—
Blanchard, Robert, 4,334,552, Cl. 137-625.480.

Hsu, Harry L., to Great Lakes Carbon Corporation. Non-puffing petroleum coke. 4,334,980, Cl. 208-125.000.

Hsu, Sheng T.: *See*—
Goldsmith, Norman; and Hsu, Sheng T., 4,334,347, Cl. 29-571.000.

Huber, Guntram, to Daimler-Benz Aktiengesellschaft. Independent front wheel suspension for motor vehicles. 4,334,693, Cl. 280-95.00R.

Huckins, Charles M.: *See*—
Holce, Thomas J.; and Huckins, Charles M., 4,335,270, Cl. 174-52.00R.

Hudault, Gerard: *See*—
Sulmont, Benoit; and Hudault, Gerard, 4,335,064, Cl. 264-30.000.

Hunt, Willard F.; and McCarthy, Robert H., to Technicare Corporation. Method of selecting a preferred difference image. 4,335,427, Cl. 364-414.000.

Husk, Robert V.: *See—*
Amin, Ramesh G.; Hartman, Walter C.; and Husk, Robert V., 4,334,731, Cl. 339-144.00T.
Huss, Albin: *See—*
Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, 4,335,020, Cl. 252-455.00Z.
Hutson, Douglas W.: *See—*
Simmons, John J.; and Hutson, Douglas W., 4,334,460, Cl. 98-83.000.
Hyde, Glenn F.; and Cromwell, John E. Piston ring coatings. 4,334,927, Cl. 75-240.000.
Ibamoto, Masahiko: *See—*
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.
IDC Chemie AG: *See—*
Mader, Karl, 4,334,394, Cl. 52-309.120.
Ide, Hiroyuki: *See—*
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.
Igi, Keishiro; and Masao, Ishii, to Kuraray Company, Limited. Laminates. 4,335,188, Cl. 428-458.000.
Iiyama, Makoto; and Koyama, Yasujiro, to Nippon Kokan Kabushiki Kaisha. Prevention of thermal spalling in ceramic products. 4,334,858, Cl. 432-9.000.
Ikeda, Kenichi: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.
Ikeda, Yoshi; Osada, Kenji; and Doi, Kazumi. Rotary pump with radial yieldable partitions and rotatable side plate. 4,334,842, Cl. 418-45.000.
Ikegami, Tadashi: *See—*
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.
Illinois Tool Works Inc.: *See—*
Knohl, Rudolph E., 4,334,815, Cl. 411-368.000.
Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, to Toa Nenryo Kogyo Kabushiki Kaisha. Catalyst component for polymerization of alpha-olefins and method of using it. 4,335,015, Cl. 252-429.00B.
Imai, Riujiro: *See—*
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, 4,335,425, Cl. 364-200.000.
Impallomeni, Enrico: *See—*
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.
Imperial Chemical Industries Limited: *See—*
Brooks, Herbert; and Waite, Frederick A., 4,334,891, Cl. 44-62.000.
Horner, Patrick J., 4,335,046, Cl. 549-392.000.
Inaba, Naomi: *See—*
Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, 4,335,015, Cl. 252-429.00B.
Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, to Aisin Seiki Kabushiki Kaisha. Diaphragm air pump assembly. 4,334,837, Cl. 417-393.000.
Industrial Tectonics, Inc.: *See—*
Signer, Hans R., 4,334,720, Cl. 308-187.000.
Ingersoll-Rand Company: *See—*
Lindeboom, Herman, 4,334,804, Cl. 405-259.000.
Inoue-Japax Research Incorporated: *See—*
Inoue, Kiyoshi, 4,335,294, Cl. 219-69.00M.
Inoue, Kiyoshi, 4,335,436, Cl. 364-474.000.
Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. EDM Method and apparatus having a gap discharge circuit constructed with limited stray capacitances. 4,335,294, Cl. 219-69.00M.
Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Microprocessor-controlled EDM system. 4,335,436, Cl. 364-474.000.
Inoue, Yoshiyuki: *See—*
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Institut Francais du Petrole: *See—*
Jacquin, Yves; and Le Page, Jean-Francois, 4,334,982, Cl. 208-216.00R.
Institut fur Angewandte Physik der Universitat Bern: *See—*
Salathe, Rene P.; Badertscher, E. Gerhard; and Luthy, Willy A. R., 4,335,362, Cl. 372-46.000.
Institut Pasteur: *See—*
Adamowicz, Philippe J.; Platel nee Bonnet, Alberte; and Muller, Ludwig, 4,335,214, Cl. 435-239.000.
Interface Mechanisms, Inc.: *See—*
Palmer, Roger C.; and Purdue, William J., 4,335,301, Cl. 235-462.000.
International Business Machines Corp.: *See—*
Aliotta, Carmelo F.; and Anschel, Morris, 4,335,189, Cl. 428-611.000.
Ameen, Joseph G.; Franchak, Nelson P.; Rasile, John; and Rivenburgh, Dennis L., 4,334,949, Cl. 156-642.000.
Axford, John G., 4,335,390, Cl. 346-158.000.
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,335,460, Cl. 371-49.000.
Clark, Gary A., 4,334,765, Cl. 355-14.0SH.
Crawford, Roy P.; Gilovich, Paul A.; and McMurtry, David H., 4,334,656, Cl. 242-195.000.
Cutler, Robert S.; and Moore, Michael T., 4,334,878, Cl. 524-88.000.
Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., 4,334,792, Cl. 400-279.000.
Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., 4,335,426, Cl. 364-200.000.
Thomas, Donald R., 4,335,450, Cl. 365-182.000.
International Flavors & Fragrances Inc.: *See—*
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,335,009, Cl. 252-187.270.
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.
International Minerals & Chemical Corp.: *See—*
Bushman, Ted E., 4,334,939, Cl. 149-21.000.
Harrison, Marvin H.; and Dancy, William B., 4,334,885, Cl. 23-300.000.
Interzeag AG: *See—*
Seckinger, Erich, 4,334,738, Cl. 351-39.000.
Seckinger, Erich, 4,334,739, Cl. 351-39.000.
Iowa State University Research Foundation, Inc.: *See—*
Gough, Patricia M., 4,335,105, Cl. 424-89.000.
Hoagland, Carolyn S., 4,334,555, Cl. 139-95.000.
Robyt, John F.; and Zikopoulos, John N., 4,335,100, Cl. 424-48.000.
Irwin, Robert S., to Du Pont de Nemours, E. I., and Company. Optically anisotropic melt forming polyesters. 4,335,232, Cl. 528-128.000.
Iscar Ltd.: *See—*
Nessel, Eliezer, 4,334,807, Cl. 407-103.000.
Ishii, Shoichi, to Fuji Xerox Co., Ltd. Automatic feeding device for copying machines. 4,334,674, Cl. 271-245.000.
Ishikura, Yuji: *See—*
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.
Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, to TDK Electronics Co., Ltd. Popped corn making apparatus used in a microwave oven. 4,335,291, Cl. 219-10.55E.
Ishizuka, Hiroshi. Apparatus for electrolytic production of magnesium metal from its chloride. 4,334,975, Cl. 204-247.000.
Ishizuka, Masaaki: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.
Isomura, Yasuo: *See—*
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.
Ito, Noriki: *See—*
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.
Ito, Takeo: *See—*
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.
ITT Industries, Inc.: *See—*
Riedel, Peter; and Haar, Lucas H., 4,334,459, Cl. 91-369.00B.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Gearshift timing control arrangement for automatic power transmission. 4,334,441, Cl. 74-868.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Shift valve arrangement of hydraulic transmission control system. 4,334,442, Cl. 74-869.000.
Iwanicki, Andrzej T. Splash protection assembly for vehicles equipped with mudguards. 4,334,694, Cl. 280-154.50R.
Iwaosa, Katsuaki: *See—*
Ohashi, Minoru; and Iwaosa, Katsuaki, 4,335,200, Cl. 430-446.000.
Iwasa, Yoshio: *See—*
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.
Izawa, Minoru: *See—*
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.
Izon Corporation: *See—*
Masucci, Carmine, 4,334,741, Cl. 353-38.000.
Izumi, Chikahiko: *See—*
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, 4,335,425, Cl. 364-200.000.
J. B. Foote Foundry Co., The: *See—*
Hauser, Hans; and Clayborne, William J., 4,334,719, Cl. 308-121.000.
J. P. Stevens & Co., Inc.: *See—*
Zuckerman, Joseph L.; and Bzik, John W., 4,335,034, Cl. 524-423.000.
J. R. Simplot Company: *See—*
Martin, William E.; and Sumrall, Harold E., 4,334,447, Cl. 83-111.000.
Jablin, Richard. Cooling metal slabs and other metal products. 4,334,505, Cl. 122-27.000.
Jackson, Peter J., to Chubb Panorama Limited. Valves and breathing apparatus incorporating such valves. 4,334,532, Cl. 128-204.260.
Jacob, Richard J.; White, Jack D.; and Richmond, Kenneth D., to Dayco Corporation. Traction assembly. 4,334,569, Cl. 152-221.000.
Jacoby, Walter, to Solar Optimizing Systems, Inc. Solar energy system. 4,334,521, Cl. 126-425.000.

Jacquin, Yves; and Le Page, Jean-Francois, to Institut Francais du Petrole. Process for the selective desulfurization of olefinic cuts. 4,334,982, Cl. 208-216.00R.

Jaedicke, Hagen; and Paust, Joachim, to BASF Aktiengesellschaft. Preparation of cyclic acetals of trans-4-chloro-3-methyl-but-2-en-1-al, and preparation of trans-3-methyl-but-2-ene-1,4-dial-1-monoacetals. 4,335,047, Cl. 549-369.000.

Jakl-Banka, Ladislaus: *See—*
Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, 4,334,507, Cl. 123-193.00P.

Jakovlev, Vladimir: *See—*
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.

James, Donald R., to FMC Corporation. Haloethenylthienylethanones for systemic nematode control. 4,335,137, Cl. 424-275.000.

James G. Brown & Associates, Inc.: *See—*
Dysarz, Edward D., 4,334,802, Cl. 405-196.000.

Janome Sewing Machine Co., Ltd.: *See—*
Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, 4,334,486, Cl. 112-158.00E.

Janssen Pharmaceutica, N.V.: *See—*
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,335,125, Cl. 424-250.000.
Vandenberk, Jan; Kennis, Ludo; Van der Aa, Marcel; and Van Heertum, Albert, 4,335,127, Cl. 424-251.000.

Japan Steel Works, Ltd.: *See—*
Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, 4,334,433, Cl. 73-629.000.

Jayaraman, Anantharman: *See—*
Vidal, Frederick D.; and Jayaraman, Anantharman, 4,335,148, Cl. 426-319.000.

Jenkins, Darrell D.: *See—*
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Jenks, Richard H., to Revere Copper and Brass Incorporated. Methods for lining the internal walls of a conduit for conveying fluid carrying marine fouling organisms with a liner of anti-fouling material. 4,334,345, Cl. 29-157.00R.

Jensen, Keith A., to Smoot, A. Park; and Goodwin, Reese J. Method and apparatus for fabricating studs, joists and the like. 4,334,346, Cl. 29-429.000.

Jensen, Reed J.: *See—*
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.

Jensen, Richard V., to Fleetguard, Inc. Disposable fluid filters. 4,334,994, Cl. 210-336.000.

Jerrim, John W., to Sangamo Weston, Inc. Power outage recovery method and apparatus for demand recorder with solid state memory. 4,335,447, Cl. 364-900.000.

Jetsonic Processes, Ltd.: *See—*
Lockwood, Raymond M., 4,334,366, Cl. 34-17.000.

Jibiki, Yubao: *See—*
Jinsenji, Sei; and Jibiki, Yubao, 4,334,751, Cl. 354-288.000.

Jinsenji, Sei; and Jibiki, Yubao, to Ricoh Co., Ltd. Easy-to-load roll-film camera. 4,334,751, Cl. 354-288.000.

Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., to International Business Machines Corporation. Destination-referenced tab, operations for typewriters that store text. 4,334,792, Cl. 400-279.000.

John Fluke Mfg. Co., Inc.: *See—*
Baldock, K. Paul; and Smith, J. Craig, Jr., 4,335,349, Cl. 324-62.000.

Johns, Robert H. Bifilar antenna trap. 4,335,386, Cl. 343-722.000.

Johnsen, Andreas, to Rohm, Pharma GmbH. Quick-acting diuretic compositions. 4,335,119, Cl. 424-229.000.

Johnson, Bruce K.; and Finnemore, Fred M., to Polaroid Corporation. Method of camera manufacture and camera apparatus. 4,334,752, Cl. 354-288.000.

Johnson & Johnson: *See—*
Beede, Charles H.; and Zirnite, Richard N., 4,335,158, Cl. 427-2.000.

Johnson & Johnson Baby Products Company: *See—*
Chase, Richard A.; Simpson, Danny E.; and Williams, David M., 4,334,382, Cl. 46-1.00R.

Johnson & Johnson Products Inc.: *See—*
Balinth, Ivan J., 4,335,026, Cl. 524-271.000.

Johnson, Leroy E.: *See—*
Argoudelis, Alexander D.; Marshall, Vincent P.; and Johnson, Leroy E., 4,335,108, Cl. 424-117.000.

Johnson, Wayne O.; and Yih, Roy Y., to Rohm and Haas Company. Herbicidal diphenyl ethers, sulfides, sulfoxides and sulfones. 4,335,249, Cl. 560-11.000.

Jolivet, Christiane. Fixture for attaching the wishbone to the mast of a sail-board. 4,334,488, Cl. 114-39.000.

Jones, John A.: *See—*
Ayes, Adolfo V.; and Jones, John A., 4,334,901, Cl. 55-487.000.

Jones, Robert W., to United States of America, Army. Holographic plate exposure meter. 4,334,776, Cl. 356-218.000.

Jos. Hunkeler AG Fabrik fur graphische Maschinen: *See—*
Felix, Willi, 4,334,672, Cl. 270-53.000.

Jost, Richard P., to McCabe Powers Body Company. Aerial device. 4,334,594, Cl. 182-2.000.

Joubert, Raymond J. M.: *See—*
Bouiller, Jean G.; and Joubert, Raymond J. M., 4,334,827, Cl. 416-220.00R.

Joy Manufacturing Company: *See—*
LaPointe, Roland R., 4,334,408, Cl. 60-423.000.

Juers, Daniel F.: *See—*
Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., 4,335,199, Cl. 430-434.000.

Juhn, Steven K. Aspirator for collecting liquid samples. 4,334,538, Cl. 128-276.000.

Juraschek, Richard, to Herbert Kannegiesser GmbH & Co. Apparatus for rigidifying textile pieces by coating with plastics. 4,334,496, Cl. 118-679.000.

Kabi AB: *See—*
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,335,204, Cl. 435-23.000.

Kabushiki Kaisha Sato: *See—*
Sato, Yo, 4,335,172, Cl. 428-42.000.

Kabushiki Kaisha Suwa Seikosha: *See—*
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Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See—*
Yoshizawa, Toshio; Suzuki, Osamu; and Yoshida, Yoshiaki, 4,334,403, Cl. 57-263.000.

Kackos, Edward M., to Vernitron Corporation. Door seal for sterilizer. 4,335,075, Cl. 422-112.000.

Kada, Takeo: *See—*
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.

Kador, Ulrich. Launching sheet for windsurfers. 4,334,874, Cl. 441-74.000.

Kadymir, Jack. Power transmission device for plural power-driven hand-held tools. 4,334,439, Cl. 74-665.0GA.

Kakinuma, Toshihide: *See—*
Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, 4,334,486, Cl. 112-158.00E.

Kalt, H. Worthington. Spaghetti eating utensil. 4,334,355, Cl. 30-322.000.

Kambic, Raymond V., to Brink's Locking Systems, Inc. Door position monitoring assembly. 4,334,388, Cl. 49-14.000.

Kaminow, Ivan P.: *See—*
Glass, Alastair M.; Kaminow, Ivan P.; and Olson, Donald H., 4,334,774, Cl. 356-152.000.

Kamogawa, Nin-ichi: *See—*
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, 4,335,196, Cl. 430-122.000.

Kamoshita, Katsuzo: *See—*
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Kanazawa, Takato: *See—*
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, 4,335,293, Cl. 219-10.55B.

Kane, Gary, to Lucas Industries Limited. Dusting apparatus. 4,334,494, Cl. 118-63.000.

Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See—*
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Kaneko, Shigeo: *See—*
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Kanemaru, Kiyoshi: *See—*
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Kanoto, Masanobu, to Canon Kabushiki Kaisha. Paper splicer with upstream splicing table. 4,334,946, Cl. 156-352.000.

Kaplan, Murray A.; and Granatek, Alphonse P., to Bristol-Myers Company. Monolactate salts of 4'-(9-acridinylamino)methanesulfon-m-anisidide. 4,335,244, Cl. 546-106.000.

Kardon Industries, Inc.: *See—*
Elston, Jay T., 4,334,487, Cl. 413-6.000.

Karpisek, Ladislay S. Retainer for growth supporting medium. 4,334,387, Cl. 47-83.000.

Kasai, Masanao: *See—*
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.

Kastrubin, Eduard M. Method of affecting central nervous system by pulse currents. 4,334,525, Cl. 128-1.00C.

Katayama Chemical Works Co. Ltd.: *See—*
Katayama, Sakae; and Umekawa, Osamu, 4,334,957, Cl. 162-161.000.

Katayama, Sakae; and Umekawa, Osamu, to Katayama Chemical Works Co. Ltd.; and Yoshitomi Pharmaceutical Industries Ltd. Microbicidal compositions for industrial use. 4,334,957, Cl. 162-161.000.

Katayama, Yoshihiko: *See—*
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.

Kathryn Wallace and Philadelphia National Bank, executors: *See—*
Wallace, Bernard E., deceased, 4,334,480, Cl. 104-126.000.

Katoh, Haruhiko: *See—*
Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, 4,334,912, Cl. 71-94.000.

Katsunuma, Tatsuo: *See—*
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Katsuta, Yuji: *See—*
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Kaufman, Charles D.: *See—*
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Kawabata, Yasuhiro: *See—*
Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, 4,334,837, Cl. 417-393.000.
Kawabe, Motoyuki, to Taiyo Sengu Co., Ltd. Anchor winch equipment. 4,334,670, Cl. 254-346.000.
Kawahara, Jiro: *See—*
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, 4,334,511, Cl. 123-454.000.
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, to Nippon Soken, Inc.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Knock detecting apparatus. 4,334,422, Cl. 73-35.000.
Kawakatsu, Shiro, to Daihatsu Motor Co., Ltd. Control apparatus for engine/electric hybrid vehicle. 4,335,429, Cl. 364-424.000.
Kawamoto, Mutsumi: *See—*
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.
Kawasaki, Hajime: *See—*
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.
Kawase, Masaaki: *See—*
Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, 4,334,733, Cl. 350-96.330.
Kawashima, Hirokuni: *See—*
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Kayaba Kogyo Kabushiki Kaisha: *See—*
Teruyama, Hideo, 4,334,840, Cl. 418-1.000.
Kazuaki, Tagawa: *See—*
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Kearney & Trecker Corporation: *See—*
Stegemeyer, Noel J.; and Naker, Vernon W., 4,334,363, Cl. 33-185.00R.
Keat, Paul P., to Norton Company. Glass bonded abrasive tool containing metal clad graphite. 4,334,895, Cl. 51-309.000.
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., to AMBAC Industries, Incorporated. Stamped sheet metal frame for dynamoelectric machine. 4,335,323, Cl. 310-40.00R.
Keegan, Jack J.: *See—*
Sherwood, Loran D.; Keegan, Jack J.; and Gniewek, Stephen A., 4,335,073, Cl. 422-83.000.
Keller, Hansueli: *See—*
Trumpf, Jakob; and Keller, Hansueli, 4,334,811, Cl. 409-233.000.
Kellogg, Harlan F. Interlocking shelf and bracket construction. 4,334,483, Cl. 108-152.000.
Kelly, James D., to Radiochemical Centre Limited, The. Indium-111 oxine complex composition. 4,335,095, Cl. 424-1.000.
Kempf, August J.: *See—*
Wilson, Kenneth E.; and Kempf, August J., 4,335,212, Cl. 435-119.000.
Kendall Company, The: *See—*
Peterson, James J., 4,334,537, Cl. 128-275.000.
Kennecott Corporation: *See—*
Kim, Jonathan J.; and Ammann, Paul R., 4,334,924, Cl. 75-133.500.
Kim, Jonathan J.; and Elliott, John F., 4,334,925, Cl. 75-133.500.
Kennedy, Robert E.: *See—*
Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., 4,334,354, Cl. 29-840.000.
Kennis, Ludo: *See—*
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Kepco, Inc.: *See—*
Nercessian, Sarkis, 4,335,445, Cl. 364-900.000.
Kepes, Andre. Process for determining the rheometric properties of materials and apparatus carrying out said process. 4,334,424, Cl. 73-59.000.
Kernforschunggszentrum Karlsruhe GmbH: *See—*
Geerk, Jochen; and Ratzel, Fritz, 4,335,314, Cl. 250-492.300.
Kerschl, Rudolf: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.
Kessinger, Boyd A.: *See—*
Geiger, Walter R.; and Kessinger, Boyd A., 4,334,554, Cl. 138-44.000.
Kibby, Robert M., to Reynolds Metals Company. Carbothermic reduction furnace. 4,334,917, Cl. 75-10.00R.
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Kimberly-Clark Corporation: *See—*
Dinius, James H., 4,335,066, Cl. 264-121.000.
Kimes, Richard C.: *See—*
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.
Kindig, Alan L.: *See—*
Miller, Sammy L.; and Kindig, Alan L., 4,335,325, Cl. 310-214.000.
Kinetic Instruments Inc.: *See—*
Magid, Kenneth S.; and Becker, William J., 4,334,863, Cl. 433-29.000.
King, John: *See—*
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.
Kirchner, Andreas: *See—*
Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, 4,334,825, Cl. 416-134.00A.
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, to Nippon Steel Corporation. Method for rolling steel sections having flanges or flange-like portions. 4,334,419, Cl. 72-225.000.
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Kita, Toru; and Kobayashi, Hiroshi, to Nissan Motor Co., Ltd. Karman vortex type flow measuring apparatus. 4,334,426, Cl. 73-118.000.
Kittell, David H.: *See—*
Kreuzer, Justin L.; and Kittell, David H., 4,335,313, Cl. 250-491.000.
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., to International Flavors & Fragrances Inc. Process for augmenting or enhancing the aroma of detergents using cyclohexyl phenethylether. 4,335,008, Cl. 252-174.110.
Kiwala, Jacob: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.
Klamer, Reuben B.; and Mortonson, Robert J., to Trend Products Group. Trainer/learner skate. 4,334,690, Cl. 280-11.210.
Kleeli, Ruedi: *See—*
Gross, Paul; and Kleeli, Ruedi, 4,334,848, Cl. 425-262.000.
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, to Degussa Aktiengesellschaft. 1-[3-(3,4,5-Trimethoxyphenoxy)-2-hydroxy-propyl]-4-aryl-piperazine-derivatives having pharmaceutical activity. 4,335,126, Cl. 424-250.000.
Klein, Charles A.: *See—*
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.
Klein, Schanzlin & Becker Aktiengesellschaft: *See—*
Holzenberger, Kurt, 4,334,370, Cl. 37-195.000.
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., to International Flavors & Fragrances Inc. Methyl substituted norbornane carboxaldehydes, organoleptic uses thereof and process for preparing same. 4,335,152, Cl. 426-538.000.
Klemme, Darrell A., to USM Corporation. Adhesive systems and laminates. 4,335,222, Cl. 523-454.000.
Kleykamp, Donald L., to Dayco Corporation. Wear member for railway vehicle. 4,334,625, Cl. 213-61.000.
Klimenko, Vladimir I.: *See—*
Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A., 4,334,987, Cl. 209-210.000.
Klingler, Michael R. Manipulating rotary control device. 4,334,492, Cl. 116-309.000.
Klockner-Humboldt-Deutz AG: *See—*
Biernath, Siegfried, 4,334,512, Cl. 123-469.000.
Herchenbach, Horst, 4,334,860, Cl. 432-14.000.
Kloetzer, Dietrich: *See—*
Carduck, Franz-Josef; Kloetzer, Dietrich; and Veldman, Gerard, 4,335,144, Cl. 426-62.000.
Klopcic, J. Terrence: *See—*
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Kluth, Hermann; Bachmann, Robert; and Wegner, Jurgen, to Henkel Kommanditgesellschaft auf Aktien. Two-component dosing apparatus. 4,334,787, Cl. 366-162.000.
Kmeco, Rudolf: *See—*
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.
Knob, Vaclav: *See—*
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.
Knohl, Rudolph E., to Illinois Tool Works Inc. Fastener with a modified thread form. 4,334,815, Cl. 411-368.000.
Knutson, Richard K.: *See—*
Blake, Jon R.; Knutson, Richard K.; and Strommer, Deon L., 4,335,155, Cl. 426-565.000.
Koa Oil Co., Ltd.: *See—*
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.
Kobayashi, Hiroshi: *See—*
Kita, Toru; and Kobayashi, Hiroshi, 4,334,426, Cl. 73-118.000.
Kobayashi, Hiroto, to Walbro Far East, Inc. Auxiliary fuel supply device for internal combustion engines. 4,335,061, Cl. 261-44.00G.
Kobayashi, Hiroto, to Walbro Far East, Inc. Carburetor with rotary throttle. 4,335,062, Cl. 261-44.00G.
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, to Matsushita Electric Industrial Co., Ltd. Heating control apparatus by humidity detection. 4,335,293, Cl. 219-10.55B.

Kobe Steel, Ltd.: *See—*
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.

Koch, Albert. Fall preventing devices. 4,334,595, Cl. 182-5.000.

Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., to Airco, Inc. Counterbalance mechanism for incubator hood. 4,334,629, Cl. 220-252.000.

Kochar, Nand K.; and Marcell, Richard L., to Halcon SD Group, Inc., The. Process for gasoline blending stocks. 4,334,890, Cl. 44-53.000.

Kockums Industri AB: *See—*
Ostberg, Sven E., 4,334,606, Cl. 198-443.000.

Koerwer, John F., to Union Carbide Corporation. Substituted 3-hydroxy-2-cyclohexene-1-one compounds as sugar enhancers for plants. 4,334,913, Cl. 71-98.000.

Kogan, Lawrence; and Pelloso, Turiddu A., to Nabisco Brands, Inc. Edible fat product. 4,335,156, Cl. 426-603.000.

Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, to Mahle GmbH. Piston for an internal combustion engine and method for producing same. 4,334,507, Cl. 123-193.00P.

Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, to Fuji Electric Company, Ltd. Ultrasonic measuring instrument. 4,334,431, Cl. 73-597.000.

Koizumi, Akio; Nakazawa, Hiroshi; and Endo, Akira, to Sony Corporation. Transformer. 4,335,423, Cl. 363-21.000.

Koizumi, Kiyohiko: *See—*
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.

Kokubo, Jyoji, to Nippon Electric Co., Ltd. Semiconductor memory device. 4,335,449, Cl. 365-177.000.

Kolb, Dieter; Kopp, Eugen; and Muller-Sybrichs, Manfred, to Werner & Pfleiderer. Method and apparatus for pressure control in a press. 4,335,063, Cl. 264-3.00B.

Kolczynski, James R.; and Schultz, Gerald A., to Akzona Incorporated. Novel compositions comprising asymmetrical peroxydicarbonates and methods for their use. 4,335,230, Cl. 526-228.000.

Kolditz, John W., to Edison International, Inc. Brake fluid reservoir comprising polymethylpentene and 10–20% glass fibers. 4,335,167, Cl. 428-35.000.

Kollensperger, Dieter: *See—*
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.

Kolmar Laboratories Inc.: *See—*
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., 4,334,546, Cl. 132-88.500.

Konagaya, Takeshi; and Yano, Shunji, to Daiwa Can Company. Apparatus for defatting treatment of containers. 4,334,548, Cl. 134-170.000.

Kondo, Makoto: *See—*
Yokota, Tadashi; Watanabe, Wataru; and Kondo, Makoto, 4,335,409, Cl. 360-96.600.

Konishiroku Photo Industry Co., Ltd.: *See—*
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, 4,335,196, Cl. 430-122.000.

Konrath, Karl; and Brink, Gerhard, to Robert Bosch GmbH. Fuel injection pump for internal combustion engine. 4,334,514, Cl. 123-502.000.

Kontes Glass Company: *See—*
Apothaker, Richard L.; Reed, James; Croce, Carmen L.; and Wagner, Frederick B., III, 4,334,904, Cl. 65-36.000.

Kopp, Eugen: *See—*
Kolb, Dieter; Kopp, Eugen; and Muller-Sybrichs, Manfred, 4,335,063, Cl. 264-3.00B.

Koppers Company, Inc.: *See—*
Hill, Robert E., 4,335,109, Cl. 424-140.000.

Kortech Engineering, Inc.: *See—*
Allen, Ralph A.; Madden, Donald S.; and Zylkowski, John T., 4,334,729, Cl. 339-125.00R.

Kostelc, James G.: *See—*
Preti, George; Kostelc, James G.; and Zelson, Philip R., 4,334,540, Cl. 128-630.000.

Kostka, Anton: *See—*
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.

Kowa Co., Ltd.: *See—*
Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, 4,335,247, Cl. 548-140.000.

Kowolik, Ernst: *See—*
Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., 4,334,898, Cl. 55-269.000.

Koyama, Yasujiro: *See—*
Iiyama, Makoto; and Koyama, Yasujiro, 4,334,858, Cl. 432-9.000.

Kramer, Petrus A., to Shell Oil Company. Preparation of dihalovinyl compounds. 4,335,253, Cl. 560-124.000.

Krautz, Kurt; and Ender, Erhard, to Autoslug Stakupress GmbH & Co. Buckle for a safety belt. 4,334,341, Cl. 24-230.0AT.

Kreibiehl, Guenter: *See—*
Mahnke, Harald; Kreibiehl, Guenter; Weber, Heinz; and Woerner, Frank P., 4,334,971, Cl. 204-159.210.

Krespan, Carl G., to Du Pont de Nemours, E. I., and Company. Alkyl perfluoro (2-methyl-5-oxo-3-oxahexanoate). 4,335,255, Cl. 560-174.000.

Kretzschmar, Rolf: *See—*
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.

Kreuzer, Justin L.; and Kittell, David H., to Perkin-Elmer Corporation, The. Method and apparatus for aligning an opaque mask with an integrated circuit wafer. 4,335,313, Cl. 250-491.000.

Kriedt, Hans; and Dietze, Andreas, to Siemens Aktiengesellschaft. Monolithically integrable lowpass filter circuit. 4,335,359, Cl. 330-257.000.

Krier, Keith N.: *See—*
Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., 4,334,335, Cl. 15-319.000.

Krimm, David L.: *See—*
Martin, James O.; Fathergill, Rex D.; and Krimm, David L., 4,334,456, Cl. 84-314.00R.

Krimm, Heinrich: *See—*
Buysch, Hans-Josef; Krimm, Heinrich; and Bohm, Siegfried, 4,335,051, Cl. 260-463.000.

Krings, Peter: *See—*
Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, 4,335,024, Cl. 252-545.000.

Krishnakumar, Suppayan M.; and Pocock, John F. E., to Continental Group, Inc., The. Blow molded plastic bottle. 4,334,627, Cl. 215-1.00C.

Krol, Thijs, to U.S. Philips Corporation. Memory incorporating error detection and correction. 4,335,458, Cl. 371-38.000.

Krolak, Leo V.: *See—*
Wakat, Emory, Jr.; Dworsky, Lawrence N.; Krolak, Leo V.; Whalin, Jeffery A.; and Mech, Harold W., 4,334,343, Cl. 29-25.350.

Krosunger, Peter. Anti-mar base for saber- and bayonet-type saws and the like. 4,334,356, Cl. 30-374.000.

Kubis, Heribert; and Schott, Karl, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Oil pump arrangement. 4,334,836, Cl. 417-364.000.

Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, to Yamanouchi Pharmaceutical Co. Ltd. Thiazolo[3,2-6]isoquinolines, compositions and use thereof. 4,335,129, Cl. 424-258.000.

Kubo, Masaharu: *See—*
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, 4,335,406, Cl. 358-213.000.

Kubota, Hiroshi: *See—*
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Kubota, Kazuo: *See—*
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Kucera, Carrell J., to Norden Laboratories Inc. Processes for the growth of a modified *Pasteurella multocida* becteria and preparation of a vaccine therefrom. 4,335,106, Cl. 424-92.000.

Kukolja, Stjepan; and Pfeil, Janice L., to Eli Lilly and Company. Process for cyclization. 4,335,240, Cl. 544-90.000.

Kulischenko, Walter, to Pennwalt Corporation. Gearless position indicator. 4,334,491, Cl. 116-31.000.

Kumano, Shinji, to Nippon Gakki Seizo Kabushiki Kaisha. Keyboard musical instrument with removable box leg. 4,334,453, Cl. 84-177.000.

Kumazawa, Ryozi: *See—*
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.

Kumazawa, Tetsuo: *See—*
Fukuzawa, Kenichi; and Kumazawa, Tetsuo, 4,335,329, Cl. 313-406.000.

Kump, Ernest J. Containers. 4,334,359, Cl. 312-111.000.

Kun Chemical Engineers: *See—*
Hosaka, Hideaki; and Kuri, Setuya, 4,335,150, Cl. 426-465.000.

Kund, August, to Communications Technology Corporation. Bonding device. 4,334,726, Cl. 339-14.00L.

Kunisawa, Masuo: *See—*
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, 4,335,407, Cl. 358-284.000.

Kuraray Company, Limited: *See—*
Igi, Keishiro; and Masao, Ishii, 4,335,188, Cl. 428-458.000.

Kuri, Setuya: *See—*
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Kurihara, Kazuhiko: *See—*
Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, 4,335,070, Cl. 264-555.000.

Kurimoto Iron Works, Ltd.: *See—*
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Kurita, Atsushi: *See—*
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Kurita, Hitoshi: *See—*
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Kurosaki Refractories Co., Ltd.: *See—*
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.

Kusche, Peter: *See—*
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Baumann, Kurt; Kusche, Peter; and Redecker, Reinhard, 4,335,441, Cl. 364-580.000.

Kustom Electronics, Inc.: *See—*
Berry, Fred M., 4,335,383, Cl. 343-8.000.

Kydd, Richard A.: *See—*
Miller, Donald N.; and Kydd, Richard A., 4,335,201, Cl. 430-527.000.
Kyowa Hakko Kogyo Co., Ltd.: *See—*
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.
Terada, Osamu; and Aisaka, Kazuo, 4,335,213, Cl. 435-190.000.
Laboratoires Sarget: *See—*
Combier, Henri; Prat, Gisele; and Pontagnier, Henri, 4,335,113, Cl. 424-180.000.
Labrum, Warren W. Well casing closure. 4,334,578, Cl. 166-75.00R.
Lacour-Gayet, Philippe J., to Schlumberger Technology Corporation. Method and apparatus for detecting an anomaly in a resistivity measurement of an earth formation. 4,335,353, Cl. 324-366.000.
Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, to Snamprogetti S.p.A. Apparatus for desalting sea water or brackish water. 4,334,954, Cl. 159-18.000.
Lahrs, Jurgen: *See—*
von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, 4,334,992, Cl. 210-241.000.
Lais, Siegfried: *See—*
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Lancet, Michael S.; and Curran, George P., to Conoco Inc. Process for producing synthesis gas from wood. 4,334,894, Cl. 48-209.000.
Landa, Benzion, to Savin Corporation. Single fixed position lens variable copy size optical system for copying machine. 4,334,762, Cl. 355-8.000.
Landis, Phillip S.: *See—*
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Landsman, Robert M., to LogEtronics, Inc. Method and apparatus for manipulating and transporting image media. 4,334,770, Cl. 355-104.000.
Lang, Robert J., to Exxon Research & Engineering Co. Recovery of alkali metal catalyst constituents with sulfurous acid. 4,334,893, Cl. 48-202.000.
Lange International S.A.: *See—*
Chalmers, Edward L., II; and Shugart, Wayne L., Sr., 4,334,368, Cl. 36-121.000.
Lanneau, Jacques: *See—*
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La Pointe, Henry A. Accessory for fireplace damper. 4,334,520, Cl. 126-288.000.
LaPointe, Roland R., to Joy Manufacturing Company. Pneumatic and hydraulic power control of drill. 4,334,408, Cl. 60-423.000.
Lasser, Elliott C., to University of California, The Regents of the. Method for identifying potential contrast media reactors. 4,335,203, Cl. 435-23.000.
Latassa, Frank M.; Ray, John G.; and Roy, Joseph A., to GTE Products Corporation. Mercury dispenser for discharge lamps. 4,335,326, Cl. 313-177.000.
Latchinian, Jim S. Furniture edge assembly. 4,334,796, Cl. 403-217.000.
Lawson, Daniel D.: *See—*
Corcoran, William H.; Vasilakos, Nicholas P.; and Lawson, Daniel D., 4,334,888, Cl. 44-1.0SR.
Leanza, William J.: *See—*
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Leather's Chemical Company, Limited: *See—*
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.
Le Berre, Serge: *See—*
Hareng, Michel; and Le Berre, Serge, 4,334,734, Cl. 350-331.00R.
Hareng, Michel; and Le Berre, Serge, 4,334,735, Cl. 350-351.000.
Lederer, Edgar: *See—*
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.
Lee, David M., to United States of America, Energy. Method and apparatus for measuring irradiated fuel profiles. 4,335,466, Cl. 376-257.000.
Lee, Thomas B.: *See—*
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.
Le Foll, Jean: *See—*
Salvat, Francois; Bouko, Jean; and Le Foll, Jean, 4,335,387, Cl. 343-756.000.
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, to Agence National de Valorisation de la Recherche (ANVAR). Compounds associating peptidyl of aminoacyl residues to lipophilic groups and pharmaceutical compositions containing said new compounds. 4,335,111, Cl. 424-177.000.
Lehman, Richard F., to Xerox Corporation. Flash exposure system. 4,334,767, Cl. 355-68.000.
Leist, Helmut; and Ullrich, Georg J., to Hellige, GmbH. Thermal protective circuit for a hyperemia-inducing physiological sensor. 4,334,541, Cl. 128-632.000.
Lemforder Metallwaren AG: *See—*
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Lenke, Dieter: *See—*
Wiersdorff, Walter-Wielant; Geisa, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.
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Le Page, Jean-Francois: *See—*
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Lesher, George Y.; and Singh, Baldev, to Sterling Drug, Inc. 5-(Py-Y)-1H-benzimidazol-2-ols and 5-(Py-Y-)-1H-benzimidazole-2-thiols. 4,335,132, Cl. 424-263.000.
Leveille, Joseph, to Polychrome Corporation. Plate processor. 4,334,758, Cl. 354-319.000.
Levin, Harry P., to Electric Power Research Institute, Inc. Electrically insulating seal assembly. 4,335,273, Cl. 174-52.00S.
Levinrad, Maxim D. Constructional kits. 4,334,868, Cl. 434-172.000.
Levy, Stanley B., to Du Pont de Nemours, E. I., and Company. Flat sheet process for production of polyolefin shrink film. 4,335,069, Cl. 264-290.200.
Licentia Patent-Verwaltungs-GmbH: *See—*
Schmitz, Johannes; and Rohrbein, Roland, 4,335,364, Cl. 333-33.000.
Ligthart, Franciscus A. S.: *See—*
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Lin, Tsan H.: *See—*
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Lindeboom, Herman, to Ingersoll-Rand Company. Friction rock stabilizer and method of installing same in an earth structure. 4,334,804, Cl. 405-259.000.
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Link, Manfred; Puch, Diethelm; Zahner, Peter; and Suc, Karel, to Triumph Werke Nurnberg A.G. Type disc typewriter with electronic positioning control. 4,334,790, Cl. 400-144.200.
Link, William T., to Datagraphix, Inc. Microfiche reader assembly and method. 4,334,742, Cl. 353-78.000.
Link, William T., to Datagraphix, Inc. Optical arrangement for use in a microfiche reader and method. 4,334,743, Cl. 353-97.000.
Lion Corporation: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.
Little, Roger G., to Spire Corporation. Electron beam processor. 4,335,297, Cl. 219-121.0EQ.
Litton Systems, Inc.: *See—*
Rodger, Erwin, 4,334,760, Cl. 355-3.0DD.
Liu, Henry, to University of Missouri, The Curators of the. Capsule injection system for a hydraulic capsule pipelining system. 4,334,806, Cl. 406-31.000.
Livemore, Gerald S. V., to Foster Wheeler Energy Corporation. Gas producer apparatus including a water jacket. 4,334,892, Cl. 48-76.000.
Liversidge, Thomas K. Game apparatus. 4,334,680, Cl. 273-1.0GE.
Livingston Labs.: *See—*
Livingston, William S., 4,335,040, Cl. 260-112.00R.
Livingston, William S., to Livingston Labs. Therapeutic product and method. 4,335,040, Cl. 260-112.00R.
Lizardo, Renato A.; and O'Shaughnessy, Roger D., to Cardinal Insulated Glass Co. Method of manufacturing a multiple-pane insulating glass unit. 4,335,166, Cl. 428-34.000.
Lockwood, Frank J. Locking brace for gasoline dispensing nozzles. 4,334,560, Cl. 141-392.000.
Lockwood, Raymond M., to Jetsonic Processes, Ltd. Sonic energy perforated drum for rotary dryers. 4,334,366, Cl. 34-17.000.
Loehr, Albrecht: *See—*
Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, 4,335,024, Cl. 252-545.000.
Loewrigkeit, Peter: *See—*
Dabi, Shmuel; Loewrigkeit, Peter; and Van Dyk, Kenneth A., 4,335,029, Cl. 524-589.000.
LogEtronics, Inc.: *See—*
Landsman, Robert M., 4,334,770, Cl. 355-104.000.
Lombardi, Louis J.; and Coyne, Roy J., to Richardson Company, The. Radiation curable solvent-free compositions recovery system. 4,334,970, Cl. 204-159.150.
Long, William E., to Ciba-Geigy AG. Process for preparing certain pyridine 2,3,6-triones. 4,335,245, Cl. 546-288.000.
Loos, Herbert: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.
Lorang, Lucien: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.
Lordi, Frank E.; and Francis, Peter S., to Atlantic Richfield Company. Blend of styrene-maleic anhydride and high impact polystyrene. 4,335,037, Cl. 524-504.000.
Lorimor, Larry W.: *See—*
Hajek, Thomas J., II; and Lorimor, Larry W., 4,334,553, Cl. 137-625.660.
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, to Richter Gedeon Vegyeszeti Gyar Rt. Plant-protective and pest-control agent. 4,334,910, Cl. 71-82.000.
Lorincz nee Csapo, Eva: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.

Losonczi, Janosne: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Lounsberry, Stephen M., Jr., deceased, to Moore and Steele Corporation. Hydraulic fluid-operated railway track lubricating apparatus. 4,334,596, Cl. 184-3.00A.

Loveless, Frederick C.: *See—*
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, 4,335,006, Cl. 252-49.700.

Lucas Industries Limited: *See—*
Kane, Gary, 4,334,494, Cl. 118-63.000.

Ludwig, Bernd; and Donner, Jurgen, to Starkstrom Gummersbach GmbH. Electric switching apparatus particularly a cam switch. 4,335,288, Cl. 200-307.000.

Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., to TRW Inc. Method of fabricating a solar array. 4,334,354, Cl. 29-840.000.

Luh, Howard H. S.: *See—*
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.

Luhmer, Udo: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.

Luo, Fang C., to Xerox Corporation. Thin film transistors, thin film transistor arrays, and a process for preparing the same. 4,335,161, Cl. 427-86.000.

Luthy, Willy A. R.: *See—*
Salathe, Rene P.; Badertscher, E. Gerhard; and Luthy, Willy A. R., 4,335,362, Cl. 372-46.000.

Lutz, Herbert; and Pfeifer, Rolf, to Siemens Aktiengesellschaft. X-ray diagnostic apparatus with an image-intensifier TV chain. 4,335,311, Cl. 250-409.000.

Lyman, Donald J.; and Middleton, Richard G., to University of Utah. Ureteral prosthesis. 4,334,327, Cl. 3-1.000.

Lynch, Marvin P. Detachable umbrella support assembly for a golf cart. 4,334,692, Cl. 280-79.10A.

Lyons, Michael D.; and Strobel, Richard A., to American Standard Inc. Electronic balance control circuit arrangement. 4,335,321, Cl. 307-252.00B.

Mabuchi, Kenichi; and Katsunuma, Tatsuo, to Mabuchi Motor Co., Ltd. Engine-driven model toy. 4,335,318, Cl. 290-31.000.

Mabuchi Motor Co., Ltd.: *See—*
Mabuchi, Kenichi; and Katsunuma, Tatsuo, 4,335,318, Cl. 290-31.000.

MacChesney, John B.; and O'Connor, Paul B., to Bell Telephone Laboratories, Incorporated. Optical fiber fabrication. 4,334,903, Cl. 65-3.120.

Machlett Laboratories, Incorporated, The: *See—*
Waugh, John S.; and Weber, Richard G., 4,335,327, Cl. 313-330.000.

MacKay, Fredric M.: *See—*
Winders, Gordon R.; and MacKay, Fredric M., 4,334,371, Cl. 40-2.00R.

Mackenzie, Sprague B. Stalling aerodynamics of the Cessna models 150 and 152 series aircraft. 4,334,658, Cl. 244-198.000.

Mackin, Michael H.: *See—*
Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., 4,334,629, Cl. 220-252.000.

Mackintosh, Brian H.: *See—*
Sachs, Emanual M.; and Mackintosh, Brian H., 4,335,081, Cl. 422-246.000.

Madden, Donald S.: *See—*
Allen, Ralph A.; Madden, Donald S.; and Zylkowski, John T., 4,334,729, Cl. 339-125.00R.

Mader, Karl, to IDC Chemie AG. Insulated outer coating of walls of building structures. 4,334,394, Cl. 52-309.120.

Magee, Robert C.; and Rogers, Alfred M., III, to Thomson Industries, Inc. Linear bearings. 4,334,716, Cl. 308-6.00C.

Magid, Kenneth S.; and Becker, William J., to Kinetic Instruments Inc. Illuminator for dental handpiece. 4,334,863, Cl. 433-29.000.

Magill, James M., to Atwood Oceanics, Inc. Method and apparatus for installing a sea-floor cellar in a subsea bottom having compacted soil conditions. 4,334,584, Cl. 175-5.000.

Magnaghi Oleodinamica S.p.A.: *See—*
Tovagliaro, Costantino, 4,334,597, Cl. 188-71.800.

Magnex Corporation: *See—*
Neu, William F., 4,335,410, Cl. 360-123.000.

Maguire, Eileen: *See—*
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, 4,335,164, Cl. 427-304.000.

Magyar Aluminiumipari Troszt: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Mahieux, Jacques E.: *See—*
Fima, Raoul G.; and Mahieux, Jacques E., 4,334,428, Cl. 73-146.500.

Mahle GmbH: *See—*
Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, 4,334,507, Cl. 123-193.00P.

Mahnke, Harald; Kreibiehl, Guenter; Weber, Heinz; and Woerner, Frank P., to BASF Aktiengesellschaft. Manufacture of resilient foams based on a melamine-formaldehyde condensate. 4,334,971, Cl. 204-159.210.

Mahon, Robert M., to Nelson Industries, Inc. Filter assembly having an extruded filter head. 4,334,995, Cl. 210-340.000.

Mahoney, Martin D.: *See—*
Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., 4,334,911, Cl. 71-93.000.

Maida, Osamu, to Nippon Kogaku K.K. Exposure indicating device for a camera utilizing analog-digital converter. 4,334,745, Cl. 354-60.00L.

Makabe, Hachiro: *See—*
Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, 4,334,486, Cl. 112-158.00E.

Males, Robert E.; and Colechia, Edward A., to Textron Inc. Stick package of spring clip fasteners. 4,334,613, Cl. 206-340.000.

Mallory, James D.: *See—*
Westlake, Patrick C.; Fish, Keith; and Mallory, James D., 4,334,803, Cl. 405-259.000.

Mallow, Thomas T. Key holder. 4,334,326, Cl. 2-249.000.

Malmros, Mark K. Analytical device having semiconductive polyacetylene element associated with analyte-binding substance. 4,334,880, Cl. 23-230.00B.

Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A. Method of separation of solid phase in drilling mud. 4,334,987, Cl. 209-210.000.

Mann, Frederick: *See—*
Rader, William W., 4,334,794, Cl. 401-50.000.

Manring, Gary L.: *See—*
Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., 4,335,115, Cl. 424-181.000.

Mapco, Inc.: *See—*
Martin, Philip N., 4,334,591, Cl. 181-116.000.

Marano, John P., Jr.; and Farag, Maya S., to Mobil Oil Corporation. Microwaveable heat and grease resistant containers. 4,335,181, Cl. 428-319.300.

Marcell, Richard L.: *See—*
Kochar, Nand K.; and Marcell, Richard L., 4,334,890, Cl. 44-53.000.

Marconi Company Limited, The: *See—*
Bowers, Douglas F., 4,335,363, Cl. 332-37.00R.
Burrows, Michael J., 4,334,866, Cl. 434-2.000.
Heaviside, John W., 4,335,347, Cl. 323-328.000.

Markem Corporation: *See—*
Noyes, Mark S.; and Perra, Andrew G., Jr., 4,334,471, Cl. 101-228.000.

Markezich, Ronald L., to General Electric Company. Thermally stable polycarbonate compositions. 4,335,039, Cl. 524-108.000.

Markle, Richard A.: *See—*
Cremeans, George E.; and Markle, Richard A., 4,335,027, Cl. 528-281.000.

Marloth, Herbert: *See—*
Reichl, Ernst; and Marloth, Herbert, 4,334,531, Cl. 128-200.140.

Marquardt, Ralph E. Electronic control device. 4,335,376, Cl. 340-547.000.

Marsden, Peter H.: *See—*
Watts, Ian S.; and Marsden, Peter H., 4,335,139, Cl. 424-285.000.

Marsh, James C., Jr.; and Snell, Marcus L., Jr., to RCA Corporation. Audio de-emphasis circuit. 4,335,470, Cl. 455-205.000.

Marshall, Arthur K. Bedside commode. 4,334,330, Cl. 4-480.000.

Marshall, Vincent P.: *See—*
Argoudelis, Alexander D.; Marshall, Vincent P.; and Johnson, Leroy E., 4,335,108, Cl. 424-117.000.

Martensson, Karl J. G.: *See—*
Brockwell, Ian P.; and Martensson, Karl J. G., 4,334,465, Cl. 99-454.000.

Martin, James O.; Fathergill, Rex D.; and Krimm, David L. Guitar neck fret assembly. 4,334,456, Cl. 84-314.00R.

Martin, John R. Method and system for providing an audible alarm responsive to sensed conditions. 4,335,379, Cl. 340-634.000.

Martin, Philip N., to Mapco, Inc. Transporter for low energy seismic source. 4,334,591, Cl. 181-116.000.

Martin, Pierre: *See—*
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.

Martin, William E.; and Sumrall, Harold E., to J. R. Simplot Company. Cutter assembly for dough strips. 4,334,447, Cl. 83-111.000.

Martinson, John R., Jr. Video signal mixer apparatus and method. 4,335,404, Cl. 358-188.000.

Maruyama, Kunio; and Okazaki, Akira, to Sumitomo Chemical Co., Ltd. Process for producing carbon fibers. 4,335,089, Cl. 423-447.400.

Marvin Glass & Associates: *See—*
Rogers, Gregory B.; Wildman, John R.; and Breslow, Jeffrey D., 4,334,384, Cl. 46-39.000.

Maryland, Alfred L.: *See—*
Rukavina, Thomas G.; and Maryland, Alfred L., 4,335,187, Cl. 428-412.000.

Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., to Owens-Corning Fiberglas Corporation. Chemically modified asphalt compositions. 4,335,186, Cl. 428-375.000.

Masao, Ishii: *See—*
Igi, Keishiro; and Masao, Ishii, 4,335,188, Cl. 428-458.000.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See—*
Hirt, Dieter; Steigenberger, Richard; and Meinke, Peter, 4,334,718, Cl. 308-10.000.
Kubis, Heribert; and Schott, Karl, 4,334,836, Cl. 417-364.000.

Maschinenfabrik Rissen GmbH: *See—*
Eckert, Eugen, 4,334,875, Cl. 493-303.000.

Masly, John R.: *See—*
Goes, Michael J.; Masly, John R.; and Schmidlin, Albertus E., 4,334,478, Cl. 102-529.000.

Mason, Charles D.: *See—*
Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., 4,335,223, Cl. 525-179.000.
Masucci, Carmine, to Izon Corporation. Melding mask. 4,334,741, Cl. 353-38.000.
Matay, Istvan M.: *See—*
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.
Matsko, Joseph J.: *See—*
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., 4,335,413, Cl. 361-93.000.
Matsuda, Akira: *See—*
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Matsukuma, Ikuo: *See—*
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.
Matsumi, Satoru: *See—*
Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, 4,334,433, Cl. 73-629.000.
Matsumoto, Fumio, to Fuji Photo Film Co., Ltd. Normalizing circuit for color printing system. 4,335,399, Cl. 358-80.000.
Matsumoto, Ikuo: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.
Matsushita Electric Corporation: *See—*
Rzeszewski, Theodore S., 4,335,396, Cl. 358-21.00R.
Matsushita Electric Industrial Co., Ltd.: *See—*
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, 4,335,293, Cl. 219-10.55B.
Nyuji, Tomoaki, 4,335,374, Cl. 340-365.00S.
Shiga, Kazumasa, 4,334,545, Cl. 128-732.000.
Tanaka, Junzo; Nakano, Chikao; and Kurita, Hitoshi, 4,335,292, Cl. 219-10.55F.
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, to Nippon Oil Company, Limited. Polymer compositions comprising ethylene polymer blends. 4,335,224, Cl. 525-240.000.
Matthews, Edgar W., Jr.: *See—*
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.
Matthews, Lloyd J. Animal spraying apparatus. 4,334,504, Cl. 119-159.000.
Mattson, Kjell, to Aktiebolaget Bofors. Device for fin-stabilized shell or the like. 4,334,657, Cl. 244-3.280.
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, to Magyar Aluminiumipari Troszt. Method of decreasing the organic substance content of alum earth production cycle performed according to the Bayer technology. 4,335,082, Cl. 423-122.000.
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, to Bayer Aktiengesellschaft. Pesticidally active N,N-dimethyl-carbamic acid O-(4,6-dihydro-2H-thieno[3,4-c]pyrazol-3-yl) esters and 5-oxides and 5,5-dioxides thereof. 4,335,134, Cl. 424-273.00P.
Maurer, Helmut: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.
Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., to International Business Machines Corporation. Remote processor initialization in a multi-station peer-to-peer intercommunication system. 4,335,426, Cl. 364-200.000.
Mayer, Sigmund: *See—*
Alfranseder, Josef; Mayer, Sigmund; Rebsdat, Siegfried; Riedl, Josef; and Schaffelhofer, Iwo, 4,335,014, Cl. 252-412.000.
Mayerchin, Alvin D.: *See—*
Hopkins, Michael F.; and Mayerchin, Alvin D., 4,334,415, Cl. 464-130.000.
Mayfield, Lawrence E.: *See—*
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.
Mazur, Richard J.; Dimsa, Robert D.; and Pekarcik, John T., to American Standard Inc. System for automatically delaying application of a snow brake for a railway vehicle. 4,334,711, Cl. 303-16.000.
McCabe Powers Body Company: *See—*
Jost, Richard P., 4,334,594, Cl. 182-2.000.
McCarthy, James, III: *See—*
Modia, Joseph W.; and McCarthy, James, III, 4,335,421, Cl. 362-223.000.
McCarthy, Robert H.: *See—*
Hunt, Willard F.; and McCarthy, Robert H., 4,335,427, Cl. 364-414.000.
McConnell, Paul A. Snap filter grill and assembly. 4,334,899, Cl. 55-321.000.
McCray, William R.: *See—*
Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., 4,334,792, Cl. 400-279.000.
McCullough, Robert W.; and Hewett, Thomas A., to Union Carbide Corporation. Solar heater with bondless honeycomb heat trap. 4,334,524, Cl. 126-449.000.
McDaniel, Bruce M.: *See—*
McDaniel, Diana G.; and McDaniel, Bruce M., 4,334,501, Cl. 119-16.000.
McDaniel, Diana G.; and McDaniel, Bruce M. Animal shelter and feed dispenser. 4,334,501, Cl. 119-16.000.
McDonald, Wesley E.: *See—*
Bull, Glen L.; McDonald, Wesley E.; and Edgerton, Milton T., 4,335,276, Cl. 179-1.0SP.
McFadden, Arthur R.; and Aultz, Daniel E., to Hoechst-Roussel Pharmaceuticals Inc. Dihydro-dibenzoxepines-thiepines and -morphanthridones, compositions and use. 4,335,122, Cl. 424-244.000.
McFarland, John, to Chemetics International Ltd. Converter for converting sulfur dioxide to sulfur trioxide. 4,335,076, Cl. 422-171.000.
McGean Chemical Company, Inc.: *See—*
Beach, Sidney C.; and Frisby, C. Richard, 4,334,966, Cl. 204-25.000.
McKay, Dwight L., to Phillips Petroleum Company. Catalyst regeneration. 4,335,021, Cl. 252-455.00R.
McKay, Dwight L.: *See—*
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McKay, Roger E.: *See—*
Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., 4,335,426, Cl. 364-200.000.
McKewan, Arthur J., to Microdot Inc. Self-tapping screw for use in plastics. 4,334,814, Cl. 411-311.000.
McKinnon, Charles A. Automatic hydraulic roll winder. 4,334,651, Cl. 242-56.00R.
McMillen, Bobby E.: *See—*
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., 4,335,323, Cl. 310-40.00R.
McMurtry, David H.: *See—*
Crawford, Roy P.; Gilovich, Paul A.; and McMurtry, David H., 4,334,656, Cl. 242-195.000.
McQuay-Perfex Inc.: *See—*
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Mead Corporation, The: *See—*
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Mech, Harold W.: *See—*
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Meibaum, Raymond K.: *See—*
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., 4,334,934, Cl. 127-9.000.
Meinke, Peter: *See—*
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Meister, Alton; and Williamson, Joanne M., to Cornell Research Foundation. Method of producing L-cysteine. 4,335,210, Cl. 435-113.000.
Melin, Arthur K.; Gillespie, Richard L.; and Geller, Douglas A., to Wham-O Mfg. Co. Flying disc. 4,334,385, Cl. 46-74.00D.
Melotti, Athos. Water sprinkling toy pistol with bubble-blowing ring. 4,334,383, Cl. 46-7.000.
Mendelsohn, Morris A.; and Navish, Francis W., to Westinghouse Electric Corp. Impregnated high voltage spacers. 4,335,179, Cl. 428-273.000.
Mentzer, David, to Exxon Research & Engineering Co. Stripping steam recycle for solvent recovery processes. 4,334,983, Cl. 208-326.000.
Mercier, Bernard J.: *See—*
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., 4,335,413, Cl. 361-93.000.
Merck & Co., Inc.: *See—*
Christensen, Burton G.; Leanza, William J.; and Wildonger, Kenneth J., 4,335,043, Cl. 260-245.20T.
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,335,141, Cl. 424-304.000.
Stoudt, Thomas H.; and Nollstadt, Karl H., 4,335,101, Cl. 424-50.000.
Wilson, Kenneth E.; and Kempf, August J., 4,335,212, Cl. 435-119.000.
Merrell Dow Pharmaceuticals Inc.: *See—*
Parker, Roger A., 4,335,098, Cl. 424-275.000.
Mesch, Hans G.: *See—*
Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., 4,334,354, Cl. 29-840.000.
Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung: *See—*
Brand, Konrad; and Franz, Dieter, 4,335,182, Cl. 428-319.300.
Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, 4,334,825, Cl. 416-134.00A.
Messerschmitt, Elmar. Device for sharpening and/or forming the profile of a screen printing squeegee. 4,334,448, Cl. 83-171.000.
Metcalfe, Lincoln D.: *See—*
Frank, Dieter; and Metcalfe, Lincoln D., 4,334,887, Cl. 23-313.00R.
Mettersheimer, John H., Jr., to Cannon, Charles B. Hydro-electric power apparatus utilizing ocean currents. 4,335,319, Cl. 290-54.000.
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, to ARBED S.A. Process for metal-bath refining. 4,334,922, Cl. 75-60.000.
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Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.
Metzl, Robert: *See—*
Berkman, Samuel; and Metzl, Robert, 4,334,948, Cl. 156-608.000.
Meyers, Fred W.: *See—*
Baluha, Gerald F.; and Flanagan, Bernard E., 4,334,958, Cl. 162-352.000.

Meynier, Guy: *See—*
Carre, Jean-Jacques; and Meynier, Guy, 4,334,712, Cl. 303-24.00C.

Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., to Du Pont de Nemours, E. I., and Company. High contrast by imagewise iodide infection in a mixed silver halide system. 4,335,199, Cl. 430-434.000.

Michlin, Norman; and Thies, Edward J., to Universal Developer Corporation. Self-contained disposable developer/absorber package. 4,334,756, Cl. 354-300.000.

Michne, William F., to Sterling Drug Inc. Oximes of 11-(3-oxooctyl)-hexahydro-2,6-methano-3-benzazocines. 4,335,243, Cl. 546-97.000.

Mickelsen, Reid A.; and Chen, Wen S., to Boeing Company, The. Methods for forming thin-film heterojunction solar cells from I-III-VI_2 chalcopyrite compounds, and solar cells produced thereby. 4,335,266, Cl. 136-260.000.

Microdot Inc.: *See—*
McKewan, Arthur J., 4,334,814, Cl. 411-311.000.

Middleton, Richard G.: *See—*
Lyman, Donald J.; and Middleton, Richard G., 4,334,327, Cl. 3-1.000.

Migrin, Robert S., to Eaton Corporation. Temperature compensated fill valve/pressure switch. 4,335,283, Cl. 200-61.250.

Miki, Isao; and Nagi, Tsutomu, to Nippon Light Metal Co., Ltd. Method for cooling a plunger tip in a die casting machine of the cold chamber type and apparatus therefor. 4,334,575, Cl. 164-113.000.

Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, to Aisin-Waker Kabushiki Kaisha. Electronic system for controlling an automatic transmission in response to changes in slope. 4,335,428, Cl. 364-424.000.

Miles, Brynley J.; and Rosevear, Alan, to United Kingdom Atomic Energy Authority. Composite materials comprising deformable xerogel within the pores of particulate rigid supports useful in chromatography. 4,335,017, Cl. 252-430.000.

Miller, Donald N.; and Kydd, Richard A., to Eastman Kodak Company. Antistatic compositions and elements containing same. 4,335,201, Cl. 430-527.000.

Miller, John A.: *See—*
Holloway, Richard L.; Miller, John A.; and Winters, Jerald E., 4,334,981, Cl. 208-131.000.

Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., to Shop-Vac Corporation. Compact wet-dry electric vacuum cleaner. 4,334,337, Cl. 15-326.000.

Miller, Richard L. Single chip random access memory with increased yield and reliability. 4,335,459, Cl. 371-38.000.

Miller, Sammy L.; and Kindig, Alan L., to General Electric Company. Dynamoelectric machine stator assembly. 4,335,325, Cl. 310-214.000.

Milligan, Lee J., to Hospal Medical Corp. Control of dialysis and ultrafiltration. 4,334,988, Cl. 210-87.000.

Milne, James. Method of filling a hole in the ground. 4,334,798, Cl. 404-75.000.

Milner, William E., Jr. Collapsible, portable dental chair. 4,334,710, Cl. 297-440.000.

Minai, Masayoshi, to Sumitomo Chemical Company, Limited. Process for preparing aromatic aldehydes. 4,335,263, Cl. 568-437.000.

Minegishi, Mikio: *See—*
Minegishi, Susumu; and Minegishi, Mikio, 4,334,859, Cl. 432-13.000.

Minegishi, Susumu; and Minegishi, Mikio. Method and apparatus for melting matrix materials. 4,334,859, Cl. 432-13.000.

Miner, Robert M. Pin action mixing pump. 4,334,788, Cl. 366-303.000.

Mining Services International Corporation: *See—*
Day, John T.; and Udy, Lex L., 4,334,476, Cl. 102-275.700.

Minnesota Mining and Manufacturing Company: *See—*
Zenk, Robert E., 4,335,171, Cl. 428-40.000.

Minolta Camera Kabushiki Kaisha: *See—*
Oka, Tateki; Wada, Kenichi; and Tabuchi, Kenji, 4,334,497, Cl. 118-698.000.
Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, 4,334,766, Cl. 355-15.000.

Mitsubishi Denki Kabushiki Kaisha: *See—*
Miura, Keiichi, 4,335,435, Cl. 364-469.000.

Mitsubishi Paper Mills, Ltd.: *See—*
Miyamoto, Shigehiko; and Watanabe, Yoshinobu, 4,335,184, Cl. 428-342.000.
Ohashi, Minoru; and Iwaosa, Katsuaki, 4,335,200, Cl. 430-446.000.

Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, to Tokyo Shibaura Denki Kabushiki Kaisha. Electrically insulated coil. 4,335,367, Cl. 336-205.000.

Mitsui Kinzoku Kogyo Kabushiki Kaisha: *See—*
Yamada, Shinjiro, 4,334,704, Cl. 292-216.000.

Mitsui Toatsu Chemicals, Inc.: *See—*
Asai, Yoshiyuki; Shimada, Masao; and Soda, Kenji, 4,335,209, Cl. 435-108.000.

Mitsuishi, Tsutomu: *See—*
Nozawa, Hideyo; and Mitsuishi, Tsutomu, 4,334,737, Cl. 350-430.000.

Mitsuo, Tanaka; Kazuaki, Tagawa; and Takashi, Yano, to Ricoh Co., Ltd. Corona discharge device. 4,335,420, Cl. 361-230.000.

Miura, Eiji: *See—*
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.

Miura, Keiichi, to Mitsubishi Denki Kabushiki Kaisha. Method of changing rolling schedule during rolling in tandem rolling mill. 4,335,435, Cl. 364-469.000.

Miura, Taro: *See—*
Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, 4,335,291, Cl. 219-10.55E.

Miyamoto, Shigehiko; and Watanabe, Yoshinobu, to Mitsubishi Paper Mills, Ltd. Recording paper. 4,335,184, Cl. 428-342.000.

Miyanaga, Frank H. Attachment for a water closet. 4,334,329, Cl. 4-443.000.

Miyashita, Shunitsu: *See—*
Somemiya, Akiyoshi; Miyashita, Shunitsu; and Azuma, Masaaki, 4,335,233, Cl. 528-211.000.

Miyoshi, Mituji: *See—*
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.

Mizutani, Hiroshi: *See—*
Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, 4,334,333, Cl. 8-152.000.

Mobil Oil Corporation: *See—*
Armstrong, Eldon L.; and Landis, Phillip S., 4,335,005, Cl. 252-49.600.
Bowes, Emmerson; and Pelrine, Bruce P., 4,335,019, Cl. 252-450.000.
Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, 4,335,020, Cl. 252-455.00Z.
Derbyshire, Francis J.; Varghese, Philip; and Whitehurst, Darrell D., 4,334,977, Cl. 208-8.0LE.
Edwards, Joseph T., 4,334,882, Cl. 23-230.00R.
Marano, John P., Jr.; and Farag, Maya S., 4,335,181, Cl. 428-319.300.
Yan, Tsoung Y., 4,334,976, Cl. 208-8.0LE.

Mobil Tyco Solar Energy Corporation: *See—*
Sachs, Emanual M.; and Mackintosh, Brian H., 4,335,081, Cl. 422-246.000.

Mochida, Haruo, to Nissan Motor Company, Limited. Clearance adjusting mechanism. 4,334,438, Cl. 74-501.00R.

Modia, Joseph W.; and McCarthy, James, III. Light fixture, light aperture and method of uniformly illuminating an optically diffusive viewing area. 4,335,421, Cl. 362-223.000.

Moen, David L.; and Peterson, Ray D., to Westinghouse Electric Corp. Paired stage flash evaporator having improved configuration. 4,334,961, Cl. 202-173.000.

Moffitt, Robert C., to United Technologies Corporation. Helicopter blade with a tip having a selected combination of sweep, taper and anhedral to improve hover efficiency. 4,334,828, Cl. 416-228.000.

Monarch Marking Systems, Inc.: *See—*
Hamisch, Paul H., Jr., 4,334,470, Cl. 101-111.000.

Monell Chemical Senses Center: *See—*
Preti, George; Kostelc, James G.; and Zelson, Philip R., 4,334,540, Cl. 128-630.000.

Monsanto Company: *See—*
Allart, Pierre J.; and Guillaume, Claude A., 4,335,013, Cl. 252-364.000.
Chupp, John P., 4,334,909, Cl. 71-76.000.
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.

Montagna, Roberto: *See—*
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.

Montedison S.p.A.: *See—*
Bornengo, Mario; and Bacciarelli, Sergio, 4,335,260, Cl. 564-406.000.

Mookherjee, Braja D.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.

Moon, Marcus P., to Du Pont de Nemours, E. I., and Company. Insecticidal trifluoroethanimidothioate disulfides. 4,335,140, Cl. 424-298.000.

Mooney, John J.: *See—*
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.

Moore, Albert L.; Stewart, Clare A., Jr.; and Swerlick, Isadore, to Du Pont de Nemours, E. I., and Company. Fluoropolymer hexafluoropropene, tetrafluorethene and 1,1-difluoroethene. 4,335,238, Cl. 526-254.000.

Moore, Charles E.: *See—*
Gort, Alfred F.; and Moore, Charles E., 4,335,306, Cl. 250-231.0SE.

Moore, Michael T.: *See—*
Cutler, Robert S.; and Moore, Michael T., 4,334,878, Cl. 524-88.000.

Moore and Steele Corporation: *See—*
Lounsberry, Stephen M., Jr., deceased, 4,334,596, Cl. 184-3.00A.

Morgan, Bennie E., to Roof Control, Inc. Roof bolt and cradle arrangement. 4,334,805, Cl. 405-261.000.

Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, to Kobe Steel, Ltd.; and Koa Oil Co., Ltd. Integrated process for thermal cracking of heavy oil and reduction of iron ores. 4,334,920, Cl. 75-26.000.

Mori, Masaharu: *See—*
Tanaka, Kouichi; and Mori, Masaharu, 4,335,322, Cl. 307-542.000.

Mori, Toshiki: *See—*
Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, 4,334,610, Cl. 206-205.000.

Morikawa, Teruo: *See—*
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.

Morinaga, Akio: *See*—
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.
Morishima, Hajime: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.
Morita, Akira: *See*—
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.
Morris, George C.: *See*—
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.
Morris, Henry B., to Texas Instruments Incorporated. Non-volatile semiconductor memory elements and methods of making. 4,335,391, Cl. 357-23.000.
Morris, Larry R., to Alcan Research and Development Limited. Production of aluminum alloy sheet. 4,334,935, Cl. 148-2.000.
Morrison, White H., III; and Vest, Everette L., to Norlin Industries, Inc. Plastic musical instrument body having structural insert. 4,334,452, Cl. 84-1.160.
Morton, Edward W.: *See*—
Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, 4,334,782, Cl. 356-406.000.
Morton-Norwich Products, Inc.: *See*—
Schwan, Thomas J.; and Gray, Joseph E., 4,335,130, Cl. 424-258.000.
Mortonson, Robert J.: *See*—
Klamer, Reuben B.; and Mortonson, Robert J., 4,334,690, Cl. 280-11.210.
Mosbach, Klaus H. Magnetic polymer particles. 4,335,094, Cl. 424-1.000.
Mosser Industries, Inc.: *See*—
Connor, Peter J.; and Hagar, Donald K., 4,334,550, Cl. 137-242.000.
Mostmans, Joseph H.: *See*—
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,335,125, Cl. 424-250.000.
Motorola Inc.: *See*—
Aufderheide, Maurice B.; and Daniel, Sam M., 4,335,372, Cl. 340-347.0DD.
Wakat, Emory, Jr.; Dworsky, Lawrence N.; Krolak, Leo V.; Whalin, Jeffery A.; and Mech, Harold W., 4,334,343, Cl. 29-25.350.
Moyer Diebel Limited: *See*—
Diebel, Howard; and deMan, Albert, 4,334,547, Cl. 134-46.000.
MPD Technology Corporation: *See*—
Rhoda, Richard N., 4,335,087, Cl. 423-413.000.
MTU Motoren- und Turbinen-Union Munchen GmbH: *See*—
Rossmann, Axel, 4,334,822, Cl. 415-113.000.
Mockelrath, Ernest R., to Tioga Air Heaters, Inc. Barrel warmer for drilling rigs. 4,334,862, Cl. 432-128.000.
Mueller, Hans P.: *See*—
Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., 4,334,898, Cl. 55-269.000.
Mueller, Jiri: *See*—
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.
Muller, Georges, to Commissariat a l'Energie Atomique. Filter replacement process and apparatus. 4,334,896, Cl. 55-96.000.
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, to Robert Bosch GmbH. Electrochemical oxygen sensor, particularly for use with exhaust gases of internal combustion engines, and especially for polarographic application. 4,334,974, Cl. 204-195.00S.
Muller, Ludwig: *See*—
Adamowicz, Philippe J.; Platel nee Bonnet, Alberte; and Muller, Ludwig, 4,335,214, Cl. 435-239.000.
Muller-Sybrichs, Manfred: *See*—
Kolb, Dieter; Kopp, Eugen; and Muller-Sybrichs, Manfred, 4,335,063, Cl. 264-3.00B.
Muller, Werner; and Bunemann, Hans, to Boehringer Mannheim GmbH. Adsorbent for the affinity-specific separation of macromolecular materials. 4,335,226, Cl. 525-281.000.
Mullin, John M.: *See*—
Scalley, Douglas M.; and Mullin, John M., 4,335,370, Cl. 340-64.000.
Murakami, Shozo: *See*—
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.
Murasaki, Hiroshi: *See*—
Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, 4,334,766, Cl. 355-15.000.
Murata, Shinji: *See*—
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.
Murphy, John H.: *See*—
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., 4,334,546, Cl. 132-88.500.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Compositions of matter containing cis-3-hexenal. 4,335,002, Cl. 252-1.000.
Mutschler, Otto. Stand for holding and sealingly retaining India ink drawing implements. 4,334,622, Cl. 211-69.500.
Nabisco Brands, Inc.: *See*—
Kogan, Lawrence; and Pelloso, Turiddu A., 4,335,156, Cl. 426-603.000.
Nacheber, Niconedi P., Jr.: *See*—
Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., 4,335,426, Cl. 364-200.000.
Nadella: *See*—
Stephan, Gerard, 4,334,414, Cl. 464-134.000.
Nagakura, Masahiko: *See*—
Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, 4,335,247, Cl. 548-140.000.
Naganuma, Takeshi: *See*—
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.
Nagasoe, Seiichi: *See*—
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.
Nagi, Tsutomu: *See*—
Miki, Isao; and Nagi, Tsutomu, 4,334,575, Cl. 164-113.000.
Nagy, Gabor: *See*—
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.
Naito, Hideshi: *See*—
Nozawa, Hideyo; and Naito, Hideshi, 4,334,746, Cl. 354-126.000.
Naito, Kyohei, to Shinwa Kabushiki Kaisha. Automatic tape feeding direction reversing device in a tape recorder. 4,334,655, Cl. 242-191.000.
Nakagawa, Akira: *See*—
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.
Nakagawa, Hajime: *See*—
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.
Nakagawa, Yukia: *See*—
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.
Nakajima, Makoto; and Naramura, Masaru, to Nissan Motor Co., Ltd. Electronic fuel injection system for internal combustion engine. 4,334,513, Cl. 123-494.000.
Nakamura, Masato: *See*—
Takinishi, Kiyotoshi; and Nakamura, Masato, 4,334,542, Cl. 128-642.000.
Nakane, Katashi: *See*—
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.
Nakano, Chikao: *See*—
Tanaka, Junzo; Nakano, Chikao; and Kurita, Hitoshi, 4,335,292, Cl. 219-10.55F.
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, to Lion Corporation. Oral composition for caries prophylaxis. 4,335,102, Cl. 424-52.000.
Nakasuji, Takashi: *See*—
Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, 4,334,937, Cl. 148-12.00R.
Nakayama, Wataru: *See*—
Fujioka, Kazumasa; and Nakayama, Wataru, 4,335,324, Cl. 310-61.000.
Nakazawa, Hiroshi: *See*—
Koizumi, Akio; Nakazawa, Hiroshi; and Endo, Akira, 4,335,423, Cl. 363-21.000.
Naker, Vernon W.: *See*—
Stegemeyer, Noel J.; and Naker, Vernon W., 4,334,363, Cl. 33-185.00R.
Nalco Chemical Company: *See*—
Ballweber, Edward G., 4,335,237, Cl. 526-234.000.
Barnett, Jack W.; and Sawyer, Roy D., 4,335,072, Cl. 422-53.000.
Namboodri, Chettoor G.: *See*—
Gregorian, Razmic S.; and Namboodri, Chettoor G., 4,334,877, Cl. 8-477.000.
Naramura, Masaru: *See*—
Nakajima, Makoto; and Naramura, Masaru, 4,334,513, Cl. 123-494.000.
Narcum, William. Adjustable hanger. 4,334,641, Cl. 223-94.000.
Narita, Hiroshi: *See*—
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.
Nash, Donald R., to Eltra Corporation. Electronic ignition with step advance. 4,334,509, Cl. 123-414.000.
Nash Engineering Company, The: *See*—
Haavik, Harold K., 4,334,830, Cl. 417-68.000.
National Semiconductor Corporation: *See*—
Connolly, Joseph J., Jr.; Redfern, Thomas P.; and Frederiksen, Thomas M., 4,335,371, Cl. 340-347.0CC.
Cunningham, James A.; and Tuxford, Anthony M., 4,335,162, Cl. 427-130.000.
Naumova, Tatyana N.: *See*—
Efimov, Vladimir M.; Naumova, Tatyana N.; Bykova, Irina G.; and Stroganova, Larisa A., 4,335,088, Cl. 423-420.000.
Navish, Francis W.: *See*—
Mendelsohn, Morris A.; and Navish, Francis W., 4,335,179, Cl. 428-273.000.

Navratil, Jaroslav: *See—*
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.

Neary, Michael P.; and Wilson, Thomas A. Chemical process. 4,335,160, Cl. 427-38.000.

Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., to Roussel Uclaf. 5 Amino-3,4,5,6 tetrahydro-1H-[-6-]cyclohept[c,d]indolols and a method for their use as hypotensives. 4,335,135, Cl. 424-274.000.

Neely, James E., Jr., to PPG Industries, Inc. Multiple glazed unit bonded with silicate cement. 4,334,941, Cl. 156-107.000.

Nelli, Pierre. Fish line guide assembly. 4,334,379, Cl. 43-24.000.

Nelson, Gunnar. Waterproof electrical switch. 4,335,286, Cl. 200-302.000.

Nelson Industries, Inc.: *See—*
Mahon, Robert M., 4,334,995, Cl. 210-340.000.

Nelson, John E., to Eberhard Faber, Inc. Adjustable straight edged device for use with drafting board. 4,334,364, Cl. 33-438.000.

Nelson, Lorne W., to Honeywell Inc. Furnace control using induced draft blower and exhaust gas differential pressure sensing. 4,334,855, Cl. 431-20.000.

Nelson, Peter F.: *See—*
Farrington, Alan; and Nelson, Peter F., 4,334,956, Cl. 162-30.110.

Nercessian, Sarkis, to Kepco, Inc. System for interfacing computers with programmable power supplies. 4,335,445, Cl. 364-900.000.

Nessel, Eliezer, to Iscar Ltd. Tool holder. 4,334,807, Cl. 407-103.000.

Neu, William F., to Magnex Corporation. Thin film magnetic transducer. 4,335,410, Cl. 360-123.000.

Neumann, Gerhard-Max, to Delbag-Luftfilter GmbH. Filter elements arranged in waste tanks for separating substances which are harmful to the health from flowing air in connection with nuclear installations. 4,334,900, Cl. 55-350.000.

Newbold, Robert W., Jr., to Plas-Tanks Industries, Inc. Reinforced plastic container with an integral heating element. 4,335,298, Cl. 219-441.000.

Niemczyk, Henry J., to Hoffmann-La Roche Inc. Process to produce imidazobenzodiazepine intermediates. 4,335,042, Cl. 260-239.0BD.

Nierlich, Franz: *See—*
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, 4,335,018, Cl. 252-435.000.

Nifco Inc.: *See—*
Watanabe, Koji, 4,334,632, Cl. 220-307.000.
Yuda, Takuo, 4,334,659, Cl. 248-73.000.

Niggemann, Johannes: *See—*
Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, 4,334,905, Cl. 71-27.000.

Nihon Nohyaku Co., Ltd.: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.

Nihon Senshoku Kikai Kabushiki Kaisha: *See—*
Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, 4,334,333, Cl. 8-152.000.

Nippon Asbestos Co., Ltd.: *See—*
Asaumi, Hiroshi; Kubota, Kazuo; Yokoo, Hisanori; and Yamamoto, Mitsuo, 4,334,931, Cl. 106-120.000.

Nippon Chemical Industrial Co., Ltd.: *See—*
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Nippon Electric Co., Ltd.: *See—*
Kokubo, Jyoji, 4,335,449, Cl. 365-177.000.
Tanaka, Kouichi; and Mori, Masaharu, 4,335,322, Cl. 307-542.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Kumano, Shinji, 4,334,453, Cl. 84-177.000.

Nippon Kogaku K.K.: *See—*
Maida, Osamu, 4,334,745, Cl. 354-60.00L.
Nozawa, Hideyo; and Mitsuishi, Tsutomu, 4,334,737, Cl. 350-430.000.
Nozawa, Hideyo; and Naito, Hideshi, 4,334,746, Cl. 354-126.000.

Nippon Kokan Kabushiki Kaisha: *See—*
Iiyama, Makoto; and Koyama, Yasujiro, 4,334,858, Cl. 432-9.000.

Nippon Light Metal Co., Ltd.: *See—*
Miki, Isao; and Nagi, Tsutomu, 4,334,575, Cl. 164-113.000.

Nippon Oil Company, Limited: *See—*
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.

Nippon Petrochemicals Co., Ltd.: *See—*
Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, 4,335,070, Cl. 264-555.000.

Nippon Seiko Kabushiki Kaisha: *See—*
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.

Nippon Soken, Inc.: *See—*
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, 4,334,422, Cl. 73-35.000.

Nippon Steel Corporation: *See—*
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.

Nippon Telegraph & Telephone Public Corp.: *See—*
Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, 4,334,733, Cl. 350-96.330.

Nirgude, Ranjan K.: *See—*
Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., 4,334,335, Cl. 15-319.000.

Nishibe, Kazuteru; and Furukawa, Naoji, to Farmhand Inc. Rotary baler with side pressure release. 4,334,467, Cl. 100-89.000.

Nishida, Reijiro: *See—*
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.

Nishigaki, Yuji; and Kawashima, Hirokuni, to Canon Kabushiki Kaisha. Electrophotosensitive element has resin encapsulated CdS particles in binding resin. 4,335,195, Cl. 430-94.000.

Nishimura, Yukuo: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

Nishino, Taneharu: *See—*
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.

Nissan Chemical Industries, Ltd.: *See—*
Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, 4,334,610, Cl. 206-205.000.

Nissan Motor Company, Ltd.: *See—*
Akiyama, Yoshinori; and Ueno, Shyichi, 4,334,709, Cl. 297-284.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,441, Cl. 74-868.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,442, Cl. 74-869.000.
Kita, Toru; and Kobayashi, Hiroshi, 4,334,426, Cl. 73-118.000.
Mochida, Haruo, 4,334,438, Cl. 74-501.00R.
Nakajima, Makoto; and Naramura, Masaru, 4,334,513, Cl. 123-494.000.
Seki, Shojiro, 4,334,706, Cl. 293-126.000.
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.

Nissen, Ole J.: *See—*
Dyhr, Jan; and Nissen, Ole J., 4,334,835, Cl. 417-363.000.

Nitz, Rolf-Eberhard: *See—*
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.

Nixdorf Computer AG: *See—*
Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, 4,334,732, Cl. 339-176.0MP.

Noda, Azusa: *See—*
Asakura, Toshimitsu; and Noda, Azusa, 4,334,589, Cl. 180-219.000.

Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, to Hisamitsu Pharmaceutical Co. Inc. Phenyl-i-propionic acid esters and pharmaceutical use thereof. 4,335,251, Cl. 560-105.000.

Noel, Eugene M. Replaceable cup for English muffin proofing trays. 4,334,665, Cl. 249-134.000.

Nohira, Hidetaka: *See—*
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, 4,334,422, Cl. 73-35.000.

Nollstadt, Karl H.: *See—*
Stoudt, Thomas H.; and Nollstadt, Karl H., 4,335,101, Cl. 424-50.000.

Nomura, Toshio: *See—*
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, 4,334,511, Cl. 123-454.000.

Norco Industries, Inc.: *See—*
Fox, Robert, 4,334,667, Cl. 254-8.00B.

Norcros Investments Limited: *See—*
Cunnington, Harry, 4,334,645, Cl. 226-137.000.

Norden Laboratories Inc.: *See—*
Kucera, Carrell J., 4,335,106, Cl. 424-92.000.

Nordschild, Christlieb; Rathfelder, Paul; Rieckert, Horst; and Wolber, Dieter, to Schill & Seilacher GmbH & Co. Preparation agent for the production of synthetic filaments. 4,335,003, Cl. 252-8.900.

Nordson Corporation: *See—*
Baker, Robert G.; and Ramazzotti, Dario J., 4,334,637, Cl. 222-146.00H.

Norlin Industries, Inc.: *See—*
Morrison, White H., III; and Vest, Everette L., 4,334,452, Cl. 84-1.160.
Wall, Rendal, 4,334,454, Cl. 84-299.000.

Norman, Barrie E., to Novo Industri A/S. Saccharification of starch hydrolysates. 4,335,208, Cl. 435-96.000.

Normand, Jacques: *See—*
Roberge, Serge; and Normand, Jacques, 4,335,265, Cl. 373-83.000.

Norton Company: *See—*
Keat, Paul P., 4,334,895, Cl. 51-309.000.

Norton, William W., to Baxter Travenol Laboratories, Inc. Potted-typed seal with stress relief and method of making same. 4,334,993, Cl. 210-321.300.

Novo Industri A/S: *See—*
Norman, Barrie E., 4,335,208, Cl. 435-96.000.

Noyes, Mark S.; and Perra, Andrew G., Jr., to Markem Corporation. Reference printing on moving surface. 4,334,471, Cl. 101-228.000.

Nozawa, Hideyo; and Mitsuishi, Tsutomu, to Nippon Kogaku K.K. Zoom lens capable of macro-photography. 4,334,737, Cl. 350-430.000.

Nozawa, Hideyo; and Naito, Hideshi, to Nippon Kogaku K.K. Photographic lens barrel. 4,334,746, Cl. 354-126.000.

Nudenberg, Walter: *See—*
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, 4,335,006, Cl. 252-49.700.

Nyuji, Tomoaki, to Matsushita Electric Industrial Co., Ltd. Key discrimination circuit. 4,335,374, Cl. 340-365.00S.

Oberwinkler, Franz: *See—*
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, 4,334,969, Cl. 204-158.00R.
Occidental Petroleum Corporation: *See—*
Green, Norman W., 4,334,959, Cl. 201-12.000.
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Switch for direction indicator of vehicle. 4,335,284, Cl. 200-61.270.
Ochiai, Yoshihito: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.
O'Connor, Paul B.: *See—*
MacChesney, John B.; and O'Connor, Paul B., 4,334,903, Cl. 65-3.120.
Oettl, Reinhold, to Stumpp & Kurz GmbH & Co. Device for fastening an object against a wall or the like. 4,334,813, Cl. 411-68.000.
Office National d'Etudes et de Recherches Aerospatiales O.N.E.R.A.: *See—*
Appel, Jean G.; and Dunand, Francois M., 4,334,434, Cl. 73-861.290.
Ogasawara, Hitoshi, to Hitachi, Ltd. Automatic control method and apparatus. 4,335,341, Cl. 318-624.000.
Ogawa, Masaya: *See—*
Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, 4,334,766, Cl. 355-15.000.
Ohashi, Minoru; and Iwaosa, Katsuaki, to Mitsubishi Paper Mills, Ltd. Silver halide photographic materials. 4,335,200, Cl. 430-446.000.
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, to Hitachi, Ltd. Solid-state imaging device. 4,335,406, Cl. 358-213.000.
Ohkawa, Katsumasa: *See—*
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.
Ohkawara Mfg. Co., Ltd.: *See—*
Okawara, Mikio, 4,334,493, Cl. 118-19.000.
Ohmori, Taiji; and Sato, Makoto, to Honda Giken Kogyo Kabushiki Kaisha. Control and compensation device in an anti-skid control system. 4,335,430, Cl. 364-426.000.
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, to Konishiroku Photo Industry Co., Ltd. Electrostatic image developing and transfer method uses single component magnetic developer. 4,335,196, Cl. 430-122.000.
Ohshima, Jiro: *See—*
Aoyama, Masaharu; Ohshima, Jiro; and Yonezawa, Toshio, 4,334,349, Cl. 29-579.000.
Ohta, Jun: *See—*
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.
Ohtsuka, Kunio: *See—*
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,441, Cl. 74-868.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,442, Cl. 74-869.000.
Oikawa, Yoko: *See—*
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.
Oinuma, Norimasa: *See—*
Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, 4,334,725, Cl. 316-19.000.
Oka, Tateki; Wada, Kenichi; and Tabuchi, Kenji, to Minolta Camera Kabushiki Kaisha. Magnetic brush developing apparatus. 4,334,497, Cl. 118-698.000.
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, to Hitachi, Ltd. Control system for electric motor vehicle. 4,335,337, Cl. 318-52.000.
Okawa, Katsumasa: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.
Okawara, Gunzi: *See—*
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.
Okawara, Mikio, to Ohkawara Mfg. Co., Ltd. Rotary drum type apparatus for applying a coating to tablets. 4,334,493, Cl. 118-19.000.
Okazaki, Akira: *See—*
Maruyama, Kunio; and Okazaki, Akira, 4,335,089, Cl. 423-447.400.
Okohira, Kazuo: *See—*
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.
Olander, Walter K.; and Zamek, Otto S., to General Electric Company. Use of manganese chelate to oxidatively couple phenolic compound in a self-precipitating system. 4,335,234, Cl. 528-214.000.
Oliapuram, Antony, to Varta Batterie A.G. Method of preparing a sintered iron electrode. 4,335,192, Cl. 429-221.000.
Olin Corporation: *See—*
Sakowski, Walter J.; Carty, Larry G.; and Foster, Craig A., 4,335,090, Cl. 423-474.000.
Olson, Donald H.: *See—*
Glass, Alastair M.; Kaminow, Ivan P.; and Olson, Donald H., 4,334,774, Cl. 356-152.000.
Olson, Marvin C., to FMC Corporation. Apparatus for collecting cartridge casings. 4,334,375, Cl. 42-1.00T.
Olympus Optical Co., Ltd.: *See—*
Fujimori, Ryo, 4,334,879, Cl. 23-230.00R.
Suzuki, Yoshiro, 4,334,772, Cl. 355-3.0DD.
Omark Industries, Inc.: *See—*
Reynolds, Michael J., 4,334,358, Cl. 30-387.000.
O'Meara, William R.: *See—*
Buescher, Eugene J., 4,334,618, Cl. 206-623.000.
Omega Products: *See—*
Reisch, Franz, 4,334,642, Cl. 224-37.000.
Omnium Financier Aquitaine pour l'Hygiene et la Sante (Sanoli): *See—*
Blanchard, Jean; and Verry, Monique, 4,335,128, Cl. 424-256.000.
Onishi, Masami, to Taiyo Shokai Co., Ltd. Apparatus for transferring strip-like plastics bag material in packaging machine. 4,334,399, Cl. 53-69.000.
Onken, Volker, to U.S. Philips Corporation. Coupling bar for X-ray tomography apparatus. 4,335,312, Cl. 250-445.00T.
Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, to Atlantic Richfield Company. Process for producing methacrylic acid. 4,335,258, Cl. 562-599.000.
Opti Patent-, Forschungs- und Fabrikations-AG: *See—*
Frohlich, Alfons; and Griessbaum, Karl, 4,334,556, Cl. 139-384.00B.
Orban nee Kelemen, Maria: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.
Orewa Inc.: *See—*
Collins, Keith R., 4,335,110, Cl. 424-145.000.
Ort, Sterling L., to Sol-Fire Inc. Heating system. 4,334,518, Cl. 126-132.000.
Osada, Kenji: *See—*
Ikeda, Yoshi; Osada, Kenji; and Doi, Kazumi, 4,334,842, Cl. 418-45.000.
O'Shaughnessy, Roger D.: *See—*
Lizardo, Renato A.; and O'Shaughnessy, Roger D., 4,335,166, Cl. 428-34.000.
Ostberg, Sven E., to Kockums Industri AB. Allocating means for sawmills. 4,334,606, Cl. 198-443.000.
Osterburg, Gunter: *See—*
Prezelj, Milan; Osterburg, Gunter; and Putz, Joachim E., 4,334,964, Cl. 203-14.000.
Ostlinning, Gunter; and Steinmetz, Alfred, to Schloemann-Siemag Aktiengesellschaft. Discharge roll table with a top cover. 4,334,421, Cl. 72-257.000.
Ota, Keiichi: *See—*
Tsuyumu, Shinji; and Ota, Keiichi, 4,335,236, Cl. 536-18.200.
Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, to Nissan Chemical Industries, Ltd. Method of storing a solid chlorinating agent and an article for storing same. 4,334,610, Cl. 206-205.000.
Otake, Masayuki: *See—*
Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, 4,335,258, Cl. 562-599.000.
Otis Engineering Corporation: *See—*
Arendt, Henry P., 4,334,581, Cl. 166-324.000.
Otsuka, Kazutoshi, to Toyo Kogyo Co., Ltd. Temperature responsive, pressure operated diaphragm valve assembly for automobile engine. 4,334,515, Cl. 123-568.000.
Otsuka Pharmaceutical Co., Ltd.: *See—*
Tsuyumu, Shinji; and Ota, Keiichi, 4,335,236, Cl. 536-18.200.
Owens-Corning Fiberglas Corporation: *See—*
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,335,186, Cl. 428-375.000.
Owens, Dovie A. Soap bar. 4,335,007, Cl. 252-92.000.
Owens-Illinois, Inc.: *See—*
Spanoudis, Louis, 4,334,523, Cl. 126-443.000.
Ozaki, George T., to University of California, The Regents of the. Emergency airway management device. 4,334,534, Cl. 128-207.150.
Ozawa, Tosiyuki: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.
Ozeki, Takeshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Optical sensing system. 4,334,781, Cl. 356-368.000.
Pacer Technology and Resources, Inc.: *See—*
Stock, Hugh J., 4,334,638, Cl. 222-153.000.
Page Engineering Company: *See—*
Rangaswamy, Krishnaswamy, 4,334,587, Cl. 180-8.00R.
Palitex Project-Company GmbH: *See—*
Franzen, Gustav, 4,334,404, Cl. 57-296.000.
von Colson, Godehard, 4,334,405, Cl. 57-300.000.
Palitto, Mauro, to Fiat Auto S.p.A. Oleo-pneumatic shock absorber. 4,334,600, Cl. 188-314.000.
Pallos, Ferenc M.: *See—*
Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., 4,334,911, Cl. 71-93.000.
Palmberg, Paul W., to Perkin-Elmer Corporation, The. Signal detection mechanism from electron multiplier. 4,335,304, Cl. 250-207.000.
Palmer, Robin, to Rovex Limited. Remote control of electrical devices. 4,335,381, Cl. 340-825.210.
Palmer, Roger C.; and Purdue, William J., to Interface Mechanisms, Inc. Wave shaping circuit for electro-optical code readers. 4,335,301, Cl. 235-462.000.
Paprotskaya, Valentina A.: *See—*
Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov, Jury M., 4,334,967, Cl. 204-81.000.
Paradowski, Henri, to Compagnie Francaise d'Etudes et de Construction "Technip". Method of and system for refrigerating a fluid to be cooled down to a low temperature. 4,334,902, Cl. 62-9.000.

Paradyne Corporation: *See—*
Armstrong, Thomas R., 4,335,464, Cl. 375-43.000.
Pardue, Robert M.; and Williams, Richard R., to United States of America, Energy. Dual surface interferometer. 4,334,778, Cl. 356-349.000.
Parik, Michael H., to Professional Photo Products, Inc. Receptacle for negative carriers. 4,334,768, Cl. 355-75.000.
Parker, Delmer G., to Xerox Corporation. Method for developing latent electrostatic images. 4,335,159, Cl. 427-14.100.
Parker, Edward H.: *See—*
Harrell, Robert E.; Harrell, Tedd L.; and Parker, Edward H., 4,334,755, Cl. 354-299.000.
Parker, George A. Multi-purpose light duty garden tool. 4,334,583, Cl. 172-375.000.
Parker, Roger A., to Merrell Dow Pharmaceuticals Inc. Acylated furanyl and thienyl acrylic acids. 4,335,098, Cl. 424-275.000.
Parry, Charles G.; and Sherwood, David L. Gymnasium apparatus. 4,334,675, Cl. 272-63.000.
Parsons, Tony V.: *See—*
Caldecourt, Leonard R.; Evans, Gordon V.; and Parsons, Tony V., 4,335,308, Cl. 250-358.00R.
Pasero, Riccardo: *See—*
Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, 4,334,954, Cl. 159-18.000.
Patil, Babgaunda A.: *See—*
Przybylinski, Phillip; Patil, Babgaunda A.; and Anderson, Gerald B., 4,334,481, Cl. 105-248.000.
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, to Daimler-Benz Aktiengesellschaft. Cap-like cover for an air bag installation. 4,334,699, Cl. 280-731.000.
Paul, William A. Apparatus for handling gasket-forming material. 4,334,636, Cl. 222-642.000.
Paust, Joachim: *See—*
Jaedicke, Hagen; and Paust, Joachim, 4,335,047, Cl. 549-369.000.
Pawson, Beverly A.: *See—*
Chan, Ka-Kong; and Pawson, Beverly A., 4,335,248, Cl. 549-78.000.
Payne, Fredrick A.; and Ross, Ira J., to University of Kentucky Research Foundation. Biomass gasifier combustor. 4,334,484, Cl. 110-210.000.
Payne, George K., to Garrett Corporation, The. Unique air cycle refrigeration system. 4,334,411, Cl. 62-86.000.
PCUK Produits Chimiques Ugine Kuhlmann: *See—*
Delavarenne, Serge; and Tellier, Pierre, 4,335,050, Cl. 260-369.000.
Pearson, Bernard E. Torque stabilized water meter wrench. 4,334,443, Cl. 81-55.000.
Pearson, Gilbert J., to Harris Video Systems, Inc. Method and system using sequentially encoded color and luminance processing of video type signals to improve picture quality. 4,335,393, Cl. 358-4.000.
Pekarcik, John T.: *See—*
Mazur, Richard J.; Dimsa, Robert D.; and Pekarcik, John T., 4,334,711, Cl. 303-16.000.
Peled, Emanuel, to Tadiran Israel Electronics Industries Ltd. Lithium cells. 4,335,191, Cl. 429-94.000.
Pelloso, Turiddu A.: *See—*
Kogan, Lawrence; and Pelloso, Turiddu A., 4,335,156, Cl. 426-603.000.
Pelrine, Bruce P.: *See—*
Bowes, Emmerson; and Pelrine, Bruce P., 4,335,019, Cl. 252-450.000.
Pennachio, Attilo. Apparatus for playing a game of chance. 4,334,686, Cl. 273-374.000.
Pennwalt Corporation: *See—*
Grier, Jesse G.; and Hodges, Jimmie R., 4,335,000, Cl. 210-662.000.
Kulischenko, Walter, 4,334,491, Cl. 116-31.000.
Vidal, Frederick D.; and Jayaraman, Anantharman, 4,335,148, Cl. 426-319.000.
Pentak Corporation: *See—*
Dyer, Thomas A., 4,334,607, Cl. 198-487.000.
Perkin-Elmer Corporation, The: *See—*
Kreuzer, Justin L.; and Kittell, David H., 4,335,313, Cl. 250-491.000.
Palmberg, Paul W., 4,335,304, Cl. 250-207.000.
Tkatschenko, Gunter T.; and Franke, Gunther, 4,334,435, Cl. 73-864.860.
Pernick, Benjamin J., to Grumman Aerospace Corporation. Optical surface roughness detection method and apparatus. 4,334,780, Cl. 356-359.000.
Perra, Andrew G., Jr.: *See—*
Noyes, Mark S.; and Perra, Andrew G., Jr., 4,334,471, Cl. 101-228.000.
Peters, Robert C.; Vrenken, Louis E.; Couvbenberg, Winston D.; and Ligthart, Franciscus A. S., to U.S. Philips Corporation. Low-pressure mercury vapor discharge lamp. 4,335,330, Cl. 313-486.000.
Petersen, Egon-Norbert: *See—*
Bernhardt, Gunther; Petersen, Egon-Norbert; and Daum, Gerhard, 4,335,052, Cl. 260-465.00R.
Petersen, Uwe: *See—*
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.
Peterson, James J., to Kendall Company, The. Drainage receptacle with anti-reflux valve. 4,334,537, Cl. 128-275.000.
Peterson, Ray D.: *See—*
Moen, David L.; and Peterson, Ray D., 4,334,961, Cl. 202-173.000.
Peterson, Richard E. Anaerobic digester technology. 4,334,997, Cl. 210-603.000.
Pezet, Michael J.: *See—*
Hardwick, John P.; Pezet, Michael J.; Sarvestany, Asadollah A.; and Satharasinghe, Dayananda, 4,334,650, Cl. 241-236.000.
Pfahler, Gerhard: *See—*
Wiezer, Hartmut; and Pfahler, Gerhard, 4,335,242, Cl. 544-198.000.
Pfeifer, Rolf: *See—*
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Pfeil, Janice L.: *See—*
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Pfister, Robert D., to Becton Dickinson & Company. Connector. 4,334,551, Cl. 137-614.030.
Pfleger, Frederick W. Hypodermic syringe needle assembly. 4,334,536, Cl. 128-218.0DA.
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Soderberg, John L., 4,334,972, Cl. 204-180.00R.
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, to Glaxo Group Limited. Androstane carbothioates. 4,335,121, Cl. 424-241.000.
Phillips, Chester S. Golf ball retriever. 4,334,707, Cl. 294-19.00A.
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Efner, Howard F., 4,335,004, Cl. 252-48.600.
Faulconer, William M., 4,334,420, Cl. 72-250.000.
Gray, Lew T., 4,334,801, Cl. 405-157.000.
McKay, Dwight L., 4,335,021, Cl. 252-455.00R.
Piegza, Henry J., to WSF Industries, Inc. Articulated door. 4,334,633, Cl. 220-332.000.
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Pitt, Samuel G. Drink container mounting ground stake. 4,334,661, Cl. 248-146.000.
Pittenger, Daniel I., to Zenith Radio Corporation. Breakaway circuit board with flexible coupling. 4,335,272, Cl. 174-68.500.
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Plantronics, Inc.: *See—*
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Newbold, Robert W., Jr., 4,335,298, Cl. 219-441.000.
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Wray, William R., 4,334,740, Cl. 352-11.000.
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Visser, Frederiks T. L., 4,334,389, Cl. 49-387.000.
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Portolese, Larry A., to Bendix Corporation, The. Disc brake assembly and resilient member therefor. 4,334,598, Cl. 188-73.440.
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Powers, Roy A. Snap together ornament. 4,335,165, Cl. 428-8.000.
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Neely, James E., Jr., 4,334,941, Cl. 156-107.000.
Rukavina, Thomas G.; and Maryland, Alfred L., 4,335,187, Cl. 428-412.000.
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Stipp, Gordon K., 4,335,149, Cl. 426-386.000.
Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., 4,335,115, Cl. 424-181.000.
Professional Photo Products, Inc.: *See*—
Parik, Michael H., 4,334,768, Cl. 355-75.000.
Przybylinski, Phillip; Patil, Babgaunda A.; and Anderson, Gerald B., to Pullman Incorporated. Fatigue resistant partition sheet assembly. 4,334,481, Cl. 105-248.000.
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Pue, Alan J., to United States of America, America. Optimal vehicle following control system. 4,335,432, Cl. 364-436.000.
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Queneau, Paul E.; Richter, Horst J.; and Schuhmann, Reinhardt, Jr. Method of introducing particulate material and a gas into a reactor. 4,334,919, Cl. 75-23.000.
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Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.
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Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.
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Rader, William W., to Hay, Cal W.; and Mann, Frederick. Self sharpening pencils. 4,334,794, Cl. 401-50.000.
Radiochemical Centre Limited, The: *See*—
Kelly, James D., 4,335,095, Cl. 424-1.000.
Rainis, Albert E.; and Klopcic, J. Terrence, to United States of America, Army. Warhead fragmentometer. 4,334,423, Cl. 73-35.000.
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Baker, Robert G.; and Ramazzotti, Dario J., 4,334,637, Cl. 222-146.00H.
Ramsay, Michael; and Pratt, Warren, to Hewlett-Packard Company. Raster scan color display system and method having improved pin cushion non-linearity correction. 4,335,333, Cl. 315-371.000.
Rangaswamy, Krishnaswamy, to Page Engineering Company. Offset walking spud. 4,334,587, Cl. 180-8.00R.
Rasile, John: *See*—
Ameen, Joseph G.; Franchak, Nelson P.; Rasile, John; and Rivenburgh, Dennis L., 4,334,949, Cl. 156-642.000.
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Rautenbach, Jacobus J., deceased; and Rautenbach, Aletta C., executrix, 4,334,799, Cl. 404-124.000.
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Rawson, Lionel E. J.; and Wray, John. Sheet feeding apparatus. 4,334,764, Cl. 355-14.0SH.
Ray, John G.: *See*—
Latassa, Frank M.; Ray, John G.; and Roy, Joseph A., 4,335,326, Cl. 313-177.000.
Raychem Corporation: *See*—
Sopory, Umesh K., 4,334,351, Cl. 29-611.000.
Raytheon Company: *See*—
Teich, Wesley W., 4,335,290, Cl. 219-10.55F.
RCA Corporation: *See*—
Alig, Roger C.; Barkow, William H.; and Gross, Josef, 4,335,366, Cl. 335-211.000.
Armstrong, Lee R., 4,334,427, Cl. 73-118.000.
Aschwanden, Felix, 4,335,412, Cl. 361-50.000.
Berkman, Samuel; and Metzl, Robert, 4,334,948, Cl. 156-608.000.
Bock, Marvin D., 4,334,849, Cl. 425-290.000.
Credelle, Thomas L., 4,335,332, Cl. 315-366.000.
Dinter, Konrad M., 4,335,408, Cl. 360-77.000.
Dischert, William A., 4,335,411, Cl. 360-137.000.
Goldsmith, Norman; and Hsu, Sheng T., 4,334,347, Cl. 29-571.000.
Harbaugh, Willis E., 4,334,829, Cl. 417-49.000.
Holmes, David D., 4,335,402, Cl. 358-147.000.
Marsh, James C., Jr.; and Snell, Marcus L., Jr., 4,335,470, Cl. 455-205.000.
Raush, Russell G., 4,334,945, Cl. 156-344.000.
Warren, Henry R., 4,335,394, Cl. 358-8.000.
Willis, Donald H., 4,335,335, Cl. 315-411.000.
Zorbalas, George S., 4,335,401, Cl. 358-127.000.
Reba, Imants, to Crown Zellerbach Corporation. System and method for dispersing filaments. 4,334,340, Cl. 19-299.000.
Reber, Harald: *See*—
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Reed, James: *See*—
Apothaker, Richard L.; Reed, James; Croce, Carmen L.; and Wagner, Frederick B., III, 4,334,904, Cl. 65-36.000.
Reed National Corp.: *See*—
Adams, Rudolph J., 4,334,570, Cl. 160-1.000.
Reed Rock Bit Company: *See*—
Schumacher, Percy W., 4,334,586, Cl. 175-374.000.
Reed, William C.; and Smith, Donald T., to Bell Telephone Laboratories, Incorporated. Cable conductor continuity tester with magnetically coupled drive means and sensor. 4,335,348, Cl. 324-51.000.
Reichl, Ernst; and Marloth, Herbert, to Bosch-Siemens Hausgerate GmbH. Inhalator. 4,334,531, Cl. 128-200.140.
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Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,055, Cl. 260-465.00K.
Reinert, Raymond L.; and Kaufman, Charles D., to General Electric Company. Method and apparatus for automatic end-point detection in tripolyphosphate sequestration of hardness. 4,334,881, Cl. 23-230.00A.
Reisch, Franz, to Omega Products. Athletic equipment mounting apparatus. 4,334,642, Cl. 224-37.000.
Reiter, Karl, to Brown, Boveri & Cie Aktiengesellschaft. Semiconductor device with at least two semiconductor elements. 4,335,392, Cl. 357-75.000.
Relyea, Douglas I.; and Davis, Robert A., to Uniroyal, Inc. Aryl (1-arylsulfonyl) vinyl sulfones. 4,335,142, Cl. 424-337.000.
Remie, Hans J.: *See*—
Graat, Johannes W.; and Remie, Hans J., 4,334,854, Cl. 431-8.000.

Rennie, Andrew L.; and Davis, Alexander, to BOC Limited. Cooling method. 4,334,574, Cl. 164-4.100.

Revere Copper and Brass Incorporated: *See—*
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Reynolds, Charles E.; and Whiteman, Robert N., Jr., to AMP Incorporated. Zero insertion force connector clip assembly. 4,334,728, Cl. 339-74.00R.

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Kibby, Robert M., 4,334,917, Cl. 75-10.00R.

Reynolds, Michael J., to Omark Industries, Inc. Vibration dampened saw bars. 4,334,358, Cl. 30-387.000.

Rheem Manufacturing Company: *See—*
Winders, Gordon R.; and MacKay, Fredric M., 4,334,371, Cl. 40-2.00R.

Rhoda, Richard N., to MPD Technology Corporation. Process for preparing cis-$Pt(NH_3)_2Cl_2$. 4,335,087, Cl. 423-413.000.

Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., to Chemotronics International, Inc. Shareholders. Method utilizing a porous vitreous carbon body particularly for fluid heating. 4,334,350, Cl. 29-611.000.

Richardson Company, The: *See—*
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Richmond, Kenneth D.: *See—*
Jacob, Richard J.; White, Jack D.; and Richmond, Kenneth D., 4,334,569, Cl. 152-221.000.

Richter Gedeon Vegyeszeti Gyar Rt.: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.

Richter, Horst J.: *See—*
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Ricoh Co., Ltd.: *See—*
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Mitsuo, Tanaka; Kazuaki, Tagawa; and Takashi, Yano, 4,335,420, Cl. 361-230.000.
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Rieck, Hans-Peter; and Russow, Jurgen, to Hoechst Aktiengesellschaft. Process for the preparation of phosphorus pentachloride. 4,335,085, Cl. 423-300.000.

Rieckert, Horst: *See—*
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Riedel-de Haen Aktiengesellschaft: *See—*
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Riedel, Peter; and Haar, Lucas H., to ITT Industries, Inc. Mechanically controlled vacuum booster. 4,334,459, Cl. 91-369.00B.

Riedl, Josef: *See—*
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Rieger, Franz: *See—*
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Rion Co., Ltd.: *See—*
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Rios, Gilbert M.; Gibert, Henri; and Baxerres, Jean-Louis, to Agence Nationale de Valorisation de la Recherche (ANVAR). Process for placing a gas phase, at least one liquid phase, and at least one comminuted solid phase in contact. 4,334,998, Cl. 210-617.000.

Rioux, Marc: *See—*
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Ritsema, Irving R.; and Woo, Ji Y., to Bendix Corporation, The. Disc brake and mounting pin assembly therefor. 4,334,599, Cl. 188-73.450.

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Rizkalla, Nabil, to Halcon Research and Development Corp. Preparation of carboxylic acid anhydrides. 4,335,058, Cl. 260-546.000.

Rizkalla, Nabil, to Halcon Research and Development Corp. Preparation of carboxylic acid anhydrides. 4,335,059, Cl. 260-549.000.

Roane, Patricia A. Tetrahedron blocks capable of assembly into cubes and pyramids. 4,334,870, Cl. 434-211.000.

Roane, Patricia A. Tetrahedron blocks capable of assembly into cubes and pyramids. 4,334,871, Cl. 434-211.000.

Robbins, Anthony; Catan, Omero C.; and Catan, Jeanne. Three dice wagering game. 4,334,685, Cl. 273-274.000.

Roberge, Serge; and Normand, Jacques, to Gulf Canada Limited. Robot tapping electrode for electric arc furnaces. 4,335,265, Cl. 373-83.000.

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Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.
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Robertson, James B.: *See—*
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Robin, Marcel, to Commissariat a l'Energie Atomique. Liquid metal cooled nuclear reactor. 4,335,467, Cl. 376-285.000.

Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, to United States of America, Energy. Isotope separation by laser means. 4,334,883, Cl. 23-293.00R.

Robinton, Michael A.: *See—*
Crandall, Kenneth C.; and Robinton, Michael A., 4,335,354, Cl. 329-126.000.

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Crandall, Kenneth C.; and Robinton, Michael A., 4,335,354, Cl. 329-126.000.

Robyt, John F.; and Zikopoulos, John N., to Iowa State University Research Foundation, Inc. Method of inhibiting dextransucrase and oral compositions for use therein. 4,335,100, Cl. 424-48.000.

Rodger, Erwin, to Litton Systems, Inc. Toner mechanism for electrophotographic recorder. 4,334,760, Cl. 355-3.0DD.

Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, to Nixdorf Computer AG. Electrical connector unit. 4,334,732, Cl. 339-176.0MP.

Rogers, Alfred M., III: *See—*
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Rogers, Henry F., Sr. Cabinet for a kitchen blender, mixer, grinder, et al. 4,334,724, Cl. 312-280.000.

Rogic, Milorad M.: *See—*
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Beier, William C.; and Hodder, James J., 4,334,876, Cl. 8-94.19C.
Johnson, Wayne O.; and Yih, Roy Y., 4,335,249, Cl. 560-11.000.

Rohm, Pharma GmbH: *See—*
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Rohrbein, Roland: *See—*
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Roman, Bernard J., to Bell Telephone Laboratories, Incorporated. Advantageous fabrication technique for devices relying on magnetic properties. 4,334,950, Cl. 156-643.000.

Roof Control, Inc.: *See—*
Morgan, Bennie E., 4,334,805, Cl. 405-261.000.

Roos, John C., to Bunker Ramo Corporation. Logarithmic amplifier calibration means. 4,335,384, Cl. 343-114.000.

Roques, Henri: *See—*
Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, 4,335,001, Cl. 210-708.000.

Rosenquist, Niles R., to General Electric Company. Polycarbonate resin impact modified with polyolefins and containing polyorganosiloxane fluids. 4,335,032, Cl. 524-269.000.

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Miles, Brynley J.; and Rosevear, Alan, 4,335,017, Cl. 252-430.000.

Ross, Ira J.: *See—*
Payne, Fredrick A.; and Ross, Ira J., 4,334,484, Cl. 110-210.000.

Ross, Walter A.: *See—*
Van Ess, John C., 4,335,422, Cl. 362-388.000.

Ross, Warren K. Jacking mechanism for a portable sawmill. 4,334,669, Cl. 254-130.000.

Rossi, Mario: *See—*
Eberlin, Philippe; and Rossi, Mario, 4,335,452, Cl. 367-134.000.

Rossmann, Axel, to MTU Motoren- und Turbinen-Union Munchen GmbH. Circumferential gap seal for axial-flow machines. 4,334,822, Cl. 415-113.000.

Rossmo, William. Medication dispenser. 4,334,617, Cl. 206-534.000.

Roueche, Armand, to Ciba-Geigy Corporation. Pigment formulations, processes for their preparation and their use for pigmenting aqueous, alcoholic or aqueous-alcoholic printing ink systems and colored lacquer systems. 4,334,932, Cl. 524-191.000.

Roussel Uclaf: *See—*
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.

Rovex Limited: *See—*
Palmer, Robin, 4,335,381, Cl. 340-825.210.

Roy, Joseph A.: *See—*
Latassa, Frank M.; Ray, John G.; and Roy, Joseph A., 4,335,326, Cl. 313-177.000.

Rubino, Victor H. Dental instruments. 4,334,864, Cl. 433-158.000.

Ruf, Gebhard, to Dr. Ing. h.c.F. Porsche Aktiengesellschaft. Rear axle suspension for automotive vehicles. 4,334,698, Cl. 280-690.000.

Rugg, Barry A.: *See—*
Axelrod, Sydney; Brenner, Walter; and Rugg, Barry A., 4,334,477, Cl. 102-435.000.

Rukavina, Thomas G.; and Maryland, Alfred L., to PPG Industries, Inc. Method for bonding polycarbonate to metal. 4,335,187, Cl. 428-412.000.

Rumph, Joel D. Door lock. 4,334,705, Cl. 292-288.000.

Russow, Jurgen: *See—*
Rieck, Hans-Peter; and Russow, Jurgen, 4,335,085, Cl. 423-300.000.

Rutkowski, Edward V., Jr.: *See—*
Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., 4,334,792, Cl. 400-279.000.

Ryan, James W.; and Chung, Alfred, to Ventrex Laboratories, Inc. High sensitivity assays for angiotensin converting enzyme. 4,335,041, Cl. 260-112.50R.

Ryan, LeRoy J., Jr. Visually descriptive information transmission, storage, and retrieval set. 4,334,771, Cl. 355-133.000.

Rzeszewski, Theodore S., to Matsushita Electric Corporation. Automatic equalization system for television receiver. 4,335,396, Cl. 358-21.00R.

Sachim S.A.: *See—*
Denzler, Eric-Alain, 4,335,045, Cl. 548-566.000.

Sachs, Emanual M.; and Mackintosh, Brian H., to Mobil Tyco Solar Energy Corporation. Crystal growth furnace with trap doors. 4,335,081, Cl. 422-246.000.

Safrin, Leopold: *See—*
Barker, Graham; Safrin, Leopold; and Barabash, Martin J., 4,335,025, Cl. 252-550.000.

Saggese, Vincent A. Slotted concrete pipe. 4,335,169, Cl. 428-36.000.

St. Denis, Andrew R. Weight monitoring device for strip metal stock. 4,335,439, Cl. 364-562.000.

Saint Gobain Industries: *See—*
Delcoigne, Adrien; and Lanneau, Jacques, 4,334,786, Cl. 366-132.000.

Saito, Masao; Aoya, Hiroshi; and Yoshida, Naruhito, to Tokyo Shibaura Denki Kabushiki Kaisha. Electrophotographic copying machine. 4,334,761, Cl. 355-3.00R.

Saito, Syuichiro; Date, Nobuaki; Suzuki, Ryoichi; and Sugiura, Yoji, to Canon Kabushiki Kaisha. Camera having an electromagnetically driven shutter. 4,334,749, Cl. 354-234.000.

Sakai, Katsuo, to Ricoh Company, Ltd. Two color electrophotographic process and material. 4,335,194, Cl. 430-42.000.

Sakamoto, Tamio: *See—*
Tani, Katsuhiko; and Sakamoto, Tamio, 4,334,886, Cl. 23-303.000.

Sakane, Toshio; and Tsunekawa, Tokuichi, to Canon Kabushiki Kaisha. MOS-Image sensor. 4,335,405, Cl. 358-213.000.

Sakowski, Walter J.; Carty, Larry G.; and Foster, Craig A., to Olin Corporation. Preparing calcium hypochlorite from triple salt. 4,335,090, Cl. 423-474.000.

Sakshaug, Eugene C.; and Stetson, Earl W., to General Electric Company. Heat sink thermal transfer system for zinc oxide varistors. 4,335,417, Cl. 361-127.000.

Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for polymerizing an α-olefin. 4,335,229, Cl. 526-122.000.

Salathe, Rene P.; Badertscher, E. Gerhard; and Luthy, Willy A. R., to Institut fur Angewandte Physik der Universitat Bern. Semiconductor device and a method of contacting a partial region of a semiconductor surface. 4,335,362, Cl. 372-46.000.

Salomon, Georges P. J., to Ets. Francois Salomon et Fils, S. A. Process for manufacturing a sports shoe and the shoe itself. 4,334,367, Cl. 36-117.000.

Salomon, Robert E., to Temple University. Process of converting wind energy to elemental hydrogen and apparatus therefor. 4,335,093, Cl. 423-644.000.

Salvat, Francois; Bouko, Jean; and Le Foll, Jean, to Thomson-CSF. Radar antenna with rotating linear polarization designed to reduce jamming. 4,335,387, Cl. 343-756.000.

Salzmann, Theodor: *See—*
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.

Samuels, Ronald L.: *See—*
Hedgepeth, John M.; Samuels, Ronald L.; and Stammreich, John, 4,334,391, Cl. 52-108.000.

Sanada, Sinichi: *See—*
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.

Sanders, James M.: *See—*
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.

Sandoz, Inc.: *See—*
Galantay, Eugene E., 4,335,124, Cl. 424-248.400.

Sandoz Ltd.: *See—*
Baumann, Hans-Peter, 4,335,259, Cl. 564-290.000.

Sandvik Conveyor GmbH: *See—*
Guttinger, Manfred; and Schermutzki, Konrad, 4,334,468, Cl. 100-93.0RP.

Sangamo Weston, Inc.: *See—*
Jerrim, John W., 4,335,447, Cl. 364-900.000.

Santiago, Andres; and Santiago, Enrique, to Zeuna-Staerker KG. Catalyzer for detoxifying exhaust gases from internal combustion engines. 4,335,077, Cl. 422-179.000.

Santiago, Enrique: *See—*
Santiago, Andres; and Santiago, Enrique, 4,335,077, Cl. 422-179.000.

Santo, Philip J. Perimeter support for a waterbed mattress. 4,334,331, Cl. 5-452.000.

Sanyo Electric Co., Ltd.: *See—*
Hosoya, Nobukazu, 4,335,334, Cl. 315-408.000.

Sarvestany, Asadollah A.: *See—*
Hardwick, John P.; Pezet, Michael J.; Sarvestany, Asadollah A.; and Satharasinghe, Dayananda, 4,334,650, Cl. 241-236.000.

Sasaki, Hiroshi, to Yamaha Hatsudoki Kabushiki Kaisha. Internal combustion engine having an engine driven oil pump. 4,334,508, Cl. 123-195.00A.

Sasdelli, Kenneth R.: *See—*
Spargo, John D.; and Sasdelli, Kenneth R., 4,334,688, Cl. 277-175.000.

Satharasinghe, Dayananda: *See—*
Hardwick, John P.; Pezet, Michael J.; Sarvestany, Asadollah A.; and Satharasinghe, Dayananda, 4,334,650, Cl. 241-236.000.

Sato, Makoto: *See—*
Ohmori, Taiji; and Sato, Makoto, 4,335,430, Cl. 364-426.000.

Sato, Yo, to Kabushiki Kaisha Sato. Pressure sensitive label strip. 4,335,172, Cl. 428-42.000.

Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, to Nippon Seiko Kabushiki Kaisha. Ball bearing. 4,334,721, Cl. 308-193.000.

Savin Corporation: *See—*
Landa, Benzion, 4,334,762, Cl. 355-8.000.

Sawyer, Bruce A., to Xynetics, Inc. Linear motor. 4,335,338, Cl. 318-135.000.

Sawyer, Roy D.: *See—*
Barnett, Jack W.; and Sawyer, Roy D., 4,335,072, Cl. 422-53.000.

Scala, Luciano C.: *See—*
Carlson, Nancy W.; Westervelt, Dean C.; and Scala, Luciano C., 4,334,973, Cl. 204-181.00R.

Scalley, Douglas M.; and Mullin, John M. Vehicle security device. 4,335,370, Cl. 340-64.000.

Schaeffer, Daniel D. Container for an alarm transmitter adapted for insertion into a wall. 4,335,375, Cl. 340-539.000.

Schaffelhofer, Iwo: *See—*
Alfranseder, Josef; Mayer, Sigmund; Rebsdat, Siegfried; Riedl, Josef; and Schaffelhofer, Iwo, 4,335,014, Cl. 252-412.000.

Schaffer, Bernhard: *See—*
Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, 4,335,456, Cl. 370-58.000.

Schauffele, Gunther, to Werner & Pfleiderer. Injection molding device for molding bodies of natural or synthetic rubber. 4,334,847, Cl. 425-227.000.

Scheib, Rudi. Sledge with tiltable runners. 4,334,691, Cl. 280-21.00A.

Scheie, Carl E., to Brunswick Corporation. Game apparatus for use with a paddle and a ball. 4,334,681, Cl. 273-30.000.

Scheingold, William S.; and Youngfleish, Frank C., to AMP Incorporated. Connector for a leadless electronic package. 4,334,727, Cl. 339-17.0CF.

Scheinpflug, Hans: *See—*
Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, 4,334,905, Cl. 71-27.000.

Schenk, Walter: *See—*
Schulte-Elte, Karl H.; Becker, Joseph J.; and Schenk, Walter, 4,335,262, Cl. 568-361.000.

Schermutzki, Konrad: *See—*
Guttinger, Manfred; and Schermutzki, Konrad, 4,334,468, Cl. 100-93.0RP.

Schill & Seilacher GmbH & Co.: *See—*
Nordschild, Christlieb; Rathfelder, Paul; Rieckert, Horst; and Wolber, Dieter, 4,335,003, Cl. 252-8.900.

Schindler, Achim: *See—*
Stacklies, Horst; and Schindler, Achim, 4,334,748, Cl. 354-234.000.

Schlegel, Miklos: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Schlegel, Thomas: *See—*
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.

Schleimer, Francois: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.

Schloemann-Siemag Aktiengesellschaft: *See—*
Ostlinning, Gunter; and Steinmetz, Alfred, 4,334,421, Cl. 72-257.000.

Schlumberger Technology Corporation: *See—*
Lacour-Gayet, Philippe J., 4,335,353, Cl. 324-366.000.

Schmelzle, Carl W.: *See—*
Colwell, William L.; and Schmelzle, Carl W., 4,334,730, Cl. 339-130.00C.

Schmeykal, Rudolf: *See—*
Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, 4,334,732, Cl. 339-176.0MP.

Schmidlin, Albertus E.: *See—*
Goes, Michael J.; Masly, John R.; and Schmidlin, Albertus E., 4,334,478, Cl. 102-529.000.

Schmidt, Donald L.: *See*—
Clarke, Donald H.; Pomranky, George J.; and Schmidt, Donald L., 4,335,219, Cl. 521-128.000.

Schmitt, Frederick L.: *See*—
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,335,009, Cl. 252-187.270.
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.

Schmitz, Johannes; and Rohrbein, Roland, to Licentia Patent-Verwaltungs-GmbH. Transition from a coaxial cable to a multipole plug-in connector. 4,335,364, Cl. 333-33.000.

Scholtholt, Josef: *See*—
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.

Scholz, Eugen; and Sievert, Wolfgang, to Riedel-de Haen Aktiengesellschaft. Process for the manufacture of hydroxylammonium perchlorate. 4,335,091, Cl. 423-476.000.

Schon, Klaus-Peter: *See*—
Back, Gunter; and Schon, Klaus-Peter, 4,334,472, Cl. 101-382.0MV.

Schonenberger, Rolf, to Schonenberger, Wilhelm. Movable surface apparatus, particularly for physical exercise and training. 4,334,676, Cl. 272-69.000.

Schonenberger, Wilhelm: *See*—
Schonenberger, Rolf, 4,334,676, Cl. 272-69.000.

Schott, Karl: *See*—
Kubis, Heribert; and Schott, Karl, 4,334,836, Cl. 417-364.000.

Schottel-Werft Josef Becker GmbH & Co., KG: *See*—
Seitzinger, Kurt; and Lais, Siegfried, 4,334,489, Cl. 114-144.00R.

Schramm, Georg: *See*—
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, 4,334,969, Cl. 204-158.00R.

Schreiber, Jay: *See*—
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Schreiner, Charles P., to Westinghouse Electric Corp. Tote guide. 4,334,715, Cl. 308-3.600.

Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, to Siemens Aktiengesellschaft. Use of nickel-cobalt sintered materials for electric relay contacts. 4,334,929, Cl. 75-246.000.

Schuhmann, Reinhardt, Jr.: *See*—
Queneau, Paul E.; Richter, Horst J.; and Schuhmann, Reinhardt, Jr., 4,334,919, Cl. 75-23.000.

Schulte-Elte, Karl H.; Becker, Joseph J.; and Schenk, Walter, to Firmenich SA. Process for the preparation of muscone. 4,335,262, Cl. 568-361.000.

Schultheiss, Christoph: *See*—
Christiansen, Jens; and Schultheiss, Christoph, 4,335,465, Cl. 376-156.000.

Schultz, Gerald A.: *See*—
Kolczynski, James R.; and Schultz, Gerald A., 4,335,230, Cl. 526-228.000.

Schulze, Stephen R.: *See*—
Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., 4,335,223, Cl. 525-179.000.

Schumacher, Percy W., to Reed Rock Bit Company. Inserts for drilling bits. 4,334,586, Cl. 175-374.000.

Schwan, Thomas J.; and Gray, Joseph E., to Morton-Norwich Products, Inc. Antifungal composition. 4,335,130, Cl. 424-258.000.

Schwartz, Morton W.: *See*—
Gaston, Paul; and Schwartz, Morton W., 4,334,413, Cl. 63-2.000.

Scifres, Donald R.: *See*—
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., 4,335,461, Cl. 372-45.000.

SCM Corporation: *See*—
Rikon, Steven M.; and del Valle, Frank, 4,335,153, Cl. 426-540.000.
Ting, Vincent W.; Woo, James T. K.; and Borovicka, David A., Sr., 4,335,028, Cl. 524-504.000.
Varvil, R. Douglas, 4,335,157, Cl. 426-606.000.

Scott, Charles G.; Robertson, James B.; and Harris, Robert L., to Plantronics, Inc. Post-auricle contoured headset for two-way voice communication. 4,335,281, Cl. 179-156.00A.

Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., to Ford Aerospace & Communications Corp. Null control of multiple beam antenna. 4,335,388, Cl. 343-854.000.

Seachman, Ned J., to Xerox Corporation. Twisting geometry scanner utilizing staggered lens array. 4,335,305, Cl. 250-216.000.

Sechrist, Edward L. Sound reproduction system. 4,334,593, Cl. 181-144.000.

Seckinger, Erich, to Interzeag AG. Method of perimetric examination of visual fields. 4,334,738, Cl. 351-39.000.

Seckinger, Erich, to Interzeag AG. Method of graphically displaying the results of repeated perimetric examination of visual fields. 4,334,739, Cl. 351-39.000.

Sedlacek, Lubor: *See*—
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.

Seidel, Heinz H., to GTE Products Corporation. Cutting insert. 4,334,808, Cl. 407-114.000.

Seitzinger, Kurt; and Lais, Siegfried, to Schottel-Werft Josef Becker GmbH & Co., KG. Reversing mechanism for steerable propellers, jet rudders or other drive mechanisms of ships. 4,334,489, Cl. 114-144.00R.

Seki, Shojiro, to Nissan Motor Company, Limited. Guard molding for outer surfaces of a car. 4,334,706, Cl. 293-126.000.

Sentrol, Inc.: *See*—
Holce, Thomas J.; and Huckins, Charles M., 4,335,270, Cl. 174-52.00R.

Serany, Frank J.: *See*—
Wilson, David A.; and Serany, Frank J., 4,334,535, Cl. 128-214.00D.

Servimetal: *See*—
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, 4,334,990, Cl. 210-186.000.

Sethofer, Nicholas L., to Timex Corporation. Cyclohexyl-dioxane liquid crystalline compounds. 4,335,011, Cl. 252-299.100.

Seybold, Albert: *See*—
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, 4,334,699, Cl. 280-731.000.

Sharp, Peter A. Wind or fluid current turbine. 4,334,823, Cl. 416-119.000.

Shaw, Wilfrid G.: *See*—
Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., 4,335,056, Cl. 260-465.300.

Shay, Robert H.; and Ellison, Thomas L., to Air Products and Chemicals, Inc. Inhibited annealing of ferrous metals containing chromium. 4,334,938, Cl. 148-16.700.

Shell Oil Company: *See*—
Bozarth, Gene A., 4,334,916, Cl. 71-120.000.
Kramer, Petrus A., 4,335,253, Cl. 560-124.000.
Slaugh, Lynn H., 4,335,022, Cl. 252-455.00R.

Shelton, William A., to Polaroid Corporation. Photographic apparatus having synchronized flash. 4,334,744, Cl. 354-27.000.

Shepherd, William C. Diet control apparatus and method. 4,335,300, Cl. 235-123.000.

Sherman, Andrew M., to Ford Motor Company. Oxidation resistant steel alloy. 4,334,923, Cl. 75-124.000.

Sherwood, David L.: *See*—
Parry, Charles G.; and Sherwood, David L., 4,334,675, Cl. 272-63.000.

Sherwood, Loran D.; Keegan, Jack J.; and Gniewek, Stephen A., to Beckman Instruments, Inc. NOx Conversion efficiency detector. 4,335,073, Cl. 422-83.000.

Shibata, Noriyoshi: *See*—
Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, 4,334,837, Cl. 417-393.000.

Shibayama, Masakazu: *See*—
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.

Shiga, Kazumasa, to Matsushita Electric Industrial Company, Limited. Biofeedback system. 4,334,545, Cl. 128-732.000.

Shimada, Fumio; and Hashimoto, Teiji, to Canon Kabushiki Kaisha; and Canon Denshi Kabushiki Kaisha, part interest to each. Device for preventing spring-back of shutter blade. 4,334,747, Cl. 354-147.000.

Shimada, Masao: *See*—
Asai, Yoshiyuki; Shimada, Masao; and Soda, Kenji, 4,335,209, Cl. 435-108.000.

Shimamura, Yoshihiro: *See*—
Hara, Takanori; and Shimamura, Yoshihiro, 4,335,340, Cl. 318-282.000.

Shinriki, Tatsuo, to Height Inc. Apparatus for encrusting jam. 4,334,464, Cl. 99-450.600.

Shinwa Kabushiki Kaisha: *See*—
Naito, Kyohei, 4,334,655, Cl. 242-191.000.

Shiraishi, Hideo: *See*—
Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, 4,335,369, Cl. 338-34.000.

Shiraiwa, Yukio: *See*—
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.

Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, to Canon Kabushiki Kaisha. Liquid droplet ejecting recording head. 4,335,389, Cl. 346-140.00R.

Shock, John R.: *See*—
Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., 4,335,199, Cl. 430-434.000.

Shop-Vac Corporation: *See*—
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.

Showa Denko Kabushiki Kaisha: *See*—
Suzaka, Yukinori, 4,334,783, Cl. 366-69.000.

Shugart, Wayne L., Sr.: *See*—
Chalmers, Edward L., II; and Shugart, Wayne L., Sr., 4,334,368, Cl. 36-121.000.

Siegrand Corporation: *See*—
Grandell, William A., 4,334,418, Cl. 72-164.000.

Siemens Aktiengeselischaft: *See*—
Anger, Klaus; and Frosien, Juergen, 4,335,309, Cl. 250-396.00R.
Blaschke, Felix, 4,335,444, Cl. 364-815.000.
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.
Franke, Kurt, 4,335,310, Cl. 250-408.000.
Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, 4,335,456, Cl. 370-58.000.

Grassl, Hans-Peter, 4,335,317, Cl. 250-578.000.
Hirschmann, Peter, 4,335,455, Cl. 370-29.000.
Kriedt, Hans; and Dietze, Andreas, 4,335,359, Cl. 330-257.000.
Lutz, Herbert; and Pfeifer, Rolf, 4,335,311, Cl. 250-409.000.
Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, 4,334,929, Cl. 75-246.000.
Waerve, Hans; and Djurson, Sten, 4,335,315, Cl. 250-523.000.
Zoeke, Siegfried; and Stuerzer, Anton, 4,334,955, Cl. 159-44.000.

Sievert, Wolfgang: *See—*
Scholz, Eugen; and Sievert, Wolfgang, 4,335,091, Cl. 423-476.000.

Sigma-Tau Industrie Farmaceutiche Riunite S.p.A.: *See—*
de Witt, Paolo; and Diamanti, Enrico, 4,335,256, Cl. 562-450.000.

Signer, Hans R., to Industrial Tectonics, Inc. Split-inner-ring ball bearing with lubrication structure. 4,334,720, Cl. 308-187.000.

Signetics Corporation: *See—*
Hoeft, Werner H., 4,335,358, Cl. 330-255.000.

Simmons, John J.; and Hutson, Douglas W., to Ellis, Giles Arthur, a part interest. Cap for a chimney. 4,334,460, Cl. 98-83.000.

Simon, Kalman: *See—*
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Simonidesz nee Vermes, Ilona: *See—*
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Simonsson, Leif R.: *See—*
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,335,204, Cl. 435-23.000.

Simpson, Danny E.: *See—*
Chase, Richard A.; Simpson, Danny E.; and Williams, David M., 4,334,382, Cl. 46-1.00R.

Singer Company, The: *See—*
Harbeck, Martin E.; and Harbin, Henry C., 4,334,336, Cl. 15-322.000.
Sumerau, Russell, 4,334,390, Cl. 51-170.0EB.

Singh, Ajaib, to Uniroyal, Inc. Sulfur curable millable polyurethane gum. 4,335,231, Cl. 528-49.000.

Singh, Baldev: *See—*
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Sirrenberg, Wilhelm: *See—*
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Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., to Compair Industrial Ltd. Regenerative rotodynamic machines. 4,334,821, Cl. 415-53.00T.

Skinner, Ronald W.: *See—*
Dalton, Augustine I., Jr.; and Skinner, Ronald W., 4,335,092, Cl. 423-584.000.

Skomoroski, Robert M.: *See—*
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.

Slaugh, Lynn H., to Shell Oil Company. Modified silica composition. 4,335,022, Cl. 252-455.00R.

Sloane, Edwin A., to Fairchild Camera & Instrument Corp. Method for analyzing a digital-to-analog converter with a nonideal analog-to-digital converter. 4,335,373, Cl. 340-347.0CC.

Slovenska vysoka skola technicka: *See—*
Tkac, Alexander; and Cvengros, Jan, 4,334,952, Cl. 159-11.00R.

Slysh, Paul, to General Dynamics Corporation. Device and method for assembling large space structures. 4,334,816, Cl. 414-10.000.

Smit Ovens Nijmegen B.V.: *See—*
Graat, Johannes W.; and Remie, Hans J., 4,334,854, Cl. 431-8.000.

Smith, Donald T.: *See—*
Reed, William C.; and Smith, Donald T., 4,335,348, Cl. 324-51.000.

Smith, Duaine W., to Amana Refrigeration, Inc. Microwave oven. 4,335,289, Cl. 219-10.55F.

Smith International, Inc.: *See—*
Upton, Robert G., 4,334,585, Cl. 175-329.000.

Smith, J. Craig, Jr.: *See—*
Baldock, K. Paul; and Smith, J. Craig, Jr., 4,335,349, Cl. 324-62.000.

Smitka, Artur; and Rabe, Josef, to BBC Brown, Boveri & Company, Limited. Crucible furnace. 4,334,857, Cl. 432-3.000.

Smolen, Victor F. Method and apparatus for automatic dissolution testing of products. 4,335,438, Cl. 364-497.000.

Smoot, A. Park: *See—*
Jensen, Keith A., 4,334,346, Cl. 29-429.000.

Smyser, Charles F.: *See—*
Snoeyenbos, Glenn H.; Weinack, Olga M.; and Smyser, Charles F., 4,335,107, Cl. 424-93.000.

Snamprogetti S.p.A.: *See—*
Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, 4,334,954, Cl. 159-18.000.

Snell, Marcus L., Jr.: *See—*
Marsh, James C., Jr.; and Snell, Marcus L., Jr., 4,335,470, Cl. 455-205.000.

Snoeyenbos, Glenn H.; Weinack, Olga M.; and Smyser, Charles F. Mixture to protect poultry from salmonella. 4,335,107, Cl. 424-93.000.

Soar, Geoffrey K.: *See—*
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Societe Anonyme D.B.A.: *See—*
Carre, Jean-Jacques; and Meynier, Guy, 4,334,712, Cl. 303-24.00C.

Societe Anonyme dite Compagnie Europeenne d'Accumulateurs: *See—*
Boniface, Jean-Paul; and Ponceblanc, Gilbert, 4,334,846, Cl. 425-126.00R.

Societe Anonyme Francaise du Ferodo: *See—*
Dauvergne, Jean L. R., 4,334,713, Cl. 303-54.000.

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Daugas, Claude, 4,334,409, Cl. 60-618.000.

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Soda, Kenji: *See—*
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Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov, Jury M., 4,334,967, Cl. 204-81.000.

Sol-Fire Inc.: *See—*
Ort, Sterling L., 4,334,518, Cl. 126-132.000.

Solar Optimizing Systems, Inc.: *See—*
Jacoby, Walter, 4,334,521, Cl. 126-425.000.

Sollich, Helmut. Method for making confections. 4,335,147, Cl. 426-295.000.

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Sony Corporation: *See—*
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Tamura, Eiji, 4,335,397, Cl. 358-29.000.

Sopory, Umesh K., to Raychem Corporation. Novel PTC devices and their preparation. 4,334,351, Cl. 29-611.000.

Sorkin, Howard, to Timex Corporation. 5-Substituted-2-(4-cyanophenyl)-1,3-dioxanes. 4,335,012, Cl. 252-299.610.

South African Inventions Development Corporation, The: *See—*
Hasson, Victor H.; and Von Bergmann, Hubertus M., 4,335,462, Cl. 372-85.000.

Souzu, Isao: *See—*
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.

Sovey, James S.: *See—*
Bill, Robert C.; and Sovey, James S., 4,335,190, Cl. 428-623.000.

Spamer, William S.; and Barker, Robert C., to Mead Corporation, The. Means for attaching a panel to an upright. 4,334,374, Cl. 40-606.000.

Spanoudis, Louis, to Owens-Illinois, Inc. Solar energy collector having solar selective coating of low reflectance. 4,334,523, Cl. 126-443.000.

Spargo, John D.; and Sasdelli, Kenneth R., to United States of America, Navy. Fluid lubricated floating bushing seal. 4,334,688, Cl. 277-175.000.

Spector, George: *See—*
Burns, Anthony G.; and Spector, George, 4,334,360, Cl. 33-42.000.
Ferguson, Arthur; and Spector, George, 4,334,461, Cl. 98-119.000.
Tanner, Douglas; and Spector, George, 4,334,469, Cl. 100-110.000.
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Speechley, Richard E.: *See—*
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Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,055, Cl. 260-465.00K.

Spencer, Michael. Hydroxyapatite and its preparation. 4,335,086, Cl. 423-308.000.

Spiegelberg, Delvin A. High pressure hay rebaler. 4,334,466, Cl. 100-4.000.

Spire Corporation: *See—*
Little, Roger G., 4,335,297, Cl. 219-121.0EQ.

Spoonts, Paul R. A., III. Capo. 4,334,457, Cl. 84-318.000.

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Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.

Sridhar, T. Sampat, to Canada, Atomic Energy of, Limited. Apparatus for evaporating radioactive liquid and calcinating the residue. 4,334,953, Cl. 159-11.00R.

Srivastava, Gopal K., to Zenith Radio Corporation. Horizontal countdown system for television receivers. 4,335,403, Cl. 358-148.000.

Stacklies, Horst; and Schindler, Achim. Photographic camera light controlling apparatus. 4,334,748, Cl. 354-234.000.

Stadler, Peter: *See—*
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.

Staedtler, J. S.: *See—*
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Stained Glass Overlay, Inc.: *See—*
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Stanadyne, Inc.: *See—*
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Standard Oil Company: *See—*
Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., 4,335,056, Cl. 260-465.300.
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Stanley Electric Co., Ltd.: *See—*
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Stanley, Robert C., to FMC Corporation. Method for controlling the flow of fruit and fruit juice through a juice extraction facility. 4,335,145, Cl. 426-231.000.
Starkstrom Gummersbach GmbH: *See—*
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Staudt, John J., III: *See—*
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Stauffer Chemical Company: *See—*
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Fearing, Ralph B., 4,335,178, Cl. 428-253.000.
Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., 4,334,911, Cl. 71-93.000.
Walker, Francis H., 4,335,053, Cl. 260-465.00D.
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Stegemeyer, Noel J.; and Naker, Vernon W., to Kearney & Trecker Corporation. Tool setting apparatus. 4,334,363, Cl. 33-185.00R.
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, to Hoechst Aktiengesellschaft. Photochemical process for the synthesis of strobilurin. 4,334,969, Cl. 204-158.00R.
Steigenberger, Richard: *See—*
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Steinmetz, Alfred: *See—*
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Stendel, Wilhelm: *See—*
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Stephan, Gerard, to Nadella. Universal joint yokes. 4,334,414, Cl. 464-134.000.
Stephen, David D., to Homco International Inc. Yield strength determination of ferromagnetic materials. 4,335,352, Cl. 324-228.000.
Sterling Drug Inc.: *See—*
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Lesher, George Y.; and Singh, Baldev, 4,335,132, Cl. 424-263.000.
Michne, William F., 4,335,243, Cl. 546-97.000.
Sterling, Robert H. Golf putting training device. 4,334,684, Cl. 273-192.000.
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Stewart, Clare A., Jr.: *See—*
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Stewart, Kenneth W., Sr.: *See—*
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Stipp, Gordon K., to Procter & Gamble Company, The. Direct condensation of food volatiles onto a food substrate at cryogenic temperatures. 4,335,149, Cl. 426-386.000.
Stock, Hugh J., to Pacer Technology and Resources, Inc. Child proof dispenser. 4,334,638, Cl. 222-153.000.
Stog, Wilhelm, to WSW Planungs-GmbH. Exhaust hood for unloading assembly of coke-oven battery. 4,334,963, Cl. 202-263.000.
Stokes, Leonard S., to Uniroyal, Inc. Tire insert. 4,334,565, Cl. 152-158.000.
Stoudt, Thomas H.; and Nollstadt, Karl H., to Merck & Co., Inc. Oral hygiene enzymes and method for preparation. 4,335,101, Cl. 424-50.000.
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., to Xerox Corporation. Injection lasers with lateral spatial thickness variations (LSTV) in the active layer. 4,335,461, Cl. 372-45.000.
Streit, Klaus, to Robert Bosch GmbH. Temperature independent voltage supply. 4,335,346, Cl. 323-313.000.
Strobel, Richard A.: *See—*
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Stroganova, Larisa A.: *See—*
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Stuckmann, Dieter, to Gewerkschaft Eisenhutte Westfalia. Tunnel drive shield. 4,334,800, Cl. 405-145.000.
Stuerzer, Anton: *See—*
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Stumpp & Kurz GmbH & Co.: *See—*
Oettl, Reinhold, 4,334,813, Cl. 411-68.000.
Stutz, Emil, to Bracker AG. Apparatus for lubricating a ring traveller of a ring spinning or ring twisting frame. 4,334,402, Cl. 57-120.000.
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Sugimura, Mitsuru: *See—*
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Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, to Minolta Camera Kabushiki Kaisha. Blade-type cleaning device for electrophotograhic copying machine. 4,334,766, Cl. 355-15.000.
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Sulmont, Benoit; and Hudault, Gerard, to Aluminium Pechiney. Process for packing electrolysis cells for the production of aluminum. 4,335,064, Cl. 264-30.000.
Sulzer Brothers Limited: *See—*
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Sumerau, Russell, to Singer Company, The. Belt sander. 4,334,390, Cl. 51-170.0EB.
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Sumitomo Chemical Company, Limited: *See—*
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Maruyama, Kunio; and Okazaki, Akira, 4,335,089, Cl. 423-447.400.
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Sumitomo Electric Industries, Ltd.: *See—*
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Sumrall, Harold E.: *See—*
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Sunbeam Plastics Corporation: *See—*
Gach, Peter P., 4,334,639, Cl. 222-153.000.
Sunmark, Inc.: *See—*
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., 4,334,934, Cl. 127-9.000.
Supreme Casting & Tooling: *See—*
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Suzaka, Yukinori, to Showa Denko Kabushiki Kaisha. Mixing device. 4,334,783, Cl. 366-69.000.
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Hamada, Kazuhiko; Suzukamo, Goufu; and Fujisawa, Koichi, 4,335,049, Cl. 549-483.000.
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Suzuki, Yoshiro, to Olympus Optical Company Limited. Electrophotographic apparatus of retentive type. 4,334,772, Cl. 355-3.0DD.
Sweeney, Charles T. Apparatus for generation of chlorine/chlorine dioxide mixtures. 4,334,968, Cl. 204-96.000.
Sweitzer, Bruce. Heat exchanger unit. 4,334,517, Cl. 126-121.000.
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Sze, Daniel T.: *See*—
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Taiho Kogyo Co., Ltd.: *See*—
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Taiyo Sengu Co., Ltd.: *See*—
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Taiyo Shokai Co., Ltd.: *See*—
Onishi, Masami, 4,334,399, Cl. 53-69.000.

Takabayashi, Toshiaki. Method for improving combustibility of liquid fuel. 4,334,889, Cl. 44-50.000.

Takada, Juichiro. Coupling for a vehicle seat belt. 4,334,701, Cl. 280-804.000.

Takahashi, Junichi, to Hitachi, Ltd. Skid control method. 4,335,431, Cl. 364-426.000.

Takahashi, Junya: *See*—
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Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, to Japan Steel Works, Ltd. Method and apparatus for measuring thickness of clad steel. 4,334,433, Cl. 73-629.000.

Takasawa, Seigo: *See*—
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Takashi, Yano: *See*—
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Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, to Kowa Co., Ltd. Novel nitrosourea derivatives and process for their production. 4,335,247, Cl. 548-140.000.

Takatori, Yasushi: *See*—
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

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Takemoto, Ichiki: *See*—
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Takemoto, Iwao: *See*—
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Takenoya, Hideaki: *See*—
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Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, to Nippon Telegraph & Telephone Public Corp.; and Sumitomo Electric Industries, Ltd., part interest to each. Coated glass fibers for optical transmission. 4,334,733, Cl. 350-96.330.

Takeuchi, Shigeru, to Kurimoto Iron Works, Ltd. Glass fiber-reinforced cement plates. 4,335,177, Cl. 428-247.000.

Takeuchi, Tomio: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Takinishi, Kiyotoshi; and Nakamura, Masato, to Rion Co., Ltd. Artificial palate device for electropalatograph. 4,334,542, Cl. 128-642.000.

TAM Ceramics, Inc.: *See*—
Hodgkins, Charles E.; and Giermek, Mark J., 4,335,216, Cl. 501-32.000.

Tamminen, Teijo T. T., to Henberg Oy. Machine for producing rolls of bakery products. 4,334,845, Cl. 425-104.000.

Tamura, Eiji, to Sony Corporation. Method and apparatus for digitally adjusting white balance. 4,335,397, Cl. 358-29.000.

Tanabe, Yasuhiro: *See*—
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Tanaka, Akira, to Tokyo Metropolitan Government. Replica film of specimen for electron microscopy apparatus. 4,334,844, Cl. 425-2.000.

Tanaka, Junzo; Nakano, Chikao; and Kurita, Hitoshi, to Matsushita Electric Industrial Co., Ltd. High frequency oven with drawer type door. 4,335,292, Cl. 219-10.55F.

Tanaka, Kouichi; and Mori, Masaharu, to Nippon Electric Co., Ltd.; and Clarion Co., Ltd. Pulse generator for producing a pulse having a pulse width dependent on an input signal. 4,335,322, Cl. 307-542.000.

Tani, Haruhisa: *See*—
Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, 4,335,070, Cl. 264-555.000.

Tani, Katsuhiko; and Sakamoto, Tamio. Method of manufacturing table salt. 4,334,886, Cl. 23-303.000.

Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, to Fuji Electric Co., Ltd. Oxygen sensor. 4,335,369, Cl. 338-34.000.

Taniguchi, Tokuyuki: *See*—
Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, 4,334,610, Cl. 206-205.000.

Tanner, Douglas; and Spector, George. Can crusher. 4,334,469, Cl. 100-110.000.

Tata, Robert. Track trainer. 4,334,677, Cl. 272-100.000.

Taylor, Edward S., to Bird Machine Company, Inc. Centrifuges. 4,334,647, Cl. 233-7.000.

TDK Electronics Co., Ltd.: *See*—
Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, 4,335,291, Cl. 219-10.55E.

Technicare Corporation: *See*—
DeVries, Richard C.; and Hill, Edwin R., 4,335,307, Cl. 250-322.000.
Hunt, Willard F.; and McCarthy, Robert H., 4,335,427, Cl. 364-414.000.

Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov, Jury M. Method for preparing 1,2-dichloroethane. 4,334,967, Cl. 204-81.000.

Teich, Wesley W., to Raytheon Company. Microwave oven blower radiator. 4,335,290, Cl. 219-10.55F.

Tektronix, Inc.: *See*—
Crosby, Philip S., 4,335,356, Cl. 330-254.000.
Haven, Duane A., 4,335,328, Cl. 313-395.000.

Telettra-Telefonica Electronica e Radio S.p.A.: *See*—
Pome', Enzo, 4,335,365, Cl. 333-229.000.

Tellier, Pierre: *See*—
Delavarenne, Serge; and Tellier, Pierre, 4,335,050, Cl. 260-369.000.

Tempel-Callison Company: *See*—
Davis, Thomas R.; and Bostian, Charles D., 4,334,662, Cl. 248-237.000.

Temple University: *See*—
Salomon, Robert E., 4,335,093, Cl. 423-644.000.

Tennant Company: *See*—
Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., 4,334,335, Cl. 15-319.000.

Terada, Osamu; and Aisaka, Kazuo, to Kyowa Hakko Kogyo Co., Ltd. Process for the preparation of galactose oxidase. 4,335,213, Cl. 435-190.000.

Terrill, David B.: *See*—
Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., 4,335,056, Cl. 260-465.300.

Teruyama, Hideo, to Kayaba Kogyo Kabushiki Kaisha. Gear pump or motor with serrated grooves on inner wall for break-in operation. 4,334,840, Cl. 418-1.000.

Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, to Stanley Electric Co., Ltd. Method for making a fluorescent lamp. 4,334,725, Cl. 316-19.000.

Tetra Pak International AB: *See*—
Andersson, Par M., 4,334,437, Cl. 74-53.000.

Tewes, Udo: *See*—
Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, 4,334,732, Cl. 339-176.0MP.

Texas Instruments Incorporated: *See*—
Brantingham, George L., 4,335,275, Cl. 179-1.0SM.
Morris, Henry B., 4,335,391, Cl. 357-23.000.
Puri, Ajay K., 4,335,277, Cl. 179-1.0SM.

Textron Inc.: *See*—
Males, Robert E.; and Colechia, Edward A., 4,334,613, Cl. 206-340.000.

Tezuka, Toru; and Matsuda, Akira, to Caterpillar Mitsubishi Ltd. Vehicle engine noise reducing assembly. 4,334,588, Cl. 180-68.00P.

Tharp, Nelson B.; and Hartley, Harry F., to Westinghouse Electric Corp. Method and system for radiating RF power from a trailing wire antenna. 4,335,469, Cl. 455-125.000.

Thermo Electron Corporation: *See*—
Davis, Robert D.; and Blizzard, Roy L., 4,335,080, Cl. 422-244.000.

Theurer, Josef, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Method and apparatus for obtaining a controlled degree of ballast compaction in the tamping and leveling of a truck. 4,334,479, Cl. 104-12.000.

Thieman, Graham F.: *See*—
Arthur, James C.; and Thieman, Graham F., 4,334,703, Cl. 285-222.000.

Thiemer, Klaus: *See*—
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.

Thies, Edward J.: *See*—
Michlin, Norman; and Thies, Edward J., 4,334,756, Cl. 354-300.000.

Thijssen, Henricus A. C.: *See*—
van Overbruggen, Garardus J. J.; van Beaumont, Richard A.; and Thijssen, Henricus A. C., 4,334,640, Cl. 222-207.000.

Thill, Fernand: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.

Tholome, Roger, to Air Industrie, Societe Anonyme. Reciprocating drive system for a body such as a carriage supporting electrostatic means for spraying a pulverized material, the system including an asynchronous squirrel cage motor. 4,335,342, Cl. 318-627.000.

Thomas, Donald R., to International Business Machines Corporation. Non-destructive read out field effect transistor memory cell system. 4,335,450, Cl. 365-182.000.

Thomas, Lowell S., to Dow Chemical Company, The. Polycarbonate containing a metal perfluoroborate and an organosilane as ignition depressants. 4,335,038, Cl. 524-188.000.

Thomassin, Pierre C.: *See—*
Breton, Jean-Paul R. H.; Thomassin, Pierre C.; and Villeneuve, Bernard E., 4,334,429, Cl. 73-151.000.

Thomis, Wendl: *See—*
Doyle, Holly T.; Doyle, Robert O.; and Thomis, Wendl, 4,334,679, Cl. 273-1.00E.

Thompson, Arnold M., to Gold Lode, Inc. Portable ski wax applicator. 4,334,793, Cl. 401-1.000.

Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., to Procter & Gamble Company, The. Anti-acne composition. 4,335,115, Cl. 424-181.000.

Thompson, Kenneth P., to Champion International Corporation. Method for forming a plastic fluid container with an integral handle. 4,334,942, Cl. 156-217.000.

Thompson, Timothy W. Stroboscopic posing aid. 4,334,754, Cl. 354-290.000.

Thomson-CSF: *See—*
Croset, Michel; and Velasco, Gonzalo, 4,334,510, Cl. 123-440.000.
Hareng, Michel; and Le Berre, Sergè, 4,334,734, Cl. 350-331.00R.
Hareng, Michel; and Le Berre, Serge, 4,334,735, Cl. 350-351.000.
Salvat, Francois; Bouko, Jean; and Le Foll, Jean, 4,335,387, Cl. 343-756.000.

Thomson Industries, Inc.: *See—*
Magee, Robert C.; and Rogers, Alfred M., III, 4,334,716, Cl. 308-6.00C.

Thornton, David C., to American Sterilizer Company. Pressure-vacuum purge cycle. 4,335,071, Cl. 422-26.000.

Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, to Westinghouse Electric Corp. Method and apparatus for expressing relative brightness of artificial illumination as perceived by the average observer. 4,334,782, Cl. 356-406.000.

Thorpe, Walter H. Tire chain. 4,334,568, Cl. 152-218.000.

Thummel, Rudolph C.: *See—*
Fischer, Hanspeter; Thummel, Rudolph C.; and Wehrli, Rudolf, 4,335,118, Cl. 424-226.000.

Thurlow, Keith: *See—*
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Timewell, Richard R., to R. T. Tool Co. Ltd. Z Style speed wrench. 4,334,445, Cl. 81-177.0PP.

Timex Corporation: *See—*
Sethofer, Nicholas L., 4,335,011, Cl. 252-299.100.
Sorkin, Howard, 4,335,012, Cl. 252-299.610.

Ting, Vincent W.; Woo, James T. K.; and Borovicka, David A., Sr., to SCM Corporation. Cathodic electrocoating compositions containing base-functional graft polymers having epoxy resin backbones, and substrates coated therewith. 4,335,028, Cl. 524-504.000.

Tingskog, Karl A. L., to AB Siwertell. Final unloading apparatus. 4,334,818, Cl. 414-139.000.

Tioga Air Heaters, Inc.: *See—*
Muckelrath, Ernest R., 4,334,862, Cl. 432-128.000.

Tiraboschi, Pietro: *See—*
Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, 4,334,954, Cl. 159-18.000.

Titcomb, Steven E.: *See—*
Hill, Loran R.; and Titcomb, Steven E., 4,334,544, Cl. 128-664.000.

Tkac, Alexander; and Cvengros, Jan, to Slovenska vysoka skola technicka. Multistage molecular evaporator with wiped off film and continuous redistillation. 4,334,952, Cl. 159-11.00R.

Tkatschenko, Gunter T.; and Franke, Gunther, to Perkin-Elmer Corporation, The. Sealing apparatus. 4,334,435, Cl. 73-864.860.

Toa Nenryo Kogyo Kabushiki Kaisha: *See—*
Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, 4,335,015, Cl. 252-429.00B.

Todd, Geoffrey C., to Dowty Fuel Systems Limited. Fuel supply system. 4,334,406, Cl. 60-223.000.

Toho Ganryo Kogyo Co., Ltd.: *See—*
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Tokarzewski, Richard J.: *See—*
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.

Tokita, Hideki: *See—*
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.

Tokyo Gas Kabushiki Kaisha: *See—*
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.

Tokyo Magnetic Printing Co., Ltd.: *See—*
Hosaka, Hiroshi, 4,335,183, Cl. 428-336.000.

Tokyo Metropolitan Government: *See—*
Tanaka, Akira, 4,334,844, Cl. 425-2.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Aoyama, Masaharu; Ohshima, Jiro; and Yonezawa, Toshio, 4,334,349, Cl. 29-579.000.
Horino, Shigeo; and Hashimoto, Yoshiro, 4,334,619, Cl. 209-551.000.
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.
Ozeki, Takeshi, 4,334,781, Cl. 356-368.000.
Saito, Masao; Aoya, Hiroshi; and Yoshida, Naruhito, 4,334,761, Cl. 355-3.00R.

Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., to Monsanto Company. Method of growing anchorage-dependent cells. 4,335,215, Cl. 435-241.000.

Tomilov, Andrei P.: *See—*
Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov, Jury M., 4,334,967, Cl. 204-81.000.

Tomura, Teruichi: *See—*
Watanabe, Yoshio; Yamane, Mikiya; and Tomura, Teruichi, 4,335,331, Cl. 315-334.000.

Torbett, Christopher J.: *See—*
Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., 4,334,350, Cl. 29-611.000.

Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, to Janome Sewing Machine Co., Ltd. Electronic sewing machine. 4,334,486, Cl. 112-158.00E.

Toshiba Silicone Co., Ltd.: *See—*
Hatanaka, Masayuki; and Kurita, Atsushi, 4,335,035, Cl. 523-212.000.

Toth, Benjaminne: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Toth, Ferenc: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Toth, Istvan J.: *See—*
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.

Tovagliaro, Costantino, to Magnaghi Oleodinamica S.p.A. Brake wear compensating device. 4,334,597, Cl. 188-71.800.

Toyo Kogyo Co., Ltd.: *See—*
Hara, Takanori; and Shimamura, Yoshihiro, 4,335,340, Cl. 318-282.000.
Otsuka, Kazutoshi, 4,334,515, Cl. 123-568.000.

Toyono, Tsutomu: *See—*
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, 4,334,422, Cl. 73-35.000.
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.

Transaction Control Industries: *See—*
Converse, Merle E., 4,335,345, Cl. 323-278.000.

Traut, G. Robert, to Rogers Corporation. Microwave circuit boards. 4,335,180, Cl. 428-303.000.

Trenary, Dale T.; Frederick, Allen H.; and Whelton, Robert M., to Data General Corporation. Retro-etch process for forming gate electrodes of MOS integrated circuits. 4,334,348, Cl. 29-571.000.

Trend Products Group: *See—*
Klamer, Reuben B.; and Mortonson, Robert J., 4,334,690, Cl. 280-11.210.

Trevino, Robert J.: *See—*
Alvarez, Patricio D.; and Trevino, Robert J., 4,334,666, Cl. 251-167.000.

Triumph Werke Nurnberg A.G.: *See—*
Link, Manfred; Puch, Diethelm; Zahner, Peter; and Suc, Karel, 4,334,790, Cl. 400-144.200.

Truax, Bruce E.: *See—*
Breecher, Jerry D.; and Truax, Bruce E., 4,334,775, Cl. 356-152.000.

Trumpf, Jakob; and Keller, Hansueli, to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG. Spindle extension, especially for drilling and milling machines. 4,334,811, Cl. 409-233.000.

TRW Inc.: *See—*
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.
Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., 4,334,354, Cl. 29-840.000.

Tsuboi, Makoto: *See—*
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, 4,335,293, Cl. 219-10.55B.

Tsuboi, Takashi: *See—*
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.

Tsuchikawa, Shunzo; and Hayashi, Masaharu, to Aisin Seiki Kabushiki Kaisha. Flexible fan device. 4,334,824, Cl. 416-132.00R.

Tsuchiya, Shuyou: *See—*
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.

Tsuji, Yoshikatsu, to Fujizoki Pharmaceutical Co., Ltd. Absorbent for use in passive agglutination test. 4,335,096, Cl. 424-12.000.

Tsunekawa, Tokuichi: *See*—
Sakane, Toshio; and Tsunekawa, Tokuichi, 4,335,405, Cl. 358-213.000.
Tsuyumu, Shinji; and Ota, Keiichi, to Otsuka Pharmaceutical Co., Ltd. α-D-Galacturonide derivatives. 4,335,236, Cl. 536-18.200.
Tullock, Charles W.: *See*—
Collette, John W.; and Tullock, Charles W., 4,335,225, Cl. 525-240.000.
Turano, Peter S. Container for soaking and preserving paint roller covers. 4,334,416, Cl. 68-213.000.
Turchi, Enrico, to Fratelli Borletti S.p.A. Proximity fuses. 4,334,475, Cl. 102-206.000.
Turner, John J. P.: *See*—
Adelman, Robert L.; and Turner, John J. P., 4,335,185, Cl. 428-361.000.
Turner, Ralph E., Jr., to Anglo-American Clays Corporation. Selective rheological separation of clays. 4,334,985, Cl. 209-5.000.
Tusche, Reinhard: *See*—
Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, 4,334,929, Cl. 75-246.000.
Tuxford, Anthony M.: *See*—
Cunningham, James A.; and Tuxford, Anthony M., 4,335,162, Cl. 427-130.000.
Udvardi, Agnes: *See*—
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.
Udy, Lex L.: *See*—
Day, John T.; and Udy, Lex L., 4,334,476, Cl. 102-275.700.
Ueda, Yoichiro, to Daicel Chemical Industries, Ltd. Process for purifying macrocyclic ketones. 4,335,261, Cl. 568-366.000.
Uemura, Yahiro: *See*—
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.
Ueno, Haruyuki: *See*—
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.
Ueno, Hiroshi: *See*—
Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, 4,335,015, Cl. 252-429.00B.
Ueno, Shyichi: *See*—
Akiyama, Yoshinori; and Ueno, Shyichi, 4,334,709, Cl. 297-284.000.
Uetake, Shigeru: *See*—
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, 4,335,196, Cl. 430-122.000.
Ujiie, Takashi: *See*—
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.
Ullrich, Georg J.: *See*—
Leist, Helmut; and Ullrich, Georg J., 4,334,541, Cl. 128-632.000.
Umekawa, Osamu: *See*—
Katayama, Sakae; and Umekawa, Osamu, 4,334,957, Cl. 162-161.000.
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, to Banyu Pharmaceutical Co., Ltd. Compound with immunopotentiating activity and production and uses thereof. 4,335,250, Cl. 560-67.000.
Union Carbide Corporation: *See*—
Koerwer, John F., 4,334,913, Cl. 71-98.000.
McCullough, Robert W.; and Hewett, Thomas A., 4,334,524, Cl. 126-449.000.
Union Oil Company of California: *See*—
Young, Donald C., 4,334,906, Cl. 71-33.000.
Uniroyal, Inc.: *See*—
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, 4,335,006, Cl. 252-49.700.
Relyea, Douglas I.; and Davis, Robert A., 4,335,142, Cl. 424-337.000.
Singh, Ajaib, 4,335,231, Cl. 528-49.000.
Stokes, Leonard S., 4,334,565, Cl. 152-158.000.
United Air Specialists, Inc.: *See*—
Weber, William G., 4,335,414, Cl. 361-100.000.
United Chemical Corporation: *See*—
VanCleave, Jon S., 4,335,104, Cl. 424-59.000.
United Kingdom Atomic Energy Authority: *See*—
Caldecourt, Leonard R.; Evans, Gordon V.; and Parsons, Tony V., 4,335,308, Cl. 250-358.00R.
Miles, Brynley J.; and Rosevear, Alan, 4,335,017, Cl. 252-430.000.
United Kingdom of Great Britain and Northern Ireland, The Minister of Transport in Her Britannic Majesty's Government of the: *See*—
Armour, John S.; and Watson, Peter M. F., 4,334,602, Cl. 192-103.00F.
United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the: *See*—
Hall, Peter S., 4,335,385, Cl. 343-700.0MS.
United Merchants & Manufacturers Inc.: *See*—
Gregorian, Razmic S.; and Namboodri, Chettoor G., 4,334,877, Cl. 8-477.000.
United States of America
America: *See*—
Pue, Alan J., 4,335,432, Cl. 364-436.000.
Army: *See*—
Chow, Sen-Te; and Lin, Tsan H., 4,335,400, Cl. 358-113.000.
Goes, Michael J.; Masly, John R.; and Schmidlin, Albertus E., 4,334,478, Cl. 102-529.000.
Jones, Robert W., 4,334,776, Cl. 356-218.000.
Rainis, Albert E.; and Klopcic, J. Terrence, 4,334,423, Cl. 73-35.000.
Energy: *See*—
Gregg, David W., 4,334,579, Cl. 166-256.000.
Lee, David M., 4,335,466, Cl. 376-257.000.
Pardue, Robert M.; and Williams, Richard R., 4,334,778, Cl. 356-349.000.
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.
National Aeronautics and Space Administration: *See*—
Bill, Robert C.; and Sovey, James S., 4,335,190, Cl. 428-623.000.
Wilkins, Judd R.; and Grana, David C., 4,335,206, Cl. 435-34.000.
Navy: *See*—
Bauer, Russell H.; and Heidkamp, Madeleine, 4,335,433, Cl. 364-443.000.
Coltharp, David R., 4,334,474, Cl. 102-206.000.
Delatush, John J., 4,334,812, Cl. 410-52.000.
Spargo, John D.; and Sasdelli, Kenneth R., 4,334,688, Cl. 277-175.000.
U.S. Philips Corporation: *See*—
Krol, Thijs, 4,335,458, Cl. 371-38.000.
Onken, Volker, 4,335,312, Cl. 250-445.00T.
Peters, Robert C.; Vrenken, Louis E.; Couvbenberg, Winston D.; and Ligthart, Franciscus A. S., 4,335,330, Cl. 313-486.000.
U.S. Product Development Co.: *See*—
Adell, Robert, 4,334,700, Cl. 280-770.000.
United Technologies Corporation: *See*—
Moffitt, Robert C., 4,334,828, Cl. 416-228.000.
Universal Developer Corporation: *See*—
Michlin, Norman; and Thies, Edward J., 4,334,756, Cl. 354-300.000.
University of California, The Regents of the: *See*—
Lasser, Elliott C., 4,335,203, Cl. 435-23.000.
Ozaki, George T., 4,334,534, Cl. 128-207.150.
University of Kentucky Research Foundation: *See*—
Payne, Fredrick A.; and Ross, Ira J., 4,334,484, Cl. 110-210.000.
University of Missouri, The Curators of the: *See*—
Liu, Henry, 4,334,806, Cl. 406-31.000.
University of Utah: *See*—
Lyman, Donald J.; and Middleton, Richard G., 4,334,327, Cl. 3-1.000.
University of Virginia, The: *See*—
Bull, Glen L.; McDonald, Wesley E.; and Edgerton, Milton T., 4,335,276, Cl. 179-1.0SP.
University Patents, Inc.: *See*—
Howard, James R., 4,335,116, Cl. 424-201.000.
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Habdas, Edward P.; and Aaron, Jon D., 4,334,940, Cl. 156-89.000.
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Argoudelis, Alexander D.; Marshall, Vincent P.; and Johnson, Leroy E., 4,335,108, Cl. 424-117.000.
DeGuiseppi, David T., 4,335,218, Cl. 521-99.000.
Upton, Robert G., to Smith International, Inc. Insert retention and cooling apparatus for drag bits. 4,334,585, Cl. 175-329.000.
U'Ren, Kenneth R., to Everstrong Marketing, Inc. Earth-sheltered structure. 4,334,393, Cl. 52-169.600.
Uriyu, Katuhiro: *See*—
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, to Nissan Motor Company, Limited. Catalytic reactor for automotive exhaust line. 4,335,078, Cl. 422-179.000.
Uskokovic, Milan R.: *See*—
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USM Corporation: *See*—
Klemme, Darrell A., 4,335,222, Cl. 523-454.000.
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Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Václav, to Vyzkumny ustav papieru a celulozy. Apparatus for processing low-grade waste paper. 4,334,984, Cl. 209-3.000.
Valico P.v.b.a.: *See*—
Van Coillie, Andre S. J., 4,334,561, Cl. 141-392.000.
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Boucraut, Frantz M. J., 4,334,365, Cl. 34-8.000.
van Beaumont, Richard A.: *See*—
van Overbruggen, Garardus J. J.; van Beaumont, Richard A.; and Thijssen, Henricus A. C., 4,334,640, Cl. 222-207.000.
VanBenthuysen, John D., to CTS Corporation. Method of making a variable resistance control. 4,334,352, Cl. 29-620.000.
VanCleave, Jon S., to United Chemical Corporation. Anhydrous multipurpose moisturizing composition. 4,335,104, Cl. 424-59.000.
Van Coillie, Andre S. J., to Valico P.v.b.a. Head piece for a tank for liquefied gas. 4,334,561, Cl. 141-392.000.
Vandenberk, Jan; Kennis, Ludo; Van der Aa, Marcel; and Van Heertum, Albert, to Janssen Pharmaceutica, N.V. Piperidinylalkyl quinazoline compounds, composition and method of use. 4,335,127, Cl. 424-251.000.

Van den Bossche, Christien: *See—*
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Van der Aa, Marcel: *See—*
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Vander Mey, John E. Apparatus for the sulfonation or sulfation of organic liquids. 4,335,079, Cl. 422-194.000.
Van Dyk, Kenneth A.: *See—*
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Van Ess, John C., to Ross, Walter A. Elastic light mounting tapes. 4,335,422, Cl. 362-388.000.
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Van Loveren, Augustinus G.: *See—*
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VanNess, Bradford O., to Engineered Systems, Inc. Electronic control system. 4,335,448, Cl. 364-900.000.
van Overbruggen, Garardus J. J.; van Beaumont, Richard A.; and Thijssen, Henricus A. C., to Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V. Exchangeable concentrate container for beverage dispensing machines. 4,334,640, Cl. 222-207.000.
Vansickle, Julius D.; and Vansickle, Major J. Back loader for big hay bales. 4,334,817, Cl. 414-24.500.
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Vansickle, Julius D.; and Vansickle, Major J., 4,334,817, Cl. 414-24.500.
van Veersen, Gerardus J.: *See—*
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Varvil, R. Douglas, to SCM Corporation. Fluid shortening. 4,335,157, Cl. 426-606.000.
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Vernitron Corporation: *See—*
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Victor, Rene, to Etablissements Letang & Remy. Method for manufacturing vehicle-wheels by a magneto-forming process and wheels obtained by this method. 4,334,417, Cl. 72-56.000.
Vidal, Frederick D.; and Jayaraman, Anantharman, to Pennwalt Corporation. Methods of preventing grain sprouting after harvest through the application of sulfur dioxide, nitrogen and ammonia gases. 4,335,148, Cl. 426-319.000.
Vigilant, Robert M.: *See—*
Cummins, Earl W.; Gleich, Steven I.; and Vigilant, Robert M., 4,335,257, Cl. 562-581.000.
Villeneuve, Bernard E.: *See—*
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von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, to Bayer Aktiengesellschaft. Modular block for osmotic methods of separation. 4,334,992, Cl. 210-241.000.
von Colson, Godehard, to Palitex Project-Company GmbH. Stator section for a spindle, more especially a two-for-one spinning or twisting spindle. 4,334,405, Cl. 57-300.000.
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, to Bayer Aktiengesellschaft. 1-N-Alkylsisomicin derivatives, their production and their medicinal use. 4,335,114, Cl. 424-180.000.
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Wagner, Richard S., to Bell Telephone Laboratories, Incorporated. Fabrication technique for the production of devices which depend on magnetic bubbles. 4,334,951, Cl. 156-643.000.
Wahlin, Bo. O. Coupling element. 4,334,797, Cl. 403-252.000.
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Kobayashi, Hiroto, 4,335,062, Cl. 261-44.00G.
Walker, Francis H., to Stauffer Chemical Company. N-cyanobenzyl haloacetamides. 4,335,053, Cl. 260-465.00D.
Walkuski, Joseph. Garment hood. 4,334,325, Cl. 2-202.000.
Wall, Rendal, to Norlin Industries, Inc. Guitar bridge. 4,334,454, Cl. 84-299.000.
Wallace, Bernard E., deceased (Kathryn Wallace and Philadelphia National Bank, executors). Gantries. 4,334,480, Cl. 104-126.000.
Warner, Noel A., to 501 National Research Development Corp. Method of recovering non-ferrous metals from their sulphide ores. 4,334,918, Cl. 75-21.000.
Warren, Elbert K.; and Porter, William D., to Akzona, Incorporated. Apparatus and method for controlling the tension on a yarn bundle withdrawn from a mass of compacted yarn. 4,334,654, Cl. 242-147.00R.
Warren, Henry R., to RCA Corporation. Crosstalk filtering arrangement with variable frequency filtering to remove effects of FM carrier. 4,335,394, Cl. 358-8.000.
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Watson, William H.; and Young, Chauncey, to Container Corporation of America. Envelope type carton. 4,334,611, Cl. 206-303.000.
Watts, Ian S.; and Marsden, Peter H., to Burroughs Wellcome Co. Pharmaceutical formulations containing prostacyclin compounds. 4,335,139, Cl. 424-285.000.
Waugh, John S.; and Weber, Richard G., to Machlett Laboratories, Incorporated, The. X-Ray tube target having pyrolytic amorphous carbon coating. 4,335,327, Cl. 313-330.000.
Webb, James L., to W. R. Grace & Co. Thermoplastic film laminates. 4,335,175, Cl. 428-213.000.
Weber, Girard M. Holder. 4,334,621, Cl. 211-60.00M.
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Werner, Werner R.; and Werner, Bruno R. Submersible pump stabilizer. 4,334,834, Cl. 417-360.000.
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Westin, Karl H. Electromagnet for moving iron objects. 4,334,708, Cl. 294-65.500.
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Dale, Steinar J., 4,335,268, Cl. 174-14.00R.
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., 4,335,413, Cl. 361-93.000.
Geiger, Walter R.; and Kessinger, Boyd A., 4,334,554, Cl. 138-44.000.
Hopkins, Melvyn D., 4,335,267, Cl. 174-14.00R.
Mendelsohn, Morris A.; and Navish, Francis W., 4,335,179, Cl. 428-273.000.
Moen, David L.; and Peterson, Ray D., 4,334,961, Cl. 202-173.000.
Schreiner, Charles P., 4,334,715, Cl. 308-3.600.
Tharp, Nelson B.; and Hartley, Harry F., 4,335,469, Cl. 455-125.000.
Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, 4,334,782, Cl. 356-406.000.
Wilson, John T.; Wafer, John A.; and Engel, Joseph C., 4,335,437, Cl. 364-483.000.
Westlake, Patrick C.; Fish, Keith; and Mallory, James D. Mine roof bolt. 4,334,803, Cl. 405-259.000.
Westphal, Paul, to Lemforder Metallwaren AG. Ball and socket joint. 4,334,795, Cl. 403-131.000.
Whalin, Jeffery A.: *See*—
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Whellams, Geoffrey E. Filament tensioning apparatus. 4,334,653, Cl. 242-129.800.
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White, Jack D.: *See*—
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Whitehurst, Darrell D.: *See*—
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Whiteman, Robert N., Jr.: *See*—
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Wiener, Claire; and Haas, Gerhard J., to General Foods Corporation. Dried albedo clouding agent and process therefor. 4,335,143, Cl. 426-50.000.
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, to BASF Aktiengesellschaft. Novel carbamates, their preparation, and pharmaceutical formulations containing these compounds. 4,335,138, Cl. 424-275.000.
Wieser, Joseph H. Concrete forming apparatus. 4,334,851, Cl. 425-412.000.
Wiezer, Hartmut; and Pfahler, Gerhard, to Hoechst Aktiengesellschaft. Triazine derivatives. 4,335,242, Cl. 544-198.000.
Wilcox, Charles E.; and Spector, George. Educational mathematics game. 4,334,869, Cl. 434-208.000.
Wildfeuer, Robert. Cooling system. 4,334,412, Cl. 62-333.000.
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Wildonger, Kenneth J.: *See*—
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Wilke, Werner; Gref, Hans; and Frenken, Hans, to AGFA-Gevaert AG. Process for the continuous preparation of photographic emulsions. 4,334,884, Cl. 23-293.00R.
Wilkins, Judd R.; and Grana, David C., to United States of America, National Aeronautics and Space Administration. Apparatus and process for microbial detection and enumeration. 4,335,206, Cl. 435-34.000.
Wilkinson, Robert E.: *See*—
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Williams, David M.: *See*—
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Williams, Richard R.: *See*—
Pardue, Robert M.; and Williams, Richard R., 4,334,778, Cl. 356-349.000.
Williamson, Christopher: *See*—
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, 4,335,121, Cl. 424-241.000.
Williamson, Joanne M.: *See*—
Meister, Alton; and Williamson, Joanne M., 4,335,210, Cl. 435-113.000.
Willis, Donald H., to RCA Corporation. Television receiver high voltage protection circuit. 4,335,335, Cl. 315-411.000.
Wills, Jean M.: *See*—
Burcombe, Douglas A.; and Wills, Jean M., 4,334,386, Cl. 47-62.000.
Wilson, David A.; and Serany, Frank J., to Cutter Laboratories, Inc. Conduit device for rapid priming and flow of liquid. 4,334,535, Cl. 128-214.00D.
Wilson, James D. Nestable-stackable plastic receptacle. 4,334,616, Cl. 206-505.000.
Wilson, John C.; and Yacobucci, Paul D., to Eastman Kodak Company. Polymerizable acryloyloxyarylenesulfonamides. 4,335,254, Cl. 560-138.000.
Wilson, John T.; Wafer, John A.; and Engel, Joseph C., to Westinghouse Electric Corp. Circuit interrupter with energy management functions. 4,335,437, Cl. 364-483.000.
Wilson, Kenneth E.; and Kempf, August J., to Merck & Co., Inc. Fermentation process for (5R,6S,8S)-3-(2-aminoethylthio)-6-(1-hydroxyethyl)-7-oxo-1-azabicyclo[3.2.0]hept-2-ene-2-carboxylic acid. 4,335,212, Cl. 435-119.000.
Wilson, Thomas A.: *See*—
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Wilson, Thomas E., Jr. Shorthand paper. 4,334,702, Cl. 283-45.000.
Winders, Gordon R.; and MacKay, Fredric M., to Rheem Manufacturing Company. Unitary handle and display tag. 4,334,371, Cl. 40-2.00R.
Windings, Inc.: *See*—
Zajac, Ronald E., 4,334,614, Cl. 206-389.000.
Winslow, Amanda Kimberly: *See*—
Winslow, Jack M., 4,334,376, Cl. 42-90.000.

Winslow, Francis Mae: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.

Winslow, Jack M., to Winslow, Amanda Kimberly; Winslow, Marjorie Ann; Winslow, Francis Mae; Winslow, Jennifer Jean; and Winslow, Marjorie Ellen. Percussion cap remover. 4,334,376, Cl. 42-90.000.

Winslow, Jennifer Jean: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.

Winslow, Marjorie Ann: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.

Winslow, Marjorie Ellen: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.

Winter, Richard L.: *See—*
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Wirth, Carl R., to Wirth, Caroline G.; and Wessendorf, Roberta H., a part interest. Wirth's sterile, disposable surgical drape. 4,334,529, Cl. 128-132.00D.

Wirth, Caroline G.: *See—*
Wirth, Carl R., 4,334,529, Cl. 128-132.00D.

Wirz, Arno: *See—*
Becker, Willi; and Wirz, Arno, 4,334,473, Cl. 101-409.000.

Witco Chemical Corporation: *See—*
Barker, Graham; Safrin, Leopold; and Barabash, Martin J., 4,335,025, Cl. 252-550.000.
Dabi, Shmuel; Loewrigkeit, Peter; and Van Dyk, Kenneth A., 4,335,029, Cl. 524-589.000.

Witzel, Bruce E.: *See—*
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,335,141, Cl. 424-304.000.

Woerner, Frank P.: *See—*
Mahnke, Harald; Kreibiehl, Guenter; Weber, Heinz; and Woerner, Frank P., 4,334,971, Cl. 204-159.210.

Wojciehowski, James P.: *See—*
Burch, Darrel W.; and Wojciehowski, James P., 4,334,549, Cl. 137-72.000.

Wolber, Dieter: *See—*
Nordschild, Christlieb; Rathfelder, Paul; Rieckert, Horst; and Wolber, Dieter, 4,335,003, Cl. 252-8.900.

Womako Maschinenkonstrucktionen GmbH: *See—*
Fabrig, Paul, 4,334,608, Cl. 198-650.000.

Wong, Jack Y. High gloss water-base coating composition. 4,335,163, Cl. 427-256.000.

Woo, James T. K.: *See—*
Ting, Vincent W.; Woo, James T. K.; and Borovicka, David A., Sr., 4,335,028, Cl. 524-504.000.

Woo, Ji Y.: *See—*
Ritsema, Irving R.; and Woo, Ji Y., 4,334,599, Cl. 188-73.450.

Worstmann, Wolfgang: *See—*
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.

Worth, Charles C. Light weight casting rod handle. 4,334,378, Cl. 43-22.000.

Wray, John: *See—*
Rawson, Lionel E. J.; and Wray, John, 4,334,764, Cl. 355-14.0SH.

Wray, William R., to Polaroid Corporation. Receiving system having pre-selected directional response. 4,334,740, Cl. 352-11.000.

Wright, David Y. Multi-beam raster scan display monitor. 4,335,380, Cl. 340-744.000.

WSF Industries, Inc.: *See—*
Piegza, Henry J., 4,334,633, Cl. 220-332.000.

WSW Planungs-GmbH: *See—*
Stog, Wilhelm, 4,334,963, Cl. 202-263.000.

Wu, Hsin-Chih, to Standard Oil Company. Process for recovery of olefinic nitriles. 4,334,965, Cl. 203-25.000.

Xelavis S.A.: *See—*
Barozzi, Gian P.; and Horeschi, Giancarlo, 4,334,791, Cl. 400-166.000.

Xerox Corpqration: *See—*
Clausing, Don P., 4,334,759, Cl. 355-3.0SH.
Lehman, Richard F., 4,334,767, Cl. 355-68.000.
Luo, Fang C., 4,335,161, Cl. 427-86.000.
Parker, Delmer G., 4,335,159, Cl. 427-14.100.
Seachman, Ned J., 4,335,305, Cl. 250-216.000.
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., 4,335,461, Cl. 372-45.000.

Xynetics, Inc.: *See—*
Sawyer, Bruce A., 4,335,338, Cl. 318-135.000.

Yacobucci, Paul D.: *See—*
Wilson, John C.; and Yacobucci, Paul D., 4,335,254, Cl. 560-138.000.

Yamada, Haruyoshi, to Kabushiki Kaisha Suwa Seikosha. Gear train mechanism for a timepiece. 4,335,454, Cl. 368-220.000.

Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, to Nihon Senshoku Kikai Kabushiki Kaisha. Method of dyeing treatment for a fabric and apparatus therefor. 4,334,333, Cl. 8-152.000.

Yamada, Mitsuhiko, to Dainippon Screen Seizo Kabushiki Kaisha. Digital color control method and machine. 4,335,398, Cl. 358-80.000.

Yamada, Shinjiro, to Mitsui Kinzoku Kogyo Kabushiki Kaisha. Automobile door locking mechanism. 4,334,704, Cl. 292-216.000.

Yamaguchi, Jutaro: *See—*
Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, 4,335,258, Cl. 562-599.000.

Yamaguchi, Takashi: *See—*
Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, 4,335,247, Cl. 548-140.000.

Yamaha Hatsudoki Kabushiki Kaisha: *See—*
Sasaki, Hiroshi, 4,334,508, Cl. 123-195.00A.

Yamamoto, Mitsuo: *See—*
Asaumi, Hiroshi; Kubota, Kazuo; Yokoo, Hisanori; and Yamamoto, Mitsuo, 4,334,931, Cl. 106-120.000.

Yamamoto, Takuzo: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Yamane, Akio: *See—*
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.

Yamane, Mikiya: *See—*
Watanabe, Yoshio; Yamane, Mikiya; and Tomura, Teruichi, 4,335,331, Cl. 315-334.000.

Yamanishi, Toru: *See—*
Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, 4,334,733, Cl. 350-96.330.

Yamanouchi Pharmaceutical Co. Ltd.: *See—*
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.

Yamaoka, Noboru: *See—*
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.

Yamashita, Hiroshi: *See—*
Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, 4,334,333, Cl. 8-152.000.

Yamazaki, Takayuki: *See—*
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.

Yamazaki, Yoshio: *See—*
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, 4,335,196, Cl. 430-122.000.

Yan, Tsoung Y., to Mobil Oil Corporation. Upgrading of residual oil. 4,334,976, Cl. 208-8.0LE.

Yanahashi, Sinichi: *See—*
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.

Yano; Shunji: *See—*
Konagaya, Takeshi; and Yano, Shunji, 4,334,548, Cl. 134-170.000.

YaSenka, Kathryn H. Canning utensil. 4,334,557, Cl. 141-98.000.

Yates, Paul C., to Du Pont de Nemours, E. I., and Company. High yield, low byproduct α, β-unsaturated aldehydes from olefins. 4,335,264, Cl. 568-479.000.

Yazawa, Hiroshi: *See—*
Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, 4,335,070, Cl. 264-555.000.

Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, to Nippon Petrochemicals Co., Ltd.; and Polymer Processing Research Institute, Ltd. Method of manufacturing a reticular web having reinforced selvages. 4,335,070, Cl. 264-555.000.

Yazu, Shuji: *See—*
Hara, Akio; and Yazu, Shuji, 4,334,928, Cl. 75-238.000.

Yih, Roy Y.: *See—*
Johnson, Wayne O.; and Yih, Roy Y., 4,335,249, Cl. 560-11.000.

Yokoo, Hisanori: *See—*
Asaumi, Hiroshi; Kubota, Kazuo; Yokoo, Hisanori; and Yamamoto, Mitsuo, 4,334,931, Cl. 106-120.000.

Yokota, Tadashi; Watanabe, Wataru; and Kondo, Makoto, to Clarion Co., Ltd. Tape pack ejecting mechanism for tape player. 4,335,409, Cl. 360-96.600.

Yokoyama, Minoru: *See—*
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Yonezawa, Toshio: *See—*
Aoyama, Masaharu; Ohshima, Jiro; and Yonezawa, Toshio, 4,334,349, Cl. 29-579.000.

Yoshida, Masaaki: *See—*
Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, 4,334,733, Cl. 350-96.330.

Yoshida, Mitunari: *See—*
Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, 4,334,725, Cl. 316-19.000.

Yoshida, Naruhito: *See—*
Saito, Masao; Aoya, Hiroshi; and Yoshida, Naruhito, 4,334,761, Cl. 355-3.00R.

Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, to Sumitomo Chemical Company, Limited. Urea derivatives, and their production and use. 4,334,912, Cl. 71-94.000.

Yoshida, Tsuyoshi: *See—*
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.

Yoshida, Yoshiaki: *See—*
Yoshizawa, Toshio; Suzuki, Osamu; and Yoshida, Yoshiaki, 4,334,403, Cl. 57-263.000.

Yoshiie, Shigeo: *See—*
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.

Yoshimura, Kunimasa: *See*—
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, 4,334,422, Cl. 73-35.000.

Yoshitake, Katsumi: *See*—
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Yoshitomi Pharmaceutical Industries Ltd.: *See*—
Katayama, Sakae; and Umekawa, Osamu, 4,334,957, Cl. 162-161.000.

Yoshizawa, Junji: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Yoshizawa, Toshio; Suzuki, Osamu; and Yoshida, Yoshiaki, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Spinning units in an open end spinning machine. 4,334,403, Cl. 57-263.000.

Young, Chauncey: *See*—
Watson, William H.; and Young, Chauncey, 4,334,611, Cl. 206-303.000.

Young, Donald C., to Union Oil Company of California. Slow release soil amendment and micronutrient source. 4,334,906, Cl. 71-33.000.

Young, Ray A.: *See*—
Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., 4,334,615, Cl. 206-447.000.

Youngfleish, Frank C.: *See*—
Scheingold, William S.; and Youngfleish, Frank C., 4,334,727, Cl. 339-17.0CF.

Yuda, Takuo, to Nifco Inc. Plastic retaining-fastening device. 4,334,659, Cl. 248-73.000.

Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, to Doryokuro Kakunenryo Kaihatsu Jigyodan. Process for improving decarburization resistance of chrome-molybdenum steel in sodium. 4,334,937, Cl. 148-12.00R.

Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, to Agence Nationale de Valorisation de la Recherche (A.N.V.A.R.). Process and device for separation of emulsions by coalescence. 4,335,001, Cl. 210-708.000.

Zabar, Zivan. Cycling firing method for bypass operation of bridge converters. 4,335,424, Cl. 363-54.000.

Zadorozhny, Jury G.: *See*—
Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A., 4,334,987, Cl. 209-210.000.

Zahner, Peter: *See*—
Link, Manfred; Puch, Diethelm; Zahner, Peter; and Suc, Karel, 4,334,790, Cl. 400-144.200.

Zaino, Richard J. Press apparatus. 4,334,947, Cl. 156-486.000.

Zajac, Ronald E., to Windings, Inc. Windings using water-soluble wind stabilization segments. 4,334,614, Cl. 206-389.000.

Zaluska, Philip J.: *See*—
Beitchman, Burton D.; and Zaluska, Philip J., 4,335,228, Cl. 525-528.000.

Zamek, Otto S.: *See*—
Olander, Walter K.; and Zamek, Otto S., 4,335,234, Cl. 528-214.000.

Zavislake, Jim. Article holder. 4,334,809, Cl. 408-241.00R.

Zeigler, Theodore R. Collapsible bin structure. 4,334,660, Cl. 248-97.000.

Zeiler, Hans-Joachim: *See*—
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.

Zelson, Philip R.: *See*—
Preti, George; Kostelc, James G.; and Zelson, Philip R., 4,334,540, Cl. 128-630.000.

Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, to Tokyo Gas Kabushiki Kaisha; and Ashimori Kogyo Kabushiki Kaisha. Method for smoothly evaginating a tubular material under pressure. 4,334,943, Cl. 156-287.000.

Zenith Radio Corporation: *See*—
Amin, Ramesh G.; Hartman, Walter C.; and Husk, Robert V., 4,334,731, Cl. 339-144.00T.
Pittenger, Daniel I., 4,335,272, Cl. 174-68.500.
Srivastava, Gopal K., 4,335,403, Cl. 358-148.000.

Zenk, Robert E., to Minnesota Mining and Manufacturing Company. Transfer tape having adhesive formed from two laminae. 4,335,171, Cl. 428-40.000.

Zeuna-Staerker KG: *See*—
Santiago, Andres; and Santiago, Enrique, 4,335,077, Cl. 422-179.000.

Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., to Swiss Aluminium Ltd. Device for the production of solid aluminum chloride. 4,334,898, Cl. 55-269.000.

Ziener, Hermann: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Zijlstra, Sjouke: *See*—
Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, 4,334,929, Cl. 75-246.000.

Zikopoulos, John N.: *See*—
Robyt, John F.; and Zikopoulos, John N., 4,335,100, Cl. 424-48.000.

Ziller, Henry H. Shipping container for live animals. 4,334,500, Cl. 119-15.000.

Zirnite, Richard N.: *See*—
Beede, Charles H.; and Zirnite, Richard N., 4,335,158, Cl. 427-2.000.

Ziskin, Nathan A.: *See*—
Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., 4,335,103, Cl. 424-59.000.

Zoeke, Siegfried; and Stuerzer, Anton, to Siemens Aktiengesellschaft. Device for controlling evaporation of a liquid. 4,334,955, Cl. 159-44.000.

Zoldi, Jozsef: *See*—
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Zorbalas, George S., to RCA Corporation. Rapid correlation of recorded information. 4,335,401, Cl. 358-127.000.

Zuckerman, Joseph L.; and Bzik, John W., to J. P. Stevens & Co., Inc. Thermoplastic compositions and automotive carpeting backed therewith. 4,335,034, Cl. 524-423.000.

Zylkowski, John T.: *See*—
Allen, Ralph A.; Madden, Donald S.; and Zylkowski, John T., 4,334,729, Cl. 339-125.00R.

4P Nicolaus Kempten GmbH: *See*—
Eckert, Eugen, 4,334,875, Cl. 493-303.000.

501 National Research Development Corp.: *See*—
Warner, Noel A., 4,334,918, Cl. 75-21.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF JUNE, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Acrison, Inc.: *See—*
Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., Re. 30,967, Cl. 222-58.000.

Bell Telephone Laboratories, Incorporated: *See—*
Zarouni, Alfred, Re. 30,973, Cl. 179-6.30R.

BP Chemicals Limited: *See—*
Hyde, David L.; and Kirkwood, Kenneth C., Re. 30,970, Cl. 252-429.00B.

Braddock, Peter D. M.: *See—*
Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., Re. 30,971, Cl. 260-429.00R.

Buck, Elwood W., Jr., to D G Shelter Products Company. Device for opening, closing and latching a vent closure member. Re. 30,969, Cl. 292-263.000.

Champion Spark Plug Company: *See—*
Grant, Colonel E., Re. 30,968, Cl. 222-111.000.

D G Shelter Products Company: *See—*
Buck, Elwood W., Jr., Re. 30,969, Cl. 292-263.000.

De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., to Minnesota Mining and Manufacturing Company. Production of television signals from photographic disc recordings. Re. 30,974, Cl. 369-44.000.

Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., to Acrison, Inc. Automatically controlled weigh feeding apparatus. Re. 30,967, Cl. 222-58.000.

Grant, Colonel E., to Champion Spark Plug Company. Attachment for paint spray gun systems. Re. 30,968, Cl. 222-111.000.

Gregg, David P.: *See—*
De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., Re. 30,974, Cl. 369-44.000.

Hargens, Alan R.; and Mubarak, Scott J., to University of California, The Regents of the. Wick catheter pressure sensing probe and method of use. Re. 30,966, Cl. 128-748.000.

Hyde, David L.; and Kirkwood, Kenneth C., to BP Chemicals Limited. Polymerization catalyst. Re. 30,970, Cl. 252-429.00B.

Johnson, Wayne R.: *See—*
De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., Re. 30,974, Cl. 369-44.000.

Khokhar, Abdul R.: *See—*
Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., Re. 30,971, Cl. 260-429.00R.

Kirkwood, Kenneth C.: *See—*
Hyde, David L.; and Kirkwood, Kenneth C., Re. 30,970, Cl. 252-429.00B.

Kyle, William; and Lee, Bruce H., to Nicholas Proprietary Limited. Management of incontinence. Re. 30,972, Cl. 428-219.000.

Lee, Bruce H.: *See—*
Kyle, William; and Lee, Bruce H., Re. 30,972, Cl. 428-219.000.

Minnesota Mining and Manufacturing Company: *See—*
De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., Re. 30,974, Cl. 369-44.000.

Mubarak, Scott J.: *See—*
Hargens, Alan R.; and Mubarak, Scott J., Re. 30,966, Cl. 128-748.000.

Nicholas Proprietary Limited: *See—*
Kyle, William; and Lee, Bruce H., Re. 30,972, Cl. 428-219.000.

Ricciardi, Ronald J.: *See—*
Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., Re. 30,967, Cl. 222-58.000.

Rustenburg Platinum Mines Limited: *See—*
Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., Re. 30,971, Cl. 260-429.00R.

Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., to Rustenburg Platinum Mines Limited. Compositions containing platinum. Re. 30,971, Cl. 260-429.00R.

University of California, The Regents of the: *See—*
Hargens, Alan R.; and Mubarak, Scott J., Re. 30,966, Cl. 128-748.000.

Urban, Alexander A.: *See—*
Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., Re. 30,967, Cl. 222-58.000.

Zarouni, Alfred, to Bell Telephone Laboratories, Incorporated. Telephone station coin memory and control system. Re. 30,973, Cl. 179-6.30R.

LIST OF DESIGN PATENTEES

Adams, Herbert L., III: *See—*
Schinella, John R.; and Adams, Herbert L., III, 264,957, Cl. D12-176.000.

Adamson, Gerhard, to Union Carbide Corporation. Plastic bag holding rack. 264,905, 6-15-82, Cl. D6-114.000.

AGFA-Gevaert AG: *See—*
Schlagheck, Norbert; Schultes, Herbert; and Rubner, Karlheinz, 264,975, Cl. D16-1.000.

AMP Incorporated: *See—*
Frantz, Robert H., 264,965, Cl. D13-24.000.

Anderson, Robert D.: *See—*
Dybal, Walter F.; and Anderson, Robert D., 264,903, Cl. D6-63.000.

Annis, George R.; and Persky, Warren E., to Item House, Inc. Hanger for organizing jewelry. 264,911, 6-15-82, Cl. D6-248.000.

B&W Metals Company, Inc.: *See—*
Barnhill, Donald R., 264,907, Cl. D6-146.000.

Baker, Richard; and Baker, Steven. Chair. 264,898, 6-15-82, Cl. D6-26.000.

Baker, Steven: *See—*
Baker, Richard; and Baker, Steven, 264,898, Cl. D6-26.000.

Ban, Kimiyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Video tape magazine. 264,966, 6-15-82, Cl. D14-11.000.

Barnhill, Donald R., to B&W Metals Company, Inc. Combined rotating cafeteria type food service counter and display shelf. 264,907, 6-15-82, Cl. D6-146.000.

Bass, Michael; and Housel, Charles P., to Bates Manufacturing Company, The. Stapler. 264,925, 6-15-82, Cl. D8-50.000.

Bates Manufacturing Company, The: *See—*
Bass, Michael; and Housel, Charles P., 264,925, Cl. D8-50.000.

Bean Station Furniture Factory, The: *See—*
Friedman, Alan H., 264,901, Cl. D6-63.000.
Friedman, Alan H., 264,902, Cl. D6-63.000.

Blackburn, James R., to Jim Blackburn Designs. Bicycle bottle cage. 264,954, 6-15-82, Cl. D12-114.000.

Bliss, Malcolm; and McCalmont, David, to J. C. Penney Co., Inc. Garment hanger. 264,912, 6-15-82, Cl. D6-254.000.

Booms, Herbert J. Bowling pin core. 264,986, 6-15-82, Cl. D21-233.000.

Box, Theodor M., to Cities Service Company. Bottle crate. 265,009, 6-15-82, Cl. D34-40.000.

BPE, Inc.: *See—*
Finlay, Robert L., 264,988, Cl. D22-25.000.

Brooks, Kenneth. Rope hook. 264,934, 6-15-82, Cl. D8-367.000.

Caldwell, John W. Table. 264,909, 6-15-82, Cl. D6-177.000.

Chadima, George E., Jr., to Norand Corporation. Modular computer system printer. 264,971, 6-15-82, Cl. D14-111.000.

Child Development Research: *See—*
Kestenberg, Judith, 264,993, Cl. D24-47.000.

Cities Service Company: *See—*
Box, Theodor M., 265,009, Cl. D34-40.000.

Clemons, Charles L. Doll house or similar article. 264,981, 6-15-82, Cl. D21-114.000.

Coca-Cola Company, The: *See—*
McMillin, John R.; and Tracy, Gene A., 264,972, Cl. D15-7.000.

Cole & Mason U.S.A., Ltd.: *See—*
Hammond, Gene R., 264,943, Cl. D10-1.000.

Continents Five Agencies Limited: *See—*
O'Bassey, E'Su B., 265,008, Cl. D33-32.00R.
Cooper, Jonathan, to Royston Manufacturing Corporation. Combined cup dispenser and straw holder. 264,908, 6-15-82, Cl. D6-157.000.
Corbett, Jerome N.: *See—*
Stewart, Dennis T., Jr.; and Corbett, Jerome N., 264,892, Cl. D2-343.000.
Cornelius Company, The: *See—*
McMillin, John R.; and Tracy, Gene A., 264,972, Cl. D15-7.000.
Cuta, Robert J. Snow removal device. 265,007, 6-15-82, Cl. D32-49.000.
Darrow, Edward E.: *See—*
Haber, Terry M.; Wilson, James H.; and Darrow, Edward E., 264,985, Cl. D21-230.000.
Dart Industries, Inc.: *See—*
Swett, James B., 264,924, Cl. D7-46.000.
Davis, Michael D. Dental floss holder. 265,004, 6-15-82, Cl. D28-64.000.
DiFede, Dominic J. Pot or pan restraint with slotted base for engaging radial bars of recreation vehicle stove top grating. 264,928, 6-15-82, Cl. D7-136.000.
Duffey, Craig L.: *See—*
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Dunlop Limited: *See—*
Hart, Claude A., 264,956, Cl. D12-146.000.
Dybal, Walter F.; and Anderson, Robert D., to Shelly & Anderson Furniture Mfg. Co. Sofa. 264,903, 6-15-82, Cl. D6-63.000.
Eisenberg, Laura S., to Yuter, Seymour C. Cigarette lighter. 264,999, 6-15-82, Cl. D27-41.000.
Ender, Alfred R.; and Iacullo, Robert F., to Western Electric Company, Incorporated. Telephone console. 264,967, 6-15-82, Cl. D14-56.000.
Eppler, Dieter; and Kremson, Karl-Heinz, to Hauni-Werke Korber & Co. KG. Safe with deposit box. 265,012, 6-15-82, Cl. D99-28.000.
Eppler, Dieter; and Kremson, Karl-Heinz, to Hauni-Werke Korber & Co. KG. Safe. 265,013, 6-15-82, Cl. D99-28.000.
Eppler, Dieter; and Kremson, Karl-Heinz, to Hauni-Werke Korber & Co. KG. Safe deposit box. 265,014, 6-15-82, Cl. D99-28.000.
Fellmann, Ruedi, to Max Langenstein Feld- und Gartelgerate. Portable power source for a grass cutter. 264,962, 6-15-82, Cl. D13-11.000.
Finlay, Robert L., to BPE, Inc. Fishing reel for mounting on archery bow. 264,988, 6-15-82, Cl. D22-25.000.
Franklin, Ollie N. Combined display and storage unit for a model train. 264,906, 6-15-82, Cl. D6-127.000.
Frantz, Robert H., to AMP Incorporated. Electrical connector adapter. 264,965, 6-15-82, Cl. D13-24.000.
Friedman, Alan H., to Bean Station Furniture Factory, The. Seat. 264,901, 6-15-82, Cl. D6-63.000.
Friedman, Alan H., to Bean Station Furniture Factory, The. Seat. 264,902, 6-15-82, Cl. D6-63.000.
Friedman, Alan H., to Syracuse China Corporation. Dinner plate or similar article. 264,916, 6-15-82, Cl. D7-23.000.
Friedman, Alan H., to Syracuse China Corporation. Dinner plate or similar article. 264,917, 6-15-82, Cl. D7-23.000.
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Gearhart, John E. Restaurant building. 264,995, 6-15-82, Cl. D25-11.000.
General Battery Corporation: *See—*
Oxenreider, Terry, 264,961, Cl. D13-10.000.
Giannotti, Vincent, Jr., to International Business Machines Corporation. Floppy disk reader/recorder or the like. 264,970, 6-15-82, Cl. D14-109.000.
Goldman, Edward J. Calendar holder. 264,979, 6-15-82, Cl. D19-20.000.
Graham, Ellis M. Lamp. 265,001, 6-15-82, Cl. D26-104.000.
Greene, Dorothy R. Eye glass case. 264,976, 6-15-82, Cl. D16-129.000.
Groark, James B., to Seagram United Kingdom Limited. Bottle. 264,937, 6-15-82, Cl. D9-349.000.
Groner, Steven R., to Sunbeam Corporation. Curling iron. 265,003, 6-15-82, Cl. D28-35.000.
Guttschneider, Jack: *See—*
Solow, George J.; Guttschneider, Jack; and Solow, Peter H., 264,947, Cl. D11-36.000.
Haber, Terry M.; Wilson, James H.; and Darrow, Edward E., to Wilson, James H.; and Darrow, Edward E., a part interest. Ski rope handle and holder. 264,985, 6-15-82, Cl. D21-230.000.
Haddad, Peter. Garden tool. 264,929, 6-15-82, Cl. D8-09.000.
Halder, Marilyn F. Glove box organizer. 264,894, 6-15-82, Cl. D3-40.000.
Hammond, Gene R., to Cole & Mason U.S.A., Ltd. Housing for clock or timer. 264,943, 6-15-82, Cl. D10-1.000.
Hanyu, Susumu, to Janome Sewing Machine Co. Ltd. Sewing machine controller. 264,973, 6-15-82, Cl. D15-72.000.
Hart, Claude A., to Dunlop Limited. Tire. 264,956, 6-15-82, Cl. D12-146.000.
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Eppler, Dieter; and Kremson, Karl-Heinz, 265,014, Cl. D99-28.000.
Helbig, Rolf W. Clothes hanger holder. 264,904, 6-15-82, Cl. D6-113.000.
Hinshaw, Howard G., to Thermalloy Incorporated. Heat sink or similar article. 264,964, 6-15-82, Cl. D13-23.000.
Hirabayashi, Yoshio, to Kabushiki Kaisha Suwa Seikosha. Watchcase. 264,946, 6-15-82, Cl. D10-38.000.
Hoefert, Doris H. Flexible hosiery caddy case. 264,895, 6-15-82, Cl. D3-48.000.
Honda Giken Kogyo Kabushiki Kaisha: *See—*
Shimoyama, Hiroshi, 264,953, Cl. D12-110.000.
Housel, Charles P.: *See—*
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Hubner, Otto. Radiant heat hair dryer. 265,002, 6-15-82, Cl. D28-13.000.
Iacullo, Robert F.: *See—*
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International Business Machines Corporation: *See—*
Giannotti, Vincent, Jr., 264,970, Cl. D14-109.000.
Item House, Inc.: *See—*
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Iwata Electric Co., Ltd.: *See—*
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Iwata, Keisuke, to Iwata Electric Co., Ltd. Radio transmitter. 264,968, 6-15-82, Cl. D14-95.000.
J. C. Penney Co., Inc.: *See—*
Bliss, Malcolm; and McCalmont, David, 264,912, Cl. D6-254.000.
Jackson, Hubert H. Toy carousel. 264,982, 6-15-82, Cl. D21-124.000.
Janome Sewing Machine Co. Ltd.: *See—*
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Jim Blackburn Designs: *See—*
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John J. Madison Company, Inc.: *See—*
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Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., 264,951, Cl. D11-158.000.
Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., 264,952, Cl. D11-158.000.
John McIlwraith Industries, Ltd.: *See—*
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Johnson, Frederick M. Stroller. 264,955, 6-15-82, Cl. D12-129.000.
Jones, Dale A. Hammer implement head. 264,931, 6-15-82, Cl. D8-78.000.
Jury, William L., to John McIlwraith Industries, Ltd. Expanded panel of extruded metal. 265,011, 6-15-82, Cl. D92-26.000.
Kabushiki Kaisha Suwa Seikosha: *See—*
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Kestenberg, Judith, to Child Development Research. Simulated breast nurser. 264,993, 6-15-82, Cl. D24-47.000.
Kilham, Peter. Wood and coal burning stove. 264,990, 6-15-82, Cl. D23-97.000.
Kitson, Gerald L. Wheel assembly for poultry cage-top service vehicle. 264,958, 6-15-82, Cl. D12-204.000.
Knoll International, Inc.: *See—*
Stephens, William I., 264,910, Cl. D6-197.000.
Krawchuk, Thaddeus; and Opalinski, Christine, to Ukrainian Catholic Mission of the Most Holy Redeemer. Medallion. 264,948, 6-15-82, Cl. D11-96.000.
Kremson, Karl-Heinz: *See—*
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Eppler, Dieter; and Kremson, Karl-Heinz, 265,014, Cl. D99-28.000.
Kurzius, Karl A. Can holder. 264,927, 6-15-82, Cl. D7-70.000.
La-Bar Co., Inc., The: *See—*
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Lange, Gerd, to Schlapp Moebel GmbH & Co. KG. Chair. 264,899, 6-15-82, Cl. D6-47.000.
Levy, William T., to Martindale Protection Limited. Filtering face piece. 265,006, 6-15-82, Cl. D29-8.000.
Lindsay, Raymond, to La-Bar Co., Inc., The. Drill guide. 264,930, 6-15-82, Cl. D8-70.000.
Lindsley, Warren F. B.: *See—*
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Siedschlag, Arnold C., 264,998, Cl. D25-97.000.
Liqui-Box Corporation: *See—*
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Logan, Terry. Exerciser. 264,983, 6-15-82, Cl. D21-198.000.
Martindale Protection Limited: *See—*
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Max Langenstein Feld- und Gartelgerate: *See—*
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McClelland, Donald R., to Rubbermaid Incorporated. Pitcher with screw top. 264,926, 6-15-82, Cl. D7-65.000.
McComas, Ralph J., to Perception Electronics, Inc. Component mounting plate for a PC board indicator and control device. 264,963, 6-15-82, Cl. D13-12.000.
McGourty, Michael J., to Pye (Electronic Products) Limited. Cabinet for electronic equipment. 264,969, 6-15-82, Cl. D14-96.000.
McMillin, John R.; and Tracy, Gene A., to Coca-Cola Company, The; and Cornelius Company, The. Fluid pump. 264,972, 6-15-82, Cl. D15-7.000.
Mead Corporation, The: *See—*
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Miller, Joseph T.; and VanDerLinden, Roy E., to Reliable Security Systems. Emergency exit door latch with panic bar. 264,932, 6-15-82, Cl. D8-315.000.
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Nandorf, Rutger. Patient supporting harness. 264,890, 6-15-82, Cl. D2-27.000.
Norand Corporation: *See—*
Chadima, George E., Jr., 264,971, Cl. D14-111.000.
Nuttall, Michael W., to Tomy Kogyo Co., Inc. Mechanical game. 264,980, 6-15-82, Cl. D21-2.000.
O'Bassey, E'Su B., to Continents Five Agencies Limited. Applique for a shirt or the like. 265,008, 6-15-82, Cl. D33-32.00R.
Ohno, Toshiro, to Oki Electric Industry Co., Ltd. Printing device. 264,978, 6-15-82, Cl. D18-13.000.
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Olivieri, Icaro, to Gamebridge Inc. Ice skate blade. 264,984, 6-15-82, Cl. D21-225.000.
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Ota, Junpei; Wasaki, Masaru; and Mitsui, Tadashi, to TDK Electronics Co. Ltd. Transformer core member. 264,959, 6-15-82, Cl. D13-4.000.
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Stock, Hugh J., 264,940, Cl. D9-352.000.
Stock, Hugh J., 264,941, Cl. D9-370.000.
Palm nee Wohlfahrt, Agneta S.; Wohlfart, Lars; and Wohlfahrt, Thomas. Support device for sighting firearms. 264,989, 6-15-82, Cl. D22-99.000.
Palmer, Gerald C., to Sakon Industries, Inc. Clock. 264,944, 6-15-82, Cl. D10-15.000.
Pennell, Brian. Wristwatch. 264,945, 6-15-82, Cl. D10-32.000.
Perception Electronics, Inc.: *See—*
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Perkins, Donald R. Tool box. 264,896, 6-15-82, Cl. D3-74.000.
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Quandt, Robert S., to Sybron Corporation. Apparatus for preparing specimens for histological examination. 264,991, 6-15-82, Cl. D24-8.000.
Reinhorn, Edwin. Electric ambient air breathing pump. 265,005, 6-15-82, Cl. D29-7.000.
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Rosenius, Claes E., to Tegma AB. Welding shield. 264,891, 6-15-82, Cl. D2-233.000.
Ross, Damien. Curtain rod. 264,936, 6-15-82, Cl. D8-376.000.
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Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., 264,951, Cl. D11-158.000.
Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., 264,952, Cl. D11-158.000.
Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., to John J. Madison Company, Inc. Figurine of a koala bear. 264,950, 6-15-82, Cl. D11-158.000.
Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., to John J. Madison Company, Inc. Figurine of a husky pup. 264,951, 6-15-82, Cl. D11-158.000.
Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., to John J. Madison Company, Inc. Figurine of a seal. 264,952, 6-15-82, Cl. D11-158.000.
Schieser, Warren J.; and Duffey, Craig L., to Liqui-Box Corporation. Bottle. 264,942, 6-15-82, Cl. D9-401.000.
Schinella, John R.; and Adams, Herbert L., III. Center hub for a steering wheel. 264,957, 6-15-82, Cl. D12-176.000.
Schlagheck, Norbert; Schultes, Herbert; and Rubner, Karlheinz, to AGFA-Gevaert AG. Photographic camera. 264,975, 6-15-82, Cl. D16-1.000.
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Siedschlag, Arnold C. Sculptured ventilating concrete block. 264,996, 6-15-82, Cl. D25-91.000.
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Siedschlag, Arnold C., to Lindsley, Warren F. B., a part interest. Louvered concrete block. 264,998, 6-15-82, Cl. D25-97.000.
Smart, Lucy. Tree ornament. 264,949, 6-15-82, Cl. D11-118.000.
Smith, Morley L., to T. S. Simms & Co. Limited. Paint tray and liner therefor. 264,897, 6-15-82, Cl. D4-38.200.
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Stewart, Dennis T., Jr.; and Corbett, Jerome N. Tie or similar article. 264,892, 6-15-82, Cl. D2-343.000.
Stock, Hugh J., to Pacer Technology & Resources, Inc. Bottle or the like. 264,938, 6-15-82, Cl. D9-352.000.
Stock, Hugh J., to Pacer Technology & Resources, Inc. Bottle or the like. 264,939, 6-15-82, Cl. D9-352.000.
Stock, Hugh J., to Pacer Technology and Resources, Inc. Bottle or the like. 264,940, 6-15-82, Cl. D9-352.000.
Stock, Hugh J., to Pacer Technology and Resources, Inc. Bottle or the like. 264,941, 6-15-82, Cl. D9-370.000.
Summers, Don D. Apparatus for cleaning drilling mud and fluids. 264,974, 6-15-82, Cl. D15-199.000.
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Warren, Frank A., to Syracuse China Corporation. Dinner plate or similar article. 264,921, 6-15-82, Cl. D7-35.000.

Warren, Frank A., to Syracuse China Corporation. Dinner plate or similar article. 264,922, 6-15-82, Cl. D7-35.000.

Warren, Frank A., to Syracuse China Corporation. Dinner plate or similar article. 264,923, 6-15-82, Cl. D7-35.000.

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Woempner, Marvin G. Meter box padlock. 264,933, 6-15-82, Cl. D8-334.000.

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Ziaylek, Theodore, Jr., to Ziamatic Corporation. Combined support and display bracket for a self-contained breathing apparatus. 264,935, 6-15-82, Cl. D8-373.000.

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Bailey, Dorothy J. S., 4,857, Cl. 22.000.

Yoder Brothers, Inc.: *See*—
Miller, Dennis E.; and Duffett, William E., 4,858, Cl. 76.000.

CLASSIFICATION OF PATENTS

ISSUED JUNE 15, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2

202 4,334,325
249 4,334,326

CLASS 3

1 4,334,327

CLASS 4

191 4,334,328
443 4,334,329
480 4,334,330

CLASS 5

452 4,334,331

CLASS 7

150 4,334,332

CLASS 8

94.19 C 4,334,876
152 4,334,333
477 4,334,877

CLASS 15

236 R 4,334,334
319 4,334,335
322 4,334,336
326 4,334,337

CLASS 16

266 4,334,338

CLASS 17

32 4,334,339

CLASS 19

299 4,334,340

CLASS 23

230 A 4,334,881
230 B 4,334,880
230 R 4,334,879
4,334,882
293 R 4,334,883
4,334,884
300 4,334,885
303 4,334,886
313 R 4,334,887

CLASS 24

230 AT 4,334,341
263 D 4,334,342

CLASS 29

25.35 4,334,343
116 AD 4,334,344
157 R 4,334,345
429 4,334,346
571 4,334,347
4,334,348
579 4,334,349
611 4,334,350
4,334,351
620 4,334,352
753 4,334,353
840 4,334,354

CLASS 30

322 4,334,355
374 4,334,356
381 4,334,357
387 4,334,358

CLASS 33

42 4,334,360
174 L 4,334,362
174 T 4,334,361
185 R 4,334,363
438 4,334,364

CLASS 34

8 4,334,365
17 4,334,366

CLASS 36

117 4,334,367
121 4,334,368
124 4,334,369

CLASS 37

195 4,334,370

CLASS 40

2 R 4,334,371
16.2 4,334,372
19 4,334,373
606 4,334,374

CLASS 42

1 T 4,334,375
90 4,334,376

CLASS 43

17 4,334,377
22 4,334,378
24 4,334,379
27.4 4,334,380
42.29 4,334,381

CLASS 44

1 SR 4,334,888
50 4,334,889
53 4,334,890
62 4,334,891

CLASS 46

1 R 4,334,382
7 4,334,383
39 4,334,384
74 D 4,334,385

CLASS 47

62 4,334,386
83 4,334,387

CLASS 48

76 4,334,892
202 4,334,893
209 4,334,894

CLASS 49

14 4,334,388
387 4,334,389

CLASS 51

170 EB 4,334,390
309 4,334,895

CLASS 52

108 4,334,391
157 4,334,392
169.6 4,334,393
309.12 4,334,394
407 4,334,395
522 4,334,396
687 4,334,397
789 4,334,398

CLASS 53

69 4,334,399

CLASS 55

96 4,334,896
257 PV 4,334,897
269 4,334,898
321 4,334,899
350 4,334,900
487 4,334,901

CLASS 57

5 4,334,400
6 4,334,401
120 4,334,402
263 4,334,403
296 4,334,404
300 4,334,405

CLASS 60

223 4,334,406
407 4,334,407
423 4,334,408
618 4,334,409

CLASS 62

9 4,334,902
49 4,334,410
86 4,334,411
333 4,334,412

CLASS 63

2 4,334,413

CLASS 65

3.12 4,334,903
36 4,334,904

CLASS 68

213 4,334,416

CLASS 71

27 4,334,905
33 4,334,906
34 4,334,907
52 4,334,908
76 4,334,909
82 4,334,910
93 4,334,911
94 4,334,912
98 4,334,913
100 4,334,914
108 4,334,915
120 4,334,916

CLASS 72

56 4,334,417
164 4,334,418
225 4,334,419
250 4,334,420
257 4,334,421

CLASS 73

35 4,334,422
4,334,423
59 4,334,424
112 4,334,425
118 4,334,426
4,334,427
146.5 4,334,428
151 4,334,429
189 4,334,430
597 4,334,431
602 4,334,432
629 4,334,433
861.29 4,334,434
864.86 4,334,435

CLASS 74

44 4,334,436
53 4,334,437
501 R 4,334,438
665 GA 4,334,439
789 4,334,440
868 4,334,441
869 4,334,442

CLASS 75

10 R 4,334,917
21 4,334,918
23 4,334,919
26 4,334,920
60 4,334,921
4,334,922
124 4,334,923
133.5 4,334,924
4,334,925
230 4,334,926
238 4,334,928
240 4,334,927
246 4,334,929

CLASS 81

55 4,334,443
57.18 4,334,444
177 PP 4,334,445

CLASS 82

36 R 4,334,446

CLASS 83

111 4,334,447
171 4,334,448
342 4,334,449
471.2 4,334,450
703 4,334,451

CLASS 84

1.16 4,334,452
177 4,334,453
299 4,334,454
302 4,334,455
314 R 4,334,456
318 4,334,457
411 R 4,334,458

CLASS 91

369 B 4,334,459

CLASS 98

83 4,334,460
119 4,334,461

CLASS 99

385 4,334,462
426 4,334,463
450.6 4,334,464
454 4,334,465

CLASS 100

4 4,334,466
89 4,334,467
93 RP 4,334,468
110 4,334,469

CLASS 101

111 4,334,470
228 4,334,471
382 MV 4,334,472
409 4,334,473

CLASS 102

206 4,334,474
4,334,475
275.7 4,334,476
435 4,334,477
529 4,334,478

CLASS 104

12 4,334,479
126 4,334,480

CLASS 105

248 4,334,481

CLASS 106

97 4,334,930
120 4,334,931
305 4,334,933

CLASS 108

95 4,334,482
152 4,334,483

CLASS 110

210 4,334,484
347 4,334,485

CLASS 112

158 E 4,334,486

CLASS 114

39 4,334,488
144 R 4,334,489
270 4,334,490

CLASS 116

31 4,334,491
309 4,334,492

CLASS 118

19 4,334,493
63 4,334,494
669 4,334,495
679 4,334,496
698 4,334,497

CLASS 119

1 4,334,498
3 4,334,499
15 4,334,500
16 4,334,501
53 4,334,502
121 4,334,503
159 4,334,504

CLASS 122

27 4,334,505

CLASS 123

55 AA 4,334,506
193 P 4,334,507
195 A 4,334,508
414 4,334,509
440 4,334,510
454 4,334,511
469 4,334,512
494 4,334,513
502 4,334,514
568 4,334,515

CLASS 126

9 R 4,334,516
121 4,334,517
132 4,334,518
204 4,334,519
288 4,334,520
425 4,334,521
440 4,334,522
443 4,334,523
449 4,334,524

CLASS 127

9 4,334,934

CLASS 128

1 C 4,334,525
1 R 4,334,526
79 4,334,527
80 C 4,334,528
132 D 4,334,529
156 4,334,530
200.14 4,334,531
204.26 4,334,532
205.28 4,334,533
207.15 4,334,534
214 D 4,334,535
218 DA 4,334,536
275 4,334,537
276 4,334,538
303.14 4,334,539
630 4,334,540
632 4,334,541
642 4,334,542
663 4,334,543
664 4,334,544
732 4,334,545
748 Re.30,966

CLASS 132

88.5 4,334,546

CLASS 134

46 4,334,547
170 4,334,548

CLASS 136

260 4,335,266

CLASS 137

72 4,334,549
242 4,334,550
614.03 4,334,551
625.48 4,334,552
625.66 4,334,553

CLASS 138

44 4,334,554

CLASS 139

95 4,334,555
384 B 4,334,556

CLASS 141

98 4,334,557
114 4,334,558
346 4,334,559
392 4,334,560
4,334,561

CLASS 144

193 A 4,334,562

CLASS 145

2 R 4,334,563

CLASS 148

2 4,334,935
6.15 R 4,334,936
12 R 4,334,937
16.7 4,334,938

CLASS 149

21 4,334,939

CLASS 150

1.5 C 4,334,564

CLASS 152

158 4,334,565
208 4,334,566
209 R 4,334,567
218 4,334,568
221 4,334,569

CLASS 156

89 4,334,940
107 4,334,941
217 4,334,942
287 4,334,943
308.2 4,334,944
344 4,334,945
352 4,334,946
486 4,334,947
608 4,334,948
642 4,334,949
643 4,334,950
4,334,951

CLASS 199

11 R 4,334,952
4,334,953
18 4,334,954
44 4,334,955

CLASS 160

1 4,334,570
135 4,334,571
170 4,334,572
180 4,334,573

CLASS 162

30.11 4,334,956
161 4,334,957
352 4,334,958

CLASS 164

4.1 4,334,574
113 4,334,575

CLASS 165

12 4,334,576
54 4,334,577

CLASS 166

75 R 4,334,578
256 4,334,579
268 4,334,580
324 4,334,581
355 4,334,582

CLASS 172

375 4,334,583

CLASS 174

14 R 4,335,267
4,335,268
48 4,335,269
52 R 4,335,270
52 S 4,335,273
65 R 4,335,271
68.5 4,335,272

CLASS 175

5 4,334,584
329 4,334,585
374 4,334,586

CLASS 179

1 F 4,335,274
1 SM 4,335,275
4,335,277
1 SP 4,335,276
6.06 4,335,278
6.3 R Re.30,973
7.1 R 4,335,279
90 R 4,335,280
156 A 4,335,281

CLASS 180

8 R 4,334,587
68 P 4,334,588
219 4,334,589
247 4,334,590

CLASS 181

116 4,334,591
121 4,334,592
144 4,334,593

CLASS 182

2 4,334,594
5 4,334,595

CLASS 184

3 A 4,334,596

CLASS 188

71.8 4,334,597
73.44 4,334,598
73.45 4,334,599
314 4,334,600

CLASS 190

44 4,334,601

CLASS 192

103 F 4,334,602

CLASS 193

32 4,334,603

CLASS 194

100 A 4,334,604

CLASS 196

46 4,334,605

CLASS 198

443 4,334,606
487 4,334,607
650 4,334,608
797 4,334,609

CLASS 200

III R 4,335,282
61.25 4,335,283
61.27 4,335,284
84 C 4,335,285
302 4,335,286
4,335,287
307 4,335,288

CLASS 201

12 4,334,959
17 4,334,960

CLASS 202

173 4,334,961
185 R 4,334,962
263 4,334,963

CLASS 203

14 4,334,964
25 4,334,965

CLASS 204

4,334,966
81 4,334,967
96 4,334,968
158 R 4,334,969
159.15 4,334,970
159.21 4,334,971
180 R 4,334,972
181 R 4,334,973
195 S 4,334,974
247 4,334,975

CLASS 206

205 4,334,610
303 4,334,611
314 4,334,612
340 4,334,613
389 4,334,614
447 4,334,615
505 4,334,616
534 4,334,617
623 4,334,618

CLASS 208

8 LE 4,334,976
4,334,977
33 4,334,978
114 4,334,979
125 4,334,980
131 4,334,981
216 R 4,334,982
326 4,334,983

CLASS 209

3 4,334,984
5 4,334,985
17 4,334,986
210 4,334,987
551 4,334,619

CLASS 210

87 4,334,988
114 4,334,989
186 4,334,990
232 4,334,991
241 4,334,992
321.3 4,334,993
336 4,334,994
340 4,334,995
350 4,334,996
603 4,334,997
617 4,334,998
638 4,334,999
662 4,335,000
708 4,335,001

CLASS 211

13 4,334,620
60 M 4,334,621
69.5 4,334,622
71 4,334,623

CLASS 213

43 4,334,624
61 4,334,625

CLASS 215

1 C 4,334,627

CLASS 219

10.55 B 4,335,293
10.55 E 4,335,291
10.55 F 4,335,289
4,335,290
4,335,292
69 M 4,335,294
121 EQ 4,335,297
121 LG 4,335,296
121 LM 4,335,295
441 4,335,298
510 4,335,299

CLASS 220

2.1 R 4,334,628
252 4,334,629
300 4,334,630
306 4,334,631
307 4,334,632
332 4,334,633

CLASS 221

131 4,334,634
194 4,334,635

CLASS 222

58 Re.30,967
111 Re.30,968
146 H 4,334,637
153 4,334,638
4,334,639
207 4,334,640
642 4,334,636

CLASS 223

94 4,334,641

CLASS 224

37 4,334,642
153 4,334,643

CLASS 225

43 4,334,644

CLASS 226

137 4,334,645

CLASS 228

180 A 4,334,646

CLASS 233

7 4,334,647

CLASS 235

123 4,335,300
462 4,335,301
4,335,302
463 4,335,303

CLASS 236

49 4,334,648

CLASS 239

587 4,334,649

CLASS 241

171 4,334,626
236 4,334,650

CLASS 242

56 R 4,334,651
72 R 4,334,652
129.8 4,334,653
147 R 4,334,654
191 4,334,655
195 4,334,656

CLASS 244

3.28 4,334,657
198 4,334,658

CLASS 248

73 4,334,659
97 4,334,660
146 4,334,661
237 4,334,662

CLASS 249

105 4,334,663
108 4,334,664
134 4,334,665

CLASS 250

207 4,335,304
216 4,335,305
231 SE 4,335,306
322 4,335,307
358 R 4,335,308
396 R 4,335,309
408 4,335,310
409 4,335,311
445 T 4,335,312
491 4,335,313
492.3 4,335,314
523 4,335,315
572 4,335,316
578 4,335,317

CLASS 251

167 4,334,666

CLASS 252

1 4,335,002
8.9 4,335,003
48.6 4,335,004
49.6 4,335,005
49.7 4,335,006
92 4,335,007
174.11 4,335,008
187.27 4,335,009
189 4,335,010
299.1 4,335,011
299.61 4,335,012
364 4,335,013
412 4,335,014
429 B Re.30,970
4,335,015
4,335,016
430 4,335,017
435 4,335,018
450 4,335,019
455 R 4,335,021
4,335,022
455 Z 4,335,020
466 PT 4,335,023
545 4,335,024
550 4,335,025

CLASS 254

8 B 4,334,667
4,334,668
130 4,334,669
346 4,334,670

CLASS 256

65 4,334,671

CLASS 260

112 R 4,335,040
112.5 R 4,335,041
239 BD 4,335,042
245.2 T 4,335,043
369 4,335,050
429 R Re.30,971
463 4,335,051
465 D 4,335,053
465 G 4,335,054
465 K 4,335,055
465 R 4,335,052
465.3 4,335,056
501.19 4,335,057
546 4,335,058
549 4,335,059

CLASS 261

23 R 4,335,060
44 G 4,335,061
4,335,062

CLASS 264

3 B 4,335,063
30 4,335,064
87 4,335,065
121 4,335,066
222 4,335,067
245 4,335,068
290.2 4,335,069
555 4,335,070

CLASS 270

53 4,334,672

CLASS 271

65 4,334,673
245 4,334,674

CLASS 272

63 4,334,675
69 4,334,676
100 4,334,677
141 4,334,678

CLASS 273

1 E 4,334,679
1 GE 4,334,680
30 4,334,681
85 E 4,334,682
126 R 4,334,683
192 4,334,684
274 4,334,685
374 4,334,686

CLASS 277

151 4,334,687
175 4,334,688

CLASS 280

11.21 4,334,690
21 A 4,334,691
79.1 A 4,334,692
95 R 4,334,693
154.5 R 4,334,694
228 4,334,695
689 4,334,697
690 4,334,698
725 4,334,696
731 4,334,699
770 4,334,700
804 4,334,701

CLASS 283

45 4,334,702

CLASS 285

222 4,334,703

CLASS 290

31 4,335,318
54 4,335,319

CLASS 292

216 4,334,704
263 Re.30,969
288 4,334,705

CLASS 293

126 4,334,706

CLASS 294

19 A 4,334,707
65.5 4,334,708

CLASS 297

284 4,334,709
440 4,334,710

CLASS 303

16 4,334,711
24 C 4,334,712
54 4,334,713

CLASS 307

39 4,335,320
252 B 4,335,321
542 4,335,322

CLASS 308

3 R 4,334,714
3.6 4,334,715
6 C 4,334,716
6 R 4,334,717
10 4,334,718
121 4,334,719
187 4,334,720
193 4,334,721

CLASS 310

40 R 4,335,323
61 4,335,324
214 4,335,325

CLASS 312

111 4,334,359
194 4,334,722
209 4,334,723
280 4,334,724

CLASS 313

177 4,335,326
330 4,335,327
395 4,335,328
406 4,335,329
486 4,335,330

CLASS 315

334 4,335,331
366 4,335,332
371 4,335,333
408 4,335,334
411 4,335,335

CLASS 316

19 4,334,725

CLASS 318

6 4,335,336
52 4,335,337
135 4,335,338
282 4,335,339
4,335,340
624 4,335,341
627 4,335,342
798 4,335,343

CLASS 322

25 4,335,344

CLASS 323

278 4,335,345
313 4,335,346
328 4,335,347

CLASS 324

51 4,335,348
62 4,335,349
64 4,335,350
146 4,335,351
228 4,335,352
366 4,335,353

CLASS 329

126 4,335,354

CLASS 330

253 4,335,355
254 4,335,356
255 4,335,358
257 4,335,359
264 4,335,360
285 4,335,361

CLASS 332

37 R 4,335,363

CLASS 333

33 4,335,364
229 4,335,365

CLASS 335

211 4,335,366

CLASS 336

205 4,335,367

CLASS 337

372 4,335,368

CLASS 338

34 4,335,369

CLASS 339

14 L 4,334,726
17 CF 4,334,727
74 R 4,334,728
125 R 4,334,729
130 C 4,334,730
144 T 4,334,731
176 MP 4,334,732

CLASS 340

64 4,335,370
347 CC 4,335,371
4,335,373
347 DD 4,335,372
365 S 4,335,374
539 4,335,375
547 4,335,376
573 4,335,377
629 4,335,378
634 4,335,379
744 4,335,380
825.21 4,335,381

CLASS 343

8 4,335,382
4,335,383
114 4,335,384
700 MS 4,335,385
722 4,335,386
756 4,335,387
854 4,335,388

CLASS 346

140 R 4,335,389
158 4,335,390

CLASS 350

96.33 4,334,733
331 R 4,334,734
351 4,334,735
418 4,334,736
430 4,334,737

CLASS 351

39 4,334,738
4,334,739

CLASS 352

11 4,334,740

CLASS 353

38 4,334,741
78 4,334,742
97 4,334,743

CLASS 354

27 4,334,744
60 L 4,334,745
126 4,334,746
147 4,334,747
234 4,334,748
4,334,749
275 4,334,750
288 4,334,751
4,334,752
289 4,334,753
290 4,334,754
299 4,334,755
300 4,334,756
301 4,334,757
319 4,334,758

CLASS 355

3 DD 4,334,760
4,334,772
3 R 4,334,761
3 SH 4,334,759
8 4,334,762
4,334,763
14 SH 4,334,764
4,334,765
15 4,334,766
68 4,334,767
75 4,334,768
100 4,334,769
104 4,334,770
133 4,334,771

CLASS 356

124 4,334,773
152 4,334,774
4,334,775
218 4,334,776
349 4,334,777
4,334,778
358 4,334,779
359 4,334,780
368 4,334,781
406 4,334,782

CLASS 357

23 4,335,391
75 4,335,392

CLASS 358

4 4,335,393
8 4,335,394
11 4,335,395
21 R 4,335,396
29 4,335,397
80 4,335,398
4,335,399
113 4,335,400
127 4,335,401
147 4,335,402
148 4,335,403
188 4,335,404
213 4,335,405
4,335,406
284 4,335,407

CLASS 360

77 4,335,408
96.6 4,335,409
123 4,335,410
137 4,335,411

CLASS 361

50 4,335,412
93 4,335,413
100 4,335,414
104 4,335,415
119 4,335,416
127 4,335,417
152 4,335,418
228 4,335,419
230 4,335,420

CLASS 362

223 4,335,421
388 4,335,422

CLASS 363

21 4,335,423
54 4,335,424

CLASS 364

200 4,335,425
4,335,426
414 4,335,427
424 4,335,428
4,335,429
426 4,335,430
4,335,431
436 4,335,432
443 4,335,433
464 4,335,434
469 4,335,435
474 4,335,436
483 4,335,437
497 4,335,438
562 4,335,439
571 4,335,440
580 4,335,441
608 4,335,442
815 4,335,443
4,335,444
900 4,335,445
4,335,446
4,335,447
4,335,448

CLASS 365

177 4,335,449
182 4,335,450

CLASS 366

69 4,334,783
76 4,334,784
79 4,334,785
132 4,334,786
162 4,334,787
303 4,334,788
343 4,334,789

CLASS 367

115 4,335,451
134 4,335,452

CLASS 368

30 4,335,453
220 4,335,454

CLASS 369

44 Re.30,974

CLASS 370

29	4,335,455
58	4,335,456

CLASS 371

28	4,335,457
38	4,335,458
	4,335,459
49	4,335,460

CLASS 372

45	4,335,461
46	4,335,362
85	4,335,462

CLASS 373

83	4,335,265

CLASS 375

1	4,335,463
43	4,335,464

CLASS 376

156	4,335,465
257	4,335,466
285	4,335,467

CLASS 400

144.2	4,334,790
166	4,334,791
279	4,334,792

CLASS 401

1	4,334,793
50	4,334,794

CLASS 403

131	4,334,795
217	4,334,796
252	4,334,797

CLASS 404

75	4,334,798
124	4,334,799

CLASS 405

145	4,334,800
157	4,334,801
196	4,334,802
259	4,334,803
	4,334,804
261	4,334,805

CLASS 406

31	4,334,806

CLASS 407

103	4,334,807
114	4,334,808

CLASS 408

241 R	4,334,809

CLASS 409

9	4,334,810
233	4,334,811

CLASS 410

52	4,334,812

CLASS 411

68	4,334,813
311	4,334,814
368	4,334,815

CLASS 413

6	4,334,487

CLASS 414

10	4,334,816
24.5	4,334,817
139	4,334,818
395	4,334,819
607	4,334,820

CLASS 415

53 T	4,334,821
113	4,334,822

CLASS 416

119	4,334,823
132 R	4,334,824
134 A	4,334,825
185	4,334,826
220 R	4,334,827
228	4,334,828

CLASS 417

49	4,334,829
68	4,334,830
214	4,334,831
218	4,334,832
258	4,334,833
360	4,334,834
363	4,334,835
364	4,334,836
393	4,334,837
395	4,334,838
536	4,334,839

CLASS 418

1	4,334,840
38	4,334,841
45	4,334,842
61 B	4,334,843

CLASS 422

26	4,335,071
53	4,335,072
83	4,335,073
102	4,335,074
112	4,335,075
171	4,335,076
179	4,335,077
	4,335,078
194	4,335,079
244	4,335,080
246	4,335,081

CLASS 423

122	4,335,082
167	4,335,083
235	4,335,084
300	4,335,085
308	4,335,086
413	4,335,087
420	4,335,088
447.4	4,335,089
474	4,335,090
476	4,335,091
584	4,335,092
644	4,335,093

CLASS 424

1	4,335,094
	4,335,095
12	4,335,096
14	4,335,097
32	4,335,099
48	4,335,100
50	4,335,101
52	4,335,102
59	4,335,103
	4,335,104
89	4,335,105
92	4,335,106
93	4,335,107
117	4,335,108
140	4,335,109
145	4,335,110
177	4,335,111
	4,335,112
180	4,335,113
	4,335,114
181	4,335,115
201	4,335,116
217	4,335,117
226	4,335,118
229	4,335,119
236	4,335,120
241	4,335,121
244	4,335,122
246	4,335,123
248.4	4,335,124
250	4,335,125
	4,335,126
251	4,335,127
256	4,335,128
258	4,335,129
	4,335,130
263	4,335,131
	4,335,132
270	4,335,133
273 P	4,335,134
274	4,335,135
	4,335,136
275	4,335,098
	4,335,137
	4,335,138
285	4,335,139
298	4,335,140
304	4,335,141
337	4,335,142

CLASS 425

2	4,334,844
104	4,334,845
126 R	4,334,846
227	4,334,847
262	4,334,848
290	4,334,849
388	4,334,850
412	4,334,851
525	4,334,852

CLASS 426

50	4,335,143
62	4,335,144
231	4,335,145
	4,335,146
295	4,335,147
319	4,335,148
386	4,335,149
465	4,335,150
482	4,335,151
538	4,335,152
540	4,335,153
551	4,335,154
565	4,335,155
603	4,335,156
606	4,335,157

CLASS 427

2	4,335,158
14.1	4,335,159
38	4,335,160
86	4,335,161
130	4,335,162
256	4,335,163
304	4,335,164

CLASS 428

8	4,335,165
34	4,335,166
35	4,335,167
36	4,335,168
	4,335,169
38	4,335,170
40	4,335,171
42	4,335,172
65	4,335,173
73	4,335,174
213	4,335,175
219	Re.30,972
228	4,335,176
247	4,335,177
253	4,335,178
273	4,335,179
303	4,335,180
319.3	4,335,181
	4,335,182
336	4,335,183
342	4,335,184
361	4,335,185
375	4,335,186
412	4,335,187
458	4,335,188
611	4,335,189
623	4,335,190

CLASS 429

94	4,335,191
221	4,335,192
251	4,335,193

CLASS 430

42	4,335,194
94	4,335,195
122	4,335,196
271	4,335,197
348	4,335,198
434	4,335,199
446	4,335,200
527	4,335,201
604	4,335,202

CLASS 431

2	4,334,853
8	4,334,854
20	4,334,855
359	4,334,856

CLASS 432

3	4,334,857
9	4,334,858
13	4,334,859
14	4,334,860
30	4,334,861
128	4,334,862

CLASS 433

29	4,334,863
158	4,334,864
221	4,334,865

CLASS 434

2	4,334,866
145	4,334,867
172	4,334,868
208	4,334,869
211	4,334,870
	4,334,871

CLASS 435

23	4,335,203
	4,335,204
34	4,335,205
	4,335,206
94	4,335,207
96	4,335,208
108	4,335,209
113	4,335,210
119	4,335,211
	4,335,212
190	4,335,213
239	4,335,214
241	4,335,215

CLASS 440

61	4,334,872
113	4,334,873

CLASS 441

74	4,334,874

CLASS 455

67	4,335,468
125	4,335,469
205	4,335,470

CLASS 464

130	4,334,415
134	4,334,414

CLASS 493

303	4,334,875

CLASS 501

32	4,335,216
92	4,335,217

CLASS 521

99	4,335,218
128	4,335,219

CLASS 523

212	4,335,035
408	4,335,030
414	4,335,220
454	4,335,222

CLASS 524

88	4,334,878
108	4,335,039
188	4,335,038
191	4,334,932
269	4,335,032
271	4,335,026
376	4,335,036
423	4,335,034
504	4,335,028
	4,335,031
	4,335,037
525	4,335,033
589	4,335,029

CLASS 525

89	4,335,221
179	4,335,223
240	4,335,224
	4,335,225
281	4,335,226
333	4,335,227
528	4,335,228

CLASS 526

122	4,335,229
228	4,335,230
234	4,335,237
254	4,335,238

CLASS 528

49	4,335,231
128	4,335,232
211	4,335,233
214	4,335,234
281	4,335,027
397	4,335,235

CLASS 536

18.2	4,335,236
27	4,335,239

CLASS 544

90	4,335,240
127	4,335,241
198	4,335,242

CLASS 546

97	4,335,243
106	4,335,244
288	4,335,245
309	4,335,246

CLASS 548

140	4,335,247
475	4,335,044
566	4,335,045

CLASS 549

78	4,335,248
369	4,335,047
392	4,335,046
402	4,335,048
483	4,335,049

CLASS 560

11	4,335,249
67	4,335,250
105	4,335,251
124	4,335,252
	4,335,253
138	4,335,254
174	4,335,255

CLASS 562

450	4,335,256
581	4,335,257
599	4,335,258

CLASS 564

290	4,335,259
406	4,335,260

CLASS 568

361	4,335,262
366	4,335,261
437	4,335,263
479	4,335,264

CLASSIFICATION OF DESIGNS

D2—	27	264,890
	233	264,891
	343	264,892
	361	264,893
D3—	40	264,894
	48	264,895
	74	264,896
D4—	38.2	264,897
D6—	26	264,898
	47	264,899
	56	264,900
	63	264,901
		264,902
		264,903
	113	264,904
	114	264,905
	127	264,906
	146	264,907
	157	264,908
	177	264,909
	197	264,910
	248	264,911
	254	264,912
D7—	21	264,913
	23	264,914
		264,915
		264,916
		264,917
		264,918
	35	264,919
		264,920
		264,921
		264,922
		264,923
	46	264,924
	65	264,926
	70	264,927
	136	264,928
D8—	09	264,929
	50	264,925
	70	264,930
	78	264,931
	315	264,932
	334	264,933
	367	264,934
	373	264,935
	376	264,936
D9—	349	264,937
	352	264,938
		264,939
		264,940
	370	264,941
	401	264,942
D10—	1	264,943
	15	264,944
	32	264,945
	38	264,946
D11—	36	264,947
	96	264,948
	118	264,949
	158	264,950
		264,951
		264,952
D12—	110	264,953
	114	264,954
	129	264,955
	146	264,956
	176	264,957
	204	264,958
D13—	4	264,959
		264,960
	10	264,961
	11	264,962
	12	264,963
	23	264,964
	24	264,965
D14—	11	264,966
	56	264,967
	95	264,968
	96	264,969
	109	264,970
	111	264,971
D15—	7	264,972
	72	264,973
	199	264,974
D16—	1	264,975
	129	264,976
D17—	22	264,977
D18—	13	264,978
D19—	20	264,979
D21—	2	264,980
	114	264,981
	124	264,982
	198	264,983
	225	264,984
	230	264,985
	233	264,986
	251	264,987
D22—	25	264,988
	99	264,989
D23—	97	264,990
D24—	8	264,991
	38	264,992
	47	264,993
	56	264,994
D25—	11	264,995
	91	264,996
	97	264,997
		264,998
D26—	42	265,000
	104	265,001
D27—	41	264,999
D28—	13	265,002
	35	265,003
	64	265,004
D29—	7	265,005
	8	265,006
D32—	49	265,007
D33—	32 R	265,008
D34—	40	265,009
	44	265,010
D92—	26	265,011
D99—	28	265,012
		265,013
		265,014

CLASSIFICATION OF PLANTS

P.—	22	4,857
	76	4,858

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PATENTS

01 :	4,334,651	4,334,743		4,334,878		4,335,319		4,334,599		4,334,570
	4,334,776	4,334,768		4,334,988		4,335,361		4,334,607		4,334,628
	4,334,940	4,334,816		4,335,028		4,335,426		4,334,630		4,334,647
04 :	4,334,527	4,334,819		4,335,306		4,335,464		4,334,639		4,334,664
	4,334,549	4,334,823		4,335,378	13 :	4,334,374		4,334,703		4,334,679
	4,335,372	4,334,870	09 :	4,334,379		4,334,397		4,334,754		4,334,740
	4,335,448	4,334,871		4,334,730		4,334,637		4,334,832		4,334,744
06 :	Re.30,966	4,334,873		4,334,769		4,334,897		4,334,839		4,334,750
	Re.30,969	4,334,888		4,334,828		4,334,985		4,334,849		4,334,752
	Re.30,974	4,334,906		4,334,830		4,335,348		4,335,032		4,334,775
	4,334,329	4,334,907		4,334,831		4,335,415		4,335,039		4,334,777
	4,334,330	4,334,911		4,334,834		4,335,447		4,335,234		4,334,895
	4,334,334	4,334,916		4,334,864	16 :	4,334,376		4,335,240		4,334,924
	4,334,348	4,334,959		4,334,901		4,334,447		4,335,282		4,334,925
	4,334,351	4,335,011		4,335,006	17 :	4,334,339		4,335,335		4,335,081
	4,334,354	4,335,040		4,335,142		4,334,353		4,335,421		4,335,084
	4,334,357	4,335,053		4,335,156		4,334,361		4,335,438		4,335,107
	4,334,366	4,335,080		4,335,180		4,334,388		4,335,470		4,335,120
	4,334,375	4,335,116		4,335,218		4,334,415	19 :	4,334,555		4,335,267
	4,334,377	4,335,133		4,335,231		4,334,418		4,334,722		4,335,290
	4,334,378	4,335,162		4,335,235		4,334,483		4,335,016		4,335,297
	4,334,384	4,335,163		4,335,313		4,334,492		4,335,100		4,335,302
	4,334,385	4,335,164		4,335,351		4,334,537		4,335,104		4,335,326
	4,334,386	4,335,165		4,335,353		4,334,544		4,335,105		4,335,327
	4,334,391	4,335,170	10 :	4,335,069		4,334,553		4,335,289		4,335,417
	4,334,411	4,335,203		4,335,136		4,334,560	20 :	4,334,462		4,335,459
	4,334,428	4,335,205		4,335,140		4,334,587		4,335,383	26 :	4,334,350
	4,334,440	4,335,273		4,335,185		4,334,620	21 :	4,334,484		4,334,436
	4,334,463	4,335,274		4,335,197		4,334,641		4,334,792		4,334,454
	4,334,520	4,335,281		4,335,199		4,334,642		4,334,805		4,334,563
	4,334,533	4,335,295		4,335,225		4,334,681		4,334,881		4,334,565
	4,334,534	4,335,300		4,335,232		4,334,731		4,335,000		4,334,568
	4,334,535	4,335,333		4,335,238		4,334,771		4,335,321		4,334,700
	4,334,558	4,335,338		4,335,255		4,334,793		4,335,325		4,334,715
	4,334,571	4,335,339		4,335,257		4,334,815	22 :	4,334,342		4,334,756
	4,334,573	4,335,344		4,335,264		4,334,887		4,334,381		4,334,808
	4,334,579	4,335,350	11 :	4,334,583		4,334,970		4,334,425		4,334,814
	4,334,585	4,335,354	12 :	4,334,343		4,334,993		4,334,500		4,334,923
	4,334,590	4,335,355		4,334,373		4,335,167		4,334,552		4,334,989
	4,334,603	4,335,358		4,334,395		4,335,207	23 :	4,334,680		4,334,999
	4,334,612	4,335,371		4,334,446		4,335,237		4,335,323		4,335,038
	4,334,616	4,335,373		4,334,503		4,335,272	24 :	4,334,382		4,335,073
	4,334,638	4,335,375		4,334,646		4,335,316		4,334,423		4,335,108
	4,334,656	4,335,384		4,334,665		4,335,382		4,334,517		4,335,219
	4,334,667	4,335,388		4,334,685		4,335,396		4,334,688		4,335,283
	4,334,668	4,335,393		4,334,717		4,335,403		4,334,692		4,335,380
	4,334,684	4,335,404		4,334,736		4,335,422		4,334,927	27 :	4,334,335
	4,334,690	4,335,443		4,334,796		4,335,440		4,335,432		4,334,360
	4,334,705	4,335,451		4,334,962		4,335,442		4,335,433		4,334,393
	4,334,720	4,335,457		4,335,041	18 :	4,334,352		4,335,469		4,334,538
	4,334,726	4,335,461		4,335,083		4,334,481	25 :	4,334,427		4,334,626
	4,334,729	08 : 4,334,368		4,335,145		4,334,593		4,334,485		4,334,648
	4,334,742	4,334,765		4,335,286		4,334,598		4,334,530		4,334,838

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OFFICIAL GAZETTE of the UNITED STATES PATENT and TRADEMARK OFFICE

June 22, 1982 Volume 1019 Number 4

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

Jan. 19, 1982.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,146,745, Re. S.N. 344,353, Filed Feb. 1, 1982, Cl. 179/7.1 TP, LOUDSPEAKER ENCLOSURE WITH MULTIPLE ACOUSTICALLY ISOLATED DRIVERS AND A COMMON PORT, Thomas A. Froeschle, et al., Owner of Record: *Inventors,* Attorney or Agent: Charles Hieken, Ex. Gp.: 235

4,175,782, Re. S.N. 321,835, Filed Nov. 16, 1981, Cl. 292/307.R, DEVICE FOR CLOSING BAGS, Eduardo De Lima Castro Neto, Owner of Record: *Inventor,* Attorney or Agent: Joseph A. DeGrandi, et al., Ex. Gp.: 355

4,198,718, Re. S.N. 370,623, Filed Apr. 22, 1982, Cl. 5/93B, PORTABLE FOLDING BED, Clella N. Ballard, Owner of Record: *Inventor,* Attorney or Agent: Ernest I. Gifford, Ex. Gp.: 355

4,200,737, Re. S.N. 369,726, Filed Apr. 19, 1982, Cl. 536/87, PREPARATION OF WATER-INSOLUBLE CARBOXYMETHYL CELLULOSE ABSORBENTS, Herman L. Marder, et al., Owner of Record: *International Playtex, Inc., Stamford, Conn.,* Attorney or Agent: Stewart J. Fried, Ex. Gp.: 144

4,201,271, Re. S.N. 328,423, Filed Dec. 7, 1981, Cl. 173/146, QUILL DRIVE WITH VARIABLE FEED, Larry Evans, Owner of Record: *Gleason Works, Rochester, N.Y.,* Attorney or Agent: Andrew R. Basile, et al., Ex. Gp.: 353

4,216,552, Re. S.N. 370,690, Filed Apr. 22, 1982, Cl. 4/548, SINK MOUNTED INFANT BATHING DEVICE, Richard C. Gurolinick, Owner of Record: *Product Source, Inc., Laguna Hills, Calif.,* Attorney or Agent: George J. Netter, Ex. Gp.: 243

4,248,735, Re. S.N. 374,459, Filed May 3, 1982, Cl. 252/428, TREATMENT OF SILICA, Max P. McDaniel, et al., Owner of Record: *Phillips Petroleum Co., Bartlesville, Okla.,* Attorney or Agent: Louis N. French, et al., Ex. Gp.: 116

4,256,894, Re. S.N. 369,391, Filed Apr. 19, 1982, Cl. 546/345, PREPARATION OF CHLORINATED PYRIDINES, Thomas J. Dietsche, et al., Owner of Record: *Dow Chemical Co., Midland, Mich.,* Attorney or Agent: Richard G. Waterman, Ex. Gp.: 121

4,273,908, Re. S.N. 369,610, Filed Apr. 19, 1982, Cl. 528/44, PROCESS FOR THE PRODUCTION OF POLY(POLYISOCYANATE-POLYOL-ALKALI METAL SILICATE SOLID, David H. Blount, Owner of Record: *Inventor,* Attorney or Agent: None, Ex. Gp.: 143

4,290,253, Re. S.N. 356,160, Filed Mar. 8, 1982, Cl. 53/410, METHOD OF PRODUCING SEALED PACKAGING CONTAINERS, Klaus Domke, et al., Owner of Record: *Robert Bosch GMBH, Stutgart, Germany,* Attorney or Agent: Michael J. Striker, Ex. Gp.: 324

4,295,308, Re. S.N. 368,581, Filed Apr. 15, 1982, Cl. 52/296, POLE BASE ASSEMBLY, BOLT CIRCLE ADAPTOR, Carl Korfanta, Owner of Record: *KSL Corp., Denver, Colo.,* Attorney or Agent: Bruce G. Klass, et al., Ex. Gp.: 354

4,297,460, Re. S.N. 374,114, Filed May 3, 1982, Cl. 526/98, TREATMENT OF SILICA, Max P. McDaniel, et al., Owner of Record: *Phillips Petroleum Co., Bartlesville, Okla.,* Attorney or Agent: Louis N. French, et al., Ex. Gp.: 144

4,298,558, Re. S.N. 369,336, Filed Apr. 16, 1982, Cl. 264/65, HIGH YIELD SILICON CARBIDE PRECERAMIC POLYMERS, Ronald H. Baney, et al., Owner of Record: *Dow Corning Corp., Midland, Mich.,* Attorney or Agent: Robert L. McKellar, et al., Ex. Gp.: 147

4,299,811, Re. S.N. 368,748, Filed Apr. 15, 1982, Cl. 423/578R, DEGASSING MOLTEN SULFUR, Thomas H. Ledford, et al., Owner of Record: *Exxon Research and Engineering Co., Florham Park, N.J.,* Attorney or Agent: Edward H. Mazer, et al., Ex. Gp.: 113

4,301,948, Re. S.N. 344,695, Filed Feb. 1, 1982, Cl. 222/341, DISPENSER FOR PASTE-LIKE PRODUCTS WITH A MANUALLY ACTUATABLE PISTON, Joachim Czech, et al., Owner of Record: *Joachim Czech, Donaustauf, W. Germany,* Attorney or Agent: Joseph E. Kerwin, et al., Ex. Gp.: 311

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b).

Re. 28,176, Reexam. No. 90/000,202, Requested: May 21, 1982, Cl. 248/642, BRACKET FOR MOUNTING BOAT ACCESSORY, George F. Horton, Owner of Record: *Inventor,* Attorney or Agent: Wofford, Fails, Zobal, Ex. Gp.: 355, Requester: Lawrence F. Scinto, New York, N.Y.

4,265,393, Reexam. No. 90/000,204, Requested: May 24, 1982, Cl. 229/40, BOX CONSTRUCTION, Edgar L. Orchard, Owner of Record: *Orco Sales Co., Inc., St. Louis, Mo.,* Attorney or Agent: Kalish & Gilster, Ex. Gp.: 241, Requester: Dale H. Thiel, Kalamazoo, Mich.

1981 Commissioner's Annual Report

The Annual Report of the Commissioner of Patents and Trademarks for fiscal year 1981 is now in print. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 for $4.50 each.

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

May 26, 1982

Trademark Suits

Notices under 15 U.S.C. 1116;
Trademark Act of July 5, 1946.

Reg. No. 95,164 (SMITH & WESSON), Smith & Wesson, **filed** Apr. 27, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-1850, *Smith & Wesson* v. *The Franklin Mint, et al.*

Reg. No. 297,594 ("VL" AND DESIGN), Louis Vuitton S.A., **filed** Apr. 2, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82-1634AWT, *Louis Vuitton S.A.* v. *Ricardo Bisio, et al.*

Reg. No. 509,839 (ROBBINS & MYERS), Robbins & Myers, Inc., **filed** Apr. 6, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-1557, *Robbins & Myers, Inc.* v. *American Lifting Products, Inc.*

Reg. No. 588,852 (AMERICAN RED BALL ETC. & DESIGN), American Red Ball Transit Co., Inc.; **Reg. No. 888,065** (CALL CALL AMERICAN RED BALL ETC. AND DESIGN), **same; Reg. No. 1,113,327** (RED CARPET MOVING SERVICE), **same, filed** Dec. 14, 1981, D.C., E.D. Tenn. (Winchester), Doc. Civ-4-81-75, *American Red Ball Transit Co., Inc.* v. *Ralph E. Gee, doing business as Aero American Moving & Storage, et al.* Plaintiff dismisses action without prejudice on Apr. 22, 1982.

Reg. No. 592,538 (BETZ) Betz Laboratories, Inc.; **Reg. No. 871,110, same, filed** Apr. 2, 1982, D.C., S.D.N.Y., Doc. 82-Civ-2114 (WK), *Betz Laboratories, Inc.* v. *Albert Alperin.*

Reg. No. 623,260 (GMAC), General Motors Acceptance Corp., **filed** Jan. 13, 1982, D.C., M.D. Fla. (Orlando), Doc. 82-22-Orl-Civ, *General Motors Acceptance Corp.* v. *G-Mac Motors, Inc., et al.* Joint Stipulation for Dismissal without prejudice filed Apr. 12, 1982.

Reg. No. 626,035 (CHANEL), Chanel, Inc.; **Reg. No. 930,567, same; Reg. No. 1,075,016** (CC DESIGN), **same, filed** Apr. 26, 1982, D.C., S.D.N.Y., Doc. 82-Civ-2645 EW, *Chanel, Inc.* v. *Sakura Shoji, Inc., et al.*

Reg. No. 659,477 (SOVEREIGN ORDER OF SAINT JOHN ETC. AND DESIGN), Sovereign Order of St. John of Jerusalem, Inc.; **Reg. No. 713,193** (MALTESE CROSS AND DESIGN), **same, filed** May 7, 1980, D.C., E.D. Pa. (Philadelphia), Doc. 80-1771, *Sovereign Order of St. John of Jerusalem, Inc., et al.* v. *Charles L. T. Pichel.*

Reg. No. 660,183 (NABISCO AND DESIGN), Nabisco, Inc.; **Reg. No. 736,498** (TRIANGLE DESIGN), **same; Reg. No. 890,581** (NABISCO AND DESIGN), **same, filed** Aug. 27, 1981, D.C., S.D.N.Y., Doc. 81-5324 MP, *Nabisco, Inc.* v. *Tootsie Roll Industries, Inc.* Defendant shall not use in any manner any packaging, advertising, point of purchase or promotional or stationery material which bears or displays a red triangle lying in whole or in part in the upper left hand quadrant. Filed Apr. 15, 1982.

Reg. No. 664,746 (FREDERICK'S), Frederick's of Hollywood, Inc., **filed** Nov. 4, 1976, D.C., N.D. Ohio (Cleveland), Doc. 76-1166, *Frederick's of Hollywood, Inc.* v. *Fredric's Southland, Inc.* Stipulation and Order dismissing action with prejudice filed Mar. 3, 1978.

Reg. No. 670,644 (TEE-RIFIC), Alpha Mills Corp., **filed** Feb. 19, 1981, D.C., M.D. Fla. (Orlando), Doc. 81-66-Orl-Civ-Y, *Alpha Mills Corp.* v. *Tee-Riffic, Inc.* Defendant is perpetually restrained and enjoined from further infringing plaintiff's trademark. Filed Apr. 12, 1982.

Reg. No. 681,947 (ULTRA SHEEN), Johnson Products Co., Inc.; **Reg. No. 968,329, same; Reg. No. 968,846, same; Reg. No. 1,043,225, same, filed** Jan. 12, 1977, D.C., N.D. Ill. (Chicago), Doc. 77 C 108, *Johnson Products Co., Inc.* v. *Intercontinental Cosmetics, Inc.* Registrations are valid, subsisting and infringed. Defendant permanently enjoined from further infringing Plaintiff's trademarks. Filed Oct. 25, 1977.

Reg. No. 681,947 (ULTRA SHEEN), Johnson Products Co., Inc.; **Reg. No. 953,827, same; Reg. No. 968,329, same; Reg. No. 968,846, same, filed** Sept. 1, 1976, D.C., E.D. Pa. (Philadelphia), Doc. 76-2774, *Johnson Products Co., Inc.* v. *Rite Aid Corp., et al.* Registrations are valid and subsisting. Order entered on Mar. 3, 1978.

Reg. No. 688,864 (CARTE BLANCHE), Carte Blanche Corp.; **Reg. No. 721,049, same; Reg. No. 956,281, same; Reg. No. 1,015,976** (CARTE BLANCHE TRAVEL PLUS), **same; Reg. No. 1,031,003** (CARTE BLANCHE INTERNATIONAL SERVICE CENTRE), **same; Reg. No. 1,031,026** (CARTE BLANCHE INTERNATIONAL SERVICE CENTRE), **same; Reg. No. 1,031,058** (CARTE BLANCHE INTERNATIONAL SERVICE CENTRE), **same, filed** July 16, 1981, D.C., N.D. Ohio (Toledo), Doc. 81-479, *Carte Blanche Corp.* v. *Carte Maxim, Inc., et al.* Plaintiff is exclusive owner of the service mark, trademark and trade name CARTE BLANCHE and of the U.S. registrations therefor identified. Defendants permanently enjoined from using the mark, etc. of Carte Maxim and Carte Blanche. Filed Apr. 2, 1982.

Reg. No. 692,726 (NALDECON), Bristol-Myers Co., **filed** Sept. 25, 1981, D.C.N.J. (Newark), Doc. 81-3021, *Bristol-Myers Co.* v. *Generix Drug Corp.* Action settled and Order of Dismissal filed Apr. 22, 1982.

Reg. No. 693,417 (DOXIDAN), Hoechst Aktiengesellschaft **filed** May 22, 1980, D.C., S.D. Fla. (Fort Lauderdale), Doc. 80-6251-Civ-JAG, *Hoechst AG, et al* v. *Generix Drug Corp.* Plaintiff is the owner of Reg. No. 693,417 which is valid and subsisting. Defendant is perpetually enjoined and restrained from using on or in connection with the sale, advertising or offering for sale of laxative products, the term "D.O.S.-DAN" or "DOS-DAN" or any other reproduction, copy or colorable imitation of plaintiff's trademark. Filed July 30, 1980.

Reg. No. 703,556 (AAA), American Automobile Association; **Reg. No. 829,265, same, filed** June 16, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 2965, *American Automobile Assn., et al.* v. *WMW, Inc., doing business as AAA Transmission.* Judgment and Order of permanent injunction that Defendant perpetually restrained and enjoined from further infringing Plaintiff's trademark filed Apr. 10, 1982.

Reg. No. 713,193. (See Reg. No. 659,477.)

Reg. No. 721,049. (See Reg. No. 688,864.)

Reg. No. 724,764 (PANASONIC AND DESIGN), Matsushita Electric Industrial Co., Ltd.; **Reg. No. 746,848** (PANASONIC), **same; Reg. No. 774,063** (PANASONIC AND DESIGN), **same; Reg. No. 774,124** (PANASONIC AND DESIGN), **same; Reg. No. 800,220** (PANASONIC AND DESIGN), **same; Reg. No. 800,942** (PANASONIC AND DESIGN), **same; Reg. No. 808,808** (N PANASONIC AND DESIGN), **same; Reg. No. 808,840** (N PANASONIC AND DESIGN), **same; Reg. No. 808,841** (N PANASONIC AND DESIGN), **same; Reg. No. 808,849** (N PANASONIC AND DESIGN), **same; Reg. No. 808,862** (N PANASONIC AND DESIGN), **same; Reg. No. 838,277** (PANASONIC HI-TOP AND DESIGN), **same;**

Reg. No. 859,262 (PANASONIC), **same; Reg. No. 859,287** (PANASONIC), **same; Reg. No. 859,314** (PANASONIC), **same; Reg. No. 860,062** (PANASONIC), **same; Reg. No. 868,381** (PANASONIC), **same; Reg. No. 869,714** (PANASONIC), **same; Reg. No. 902,911** (PANASONIC), **same; Reg. No. 905,883** (PANASONIC), **same; Reg. No. 1,006,629** (PANASONIC), **same; Reg. No. 1,041,215** (PANASONIC), **same; Reg. No. 1,047,045** (PANASONIC), **same, filed** Mar. 15, 1979, D.C., E.D.N.Y. (Brooklyn), Doc. 79C704, *Matsushita Electric Industrial Co., Ltd., et al* v. *Corporate Distributors, Inc., et al.* **Same, filed** Mar. 20, 1979, D.C. Conn. (Hartford), Doc. H79-176, *Matsushita Electric Industrial Co.* v. *Wallcraft, Inc., et al.* **Same, filed** June 12, 1979, D.C., S.D.N.Y., Doc. 79-Civ-3070 RO, *Matsushita Electric Ind. Co., Ltd., et al* v. *Norman's House of Deals, Inc., et al.* **Same, filed** Mar. 15, 1979, D.C., S.D.N.Y., Doc. 79-Civ-1371, *Matsushita Electric Ind. Co., et ano* v. *Collins Industrial Co., et al.* Defendants are permanently enjoined from using the trademark and trade name PANASONIC in connection with the sale of any goods including wrist watches or the rendering of any services. Filed July 3, 1980. **Same, filed** May 4, 1979, D.C., S.D.N.Y., Doc. 79-Civ-2380 RO, *Matsushita Electric Industrial Co., Ltd., et al* v. *Tyme Watch Trading Co., et ano.* Defendants are permanently enjoined from using the trademark and trade name PANASONIC in connection with the sale of any wrist watches or the rendering of any services relating thereto. Filed July 23, 1980.

Reg. No. 736,498. (See Reg. No. 660,183.)

Reg. No. 746,848. (See Reg. No. 724,764.)

Reg. No. 765,131 (STANDARD & POOR'S HOURLY STOCK PRICE INDEXES), Standard & Poor's Corp., Inc.; **Reg. No. 765,132** (STANDARD & POOR'S DAILY STOCK PRICE INDEXES), **same; Reg. No. 765,133** (THE STANDARD "500"), **same, filed** Apr. 21, 1982, D.C., S.D.N.Y., Doc. 82-Civ-2545 MP, *Standard and Poor's Corp., Inc.* v. *Commodity Exchange, Inc.*

Reg. No. 765,132. (See Reg. No. 765,131.)

Reg. No. 765,133. (See Reg. No. 765,131.)

Reg. No. 774,063. (See Reg. No. 724,764.)

Reg. No. 774,124. (See Reg. No. 724,764.)

Reg. No. 800,220. (See Reg. No. 724,764.)

Reg. No. 800,942. (See Reg. No. 724,764.)

Reg. No. 808,808. (See Reg. No. 724,764.)

Reg. No. 808,840. (See Reg. No. 724,764.)

Reg. No. 808,841. (See Reg. No. 724,764.)

Reg. No. 808,849. (See Reg. No. 724,764.)

Reg. No. 808,862. (See Reg. No. 724,764.)

Reg. No. 829,265. (See Reg. No. 703,556.)

Reg. No. 838,277. (See Reg. No. 724,764.)

Reg. No. 859,262. (See Reg. No. 724,764.)

Reg. No. 859,287. (See Reg. No. 724,764.)

Reg. No. 859,314. (See Reg. No. 724,764.)

Reg. No. 860,062. (See Reg. No. 724,764.)

Reg. No. 868,381. (See Reg. No. 724,764.)

Reg. No. 869,714. (See Reg. No. 724,764.)

Reg. No. 871,110. (See Reg. No. 592,538.)

Reg. No. 884,519 (VOIT), AMF, Inc.; **Reg. No. 912,787** (AMF), **same; Reg. No. 1,038,545** (DESIGN MISCELLANEOUS), **same, filed** Feb. 27, 1978, D.C., C.D. Calif. (Los Angeles), Doc. 78-403-DWW, *AMF, Inc., et al* v. *Star Master, Inc., et al.*

Reg. No. 888,065. (See Reg. No. 588,852.)

Reg. No. 890,581. (See Reg. No. 660,183.)

Reg. No. 893,027 (UPS 'N DOWNS), Ups 'N Downs, Inc., **filed** Aug. 21, 1978, D.C., S.D. Fla. (Miami), Doc. 78-6364-Civ-NCR, *Ups 'N Downs, Inc.* v. *Caribe Trading Corp.* Defendants shall discontinue use of trade name Uppers & Downers on all advertisements, signs, etc. Filed July 14, 1979.

Reg. No. 893,027 (UPS 'N DOWNS), Ups 'N Downs, Inc.; **Reg. No. 1,020,183, same, filed** May 11, 1979, D.C., N.D. Calif. (San Francisco), Doc. C-79-1129 WAI, *Ups 'N Downs, Inc.* v. *Upsen Downs.* Defendants are permanently enjoined and restrained from using the trademark or trade name UPSEN DOWNS, UPS 'N DOWNS, or colorful variations thereof, upon or in association with the sale of garments, aprons, tablecloths, etc. Filed Sept. 18, 1979.

Reg. No. 895,561 (HOM), Innovations Pour L'Elegance Masculine; **Reg. No. 968,687** (DESIGN MISCELLANEOUS), **same; Reg. No. 1,068,573** (HOM), **same; Reg. No. 1,075,079** (HOM AND DESIGN), **same, filed** Mar. 29, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1973-GLG, *Innovations Pour L'Elegance Masculine* v. *Daniel Axel, Ltd., et al.*

Reg. No. 902,911. (See Reg. No. 724,764.)

Reg. No. 905,883. (See Reg. No. 724,764.)

Reg. No. 912,787. (See Reg. No. 884,519.)

Reg. No. 913,859 (RED WING), Red Wing Shoe Co.; **Reg. No. 918,991** (RED WING SHOES AND DESIGN), **same; Reg. No. 934,188** (RED WING SHOES AND DESIGN), **same; filed** Mar. 22, 1982, D.C., N.D. Iowa (Cedar Rapids), Doc. 82-2025, *Red Wing Shoe Co.* v. *Kollmann Shoe and Bike Shop, et al.* Stipulation of Settlement between parties filed on Apr. 23, 1982.

Reg. No. 918,991. (See Reg. No. 913,859.)

Reg. No. 930,567. (See Reg. No. 626,035.)

Reg. No. 934,188. (See Reg. No. 913,859.)

Reg. No. 953,827. (See Reg. No. 681,947.)

Reg. No. 956,281. (See Reg. No. 688,864.)

Reg. No. 968,329. (See Reg. No. 681,947.)

Reg. No. 968,687. (See Reg. No. 895,561.)

Reg. No. 968,846. (See Reg. No. 681,947.)

Reg. No. 992,654 (KINERET KOSHER), Kineret Foods Corp., **filed** May 7, 1979, D.C., S.D.N.Y., Doc. 79-Civ-2391-WCC, *Kineret Foods Corp.* v. *Sova Foods Co.*

Reg. No. 999,849 (ORGAN GRINDER), Organ Grinder, Inc.; **Reg. No. 999,850** (ORGAN GRINDER AND DESIGN), **same, filed** June 5, 1980, D.C., E.D. Mich. (Detroit), Doc. 80-72071, *Organ Grinder, Inc.* v. *Gary R. Montgomery, et al.* **Same, filed** Sept. 28, 1981, D.C., W.D. Pa. (Pittsburgh), Doc. 81-1655, *Organ Grinder, Inc.* v. *Barbara L. Reilly, et al.*

Reg. No. 999,850. (See Reg. No. 999,849.)

Reg. No. 1,005,131 (CHICAGO AND DESIGN), Chicago Music, Inc.; **Reg. No. 1,006,059** (CHICAGO), **same Reg. No. 1,006,060** (CHICAGO), **same, filed** May 16, 1978, D.C., S.D.N.Y., Doc. 78-Civ-2245, *Chicago Music, Inc.,* v. *Cineamerica Distributing Corp.*

Reg. No. 1,006,059. (See Reg. No. 1,005,131.)

Reg. No. 1,006,060. (See Reg. No. 1,005,131.)

Reg. No. 1,006,468 (KIDS ARE PEOPLE TOO), Interstate United Corp., **filed** Apr. 30, 1980, D.C., S.D.N.Y., Doc. 80-Civ-2413-LWP, *Robert C. McAllister, Inc.* v. *Interstate United Corp.*

Reg. No. 1,006,629. (See Reg. No. 724,764.)

Reg. No. 1,015,027 (MOBIL), Mobil Oil Corp., **filed** Jan. 15, 1981, D.C., E.D. Mich. (Detroit), Doc. 81-70148, *Mobil Oil Corp.* v. *Walter Meade, Inc.*

Reg. No. 1,015,976. (See No. 688,864.)

Reg. No. 1,020,183. (See Reg. No. 893,027.)

Reg. No. 1,020,793 (DESIGN OF RABBIT HEAD), Playboy Enterprises, Inc., filed June 12, 1981, D.C., S.D.N.Y., Doc. 81-Civ-3673-MJL, *Playboy Enterprises, Inc.* v. *Prismatix Decal, Inc.* Plaintiff is the owner of Reg. No. 1,020,793 which is valid and subsisting. Defendant is permanently enjoined from further infringing Plaintiff's trademark. Filed Apr. 2, 1982.

Reg. No. 1,031,003. (See Reg. No. 688,864.)

Reg. No. 1,031,026. (See Reg. No. 688,864.)

Reg. No. 1,031,058. (See Reg. No. 688,864.)

Reg. No. 1,038,545. (See Reg. No. 884,519.)

Reg. No. 1,041,215. (See Reg. No. 724,764.)

Reg. No. 1,043,225. (See Reg. No. 681,947.)

Reg. No. 1,047,045. (See Reg. No. 724,764.)

Reg. No. 1,049,279 (B.I.D.S.), Raymond L. Gaio, filed Mar. 12, 1982, D.C. District of Columbia (Wash. D.C.), Doc. 82-0722, *B.I.D.S., Inc. and Raymond L. Gaio* v. *McGraw-Hill, Inc.*

Reg. No. 1,054,788 (KING AND DESIGN), King Meat Packing Co., filed Feb. 19, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82-0825-WPG, *King Meat Packing Co.* v. *Apex Meat Co., Inc., et al.*

Reg. No. 1,068,573. (See Reg. No. 895,561.)

Reg. No. 1,075,016. (See Reg. No. 626,035.)

Reg. No. 1,075,079. (See Reg. No. 895,561.)

Reg. No. 1,086,041 (CALVIN KLEIN), Calvin Klein Co., filed Apr. 21, 1982, D.C., S.D. Fla. (Miami), Doc. 82-808-Civ-EPS, *Calvin Klein Co., et al* v. *Transfermania, Inc.*

Reg. No. 1,090,517 (SUPERLAWNS), Superlawns, Inc., filed Mar. 22, 1982, D.C., C.D. Ill. (Danville), Doc. 82-2079, *Superlawns, Inc.* v. *Jim Carso, doing business as Super Lawn of Camargo.*

Reg. No. 1,107,259 (GG DESIGN), Gucci Shops, Inc.; **Reg. No. 1,107,311, same; Reg. No. 1,143,984** (GG AND DESIGN), same, filed Apr. 22, 1982, D.C., S.D. Fla. (Miami), Doc. 82-818-Civ-SMA, *Gucci Shops, Inc.* v *Leather World of Miami, Inc.*

Reg. No. 1,107,311. (See Reg. No. 1,107,259.)

Reg. No. 1,111,115 (MERRY GO ROUND AND DESIGN), Merry-Go-Round Enterprises, Inc., filed Apr. 23, 1982, D.C., S.D. Fla. (Fort Lauderdale), Doc. 82-6253-Civ-NCR, *Merry-Go-Round Enterprises, Inc.* v. *Merry-Go-Round Children's Wear, Inc., et al.*

Reg. No. 1,113,327. (See Reg. No. 588,852.)

Reg. No. 1,143,984. (See Reg. No. 1,107,259.)

Reg. No. 1,190,108 (DRIVE ON STALINGRAD), Simulations Publications, Inc.; **Reg. No. 1,191,251** (DRIVE ON WASHINGTON), same, filed July 7, 1980, D.C.N.J. (Newark), Doc. 80-2106, *Simulations Publications, Inc.* v. *Command Perspectives, Inc.* Stipulation of dismissal of action filed Nov. 24, 1980. Same, filed July 9, 1980, D.C.N.J. (Newark), Doc. 80-2118, *Simulations Publications, Inc.* v. *Command Perspectives, Inc.* Stipulation of dismissal of action filed Nov. 24, 1980.

Reg. No. 1,191,251. (See Reg. No. 1,190,108.)

DEPARTMENT OF COMMERCE

Patent and Trademark Office

37 CFR Part 1

Reissue, Reexamination, Protest and Examination Procedures in Patent Cases

Agency: Patent and Trademark Office, Commerce.

Action: Final rule.

Summary: The Patent and Trademark Office is amending the rules of practice in patent cases (1) to eliminate consideration of the so-called "no defect" reissue applications, (2) to limit the participation by protestors during the examination of patent applications, (3) to reject and permit appeal to the Board of Appeals for failure to comply with the duty of disclosure rather than striking applications without appeal rights, and (4) to clarify the interface between patent application examination and patent reexamination in certain areas. These changes are intended to (1) reduce the prosecution costs of patent applicants, and (2) permit some of the Patent and Trademark Office resources now devoted to consideration of the so-called "no defect" reissue applications, and to extensive participation by protestors during application examination, to be directed toward reduction of the backlog of pending patent applications. The changes are also intended to provide for review by the Board of Appeals of duty of disclosure issues which arise during patent application examination. The rule changes are further intended to clarify the interface between the duty of disclosure during patent application examination and the duty of disclosure during patent reexamination, as well as the treatment of concurrent reissue and reexamination proceedings on the same patent.

Effective Date: July 1, 1982.

For Further Information Contact: Mr. R. Franklin Burnett by telephone at (703) 557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks. Washington, D.C. 20231.

Supplementary Information:

Background

A notice of proposed rulemaking was published in the Federal Register on Nov. 10, 1981, at 46 FR 55666-55672 and in the Official Gazette on Dec. 8, 1981, at 1013 O.G. 19-25. An oral hearing was held on Feb. 4, 1982. Forty-two written letters and statements were submitted. Fourteen persons testified at the oral hearing which resulted in 113 pages of testimony. Consideration was also given to the comments presented at the oral hearing on Apr. 16, 1981, relating to the proposed rules for implementing patent reexamination.

Objectives of Rule Change

The rule change is designed to adopt and implement Esuggestions from members of the public for changes in patent examination practice considered desirable in light of the implementation of statutory patent reexamination, contained in Public Law 96-517. Many of the persons who commented in writing and at the hearing held on Apr. 16, 1981, on the proposed rules for implementing patent reexamination favored modification of patent examination rules as amended herein. This rule change is designed to implement the suggestions received and, in particular, to reduce the prosecution costs of patent applicants by limiting the amount of participation by protestors during the patent application examination process.

The rule change also seeks to reduce the amount of time required by the Patent and Trademark Office to examine protested applications by limiting protestor participation. The technical expertise of the Patent and Trademark Office will continue to be available to make determinations of patentability on the basis of prior art

and related facts on an ex parte basis. However, the patent examiners in the Office are not trained as hearing examiners and have no substantial experience in handling inter partes matters. Under the rule change, protestor participation will be limited to the filing of papers in opposition to the grant of a patent with no Office communications to the protestor resulting therefrom beyond an acknowledgment of receipt of a protest or petition to strike in reissue applications. The opportunity to comment on Office actions and applicants' responses is eliminated. The rule change also intends to accomplish these purposes by eliminating the consideration of reissue applications not initially presented to correct defects pursuant to 35 U.S.C. 251.

The rule change is also designed to provide for review by the Board of Appeals of duty of disclosure issues which arise during patent application examination. This is accomplished by amending §1.56(d) to provide that the claims in an application be rejected if upon examination pursuant to 35 U.S.C. 131 and 132 it is found that applicant is not "entitled to a patent under the law" because of fraud or a violation of the duty of disclosure. The rejection would be made under the same conditions and circumstances previously used to strike an application, i.e., "clear and convincing evidence" of fraud or any violation of the duty of disclosure through bad faith or gross negligence. The statute, 35 U.S.C. 131, provides for examination of an application "and if on such examination it appears that the applicant is entitled to a patent under the law, the Commissioner shall issue a patent * * *" Section 132 of Title 35, United States Code, makes provision for the rejection of a claim for a patent as a result of the examination directed by 35 U.S.C. 131. While questions of fraud and violations of the duty of disclosure have historically been dealt with by the Commissioner through the mechanism of striking the affected application, there is no statutory requirement that the Commissioner act in that manner. Clearly the Commissioner can choose how, and by whom, the examination directed by 35 U.S.C. 131 can be made. 35 U.S.C. 132 authorizes a rejection in those circumstances where applicant is not "entitled to a patent under the law." The rule change simply modifies the mechanism and procedures which the Commissioner will use where the applicant is not "entitled to a patent under the law" because of failures to comply with §1.56(d).

The rule change is also designed to clarify the interface between patent application examination and patent reexamination in certain areas. The two areas involved are duty of disclosure and concurrent proceedings involving a patent under reexamination and for which a reissue application has been filed.

Sections 1.56, 1.106, 1.175, 1.193, 1.291, 1.555, 1.565, and 1.570 are amended to accomplish the purpose indicated above.

Discussion of Specific Rules

Access and Publication of Reissue Applications

The changes proposed in §1.11 are not being adopted since only one of the twenty-two comments favored the changes.

The publication of notices of the filing of reissues and provisions for public access to reissues will therefore continue as at present. Such publication eliminates the need for interested members of the public to periodically monitor the patent files to determine if a reissue application has been filed.

Amendments to §1.56

A large majority of the comments supported the amendments to §1.56. A number of comments questioned the advisability of having relatively inexperienced or non-attorney examiners handle questions of fraud or violation of the duty of disclosure. In response thereto, the amendments to the rule do not require that such questions be handled by the examiner who examines the application for questions of obviousness, enablement, etc. The Office presently plans to have questions of possible fraud or violation of the duty of disclosure examined by examiners with legal training assigned to the Office of the Assistant Commissioner for Patents. Several comments suggested that the provisions for striking an application pursuant to existing paragraph (c) of §1.56 are inconsistent with the rejection for fraud or violation of the duty of disclosure contemplated in the amendment to paragraph (d). In response thereto, it is pointed out that paragraph (c) of §1.56 makes striking of the application discretionary with the Commissioner. It is thus more appropriate to retain this authority to strike the application in appropriate circumstances rather than to make it subject to a rejection. No inconsistency is seen between the different routes under paragraphs (c) and (d) of §1.56. Several comments were received indicating concern about the possible delay of a decision by the Board of Appeals pending consideration of a fraud or duty of disclosure question. In response to these concerns, it is pointed out that less time overall will be required by having the Board of Appeals consider the matter once rather than in a series of separate decisions. Further, expense to the applicant will be minimized by one appeal rather than two. The amendments to §1.56 are adopted as proposed except for some clarifying changes in paragraph (g).

Section 1.56 is amended by revising the title and paragraph (d), and by adding new paragraphs (e) through (i). The revision to the title and paragraph (d) provides for the rejection of claims upon examination pursuant to 35 U.S.C. 131 and 132 on the ground that applicant is not entitled to a patent under the law if it is established by clear and convincing evidence (1) that any fraud was practiced or attempted on the Office in connection with the application, or in connection with any previous application upon which the application relies, or (2) that there was any violation of the duty of disclosure through bad faith or gross negligence in connection with the application, or in connection with any previous application upon which the application relies. Under amended paragraph (d), any rejection which would be made would include all the claims in the application.

The standards to be used in rejecting the claims under paragraph (d) as amended, would be the same as those utilized by the Commissioner in striking applications pursuant to present paragraph (d), i.e., clear and convincing evidence of fraud or any violation of the duty of disclosure through bad faith or gross negligence. Consistent with present practice, the revision of paragraph (d) looks to fraud or a violation of the duty of disclosure through bad faith or gross negligence with relation to the application under consideration or any previous application upon which the application relies.

The phrase "in connection with the application" is construed in the same manner as in the present unamended paragraph (d). For purposes of this section, a reexamination proceeding on a patent would be considered as being "in connection with the application" insofar as consideration of any subsequent reissue application is concerned. The phrase also includes within its scope the mere refiling of the subject matter of an application in another application without relying in the second application upon the first application. Thus, an appropriate rejection upon examination pursuant to 35 U.S.C. 131 and 132 based on conduct or actions proscribed by §1.56(d) could not be avoided merely by refiling the subject matter of the application in a second or subsequent application which did not rely upon the earlier application. The phrase "in connection with any previous application upon which the application relies" is intended to include all applications upon which the application under consideration relies, either directly or indirectly. For example, an application to reissue a patent obviously relies upon the application which resulted in the patent sought to be reissued. Likewise, continuation applications, continuation-in-part applications, and divisional applications also rely upon one or more parent applications.

New paragraph (e) of §1.56 normally delays the examination of an application for compliance with paragraph

(d) of §1.56 until such time as (1) all other matters are resolved, or (2) appellant's reply brief pursuant to §1.193(b) has been received and the application is otherwise ready for consideration by the Board of Appeals, at which time the appeal will be suspended for examination pursuant to paragraph (d) of this section. Present plans are to have this examination on the question of fraud or violation of the duty of disclosure conducted by examiners with legal training assigned to the Office of the Assistant Commissioner for Patents. Paragraph (e), as added, would thus permit the resolution of issues arising under §1.56(d) to be delayed until consideration of such issues is necessary and appropriate. The practice under new paragraph (e) is generally consistent with present practice under paragraph (d) which normally delays the substantive resolution of fraud and duty of disclosure issues until other issues have been resolved in favor of applicant. Under new paragraph (e) an appeal would be suspended for examination pursuant to amended paragraph (d) of §1.56 once appellant's reply brief pursuant to §1.193(b) has been received and the application is otherwise ready for consideration by the Board of Appeals. If no questions of possible violation of §1.56 are raised or evident on the record before the examiner, no examination for compliance with paragraph (d) of §1.56 will be undertaken. New paragraph (e) provides for the reopening of prosecution of the application to the extent necessary to conduct the examination pursuant to amended paragraph (d) of §1.56 including any appeal pursuant to §1.191. New paragraph (e) also indicates that where an appeal has already been filed based on a rejection on other grounds, any further rejection under amended paragraph (d) will be treated in accordance with amended §1.193(c).

New paragraph (f) continues the present long standing practice whereby any member of the public can file a petition to strike an application from the files pursuant to paragraph (c) of §1.56. Such petitions are currently being filed without specific mention in §1.56. Under revised §1.56 petitions to strike an application for a violation of §1.56 are limited to violations of paragraph (c), with any violations of paragraph (d) being subject matter for rejection under paragraph (d). New paragraph (f) requires that any such petition alleging a violation of paragraph (c) which is entered in the application file must: (1) Be timely filed, (2) specifically identify the application to which the petition is directed, and (3) be served on the applicant or be filed with the Office in duplicate in the event service is not possible. New paragraph (f) does not specifically limit a "timely petition" to any particular point in the examination of the application. Such petitions will generally be considered "timely" if they are filed before final rejection or allowance of the application by the examiner. Whether or not a petition filed after final rejection or allowance of the application by the examiner is considered "timely" will depend upon the circumstances and the point in the prosecution at which the petition is submitted.

New paragraph (f) requires that the petition specifically identify the application to which the petition is directed. While an identification by application serial number is not essential, the identification must include enough specificity that the Office can determine with certainty the application to which the petition is directed. Paragraph (f) requires service of the petition on the applicant, or a duplicate copy in the event service is not possible, before the petition will be entered. While the Office might, in some circumstances, reproduce and serve a petition on the applicant, a member of the public would have no assurance that this would be done and, under paragraph (f), could not rely upon the Office doing so. Paragraph (f) also requires that any petition filed by an attorney or agent comply with §1.346.

New paragraph (g) of §1.56 assures a member of the public that a petition to strike an application for violation of paragraph (c) of §1.56 which meets the requirements of paragraph (f) will be considered by the Office. Language has been added to conform to additional language in §1.291(c). The Office will send petitioner an acknowledgment of the entry of a petition to strike in a reissue application file. However, the Office will not communicate with the member of the public filing such a petition in non-reissue applications, except for the return of any self-addressed postcard which was enclosed which merely acknowledges receipt of the petition. The member of the public filing the petition will not be permitted to contact the Office as to the disposition, or status, of the petition, or to participate in any Office proceedings relating to the petition. No further papers will be acknowledged or considered unless they raise new issues which could not have been earlier presented and thereby constitute a new proper petition. Mere arguments relating to the Office's decision on the petition or applicant's response to the petition would not qualify as a new proper petition. The disposition of the petition, once one has been filed, will, under paragraph (g), be an ex parte matter between the Office and the applicant. Paragraph (g) provides for communication by the Office with the applicant regarding a petition to strike the application which has been entered in the application file. Under new paragraph (g) the applicant could be required by the Office to respond to the petition. Any such response would be ex parte and would not be served on the member of the public filing the petition.

New paragraph (h) of §1.56 provides that any member of the public may seek to have the claims in an application rejected pursuant to the amended paragraph (d) of §1.56 by filing a timely protest in accordance with §1.291. New paragraph (h) also requires that any such protest filed by an attorney or agent seeking a rejection of claims pursuant to amended paragraph (d) of §1.56 must be in compliance with §1.346. One comment suggested that the last sentence of paragraph (h) is redundant since §1.346 applies without any specific mention. After careful consideration of the comment the sentence is being retained in order to emphasize and remind attorneys and agents of the obligations imposed by §1.346.

New paragraph (i) provides for the Office requiring the applicant to supply information pursuant to paragraph (a) of §1.56 in order for the Office to decide any issues relating to paragraphs (c) and (d) of §1.56, whether or not such issues arise as a result of a petition or a protest, or arise from other sources, e.g., an examiner discovering the issue while studing the application file. Any requirements for information under new paragraph (i) will be ex parte in nature between the Office and the applicant. The ex parte nature of the requirements for information under new paragraph (i) differs from past practice under which information was required, or requested, from applicant and one or more petitioners or protestors in some cases.

Rejection of Claims

Five comments were submitted relating to new paragraph (c) of §1.106. Two of the comments favored the paragraph as written and three recommended modification or clarification of the paragraph to ensure that it is not inconsistent with *In re Ruff, et al.*, 45 CCPA 1037, 118 USPQ 340 (CCPA 1958), and subsequent decisions. No modification or clarification of the paragraph is considered necessary since the intent of the paragraph was not to change current practice, but was merely to emphasize the importance placed on admissions and to make §1.106 more closely reflect current practice, which includes practice following *In re Ruff, et al.*, and subsequent decisions. The amendments to §1.106 are adopted as proposed.

Section 1.106 is amended to include a new paragraph (c) which emphasizes the importance placed on admissions by the applicant or the patent owner in a reexamination proceeding insofar as matters affecting patentability are concerned. Paragraph (c) includes a reference to the use of rejections based upon facts within the knowledge of the examiner as provided in §1.107. Paragraph (c) does not constitute a change in practice, but does result in §1.106 more closely reflecting current practice.

Reissue Oath or Declaration

Ten persons commented on §1.175. Four comments were received in support of the proposed change. Three of these favorable comments were from patent law groups. Of the six comments received opposing the change, two were from patent law groups. Eleven comments received at the Apr. 16, 1981, hearing on reexamination argued for retraction of the "Dann Amendments" which included §1.175(a)(4). Four comments at the Apr. 16, 1981, hearing favored retaining the "Dann Amendments". The arguments supporting the change were generally that paragraph (a)(4) was not necessary in view of the new reexamination procedure. The arguments opposing the deletion were generally that an inter partes practice before the Office is desirable from the standpoint of the judiciary and for a complete resolution of issues. After careful consideration of all of the arguments and the resources available in the Patent and Trademark Office, it is felt that the practice under paragraph (a)(4) of §1.175 should be discontinued and paragraph (a)(4) should be cancelled.

The numbering of paragraphs (a)(5) and (6) is not being changed. Proposed paragraph 1.175(a)(6) is being adopted as new paragraph 1.175(a)(7). The proposed wording is otherwise being adopted without change.

Amended §1.175 eliminates paragraph (a)(4). Under paragraph (a)(4), the Office gave advisory opinions on patentability over additional prior art without any changes in the patent claims. The courts have generally refused to give preclusive effect to these advisory opinions. See *PIC, Inc.* v. *Prescon Corp.*, 485 F. Supp. 1302, 205 USPQ 228 (D. Del. 1980), and *Rohm and Haas Co. v. Mobil Oil Corp.*, 525 F. Supp. 1298, 212 USPQ 354 (D. Del. 1981). Accordingly, in view of the implementation of patent reexamination pursuant to Pub. L. 96-517 it is appropriate to discontinue the advisory opinions provided pursuant to §1.175(a)(4). Under amended §1.175 an applicant for reissue of a patent will be required to file with the reissue application a statement under oath or declaration specifically averring a defect in the patent, e.g., "a defective specification or drawing," or an excess or insufficiency in the claims. Amended §1.175 also requires, in paragraphs (a)(5) and (a)(6), that applicant specify "errors" as opposed to "what might be deemed to be errors." Amended §1.175 effectively eliminates Office consideration of the merits of "no defect" reissue applications since any such "no defect" reissue applications filed after July 1, 1982, the effective date of the changes to §1.175, will not be examined as to questions of patentability. In addition, §1.175(a)(7) has been added to parallel the provisions in §1.65 requiring the same acknowledgment of the duty of disclosure in the oath or declaration of reissue applications as in the case of non-reissue applications.

Delay in Examination of Reissue Applications

Six comments were received relative to the proposed changes in §1.176. One comment supported, and five comments opposed, deleting the two month waiting period before action could be taken by an examiner in a reissue application. The opposing comments favored retaining the two month period to provide an opportunity for interested parties to submit information relating to the examination of a reissue application after notice of the filing thereof has been published in the Official Gazette. Since the notices under §1.11 will continue to be published, no need is seen to change §1.176. The proposed change is therefore not adopted.

Examiner's Answer

Only one comment was made relating to the proposed addition of paragraph (c) to §1.193. It suggested including a minimum time period for response in the rule. This suggestion was not adopted because in some circumstances it may be appropriate to set a shorter or a longer period for the reply brief. The amendments to §1.193 are adopted as proposed.

Paragraph (c) adds to §1.193 a provision that any decision rejecting claims pursuant to §1.56(d) in an application already on appeal from a rejection based on other grounds shall constitute a supplemental examiner's answer introducing a new ground of rejection and removing the suspension of the appeal introduced pursuant to §1.56(e). Prior to entering any such supplemental examiner's answer under paragaph (c), the Office may require information from applicant pursuant to paragraph (i) of §1.56. Under paragraph (c) of §1.193, the appellant may file a reply to the supplemental examiner's answer. Paragraph (c) provides that the appellant's reply to the supplemental examiner's answer will be considered and responded to as necessary with appellant being provided with an additional month, or such other time as may be set, within which to reply to any such response from the Office. After introduction of a supplemental examiner's answer pursuant to paragraph (c) and any replies and response thereto, the application will be forwarded to the Board of Appeals for consideration.

Protests by the Public Against Pending Applications

Fifteen persons commented on the proposed amendment of §1.291. Two persons suggested that protests be acknowledged by more than the return of a self-addressed postcard. The suggestion has been adopted to the extent of providing for an acknowledgment of the entry of a protest in a reissue application file to be sent to the member of the public filing the protest. The suggestion has not been adopted insofar as original applications are concerned since these applications are generally required to be kept in confidence under 35 U.S.C. 122. Further, the use of return postcards is an established method of receiving acknowledgment from the Office that a paper has been filed. By merely returning the postcard to a protestor in an application for an original patent and directing Office initiated communications solely to applicant, the amount of Office resources required will be minimized.

Several persons commented that the protest proceeding should be more inter partes. The weight of the comments received at the hearings held on Apr. 16, 1981, and Feb. 4, 1982, and in writing, favored ex parte proceedings. To ensure that the proceedings are essentially ex parte, a sentence is being added to paragraph (c) of §1.291, indicating that active participation by a member of public ends with the filing of the protest. To retain the inter partes nature of the protest would be contrary to the majority of the comments received and to one of the major purposes of the rule change, i.e., to reduce the amount of time spent by the Office in examining protested applications. The amendments to paragraphs (a) and (b) of §1.291 are adopted as proposed and paragraph (c) is being revised as indicated above.

Amended §1.291 continues to permit protests by the public against pending original and reissue applications. The protest may include any grounds which the member of the public filing the protest believes to be applicable.

Amended paragraph (a) of §1.291 provides for entry of a protest in the application file if the protest specifically identifies the application, is timely submitted, and is either served upon the applicant in accordance with §1.248, or filed with the Office in duplicate, in the event service is not possible. The comments made above in the discussion of new paragraph (f) of §1.56 regarding the timeliness of the filing or submission, specific identification of the application, and service on the applicant, are also applicable to the amendments of paragraph (a) of §1.291. The requirement that the Office acknowledge the filing of a protest is deleted from paragraph (a), but is covered in paragraph (c).

New paragraph (b) of §1.291 assures members of the public that a protest will be considered by the Office if (1) it specifically identifies the application to which it is directed; (2) it is timely submitted; (3) it is properly served upon the applicant in accordance with §1.248, or is filed with the Office the duplicate in the event service is not possible; (4) it includes a listing of the patents, publications or other information relied upon and a concise explanation of the relevance of each listed item; (5) it includes a copy of each listed patent or publication

or other item of information in written form, or at least the pertinent portions thereof; and (6) it includes an English language translation of all the necessary and pertinent parts of any non-English language document relied upon. It is considered desirable that §1.291 advise members of the public as to the contents which should be included in any protest since there will be no Office communications directed to the member of the public submitting the protest under paragraph (c). Thus, under paragraph (c) members of the public will not be given an opportunity to complete any protest which is incomplete. Amended paragraph (c) provides for the acknowledgment of the entry of a protest in a reissue application file.

Amended paragraph (c) of §1.291 provides that a member of the public filing a protest in an application for an original patent will not receive any communications from the Office relating to the protest, other than the return of a self-addressed postcard acknowledging receipt of the protest. Amended paragraph (c) of §1.291 does not permit the member of the public filing the protest, or any other member of the public, to contact the Office as to the disposition, or status, of the protest or to participate in any Office proceedings relating to the protest. The disposition of the protest, once it has been filed will, under paragraph (c), be an ex parte matter between the Office and the applicant. However, applications which are open to the public may be inspected pursuant to §1.11.

Amended paragraph (c) provides for the Office to communicate with the applicant regarding any protest entered in the application file. Under paragraph (c), the applicant could be required by the Office to respond to the protest. Any response would be ex parte and would not be served on the member of the public filing the protest. Paragraph (c) provides for the Office to require applicant to supply information pursuant to pargraph (a) of §1.56 in order for the Office to decide any issues raised by the protest. Requirements for information under paragraph (c) will be ex parte in nature between the Office and the applicant. The ex parte nature of the requirements for information under paragraph (c) differs from past practice under which information could be required, or requested, from applicant and one or more protestors. Under amended paragraph (c), the active participation of the protestor ends with the filing of the protest and no further submission on behalf of the protestor will be acknowledged or considered unless such submission raises new issues which could not have been earlier presented, and thereby constitutes a new protest. Mere arguments relating to an Office action or an applicant's response would not qualify as a new protest.

Duty of Disclosure in Reexamination Proceedings

Only two comments were received relative to proposed §1.555. One comment argued that the Office should never ignore a violation of the duty of disclosure or leave it hanging. In response thereto, neither the statute nor the presently existing reexamination rules provide for reexamination on grounds other than those based on patents or printed publications. The second comment questioned whether a patent owner has a duty to cite new prior art after a request but prior to an order to reexamine. No further clarification of the section is necessary since §1.555(a) specifies when the patent owner should file a prior art statement in a reexamination proceeding. The amendments to §1.555 are adopted as proposed.

Amended §1.555 makes the duty of disclosure in reexamination proceedings more consistent with the duty of disclosure in patent applications. Paragraph (a) of §1.555 specifies that a duty of candor and good faith toward the Patent and Trademark Office rests on the patent owner or involved employees of the patent owner, on each attorney or agent who represents the patent owner, and on every other individual who is substantively involved on behalf of the patent owner in a reexamination proceeding. This rule is consistent with the duty set forth in §1.56(a) insofar as patent applications are concerned, except that in paragraph (a) of §1.555 the patent owner is specified rather than the inventor as set forth in paragraph (a) of §1.56. This does not, however, impose the responsibility for compliance with the duty of disclosure on a corporate entity or organization but leaves the responsibility with involved individuals in the corporation or other organization. Paragraph (a) of §1.555 places a requirement on the individuals identified to bring to the attention of the Office patents or printed publications material to the reexamination which have not been previously made of record in the patent file and specifies how that should be accomplished.

Amended paragraph (b) of §1.555 essentially parallels existing paragraph (b) of §1.56 and makes similar provisions applicable to disclosures in reexamination proceedings.

Amended paragraph (c) of §1.555 provides that the duties of candor, good faith, and disclosure required in paragraph (a) of §1.555 have not been complied with if any fraud was practiced or attempted on the Office or there was any violation of the duty of disclosure through bad faith or gross negligence by, or on behalf of, the patent owner in the reexamination proceeding. The language of paragraph (c) refers to fraud or violation of the duty of disclosure in the reexamination proceeding since such conduct during the pendency of applications is covered by §1.56.

Amended paragraph (d) of §1.555 affirms that the responsibility for compliance with §1.555 rests upon the individuals identified in paragraph (a). Paragraph (d) also provides that no evaluation will be made in the reexamination proceeding by the Office as to compliance with §1.555. Paragraph (d) of §1.555 also provides that questions of compliance with §1.555 which are discovered during a reexamination proceeding will be noted as unresolved questions in accordance with present §1.552(c). Paragraph (d) will not preclude the patent owner from filing a reissue application to have questions of candor, good faith, and duty of disclosure considered and resolved, including such questions which arise during a reexamination proceeding, so long as the requirements of 35 U.S.C. 251 have been met. Paragraph (d) does not preclude suspension or disbarment proceedings under present §1.348 based upon conduct during a reexamination proceeding.

Concurrent Office Proceedings

Four comments were received on §1.565. One comment proposed adding a sentence at the end of paragraph (b) of §1.565 reflecting that reexamination would only be stayed in extraordinary situations. This suggestion has not been adopted since it is considered inappropriate to attempt to further define by rule the circumstances under which a stay of the reexamination may be appropriate. Two comments were received raising questions as to the treatment, during a merged reissue and reexamination proceeding, of broader claims which are present therein because of a reissue application which contained broadened claims. No clarification or change is necessary since the broadened claims are properly in the merged proceeding during the period it is merged. Such broader claims which are present in both the reissue and reexamination files during the pendency of the merged proceeding will be treated in accordance with the reissue statute and case law during the pendency of the merged proceeding. If the merged proceeding ceases to exist because of the abandonment of the reissue application, the claims in the reexamination file, including any broadened claims, will be examined in accordance with the reexamination statute and rules. Finally, one comment did not agree with merging reissue and reexamination proceedings because the merger is not seen to produce cost savings or other salutary results. One of the reasons for the merged proceedings is to ensure that claims of differing scope and inconsistent responses are not presented at the same time in different proceedings in the same patent. Moreover, since the proceedings are concurrent rather than sequential, a sig-

nificant savings in resources and overall pendency time may be realized by merging in many cases.

The amendment to §1.565 clarifies the proposed language of paragraph (b), eliminates from paragraph (b) the last two sentences relating to the treatment of concurrent reexamination and reissue proceedings, and adds a new paragraph (d) relating to this subject. The clarification in paragraph (b) is intended to avoid misinterpretations relating to stay determinations where concurrent litigation or reissue applications are involved.

Under new paragraph (d), which is consistent with the practice presently in effect under paragraph (b), if a reissue application and a reexamination proceeding on which an order pursuant to present §1.525 has been mailed are pending concurrently on a patent, a decision will normally be made to merge the two proceedings or to stay one of the proceedings. New paragraph (d) also provides that where merger of a reissue application and a reexamination proceeding is ordered, the merged examination will be conducted in accordance with present §§1.171–1.179. The examiner, in examining the merged proceeding, will apply the reissue statute and case law, in addition to applicable provisions of §§1.171–1.179, to the merged proceeding. This is appropriate in view of the fact that the statutory provisions for reissue applications and reissue application examination include, *inter alia,* provisions equivalent to 35 U.S.C. 305 relating to the conduct of reexamination proceedings. New paragraph (d) of §1.565 makes clear that the patent owner must place and maintain the same claims in the reissue application and the reexamination proceeding during the pendency of the merged proceeding. Under new paragraph (d) of §1.565 the examiner's actions and any responses by the patent owner in a merged proceeding will apply to both the reissue application and the reexamination proceeding and will be physically entered into both files. New paragraph (d) also provides that any reexamination proceeding merged with a reissue application shall be terminated by the grant of the reissued patent. The amendments to §1.565 are adopted with the changes or clarification indicated in paragraph (b).

Reexamination Certificate

Section 1.570, as amended, revises paragraph (e) to refer to new paragraph (d) of §1.565 rather than paragraph (b) in order to reflect the changes in §1.565.

No comments were received concerning the section and it is adopted without change.

Interim Procedures on Applications Pending on Effective Date

On July 1, 1982, the revised procedures of §§1.56(d) and 1.193(c) will apply to any applications then pending which have not been the subject of a final Office decision on questions of fraud or violation of the duty of disclosure. Any petition to strike an application from the files or any protest against a pending application filed prior to July 1, 1982, will be governed by the rules in effect prior to that date. Any applications filed under §1.175(a)(4) prior to July 1, 1982, will be examined until the application is amended and a reissue patent issues thereon or the application becomes abandoned. For a discussion of the interim practice in effect prior to July 1, 1982, see 1013 O.G. 18–19.

Environmental, energy, and other considerations: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96–354).

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291.

List of Subjects in 37 CRF Part 1

Administrative practice and procedure, Courts, Freedom of information, Inventions and patents, Lawyers.

Amendment of Regulations

PART 1–RULES OF PRACTICE IN PATENT CASES

For the reasons indicated above and pursuant to the authority given to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, Part 1 of Title 37, Code of Federal Regulations is amended as set forth below.

1. Section 1.56 is amended by revising the heading and paragraph (d) and by adding new paragraphs (e) through (i) to read as follows:

§1.56 Duty of disclosure; fraud; striking or rejection of applications.

* * * * *

(d) No patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or gross negligence. The claims in an application shall be rejected if upon examination pursuant to 35 U.S.C. 131 and 132, it is established by clear and convincing evidence (1) that any fraud was practiced or attempted on the Office in connection with the application, or in connection with any previous application upon which the application relies, or (2) that there was any violation of the duty of disclosure through bad faith or gross negligence in connection with the application, or in connection with any previous application upon with the application relies.

(e) The examination of an application for compliance with paragraph (d) of this section will normally be delayed until such time as (1) all other matters are resolved, or (2) appellant's reply brief pursuant to §1.193(b) has been received and the application is otherwise prepared for consideration by the Board of Appeals, at which time the appeal will be suspended for examination pursuant to paragraph (d) of this section. The prosecution of the application will be reopened to the extent necessary to conduct the examination pursuant to paragraph (d) of this section including any appeal pursuant to §1.191. If an appeal has already been filed based on a rejection on other grounds, any further rejection under this section shall be treated in accordance with §1.193(c).

(f) Any member of the public may seek to have an application stricken from the files pursuant to paragraph (c) of this section by filing a timely petition to strike the application from the files. Any such timely petition and any accompanying papers will be entered in the application file if the petition and accompanying papers (1) specifically identify the application to which the petition is directed, and (2) are either served upon the applicant in accordance with §1.248, or filed with the Office in duplicate in the event service is not possible. Any such petition filed by an attorney or agent must be in compliance with §1.346.

(g) A petition to strike an application from the files submitted in accordance with the second sentence of paragraph (f) of this section will be considered by the Office. An acknowledgement of the entry of such a petition in a reissue application file will be sent to the member of the public filing the petition. A member of the public filing such a petition in an application for an original patent will not receive any communications from the Office relating to the petition, other than the return of a self-addressed postcard which the member of the public may include with the petition in order to receive an acknowledgement by the Office that the petition has been received. The Office will communicate with the applicant regarding any such petition entered in the application file and may require the applicant to respond to the Office on matters raised by the petition. The active participation of the member of the public filing a petition pursuant to paragraph (f) of this section ends with the filing of the petition and no further submission on behalf of the petitioner will be acknowledged or considered unless such submission raises new issues which

could not have been earlier presented, and thereby constitutes a new petition.

(h) Any member of the public may seek to have the claims in an application rejected pursuant to paragraph (d) of this section by filing a timely protest in accordance with §1.291. Any such protest filed by an attorney or agent must be in compliance with §1.346.

(i) The Office may require applicant to supply information pursuant to paragraph (a) of this section in order for the Office to decide any issues relating to paragraphs (c) and (d) of this section which are raised by a petition or a protest or are otherwise discovered by the Office.

2. Section 1.106 is amended by adding a new paragraph (c) to read as follows:

§1.106 Rejection of claims.

* * * * *

(c) In rejecting claims the examiner may rely upon admissions by the applicant, or the patent owner in a reexamination proceeding, as to any matter affecting patentability and, insofar as rejections in applications are concerned, may also rely upon facts within his or her knowledge pursuant to §1.107.

3. Section 1.175 is amended by revising paragraph (a) to read as follows:

§1.175 Reissue oath or declaration.

(a) Applicants for reissue, in addition to complying with the requirements of the first sentence of §1.65, must also file with their applications a statement under oath or declaration as follows:

(1) When the applicant verily believes the original patent to be wholly or partly inoperative or invalid, stating such belief and the reasons why.

(2) When it is claimed that such patent is so inoperative or invalid "by reason of a defective specification or drawing," particularly specifying such defects.

(3) When it is claimed that such patent is inoperative or invalid "by reason of the patentee claiming more or less than he had the right to claim in the patent," distinctly specifying the excess or insufficiency in the claims.

(4) [Reserved]

(5) Particularly specifying the errors relied upon, and how they arose or occurred.

(6) Stating that said errors arose "without any deceptive intention" on the part of the applicant.

(7) Acknowledging a duty to disclose information applicant is aware of which is material to the examination of the application.

* * * * *

4. Section 1.193 is amended by adding a paragraph (c) to read as follows:

§1.193 Examiner's answer.

* * * * *

(c) Any decision pursuant to §1.56(d) rejecting claims in an application already under appeal of a rejection based on other grounds shall constitute a supplemental examiner's answer introducing a new ground of rejection and removing the suspension of the appeal introduced pursuant to §1.56(e), in which case appellant may file a reply thereto within two months from the date of the supplemental examiner's answer. Such reply will be considered and responded to as necessary. Appellant may file a reply brief directed to any such response within one month of the date of the response or within such other time as may be set in the response.

5. Section 1.291 is amended by revising the title, amending paragraphs (a) and (c), and adding paragraph (b), to read as follows:

§1.291 Protests by the public against pending applications.

(a) Protests by a member of the public against pending applications will be referred to the examiner having charge of the subject matter involved. A protest specifically identifying the application to which the protest is directed will be entered in the application file if (1) the protest is timely submitted; and (2) the protest is either served upon the applicant in accordance with §1.248, or filed with the Office in duplicate in the event service is not possible.

(b) A protest submitted in accordance with the second sentence of paragraph (a) of this section will be considered by the Office if it includes (1) a listing of the patents, publications or other information relied upon; (2) a concise explanation of the relevance of each listed item; (3) a copy of each listed patent or publication or other item of information in written form or at least the pertinent portions thereof; and (4) an English language translation of all the necessary and pertinent parts of any non-English language patent, publication, or other item of information in written form relied upon.

(c) An acknowledgment of the entry of a protest under paragraph (a) of this section in a reissue application file will be sent to the member of the public filing the protest. A member of the public filing a protest under paragraph (a) of this section in an application for an original patent will not receive any communications from the Office relating to the protest, other than the return of a self-addressed postcard which the member of the public may include with the protest in order to receive an acknowledgment by the Office that the protest has been received. The Office will communicate with the applicant regarding any protest entered in the application file and may require the applicant to supply information pursuant to paragraph (a) of §1.56, including responses to specific questions raised by the protest, in order for the Office to decide any issues raised by the protest. The active participation of the member of the public filing a protest pursuant to paragraph (a) of this section ends with the filing of the protest and no further submission on behalf of the protestor will be acknowledged or considered unless such submission raises new issues which could not have been earlier presented, and thereby constitutes a new protest.

6. Section 1.555 is revised to read as follows:

§1.555 Duty of disclosure in reexamination proceedings.

(a) A duty of candor and good faith toward the Patent and Trademark Office rests on the patent owner, on each attorney or agent who represents the patent owner, and on every other individual who is substantively involved on behalf of the patent owner in a reexamination proceeding. All such individuals who are aware, or become aware, of patents or printed publications material to the reexamination which have not been previously made of record in the patent file must bring such patents or printed publications to the attention of the Office. A prior art statement, preferably in accordance with §1.98, should be filed within two months of the date of the order for reexamination, or as soon thereafter as possible in order to bring such patents or printed publications to the attention of the Office.

(b) Disclosures pursuant to this section may be made to the Office through an attorney or agent having responsibility on behalf of the patent owner for the reexamination proceeding or through a patent owner acting in his or her own behalf. Disclosure to such an attorney, agent or patent owner shall satisfy the duty of any other individual. Such an attorney, agent or patent owner has no duty to transmit information which is not material to the reexamination.

(c) The duties of candor, good faith, and disclosure required in paragraph (a) of this section have not been complied with if any fraud was practiced or attempted on the Office or there was any violation of the duty of disclosure through bad faith or gross negligence by, or on behalf of, the patent owner in the reexamination proceeding.

(d) The responsibility for compliance with this section rests upon the individuals identified in paragraph (a) of this section and no evaluation will be made in the reexamination proceeding by the Office as to compliance

with this section. If questions of compliance with this section are discovered during a reexamination proceeding, they will be noted as unresolved questions in accordance with §1.552(c).

7. Section 1.565 is amended by revising paragraph (b) and adding paragraph (d) to read as follows:

§1.565 Concurrent office proceedings.

* * * * *

(b) If a patent in the process of reexamination is or becomes involved in interference proceedings or litigation, or a reissue application for the patent is filed or pending, the Commissioner shall determine whether or not to stay the reexamination, reissue or interference proceeding.

* * * * *

(d) If a reissue application and a reexamination proceeding on which an order pursuant to §1.525 has been mailed are pending concurrently on a patent, a decision will normally be made to merge the two proceedings or to stay one of the two proceedings. Where merger of a reissue application and a reexamination proceeding is ordered, the merged examination will be conducted in accordance with §§1.171-1.179 and the patent owner will be required to place and maintain the same claims in the reissue application and the reexamination proceeding during the pendency of the merged proceeding. The examiner's actions and any responses by the patent owner in a merged proceeding will apply to both the reissue application and the reexamination proceeding and be physically entered into both files. Any reexamination proceeding merged with a reissue application shall be terminated by the grant of the reissued patent.

8. Section 1.570 is amended by revising paragraph (e) to read as follows:

§1.570 Issuance of reexamination certificate after reexamination proceedings.

* * * * *

(e) If the reexamination proceeding is terminated by the grant of a reissued patent as provided in §1.565(d) the reissued patent will constitute the reexamination certificate required by this section and 35 U.S.C. 307.

* * * * *

Apr. 6, 1982

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

[FR Doc. 82-13613 Filed 5-18-82; 8:45 am]
BILLING CODE 3510-16-M

PATENT NOTICES

Certificates of Correction for the Week of June 22, 1982

D. 261,925	4,302,381	4,313,591	4,321,897
4,209,421	4,303,228	4,314,010	4,322,217
4,213,095	4,303,451	4,314,068	4,322,821
4,219,556	4,303,880	4,314,090	4,322,893
4,220,449	4,303,893	4,314,192	4,322,949
4,230,770	4,304,707	4,314,476	4,322,997
4,244,557	4,306,379	4,314,580	4,323,103
4,252,278	4,306,621	4,315,308	4,323,216
4,259,205	4,306,916	4,315,310	4,323,832
4,262,938	4,306,968	4,315,662	4,323,891
4,263,160	4,307,432	4,315,793	4,324,208
4,264,283	4,307,483	4,316,053	4,324,355
4,268,225	4,307,713	4,316,207	4,324,470
4,270,443	4,308,066	4,316,555	4,324,496
4,271,784	4,308,115	4,316,775	4,324,616
4,276,094	4,308,331	4,316,994	4,324,675
4,278,010	4,308,429	4,317,207	4,324,736
4,278,695	4,308,857	4,318,060	4,324,750
4,282,024	4,309,787	4,318,603	4,324,847
4,285,972	4,310,615	4,318,624	4,325,458
4,289,740	4,310,646	4,318,876	4,325,489
4,297,413	4,310,827	4,319,221	4,325,571
4,298,547	4,310,943	4,319,238	4,325,627
4,298,770	4,310,978	4,319,253	4,325,815
4,299,449	4,311,096	4,319,476	4,325,817
4,300,079	4,311,566	4,320,644	4,325,899
4,300,310	4,311,775	4,321,122	4,328,381
4,300,350	4,312,001	4,321,198	4,328,443
4,301,043	4,312,407	4,321,304	4,328,640
4,301,542	4,312,584	4,321,401	4,329,589
4,302,084	4,312,802	4,321,592	4,329,648
4,302,117	4,313,283	4,321,652	
4,302,248	4,313,325	4,321,710	

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 573-5152 Ext. 222
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 15, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-04-80
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-04-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	4-09-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-08-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	4-15-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	8-29-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-20-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240— G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	6-04-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	8-11-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	10-02-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	1-07-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	6-26-80

Expiration of patents: The patents within the range of numbers indicated below expire during May 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,181,175 to 3,186,003, inclusive

Plant Patents ..... Numbers 2,502 to 2,521 inclusive

REISSUES

JUNE 22, 1982

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,975

SPINDLE PROBE WITH ORBITAL TRANSFORMER

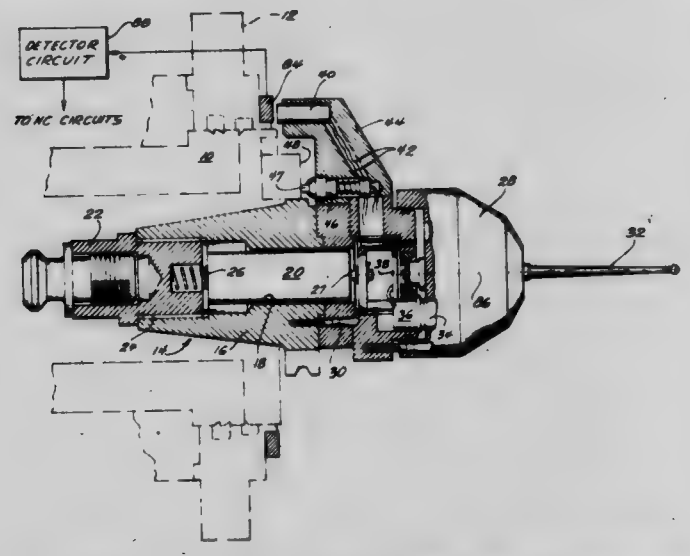
Richard E. Stobbe, Greenfield, and Richard Johnstone, Brookfield, both of Wis., assignors to Kearney & Trecker Corporation, West Allis, Wis.

Original No. 4,145,816, dated Mar. 27, 1979, Ser. No. 853,764, Nov. 21, 1977. Application for reissue Nov. 10, 1980, Ser. No. 205,659

Int. Cl.[3] G01B *7/02*

U.S. Cl. 33—174 L

6 Claims



1. A spindle probe for a machine tool having a spindlehead and having a spindle rotatably mounted on said spindlehead for rotation about a spindle axis, said spindle being adapted to receive a toolholder and said spindle probe comprising:

a toolholder adapted to fit in said spindle;

a probe element on said toolholder;

an oscillator within said toolholder;

means within said toolholder for energizing said oscillator;

means coupled between said oscillator and said means for energizing said oscillator for providing a completed electrical circuit path between said oscillator and said means for energizing said oscillator when said toolholder is inserted into said spindle;

means within said toolholder for altering the output of said oscillator when said probe element contacts a surface being measured;

a primary coil mounted on said toolholder and coupled to the output of said oscillator; and

a secondary coil mounted on said spindlehead adjacent to said toolholder to receive signals from said primary coil.

Re. 30,976

HONING MACHINE

William G. Wunder, Hamilton, Mich., assignor to Ex-Cell-O Corporation, Troy, Mich.

Original No. 4,136,488, dated Jan. 30, 1979, Ser. No. 828,475, Aug. 29, 1977. Application for reissue Apr. 28, 1980, Ser. No. 144,111

Int. Cl.[3] B24B *5/36*

U.S. Cl. 51—58

12 Claims

1. A honing machine for honing an arcuate grooved surface that extends around the circumference of a cylindrical workpiece comprising:

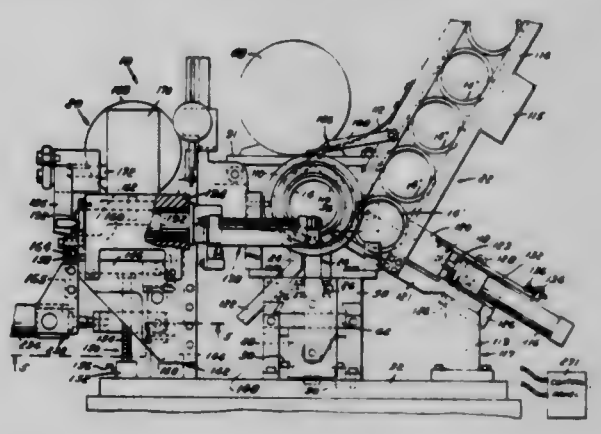
workpiece support means for rotatably supporting the workpiece in a workpiece support position in the machine for rotation about the axis of the workpiece;

spindle drive means for rotating the workpiece while it is being held by the workpiece support means;

oscillation assembly means for holding a honing stone having an arcuate honing surface in abrading engagement with the arcuate surface of the workpiece is rotated, the oscillation assembly means causing the honing stone to be oscillated back and forth as it is held in abrading engagement with the arcuate surface of the rotating workpiece, said oscillation assembly means including:

oscillating tool holder means for holding the honing stone as it is oscillated, the tool holder means oscillating with the honing stone;

non-oscillating tool holder mounting means for supporting the oscillating tool holder means, said tool holder mounting means permitting oscillation of the tool holder means relative thereto, the tool holder mounting means being movable in the honing machine between an engaged position, wherein the honing stone fits into the arcuate grooved surface of the workpiece in abrading engagement therewith, and a disengaged position, wherein the honing stone is moved out of the arcuate grooved surface in the workpiece for insertion and removal of successive workpieces into and out of the honing machine, the tool holder mounting means being pivotably mounted on a base member for pivotal movement with respect to the base member *about an axis parallel to the workpiece axis* in a direction perpendicular to the axis of the work piece, said movement moving the tool holder mounting means between its



engaged and disengaged positions, the tool holder mounting means including an [outer side] *upper plate that supports the oscillating tool holder means and a lower plate that carries the upper plate and an inner side* [on] *to* the base member [and an inner side] facing the workpiece support means, the [inner side] *lower plate* being positioned against the base member when the tool holder mounting means is in its engaged position, and the [inner side] *lower plate* being raised above the base member when the tool holder mounting means is in its disengaged position;

oscillation means for oscillating the tool holder means at least while the honing stone is in abrading engagement with the arcuate surface on the workpiece;

lift means for moving, upon actuation, the tool holder mounting means to its disengaged position to permit removal of the workpiece from the honing machine and insertion of a new workpiece into the machine, the lift means, upon deactuation, causing the tool holder mounting means to move back to its engaged position for honing the newly inserted workpiece, the lift means comprising lift cylinder means for raising the [inner side] *lower plate* of the tool holder mounting means with respect to the base member so as to move the tool holder mounting means between its engaged and disengaged positions for interchanging workpieces in the honing machine; and

control means for controlling the operation of the honing machine, said control means actuating and deactuating the lift means for insertion and removal of successive workpieces into and out of the machine.

Re. 30,977

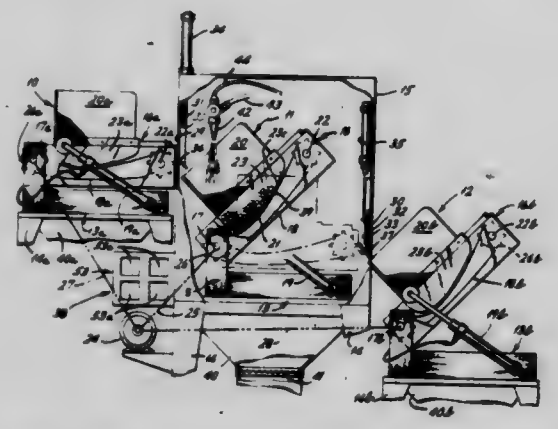
METHOD AND APPARATUS FOR DEFLASHING

Robert F. Zecher, Huntingdon Valley, Pa., assignor to Finmac Incorporated, Hatboro, Pa.

Original No. 4,115,960, dated Sep. 26, 1978, Ser. No. 791,726, Apr. 28, 1977. Application for reissue Feb. 14, 1980, Ser. No. 121,330

Int. Cl.[3] B24B *31/00*

U.S. Cl. 51—422 **15 Claims**



16. In a method for [tumbling] *surface treatment of* objects *by tumbling the objects* upon an advancing *upwardly inclined* belt-like conveyor [to remove flash] *within a hopper positioned to enclose the conveyor*, the steps which include; so constraining the advancing belt-like conveyor that *at least* a portion of it [provides] *occupies a position providing* a surface which has such upward [slope] *inclination*, in the direction of conveyor advance, as to cause tumbling of objects supported upon said portion; loading a plurality of such objects upon said conveyor; causing advance of said conveyor in one direction while maintaining said [slope] *inclination*, with consequent tumbling of the objects [while the conveyor is in an elevated position] *within the hopper in said position*, for a period of time sufficient to remove flash from the objects; [and lowering said conveyor portion to a position] *and concurrently shifting both the position of the conveyor and the position of the hopper to change the inclination of the conveyor and of the hopper to a position* providing for discharge of said objects therefrom, while continuing the advance of said conveyor in said direction.

Re. 30,978

SELF-RIGHTING POWER-DRIVEN AQUATIC VEHICLE

Clayton J. Jacobson, 3500½ Highland, Manhattan Beach, Calif. 90266

Original No. 3,826,220, dated Jul. 30, 1974, Ser. No. 325,620, Jan. 22, 1973. Application for reissue Jan. 5, 1976, Ser. No. 646,860

Int. Cl.[3] B63B *1/00*

U.S. Cl. 114—270 **7 Claims**

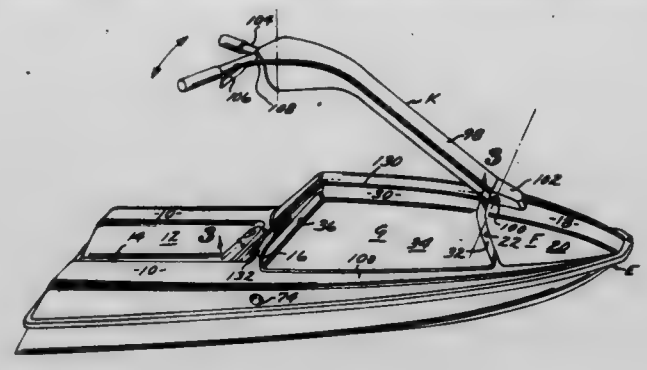
2. A power-driven aquatic vehicle comprising:

a hollow, elongated buoyant hull having a stern and a bow and defining an operator space adjacent said stern to accommodate the vehicle operator;

a jet pump mounted on said hull adjacent said stern;

an engine carried by said hull for operating said jet pump, said engine being located forwardly of said operator space, the weight of said engine and other components of the vehicle located forwardly of said operator space being sufficient, in the absence of a vehicle operator in said operator space, to dispose said bow deep enough in the water to offer greater resistance to passage through the water than said stern thereby to swing said bow to one side and cause said vehicle to circle, the weight of said engine and other components of the vehicle located forwardly of said operator space being sufficient to balance the weight of a vehicle operator and components located rearwardly of said operator space so that said vehicle tends to follow a straight path when said operator space is occupied by a vehicle operator;

an elongated steering arm having a lower end pivotally connected to said hull and an upper end movable between an upwardly inclined upper position and a substantially horizontal lower position; and



steering means carried at said upper end, said steering means being operable in said lower position of said steering arm by an operator located in the water adjacent said stern, said steering means further being operable in said upper position of said steering arm by an operator standing on the portion of said hull defining said operator space.

Re. 30,979

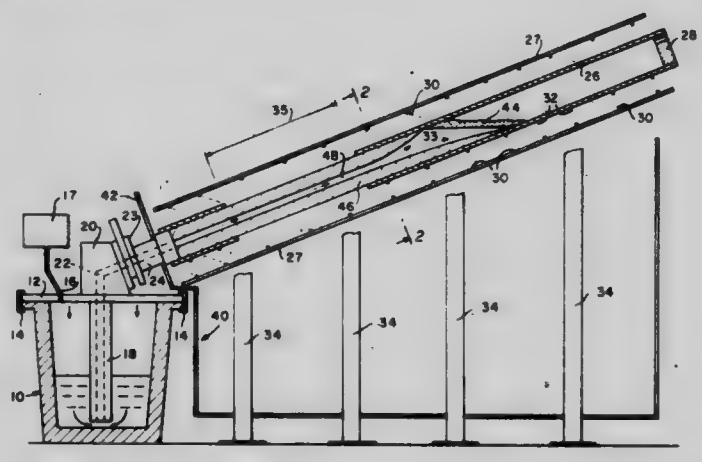
METHOD AND APPARATUS FOR CASTING METALS

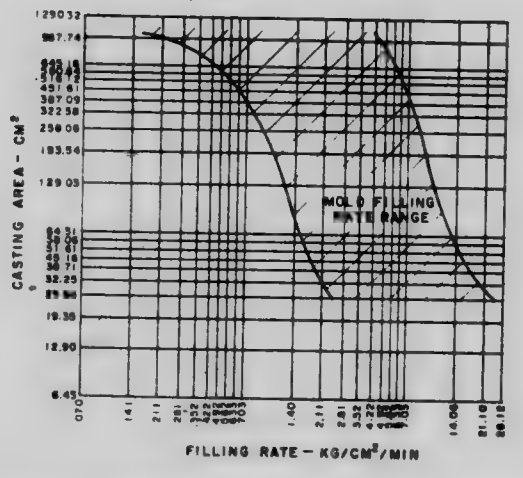
Leonard Watts, North Miami Beach, Fla., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Original No. 4,100,960, dated Jul. 18, 1978, Ser. No. 763,478, Jan. 28, 1977. Application for reissue May 5, 1980, Ser. No. 146,627

Int. Cl.[3] B22D *18/04, 27/04*

U.S. Cl. 164—119 **12 Claims**





1. A method of casting a metal article in an elongated mold having a cross-sectional area substantially between 25.8 cm^2

and 967.74 cm^2, [a thermal conductivity of at least 0.20 $cal/cm^2/cm°C./sec.$,] and a length at least as long as the article to be cast, said mold having top and bottom portions comprising:

inclining said mold to the vertical;

introducing molten metal from a source through said bottom portion of said mold at a filling rate substantially between 0.239 $kg/cm^2/min.$ and 23.9 $kg/cm^2/min.$, the combination of filling rate and cross-sectional area of the mold being defined by the hatched area of the graph as shown in FIG. 3;

flowing molten metal along said mold by applying a differential pressure across said source and said top portion of said mold;

cooling the mold while regulating the flow of said molten metal therealong to form a solidified casting shell which [, during casting, occupies at least 40% of the cross-sectional mold area and] has a molten core;

flowing molten metal from said source to extend said casting shell and said molten core toward said top portion of said mold; and

subsequently solidifying said molten core *to produce a product having a relatively fine-grained structure throughout the cross-section thereof.*

PLANT PATENTS

GRANTED JUNE 22, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,859

SANSEVIERIA PLANT

Richard J. Naskali, Moscow, Id., assignor to Idaho Research Foundation, Inc., Moscow, Id.

Filed Jun. 2, 1980, Ser. No. 155,492
Int. Cl.[3] A01H *5/12*
U.S. Cl. Plt.—88

1 Claim

1. A new and distinct variety of Sansevieria plant substantially as shown and described.

4,860

VARIEGATED POINSETTIA NAMED V-14 JB

Paul Ecke, Jr., Encinitas, Calif., assignor to Paul Ecke Ranch, Encinitas, Calif.

Filed Oct. 7, 1980, Ser. No. 194,756
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—86

1 Claim

1. A new and distinctive variegated red and pink poinsettia plant, substantially as herein shown and described, distinguished by the pink flecks and streaks appearing in the overall red background of the bracts, and by the retention of substantially all of the physical and growth characteristics, except foliage and bract coloration, of its parent, Poinsettia V-14.

PATENTS

GRANTED JUN. 22, 1982

ERRATA

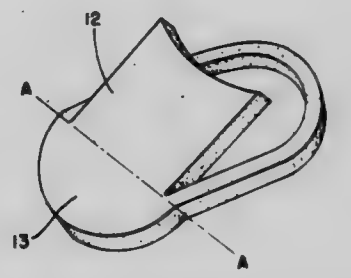
For CLASS	See PATENT NO.
441–069	4,335,478
464–052	4,335,585
464–081	4,335,586
294–142	4,335,839
029–399	4,336,093
376–245	4,336,103
376–249	4,336,104
060–644	4,336,105
524–053	4,336,166
523–451	4,336,167
524–300	4,336,168
523–511	4,336,169
521–055	4,336,170
524–510	4,336,171
524–555	4,336,172
524–512	4,336,174
524–726	4,336,175
524–310	4,336,176
523–201	4,336,177
523–206	4,336,178
523–145	4,336,179
524–847	4,336,180
523–501	4,336,181
524–416	4,336,182
524–095	4,336,183
523–179	4,336,184
548–562	4,336,194
549–462	4,336,195
549–416	4,336,196
549–331	4,336,197
549–259	4,336,198
549–496	4,336,199
549–466	4,336,202
524–770	4,336,367
373–085	4,336,411
373–110	4,336,412
372–162	4,336,506

PATENTS

GRANTED JUNE 22, 1982

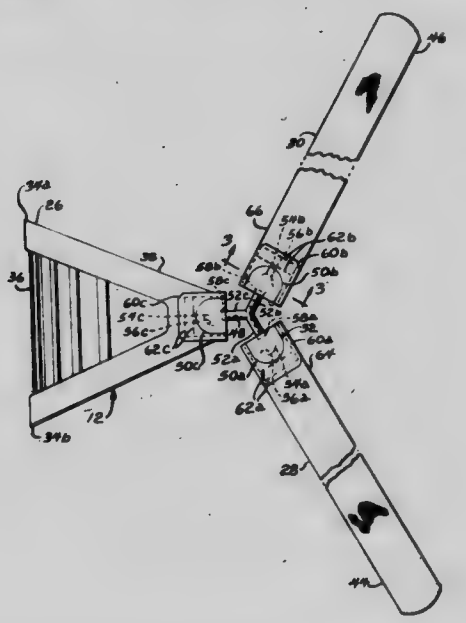
GENERAL AND MECHANICAL

4,335,471
HEADGEAR
Richard I. Quigley, Jr., and Penny P. Quigley, both of 1800 Windsor Dr., High Point, N.C. 27260
Filed Nov. 13, 1980, Ser. No. 206,460
Int. Cl.[3] A42B *1/20*; A61F *9/00*
U.S. Cl. 2—12 5 Claims



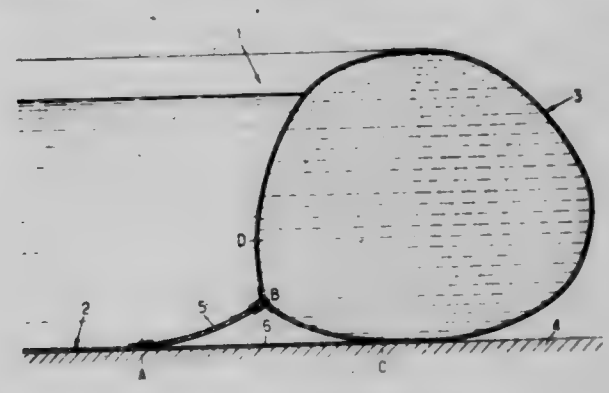
1. Headgear comprising: a resilient head encircling portion, a part of said encircling portion extending behind the wearer's head in a continuous manner from one side of the head to the other, said encircling portion contourable at least in part to the shape of the wearer's head, a display panel, said panel affixed to said encircling band, a visor portion, said visor portion integrally formed with said panel and pivotable therewith and said display panel pivotable from a prostrate to a raised position.

4,335,472
RETAINING ASSEMBLY FOR PROTECTIVE HEADGEAR
Frederick A. Rappleyea, Park Ridge, Ill., assignor to The Kendall Company, Boston, Mass.
Filed Jun. 4, 1980, Ser. No. 156,247
Int. Cl.[3] A63B *71/10*
U.S. Cl. 2—421 6 Claims



1. A retaining assembly for protective headgear, comprising:
a chin cup for receiving the wearer's chin;
first and second straps having one end for attachment to the headgear;
a connecting member having three outwardly directed necks with an enlargement on the outer end of each neck; and
a housing on a side of said chin cup and on the other ends of said first and second straps, each of said housings having a cavity to receive one of said enlargements and an opening communicating with the associated cavity to receive one of said necks, with said openings being slightly smaller than the associated enlargement and sufficiently large to permit release of the associated enlargement under loads.

4,335,473
WATER RESERVOIRS, PARTICULARLY SWIMMING POOLS
Bernard de Pous, Villefranche de Lauragais, France, assignor to Zodiac, Saint-Cloud, France
Filed Jul. 16, 1980, Ser. No. 170,837
Claims priority, application France, Jul. 18, 1979, 79 18652
Int. Cl.[3] E04H *3/18*
U.S. Cl. 4—488 5 Claims

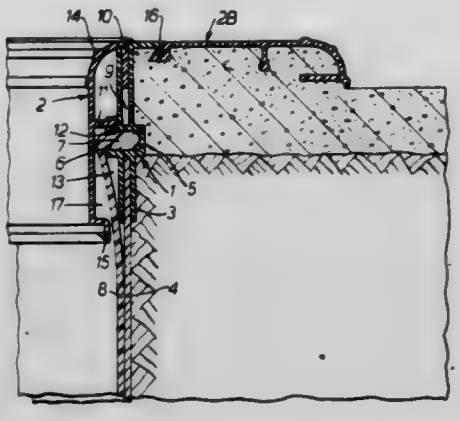


1. A liquid reservoir having a polygonal outer contour capable of resting on a supporting surface, comprising:
a. a flexible bottom;
b. side walls comprising at least one substantially straight inflatable tubular element extending along a closed contour defined by said bottom;
c. a peripheral connecting zone for connecting said bottom to said tubular element wherein said peripheral connecting zone risingly extends from a line on said bottom which is parallel to said tubular element but spaced apart therefrom to a generatrix located on said tubular element, said generatrix being situated between the lower-horizontal-tangency generatrix and the inner-bottomside-vertical-tangency generatrix of said tubular element; and
d. at least one brace extending from said line on said bottom to said lower bottom-horizontal-tangency generatrix of said tubular element.

4,335,474
SWIMMING POOL LINER SUPPORTS AND COPING
Howard S. Bailey, The Gables, 60 Turnpike Rd., Croesyceiliog, Cwmbran, England
Filed May 23, 1980, Ser. No. 152,917
Claims priority, application United Kingdom, May 24, 1979, 7918136
Int. Cl.[3] E04H *3/18*
U.S. Cl. 4—506 8 Claims

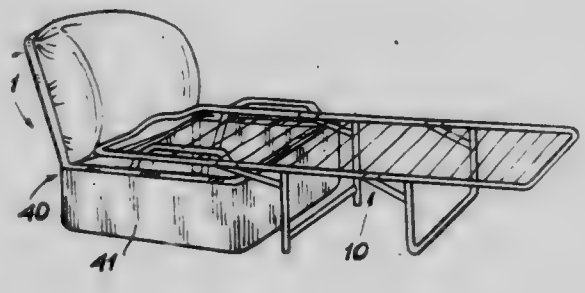
1. A swimming pool liner support comprising a vertically oriented first portion having a front and back surface corresponding to the front and back surface of the pool wall to which it is to be attached, the vertically oriented first portion being of shallow width between the front and back surfaces, the lower end of the first portion defining a slot to be positioned over the top edge of the pool wall, said first portion having a second slot extending opposite from said first slot, the front surface of the first portion defining a liner locking groove between said two slots for receipt of a top bead of the pool liner, a vertically oriented second portion also having a front and back surface and being of shallow width between the front and back surfaces, the two portions having mutually interlocking connection parts wherein the second portion will be interconnected to the first portion through said second slot and

adjacent said liner locking groove so that the two portions will extend substantially parallel to one another in a vertical direction, whereby differential curvature between the two portions is enabled when mounted on a pool wall defining a pool shape



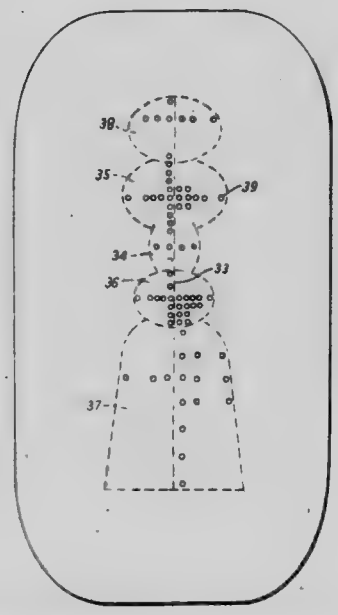
exhibiting substantial curvature, the lower end of the second portion extending below the liner locking groove on the first portion so as to cover the opening of the locking groove and provide a slot between the lower ends of both portions through which the pool liner will pass.

4,335,475
COMPOSITE LOUNGE CHAIR STRUCTURE
Pietro Damaschini, Via XXV Aprile, 35 - Muggio' (Prov. of Milano), Italy
Filed Jan. 2, 1980, Ser. No. 108,975
Claims priority, application Italy, Jan. 10, 1979, 20463/79[U]
Int. Cl.³ A47C *17/04, 17/22*
U.S. Cl. 5—14 **1 Claim**



1. A bed-convertible lounge chair structure, characterized in that it comprises a base body formed by tubular members, a backrest adapted for removable association with said base body such as to defin· a framework therewith, a cavity defined in said base body, a foldable bedspring arranged to be housed in a folded condition in said base body, a first covering portion on said framework and spanning said backrest and the side surface of said base body, a second covering portion spanning the seat, a backrest cushion inserted in said first covering portion, and a seat cushion inserted in said second portion, said base body comprising a closed configuration lower frame and a closed configuration upper frame and vertically extending uprights uniting said frames together at the corners thereof, said backrest comprising a tubular peripheral frame substantially of U-like shape having legs corresponding to the legs of the U-like shape and a peripheral frame portion corresponding to the bridge of the U-shape, said legs having distal ends remote from said peripheral frame portion and proximal ends connected to said peripheral frame portion, an interconnecting crosspiece at the distal ends of said peripheral frame legs and connected thereto, and tie rods extending between said crosspiece and said peripheral frame portion and transverse thereto, said peripheral frame of said backrest having lugs at the free ends of the legs thereof and at least those of said vertically extending uprights located on the rear of said base body having upwardly open cavities for removably receiving therein said lugs said base body defining thereby a space for receiving therein said foldable bed spring.

4,335,476
MATTRESS
Bernard C. Watkin, 32 W. Square, London SE 11, England
Filed Mar. 6, 1980, Ser. No. 127,806
Claims priority, application United Kingdom, Mar. 8, 1979, 7908244
Int. Cl.³ A47C *27/14;* A61G *7/00*
U.S. Cl. 5—464 **9 Claims**



1. A mattress large enough to comprise a body-supporting surface of length 1.6 to 2.2 m having portions for supporting the waist, shoulders, hips and feet of the human body wherein the portions extend transversely of the longitudinal axis of the body-supporting surface and their indentation hardnesses to a depth of 6.1 cms are characterized as follows:

(a) in the waist-supporting portion
  (i) the maximum indentation hardness on the longitudinal axis of the body-supporting surface (hereinafter called Wam) is from 100 to 250 N and
  (ii) the indentation hardness along said axis does not fall below 96% of Wam for a distance extending at least 5 cms

(b) in the shoulder-supporting portion
  (i) the minimum indentation hardness on said axis (hereinafter called Sam) is from 91 to 97% of Wam,
  (ii) the indentation hardness along said axis does not exceed 103% of Sam for a distance extending for from 15 to 40 cms and
  (iii) said distance of 15 to 40 cms commences at a point from 8 to 23 cms from the nearest point on said axis at which the indentation hardness of the waist-supporting portion is Wam,

(c) in the hip-supporting portion
  (i) the minimum indentation hardness on said axis (hereinafter called Ham) is from 87 to 95% of Wam subject to the limitation that Ham is less than Sam
  (ii) the indentation along said axis does not exceed 102% of Wam for a distance extending for from 7 to 35 cms and
  (iii) said distance of 7 to 35 cms commences at a point from 12 to 32 cms from the nearest point on said axis at which the indentation hardness of the waist supporting surface is Wam and

(d) in the foot-supporting portion the indentation hardess is 95 to 150% of Wam at a point on said axis which is 90 cms from the nearest point on said axis where the indentation hardness in the waist-supporting portion is Wam, whereby the interrelationship between the resiliencies of the said portions are such as to support the body of a user lying on the mattress so that the user's spine is biased to an opti-

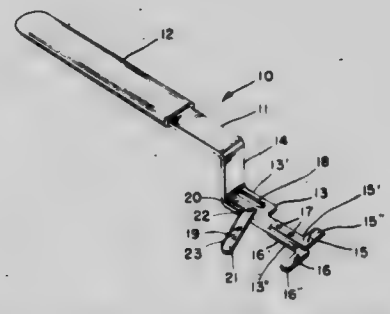
mum shape in which the majority of the thoracic vertebrae define a concave curve, the lumbar vertebrae define a convex curve and the sacrum and coccyx define a concave curve, the curves defined by the lumbar vertebrae and by the sacrum and coccyx being of greater curvature than the curve defined by the thoracic vertebrae.

4,335,477

CABLE TIE INSTALLING AND RELEASING TOOL

William M. Halstead, 5484 Cedar La., Apt. B-1, Columbia, Md. 21044

Filed Jul. 10, 1980, Ser. No. 168,313
Int. Cl.[3] B26B *11/00*
U.S. Cl. 7—158 9 Claims



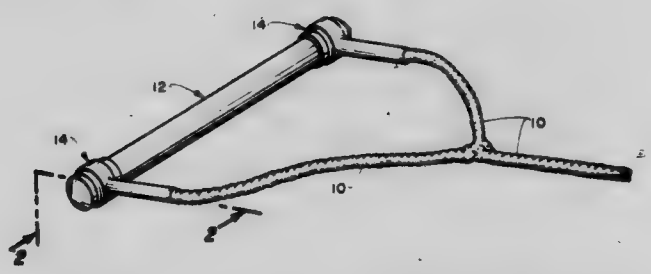
1. A tool for installing and releasing one-piece cable ties of the self-locking type including an elongated strap having a series of pawl engaging detents thereon, and a head connected integrally to one end of the strap, the head having an entry surface and an exit surface and a strap receiving opening therethrough, a pawl yieldably mounted in said head and inclined across said opening and being movable between a position in engagement with at least one of said series of pawl engaging detents and a disengaged position out of engagement with the pawl engaging detents, said tool comprising an elongated shank including a handle portion and a blade support portion forward of said handle portion, a thin flat primary blade including a base portion mounted on said blade support portion of said shank and a pawl release portion projecting from said base portion outwardly from said shank, said pawl release portion of said blade being narrower than the opening in said head and sufficiently thin to enter said opening and slide between said pawl and said pawl engaging detents on said strap so as to move said pawl to its disengaged position enabling said strap to be withdrawn from said head, and a cutter bar mounted on said shank behind said primary blade with a cutter blade portion projecting laterally from said shank for cutting said strap.

4,335,478

PROTECTIVE CAPS FOR WATER SKI TOW LINE HANDLE

Alan K. Pittman, 6644 Smoketree Ave., Agoura, Calif. 91301

Filed Jan. 30, 1980, Ser. No. 116,906
Int. Cl.[3] A63C *11/10*
U.S. Cl. 441—69 4 Claims



1. In a waterski tow rope handle having an elongate handle and a tow rope passing through holes and encircling each end of said elongate handle, the improvement comprising:

a cup adapted to slip over and cover the ends of said handle including the encircling rope; said cup having a groove adapted to fit snugly on said rope encircling said elongate handle;

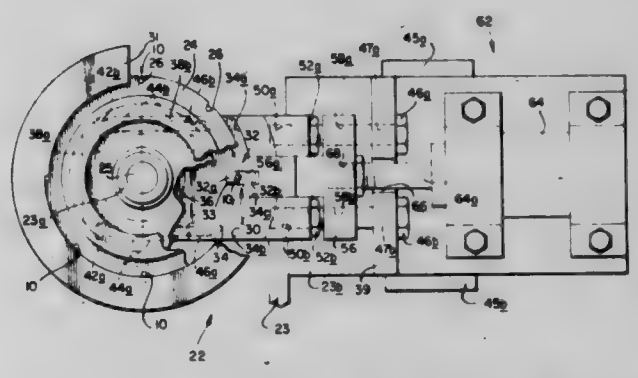
a sheath extending outward from the side of said cup and formed integrally therewith through which said rope passes whereby said cup is retained on said handle.

4,335,479

METHOD AND APPARATUS FOR MAKING BLIND RIVETS

Alton R. Copithorne, Rowley, Mass., assignor to Celus Fasteners Manufacturing, Inc., Andover, Mass.

Continuation of Ser. No. 908,722, May 23, 1978, abandoned. This application Jul. 14, 1980, Ser. No. 168,299
Int. Cl.[3] B21K *1/60;* B23P *11/00;* B21D *39/00*
U.S. Cl. 10—18 11 Claims



1. The method of making blind fasteners each having a flanged hollow body and a threaded mandril projecting from the body, said method comprising the steps of

A. positioning the threaded ends of a succession of mandrils in a corresponding succession of bodies,

B. automatically and continuously advancing the mandril-containing bodies in succession along a continuous track, having a direction of movement which is generally perpendicular to the longitudinal axes of the mandrils into the gap betwen no more than two spaced-apart die sections, the die sections being dimensioned so as to deform the body to have at most a preselected maximum diameter, and

C. moving the two die sections relatively toward one another along a direction substantially perpendicular to the axes of the mandrils and also perpendicular to the track when each body is in the gap so as to capture each body between them and to upset body material by means of a coining process into the threads of the associated mandril thereby staking the mandril in the body while simultaneously erecting a pair of stiffening ribs that project radially from the body at locations spaced from the body flange.

4,335,480

ELECTRIC ROTARY TOOTHBRUSH

Poo-Sung Liu, 2009 Hillview Rd., Lawrence, Kans. 66044

Filed Jul. 30, 1980, Ser. No. 173,530
Int. Cl.[3] A46B *13/02*
U.S. Cl. 15—23 8 Claims

1. An electric rotary toothbrush comprising:

a housing;

an electric motor mounted in said housing;

a brush drive shaft rotatably mounted in said housing;

a rotary brush rotatably mounted in said housing;

a first support means connected to said brush drive shaft for rotatably supporting one end of said rotary brush;

a second support means in said housing for rotatably supporting the other end of said brush;

a control means mounted on said housing and connected to said brush drive shaft for determining the axial position of said first support means; and

an opening in said housing in which said control means

moves, said opening having a first axial portion and a second transverse portion, said control means being positioned in said second portion of said opening to lock said



first support means into engagement with said rotary brush, and said control means movable in said first portion of said opening to disengage said first support means from said rotary brush.

4,335,481

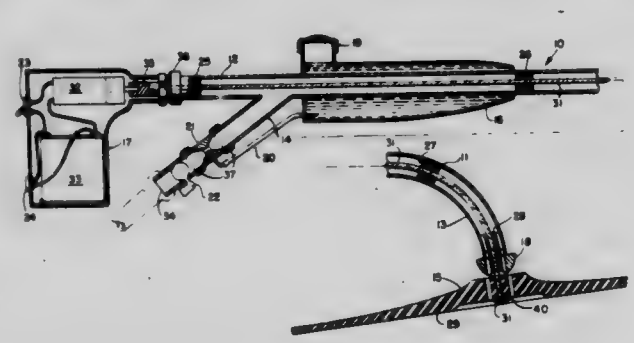
MOTOR DRIVEN WASHING, POLISHING WAND

Glen E. Slayman, 120 Pinkerton Dr., Beaver, Pa. 15009

Filed Apr. 17, 1980, Ser. No. 140,982

Int. Cl.³ A46B *13/04*

U.S. Cl. 15—29 **6 Claims**



1. A manually supportable washing and polishing wand which is operated in cooperation with a conventional water supply comprising:

(a) an elongated rigid tubular shaft having an operator end and a terminal end provided with a bend at the terminal end of said shaft;

(b) a rotary flexible disc positioned at the terminal end of said shaft and adapted to receive various contact appliances;

(c) a self-contained rotary power source located at the operator end of said shaft opposite said disc for supplying rotational drive force for said disc;

(d) a flow controlled fluid inlet connected to said tubular shaft near the operator end of said shaft for supplying fluid through said shaft to said disc;

(e) a reservoir supported on said shaft with means for communicating from the interior of said reservoir to the interior of said shaft;

(f) a plurality of bushings contained within said shaft;

(g) a flexible power cable connected at its one end to said rotary power source and at its other end to said rotary flexible disc and positioned coaxially within said tubular shaft by said bushings for transmitting rotational drive force from said power source to said disc while simultaneously allowing fluid flow longitudinally exterior to said cable and within said shaft; and

(h) means mounting the flexible rotary disc to provide freedom to swivel on the terminal end of said shaft.

4,335,482

ROTARY BRUSH MOUNTING

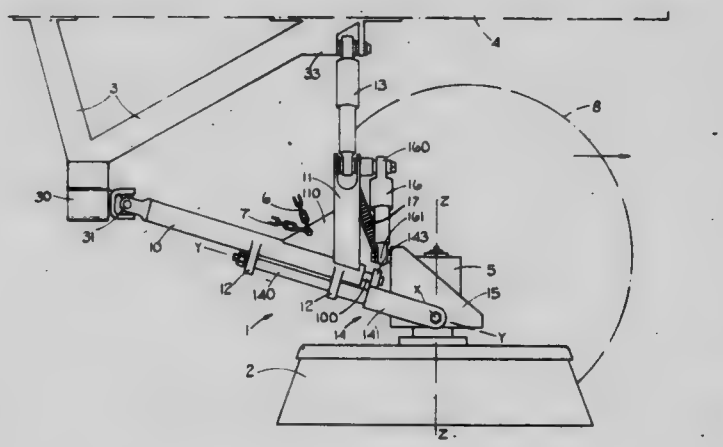
Peter A. Jones, March, England, assignor to Melford Engineering Limited, Cambridgeshire, England

Filed Jun. 19, 1980, Ser. No. 160,928

Claims priority, application United Kingdom, Jun. 19, 1979, 7921386

Int. Cl.³ E01H *1/04*

U.S. Cl. 15—87 **10 Claims**



1. For a mobile sweeping machine for sweeping road, pavement and similar surfaces, a mounting for a rotary brush rotatable about a substantially vertical axis in position of use wherein the mounting comprises:

bracket structure mountable from an underpart of the machine;

a swing arm mounted at one end by universal joint connection to the bracket structure for angular movement in generally horizontal and vertical planes and whereby said swing arm is non-rotatable about its longitudinal axis;

a first support member positioned at the other end of the swing arm and pivotally carried thereby about a longitudinal axis closely parallel with the axis of the arm;

a second support member pivotally carried by the first support member about a transverse axis intersecting the longitudinal axis of pivotal movement of the first support member in order to provide universal pivotal mounting of the second support member from the arm;

a downwardly directed rotary brush carried by and below the second support member and rotatable about a substantially vertical axis whereby back and forth and sideways inclination of the axis of rotation of the brush is able to take place in a universal manner;

a motor carried by the second support member for directly driving the rotary brush;

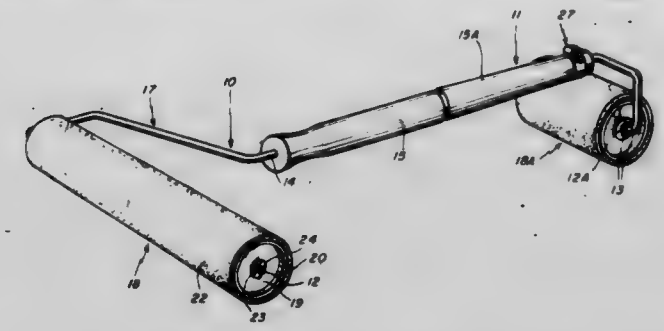
spring means connected between the swing arm and the second support member for yieldably urging the latter to a position for rotation of the brush about a substantially vertical axis; and

movement damping means connected between the swing arm and second support member for operation in conjunction with the spring means and for damping the universal pivotal movement which the second support member is otherwise able to freely follow in enabling the brush to closely follow varying surface formation in sweeping contact therewith in a self-accommodating manner.

4,335,483
TANDEM ROLLER DEVICES FOR APPLYING COATING LIQUIDS

Richard F. Buck, 41 Deer Hill Cir., Westbrook, Me. 04092

Filed May 12, 1980, Ser. No. 148,684
Int. Cl.³ B05C *1/08, 17/02*
U.S. Cl. 15—230.11 4 Claims

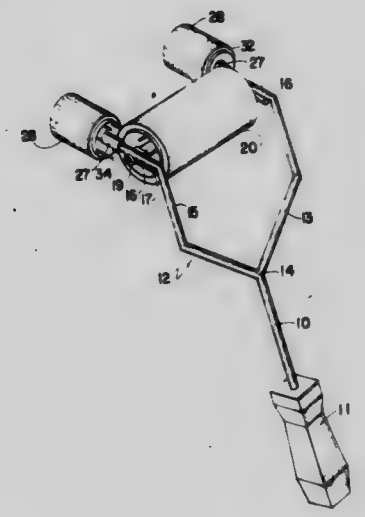


1. A tandem device for applying a coating to a surface, said device including primary and secondary rotatable members of which at least the primary member is a roller and the axial extent of the secondary member is substantially less than that of said roller, and means interconnecting said members with their axes parallel and spaced a substantial distance apart with said secondary member in the path of the primary member, said connecting means including member supporting end portions, the end portion for the primary member being in the form of a shaft entrant of said primary member from one end thereof, said connecting means including a handle portion extending between said members in a direction normal to said axes and in a position between the ends of the primary member and a length less than the distance between the members, said handle portion spaced above a plane inclusive of said axes and enabling, when both members are in contact with said surface, the only necessary working force to be applied in a direction substantially normal thereto, and said connecting means also including means enabling one of said members to be turned through an arc of at least 180° thereby to enable said device to be inverted to reverse the lay of the roller of its primary unit with the secondary member engageable with the surface and the handle portion spaced therefrom.

4,335,484
FENCE PICKET ROLLER PAINTER

Edward J. Ridge, 351 Ash St., and Graham H. Wilton, 180 Greenwood Ave., both of Winnipeg, Manitoba, Canada

Filed Jul. 28, 1980, Ser. No. 173,033
Claims priority, application Canada, Oct. 26, 1979, 338505
Int. Cl.³ B05C *9/04*
U.S. Cl. 15—230.11 28 Claims

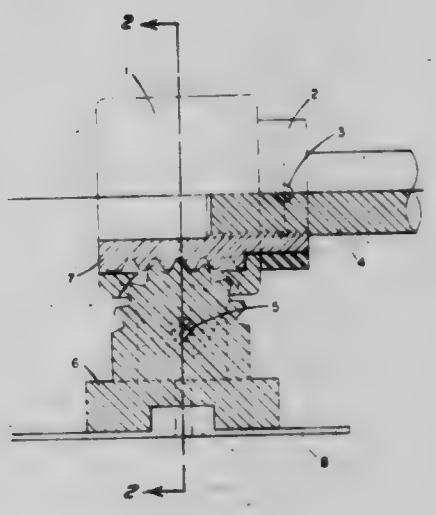


1. A paint roller assembly for fence pickets which include a front face, a rear face and two side edges; comprising in combination a handle assembly, a face engaging paint roller journalled for rotation within said handle component, a pair of picket-side-edge-engaging paint rollers journalled for rotation in said handle assembly in spaced apart relationship and being situated one adjacent each edge of said face engaging roller, with the axis of said side-edge-engaging rollers being situated normal to the axis of said face engaging roller and means cooperating between the edge-engaging rollers and the face engaging roller whereby rotation of said face-engaging roller, rotates said edge-engaging rollers, said face engaging roller being situated inboard of said edge-engaging rollers, said handle assembly including a pair of spaced apart leg portions, said face engaging roller being journalled for rotation between said spaced apart leg portions inwardly from the distal ends thereof, said side-edge-engaging rollers being journalled for rotation, one upon the distal end of each of said leg portions.

4,335,485
VARIABLE PITCH TROWELS

John N. Paine, 1 Douglas Dr., Newport News, Va. 23601, and Kim A. Lopdrup, 1101 Roseneath Rd., Florence, S.C. 29501

Filed Jan. 11, 1980, Ser. No. 111,342
Int. Cl.³ E01C *19/44*
U.S. Cl. 15—235.8 6 Claims



1. A variable pitch trowel comprising a trowel face adapted to smooth concrete mix and the like, a handle assembly for said trowel face, and a pitch adjusting assembly attaching said handle assembly to said trowel face; said pitch adjusting assembly comprising a geared support structure which is secured to said trowel face, a worm thread cylinder which is secured to said handle assembly and engaged with said geared support structure and which is adapted to cause said worm thread cylinder, when axially rotated, to advance and retreat along said geared support structure, a pivoting outer housing which is secured to said geared support structure but free to pivot thereon and which is adapted to hold said worm thread cylinder in engagement with said geared support structure, and a pivoting means connecting said geared support structure to said pivoting outer housing.

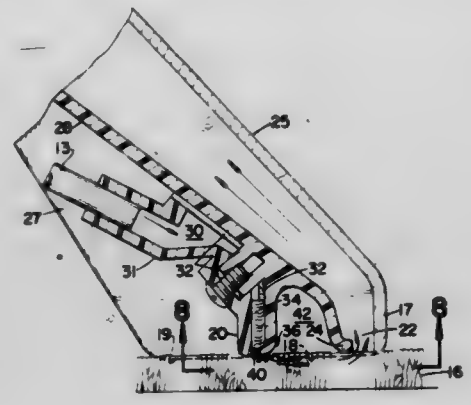
4,335,486
SURFACE CLEANING MACHINE

Werner W. Kochte, Ravenna, Ohio, assignor to The Scott & Fetzer Company, Twinsburg, Ohio

Filed Jan. 31, 1980, Ser. No. 117,263
Int. Cl.³ A47L *7/00*
U.S. Cl. 15—321 11 Claims

7. A carpet cleaner comprising a head having a generally open bottom face, handle means for the head, a vacuum source, a cleaning fluid reservoir, said head including means for defining a cleaning zone extending across the width of the head at said bottom face, said head including cleaning fluid wipe-on means at said bottom face and extending across the width of the head on one side of said cleaning zone, said head including means for distributing and feeding cleaning fluid drawn from

said cleaning fluid reservoir along the extent of said cleaning fluid wipe-on means, said head including a vacuum uptake communicating with said vacuum source, said vacuum uptake being at said bottom face and extending across the width of the web on the other side of said cleaning zone from said cleaning



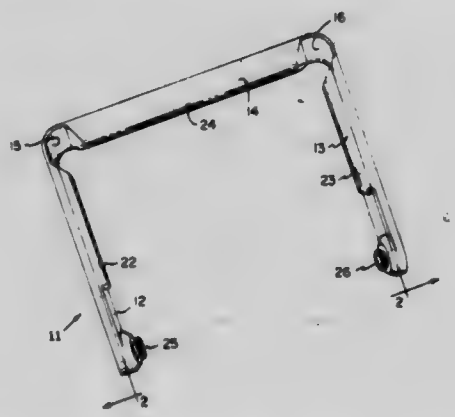
fluid wipe-on means, said cleaning fluid wipe-on means, cleaning zone, and vacuum uptake collectively being surrounded by front and side walls extending to the level of said bottom face, said walls cooperating to constrain air flowing to said vacuum uptake to entrain fluid supplied from said cleaning fluid wipe-on means and draw it across said cleaning zone.

4,335,487

SUPPORTING HANDLE

Michael A. DiPierro, Shrewsbury, Mass., and David E. Roche, Nashua, N.H., assignors to The Birger Company, Westboro, Mass.

Filed Jan. 8, 1980, Ser. No. 110,380
Int. Cl.³ A47B *95/02*
U.S. Cl. 16—126 **2 Claims**



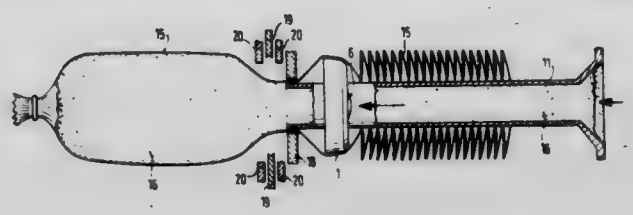
1. A unitary plastic supporting structure comprising,
at least first and second rigid hollow portions of plastic material interconnected by a flexible solid portion of said plastic material,
said unitary plastic supporting structure being blow molded and formed with openings that surrounded needles during the blow molding process and having at least a third rigid hollow portion interconnected to said second rigid hollow portion by a second flexible solid portion of said plastic,
whereby said supporting structure may be formed into a U-shaped handle with said solid portions forming corners and said first and third portions having their free ends terminating in supporting means.

4,335,488

DEVICE FOR FILLING A SHIRRED TUBULAR CASING

Reinhold Becker, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 25, 1980, Ser. No. 180,997
Int. Cl.³ A22C *13/00*
U.S. Cl. 17—33 **16 Claims**



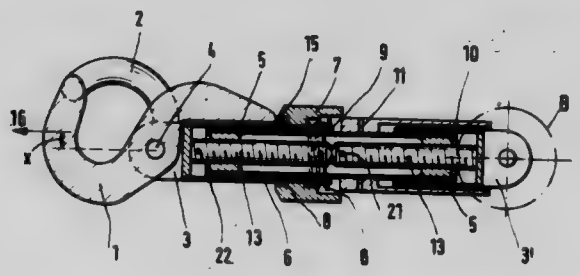
1. Apparatus suitable for deshirring and smoothing a shirred tubular casing as the casing is being stuffed, the tubular casing having an interior surface of predetermined internal diameter when unshirred, comprising:
a hollow body of generally annular configuration having a circumferential wall of generally circular cross-section which defines a closed external surface having a diameter which increases from a first end to a maximum at a second end of the hollow body, the hollow body having a central opening for receiving a stuffing tube and means about said central opening for releasably engaging an external surface of the stuffing tube to mount the hollow body on the stuffing tube, the hollow body being constructed of a rigid material, and the maximum diameter of said external surface being smaller than the predetermined internal diameter of the unshirred tubular casing,
whereby when the hollow body is arranged within a deshirred section of the tubular casing, the tubular casing and the hollow body are mounted on the external surface of the stuffing tube, and the casing is stuffed with a mixture from the stuffing tube, the interior surface of the tubular casing slides over the generally circular external surface of the hollow body and is thereby deshirred and smoothed.

4,335,489

TENSIONING DEVICE, ESPECIALLY FOR LASHING CHAINS

Anton Müller, Aalen-Unterkochen; Martin Rauscher, and Günter Witzel, both of Aalen, all of Fed. Rep. of Germany, assignors to Eisen- und Drahtwerk Erlau Aktiengesellschaft, Aalen, Fed. Rep. of Germany

Filed Dec. 26, 1979, Ser. No. 106,836
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1979, 2855988
Int. Cl.³ F16B *7/12*; E05C *19/10*
U.S. Cl. 24—68 CT **28 Claims**



1. A tensioning device that fulfills three functions including a coarse shortening of a chain, a tensioning thereof and a rapid opening thereof, especially for lashing chains having chain links in a chain strand of chain members, which comprises in combination: a housing, a double nut rotatably journalled over a part of the length thereof being protected in said housing, two link members for receiving chain links, at least one link

member having a receiving opening in which at least substantially each chain member of the chain strand can be connected, said link members being movable relative to one another and having a releasable latch means including a securing member associated with the receiving opening of at least one link member with which a chain member located in the receiving opening is to be secured, said securing member being mounted at least partially yieldably shiftable in a released position as journalled on the tensioning device, at least one of said link members having a fork-like shape with two freely projecting legs which extend parallel to one another and are interconnected by a transverse piece, said link members being adapted to be held in a closure position under tension, with at least one link member, under the force of a connected tensioned chain, being adapted to be movable rapidly into a release position, two spindles with a left thread and a right thread journalled in said double nut so that said spindles simultaneously can be adjusted oppositely relative to each other with said double nut including both tensioning and coarse shortening therewith, without any additional auxiliary tools, and an actuating element rigidly connected upon said double nut for rotation of said double nut, said spindles projecting with ends thereof away from each other out of said double nut and being provided at these ends with a connection link member providing one receiving opening for the chain member.

4,335,490

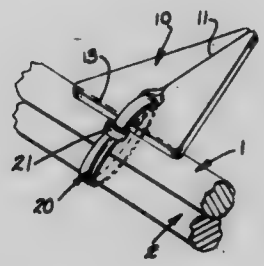
BAND AND CLIP ARTICLE

Donald O. Teachout, 1721 Bradford, NE., Grand Rapids, Mich. 49505

Division of Ser. No. 953,909, Oct. 23, 1978, Pat. No. 4,188,871. This application Oct. 24, 1979, Ser. No. 87,736

Int. Cl.³ A47B *97/00*; B65B *13/02*

U.S. Cl. 24—114.5 **10 Claims**



1. A clip for securing to a rubber band comprising: a generally flat triangular shaped plate made of a somewhat flexible material having a slot passing through said plate and extending from an apex of the triangle towards the opposite base thereof to a point nearer said opposite base than said apex, said slot having essentially no width when said plate is in an unflexed condition and at least some width when said plate is in a flexed condition.

6. A clip for securing to a common rubber band or the like comprising: a generally flat plate having opposed sides and a slot extending from one of said sides towards the other side; a projection projecting generally laterally, from the surface of said plate from a point located generally between the base of said slot and said other side of said plate whereby one can loop a rubber band or the like over said projection and pull it through said slot.

4,335,491

BELT-LOCK FOR A SAFETY BELT

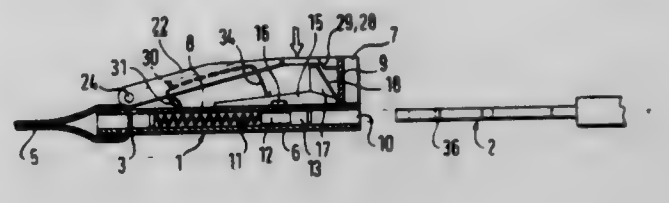
Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

Filed Jun. 9, 1980, Ser. No. 157,955

Claims priority, application Fed. Rep. of Germany, Jun. 8, 1979, 2923352

Int. Cl.³ A44B *11/26*

U.S. Cl. 24—230 A **3 Claims**



1. Belt-lock and plug-in tongue for a safety belt comprising a lock-housing having a plug-in opening for insertion of a plug-in tongue, a movable spring-loaded latch disposed in said opening in the path of said plug-in tongue effecting locking of the inserted tongue, a slide member slideable in a guide in the lock-housing to move said latch out of engagement with said tongue to permit separation of the tongue from the belt-lock, a push-button mounted on the housing over the slide-member with pressure on the push-button activating the slide-member to slide and move the latch out of engagement with the tongue, a spring made of spring-wire disposed in the push-button with a bent portion of the spring banked at the lock-housing to effect an elastic, springy counter-action against pressure for the push button, and with the spring having a free, bent-spring ending abutting elastically against the slide member.

4,335,492

METHOD OF ALIGNING A COLOR TUBE CONE AND APPARATUS FOR CARRYING OUT THE METHOD

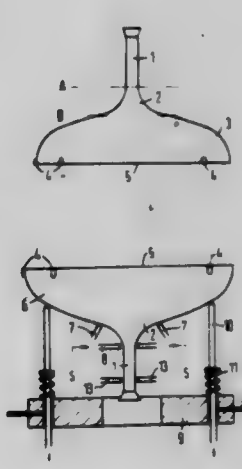
Peter Schmidt, Denkendorf; Otto Brunn, Wernau; Dieter Forker, Esslingen, and Willi Schmidt, Berglen, all of Fed. Rep. of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Nov. 14, 1979, Ser. No. 93,957

Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850602

Int. Cl.³ B23Q *3/00*

U.S. Cl. 29—25.13 **5 Claims**



1. A method of aligning a colour tube cone of the type including a neck intended to house an electron-gun system, a funnel section having reference pads and a seal edge along the largest circumference, and a transition section which corresponds to the portion extending from the neck joint to the diameter of the funnel section where a deflection system is mounted on the finished tube, said method comprising the steps of:

aligning the circumferential seal edge and the reference pads

so that a plane defined by the seal edge is perpendicular to a longitudinal axis of the transition section; and

aligning the neck so that a longitudinal axis of the neck coincides with the longitudinal axis of the transition section.

4,335,493

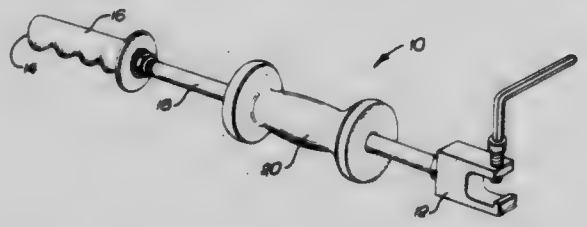
CUTTING TOOTH EXTRACTOR FOR STUMP CUTTING AND DIGGING APPARATUSES

Norman E. Shivers, Jr.; David E. Shivers, both of 121 W. El Segundo, Los Angeles, Calif. 90061, and Paul N. Shivers, 79 Patrician Way, Apt. 3D, Pasadena, Calif. 91105

Filed May 2, 1980, Ser. No. 146,063

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—254 **9 Claims**



1. An extractor for in situ removal of a stump cutting tooth removably mounted on a cutting wheel, said tooth having a head portion with a downwardly stepped land, the extractor comprising:

a slide hammer; and

a clamping device forwardly mounted on said slide hammer, said device including a screw, and a c-shaped frame having an open ended upper member opposed to an elongated base member, said upper member being provided with a threaded aperture to receive said screw and arranged to cooperate with a top surface of said head portion of said cutting tooth when inserted in said c-shaped frame; said elongated base member terminating in an upstanding leg of mating configuration and of sufficient height to substantially abut the entire adjacent face of said downwardly stepped land when said cutting tooth head portion is inserted in said c-shaped frame and said screw is drawn down to engage the top surface of said head portion of said cutting tooth; said upstanding leg of said elongated base being composed of a material having a Rockwell hardness in the range of from about 32 to about 40 which is relatively harder than the remainder of said c-shaped frame; wherein when said downwardly stepped land of said cutting tooth is clamped in said device, said slide hammer, when activated, exerts a sharp pulling force on said head portion of said cutting tooth to efficiently remove said tooth from the cutting wheel without distorting the original shape of said tooth.

4,335,494

METHOD OF ROLL FORMING A COMPOSITE

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of Ser. No. 783,988, Apr. 4, 1977, abandoned, which is a continuation-in-part of Ser. No. 587,346, Jun. 16, 1975, abandoned, which is a continuation-in-part of Ser. No. 184,044, Sep. 27, 1971, Pat. No. 3,889,348, which is a continuation-in-part of Ser. No. 814,885, Mar. 27, 1969, Pat. No. 3,608,183, which is a continuation-in-part of Ser. No. 573,148, Jul. 26, 1966, Pat. No. 3,437,783. This application Apr. 16, 1979, Ser. No. 30,340

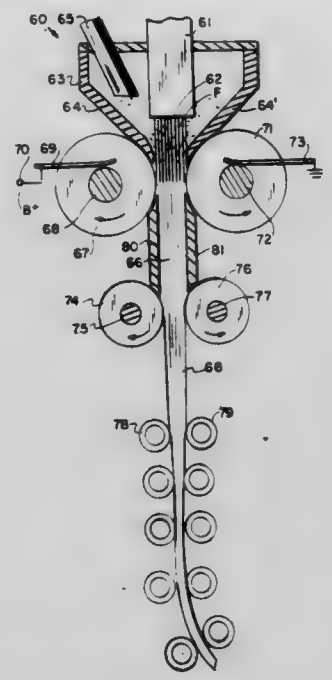
Int. Cl.³ B23P *15/00*

U.S. Cl. 29—420.5 **2 Claims**

1. A method for continuously shaping a weldable metal into a elongated member of substantially constant cross section comprising:

continuously feeding a heat and pressure weldable metal in a flowable particulate condition to die means which is operable to compress material fed through said die means and wherein such feeding is at such a flow rate to completely fill said die means as said weldable metal is feed therethrough,

compressing and resistance heating said weldable metal particles while in said die means so as to effect the fusion of said particles as they pass through said die means and the simultaneous welding of said particles into a non-porous solid mass while said metal is located within said die means so as to form a solid elongated shape defined by the shape of said die means, and



applying a driving force to said die means and the metal shaped thereby to cause the continuous formation of said non-porous solid shape and its movement out of and away from said die means to define said elongated member.

4,335,495

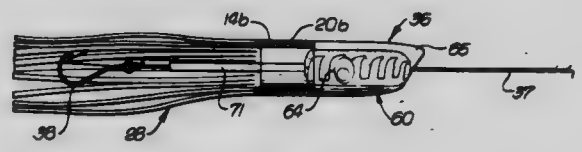
FISHING LURE FABRICATION, INCLUDING PATTERN APPLICATION

Beverly J. Buchanan, 3915 Bouton Dr., Lakewood, Calif. 90712

Continuation of Ser. No. 966,266, Dec. 4, 1978, abandoned. This application Jun. 9, 1980, Ser. No. 157,520

Int. Cl.³ A01K *85/00*

U.S. Cl. 29—428 **28 Claims**



1. In the method of making a fishing lure, the steps that include:

(a) forming on a mandrel a first liquid resin tubular coating and at least partially curing said coating to provide a first sleeve,

(b) applying about one portion of the first sleeve full length a bond inhibitor liquid characterized as inhibiting bonding of liquid resin to said sleeve one portion,

(c) forming a second liquid resin tubular coating onto the first sleeve including said one portion thereof and at least partially curing said second coating to provide a second sleeve,

(d) transferring a predetermined pattern onto the exterior of at least one of said sleeves, said transferring step including relatively applying a pattern transfer sheet onto the exterior of said one sleeve, the transfer sheet having said pattern thereon, compressing said sheet against the exterior of said one sleeve at elevated temperature to effect the transfer of the pattern onto said one sleeve, and removing said sheet relatively away from said one sleeve,

(e) and slitting said sleeves lengthwise thereof and along said one portion of the length of the first sleeve, thereby to form loose strands associated with both sleeves, the strands associated with the first sleeve extending freely of the strands associated with the second sleeve.

4,335,496

METHOD OF COUPLING TWO CONCENTRICALLY DISPOSED MEMBERS

Hisanobu Kanamaru; Akira Tohkairin, both of Katsuta; Hideo Tatsumi, Mito, and Moisei Okabe, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

PCT No. PCT/JP79/00037, § 371 Date Oct. 22, 1979, § 102(e) Date Oct. 22, 1979, PCT Pub. No. WO79/00711, PCT Pub. Date Oct. 4, 1979

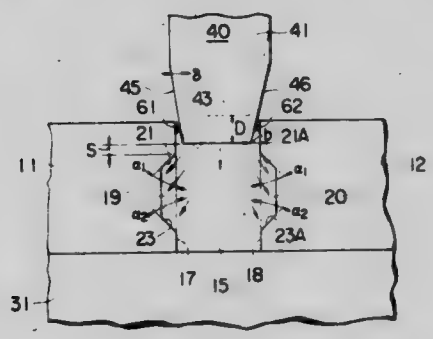
PCT Filed Feb. 19, 1979, Ser. No. 187,852

Claims priority, application Japan, Feb. 20, 1978, 53-17647; Mar. 29, 1978, 53-37251

Int. Cl.[3] B21D *39/00*; B23P *11/00*

U.S. Cl. 29—520

15 Claims



1. A process of two coupling members in which a first member to-be-coupled and a second member to-be-coupled are coupled by non-elastically deforming a coupling member, comprising the steps of:

forming a concave portion on a coupling face of each member to-be-coupled, each concave portion having planar surfaces inclined to a flowing direction of the coupling member,

concentrically arranging the first and second members to-be-coupled with their coupling faces directed toward each other and a gap therebetween, a space being formed which comprises the two concave portions and the gap,

interposing in the space, a coupling member having a smaller deformation resistance than that of the members to-be-coupled, said coupling member being no more than slightly different in height than the height of said space, and

supporting one end of the coupling member and applying pressure on the other end by using a metal mould to force non-elastical flowing of a part of the coupling member into the concave portions until the flowed part tightly contacts with the inclined planar surfaces by pre-selecting the volume of the coupling member so as to satisfy the relationship:

$$0 \leqq S \leqq \frac{1}{2}b$$

where S is the length of a rubbing face of the members to-be-coupled by the coupling member in the pressure applying direction within the gap and b is the width of the gap in a direction at right angles to the rubbing direction, whereby a mechanically strong combination which can transfer a large torque from one member to the other member is created.

15. A process of two coupling members in which a first member to-be-coupled and a second member to-be-coupled are coupled by non-elastically deforming a coupling member, comprising the steps of:

forming a concave portion on a coupling face of each member to-be-coupled, each concave portion having planar surfaces inclined to a flowing direction of the coupling member,

concentrically arranging the first and second members to-be-coupled with their coupling faces directed toward each other and a gap therebetween, a space being formed which comprises the two concave portions and the gap,

interposing in the space, a coupling member having a smaller deformation resistance than that of the members to-be-coupled,

providing a member around the members to-be-coupled so as to support against deformation thereof when pressure is applied to the coupling member, and

supporting one end of the coupling member and applying pressure on the other end by using a metal mould to force non-elastical flowing of a part of the coupling member into the concave portions until the flowed part tightly contacts with the inclined planar surfaces by pre-selecting the volume of the coupling member so as to satisfy the relationship:

$$0 \leqq S \leqq \frac{1}{2}b$$

where S is the length of a rubbing face of the members to-be-coupled by the coupling member in the pressure applying direction within the gap and b is the width of the gap in a direction at right angles to the rubbing direction, whereby a mechanically strong combination which can transfer a large torque from one member to the other member is created.

4,335,497

TERMINATING APPARATUS

Daniel T. Casey, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 19, 1980, Ser. No. 122,539

Int. Cl.[3] H01R *43/04*

U.S. Cl. 29—566.2

4 Claims

1. An apparatus for terminating multiconductor flat cable with a connector having a housing preloaded with a plurality of terminals connected to a carrier strip, each terminal having a crimp portion exposed from said connector housing, a tine extending from an intermediate portion serving to initially stabilize said terminal, prevent its full insertion into said housing and align said cable with respect to said crimp portion, and a mating portion lying within said housing, said apparatus comprising:

a press having a vertically actuatable ram carrying crimp tooling on the lower end thereof, said crimp tooling having an elongated profile for simultaneously crimping both said crimp portion and said tine of each terminal of said plurality of terminals;

trough means defining a feed path extending transversely from a remote loading station to a work station beneath said ram;

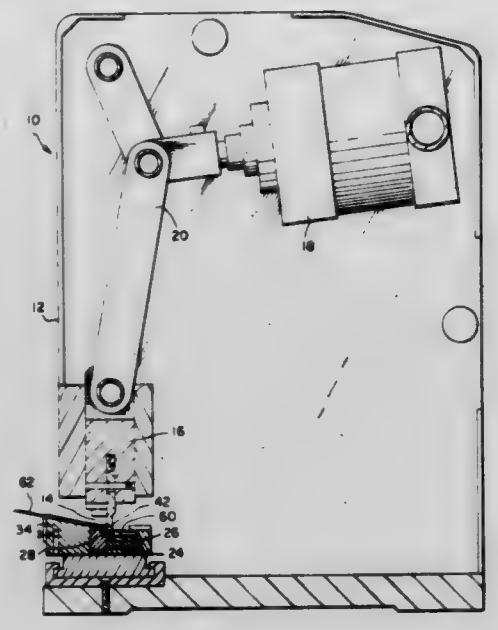
at least one connector carrying jig slidably mounted in said trough;

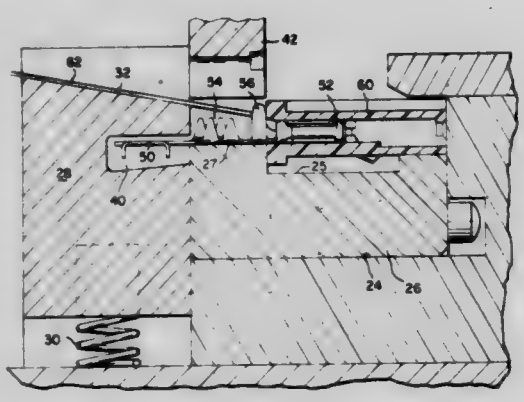
a cable support aligned with said ram and extending normally to one side of said trough; and

a shear bar intermediate said cable support and said trough forming one wall of the latter, said crimp tooling driving said shear bar with respect to said jig to effect shearing of said carrier strip from said terminals;

whereby said carrier strip is sheared from the plurality of terminals and each terminal crimped to a respective con-

ductor of a cable and said tines curled downwardly against said cable by actuation of said crimp tooling carried by said ram to both terminate said cable and allow full insertion of said terminals into said housing.



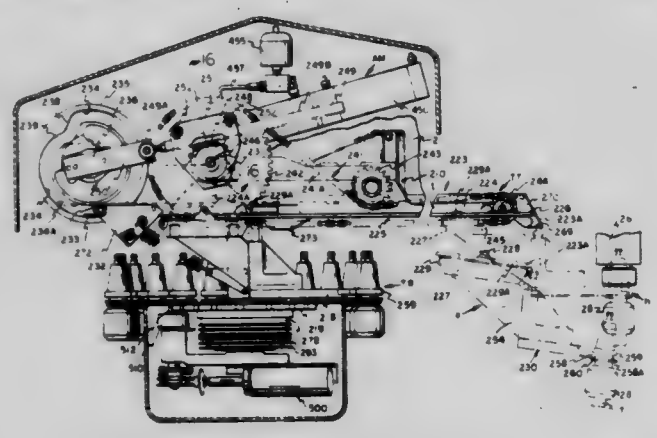


4,335,498

MACHINE TOOL

Robert Z. Hague, Oradell, N.J.; Matthew F. Marsicano, Forest Hills, and Edwin F. Hantman, New York, both of N.Y., assignors to Textron, Inc., Providence, R.I.

Filed Mar. 8, 1979, Ser. No. 18,628
Int. Cl.³ B23Q *3/157*
U.S. Cl. 29—568 **9 Claims**



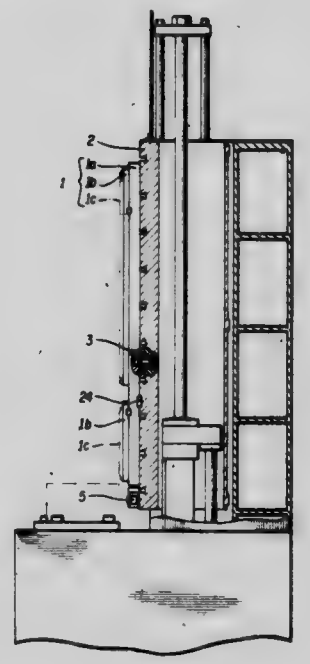
1. A machine tool comprising a vertical spindle having a toolholder socket, a moveable storage rack having a plurality of circumferentially spaced sockets for receiving and storing thereon a plurality of toolholders, means for indexing said storage rack to a position accessible for effecting the removal of a toolholder therefrom; an arm extending radially and substantially horizontal between said storage rack and said spindle, a toolholder carriage reciprocally mounted on said arm, a mechanical hand connected to said carriage, said hand having means for releaseably grasping a toolholder from said storage rack or spindle to remove it therefrom, and a drive means for effecting the drive of said carriage and mechanical hand carried thereby in an involute path toward and away from said spindle; said drive means including a first and second cylinder disposed in tandem, a piston mounted in each of said cylinders for dividing each of said cylinders into a pair of complementary expandable chambers, a common piston rod interconnecting said pistons, means for alternately directing an actuating fluid under pressure into one or the other of said complementary pair of expandible chambers of said first cylinder; means defining a closed hydraulic circuit connected between the expandible chambers of said second cylinder, said closed hydraulic circuit including a valveless vena contracta orifice interposed in said circuit between said other pair of complementary chambers, said vena contracta orifice having its smallest restriction free of any obstruction whereby the velocity of the piston rod responsive to the displacement of the piston due to the pressure of the actuating fluid thereon is determined by the free flow of fluid through said vena contracta orifice in said hydraulic circuit, a reservoir for containing a supply of said hydraulic fluid, and means connecting said reservoir in communication with the smallest restriction of said vena contracta orifice.

4,335,499

DEVICE FOR RAPID CHANGING OF TOOLS, PARTICULARLY ON LARGE-SCALE MACHINES

Serge Prat, Bures-sur-Yvette, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Feb. 12, 1980, Ser. No. 120,764
Claims priority, application France, Feb. 14, 1979, 79 03775
Int. Cl.³ B23Q *3/155*
U.S. Cl. 29—568 **5 Claims**



1. A device for rapidly positioning and securing a tool holder plate onto a machine slide comprising:

a plurality of clamping units;

a clamping head operatively associated with each of said clamping units;

elastic biasing means for effecting a clamping force disposed within each of said clamping units;

said machine slide having a plurality of cavities formed therein for accommodating each of said clamping units, respectively;

said tool holder plate having a plurality of T-channels formed therein for accommodating each said clamping head such that said T-channels are disposed within a plane parallel with said machine slide;

said tool holder plate further comprising a plurality of open-

ings formed therein and communicating with said T-channels, said openings having widths wider than said clamping heads for facilitating insertion and removal of said clamping heads into and out of said T-channels, said openings being coplanar with said tool holder plate;

a cylinder mounted within each of said cavities in said machine slide;

a clamping piston secured to each said clamping head and movably mounted within said cylinder such that activation of said cylinder via fluid pressure effects colinear movement of said clamping head with said piston in a direction perpendicular to said tool holder plate such that engagement and disengagement between said clamping head and said T-channel are effected by sliding said tool holder plate over said machine slide along said T-channels;

at least one positioning stop means operatively associated with said tool holder plate for aligning in a first direction the axes of said T-channels with said clamping heads;

at least one prepositioning stop means operatively associated with said tool holder plate such that abutment of said tool holder plate with said prepositioning stop means effects coaxial alignment in a second direction perpendicular to said first direction of each said clamping head with each corresponding said opening in said tool holder plate for allowing unobstructed insertion and removal of each said clamping head through each of said openings in said tool holder plate; and

at least one truing-up edge member operatively associated with said machine slide such that abutment of said tool holder plate with said truing-up edge member positions each said clamping head within said T-channels.

4,335,500

TOOL STORAGE MAGAZINE FOR MACHINE TOOL

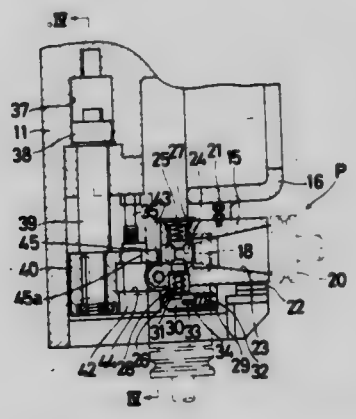
Kenichi Munekata, Kariya; Fumihiko Ohkoshi; Yoji Kamiya, both of Anjo, and Toshifumi Hasegawa, Kariya, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Oct. 16, 1980, Ser. No. 197,674

Claims priority, application Japan, Oct. 22, 1979, 54-136807; Oct. 22, 1979, 54-146726[U]

Int. Cl.³ B23Q *3/157*; B23B *29/00*; A47F *3/08*; B23B *39/20*

U.S. Cl. 29—568 **3 Claims**



1. A tool storage magazine for a machine tool comprising:

a plurality of tool sockets, each for removably storing a tool therein, selectively indexable to a tool taking out position by rotation about a horizontal axis and pivotable at said tool taking out position;

a pair of engaging rollers rotatably supported by each of said tool sockets and located outside the side faces of each tool socket;

a hydraulic cylinder having a piston slidable in a vertical direction and a piston rod connected to said piston;

an engaging member securedly connected to said piston rod and formed with horizontally extending upper and lower portions in such a manner as to permit said pair of engaging rollers of each tool socket to pass therethrough while said plurality of tool sockets are rotated about said horizontal axis;

said lower portion of said engaging member being bifurcated to be aligned with said pair of engaging rollers of each tool socket at said tool taking out position and to form a space therebetween which is wider than the width of each tool socket.

4,335,501

MANUFACTURE OF MONOLITHIC LED ARRAYS FOR ELECTROLUMINESCENT DISPLAY DEVICES

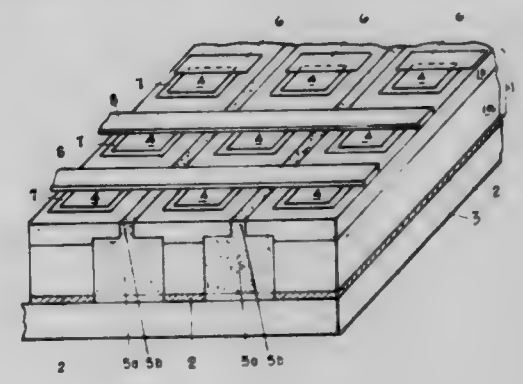
Dennis K. Wickenden, London, and Vera M. Vincent, Hatch End, both of England, assignors to The General Electric Company Limited, London, England

Filed Oct. 23, 1980, Ser. No. 200,257

Claims priority, application United Kingdom, Oct. 31, 1979, 7937678

Int. Cl.³ H01L *21/302, 21/316*

U.S. Cl. 29—569 L **10 Claims**



1. A process for the manufacture of a monolithic array of light-emitting semiconductor diodes, for an electroluminescent display device, which includes the steps of providing a slice of n-type semiconductor material, forming a plurality of discrete regions of p-type semiconductor material in the said slice by diffusing p-type material into the front surface of the slice, to delineate individual diode areas, forming individual metal contacts on the surfaces of said p-type regions and connecting said contacts together in groups as required for addressing the array, forming at least one isolation channel through the n-type slice for electrically isolating portions of the array from one another, forming at least one metal contact on a surface of the n-type region of each of said mutually isolated portions, and bonding the back surface of the structure so formed to an insulating substrate, wherein each said isolation channel is formed in two stages, the said process including the further steps of

(a) mounting the front surface of the slice of n-type materal on a first support layer,

(b) forming at least one initial channel from the back surface of the slice through a major part of the thickness thereof,

(c) filling each said channel with a suspension of glass powder particles in a liquid medium,

(d) removing the liquid from each channel so filled,

(e) heating the slice to a sufficiently high temperature to cause the glass particles in each channel to sinter so as to form a glass frit contained in the channel and bonded to the semiconductor material on each side of the channel,

(f) repeating said steps (c), (d) and (e) successively for the number of times required to fill each channel completely with said glass frit,

(g) mounting the back surface of the slice on a second support layer,

(h) removing said first support layer from the front surface of the slice,

(i) forming at least one further channel from the front surface of the slice, such that a said further channel is formed to correspond in position to each said initial channel and extending through the slice for a sufficient depth to meet the glass frit filling the said initial channel,

(j) and carrying out said steps (c), (d), (e) and (f) to fill each said further channel with said glass frit, to form at least one composite glass-filled channel consisting of a narrow front portion and a wider back portion,

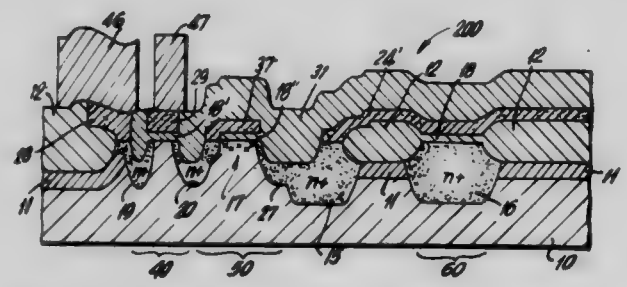
the formation of each of said initial and further channels and filling thereof with said glass frit being caried out before the formation of the said contacts on the p-type and n-type regions of the slice.

4,335,502

METHOD FOR MANUFACTURING METAL-OXIDE SILICON DEVICES

Paul Richman, St. James, N.Y., assignor to Standard Microsystems Corporation, Hauppauge, N.Y.

Filed Oct. 1, 1980, Ser. No. 192,872
Int. Cl.³ H01L *21/22, 21/283, 21/308*
U.S. Cl. 29—571 **11 Claims**



1. A process for fabricating an MOS structure comprising the steps of:

(a) forming mesa-like regions of predetermined width for the active regions of a circuit on the surface of a silicon substrate of a first conductivity type by growing thick field oxide regions which extend above and below the top surface of said mesa-like regions;

(b) forming a thin oxide layer over the surface of said mesa-like regions;

(c) etching said thin oxide layer so as to form openings in said thin oxide layer to expose said silicon substrate;

(d) forming a thick polysilicon layer over the entire surface of the structure resulting from step (c);

(e) depositing a layer of oxidation-retardant material on said polysilicon layer;

(f) etching said oxidation-retardant material and said polysilicon layer to expose preselected areas of said silicon substrate where sources, drains and diffused single crystal silicon interconnections are desired, but leaving said oxidation-retardant material at all such locations where contact holes are desired to the gates, sources, drains, and diffused interconnections;

(g) etching away any exposed portions of said thin oxide layer using the oxidation-retardant material protected polysilicon as a mask;

(h) etching away said oxidation-retardant material in selective locations exclusive of said contact hole locations;

(i) using said oxidation-retardant material as a mask, doping exposed portions of said polysilicon layer and said silicon substrate with impurities of a second conductivity type to form at least one single crystal diffused portion on said silicon substrate; and

(j) growing a thick insulating oxide layer which extends above and below portions of the top surfaces of all polysilicon regions and top surfaces of said mesa-like regions where a contact hole is not desired, said thick insulating oxide layer forming a relatively flat top surface.

3. The process of claim 1, wherein the oxidation-retardant material of step (e) is silicon nitride, the process further comprising the steps of:

(k) removing said oxidation-retardant material from the locations where a contact hole is desired; and

(l) doping the polysilicon exposed by removal of said oxidation-retardant material with phosphorus.

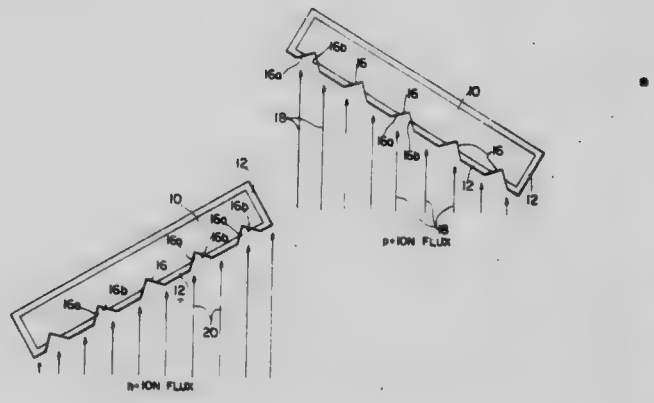
4. The process of claims 2 or 3, wherein there is further provided the step of depositing metallic material on the portions of the substrate where a metal contact is desired.

4,335,503

METHOD OF MAKING A HIGH VOLTAGE V-GROOVE SOLAR CELL

John C. Evans, Jr., Ravenna; An-Ti Chai, N. Ridgeville, and Chandra P. Goradia, Cleveland, all of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 24, 1980, Ser. No. 219,678
Int. Cl.³ H01L *31/18*
U.S. Cl. 29—572 **7 Claims**



1. A method of making a solar cell of the type comprising a plurality of discreet voltage generating regions formed within a single semiconductor body of one conductivity type having oppositely disposed surfaces said voltage generating regions being connected together so that their output voltages are additive; said method comprising:

forming a plurality of V-shaped grooves in one of said surfaces of said semiconductor body, each of said grooves being short of and spaced from the oppositely disposed surface and including first and second faces arranged in an angle of about 90° to one another;

orienting said semiconductor body to a first position wherein said second faces are substantially parallel to a first ion flux thereby implanting ions of a first conductivity type into the said first faces of said grooves so as to form a doped region of said first conductivity type therein while said body is oriented in said first position so that substantially none of said ions from said first ion flux are implanted in said second faces of said groove; and

orienting said semiconductor body to a second position wherein said first faces are substantially parallel to a second ion flux thereby implanting ions of an opposite conductivity type into the said second faces of said grooves so as to form a doped region of the opposite conductivity type therein with said body oriented in said second position so that substantially none of said ions from said second ion flux are implanted in the said first faces of said grooves;

pairs of oppositely disposed doped regions of adjacent grooves in said semiconductor body being spaced apart by gaps comprising unimplanted regions of semiconductor material located between the adjacent grooves, said pairs of oppositely doped regions forming voltage generating unit cells and said method further comprising providing metallization in said grooves to connect together adjacent ones of said unit cells.

4,335,504

METHOD OF MAKING CMOS DEVICES

Steven N. Lee, Irvine, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Sep. 24, 1980, Ser. No. 189,884
Int. Cl.[3] H01L *21/22*
U.S. Cl. 29—576 B 17 Claims

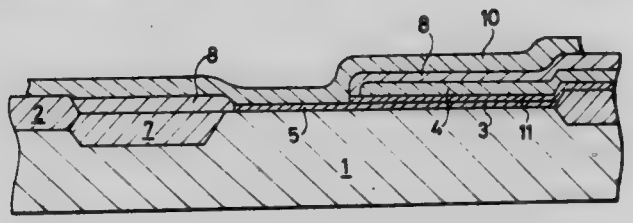
1. A method of making complementary n-channel and p-channel metal oxide semiconductor (CMOS) device pairs in a common insulatively supported semiconductor layer, including simultaneously converting by exposure to a conductivity-type-determining ion beam adjacently arranged complementary regions in different members of a device pair in said layer from a first to a second conductivity type.

4,335,505

METHOD OF MAKING SEMICONDUCTOR MEMORY DEVICE HAVING MEMORY CELL ELEMENTS COMPOSED OF A TRANSISTOR AND A CAPACITOR

Hiroshi Shibata, Kawasaki, and Tatsuya Enomoto, Itami, both of Japan, assignors to VLSI Technology Research Association, Kawasaki, Japan

Filed Dec. 26, 1979, Ser. No. 107,285
Claims priority, application Japan, Dec. 26, 1978, 53-163807
Int. Cl.[3] B01J *17/00*
U.S. Cl. 29—577 R 7 Claims



1. A method for producing a semiconductor memory device including multiple memory cell elements, each cell being composed of a transistor and a capacitor, comprising the steps of:

providing a substrate of silicon having a first conductivity type;

forming a first thick layer of oxide on a surface of said substrate in a predetermined pattern for providing separation between adjacent memory cell elements;

thermally oxidizing exposed portions of said surface of said substrate to form a layer of thermal oxide;

depositing a layer of silicon nitride over said layer of thermal oxide and said thick layer of oxide;

depositing a first layer of polycrystalline silicon over said layer of silicon nitride;

forming a layer of photoresist over said layer of polycrystalline silicon in a predetermined pattern;

removing portions of said first layer of polycrystalline silicon exposed through apertures in said layer of photoresist;

irradiating said substrate at a non-perpendicular angle through apertures in said photoresist layer;

removing said photoresist layer and predetermined remaining portions of said layer of thermal oxide;

providing impurities having a second conductivity type to portions of said substrate exposed through said steps of irradiating;

removing said layer of polycrystalline silicon in predetermined regions so as to form bit lines for each memory cell and opposing electrode of each said capacitor;

oxidizing exposed regions of said substrate and said layer of polycrystalline silicon to form second thick oxide layers;

forming a layer of metal over uppermost layers or said surface of said substrate; and

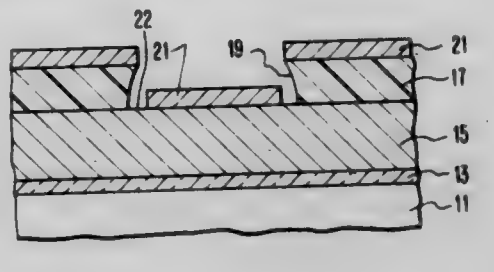
etching said layer of metal to form connection lines to each said memory cell.

4,335,506

METHOD OF FORMING ALUMINUM/COPPER ALLOY CONDUCTORS

George T. Chiu, Wappingers Falls; Robert R. Joseph, Poughkeepsie, and Gunars M. Ozols, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 4, 1980, Ser. No. 175,102
Int. Cl.[3] H01L *21/283, 21/308*
U.S. Cl. 29—591 8 Claims



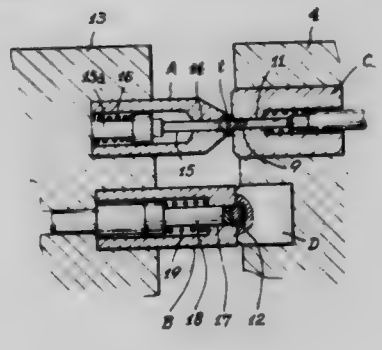
1. A process for forming an aluminum/copper alloy, electromigration resistant electrical conductor comprising forming a patterned layer of copper on a layer of aluminum on a substrate, removing the auminum which is not masked by the patterned copper layer by reactive ion etching in a chlorine-containing atmosphere without supplementary heating of said substrate, and then heating to cause the copper to diffuse into and throughout said aluminum layer, and to alloy with the said aluminum layer.

4,335,507

METHOD FOR MAKING A TRI-METALLIC COMPOSITE ELECTRICAL CONTACT

Akira Shibata, Yokohama, Japan, assignor to Chugai Denki Kogyo Kabushiki-Kaisha, Japan

Division of Ser. No. 926,874, Jul. 24, 1978, Pat. No. 4,232,812.
This application Aug. 7, 1980, Ser. No. 176,256
Claims priority, application Japan, Jul. 25, 1977, 52-88258
Int. Cl.[3] H01R *43/00*
U.S. Cl. 29—876 2 Claims



1. A method of fabricating a tri-metallic electrical contact material by cold pressing, comprising

placing a plurality of cut wires in axial alignment, while firmly sustaining the confronting end portions of a first pair of said aligned wires in a first cavity, pressing with a first punch the confronting end portions of a second pair of said aligned wires, which last-named end portions are disposed exteriorily of said first cavity, for causing plastic deformation between said confronting end portions of said second pair of said wires at the exterior of said first cavity, thereby to cold press said last-named end portions together along a first seam,

transferring said aligned wires in alignment with a second punch having a cavity, while the confronting end portions of said first pair of wires are kept in said first cavity, and

moving said second punch and said first cavity one with respect to the other for pressedly inserting said first seam and said confronting end portions of said second pair of aligned wires into said second punch cavity and firmly sustaining them therein while releasing said confronting

end portions of said first pair of aligned wires from said first cavity, and simultaneously causing plastic deformation in said confronting end portions of said first pair of aligned wires at the exterior of said first and second punch cavities, thereby finally to cold press together the confronting end portions of said first pair of wires along a second seam.

4,335,508

SAFETY RAZOR HEADS

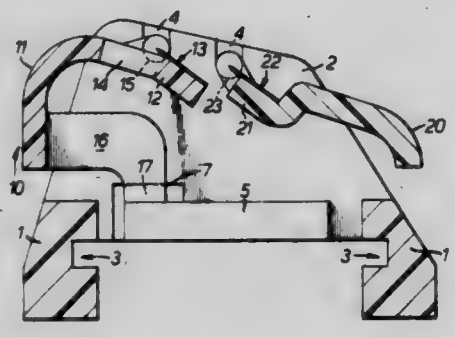
John F. Francis, Woking; Bryan R. Kirk, Tadley, and John C. Terry, Reading, all of England, assignors to The Gillette Company, Boston, Mass.

Filed May 22, 1980, Ser. No. 152,271

Claims priority, application United Kingdom, May 25, 1979, 7918270; Mar. 26, 1980, 8010134

Int. Cl.³ B26B *21/06*

U.S. Cl. 30—47 **3 Claims**



1. A tandem blade safety razor comprising a frame, a guard member, a leading blade fast with said guard member and having a cutting edge, a cap member, a following blade fast with said cap member and having a cutting edge, and pivotal mounting means mounting said respective members in said frame for independent angular movement about respective axes parallel with said cutting edges.

4,335,509

BEARD AND MOUSTACHE TRIMMER

Sarah L. Smith, 20710 Rosedale St., St. Clair Shores, Mich. 48080

Filed May 9, 1980, Ser. No. 148,329

Int. Cl.³ B26B *21/06*

U.S. Cl. 30—48 **4 Claims**



3. A hair trimmer with an unguarded cutting edge, particularly adapted for grooming and shaping beards, moustaches, sideburns and the like, comprising:

an elongated handle;

a unitary blade and shank, the shank thereof being about the same width as the handle, one end portion of the shank aligned with the axis of the handle and attached to an end portion of the handle, the remaining portion of the shank extending obliquely from the other shank portion to a union with the blade, said blade appending angularly downward from the union with the shank towards the handle to an unguarded cutting edge at the other end portion of the blade having an oblique relationship to the union of the blade and shank and extending across the full width of the blade, said width being substantially greater than the width of the shank whereby the ends of the cutting edge extend beyond the sides of the shank and are exposed for the view and use of a user;

a means for steadying the hand of the user and controlling the pressure of the cutting edge against the surface in contact with the cutting edge; and

a means for attaching the shank to the handle.

4,335,510

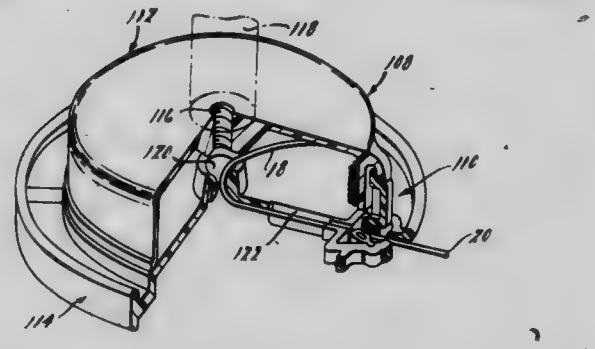
STRING TRIMMER

Albert R. Close, Culver City, and Winton Oster, Venice, both of Calif., assignors to Black & Decker, Inc., Newark, Del.

Continuation of Ser. No. 160,537, Jun. 18, 1980, abandoned. This application Oct. 22, 1980, Ser. No. 199,563

Int. Cl.³ A01D *50/00*

U.S. Cl. 30—276 **9 Claims**



1. A head for a trimmer using flexible trimming line as the cutting implement comprising:

housing means for containing a coil of trimming line, said housing means having an opening therethrough for egress of said trimming line, said opening being disposed in communication with the center of said coil so that said trimming line can be fed from the center of said coil through said opening to project the free end of said trimming line generally radially-outwardly from said housing means, said housing means being adapted to be rotated at high speed to rotate said coil and the generally radially-outwardly projecting free end of said trimming line therewith; and

clamping means associated with said housing means for securing said trimming line during rotation of said housing means and for releasing said coil through said opening without rotation of said coil said clamping means comprising;

a button member which is manually movable with respect to said housing means for releasing and clamping said trimming line;

a clamping member resiliently biased in a direction to cause clamping of said trimming line and which is movable against said resilient bias when said button member is manually moved to release said trimming line; and

pivot means for permitting rotation of said clamping member about said pivot means in one direction to clamp said trimming line.

4,335,511

DRY WALL OUTLET BOX LOCATOR AND CUTTER ASSEMBLY

Dan P. Bowling, 2625 Colt Rd., Rancho Palos Verdes, Calif. 90732

Filed Jan. 28, 1980, Ser. No. 115,914

Int. Cl.³ B26F *1/00*

U.S. Cl. 30—366 **4 Claims**

1. A device for registering the center of a framing supported electrical outlet box by an identation on a sheet of wall board when the latter is moved temporarily to the position it will permanently occupy when secured to said framing, said outlet

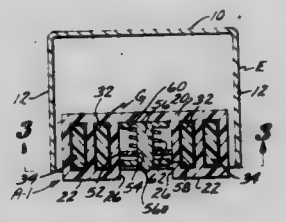
box of the type that includes a back from which a pair of end walls and sidewalls extend forwardly to terminate in a pair of horizontal and vertical edges, said back, end walls and sidewalls cooperating to define a confined space, said device including:

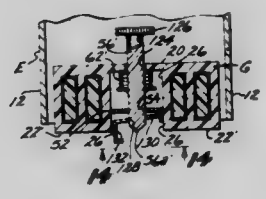
a. a horizontally positionable plate of less length than the width of said confined space and removably disposable in the latter;

b. a pair of laterally spaced projections that extend forwardly from said plate;

c. first and second pairs of legs slidably movable in first and second pairs of vertical openings in said pair of projections, said legs having first ends;

d. first and second grippers supported from said first ends of said first and second pairs of legs;





e. first springs means that tend to move said grippers away from one another into gripping contact with said pair of end walls;

f. a prong that has a pointed forward end;

g. first means between said pair of projections for slidably supporting said prong for movement normal to said plate;

h. second means that tend to maintain said prong in a first position where said pointed end is disposed rearwardly of said pair of projections; and

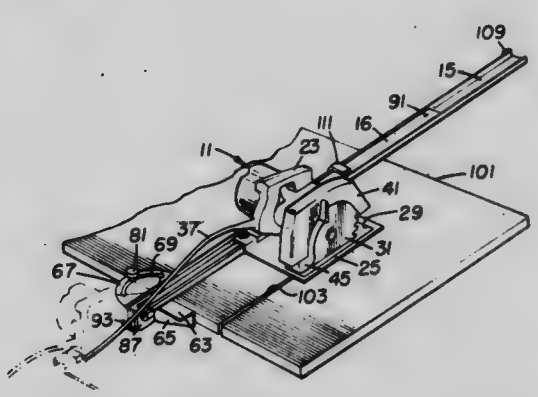
i. third means for moving said prong forwardly for said pointed end to form said indentation on said wall board as a guide to subsequently cut an opening in said wall board in alignment with said outlet box.

4,335,512

ATTACHMENT FOR A POWER HAND SAW

Martin I. Sheps, Poway; George S. Christensen, San Diego, and George E. Robson, Hermosa Beach, all of Calif., assignors to Portalign Toll Corporation, San Diego, Calif.

Filed Jul. 17, 1980, Ser. No. 169,863
Int. Cl.³ B27B *9/04*
U.S. Cl. 30—376 **12 Claims**



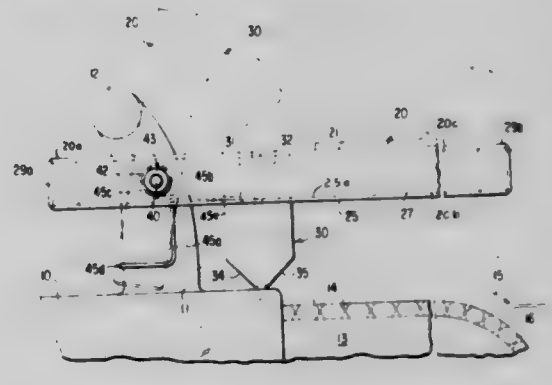
1. In a device for facilitating repeated cuts with a portable hand-held power saw having a saw shoe bearing surface, and wherein relatively slideable guide means are employed for guiding the saw through a cutting path, the improvement wherein said guide means comprise a first elongated slide having a flat surface adapted to lie against the surface of a work-piece, said guide means further comprising a second elongated slide movable on said first slide with respect thereto, a relatively thin mounting plate adapted for attachment to the saw shoe, means for attaching said mounting plate to said second elongated slide such that said mounting plate lies against the work-piece and at a position laterally offset from said first elongated slide, and spring means providing a substantially constant force against movement of said second elongated slide relative to said first elongated slide in the direction of the saw cut.

4,335,513

SAFETY BAR FOR USE WITH CHAIN SAW OR THE LIKE

James L. Owens, 4210 Stoneybrook Rd., Clemmons, N.C. 27012

Filed Aug. 25, 1980, Ser. No. 180,888
Int. Cl.³ B27B *17/02*
U.S. Cl. 30—382 **9 Claims**



1. In combination with a chain saw having a housing and an endless cutting chain supported by the housing, an elongated, tubular bar, means for pivotally mounting said bar with respect to said housing so that, in a lowered position thereof, the bar extends in the plane of the cutting chain substantially parallel to and above the chain, means disposed within the tubular bar for biasing said bar toward the lowered position, a stop member for maintaining a predetermined spacing between the bar in its lowered position and the cutting chain where said spacing is open to facilitate viewing of the cutting chain in operation and means for pivoting the bar from its lowered position to a raised position to facilitate undercut operations.

4,335,514

SWITCH-BRAKE INTERLOCK FOR CHAIN SAW

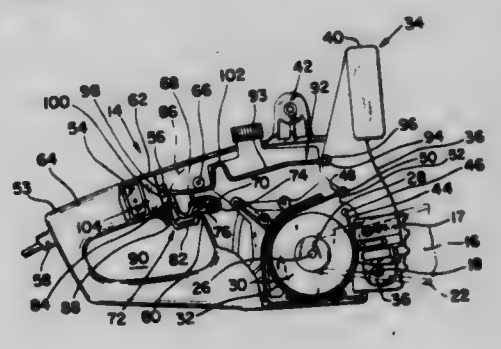
Colin Overy, and Ernest R. Dynie, both of Brockville, Canada, assignors to Black & Decker Inc., Newark, Del.

PCT No. PCT/US80/01012, § 371 Date Aug. 8, 1980, § 102(e) Date Aug. 8, 1980
PCT Filed Aug. 8, 1980, Ser. No. 201,411
Int. Cl.³ B27B *17/02*
U.S. Cl. 30—382 **21 Claims**

1. A control device for a switch mounted in a housing comprising:

(a) a trigger shiftably mounted in the housing remote from the switch,

(b) a link operatively associated to be selectively movable by



the trigger to cause the link to be shifted along a path toward the switch,

(c) a means connected to the link having a rest position and a removal position,

(d) the means in the rest position permitting the link to be shifted along a path to engage the switch, and

(e) the means in the removal position preventing the link from engaging the switch by removing the link from the path of the switch.

4,335,515

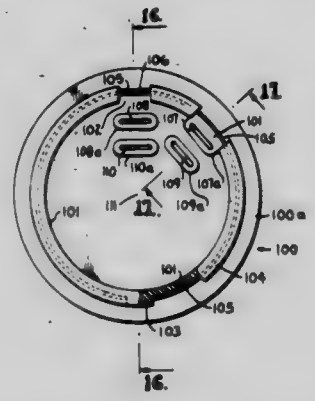
DRAFTING DEVICE FOR PRODUCING CONCENTRIC LINES

Raymond L. Jones, 6125 Manning, Raytown, Mo. 64133

Division of Ser. No. 59,789, Jul. 23, 1979, Pat. No. 4,275,502, which is a continuation-in-part of Ser. No. 971,934, Dec. 21, 1978, abandoned. This application Dec. 29, 1980, Ser. No. 221,027

Int. Cl.³ B43L *11/06*

U.S. Cl. 33—27 L **9 Claims**



1. A drafting device for use with a template for cutting concentric shapes with respect to template patterns, comprising:

a flat, circular disc having upper and lower sides thereto,

a circular wall of lesser outer diameter than the disc outer diameter fixed to the upper side of said disc circumferentially inboard of the peripheral edge thereof and concentric thereto,

said circular wall relieved in at least one portion of the length thereof, with a slot through said disc in said relieved portion adapted to receive a cutting means therethrough,

said slot aligned in its length with a tangent to said wall extended in said relieved portion.

4,335,516

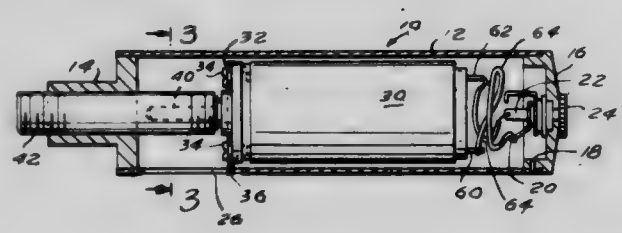
POWER DRIVEN MICROMETER

Arthur Edelstein, Jamaica, N.Y., assignor to Oriel Corporation, Stamford, Conn.

Filed Mar. 24, 1980, Ser. No. 133,626

Int. Cl.³ G01B *7/02*

U.S. Cl. 33—164 R **10 Claims**



1. A power driven micrometer for engaging a workpiece surface comprising:

(A) a support;

(B) nut means secured to said support;

(C) rotatable screw means threadedly engaged by and supported by said nut means;

(D) means operatively connected to said screw means for rotatingly driving said screw means, said drive means and said screw means being secured together for longitudinal travel as a unit;

(E) engaging means operatively secured to said unit for longitudinal travel therewith and for operatively engaging said workpiece; and

(F) keying means for precluding rotation of said drive means relative to said support while enabling longitudinal travel of said drive means relative to said support;

whereby rotation of said screw means relative to said nut means results in longitudinal travel of said screw means/drive means unit relative to said support.

4,335,517

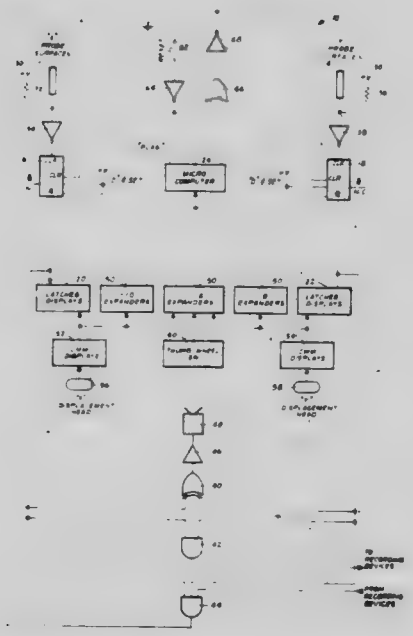
ZERO FORCE TOUCH PROBE

Harold S. James, Lynchburg, and Ronald N. Roseveare, Evington, both of Va., assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed Mar. 12, 1981, Ser. No. 242,866

Int. Cl.³ G01B *7/28*

U.S. Cl. 33—174 L **7 Claims**



1. A co-ordinate measuring system for determining the relative dimensions of an object comprising means for measuring the relative dimensions of the surfaces defining said object, said measuring means comprising a probe having a plurality of contact surfaces, each of said contact surfaces being insulated from the other of said contact surfaces and being selectively interconnected with the other of said contact surfaces to form one or more probe contact surfaces for one co-ordinate direction and one or more probe contact surfaces for another co-ordinate direction, and means for displaying the said relative dimensions determined by said measuring means, actuation of said measuring means causing said displaying means to display said relative dimensions at the instant contact is made by said measuring means with said surface being measured.

4,335,518

THREAD GAGING INSTRUMENT

Jan Reef, 41520 Eight Mile Rd., Northville, Mich. 48167

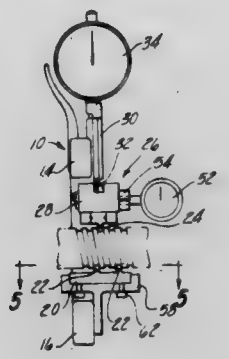
Filed Feb. 18, 1981, Ser. No. 235,592

Int. Cl.³ G01B *3/40*

U.S. Cl. 33—199 R **12 Claims**

1. An instrument for gaging external threads on a threaded member, comprising: a generally C-shaped frame having a pair of spaced arms, an anvil member supported from one of said arms and having seat elements engageable with axially spaced points on said threaded member to support said threaded mem-

ber for rotation relative thereto, said anvil member being pivotal to selected positions about an axis extending transverse to the axis of said screw to accommodate threads of different pitch, a gage element supported from the other of said pair of spaced arms in spaced relationship to said seat member for engagement between adjacent threads at a diametrically opposed surface of said threaded member for movement radially and axially of said threaded member, first indicator means to record radial movement of said gage element relative to said threaded member and second indicator means to record axial movement of said gage element relative to said threaded member.

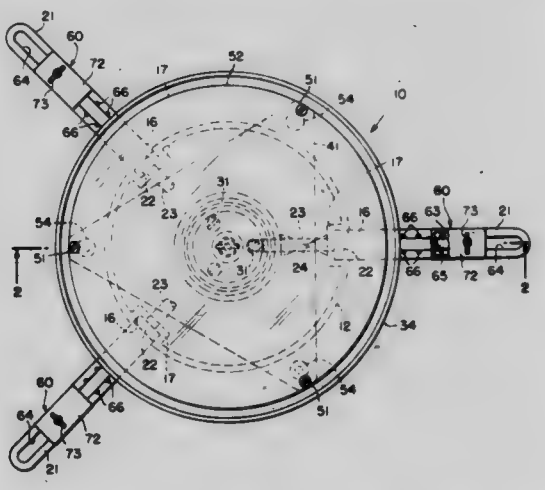


4,335,519

MIRROR MOUNT FOR AUTOMOTIVE ALIGNMENT APPARATUS

Pierre A. Alsina, Rochester, N.Y., assignor to SpinOptic, Inc., Hornell, N.Y.

Filed Apr. 30, 1980, Ser. No. 144,978
Int. Cl.³ G01B *11/275*
U.S. Cl. 33—288 **13 Claims**



1. A mechanism for releasably mounting a reflective surface on the wheel of an automotive vehicle or the like, comprising

a housing having therein a central opening, and having thereon a plane surface extending transverse to the axis of said opening,

a plurality of rigid arms projecting from said housing radially of said axis,

an adjustable clamping device mounted on each of said arms and releasably engagable with the rim of a wheel on a vehicle for supporting said housing on said wheel for rotation therewith,

a reflecting member adjustably mounted on said housing and having thereon a plane reflective surface facing away from said housing,

resilient means interposed between said member and said housing and resiliently urging said member into a first position in which said reflective surface thereof is disposed parallel to said plane surface on said housing,

means defining a plurality of linear fulcrums located in a common plane between said member and said housing, and

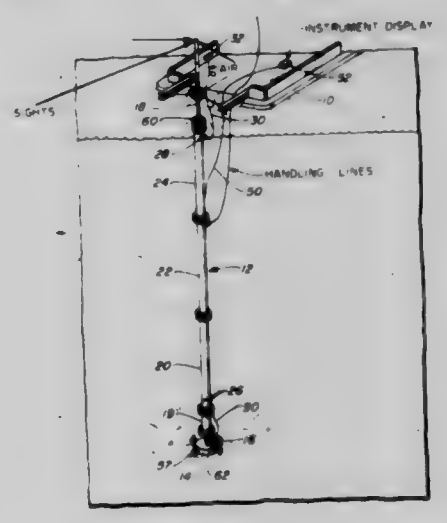
means for tilting said member selectively about any of said fulcrums to swing said member from said first position to a second position in which said reflective surface is inclined to said plane surface on said housing.

4,335,520

SURVEY SPAR SYSTEM FOR PRECISION OFFSHORE SEAFLOOR SURVEYS

Jeffrey V. Wilson, Camarillo, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 22, 1980, Ser. No. 189,245
Int. Cl.³ E21B *47/022*
U.S. Cl. 33—312 **11 Claims**



1. Survey spar system for use with conventional shore-based surface survey systems for accurately translating between a survey surface position and a position on the seafloor, which comprises:

a. anchor means for providing in-water weight to fix said survey spar system to a position on the seafloor in the presence of currents and waves;

b. a stiff, straight (buoyant) member, said member being long enough to extend from said anchor means to above the surface of the water;

c. means for providing a flexible connection between one end of said straight member and said anchor means;

d. means for maintaining said straight member in a substantially upright position so that the end not connected to said anchor means extends above the surface of the water; and

e. means for determining the orientation of said straight member relative to said anchor means;

f. means for determining the heading of the anchor means in magnetic coordinates;

g. whereby the position of the end of said straight member coupled to said anchor means may be calculated when the position of the above the water end of the straight member is known.

4,335,521

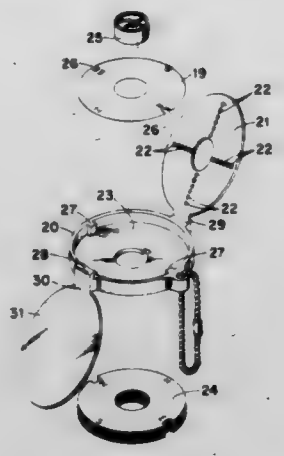
METHOD AND APPARATUS FOR GEOGRAPHIC LOCATION

Terry G. Rutherford, Rte. 5, Box 249, Candler, N.C. 28715

Filed Jun. 26, 1980, Ser. No. 163,300
Int. Cl.³ G01C *17/04*
U.S. Cl. 33—340 **2 Claims**

1. A geographic travel aid device, comprising a single piece molded base, top cover and bottom cover, of synthetic polymeric material, said top cover and bottom cover being attached to said base by separate flexible sections of said polymeric material, said base having latch means for selectively holding said top cover and bottom cover in place; compass

means attached to said base and visible through said top cover, said top cover having at lease two concentric rows of aper-



tures, the apertures of adjacent rows being radially aligned relative to said compass means.

4,335,522

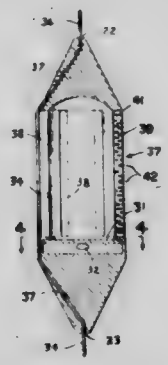
UP, DOWN OR HORIZONTAL PLUMB BOB

Robert L. Canfield, Colorado Springs, Colo., assignor to Canfield Corporation, Colorado Springs, Colo.

Continuation-in-part of Ser. No. 816,208, Jul. 15, 1977, abandoned, which is a continuation-in-part of Ser. No. 775,294, Mar. 7, 1977, abandoned. This application Feb. 24, 1981, Ser. No. 237,608

Int. Cl.³ G01C *15/10*

U.S. Cl. 33—353 **14 Claims**



1. A plumb bob comprising an elongated body having top and bottom ends, spaced apart by a plurality of elongated parallel struts, at least one strut being hollow, transparent and filled with liquid except for an air bubble that acts as a horizontal level indicator, a transparent fluid chamber between said body ends, means for securing a string at a point on each body end, a fixed indicator point intermediate and in alignment with said body end points, and an associated movable level indicator within said chamber of different density than said fluid, said points describing an imaginary straight line, said movable level indicator being aligned with said fixed indicator point only when said imaginary line is vertical.

4,335,523

TOOL FOR ADJUSTABLY ALIGNING PIPE FLANGES AND STRUCTURAL MEMBERS

Gladys M. Bryant, 6515 E. Compton Blvd., Paramount, Calif. 90723

Filed Jan. 23, 1981, Ser. No. 227,663

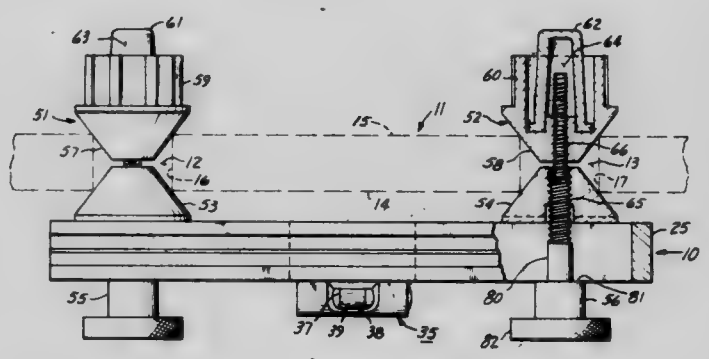
Int. Cl.³ G01C *9/28*

U.S. Cl. 33—371 **14 Claims**

1. A tool for adjustably determining the angular position of an apertured flange at the end of a pipe comprising:

an elongated body having two slots therein extending parallel to a datum line;

a pair of attachment means for attaching said body to said flange, each comprising a first self-centering member attachable to said body, a threaded bolt projecting beyond and coaxial with said first self-centering member, and a second self-centering member threaded to said bolt, and movable toward and away from said first self-centering member so they enter into respective apertures an clamp said tool to said flange; at least one of said bolts passing through said slot and closely fitting therein, and bearing against one side of said body, its respective first self-centering member being threaded to said bolt and bearing against the other side of said body to hold said bolt in a selected adjusted location along said slot;



a rotationally adjustable protractor dial bubble level rotatably mounted to said body, said level including angular indicia means referrable to said datum line, and

said first self-centering members being threadedly attached to a first thread on a respective bolt, said bolt including a head at the side of said body opposite from said self-centering members, the end remote from said head of each said bolt including a second, smaller diameter thread to which each respective second self-centering member is threaded, and each said second self-centering member including a first hand grip having a relatively larger diameter, and a speed grip having a relatively smaller diameter.

4,335,524

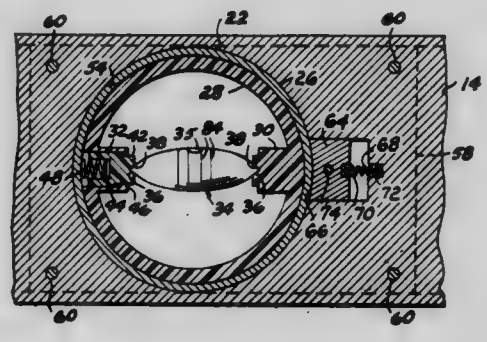
SPIRIT LEVEL

Fred H. Schimming, 3407 NW. 39 Apt. 140, Oklahoma City, Okla. 73112

Filed Nov. 28, 1980, Ser. No. 211,482

Int. Cl.³ G01C *9/28*

U.S. Cl. 33—388 **6 Claims**



1. A level comprising:

an elongated I-beam body having a web and parallel flanges forming a first pair of working surfaces;

a spheriod vial having a conical-shaped tip at the respective end of its major axis and containing bubble indicating means and having bubble registery means adapted to register a level position when the major axis of the vial is disposed in a preselected plane and either one of said first pair of working surfaces is in contact with a surface being measured;

adjustable mounting means for rotating said vial relative to said body for variable angular alignment of the major axis of the vial with respect to the planes of said first pair of working surfaces,

said mounting means including a ring assembly supported

on its periphery in an opening formed in said web for rotation about an axis normal to the plane of said web, said ring assembly having axially aligned diametrically opposed cylindrical lugs secured to its inner periphery, one of said lugs having an axial bore and having an annular inwardly projecting flange at its end projecting toward the other said lug;

a plunger axially slidable in the lug bore and having a diametrically reduced end portion confronting said other lug and forming an annular shoulder normally abutting said annular flange, said plunger having an axial bore in its other end portion;

a spring normally biasing said plunger toward said other lug, said plunger and said other lug having coaxially aligned conical recesses in their confronting surfaces for nesting the conical tips of said vial,

said lugs each having diametrically opposed laterally projecting wings for angularly rotating said ring assembly relative to said web; and,

a pair of plates secured to opposing sides of said web for maintaining said ring assembly within the web opening, said plates having transversely aligned openings exposing the vial and having radially oriented angle calibrating indicia scored thereon adjacent the respective aligned opening,

whereby the major axis of the vial may be selectively aligned with the angle indicia to permit selective indication of the position of the first pair of working surfaces when one of the working surfaces is in contact with a surface being measured.

4,335,525

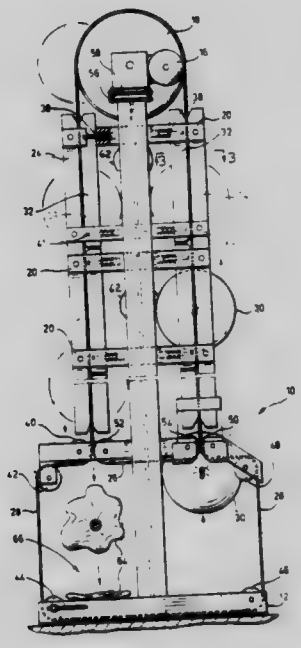
BALLOON DRYER

David R. McCleary, Orangeville, and Djuro Slivar, Brampton, both of Canada, assignors to Superior Rubber Industries Ltd., Orangeville, Canada

Continuation-in-part of Ser. No. 177,569, Aug. 13, 1980, abandoned. This application Mar. 26, 1981, Ser. No. 247,910

Int. Cl.³ F26B *15/22*

U.S. Cl. 34—4 **41 Claims**



39. Process for drying printing medium on inflated balloons, comprising the steps of:

inserting the neck of each of said inflated balloon between a pair of mutually facing belt flights,

causing said mutually facing belts to press together to maintain said balloon neck sealed,

causing said mutually facing belts flights to travel in the same direction at substantially the same speed along a predetermined path;

causing said balloons to pass a radiation means for drying said printing medium on said inflated balloons.

4,335,526

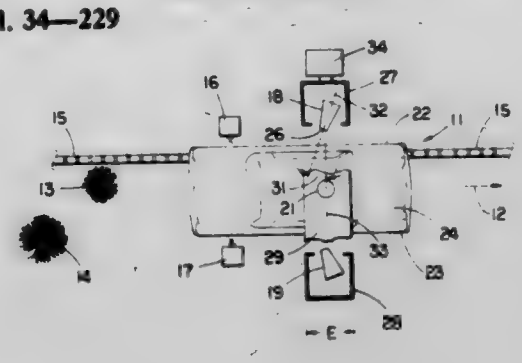
VEHICLE DRYING MACHINE AND METHOD

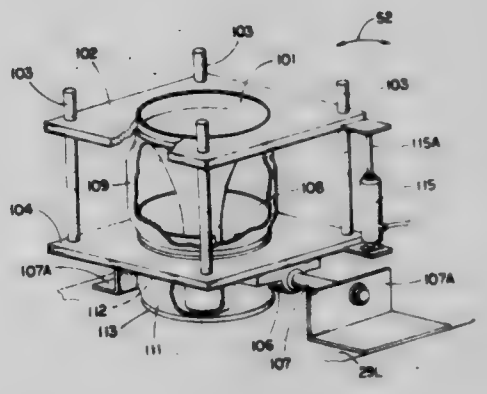
Judson L. Smith, 5432 Lighthouse La., Tempe, Ariz. 85283

Continuation of Ser. No. 932,273, Aug. 9, 1978, abandoned. This application Jul. 23, 1980, Ser. No. 171,337

Int. Cl.³ F26B *15/10*

U.S. Cl. 34—229 **4 Claims**





1. In a vehicle drying apparatus having air discharge means and a vehicle pathside mount for same, the improvement comprising:

at least one nozzle having a discharge axis directed generally horizontally toward the path of the vehicle, said nozzle having a pivot axis for pivoting to tilt said discharge axis and blast air against the side of a vehicle above and below a given point;

an inverted U-shaped plenum serving as said mount, said plenum having horizontally spaced legs and an upper crossmember spanning the space between said legs, and being large enough for a vehicle to pass between said legs and under said crossmember, said one nozzle being in one leg of said plenum;

another nozzle substantially like said one nozzle and located in the other leg of said plenum, the discharge axes of said nozzles being directed generally toward an imaginary plane which is equidistant from said legs and perpendicular to an imaginary plane containing said legs;

a third nozzle substantially like said one nozzle and mounted on said crossmember and having a discharge axis directed downward;

air being supplied under pressure to all of said nozzles from said plenum;

said third nozzle being extendable downwardly, having a mount accommodating such vertical extension, the mount comprising:

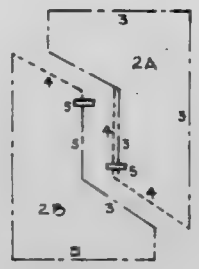
(a) a base member pivotally mounted to said crossmember and having a nozzle passage opening therein;

(b) guidepost means projecting upward from said base member;

(c) a nozzle support affixed to said nozzle and guidingly received on said guidepost means and slidable vertically thereon; and

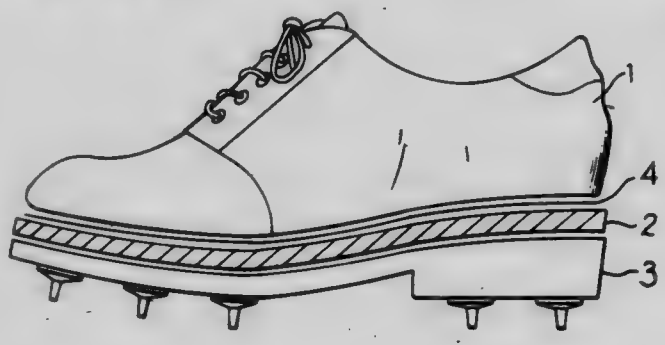
(d) said third nozzle being fixed to said nozzle support and projectable downward through said nozzle passage opening when said support is slided downward on said guidepost means.

4,335,527
DISPOSABLE BOOTS
James B. Pask, 2812 Bree Hill Rd., Oakton, Va. 22124
Filed Feb. 7, 1980, Ser. No. 119,203
Int. Cl.[3] A43B *3/16*
U.S. Cl. 36—7.1 R 10 Claims



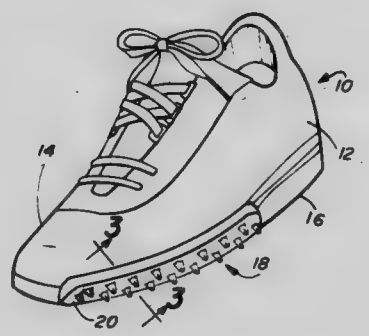
1. A pair of disposable boots manufactured in the form of heat-sealable flexible film, comprising:
a. two layers of said film;
b. heat-seal lines and perforations adjacent thereto defining the perimeter of a pair of boots with each boot having a foot segment and an integral leg encircling segment which extends above the ankle of the wearer, and having an opening to receive the foot and leg of the wearer; and wherein said film is flexible permitting the disposable boot to be adapted to cover a variety of footwear of varying sizes and at the same time covering clothing apparel which extends down the leg of the wearer or which disposable boot can be adapted to be worn solely as footwear; at least three additional heat-seal lines and perforations within said perimeter forming a pre-determined configuration of disposable boots which lines may be a combination of parallel lines, perpendicular lines, angled lines and curved lines producing disposable boots generally fitting the contour and form of both the foot and leg of the wearer in one integral element; and wherein the height of said leg encircling segment is greater than one-half the length of the sole segment.

4,335,528
SPORT SHOES
Morio Watanabe, Sakai, Japan, assignor to Daicel Chemical Industries, Ltd., Osaka, Japan
Filed Feb. 12, 1980, Ser. No. 120,952
Claims priority, application Japan, Oct. 10, 1978, 53-144440; Jul. 30, 1979, 54-97905
Int. Cl.[3] A43B *13/12;* A43C *13/08;* A43B *5/00*
U.S. Cl. 36—30 R 5 Claims



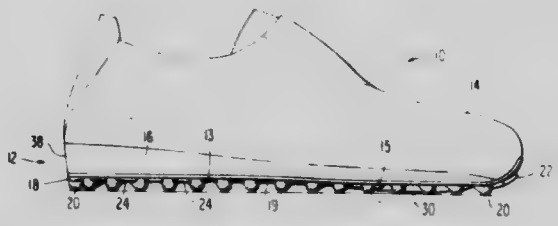
1. A sport shoe comprising a shoe sole and a shoe upper composed of natural or artificial leather, said shoe sole being an integral laminate of an insert material layer the lower surface of which is bonded to an injection-molded synthetic resin layer to form said integral laminate, said synthetic resin being selected from the group consisting of nylon-11 and nylon-12, said insert material layer being made of a material which has a good bondability to the shoe upper and which does not undergo thermal deformation at the injection-molding temperature and pressure, said material being selected from the group consisting of natural leather, artificial leather, rubber, nonwoven fabric, felts and fibers, the upper surface of said insert material layer being bonded to the lower portion and insole of said shoe upper by an adhesive, said shoe sole having been prepared by placing into an injection mold a preformed insert material layer and then injection-molding said synthetic resin into said mold to form a monolithic synthetic resin layer and to heat-bond the lower surface of the insert material layer to the upper surface of the synthetic resin layer formed by the injection-molding.

4,335,529
TRACTION DEVICE FOR SHOES
Michael J. Badalamenti, 1478 Perry Lake Rd., Ortonville, Mich. 48462
Filed Dec. 4, 1978, Ser. No. 966,346
Int. Cl.[3] A43B *23/28, 5/00*
U.S. Cl. 36—59 R 8 Claims



1. A running shoe comprising an outer side, an inner side, a sole, a first traction surface, and a second traction surface, wherein: said first traction surface and said second traction surface are associated with and disposed on the inner side and the outer side, respectively, of the upper portion of said shoe; each of said traction surfaces extends along a side of said shoe from about the forward portion of the heel to about the region where the toe area commences; and each of said traction surfaces is disposed above said sole of the shoe at an acute angle; whereby, when said shoe is rotated about a horizontal axis, at least one of said traction surfaces is brought into contact with the ground surface.

4,335,530
SHOE SOLE CONSTRUCTION
Jerry D. Stubblefield, 11725 NW. Damascus, Portland, Oreg. 97229
Filed May 6, 1980, Ser. No. 147,140
Int. Cl.[3] A43B *13/12*
U.S. Cl. 36—83 24 Claims



1. A shoe, which comprises:
an upper;
an outsole made of a material having a first density and including at least one cutout portion formed therethrough; and
a midsole made of a material having a second density less than said first density and positioned between said upper and said outsole, said midsole including a lower surface having a protruding portion that extends through said cutout portion of said outsole;
wherein said outsole includes a bottom surface and wherein

said protruding portion extends below a portion of said bottom surface;

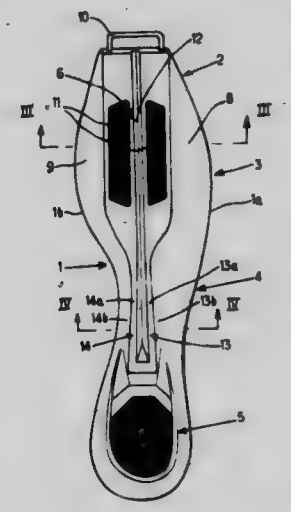
wherein said outsole includes a plurality of lug members that extend downwardly and outwardly from the periphery of said bottom surface, the lowermost portions of certain of said lug members extending below said protruding portion and thereby adapted to contact the ground before said protruding portion contacts the ground upon foot-initiated ground impact.

4,335,531

CROSS COUNTRY SKI BOOT

Georges P. J. Salomon, Annecy, France, assignor to Etablissements Francois Salomon & Fils, Annecy, France

Filed Aug. 20, 1980, Ser. No. 179,854
Claims priority, application France, Aug. 24, 1979, 79 21354
Int. Cl.³ A43B *5/04*
U.S. Cl. 36—117 **6 Claims**



1. In a cross country ski boot comprising a sole made of moulded plastics material substantially in the form of a rectangle elongated in the longitudinal direction in its central part, said sole presents, in the front plantar zone, a central part of considerable thickness, with flat, relatively narrow lower surface, in contact with the top surface of the ski, which is divided into two by a longitudinal centering groove extending over the whole length of the central part of the sole and intended to cooperate with a rib of complementary shape provided on the top surface of the ski, and, on either side of this central part, two side portions whose thickness decreases towards the longitudinal edges of the sole, with flat or curved lower surfaces, inclined upwardly from the central part towards the longitudinal edges of the sole which are located at a level higher than that of the top face of the ski.

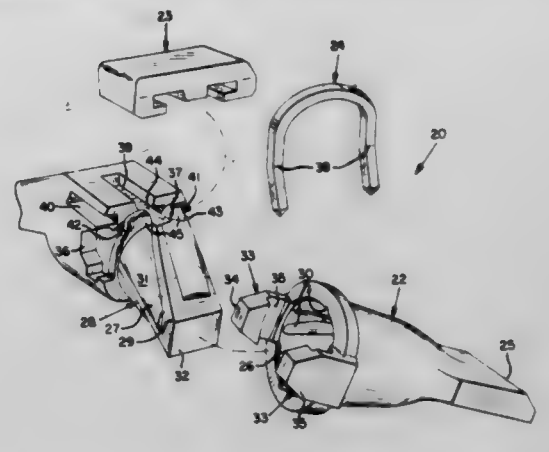
4,335,532

EXCAVATING TOOTH

Frederick C. Hahn, Aloha; William R. Barber, Jr., Portland, both of Oreg., and David A. Hampel, Vancouver, Wash., assignors to ESCO Corporation, Portland, Oreg.

Continuation-in-part of Ser. No. 144,368, Apr. 28, 1980, abandoned. This application Feb. 25, 1981, Ser. No. 235,771
Int. Cl.³ E02F *9/28*
U.S. Cl. 37—142 R **35 Claims**

1. An excavating tooth comprising an adapter element and a point element, said adapter element having means at one end for connection to a bucket or the like and means at the other end for coupling to said point element, said point element having an earth engaging edge at one end constituting the tooth forward end and means at the other end for coupling to said adapter element, said coupling means including a nose on one element and a nose receiving socket on the other element, a plurality of cooperating generally helical thread means on said nose and in said socket whereby said point element is rotated about a longitudinal axis to install the same on said adapter element, and lock means externally of said nose releasably connecting said elements to prevent reverse rotation of said point element when the same is installed on the said adapter element, said lock means being rearward of said nose



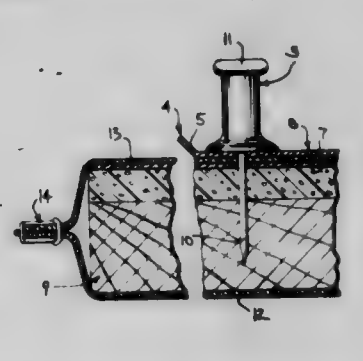
and socket, said adapter element being equipped with said nose forward of a relatively massive section on said adapter and said point element being equipped with said socket, said lock means being positioned transverse to said longitudinal axis of said massive section.

4,335,533

CUSHIONED NEEDLEWORK BLOCKING BOARD

June E. Kroenke, 2199A Scenic Rd., Richfield, Wis. 53076

Filed Mar. 10, 1980, Ser. No. 128,769
Int. Cl.³ D06F *71/32*; A41H *5/00*
U.S. Cl. 38—141 **1 Claim**



1. A needlework blocking apparatus for blocking of needlework including a base fabric with an interwoven stitched threading, comprising a base board formed of a pressed fibrous material to releasably receive and hold a sharp pin-like element, an outer surface cover for such board, such cover being formed of a napped 100 percent woven cotton cloth and being moisture-absorbing and a resilient polyurethane foam pad bonded throughout its interface to said fabric and located between said board and said fabric, said cover being provided with needlework blocking indicia, a series of rectangular blocking patterns and a series of spaced circular blocking patterns for locating a needlework piece upon said cover with the piece adapted to be releasably affixed in position upon said cover by a plurality of said pin-like elements, and a back fabric cover wall secured to said moisture-absorbing fabric about the periphery of said board to enclose the board and present a fabric surface to the back side of the blocking apparatus.

4,335,534

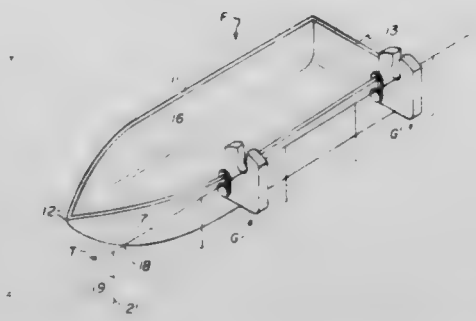
TROTLINE GUIDE

Roe Allred, Box 544, Munday, Tex. 76371

Filed Jun. 17, 1980, Ser. No. 160,319
Int. Cl.³ A01K *79/00*
U.S. Cl. 43—27.4 **9 Claims**

1. A trotline guide for allowing a main trotline with plural depending leaders having hooks to pass therethrough comprising, in combination, a substantially planar body having side edges and a top edge, said body top edge having a recess

including a circular portion and a upwardly opening slot extending from said circular portion for accommodating the trotline and means for clamping said body to the hull of a fishing vessel with said body extending substantially perpendicular to the side wall of said hull and in a substantially vertical plane wherein a marginal edge portion of said body defining said recess is of arcuate shape having a smooth contour and of greater thickness than the adjacent portions of said body to facilitate the passage of the trotline through said recess and wherein said body marginal edge portion is substantially tear shape in cross section so that hooks passing through said recess encounter no obstructions upon which they may get ensnared.



4,335,535

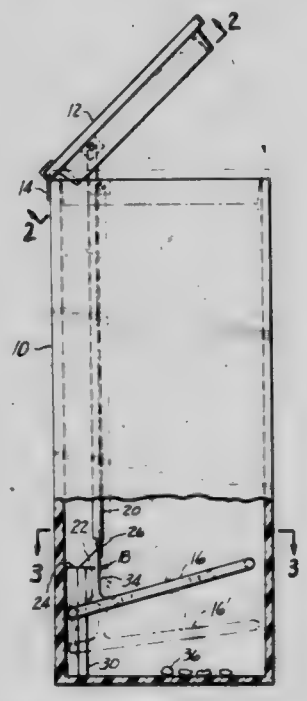
RODENT TRAP

Donald C. Lindley, 3 Skipper, Irvine, Calif. 92714

Continuation of Ser. No. 127,853, Mar. 6, 1980, abandoned. This application May 26, 1981, Ser. No. 267,610

Int. Cl.³ A01M *23/18, 23/22*

U.S. Cl. 43—61 **6 Claims**



1. A rodent trap comprising:

an enclosure having a top and a bottom;

a hinged lid adapted to seal the top of said enclosure;

closing means for closing said lid comprising a movable platform means in said enclosure, said platform being free to rotate and also to move vertically;

latch means for latching said platform in a restrained position spaced from the bottom of said enclosure;

vertical rail means attached to a wall of said enclosure for guiding the rotational and vertical movement of said platform;

knob means on said platform for engagement with said rail means for guiding said platform vertically; and

connecting means connecting said platform to said lid, whereby weight applied to said platform moves said platform downwardly toward the bottom of said enclosure, releases said latch and closes said lid by the force of the weight applied to said platform.

4,335,536

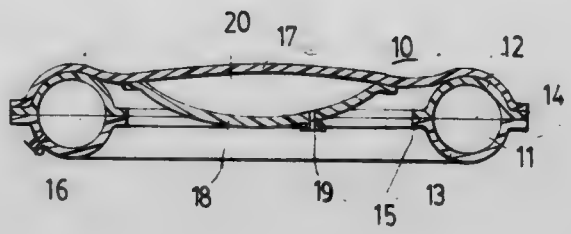
INFLATABLE THROWING TOY

Sidney H. Magid, 4th Fl., No. 10, Alley 5, Lane 12, Sec. 4, Jen Ai Rd., and Wang C. Chung, 3, 11th Fl., No. 311, Sec. 4, Chung-Hsiao E. Rd., both of Taipei, Taiwan

Filed Oct. 23, 1980, Ser. No. 199,868

Int. Cl.³ A63H *27/00*

U.S. Cl. 46—74 D **15 Claims**



1. An inflatable throwing toy of air-impervious sheet material comprising:

an inflatable ring having an inflating valve located thereon, said ring consisting of a top section and a bottom section joined at their outer and inner peripheries;

two or more disc sections with at least a first disc section attached all around its periphery to the top section of said inflatable ring beyond said inner peripheries and a second disc section attached opposite to said first disc section to form an inflatable enclosure therebetween;

and means provided on the inflatable enclosure for inflating said inflatable enclosure;

said top section of said ring and the uppermost disc of said attached discs forming a substantially convex upper surface when said ring and said enclosure are inflated;

said bottom section of said ring and the lowermost disc of said attached discs forming a substantially concave lower surface; said concave and convex surfaces providing an air flow permitting said toy to be given a controlled movement when thrown.

4,335,537

TOY AIRCRAFT

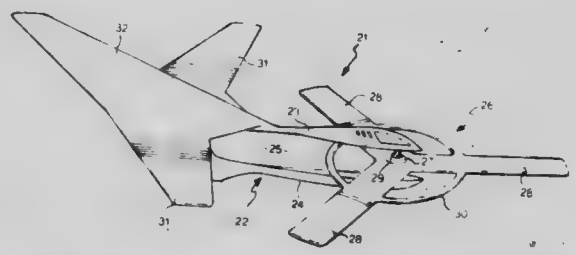
Terence J. Walker, Naremburn, Australia, assignor to Plectrum Pty. Limited, Naremburn, Australia

Filed Nov. 18, 1980, Ser. No. 208,108

Claims priority, application Australia, Nov. 28, 1979, PE1510

Int. Cl.³ A63H *27/00*

U.S. Cl. 46—79 **3 Claims**



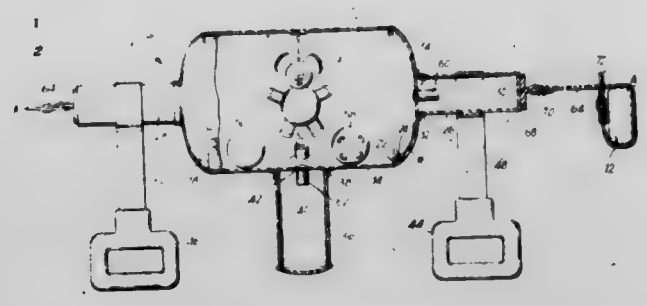
1. A toy aircraft comprising a body having a forward and rearward portion, said forward portion having a generally U-shaped configuration so as to provide two forwardly horizontally extending legs defining a forwardly open recess with one of the legs being vertically beneath the other; horizontal and vertical control surfaces attached to the body at said rear portion to stabilize and control the aircraft as it moves through the air; and a rotatable wing assembly for rotation about an axis and to pass through said recess, said assembly including a shaft extending between said legs so as to be supported thereby and being located on said axis, a plurality of blades extending radially outwardly from said shaft at predetermined angular positions thereabout while being rotatably supported thereby.

4,335,538

INFLATABLE OVERHEAD CRIB GYM TOY

Sheldon Greenberg, New York, N.Y., assignor to Shelcore, Inc., South Plainfield, N.J.

Filed Nov. 12, 1980, Ser. No. 206,255
Int. Cl.[3] A63H 3/06; A63B 7/02, 7/04
U.S. Cl. 46—88 10 Claims



1. A soft, inflatable, crib-supported, gym-type, overhead nursery toy for encouraging children to perform exercise-type manual movements with safety, comprising:

(a) an air-inflatable tubular body constituted of thin plastic material, said tubular body having transparent wall portions bounding an interior main chamber, said tubular body being elongated along a longitudinal axis of symmetry and having opposite axial ends;

(b) a pair of axially-extending, air-inflatable tubular extensions each located at a respective axial end of the tubular body, each extension being constituted of thin plastic material wall portions which bound an interior compartment that is in air communication with the main chamber of the tubular body;

(c) a radially-extending, air-inflatable tubular projection intermediate the axial ends of the tubular body, said tubular projection being constituted of thin plastic material wall portions which bound an interior space that is in air communication with the main chamber of the tubular body;

(d) a toy object mounted within the main chamber for movement relative to the tubular body when the inflated toy is subjected to manual movement;

(e) gym means connected to each extension and extending generally radially downwardly towards the child, for providing a handhold for each extension for the child to grasp and thereby perform the exercise-type movements; and

(f) air-admitting means on the tubular body, for inflating the tubular body, the tubular extensions and the tubular projection from a collapsed configuration in which the deflated body, extensions and projection can be stored, to an inflated configuration in which the toy object is visible through the transparent wall portions and movable relative to the tubular body when the child grabs the gym means and manipulates the toy,

said inflated body, extensions and projection being soft and yieldable to the touch to protect the child from any injury during manipulation of the toy, and being self-restorable to said inflated configuration when the child ceases said manipulation.

4,335,539

GAME CALL

Harold G. Jones, 10027 Cayuse La., Boise, Id. 83703

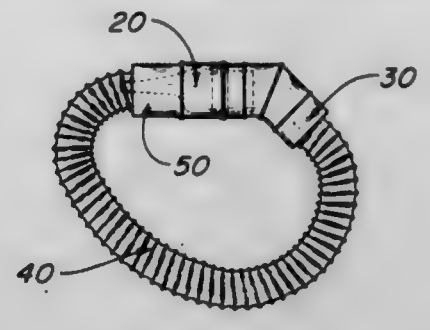
Filed Apr. 20, 1981, Ser. No. 255,699
Int. Cl.[3] A63H 5/00
U.S. Cl. 46—179 3 Claims

1. A game call comprising a whistle having an upper vent opening to the atmosphere, a longitudinally extending air chamber, and a mouthpiece for the oral introduction of air for the controlled production of sound;

a first adapter operable to engage said whistle at an opposing end from said mouthpiece, said adapter defining a hollow tube in fluid communication with said whistle;

a hollow, flexible open-ended tube attached to said first adapter at the end opposite said whistle and in fluid communication with the hollow tube of said adapter, said flexible tube being of sufficient length and resiliency to be doubled back upon itself in a substantially O-shaped configuration; and

a second adapter connected to said flexible tube at an end opposite said first adapter, said second adapter defining a



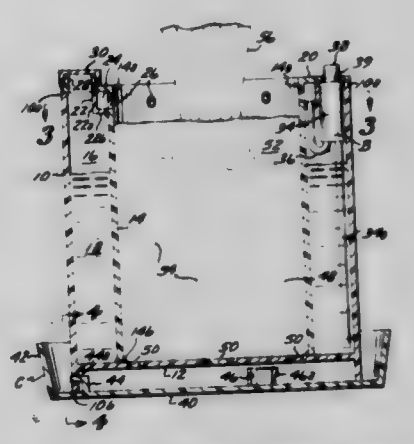
hollow tube in fluid communication with said flexible tube and said second adapter operable to protectingly receive said whistle and adapted to matingly engage said first adapter in a closed position to form a carrying handle therewith.

4,335,540

COMBINED PLANT CONTAINER AND WATERING DEVICE

Ron P. Allen, 6003 Arbor Rd., Lakewood, Calif. 90713

Filed Nov. 28, 1980, Ser. No. 211,467
Int. Cl.[3] A01G 25/00
U.S. Cl. 47—79 2 Claims



1. In combination with a quantity of soil, a plant having roots embedded in said soil, and a quantity of colored water, a container for so supporting said soil that said plant and roots may be watered at desired time intervals, said container including:

a. an assembly that includes outer cylindrical shell that has upper and lower ends; a bottom disposed within said cylindrical shell and bonded to the interior thereof upwardly from said lower end; an inner cylindrical shell of substantially less external diameter than the interior diameter of said outer shell, said inner shell bonded to said bottom and extending upwardly therefrom to terminate in an upper end substantially the same height as said upper end of said outer shell; a ring shaped top that extends between said upper ends of said inner and outer shells; a tubular boss that extends upwardly from an opening in said top; a cap that removably and sealingly engages said boss; said top, outer and inner cylindrical shells and a portion of said bottom cooperating to define an annulus shaped confined space, said outer and inner shells at least being transparent, said annulus shaped space capable of being substantially filled with said colored water by use of said tubular boss when said cap is removed therefrom; said bottom and said inner cylindrical shell cooperating to define a confined space that holds said soil and roots with said plant extending upwardly from said assembly;

b. a manually actuatable water pump that has a spray defining discharge and a downwardly extending tubular inlet,

said water pump mounted on said top with said inlet extending downwardly into said annulus shaped space, with said colored water in said annulus shaped space adding an attractive appearance to said assembly and at least partially concealing said soil in said confined space;

c. a shallow dish that includes a flat bottom and an upwardly extending side wall, said lower end of said outer shell resting on said bottom of said dish; and

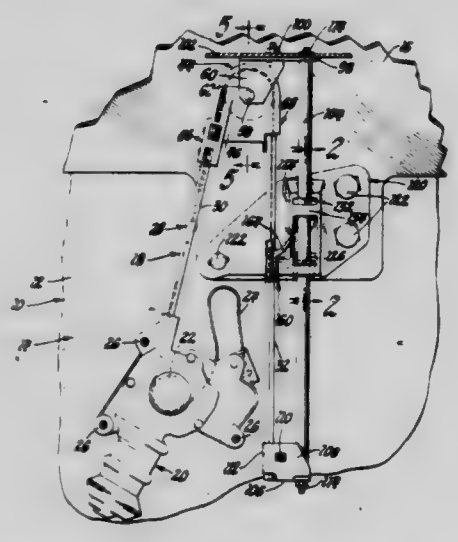
d. means for removably securing said dish to dish outer cylindrical shell, with said pump when manually actuated discharging a spray of said colored water onto said plant, and excess water that accumulates in said soil flowing through an opening in said bottom supported by said outer shell into said dish.

4,335,541

WINDOW DRIVE ARRANGEMENT

Bohdan Kazewych, Union Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 28, 1979, Ser. No. 70,640
Int. Cl.³ E05F *11/48*
U.S. Cl. 49—360 **3 Claims**



1. In combination with a support having a window opening, a window movable between open and closed positions relative to the opening, a perforated tape for moving the window, drive means for moving the tape, and elongated longitudinally open track means for guiding movement of the tape, the improvement comprising, window drive means interconnecting the tape and the window and including a tape driven member having a row of barbs extending through the track means opening and hooked through respective perforations of the tape for movement of the driven member and tape as a unit relative to the track means, the ultimate barbs at each end of the row facing oppositely of each other, with one such barb being longer than the other such barb for acceptance of greater loads imposed therebetween and the tape during window movement, a window drive member secured to the window, means drivingly interconnecting the tape driven member and the window drive member and accommodating separation of such members and concomitant relative rotation thereof during window movement, and means operative between the tape driven member and the window drive member limiting relative rotation of the members upon separation thereof to maintain the driving connection therebetween.

4,335,542

COMBINATION BELT AND DISK SANDER MACHINE

Floyd M. Howe, 5201 Arcade Ave., NE., Salem, Oreg. 97303

Filed May 19, 1980, Ser. No. 150,997
Int. Cl.³ B24B *21/10, 21/18*
U.S. Cl. 51—3 **5 Claims**

1. An abrading machine comprising,

a power output shaft driven by a power source,

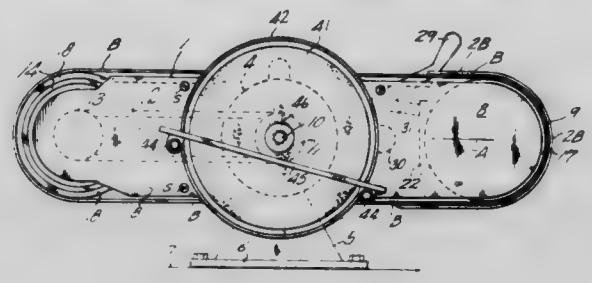
a main body of elongate configuration having a belt supporting surface,

a powered roll mounted on said main body adjacent one end thereof,

power transmission means coupling said power output shaft and said powered roll,

a tail roll located adjacent the remaining end of said main body,

an abrading belt on the rolls and having one run superposed on said belt supporting surface of said main body,



a tail roll mounting assembly on said main body including a spindle carrier block, resilient means biasing said spindle carrier block toward a belt tensioning position, a spindle carried by said block on which said tail roll is mounted, upright pivot means coupling said spindle to the spindle carrier block, a spindle adjustment screw carried by said block and acting on said spindle to position same about said upright pivot means for purposes of centering the abrading belt on the tail roll during belt travel, and

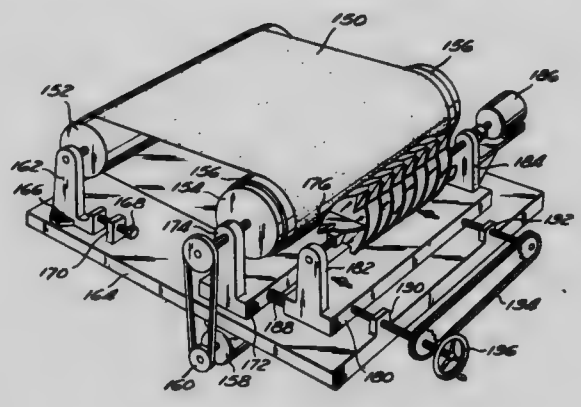
an abrading disk mounted on the outer end of said output shaft.

4,335,543

METHOD AND MEANS OF MANUFACTURING AN IMPROVED DISC REEL MOWER

Carl A. Pike, 13600 S. Prairie Ave., Hawthorne, Calif.

Division of Ser. No. 140,254, Apr. 14, 1980, Pat. No. 4,267,690. This application Feb. 23, 1981, Ser. No. 236,882
Int. Cl.³ B24B *21/02*
U.S. Cl. 51—145 R **3 Claims**



1. A machine especially constructed and adapted for sharpening cylindrical mower knife constructions made up of a plurality of generally elliptical discs lying generally parallel to each other at an acute angle to the axis of the cylindrical knife construction, comprising:

a continuous elongate abrading belt having a width at least as great as the length of the knife construction to be sharpened;

means for carrying the belt in a continuous revolving movement to present the abrading surface at one point in the revolutionary path of the belt in a straight line lateral to the abrading surface;

means for supporting a cylindrical knife construction for presenting the peripheral surface of said construction at said straight line on said belt; and

means for rotating the cylindrical knife construction in contact with the straight line surface of the abrading belt

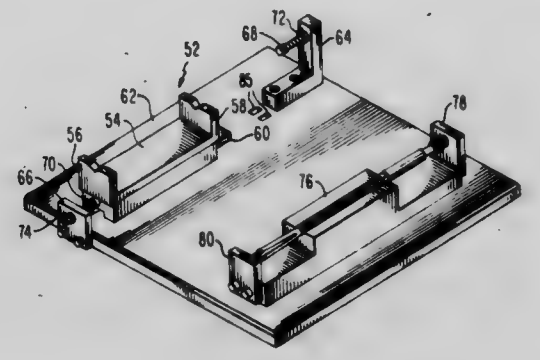
for abrading and sharpening the periphery of the discs which comprise the knife construction.

4,335,544

STONE-POSITIONING APPARATUS AND METHOD

Ernest T. Manson, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 28, 1980, Ser. No. 172,758
Int. Cl.[3] B24B *9/16*
U.S. Cl. 51—277 9 Claims



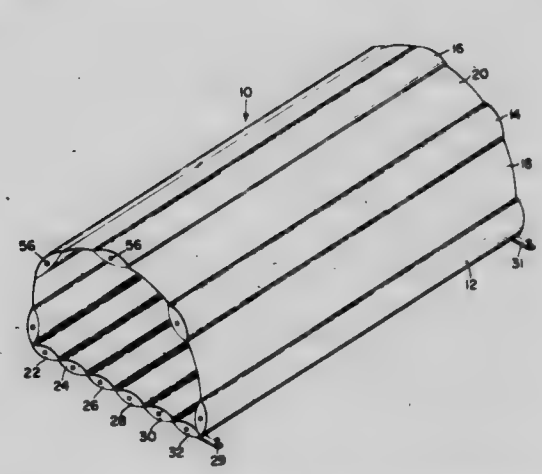
1. Apparatus for positioning a stone in a pencil comprising:
a platform,
a holder adapted to support said pencil in a manner wherein the two ends of said pencil extend beyond a front and rear surface of said holder, said holder being mounted on means for guiding said holder along a direction parallel to the longitudinal axis of said pencil, said guiding means being affixed to said platform,
a pencil stop affixed to said platform in a position facing the rear surface of said holder and adapted to contact one end of said pencil and thereby limit the movement of said pencil along said axis, and
a holder stop affixed to said platform in a position facing the front surface of said holder and shaped to allow movement of said pencil along said axis beyond said holder stop, but to contact the front surface of said holder and thereby limit the forward movement of said holder.

4,335,545

INFLATABLE TENT

James L. Couch, 13433 Dyer, Sylmar, Calif.

Filed Jan. 29, 1980, Ser. No. 116,386
Int. Cl.[3] E04B *1/345*
U.S. Cl. 52—2 4 Claims



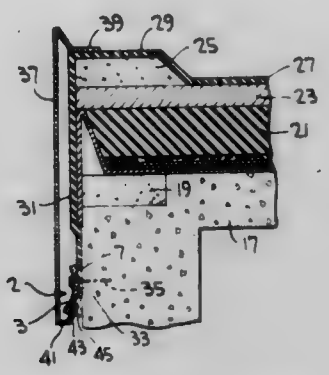
1. An inflatable tent comprising a plurality of alternating air cells and strips of material forming the body, each air cell containing a plurality of female portions of air inlet valves, a front portion comprising an air cell, a single air intake valve in the front portion, a plurality of male portions of one-way valves adapted to pass air into each female portion of the air inlet valves in each cell from the front portion air cell, said one-way valves also adapted to close upon the release of air from a cell.

4,335,546

EXTRUDED ALUMINUM TERMINATION BAR

Thomas L. Kelly, 31 Sands St., Waterbury, Conn. 06723

Filed Nov. 19, 1979, Ser. No. 95,467
Int. Cl.[3] E04D *1/36*
U.S. Cl. 52—58 3 Claims



1. A reversible termination bar including, in combination, a roof structure, a flexible rubber roofing membrane and said termination bar comprising a body portion having a plurality of longitudinally extending transversely spaced apart ribs on one surface thereof and a flange angularly extending from said body portion, the surface of said flange which merges with the surface of the body portion having the ribs thereon being planar, and the opposite surface of said body portion having longitudinally extending spaced apart ribs adjacent one edge thereof and the opposite surface from the planar surface of the angularly extending flange having longitudinally extending transversely spaced apart ribs provided adjacent the edge thereof which is remote from the body portion, said termination bar adapted to engage and maintain in proper position an end edge of the flexible rubber roofing membrane, when said termination bar is applied and in maintaining and holding engagement with said end edge of the membrane the longitudinally extending transversely spaced apart ribs on one surface of said body portion engage and bite into said membrane and the angularly extending flange is directed away from said membrane, and when said termination bar is reversed so that said angularly extending flange is directed toward and in engagement with said end edge of the membrane the longitudinally extending spaced apart ribs adjacent one edge of said opposite surface of said body portion are in maintaining and holding engagement and said ribs are biting into said end edge of the membrane and said longitudinally extending transversely spaced apart ribs on said opposite surface of the angularly extending flange are in maintaining and holding engagement and biting into said end edge of the membrane, and means for fastening said termination bar to the roof structure.

4,335,547

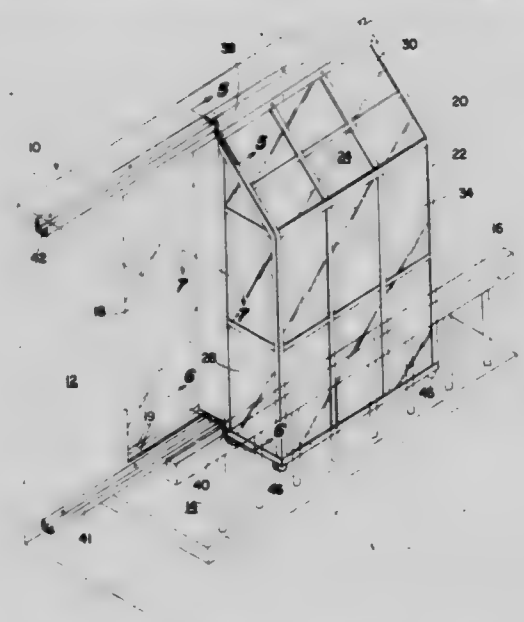
BALCONY GREENHOUSE

Westelle Maxwell, 18501 Hilliard Blvd., Rocky River, Ohio 44116

Filed Jun. 19, 1980, Ser. No. 161,044
Int. Cl.[3] E04B *7/16*; A01G *9/00*
U.S. Cl. 52—66 9 Claims

1. A movable greenhouse for use in conjunction with an outside vertical wall of a building having a transparent access opening providing access and view to a walk area outside the building adjacent to the building access opening, the greenhouse comprising:
a greenhouse enclosure having front, side and rear walls adapted to transmit light and heat to the interior thereof and to afford a view therethrough and through said access opening, said greenhouse having a forward section adapted to be disposed adjacent to said building wall

having said opening, said greenhouse section having an access opening adapted to be approximately aligned with said building access opening to provide direct access from said building opening to the interior of said greenhouse enclosure; said greenhouse enclosure having an upper slidable structural member, said upper slidable structural member engaging a horizontally disposed lateral channel secured to said building wall above said bulding access opening whereby said structural member and said channel interact in sliding engagement to permit lateral movement of said greenhouse in a direction parallel to said building



wall; said greenhouse enclosure having a plurality of wheels operatively connected to a bottom portion of said greenhouse and supporting said greenhouse on said horizontally disposed walk area adjacent to said building access opening to facilitate lateral movement of said greenhouse;

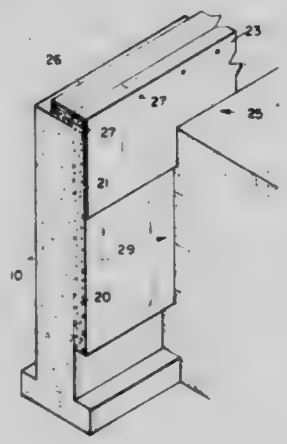
said greenhouse enclosure being movable in a lateral direction parallel with said building wall whereby said greenhouse enclosure can be moved laterally sideways to free said building access opening and provide unobstructed access from said building to said walk area.

4,335,548

INSULATING SKIRT

Erwin G. Rehbein, Waupaca, Wis., assignor to Millcraft Housing Corp., Waupaca, Wis.

Filed May 19, 1980, Ser. No. 144,251
Int. Cl.³ E02D *31/00*
U.S. Cl. 52—169.11 **4 Claims**



1. A panel for an insulating skirt for use in insulating the outer perimeters of foundations and footings comprising;

(a) a sheet of substantially rigid and liquid impervious insulating material which is substantially rectangular in shape, and

(b) an outer protective shield for said insulating material said shield being of durable reinforced fiberglass material which is seamable and patchable in place to provide means for the establishment and maintenance of a substantially continuous and uniform shield for the outside perimeter of an insulating skirt for a foundation and the like and which is substantially unaffected by the elements present in the vicinity of said foundations and footings and configured so as to be coextensive with those portions of the insulating material which will be exposed and above grade in a finished construction and the outer protective shield further being configured so as to be coextensive with at least the upper portion of the insulating material which is to be below grade in the finished construction and

(c) the sheet of insulating material and the protective shield are joined together, and

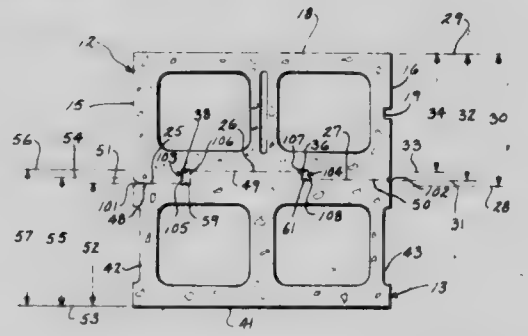
(d) an upper portion of the panel is fabricated so as to permit the substantially permanent securement of the upper portion of the panel to upper elements of a foundation, footing or the like and wherein the panel is to serve as a pouring form for footings, foundations, and the like and the shield has a vertical face having a top edge and a bottom edge and the bottom edge has a bottom horizontal flange projecting therefrom and the flange is terminated by a upward directed lip and the top edge has a top horizontal flange projecting therefrom in the same direction as the bottom horizontal flange and the top horizontal flange extends further from the vertical face than does the bottom horizontal flange and the top horizontal flange has projecting therefrom a first downward directed lip which is opposite the upward lip of the bottom horizontal flange and the top horizontal flange is terminated by a second downward directed lip having an enlarged end which becomes imbedded in cement after it is poured and thereafter substantially permanently locks the panel into engagement with the hardened cement; and the insulating sheet is sized so as to be slidably received by and retained in the channel formed by the vertical face, the top horizontal flange, the bottom horizontal flange, the upward directed lip and the first downward directed lip of the top horizontal flange.

4,335,549

METHOD, BUILDING STRUCTURE AND SIDE-SPLIT BLOCK THEREFORE

Robert W. Dean, Jr., Milwaukee, Wis., assignor to Designer Blocks, Inc., Milwaukee, Wis.

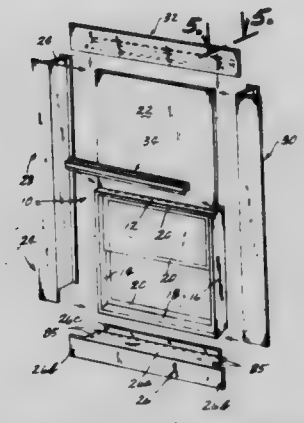
Filed Dec. 1, 1980, Ser. No. 211,513
Int. Cl.³ E04C *1/00*; B44F *7/00, 9/04*
U.S. Cl. 52—98 **13 Claims**



1. In a primary masonry type block formed from concrete and providing a front surface and a back surface, said front surface including a first surface portion split generally along a first splitting plane spaced from a reference plane provided by said back wall surface by a first predetermined depth to provide a first distinct irregular split surface area and a second surface portion split generally along a second splitting plane spaced from said reference plane by a second predetermined depth substantially different than said first depth to provide a second distinct irregular split surface area distinguishable from said first surface area, said front surface providing said first and

second distinct irregular split surface areas of distinguishable varying depths for a decorative appearance.

4,335,550
PRIME WINDOW UNIT INSTALLATION SYSTEM
David P. Johnson, 5660 Marcy St., Omaha, Nebr. 68106
Filed Dec. 19, 1980, Ser. No. 218,215
Int. Cl.[3] E04C *1/12*; E04B *1/08*
U.S. Cl. 52—99 19 Claims



1. A new prime window unit assembly for installation in an existing window unit opening having an existing window frame installed therein, comprising,

a new prime window unit including a new head jamb, side jambs, sill and sash,

an elongated bottom channel,

a pair of elongated side channels having upper and lower ends,

an elongated top channel,

said channels comprising separate independent members adapted for connection to said new prime window unit,

fastening means securing said bottom channel and side channels to said new sill and side jambs respectively,

said top channel being connected to and extended between the upper ends of said side channels,

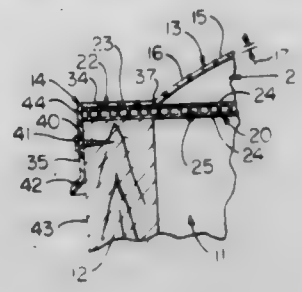
each of said channels including an inner wall and an outer wall, said inner wall extending exteriorly of said new prime window unit thereby to recess said new prime window unit interiorly of said outer wall, and said outer wall extending outwardly from said inner wall,

each of said channels including means for selectively reducing the outward extent of the outer wall thereof uniformly along the length of said outer wall, and

said new prime window unit assembly being preassembled for installation as a unit in said existing window unit opening.

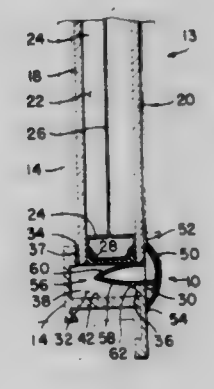
4,335,551
SKYLIGHT CONSTRUCTION AND METHOD OF MAKING SAME
William D. Benkelman, Bloomfield Hills, Mich., and George C. Carlyon, Tampa, Fla., assignors to Dayco Corporation, Dayton, Ohio
Division of Ser. No. 921,658, Jul. 3, 1978, Pat. No. 4,242,849.
This application Jun. 25, 1980, Ser. No. 162,989
Int. Cl.[3] E04B *7/18*
U.S. Cl. 52—200 10 Claims

1. In a skylight comprising; a support; an outer sheet made of a light-transmitting material and having a peripheral portion adjoining said support; and an inner structure made of light-transmitting material and having a peripheral edge portion attached to said support defining a first air space between said outer sheet and said structure; the improvement wherein said inner structure comprises a pair of inner sheets each made of a light-transmitting material, said inner sheets being held in spaced relation defining a second air space therebetween, said sheets and first and second air spaces enabling provision of said skylight construction having mininmum weight yet providing minimum heat loss in winter and minimum heat gain in summer, said inner sheets being made of synthetic plastic material, and means holding said inner sheets to define said second air space therebetween, said holding means comprising a plurality



of substantially identical spaced parallel ribs extending between said inner sheets and fixing same together in spaced parallel relation.

4,335,552
GLAZING BEAD
Paul T. Blanchett, 17557 Wallingford Ave. North, Seattle, Wash. 98133, and Philip J. Blanchett, 8816 Shell Place Rd., Edmonds, Wash. 98020
Filed Dec. 31, 1980, Ser. No. 221,882
Int. Cl.[3] E06B *3/26*
U.S. Cl. 52—202 14 Claims



1. A glazing bead adapted to secure a second, larger thickness of insulated window means in a window frame means designed to normally receive a first, smaller thickness of insulated or uninsulated window means, wherein the window frame means is of the type having a glazing channel terminating on one side in a glazing lip, wherein the glazing bead comprises:

resilient wall means adapted to engage, when installed, the window means and the window frame means;

locking means adapted to engage, when installed, the inner edge of the glazing lip on the window frame means;

resilient folded leg means, wherein said folded leg means comprises first leg member means which extend outwardly from said wall means and then folds and reverses direction to form second leg member means which extend towards said wall member means, wherein said locking means extends outwardly from said folded leg means;

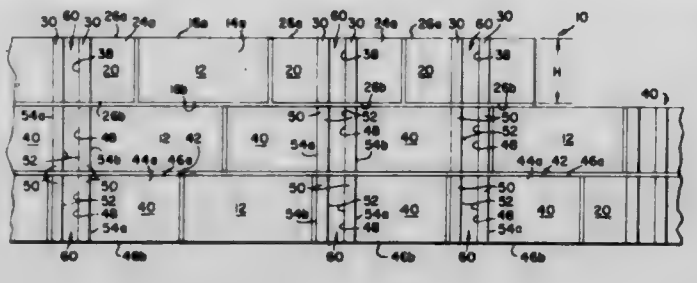
wherein, when said glazing bead is installed, said resilient folded leg means is adapted to be compressed between said window means and said window frame means and urge said locking means towards said frame means into engagement with said glazing lip; and

wherein, when said glazing bead is installed, said resilient wall means is adapted to be compressed and resiliently urge said locking means laterally towards and into engagement with said glazing lip; and wherein said compression also tends to bring said resilient wall means into firm contact with at least one of said window means and said window frame means.

4,335,553
BUILDING BLOCK SYSTEM

Gerald Gould, New Canaan, Conn., assignor to Roger E. Gould, New Canaan, Conn., a part interest

Filed Jun. 16, 1980, Ser. No. 159,509
Int. Cl.[3] E04B *2/70, 2/48*
U.S. Cl. 52—375 7 Claims



1. A building system comprised of a plurality of rigid, preformed building units, said building units including

A. a first block having a main body portion including first and second vertical faces, top and bottom parallel faces and first and second end faces, said first block further including means defining a pair of spaced apart protrusions extending outwardly from at least one of said vertical faces of said main body portion, said protrusions defining a vertical channel that is laterally centered on said one vertical face between said first and second end faces;

B. a second block having a main body portion including first and second vertical faces, top and bottom parallel faces and first and second end faces, said second block further including means defining a pair of spaced apart protrusions extending outwardly from at least one of said vertical faces of said second block main body portion, said second block protrusions defining a vertical channel that is laterally offset on said one vertical face toward the one of said first and second end faces disposed to the left of said one vertical face;

C. a third block having a main body portion including first and second vertical faces, top and bottom parallel faces and first and second end faces, said third block further including means defining a pair of spaced apart protrusions extending outwardly from at least one of said vertical faces of said third block main body portion, said third block protrusions defining a vertical channel that is laterally offset on said one vertical face toward the one of said first and second end faces disposed to the right of said vertical face;

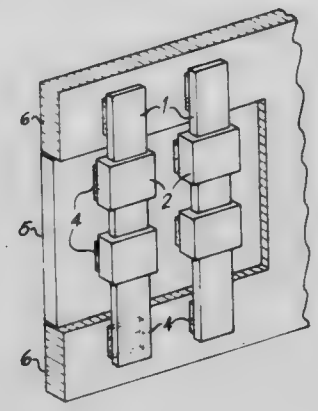
D. said first, second and third blocks being stackable end-to-end and in courses to form rigid, load-bearing structures including at least one sequence of three courses in which said first blocks are disposed in one of said courses of said sequence, said second blocks are disposed in another of said courses of said sequence with their protrusion defining means aligned with those of said first blocks, and said third blocks are disposed in the remaining course of said sequence with their protrusion defining means aligned with those of said first and second blocks so as to define vertical channels that extend from course-to-course in said structure, said end faces of said first, second and third blocks in said sequence of three courses thereby being offset from each other.

4,335,554
ADJUSTABLE SUPPORT DEVICE TO SECURE A PATCH IN HOLLOW WALLS

Charles E. Nicholson, 1703 W. 33rd. St., Chicago, Ill. 60608

Filed Jun. 26, 1980, Ser. No. 163,389
Int. Cl.[3] E04G *23/02*
U.S. Cl. 52—514 3 Claims

1. An adjustable support device to secure a patch to hollow walls comprising an elongated support member that spans an aperture in the wall surface material, braces the patch material and is secured interchangeably to either said wall surface material or said patch material an interfacing element means that interfaces and secures interchangeably to either said wall surface material or said patch material said interfacing element means having a plurality of faces and firmly mounted on said elongated support element by a mounting means said mounting means allowing said faces to be of predetermined unequal lateral distances from the longitudinal center of said elongated support member said mounting means also allowing said faces to be transposable and longitudinally positionable on said

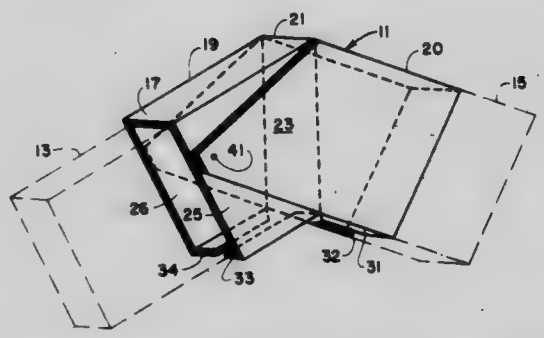


elongated support member a means to secure said elongated support member and said interfacing element means to either said wall surface material or said patch material the combination of said interfacing element means mounted in plurality by said mounting means on said elongated support member that supports said patch material of varied thickness and perimeter in said aperture of said wall surface material of varied thickness while allowing the exterior surfaces of said patch material and said wall surface material to be parallel.

4,335,555
RAFTER ASSEMBLY AND FIXTURES

Robert Southerland, Rt. 190 2 Box 96, Muldrow, Okla. 74948, and James Canition, St. Smith, Okla., assignors to Robert D. Southerland, Muldrow, Okla.

Filed Mar. 10, 1980, Ser. No. 128,379
Int. Cl.[3] E04B *1/48, 7/06*
U.S. Cl. 52—639 15 Claims



1. In a pitched roof structure a fixture for joining a pair of rafters at the peak of a roof comprising

a top strap element having a transverse bend in the central portion thereof,

at least one first flap extending down from the side of one end of said strap and adapted to be fastened to the side of a first wood rafter, and

at least one second flap extending down from the side of the other end of said strap and adapted to be fastened to the side of a second wood rafter, an extension of said first flap overlapping said second flap,

said fixture being formed of one piece of sheet metal.

4,335,556

FRAME GIRDER FOR UNDERGROUND DRIFT AND SHAFT CONSTRUCTION

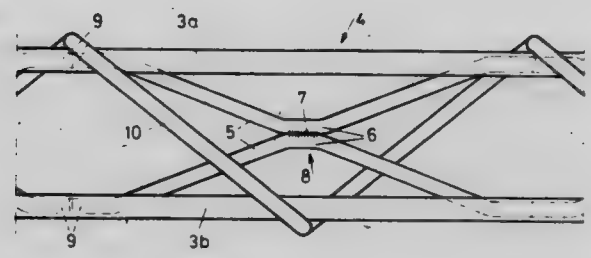
Edgar Arnold, Büron, Switzerland, assignor to Pantex-Stahl AG, Büron, Switzerland

Filed Apr. 15, 1980, Ser. No. 140,531

Claims priority, application Switzerland, Apr. 18, 1979, 3649/79

Int. Cl.³ E04H *12/10*; E04C *3/02*

U.S. Cl. 52—655 **4 Claims**



1. Frame girder for underground drift and shaft construction, comprising

(a) at least three retainer bars forming a polygon in cross section;

(b) means for connecting said retainer bars in fixed, spaced relation to one another, said means comprising struts corresponding in number to the number of retainer bars, each said strut being bent so as to define a central connecting region and two terminal regions inclined toward the corresponding retainer bar, said struts being located interiorly of said polygon formed by the cross sections of said retainer bars, the central connecting regions of said struts being rigidly connected together to form a strut cruciform with a central stiffening joint, the outer end of each said strut being attached to a said retainer bar.

4,335,557

SHEAR LOAD RESISTANT STRUCTURE

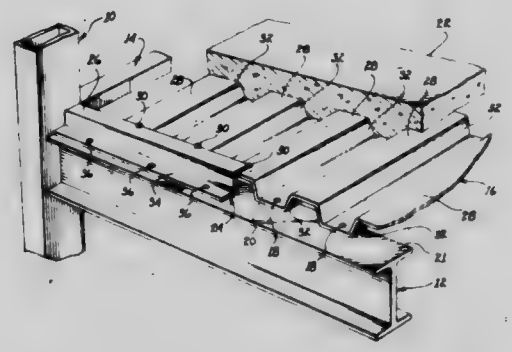
Virgil R. Morton, Redondo Beach, Calif., assignor to Verco Manufacturing, Inc., Phoenix, Ariz.

Continuation-in-part of Ser. No. 936,176, Aug. 23, 1978, Pat. No. 4,186,535. This application Oct. 19, 1979, Ser. No. 86,271

The portion of the term of this patent subsequent to Feb. 5, 1997, has been disclaimed.

Int. Cl.³ E04B *1/00*

U.S. Cl. 52—741 **6 Claims**



1. A method for constructing earthquake resistant buildings having vertical load resisting members supporting horizontal load bearing members, said method comprising the steps of:

(a) attaching a fluted deck having webs alternatively interconnecting top and bottom flutes to a horizontal load bearing member, said attaching step including the step of attaching selected ones of the bottom flutes of the fluted deck to the horizontal load bearing member;

(b) locating a load translation means in mating relationship with selected pairs of adjacent webs and the interconnecting top flute of the fluted deck and attaching at least one of the mating webs and top flute with the load translation means; and

(c) attaching the load translation means to the horizontal load bearing member;

whereby the load translation means inhibits relative movement between the top and bottom flutes and buckling of the webs of the fluted deck due to horizontal shear loads imposed upon the deck and the load translation member translates the horizontal shear loads imposed upon the deck through the load bearing member to the vertical load resisting members.

4,335,558

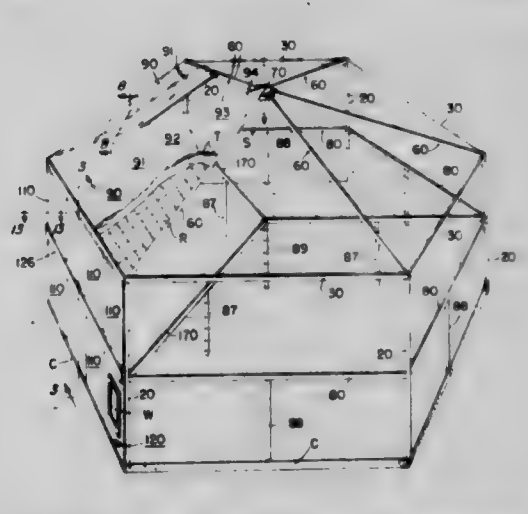
PREFABRICATED POLYGONAL BUILDING

Charles A. Caldwell, and William R. Dickson, both of Huntsville, Ala., assignors to Domain Building Systems Corporation, Huntsville, Ala.

Filed Aug. 22, 1980, Ser. No. 180,232

Int. Cl.³ E04B *7/00*; E04H *1/00*

U.S. Cl. 52—13 **15 Claims**



1. In a polygonal prefabricated building supported on a supporting surface and symmetrical about a vertical central axis, the building having upright columns equally spaced about said axis, the columns having lower ends supported on the surface and having upper ends joined to adjacent columns by perimeter beams, and the building having roof beams having outer ends joined to the upper ends of the columns and extending diagonally upwardly and inwardly toward said axis and terminating in inner ends located adjacent said axis, and the building having an apex member fixed to the inner ends of the roof beams and securing them together, the structural improvements wherein:

(a) the perimeter beams and the roof beams each comprise paired channel members each having a web portion and two flange portions, the paired channel members which comprise each beam being disposed with their web portions mutually adjacent to each other and separated by a fixed distance space, the web portions being joined by intermediate spacer means, and means securing together the paired webs and the intermediate spacer means to form a unitary beam;

(b) connector means fixed to the upper end of each column and each comprising a rigid beam-receiving tongue extending from the column toward each of the adjacent columns, and a rigid tongue extending from the connector means toward the central axis, the spacer means in each beam terminating short of the end of the beam, and a beam being coupled to each connector means tongue by passing the tongue into said space between its paired webs, and fastening means transfixing the webs and tongues to secure them together; and

(c) said connector means each comprising multiple metal bars fixed tangentially to a column and containing the column between them and having ends extending toward an adjacent column, and said tongues which are attached to the perimeter beams each comprising the ends to two adjacent bars pinched together and entering the space between the webs in the end of a perimeter beam; and each

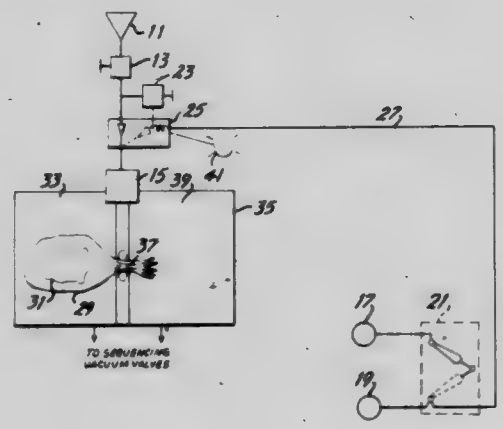
connector tongue which is attached to a roof beam comprising an additional tongue member secured to the metal bar which is located on the side of the column facing toward the center axis.

4,335,559

DUAL PRESSURE CLOSURE CLIPPING SYSTEM FOR CHAMBER EVACUATOR

Joseph A. Nausedas, Oak Forest, Ill., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 4, 1979, Ser. No. 100,172
Int. Cl.[3] B65B *31/02, 51/02*
U.S. Cl. 53—138 A **3 Claims**



1. Apparatus to provide selectable dual level closure pressure for a fluid actuated, fluid controlled, clip closure component on a vacuum packaging mechanism for evacuation of varying sized plastic film packaging bags containing articles being packaged, said vacuum packaging mechanism having at least two timer elements connected to provide for controllable selection of a longer evacuation time for larger bags and a shorter evacuation time for smaller bags in process, said apparatus comprising, in combination:

an electrical solenoid operated control valve connected in the fluid control system of the clip closure component, having first and second inlets selectably internally connectable to an outlet;

fluid connection means extending between a control fluid pressure source and the first inlet of said control valve;

a pressure regulator connected between said control fluid pressure source and the second inlet of said control valve, set to a pressure output less than that of said control fluid pressure source;

connection means between the outlet of said control valve and the fluid actuating system of the clip closure component; and

electrical circuit means between the timer elements and the electrical solenoid operated control valve, operably connected to place the control fluid pressure source in operable communication with the fluid actuating system of the clip closure component when a shorter evacuation time timer is in circuit, and to place the pressure regulator in operable communication with the fluid actuating system of the clip closure component when a longer evacuation time timer is in circuit.

4,335,560

METHOD FOR CONTAINERIZING ASPHALT

J. Ronald Robinson, Mesa, Ariz., assignor to Crafco, Inc., Phoenix, Ariz.

Filed Apr. 28, 1980, Ser. No. 144,301
Int. Cl.[3] B65B *63/08, 3/04, 35/50*
U.S. Cl. 53—440 **5 Claims**

1. A method for containerizing asphalt in a plurality of manually handleable packages comprising the steps of:

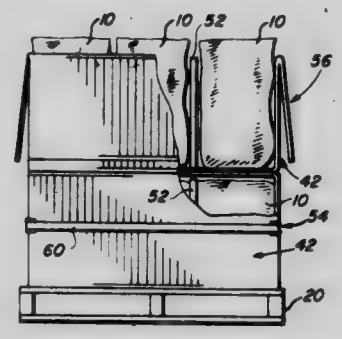
(a) preparing a plurality of manually handleable packages in the form of open top bags of thin-wall plastic material for receiving molten asphalt by supporting each of said packages in an upstanding open position within a different cardboard box of the type having closable top flaps;

(b) arranging a predetermined number of said prepared packages on a stationary pallet to provide said pallet with a first tier of said prepared packages;

(c) moving a molten asphalt dispenser vehicle means to a position adjacent said pallet;

(d) depositing a predetermined amount of molten asphalt from said molten asphalt dispensing vehicle means into each of said prepared packages which form said first tier;

(e) closing each of said prepared packages which forms said



first tier subsequent to deposition of the molten asphalt therein but prior to the cooling thereof by foldingly closing the open top bags of thin-wall plastic material;

(f) closing said closable flaps of said cardboard boxes to complete containerization of the molten asphalt in said packages of said first tier; and

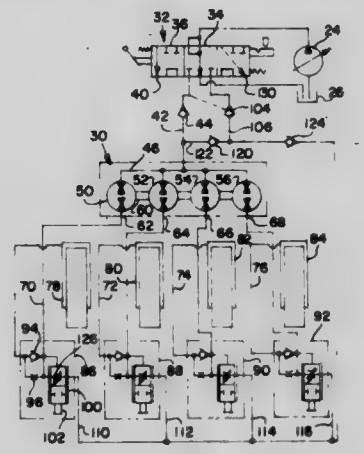
(g) repeating steps b, c, d, e, and f sequentially to provide a second tier of closed asphalt filled manually handleable packages with said second tier being stackingly arranged atop said first tier with this repeating step being accomplished prior to cooling of the molten asphalt containerized in said packages of said first tier.

4,335,561

HEADER HEIGHT POSITION CONTROL FOR A COTTON HARVESTER

William C. Swanson, and Jesse H. Orsborn, both of Clarendon Hills, Ill., assignors to International Harvester Co., Chicago, Ill.

Filed Nov. 28, 1980, Ser. No. 210,986
Int. Cl.[3] A01D *46/20, 47/00, 46/10*
U.S. Cl. 56—10.2 **15 Claims**



1. In a crop harvesting machine having a crop gathering device including header units independently pivoted to said crop gathering device, the improvement comprising:

a source of hydraulic fluid and a hydraulic fluid reservoir available to said crop harvesting vehicle;

a manual control valve hydraulically communicating with said source of hydraulic fluid;

a rotary flow divider having a plurality of rotary flow divider output ports, said rotary flow divider providing equalized

fluid delivery to said output ports, said rotary flow divider hydraulically communicating via a first delivery conduit with said manual control valve;

a plurality of independent single acting lift cylinders, one of each of said cylinders pivotally mounted between said crop gathering device and one of each independently pivoted header units for allowing the raising of said header units;

a first lockout check valve (**44**) in said first delivery conduit allowing flow from said manual control valve to said rotary flow divider;

a return line (**106**) providing hydraulic communication between said manual control valve and each of said single acting lift cylinders;

a second lockout check valve (**104**) in said return line normally preventing flow through said return line from said single acting lift cylinders to said manual control valve in communicating with said first delivery conduit, but effective to be pilot operated to allow flow when said first delivery conduit is pressurized; and

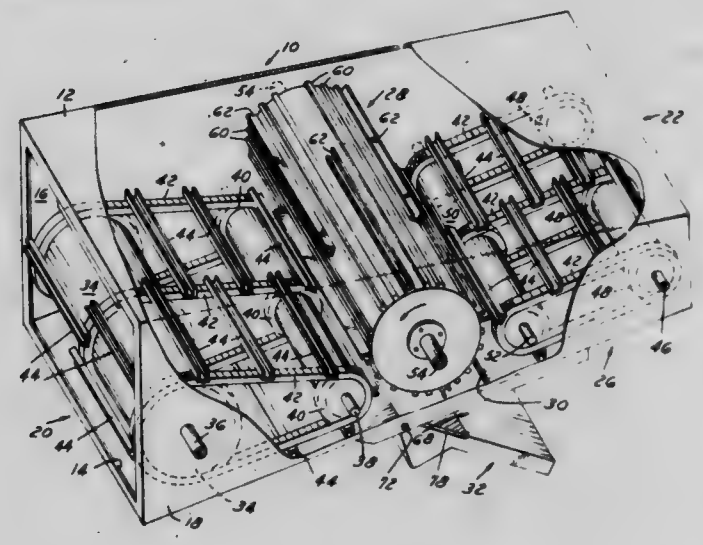
a plurality of hydraulic ground elevation sensing units, one of said ground elevation sensing units interposed between each of said single acting lift cylinders and said return line, each of said hydraulic ground elevation sensing units having a variable orifice valve assembly and a ground variation sensor associated therewith for sensing ground plane undulations and for affecting adjustment of said variable orifice valve assembly in response to ground plane undulations whereby said single acting lift cylinders will be supplied with fluid when said ground variation sensor directs said variable orifice valve assembly to be adjusted responsive to the ground plane.

4,335,562

ROCK TRAP FOR FARM VEHICLE

Alma D. Meyers, 2320 Gardner, Croswell, Mich. 48422; Robert L. Tesluck, and Thomas R. Tesluck, both of 7575 Brockway Rd., Yale, Mich. 48097

Filed Dec. 29, 1980, Ser. No. 220,426
Int. Cl.³ A01F *12/10*
U.S. Cl. 56—10.2 **8 Claims**



1. In a farm vehicle such as a combine or the like for moving crop material through an elongated hollow feeder house from a first end thereof to a second end;

said feeder house including a top, bottom and side walls and an aperture in the bottom through which rocks are to be ejected and a trap means for closing the opening in the bottom of the feeder house, the improvement comprising:

a rock drum rotatably mounted in said feeder house and substantially blocking the hollow interior thereof, said rock drum mounted intermediate the first and second ends of the feeder house and cooperating with said opening;

said rock drum including a plurality of U-shaped channels secured to the periphery of said drum for driving rocks toward said trap means, and bars secured to the periphery of said drum intermediate said channels for protecting said channels against damage from rocks;

first conveyor means for conveying the crop material from the rock drum toward the second end of the feeder house; said feeder house being free of said conveyor means between the rock drum and said opening; and

means for rotating said drum so that all crop material moves between the rock drum and the opening;

said rock drum slightly compressing the crop material for preventing rocks from entering said conveyor means;

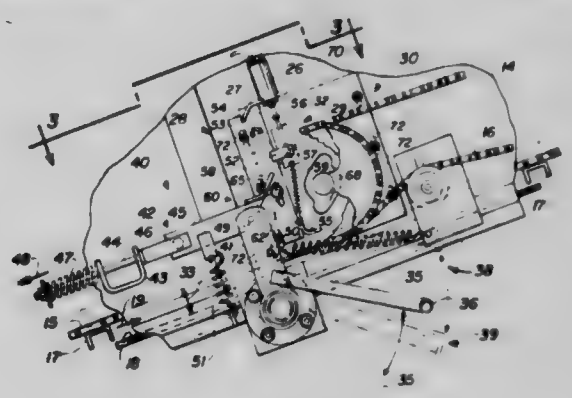
said rock drum for forcibly pushing rocks through said opening and against said trap means for opening said trap means to eject rocks both when said trap means is full and when sufficiently large rocks are positioned between said rock drum and said trap means.

4,335,563

COMBINE STONE TRAP LATCH RELEASE

Robert L. Rice, and Larimer J. Knepper, both of New Holland, Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Mar. 24, 1981, Ser. No. 246,983
Int. Cl.³ A01F *12/10*
U.S. Cl. 56—10.2 **10 Claims**



1. In a crop harvesting machine having a feeder house through which harvested crop is conveyed along a feed path, said feeder housing including an electronic non-crop foreign matter detection means for detecting the presence of non-crop foreign matter in said crop feed path and emitting a signal to indicate said detection; a trap door mounted on said feeder housing below said feed path for movement between a closed position in which crop material can move uninterruptedly along said feed path and an open position in which non-crop foreign matter can be ejected from said feed path; latching means for releasably holding said trap door in said closed position; release means operatively associated with said latching means to disconnect said latching means from said trap door and permit said trap door to move to said open position; a pinch roller rotatably mounted on said feeder housing a predetermined distance above said trap door such that said feed path passes between said pinch roller and said trap door, said pinch roller being adjustably mounted for selectively varying said predetermined distance; a cam member affixed to said pinch roller and rotatable therewith; a trip link mounted on said feeder housing for operatively cooperating with said release means to effect the release of said trap door from said latching means, said trip link being moveable between a passive position and an activation position in which said trip means is engageable with said cam member, the engagement of said cam member with said trip link causing an operative cooperation between said trip link and said release means to effect the release of said trap door from said latching means; actuation means connected to said trip link for moving said trip link from said passive position to said activation position upon the reception of the signal from said electronic detection means; and drive means for rotating said pinch roller during operation of said crop harvesting machine, the improvement comprising:

a bearing plate rotatably mounting said pinch roller and said

cam member, said bearing plate being adjustably attached to said feeder housing to move said pinch roller relative to said trap door and selectively vary said predetermined distance, said trip link being mounted on said bearing plate so that the positional relationship between said trip link and said cam member when said trip link is moved into said activation position does not change when said bearing plate is adjusted to vary said predetermined distance; and

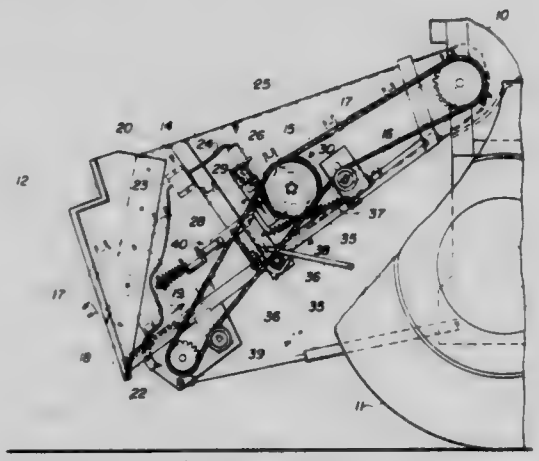
said release means including an elongated flange member affixed to said trip link projecting outwardly away from said feeder housing and a first roller connected to said latching means adjacent to said flange member, said cam member being operable when said trip link is moved to said activation position to engage said flange member with said first roller to effect the release of said trap door from said latching means.

4,335,564

ELECTRONICALLY ACTUATED STONE TRAP TRIP MECHANISM

Larimer J. Knepper, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Mar. 24, 1981, Ser. No. 246,985
Int. Cl.³ A01F *12/10*
U.S. Cl. 56—10.2 **8 Claims**



1. In a crop harvesting machine having a foreign matter detection mechanism for detecting non-crop foreign matter in the crop being harvested, a feeder housing having a feed path along which crop is conveyed during the harvesting process, and a foreign matter ejection mechanism including a trap door positioned beneath said feed path, said trap door being moveable between a closed position in which crop material flows uninterrupted along said feed path and an open position in which said non-crop foreign matter can be ejected from said feed path; said ejection mechanism further having a latching means operatively connected to said trap door to releasably hold said trap door in said closed position and a trip means operatively associated with said latching means and said foreign matter detection mechanism to release said trap door upon detection of said non-crop foreign matter so that said trap door can move to said open position for ejection of said non-crop foreign matter from said feed path, an improved trip means comprising:

a rotatable cam member mounted on said harvesting machine adjacent said latching means;

trip link mounted on said feeder housing between said cam member and said latching means, said trip link being moveable between a passive position wherein said trip link cannot engage said cam member and an activation position wherein said said trip link is engageable with said cam member, said trip link also being moveable when engaged with said cam member to cause the release of said trap door from said latching means;

release means operatively associated with said trip link and with said latching means to separate said latching means from said trap door and permit said trap door to move to said open position;

actuation means connected to said trip link and operatively associated with said foreign matter detection mechanism for moving said trip link between said passive position and said activation position upon detection of said non-crop foreign matter by said detection mechanism, such that when said trip link is moved into said activation position by said actuation means said cam member engages said trip link and causes movement thereof for effecting the release of said trap door from said latching means and permitting the ejection of said non-crop foreign matter; and

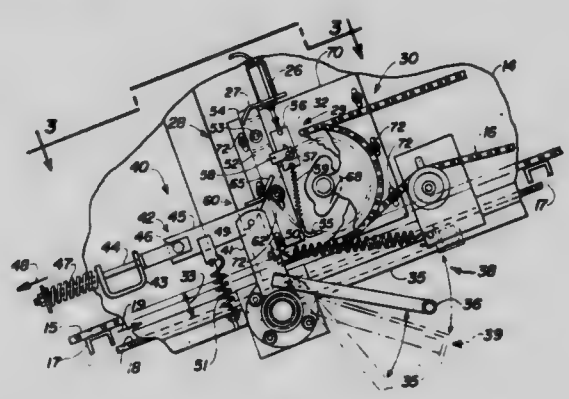
drive means for rotating said cam member.

4,335,565

LATCH MECHANISM FOR COMBINE HAVING ELECTRONIC AND MECHANICAL STONE DETECTORS

Larimer J. Knepper, and John J. Komancheck, both of New Holland, Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Mar. 24, 1981, Ser. No. 246,986
Int. Cl.³ A01F *12/10*
U.S. Cl. 56—10.2 **17 Claims**



1. A latch mechanism for a non-crop foreign matter detection and ejection mechanism on a crop harvesting machine, said detection and ejection mechanism having a trap door releasably held by said latch mechanism in a closed operative position, said trap door being moveable to an open position in which non-crop foreign matter can be ejected from said crop harvesting machine, an electronic detection means for electronically sensing the presence of said non-crop foreign matter and emitting a signal upon said detection, and a mechanical detection means for sensing the presence of non-crop foreign matter by the size of said matter and forcing said trap door toward said open position, comprising:

means for moving said trap door from said closed position to said open position;

a latch member affixed to said trap door and moveable in a first direction when said trap door moves from said closed position toward said open position;

a latch lock member releasably connected to said latch member to hold said trap door in said closed position;

release means operatively associated with said latch lock member for effecting the release of said latch member from said latch lock member to permit said trap door to move to said open position upon detection of said non-crop foreign matter, said release means being operable when said mechanical detection means forces said trap door toward said open position; and

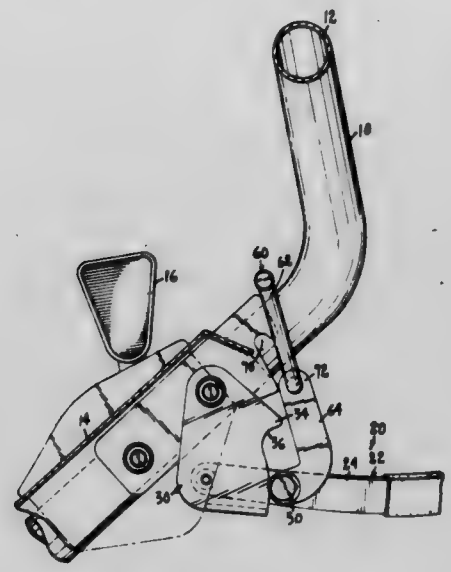
trip means operatively associated with said electronic detection means and with said release means to receive the signal emitted from said electronic detection means and cause said release means to effect the release of said latch member from said latch lock member and permit the trap door to be moved to said open position.

4,335,566

CONTROL SYSTEM FOR POWER EQUIPMENT

Lyle E. Hurd, Bloomington, Minn., assignor to The Toro Company, Minneapolis, Minn.

Filed Jan. 12, 1981, Ser. No. 224,701
Int. Cl.³ A01D *35/26*
U.S. Cl. 56—11.8 8 Claims



1. An improved outdoor power equipment unit of the type having a housing; a handle assembly connected to the housing which includes two spaced upwardly extending handle rods; an active power driven element carried on the housing for performing a ground grooming action; clutch means for selectively activating the active element; and selectively operable traction drive means for moving the housing over the ground; wherein the improvement comprises:

(a) a pair of generally opposed traction drive links each of which is pivotally mounted on the handle rods at substantially identical locations adjacent the upper ends of the handle rods;

(b) means for operatively connecting one of the traction drive links to the traction drive means for activating the same upon rotation of the traction drive links;

(c) a single transversly extending control member which extends between the handle rods and is pivotally journalled at each end on one of the traction drive links for free rotation relative to said links, wherein the control member has a neutral position and is pivotal therefrom about its pivot axis in a first direction for movement from the neutral position progressively through first and second engaged positions;

(d) means for operatively connecting the control member to the clutch means for activating the same during rotation of the control member from its neutral position towards its first engaged position; and

(e) means for rotatively coupling the control member to the traction drive links in the first engaged position of the control member such that continued rotation of the control member in the first direction towards its second position rotates the traction drive links to activate the traction drive means, whereby a single moveable control member activates both the clutch means and the traction drive means during rotation from the neutral position to the second engaged position.

4,335,567

BAGGING FILAMENT MOWER

Robert C. Comer, Hopkins, Minn., assignor to The Toro Company, Minneapolis, Minn.

Filed Sep. 2, 1980, Ser. No. 182,986
Int. Cl.³ A01D *50/00, 55/18*
U.S. Cl. 56—12.7 10 Claims

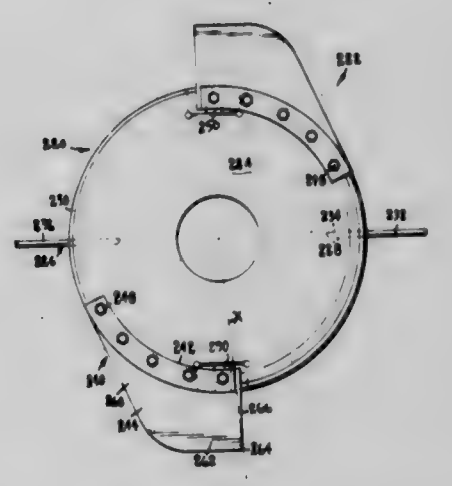
1. A vegetation cutting device, which comprises:

(a) a housing suited for movement over a ground surface;

(b) rotatable support means carried on the housing and having a perimeter;

(c) a flexible line cutting element secured to the support means for rotation therewith, wherein the flexible line cutting element includes a free end portion that extends in a cutting plane radially out past the perimeter of the support means to sever the vegetation; and

(d) means for agitating the vegetation to facilitate cutting thereof, wherein the vegetation agitating means is at least one rotatable sail member located above the cutting plane, wherein the sail member is sufficiently flexible such that it will deform under impact with a body member of a person using the lawn mower without severing the body member, wherein the sail member is operatively connected to the support means for conjoint rotation therewith in a cantilever manner such that the sail member has an unsupported radial outer side, the sail member and the cutting element being unconnected except for their common rotation with the support means, and wherein the sail member extends radially out past the perimeter of the support means sufficiently far to be located above at least 25% of the length of the free end portion of the flexible line cutting element during rotation thereof, whereby the agitating means effects better agitation of the vegetation being cut by the free end portion.

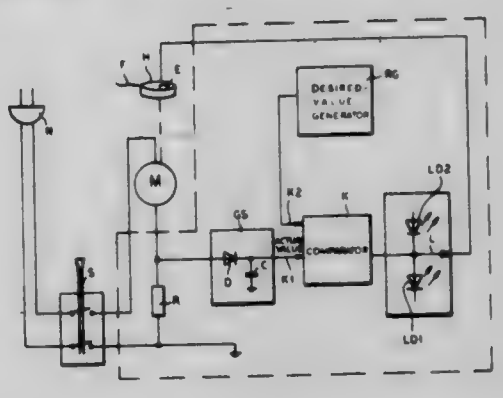


4,335,568

FILAMENT-TYPE VEGETATION TRIMMER WITH AUTOMATIC LINE SENSOR

Max Langenstein, Illertissen, Fed. Rep. of Germany, assignor to Max Langenstein Feld- und Gartengeräte GmbH & Co., Illertissen, Fed. Rep. of Germany

Filed Jul. 30, 1981, Ser. No. 288,398
Claims priority, application Fed. Rep. of Germany, Jul. 31, 1980, 3029056
Int. Cl.³ A01D *55/30*
U.S. Cl. 56—12.7 6 Claims



1. A filament-type vegetation trimmer comprising:
an electric motor;
a head rotatable by said motor;

a supply of a filament in said head, with said filament extending from said head, whereby on rotation of said head by said motor the extending filament section can cut vegetation;

means for detecting the current consumption of said motor and for generating an actual-value output corresponding thereto;

means for generating a set-point output corresponding to the current consumption of said motor when said filament is extending from said head by less than a predetermined distance; and

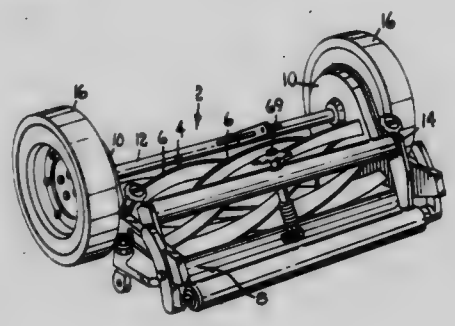
means for comparing said outputs and generating a signal when said actual-value output is less than said set-point output, and means in said head for responding to said signal and releasing more of said filament when said signal is generated.

4,335,569

REEL TO BEDKNIFE ADJUSTMENT SYSTEM

Donald A. Keeney, Bloomington, and David J. Scherbring, Shakopee, both of Minn., assignors to The Toro Company, Minneapolis, Minn.

Filed Oct. 22, 1980, Ser. No. 199,666
Int. Cl.[3] A01D *55/20*
U.S. Cl. 56—249 **15 Claims**



3. A reel type mower, which comprises:

(a) a rotatable cutting reel having at least one cutting element;

(b) an elongated bedknife adjacent the cutting reel for cooperation with the cutting reel to sever vegetation between the bedknife and the cutting element, wherein either the bedknife or the cutting reel is movable relative to the other component to define a movable component whose position can be varied relative to the other component; and

(c) control means for adjusting the position of the movable component during rotation of the cutting reel, wherein the control means includes:

(i) means for monitoring during rotation of the cutting reel a selected physical parameter of either the cutting reel or the bedknife which indicates whether or not the bedknife is properly adjusted relative to the cutting reel;

(ii) actuator means controlled by the monitoring means for moving the movable component towards or away from the other component to maintain proper adjustment of the bedknife relative to the cutting reel; and

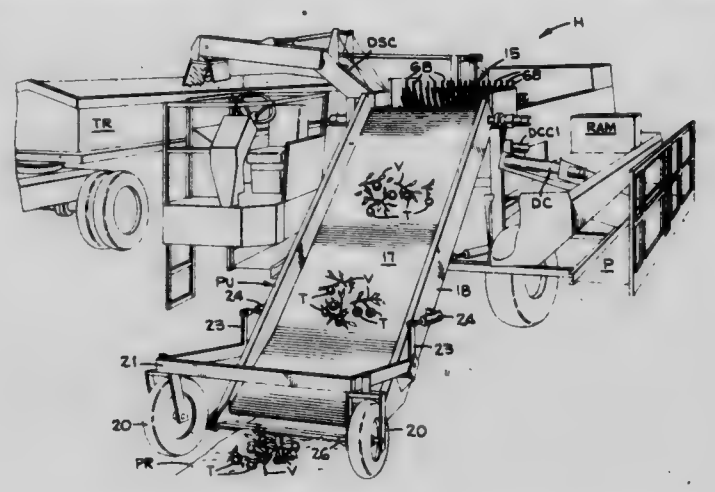
(iii) wherein an electrical potential is normally maintained between the bedknife and the cutting reel with this potential disappearing whenever the cutting element is in contact with the bedknife, and wherein the selected physical parameter which is monitored is the electrical potential.

4,335,570

HARVESTING SHAKER FOR CROPS SUCH AS TOMATOES OR THE LIKE

Richard W. Fitzmaurice, Santa Clara, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed Aug. 28, 1980, Ser. No. 182,259
Int. Cl.[3] A01D *45/00*
U.S. Cl. 56—327 R **16 Claims**



1. In a harvester for vine crops, such as tomatoes, wherein the vines are severed near ground level, removed from the ground, and moved to a position within the harvester framework, an improved means for disengaging fruit from the vine, comprising:

a shaker head having a plurality of radially projecting tines;

means for mounting the shaker head on the harvester framework for rotation about a substantially horizontal axis;

means for inducing a rotative oscillation in the shaker head; and

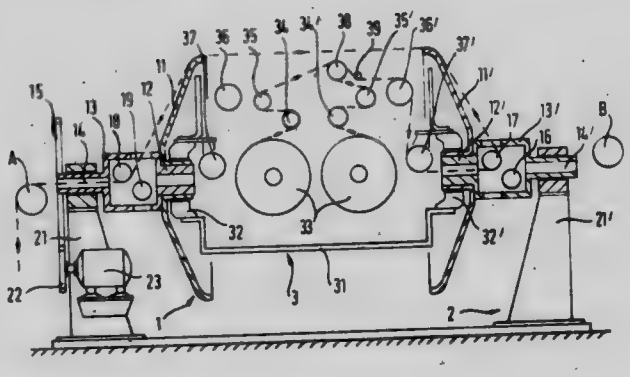
a support conveyor assembly mounted on the harvester in fixed position relative to the framework and adjacent to said shaker head and operating to support the severed vines in position so that the tines on the shaker head penetrate the vines and induce a shaking action therealong which disengages the fruit from the vines.

4,335,571

APPARATUS FOR CABLING WIRES

Luciano Tarantola, Milan, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

Filed Apr. 3, 1979, Ser. No. 26,550
Claims priority, application Italy, May 9, 1978, 23149 A/78
Int. Cl.[3] D07B *3/12, 3/02*
U.S. Cl. 57—58.52 **5 Claims**



1. In an apparatus for cabling metallic cords adapted for use as reinforcing elements of an elastomeric structure, said cords resulting from the union of a group of wires according to a prefixed geometrical configuration obtained and maintained through the means of appropriate deformations by bending and torsion applied to the wires, said apparatus comprising a carrier for supporting at least one pay-off bobbin for at least some of said wires, inside which the said bobbin or bobbins are freely mounted for rotation, each one around its own axis, a cage

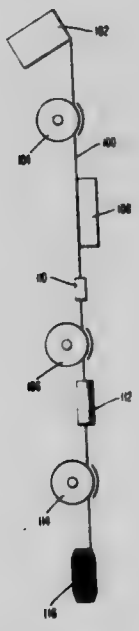
adapted for guiding the said wires along a predetermined trajectory, a frame for supporting the said cage while permitting it to rotate around its own axis, means adapted for maintaining said cage in rotation, means adapted for unwinding said wires from their respective pay-off bobbins and for drawing them through the cabling apparatus in an advancing direction, and means adapted for collecting the resulting cords, said carrier being mounted in said cage coaxially with the cage and freely rotating with respect to it, said carrier and said cage having hollow bearings whereby their terminal ends can be traversed by the wires, along a trajectory that coincides with the axis of said bearings from the interior of the carrier to the exterior of the cage and vice-versa, means being provided inside said carrier for guiding said wires according to a trajectory developed from one extremity and from said pay-off bobbins at the other extremity of the carrier, distanced from said carrier axis within the space between said extremities of the carrier—the improvement wherein inside said carrier there is provided a device for permanently deforming by bending at least part of said wires, first means for collecting at least some of the wires coming from a diverse direction and for disposing them parallel, coplanar and adjacent one of the other and for guiding them onto said device for deforming, and second means for guiding at least part of said wires along a trajectory distinct from that followed by the wires passing onto said bending device, but having in common with the latter path one point upstream said first means and another point downstream said bending device.

4,335,572

PROCESS FOR PRODUCTION OF TEXTURED YARN USEFUL IN THE FORMATION OF A CREPE FABRIC

John B. Pope, Charlotte, N.C., assignor to Fiber Industries, Inc., Charlotte, N.C.

Continuation of Ser. No. 139,146, Apr. 10, 1980, abandoned.
This application Apr. 27, 1981, Ser. No. 258,203
Int. Cl.[3] D02G *1/02*
U.S. Cl. 57—283 23 Claims



1. A texturing process for the production of a space textured yarn useful in the formation of a crepe fabric comprising:

(a) continuously passing a multifilamentary polymeric yarn capable of undergoing false twist texturing to a yarn texturing friction disc aggregate having an entrance end and an exit end,

(b) continuously passing said multifilamentary polymeric yarn in contact with said yarn texturing friction disc aggregate which rotates at a disc surface speed to yarn speed of approximately 2.2:1 to 3.1:1 whereby a relatively tight twist which averages approximately 40 to 120 turns per inch is imparted to said multifilamentary polymeric yarn immediately prior to reaching said entrance end of said friction disc aggregate,

(c) continuously passing said multifilamentary polymeric yarn from said exit end of said friction disc aggregate to a roll which is rotated at a speed sufficient to satisfy said disc surface speed to yarn speed ratio of step (b) and with said yarn under a tension which facilitates periodic slippage of said multifilamentary polymeric yarn with respect to said friction disc aggregate in step (b) whereby recurring relatively tightly twisted areas measuring approximately 0.125 to 1.25 inch are substantially maintained along the length of said yarn intermediate recurring textured areas measuring approximately 0.125 to 1.25 inch which include a twist in the opposite direction which are created at the exit end of said friction disc aggregate,

(d) heating said multifilamentary polymeric yarn in a relaxing zone while under a lesser longitudinal tension than employed in steps (a), (b), and (c) sufficient to maintain said yarn at a constant length or to permit up to approximately a 20 percent longitudinal yarn shrinkage whereby bulking of said recurring textured areas which include a twist in said opposite direction occurs while substantially maintaining said recurring relatively tightly twisted areas, with said relatively tightly twisted areas retaining at least 50 percent of said twist achieved immediately prior to reaching said entrance end of said friction disc aggregate, and

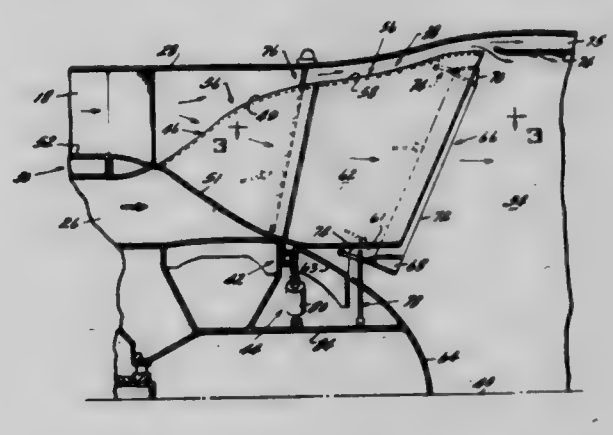
(e) collecting the resulting yarn.

4,335,573

GAS TURBINE ENGINE MIXER

Jack D. Wright, Mason, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Sep. 2, 1970, Ser. No. 78,333
Int. Cl.[3] F02K *3/10, 3/04*
U.S. Cl. 60—261 10 Claims

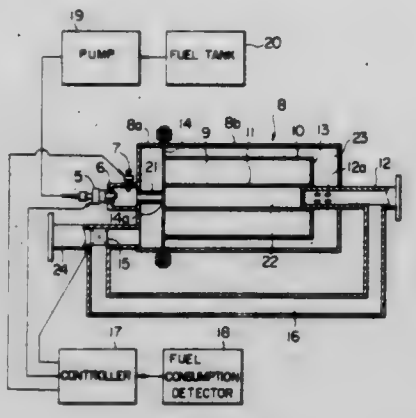


1. A convoluted annular mixer for use in a gas turbine engine and of the type defining an annular array of radially and axially elongated, alternating first and second chutes, said mixer including an upstream portion a and downstream portion, the first and second chutes of said upstream portion adapted to receive, respectively, an inner annular hot gas stream and an outer annular fan stream of said engine, and means for indexing said downstream portion from a first position, wherein the upstream first and second chutes are disposed in fluid flow communication, respectively, with the downstream first and second chutes, and a second position wherein such fluid flow communication is reversed, whereby the temperature of said downstream mixer portion and, hence, emitted infrared radiation therefrom may be selectively reduced.

4,335,574
CARBON PARTICLES REMOVING DEVICE

Susumu Sato, Okazaki; Yukihisa Takeuchi, Aichi, and Masahiro Tomita, Anjo, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Jan. 9, 1981, Ser. No. 223,723
Claims priority, application Japan, Feb. 15, 1980, 55-17977
Int. Cl.[3] F01N *3/02*
U.S. Cl. 60—311 2 Claims



1. A device for removing fine carbon particles from exhaust gas emitted by an internal combustion engine, comprising:

a means providing a first path and a second path through which said exhaust gas may be alternately made to flow, said paths having a juncture;

a filter disposed in said first path and adapted to collect fine carbon particles suspended in said exhaust gas;

no filter of the kind and character of said filter being disposed in said second path;

a heating means disposed in said first path and adapted to burn said fine carbon particles collected by and accumulated on said filter;

a valve disposed at said juncture of said first and second paths and adapted to selectively open and close said first and second paths;

means for indirectly detecting the amount of said fine carbon particles collected by and accumulated on said filter by detecting the amount of fuel consumed by the engine;

and means for controlling the valve and the heating means together so that when the amount of said fine carbon particles collected by and accumulated on said filter has reached a predetermined amount, said valve is actuated temporarily to open said second path while said heating means is temporarily activated to burn said fine carbon particles;

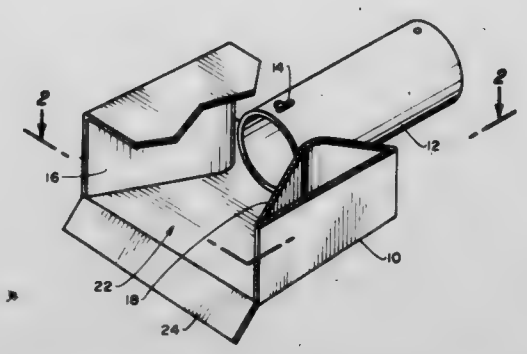
said heating means including a small-sized burner attached to a holder such that a flame thereon is introduced into the inner cylinder of said filter, a glow plug for igniting the burner, a fuel tank adapted to supply fuel to the burner and a fuel pump arranged for pumping fuel from the fuel tank to the burner.

4,335,575
EXHAUST BACK PRESSURE REDUCER FOR INTERNAL COMBUSTION ENGINE

Basilio Pagliuca, 18200 Killion, Apartment 15, Tarzana, Calif. 91356

Filed Nov. 19, 1979, Ser. No. 95,835
Int. Cl.[3] F01N *5/04*
U.S. Cl. 60—319 8 Claims

1. An exhaust gas pressure reducer for an internal combustion engine comprising; a tubular member adapted to fit over the end of the exhaust pipe of said internal combustion engine; a housing having top and bottom plates mounted on said tubular member; a venturi in said housing, said venturi having a pair of inwardly flaring arcuate side members located intermediate said top and bottom plates and being in spaced apart relation to form a venturi throat approximately equal in cross-sectional area to the cross-sectional area of the end of said tubular member; air deflecting means at the exit of said venturi for deflecting air flowing around the external surface of said housing away from said exit to create a low pressure area at said exit to

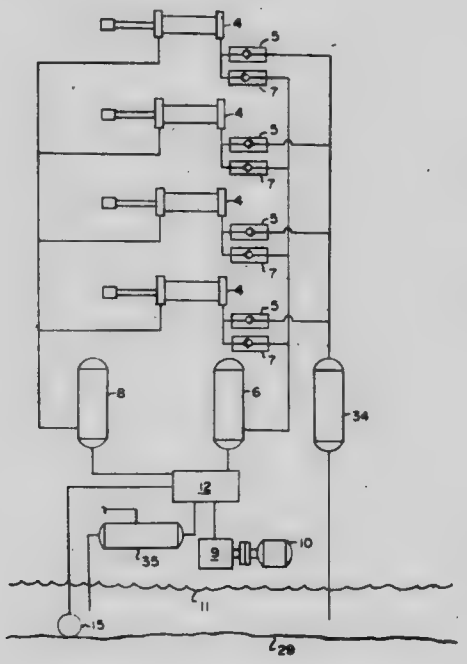


assist in discharging hot gases from said internal combustion engine.

4,335,576
WAVE ENERGY DESALINIZATION

Harold H. Hopfe, 65 Pioneer Dr., Longmeadow, Mass. 01106

Continuation-in-part of Ser. No. 832,610, Oct. 6, 1977, abandoned, Ser. No. 935,586, Aug. 21, 1978, abandoned, Ser. No. 943,286, Sep. 18, 1978, abandoned, and Ser. No. 3,744, Jan. 15, 1979, Pat. No. 4,204,406. This application Jan. 7, 1980, Ser. No. 109,876
Int. Cl.[3] F03B *13/12*
U.S. Cl. 60—398 20 Claims



1. A device for producing fresh water from salt sea water by utilizing the hydrodynamic energy of waves, comprising:

a buoyant platform;

mooring means for mooring the platform at sea;

pump means mounted on the platform and connected to the mooring means;

a reservoir for containing pressurized sea water connected to the pump means;

a reverse osmosis desalination system for extracting fresh water from the sea water connected to the reservoir means;

hydraulic flow control means for causing the pump means to pump sea water into the sea water reservoir, as motion of the buoyant platform is produced due to the passing of waves beneath it;

measuring means for measuring parameters of the sea adjacent the buoyant platform; and

a control device connected to control the pressure in the sea water reservoir and flow of sea water from the reservoir

through the desalination system in dependence upon the parameters of the sea determined by the measuring means.

4,335,577

HYDRAULIC SYSTEM HAVING VARIABLE DISPLACEMENT PUMPS CONTROLLED BY POWER BEYOND FLOW

Raymond J. Lobmeyer, Hudson, and James A. Miller, Cedar Falls, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Jun. 19, 1980, Ser. No. 161,082
Int. Cl.³ F15B *13/06, 13/09*
U.S. Cl. 60—421 **5 Claims**



1. In a hydraulic system including a variable displacement pump, a pressure responsive displacement controller connected to the pump for decreasing the displacement thereof in response to receiving increasing signal pressure, a primary function control valve having a supply inlet connected to the pump, service ports adapted for connection to a primary function and a primary function power beyond port, first and second secondary function control valves having respective supply inlets coupled to the primary function power beyond port, respective service ports adapted for connection to first and second secondary functions, and first and second secondary function power beyond ports, the primary and first and second secondary function control valves each including a demand responsive flow divider for dividing flow between the respective power beyond and service port of each valve, when the latter are actuated, respectively, in accordance with the fluid required by the primary and first and second secondary functions, the improvement comprising: shuttle valve means coupled to the first and second secondary function power beyond ports and to the pump displacement controller and being operable for routing the lesser of the fluid pressure existing at the first and second secondary function power beyond ports to the pump displacement controller to thereby automatically control the pump to satisfy the highest demand of the first and second secondary functions.

4,335,578

SOLAR POWER CONVERTER WITH POOL BOILING RECEIVER AND INTEGRAL HEAT EXCHANGER

Douglas B. Osborn, and Robert L. Pons, both of Mission Viejo, Calif., assignors to Ford Aerospace & Communications Corporation, Detroit, Mich.

Filed May 30, 1980, Ser. No. 154,723
Int. Cl.³ F03G *7/02*
U.S. Cl. 60—641.8 **10 Claims**

1. An internal cavity solar power converter comprising:

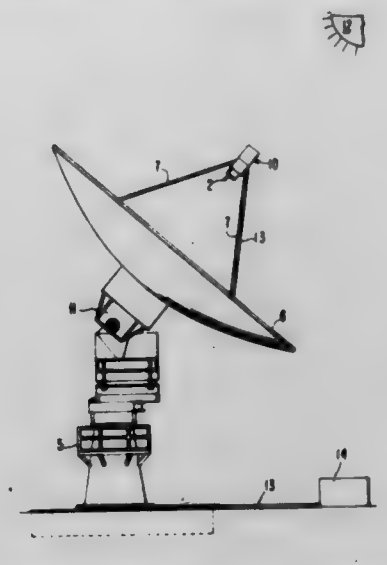
a solar receiver formed between two concentric, generally cylindrical sleeves, said receiver substantially filled with a pool of secondary fluid which changes phase from a liquid to a vapor upon the impingement of solar radiation thereon;

an annular seal connecting said sleeves at a first end thereof;

a fixed aperture formed by said annular seal and disposed to permit concentrated solar radiation to impinge upon an interior surface of said receiver; and

a heat exchanger coupled to an end of said receiver opposite its apertured end, having a first chamber adapted to receive secondary fluid from said solar receiver, said exchanger further having a second chamber containing a primary fluid;

wherein said secondary fluid undergoes a phase change from a vapor to a liquid as it gives up heat to said primary fluid within said heat exchanger.

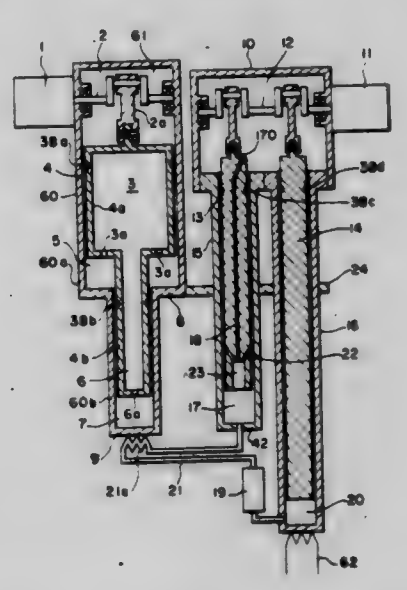


4,335,579

REFRIGERATING SYSTEM

Hitoshi Sugimoto, Nagoya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 16, 1980, Ser. No. 187,832
Claims priority, application Japan, Sep. 17, 1979, 54-119014
Int. Cl.³ F25B *9/00*
U.S. Cl. 62—6 **12 Claims**

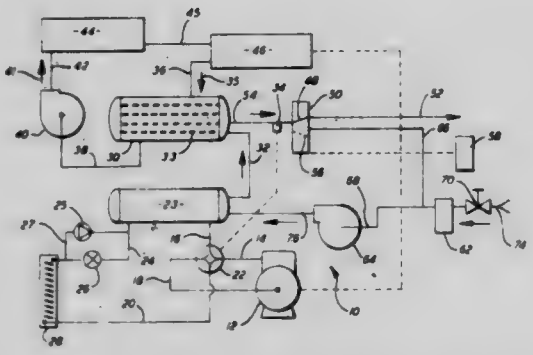


1. A refrigerating system comprising first refrigerating means having cooling surface means, second refrigerating means including compression piston-cylinder means, heat radiating means connected with said compressing piston cylinder means and arranged in heat exchange relationship with said cooling surface means in the first refrigerating means and expansion piston-cylinder means connected with said heat radiating means, pre-cooling means for transmitting heat from said piston-cylinder means in said second refrigerating means to said first refrigerating means.

4,335,580
REFRIGERATION UNIT WITH WATER COOLED CONDENSER

William J. Hannett, Jamesville; Thomas E. Brendel, and David S. Wilson, both of Fayetteville, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Division of Ser. No. 92,297, Nov. 8, 1979, Pat. No. 4,295,344.
This application Mar. 23, 1981, Ser. No. 245,880
Int. Cl.[3] F25B *7/00, 27/02, 13/00*
U.S. Cl. 62—79 6 Claims

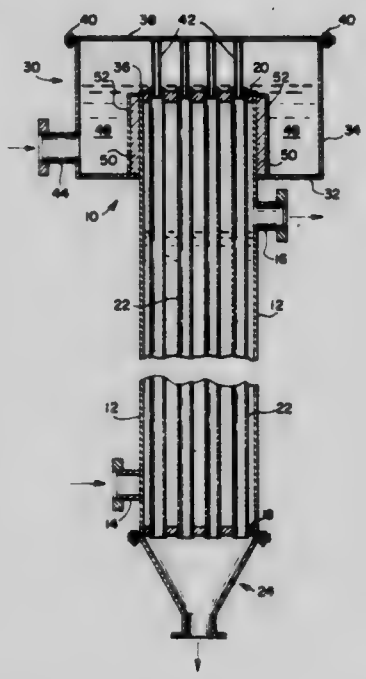


1. A method of operating an engine-driven refrigeration unit comprising the steps of:
delivering water to a first heat exchanger of the refrigeration unit;
supplying the water from the first heat exchanger to a second heat exchanger for cooling a relatively warm fluid delivered thereto thereby increasing the temperature of the water and reducing the temperature of the relatively warm fluid; and
supplying the water discharged from the second heat exchanger to the inlet of the first heat exchanger when the first heat exchanger is functioning as a refrigerant evaporator.

4,335,581
FALLING FILM FREEZE EXCHANGER

James A. Nail, Carol Stream, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Aug. 12, 1981, Ser. No. 292,265
Int. Cl.[3] B01D *9/04*; C02F *1/22*
U.S. Cl. 62—123 7 Claims

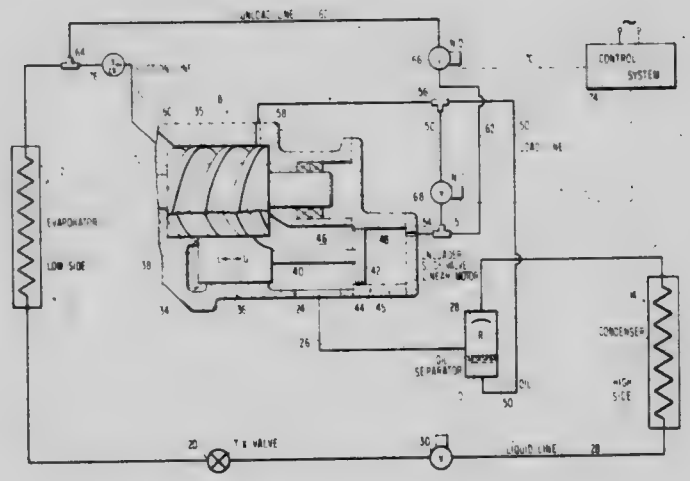


1. A falling film freeze exchanger comprising:
a plurality of spaced apart vertical freeze tubes secured in, and penetrating, an upper tube sheet and a lower tube sheet;
a shell around the tube sheets and connected thereto;
the shell having a cooling fluid inlet and a cooling fluid outlet for circulating cooling fluid around the tubes;
a header surrounding and joined to the upper part of the shell and extending above the top tube sheet and laterally outwardly from the shell;
means to deliver a liquid process feed stream into the header; and
a layer of insulation surrounding that part of the shell surrounded by the header.

4,335,582
UNLOADING CONTROL SYSTEM FOR HELICAL SCREW COMPRESSOR REFRIGERATION SYSTEM

David N. Shaw, Unionville, and Norman A. L. N. Gagnon, Windsor Locks, both of Conn., assignors to Dunham-Bush, Inc., West Hartford, Conn.

Filed Feb. 20, 1981, Ser. No. 236,372
Int. Cl.[3] F04B *49/00*
U.S. Cl. 62—196 R 3 Claims



1. In a closed loop refrigeration system including
a compressor,
a condenser, and
evaporator,
conduit means connecting said compressor, condenser and evaporator in series, in that order within a closed loop,
said conduit means including an expansion means upstream of said evaporator,
and wherein said compressor comprises;
a helical screw rotary compressor having a low pressure suction port and a high pressure discharge port,
an unloader slide valve movable between compressor full load and full unload position,
a linear drive motor including a slidable piston sealably and slidably mounted within a cylinder and forming inboard and outboard chambers on opposite sides of said piston, said inboard chamber being open to the compressor discharge pressure and tending to shift the slide valve to full compressor unload position and wherein said conduit means further includes means for selectively connecting said outboard chamber to the compressor discharge pressure tending to shift said slide valve to full compressor load position,
the improvement comprising:
a check valve within said conduit means between said evaporator and said compressor suction port,
means normally closing off said outboard chamber to said system high side pressure and
means for normally opening said outboard chamber to said system low side pressure upstream of said check valve means;
whereby, upon compressor shut down, the outboard chamber is vented to the system low side pressure, while the inboard chamber is open to the system high side pressure, such that during the time delay to

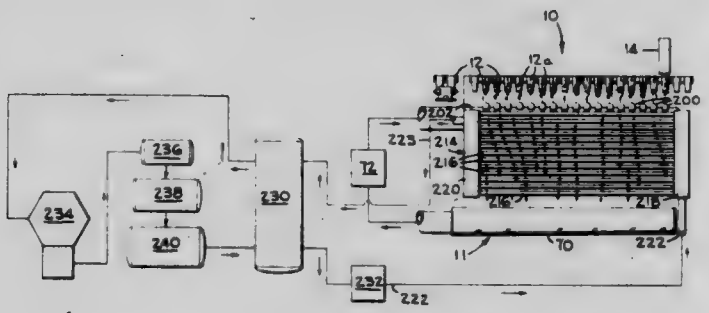
achieve equalization of system high and low side pressures, said unloader piston and said slide valve are automatically shifted to compressor full unload position.

4,335,583

APPARATUS FOR FREEZING CONFECTIONS

Ronald J. Billett, Sunnyvale, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed May 5, 1980, Ser. No. 146,843
Int. Cl.³ A23G *9/00*
U.S. Cl. 62—345 **8 Claims**



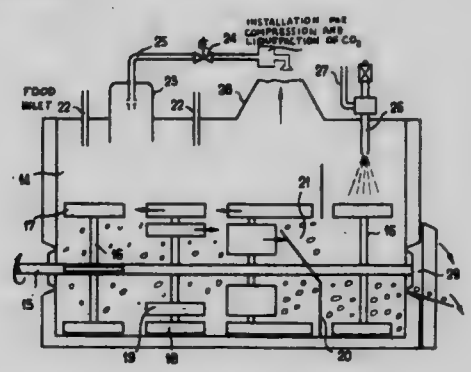
1. An apparatus for freezing confection material comprising: mold means for receiving confection material including a plurality of mold cups that are arranged in several rows and including walls extending transversely between the upper ends of adjacent cups in each row, said mold cups having polygonal cross-sectional configurations having wide and narrow side faces with the wide side faces extending transversely of the associated row of mold cups, means for conveying said mold means along a path of travel extending parallel to the wide side faces of the mold cups, several rows of nozzles disposed under said mold means along said path of travel, the nozzles being spaced in uniform intervals in alignment with said transverse walls between adjacent cups, and means for supplying coolant under pressure to said nozzles being oriented to force jets of coolant from said nozzles upwardly to impinge against said transverse wall portions between adjacent mold cups in the overlying row of mold cups.

4,335,584

PROCESS AND APPARATUS FOR QUICK-FREEZING OF FOOD PRODUCTS

Andre Lermuzeaux, Sucy-En-Brie, France, assignor to L'Air Liquide, Societe Anonyme pour d'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Division of Ser. No. 897,534, Apr. 18, 1978, Pat. No. 4,265,921.
This application Aug. 27, 1980, Ser. No. 181,677
Claims priority, application France, Apr. 25, 1977, 77 12339
Int. Cl.³ F25D *3/12*
U.S. Cl. 62—388 **14 Claims**



1. Apparatus for quick freezing liquid or pasty food products by adding same to a bed of carbon dioxide snow, the mixing of the food product being performed in three zones, respectively, in a first zone for freezing where the product to be frozen is mixed with the carbon dioxide snow, then in a second zone wherein separation of frozen granules of suitable size from fine snow and fines of frozen product occurs, and a third zone of sublimation of the excess snow and stabilization of the temperature of the frozen product by the regulated addition of an additional quantity of said liquid or pasty food product to the third zone to regulate the removal temperature to that desired for the frozen granules,

comprising a large, covered, insulated, parallelipipedic vat, divided into said three zones, an input zone corresponding to said first zone, a central zone corresponding to said second zone, and an end zone corresponding to said third zone, said vat being equipped along its entire length with a rotor provided with arms arranged so that the movement of the product in the input zone has at most a slight axial downstream direction,

the rotor arms in the central zone of the apparatus comprising means to move large frozen food particles downstream and small frozen food particles upstream, said means including a double series of blades spaced radially apart on said arms, the outer blades being oriented to move small frozen food particles upstream and the inner blades being oriented to move large frozen food particles downstream, and the number of rotor arms being less in the end zone;

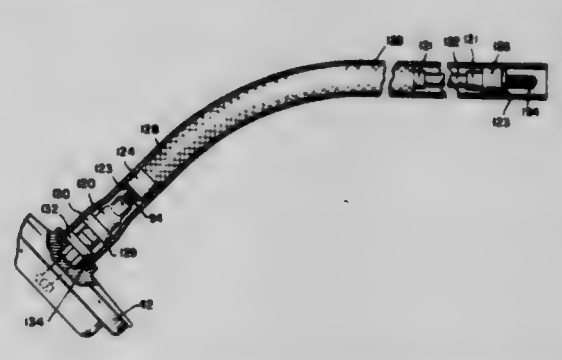
the central and end zones of the vat being partially separated by a partition and connected by a chute in this partition; the upper part of the vat being provided in the input zone with input pipes for the food product regularly distributed around a flared pipe for the carbon dioxide snow, in the central zone of the device means for recovering the gaseous carbon dioxide and in the end zone a spraying means for the addition of additional liquid or pasty food product to be frozen.

4,335,585

LAWN TRIMMER CONSTRUCTION

Stephen J. Hoff, Richmond, Ind., assignor to Hoffco, Inc., Richmond, Ind.

Division of Ser. No. 871,603, Jan. 23, 1978, Pat. No. 4,188,719.
This application Jan. 7, 1980, Ser. No. 110,125
Int. Cl.³ F16C *1/02*; A01D *35/26*
U.S. Cl. 464—52 **8 Claims**



1. A tubular shaft assembly for structurally and drivingly connecting an upper power head to a lower tool head in a lawn trimming tool or the like, said assembly including a bent portion to dispose its opposite ends at an angle to each other, comprising an outer frame shaft of relatively large diameter and structural strength, an inner sheath tube of relatively smaller diameter formed of rigid but bendable tubing and disposed substantially coaxially of the frame tube, bushing means interposed between the two tubes to support the inner sheath tube from and in fixed relation with the outer frame tube with the ends of the sheath tube parallel with the axis of the frame tube, the frame tube having a lower end portion projecting beyond the end of the sheath tube and expanded to form a sleeve of enlarged diameter and predetermined length joined to the frame tube by an integral expansion section, an arbor assembly mounted in said sleeve and having outer stationary bearing means in locating engagement with said expansion section and having an arbor bearing rotatably mounted in such means in coaxial alignment with the lower end of the sheath tube, the outer end of said frame shaft sleeve being deformed

inward to secure the stationary bearing means in place in the sleeve and against said expansion section.

4,335,586

SHAFT-DISC ASSEMBLY

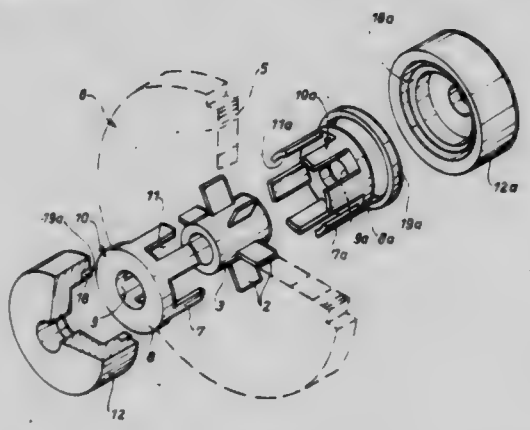
Richard Kochendorfer, and Helmut Vogler, both of Stuttgart, Fed. Rep. of Germany, assignors to Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt e.V., Bonn, Fed. Rep. of Germany

Filed Nov. 7, 1979, Ser. No. 92,039

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848355

Int. Cl.³ F16D *3/17*

U.S. Cl. 464—81 **8 Claims**



1. In a shaft and disc assembly of the type including a disc mounted coaxially on a shaft for rotation therewith, said assembly comprising

(a) a shaft;

(b) a disc containing a central aperture having an internal diameter greater than the external diameter of said shaft, said disc also containing radial slots extending from the central aperture, said disc being mounted concentrically on said shaft;

(c) centering means mounted on the shaft, said centering means including web portions extending generally parallel to the shaft axis and lying against the internal surface of said central disc aperture, said web portions, under the action of centrifugal force when the assembly is rotating, being resiliently pressed against said internal surface, said centering means including a pair of centering sockets mounted on opposite sides of the disc, respectively, each socket having an end face extending substantially perpendicular to the shaft axis, and a plurality of integral webs extending axially from the outer edge of said end face through the central aperture in said disc and being free at their ends remote from said end face, said sockets being arranged so that webs from the two sockets alternate around a circumferential surface formed thereby; and

(d) a plurality of tongues rigidly fixed to the shaft and extending radially therefrom into the radial slots contained in said disc.

4,335,587

UNIVERSAL COUPLING MEMBER FOR TWO SHAFTS AND METHOD OF MANUFACTURING SUCH A COUPLING MEMBER

Dieter Thomamueller, Bruckmuehl, and Klaus Brunsch, Wolfratshausen, both of Fed. Rep. of Germany, assignors to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed Jun. 30, 1980, Ser. No. 164,186

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1979, 2927955

Int. Cl.³ F16D *3/78*; B65H *81/00*

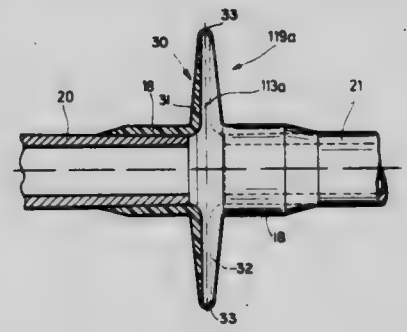
U.S. Cl. 64—11 B **5 Claims**

1. A method of making a universal coupling member of fiber compound material having a disk shaped flange between two shaft components and a longitudinal axis for transmitting torque between a driving member and a driven member, comprising the following steps:

(a) assemblying on a portion (**12**) of a winding mandrel (**11**), a core (**13**) and a sleeve (**14**) to form a winding mold, said core having a larger diameter than said mandrel or sleeve, said core further having substantially the form and dimensions of said disk shaped flange,

(b) winding a fiber material onto said winding mold so that the individual turns extend at an angle of about ±45° relative to said longitudinal axis to form a wound structure including said disk shaped flange and said shaft components,

(c) impregnating said fiber material prior or after said winding step,



(d) compressing the wound structure in the direction of said longitudinal axis to form said disk shaped flange, and

(e) curing the wound structure.

5. A universal coupling member of fiber compound material manufactured according to claim **1**, comprising two bushings (**18**) and a single hollow disk flange (**30**) interconnecting said bushings (**18**), said hollow disk flange having two substantially radially extending wall portions (**31, 32**) the wall thickness of which diminishes radially outwardly, and a curved circumferential wall portion (**33**) having the smallest wall thickness relative to said wall portions, said circumferential wall portion operatively interconnecting said radially extending wall portions (**31, 32**), whereby a substantial torsional rigidity and axial deformability are achieved.

4,335,588

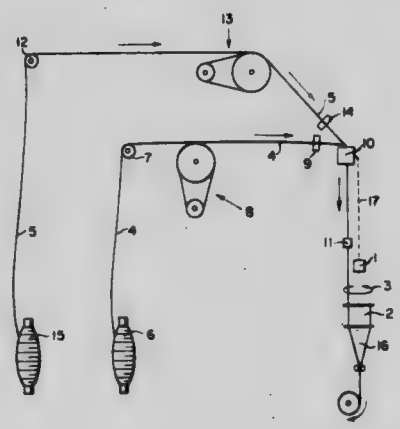
YARN PROCESS AND APPARATUS

Cornelis Bos, Dieren, Netherlands, assignor to Akzona Incorporated, Asheville, N.C.

Filed Jan. 3, 1978, Ser. No. 866,685

Int. Cl.³ D04B *35/22*

U.S. Cl. 66—125 A **1 Claim**



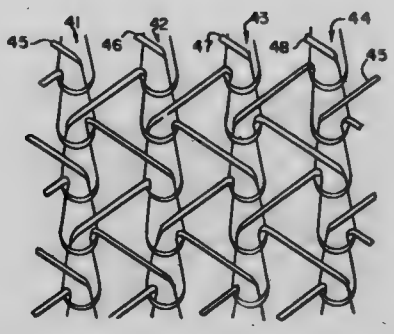
1. A process for bulking multifilament yarns on a circular knitting machine comprising the steps of feeding at least one multifilament yarn from a yarn supply to a blowing zone, then to a knitting zone; supplying a stream of gaseous fluid under super atmospheric pressure to the blowing zone while a drive for a knitting needle cylinder in said knitting zone is in operation; and gradually reducing the stream of gaseous fluid to the blowing zone after the drive is switched off.

4,335,589

GROUNDING STRUCTURES COMPRISING COMPOSITE KNITTED FABRICS

Gary L. Flasher, Phoenixville, Pa., assignor to Bentley-Harris Manufacturing Co., Lionville, Pa.

Filed Jun. 30, 1980, Ser. No. 164,090
Int. Cl.³ D04B 7/16, 21/00
U.S. Cl. 66—202 3 Claims



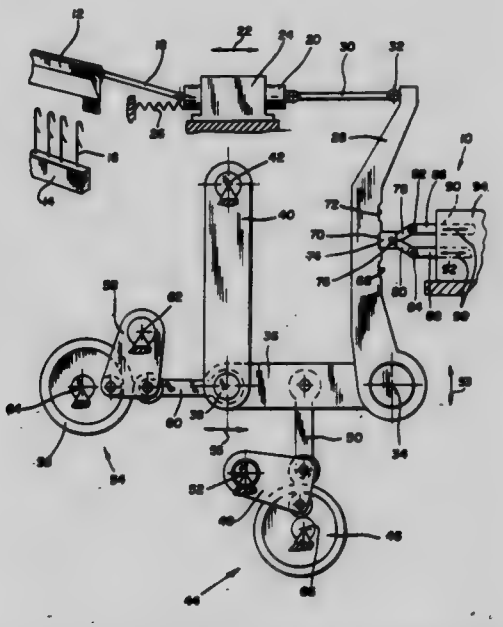
1. An elongated grounding component particularly adapted for dissipating electrostatic charges, comprising bare strands of electrically-conductive material, said component comprising at least one knitted tube having a given number of wales of needle loops extending longitudinally of said grounding component, any given wale of needle loops having loops alternating in sequence between loops of first and second electrically-conductive strands throughout the length of the grounding component, the first of said strands alternately forming needle loops in a wale on one side of the given wale and the second of said strands alternately forming needle loops in a wale on the other side of said given wale, said tube being flattened to insure intimate electrical contact between the strands of the knitted tube to assure multiple conductive paths between said strands throughout the length of said grounding component.

4,335,590

GUIDEBAR SHOGGING LINKAGE ARRANGEMENT FOR WARP KNITTING MACHINES

Gerhard Bergmann, Obertshausen, and Heinz Wade, Rodgau, both of Fed. Rep. of Germany, assignors to Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Fed. Rep. of Germany

Filed Jul. 1, 1980, Ser. No. 165,020
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1979, 2926929
Int. Cl.³ D04B 23/00
U.S. Cl. 66—207 5 Claims



1. A guidebar shogging linkage arrangement for warp knitting machines having a guide bar, a needle bar with a plurality of equally spaced needles disposed thereon, a shogging guide apparatus for shogging said guidebar in predetermined increments parallel to said needle bar, and a power driving source operatively coupled thereto, comprising in combination:

(a) a pair of guide means, each of said guide means having means for providing a predetermined incremental distance in a longitudinal direction;

(b) a pair of slider bars, each of said slider bars being mounted in the longitudinal direction and operatively coupled to one of said pair of guide means, the position of each said slider bar in longitudinal direction being determined by said guide means being set to a particular distance according to a predetermined program,

(c) shogging lever means operatively coupled to said guidebar for moving said guidebar in a direction parallel to said needle bar,

(d) first and second elongated lever means, one end of said first lever being pivotably connected to one of said slider bars, one end of said second lever means being pivotably connected to the other of said slider bars,

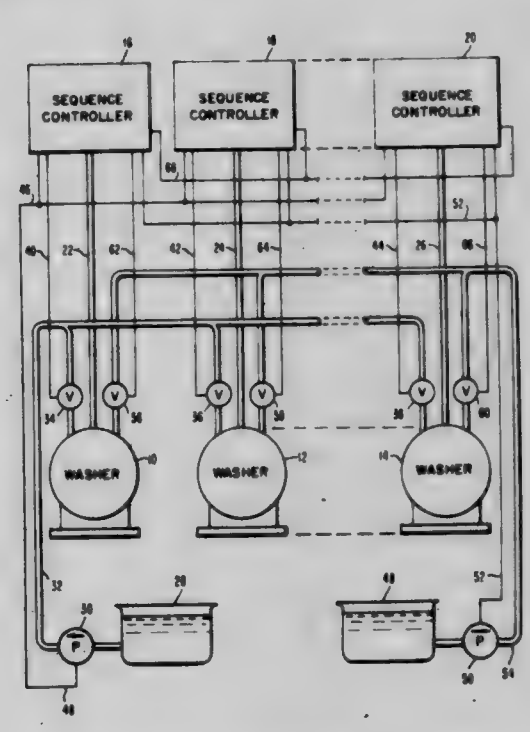
(e) keying element means positioned in intimate contact with said shogging lever means having a pivot hinge means adapted to pivotably retain the other ends of said first and second lever means about a common axis, said shogging lever means being driven by said power driving source with its position alternately related to the longitudinal position of said first and second slider bar.

4,335,591

MULTIPLE WASHER LAUNDRY SYSTEM WITH COMMON FUNCTION CONTROL

Robert A. Gillespie, Bridgeport, Conn., assignor to Brent Chemicals Corporation, Stamford, Conn.

Filed Jun. 23, 1980, Ser. No. 161,754
Int. Cl.³ D06F 31/00, 33/02
U.S. Cl. 68—12 R 20 Claims



1. A control and operating system for a laundry having a plurality of washers and having at least one function which is common to more than one of said washers and is to be performed by only one washer at a time,

comprising a separate sequence controller connected to each washer for controlling the sequential operations of that washer,

a common intercommunication channel means coupled to all of said controllers,

said controllers being operable to intercommunicate by request and response signals carried through said common channel and each of said controllers including control means enabling said washers to operate concurrently on the basis of those signals to prevent more than one washer

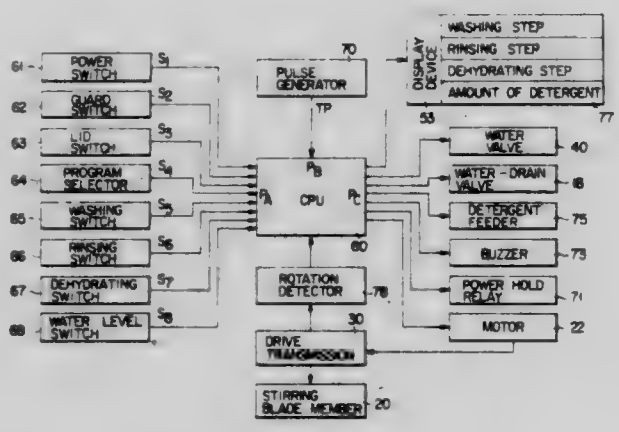
at a time from performing a common function that is to be performed by only one washer at a time.

4,335,592

AUTOMATIC WASHER

Fumio Torita, Nagoya, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 25, 1980, Ser. No. 210,532
Claims priority, application Japan, Nov. 26, 1979, 54-153317
Int. Cl.³ D06F *33/02, 39/08*
U.S. Cl. 68—12 R **10 Claims**



1. An automatic washer comprising:

a tub having a bottom wall for holding at least wash water;

water valve means for controlling an amount of wash water to be supplied to said tub;

a stirring blade member rotatably provided inside of said bottom wall of said tub;

drive means for rotating said stirring blade member;

measuring means connected to said drive means for detecting a number of rotations of said stirring blade member per unit time, and sending forth an output signal corresponding to said detected number of rotations;

detecting means for detecting an amount of wash water held in said tub to generate an output signal corresponding to the amount of wash water; and

valve control means for closing said water valve in response to said output signal from said detecting means, determining an amount of wash water to be additionally supplied to said tub upon receipt of said output signal from said measuring means, and opening said water valve for a length of time corresponding to said determined additional supply of wash water.

4,335,593

CHAINLESS MERCERIZING EQUIPMENT USING A DYE PADDER

Christian Strahm, Küsnacht, Switzerland, and Werner Strudel, Friedrichshafen, Fed. Rep. of Germany, assignors to Lindauer Dornier Gesellschaft mbH, Fed. Rep. of Germany

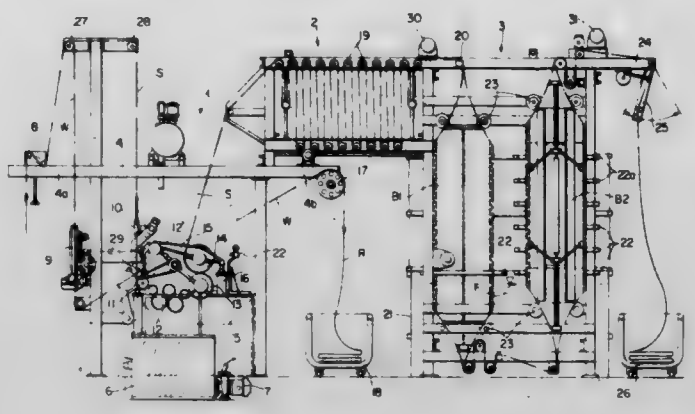
Filed Sep. 18, 1980, Ser. No. 188,289
Claims priority, application Fed. Rep. of Germany, Oct. 9, 1979, 2940867
Int. Cl.³ D06B *7/08, 7/10*
U.S. Cl. 68—13 R **11 Claims**

1. In chainless mercerizing equipment for the selective processing of flat textiles and hose ware using a mercerizing dye padder provided with rollers, the material being guided over mercerizing rollers through a bath of a treatment liquid and the excess treatment liquid being forced out of the material by a subsequent pair of rollers, and the material then being washed, the improvement comprising

(a) selective feed path means preceding the dye padder from a common site, said paths including different expander means for flat textiles and hose ware respectively,

(b) a clear space for moving in and out a batching or cuttling means for the flat textiles and means for guiding the material from the dye padder to the batching or cuttling means, and

(c) an air passage means spanning the clear space and acting as a development path for the hose ware, followed by a



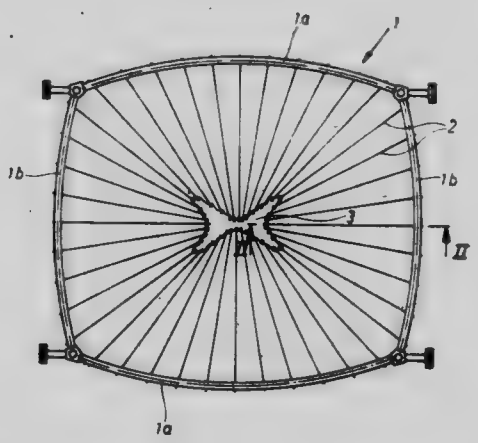
treatment means provided with at least one circular expander and bounding the clear space, and a subsequent cuttling means, and means for guiding said hose ware from the dye padder to said cuttling means.

4,335,594

APPARATUS FOR HIDE STRETCHING

Antti K. Viljanmaa, Torisevantie 4 A 8, 34800 Virrat, Finland

Filed Jan. 18, 1980, Ser. No. 113,706
Claims priority, application Finland, Jan. 18, 1979, 790156
Int. Cl.³ C14B *1/26;* D06C *3/08*
U.S. Cl. 69—19.3 **10 Claims**



1. In a hide stretching apparatus, in particular for the tentering of wet hides for drying, of the type comprising in combination:

a stretching frame having peripherally attached thereto and radially extending inwardly therefrom a plurality of guides, each of said guides having a first end affixed to said frame and a second end affixed to a center piece located centrally in said frame;

a like plurality of clamps, individual ones of said clamps being slidably attached to corresponding ones of said guides so as to be movable in an inward direction and an outward direction, respectively toward said second end and said first end of a corresponding one of said guides, each of said clamps being provided with a pair of jaws operable between an open position and a closed position, said jaws being so disposed and dimensioned as to be capable of grasping an edge of a hide when in said closed position and releasing said edge when in said open position; and

a hide changing table provided with a clamp displacement member for each of said clamps, said clamp displacement member being dimensioned and disposed so as to be capable of translating an individual one of said clamps along said corresponding one of said guides;

the improvement comprising

a plurality of support strips affixed to said hide changing table, said support strips being dimensioned and disposed to fit adjacent said guides when said stretching frame is aligned on said hide changing table; and

a vertically movable press means provided with press members disposed in confronting relationship to said support strips, said press members being so dimensioned and disposed as to grasp a hide when said press means is in its lowermost position and release said hide when said press means is in its upermost.

4,335,595

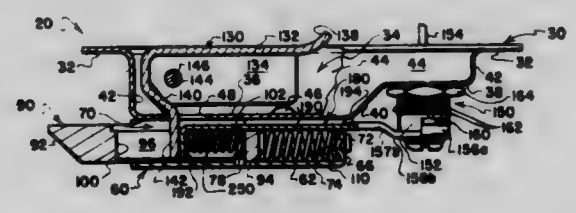
PADDLE LOCK WITH HANDLE DISCONNECT

Jye P. Swan, Brunswick Hills; John V. Pastva, Jr., Parma Hts., and Donald J. Dignan, South Euclid, all of Ohio, assignors to The Eastern Company, Cleveland, Ohio

Filed Dec. 28, 1979, Ser. No. 108,016

Int. Cl.³ E05B *55/06;* E05C *1/12*

U.S. Cl. 70—149 **39 Claims**



1. A door lock, comprising:

(a) a body structure defining an elongate bolt-mounting passage therein;

(b) a bolt structure positioned at least partly in the passage for movement between latching and unlatching positions, the bolt structure having a connecting formation connected thereto for movement along a first path of travel within the passage in response to movement of the bolt structure between its latching and unlatching positions;

(c) a handle structure connected to the body structure for movement between normal and operating positions, the handle structure having an operating formation connected thereto for movement along a second path of travel within the passage in response to movement of the handle structure between its normal and operating positions;

(d) key control means connected to a selected one of the structures and having a locking member which is movable relative to the selected structure between locked and unlocked positions, the key control means being operable to selectively retain the locking member in its locked and unlocked positions;

(e) disconnect means interposed between the operating formation and the connecting formation for selectively drivingly connecting and disconnecting the operating and connecting formations to thereby selectively drivingly connect and disconnect the handle and bolt structures, the disconnect means including a disconnect member housed at least partly within the passage, and mounting means supporting:

(i) only a part of the disconnect member for movement within the passage along a third path of travel between connecting and disconnecting positions in response to movement of the locking member between its locked and unlocked positions; and,

(ii) the entire disconnect member for movement along a fourth path of travel paralleling the length of the elongate passage in response to movement of the operating formation along the second path of travel;

(f) the disconnect means being operable:

(i) when the part of the disconnect member is in its connecting position, to drivingly connect the handle and bolt structures such that, when the handle structure is moved to its operating position, the bolt structure is caused to move to its unlatching position; and,

(ii) when the part of the disconnect member is in its disconnecting position, to provide no driving connection between the handle and bolt structures, whereby the handle structure may be moved freely between its normal and operating positions and the disconnect member may be moved freely along the fourth path of travel without causing corresponding movement of the bolt structure; and,

(g) the mounting means being operable to translatably mount the entire disconnect member for linear movement along the fourth path of travel longitudinally with respect to the passage, whereby the fourth path of travel is caused to take the form of a linear path, paralleling the length of the elongate passage, and the mounting means being operable to confine the third path of travel to directions extending substantially laterally of the linear fourth path of travel.

4,335,596

DEVICE FOR MEASURING THE OPERATION OF A TIMEPIECE MOVEMENT

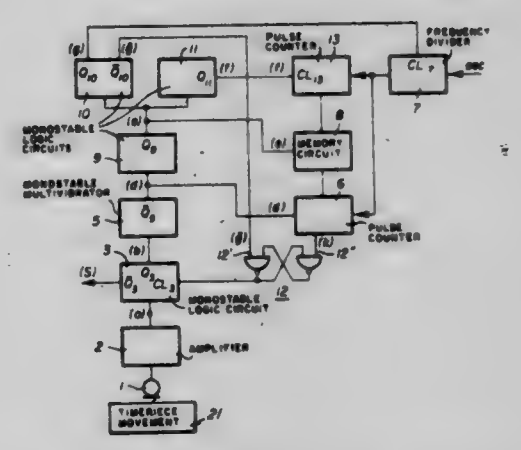
Yvan Greiner, La Chaux-de-Fonds, Switzerland, assignor to Portescap, La Chaux-de-Fonds, Switzerland

Filed Oct. 30, 1979, Ser. No. 89,355

Claims priority, application Switzerland, Oct. 30, 1978, 11170/78

Int. Cl.³ G04B *17/00;* G04D *5/00*

U.S. Cl. 73—6 **3 Claims**



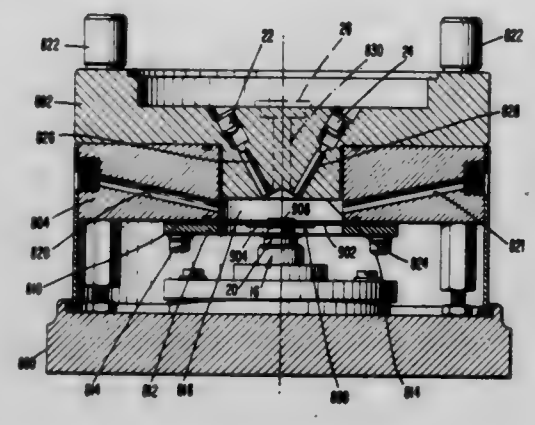
1. A device for measuring a characteristic magnitude of the operation of a timepiece movement, comprising means for detecting the vibrations produced by the operation of said movement, means for generating measuring pulses in response to said detected vibrations, means for preventing the generation of said measuring pulses during a blocking period which is a part of each time interval between two consecutive groups of vibrations produced by the operation of said movement in order to avoid the generation of said measuring pulses in response to undesired interfering noise vibrations, means for applying said measuring pulses to means for comparing the repetition frequency of said measuring pulses with the constant repetition frequency of clock pulses so as to produce an electric signal which is a measure of the said characteristic magnitude, and meter means adapted to receive said electric signal, said means for preventing the generation of said measuring pulses in response to said undesired interfering noise vibrations being adapted to start each blocking period immediately after the end of each said measuring pulse and to provide blocking periods which are each equal to the duration of the penultimate time interval between said measuring pulses preceding said blocking period, less a predetermined constant duration time window for said measuring pulse.

4,335,597

DEW POINT HYGROMETER WITH TWO COOLED REFLECTIVE SURFACES

Stanley B. Hayes, Jr., Norfolk, and Robert T. O'Connor, Hollis-ton, both of Mass., assignors to EG & G, Inc., Wellesley, Mass.

Filed Mar. 28, 1980, Ser. No. 134,827
Int. Cl.³ G01N *25/68*
U.S. Cl. 73—17 A 8 Claims



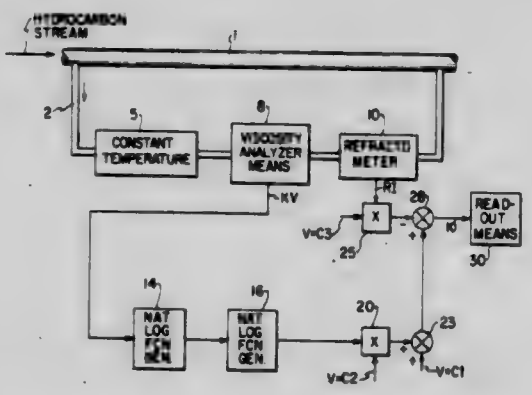
1. A dew point hygrometer comprising:
a. a thermally variable surface;
b. first thermally conductive material having a first portion in contact with said surface and having a second portion extending beyond said surface;
c. thermally insulative material covering at least a section of said first portion of said first material;
d. second thermally conductive material covering at least a part of said section of said first portion of said first material; and
e. means for reflecting light off said second portion of said first material and off said second material to detect the formation of dew on said second material.

4,335,598

UOP CHARACTERIZATION FACTOR MONITOR

Robert A. Woodle, Nederland, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Mar. 6, 1980, Ser. No. 127,665
Int. Cl.³ G01N *11/00*
U.S. Cl. 73—53 5 Claims



1. A UOP characterization factor monitor comprising means for sampling a hydrocarbon stream, means for changing the temperature of the sample hydrocarbon stream to a predetermined temperature, analyzer means receiving the sample hydrocarbon stream for providing a signal KV corresponding to the kinematic viscosity of the hydrocarbon stream at the predetermined temperature, refractometer means receiving the sample hydrocarbon stream for providing a signal RI corresponding to the refractive index of the hydrocarbon stream at the predetermined temperature, and output means connected to the analyzer means and to the refractometer means and receiving direct current voltages corresponding to constants C1, C2 and C3 for providing an output signal K corresponding to the UOP characterization factor in accordance with signals KV and RI, the received voltages, and the following equation

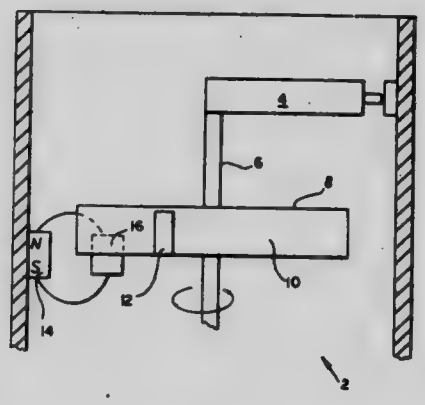
$$K = C1 + C2 ln ln(KV) - C3(RI).$$

4,335,599

DEVICE FOR GENERATING A REFERENCE SIGNAL CORRESPONDING TO A GIVEN OPERATIONAL STATE OF A FOUR-CYCLE INTERNAL COMBUSTION ENGINE

Karl-Heinz Köhler, Ingolstadt, Fed. Rep. of Germany, assignor to Audi NSU Auto Union Aktiengesellschaft, Neckarsulm, Fed. Rep. of Germany

Filed Jul. 3, 1980, Ser. No. 165,601
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1979, 2927538
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—116 4 Claims



1. A device for generating a reference signal corresponding to a predetermined state in the operation of a four-cycle internal combustion engine and more particularly an internal combustion engine with an odd number of cylinders having an impulse generator with a post-connected triggering threshold which in a given position of the crankshaft emits an indicator signal used for the production of the reference signal, said device comprising a signal generator which emits an H signal during a first angle range of a shaft rotating at one half the speed of the crankshaft and a zero signal during a second angle range whereby the positions of the first angle range and of the second angle range are so selected that the indicator signals (CkS) alternately appear during an H and during a zero signal, and an AND gate connected to said signal generator and at the output of which the reference signal appears when the input coincidentally receives both an indicator signal and an H signal.

4,335,600

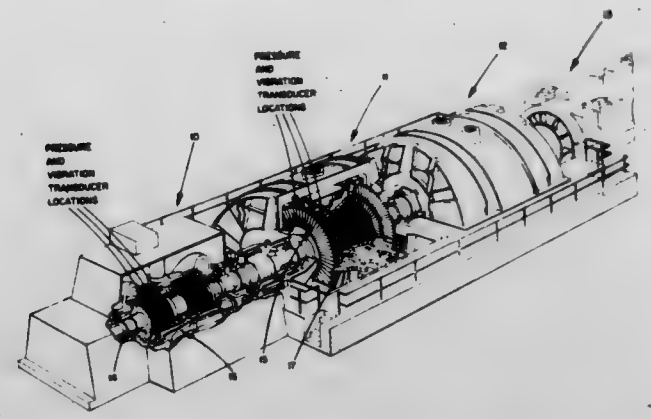
DETECTING INTERNAL ABNORMALITIES IN TURBINES

Peter T. Wu, Clifton Park, and Stephen E. Grabkowski, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 13, 1980, Ser. No. 206,653
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—117.3 11 Claims

1. The method of monitoring a running turbine, which has a stationary shell enclosing a multi-bladed rotor and generates rotary mechanical power from the energy in a stream of fluid, comprising the steps of:
sensing the dynamic pressure of the fluid within the turbine shell and producing a corresponding pressure signal;
sensing the vibration of the turbine shell and producing a corresponding vibration signal; and

processing said pressure and vibration signals; both of which are electrical signals, to detect undesirable internal me-



chanical defects and changes in the fluid flow paths that lead to turbine malfunction.

4,335,601

FUEL INJECTION NOZZLE WITH MOVEMENT SWITCH

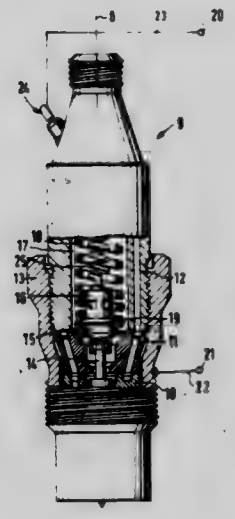
Rainer Buck, Tamm; Odon Kopse, and Nestor R. Amaya, both of Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 18, 1980, Ser. No. 170,223

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939274

Int. Cl.³ G01M *19/00*

U.S. Cl. 73—119 A 5 Claims



1. A fuel injection nozzle holder for internal combustion engines for ascertaining the onset of fuel injection comprising

a nozzle needle,

an electrical switch arranged to be actuated by said nozzle needle during an opening stroke of said nozzle needle,

said electrical switch including plural contacts

whereby movement of at least one of said contacts is limited by its inertia of mass.

4,335,602

METHOD AND APPARATUS FOR PROTECTING SUBSURFACE ELECTRONIC ASSEMBLIES FROM SHOCK AND VIBRATION DAMAGE

Arnold M. Walkow, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jun. 23, 1980, Ser. No. 161,826

Int. Cl.³ E21B *47/00*

U.S. Cl. 73—152 5 Claims

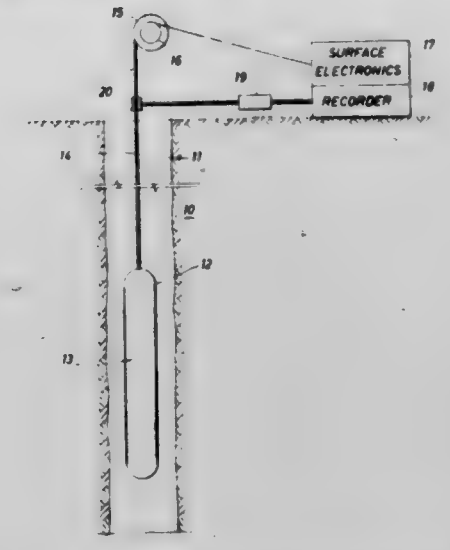
1. Well logging apparatus for investigating earth formations traversed by a borehole, comprising:

an elongated tubular housing adapted to traverse said borehole;

an elongated instrument chassis having instrumentation circuitry mounted thereon and adapted for positioning within said tubular housing;

a pair of freely rotating ball rollers angularly disposed and mounted on said chassis; and

at least one spring loaded ball roller assembly said assembly



comprised of a housing having an internal cavity therein, a plunger member slidably retained within said cavity and a plurality of disk springs disposed within said cavity for exerting an outward force upon said plunger, said plunger being compressed when said chassis is positioned within said housing for restraining said chassis within said housing.

4,335,603

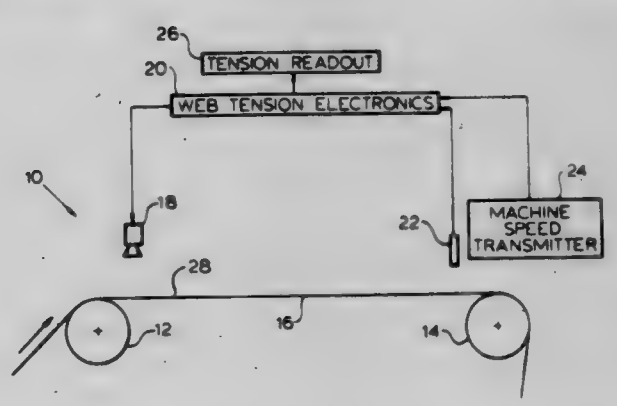
SONIC MEASUREMENT OF WEB TENSION

Stephen A. Locke, Rockford, Ill., assignor to Beloit Corporation, Beloit, Wis.

Filed Aug. 13, 1980, Ser. No. 177,722

Int. Cl.³ G01N *29/00*

U.S. Cl. 73—159 10 Claims



1. A method of measuring web tension of a moving paper web, comprising the steps of:

moving the paper web along a path and measuring the web speed;

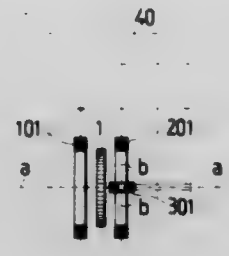
applying ultrasonic vibrations to the moving paper web at a first location along the path to produce transverse waves on the paper web, including generating an electrical signal at an ultrasonic frequency and applying the electrical signal to an ultrasonic transducer at the first location;

sensing the interval between the application of the ultrasonic vibrations at the first location and the sensing of the transverse waves at the second location to determine the wave propagation velocity, including testing whether the reception time measured from the beginning of ultrasonic application falls within an interval between a minimum time and a maximum time, rejecting all measurements not within the time interval, algebraically adding the web travel time between the first and second locations as a velocity correction representing web tension.

4,335,604
METHOD AND APPARATUS FOR THE IDENTIFICATION OF COINS OR EQUIVALENT

Timo J. Ekman, Vantaa, Finland, assignor to Cointest Oy, Helsinki, Finland

Filed Sep. 3, 1980, Ser. No. 183,810
Claims priority, application Finland, Sep. 3, 1979, 792729
Int. Cl.[3] G07F *3/02*
U.S. Cl. 73—163 8 Claims

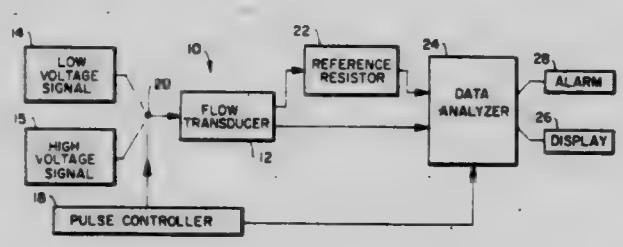


1. A method for testing and identifying electrically conductive discs such as coins, according to which method
the effect of each disc on a magnetic field generated, e.g., by means of coils is measured,
the measurement result obtained in this way is compared with a reference value,
the disc is accepted if the measured value is close enough to the reference value, and
the reference value is determined on the basis of the effect produced by a preselected reference disc upon a magnetic field preferably of the same magnitude as the magnetic field to be measured,
wherein the magnitude of the magnetic field is measured in two directions at least substantially perpendicular to each other such that, by means of an additional coil placed at least substantially in the symmetry plane of the magnetic field to be measured, the measurement moment of each disc is determined on the basis of the effect of the disc on the symmetry of the magnetic field to be measured, such that the measurement is carried out at a location where there is a local extreme value, as a function of the position of the disc, in the amplitude of the signal received from the additional coil due to the effect of the disc.

4,335,605
MASS FLOW METER

Branin A. Boyd, Malvern, Pa., assignor to Thermal Instrument Company, Trevose, Pa.

Filed May 14, 1980, Ser. No. 149,167
Int. Cl.[3] G01F *1/68*
U.S. Cl. 73—204 30 Claims



1. In an apparatus for measuring a physical characteristic of a material, the combination comprising:
a temperature sensor having an electrically resistive component for measuring a physical characteristic of the material;
current sensing means in circuit with the resistive component of the temperature sensor for sensing current and producing an electrical signal representative thereof; and
electrical means for first applying a first electrical signal to the temperature sensor to produce resulting first electrical signals from the temperature sensor and the current sensing means respectively, then applying in rapid succession a second electrical signal different from said first electrical signal to the temperature sensor to produce resulting second electrical signals from the temperature sensor and the current sensing means respectively, said first and second resulting electrical signals being electrical representations of a physical characteristic of the material measured by said temperature sensor.

4,335,606
APPARATUS AND METHOD FOR MEASURING FLUID

Janusz K. Michalak, 10 Hunter La., Elmsford, N.Y. 10523

Filed Jun. 13, 1980, Ser. No. 159,358
Int. Cl.[3] G01F *23/04*
U.S. Cl. 73—298 10 Claims



1. An apparatus for measuring the level of a fluid from a remote location, comprising means providing a reference point below the fluid surface, an elongated hollow shaft providing a permanent passageway from the remote location to the reference point, and an elongated transparent tubular member having both of its ends open, a first end of the tubular member being insertable through the shaft into the fluid to the reference point below the fluid surface to establish a column of the fluid in the tubular member having a height generally equal to the level of the fluid above the reference point, the tubular member including a relatively stiff tether threaded therethrough and extending beyond the ends thereof, a plug connected to the tether in proximity to the first end of the tubular member for closing the first end prior to withdrawing the tubular member from the shaft to contain the column of the fluid therein, the first end of the tubular member including an outwardly flared section of pliable material for receiving the plug, the plug being tapered for entering the flared section of the first end of the tubular member, the plug including a sleeve of pliable material for frictionally engaging the flared section of pliable material of the first end to lock the plug in the first end, and means connected to the tether in proximity to a second end of the tubular member for applying a force sufficient to seat the plug in a locked position in the first end.

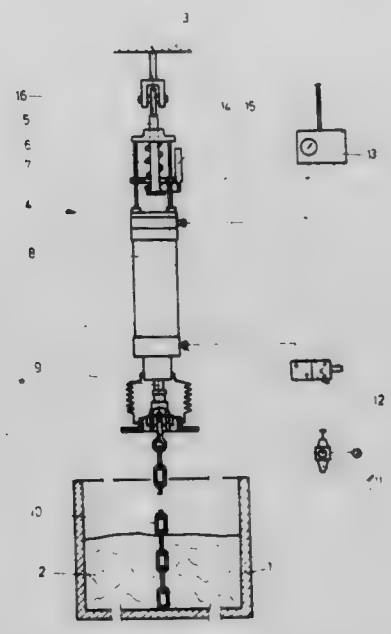
4,335,607
APPARATUS FOR MEASURING THE FILLING LEVEL OF CONTAINERS

Arnold Junghänel, Alfeld, Fed. Rep. of Germany, assignor to Alfelder Eisenwerke Carl Heise Kom. Ges., Alfeld, Fed. Rep. of Germany

Filed Jan. 24, 1980, Ser. No. 114,888
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1979, 2903906
Int. Cl.[3] G01F *23/20*
U.S. Cl. 73—290 R 8 Claims

1. Apparatus for measuring the filling level of silos and analogous containers having an upper opening and a bottom wall, comprising a measuring chain having a length at least equal to the distance between the opening and the bottom wall;

means mounting said chain to depend under gravitational force from above into a container and to extend to said bottom wall, said means being controlably extensible and retractable and thus being operative to raise and lower the chain relative to the container; and a measuring device connected in series with said mounting means and said chain, said measuring device having spring means extensible and contractable in a path which is in



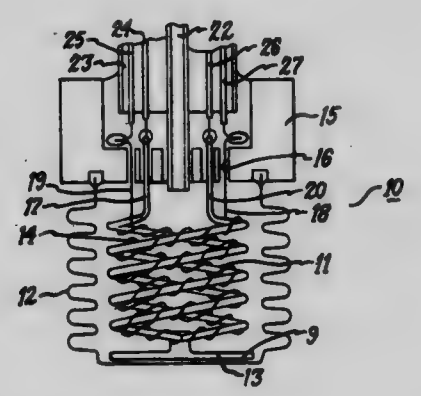
series with said chain, and mounting means, and an indicator movable parallel to said path, the weight of the chain and said mounting means acting continuously on said spring means so that said spring means is always under load to increase the operating life of said spring means by preventing repeated loading and fully unloading of said spring means, and thereby reducing fatigue of said spring means.

4,335,608

SUBMERSIBLE PRESSURE TRANSDUCER DEVICE

Russell J. Wood, Bailey Rd., Lanesboro, Mass. 01201, and Ivan J. Garshelis, 500 Pittsfield Rd., Lenox, Mass. 01240

Filed Jun. 23, 1980, Ser. No. 161,756
Int. Cl.³ G01F *23/18*
U.S. Cl. 73—301 **19 Claims**



1. A pressure transducer for determining the level of liquids comprising:

a sensing element responsive to variations in hydro-static pressure:

air vent means for providing atmospheric pressure to one side of said sensing element;

a water-tight housing for containing said sensing element and for receiving said air vent means, said housing being at atmospheric pressure when submerged below a liquid; and

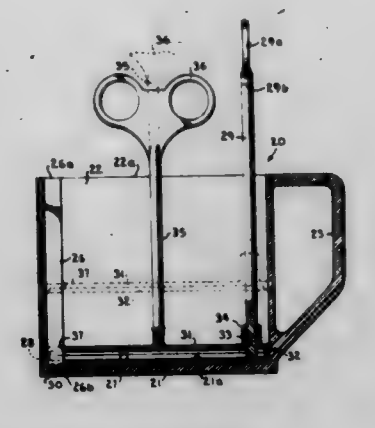
a plate between a portion of said housing and said sensing element for compensating for the differential and thermal expansion between said sensing element and said housing.

4,335,609

MEASURING CUP

Carol A. Saulsbury, 700 NE. 80th Ter., Kansas City, Mo. 64118

Filed Oct. 27, 1980, Ser. No. 201,090
Int. Cl.³ G01F *19/00*
U.S. Cl. 73—426 **18 Claims**



1. A self-clearing measuring cup comprising, in combination:

a cup having a flat, normally horizontal, bottom wall and an upright, normally vertical side wall continuously connected to said bottom wall and its lower edge,

an insert base for the cup having a flat, normally horizontal bottom wall of slightly lesser outer diameter than the internal diameter of the cup side wall and congruent in shape to the cup interior bottom wall, whereby to readily fit down within said cup and rest on the bottom wall and be movable up and down within said cup,

said base having upper and lower sides thereto,

an elongate, normally vertical, base handle connected at its lower end to the upper side of said insert base and extending upwardly at right angles thereto,

said base handle of a height at least equal to the interior depth of the cup,

a flat, normally horizontal compacting top member slidably engageable with the said base handle by an opening therein,

said top member congruent in form to the shape of the cup interior bottom wall and insert base and substantially equal in size to the latter,

said compacting top member having upper and lower sides thereto,

an elongate top member handle connected to the upper side of said top member at its lower end and extending upwardly at right angles thereto, said handle of a height equal to at least a substantial fraction of the interior depth of said cup,

the base handle and the compacting top member handle connected to different areas of the respective base and member so that the compacting top member may be reciprocated within the cup on the base handle.

4,335,610

MULTI-SAMPLE SURFACE AREA MEASUREMENT

Richard L. Scott, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 10, 1980, Ser. No. 128,981
Int. Cl.³ G01N *15/08*
U.S. Cl. 73—432 PS **17 Claims**

1. An apparatus for measuring the amount of a fluid adsorbed by each of a plurality of samples comprising

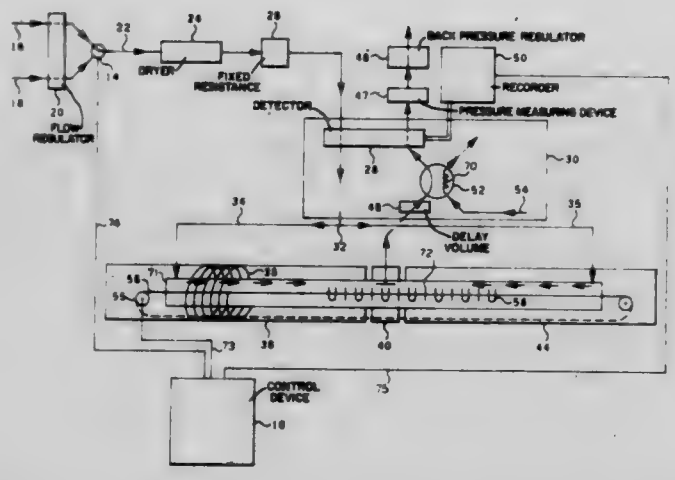
(a) an adsorption zone provided with means for exposing the plurality of samples to said fluid,

(b) a desorption zone provided with means for causing the release of at least some of the adsorbed fluid from one of said sample present in said desorption zone,

(c) a detector operatively connected to said desorption zone and capable of detecting the fluid released from said sample and generating a signal representative of the quantity of said released fluid,

(d) transporting means built and operatively associated with said adsorption zone and said desorption zone to allow the transportation of the samples from said adsorption zone to said desorption zone,

(e) housing means enclosing said adsorption zone and said desorption zone and separating both from uncontrolled contact with the surrounding atmosphere,



(f) connecting means between said adsorption zone and said desorption zone enabling the transporting of said samples from said adsorption zone to said desorption zone, isolated from uncontrolled connection with the atmosphere, and providing for sufficient thermal insulation between said adsorption zone and said desorption zone.

4,335,611

ACCELEROMETER

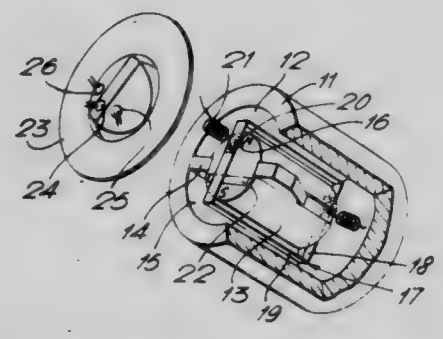
Robert S. Bennett, Beaconsfield, and William E. Griffiths, Middleton, both of England, assignors to Ferranti Limited, Cheadle, England

Filed May 30, 1980, Ser. No. 154,859

Claims priority, application United Kingdom, Jun. 1, 1979, 7919226

Int. Cl.³ G01P *15/13*

U.S. Cl. 73—517 B **18 Claims**



1. A force balance accelerometer comprising core means for producing a magnetic field, an electric coil assembly forming at least a part of an inertial mass, pivotally mounted in the field for rotation substantially perpendicular to the field about an axis also perpendicular to the field, a source of radiation for reflection from said core means and interrupted by said coil assembly, and electric switching means responsive to reflected radiation, arranged to be in a first state when the angular position of the coil is to one side of a switching position and in a second state when the coil is to the other side, said switching means being operable in the first state to cause a first substantially constant current to flow in the coil in a sense to rotate the coil in a direction to cause the switching means to enter the second state and operable in the second state to cause a second substantially constant current to flow in the coil in such a sense as to rotate the coil in a direction to cause the switching means to enter the first state.

4,335,612

METHOD OF DETECTING IRREGULARITIES ON BEVEL GEARS

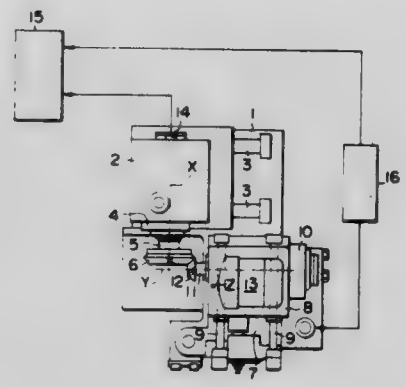
Masahiko Yasugi, Okazaki; Shigeru Takahashi, and Toshio Hashimoto, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Oct. 2, 1980, Ser. No. 193,140

Claims priority, application Japan, Nov. 22, 1979, 54-151793

Int. Cl.³ G01M *13/02*

U.S. Cl. 73—593 **7 Claims**



1. A method for detecting irregularities upon bevel gears, comprising the steps, performed simultaneously, of:

(a) meshing together two bevel gears and rotating each of them around its central axis while they remain in mesh, transmitting power from one of them to the other;

(b) further moving the rotating bevel gears relative to one another so that the meshing area between their teeth moves on the tooth surface of at least one of them; and

(c) detecting the occurrence of vibration with a vibration detector.

4,335,613

APPARATUS FOR INDICATING THE FREEZING OF THE SURFACE OF AN ASPHALT ROAD, PAVED RUNWAY, OR THE LIKE

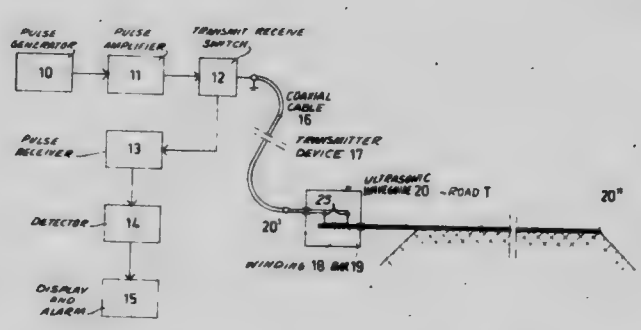
Mauri Luukkala, Espoo, Finland, assignor to Vaisala Oy, Finland

Filed Oct. 6, 1980, Ser. No. 193,915

Claims priority, application Finland, Oct. 10, 1979, 793148

Int. Cl.³ G01N *29/00*

U.S. Cl. 73—599 **9 Claims**



1. Apparatus for indicating the freezing of the surface of an asphalt road, paved runway, or the like, said apparatus comprising

a detecting transmitter device installed in operative proximity with a surface to be observed, said detecting transmitter device including an ultrasonic waveguide installed on the surface to be observed; and

electronic equipment electrically connected to the ultrasonic waveguide for transmitting ultrasonic waves to said ultrasonic waveguide, said ultrasonic waves proceeding in said waveguide, and receiving said ultrasonic waves from said waveguide, the degree of attenuation of said ultrasonic waves in said waveguide depending upon the difference in viscosity and other mechanical properties of water and ice, whereby said detecting transmitter device and said elec-

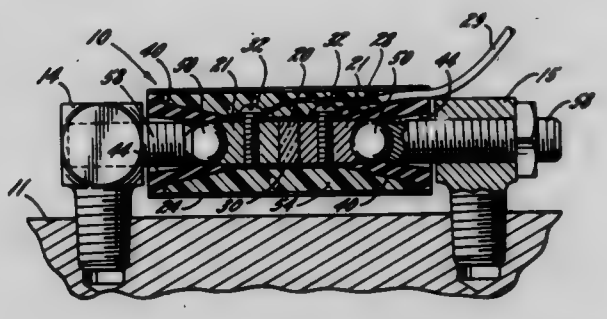
tronic equipment detect freezing of said surface by attenuation of said ultrasonic waves in said waveguide.

4,335,614

WATERPROOF STRAIN SENSING DEVICE

Frank R. Dybel; William F. Dybel, both of Olympia Fields, and Kenneth MacDonald, Deerfield, all of Ill., assignors to International Measurement & Control Company, Frankfort, Ill.

Filed Jun. 19, 1980, Ser. No. 160,944
Int. Cl.[3] G01B 7/16
U.S. Cl. 73—774 15 Claims



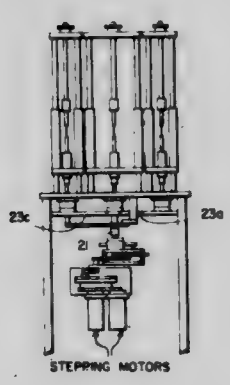
1. A sensing device for measuring deformation experienced by a machine force carrying member comprising a transducer; said transducer including a strain sensing element and a pair of output terminals electrically coupled to said strain sensing element, an electrical cable; means connecting an end of said cable to said output terminals; means supporting said transducer on said force carrying member so as to transmit forces incurred by said member to said sensing element; water and contaminant resistant means for sealing said sensing element, output terminals, and cable connecting means from water and other contaminants to which said transducer is exposed on said machine member; said sealing means including an outer sheath within said sensing element and terminals are housed; and flexible bushing means located in opposed ends of said sheath for sealing the interior thereof while permitting the transmission of forces from said support means to said sensing element.

4,335,615

EQUIPMENT FOR TESTING MATERIALS FOR STRESS CORROSION CRACKING

Horst Kalfa, Frankfurt; Bruno Schubert, Langen; Peter Brunmayer, Usingen, and Siegfried Gellermann, Mainz, all of Fed. Rep. of Germany, assignors to DECHEMA, Fed. Rep. of Germany

Filed May 30, 1980, Ser. No. 154,983
Claims priority, application Fed. Rep. of Germany, Jun. 15, 1979, 7917161[U]
Int. Cl.[3] G01N 19/08
U.S. Cl. 73—799 7 Claims



1. Apparatus for testing materials for stress corrosion cracking comprising:

(a) at least two tensioning units, each unit including a base plate (3), two guide columns (2) mounted on said plate, an upper stationary cross-beam (1) mounted on said columns, a lower movable cross-beam (4) vertically slidable on said columns, means for clamping said lower cross-beam to said columns, sample holding means, and means for moving said lower cross-beam, said lower cross-beam comprising a cross plate, four guide nuts (7) and two tubes (5), said guide nuts being mounted on the ends of the tubes which ride on said columns and carry said cross-plate, said clamping means comprising a slotted guide nut (6) operatively associated and carried by one of said tubes, said holding means comprising quick coupling means (9),(10) connected with said upper and lower cross-beams, said cross plate carrying a connecting flange 13 secured to said cross-plate by detachable screws; and

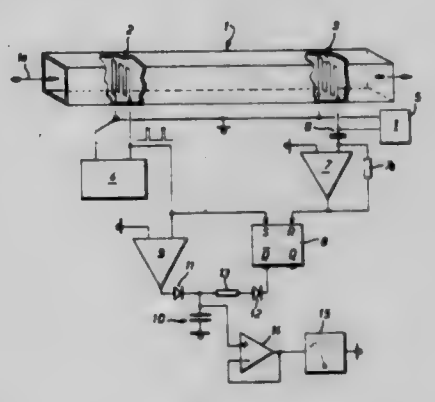
(b) a drive power block mounted on said base plate comprising at least one drive gear (23) operatively associated with said means for moving said lower cross-beam and a motor power unit driving said at least one drive gear, said motor power unit comprising two stepping motors (41,42), a sun gear (43) driven by one stepping motor, an annular crown gear (45) driven by the other stepping motor, at least one planetary gear (44) in driving engagement with said gun gear and said crown gear, an arm (48) carrying said planetary gear and a drive shaft (49) carrying said arm, said drive shaft being operatively associated with said at least one drive gear.

4,335,616

PROCESS AND DEVICE FOR MEASURING THE FLOW RATE OF A FLUID

Ambro Oliva, Deuil la Barre, and Luc Joly, Soisy sur Montmorency, both of France

Filed Jul. 24, 1980, Ser. No. 171,794
Claims priority, application France, Jul. 26, 1979, 79 19337
Int. Cl.[3] G01F 1/68, 1/70
U.S. Cl. 73—861.05 3 Claims



1. Flowmeter for a fluid, comprising a length of pipeline through which the fluid flows, emitting means constituted by an electrical resistance in the form of a grid extending in a transverse plane of the length of pipeline for producing, in response to an input pulse, a disturbance to the state of the fluid positioned in the pipeline at a first point in its length, a detector constituted by an electrical resistance having a temperature coefficient and supplied with a constant current, said detector being sensitive to the disturbance in the state of the fluid for emitting an output signal, the detector being positioned in the pipeline at a second point in its length spaced downstream of said first point in the direction of flow by a predetermined distance, a pulse generator for periodically applying an input pulse to said emitting means, and means connected to said pulse generator and to said detector for measuring the time between an input pulse and the corresponding output signal, said means for measuring the time comprising an amplifier having an input connected to the terminals of the resistance having a temperature coefficient by way of a first capacitor, a flip-flop with an enabling input connected to the pulse generator and a disabling input connected to the output of the amplifier, and a second capacitor which is charged in response to the pulses from the generator and is discharged across a resistance by the enabled flip-flop.

4,335,617

FLOWMETER

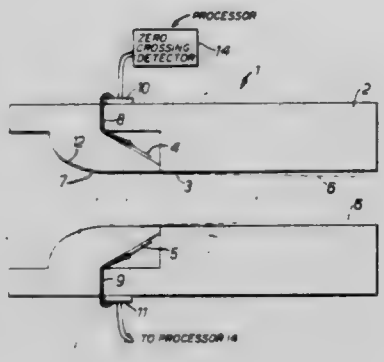
Michael P. Ashmore, Enysham; Thien V. How, Headington, and Peter Rolfe, Boars Hill, all of England, assignors to Vickers Limited, London, England

Filed Feb. 26, 1980, Ser. No. 124,822

Claims priority, application United Kingdom, Feb. 27, 1979, 7906900

Int. Cl.³ G01F *1/66*

U.S. Cl. 73—861.25 **4 Claims**



1. A flowmeter, suitable for use in measuring pulsatile fluid flow, comprising a transducer assembly and a processor, said transducer assembly comprising (A) a body through which extends a passage for carrying a fluid whose flow-velocity is to be measured, the body defining an inlet mouth for the passage which is so shaped as to provide, in use, a region in the mouth in which the velocity profile across the width of the mouth is substantially uniform, (B) an ultrasonic piezo-electric source arranged to emit wave energy along a path across the axis of the said passage, (C) an ultrasonic piezo-electric detector arranged to detect wave energy received as a result of the emitted energy being scattered within the fluid flow, the source and the detector being bonded on a different inclined surface machined in said body close to said inlet mouth and being set back from the fluid flow passage so that the insonated volume within the said inlet mouth, from which scattered ultrasonic energy is received by the detector, is within the near field of both said source and said detector, and said processor comprising a zero-crossing detector for providing a direct measurement of the mean flow-velocity in the said region.

4,335,618

APPARATUS FOR MEASURING THE VOLUME OF FLOWING FLUIDS

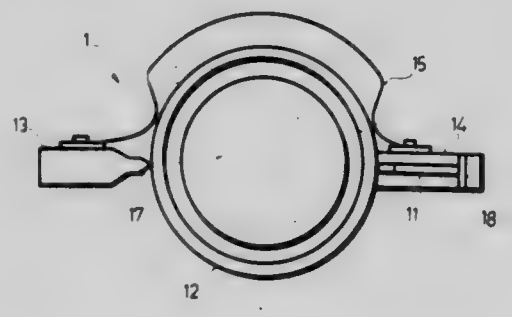
György Bucsky, Szabadsag; Zoltan Kiss, Veszprem; Ivan Matyas, Budapest; Jozsef Pazmany, Balatonfüred; Gyula Selyem, and Lajos Tatrai, both of Veszprém, all of Hungary, assignors to Magyar Tudomanyos Akademia Muszaki Kemiai Kutato Intezet, Veszprem, Hungary

Filed Mar. 12, 1980, Ser. No. 129,413

Claims priority, application Hungary, Mar. 19, 1979, MA 3122

Int. Cl.³ G01F *1/24*

U.S. Cl. 73—861.56 **7 Claims**



1. Apparatus for measuring the volume rate of flow of flowing fluids, comprising a rotameter inserted in the flowing path of said fluid, said rotameter comprises a rotameter tube with a light transparent wall, and a float of non-transparent material located in said rotameter tube, the position of said float in said tube corresponding to the volume rate of flow of said flowing fluid, in which the improvement lies in that a linear light source (10) being coupled to the outer wall of said rotameter tube (12) the light of which illuminating a section of said rotameter tube (12) being longer than the full size of said float (19), a plurality of light sensing means (11) being arranged at the outer wall of said rotameter tube (12) in a diametrically opposing position compared to that of said light source (10) with main light sensing direction being normal to the axis of said rotameter tube (12), said light sensing means (11) being arranged spacedly side by side, the spacing between adjacent light sensing means (11) being smaller than the size of said float (19), said light sensing means (11) being coupled to a logical circuit (5) which in response to the discrete signal combinations received from said light sensing means (11) provides a signal combination representing a discrete position of said float (19) in said rotameter, in which said linear light source (10) and said light sensing means (11) comprising respective supports (13, 14) inter-connected with a stirrup (15) of resilient material for clamping said supports (13, 14) to the outer wall of said rotameter tube (12).

4,335,619

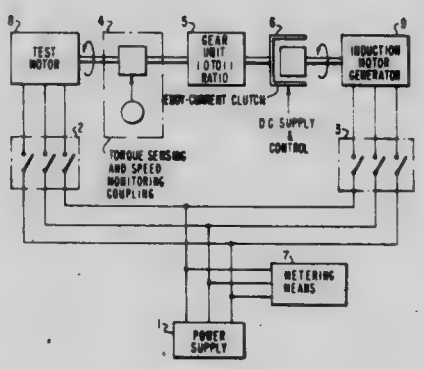
MOTOR LOAD TEST APPARATUS

Donald A. Wetzel, Upper St. Clair, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 5, 1980, Ser. No. 127,272

Int. Cl.³ G01L *3/22*

U.S. Cl. 73—862.17 **5 Claims**



1. A motor test apparatus comprising:

a first coupling means for connecting a test motor thereto; a second coupling means connected to the first coupling means; a controllable slip means connected to the second coupling means; an induction generator connected to the controllable slip means; starting means for supplying an electrical power system to the test motor and induction generator; the test motor being disposed to drive the first coupling means at a first speed and torque; the second coupling means being disposed to increase the first speed and torque to a second speed and torque; the controllable slip means being disposed to drive the induction generator until it generates power back into the electrical power system and loads the test motor to a full load speed.

4,335,620

TEMPERATURE CONTROLLED SAMPLE CARRIER

Wade J. Adams, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Jul. 16, 1980, Ser. No. 169,327

Int. Cl.³ G01N *35/04*

U.S. Cl. 73—863.11 **14 Claims**

1. A temperature controlled sample carrier apparatus, of the type having:

a fixed base;

a rotating sample rack having a circumferential array of upwardly facing sample holes adjacent the periphery

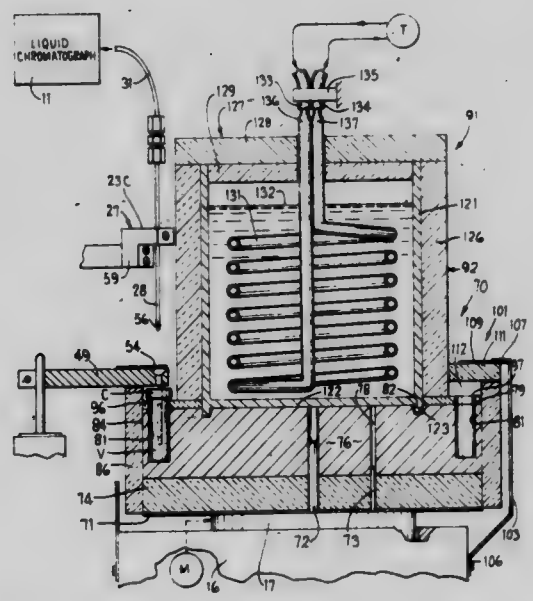
thereof for receiving sample vials and orbiting same sequentially past a sampling station;

means for supporting and rotatably driving said sample rack atop said fixed base;

including the improvement wherein said rack comprises a solid block of heat conductive material and of substantially cylindrical form, the top surface of said block being substantially unbroken except for said sample vial receiving holes adjacent the periphery thereof and the thickness of said block corresponding substantially to the height of said vials such that said block forms a massive heat sink, and including;

an insulative cup having a peripheral wall and bottom wall and snugly receiving said sample block therein for rotation therewith, said insulative cup peripheral wall extending above said sample block;

temperature control means for carrying a controlled temperature fluid, said temperature control means being in heat conductive contact with said block and disposed radially



inboard of said array of sample holes at the central portion of said block, at least a portion of said temperature control means extending above said block;

insulative cover means overlying said temperature control means and the central portion of said block for rotation therewith;

an insulative cover ring and means supporting same fixedly with respect to said base in close spaced relation above the upper end of said insulative cup peripheral wall, said insulative cover ring extending radially inward into close spaced relation with said insulative cover means for permitting rotation of said insulative cup and cover means with respect to said insulative cover ring while minimizing thermal losses from said sample block in the annular space above said sample holes;

means defining a circumferentially narrow opening in said insulative cover ring for access to the upper ends of sequentially presented sample vials rotating past said opening with said sample block.

4,335,621

PIPETTE

Jukka Tervamäki, and Osmo Suovaniemi, both of Helsinki, Finland, assignors to kommandiittiyhtio Finnpipette Osmo A. Suovaniemi, Helsinki, Finland

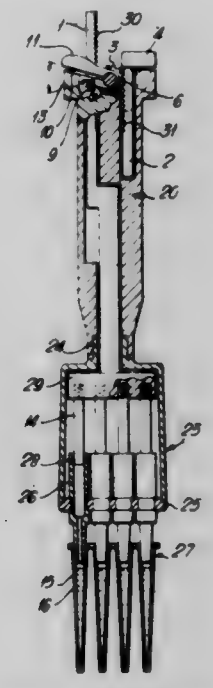
Filed Aug. 25, 1980, Ser. No. 181,176

Claims priority, application Finland, Aug. 31, 1979, 792709

Int. Cl.³ G01N *3/02*

U.S. Cl. 73—863.32 **4 Claims**

1. A pipette comprising a handle portion, whose upper end is provided with a press knob with a shaft and inside which a piston rod is fitted and to the bottom end of the piston rod is connected at least one piston and, for each piston, a cylinder part, which is fastened to the frame construction of the handle portion, and the piston rod and the press knob shaft, which are parallel to each other, are placed at a distance from each other, and their surfaces facing each other are shaped as jointly operative with a movement transfer wheel fitted between them and journalled on the handle portion by means of a shaft, whereby, when the press knob is depressed, by the intermediate of the press knob shaft, of the movement transfer wheel, and of the piston rod, the piston in each cylinder portion can be shifted from the lower position into the upper position so as to suck liquid into the tip vessel connected to each cylinder portion,



characterized in that a freewheel is fitted inside at least one of the movement transfer wheel and an operating means mounted on the shaft of the movement transfer wheel which freewheel is coupled to its shaft in one direction so that, when the shaft is turned back and forth by means of the operating means mounted on the shaft, repeated depressions of the operating means produce shifting of the piston rod stepwise downwards while the pivoting angle of the operating means determines the magnitude of the dose to be removed at a time from at least one tip vessel.

4,335,622

SOIL GAS PROBE

Gerald L. Bartz, Amarillo, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

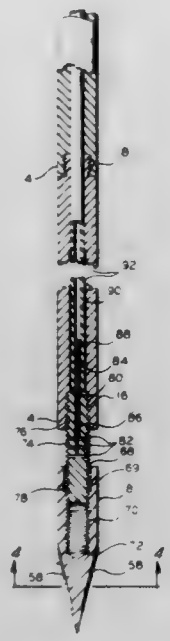
Filed Aug. 22, 1980, Ser. No. 180,254

Int. Cl.³ G01N *1/24*

U.S. Cl. 73—864.74 **17 Claims**

1. A tip for a soil gas probe, said tip having an upper end, a lower end, and a longitudinal axis, with a generally cylindrical surface portion of the tip extending from the upper end of the tip toward the lower end of the tip and a penetrating portion of

the tip converging from the generally cylindrical portion to a point at the lower end of the tip, the penetrating portion of the



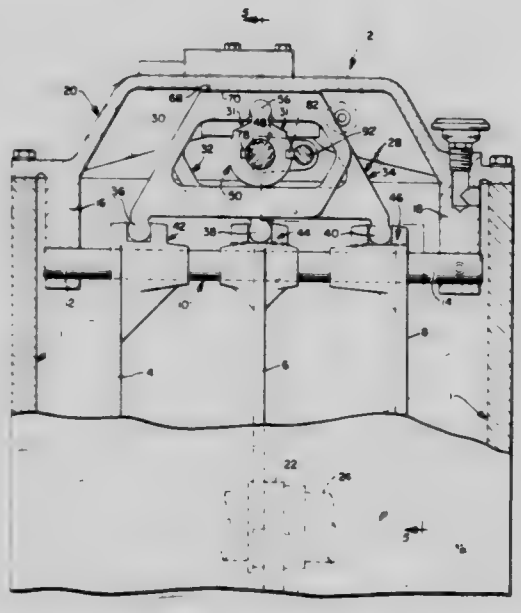
tip having at least one elongated generally longitudinally extending channel in its surface.

4,335,623

TRANSMISSION SHIFT CONTROL MECHANISM

Victor Kronstadt, Hagerstown, Md., assignor to Mack Trucks, Inc., Allentown, Pa.

Filed Mar. 7, 1980, Ser. No. 128,171
Int. Cl.[3] G05G *5/10, 9/12*
U.S. Cl. 74—477 **18 Claims**



1. An apparatus for selecting a gear ratio for a transmission system comprising:

a. a stationary rail;

b. a plurality of shifter means mounted for longitudinal movement on said rail for effecting a change in gear ratio;

c. a selector shaft mounted for lateral movement along its axis and rotative movement about said axis;

d. a plurality of cams arranged for separate actuation by said selector shaft, a plurality of levers having respective cam surfaces, said cams having respective cam portions for engaging cam surfaces of corresponding ones of said levers;

e. said levers being arranged for separate actuation by corresponding ones of said cams, said levers being aligned with said shifting means for engagement with corresponding ones of said shifter means for longitudinally moving said shifter means; and

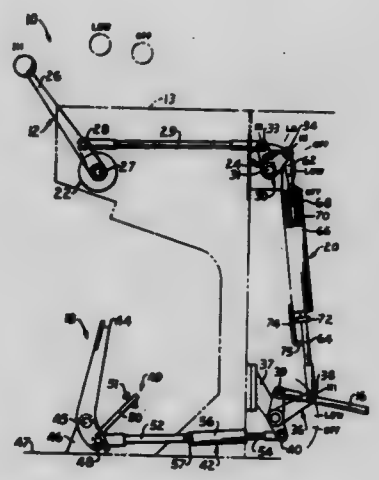
f. said selector shaft including means for selectively engaging said cams and for moving the selected cam to effect movement of the corresponding lever.

4,335,624

GOVERNOR AND DECELERATOR CONTROL LINKAGE

Ronald H. Garman, Pekin, and Gerald H. Welker, Eureka, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Continuation of Ser. No. 731,472, Oct. 12, 1976, abandoned.
This application Mar. 22, 1979, Ser. No. 22,747
Int. Cl.[3] G05G *1/14, 11/00*
U.S. Cl. 74—482 **9 Claims**



1. A linkage assembly mountable on a console for operating a control arm link, the control arm link positionable between at least a first position for a relatively low operating setting and a second position for a relatively high operating setting;

the linkage assembly comprising:

bell crank means movable at least between a third and fourth position for positioning said control arm link in various operating positions between at least said first and said second positions;

a first actuator including a manually operable portion and an extensible link portion, said first actuator associated with said control arm link by said bell crank means and operably movable to responsively position said bell crank means between at least said third and said fourth positions;

a second actuator including a compressible link and a pedal portion, said second actuator spatially removed from said first actuator and associated with said control arm link by said bell crank means and releasably operative to position said bell crank means so that said control arm link is moved at most from a relatively high operating setting to a relatively low operating setting while the manually operable portion of the first actuator remains undisturbed;

said extensible link portion extendable by motion of said second actuator for resiliently returning the control arm link to a relatively high operating position upon release of said second actuator; and said compressible link for allowing said control arm link to travel in response to said first actuator beyond the relatively low operating setting while the pedal portion remains undisturbed;

said bell crank means interconnecting said extensible link and said compressible link with the control arm link.

4,335,625

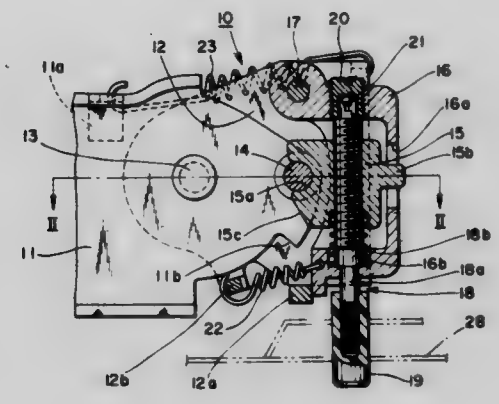
TILTABLE STEERING SHAFT MECHANISM FOR AUTOMOBILES

Masumi Nishikawa, Toyoake, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Nov. 20, 1980, Ser. No. 208,578
Claims priority, application Japan, Nov. 26, 1979, 54-153101
Int. Cl.[3] B62D *1/18*
U.S. Cl. 74—493 **3 Claims**

1. A tiltable steering shaft mechanism comprising steering bracket means secured to a stationary part of an automobile, swingable steering bracket means mounted on the stationary

steering bracket means for swinging movement about a first transversely extending horizontal axis, support bracket means mounted on the swingable steering bracket means for swinging movement about a second transversely extending horizontal axis, adjusting bracket means mounted on the support bracket means for movement in a direction substantially perpendicular to the horizontal axis, adjusting means for moving the adjusting bracket means with respect to the support bracket means, releasable engagement means between the stationary steering bracket means and the adjusting bracket means, first spring



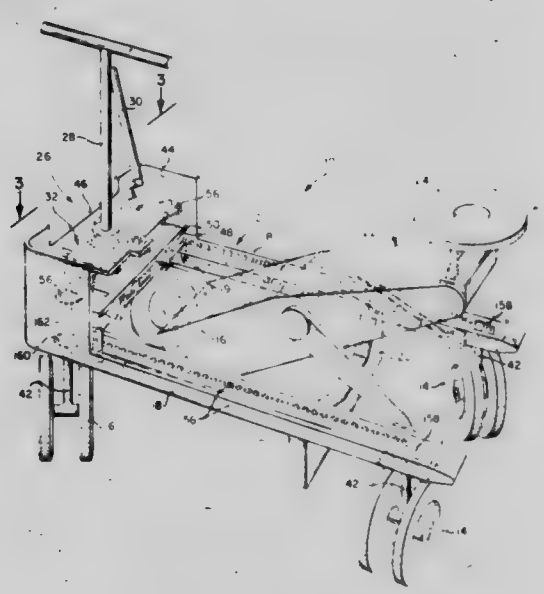
means for urging the adjusting bracket means into engagement with the stationary steering bracket means, second spring means for urging the swingable steering bracket means so that the swingable steering bracket means is swung upwardly about the first axis when the adjusting bracket means is released from the stationary steering bracket means, first steering shaft means carried by said swingable steering bracket means and having one end connected with second steering shaft means of invariable tilting angle through universal joint means having a center substantially on the first horizontal axis.

4,335,626

VARIABLE RATIO ROTARY POSITIONING MECHANISM AND CAMERA DOLLY STEERING MECHANISM EMBODYING SAME

James L. Fisher, 10918 Burbank Blvd., North Hollywood, Calif. 91601

Division of Ser. No. 945,887, Sep. 26, 1978, Pat. No. 4,257,619.
This application Dec. 16, 1980, Ser. No. 217,162
Int. Cl.³ B62D *1/00, 7/06;* F16H *21/44*
U.S. Cl. 74—496 **9 Claims**



1. An adjustble ratio rotary positioning mechanism comprising:

a frame,

a rotary drive shaft and a rotary driven shaft on said frame,

an adjustable ratio transmission drivably coupling said shafts for rotation of said driven shaft by said drive shaft with a turning ratio which is the driven shaft rotation angle per unit drive shaft rotation angle,

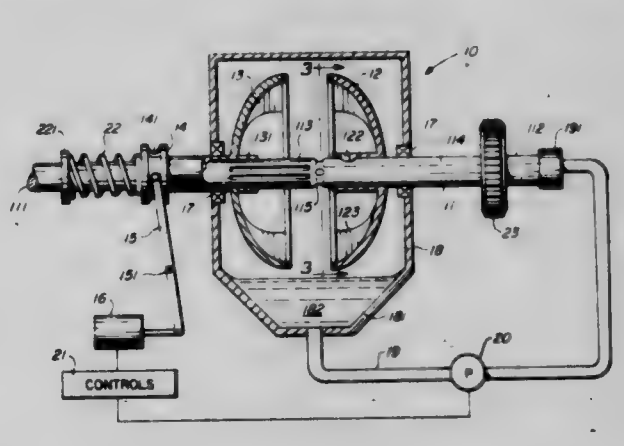
said transmission comprising an endless flexible drive band trained about and in rotary driving relation with said shafts for rotation of said driven shaft by said drive shaft through said drive band, said drive band having first and second runs between said shafts which are laterally adjustable in unison to increase the length of either run and decrease the length of the other run during rotation of said driven shaft by said drive shaft in such a way as to vary the linear velocity of said drive hand about said driven shaft independently of the angular velocity of said drive shaft and thereby said transmission turning ratio, and means for laterally adjusting said runs in unison at different selected rates during rotation of said driven shaft by said drive shaft to provide said transmission with different selected ratios, said transmission run adjusting means comprising a cam rotatable by said drive shaft transmission, run guides engaging said runs between said shafts and mounted on said frame for movement along transverse direction lines of said runs to laterally adjust said runs, and presettable variable ratio motion translating means operatively connecting said cam and guides for effecting movement of said guides along said direction lines by said cam during cam rotation by said drive shaft with a presettable variable translation ratio equal to the travel of said guides along said direction lines per unit drive shaft rotation angle.

4,335,627

HYDRAULIC FLYWHEEL

Thomas J. Maxwell, 13252 N. 47th Pl., Phoenix, Ariz. 85032

Filed Sep. 28, 1979, Ser. No. 79,984
Int. Cl.³ G05G *3/00*
U.S. Cl. 74—572 **2 Claims**



1. A flywheel having a variable moment of inertia comprising:

a hollow structure of separable sections having internal means for coupling the inertia of a fluid to said hollow structure;

rotary drive means having fluid conduction means integral thereto;

means for inputting fluid to and outputting fluid from said fluid conduction means;

coupling means for coupling said separable sections of said hollow structure to said rotary drive means for rotating said separable section with said rotating drive means;

means for moving said separable sections between contacting and noncontacting states to effect the integrity of said hollow structure;

fluid retaining means for retaining fluid output from said fluid conduction means by said output means when said separable sections of said hollow structure are in their contacting state;

fluid collecting means for collecting fluid originally retained within said hollow structure which fluid is ejected therefrom when said separable sections are moved from their contacting to their noncontacting state; and

fluid circulating means for conducting fluid from said fluid collecting means to said input means of said fluid conduction means of said rotary drive means.

4,335,628

PEDAL FOR A BICYCLE

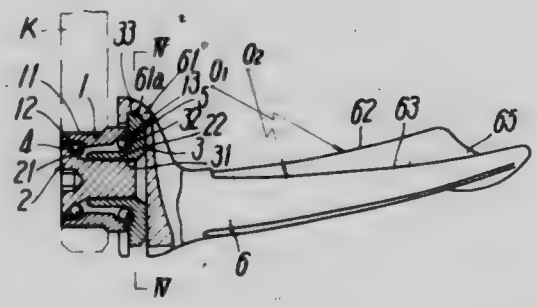
Keizo Shimano, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

Filed Jul. 8, 1980, Ser. No. 166,784

Claims priority, application Japan, Jul. 23, 1979, 54-102174[U]

Int. Cl.³ G05G *1/14*

U.S. Cl. 74—594.4 **7 Claims**



1. A pedal for a bicycle, comprising a pedal shaft and a pedal body supported on said pedal shaft in rotatable relationship around the axis of said pedal shaft, said pedal body having a front foot-bearing surface and a rear foot-bearing surface, which extend in parallel to the axis of said pedal shaft, and an outer connecting portion which connects said front and rear foot-bearing surfaces at lengthwise outer ends thereof and extends longitudinally of said pedal body, both said front and rear foot-bearing surfaces being curved to have the centers of curvature above said surfaces respectively, said center of curvature of said rear foot-bearing surface being positioned axially outwardly of said pedal shaft with respect to the center of curvature of said front foot-bearing surface.

4,335,629

DRIVE TRANSMISSION UNIT INCORPORATING EXPANSIBLE-PULLEY STEPLESS SPEED CHANGER

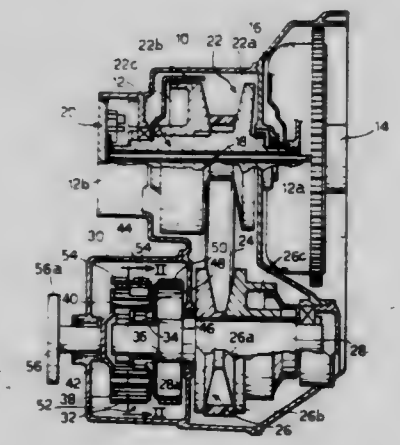
Gianluigi Falzoni, Turin, Italy, assignor to Fiat Auto S.p.A., Turin, Italy

Filed Feb. 28, 1980, Ser. No. 125,384

Claims priority, application Italy, Apr. 11, 1979, 67766 A/79

Int. Cl.³ F16H *37/00, 37/08*

U.S. Cl. 74—689 **2 Claims**



1. In a motor vehicle, a drive transmission unit adapted to be operatively interposed between the vehicle's engine and a differential unit connected to the half shafts of the vehicle's driving wheels, said unit incorporating an expansible-pulley stepless speed changer and comprising:

a support structure,

a primary shaft rotatably mounted in said support structure and connectable at one end to the drive shaft from the engine of said vehicle,

a secondary shaft rotatably mounted in said support structure parallel to said primary shaft,

two expansible pulleys respectively mounted fast for rotation on said primary and secondary shafts, each pulley comprising two facing frusto-conical discs one of which is rigidly connected to its respective mounting shaft and the other of which is axially slidable therealong,

a trapezoidal belt passing around said pulleys at respective radii of engagement dependent on the position of the said slidable disc of the corresponding pulley axially of its mounting shaft,

hydraulic means operable to control the axial displacement of the said slidable disc of each pulley whereby to vary said radii of engagement and change the transmission ratio between said primary and secondary shafts, said hydraulic means including a mechanical pump arranged adjacent the end of the primary shaft remote from said drive shaft, said primary shaft being hollow and the transmission unit further including a pump-driving shaft connected at one end to the said drive shaft and extending through said primary shaft to drive said pump,

an output shaft rotatably mounted by said support structure and adapted to drive said differential unit, said output shaft being arranged adjacent one end of the secondary shaft in coaxial alignment therewith, and

an epicyclic reversing unit coaxial with said secondary shaft and driven from said one end thereof, the said reversing unit providing a reduction gear stage for the transmission unit and having a rotatable output member connected to said output shaft, the reversing unit being remotely selectively settable into one of three operating states in the first of which said output shaft is arranged to rotate in the same sense as said secondary shaft, in the second of which said output shaft is arranged to rotate in the opposite sense to said secondary shaft, and in the third of which said output shaft is drivingly disengaged from said secondary shaft.

4,335,630

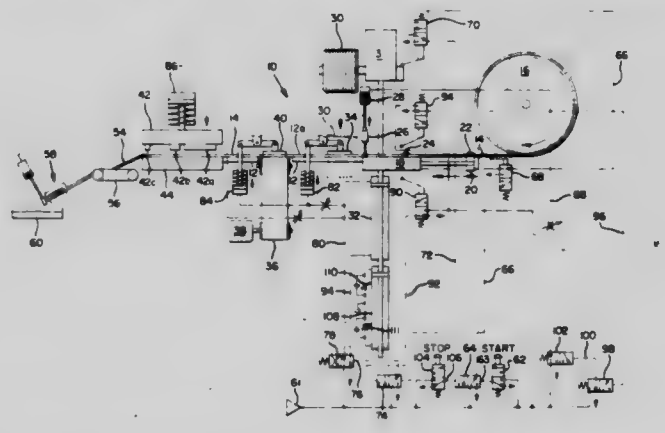
HIGH-SPEED MANUFACTURING SYSTEM FOR SABER SAWBLADES AND THE LIKE

Fred G. Gunzner, Silverton, Oreg., assignor to Acu-Edge, Inc., Woodburn, Oreg.

Filed Sep. 2, 1980, Ser. No. 183,000

Int. Cl.³ B23D *65/04*

U.S. Cl. 76—25 R **10 Claims**



1. Improved apparatus for rapidly manufacturing multiple elongate sawblades from a continuous elongate band of metal having longitudinal edges and a predetermined width dimension, said apparatus comprising:

(a) a support structure;

(b) feeder means for feeding said band of metal longitudinally in successive increments along said support structure in a feeding direction while orienting the width dimension of said band of metal in a predetermined direction perpendicular to said feeding direction;

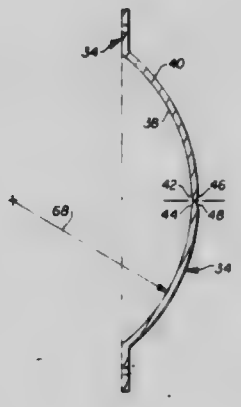
(c) rotary cutter means for forming sawteeth in one longitudinal edge of said band of metal;
(d) means for selectively advancing said rotary cutter means toward said support structure along a direction of advancement substantially perpendicular both to said feeding direction and to said predetermined direction so as to cause said cutter means to intersect one longitudinal edge of said band of metal; and
(e) selectively-actuated severing means, located in a position following the position of said rotary cutter means along said feeding direction, for successively severing each respective sawblade from said band of metal concurrently with the advancement of said rotary cutter means toward said support structure along said direction of advancement.

4,335,631

METHOD FOR MAKING A SHEAR BLADE

Leon A. Wirt, and Arthur A. Webb, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00143, § 371 Date Feb. 13, 1980, § 102(e) Date Feb. 13, 1980, PCT Pub. No. WO81/02263, PCT Pub. Date Aug. 20, 1981
PCT Filed Feb. 13, 1980, Ser. No. 173,202
Int. Cl.³ B21K *19/00*
U.S. Cl. 76—104 A **11 Claims**



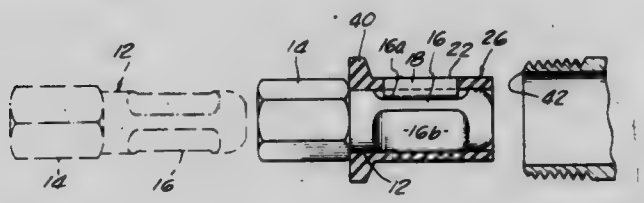
1. A method for making a shear blade (10), comprising:
(1) cutting first and second beveled surfaces (42,44) one facing the other on a first side (32) of a blank (30);
(2) depressing said blank (30) and forming a generally concave shape in said blank (30) and across said first and second beveled surfaces (42,44); and
(3) dividing said blank (30) along said first and second beveled surfaces (42,44) and forming first and second blade portions (14,16) having said first and second beveled surfaces (42,44), respectively.

4,335,632

INTERNAL PIPE WRENCH

Lawrence F. Irwin, Sylmar, and Robert Millray, Saugus, both of Calif., assignors to Augerscope, Inc., Sylmar, Calif.

Continuation-in-part of Ser. No. 971,071, Jan. 5, 1979, abandoned. This application Oct. 23, 1980, Ser. No. 199,746
Int. Cl.³ B25B *23/08*
U.S. Cl. 81—446 **7 Claims**



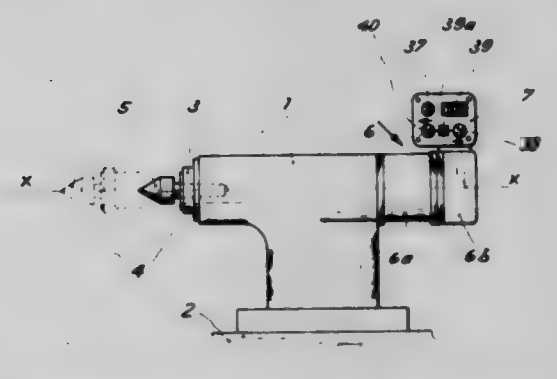
1. A gripping tool for gripping the inner walls of a tubular member for purposes of applying torque thereto, comprising:
(a) a rotatable, polygonal mandrel having a plurality of longitudinally extending faces;
(b) a plurality of gripping members each having a bottom mandrel engaging surface and an upper surface defining spaced apart wall engaging edges, said wall engaging edges and said mandrel engaging surface lying in planes substantially parallel with said longitudinally extending faces of said mandrell; and
(c) yieldably resilient retaining means for retaining said bottom surfaces of each of said gripping members in close proximity with a corresponding face of said mandrel for limited movement with respect thereto, whereby when the wrench is in operating position within the tubular member increased rotational movement of said mandrel in either direction causes the leading wall engaging edge of each of said gripping members to move into gripping engagement with the inner wall of said tubular member; said retaining means comprising a generally cylindrically shaped thin wall collett member formed of a yieldably resilient material within which said gripping members are partially encapsulated and adapted for limited raidal movement with respect to said mandrel, said collett member being substantially coextensive in length with said gripping members and having a diameter substantially equal to the inner diameter of said tubular member.

4,335,633

TAILSTOCK FOR MACHINE TOOLS, IN PARTICULAR LATHES OR THE LIKE WITH ELECTRIC ACTUATOR HAVING A MONITORED THRUST

Pier C. Boffelli, San Donato Milanese, Italy, assignor to Baruffaldi Frizioni S.p.A., Milan, Italy

Filed Sep. 26, 1980, Ser. No. 191,025
Claims priority, application Italy, Sep. 28, 1979, 26101 A/79
Int. Cl.³ B23B *23/00*
U.S. Cl. 82—31 **8 Claims**



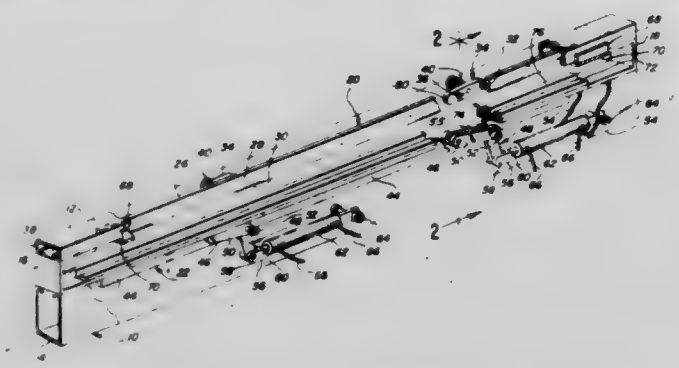
3. A tailstock for machine tools in particular for electrically operated lathes or the like machine tools, comprising a normally stationary supporting casing connectable to the bed of a said machine, a two-speed electric motor having a stator which is connected to said casing and having a rotor which is connected to a rotatable tubular member, co-axial with the axis of the tailstock centre: the rotor being directly connected with a central shaft—sufficient couple being developed by the electric motor; said central shaft being provided at its forward end adjacent said centre with a thread and at its rear end remote from said centre with a load detector, axial movement of the centre being effected by threaded means and resilient compression means between the shaft and centre, the axial load existing being sensed or detected by said load detector whose output is transmitted to control means operable so as to limit it to a pre-determined value by electrical comparison means, and an electro-magnetic locking brake being provided for the maintenance of the axial load reached by the centre.

4,335,634

WEB SEVERING DEVICE

Clifford L. Larson, Marco Island, Fla., assignor to Baldwin-Kor-the Web Controls, Inc., Addison, Ill.

Division of Ser. No. 135,772, Mar. 31, 1980, Pat. No. 4,295,400.
This application May 15, 1981, Ser. No. 264,216
Int. Cl.³ B26D *7/22*
U.S. Cl. 83—13 **5 Claims**



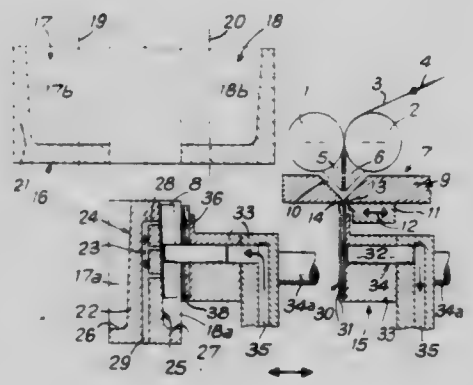
1. A process for severing a continuous web having a path of travel between a pair of parallel spaced-apart first and second carriages disposed transversely to said web and straddling the path of said web, only said first carriage carrying a severing blade, which process comprises moving said second carriage in one direction in a plane substantially perpendicularly to said web path and toward said blade-carrying first carriage to narrow the spaced-apart distance between said carriages without moving said first carriage, preventing further movement of said second carriage in said one direction during any period of time in which a relatively non-flexible, rigid object such as a human finger is disposed between said carriages, and thereafter by further movement of said second carriage in said one direction causing said blade-carrying first carriage to be moved in the opposite direction toward said web path whereby said blade is moved into severing contact with said web.

4,335,635

DEVICE FOR SEVERING AND TRANSFERRING A LABEL

Jean-Claude Hautemont, Gif sur Yvette, France, assignor to Pak Pro International N.V., Willemstad, Netherlands Antilles

Filed Apr. 21, 1980, Ser. No. 142,395
Claims priority, application France, Apr. 27, 1979, 79 10851
Int. Cl.³ B65C *9/08*
U.S. Cl. 83—160 **8 Claims**



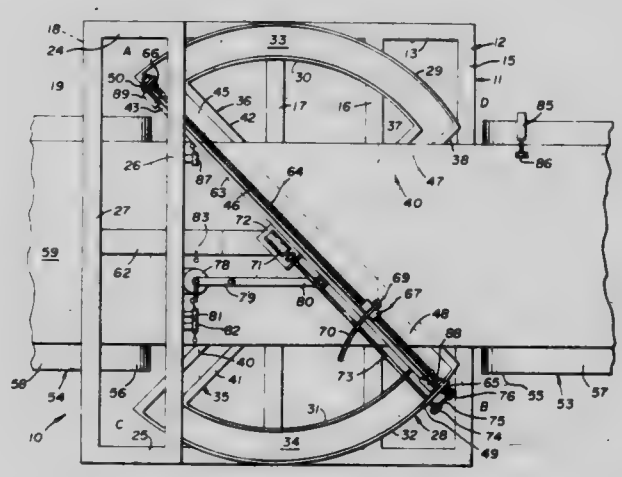
1. In a device for severing and transferring a label from a web of labels, of the type comprising rolls for feeding the label web, means for transversely severing said web in order to separate a label therefrom and transfer means adapted to seize the label at the latest at the moment of severing thereof and to transfer it to the lateral face of the forming chamber of a mold presenting a mold body composed of at least two parts which are provided with suction orifices, and separable from each other in height, so as to render accessible at least one part of said lateral face, to said transfer means which are movable at least transversely with respect to the axis of the forming chamber and parallel to the direction of severing of the label, the transfer means comprise, on the one hand, for the free end of the label web, a receiver member provided with elements for mechanically holding the edges of the free end of said web, and mounted downstream of the severing means, on a support which is movable exclusively along a straight line transverse with respect to said web end, between the position of reception of the web end and the immediate vicinity of one of the open parts of the mold body, and, on the other hand, a pneumatically controlled expelling push member mounted to slide parallel to said straight line in said mobile support, intended for expelling the severed label from the receiver member and for pushing it against said lateral face of an open mold part when this receiver member is in the immediate vicinity of said open mold part.

4,335,636

APPARATUS FOR CUTTING A MOVING SHEET

Michael J. Porter, Hanover Park, Ill., assignor to United States Gypsum Company, Chicago, Ill.

Filed Sep. 29, 1980, Ser. No. 192,160
Int. Cl.³ B26F *3/00*
U.S. Cl. 83—177 **4 Claims**



1. An apparatus for cutting a newly-formed continuous gypsum board sheet moving along a conveyor into individual gypsum boards, which comprises

(a) an elongate frame,

(b) a supporting member pivotally mounted at its center vertical axis on said frame,

(c) a lead screw rotatably mounted on said supporting member,

(d) a power means for pivoting said supporting member and said lead screw through an arc alternately to one of two rest positions obliquely positioned with respect to the direction of movement of said gypsum sheet,

(e) a threaded member engaging said lead screw,

(f) a high pressure fluid jet cutter mounted on said threaded member having means of engaging the threads of said screw,

(g) power means for rotating said lead screw alternatively in one of two directions to cause said jet cutter to travel back and forth along said lead screw, and

(h) tank means for receiving the expended fluid from said jet cutter.

4,335,637

CIRCULAR SAW

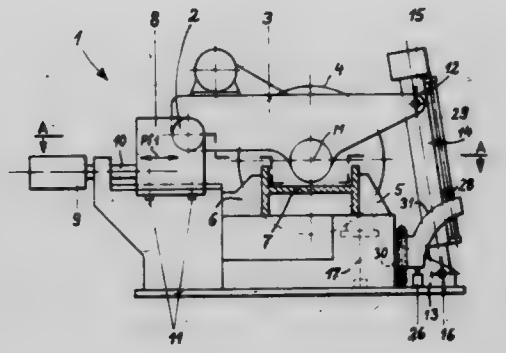
Dieter Kaltenbach, Rebweg 33, 7850 Lörrach, Fed. Rep. of Germany

Filed Mar. 31, 1980, Ser. No. 136,040

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915288

Int. Cl.³ B23D *45/04, 47/04*

U.S. Cl. 83—452 25 Claims



1. A cold circular saw for cutting a workpiece displaceable in a workpiece feeding direction, the cold circular saw comprising a machine support; a saw blade extending in a predetermined plane, said saw blade being displaceable in a substantially vertical saw blade feeding direction and also being swingable; means for clamping a workpiece and operative for laterally abutting against and holding the workpiece, said clamping means including at least one stationary abutment member; a swingable supporting arm arranged to support said saw blade and having one free end portion provided with a hinge for swinging said supporting arm; said supporting arm has another free end portion which is opposite to said one free end portion and further comprising a displacing element articulately connected with said other free end portion of said supporting arm and with said machine support and a carriage on which said hinge of said supporting arm is mounted, said carriage being displaceable in an adjusting direction on said plane of said saw blade and transverse to a workpiece feeding direction, relative to said machine support and said workpiece clamping means.

4,335,638

BAND-SAW MACHINE

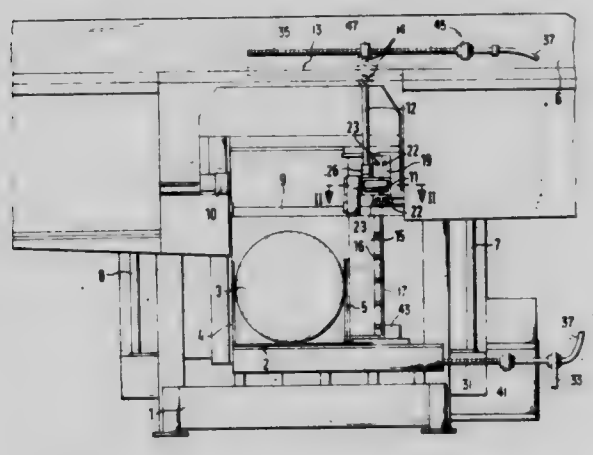
Werner Schocher, Achern, Fed. Rep. of Germany, assignor to Gesellschaft für Schneidtechnik mit beschränkter Haftung, Achern, Fed. Rep. of Germany

Filed Sep. 5, 1980, Ser. No. 184,331

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1979, 2935790

Int. Cl.³ B23D *55/04, 55/08;* B27B *13/10*

U.S. Cl. 83—801 5 Claims



1. In a band-saw machine including a machine stand defining a substantially horizontal workpiece support region, first and second clamping jaws mounted on the stand, with the first clamping jaw being mounted to move horizontally toward the second jaw for clamping a workpiece between the jaws, a machine head mounted above the support region, means supporting the machine head for vertical displacement relative to the machine stand, an endless saw band mounted in the machine head to present a cutting reach extending above and across the support region, and two saw band guides disposed to respectively opposite sides of the workpiece support region, each associated with a respective clamping jaw and each holding the saw band in position to cut a workpiece, the improvement comprising:

first mount means connected between said first clamping jaw and said saw band guide associated therewith for permitting said associated guide to be displaced vertically without tilting relative to said first jaw;

connecting means extending between said guide associated with said first jaw and said machine head for transmitting the cutting reaction forces imposed by the saw band on that said guide to said machine head; and

second mount means connected between said connecting means and said machine head for permitting said connecting means to move relative to said head in the direction of movement of, and together with, said first clamping jaw; and

wherein said first clamping jaw is dimensioned to extend toward said machine head at least to the maximum height of a workpiece which said machine is arranged to cut.

4,335,639

PREFERENTIAL CIRCUIT FOR ELECTRONIC MUSICAL INSTRUMENT

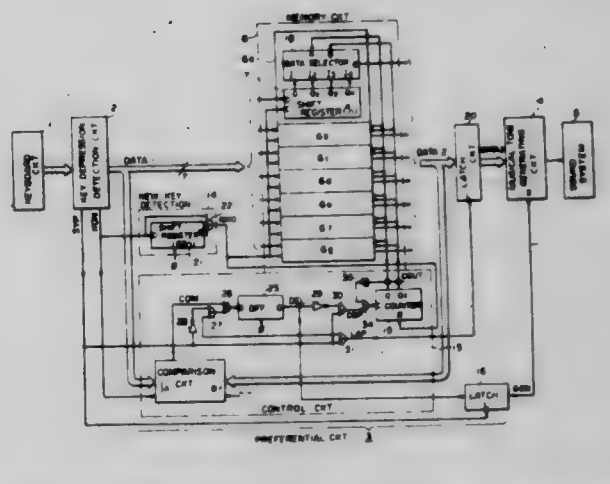
Eisaku Okamoto, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Filed Dec. 11, 1980, Ser. No. 215,149

Claims priority, application Japan, Dec. 20, 1979, 54-165894

Int. Cl.³ G10H *1/00*

U.S. Cl. 84—1.01 6 Claims



1. In a monophonic electronic musical instrument comprised of a keyboard circuit including a plurality of keys, a key depression detection means for detecting a depressed key or keys to produce key data signals assigned to the depressed keys, a musical tone generating circuit for producing a musical tone signal in correspondence with a key selected among the keys held depressed according to a most recently depressed key taking preferential order, and a preferential circuit for supplying a key data signal to the musical tone generating circuit based on said preferential order, said preferential circuit comprising:

(a) new key detection means which detects whether a depressed key is newly depressed or it has been previously depressed to produce a new key signal when the key is newly depressed, irrespectively of the relative positions on the keyboard of said newly depressed key and said previously depressed key;

(b) memory means for storing the key data signal corresponding to said newly depressed key and at least one key

data signal corresponding to a key depressed just prior to said newly depressed key, respectively received from said key depression detection means;

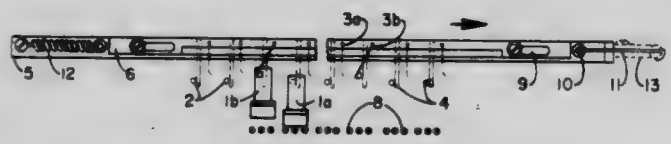
(c) control means operatively coupled to said new key detection means for reading out from said memory means the key data signal corresponding to said newly depressed key when said newly depressed key and the key depressed prior to said newly depressed key are held depressed and for reading out from the memory means the key data signal corresponding to said key depressed just prior to said newly depressed key when said newly depressed key is released with said key depressed just prior to said newly depressed key being held depressed, said musical tone generating circuit being responsive to the key data signal read out of memory means thereby to produce the musical tone signal.

4,335,640

SINGLE NOTE SOSTENUTO FOR THE UPRIGHT PIANO

Walter A. Mudgett, 2123 Savannah Hwy., Charleston, S.C. 29407

Filed Oct. 1, 1980, Ser. No. 192,935
Int. Cl.[3] G10C *3/16*
U.S. Cl. 84—218 1 Claim



1. A sostenuto mechanism for a piano comprising: a plurality of dampers including damper heads and damper wires aligned adjacent the strings of a piano,

a hammer spring rail extending transversely of said dampers opposite said strings,

a plurality of rigid pins fixed to said hammer spring rail, each of said pins extending toward said damper wires adjacent the line of movement of an associated damper wire,

a sostenuto rod mounted on said hammer spring rail and constrained to move in the longitudinal direction of said hammer spring rail, said rod being biased in a predetermined direction when at rest,

a plurality of wire spring arms fixed at one end to said sostenuto rod and extending toward said damper wires, each of said wire spring arms having a hooked end located behind its associated damper wire when the damper wire is in its rest position against its string but extending beyond said damper wire when said damper head is moved away from its string, and

means connected to the piano sostenuto pedal for moving said sostenuto rod longitudinally along said hammer spring rail

whereby the hooked end of said wire spring arms will catch any associated damper wire which has moved away from its string and hold it against its associated pin but will pass beyond any damper wire which is still at rest.

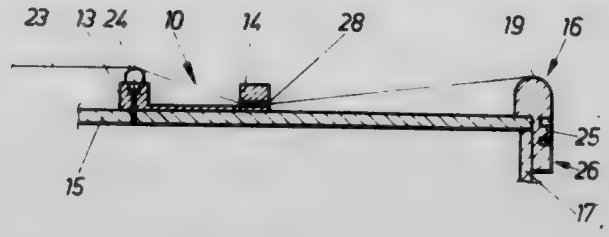
4,335,641

STRING INSTRUMENT

Dieter Höpf, Platter Strasse 67, 6204 Taunusstein 4, Fed. Rep. of Germany

Filed Nov. 6, 1980, Ser. No. 204,691
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1980, 8015071[U]
Int. Cl.[3] G10D *3/04, 3/12*
U.S. Cl. 84—297 R 23 Claims

1. A string instrument, comprising: a resonance body; a neck mounted to said resonance body and having a first string-contacting saddle arranged in a first level above the upper surface of said resonance body; a string-securing device mounted to said resonance body opposite to said neck and containing a second string-contacting saddle arranged in a second level above the upper surface of the said resonance body; a string bridge on said resonance body between said neck and said string-securing device, said string bridge having a third string-contacting saddle arranged in a third level above the upper surface of said resonance body and a string-deflecting element provided on the center region of the said string bridge opposite said third string-contacting saddle and being arranged in a



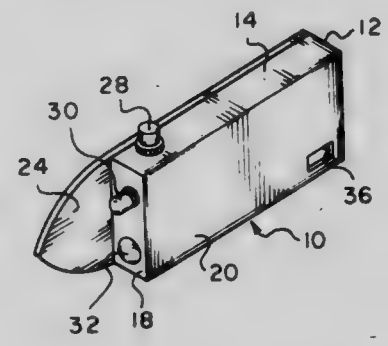
fourth level above the upper surface of said resonance body; said fourth level being arranged nearer to said upper surface of the said resonance body than said second and third levels so that the strings extending from said neck to said strings-securing device over the first and second and third saddles and through said string-deflecting element are V-shape formed between said second and third saddles.

4,335,642

STROBOSCOPIC TUNING

Gary S. Pogoda, 223 N. Douglass Ave., Margate, N.J. 08402

Filed Apr. 30, 1980, Ser. No. 144,976
Int. Cl.[3] G10G *7/02*
U.S. Cl. 84—454 7 Claims



1. In a method for tuning a stringed musical instrument comprising:

providing a visible stroboscopic light source having a predetermined spectral content which is less than the spectral content of white light;

illuminating a portion of the vibrating string of a musical instrument with said light source;

observing said illuminated string portion through a filter means which passes substantially only light having said predetermined spectral content, and

adjusting the tension of said string until the desired stroboscopic pattern is observed.

4,335,643

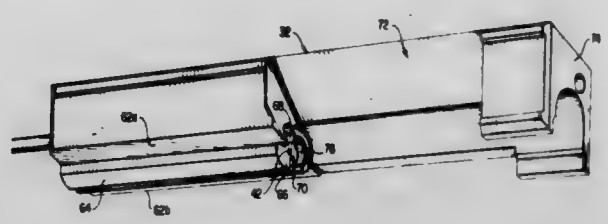
SEMI-AUTOMATIC FIREARMS

Uzi Gal, Philadelphia, Pa., assignor to Action Manufacturing Company, Philadelphia, Pa.

Filed May 16, 1980, Ser. No. 150,681
Int. Cl.[3] F41C *5/06*
U.S. Cl. 89—196 13 Claims

1. A bolt for use in the firing mechanism of a firearm, said bolt having a section defining a bolt face for feeding cartridges from cartridge supply means into a firearm firing chamber on forward movement of the bolt, said cartridge supply means supplying cartridges from left and right sides thereof, said section having a longitudinal axis and said bolt face being substantially perpendicular to said longitudinal axis, a firing pin

passage in said section leading to said bolt face and being substantially coaxial with said longitudinal axis and said bolt having shoulder means projecting outwardly from a portion of the periphery of the bolt face for centering a cartridge in a firing position and for supporting a cartridge during removal from the firing position, a portion of the periphery of the bolt face adjacent one side of the cartridge supply means being



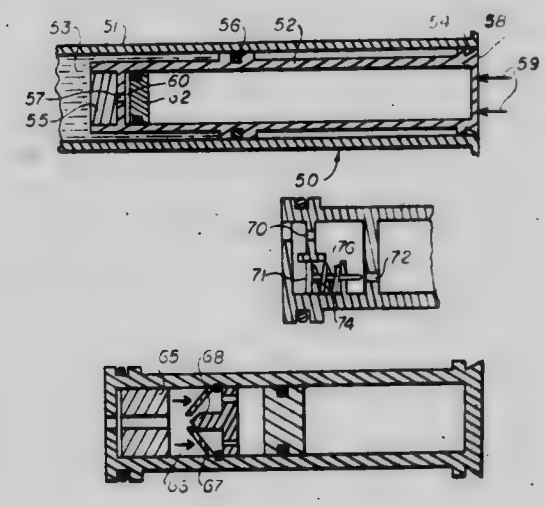
planar with said bolt face so that a cartridge being fed from the one side of the cartridge supply means has its base in sliding contact with the bolt face during feeding whereby a firing pin projecting from said bolt face prevents sliding of the cartridge base into the firing position, whereas a cartridge being fed from the other side of the cartridge supply means having its base in sliding contact with the projecting shoulder means during feeding.

4,335,644

FLUIDIC RECOIL BUFFER FOR SMALL ARMS

Michael J. Goes, 221 Randolph Ave., Mine Hill, Morris County, N.J. 07801, and Albertus E. Schmidlin, 28 High View Rd., Caldwell, Essex County, N.J. 07006

Division of Ser. No. 75,470, Sep. 14, 1979, Pat. No. 4,307,653. This application May 7, 1981, Ser. No. 261,090
Int. Cl.³ F41D *11/12*
U.S. Cl. 89—198 **6 Claims**



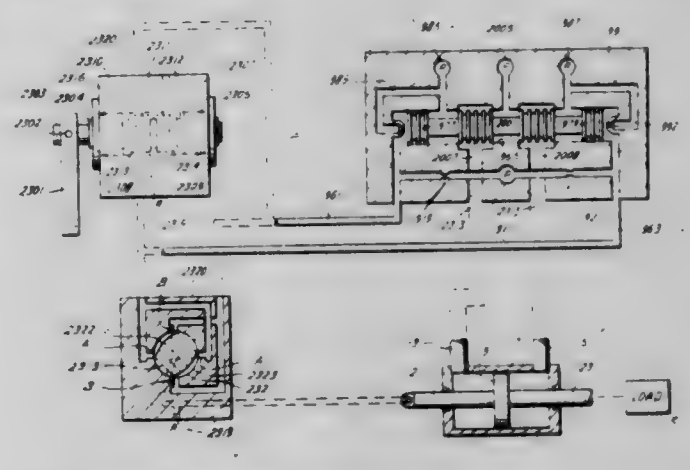
1. A fluidic recoil buffer comprising:
first fluid containing chamber;
actuator means for applying a compressive force to fluid in said first chamber;
a second fluid containing chamber slidably positioned in said first fluid containing chamber, said second chamber dimensioned and positioned for reciprocating motion within said first chamber, said second chamber including;
seal means, slidably moveable with said second chamber, for providing a fluid seal between said first chamber and said second chamber; and
a closed rear surface on a closed end of said second chamber and an axial throttle hole in the front end of said second chamber;
fluidic means operatively disposed in said second fluid chamber for providing restricted fluid flow from said first chamber to said second chamber and substantially unrestricted fluid flow from said second chamber to said first chamber, said second chamber including;
flow restricting means for restricting fluid flow from said first chamber to said second chamber;
a flow control member, having an axial passageway therethrough, slidably disposed in said second chamber intermediate said front end of said second chamber and said flow restricting means, said flow control member moving toward said flow restricting means when the pressure drop through said flow control member reaches a predetermined design point, and said flow restricting means limiting the fluid flow through said fluid control member when said flow control member travels to a point proximate said flow restricting means; and
a floating piston member slidably disposed intermediate said flow restricting means and said closed end of said second chamber.

4,335,645

FLUIDIC REPEATER

Willie B. Leonard, 5902 Royalton, Houston, Tex. 77036

Division of Ser. No. 772,560, Feb. 28, 1977, abandoned, which is a continuation-in-part of Ser. No. 622,760, Oct. 15, 1975, Pat. No. 4,094,229, which is a continuation-in-part of Ser. No. 521,036, Nov. 5, 1974, Pat. No. 4,046,059, which is a continuation-in-part of Ser. No. 489,829, Jul. 18, 1974, Pat. No. 3,988,966. This application Nov. 22, 1978, Ser. No. 962,858
Int. Cl.³ F15B *13/16*
U.S. Cl. 91—388 **18 Claims**



1. In a fluidic repeater comprising
a source of pressure fluid,
a reservoir of fluid at lower pressure than said source,
a responder including means forming a first chamber and a first movable member movable in the chamber, e.g. a cylinder and a piston movable in the cylinder,
a first fluid passage for connecting the source of pressure fluid to a first portion of the first chamber at one side of the first movable member,
a first flow restrictor in said flow passage,
a part of said flow passage downstream of said first restrictor together with said first portion of said first chamber providing a transmitter controlled volume,
transmitter means for variably venting said transmitter controlled volume to vary the fluid pressure in said first portion of said first chamber according to the degree of venting by said transmitter means.
a second fluid passage for connecting the source of pressure fluid to a second portion of the first chamber on a side of said first movable member opposite to said one side,
a second flow restrictor in said second flow passage, a part of said second flow passage downstream of the last said flow restrictor together with said second portion of said first chamber providing a feedback controlled volume,
feedback means for variably venting said feedback controlled volume to vary the fluid pressure in said second portion of said first chamber according to the degree of venting by said feedback means,
load actuating means comprising second means forming a second chamber having a second movable member movable therein, e.g. a piston and cylinder,

passage means for supplying pressure fluid to and receiving pressure fluid from opposite sides of said second chamber at opposite sides of said second movable member, and

valve means controlling said passage means, said first movable member being connected to said valve means,

the improvement as follows:

said transmitter means comprising a fixed stator and a rotor rotatably mounted relative to the stator, said stator having a plurality of stationary fluid passages each terminating in a stationary port at a surface of the stator opposite the rotor, one of said stationary ports communicating with said transmitter controlled volume and an other of said stationary ports communicating with said reservoir, flow path means including passage means over the surface of the rotor for communicating said one stationary port, that communicates with said transmitter controlled volume, with said other stationary port, that communicates with said reservoir, with varying degrees of restriction according to the angular position of said rotor relative to said stator about the axis of rotation of said rotor,

said feedback means comprising variable flow restriction means variably communicating said feedback controlled volume with said reservoir in accordance with the extent of displacement of said second movable member and hence in response to the position of said second movable member,

the fluid path through said feedback means being independent of said transmitter means in that the fluid flowing through said transmitter means' stator and rotor does not flow through said variable restriction means of said feedback means in the flow of the fluid from said source to said reservoir through said transmitter means' stator and rotor,

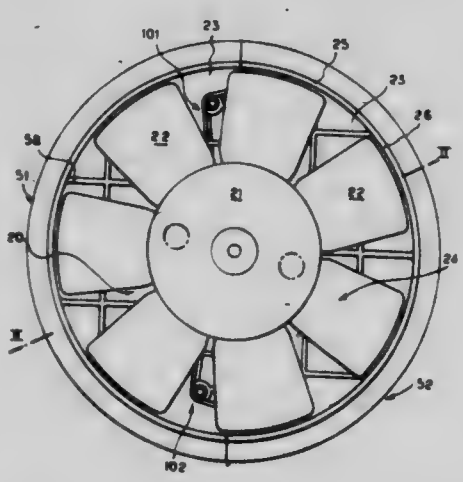
said feedback means restoring said movable member of said responder to its initial position following its displacement in response to angular displacement of said transmitter means' rotor, whereby the displacement of said load actuating means is proportional to the angular displacement of said transmitter means' rotor relative to said stator without any angular displacement of said stator.

4,335,646

VEHICLE AIR CONDITIONER BLOWER AND MOUNT

Maurice A. Jacquet, Maurepas, and Jean-Pierre Lignereux, Beynes, both of France, assignors to Societe Anonyme Francaise du Ferodo, Paris, France

Filed Apr. 24, 1980, Ser. No. 143,316
Claims priority, application France, Apr. 24, 1979, 79 10558
Int. Cl.³ F16M *1/04*; B60H *1/26*
U.S. Cl. 98—2 **18 Claims**



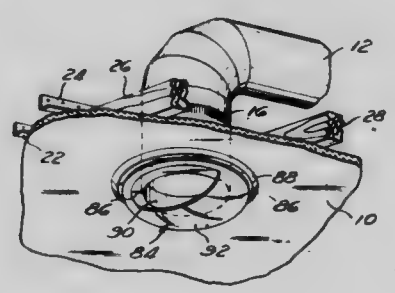
1. A device for mounting a motor-blower unit at the air inlet of a heating or air-conditioning installation of the passenger space of a motor vehicle, said motor-blower unit having a motor cage and said device comprising a cylindrical cradle for receiving and supporting the motor cage and which is provided with abutments for cooperating with a lower edge of the cage, wherein the cradle comprises hooking means formed by longitudinal fingers with resilient attachment, opening out when the motor cage is driven into the cradle and bearing against the cage at the end of the driving-in movement, said fingers ending into hooks which come in engagement with an upper edge of the cage for fixing the latter against movement.

4,335,647

AIR DEVICE WITH FLEXIBLE MOUNTING SYSTEM

David R. Timmons, Newport Beach, Calif., assignor to Automation Industries, Inc., Greenwich, Conn.

Division of Ser. No. 95,841, Nov. 19, 1979, Pat. No. 4,271,751, which is a division of Ser. No. 892,168, Mar. 31, 1978, abandoned. This application Mar. 27, 1981, Ser. No. 248,425
Int. Cl.³ F24F *7/00*
U.S. Cl. 98—40 D **4 Claims**



1. An air terminal device for connection to the end of an air duct, comprising:

(a) a rigid conduit having an inlet end and an outlet end, said inlet end being adapted for connection to an air duct and said outlet end being adapted for connection to an air discharge device;

(b) first and second opposed support members each comprising a first portion disposed parallel to the longitudinal axis of said rigid conduit for selective non-slidable attachment to said rigid conduit at any one of a plurality of discrete positions between said opposed support members, and a second portion disposed at an angle with respect to said first portion to enable connection of said opposed support members to two spaced building structural members and thereby to provide support in space for said rigid conduit at substantially any selected location between two spaced building structural members;

(c) first and second opposed attachment means operative to enable said selective non-slidable attachment of said first and second opposed support members, respectively, to said rigid conduit; and

(d) wherein said first and second opposed attachment means each comprises a tab stamped from said rigid conduit and at least one slot in the first portion of the associated support member for receiving said tab.

4,335,648

CHIMNEY COWLS

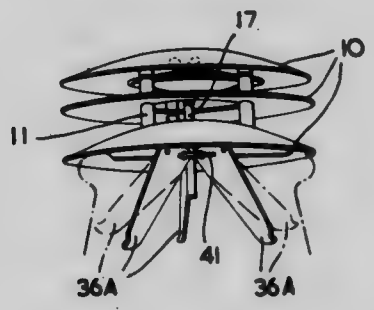
Arthur W. Mitchell, "Sandyacre", 18 Ballyardle Rd., Kilkeel, County Down, Ireland

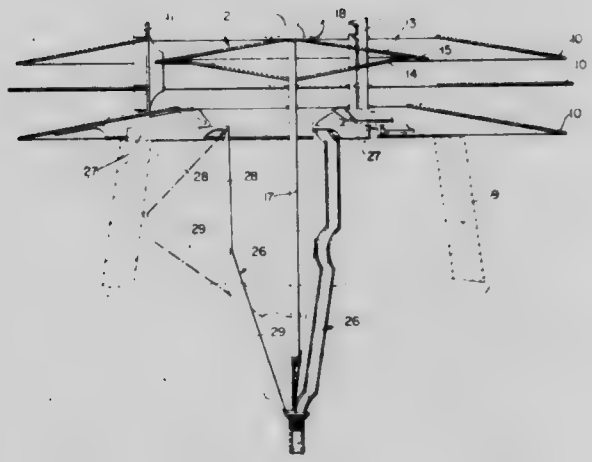
Continuation-in-part of Ser. No. 942,914, Sep. 18, 1978, Pat. No. 4,206,693. This application Apr. 25, 1980, Ser. No. 143,736
The portion of the term of this patent subsequent to Jun. 10, 1981, has been disclaimed.
Int. Cl.³ F23L *17/02*
U.S. Cl. 98—59 **11 Claims**

1. A chimney cowl comprising a series of annular vanes lying in spaced horizontal planes, the uppermost and lowermost of which are parallel and substantially frusto-conical in shape, said vanes having central apertures and centered about a common axis and arranged in a predetermined vertical spaced relationship, a plurality of supports connected to said vanes and positioned parallel to and radial of said axis, the lower two of said vanes converging towards their centers to form a venturi at their inner peripheries, and a device of aero-

dynamic shape mounted co-axially with the vanes and located between the upper two vanes, the device being circular in plan and masking the central apertures in the vanes and having upper and lower cone-like air-deflecting walls arranged base-to-base about said common axis, the upper wall of the device being parallel or substantially parallel to the uppermost and lowermost vanes, and means for clamping the cowl in position to a chimney outlet comprising at least two laterally extending elongate members, each member being connected through pivot means to the lowermost vane for relative pivotal motion and to a union element, said union being movable vertically to cause pivotal movement of the members in a lateral direction towards or away from the chimney wall.

8. A chimney cowl for attachment to a chimney outlet comprising:





a cowl structure defined by a plurality of centrally apertured annular vanes arranged in spaced horizontal planes co-axially along a vertically aligned axis, a plurality of supports connected to said vanes for supporting said vanes relative to said axis in said spaced relationship;

an annular device mounted co-axially with said vanes between two adjacent vanes remote from the chimney outlet end of said cowl structure and masking the central apertures in said vanes; and

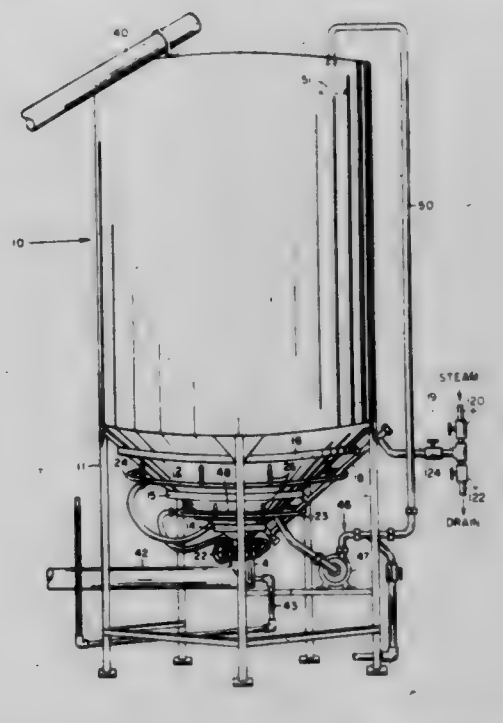
means for clamping said cowl structure to a chimney outlet, said means for clamping including at least two clamping levers, each of said levers being pivoted at a point intermediate their ends to said cowl structure and having a first end coupled to union means adjustably movable along said axis to cause said clamping levers to pivot about their pivoting points to cause the opposite ends thereof to move toward said chimney outlet to effect clamping thereto.

4,335,649

METHOD AND APPARATUS FOR PRODUCING MASA CORN

Ralph E. Velasco, Jr., and A. G. Pinson, both of San Antonio, Tex., assignors to Amigos Food Company, Inc., San Antonio, Tex.

Filed Jun. 2, 1980, Ser. No. 155,489
Int. Cl.[3] A47J *27/04;* B01F *13/02*
U.S. Cl. 99—327 12 Claims



1. A control system for preparing large quantities of food products such as masa comprising:

first valving means for providing steam to a vat containing said food products soaking in a solution such as water;

first timing means for controlling said first valving means thereby controlling a first predetermined time period for cooking said food products;

second timing means to allow said food products to steep after said cooking for a second predetermined time period;

stepping means connected to said second timing means;

second valving means being operated by said stepping means after expiration of said second predetermined time period to provide short sequential blasts of air to said vat to roll said food products during cooling;

third timing means for interrupting said short sequential blasts of air for third predetermined time periods, said cooling being considerably longer than said third predetermined time period.

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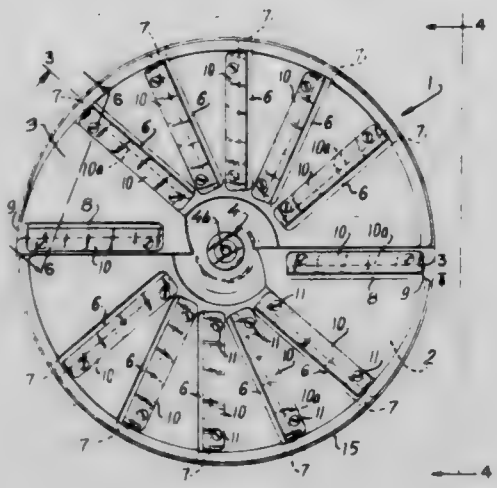
PEELING MACHINE HAVING A ROTATING CUTTER PLATE

Olivier H. C. Prevot, Aubusson, France, assignor to DITO, Aubusson, France

Continuation of Ser. No. 92,990, Nov. 9, 1979, abandoned. This application Feb. 19, 1981, Ser. No. 235,928
Claims priority, application France, Nov. 10, 1978, 78 31851
Int. Cl.[3] A23N *7/00;* A47J *17/18*
U.S. Cl. 99—593 9 Claims

1. A peeling machine for peeling vegetables and fruits, comprising a drive shaft and a rotating circular cutting plate, said plate comprising a disk having a substantially flat top surface, a bottom surface and a peripheral edge having a circular peripheral surface, a central boss formed integrally with said disk and having a bore for junction with said drive shaft, a plurality of elongated slot-like apertures arranged substantially radially through said disk from said top surface to said bottom surface and extending from proximate said central boss to proximate said peripheral edge, a plurality of cutter blades each mounted radially on the top surface of said disk proximate one of said

slot-like apertures on the rear side thereof relative to the direction of rotation of said disk, each of said cutter blades having a sharpened leading edge projecting on top of one of said slot-like apertures, a plurality of radial clearance and discharge openings through the edge of said disk each placing one of said slot-like apertures in communication with said peripheral surface, at least one upwardly protruding radial boss on the top surface of said disk shaped substantially as a trihedron, said radial boss comprising at least one radial elongated slot-like



aperture open into and extended by one of said clearance openings, a cutter blade mounted radially on said radial boss proximate said corresponding radial aperture on the rear side thereof relative to the direction of rotation of said disk, and a safety guard comprising an upwardly protruding barrier formed integrally with said disk proximate said peripheral edge of said disk, and a plurality of radial stiffening ribs each disposed projecting from the bottom surface of said disk below each of said cutter blades.

4,335,651

SETTING DEVICE FOR DENOMINATIONS IN FRANKING AND VALUE STAMPING MACHINES

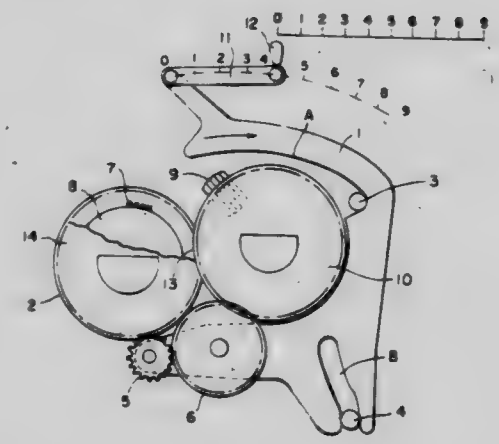
Manfred Schleuchardt, Offenbach am Main, Fed. Rep. of Germany, assignor to Postalia GmbH, Offenbach am Main, Fed. Rep. of Germany

Filed Aug. 7, 1980, Ser. No. 176,047

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1979, 2932424

Int. Cl.³ B41J *1/60*

U.S. Cl. 101—110 **7 Claims**



1. Setting device for denominations in franking and value stamping machines, comprising a movable lever having edges being radially curved in a given mutual relationship, pins along which said radially curved edges are guidable, a non-rotatable control disc gear, first and second mutually engageable gears mounted on said lever, a fixed control cylinder, sprockets disposed on said fixed control cylinder, a printing cylinder, a gear being disposed on said printing cylinder and rotatable by said second gear, and a value printing numeral roll being disposed on said printing cylinder, movable by said printing cylinder gear and adjustable by said sprockets, said first gear being devolvable in steps defined by said given relationship on said fixed control cylinder and said non-rotatable control disc gear when said curved edges of said lever are guided along said pins for generating a planetary drive and thrust onto said second gear to set the denominations on said numeral roll.

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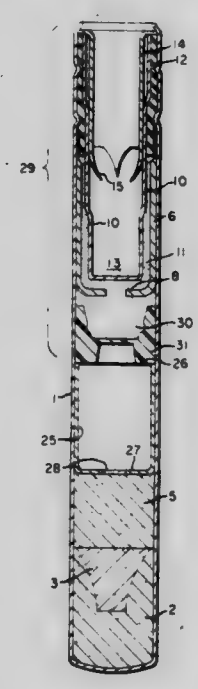
NON-ELECTRIC DELAY DETONATOR

Paul J. Bryan, Hewitt, N.J., assignor to E. I. Du Pont de Nemours & Company, Wilmington, Del.

Continuation-in-part of Ser. No. 15,288, Feb. 26, 1979, abandoned. This application Aug. 11, 1980, Ser. No. 177,210

Int. Cl.³ F42C *15/00*

U.S. Cl. 102—202.1 **24 Claims**



1. In a non-electric delay detonator adapted to be actuated by a low-energy detonating cord and comprising a tubular metal detonator shell integrally closed at one end and containing, in sequence from the closed end, (a) a base charge of a detonating explosive composition, (b) a priming charge of a heat-sensitive detonating explosive composition, (c) a delay charge of an exothermic-burning composition, and an ignition charge, the improvement comprising an assembly, to be used in conjunction with said detonating cord, for igniting said delay charge, said assembly comprising:

(1) a tubular rigid metal ignition capsule having one open extremity and a closure at the other extemity, said capsule being nested within said detonator shell in a manner such that said closure is directed toward said delay charge;

(2) a tubular metal expansion shell integrally closed at one end, said expansion shell being deformable and positioned coaxially within said detonator shell in a manner such as to produce a spacing between the side walls of said expansion shell and of said ignition capsule, and between the closed end of said expansion shell and the closure on said ignition capsule; and

(3) a percussion-sensitive ignition charge in the spacing between the side walls of said expansion shell and of said ignition capsule, and between the closed end of said expansion shell and said closure on said ignition capsule, said closure on said ignition capsule having an axial perforation or being adapted to be axially perforated by the burning of said ignition charge, and said delay charge being adapted to be ignited as a result of the burning of said ignition charge; means being provided for sealing the charges in said detonator shell off from the atmosphere and for preventing the venting of gases resulting from the burning of said ignition charge, an open cavity extending from one end to the other of said expansion shell for

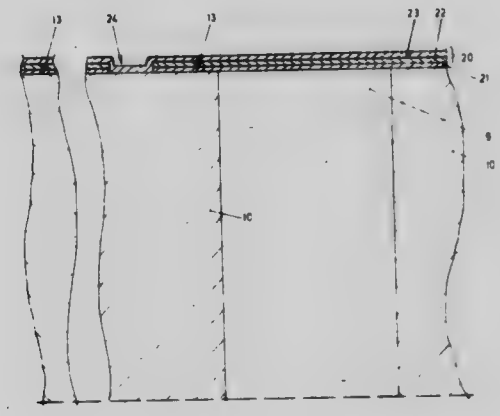
receiving a low-energy detonating cord adapted by its detonation to produce a pressure pulse that causes the ignition of said ignition charge, and means being provided for retaining said cord coaxially in said cavity.

4,335,653

ELECTRIC IGNITER WITH CONDUCTIVE BODIES AND THIN CONNECTOR

Sven-Erik Bratt, Karlskoga; Kurt Nygaard, Niederhasli, and Olof Nygards, Karlskoga, all of Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Sep. 2, 1980, Ser. No. 183,670
Claims priority, application Sweden, Sep. 3, 1979, 7907294
Int. Cl.³ F42C *19/12*
U.S. Cl. 102—202.8 **6 Claims**



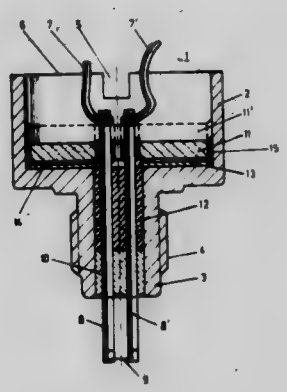
1. An electric igniter comprising:
a pair of electrically conductive bodies separated by an insulating body, said insulating body and conductive bodies forming a smooth common surface at one end thereof;
a thin connective member electrically connecting said conductive bodies, said connective member comprising:
a thin metal layer bonded on one side to said common surface,
a thin layer of inert material on a remaining side of said thin metal layer; and
a pyrotechnic charge in pressure contact with a free side of said thin layer of inert material whereby said charge is ignited in response to an electrical current through said connective member.

4,335,654

ELECTRIC IGNITER

Sven-Erik Bratt, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Filed Sep. 2, 1980, Ser. No. 183,672
Claims priority, application Sweden, Sep. 3, 1979, 79072955
Int. Cl.³ F42C *19/12*
U.S. Cl. 102—202.8 **4 Claims**



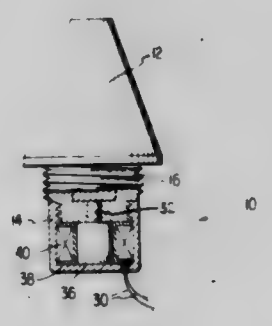
1. An electric igniter comprising:
a cylindrical casing including an externally threaded pressure resistant portion terminating at one end thereof at the base of a wider axially extending cup having an opening opposite said base;
first and second substantially straight connection legs extending from said cup portion through said threaded portions exiting a remaining end of said threaded portion;
a ferrite material circumferentially extending around that portion of said connection legs which extend through said threaded pressure resistance portion forming a bushing between said threaded pressure resistant portion and said connection legs;
a capacitor element located within said cup portion surrounding said connection legs and covering substantially all of said base portion shielding said threaded portion from radiation incident said cup opening and;
a filament connected to said connection legs external to said threaded portion whereby said filament is energized in response to an electrical current supplied by said feed wires without being energized by said incident radiation.

4,335,655

METHOD AND APPARATUS FOR DETONATING EXPLOSIVE IN RESPONSE TO DETONATION OF REMOTE EXPLOSIVE

Letcher A. Lofgren, Glenwood, Md., assignor to United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 25, 1980, Ser. No. 133,735
Int. Cl.³ F42C *11/04*
U.S. Cl. 102—209 **7 Claims**



1. An apparatus for releasing a payload from a projectile comprising:
a means for securing said payload positioned on the rear of said projectile;
a first explosive charge positioned at the forward end of said projectile;
a fuze for detonating said first explosive charge;
electromagnetic induction means positioned adjacent to said first explosive charge;
a second explosive charge positioned adjacent said means for securing;
means for detonating said second explosive charge in resposne to the detonation of said first explosive charge whereby said payload is released.

4,335,656

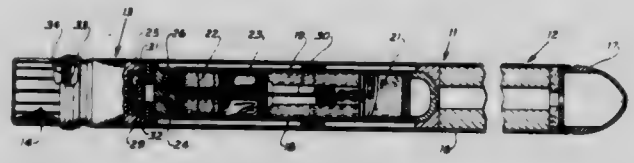
UNDERWATER LAUNCHED PARACHUTE FLARE

Bobby D. Beatty, Bloomfield; Russell D. Daniel, Bloomington; Billy J. Humerickhouse, Odon, and Richard Williams, Loogootee, all of Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 31, 1980, Ser. No. 174,041
Int. Cl.³ F42B *4/28*
U.S. Cl. 102—340 **3 Claims**

1. A signaling device adapted to be launched in a body of sea water beneath the surface thereof comprising,
a fuze body having an inner chamber and an aperture communicating therewith,
valve means in said fuze body normally closing said aperture

communicating with said inner chamber of said fuze body and preventing sea water from entering therein,
a projectile shell attached to said fuze body and containing an upper carrier, said upper carrier having at least one container or pyrotechnic composition and a parachute attached to said container,
an ejection charge for launching said projectile shell into the air,
squib means for igniting said ejection charge,
at least one sea water battery within said inner chamber of said fuze body for detonating said squib means, and



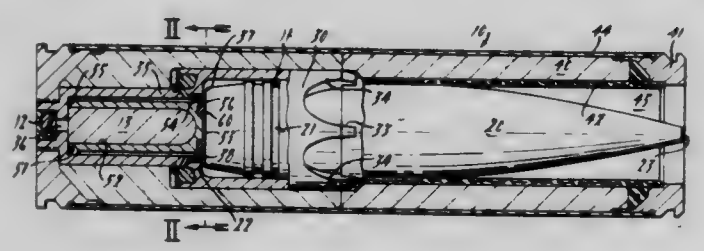
an electronic delay circuit connected between said squib means and said sea water battery for delaying current to said squib means for a predetermined time after said sea water battery is energized by opening of said valve means and entry of sea water into said inner chamber of said fuze body, said electronic delay circuit including a control rectifier and a reversible electronic integrator, said control rectifier being gated on to pass current to said squib means when said reversible electronic integrator has a change of electrical state.

4,335,657

AMMUNITION ROUND WITH RETAINED PISTON

William R. Bains, Lake Elsinore, Calif., assignor to Ford Aerospace & Communications Corp., Dearborn, Mich.

Filed Aug. 13, 1980, Ser. No. 177,690
Int. Cl.³ F42B 5/02
U.S. Cl. 102—433 **6 Claims**



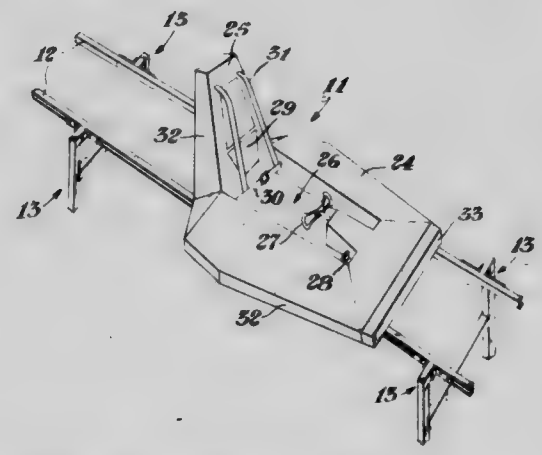
1. An ammunition round comprising:
a propellant charge means having an axial cavity for supplying firing power for said ammunition round;
a projectile means housed within said cavity for being fired from said ammunition round;
a control tube means for selectively covering portions of said propellant charge means facing said axial cavity thereby putting selected portions of said propellant charge in communication with said axial cavity and being generally positioned between said propellant charge means and said projectile means;
a primer means positioned generally aft of said projectile means for providing a firing force as part of a firing sequence from said ammunition round;
said control tube means including a first firing opening for providing an access to said propellant charge means from said axial cavity so that temperature and pressure conditions within said axial cavity adjacent said first firing opening can act on said propellant means thus providing for firing of said propellant charge means;
a piston means positioned aft of said projectile means so that forward motion of said piston means within said axial cavity causes forward motion of said projectile means within said axial cavity, said piston means separating said axial cavity into a forward portion and aft portion, and said piston means being conditionable between a first condition separating said primer means and said first firing opening thus providing a barrier between said primer means and said propellant means and a second condition permitting communication between said propellant means and said primer means through said firing opening;
said piston means having a generally cylindrical outer shape, a rearwardly opening recess means for receiving a charge and a flange means extending circumferentially around said piston means for obstructing the flow of combustion gases between said piston means and said control tube means, and for guiding said piston means within said control tube means, said flange means having a greater diameter than the remainder of said piston means so that the remainder of said piston means is spaced from said control tube means and can pass by said stop means and said flange means engages said stop means;
a stop ring means coupled to said control tube for limiting forward movement of said piston means thereby retaining said piston means within said ammunition round;
said control tube means having a threaded recess for receiving said stop means; and
said stop means being a generally annular member with an external, peripheral threaded portion adapted to mate with said threaded recess, said stop means having a rim means protruding into said axial cavity and sized to pass forward travel of said piston means until said flange means abuts said rim means, the longitudinal extent of said rim means being less than the longitudinal extent of said external peripheral threaded portion.

4,335,658

DOWNHILL SLIDE SYSTEM

James B. VanderKelen, Midland, Mich., assignor to Snow Machines Incorporated, Midland, Mich.

Filed Oct. 10, 1979, Ser. No. 83,401
Int. Cl.³ A63G 21/04
U.S. Cl. 104—69 **2 Claims**



1. A mountain slide system comprising:
a double-rail track, each rail being of substantially rectangular cross-section with top, bottom, and inside vertical faces each substantially flat, continuous and unobstructed throughout the length of the track, and being mounted well above the ground on supports attached to it along its outside vertical face; and
a cart having front and rear wheel pairs mounted to support it on the track,
each wheel being of substantially constant diameter throughout its width, such width considerably exceeding the diameter and being at least twice that of the rail on which it runs,
the wheels of the front pair being held in separate mounts each adapted to pivot about a vertical axis to allow steering the cart relative to the track,
a guide member for each supporting wheel mounted on the cart in position to bear on the vertical inside face of the corresponding rail to restrain the wheel from sliding laterally outward off the rail, said guide members for each pair

of wheels being spaced apart a distance sufficiently less than the gauge of the track to afford substantial steering clearance, the guide members of the front wheels being rubbing blocks and of the rear wheels being smaller wheels with vertical axles,

a pair of brakes operable by the rider, each including a pad movably mounted below a rear supporting wheel in position to bear on the bottom face of the corresponding rail when actuated or when the rear of the cart tends to jump vertically off the rail,

the cart also having mounted thereon front and rear pairs of ground handling wheels for rolling the cart when off the rails, the front pair of such handling wheels also serving as retaining wheels to restrain the supporting wheels from lifting substantially above the rails, one such front handling wheel being mounted below each front supporting wheel in position to bear on the bottom of the corresponding rail, and

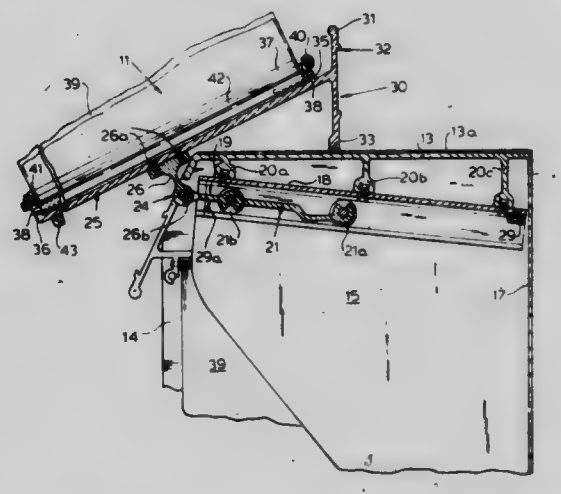
steering means operable by the rider of the cart to control the pivoting of the steerable wheels.

4,335,659

RESTORABLE GANG APPARATUS FOR TELEPHONE BOOK BINDERS

Robert N. Azzato, Phoenix, Ariz.; Henry N. Staats, Deerfield, and Neal J. Morrissey, Chicago, both of Ill., assignors to General Binding Corporation, Northbrook, Ill.

Filed Sep. 7, 1979, Ser. No. 73,568
Int. Cl.³ A47B *97/04*
U.S. Cl. 108—28 6 Claims



1. In a restorable gang apparatus for one or more telephone books including a main frame having a top shelf and spaced end plates depending downwardly generally at opposite ends of the shelf with one or more telephone books being normally storable on the bottom side of the shelf, the improvement comprising:

a plurality of book mounting units suspended from beneath the top shelf between the spaced end plates in a storage position and with each unit comprised, as follows:

a track,

an inclined track hanger means suspending the track in an inclined position with a forward end of the track being more elevated than a rearward end of the track,

a truck having slidable bearing means mounted on the track for back and forth movement on the inclined track,

telephone book carrier structure beneath said track,

rotatable pivot means suspending said telephone book carrier structure from said truck,

means for mounting the telephone book onto said telephone book carrier structure, and

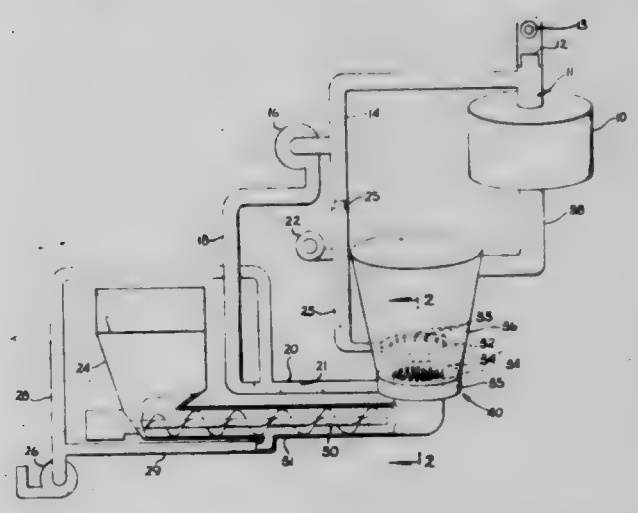
a handle operatively connected to said telephone book carrier structure and pullable in a direction causing said truck to move upwardly on said track and for placement of said rotatable pivot means in adjacency to a front edge of said top shelf and for then enabling the telephone book carrier structure to rotate on its rotatable pivot means for positioning at least a portion of said telephone book carrier structure in overlying relation to said top shelf for placing the telephone book carrier structure and the telephone book in a viewing position, the vertical axis of the rotatable pivot means being off center with respect to the center of gravity of the telephone book carrying structure prohibiting counter rotation of the telephone book carrying structure when in an at rest telephone reviewing position, said telephone book carrier structure having an upwardly extending flange positioned at its outer end with a lower portion of the flange comprising said handle and by an upper portion of said flange having a top shelf engaging end for supporting the telephone book carrier structure and the telephone book when in a viewing position.

4,335,660

APPARATUS AND METHOD FOR FLUE GAS RECIRCULATION IN A SOLID FUEL BOILER

Kenneth L. Maloney, Laguna Beach, and Nick B. de Volo, Irvine, both of Calif., assignors to Research Cottrell Technologies, Inc., Irvine, Calif.

Filed Jun. 2, 1980, Ser. No. 155,672
Int. Cl.³ F23B *5/02*
U.S. Cl. 110—206 32 Claims



1. In a solid fuel fired boiler having a combustion chamber, a fuel grate means for supporting a solid fuel bed, said solid fuel bed disposed within said combustion chamber for purposes of providing an energy source for combustion, and fuel means allowing for the exit of gaseous products from the combustion of the solid fuel within said combustion chamber, the improvement comprising:

(a) means for recirculating a first predetermined quantity of gaseous products from said flue means to a bottom surface of said solid fuel bed, said quantity of gaseous products having an amount of moisture and carbon dioxide sufficient to lower the temperature of said solid fuel bed on said fuel grate;

(b) means for mixing said recirculated gaseous products with air prior to recirculating said gaseous products to said solid fuel bed, said means for mixing forming a first mixture of said gaseous products and air;

(c) over-fire air means for providing a second mixture of a second predetermined quantity of gaseous products from said flue means and air as over-fire air above said solid fuel bed;

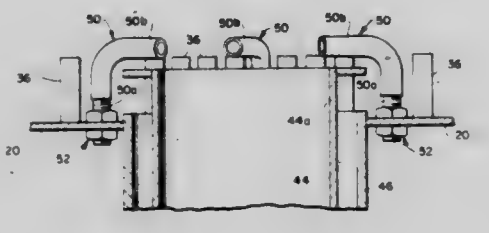
whereby said solid fuel bed operates at a lower temperature and the combustion of the solid fuel is more chemically active.

4,335,661

FLUIDIZED BED HEAT EXCHANGER HAVING AN AIR ASSISTED BED DRAIN

Robert D. Stewart, Verona, and Thomas E. Taylor, Bergenfield, both of N.J., assignors to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Sep. 24, 1980, Ser. No. 190,299
Int. Cl.³ F23G 7/00
U.S. Cl. 110—245 **7 Claims**



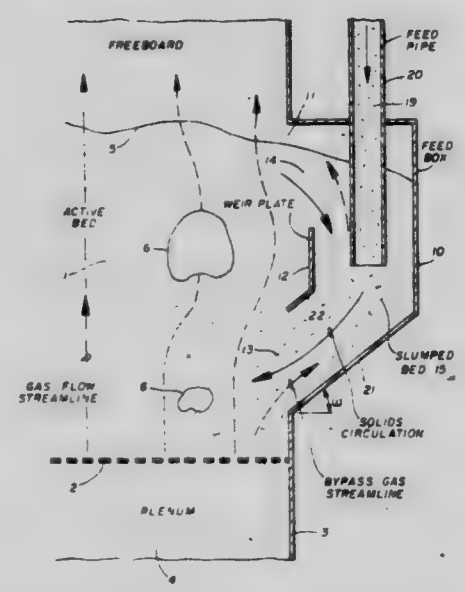
1. A fluidized bed heat exchanger comprising a perforated plate adapted to support a bed of particulate material, means for introducing air through the perforations to fluidize said particulate material, means for introducing additional particulate material to said bed, a drain pipe communicating with said bed for discharging spent particulate material from said bed, and means for discharging air over the inlet of said drain pipe to promote the flow of spent material into said pipe, the air discharging means comprising a plurality of nozzles each defined by a pipe having a first portion extending up from said plate and a second portion extending at an angle to said first portion and over said inlet of said drain pipe.

4,335,662

SOLID FUEL FEED SYSTEM FOR A FLUIDIZED BED

Brian C. Jones, Windsor, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Sep. 12, 1980, Ser. No. 186,924
Int. Cl.³ F23D 1/00
U.S. Cl. 110—263 **9 Claims**



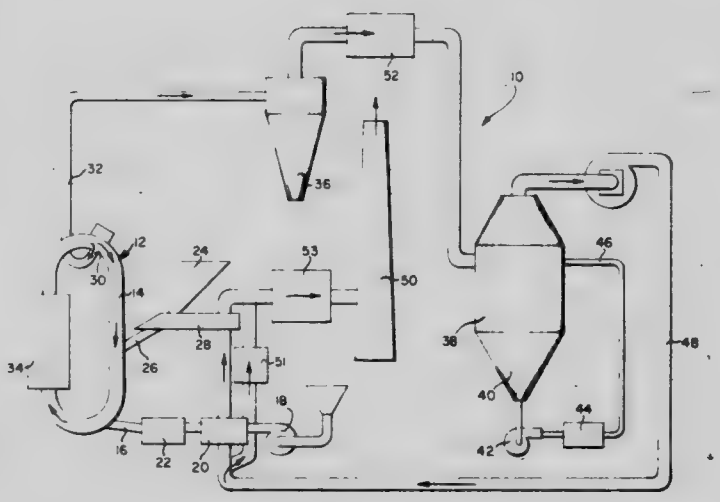
1. A feed system for a combusting fluidized bed, including,
a bed which includes crushed solid fuel to be burned,
a source of air for combustion flowing up through the bed in the form of bubbles and fluidizing the bed during combustion,
a compartment structure positioned at one side of the active fluidized bed,
a wall with an upper and a lower opening between the active fluidized bed and the compartment,
a slumped bed positioned within the compartment receiving solid material from the upper portion of the active fluidized bed through the upper opening in the wall to maintain a hydrostatic head difference between the slumped bed and active fluidized bed at the lower opening between the compartment and active bed,
and means for supplying fresh solid fuel to a point below the level of the slumped bed and a predetermined distance from the lower wall opening to avoid a residence time for the fresh fuel in the compartment which would cause volatilization and ignition of the fuel and to establish a flow of the fresh fuel into the fluidized bed with material of the slumped bed passed through the lower opening with the force of the hydrostatic heads.

4,335,663

THERMAL PROCESSING SYSTEM

George C. Terrell, Foxboro, Mass., assignor to Conservation Technologies, Inc., Providence, R.I.

Filed Nov. 19, 1979, Ser. No. 95,494
Int. Cl.³ F23D 1/02
U.S. Cl. 110—264 **5 Claims**



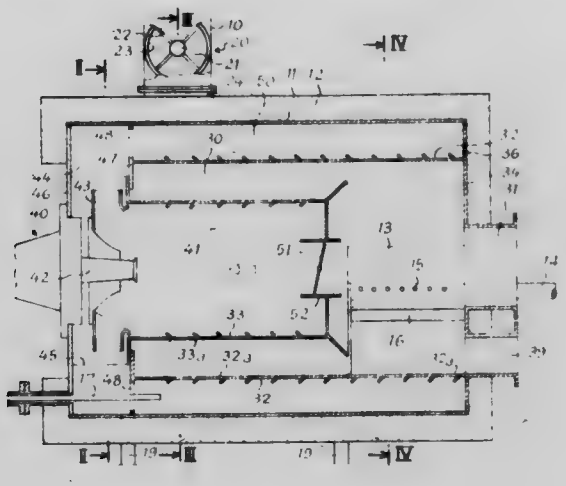
1. A system for effecting high thermal transfer rates between a solid or liquid and a carrier gas comprising, in combination, a reaction chamber, means for continuously feeding solid or liquid material in a finely divided state in said chamber, means for continuously introducing said gas to said chamber and for establishing and maintaining a high velocity gas stream in said chamber such that substantially all the solid or liquid material is entrained therein, whereby an interaction takes place between said material and said gas, means for controlling the thermal energy content of said material-bearing gas steam, means for recycling a substantial fraction of said material-bearing gas stream, means comprising an exit port and conduit for continuously removing a portion of the gas stream containing entrained solid or liquid material from said reaction chamber, and means for separating said entrained solid or liquid material from said removed portion after removal from said reaction chamber, said reaction chamber being generally toroidally shaped and said carrier gas introduction being through a side wall of a toroidal surface thereof and in the direction of the desired flow, said introduction being at such a flow rate that the desired velocities are established and maintained, the solid or liquid particulate material also being introduced through said side wall of the toroidal chamber and in the same direction of flow as that assumed by the carrier gas, the proportion of material flowing within the toroidal surface relative to the total amount of material introduced therein being controlled by the position and geometry of the exit port and conduit.

4,335,664

METHOD AND APPARATUS FOR THE THERMAL TREATMENT OF COMBUSTIBLE MATERIAL

Jean M. Lucas, Paris, and Jean F. Molle, Choisy-le-Roi, both of France, assignors to Cemagref, Antony, France

Filed Oct. 10, 1979, Ser. No. 83,528
Claims priority, application France, Oct. 11, 1978, 78 28963
Int. Cl.³ F23G *5/00*
U.S. Cl. 110—346 9 Claims



1. A method for the thermal treatment of fine combustible materials by suspending said materials in a stream of hot gases, which method consists in introducing the materials to be treated into a cylindrical enclosure of horizontal axis, in creating a stream of hot gases flowing around the said axis and in recycling part of the hot gases produced in order to sweep along the particles to be treated and to place them in suspension in the stream of hot gases, close to the inside wall of the enclosure, so as to treat uniformly the fine materials of a widely varied granulometry injecting combustion air into the enclosure in the vicinity of the longitudinal end thereof, and discharging the products resulting from the thermal treatment of the materials from the same end.

4,335,665

TOOL FOR WEAVING

John Russell, Martin Rd., LaGrangeville, N.Y. 12540

Filed May 15, 1980, Ser. No. 150,244
Int. Cl.³ D05C *15/06*
U.S. Cl. 112—80 10 Claims



1. A tool for weaving comprising

a first elongated element having, a smooth tapered portion at one end, a handle portion at an opposite end offset from said tapered portion, a curvilinear element secured to said handle portion to define a finger-grip and a material gripping portion intermediate said ends;

a second element pivotally mounted on said first element at a pivot point between said material gripping portion and said handle portion, said second element having a shaped portion at one end spaced from said handle portion and a material gripping portion at an opposite end facing and mating with said material gripping portion of said first element to define a smooth outer contour for passage through a mesh opening of a backing; and

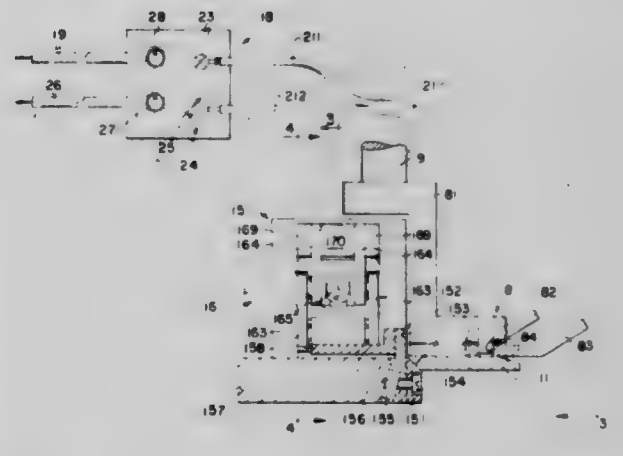
means biasing said material gripping portions of said elements into mating engagement with each other.

4,335,666

STRIP SEVERING MECHANISM FOR SEWING MACHINES

Konstantin H. Schwaab, Aichwald-Lobenrot; W. Andreas Petzold, Überlingen, and Werner A. Glöckle, Besigheim, all of Fed. Rep. of Germany, assignors to Union Special G.m.b.H., Stuttgart, Fed. Rep. of Germany

Filed Aug. 25, 1980, Ser. No. 180,715
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1979, 2935405
Int. Cl.³ D05B *37/04*
U.S. Cl. 112—130 8 Claims



1. Apparatus for trimming tapes and the like and adapted for use on a sewing machine having stitch-forming means for attaching the tape to a workpiece both of which are progressively moved through the machine, a throat plate, vertically movable presser bar means and a presser foot assembly including a shank adapted to operatively secure a presser foot sole to the presser bar, said trimming apparatus comprising:

stationary blade means arranged beneath the presser bar means and over which the workpiece and tape travel;

second blade means adapted for cooperation with the stationary blade and normally held out of contact therewith above the advancing tape;

means for actuating the second blade means to cause it to sever the binding from the workpiece along a line extending substantially coextensive with the workpiece edge; and

means for controlling the actuating means, said control means includes a fiber optic light source one end of which is mounted in said presser foot sole opposite a reflecting surface on said throat plate, the other end of said fiber optic light source is connected to a control device including means responsive to a workpiece passing between a light path defined by the path between the first end of the fiber optic light source and the reflective surface and adapted to timely energize said actuating means whereby moving the second blade means into a cutting relationship with said tape.

4,335,667

PATTERN SELECTION ARRANGEMENT FOR A MULTIPLE PATTERN SEWING MACHINE

Howard L. Beckerman, Middleton, N.J., and Charles L. Mauro, New York, N.Y., assignors to The Singer Company, Stamford, Conn.

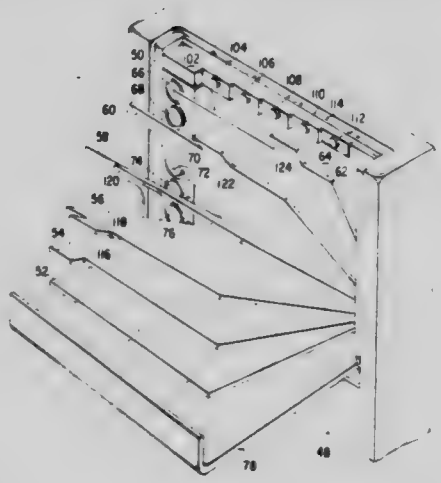
Filed Oct. 30, 1980, Ser. No. 202,204
Int. Cl.³ D05B *3/02*
U.S. Cl. 112—158 E 6 Claims

1. In a multiple pattern sewing machine having stitch forming instrumentalities positionally controlled over a predetermined range between stitches to produce a selected pattern of feed and bight controlled stitches from a plurality of different patterns, static memory means for storing pattern stitch information for said plurality of patterns, means operating in timed relation with said sewing machine for recovering selected pattern stitch information from said static memory means, and

actuating means responsive to said pattern stitch information for influencing the stitch forming instrumentalities to produce a pattern of stitches corresponding to the selected pattern stitch information, an operator influenced stitch pattern selection arrangement for selecting any one of said plurality of different patterns comprising:

first switch means for operator selection of a pattern from a first group of said plurality of different patterns;

second switch means for selecting a pattern from a second group of said patterns consisting of the remaining ones of said plurality of different patterns, said second switch means including a first plurality of switches, a second plurality of switches and a plurality of plates, said plates being pivotally mounted on a common axis so as to be selectively movable one by one in succession between a



first substantially vertical position and a second substantially vertical position, only one at a time of said plates being visible in said first position, each of said plates including means for actuating a respective one of said first plurality of switches when each said plate is in said first position, said second plurality of switches being arranged on said sewing machine adjacent an edge of the plates in the first position and adapted for operator actuation thereof, the sewing machine including means responsive to actuation of one of said second plurality of switches for selecting a pattern from said second group of patterns corresponding to the combination of the actuated one of said second plurality of switches and the visible one of said plates in said first position; and

means mounted on said sewing machine for selectively covering said second switch means from view and operation.

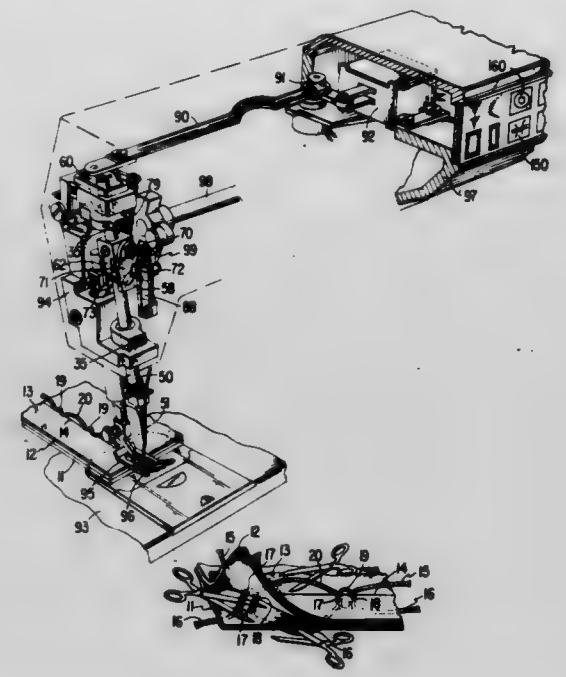
4,335,668

PATTERN CONTROLLED SEWING MACHINE FOR PRODUCING TAILOR TACKS

Charles R. Odermann, Montville, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Aug. 7, 1981, Ser. No. 290,893
Int. Cl.³ D05B *3/02*
U.S. Cl. 112—158 E **4 Claims**

1. A tailor tack producing arrangement in a sewing machine having an endwise reciprocatory thread carrying needle, a work feeding mechanism, needle reciprocation interrupting means effective during operation of said work feeding mechanism, and a static electronic memory for storing stitch pattern information for controlling said work feeding mechanism and said needle reciprocation interrupting means, said tailor tack producing arrangement comprising stitch pattern information stored in said electronic memory for influencing the formation of a recurring stitch pattern comprising two successive endwise needle reciprocations with one intervening work advance by said work feeding mechanism followed by operation of said needle reciprocation interrupting means during a predetermined multiplicity of successive work advance increments by said work feeding mechanism, and operator influenced means on said sewing machine for selecting said recurring stitch pattern information in said electronic memory to produce



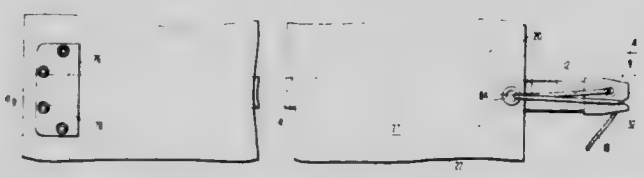
widely spaced groups of two closely spaced stitches along any desired prospective line of stitches and severable for delineating said prospective line of stitches by tailor tacks.

4,335,669

SAIL BATTEN IMPROVEMENTS

John Hackney, 1026 NW. 16th St., Stuart, Fla. 33494

Filed May 2, 1977, Ser. No. 793,087
Int. Cl.³ B63H *9/04*
U.S. Cl. 114—103 **19 Claims**



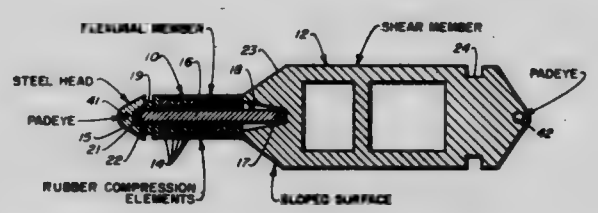
1. A sail batten provided on the aft end with jam means to cleat a line passing from the leech of the sail containing the batten to constrain the batten.

4,335,670

FLEXIBLE SIDE CONNECTOR FOR FLOATING AND ELEVATED PLATFORMS

Clifford I. Skaalen, Oxnard, and Arthur B. Rausch, Port Hueneme, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 14, 1980, Ser. No. 168,974
Int. Cl.³ B63B *21/56*
U.S. Cl. 114—249 **16 Claims**



1. A connector system for securing floating and elevated platforms together into a greater platform area while providing integrity and flexibility between platforms, comprising:

a. a first female tubular member normally mounted in the side of a first platform means which is to be connected to a second platform means;

b. a male flexural means comprising a large shear member having an outer diameter nearly equal to the inner diameter of said female tubular member and in-line flexural member of substantially smaller diameter than said shear member; said large shear member being operable to transmit vertical and lateral shear loads from one platform to another, and said smaller diameter in-line flexural member operable to allow relative rotation between platforms in the floating mode;

c. said male flexural means operable to slideably fit within said first female tubular member;

d. a first locking means in conjunction with said shear member for securing said male flexural means within said first female tubular member;

e. said in-line flexural member comprising compression means and a rigid metal head means articulately connected to one end of a tensile rod element to allow said rigid metal head a few degrees of angular movement at said connection to said tensile rod element; the opposite end of said tensile rod element being articulately connected to one end of said shear member to allow said rod a few degrees of angular movement at the connection to said shear member;

f. said in-line flexural member compression means including a plurality of rubber discs surrounding said tensile rod element between said rigid metal head and said one end of said shear member, said rubber discs bearing against said rigid metal head and against the said one end of said shear member;

g. said male flexural means also being operable to be partially extended from said first female tubular member such that said in-line flexural member and a portion of said shear member are extended sufficiently to be introduced into a second female tubular member which is mounted in an adjacent second platform means; said first and said second female tubular members being of substantially the same configuration and dimensions;

h. a second locking means in conjunction with said in-line flexural member for securing the extended portion of said male flexural means within said second female tubular member whereby said first and second platforms are connected together; said in-line flexural member being of substantially smaller diameter than the inner diameter of said second female tubular member to allow substantial flexing action of said in-line flexural member within said second female tubular member thereby permitting considerable relative roll motion between said first and said second connected together platform means while simultaneously said shear member provides a shear capability between the two platform means.

4,335,671

FLAP LEADING EDGE FOR HYDROFOIL VESSELS AND THE LIKE

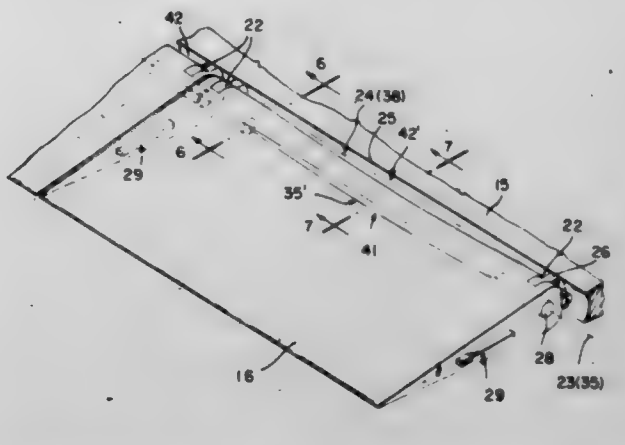
Gary J. Warner, Issaquah, and Kenneth R. Meldahl, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Jul. 17, 1980, Ser. No. 169,732

Int. Cl.³ B63B *1/24*; B64C *9/30*

U.S. Cl. 114—274 **11 Claims**

1. An improved high performance fluid foil having a plurality of trailing edge control flaps mounted thereon, said foil having a trailing edge machined as a radius at constant percent of chord over the entire span of said foil, a plurality of control flaps each having a leading edge and a trailing edge, a plurality of pairs of span-wise spaced hinge means for connecting said leading edge of each of said plurality of flaps to said foil trailing edge with said flap leading edges and said foil trailing edge being spaced apart by a gap extending the entire span-wise extent of each of said flaps, said flap leading edges each being contoured so that said gap is greater at the mid-point between said span-wise spaced hinge means than in the region of said hinge means when said flaps are in an undeflected state so that upon controlled angular rotation of said flaps out of the plane of said foil, the central portions of said flaps have freedom for fluid induced deflection relative to said foil trailing edge at the



mid-points between said span-wise spaced points of hinged connection without interference between said flap leading edges and said foil trailing edge.

4,335,672

APPARATUS FOR COATING A WEB WITH A VISCOUS COATING MATERIAL

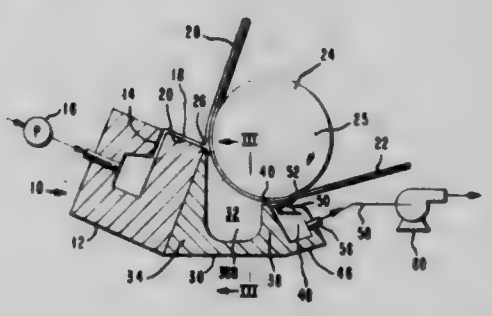
Karlheinz F. Krussig, Egelsbach, Fed. Rep. of Germany, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 9, 1981, Ser. No. 252,430

Claims priority, application Fed. Rep. of Germany, Apr. 17, 1980, 3014816

Int. Cl.³ C23C *13/08*

U.S. Cl. 118—50 **9 Claims**



1. Apparatus for coating a moving web with a viscous coating material, the apparatus being of the type having

an extrusion coater for discharging the coating material onto the web,

means for guiding the web in a first direction past the coater such that a bridge of coating material is formed between the web and the coater as the web moves therepast,

a suction chamber having a wall disposed within a predetermined clearance distance of the web, the suction chamber being operable to draw the bridge by suction in a direction opposite the first direction to prevent the movement of the web past the coater from rupturing the bridge,

wherein the improvement comprises:

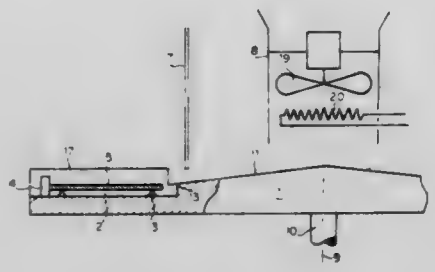
a die-shaped exhaust device having a die slot and a predetermined number of exhaust openings therein, the exhaust device generating the suction within the chamber by withdrawing air therefrom through the clearance and the die slot, the air drawn into the exhaust device being exhausted therefrom through the exhaust openings, the cross-sectional area of the exhaust device being from 0.5 to 50 times the cross-sectional area of the die slot divided by twice the number of exhaust openings.

4,335,673

APPARATUS FOR THE COLORING OF SLIDES

Marcel J. Fixot, La Basse Chevrie, 35590 L'Hermitage, France

Filed May 14, 1979, Ser. No. 38,636
Claims priority, application France, May 17, 1978, 78 15167
Int. Cl.³ B05C *11/08*
U.S. Cl. 118—52 6 Claims



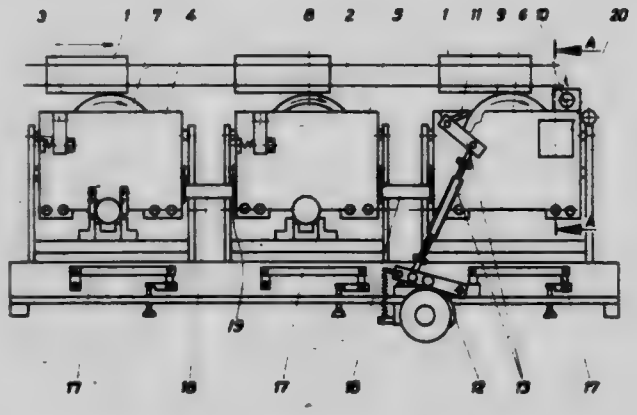
1. Apparatus for coloring slides having smear preparations thereon, said apparatus comprising rotatable means having a plurality of shallow recesses circumferentially distributed around the periphery thereof, said recesses being separated from each other by sidewall swellings and being open at the periphery of said rotatable means, means in each of said cavities for supporting a slide in a position which is elevated above the bottoms of said recesses far enough to enable a liquid coloring reagent to spread under said slide responsive to capillary action, means for rotating said rotatable means at either a high speed or a low speed RPM, and means for selectively introducing a reagent into each of said recesses, the reagent being introduced from the central area of said rotating means, whereby said reagent may be distributed under a slide by low speed centrifugal forces and expelled from under said slide by high speed centrifugal forces.

4,335,674

APPARATUS FOR APPLICATION OF A HOT MELT GLUE ONTO THE BACK SURFACES OF BOOK BLOCKS

Gerald Winker, Leipzig; Hans-Peter Thrandorf, Grossdalzig, and Christian Blum, Leipzig, all of German Democratic Rep., assignors to VEB Kombinat Polygraph "Werner Lamberz" Leipzig, Leipzig, German Democratic Rep.

Filed Jul. 10, 1980, Ser. No. 167,318
Claims priority, application German Democratic Rep., Aug. 13, 1979, 214943
Int. Cl.³ B05C *1/02*; B42C *9/00*
U.S. Cl. 118—110 10 Claims



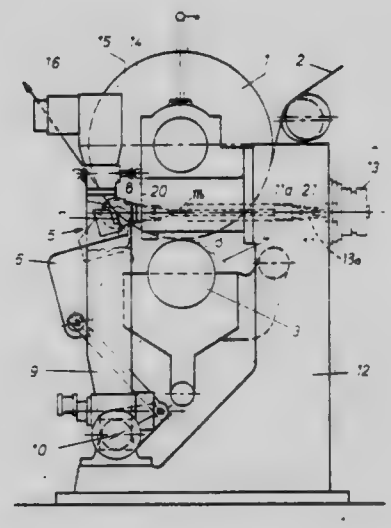
1. In an apparatus for application of hot melt glue to back surfaces of blocks, particularly for glueing book blocks, the combination comprising means for transporting blocks in a longitudinal direction adapted to support the blocks with their back surfaces oriented in a downward direction; a plurality of glue pans containing a glue to be applied to the blocks and positioned below said transporting means; and a plurality of rotary glueing rollers sequentially positioned in said longitudinal direction and each supported in the respective glue pan and adapted to contact the back surfaces of the blocks being transported, at least two of said glueing rollers having a conical outer surface and being set at an angle toward each other, said at least two glueing rollers together with the respective glue pans in which said rollers are supported being adapted to pivot with respect to the blocks transported in said longitudinal direction, at least one of said glueing rollers positioned after said two glueing rollers in said longitudinal direction having a cylindrical outer surface to provide for uniform application to the block back surfaces of glue, distributed in fan-like fashion.

4,335,675

COATING APPARATUS

Hartmut Waldvogel, Heidenheim, Fed. Rep. of Germany, assignor to J. M. Voith GmbH, Fed. Rep. of Germany

Filed Jul. 31, 1980, Ser. No. 174,692
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1979, 2931800
Int. Cl.³ B05C *1/08, 11/02*
U.S. Cl. 118—126 4 Claims



1. A coating apparatus for coating a moving web, comprising:

a machine frame;

a coating mechanism for applying a coating material to a web moving through said coating apparatus;

a scraper device, comprising a scraper holder and a scraper element supported on and movable with said scraper holder; said scraper holder and said scraper element both extending transversely to the direction of travel of the web; said scraper element being for scraping excess coating material from the web; said scraper element being movable, along with said scraper holder, relative to said machine frame among three positions, said three positions being a rest position in which said scraper element is relatively remote from the web, a ready position in which said scraper element is relatively close to the web, and an operating position in which said scraper element scrapes the web; and

positioning means for moving said scraper element among said positions; said positioning means including a swing lever pivotally mounted to a swing axis on said machine frame, and said scraper holder being fastened to said swing lever remote from said swing axis; a positioning member connected with said swing lever for moving said scraper element together with said scraper holder from said rest position to said ready position; said positioning means further comprising a pneumatic pressing element connected in series with said positioning member for operating through said positioning member to displace said swing lever from the position of said swing lever wherein said scraper element is in said ready position to the position of said swing lever wherein said scraper element is in said operating position;

said positioning means further comprising a stop secured to said machine frame for being abutted by said swing lever

for positioning said swing lever where said scraper element is in said operating position; a positioning motor for displacing said stop in such a manner as to vary said operating position, thereby to adjust the pressure of said scraper element on the web.

4,335,676

DEVICE FOR REGULATING A GASEOUS FLOWSTREAM INTRODUCED INTO A SPOUTED BED GRANULATING AND/OR COATING APPARATUS

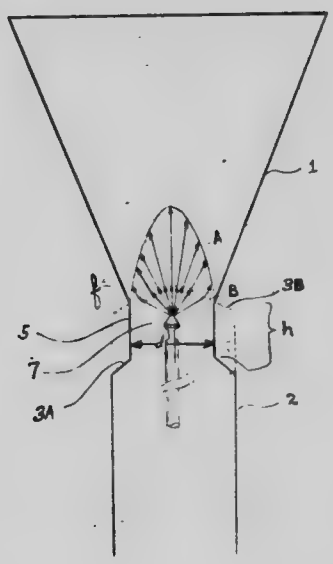
Christian Debayeux, Toulouse; Hubert Lacroix, Villeneuve Tolosane, and Felix Sternicha, Toulouse, all of France, assignors to Societe Chimique des Charbonnages S.A., Paris La Defense, France

Filed Dec. 1, 1980, Ser. No. 212,047

Claims priority, application France, Nov. 30, 1979, 79 29463

Int. Cl.³ B01J *2/16;* B05C *5/00*

U.S. Cl. 118—303 **3 Claims**



1. In an improved device for introducing a gaseous flowstream in an apparatus for granulating and/or coating particles in a spouted bed, of the type having a downwardly converging frustoconical part connected at the lower portion thereof to a pipe duct for introducing a gaseous flowstream and coating material, the pipe duct having an upwardly converging frustoconical part, the connection to the pipe duct located at the upper part of the upwardly converging frustoconical part, and the narrowest portion of both the upwardly converging and downwardly converging frustoconical parts having a diameter d, the improvement comprising:

flow directing means positioned between and connecting the downwardly converging frustoconical part to the upwardly converging frustoconical part for generating a substantially upwardly directed gaseous flowstream to create a pocket devoid of particles at the base of the downwardly converging frustconical part for homogeneously distributing the gaseous flowstream for granulating particles in the spouted bed, and said flow directing means comprising a cylindrically shaped hollow member having said diameter d, and a height h equal to 0.5 d to 0.66 d.

4,335,677

COATING OF THE INNER SURFACE OF TUBES

Koji Nagata; Akio Ogiso, and Kyuji Sudo, all of Nagoya, Japan, assignors to Sumitomo Light Metal Industries, Ltd., Tokyo, Japan

Filed Sep. 3, 1980, Ser. No. 183,714

Claims priority, application Japan, Oct. 25, 1979, 54-147890[U]

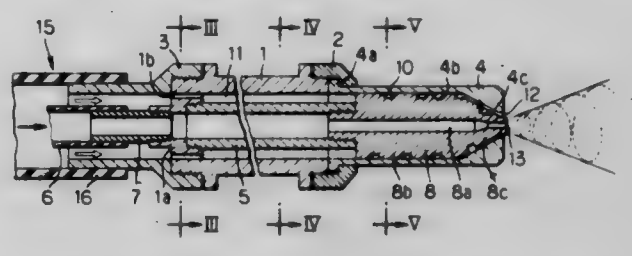
Int. Cl.³ B05C *7/02*

U.S. Cl. 118—306 **7 Claims**

1. A spray coating tool for continuously and gradually coating the inner surface of a tube by means of spraying a paint from a nozzle, while being shifted inside along the axial direction of said tube, in which said nozzle comprises:

a nozzle cap consisting of a hollow cylindrical portion, a hollow conical portion extended therefrom, and a gas blowing opening at a zenith of said hollow conical portion, and

a nozzle insert in said nozzle cap, said insert consisting of a prism portion inscribed in said hollow cylindrical portion of said nozzle cap, and provided with at least one spiral groove on the external surface thereof, a conical portion extended from said prism portion, being faced with a small



gap to the inner surface of said hollow conical portion of said nozzle cap, and a paint supply passage extending through along the axis of said nozzle insert,

whereby atomizing gas which is passed between said nozzle cap and said nozzle insert, being imparted a straight going force by a plurality of straightly elongated grooves formed between the inner surface of said nozzle cap and each of the sides of said prism portion and a spirally going force by said spiral groove or grooves, will be blown through said gas blowing opening so as to spirally spray in atomization the paint supplied through a passage along the axis of said nozzle insert.

4,335,678

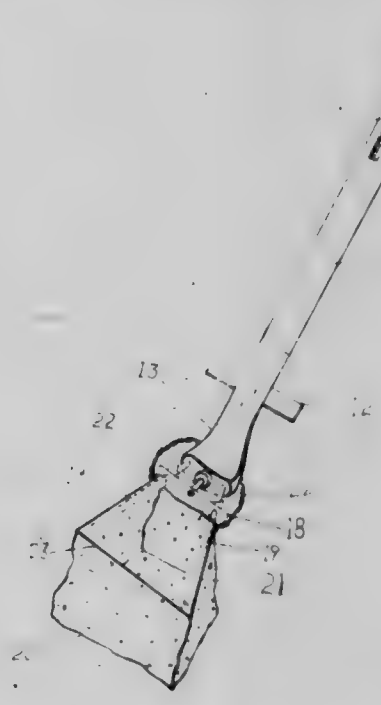
SANITARY CATCHER AND SCOOPER

Philip A. Garza, and Barbara A. Carter, both of 2062 N. Damen Ave., Chicago, Ill. 60647

Filed Apr. 15, 1980, Ser. No. 140,473

Int. Cl.³ A01K *23/00, 29/00*

U.S. Cl. 119—1 **2 Claims**



1. A sanitary catcher and scooper device comprising: a tubular handle having a vertical slot at the upper end thereof, being attached on the opposite or lower end at an angle to diverging flexible rods, said flexible rods being a holder means for a drawstring type disposable bag, which is inserted on said flexible rods through the drawstring casing of said bag; a control bar having a pair of openings which is inserted on said flexible rods, and a rod thru said tubular handle attached at the lower end to the center point of said control bar, and affixed at

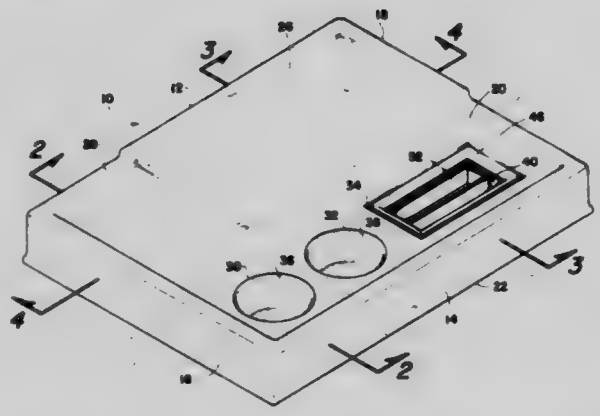
the upper end to a guide, with a handle protruding thru the slot in said tubular handle, a hook near the juncture of said tubular handle and said flexible rods, over which the drawstring of said bag is looped, to close and retain said bag when pushed off said flexible rods, such that, by moving said handle forward through said slot of said tubular handle said control bar pushes said bag off said flexible rods, said drawstring remains over said hook, thereby closing and retaining said bag, so that by elevating the lower end of said tubular handle said bag will slide off said hook for disposal, thereby eliminating the necessity of handling said bag and maintaining the device in a sanitary condition.

4,335,679

FELINE CAGE PLATFORM

Milton O. Carlin, 13111 E. 11th St., Tulsa, Okla. 74108

Filed May 4, 1981, Ser. No. 260,098
Int. Cl.³ A01K *29/00*
U.S. Cl. 119—1 **4 Claims**



1. A platform for supporting a confined domestic cat comprising:

(a) a frame having a top with downwardly depending sidewalls structure circumferentially attached to the periphery of said top with said sidewall structure terminating at a lower edge forming a base to support the frame;

(b) said top having a portion dimensioned to allow said cat to rest thereupon;

(c) recess means in said top for holding, below said top, removable food and water bowls and an open-topped litter pan which is available for use by the said cat;

(d) said litter pan removably fastened to said recess means and further including therein a urine sample receptacle comprising an open-top, closed-bottom container dimensioned to rest within said litter pan having sidewalls that extend above the desired level of litter and below the top of said litter pan; and

(e) means to prevent scattering of said litter including a removably fastened top lip which extends inward and downward into the interior of said litter pan terminating above the top of said urine sample container.

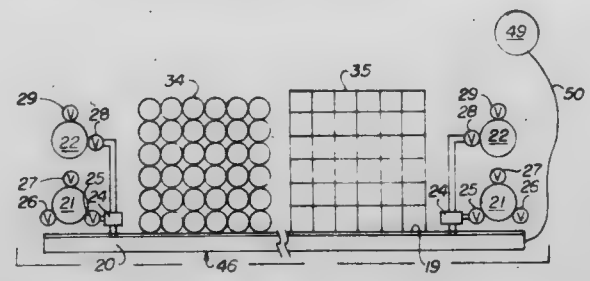
4,335,680

SYSTEM FOR METHOD FOR PRODUCTION OF MARINE FOOD USING SUBMERGED PLATFORMS

Vernon L. Kipping, 540 Melrose Ave., San Francisco, Calif. 94127

Continuation-in-part of Ser. No. 968,128, Dec. 11, 1978, abandoned, which is a continuation-in-part of Ser. No. 781,697, Mar. 28, 1977, Pat. No. 4,137,869. This application Jul. 14, 1980, Ser. No. 168,049
Int. Cl.³ A01K *61/00*
U.S. Cl. 119—3 **12 Claims**

1. A system for the production of marine food comprising an open platform, said platform comprising a flooring, buoyancy tanks around the perimeter of said flooring and including at least two substantially parallel, said buoyancy tanks and a plurality of air reservoir tanks extending transversely between said two opposed buoyancy tanks, said air reservoir tanks containing compressed gas, said buoyancy tanks being partially filled with water, first means located totally below the surface of the water for maintaining said platform submerged at a selected depth in an open body of water so that said platform is not subjected to wave action on the surface, means for supplying nutrients to said platform over an extended period of time, a buoyancy tank and a cluster of a plurality of cylinders having at least one open end connected to said platform to provide habitat for phytoplankton and habitat provided for marine life supported by phytoplankton and zooplankton is increased.



4,335,681

MANURE SHIELD FOR MULTI-TIER POULTRY CAGE CONSTRUCTIONS

Eddie L. Holland, Cumming, Ga., assignor to U.S. Industries, Inc., New York, N.Y.

Filed Jan. 19, 1981, Ser. No. 226,402
Int. Cl.³ A01K *31/04, 31/06*
U.S. Cl. 119—17 **23 Claims**



1. In a multi-tier cage construction for poultry and the like, having a first tier of cages, and a second tier of cages positioned thereabove; each tier of cages having top, bottom, front and back panels; and said first tier of cages having an exposed area positioned directly below said second tier of cages, wherein said exposed area is defined by front and rear boundaries, the improvement of a manure shield, comprising:

a substantially continuous, rigid support panel having a lower edge thereof connected with a rear edge of the top panel of said first tier cages, said support panel extending upwardly and laterally from said top panel rear edge at an acute angle to a point disposed substantially aligned along a vertical plane with the front boundary of said exposed cage area;

a sheet of flexible, substantially imperforate material positioned over the upper side of said support panel, and extending to the rear boundary of said exposed cage area to prevent manure droppings from entering said first tier cages; and

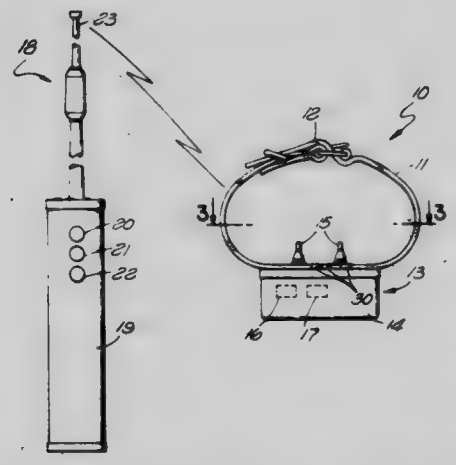
means for mounting said flexible sheet over said support panel, whereby said support panel transmits vibrations from said first tier of cages to said flexible sheet, and manure droppings stuck to said flexible sheet are disjoined therefrom by the vibrations, and in turn slide off of said shield.

4,335,682

ANIMAL TRAINING APPARATUS

Gerald J. Gonda, and John Vancza, Jr., both of Tucson, Ariz., assignors to Tri-Tronics, Inc., Tucson, Ariz.

Filed Mar. 18, 1981, Ser. No. 247,313
Int. Cl.³ A01K *15/00*
U.S. Cl. 119—29 **20 Claims**



1. An animal training device comprising a unit which is adapted to be worn by an animal and which includes:

electrical stimulation means operable to aversively stimulate the animal;

additional means for producing an additional stimulus in a form other than aversive electrical stimulation and adapted to be sensed by the animal; and

automatic control means operable to automatically actuate said additional means to produce said additional stimulus upon termination of said aversive electrical stimulation, to thereby condition said additional stimulus to the animal's safety, relief and relaxation responses which occur naturally upon termination of the aversive electrical stimulation.

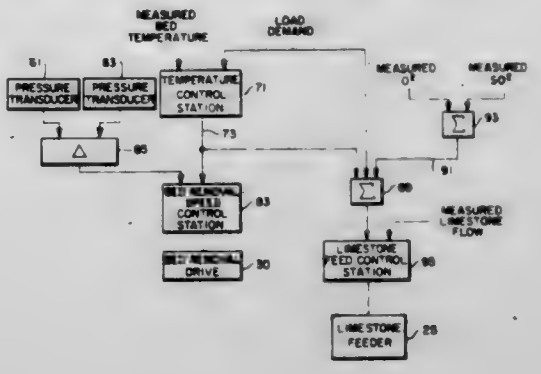
4,335,683

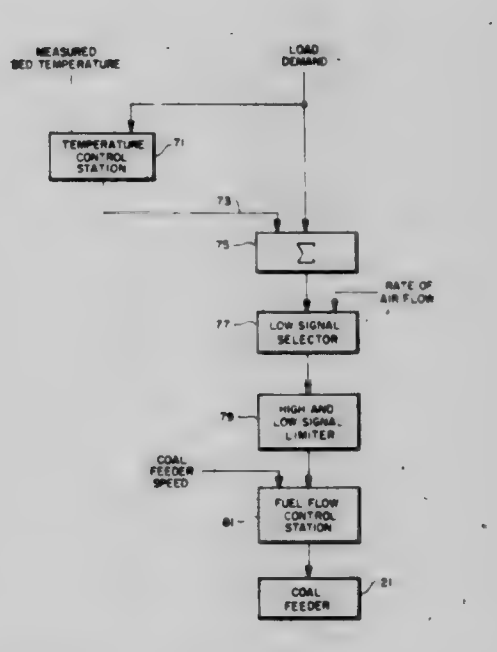
FLUIDIZED BED HEAT EXCHANGER WITH CONTROL TO RESPOND TO CHANGES IN DEMAND

Robert L. Criswell, Florham Park, and Michael C. Polagye, Madison, both of N.J., assignors to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Apr. 9, 1981, Ser. No. 252,545
Int. Cl.³ F22B *1/02*
U.S. Cl. 122—4 D **6 Claims**

1. In a combustion system having means defining a fluidized bed for combusting fuel in said fluidized bed, fuel feeding means to feed fuel into said fluidized bed under the control of a load demand signal representing the heat output required from the system, and second feeding means to feed noncombustible particulate material into said fluidized bed, the improvement comprising means to generate a temperature difference signal corresponding to the difference between a temperature corresponding to said load demand signal and the measured temperature of said fluidized bed, and means to add said temperature difference signal to said load demand signal to provide a composite signal, said fuel feeding means comprising fuel control means to vary the rate of fuel flow into said fluidized bed in accordance with said composite signal, said second feeding means comprising second control means to vary the





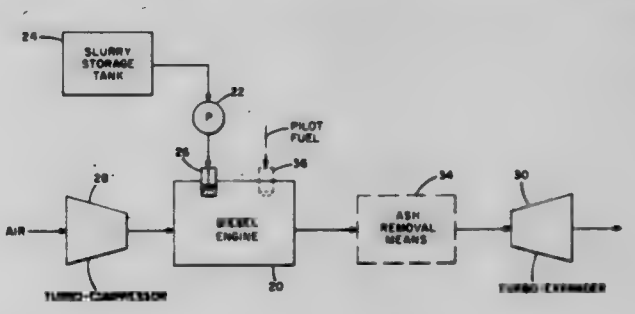
rate of noncombustible paticulate flow into said fluidized bed in accordance with variations in said load demand signal.

4,335,684

MICRONIZED COAL-WATER FUEL SLURRY FOR RECIPROCATING INTERNAL-COMBUSTION ENGINES

Jerry P. Davis, Concord, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.

Division of Ser. No. 30,573, Apr. 16, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 189,861
Int. Cl.³ F02B *51/00, 45/10*
U.S. Cl. 123—1 A **6 Claims**



1. A method for generating power comprising:

introducing into a valveless diesel engine operable at speeds from 80 to 150 revolutions per minute a liquid fuel slurry consisting of a mixture of water and 20 to 50 percent by weight of coal, in the form of particles having a maximum size not in excess of 20 microns;

introducing into said diesel engine a combustible fluid in an amount up to 10 percent by weight of said fuel slurry supplied thereto to aid in ignition of said fuel slurry;

mixing said fuel slurry and said combustible fluid with compressed air in said engine at conditions of pressure and

temperature such that the coal in said slurry burns to form combustion products and the water in said fuel slurry vaporizes to form steam; and

extracting work from said combustion products and said steam to generate power.

4. A system for generating power comprising:

a valveless diesel engine operable at speeds from 80 to 150 revolutions per minute for burning micronized coal in a mixture of micronized coal, water, and compressed air supplied to said engine and for extracting work from the fluid resulting from said burning;

means for supplying compressed air to said engine;

means for supplying a liquid fuel slurry consisting of water and micronized coal to said engine;

means for introducing into said engine a combustible fluid in an amount up to 10 percent by weight of the fuel slurry supplied thereto to aid in ignition of said fuel slurry; and

means in fluid communication with the exhaust of said engine for extracting work from the exhaust gases of said engine.

4,335,685

LIFTER ASSEMBLY

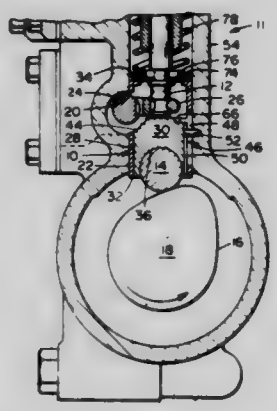
Jerry A. Clouse, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00867, § 371 Date Oct. 19, 1979, § 102(e) Date Oct. 19, 1979

PCT Filed Oct. 19, 1979, Ser. No. 108,906

Int. Cl.³ F01L *1/10*

U.S. Cl. 123—90.5 **12 Claims**



1. A lifter assembly (10) comprising:

a sleeve (28 or 128) having a lateral window (20 or 120) therethrough, said sleeve (28 or 128) having an inner diameter and an inner surface;

a roller holder (30 or 130) fitting within said sleeve (28 or 128) from a first end (32 or 132) thereof, said holder (30 or 130) having a generally semi-cylindrical cavity (36 or 136) therein extending nearly the length of said inner diameter and opening generally at said sleeve first end (32 or 132); and

a roller (14 or 114) having a roller surface of nearly the full length of said cavity (36 or 136) and being rotatably mounted in said cavity (36 or 136) with ends (42, 43 or 142, 143) of said roller (14 or 114) having outfacing surfaces in facing ralation to and adjacent said inner surface of said sleeve (28 or 128).

4,335,686

VALVE CONTROL AND PUMP-ACTUATING MEANS OF INTERNAL COMBUSTION ENGINE WITH FUEL INJECTION

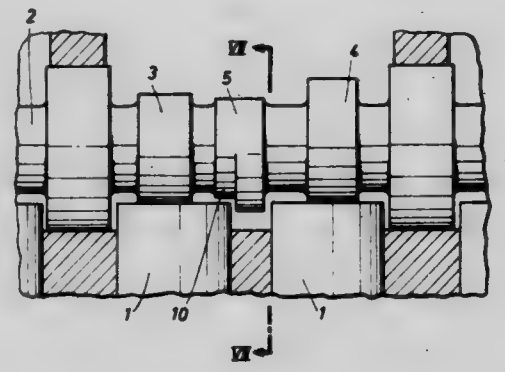
Günther Herdin; Erhard Kauer, both of Steyr; Maximilian Muckenhuber, Behamberg, and Eugen Egger, Steyr, all of Austria, assignors to Steyr-Daimler-Puch Aktiengesellschaft, Vienna, Austria

Filed Dec. 7, 1979, Ser. No. 101,219

Claims priority, application Austria, Dec. 19, 1978, 9057/78

Int. Cl.³ F01L *1/08*

U.S. Cl. 123—90.6 **3 Claims**



1. In an internal combustion engine comprising a fuel injection pump, an engine cylinder having an inlet valve and an outlet valve, an inlet valve tappet having a planar end face, an outlet valve tappet having a planar end face, a

camshaft having an axis extending parallel to the planar end faces of the tappets and a set of three axially fixed, adjacent cams associated with the cylinder, two of the cams engaging the planar end faces of the inlet valve tappet and outlet valve tappet, respectively, and a third one of the cams disposed between and axially spaced from the two cams, the third cam having an end face extending perpendicularly to the axis, and a cam follower cooperating with the third cam and operable thereby to control the fuel injection pump, the improvement of the third cam overlapping the planar end face of one of the two tappets in an axial direction to form an overlapping cam portion and another cam portion axially spaced therefrom and extending between the planar end faces of the two tappets, the overlapping cam portion having a return portion which is radially recessed relative to the other cam portion.

4,335,687

INTERNAL COMBUSTION ENGINE

Fukashi Sugasawa, Yokohama; Haruhiko Iizuka, Yokosuka; Yukihiro Etoh, Yokohama, and Toshiaki Tanaka, Fujisawa, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jun. 18, 1980, Ser. No. 160,616

Claims priority, application Japan, Jun. 20, 1979, 54-76889

Int. Cl.³ F02B *77/00*

U.S. Cl. 123—198 F **4 Claims**

1. An internal combustion engine comprising:

(a) first and second cylinder units each including at least one cylinder;

(b) pulse generator means for generating, in synchronism with engine rotation, a fuel injection pulse signal of pulse width proportional to the rate of air flow to said engine;

(c) first and second fuel supply means responsive to the fuel injection pulse signal for supplying, into said first and second cylinder units, respectively, a controlled amount of fuel corresponding to the duty ratio of the fuel injection pulse signal; and

(d) control means for cutting off the fuel injection pulse

signal to said second fuel supply means when the engine load is below a reference level increasing with an increase

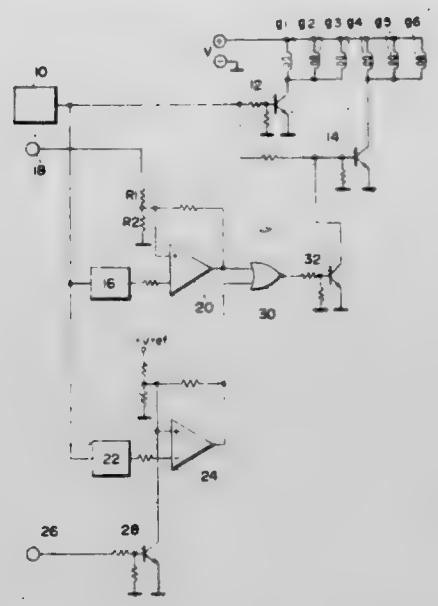


FIG. 1

in engine temperature except when the engine speed is below a given level at open throttle conditions.

4,335,688

COUPLING ADAPTER FOR FLUID COOLING AND FILTERING

Paul W. Diederich, Jr., 633 Hunters Trail, Glendora, Calif. 91740

Filed Sep. 12, 1980, Ser. No. 186,433
Int. Cl.³ F01M *1/00*
U.S. Cl. 123—196 A 8 Claims

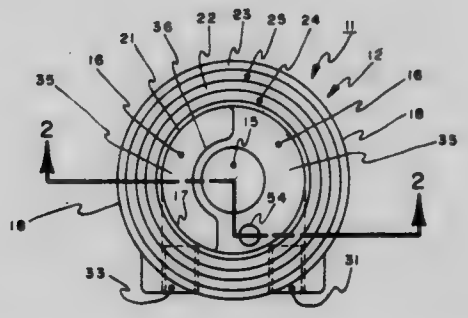


FIG. 2

1. A coupling adapter for attachment to the fluid reservoir of a hydraulic system for coupling a fluid filter and a remotely located fluid circulation device to the hydraulic system, comprising in combination:

(a) a generally disk-shaped body having first and second spaced-apart end surfaces, the first end surface being adapted for abutment adjacent the outlet surface of the fluid reservoir in place of a fluid filter, the second end surface being adapted for abutment adjacent the end surface of a fluid filter;

(b) a first cylindrically-shaped cavity extending partially into said disk-shaped body from said first end surface;

(c) first, second and third spaced-apart concentric ridges of different diameters formed at the first end surface of said disk-shaped body, said first ridge being adjacent to the outer peripheral surface of said first cavity, said third ridge being adjacent to the outer peripheral surface of said disk-shaped body, said second ridge being located in-between said first and second ridges;

(d) an inner circular groove situated between said first and second concentric ridges and extending partially into said disk-shaped body from the first end surface;

(e) an outer circular groove situated between said second and third concentric ridges and extending partially into said body from the first end surface, one of said inner or outer circular grooves being adapted for receiving a single O-ring for providing a fluid-tight seal between the first end surface of said disk-shaped body and the outlet surface of the fluid reservoir, said inner circular groove receiving an O-ring when the adapter is to be used with a fluid reservoir whose outlet surface is of a first diameter size, said outer circular groove receiving an O-ring of larger diameter when the adapter is to be used with a fluid reservoir whose outlet surface is of a second and larger diameter size;

(f) a second cylindrically-shaped cavity extending partially into said disk-shaped body from the second end surface, the second end surface of said disk-shaped body adapted for abutment adjacent the end surface of a fluid filter includes a substantially flat annular end surface extending between the outer peripheral surface of said second cylindrically-shaped cavity and the outer peripheral surface of said disk-shaped body, the width of said flat annular end surface being sufficient to abut the end surfaces of fluid filters of at least two different diameter sizes;

(g) a central wall section situated within said disk-shaped body between said first and second cavities for preventing the passage of fluid between said cavities;

(h) a central bore coaxially situated within and extending through said disk-shaped body between said first and second cavities, said central wall section including a cylindrically-shaped portion surrounding said central bore, said central bore being adapted for receiving a hollow nipple having an internally-threaded portion, the hollow nipple being adapted for aligning said disk-shaped body with the fluid reservoir of the hydraulic system, the hollow nipple having an externally-threaded portion situated outside said central bore and extending beyond the second end surface of said disk-shaped body, the externally-threaded portion of the nipple being adapted for engagement with a fluid filter, the hollow nipple securing the fluid filter and the coupling adapter to the fluid reservoir of the hydraulic system;

(i) an outlet port extending from the outer peripheral surface of said disk-shaped body and through said body into said first cavity, said outlet port being situated between said first and second spaced-apart end surfaces; and

(j) an inlet port extending from the outer peripheral surface of said disk-shaped body and through said body into said second cavity, said inlet port being spaced apart from said outlet port and being situated between said first and second spaced-apart end surfaces, the distance between the innermost wall portions of the passageways of said outlet and inlet ports at the points of entry into said first and second cylindrically-shaped cavities being greater than the diameter of the cylindrically-shaped portion of said central wall section surrounding said central bore, the distance between the outermost wall portions of the passageways of said outlet and inlet ports at the points of entry into said first and second cylindrically-shaped cavities being substantially equal to the diameters of said first and second cavities, said outlet and inlet ports being adapted for coupling the adapter to a remotely located fluid circulation device.

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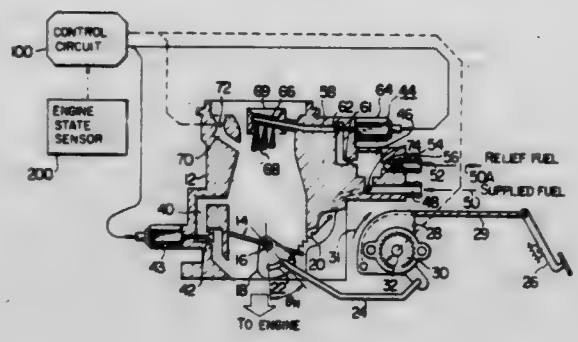
ELECTRONIC TYPE AIR/FUEL RATIO CONTROL SYSTEM

Osame Abe, Katsuta; Seiji Suda, and Toshio Furuhashi, both of Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 6, 1980, Ser. No. 147,054
Claims priority, application Japan, May 9, 1979, 54-55758
Int. Cl.³ F02D *11/10*
U.S. Cl. 123—339 10 Claims

1. An electronic type air/fuel ratio control system comprising an accelerator, means for detecting a manipulation angle of said accelerator, a shunt conduit by-passing a throttle valve, an air by-pass valve disposed in said shunt conduit for controlling flow rate of by-pass air, and a control circuit responsive to an output of said accelerator manipulation angle detecting means to generate a control signal for controlling said air by-pass

valve, and which further comprises means for opening said throttle valve in proportion to the accelerator manipulation angle when said accelerator is operated in excess of a predetermined manipulation angle, and wherein said throttle valve



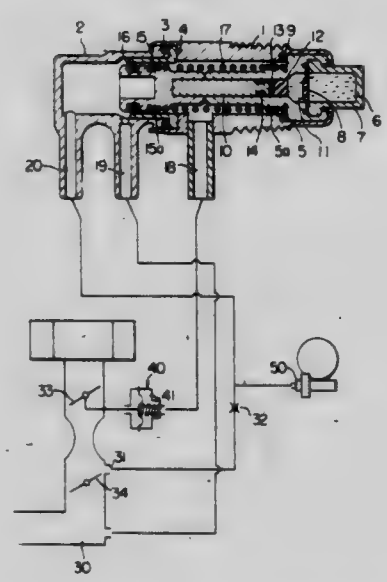
opening means comprises a link mechanism interlocking said throttle valve and said accelerator, and means for inhibiting interlocking of said accelerator with said throttle valve until said accelerator manipulation angle reaches a predetermined value.

4,335,690

TEMPERATURE-DETECTION TYPE CHANGE-OVER VALVE

Hiroyuki Hosokawa, Oobu, and Shiro Maeda, Kariya, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 28, 1980, Ser. No. 135,150
Claims priority, application Japan, Apr. 3, 1979, 54-40630
Int. Cl.³ G05D *23/12*
U.S. Cl. 123—407 **1 Claim**



1. A temperature responsive valve arrangement for controlling an internal combustion engine having a diaphragm-type choke opener, an intake pipe and a vacuum advance distributor comprising:

a thermally-expandable member adapted to expand as its temperature rises;

a shaft adapted to be pressed and moved in a first direction as the thermally expandable member expands, the thermally expandable member being disposed to sense a temperature representative of the state of the operation of the internal combustion engine;

a valve member rigidly coupled to the shaft and being movable between a first position where it permits a second fluid passage to communicate only with a third passage and a second position where it permits the second passage to communicate only with a first passage;

a tension spring disposed to surround the shaft and being adapted to bias the valve member in a second direction, opposite to the first direction such that when the representative temperature is above the predetermined temperature, the valve member is in the second position, the tension spring being retained at one end thereof by a screwthread like retainer formed around the valve member;

means for coupling the diaphragm of the choke opener to the first passage;

means for coupling the intake pipe to the second passage; and

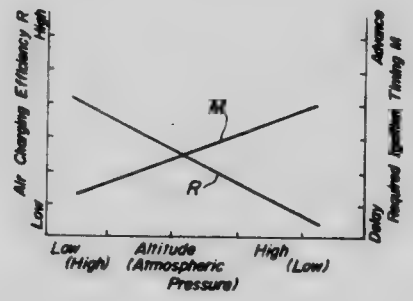
means for coupling the vacuum advancer of the distributor to the third passage, whereby whenever the representative temperature is below the predetermined temperature, the vacuum in the intake pipe is transmitted to the vacuum advancer through the second and third passages and whenever the representative temperature is above the predetermined temperature, the vacuum in said intake pipe is transmitted to the diaphragm of the choke opener through the second and first passages.

4,335,691

ALTITUDE COMPENSATION IGNITION SYSTEM

Hideki Konishi, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 11, 1980, Ser. No. 120,308
Claims priority, application Japan, Feb. 13, 1979, 54/15904[U]
Int. Cl.³ F02P *5/04*
U.S. Cl. 123—410 **1 Claim**



1. An altitude compensation ignition system for an internal combustion engine having a distributor body, comprising: a vacuum advance device for advancing ignition timing in response to intake negative pressures of the engine, and pressure sensitive compensation means having a bellows elongating and shortening in response to variation in atmospheric pressure to advance ignition timing depending upon lowering of the atmospheric pressure, said bellows forming an annular elongated cylinder whose ends are fixed to said distributor body and said vacuum advance device respectively, and inner and outer sleeves respectively restraining the inner and outer circumferential surfaces of said bellows so that the same moves in axial direction thereof only.

4,335,692

SPARK IGNITION TIMING CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES

Nobuo Miura, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 19, 1979, Ser. No. 95,208
Claims priority, application Japan, Nov. 27, 1979, 53-146402
Int. Cl.³ F02P *5/08*
U.S. Cl. 123—418 **10 Claims**

1. An ignition timing control system for use with an internal combustion engine which employs an ignition circuit including a capacitor charged by an exciter coil and a switching element responsive to a trigger signal for discharging the capacitor, the control system comprising

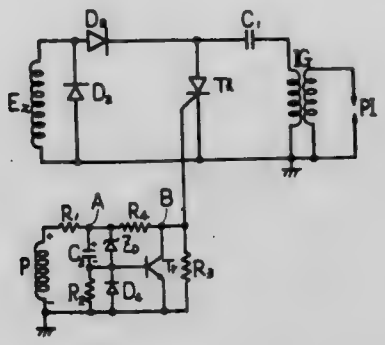
pick-up means for generating an electrical signal synchronized with the speed of an engine, the amplitude of the signal being proportional to the speed of the engine,

rectifier means connected with the pick-up means for rectifying the generated signal,

limit circuit means connected in parallel with the pick-up means for limiting the amplitude of the rectified signal to

a predetermined value representing a predetermined engine speed, and

trigger circuit means connected with the limit circuit means for detecting a preset falling point of the limited rectified signal waveform for generating trigger signals for the switching element of the ignition circuit of the engine to provide substantially constant ignition timing below said predetermined engine speed and to progressively retard



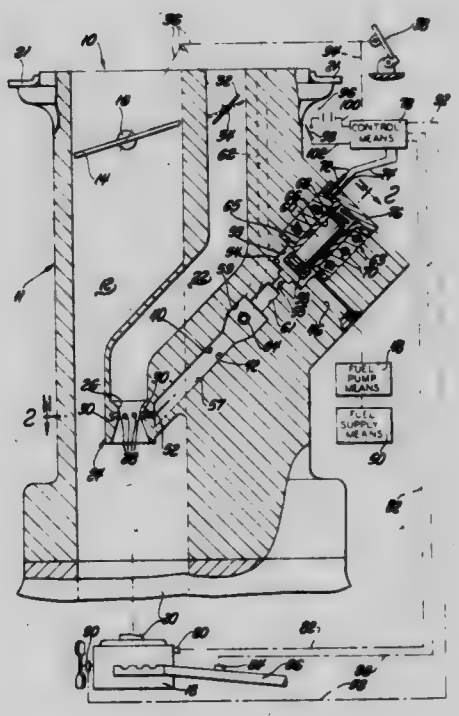
the ignition timing as the engine speed increases above said predetermined engine speed, said trigger circuit means including capacitor means connected in parallel with the pick-up means and including switching means connected between the switching element of the ignition circuit and capacitor means, said capacitor means discharging at a preset falling point of the limited rectified signal waveform from said limit circuit means.

4,335,693

FUEL INJECTION APPARATUS AND SYSTEM

Warren H. Cowles, Bloomfield Hills, Mich., assignor to Colt Industries Operating Corp., New York, N.Y.

Filed Sep. 20, 1979, Ser. No. 76,964
Int. Cl.[3] F02B *33/00;* F02M *7/00*
U.S. Cl. 123—438 49 Claims



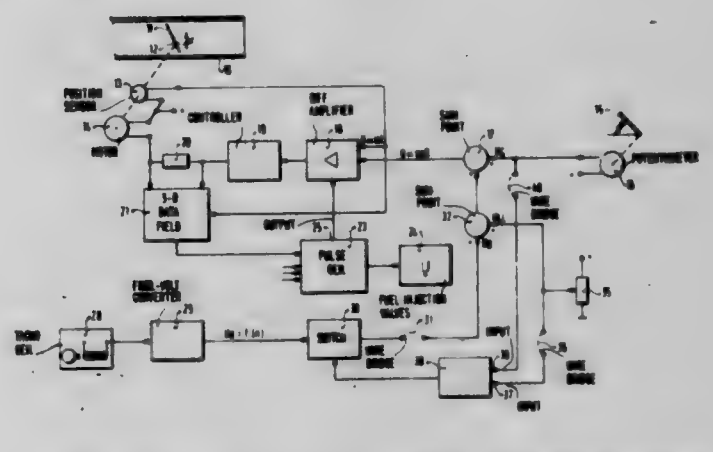
1. Fuel metering apparatus for supplying metered rates of fuel flow to a combustion engine, comprising body means, induction passage means formed through said body means for supplying motive fluid to said engine, said induction passage means comprising primary induction passage means and main induction passage means, said main induction passage means comprising first inlet means for permitting the inlet of air and first outlet means for discharging motive fluid to said engine, main throttle valve means for variably controlling the rate of flow of air into said first inlet means and through said main induction passage means, said primary induction passage means comprising second inlet means for permitting the inlet of air and second outlet means for discharging motive fluid to said engine, primary throttle valve means for variably controlling the flow of air through said primary induction passage means, said second outlet means comprising sonic venturi discharge nozzle means situated generally in said main induction passage means downstream of said main throttle valve means, fuel metering means for metering liquid fuel in response to engine demands and indicia of engine operation, metered fuel conduit means communicating between said fuel metering means and said sonic venturi discharge nozzle means, and air bleed means communicating between a source of air and said metered fuel conduit means for bleeding air into such liquid fuel as is metered by said fuel metering means as to cause atomization of said metered liquid fuel for delivery to said discharge nozzle means, said air bleed means being situated with respect to said metered fuel conduit means as to cause said bleed air to have a flow path generally perpendicular to the path of flow of said metered liquid fuel flowing in said metered fuel conduit means thereby causing said bleed air to strike said metered liquid fuel at an attitude generally perpendicular thereto and thereby change said metered liquid fuel to atomized metered fuel, said air bleed means comprising calibrated air passage means, and said calibrated air passage means being effective to flow said bleed air therethrough at sonic flow during normal engine operating conditions.

4,335,694

FUEL SUPPLY SYSTEM FOR INTERNAL COMBUSTION ENGINES

Eberhard Mausner, and Johannes Brettschneider, both of Ludwigsburg, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 46,286, Jun. 7, 1979, abandoned. This application Dec. 22, 1980, Ser. No. 219,274
Claims priority, application Fed. Rep. of Germany, Aug. 30, 1978, 2837820
Int. Cl.[3] F02D *35/00*
U.S. Cl. 123—478 6 Claims



1. A fuel control system for an internal combustion engine, said control system including an air induction tube having a linear axis and an accelerator pedal, said control system comprising:

an air flow pressure-responsive element comprising an eccentrically pivotally disposed valve member in said induction tube;

positioning means coupled to said valve member for angularly setting the position of said valve member with respect to the axis of said induction tube;

a control loop for generating a position control signal for said positioning means whereby the position of said valve member with respect to said axis of the air induction tube is adjusted by said control loop on the basis of a signal generated by a position sensor controlled by the position of the accelerator pedal;

processor means for processing said position control signal

generated by said control loop and for generating an air flow rate signal;

a fuel control signal generator for receiving signals from said processor means and for generating fuel control signals on the basis of engine condition signals; and

fuel admission means responsive to signals from said fuel control signal generator for admitting fuel to said engine on the basis of fuel control signals directed to said fuel control signal generator.

4,335,695

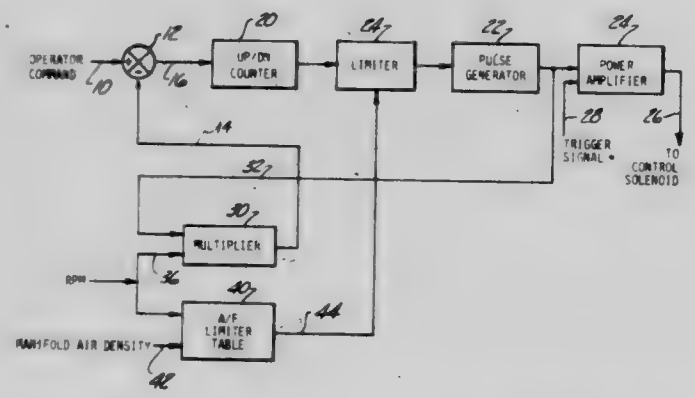
CONTROL METHOD FOR INTERNAL COMBUSTION ENGINES

Jack R. Phipps, St. Clair Shores, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 80,367, Oct. 1, 1979, abandoned. This application Apr. 27, 1981, Ser. No. 258,159

Int. Cl.³ F02M *7/18*; F02P *5/04*; F02M *63/02, 69/00*

U.S. Cl. 123—478 **2 Claims**



1. A method of controlling the fuel being delivered to an internal combustion engine in accordance with the operator desired power to be delivered from the engine and improving the operator perceived operation of the engine comprising the steps of generating an operator power command signal in response solely to an operator command, sensing the power being delivered by the engine by sensing the speed and the fuel being delivered to the engine and generating a power signal representative of the quantity of fuel being delivered to the engine per engine revolution, comparing the commanded power signal with the sensed delivered fuel per revolution power signal and generating an error signal representative of the difference between the commanded power and sensed fuel delivery power signal, changing the fuel being delivered to the engine to drive the error signal toward zero and limiting the maximum fuel to be fed to the engine by sensing the engine speed and air density of air being fed to the engine and generating a limiting signal in response to addressing a limiter table with said sensed engine speed and said air density, and limiting the fuel being fed to the engine per engine revolution in response to the output of the limiter table.

4,335,696

METHOD AND APPARATUS FOR PERFORMING FUEL MIXTURE ENRICHMENT

Hans Schnürle, Walheim; Michael Horbelt, Schwieberdingen; Ulrich Drews, Vaihingen-Pulverdingen; Peter Werner, Stuttgart-Neugereut; Otto Glöckler, Renningen; Dieter Günther, Ludwigsburg-Pflugfelden, and Richard Bertsch, Asperg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 866,878, Jan. 4, 1978, abandoned. This application Jul. 3, 1980, Ser. No. 165,920

Claims priority, application Fed. Rep. of Germany, Jan. 20, 1977, 2702184

Int. Cl.³ F02M *51/02*

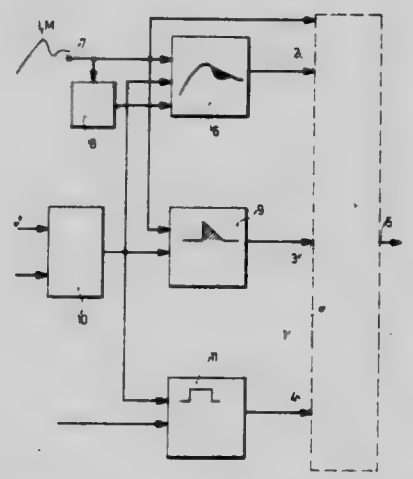
U.S. Cl. 123—492 **21 Claims**

1. A method for enriching the fuel/air mixture delivered to an internal combustion engine having an induction manifold upon acceleration of the engine including an air sensor comprised of a mechanically undamped deflection vane which moves in a positive and negative direction and which generates an electrical air signal related to the air flow rate to the engine, and a fuel metering system; having a storage means, a decreasing means, a smoothing circuit, connected to the engine such that fuel metering to the engine is dependent on the air signal wherein the steps include:

operating the engine such that the deflection vane is in a first steady state position;

allowing effective overshooting of the deflection vane in the positive and negative direction upon acceleration of the engine above and below a second steady state position;

electrically sensing the peak value of deflection vane overshooting in the positive direction;



storing the peak value of deflection vane overshooting in the positive direction in the storage means;

simultaneously causing the fuel metering system to enrich the fuel/air mixture according to the peak value;

subsequent to causing the fuel metering system to enrich the fuel/air mixture, smoothing the air signal with the smoothing circuit only when the deflection vane moves in a negative direction which possibly overshoots the second steady state position;

gradually decreasing the stored peak value to a value representing the second steady state with the decreasing means; and

simultaneously decreasing acceleration fuel enrichment to a normal fuel/air mixture according to the value representing the second steady state with the decreasing means.

4,335,697

INTERNAL COMBUSTION ENGINE DUAL FUEL SYSTEM

Kerry L. McLean, 20540 Westhampton, Southfield, Mich. 48075

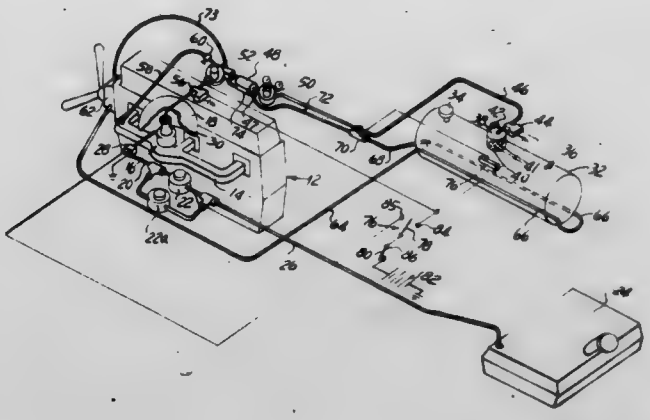
Filed Apr. 8, 1980, Ser. No. 138,434

Int. Cl.³ F02M *13/06*

U.S. Cl. 123—527 **40 Claims**

1. An LP gas fuel feed system for an internal combustion engine having an intake for a fuel-air mixture, said fuel feed system comprising a tank containing said LP gas under pressure in a liquid form, first gas conduit means having an inlet disposed in said tank above the level of said LP gas in a gaseous form, second gas conduit means, pressure regulator means between said first and second gas conduit means for reducing the pressure of said LP gas in a gaseous form during passage from said first gas conduit means to said second gas conduit means, an expansion chamber in said second gas conduit means, gas flow modulation means for modulating the flow of said gas through said second gas conduit means as a function of power requirement of said engine, means at the end of said second conduit means for supplying a mixture of said gas and

of air at the intake of said internal combustion engine, means for heating said tank, said expansion chamber and at least a



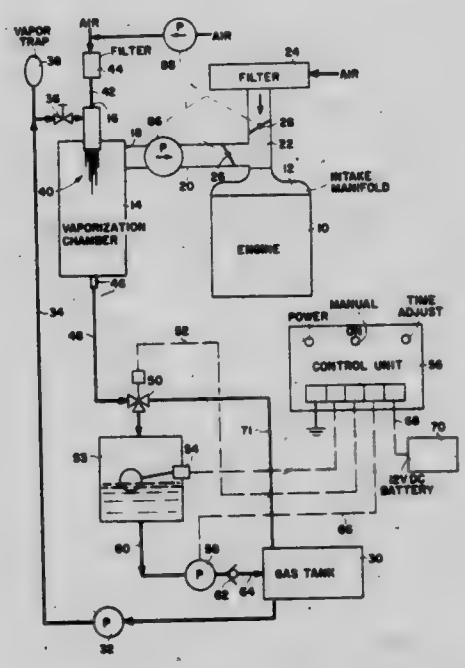
portion of said conduit means, and means for maintaining said tank at a predetermined temperature.

4,335,698

VAPORIZATION CHAMBER

Christopher M. Stephens, Tulsa, Okla., assignor to Max-Mi Corporation, Tulsa, Okla.

Filed Nov. 13, 1979, Ser. No. 93,296
Int. Cl.[3] F02M *27/00*
U.S. Cl. 123—537 9 Claims



1. For an internal combustion engine having a liquid fuel reservoir and an intake manifold, a generator for converting liquid fuel to a combustible gas, comprising:

a vaporization chamber having an outlet and an inlet, the outlet being connected to the engine intake manifold;

a plurality of small diameter spaced apart independently vibratable tubular reeds extending within said vaporization chamber and communicating with said inlet; and

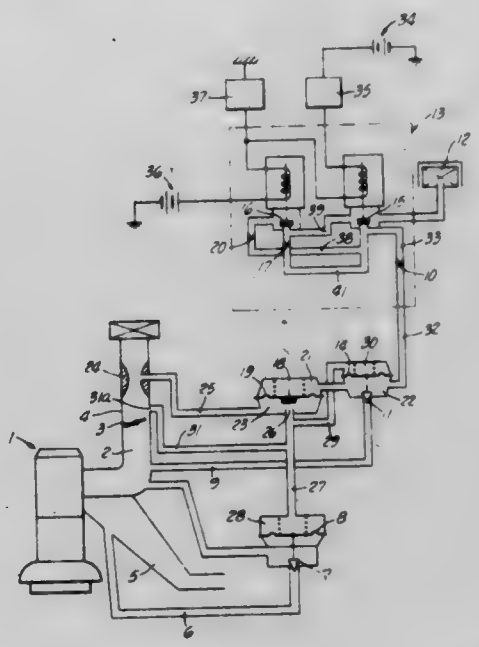
means of introducing liquid fuel from the reservoir and air through a passage located within each of said reeds into said vaporization chamber, the reeds being dimensioned so that they vibrate harmonically by the effect of fuel and air passing therethrough.

4,335,699

EXHAUST GAS RECIRCULATION SYSTEM

Atsushi Totsune, Houya; Yasuhito Itoh, Asaka, and Hitoshi Yamabe, Ohi, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 8, 1980, Ser. No. 185,300
Claims priority, application Japan, Sep. 10, 1979, 54-115144
Int. Cl.[3] F02M *25/06*
U.S. Cl. 123—568 7 Claims



1. In an internal combustion engine having an intake passage for delivering an air-fuel mixture into the engine, a throttle valve in the intake passage, and the engine having an exhaust passage for carrying exhaust gases from the engine, the improvement comprising, in combination: a recirculation passageway connecting said exhaust passage to said intake passage downstream from the throttle valve for recirculating exhaust gases into the engine, a first control valve in said passageway, an air conduit connecting said intake passage downstream from said throttle valve to an inlet for atmospheric air, a second control valve in said air conduit, each of said control valves having a vacuum responsive actuator, a regulating valve for controlling vacuum intensity in said actuators, said regulating valve being responsive to differential vacuum pressure between suction pressure in the intake passage and suction pressure in said air conduit upstream from said second control valve, a vacuum pressure modifier device including a restriction in the air conduit upstream from said second control valve, said vacuum pressure modifier device including a valve operatively interposed between the atmospheric air inlet and said first restriction, and means for operating the latter said valve in response to a sensor for an engine operating parameter.

4,335,700

PULSE GENERATOR, PARTICULARLY TO PROVIDE IGNITION PULSES FOR INTERNAL COMBUSTION ENGINES

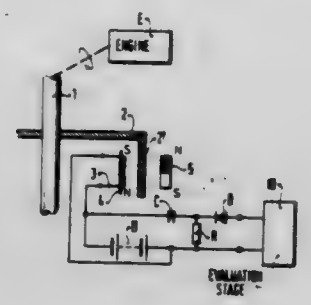
Peter Hauler, Karlsruhe, and Walter Hinke, Ludwigsburg, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 17, 1981, Ser. No. 234,918
Claims priority, application Fed. Rep. of Germany, Feb. 22, 1980, 3006585
Int. Cl.[3] F02P *7/06*
U.S. Cl. 123—617 5 Claims

1. Pulse generator to provide electrical pulses in dependence on the position of a movable element, particularly to provide internal combustion engine ignition pulses, in which the movable element is a shaft (1) coupled to the engine, having

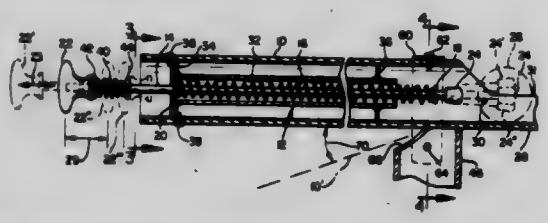
a pick-up coil (3);

A Wiegand wire (4) embedded in, and in magnetically flux-coupled relation to the pick-up coil;
a permanent magnet (5) positioned in flux linking relationship to said coil (3) with the Wiegand wire (4) therein;
and a magnetically permeable masking element (2, 2') formed with gaps therebetween coupled to the movable element and interposed between the coil (3) and said permanent magnet (5) to short-circuit flux from the permanent magnet to the coil when a solid portion thereof is



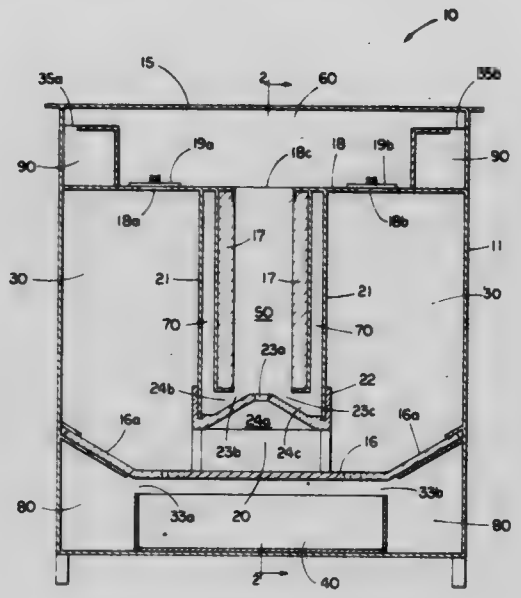
between the magnet and the coil, and to permit flux to pass from the magnet to the coil when a gap occurs between the magnet and the coil,
wherein, in accordance with the invention,
the coil (3) has a direct current applied thereto which is of such direction as to cause a magnetic field in the coil which has a polarity opposite to that of the magnet (5);
and pulse pick-up means (C, D) are provided to furnish output pulses from the coil upon change of direction of magnetization of the Wiegand wire.

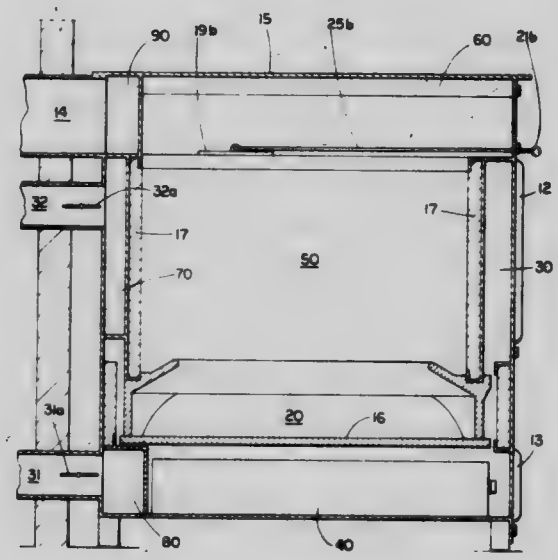
4,335,701
BALL PROJECTING APPARATUS WITH ADJUSTABLE BALL IMPACT MEANS
Stan A. Bozich, 649 SW. Moss, Portland, Oreg. 97219
Filed Mar. 31, 1980, Ser. No. 135,540
Int. Cl.³ F41B *7/00*
U.S. Cl. 124—26 **17 Claims**



1. A ball projecting apparatus for projecting a hollow ball into the air along a curved flight path, comprising:
a tubular housing means including a tube having a ball guide portion at one end of said tube where an upper portion of the tube wall has been removed;
a spring biased plunger means including a plunger and a spring, for striking a hollow ball positioned within said guide portion with an impact means on one end of the plunger to impel the ball down said guide portion and cause said ball to be projected out of one end of said housing and into the air along a flight path;
mounting means for mounting said plunger means within said housing, including guide means for guiding the movement of the plunger and the spring within the guide means between a closed end and open end of the guide means so that said one end of the plunger extends through said open end and the other end of the plunger extends through the closed end of the guide means and out of the other end of the housing;
actuation means for actuating said plunger means and including a handle attached to said other end of the plunger means; and
plunger adjustment means for permitting the plunger to move laterally and vary the position of said one end of the plunger means so that the point of impact of said impact means on a ball may be changed so as to cause the flight path of the ball to curve in different directions when it is projected into the air from the housing.

4,335,702
WOODBURNING STOVE
Joseph E. Jarboe, Rte. 3, Box 70, Hardinsburg, Ky. 40143
Filed Aug. 22, 1979, Ser. No. 68,622
Int. Cl.³ F24B *5/00*; F24C *1/14*
U.S. Cl. 126—15 R **7 Claims**





1. In a woodburning stove including:
(a) a substantially flat, horizontal heating and cooking surface;
(b) a wood combustion chamber below said heating and cooking surface, said wood combustion chamber including a grate;
(c) an exhaust duct; and
(d) door means for inserting unburned wood into said wood combustion area upon said grate, and for removing ashes from said wood combustion area;
the improvement comprising:
(e) a primary air inlet duct leading into said wood combustion chamber below said grate;
(f) a secondary air inlet duct;
(g) a heat transfer chamber having a top portion which is in communication with said heating and cooking surface, said exhaust duct leading from said heat transfer chamber;
(h) a secondary combustion chamber having
(A) an inlet passageway leading from said wood combustion chamber,
(B) a secondary air inlet passageway leading from said secondary air inlet duct, and
(C) an outlet passageway leading to said heat transfer chamber; and
(i) means for providing escape for exhaust fumes through said

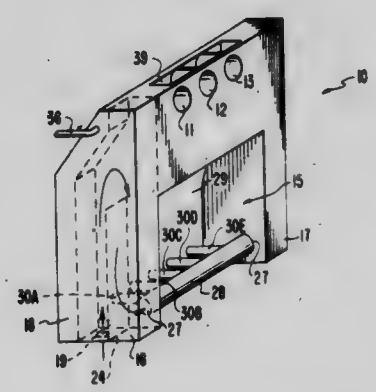
exhaust duct other than through said secondary combustion chamber.

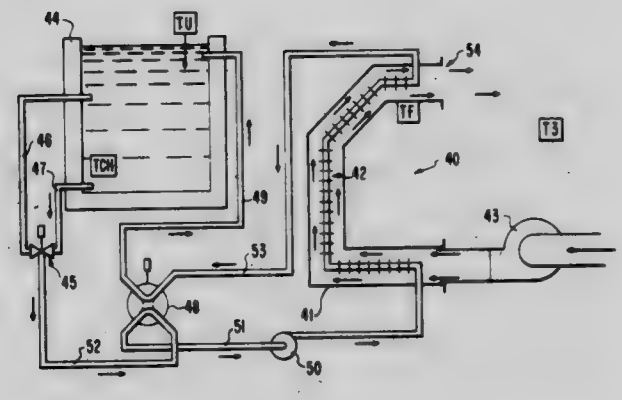
4,335,703

HEAT CONSERVATION AND STORAGE APPARATUS AND SYSTEM

Benno E. O. Klank, 5639 Jay Rd., Boulder, Colo. 80301

Continuation of Ser. No. 968,905, Dec. 13, 1978, abandoned.
This application Dec. 17, 1980, Ser. No. 217,226
Int. Cl.[3] F24B *7/00*
U.S. Cl. 126—121 1 Claim





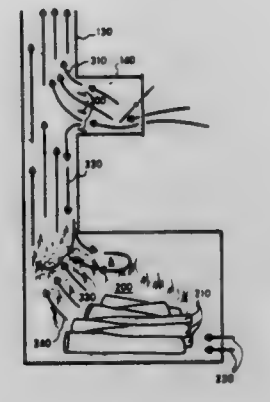
1. A fireplace heat exchanger comprising:
first and second hollow enclosures each having a heat conducting wall with said walls arranged for forming the sidewalls of a firebox, each said enclosure including an air entry port and an air exit port,
means for introducing cool air to said entry ports, each said enclosure being internally arranged for guiding the air from said entry port over a substantial portion of said firebox sidewall thereof and thence to said exit port,
a third enclosure having a heat conducting wall arranged contiguous with said first and second enclosure walls for forming the rear wall of the firebox, said third enclosure including air input means in the lower portion thereof and air exhausting means in the upper portion thereof,
a network of hollow elongated members of heat conducting material for establishing air communication between said first and second enclosure exit ports and said third enclosure air input means with said network being arrayed through the combustion area of the firebox,
an elongated pipe of heat conducting material formed in a path traversing the substantial internal width of said third enclosure,
a plurality of heat conducting fins arranged in heat transfer relation along said pipe, and
means coupled through the exterior of said third enclosure for passing heat transferring liquid through said pipe.

4,335,704

DRAFT AIR SECONDARY COMBUSTION APPARATUS FOR STOVES

Lincoln Wingstrom, and Ed Wingstrom, both of 107 W. Cedar, Ft. Morgan, Colo. 80701

Filed Sep. 22, 1980, Ser. No. 189,655
Int. Cl.[3] F23L *3/00*
U.S. Cl. 126—293 6 Claims



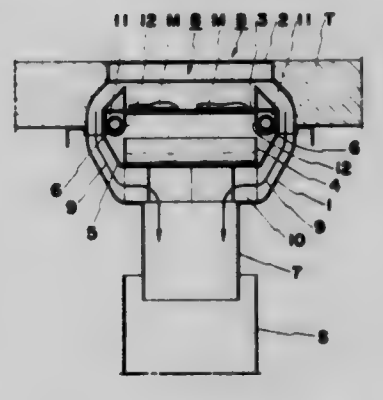
1. An apparatus for directing draft air flowing through a draft flue into a stove pipe, said draft flue being interconnected substantially perpendicular with said stove pipe, said stove pipe being interconnected to a stove for conveying exhaust gases upwardly from said stove, said apparatus comprising:
means for firmly engaging the interior periphery of said draft flue, said engaging means located near said interconnection of said draft flue and said stove pipe;
a plurality of vanes connected to said engaging means for directing substantially all of said draft air in an upward direction into said stove pipe, a small amount of said draft air being allowed to flow downwardly into said stove pipe to provide additional oxygen to only an area of secondary combustion of said exhaust gases located in a region of the stove near the entrance to said stove pipe, each of said vanes comprising an elongated horizontal surface, and each of said vanes being further angled upwardly to direct said draft air in said upward direction, said additional oxygen provided to said secondary area of combustion being capable of enabling said secondary area of combustion to substantially combust the creosote vapors in said exhaust gases thereby minimizing the build-up of creosote on the interior of said stove pipe.

4,335,705

SMOKE COLLECTING AND EXHAUSTING SYSTEM FOR A ROASTER

Kurotaki, Kiyomitu, No. 20-8, 1-chome, Jinnan, Shibuya-ku, Tokyo, Japan

Filed Jul. 1, 1980, Ser. No. 165,004
Int. Cl.[3] F24C *15/20*
U.S. Cl. 126—299 R 6 Claims



1. A roaster for cooking articles comprising:
a roaster having a roaster body and a substantially rectangu-

lar burner means positioned within said roaster body for cooking articles;

a smoke collection and exhaust system having a passage means positioned within the roaster body for collecting smoke from said roaster and a cylindrical exhaust duct means for exhausting smoke from said passage means;

said passage means including two elongated passageways extending along opposite sides of said burner means and extending inwardly underneath said burner means and communicating with one another beneath said burner means;

said exhaust duct means being centrally located underneath said roaster;

a smoke exhausting means for creating a negative pressure in and exhausting smoke from said passage means through said exhaust duct means; and

said passage means having baffle means positioned therein for dividing said passageways into substantially equal cross-sections, and said baffle means having ends terminating beneath said burner means and defining a substantially cylindrical space communicating with said exhaust duct means for substantially equalizing the negative pressure along a lateral cross-section of said exhaust duct means adjacent said passage means.

4,335,706

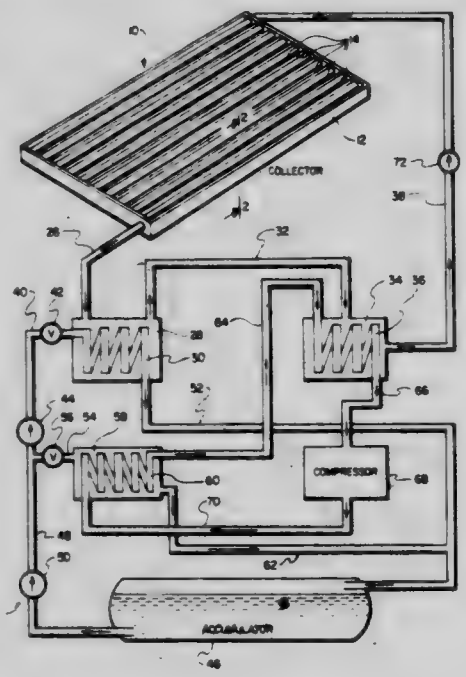
ENERGY COLLECTOR AND TRANSFER APPARATUS

Frank J. Passarelli, 1728 Kelton Ave., Los Angeles, Calif. 90024; George A. Matsukas, 1834 W. Hwy. 154, Santa Ynez, Calif. 93460, and Charles P. Caspary, 21524 Nordhoff St., Chatsworth, Calif. 91311

Filed Sep. 30, 1980, Ser. No. 192,485

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—435 **7 Claims**



1. An energy collector and transferring apparatus comprising:

a first closed loop conduit system having an energy collector, a first energy absorbing medium to be cycled within said first closed loop conduit system, a first energy exchanger and a second energy exchanger being mounted within said first closed loop conduit system, said second energy exchanger being spaced from said first energy exchanger, first pump means to move said first energy absorbing medium through said first closed loop conduit system;

a second closed loop conduit system connected to said second energy exchanger, said second closed loop conduit system cycling a second energy absorbing medium, a third energy exchanger located within said second closed loop conduit system, said third energy exchanger being spaced from said second energy exchanger, compressor means to move said second energy absorbing medium through said second closed loop conduit system; and

a third closed loop conduit system connected to said first and third energy exchanger, said third closed loop conduit system cycling a third energy absorbing medium, said third closed loop conduit system including an accumulator, valve means controlling the flow of said third energy absorbing medium between both said first energy exchanger and said third energy exchanger, whereby said energy collector is to cause energy to be absorbed within said first energy absorbing medium and then said absorbed energy is transferred either directly to said third energy absorbing medium at said first energy exchanger or indirectly to said third energy absorbing medium through said second energy exchanger.

4,335,707

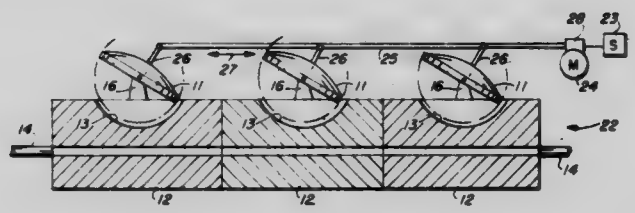
SOLAR ENERGY COLLECTOR AND ENERGY STORAGE CELL

Leo K. Lindenbauer, Box 1372, Wickenburg, Ariz. 85358

Filed Oct. 31, 1980, Ser. No. 202,595

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—440 **10 Claims**



1. A solar energy collector comprising:

a block of heat absorbing material,

a lens pivotally mounted on a surface of said block for receiving the rays of the sun,

an indentation comprising a spherical configuration formed in said surface of said block juxtapositioned to said lens,

said indentation providing clearance for the lens as it is pivoted about its mounting axis, and

at least one fluid conducting passageway traversing said block for causing the fluid passing therethrough to absorb the heat of said block.

4,335,708

SOLAR COLLECTOR

Heinz Hölter, Beisenstrasse 39-41, 4390 Gladbeck; Heinz Gresch, Dortmund-Derne, and Heinrich Igelbüscher, Gladbeck, all of Fed. Rep. of Germany, assignors to Heinz Hölter, Gladbeck, Fed. Rep. of Germany

Filed Mar. 21, 1979, Ser. No. 22,382

Claims priority, application Fed. Rep. of Germany, Apr. 26, 1978, 2818154; Jan. 29, 1979, 2903220

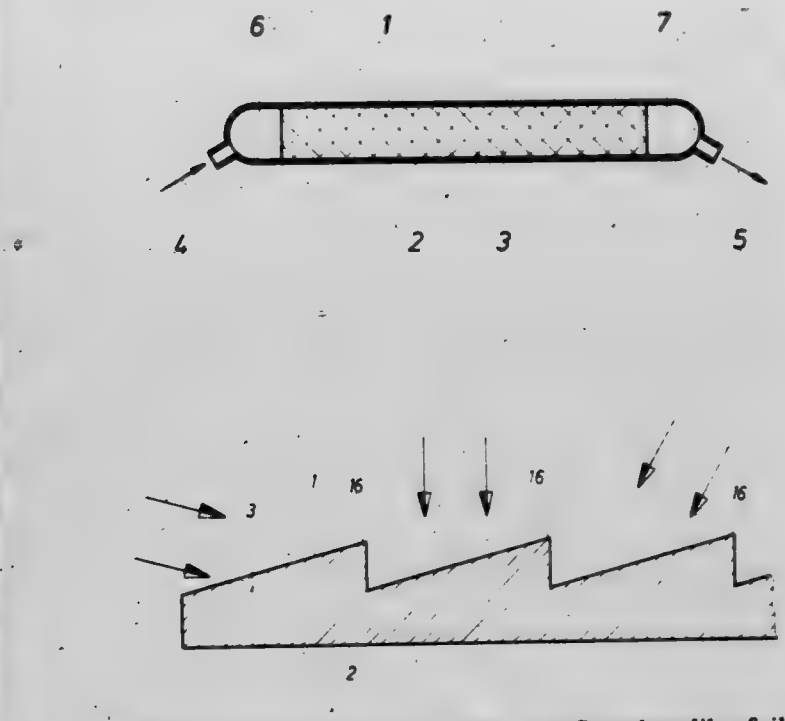
Int. Cl.³ F24J *3/02*

U.S. Cl. 126—442 **15 Claims**

1. Solar collector to absorb solar energy with at least one collector tube with an inlet and an outlet for a heat-transport medium characterized by at least one flat plate-like foil tube, an interlayer which is permeable to the heat-transport medium installed inside walls of the foil tube, the interlayer extending only partially over a width of the flat plate-like foil tube thus forming on both sides of the interlayer channels which respectively are connected to an inlet and an outlet, sides of the interlayer exposed to the walls of the foil tube being reinforced

with webbed texture protective layers, and a wall exposed to solar radiation having a profiled saw-toothed surface.

2. Solar collector to absorb solar energy with at least one collector tube with an inlet and an outlet for a heat-transport



medium characterized by at least one flat plate-like foil tube having a heat permeable outer wall and an interlayer which is permeable to the heat-transport medium installed inside the walls of the foil tube, the wall exposed to the solar radiation consisting of a profiled, particularly a saw-toothed surface.

4,335,709

SOLAR COLLECTOR

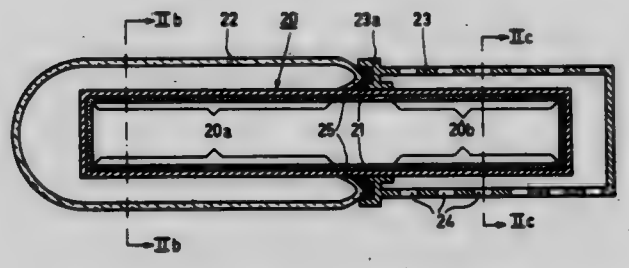
Antonius A. A. Slaats, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 17, 1980, Ser. No. 112,873

Claims priority, application Netherlands, Jan. 26, 1979, 7900621

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—443 **2 Claims**



1. A solar collector, which comprises a sealed metal tube of circular cross-section having an evaporation zone for absorbing heat derived from incident solar radiation and a condensation zone for giving off heat; an evaporable heat transport medium contained in the tube, said heat transport medium during operation being evaporated in the evaporation zone and being condensed in the condensation zone, with return of the resulting condensate to the evaporation zone; an evacuated transparent glass envelope of circular cross-section spaced from and surrounding the evaporation zone, said envelope being joined to the tube between the two zones by means of a glass-metal seal; a metal sleeve of circular cross-section spaced from and surrounding the condensation zone, said sleeve being provided with openings for the passage of a heat-absorbing medium, said sleeve at its end adjacent to the envelope being provided with a cap; and means joining the cap to the envelope to protect the glass-metal seal against damage.

4,335,710

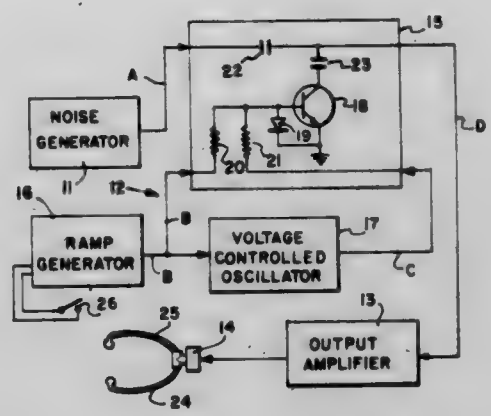
DEVICE FOR THE INDUCTION OF SPECIFIC BRAIN WAVE PATTERNS

John D. Williamson, North Canton, Ohio, assignor to Omnitronics Research Corporation, Akron, Ohio

Filed Jan. 16, 1980, Ser. No. 112,537

Int. Cl.³ A61N *1/34*

U.S. Cl. 128—1 C **11 Claims**



1. A device for the induction of brain wave patterns associated with relaxed and meditative states in a subject comprising:

means for generating a white noise signal having a uniform spectral noise density;

means for receiving said white noise signal and modulating its said spectral noise density in a manner similar to the brain wave patterns associated with relaxed and meditative states; and

means receiving said modulated noise signal for coupling said modulated signal to the subject.

4,335,711

METHOD AND DEVICE FOR SUPPLYING VENOUS PRESSURE IN A PORTAL VEIN

Edward A. Olson, 107 Plymouth Mobile Estates, Plymouth, Mass. 02360

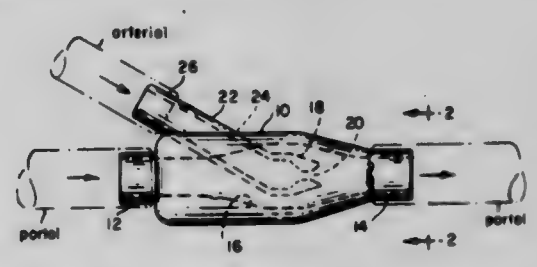
Division of Ser. No. 924,615, Jul. 14, 1978, Pat. No. 4,104,525.

This application Nov. 8, 1979, Ser. No. 92,539

The portion of the term of this patent subsequent to May 27, 1997, has been disclaimed.

Int. Cl.³ A61B *19/00*

U.S. Cl. 128—1 R **4 Claims**

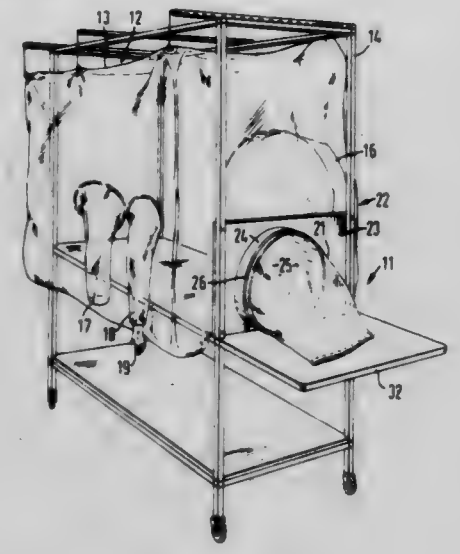


1. A device for increasing the flow of venous blood to the liver comprising an elongate chamber and a tubular part entering the chamber defining an orifice concentric with the chamber and facing in the direction of one end of the chamber, said chamber having end portions designed to be received into the ends of the portal vein from which a section has been removed and tied to provide a substitute flow path for the removed section and the exterior end of the tubular portion being designed to be connected to an arterial vein to conduct arterial blood into the flow path of the venous blood in the portal vein, said chamber and tube being comprised of suitable material compatible with the blood.

4,335,712
ISOLATION ENCLOSURE MEMBERS

Philip C. Trexler, 2 Brook Cottage, Higgs La., Bagshot, Surrey, England

Filed Mar. 13, 1980, Ser. No. 130,053
Claims priority, application United Kingdom, Mar. 26, 1979, 7910495
Int. Cl.[3] A61M *16/02*
U.S. Cl. 128—1 R 17 Claims



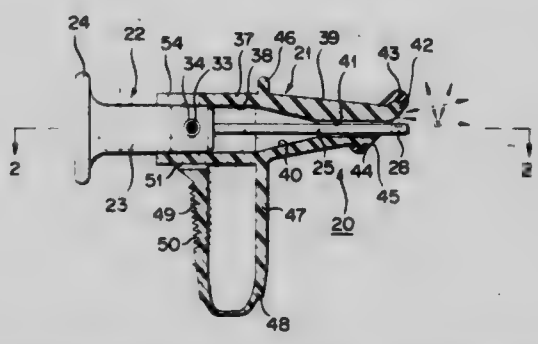
1. An isolator apparatus comprising:
an enclosure member for providing an environment isolated from the anbient environment;
said enclosure member having a transfer port for passage of objects out of the enclosure member;
a flexible disposal bag having one end coupled to the enclosure member around said transfer port;
a closure bag comprising a closed bag having a clean inner surface and containing a backing member in the form of a hoop, said closure bag being positioned within the disposal bag generally transverse to the disposal bag in a position such that the closure bag spans the hoop member to form a double walled barrier across the disposal bag and that part of the closure bag is sandwiched between the hoop member and the disposal bag; and
means for effecting a sealing and cutting operation around the hoop member to cut through the disposal bag and the closure bag and to leave a portion of the closure bag sealed to the disposal bag on each side of the cut with the said clean surface of the closure bag exposed to the ambient environment, the article being sealed in the severed part of the disposal bag by one portion of the closure bag and the remainder of the disposal bag being closed by the other portion of the closure bag after the sealing and cutting operation.

4,335,713
OTOSCOPE

Osamu Komiya, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Feb. 12, 1980, Ser. No. 120,768
Claims priority, application Japan, Feb. 20, 1979, 54/18737
Int. Cl.[3] A61B *1/06*
U.S. Cl. 128—9 25 Claims

1. An otoscope which comprises:
a guide tube which has a distal end section and a proximal end, and which is adapted to be inserted into an external auditory meatus;
an elongated microscope which comprises a distal end section having a lateral wall and a proximal end section, and which is reciprocable through the guide tube in the axial direction of the guide tube between a first position at the proximal end of said guide tube whereat the microscope functions as a direct-viewing scope and a second position in said guide tube whereat the microscope functions as a side-viewing scope, the elongated microscope including an observation window and an illumination window disposed in the lateral wall of the distal end section of the microscope;
an observation optical system and an illumination optical system which respectively face and which are respectively optically connected to the observation window and illumination window of the microscope when the microscope is in said first position, and which axially extend through the microscope, said observation and illumination optical systems being out of optical communication with both of said observation and illumination windows when the microscope is in said second position;

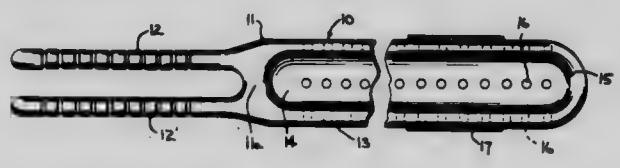


a light beam direction-diverting means provided in the distal end section of the guide tube, and, when made to face the observation window and illumination window, diverts light beams delivered from the illumination optical system axially of the microscope, and diverts light beams coming in the axial direction of the microscope to the observation window; and
a microscope-actuating means provided between the guide tube and the microscope, for reciprocating the microscope relative to the guide tube, and including means for normally elastically urging the microscope from its second position to its first position at the proximal end of the guide tube.

4,335,714
IMPLANT FOR PENILE CONSTRUCTION

Milton T. Edgerton, Charlottesville, Va.; Roberto C. Granato, Elmhurst, N.Y., and Henry W. Lynch, Racine, Wis., assignors to Medical Engineering Corporation, Racine, Wis.

Filed Jul. 17, 1980, Ser. No. 169,751
Int. Cl.[3] A61F *5/00*
U.S. Cl. 128—79 4 Claims



1. An implant for the construction or reconstruction of a penis, said implant consisting of a body member of biocompatible material having an elongated relatively rigid trunk with a urethra receiving groove extending longitudinally down the center thereof, one end of said trunk has a rounded tip and the other end of the trunk is connected by a flexible hinge to a pair of anchoring trimmable stems.

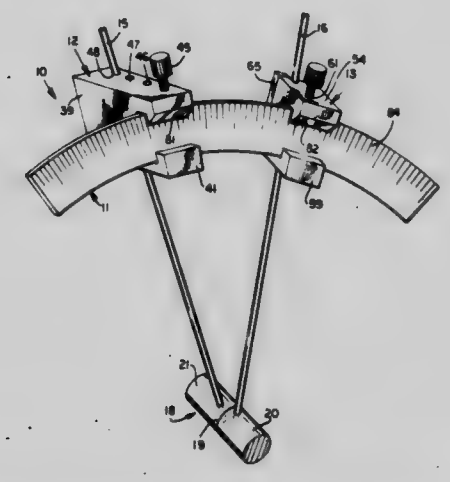
4,335,715
OSTEOTOMY GUIDE

William H. Kirkley, 241 Coventry Rd., Decatur, Ga. 30050

Filed Jun. 20, 1980, Ser. No. 161,553
Int. Cl.[3] A61F *5/04;* A61B *17/18*
U.S. Cl. 128—92 EB 6 Claims

1. An osteotomy guide comprising an arcuate track of a substantially constant radius, a pair of guide blocks movable along the length of said arcuate track, each of said guide blocks

defining at least one rectilinear pin opening therethrough extending parallel to the radius of said arcuate track for receiving rectilinear pin members therethrough and for holding the pin members parallel to the radius of curvature of said track, one of said guide blocks including a plurality of said pin openings with one of the plurality of pin openings being displaced from the arcuate track a distance substantially equal to the displacement of the pin opening of the other guide block from the arcuate track, with a second one of the plurality of pin openings being displaced from the arcuate track a distance greater than the displacement of the pin opening of the other guide block from the arcuate track, and with a third one of the plurality of pin openings being displaced from the arcuate track a distance less than the displacement of the pin opening of the



other guide block from the arcuate track, connecting means for rigidly holding said guide blocks to said arcuate track, means for rigidly holding a pin in a pin opening of said one of said guide blocks comprising a set screw opening intersecting the plurality of said pin openings of said one guide block and a set screw for extending into said set screw opening, said arcuate track including a scale extending therealong which indicates angles thereabout with respect to the center of its radius of curvature, whereby a first pin is inserted through a bone, a pin opening of one of the guide blocks is inserted about the protruding end of the first pin, and a second pin is inserted through a pin opening of the other guide block and then into the bone at an angle with respect to the first pin which corresponds to the angle between the pin openings of the guide blocks on the arcuate track.

4,335,716

COMPOSITION AND METHOD FOR PREVENTION AND TREATMENT OF DIALYSIS INDUCED PERITONITIS

Robert L. Stephen; Carl Kablitz; Dietz van Dura; Curtis L. Atkin, and Stephen C. Jacobsen, all of Salt Lake City, Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Division of Ser. No. 11,356, Feb. 12, 1979, Pat. No. 4,235,230. This application Nov. 21, 1980, Ser. No. 208,967
Int. Cl.³ A61J 7/00
U.S. Cl. 128—213 A **4 Claims**

1. A system for preventing or treating dialysis induced peritonitis comprising:

(a) a first container including a first physiological solution therein which is free of protein material and of reducing substances capable of converting I_2 or HIO to I^-;

(b) a second container including a second physiological solution therein having a combined I_2 and HIO concentration in the range of 0.1 to 15 ppm; and

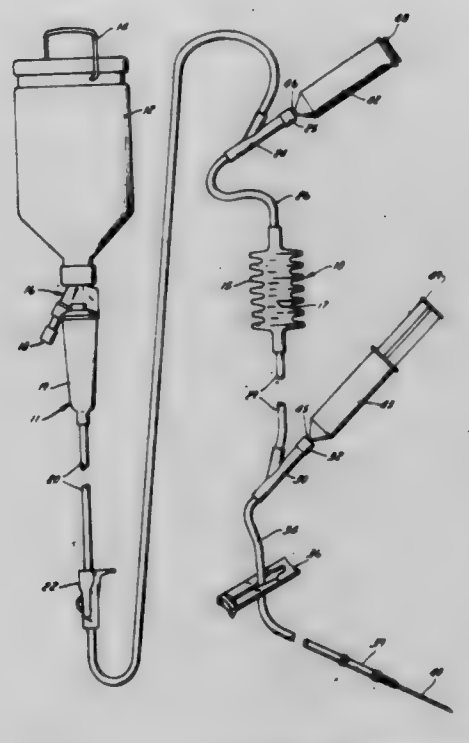
(c) means for serially infusing said first and second solutions from the respective containers into a peritoneal cavity and for draining said solutions from said peritoneal cavity.

4,335,717

I.V. ADMINISTRATION SET WITH RETROGRADE VOLUME

Albert F. Bujan, Waukegan, and Garfield A. Dawe, Lindenhurst, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Oct. 10, 1980, Ser. No. 195,899
Int. Cl.³ A61M 5/14
U.S. Cl. 128—214 G **10 Claims**



1. A liquid dispensing apparatus for administering a parenteral liquid from a container to a recipient comprising:

a liquid-tight connection means for communicating with said liquid from a container;

a first length of flexible tubing secured to said connection means at one end;

means to control the flow rate of liquid through said first length of flexible tubing;

a sight-drip chamber in fluid communication with said first length of flexible tubing and said connection means;

a first injection site in fluid communication with said first length of flexible tubing at the other end thereof;

a second injection site in fluid communication with said first length of flexible tubing and spaced from said first injection site;

flexible expansion means for accomodating an additional volume of liquid, positioned between said first and second injection sites and in fluid communication therewith;

a second length of flexible tubing in fluid communication with said second injection site; and

means to interconnect a hypodermic needle to said second length of tubing opposite said second injection site.

4,335,718

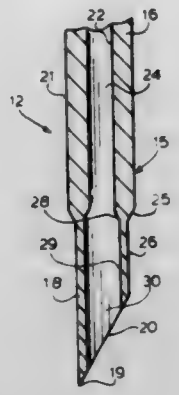
NEEDLE CANNULA

Frank B. Calabrese, West Caldwell, N.J., assignor to Becton, Dickinson and Company, Paramus, N.J.

Filed Oct. 2, 1980, Ser. No. 193,055
Int. Cl.³ A61M 5/00
U.S. Cl. 128—218 N **8 Claims**

1. A needle cannula for the conveyance of liquid therethrough comprising: an elongate, hollow, substantially cylindrical barrel having a proximal portion and a distal portion terminating in a sharp point for the penetration of skin, said

distal portion having an outside diameter less than the outside diameter of said proximal portion, the inside diameter of said



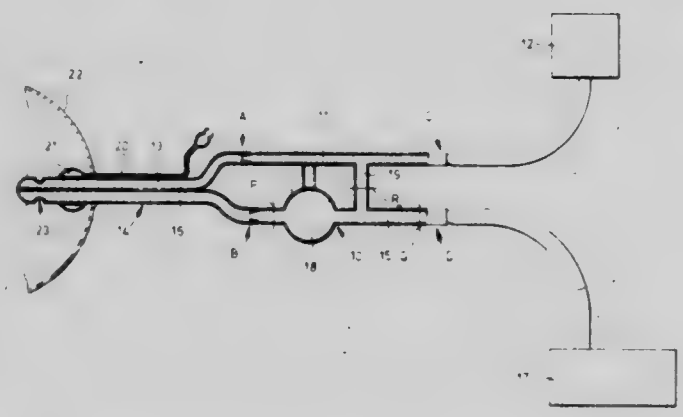
distal portion being greater than the inside diameter of said proximal portion.

4,335,719

IRRIGATION DEVICE

Samuel R. Johnston, 41 Laurel Hill Rd., Lisburn, County Antrim, Ireland

Filed Feb. 4, 1981, Ser. No. 231,200
Int. Cl.[3] A61M *3/00*
U.S. Cl. 128—246 **10 Claims**



1. A device for use in the irrigation of a body cavity comprises:

(a) a first passageway having a liquid inlet at one end thereof, which is connectible to a source of irrigation liquid and a liquid outlet at the other end thereof which is connected to or connectible to the inlet passageway of a dual flow flow catheter,

(b) a second passageway having a liquid inlet at one end thereof which is connected to or connectible to the outlet passageway of said dual flow catheter and a liquid outlet at the other end thereof,

(c) an enlarged deformable portion of the second passageway located downstream of said one end of the second passageway,

(d) first flow-controlling means downstream of the enlarged deformable portion to prevent or impede the flow of liquid through the second passageway,

the arrangement being such that when the flow-controlling means are operated to prevent or impede the flow of liquid through the second passageway and the enlarged deformable portion is manipulated to reduce its volume, the flow of liquid in the second passageway upstream of the enlarged deformable portion and in the outlet passageway of the dual flow catheter is reversed.

4,335,720

CATAMENIAL TAMPON WITH HOLLOW CORE

Jacob A. Glassman, 1680 Michigan Ave., Miami Beach, Fla. 33139

Filed Apr. 9, 1980, Ser. No. 138,501
Int. Cl.[3] A61F *13/20*
U.S. Cl. 128—270 **9 Claims**



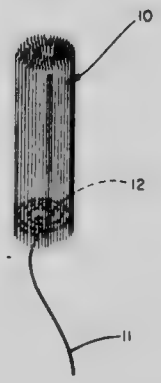
1. A catamenial tampon comprising a compressed, shape-retaining, generally cylindrical fibrous body having an insert end and an outer end, an axial cavity in said body opening at one end onto the insert end of the body, the cavity having it's surrounding wall tapered inwardly toward and terminating short of the outer end of the body, and at least one radial slot in said wall in flow communication with the cavity, said slot being substantially coextensive with said cavity length and opening at one end onto the insert end of said body.

4,335,721

TAMPON CONTAINING FUSIBLE PORTIONS

Billie J. Matthews, Menasha, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 17, 1981, Ser. No. 234,674
Int. Cl.[3] A61F *13/20*
U.S. Cl. 128—285 **8 Claims**



1. A tampon comprising in combination an absorbent matrix of parallelly aligned, closely packed fibers and a withdrawal string a portion of which is fusibly attached near one end of said fibers, said fibers having ends substantially equidistant from said withdrawal string near the points of attachment with said fibers also being transversely rolled to form a jelly roll configured cylindroidal fibrous mass.

4,335,722

WRAPPED SUPERABSORBENT CORE TAMPON

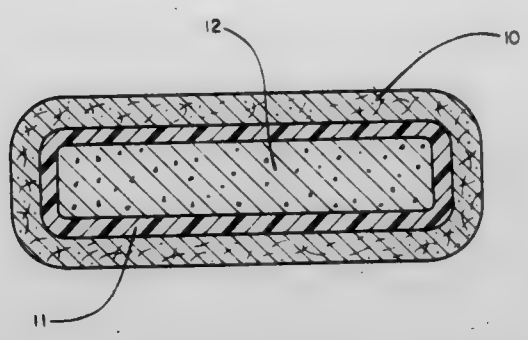
David M. Jackson, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 17, 1981, Ser. No. 235,100
Int. Cl.[3] A61F *13/20*
U.S. Cl. 128—285 **5 Claims**

1. A tampon having an absorbent matrix comprising:

(a) a superabsorbent core material;

(b) A nontoxic water soluble coating material at least partially covering said superabsorbent core; and



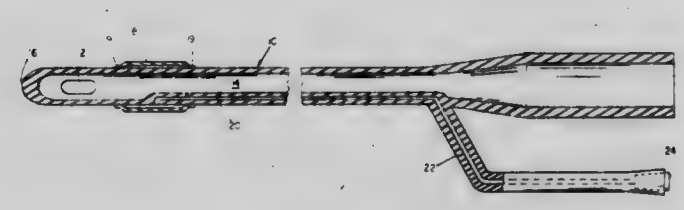
(c) an outer absorbent layer surrounding said superabsorbent and said coating.

4,335,723

CATHETER HAVING INFLATABLE RETENTION MEANS

Bhupendra C. Patel, Elgin, Ill., assignor to The Kendall Company, Boston, Mass.

Continuation of Ser. No. 745,098, Nov. 26, 1976, abandoned.
This application Jul. 31, 1978, Ser. No. 929,948
The portion of the term of this patent subsequent to Oct. 10, 1995, has been disclaimed.
Int. Cl.³ A61M *25/00*
U.S. Cl. 128—349 B **18 Claims**



1. A catheter having a shaft at least the outer surface of which consists essentially of a thermoplastic elastomer which is a block polymer including a thermoplastic polystyrene end block and an elastomeric saturated open chain hydrocarbon block, said shaft carrying an inflatable retention means comprising a balloon in the form of a sleeve having a single-layer wall of substantially uniform thickness consisting essentially of a thermoplastic elastomer which is a block polymer including a thermoplastic polystyrene end block and an elastomeric saturated open chain hydrocarbon block, said sleeve fitting closely over said shaft and having its margins bonded circumferentially to the outer surface of said shaft.

4,335,724

SOLARIUM

Hans-Joachim Frei, Erlenbruchweg 1, 6486 Brachttal 3, and Karl Wolf, Ludwigstr. 61, 6450 Hanau 7, both of Fed. Rep. of Germany

Division of Ser. No. 872,386, Jan. 26, 1978, abandoned. This application Jan. 18, 1980, Ser. No. 113,360
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1977, 7702074[U]; Apr. 9, 1977, 7711270[U]; Nov. 9, 1977, 7734341[U]
Int. Cl.³ A61N *5/06*
U.S. Cl. 128—395 **5 Claims**

1. Solarium comprising:

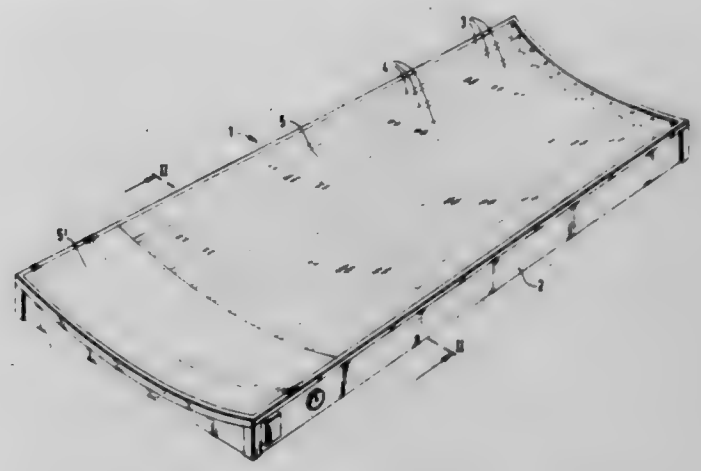
a frame having a longitudinal direction, said frame including body means constructed as part of a piece of residential furniture, one side of said frame being open;

a plurality of reflectors being supported adjacent to one another in said frame, said reflectors being open towards said one side of said frame and extending in the longitudinal direction of said frame;

a plurality of ultraviolet fluorescent tubes being mounted in said frame, one of said ultraviolet fluorescent tubes being disposed in each respective one of said reflectors;

means disposed over said one side of said frame for permitting emergence of ultraviolet radiation from said tubes onto a person disposed on said frame, said means including a covering mounted on said frame above said tubes for supporting the person, a major portion of said covering being permeable to ultraviolet rays directed to the person's body, and a head zone of said covering being impermeable to the ultraviolet rays, said covering providing a concave longitudinal trough for receiving the person; and

a support member having a concave longitudinal surface disposed in said frame for supporting said reflectors with said tubes therein in a concave arrangement corresponding to said concave longitudinal trough defined by said covering.

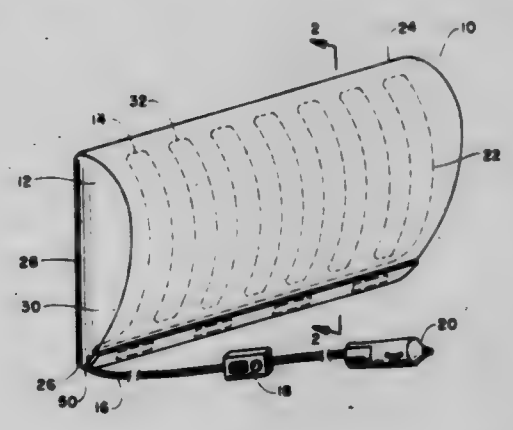


4,335,725

THERAPEUTIC HEAT CUSHION

Barbara J. Geldmacher, Rte. 4, Box 736, Alvin, Tex. 77511

Filed Aug. 15, 1980, Ser. No. 178,511
Int. Cl.³ A61F *7/00*
U.S. Cl. 128—399 **6 Claims**



1. A portable unitary therapeutic heat supplying cushion adapted for use by a person in the seated position, said cushion comprising:

(a) a soft, resilient internal member having a back surface of substantially planar form for contact with the back portion of the seat or chair within which the person sits, said resilient member further having a curved front surface generally conforming to the lower back or lumbar area of the human body,

(b) a pair of panels conforming to the curvature of said front surface of said internal member;

(c) electrical heating means interposed between said pair of panels;

(d) a heat transmissive pad, of less thickness as compared to the thickness of said resilient member, covering the outer one of said pair of panels and conforming to the curvature thereof;

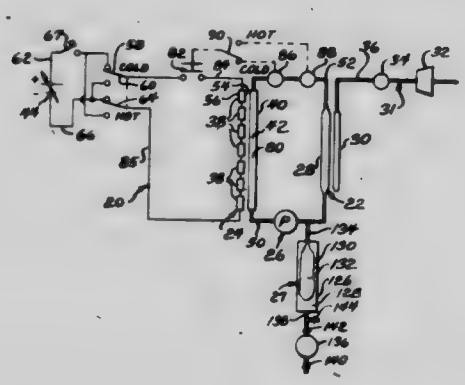
(e) a moisture resistant enclosure enclosing said resilient internal member, panels, electrical heating means and heat transmissive pad;
(f) a protective cover enclosing said moisture resistant closure and the contents thereof said protective cover being removable for cleaning; and
(g) a selectively controllable electrical heating circuit being connectable to a source of electrical energy and being operatively coupled to said electrical heating means.

4,335,726

THERAPEUTIC DEVICE WITH TEMPERATURE AND PRESSURE CONTROL

Mark W. Kolstedt, Cary, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Jul. 11, 1980, Ser. No. 167,493
Int. Cl.³ A61F *7/00*
U.S. Cl. 128—400 **9 Claims**



1. A therapeutic device, comprising:
a sleeve for covering a portion of a patient's body and having flexible walls defining an inner space to receive liquid;
means for changing the temperature of said liquid;
a conduit system connecting the sleeve space and the changing means in a pair of paths;
pump means for circulating the liquid between the sleeve space and changing means through the conduit system; and
means for pressurizing the liquid in said sleeve space comprising, a receptacle having a chamber, a container in the receptacle chamber and having flexible walls defining a cavity containing liquid and communicating with the conduit system and sleeve space, and means for pressurizing the receptacle chamber outside said container to inject a desired amount of liquid from the container cavity into the conduit system and sleeve space.

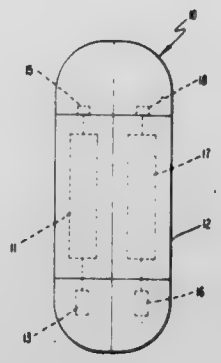
4,335,727

PACEMAKER ASSEMBLY HAVING VENTRICULAR INHIBITED AND VENTRICULAR TRIGGERED PACEMAKER UNITS

William E. McPherson, P.O. Box 270882, Tampa, Fla. 33688

Filed May 30, 1980, Ser. No. 154,880
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—419 PG **2 Claims**

1. A pacemaker assembly comprising:
a housing,
a ventricular inhibited pacemaker unit set to produce a signal for application to a patient's heart at a first rate of time,
a ventricular triggered pacemaker unit set to produce a signal for application to a patient's heart at a second rate of time lower than said first rate of time,



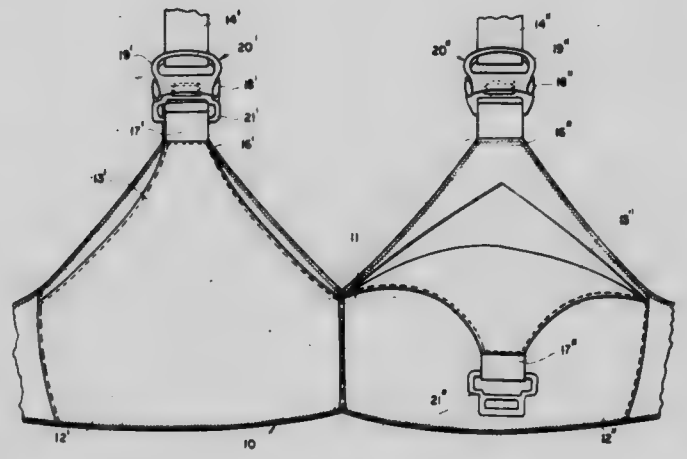
the ventricular inhibited and ventricular triggered pacemaker units being contained within said housing and being independently operative with respect to one another.

4,335,728

FASTENER FOR MATERNITY-NURSING BRASSIERE

Gerhard Fildan, Dieselstr. 20, D-7250 Leonberg, Fed. Rep. of Germany

Filed Aug. 28, 1980, Ser. No. 182,137
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1979, 7929525[U]
Int. Cl.³ A41C *3/04*
U.S. Cl. 128—460 **2 Claims**



1. In a maternity-nursing brassiere having a frame with a pair of cups and supporting means including a pair of shoulder straps linked with said frame via respective fasteners for securing said frame to the body of a wearer, each of said cups having a flap normally attached to one of said fasteners and releasable therefrom to expose the wearer's underlying nipple, the improvement wherein each of said fasteners comprises:
a connector plate of resilient material formed integral with a pair of laterally spaced-apart mounting lugs rising from a generally vertical face thereof and defining a downwardly narrowing gap between them.
a latch member attached to the flap of the respective cup and insertable from below into said gap; and
a detent member on said connector plate hinged to said mounting lugs for swinging between a closure position and a release position, said mounting lugs having confronting sides which coact with corresponding flanks of said detent member for elastically biasing same into said closure position, said confronting sides and said flanks contacting each other in said closure position along downwardly converging areas.

4,335,729

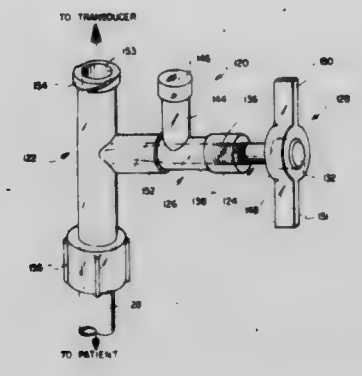
APPARATUS AND METHOD FOR SUPPRESSING RESONANCE IN AN ELECTROMANOMETRY SYSTEM

Gordon S. Reynolds, Bountiful, and Robert J. Todd, Salt Lake City, both of Utah, assignors to Sorenson Research Co., Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 62,872, Aug. 1, 1979, Pat. No. 4,269,387. This application Mar. 11, 1980, Ser. No. 129,495

Int. Cl.[3] A61B *5/02*

U.S. Cl. 128—674 3 Claims



1. In an electromanometry system having a liquid-filled catheter coupled to an electrical pressure transducer for monitoring hemodynamic pressures, a variable restriction apparatus comprising a valve for hydraulically matching the characteristic impedance of the electromanometry system for purposes of controlling the system's resonance characteristics and thereby improving the system's frequency response, said valve comprising:

a needle member having a first elongated end that is tapered and a second end, with a threaded portion intermediate said first and second ends; and

a housing, said housing comprising a first port in fluid communication with said liquid-filled catheter, said first port being molded onto at least a portion of said tapered end, a collar molded onto the threaded portion of said needle member, and a second port in fluid communication with said first port, said second port being molded so that it is adjacent to at least a portion of said tapered end and being capped so as to provide a compliant air cavity.

4,335,730

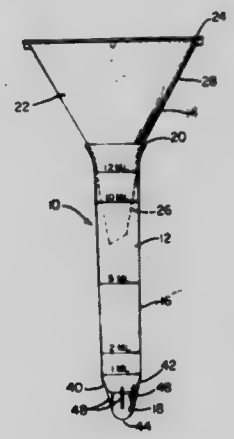
COLLECTOR ASSEMBLY AND SPECIMEN TUBE THEREFOR

Gladys B. Griffin, 848 S. Johnson Ct., Lakewood, Colo. 80226

Filed Aug. 30, 1979, Ser. No. 71,235

Int. Cl.[3] A61B *10/00*

U.S. Cl. 128—760 16 Claims



1. A specimen collector tube unit adaptable for collecting urine specimens therein comprising:

an elongated tubular member having an open end, a closed end opposite said open end, a surrounding sidewall portion between said open end and said closed end terminating in a rounded convergent end wall adjacent to said closed end, and a reservoir tip at said closed end defining an axial extension of said end wall and being of substantially the same wall thickness as said surrounding sidewall portion, the degree of convergency of said rounded convergent end wall into said reservoir tip being sufficient to prevent the release of that portion of a urine specimen contained in said reservoir tip when said elongated tubular member is inverted to pour out the urine specimen from said elongated tubular member and external reinforcing means extending between and united with said reservoir tip and said rounded convergent wall.

4,335,731

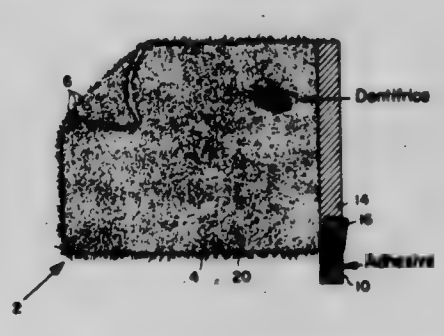
DEVICE FOR ORAL HYGIENE CARE

F. William Bora, Jr., 404 Gulph Rd., Narberth, Pa. 19072

Continuation of Ser. No. 927,869, Jul. 25, 1978, abandoned. This application Jun. 6, 1980, Ser. No. 156,930

Int. Cl.[3] A45D *44/18*

U.S. Cl. 132—84 R 5 Claims



1. A disposable dental wipe for dental hygiene adapted to be wrapped around a finger for better sensitivity and pressure control against the teeth and gums, comprising

a flexible honeycombed flat sheet of soft foam material having outer and inner faces and formed of a flexible resilient material,

bristles integral with said material and extending outwardly from the outer face of said sheet,

said bristles extending from all over the outer face of said sheet,

said material being polyurethane or a polymeric-like material,

a stripe of contact adhesive means mounted on the sheet for adhesively securing the material when it is wrapped around a finger,

said sheet being impregnated with a dentifrice,

said dentifrice being adapted to flow through the sheet upon application of pressure with the finger against teeth and gums,

whereby said disposable dental wipe may be wrapped around a finger and may be directed and pressed by the finger in-between teeth, in back of a row of teeth, and against gums and teeth with finger sensitivity to provide a positive wiping force but tend to prevent the use of too great a force that would cause tooth enamel and gum deterioration.

4,335,732

HAIR CURLING IRON

Salvatore Megna, 3721 Fair Oaks Blvd., Sacramento, Calif. 95825

Filed Jan. 26, 1981, Ser. No. 228,573

Int. Cl.[2] A45D *24/10*

U.S. Cl. 132—123 20 Claims

1. A curling iron comprising:

a handle;

a generally tubular body having a radial side wall with a plurality of wall openings, said body being attached at one end to said handle;

a plurality of brushes extending longitudinally within said

body, said brushes having bristles secured thereto and extending in a generally radially outward direction;

at least one selectively operable member disposed within said body for reciprocating longitudinal movement; and



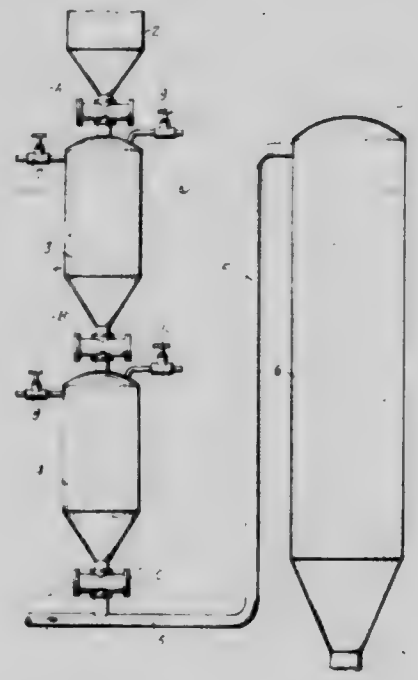
conversion means coacting with said member for converting the reciprocating longitudinal movement of said member into generally radially reciprocating movement of said bristles through said wall openings, whereby the longitudinal movement of the member results in retraction or extension of the brushes.

4,335,733

VALVE FOR USE IN HANDLING ABRASIVE MATERIALS AND METHOD OF WEAR PREVENTION

John A. Richards, 1611 Sierra Alta, Santa Ana, Calif. 92705

Filed Sep. 17, 1979, Ser. No. 76,452
Int. Cl.[3] F16K *25/00*
U.S. Cl. 137—1 27 Claims



23. The method of preventing wear on the seating surfaces of a valve having a closed casing containing inlet and outlet chambers, and having valve plate means engaged with said seating surfaces for controlling flow between said chambers, comprising: applying loading pressure to maintain the valve plate means and seating surfaces in sealing contact; introducing fluid under pressure into the valve casing in surrounding relation to the valve plate means to pressurize the interior of said casing; and maintaining said loading and said casing pressure while material is flowing through the valve in such relation as to prevent abrasive material from getting between said seating surfaces and said valve plate means and into said casing.

4,335,734

FLOAT WARNING DEVICE

Joseph C. Trinkwalder, North Tonawanda, N.Y., assignor to Sherwood-Selpac Corp., Lockport, N.Y.

Filed Feb. 26, 1979, Ser. No. 14,932
Int. Cl.[3] F16K *17/40, 31/18, 33/00*
U.S. Cl. 137—77 22 Claims

1. A valve adapted for connection to a container holding an evaporative liquid for controlling the flow of gas from an outlet of the container spaced from the liquid to allow flow of gas therethrough, said valve comprising:

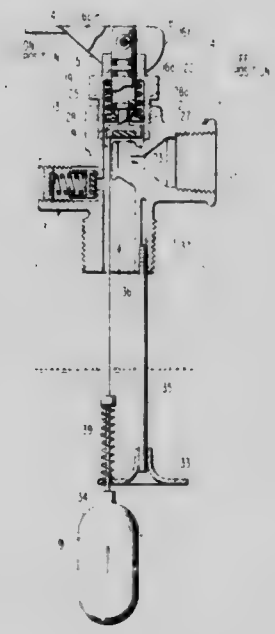
(a) a valve casing having an inlet adapted to be connected to said container outlet and having an outlet;

(b) a valve seat arranged between said inlet and outlet;

(c) a plug adapted to be received on said valve seat;

(d) a gas conducting passage between said inlet and said valve seat;

(e) sensor means adapted to sense the level of said liquid, said sensor means comprising a float operatively associated with said liquid and an operator element extending from said float and operatively associated with said plug so as to space said plug away from said valve seat thereby placing said inlet and outlet in fluid communication when said liquid is above a predetermined level in said container and so as to allow said plug to move toward said valve seat to be received thereon in response to the level of said liquid falling in said container to cause said plug to block fluid communication between said inlet and outlet when said



liquid falls to a predetermined level in said container whereby said valve operates automatically in response to said liquid falling to said predetermined level to shut off the flow of gas to provide an indication to the user that the level of liquid in the container is low and must be replenished, said operator element extending through said inlet and said gas conducting passage during the opening and closing positions of said plug;

(f) a movable lever extending from said valve casing; and

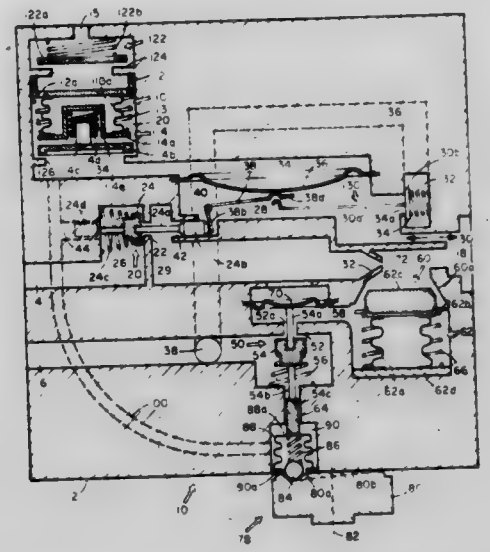
(g) means for connecting said lever to said plug independent of said operator element and in a manner such that said plug is moved into and out of seating engagement with said valve seat and may be maintained in or out of such seating engagement in response to movement of said lever independent of operation of said sensor means, said valve remaining operative when said plug is moved and maintained out of seating engagement with said valve seat thereby allowing the user to release a reserve quantity of gas from said container by moving said lever independent of said automatic operation.

4,335,735

AUTOMATIC DILUTER/DEMAND OXYGEN REGULATOR ADAPTED FOR CHEMICAL OR BIOLOGICAL USE

Robert L. Cramer, Davenport, Iowa, and Roy L. Henneberger, Madison, Wis., assignors to The Bendix Corporation, Southfield, Mich.

Filed Sep. 22, 1980, Ser. No. 189,462
Int. Cl.³ A61M 15/00
U.S. Cl. 137—81.1 7 Claims



1. An oxygen regulator having a body and comprising in said body:

a first inlet port for pressurized oxygen;

a second inlet port for pressurized diluter gas;

an outlet means adapted to be connected to breathing apparatus;

a first chamber;

a second chamber;

a first balanced valve means responsive to differential gas pressure between said second chamber and said outlet means for regulating the rate of flow of oxygen from said first inlet port to said outlet means via said first chamber;

flow means located between said first chamber and said outlet means for reducing the gas pressure of oxygen flowing therethrough;

a third chamber;

a second balanced valve means located between said second inlet port and said third chamber and responsive to the differential gas pressure between said first and third chambers for regulating the restrictions of said second balanced valve means; and,

means responsive to ambient gas pressure for regulating the gas pressure in said second chamber and the communication between said third chamber and said outlet means.

4,335,736

DOUBLE PIPING TYPE HYDRAULIC PRESSURE CONTROL DEVICE

Toshifumi Maehara, Hanzono, and Tomohiro Fujita, Hanyu, both of Japan, assignors to Akebono Brake Industry Company Limited, Tokyo, Japan

Filed Jul. 17, 1980, Ser. No. 169,723
Claims priority, application Japan, Jul. 31, 1979, 54-97572; Sep. 18, 1979, 54-119545; Dec. 17, 1979, 54-163945; Dec. 17, 1979, 54-163946
Int. Cl.³ G05D 11/03
U.S. Cl. 137—87 9 Claims

1. A double piping type hydraulic control device comprising:

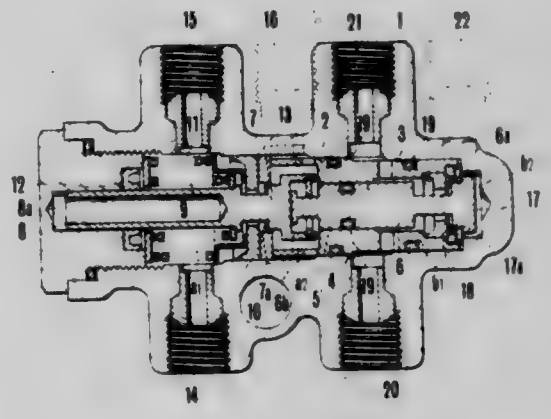
means for forming a valve body having an axially extending passage therein with said axially extending passage including a first hydraulic pressure channel followed in the axial direction by a second hydraulic pressure channel, each of said first and second hydraulic pressure channels is divided into an input chamber and an output chamber;

an axially extending control piston located within said first hydraulic pressure channel and arranged to receive hydraulic pressure therein;

a first valve mechanism located within said first hydraulic pressure channel and performing pressure reducing control on the output hydraulic pressure of said output chamber of said first hydraulic pressure channel, said first valve mechanism including said control piston, a first valve seat (10) located within said first hydraulic pressure channel and located between said input chamber and said output chamber, and a control spring (9) biasing said control piston toward said second hydraulic pressure channel;

a balance piston located within said second hydraulic pressure channel and arranged to be exposed to the pressure within said output chambers of said first and second hydraulic pressure channels, said balance piston being axially displaceable said device including a stopping means for interconnecting the adjacent ends of said control piston and said balance piston, said stopping means arranged to limit to a predetermined extent the relative movement of said control piston and said balance piston away from one another; and

a second valve mechanism located within said second hydraulic pressure channel, an inlet port in said valve body



opening into said input chamber in said second hydraulic pressure channel, an outlet port in said valve body opening into said output chamber in said second hydraulic pressure channel, said second valve mechanism including said balance piston is arranged to selectively block communication between said input port and said output port of said second hydraulic pressure channel, said second valve mechanism includes

a second valve seat member located within said second hydraulic pressure channel between said input and output chambers therein, and

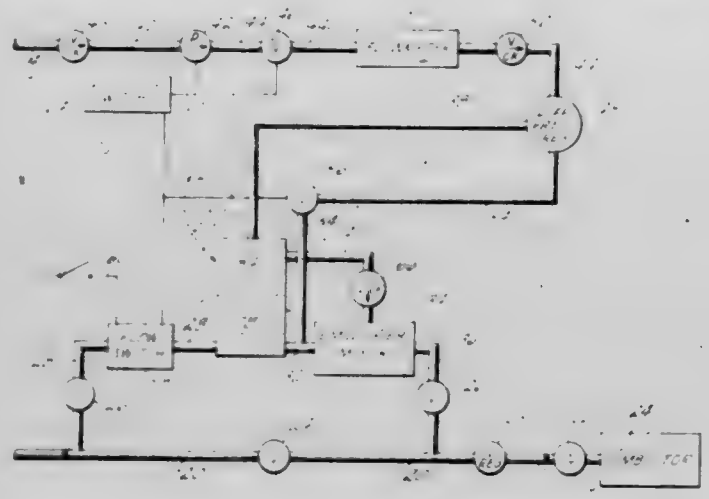
said balance piston includes a valve body part formed integrally with said balance piston and located within said output chamber of said second hydraulic pressure channel, said valve body part arranged to block communication between said input port and said output port by moving into engagement with said second valve seat member (18), said balance piston having a pressure receiving area at one end thereof exposed to the pressure within said output chamber of said first hydraulic pressure channel, said balance piston having another pressure receiving area on the opposite end thereof equal to said pressure receiving area on the one end of said balance piston and exposed to the pressure in said output chamber of said second hydraulic pressure channel when said second valve seat member and said valve body part are in engagement with one another.

4,335,737

PROPORTIONING AND MIXING IMMISCIBLE LIQUIDS

Harold H. Power, 65 Five Field Rd., Madison, Conn. 06443

Filed Dec. 15, 1980, Ser. No. 216,770
Int. Cl.³ G05D *11/13*
U.S. Cl. 137—98 8 Claims



7. Apparatus for mixing a constant proportion of water into an oil stream within a line, wherein the oil stream varies in flow rate and pressure comprising

(a) a supply of water at a pressure greater than the pressure of oil in the line;

(b) a differential pressure regulator connected to the supply of water and the oil line, to modulate the water pressure and discharge water at a pressure which is a constant amount greater than the pressure of the oil in the line just before the point at which the oil and water are mixed;

(c) a valve having a first chamber connected to the oil stream line and a second chamber connected to the water discharge of the regulator, moveable members within the valve providing a water flow path area which varies according to the oil flow path area, the valve having points for discharging predetermined proportions of water and oil separately;

(d) an emulsifying mixer connected in the oil line and water line downstream from the valve discharge points, for combining and dispersing the water within the oil;

(e) means for preventing flow of oil into the water conveying parts of the apparatus, to prevent fouling of the valve and other components when the water pressure in portions of the apparatus is less than the oil stream pressure; and

(f) means for isolating the differential pressure regulator from the water supply and the oil line, to prevent damage to the regulator when low oil flow or low water pressure is encountered.

4,335,738

BUTTERFLY VALVE

Nicholas Nassir, 616 N. Hidalgo Ave., Alhambra, Calif. 91801

Filed Jun. 19, 1979, Ser. No. 50,103
Int. Cl.³ F16K *1/226*
U.S. Cl. 137—246.22 12 Claims

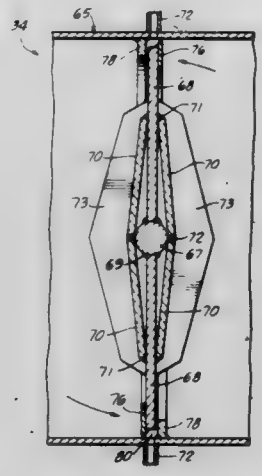
1. A butterfly valve for use in controlling the flow of high-temperature high-pressure particulate laden fluid comprising:

a cylindrical valve body having a pair of substantially semi-annular seats secured to and extending inwardly from the interior thereof and disposed on the opposite sides of the axis of aligned bearings located diametrically of said valve body;

a valve shaft mounted in said bearings and extending crosswise of said valve body;

a valve disc mounted on said shaft having the diagonally opposed semi-annular rigid non flexible rim portions thereof on the opposite sides of said shaft recessed and cooperating with said semi-annular seats and with the adjacent interior surface of said valve body to form a purging fluid distributing chamber when said valve disc is closed against said semi-annular seats;

said semi-annular seats extending inwardly substantially beyond the radial depth of said semi-annular recesses and the rigid periphery of said valve disc being closely spaced from the interior surface of said valve body in the closed



position of said valve disc and cooperating therewith to restrict the escape of purging fluid from said recesses; and

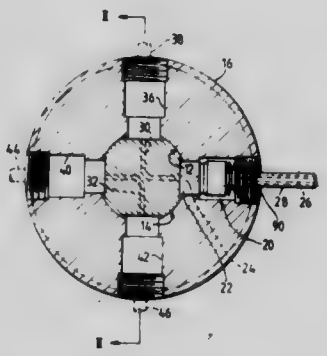
means adapted to supply purging fluid to said semi-annular recesses pressurized to a pressure in excess of the fluid pressure prevailing in said valve body when said valve disc is closed thereby to prevent leakage of particulate-laden fluid therepast.

4,335,739

SLIDER VALVES

Robert E. Fields, 51 Norfolk St., Cambridge, England

Filed Jan. 28, 1980, Ser. No. 116,111
Claims priority, application United Kingdom, Jan. 29, 1979, 7903090
Int. Cl.³ F16K *11/06, 1/42*
U.S. Cl. 137—269 8 Claims



1. A slider valve comprising:

(1) a body,

(2) a bore of generally circular cross-section through the body,

(3) a block slidable in the bore, the cross-section of the block being generally square but with the corners rounded so as to conform to the radius of the bore and allow the block to just fit within the core,

(4) at least one pair of diametrically opposed ports formed in the body so as to extend perpendicularly to the axis of the bore,

(5) pipe connections in the body communicating with the said ports,

(6) pads of resiliently deformable plastics material slidable in the ports and having flat inner end faces adapted to abut and sealingly engage the flat side faces of the block,

(7) a fluid passage through each pad,

(8) at least one fluid passage through the block which upon

appropriate axial movement of the block within the body can be aligned with fluid passages through two of the pads, and

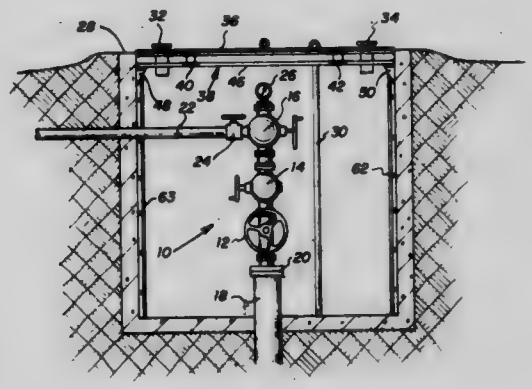
(9) means for exerting thrust on the outer end faces of the pads to effect sealing engagement with the block faces, the size of the cross-section of the pads being such that substantially the whole of the external surface of the block is supported by a bounding surface formed on the one hand by the inner wall of the bore and on the other hand by the inner end faces of the pads, thereby to reduce the possibility of distortion and material flow when the thrust on the pads acting on opposite side faces of the block is increased to accommodate high fluid pressures and maintain the sealing engagement between the abutting faces of the pads and the block.

4,335,740

WELLHEAD BUNKER

Jack W. Boley, Grapevine, Tex., assignor to Texas Oil and Gas Corporation, Dallas, Tex.

Filed Nov. 26, 1979, Ser. No. 97,171
Int. Cl.³ F16L *5/00*; E02D *29/14*
U.S. Cl. 137—364 **3 Claims**



1. Protective apparatus for use in delivery of oil and/or gas from a well through production tubing to a distribution system in a heavily trafficked environment, comprising:

a reinforced concrete bunker having a single chamber and an open top and substantially submerged in the earth in a position to surround the production tubing at near the upper end thereof;

a wellhead attached to the production tubing in a position to be completely enclosed within said bunker;

a top support structure attached to the inner walls of said concrete bunker at a position displaced from the top thereof;

a cover dimensioned to fit within the top of said concrete bunker and supported on said support structure at a position above said wellhead;

first and second access openings positioned substantially diametrically opposite to each other in said cover to each provide for both entry into the single chamber of said concrete bunker and through ventilation;

first and second ladders, one for each of said access openings attached to an inner wall of the chamber of said concrete bunker in a location such that the upper end of said ladder terminates in the vicinity of an access opening;

first and second hatch doors one for each of said access openings to close off said access openings; and

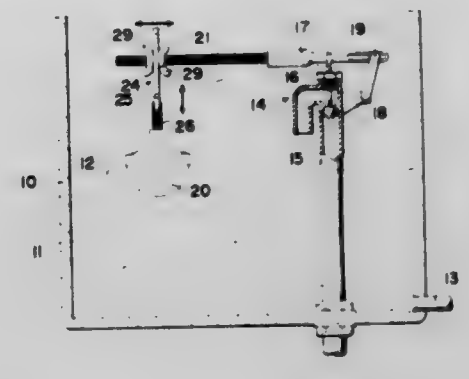
a sump line attached to the inner wall of said concrete bunker and having one open end terminating at near the bottom of said bunker and a second open end extending from said bunker at a position above ground level.

4,335,741

FLUID LEVEL CONTROLLER

Karim W. Nasser, 204 Garrison Crescent, Saskatoon, Saskatchewan, Canada

Filed Feb. 11, 1981, Ser. No. 233,513
Int. Cl.³ F16K *31/22, 31/26*
U.S. Cl. 137—426 **4 Claims**



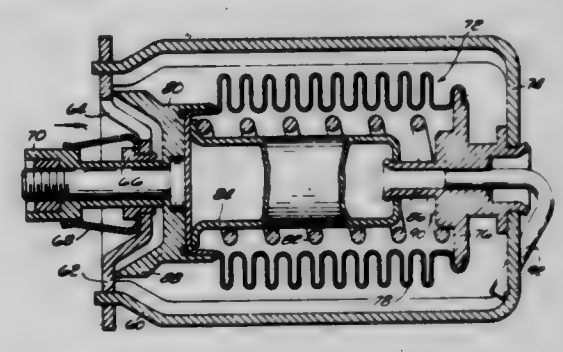
1. A fluid level control device operatively connectable to a source of fluid and adapted to operate a valve to open and close the source of fluid; comprising in combination a rod operatively connected by adjacent one end thereof to the valve, a float element, a connector element detachably securing said float element to said rod along the length thereof, and detachable clamping means cooperating between said rod and said connector element for adjusting the position of said connector element along the length of said rod and also adjusting said connector element perpendicularly with relation to the longitudinal axis of said rod, said connector element including an elongated member, means to mount said elongated member for said movement perpendicular to the axis of said rod, said means to mount said elongated member including a slot formed through said elongated member parallel to the longitudinal axis thereof thereby mounting said member upon said rod for said movement perpendicular to the longitudinal axis of said rod.

4,335,742

EVAPORATOR PRESSURE REGULATOR

Henry Jacyno, Franklin, Wis., assignor to The Singer Company, Schiller Park, Ill.

Division of Ser. No. 654,465, Feb. 2, 1976, Pat. No. 4,024,888, which is a continuation of Ser. No. 519,853, Nov. 1, 1974, abandoned. This application Jan. 24, 1977, Ser. No. 761,679
Int. Cl.³ F25B *41/04*; F16K *31/12*
U.S. Cl. 137—494 **2 Claims**



1. A pressure regulating valve including

a housing having an inlet and an outlet,

a valve seat in the housing between the inlet and the outlet and having an orifice inside the seat,

a poppet valve located on the outlet side of the seat with its face exposed to the inlet pressure and cooperating with the seat to regulate flow,

a sealed bellows located on the outlet side of the seat and having one end fixed relative to the seat and its other end connected to said valve,

means in said bellows holding the valve on the seat until the force of the inlet pressure acting on the valve face exceeds the force of said means,

said means including a charge the pressure of which is affected by temperature,

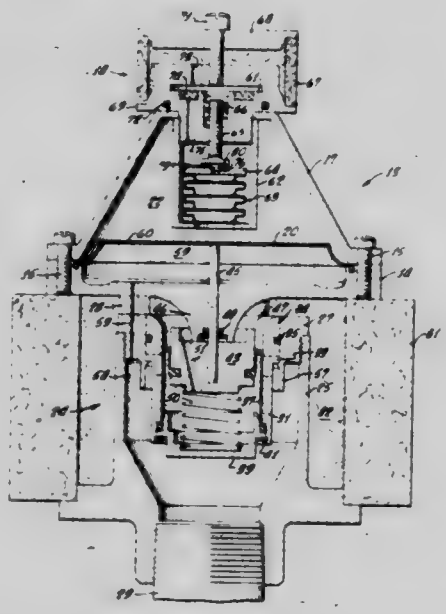
the mean effective area of the bellows being greater than the effective area of the valve orifice so reduced temperature and pressure outside the bellows has a reduced effect on force exerted by the bellows and said means on the valve in the closing direction than would be the case if the mean effective area of the bellows were equal to or less than the effective orifice area whereby the closing force is maintained more constant.

4,335,743

MILKING MACHINE SYSTEM, AND PRESSURE REGULATOR INCORPORATED THEREIN

Leon Jones, 18192 Gothard St., Huntington Beach, Calif. 92648

Filed Mar. 27, 1980, Ser. No. 134,686
Int. Cl.³ F16K *31/12*
U.S. Cl. 137—494 **11 Claims**



1. A pressure regulator for Tee connection in the line which extends between the vacuum pump and the milking machine of a milking machine system, said pressure regulator comprising:

(a) a conduit adapted to be connected in said line in Tee relationship,

(b) air valve means one side of which communicates with the ambient atmosphere and the other side of which communicates with said conduit, whereby said air valve means admits, when in open condition, atmospheric air into said conduit,

said air valve means being a rolling-sleeve valve,

(c) spring means connected to said air valve means to urge the same toward closed position preventing admission of atmospheric air into said conduit,

(d) a diaphragm, and means to associate said diaphragm with said air valve means in such manner that movement of said diaphragm toward said air valve means opens the latter;

(e) wall means provided on the side of said diaphragm remote from said conduit,

said wall means defining a dome chamber,

(f) means to admit atmospheric air into said dome chamber and to maintain the pressure in said dome chamber at a predetermined substantially constant level below that of the ambient atmosphere,

(g) means to effect communication between said line and the side of said diaphragm adjacent said conduit, and

(h) means to maintain the air pressure on said adjacent side of said diaphragm at a predetermined substantially constant pressure differential below that in said dome chamber,

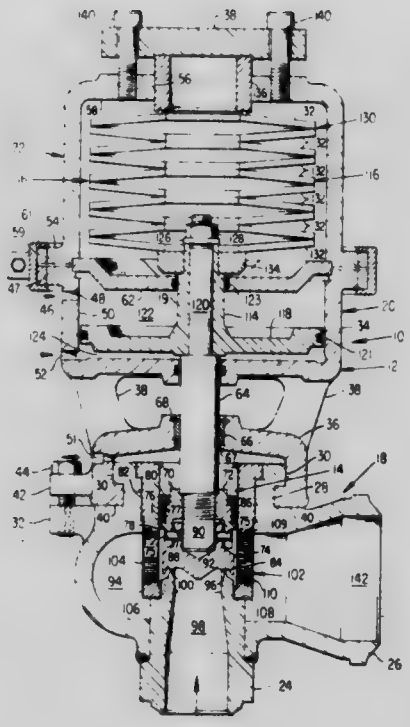
whereby there is no leakage in said valve through said air valve means yet the pressure in said line is caused to be substantially constant at a level which is related to the pressure in said dome chamber.

4,335,744

QUIET SAFETY RELIEF VALVE

Roger Bey, Illzach, France, assignor to Control Components, Inc., Irvine, Calif.

Filed Apr. 7, 1980, Ser. No. 137,660
Int. Cl.³ F16K *31/122, 15/00*
U.S. Cl. 137—522 **9 Claims**



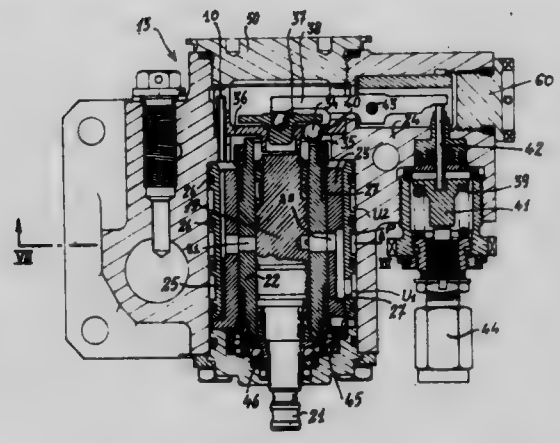
1. In a relief valve including a body, inlet means formed in said body, outlet means formed in said body, a valve assembly between said inlet and outlet means and movable between a closed position and an open position, means for moving said valve assembly between the closed and open position, and means biasing said valve assembly to its closed position; the improvement wherein said means biasing said valve assembly comprises the combination of spring means acting between said body and said valve assembly, first fluid pressure means acting on said valve assembly, the net biasing force acting on the valve being the spring force plus the first fluid pressure force, wherein said means for moving said valve assembly includes second fluid pressure means acting on said valve assembly to move said valve assembly to its open position, wherein said valve assembly comprises a valve stem received for axial sliding movement in said body, and a sealing element attached to an end of said valve stem, including a piston element attached to said valve stem, wherein said body comprises a lower section, an intermediate section attached to said lower section, and an upper section attached to said intermediate section, a portion of said intermediate section defining a cylinder in which said piston element is received, including a wall member received between said intermediate section and said upper section and substantially closing one end of said cylinder, a first fluid inlet port formed in said intermediate section and opening into said cylinder on a first side of said piston element, and a second fluid inlet port formed in said intermediate section and opening into said cylinder on a second side of said piston element; and, wherein said piston element comprises a hub portion received on said valve stem and extending through said wall member, and a disk portion including peripheral sealing means acting against the interior wall of said cylinder.

4,335,745

HYDRAULIC DISTRIBUTOR, ESPECIALLY FOR SERVO-CONTROL SYSTEMS OF AIRCRAFT AND HELICOPTERS

Marcel Bouveret, Bagneux, and Gerard Devaud, Paris, both of France, assignors to S.A.M.M.-Societe d'Applications des Machines Motrices, Issy-les-Moulineaux, France

Filed Jun. 26, 1980, Ser. No. 163,382
Claims priority, application France, Jul. 3, 1979, 79 17184
Int. Cl.³ F16K *37/00*
U.S. Cl. 137—554 7 Claims



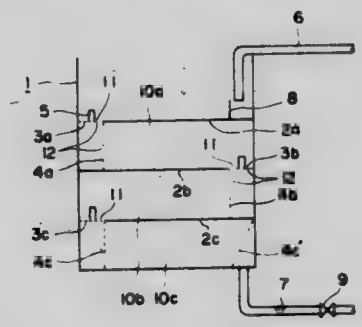
1. A hydraulic distributor primarily intended to equip servo-control systems of aircraft and helicopters, comprising a plug rotatably mounted within a stationary sleeve housed within a casing and pierced by bores for admission of a hydraulic fluid under pressure and discharge of the fluid to the collector-tank, progressively-opening passages on the periphery of the rotary plug in order to ensure circulation of the hydraulic fluid from one bore of the sleeve to the next when the plug is caused to rotate, said hydraulic distributor comprising an annular element interposed between the sleeve and the rotary plug, said annular element being pierced by radial openings in the line of extension of the bores of the stationary sleeve, progressively-opening passages in the outer periphery of said annular element so as to permit progressive transfer of the hydraulic fluid from one bore of the stationary sleeve to the adjacent bore if said annular element is caused to rotate, and locking means for maintaining the annular element in a normally stationary position at the time of rotation of the plug and for permitting rotational displacement of the annular element by the plug in the event of seizure of this latter within said annular element in order that the circulation of the hydraulic fluid may then be permitted to circulate from one bore to another through the peripheral passages of said annular element.

4,335,746

LIQUID STORAGE TANK

Akimitsu Miyahara, Tokyo; Toshihiko Kanazawa, Sagamihara; Kokaji Takahashi, Fujisawa; Hiroji Ushikubo, Ageo, and Kuniaki Kawano, Matsudo, all of Japan, assignors to Japan Organo Company, Ltd., Tokyo, Japan

Filed Sep. 22, 1980, Ser. No. 189,302
Int. Cl.³ E03B *11/00*
U.S. Cl. 137—576 5 Claims



1. In a liquid storage tank having a multiplicity of stages of horizontal partition plates which divide the space in said tank into a plurality of storage chambers, said partition plates having openings for allowing a liquid to flow down therethrough from the overlying chamber to the underlying chamber, said openings being arranged in a staggered manner such that the opening of the overlying partition plate is formed at one end of said tank while the opening of the underlying partition plate is formed at the other end of said tank;

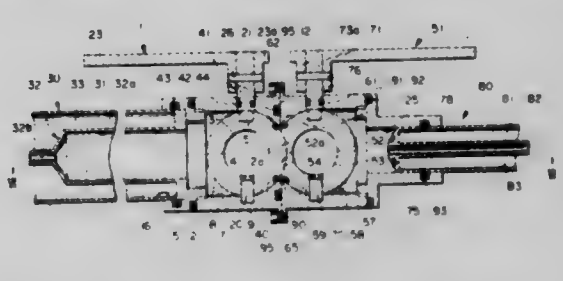
an improvement which comprises means for generating laminar flow between chambers comprising a plate provided at each of said openings and having a multiplicity of liquid passage ports; and storage chamber means for generating laminar flow across chambers comprising a flow setting plate vertically provided in each of said liquid storage chambers and having a multiplicity of liquid passage ports.

4,335,747

CONNECTING DEVICE FOR CONDUITS

Takashi Mitsumoto, Toyota, and Hiroshi Nakashima, Musashino, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya and Japanese National Railways, Tokyo, both of, Japan

Filed Oct. 21, 1980, Ser. No. 199,340
Claims priority, application Japan, Oct. 26, 1979, 54/138865
Int. Cl.³ F16L *37/28*
U.S. Cl. 137—614.06 6 Claims



1. A device for connecting conduits in an air-tight seal while excluding the introduction of exterior gases comprising:

a female connecting element including an elongated, open-ended pipe defining an elongated cyindrical bore which narrows at one end to a smaller diameter pipe for communication with a conduit;

a male connecting element including a cylindrical member with an outer diameter slightly smaller than the diameter of said elongated cylindrical bore so that said cylindrical member is slidably receivable in said cylindrical bore, said male connecting element further including an inner pipe, coaxial with said cylindrical member, for communication at one end with a conduit and at the opposite end with said smaller diameter pipe of said female connecting element;

first ball valve means including a first housing adapted to be fitted in a sealed relationship at its one end to said female connecting element, said first housing including an interior cavity, a first mating surface at its other end, and a bore from one end to the other with a diameter sufficient to pass the male connecting element therethrough;

a first spherical valve mounted in a sealed relationship within the cavity of said first housing, said first spherical valve having a diametrically extending through-hole with a diameter sufficient to pass the male connecting element therethrough;

second ball valve means including a second housing with a bore from one end to the other with a diameter sufficient to slidably receive in a sealed relationship said male connecting element, said second housing further including an interior cavity and a second mating surface at one end of said bore adapted for mating engagement in a sealed relationship with said first mating surface;

a second spherical valve mounted in a sealed relationship within the cavity of said second housing, said second spherical valve having a diametrically extending through-

hole with a diameter sufficient to pass the male connecting element therethrough;

the bores at said first and second mating surfaces defining openings which align when the mating surfaces are engaged with each other;

one of said first and second spherical valves projecting beyond the mating surface corresponding to its respective housing, and the other spherical valve having a partial spherical recess sized to receive the projecting portion of said one spherical valve when said first and second mating surfaces are engaged with each other;

first actuating means for moving the first spherical valve between an open position where its through-hole is aligned with the opening in the first mating surface and a closed position where the opening in the first mating surface is closed by the first spherical valve; and

second actuating means for moving the second spherical valve between an open position where its through-hole is aligned with the opening in the second mating surface and a closed position where the opening in the second mating surface is closed by the second spherical valve and the partial spherical recess is aligned with the opening in the corresponding mating surface;

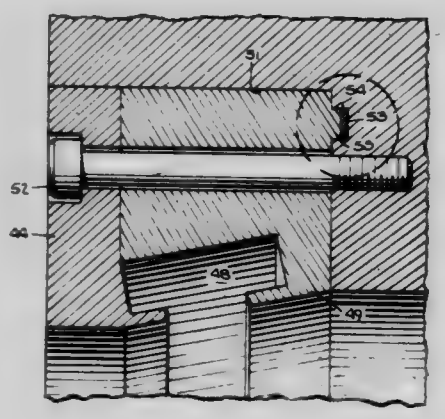
whereby when said first and second mating surfaces are engaged in a sealed relationship and said first spherical valve and said second spherical valve are moved to the open positions, said male connecting element is slidably insertable into said female connecting element so that the inner pipe of said male connecting element is connected in a fluid-flow relationship with the smaller diameter pipe of said female connection element.

4,335,748

BIDIRECTIONAL CONTROL VALVE

Ronald A. Olansen, Lyme, Conn., and Linda Pavelski, Ashaway, R.I., assignors to Posi-Seal International, Inc., North Stonington, Conn.

Filed Apr. 14, 1980, Ser. No. 139,751
Int. Cl.³ F16K *1/22, 5/00*
U.S. Cl. 137—614.11 **12 Claims**



1. A fluid flow control valve comprising a valve body having first and second spaced apart faces and an axial passageway for providing a fluid flow path between the faces; a valve disc mounted in the body, on an axis which perpendicularly intersects the flow axis of the passageway, for rotation between a valve shut position in which the valve disc is perpendicular to the flow axis and a fully open position in which the valve disc is substantially parallel to said flow axis, the valve disc having an annular sealing surface on one side of the axis of disc rotation; an annular seat ring of elastic material mounted in the valve body in a first counterbore positioned so that the seat ring contacts the sealing surface of the valve disc when the disc is in the shut position; and a retainer ring adjacent to the first valve body face to keep the seat ring in said first counterbore, the retainer ring forming with the first counterbore an undercut groove, and the seat ring being bifurcated in cross section to form a rib portion which extends through the groove opening to make interfering elastic contact with the respective sealing surface of the valve disc and two skirt portions which make interfering elastic contact with the sidewalls of the groove, wherein the improvement comprises:

a second counterbore is formed in said first face of the valve body, the valve further comprising a seal ring slidingly fitting in said second counterbore, said first counterbore being formed in said seal ring, said seal ring and said retainer ring forming said undercut groove and a circular groove being provided in one of the mating surfaces of one of the second counterbore and the seal ring;

means positioned in said circular groove for sealing between the valve body and the seal ring, said sealing means comprising a compressible ring made of a material resistant to the operating temperatures, pressures, and fluid of the intended valve service; and

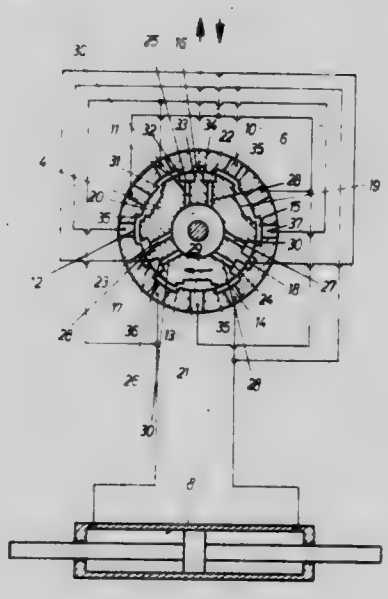
means for detachably fastening the retainer ring and the seal ring to the valve body.

4,335,749

ROTARY SLIDE STEERING VALVE FOR AUXILIARY POWER STEERINGS OF MOTOR VEHICLES

Wolfgang Walter, Schwabisch Gmund, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, AG., Friedrichshafen, Fed. Rep. of Germany

Filed Aug. 21, 1979, Ser. No. 68,363
Claims priority, application Fed. Rep. of Germany, Aug. 16, 1978, 2835815
Int. Cl.³ F15B *9/10*
U.S. Cl. 137—625.22 **14 Claims**



1. A rotary control valve of the kind having a valve sleeve member (6) encompassing a valve plug member (4) and means (2, 3) for effecting relative rotation therebetween wherein said members have respective groove means with flow control edges (31–35) coacting between said valve members for pressure flow and return flow control whereby pressure and return flow to and from a servomotor is controlled by relative rotation of said members, and which includes respective connection means (A, B, C, D, 37, etc.) for a pressure supply port (7), sump return port (9), and for servomotor (8) chambers wherein said flow control edges selectively effect closure and opening of flow upon relative rotation of said valve members to direct pressure flow to a servomotor and return flow therefrom and in a neutral position bypass flow from a pressure supply to sump return; the improvement which comprises:

one (4) of said members having throttling means (28) communicating with return flow groove means (16) of the other (6) of said members in a relatively rotated position of said valve members to throttle return flow through said valve from a servomotor wherein said throttling means comprises a flow through passage means of predetermined size to effect noise stifling throttling;

said flow control edges (31–35) alternately opening and closing to alternately direct return and pressure flow

between said valve and a servomotor, dependent on direction of relative rotation;

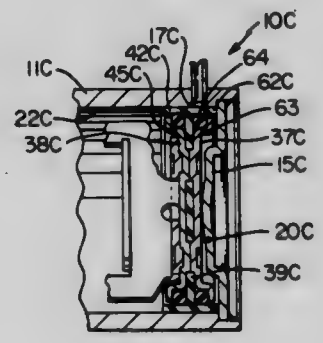
all said flow control edges being disposed to be open in a neutral position of said valve members to permit flow to bypass said throttle means from pressure supply port to sump return port.

4,335,750

REVERSING VALVE CONSTRUCTION AND PISTON HEAD ASSEMBLY THEREFOR AND METHODS OF MAKING THE SAME

Werner R. Bauer, and Robert A. Van Fossen, both of Richmond, Va., assignors to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 958,029, Nov. 6, 1978, Pat. No. 4,245,670.
This application May 12, 1980, Ser. No. 149,031
The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.
Int. Cl.³ F16K *31/122*; F16J *9/06*
U.S. Cl. 137—625.29 **5 Claims**



1. In a reversing valve construction comprising a housing means having an internal peripheral surface, a movable valve member disposed in said housing means, a piston unit disposed in said housing means and being interconnected to said valve member, said piston unit having opposed piston heads that define a main chamber of said housing means therebetween, said housing means having end portions respectively cooperating with said piston heads to define a pair of control chambers therewith and separated from said main chamber by said piston heads, said end portions respectively having valve seats facing said control chambers in directions substantially transverse to the direction of movement of said piston unit in said housing means, each said piston head having a front disc member and a backing plate, each said piston head having a flexible seal member secured between its respective front disc member and backing plate, each said seal member having an integral peripheral skirt, each said piston head having biasing means urging its respective skirt of its respective seal member into sliding and sealing engagement with said internal peripheral surface of said housing means, the improvement wherein each said biasing means comprises an annular resilient O-ring member separate from its respective seal member and being carried by one of said backing plate and said front disc member of its respective piston head so as to radially engage and urge its respective skirt radially outwardly into said sliding and sealing engagement, each said seal member of its respective piston head being adapted to close its respective valve seat when moved thereagainst by said piston unit.

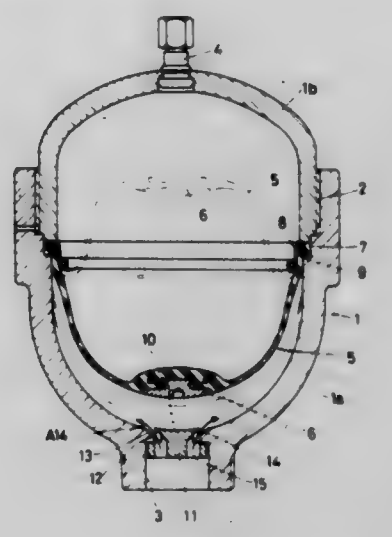
4,335,751

ACCUMULATOR

Kazuo Sugimura, and Nobuyuki Sugimura, both of 308, Mabase Shimizu-shi, Shizuoka-ken, Japan

Filed Jun. 9, 1980, Ser. No. 158,057
Claims priority, application Japan, Aug. 15, 1979, 54-103711
Int. Cl.³ F16L *55/04*
U.S. Cl. 138—30 **4 Claims**

1. An accumulator in which an interior of a vessel main body is partitioned into a gas chamber and a liquid chamber by means of a diaphragm made of an elastic material such as rubber and a liquid feed/discharge port is provided at an end portion of said liquid chamber, characterized in that a mushroom-shaped shield body is disposed coaxially at the inside end portion of said liquid feed/discharge port, a back surface tapered section having its diameter successively increased towards said liquid chamber is formed on the backside of said shield body, an inner surface tapered section having its diameter successively increased towards said liquid chamber is formed along the circumference of the liquid feed/discharge port in said vessel main body to provide an annular flow path between said back surface tapered section and said inner surface tapered section, a plurality of guide blades are disposed within said annular flow path and are provided integrally with the back surface tapered section of said mushroom-shaped shield body.

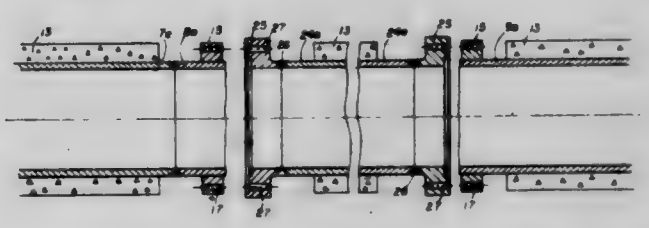


4,335,752

FLANGED PIPE

Maurice N. Sumner, Houston, Tex., assignor to The Sea Horse Corporation, Houston, Tex.

Continuation of Ser. No. 636,311, Nov. 28, 1975, abandoned.
This application Oct. 7, 1977, Ser. No. 840,319
Int. Cl.³ F16L *55/18*
U.S. Cl. 138—97 **1 Claim**



1. A method of repairing continuous submarine pipeline consisting of welded pipe sections comprising;

locating a continuous submarine pipeline having a plurality of coupling bosses in array therealong,

cutting said pipeline adjacent to two of said bosses,

removing said cut portion of pipeline between said two bosses,

placing a pipe section corresponding to said cut out portion between said two bosses on said pipeline, said pipe section having means thereon adapted to cooperate and engage with said bosses on said pipeline, and

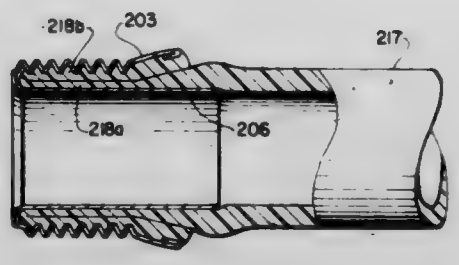
securing and sealing said pipe section to said two bosses thereby reconstructing said pipeline.

4,335,753

HOSE CONNECTORS AND HOSES EQUIPPED WITH SAME

Richard D. Frye, 900 Lime La., Marathon, Fla. 33050

Filed May 9, 1980, Ser. No. 148,581
Int. Cl.[3] F16L *33/20*
U.S. Cl. 138—109 4 Claims



1. A male threaded hose connector in the form of an integral sheet metal piece comprising an annular outer wall;

a generally transverse annular end wall extending inwardly from one end portion of the outer wall; and

an open-ended tubular stem extending from the end wall axially within and spaced concentrically from the outer wall; a major portion of the length of the outer wall being in the form of screw threads commencing at said one end portion,

the screw threads presenting male thread crests at the outer surface of the wall and female thread crests at the inner surface of the wall,

there being no portion of the outer wall between the screw threads and the end wall which has an outer diameter large enough to interfere with application to the male threaded connector of a female connector,

the tubular stem extending for at least the axial length of said major portion.

3. As an article of manufacture, the combination of

a length of hose having a free end portion formed of material which is flexible and compressible; and

a male threaded connector secured to said free end portion, said connector being in the form of an integral sheet metal piece comprising

an annular outer wall,

a generally transverse annular end wall extending inwardly from one end portion of the outer wall, and

a tubular stem extending from the end wall axially within and spaced concentrically from the outer wall,

a major portion of the length of the outer wall being in the form of screw threads commencing at said one end portion, the screw threads presenting male thread crests at the outer surface of the wall and female thread crests at the inner surface of the wall;

said end portion of the hose extending within the annular space between the tubular stem and outer wall and being clamped therebetween with said female thread crests being embedded in the hose material of said end portion.

4,335,754

PREVENTION OF HYDROGEN EMBRITTLEMENT OF METALS IN CORROSIVE ENVIRONMENTS

Alfred C. C. Tseung, 60 Grove Ave., London N10 2AN, England; Anthony I. Onuchukwu, c/o Bayero University, PMB 3011, Kano, Nigeria, and Ho C. Chan, 63 Church Way, London N20 OJZ, England

Filed Nov. 24, 1980, Ser. No. 209,481
Claims priority, application United Kingdom, Nov. 28, 1979, 7941116
Int. Cl.[3] F16L *9/14*
U.S. Cl. 138—146 19 Claims

14. A gas or oil pipeline component at least part of the surface of which is provided with a first coating comprising an active substrate selected from FeS and a mixed sulphide of the general formula

$$A_xB_{(4-2x)}S_{(3.6-4.0)}O_{(0.4-0)}$$

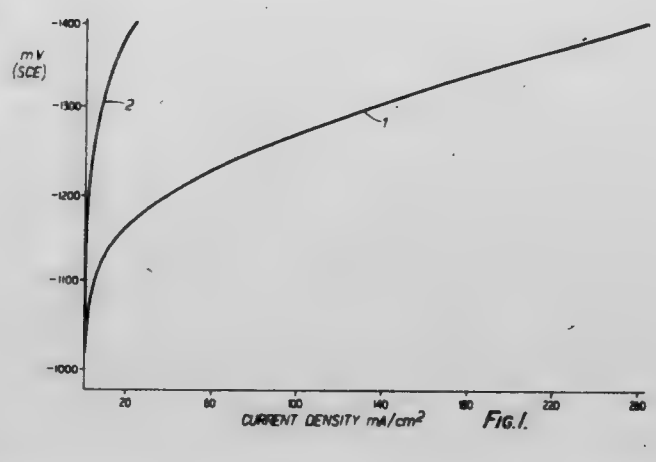


FIG. 1.

wherein x is 0.05 to 1.95 and A and B are any two different metals from cobalt, nickel, iron and manganese, and a second protective, non-conductive and impervious coating over said first coating.

4,335,755

COATING FOR PIPE

Thomas H. Sadler, and Daniel G. Richlie, both of Jefferson County, Colo., assignors to Manville Service Corporation, Denver, Colo.

Filed Apr. 9, 1981, Ser. No. 252,517
Int. Cl.[3] F16L *9/14;* B05D *3/02;* B32B *9/04*
U.S. Cl. 138—145 14 Claims

1. A hydraulic calcareous cementitious article having a surface exhibiting improved water impermeability and abrasion resistance comprising a cementitious article containing at least one surface coated with an aqueous dispersion of an emulsion containing a hydroxylated polydiorganosiloxane containing about two silicon-bonded hydroxyl groups and containing free silica wherein said coating on said surface is curable to an elastomeric coating of sufficient thickness that when cured and allowed to remain in contact with open air for approximately four weeks will develop the predetermined water impermeability and abrasion resistance.

9. A method of treatment for rendering a cementitious article more resistant to attack by aggressive water in contact therewith comprising the steps of applying to the surface to be so treated an aqueous dispersion of colloidal silica and an aniomically stabilized hydroxylated polydiorganosiloxane and an organometallic cure accelerating agent; curing the elastomeric coating by the removal of water by evaporation for a period of time sufficient to cure the elastomeric film coating and allowing the coated surface to stand in air for a sufficient period of time after cure and before use to develop greater abrasion resistance as measured by the U.S. Bureau of Reclamation test for pipe lining materials than the cured film coating initially exhibits.

4,335,756

STERILIZED MEDICAL TUBING COVER

Russell G. Sharp, Sugar Land; Charles C. Reed, Houston; Denton A. Cooley, Houston; Terry N. Crane, Houston, and William R. Wilkinson, Missouri City, all of Tex., assignors to Texas Medical Products, Inc., Houston, Tex.

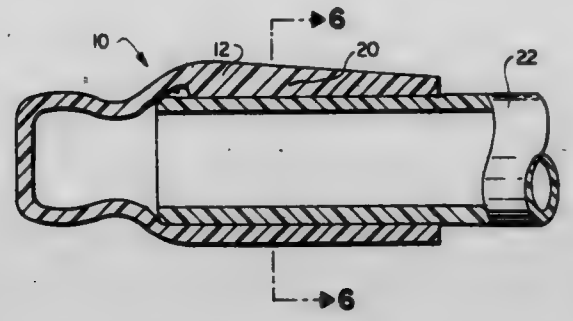
Filed Jan. 21, 1981, Ser. No. 226,657
Int. Cl.[3] F61L *55/10;* A61M *1/00;* A61B *19/02;* A61M *25/00*
U.S. Cl. 138—89 7 Claims

1. A cover for tubing comprising:

a tubular portion having first and second ends and having an inner surface which forms an opening of generally uniform diameter, said first end being configurated to receive

the tubing within the opening, said tubular portion being formed from a flexible material; and

a plurality of rib members formed on the inner surface of the tubular portion, said rib members being of increasing cross-sectional height from the first end to the second end of said tubular portion, such that said rib members form a diameter within the opening which is smaller than the outer diameter of the tubing, whereby the walls of said tubular portion between said plurality of rib members are deformed from cylindrical shape when the end of a length of tubing is inserted therein.

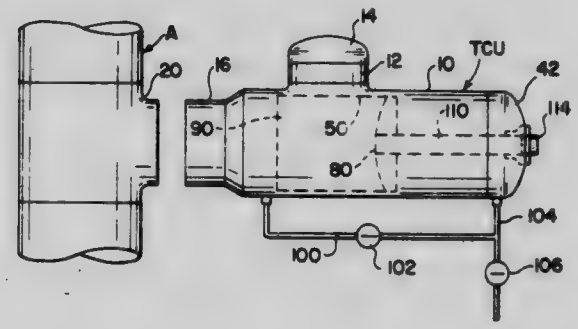


4,335,757

TEMPORARY PIPELINE CAPPING UNIT AND METHOD OF USING SAME

Robert J. Lankston, Shawnee, Kans., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed May 15, 1980, Ser. No. 150,198
Int. Cl.³ F16L *55/10, 55/16*
U.S. Cl. 138—92 **33 Claims**



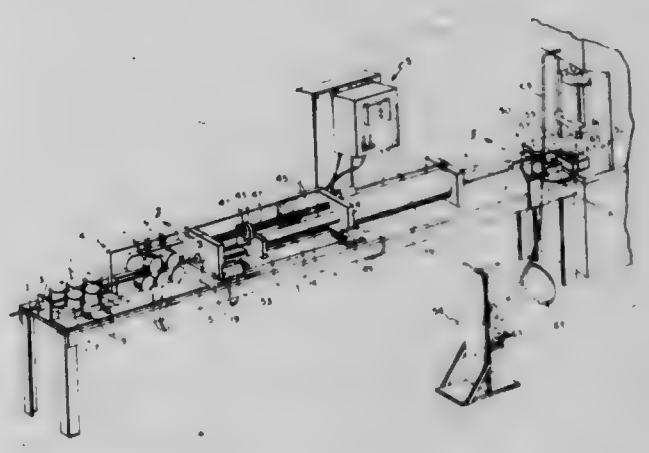
1. A temporary pipeline capping unit to be permanently secured over a side opening in a pipeline for allowing subsequent connection of a branch line onto said pipeline and/or communicating said branch line with said side opening while maintaining fluid flow and/or operating pressure in said pipeline, said capping unit comprising: a housing with an elongated chamber having first and second axially spaced ends, a generally cylindrical inwardly facing surface at least at said first end, means forming an axial opening communicating with said chamber at said first end, and means forming a branch opening intersecting said cylindrical surface adjacent said first end; a sleeve member having a generally cylindrical portion with an outer surface generally matching said inwardly facing surface; means for slidably sealing said outer surface and said inwardly facing surfaces; said sleeve member being axially shiftable in said chamber between a closed position adjacent said first end with said outer surface of said sleeve member sealing said branch opening from said chamber and an opened position with said sleeve member shifted away from said first end and with said branch opening communicated with said axial opening; means for securing said sleeve member in said closed position; means for selectively releasing said sleeve member only when it is desired to shift said member into said opened position; and, fluid means operated by pressure in said pipeline for selectively shifting said sleeve member from said closed position to said opened position whereupon said sleeve member remains in said opened position.

4,335,758

APPARATUS FOR ADVANCING AND FORMING A WIRE

Stanley E. Williams, McLeansboro, Ill., assignor to George Koch Sons, Inc., Evansville, Ind.

Continuation of Ser. No. 47,213, Jun. 11, 1979, abandoned. This application Jan. 15, 1981, Ser. No. 225,302
Int. Cl.³ B21F *1/02*
U.S. Cl. 140—88 **4 Claims**



1. An apparatus for advancing a strand comprising:

one or more anti-backing chucks for allowing movement of a strand in a forward direction and restraining movement in a rearward direction;

means for reciprocally moving one of said chucks to a forward position during which the strand is carried forward by said chuck, and to a rear position during which the strand is not moved by said chuck;

said means for moving said one chuck including a piston and cylinder mechanism, a hollow member extending axially through the piston and cylinder mechanism and having first and second ends extending axially outward therefrom for receiving the strand, the hollow member being connected to and reciprocally movable in response to the piston and cylinder mechanism, said chuck being coupled to said first end of the hollow member; and

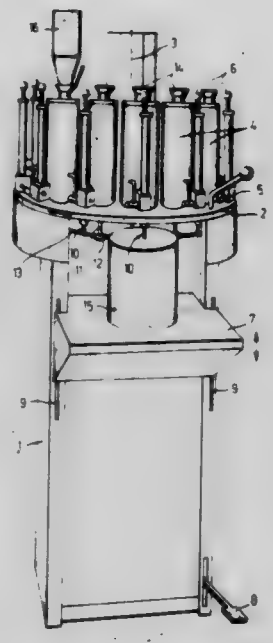
means for adjustably controlling the reciprocating motion of said one chuck to gauge the quantity of the strand being advanced with each reciprocating motion, said control means including stop means variably positionable relative to said second end of the hollow member for establishing absolute limits of movement of the hollow member, sensing means variably positionable relative to the second end of the hollow member for detecting the movement of said chuck to its forward and rear positions and communicating with said piston and cylinder mechanism to reverse the direction of movement of said hollow member, means coupled to the hollow member for engaging the sensing means and stop means, the stop means being variably positioned in proximity to the sensing means to prevent damage to the sensing means, means for forming the advanced portion of the strand into a desired shape in response to the reciprocating motion of the hollow member, and means for cutting the strand to produce an article having the desired shape and a size determined by the quantity of strand advanced.

4,335,759

METHOD OF MIXING PAINTS AND THEIR TONERS

Veikko Pättiniemi; Eero Koivisto, both of Pirkkala; Heikki Kokki, and Aslak R. Heikel, both of Tampere, all of Finland, assignors to Winter Osakeyhtio, Tampere, Finland

Filed Aug. 23, 1979, Ser. No. 69,030
Claims priority, application Finland, May 10, 1979, 791500
Int. Cl.[3] B65B *3/04*
U.S. Cl. 141—5 2 Claims



1. A method of mixing toner from a container of toner with basic paint in a basic paint can, the toner container having a dosing device which includes a nozzle and also having an opening for allowing air to enter the container, wherein the improvement resides in that, in order to prevent drying of the toner remaining in the container, said opening is provided with a back pressure valve which is disposed to allow air to enter the container and prevent air from leaving the container, and the method comprises the steps of employing the dosing device to withdraw a measured quantity of toner from the container, and introducing said measured quantity of toner into the basic paint can by way of the nozzle of the dosing device, withdrawal of toner from the container by way of the dosing device causing a reduction of pressure of air in the container so that the back pressure valve opens and allows air to enter the container and subsequently closes to prevent escape of air from the container and consequent drying of the toner remaining in the container.

4,335,760

APPARATUS FOR HOLDING A SYRINGE AND FILLING AN AMPULE

Balachandra N. Kabadi, South River, and Michael S. Farkas, Spotswood, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Oct. 6, 1980, Ser. No. 194,309
Int. Cl.[3] B65B *3/04*
U.S. Cl. 141—129 10 Claims

1. An apparatus for holding a syringe and filling an ampule comprising:

(a) a housing having a base and a vertical support member;

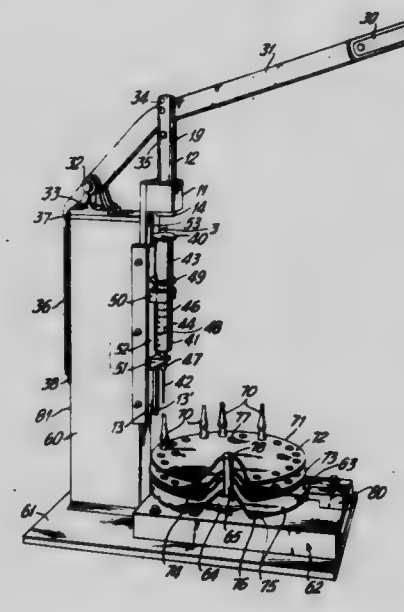
(b) a syringe holder comprising a plate which is slideably mounted on said vertical support member, said syringe holder including means for holding a syringe and means for preventing said syringe from sliding downward in said syringe holder in response to a downward force applied to the shaft of the syringe, said syringe holder further comprising a head member at its upper end, said head member being adapted to slideably retain the end of a plunger;

(c) vertical limit means for limiting the upward and downward vertical movement of said syringe holder on said vertical support member;

(d) spring return means for biasing said syringe holder at its upper vertical limit on said vertical support member;

(e) a bar which is pivotally mounted at the top of said vertical support member, said bar having a handle grip at one end;

(f) a plunger for applying a downward force onto said syringe shaft, the top of said plunger being suspended from, and slideably mounted on, said bar between said handle grip and said pivotal mounting, the bottom of said plunger being slideably mounted through, and retained by, said head member of said syringe holder;



(g) spring return means for biasing said handle grip upward, whereby, when said handle grip is moved downward, said plunger slides through said head member, contacts the shaft of said syringe, and forces said syringe holder to slide down said vertical support member against the force of said spring return means until said syringe holder reaches its lower vertical limit when additional downward force on said handle grip causes said plunger to push said syringe shaft into said syringe, thereby forcing the contents of said syringe to be dispensed.

4,335,761

RECIPROCAL BOTTLE FILLING DEVICE

Michael H. Peronek, Chagrin Falls, Ohio, assignor to FCI, Inc., Cleveland, Ohio

Filed Jul. 21, 1980, Ser. No. 170,712
Int. Cl.[3] B65B *3/04*; B67C *3/26*
U.S. Cl. 141—371 5 Claims

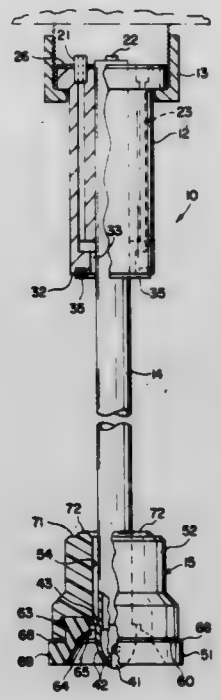
1. In a bottling machine movable filling assembly having a vertical axis, comprised of,

of hollow filling tube extending axial downwardly, having a lower portion with an outer diameter;

an attachment means adapted to attach said filling assembly to a bottling machine; and,

a centering guide slidably mounted on said filling tube, the improvement which comprises said centering guide being comprised of; an upper holding part; a non-metallic pliable lower bell part having a continuous lower surface comprised of an inner sealing portion adapted to form an airtight seal with a bottle flaring outwardly and downwardly from a central aperture and an outer portion flaring outwardly and downwardly from said inner portion; and, an annular gap between said upper holding part and

said lower bell part above said outer portion extending radially outwardly allowing said outer portion to deform



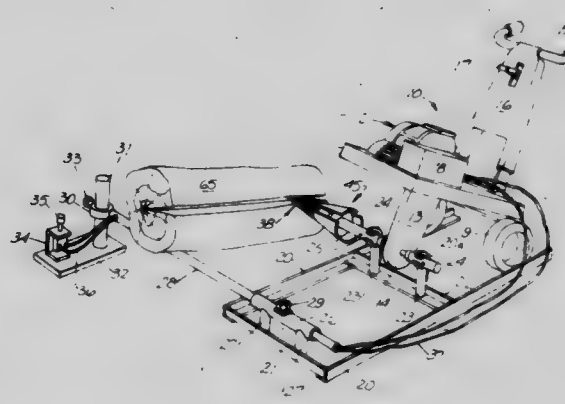
and said lower bell part to tilt when a bottle is encountered.

4,335,762

LOG SPLITTER ATTACHMENT FOR GARDEN TILLER

Leonard V. Reaume, Natchez Trace Village, and James O. Hall, Jackson, both of Miss., assignors to Magna American Corporation, Raymond, Miss.

Filed Dec. 6, 1978, Ser. No. 966,853
Int. Cl.³ B27L 7/00
U.S. Cl. 144—194 **15 Claims**



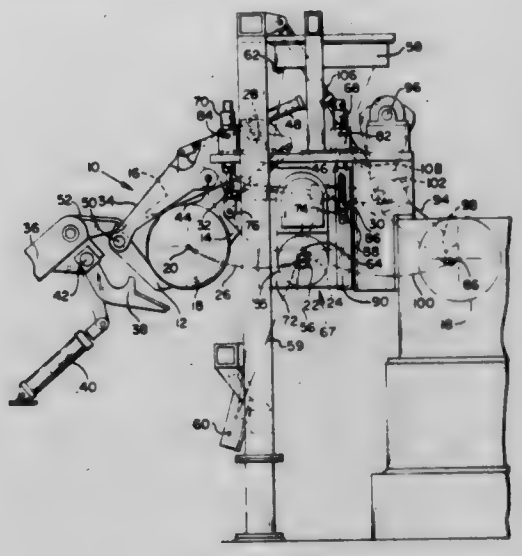
15. A log splitter attachment for use with garden tillers having a tiller frame, a tiller power drive means, and a tiller drive shaft, said splitter attachment comprising: a frame portion, attachment means mounted on said frame portion to releaseably attach said frame portion to said tiller drive shaft, a log splitting screw having means attached thereto for releaseable attachment to said tiller drive shaft to allow for rotational movement of said splitting screw in unison with said tiller drive shaft and in generally axial alignment therewith, and a log support bar attached to said frame portion and extending outwardly therefrom for ground engaging support, to provide support for logs during use and to stabilize said frame portion and said tiller.

4,335,763

VENEER LATHE CHARGER HAVING IMPROVED POSITIONING FOR CHARGER SPINDLES

Arthur L. McGee, Lake Oswego, Oreg., assignor to The Coe Manufacturing Co., Painesville, Ohio

Filed May 29, 1980, Ser. No. 154,201
Int. Cl.³ B27L 5/02
U.S. Cl. 144—209 A **16 Claims**



1. Log processing apparatus, comprising:

log support and centering means for supporting and positioning a log with its axis roughly centered at a scan position;

charger spindle means for engaging the ends of the log after rough centering and rotating said log about a spindle axis at said scan position;

scanning means for scanning the log with a light beam at different rotational positions of said log to determine the optimum yield axis of the log for optimum production;

spindle support and adjustment means attached to linear positioning means for supporting and adjusting the position of the charger spindle means both vertically and horizontally in response to linear movement of said linear positioning means in one direction, to move the log and position its optimum axis at a transfer position which is located at a predetermined position relative to a work axis; and

transfer means for engaging the log in said transfer position and for transferring the log from said transfer position to a work position where the log is cut after disengaging the charger spindle means so that the optimum axis of the log is aligned with the work axis.

4,335,764

VENEER PEELING APPARATUS

Charles J. Schmidt, P.O. Box 757, Diboll, Tex. 75941

Filed Dec. 17, 1980, Ser. No. 217,272
Int. Cl.³ B27L 5/02
U.S. Cl. 144—209 R **12 Claims**

12. A veneer peeling apparatus for peeling veneer off of a horizontally positioned wood log comprising,

a fixed rotatable roller positioned to be above the longitudinal axis of the log,

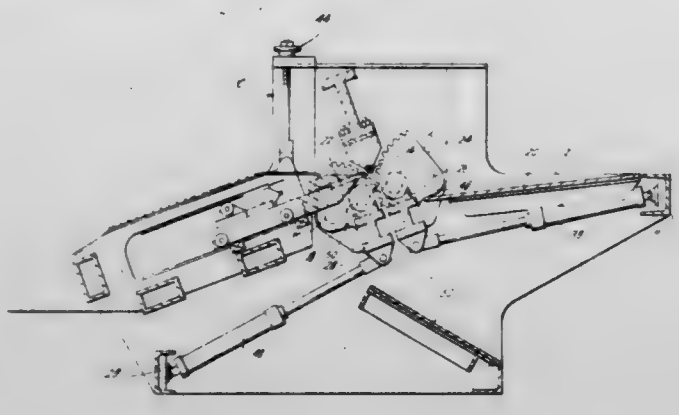
a cutting knife positioned adjacent and below the fixed roller for peeling veneer from a log,

first and second movable rollers positioned below the first roller, the first roller being positioned above the second rollers, said first and second rollers movable toward and away from the fixed roller and each other, said movable rollers being positioned equidistance from the fixed roller at all times,

all of said rollers having horizontal longitudinal axis parallel to each other,

means for rotating all of said rollers at both ends thereby rotating a log positioned between the rollers and against

the knife, the speed of rotation of the surface of the fixed roller being slower than the speed of rotation of the surfaces of the movable rollers, and



said first movable roller including a flange at each end limiting lateral movement of a log relative to the rollers.

4,335,765

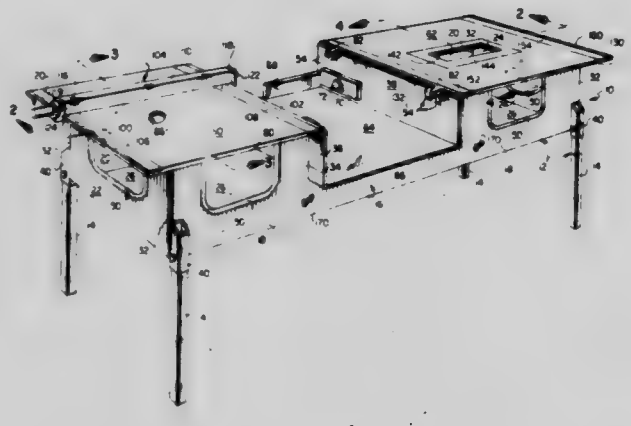
PORTABLE MULTI-PURPOSE CONSTRUCTION TABLE

Rholand D. Murphy, Murphy La., Moab, Utah 84532

Filed Nov. 23, 1979, Ser. No. 96,962

Int. Cl.³ B27C *9/00*

U.S. Cl. 144—286 R **5 Claims**



4. A portable multi-purpose construction table comprising:

motorless frame means comprising substantially rigid body means and floor engaging leg means connected to and holding the body means above the leg means, the body means being vertically stepped so that a first part of the body means extend to a first elevation and a second part of the body means extend to a second, higher elevation;

the frame means further comprising first and second platform means vertically spaced from each other, one platform means being superimposed over the first part of the body means the other platform means being superimposed over the second part of the body means, each platform means comprising at least one power tool receiving site, the two platform means presenting vertical offset but adjacent substantially horizontal exposed top surfaces;

first and second adjustable tool attachment means carried by the respective platform means of the frame means and sized, shaped and located at the two tool receiving sites to releasably secure the base of two different hand power tools having independent motors in a substantially horizontal attitude one at each said site;

third platform means adjacent the lower one and spaced from the higher one of the other two platform means, the third platform means being at the same elevation as the higher of the two other two platform means, the third platform means comprising a third tool receiving site spaced from the two other tool receiving sites, two being disposed at the underside of two of the platform means and one at the top side of the remaining platform means.

4,335,766

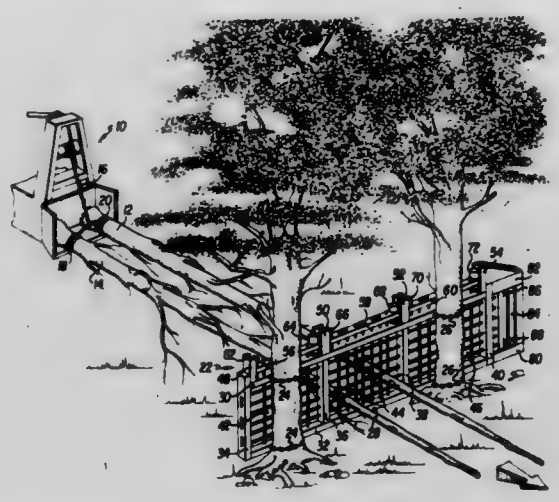
APPARATUS AND METHOD FOR DELIMBING FELLED TREES

Lawny Davis, Box 287A, Preble Ave., and Derwood Preble, Hill Top Rd., both of Anson, Me. 04911

Filed Oct. 20, 1980, Ser. No. 198,507

Int. Cl.³ B27L *1/06*

U.S. Cl. 144—343 **22 Claims**



1. Apparatus for removing limbs from felled trees, comprising:

an essentially upright frame having a central opening;

a plurality of flexible elements extending across said central opening and defining a grid of said elements within said central opening, said grid having a plurality of tree-receiving apertures;

means operatively engaged with said frame for resiliently supporting said plurality of flexible elements and permitting said elements to move so that tree-receiving apertures expand and contract to accommodate the changing diameter of a tree trunk; and

means operatively engaged with said frame for anchoring said apparatus relative to the ground.

4,335,767

METHOD AND APPARATUS FOR THE CHIPPING DISSECTION OF TREE LOGS INTO ALL-ROUND MACHINED LUMBER PRODUCTS

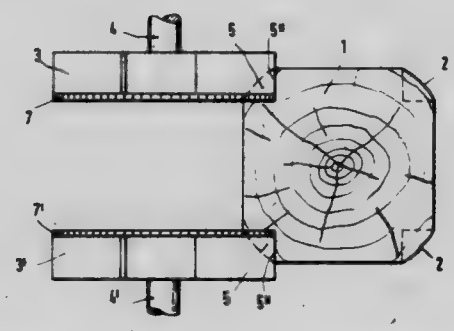
Alfred Reuter, Oberkirch, Fed. Rep. of Germany, assignor to Gebruder Linck, Maschinenfabrik und Eisengiesserei "Gatterlinck", Oberkirch, Fed. Rep. of Germany

Filed Apr. 16, 1980, Ser. No. 140,841

Claims priority, application Fed. Rep. of Germany, May 9, 1979, 2918622

Int. Cl.³ B27C *9/10*

U.S. Cl. 144—370 **7 Claims**



1. A method of processing a log to produce lumber, comprising the steps of:

cutting said log to present four flattened faces thereon with wany edge regions between adjacent faces, said faces being substantially at right angles relative to each other and arranged in pairs with the faces of each pair being generally opposed;

milling said wany edge regions to present, at each such region, a pair of generally planar, interconnected surfaces,

said milling step being accomplished, at each such region, by sawing the log to produce one of said surfaces and to render the one surface relatively smooth, and by chipping the log to produce the other of said surfaces which renders the other surface relatively rough, two of said rough surfaces lying generally in a first plane, and the remaining two of said rough surfaces lying generally in a second plane; and

sawing said log along said first and second planes to separate two boards from said log and leave a central cant, said last-mentioned sawing serving to smooth said initially rough surfaces.

4,335,768

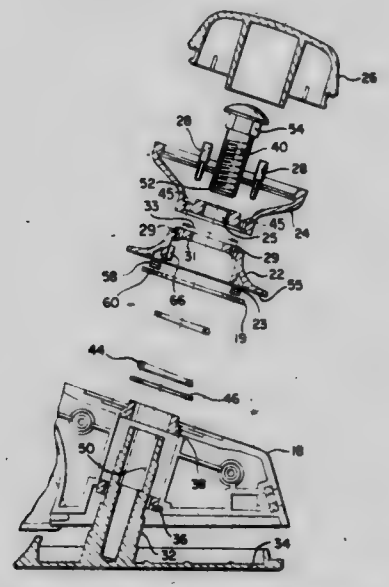
DEPTH OF CUT ADJUSTMENT MECHANISM

Rainer Bachmann, Hohenstein, Fed. Rep. of Germany, assignor to Black & Decker Inc., Newark, Del.

Filed Jun. 18, 1980, Ser. No. 160,822

Int. Cl.³ B27C *1/10*

U.S. Cl. 145—4 **10 Claims**



1. In a power planer comprising a housing incorporating a motor driven cutting blade disposed intermediate a rear fixed shoe and an adjustable front shoe, and adjustment means for adjusting the elevation of said front shoe so as to effectively vary the depth of cut of said cutting blade; the improvement wherein said adjustment means comprises:

a bolt threadedly engaged to said front shoe so that rotation of said bolt imparts vertical movement to said front shoe relative to said housing;

selector means rotatable relative to said housing and having associated therewith scale means referenced to fixed reference means on said housing for providing an indication of the depth of cut of said cutting blade; and

coupling means for coupling said selector means to said bolt for rotation therewith in a selectable angular position relative to said bolt to thereby permit accurate calibration of said scale means.

4,335,769

FOLDABLE CONTAINER

Gerald P. M. McManus, The Old Parsonage, Peaslake, Surrey, England

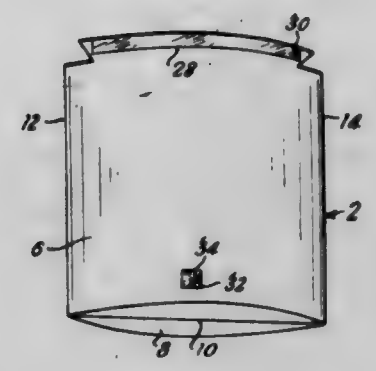
Filed Oct. 1, 1980, Ser. No. 192,898

Claims priority, application United Kingdom, May 7, 1980, 8015147

Int. Cl.³ B65D *33/14*

U.S. Cl. 150—1 **1 Claim**

1. A foldable generally rectangular container bag having a single opening in an upper portion thereof through which the bag can be filled, said bag having substantially coextensive front and rear walls connected together along opposite side edges and a foldable bottom wall secured to the front and rear walls and operable to allow the bag through opposite outward bowing of said front and rear walls to open for filling of the bag through its said upper opening, and said bag having a central part of its rear wall extending above the opening and substantially across the width of the opening, a strip of adhesive with a removable backing strip extending along said upwardly extending central part substantially from end to end and on a rearwardly facing surface thereof, said strip of adhesive serving to somewhat inhibit bowing of said rear wall adjacent the fill opening when adhered to a flat seat back or the like, and a second adhesive region with a removable backing strip on a rearwardly facing surface of the bag rear wall spaced substantially below said first adhesive strip and near the bottom of the bag, the width of said second adhesive region being substantially less than the width of said rear wall so as not to inhibit bowing thereof as aforesaid below said fill opening when adhered to a seat back or the like.



4,335,770

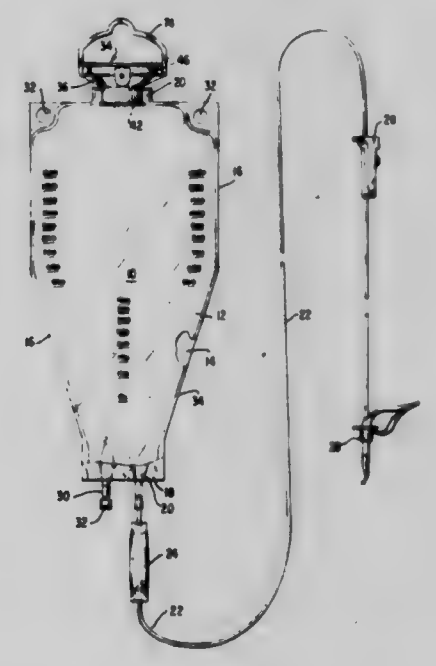
ENTERAL FEEDING CONTAINER

Lee K. Kulle, Mundelein, and Kenneth W. Larson, Libertyville, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Oct. 8, 1980, Ser. No. 195,156

Int. Cl.³ A61M *31/00*

U.S. Cl. 150—8 **16 Claims**



1. An enteral feeding container, which comprises a container body defined by a pair of opposed, flexible, collapsible container walls, an outlet in the bottom of said container, said outlet communicating with flexible tubing which terminates at its outer end with connector means for communication with an enteral feeding catheter, and an inlet port and closure at the top of said container having a diameter of at least 2 cm., said inlet port and closure comprising a funnel member sealed to said container walls and communicating therethrough, and a clo-

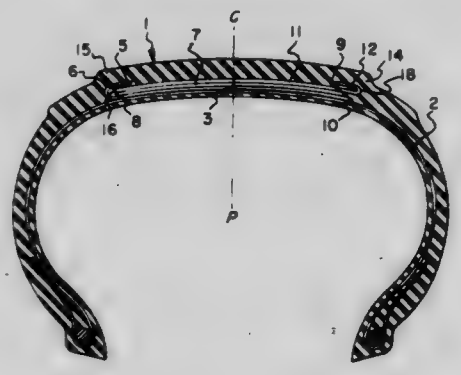
sure member attached to said funnel member by integral hinge means, said funnel member defining an outwardly projecting cylindrical port, said closure member defining outer and inner annular walls spaced apart to define an annular recess proportioned to sealingly receive said outwardly projecting cylindrical port when said closure is sealing the inlet port, said inlet port and closure carrying at least one annular sealing projection for sealing between said cylindrical port and annular walls when the inlet port and closure is in closed relation.

4,335,771

TIRE WITH A REINFORCING BELT STRUCTURE

Rene F. Reuter, Warken, Luxembourg, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 2, 1981, Ser. No. 230,566
Int. Cl.³ B60C *9/20*
U.S. Cl. 152—361 FP **10 Claims**



1. A tire with a reinforcing belt structure which comprises a first reinforcing folded belt ply, said first folded belt ply comprising a main body portion and a single folded end portion disposed radially outwardly with respect to the axis of rotation of said tire of said main body portion, a second reinforcing belt ply having a main body portion and a single folded end portion disposed radially outwardly with respect to the axis of rotation of said tire of said main body portion of said second ply, said second ply being disposed radially outwardly of said first ply and oriented such that the lateral end portion of the main body portion of said second ply lies within the space formed by the folded end portion of said first ply, characterized in that the cords of said first and second plies lie in the same orientation with respect to the mid-circumferential centerplane of the tire, a middle unfolded belt ply of oppositely disposed oriented cords and of a width substantially equal to the main body portions of said first and second plies is disposed between the unfolded portions of said first and second plies.

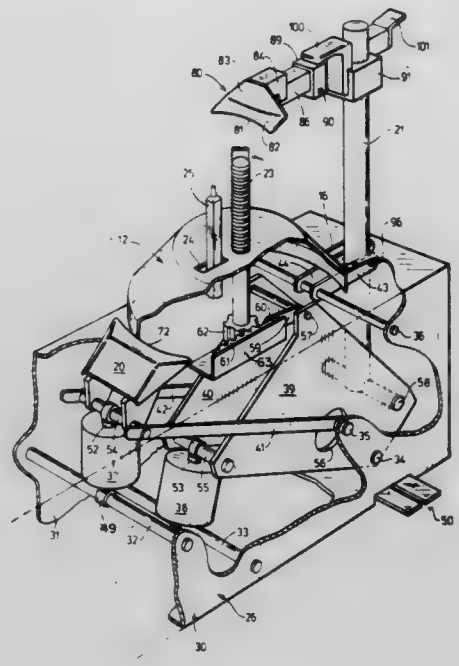
4,335,772

TIRE CHANGING MACHINE

Leslie Bubik, Toronto; Stanley B. Barclay, Mississauga; Eugene L. Knaitner, Weston; Frederic D. M. Williams, Mississauga, and Bernard D. Alm, Willowdale, all of Canada, assignors to FMC Corporation, Chicago, Ill.

Continuation of Ser. No. 3,823, Jan. 16, 1979, abandoned. This application Nov. 18, 1980, Ser. No. 208,106
Claims priority, application Canada, Jan. 23, 1978, 295475
Int. Cl.³ B60C *25/06*
U.S. Cl. 157—1.28 **12 Claims**

1. In a tire-changing machine having a frame, a platform for receiving a wheel rim having a drop centre mounted on top of said frame, and a rotatable shaft having a free upper end extending from said table, the improvement which comprises a pair of reversely coacting fluid motors each with pistons, the piston of a first fluid motor being operatively connected with a first bead breaker shoe and the piston of a second fluid motor being operatively connected to a second bead breaker shoe; one of said pistons being further operatively connected to said rotatable shaft to drive said shaft in first and second reverse directions about a vertical axis, and individual guide means for



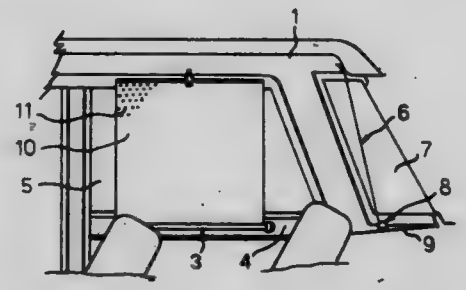
guiding the travel of each of said bead breaker shoes in a locus inward toward said wheel rim drop centre.

4,335,773

WINDING UP SUNSHADE CURTAIN FOR MOTOR-VEHICLES

Lamberto Masi, Via Newton No. 9, Pero, Milan, Italy

Filed Dec. 19, 1979, Ser. No. 105,097
Claims priority, application Italy, Dec. 21, 1978, 31143 A/78; Sep. 17, 1979, 25776 A/79
Int. Cl.³ E06B *9/08*
U.S. Cl. 160—23 R **13 Claims**



1. In a sunshade curtain for motor-vehicles comprising a case mounted along one edge of a window, the curtain comprising a sheet of flexible opaque material provided with a dark colored inner face and with openings arranged in predetermined parallel rows, one edge of said sheet being fastened to a winding-up shaft carried by end supporting elements and connected to a spring biasing this shaft to rotate in the winding-up direction of said sheet, the improvement in which the case is composed of an arcuate profiled element, parallelly arranged and partially surrounding said winding-up shaft, said profiled element being provided at both ends with snap fitting means which engage a corresponding seat formed in a respective one of the end supporting elements for said case and winding shaft, said sheet of flexible material having a grip element fastened to the edge opposite the edge fastened to the winding-up shaft, said grip element being turnable through an arc not covered by the case, by partially unwinding said sheet, said grip element being pullable in a first direction when adjacent one edge of the case to unwind said sheet and being pullable in the same direction when adjacent the other edge of the case to unwind the sheet while maintaining the dark colored face on the inside of the motor-vehicle.

4,335,774

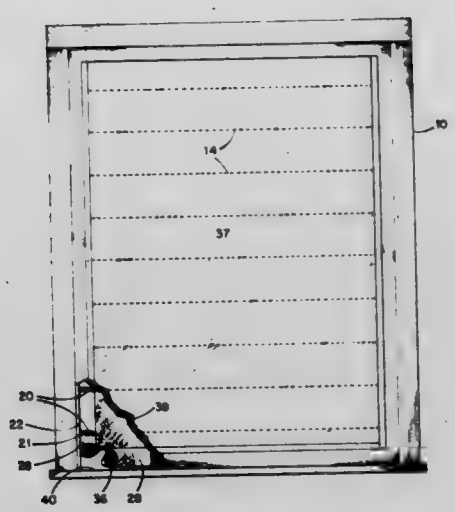
THERMAL WINDOW BARRIER OF SOFT FABRIC

Timothy K. Price, Howe Hill Rd., Grantham, N.H. 03753

Filed Jan. 14, 1980, Ser. No. 111,964

Int. Cl.[3] A47H *5/00;* E06B *3/94*

U.S. Cl. 160—84 R 6 Claims



1. An insulating barrier for window areas comprising:

(a) a rectangular multiple-layer, insulating fabric containing at least one insulating filler layer and having a rolled edge of multiple-layer material similar to said insulating fabric also containing at least one insulating filler layer, said rolled edge extending along at least three edges of said barrier;

(b) a plurality of rows of quilting securing said fabric at intervals parallel to an edge of said fabric;

(c) a pair of tracks on opposite sides of said fabric aligned perpendicular to said rows;

(d) a pair of springs for at least every other row of quilting, one end of each spring in said pair of springs connected to a carrier in a respective one of said pair of tracks; and,

(e) means to secure a second end of each spring to said fabric at a position spaced from the edge of said fabric and related to said rows of quilting, said position spaced from the edge of said fabric being such as to place a tension on said fabric to hold it taut between said tracks with said rolled edge in sealing contact against window jambs at two edges of said barrier, all whereby said fabric may be supported adjacent a window area, extended on said tracks to form a barrier for said window area and retracted from said window area on said tracks to fold in a storage zone.

4,335,775

ROTATABLE LOUVER HOLDER FOR LOUVERED VERTICAL VENETIAN BLIND

Kurt H. Frentzel, Zevenhoven, and Herman Oskam, Bergambacht, both of Netherlands, assignors to Hunter Douglas International, N.V., Curacao, Netherlands Antilles

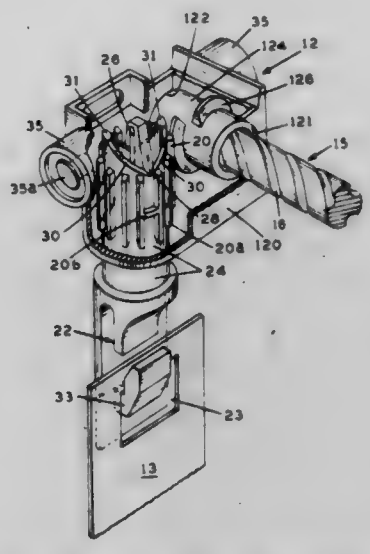
Filed Apr. 3, 1980, Ser. No. 136,953

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1979, 2913888

Int. Cl.[3] E06B *9/38*

U.S. Cl. 160—177 10 Claims

1. A support for supporting a louver from the headrail of a vertically louvered venetian blind comprising a holder, means on said holder for engaging one end of a louver, drive means for rotating said holder and its supported louver about a vertical axis, said drive means including a hub, the axis of said hub extending vertically, said hub having an upper edge, said upper edge comprising a guide surface, said guide surface having at least one low point, a portion of said holder resting in a low point of the guide surface during normal operation of said blind, said holder being free to move with respect to said hub upon an external force being applied to said louver, movement of said holder with respect to said hub when an external force is applied to said louver effecting movement of said portion of said holder along said guide surface to a higher portion thereof, and said holder being movable relative to said hub under the force of gravity when the external force is removed from said louver to effect return of said portion of said holder to a low point on said guide surface, the support being further so constructed that said hub has a stop, said stop being positioned at



a point removed from said low point, said holder including a cooperating stop positioned to engage the stop on said hub after a predetermined amount of movement of said holder relative to said hub under external force applied to said louver, said stops interreacting with each other resiliently to permit the stop on said holder to pass by the stop on said hub when the external force applied to said louver exceeds a predetermined magnitude.

4,335,776

TASSEL WEIGHT

Victor Debs, Staten Island, N.Y., assignor to Levolor Lorentzen, Inc., Hoboken, N.J.

Filed Apr. 2, 1980, Ser. No. 136,446

Int. Cl.[3] E06B *9/20*

U.S. Cl. 160—320 3 Claims



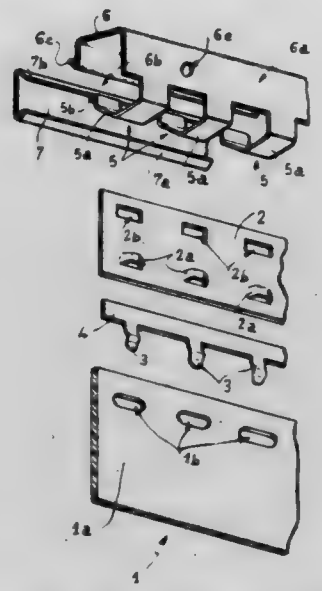
1. A tassel weight for a control cord of a vertical blind, comprising: an oblong tassel body of tubular configuration open from one end thereof to the other and having two pairs of opposite walls, a pair of opposite bores extending through said body adjacent said one end through one of said pairs of walls, a bearing pin supported in said bores, a roller supported by said bearing pin and received within said body and adapted to receive said cord therearound, weight means in said tassel body between said roller and said other end, and an essentially U-shaped metal strip covering one wall of said one pair of walls, the other end of said tassel body thereby closing the same, and the other wall of said one pair of walls, said strip having bent portions extending partially around said one end of said tassel body, said strip forming the sole means carrying said weight means and preventing the same from being displaced from said body when said tassel weight is suspended by said core and for keeping said pin axially in place in said bores.

4,335,777

MULTIPLE STRIPS DOORS

Alexandre M. V. Simon, Montceaux-les-Meaux, France, assignor to Societe Anonyme: "MAVIL", Antony, France

Filed Dec. 10, 1979, Ser. No. 101,984
Claims priority, application France, Dec. 18, 1978, 78 37067
Int. Cl.[3] A47H *1/00*
U.S. Cl. 160—332 1 Claim



1. A door of the type having multiple vertical strips with mounting plates at their upper ends provided with horizontally spaced perforations thereacross, and having support means with hooks mutually spaced horizontally therealong for engaging said perforations to support the strips, the support means comprising a horizontal longitudinally elongated channel having on one side a vertical face which supports said hooks in said mutually spaced relationship, the hooks extending transversely downwardly from said face and then upwardly across the channel and toward an opposite vertical face of the channel and terminating short of said opposite face to provide an opening between the free ends of the hooks and the opposed edge of the opposite face of the channel, the free ends of the hooks and the opposed edge being folded to diverge away from each other to provide a dovetail guide means; and an elongated panel having opposed longitudinal sides folded toward each other and disposed to engage said dovetail guide means and support the panel thereon for removably closing the opening between the hooks and said opposed edge.

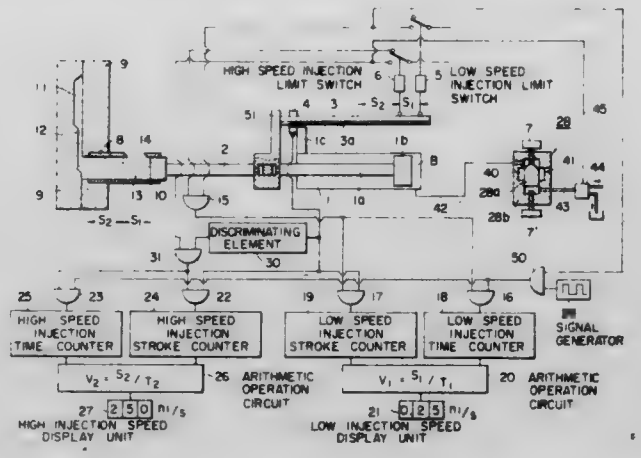
4,335,778

APPARATUS FOR MEASURING INJECTION SPEEDS OF DIE CASTING MACHINES

Noriyuki Motomura, and Hiroyuki Tsuboi, both of Zama, Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 941,869, Sep. 13, 1978, abandoned. This application May 27, 1980, Ser. No. 153,624
Claims priority, application Japan, Sep. 20, 1977, 52-113011
Int. Cl.[3] B22D *17/32*
U.S. Cl. 164—150 8 Claims

1. Apparatus for measuring injection speeds of a die casting machine comprising means for detecting injection times at low and high speed injection strokes, respectively, means for arithmetically calculating low and high injection speeds by dividing said low and high injection strokes by said injection times, and means for displaying said low and high injection speeds as average injection speeds, said injection time detecting means comprising an elongated member provided with a plurality of axially spaced portions having different magnetic characteristics, means responsive to said different magnetic characteristics for generating a pulse signal havig a period corresponding to the injection speed of the die casting machine, low and high speed injection limit switches operated by said elongated member for generating signals when low speed injection is started and when the injection speed is switched from low to high, a signal generator, an AND gate circuit with one input connected to said low speed injection limit switch and the other input connected to receive an output of said signal generator, first determining means responsive to the output of said AND gate circuit for determining the low speed injection time and



stroke, means for discriminating the period of the signal generated by said pulse signal generating means, and second determining means responsive to the signal generated by said high speed injection limit switch, to the output of said discriminating means and to the output of said AND gate circuit for determining the high speed injection time and stroke.

4,335,779

DEVICE FOR CONTINUOUS HORIZONTAL CASTING

Josef V. Morianz, Illnau, Switzerland, assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Continuation-in-part of Ser. No. 971,005, Dec. 19, 1978, Pat. No. 4,211,275. This application Jan. 7, 1980, Ser. No. 109,826
The portion of the term of this patent subsequent to Jul. 8, 1997, has been disclaimed.
Int. Cl.[3] B22D *11/00*
U.S. Cl. 164—440 10 Claims



1. An improved apparatus for use in the continuous horizontal casting of molten metal comprising, in combination, a molten metal holding means having a floor and an outlet; a mold in line with said holding means and nozzle means disposed between said holding means outlet and said mold the improvement comprising:

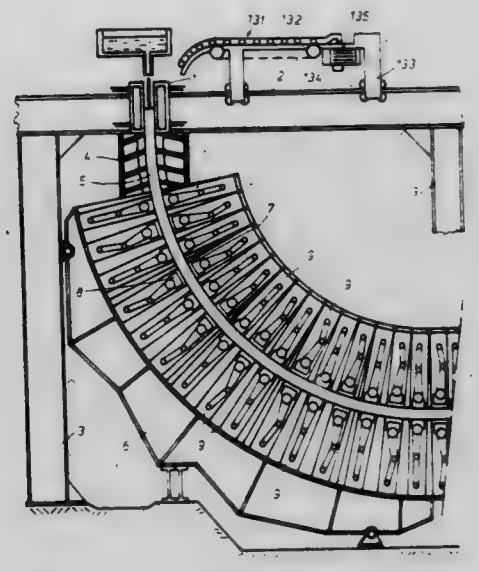
said nozzle means comprising a plate having a first surface facing said holding means and a second surface facing said mold, said plate being provided with an elongated opening lying in a plane substantially perpendicular to the flow of said molten metal and communicating said holding means outlet with said mold, wherein said elongated opening varies in size along substantially the entire length with the greatest cross section at the end points and substantially symmetrically tapering toward the middle so as to provide for preferential metal flow to said mold, said opening having a lower surface provided at least in part with a downwardly sloping run-out surface extending from said first surface of said plate to said second surface of said plate.

4,335,780

CONTINUOUS CASTING PLANT

Max Burkhard, Obere Zelglistrasse 7, CH 8600 Dübendorf, Switzerland

Filed Mar. 27, 1980, Ser. No. 134,469
Int. Cl.[3] B22D *11/124, 11/00*
U.S. Cl. 164—441 35 Claims



1. In a continuous casting plant comprising

a coolable, open-ended mold for delivering a continuous casting and

a guiding section for constraining said continuous casting to move away from said mold on a predetermined path and for cooling said casting on said path, said guiding section defining a longitudinal center plane of said path and comprising a guiding frame, two banks of walking beams, each of said banks containing a plurality of walking beams, each of said walking beams having a major axis extending parallel to one dimension of said walking beam which is substantially greater than any other dimension of said walking beam, said two banks of walking beams being mounted in said guiding frame and disposed on opposite sides of said path, and drive means for moving each of said beams in successive cycles including moving said beam from an initial position spaced from said path into engagement with said casting on said path, moving said beam in engagement with said casting along said path away from said mold for a predetermined distance, moving said beam away from said path to disengage said beam from said casting, and moving said beam along said path to said initial position while said beam is disengaged from said casting, each of said banks comprising first and second groups of said beams and said drive means being operable to move the beams of the first groups of both said banks with a phase displacement of about one-half period from the beams of the second groups of said banks,

the improvement residing in that

each of said walking beams having said major axis extending transversely to said longitudinal center plane,

said beams are arranged in pairs of registering beams disposed on opposite sides of said path,

a plurality of props are mounted in said guiding frame,

each of said beams is connected to at least one of said props at one end of the latter and is supported by said at least one prop in said guiding frame, and

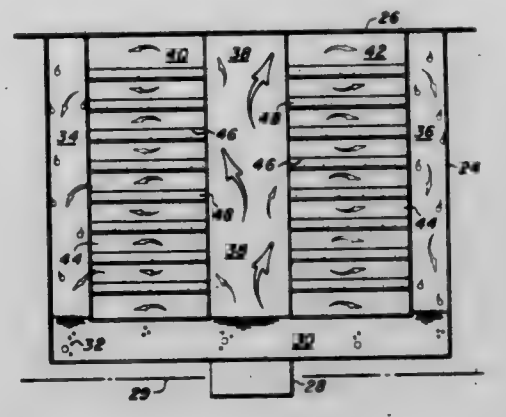
said drive means are operatively connected to said beams by said props.

4,335,781

HIGH POWER COOLER AND METHOD THEREOF

Victor P. Duffy, Scottsdale, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Continuation of Ser. No. 947,672, Oct. 2, 1978, abandoned. This application Dec. 9, 1980, Ser. No. 214,829
Int. Cl.[3] F28D *15/00, 21/00*
U.S. Cl. 165—1 8 Claims



8. A method of absorbing heat generated by a heat source and keeping said heat source below a predetermined temperature comprising the steps of:

(a) transferring said heat into a rotationally symmetric reservoir of liquid coolant having a boiling point below the predetermined temperature causing said liquid coolant to boil to produce a vapor;

(b) placing said vapor in intimate thermal contact with a rotationally symmetric honeycomb structure containing a solid coolant for transferring heat from said vapors primarily into said solid coolant and thereby condensing said vapor back to the liquid state and melting said solid coolant; and

(c) returning said condensed liquid back to said reservoir for reheating and revaporizing.

4,335,782

HEAT EXCHANGER METHOD

Kenneth O. Parker, Rolling Hills Estates, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 484,517, Jul. 1, 1974, abandoned. This application Sep. 22, 1976, Ser. No. 725,612
Int. Cl.[3] F28C *13/06*
U.S. Cl. 165—1 1 Claim

1. The method of controlling air flow in a heat exchanger of the counter flow type having formed tube outlet manifolds with inserts having openings communicating with a plurality of air passages of the heat exchanger core, said method comprising the steps of:

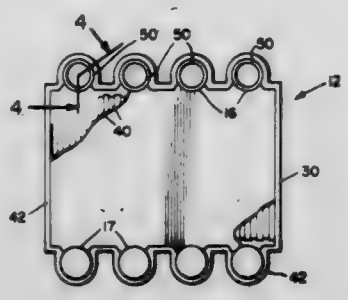
introducing air into said heat exchanger core to flow through each of said passages toward said outlet manifolds;

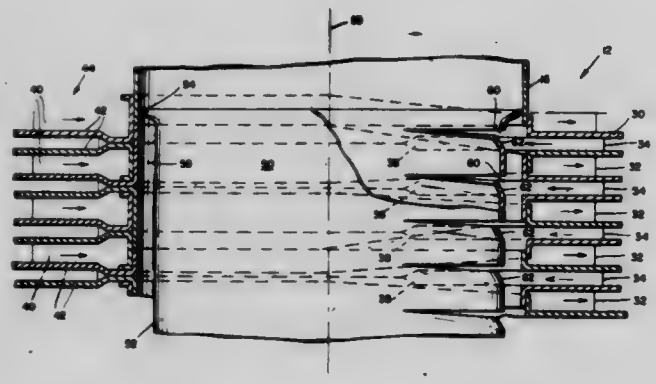
causing substantially all of the air in each manifold to flow into the openings of said manifold insert for removal from said heat exchanger;

gradually changing the flow direction of air entering the manifold inserts around louvers provided at said openings for reducing fluid pressure drop within the manifolds; and

controlling the relative sizes of said openings to overcome

undesired air flow distribution by regulating air flow through each of said heat exchanger core passages and





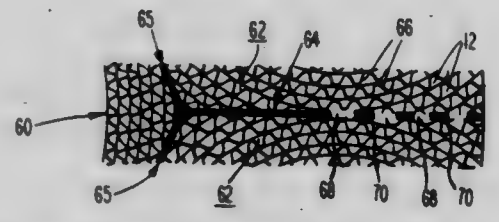
distributing air flow in a substantially uniform manner throughout the heat exchanger core.

4,335,783

METHOD FOR IMPROVING THERMAL SHOCK RESISTANCE OF HONEYCOMBED STRUCTURES FORMED FROM JOINED CELLULAR SEGMENTS

Robert D. McBrayer, Painted Post, and Vimal K. Pujari, Corning, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,775
Int. Cl.[3] F28D *19/00*
U.S. Cl. 165—8 19 Claims



10. A heat recovery wheel having a pair of opposing outer annular faces and a central axis therebetween, comprising:

a plurality of cellular segments adjoining one another, each of said segments having a plurality of interconnected walls forming a plurality open-ended hollow cells extending between a pair of opposing honeycombed surfaces, and further having peripheral side walls as its remaining outer surfaces;

a plurality of joints, each affixing one of said segments to another along said peripheral side walls; and

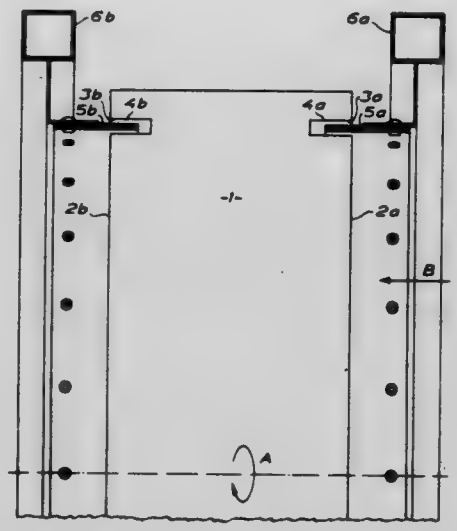
one or more discontinuities extending through one or more of said joints to said outer annular faces.

4,335,784

SEALING DEVICE IN A ROTARY REGENERATIVE TYPE HEAT EXCHANGER

Willy B. L. Arvidsson, Sven Baelters väg 24, Växjö, Sweden, and Anders S. G. Lindgren, Vikingagatan 20, Växjö, Sweden

Filed Apr. 1, 1980, Ser. No. 136,240
Int. Cl.[3] F28D *19/00*
U.S. Cl. 165—9 1 Claim



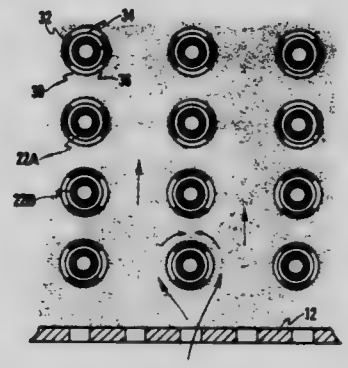
1. A sealing device in a rotary regenerative-type heat exchanger comprising a cylindrical matrix of heat-absorbent material rotatably mounted in a stationary housing; two axially extending annular grooves having bottom and side walls, one formed in each one of the end surfaces of the matrix; two stationary resilient sealing sleeves each one projecting into one of said grooves and resiliently bearing against one of the side walls of the associated annular groove under differential fluid pressure applied to one side of the sleeve; the free edge of each sealing sleeve being spaced from the bottom of the associated groove; and the width of the sealing sleeves being less than the width of the associated annular groove.

4,335,785

APPARATUS AND METHOD FOR CONTROLLING HEAT TRANSFER BETWEEN A FLUIDIZED BED AND TUBES IMMERSED THEREIN

James L. Hodges, 3 Hilltop Ave., Vernon, Conn. 06066, and Anthony E. Cerkanowicz, 8 Fieldstone Dr., Livingston, N.J. 07039

Filed Nov. 19, 1980, Ser. No. 208,141
Int. Cl.[3] F28D *13/00*; F28F *13/06*
U.S. Cl. 165—39 6 Claims



1. In a fluid bed reactor having a fluidized bed of solid particles housed therein, the particles being suspended in a fluidizing gas flowing through the bed, and a multiplicity of horizontally disposed heat exchange tubes immersed within the bed through which a second fluid flows to accomplish the transfer of heat between the second fluid and the bed of fluidized solid particles, the tubes being disposed substantially transverse to the flow of fluidizing gas through the bed, an apparatus for controlling the rate of heat transfer between the

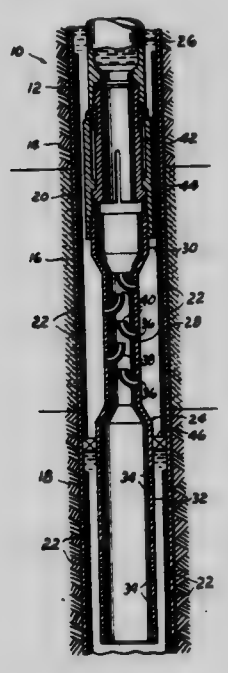
second fluid and the bed of fluidized solid particles, comprising a plurality of rotatable arcuate shields, said shields in closely spaced relationship from the immersed heat exchange tubes, and means for rotating said shields about the tubes to selectively expose various portions of the heat exchange tubes to the fluidized solid particles.

4,335,786

OIL WELL PUMPING STRING TUBULAR EXTENSION FOR INCREASING OIL TO SALT WATER RATIO

A. Glen Smith, 3801 Tinker Diagonal, Del City, Okla. 73115

Filed Mar. 23, 1978, Ser. No. 889,788
Int. Cl.³ E21B *43/18*
U.S. Cl. 166—106 **3 Claims**



1. In combination with a pump equipped tubing string within a casing for use in conjunction with an oil well having an upper oil producing formation and a lower salt water producing formation, the improvement comprising:

an elongated open end tube coaxially connected with the depending end of said tubing string, the tube having an elongated wall perforated reduced diameter portion intermediate its ends;

a packer surrounding said tube below its reduced diameter portion and sealing with the inside surface of said casing; and

at least two open end pipes, each pipe having one end portion secured within one of the perforations in said tube reduced diameter portion and the other open end portion of the pipe being disposed within the opening extending through a portion of the reduced diameter portion of the tube, the fluid passing from the reduced diameter portion of the tube resulting in a pressure reduction causing fluid to be drawn through the perforations in the tube and through the pipes and into the tube opening.

4,335,787

METHOD OF OIL RECOVERY WITH SURFACTANT FLOODING

Paul R. Stapp, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 12, 1980, Ser. No. 186,862
Int. Cl.³ E21B *43/22*
U.S. Cl. 166—273 **5 Claims**

1. Process for hydrocarbon recovery from a subterranean formation comprising

(a) injecting a surfactant system comprising a hydrocarbon sulfonate surfactant and a nitrile cosurfactant into said formation via at least one injection well,

(b) causing the so-injected surfactant system to move from the injection well towards one or more production wells displacing hydrocarbon present in said formation,

(c) recovering displaced hydrocarbon from at least one of said production wells.

4,335,788

ACID DISSOLVABLE CEMENTS AND METHODS OF USING THE SAME

Joseph R. Murphey, and Bill M. Young, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Jan. 24, 1980, Ser. No. 114,856
Int. Cl.³ E21B *43/04, 43/08*
U.S. Cl. 166—278 **67 Claims**

1. A method for controlling the volume change of a cement composition in a desired location comprising the steps of:

forming a cement composition, which upon curing is rapidly dissolved in acid, said composition consisting essentially of:

water;

a metal halide or sulfate consisting essentially of at least one of magnesium, aluminum or zinc halides or sulfates and mixtures thereof;

a metal oxide consisting essentially of at least one of magnesium, aluminum or zinc oxides or mixtures thereof; and

a metal carbonate in an effective amount to control volume change of said cement composition consisting essentially of at least one of calcium or barium carbonate or mixtures thereof;

introducing said cement composition into said location to be cemented; and

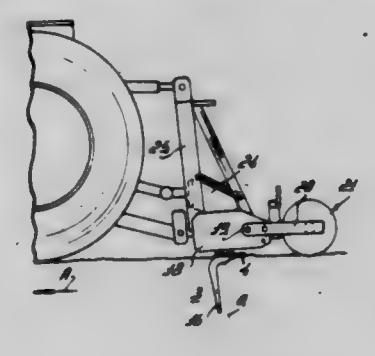
allowing said cement composition to cure into a solid mass in said location.

4,335,789

SOIL CULTIVATING IMPLEMENTS

Cornelis van der Lely, 7 Brüschenrain, Zug, Switzerland

Filed Oct. 25, 1979, Ser. No. 88,150
Claims priority, application Netherlands, Oct. 27, 1978, 7810717
Int. Cl.³ A01B *33/06*
U.S. Cl. 172—49.5 **9 Claims**



1. A soil cultivating implement comprising frame means and at least one soil working member, supported on said frame means, said member being rotatable about an upwardly extending axis and comprising at least one tine, said tine having a substantially horizontal upper fastening portion connected to an elongated lower soil working portion by an intermediate curved portion, said soil working portion being generally conical in configuration and tapering downwardly to a lower end, a cavity formed at the radially innerside of said curved portion with respect to the axis of rotation of the soil working member, the outer surface of said curved portion being generally convex, said cavity extending throughout at least a major part of the upper half of said soil working portion and extending into said fastening portion, fastening means for clamping said tine to the remainder of the soil working member being located within said cavity.

4,335,790

SOIL CULTIVATING IMPLEMENTS

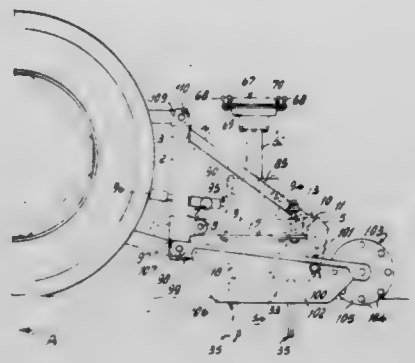
Cornelis van der Lely, 7 Brüschenrain, Zug, Switzerland

Filed Nov. 23, 1977, Ser. No. 854,416

Claims priority, application Netherlands, Nov. 29, 1976, 7613259

Int. Cl.[3] A01B *33/06*

U.S. Cl. 172—49.5 11 Claims



1. A soil cultivating implement comprising a frame and a plurality of soil working members rotatably supported along the length of an elongated portion of said frame, said frame portion extending transverse to the direction of implement travel and driving means connected to rotate said members about axes defined by corresponding upwardly extending shafts that depend from said frame portion, elongated carriers being secured to the upper portion of said frame portion adjacent the top thereof, said carriers extending in the direction of travel and being spaced apart from one another, the leading ends of said carriers being connected by aligned pivots to a forward transverse beam of said frame and coupling means for connection to a prime mover being mounted on said beam, substantially centrally thereof, said pivots being located between the lateral ends of said beam and defining a single pivotal axis for said frame portion at substantially the same horizontal level as said frame portion, the trailing end of at least one of said carriers extending rearwardly of the frame portion to a rear frame beam and comprising stop means that limits the pivotal displacement of said frame portion relative to said rear beam in vertical directions, a supporting roller being pivoted to said frame with arms and means fixing said arms and roller in any one of a plurality of levels relative to said soil working members.

4,335,791

PRESSURE COMPENSATOR AND LUBRICATING RESERVOIR WITH IMPROVED RESPONSE TO SUBSTANTIAL PRESSURE CHANGES AND ADVERSE ENVIRONMENT

Robert F. Evans, 631 Honeywood La., La Habra, Calif. 90631

Filed Apr. 6, 1981, Ser. No. 251,208

Int. Cl.[3] E21B *10/24*

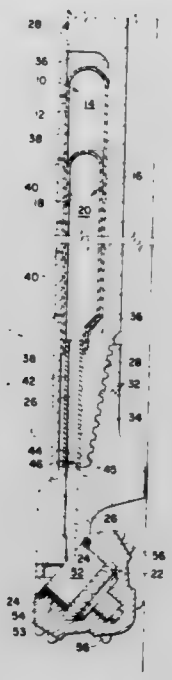
U.S. Cl. 175—228 21 Claims

1. An improved pressure compensating and lubricating apparatus for a seal assembly which has one face exposed to an ambient environment of substantially changing pressures, comprising:

means defining a reservoir for containing lubricant, said means defining the reservoir including an imperforate flexible reservoir wall membrane by which pressure is transmitted to lubricant within the reservoir;

an open passageway communicating lubricant between the reservoir and another face of the seal assembly which is in essentially pressure opposition to the face exposed to the ambient environment; and

means defining a hermetically sealed chamber for operatively exerting pressure on the flexible reservoir wall membrane of the lubricant containing reservoir in response to pressure variations in the ambient environment, said means defining the chamber including: an imperforate flexible chamber wall membrane exposed on one side thereof to the ambient environment of substantially changing pressures, a predetermined charge of gas hermetically contained within the interior of the chamber and



contacting the other side of the flexible chamber wall membrane, and means for transferring substantially only the pressure of the gas within the chamber to the flexible reservoir wall membrane.

4,335,792

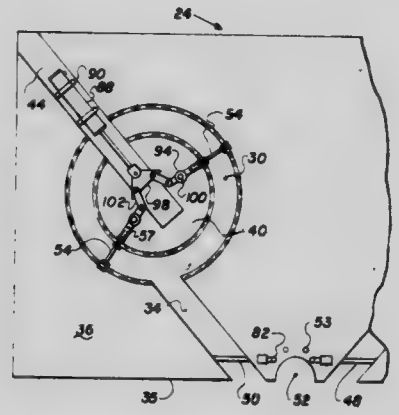
WORKING BOARD FOR DRILLING RIG

Michael S. Mahan, Rte. 2, Box 149, Colorado City, Tex. 79512

Filed Aug. 7, 1980, Ser. No. 176,095

Int. Cl.[3] E21B *19/14*

U.S. Cl. 175—52 16 Claims



1. A platform for handling oil well pipe

a. located at a high elevation in a drilling derrick, and

b. for connecting, disconnecting and racking stands of drill pipe to and from a drill string;

wherein the improvement comprises:

c. a main floor member with an elongated feed slot extending inwardly to

d. an arcuate slot,

e. an inner platform floor with said arcuate slot supported by

f. a beam from the main floor member,

g. a mechanical latch in said elongated feed slot to allow storage and removal of said pipe in the open position and to prevent the accidental escape of the pipe when closed, and

h. pipe pushers which move within said arcuate slot and mechanically move said pipe toward the elongated slot.

4,335,793

PROCESS AND APPARATUS FOR BORING SITES

Pierre G. Roblin, Paris, France, assignor to Soudure et Mecanique Appliquees du val Notre-Dame, Val d'Oise, France

PCT No. PCT/FR79/00028, § 371 Date Nov. 30, 1979, § 102(e) Date Nov. 30, 1979, PCT Pub. No. WO79/00859, PCT Pub. Date Nov. 1, 1979

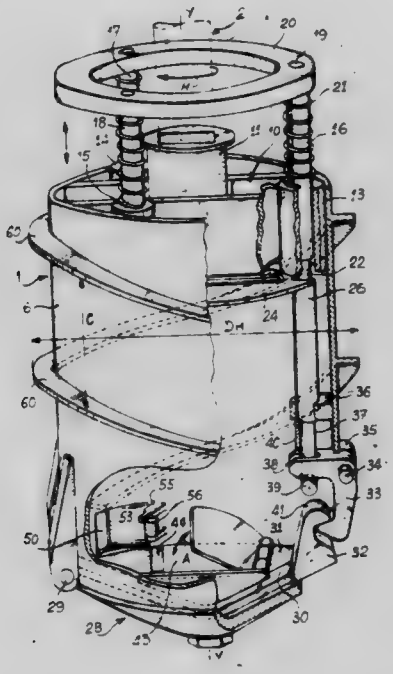
PCT Filed Mar. 29, 1979, Ser. No. 177,763

Claims priority, application France, Mar. 30, 1978, 78 09298

Int. Cl.³ E21B *10/44, 17/22, 21/00*

U.S. Cl. 175—65

33 Claims



1. A tool for boring an excavation comprising:

(a) a container adapted to receive material excavated from said excavation in an enclosed interior volume arranged within said container, said container comprising retainer means allowing said material to enter therein while not allowing said material to leave said container during normal operation; said retainer means comprising at least one opening, each of said at least one openings being blocked by a blocking element adapted to block said excavated material from leaving said container while allowing said excavated material to enter said container;

(b) emptying means for emptying the interior of said container;

(c) at least one cutting element adapted to project during excavation beyond the exterior of said container so as to excavate an excavation having transverse dimensions greater than the transverse dimensions of said container; and

(d) circulating means for circulating liquid during the boring operation from the top to the bottom of said tool outside of said container, said circulating means comprising a reserve volume provided between the exterior lateral wall of said container and the wall of said excavation or of a surface parallel thereto.

26. A process for excavating material in the presence of a liquid to form an excavation with a boring tool, said boring tool comprising a container whose cross-section is less than the cross-section of said excavation, a drive shaft extending to the exterior of said excavation, and at least one cutting element projecting out of the lateral surface of said tool, and wherein at least a portion of said cutting element is positioned at the base of said tool, whereby a reserve volume is provided between the exterior lateral surface of said container and the wall of said excavation, said tool further comprising guiding means for guiding the displacement of said liquid through said reserve volume, said guiding means being arranged on the lateral wall of said container, said process comprising the steps of:

(a) inserting said tool within said excavation; and

(b) rotating said shaft to rotate said tool whereby the rotational movement of said tool causes said guiding means to circulate said liquid towards the closed end of said excavation to lubricate the boring action of said tool.

4,335,794

ROTARY CONE CUTTER

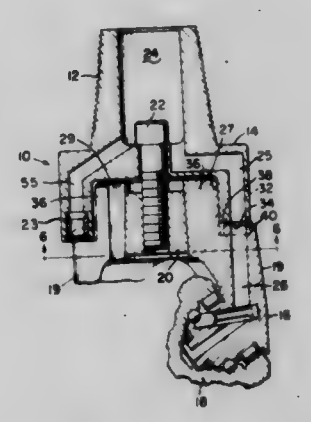
Robert D. Goodfellow, Bedford, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Continuation of Ser. No. 2,945, Jan. 12, 1979, abandoned. This application Jul. 7, 1980, Ser. No. 166,491

Int. Cl.³ E21B *10/20, 10/22*

U.S. Cl. 175—337

4 Claims



1. A rotary cone cutter comprising: a pot having one end thereon for attachment to a drill string and another end having a recessed central portion bounded by a peripheral wall with downwardly facing, substantially horizontal, abutment surfaces; leg means having an upper part for nesting inside said recessed central portion of said pot; rolling cutters mounted on said leg means; said leg means comprising at least two individual leg members having upwardly facing, substantially horizontal, abutment surfaces and an upwardly extending attachment region; means for holding said legs nonrotational with said pot; and means centrally located in said pot for releasably clamping said leg members to said pot with the attachment region within the recessed central portion; and wherein said means for releasably clamping said leg members to said pot comprises a tapered plug having an outer peripheral surface, means for reciprocally moving said plug along a longitudinal center line of said central recess, said plug when moved to a first position clamping said attachment region to said peripheral wall, said plug when moved to a second position releasing said attachment region from said pot.

4,335,795

DRIVING CONTROLS FOR A VEHICLE, PARTICULARLY A TRACKED COMBAT VEHICLE

Nils Winblad, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Filed Jan. 4, 1980, Ser. No. 109,725

Claims priority, application Sweden, Jan. 12, 1979, 7900278

Int. Cl.³ B62D *11/00*

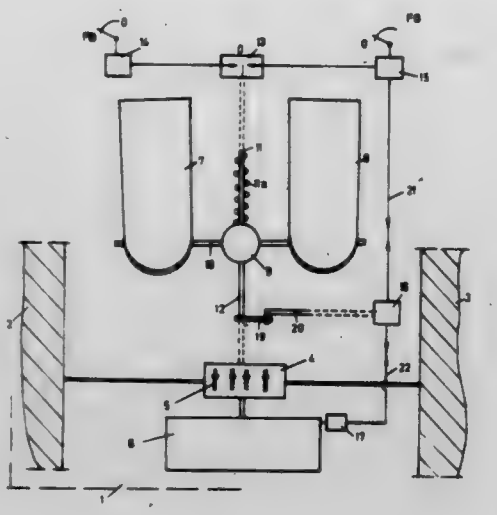
U.S. Cl. 180—6.2

10 Claims

1. A driving control for a vehicle having drive means at each lateral side thereof, a throttle for controlling the acceleration of said drive means, brakes for said drive means, and gearing equipment for producing a difference in speed between the drive means on one side of the vehicle and the drive means on the other side of the vehicle, said driving control comprising:

a differential unit, and two individually actuated foot pedals connected to actuate said differential unit such that said differential unit produces a sum signal indicative of the present combined actuation situation of said pedals for

controlling said throttle and said brake, and said differential unit also producing a difference signal indicative of the



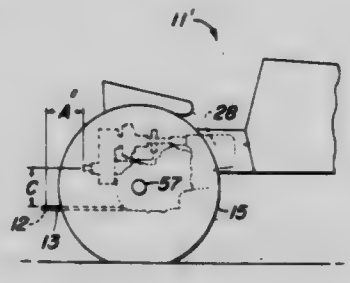
difference in the actuation situation of said pedals for controlling said gearing equipment.

4,335,796

PTO REAR MOUNTING

Frank R. Smith, Mayville City, Wis., assignor to Deere & Company, Moline, Ill.

Filed Sep. 11, 1980, Ser. No. 185,840
Int. Cl.[3] B60K *25/06*
U.S. Cl. 180—53 D 4 Claims



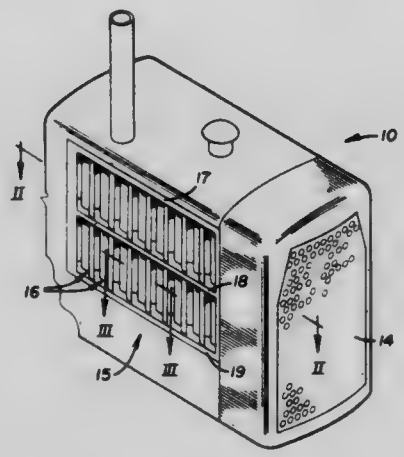
1. In combination with a lawn and garden-size tractor including a transmission, a transmission output shaft in communication with the differential section of a transverse axle, said differential section located centrally along the longitudinal center line of said tractor, said differential sections being housed in a casing and including a plurality of geared shafts extending parallel and transversely within said casing communicating said transmission with said differential gear arrangement within said casing, said transmission having a PTO drive shaft extending therefrom, wherein the improvement comprises: a first of said geared shafts in driven communication with said transmission output shaft, a second geared shaft to be placed vertically downward of said first geared shaft, said differential gear arrangement to be horizontally removed towards the rear of said casing to allow said casing to form a recess in the rear portion of said casing; a PTO coupled to said PTO drive shaft; support means for rotatably supporting said PTO shaft, said support means being detachably mounted in said recess; gear reducing means including a PTO output tube in driven communication with said PTO shaft and detachably mounted to the back of said casing for controlling the output of said PTO tube, said PTO tube being located centrally along the longitudinal center line of said tractor for providing output rotational rate of said PTO different from the rotational rate of said PTO shaft.

4,335,797

NOISE SUPPRESSION ARRANGEMENT FOR ENGINE ENCLOSURES

Gerald P. Simmons, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00836, § 371 Date Oct. 10, 1979, § 102(e) Date Oct. 10, 1979, PCT Pub. No. WO81/01069, PCT Pub. Date Apr. 16, 1981
PCT Filed Oct. 10, 1979, Ser. No. 95,194
Int. Cl.[3] B62D *25/10;* F01N *7/00;* G10K *11/16*
U.S. Cl. 180—69 R 34 Claims



1. In a vehicle of the type comprising an engine enclosure (10) having a noise suppression arrangement (15,15*a*,15*b*) mounted thereon, the improvement comprising said noise suppression arrangement (15,15*a*,15*b*) including sound attenuating means (16,16*a*,16*b*) for permitting the free ingress of ambient air into said enclosure (10) and for intercepting, reflecting and absorbing at least substantially all of the sound waves (S) emanating from within said enclosure (10) by at least substantially providing an optically dense view from within said enclosure (10) to exteriorly thereof, said sound attenuating means (16,16*a*,16*b*) including a spaced plurality of acoustical energy absorption means (20,20*a*,20*b*) for directly absorbing a substantial portion of said sound waves (S_1), and a plurality of separate sound reflecting means (24,24*a*,24*b*), cooperating with and each having ends positioned outwardly from and between each adjacent spaced pair of said sound absorption means (20,20*a*,20*b*), for providing an unobstructed passage (26,26*a*,26*b*) to permit the flow of said ambient air therethrough and for reflecting and absorbing at least substantially all of the remaining portions of said sound waves (S_2,S_3), each said acoustical energy absorption means (20,20*a*,20*b*) and each adjacent said reflecting means (24,24*a*,24*b*) being spaced and disposed in nested and overlapped relationship relative to each other so that an imaginary plane (P) at least approximately intersects each of said acoustical energy absorption means (20,20*a*,20*b*) and each adjacent said sound reflecting means (24,24*a*,24*b*), the outwardly positioned ends of each said reflecting means (24,24*a*,24*b*) being spaced outwardly from a respective one of said acoustical energy absorption means (20,20*a*,20*b*) both in the direction of said plane (P) and transversely thereof.

4,335,798

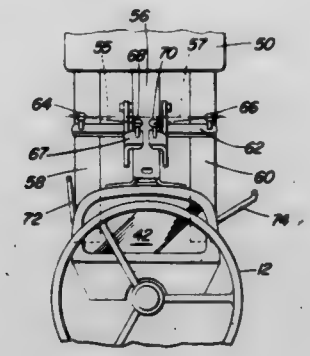
TRACTOR

Herning Adickes, Heidelberg, Fed. Rep. of Germany, assignor to Deere & Company, Moline, Ill.

Filed Jun. 30, 1980, Ser. No. 164,799
Claims priority, application United Kingdom, Jul. 27, 1979, 7926194
Int. Cl.[3] B60K *37/00*
U.S. Cl. 180—90 8 Claims

1. A tractor having a dash, a steering wheel extending from the dash, foot pedals on either side of the bottom of the dash, a panel for covering a side of the dash and hinge means for coupling the panel to the dash and for allowing the panel to swing between a closed position and an open position, the

hinge means being disposed so that the panel engages only the hinge means while swinging between the open and closed positions, the hinge means comprising a central fore-and-aft bar at a top portion of the dash, a crossbar extending on at least one side of the central bar, a front dash hinge member on an



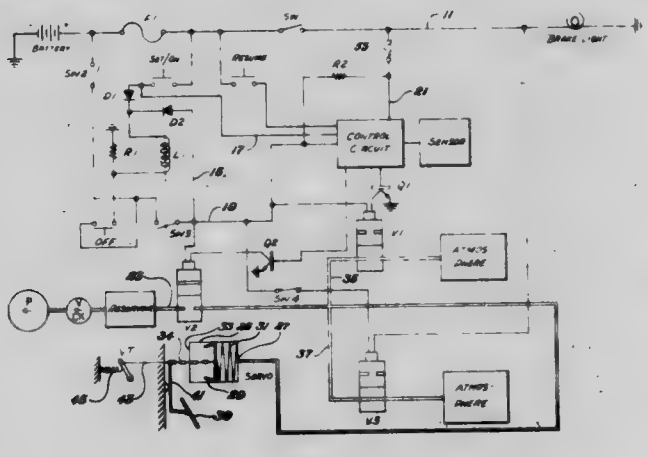
outboard portion of the crossbar and a rear dash hinge member rearwardly thereof and on the central bar above the level of the front dash hinge member, and corresponding panel hinge members on the panel for pivotally engaging the dash hinge members.

4,335,799

SPEED GOVERNOR WITH BELOW DASHBOARD SERVOMOTOR

Neal G. Shields, Fort Worth, Tex., assignor to Specific Cruise Systems, Inc., Fort Worth, Tex.

Filed Jul. 18, 1980, Ser. No. 170,113
Int. Cl.³ B60K *31/00*
U.S. Cl. 180—175 **4 Claims**



1. In a motor vehicle having separate engine and passenger compartments, a vacuum source in the engine compartment and a throttle linkage extending from a carburetor into the passenger compartment, an improved speed governor system, comprising in combination:

servo means, mounted in the passenger compartment for pulling on the rearward end of the throttle linkage in response to varying vacuum;

a conduit extending from the vacuum source to the servo means;

a vacuum valve means mounted in the conduit in the engine compartment for selectively communicating the vacuum source with the servo means;

a vent valve means mounted in the conduit in the engine compartment for selectively communicating the conduit to atmosphere; and

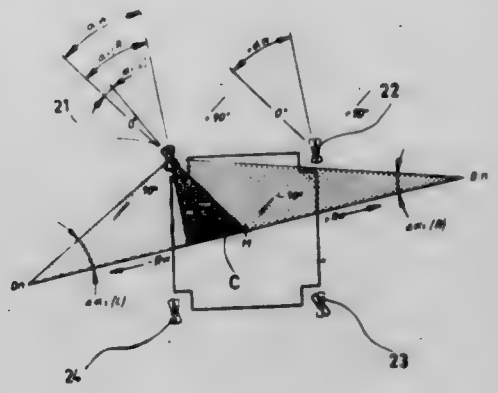
control means for selectively opening and closing the vacuum valve means and vent valve means in response to the vehicle's speed, to control the vacuum in the servo means and the speed of the vehicle.

4,335,800

VEHICLE WITH AT LEAST THREE WHEELS PIVOTING ABOUT A VERTICAL AXIS

Laszlo Arato, Seebuchtstr. 19, 6374 Buochs, Switzerland

Filed Apr. 16, 1979, Ser. No. 30,541
Claims priority, application Switzerland, Apr. 17, 1978, 4062/78
Int. Cl.³ B62D *1/00, 5/04*
U.S. Cl. 180—236 **6 Claims**



1. A steering system for a vehicle having a guide wheel and at least two other wheels, the system comprising:

means for pivotally mounting each of said wheels about a vertical axis;

means for pivoting each of said wheels to a determinable angle;

means for setting the angular position of the guide wheel;

means for determining an angular position for each of said other wheels as a function of the angular position of the guide wheel, the determinable angle being obtained from geometric relationships of triangles defined by a fixed point on the vehicle, the center of an instantaneous track curve for the vehicle and respective pivot axes of each of the wheels of the vehicle; and

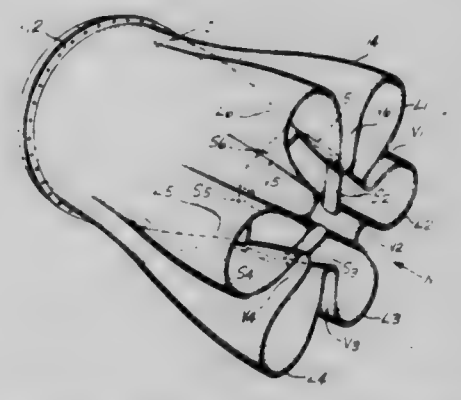
means for adjusting the angular pivoting of each of said other wheels in accordance with said determinable angle.

4,335,801

NOISE SUPPRESSING NOZZLE

Claude R. Stachowiak, Renton, and Fred R. Kunze, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 15, 1980, Ser. No. 216,285
Int. Cl.³ F01N *1/14*; F02K *1/00*
U.S. Cl. 181—213 **26 Claims**



1. A noise suppressing nozzle comprising a plurality of lobes, each lobe defining an internal passageway for hot gases flowing through the nozzle, and each pair of adjacent lobes defining between them an external passageway for ambient air, and the improvement comprising:

each lobe including a thickened sidewall section on each of its sides, with each said thickened side wall section merging into and becoming an integral part of the adjacent

thickened sidewall section of the adjoining lobe in a valley region between the lobes;

each lobe being internally reinforced by a single streamlined transverse strut, connected at its ends to the thickened sidewall sections of its lobe;

with the sidewalls of each lobe curving smoothly in the radial direction and from the vicinity of strut attachment to the thickened sidewall sections first diverging apart as they extend radially outwardly, and then converging together and eventually merging; and

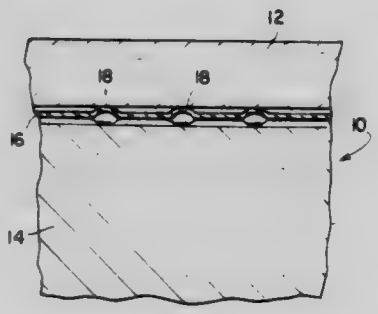
wherein the thickened sidewall sections of the lobes and the transverse struts define a ring which together with the radially curved sidewall configuration of the lobes act to adequately maintain nozzle shape and brace against exit area change without the need of additional reinforcing structure.

4,335,802

SOUND ABSORBING MATERIAL

Francis Kirschner, East Hills, N.Y., assignor to The Soundcoat Company, Inc., Brooklyn, N.Y.

Filed Oct. 31, 1979, Ser. No. 89,956
Int. Cl.[3] G10K *11/00*; B32B *5/22*
U.S. Cl. 181—290 **7 Claims**



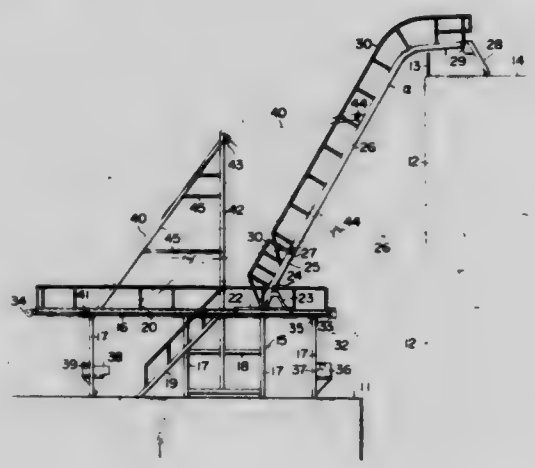
1. A multilayered sound absorbing panel which comprises an aramid cloth layer and an aramid felt layer, the fibers of both layers resisting breaking, flame, high temperature, chemical attack, abrasion, and wicking of fluids.

4,335,803

GANGWAY LADDER ARRANGEMENT

Toshimaru Sugita, Tokyo, Japan, assignor to Sugita Sangyo Kabushiki Kaisha, Japan

Filed Jun. 30, 1980, Ser. No. 164,577
Claims priority, application Japan, Jun. 29, 1979, 54-90631[U]
Int. Cl.[3] E06C *5/04*
U.S. Cl. 182—12 **14 Claims**



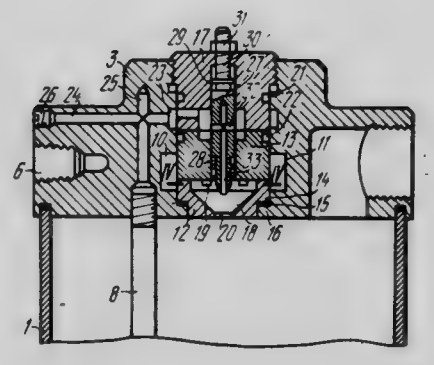
1. A gangway ladder arrangement for providing a passage between a quay and a vessel, comprising; a basement frame anchored to the quay, a truck assembly mounted on the basement frame so as to be movable toward or away from the vessel, a gangway ladder having its one end supported by the truck assembly so as to be tiltable and having its other end free and curved downwardly, said downwardly curved free ladder end resting in use on the vessel and being free to move transversely across a surface of the vessel on which it is resting, and a controller for controlling the movement of the truck assembly and the tilting movement of the gangway ladder.

4,335,804

VORTEX-TYPE OIL MIST GENERATOR

Viktor P. Bardin, ulitsa Oktyabrskaya, 17/3, kv. 43, Kolpino Leningradskoi oblasti; Evgeny A. Petrov, ulitsa Bela Kuna, 27, korpus 1, kv. 53, Leningrad; Viktor M. Rudelson, pereulok Makarenko, 3, kv. 32, Leningrad, and Jury L. Sternik, Zanevsky prospekt, 43, kv. 170, Leningrad, all of U.S.S.R.

Filed Jul. 30, 1979, Ser. No. 62,040
Int. Cl.[3] B05B *7/10*
U.S. Cl. 184—55 A **7 Claims**



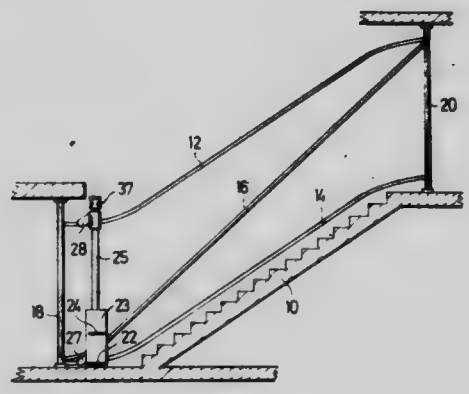
1. A vortex-type oil mist generator comprising an oil storage chamber, a vortex chamber adapted to create a rotating flow of gas and having tangentially arranged inlet openings for admitting a pressurized gas and an axial outlet opening, the ratio of the total area of said tangentially arranged inlet openings to the area of said axial outlet opening not exceeding 0.7, thus providing a suction area within said vortex chamber, and means defining an oil delivery duct having an inlet portion in communication with said oil storage chamber and an outlet portion extending into said suction area.

4,335,805

LIFT DEVICE

Gerd Grass, Talstrasse 16, 4930 Detmold 19, Fed. Rep. of Germany

Filed Apr. 3, 1980, Ser. No. 137,065
Claims priority, application Fed. Rep. of Germany, Apr. 9, 1979, 2914350; Nov. 20, 1979, 2946780
Int. Cl.[3] B66B *9/06*
U.S. Cl. 187—12 **9 Claims**



1. A lift device for moving a load receiving device such as a platform or a seat up or down a flight of stairs, said lift device comprising:

a vertical, threaded drive spindle rotatably secured to said load receiving device and movable therewith;

spaced support rails secured along the flight of stairs for supporting and guiding said spindle and said load receiving device;

guide means extending along the stairs intermediate said support rails;

drive means for rotating said drive spindle;

and

means cooperating with said drive spindle and said guide means to cause said load receiving device to move up or down along the stairs as said drive spindle is rotated.

4,335,806

SPOT-TYPE DISC BRAKE HAVING A SIMPLE GUIDING ARRANGEMENT FOR THE CALIPER AND SHOES AT THE CARRIER

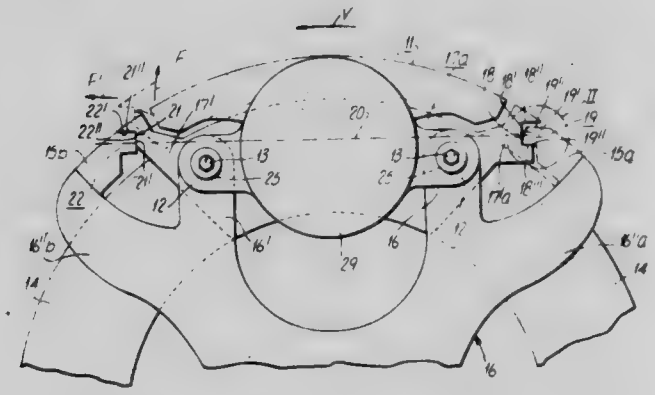
Hans-Henning Lüpertz, Darmstadt, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jun. 24, 1980, Ser. No. 162,691

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1979, 2926818

Int. Cl.³ F16D *65/04*

U.S. Cl. 188—73.33 **67 Claims**



1. A spot-type disc brake comprising:

a brake carrier rigidly fastened to a vehicle on one side of a rotatable brake disc, said carrier having two spaced supporting sections extending parallel to a rotational axis of said disc outside the edge thereof;

a floating caliper disposed between said two supporting sections embracing said disc, said caliper carrying on one side of said disc a brake actuating unit connected to an inside brake shoe and on the other side of said disc an outside brake shoe in a non-rotatable manner, said caliper having two spaced loops disposed on opposite sides of said actuating unit and between said rotational axis and the edge of said disc, both of said inside and outside brake shoes being supported by said two supporting sections in a circumferential direction and in a radial direction toward said axis, said outside brake shoe having the leading side thereof radially outwardly confined by its associated one of said two supporting sections and the trailing side thereof radially outwardly unconfined by its associated one of said two supporting sections; and

a pair of guiding bolts each detachably secured to said carrier between said rotational axis and the edge of said disc and extending through a different one of said two loops to guide said caliper parallel to said rotational axis.

4,335,807

POWER RAIL SUPPORT APPARATUS

Earle H. Jones, Issaquah, Wash. and Alleyne C. Howell, Jr., Fairfield, Conn., assignors to The Boeing Company, Seattle, Wash.

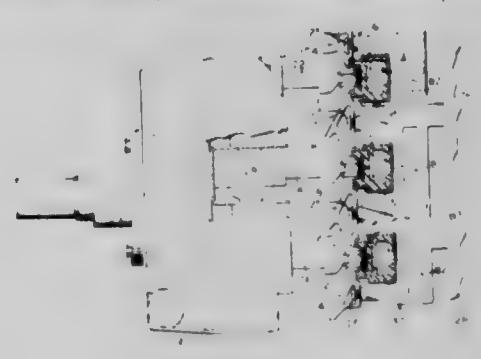
Filed Mar. 23, 1979, Ser. No. 23,520

Int. Cl.³ B60M *1/30*

U.S. Cl. 191—32 **17 Claims**

1. Apparatus for supporting multiple electrical power rails in spaced apart parallel coplanar alignment, comprising: an elongated hanger mountable by ground support means and including multiple spaced apart parallel load bearing portions projecting transversely from said hanger for respectively supporting multiple power rails in spaced apart parallel coplanar alignment; an elongated keeper securable to said hanger and including multiple spaced apart parallel retaining portions projecting transversely from said keeper for respectively retaining multiple power rails in spaced apart coplanar alignment when supported by said load bearing portions; means for securing said keeper to said hanger to support and retain multiple power rails simultaneously; multiple elongated guide members respectively positionable adjacent opposite sides of the power rails in parallel relation therewith to form ramp surfaces converging toward each power rail; and mounting means for mounting said guide members to the power rails;

wherein at least one guide member is positionable between two adjacent power rails and includes means forming two



ramp surfaces oppositely inclined toward the edges of two adjacent power rails, and at least two guide members are respectively positionable adjacent only one power rail and include means forming one ramp surface oppositely inclined toward a ramp surface formed by said one guide member; and

wherein said mounting means include an elongated mounting member positionable behind the power rails when supported and retained in spaced apart parallel coplanar alignment and including multiple mounting portions projecting between the power rails for respective load bearing connection to said guide members, and means operatively connected to said guide members for respectively securing said guide members to said mounting portions so as to clamp the power rails therebetween.

4,335,808

MULTIPLE BISCUIT CLUTCH OR BRAKE

Earl R. Johnson, Tulsa, Okla., assignor to Loffland Brothers Company, Tulsa, Okla.

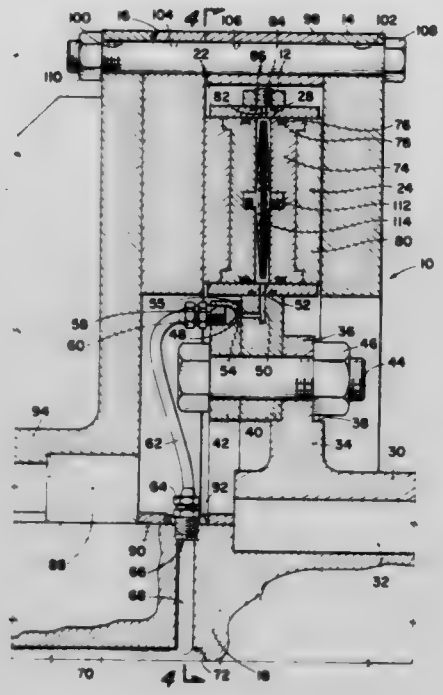
Filed Jun. 4, 1980, Ser. No. 156,278

Int. Cl.³ F16D *25/063*

U.S. Cl. 192—85 AB **9 Claims**

1. A friction apparatus adapted for installation on a rotatable shaft, and comprising hub means concentrically disposed around the shaft and secured directly thereto for rotation simultaneously therewith, a rotatable annular disc having the inner peripheral portions thereof secured directly to the hub means, a pair of annular flanges disposed outboard of the disc means and spaced slightly from the opposite sides thereof, piston means carried by the disc and operable between extended and retracted positions between the annular flanges for alternate engagement and disengagement with respect thereto, and means secured to the annular flanges for supporting

thereof independent of the disc whereby the disc and annular flanges coact simultaneously in the engaged position of the



piston means and act independently in the disengaged position of the piston means.

4,335,809

ENTERTAINMENT MACHINES

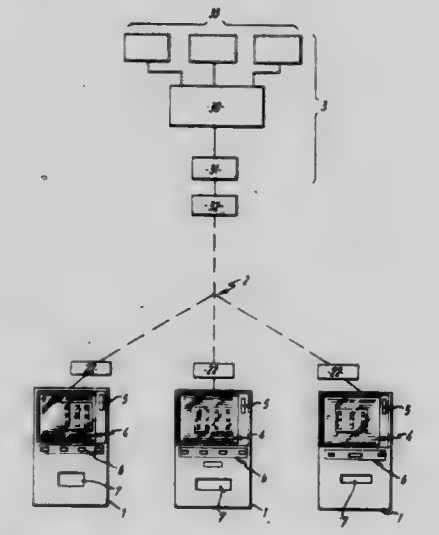
John L. Wain, Cheadle Hulme, England, assignor to Barcrest Limited, Ashton-under-Lyne, England

Filed Jan. 29, 1980, Ser. No. 116,627

Claims priority, application United Kingdom, Feb. 13, 1979, 7905068

Int. Cl.³ G07F *13/34*

U.S. Cl. 194—1 R **9 Claims**



1. An entertainment machine system comprising at least one entertainment machine and a main control device remote from said machine and connectable thereto via a remote transmission link;

said entertainment machine being of the kind which is operable by a player, after actuation of a coin or token mechanism of the machine, so as to perform a number of operations as initiated by the player and to perform further operations determined by the first said operations in accordance with a predetermined game to be played with the machine;

said entertainment machine having a control system which is arranged to respond to and effect control of said machine operations and which incorporates a processing device, and a program device containing stored program data determining the said game and operable to supply said data to the processing device;

said main control device being operable on occasions to transmit data signals via said link to said control system corresponding to different said stored program data for different said predetermined games;

the said control system further incorporating interface means connected to said program device and operable to receive said transmitted data signals, said control system being adapted to change the stored program data of said program device to different stored program data corresponding to said received data signals thereby to reprogram the machine for the playing of a different said game therewith.

4,335,810

CAPSULE TURNING APPARATUS (RANDOM SPIN PRINTING)

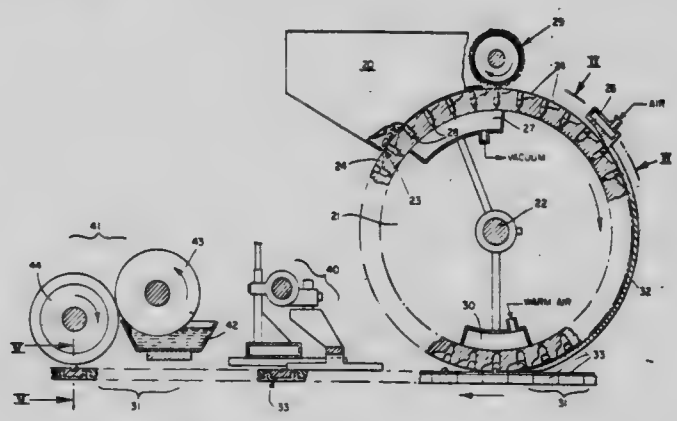
Edward M. Ackley, deceased, late of Stone Harbor, N.J.; Edward M. Ackley, executor, Stone Harbor, N.J., and James B. Ackley, executor, Cambridge, Ill., assignors to R. W. Hartnett Co., Philadelphia, Pa.

Continuation of Ser. No. 829,141, Aug. 30, 1977, Pat. No. 4,167,226, which is a division of Ser. No. 643,177, Dec. 22, 1975, Pat. No. 4,069,753, which is a continuation-in-part of Ser. No. 399,817, Sep. 24, 1973, Pat. No. 3,931,884. This application Jun. 8, 1979, Ser. No. 47,526

The portion of the term of this patent subsequent to Mar. 18, 1992, has been disclaimed.

Int. Cl.³ B65G *47/24*

U.S. Cl. 198—380 **3 Claims**



1. In a pharmaceutical capsule transporting apparatus of the type having a continuously rotatable capsule transporting cylinder having a plurality of elongated upstanding spaced apart pockets, each pocket having a radially extending portion arranged to receive and transport a capsule in an upstanding position therein, means for rotating the cylinder, a conveyor carrying a plurality of capsule carriers, and means for transferring capsules from the cylinder pockets to the capsule carriers, the combination comprising:

(a) a hopper having an opening therein, the opening located adjacent the capsule transporting cylinder to deliver capsules to the radially extending portion of each pocket;

(b) a plurality of holes, each of which extend through inner portions of the capsule transporting cylinder into the capsule pockets;

(c) a vacuum chest located adjacent to the inner surface of the cylinder and communicating with the pockets through the holes to assist in the delivery of the capsules from the hopper into the radially extending portion of each cylinder pocket in such manner that substantially an entire capsule is received in the radial portion;

(d) a perpendicular portion in each pocket being connected to the radial portion by means of a curved surface, the perpendicular portion being generally perpendicularly disposed with respect to the radial portion;

(e) fluid jet means spaced close to the transport cylinder to shift

the capsules from the radial portion of each pocket into the perpendicular portion of the pocket;

(f) wherein said pockets are arranged in a plurality of adjacent rows, each said row of pockets extending across said transporting cylinder in the axial direction thereof; and

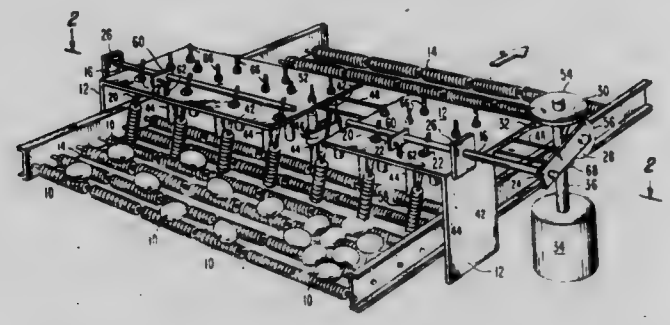
(g) means for preventing the premature falling of said capsules out of said pockets, said meanss being located adjacent said transporting cylinder and extending circumferentially from a location proximate to said fluid jet means to a location proximate the bottom of said transporting cylinder, wherein said means for preventing premature falling of said capsules out of said pockets comprise a plurality of curved plate members, each said curved plate being located adjacent one of said rows of pockets.

4,335,811

EGG ARRANGING APPARATUS

Lee H. Niederer, and Thomas O. Niederer, both of Titusville, N.J., assignors to Otto Niederer Sons, Inc., Pennington, N.J.

Filed Oct. 24, 1980, Ser. No. 200,119
Int. Cl.³ B65G *47/68*
U.S. Cl. 198—446 **16 Claims**



1. An egg arranging apparatus, usable for orienting eggs into rows from random positions upon an egg conveying device, which comprises:

(a) a housing means fixedly secured with respect to the environmental structure of the egg conveying device, said housing means extending transversely across the egg conveying device at a location thereabove;

(b) a transverse member being pivotally secured with respect to said housing means and extending transversely over the egg conveying device therebelow;

(c) a plurality of abutment members being fixedly secured with respect to said transverse member and extending downwardly therefrom to be positioned adjacent to the upper surface of the egg conveying device and positioned spaced thereabove to abut eggs traveling longitudinally therealong;

(d) an arm means fixedly secured with respect to said transverse member to be pivotally movable therewith with respect to said housing means;

(e) a cam follower member secured with respect to said arm means;

(f) a camming means being movable and positioned adjacent said cam follower member to be engaged thereby responsive to pivotal movement of said transverse member caused by said camming means including cam lobes thereon adapted to urge said cam follower member away therefrom causing pivotal movement of said transverse member and said abutment members into further abutment with the eggs located upon the egg conveyor means;

(g) a drive means operably connected to said camming means to cause movement thereof, said drive means including a drive shaft extending outwardly therefrom;

(h) a plurality of divider members secured with respect to said housing means and extending downwardly therefrom to a position immediately above the egg conveying means therebelow, said divider members being aligned longitudinally along the egg conveying means with respect to said abutment members to be adapted to contact the eggs after passage by said abutment members to thereby guide the eggs into orderly rows thereof upon the egg conveying means, said divider members including moving walls extending longitudinally therealong to minimize blockage of eggs traveling thereby;

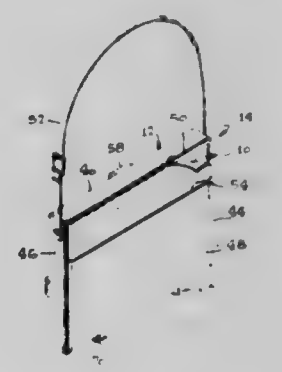
(i) a declutching powering means operably connected to said moving walls and responsive to a predetermined excessive bias being exerted laterally against said moving walls by eggs located between said divider members to disengage and stop movement of said moving walls as long as the condition exists.

4,335,812

ARTIST'S SKETCH BOX TRAY AND CARRYING CASE FOR THE SAME

Thomas Koves, 645 N. Cherokee, Los Angeles, Calif. 90004

Filed May 14, 1980, Ser. No. 149,709
Int. Cl.³ B65D *1/34*
U.S. Cl. 206—1.8 **3 Claims**



1. A carrying case for an artist's sketch box tray, said carrying case comprising:

a bottom, first and second side walls and first and second end walls secured to said bottom around the edges thereof;

an openable top, said openable top having a zipper thereon and being attached to said walls by said zipper when in a closed position and being detachable by said zipper from three of said walls in the open position, said top having a double thickness over a portion thereof to define a pocket in said top;

a carrying strap attached to said ends of said carrying case for the carrying thereof;

first and second tiedown straps secured to said case and extending across the exterior of said bottom thereof, one of said straps being secured at its ends on said first and second side walls and the other of said straps being secured at its end to said first and second end walls, said tiedown straps being oriented at substantially right angles with respect to each other and being for the carrying of canvases adjacent the exterior of said bottom case;

first and second easel straps secured to said second side wall for securement of a tripod easel to the exterior of said carrying case, said bottom, walls and top enclosing a space suitable to receive an artist's sketch box tray to retain an artist's sketch box tray and its artist's materials when said top is closed, and to permit access thereto when said top is open.

4,335,813

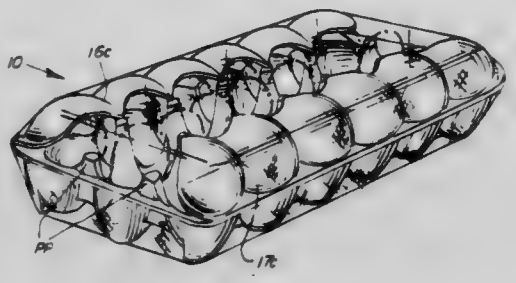
CARTON FOR FRAGILE ARTICLES

Clifford H. Bessett, South Holland, and Theodore H. Misdom, Lansing, both of Ill., assignors to Packaging Corporation of America, Evanston, Ill.

Filed May 13, 1981, Ser. No. 263,211
Int. Cl.³ B65D *65/16, 1/00*
U.S. Cl. 206—45.33 **20 Claims**

1. A molded carton for accommodating a plurality of fragile articles arranged in at least three rows disposed in substantially parallel side-by-side relation, said carton comprising a tray

section having front and rear walls interconnected to one another by end walls, the upper edges of said front and rear walls defining a common plane; and a pair of closure flaps hingedly connected to the upper edges of said front and rear walls; said tray section including rows of article-receiving cells disposed substantially parallel to and coextensive with said front and rear walls, each pair of adjacent rows of cells having a row of upright posts disposed therebetween, a predetermined



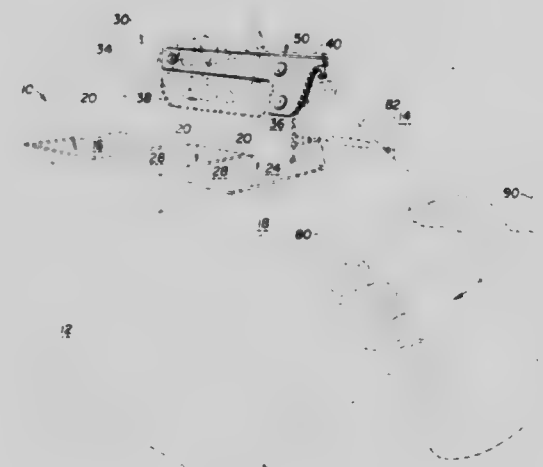
number of posts in a row extending a substantial distance above said common plane; each closure flap having an edge thereof opposite the hingedly connected portion provided with longitudinally spaced segments supportingly engaged by the upper ends of the predetermined number of posts in an adjacent row of posts when said closure flap is adjusted to a substantially cantilever close position relative to the cells in an adjacent row.

4,335,814

BOTTLE CARTON WITH INTEGRAL OPENER

Leroy J. Benning, 5012 Turner Rd., Sebastopol, Calif. 95472, and Charles A. Thorman, 1497 McGregor, Petaluma, Calif. 94952

Filed Aug. 25, 1978, Ser. No. 937,026
Int. Cl.³ B65D *75/00*; B67B *7/16*
U.S. Cl. 206—198 **5 Claims**



1. In a bottle carrying carton having a folded medial multilaminous cardboard handle lying in a normally vertical plane to define an upper folded border, the handle having a hand confronting portion, an improved bottle opener comprising:

an elongate flat shank lying substantially in the plane of the handle, the flat shank being disposed between first and second laminations of the handle, and having an upper edge captured in the fold defined by the upper folded border of the handle and abutting the fold;

the flat shank having a narrow portion extending along at least part of the length of the hand confronting portion of the handle, and a broadened shank portion protruding beyond the handle;

an overhanging hook mounted to the shank proximate the protruding portion;

the protruding portion of the shank opposing the hook to define a bearing surface;

the overhanging hook being angulated toward the handle, and the bearing surface sloping downwardly away from the hook towards the handle, wherein the axis of a bottle having a cap to be removed is downwardly angled away from the opener and the carton when a serration of the cap engages the hook and the top of the cap engages the bearing surface, cap removal being effected by rotating the bottle further downward about the region of contact between the cap and the bearing surface wherein the protruding portion of the shank is devoid of material in the region under the hook so that the bottle may be opened without interference from the shank; and

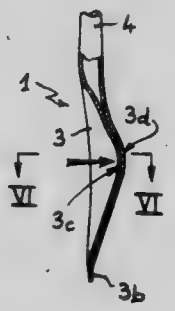
means preventing movement of the shank relative to the handle so that the carton provides a firm support for the opener during opening with the narrow portion of the shank reinforcing the handle against distortion.

4,335,815

FLEXIBLE PACKAGE FOR STORING AND DISPENSING LIQUID OR PASTY MATTERS

Pierre Babiol, Villefranche-sur-Saone, and Philippe Gallais, Bordeaux, both of France, assignors to Societe Nouvelle de Bouchons Plastiques, Anse, France

Filed Sep. 23, 1980, Ser. No. 190,002
Claims priority, application France, Sep. 26, 1979, 79 24561
Int. Cl.³ B65D *35/08, 85/14*
U.S. Cl. 206—277 **1 Claim**



1. A flexible moulded package for storing and dispensing liquid or pasty materials, the package comprising:

an elongated one-piece hollow body having a material containing skirt portion at one end, the skirt portion having a wall thickness selected to make the skirt portion flexible;

an elongated nozzle portion at the other end of the body, the nozzle portion being much smaller in diameter than the skirt portion and having an opening extending therethrough; the wall thickness of the nozzle portion being made greater than the wall thickness of the skirt to make it more rigid;

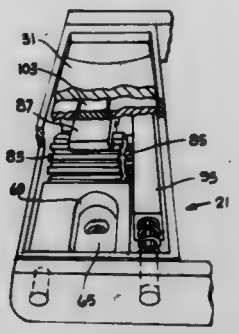
an intermediate joining portion interposed between the nozzle portion and the skirt portion and connecting them together along a curved walls of increasing diameter, the wall thickness of the intermediate joining portion tapering from the thickness of the nozzle wall portion to the thickness of the skirt wall portion; and

the skirt portion at its end opposite the joining portion being flattened and sealed along a rectilinear edge causing deformation of the skirt portion to form two opposed symetrical swells, such that when one swell is pressed toward the other it passes through a position of unstable equilibrium and lies concavely within the opposite swell in stable equilibrium.

4,335,816
LATCH ASSEMBLY FOR DISK PACK HANDLE AND THE LIKE

Edgar A. Rager, 601 Almarida Dr., Apt. T6, Campbell, Calif. 95008

Filed Jul. 2, 1980, Ser. No. 165,290
Int. Cl.[3] B65D *85/30*
U.S. Cl. 206—444 10 Claims



1. A latch assembly for a handle used on a disk pack or similar article comprising,

an elongate housing rotatably hinged between opposed arms of a handle, said housing having a movable slider exteriorly mounted thereon for motion parallel to the elongate dimension of said housing,

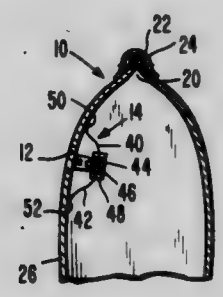
a pair of opposed movable dogs mounted in a channel in said housing for slidable motion therein in opposite directions, parallel to the direction of motion of the slider, said channel terminating in opposed apertures in said housing communicating with similar apertures in opposite arms of a handle, and

rack and pinion means connected to said slider and to said dogs for urging said dogs outwardly into said apertures thereby locking said housing to said handle.

4,335,817
EASY OPENABLE AND CLOSABLE BAG WITH SLIDE FASTENER

Karl E. Bahr, Meadville, Pa., assignor to Talon, Inc., Meadville, Pa.

Filed Feb. 6, 1980, Ser. No. 119,056
Int. Cl.[3] B65D *17/00*
U.S. Cl. 206—610 4 Claims



1. A reclosable bag comprising

a bag having a top opening, means for closing the top opening, and a sidewall,

said bag also having elongated closed opening means including a closed tear strip formed in the sidewall and adapted to be permanently opened, and

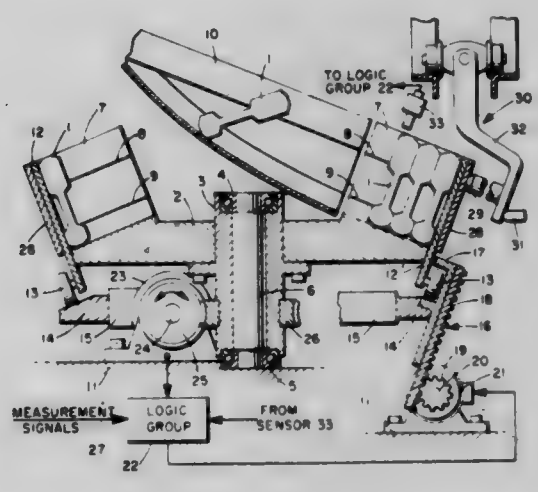
a slide fastener having a pair of support tapes and a pair of rows of interlocking coupling elements extending from inner edges of the respective support tapes,

said support tapes being secured to the sidewall on respective opposite sides of the tear strip for forming a closure for the opening means after the tear strip has been opened.

4,335,818
APPARATUS FOR SORTING WORKPIECES OF DIFFERENT CLASSIFICATION CLASSES AND FOR FORMING GROUPS HAVING PRE-SET NUMBER OF WORKPIECES OF THE SAME CLASS

Sergio Solaroli, Bologna, Italy, assignor to Finike Italiana Marposs, S.p.A., S. Marino di Bentivoglio (BO), Italy

Continuation-in-part of Ser. No. 18,668, Mar. 8, 1979, abandoned. This application Apr. 22, 1980, Ser. No. 142,709
Claims priority, application Italy, Mar. 10, 1978, 3355 A/78
Int. Cl.[3] B07C *5/16*
U.S. Cl. 209—592 9 Claims

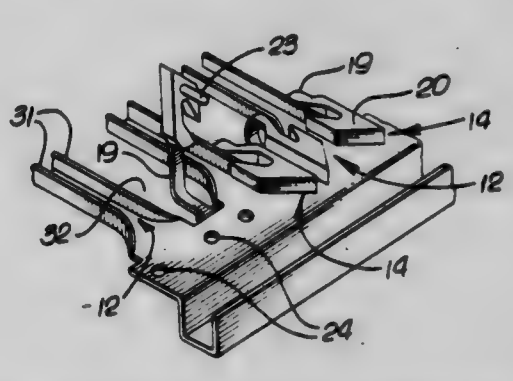


1. An apparatus for sorting workpieces of different classification classes and for forming groups having a pre-set number of workpieces of the same class, comprising a base; a housing support mobile on the base having a number of partitions at least equal to the number of classes; a loading device for loading one workpiece at a time into the support partition when in a determined loading and unloading position with respect to the support; a control group receiving signals indicative of the class of the workpiece; a control device for operating the housing support, the control device being connected to the control group for positioning in the loading and unloading position a relevant partition provided for receiving the workpieces of the same class of the next workpiece to be loaded; an unloading device arranged in correspondence with the loading position; and a driving device for operating the unloading device, the driving device being connected to the control group and including enabling means for controlling the unloading at the completion of a group of workpieces of the same class relating to the partition located in the loading and unloading position.

4,335,819
CARD CAGE ENTRY GUIDE

Arnold Weisman, 325 Crestglen Rd., Glendora, Calif. 91740, and Mitchell Merritt, 5594 Temple City Blvd., Temple City, Calif. 91780

Filed Jul. 14, 1980, Ser. No. 167,811
Int. Cl.[3] H05K *7/14*
U.S. Cl. 211—41 10 Claims



5. For use with a card cage having first and second channels

directly opposite each other and on the interior of first and second cage sides respectively, the channels configured to form a slot for retaining a card on opposite edges, each of the first and second cage sides having openings on both sides of its channel, and further having a pair of apertures through the side positioned in front of the associated channel, the aperture pairs separated by more than the width of the card, a guide device for use with a channel comprising:

a base member, having a pair of apertures similarly spaced apart as the pair of cage side apertures;

a pair of guide members, each having a peg, each peg configured to position its guide member in front of the channel by being inserted through one of the associated side apertures and retained in an associated one of the base member apertures, the guide members complimentarily configured to present a V-shaped entrance to the channel when the pegs are so inserted in the side apertures and retained in the base member; and

first and second flexible ribbon members affixed at one end to the base member, each ribbon member affixed at its other end to an associated guide member, the ribbon members of length and flexibility to couple the guide members to the base members through the channel openings when the pegs are inserted in the side apertures and retained in the base member.

4,335,820

MAGNETICALLY-AUTOMATED UNCOUPLING SYSTEM FOR MODEL RAILROADS

Robert E. Gramera, 10420 W. 44th Ave., Apt. 2A, Wheatridge, Colo. 80033

Continuation of Ser. No. 933,420, Aug. 14, 1978, abandoned.
This application Sep. 2, 1980, Ser. No. 183,301
Int. Cl.³ B61G *3/00;* A63H *19/18*
U.S. Cl. 213—75 TC **4 Claims**



1. In a magnetically-actuated uncoupling system for model railroads including (A) a coupler pocket housing of a model car and a draw bar member having means at one point for swingably connecting to the coupler housing, (B) at the other end of said draw bar, an inwardly directed hook on one side, (C) a spring urging said draw bar in the direction laterally outward from said car, (D) a curved magnetic member secured to and extending downwardly and outwardly of said draw bar in a direction opposite said hook and adapted to be attracted by a permanent magnet positioned alongside the outside of a section of train track, whereby, when a pair of adjacent cars coupled by said couplers being in a complimentary hooking engagement are pushed to a position in alignment with a pair of opposed magnets positioned alongside the outside of a section of train track said hook portions will be moved into relatively unhooked engagement to allow outward swinging and uncoupling of said couplers upon the outward attraction of said magnetic members in the direction of their respective magnets, the improvement for delayed uncoupling which comprises:

(a) said draw bar having a knuckle (**4**) being defined by the outer end of said draw bar and having face (**9**);

(b) a bypass (**8**) mounted on a post (**7**) extending downward from the draw bar; and

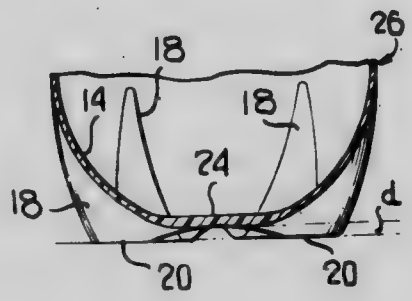
(c) a stopping block (**25**) connected to and extending downward from the front of the coupler pocket housing of the car and in alignment with the bypass (**8**) on the draw bar of a companion coupler when the draw bar is in a full open position, whereby, when a pair of draw bars of adjacent cars are in an unhooked full open position, the bypass (**8**) of each car engages the stopping block (**25**) of the adjacent car as the cars are pushed to a desired point outside the magnetic field for delayed uncoupling.

4,335,821

BLOW MOLDED PLASTIC MATERIAL BOTTLE BOTTOM

Wayne N. Collette, Westmoreland; Suppayan M. Krishnakumar, and Gautam K. Mahajan, both of Nashua, all of N.H., assignors to The Continental Group, Inc., New York, N.Y.

Division of Ser. No. 54,500, Jul. 3, 1979, Pat. No. 4,267,144.
This application Nov. 4, 1980, Ser. No. 203,924
Int. Cl.³ B65D *1/02*
U.S. Cl. 215—1 C **3 Claims**



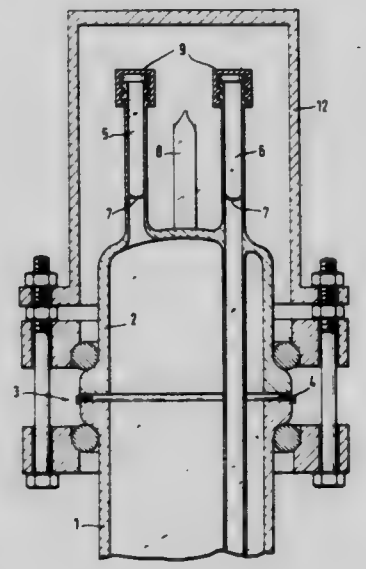
1. A blow molded plastic material bottle bottom structure comprising a generally hemispherical outwardly convex bottom wall interrupted by a plurality of downwardly projecting wall portions defining hollow legs terminating in lower feet; said bottom wall having a lower polar portion of a smoothly continuous configuration and upwardly offset from and directly joined to said hemispherical configuration.

4,335,822

TRANSPORT AND EMPTYING CONTAINER

Werner Büttner, Darmstadt, Fed. Rep. of Germany, assignor to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Dec. 1, 1980, Ser. No. 211,592
Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951667
Int. Cl.³ B65D *47/02*
U.S. Cl. 215—12 R **11 Claims**



1. A container for transporting and emptying very pure chemicals capable of reacting with constituents of the atmosphere, said container comprising:

a lower part closed main body having an opening at the top;

an upper part adapted for being connected to said lower part

at said opening for being in communication therewith and said upper part being closed at the top;

first connecting tube means and second connecting tube means extending through the top of said upper part into said container; and

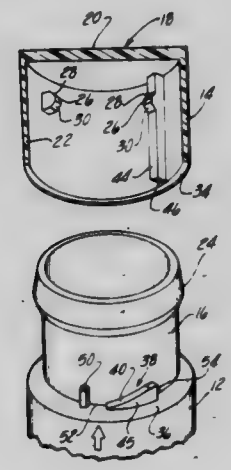
flange means located for connecting said upper and lower parts at said flange means, said flange means having gasket means positioned between said flange means and said upper and lower parts respectively.

4,335,823

CHILD-RESISTANT PACKAGE

Gary V. Montgomery, and Randall G. Bush, both of Evansville, Ind., assignors to Sunbeam Plastics Corporation, Evansville, Ind.

Filed Jan. 26, 1981, Ser. No. 228,286
Int. Cl.³ A61J *1/00*; B65D *55/02*
U.S. Cl. 215—206 **11 Claims**



1. A child-resistant package comprising: a container having a body and a tubular open-ended neck joined to said body, a cup-shaped closure for said neck having an annular skirt adapted to telescope over said neck, retainer means on said neck and said skirt for retaining said closure in closed position on said neck during relative rotation of said closure and said container, said retainer means being disengageable by axial movement of said closure relative to said neck,

a pair of elements on the outer surface of said neck and the inner surface of said skirt, respectively, said elements having a radial thickness such that they do not engage when said closure is rotated on said neck with said skirt in its normal annular configuration,

a first of said elements having a ramp surface extending angularly and circumferentially an axial distance greater than the distance of axial movement required to disengage said retainer means, a second of said elements being positioned at an axial level for engagement with said ramp surface of said first of said elements when said skirt is flexed radially inwardly and said closure is rotated to cause said closure to move axially to disengage said retainer means, and

a guard element formed on the same surface as said first of said elements and spaced therefrom a circumferential distance only enough to provide a keyway for the radial insertion of the second of said elements therein.

4,335,824

CHILD-RESISTANT TAMPER INDICATING PACKAGE

Randall G. Bush, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Filed Mar. 9, 1981, Ser. No. 241,735
Int. Cl.³ G65D *55/02*
U.S. Cl. 215—224 **12 Claims**

1. A child-resistant, tamper indicating package comprising:

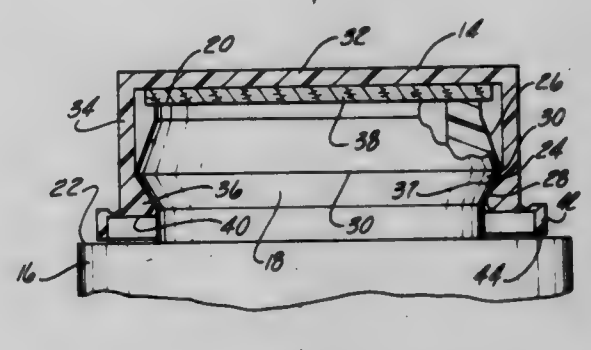
a hollow container having a body portion and a tubular neck extending from said body and forming an annular shoulder at the juncture of said body and neck, said neck forming an opening communicating with said container,

an annular rib formed on the exterior of said neck and having opposed upper and lower surfaces,

a closure having a disc portion for engaging and closing the opening in said neck and a cylindrical flexible skirt extending from said disc portion,

said skirt terminating in a lip axially spaced from said shoulder a predetermined distance when said cap is in a closed position to receive a tool for prying said cap from said container,

an annular flange formed within said cap on said skirt adjacent to said lip and having an inside diameter less than the



outside diameter of said rib, said flange having a surface engageable with the lower surface of said rib to hold said cap in sealing engagement on said neck and resist removal of said cap, said flange being engageable with said upper surface of said rib to deflect said flexible skirt during closing movement of said cap axially on said neck,

an annular ring formed as a unit with said skirt and having a lower edge extending axially into close proximity to said shoulder to prevent insertion of a tool and to conceal the tool receiving space between said lip and said shoulder, and

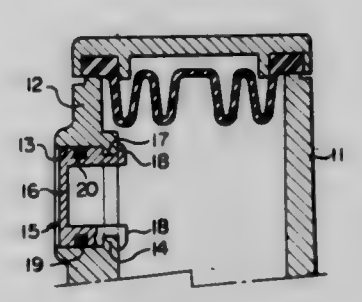
a line of weakening between said ring and said skirt permitting removal of at least a portion of said ring and access to said tool receiving space.

4,335,825

RESERVOIR TANK

Takeshi Sakazume, Kawasaki, Japan, assignor to Tokico Ltd., Kanagawa, Japan

Filed Jul. 21, 1980, Ser. No. 170,877
Claims priority, application Japan, Jul. 20, 1979, 54/100267[U]
Int. Cl.³ B65D *25/54, 25/56*; G01F *23/02*
U.S. Cl. 220—82 R **3 Claims**



1. A reservoir tank having:

a side wall, said side wall having an opening therethrough with a flange projecting thereinto around the inner periphery thereof;

a transparent window sealingly mounted within said opening, said transparent window comprising a cup-shaped member having an open end portion and a bottom portion;

said bottom portion being transparent for allowing the visual inspection of the liquid level of said reservoir tank;

said open end portion having a plurality of resilient pawl-

shaped retaining members spaced around the periphery thereof; and

said resilient retaining members having a flange engaging recess therein having the same dimension along said member as the thickness of said flange and being adjacent said open end whereby said members resiliently and snappingly engage said flange on the peripheral edge of said opening and tightly hold said cup-shaped member against the surface of said flange within said opening.

4,335,826

RELEASE DEVICE FOR A CONTAINER

Henry M. Prain, 27, Steeles Rd., London NW3, and Andrew M. Scott, Holmfield, Rollestone Rd., Shrewton, Salisbury, Wiltshire, both of England

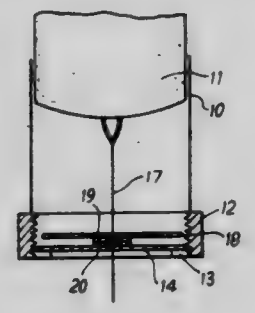
PCT No. PCT/GB80/00005, § 371 Date Aug. 26, 1980, § 102(e) Date Aug. 26, 1980, PCT Pub. No. WO80/01375, PCT Pub. Date Jul. 10, 1980

PCT Filed Jan. 9, 1980, Ser. No. 205,961

Claims priority, application United Kingdom, Jan. 9, 1979, 7900708

Int. Cl.³ B65D *17/50, 41/02*

U.S. Cl. 220—260 **7 Claims**



1. A container having a release device comprising a resilient closure member and a line, the line being attached to contents of the container and passing through said closure member, the container having an aperture therein at the edge of which is provided retaining means, and the closure member being arranged to be retained by said retaining means to obstruct said aperture, wherein upon the application by said line of a predetermined force to a central region of the closure member, the closure member is caused to flex by the contents and separates from said aperature.

4,335,827

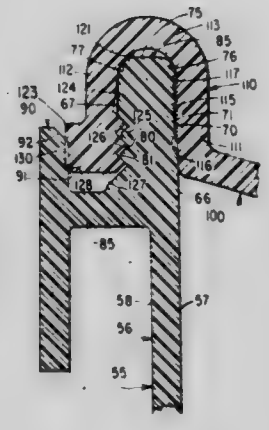
CAN OR CONTAINER AND LID THEREFOR

Elmer J. Knize, Chicago, and Daniel C. Avers, Oak Park, both of Ill., assignors to Lippy Can Company, Ltd., Oak Park, Ill.

Continuation-in-part of Ser. No. 79,712, Sep. 28, 1979, abandoned. This application Oct. 8, 1980, Ser. No. 195,946

Int. Cl.³ B65D *17/52, 43/26, 41/16*

U.S. Cl. 220—284 **24 Claims**



1. A container having a body with a closed bottom and a top edge defining an open top, interrupted retaining members exterior to and laterally spaced from said top edge, a plurality of spaced apart grooves in the exterior surface of said body near and parallel to said top edge forming a first set of teeth, a removeable cover for closing the open top having an inverted U-shaped clamping member with an interior leg and an exterior leg and a bight spanning said top edge, said interior leg and said bight when said cover is in place closing the open top being in contact respectively with the interior surface of said body and said top edge, the surface of said exterior leg facing said container body having a plurality of spaced apart grooves therein forming a second set of teeth for interlocking relationship with said first set of teeth, the other surface of said exterior leg being in contact with at least some of said interrupted retaining members; whereby said interlocking sets of teeth provide positive stops and seal for said cover and said body and said retaining members maintain said sets of teeth in contact.

4,335,828

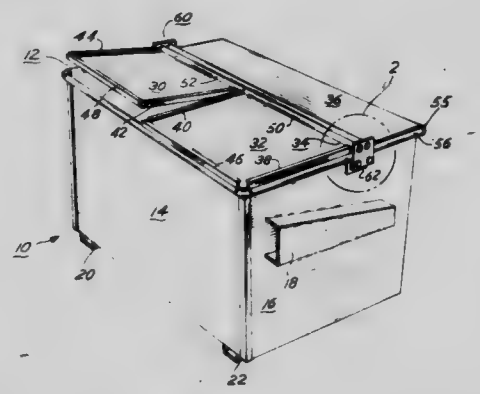
REFUSE CONTAINER LID SYSTEM

Jimmie R. Robinson, and Max E. Thompson, both of Silver Lake, Ind., assignors to Flint & Walling, Inc., Silver Lake, Ind.

Filed Sep. 5, 1980, Ser. No. 184,275

Int. Cl.³ B65D *43/14, 51/04*

U.S. Cl. 220—334 **6 Claims**



1. A refuse container lid system comprising a pair of covers disposed adjacent each other on the top of the container and having tubular portions along the back in an end to end relationship, hinge plates disposed along the outer edge of each of said covers near the ends of said tubular portions, a pipe disposed in said tubular portions and extending between said covers, means for attaching said plates to the container, studs in said hinge plates extending into opposite ends of said pipe and being sufficiently smaller than the hole in said pipe that said cover can rotate about said studs relative to said plates, a top plate disposed on the top of the container along the rear thereof, and having a tubular portion adjacent said tubular portion of said covers, and studs from said hinge plates extending into opposite ends of the tubular portion of said rear top plate.

4,335,829

COATED METAL SURFACES AND METHOD OF COATING METAL SURFACES WITH AQUEOUS RESINOUS DISPERSIONS OF EPOXY RESINS AND ACRYLIC POLYMERS

Roger M. Christenson, Gibsonia; Rudolf Maska, Pittsburgh; Rostyslaw Dowbenko, and Thomas R. Hockswender, both of Gibsonia, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 29, 1978, Ser. No. 964,549

Int. Cl.³ B65D *8/00;* B05D *3/02;* B32B *15/08, 27/38*

U.S. Cl. 220—458 **12 Claims**

1. A method of coating metal surfaces which comprises:

(I) applying to the metal surface a coating composition

comprising an aqueous base-solubilized resinous dispersion in which the resinous phase comprises:

(A) 15 to 90 percent by weight of a base-solubilized acrylic polymer which is formed by solution polymerizing in the absence of primary and secondary alcohols other than ethanol, the following monomer charge:

(1) 15 to 85 percent by weight of an alpha, beta-ethylenically unsaturated carboxylic acid,

(2) 5 to 85 percent by weight of N-ethoxymethylacrylamide or N-ethoxymethylmethacrylamide,

(3) 0 to 80 percent by weight of a copolymerizable vinyl monomer different from (1) and (2); the percentages by weight of (1), (2) and (3) being based on total weight of (1), (2) and (3);

(B) 10 to 85 percent by weight of an epoxy resin; the percentages by weight of (A) and (B) being based on total weight of (A) and (B);

(II) heating the metal surface to a temperature sufficient to coalesce and cure said coating composition.

10. A metal substrate coated by the method of claim 1.

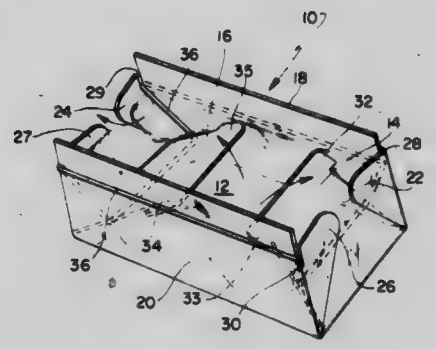
11. The metal substrate of claim 10 which is in the form of a metal container and in which the resinous dispersion is applied to the container's interior surface.

4,335,830

SOLUTION CONTAINER

Richard S. Garganese, North Kingston, R.I., assignor to Industrial Packaging Co., Inc., Bristol, R.I.

Filed Nov. 17, 1980, Ser. No. 208,133
Int. Cl.³ B65D *5/30, 5/56*
U.S. Cl. 220—462 **5 Claims**



1. A collapsible container comprising:

A. a flat bottom wall;

B. a pair of spaced side walls, each of which is hingedly attached to said bottom wall on opposing edges thereof;

C. a pair of spaced end walls, each of which is hingedly attached to said bottom wall on opposing edges thereof, said side and end walls being pivotally movable relative to said bottom wall for location in perpendicular relation with respect thereto when the container walls are moved from a collapsed to an erected position;

D. means formed on said side and end walls for interlocking said side and end walls in the erected positions thereof; and

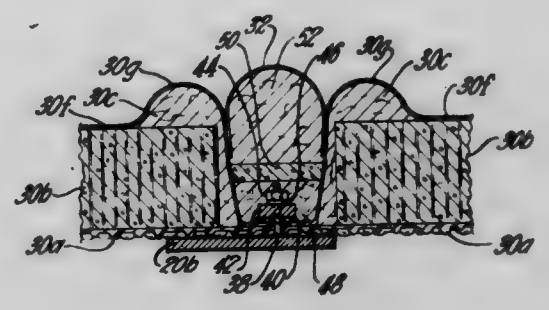
E. a resilient band extending along the outer surfaces of said side walls and the inner surfaces of said end walls, and coacting with said side and end walls to normally urge them to the erected positions thereof, said resilient band being movable into a position relative to all of said walls to automatically urge said walls from a collapsed to an erected position.

4,335,831

INSULATED CRYOGENIC LIQUID CONTAINER

William A. Swaney, Toledo, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jan. 16, 1978, Ser. No. 869,544
Int. Cl.³ B65D *87/24*
U.S. Cl. 220—901 **8 Claims**



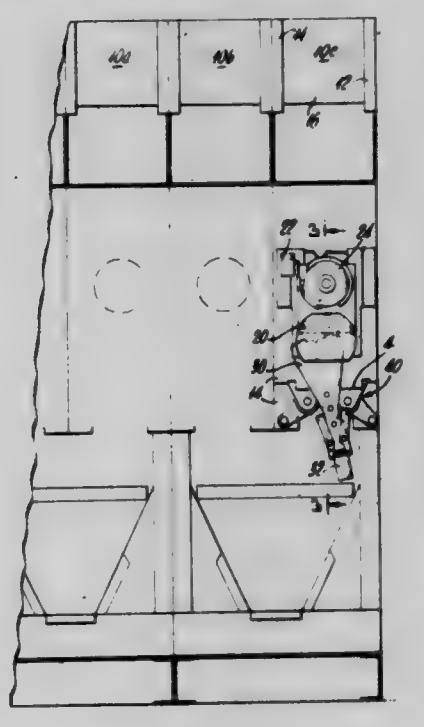
1. An insulated cryogenic liquid container comprising a supporting enclosure having a generally planar inner surface, a pair of composite insulating panels each including a generally rectangular glass fiber reinforced resin casing having a front panel portion and four sidewall portions and insulating material in the casing, the panels being mounted adjacent each other on the inner surface with space between the casings thereof, and a straight glass fiber reinforced resin joint cover member disposed in the space between the casings, the joint cover member having a generally U-shaped cross section opening toward the inner surface with a pair of opposite leg portions adhesively secured in overlapping relationship respectively to adjacent sidewall portions of the casings, the front panel portions of the casings and the joint cover member forming a portion of a primary barrier for directly contacting cryogenic liquid when the container is in use.

4,335,832

CROSS LINK MECHANISM FOR STAGGERED STACK VENDING MACHINE

Harry R. Payne, Chattanooga, Tenn., assignor to Cavalier Corporation, Chattanooga, Tenn.

Filed May 21, 1980, Ser. No. 151,850
Int. Cl.³ G07F *11/08*
U.S. Cl. 221—67 **1 Claim**



1. Apparatus for dispensing a single article at a time from at least two adjacent staggered stacks of articles in a bin with

corresponding articles in the stack being axially aligned of each other, said apparatus comprising:

(a) a selectively energizable motor;

(b) a cam energizably engageable with said motor, said cam having a surface with a pair of surface cutouts therein;

(c) a stem secured to said cam and rotatable therewith, said stem having an arm with a pin thereon;

(d) switch means disposed to be engaged by the surface of said cam and responsive thereto, wherein energization of said motor is interrupted when either of the pair of surface cutouts is reached by said switch means;

(e) first and second support members disposed in the bin and mounted for movement from an article support position wherein the lowermost articles of the stacks are engaged and supported, to an article release position wherein an article from each stack is released for dispensement;

(f) linkage means including

(1) a vertical link secured to and directed for movement by the pin,

(2) a cross link pivotally secured at its centermost portion to said vertical link,

(3) a pair of support links, one of said pair of support links being pivotally secured to said cross link at one end thereof and said first support member, the other of said pair of support links being pivotally secured to said cross link at the other end thereof and said second support member,

so that pin directed movement of said vertical link results in movement producing force being applied through said cross link and said pair of support links to said first and second support members,

(g) a latch plate pivotably mounted for movement from a rest position wherein said latch plate engages and holds said first and second support members in their article support position, to either a first position wherein said latch plate engages said first support member to prevent its movement to its article release position, or a second position wherein said latch plate engages said second support member to prevent its movement to its article release position;

(h) releasable lock means adapted to be engaged by the arm for disposition from a locked position wherein said latch plate is retained in rest position to an unlocked position wherein said latch plate is disposed to either its first or second position;

(i) an escrow bar rigidly secured to said latch plate and pivotal therewith from a rest position where it retains one of the two articles released by one of said first and second support members, to a release position;

(j) control means for selectively operating said motor including means for initiating energization of said motor to rotatably drive said cam and said stem, whereby the pin directed linkage means transmits a movement producing force on said first and second support members while the arm engages said lock means for disposition to its unlocked position wherein said latch plate pivots to either its first or second position overcoming the movement producing force and maintaining one of said support members in its article support position while the other of said support members is directed to its article release position whereupon said latch plate and said escrow bar enter their locked position and the other of said support members releases a pair of cans, with one dispensed to the operator and the other retained by said escrow bar and thereafter one of the pair of surface cutouts reaches said switch means de-energizing said motor and said control means and terminating rotation of said cam and said stem, said initiating means initiated a second time energizing said motor and continuing rotation of said cam and said stem to dispose said escrow bar to its unlocked position whereby dispensing the retained can, and upon reaching the second of the pair of surface cutouts de-energizing said motor and said control means and terminating rotation of said cam and said stem.

4,335,833

SOAP SOLUTION DISPENSER

Sandro Arabian, Vaduz, Liechtenstein, assignor to Europtool Trust, Vaduz, Liechtenstein

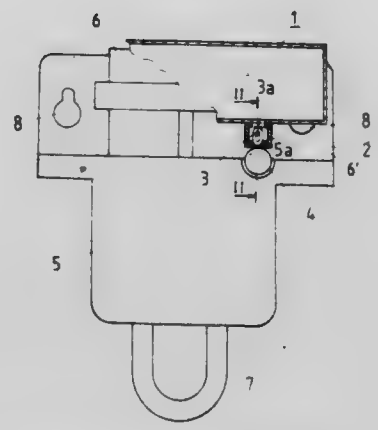
Filed Jun. 30, 1980, Ser. No. 164,187

Claims priority, application Switzerland, Jul. 17, 1979, 6623/79

Int. Cl.³ B67D *5/22*

U.S. Cl. 222—23

4 Claims



1. A soap solution dispenser comprising:

a housing;

an exchangeable refill cartridge for dispensing aqueous soap solution arranged in said housing;

means for emptying aqueous soap solution from said refill cartridge;

level indicator means for indicating the level of the soap solution in said refill cartridge;

means for producing portions of soap foam from said soap solution;

said refill cartridge having a connecting member which is at least in part elastic;

at least one hollow plug having a bore provided for said means for emptying said refill cartridge;

said solution level indicator being provided for said hollow plug;

said refill cartridge, said hollow plug and said solution level indicator forming communicating vessels;

said solution level indicator being in direct communication with said refill cartridge;

said solution level indicator having an outflow opening;

means defining a viewing window for the solution level indicator; and

said viewing window being arranged above said outflow opening and being visually accessible to an observer of the solution dispenser.

4,335,834

HAND HELD ELECTRIC EJECTING DEVICE

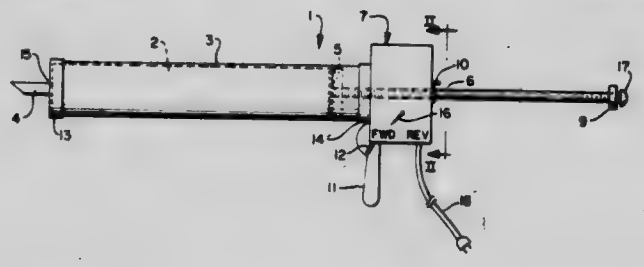
Marvin Zepkin, 366 Bobwhite Dr., Bird Key, Sarasota, Fla. 33577

Filed Jun. 30, 1980, Ser. No. 164,816

Int. Cl.³ B67D *5/46*

U.S. Cl. 222—63

16 Claims



1. A hand held electric ejecting device for ejecting material from a cartridge comprising in combination, receptacle means

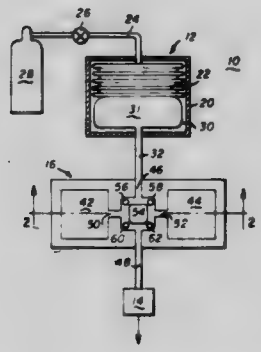
for receiving therein a cartridge containing a material to be ejected, said cartridge having a dispensing opening at one end and being adapted to receive a pusher means at the other end for forcing the material in the cartridge through the dispensing opening; pusher means movable when driven through said cartridge from said other end to force the material in the cartridge through said dispensing opening, said pusher means including a push rod formed as a screw shaft; and an electric motor positioned adjacent one end of said receptacle means and directly connected to said receptacle means, said screw shaft passing through an armature shaft of the electric motor, threads being provided on said armature shaft in driving engagement with said screw shaft for axially driving said screw shaft for effecting movement of the pusher means to force material through the dispensing opening of the cartridge, whereby said device is relatively lightweight, slim, compact and easy to use.

4,335,835

DEVICE FOR THE INTRAVENOUS OR ENTERIC INFUSION OF LIQUIDS INTO THE HUMAN BODY AT A PREDETERMINED CONSTANT RATE

Myron A. Beigler, Los Altos Hills, and Hal C. Danby, Palo Alto, both of Calif., assignors to Anatros Corporation, San Jose, Calif.

Division of Ser. No. 972,730, Dec. 26, 1978, Pat. No. 4,237,881.
This application Jun. 20, 1980, Ser. No. 161,330
Int. Cl.[3] B65D *35/28*
U.S. Cl. 222—95 10 Claims



1. A disposable, unitary, hermetically sealed liquid container structure comprising:

a flexible container portion having a selected volumetric capacity and an exit port;

a pair of substantially identical, flexible, liquid bladders each having a volumetric capacity at least one order of magnitude smaller than the volumetric capacity of said container;

a liquid discharge meanscapacity and an exit port;

a pair of substantially identical, flexible, liquid bladders each having a volumetric capacity at least one order of magnitude smaller than the volumetric capacity of said container;

a liquid discharge meanscapacity and an exit port;

a pair of substantially identical, flexible, liquid bladders each having a volumetric capacity at least one order of magnitude smaller than the volumetric capacity of said container;

a liquid discharge means; and

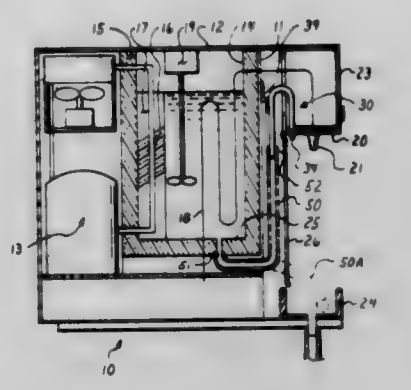
a liquid distribution network integrally connecting said container, said bladders and said discharge means to one another.

4,335,836

BEVERAGE DISPENSER HAVING AN IMPROVED LEVEL CONTROL FOR A LIQUID HEAT EXCHANGE MEDIUM

William A. Harvill, Stone Mountain, Ga., assignor to The Cornelius Company, Anoka, Minn.

Filed Mar. 3, 1980, Ser. No. 126,931
Int. Cl.[3] B67D *1/16*
U.S. Cl. 222—108 4 Claims



1. In a beverage dispenser having a beverage ingredient cooling tank for containing a liquid heat exchange medium, a dispensing nozzle, a generally horizontal nozzle plate which is mounted to the dispenser and which supports the nozzle, and a common drip tray under both of the nozzle and the first conduit outlet, an improved medium level control and drain comprising

a. a first medium conduit having an inverted U-shape, said conduit being positioned with respect to the tank so that an apex of the conduit is substantially at the height of a desired medium level within the tank, said conduit having an inlet and an outlet;

b. a second medium conduit comprising a flexible length of tubing having an inlet end fluidly connected to a bottom of the tank and an outlet end normally fluidly connected to the inlet of the first conduit, the outlet of said second conduit being disconnectible from the first conduit and lowerable to a position at or below the level of the tank bottom for draining of the tank; and in which

c. said first conduit has an outlet leg spaced laterally from the nozzle and in registry with an aperture in the nozzle plate, and an inlet leg of longer length than the outlet leg, said inlet leg extending substantially below and being rearward of the nozzle plate with the connection of the second conduit to the first conduit inlet being at a level below the level of the nozzle plate.

4,335,837

DISPENSING CONTAINER FOR PROPORTIONAL MIXING OF FLUIDS

Robert P. Bono, 518 Parker Ave., Monrovia, Calif. 91016

Filed Oct. 4, 1979, Ser. No. 81,773
Int. Cl.[3] B67D *5/42*; G01F *11/02*
U.S. Cl. 222—137 7 Claims

1. A hand-held liquid dispenser for dispensing a plurality of intermixed liquids separately stored therein comprising:

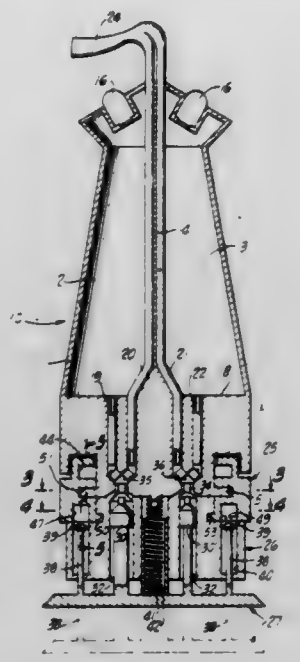
a container sized to be grasped in the user's hand and provided with a plurality of separate storage chambers;

a liquid mixing and dispensing nozzle fixed immovably to said container having a single outlet and a plurality of inlets in communication with said outlet;

a supporting base for said container reciprocable axially thereof and normally spring biased to an extended position to support said container and its contents elevated above said base; and

said supporting base including manually reciprocable piston means in communication with a respective one of said storage chambers operable upon the retraction thereof in opposition to said spring to transfer separate charges of liquid from a respective one of said storage chambers to

said nozzle and to intermix and dispense the same through said single outlet, and operable upon the reverse movement thereof by said spring to withdraw replenishment



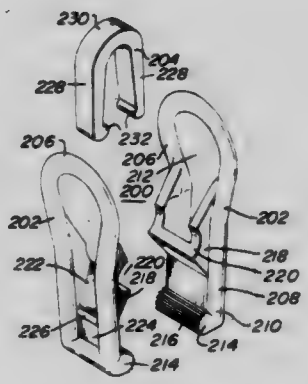
charges of liquid from an associated one of said storage chambers in readiness for transfer of said charges to said nozzle upon the next retraction movement of said piston means.

4,335,838

SKIRT AND TROUSER CLIP FOR HANGER

Leonard Bisk, Elkins Park, and Gunther Rogahn, Lansdale, both of Pa., assignors to Independent Products Company, Inc., Lansdale, Pa.

Filed Apr. 7, 1980, Ser. No. 137,930
Int. Cl.³ A47J *51/095, 51/14;* D06F *35/02*
U.S. Cl. 223—91 **6 Claims**



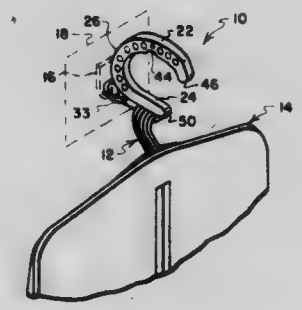
1. A clip arranged for ready assembly and releasable securement on a rod-like element of a first predetermined diameter and having a longitudinal axis, said clip comprising a pair of jaws formed of a first plastic material and resilient bias means formed of polycarbonate and having higher tensile strength and resiliency than said first material, each of said jaws being a generally planar member and comprising an elongated first end portion defining a finger grasping opening, an intermediate portion, and a second end portion including a projection extending at an angle to the plane of said jaw member, said intermediate portion including an arcuate recess therein for close receipt of a portion of the periphery of said rod-like element when said clip is assembled thereon, said bias means being a generally U-shaped member having a pair of outwardly flared legs each terminating in a free end and an arcuate intermediate portion defining a recess having a first predetermined diameter, the free ends of said bias means being spaced apart by a distance greater than the diameter of said recess to enable said bias means to be readily secured to said jaws, with each of said legs overlying and engaging a respective one of said jaws adjacent said intermediate portion and with the recess in said arcuate portion coacting with the recess in each of said jaws to form a substantially circular opening closely receiving a portion of said rod-like member therein to complete the assembly of said clip by holding said jaws on said rod-like member and whereupon said clip can be readily slid therealong and pivoted thereabout with said rod-like element acting as a fulcrum.

4,335,839

COAT HANGER CARRIER

Milton Kessler, 6690 Harrington Ave., Youngstown, Ohio 44512, and Ronald N. Kessler, 1161 Monsell Dr., Youngstown, Ohio 44505

Continuation-in-part of Ser. No. 76,191, Sep. 17, 1979, Pat. No. 4,299,342. This application Apr. 3, 1980, Ser. No. 136,904
Int. Cl.³ A45C *13/26*
U.S. Cl. 294—142 **12 Claims**



1. A carrier for releasably receiving, retaining, carrying and hanging hanger hook portions of a plurality of coat hangers comprising:

(a) a substantially C-shaped member having upper and lower leg portions which overlie each other and which extend substantially in a common plane;

(b) the upper leg portion being of a sufficient size relative to the size of one's hand to effectively distribute the load of a plurality of garment-carrying hangers across the width of one's hand;

(c) the lower leg portion having hanger-hook receiving means for defining an opening which extends substantially perpendicular to said common plane for releasably receiving and retaining hanger-hook portions of a plurality of coat hangers with such hangers oriented to extend substantially perpendicular to said common plane;

(d) wall-mounted hook receiving means connected to the C-shaped member for receiving a wall-mounted hook to hang the carrier on such hook, the wall-mounted hook receiving means being configured to orient the common plane of the C-shaped member in a direction extending substantially perpendicular to the plane of the wall on which the wall-mounted hook is mounted so that such hangers as are received by the carrier are oriented by the carrier to extend in a direction substantially parallel to the plane of such wall; and,

(e) the lower leg portion having a pair of formations extending in directions substantially perpendicular to said common plane on opposite sides of said common plane at a location adjacent said opening for stabilizing hanger hook portions which may be inserted through said opening.

4,335,840

MOTOR VEHICLE FISHING ROD AND LUGGAGE CARRIER

Ben H. Williams, 4615 Ranch View Rd., Fort Worth, Tex. 76109

Filed Jun. 24, 1980, Ser. No. 162,578
Int. Cl.³ B60R *9/04*
U.S. Cl. 224—315 **16 Claims**

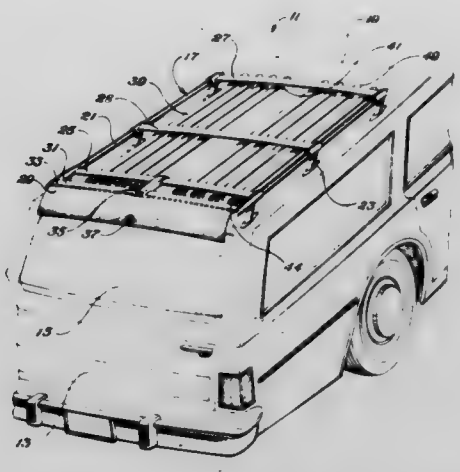
1. A fishing rod carrier comprising:

a carriage adapted to be mounted to a roof of a vehicle;

a blade secured by a hinge to the rear of the carriage and movable between a lower position and an upper position;

in the lower position, the blade defining a passage below it for deflecting the wind down over a rear window of the vehicle;

locking means for selectively locking the blade in the lower position; and



a plurality of tubes carried by the carriage transverse to the blade, each tube having an open end positioned in front of the blade so that access for inserting or withdrawing a fishing rod from one of the tubes is provided when the blade is in the upper position, but blocked when the blade is in the lower position.

4,335,841

WIRE STITCHERS

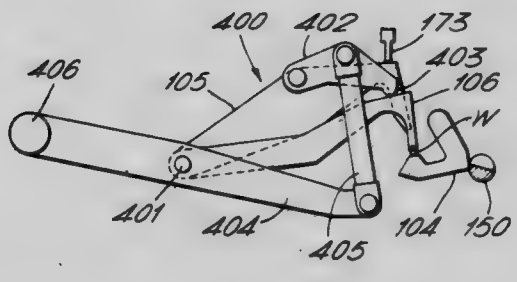
Attila A. Fogarasy, Jesmond, England, assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 21, 1979, Ser. No. 106,421

Claims priority, application United Kingdom, Dec. 29, 1978, 50324/78

Int. Cl.³ B27F *7/21*

U.S. Cl. 227—90 **8 Claims**



1. A wire stitcher apparatus having a driver and an anvil for forming a staple from cut wire lengths about the anvil, the improvement including a former on the driver and a lever, means for imparting continuous motion to the lever, said continuous motion being arranged to impart movement to the driver and said former and to position said driver against a cut wire length for holding the same against said anvil, said motion imparting continued movement to said former for forming a staple around said anvil, and means for arresting motion of the driver during said forming.

4,335,842

THREE COMPARTMENT DIVIDER

Judson T. Bradford; Charles L. Bradford, Jr., and Charles J. Shepherd, all of Holland, Mich., assignors to W. J. Bradford Paper Company, Holland, Mich.

Filed Dec. 12, 1980, Ser. No. 215,620

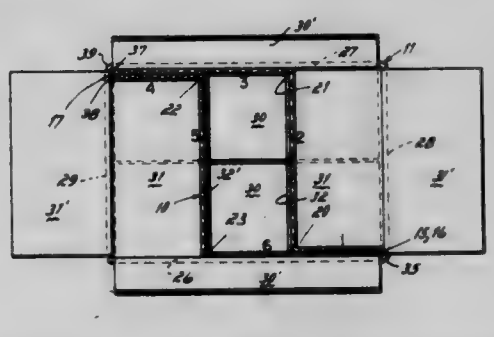
Int. Cl.³ B65D *5/48*

U.S. Cl. 229—15 **5 Claims**

1. In combination with a rectangular shipping case having parallel end walls and parallel side walls, an inserted one-piece compartment defining member formed from an elongated blank of constant width and comprising six series connected panels, each panel having a transverse width substantially equal to the height of the compartments to be formed by said compartment defining member,

said adjacent panels of said elongated blank being hingedly connected by only five parallel transverse fold lines, one of said fold lines being formed by a cut-score line located medially of the length of said elongated blank, the remaining four of said fold lines comprising two pairs of score lines, each pair of score lines being located on opposite sides of said cut-score line, and each score line of each pair being located on opposite sides of said elongated blank,

said elongated blank being folded and having its opposite end panels juxtapositioned in overlapping relationship, and its two central panels juxtapositioned in overlapping relationship,



said folded blank being capable of being collapsed to substantially flat condition or of being expanded, said folded blank when in expanded condition having those panels which are adjacent the end panels spaced apart and extending parallel to one another, and when in said case, parallel to the end walls of said case, said overlapped panels of said expanded blank being located in flush engagment with said side walls of said case and having the ends thereof in contact with diagonally opposed corners of said case, and

said expanded folded blank having such inherent resiliency at the fold lines due to the tendency of the panels to return toward the collapsed flat condition of the blank as to bias said expanded blank against the case walls to effectively resist displacement of said blank within the case as well as withdrawal of the blank from the case.

4,335,843

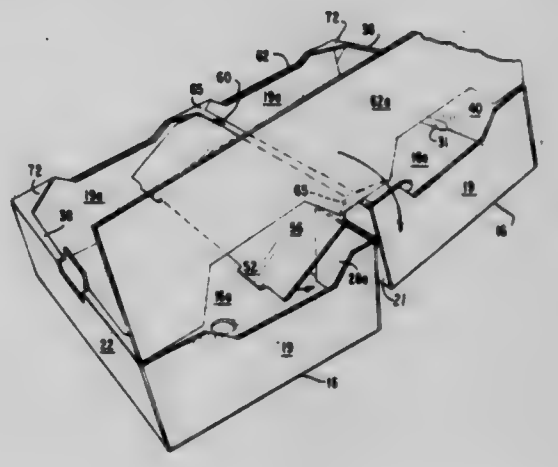
PARTITIONED STACKING CRATE AND BLANK THEREFOR

Ronald I. Kent, La Habra, Calif., assignor to Stone Container Corporation, Chicago, Ill.

Filed Feb. 9, 1981, Ser. No. 232,666

Int. Cl.³ B65D *5/48*

U.S. Cl. 229—27 **14 Claims**



1. A foldable blank of paperboard material having a plurality

of hingedly connected panels for erecting a composite crate having at least two compartments, comprising:

A. A pair of bottom panels spaced from one another, for forming separate bottom walls of said compartments;

B. a first and a second end panel extending from opposed sides of each of said bottom panels for forming end walls of each of said compartments;

C. a first and a second side panel extending from opposed sides of each of said bottom panels, for forming side walls of each of said compartments; and

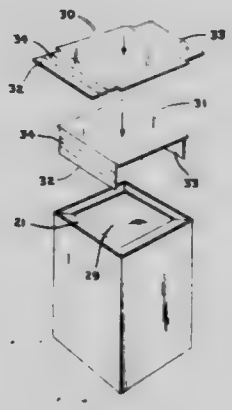
D. a central divider panel and a pair of lateral panels extending from opposite sides of the central divider panel, positioned between said bottom panels for forming a divider structure separating said compartments in the erected crate such that each of said lateral panels can be folded into substantially back-to-back, enclosing relationship with a respective one of said end panels erected from each of said bottom panels.

4,335,844

CONTAINER WITH LID

Alwin Egli, Beringen SH, Sweden, assignor to Platmanufaktur AB, Malmo, Sweden

Filed Dec. 18, 1978, Ser. No. 970,339
Claims priority, application Sweden, Jan. 2, 1978, 7800006
Int. Cl.³ B65D *5/66*
U.S. Cl. 229—43 **15 Claims**



1. The combination comprising a container having an open end and a peripheral flange extending inwardly within said container in a plane beneath said open end, and an openable and closable lid at said open end of the container, said lid comprising a first lid element removably fitted within said open end of the container above said peripheral flange, said first lid element including a bottom and at least two opposite side portions on said bottom, each said side portion including a first side wall secured to said bottom and extending upwardly therefrom substantially at right angles thereto, and a second side wall at right angles to the first side wall and overlying said bottom, the second side walls of the two opposite side portions extending towards one another, and a second lid element fitted on the container at said open end to cover the first lid element within the open end of the container, said first and second lid elements being secured together.

4,335,845

CARRIER SHEET WITH ENVELOPE LETTER SHEET DEVICE SECURED THERETO

Raymond W. Dierks, deceased, late of Pelham Manor, N.Y.; by Nicholas Noviello, Jr., executor, 10 Ely Rd., Peekskill, N.Y. 10566, and by Seymour Glass, executor, 57-11-260 St., Little Neck, N.Y. 11362

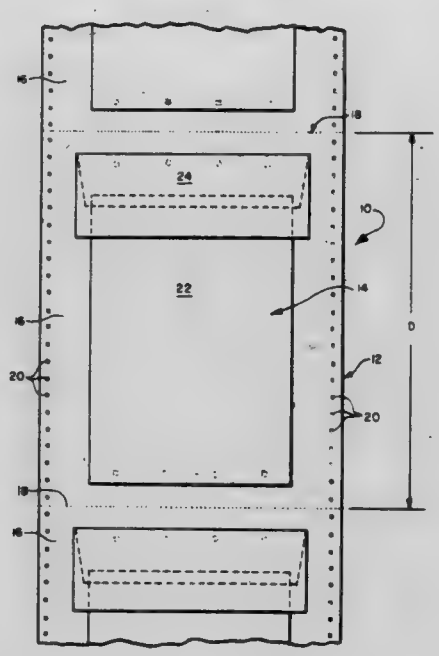
Filed Mar. 24, 1980, Ser. No. 133,332
Int. Cl.³ B65D *27/10*
U.S. Cl. 229—69 **10 Claims**

1. A carrier system comprising:

a continuous line hole punched fanfolded carrier sheet strip including sequentially aligned carrier sheet panels, each having a predetermined length;

an envelope-letter sheet device releasably secured to one of said carrier sheet panels and comprising a letter sheet portion and an envelope portion;

said envelope portion comprising a fixed rear panel having a length equal to a first distance and a closure flap portion;



said letter sheet portion extending from the free edge of said rear panel a second length equal to a second distance;

said envelope having a width greater than the width of said letter sheet and having a height equal to a third distance;

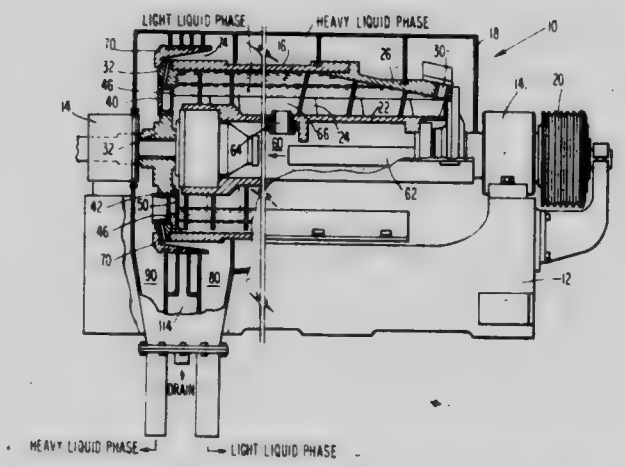
the sum of said second and said third distances, less said first distance, being equal to an amount less than the predetermined length of said continuous line hole punched fanfolded carrier sheet.

4,335,846

THREE-PHASE DECANTER

Leonard Shapiro, Upper Darby, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Jan. 15, 1981, Ser. No. 225,273
Int. Cl.³ B04B *1/20, 7/00*
U.S. Cl. 233—7 **21 Claims**



1. In a 3-phase decanter for separating solids, a light liquid phase, and a heavy liquid phase, from feed comprising a liquids-solids mixture fed into a bowl of said decanter mounted for rotation and including screw means cooperating with means for rotating said bowl for conveying said solids from said mixture out a rear portion of said bowl, the improvement comprising

a hub at a front portion of said decanter mounted for rotation with said bowl, said hub having a plurality of spaced openings therethrough,

detachable holding means mounted to each of said openings and comprising at least one light liquid phase dam holder and at least one heavy liquid phase dam holder, each of said holding means adapted to pass one of said liquid phases therethrough,

dam means having a cut-out passageway, one of said dam means carried by each of said holding means, said cut-out passageways controlling flow of one of said liquid phases therethrough in accordance with type holding means carrying said dam means,

underdams mounted between said liquid phase and said dam holders positioned for passage of said heavy liquid phase therethrough, said underdams passing said heavy liquid phase therearound and blocking passage of said light liquid phase, and

bore means disposed in said hub outwardly from said hub openings cooperating with each of said holding means for discharging said liquid phase passing through said holding means cooperating therewith.

4,335,847

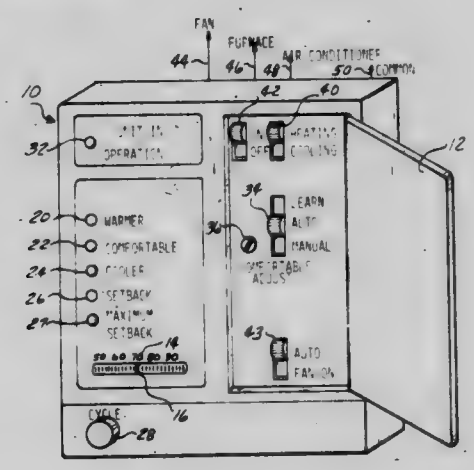
ELECTRONIC THERMOSTAT WITH REPETITIVE OPERATION CYCLE

Michael R. Levine, 2900 Heatherway, Ann Arbor, Mich. 48104

Filed May 27, 1980, Ser. No. 153,343

Int. Cl.³ F23N *5/20*; G06F *15/20*

U.S. Cl. 236—46 R **20 Claims**



1. A system for controlling the operative state of a device over a repetitive time period comprising:

a clock operative to generate digital signals representative of the time within the repetitive time period;

a digital memory;

input means for loading digital signals of desired states of the device into the memory;

means for recording the time of entry of each state signal within the repetitive time period; and

means, controlled by the clock for generating state control signals for the device over the repetitive time period, the state control signals being generated at times which are a function of their time of entry into the memory.

4,335,848

SYSTEM OF CENTRAL HEATING

Edvardas Eidejus, 2558 West 69th St., Chicago, Ill. 60629

Continuation of Ser. No. 164,689, Jun. 30, 1980, abandoned. This application May 4, 1981, Ser. No. 260,313

Claims priority, application Australia, Sep. 12, 1979, PE00435

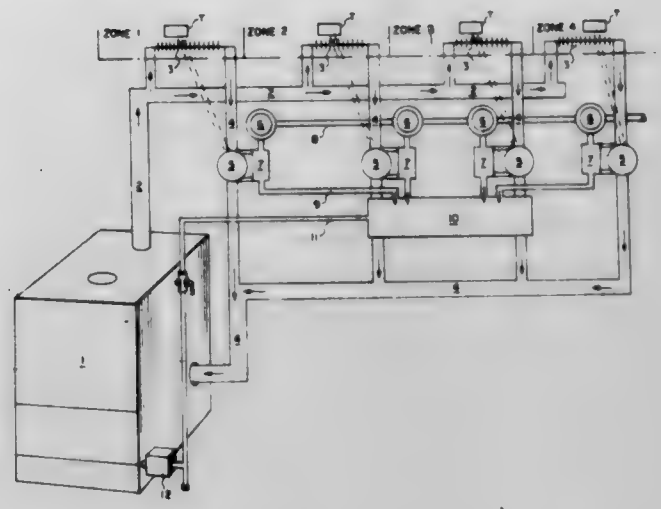
Int. Cl.³ F24D *3/02*

U.S. Cl. 237—8 R **3 Claims**

1. In a central hot water heating system including a gas fired boiler, a plurality of zones each having hot water radiator means, a return water pipe associated with each of said zones for returning water back to the boiler, and thermostat control means in each of said zones, the improvement comprising:

gas valve and metering means associated with each of said zones and communicating with the burner for said broiler;

a circulator pump connected to each of said water return pipes and operable responsive to said thermostat control means; and



gas valve actuator means connected between each of said gas valves and circulator pumps and being responsive to the operation of said pump to open its associated gas valve.

4,335,849

MOTOR VEHICLE HAVING A PASSENGER COMPARTMENT HEATING DEVICE

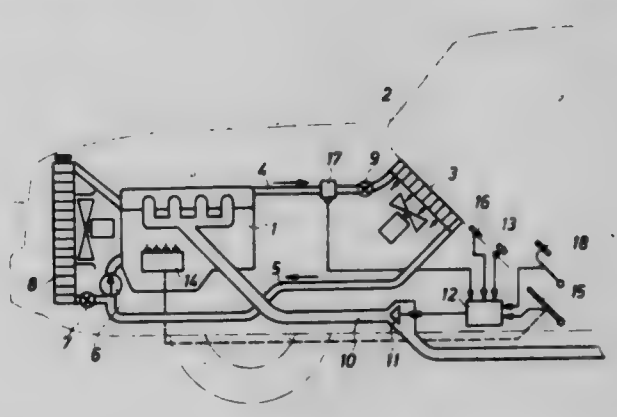
Richard van Bashuysen, Biberach, Fed. Rep. of Germany, assignor to Audi Nsu Auto Union Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 26, 1980, Ser. No. 181,618

Claims priority, application Fed. Rep. of Germany, Sep. 14, 1979, 2937165

Int. Cl.³ B60H *1/00*

U.S. Cl. 237—12.3 B **11 Claims**



1. Apparatus for heating the passenger compartment of a motor vehicle having a water cooled engine, including a cooling water circuit, and an exhaust, the device comprising:

a heat exchanger disposed in the cooling water circuit;

means for circulating air through the heat exchanger into the passenger compartment;

throttle means disposed in the engine exhaust;

means for actuating the throttle in a sense to restrict the exhaust, thereby loading the engine thus causing a rise in the engine's temperature and a corresponding rise in the cooling water temperatures; and

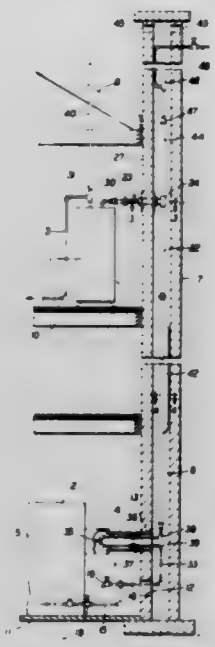
means for actuating the throttle means in an opening direction in accordance with the engine load.

4,335,850

HOT WATER HEATING SYSTEM

Ralph L. Kreps, 12134 McKaig Rd., Hanoverton, Ohio 44423

Filed Jun. 16, 1980, Ser. No. 159,678
Int. Cl.³ F24B *7/00*
U.S. Cl. 237—54 **8 Claims**



1. In combination with a home heating system and a single hot water tank which includes a furnace having a fuel combination chamber, a chimney, a flue pipe extending between the combustion chamber and chimney to carry off hot gases of combustion from the combustion chamber and into the chimney for discharge to the surrounding atmosphere, and in which the hot water tank is located in the home at least a floor above the location of the furnace and includes a cold water inlet supply line and a hot water outlet line; a first linear section of pipe connected to the water tank inlet line and extending downwardly within the chimney to a position adjacent the flue pipe; a second section of pipe connected to a supply of cold water and extending to a position adjacent the flue pipe; and a third section of pipe located within the flue pipe and extending into the fuel combustion chamber of the furnace and connected to the first and second sections of pipe whereby cold water from the cold water supply flows through the second section of pipe and into and through the third section of pipe and then upwardly in the chimney through the first section of pipe and into the water tank for subsequent discharge therefrom with the water being heated by the combustion of fuel within the fuel combustion chamber of the furnace and by the hot gases flowing through the flue pipe and chimney.

4,335,851

ELECTROSTATIC SPRAY GUN

Donald R. Hastings, Elyria, Ohio, assignor to Nordson Corporation, Amherst, Ohio

Continuation of Ser. No. 21,197, Mar. 16, 1979, Pat. No. 4,241,880. This application Dec. 24, 1980, Ser. No. 219,661
The portion of the term of this patent subsequent to Dec. 30, 1997, has been disclaimed.
Int. Cl.³ B05B *5/02*
U.S. Cl. 239—3 **9 Claims**

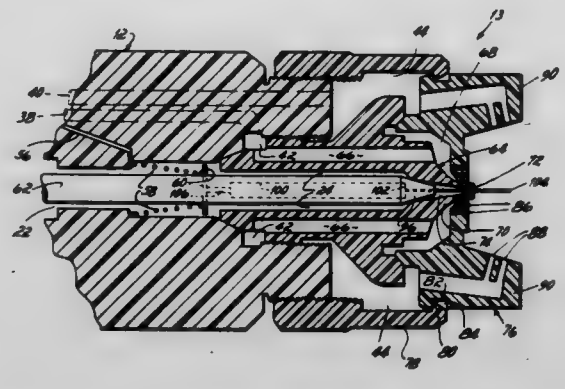
1. A method of electrostatic spray coating comprising the steps of:

dispensing a dispersed coating material toward an object to be coated from the discharge orifice of a nozzle substantially constructed of an electrically nonconductive material,

controlling the flow of said coating material through said discharge orifice of said nozzle by opening and closing a material flow control valve located in said nozzle,

imparting an electrical charge to said coating material as it is dispensed from said nozzle by means of an electrode extending from said nozzle,

supplying electrical energy from an electrical power source to said electrode sufficient to impart said charge to said coating material, and



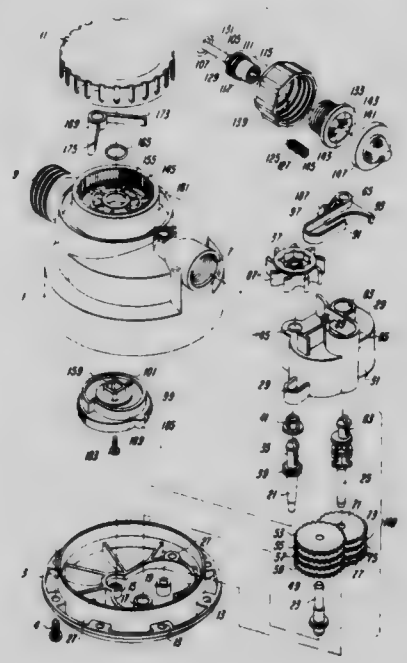
passing said electrical energy supplied to said electrode through at least a first resistor located in said material flow control valve in said nozzle to dissipate electrical energy stored between said resistor and said power source.

4,335,852

DEVICE FOR CONTROLLING THE FLOW OF FLUID

Ho Chow, River Edge, N.J., assignor to Beatrice Foods Co., Moonachie, N.J.

Filed May 1, 1980, Ser. No. 145,798
Int. Cl.³ A01G *27/00*
U.S. Cl. 239—68 **17 Claims**



1. A device for controlling the flow of fluid, comprising:

(A) a housing, the walls of which define a chamber, said housing having a fluid flow inlet and a fluid flow outlet;

(B) means rotatably mounted to and at least partially within said chamber for measuring the volume of said flow through said chamber;

(C) a pawl movably mounted within said chamber actuated by said measuring means;

(D) a cam and ratchet wheel secured to said housing and rotatably disposed within said chamber adjacent said pawl for being driven by said pawl;

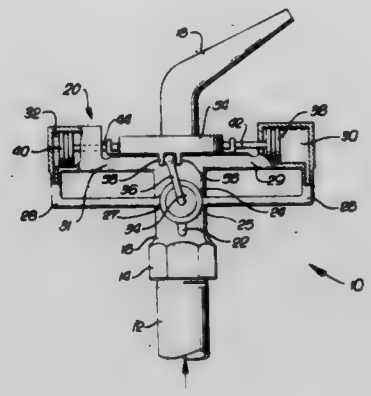
(E) a valve for controlling said flow through said chamber from said inlet to said outlet in response to the rotational disposition of said cam and ratchet wheel; and

(F) a means for manually rotating said cam and ratchet wheel.

4,335,853
MOTION TRANSMISSION DEVICE

Robert S. Szemeredi, Sunland, and Edward M. Troup, Mt. Baldy, both of Calif., assignors to Lyntone Engineering, Inc., Glendora, Calif.

Filed Apr. 28, 1980, Ser. No. 144,433
Int. Cl.[3] B05B *3/04;* F16H *27/02*
U.S. Cl. 239—239 27 Claims

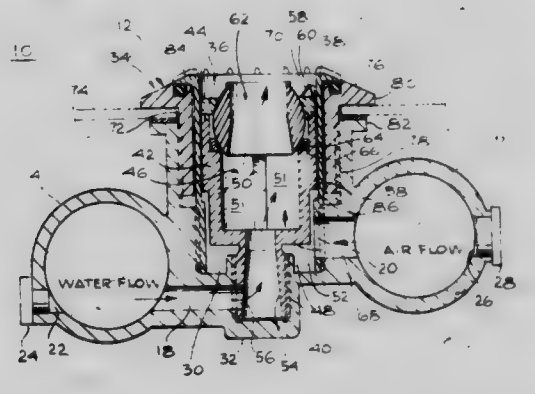


1. A linear to rotary motion transmission device, comprising:
a rotatable pinion having engageable driven means formed integrally thereon; and
a reciprocating member having drive means formed integrally thereon for engagement with said driven means on opposite sides of said pinion, one of said drive and driven means comprising a plurality of ratchet teeth, and the other of said drive and driven means comprising a plurality of flexible pawls engageable with a plurality of said ratchet teeth at each of said opposite sides of said pinion for alternating driving engagement between said pawls and teeth on one side of said pinion and sliding non-driving engagement between said pawls and teeth on the other side of said pinion throughout reciprocation of said reciprocating member.

4,335,854
ADJUSTABLE SPA JET WATER AERATOR

Arturo S. Reynoso, 27933 Oakmoor, Canyon Country, Calif. 91351

Filed Jun. 6, 1980, Ser. No. 157,007
Int. Cl.[3] A61H *33/02;* B05B *7/00, 15/08*
U.S. Cl. 239—428.5 13 Claims

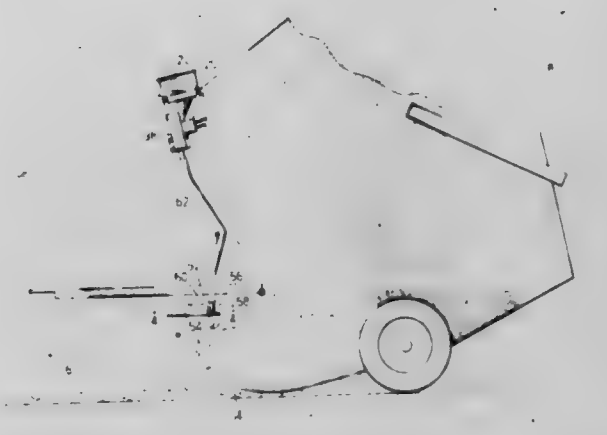


1. An adjustable spa jet aerator, comprising a housing having a passageway therein, said housing having a first inlet opening adapted to communicate with a source of pressurized water, said housing having a second inlet opening adapted to communicate with a source of pressurized air, effluent control means for varying the ratio of air to water mjxture emitted from said aerator, said effluent control means including air flow adjusting means secured in said passageway, and water flow adjusting means secured in said passageway, said effluent control means enabling independent control of air flow and/or water flow from said aerator, wherein said air flow adjustable means and water flow adjustable means are concentrically disposed in said passageway.

4,335,855
DRY PARTICLE DISTRIBUTOR FOR THE TREATMENT OF FORAGE

Maynard L. Staskal, Rte. 4, Box 40, Boscobel, Wis. 53805, and Alvin J. Eissens, 539 S. Madison, Lancaster, Wis. 53813

Filed Jun. 27, 1980, Ser. No. 163,720
Int. Cl.[3] A01C *15/04*
U.S. Cl. 239—654 7 Claims

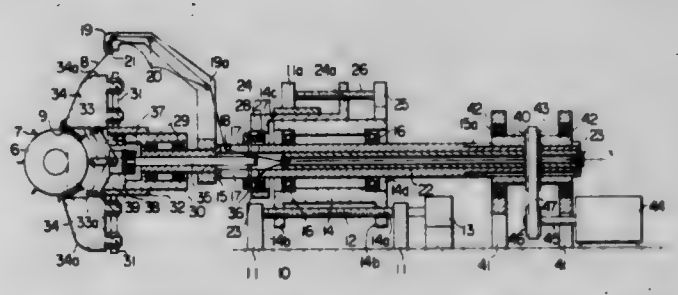


1. A distributor (10) of dry, particulate material released in metered amounts by a hopper (22) for the treatment of forage in a mechanical baler (12), comprising
(a) a manifold (30) having an air inlet (34) and at least one air outlet (32),
(b) an air blower (38) adapted to discharge into the air inlet (34) of the manifold (30),
(c) a blender (40) having an air tube (48) with a selected inside diameter with inner surfaces defining a constricted area (42) therein communicating with the air outlet (32) and adapted to receive air therefrom and a particulate material discharge tube (50) adapted to receive particulate material from the hopper (22), the particulate material discharge tube (50) having a selected outside diameter less than the inside diameter of the air tube (48) and extending within the air tube (48) for a selected distance to discharge substantially at the constricted area (42), and
(d) a distributor nozzle (52) communicating with the blender (40) and adapted to receive air and suspended particulate material therefrom and disperse the suspended particulate material over the forage.

4,335,856
COIL WINDING MACHINE

Yasuhiro Fuzita, Yokosuka, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 17, 1980, Ser. No. 140,961
Claims priority, application Japan, Apr. 20, 1979, 54/47965
Int. Cl.[3] H02K *15/04*
U.S. Cl. 242—7.05 B 4 Claims



3. A coil winding device for winding a coil around a smooth core armature comprising:
(A) a spindle having a shaft and a flyer secured thereto for winding a wire about an iron armature core on a cylindrical peripheral surface of the iron armature core;

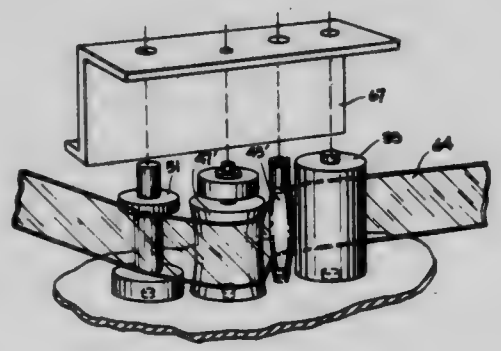
(B) mounting means for mounting said spindle in a rotatably and axially displaceable manner;
(C) spindle drive means for rotating the shaft and flyer;
(D) wire guide means for guiding the wire to be wound about said armature core by said flyer toward the armature core, said wire guide means comprising a housing rotatably journaled to an end of said spindle, a pair of wire guides, means mounting said wire guides to said housing for displacement radially of said spindle toward and away from each other, adjusting means for radially adjusting the position of said wire guides, and retaining means for engaging an armature core located at least partially between said wire guides with its longitudinal axis disposed normal to said spindle and directions in which the wire guides are displaceable for preventing rotation of the wire guides relative to the armature core; and
(E) synchronized drive means for radially and axially displacing said wire guides relative to the cylindrical surface of said armature while said wire is wound about said armature core by rotation of said shaft and flyer, whereby circumferentially adjacent windings are produceable on said cylindrical surface of the armature core, said synchronized drive means comprising a first drive means for axially displacing said spindle and a second drive means connected to said adjusting means for radially displacing the wire guides.

4,335,857

WEB ALIGNING SYSTEM

R. Fred Pfost, Los Altos; William E. Seaman, Woodside, and Chester W. Newell, San Jose, all of Calif., assignors to Newell Research Corporation, Saratoga, Calif.

Filed Jun. 24, 1980, Ser. No. 162,505
Int. Cl.³ G03B *1/04;* G11B *15/32*
U.S. Cl. 242—192 **13 Claims**



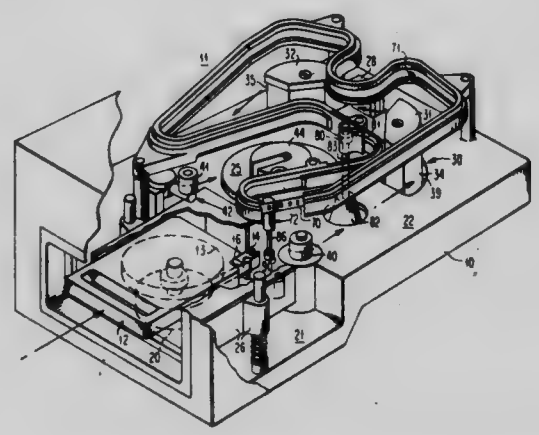
1. A web guide system comprising,
a horizontal reference surface over which a web path is defined between a transducer and a web source having a fixed width web with opposite edges,
a first web guide member between the transducer and the source, the guide partially defining said web path by said web being partially wrapped about said guide, the guide having an upright axis relative to the reference surface and having a web contact surface exceeding the width of the web and having a symmetrical arcuate profile, shallow enough so that web contact is maintained across the surface when the web travels past the guide but great enough to exert axial self-alignment forces on the part of the web in contact with said web contact surface of the guide, without edge guide contact with the web,
a crown member with a symmetrical arcuate profile positioned between the transducer and the source, spaced from the first web guide member, the member partially defining the web path proximate to said web guide by said web being partially wrapped about said member, said member having a width at least equal to the web and having an upright axis generally parallel to the web guide, said member adapted for axial motion, one of the profiles of the web guide and crown member being concave, the other convex whereby said proximate first web guide urges a moving web toward said crown member in such a manner as to tend to position said member toward the center of its range of axial movement, thus stabilizing the axial motion of the member, without edge guide contact with the web, and whereby said crown member seeks an axial position such that the path lengths of the web edges from transducer to the source are substantially equal, and
a flanged edge guide partially defining the web path between said transducer and said crown member or said web guide whereby said flanged edge guide registers said web transversely with respect to said transducer.

4,335,858

APPARATUS FOR THREADING TAPE OVER A TAPE PATH INCLUDING A CHANNEL CONFORMING TO SAID PATH

Darlene K. N. Cranna, 9800 E. Rosewood St., Tucson, Ariz. 85710, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,732
Int. Cl.³ G03B *1/04, 1/56;* G11B *15/32*
U.S. Cl. 242—195 **5 Claims**



1. In an automatic threading apparatus for moving a leader block attached to the leading end of web material wrapped on a supply reel positioned on a web transport over a complex web path from a first predefined position to a second position which couples said leader block to a take-up reel having a hub disposed on said transport for subsequent conjoint rotational movement with said take-up reel about the axis of rotation of said take-up reel during winding and unwinding of web material on and off said take-up reel, which includes:
a device adapted to selectively couple said leader block to said device at said first predetermined position which permits rotation of said block relative to said device about a first axis parallel to the axis of said reels;
a mechanism for moving said device and said coupled leader block from said first predetermined position to said second position to dispose said first axis coaxially with the axis of said take-up reel and said web material in winding relationship to the hub of said take-up reel, and for guiding said coupling device during movement over a predetermined path which corresponds to said tape path, said mechanism comprising in combination:
a continuous guide band;
a continuous channel member defining a closed path, a major portion of which corresponds to said complex tape path, said channel including upper and lower guide slots for holding upper and lower edges of said guide band for sliding movement relative to said channel;
means for permanently attaching said device to said guide band to permit rotation of a coupled leader block relative to said first axis when said leader block is positioned to rotate with said take-up reel during winding or unwinding of the tape; and
means for driving said band lengthwise through said channel in either direction to move said coupling device from a

first position adjacent said supply reel to a second position where the coupled leader block is positioned to rotate with said take-up reel and position said attached tape in a pre-wrap relationship with the hub of said take-up reel.

4,335,859

DEVICE TO REMOVE BOBBINS FOR AN OPEN END SPINNING MACHINE

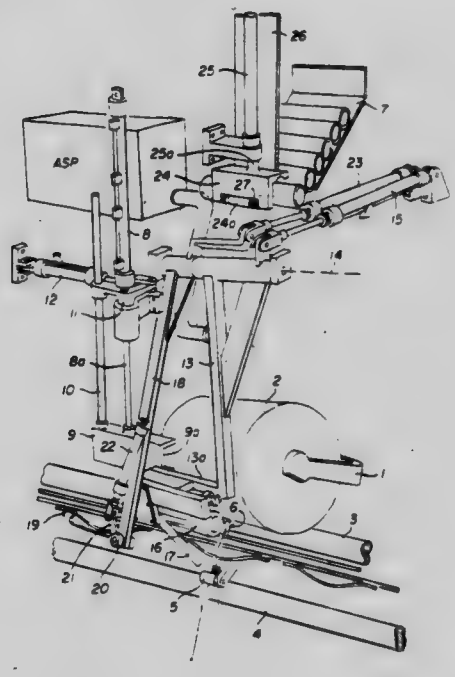
Guy Courvoisier, Geneva, Switzerland, assignor to Officine Savio S.p.A., Pordenone, Italy

Filed Apr. 3, 1980, Ser. No. 137,291

Claims priority, application Switzerland, Apr. 5, 1979, 3178/79

Int. Cl.³ B65H *54/26, 67/04*

U.S. Cl. 242—35.5 A **10 Claims**



1. A device to remove bobbins for an open-end spinning machine, wherein each bobbin is installed so as to rotate between two elastic holding elements of a supporting stirrup joined in an articulated manner to the frame of the machine, and rests against a drive shaft of said machine, comprising:

a gripping element for activating said stirrup, first and second rods pivotally fixed to said gripping element permitting that element a direction of movement in a plane perpendicular to the axis of articulation of said stirrup and adjacent to the inner face of one of the elements thereof,

a swivelling element mounted on said rods to give said gripping element pivotable on said rods a direction of movement in a plane at right angles to the previous plane,

hydraulic means to move said gripping element according to each of said directions of movement and between at least two respective limit positions,

an arm to discharge the bobbin pivotable around an axis, an attachment to said arm that defines a trajectory of said arm which is passable between the elements of the stirrup when the stirrup is free of a dischargeable bobbin,

a first jack to move said arm along its trajectory between at least two limit positions of rest and discharge,

a yarn-suction pipe pivotally fixed to said attachment to draw yarn into said pipe during bobbin discharge and rewinding,

a winding tube transfer mechanism, a second jack associated with said mechanism to transfer a tube from a supply storage point to a position between the holding elements of the stirrup, and

shears within said attachment to free the yarn in said suction pipe when the arm is in its discharge position.

4,335,860

ELECTRIC HOUSEHOLD BLENDER WITH MOTOR ENABLED BY LID LOCKING

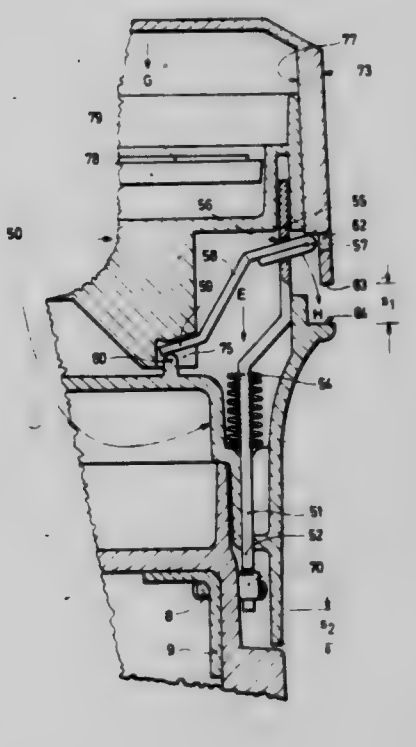
Johannes Grandel, Frankfurt am Main, and Günther Falkenbach, Eschborn, both of Fed. Rep. of Germany, assignors to Braun AG, Frankfurt, Fed. Rep. of Germany

Filed Jan. 31, 1980, Ser. No. 117,332

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1979, 2904498

Int. Cl.³ B02C *18/12, 23/04*

U.S. Cl. 241—37.5 **5 Claims**



1. An electric household blender comprising:

(a) a motor bse (4) mounting a motor and an electrical operating switch (27) therefor;

(b) a blender attachment (50) having a housing, rotating cutting tools and a removable lid (73), said attachment being mountable on the motor base such that said cutting tools may be driven by said motor;

(c) a lock ring (9) provided with a plurality of outwardly extending lock pins (8), said lock ring being rotationally movable within said motor base about a longitudinal axis thereof and including means (25) for enabling the motor operating switch to be turned on and off;

(d) a plurality of springs;

(e) a plurality of lock pin supports (51) in the form of bars, the two ends of which are vertically disposed, said bars each having a center portion bent with respect to said ends, said lock pin supports being guided on said attachment housing and being vertically movable against the force of said springs; and

(f) a plurality of lock levers (58) individually cooperating with said lock pin supports in a camming manner, said lock levers being mounted for pivotal movement about horizontal axes and having free ends (57) movable into openings (62) in said lid upon its depression, the depression of said lid camming said lock pin supports downwardly to enable the rotation of said lock ring and lock pins, whereby said operating switch may not be turned on to energize the motor and drive the cutting tools unless the blender attachment is properly mounted on the motor base and the lock ring is rotated.

4,335,861

SHELVING SYSTEM

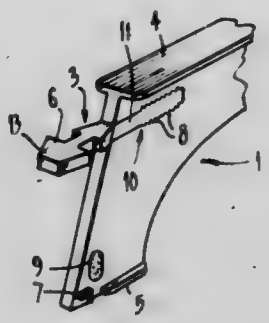
Dinko Klaric, 165 City Rd., South Melbourne, Victoria, 3205, Australia

Filed Apr. 29, 1980, Ser. No. 145,497

Claims priority, application Australia, May 2, 1979, PD8622; May 22, 1979, PD8914

Int. Cl.³ A47G *29/02;* E04G *3/08;* E06G *7/28*

U.S. Cl. 248—246 **10 Claims**



1. A shelving system comprising a shelf bracket formed of a first material and having a top load carrying edge, fixing means on said bracket adapted to fix said bracket to a longitudinally extending substantially vertical slotted member having an elongated vertical slot, characterized in that said fixing means comprises an insert formed of a second material of higher tensile strength than said first material, said fixing means having a portion firmly embedded in the bracket at or near the top load carrying edge thereof and a free end extending from said bracket, and abutment means adjacent the bottom edge of the bracket, the free end of said insert being shaped to engage the slotted member whilst said abutment means abuts against the slotted member, whereby the bracket is firmly held in position on said slotted member by cantilever action between the bracket and the slotted member when a load is placed on the bracket.

4,335,862

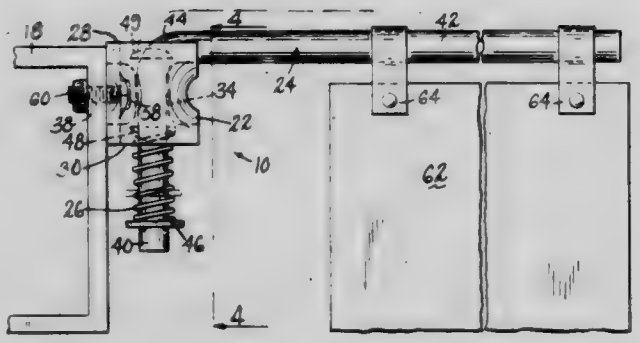
MOD FLAP MOUNTING DEVICE

Robert F. Sherman, 397 First St., Brooklyn, N.Y. 11215

Filed Dec. 31, 1979, Ser. No. 108,411

Int. Cl.³ E04G *3/00*

U.S. Cl. 248—289.1 **17 Claims**



1. A mud flap mounting device for mounting a mud flap to the frame rail of a trailer truck comprising:

a frame member having an upper surface and forward and rearward end portions, said forward end portion having means to facilitate mounting to a frame rail so that said rearward end portion extends beyond the frame rail,

said upper surface having a recess located at said rearward end portion of said frame member so that said recess is positioned beyond the frame rail when said frame member is mounted to said frame rail, said recess having first and second end portions in approximately linear alignment,

a generally L-shaped support rod for attachment to a mud flap having a first leg, a second leg, and an arcuate portion therebetween, said support rod being rotatably mounted to said frame member to rotate approximately 180 degrees between first and second positions with said second leg received in said first end portion of said recess in said first position and received in said second end portion of said recess in said second position, said recess substantially encompassing said arcuate portion and being of a depth to encompass at least one-half of the transverse dimension of said second leg, and

biasing means yieldably maintaining said support rod in said recess, said biasing means retaining said rod in said recess during trailer truck operation but allowing upward manual movement of said rod outwardly of said recess for manual rotation of said rod between said first and second positions.

4,335,863

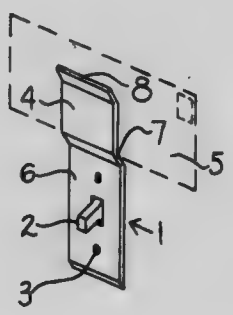
HOLDING DEVICE FOR ATTACHMENT TO ELECTRICAL INSTALLATIONS

John W. Rapps, 1683 Westervelt Ave., Baldwin, N.Y. 11510

Filed Mar. 28, 1980, Ser. No. 134,882

Int. Cl.³ A47F *5/00;* H05K *5/03*

U.S. Cl. 248—316 D **14 Claims**



1. Holding device for attachment to electrical installations installed in walls, comprising a base portion, means for attaching said base portion to the electrical installation, and a planar flange portion integral with and extending outwardly from said base portion substantially parallel to and along the surface of the wall forming a double-walled pocket for holding articles between said flange and the surface of the wall in which said electrical installation is installed.

4,335,864

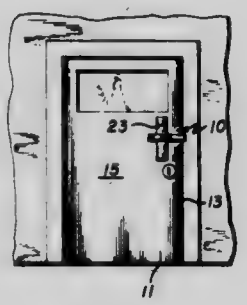
NEWSPAPER HOLDER

Marjorie A. Merlini, 36-1 Briarwood La., Marlboro, Mass. 01752

Filed Apr. 11, 1980, Ser. No. 139,461

Int. Cl.³ A47F *5/00*

U.S. Cl. 248—316 D **5 Claims**



1. Newspaper holder for use on a door, comprising:

(a) a generally U-shaped clip consisting of a first leg, adapted to lie against the inner surface of the door, a base adapted to lie against the edge surface of the door, and a second leg adapted to lie against the outer surface of the door, the legs of the clip converging toward one another away from the base to provide a substantial clamping force when applied to the edge of the door, and

(b) a bow extending from the clip across the surface of the door and having an outer end that engages the surface of the door with substantial pressure, the clip and the bow

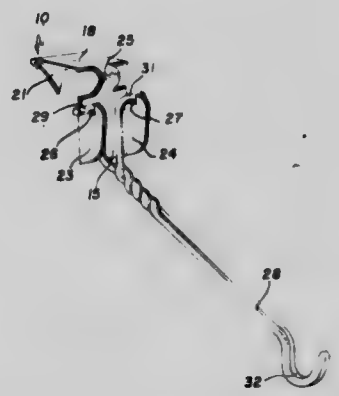
being integrally formed from a single strip of material, the free end of the first leg being provided with a portion bent outwardly to prevent damage to the surface of the door and the free end of the bow being provided with a similar portion curved away from the surface of the door, being formed in the base of the clip to enable the holder to be fixed to the end of the door and facilitate storage of the holder when it is not in use.

4,335,865

CURTAIN ROD BRACKET

Joseph A. Cormier, 136 Main St., Spencer, Mass. 01562

Filed Oct. 9, 1979, Ser. No. 83,114
Int. Cl.³ F16M *13/00*
U.S. Cl. 248—558 **2 Claims**



1. Curtain rod bracket, comprising:

(a) a main body in the form of a flat plate adapted to lie vertically along the front surface of a window casing,

(b) an upper body in the form of a flat plate adapted to lie along the upper horizontal surface of the casing,

(c) a pointed holding member extending downwardly from the inner end of the upper body and adapted to lie between the casing and the wall,

(d) a pair of spaced, parallel wings each extending forwardly from the main body to engage and hold a curtain rod, and

(e) a deformable arcuate connector which is substantially narrower than the upper body and the main body, said connector being integral with the main body and the upper body and joining the central portion of the forward edge of the upper body to the central portion of the upper edge of the main body, thus permitting the distance from the main body to the holding member to be adjusted to the exact thickness of the casing, each wing being provided with a notch at its upper portion, and a hanger being provided that has a Y-form shape which includes two arms and a single leg joined to the two arms, each of the two arms engaging and being supported by a notch, and the leg having a hook to support a decorative object.

4,335,866

FLOW CONTROL DEVICE

Albert F. Bujan, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Division of Ser. No. 77,456, Sep. 20, 1979, Pat. No. 4,285,492.
This application Jun. 25, 1981, Ser. No. 277,309
Int. Cl.³ F16K *7/06*; A61M *5/14*
U.S. Cl. 251—9 **11 Claims**

1. A tubing clamp for regulating flow of fluid through a length of flexible tubing comprising:

a clamp body defining a surface for supporting a length of flexible tubing having a longitudinal axis;

opposing walls extending from said support surface and presenting a passage for said tubing;

a platen mounted between said walls for contacting said tubing;

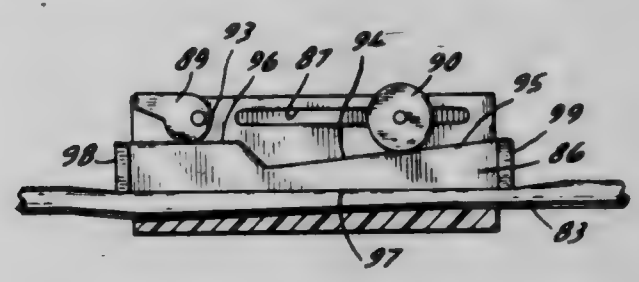
guide surfaces arranged in said walls;

a first rotatable member positioned to be guided by said guide surfaces;

said platen constructed and arranged to be movably positioned between said first rotatable member and said tubing;

said platen presenting a compression surface against said tubing substantially along and over the path of travel of said first rotatable member, and cooperating with said first rotatable member to exert an incremental compressive force on said tubing and by means of said platen to distribute the compressive force of said first rotatable member over a wide area of said tubing including a substantial distance along its longitudinal axis; and

a second rotatable member operatively positioned within said clamp body and arranged to cooperate with said first rotatable member and said platen to exert an incremental compressive force upon said tubing whereby said first rotatable member and said second rotatable member provide separate control means for coarse and fine regulation of said flow of liquid through said flexible tubing;



said second rotatable member comprises a cam having oppositely disposed pins extending therefrom, said pins extending into said opposing walls so as to support said cam; said cam in a first operating position being effective to compress said platen against said tubing; said cam being rotatable to a second operating position in which said compression of said tubing by said platen is released;

said first rotatable member comprising a roller having pins extending therefrom with said pins positioned in said guide surfaces; said cam having a smaller radius than said first rotatable member whereby movement of said first rotatable member along said guide surfaces and movement of said cam in said supporting walls is effective to contact said first rotatable member initially against said platen so as to pivot said platen against said tubing thereby compressing said tubing and consequently constricting said flow of said liquid through said tubing; movement of said cam against said platen being effective to further compress said platen against said tubing thereby further compressing said tubing so as to incrementally increase or decrease said flow of said liquid in minute quantities.

4,335,867

PNEUMATIC-HYDRAULIC ACTUATOR SYSTEM

John A. Bihlmaier, 840 N. Maplewood St., Orange, Calif. 92667

Filed Oct. 6, 1977, Ser. No. 839,924
Int. Cl.³ F15B *13/042, 13/16*; F16K *31/12*
U.S. Cl. 251—28 **17 Claims**

1. An actuator system capable of controlling a linear output in response to a control signal input, comprising:

an output member;

hydraulically actuated piston means for producing forced linear movement and positioning of said output member;

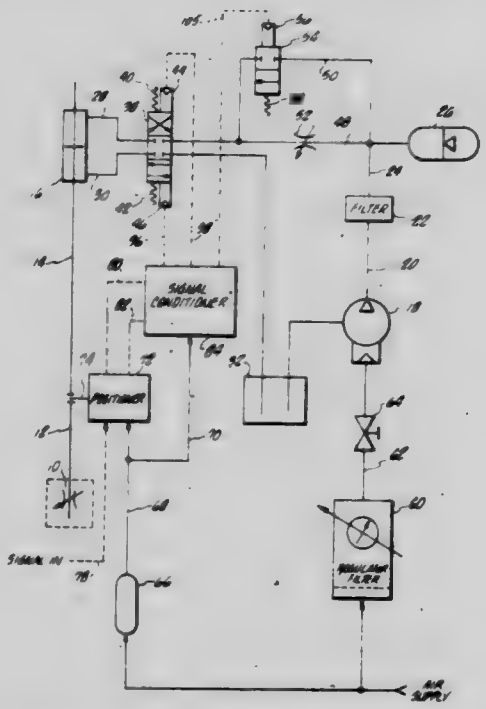
hydraulic source means capable of providing pressurized hydraulic fluid and receiving exhausted hydraulic fluid;

valve means for selectively providing communication between said hydraulic source means and said hydraulically actuated piston means for actuation thereof, said valve means being in hydraulic communication with said hydraulically actuated piston means and with said hydraulic source means;

a pneumatic supply system having pneumatic source means for providing pressurized air;

pneumatic valve control means for controlling the position of said valve means; and

a pneumatic positioner system including a pneumatic positioner, a feedback link extending from said positioner into association with said output member to sense the location of said output shaft, control signal input means for said positioner to receive the control signal input, a plurality of positioner system output signal lines, said positioner being in pneumatic communication with said pneumatic source means, said pneumatic positioner system being designed and constructed to selectively provide pneumatic pressure



to said positioner system output signal lines, as determined by the control signal input, in response to the position of said output member, at least two of said positioner system output signal lines being in pneumatic communication with said pneumatic valve control means, and a signal conditioner receiving the outputs of said positioner and pressurized air from said pneumatic source means and being in communication with said positioner system output signal lines, said signal conditioner having regulator means for limiting the maximum pressure thereto from the outputs of said positioner and amplifier and differential pressure sensor valves being in communication with said regulator means, to amplify and condition the output therefrom to said positioner system output signal lines.

4,335,868

DEVICE ADAPTED TO AFFORD PROTECTION AGAINST FALLING ROCKS AND AVALANCHES IN MOUNTAINOUS TERRAIN

Hans Ribbert, Unterheufeld 11, 8202 Bad Aibling, Fed. Rep. of Germany

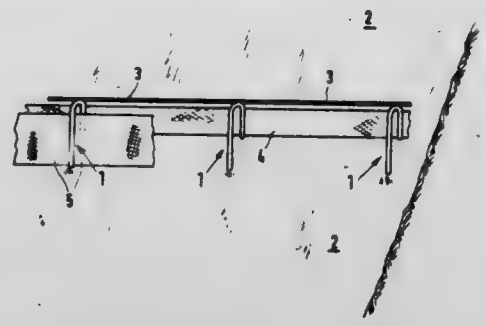
Filed Apr. 2, 1980, Ser. No. 137,116

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1979, 2910239

Int. Cl.³ E01F *7/00*

U.S. Cl. 256—1 **10 Claims**

1. A device adapted to afford protection against falling rocks and avalanche in mountainous terrain, comprising a plurality of supporting members adapted to be attachable to securing means provided in the terrain, at least two of said supporting members supporting a guard net or a guard plank arrangement, the individual supporting members being interconnected, characterized in that the supporting members are U-shaped curved



bars, the end portions of whose legs can be sunk into securing means installed in the terrain and are hence secured.

4,335,869

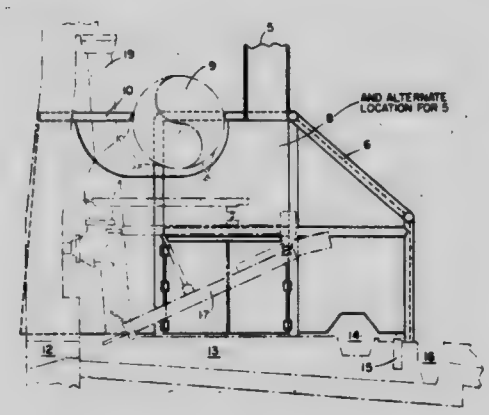
IRON BLAST FURNACE CASTING CAGE

A. Leslie Miller, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jun. 2, 1980, Ser. No. 155,426

Int. Cl.³ C21B *7/22*; C21C *5/38*

U.S. Cl. 266—158 **6 Claims**



1. An iron blast furnace with a casting cage comprising an enclosure for substantially surrounding a blast furnace tap hole and auxiliary equipment and having means defining an upper wall portion disposed above said tap hole and auxiliary equipment and a side wall portion extending generally downwardly from said upper wall portion, an access means in said side wall, an exhaust opening formed in one of said wall portions, said upper and side wall portions adapted to be disposed in a closely surrounding relation to said tap hole, auxiliary equipment and the floor of the cast house, and exhaust means extending from said exhaust opening for withdrawing pollutants generated in said cage.

4,335,870

COOLING ELEMENT FOR USE IN METALLURGICAL FURNACES

Arnulf Diener, Dortmund; Walter Laucht, Hagen, and Eugen Icking, Witten, all of Fed. Rep. of Germany, assignors to Hoesch Werke Aktiengesellschaft, Dortmund, Fed. Rep. of Germany

Filed Dec. 7, 1979, Ser. No. 101,226

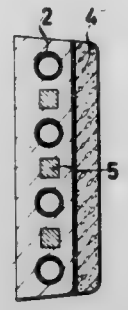
Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903104

Int. Cl.³ F27B *1/24*

U.S. Cl. 266—193 **7 Claims**

1. A cooling element for use in metallurgical furnaces, comprising a body of steel cast at a temperature above the liquidous point and having a surface adapted to face inwardly of the furnace; a pluralitiy of steel tubes embedded in said body and adapted to have cooling fluid circulated through them; and means embedded in said body spaced from said steel tubes and operative for absorbing, during the casting of said body, the temperature differential which arises between the casting tem-

perature and the liquidous point; said means comprising steel members to absorb heat for preventing melting of said steel tubes during casting of said body; said steel tubes forming



channels for conducting said cooling fluid, said steel tubes preventing development of cracks in walls of said channels from defects and cracks which may be present in said cast body.

4,335,871

PRESSURIZED FLUID DEVICE

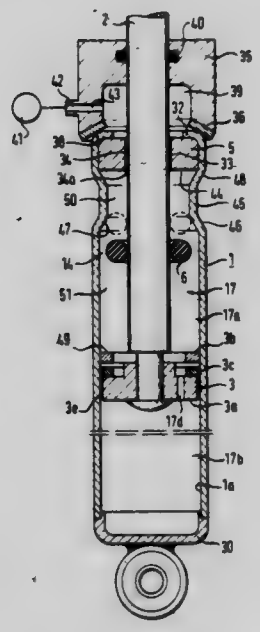
Werner Mölders, Plaidt, Fed. Rep. of Germany, assignor to Stabilus GmbH, Koblenz-Neuendorf, Fed. Rep. of Germany

Filed Feb. 1, 1980, Ser. No. 117,658

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905511

Int. Cl.[3] F16F *9/36, 9/43*

U.S. Cl. 267—64.28 25 Claims



1. A pressurized fluid device comprising container means, a cavity defined within said container means, a piston rod passage through said container means, a piston rod having an outer cylindrical face introduced into said cavity through said piston rod passage and movable with respect to said container means, means defining first and second compartments within said cavity, a filling passage in said container means defined at least in part by said piston rod passage and having an inner end adjacent said second compartment for introducing a pressurized fluid into said cavity, an annular closure member carried by said piston rod within said cavity and adapted to be located in a sealing position with respect to said inner end of said filling passage during operation of the device, said annular closure member being movable within said cavity along with said piston rod from a filling position in said first compartment to an intermediate position in which said annular closure member separates said first compartment containing pressurized fluid from said second compartment which is in communication with the surrounding atmosphere by said filling passage, so that after movement of said closure member to said intermediate position by said piston rod the closure member is further moved toward said sealing position by the pressure within said fist compartment while expelling the fluid within said second compartment through said filling passage.

4,335,872

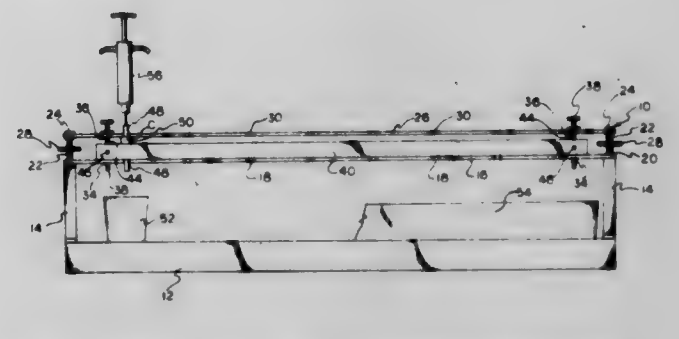
SAMPLE PREPARATION SUPPORT APPARATUS

Michael E. Caplis, 676 N. 50 West, and Larry S. Eichmeier, 210 Coolwood Dr., both of Valparaiso, Ind. 46383

Filed Mar. 10, 1980, Ser. No. 129,114

Int. Cl.[3] B25B *1/20*

U.S. Cl. 269—43 6 Claims



1. A sample preparation support apparatus comprising:

upright end members;

a first plate member supported on said upright end members, said first plate member having a plurality of spaced notches formed along the side thereof;

a second plate member having a plurality of spaced notches formed along the side thereof;

means supporting said second plate member vertically spaced over said first plate member, said notches in said first and second plate members being in vertical alignment; and

an elongated bar member removeably connected between said first and second plate members, said elongated bar member being contiguous to said first and second plate members.

4,335,873

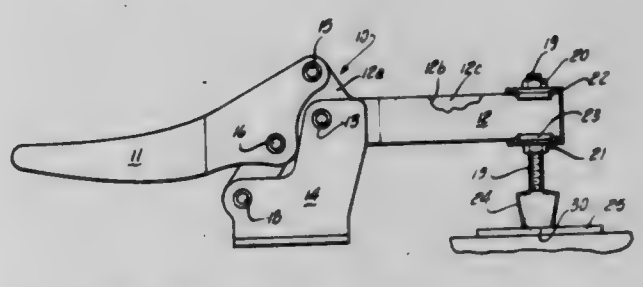
TOGGLE BOLT CLAMP

Henry Kiefer, Troy, Mich., assignor to C. J. Edwards Company, Royal Oak, Mich.

Filed May 21, 1980, Ser. No. 151,845

Int. Cl.[3] B25B *1/14*

U.S. Cl. 269—228 10 Claims



1. In combination, an axially extending screw threaded plunger, an elastomeric work engaging bumper having a body axially spacing a work engaging surface and an abutment surface, the bumper and one end of the plunger having coaxial telescoping portions removably secured together in closely interfitting relationship one within the other, said one end of the plunger abutting said abutment surface of the bumper, the interior telescoping portion extending coaxially into a mating axially opening socket in the exterior telescoping portion and having a cross-section slightly greater than the cross-section of said socket to effect an interference fit therein stressing the elastomeric material of said bumper, and means in addition to said interference fit yieldably resisting relative axial displacement between said telescoping portions comprising a screw threaded portion of said bumper extending axially from said abutment surface for a minor part of the axial extent of said

telescoping portions, the remaining major axial extent of the telescoping portion of said bumper comprising in its unstressed condition prior to assembly with the plunger a smooth unthreaded surface for effecting an interference fit with the telescoping portion of said plunger, the elastomeric material of said unthreaded bumper surface stressed by said interference fit projecting resiliently within its elastic limit into the screw threads of said plunger.

4,335,874

SHEET COUNTING APPARATUS

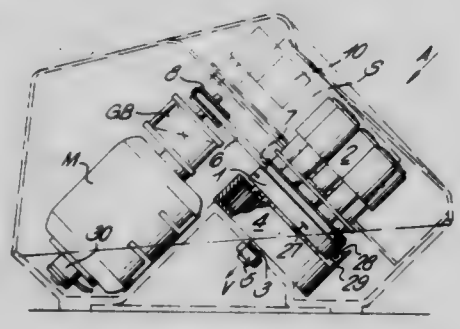
Ron Shier, Ryde, and Roger F. E. Doyle, Havant, both of England, assignors to De La Rue Systems Limited, London, England

Filed Dec. 5, 1979, Ser. No. 100,459

Claims priority, application United Kingdom, Dec. 8, 1978, 47671/78

Int. Cl.³ B65H *3/12*

U.S. Cl. 271—95 **9 Claims**



1. Apparatus for counting flexible sheets contained in a stack, the apparatus comprising means for clamping one end of a stack of sheets; a rotary sheet removing assembly including a plurality of suction organs which are arranged, on rotation, sequentially to contact the side face of the free end of the stack and to remove the sheets from their initial position in the stack; counting means to count each sheet removed; drive means to rotate said sheet removing assembly in a forward direction, said drive means comprising a driving motor adapted to drive said rotary assembly via a gear box having two selectively engageable gear trains, one providing a normal running speed for counting and the other providing a lower running speed for indexing prior to a counting operation, and indexing means to energize said drive means to rotate said rotary assembly, prior to a counting operation, to a start position in which a suction organ is effectively positioned in alignment with the side face of the stack.

4,335,875

JOGGING ROPE HARNESS

Orville E. Elkin, 2808 S. Robinson Dr., Winnsboro, La. 71295

Filed Nov. 14, 1980, Ser. No. 207,064

Int. Cl.³ A63B *23/00*

U.S. Cl. 272—70 **3 Claims**



1. A jogging rope harness for improving a jogger's body posture and equilibrium while running, walking and the like, said harness comprising a rope member of sufficient and fixed length to extend across a back of the user and having the ends terminating proximate the hands of the user, looped hand supports formed by each of the ends for receiving the hands of the user and being formed so the respective ends are secured onto an adjacent portion of the rope member forming the looped hand supports, an elongated cylindrical collar of soft cushioning material having a portion of a surface of the elongated cylindrical collar for engaging the jogger's body and having the rope member axially extending fixedly through the entire length of the elongated cylindrical collar, said elongated cylindrical collar being positionable about the jogger's upper torso and neck to facilitate supporting of said jogger's arms.

4,335,876

JOUSTING GAME

W. Gary Westernoff, 7538 Huialoha St., Honolulu, Hi. 96825

Filed May 27, 1980, Ser. No. 153,068

Int. Cl.³ A63B *71/02*; B62J *39/00*

U.S. Cl. 273—1 R **7 Claims**



1. A jousting game comprising a jousting arm assembly which includes a jousting arm, means for elevating or depressing the jousting arm, and means for mounting the jousting arm assembly on the handle bar of a bicycle; the means for elevating or depressing the jousting arm includes a jousting arm collar with a central opening and two spaced threaded openings in its periphery, one at its top and the other at its side, and a control lever, one end of the control lever is threaded and is threadedly secured to the top peripheral opening, and one end of the jousting arm is threaded and is threadedly secured to the other peripheral opening.

4,335,877

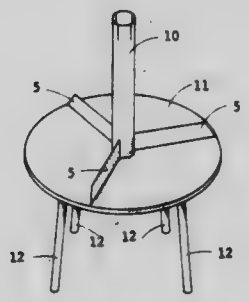
ROUND TABLE TENNIS TABLE

Donald L. Long, 5772 E. 12th St., Tucson, Ariz. 85711

Filed Jun. 27, 1980, Ser. No. 163,931

Int. Cl.³ A63B *61/00*

U.S. Cl. 273—30 **1 Claim**



1. A game table designed for playing variations of table tennis with standard table tennis balls and paddles, comprising:

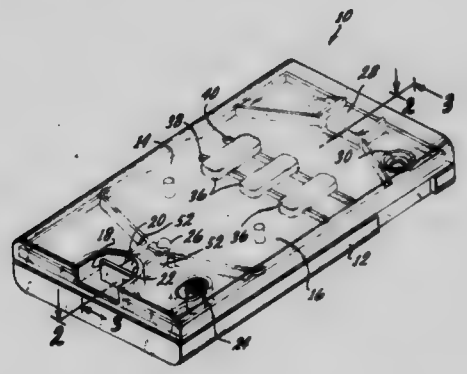
(a) a table member having a planar playing surface of circular shape on its upper surface;
(b) a plurality of panels radiating from the center of the upper surface of the table member to the edge of the upper surface of the table member, said panels radially dividing the upper surface of the table into equal sized sections, said dividing panels having an upper edge which is parallel to the lower edge, the inner shorter edge of the dividing panels extending upward at a 90° angle from the center of the playing surface and the outer short edge sloping inwardly from the edge of the playing surface, said dividing panels being fastened to one another by means of clip members which attach to the upper portions of said panels where said panels converge at the center of playing surface, two support members which attach to the lower portions of the panels being used to secure the panels in an upright position when said panels are utilized to divide the playing surface into two equal sections;
(c) a cylindrical member of hollow disposition optionally usable for screening the ball and deflecting the ball, said cylindrical member having open ends and being located at the center of the playing surface, said cylindrical member having 3 equally spaced slots on one end and 4 on the other, the height and width of the slots being approximately the same as the height and width of the panel dividers enabling said cylindrical member to be placed over the panel dividers at the center of the playing surface.

4,335,878

GAME HAVING RECIPROCALLY MOVING INTERFERENCE MEMBERS

Toru Nishimiya, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

Filed May 12, 1980, Ser. No. 149,041
Int. Cl.³ A63D *3/02*
U.S. Cl. 273—119 R **14 Claims**



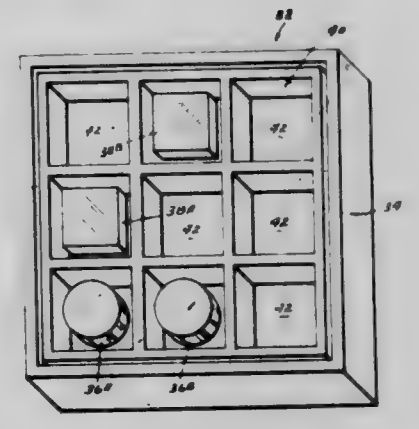
1. A game of the type having a housing, a playing surface located in the housing and an object propulsion means associated with said playing surface for propelling an object across said playing surface which comprises:
a target means located in association with said playing surface, at least a portion of said target means being movable between a first position and a second position, said movable portion of said target means moving from said first position to said second position upon being contacted by said object means;
an interference means movably mounted in said housing, at least a portion of said interference means associated with and projecting upwardly from said playing surface, said portion of said interference means movable on said playing surface in an area located between said target means and said object propulsion means;
activation means for continuously moving said portion of said interference means associated with said playing surface;
said interference means moving in response to said activation means between at least one position wherein said portion of said interference means associated with said playing surface is capable of inhibiting the movement of said object between said object propulsion means and said target means and at least one position wherein said portion of said interference means associated with said playing surface does not inhibit the movement of said object between said object propulsion means and said target means.

4,335,879

GAME APPARATUS AND MEANS FOR PLAYING THE SAME

Darrell D. Wiskur, Rte. 7, Harrison, Ark. 72601

Continuation-in-part of Ser. No. 925,191, Jul. 17, 1978, abandoned. This application Feb. 19, 1980, Ser. No. 122,116
Int. Cl.³ A63F *3/00*
U.S. Cl. 273—260 **6 Claims**



1. A game apparatus for playing color oriented games wherein colored game motivator devices are utilized to control game play, said apparatus comprising a playing board having a plurality of distinct playing areas positioned thereon, a plurality of colored playing pieces, each of said playing areas and each of said playing pieces being colored by a different one of the respective primary and secondary colors of red, yellow, blue, green, orange, and purple, and a game motivator for producing color combinations for use in controlling the positioning of the playing pieces on said playing board, said motivator including a pair of similar dice-like devices each of which is cube shaped and balanced to equalize the possibility of each of its surfaces turning up when tossed on a surface, each of said dice-like devices being defined by six colored plane surfaces arranged in opposed pairs, at least one surface of each of said dice-like devices being colored red, another yellow, and another blue, said dice-like devices when thrown on a surface being capable of producing on the upper surfaces thereof a plurality of different combinations of colors thereon to control the moves of the colored playing pieces on the playing board, the coincidences of the primary colors appearing on the upper surfaces of the game motivator devices determining the possible game move options such that when two different primary colors turn up a possible game move option can be additionally made based upon the resultant secondary color obtained by combining said different primary colors, said secondary color not being found on any surface of said game motivator devices.

4,335,880

ELECTRIC EYE ACTUATED GUN ARCADE

Burton C. Meyer, Downers Grove; Gunars Licitis, Lombard, and Derek A. Brand, Naperville, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

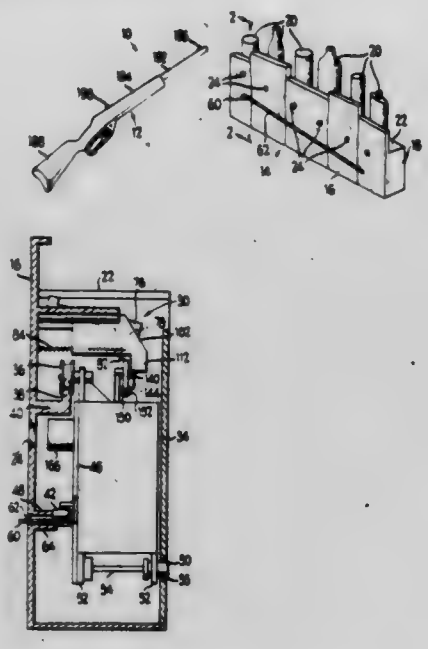
Continuation of Ser. No. 659,216, Dec. 19, 1976, Pat. No. 4,296,929. This application Sep. 8, 1980, Ser. No. 185,374
The portion of the term of this patent subsequent to Jul. 16, 1998, has been disclaimed.
Int. Cl.³ A63F *9/02*; F41J *5/02, 5/06*
U.S. Cl. 273—310 **4 Claims**

1. A target shooting apparatus, comprising:
a plurality of target devices;
a frame removably supporting said target devices;
a selectively actuable target ejector means for forcibly and

physically ejecting a target off of said frame when said ejector means is actuated;

a selectively operable means for providing light of a predetermined intensity;

circuit means including a phototransistor remotely disposed from said targets providing an output signal upon the sensing of light of a predetermined intensity;



control means operatively associated between said circuit means and said target ejector means for actuation of the ejector means in response to the output signal from said circuit means; and

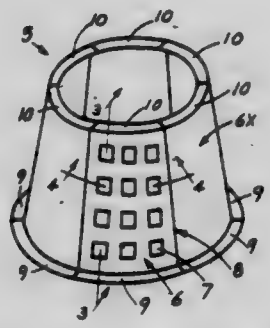
carriage means mounting said circuit means and control means for movement between said targets wherein the control means is adjacent the respective target ejector means.

4,335,881

MULTI-SECTIONAL ASSEMBLED BASKET GOALS AND THEIR GAMES USAGE

Norwood R. Warehime, 704 W. 34th St., Baltimore, Md. 21211

Filed Oct. 17, 1980, Ser. No. 198,060
Int. Cl.³ A63B 63/00
U.S. Cl. 273—348 **6 Claims**



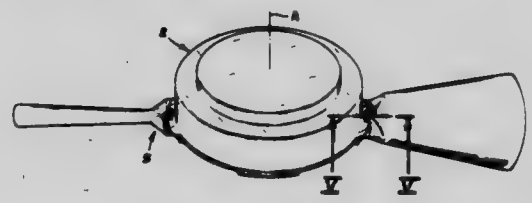
1. Multi-sectional assembled basket goals and their games usage wherein each of said basket goals comprises a multiplicity of thin plate-like sections of pliable sheet plastic material with a general 3-dimensional trapezoidal shape as cut from a frustum of a thin-walled cone, with the two unequal length sides of said trapezoidal shape being curved and the two equal length sides of said trapezoidal shape being straight, with said unequal length sides having stiffening rims attached thereto and said equal length sides having edge jointing means consisting of an elongated, partially cylindrical material male body with a diameter substantially greater than the thickness of each of said sections formed longitudinally along the full length of one jointing side edge of each of said sections and an elongated, partially cylindrical receptive mating female channel formed longitudinally along the full length of the opposite jointing side edge of each of said sections, said male body of one said jointing side edges of said sections being able to be inserted lengthwise into and frictional held in said receptive mating female channel of said jointing side edge of another of said sections, thus permitting the lateral jointing of a multiplicity of said sections and forming a continuous and substantially circular walled structure having the appearance of a bottomless basket, whereby said basket goals, together with appropriate game balls, playing area, and playing surface, can be used in a variety of simple indoor/outdoor team action games.

4,335,882

SHEET-METAL TARGET PIGEON

Ludovico L. Della Rovere, Avenida Paez, Quinta Ismenia, El Paraiso, Caracas, Venezuela

Continuation-in-part of Ser. No. 921,006, Jun. 30, 1978, Pat. No. 4,206,914, which is a continuation-in-part of Ser. No. 892,921, Apr. 3, 1978, Pat. No. 4,218,061, and a continuation-in-part of Ser. No. 882,907, Mar. 1, 1978, and a continuation-in-part of Ser. No. 762,019, Jan. 24, 1978, Pat. No. 4,133,532. This application Aug. 10, 1979, Ser. No. 65,467
Int. Cl.³ F41J 9/16
U.S. Cl. 273—363 **15 Claims**



1. A target pigeon comprising:

a generally flat web formed entirely of sheet metal with a central throughgoing hole at a web axis and having a pair of diametrically opposite web ends;

a pair of sheet-metal vanes on said web extending diametrically oppositely from said web ends and tipped propeller-fashion to each other;

a pair of substantially upright, generally axially projecting, and oppositely outwardly tipped sheet-metal tabs on said web ends diametrically opposite each other and having a predetermined axial height above said web; and

a cup-shaped witness cap formed entirely of sheet metal and having

a substantially circular rim centered on a cap axis and having one axially directed rim end engageable with said web at said web ends between said tabs and another opposite axially directed rim end,

a pair of diametrically opposite and radially outwardly projecting lips on said one rim end and formed with respective throughgoing apertures through which said tabs can project with said one rim lying snugly on said web ends,

a pair of diametrically opposite formations of mass greater than said lips on said rim between said lips, and

an end plate extending across and closing said rim at said opposite rim end.

14. A target pigeon comprising:

a propeller part having a web centered on and transverse to a web axis and having a pair of web ends, and a pair of diametrically opposite vanes extending outwardly from said ends and tipped propeller-fashion to each other;

a witness part centered on a witness axis and having a rim engageable with said web ends;

means including interengaging formations on said parts for holding said parts releasably together with said axes aligned and said rim snugly engaged with said web and for freeing said parts from each other when impacted;

an axially open vessel releasably secured to one of said parts and open toward the other of said parts, said vessel being closed by said other part when said parts are held together by said formations; and

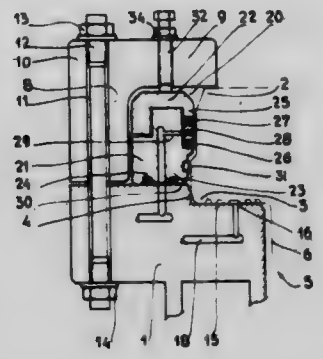
a mass of light material in said vessel whereby when said parts are separated said light material is freed.

4,335,883

SEALING DEVICE FOR A COMPONENT VERTICALLY DISPOSED WITHIN THE PRIMARY VESSEL OF A NUCLEAR REACTOR

Jean Le Roux, Verrieres le Buisson, and Andre Plagnard, Montrouge, both of France, assignors to Novatome, Le Plessis, France

Filed Apr. 22, 1980, Ser. No. 142,847
Claims priority, application France, Apr. 27, 1979, 79 10740
Int. Cl.³ F16J *15/06, 15/40;* B65D *45/16*
U.S. Cl. 277—3 **7 Claims**



1. A sealing device for a component vertically disposed within a primary vessel of a nuclear reactor and having an upper cylindrical part forming a flange whose diameter is greater than the diameter of the component, said component resting by said flange on a horizontal closing plate of the primary vessel around a hole for the component to pass through the plate and held in place by an annular anti-flyoff flange, one part of which rests on the upper surface of the flange of the component and another part of which has devices for fixing and clamping the flange of the component on the plate, said sealing device comprising:

(1) a seal-bearing ring disposed around the flange of the component and resting on the plate of the reactor below the anti-flyoff flange;

(2) a first set of annular seals disposed on said sealing ring ensuring sealing between the inner side surface of the seal-bearing ring and the outer side surface of the flange of the component at the part thereof located above the plate;

(3) a second set of annular seals ensuring sealing between the base surface of the ring and the plate;

(4) a clamping ring disposed above the seal-bearing ring includes an inner rim coming to bear at the interior of a seal-bearing seating disposed between the seal-bearing ring and the flane of the component, on at least one of the seals for applying pressure on this seal allowing its radial dilatation;

(5) a means for applying a backing force vertically downward on the clamping ring and thus on the seal-bearing ring, fixed on the anti-flyoff flange at the part thereof located above the seal-bearing ring; and

(6) a means for injecting an isolating gas between the flange of the component and the plate to ensure isolation of the interior of the vessel independently of the seals of the seal-bearing ring, said sealing device being entirely removalble for fitting and removal of the component.

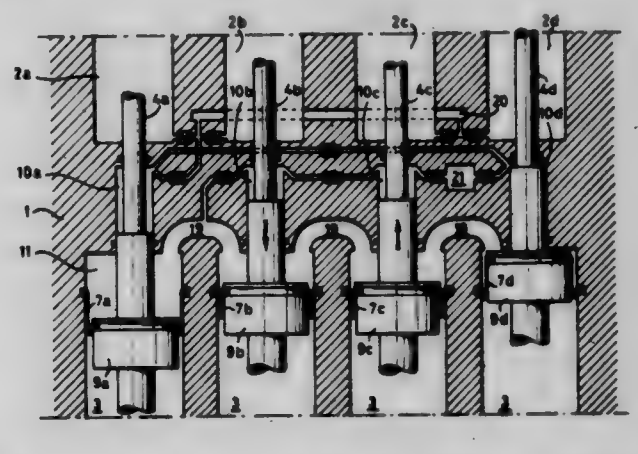
4,335,884

DEVICE FOR ENSURING DYNAMIC TIGHTNESS, PARTICULARY FOR STIRLING ENGINE

Michel Darche, Les Marronniers, France, assignor to Societe ECA, Asnieres, France

Filed Jun. 16, 1980, Ser. No. 159,686
Claims priority, application France, Jun. 18, 1979, 79 15537
Int. Cl.³ F02G *1/04*
U.S. Cl. 277—3 **6 Claims**

1. In a device for ensuring dynamic tightness employing a first sealing means in each of an assemblage of closed spaces filled with gas at high pressure, each of said closed spaces having an outlet rod, with a reciprocating longitudinal sliding movement, emerging from the space into the outside medium, the movement of said sliding rods being cyclicaly phase shifted with respect to each other, comprising a partition through which the rod passes disposed between its respective closed space and its first sealing means and forming with the latter a chamber of variable volume which is connected to the closed space via a pump actuated by the reciprocating movement of the outlet rod which maintains the gaseous pressure in the chamber at a value much lower than that of the closed space, but always greater than that of the outside medium, disposed successively along the rod from the closed space towards the outside medium are two dynamic seals placed between the rod and the bore passing through the partition, the first sealing means with the second dynamic seal defining the chamber and ensuring the absolute tightness thereof with respect to the



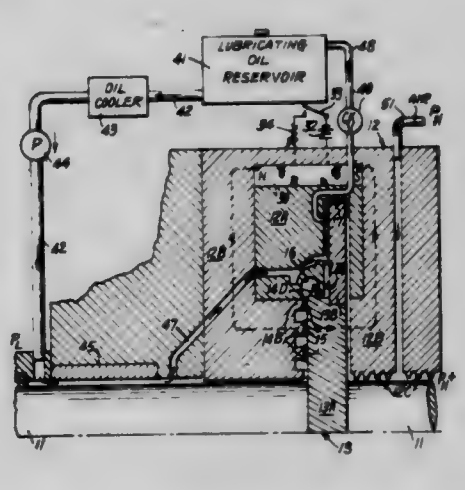
outside medium, the part of the rod which penetrates the closed space has a cross section, different from that of the part emerging from the partition towards the outside medium and is connected with the last part by a shoulder, the latter and the bore of the partition forming the piston and the cylinder of said pump, the pumps formed by these enclosures and non-return valves being series-connected so as to form a multistage pump the enclosure of the first pump being connected, via non-return valve mounted in the direction of the suction, to said chambers which are interconnected by short, wide ducts, and the enclosure of the last pump of the series being connected, via a non-return valve, to an auxiliary buffer space itself connected, via a respective non-return valve, to each of the closed spaces, the valves to which the said buffer space is thus connected being mounted in the direction of the gas discharge towards the closed spaces.

4,335,885

PLURAL FLUID MAGNETIC/CENTRIFUGAL SEAL

Hooshang Heshmat, Schenectady, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y.

Filed Aug. 19, 1980, Ser. No. 179,432
Int. Cl.³ F16J *15/42, 15/56*
U.S. Cl. 277—13 **30 Claims**



1. A plural fluid magnetic/centrifugal-fluid seal for hermeti-

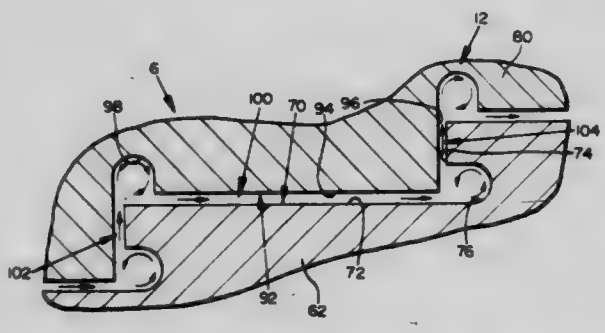
cally sealing the space between a rotating member and a close fitting spaced-apart stationary member comprising means formed on said members defining at least one magnetic pole-like close clearance magnetic seal gap region between opposed surfaces of the members, a high viscosity magnetically permeable ferromagnetic fluid normally disposed in said magnetic gap region with said rotating member at rest or low rotational speeds, magnetic field producing means magnetically coupled to at least portions of said rotating and stationary members, said magnetic seal gap region and said high viscosity magnetically permeable ferromagnetic fluid in a closed magnetic circuit, a circumferentially arranged centrifugal seal forming region radially disposed outwardly from said magnetic seal gap region and located between the rotating and stationary members, means in communication with said centrifugal seal forming region for receiving and pooling a low viscosity centrifugal sealing fluid, said centrifugal sealing fluid being centrifugally thrown outwardly during high speed rotation of said rotating member into said centrifugal seal forming region to thereby form a centrifugal hermetic seal through the medium of the fluid pooled between the two members by centrifugal force at high rotational speeds of said rotating member.

4,335,886

LABYRINTH SEAL WITH CURRENT-FORMING SEALING PASSAGES

Max Frey, and Paul B. Krebs, both of Portland, Oreg., assignors to Cornell Pump Company, Portland, Oreg.

Filed Jul. 22, 1980, Ser. No. 171,043
Int. Cl.³ F16J *15/44, 15/42*
U.S. Cl. 277—25 **9 Claims**



1. A labyrinth seal for sealing an impeller shaft within a pump housing comprising,

inner and outer annular, coaxial, relatively rotatable members disposed with the inner member fitting within the outer member, the outer member being adapted to be secured to the housing and the inner member being adapted to be secured to the shaft, said members having walls defining therebetween

a first axially extending sleeve-shaped passage,

a second axially extending sleeve-shaped passage having a diameter which is less than the diameter of the first passage, said second passage following the first passage and having one end adjacent but radially inwardly from an end of said first passage,

an annular disc-shaped passage substantially normal to the axis of the shaft intersecting the first and second sleeve-shaped passages,

an annular groove in one of said members at the intersection of said first and said disc-shaped passages facing said first passage and having a width which spans the width of the first passage and an outer margin of said disc-shaped passage, and

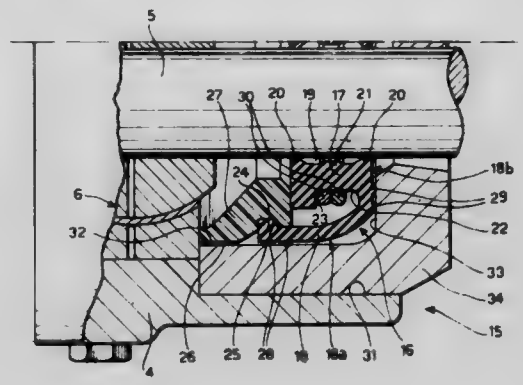
another annular groove in the other of said members at the intersection of said disc-shaped passage and said second passage facing said disc-shaped passage and, having a width which spans the width of the disc-shaped passage and an end margin of said second passage.

4,335,887

SEALING DEVICE FOR USE WITH FLEXIBLE DYNAMOMETRIC BARS

GianCarlo Benassi, Modena, Italy, assignor to Fiat Trattori S.p.A., Modena, Italy

Filed Oct. 22, 1980, Ser. No. 199,132
Claims priority, application Italy, Nov. 14, 1979, 53743/79[U]
Int. Cl.³ F16J *15/32, 15/38*
U.S. Cl. 277—84 **12 Claims**



1. In a flexible bar mounting arrangement including: a pair of supports; a central portion of said bar extending between said supports in a lubricated environment, and a pair of circular-section end portions of said bar projecting beyond said supports,

a sealing device; including a seating, which is fitted to each said end portion to separate said lubricated central portion from the exterior,

wherein the improvement consists in said sealing device including an elastomer sealing ring comprising:

a collar element having inner and outer surfaces;

respective internal circumferential sealing lips located at the ends of said collar element on its inner surface, said lips having free edge diameters less than the external diameter of said bar;

a bell-shaped element surrounding said collar element coaxially and being integral therewith at an attachment end corresponding to one said end of said collar element remote from said central portion of said bar, said bell-shaped element extending towards the other end of said collar element and being radially spaced therefrom to cooperate with said seating and effect a seal therebetween, and

resilient means for compressing said collar element against the surface of said flexible bar when said sealing ring is fitted thereto.

4,335,888

MECHANICAL SEAL

Kanji Ohba, and Shigenari Itoi, both of Kobe, Japan, assignors to Nippon Pillar Packing Co. Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 938,690, Aug. 31, 1978, abandoned. This application Aug. 7, 1980, Ser. No. 175,880
Claims priority, application Japan, Mar. 20, 1978, 53-36503[U]
Int. Cl.³ F16J *15/34*
U.S. Cl. 277—96.1 **9 Claims**

1. In a mechanical seal for sealing liquids which are most difficult to seal, comprising:

a movable seal ring mounted only for rotational movement and a stationary seal ring to be rotatably and slidably contacted with each other for sealing a liquid, the seal rings defining an annular sliding contact area;

a spring member for spring-loading one of said seal rings toward the other of said seal rings;

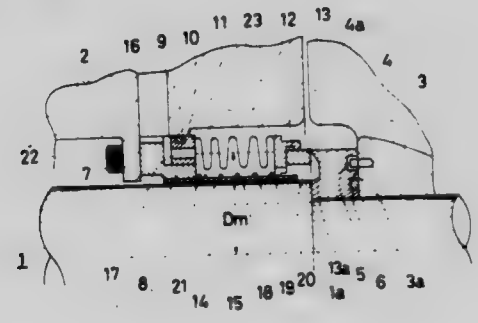
means for confining the liquid to be sealed in a first flow path which passes said seal ring on one side of said annular contact area, the liquid to be sealed being prone to unwanted coagulation under the influences of heat and pres-

sure so as to form a coagulated film in the sliding contact area which tends to thicken quickly and disrupt operation of the seal; and,

means for confining a coolant liquid in a second flow path which passes said seal rings on the other side of said annular contact area;

said mechanical seal characterized in that:

a smooth sealing end surface is formed at one end of one of said rotation seal ring and said stationary seal ring, and a sharp edge-like sealing end portion, having a wedge-shaped cross-section, in slidable contact with said smooth sealing end surface is formed on the other of said seal rings, said sealing end portion having a width of 0.1 to 0.3 mm (0.004 to 0.012 in), the sharp, edge-like shape tending to inhibit heat conduction from said contact area back through said end portion into said seal ring;



said seal rings are made from ceramic materials; and,

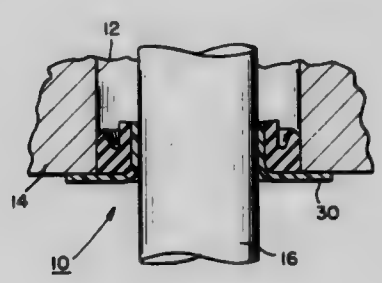
the spring face pressure to be imparted by said spring member to the annular sliding contact area between said sealing end surface and said sealing end portion is set to a value from 30 to 50 kg/cm^2 (427 to 711 lbs/in^2), despite the very sharp edge-like sealing end portion, the extremely high spring face pressure further tending to raise the temperature in the sliding contact area, whereby any of the liquid to be sealed which passes through the sliding contact area is effectively cut off from its flow by a rotary cutting action within the annular contact area and is carried away by the coolant flow before it can thicken and clog the seal, making it inoperable, notwithstanding the tendancy of the liquid to be sealed to coagulate under the pressure and temperature conditions present in the sliding contact area.

4,335,889

SHAFT SEAL WITH LINER FLANGE

Douglas A. Cather, Jr., Gastonia, N.C., and Martin E. Benjamin, Danielson, Conn., assignors to Garlock Inc., Longview, Tex.

Filed Jun. 27, 1980, Ser. No. 163,564
Int. Cl.^{3} F16J *15/32*
U.S. Cl. 277—152 **11 Claims**



1. An article comprising:

(a) a shaft seal having an annular sealing lip and consisting solely of a molded elastomeric body having a bore contacting surface and a liner of low friction material bonded to said body at least at said sealing lip; and

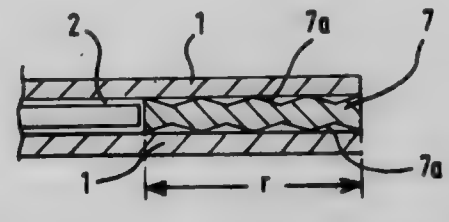
(b) said liner including a radial flange extending radially outwardly beyond said bore-contacting surface of said elastomeric body.

4,335,890

GASKET FOR CYLINDER HEAD

Terence P. Nicholson, Calf Hall, Muggleswick, Derwentside, Co. Durham, England

Filed Mar. 25, 1980, Ser. No. 133,844
Claims priority, application United Kingdom, Dec. 3, 1979, 7941630
Int. Cl.^{3} F16J *15/08*
U.S. Cl. 277—235 B **2 Claims**



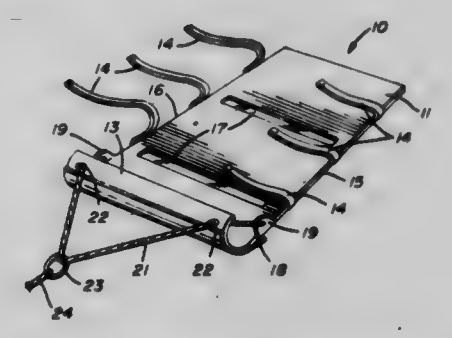
1. A gasket for sealing the joint between the cylinder block and the cylinder head of a wet liner internal combustion engine comprising a pair of outer metal plates, a composite metal spacer plate disposed between the two outer plates, and a sealing washer disposed between the two outer plates around each cylinder bore opening, said sealing washer formed on each axial face with circumferential serrations of V-shaped profile, the thickness of the washer measured over the peaks of the serrations being somewhat greater than that of the composite spacer plate whereas the thickness measured between the troughs of the serrations is significantly less than that of the composite spacer plate, said sealing washer being deformable under the clamping pressure of said plates so that the material in the peaks of the serrations flow into the troughs of the serrations.

4,335,891

GAME TRANSPORTATION DEVICE

Francis P. Alley, DeVite Trailer Park, Lot 3, Edinburg, Pa. 16116, and Michael T. Duffee, S. Beaver St., New Castle, Pa. 16101

Filed Mar. 28, 1980, Ser. No. 134,942
Int. Cl.^{3} B62B *15/00, 17/08*
U.S. Cl. 280—19 **3 Claims**



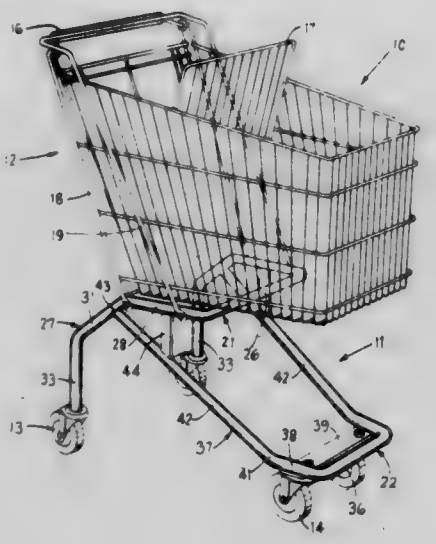
1. A game transportation device comprising a section of semiflexible sheet plastic material having a length greater than its width, one end of said section of material being curled upwardly, at least one pair of apertured tabs formed on the longitudinal edges of said section of material inwardly of said upwardly curved end, a semi-rigid thin plastic rectangular member attached to said upwardly curled end so as to conform therewith with one of its transverse edges extending below the plane of said section of material, a piece of rope attached at its ends to said apertured tabs and engaged in openings in said upwardly curved end and secured thereto, a second rope attached at one of its ends to said first mentioned rope so as to extend outwardly therefrom and a harness on the other end of said secondary rope.

4,335,892

CART WITH IMPROVED STORAGE-PREVENTING BASE

Daniel Berlin, Rydal, Pa., assignor to Roblin Industries, Inc., Battle Creek, Mich.

Filed May 2, 1980, Ser. No. 146,540
Int. Cl.[3] B62B *11/00*
U.S. Cl. 280—33.99 R 4 Claims



1. In a wheeled nestable shopping cart having a base and a goods-carrying basket supported thereon, the base including a generally planar basket support means that is operatively connected to but spaced above a pair of rear wheels and a pair of front casters, said base including a first U-shaped tubular member whose bight and adjacent portions of the legs of the U are shaped and arranged to provide the generally planar basket support means, and the portions of the legs of said first U-shaped member that are distal from the U's bight being formed to extend downwardly from the basket support means and terminating in laterally spaced upright legs positioned generally above the pair of rear wheels and to which said rear wheels connect, comprising the improvement wherein said base includes:

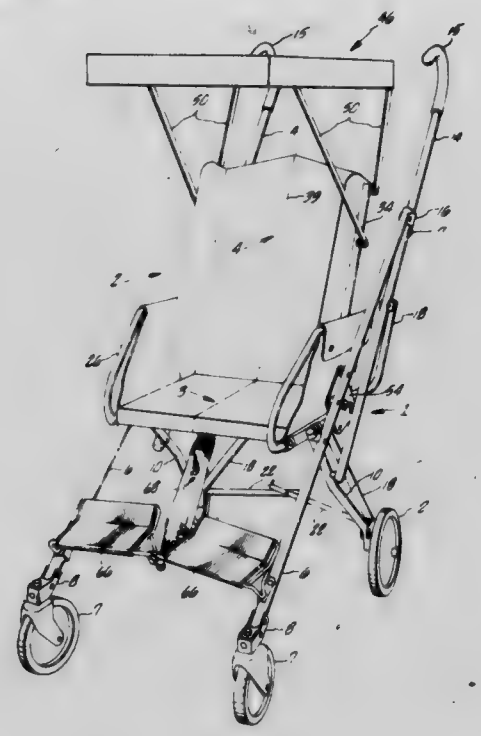
a second U-shaped member arranged and disposed so that its bight is spaced forwardly of and substantially below the basket support means, the second U-shaped member having elongated legs which extend rearwardly and diverge outwardly from the ends of the last-mentioned bight and being additionally arranged to incline upwardly and rearwardly from a point located adjacent said last-mentioned bight to a point at which the free ends of said last-mentioned legs directly fixedly engage a respective one of the legs of said first U-shaped member in the vicinity of the upper end of the respective upright leg, and a pair of rigid braces disposed adjacent opposite sides of the base for rigidly joining the basket support means to the legs of the second U-shaped member, each said brace having the upper end thereof rigidly joined to said leg portion of the planar basket support means and the lower end thereof rigidly joined to the inclined leg of said second U-shaped member at a location disposed intermediate the ends thereof, the region extending sidewardly between the legs of said second U-shaped member being open to prevent storage of goods on said base, the region extending between the upright leg of the first U-shaped member and the inclined leg of said second U-shaped member also being open and free of structure to prevent storage of goods on the base.

4,335,893

FOLDABLE INFANT CARRIER

Lee T. Carmichael, Pasadena; Richard E. Hyde, Palos Verdes Estates, and Gary L. Smith, Los Angeles, all of Calif., assignors to California Strolee, Inc., Compton, Calif.

Filed Sep. 28, 1979, Ser. No. 79,833
Int. Cl.[3] B62B *7/08*
U.S. Cl. 280—42 8 Claims



5. A foldable infant carrier capable of assuming a locked open position and a folded closed position which is foldable along a central vertical plane bisecting said carrier and extending from the front to the rear thereof, said carrier comprising in combination:

a. a main frame assembly, foldable along said central plane, having two front legs each having a wheel pivotally connected thereto, two rear legs each having a wheel rotatably connected thereto, support means for rigidly supporting the main frame assembly in the open position and handle means for carrying and pushing said infant carrier, said four leg members, support means and handle means being operably connected to each other to provide, in the open position, a rigid frame assembly for supporting and pushing an infant seat assembly connected thereto;

b. two backrest support brackets operably connected to said support means, said brackets having a plurality of notch means to engage and support a back rest in any one of at least two positions;

c. an infant seat assembly, foldable along said vertical plane, operably and adjustably connected to said main frame assembly and adapted to rigidly support an infant in an open position, said infant seat assembly comprising, in combination:

(1) a substantially rigid backrest portion adapated to be folded along said vertical plane;

(2) a backrest frame assembly connected to said backrest portion adapted to lock said backrest in a rigid open position, comprising in combination:

(a) two side support members each having an upper and lower end and each having support pins at the lower ends thereof for engaging any one of said notch means in said backrest support bracket;

(b) two cross brace members each pivotally connected to the lower end of one of said side support members and the upper end of the other of said side support members;

(c) locking cross members pivotally connected at one end thereof to the upper end of opposing said side support members and at the other end thereof within a slot in a trigger and latch mechanism, said trigger and latch mechanism operable to restrain the pivotal

movement of said cross members by means of a latch, retractably housed within said mechanism, which latch engages and restrains said cross members within said slot;

(3) a rigid seat portion adapted to be folded along said vertical plane;

(4) a seat frame assembly connected to said seat portion and rigidly connected to said main frame assembly;

(5) biasing means for biasing said seat portion towards the folded position and;

(6) connector means for connecting said seat portion to a footrest means;

d. footrest means foldable along said vertical plane and pivotally connected to said main frame assembly and to said seat portion by said connector means, and

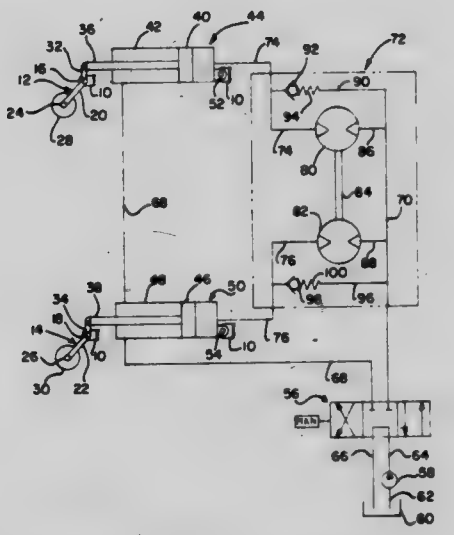
e. said trigger mechanism being adaptable to lock said main frame assembly and said backrest support means and said seat portion in said open position and to provide a handle for adjusting said backrest portion in the locked open position and adaptable to be released and providing a handle for folding said infant carrier along said vertical plane.

4,335,894

IMPLEMENT LEVEL LIFT SYSTEM WITH REPHASING VALVES

William C. Swanson, Clarendon Hills, Ill., assignor to International Harvester Co., Chicago, Ill.

Filed Jun. 5, 1980, Ser. No. 156,890
Int. Cl.³ A01B *63/22*
U.S. Cl. 280—43.23 **2 Claims**



1. An implement lift system comprising:

a frame;

a plurality of wheel assemblies pivotally attached to the frame for controlling its elevation;

a ram connected between each wheel assembly and the frame;

a rotary flow divider connected in parallel to one end of each ram;

said rotary flow divider having a rotor for each of said rams and means physically interconnecting said rotors; and

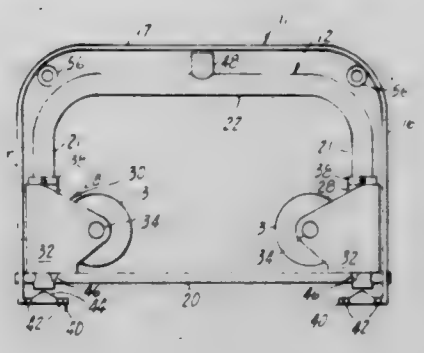
a pair of rephasing valves each associated with a rotor and a ram, each comprising a spring biased check valve arranged to permit flow only away from said associated ram, each rephasing valve connected as the sole by-pass across its associated rotor.

4,335,895

WHEELED CARRIER FOR SUITCASES AND THE LIKE

Brooks Walker, 1280 Columbus Ave., San Francisco, Calif. 94133

Continuation of Ser. No. 62,979, Aug. 2, 1979, abandoned. This application Mar. 3, 1981, Ser. No. 240,093
Int. Cl.³ B62B *11/00*
U.S. Cl. 280—47.13 R **5 Claims**



1. A wheeled carrier for articles such as suitcases and the like comprising:

a generally U-shaped support adapted to engage one side of such article,

a wheel mount swingably secured to said support and adapted to be swung from a closed nested position substantially within and coplanar with said support to an open position in a plane substantially normal to the plane of said support,

a ground wheel,

a fitting rotatably supporting said ground wheel,

said fitting being swingably mounted on said wheel mount for swinging said ground wheel from a working position with the plane of said ground wheel substantially normal to the plane of said wheel mount to a position coplanar with said mount, and

means removably connected to said mount for manual manipulation of said mount, whereby

when said means is removed said carrier may be arranged with the planes of said support, wheel mount and wheel all in coplanar relationship.

4,335,896

LUGGAGE CASE HAVING A DETACHABLE ROLLER ASSEMBLY

Sol Koffler, Providence, and William M. Berry, East Providence, both of R.I., assignors to American Tourister, Inc., Warren, R.I.

Filed Apr. 7, 1980, Ser. No. 138,186
Int. Cl.³ B62B *1/04*
U.S. Cl. 280—47.17 **15 Claims**



1. A luggage case, comprising a pair of hinged sections, at least one of said sections including means for receiving a roller assembly thereon in detachable relation, spaced openings formed in said one section adjacent a corner thereof, said roller

assembly including a pair of roller brackets through which a roller axle extends for pivotally mounting said roller brackets thereon, a mounting tab secured to each of said roller brackets at an outer end thereof, a roller rotatably mounted on said axle between said roller brackets, resilient means for normally urging the portions of said roller brackets on which said mounting tabs are mounted away from each other, said roller brackets being movable inwardly against the action of said resilient means for locating said tabs in said openings for releasably mounting said roller assembly on said one section, wherein said roller projects outwardly of said one section for engagement with a surface to provide for convenient travel of said luggage case thereon, said receiving means including a mounting plate that is secured interiorly of said one section, spaced openings formed in said mounting plate and being aligned with the openings in said one section, the tabs of said bracket assembly extending through the aligned openings in said one section and mounting plate for positively locking said roller assembly in place.

4,335,897

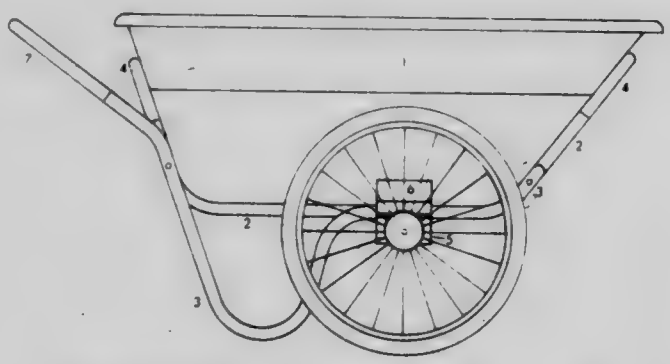
GARDEN CART WITH REMOVABLE CONTAINER

Henry J. Muller, Jr., 1730 Glen Oaks Dr., Santa Barbara, Calif. 93108

Continuation-in-part of Ser. No. 26,421, Mar. 2, 1979, abandoned. This application Sep. 9, 1980, Ser. No. 185,506

Int. Cl.³ B62B *1/20*

U.S. Cl. 280—47.18 **1 Claim**



1. A multi-purpose garden cart comprising a tubular aluminum carriage having a cradle, front and rear U-shaped tubular end braces secured to the ends of said cradle, a pair of stands for supporting said cart, and a handle secured to said stands, said carriage mounting a transverse axle with large diameter wheels on opposite ends and supporting, by detachable engagement, a rigid yet resilient polyethylene container formed from a single sheet without seams or apertures and having a molded, outward protrusion to serve as a latch on both its front and rear faces; said container having the means for being engaged into said carriage by pressing it downwardly causing the resilient front end rear faces to depress inwardly until the latches, having passed over the front end rear tubular and braces of said carriage, snap back outwardly engaging beneath them; while the bottom of said container rests on said cradle and

means for of instantly detaching it from said carriage by pressing inwardly on either its front or rear face releasing said latches and lifting the container up and out of the carriage thus permitting its contents to be quickly and completely dumped directly into a truck bed or trash receptical or heaped on top of a mulch or leaf pile; and

the means, when secured in said carriage, of being adapted tilted forward and balanced in a lip-to-ground position permitting leaves and other garden waste to be raked directly into it; and

means for lifting heavier garden loads placed on its front face while in the tilt-forward position by rotating the carriage backwardly causing the load to slide down its slippery, steeply sloping front face; and

the additional capability, because of its right, sturdy and leakproof characteristics, of being utilized to mix, carry and dump liquid loads and, when detached from the carriage, of serving other uses around the home and garden such as a vat for mixing mortar, a tub for washing dogs or a wading pool for children.

4,335,898

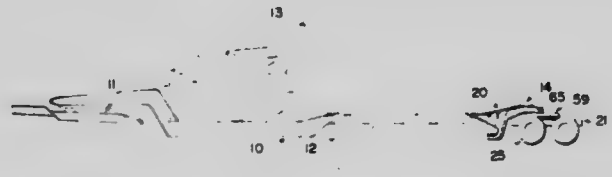
LOAD SHIFTER ASSEMBLY FOR TRAILERS

Andrew Orosz, and Kenneth Lesarge, both of Regina, Canada, assignors to Westank-Willock, a Division of Willock Industries Ltd., Regina, Canada

Filed May 12, 1980, Ser. No. 148,697

Int. Cl.³ B62D *53/00*

U.S. Cl. 280—81 R **24 Claims**



1. A load shifter assembly for heavy duty trailers comprising in combination a pick-up frame, means to detachably secure said pick-up frame to the rear end of the trailer, a suspension frame, a twin-axle-and-road-wheel assembly supporting said suspension frame, substantially vertical pivot means mounting said suspension frame to said pick-up frame for pivotal movement in a substantially horizontal plane relative to said pick-up frame, and self-centering means operatively extending between said suspension frame and said pick-up frame for assisting said suspension frame in returning to the in-line trailing position relative to the trailer, said self-centering means includes guide means mounted in said pick-up frame and a curved rail mounted across said suspension frame forwardly of the twin axles of said twin-axle-and-road-wheel assembly, said rail engaging upon said guide means, said rail curving in a substantially horizontal plane with a radius of curvature substantially equal to the distance between the substantially vertical pivot means and said rail, said rail including a ramp on each side of the center thereof, and upon the underside thereof, each ramp inclining upwardly from the outer end of said rail towards the center thereof, said ramps urging said rail to a position whereby said guide means is at the center of said rail at the junction of said ramps.

4,335,899

WHEEL FOR TOY VEHICLE

Roger F. Hiscock, 23 Metchley Park Rd., Edgbaston, Birmingham B152PQ, England

Filed May 7, 1980, Ser. No. 147,099

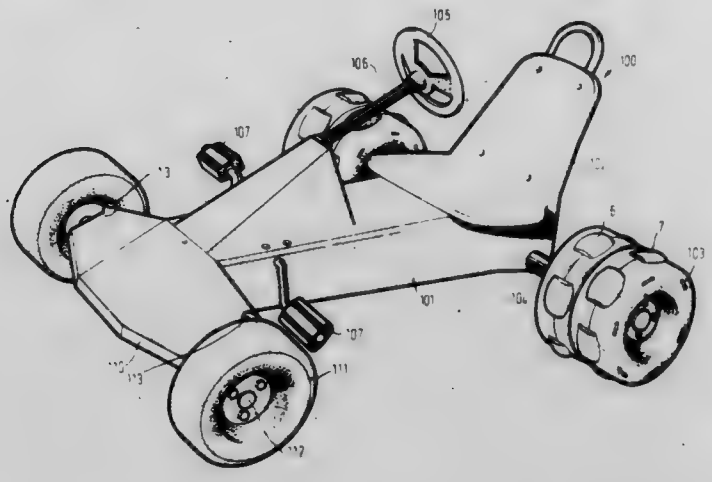
Claims priority, application United Kingdom, May 18, 1979, 7917437

Int. Cl.³ B62M *1/02*

U.S. Cl. 280—259 **4 Claims**

1. A pedal car comprising a frame carrying a seat and including a front axle carrying front wheels pivotally mounted for steering said car, said front wheels having a generally integral outer surface constructed to roll forward and backward along the plane of the wheel while resisting a lateral motion in a direction along the axis of rotation of the wheel, a steering wheel mounted adjacent said seat and adapted to steer said front wheels through linkage means connecting said steering wheel and said front wheels, a rear axle carrying driving

wheels and driven by pedal means drivably connected to said axle and mounted on said frame, each said driving wheel being carried by said rear axle by rotation therewith and comprising a circumferential portion, a hub for mounting said wheel on said rear axle and including a plurality of rollers, said rollers being mounted for free rotation about axles supported adjacent



said circumferential portion and positioned to provide that the axes of rotation of said rollers are at right angles to the hub axle, said rollers projecting through apertures in said circumferential portion whereby the said outer surfaces of the rollers are proud of the circumferential portion and form a ground-engaging surface of the wheel.

4,335,900

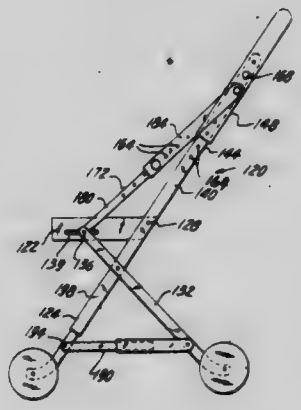
COLLAPSIBLE FRAMES FOR BABY CARRIERS

Henry Fleischer, 18 Notch Park Rd., Little Falls, N.J. 07424

Division of Ser. No. 927,280, Jul. 24, 1978, Pat. No. 4,256,325, which is a continuation-in-part of Ser. No. 759,081, Jan. 13, 1977, abandoned. This application Dec. 1, 1980, Ser. No. 212,071

Int. Cl.³ B62B *11/00*

U.S. Cl. 280—649 **6 Claims**



1. A collapsible stroller frame comprising, in combination, seat support means including spaced apart side portions, a rear portion, intermediate portion and front portion, a pair of spaced apart front leg members, said seat support means being pivotally connected to upper portions of said front leg members, a pair of spaced apart rear leg members upper portions of which include sliding means which are slidably engaged by and connected to said seat support means, handle support means comprising an upward extension of said front leg members, a lower portion of which is connected to said seat support means, and an upper portion of which is in telescoping relation to said lower portion, and side bracing means including lower bracing means in communication with said sliding means of said rear leg members, or a portion of said seat support means, and upper bracing means in telescoping relation to said lower bracing means and operatively connected to said upper portion of said handle support means, whereby upon moving said upper portion of said handle support means downwardly toward said lower portion thereby causing said upper bracing means to move downwardly toward said seat support means and said sliding means of said rear leg members to move toward the front portion of said seat support means carrying the rear leg members backwardly swinging said rear leg members upwardly toward the rear of said seat support means, said seat supporting means pivoting downwardly toward said front leg members, so that said front leg members and rear leg members extend in opposite directions when in folded or collapsed condition.

4,335,901

SUSPENSION OVERRIDE SYSTEM

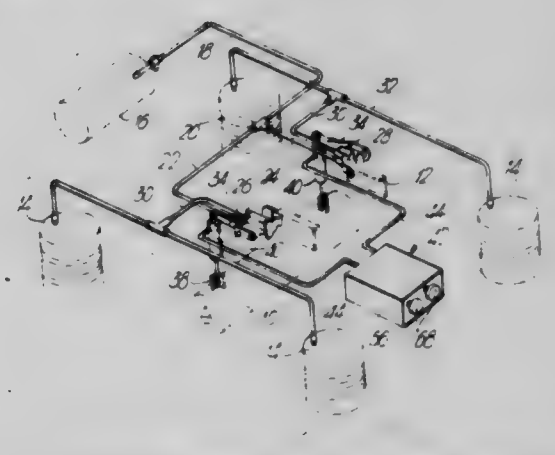
Herbert E. Gladish, Ottawa, Canada, assignor to E. B. Eddy Forest Products, Ltd., Ottawa, Canada

Filed Apr. 13, 1979, Ser. No. 29,848

Claims priority, application Canada, Jul. 27, 1978, 308247

Int. Cl.³ B60G *11/26*

U.S. Cl. 280—711 **38 Claims**



1. In a system for altering the clearance height between sprung and unsprung masses of a vehicle being provided on each side thereof with fluid spring means positioned between said masses and regulating valve means for altering the fluid pressure in said spring means, the improvement in means for manually selectively altering said clearance height to achieve a desired elevation of the sprung mass relative to a reference elevation comprising, for each side of said vehicle:

actuator means for said regulating valve means comprising an actuator cylinder, an actuator member reciprocal therein so as to define an actuator chamber within said cylinder, and an actuator rod connected to said actuator member extending outwardly of said actuator cylinder;

means connecting one end of said actuator means to said regulating valve means and the other end to said unsprung mass;

master control means remote from said actuator means and having a control chamber therein;

operator actuable control means operative to alter the volume of said control chamber;

flexible conduit means interconnecting said actuator chamber and said control chamber; and

a generally incompressible fluid completely filling said conduit means, said actuator chamber and said control chamber;

whereby upon operation of said control means, a change in volume of said control chamber is translated via said fluid into a change in volume of said actuator chamber resulting in movement of said actuator cylinder relative to said actuator member, such movement actuating said regulating valve means to alter the fluid pressure in said fluid spring means and thereby alter said clearance height.

4,335,902

PASSIVE SEATBELT DRIVING MECHANISM

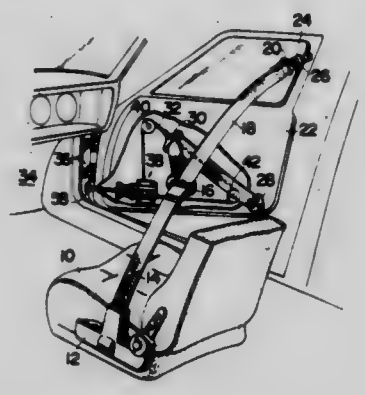
Masanao Motonami, Toyota, and Yoshiaki Ishikawa, Chiryu, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Aisin Seiki Kabushiki Kaisha, both of Aichi, Japan

Continuation of Ser. No. 57,455, Jul. 13, 1979, abandoned. This application Jun. 26, 1981, Ser. No. 277,725

Claims priority, application Japan, Jul. 19, 1978, 53-99329; Jul. 19, 1978, 53-99330; Jul. 19, 1978, 53-99331

Int. Cl.[3] B60R *21/02*

U.S. Cl. 280—804 11 Claims



1. A passive seatbelt driving mechanism for automatically fastening webbings to or unfastening the same from an occupant of a vehicle of the type comprising a webbing driving means provided in a door of said vehicle which is driven by the opening and closing force of said door and a lost motion linkage provided between said door and said webbing driving means for decoupling the opening and closing force of said door from said webbing driving means when said door is opened beyond a predetermined amount, said lost motion linkage comprising:

a movable shaft;

a means for applying said opening and closing force of said door for getting on or off to said movable shaft to move said movable shaft;

a guide plate formed with a first groove portion for guiding said movable shaft at an initial stage of said door opening and with a second groove portion for guiding said movable shaft when said door is opened beyond said predetermined amount; and

a groove plate coupled to said webbing driving means and formed with an engagable groove portion which engages with said movable shaft when said movable shaft moves in said first groove portion and with a sliding groove portion in which said movable shaft slides when moving in said second groove portion whereby said webbing driving means receives said door opening or closing force to drive the webbing when said movable shaft is in said first groove portion and said engagable groove portion and said webbing driving means receives substantially no opening or closing force when said movable shaft is in said second groove portion and said sliding groove portion.

4,335,903

BOOK READER'S CLIP

David A. Collins, and Robyn A. Collins, both of 42 Disraeli St., Auckland, New Zealand

Filed Jul. 9, 1980, Ser. No. 167,441

Claims priority, application New Zealand, Jul. 16, 1979, 191020

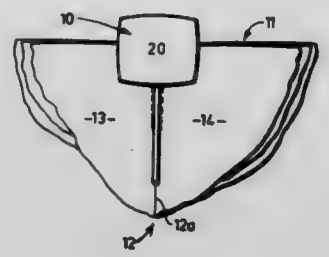
Int. Cl.[3] B42D *9/00*

U.S. Cl. 281—46 8 Claims

1. A book readers clip including:

an elongate body portion extending to one side of, adjacent one end of, a neck portion; and a head portion being substantially shorter than said elongate body portion but extending to the same side of, adjacent the other end of, said neck portion, said head portion extending laterally of said neck portion to such an extent as to extend over adjacent pages of a book, and;

an elongate tail portion extending from the same side of the neck portion, and intermediate between and spaced apart from the body portion and the head portion; characterised



in that said elongate body portion defines first and second juxtaposed recesses, said first recess being between said body portion and said tail portion and adapted to receivably engage the spine of a book, and said second recess being between the tail portion and the head portion and adapted to receive the pages of a book.

4,335,904

TOGGLE MECHANISM CONNECTOR

Kenneth C. Saliger, and Martin B. Jansen, both of Houston, Tex., assignors to NL Industries, Inc., New York, N.Y.

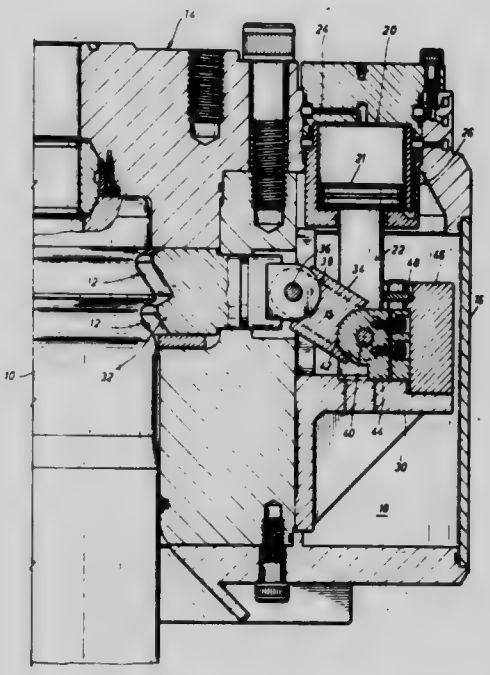
Continuation of Ser. No. 916,981, Jun. 19, 1978, Pat. No. 4,222,592. This application Sep. 2, 1980, Ser. No. 183,138

Claims priority, application United Kingdom, Jul. 11, 1977, 28947/77

The portion of the term of this patent subsequent to Sep. 16, 1997, has been disclaimed.

Int. Cl.[3] F16L *37/08*

U.S. Cl. 285—18 8 Claims



1. In a connector for connecting and disconnecting two members in which the first member includes a first locking means and the second member includes a double acting longitudinally moving piston for moving a second locking means into and out of locking engagement with said first locking means, the improvement of a locking toggle mechanism comprising,

said second locking means slideably carried by the second member for transverse movement toward and away from said second member for engagement and disengagement with said first locking means, and

a toggle linkage having a first pivot connection connected to the second locking means and a second pivot connection longitudinally actuated by the piston whereby the longitu-

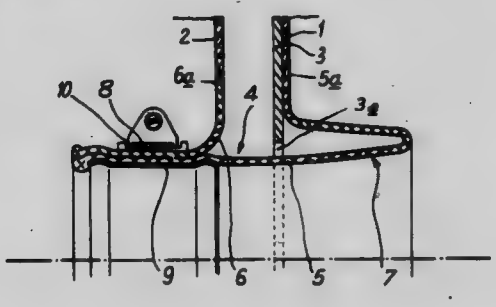
dinal movement of the second pivot connection transversely moves said second locking means and moves the second pivot connection into a past dead center locking position.

4,335,905

TANKS AND CONNECTING DUCTS THEREFOR

Jean-Claude Bac, Petit Quevilly, France, assignor to Pneumatiques Caoutchouc Manufacture et Plastiques Kleber-Colombes, Colombes, France

Filed Apr. 29, 1980, Ser. No. 144,829
Claims priority, application France, May 7, 1979, 79 11538
Int. Cl.³ F16L *41/00*
U.S. Cl. 285—20 **6 Claims**



1. In a tank installation comprising a tank having at least one flexible wall which rests on a rigid apertured partition and a duct joined to said wall and passing through an aperture in said partition, the improvement that

(a) said duct is flexible;

(b) a folded-over end portion of said duct connects one end of said duct to said one flexible wall, said folded-over end portion being located within said tank, and

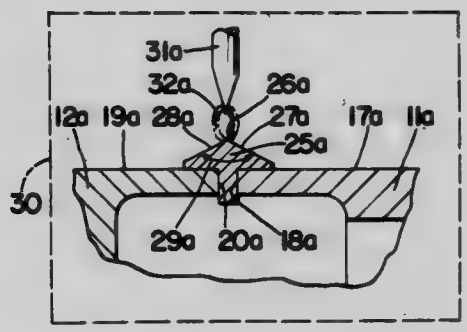
(c) a rigid pipe member is clamped to the other end of said duct at a location on the side of said apertured portion remote from said one flexible wall, the arrangement being such that risks of rupture of the duct due to violent shocks are minimised by its ability to move relative to said one flexible wall of said tank in more than a purely axial direction.

4,335,906

WELDABLE JOINT

Paul J. Cardinale, Auburn, and Leonard E. Partelow, Jr., Lyons, both of N.Y., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Jul. 5, 1979, Ser. No. 55,114
Int. Cl.³ F16L *13/02*
U.S. Cl. 285—22 **16 Claims**



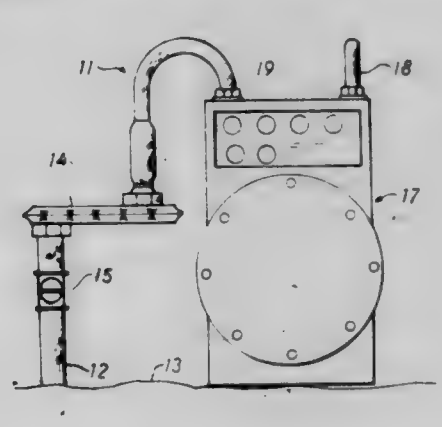
1. A device comprising first and second metallic cylindrical members having a preweld configuration and a postweld configuration; in said preweld configuration said members having axially facing surfaces defining a circumferential joint to be welded and generally smooth uninterrupted cylindrical surfaces extending axially away from said axially facing surfaces, an annular metallic cap disposed radially outward of said axially facing and cylindrical surfaces and encircling said joint, said cap contacting at least one of said members, said cap having an uninterrupted annular radially outermost crest radially aligned with said joint, said cap having first and second peripheral surfaces extending axially from said crest in opposite directions and extending radially inwardly from said crest toward said cylindrical surfaces at a predetermined slope, and said first and second peripheral surfaces being radially inward of said crest and radially outward of said cylindrical surfaces at all locations; in said postweld configuration substantially the entirety of said cap being melted integrally with the portion of said members adjacent said axially facing surfaces to form a welded joint, and said welded joint comprising only materials of said members and said cap.

4,335,907

METER CONNECTION APPARATUS

Bernard E. Scott, Billings, Mont., assignor to Industrial Systems, Inc., Billings, Mont.

Filed May 24, 1979, Ser. No. 42,068
Int. Cl.³ F16L *43/00*
U.S. Cl. 285—157 **7 Claims**



1. Meter connection apparatus including a generally semicircular conduit portion with first and second substantially parallel straight conduit portions extending from the ends of the semicircular conduit portion, said semicircular conduit portion having a radius which is a plurality of the conduit diameter, a collar member affixed adjacent the free end of the first of said straight conduit portions, said collar member including a peripheral flange section, said first straight conduit portion extending beyond said flange section of said collar member, a compression nut carried by said first straight conduit portion and associated with said collar member, said compression nut including an internally threaded portion of a size encompassing and extending beyond said flange section of said collar member, said compression nut also including a portion of smaller size than said internally threaded portion engageable with said flange section, an enlarged conduit portion extending from the second of said straight conduit portions, said enlarged conduit portion being large relative to said second portion, said enlarged conduit portion including an externally threaded second section at its free end engageable with an internally threaded compression nut, and the end portion of said externally threaded section including a tapered section of reduced diameter as compared with said enlarged portion providing an internal tapered section engageable with a resilient seal member disposed between said enlarged conduit portion and said second compression nut, said seal member including a tapered section adjacent said enlarged conduit portion engageable with said internal tapered section thereof.

4,335,908

PUSH-IN TUBE CONNECTOR

Donald G. Burge, 10320 Douglas Ave., Rte. 1, Plainwell, Mich. 49080

Filed May 19, 1980, Ser. No. 150,761
Int. Cl.³ F16L *33/20*
U.S. Cl. 285—250 **12 Claims**

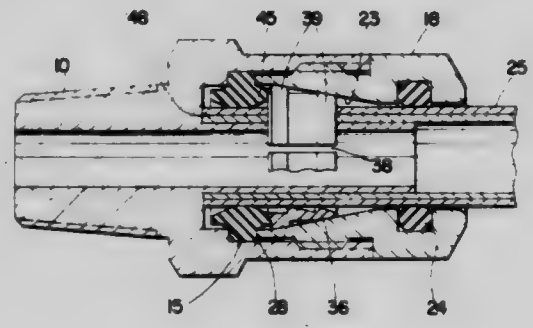
1. A preassembled fitting for tubes wherein a final fluid tight joint may be made solely by insertion of a tube therein, com-

prising a body having a bore therein and a tubing support forming an annular space for receipt of a tube, said bore having an entrance at one end of said body and terminating at a shoulder of lesser diameter than said bore,

a nut having a bore therein for receipt of a tube, said nut having an inwardly extending tubular portion terminating in an end ring of a diameter to fit within said body bore,

means for releaseably interengaging said nut and body at a position wherein said end ring of said nut is spaced a short distance from said body shoulder,

an elastomeric ring seal in said body member, said ring seal having a first sealing portion disposed between and in direct engagement with said shoulder and said end ring and adapted to be compressed thereby to provide sealing engagement between said body and said nut, said nut further having an internal frusto-conical surface between said bore and said end ring and disposed in said annular space,



a radially expandable and contractable sleeve-like gripping member having a frusto-conical outer surface in engagement with said inner surface of said nut and slidable relative thereto, said gripping member having gripping means on the inner surface thereof adapted for engagement with the outer surface of an inserted tube,

said ring seal having an abutment portion thereon radially inwardly of said sealing portion, said gripper member having abutment means at the axially inner end thereof adapted for direct engagement with said ring seal abutment portion to limit inward movement of said gripper member and to urge same axially outwardly toward a tube gripping position,

an o-ring seal in said nut bore for sealing the outer surface of an inserted tube, and

a further tube engaging portion on said ring seal adapted to be compressed by inserted tubing to seal said tube and to increase axial sealing pressure between said nut and body.

4,335,909

MULTIPLE LOCK FOR AN ENGINE COMPARTMENT COVER SYSTEM

Floyd A. Schmitz, Jr., Burlington, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Feb. 14, 1980, Ser. No. 121,434
Int. Cl.³ E05C *5/00*
U.S. Cl. 292—5 **12 Claims**

1. A locking linkage for the engine compartment of an off-road machine used for material handling, excavation, and the like, said machine having at least two openings providing access to the engine and engine accessories and at least two covers for those openings, comprising:

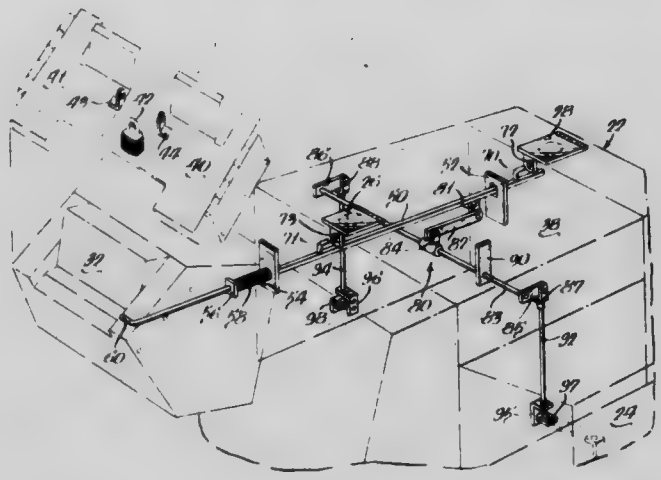
(a) a first shaft, said shaft being located within said compartment and guided axially in movement between a first position and a second position, the axis of said shaft being fixed relative to said covered openings and said machine;

(b) means, abutting a fixed member on said machine, for biasing said first shaft in a first position;

(c) lock means, attached to a fixed member on said machine, for holding said first shaft in said second position;

(d) at least one bell crank rotatable relative to a fixed member of said machine between a first position and a second position about a fixed axis perpendicular to the axis of said first shaft, one end of said bell crank being linked to said first shaft, shifting said first shaft from said first position to said second position rotates said bell crank about said fixed axis from said first position to said second position of said bell crank;

(e) a plurality of catch plates and cooperating catch bolts, said catch plates being joined to said covers on said machine, at least one of said catch bolts being joined to and moved by said first shaft, at least one of said catch bolts



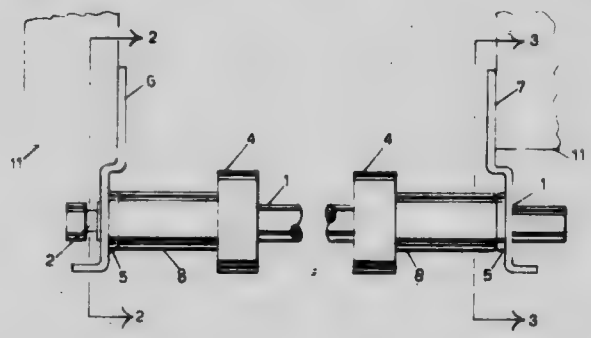
being joined to and moved by the other end of said bell crank, said catch plates and catch bolts being disengaged when said first shaft is in said first position, said catch plates and catch bolts being engaged when said first shaft is in said second position, the effect of holding said first shaft and said bell crank in said second position by said lock means being that said covers on said machine are locked in position relative to the fixed members of said machine whereby locking said first shaft in said second position locks said access covers to said machine.

4,335,910

DOOR RESTRAINING DEVICE

Lewis E. Massie, Box 79, Solana Beach, Calif. 92075

Filed Feb. 14, 1979, Ser. No. 11,793
Int. Cl.³ E05C *17/54*
U.S. Cl. 292—259 R **2 Claims**



1. A door restraining device to prevent the opening of a door, said device having an elongate rigid bar and a pair of brackets for selectively mounting the bar across the door opening wherein the improvement comprises:

(a) a cylindrical bar having two rotatable sleeves mounted thereon each sleeve positioned opposite the interface of the door and the frame;

(b) said sleeves being adjustably positioned by Collars mounted on the bar at each end of the sleeves; and,

(c) means for securing said sleeves to the bar, said positioning collars further comprising:

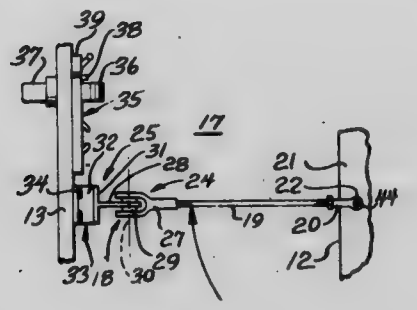
(d) a first pair of collars having outside diameters greater than the outside diameter of the sleeves; and

(e) a second pair of collars having outside diameters equal to or less than the outside dimension of the sleeves.

4,335,911
DOOR HOLDER

James L. Taylor, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00168, § 371 Date Feb. 19, 1980, § 102(e) Date Feb. 19, 1980, PCT Pub. No. WO81/02439, PCT Pub. Date Sep. 3, 1981
PCT Filed Feb. 19, 1980, Ser. No. 174,388
Int. Cl.³ E05C 17/56
U.S. Cl. 292—262 20 Claims



1. In a door structure (10) having wall means (11) defining an opening (12), a door (13) provided with a locking handle (36), and means (14) for mounting the door (13) for swinging movement between a closed position extending across the opening and an open position, the improvement comprising:

a blocking element (19) having a mounting portion (20) and a distal portion (24);

means (44) swingably mounting said mounting portion to the wall means (11) adjacent said opening (12) for selective positioning in a second retracted position permitting free movement of the door (13) between said positions, and in a blocking position extending across said opening (12) with said distal portion (25) juxtaposed to the door (13) in the open position to prevent movement of the door (13) from the open position;

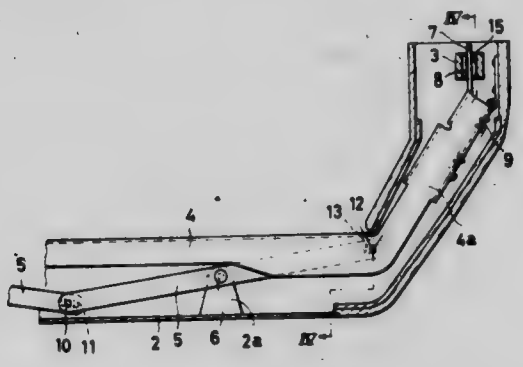
electromagnetic means (25) for releasably holding the blocking element (19) in the blocking position; and

control means for controlling said holding means (25) including a first switch (39) remote from the door and a second switch (38) adjacent the door, said control means including circuitry connecting said switches as an AND gate for releasing said holding means upon the opening of either switch and thereby permit the blocking element (19) to be returned to said retracted position.

4,335,912
DOOR LOCKING APPARATUS

Masahiko Koumura, Konan, and Hiroshi Mizuno, Iwakura, both of Japan, assignors to Rinnai Kabushiki Kaisha, Fukuzumi, Japan

Filed Feb. 13, 1980, Ser. No. 121,282
Claims priority, application Japan, Feb. 16, 1979, 54-17740[U]
Int. Cl.³ E05C 1/12
U.S. Cl. 292—336.3 8 Claims

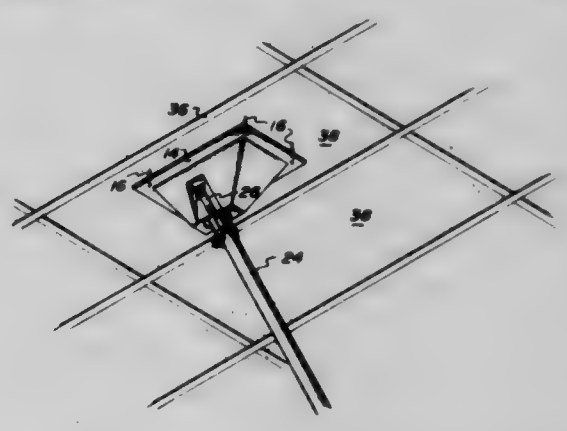


1. A door locking apparatus, comprising, in combination, a door having a main handle, at least one locking bolt carried by the handle for retaining the door in a latched position, a grip bar for operating the locking bolt, means mounting the grip bar on the handle for forward and rearward movement in a direction substantially at right angles to the handle, a pair of links within the handle, means pivotably connecting the intermediate portion of each link to the handle, means connecting one end of the links together for relative movement therebetween, and means connecting the other end of each link to the grip bar for relative movement therebetween, respectively, the links being diposed opposite to the forward direction of movement of the grip bar, whereby any portion of the grip bar may be gripped, and whereby the grip bar will have a substantially parallel uniform forward movement relative to the handle, thereby facilitating a smooth release of the locking bolt.

4,335,913
CEILING TILE REPLACING AND POSITIONING APPARATUS

George R. Lick, 106 Harrison St., Emmaus, Pa. 18049

Filed Sep. 11, 1980, Ser. No. 186,326
Int. Cl.³ B25J 1/00
U.S. Cl. 294—19 R 6 Claims



1. An apparatus for positioning, removing and replacing ceiling tile comprising:

(a) a generally frustum-shaped frame, including a small and large base, said frustum wall of which includes a pair of depressions in opposed relationship proximate said frustum smaller base, said frustum's larger base terminating in an outwardly projecting encircling flange, said flange forming a platform on which ceiling tile may rest;

(b) a plurality of pins protruding generally perpendicular from said flange whereby said tile may be releasably skewered to said flange; and,

(c) handle means mounted to said frame at said frame smaller base, said handle means including a sleeve member pivotally disposed between and secured to said frame through said depression walls.

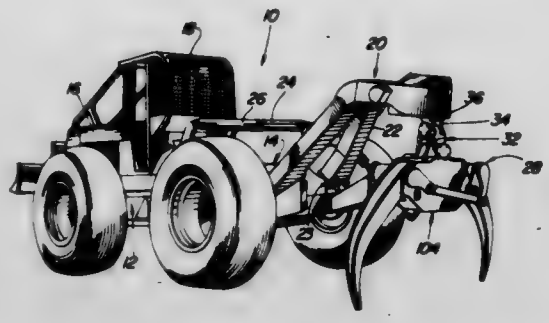
4,335,914
GRAPPLE PIVOT JOINT WITH SWING DAMPENER

Adrian C. Korbel, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Aug. 25, 1980, Ser. No. 180,933
Int. Cl.³ B66C 1/00; F16F 7/04
U.S. Cl. 294—86 R 9 Claims

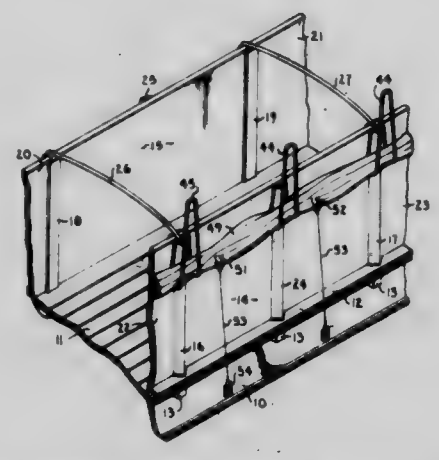
5. In a grapple suspension including a swivel link respectively pivotally connected to a support boom and a grapple head by first and second pivot pin means arranged crosswise to each other so as to define first and second pivot axes, an improved friction brake, comprising: said first and second pivot pin means respectively being non-rotatably fixed to the support boom and to the swivel link; the first pivot pin means including an end portion located beside the swivel link; a first brake disk non-rotatably mounted on the end portion of the first pivot pin means; a brake housing enclosing the end portion of the first pivot pin means and integrally fixed to the swivel link; a second brake disk located in the brake housing and non-rotatably

mounted thereto in a location adjacent the first brake disk; and a Belleville spring located in the brake housing and com-



pressed between a wall of the latter and one of the first and second brake disks.

4,335,915
TRUCK TRAILER LOAD COVER (TARPAULIN) RECEIVER
Merton C. Knapp, 108 S. Grant, Mount Ayr, Iowa 50854
Filed Apr. 24, 1980, Ser. No. 143,366
Int. Cl.³ B60J *11/00*
U.S. Cl. 296—98 **15 Claims**



1. A tarp holder for use with the normally vertical dividing stakes securing removable side panels for a flat bed truck trailer and, further, the normally vertical retaining stakes therefor, said dividing and retaining stakes being hollow centered, at least in the upper portion thereof, in order to receive therewithin the outboard, normally vertical ends of cross beams which overlie the trailer body, comprising:

an integral tarp holder removably engagable with one such stake having the following parts:

a first normally vertical insert length adapted to be removably inserted down into the hollow center of one of said stakes,

a second normally substantially horizontal inboard top member adapted to limit insertion of said insert length in said stake connected to the upper end of said length and further extending outboard of said stake,

a tarp retaining loop having a third normally substantially vertical inboard part connected at its upper end to the inner top member and extending downwardly therefrom,

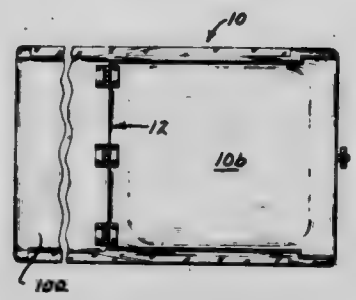
a fourth normally substantially horizontal bottom part connected at its inboard end to and extending outwardly away from said third inboard part and

a fifth normally substantially vertical outboard part connected at its lower end to the outboard end of the fourth bottom part and extending upwardly therefrom past the second inner top member,

the first length so configured in the portion thereof insertable within said stake as to permit the simultaneous presence in said stake therewith of a cross beam end, and

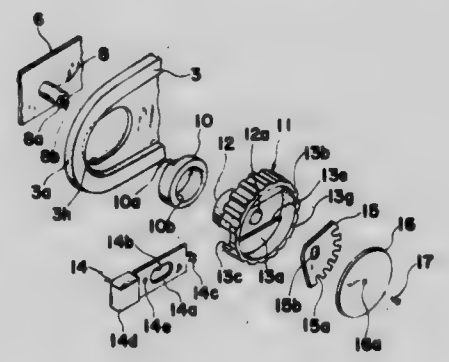
the fifth outboard part being of a length substantially greater than the third inboard part whereby to extend substantially upwardly thereabove and therepast and above said stake.

4,335,916
TRUCK BED CAP STRUCTURE
David R. Gutgsell, 450B Herbig La., Jasper, Ind. 47546
Filed Jun. 12, 1980, Ser. No. 158,736
Int. Cl.³ B60P *7/02*
U.S. Cl. 296—100 **3 Claims**



1. A topper for the bed of a truck having a cab comprising a base section having an upper horizontal surface supported on said truck bed and a secondary section pivotally positioned on said base section along said horizontal surface towards the region of said cab, said secondary section covering a preselected area of said truck bed and selectively movable in an uncovering relationship providing standing access by a user to any uncovered area of said truck bed, and said secondary section including a window in a rear vertical plane thereof providing adjacent surface supported user access.

4,335,917
RECLINING ARRANGEMENT
Sadami Izuno, and Isao Kiyomitsu, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd. and Delta Kogyo Co., Ltd., both of Hiroshima, Japan
Filed Oct. 3, 1979, Ser. No. 81,617
Claims priority, application Japan, Oct. 3, 1978, 53/136460[U]
Int. Cl.³ A47C *1/024*
U.S. Cl. 297—366 **20 Claims**



1. A reclining arrangement for a seat having a seat back reclinably mounted with respect to a seat cushion, which comprises:

a first arm fixed at a first end thereof to one of said seat back and said seat cushion;

a second arm;

a shaft pivotally connecting said second arm to the other of said seat back and said seat cushion at a point adjacent a first end of said second arm;

a rough adjusting mechanism pivotably connecting the second end of said first arm to said first end of said second arm for stepwise rough adjustment of the folding angle of said seat back with respect to said seat cushion; and

a fine adjusting mechanism for mounting the second end of said second arm on said other of said seat back and said seat cushion and for rotating said second arm about said

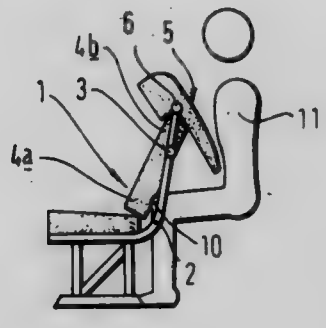
shaft to adjust the angle formed about said shaft between said second arm and said other of said seat back and said seat cushion.

4,335,918

VEHICLE SAFETY SEAT

Douglas J. Cunningham, Lutterworth, England, assignor to BSG International Limited, Birmingham, England

Filed Sep. 10, 1980, Ser. No. 185,815
Int. Cl.³ B60R *21/10*
U.S. Cl. 297—216 **4 Claims**



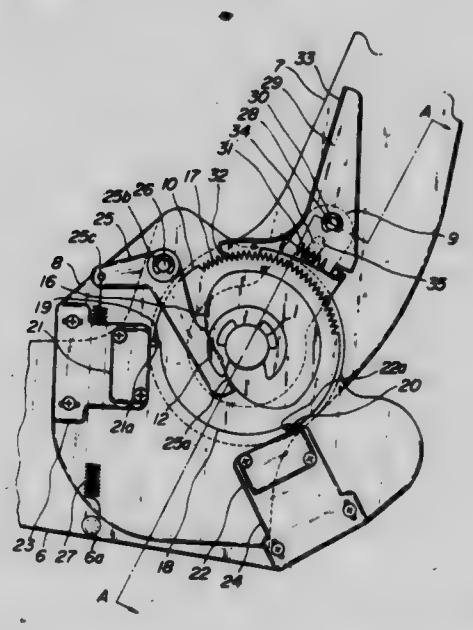
1. A safety seat for a vehicle comprising a frame, a back portion mounted for pivotal movement relative to the frame so as to be movable forwardly by knee pressure of a rearwardly seated occupant due to the force exerted by said occupant's knees when a pre-determined vehicle deceleration is exceeded, and a flap pivotally mounted on the frame and engaging with the back portion so that, when said pre-determined vehicle deceleration is exceeded and said back portion is pivoted forwardly said flap portion is deployed so as to confront the part of said occupant's torso above the lap.

4,335,919

SEAT RECLINING DEVICE

Hideyuki Nagashima, Yokohama, and Ken Kamijo, Yokosuka, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 26, 1980, Ser. No. 124,785
Claims priority, application Japan, Mar. 6, 1979, 54/28845[U]
Int. Cl.³ A47C *1/025*
U.S. Cl. 297—362 **3 Claims**



1. A seat reclining device for a seat cushion plate having a reclining arm which is reclinable in two opposed directions of inclination, the device comprising;

a memory wheel pivotaly attached to and freely rotatable on the reclining arm, said memory wheel including an integrally formed reset cam;

an engagement member coupled to said reclining arm and adapted to be brought into engagement with the memory wheel under application of a bias force so that said memory wheel rotates together with said reclining arm in either direction of inclination, said engagement member including a handle which when operated releases the engagement member from engagement with the memory wheel against the influence of the bias force;

a reset lever engageable with said reset cam under the force of a spring to rotate said reset cam and thereby said memory wheel to a rotary, memorized position relative to the reclining arm when said handle is operated;

switch means mounted on said seat cushion plate and contacting said memory wheel for detecting the direction of inclination of the reclining arm from the memorized position indicated by the memory wheel; and

motor means for driving the reclining arm in a direction opposite the detected direction of inclination to the memorized position in response to said switch means,

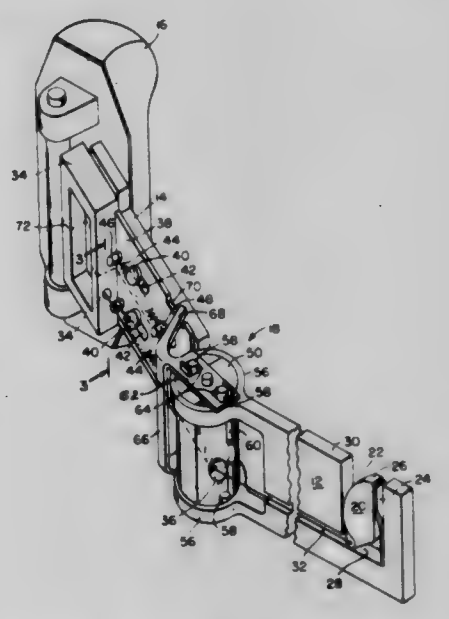
so that any reclined position of the reclining arm may be memorized by operation and release of the handle of the engagement member, the reclining arm thereafter being reclined in either of two opposed directions and returned to the memorized position by said motor means.

4,335,920

HEADREST FOR A DENTAL CHAIR

Emil Hirth, Malsch, Fed. Rep. of Germany, assignor to Sybron Corporation, Rochester, N.Y.

Filed Jul. 17, 1980, Ser. No. 169,869
Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932343
Int. Cl.³ A61G *15/00*; A47C *1/10*
U.S. Cl. 297—408 **11 Claims**



1. In an adjustable headrest for dental chairs including a tongue adapted for sliding insertion into the backrest of a dental chair, a headrest support journaled to the tongue, a first lock at the journal of the headrest support to the tongue for holding the headrest support at a selected articulated position with respect to the tongue and a second lock between the tongue and backrest for holding the tongue at a selected position relative to the backrest, the improvement comprising:

(a) an operator movably mounted to the headrest support, said operator being manually movable with respect to the headrest support from a first to a second position;

(b) means biasing said operator towards said first position;

(c) spring elements urging each of the first and second locks to a locked position;

(d) a cable operated release for one of the locks, the cable of said release having one end connected to said operator;

(e) a lever operated release for the other of said locks, said lever operated release having a lever arm rotated by said operator; and

(f) said cable being pulled and said lever arm being rotated

upon movement of said operator to said second position for releasing both the first and second locks.

4,335,921

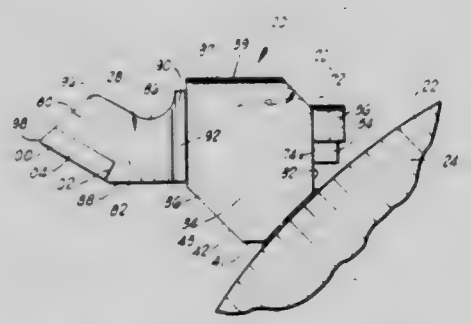
CUTTING HEAD FOR A PAVED ROADWAY RESURFACING APPARATUS

George W. Swisher, Jr., and Thomas L. Steele, both of Oklahoma City, Okla., assignors to CMI Corporation, Oklahoma City, Okla.

Continuation of Ser. No. 803,559, Jun. 6, 1977, abandoned. This application Mar. 12, 1979, Ser. No. 19,470

Int. Cl.³ E21C *35/18*

U.S. Cl. 299—86 **4 Claims**



1. The combination of a support block having an external surface and usuable with a first cutter desired to be nonrotatably mated with the support block and a second cutter desired to be rotatably mated with the support block, wherein:

the support block has a substantially circular bore therethrough intersecting the external surface of the support block at a first end and at a second end of the support block and extending therebetween, wherein the circularity of said bore is maintained between said first end and said second end, wherein the support block is characterized as having shoulder means on the external surface thereof, and wherein the shoulder means of the support block is formed by a portion thereof disposed on the second end thereof, said portion partially occluding the bore extending through the support block;

the first cutter has a shank sized to rotatably mate with said bore and has shoulder means thereon sized and arranged to mate with the support block shoulder means when the shank of the first cutter is mated with the bore of the support block, both of said shoulder means being located and arranged to prevent rotation of the first cutter when the shank of the first cutter is in said bore, wherein the shank of the first cutter has a first end adjacent the first end of the support block and a second end adjacent the second end of the support block when the shank of said first cutter is mated with the bore of the support block and wherein the first cutter includes an axial lug connected to the second end of the shank and protruding from the bore formed through the support block to engage the shoulder means on the support block; and

the second cutter has a shank sized to rotatably mate with said bore and no shoulder means engaging the support block shoulder means when the shank of the second cutter is mated with the bore of the support block, whereby the second cutter will rotate in the support block.

4,335,922

PRESSURE CONTROL UNIT

Volker Berisch, Hattersheim, and Karl Keiner, Schöffengrund, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Jun. 26, 1980, Ser. No. 163,377

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1979, 2927902

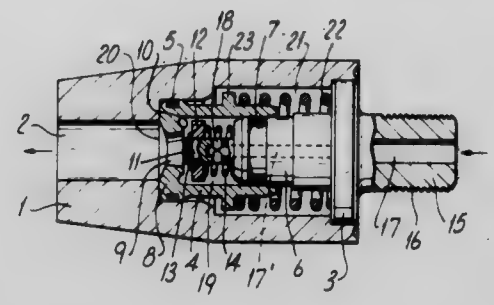
Int. Cl.³ A60T *11/34*

U.S. Cl. 303—6 C **37 Claims**

1. A pressure control unit for motor vehicle brake systems disposed in a pressure medium connection between a master cylinder and at least one slave cylinder of a first hydraulic brake circuit comprising:

a housing having a longitudinal axis;

a differential piston disposed in a bore of said housing having a pressure medium passage between an inlet chamber and an outlet chamber, said piston being acted upon by the force of at least one control spring, said piston being a hollow cylinder coaxial of said axis having one end



thereof slidably sealed in said bore and the other end thereof slidably sealed to the outer surface of a plug disposed in said bore coaxial of said axis and immovably secured to said housing, said piston including adjacent said one end thereof a radial inwardly projecting collar separating said inlet chamber and said outlet chamber; and

a valve having a valve closure member disposed at the end of said plug adjacent said collar operable dependent on the displacement of said piston.

4,335,923

BEARING HOUSING SUPPORT

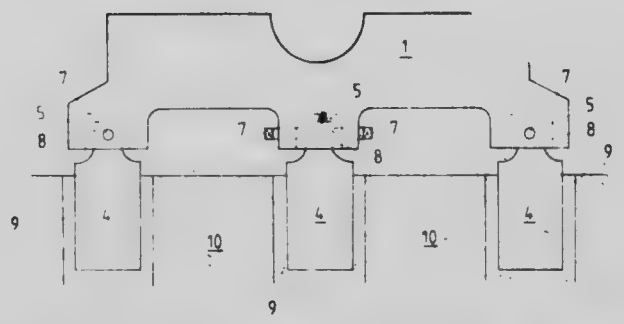
Wolfgang Dömer, Schneisingen, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland

Filed Sep. 12, 1980, Ser. No. 186,548

Claims priority, application Switzerland, Oct. 3, 1979, 8911/79

Int. Cl.³ F16C *35/02, 23/02*

U.S. Cl. 308—15 **6 Claims**



1. A bearing housing support arrangement, especially for turbomachines, comprising:

a foundation;

foundation plates;

a bearing housing;

means for fixing said foundation plates directly to said foundation;

adjustment elements supported on said foundation plates for vertically adjusting said bearing housing;

said bearing housing being supported by means of said adjustment elements upon said foundation plates on said foundation;

horizontal fixing means for horizontally fixing said bearing housing;

said horizontal fixing means comprising holding blocks and adjustment members;

said holding blocks being mounted on the foundation and being engaged by said adjustment members;

said adjustment elements for the vertical adjustment of said bearing housing cooperating with said foundation plates

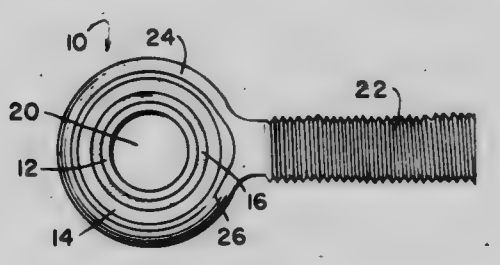
and said foundation and said horizontal fixing means cooperating with said bearing housing serving for adjustment of the bearing housing in all planes.

4,335,924

WEAR RESISTANT BEARING

Albert R. McCloskey, Fairfield, Conn., assignor to Incom International Inc., Pittsburgh, Pa.

Filed Nov. 19, 1980, Ser. No. 208,456
Int. Cl.[3] F16C *23/04*
U.S. Cl. 308—72 13 Claims



1. A bearing assembly comprising

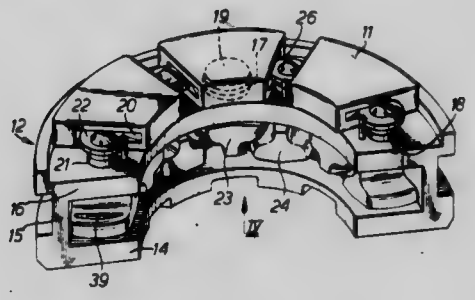
a race member having a spherical surface, said surface being formed of zinc-plated metal base material having a substantially continuous chromium skin layer and a chromium enriched subsurface layer of said zinc-plated metal immediately below said chromium skin layer.

4,335,925

THRUST BEARING

Peter G. Stopp, Hillingdon, England, assignor to The Glacier Metal Company, Limited, Middlesex, England

PCT No. PCT/GB79/00173, § 371 Date Jul. 2, 1980, § 102(e) Date Jul. 2, 1980, PCT Pub. No. WO80/00994, PCT Pub. Date May 15, 1980
PCT Filed Oct. 31, 1979, Ser. No. 197,349
Claims priority, application United Kingdom, Nov. 2, 1978, 42945/78
Int. Cl.[3] F16C *17/06*
U.S. Cl. 308—160 9 Claims



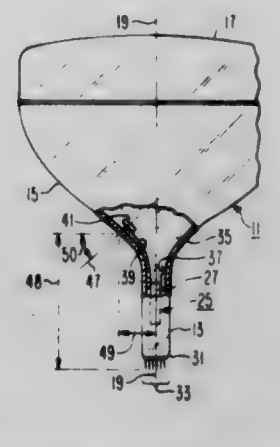
1. A thrust bearing comprising a ring of thrust pads, supporting bars, each supporting one of said thrust pads, and a ring of rockers, each adjacent pair of said rockers having ends overlapping and supporting respective ends of one of said supporting bars, all of said rockers and said supporting bars being identical components, the improvement comprising that said overlapping parts of said ends at one side of said components are each formed with an arcuate ridge, in such a way that where respective ends of a rocker and supporting bar overlap, there are two abutment regions where said ridges cross one another, while at the other side of said rocker and said supporting bar, said components are shaped such that there is a single abutment region.

4,335,926

METHOD FOR VAPORIZING GETTER MATERIAL IN A SUCCESSION OF CATHODE-RAY TUBES

Douglas E. Griesemer, Sr., Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 26, 1980, Ser. No. 134,216
Int. Cl.[3] H01J *9/39*
U.S. Cl. 316—3 8 Claims



1. In a method for vaporizing getter material in a succession of cathode-ray tubes of different sizes and/or shapes, each of said tubes having a longitudinal tube axis and comprising an envelope and a getter container adjacent to the inner surface of said envelope, said getter container having a container centerline, said method including, for each tube,

(i) positioning an induction coil having a coil centerline adjacent to the outer surface of said envelope opposite said getter container,

(ii) and energizing the positioned induction coil so as to heat said getter container by induction and to vaporize getter material therefrom,

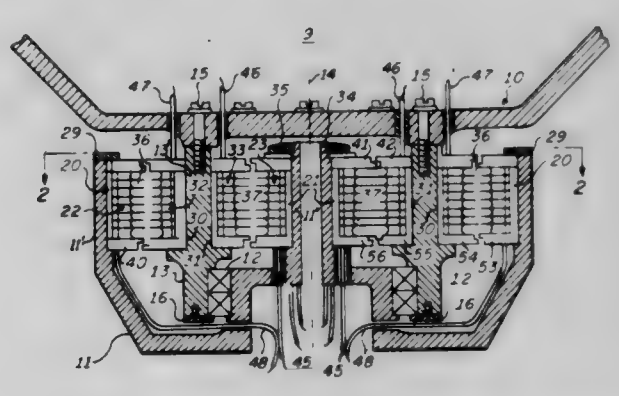
the improvement comprising permanently fixing the getter container of each tube in said succession in such position that said container centerline intersects the outer surface of said envelope at substantially the same distance from said longitudinal tube axis as each of the other tubes in said succession.

4,335,927

MULTI-CIRCUIT ROTARY ELECTRICAL CONDUCTOR ASSEMBLY

Terry S. Allen, and Peter E. Jacobson, both of Phoenix, Ariz., assignors to Sperry Corporation, New York, N.Y.

Filed Mar. 20, 1980, Ser. No. 132,243
Int. Cl.[3] H01R *39/00*
U.S. Cl. 339—5 R 6 Claims



1. A conductor assembly for conducting the electrical energy of a plurality of electrical circuits across the axis of rotation of a rotary joint comprising:

a first member rotatable about said axis of rotation having a first cylindrical surface and having a second cylindrical surface of greater diameter than said first cylindrical surface,

a second member rotatable about said axis of rotation, having a third cylindrical surface and a fourth cylindrical surface

which are disposed between the first and second cylindrical surfaces of said first member,

at least a first pair of circular, coplanar, electrically conductive rings, one thereof being disposed on the first cylindrical surface of said first member and the other thereof being disposed on the third cylindrical surface of said second member, the respective diameters of said first pair of rings providing a first relatively large radial gap therebetween,

at least a second pair of circular, coplanar, electrically conductive rings, one thereof being disposed on the second cylindrical surface of said first member and the other thereof being disposed on the fourth cylindrical surface of said second member, the respective diameters of said second pair of rings providing a second relatively large radial gap therebetween.

at least one resilient, filamentary, conductive circular loop disposed in each of said first and second gaps having a free diameter greater than the radius of said gap whereby said loops produce compressive forces on said rings for providing electrical conductivity between said pairs of rings,

the relative diameters of said first and second pairs of rings being such that they lie in a substantially common plane normal to said axis,

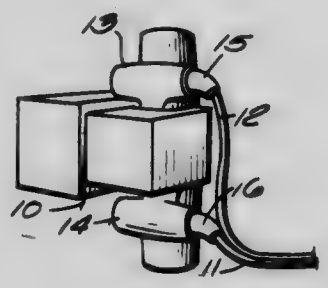
whereby said plurality of circuits are accommodated without substantially increasing the length of said conductor assembly along said axis.

4,335,928

HIGH VOLTAGE CONNECTOR FOR X-RAY EQUIPMENT

David M. Barrett, Brookfield; William D. Love, Waukesha, and Joseph L. Donaldson, Milwaukee, all of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,104
Int. Cl.[3] H01R *4/00*
U.S. Cl. 339—94 C **11 Claims**



1. A high voltage cable connector including a receptacle comprising a generally tubular insulating body that is closed at one end and open at its opposite end and has a radially extending surface surrounding its open end, an insulating cable terminal sleeve having a body portion for fitting into said receptacle with an interspace remaining between the sleeve and the receptacle for being occupied by a fluid dielectric medium, said sleeve having a radially extending surface secured in spaced apart relation relative to said radially extending surface on the receptacle when the sleeve is inserted in the receptacle,

means for providing a seal between said radially extending surfaces, and

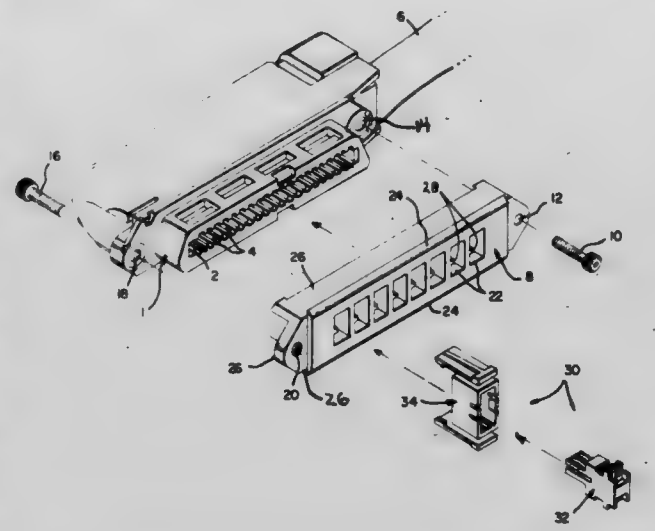
the improvement comprising a compressible and expansible element disposed between said sleeve and receptacle in contact with the dielectric medium in said interspace for compressing and expanding with thermally induced increasing and decreasing, respectively, volumetric changes of the medium.

4,335,929

LINE ASSIGNMENT MODULE

Lynn W. Abernethy, Advance, N.C., assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 6, 1980, Ser. No. 147,030
Int. Cl.[3] H01R *11/20, 13/518*
U.S. Cl. 339—97 R **5 Claims**



1. A kit of parts for tapping selected receptacle contacts of a receptacle connector terminated to individual conductors of a telephone cable, comprising:

a face plate having one or a plurality of plug receiving openings for mounting over a plug receiving cavity of a receptacle connector containing multiple pairs of receptacle contact terminals,

a plug insertable through a selected said plug receiving opening and into a portion of said plug receiving cavity, said plug having one or more pairs of plug contact terminals for frictionally engaging respective said receptacle contact terminals, said plug contact terminals having slotted plate portions for connection to insulated conductors and

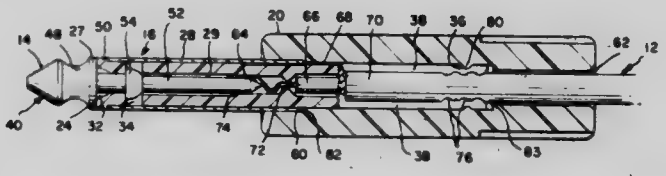
a housing for enclosing said plug and for retaining said insulated conductors in said slotted plate portions, said housing latching to said face plate.

4,335,930

TOOLLESS PHONE PLUG

Steven Feldman, Seminole, Fla., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 16, 1980, Ser. No. 159,901
Int. Cl.[3] H01R *17/18*
U.S. Cl. 339—183 **14 Claims**



1. A phone plug of the type having axially aligned discrete first and second conductive surfaces thereon, said plug comprising:

a dielectric plug body having a first end, a second end, a cylindrical surface lying between said ends, and a bore extending axially therethrough from said first end to said second end,

a conductive tip member having a first end, a second end, and a tapered head at said first end which forms said first conductive surface, a neck adjacent to said head, and a shank lying between said neck and said second end, said shank having a diameter substantially equal to the bore in the dielectric plug body, said shank fitting into said bore with

the neck of the tip member proximate to the first end of the plug body,

an electrically conductive tubular sleeve which forms said second conductive surface, said sleeve having a first end, a second end, an inside diameter substantially equal to the diameter of the cylindrical surface, and an outside diameter substantially equal to the diameter of said tapered head on said tip member, said sleeve fitting over said cylindrical surface of said plug body with said first end of said sleeve proximate to said first end of said plug body and spaced from said tip member,

resilient latching means effective between said tip member and said plug body to retain said shank in said bore, said plug body being composed of resilient material,

means for terminating a first conductor to said conductive tip member,

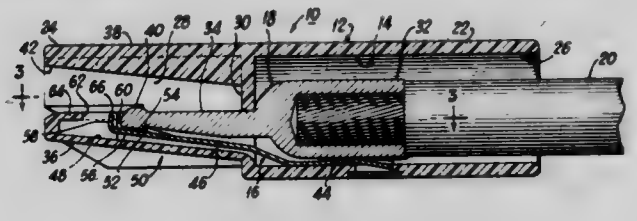
means for terminating a second conductor to said conductive tubular sleeve.

4,335,931

POWER CABLE CONNECTOR WITH RETENTION SPRING

Joseph D. Kinnear, Western Springs, Ill., assignor to Brad Harrison Company, LaGrange, Ill.

Filed Jul. 30, 1980, Ser. No. 173,603
Int. Cl.³ H01R *13/422*
U.S. Cl. 339—217 S **10 Claims**



1. In a power cable connector for battery cables and the like;

a housing formed of electrically insulating material;

at least one terminal receiving cavity extending through said housing in a longitudinal direction between forward and rear ends of the housing;

a terminal longitudinally insertable into said cavity from the rear end of said housing and including a contact portion adjacent the forward end of the terminal and a cable attachment structure adjacent the rear end of the terminal;

a cantilever spring including a base portion mounted in said housing and including a resiliently flexible biasing portion extending in the longitudinal direction toward the contact portion of said terminal and disposed between a wall of said cavity and said terminal;

a latching structure defined on said biasing portion engageable with said terminal to prevent withdrawal of said terminal from said cavity;

a release tongue defined on said biasing portion permitting said biasing portion to be flexed in a transverse direction away from said terminal and toward said cavity wall to disengage said latching structure;

and the improvement comprising:

a barrier portion defined on said release tongue for covering the gap formed between said terminal and said biasing portion upon disengagement of said latch structure;

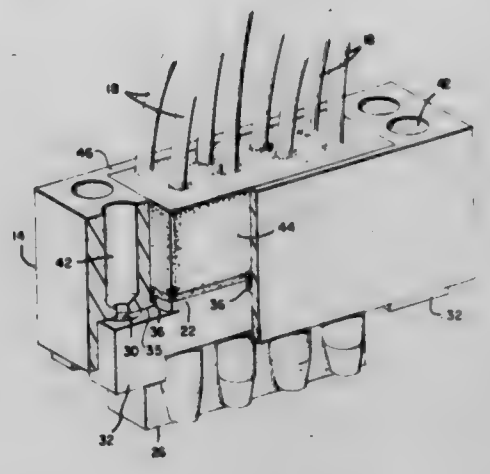
said barrier portion comprising a segment of said release tongue extending in a transverse direction away from said cavity wall and overlying a transverse wall of said terminal.

4,335,932

ELASTOMERIC POTTING SHELL

Henry O. Herrmann, Jr., Mt. Joy, Pa., assignor to AMP Incorporated, Harriburg, Pa.

Filed Feb. 29, 1980, Ser. No. 125,824
Int. Cl.³ B29C *6/04*; H01R *13/504*
U.S. Cl. 339—218 M **6 Claims**



1. A potting shell of elastomeric material, said potting shell comprising:

a series of interconnected walls forming a closed profile that defines an open-ended central chamber, said central chamber having a connector-receiving end and a rearward end, said connector-receiving end being profiled to receive a portion of a rigid connector housing; and

a resilient inwardly directed annular flange adjacent said connector-receiving end, said annular flange defining a profile of smaller area than that of said portion of said housing whereby,

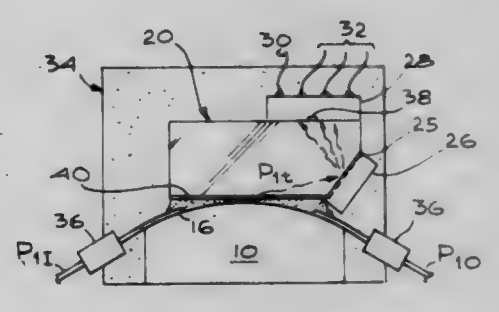
when said connector-receiving end receives said portion of said housing therein, said annular flange is deflected in a direction away from said connector-receiving end, said annular flange thereby wipingly engaging said portion of said housing as an expandable seal so that potting material introduced into said central chamber from said rearward end is prevented from flowing out of said central chamber at said connector-receiving end.

4,335,933

FIBER OPTIC WAVELENGTH DEMULTIPLEXER

John P. Palmer, Pomona, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

Filed Jun. 16, 1980, Ser. No. 160,395
Int. Cl.³ G02B *5/172*; H04B *9/00*
U.S. Cl. 350—96.19 **18 Claims**



1. A fiber optic directional demultiplexer for tapping off predetermined portions of wavelength optical energy from a single optical fiber and demultiplexing the optical energy comprising:

a curved form for supporting an optical fiber and shaping a portion thereof to a predetermined segment of a circle;

a single optical fiber mounted on said form;

means for affixing the optical fiber along a portion thereof to the curved portion of the form of a selected radius of

curvature, the fiber and affixing means in the center section of the curved portion of the fiber being lapped and polished to a preselected depth of penetration into the fiber to develop a planar surface;

prism means having a face of a predetermined characteristic angle affixed to said planar surface in contact with the optical fiber and affixed thereto by means of an optically transparent adhesive;

light diffracting means formed on said prism face in line with the path of multiplexed light coupled from the fiber to the prism and effective to reflect and diffract selected portions of said light; and

photosensitive means having plural photosensitive elements positioned adjacent said prism to respond selectively to different wavelengths of light directed from the light diffracting means.

4,335,934

SINGLE MODE FIBRE AND METHOD OF MAKING

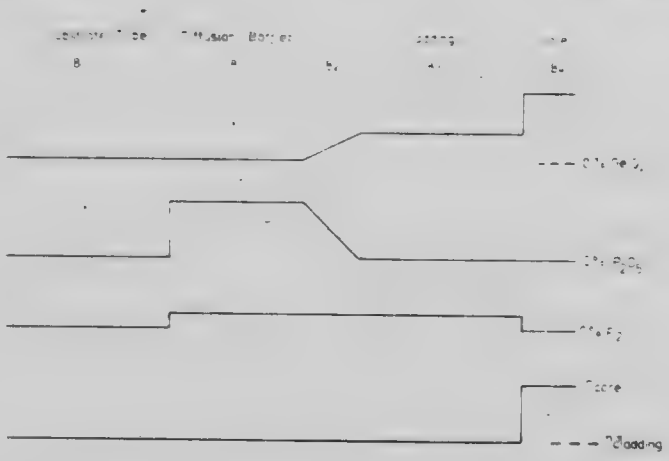
Philip W. Black, Bishop's Stortford, and John Irven, Stansted, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Oct. 29, 1980, Ser. No. 201,943

Claims priority, application United Kingdom, Oct. 29, 1979, 7937402

Int. Cl.³ G02B *5/172*; C03B *37/075*

U.S. Cl. 350—96.33 **10 Claims**



1. A method of making an optical fiber preform suitable for use in the manufacture of single mode optical fiber, comprising the steps of:

depositing, by vapor reaction, on the bore of a silica substrate tube, a layer of fluorine doped silica cladding glass containing at least 0.5 mole % germania and having a refractive index not exceeding that of pure silica;

depositing, by vapor reaction, on said layer of cladding glass, a layer of germania doped silica core glass; and,

collapsing the bore of the tube to form a solid cross-section optical fiber preform.

10. A method of making an optical fiber preform suitable for use in the manufacture of single mode optical fiber, comprising the steps of:

depositing on the bore of a silica substrate tube a diffusion barrier layer containing an oxide of phosphorus,

depositing, by vapor reaction, on said diffusion barrier layer a layer of fluorine doped silica cladding glass containing at least 0.5 mole % of an oxide of an element for which the fundamental vibrational absorption of the bond between oxygen and that element lies at a longer wavelength that that of the bond between oxygen and silicon, and oxide of phorphorus in an amount not exceeding 0.5 mole %, the mole percent of said oxide of phosphorus in said diffusion barrier layer being higher than that of said cladding glass, said cladding glass having a refractive index not exceeding that of pure silica;

depositing, by vapor reaction, on said layer of cladding glass, a layer of silica core glass containing an oxide of an element for which the fundamental vibrational absorption of the bond between oxygen and that element lies at a longer wavelength than that of the bond between oxygen and silicon; and

collapsing the bore of the tube to form a solid cross-section optical fiber preform.

4,335,935

ARRANGEMENT FOR THE INDUCED ABSORPTION OF ELECTROMAGNETIC RADIATION

Hubert Pohlack, Jena, German Democratic Rep., assignor to Jenoptik Jena GmbH, Jena, German Democratic Rep.

Filed Apr. 25, 1980, Ser. No. 143,574

Claims priority, application German Democratic Rep., Apr. 27, 1979, 212541

Int. Cl.³ G02B *5/28*

U.S. Cl. 350—166 **4 Claims**



1. In an arrangement for the absorption of electromagnetic radiation of a spectral interval including a selectable wavelength λ, comprised of two radiation-permeable materials and one absorbing layer that is very thin as compared to the wavelength, the improvement wherein non-absorbing or only slightly absorbing λ/4 interference layers of low refractive index single layers and high refractive index single layers of refractive indicies n_n and n_h respectively are alternately arranged in the direction of the incident radiation following said absorbing layer, and that said absorbing layer has a thickness d and an absorption coefficient k such that the relationship

$$n_1^2A-2n_1B+C=0$$

is satisfied,
where

$$A=1-(\sin n\chi)^2+(\sin hk\chi)^2$$

$$B=\tfrac{1}{2}(k\sin 2n\chi+n\sin h2k\chi)$$

$$C=(n^2+k^2)[(\sin n\chi)^2+\sin hk\chi)^2]$$

and where $\chi=(2\pi/\lambda)\cdot d$, n is the refractive index of said absorbing layer, and n_1 is the refractive index of the medium positioned in front of said absorbing layer.

4,335,936

MATRIX ELECTRODE STRUCTURE IN A MULTI-LAYER MATRIX TYPE LIQUID CRYSTAL DISPLAY

Keisaku Nonomura, Nara; Hisashi Uede, Yamatokoriyama; Tomio Wada, and Toshiaki Takamatsu, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 12, 1978, Ser. No. 950,782

Claims priority, application Japan, Oct. 14, 1977, 52-123642; Mar. 23, 1978, 53-34429

Int. Cl.³ G02F *1/133*

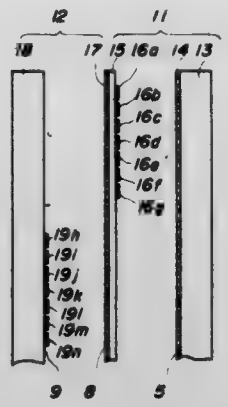
U.S. Cl. 350—335 **2 Claims**

1. A multilayer matrix type liquid crystal display having front and rear major surfaces, comprising:

a first liquid crystal cell including a first plurality of column electrodes and a first group of row electrodes oriented substantially perpendicular to said first plurality of column electrodes, all of the row electrodes in said first liquid crystal cell being arranged within a first area and collectively defining said first group of row electrodes; and

a second liquid crystal cell stacked over said first liquid crystal cell and including a second plurality of column electrodes and a second group of row electrodes oriented substantially perpendicular to said second plurality of column electrodes, all of the row electrodes in said second

liquid crystal cell being arranged within a second area and collectively defining said second group of row electrodes, the first area and the second area, defining the first group of



row electrodes and the second group of row electrodes, respectively, not overlapping in a direction substantially perpendicular to the major surfaces of said liquid crystal display.

4,335,937

ELECTRODE ASSEMBLY OF A LIQUID CRYSTAL DISPLAY

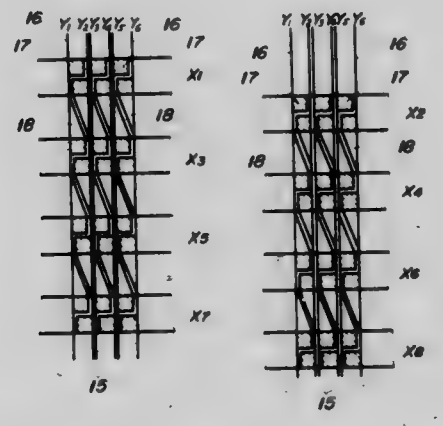
Toshiaki Takamatsu, Nara; Keiichiro Shimizu, Yamatokoriyama; Tomio Wada, and Keisaku Nonomura, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 27, 1978, Ser. No. 955,333

Claims priority, application Japan, Nov. 11, 1977, 52-151132[U]

Int. Cl.³ G02F *1/133*

U.S. Cl. 350—336 **2 Claims**



1. An electrode structure for a matrix-type liquid crystal display including a first group of spaced parallel electrodes disposed in a first plane, a second group of spaced parallel electrodes disposed in a second plane and orthogonally crossing said first group of electrodes, said first and second groups of electrodes being disposed opposite each other and spaced with liquid crystal material interposed therebetween, each electrode of said first group of electrodes comprising:

a wire extending transversely to said second group of electrodes, said wire defining a continuous, electrically-conductive path of a predetermined width in said first plane;

a first electrode portion disposed opposite to the electrodes in said second group connected to and extending from said wire in said first plane; and

extension electrodes connected to and extending from said wire in said first plane in regions between said first electrode portions which are not opposite to an electrode in said second group, said extension electrodes defining an electrically-conductive path which is wider in said first plane than the conductive path defined by said wire.

4,335,938

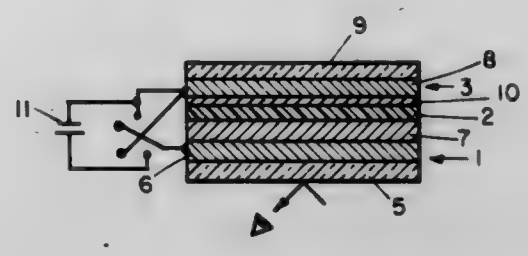
ELECTROCHROMIC CELLS WITH IMPROVED ELECTROLYTE SYSTEM

Robert D. Giglia, Rye, N.Y., and Sun Y. Huang, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Aug. 30, 1979, Ser. No. 70,753

Int. Cl.³ G02F *1/17*

U.S. Cl. 350—357 **10 Claims**



1. In an electrochromic device comprising a polymeric current-carrier-permeable layer in ion-conductive contact with a layer of persistent electrochromic inorganic oxide with both of said layers disposed between electrode layers and means for alternately applying electric fields of opposite polarity across said electrodes for changing the coloration in said electrochromic layer, the improvement wherein said current-carrier-permeable layer comprises a layer of polymeric electrolyte consisting of poly(2-acrylamido-2-methylpropane sulfonic acid) homopolymer with water.

4,335,939

OPTICAL MODULATORS AND APPARATUS INCLUDING SUCH MODULATORS

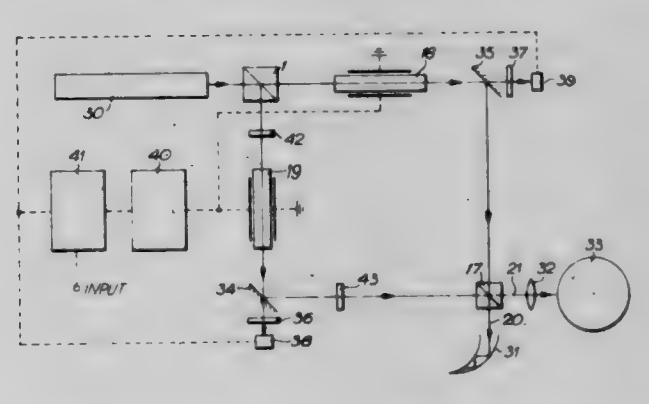
John E. Stovell; John Aughton, and Alberto Yi, all of London, England, assignors to Crosfield Electronics Limited, London, England

Filed Apr. 14, 1980, Ser. No. 139,627

Claims priority, application United Kingdom, Apr. 9, 1979, 7912420

Int. Cl.³ G02F *1/03*

U.S. Cl. 350—385 **18 Claims**



1. A laser engraving apparatus for engraving printing cylinders comprising, a laser source, an optical modulator having a beam splitter for resolving a light beam from said source incident upon it into two plane polarised components said two plane polarised components having mutually perpendicular polarisation states, electro-optic cell means arranged to receive both of said plane polarised components, said electro-optic cell means in use, changing the state of polarisation of both of said plane polarised components to a corresponding extent, and analyser means arranged to receive both of said components leaving said electro-optic cell means, whereby the intensity of light output from said analyser means is a function of said change in said state of polarisation generated in both components during their passage through said electro-optic cell means, wherein said optical modulator includes two partially transmitting mirrors, one of said partially transmitting mirrors being located in the path of each of said components down-

stream from said beam splitter; said apparatus also including control means to supply an electric signal to said electro-optic means, and a dichoric polariser and a photodetector located to receive the part of each of said components transmitted by said partially transmitting mirrors, the output of said photodetectors providing a feedback signal to said control means to control said electric signal applied to said electro-optic means.

4,335,940

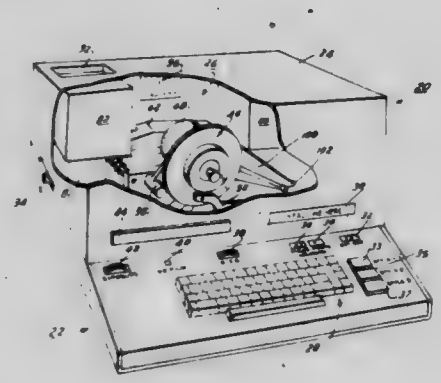
PHOTOCOMPOSING MACHINE

Grant T. Morgan, North Andover, Mass., assignor to Autologic, S.A., Bussigny-pres-Lausanne, Switzerland

Division of Ser. No. 92,465, Nov. 8, 1979. This application Oct. 27, 1980, Ser. No. 201,342

Int. Cl.³ G03B *15/24, 23/00, 17/06*

U.S. Cl. 354—8 **9 Claims**



5. In or for a photocomposing device, means for representing the total of the widths of character composed in a line of characters, size changing means for changing the size attributed to characters being composed, and means, responsive, to the operation of said size changing means to change to a new size, for re-calculating and displaying the total of the widths of the characters already set in the line as if the line originally had been set using said new size.

4,335,941

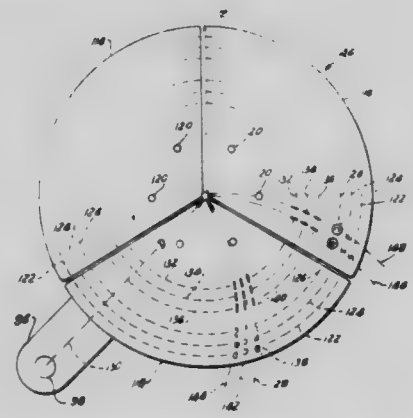
PHOTOCOMPOSING MACHINE

Louis M. Moyroud, Delray Beach, Fla., and Grant T. Morgan, Bayshore, N.Y., assignors to Autologic, S.A., Bussigny-pres-Lausanne, Switzerland

Filed Nov. 8, 1979, Ser. No. 92,465

Int. Cl.³ G03B *15/24, 17/06*

U.S. Cl. 354—15 **9 Claims**



1. A rotary character matrix bearing a plurality of concentric arcuate rows of characters and at least one arcuate row of timing slits, there being a slit adjacent and aligned with each character along the circumference of an alignment circle having a center offset from the rotational axis of said matrix.

4,335,942

CAMERA PROVIDED WITH AUTOMATIC FOCUS DETECTOR

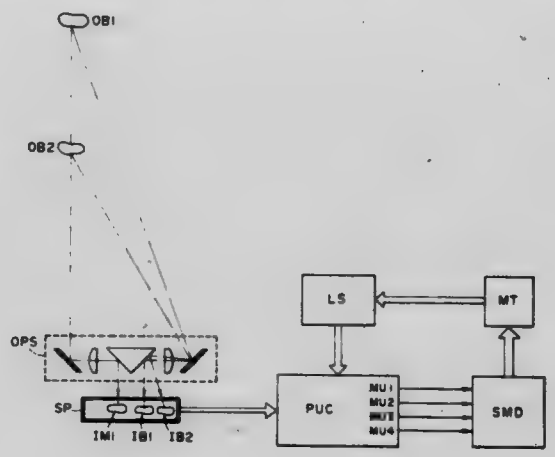
Tokuichi Tsunekawa, Yokohama, and Takashi Amikura, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 21, 1980, Ser. No. 199,262

Claims priority, application Japan, Oct. 26, 1979, 54-139549; Oct. 29, 1979, 54-140045

Int. Cl.³ G03B *7/08*

U.S. Cl. 354—25 **11 Claims**



1. A camera provided with an automatic focus detector, comprising:

a focusing state detecting circuit for discriminating the state of focus of an object image on a predetermined focal plane of a photographing lens from among at least three different states including forward-focus, in-focus and rearward-focus and for producing one of at least three different electrical signals corresponding to said at least three different focusing states, respectively, as an output signal;

photographing lens driving control means for moving the photographing lens along the photographing optical axis in accordance with the output signal from said focusing state detecting circuit and controlling the movement of the photographing lens in such manner that the focusing state on the focal plane can be brought into the in-focus state; and

a time discriminating circuit for discriminating whether or not the output signal from said focusing state detecting circuit is issued continuously for a time longer than a predetermined time and, when continuously issued for the predetermined time allowing said photographing lens driving control means to drive the photographing lens, wherein said time discriminating circuit comprises integration circuit means which starts integrating from the time when the state of the output from said focusing state detecting circuit changes; switching circuit means which operates when the integrated output from said integration circuit means exceeds a predetermined level or lowers below said level; and resetting means for resetting said integration circuit when the next change in the state of the output from said detecting circuit occurs.

4,335,943

COLOR COMPENSATING DEVICE FOR A CAMERA

Saburo Numata, 3-4948-501, Minamiurawa, Urawa-shi, Saitama-ken, Japan

Continuation-in-part of Ser. No. 96,059, Nov. 29, 1979, abandoned. This application Nov. 28, 1980, Ser. No. 211,437

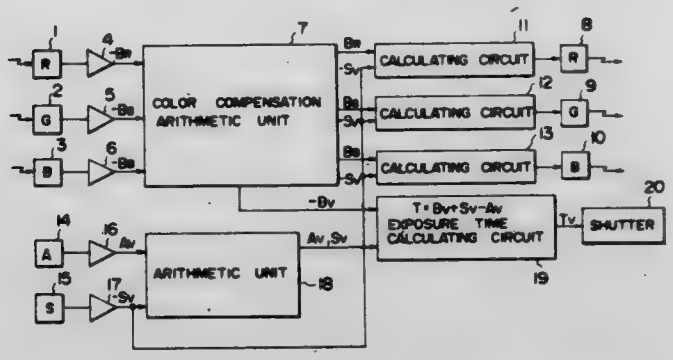
Claims priority, application Japan, Nov. 22, 1978, 53-144500

Int. Cl.³ G03B *7/081*

U.S. Cl. 354—60 R **6 Claims**

1. A color compensating device for a camera comprising measuring means for measuring blue, green and red light components of the light from a subject to be photographed, a plurality of light sources of different colors provided within the camera, a color compensation arithmetic unit for calculating the necessary amount of light of different colors of said light sources to which the film in the camera should be exposed

for color compensation based on the outputs of said measuring means, and means for turning on said light sources selectively



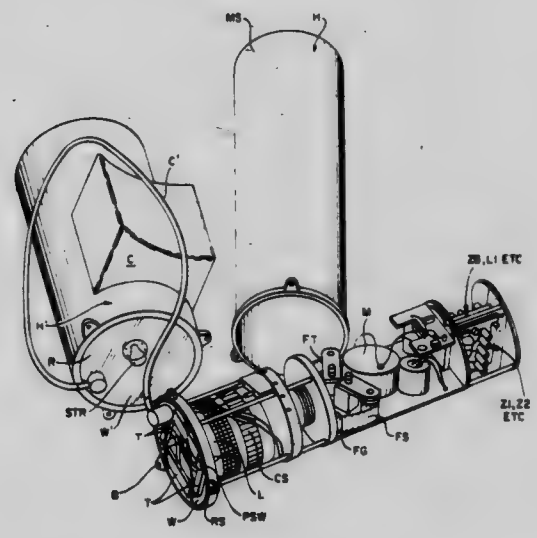
according to the output of said arithmetic unit to expose the film to colors of light as necessary for color compensation.

4,335,944

APPARATUS FOR UNDERWATER IMAGE-RECORDING AS BY SONAR-TRIGGERED ELAPSED TIME STROBE PHOTOGRAPHY AND THE LIKE

Duane Marshall, 9 Hadley Rd., Lexington, Mass. 02173

Filed Jul. 23, 1980, Ser. No. 171,373
Int. Cl.³ G03B *17/08, 17/36, 15/04, 9/52*
U.S. Cl. 354—64 **17 Claims**



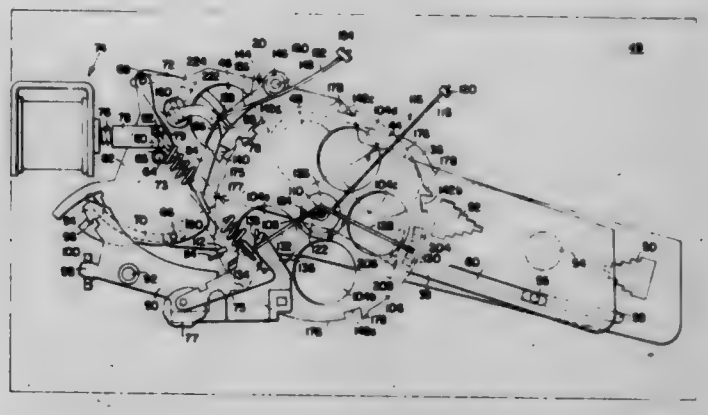
1. In a sonar-controlled image-recording apparatus having water-tight housing means containing the sonar and image-recording apparatus, an acoustic and light transparent window provided as a wall of the housing; lens means connected with the image-recording apparatus mounted within the housing in proximity to said window; transducer means connected with the sonar apparatus and disposed to transmit and receive sound waves at said window, being mounted outside a field of view of the lens means and shaped to have a sonar beam axis substantially co-directional with an axis of the lens means; and control means operable, when the transducer means receives echoed sound waves from an underwater object in front of the said window and of predetermined characteristics and within predetermined range limits of said window within which image-recording underwater is useful, for activating the image-recording apparatus to enable recording of the underwater object.

4,335,945

CAMERA WITH STRUCTURE FOR ADJUSTING LENS DISC VELOCITY AND CALIBRATION METHOD

Bruce K. Johnson, Andover, and Kenneth J. Launie, Stoneham, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1981, Ser. No. 222,013
Int. Cl.³ G03B *13/18, 9/08*
U.S. Cl. 354—197 **6 Claims**



1. A camera having means for defining a film plane, said camera comprising:

a plurality of discrete lens elements each having a different focal length;

a disc for holding said plurality of lens elements in circumferentially spaced apart relation with respect to each other for rotation about a center axis, rotation of said disc from an initial position operating to sequentially move each of said lens elements into position to focus an image at the camera film plane of a photographic subject located within a different corresponding camera-to-subject distance range;

a blade mechanism; means for mounting said blade mechanism for displacement between one arrangement in which said blade mechanism blocks transmission of scene light to the film plane and another arrangement in which said blade mechanism unblocks transmission of scene light to the film plane;

actuable drive means for displacing said blade mechanism between its said one and another arrangements to define an exposure interval;

a torsion spring having a first arm configured to be fixed during operation and an acceleration arm angularly displaceable relative to said first arm to vary the amount of energy stored in said spring as a function of the angular displacement therebetween, said acceleration arm also being configured to be releasably held at cocked energy storing initial position fixed in its relation to said disc and, upon release, to move to a terminal position, said acceleration arm operating during such movement from said initial to said terminal position to accelerate said disc with a force determined by the amount of energy stored in said spring when said acceleration arm is in said cocked initial position for effecting rotation of said disc at a rotational velocity proportional to said force to sequentially move each of said lens elements into focusing position;

means for releasably latching said blade mechanism in its said scene light blocking arrangement and also for releasably holding said acceleration arm in said cocked initial position, said blade latching and acceleration arm holding means being movable from a blade mechanism latching position to a blade mechanism unlatching position to enable said drive means to displace said blade mechanism from said blocking to said unblocking arrangement, said movement from said latching to said unlatching position simultaneously operating to release said acceleration arm for movement from said initial cocked position to said terminal position to effect rotation of said lens holding means;

means for releasably holding said first arm at a selected one of a plurality of different fixed positions relative to said acceleration arm located at its said cocked position, each of said different fixed positions providing a corresponding different angular displacement between said cocked acceleration arm and said first arm to thereby vary the energy stored in said spring when said acceleration arm is at said cocked position for the purpose of adjusting the rotational velocity achieved by said disc in response to said acceleration force applied thereto by said acceleration arm;

said disc forming part of an automatic lens focusing system and further including a plurality of tang receiving notches disposed in predetermined circumferentially spaced apart relation along a peripheral section of said disc having an outer edge portion that is at a constant radial distance from said axis between adjacent notches, each of said notches being disposed in predetermined angular relation to a corresponding one of said lens elements, said focusing system being of the type including a sonic ranging system providing an echo signal indication of camera-to-subject distance;

a lens disc pawl, including a tang thereon, being mounted for movement between a retracted position wherein said tang is disengaged from said disc, an intermediate position wherein said tang engages said outer edge portion between adjacent notches and rides thereon in response to disc rotation and a terminal position wherein said tang is automatically received in the next approaching notch following movement of said pawl to said intermediate position to stop disc rotation and locate a corresponding one of said lens elements at said focusing position;

means correlated to a predetermined rotational velocity of said disc and responsive to provision of said echo signal indication for effecting movement of said lens pawl from said retracted to said intermediate position to locate said tang in engagement with said outer edge portion ahead of the appropriate one of said notches;

a cover located in visually blocking relation to said peripheral section of said disc and said pawl; and

means for defining an aperture in said cover allowing observation of the motion of said pawl to determine the length of time said tang rides on said outer edge portion before it is received in said approaching notch, said ride-time being proportional to and providing an indication of disc velocity to determine if adjustment of said torsion spring is necessary to vary disc velocity.

4,335,946

CONTROLLED DISENGAGING DEVICE IN AUTOMATIC EXPOSURE CAMERA OF THE LENS STOP VALUE CONTROL TYPE

Hiroshi Kurei, Kawagoe, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 2, 1978, Ser. No. 874,674

Claims priority, application Japan, Feb. 25, 1977, 52-22073[U]

Int. Cl.³ G03B *9/02, 9/32*

U.S. Cl. 354—228 **1 Claim**

1. An automatic exposure camera of the lens stop value control type, comprising:

a lens stop release member actuated by a lens stopping operation;

a slow speed mechanism which operates to increase the displacement of said lens stop release member, said slow speed mechanism having a ratchet wheel, a control lever and ratchet pawl biased for engagement with said ratchet wheel;

a lens stop magnet which when energized holds said control lever and ratchet pawl out of engagement with said ratchet wheel;

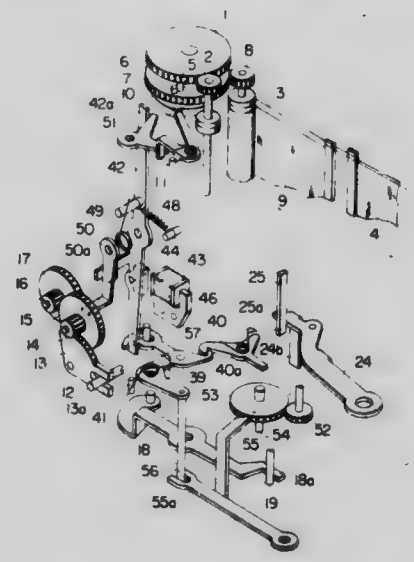
a set lever pivotable between first and second positions and which, when in said first position holds said control lever in engagement with said lens stop magnet;

a locking lever normally holding said set lever in its first position and releasing said set lever in response to the release operation of the camera;

electrical means for computing a lens stop value for a preset shutter speed and detecting when the lens stop value reaches the computed value, said electrical means deenergizing said lens stop magnet when the lens stop value reaches the computed value thereby releasing said control lever and ratchet pawl to engage said ratchet wheel and stop said slow speed mechanism;

front shutter curtain driving means released by said control lever;

rear shutter curtain driving means released a preset time after



the release of said front shutter curtain driving means, said front and rear shutter curtain driving means respectively causing the front and rear shutter curtains to run in front of a film plane to thereby expose a photographic film;

a gear rotated by said rear curtain driving means;

a restoring lever coupled to said set lever; and

a pin provided on the periphery of said gear for engaging and rotating said restoring lever toward the end of the running of said rear shutter curtain, whereby said set lever is rotated to its first position and held there by said locking lever, thus disengaging said control lever and ratchet pawl from said ratchet wheel and thereby releasing said slow speed mechanism.

4,335,947

CAMERA SHUTTER ASSEMBLY

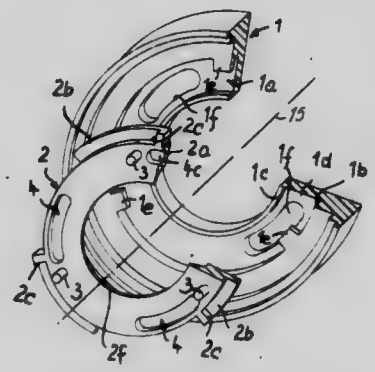
Karl-Heinz Lange, Bünde, Fed. Rep. of Germany, assignor to Balda-Werke Photographische Geräte und Kunststoff GmbH & Co., KG, Bünde, Fed. Rep. of Germany

Filed Nov. 20, 1980, Ser. No. 208,742

Claims priority, application Fed. Rep. of Germany, Nov. 21, 1979, 2946876; Nov. 3, 1980, 3041208

Int. Cl.³ G03B *9/08, 9/02*

U.S. Cl. 354—230 **19 Claims**



1. In a camera leaf shutter assembly having a central axis in common with the objective axis including a stationary carrier ring, at least one activation ring rotatably mounted on the

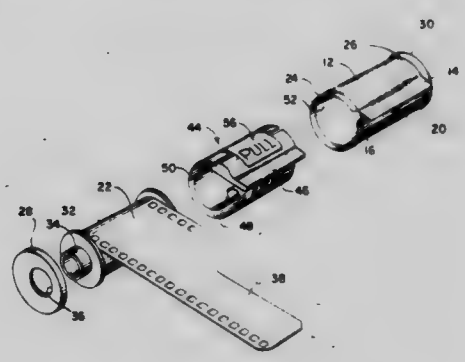
carrier ring and shutter blades oscillatably mounted on the activation ring, the improvement which comprises forming the carrier ring with an annular groove having a radial inner wall and a radial outer wall for receiving the activation ring, the outer wall including means for securing an activation ring in said annular groove and the carrier ring and activation ring of a synthetic material.

4,335,948

FILM RETRIEVER

Vincent L. Cocco, Wakefield, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 6, 1981, Ser. No. 251,142
Int. Cl.[3] G03B *17/26*; B25B *9/00*
U.S. Cl. 354—275 8 Claims



1. A photographic film assemblage comprising:

a film cassette including means defining an exit through which a strip of film may pass to the exterior of said film cassette;

means for supporting a strip of film, said supporting means being rotatably supported within said film cassette;

a strip of film coiled about said supporting means, said film including a leading end which is adapted to extend to the exterior of said film cassette via said exit and a trailing end secured to said supporting means; and

means for retrieving said leading end of said film from within said film cassette, said retrieving means including a strip of flexible sheet material having first and second opposite ends and an intermediate section therebetween, said sheet material being wound about said film such that said intermediate section is located between and in engagement with an outwardly facing surface of the outermost convolution of said film and an interior surface of said film cassette with said first and second ends thereof extending through said exit to the exterior of said film cassette, whereby movement of said leading end of said film from within said film cassette may be accomplished by pulling said first end of said sheet material in a manner so as to withdraw said intermediate section of said sheet material from film cassette.

4,335,949

REPRODUCTION MACHINE WITH RECIRCULATING DOCUMENT HANDLER DIAGNOSTICS

William P. Kukucka, Webster, and John W. Daughton, Fairport, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 28, 1980, Ser. No. 115,975
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—3 R 5 Claims

1. In a reproduction machine having a recirculating document handler and a display, a plurality of displayable events being provided to monitor the recirculating document handler operation, the method of operating the recirculating document handler comprising the steps of:

placing the reproduction machine in an evaluation condition for displaying the recirculating document handler events while inhibiting the production of copies,

selecting a particular event to be displayed,

displaying the particular event selected and a related indicator manifesting a particular recirculating document handler condition, and

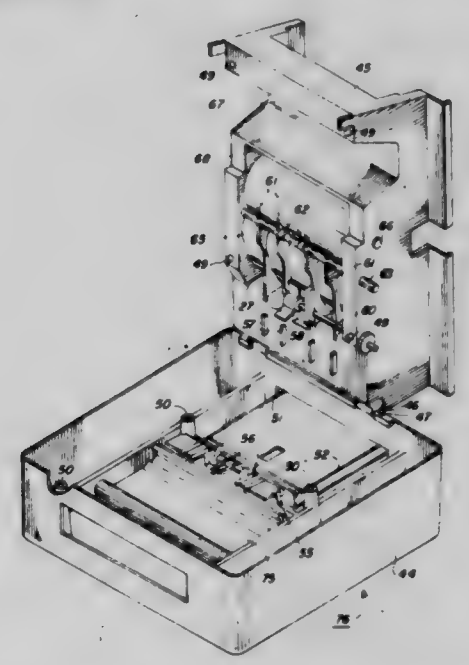
selectively displaying other of said displayable events and related conditions manifesting recirculating document handler conditions, the reproduction machine remaining in the recirculating document handler operation evaluation condition.

4,335,950

FRAME ASSEMBLY WITH UPPER AND LOWER FRAME MEMBERS FOR AUTOMATIC REPRODUCING APPARATUS

Edward J. Gunzelmann, Fairport; Raghulinga R. Thettu, Webster, and Larry M. Wood, Penfield, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 24, 1980, Ser. No. 219,691
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—3 R 15 Claims



1. An automatic reproducing apparatus comprising a frame assembly for mounting thereto individual reproducing apparatus components, said frame assembly including a lower frame member of molded plastic material and an upper frame member of molded plastic material, said lower frame member having sheet bottom guiding elements integrally molded therein and said upper frame member having sheet top guiding elements integrally molded therein said upper and lower frame members being positioned relative to each other to provide at least a portion of a copy sheet transport path whereby a sheet of copy paper being processed through the reproducing apparatus is guided along its path by said sheet top and bottom guiding elements.

4,335,951

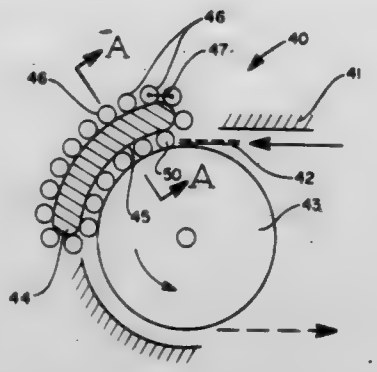
FUSING APPARATUS

Albert W. Scribner, Darien, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Jun. 23, 1980, Ser. No. 161,964
Int. Cl.[3] G03G *15/20*
U.S. Cl. 355—3 FU 6 Claims

1. A pressure fusing apparatus for use in a xerographic copying machine for fixing a developed toner image to a copy sheet comprising in combination a first roller adapted to be rotatably mounted and driven within said machine; an arcuately shaped support member, the inner surface of which is spaced from and lies substantially parallel to a portion of the outer surface of said first roller; spring means for biasing said arcuately shaped support member toward said first roller; and a plurality of interconnected second rollers having a smaller outside diame-

ter than said first roller mounted for rolling contact about said arcuately shaped support member, said second rollers and said



first roller adapted to form a series of nips through which copy sheets being fused pass.

4,335,952

COPY QUALITY DIAGNOSTIC PROCEDURE

Douglas J. Conly; David D. Larson, both of Boulder, Colo., and Stanley T. Riddle, Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 11, 1980, Ser. No. 186,093
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—14 R 5 Claims

1. In a copier of the electrophotostatic type, having a photoconductor means for receiving during an imaging cycle optical images from an expose lamp means and a plurality of variable edge erase lamp means for providing selectively erasable edges, a method for testing proper operation of subsystems of said copier comprising the steps of:

operating said copier with a blank input image to be copied;

turning off said expose lamp after said imaging cycle begins; and

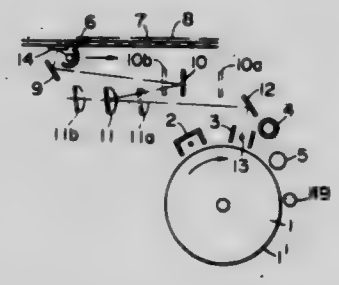
developing a resulting copy sheet in a normal manner, whereby said copy sheet should show a blank area gradually and evenly fading into black when said expose lamp means is functioning properly.

4,335,953

VARIABLE MAGNIFICATION COPYING APPARATUS

Hiroaki Tsuchiya, Tokyo, and Ikuo Soma, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 3, 1980, Ser. No. 212,446
Claims priority, application Japan, Dec. 12, 1979, 54/161185
Int. Cl.[3] G03G *15/28, 15/00*
U.S. Cl. 355—14 CH 28 Claims



1. A variable magnification copying apparatus comprising:

an electrophotographic photosensitive medium;

charge supply means for supplying charge to said photosensitive medium;

lens means for forming the image of an original to be copied on said photosensitive medium, the image of the original being projected upon said photosensitive medium through a first light path portion which is the forward light path of said lens means and a second light path portion which is the rearward light path of said lens means;

magnification changing means for changing the ratio of the length of said first light path portion to the length of said second light path portion correspondingly to a selected magnification;

illuminating means for illuminating said photosensitive medium with a reference light through said lens means after the ratio of the length of said first light path portion to the length of said second light path portion has been changed;

detector means for detecting the potential of said photosensitive medium; and

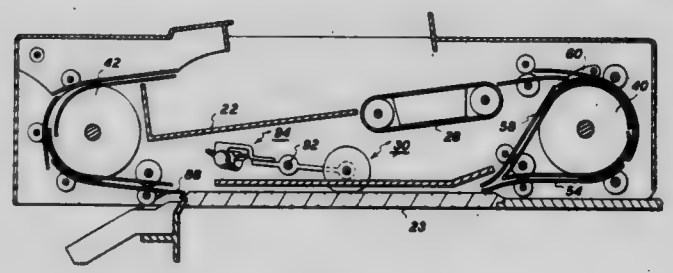
control means for controlling the output of said charge supply means by using the output signal of said detector means corresponding to the potential of the area of said photosensitive medium illuminated by said reference light.

4,335,954

COPIER REGISTRATION METHOD AND APPARATUS

Russell L. Phelps, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 4, 1981, Ser. No. 240,428
Int. Cl.[3] G03G *15/00;* B65H *9/10*
U.S. Cl. 355—14 SH 13 Claims



1. Apparatus for repetitively registering successive document sheets above a copier platen comprising:

(a) drive means for driving said sheets across said platen;

(b) means for disengaging said drive means to allow two dimensional registration of a particular sheet with respect to said platen;

(c) means for driving said sheet into registration along two orthogonal registration positions; and

(d) means for shifting said sheet away from one of said registration positions before said drive means is re-engaged to drive said sheet off said platen.

10. A process for two dimensional registering a series of successive document originals above a transparent copier platen comprising the steps of:

(a) driving a document onto said platen with a drive roller;

(b) disengaging said drive roller from said document;

(c) driving said document into corner registration on said platen;

(d) contacting said corner registered document with said drive roller;

(e) shifting said drive roller along a direction parallel to an axis of drive roller rotation to re-position said document in relation to said platen;

(f) driving said document from said platen; and

(g) repeating steps a-f for successive documents.

13. In a copier, a process comprising the steps of moving a document original along an input path to a platen for copying, stopping said document at an initial position on said platen, repositioning said document on said platen to a registration position so that an image of said original will be properly aligned on said copier photoreceptor, clamping said original to said platen to insure said document is within a copier imaging depth of field, transmitting said image to said photoreceptor, jogging said document away from said registration position, and removing said document from said document from said platen along an exit path.

4,335,955

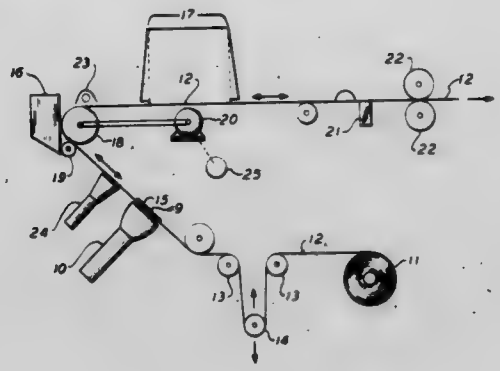
ELECTROSTATIC DISPLAY APPARATUS

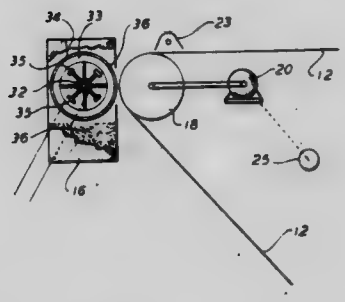
Ira Lopata, New York, N.Y., assignor to Ragen Precision Industries, Inc., North Arlington, N.J.

Continuation-in-part of Ser. No. 899,561, Apr. 24, 1978. This application Jan. 30, 1979, Ser. No. 7,699

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—16 **1 Claim**





1. An apparatus for forming, toning, and displaying the unfused visible electrostatic image on an electrostatic strip, and alternatively and selectively for erasing the electrostatic strip or for fusing the visible electrostatic image to make a permanent copy thereof includes,

a. source means for said electrostatic strip,

b. a generally horizontal planar surface means having a viewing station thereon disposed in spaced relation to the source means, said planar surface means having an inlet end and an outlet end for the electrostatic strip.

c. means connected to the source means to normally feed the electrostatic strip in a forward direction through a predetermined course to and across the viewing station on said planar surface means to dispose the electrostatic strip for inspection at the viewing station and said feed means including, means for reversing the direction of movement of the electrostatic strip,

d. means between the source means and the inlet side of the planar surface means and disposed relative the electrostatic strip to form a latent electrostatic image on the electrostatic strip,

e. magnetic toning means between the latent electrostatic image forming means and the inlet side of the planar surface means to make the latent electrostatic image visible for inspection when the electrostatic strip is moved forward to the viewing station includes,

i. a non-magnetic, stationary cylinder,

ii. a plastic collar on the cylinder,

iii. a revolvable shaft disposed in the cylinder,

iv. at least one magnet mounted longitudinally on the shaft,

v. a bin of magnetic particles adjacent to the cylinder within the influence of the magnet in the cylinder, and

vi. the plastic collar closely spaced from the electrostatic strip as it is fed whereby the toner is attracted to the electrostatic image,

f. means adjacent the outlet end of the planar surface selectively operable only on forward movement of the electrostatic strip to fuse the desired visible electrostatic image to form a permanent copy thereof, and

g. a normally non-operative means disposed adjacent the inlet end of the planar surface means selectively operable when the reversing means is actuated to move the electrostatic strip in a reverse direction to neutralize and remove toner from the unfused visible electrostatic image to permit reuse of the electrostatic strip.

4,335,956

METHOD AND APPARATUS FOR ADJUSTING ASSOCIATED PHOTOGRAPHIC COPYING AND DEVELOPING MACHINES

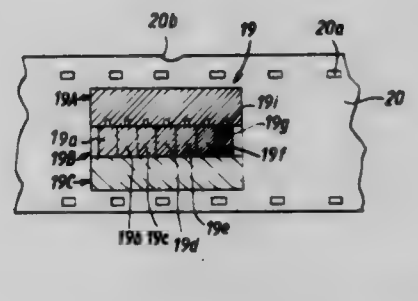
Günter Findeis, Sauerlach; Berthold Fergg, Taufkirchen; Viktor Osegowitsch, Taufkirchen am Wald; Hans P. Huber, Munich, and Heinz Meckl, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 24, 1980, Ser. No. 132,803

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911567

Int. Cl.³ G03B *27/32, 27/52*

U.S. Cl. 355—27 **32 Claims**



1. A method of testing the condition of a copying machine and an associated developing machine for color prints with resort to a calibrating sample, comprising the steps of exposing the image of the calibrating sample onto a first portion of a given photosensitive material in the copying machine; exposing a test print onto a second portion of such photosensitive material under predetermined circumstances; developing the thus exposed portions of photosensitive material in the developing machine; monitoring a characteristic of each of the thus developed portions of photosensitive material; comparing the monitored characteristics with predetermined reference characteristics; and evaluating the condition of at least one of said machines as a function of the outcome of said comparing step.

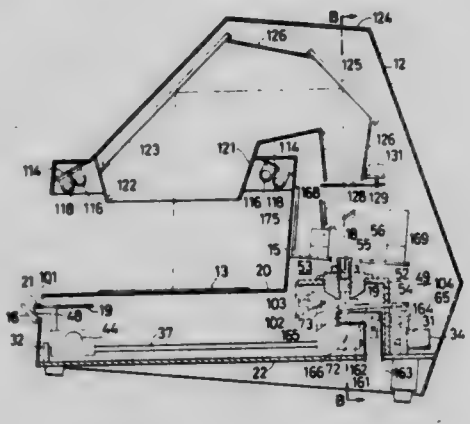
14. An apparatus for testing the conditions of copying machines and associated developing machines, comprising a copying machine having means for exposing the image of a calibrating sample onto a first portion of photosensitive material and for making a test exposure on a second portion of said photosensitive material under predetermined circumstances; a developing machine arranged to receive said photosensitive material from said copying machine and to develop said first and second portions thereof; and means for sensing a characteristic of each of said first and second portions of said photosensitive material after development, comparing the sensed characteristics with predetermined reference characteristics and evaluating the condition of at least one of said copying machine and developing machine based on the comparison of the sensed and predetermined reference characteristics.

4,335,957

IMAGE FORMING METHOD AND APPARATUS THEREFOR

Kohei Nonaka, Yokohama; Masahiro Koyama, Kawasaki; Makoto Gonmori, Tokyo; Takeo Kimura, and Tetsuo Shiga, both of Fuji, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 63,306, Aug. 2, 1979, Pat. No. 4,287,295.
This application May 22, 1981, Ser. No. 266,240
Claims priority, application Japan, Aug. 11, 1978, 53-98524; Jun. 22, 1979, 54-78688
Int. Cl.³ G03B *27/32*
U.S. Cl. 355—30 **35 Claims**



1. Image forming apparatus for forming an image using a heat-developable image forming sheet that is normally non-photosensitive but can be rendered photosensitive by preheating prior to exposure and exposed to a light image to form therein a latent image and then heat-developed to obtain a visible image, comprising

one or two heating means for heating and heat-developing an image forming area of the image forming sheet;

cooling means for cooling the preheated image forming area of the image forming sheet prior to exposure; and

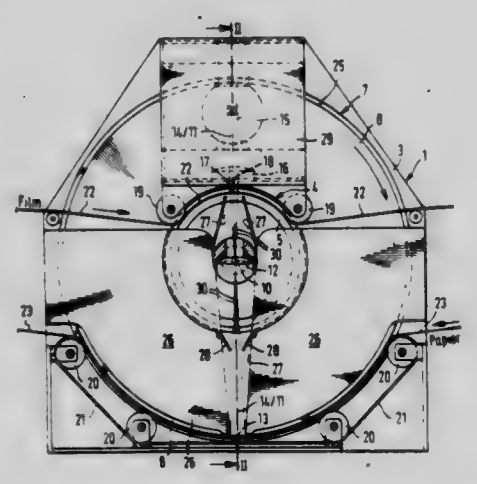
exposure means for projecting an optical image of a subject to the cooled image forming area of the image forming sheet for exposure.

4,335,958

METHOD OF COPYING PICTURES FROM A TRANSPARENT CARRIER TO A SENSITIVE PAPER AND DEVICE FOR ITS EXECUTION

Hermann Seitz, Dietlikon, Switzerland, assignor to Createchnic Patent AG, Dietlikon, Switzerland

Filed Nov. 10, 1980, Ser. No. 205,753
Claims priority, application Switzerland, Dec. 14, 1979, 11074/79
Int. Cl.³ G03B *27/48*
U.S. Cl. 355—48 **8 Claims**



1. A method of copying images from a transparent image carrier on to a light-sensitive copy carrier, comprising the steps of:

projecting a light beam emanating from a light source through the transparent image carrier and through an objective onto the light-sensitive copy carrier located at a focal point of the objective;

both the part of the image carrier and also the part of the copy carrier which are impinged by the light beam during the copying operation being located upon co-axial cylinder segments and being moved;

the objective being stationarily arranged at a common axis of the cylinder segments;

both the image carrier and the copy carrier being rotated in the same rotational sense at a continuous and constant angular velocity upon axial oppositely located ones of the cylinder segments but being guided in opposite directions continuously through the light beam such that the relationship between the radii of the cylinder segments corresponds to the magnification or size reduction ratio, respectively, of the copy upon the copy carrier in relation to the image at the image carrier; and

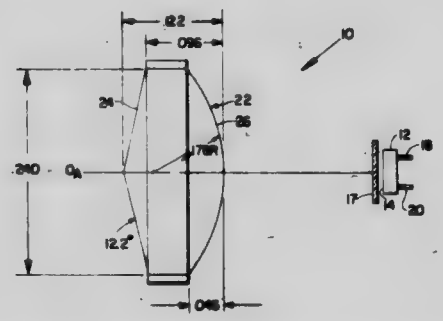
said image carrier and said copy carrier intersecting the light beam which is covered into a strip-shaped configuration at a common diameter extending through the axis of the cylinder segments.

4,335,959

OPTICAL ELEMENT FOR PHOTOGRAPHIC RADIOMETER

Monis J. Manning, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 3, 1979, Ser. No. 99,599
Int. Cl.³ G01J *1/42*; G02B *5/22*
U.S. Cl. 356—218 **7 Claims**



1. A photoelectric radiometer for providing an output signal that can be used directly to predict an exposure value for a photographic scene or alternatively as an input signal to a camera exposure control system of the type which operates in an ambient exposure mode in which available light is the source for illuminating a scene or an artificial light mode in which an artificial light source serves as the scene illumination source and is effective in both exposure modes to automatically regulate the amount of exposure to which a film is subjected, said radiometer comprising:

photodetector means, having a predetermined surface and given spectral sensitivity, for providing an output signal having an electrical characteristic that varies in accordance with the intensity of radiant power incident on said surfaces; and

an optical element comprising a positive lens of predetermined focal length molded of an optical plastic comprising polycarbonate or polystyrene for collecting radiant energy to direct said collected radiant energy onto the photoelectric cell surface and including at least one metal-organic infrared absorbing dye at least partially dissolved homogeneously throughout and commonly molded with said optical plastic for selectively attenuating the spectral content of said collected radiation.

4,335,960

APPARATUS FOR DETECTING THE PRESENCE OF SURFACE IRREGULARITIES IN ARTICLES MADE OF TRANSPARENT MATERIAL

Richard I. Ashcroft, Harpenden, and David Kaktovics, Gainsborough, both of England, assignors to United Glass Limited, Middlesex, England

Filed May 20, 1980, Ser. No. 151,619

Claims priority, application United Kingdom, May 21, 1979, 7917540

Int. Cl.³ G01N *21/01*

U.S. Cl. 356—240 6 Claims



1. An apparatus for detecting the presence of surface irregularities in the bases of transparent glass containers, which comprises an opaque object, viewing means adapted to be focussed on said object, a light source means positioned behind said object relative to said viewing means whereby light is refracted to said viewing means in the presence of an irregularity in a container under inspection, and means for transporting containers to be inspected between said viewing means and said opaque object, said opaque object being defined by optical slit means having an opaque line disposed longitudinally of the slit means and disposed between the sides of the slit means and said transporting means comprising means for transporting transparent containers across said slit with the container bases adjacent said slit and for causing relative rotation of said containers and slit.

4,335,961

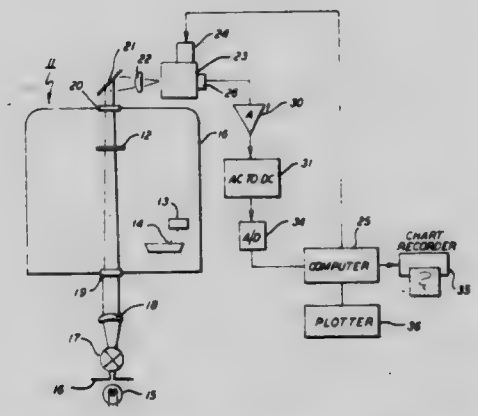
REFRACTIVE INDEX MEASUREMENT OF OPTICAL THIN-FILM

Tzeyang J. Chou, Liverpool, N.Y., and Oded Arnon, Givataim, Israel, assignors to Inficon Leybold-Heraeus, East Syracuse, N.Y.

Filed Apr. 18, 1980, Ser. No. 141,428

Int. Cl.³ G01N *21/45*

U.S. Cl. 356—361 9 Claims



1. The method of determining the refractive index of an optical film over a wide spectral range including the steps of depositing a film of material upon a substrate so that the thickness of the film increases with time,

continually contacting the film with electromagnetic radiation as the film is being deposited upon the substrate so that the radiation is redirected by the contacted film,

periodically changing the wavelength of the energy contacting the film between a plurality of wavelength channels that are situated within a predetermined spectral region,

measuring the extreme limits of the radiation intensity redirected by the film for each channel,

determining from the measured limits the refractive index for each wavelength channel, and

plotting a curve of the determined indices to provide a profile of the film index over the entire predetermined range.

4,335,962

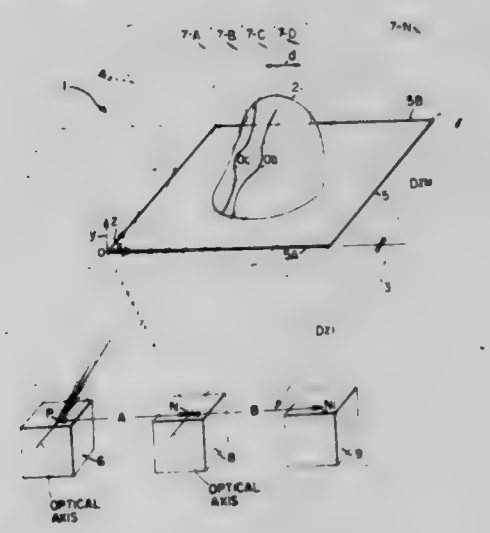
METHOD AND APPARATUS FOR DETERMINING SPATIAL INFORMATION

Paul Di Matteo, Huntington, and Joseph A. Ross, Fort Salonga, both of N.Y., assignors to Robotic Vision Systems, Inc., Melville, N.Y.

Filed Jul. 20, 1979, Ser. No. 59,199

Int. Cl.³ G01B *11/24*

U.S. Cl. 356—376 9 Claims



1. Apparatus for determining spatial information relating to an object adapted to be situated within an object space having predefined front and rear extents comprising:

means for applying substantially planar diverging laterally spaced radiant energy beams to said object space, said beams having common point of intersection;

means for recording radiant energy in said object space, said recording means being positioned so that radiant energy from all points along each of said beams in said space and receivable thereby is uniquely defined, said recording means recording the confrontation of said radiant energy beams with a flat reference plane at said front extent and with said object in said object space;

and means for utilizing the records of said recording means including the records of said reference surface and said object to derive information for determining the spatial positions of points on said object.

4,335,963

OUTPUT COUPLING FOR CONCRETE MIXER TRANSMISSION

James J. Jameson, Coffeyville; Fred L. Mount, Independence, and Joe L. Fernandez, Coffeyville, all of Kans., assignors to Cooper Industries, Houston, Tex.

Filed Mar. 27, 1980, Ser. No. 134,719

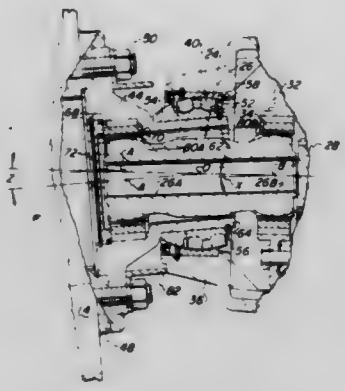
Int. Cl.³ B28C *5/42*

U.S. Cl. 366—63 6 Claims

1. In combination with a rotary drum, a torque transmission unit for rotating said drum, bearing means for journalling said drum on said transmission unit for relative rotation and axial deflection of said drum with respect to said transmission unit, and the improvement comprising:

a substantially rigid elongated rotary shaft for drivably coupling said drum to said transmission unit;

first coupling means on said drum for drivably coupling said drum to said shaft at one end of said shaft and permitting deflection of the axis of rotation of said drum with respect to the axis of rotation of said shaft, second coupling means rotatably mounted on said transmission unit and drivably coupling said transmission unit to the opposite end of said



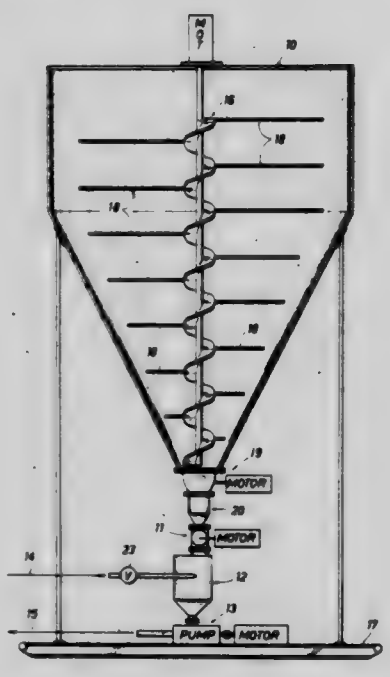
shaft and permitting deflection of said axis of rotation of said shaft with respect to the axis of rotation of said second coupling means, and said shaft extends through and is spaced from said bearing means whereby respective deflections between said axis of rotation of said shaft with respect to the axes of rotation of said drum and said second coupling means equal in total the axial deflection between said drum and said transmission unit.

4,335,964

INJECTION SYSTEM FOR SOLID FRICTION REDUCING POLYMERS

Bruce S. Drake, Midland, and Vitold R. Kruka, Houston, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 965,804, Dec. 4, 1978, Pat. No. 4,263,926.
This application Jan. 5, 1981, Ser. No. 224,851
Int. Cl.³ B01F *11/00*
U.S. Cl. 366—114 **4 Claims**



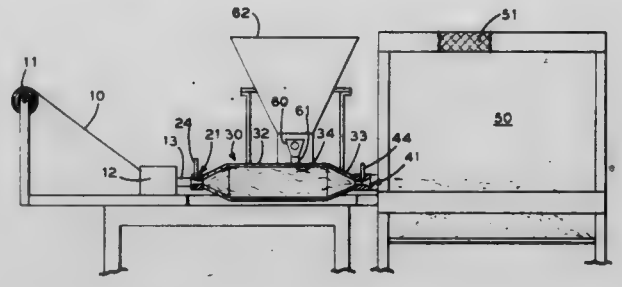
1. A method for maintaining polymer particles in readily recoverable, discrete, liquid-free form during storage comprising, providing a storage hopper having a cone bottom and an auger extending upwardly from the apex of the cone bottom; disposing particulate polymer within the hopper; rotating the auger to force contacting particulate polymer upwardly in the hopper; and vibrating the lowermost part of the cone bottom.

4,335,965

FIBER-RESIN BLENDING TECHNIQUE

Delmar A. Faverty, Alliance, and Robert E. Shuck, North Canton, both of Ohio, assignors to Dresser Industries, Inc., Dallas, Tex.

Division of Ser. No. 922,608, Jul. 7, 1978, Pat. No. 4,260,265.
This application Dec. 16, 1980, Ser. No. 217,286
Int. Cl.³ B01F *13/02, 15/02*
U.S. Cl. 366—150 **5 Claims**



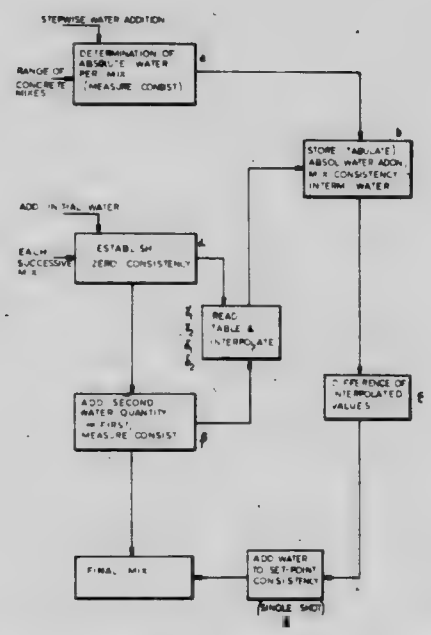
1. An apparatus for impregnating fluidized fibers with powdered resin comprising: a first flow accelerating device through which the fluidized fibers are conveyed, a mixing chamber mounted in fluid communication with said first flow accelerating device, means for decelerating and dispersing the fluidized fibers into said mixing chamber from the first flow accelerating device, a receptacle containing a supply of the powdered resin in communication with said mixing chamber, means for injecting a metered flow rate of said powdered resin into the mixing chamber, and a second flow accelerating device in fluid communication with said mixing chamber for withdrawing resin impregnated fibers from the mixing chamber.

4,335,966

METHOD OF PREPARING CONCRETE MIXTURES

Joachim Rapp, Weingarten, and Peter Bittmann, Gaggenau, both of Fed. Rep. of Germany, assignors to Elba-Werk Maschinen-Gesellschaft mbH & Co., Ettlingen, Fed. Rep. of Germany

Filed Dec. 19, 1980, Ser. No. 218,202
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952124
Int. Cl.³ B28C *5/00, 7/04*
U.S. Cl. 366—2 **5 Claims**



1. A method of controlledly preparing a concrete mixture comprising the steps of:

(a) establishing a zero consistency for concrete mixes at a water content thereof in excess of the intrinsic water content of aggregates to be used in such mixes and adapted to be formed by the addition of water thereto

whereby the water content of a mix at said zero consistency is less than the water content of the mix at a plurality of set point consistencies;

(b) establishing the quantity of water required to bring a mix from said zero consistency to each of said set point consistencies; and

(c) for each subsequent mix,

(c_1) adding water thereto until as determined by consistency measurement, the consistency thereof reaches said zero consistency, and

(c_2) thereafter adding in a single shot the balance of the water required to bring each mix at zero consistency to a corresponding set point consistency.

4,335,967

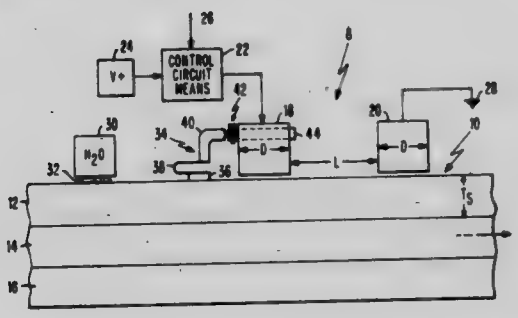
ELECTROLYTIC PRINTING APPARATUS INCLUDING PREHEATING PRESSURE PAD THEREFOR

Joseph P. Pawletko, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 3, 1981, Ser. No. 240,332

Int. Cl.³ B41J *3/02*

U.S. Cl. 400—119 **8 Claims**



1. Preheating appratus for an electrolytic based printer having at least one write electrode for applying electrical pulses in a print zone to a recording medium used therein, transport means for moving the recording medium to and beneath the write electrode in the print zone, applicator means positioned to meter a liquid onto the surface of the according medium before it reaches the print zone and the write electrode, a source of electrical energy and control circuit means connected between the source and the write electrode for generating and forwarding pulses of appropriate amplitude and duration to the write electrode, said apparatus comprising;

(a) support arm means coupled to the write electrode for movement therewith;

(b) a pad having heating means incorporated therein for heating the bottom of said pad and the area of the recording medium it contacts prior to passage of the contacted area into the print zone; and

(c) biasing means connected to and between said support arm means and said pad for normally urging the bottom of said pad into contact with the recording medium and for forcing liquid deposited by the applicator on the surface thereof down into the recording medium as it passes beneath said pad.

4,335,968

TINT RESTORING DEVICE EMPLOYING A THERMAL PRINTING HEAD

Luc Regnault, Paris, France, assignor to Thomson-CSF, Paris, France

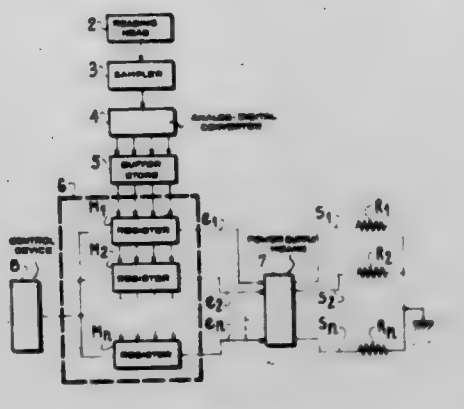
Filed Nov. 10, 1980, Ser. No. 205,566

Claims priority, application France, Nov. 9, 1979, 79 27711

Int. Cl.³ B41J *3/02*

U.S. Cl. 400—120 **3 Claims**

1. A device for restoring p tints (where p is a positive integer) comprising: a thermal printing head with n heating resistors (where n is a positive integer); a reading head for scanning a document line by line and delivering an analog signal the variations in amplitude of which are representative of variations in tint on the document; a sampler for sampling said signal and delivering n signal samples for each line scanned; an analog-digital converter for converting said signal samples and delivering, in respect of each sample, a binary number having q bits (where q is a positive integer); means for storing the n binary numbers delivered by the converter during scanning of a line in the document; power supply means for applying a



voltage to each of the n resistors of the thermal printing head, said power supply means having n control inputs; and control means having q inputs for receiving the q bits forming each of the n binary numbers stored by said storage means and n outputs respectively coupled to said n control inputs of the power supply means whereby to deliver n control signals for controlling the resistor heating time.

4,335,969

PRINT HEAD

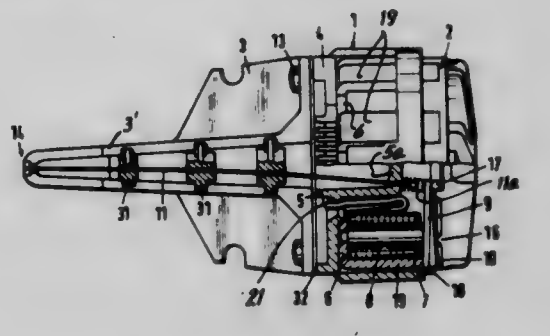
Hubert Ott, Ravensburg, Fed. Rep. of Germany, assignor to Mannesmann Aktiengesellschaft, Duesseldorf, Fed. Rep. of Germany

Filed Jul. 3, 1980, Ser. No. 165,798

Claims priority, application Fed. Rep. of Germany, Jul. 4, 1979, 2927385

Int. Cl.³ B41J *3/12*

U.S. Cl. 400—124 **9 Claims**



1. A print head, comprising:

first means including a plurality of apertures for mounting a print needle of a plurality of such needles for longitudinal displacement so that the respective tips of the needles can be advanced for printing, respective other ends of the needles extending rearwardly from the first means;

a plurality of electromagnets, each including a coil and pole-defining means, the pole-defining means including for each magnet a particular pole having an end surface, the end surface of the pole-defining means of the plurality of electromagnets being annularly arranged;

a spring element having a plurality of radially outwardly extending spring arms, each spring arm having a bent-up edge of U-shaped elevation, the U having two legs and a cross-portion, the legs having their ends located above said particular, annularly arranged poles;

second means connected to the first means for centering the spring element; and

a plurality of generally flat, radially arranged armatures, each having a first, radially inner end engaging the other end of one of said needles, each armature having a second,

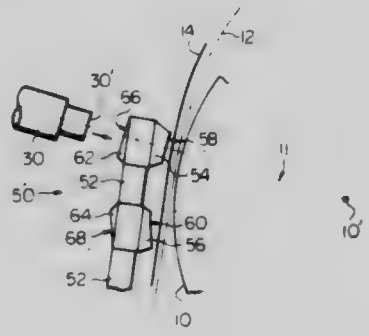
radially outer end with a bent-up lug that fits between the legs of the respective spring arm, the bent-up edge of the respective armature engaging the cross-portion of the U having the latter legs.

4,335,970

TYPE WHEEL FOR SERIAL PRINTING APPARATUS

Nobuo Iwata, and Takami Suzuki, both of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 943,266, Sep. 15, 1978, abandoned, which is a continuation of Ser. No. 792,157, Apr. 29, 1977, abandoned. This application Jun. 24, 1980, Ser. No. 162,563
Claims priority, application Japan, May 1, 1976, 51-49399
Int. Cl.[3] B41J *1/26*
U.S. Cl. 400—144.2 12 Claims



1. A rotary type wheel for use in a serial printing apparatus of the type in which a hammer is linearly operable along a fixed longitudinal axis to bend selected resilient tongues of the rotary type wheel to impact against a generally cylindrical paper supporting platen with said longitudinal fixed axis intersecting the axis of said cylindrical platen, the combination wherein the rotary type wheel comprises:

a rotary hub means having a rotary axis, the rotary hub means being rotatable and shiftable to a printing position;

a plurality of resilient tongues extending from the rotary hub means and being disposed in a common plane perpendicular to the axis of the rotary hub means when not impacting against the platen by the hammer, each tongue carrying at least two type members and being bent toward the platen at different angles when the two type members are respectively driven by the hammer in the printing position;

a first type member of said at least two type members provided on the tongue at a first radial distance from the rotary axis; and

a second type member of said at least two type members provided on the tongue at a second radial distance from the rotary axis which is greater than the first radial distance from the rotary axis;

the first and second type members each having generally flat back faces which are adapted to be selectively contacted by the hammer to impact against the platen;

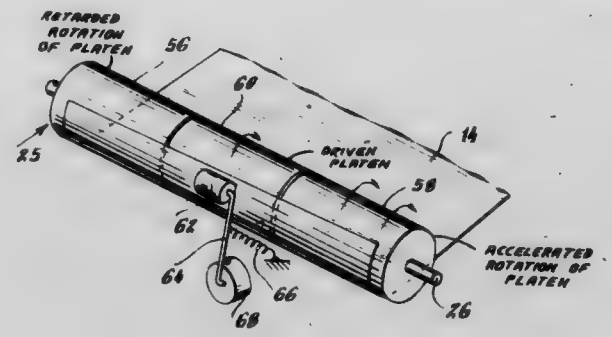
the first back faces of the first and second type members being disposed in different planes which intersects one another, neither of which is parallel to the common plane, such that the flat back faces of the first and second type members, upon impact of the respective type member against the platen as said type member is struck by said linearly operable hammer, are respectively disposed in first and second planes, either of which is substantially perpendicular to the fixed operable axis of the hammer, each tongue being bent toward the platen at first and second angles relative to the common plane when the first and second type members are respectively struck by the hammer in the printing position, the first angle being greater than the second angle, whereby the first and second type members are evenly impacted against the platen by the hammer.

4,335,971

RECORDER PAPER DRIVE

Charles F. deMey, II, West Redding, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Mar. 7, 1980, Ser. No. 128,210
Int. Cl.[3] B41J *11/04, 11/36, 15/04*
U.S. Cl. 400—619 8 Claims



1. Paper feeding apparatus comprising, in combination:

means for preventing skewing of paper as it is being fed, said means comprising;

a multi-section cylindrical platen positioned for receiving an elongated web of paper, said platen having at least a center section and two end sections,

means for driving only the center section of said platen to thereby feed said paper,

means for mounting the end sections of said platen to rotate freely and to be driven only by movement of said paper,

an input paper tray for supplying said elongated web of paper to said platen, and

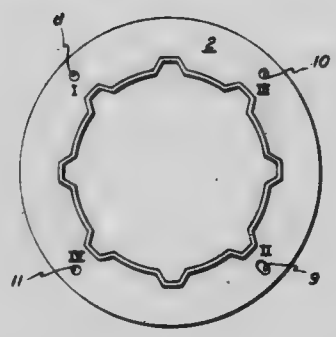
means for permitting the paper web to continuously align said tray as said web is being fed, said last named means comprising a pivotal mounting for said input paper tray adjacent to said platen to permit movement of said paper to continuously align the tray with respect to said platen.

4,335,972

APPARATUS HAVING POSITIONING AND MOUNTING MEANS FOR JOINING TWO PARTS AND METHOD OF USING SAME

George M. Rosenberry, Jr., Hendersonville, Tenn., assignor to General Electric Co., Schenectady, N.Y.

Filed May 19, 1980, Ser. No. 150,860
Int. Cl.[3] F16B *1/00*
U.S. Cl. 403—11 17 Claims



1. An apparatus comprising a first part, a second part juxtaposed with the first part and holding means for joining the first and second parts in fixed and aligned relationship, characterized by the improvement comprising:

(a) at least three threaded walls defining holes at spaced points in said second part,

(b) a plurality of threaded holding means each formed with a shaft adapted to be threaded into one of said holes in the second part, and each including a head portion larger in diameter than said shaft,

(c) at least three apertures through said first part at spaced points arranged to position each aperture in sufficiently close alignment, respectively, with each of said holes in the second part to enable each of said holding means to be

inserted respectively through said apertures and into the holes in the second part, said apertures having the following different relative sizes and configurations;

(i) the first aperture having at least one diameter that defines a predetermined close clearance fit with the shaft of one of said holding means positioned therein,

(ii) the second aperture having one diameter that defines a predetermined close clearance fit with the shaft of one of said holding means positioned therein, and having a second diameter about perpendicular to the first diameter, said second diameter defining a substantially looser clearance fit with the shaft of said holding means,

(iii) the third aperture having all of its diameters sized to define a loose clearance fit with the shaft of one of said holding means positioned therein.

4,335,973

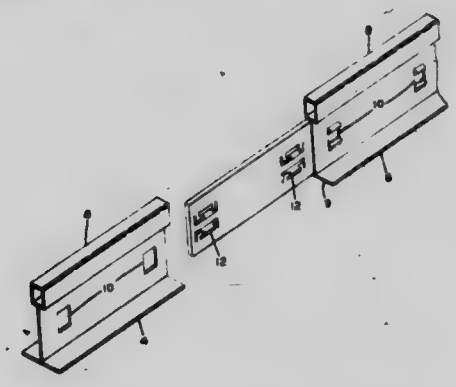
RUNNER SPLICER BAR

Martin J. Beck, Roxford, and George F. W. Boesel, Canton, both of Mass., assignors to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Mar. 20, 1981, Ser. No. 246,070

Int. Cl.³ F16B *7/04*

U.S. Cl. 403—300 3 Claims



1. A joint structure between two runner members wherein the two runner members are inverted T-shaped runner members with a vertical web, each runner member having identical ends wherein two apertures are positioned in each vertical web at the ends of each runner with the apertures spaced a slight distance apart and positioned in alignment along the vertical web, a splicer bar for fastening together the ends of two adjacent runners, said splicer bar having a pair of lugs means on each end of the splicer bar, said pair of lugs means being such that one pair of lugs means engages the two apertures on one end of one runner and the pair of lugs means on the other end of the splicer bar engages the two apertures on the adjacent abutting runner member to fasten together said runner members said lugs being resiliently mounted to snap into and out of engagement with said apertures.

4,335,974

MACHINE FOR COATING MILLED OR PEELED ROAD SURFACES

Reinhard Wirtgen, Hohner Strasse 2, 5461 Windhagen, Fed. Rep. of Germany

Filed Dec. 26, 1979, Ser. No. 107,388

Claims priority, application Fed. Rep. of Germany, Dec. 29, 1978, 2856635

Int. Cl.³ E01C *23/12*

U.S. Cl. 404—92 8 Claims

1. In apparatus for coating stripped road surfaces with a new surface material constituted by a mixture of material previously stripped from the road and a new material, comprising:

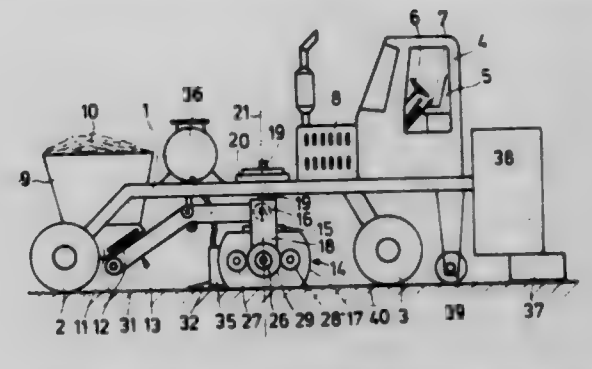
a vehicle including a chassis and a drive motor;

a supply container for the new material carried by said chassis at a front region thereof;

a plank-type finisher for applying the new surface material carried by said chassis at a rear region thereof; and

a mixing device carried by said chassis between said supply container and said plank-type finisher, the improvement comprising:

said mixing device comprises a housing in which a pair of rotatable mixers are arranged, said housing having an underside region which opens in opposed relationship to the road surface, said housing being provided with a first filling opening at an upper side region thereof adapted to receive material transported from said supply container and a second filling opening in the area of the underside



region thereof adapted to receive the material previously stripped from the road;

first transport means for transporting material at a selectively variable rate from said supply container into said mixing device housing through said first filling opening; and

shoving and conducting sheets for collecting material previously stripped from the road and guiding the same into said mixing device housing through said second filling opening.

4,335,975

METHOD AND APPARATUS FOR PLASTIFYING AND TEARING UP OF DAMAGED ROADSURFACES AND COVERS

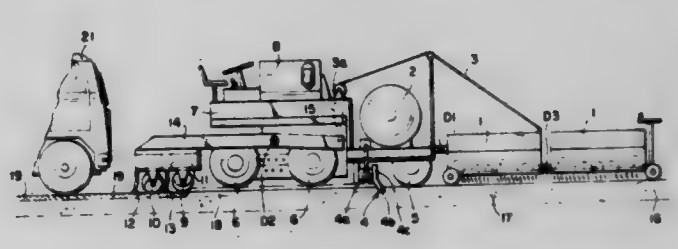
Walter Schoelkopf, Bruehlstrasse 38, 7024 Filderlinden, Fed. Rep. of Germany

Continuation of Ser. No. 942,758, Sep. 15, 1978, abandoned, which is a division of Ser. No. 745,122, Nov. 26, 1976, Pat. No. 4,129,398. This application May 5, 1980, Ser. No. 146,592

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1975, 2554710; Oct. 25, 1976, 2648158

Int. Cl.³ E01C *7/06*

U.S. Cl. 404—77 8 Claims



1. A method for resurfacing an old blacktop road surface by means of first, second, and third separate, mobile units performing a respective first, second, and third group of steps, wherein said first group performed by said first, separate mobile unit comprises the steps of:

(a) providing, by means of a single heater, a single heat application to the old road surface for heating and plastifying the old road surface to a given depth (17),

(b) breaking up only a top portion (18) of the heated old road surface to produce a broken-up material layer having a thickness substantially less than said given depth (17) of heated old road surface,

(c) rearranging and distributing the broken-up material on the remaining still heated but otherwise undisturbed old road surface to produce a first profiled layer (19) of brok-

en-up material, wherein said second separate mobile unit performs the steps of:

(d) supplying fresh asphalt material into the third, separate mobile unit,

and wherein said third group performed by said third, separate mobile unit comprises the steps of:

(e) distributing fresh asphalt material on top of said profiled, broken-up layer (19) over the entire working width of the third unit while said road surface and the layer (19) of broken-up material are still sufficiently plastified from said single heat application, and

(f) immediately profiling and compacting said fresh asphalt material as a top layer (25) together with said broken-up material layer (19) whereby the still heated but otherwise undisturbed old road surface enters into an intimate bond with the layers (19) and (25) in a single heat application.

4,335,976

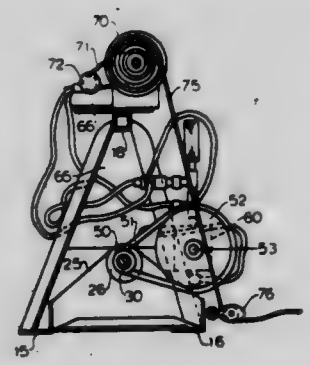
WINCH APPARATUS FOR VIBRATING CONCRETE SCREED

Donald R. Morrison, 2109 Camp Green St., Charlotte, N.C. 28208

Division of Ser. No. 29,654, Apr. 13, 1979, Pat. No. 4,253,778. This application Jan. 26, 1981, Ser. No. 228,226

Int. Cl.[3] E01C *19/38, 19/40*

U.S. Cl. 404—114 2 Claims



1. In a self-propelled concrete screed of the type having a base screed unit including:

(a) an elongated open frame structure comprising at least one frame unit and if more than one a group of interconnected separable frame units of similar construction each mounting a plurality of screed plates for engaging and leveling concrete as the screed is moved over the concrete;

(b) a vibrating element comprising a semi-flexible shaft rotatively supported in said frame structure and extending for the length thereof and having means operatively associated with said shaft enabling said shaft when driven to deflect between points of support and to impart substantially uniform vibrations throughout the lengths of each of said screed plates; and

(c) drive means mounted intermediate the ends of said base screed unit and connected to drive said shaft to impart said vibrations to said plates, the improvement comprising:

(d) an auxiliary combined winching and screed unit comprising:

(i) an elongated open frame structure of less length than said base screed unit and adapted to mate the open frame structure of said base screed unit with an equal plurality of mating screed plates for engaging and leveling concrete for the length of the auxiliary unit as an extension of the length engaged and leveled by said base screed unit;

(ii) means for detachably connecting adjacent end portions of said base screed unit and auxiliary open frame structures in fixed relationship including when desired an angular relationship;

(iii) a vibrating element comprising a semi-flexible shaft detachably connected to said base screed unit shaft at the juncture of said base screed unit and auxiliary open frame structures and rotatively supported in said auxiliary frame structure and extending for the length thereof and adapted to operate as an extension of said base screed unit shaft and to deflect and impart substantially uniform vibrations throughout the lengths of said auxiliary unit screed plates when said base screed unit shaft is rotated by said drive means;

(iv) power transmission means mounted on said auxiliary unit open frame structure connected to be driven off said auxiliary unit shaft to drive an output shaft and including means to control the speed thereof; and

(v) winching means mounted on said auxiliary unit frame structure including:

(aa) a cable drum connected to be driven by said output shaft;

(bb) a cable wound on said drum; and

(cc) cable guide means secured on said auxiliary unit frame structure enabling said cable to be withdrawn from said drum and anchored at some selected position ahead of the position of the screed preparatory to being wound on said drum by operation of said output shaft.

4,335,977

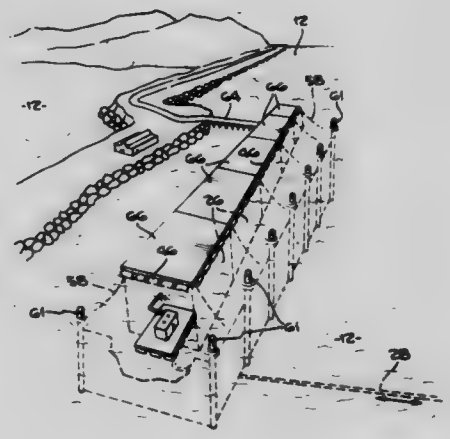
WATER STORAGE AND DISTRIBUTION SYSTEM

Vincent V. Ihli, P.O. Box 261, Buena Park, Calif. 90620

Filed Apr. 22, 1980, Ser. No. 142,694

Int. Cl.[3] B63B *35/00;* E02B *1/00*

U.S. Cl. 405—52 10 Claims



1. A multiple purpose system for the storage of runoff water, and for its utilization during arid seasons comprising:

means located at a rain-water runoff channel at a point near the ocean for collecting fresh water;

flexible storage reservoir means mounted in the ocean in a protected area for storing the collected fresh water;

conduit means for supplying fresh water to said reservoirs from said fresh water collecting means;

means for filtering and treating the collected water;

pumping station means for distributing the collected fresh water;

said reservoir means including a plurality of flexible walled tanks;

float means extending along the upper edges of said reservoirs partially in and partially extending above the ocean to support the edges of said reservoirs and preclude mixing of the fresh water with salt water from the ocean;

deck means supported on said float means for covering the top surface of each of said reservoirs for preventing the entrance of sea water, and for providing recreational commercial areas on said decks;

means for selectively filling said float means partially with water to stabilize them and control their buoyancy;

bridge means extending from said deck means to shore to provide access to said decks for recreational or commercial purposes; and

means located adjacent said container for protecting said reservoir and deck means against waves, said protecting

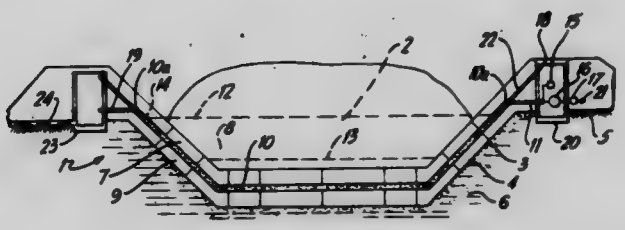
means including a two-stage system including an outer means for initially reducing the force of waves, and an inner means mounted between said outer means and said reservoir and deck means for further reducing the force of the waves.

4,335,978

INDUCED INTRAGRADIENT SYSTEM FOR SECURE LANDFILL

Robert D. Mutch, 17 E. Cedar Pl., Ramsey, N.J. 07446

Filed Apr. 7, 1981, Ser. No. 251,820
Int. Cl.[3] B09B *1/00*; B65G *5/00*
U.S. Cl. 405—129 16 Claims



1. Induced hydraulic intragradient system for secure landfill arrangement comprising

a low permeability inner primary liner for confining liquid leachate containing waste material landfill and a low permeability outer secondary liner for confining the primary liner and for separating the arrangement from the surrounding subsurface formation thereat,

an intermediate permeable piezometric pressure blanket separating the liners from each other, and

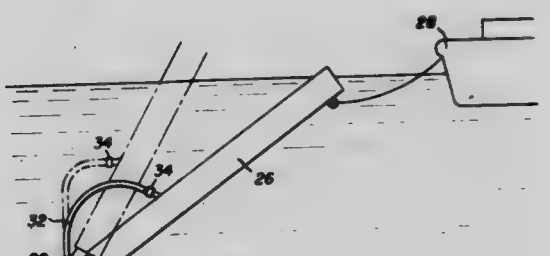
control liquid supply means for supplying sufficient control liquid to the pressure blanket to maintain selectively the piezometric head therein higher than the corresponding piezometric head of any leachate accumulation in the waste material confined within the inner liner, for induced hydraulic intragradient counterflow migration of control liquid from the pressure blanket inwardly through the inner liner, whereby to prevent flow migration of such leachate outwardly through the inner liner and in turn to and through the outer liner to the surrounding subsurface formation.

4,335,979

OFFSHORE TOWER WITH BALL AND SOCKET JOINT HAVING FLUID FLOW PASSAGE

Donald C. Stafford, Hinsdale, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Sep. 29, 1980, Ser. No. 191,352
Int. Cl.[3] E02B *17/00*
U.S. Cl. 405—202 5 Claims



1. An offshore tower comprising:

a buoyant column;

a yoke at the lower end of the column;

a socket joined to the end of the yoke;

a base, adapted to be anchored to a sea floor, having a ball which fits in the socket for rotational joined movement relative to each other so that the column can rotate unrestrictedly in a sea level circle, including axial rotation of the column relative to the base;

a fluid delivery passageway, extending through the base and ball, communicating with a fluid swivel above the ball; and

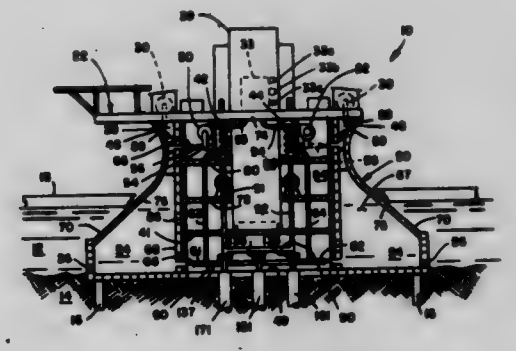
a fluid conduit means having a flexible portion, extending outwardly from the fluid swivel and into engagement with the column.

4,335,980

HULL HEATING SYSTEM FOR AN ARCTIC OFFSHORE PRODUCTION STRUCTURE

Coral L. DePriester, Moraga, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Apr. 28, 1980, Ser. No. 144,715
Int. Cl.[3] E02D *21/00*
U.S. Cl. 405—217 13 Claims



1. An offshore production structure for use in a body of water that contains ice masses, comprising:

a support portion positioned in a body of water, said support portion having a peripheral wall which converges upwardly and inwardly of the underwater bottom to provide a ramp-like surface to receive ice masses moving relative to and into contact with said support portion so as to elevate the ice above its natural level an amount to cause the ice to fail in flexure adjacent said structure;

means securing said support portion to the underwater bottom;

a production well being produced from said structure;

means for applying the heat from produced fluids from said well to the inner surface of said peripheral wall to maintain the temperature of the outer surface of said peripheral wall above the melting point of ice in contact with said structure to prevent the ice from freezing on and adhering to said peripheral wall so as to assist the ice in moving over said peripheral wall, wherein said means includes at least one chamber disposed within said support portion with said peripheral wall forming the outer wall of said chamber; and

means for circulating a heat transfer fluid through said chamber wherein said heat transfer fluid is heated by said produced fluids in an amount to maintain the outer surface of said peripheral wall above the melting point of the ice.

4,335,981

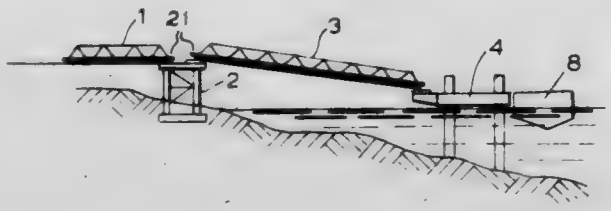
CARGO HANDLING EQUIPMENT

Seiji Akiyama, Yokohama; Mamoru Kurihara, Koganei, and Kazuhiko Ueki, Mitaka, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 5, 1979, Ser. No. 72,597
Claims priority, application Japan, Sep. 5, 1978, 53/121912[U]
Int. Cl.[3] E02B *3/20*
U.S. Cl. 405—221 2 Claims

1. Cargo handling equipment comprising: a stationary column offshore of the bank of a body of water, a stationary bridge extending from the shore to said stationary column and having a cargo transportion means thereon, a movable bridge

having one end connected to said stationary column for swinging movement in the horizontal and vertical directions and having a further cargo transportation means thereon and a



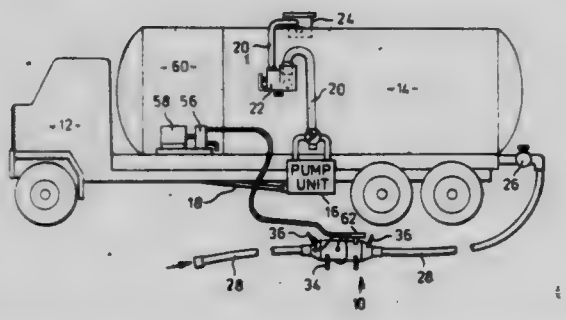
floating body detachably secured to the other end of said movable bridge and having legs which are vertically movable and can reach the bottom of the body of water.

4,335,982

APPARATUS FOR WETTING DIVIDED SOLID MATERIAL

John Bratschitsch, Hamilton, Canada, assignor to J. B. Systems, Ltd., Stoney Creek, Canada and Georgia Equipment Manufacturing Inc., Newnan, Ga.

Filed Oct. 16, 1979, Ser. No. 85,447
Int. Cl.³ B65G *53/04, 53/26*
U.S. Cl. 406—48 **8 Claims**



1. Apparatus for wetting divided solid material entrained in an air stream, comprising:

a body having an inlet thereto and an outlet therefrom for the air stream, and providing in its interior a flow passage between the inlet and the outlet of greater cross-sectional area than the inlet;

deflector means mounted in the body adjacent the inlet to intercept the air stream and to distribute it over the greater cross-sectional area of the flow passage;

the said deflector means comprising a plurality of finger-like members extending radially inwards towards the axis of the flow passage; and

a plurality of water spray nozzle means each disposed to spray water into the flow passage to wet the solid material in the stream, the nozzle means being spaced from one another circumferentially around the flow passage and also longitudinally along the passage.

4,335,983

CUTTER HEAD FOR HIGH-SPEED MILLING

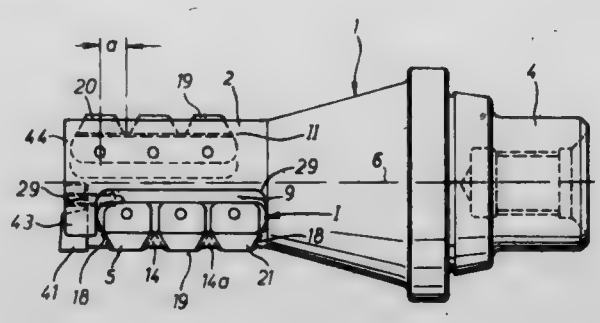
Günter Wermeister, Ratingen, and Bernhard Bellmann, Pfungstadt, both of Fed. Rep. of Germany, assignors to Sandvik GmbH, Düsseldorf, Fed. Rep. of Germany

Filed Nov. 26, 1980, Ser. No. 210,568
Claims priority, application Fed. Rep. of Germany, Dec. 3, 1979, 2948544
Int. Cl.³ B26D *1/12*
U.S. Cl. 407—41 **11 Claims**

1. A cutter head for high speed milling, comprising:

a cutter head body having chip spaces and recesses bounded by recess walls, the recess walls of a respective recess being directed radially outwardly toward one another and having a dovetailed cross section tapering toward the associated chip space;

cutting plates respectively arranged in said recesses and pressable by centrifugal force against associated recess walls, said cutting plates being respectively provided with a free surface; and



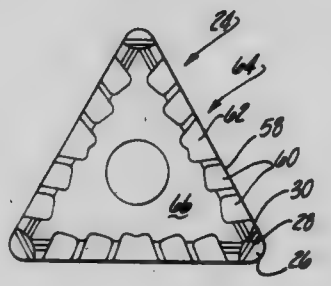
clamping pieces connected to said cutter head body for respectively holding a cutting plate, each clamping piece having an inclined surface located opposite said free surface of the associated cutting plate.

4,335,984

METALCUTTING INSERT FOR ROUGHING AND FINISHING

Raymond Zweekly, 4625 Sedgemoor, Royal Oak, Mich. 48073

Filed Nov. 5, 1980, Ser. No. 204,674
Int. Cl.³ B26D *1/00*
U.S. Cl. 407—114 **2 Claims**



1. A tool for cutting chip forming materials having a cutting corner defined by a chipbreaker surface and the intersection of two sidewalls wherein a plurality of chipbreaking depressions is formed in said chipbreaker surface closely proximate to said cutting corner, including; a first chipbreaking depression closely adjacent to and intersecting said cutting corner, having a concave rear chip interrupting surface substantially normal to the bisector plane devined by said sidewalls; and a pair of second chipbreaking depressions located adjacent to said first chipbreaking depression, next adjacent to said cutting corner, each having a conical chip interrupting surface substantially locally parallel to the cutting edge defined by the intersection of its respective sidewall and the chipbreaker surface, each said conical chip interrupting surface being spaced from its respective sidewall by a distance of from about 0.020 inches to about 0.040 inches.

4,335,985

CONTROL APPARATUS FOR CONTROLLING A FEED MOVEMENT IN A GEAR CUTTING MACHINE

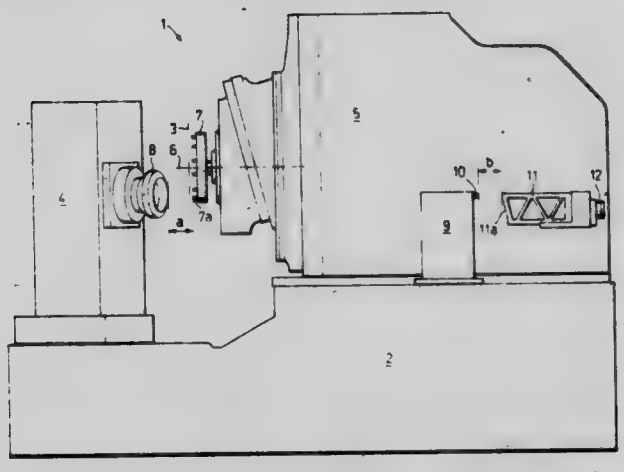
Viktor Kistler, Thalwil, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zürich, Switzerland

Filed Dec. 26, 1979, Ser. No. 107,331
Claims priority, application Switzerland, Jan. 24, 1980, 704/79
Int. Cl.³ B23F *3/00*
U.S. Cl. 409—3 **1 Claim**

1. A control apparatus for controlling a feed movement of a tool relative to a workpiece in a gear cutting machine working according to a continuous cutting process, comprising:

drive means for driving the tool and the workpiece;

a hydraulic selector spool valve containing a displaceable spool;
a cylinder;
a machine bed;
said hydraulic selector spool valve and said cylinder being mounted at said machine bed;
a feed piston arranged for to-and-fro movement within said cylinder;
a rolling cradle;
said feed piston being operatively connected to said rolling cradle;
means for displacing said spool;
said spool controlling the infeed of pressurized fluid medium to said feed piston;
said feed piston moving through a preparatory path and



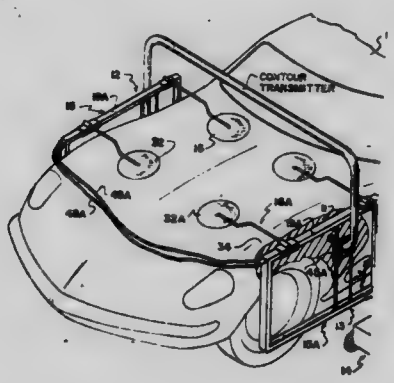
machining path, respectively, so that by means of the feed movement of the feed piston there can be accomplished movement through the preparatory path and machining path;
a control cam support displaceably arranged at the rolling cradle;
a control cam carried by said control cam support;
said control cam support regulating the preparatory path and said control cam governing said machining path of the feed piston;
switch means actuated by said spool for turning-off said drive means during the preparatory path and for turning-on said drive means during the machining path; and
pressure limiter means which is turned-on during the preparatory path and which is turned-off during the machining path.

4,335,986

VEHICLE BODY SURFACING AND DOLLY ASSEMBLY

Donald A. Fahrner, 203 Zephyr, Huntsville, Ala. 35801

Continuation-in-part of Ser. No. 837,007, Sep. 27, 1977, abandoned. This application Aug. 28, 1979, Ser. No. 70,515
Int. Cl.³ B23C *1/16*
U.S. Cl. 409—116 **16 Claims**



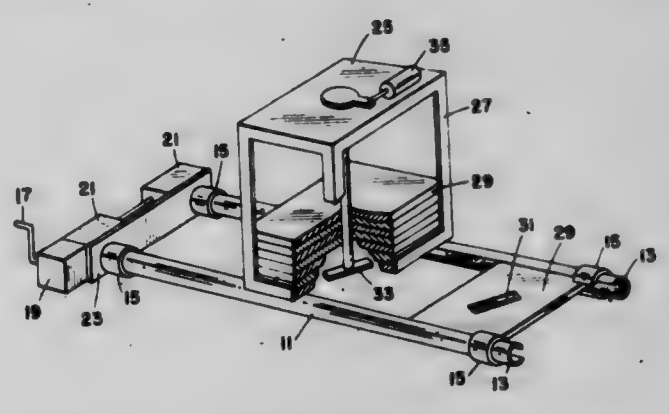
1. A vehicle body surfacing assembly for use with a source of power and upon a vehicle body comprising in combination a sending unit and surfacing unit, means to detachably secure said surfacing unit over the area of the associated vehicle body requiring repair and means to detachably secure said sending unit over means having contours similar to the contours of the portion of the vehicle body requiring repair, each of said units including a rectangular frame, a carriage mounted on each of said frames for movement relative thereto in one direction between the ends of the frame and in another direction between the sides of the frame, means operative to move said carriages connected to said source of power, a plurality of movable surfaces sensing element assemblies mounted in said carriage of said sending unit and contacting the means having contours similar to the contours of the portion of the vehicle body requiring repair, said assemblies each including a surface sensing element movable in a direction perpendicular to the plane of the frame of said sending unit, a plurality of surfacing components mounted in the carriage of said surfacing unit movable in a direction perpendicular to the plane of the frame of said surfacing unit, and contour transmitting drive cable means operatively extending between each of said surface sensing elements and a corresponding surfacing component whereby movement of each of said surface sensing elements, in a direction perpendicular to the plane of the frame, is reproduced in the corresponding surface component, each of said surfacing components having surface treatment means on the lower end thereof operatively engaging the surface of the vehicle body requiring repair.

4,335,987

APPARATUS FOR VERTICALLY STACKING FLAT WEIGHTS

Darryl E. Laxo, Novato, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 28, 1980, Ser. No. 144,707
Int. Cl.³ B65G *57/30, 59/06*
U.S. Cl. 414—27 **1 Claim**



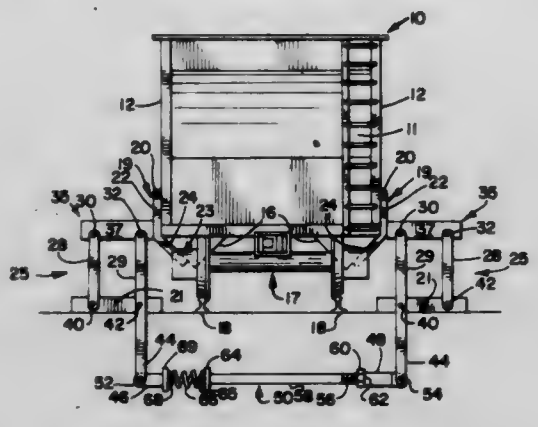
1. An apparatus for vertically stacking and unstacking a predetermined group in a series of groups of flat weights while said series of remaining groups are fixedly held comprising:
(a) a powered crank for raising or lowering each of said weights in said group for stacking or unstacking, the rotation direction of said crank determining whether stacking or unstacking is accomplished;
(b) a gear reducer operably connected to said crank;
(c) a pair of right-angle drives attached to a mounting bracket and operably connected to said gear reducer;
(d) a pair of spatially separated parallel-aligned c-tubes, each of said c-tubes connected by a shaft coupling to one of said right-angle drives; and
(e) means for retaining in vertical array said grouped series of said weights, said retaining means positioned adjacent said lifting means to operably receive said weights vertically lifted into the open bottom of said retaining means, said retaining means having a central post for retaining said series of groups of said flat weights in predetermined series order.

4,335,988

TRACKSIDE CAM CENTERING ARRANGEMENT

Dennis Marsden, Lake Stevens, Wash., assignor to Pullman Incorporated, Chicago, Ill.

Filed Jun. 26, 1980, Ser. No. 163,239
Int. Cl.[3] B61D *7/030*
U.S. Cl. 414—387 11 Claims



1. For a railway hopper car suited for movement on rails having longitudinally extending doors on opposite sides thereof hingedly mounted on the car for movement laterally outwardly from closed position to open position relative to a discharge opening, the improvement comprising:

a pair of trackside door closing mechanisms disposed in position to flank said hopper car as it moves therebetween,

means mounting said closing mechanisms comprising substantially parallel linkage and an equalizer assembly interconnecting said linkages,

said equalizer assembly extending beneath said rails and

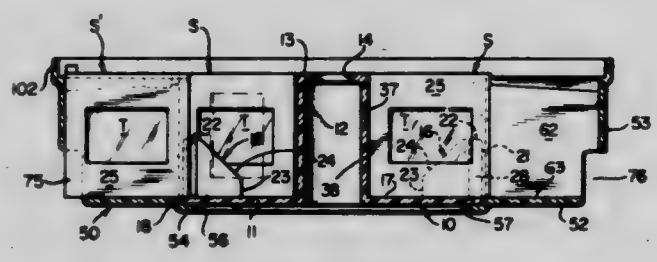
said means mounting said closing mechanisms operatively interconnecting said closing mechanisms for conjunctive preset lateral movements in response to parallelograming and/or swaying of the railway car.

4,335,989

MINIATURE SLIDE STORAGE TRAY AND METHOD OF USING SAME

Claes L. Hultgren, 334 Harris Ave., Clarendon Hills, Ill. 60514

Division of Ser. No. 931,606, Aug. 7, 1978, Pat. No. 4,253,789.
This application Nov. 17, 1980, Ser. No. 207,607
Int. Cl.[3] G03B *23/06*
U.S. Cl. 414—405 19 Claims



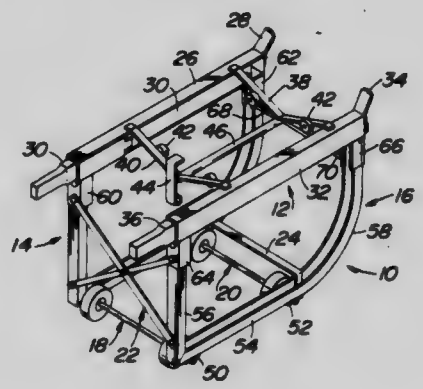
1. In combustion, a slide storage tray for storing a plurality of slides in a prearranged, closely compacted relation, and a slide transfer tray for receiving and holding said slides in prearranged positions so as to permit said slides to be transferred from said transfer tray into compartments in an associated slide projection tray, said storage tray comprising a plate-like base having partition means thereon defining a plurality of open-ended compartments for receiving and supporting a plurality of slides in segregated, annularly arranged, radially extending relation, said slide transfer tray comprising a plate-like base, a cooperating cylindrical wall and partition means defining a plurality of slide compartments with openings at one side for receiving slides transferred from the compartments of said slide storage tray, said slide transfer tray being movable into engaged relation with said slide storage tray, and alignment and indexing means carried by said slide transfer and storage trays and operable to maintain axial and radial alignment between respective compartments of said slide storage and transfer trays so that slides can be freely transferred between said compartments.

4,335,990

KNOCK DOWN BARREL HANDLING APPARATUS

Robert F. Apter, Wyncote; Carl Apter, Ambler, and Joseph Soliday, North Wales, all of Pa., assignors to R. A. Industries, Inc., Lansdale, Pa.

Filed Nov. 24, 1980, Ser. No. 209,558
Int. Cl.[3] B62B *1/08*
U.S. Cl. 414—457 4 Claims



1. A knock down barrel or drum handling apparatus comprising a cradle which includes side rails rigidly connected together by inwardly and downwardly angled front and rear braces, a pair of upstanding lift flanges at one end of said cradle, each flange being connected to one of said rails, a handle telescoped into each rail, each rail having a set of downwardly extending channels including a front channel adjacent one of said lift flanges and a rear channel, the channels of each set having open sides facing each other, angled struts rigidly and fixedly joining each front channel to said front brace, a side frame associated with each rail, each side frame having a rear leg received within the rear channel and a front leg received within the front channel of its associated rail, fastener means removably connecting each side rail leg to the mating channel on its associated rail, front and rear sets of wheels removably coupled to a horizontal portion of each side rail, a crossed brace having its upper ends removably fastened to the rear channels and to rear legs of said side frames, the lower ends of said cross brace being removably fastened to lower ends of said rear legs of said side frames, whereby the apparatus may be knocked down without disconnecting any portion of the cradle and while disconnecting the side rails from all components connected thereto.

4,335,991

MOBILE TRANSPORT FOR FLUID CARGO

Philip J. Sweet; Buck C. Hamlet, and David L. Sweet, all of Fresno, Calif., assignors to American Carrier Equipment, Inc., Fresno, Calif.

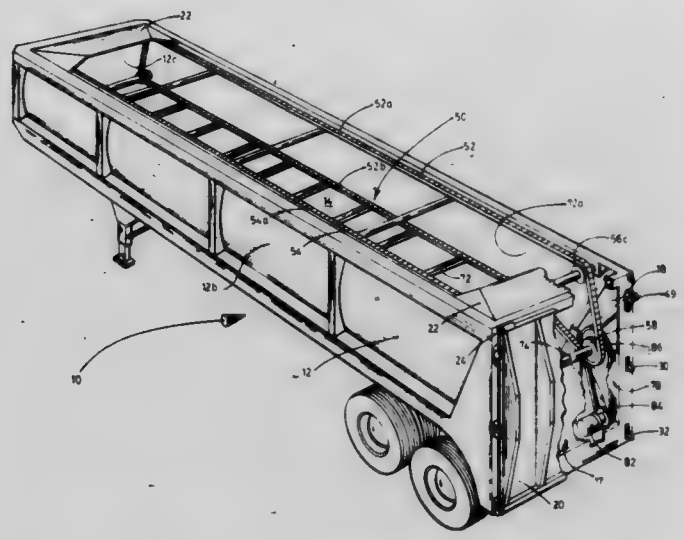
Filed May 1, 1980, Ser. No. 145,442
Int. Cl.[3] B60P *1/36*
U.S. Cl. 414—519 5 Claims

1. In a mobile transport for fluidized cargo, the improvement comprising:

A. an elongated cargo box, characterized by a forward and a rear end, comprising a substantially horizontally oriented floor extended between a forward and a rear terminous and a substantially vertically oriented wall including a pair of side wall segments and a forward end wall segment, means defining between said side wall segments, a rear discharge opening arranged in a substantially vertical plane passing through the rear terminous of said floor;

B. means for establishing for said box a fluid-tight integrity

for fluidized cargo including a door adjacently related to said opening and pivotally supported for angular displacement into a sealing relationship with said opening, whereby leakage of the cargo through said opening is avoided when said door is displaced into a sealing relationship with said opening; and



C. an endless drag chain totally confined within said box and substantially extended between said forward end wall segment and the door when said door is displaced into a sealing relationship with the discharge opening including a lower run supported in scraping engagement with the upper surface of said floor and an upper run supported in vertically spaced relation with the lower run of the drag chain.

4,335,992

SIDE SHIFT FORK ADJUSTABLE CARRIAGE

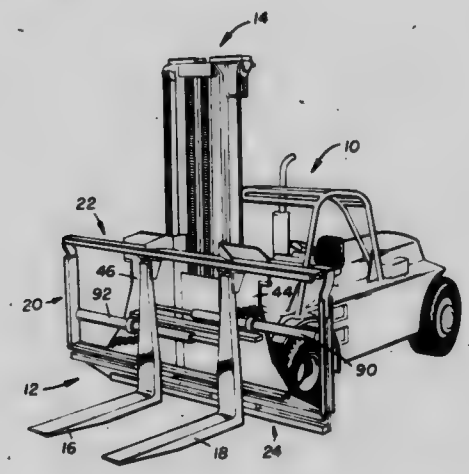
Jerry L. Reeves, Dallas, Oreg., assignor to Towmotor Corporation, Mentor, Ohio

PCT No. PCT/US80/00015, § 371 Date Jan. 7, 1980, § 102(e) Date Jan. 7, 1980, PCT Pub. No. WO81/02001, PCT Pub. Date Jul. 23, 1981

PCT Filed Jan. 7, 1980, Ser. No. 130,487

Int. Cl.³ B66F *9/14*

U.S. Cl. 414—667 **16 Claims**



1. In a material handling vehicle (10) having a mast (14), a carriage assembly (12) connected to the mast (14) for vertical movement thereupon and first and second load lifting forks (16,18) each having a side, the improvement comprising:

track means (22,24) for movably connecting said forks (16,18) to the carriage assembly (12) for movement of the forks (16,18) between a first position at which respective sides of each fork are in contact with one another and a second position at which the respective sides of each fork (16,18) are spaced one from the other, said track means (22,24) including a first (22) pair of tracks having first (22*a*) and second (22*b*) spaced apart tracks each connected to the carriage assembly (12) in a generally horizontal plane, said horizontal plane generally perpendicular to the vertical movement of the carriage assembly (12) and first (26) and second (28) sliding bars each having inner end portions (26*a*,28*a*) and being connected to a respective fork (16 or 18) and slidably connected to a respective track (22*a* or 22*b*), said forks (16,18) being oriented substantially perpendicularly relative to the tracks (22*a*,22*b*) and said sliding bars (26,28) each having a length (L) sufficient for maintaining said forks (16,18) substantially perpendicular relative to the track (22*a* or 22*b*) and said tracks being positioned one relative to the other at locations sufficient for overlapping of the inner end portions of sliding bars at the first position of the forks (16,18).

4,335,993

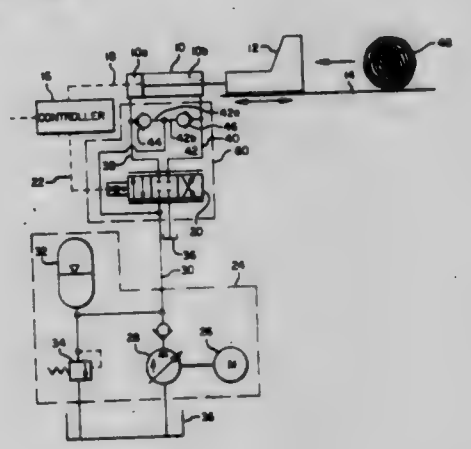
HYDRAULIC-POSITIONING SYSTEM FOR HIGH-IMPACT APPLICATIONS

Andrew Nowak, Portland, Oreg., assignor to Fluid-Air Components, Inc., Portland, Oreg.

Filed Apr. 28, 1980, Ser. No. 144,694

Int. Cl.³ B27B *29/00*

U.S. Cl. 414—748 **7 Claims**



1. A hydraulic positioning system for movably positioning a member subject to impact loading, said system comprising:

(a) hydraulic motor means having a chamber for receiving hydraulic fluid under pressure for moving said member in a predetermined direction in response to the introduction of hydraulic fluid under pressure into said chamber;

(b) a source of pressurized hydraulic fluid for supplying hydraulic fluid under pressure to said chamber;

(c) first fluid conduit means interconnecting said source of pressurized hydraulic fluid with said chamber for conducting said fluid to said chamber, said first fluid conduit means having fluid control valve means interposed therein for selectively permitting or preventing the flow of said fluid from said source of pressurized hydraulic fluid to said chamber through said first fluid conduit means;

(d) second fluid conduit means interconnecting said source of pressurized hydraulic fluid with said chamber in parallel relationship with said first fluid conduit means and bypassing said control valve means;

(e) said second fluid conduit means having one-way valve means interposed therein for preventing the flow of hydraulic fluid through said second fluid conduit means from said source of pressurized hydraulic fluid toward said chamber, said one-way valve means having means responsive to differences between the pressures of hydraulic fluid in said chamber and at said source of pressurized hydraulic fluid fluid respectively for permitting the flow of fluid through said one-way valve means and said second fluid conduit means from said chamber toward said source of pressurized hydraulic fluid when the pressure of hydraulic fluid in said chamber exceeds the pressure of hydraulic fluid at said source of pressurized hydraulic fluid by a predetermined amount;

(f) means automatically responsive to the movable position of said member for actuating said fluid-control valve

means so as to cause said hydraulic motor means to place said member in a predetermined position;

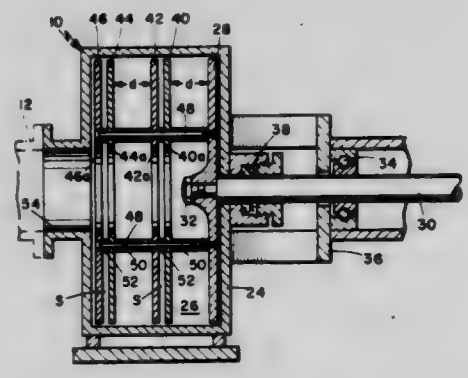
wherein said hydraulic motor means is mounted upon an elongate carriage having upwardly-facing means for supporting a log longitudinally with respect to said carriage, said member comprising a log-positioning member movably mounted upon said carriage for transversely positioning a log on said carriage in response to the introduction of hydraulic fluid under pressure into said chamber of said hydraulic motor means.

4,335,994

METHOD AND APPARATUS FOR PUMPING LARGE SOLID ARTICLES

Max I. Gurth, 1937 Dehesa Rd., El Cajon, Calif. 92020

Continuation of Ser. No. 938,223, Aug. 30, 1978, abandoned.
This application Jul. 7, 1980, Ser. No. 166,185
Int. Cl.³ F01D *1/36;* B65G *53/30*
U.S. Cl. 415—90 **11 Claims**



1. A pump for pumping solid articles of a predetermined size, said pump comprising:

a housing having walls defining a cylindrical impeller chamber,

an inlet coaxial with and communicating with said chamber, and

an outlet communicating with and extending outward with the outermost wall thereof at a tangent to the outer periphery of same chamber,

a multiple disc impeller rotatably mounted coaxially within said impeller chamber in said housing and having at least a first pair of coaxially disposed flat smooth continuous surface discs closely spaced a first distance apart defining a first path and so disposed within said housing to permit free flow of fluid via said first path therebetween to said outlet and defining a second path for unobstructed passage of articles of a predetermined size greater than said first distance from said inlet past said discs via said second path to said outlet.

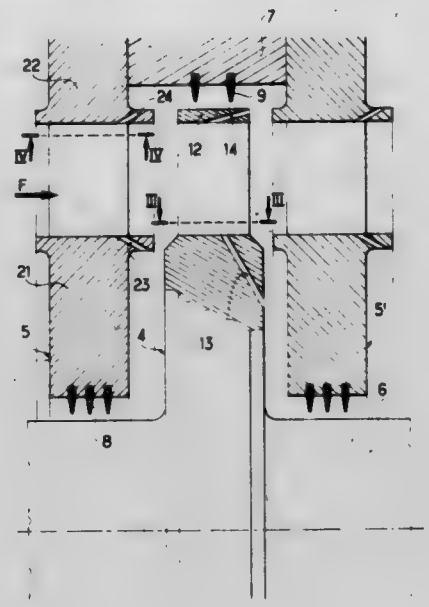
4,335,995

SET OF BLADES FOR A TURBINE AND A TURBINE WHICH INCLUDES SUCH A SET OF BLADES

Gilbert Riollet, Paris, and Raymond Bessay, Belfort, both of France, assignors to Alsthom-Atlantique, Paris, France

PCT No. PCT/FR79/00089, § 371 Date Jun. 5, 1980, § 102(e) Date May 30, 1980, PCT Pub. No. WO80/00728, PCT Pub. Date Apr. 17, 1980
PCT Filed Oct. 4, 1979, Ser. No. 196,792
Claims priority, application France, Oct. 5, 1978, 78 28459
Int. Cl.³ F01D *5/14;* F04D *29/68*
U.S. Cl. 415—144 **9 Claims**

1. A set of blades for a turbine, said set including an upper plate and a lower plate and a group of blades disposed between said upper plate and said lower plate and which therefore define a group of passages along which a turbine feed fluid flows, each passage being delimited by the concave surface of one blade and the convex surface of the blade next to it and by the lower plate and the upper plate and secondly, at least two ducts associated with each blade, one in the upper plate and the other in the lower plate, one end of each of these ducts opening into a passage and the other end of each of these ducts opening at a point located downstream from said set of blades, the improvement wherein, for each duct (**13**, **14**, **23**, **24**), the duct end which opens into the passage is located in proximity to the



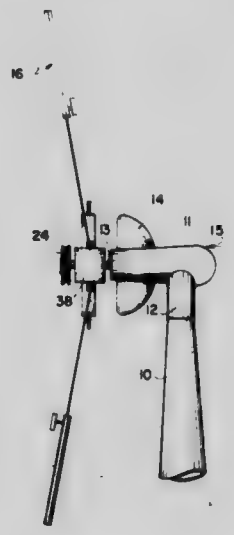
concave surface of one blade which delimits said passage, and remote from the convex surface of the other blade delimiting that passage, and at the flow constriction (**10**, **20**) at the level of maximum flow constriction between blades.

4,335,996

WINDMILL CONSTRUCTION

Joel M. Ross, R.R. #3, Salmon Arm, British Columbia, Canada (V0E 2T0)

Filed Dec. 1, 1980, Ser. No. 211,891
Int. Cl.³ F03D *7/04*
U.S. Cl. 416—88 **19 Claims**



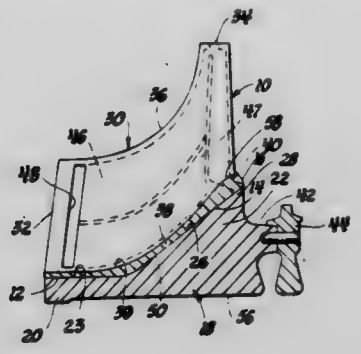
1. A windmill assembly comprising in combination a drive shaft, means supporting said drive shaft, a plurality of radially extending windmill airfoils and means extending from said shaft to support said airfoils symmetrically therearound, said means including a cable support member for each airfoil extending substantially at right angles to the longitudinal axis of said airfoil and upon either side thereof, and flexible cable means extending from said airfoil to said cable support members adjacent the distal ends thereof in a substantially one dimensional triangular configuration, and reel means for said flexible cable means adjacent said spindle, said flexible cable means running freely through said cable support members adjacent the distal end thereof and to said reel.

4,335,997

STRESS RESISTANT HYBRID RADIAL TURBINE WHEEL

Bruce A. Ewing, Martinsville, and Leonard C. Lindgren, Indianapolis, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 16, 1980, Ser. No. 112,446
Int. Cl.[3] F01D 5/14
U.S. Cl. 416—185 1 Claim



1. In a radial flow turbine rotor assembly of the type having a clearance bore therethrough for passage of a shaft and an equivalent stress pattern wherein a maximum equivalent stress occurs at said clearance bore and equivalent stresses decrease generally in proportion to radial outward distance from said clearance bore with equal stress levels exhibiting a generally cone-like distribution proceeding from a front portion of said rotor to a rear portion, the combination comprising, a metal hub having said clearance bore therethrough and wrought properties capable of withstanding during operation of said rotor assembly said maximum equivalent stress and including a cylindrical portion extending rearward from said front portion to an integral flared-back portion defining a frustoconical outer surface generally conforming to said cone-like distributions of levels of equal equivalent stresses, a bladed disc fabricated from a dissimilar metal incapable of withstanding said maximum equivalent stress during operation of said rotor assembly and including a plurality of radially extending blades interconnected by a central rim defining an outer surface flared back from said rotor front portion which outer surface cooperates with said blades in defining a plurality of aerodynamic gas flow passages of preselected dimensions, said disc further including a cylindrical bore corresponding in dimension to said hub cylindrical portion and a frustoconical cavity connected to said cylindrical bore corresponding in dimension to said hub flared-back portion, said disc being received on said hub so that the interface defined therebetween lies radially outboard of all of said cone-like distributions of levels of equal equivalent stresses exceeding the functional strength of said disc material, and means defining a metallurgical bond between said disc and said hub across the entire extent of said interface therebetween.

4,335,998

CERAMIC-METAL ASSEMBLY

Johann Siebels, Wolfsburg, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

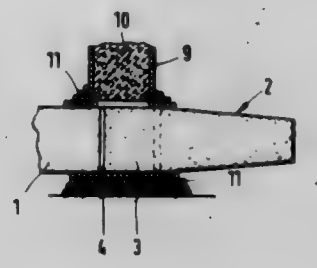
Filed May 18, 1979, Ser. No. 40,121
Claims priority, application Fed. Rep. of Germany, May 24, 1978, 2822627
Int. Cl.[3] F01D 5/30
U.S. Cl. 416—213 R 7 Claims

1. An assembly comprising a metallic component and a nonoxidic ceramic component supported by said metallic component;

said metallic component having an opening therein and a recess communicating with said opening, said recess being defined by at least two opposite inwardly facing surfaces;

said ceramic component having a base portion disposed in said recess and a second portion projecting out of said recess through said opening, wherein said base portion and said surfaces define a gap therebetween for spacing said base portion from said metallic component;

said assembly further comprising a high temperature solder filling said gaps, said solder being applied in liquid form at elevated temperature, wherein said solder and said metallic component, due to the elevated application temperature and differences in thermal coefficients of expansion between said solder and metallic component and said ceramic component, are shrunk fit around said base portion for applying compressive stresses to said base portion,



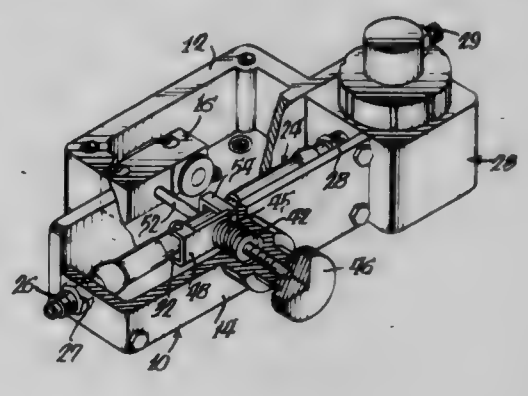
and wherein said metallic component has a reduced cross-sectional thickness normal to said surfaces in the region of said opening, said reduced thickness being effective to cause plastic deformation in said region of said metallic component, and to reduce the compressive stress, in said region, of said metallic component against said base portion, thereby reducing the tensile stresses on said ceramic component and producing a connection between said components capable of withstanding high thermal and mechanical stresses.

4,335,999

PRESSURE CONTROL FOR PUMPS

Robert E. Lamontagne, Boulder, and Jon V. Scull, Longmont, both of Colo., assignors to Binks Manufacturing Company, Franklin Park, Ill.

Division of Ser. No. 932,520, Aug. 10, 1978, Pat. No. 4,212,591.
This application Dec. 21, 1979, Ser. No. 106,238
Int. Cl.[3] F04B 49/08
U.S. Cl. 417—38 2 Claims



1. A device for controlling the output pressure of a pump or the like, said device comprising: an output line for transmitting fluid under pressure from said pump, said output line including a control hose portion having a length inconsistent with the length the control hose portion would assume when subjected to a predetermined variation in interval pressure, said control hose portion changing in length responsive to variations in the pressure of the fluid in the line; and means responsive to the change in length of said control hose portion for controlling the pump, wherein the control hose portion is initially deformed into an arcuate configuration, such that a centerline of the control hose portion lies along an arcuate path, and the ends fixed so that said changes in length result in variations in said arcuate configuration, and wherein said responsive means senses said variations in said arcuate configuration.

4,336,000

LIQUID DOSAGE PISTON PUMP

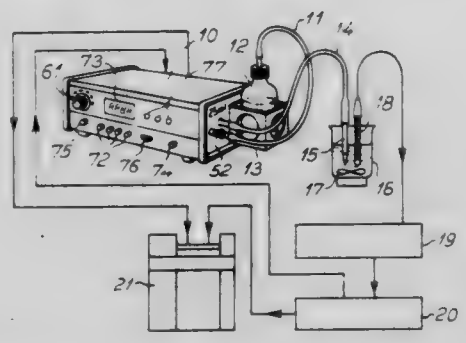
Hans Jorgensen, Vanlose; Ib O. Sinnerup, Copenhagen, and Ole E. Danborg, Horsholm, all of Denmark, assignors to Radiometer A/S, Copenhagen, Denmark

Filed Dec. 31, 1979, Ser. No. 108,659

Claims priority, application Denmark, Jan. 3, 1979, 29/79

Int. Cl.³ F04B *39/00, 21/00;* G01N *1/14*

U.S. Cl. 417—53 **19 Claims**



1. A method of removing gas or air bubbles from a liquid-containing cylinder chamber of a dosage piston pump including a pump cylinder and a piston displaceable in said cylinder so as to define said cylinder chamber therein, said method comprising introducing an additional, substantially greater volume of gas or air into said cylinder chamber for uniting said gas or air bubbles and said additional gas or air volume into a coherent total gas or air volume, subsequently discharging said coherent total volume of gas or air completely from said chamber as a substantially continuous gas flow, and introducing liquid into said cylinder chamber so as to obtain a cylinder chamber filled with liquid free of air or gas.

4,336,001

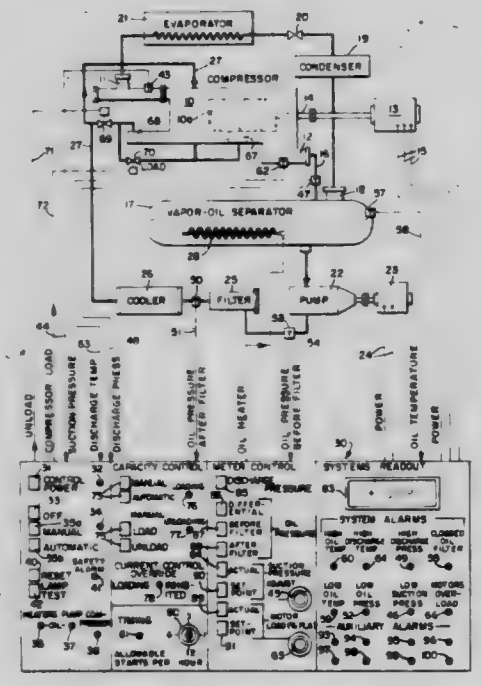
SOLID STATE COMPRESSOR CONTROL SYSTEM

Eduardo V. Andrew, Liverpool, N.Y.; Robert A. Naunas, Jr., Fairfield, Pa., and Richard C. Armstrong, Jr., Inwood, W. Va., assignors to Frick Company, Waynesboro, Pa.

Division of Ser. No. 943,887, Sep. 19, 1978, Pat. No. 4,227,862. This application Apr. 17, 1980, Ser. No. 141,032

Int. Cl.³ F04B *49/02*

U.S. Cl. 417—63 **4 Claims**



1. A control system for connection with a fluid compressor driven by a motor, the compressor including loading valve means operative to adjust the capacity of the compressor by modulating fluid leakage from its discharge toward its inlet to maintain a desired suction pressure at the inlet, said system comprising:

(a) means in said inlet for measuring fluid suction pressure and delivering a suction pressure signal;

(b) means adjustable to select a compressor loading setpoint comprising a reference suction pressure signal;

(c) a loading actuator and an unloading actuator, said actuators being connected to operate said loading valve means selectively and progressively to load and unload the compressor;

(d) pressure signal comparator means for comparing said measured suction pressure signal with said reference suction pressure signal, said comparator means having separate outputs including a first output whose amplitude represents the degree of deviation from the setpoint when the measured suction pressure signal is greater than the reference suction pressure signal and including a second output whose amplitude represents the degree of deviation from the setpoint when the suction pressure signal is less than the reference suction pressure signal; and

(e) means for converting the first and second outputs when present, respectively, to first and second control signals comprising trains of pulses whose duty cycles vary according to the amplitudes of said respective outputs, said means for converting said first and second outputs comprising separate comparators each having one input connected to one of said outputs, a triangular wave generator connected to the other input of each comparator, one comparator delivering an output control signal pulse which is present whenever one of said inputs exceeds the momentary level of the triangular wave, and the other comparator delivering an output control pulse whenever the other of said inputs exceeds the momentary level of the triangular wave, and means to establish a threshold level at the inputs to said comparators to provide a deadband within which said first and second outputs are too small to provide output control signals from the comparators; and said control signals being coupled respectively to said loading and unloading actuators and operative to control said actuators to load or unload the compressor in increments in response to the durations of said pulses.

4,336,002

TWO STAGE PUMP HAVING AN ELECTROMOTOR DEVICE

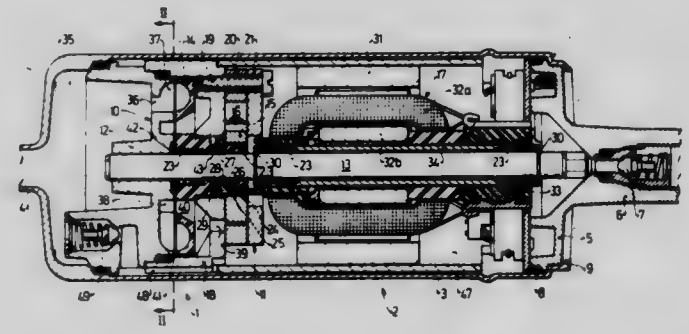
Klaus Rose, Mundelsheim; Ulrich Kemmner, Sachsenheim, and Karl Ruhl, Gerlingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 16, 1977, Ser. No. 797,170

Claims priority, application Fed. Rep. of Germany, May 19, 1976, 2622155

Int. Cl.³ F04B *23/14*

U.S. Cl. 417—203 **4 Claims**



1. A fuel supply unit comprising:

an elongated housing having a fuel inlet at one end and a fuel outlet at the other end,

a shaft mounted in said housing,

a two stage pump coupled for rotation on said shaft and located adjacent one end of said housing for pumping fuel entering said fuel inlet through said housing and discharging same out said fuel outlet,

an electric motor in said housing having an armature mounted on said shaft for driving said two stage pump and being exposed to fuel flowing from said fuel inlet to the fuel outlet,

said two stage pump comprising a first pump unit with an impeller and a second pump unit with an impeller, the impellers of both said pump units being mounted on said shaft for rotation by said armature and the inlet of said first pump unit being connected to said fuel inlet and the outlet of said first pump unit being connected to the inlet of said second pump unit with the outlet of said second pump unit being directed to said fuel outlet, said first pump unit being of the type which has a higher fuel flow and a higher delivery output per rotation than said second pump unit,

an air discharge duct connecting said outlet of said first pump unit with said fuel inlet for dispelling gases in the fuel being supplied to said second pump unit,

further including a recess means in the impeller of said second pump unit,

bushing means connected to said armature having an axial projection received in said recess,

ring means disposed on said shaft between the impeller of said second pump unit and the impeller of said first pump unit,

pin means carried by said ring and also received in said recess,

a recess in said ring means, and

an axial projection located on the impeller of said first pump unit and received in said recess in said ring means,

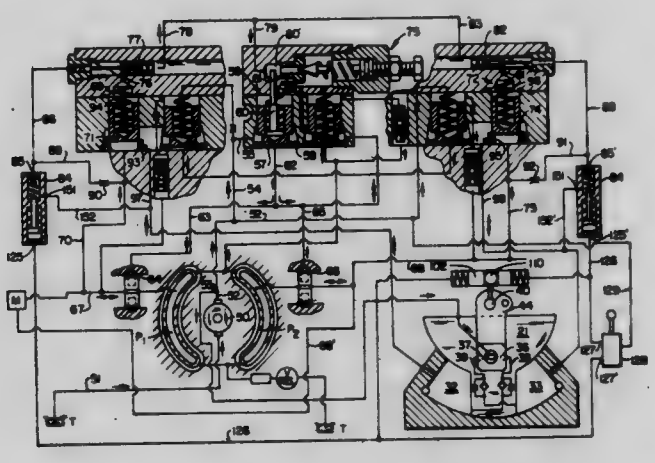
so that said armature, impellers and ring are in rotational locking engagement with one another.

4,336,003

CRANE SWING CONTROL

William D. Kramer, Powell, and Ellis H. Born, Columbus, both of Ohio, assignors to Abex Corporation, New York, N.Y.

Filed Aug. 11, 1980, Ser. No. 177,021
Int. Cl.[3] F04B *49/08*
U.S. Cl. 417—217 2 Claims



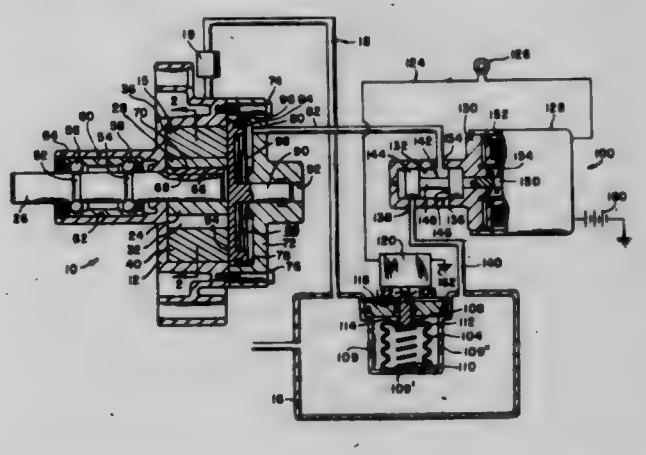
1. A variable displacement pump driven by a prime mover comprising: fluid motor means for setting the displacement of the pump between a position of maximum displacement in one direction and a position of maximum displacement in the other direction with a centered position of minimum fluid displacement therebetween; input control means for operating the fluid motor means to set the displacement at a desired value; adjustable sequence valve means for setting and limiting working fluid pressure including an adjustable pilot stage, a poppet and a seat; means biasing the poppet toward the seat to close the sequence valve; conduit means conducting working fluid to the top and bottom of the poppet; an orifice in the conduit means which causes the sequence poppet to lift off the seat when the pressure drop across the orifice reduces the force on top of the poppet by an amount equal to the force of the biasing means; and means for automatically reducing pump displacement when working fluid pressure equals the pressure setting of the sequence valve means and the sequence poppet lifts off the seat; characterized by a swing control comprising a control piston, means connecting the control piston to the input control means, spring means for biasing the control piston to a centered position to thereby put the input control means in the centered position, second pilot valve means for limiting working fluid pressure including a second seat and a movable member, passage means for connecting the second pilot valve means to the conduit means between the orifice and the top of the sequence valve poppet, second passage means for connecting the second pilot valve means to said means for automatically reducing pump displacement, means for providing a source of pressurized control fluid to the swing control wherein said control fluid moves the control piston to thereby move the input control means to set the displacement of the pump to a position proportional to the pressure of the control fluid, wherein said control fluid acts on the movable member of the second pilot valve means to set the working fluid pressure at an amount proportional to the pressure of the control fluid and said movable member moves off said second seat to pass working pressure fluid to said second passage means to reduce the displacement of the pump when the pressure of the working fluid equals the setting of the second pilot valve means, and said sequence poppet lifts off the seat after the movable member moves off the second seat when the pressure drop across the orifice reduces the force on top of the poppet by an amount equal to the force of the biasing means to thereby help to further reduce the displacement of the pump.

4,336,004

MOVABLE END PLATE FOR A VACUUM PUMP

Frederick G. Grabb, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Dec. 26, 1979, Ser. No. 107,125
Int. Cl.[3] F04B *49/02, 49/08*
U.S. Cl. 417—283 8 Claims



1. In a pump having a housing with an operational chamber and a control chamber therein, a movable wall located in the operational chamber for separating an inlet port from an outlet port, and an input member for moving said movable wall in the operational chamber to transfer fluid from the inlet port and into the operational chamber while removing fluid from the operational chamber through the outlet port, said control chamber being connected to the surrounding environment, said housing including an end plate which seals said operational chamber characterized by the end plate being responsive to a predetermined pressure differential between the operational and control chambers for connecting the inlet port to the outlet port and thereby substantially reducing the resistance to movement of the wall within the operational chamber to correspondingly reduce the work requirement of the input member;

a switch connected in said operational chamber; said switch responding to the pressure of the fluid at the inlet port to develop an operational signal; and

a control valve device responsive to said operational signal for interrupting communication between the surrounding environment and said control chamber while connecting the control chamber to said inlet port to develop said predetermined pressure differential and permit the inlet and outlet port connection.

4,336,005

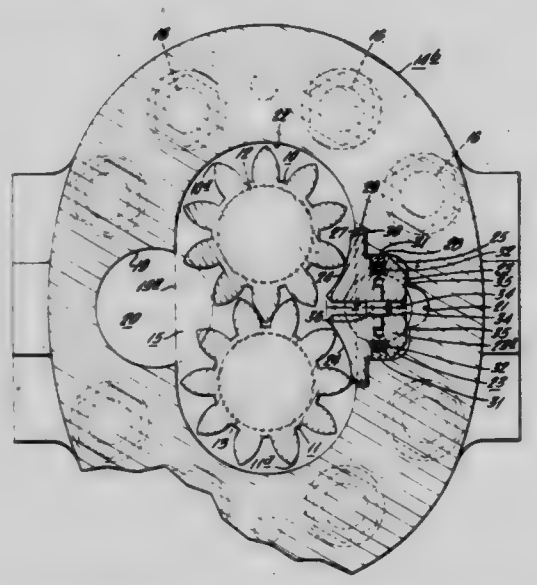
GEAR PUMPS AND MOTORS

James R. McBurnett, and James M. Eley, both of Corinth, Miss., assignors to Tyrone Hydraulics, Inc., Corinth, Miss.

Continuation-in-part of Ser. No. 29,891, Apr. 13, 1979, Pat. No. 4,266,915, which is a continuation-in-part of Ser. No. 923,094, Jul. 10, 1978, abandoned. This application Oct. 28, 1980, Ser. No. 201,475

Int. Cl.³ F04C *15/00*

U.S. Cl. 418—126 **8 Claims**



1. In a fluid pump or motor of the gear type having a pair of intermeshing externally toothed gears mounted for rotational movement within a housing, said housing having a pair of ports disposed on opposite sides of the gears for admission and discharge of operating fluid, the housing being relieved in a region extending across the width of the gear teeth, a pair of sealing members each being spaced radially from one of said gears, a recess in the housing adjacent one of said ports, said radially spaced sealing members each being disposed in said recess and each having and arcuate sealing surface conforming to the path of the tips of the gear teeth and forming with the gear teeth a zone of high pressure in communication with said adjacent port, each said sealing surface extending from a point adjacent the port at higher pressure for a distance sufficient to span the tips of adjacent teeth of the adjacent gear and extending transversely of the gears, each said radially spaced sealing member having a pair of supports extending in opposite directions beyond the gear side surfaces, said supports each having a planar support surface, means having planar support surfaces interfacing with the surfaces on said supports and transmitting load to the housing, said support means being constructed to limit movement of the radially spaced sealing members to a position of sealing relationship with said gear teeth and for transmitting the load imposed on the radially spaced sealing members directly into said housing.

4,336,006

GEAR POSITIVE DISPLACEMENT MACHINE WITH GAPS BETWEEN BEARING MEMBERS AND HOUSING

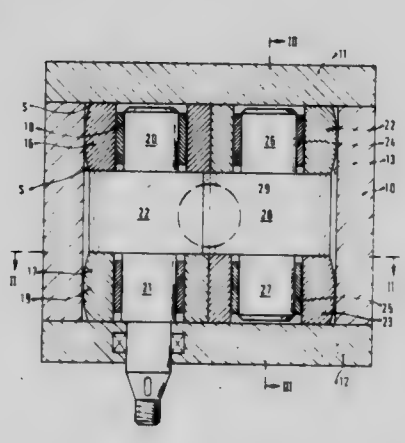
Kurt Grabow, Feucht; Willy Mahl, Ditzingen; Karl-Heinz Müller, Vaihingen; Heinrich Kochendörfer, Kernen; Dieter Bertsch, Neuhausen; Siegfried Mayer; Jörg Anhenn, both of Vaihingen, and Wilhelm Dworak, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 82,995

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2848994

Int. Cl.³ F01C *1/18, 21/02;* F16C *23/04*

U.S. Cl. 418—131 **9 Claims**



1. A gear positive displacement machine, comprising a housing having an inner wall; two gear members in said housing each having an axis and a shaft forming said axis, said gear members radially abutting against and meshing with one another, said gear members together with said housing defining a low pressure side and a high pressure side; bearing members in said housing and arranged for bearing said shafts of said gears, each of said bearing members having a peripheral face which together with said inner wall of said housing forms a gap at least at said low pressure side, said gap increasing in two axially opposite directions starting from a central transverse axis of said bearing members so that when said shafts of said gears bend during the operation, said bearing members exactly follow the bending line of said shafts.

4,336,007

WORM TYPE COMPRESSOR WITH COMPRESSED FLUID ESCAPE GROOVES

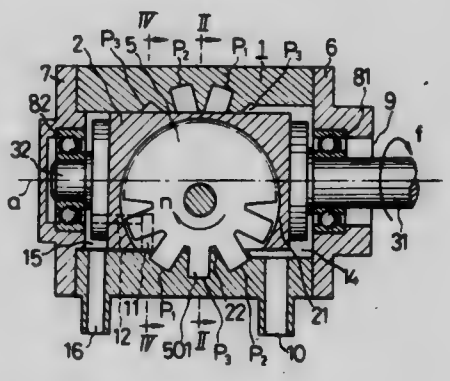
Kenji Takeda, Okazaki; Yoshiyuki Hattori, Toyoake, and Takao Kasagi, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Feb. 15, 1980, Ser. No. 122,052

Claims priority, application Japan, Mar. 13, 1979, 54-31868[U]

Int. Cl.³ F04C *18/00, 29/08*

U.S. Cl. 418—183 **3 Claims**



1. A worm type compressor comprising:

a cylindrical worm provided with a plurality of spiral-like passages in an inner periphery thereof;

said spiral-like passages being disposed with the same phase differences with each other, the depth of each of said spiral-like passages being maximum in the central portion of said worm in the longitudinal direction thereof and gradually decreasing in both end directions of each of said spiral-like passages;

a column-shaped rotor disposed coaxially within said worm and contacted with the inner periphery thereof so that said worm and said rotor may be rotated relatively to each other;

said rotor being provided with a cavity having an approximate circular shape in the axial direction thereof and an axially extending opening in the outer periphery of said rotor, which is communicated with said cavity;

a pinion gear disposed within said cavity and rotatably supported about an axis perpendicular to and spaced from the rotational axis of said rotor by a predetermined distance;

a portion of the teeth of said pinion gear projecting from said axially extending opening and being engaged within said spiral-like passages, respectively;

a plurality of fluid sealing chambers formed respectively by each of said spiral-like passages of said worm, each tooth of said pinion gear which is engaged with each of said spiral-like passages, and the outer periphery of said rotor, the volume of each of said plurality of fluid sealing chambers being varied according to the travel of each tooth of said pinion gear within each of said spiral-like passages of said worm;

a fluid inlet means for introducing the fluid into said fluid sealing chambers;

a fluid outlet means for discharging the fluid from said fluid sealing chambers;

said fluid outlet means comprising an internal fluid outlet port formed in the outer periphery of said rotor near but spaced circumferentially from said axially extending opening so as to be opposed to and communicated with each of the finishing portions of said spiral-like passages in turn as said rotor is rotated; and

a compressed fluid escape means provided in each of said finishing portions of said spiral-like passages of said worm for letting one portion of the compressed fluid escape from each of said spiral-like passages when each tooth of said pinion gear passes each of said finishing portions of said spiral-like passages, said escape means comprising a narrow groove extending circumferentially in the inner periphery of said worm from and communicating with the terminal end of the corresponding finishing portion.

4,336,008

ADJUSTABLE SPACER ASSEMBLY FOR PLATEN PRESS

Jürgen Pesch, Krefeld-Traar, Fed. Rep. of Germany, assignor to G. Siempelkamp GmbH & Co., Krefeld, Fed. Rep. of Germany

Filed Nov. 17, 1980, Ser. No. 207,429

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2946468

Int. Cl.³ B29C *3/00*

U.S. Cl. 425—406 **2 Claims**

1. A platen press comprising:

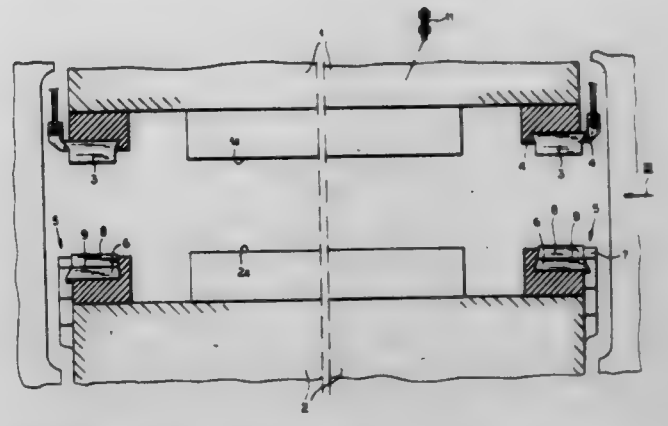
a pair of platens having respective confronting and parallel platen surfaces and each having a pair of longitudinal edges;

respective solid spacer bars fixed to said longitudinal edges of one of said platens and having respective spacer surfaces parallel to and between said platen surfaces;

means for releasably securing said spacer bars to the respective longitudinal edges;

respective adjustment bars secured to said longitudinal edges of the other of said platens and each having an adjustment surface parallel to and confronting the respective spacer surface, each of said adjustment bars being formed of an outer wedge having a pair of nonparallel faces one of which is the respective bar surface, and of an inner wedge having an outer face flatly engaging the other face of the respective outer wedge;

means for relatively longitudinally displacing said inner and outer wedges and thereby displacing the respective ad-



justment surfaces perpendicular to the respective platen surfaces; and

means for displacing said platens toward each other perpendicular to said surfaces for engagement of said spacer surfaces flatly with the respective adjustment surfaces.

4,336,009

MOLDING TOOL

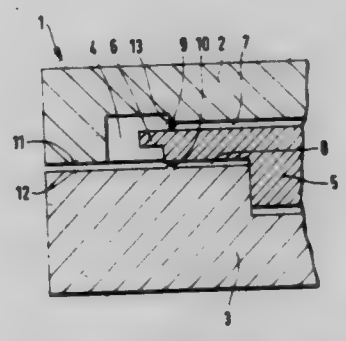
Franz-Josef Wolf, Bad Soden Salmunster, Fed. Rep. of Germany, assignor to WOCO Franz-Josef Wolf & Co., Bad Soden Salmunster, Fed. Rep. of Germany

Filed Nov. 18, 1980, Ser. No. 207,933

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1979, 2947621

Int. Cl.³ B29C *1/00, 6/02*

U.S. Cl. 425—116 **3 Claims**



1. In a molding tool having oppositely facing first and second surfaces defining a mold cavity therebetween for the rubber injection coating of the outer rim of a circular disk, the improvement comprising: means for sharply defining a boundary transition between said coating on said outer rim of said disk and the remaining surfaces of said disk, said means including oppositely facing, triangular cross-sectioned projections extending merely a fraction of a millimeter from said first and second surfaces, and which projections engage said disk sufficiently close to said boundary transition during injection of said coating to result in no noticable impression in said disk except upon removal of said coating.

4,336,010

DOUGH FORMING, DIVIDING AND CUTTING APPARATUS

Daniel T. Thompson, 1141 Napoli Dr., Pacific Palisades, Calif. 90272

Filed Sep. 2, 1980, Ser. No. 183,187

Int. Cl.³ B29C *15/00*; A21C *5/00*

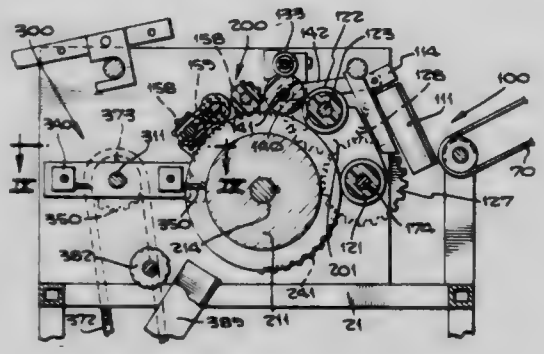
U.S. Cl. 425—141 **12 Claims**

1. An apparatus for rapidly and continuously shaping an irregular mass of dough into a plurality of individual dough elements of controllable weight, comprising:

forming means for shaping said irregular mass into a continu-

ous dough slab of uniform thickness and width said forming means having an input means for receiving said irregular mass and an output means through which a slab of dough of uniform thickness and width is emitted, said forming means including driven roller means for pulling said irregular mass progressively into said forming means through said input, shaping it into a slab of uniform thickness and width, and emitting it from said output, said forming means further including drive means connected to drive said driven roller means at a changeable rate;

driven dividing drum means revolving at a constant speed for receiving and pulling said slab of dough from said



output means and for dividing said slab into a plurality of dough strips of the same uniform cross-sectional area;

sensing means operably connected to said drive means for sensing the thickness of said slab being received by said dividing drum means and for speeding up said drive means when said thickness is too thin and for slowing down said drive means when said thickness gets too thick whereby said thickness is maintained generally constant; and,

driven cutting means for continuously dividing said strips into a plurality of individual dough elements of generally equal length with the length of said elements being determined by the operating speed of said cutting means relative to the speed of said dividing drum means.

4,336,011

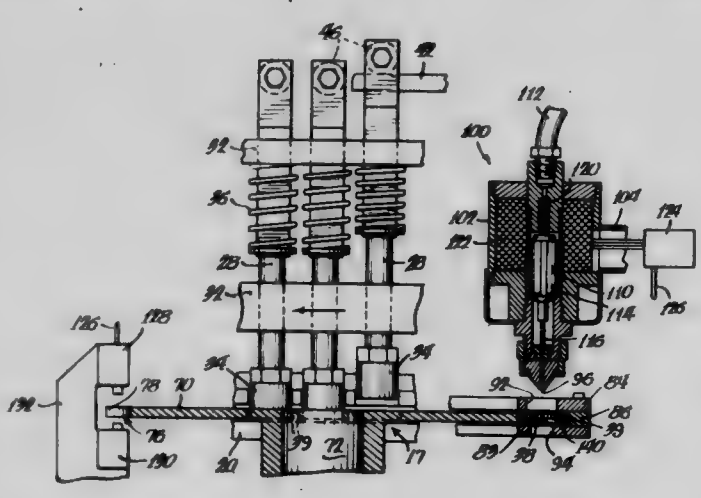
APPARATUS FOR APPLYING LINERS TO CLOSURES

Robert W. George, Naperville; Casper W. Miller, Mundelein, and Kenneth Rapey, Chicago, all of Ill., assignors to National Can Corporation, Chicago, Ill.

Continuation of Ser. No. 906,770, May 18, 1978, abandoned. This application Jul. 24, 1980, Ser. No. 172,076

Int. Cl.³ B29C *13/02*

U.S. Cl. 425—129 R **6 Claims**



2. A cap lining machine having a continuously rotating molding and curing head with a plurality of circumferentially spaced stations defined on the periphery thereof and movable along a path, each station having a recess for receiving a cap and a plunger reciprocated between open and closed positions with means for moving said plunger between said positions during each cycle of revolution for said head, feed means for continuously supplying unlined caps having a curable fluid compound to each station, take-off means for removing lined caps from respective stations, and stationary heating means adjacent said molding and curing head between said feed means and said take-off means for supplying heat to said curing and molding head and maintaining the temperature of each station substantially above ambient temperature, the improvement of said feed means including a continuously rotating feed wheel having a plurality of circumferentially spaced pockets, unlined cap supply means for feeding caps to respective pockets, and curable fluid compound dispensing means for dispensing metered quantities of compound at a rate greater than 1000 cycles per minute to said respective unlined caps in said pockets, said dispensing means including a housing having a chamber defined therein with an inlet and an outlet at opposite ends of said chamber, a member in said chamber having a needle for opening and closing said outlet, said member and chamber cooperating to define an annular path between said inlet and said outlet, solenoid means surrounding said chamber for reciprocating said member and needle between open and closed positions, and pressurized compound supply means connected to said inlet for supplying compound at substantially room temperature to flow through said flow path when said outlet is open and be delivered to said caps at substantially room temperature, said caps with said compound therein being transferred from said pockets to said recesses while said plungers are in an open position, said plungers being moved to a closed position after said caps are received in said recesses to mold said compound, said heating means curing said compound while said caps are moved between said feed means and said take-off means, and said plungers are moved to an open position adjacent said take-off means to allow said caps to be removed from said recess.

4,336,012

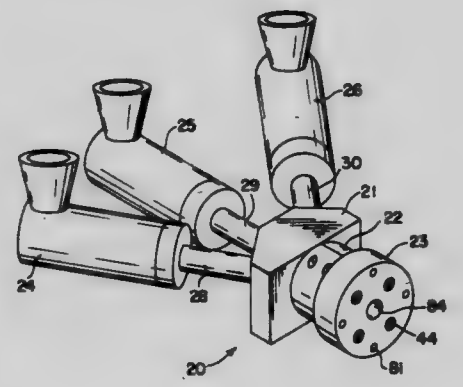
COEXTRUSION DEVICE

Paul E. Koch, Chagrin Falls; Thomas J. Bond, and Richard C. Adams, both of Chardon, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Oct. 20, 1980, Ser. No. 198,312

Int. Cl.³ B29F *3/04, 3/00*

U.S. Cl. 425—131.1 **30 Claims**



1. A coextrusion device, for use with conventional extruders and extrusion dies for forming layered products from at least two materials, comprising:

manifold means for receiving a plurality of extruded feed materials wherein individual feed materials are directed into separate flow streams passing therethrough;

feedblock means receiving said flow streams of feed materials from said manifold and maintaining each separate while passing therethrough;

said feedblock having

first and second faces;

entrance ports in said first face corresponding to the number of said flow streams of feed materials;

channel means passing through said feedblock between said first and second faces reducing the cross-sectional

area of each separate flow stream and directing each flow stream into at least one separate profile;

exit ports in said second face corresponding to the number of said channel means, defining a first profile for each said flow stream of feed material; and

adaptor means receiving said first profiles from said feedblock

said adaptor means having

first and second faces;

an entrance port in said first face receiving said first profiles;

an exit port in said second face corresponding to the entrance of an extrusion die; and

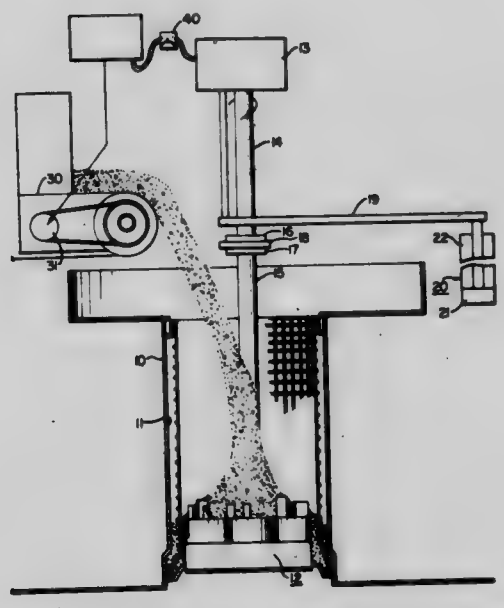
a transition zone between said entrance and exit ports wherein said first profiles become contiguous and the overall configuration of said contiguous first profiles is adapted for receipt by an extrusion die.

4,336,013

APPARATUS FOR FORMING CONCRETE ARTICLES OF UNIFORM DENSITY

George E. Hand, Williamstown, N.J., assignor to Kerr Concrete Pipe Company, Folsom, N.J.

Filed May 16, 1979, Ser. No. 39,316
Int. Cl.[3] B28B *3/18, 21/24*
U.S. Cl. 425—145 3 Claims



1. An apparatus for forming concrete pipe of uniform density comprising:

(a) means for forming concrete into the form of said pipe comprising a mold having an inner wall, a packing head for packing concrete against said inner wall, a shaft centrally mounted on said packing head, an electric packing head motor for revolving said packing head through the mold; and means for raising said packing head only at a fixed rate;

(b) means for feeding concrete to said forming means;

(c) a feed motor for driving said concrete feeding means;

(d) means for sensing and measuring current in said packing head motor, said current being a function of torque generated in said packing head;

(e) means for comparing said sensed current to a preset current; and

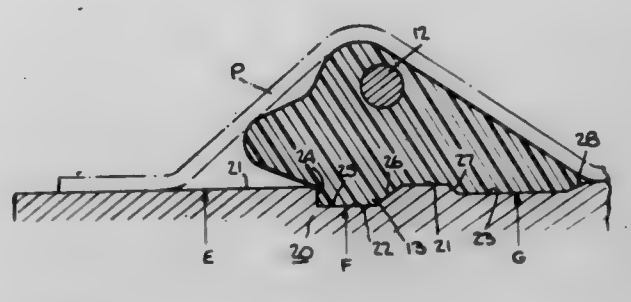
(f) means for controlling the speed of said feed motor responsive to said sensing and comparing means.

4,336,014

SYSTEM FOR MOUNTING A FORMING ELEMENT ON A MANDREL

Gunnar Parmann, Alvoy, Norway, assignor to Rieber & Son A/S, Bergen, Norway

Filed Sep. 15, 1980, Ser. No. 187,495
Int. Cl.[3] B29C *17/02*
U.S. Cl. 425—403 13 Claims



1. In combination

an annular forming and sealing element including a body of elastically yieldable material defining an annular sealing portion having an inner diameter on an interior surface thereof and a trailing end of a wedge-shaped cross-section, and a rigid relatively non-elastic annular ring of circular cross-section disposed within said body at least partially in a plane of said sealing portion; and

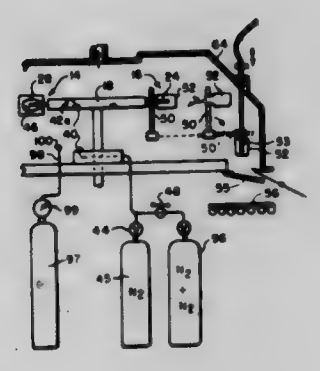
a mandrel having said element mounted thereon, said mandrel having a peripheral anchoring surface of an outer diameter greater than said inner diameter of said sealing portion and including one annular anchoring groove therein sized to receive said sealing portion therein in deformed relation to anchor said element to said mandrel in fixed relation, said groove having a sharply defined forward annular wall abutting said sealing portion to preclude advancement of said element along said mandrel.

4,336,015

APPARATUS FOR BLOW MOLDING WITH ACTIVE INGREDIENT IN BLOWING GAS

Dewey N. Rainville, 11 Kent Pl., Westfield, N.J. 07090

Filed Nov. 27, 1979, Ser. No. 97,805
Int. Cl.[3] B29C *17/07, 25/00*
U.S. Cl. 425—74 11 Claims



1. Injection blow molding apparatus comprising a plurality of operational stations including an injection station, a blowing station, a stripper station, and an indexing head around which the stations are located and spaced at equal angles and from which core rods extend into the respective stations, a housing spaced from and enclosing the blowing station and the stripper station to shut off gas that is used in the blowing station and the stripper station from the ambient atmosphere outside of the housing, apparatus for blowing containers at the blowing station with gas containing hazardous fumes, means for venting to space within said housing the gas containing the hazardous

fumes from the blown container and from objects blown at the blowing station by gas containing the hazardous fumes, and means for collecting from said space the gas containing the fumes and for supplying the hazardous gas to the blowing station for subsequent blowing operations where the blown container is filled with the hazardous gas mixture.

4,336,016

BURNERS

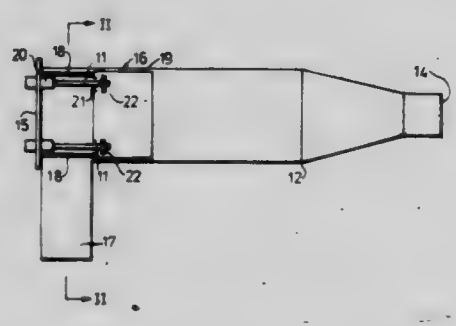
John Badrock, Southport, England, assignor to World Stress (Gas Contracts) Limited, St. Helens, England

Filed Jan. 24, 1980, Ser. No. 115,108

Claims priority, application United Kingdom, Jan. 26, 1979, 7902764

Int. Cl.³ F23M 9/00

U.S. Cl. 431—158 **6 Claims**



1. An industrial gas burner comprising a substantially cylindrical housing having one tapered end through which combustion products are discharged and having a closed second end, a partition axially dividing said housing into an air inlet plenum adjacent said closed end and a combustion chamber adjacent said discharge end, an air inlet arranged transversely to said plenum and comprising means for conducting air tangentially into said plenum and in a swirling fashion around the axis of said housing, said partition including a ring having a plurality of holes, a gas jet nozzle positioned within each of said holes with a clearance between each of said nozzles and a respective one of said holes, a collar disposed about each nozzle and within said combustion chamber, said clearances comprising means for conducting swirling air from said plenum into said combustion chamber, said collars obstructing said clearances and comprising means for directing air outwardly, away from the nozzles, thereby permitting gas from said jet nozzles to spread, said nozzles and said partition being mounted to said housing.

4,336,017

FLARE WITH INWARDLY DIRECTED COANDA NOZZLE

Denis H. Desty, Weybridge, England, assignor to The British Petroleum Company Limited, London, England

Filed Jan. 23, 1978, Ser. No. 871,531

Claims priority, application United Kingdom, Jan. 28, 1977, 03518/77

Int. Cl.³ F23D 00/00

U.S. Cl. 431—202 **10 Claims**

1. A flare, comprising:

a flow tube having an inlet end portion and an outlet end portion;

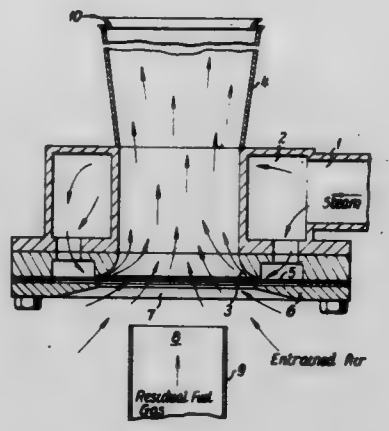
said inlet end portion of said flow tube including a Coanda nozzle directed towards the interior of said flow tube;

means for passing a pressurized gas through said Coanda nozzle and thereafter, together with entrained surrounding gas, along the inside of said flow tube;

said flow tube transporting the gas flow to the outlet end portion thereof;

said Coanda nozzle including a circumferentially extending outlet slot through which said pressurized gas flows and a circumferentially extending Coanda surface inside said flow tube contiguous with one edge of said Coanda nozzle outlet slot, the opposite edge of said Coanda nozzle outlet slot comprising a resilient flap arranged to flex in response to the pressure of said pressurized gas passing through said Coanda nozzle outlet slot to vary the effective slot width thereof;

said resilient flap comprising an annular ring, the outer circumferentially extending edge of which is fixed while



the inner circumferentially extending edge thereof is free to move in response to said pressure of said pressurized gas; and

means for directing low pressure gas into the inlet portion of said flow tube, said means located at a predetermined fixed spatial position relative to said Coanda nozzle during use of the flare.

4,336,018

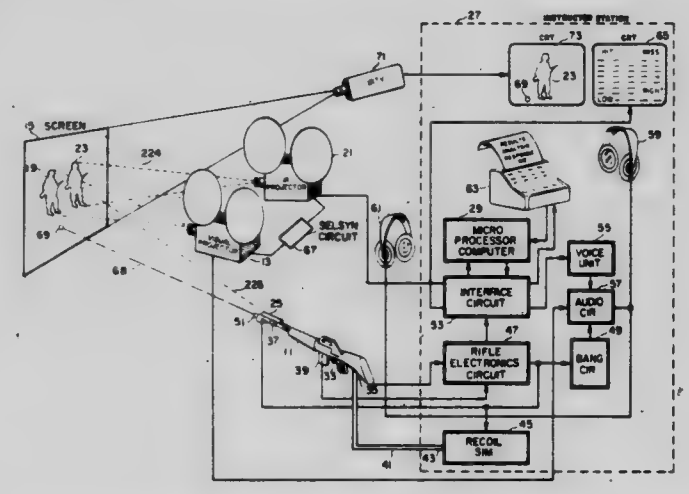
ELECTRO-OPTIC INFANTRY WEAPONS TRAINER

Albert H. Marshall, Orlando; Bon F. Shaw, Winter Park; Herbert C. Towle, Maitland, all of Fla.; Thomas J. Riordan, Santa Clara, Calif., and George A. Siragusa, Winter Park, Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 19, 1979, Ser. No. 105,313

Int. Cl.³ F41J 5/08, 5/10

U.S. Cl. 434—22 **31 Claims**



31. A weapon fire simulation system comprising, in combination:

projection apparatus having a plurality of outputs for simultaneously and coordinately projecting onto a screen a background scene including a visual target and an infrared target;

a weapon having a trigger mechanism attached thereto;

a sensor element attached to said weapon, said sensor element having a quartet of photodiodes, each of which is adapted for producing an analog output signal upon sensing said infrared target;

a quartet of sensor circuits, each of which has a signal input and an enable input, and a data output, with the signal

inputs thereof respectively connected to the outputs of said quartet of photodiodes;

an enable circuit mechanically coupled to the trigger mechanism of said weapon and having an enable output connected to the enable inputs of said quartet of sensor circuits, and a data ready strobe output, for generating an enable signal and providing a data ready pulse so as to allow the reading out of the data appearing at the data outputs of said quartet of sensor circuits whenever said trigger mechanism is operated;

an interface circuit having a quartet of data inputs respectively connected to the quartet of data outputs of said sensor circuits, a data ready strobe input connected to the data ready strobe of said enable circuit, a plurality of computer inputs, and a plurality of computer outputs, for receiving from said sensor circuits the data word provided thereby, and for storing said data word therein; and

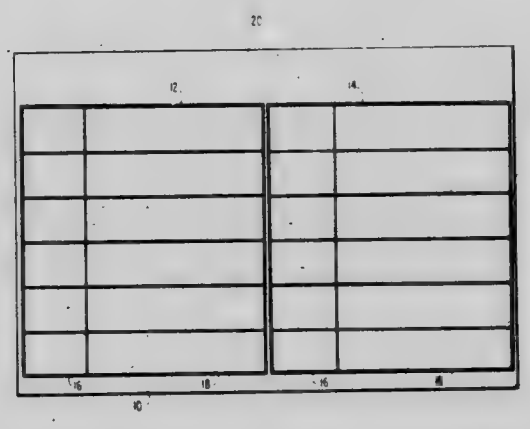
a computer having a plurality of inputs respectively connected to the computer outputs of said interface circuit, and a plurality of outputs respectively connected to the computer inputs of said interface circuit, for supplying to said interface circuit a predetermined address word so as to effect the transfer of said data word from said interface circuit to said computer, wherein said computer performs an analysis of said data word in accordance with a predetermined computer program stored therein so as to indicate to a trainee rifleman whether said trainee rifleman has scored a hit upon said visual target.

4,336,019

EDUCATIONAL ACCOUNTING GAME

Thomas D. Schroeder, 7 Woodbine St., S. Burlington, Vt. 05401

Filed Oct. 28, 1980, Ser. No. 201,116
Int. Cl.³ G09B *19/18*
U.S. Cl. 434—109 **2 Claims**



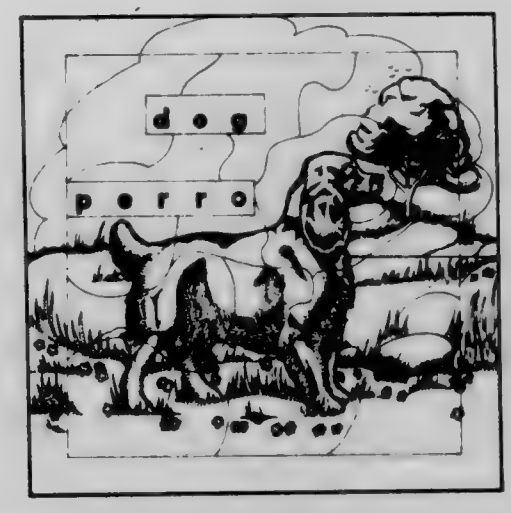
1. An educational accounting game comprising a game board having four columns of boxes printed thereon, two for assets and two for liabilities, and a sheet of separable game pieces having accounting legends and assorted numerical values printed thereon, the printed surface of the game board and the surface of said sheet of game pieces opposite the printing having complementary engaging means thereon for temporarily holding individual game pieces in position on said game board and each game piece having an accounting legend thereon being of a different color and said game pieces having numerical values thereon being of different colors corresponding to the colors of the game pieces having accounting legends thereon whereby those pieces having a legend designating an asset are placed in the first column, those pieces having a legend designating a liability are placed in the third column and those pieces having numerical values thereon are placed in the second and fourth columns according to color.

4,336,020

JIGSAW PUZZLE FOR USE IN BILINGUAL EDUCATION

David Zacharin, P.O. Box 76, Graton, Calif. 95444

Filed Jul. 15, 1980, Ser. No. 169,187
Int. Cl.³ G09B *5/04*; A63F *9/10*
U.S. Cl. 434—157 **6 Claims**



1. Educational apparatus comprising:

board means having a raised border around a recessed area;

sheet means marked with numerous words, said sheet means fitted within said recessed area;

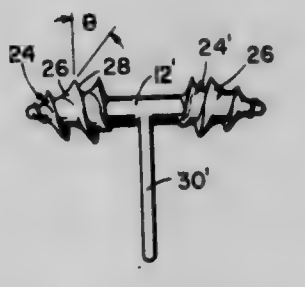
a set of jigsaw puzzle pieces for assembly over said sheet means, said puzzle pieces when completely assembled forming a picture covering all of the words on said sheet means except for the words which represent said picture, said picture being formed solely by said jigsaw puzzle pieces, said representative words appearing through predetermined windows formed by edges of said puzzle pieces.

4,336,021

EMERGENCY BELTING AND KIT

William M. Haines, Englewood, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed May 14, 1979, Ser. No. 39,069
Int. Cl.³ F16G *3/07*
U.S. Cl. 474—256 **10 Claims**



1. In an endless belt assembly including a belt of elastomeric material having internal cavities in the ends thereof, and coupling means having respective end gripping means securely engaged in the internal cavities of the belting, the improvement comprising:

a coupling means having a smooth central shank portion and having one of the respective end gripping means formed of a helical rib projecting radially outwardly from the shank portion, and the other of the end gripping means in the configuration of a sharp edged head;

said rib penetrating the wall of the elastomeric belt and substantially embedding therein; and

said central shank portion adapted and arranged to engage lever arm means for rotating the coupling about its shank axis to couple the ends of the belt together.

4,336,022

ACRYLIC PRECURSOR FIBERS SUITABLE FOR PREPARING CARBON OR GRAPHITE FIBERS

Charles E. Lynch, Camden, S.C., and William K. Wilkinson, Waynesboro, Va., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 62,908, Aug. 1, 1979, abandoned. This application Jan. 30, 1981, Ser. No. 230,030

Int. Cl.[3] C08F *8/44, 220/46;* D06C *7/04*

U.S. Cl. 8—115.5 3 Claims

1. Process for preparing precursor fibers for the preparation of carbon or graphite fibers wherein an acrylic fiber of an acrylic polymer containing 93–99.4 mol percent acrylonitrile units, 0.6–4.0 mol percent ammonia or amine having a pKb of 5 or less incorporated into the polymer as neutralizing cations for sulfate or sulfonate end groups derived from the initiator and activator, if present, and as neutralizing cations for sulfonate groups incorporated into the polymer by copolymerization of one or more copolymerizable, sulfonate containing comonomers selected from the group consisting of styrene sulfonic acid, allyl sulfonic acid, methallyl sulfonic acid, 2-acrylamido-2-methylpropane sulfonic acid and ethylene sulfonic acid and 0–3.0 mol percent of units of one or more neutral comonomers selected from the group consisting of alkyl acrylates having 1–4 carbon atoms in the alkyl group, alkyl methacrylates having 1–4 carbon atoms in the alkyl group, vinyl acetate, vinyl propionate, styrene, vinyl chloride and vinylidene chloride and no more than 0.3 mol percent neutralizing cations other than ammonia or amine having a pKb of 5 or less are heated for 4–20 minutes in one or more stages in air at a temperature at least 10° below the stick temperature of the fibers entering that stage to provide fibers having a density of at least 1.36 g/cm^3.

4,336,023

FORMALDEHYDE-FREE DURABLE PRESS FINISH FABRICS

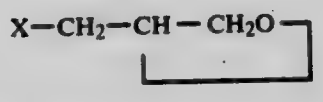
Charles E. Warburton, Jr., Ambler, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Dec. 30, 1980, Ser. No. 221,683

Int. Cl.[3] D06M *15/12*

U.S. Cl. 8—115.7 5 Claims

1. A process for imparting to cellulose or cellulose-containing textile materials durable press properties by treating cellulose or cellulose-containing textile materials by applying to the textile materials a treating composition of (a) about 1–25% by weight, based on dry weight of the material, of an activated water-soluble bis-vinyl compound, and (b) about 0.2–25% by weight, based on dry weight of the material, of (1) a copolymer having a Tg<20° C., said copolymer being produced from a monomer mixture containing (i) about 0.25–99.5% by weight, based on the weight of the copolymer, of a quarternary monomer obtained by reacting an epihalohydrin having the formula:



with an ammonium salt having the formula:

$$CH_2{=}C(R)C(O)O\text{-}A\text{-}N(CH_3)_2.HY,$$

wherein R is H or methyl, A is a (C_2–C_6)alkylene group having at least two carbons in a chain between adjoined O and N atoms or A is a polyoxyethylene group, $(CH_2CH_2O)_nCH_2CH_2$, wherein n is an integer of at least 1, X is iodine, bromine, or chlorine, and Y is an anion, and (ii) at least one copolymerizable ethylenically unsaturated monomer, or (2) the reaction product of a copolymer of said ammonium salt and said epihalohydrin, and (c) sufficient aqueous base to effect a pH of about 9–12; drying the treated textile material at a temperature of about 100°–150° C. and heating the treated textile material at a temperature of about 130°–200° C. for a time sufficient to cure the treating composition.

4,336,024

PROCESS FOR CLEANING CLOTHES AT HOME

Serge Denissenko, and Jean-Claude Rossard, both of Migne-Auxances, France, assignors to Airwick Industries, Inc., Carlstadt, N.J.

Filed Feb. 13, 1981, Ser. No. 234,220

Claims priority, application Luxembourg, Feb. 22, 1980, 82193

Int. Cl.[3] D06L *1/02*

U.S. Cl. 8—142 10 Claims

1. A process for cleaning textile materials with the aid of solvent, said process comprising

(A) applying to said textile material a cleaning agent comprising at least one organic solvent;

(B) placing an absorbent sheet in contact with said textile material;

(C) covering the surface of said absorbent sheet not in contact with said textile material with an impermeable sheet;

(D) forming said impermeable sheet into a closed system encompassing the absorbent sheet and the textile material;

(E) spinning said closed system on the interior circular surface of a drum to enable the cleaning agent to migrate into the absorbent sheet; and

(F) removing the textile material from the closed system.

4,336,025

COMPOSITION CONTAINING COLORANTS AND ESTERIFIED OXALKYLATES OF AROMATIC HYDROXY COMPOUNDS

Manfred Schneider, Eppstein; Hubert Kruse, Kelkheim, and Konrad Opitz, Liederbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

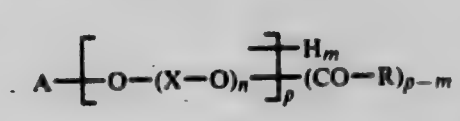
Filed Jun. 8, 1981, Ser. No. 271,569

Claims priority, application Fed. Rep. of Germany, Jun. 10, 1980, 3021712

Int. Cl.[3] C09B *67/10;* D06P *67/00*

U.S. Cl. 8—527 9 Claims

1. Composition of matter comprising a colorant and a water-soluble compound of the formula I



(I)

wherein A is an aryl radical, X represents identical or different groups of the formula —CH_2—CH_2— and —CH_2—CH(CH-3)—, R—CO— denotes identical or different radicals of a carboxylic acid having up to 22 C atoms, n represents identical or different numbers from 8 to 150, p is a number from 1 to 10 and m represents 0 up to (p-0.5).

4,336,026

LIQUID PREPARATION OF AN ANIONIC DYE OF THE DISAZO CLASS

Roger Lacroix, Village-Neuf, France, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

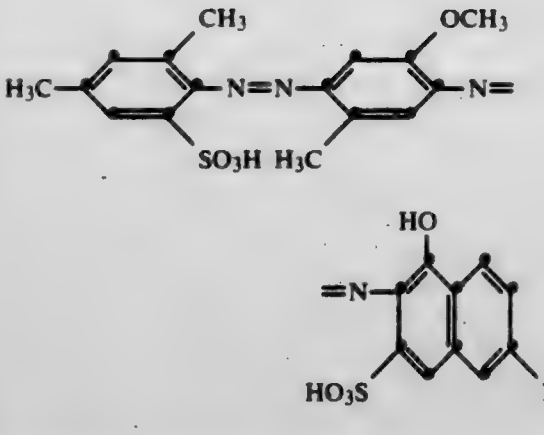
Filed Jan. 19, 1981, Ser. No. 226,573

Claims priority, application Switzerland, Feb. 5, 1980, 915/80

Int. Cl.[3] D06P *67/00*

U.S. Cl. 8—527 10 Claims

1. A stable and concentrated liquid preparation of an anionic dye of the disazo class, which preparation is miscible with water in any proportion and contains the disazo dye, which in the form of the free acid corresponds to the formula



dissolved in a solvent mixture which is miscible with water in any proportion and which consists of N,N,N',N'-tetramethylurea, at least one alkylene glycol ether and water, and alkyl- or alkanolamine in an amount sufficient to bring the pH value of the liquid preparation to 6.5 to 8.5, the dye being in the form of the alkyl- or alkanolamine salt.

4,336,027

DYEING AND MARKING AGENT

Reinhold Tussing, Redwitz, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Dec. 8, 1980, Ser. No. 213,954

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1979, 2952414

Int. Cl.³ C09B *67/00*; C09D *11/16*

U.S. Cl. 8—611 **5 Claims**

1. A dyeing and marking agent comprising a solution of a dye in a liquid medium consisting either completely or predominantly of one or more organic solvents, and from about 0.5% to 20% by weight, referred to the dye, of an alkali alcoholate.

4,336,028

METHOD OF MAKING ELECTRICALLY CONDUCTING FIBERS

Shinji Tomibe, Kyoto; Reizo Gomibuchi, Uji, and Kiyofumi Takahashi, Yawata, all of Japan, assignors to Nihon Sanmo Dyeing Co., Ltd., Kyoto, Japan

Filed Jul. 15, 1981, Ser. No. 283,749

Claims priority, application Japan, Jul. 15, 1980, 55/97128

Int. Cl.³ B05D *5/12*

U.S. Cl. 8—624 **6 Claims**

1. A method of making an electrically conducting fiber comprising treating an acrylic fiber or modacrylic fiber in a bath containing divalent copper ions, a reducing agent capable of reducing said copper ions to monovalent copper ions and a sulfur-containing compound to convert said monovalent copper ions to copper sulfide wherein said fiber adsorbs copper sulfide.

4,336,029

METHOD AND REAGENTS FOR QUANTITATIVE DETERMINATION OF RETICULOCYTES AND PLATELETS IN WHOLE BLOOD

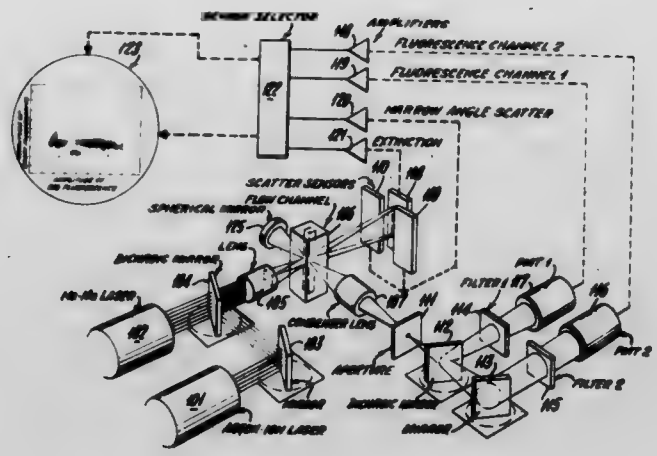
Peter J. Natale, Canton, Mass., assignor to Ortho Diagnostic Systems Inc., Raritan, N.J.

Filed Aug. 15, 1980, Ser. No. 178,481

Int. Cl.³ G01N *21/64, 33/52*

U.S. Cl. 23—230 B **4 Claims**

1. A dye composition for quantitation of reticulocytes and platelets in a whole blood sample by fluorescence using flow cytometry which consists essentially of an aqueous solution of an effective reticulocyte and platelet quantitating concentration of acridine orange dye, an effective magnesium ion chelating amount of citrate ion, and an effective maximum acridine uptake promoting concentration of an amino-reacting reagent;



the aqueous solution having a pH of from about 7.3 to about 7.5 and having a physiological level of osmolality.

4,336,030

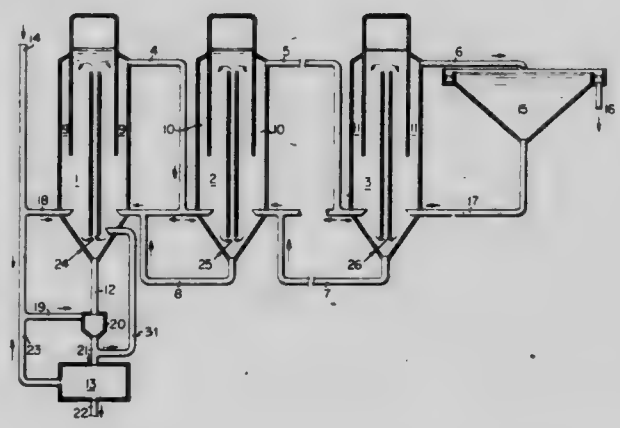
PROCESS FOR CONTINUOUS CRYSTALLIZATION

Tore B. Müller, Blomsterveien 30, Raelingen, 2000 Lilleström, Norway

Division of Ser. No. 852,514, Nov. 17, 1977, abandoned. This application May 8, 1979, Ser. No. 37,305

Int. Cl.³ B01D *9/02*

U.S. Cl. 23—301 **8 Claims**



1. A process for the continuous crystallization of at least one crystallizable material from a solution using a series of crystallization tanks, the process including the steps of

(a) feeding a feed solution containing at least one crystallizable material to a first crystallization tank in the series;

(b) initiating a partial crystallization of said feed solution in said first crystallization tank to form a suspension;

(c) classifying the suspension in said first tank to obtain a suspension fraction containing finer crystals and a suspension fraction containing a mixture of both finer and coarser crystals;

(d) passing a first portion of said suspension fraction containing finer crystals to at least one additional crystallization tank in the series;

(e) recirculating a second portion of said suspension fraction containing finer crystals from said first crystallization tank back to said first crystallization tank;

(f) initiating a further crystallization of said crystallizable material in the suspension in each of said additional crystallization tanks;

(g) classifying the suspension in each of said additional crystallization tanks to obtain a suspension fraction containing finer crystals and a suspension fraction containing a mixture of both finer and coarser crystals;

(h) recirculating the suspension fraction containing a mixture of both finer and coarser crystals from each of said

additional crystallization tanks to the previous crystallization tank;

(i) passing a first portion of the suspension fraction containing finer crystals from each additional crystallization tank except the last tank thereof to a subsequent crystallization tank in the series;

(j) recirculating a second portion of the suspension fraction containing finer crystals from each additional crystallization tank in the series except the last tank back to the tank from which it came;

(k) passing said suspension fraction containing finer crystals from the last tank in said series to a separator to obtain a mother liquor fraction as discharge and a recovered, concentrated fraction;

(l) returning said recovered, concentrated fraction to the last tank in said series;

(m) passing descending coarse crystals isolated by settling out from said suspension fraction containing a mixture of both finer and coarser crystals in said first crystallization tank countercurrent to a liquid solution arriving from a separator system;

(n) adding the liquid solution to said separator system to mix with said coarse crystals to form a coarse crystal suspension;

(o) separating said coarse crystals from said coarse crystal suspension in said separator system to form product crystals and a residual solution; and

(p) mixing said residual solution with at least a portion of the feed solution containing at least one crystallizable material to form said liquid solution of step (n).

4,336,031

METHOD FOR THE CALIBRATION OF AN OXYGEN SENSING UNIT AND CALIBRATION AGENT THEREFOR

Joachim Hopmeier; Helmut Leist, and Georg J. Ullrich, all of Freiburg im Breisgau, Fed. Rep. of Germany, assignors to Hellige GmbH, Freiburg im Breisgau, Fed. Rep. of Germany

Filed Nov. 17, 1980, Ser. No. 207,435

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1979, 2951325

Int. Cl.³ G01N *7/00*

U.S. Cl. 23—232 R **6 Claims**

1. A method for the calibration of a sensing unit used for determining the partial pressure of oxygen in contact with the sensing unit, using a zero-calibration solution in which the partial pressure of the oxygen is maintained at zero by virtue of a reducing agent present in the solution for chemically combining with the oxygen, the method comprising:

adding to the solution an acid-base pH color indicator for indicating that the zero-calibration solution contains unspent reducing agent;

contacting the sensing unit with the zero-calibration solution containing the unspent reducing agent and the acid base pH color indicator;

energizing the sensing unit; and

adjusting the sensing unit until it indicates zero concentration.

4,336,032

PROCESS FOR STABILIZING MIXTURES OF GASOLINE AND METHANOL

Genevieve L. Kupka, Paris, and Mehdi Zar-Ayan, La Frette Sur Seine, both of France, assignors to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Mar. 31, 1980, Ser. No. 135,791

Claims priority, application France, Apr. 6, 1979, 79 08750

Int. Cl.³ C10L *1/18*

U.S. Cl. 44—56 **5 Claims**

1. A process for stabilizing mixtures of gasoline and methanol containing 30% to 60% by volume of methanol and 70% to 40% by volume of gasoline which comprises adding to these mixtures a primary, branched or linear chain, monohydroxylated aliphatic saturated alcohol containing 8 to 15 carbon atoms, or a mixture of such alcohols, the quantity of said alcohol or mixture of alcohols added to the mixture of gasoline and methanol being less than or equal to 10% by volume in relation to the volume of the gasoline/methanol mixture.

4,336,033

FUEL COMPOSITIONS CONTAINING IRON PENTACARBONYL

James B. Hinkamp, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 128,406, Mar. 10, 1980, abandoned. This application Jun. 11, 1981, Ser. No. 272,500

Int. Cl.³ C10L *1/18, 1/30*

U.S. Cl. 44—68 **1 Claim**

1. A lead-free or substantially lead-free hydrocarbon fuel composition comprising a major amount of hydrocarbons boiling in the gasoline boiling range and an amount of iron pentacarbonyl sufficient to provide from at least 0.01 to no greater than 0.22 gram of iron for each gallon of fuel, designed to confer antiknock properties to the fuel composition, but not confer excessive wear in engine parts in an internal combustion engine being operated on said fuel composition.

4,336,034

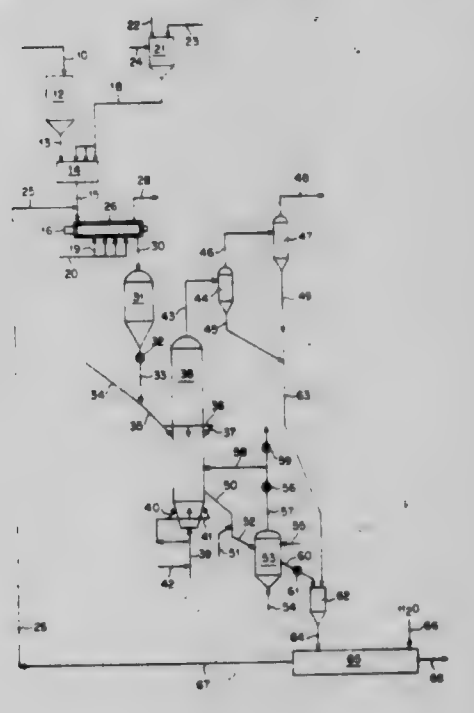
PROCESS FOR THE CATALYTIC GASIFICATION OF COAL

Robert J. Lang, Baytown, and Joanne K. Pabst, Crosby, both of Tex., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Mar. 10, 1980, Ser. No. 128,799

Int. Cl.³ C10J *3/00, 3/46*

U.S. Cl. 48—202 **9 Claims**



1. A process for the catalytic steam gasification of coal which comprises:

(a) contacting said coal in the presence of water with potassium sulfate and a calcium compound selected from the group consisting of calcium oxide and calcium hydroxide in a contacting zone to produce a treated coal, wherein said calcium compound is present in a sufficient quantity to activate said potassium sulfate;

(b) passing said treated coal from said contacting zone into a gasification zone; and

(c) gasifying said treated coal with steam at a temperature between about 1200° F. and about 1400° F. in said gasification zone, wherein said potassium sulfate and said calcium compound are introduced into said contacting zone in sufficient amounts to obtain gasification rates substantially

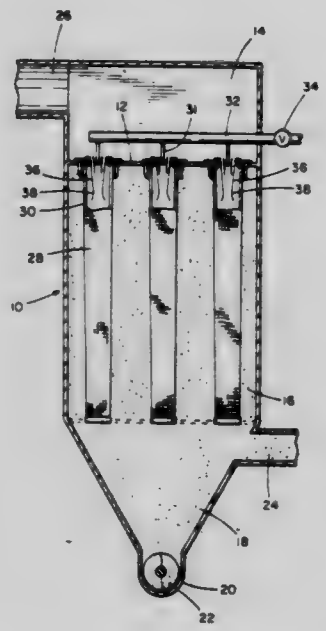
greater than the weighted average of the separate rates that would be obtained if said potassium sulfate or calcium compound were introduced alone into said contacting zone in sufficient amounts to give a cation-to-carbon atomic ratio equal to the sum of the potassium-to-carbon and calcium-to-carbon atomic ratios given by the amount of said potassium and said calcium compound actually introduced into said contacting zone.

4,336,035

DUST COLLECTOR AND FILTER BAGS THEREFOR

Donovan Evenstad, Olympia, Wash., and Cecil Lander, Pittsburgh, Pa., assignors to Wheelabrator-Frye Inc., Hampton, N.H.

Continuation-in-part of Ser. No. 19,425, Mar. 12, 1979, abandoned. This application Aug. 15, 1980, Ser. No. 178,431
Int. Cl.³ B01D *46/02*
U.S. Cl. 55—97 **4 Claims**



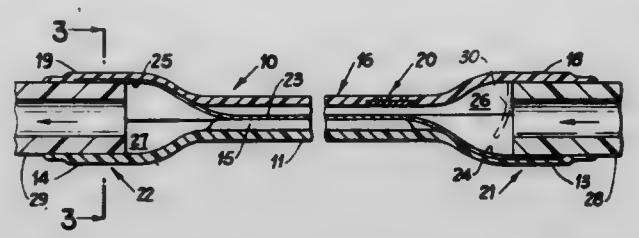
2. In a top access multiple filter bag device having a housing, a cell plate subdividing the housing into an upper clean gas plenum chamber and a lower dirty gas plenum chamber including a baghouse, in inlet to the dirty gas plenum chamber for the introduction of gas to be cleaned and an outlet from the clean gas plenum chamber for removal of filtered gas, filter bags of circular cross section depending from the cell plate into the dirty gas plenum chamber, circular openings in the cell plate dimensioned to enable the filter bags to extend therethrough for suspension from the cell plate into the baghouse, and means for releasably securing each filter bag to the cell plate, the improvement wherein each filter bag is of decreasing cross section from the upper end portion to the lower end portion so that, as the filter bags are withdrawn from the baghouse through the openings in the cell plate, the clearance between the bags and the cell plate wall defining the corresponding openings increases to ease the removal of the filter bags, a wire cage of circular cross section is dimensioned to be received in fitting relation within each filter bag for support, with corresponding decrease in cross section from the upper end portion to the lower end portion, and means for supporting each cage from the cell plate independently of the filter bags.

4,336,036

FILTER AND METHOD OF MAKING SAME

Gordon Leeke, Glastonbury, and Timothy Webster, New Britain, both of Conn., assignors to AMF Incorporated, White Plains, N.Y.

Filed Jan. 8, 1981, Ser. No. 223,458
Int. Cl.³ B01D *19/00*
U.S. Cl. 55—159 **6 Claims**



1. A deformable liquid filter with means for manually purging air and gases, comprising

a housing having a pair of flexible walls in spaced apart face to face alignment and sealed together at the edges;

a hydrophilic membrane in said housing with its edges sealed between said sealed edges dividing the space between said pair of walls into an inlet chamber and an outlet chamber;

a longitudinally spaced pair of tubular members extending through opposite ends of said housing each communicating with a different one of said chambers and being sealed between the sealed edges of said membrane and a different one of said pair of walls;

one of said pair of walls having vent means for said inlet chamber and being movable toward said membrane for manually collapsing said inlet chamber urging air and gases to be purged through said vent means; and

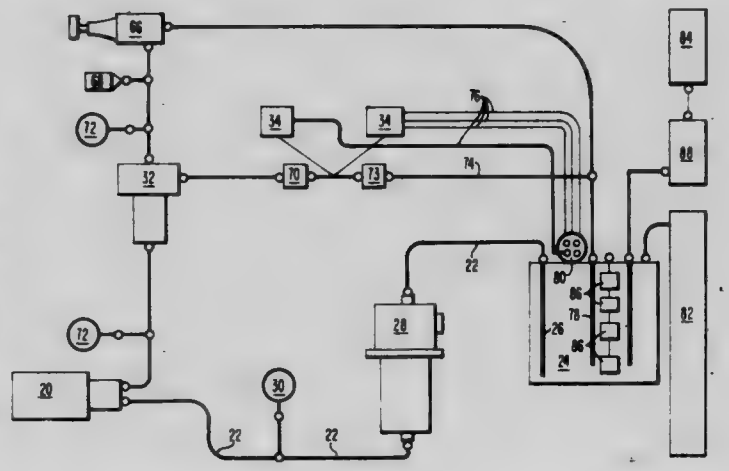
the other of said pair of walls having means supporting said membrane and preventing said outlet chamber from collapsing.

4,336,037

CONTINUOUS DEAERATION SYSTEM FOR A FLUID PUMP SYSTEM

Alexander Goldis, Southfield; Kenneth R. Sellen, Dearborn Heights, and Eugene F. Banka, Livonia, all of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 19, 1980, Ser. No. 150,732
Int. Cl.³ G01D *15/18*
U.S. Cl. 55—171 **10 Claims**



1. A continuous deaeration system for a fluid pump system comprising:

a housing having an inlet port through which aerated fluid flows into the housing from a pump;

an outlet port in the housing through which aerated fluid flows for recirculation in the fluid pump system;

a deaerated fluid outlet port in the housing through which virtually contaminant and air-free fluid flows to an ink jet printer apparatus;

a filter element within the housing, the filter element having

a plurality of appropriately sized interstices for continuously separating air and other contaminants from the flow of aerated fluid received from the inlet port of the housing;

a reservoir within the housing for collecting virtually contaminant free deaerated fluid and air separated from the aerated fluid, the reservoir transmitting the collected fluid mixture to the outlet port of the housing and transmitting contaminant free deaerated fluid to the deaerated fluid outlet port of the housing;

said housing comprising an upper portion defining the reservoir, the upper portion including the outlet port and the deaerated fluid outlet port;

said housing comprising a lower portion having a cavity containing the filter element, the lower portion including the inlet port through which aerated fluid flows from a pump; and

means for joining the upper portion to the lower portion for preventing leakage of fluid out of, and introduction of air into, the housing at the junction of the upper and lower portions.

4,336,038

FILTER MAT

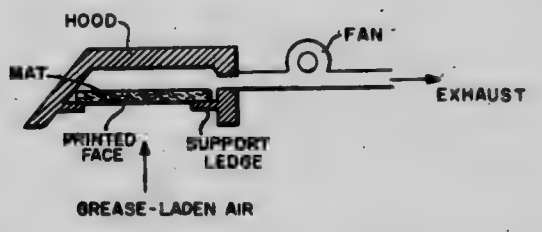
Wolfram Schultheiss, Birkenau, and Harald Hoffmann, Dossenheim, both of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Hohnerweg, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 19,965, Mar. 12, 1979, abandoned. This application Aug. 28, 1980, Ser. No. 182,175

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1978, 7809170[U]

Int. Cl.³ B01D *46/10*

U.S. Cl. 55—274 **6 Claims**



1. A fibrous filter mat in combination with a filter hood, the mat being printed on only its intake surface with a mixture of at least two dye components which are insoluble in one another, one of the dye components being oil soluble and another being oil-insoluble, the dye components contrasting in color from each other and from the fiber.

4,336,039

GEOTHERMAL TURBINE

John S. Sohre, One Lakeview Cir., Beaver Lake, Ware, Mass. 01082

Filed Oct. 13, 1977, Ser. No. 841,652

Int. Cl.³ B01D *51/08*

U.S. Cl. 55—277 **15 Claims**

1. A geothermal energy turbine comprising:

a radial outflow rotor having contoured opposed walls, said rotor being mounted for rotation about an axis;

means for delivering geothermal fluid to said rotor in a direction of absolute velocity substantially radial with respect to said axis;

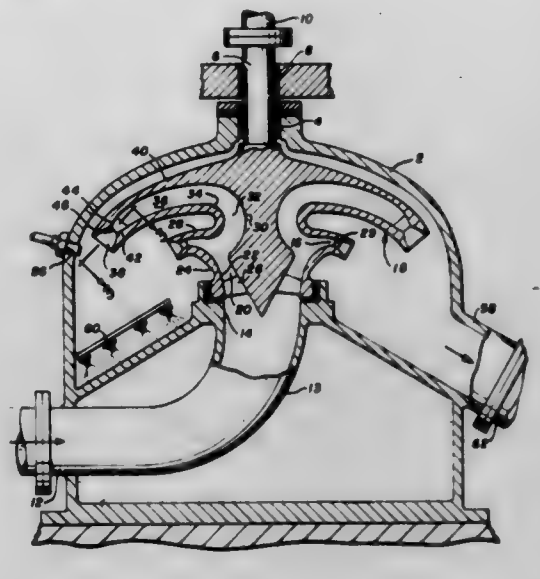
a plurality of reaction nozzles between said opposed walls, said nozzles being located in a row around the periphery of said radial outflow rotor and being positioned to discharge fluids substantially tangentially of the rotor periphery; and

curved quide vanes extending inwardly from said nozzles toward said delivering means whereby the fluid will be restrained from rotation with the rotor.

3. A geothermal fluid turbine rotor including:

two rotor wheels, one for steam and one for water;

each wheel having a row of supersonic nozzles on its periphery; and



a separator in the rotor for diverting water into the water wheel and steam to the steam wheel.

4,336,040

DUST SEPARATOR

Johann Haberl, Skärholmen, Sweden, assignor to Dustcontrol AB, Norsborg, Sweden

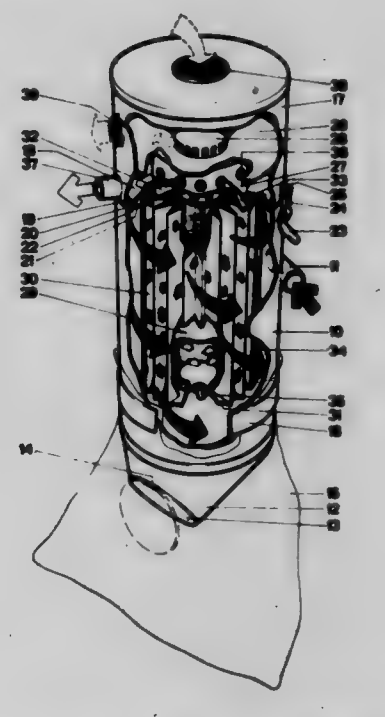
PCT No. PCT/SE79/00126, § 371 Date Jan. 30, 1981, § 102(e) Date Jan. 30, 1981, PCT Pub. No. WO80/02651, PCT Pub. Date Dec. 11, 1980

PCT Filed May 31, 1979, Ser. No. 232,263

Claims priority, application Sweden, Apr. 10, 1978, 7803978

Int. Cl.³ B01D *46/04*

U.S. Cl. 55—304 **3 Claims**



1. A dust separator, comprising a cyclone apparatus having an inlet for gaseous fluid with dust entrained therein and an outlet, a fan having an inlet communicating with the cyclone outlet and an outlet for cleaned gaseous fluid at the pressure side thereof, a drive motor connected to the fan, a filter projecting freely coaxially into the cyclone apparatus to form a filtering connection between the interior of the cyclone apparatus and the suction side of the fan and including a perforated tubular core and a pleated outer cover of filter material surrounding the core and clamped between the ends thereof to said fan, the pleats of said cover extending axially along the core and being fixed thereto at the inner folding edges thereof

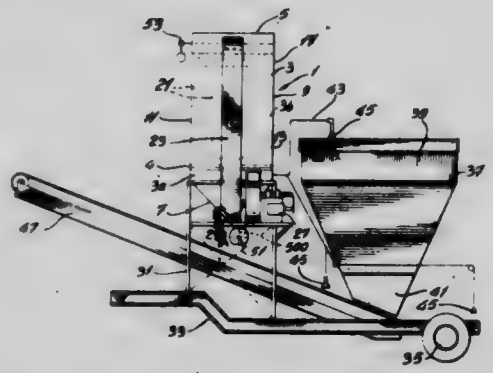
while the outer folding edges are free, said fan and the drive motor thereof forming together with the filter a separate unit, and means resiliently connecting said unit to the cyclone apparatus.

4,336,041

MOBILE DUST COLLECTOR USED ON QUARRIES

Marcel Jolin, Dollard des Ormeaux, Canada, assignor to Dustell Ltee, Canada

Filed Nov. 3, 1980, Ser. No. 203,546
Int. Cl.³ B01D *46/02; B03C 23/28*
U.S. Cl. 55—341 R **24 Claims**



1. A combination consisting of a mobile dust collector and mobile equipment mounted on a common platform, said mobile equipment comprising equipment which generates dust in the operation thereof such as, for example, surge bins and crushers;

said equipment is mounted at one end of said platform and said dust collector is mounted adjacent said equipment on said platform and in the direction of the other end thereof;

said dust collector comprising a bottom portion and a top portion;

means for detachably connecting said top portion to said bottom portion;

duct means extending from said bottom portion to said equipment and positioned and arranged with respect to said equipment so as to capture air over and around said equipment and to communicate the air to the interior of said collector, and

wheel means on said platform for rollingly supporting said platform.

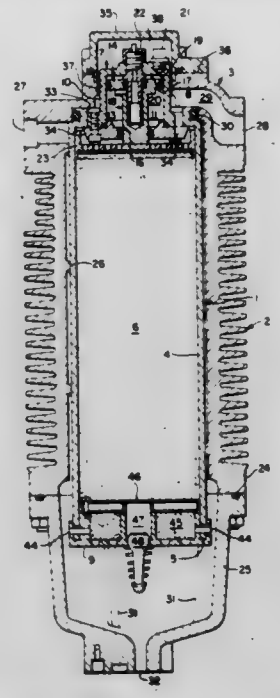
4,336,042

CANISTER-COMPACTOR ASSEMBLY

Virgil L. Frantz, and Lanier Frantz, both of Salem, Va., assignors to Graham-White Sales Corporation, Salem, Va.

Filed Oct. 14, 1980, Ser. No. 196,547
Int. Cl.³ B01D *53/26*
U.S. Cl. 55—387 **10 Claims**

1. The combination with a compressed gas filter unit having a housing and alternating between filtering and regenerating cycles, of a canister-compactor assembly insertible and removable as a unit in and from said housing, said assembly comprising a canister for containing a particulate desiccant, and a pneumatic compactor mounted in an outlet end of said canister, said compactor including piston means actuated by compressed gas for applying a compacting force to said desiccant and valve means for charging with and discharge of said actuating compressed gas for respectively applying said compacting force to and relieving said desiccant of a previously applied force.

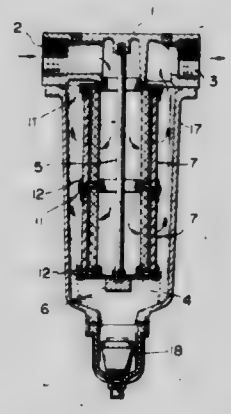


4,336,043

FILTER UNIT CONSTRUCTION FOR A FILTRATION ASSEMBLY

Masaru Aonuma, and Kazuyuki Nanaumi, both of Suzaka, Japan, assignors to Orion Machinery Company Limited, Nagano, Japan

Filed Jul. 3, 1980, Ser. No. 165,507
Claims priority, application Japan, Nov. 13, 1979, 54-158041[U]
Int. Cl.³ B01D *50/00*
U.S. Cl. 55—483 **7 Claims**



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1. A filtration assembly for filtering fluid media, particularly compressed air, comprising: housing means defining a fluid inlet and a fluid outlet; a filter unit arranged within said housing means to have fluid media flowing between said inlet and said outlet pass therethrough; said filter unit comprising a plurality of generally cylindrical filter elements each having an upper end and a lower end, said filter elements being joined together with the upper end and lower end of each adjacent filter element juxtaposed to form said filter unit as a generally hollow cylindrical body; seal means mounting said filter unit within said housing so that substantially all fluid media flowing between said fluid inlet and said fluid outlet passes through said filter unit; connecting means located at said juxtaposed upper and lower ends of said filter elements operatively mounting said filter elements together; said connecting means including a head cover having a central aperture mounted at the upper end of each filter element and a bottom cover having a central aperture mounted at the lower end of each filter element, with

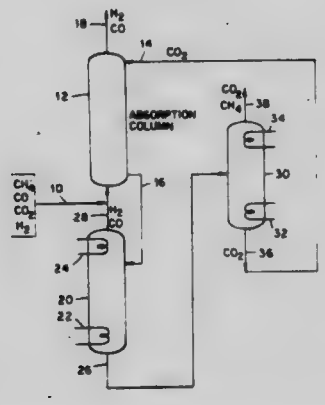
said head covers and bottom covers being positioned between adjacent filter elements to join said filter elements together; said connecting means including a closure for the lower bottom cover and groove passage means formed in each of said head covers and bottom covers, said groove passage means defining a flow path for liquid impurities to drain from said filter elements and to pass between adjacent filter elements.

4,336,044

PROCESS FOR SEPARATING COAL SYNTHESIZED METHANE FROM UNREACTED INTERMEDIATE AND CONTAMINANT GASES

Ray E. Barker, Knoxville; Charles D. Scott, and Allen D. Ryon, both of Oak Ridge, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Oct. 27, 1980, Ser. No. 200,799
Int. Cl.³ F25J 3/02
U.S. Cl. 62—17 **6 Claims**



1. A process for separating components of a synthesized gas containing methane, hydrogen, carbon monoxide and carbon dioxide, comprising the steps of:

contacting said synthesized gas with a liquid carbon dioxide scrub stream in an absorption column to form (1) a solute-carrying liquid carbon dioxide stream having dissolved therein a major portion of the methane in said synthesized gas, and (2) a gas stream comprising major portions of the hydrogen and carbon monoxide in said synthesized gas;

fractionating said solute-carrying stream in a first fractionating column to form (1) a first fractionator bottoms comprising liquid carbon dioxide having dissolved therein the major portion of the methane in said solute-carrying stream, and (2) a recycle gas comprising methane, carbon dioxide, and major portions of the residual hydrogen and carbon monoxide in said solute-carrying stream;

recycling said recycle gas into contact with said scrub stream in said absorption column;

fractionating said first fractionator bottoms in a second fractionation column to form (1) a second fractionator overhead gas stream rich in methane and (2) a second fractionator bottoms comprising liquid carbon dioxide substantially free of methane; and

recycling said liquid carbon dioxide of said second fractionator bottoms to said scrub stream introduced into said absorption column.

4,336,045

ACETYLENE REMOVAL IN ETHYLENE AND HYDROGEN SEPARATION AND RECOVERY PROCESS

Theodore F. Fisher, and John B. Saunders, both of Tonawanda, N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 29, 1981, Ser. No. 278,725
Int. Cl.³ F23J 3/02, 3/06, 3/08
U.S. Cl. 62—17 **16 Claims**

1. An improved process for the separation and recovery of an ethylene-enriched liquid and hydrogen product gas from a hydrocarbon feed mixture containing said ethylene and hydrogen, together at least with acetylene and methane, comprising:

(a) cooling said hydrocarbon feed mixture, at a superatmospheric pressure of from about 25 to about 40 atmospheres (absolute), to condense a first liquid fraction containing ethylene and a major portion of the acetylene content of the feed mixture without solidification of said acetylene;

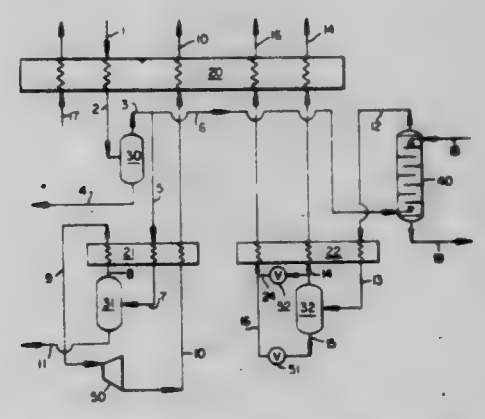
(b) separating said first liquid fraction from the uncondensed gas portion of said feed mixture, said uncondensed gas containing hydrogen and methane, together with the uncondensed portion of the ethylene and acetylene content of the feed mixture at said super atmospheric pressure, said first liquid fraction comprising ethylene-enriched liquid to be recovered;

(c) dividing said uncondensed gas into a first, major gas fraction and a second, minor gas fraction, said major fraction comprising at least about 75% of the molar flow of said uncondensed gas;

(d) scrubbing said second, minor gas fraction with an essentially acetylene-free liquid selected from the group consisting of ethylene, ethane, propylene, propane and mixtures thereof to remove a substantial portion of the acetylene content of said second gas fraction;

(e) cooling the thus acetylene-depleted second, minor gas fraction to condense residual hydrocarbons therefrom, thus forming a second liquid fraction;

(f) separating said second liquid fraction from the uncondensed, further cooled, essentially hydrogen-containing second, minor gas fraction at said relatively high, super-atmospheric pressure;



(g) warming said hydrogen-containing second, minor gas fraction, the warmed second gas fraction comprising hydrogen product gas;

(h) throttling said second liquid fraction to a relatively low super-atmospheric pressure, thereby cooling said liquid fraction and developing refrigeration for cooling said acetylene-depleted, second gas fraction in step (e);

(i) warming said throttled second liquid fraction by heat exchange with said cooling acetylene-depleted, second, minor gas fraction,

(j) cooling said first, major gas fraction at said super-atmospheric pressure of from about 25 to 40 atmospheres (absolute) to condense ethylene and most of the acetylene content therefrom, thus forming a third liquid fraction without solidification of the condensed acetylene;

(k) separating said third liquid fraction from the uncondensed, further cooled, first major gas fraction at said relatively high super-atmospheric pressure, said third liquid fraction being suitable for use as a portion of the ethylene-enriched liquid to be recovered;

(l) warming said first, major uncondensed gas fraction;

(m) expanding said warmed, first major gas fraction from relatively high to relatively low super-atmospheric pressure, thereby cooling said gas fraction and developing additional refrigeration for cooling gas fractions,

whereby acetylene solidification is effectively avoided during ethylene and hydrogen separation and recovery without the

necessity for treating a major portion of the uncondensed gas for removal of acetylene therefrom.

4,336,046

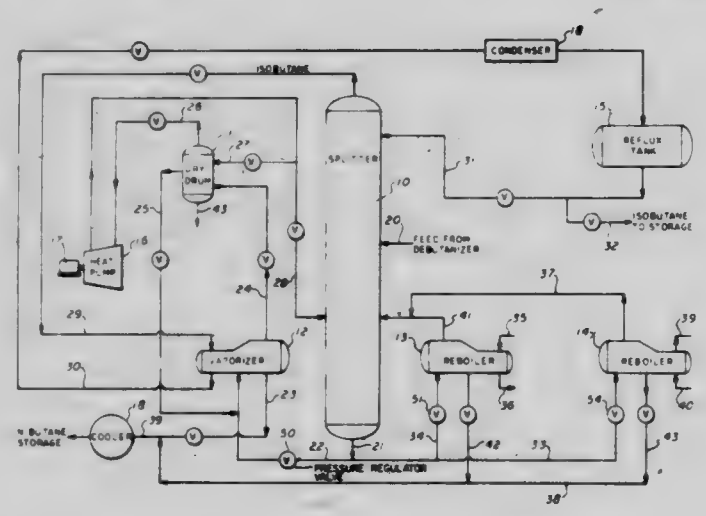
C_4 SEPARATION PROCESS

Kenneth R. Schorre, Spring; James O. Nye, Friendswood; Dennie W. Dixon, Bellaire, and Carl Nepute, Friendswood, all of Tex., assignors to Tenneco Oil Company, Houston and Nye Engineering, Incorporated, Friendswood, both of, Tex.

Filed Sep. 12, 1980, Ser. No. 186,515

Int. Cl.³ F25J *3/02*

U.S. Cl. 62—28 **18 Claims**



1. An apparatus for separating a feed stream containing predominately n-butane and isobutane comprising:

(a) a fractionator means operably connected to provide a vapor overhead fraction containing substantially isobutane and liquid bottoms fraction containing substantially n-butane,

(b) vaporizer means operably connected with said fractionation means

(1) to receive said isobutane overheads, for heating said vaporizer means and

(2) to receive said n-butane bottoms for vaporizing a portion thereof,

(c) means operably connected with said vaporizer means to receive said vaporized n-butane from said vaporizer for removing liquid in said n-butane vapor and means, operably connected therewith, for heating said liquid-free n-butane vapor to a temperature at least sufficient to maintain said n-butane vapor in the vapor phase without the formation of a liquid phase in,

(d) a compressor means operably connected with said means for heating n-butane vapor for compressing said n-butane whereby the temperature of said n-butane vapor is increased to a temperature sufficient to provide boil up in said fractionator means, said compressor being operably connected to said fractionator means for returning said heated and compressed n-butane to said fractionator.

4,336,047

METHOD FOR FABRICATING SINGLE-MODE AND MULTIMODE FIBER OPTIC ACCESS COUPLERS

Theodore G. Pavlopoulos, and Daniel E. Altman, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 2, 1981, Ser. No. 222,113

Int. Cl.³ C03B *23/20*; G02B *5/14*

U.S. Cl. 65—3.31 **10 Claims**

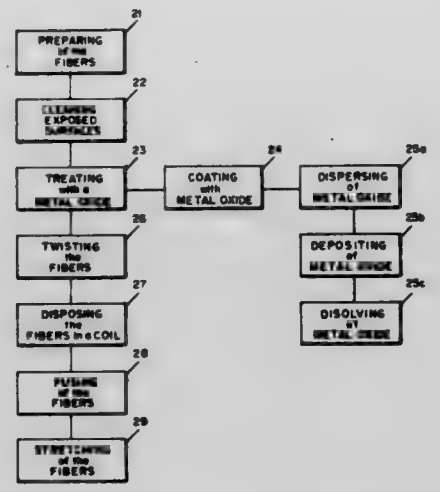
1. A method of fabricating an access coupling between at least two optical fibers each having a core and a cladding, comprising:

preparing the fibers to control the surface tension of their exposed surfaces;

placing the fibers in a side-by-side relationship;

twisting the fibers together to assume a mutually helical relationship;

disposing the twisted fibers in a twister coil in an inert gas at a predetermined pressure;



fusing the twisted stretched fibers together in a vacuum to effect a desired coupling and stretching the twisted fibers.

4,336,048

METHOD OF PRODUCING DOPED QUARTZ GLASS

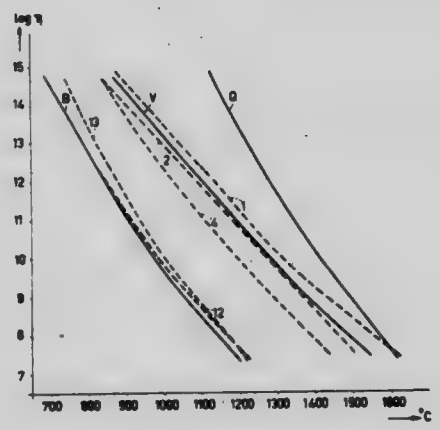
Gerardus H. A. M. van der Steen, and Eddy F. C. Van Hove, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 8, 1980, Ser. No. 147,893

Claims priority, application Netherlands, May 16, 1979, 7903842

Int. Cl.³ C03C *3/06*; C03B *20/00*

U.S. Cl. 65—18.4 **3 Claims**



1. A method of producing doped quartz glass having a lower viscosity than that of pure quartz glass comprising: forming a concentrate of quartz powder and at least one dopant by sintering or premelting, melting a mixture of quartz powder and said concentrate in an amount containing from 0.035 to 3 mol. % of dopants (computed on the basis of the oxides) in the produced doped quartz glass, and cooling the melt, wherein said quartz powder has a purity of at least 99.99 mol. % as a starting material.

2. A method according to claim 1, wherein said concentrate contains an oxide of at least one alkali metal as a dopant or alkaline earth metal as a dopant.

4,336,049

METHOD FOR PRODUCING MULTI-COMPONENT GLASS FIBER PREFORM

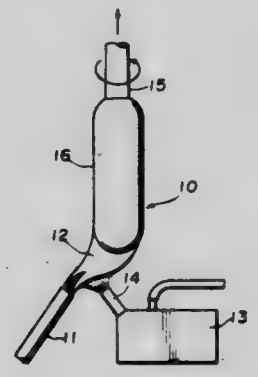
Shiro Takahashi, Mito; Kazuo Sanada, Chiba; Koichi Inada, and Osamu Fukuda, both of Sakura, all of Japan, assignors to Nippon Telegraph & Telephone Public Corporation and Fujikura Cable Works, Ltd., both of Tokyo, Japan

Filed Sep. 22, 1980, Ser. No. 189,856

Claims priority, application Japan, Sep. 26, 1979, 54-123677; Jul. 4, 1980, 55-91292; Jul. 5, 1980, 55-91930

Int. Cl.[3] C03B *19/06, 37/07*

U.S. Cl. 65—3.12 11 Claims



1. A method for producing a multi-component glass fiber preform which comprises the steps of:

(1) nebulizing an aqueous solution of at least one metal salt by supersonic vibration, and

(2) reacting the nebulized solution and a gaseous glass raw material with oxygen at a high temperature to produce particulate glass material deposited on a substrate.

4,336,050

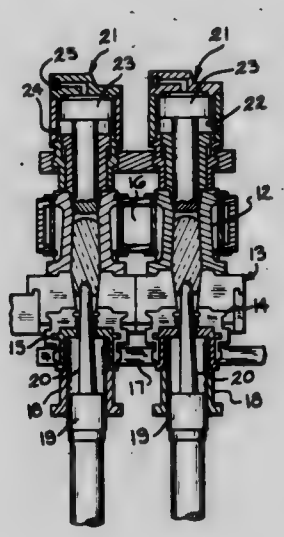
METHOD FOR MANUFACTURING GLASS BOTTLES

John D. Northup, 2460 Underhill Rd., Toledo, Ohio 43615, assignor to John D. Northrup, Jr.; Ruth Northup; Nancy Northup Lehrkind and Mary Northup

Continuation-in-part of Ser. No. 112,845, Jan. 17, 1980, abandoned. This application Jul. 28, 1980, Ser. No. 173,078

Int. Cl.[3] C03B *11/10*

U.S. Cl. 65—82 4 Claims



1. The method of forming a glass parison from which glass containers are formed, in a machine having at least one blank mold, the mold defining a cavity and having a cavity plunger and a pressing plunger adjacent the cavity which method comprises the steps of:

introducing a premeasured gob of molten glass into the blank mold cavity, inserting the cavity plunger into the gob to form a parison cavity the volume of which is at least 20% of the volume of the blank mold cavity;

retaining the cavity plunger in the parison cavity and applying pressure separate from the cavity plunger throughout the gob urging molten glass into conformity with the mold, wherein the separate pressure is applied by moving the pressing plunger against the gob.

4,336,051

PROCESS FOR THE PRODUCTION OF A SOIL IMPROVING COMPOSITION

Juan U. Marquez, Alabama No. 200 Col., Napoles Mexico 18, D. F., Mexico

Filed Dec. 23, 1980, Ser. No. 219,582

Claims priority, application Mexico, Mar. 10, 1980, 8701

Int. Cl.[3] C05F *11/08*

U.S. Cl. 71—6 8 Claims

1. A process for the production of a soil improving composition comprising:

(a) mixing 23–27% water, 5–8% gelidium type algae, 5–8% diastatic malt type C, 6–9% sucrose, 6–9% molasses, and 5–8% magnesium sulfate at a temperature of about 70° to 80° C. for about 24 hours;

(b) recirculating the mixture for about 48 hours while mixing and maintaining it in the same temperature range;

(c) adding 6–9% ammonium sulfate, 12–18% 1,2,3,-propanetriol, 6–10% sodium tetradecyl sulfate—industrial grade, and 6–10% sodium tetradecyl sulfate—medicinal grade, while maintaining the mixing, recirculation, and temperature range for a period of time sufficient to homogenize the ingredients; and

(d) permitting the homogenized mixture to stand, open to the atmosphere, for from 6 to 10 days, while maintaining it at a temperature of from 50° to 55° C.; until the composition of this invention is formed; all percentages being by weight.

4,336,052

METHOD OF USING CORN SYRUP FOR REDUCING PHYTOTOXICITY OF UREA APPLIED TO PLANTS FOR FOLIAR FERTILIZATION

Tsong M. Chen, Piscataway; El-Ahmadi I. Heiba, Princeton, both of N.J., and William W. John, Modesto, Calif., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 31, 1980, Ser. No. 221,644

Int. Cl.[3] C05C *9/00*

U.S. Cl. 71—28 9 Claims

1. A method for reducing phytotoxicity of urea applied as a foliar fertilizer to soybean plants comprising applying to the leaves of said plants an aqueous composition comprising an amount of urea effective as a foliar fertilizer and corn syrup in an amount effective to reduce the leaf damage observed with foliar application of urea in the absence of the corn syrup.

4,336,053

FERTILIZER SOLUTIONS STABILIZED WITH INORGANIC ACIDS

Joseph R. Kenton, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 10, 1980, Ser. No. 158,180

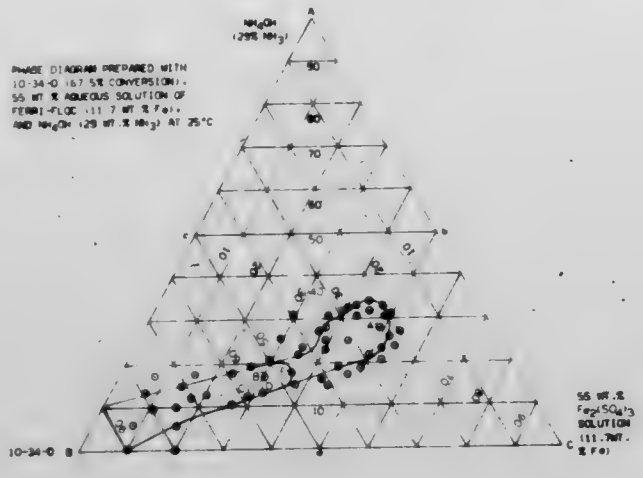
Int. Cl.[3] C05B *11/08, 11/10*

U.S. Cl. 71—40 15 Claims

1. A process for preparing a stable liquid fertilizer solution which comprises:

adding to a basic solution having a pH greater than 7.0 and comprising iron, ammonia, and phosphorus, wherein at least a portion of the phosphorus is in the form of a polyphosphate, the molar ratio of phosphorus in the form of

polyphosphate to iron is at least about 2:1, and the molar ratio of ammonia to iron is at least about 4:1, an amount of



an inorganic acid sufficient to produce a non-gelled acidic solution having a pH within the range of about 5.5 to 7.0.

4,336,054

METHOD OF INHIBITING ALGAE

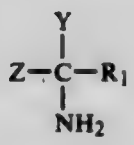
Albert Sjoerdsma, Cincinnati, Ohio, assignor to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 95,347, Nov. 19, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,569

Int. Cl.³ A01N *37/02, 37/06*

U.S. Cl. 71—67 **5 Claims**

1. A method of inhibiting the growth of algae which comprises contacting said algae with an algal inhibiting amount of an α-substituted amino acid having the formula

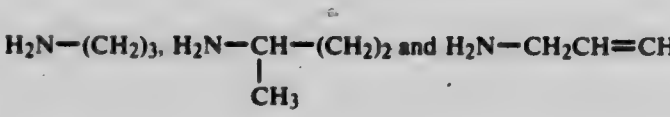


wherein

R_1 is carboxy;

Y is selected from the group consisting of CH_2F, CHF_2, CF_3 and C≡CH;

Z is selected from the group consisting of



and

the salts and individual optical isomers thereof.

4,336,055

AGENTS FOR REGULATING PLANT GROWTH CONTAINING TRIAZOLYL GLYCOL ETHERS, AND THE USE THEREOF

Bernd Zeeh; Ernst Buschmann, both of Ludwigshafen, and Johann Jung, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

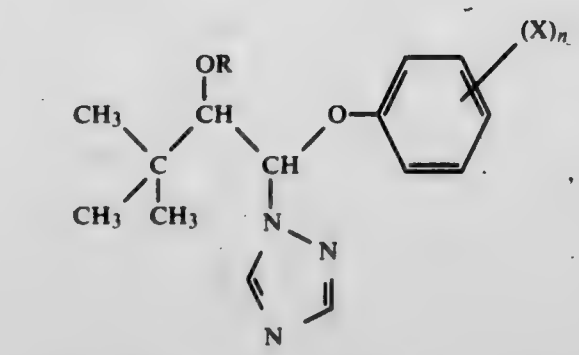
Filed Jun. 2, 1980, Ser. No. 155,749

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1979, 2925687

Int. Cl.³ A01N *43/64*; C07D *249/10*

U.S. Cl. 71—76 **2 Claims**

1. A process for reducing the growth height of plants which comprises applying to the plants or to soil containing the seeds of the plants an effective amount of a triazolyl glycol ether of the formula



I

wherein R is alkyl of 1 to 6 carbon atoms, cycloalkyl of 5 to 6 carbon atoms, allyl, crotyl, methallyl, propargyl, or butyn-2-yl, which alkyl, cycloalkyl, alkenyl or alkynyl groups are unsubstituted or are substituted by from 1 to 3 halogen atoms, X is hydrogen, halogen or phenyl, and n is one of the integers 1, 2 or 3, or a salt thereof.

4,336,056

HERBICIDAL METHOD FOR FALLOW LAND

Benny J. Eaton, Greenfield, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Mar. 31, 1980, Ser. No. 135,753

Int. Cl.³ A01N *43/00*

U.S. Cl. 71—88 **2 Claims**

1. A method for killing and controlling the growth of unwanted vegetation on follow wheatland between the time of harvesting the wheat crop and the time of the next planting of winter wheat which method comprises applying to the locus where vegetative control is desired a herbicidally-effective amount of a 1,1-dimethyl-3-(5-tert-butyl-3-isoxazolyl)urea.

4,336,057

HERBICIDES

Hermann Bieringer, Eppstein, and Reinhard Handte, Hofheim am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 26,876, Apr. 4, 1979, abandoned. This application Sep. 30, 1980, Ser. No. 192,309

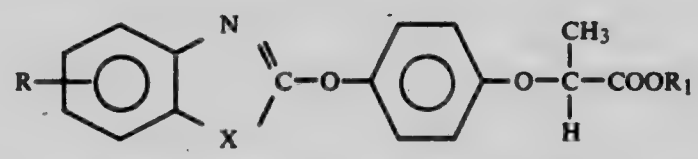
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1978, 2815287

Int. Cl.³ A01N *43/00, 43/02*

U.S. Cl. 71—88 **3 Claims**

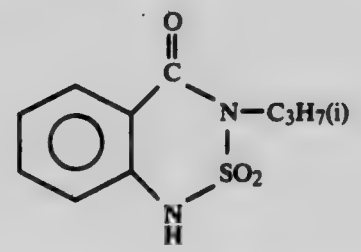
1. A herbicidal composition consisting essentially of an effective amount of a combination of

(A) a compound of the formula



in which R is chlorine or bromine, X is oxygen or sulfur, and R_1 is hydrogen, sodium, potassium, ammonium or alkyl of 1 to 4 carbon atoms; and

(B) the compound of the formula



wherein the proportion by weight of components A and B is in the range of 1:2 to 1.2:5.

4,336,058

2-METHYL-4-(CHLOROACETAMIDO)METHYL-4-(2-CHLOROPHENYL)-1,3-DIOXANE HERBICIDE ANTIDOTE

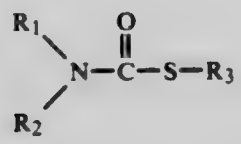
Raymond A. Felix, Richmond, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Feb. 6, 1981, Ser. No. 232,069
Int. Cl.[3] A01N *43/00*; C07D *319/04*
U.S. Cl. 71—88 15 Claims

1. 2-Methyl-4-(chloroacetamido)methyl-4-(2-chlorophenyl)-1,3-dioxane.

3. A composition comprising:

(a) an herbicidally effective amount of a thiocarbamate compound of the formula:



in which

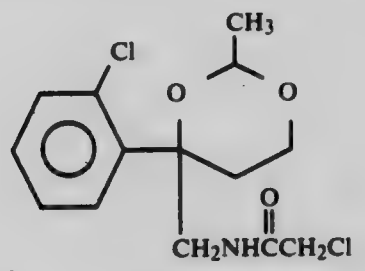
R_1 is alkyl having 1-6 carbon atoms, inclusive;

R_2 is selected from the group consisting of alkyl having 1-6 carbon atoms, inclusive; and cyclohexyl; or

R_1 and R_2 form indistinguishable parts of a single alkylene ring having 4-10 carbon atoms, inclusive; and

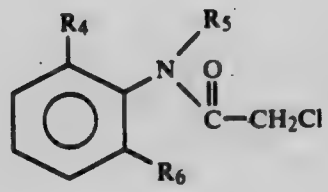
R_3 is selected from the group consisting of alkyl having 1-6 carbon atoms, inclusive; haloalkyl wherein halo is selected from the group consisting of chlorine, bromine and iodine and alkyl has 1-6 carbon atoms, inclusive; alkenyl having 2-6 carbon atoms, inclusive; halo alkeny wherein halo is selected from the group consisting of chlorine, bromine and iodine and alkenyl has 2-6 carbon atoms, inclusive; benzyl; and halo-substituted benzyl, wherein halo is selected from the group consisting of chlorine, bromine and iodine; and

(b) an non-phytotoxic antidotally effective amount of a compound of the formula



6. A composition comprising

(a) an herbicidally effective amount of an acetanilide compound of the formula

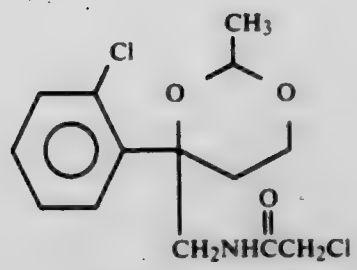


in which

R_4 and R_6 are independently selected from the group consisting of hydrogen; and alkyl having 1-6 carbon atoms, inclusive; and

R_5 is selected from the group consisting of alkyl having 1-6 carbon atoms, inclusive; alkoxy having 1-8 carbon atoms, inclusive and carbethoxyalkyl wherein the alkyl group has 1-4 carbon atoms, inclusive; and

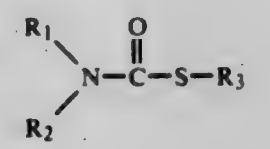
(b) an non-phytotoxic antidotally effective amount of a compound of the formula



10. A method of establishing herbicidal selectivity comprising:

applying to the locus where control is desired a composition comprising:

(a) an herbicidally effective amount of a thiocarbamate compound of the formula:



in which

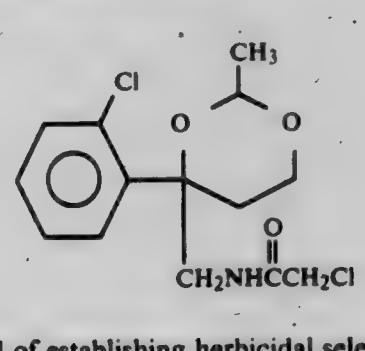
R_1 is alkyl having 1-6 carbon atoms, inclusive;

R_2 is selected from the group consisting of alkyl having 1-6 carbon atoms, inclusive; and cyclohexyl; or

R_1 and R_2 form indistinguishable parts of a single alkylene ring having 4-10 carbon atoms, inclusive; and

R_3 is selected from the group consisting of alkyl having 1-6 cabon atoms, inclusive; haloalkyl wherein halo is selected from the group consisting of chlorine, bromine and iodine and alkyl has 1-6 carbon atoms, inclusive; alkenyl having 2-6 carbon atoms, inclusive; halo alkeny wherein halo is selected from the group consisting of chlorine, bromine and iodine and alkenyl has 2-6 carbon atoms, inclusive; benzyl; and halo-substituted benzyl, wherein halo is selected from the group consisting of chlorine, bromine and iodine; and

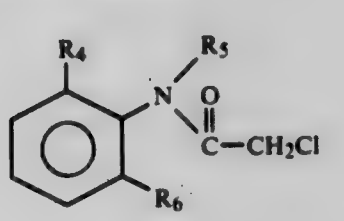
(b) an non-phytotoxic antidotally effective amount of a compound of the formula



13. A method of establishing herbicidal selectivity comprising:

applying to the locus where control is desired a composition comprising:

(a) an herbicidally effective amount of an acetanilide compound of the formula



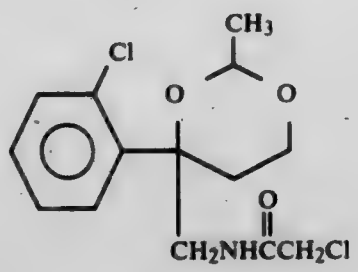
in which

R_4 and R_6 are independently selected from the group consisting of hydrogen; and alkyl having 1-6 carbon atoms, inclusive; and

R_5 is selected from the group consisting of alkyl having 1-6 carbon atoms, inclusive; alkoxy having 1-8 carbon atoms,

inclusive and carbethoxyalkyl wherein the alkyl group has 1–4 carbon atoms, inclusive; and

(b) an non-phytotoxic antidotally effective amount of a compound of the formula



4,336,059

HERBICIDAL AND PLANT-GROWTH-REGULATING N-(HETEROCYCLYL)-METHYLACETANILIDE

Stephen D. Ziman, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif.

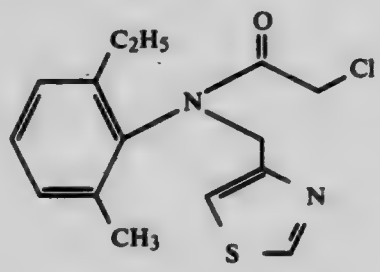
Continuation of Ser. No. 10,877, Feb. 9, 1979, Pat. No. 4,221,584. This application Mar. 27, 1980, Ser. No. 134,378

The portion of the term of this patent subsequent to Sep. 9, 1997, has been disclaimed.

Int. Cl.[3] **A01N** *43/78;* **C07D** *277/28*

U.S. Cl. 71—90 **5 Claims**

1. The compound of the formula



4,336,060

N-SUBSTITUTED BENZOTHIAZOLINES AND BENZOXAZOLINES AND THEIR USE AS HERBICIDES AND PLANT GROWTH REGULANTS

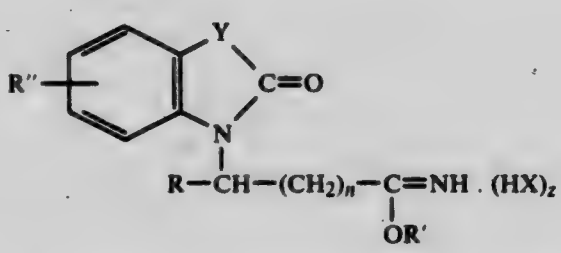
John J. D'Amico, Olivette, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 926,470, Jul. 20, 1978, Pat. No. 4,228,292. This application Apr. 10, 1980, Ser. No. 139,063

Int. Cl.[3] **A01N** *43/76, 43/78*

U.S. Cl. 71—90 **13 Claims**

1. A method of regulating the growth of desirable plants which comprises applying to the plant locus a plant growth regulating effective amount of a compound having the formula



wherein R is hydrogen or lower alkyl; R′ is lower alkyl; R″ is hydrogen, lower alkyl or halogen; Y is oxygen or sulfur; X is an anionic moiety of a strong acid, n is an integer from zero to two, inclusive and z is zero or one.

4,336,061

HERBICIDAL AZOLYL CHLOROACETANILIDES, COMPOSITIONS AND METHOD OF USE

Karl Eicken, Wachenheim; Wolfgang Rohr, Mannheim; Norbert Goetz, Worms, and Bruno Wuerzer, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

PCT No. PCT/EP79/00076, § 371 Date Sep. 6, 1980, § 102(e) Date May 6, 1980, PCT Pub. No. WO80/00701, PCT Pub. Date Apr. 17, 1980

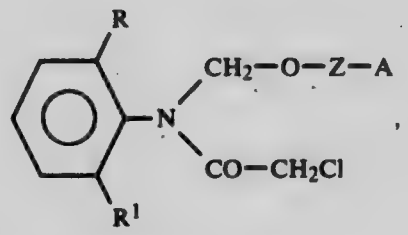
PCT Filed Apr. 10, 1979, Ser. No. 196,734

Claims priority, application Fed. Rep. of Germany, Oct. 7, 1978, 2843869

Int. Cl.[3] **A01N** *43/50, 43/56, 43/64;* **C07D** *231/12, 233/61, 249/04, 249/08*

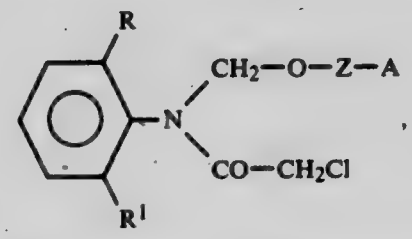
U.S. Cl. 71—92 **6 Claims**

1. An acetanilide of the formula



where R and R^1 are identical or different and each denotes alkyl of 1 to 4 carbon atoms, Z denotes methylene, or ethylene which is unsubstituted or substituted by 1 or 2 methyl groups, and A denotes pyrazole which is linked via a ring nitrogen atom and is unsubstituted or mono- or disubstituted by halogen, methyl or methoxy, triazole which is linked via a ring nitrogen atom and is unsubstituted or mono- or disubstituted by halogen, methyl or methoxy, or imidazole which is linked via a ring nitrogen atom and is unsubstituted or mono- or disubstituted by halogen, methyl or methoxy.

6. A process for controlling unwanted plant growth, which comprises treating the plants or the soil with a herbicidally effective amount of an acetanilide of the formula



where R and R^1 are identical or different and each denotes alkyl of 1 to 4 carbon atoms, Z denotes methylene, or ethylene which is unsubstituted or substituted by 1 or 2 methyl groups, and A denotes pyrazole which is linked via a ring nitrogen atom and is unsubstituted or mono- or disubstituted by halogen, methyl or methoxy, triazole which is linked via a ring nitrogen atom and is unsubstituted or mono- or disubstituted by halogen, methyl or methoxy, or imidazole which is linked via a ring nitrogen atom and is unsubstituted or mono- or disubstituted by halogen, methyl or methoxy.

4,336,062

HERBICIDAL CYCLOHEXENONE DERIVATIVES

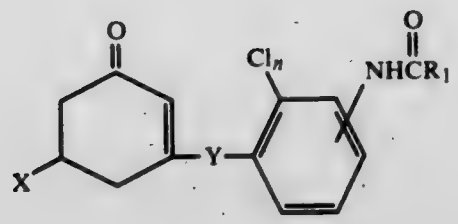
Raymond A. Felix, El Cerrito, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Continuation-in-part of Ser. No. 834,090, Sep. 19, 1977, abandoned. This application May 16, 1978, Ser. No. 906,495

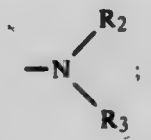
Int. Cl.[3] **A01N** *31/00, 37/00, 37/44, 37/18, 47/30;* **C07C** *83/10, 155/03, 149/40, 125/06, 103/19, 103/127, 103/133, 127/19*

U.S. Cl. 71—98 **69 Claims**

1. A compound having the formula

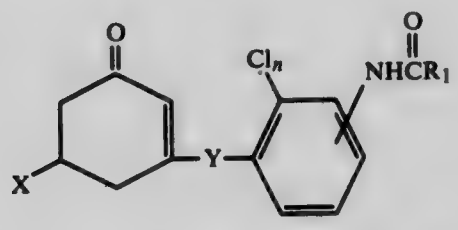


in which X is $(H)_2$ or $(CH_3)_2$, Y is oxygen or sulfur; R_1 is alkyl, lower alkenyl, cyclopropyl, lower alkoxy, thio-lower alkyl or

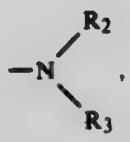


R_2 and R_3 are independently hydrogen, lower alkyl, lower alkenyl or lower alkoxy, and n is 0 or 1, provided that when n is 0 and when the aminocarbonyl group and the ether or sulfide linkage are in the para position with respect to each other, R_1 is cyclopropyl or 1,1-dimethylbutyl.

57. A method of controlling undesirable vegetation comprising applying to the vegetation or the locus thereof an herbicidally effective amount of a compound having the formula



in which X is $(H)_2$ or $(CH_3)_2$; Y is oxygen or sulfur; R_1 is alkyl, lower alkenyl, cyclopropyl, lower alkoxy, thio-lower alkyl or



R_2 and R_3 are independently hydrogen, lower alkyl, lower alkenyl, or lower alkoxy, n is 0 or 1 provided that when n is 0 and when the aminocarbonyl group and the ether or sulfide linkage are in the para position with respect to each other, R_1 is cyclopropyl, or 1,1-dimethylbutyl.

4,336,063

METHOD AND APPARATUS FOR THE GASEOUS REDUCTION OF IRON ORE TO SPONGE IRON

Carlos Guzman-Bofill, and Carlos Dominguez-Ahedo, both of Garza Garcia, Mexico, assignors to Hylsa, S.A., Monterrey, Mexico

Filed Sep. 29, 1980, Ser. No. 191,941
Int. Cl.³ C21B *13/02*
U.S. Cl. 75—35 **10 Claims**

1. Apparatus for reducing particulate metal ores to sponge metal comprising a vertical shaft moving bed reactor having a reduction zone wherein said metal ore is reduced by a hot reducing gas largely composed of carbon monoxide and hydrogen,

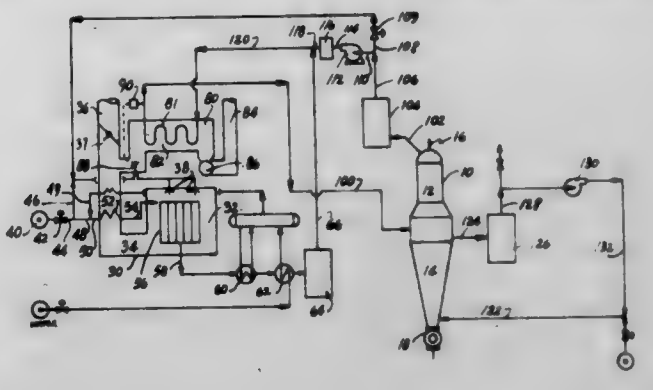
gas inlet and outlet means located at opposite ends of said reduction zone,

an external conduit connecting said inlet and outlet means and including a cooler and a heating unit having a first burner means,

a catalytic reformer wherein make-up reducing gas is produced by the reforming of hydrocarbons,

second burner means which provides the heat for said reforming by the combustion of a fossil fuel and produces hot flue gases,

means for transferring said hot flue gases to said heating unit, whereby the heat content of said hot flue gases is utilized for heating the gas circulating through said conduit, and



by-pass means adapted to vent said hot flue gases from said reformer before reaching said heater unit when the latter is shut down whereby the reformer can continue to function.

4,336,064

METHOD OF IMPROVING THE PERFORMANCE OF SUBMERGED OXYGEN INJECTORS

Guy Savard, Westmount, and Robert G. H. Lee, Montreal, Canada, assignors to Canadian Liquid Air Ltd., Montreal,both of, Canada

Filed Oct. 6, 1980, Ser. No. 194,623
Int. Cl.³ C21C *5/34*
U.S. Cl. 75—60 **5 Claims**

1. In a method of injecting oxygen into a bath of molten metal, in the refining of said metal, in which the oxygen is injected in a stream into the molten metal from below the upper surface thereof and in which the injected oxygen is surrounded by a simultaneously injected stream of protective fluid, the improvement wherein the velocity of the stream of protective fluid is about 0.5 to 1.5 times the velocity of the oxygen stream at the point of injection, whereby turbulence between the streams is substantially minimized.

4,336,065

METHOD FOR THE MANUFACTURE OF A COMPOSITE MATERIAL BY POWDER METALLURGY

Hans Bergmann, Bruchbergweg 22, 3392 Clausthal-Zellerfeld; Rüdiger Bormann, Bühlstr. 2; Herbert C. Freyhardt, Auf der Wessel 65, both of 3400 Göttingen, and Barry L. Mordike, Hüttenweg 1B, 3392 Clausthal-Zellerfeld, all of Fed. Rep. of Germany

Filed Feb. 26, 1980, Ser. No. 124,723
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909290
Int. Cl.³ B22F *3/00*
U.S. Cl. 75—200 **9 Claims**

1. A method for manufacturing a composite material by powder metallurgy, comprising the steps of:

(a) forming a mixture of:

(1) a starting material comprised of at least one body-centered cubic metal powder component, said starting material being contaminated within or on its surface with oxygen or an oxygen compound; and

(2) at least one additive component which is an unoxidized metal having in powder form or as an alloy a greater binding enthalpy for oxygen than said starting material; and

(b) processing said mixture to form a composite wherein the presence of said additive component results in the binding therewith by internal solid-state reduction of the oxygen contaminating said starting material; and

(c) deforming said composite in at least one dimension.

4,336,066

METHOD FOR MANUFACTURING COMPONENTS FOR MAGNETIC HEADS OF INCREASED ABRASION RESISTANCE

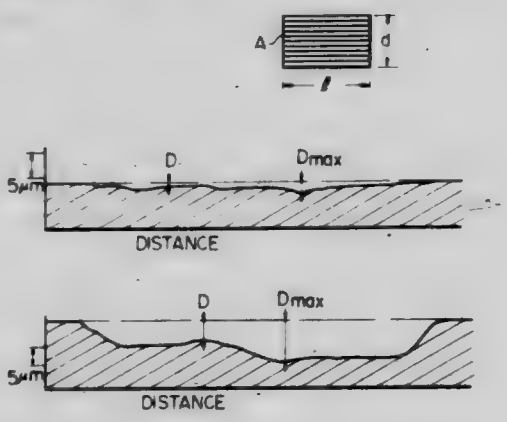
Takeo Sata; Masayuki Takamura; Kenzaburo Iijima, and Norio Fukuda, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Filed May 23, 1980, Ser. No. 152,782

Claims priority, application Japan, May 25, 1979, 54-64819; Jul. 31, 1979, 54-98317; Aug. 1, 1979, 54-98555; Dec. 10, 1979, 54-159092

Int. Cl.³ B22F *1/00, 1/02;* C22C *19/03, 33/02*

U.S. Cl. 75—211 **20 Claims**



1. A method for manufacturing components for magnetic heads comprising

preparing powder material of a permalloy alloy composition,

compacting said powder material into a compressed block,

sintering said compressed block at a temperature of at least 900° C. for at least one hour within a vacuum, hydrogen or inert atmosphere to form a sintered block,

rolling said sintered block into a lamina, and forming said components from said lamina, thereby substantially raising abrasion resistance without lowering magnetic properties of said components.

12. A method as claimed in claim 1 in which said preparing includes

adding to a base material of a permalloy composition at least one easily oxidizable element, and

powdering by means of atomization.

4,336,067

HOT MELT CHROMOGENIC COATING COMPOSITION

Dale R. Shackle, and Ainslie T. Young, Jr., both of Chillicothe, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Continuation of Ser. No. 830,987, Sep. 6, 1977, abandoned. This application Mar. 27, 1980, Ser. No. 134,406

The portion of the term of this patent subsequent to Dec. 20, 1994, has been disclaimed.

Int. Cl.³ B41M *5/22*

U.S. Cl. 106—21 **7 Claims**

1. A hot melt chromogenic coating composition for the preparation of pressure-sensitive carbonless record sheets, said hot melt chromogenic coating composition being non-aqueous and solvent-free, said hot melt chromogenic coating composition additionally being water insoluble and having a melting point of from about 60° C. to about 140° C., said coating composition comprising from about 15% to 85% by weight of a chromogenic material, said chromogenic material being a meltable color developer of the acidic electron accepting type, said chromogenic material being selected from the group consisting of 3,5 di-tert-butyl salicylic acid, phenol resins of the novolak type, zinc salts of 3,5 di-tert-butyl salicylic acid and zinc modified novolak resins and mixtures thereof, and from about 15% to about 85% by weight of a rheology modifying material said coating composition, when set, being characterized by the absence of any free liquid.

4,336,068

HIGH STRENGTH INSULATION MATERIALS

Edward G. Vogel, Lebanon, and Rodney C. Westlund, Lancaster, both of Pa., assignors to Lebanon Steel Foundry, Lebanon, Pa.

Continuation-in-part of Ser. No. 921,595, Jul. 3, 1978, which is a continuation-in-part of Ser. No. 782,950, Mar. 30, 1977, abandoned, which is a division of Ser. No. 851,407, Nov. 14, 1977, Pat. No. 4,138,268. This application Sep. 10, 1980, Ser. No. 185,745

Int. Cl.³ C04B *19/04*

U.S. Cl. 106—84 **10 Claims**

1. A coherent, rigid, solid material made from a mixture said mixture comprising by weight

a. from about 20 to about 50 parts of expanded perlite,

b. from about 9.5 to about 19 parts of sodium or potassium silicate in the form of an aqueous solution thereof,

c. an amount sufficient to improve the transverse strength of said solid material, of a phosphate, said phosphate being capable of substantially dissolving in said aqueous solution, said amount being between about 0.05% and about 5.0% by weight of said mixture and;

d. from about 21 to about 67 parts of water, including that found in said aqueous solution.

4,336,069

HIGH STRENGTH AGGREGATE FOR CONCRETE

Vance H. Dodson, Walpole, and Lawrence R. Roberts, Acton, both of Mass., assignors to W. R. Grace & Co., Cambridge, Mass.

Filed Feb. 17, 1981, Ser. No. 235,190

The portion of the term of this patent subsequent to Jul. 1, 1997, has been disclaimed.

Int. Cl.³ C04B *7/02*

U.S. Cl. 106—97 **16 Claims**

1. A cementitious concrete composition comprising a mixture of solid, particulate aggregate material of high strength and a cementitious binder therefor, said aggregate being comprised of particles of a hydrated mixture of Portland cement and fly ash wherein said Portland cement and fly ash are present in a weight ratio of from 1 part cement to at least one part ash, said fly ash upon analysis having a total calcium oxide content greater than about 10 percent by weight, the total additive amount of SiO_2, Al_2O_3 and Fe_2O_3 present in said fly ash being less than about 80 percent by weight, said fly ash further not having been first treated to promote activity prior to mixture with said Portland cement.

4,336,070

PROCESS FOR PREPARING POROUS SHAPED MATERIAL OF ACYLATED CHITIN DERIVATIVE

Junichi Koshugi, Tokyo, Japan, assignor to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 10, 1980, Ser. No. 168,315

Claims priority, application Japan, Jul. 20, 1979, 54-92898

Int. Cl.³ C08B *37/08*

U.S. Cl. 106—122 **9 Claims**

1. A process for producing a porous shaped material of acylated chitin derivative comprising:

(a) preparing an aqueous chitin solution containing 0.1 to 10% by weight of a solubilized derivative of chitin;

(b) adding 0.1 to 5 parts by weight of a diluent, 0.001 to 1 part of a porosity-regulating agent, and 0.01 to 0.1 part by weight of a non-ionic surfactant to 1.0 part by weight of the aqueous solution; and

(c) further adding the resultant liquid mixture of (a) and (b) to an acylating solution comprising:

(i) an organic acid anhydride in an amount corresponding to 1 to 100 times by equivalent weight per 1 amino group of the solubilized group of chitin;

(ii) an organic solvent in an amount equivalent to 10 to 1000 parts by weight of the organic acid anhydride; and
(iii) a non-ionic surfactant in an amount equivalent to 0.01



to 0.1% by weight of acylating solution; at a temperature of 5° to 80° C. thereby bringing the acylating solution into reaction with the solubilized derivative of chitin.

4,336,071

KNEADING AND MODELING COMPOUND AND THE USE THEREOF

Heinrich Schnorrer, Schwandorf, Fed. Rep. of Germany, assignor to Firma J. S. Staedtler, Nuremberg, Fed. Rep. of Germany

Filed Sep. 12, 1980, Ser. No. 186,479
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1979, 2937843
Int. Cl.³ C08K 3/22; C08L 1/26
U.S. Cl. 106—170 19 Claims

1. In a kneading and modeling compound, including binding agents, plasticizers, solvents, fillers, pigments and other additives; the improvement comprising in that said filler includes at least about 5% aluminum hydroxide.

4,336,072

METHOD FOR REMOVING VINYL DECALS

Ronnie J. Moore, 2767 Whitehurst Dr., Marietta, Ga. 30062, and Michael D. Brown, Smyrna, Ga., assignors to Ronnie James Moore, Marietta, Ga.

Filed Dec. 22, 1980, Ser. No. 218,473
Int. Cl.³ B08B 3/08
U.S. Cl. 134—4 3 Claims

1. A method of removing a vinyl decal from a painted surface without substantially damaging said painted surface at temperatures between approximately 0° and 55° F., said method comprising the steps of:

contacting said decal for a time sufficient to loosen said decal from said painted surface with a chemical composition consisting essentially of between approximately 35% and 75% by weight methyl ethyl ketone and between approximately 25% and 65% by weight of an aromatic solvent selected from the group consisting of toluene, xylene and aromatic naphtha; and

physically removing said loosened decal from said painted surface.

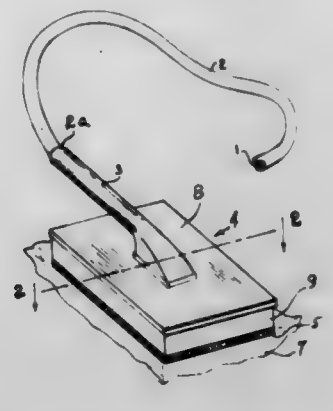
4,336,073

GLASS CLEANING PROCESS AND APPARATUS

John H. Mack, 7208 Hitching Post La., Hyattsville, Md. 20783

Filed Aug. 18, 1981, Ser. No. 293,979
Int. Cl.³ B08B 1/00; B43K 5/00
U.S. Cl. 134—6 5 Claims

1. The method of cleaning water removable material from a nonporous surface at a predetermined temperature comprising placing a gas permeable wiping material in surface-to-surface contact with said surface to be cleaned, passing a moisture laden gas through said wiping material into contact with said non-porous surface, said moisture laden gas having a dew point higher than the temperature of said nonporous surface, whereby water from said gas condenses on said nonporous surface, loosening or dissolving said water removable material,



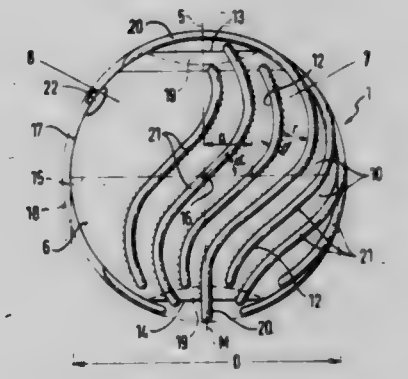
while moving said wiping material on said nonporous surface to remove said water removable material therefrom.

4,336,074

METHOD AND APPARATUS FOR CLEANING DRAINS

Albrecht Dinkelacker, Göttingen, Fed. Rep. of Germany, assignor to Max-Planck-Gesellschaft zur Forderung der Wissenschaft e. V., Gottingen, Fed. Rep. of Germany

Filed Mar. 12, 1980, Ser. No. 129,824
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1979, 2910281; Mar. 15, 1979, 2910281
Int. Cl.³ B08B 9/04
U.S. Cl. 134—8 17 Claims



1. Method for cleaning the bottom portion of large cross-section drains, which are only partly filled with a liquid flowing along the drain bed, from contaminants deposited on the drain bed, comprising rolling a cleaning member freely along the drain bed under the action of the flowing liquid, braking the rolling movement so that the cleaning member moves at a lower travel speed than the average liquid flow rate of the flowing liquid in the drain so that the cleaning member lies by its weight and volume on the drain bed so as to be spaced from the sides of the drain, inducing a circumcirculating flow of the flowing liquid about the cleaning member and simultaneously developing an increased flow rate, said cleaning member having an outer surface formed so as to define a plurality of rolling meridians which define a plurality of rolling paths along which the cleaning member can roll and a like plurality of meridian planes, said circumcirculating flow being comprised of two lateral partial flows at either side of the cleaning member resulting in a downstream flow to flush deposited contaminants to the downstream side of the cleaning member, wherein the cleaning member has an asymmetrical surface formed from a plurality of non-intersecting elements which are asymmetrical with respect to all meridian planes and which cooperate together to induce the circumcirculating flow to be in the form of two partial circumcirculation flows which are asymmetrical with respect to the rolling paths of the cleaning member thereby laterally deflecting the downstream flow out of the rolling path of the cleaning member to flush contaminants

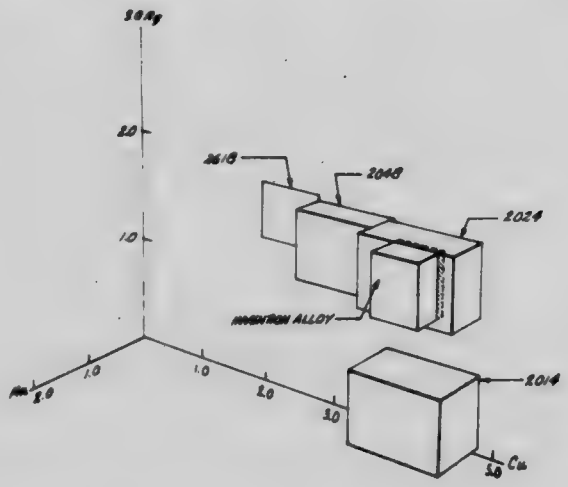
suspended in the circumcirculation flow out of that rolling path.

4,336,075

ALUMINUM ALLOY PRODUCTS AND METHOD OF MAKING SAME

William E. Quist, Redmond; Michael V. Hyatt, and Sven E. Axter, both of Bellevue, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 28, 1979, Ser. No. 108,214
Int. Cl.³ C22F *1/04*
U.S. Cl. 148—2 **22 Claims**



7. A method of producing a product from a 2000 series aluminum alloy comprising the steps of:

forming an alloy consisting essentially of

weight percent	element
4.2 to 4.7	Cu
1.3 to 1.8	Mg
0.8 to 1.3	Mn
0.08 to 0.15	Zr
a maximum of 0.25	Zn
a maximum of 0.15	Ti
a maximum of 0.10	Cr
a maximum of 0.15	Fe
a maximum of 0.12	Si
a maximum of 0.05	each other trace element
a maximum of 0.15	total of said other trace elements
the balance being	Al,

forming a body from said alloy

homogenizing said body to provide a substantially uniform distribution of alloying elements, and

hot working said body to form a wrought product, said hot working being conducted at temperatures effective to yield a product having a highly elongated grain and substantially unrecrystallized microstructure after solution treating and quenching said body.

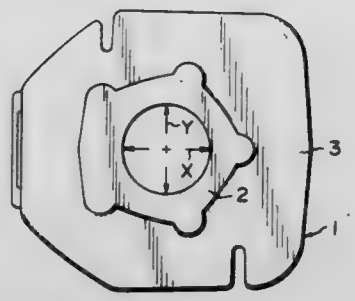
4,336,076

METHOD FOR MANUFACTURING ENGINE CYLINDER BLOCK

Mizuo Edamura, Kobe; Shyunji Takamoto, Akashi; Satoshi Furuitsu, Kakogawa; Norikatsu Bekku, Takarazuki, and Toshiaki Katayama, Yokohama, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Division of Ser. No. 887,379, Mar. 16, 1978, abandoned. This application May 14, 1980, Ser. No. 149,689
Claims priority, application Japan, Mar. 17, 1977, 52-29590
Int. Cl.³ C22F *1/04*
U.S. Cl. 148—3 **5 Claims**

1. Method for manufacturing an engine cylinder block comprising the steps of moulding an aluminum alloy consisting essentially of in weight between about 4 to 14% of Si, 1 to 5% of Cu and 0.2 to 0.8% of Mg to form a blank of the cylinder block and subjecting the moulded blank to a heat treatment at



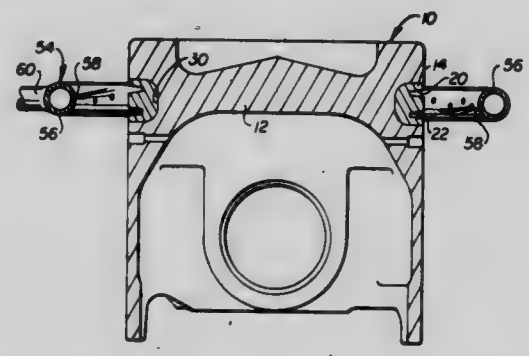
between about 200° to 400° C. for between about 1 to 10 hours, followed by air cooling the blank.

4,336,077

METHOD OF CRYOGENICALLY HARDENING AN INSERT IN AN ARTICLE

J. Michael Leach, Washington, and Walter L. Harvey, Chillicothe, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00227, § 371 Date Mar. 3, 1980, § 102(e) Date Mar. 3, 1980, PCT Pub. No. WO81/02586, PCT Pub. Date Sep. 17, 1981
PCT Filed Mar. 3, 1980, Ser. No. 189,957
Int. Cl.³ C21D *6/04, 1/18;* F16J *1/04*
U.S. Cl. 148—3 **16 Claims**



1. A method of cryogenically hardening an insert (14) in an article (12) comprising:

Step (a) casting an article (12) at least partly around an insert (14); and

Step (b) cryogenically hardening and expanding at least a portion of the insert (14) more tightly into engagement with the article (12).

4,336,078

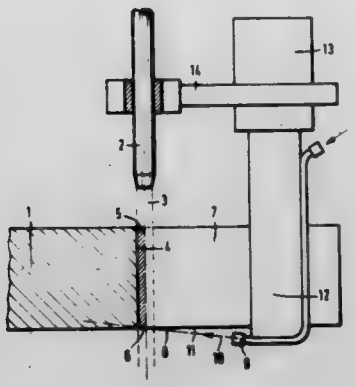
PROCESS AND APPARATUS FOR THE SEPARATION OF METALLURGICAL PRODUCTS

Waldemar Radtke, Oberhausen, Fed. Rep. of Germany, assignor to Thyssen Aktiengesellschaft, Duisburg, Fed. Rep. of Germany

Filed Apr. 11, 1980, Ser. No. 139,342
Claims priority, application Fed. Rep. of Germany, Apr. 11, 1979, 2914628
Int. Cl.³ B23K *7/08*
U.S. Cl. 148—9 R **23 Claims**

1. In a process for separating metallurgical products, such as ingots, slabs or plate-shaped workpieces, and in particular for transversely dividing the cast strand in continuous casting plants and for longitudinally dividing continuous cast ingots which have previously been cut into lengths, in which the metallurgical products are divided using at least one cutting torch which forms a cutting jet disposed on one side of the product and by following a prescribed cutting line and in which a front cutting edge is formed on the surface of the product facing said cutting torch and a rear cutting edge is

formed on the opposite side of the product and a cutting joint is formed therebetween, the improvement comprising directing at least one gaseous jet at said rear cutting edge of said



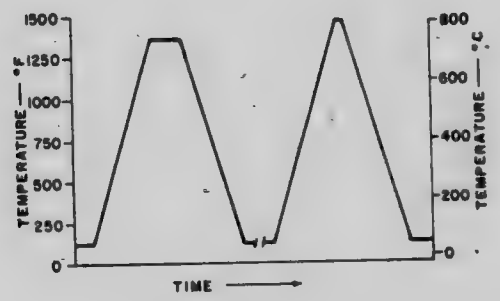
product, whereby a mixture of molten metal and liquid slag formed during cutting of said product is blown away from said rear cutting edge of said product thereby preventing the formation of flame burrs at the edges of said cutting joint.

4,336,079

STABILIZATION OF CARBON IN AUSTENITIC ALLOY TUBING

Clark McG. Owens, Colchester, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Oct. 9, 1979, Ser. No. 82,508
Int. Cl.³ C22F 1/10
U.S. Cl. 148—11.5 N **4 Claims**



1. A process for stabilizing carbon in solution-annealed Inconnel tubing having a carbon content in the range of about 0.02–0.05 weight percent, comprising the steps of: heavily cold working the tubing; annealing the cold worked tubing for at least fifteen minutes but less then two hours within a temperature range of 1300°–1500° F., so that essentially all the carbon precipitates in the grain boundaries as stabilized chromium carbide having chromium healed envelopes; whereby the tubing is permanently immune from intergranular corrosion so long as the tube temperature never exceeds the carbide dissolution temperature.

4,336,080

METHOD FOR MANUFACTURING HIGH-STRENGTH COLD-ROLLED STEEL STRIP EXCELLENT IN PRESS-FORMABILITY

Kazuhide Nakaoka, Yokohama; Akihiko Nishimoto, Isehara, and Yoshihiro Hosoya, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 20, 1980, Ser. No. 208,537
Claims priority, application Japan, Dec. 14, 1979, 54-161615
Int. Cl.³ C21D 8/04
U.S. Cl. 148—12 C **9 Claims**

1. An improved process for manufacturing a high-strength cold-rolled steel strip excellent in press-formability, which comprises the steps of:

preparing a slab of an aluminum-killed steel consisting essentially of, in weight percentage:

Carbon	from 0.02	to 0.06%,
Manganese	from 0.06	to 0.25%,
Phosphorus	from 0.01	to 0.06%,
Soluble aluminum	from 0.020	to 0.060%,
Nitrogen	up to 0.005%, and,	

the balance iron and incidental impurities;

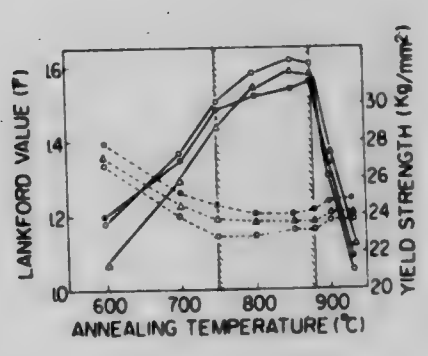
hot-rolling said slab to prepare a hot-rolled steel strip;

coiling said steel strip at a temperature within the range of from 650° to 770° C.;

cold-rolling said hot-rolled steel strip thus coiled to prepare a cold-rolled steel strip;

subjecting said cold-rolled steel strip to a continuous annealing treatment for a prescribed period of time at an annealing temperature within the range of from 750° to 880° C.;

subjecting said cold-rolled steel strip thus continuously annealed to a quenching treatment at a prescribed cooling rate; and then,



subjecting said cold-rolled steel strip to an overaging treatment for a prescribed period of time at a prescribed temperature;

the improvement comprising:

cooling said cold-rolled steel strip subjected to said continuous annealing treatment from said annealing temperature to a temperature region of from Ar_1 to $Ar_1+60°$ C. by blowing a gas jet onto said cold-rolled steel strip; then,

carrying out said quenching treatment at a cooling rate of at least;

$\exp\{-5.6(C \text{ wt.}\%\gamma + MN \text{ wt.}\%/6 + Si \text{ wt.}\%/24) + 7.8\}°$ C./sec

from said temperature region of from Ar_1 to $Ar_1+60°$ C. to convert the structure of said cold-rolled steel strip into a dual-phase structure comprising a ferrite phase of at least 90 vol.% and a low-temperature transformation phase of up to 10 vol.%; and then,

applying said over-aging treatment at a temperature within the range of from 260° to 360° C.;

thereby forming said cold-rolled steel strip having a Lankford value of at least 1.4.

4,336,081

PROCESS OF PREPARING STEEL COIL SPRING

Toshio Hijikata, Fujisawa, and Kazuhiro Kawasaki, Hiratsuka, both of Japan, assignors to Neturen Company, Ltd., Tokyo, Japan

Division of Ser. No. 34,951, Apr. 30, 1979, abandoned. This application Jan. 12, 1981, Ser. No. 224,625
Claims priority, application Japan, Apr. 28, 1978, 53-49930; Jun. 23, 1978, 53-75445; Jun. 23, 1978, 53-75446; Aug. 25, 1978, 53-102752; Aug. 25, 1978, 53-102753
Int. Cl.³ C21D 8/06, 9/02
U.S. Cl. 148—12 B **7 Claims**

1. A process of preparing a coil spring, which comprises heating a steel wire, having a diameter of more than 10 mm, of a hardenable carbon steel containing at least 0.27% C, 0.15–2.2% Si and 0.60–1.65% Mn, by high-frequency induction at a rate of greater than 100° C./second to a temperature within the austenitic range for the hardenable carbon steel,

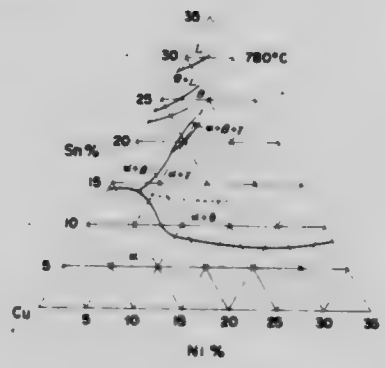
quenching the thus heated steel wire, heating the quenched steel wire by high-frequency induction at a rate of greater than 100° C./second to between 300° and 600° C., stopping said heating, holding the steel wire for 10 to 60 seconds and then cooling the thus heated steel wire at a cooling rate of greater than 50° C./second to yield a cold plastic workable steel wire having a tensile strength of greater than 150 Kgf/mm^2, subjecting the cold plastic workable steel wire to cold plastic working to shape the wire into the form of a coil spring, and heating the resultant shaped wire to between 300° and 500° C. for from 30 to 60 minutes to temper said shaped wire and produce a coil spring product, with the proviso that the maximum temperature to which said shaped wire is heated is less than the maximum temperature to which said quenched steel is heated.

4,336,082

TIN-RICH LEAD-BRONZE BASED FORGED AND ROLLED MATERIALS

Tadao Kimura, No. 1-6-207, Sakurajyosui 1-Chome, Setagaya-ku, Tokyo, Japan

Filed Apr. 16, 1980, Ser. No. 140,822
Claims priority, application Japan, May 29, 1979, 54-66657
Int. Cl.³ C22C *9/02, 9/08;* C22F *1/08*
U.S. Cl. 148—433 **1 Claim**



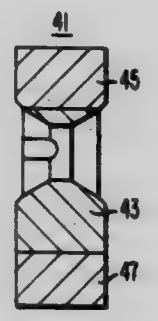
1. A tin-rich lead-bronze based forged and rolled material consisting of 9–12% of Sn, 2–8% of Pb, 1–2% of Ni and 88–78% of Cu, wherein Pb is allowed to exist in a finely dispersed condition at the grain boundaries in the α-phase of the Cu-Sn-Ni ternary equilibrium diagram and such finely dispersed condition is enhanced and stabilized by alternate forging and heat treatment to grow and fix a forged texture substantially free of segregation and then working the forged and heat treated material by an amount of at least 40% without intermediate heat treatment to retain and protect the stabilized texture.

4,336,083

METHOD OF PRODUCING KNIFE FOR CUTTING HOT METAL

Martin J. Dempsey, Bethel Park, Pa., assignor to Asko, Inc., West Homestead, Pa.

Filed Apr. 24, 1980, Ser. No. 143,379
Int. Cl.³ C21D *9/00;* B23D *25/06;* B26D *1/56;* B23K *9/00*
U.S. Cl. 148—127 **3 Claims**



1. The method of producing a knife for cutting metal at high temperature, said knife being produced from parts to be joined including a first blank for a base composed of alloy steel and a second blank for a cutting edge composed of a high-temperature-resistant alloy, said alloy steel having substantially the following nominal composition in weight percent:

C—0.30
Mn—0.48
P—0.015
S—0.015
Si—0.20
Ni—0.12
Cr—0.91
Mo—0.20
Fe—Remainder,

said high-temperature-resistant alloy having substantially the following nominal composition in weight percent:

Ni—52.5
Cr—19.0
Mo—3.0
Cb—5.1
Al—0.5
Ti—0.9
Fe—18.5
Mn—0.2
Si—0.2
C—0.04,

the said method comprising forming a relief slot along the length of the surface of said first blank, which surface is to be joined to said second blank, said relief slot extending internally of the ends of said first blank and being short compared to the width of said surface but being effective to absorb weld metal of welds terminating at said slot, abutting said second blank and said first blank to form a seam along the lengths of said first and second blanks, with the surface of said second blank which is to be joined to said first blank abutting said slotted surface of said first blank and said relief slot extending between said surfaces along the length of said seam, producing a first weld along the length of said seam between said surfaces of said first and second blanks, said first weld extending from one external boundary of said seam inwardly to a position near the end of said relief slot nearest said one boundary, producing a second weld along the length of said seam between said surfaces of said first and second blanks, said second weld extending from said opposite boundary of said seam inwardly to a position near the end of said relief slot nearest said opposite boundary, said welding forming a blank for said knife, hardening said blank of said knife in the following steps:

Age at about 1350° F. for 8 hours
Cool to about 1150° F. in steps of 100° F. per hour
Hold at about 1150° F. for about 10 hours
Air cool to room temperature—about 70° F. and finishing said blank to form a knife.

4,336,084

METHOD FOR MAKING PRIMER CONSTITUENTS

Venkataramaraj S. Urs, Godfrey, Ill., assignor to Olin Corporation, Stamford, Conn.

Filed Aug. 29, 1980, Ser. No. 182,362
Int. Cl.³ C06B *41/02*
U.S. Cl. 149—24 **12 Claims**

1. A method of forming a lead styphnate compound plus an oxygen-donating compound, in situ, for use in a priming mix, said method comprising reacting trinitroresorcinol with an oxygen-bearing compound selected from the group consisting of barium oxide, barium hydroxide compounds, barium carbonate, or mixtures thereof, in the presence of lead nitrate.

4,336,085

EXPLOSIVE COMPOSITION WITH GROUP VIII METAL NITROSO HALIDE GETTER

Franklin E. Walker, 18 Shadow Oak Rd., Danville, Calif. 94526, and Richard J. Wasley, 4290 Colgate Way, Livermore, Calif. 94550

Continuation-in-part of Ser. No. 610,166, Sep. 4, 1975, Pat. No. 4,142,927. This application Mar. 2, 1979, Ser. No. 16,746
Int. Cl.[3] C06B *31/00*
U.S. Cl. 149—45 6 Claims

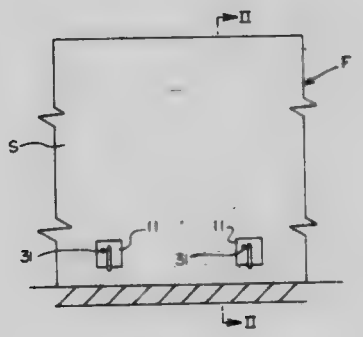
1. A composition of matter comprising a major portion of a metastable explosive capable of being detonated by a mechanical, electrical or thermal shock and having a detonation velocity between about 1,500 and 10,000 meters per second and a minor amount of a getter additive comprising a Group VIII metal nitroso halide.

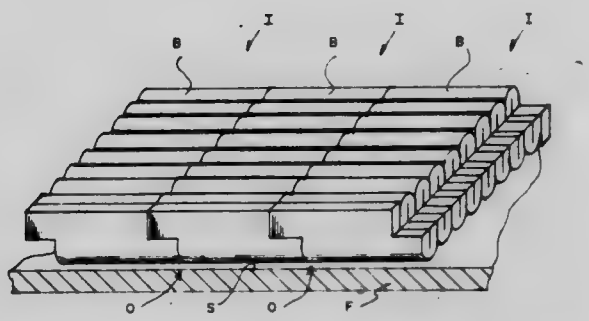
4,336,086

METHOD OF LINING A FURNACE WITH ROLL-TYPE INSULATION

James P. Rast, 9510 Herring Hill, Millington, Tenn. 38053

Continuation-in-part of Ser. No. 827,316, Aug. 24, 1977, abandoned. This application Sep. 18, 1980, Ser. No. 188,346
Int. Cl.[3] B32B *31/10;* C21B *7/06;* F23M *5/00;* F27D *1/16*
U.S. Cl. 156—71 9 Claims





5. A method of lining an interior surface of a furnace with roll-type ceramic fiber insulation, said method comprising:
(a) fixedly attaching a plurality of hook means to said interior surface of said furnace;
(b) folding back portions of said roll-type ceramic fiber insulation on themselves to create transverse folds in said roll-type ceramic fiber insulation;
(c) pressing said transverse folds onto said hook means to fixedly attach said roll-type ceramic fiber insulation to said hook means and to said interior surface of said furnace;
(d) overlapping the side edges of adjacent transverse folds;
(e) rolling portions of said roll-type ceramic fiber insulation into elongated rolls;
(f) tying lengths of string about said elongated rolls;
(g) gluing said elongated rolls to every substantially 90° bend formed by said interior surface of said furnace;
(h) abutting said transverse folds of said roll-type ceramic insulation and said elongated rolls; and
(i) gluing the abutting edges of said elongated rolls and said transverse folds together.

4,336,087

METHOD OF MARKING FISHING LINES

Leon L. Martuch, and Michael L. Martuch, both of 9187 Bay Hill Blvd., Orlando, Fla. 32811

Filed Mar. 30, 1981, Ser. No. 248,864
Int. Cl.[3] B29C *27/00;* B32B *31/26*
U.S. Cl. 156—85 9 Claims



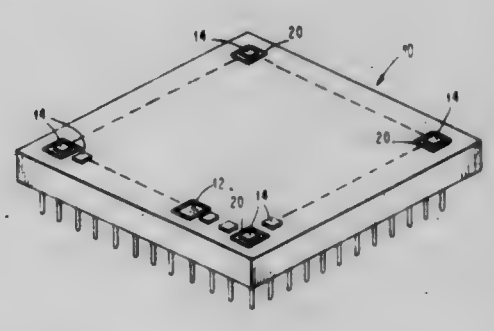
1. A method of marking fishing lines comprising the steps of:
selecting heat shrinkable tubing;
marking said heat shrinkable tubing with a plurality of size code marks;
cutting said marked, heat shrinkable tubing between said marks thereon to leave at least one mark on one piece of cut tubing indicating a fishing line size;
slipping said marked and cut heat shrinkable tubing onto a fishing line of the size indicated by the marks thereon; and
shrinking said heat shrinkable tubing onto said fishing line, whereby a fishing line is marked for size.

4,336,088

METHOD OF FABRICATING AN IMPROVED MULTI-LAYER CERAMIC SUBSTRATE

Richard J. Hetherington, Pine Plains; George E. Melvin, Poughkeepsie; Stephen A. Milkovich, Beacon, and Ernest N. Urfer, Hopewell Junction, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Division of Ser. No. 164,645, Jun. 30, 1980, Pat. No. 4,302,625. This application Apr. 27, 1981, Ser. No. 258,222
Int. Cl.[3] H05K *1/14*
U.S. Cl. 156—89 4 Claims



1. An improved method of fabricating a monolithic sintered MLC substrate for a semiconductor package comprising
forming a plurality of first ceramic green sheets of a thickness in the range of 6–9 mils,
forming vias in said first sheets
filling said vias and imprinting metallurgy redistribution patterns with a conductive metallurgy paste on said first sheets,
forming a plurality of second ceramic green sheets,
forming vias and imprinting metallurgy patterns with a conductive metallurgy paste on said second sheets,
forming a single top ceramic green sheet of ceramic material of a thickness of at least 20% greater than the individual thickness of said first sheets,
forming a via pattern in said top sheet wherein at least some vias have a center to center spacing when fired in the range of 7–12 mils, with the via diameter being in the range of 35 to 55% of said center to center via spacing.

filling said vias in said top sheet with a conductive metallurgy paste, said metallurgy paste, when sintered, and the said ceramic material of said top sheet when sintered having a differential coefficient of expansion of at least 0.8×10^{-6}/°C.,

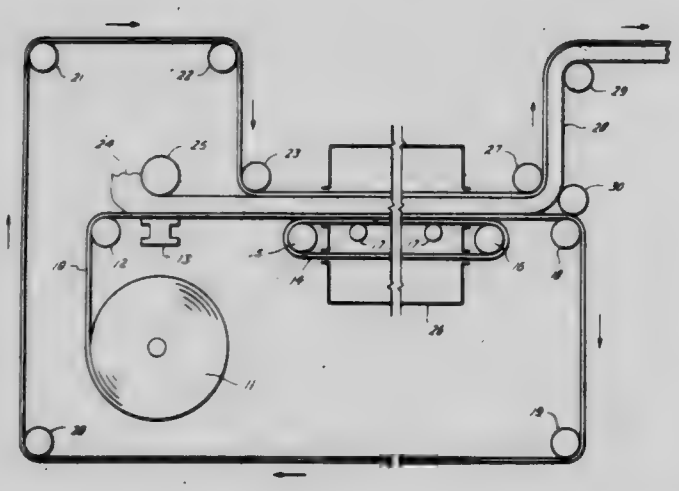
assembling said second sheets, in underlying relation to said first sheets, and said top sheet in overlying relation to said first sheets, sintering the resultant assembly to form a monolithic ceramic substrate having an internal conductive metallurgy system, the thickness relationship between said first sheets and said top sheet minimizing via to via cracking in said monolithic substrate.

4,336,089

METHOD OF PREPARING POLYURETHANE FOAM CARPET UNDERLAY HAVING A BARRIER FILM ATTACHED THERETO

Dan A. Asperger, Dalton, Ga., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 30, 1981, Ser. No. 248,762
Int. Cl.³ B32B *31/16, 31/18*
U.S. Cl. 156—152 **1 Claim**



1. A method for preparing polyurethane carpet underlay which method comprises:

(A) a frothed, polyurethane-forming mixture applied onto a film material;

(B) passing the film containing the frothed, polyurethane-forming mixture through a gauging device so as to provide a substantially uniform thickness of frothed polyurethane-forming mixture;

(C) contacting the top of the thus gauged, frothed polyurethane-forming mixture with a film material which has been in previous contact with the bottom of said frothed polyurethane-forming mixture and which film that is in contact with the top and bottom of said frothed polyurethane-forming mixture is one continuous piece of film;

(D) curing said gauged frothed polyurethane-forming mixture with said continuous piece of film on top and bottom thereof;

(E) removing said film from the underside of the cured polyurethane and applying said film in a continuous manner to the top of said gauged, frothed, polyurethane-forming mixture in step (C); and

(F) thereafter cutting the thus prepared carpet underlay having a film attached to one surface into desired lengths.

4,336,090

METHOD OF MAKING SANDWICH PANEL

R. John Hilton, Auburn, Wash., assignor to The Boeing Company, Seattle, Wash.

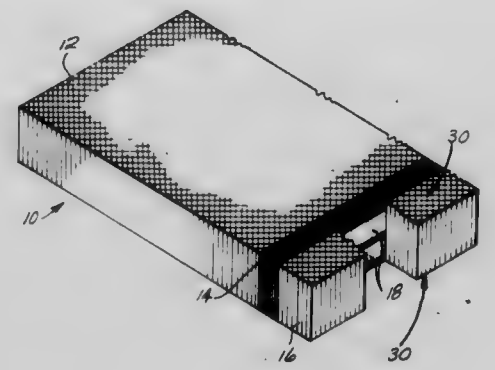
Filed Jun. 30, 1980, Ser. No. 164,437
Int. Cl.³ B32B *3/12*
U.S. Cl. 156—154 **1 Claim**

1. In the method of fabricating a honeycomb sandwich panel assembly having a pair of face sheets with a honeycomb core therebetween, said method including the steps of:

providing a core blank having a higher density core permanently attached to a lower density core;

temporarily fastening a further low density honeycomb core to said high density core;

machining said core blank and said further honeycomb core to a desired height;



providing a pair of face sheets;

attaching separator film to upper and lower surfaces of said further honeycomb core;

applying adhesive to said face sheets prior to assembling and curing said sandwich assembly; and, then

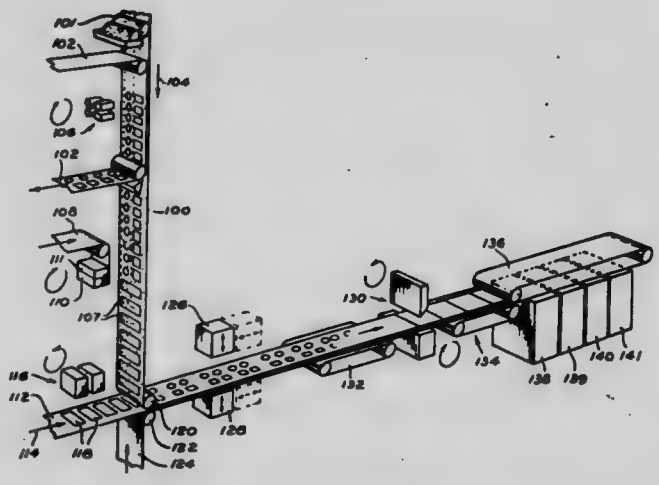
removing said further honeycomb core from said assembled and cured sandwich assembly.

4,336,091

METHOD OF MAKING CAPILLARY BRIDGE IN APPARATUS FOR DETERMINING IONIC ACTIVITY

William F. Gottermeier, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 50,845, Jun. 20, 1979, Pat. No. 4,273,639. This application Sep. 22, 1980, Ser. No. 189,434
Int. Cl.³ B29D *7/02;* B32B *31/18, 31/30*
U.S. Cl. 156—244.12 **6 Claims**



1. A method for making a device which includes (1) a pair of solid electrodes for generating therein an electrical potential having a predetermined relationship to the amount of ionic analyte activity present in a contacting sample of an aqueous solution, and (2) a frame member; said member comprising the steps of:

encapsulating an elongated ribbon of porous material in nonporous material which is sized to substantially cover the frame member;

applying the electrodes in a spaced-apart relationship to the frame member;

forming a pair of holes in said nonporous material through the ribbon of porous material; and

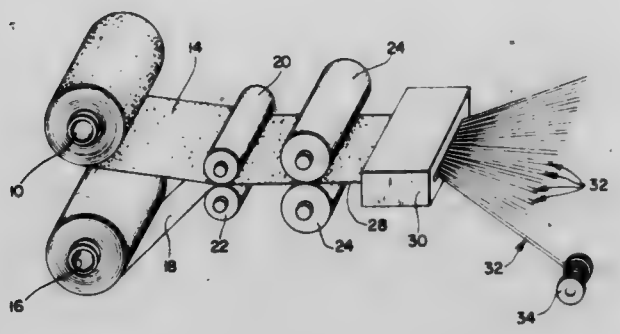
bonding said nonporous material to the frame member with the electrodes therebetween in an orientation such that each of said holes aligns with a different electrode.

4,336,092

RETROREFLECTIVE FIBER AND METHOD OF MAKING SAME

Allan Wasserman, 29 Kennedy Boulevard, Lincoln, R.I. 02865

Filed Mar. 24, 1980, Ser. No. 133,281
Int. Cl.[3] B32B *31/00*; D02G *3/00*
U.S. Cl. 156—269 5 Claims



1. A method of making a thread-like continuous fiber having retroreflective characteristics and having sufficient structural strength to permit it to be effectively used during knitting, weaving or spinning of a composite yarn or fabric consisting of the following steps:

(A) Providing a thin film of retroreflective material consisting of a plurality of exposed minute glass beads bonded in a flexible elastomeric material;

(B) Laminating thereto a thin flexible supporting film so as to provide a laminate defined by said retroreflective material on one surface and said supporting film on the opposite surface; and

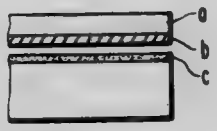
(C) Slitting said laminate into elongated thread-like fibers.

4,336,093

METHOD OF STACKING METAL SHEET MATERIALS

Ken Kohayakawa; Hisao Ohba, and Atuhiro Sano, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 14, 1980, Ser. No. 177,960
Claims priority, application Japan, Aug. 15, 1979, 54-103903
Int. Cl.[3] B32B *31/04, 31/18*
U.S. Cl. 29—399 8 Claims



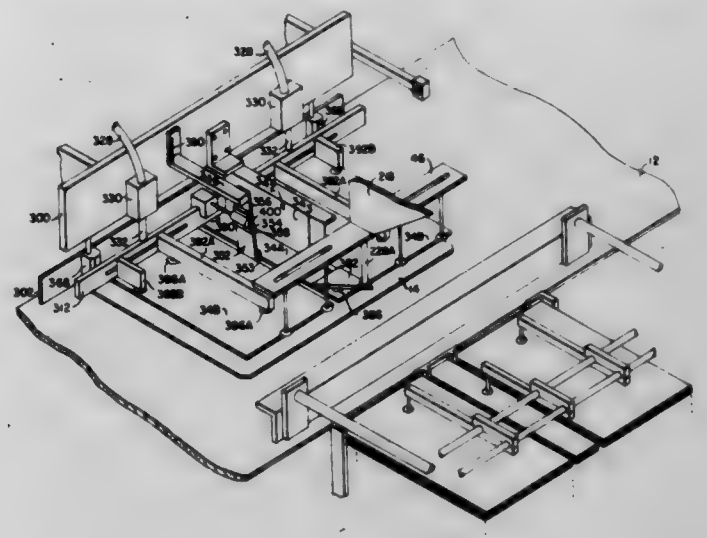
1. In a method for stacking and cutting photosensitive printing plate precursors which comprise a photosensitive layer on a metal support, said method comprising intimately contacting an interleaf with a photosensitive printing plate precursor by applying electric charges for establishing electric fields between the interleaf and the precursor, stacking a number of the resulting precursors intimately contacted with the interleaf in a manner so that the interleafs are between adjacent precursors, and then cutting the stacked precursors into a desired size, the improvement wherein said interleaf comprises paper with plastic coated on only one side of said paper and said interleaf is placed on the photosensitive printing plate precursor in such a manner that the photosensitive layer of said precursor is in intimate contact with the plastic coating of said interleaf.

4,336,094

SYSTEM FOR AND METHOD OF LAMINATING

Leland F. Mills, Dunbarton, N.H., assignor to Crathern Engineering Co., Inc., Contoocook, N.H.

Filed May 29, 1981, Ser. No. 268,198
Int. Cl.[3] B32B *31/00*
U.S. Cl. 156—299 19 Claims



1. A system for registering and securing, in a predetermined relation, three substantially planar sheet members, each to a different portion of a surface of a sheet of material such that one of said sheet members is disposed between the other two sheet members, said system comprising:

support means for supporting said sheet of material;

means for moving said three sheet members each from a first location to a second location wherein each of said sheet members is disposed at said second location in a plane substantially parallel to said sheet of material;

means at said second locations for centering said one sheet between and with respect to said other two sheet members;

means at said second location for registering said three sheet members with respect to the respective portions of said surface of said sheet of material; and

plunging means for moving said members from said second location into contact with the respective portions of the surface of said sheet of material.

4,336,095

MACHINE FOR LABELING BODIES AND SHOULDERS OF CONTAINERS

Wolfgang Hoffmann, Turlock, Calif., assignor to B & H Manufacturing Company, Inc., Ceres, Calif.

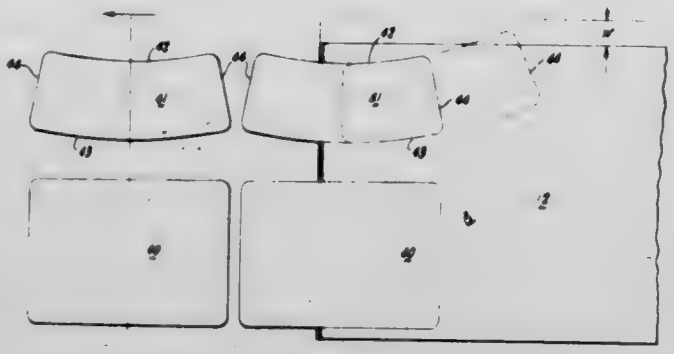
Filed Nov. 13, 1979, Ser. No. 93,232
Int. Cl.[3] B32B *31/00*; B65C *9/40, 9/06*; B44C *5/00*
U.S. Cl. 156—361 5 Claims

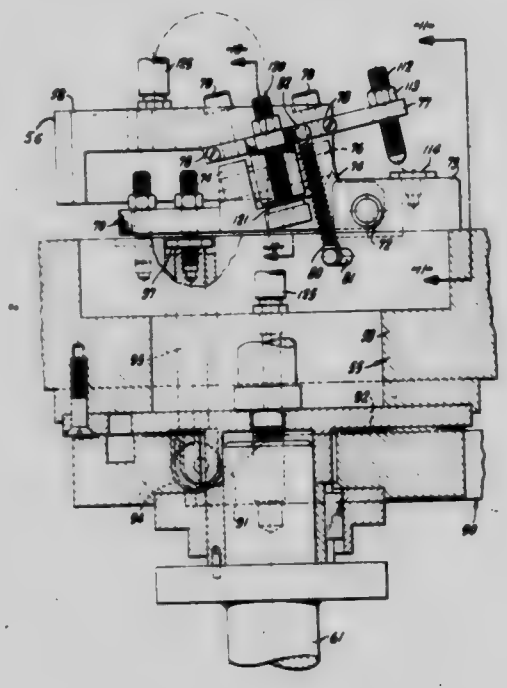
1. In apparatus for applying segments of flexible sheet material to articles and comprising a rotary transport rotating about a fixed main axis and comprising at least one sector having a cylindrical peripheral surface concentric to said main axis and equipped with means adapted to grip such segments in succession at a segment receiving station, to hold each segment during transport from such station to a segment applying station and to release each segment to an article at the segment applying station, the improvement which comprises

(a) means mounting said sector for movement about two tilt axes, one such axis (the first axis) being radial with respect to said transport, the other such axis (the second axis) being perpendicular to the first axis, and

(b) tilt operating means operating during each revolution of the transport to cause such sector to undergo a cycle commencing at a start position at the segment receiving station at which the sector is concentric to said main axis,

then the sector is rotated about both its first and second axes to assume the desired attitude at the segment apply-





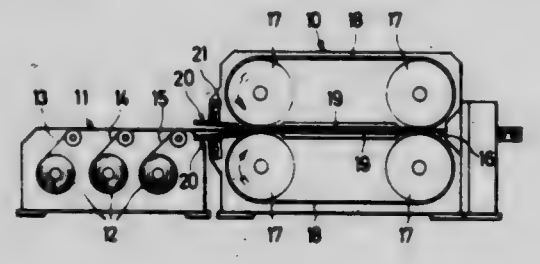
ing station and then the sector is rotated back to its start position.

4,336,096

BELT PRESS APPARATUS WITH HEAT SHIELD

Gerd Dedekind, Bielefeld, Fed. Rep. of Germany, assignor to Theodor Hymmen KG, Bielefeld, Fed. Rep. of Germany

Filed Mar. 13, 1981, Ser. No. 243,647
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1980, 3011217
Int. Cl.³ B30B 5/06, 15/34
U.S. Cl. 156—498 9 Claims



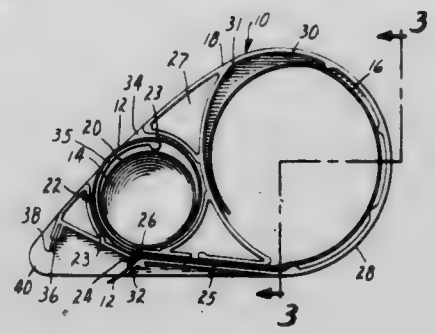
1. Apparatus for joining a plurality of band-shaped layers of material while passing through a dual belt press equipped with rotating steel belts wherein the layers of material can be pressed together under the influence of heat, characterized in that at the intake side of the dual belt press, between each steel belt and the adjacent layer of material, there is disposed a protective shield which dams the heat radiated from the steel belt over the entire width of the belt.

4,336,097

DISPENSER FOR LINER-WOUND TAPE

Craig L. Van Kampen, Oakdale, and Carl S. Ahlberg, Minneapolis, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 23, 1980, Ser. No. 199,701
Int. Cl.³ B32B 35/00
U.S. Cl. 156—527 15 Claims



1. A hand held dispenser by which lengths of pressure-sensitive adhesive coated tape may be withdrawn from a supply roll of said tape convolutely wound with a release liner between its coils, said dispenser comprising walls defining:

a first cavity adapted for storing said supply roll;

a second cavity adapted for storing said liner, said second cavity being partially defined by an inner wall surface adapted to direct liner pushed into said second cavity to wind into a coil;

a path connecting said cavities, said path being adapted for passage of said tape and liner out of said first cavity, and for passage of said liner into said second cavity; and

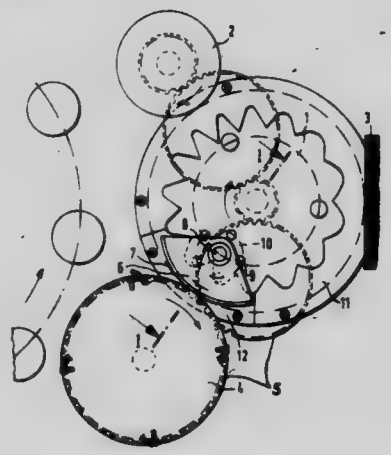
an opening along said path through which opening said tape may be withdrawn from said dispenser, said walls defining said opening having a separating edge transverse of said path adjacent said first cavity around which edge tape may be peeled away from the liner as the tape is withdrawn from said dispenser, so that withdrawing tape from said opening will propel said liner along said path and into a coil in said second cavity.

4,336,098

LABELING STATION FOR A LABELING MACHINE, ESPECIALLY FOR BOTTLES

Rudolf Zodrow, Dusseldorf, Fed. Rep. of Germany, assignor to Jagenberg Werke AG, Dusseldorf, Fed. Rep. of Germany

Filed Apr. 1, 1981, Ser. No. 250,951
Claims priority, application Fed. Rep. of Germany, Apr. 3, 1980, 3013082
Int. Cl.³ B65C 9/16
U.S. Cl. 156—568 4 Claims



1. In a labeling machine having a labeling station including a support means for revolving the support about its axis successively past a gluing station, a label storage station and a label gripping cylinder, at least one gluing segment rotatably mounted on the support and moving on a circular orbit with

the support axis as center, the gluing segment having a cylindrically curved pickup surface with a radius smaller than the distance between the support axis and the gripping cylinder, the support and the gripping cylinders and each gluing segment being coupled to one another through a nonuniformity gearing such that the gripping cylinder and the support have the same sense of rotation and each gluing segment performing a rotatory movement in the opposite direction which is accelerated or retarded such that its pickup surface rolls against the gluing station, the label storage station and the gripping cylinder, the labeling station being designed for optional operation with one or more gluing segments and the nonuniformity gearing being replaceable such that the transmission ratio of the gearing from the support to the gripping cylinder is reciprocal to the number of gluing segments with which the support is provided and the division of the gripping cylinder, the improvement wherein the nonuniformity gearing comprises a stationary sun gear and a lantern pinion gearing, each lantern pinion being fixedly coupled with the drive shaft of each gluing segment and being provided with lanterns, the sun gear having teeth with the flanks of different steepness according to the acceleration or retardation in individual rotation which is required for the rolling movement of each gluing segment at the gluing station, label storage station and gripping cylinder, at least the section of the sun gear which acts in the area of the gripping cylinder being interchangeable.

4,336,099

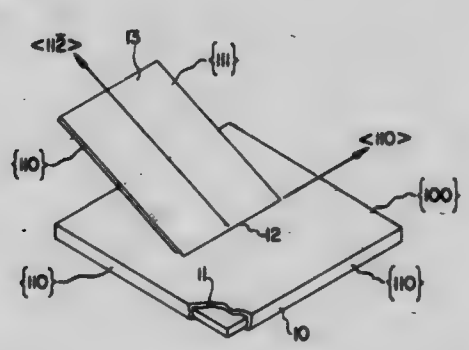
METHOD FOR PRODUCING GALLIUM ARSENIDE SINGLE CRYSTAL RIBBONS

Wirojana Tantraporn, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 94,099, Nov. 14, 1979, abandoned. This application Mar. 6, 1981, Ser. No. 241,280

Int. Cl.³ C30B *25/04, 29/42*

U.S. Cl. 156—614 **3 Claims**



1. A method of producing gallium arsenide single crystal ribbon comprising the steps of:

masking a wafer of monocrystalline gallium arsenide with an insulating layer which has an elongated slot in the <110> crystallographic direction;

placing said wafer in a H_2-$AsCl_3$-Ga vapor phase epitaxy system in which it is heated and gallium and arsenic atoms are carried in a gas stream to the exposed heated wafer under prescribed conditions to epitaxially grow out of said slot in the $<1\bar{1}2>$ direction, which is the ribbon length direction, a thin flexible ribbon of single crystal gallium arsenide having a thickness and width approximately equal to the dimensions of said slot and having {111} plane major surfaces and {110} plane long edges, said ribbon continuing to grow in said gas stream at a high growth rate along the ribbon length and having negligible growth in the directions of said major surfaces and long edges so that the ribbon cross section is substantially constant throughout; and

retracting said wafer and thin flexible ribbon at the ribbon growth speed to maintain the region of new growth in said gas stream until a designated ribbon length is reached and said gas stream is turned off.

4,336,100

METHOD OF PRODUCTION OF ELECTRICALLY CONDUCTIVE PANELS AND INSULATING BASE MATERIALS

Theodor Passlick, Burgstemmen, Fed. Rep. of Germany, assignor to Kollmorgen Technologies Corporation, Dallas, Tex.

Continuation of Ser. No. 937,209, Aug. 28, 1978, abandoned. This application May 18, 1981, Ser. No. 264,857

Claims priority, application Fed. Rep. of Germany, Aug. 30, 1977, 2739494

Int. Cl.³ C23F *1/02*

U.S. Cl. 156—630 **8 Claims**

1. A method for producing a molded laminate which is useful in the preparation of an electrically conductive panel, the molded laminate having

(i) a carrier layer comprising a metal having on at least one side at least one layer of

(ii) an insulating material capable of yielding free flow of heat, and on the external surface of the insulating layer

(iii) an electrically conductive outer layer comprising copper, wherein the carrier layer is characterized by a plurality of perforations which have been substantially filled with the insulating material,

the process comprising the steps of:

A. forming a plurality of perforations in a metal panel;

B. cleaning and deburring the surface of the metal panel and perforations;

C. applying on at least one side of the panel at least one layer of an insulating material capable of yielding free flow of heat;

D. applying an electrically conductive outer layer comprising copper on the surface of the layer of insulating material;

E. heating the structure at a temperature of from 150° to 200° C. and applying a pressure of from 10 to 25 bar, for a period of 15 to 140 minutes, until the insulating material substantially fills the perforations, the diameter of the filled perforation being from 0.20 to 1 millimeter larger than the final desired hole diameter;

F. applying a layer of an etch-resistant masking material on selected areas of the surface of the copper layer corresponding to the desired pattern of conductor lines;

G. etching away the unmasked portions of copper from the surface of the insulating layer;

H. thereafter removing the etch-resistant masking material from the masked areas of copper;

I. applying a layer of adhesion promoting material; and

J. providing a second pattern of conductor lines on the surface of the laminate structure.

4,336,101

PROCESS AND APPARATUS FOR RECOVERING CLEAN WATER AND SOLIDS FROM AQUEOUS SOLIDS

Charles Greenfield, Murray Hill; Robert E. Casparian, Boonton, and Anthony J. Bonanno, Parsippany, all of N.J., assignors to Hanover Research Corporation, East Hanover, N.J.

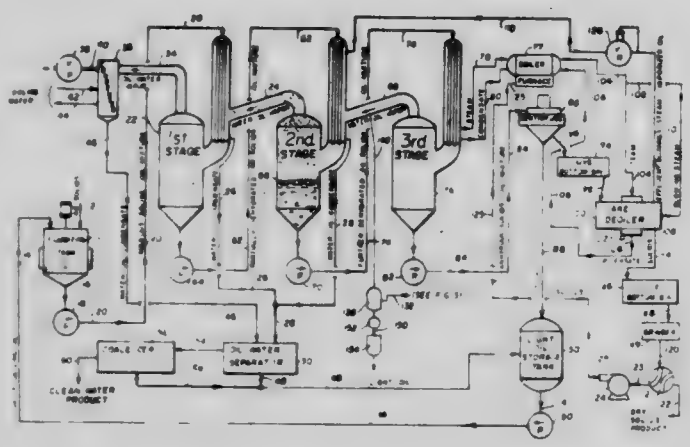
Continuation of Ser. No. 719,515, Sep. 1, 1976, Pat. No. 4,240,974. This application Feb. 11, 1981, Ser. No. 233,318

Int. Cl.³ B01D *1/26*

U.S. Cl. 159—16 S **2 Claims**

1. An apparatus for recovering clean water and substantially dry, oil-free solids from aqueous solids dehydrated in a light fluidizing oil medium with said aqueous solids being originally associated with a heavy, relatively non-volatile oil, said apparatus comprising (1) a tank adapted to receive a stream of said aqueous solids and provided with a stirring or mixing mechanism, (2) a light fluidizing oil reservoir, (3) means for transmitting light fluidizing oil from said light oil reservoir to said tank wherein said light fluidizing oil and aqueous solids may be mixed, (4) a dehydrating evaporator, (5) a conduit extending from said tank to said evaporator wherethrough may flow a stream of aqueous solids admixed with light fluidizing oil from said tank into the evaporating region of said dehydrating evap-

orator, (6) a condenser, (7) a conduit extending from said dehydrating evaporator to said condenser through which may flow a mixture of water vapor and light oil vapor formed as a result of heating of said aqueous solids and light fluidizing oil mixture, (8) an oil-water separating means, (9) a conduit extending from said condenser to said oil-water separating means wherethrough may flow a mixed condensate of water and light oil, (10) means for separately withdrawing light oil and clean water from said oil-water separating means, (11) a conduit extending from said withdrawing means to said light fluidizing oil reservoir wherethrough may flow a stream of light oil, (12) a liquid-solid separating means, (13) a conduit extending from said dehydrating evaporator to said liquid-solid separating means wherethrough may flow a stream of a slurry of substantially anhydrous solids and their originally associated heavy, relatively non-volatile oil in light fluidizing oil, (14) a deoiler means, (15) means for providing blowing steam to said deoiler means for direct contact with material fed thereto to be deoiled therein and thereby, (16) a conduit extending from said liquid-solid separating means to said deoiler means wherethrough may flow a stream of solids carrying residual light fluidizing oil, (17) condensing means separate from said condenser (6), (18) a conduit extending from said deoiler means to said condensing means wherethrough may flow a mixture of effluent blowing steam and vaporized residual light fluidizing oil removed from said solids by that steam, (19) a light-heavy oil



tank, (20) a conduit extending from said liquid-solid separating means to said light-heavy oil tank wherethrough may flow a mixture of light fluidizing oil and heavy oil extracted from said solids, (21) a stripping evaporator wherein the light fluidizing oil component of said oil mixture may be extracted therefrom by heat evaporation, (22) a conduit extending from said light-heavy oil tank to the evaporating region of said stripping evaporator wherethrough may flow said oil mixture, (23) means for injecting steam into said conduit (22) for mixing with said oil mixture flowing therethrough and heating the same, (24) a conduit extending from the vapor chamber of said stripping evaporator to said condensing means (17) wherethrough may flow a mixture of water vapor and light oil vapor formed by heat evaporation in said stripping evaporator to mix and be condensed in said condensing means with said mixture of effluent blowing steam and vaporized residual light fluidizing oil from said deoiler means (14), and (25) a conduit extending from said condensing means to said oil-water separating means (8) wherethrough may flow a mixed condensate of water and light oil to mix and be processed in said oil-water separating means with said mixed condensate of water and light oil from said condenser (6) whereby a combined stream of all separated light oil fractions may be obtained at said withdrawing means (10) and conducted therefrom through said conduit (11) to said reservoir (2) for recycling therefrom by means (3) to tank (1) as fluidizing oil.

4,336,102

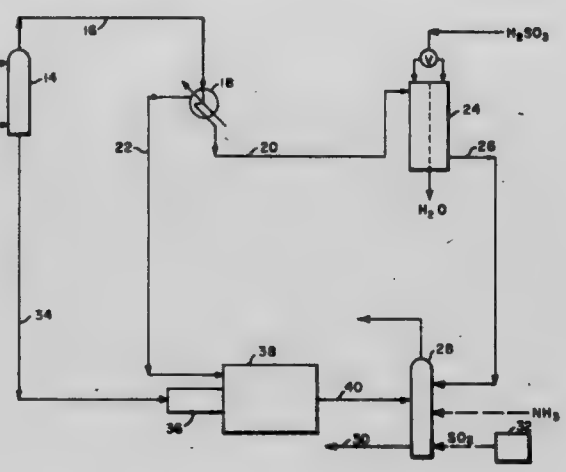
METHOD FOR RECOVERY AND REUSE OF AMMONIA IN AMMONIA-BASE SULFITE COOKING LIQUORS

Lawrence J. Jacobs, East Hartford, and Carl R. Bozzuto, Enfield, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Oct. 6, 1980, Ser. No. 194,360

Int. Cl.³ D21C *11/02*

U.S. Cl. 162—30.1 **4 Claims**



1. A process for the recovery and reuse of ammonia in ammonia-base sulfite cooking liquors comprising the steps of:

steam stripping spent ammonia-base sulfite cooking liquor to produce a vapor and a liquor residue;

condensing the vapor formed during the steam stripping to form a dilute aqueous solution comprising ammonia or ammonium hydroxide in water;

burning the liquor residue produced during steam stripping and non-condensed gases from the condensing step to produce an exhaust gas containing sulfur dioxide;

passing the dilute aqueous solution produced during the condensing step through a cation exchange column charged with sulphurous acid to thereby form an ammonium sulfite containing solution;

delivering the exhaust gases produced during the step of burning and the ammonium sulfite containing solution to a fortifying tower; and

fortifying the ammonium sulfite containing solution with sulfur dioxide from the exhaust gases of the burning step to produce an ammonia-based sulfite cooking liquor concentrate.

4,336,103

METHOD OF REPAIRING PARTLY BURNT-OFF FUEL ELEMENTS IN THE FUEL-ELEMENT PIT PRESSURIZED WATER REACTORS AND DEVICE THEREFOR

Erich Kätscher, Marloffstein; Klaus Knecht, and Heinz Knaab, both of Erlangen, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft AG, Mulheim, Fed. Rep. of Germany

Continuation of Ser. No. 822,676, Aug. 8, 1977, abandoned. This application Feb. 14, 1980, Ser. No. 121,504

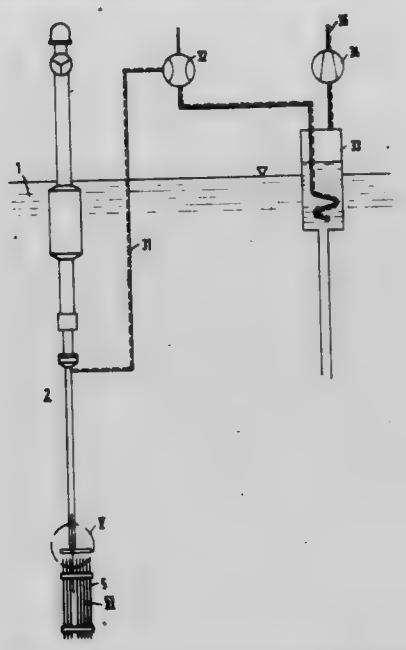
Claims priority, application Fed. Rep. of Germany, Aug. 6, 1976, 2635501

Int. Cl.³ G21C *17/00*

U.S. Cl. 376—245 **5 Claims**

1. Device for exchanging fuel rods of partly burnt-off fuel element assembly in a water filled fuel-element pit of a pressurized-water reactor by removing the fuel element assembly head or foot, removing defective fuel rods and replacing them with new intact fuel rods, comprising a tubular apparatus being operable from a service side of the pit including an outer support tube having a lower end, a guide tube being concentrically disposed within said outer support tube and being spaced from said outer support tube defining a first space therebetween and

a second space within said guide tube being in communication with said first space, a pulling tube being disposed in and sealed to said guide tube and having an inner diameter substantially corresponding to the diameter of the fuel rods, a lockable gripper connected to said pulling tube, a water discharge pipe being in communication with said first and second spaces, an eddy current measuring probe being disposed at said lower end



of said outer support tube, a centering plate being attachable to a fuel element after removal of the head or foot thereof, said centering plate having centering bores formed therein through which said gripper is passable for reaching the fuel rods, a suction pump connected to said water discharge pipe, a gas separator connected to said suction pump, and a purification and waste gas collecting system connected to said gas separator.

4,336,104

INSPECTION AND TESTING DEVICE

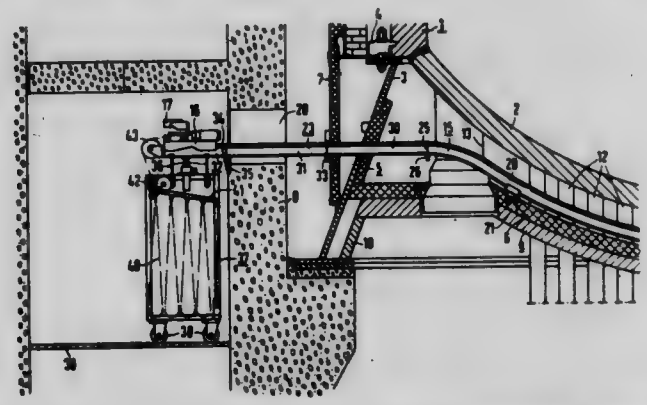
Dietgär Figlhuber; Johannes Gallwas, both of Erlangen; Robert Weber, Uttenreuth, and Jakob Weber, Erlangen, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Jul. 30, 1979, Ser. No. 62,067

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1978, 2833716

Int. Cl.³ G21C *17/00*

U.S. Cl. 376—249 **9 Claims**



1. Inspection and testing device for the bottom of nuclear reactor pressure vessels, comprising an insulation layer and a shielding layer enclosing the pressure vessel, a plurality of parallel tracks fitted to the bottom of the pressure vessel, each track having a plurality of sections and means for firmly connecting said sections together, each track having a first part fixed to the bottom of the pressure vessel and a second part detachable from said first part and passing through a closable opening formed in said insulation and shielding layers, said second parts having substantially horizontal end regions disposed outside said shielding layer, and a testing and inspection device connected to said tracks for inspecting and testing the bottom of the pressure vessel.

4,336,105

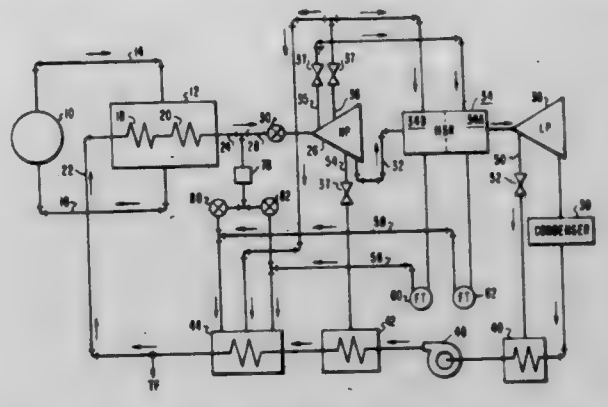
NUCLEAR POWER PLANT STEAM SYSTEM

George J. Silvestri, Jr., Upper Chichester, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 5, 1979, Ser. No. 100,677

Int. Cl.³ G21C *7/00*

U.S. Cl. 60—644.1 **13 Claims**



1. In a nuclear power plant steam system including a steam generating means for generating steam; a steam turbine for conducting said generated steam therethrough and having at least first and second steam extraction points for extracting steam therefrom, the steam pressures of said first and second extraction points varying as a function of the plant loading conditions with the steam pressure of said first extraction point being greater than that of said second; a condenser for condensing exhausted steam from said steam turbine; a return path for returning said condensed steam as feedwater to said steam generating means; and at least one feedwater heater unit disposed in said return path for preheating the feedwater conducted therethrough to a final feedwater temperature prior to entering said steam generating means, apparatus for maintaining the final feedwater temperature above a predetermined temperature value comprising:

first means for providing, upon activation, steam directly from said first extraction point to said one feedwater heater unit as supplemental heating steam to preheat the feedwater conducted therethrough;

second means for providing steam directly from said second extraction point to said one feedwater heater unit as heating steam to preheat the feedwater conducted therethrough;

means for monitoring steam system parameters representative of the power plant loading conditions; and

controlling means, governed by said monitoring means, to activate said first means to provide supplemental heating steam to said one feedwater heater unit directly from said first extraction point solely at times when the monitored steam system parameters reflect power plant loading conditions which are below a first predetermined power plant loading condition.

4,336,106

APPARATUS FOR THE SOLVENT EXTRACTION OF AROMATIC HYDROCARBONS FROM A HYDROCARBON MIXTURE

George R. Winter, III, Mt. Prospect, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Oct. 17, 1980, Ser. No. 198,037

The portion of the term of this patent subsequent to Oct. 6, 1998, has been disclaimed.

Int. Cl.³ B01D *11/04*; C10C *3/08*

U.S. Cl. 196—14.52 **4 Claims**

1. A multiple stage extractor column for countercurrent contact of an upwardly moving hydrocarbon phase and a downwardly moving solvent phase which comprises:

(a) an enclosed vertically elongated shell having an overhead raffinate outlet means, an upper lean solvent inlet means, an intermediate hydrocarbon feedstock inlet

means, a lower hydrocarbon reflux inlet means, and a bottom aromatics-rich solvent outlet means;

(b) an upper extraction section comprising a first plurality of vertically spaced-apart perforated fixed extraction trays, including upcomer means, traversing the interior of said shell in a horizontal plane;

(c) a lower backwash section comprising a second plurality of vertically spaced-apart perforated fixed extraction



trays, including upcomer means, traversing the interior of said shell in a horizontal plane wherein said upper and lower sections are divided by a line parallel to said hydrocarbon feedstock inlet means;

(d) the fixed extraction trays of said second plurality being vertically spaced from each other at a distance of from about ⅛ to about ½ greater than the distance separating the fixed extraction trays of said first plurality.

4,336,107

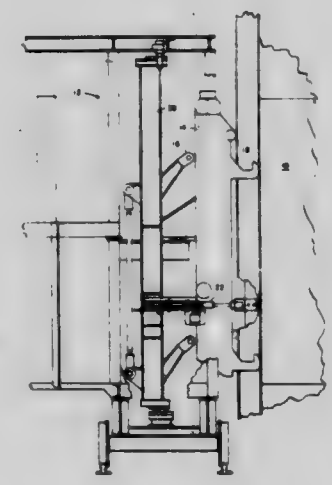
ALIGNING DEVICE

Rodney C. Irwin, Monroeville, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Sep. 2, 1981, Ser. No. 298,788

Int. Cl.[3] **B61L** *15/00, 25/02;* **C10B** *33/00, 47/00*

U.S. Cl. 202—239 **16 Claims**



1. A device for aligning rail mounted equipment with a track-side structure comprising:

(a) a piston and cylinder combination having a rod projecting from the piston toward the track-side structure and having at the terminal end of said rod an aligning projection which is engageable with an aligning plate mounted adjacent the track-side structure;

(b) means for expanding said piston and cylinder combination so as to extend the rod to a point where the aligning projection engages the aligning plate;

(c) means for compressing said piston and cylinder combination so as to withdraw the rod from the point where the aligning projection engages the aligning plate;

(d) control means for alternatively activating either said means for expanding the piston and cylinder combination or said means for compressing said piston and cylinder combination;

(e) a limit switch connection with said control means such that said means for compressing the piston and cylinder combination is activated when said limit switch is tripped; and

(f) a limit switch operating bar mounted adjacent said rod so as to be moveable therewith and having thereon a rearward trip positioned so as to trip the limit switch as the aligning projection engages the aligning plate, such that after the means for expanding the piston and cylinder combination have been employed to extend the rod to the point where the aligning projection engages the aligning plate, the means for compressing said piston and cylinder combination will then withdraw the rod.

4,336,108

CLOSURE ASSEMBLY FOR HORIZONTAL-CHAMBER COKING OVENS

Kurt Dix, Auf dem Knust 25, 4630 Bochum 1, Fed. Rep. of Germany

Filed Dec. 19, 1980, Ser. No. 218,203

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951682

Int. Cl.[3] **C10B** *25/06*

U.S. Cl. 202—248 **11 Claims**

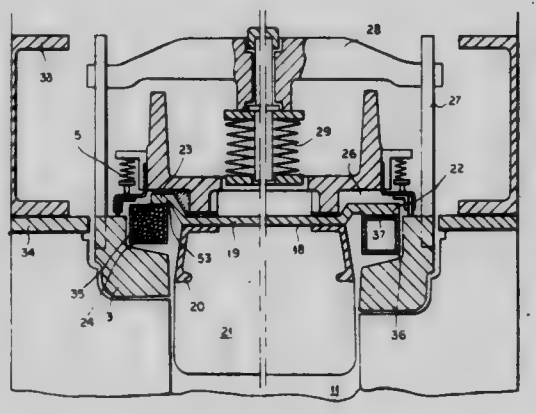
1. A closure for a horizontal coke oven comprising:

a door frame adapted to surround an opening at the end of a coking chamber;

a door shiftable to open and close said opening and adapted to be latched relative to said door frame, said door being formed with a door plug passing with clearance through said door frame in a closed position of the door and fitting into said opening;

a flexible seal on said door engaging said door frame whereby said door and said frame form a gas-collection space inwardly of said seal; and

a hot body mounted on said door and disposed in said space and of a heat capacity sufficient to maintain the temperature in the region of said space during filling of said chamber and coking therein above the condensate forming temperatures, said hot body being a thin-wall hollow hot



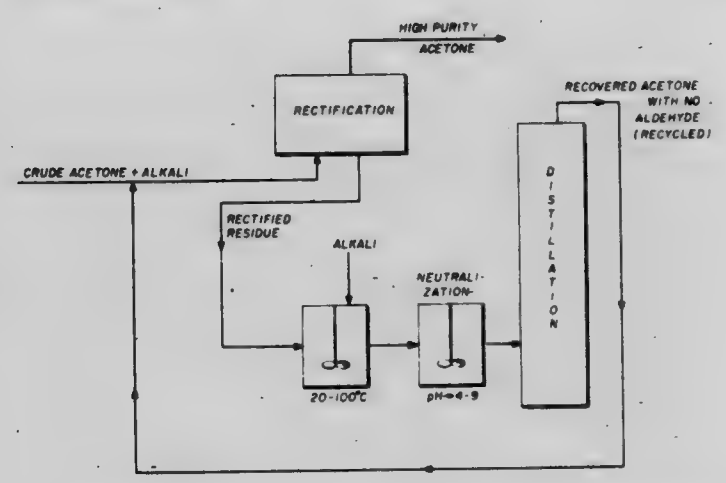
frame of rectangular cross section surrounding said plug and received at least in part in an L-shaped recess of said door frame, to define in said space a gas-collection passage having two right-angle bends in cross section, said hot frame being filled with a material of high heat-storage capacity and heat-radiating effectiveness.

4,336,109

METHOD FOR THE RECOVERY OF ACETONE

Hirokazu Hosaka, Ibaraki; Kenji Tanimoto, Ichihara; Kunihiko Tanaka, Toyonaka; Toshiharu Morita, Yao; Katsuyuki Shiota, Toyonaka; Yuji Ueda, Izumi, and Seiichi Kai, Daito, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed May 19, 1980, Ser. No. 151,530
Claims priority, application Japan, May 25, 1979, 54-65151
Int. Cl.[3] B01D *3/34*; C07C *49/08*
U.S. Cl. 203—34 5 Claims



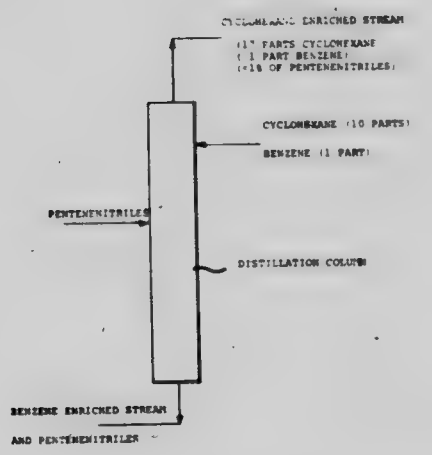
1. A method for the recovery of substantially aldehyde-free acetone from an aqueous rectification residue obtained as the bottoms product after rectification of crude acetone, said crude acetone having been treated with an alkali or an aqueous alkali solution either before or during said rectification, which method comprises mixing said aqueous rectification residue with an alkali at a temperature of 20° to 100° C., neutralizing the mixture to a pH of 4 to 9 and then subjecting the resulting mixture to further distillation to obtain acetone as distillate.

4,336,110

SEPARATION OF BENZENE FROM CYCLOHEXANE

Ronald A. Reimer, Orange, Tex., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 5, 1981, Ser. No. 231,794
Int. Cl.[3] B01D *3/40*; C07C *7/08*
U.S. Cl. 203—60 3 Claims



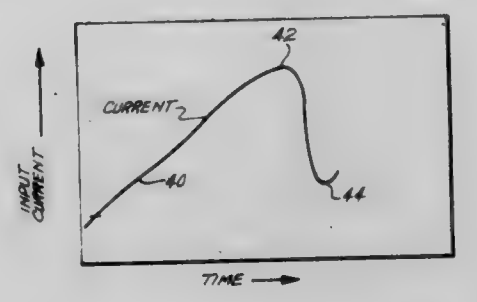
1. A method for reducing the benzene content in an initial stream comprising benzene and cyclohexane which comprises subjecting said stream to distillation in the presence of at least one unsaturated nitrile having 4–6 carbon atoms and recovering a stream enriched in cyclohexane relative to said initial stream as an overhead distillate and a stream enriched in benzene relative to said initial stream as the tails from the distillation in a single liquid phase.

4,336,111

METHOD FOR DETERMINING THE STRENGTH OF A METAL PROCESSING SOLUTION

Donald R. Graunke, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Continuation-in-part of Ser. No. 957,225, Nov. 2, 1978, abandoned. This application Oct. 25, 1979, Ser. No. 88,387
Int. Cl.[3] G01N *27/06*
U.S. Cl. 204—1 T 13 Claims



1. A method of measuring the etching rate of a chemical etching solution with respect to a predetermined metal susceptible to etching by said solution, comprising the steps of:

(a) immersing a pair of spaced electrodes in a chemical etching solution capable of oxidizing said predetermined metal in its native form to an oxidized ionic species in solution, at least one of said electrodes being composed of said predetermined metal susceptible to etching by said etching solution;

(b) applying an increasing electrical potential across said spaced electrodes to thereby produce an electric current through said solution between said electrodes; and

(c) monitoring said current to determine the magnitude of the peak current at the point at which said current first begins to decrease as said increasing potential is applied.

7. A method of determining the plating rate of a catalytic electroless metal plating solution comprising the steps of:

(a) immersing a pair of spaced electrodes in a catalytic electroless plating solution, at least one of said electrodes being composed of a metal susceptible to plating by said electroless plating solution;

(b) applying an increasing electric potential across said spaced electrodes to thereby produce a current through said solution between said electrodes; and

(c) monitoring said current to determine the magnitude of the peak current at the point at which said current first begins to decrease as said increasing potential is applied.

4,336,112

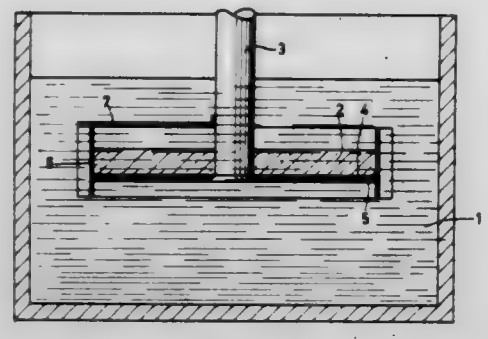
METHOD OF MANUFACTURING MOULDS FOR DISC-SHAPED RECORD CARRIERS, AND MOULDS MANUFACTURED BY MEANS OF SUCH A METHOD

Martinus A. F. Van Hoek, and Jan L. Melse, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 17, 1980, Ser. No. 207,327
Claims priority, application Netherlands, Dec. 10, 1979, 7908858
Int. Cl.[3] C25D *1/10*
U.S. Cl. 204—5 4 Claims

1. A method of manufacturing molds for disc-shaped record carriers comprising the steps of suspending a disc-shaped glass plate provided with a central hole in an electroforming bath, at least one surface of which plate is provided with a layer of an information contacting photoresist coated with a vapor deposited silver layer, by means of a suspension pin containing the edge of said central hole, applying current to said silver layer through said suspension pin until said mold is electroformed and then removing the resultant electroformed mold from said

bath, characterized in that during the application of the current to the silver layer, a current carrying metallic strip, electrically



connected to the suspension pin, is kept in contact with and surrounds the outer circumference of said plate.

4,336,113

ELECTROLYTIC GRAINING OF ALUMINUM WITH HYDROGEN PEROXIDE AND NITRIC OR HYDROCHLORIC ACID

John E. Walls, Annandale; Robert L. Dragon, Hazlet, and Thomas A. Dunder, High Bridge, all of N.J., assignors to American Hoechst Corporation, Somerville, N.J.

Filed Jun. 26, 1981, Ser. No. 277,511
Int. Cl.³ C25D *11/16*; C25F *3/04*
U.S. Cl. 204—17 **12 Claims**

1. A method of treating the surface of a sheet of aluminum or the alloys thereof which comprises electrolytically graining said sheet under electrolyzing conditions in an aqueous solution of nitric acid and/or hydrochloric acid plus from about 1 g/l to about 60 g/l hydrogen peroxide in a sufficient concentration and for a sufficient length of time to provide a finely grained surface topography to said sheet.

4,336,114

ELECTRODEPOSITION OF BRIGHT COPPER

Linda J. Mayer, Denville, and Stephen C. Barbieri, Rutherford, both of N.J., assignors to Hooker Chemicals & Plastics Corp., Warren, Mich.

Filed Mar. 26, 1981, Ser. No. 247,577
Int. Cl.³ C25D *3/38*
U.S. Cl. 204—52 R **22 Claims**

1. In an aqueous acidic electrolyte containing copper in an amount sufficient to electrodeposit copper on a substrate, the improvement comprising incorporating in the electrolyte a brightening and leveling system in an amount sufficient to produce a bright and level copper deposit comprising a mixture of:

(a) A bath soluble substituted phthalocyanine radical,
(b) A bath soluble adduct of a tertiary alkyl amine with polyepichlorohydrin,
(c) a bath soluble organic divalent sulfur compound, and
(d) a bath soluble reaction product of polyethyleneimine and an alkylating agent which will alkylate the nitrogen on the polyethyleneimine to produce a quaternary nitrogen and wherein said alkylating agent is selected from the group consisting of benzyl chloride, allyl bromide, propane sultone, dimethyl sulfate and wherein the reaction temperature ranges from about room temperature to about 120° C.

4,336,115

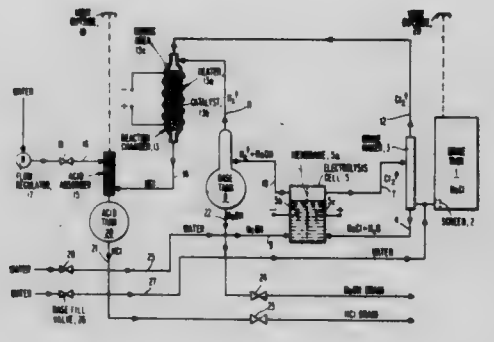
ACID BASE PRODUCTION UNIT

Howard W. Selby, III, and Paul C. Melanson, both of Boulder, Colo., assignors to PureCycle Corporation, Boulder, Colo.

Continuation of Ser. No. 86,179, Oct. 18, 1979, abandoned. This application Nov. 24, 1980, Ser. No. 209,485
Int. Cl.³ C25B *1/16, 1/26, 15/08*
U.S. Cl. 204—98 **8 Claims**

1. An acid base production system utilizing alkali metal halide salts and water as raw materials comprising:

(a) an electrolysis cell for production of alkali metal hydroxide solution, halogen gas and hydrogen from a solution of said salt in water, comprising a permselective cation-exchange membrane and electrodes disposed on either side of said membrane for supply of direct current to said solution;
(b) a reaction chamber for containing a catalyst selected from the group consisting of the noble metals, silica, alumina and the polyvalent metal chlorides for the catalytic reaction of said halogen and hydrogen to form hydrogen halide, comprising means for heating said catalyst to a temperature such that said reaction proceeds without violent combustion; and
(c) means for absorption of said hydrogen halide in water to produce aqueous acid solution.



4,336,116

POLYADDUCTS CONTAINING UNSATURATED AMIDE GROUPS AND THEIR USE IN COATINGS

Eberhard Schupp, Schwetzingen; Fritz E. Kempter, Mannheim, and Erich Gulbins, Heidelberg-Neuenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 17, 1980, Ser. No. 198,226
Claims priority, application Fed. Rep. of Germany, Oct. 20, 1979, 2942488
Int. Cl.³ C08G *59/14, 59/28*; C08J *3/28*
U.S. Cl. 204—159.11 **10 Claims**

1. A polyadduct, which possesses nitrogen-basic groups, has a mean molecular weight of from 500 to 10,000, and contains groups, attached to aromatic rings, of the formula (I)

$$-CH_2-NH-\overset{O}{\overset{\|}{C}}-CR^1=CHR^2 \quad (I)$$

where R^1 and R^2 are identical or different and each is hydrogen or methyl, which polyadduct has been prepared from a monophenol and/or polyphenol which possesses groups of the formula (I), a polyepoxide compound and an amine or amine salt.

4,336,117

REFRACTORY COATINGS AND METHOD OF PRODUCING THE SAME

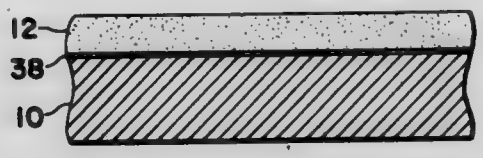
William A. Brainard, Arlington, Va., and Donald R. Wheeler, Bay Village, Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 7, 1979, Ser. No. 102,003
Int. Cl.³ C23C *15/00*
U.S. Cl. 204—192 C **5 Claims**

1. In a method of producing a hard coated article of manufacture wherein a titanium carbide coating is deposited on a steel substrate from a radiofrequency sputtering plasma, the improvement comprising

introducing nitrogen into the sputtering environment during

the formation of the interfacial region of the coating at the substrate thereby forming a mixture of titanium nitrides and



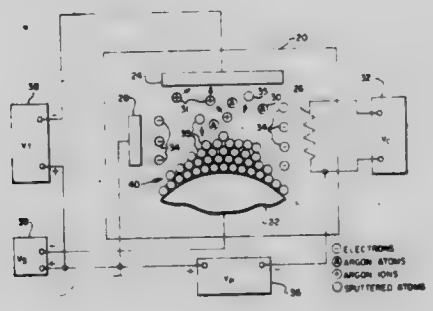
iron nitrides in said interfacial region which improves the bond between the coating and the substrate.

4,336,118

METHODS FOR MAKING DEPOSITED FILMS WITH IMPROVED MICROSTRUCTURES

James W. Patten; Ronald W. Moss, and Edwin D. McClanahan, all of Richland, Wash., assignors to Battelle Memorial Institute, Richland, Wash.

Filed Mar. 21, 1980, Ser. No. 131,922
Int. Cl.³ C23C *15/00*
U.S. Cl. 204—192 EC **30 Claims**



1. A line of sight deposition method comprising:
emitting material from a source spaced apart from a substrate surface;
depositing a first amount of said material on a first region of said surface to form a first deposit having a first deposition characteristic;
simultaneously depositing a second amount of said material, less than said first amount, on a second region of said surface to form a second deposit having a second deposition characteristic including columnar growth defects due to geometric shadowing; and
removing an amount of said deposited material approximately uniformly from said substrate surface including said first and second regions;
the amount removed being less than said first amount, at least as great as said second amount, and sufficient to remove a portion of the deposited material having said second characteristic and to reduce said columnar growth defects.

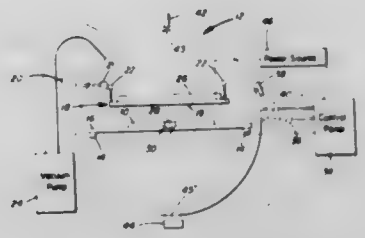
4,336,119

METHOD OF AND APPARATUS FOR CONTROL OF REACTIVE SPUTTERING DEPOSITION

F. Howard Gillery, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 29, 1981, Ser. No. 229,378
Int. Cl.³ C23C *15/00*
U.S. Cl. 204—192 P **16 Claims**

1. A method for controlling the reactive sputtering of an oxide-containing film, comprising the steps of:
establishing an atmosphere having a gas pressure less than about 10^{-1} torr within a coating chamber, said atmosphere comprised of a partial pressure of oxygen and a partial pressure of a chemically inert gas;
sputtering a selected material from a cathode toward a substrate at a constant predetermined electrical power;
monitoring the deposition rate of a film of an oxide of said selected material being formed on said substrate thereby to indicate oxygen partial pressure in the chamber;
monitoring the total gas pressure within said coating chamber; and



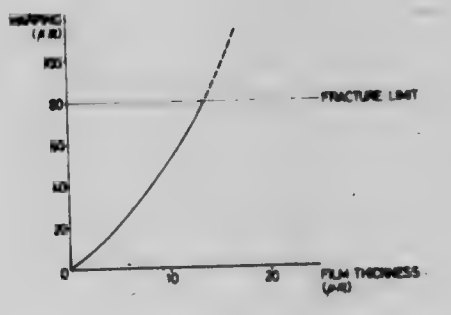
inputting at least oxygen or said chemically inert gas into the chamber in response to said monitored deposition rate and total gas pressure thereby to maintain a constant deposition rate at a constant total gas pressure.

4,336,120

METHOD OF FABRICATING A ZINC OXIDE THIN FILM

Mitsuo Sakakura, Sakado, and Tetsuo Takaku, Tsuru-gashima, both of Japan, assignors to Toko, Inc., Tokyo, Japan

Continuation-in-part of Ser. No. 59,340, Jul. 23, 1979, abandoned. This application Mar. 4, 1981, Ser. No. 240,578
Claims priority, application Japan, Jul. 21, 1978, 53-89163
Int. Cl.³ C23C *15/00*
U.S. Cl. 204—192 SP **6 Claims**



1. A method of fabricating a zinc oxide thin film by a sputtering process comprising the step of sputtering, in an oxygen atmosphere, a dopant selected from the group consisting of boron, magnesium, silicon, gallium and germanium together with zinc onto a glass substrate to produce a zinc oxide thin film containing an amount of dopant effective to reduce the internal stress of said thin film sufficient to prevent fracture of the glass substrate at film thicknesses of up to 20 μm.

4,336,121

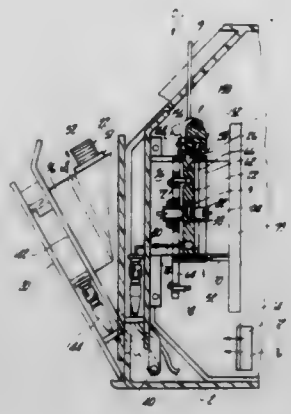
APPARATUS FOR MEASURING ELECTROCHEMICAL ACTIVITY

Steven E. Enzer, Brooklyn; Robert J. Sarrine, and William L. Wilfong, both of Ann Arbor, all of Mich., assignors to Transidyne General Corporation, Ann Arbor, Mich.

Filed Dec. 15, 1980, Ser. No. 216,461
Int. Cl.³ G01N *27/28*
U.S. Cl. 204—195 R **6 Claims**

1. In an apparatus for sensing electrochemical activity of a liquid sample in a receptacle, said apparatus including heater means for heating the liquid to a predetermined temperature, the improvement wherein said heater means comprises:
first means having a relatively low thermal mass in contact

with the receptacle for quickly bringing the liquid to said predetermined temperature; and



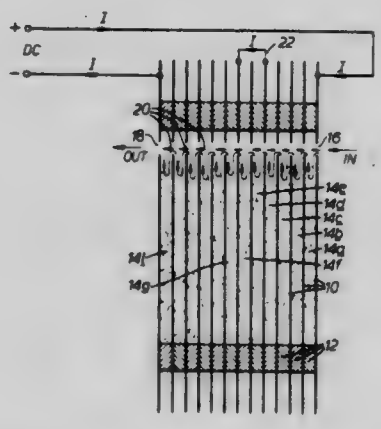
second means for heating the air surrounding the receptacle to said predetermined temperature.

4,336,122

ELECTROLYSIS APPARATUS

Ernst Spirig, CH-8640 Rapperswil, Switzerland

Filed Sep. 8, 1980, Ser. No. 185,027
Int. Cl.³ C25B *15/08, 9/04, 13/00, 11/02*
U.S. Cl. 204—222 **36 Claims**



11. An electrolysis apparatus, comprising

(a) a plurality of parallel spaced electrode plates defining an assembly of serially arranged cells having a current flow path and a gas and electrolyte flow path, said cells including at least one cooling cell arranged downstream of a series of gas generating cells; and

(b) vibrating transducer means mounted on at least one of said plates for vibrating said gas generating cells to promote the release of gas from its electrodes.

4,336,123

ELECTROLYTIC APPARATUS UTILIZING A TRANSITION METAL-GRAPHITE INTERCALATION COMPOUND CATHODE

Donald W. DuBois, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 165,995, Jul. 7, 1980, Pat. No. 4,282,074. This application Feb. 12, 1981, Ser. No. 233,735
Int. Cl.³ C25B *9/00, 11/04, 11/12*
U.S. Cl. 204—252 **16 Claims**

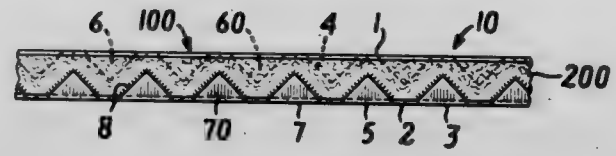
1. In an electrolytic cell for the electrolysis of aqueous electrolytes having an anode, a cathode, and an electrolyte impermeable, cation permeable permionic membrane comprising fluorocarbon polymer having cation selective groups pendant thereto therebetween, the improvement wherein the cathode comprises an intercalation compound comprising graphite and a transition metal component.

4,336,124

ELECTRODES WITH CURRENT OUTLETS

Francois Gerard, and Jean-Yves Machat, both of Clermont-Ferrand, France, assignors to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Filed Jul. 7, 1980, Ser. No. 166,027
Claims priority, application France, Jul. 16, 1979, 79 18549
Int. Cl.³ C25B *11/02, 11/04;* H01M *4/00*
U.S. Cl. 204—284 **19 Claims**



1. An electrode comprising, on the one hand, at least one body formed at least in part of an electron-conductive porous skeleton, and, on the other hand, at least one current outlet comprising at least one electron-conductive plate with roughnesses which penetrate into the skeleton, characterized by the fact that:

the plate is firmly connected to the skeleton by an electrolytic metallic deposit which adheres both to the skeleton and to the plate, this deposit being inert under the conditions of use of the electrode.

4,336,125

PRODUCTION OF SYNTHETIC HYDROCARBON FUELS FROM PEAT

Sanford A. Weil, Chicago; Dharamvir Punwani, Bolingbrook, and William W. Bodle, Deerfield, all of Ill., assignors to Institute of Gas Technology, Chicago, Ill.

Continuation-in-part of Ser. No. 59,131, Jul. 20, 1979, Pat. No. 4,263,125. This application Mar. 6, 1981, Ser. No. 241,386
Int. Cl.³ C10G *1/00;* C10B *47/00, 51/00, 47/24*
U.S. Cl. 208—8 R **40 Claims**

1. A process for production of synthetic hydrocarbon fuels from peat comprising:

providing wet peat to a fluidized bed peat drier for substantial drying;

passing substantially dry peat from said fluidized bed peat drier to a hydropyrolysis zone, the mean temperature of said hydropyrolysis zone maintained at about 1000° to about 1400° F. to increase liquid hydrocarbon yield suitable for gasoline blending feedstock and fuel oil;

passing peat char from said hydropyrolysis zone to a fluidized bed char gasifier zone, introducing steam and oxygen to said char gasifier zone and maintaining a mean temperature of said char gasifier zone of above about 1700° F. and below the sintering temperature of the char, the gases from said char gasifier zone passing directly to said hydropyrolysis zone; and

passing gases and contained vapors from said hydropyrolysis zone through said peat drier providing fluidization for said fluidized bed peat drier and then removing said gases and contained vapors for separation of liquid and gaseous hydrocarbon synthetic fuels.

4,336,126

PROCESS FOR BURNING RETORTED OIL SHALE AND IMPROVED COMBUSTOR

Corey A. Bertelsen, Oakland, Calif., assignor to Chevron Research Company, San Francisco, Calif.

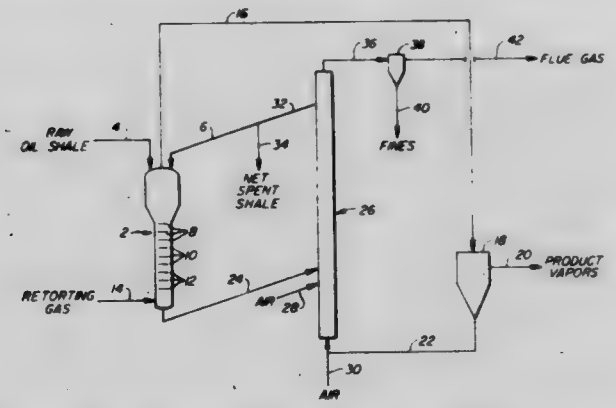
Filed Mar. 23, 1981, Ser. No. 246,555
Int. Cl.³ C10G *1/00, 1/02*
U.S. Cl. 208—11 R **7 Claims**

1. In a process for retorting oil shale using a heat transfer material heated by burning retorted oil shale containing residual carbonaceous material, wherein said retorted oil shale contains both fine and coarse grained material and at least part

of said fine grained material is contained in a separate feedstream from the coarse grained material, an improved process for burning the oil shale comprising:

(a) burning at least part of the residual carbonaceous material in the fine grained material present in said separate feedstream in a fine preburner by entraining said fine particles in first entraining gas stream containing oxygen and having a velocity greater than the terminal velocity of the fine particles;

(b) burning part of the carbonaceous residue in the coarse



grained material in a coarse preburner containing less than a stoichiometric amount of oxygen;

(c) mixing the entrained partially burned fine grained material from the fine preburner and the partially burned coarse grained material from the coarse preburner in a second entraining gas stream having a velocity greater than the terminal velocity of the mixture of fine and coarse particles and containing at least a stoichiometric amount of oxygen; and

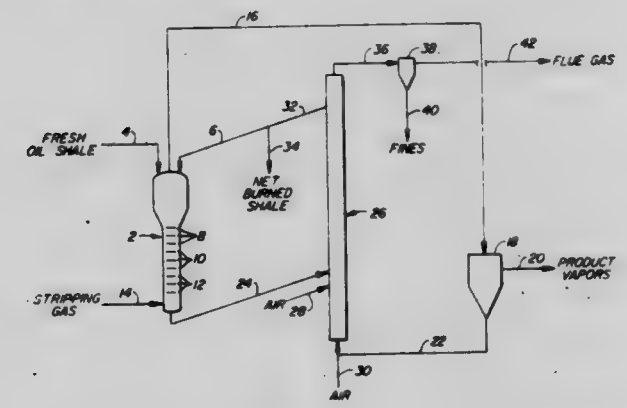
(d) burning the carbonaceous residue remaining in the entrained fine and coarse grained material in a vertical combustion zone through which the entraining gas is directed.

4,336,127

STAGED BURNING OF RETORTED CARBON-CONTAINING SOLIDS

Corey A. Bertelsen, Oakland, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed May 26, 1981, Ser. No. 267,137
Int. Cl.³ C10G *1/00, 1/02*
U.S. Cl. 208—11 R **8 Claims**



1. A process for burning pyrolyzed solids containing a carbonaceous residue to provide heat for the pyrolysis of a particulate carbon-containing solid, wherein said pyrolyzed solids contain both a fine fraction and a coarse fraction and at least part of said fine fraction is contained in a separate feedstream from the coarse fraction of the pyrolyzed solids, said process comprising:

(a) burning at least part of the carbonaceous residue in the fine fraction contained in said separate feedstreem in a dilute phase preburner by entraining the fine fraction in a first entraining gas stream containing oxygen and having a velocity greater than the terminal velocity of the particles in the fine fraction;

(b) mixing the entrained, partially burned fine fraction from the preburner with the remainder of the pyrolyzed solids in a second entraining gas stream having a velocity greater than the terminal velocity of the coarse and fine fractions; and

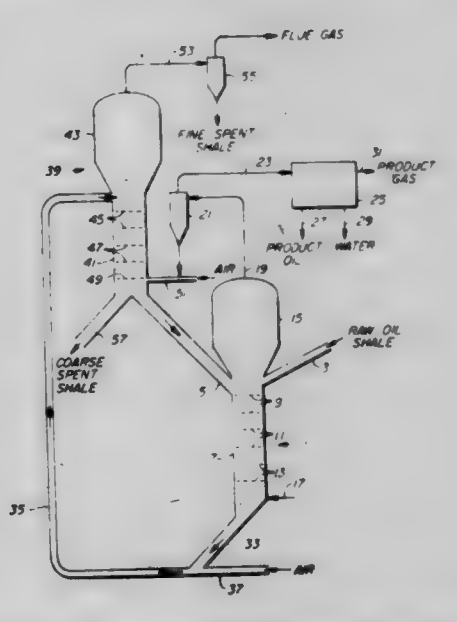
(c) burning the unburned carbonaceous residue in the fine and coarse fractions in a second dilute phase combustion zone through which the second entraining gas and entrained solids are directed, said second dilute phase combustion zone containing sufficient oxygen to burn all of the unburned carbonaceous residue in the fine and coarse fractions.

4,336,128

COMBUSTION OF PYROLYZED CARBON CONTAINING SOLIDS IN STAGED TURBULENT BED

Paul W. Tamm, Oakland, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jun. 1, 1981, Ser. No. 268,938
Int. Cl.³ C10G *1/00*
U.S. Cl. 208—11 R **12 Claims**



1. A process for producing heat from particulate pyrolyzed carbon containing solids containing a mixture of various size particles which comprises the steps of:

(a) introducing the pyrolyzed carbon containing solids into the upper portion of a generally vertically oriented dense phase combustion zone through which the solids pass downward as a continuous moving bed of material, said dense phase combustion zone being characterized by the presence of a plurality of dispersing elements so disposed as to limit gross vertical backmixing of the solids passing downward therethrough;

(b) burning the carbonaceous material remaining on the pyrolyzed solids as they move downward through the dense phase combustion zone by introducing an oxidizing gas into the bottom of the dense phase combustion zone and withdrawing combustion gases from the upper portion of the zone;

(c) passing the flow of oxidizing gas in a generally countercurrent manner to the downward moving solids at a velocity sufficient to entrain a fine fraction of ash particles below a preselected size, sufficient to fluidize an intermediate size fraction, and insufficient to entrain or fluidize a coarse fraction, whereby the fine fraction is carried upward with the flow of gas as entrained particles and the intermediate and coarse fractions pass downward; and

(d) withdrawing the entrained fine fraction with the gas leaving the upper portion of the dense phase combustion zone and separately withdrawing the intermediate and coarse fractions from the lower part of the dense phase combustion zone.

4,336,129

METHOD FOR TREATING A WATER-CONTAINING WASTE OIL

Tokuo Yoshimura, Kitakyushu; Hiroshi Okazaki, Fukuoka; Mahito Soeda, Onga, and Takeharu Yushima, Kitakyushu, all of Japan, assignors to Nippon Steel Chemical Co., Ltd., Tokyo and Shinnikka Environmental Engineering Co., Ltd., Fukuoka, both of, Japan

PCT No. PCT/JP79/00107, § 371 Date Mar. 4, 1980, § 102(e) Date Mar. 4, 1980, PCT Pub. No. WO80/02432, PCT Pub. Date Nov. 13, 1980

PCT Filed May 1, 1979, Ser. No. 217,324

Int. Cl.³ C10M *11/00;* C10G *33/04*

U.S. Cl. 208—180 **21 Claims**

1. A method for treating a water-containing waste oil comprising oils, water, and solid constituents in which the water is present in a water-in-oil emulsion, which comprises adding to the water-containing waste oil having an aromatic oil ratio A at least 1% by weight, on the basis of the weight of the water-containing waste oil, of a treating oil having an aromatic oil ratio B in which the values of the aromatic oil ratios, A and B, are determined by the following formula:

$$\text{Aromatic oil ratio} = \frac{\text{Weight of aromatic oil content}}{\text{Weight of total oil content}}$$

and in which, when A is greater than 0.5, B is less than 0.4 and, when A is less than 0.5, B is greater than 0.6, whereby in the water-containing waste oil and treating oil mixture the oil content is separated from the water and the solid constituents, and recovering the separated oil.

4,336,130

DESULFURIZATION OF HYDROCARBONS

J. Wayne Miller, and John W. Ward, both of Yorba Linda, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Filed Nov. 28, 1980, Ser. No. 211,376

Int. Cl.³ C10G *29/04, 29/06*

U.S. Cl. 208—243 **24 Claims**

1. A process comprising (a) contacting a hydrocarbon feedstock containing organo-sulfur compounds with a reduced catalytic absorbent comprising one or more nickel components a molybdenum or tungsten component and one or more platinum group metal promoters composited with a porous refractory oxide, said contacting being under substantially non-hydrogenative conditions including an elevated temperature such that a substantial proportion of said organo-sulfur compounds is removed from said feedstock and said catalytic absorbent increases in sulfur content; and (b) recovering a hydrocarbon product stream containing less organo-sulfur compounds than are contained in said feedstock.

4,336,131

GASIFICATION FURNACE WITH DISCHARGE HOPPER

H. Dean Schmidt, Sylvania, and Peter M. Eckstrom, Toledo, both of Ohio, assignors to Midland-Ross Corporation, Cleveland, Ohio

Division of Ser. No. 945,248, Sep. 25, 1978, abandoned. This application Dec. 21, 1979, Ser. No. 106,298

Int. Cl.³ B03B *1/02*

U.S. Cl. 209—3 **5 Claims**

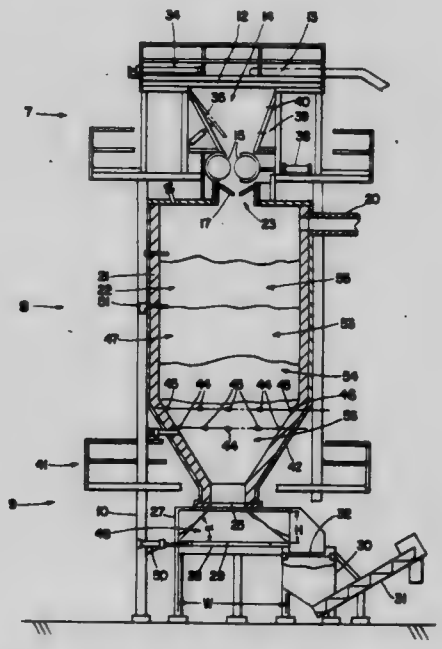
1. A furnace comprising:

(a) a vertically elongated chamber for holding material charged thereto and in which the material is reduced to particulate matter, the chamber being funnel-shaped adjacent the vertically lowermost bottom thereof and having an exit opening which is horizontally disposed and defined by at least one marginal edge and through which particulate matter leaves the chamber;

(b) means for charging material to the chamber;

(c) a first box-like hopper disposed vertically below the exit opening for receiving particulate matter which falls, by gravity, from the chamber through the exit opening onto a horizontally disposed plate which is defined by at least one marginal edge and which covers the vertically lowermost hopper bottom connecting a pair of horizontally spaced opposing ends, one of which ends has a vertically disposed discharge opening adjacent the plate in horizontal spaced relation from the exit opening of the chamber into the hopper, the vertical height (H) of the hopper and the dimensions of the plate being correlated to each other such that when particulate matter on the plate blocks the exit opening, the particulate matter on the plate will be at a critical minimum angle of repose such that a plane containing such angle will substantially intersect said marginal edges of the exit opening and plate;

(d) means for reciprocating the plate to move particulate matter in the hopper through the discharge opening out of



the hopper, wherein material in said chamber is above a predetermined derived level thereby allowing more particulate matter in the chamber to fall into the hopper;

(e) a second hopper disposed adjacent the discharge opening of the first hopper for receiving particulate matter which falls, by gravity, from the first hopper after it passes through the discharge opening, the second hopper having at its vertically lowermost bottom an opening through which particulate matter exits the second hopper;

(f) means disposed between the discharge opening of the first hopper and the opening of the second hopper for screening particulate matter passing from the discharge opening to remove from the particulate matter, undesirable debris; and

(g) means communicating with the opening of the second hopper for removing screened particulate matter.

4,336,132

VALVE FOR A WET JIGGING MACHINE FOR SEPARATING MINERALS

Friedhelm Huebner, and Karl-Heinz Weiffen, both of Bochum-Riemke, Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,150

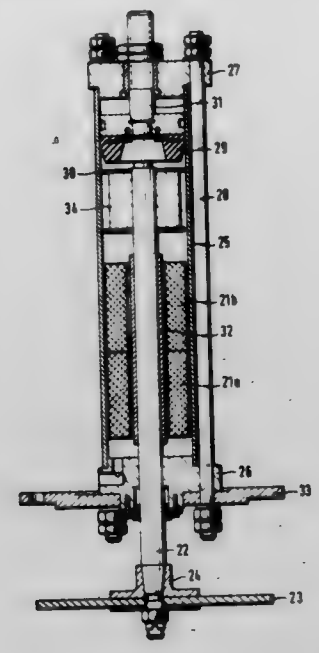
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1979, 2940568

Int. Cl.³ B03B *5/24*

U.S. Cl. 209—500 **19 Claims**

1. In a wet settling machine for separating mineral mixtures in which a separating liquid is caused to pulsate by the cyclic opening and closing of disk valves driven by electromagnets each of which valves includes a valve disc carried on a valve shaft and an electromagnet, the improvement wherein:

said electromagnet and said shaft are mounted for direct electromagnetic driving of said shaft;



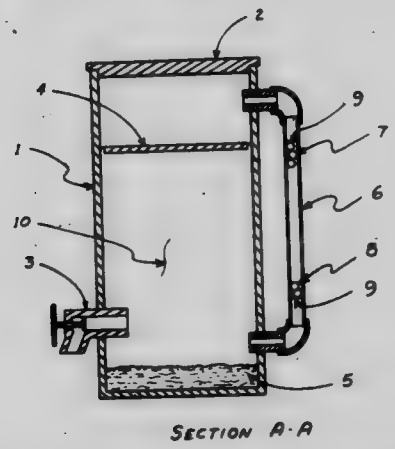
a damping mass carried on said shaft; and resilient means mounted to be struck by said damping mass at a point displaced from said disc as said shaft travels toward said point.

4,336,133

ETHYLENE GLYCOL ANTIFREEZE REPURIFICATION APPARATUS

Robert C. Johnson, 808 N. Powell Rd., Essexville, Mich. 48732

Filed Nov. 25, 1980, Ser. No. 210,400
Int. Cl.[3] B01D *21/02*
U.S. Cl. 210—95 2 Claims



1. An apparatus for purifying and dispensing previously used ethylene glycol antifreeze comprising:

a vessel for receiving and purifying by sedimentation previously used ethylene glycol antifreeze;

sump means located at the bottom of said vessel for collecting sediment from said previously used antifreeze;

a spigot located above said sump means for dispensing thus purified antifreeze;

a transparent view tube affixed to and in fluid communication with said vessel, said view tube indicating the level of fluid in said vessel;

a plurality of varied density indicator balls located within said transparent view tube, said indicator balls being capable of indicating the level of freeze protection of antifreeze in said vessel; and

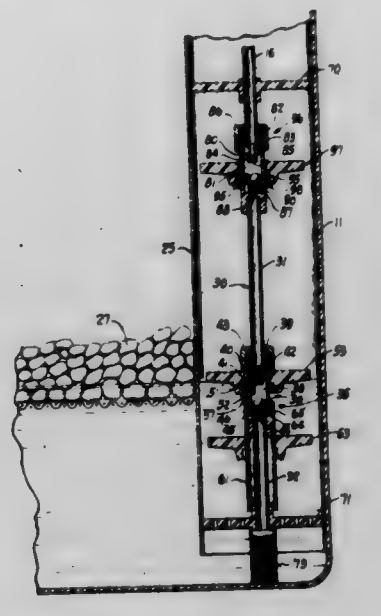
screen means located within said view tube for preventing the indicator balls from entering the vessel.

4,336,134

FLOAT-ACTUATED LEVEL CONTROL VALVE

William C. Prior, Newbury, Ohio, assignor to Kinetico, Inc., Newbury, Ohio

Filed May 5, 1980, Ser. No. 146,217
Int. Cl.[3] C02B *1/22*
U.S. Cl. 210—127 12 Claims



1. A float-actuated liquid level control valve comprising:

(a) means forming a chamber having spaced apart ports that can establish liquid flow through said chamber,

(b) valve check means in said chamber adapted to establish one-way flow into said chamber through at least one port,

(c) magnet means coacting with said valve check means in one position to prevent said valve check means from closing said one port against liquid flow out of said chamber, and

(d) float means for moving said magnet means in response to changes of liquid level,

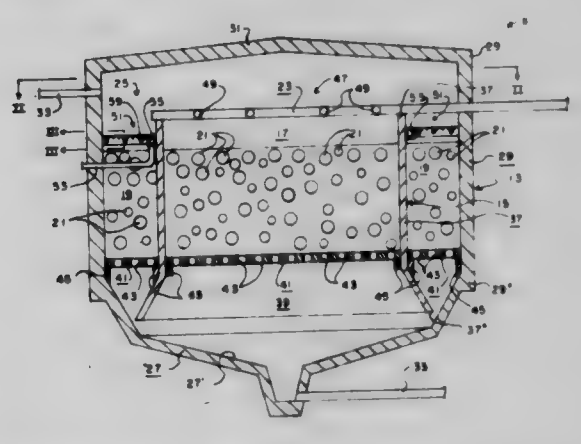
(e) said magnet means including a magnet connected to said float means outside of said chamber and a magnet follower movable inside of said chamber with said magnet.

4,336,135

SUBMERGED ANAEROBIC FILTER WASTE TREATMENT APPARATUS

Richard H. Price, 161 Jefferson Ave., Memphis, Tenn. 38103

Filed Jul. 21, 1978, Ser. No. 926,918
Int. Cl.[3] B01D *21/02*
U.S. Cl. 210—151 10 Claims



1. An anaerobic waste treatment apparatus for removing organic matter from waste, said apparatus comprising:

(a) a tank including a substantially closed bottom and a continuous side wall having a bottom edge attached to said substantially closed bottom and having a top edge, said tank having an interior, said interior being divided into first and second areas;

(b) cylinder means for dividing said interior of said tank into

said first and second areas, said cylinder means being opened and including a continuous side wall having a top edge and a bottom edge, said continuous side wall of said cylinder means being spaced inwardly from said continuous side wall of said tank to divide said interior of said tank into said first area located inside of said continuous side wall of said cylinder means and into said second area located outside of said continuous side wall of said cylinder means, said bottom edge being flared outwardly and downwardly towards said continuous side wall and said substantially closed bottom of said tank;

(c) media means for supporting anaerobic bacteria growth, said media means being located in said first and second areas of said tank;

(d) distribution means for introducing said waste into said first area of said tank, for causing said waste to flow downwardly through said first area of said tank where said media means in said first area of said tank will cause much of said organic matter in said waste to be converted into gas, and for causing said waste to flow around said flared bottom edge of said cylinder means and upwardly through said second area of said tank, said flared bottom edge of said cylinder means directing said gas formed as said waste flows downwardly through said first area of said tank back upwardly through said first area of said tank;

(e) outlet means for allowing treated waste to exit said tank, said outlet means being positioned within said second area of said tank above said media means.

4,336,136

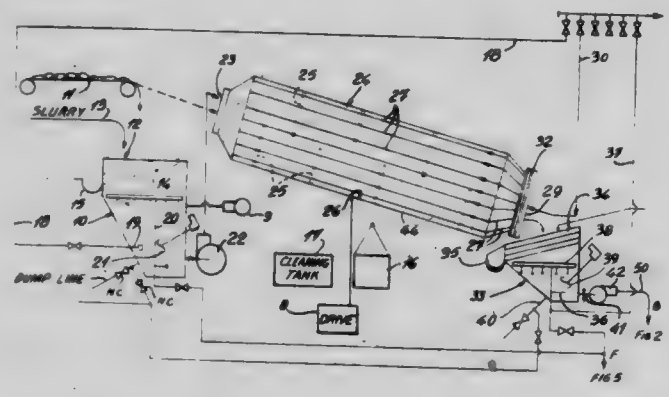
SYSTEM FOR PROCESSING SOILS CONTAMINATED BY CRUDE OILS OR OTHER REFINED PETROLEUM PRODUCTS

Marcel L. Giguere, 2330 rue Nicolas, Brossard, Quebec, Canada

Filed Jun. 2, 1980, Ser. No. 155,190

Int. Cl.³ B01D *35/18*; C02F *1/40*

U.S. Cl. 210—178 **17 Claims**



1. A system for reconditioning soils contaminated with crude oils or other refined petroleum products, said system comprising a mixer input device having a mixer and heater means for mixing and heating said soils with a liquid and providing a heated blended slurry, first convection means to feed said slurry to a sparger kiln having agitating means for agitating said slurry whereby to break down its component parts into a fine particle slurry, second convection means to feed said fine particle slurry to a first clarifier for washing said fine particle slurry to effect a first separation of oil particles from said slurry, third convection means to feed said slurry from said first clarifier to a network of floatation cell units for further washing and agitating of said fine particle slurry from said clarifier to effect a second separation of oil particles from said fine particle slurry, reagent feed means associated with said floatation cells to effect said oil separation, fourth convection means to feed separated oil particles from said floatation cells to an aeration clarifier having a liquid flow means to further separate oil particles from a liquid mixture containing said oil particles from said floatation cells and collecting means to recover said oil particles separated at said first clarifier and aeration clarifier.

4,336,137

SCAVENGING APPARATUS

Edward V. Byers, 17 Cavendish Crescent North, The Park, Nottingham, England

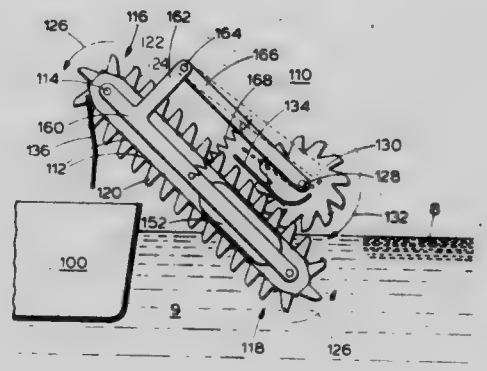
PCT No. PCT/GB79/00085, § 371 Date Jan. 26, 1980, § 102(e) Date Jan. 24, 1980, PCT Pub. No. WO79/01135, PCT Pub. Date Dec. 27, 1979

PCT Filed May 25, 1979, Ser. No. 189,954

Claims priority, application United Kingdom, May 26, 1978, 23672/78; Feb. 21, 1979, 7906163

Int. Cl.³ E02B *15/04*

U.S. Cl. 210—242.3 **14 Claims**



1. Scavenging apparatus for removing material from a surface zone of a body of water, comprising:

a support vessel;

an elongate conveyor system extending from a location outside the vessel to a location inboard of the vessel, said conveyor system having an outer end portion disposed below the surface zone and an upwardly rising portion extending therefrom to rise through the surface zone and upwardly toward the inboard location, said conveyor system being movable to deliver material collected at the surface zone;

said conveyor system including an endless belt having stiff teeth projecting therefrom;

rotatable means mounted adjacent said conveyor system at a location where the conveyor belt emerges from said surface zone;

said rotatable means being supported to rotate about an axis extending laterally of and spaced from the conveyor belt at a position at which said rotatable means engages material after it has been lifted by the conveyor system and forms a coaction zone with the conveyor belt teeth to cause adhesion of the material thereto for conveyance of the material inboard of the vessel;

scraper means cooperating with said conveyor system to aid in removing adhering material therefrom for discharge inboard of said vessel;

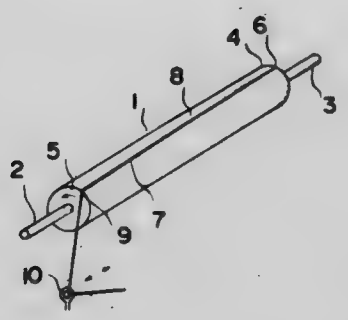
a support structure for said rotatable means, said rotatable means having an axle which is carried by said support structure and about the axis of which said rotatable means rotates, and said support structure including means allowing displacement of said axle toward and away from said conveyor system; and

said conveyor belt comprising a plurality of pivotally linked transverse slats, each slat having an oleophilic outer surface from which projects a lateral row of spaced plate-like members, said scraper means comprising a comb structure interleaved with longitudinal rows of conveyor teeth to scrape material from the side surfaces of said plate-like members and the surfaces of said slats between the members.

4,336,138
PERMEATION SEPARATION APPARATUS

Tsukasa Taniyama; Masaaki Sekino, and Michimasa Kishimoto, all of Otsu, Japan, assignors to Toyobo Co., Ltd., Japan

Continuation-in-part of Ser. No. 708,970, Jul. 26, 1976, abandoned. This application Mar. 10, 1978, Ser. No. 885,411
Claims priority, application Japan, Jul. 26, 1975, 50/91446; May 26, 1976, 51/61602
Int. Cl.[3] B01D *31/00*; B29C *27/14*
U.S. Cl. 210—321.4 3 Claims



1. A permeation separation apparatus furnished with an assembly consisting essentially of a multiplicity of continuously hollow fibers which have a selective permeability to fluid, said hollow fibers being arranged on the surface of a core so as to constitute multiple layers of the hollow fiber lines wherein the hollow fiber lines are disposed in mutually and up- and downwardly intersecting relations and are crossed two or more adjacent layers, said each layer having a thickness equal to the diameter of a piece of hollow fiber, with a resin wall provided at at least one terminal of said hollow fiber layers, each of said hollow fiber lines thrusting through at least one resin wall in a fluid-sealing condition to provide an opening outward, and said hollow fiber being disposed so as to satisfy the formula:

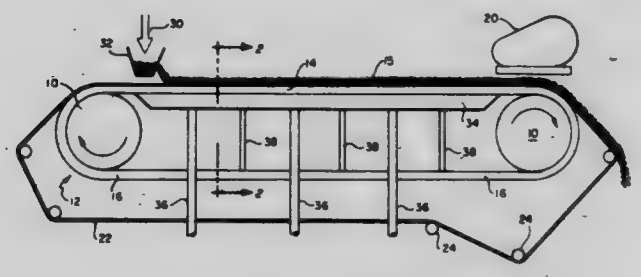
$$\pi D/10L \leqq \tan B \leqq 3\pi D/4L$$

wherein B is an angle between a line of said hollow fiber and a straight line which is parallel with the central axis of said core on the surface of a cylindrical body which includes said hollow fiber and has common central axis with said core; D is a diameter of said cylindrical body; and L is a length of said hollow fiber layer in an axial direction.

4,336,139
VACUUM PAN RAISING AND LOWERING SYSTEM

Max A. Mueller, Centerville; Dirk Vandertoolen, Salt Lake City, and Gerald Minear, Centerville, all of Utah, assignors to Envirotech Corporation, Menlo Park, Calif.

Filed Nov. 24, 1980, Ser. No. 209,937
Int. Cl.[3] B01D *33/04*
U.S. Cl. 210—401 3 Claims

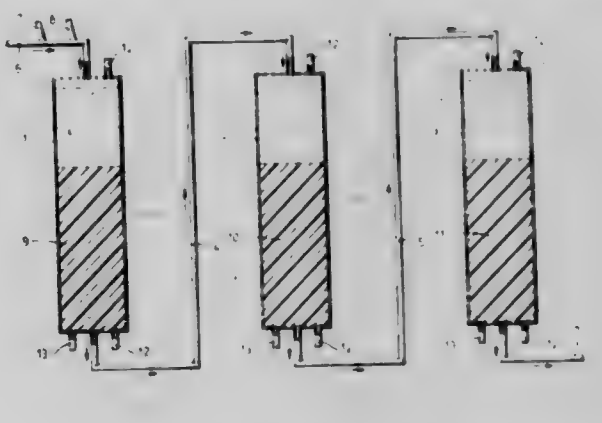


1. A machine for filtering slurry comprising:
(a) a frame;
(b) two drums mounted to said frame for rotation and spaced apart from one another;
(c) an endless, perforated drainage belt entrained around said two drums to define a substantially horizontal drainage surface on the upper run of said drainage belt between said two drums;
(d) means to drive said endless drainage belt;
(e) a vacuum pan located below the drainage surface to apply vacuum to material on the drainage surface; and
(f) raising and lowering means coupled to said vacuum pan to selectively raise said vacuum pan into sealing engagement with said drainage belt and to selectively lower said vacuum pan away from said drainage belt; said raising and lowering means including at least two channels mounted in parallel relationship to the frame under the upper run to extend downwardly away from the upper run, a drive screw rotatably mounted within each channel, means for selectively and synchronously rotating said screws, and means for operatively connecting the vacuum pan to both of said screws in a precise upright orientation adapted to cause the vacuum pan to form a seal along its length with the drainage belt when in its raised position, said connecting means including slide members that are slidably engaged upon said channels.

4,336,140
WATER PURIFICATION PROCESS

Joseph H. Smith, and Trevor A. Peploe, both of London, England, assignors to Permutit-Boby Limited, Laverstoke Mill, England

Continuation-in-part of Ser. No. 963,712, Nov. 27, 1978, abandoned. This application Sep. 12, 1980, Ser. No. 186,921
Claims priority, application United Kingdom, Nov. 30, 1977, 49770/77; Oct. 7, 1978, 39714/78; Australia, Mar. 24, 1980, 56783/80
Int. Cl.[3] B01D *15/04*
U.S. Cl. 210—677 10 Claims



1. A process of purifying water including sulfates and chlorides having a solids content below 10 mg/l by ion exchange comprising passing the water through a bed of cation exchange resin and then through a bed of anion exchange resin and then through a final bed of cation exchange resin, the particle size of the resin in each bed being between 0.5 and 1.2 mm, in which process each bed is less than 75 cm deep, the flow rate through each bed is above 120 meters per hour, and the cation and anion exchange resins are regenerated separate from each other, thereby producing purified water having a dissolved solids content of below 5 μg/l.

4,336,141
WASTEWATER TREATMENT

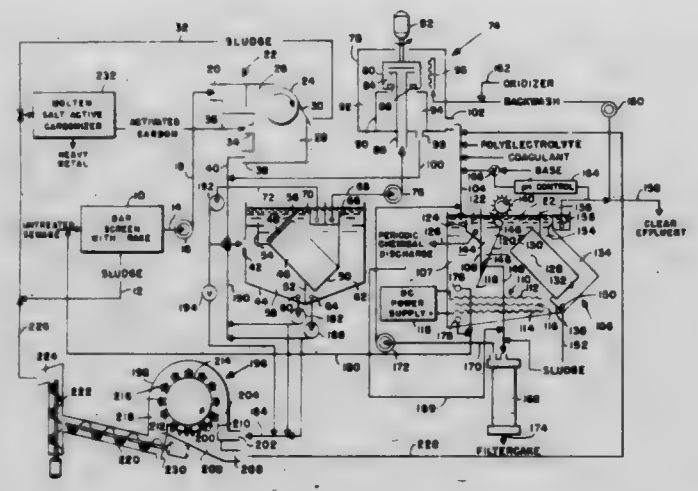
Scott A. Santora, Hammonton, N.J., assignor to Waste Conversion Technology, Inc., Camden, N.J.

Division of Ser. No. 6,271, Jan. 25, 1979, Pat. No. 4,251,367. This application Feb. 2, 1981, Ser. No. 230,710
Int. Cl.[3] C02F *1/28*
U.S. Cl. 210—694 2 Claims

1. A wastewater treatment process comprising the steps of: introducing wastewater into a vessel and effecting at least partial separation of carbon from said wastewater therein by at least one of the processes of settlement and flotation;

removing wastewater from a location in said vessel having a low activated carbon content and passing part of said removed wastewater through fine particle screening means;

introducing activated carbon into said vessel through a path which bypasses the fine particle screening means;



returning carbon removed by said screening means to said vessel through a return path; and

removing from said vessel carbon separated from the wastewater therein and disposing of the carbon so removed from the vessel through a path different from said return path.

4,336,142

REMOVAL OF HEAVY METALS WITH GAMMA DICALCIUM SILICATE

Gerald C. Bye, Gravesend, England, assignor to Blue Circle Industries Limited, London, England

Continuation of Ser. No. 127,031, Mar. 3, 1980, abandoned, which is a continuation of Ser. No. 933,620, Aug. 14, 1978, abandoned. This application Mar. 4, 1981, Ser. No. 240,568

Claims priority, application United Kingdom, Aug. 25, 1977, 35692/77

Int. Cl.³ C02F *1/52*

U.S. Cl. 210—724 **10 Claims**

1. A method of removing a heavy metal, whose ions are insoluble in an aqueous medium having a pH in the range of 7–11, from an aqueous system contaminated with ions of said heavy metal, which comprises the steps of (1) contacting the heavy metal ions in the aqueous system with an amount of gamma dicalcium silicate effective to establish a final pH in the aqueous system in the range of 7–11 and to insolubilize said heavy metal present, and (2) separating the insolubilized heavy metal from the aqueous system.

4,336,143

CONTROLLING THE TREATMENT OF MIXTURES COMPRISING SOLID AND LIQUID

John Abbott, Burton-on-Trent, England, assignor to Coal Industry (Patents) Limited, London, England

Filed Aug. 11, 1980, Ser. No. 177,038

Claims priority, application United Kingdom, Sep. 21, 1979, 7932781

Int. Cl.³ B01D *21/24*

U.S. Cl. 210—740 **4 Claims**

1. A method of controlling treatment apparatus for removing water from a water/solids mixture, comprising the steps of:

(a) determining the volume flow rate of untreated water/solids mixture,

(b) deriving a signal indicative of said determined volume flow rate of untreated mixture,

(c) integrating said derived signal to determine the cumulative volume of untreated mixture fed for treatment,

(d) determining the density of the untreated water/solids mixture,

(e) deriving a signal indicative of said determined density,

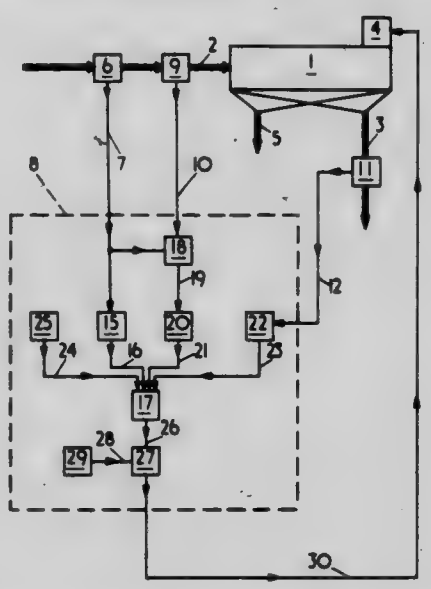
(f) multiplying both said derived signals to derive a signal indicative of the mass flow rate of the untreated water/-solids mixture fed for treatment,

(g) integrating the derived signal indicative of the mass flow rate of the untreated mixture to determine the cumulative mass of the untreated mixture fed for treatment,

(h) determining the volume flow rate of filtrate water discharging from the mixture under treatment,

(i) deriving a signal indicative of said determined volume flow rate of filtrate water,

(j) integrating said derived signal indicative of the volume flow rate of filtrate water to determine the cumulative volume of discharged filtrate water,



(k) processing said derived signals indicative of the cumulative volume of untreated mixture fed for treatment, of the cumulative mass of untreated mixture fed for treatment, and of the cumulative volume of discharged filtrate water to derive a signal indicative of the moisture content of the mixture undergoing treatment,

(l) comparing the derived signal indicative of the moisture content of the mixture undergoing treatment with a preset signal indicative of a desired moisture content of the treated mixture, and

(m) terminating the treatment when the derived signal indicative of the moisture content of the mixture undergoing treatment reaches said preset signal indicative of the desired moisture content of the treated mixture.

4,336,144

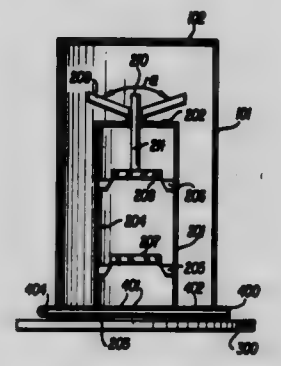
METHOD FOR MIXING GASES WITH LIQUIDS

Grover C. Franklin, Jr., 2250 Warmouth St., San Pedro, Calif. 90732

Division of Ser. No. 18,054, Mar. 6, 1979, Pat. No. 4,272,461. This application Jan. 15, 1981, Ser. No. 225,328

Int. Cl.³ B01F *3/04*

U.S. Cl. 210—758 **8 Claims**



1. A process of aerating a body of liquid comprising:

placing vertically in said liquid an apparatus for mixing gas with liquid, said apparatus comprising:

(a) an inner cylindrical member comprising an elongated tube having upper and lower ends and a plurality of turbines, which are free to rotate about the longitudinal axis thereof mounted within the tube, the turbines being spaced apart from one another and so constructed that adjacent turbines have different rotational direction or velocity, the tube having a solid, imperforate wall;

(b) an outer cylindrical member comprising an elongated tube having upper and lower ends and a plurality of openings in the lower half of the tube wall, the outer and inner cylindrical members being arranged in a concentric manner;

(c) a base member, to one surface of which the lower ends of the inner and outer cylindrical members are attached so that the lower ends are completely sealed; and

(d) a gas inlet pipe for introducing gas bubbles into the lower end of at least one of the cylindrical members; and supplying a sufficient amount of air to said gas inlet pipe to cause aeration and pumping of the liquid.

4,336,145

LIQUID GEL CONCENTRATES AND METHODS OF USING THE SAME

James E. Briscoe, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Jul. 12, 1979, Ser. No. 57,099
Int. Cl.³ E21B *43/26*
U.S. Cl. 252—8.55 R **25 Claims**

1. A liquid gel concentrate comprising: water;

hydroxypropyl guar hydratable polymer which yields viscosity upon hydration present in said concentrate in an amount of from about 700 to about 900 lbs/1000 gals. of water;

sodium hydroxide present in said concentrate in an amount sufficient to produce a concentrate pH in the range of from about 9 to about 14; and

sodium tetraborate inhibitor having the property of reversibly reacting with said hydratable polymer whereby the rate of hydration of said polymer is retarded at one condition to produce a concentrate effective storage life in the range of about 1–90 days and said reaction is reversed at another condition, said inhibitor being present in said concentrate in an amount of from about 6 to about 12 lbs/1000 gals. of water.

4,336,146

METHOD OF THICKENING HEAVY BRINE SOLUTIONS

Thomas G. Majewicz, Chadds Ford, Pa., and Thomas J. Podlas, Newark, Del., assignors to Hercules Incorporated, Wilmington, Del.

Filed Aug. 25, 1980, Ser. No. 180,743
Int. Cl.³ E21B *43/00*; C09K *3/00*
U.S. Cl. 252—8.55 R **4 Claims**

1. A method of thickening heavy calcium halide salt brine solutions having a density between about 11.5 and about 19 pounds per barrel which comprises dissolving therein, per barrel of brine, about 0.5 to 2 lbs. of a cellulose derivative selected from the class consisting of hydroxyethyl cellulose having a hydroxyethyl M.S. of about 0.2 to 1.2 and methyl cellulose having methyl D.S. of about 0.2 to 0.8, said cellulose derivative being soluble in tap or distilled water to the extent of less than 1% by weight.

4,336,147

BORATE-CONTAINING WATER-IN-OIL MICROEMULSION FLUID

Robert A. Stayner, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Mar. 24, 1980, Ser. No. 132,920
Int. Cl.³ C10M *1/06*
U.S. Cl. 252—49.5 **4 Claims**

1. A water-in-oil microemulsion fluid consisting essentially of:

(a) 30 to 50 percent by mass water;

(b) 35 to 70 percent by mass of a mineral oil; and

(c) 3.0 to 15.0 percent by mass of a potassium borate having a boron-to-potassium metal ratio of 2.5 to 4.5.

4,336,148

COMPLEX COMPOUND, PROCESS FOR THEIR PREPARATION, AND THEIR USE

Hermann O. Wirth, Bensheim, and Hans-Helmut Friedrich, Lautertal, both of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Aug. 30, 1978, Ser. No. 938,172
Claims priority, application Switzerland, Sep. 7, 1977, 10946/77
Int. Cl.³ C07F *15/04*; C10M *1/10, 3/02, 5/02, 7/02*
U.S. Cl. 252—49.7 **6 Claims**

1. A compound which has the formula

$H_3PO_3.2C_7H_{15}—CHOH—CH_2OH$,

$H_4SiO_4.2(C_{13}-C_{16})(H_{27}-H_{33})—CHOHCH_2OH$,

$BaSO_4.3(C_{13}-C_{16}(H_{27}-H_{33})—CHOH—CH_2OH$ or

$NiSiO_3.3(C_{13}-C_{16})(H_{27}-H_{33})—CHOHCH_2OH$.

4,336,149

FUEL ECONOMY IN INTERNAL COMBUSTION ENGINES

Timothy R. Erdman, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 968,527, Dec. 11, 1978, abandoned. This application Jun. 24, 1980, Ser. No. 162,700
Int. Cl.³ C10M *1/26, 3/20, 5/12, 7/24*
U.S. Cl. 252—56 R **4 Claims**

1. A method of improving the fuel economy of an internal combustion engine comprising lubricating the crankcase of said engine with a lubricating composition consisting essentially of an oil of lubricating viscosity and from 0.25 to 2 weight percent of pentaerythritol mono-oleate.

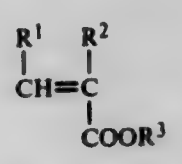
4,336,150

LUBRICANT

Peter M. Dorrell, Nr Northwich, England, assignor to Steetley Minerals Limited, Nottinghamshire, England

Filed Jul. 7, 1980, Ser. No. 166,601
Claims priority, application United Kingdom, Jul. 9, 1979, 7923898
Int. Cl.³ C10M *1/24, 1/26*
U.S. Cl. 252—56 R **8 Claims**

1. A lubricant suitable for use in metal forming comprising a copolymer of an unsaturated carboxylic acid and an unsaturated carboxylic acid ester, said ester having the formula:



wherein R^1 and R^2 are each independently hydrogen or methyl and R^3 is alkyl containing from 1 to 6 carbon atoms, and said

acid having the formula given above wherein R^1 and R^2 are as previously defined and R is hydrogen, said copolymer having an acid value of at least 40, or a salt of said copolymer, polytetrafluoroethylene and a liquid vehicle for the mixture, which lubricant upon application to a metal surface provides, on removal of the liquid vehicle, a coating in the form of a dry film.

4,336,151

DISINFECTANT/CLEANSER COMPOSITIONS EXHIBITING REDUCED EYE IRRITANCY POTENTIAL

Burton M. Like, East Brunswick; Dennis Smialowicz, Waldwick, and Eugene Brandli, Towaco, all of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Jul. 6, 1981, Ser. No. 280,657

Int. Cl.³ C11D *3/48;* A01N *33/12;* C11D *1/835*

U.S. Cl. 252—106 **16 Claims**

1. A disinfectant/cleanser composition having broad spectrum germicidal activity and exhibiting reduced eye irritancy potential which comprises:

(a) a quaternary ammonium compound;

(b) a non-ionic surfactant;

(c) d-limonene;

(d) an eye irritancy reducing effective amount of a compound selected from the group consisting of: ethoxylated cocodiethanolamide containing an amount of condensed ethylene oxide such that the eye irritancy of said composition is reduced, polyoxyethylene containing an amount of condensed ethylene oxide such that the eye irritancy of said composition is reduced, ethoxylated lanolin containing an amount of condensed ethylene oxide such that the eye irritancy of said composition is reduced, hydrolyzed animal protein, allantoin, 1,6-hexylene glycol, stearyldimethylamine oxide, dextrose sugar and imidazole; and

(e) water.

4,336,152

DISINFECTANT/CLEANSER COMPOSITIONS EXHIBITING REDUCED EYE IRRITANCY POTENTIAL

Burton M. Like, East Brunswick; Dennis Smialowicz, Waldwick, and Eugene Brandli, Towaco, all of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Jul. 6, 1981, Ser. No. 280,660

Int. Cl.³ C11D *1/835, 3/22, 3/348*

U.S. Cl. 252—106 **9 Claims**

1. A disinfectant/cleanser composition having broad spectrum germicidal activity and exhibiting reduced eye irritancy potential which comprises:

(a) a quaternary ammonium compound;

(b) a non-ionic surfactant;

(c) d-limonene;

(d) an eye irritancy reducing effective amount of maltodextrin

(e) a phosphate builder; and

(f) water.

4,336,153

GLASS COMPOSITION FOR WATER SETTING ION-POLYMER CEMENTS

Alan Maries, London, and Francesca M. Shreeve, Harlow, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Division of Ser. No. 110,056, Jan. 7, 1980, Pat. No. 4,250,277. This application Oct. 16, 1980, Ser. No. 197,404

Claims priority, application United Kingdom, Jan. 9, 1979, 7900813

Int. Cl.³ C08K *3/00, 3/38, 3/10*

U.S. Cl. 252—182 **7 Claims**

1. A glass composition for effecting crosslinking of a polycarboxylic acid cement, said composition including an aluminoborate type glass comprising 40 to 75 mole % boric oxide, not more than 20 mole % alumina, not more than 60 mole % zinc oxide, and not more than 50 mole % calcium oxide, the remainder if any comprising one or more further metal oxides, or phosphorus pentoxide or mixtures thereof.

4,336,154

PHOSPHOR AND RADIATION IMAGE STORAGE PANEL UTILIZING THE SAME

Yoshitugu Nishimura, and Noboru Kotera, both of Odawara, Japan, assignors to Kasei Optonix, Ltd., Tokyo, Japan

Filed Jul. 14, 1981, Ser. No. 283,207

Int. Cl.³ C09K *11/465*

U.S. Cl. 252—301.4 H **6 Claims**

1. A divalent metal fluorohalide phosphor represented by the compositional formula:

$$(Ba_{1-x},M^{II}_x)F_2.aBaX_2:yEu,zB$$

wherein, M^{II} is at least one member selected from the group consisting of beryllium, magnesium, calcium, strontium, zinc, and cadmium, X is at least one member selected from the group consisting of chlorine, bromine, and iodine, and a, x, y, and z are numbers satisfying the respective conditions $0.5 \leqq a \leqq 1.25$, $0 \leqq x \leqq 1$, $10^{-6} \leqq y \leqq 2 \times 10^{-1}$, and $0 < z \leqq 2 \times 10^{-1}$ and exhibiting a higher luminance than said phosphor absent B when it is exposed to and allowed to absorb radiation and is subsequently excited with light having a wavelength of 450 to 800 nm.

4,336,155

MIXTURES OF OPTICAL BRIGHTENERS

Thomas Martini, Bad Soden am Taunus; Rüdiger Erckel, Eppstein; Horst Frühbeis, Kelkheim; Günter Rösch, Bad Soden am Taunus, and Heinz Probst, Sulzbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Jul. 16, 1980, Ser. No. 169,873

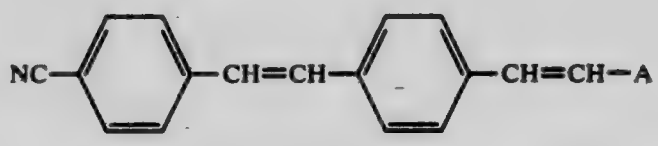
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1979, 2929591

The portion of the term of this patent subsequent to May 18, 1999, has been disclaimed.

Int. Cl.³ C09K *11/06*

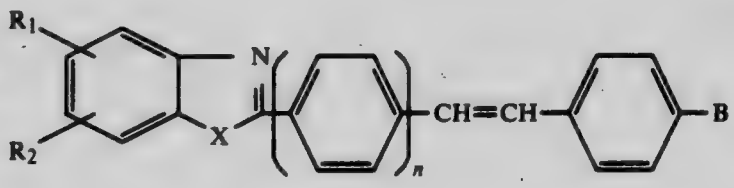
U.S. Cl. 252—301.21 **5 Claims**

1. Mixtures of optical brighteners consisting of 0.05–0.95 parts by weight of a compounds of the formula 1

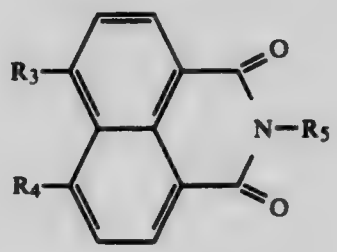


(1)

in which A denotes a o- or p-cyanophenyl group, and 0.95 to 0.05 parts by weight of one or more compounds of the formulae 2, 3, 4, 5 or 6

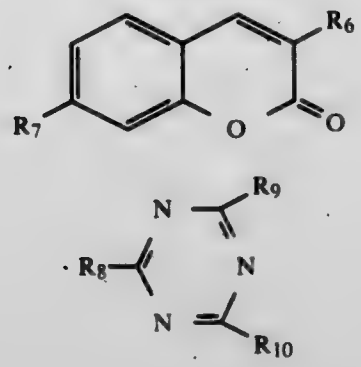


(2)

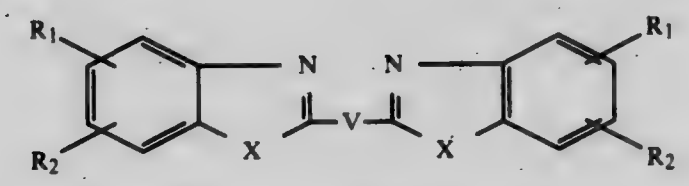


(3)

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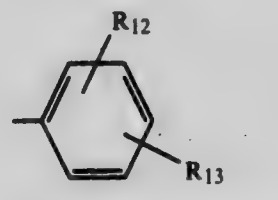


and

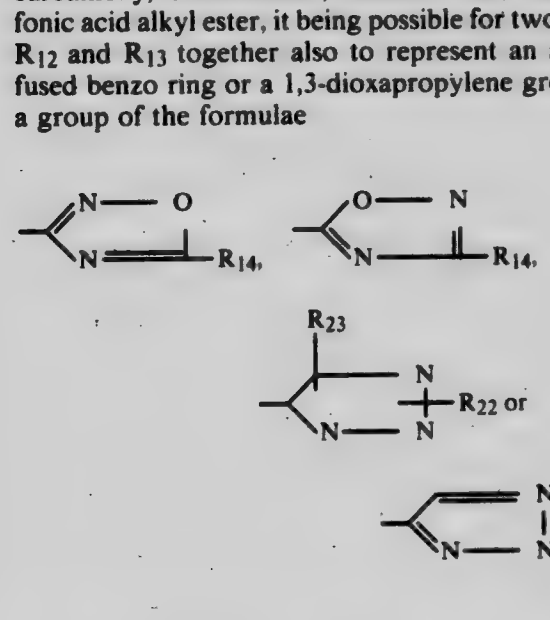


(6)

in which n denotes 0 or 1, X denotes an oxygen or sulfur atom, R_1 and R_2 denote identical or different radicals from the group comprising hydrogen, fluorine or chlorine atoms, phenyl, trifluoromethyl, C_1–C_9alkyl, alkoxy, dialkylamino, acylamino, cyano, carboxyl, carbalkoxy, carboxamide, sulfonic acid, sulfonamide or sulfonic acid alkyl ester, it being possible for two adjacent radicals R_1 and R_2 together also to represent a benzo ring, a lower alkylene group or a 1,3-dioxapropylene group, B denotes cyano, a group of the formula —$COOR_{11}$ or $CONR_{11}R_{11}$ in which R_{11} denotes hydrogen, C_1–C_{18}alkyl, cycloalkyl, aryl, alkylaryl, halogenoaryl, aralkyl, alkoxyalkyl, halogenoalkyl, hydroxyalkyl, alkylamino-alkyl, carboxyalkyl or carboalkoxyalkyl, or two alkyl or alkylene radicals with the meaning of R_{11} can also form, together with the nitrogen atom, a morpholine, piperidine or piperazine ring, or B denotes a group of the formula



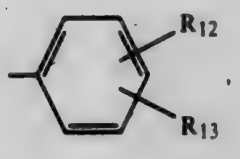
in which R_{12} and R_{13} denote identical or different radicals from the group comprising hydrogen, fluorine or chlorine atoms, phenyl, alkyl, alkoxy, acylamino, cyano, carboxyl, carbalkoxy, carboxamide, sulfonic acid, sulfonamide or sulfonic acid alkyl ester, it being possible for two adjacent radicals R_{12} and R_{13} together also to represent an alkylene group, a fused benzo ring or a 1,3-dioxapropylene group, or B denotes a group of the formulae



in which R_{14} denotes a straight-chain or branched alkyl group having 1–18 C atoms and preferably 1–6 C atoms, which can be substituted by hydroxyl groups, halogen atoms or alkoxy, dialkylamino, alkylmercapto, chloroaryloxy, aryloxy, arylmer-

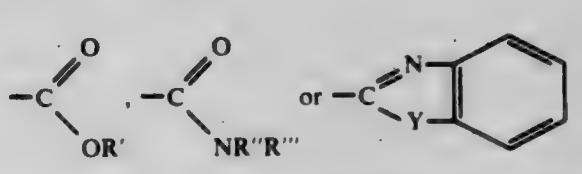
(4) capto or aryl radicals, it being possible in the case of the dialkylamino alkyl groups for the two alkyl groups together also to form a morpholine, piperidine or piperazine ring, or R_{14} denotes a group of the formula —$(CH_2CH_2O)_n$—R, in which n is 1, 2 or 3 and R is H, alkyl, dialkylaminoalkoxyalkyl or alkylthioalkoxyalkyl, it being possible for the dialkyl groups in dialkylaminoalkoxyalkyl together to form a piperidine, pyrrol-

(5) idine, hexamethyleneimine, morpholine or piperazine ring, or R_{14} denotes a radical of the formula

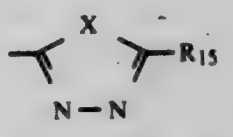


(6)

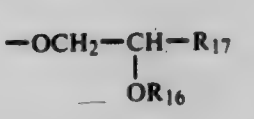
R_{22} denotes a hydrogen atom, a triphenylmethyl group or a lower alkyl radical, which is optionally substituted by a lower carbalkoxy, carboxamido, mono- or di-alkylcarboxamido, carboxyl or benzoyl group, and R_{23} denotes a cyano group or a group of the formulae



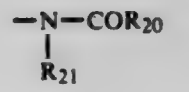
in which R′, R″ and R‴ denote a hydrogen atom, a lower alkyl radical or a phenyl radical, and it being possible for the lower alkyl radicals to be substituted by hydroxyl, lower alkoxy, lower dialkylamino or lower trialkylammonium groups and for the phenyl group to be substituted by halogen atoms or lower alkyl or lower alkoxy groups, and in which R″ and R‴ together can also form a saturated divalent radical, Y denotes O, S or N–R, in which R is H or (C_1 to C_4)-alkyl, or B denotes a group of the formula



in which R_{15} denotes a phenyl ring, which can be substituted by one or two chlorine atoms, one or two alkyl or alkoxyalkyl groups or one phenyl, cyano, carboxyl, carbalkoxy, carboxamide, sulfonic acid, sulfonamide or sulfonic acid alkyl ester group, R_3 and R_4 can be identical or different and denote hydrogen, alkyl, cycloalkyl, alkoxy, hydroxyalkoxyethyl, halogenoalkyl, aralkyl, aryl or N,N-di-alkylamine, or R_3 and R_4 together form a five-membered heterocyclic radical having 1 to 3 hetero-atoms, preferably N atoms, R_5 denotes straight-chain or branched alkyl, alkoxyalkyl, dialkylaminoalkyl or a radical of the formula

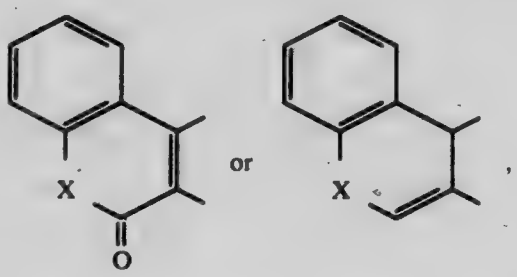


in which R_{16} is hydrogen, C_2–C_8-alkanoyl, benzoyl or a radical of the formula $R_{18}NHCO$— or $R_{19}OCO$— and R_{17} is hydrogen, alkyl or phenyl, R_{18} is alkyl, phenyl, halogenophenyl or tolyl and R_{19} is C_1–C_8-alkyl, alkoxyalkyl, cyclohexyl, benzyl, phenylethyl or phenyl which is optionally substituted by non-chromophoric substituents, or R_5 denotes a radical of the formula

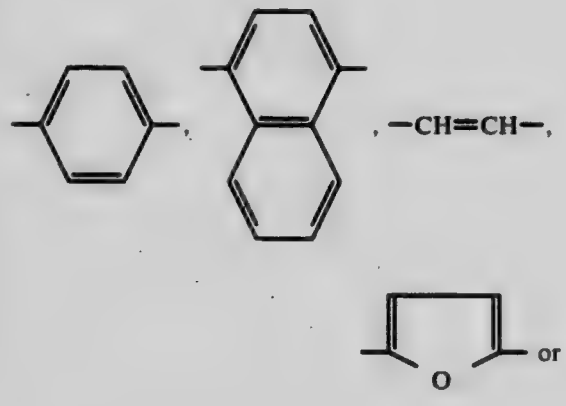


in which R_{20} is C_1–C_{10}-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkinyl,

C_1–C_8-alkoxy, C_1–C_8-alkylamino or dialkylamino, phenoxymethyl, phenyl, tolyl, benzyl or phenylethyl and R_{21} is C_3–C_{10}-alkyl, which can be substituted by phenyl, hydroxyphenyl, methoxy or dimethoxy, R_6 denotes an aryl radical, which is optionally substituted by non-chromophoric substituents, or denotes a 1,2,4-triazol-1-yl-phenyl, 1,2,3-triazol-4-yl-phenyl, 1,2,3-triazol-3-yl-phenyl or 1,2,3-triazol-2-yl-phenyl radical, which can optionally be substituted by 1 or 2 C_1–C_3-alkyl or oxalkyl groups or by oxaryl, oxalkenyl or oxalkanoyl, or R_6 denotes a heterocyclic ring having 1–3 hetero-atoms, preferably N or 0, which can be substituted by alkyl, alkoxy, halogen, aryl or halogenoaryl, or R_6 denotes a 1-oxa-2,4-diazol-5-yl radical, which can be substituted by benzyl, alkoxyphenyl, styryl, halogen, alkoxy or a further heterocyclic group, or R_6 denotes a benzimidazol-1-yl, benzimidazol-2-yl, benzthiazol-1-yl or benzthiazol-2-yl radical, which can be substituted by non-chromophoric substituents, R_7 denotes hydrogen, alkyl, alkoxy, aryl or a five-membered heterocyclic radical which has 1–3 N or 0 hetero-atoms and is bonded via a nitrogen atom and can be substituted by alkyl, aryl, hydroxyl, oxalkyl, oxalkenyl, oxaryl, oxarylalkyl, oxalkoxycarbonyl, oxcarbamoyl, oxepoxyalkyl, styryl or halogenostyryl, a fused phenyl, naphthyl or phenanthryl ring or a fused group of the formulae



and the aromatic rings in the fused groups can also be substituted by alkyl or alkoxy and X is oxygen, NH or N-alkyl, R_8 represents a polycyclic, aromatic radical having at least three fused rings, which optionally carry non-chromophoric substituents, R_9 represents an amino group, which is substituted by one or two alkyl, hydroxyalkyl, acyl or phenyl groups, it being possible for the phenyl group to contain one or more non-chromophoric radicals and for two alkyl groups, together with the nitrogen atom of the amino group, to form a pyrrolidine or piperidine ring or, with the inclusion of a further nitrogen or oxygen atom, a piperazine or morpholine ring, or R_9 represents an alkoxy, hydroxyalkoxy, acyloxy, alkylthio or carbalkylmercapto group, R_{10} independently of R_8 has the same meaning as R_9 and in addition can denote a chlorine atom and V denotes a group of the formulae



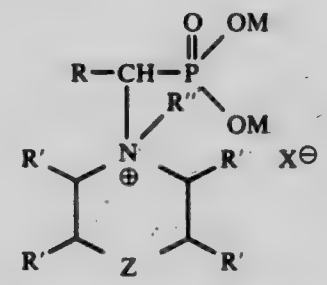
4,336,156

QUATERNARY AMMONIUM SALTS OF α-1,4-THIAZINE ALKANEPHOSPHONIC ACIDS

Patrick M. Quinlan, Webster Groves, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Division of Ser. No. 932,258, Aug. 9, 1978, Pat. No. 4,259,483.
This application Sep. 15, 1980, Ser. No. 187,391
Int. Cl.³ C09K *3/00*
U.S. Cl. 252—389 A **8 Claims**

1. A process of inhibiting corrosion which comprises treating an acid system with a corrosion inhibiting amount of a compound of the formula



where R and R″ are members selected from the group consisting of alkyl, alkenyl, cycloalkyl, aryl, alkaryl, aralkyl, and hydroxyphenyl and from the group consisting of alkyl, aralkyl, cycloalkyl, alkenyl, and alkynyl, respectively, R′ is hydrogen or alkyl, Z is S, SO or SO_2, M is hydrogen or a salt moiety and X is a halide, acetate, sulfonate or arylsulfonate.

4,336,157

PROCESS FOR RECLAIMING BILIVERDIN-CONTAINING FLUIDS

Nicholas J. Kartinos, Park Ridge, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jun. 27, 1980, Ser. No. 163,857
Int. Cl.³ G01N *33/48, 31/16*
U.S. Cl. 252—408 **10 Claims**

1. The method comprising contacting a biliverdin-containing substance with dithionite ions.

10. A method for reclaiming serum or plasma having a green color due to the presence of biliverdin, comprising titering dithionite into the serum or plasma until the plasma or serum exhibits a yellow color, followed by ultrafiltration or dialysis of the plasma or serum.

4,336,158

COMPOSITION FOR DETERMINATION OF N-NITROSAMINES

Clyde W. Frank; Paul J. Nord, and Robert D. Cox, all of Iowa City, Iowa, assignors to University of Iowa Research Foundation, Iowa City, Iowa

Division of Ser. No. 108,236, Dec. 28, 1979, Pat. No. 4,256,462.
This application Jul. 7, 1980, Ser. No. 166,381
Int. Cl.³ G01N *31/00, 33/00*
U.S. Cl. 252—408 **9 Claims**

1. A denitrosating reagent composition which is usable even in the presence of water to cleave the N-NO bond of a N-nitrosamine, comprising:

a mixture of an acid component comprised of glacial acetic acid and a concentrated inorganic acid selected from the group consisting of phosphoric acid and sulphuric acid, the volume ratio of said glacial acetic acid to said other said being from 1:2 to 5:1;

in combination with from about 0.1% to about 5% by weight of an inorganic water soluble bromide or iodide salt.

4,336,159

METHOD AND ARRANGEMENT FOR THE THERMAL REGENERATION OF CHARGED ADSORPTION MATERIALS

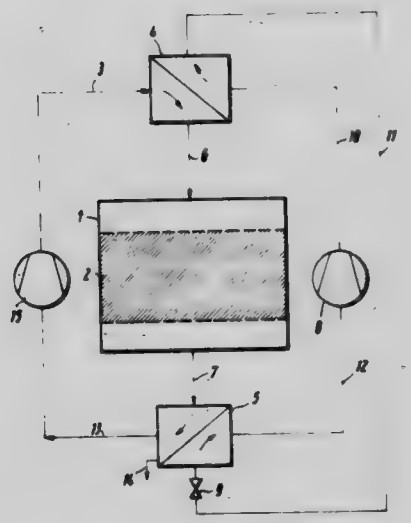
Karl Winter, Dortmund, Fed. Rep. of Germany, assignor to CEAG Verfahrenstechnik GmbH, Selm, Fed. Rep. of Germany

Filed Sep. 11, 1980, Ser. No. 186,285

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1979, 2936873; Dec. 22, 1979, 2952127; Mar. 1, 1980, 3007928

Int. Cl.³ B01D *53/04;* B01J *20/34*

U.S. Cl. 252—411 R 16 Claims



1. Method for the thermal regeneration of solid adsorption materials charged with adsorbed impurities which comprises passing a heated gaseous regeneration medium through the charged adsorption material to expel the impurities principally of an organic nature therefrom and discharging regeneration medium containing desorbate from the adsorption material, maintaining a heat pump in which a cooling medium flows in a cooling medium circuit by propelling means which directs said medium in heated condition to a condenser, disposed out of direct contact with said adsorption material, of a first heat exchange of the heat pump wherein the medium is cooled and gives off heat, and the cooled medium then flows to a vaporizer of a second heat exchanger of the heat pump wherein the medium expands and extracts heat, and returning the medium to the propelling means, heating the regeneration medium prior to entrance to the adsorption material by passing it through said first heat exchanger of the heat pump in indirect heat exchange with the cooling medium in said condenser, and cooling said discharged regeneration medium containing desorbate by passing it through said second heat exchanger in indirect heat exchange with the cooling medium in said vaporizer.

4,336,160

METHOD AND APPARATUS FOR CRACKING RESIDUAL OILS

Robert R. Dean, 4361 Riverview Dr.; Jean-Louis Mauleon, 315 Grant St., both of Alma, Mich. 48801, and Robert W. Pfeiffer, 6 Alden Pl., Bronxville, N.Y. 10708

Filed Jul. 15, 1980, Ser. No. 169,480

Int. Cl.³ B01J *21/20, 29/38;* C10G *11/18, 11/04*

U.S. Cl. 252—417 5 Claims

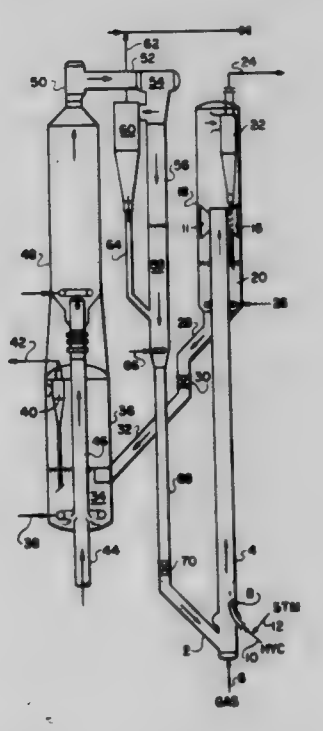
1. A method for regenerating particles of catalyst containing deactivating amounts of hydrocarbonaceous deposits which comprises,

passing particles of catalyst containing hydrocarbonaceous deposits into the upper portion of a first dense fluid bed of catalyst particles in a first regeneration zone, charging sufficient oxygen containing gas to a bottom portion of said catalyst bed to achieve a partial burning of hydrocarbonaceous deposits sufficient to burn substantially all hydrogen in the hydrocarbonaceous deposits and to produce a catalyst particle comprising from 10 to 80 wt% less carbonaceous deposits and a flue gas comprising CO and raise the temperature of the catalyst particles to within the range of 1250° to 1500° F., separately recovering partially regenerated catalyst and said flue gas comprising CO from said regeneration operation,

passing partially regenerated catalyst from a bottom portion of said first dense fluid bed of catalyst particles as a confined upflowing stream in lift gas passing upwardly through said first bed of catalyst into the bottom of a second stage catalyst regeneration zone comprising upflowing catalyst wherein the concentration of catalyst particles is higher in a substantial portion thereof than encountered in a dispersed phase riser transport zone,

introducing an oxygen containing gas into a bottom portion of said second regeneration stage separate from lift gas charged thereto with upflowing partially regenerated catalyst,

effecting a more complete regeneration of catalyst particles in said second stage with excess oxygen in contact with the catalyst permitting the temperature of the regeneration operation to seek a higher temperature up to about 1800° F., recovering a flue gas comprising CO_2, entrained catalyst particles and free of combustion supporting amounts of CO from the upper end of said second stage of regeneration,



separating a suspension of flue gas and all of the regenerated catalyst particles recovered from the upper end of said upflowing second stage regeneration zone external thereto into a CO_2 rich flue gas phase and a regenerated catalyst phase at an elevated temperature up to 1800° F. and recovering a regenerated catalyst comprising less than 0.05 wt% residual carbon thereon from said second regeneration zone suspension.

2. The method of claim 1 wherein the suspension separated from the second stage regeneration zone is initially partially separated in a zone which abruptly changes the direction of flow of the suspension into a downflowing concentrated mass of catalyst particles adjacent to a flue gas phase comprising a lower concentration of catalyst particles which is passed substantially immediately generally horizontally through a confined zone into a cyclone separation zone wherein entrained particles of catalyst are separated from CO_2 rich flue gases, and

recovering the catalyst initially separated as a downflowing concentrated mass of catalyst particles at an elevated temperature up to 1800° F. for use in converting hydrocarbon feeds above the pseudo-critical temperature of the feed.

5. A method for regenerating a cracking catalyst comprising

hydrocarbonaceous deposits and metal deposits of hydrocarbon conversion which comprises,

partially regenerating the catalyst in a first dense fluid catalyst bed regenerating zone by burning carbonaceous deposits to a residual level in the range of 10 to 90 wt% with sufficient oxygen to maintain the regeneration temperature below 1500° F., to burn substantially all hydrogen present and produce a CO rich flue gas thereby leaving residual carbon on the catalysts,

separately recovering said CO rich flue gas from partially regenerated catalyst for combustion in a downstream combustion zone,

further regenerating the partially regenerated catalyst comprising residual carbon in an upflowing second separate stage catalyst regeneration zone with added regeneration gas at a temperature above 1500° F. with excess oxygen sufficient to accomplish burning of residual carbon to a level below 0.05 wt% on the catalyst and produce a CO_2 rich flue gas absent combustion supporting amounts of CO,

separating all of the regenerated catalyst of low residual carbon from said second regeneration zone at a temperature in the range of 1500° F. to 1800° F. from CO_2 rich flue gas in a sequence of external cyclone separating zones and

separately recovering catalyst thus regenerated from very hot CO_2 rich flue gas for further use in hydrocarbon conversion.

4,336,161

COMPOSITE MATERIALS COMPRISING DEFORMABLE XEROGEL WITHIN THE PORES OF PARTICULATE RIGID SUPPORTS USEFUL IN CHROMATOGRAPHY

Alan Rosevear, Faringdon, and Patrick Mattock, Botley, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

Division of Ser. No. 858,798, Dec. 8, 1977, which is a continuation-in-part of Ser. No. 750,706, Dec. 15, 1976, abandoned. This application Oct. 16, 1979, Ser. No. 85,201

Claims priority, application United Kingdom, Dec. 15, 1975, 51345/75; Dec. 15, 1976, 52432/76; Dec. 16, 1976, 52433/76

Int. Cl.³ B01J *20/32, 20/26, 20/22;* B01D *15/08*

U.S. Cl. 252—426 **9 Claims**

1. A particulate material comprising a plurality of discrete porous rigid support particles, and a deformable xerogel retained within and substantially filling the pore structure of the support particles, said deformable xerogel comprising an affinity chromatography agent such that the particulate material is a composite material having affinity chromatography properties.

4. A particulate material according to claim 1 wherein said deformable xerogel comprises a polysaccharide gel or a synthetic polymer gel.

8. A method for preparing a particulate material comprising a deformable xerogel retained in the pore structure of a particulate porous rigid support material which comprises introducing a precursor for the xerogel into the pore structure of a plurality of discrete particles of porous rigid support material such that the gel precursor fills the pores of the discrete particles, and effecting gelation of the precursor within the discrete particles to form a plurality of discrete porous rigid support particles having a deformable xerogel retained within and substantially filling the pore structure of the support particles, and treating the deformable xerogel retained within the pores of said rigid support material to impart affinity chromatography properties to the deformable xerogel.

4,336,162

ALKALI METAL AMIDE CATALYST

Guido P. Pez, Boonton, N.J., assignor to Allied Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 217,937, Dec. 18, 1980, Pat. No. 4,302,603. This application Jul. 30, 1981, Ser. No. 288,273

Int. Cl.³ B01J *27/24, 31/12*

U.S. Cl. 252—438 **4 Claims**

1. A mixed amide melting below 200° C. which comprises about 40 to about 70 mol percent cesium amide and about 30 to about 60 mol percent potassium amide.

4,336,163

OXIDE NEGATIVE RESISTANCE ELEMENT

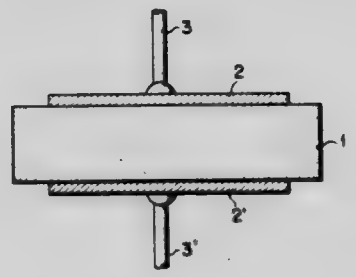
Noboru Ichinose, Yokohama; Yuhji Yokomizo, Tokyo, and Masaki Katsura, Mitaka, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki, Japan

Continuation of Ser. No. 486,643, Jul. 8, 1974, abandoned. This application May 16, 1977, Ser. No. 797,066

Claims priority, application Japan, Jul. 9, 1973, 48-76559

Int. Cl.³ H01B *1/06*

U.S. Cl. 252—518 **2 Claims**



1. A resistance element with a current-voltage characteristic having a range with negative resistance, said element comprising a main body of a sintered oxide material, said body consisting essentially of 89.9 to 20 mole % of ZnO, 10.0 to 60 mole % of MgO, and 0.1 to 20 mole % of MnO_2.

4,336,164

BRANCHED CHAIN OLEFINIC ALCOHOLS USEFUL IN PERFUME COMPOSITIONS

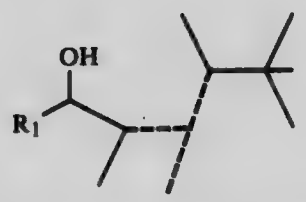
Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 212,887, Dec. 4, 1980, Pat. No. 4,318,934. This application Apr. 9, 1981, Ser. No. 252,134

Int. Cl.³ A61K *7/46;* C11B *9/00*

U.S. Cl. 252—522 R **2 Claims**

1. A process for augmenting or enhancing the aroma of a perfume composition or a cologne comprising the step of intimately admixing with a perfume composition or a cologne an aroma augmenting or enhancing quantity of at least one compound defined according to the structure:



wherein R_1 is selected from the group consisting of methyl and isopropyl and wherein one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represents carbon-carbon single bond.

4,336,165

DEFOAMING POWDERED CARPET CLEANING COMPOSITION FOR USE IN EXTRACTION CLEANING

Hubert C. Weisensel, Racine County, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.

Division of Ser. No. 51,095, Jun. 22, 1979. This application Oct. 23, 1980, Ser. No. 199,807

Int. Cl.[3] C11D *1/835, 3/10*

U.S. Cl. 252—528 1 Claim

1. A powdered carpet cleaning composition having inherent foam control which consists of 43% sodium tripolyphosphate hexahydrate; 24.25% sodium carbonate; 15% sodium metasilicate pentahydrate; 12.5% of a mixture of 20% myristyl dimethyl benzyl ammonium chloride, 20% dodecyl dimethyl benzyl ammonium chloride and 60% urea; 5% of a nonionic surfactant, having the formula

$$R-(O-\underset{\underset{CH_3}{|}}{CH})-CH_2)_x-(O-CH_2-CH_2)_y-OH$$

wherein R is a C_{12}-C_{18} alkyl, x is an average of 6 and y is an average of 11; 0.1% optical brightener; and 0.15% perfume.

4,336,166

COLD WATER RESISTANT ADHESIVE

Anatole G. Penczuk, Jackson, and Julius Sirota, South Plainfield, both of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Feb. 13, 1981, Ser. No. 234,144

Int. Cl.[3] C08L *3/02, 25/16*

U.S. Cl. 524—53 9 Claims

1. A storage stable cold water resistant adhesive comprising 10 to 35% by weight starch; 3 to 20% by dry weight of a zinc salt of a carboxylated styrene-acrylate resin comprising 10 to 90% styrene and 90 to 10% acrylate and further containing 1 to 10% of carboxylated monomers per 100 parts styrene-acrylate resin; 1.5 to 6% peptizer; the remainder to total 100% being water and sufficient ammonia to provide a pH of 7.5 to 10.

4,336,167

QUICK-SETTING EPOXY RESIN COMPOUNDS

Ulrike Reeh, Munich, and Hans Denk, Gauting, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 16, 1981, Ser. No. 254,608

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1980, 3016097

Int. Cl.[3] C08G *59/68, 59/42*

U.S. Cl. 523—451 9 Claims

1. A quick-setting epoxy resin compound comprising diglycidyl ester, carboxylic-acid anhydride and, as an accelerator, zinc octoate dissolved in a low molecular weight acid ester.

4,336,168

STABLE LIQUID ANTIMONY STABILIZER COMPOSITIONS AND VINYL HALIDE RESINS CONTAINING SAME

Samuel Hoch, Brooklyn, and Mario Q. Ceprini, Cedarhurst, both of N.Y., assignors to Tenneco Chemicals, Inc., Piscataway, N.J.

Filed Apr. 28, 1980, Ser. No. 144,141

Int. Cl.[3] C08K *0000*

U.S. Cl. 524—300 16 Claims

1. A heat and light stable resinous composition that comprises a vinyl halide resin and from 0.2% to 5% by weight of a shelf-stable liquid antimony stabilizer composition selected from the group consisting of

A. liquid antimony organic sulfur-containing compounds selected from the group consisting of

(1) antimony mercaptoacid esters having the formula $Sb(SRCOOR')_3$;

(2) antimony mercaptides having the formula $Sb(SR')_3$;

(3) antimony (mercaptoacid ester) (mercaptides) having the formula $(R'S)_nSb(SRCOOR')_{3-n}$;

(4) Bis(antimony di-(mercaptoacid ester)) alkylene glycol dimercaptoacid esters having the formula $(R'OOCRS)_2$-Sb-S-$(CH_2)_m$-COO-$(CH_2)_p$-OOC-$(CH_2)_m$-S-Sb-$(SRCOOR')_2$; and

(5) Bis(antimony di-(mercaptide or mercaptoacid ester)) sulfides having the formula $(R''S)_2$-Sb-S-Sb-$(SR'')_2$; and

(6) mixtures thereof

and 2% to 10% by weight of an acid organic compound selected from the group consisting of mercaptans of the formula HSR', mercaptoacids of the formula HS-$(CR^\circ_2)_n$-COOH, mercaptoalcohols of the formula HS-$(CR^\circ_2)_n$-CH_2OH, monocarboxylic acids of the formula R'''COOH, and mixtures thereof, wherein R represents alkylene, arylene, aralkylene, or alkarylene having 1 to 8 carbon atoms; R' represents alkyl, aryl, alkaryl, or aralkyl having 2 to 18 carbon atoms; R'' represents —RCOOR' or alkyl, aryl, aralkyl, or alkaryl having 2 to 18 carbon atoms; R''' represents alkyl having 6 to 11 carbon atoms or phenyl; R° represents R' or H; m is 1, 2, 3, or 4; n is 1 or 2; and p is 2, 3, or 4;

B. liquid antimony carboxylates having the formula $Sb(OOCR''')_3$ and 20% to 35% by weight of a monocarboxylic acid having the formula R'''COOH; and

C. mixtures thereof.

12. A shelf-stable liquid antimony stabilizer composition for vinyl halide resin compositions that comprises

A. a liquid antimony organic sulfur-containing compound selected from the group consisting of

(1) antimony mercaptoacid esters having the formula $Sb(SRCOOR')_3$;

(2) antimony mercaptides having the formula $Sb(SR')_3$;

(3) antimony (mercaptoacid ester) (mercaptides) having the formula $(R'S)_nSb(SRCOOR')_{3-n}$;

(4) Bis(antimony di(mercaptoacid ester)) alkylene glycol dimercaptoacid esters having the formula $(R'OOCRS)_2Sb$-S-$(CH_2)_m$-COO-$(CH_2)_p$-OOC-$(CH_2)_m$-S-Sb-$(SRCOOR')_2$;

(5) Bis(antimony di-(mercaptide or mercaptoacid ester)) sulfides having the formula $(R''S)_2$-Sb-S-Sb-$(SR'')_2$; and

(6) mixtures thereof and

B. 2% to 10% by weight of an acidic organic compound selected from the group consisting of mercaptans of the formula HSR', mercaptoacids of the formula HS-$(CR^\circ_2)_n$-COOH, mercaptoalcohols of the formula HS-$(CR^\circ_2)_n$-CH_2OH, monocarboxylic acids of the formula R'''COOH, and mixtures thereof, wherein R represents alkylene, arylene, aralkylene or alkarylene having 1 to 8 carbon atoms; R' represents alkyl, aryl, alkaryl, or aralkyl having 2 to 18 carbon atoms; R'' represents —RCOOR' or alkyl, aryl, alkaryl, or aralkyl having 2 to 18 carbon atoms; R''' represents alkyl having 6 to 11 carbon atoms or phenyl; R° represents R' or H; m is 1, 2, 3, or 4; n is 1 or 2; and p is 2, 3, or 4.

4,336,169

UNSATURATED POLYESTER RESINS

George D. Hamer, and Robert F. Russell, both of Wellingborough, England, assignors to Scott Bader Company Limited, Northamptonshire, England

Filed Dec. 16, 1980, Ser. No. 217,021

Claims priority, application United Kingdom, Dec. 21, 1979, 7944073

Int. Cl.[3] C08L *67/06, 91/08*

U.S. Cl. 523—511 4 Claims

1. An unsaturated polyester resin composition for ambient temperature open lay-up moulding containing styrene as an agent for cross-linking during curing, a wax for preventing air inhibition and 0.1 to 5% by weight of the composition of at

least one compound for allowing reduction of styrene evaporation characterized in that the said compound is of the formula

$$R_1—X—CH=CHCOOH$$

where

R_1 is selected from the group consisting of straight- and branched-chain substituted and unsubstituted aliphatic C_6-C_{24} hydrocarbons and

X is selected from the group consisting of

$$—O—\overset{\overset{O}{\|}}{C}—,\ —\overset{\overset{O}{\|}}{C}—O—\ \text{and}\ —O—.$$

4,336,170

METHOD OF TREATMENT OF AN AQUEOUS DISPENSION OF MICROCAPSULES

Tetsuro Horiike; Tomoyuki Okimoto, and Tomoharu Shiozaki, all of Amagasaki, Japan, assignors to Kanzaki Paper Manufacturing Co., Ltd., Tokyo, Japan

Filed Aug. 27, 1980, Ser. No. 181,835

Claims priority, application Japan, Aug. 27, 1979, 54/109378[U]

Int. Cl.³ C08L *61/20*

U.S. Cl. 521—55 **9 Claims**

1. A method for removing residual formaldehyde from an aqueous dispersion of microcapsules, each microcapsule having a capsule wall of an aldehyde polycondensation resin formed by polycondensation of formaldehyde with at least one amine in the presence of an acid catalyst comprising the combination of steps:

(a) adjusting said aqueous dispersion to an alkaline state;

(b) adding to said alkaline aqueous dispersion at least one reaction catalyst selected from the groups consisting of:

(i) metal hydroxides,

(ii) phosphates,

(iii) calcium salts, and

(iv) magnesium salts; and

(c) heating and agitating said alkaline aqueous dispersion to cause a reaction to remove residual formaldehyde therefrom.

4,336,171

AQUEOUS BINDER DISPERSION FOR PRODUCING VULCANIZATION BONDS BETWEEN RUBBER AND A SOLID SUBSTRATE

Hans-Peter Kohlstadt, Essen; Riza N. Özelli, Neuss, and Gerhard Gierenz, Solingen-Wald, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien (Henkel GaA), Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Jun. 3, 1980, Ser. No. 156,130

Claims priority, application Fed. Rep. of Germany, Jun. 11, 1979, 2923651

Int. Cl.³ C08L *39/06*

U.S. Cl. 524—510 **2 Claims**

1. An aqueous binder dispersion for use in the production of composite bodies by vulcanizing a vulcanizable rubber composition on a solid metal which is stable under vulcanization conditions consisting essentially of water and at least one emulsifier and a solids content of from 20% to 50% by weight of a solids composition of:

(a) per 1000 parts by weight of a polymer selected from the group consisting of polyvinylidene chloride, vinylidene chloride/alkyl acrylate copolymers, butadiene/acrylonitrile copolymers and mixtures thereof,

(b) from 100 to 500 parts by weight of at least one aromatic poly-C-nitroso compound,

(c) from 50 to 300 parts by weight of masked polyfunctional isocyanates selected from the group consisting of aromatic diisocyanates, alkylene diisocyanates and aromatic polyisocyanates, masked with masking agents selected from the group consisting of tert.-alkanols, compounds containing a carbonyl-activated methylene group, dicarboxylic acid imides and sodium hydride,

(d) from 20 to 100 parts by weight of a water-soluble polymer selected from the group consisting of polyvinyl pyrrolidone and water-soluble copolymers of vinyl pyrrolidone, and

(e) from 5 to 500 parts by weight of customary fillers and pigments, adhesion-improving resins based on formaldehyde condensation products, adhesion-improving condensation products based on epichlorohydrin condensation products, emulsifiers and antifoam agents,

said aqueous binder dispersion not exceeding 5% by weight of the liquid phase of organic solvents.

4,336,172

AQUEOUS DISPERSIONS OF CROSS-LINKABLE COPOLYMERS BASED ON (METH)ACRYLATES, THEIR PREPARATION AND USE AS STOVING ENAMELS

Klaus Marquardt; Herbert Eck, and Werner Bathelt, all of Burghausen, Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 11, 1980, Ser. No. 158,468

Claims priority, application Fed. Rep. of Germany, Jul. 2, 1979, 2926631

Int. Cl.³ C08L *31/02*

U.S. Cl. 524—555 **5 Claims**

1. An aqueous dispersion for use in stoving enamels containing from 30% to 70% by weight of a cross-linkable copolymer consisting essentially of:

(a) from 30% to 70% by weight of said copolymer of monomer units of monomers giving homopolymers having a glass transition temperature of 80° C. or higher selected from the group consisting of alkyl esters with alkyl having from 1 to 4 carbon atoms of methacrylic acid and styrene,

(b) from 19% to 69% by weight of said copolymer of monomer units of monomers giving homopolymers having a glass transition temperature of 10° C. or lower, said monomers being alkyl esters with alkyl having from 1 to 8 carbon atoms of acrylic acid,

(c) from 0 to 20% by weight of said copolymer of monomer units of other monomers selected from the group consisting of (meth)acrylic acid and its salts, (meth)acrylamide, (meth)acrylonitrile, N-methylol-(meth)acrylamide, N-alkoxymethyl-(meth)acrylamide, N-vinyl-2-pyrrolidone, N-vinyl-lactams, butadiene, isoprene, divinylbenzene, vinyl lower alkanoates, vinyl halides, vinylidene halides, ethylene, alkenedioic acids having from 4 to 8 carbon atoms, salts of alkenedioic acids having from 4 to 8 carbon atoms, mono-lower alkyl esters of alkenedioic acids having from 1 to 8 carbon atoms, di-lower alkyl esters of alkenedioic acids having from 1 to 8 carbon atoms, monoamides of alkenedioic acids having from 1 to 8 carbon atoms, and diamides of alkenedioic acids having from 1 to 8 carbon atoms, and

(d) from 1% to 15% by weight of said copolymers of monomer units of (meth)allyl esters of the formula

$$CH_2=\overset{\overset{R'}{|}}{C}—CH_2—O—\overset{\overset{O}{\|}}{C}—R—OH$$

wherein R represents a straight-chained alkylene having 2 to 10 carbon atoms, optionally substituted with up to three methyl and/or ethyl groups, and R′ represents a member selected from the group consisting of hydrogen and methyl, where the hydroxy group is linked to a carbon atom having at least one hydrogen attached thereto.

4,336,173

PROCESS FOR PREPARING AN AQUEOUS EMULSION OR DISPERSION OF A PARTLY WATER-SOLUBLE MATERIAL, AND OPTIONALLY FURTHER CONVERSION OF THE PREPARED DISPERSION OR EMULSION TO A POLYMER DISPERSION WHEN THE PARTLY WATER-SOLUBLE MATERIAL IS A POLYMERIZABLE MONOMER

John Ugelstad, Trondheim, Norway, assignor to SINTEF, Norway

Continuation of Ser. No. 10,989, Feb. 8, 1979, abandoned. This application Sep. 10, 1980, Ser. No. 186,008

Claims priority, application Norway, Feb. 21, 1978, 780596; Aug. 28, 1978, 782920

Int. Cl.[3] C08L *25/06*

U.S. Cl. 523—205 32 Claims

1. A process for preparing an aqueous emulsion or dispersion of a partly water-soluble material which comprises:

(a) preparing an emulsion or dispersion of particles comprising:

(i) polymer and

(ii) Substance I which is one or more materials having a molecular weight of <5000 and a water solubility of $<10^{-2}$ g/l and is substantially absorbed by said polymer and

(b) adding to said emulsion or dispersion, Substance II which is one or more partly water-soluble materials having a water solubility at least 10 times higher than that of Substance I, whereby Substance II diffuses into the polymer particles containing Substance I at a rate substantially in excess of the rate of departure of Substance I from said polymer particles, the amount of said Substance II diffusing into said particles containing Substance I being at least 20 times that of the original polymer particles used in (a) based on volume, and then causing polymerization to take place if Substance II is a monomer.

4,336,174

HARDBOARD TREATING COMPOSITION AND PROCESS FOR FORMING HARDBOARD SURFACES

Salvatore G. Sanfilippo, and James T. White, both of Tuscaloosa, Ala., assignors to Reichhold Chemicals, Incorporated, White Plains, N.Y.

Filed May 19, 1980, Ser. No. 151,172

Int. Cl.[3] C08L *61/28*

U.S. Cl. 524—512 5 Claims

1. A storage-stable aqueous polymeric composition for application to the wet surfaces of lignocellulose fiber hardboard sheets before processing in a forming press that maintains the sheets under heat and pressure, said aqueous composition being (A) a homogeneous three-component system containing on a dry solids basis a miscible mixture of from about 40 to about 60 percent by weight of a water-soluble melamine-formaldehyde copolymer, from about 15 to about 30 percent by weight of a styrene-acrylic copolymer emulsion, and from about 18 to about 30 percent by weight of a water-soluble methylated melamine-formaldehyde copolymer; (B) from about 25 to about 32 percent by weight of a compound capable of adjusting the pH of the composition; and (C) from about 3 to about 7 percent by weight of a cross-linking acid catalyst, based upon the total weight of the solids said composition having a dry resin solids range of from about 30 to about 40 parts by weight.

4,336,175

POLYIMIDE PRECURSOR SOLUTIONS

Hugh H. Gibbs, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 1, 1980, Ser. No. 192,708

Int. Cl.[3] C08K *5/05, 5/34, 5/06*

U.S. Cl. 524—726 5 Claims

1. In a solution of 2,2-bis(3',4'-dicarboxyphenyl) hexafluoropropane (6FTA), aromatic diamine and a solvent, the improvement wherein the 6FTA and aromatic diamine are present in quantities to provide a stoichiometric monomer imbalance of about from 2 to 9 mole percent, and the solvent is selected from the group consisting of lower alkanols of 1-4 carbon atoms, diglyme and mixtures of lower alkanol and diglyme with each other or each with up to 50% by weight of N-methyl-2-pyrrolidone.

4,336,176

POLYVINYL CHLORIDE PROCESSING

Robert A. Lindner, Newberg, N.Y., assignor to Henkel Corporation, Minneapolis, Minn.

Filed Jan. 12, 1981, Ser. No. 223,885

Int. Cl.[3] C08K *5/10*

U.S. Cl. 524—310 11 Claims

1. A process for manufacturing a polyvinyl choride containing composition having therein a primary stabilizer which is an organo-tin compound to stabilize against the thermal degradation of the composition, the improvement therein comprising adding to such composition an effective amount of an internal lubricant to lower the melt viscosity during preparation of such composition said lubricant being a partial fatty ester of 2,2-bishydroxymethyl-1,3-propanediol wherein said partial ester is about 20 percent to about 50 percent monoester, about 35 percent to about 65 percent diester, and about 10 percent to about 35 percent by weight triester said composition being substantially free of unreacted 2,2-bishydroxymethyl-1,3-propanediol and the tetraester wherein the ester is formed from a fatty acid having the following composition:

(a) 0 percent to 15 percent by weight 14 carbon saturated fatty acid;

(b) 0 percent to 10 percent by weight 15 carbon saturated fatty acid;

(c) 25 percent to 75 percent by weight 16 carbon saturated fatty acid;

(d) 0 percent to 10 percent by weight 17 carbon saturated fatty acid;

(e) 25 percent to 75 percent by weight 18 carbon saturated fatty acid; thereby lowering the melt viscosity during preparation of such composition.

4,336,177

POLYMERIZATION PROCESS

Alan J. Backhouse, South Ascot; Charles Bromley, Bourne End, and Morice W. Thompson, Maidenhead, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Dec. 4, 1980, Ser. No. 212,753

Claims priority, application United Kingdom, Dec. 6, 1979, 7942092

Int. Cl.[3] C08K *5/01*

U.S. Cl. 523—201 10 Claims

1. A process for the production of a stable dispersion in a non-aqueous liquid medium of composite polymer microparticles having a diameter of from 0.1 to 10 microns, each of which comprises a core of crosslinked polymer surrounded by and grafted to a layer of non-crosslinked polymer, the process comprising the steps of (1) polymerising one or more ethylenically unsaturated monomers, including at least one crosslinking monomer, from which the crosslinked core polymer of the microparticles is to be derived, in an aqueous medium as hereinbefore defined at a temperature at least 10° C. higher than the glass transition temperature of the core polymer in the presence in the aqueous medium as steric stabiliser of a block or graft copolymer which contains in the molecule a polymeric component which is solvatable by the aqueous medium and another polymeric component which is not solvatable by the aqueous medium and is capable of becoming associated with the polymer particles formed, the concentration of free monomer in the polymerisation mixture being maintained throughout this process step at a level such that at no time does the free monomer form a separate phase and the total amount of monomer polymerised being such that the resulting dispersion con-

tains at least 20% by weight of microparticles, (2) polymerising, in the dispersion obtained from step (1), one or more further ethylenically unsaturated monomers, not including any crosslinking monomer, from which the non-crosslinked polymer of the outer layer is to be derived, optionally in the presence of additional block or graft copolymer stabiliser, the concentration of such further monomer in the free state in the polymerisation mixture being maintained at a level such that at no time does that free monomer form a separate phase, and (3) transferring the polymer microparticles from the resulting dispersion into a non-aqueous liquid medium which is a solvent for the non-crosslinkable polymer under such conditions that the particles become stably dispersed therein.

4,336,178

PROCESS FOR PREPARING ABRASION AND CORROSION RESISTANT MATERIAL

Alexandru Heidingher, and Ioan Sinko, both of Baia Mare, Romania, assignors to Centrala Minereurilor si Metalurgiei, Neferoase Baia Mare, Baia Mare, Romania

Continuation-in-part of Ser. No. 68,858, Aug. 21, 1979, abandoned, which is a continuation of Ser. No. 934,935, Aug. 18, 1978, abandoned, which is a continuation of Ser. No. 762,223, Jan. 24, 1977, abandoned. This application Sep. 30, 1980, Ser. No. 192,273

Claims priority, application Romania, Feb. 2, 1976, 84675

Int. Cl.³ C08L *63/00*

U.S. Cl. 523—206 **1 Claim**

1. A process for preparing an abrasion and corrosion resistant material, comprising mixing two epoxy resins having different molecular weights at an elevated temperature of 80° C. up to about 120° C., each of said resins being formed from epichlorohydrin and 2,2-bis-parahydroxyphenyl propane, have a molecular weight between 350 and 1400, and mixed in a ratio of 1:2 by weight, and adding phthalic anhydride hardener to form a binder; adding to said binder a prewet erosion resistant component consisting essentially of a mixture of 80–85% by weight of the final product of Al_2O_3 and SiC in a weight ratio of 1:2 each having a particle size below 5 mm; and 0.5–3% by weight of the final product of spun glass having a fiber length of between 3 and 5 mm, said component having been prewet with a solution of said binder in acetone; homogenizing said binder and said prewet component; and heating said homogenized material at a temperature of 130° C. up to about 160° C. for about 1–5 hours.

4,336,179

RESIN BINDERS FOR FOUNDRY SAND CORES AND MOLDS

Raja Iyer, Hazelcrest, Ill., assignor to Acme Resin Corporation, Forest Park, Ill.

Filed Mar. 19, 1981, Ser. No. 245,294

Int. Cl.³ C08L *61/06*

U.S. Cl. 523—145 **20 Claims**

1. In a free-flowing granular material for the preparation of foundry cores and molds comprising an intimate admixture of sand, an acidic catalyst and a resin binder, the improvement comprising using as said binder, a phenolic resole resin solution prepared by:

(a) heating a mixture comprised of a phenol and a molar excess of an aldehyde in the range of from about 1.1 to about 2.5 moles of aldehyde per mole of the phenol in an aqueous medium with a basic catalyst;

(b) concentrating the mixture by evaporation under reduced pressure until the water content is less than about 25% by weight;

(c) cooling the concentrated mixture; and

(d) adding to the cooled concentrated mixture an amount of a phenol equal to at least about 3% by weight of the phenol in the mixture to give a material with improved curing speed.

4,336,180

SOLVENT-FREE POLYURETHANES WITH FIBROUS REINFORCING AGENTS

Klaus Recker, Cologne, and Gerhard Grögler, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 23, 1981, Ser. No. 246,816

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1980, 3013263

Int. Cl.³ C08L *75/12*

U.S. Cl. 524—847 **14 Claims**

1. A substantially solvent-free molding material, comprising

(A) from 92 to 30% by weight, of an active-hydrogen containing prepolymer containing: from 0.3 to 4% by weight, based on the prepolymer, of free primary and/or secondary amino groups, from 1.5 to 10% by weight, based on the prepolymer, of urethane groups, and from 1.5 to 10% by weight, based on the prepolymer, of urea groups;

(B) from 24 to 1% by weight of a polyisocyanate having a melting point above 120° C.; and

(C) from 5 to 69% by weight of an organic or inorganic fibrous material with a fiber length of from 0.1 to 100 mm, the equivalent ratio between NCO groups, including masked NCO groups, and active H-atoms of components (A) and (B) is between 1:1 and 1:1.75.

4,336,181

FLAME RETARDANT MOLDING COMPOUND

Kenneth A. Iseler, Richmond, and Vinod C. Shah, Sterling Heights, both of Mich., assignors to The Budd Company, Troy, Mich.

Filed May 19, 1980, Ser. No. 151,225

Int. Cl.³ C08K *3/40, 67/06, 3/22*

U.S. Cl. 523—501 **22 Claims**

1. A matured, moldable resin molding composition for use in making a molded article including:

a first relatively fast reacting unsaturated polyester resin said first resin being present in an amount of about 5 to 15 weight percent of the molding composition, said first resin having a ratio of hydroxyl to carboxyl groups of about 5.7 to 0.8, an acid number of at least 18, and an average molecular weight of about 800 to 5000, said first resin being present in amounts of about 5 to 15 percent;

a second relatively slower reacting polyester resin having a ratio of hydroxyl to carboxyl groups of about 5.7 to 0.8, an acid number of about 8 to 17 and an average molecular weight of about 800 to 5000, said second resin being present in an amount of about 5 to 15 percent of the molding composition;

a thermoplastic polymer having a reactive group, said polymer being present in an amount of about 5 to 15 percent by weight of the molding composition, said thermoplastic polymer when cured forming a solid phase incompatible with the cured material resulting from the copolymerization of the first and second polyester resins;

about 35 to 45 percent by weight of aluminum trihydrate in the molding composition;

about 1 to 5 weight percent of a brominated unsaturated polyester resin, said brominated resin having about 25 to 45 percent by weight bromine groups in the brominated resin;

about 0.15 to 2 percent by weight of antimonytrioxide the ratio of brominated unsaturated polyester resin to antimonytrioxide being in the range of about 1 to 20;

an aliphatically unsaturated monomer; and

a free radical polymerization catalyst.

4,336,182

SELF-EXTINGUISHING POLYMERIC COMPOSITIONS

Gianluigi Landoni; Spartaco Fontani, and Osvaldo Cicchetti, all of Milan, Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Jul. 25, 1980, Ser. No. 172,295
Claims priority, application Italy, Jul. 27, 1979, 24732 A/79
Int. Cl.[3] C08K *3/32;* C08L *79/04*
U.S. Cl. 524—416 11 Claims

1. Self-extinguishing polymeric compositions based on a thermoplastic polymer, and comprising for 100 parts by weight of the total composition:

(1) from 10 to 20 parts by weight of a compound selected from the group consisting of amine phosphates, ammonium phosphates and ammonium polyphosphates;

and

(2) from 5 to 8 parts by weight of a nitrogen-containing product consisting of an oligomer or a polymer, insoluble in water, containing in the monomeric unit a —CO— group attached to the nitrogen atom of a ring selected from the piperazine and imidazolidin-2-one rings.

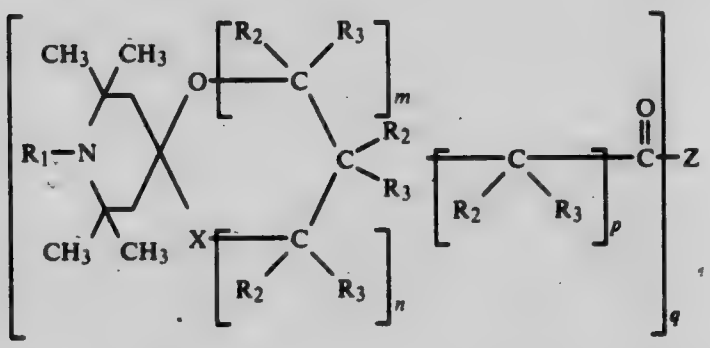
4,336,183

2,2,6,6-TETRAMETHYL-4-PIPERIDYL CARBOXYLIC ACID ESTERS AND AMIDES OF MONO AND POLY ALCOHOLS, PHENOLS AND AMINES AS STABILIZERS FOR SYNTHETIC POLYMERS

Yutaka Nakahara, Iwatsuki; Toshihiro Shibata, Omiya, and Naohiro Kubota, Ageo, all of Japan, assignors to Adeka Argus Chemical Co., Ltd., Urawa, Japan

Continuation-in-part of Ser. No. 167,889, Jul. 14, 1980. This application Aug. 14, 1980, Ser. No. 178,202
Claims priority, application Japan, Jul. 12, 1979, 54/88474
Int. Cl.[3] C07D *491/113, 498/10;* C08K *5/35*
U.S. Cl. 524—95 33 Claims

1. 2,2,6,6-Tetramethyl-4-piperidyl carboxylic acid esters and amides having the general formula:



wherein:

R_1, R_2 and R_3 are selected from the group consisting of hydrogen and alkyl having from one to about eighteen carbon atoms;

X is oxygen or imino>NH;

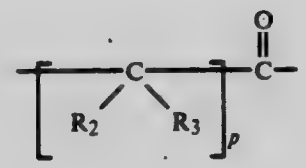
m is zero, 1 or 2;

n is zero, 1 or 2;

m+n is 1 or 2;

p is zero or 1;

q is 1 to 6;



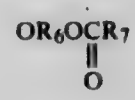
is linked to carbon in place of one R_2 or R_3 group; and

Z is selected from the group consisting of:

(a) OR_5 where R_5 is alkyl, aryl or cycloalkyl having one to twenty-four carbon atoms and hydroxy-, carboxy- and oxy-substituted such groups having from one to five OH or O groups; and 2,2,6,6-tetramethyl-4-piperidyl;

(b) OR_6O where R_6 is alkylene, arylene or cycloalkylene having one to twenty-four carbon atoms and hydroxy-substituted such groups having one to four OH groups; R_6 alkylene, arylene or cycloalkylene can include oxyether —O— and thioether —S— linking groups attached to alkylene, arylene or cycloalkylene groups as in polyoxyalkylene and polythioalkylene groups and polyoxyalkylene arylene groups having from one to about five oxy or thio groups and from two to about six alkylene groups having from two to about six carbon atoms;

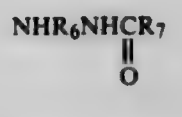
(c)



where R_6 is alkylene, arylene or cycloalkylene having one to twenty-four carbon atoms and hydroxy-substituted such groups having one to four OH groups;
R_6 alkylene, arylene or cycloalkylene can include oxyether —O— and thioether —S— linking groups attached to alkylene, arylene or cycloalkylene groups as in polyoxyalkylene and polythioalkylene groups and polyoxyalkylene arylene groups having from one to about five oxy or thio groups and from two to about six alkylene groups having from two to about six carbon atoms; R_7 is alkyl, aryl or cycloalkyl having one to twenty-four carbon atoms and hydroxy-substituted such groups having from one to five OH groups;

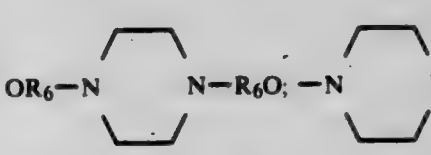
(d) NHR_5 where R_5 is alkyl, aryl or cycloalkyl having one to twenty-four carbon atoms and amino-substituted such groups having from one to five amino groups;

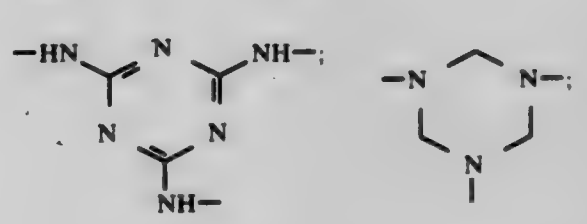
(e)

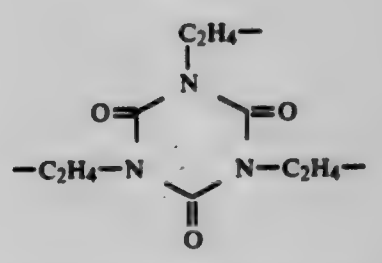


where R_6 is alkylene, arylene or cycloalkylene having one to twenty-four carbon atoms and amino-substituted such groups having one to four amino groups; R_7 is alkyl, aryl or cycloalkyl having one to twenty-four carbon atoms and amino-substituted such groups having one to five amino groups;

(f) —$NHNH_2$; —NHNH—; —$NHNHCOCONHNH_2$; —$NHNHCOR_7$; —$NHNHCOR_6CONHNH_2$; —NHNH-$COR_6CONHNH$—; —$NHNHCOCONHNH$—; —NHR_6NH_2—; —NHR_6NH—; NHR_6NHCOR_6-$CONHR_6NH$;







where R_6 is alkylene, arylene or cycloalkylene having one to twenty-four carbon atoms and amino-substituted such groups having one to four amino groups; and such groups

including oxyether and thioether linking groups as in (b) above, and R_7 is as in (c) above.

27. An olefin polymer composition having improved resistance to deterioration comprising an olefin polymer selected from the group consisting of polymers of alpha-olefins having from two to six carbon atoms and polystyrene, and a compound in accordance with claim 1.

4,336,184

INTUMESCENT FLAME RETARDANT THERMOPLASTIC POLYPHENYLENE ETHER COMPOSITIONS

Yuval Halpern, Skokie, Ill., assignor to Borg-Warner Chemicals, Inc., Parkersburg, W. Va.

Filed Aug. 12, 1981, Ser. No. 292,117
Int. Cl.³ C08K *3/32*; C08V *9/00*
U.S. Cl. 523—179 **5 Claims**

1. Thermoplastic polyphenylene ether compositions comprising (a) thermoplastic polyphenylene ether-styrenic resin blend, (b) a flame retarding amount of an intumescent additive selected from the group consisting of melammonium pentate, the pentate salt of ammelide, and mixtures thereof, and (c) a polyol.

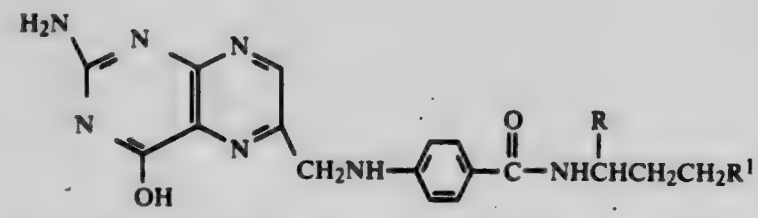
4,336,185

FOLIC ACID DERIVATIVES

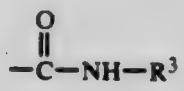
Gordon D. Niswender, Fort Collins, Colo., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation of Ser. No. 868,368, Jan. 10, 1978, abandoned, which is a division of Ser. No. 663,037, Mar. 2, 1976, abandoned. This application Aug. 23, 1979, Ser. No. 69,144
Int. Cl.³ C07D *475/04*
U.S. Cl. 260—112 R **1 Claim**

1. A compound of the formula:



wherein R and R^1 are carboxy or a salt, ester or a mono- or dialkyl amide thereof or a radical of the formula:



wherein -NH-R^3 is a protein selected from thyroglobulin, methylated bovine serum albumin, sheep serum albumin, polylysine, or human serum albumin wherein one of the R and R^1 substituents is carboxy or a salt, ester or a mono- or di-alkyl amide thereof and the other R or R^1 substituent is said radical.

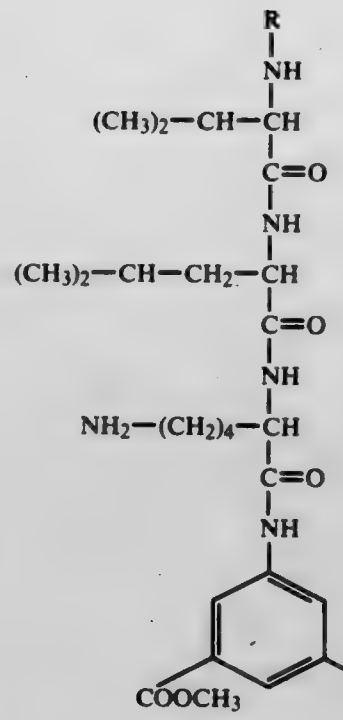
4,336,186

ANALYTICAL FLUOROGENIC SUBSTRATES FOR PROTEOLYTIC ENZYMES

Robert J. Gargiulo, 5605 NW. 7th St., Miami, Fla. 33126; Gary A. Mitchell, 1795 SW. 59th Ave.; Patricia M. Hudson, 3730 SW. 58th Ave., both of, Miami, Fla. 33155; Sharon P. Pochron, 12242 SW. 108 Ct., Miami, Fla. 33176; Rolf M. Huseby, 9280 Fountainbleau, Apt. 101, Miami, Fla. 33172, and Robert E. Smith, P.O. Box 2033, Livermore, Calif. 94550

Division of Ser. No. 930,826, Aug. 3, 1978, Pat. No. 4,275,153. This application Feb. 9, 1981, Ser. No. 232,942
Int. Cl.³ C07C *103/52*
U.S. Cl. 260—112.5 R **2 Claims**

1. A fluorogenic substrate, suitable for determining plasmin and plasmin-like enzymes in a fluid, comprising a compound formula:



or acid salts thereof, wherein R is hydrogen-L, hydrogen-D, benzoyl, benzene sulfonyl, glutaryl, pyroglutamyl, carbobenzoxy, D-serine or carbobenzoxyserine, with the proviso that said substrate is enzymatically hydrolyzable by said plasmin, or plasmin-like enzymes to yield 5-aminoisopthalic acid dimethyl ester.

4,336,187

PURIFICATION OF CALCITONIN BY PARTITION CHROMATOGRAPHY

Ronald C. Orlowski, Frankfort, Ill.; Charles M. Groginsky, Tucson, Ariz., and Jay K. Seyler, Bourbonnais, Ill., assignors to Armour Pharmaceutical Company, Kankakee, Ill.

Continuation-in-part of Ser. No. 94,323, Nov. 14, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 189,812
Int. Cl.³ C07C *103/52*
U.S. Cl. 260—112.5 T **7 Claims**

1. In a process for purifying crude ultimobranchial calcitonin the step of subjecting said crude ultimobranchial calcitonin to partition chromatography using a solvent mixture containing butanol in an amount of 30–50%, a lower alphatic alcohol which is ethanol, methanol, or propanol, or mixtures thereof, in an amount of 5–15%, acetic acid in an amount of 0.01 to 0.03%, and 0.2 M ammonium acetate in an amount of from 40–60%, these percentages being by volume based on the volume of the solvent mixture.

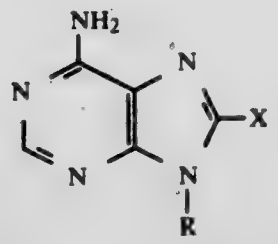
4,336,188

METHOD FOR THE PREPARATION OF MACROMOLECULARIZED ADENINE DERIVATIVES

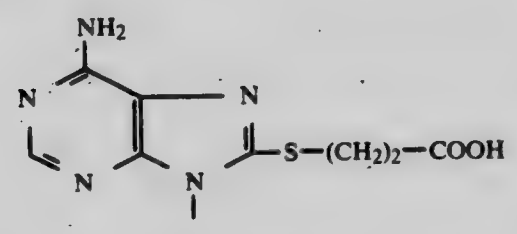
Piergiorgio Zappelli; Antonio Rossodivita; Rosario Pappa, all of Monterotondo, and Luciano Re, Rome, all of Italy, assignors to Snamprogetti, S.p.A., Milan, Italy

Division of Ser. No. 705,012, Jul. 14, 1976, Pat. No. 4,091,203. This application Feb. 22, 1978, Ser. No. 880,133
Claims priority, application Italy, Jul. 15, 1975, 25419 A/75; May 4, 1976, 22958 A/76
Int. Cl.³ C07H *19/20*
U.S. Cl. 260—112.5 R **5 Claims**

1. A method for the preparation of macromolecularized adenine derivatives which comprises the steps of reacting a compound which contains a halogen atom in the 8-position and which has the formula,



wherein X is a halogen and R is the non-adenine residue of the compound, with a di-alkali metal salt of an omega-mercaptocarboxylic acid at a temperature in a range of from about 20° C. to about 60° C. under anhydrous conditions and forming a functionalized adenine derivative compound, converting the functionalized adenine derivative compound to its corresponding free acid containing an adenine radical and having the formula



and in which the adenine radical is selected from the group consisting of nicotinoylamide adenine dinucleotide, nicotinoylamide adenine dinucleotide phosphate, adenosine triphosphate, adenosine diphosphate, adenosine monophosphate, adenosine, and adenine, and condensing the functionalized adenine free acid derivative with a polymer selected from the group consisting of polysine, omega-aminoalkyl polyanilamides, polysaccharide esters of omega-aminoalkyl carbamic acids, polyvinyl-amine, omega-aminoalkyl esters and omega-aminoalkylamides of polyglutamic acid, aminoalkyl silanized glass microsphenes, and polyethyleneimine in the presence of a condensing agent selected from water-soluble or insoluble carbodiimides in an aqueous environment or in a mixture of water and water-soluble organic solvent at a temperature between 5° C. and 50° C.

4,336,189

PROCESS FOR RECOVERING LIGNOSULFONATES FROM SPENT SULFITE LIQUOR

Sirpa L. Hämälä, Tampere; Seppo T. Koivunen, Heinola; Anna-Kaisa Kontturi, Kerava, and Veli J. Sarkkinen, Pori, all of Finland, assignors to Oy Tampella AB, Tampere, Finland

Filed May 28, 1980, Ser. No. 153,947

Claims priority, application Finland, May 28, 1979, 791695

Int. Cl.³ C07G *1/00*

U.S. Cl. 260—124 R **2 Claims**

1. A process for recovering lignosulfonates from spent sulfite liquor resulting from the cooking of cellulose-containing material comprising:

(a) extracting the spent liquor with a liquid amine dissolved in a strongly polar ketone as an organic solvent, which ketone is poorly soluble in water, to form a lignosulfonate-bearing organic phase and an aqueous phase;

(b) separating the organic phase from the aqueous phase;

(c) recovering the substantially sugar-free lignosulfonates from the organic phase by stripping the organic phase with a base insoluble in the organic phase;

(d) regenerating the stripped, lignosulfonate-free organic phase by treating it with an aqueous solution of sodium bisulfite to bring the liquid amine in the phase into bisulfite form; and

(e) returning the regenerated organic phase for further extraction of spent liquor.

4,336,190

COPPER COMPLEX FORMAZAN COMPOUNDS, PROCESS FOR THEIR MANUFACTURE AND THEIR USE AS DYESTUFFS

Günther Schwaiger, and Ernst Hoyer, both of Frankfurt am Main, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

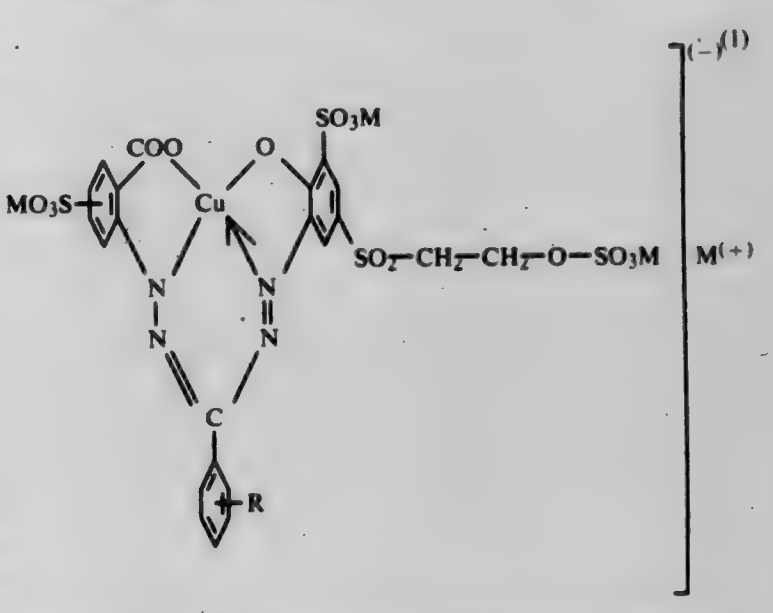
Filed Nov. 7, 1980, Ser. No. 204,915

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1979, 2945537

Int. Cl.³ C09B *50/00*

U.S. Cl. 260—149 **5 Claims**

1. A copper complex formazan compound of the formula



in which M is hydrogen or the equivalent of a metal and R is hydrogen or chlorine.

4,336,191

PENICILLIN CONVERSION BY HALOGEN ELECTROPHILES AND ANTI-BACTERIALS DERIVED THEREBY

Stjepan Kukolja, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation of Ser. No. 522,539, Nov. 11, 1974, abandoned, which is a division of Ser. No. 273,550, Jul. 20, 1972, Pat. No. 3,860,577, which is a division of Ser. No. 148,129, May 28, 1971, abandoned. This application Feb. 25, 1977, Ser. No. 772,086

Int. Cl.³ C07D *205/08*

U.S. Cl. 260—239 A **2 Claims**

1. A method for selectively opening the S, —C_5 bond of the thiazolidine ring of a compound selected from the group consisting of a 6-acylamido penicillin ester and a 6-imido penicillin ester comprising reacting the penicillin ester with an alkanoyl hypohalite in an aprotic solvent.

4,336,192

5,6-DIHYDRO-11-ALKYLENE-MORPHANTHRIDIN-6-ONES

Gerd Steiner, Kirchheim, and Albrecht Franke, Wachenheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

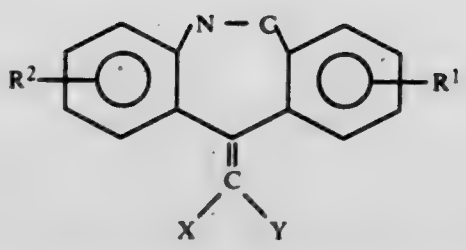
Continuation of Ser. No. 144,061, Apr. 28, 1980, abandoned. This application Nov. 20, 1980, Ser. No. 208,974

Claims priority, application Fed. Rep. of Germany, May 10, 1979, 2918832

Int. Cl.³ C07D *223/20*

U.S. Cl. 260—239.3 T **2 Claims**

1. A compound of formula I



where R^1 and R^2 are hydrogen, chlorine or methyl, X is hydrogen or methyl and Y is methylcarbonyl.

4,336,193

PROCESS FOR PREPARING VITAMIN D-LACTONES

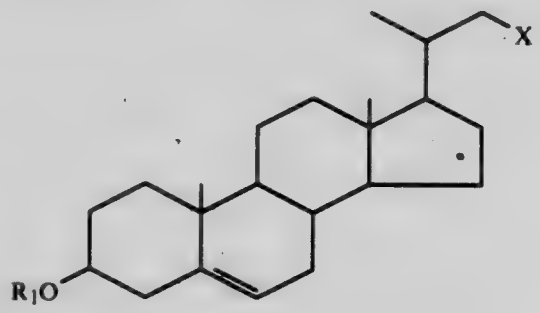
Hector F. DeLuca; Heinrich K. Schnoes, both of Madison; Herbert E. Paaren, Verona; Joseph K. Wichmann, and Mary A. Fivizzani, both of Madison, all of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Continuation-in-part of Ser. No. 174,944, Aug. 4, 1980, abandoned. This application Jan. 26, 1981, Ser. No. 228,486

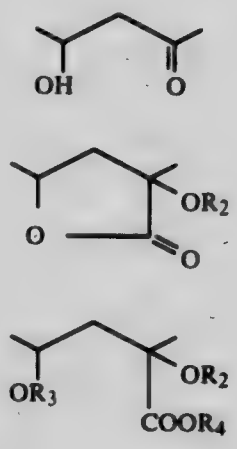
Int. Cl.³ C07J *9/00, 17/00*

U.S. Cl. 260—239.57 **16 Claims**

2. Compounds having the formula



where X is selected from



R_1, R_2 and R_3 are selected from the group consisting of hydrogen, acyl, alkylsilyl and tetrahydropryanyl and R_4 is hydrogen or alkyl in all their isomeric forms.

4,336,194

BENZYL PYRROLYL METHYL CARBOXYLATE INSECTICIDES AND ACARICIDES

Tadashi Ohsumi, Kyoto; Nobushige Itaya, Nishinomiya, and Masachika Hirano, Ibaraki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

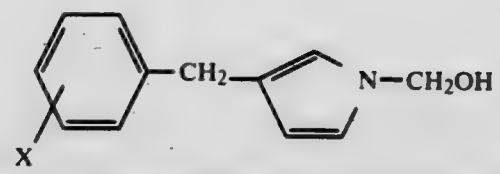
Division of Ser. No. 948,049, Oct. 3, 1978, Pat. No. 4,212,879. This application Jul. 13, 1979, Ser. No. 57,282

Claims priority, application Japan, Oct. 7, 1977, 52-121244

Int. Cl.³ C07D *207/325*

U.S. Cl. 548—562 **2 Claims**

1. A compound of the formula (IV)



(IV)

wherein X is a hydrogen atom, or C_1-C_3 alkyl or C_1-C_3 alkoxyl group, or a halogen atom linked to the meta or para position.

4,336,195

PREPARATION OF CYCLIC ETHERS

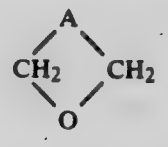
James M. Renga, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Feb. 2, 1981, Ser. No. 230,245

Int. Cl.³ C07D *319/10, 307/00, 307/77, 309/00*

U.S. Cl. 549—462 **10 Claims**

1. A process for making a cyclic ether of the formula



having five to six atoms in the cyclic ether ring structure, which process comprises contacting a lower alkyl carbonate of the formula $RR'CO_3$ wherein R and R′ are each independently a methyl or ethyl radical with a dihalide of the formula XCH_2-A-CH_2X wherein each X is Cl or Br and A is a divalent radical of the group 1,2-alkylene, 1,3-alkylene, 1,2-phenylene, oxydimethylene and oxyethylene in the presence of a quaternary ammonium or phosphonium salt at about 100° C.–200° C.

4,336,196

PROCESS FOR THE PRODUCTION OF PHENYLMALONIC ACID MONO-ESTERS

Shigeo Kitamura, Oyabe; Kazuo Yoshioka; Yoshiharu Seriyama, both of Takaoka, and Hiroshi Misuta, Toyama, all of Japan, assignors to Nippon Soda Company Limited, Tokyo and Shionogi Company Limited, Osaka, both of, Japan

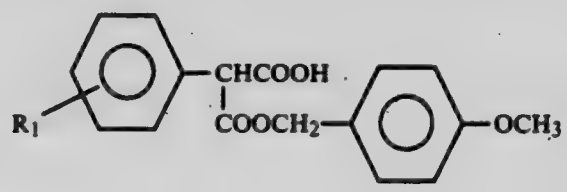
Filed Jul. 21, 1980, Ser. No. 170,910

Claims priority, application Japan, Jul. 27, 1979, 54-95060; Jun. 25, 1980, 55-85149

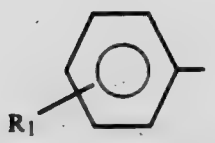
Int. Cl.³ C07D *309/06;* **C07C** *69/773*

U.S. Cl. 549—416 **2 Claims**

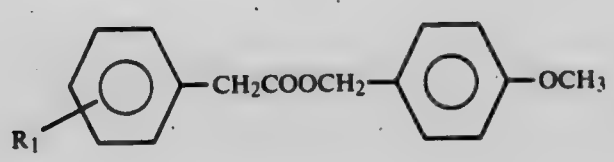
1. A process for the production of phenylmalonic acid mono-esters having the following general formula:



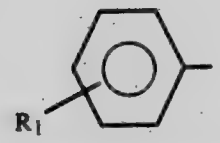
wherein



is phenyl mono-substituted by 2-tetrahydropyranyloxy or p-methoxybenzyloxy or is disubstituted by p-methoxybenzyloxy or p-methoxybenzyloxy and methoxy, which process consits of reacting phenylacetic acid esters having the following formula:



wherein



has the foregoing definition, with carbon dioxide in the presence of a sodium-substituted compound of an organic compound selected from the group consisting of acetylene, cumene, methyl-methyl-thiomethyl-sulfoxide and dimethyl-sulfoxide at a temperature of from about −20° C. to about −40° C., and neutralizing or weakly acidifying the reaction mixture with acid.

4,336,197

6-ETHYL-2,10,10-TRIMETHYL-1-OXA-SPIRO[4.5]DECA-3,6-DIENE

Peter Fankhauser, Onex, Switzerland, assignor to Firmenich SA, Geneva, Switzerland

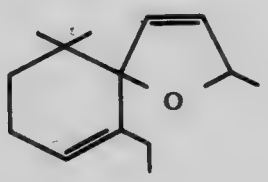
Filed Jan. 30, 1981, Ser. No. 230,406

Claims priority, application Switzerland, Feb. 8, 1980, 1013/80

Int. Cl.³ C07D *307/94*

U.S. Cl. 549—331 **1 Claim**

1. Compound of formula



(I)

4,336,198

PREPARATION OF MALEIC ANHYDRIDE USING COATED CATALYSTS CONTAINING HIGH LOADING OF ACTIVE PHASE

Serge R. Dolhyj, Parma, and Marc A. Pepera, Broadview Heights, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Division of Ser. No. 104,603, Dec. 17, 1979, Pat. No. 4,312,787. This application Jun. 8, 1981, Ser. No. 271,153

Int. Cl.³ C07D *307/60*

U.S. Cl. 549—259 **17 Claims**

1. A process for the production of maleic anhydride by the oxidation of n-butane, n-butenes, 1,3 butadiene or a mixture thereof with molecular oxygen or a molecular oxygen-containing gas in the vapor phase at a reaction temperature of 250° C. to 600° C. in the presence of a catalyst, wherein said catalyst comprises an essentially inert, at least partially porous support of at least about 20 microns in diameter, said support having an outer surface, and a catalytically active oxide material coating on said outer surface of said support which strongly adheres to said outer surface of said support wherein said oxide material consists essentially of the mixed oxides of vanadium and phosphorus, present in an amount greater than 50% to about 80% by weight of the combined support and oxide material wherein said oxide material is applied to said outer surface of said support by partially wetting said support with a liquid, contacting the partially wet support with a powder of said oxide material, and effecting said oxide coating.

4,336,199

5-(2,4-DICHLOROPHENYL)-3-FURANCARBOXALDEHYDE-O-[(METHYLAMINO)CARBONYL]OXIME

Robert J. Alaimo, and Joseph E. Gray, both of Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.

Filed Jul. 10, 1981, Ser. No. 281,994

Int. Cl.³ C07D *307/54*

U.S. Cl. 549—496 **1 Claim**

1. The compound 5-(2,4-dichlorophenyl)-2-furancarboxaldehyde-O-[(methylamino)carbonyl]oxime.

4,336,200

17α-ACYLOXY-5β-CORTICOIDS

Donald E. Ayer, and Carl A. Schlagel, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 117,401, Jan. 31, 1980, abandoned. This application Jan. 28, 1981, Ser. No. 229,257

Int. Cl.³ C07J *5/00*

U.S. Cl. 260—397.45 **1 Claim**

1. 21-Chloro-6α,9α-difluoro-11β,17α-dihydroxy-16β-methyl-5β-pregnane-3,20-dione 17-propionate.

4,336,201

PREPARATION OF ELECTRICALLY CONDUCTIVE CAROTENOIDS

Franz Feichtmayr, Ludwigshafen; Herbert Naarmann, Wattenheim; Joachim Paust, Neuhofen, and Klaus Penzien, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

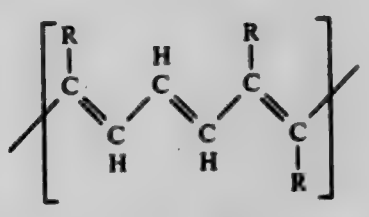
Filed Nov. 3, 1980, Ser. No. 203,598

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1979, 2947797

Int. Cl.³ C07C *175/00*; C11C *3/02*

U.S. Cl. 260—410.9 V **8 Claims**

1. A process for the preparation of an electrically conductive polyene which comprises treating a carotenoid having one or more chain members of the formula



where R is hydrogen or methyl, and which contains a total of not less than seven aliphatic double bonds, in the essential absence of moisture and of oxygen, with from 0.03 to 0.9 mole percent, based on carotenoid employed, of a strong Lewis acid having a pk_a of from −10 to +4 or of an alkali metal.

4,336,202
1,3-CYCLOHEXANEDIONE DERIVATIVES

Sigeru Torii; Kenji Uneyama, both of Okayama; Takashi Onishi, Kurashiki; Yoshiji Fujita, Kurashiki; Michihiro Ishiguro, Kurashiki, and Takashi Nishida, Kurashiki, all of Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

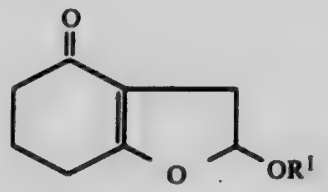
Filed May 18, 1981, Ser. No. 264,463

Claims priority, application Japan, May 29, 1980, 55-72406; Jun. 12, 1980, 55-79702

Int. Cl.³ C07D *307/83;* C07C *49/403*

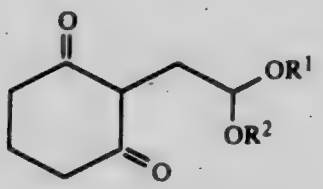
U.S. Cl. 549—466 5 Claims

1. A cyclohexanone derivative selected from the group consisting of compounds having the formula:



(I)

wherein R^1 is a hydrocarbon group of 1 to 15 carbon atoms and compounds having the formula:



(II)

wherein R^1 is as defined above; R^2 is a hydrocarbon group of 1 to 15 carbon atoms.

4,336,203
PROCESS FOR THE CONTINUOUS PRODUCTION OF ALKALI METAL SALTS OF FATTY ACIDS

Friedrich J. Zucker, St. Andreas-Strasse 16, D-4040 Neuss 21; Georg Osthaus and Paul Plassmann, both of Neuss, all of Fed. Rep. of Germany, assignors to Friedrich J. Zucker, Neuss, Fed. Rep. of Germany

Continuation of Ser. No. 90,044, Oct. 31, 1979, abandoned. This application Dec. 22, 1980, Ser. No. 218,568

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847457

Int. Cl.³ C11C *1/04*

U.S. Cl. 260—417 10 Claims

1. A process for the continuous production of alkali metal salts of fatty acids comprising the steps of: reacting a fatty acid mixture with an alkali metal hydroxide in stoichiometric quantities, optionally in the presence of other additives of the type normally used in the manufacture of soap; reacting the reaction mixture in the absence or presence of up to a maximum of 15% by weight of solvent in the shear field of a rotor-stator machine with interengaging radial surfaces; running off the reaction product in the form of a granulate or product strand, said rotor-stator machine producing forces for immediate spontaneous conversion of continuously supplied reaction components without substantial delay; producing shear forces, peripheral elastic forces, micro-cavitation, and ultrasonic alternating pulses from compression and decompression for affecting the reaction, the reaction being spontaneous and exothermic, mixing and reacting occurring substantially simultaneously; and cooling the reaction product evaporatively by reaction water vaporization to avoid discolorization, said product leaving the reaction zone in form of a substantially small aggregate with a substantially high degree of capillaries.

4,336,204
MENTHENE NITRILES AND USE AS PERFUME CHEMICALS

Willem Lenselink, Voorthuizen, Netherlands, assignor to Polak's Frutal Works, B.V., Amersfoort, Netherlands

Division of Ser. No. 20,308, Mar. 14, 1979, Pat. No. 4,235,805. This application Feb. 22, 1980, Ser. No. 123,581

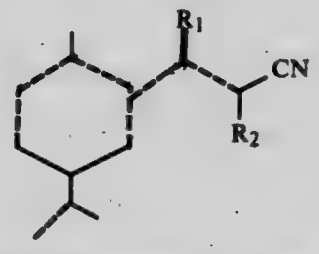
Claims priority, application United Kingdom, Mar. 20, 1978, 10938/78

The portion of the term of this patent subsequent to Nov. 25, 1997, has been disclaimed.

Int. Cl.³ C07C *121/48*

U.S. Cl. 260—464 18 Claims

1. A compound having the structural formula



wherein R_1 and R_2 are hydrogen or alkyl groups of 1 to 6 carbon atoms and the total carbon number of R_1 and R_2 combined is 6 or less and wherein the dotted lines within the ring represent a carbon-carbon double bond in one of the four ring positions and carbon-carbon single bonds in the other three ring positions and the dotted lines in the side chain substituents represent either carbon-carbon single bonds or carbon-carbon double bonds with no more than one double bond being present in the nitrile group-containing side chain.

4,336,205
METHOD FOR PRODUCING AROMATIC NITRILES

Isatsugu Onishi, Ikeda; Itsuo Furuoya, Suita, and Ichiro Minato, Kobe, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Mar. 31, 1981, Ser. No. 249,461

Claims priority, application Japan, Apr. 1, 1980, 55-43119

Int. Cl.³ C07C *120/14;* C07D *213/57*

U.S. Cl. 260—465 C 9 Claims

1. A method for producing aromatic nitriles which comprises reacting an alkyl-substituted aromatic compound with ammonia and oxygen in the presence of a catalyst containing, as active ingredients, oxides of (1) vanadium, (2) antimony and (3) at least one of uranium and chromium.

4,336,206
PROCESS FOR THE MANUFACTURE OF CYANOHYDRIN ACYLATES OF ALDEHYDES

Rainer Mündnich, Frankfurt am Main; Manfred Finke, Kelkheim; Walter Rupp, Königstein, and Klaus Dehmer, Kelkheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

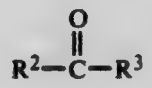
Filed May 15, 1980, Ser. No. 149,969

Claims priority, application Fed. Rep. of Germany, May 17, 1979, 2919974

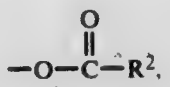
Int. Cl.³ C07C *120/00, 121/38, 121/46, 121/66*

U.S. Cl. 260—465.4 16 Claims

1. A single stage process for the manufacture of a cyanohydrin acylate of an aldehyde which consists of reacting an aldehyde of the formula R^1—CHO in which R^1 is (C_1–C_8)-alkyl or (C_2–C_6)-alkenyl, an aqueous solution of cyanide of the formula MCN in which M is an alkali metal ion or an ammonium ion and an organic acid chloride or acid anhydride of the formula



in which R^2 is (C_1-C_4)-alkyl or phenyl and R^3 is Cl, Br or



in the presence of an inert organic solvent immiscible in water, in substantially equimolar amounts of 1:(1-1.1):(1-1.1), respectively, at a temperature in the range of −20° C. to +20° C.

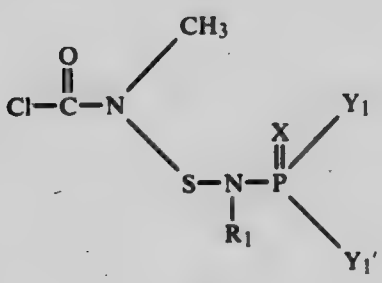
4,336,207

PHOSPHORUS DERIVATIVES OF AMINOTHIOCARBAMOYL HALIDES

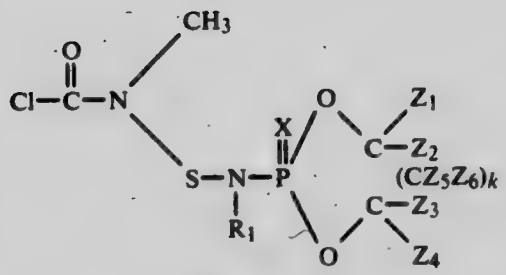
Stephen J. Nelson, Comstock Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 43,276, Jun. 1, 1979, Pat. No. 4,234,521.
This application Jun. 23, 1980, Ser. No. 161,973
The portion of the term of this patent subsequent to Nov. 18, 1997, has been disclaimed.
Int. Cl.³ C07F *9/22, 9/24*
U.S. Cl. 260—936 **18 Claims**

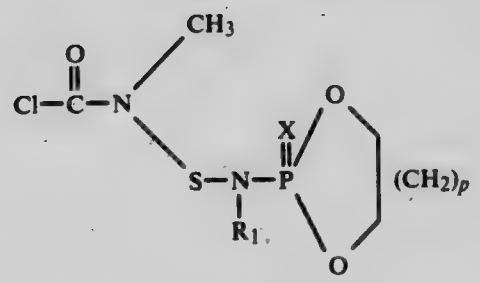
1. A compound having the formula selected from the group consisting of:



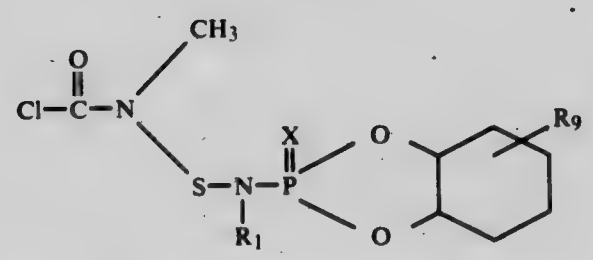
II₁



II'



II''



II'''

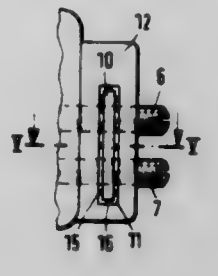
wherein R_1 is selected from the group consisting of lower-alkyl, phenyl, substituted phenyl, phenyl lower-alkyl, and cycloalkyl; X is oxygen or sulfur; Y_1 and Y'_1 are the same or different and are selected from the group consisting of lower-alkyl, lower-alkoxy, lower-alkylthio, cycloalkyl, phenyl, substituted phenyl, phenoxy, substituted phenoxy, thiophenoxy, and substituted thiophenoxy; wherein Z_1 through Z_6 are the same or different and are selected from the group consisting of hydrogen, methyl and ethyl, and K is 0 or 1; p is three or four, and R_9 is selected from the group consisting of hydrogen, lower-alkyl, lower-alkoxy and halogen.

4,336,208

CARBURETOR FOR INTERNAL COMBUSTION ENGINE

Reinhard Gerhardy, Korb, Fed. Rep. of Germany, assignor to Andreas Stihl, Waiblingen, Fed. Rep. of Germany

Filed Feb. 13, 1981, Ser. No. 234,185
Claims priority, application Fed. Rep. of Germany, Feb. 16, 1980, 3005854
Int. Cl.³ F02M *3/08*
U.S. Cl. 261—71 **12 Claims**



1. In combination with a receiving part located on one of a carburetor and an internal combustion engine of a power saw, said receiving part being provided with at least one bore for respectively having fastened and secured therein an adjustment screw; the improvement in which said receiving part is further provided with a recess, and which includes a clamping piece which is arranged in said recess in such a way as to be secure against rotation, said clamping piece receiving said adjustment screw in a positive, locking manner, said clamping piece being provided with holding means for securely holding said clamping piece in said recess of said receiving part, said clamping piece comprising flexible material and being provided with bores, which are free of threads and respectively have a smaller diameter than the diameter of the associated adjustment screw, in order to make it possible to receive respective adjustment screws in said bores in a positive locking manner, said holding means comprising projections arranged on the surfaces as well as on the edges of said clamping piece to provide a snug fit of said clamping piece in said recess.

4,336,209

PROCESS AND DEVICE FOR PREPARING CAST EXPLOSIVE BODIES

Nils O. Gylden, Ceremonimästarvägen 81, S-181 40 Lidingö; Nial T. Karlen, Olovsvägen 19, S-147 00 Tumba; Jarl B. E. Andersson, Söderby Kvarn 2503, S-137 00 Västerhaninge, and Anders G. T. Andersson, Granbacken 12, S-147 00 Tumba, all of Sweden

Filed Jun. 7, 1979, Ser. No. 46,166
Claims priority, application Sweden, Jun. 9, 1978, 7806744
Int. Cl.³ C06B *21/00*
U.S. Cl. 264—3 R **7 Claims**

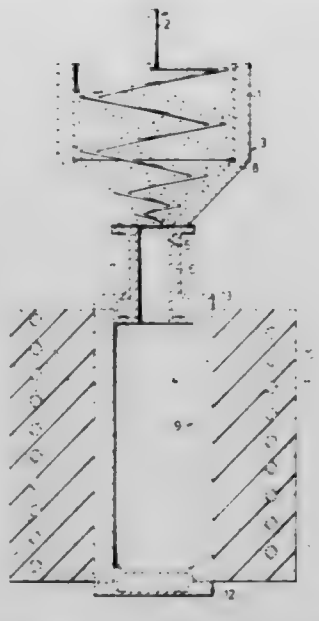
1. A process for preparing an explosive body shaped as a right circular cylinder by vacuum casting of an explosive material mixture comprising a liquid, melted phase, and solid components having a higher density than the liquid phase and dispersed therein, said process comprising:

homogenizing the explosive material mixture and introducing the mixture into an insulated mould having a flat bottom head member and vertical walls symmetric about a longitudinal axis of the mould;

maintaining a uniform temperature over the entire surface of the flat bottom head member facing the interior of the mould;

maintaining in the vertical walls a temperature field having a temperature gradient constant in the axial direction and symmetric about the mould axis whereby thermal equilibrium is achieved between different parts of the explosive

mixture so that sedimentation occurs without disturbance from convection currents within the mixture; and



slowly lowering the temperature in the bottom head member to obtain controlled solidification of the mixture.

4,336,210

PROCESS FOR THE PREPARATION OF FINELY DIVIDED THERMOPLASTIC RESIN

Dorothee M. McClain, Cincinnati, Ohio, assignor to National Distillers & Chemical Corp., New York, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,838
Int. Cl.³ B01J *2/06*
U.S. Cl. 264—8 **8 Claims**

1. A process for preparing in finely divided form a solid organic polymeric thermoplastic resin which comprises:

(a) agitating a mixture of the resin while in the molten state, a dispersion-forming amount of water, and a dispersion-forming amount of a substantially water-insoluble ionomer polymer dispersing agent, to provide a hot aqueous dispersion of the resin;

(b) cooling the dispersion to provide solid particles of resin; and,

(c) recovering said solid particles of resin from the aqueous dispersion to provide said solid polymer thermoplastic resin in finely divided form.

4,336,211

METHOD FOR THE PREPARATION OF SHAPED ARTICLES OF A VINYL CHLORIDE BASED RESIN HAVING IMPROVED SURFACE PROPERTIES

Michihiko Asai; Yoshio Suda, both of Tokyo; Kiyoshi Imada, Saitama; Susumu Ueno, and Hirokazu Nomura, both of Ibaraki, all of Japan, assignors to Agency of Industrial Science and Technology and Shin-Etsu Chemical Company, Limited, both of Tokyo, Japan

Filed Nov. 14, 1980, Ser. No. 206,992
Claims priority, application Japan, Nov. 19, 1979, 54-149769
Int. Cl.³ C08F *2/48*
U.S. Cl. 264—22 **1 Claim**

1. A method for the preparation of a shaped article of a vinyl chloride-based resin insusceptible to the exudation of a plasticizer or other additive ingredient contained therein which comprises the steps of

(a) admixing a plasticizer, 100 parts by weight of a vinyl chloride-based resin with from 0.5 to 10 parts by weight per 100 parts by weight of the vinyl chloride-based resin of an epoxy compound to give a resin composition, said epoxy compound containing at least 2% by weight of the oxirane oxygen in a molecule,

(b) fabricating the resin composition into a shaped article, and

(c) irradiating the surface of the shaped article with ultraviolet light having a substantial energy distribution in the wavelength region of 200 nm or shorter.

4,336,212

COMPOSITION FOR DRAWN FILM, COLD DRAWN FILM MADE OF SAID COMPOSITION AND PROCESS FOR MANUFACTURE OF SAID FILM

Isao Yoshimura; Hideo Hata, and Takashi Kaneko, all of Kawasaki, Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Division of Ser. No. 60,638, Jul. 25, 1979, Pat. No. 4,302,557, which is a division of Ser. No. 949,253, Oct. 6, 1978, Pat. No. 4,277,578. This application Jul. 17, 1981, Ser. No. 284,464
Claims priority, application Japan, Oct. 11, 1977, 52-1209; Nov. 22, 1977, 52-139431; May 30, 1978, 53-63870; May 30, 1978, 53-63872
Int. Cl.³ B29D *7/02, 7/24*
U.S. Cl. 264—22 **21 Claims**

1. A process for the manufacture of a cold drawn film having a tensile strength of not less that 5.00 kglmm2 and a haze of not more than 4.0%, which comprises mixing the specific combination of components, of (B)+(C),: wherein

(B) is an elastomer having a density of not more than 0.91 g/cm^3 and made of an ethylene-α-olefin copolymer, and

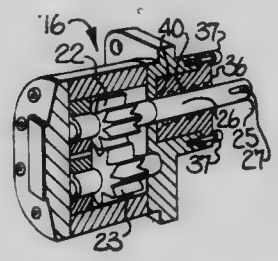
(C) is at least one selected from the group consisting of crystalline polypropylene, high-density polyethylene and crystalline polybutene-1, extruding the resultant blend through an annular die to produce a tubular sheet, suddenly solidifying the tubular sheet by means of a liquid refrigerant, passing the tubular sheet through two pairs of nip rollers and heating the sheet to a temperature of not exceeding 110° C., and then stretching the film at a cold stretching temperature in the range of from 20° to 100° C. while introducing air into the tubular sheet interior under pressure for thereby effecting cold orientation of the sheet into a film at an area stretching ratio in the range of from 5 to 30 times the original dimension.

4,336,213

PLASTIC EXTRUSION APPARATUS AND METHOD

Steve A. Fox, Rte. 1, Box 745-B, Taylorsville, N.C. 28681

Filed Feb. 6, 1980, Ser. No. 118,897
Int. Cl.³ B29F *3/06;* **F04C** *25/00*
U.S. Cl. 264—40.1 **8 Claims**



1. In a method including extruding a melted plastic material and wherein the plastic is metered by passing through a gear pump, the improvement comprising:

passing said plastic material through a gear pump having

(a) an enclosed housing having inlet port means for receiving the melted plastic, and discharge port means for discharging the plastic therefrom,

(b) gear means rotatably mounted within said housing and adapted upon forward rotation to convey the plastic from said inlet port means to said discharge port means,

(c) a shaft extending through said housing and operatively connected to said gear means for transmitting rotational torque to the same, said shaft including a cylindrical outer surface portion, and

(d) means for sealing said shaft to said housing to effectively preclude leakage of the melted plastic therebetween, said sealing means comprising a sleeve removably secured to

said housing and having an internal cylindrical bore closely surrounding said cylindrical surface portion of said shaft, with said cylindrical bore having a shallow helical channel formed therein and extending along at least a substantial portion of the axial length thereof, said channel being of generally rectangular cross-sectional configuration and having a depth not exceeding the square root of

$6(pi)DNuL/P \tan Q$

wherein D is the diameter of said shaft, N is the rotational speed of the shaft in revolutions per second, u is the viscosity of the plastic, L is the length of the seal, P is the pressure of the plastic, and Q is the lead angle of the helical channel, with such variables being in consistent units, and with the helical channel being of a hand such that forward rotation of the shaft and gear means results in the plastic which enters the clearance between said shaft cylindrical bore to be effectively pumped back toward the interior of the housing, and including the steps of

delivering the melted plastic to said inlet port means under pressure of at least about 600 psi, and

rotating said gear means at said rotational speed and in a direction such as to forwardly convey the plastic, and including pumping substantially all of the plastic which enters the clearance between said shaft cylindrical surface portion and said cylindrical bore back toward the interior of said housing.

4,336,214

PROCESS FOR HYGROSCOPIC, FIBRES AND FILAMENTS OF SYNTHETIC POLYMERS

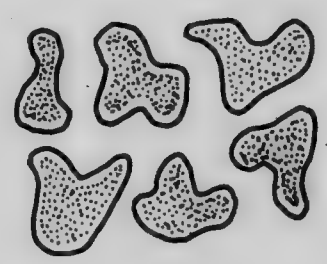
Ulrich Reinehr, Dormagen; Hermann-Josef Jungverdorben, Neukirchen; Toni Herbertz, Dormagen; Alfred Nogaj, Dormagen, and Peter Kleinschmidt, Dormagen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 746,727, Dec. 2, 1976, abandoned. This application Jan. 31, 1980, Ser. No. 117,161

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1975, 2554124

Int. Cl.³ B29H *7/20*

U.S. Cl. 264—49 **4 Claims**



1. A process for the production of a hygroscopic filament or fiber having a microporous core-jacket structure, a moisture regain of at least 2 percent at 65 percent relative humidity/21° C. and a water retention capacity of at least 10 percent; consisting essentially of the steps of

(1) dry-spinning a filament-forming synthetic acrylonitrile polymer containing at least 50% by weight of acrylonitrile units, a solvent therefor, and 5 to 50 percent by weight, based on the solvent and solids, of a non-solvent liquid which

(a) has a higher boiling point than the solvent used,

(b) is readily miscible both with the solvent and with water, and

(c) is a non-solvent for the synthetic polymer to be spun;

under such conditions that during spinning the solvent is evaporated from the filaments in the spinning duct; but as little as possible of the non-solvent liquid evaporates in the spinning duct; and

(2) removing said liquid non-solvent for the acrylonitrile polymer from said filament or fiber by washing it out during the course of the aftertreatment;

wherein said solvent is dimethyl acetamide, dimethyl sulphoxide, N-methyl pyrrolidone or dimethyl formamide.

4,336,215

SINTERED CERAMIC BODY AND PROCESS FOR PRODUCTION THEREOF

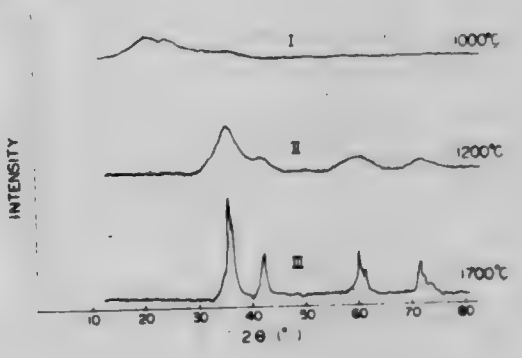
Seishi Yajima; Kiyohito Okamura; Yoshio Hasegawa, and Takemi Yamamura, all of Oharai, Japan, assignors to Ube Industries, Ltd., Japan

Filed Nov. 25, 1980, Ser. No. 210,445

Claims priority, application Japan, Nov. 30, 1979, 54-154198; Dec. 17, 1979, 54-162835; Mar. 31, 1980, 55-40305

Int. Cl.³ C04B *35/52*

U.S. Cl. 264—63 **15 Claims**



1. A process for producing a sintered ceramic body, which comprises heating a semi-inorganic block copolymer at a temperature of from 500° to 2300° C. in vacuum or in an atmosphere composed of at least one gas selected from the group consisting of inert gases, reducing gases and hydrocarbon gases, said copolymer comprising polycarbosilane blocks, having a main-chain skeleton composed mainly of carbosilane units of the formula —Si—CH_2—, each silicon atom of said carbosilane units having bonded thereto a side-chain group selected from the class consisting of hydrogen, lower alkyl and phenyl, and titanoxane units of the formula —Ti—O—; and shaping the heated product, and simultaneously with, or after, the shaping of the heated product, sintering the shaped product at a temperature of from 800° C. to 2300° C. in vacuum or in an atmosphere composed of at least one gas selected from the group consisting of inert gases, reducing gases and hydrocarbon gases.

4,336,216

PROCESS FOR PRODUCING SILICON CARBIDE HEATING ELEMENTS

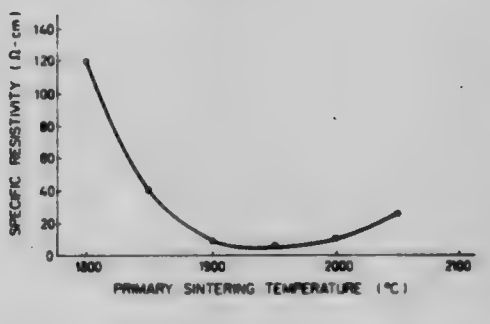
Masakazu Watanabe; Akiyasu Okuno, and Yasushi Matsuo, all of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Filed Jun. 9, 1980, Ser. No. 157,738

Claims priority, application Japan, Jun. 8, 1979, 54-72464

Int. Cl.³ C04B *35/56*

U.S. Cl. 264—65 **7 Claims**



1. A process for producing a silicon carbide heating element comprising:

a primary sintering wherein a mixture including (1) beta-SiC powder having an average particle diameter of not more than 1.0μ, (2) from 0.3 to 3.0% by weight, based on the weight of the beta-SiC powder, of boron or a corresponding amount of a boron compound, and (3) from 0.1 to 3.0% by weight, based on the weight of the beta-SiC powder, of carbon or a corresponding amount of a carbon compound is molded and sintered in vacuum or in a non-nitrogen inert atmosphere to obtain a sintered product having from 70 to 95% of the theoretical density; and

a secondary sintering wherein the sintered product obtained in the primary sintering is further sintered in an atmosphere of nitrogen gas at a temperature from 1,600° C. to 2,200° C. to obtain a silicon carbide heating element having a density of at least 80% of the theoretical density and a specific resistivity of not more than 1.0 Ω-cm.

4,336,217

CONTINUOUS PRODUCTION OF GAS DIFFUSION ELECTRODES

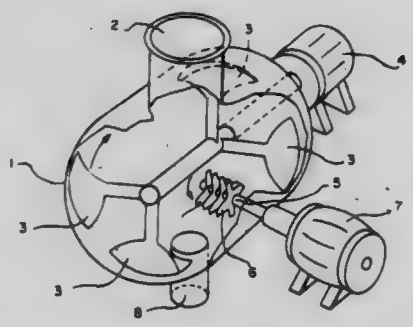
Hans Sauer, Idstein-Walsdorf, Fed. Rep. of Germany, assignor to Varta Batterie A.G., Hanover, Fed. Rep. of Germany

Filed Oct. 15, 1980, Ser. No. 197,215

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1979, 2941774

Int. Cl.³ B05D *5/12*

U.S. Cl. 264—105 **8 Claims**



1. The process for manufacture of a plastic-cohered active carbon layer for gas diffusion electrodes, particularly air electrodes utilizing a paddle mixer and a cutting head with sharp knives, said process comprising

subjecting a dry mixture of active carbon powder and polytetrafluoroethylene powder while it is still in the paddle mixer, before rolling or pressing, additionally to an intensive subdividing influence of the rotating sharp knives of the cutting head,

whereby the polytetrafluoroethylene temporarily evaporates, at least partially, and deposits upon the carbon powder.

4,336,218

METHOD FOR RECOVERING RESIDUAL MATTER ACCUMULATED IN THE PRODUCTION AND MACHINING OF STEEL

Werner Kaas, Buchenstr. 173, D-4220 Dinslaken; Hans-Helmut Borggrefe, Herzogenweg 10, D-4156 Willich 1, and Klaus-Dieter Unger, Forstwaldstr. 684, D-4150 Krefeld 1, all of Fed. Rep. of Germany

Filed Oct. 22, 1980, Ser. No. 199,684

Claims priority, application Fed. Rep. of Germany, Oct. 24, 1979, 2942899

Int. Cl.³ B22F *3/06*

U.S. Cl. 264—111 **16 Claims**

1. In a method in which residual matter of the type accumulated as metal-containing dust and chips in the production and machining of steel is to be formed into briquettes, with the addition of a binder, the steps comprising:

selecting the chips to have a length of about 7 to 30 mm; 3% to 8% by weight of water;

allowing the moistened dust time to hydrate free lime contained in the dust; and

forming a mixture of the dust, binder, and chips into briquettes.

4,336,219

METHOD FOR PELLETIZING SILICA

Trevor G. Lamond, Borger, Tex., assignor to J. M. Huber Corporation, Locust, N.J.

Filed Aug. 11, 1980, Ser. No. 176,893

Int. Cl.³ B01J *2/06*

U.S. Cl. 264—117 **4 Claims**

1. A method for forming pellets of a particulate siliceous material selected from the group consisting of silica, sodium silicates and sodium aluminosilicates, by pelletizing in aqueous medium in a pelletizer, the steps comprising:

(a) passing said siliceous material to a pelletizer;

(b) passing an ammonium stearate aqueous suspension into said pelletizer so that the ammonium stearate is present in the pelletizer at a level of from 0.1 to 5% by weight of the siliceous material;

(c) pelletizing said siliceous material in the presence of said ammonium stearate in said pelletizer to form pellets of siliceous material;

(d) removing said pellets from said pelletizer; and

(e) drying said pellets.

4,336,220

METHOD OF AND APPARATUS FOR MANUFACTURING A CONTINUOUS SLIDE FASTENER STRINGER

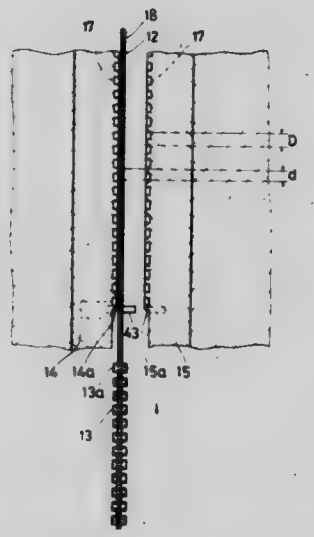
Kihei Takahashi, Uozu, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Sep. 26, 1980, Ser. No. 190,979

Claims priority, application Japan, Oct. 1, 1979, 54-125345

Int. Cl.³ B29D *5/00*

U.S. Cl. 264—229 **12 Claims**



1. A method of manufacturing a continuous slide fastener stringer including a continuous stringer tape and a row of injection-molded coupling elements secured to the stringer tape along a longitudinal edge thereof, said method comprising the steps of:

(a) providing a stringer tape having a plurality of openings in the stringer tape along the longitudinal edge thereof at regular intervals of a first distance;

(b) then placing a part of the stringer tape between a pair of relatively movable mold members defining a predetermined number of mold cavities spaced at regular intervals of a second distance slightly greater than said first distance;

(c) then stretching said part of the stringer tape until the openings therein are aligned with the mold cavities in the mold members;

(d) then injecting melted synthetic resin material into the mold cavities, while the mold members are closed with the open-

ings in said part of the stringer tape aligned with the mold cavities of the mold members, to form on said part of the stringer tape the coupling elements, one at each of the openings; and

(e) repeating the preceding steps (b), (c) and (d) for a succeeding part of the stringer tape.

3. An apparatus for manufacturing a continuous slide fastener stringer including a continuous stringer tape and a row of injection-molded coupling elements secured to the stringer tape along a longitudinal edge thereof, the stringer tape having a plurality of openings along the longitudinal edge thereof at regular intervals of a first distance, said apparatus comprising:

(a) a frame;

(b) a pair of relatively movable mold members supported on said frame and defining a predetermined number of mold cavities spaced at regular intervals of a second distance slightly greater than said first distance, said mold members being movable relatively to each other between a first position in which said mold members are fully opened for the passage therethrough of the stringer tape, a second position in which said mold members are half closed to hold only one end of one of the successive parts of the stringer tape, and a third position in which said mold members are fully closed to hold throughout its length said one of the successive parts of the stringer tape;

(c) means supported on said frame both upstream and downstream of said mold members for intermittently advancing tape through said mold members;

(d) means supported on said frame to engage the other end of said one of the successive parts of the stringer tape for stretching said one of the successive parts of the stringer tape, while said mold members are in said second position, until said openings in said one of the successive parts of the stringer tape are aligned with said mold cavities; and

(e) means associated with said mold members for injecting melted synthetic resin material into said mold cavities, while said mold members are in said third position, to form on said one of the successive parts of the stringer tape the coupling elements, one at each of the openings.

4,336,221

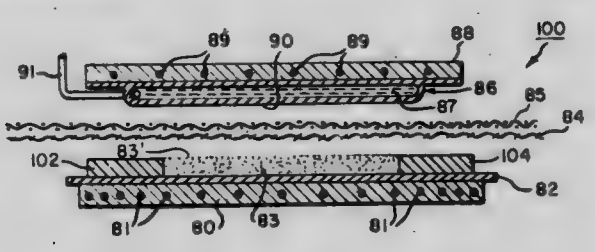
PROCESS FOR MAKING A STRESS-FREE PLASTIC ARTICLE

Armen Garabedian, 8-22 Astoria Blvd., Long Island City, N.Y. 11102

Division of Ser. No. 929,304, Jul. 31, 1978, Pat. No. 4,243,368, which is a continuation-in-part of Ser. No. 647,832, Jan. 9, 1976, and a continuation-in-part of Ser. No. 817,048, Jul. 19, 1977, Pat. No. 4,104,101, which is a continuation of Ser. No. 279,964, Aug. 11, 1972, abandoned, which is a continuation-in-part of Ser. No. 141,495, May 10, 1971, abandoned, which is a division of Ser. No. 805,093, Feb. 14, 1969, abandoned, which is a continuation of Ser. No. 536,140, Mar. 21, 1966, abandoned, which is a continuation-in-part of Ser. No. 473,342, Jul. 20, 1965, Pat. No. 3,383,265, said Ser. No. 647,832, is a continuation of Ser. No. 424,654, Dec. 14, 1973, abandoned, which is a continuation of Ser. No. 141,495, , abandoned. This application Dec. 23, 1980, Ser. No. 219,431

Int. Cl.³ B28B *9/00*

U.S. Cl. 264—241 **8 Claims**



1. The process of making a plastic article from finely divided plastic particles comprising:

(a) applying a quantity of said plastic particles to a first member, said particles comprising a first and a second plastic powder, said first and second powders differing from one another, and a layer of the first powder overlying the second powder, whereby the article produced is a laminate;

(b) confining a fluid under pressure within a sealed and self-contained flexible envelope;

(c) disposing said sealed and self-contained flexible envelope and said first member in opposed relationship with said plastic particles therebetween;

(d) disposing between said plastic particles and said sealed, self-contained envelope an air release means comprising a porous fabric and a wire cloth with said porous fabric being adjacent said plastic particles;

(e) urging said sealed, self-contained envelope against said air release means and said plastic particles such that said sealed, self-contained envelope applies a fluid-like pressure on said plastic particles;

(f) applying heat to the plastic particles while they are under said pressure;

(g) venting entrapped gases through said air release means from between said particles while the latter are being heated and pressed with said fluid-like pressure;

(h) controlling the degree of pressure and heat applied to said plastic particles to achieve sufficient pressure and heat to cause the particles to melt and to be formed into the shape of said article;

(i) releasing said applied pressure on said plastic;

(j) cooling said molten plastic sufficiently to permit its removal from said first member; and

(k) removing said molded plastic article from said first member.

4,336,222

PROCESS OF AND AN APPARATUS FOR BENDING STRETCHED PLASTIC CASINGS

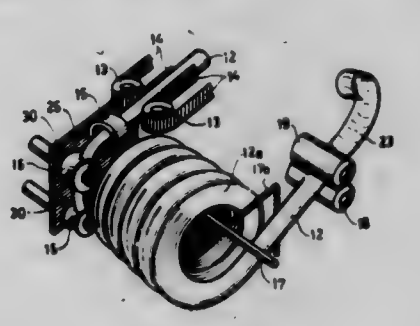
Christiaan M. Prohn, Parpan, Switzerland, assignor to International Chemical Engineering Establishment, Vaduz, Liechtenstein

Filed Apr. 28, 1980, Ser. No. 144,359

Claims priority, application Netherlands, Aug. 30, 1979, 7906526

Int. Cl.³ B29C *17/02*

U.S. Cl. 264—519 **10 Claims**



1. In a continuous process for producing curved sausage casing, the process comprising inflating a portion of the length of a continuously moving strip of sausage casing between first and second clamped longitudinally separated locations, selectively heating a first circumferential portion of the inflated casing at an intermediate location and forming a curved inflated casing, the improvement wherein the first circumferential portion is selectively heated without contacting said first portion with a solid surface, so as to thermally shrink the heated portion of the casing and thus cause a curvature of the inflated casing, and further comprising directing the curvature of the inflated casing into a desired curved shape by contacting a second circumferential portion of the inflated casing against a deflecting surface at an adjacent intermediate location, the second circumferential portion forming the outer curvature of the curved inflated casing, and the first circumferential portion forming the inner curvature of the curved casing, the second portion being substantially opposite the heated first portion;

continuously collecting the curved inflated casing to form a helical coil of the inflated casing; loosely supporting the helical coil by a support; and cooling the coiled inflated casing while being loosely supported; the first circumferential portion being out of contact with a solid surface when being heated and when the second portion is being pressed against the deflecting surface.

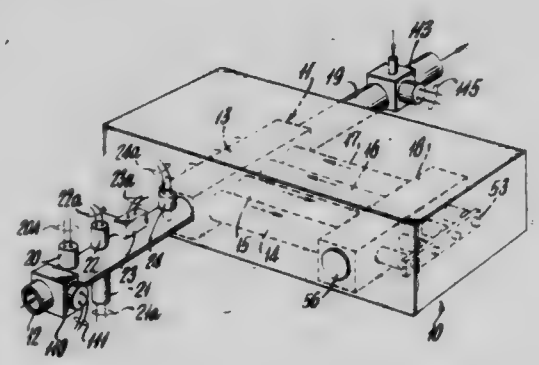
7. In apparatus for continuously forming curved inflated sausage casing, the apparatus comprising first and second clamping means for clamping the inflated casing at first and second longitudinally separated locations, moving means for continuously moving the casing between the first and second clamping means, and means for heating and curving the inflated casing into the shape of a helical coil, the heating and curving means being located intermediate the first and second clamping means; the improvement wherein the heating and curving means comprises means for selectively heating a first portion of the circumference of the inflated sausage casing without contacting the first portion with a solid surface; and further comprising support means for supporting and conveying an inflated casing, the support means being adjacent the heating means, between the heating means and the first clamping means; at least one rotatable deflecting member disposed adjacent the selective heating means, between the heating means and the second clamping means, so as to contact a second circumferential portion of the inflated heated casing diametrically opposite to the selectively heated first circumferential portion; drive means for rotating the deflecting member; and a bending support member immediately adjacent the heating means and extending from the heating means towards the deflecting member, the bending support member and the deflecting member being so relatively disposed that an inflated casing passing therebetween will be continuously moved and directed into a curved path limited thereby.

4,336,223

ULTRAVIOLET METHOD FOR DISINFECTION AND STERILIZATION OF FLUIDS

Leon Hillman, 141 Pine Ter., Demarest, N.J. 07626

Filed Apr. 18, 1980, Ser. No. 141,558
Int. Cl.³ A61L *2/10*
U.S. Cl. 422—24 **9 Claims**



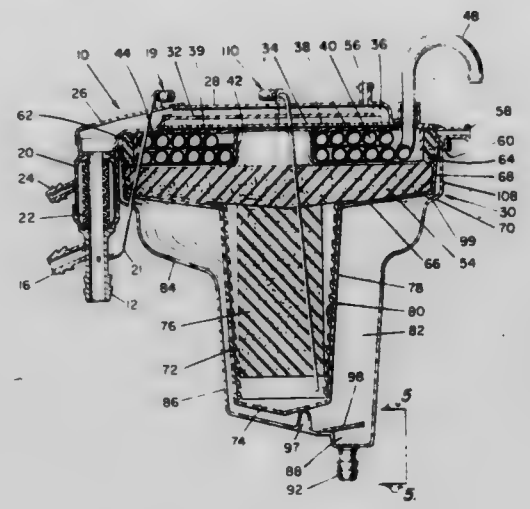
1. The method of destroying undesirable micro-organisms in a fluid utilizing ultraviolet radiation comprising passing said fluid in proximity to at least one electrically energized ultraviolet radiation source, measuring at least selected physical characteristics of said fluid including turbidity and the rate of flow of said fluid and operating conditions of said source including source intensity and radiation absorption and periodically modifying the relationship of at least said rate of flow to said source intensity in accordance with said physical characteristics to continuously impart a predetermined quantity of energy to said fluid per unit volume thereof, said quantity of energy being predetermined based on said measured physical characteristics to provide the desired destruction of micro-organisms.

4,336,224

BUBBLE OXYGENATOR

George G. Siposs, Costa Mesa, Calif., assignor to Travenol Laboratories, Inc., Deerfield, Ill.

Continuation of Ser. No. 3,994, Jan. 16, 1979, abandoned. This application Feb. 19, 1980, Ser. No. 122,779
Int. Cl.³ A61M *1/03*
U.S. Cl. 422—46 **58 Claims**



1. A blood oxygenator comprising:
a substantially rigid housing;
means defining an interior flow path between an upper portion of said housing and a lower portion of said housing;
blood foaming means carried by said housing and comprising blood and oxygen inlet passageways for providing a flow of oxygen bubbles into venous blood to create a blood foam, said blood foaming means communicating with said flow path in said upper portion of said housing to direct the flow of blood foam thereinto;
said flow path including a substantially horizontal imperforate plate disposed in said upper portion of said housing to receive blood foam from said foaming means in a direction substantially parallel thereto, and a substantially horizontal perforate plate carried in said upper portion of said housing, below said imperforate plate to receive blood foam flowing over the edge thereof, said perforate plate having perforations to permit blood foam to flow downwardly therethrough;
defoaming means carried in said flow path below said perforate plate to separate liquid blood and gas thereby defoaming the blood; and
an arterial blood reservoir, including outlet means therefrom, defined in said lower portion of said housing and communicating with said flow path to collect liquid blood from said defoaming means.

5. A blood oxygenator comprising:
a substantially rigid body, gas venting passages in said body to vent gas from said body;
a substantially vertical venous blood passage, a tubular cylindrical porous sparger having said venous blood passage extending therethrough, an oxygen chamber around said tubular sparger so that oxygen bubble flow enters the venous blood passage through said sparger to foam the venous blood, a blood foam passage from the top of said sparger to the top of said body;
a generally horizontal heat exchanger comprising a flat wound tubular coil in said body and passage means for delivering blood foam down through said heat exchanger;
a defoamer directly positioned beneath said heat exchanger so that gravitationally delivered downwardly flowing temperature controlled blood foam is delivered to said defoamer and liquid blood and gas are downwardly delivered from said defoamer; and
an arterial blood reservoir in said body below said defoamer

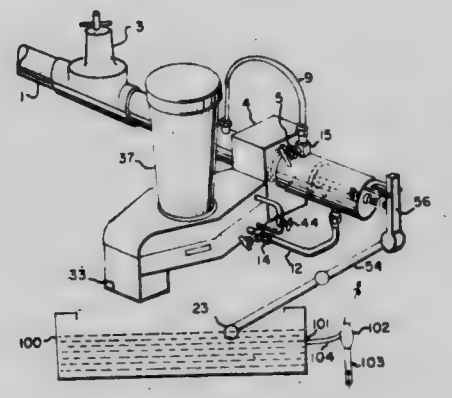
so that blood from said defoamer gravitates into said arterial blood reservoir.

4,336,225

WATER DECONTAMINATION APPARATUS

William E. Hanford, Jr., 5613 Overlea Rd., and William E. Hanford, Sr., 4956 Sentinel Dr., both of Bethesda, Md. 20016

Continuation of Ser. No. 45,278, Jun. 4, 1979, abandoned, which is a continuation of Ser. No. 727,168, Sep. 27, 1976, abandoned.
This application Apr. 24, 1981, Ser. No. 257,176
Int. Cl.[3] B01D *11/02*
U.S. Cl. 422—106 **6 Claims**



1. Apparatus for automatically injecting a chemical into a pressurized line of contaminated water comprising:

an erosion feeder containing a supply of said chemical in solid form, for receiving water from said line under pressure and operative under control of a control mechanism to produce a solution of said chemical of adjustable strength; said erosion feeder including a pair of chambers, means for dividing the water from said line to flow through each of said chambers, an adjustable holder containing said chemical and extending into one of said chambers, such that the portion of water which flows through said one of said chambers is subjected to said chemical and erodes said chemical, and means for recombining the flow through said chambers to obtain said solution of adjustable strength; said erosion feeder including flow restrictor means for increasing the amount of water in said one of said chambers so as to produce solution of increased concentration;

a crock for holding solution produced by said erosion feeder;

passive injection means for injecting solution from said crock into said line; and

volume sensing means for activating and deactivating said control mechanism as a function of the volume of solution in said crock.

4,336,226

VANADIUM HYDRIDE DEUTERIUM-TRITIUM GENERATOR

Leslie D. Christensen, Livermore, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 13, 1980, Ser. No. 129,867
Int. Cl.[3] G05D *23/00, 16/00*
U.S. Cl. 422—109 **9 Claims**

1. A gas generator for supplying deuterium-tritium gas in a series of pressure increments, comprising:

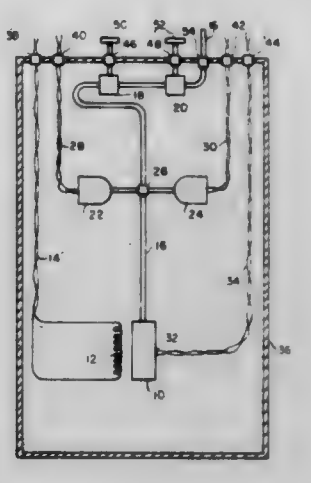
a high pressure chamber filled with a deuterium-tritium hydride which produces a deuterium-tritium gas pressure when heated;

a heater surrounding the chamber and in thermal contact therewith to heat the deuterium-tritium hydride;

a pressure transducer connected to the chamber to measure the deuterium-tritium gas pressure, producing a signal proportional to the deuterium-tritium gas pressure;

a programmed controller producing a signal representing the desired pressure at a given time, the desired pressure corresponding to a series of preselected pressure increments over a preselected period of time;

a comparator to compare the pressure transducer signal to the programmed controller signal and to produce a difference signal therebetween; and



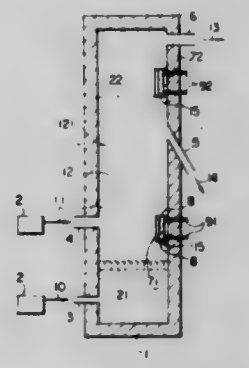
a power controller connected to the output of the comparator and actuated by the difference signal, the output of the power controller being connected to the heater to actuate the heater to heat the hydride through the series of pressure increments to produce the desired gas pressure.

4,336,227

FLUIDIZED BED REACTOR

Shuntaro Koyama, Hitachi; Tomohiko Miyamoto, Takahagi, and Mizuho Hirato, Hitachi, all of Japan, assignors to The Agency of Industrial Science and Technology, Tokyo, Japan

Filed Feb. 27, 1980, Ser. No. 125,086
Claims priority, application Japan, Feb. 27, 1979, 54-21332
Int. Cl.[3] G05D *7/00, 16/00;* **B01J** *8/18;* **F27B** *15/08*
U.S. Cl. 422—111 **4 Claims**



1. A fluidized bed reactor including a reactor vessel vertically divided into upper, middle and lower regions by spaced two gas distributors, a gas inlet communicated with the lower region, a solid inlet communicated with the middle region to introduce particles to be treated, a gas outlet communicated with the upper region, and a solid overflow pipe communicated with the middle region of the reactor vessel, the improvement comprising

a first detector vessel mounted near the inside surface of the middle region of the reactor vessel and adapted to pass gas flowing in the region,

a second detector vessel mounted in the upper region and adapted to pass gas flowing in the region,

detecting particles contained in the first and second detector vessels and having larger minimum fluidizing velocities than that of the particles to be treated,

a first and second pressure drop measuring means for measuring pressure drops across said detecting particles contained in the first and second detector vessels, respectively, and

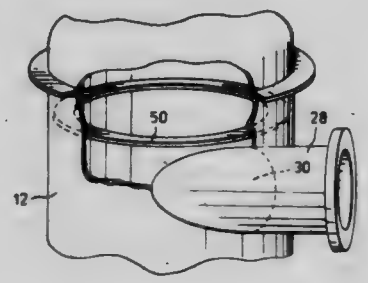
control means controlling supply quantities of said gas and said particles to be treated based on the pressure drops measured by said pressure drop measuring means.

4,336,228

CHLORINE DIOXIDE GENERATOR

Gerald Cowley, Mississauga, Canada, assignor to ERCO Industries Limited, Islington, Canada

Division of Ser. No. 82,853, Oct. 9, 1979, which is a continuation-in-part of Ser. No. 964,681, Nov. 29, 1978, Pat. No. 4,203,961. This application Sep. 22, 1980, Ser. No. 189,645
The portion of the term of this patent subsequent to Jun. 30, 1998, has been disclaimed.
Int. Cl.[3] B01J *8/00*
U.S. Cl. 422—129 **12 Claims**



1. A chlorine dioxide generator, comprising:
a generally right cylindrical vertically-extending body having upper and lower end closures, gaseous outlet means located in or adjacent to said upper end closure and slurry outlet means located in or adjacent to said lower end closure,
inlet means arranged tangentially to said cylindrical body terminating at its downstream end in communication with the interior of said body above the intended liquid level therein and below said gaseous outlet means for projection of reaction mixture into said body generally tangentially thereto,
planar ring baffle means projecting substantially horizontally inwardly from and perpendicularly with respect to the internal wall of said cylindrical body and located immediately above the upper extremity of the downstream termination of said inlet means.

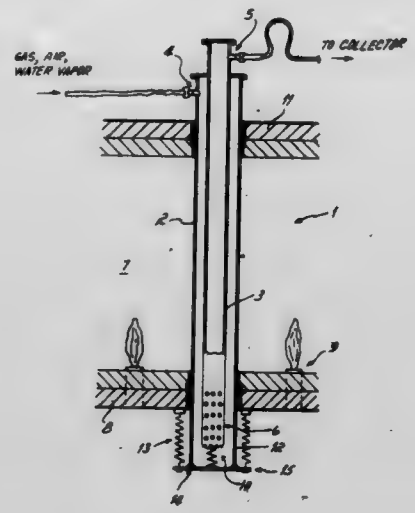
4,336,229

APPARATUS FOR THE PRODUCTION OF AMMONIA SYNTHESIS GAS FROM PURIFIED COKE OVEN GAS

Egmar Wunderlich, Mülheim; Joachim Meckel, Heiligenhaus; Dietrich Wagener, and Stefan Smieskol, both of Essen, all of Fed. Rep. of Germany, assignors to Didier Engineering GmbH, Fed. Rep. of Germany

Filed Oct. 22, 1980, Ser. No. 199,566
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1979, 2948107
Int. Cl.[3] C01C *1/04*; B01J *8/04, 8/06*
U.S. Cl. 422—148 **5 Claims**

1. Apparatus for the production of ammonia synthesis gas by the catalytic cracking of coke oven gas in the presence of water vapor and air comprising means defining a furnace having opposing walls, a first pipe extending through said furnace walls with the ends thereof situated exterior to said walls and furnace, coke oven gas, water vapor and air, the other end thereof being closed, a second pipe mounted inside said first pipe and having a first end and a second end opposite said one end of said first outer pipe, said second end being perforate about its periphery so that said second pipe is in gas flow communication with said first outer pipe at said second end, said first outer pipe and said second pipe defining a first reaction zone therebetween and said second pipe defining a second reaction zone interiorly thereof, each said reaction zone containing a different catalyst, and means communicating with the interior of said second pipe at said first end for removing the cracked gas from the apparatus, said second pipe having one of said ends rigidly connected to said first outer pipe



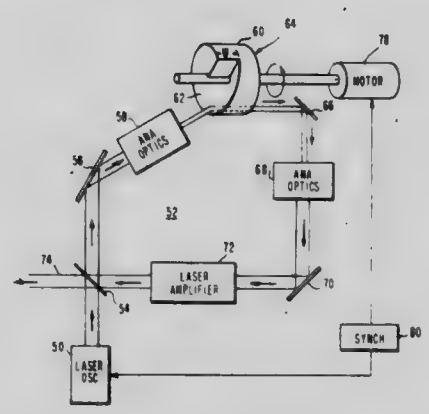
and the other of said ends elastically connected to said first outer pipe, and said first outer pipe having one end elastically connected to one of said furnace walls.

4,336,230

FREQUENCY CHIRP IN ISOTOPICALLY SELECTIVE PHOTOEXCITATION

Hans A. Bethe, Ithica, N.Y., and Ching S. Chang, Malden, Mass., assignors to Jersey Nuclear-Avco Isotopes, Inc., Bellevue, Wash.

Filed Dec. 20, 1977, Ser. No. 862,409
Int. Cl.[3] B01D *59/00*
U.S. Cl. 423—3 **33 Claims**



1. A system for producing photoexcitation comprising:
means for generating an environment of particles;
means for applying to said environment a first frequency of electromagnetic radiation tuned for producing excitation of particles of said environment in a first transition from a low-lying energy state to a first excited energy level below ionization;
means for applying to said environment further electromagnetic radiation to produce excitation of particles at said first excited level in a second transition to a second excited level below the ionization level; and
means for producing for a substantial portion of the particles an at least instantaneous exact energy correspondence between said first and second transitions combined and said radiation of first and further frequencies combined by sweeping only the frequency of radiation producing said second transition over a selected frequency range within a selected interval of time whereby to increase the efficiency of photoexcitation from said low-lying energy state to said second excited state.

4,336,231
COPPER EXTRACTION WITH EITHER SALICYLALDOXIMES OR BENZOPHENONE OXIMES AND ALKYLPHENOLS

Raymond F. Dalton, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 965,498, Dec. 1, 1978, Pat. No. 4,231,888, which is a division of Ser. No. 756,067, Jan. 3, 1977, Pat. No. 4,142,952. This application May 23, 1980, Ser. No. 152,828

Claims priority, application United Kingdom, Jan. 30, 1976, 3788/76; Jun. 15, 1976, 24722/76; Oct. 21, 1976, 43711/76

The portion of the term of this patent subsequent to Mar. 6, 1996, has been disclaimed.

Int. Cl.³ C01B *13/18*; C01G *3/00*

U.S. Cl. 423—24 17 Claims

1. A process for extracting copper values from aqueous solutions of copper salts which comprises the steps of (a) contacting the aqueous solution with a solution in a water-immiscible, organic solvent of (1) o-hydroxyaryloximes selected from the group consisting of a mixture of 5-nonylsalicylaldoximes, a mixture of 5-heptylsalicylaldoximes and a mixture of 2-hydroxy-3-chloro-5-nonylbenzophenone oximes and (2) an alkylphenol containing from 3 to 15 alkyl carbon atoms, (b) separating from the aqueous phase the solvent phase containing copper in the form of a complex with the indicated o-hydroxyaryloxime, (c) contacting the solvent phase with an aqueous mineral acid, and (d) separating the solvent phase from the aqueous phase containing copper in the form of a salt with the mineral acid, the amount of (2) in said solvent being in the range of 0.1 to 20 times the weight of (1) and such that with the other conditions used, the overall copper recovery resulting from steps (a) to (d) is greater than when (2) is not included, the pH during the contacting step (a) being such that the complex which is formed is stable.

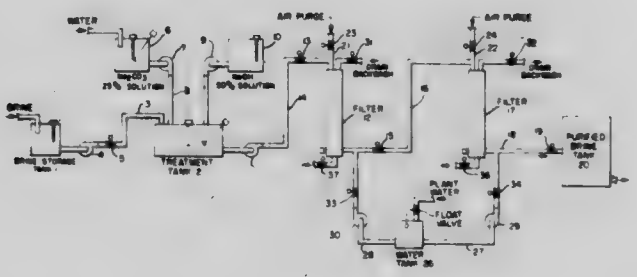
4,336,232
PRODUCTION OF PURIFIED BRINE

George J. Moritz, Rte. 4, Box 126, Clarks Summit, Pa. 18411

Continuation of Ser. No. 896,379, Apr. 14, 1978, abandoned. This application Aug. 8, 1980, Ser. No. 176,686

Int. Cl.³ C01F *5/22*, *11/18*

U.S. Cl. 423—164 21 Claims



11. A process for the purification of salt brine having magnesium and calcium hardness which comprises treating a saturated salt brine containing magnesium and calcium ions initially with an alkali metal carbonate and then with an alkali metal hydroxide in amounts in excess of stoichiometric proportions to form firm, readily settleable, filterable floc precipitate particles of insoluble compounds of magnesium and calcium, suspended in the treated brine; passing the resultant suspensions to a filtering unit to separate and remove the floc precipitate and to provide a purified salt brine; from 0.6 g/l to 1.0 g/l of the alkali metal carbonate being added in excess of the stoichiometric proportions to said salt brine and from 1.0 g/l to 2.0 g/l of the alkali metal hydroxide being added in excess of stoichiometric proportions to said salt brine the treatment with the alkali metal carbonate and then with the alkali metal hydroxide being capable of forming said filterable floc precipitate particles within a period of not more than two hours after introduction of said alkali metal carbonate into said saturated salt brine and filtering the resultant suspension of filterable floc precipitate particles with said filtering unit to provide said purified salt brine.

4,336,233
REMOVAL OF CO_2 AND/OR H_2S AND/OR COS FROM GASES CONTAINING THESE CONSTITUENTS

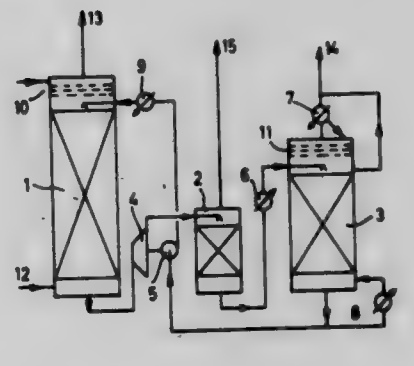
Max Appl, Dannstadt-Schauernheim; Ulrich Wagner, Limburgerhof; Hans J. Henrici, Mannheim; Klaus Kuesaner, Heuchelheim; Klaus Volkamer, Frankenthal, and Ernst Fuerst, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 944,291, Sep. 21, 1978, abandoned, which is a continuation of Ser. No. 736,345, Oct. 28, 1976, abandoned. This application Aug. 13, 1980, Ser. No. 177,615

Claims priority, application Fed. Rep. of Germany, Nov. 18, 1975, 2551717

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—228 9 Claims



1. In a process for removing CO_2, H_2S or both as constituents from gases by washing the gases with an aqueous solution of a scrubbing liquid and subsequently regenerating the scrubbing liquid, the improvement which comprises: using a scrubbing liquid which contains

(a) from about 0.05 to 0.8 mole/l of piperazine as an absorption accelerator and

(b) from about 1.5 to 4.5 moles/l of methyldiethanolamine, and

carrying out the washing of the gases with the scrubbing liquid at temperatures of from about 40° C. upward.

4,336,234
PREPARATION OF STORAGE-STABLE, PUMPABLE AND POURABLE ALUMINOSILICATE SUSPENSIONS BY WET MILLING

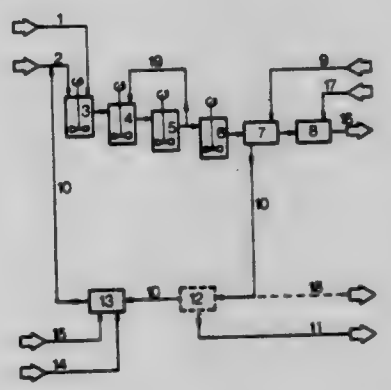
Bernd Leutner, Frankenthal; Hans-Ulrich Schlimper, Speyer; Dieter Roth, Frankenthal; Ludwig Kreitner, Heppenheim, and Heinrich Spahn, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 8, 1980, Ser. No. 119,957

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1979, 2907108

Int. Cl.³ C01B *33/28*; B01J *13/00*

U.S. Cl. 423—329 5 Claims



1. A process for the preparation of storage-stable, pourable

and pumpable aqueous suspensions without the use of dispersants or stabilizers which contain, based on the suspension, from 20 to about 60 percent by weight of finely divided, water-soluble aluminosilicates with calcium-exchangeable cations, comprising the steps of:

mechanically separating the aluminosilicates which are obtained in aqueous suspension after their preparation,

wet milling the resulting moist aluminosilicate mass without intermediate drying, either directly or after having added water to bring its water content to a value of up to 80 percent by weight to an average particle size of 1 to 5 μm, and

bringing the resulting milled material, where necessary, to the desired solids content to produce a storage-stable, pourable and pumpable aqueous suspension, without the use of dispersants or stabilizers, which contains from 20 to about 60 percent, based on the suspension, of finely divided, water-insoluble aluminosilicates with calcium-exchangeable cations.

4,336,235

PROCESS FOR THE MANUFACTURE OF SODIUM SILICATE

Jean Deabriges, Aix-en-Provence, France, assignor to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Jun. 20, 1980, Ser. No. 161,437
Claims priority, application France, Jul. 25, 1979, 79 19149
Int. Cl.³ C01B *33/32*
U.S. Cl. 423—332 **6 Claims**

1. A process for the manufacture of a sodium silicate solution in a continuous manner from a silicon dioxide-containing material, comprising continuously adding to a reaction zone a stream of said silicon dioxide-containing material and a stream of a sodium hydroxide-sodium carbonate solution, reacting said silicon dioxide-containing material and said sodium hydroxide-sodium carbonate at a temperature of from about 225° to 245° C. and pressure of from about 27 to 32 bars for a time of from about 20 to 35 minutes, and recovering said sodium silicate solution from the reaction zone.

4,336,236

DOUBLE PRECIPITATION REACTION FOR THE FORMATION OF HIGH PURITY BASIC LEAD CARBONATE AND HIGH PURITY NORMAL LEAD CARBONATE

Michael A. Kolakowski, Milltown, N.J., and John J. Valachovic, Fremont, Calif., assignors to NL Industries, Inc., New York, N.Y.

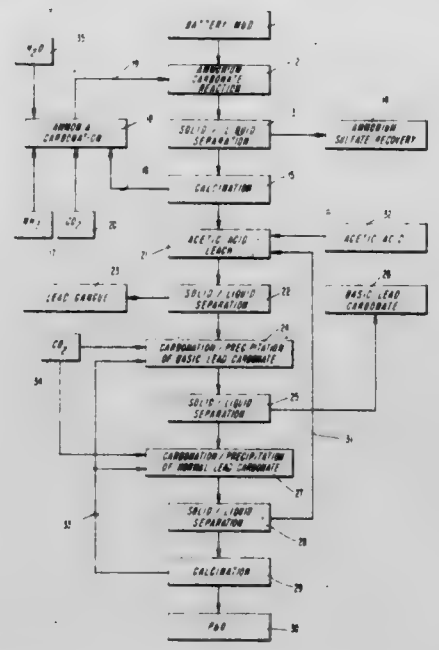
Filed Mar. 25, 1981, Ser. No. 247,441
Int. Cl.³ C01G *21/14*
U.S. Cl. 423—435 **17 Claims**

1. A process for producing high purity basic lead carbonate and high purity normal lead carbonate from a single feed solution comprising:

(a) first contacting a lead acetate feed solution having an initial lead to acetate mole ratio greater than 0.5:1 and a lead concentration of from about 1 to about 10 weight percent with carbon dioxide gas in an amount effective to reduce the lead to acetate mole ratio to 0.5:1 by precipitating high purity basic lead carbonate;

(b) separating the high purity basic lead carbonate from the remaining lead acetate solution;

(c) then contacting the remaining lead acetate solution with carbon dioxide gas to precipitate high purity normal lead carbonate; and



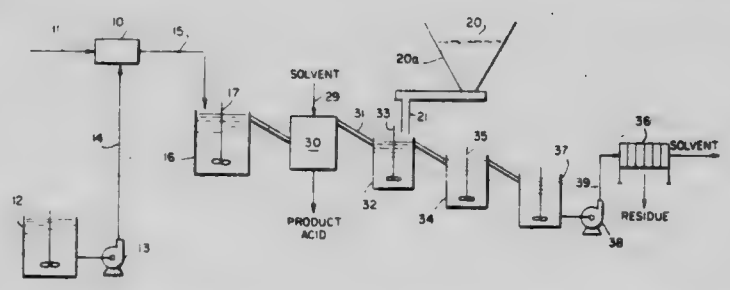
(d) separating the high purity normal lead carbonate from the remaining reactive acetate solution.

4,336,237

REMOVAL OF MERCURY FROM SULFURIC ACID

Val Kudryk, Closter, and Martin Goffman, Edison, both of N.J., assignors to Asarco Incorporated, New York, N.Y.

Filed Nov. 3, 1980, Ser. No. 202,999
Int. Cl.³ C01B *17/90*; B01D *23/10*
U.S. Cl. 423—531 **16 Claims**



1. A method for removing mercury from a sulfuric acid solution comprising adding to said acid solution both a liquid organic compound soluble in said sulfuric acid and containing chemically bound oxygen and a halogen component chosen from the group consisting of halogens and halides the atomic ratio between said halogen component and said mercury being at least about 1:1, forming a complex that includes said mercury, and removing said complex from said acid solution.

4,336,238

PROCESS FOR PRODUCING HYDROGEN PEROXIDE

Augustine I. Dalton, Jr.; Eugene J. Greskovich, and Ronald W. Skinner, all of Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 10, 1980, Ser. No. 195,828
Int. Cl.³ C01B *15/02*
U.S. Cl. 423—584 **11 Claims**

1. In a process for producing hydrogen peroxide by contacting a mixture of gases comprising hydrogen and oxygen with a palladium catalyst supported on a carbon base in a reaction vessel in the presence of an acidic aqueous liquid containing 70 to 95% by volume of an oxygenated or nitrogeneous organic solvent capable of inhibiting the decomposition of thus-produced hydrogen peroxide, the improvement comprising prolonging effective catalyst life and improving hydrogen peroxide yield by continuously removing from the acidic aqueous liquid in the reaction vessel palladium salts produced by solubi-

lization of the palladium catalyst, wherein hydrogen, oxygen and acidic aqueous liquid are cocurrently passed upwardly through a packed bed of palladium on a carbon base.

11. In a process for producing hydrogen peroxide by contacting a mixture of gases comprising hydrogen and oxygen with a palladium catalyst supported on a carbon base in a reaction vessel in the presence of an acidic aqueous liquid capable of inhibiting the decomposition of the thus-produced hydrogen peroxide, the improvement comprising prolonging effective catalyst life and improving hydrogen peroxide yield by continuously removing from the acidic aqueous liquid in the reaction vessel palladium salts produced by solubilization of the palladium catalyst, wherein removal of palladium salts is effected by an ion-exchange resin external to the reaction vessel in which hydrogen peroxide is prepared and aqueous liquid freed of palladium salts is returned to the reaction vessel.

4,336,239

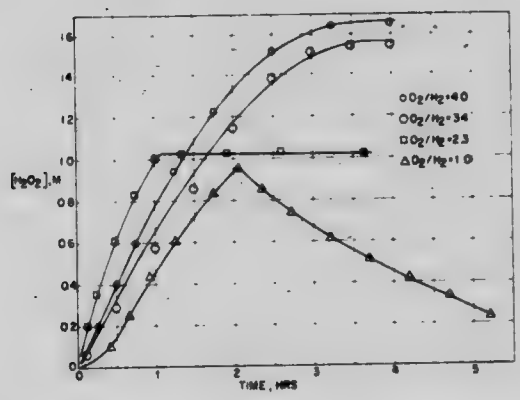
SYNTHESIS OF HYDROGEN PEROXIDE

Augustine I. Dalton, Jr., and Ronald W. Skinner, both of Allentown, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 195,827, Oct. 10, 1980. This application Dec. 22, 1980, Ser. No. 219,402

Int. Cl.³ C01B *15/02*

U.S. Cl. 423—584 **12 Claims**



1. In a process for the synthesis of hydrogen peroxide from hydrogen and oxygen, in the presence of a Group VIII noble metal catalyst deposited on a solid support, in an acidic medium containing an oxygenated organic compound or a nitrogenous organic compound, the improvement wherein the partial pressure or molar ratio ratio of oxygen to hydrogen is greater than about 3.4 and the amount of Group VIII noble metal catalyst is more than 30 mg. per 100 ml. of medium.

4,336,240

METHOD OF MANUFACTURING HYDROGEN PEROXIDE

Fred Moseley, Cobham, England, and Paul N. Dyer, Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 22, 1981, Ser. No. 256,438

Int. Cl.³ C01B *15/02*

U.S. Cl. 423—584 **10 Claims**

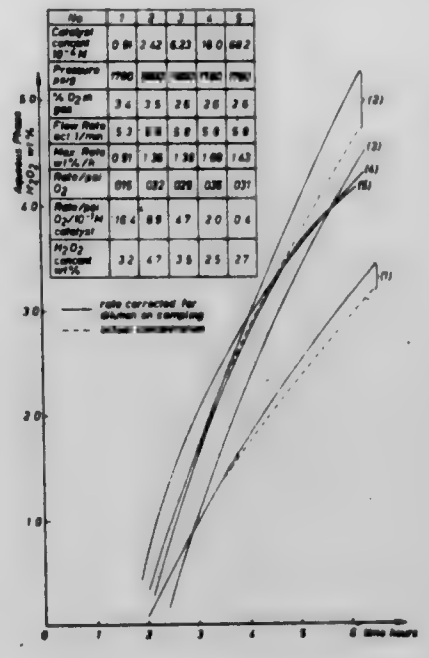
1. A process for producing hydrogen peroxide wherein a gaseous mixture comprising hydrogen and oxygen is contacted with a catalyst in the presence of water and an organic solvent wherein:

(i) the organic solvent is immiscible with water and unreactive with hydrogen peroxide under the contacting conditions;

(ii) the distribution coefficient for hydrogen peroxide between the water and the organic solvent is greater than 1;

(iii) the catalyst is of the formula L_2MX_2 wherein L is a ligand represented by the formula A R_1 R_2 R_3 wherein R_1 R_2 and R_3 are alkyl, cycloalkyl or aryl groups, hydrogen or halogen, A is a Group 5*b* element selected from the group consisting of nitrogen, phosphorous and arsenic, M is a Group 8 metal and X is halogen, said catalyst being soluble in said organic solvent and insoluble in water; and

(iv) the gaseous mixture is non-ignitable under the process conditions



the improvement comprised in that the organic solvent is selected from the group consisting of fluorocarbons, halofluorocarbons and mixtures thereof.

4,336,241

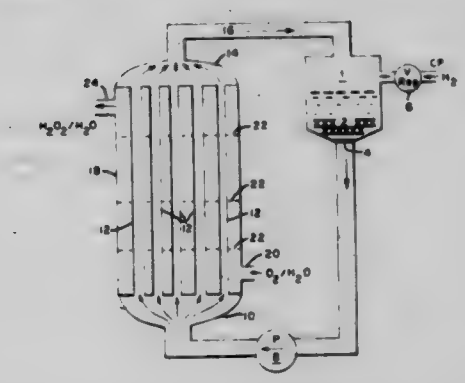
PROCESS FOR HYDROGEN PEROXIDE PRODUCTION FROM HYDROGEN AND OXYGEN

Steven E. Diamond, New Providence, N.J.; Benjamin S. Tovrog, Naperville, Ill.; Frank Mares, Whippany, and Reginald T. Tang, Bridgewater, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Mar. 18, 1981, Ser. No. 244,844

Int. Cl.³ C01B *15/02*

U.S. Cl. 423—588 **5 Claims**



1. In a process for production of hydrogen peroxide involving stages of (1) oxidation with elemental oxygen of a 2-alkyl-9,10-dihydroxyanthracene, dissolved in an organic solvent, to the corresponding alkylanthraquinone, and (2) catalytic hydrogenation of said dissolved alkylanthraquinone back to said alkyldihydroxyanthracene, the improvement which comprises catalyzing said hydrogenation by use of a water-insoluble (bipyridyl)rhodium complex as hydrogenation catalyst.

4,336,242

HARD FERRITE POWDER AND PROCESS FOR THE PREPARATION THEREOF

Rainer Schmidberger, Bermatingen, and Hilmar Franke, Friedrichshafen, both of Fed. Rep. of Germany, assignors to Dornier System GmbH., Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,302

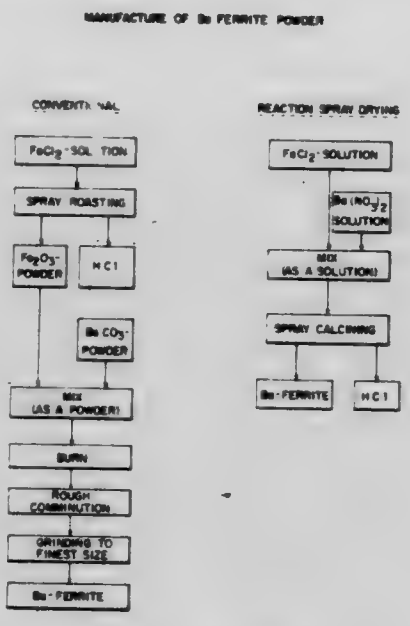
Claims priority, application Fed. Rep. of Germany, Nov. 19, 1978, 2850108

Int. Cl.³ C01G *49/00*

U.S. Cl. 423—594 **12 Claims**

1. A process for preparing a hard ferrite powder of the composition $BaO{\cdot}6Fe_2O_3$, said powder being composed of

particles in the size range of about 1 to 10 microns which can be easily comminuted into primary grains and containing at least about 85% of primary grains with a hard magnetic hexagonal lattice structure and of a size less than, or equal to, 0.5 micron, which comprises spraying a 0.05 to 0.3 molar aqueous



solution, based upon the product $BaFe_{12}O_{19}$, of ferrous chloride and barium nitrate into a hot zone of a reaction vessel, with the droplet size of said spray being less than about 30 microns, and with particles in the hot zone having a dwell time of about 2–10 seconds at a temperature of about 700° to 900° C.

4,336,243

TRANSDERMAL NITROGLYCERIN PAD

Dilip R. Sanvordeker, Elk Grove; James G. Cooney, Des Plaines, and Ronald C. Wester, Glenview, all of Ill., assignors to G. D. Searle & Co., Skokie, Ill.

Continuation-in-part of Ser. No. 177,042, Aug. 11, 1980, abandoned. This application May 4, 1981, Ser. No. 260,517

Int. Cl.[3] **A61L** *15/03;* **A61F** *13/00;* **A61K** *9/70*

U.S. Cl. 424—28 **6 Claims**

1. A microsealed, nitroglycerin pad suitable for transdermal administration of nitroglycerin comprising a backing, a biologically acceptable silicone polymer matrix affixed to said backing, said silicone polymer matrix being of cross-linked silicone rubber having a plurality of 10 to 200 micron microsealed compartments therein, and containing therein from 10 to 30 volume percent of an aqueous hydrophilic solvent system comprising from about 6 to 22 weight percent of a mixture containing 10 weight percent nitroglycerin mixed with lactose therein, and from 5 to 15 weight percent of a hydrophobic solvent system, said hydrophobic solvent system being selected from the group consisting of mineral oil, a triglyceride of a saturated coconut oil acid and mixtures thereof, and said hydrophilic solvent being a polyethylene glycol.

4,336,244

COLORED MEDICINAL TABLET, NATURAL COLOR PIGMENT AND METHOD FOR USING THE PIGMENT IN COLORING FOOD, DRUG AND COSMETIC PRODUCTS

Edward J. Woznicki, Douglassville; Lawrence J. Rosania, North Wales, and Keith Marshall, Fort Washington, all of Pa., assignors to Colorcon, Inc., West Point, Pa.

Continuation of Ser. No. 837,301, Sep. 27, 1977, Pat. No. 4,274,830. This application Apr. 28, 1980, Ser. No. 144,617

The portion of the term of this patent subsequent to Jun. 23, 1998, has been disclaimed.

Int. Cl.[3] **D06P** *3/58;* **A61K** *47/00, 9/36*

U.S. Cl. 424—35 **16 Claims**

7. A method of coloring a pharmaceutical tablet comprising:
suspending a natural water insoluble edible powder in water, said powder consisting of powders of cellulose, microcrystalline cellulose, cellulose derivatives, ethyl cellulose, starch, or starch derivatives,
dyeing the suspended powder with an edible natural dye,
fixing the dye with hydrochloric acid or sodium chloride or aluminum sulfate or sodium hydroxide,
removing the water to obtain a powdered natural dye pigment,
suspending the pigment in a coating solution, and
coating the tablet with the coating solution.

4,336,245

NOVEL PRECIPITATED SILICEOUS PRODUCTS AND METHODS FOR THEIR USE AND PRODUCTION

Satish K. Wason, Havre de Grace, Md., assignor to J. M. Huber Corporation, Locust, N.J.

Continuation of Ser. No. 876,284, Feb. 9, 1978, abandoned, which is a continuation of Ser. No. 557,707, Mar. 12, 1975, abandoned. This application May 11, 1979, Ser. No. 39,061

Int. Cl.[3] **A61K** *7/16*

U.S. Cl. 424—49 **12 Claims**

1. A dentifrice including, as a thickening and polishing agent, a finely divided, amorphous, precipitated silicon dioxide having the combined properties of a structure index of less than 505 and an oil absorption of greater than 190 cc/100 grams; said silicon dioxide comprising not less than 90% SiO_2 and including a metal cation incorporated therein, said metal cation serving to control the refractive index of said silicon dioxide such that said refractive index is not less than 1.45 and serving to control the surface area of said silicon dioxide such that said surface area is not less than 153 m^2/gram, said metal cation being selected from the group consisting of aluminum, magnesium, zinc, and calcium.

4,336,246

HAIR MAKEUP PRODUCTS

Diane Leon-Pekarek, Sloatsburg, N.Y., assignor to Avon Products, Inc., Suffern, N.Y.

Filed Apr. 3, 1980, Ser. No. 136,776

Int. Cl.[3] **A61K** *7/06, 31/74, 7/13*

U.S. Cl. 424—70 **4 Claims**

1. A hair makeup product comprising a waxy base, at least one color additive, at least one volatile solvent, and from about 1 to 30% by weight, based on the total weight of the product, of a film-forming resin composition comprising pentaerythritol rosinate and a resin selected from ethyl hydroxyethyl cellulose, a polyvinyl alkyl ether, or mixtures thereof.

4,336,247

BODY SYSTEM NUTRIENT MATERIAL

Arthur E. Eriksen, P.O. Box 965, Wylie, Tex. 75098

Continuation of Ser. No. 939,369, Sep. 5, 1978, abandoned. This application Jul. 14, 1980, Ser. No. 168,741

Int. Cl.[3] **A61K** *31/365, 35/12, 35/56*

U.S. Cl. 424—95 **2 Claims**

1. A body system nutrient material comprised of freeze dried mussel material in particulate powder form wherein substantially all cell surface of said mussel material are coated with ascorbic acid, said material being prepared by freeze drying mussel meats and body fluids, grinding said freeze dried mussel meats and body fluids to a fine particulate state, adding an aqueous or alcoholic solution of ascorbic acid in an amount to saturate said freeze dried mussel material and subjecting said saturated mussel material to a dehydration step to remove the fluid, said ascorbic acid being present in the range of from 5 to 50% by weight of the nutrient material.

4,336,248

PREPARATION OF COUPLED HEMOGLOBIN MOLECULES

Klaus Bonhard, Hanau, and Uwe Boysen, Frankfurt, both of Fed. Rep. of Germany, assignors to Biotest-Serum-Institut GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 20, 1975, Ser. No. 624,220

Claims priority, application Fed. Rep. of Germany, Oct. 21, 1974, 2449885

Int. Cl.[3] A61K *35/14*; C07G *7/00*; C07C *103/52*; A61K *37/00*

U.S. Cl. 424—101 12 Claims

1. A chemically modified, stable hemoglobin preparation suitable for blood replacement and for organ perfusion, comprising hemoglobin molecules coupled to one another or to another protein selected from the group consisting of serum proteins and gelatin derivatives by a coupling reagent comprising an aliphatic dialdehyde having 3 to 8 carbon atoms, molar ratio of the coupling reagent to the hemoglobin being about 6:1 to about 18:1, the preparation having a capacity to transport oxygen corresponding approximately to that of free hemoglobin, and a blood residence time which is at least about twice that of free hemoglobin.

4,336,249

ANTIBIOTIC SUBSTANCE

Mamoru Arai; Akio Torikata; Ryuzou Enokita; Tatsuo Haneishi, and Mutsuo Nakajima, all of Hiromachi, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Filed May 22, 1979, Ser. No. 41,501

Claims priority, application Japan, May 24, 1978, 53/62042

Int. Cl.[3] A61K *35/00*

U.S. Cl. 424—121 3 Claims

1. An antibiotic substance, Mycoplanecin, characterized by the following properties:

(1) Colour and state
White powder;

(2) Melting point
161°–167° C.;

(3) Specific rotation
$[\alpha]^{21}_{D}$-66° (C=0.4, chloroform);

(4) Elemental analysis
C, 61.78%; H, 8.48%; N, 11.75%; (after drying to constant weight)

(5) Ultraviolet absorption spectrum
Only terminal absorption as shown in FIG. 1 of the accompanying drawings, when measured at 20 μg/ml in 50% v/v aqueous methanolic solution;

(6) Infrared absorption spectrum
The spectrum, measured in a KBr disc, is shown in FIG. 2 of the accompanying drawings;

(7) Nuclear magnetic resonance spectrum
The spectrum, as measured in deuterochloroform as solvent and with tetramethylsilane (TMS) as internal standard, is shown in FIG. 3 of the accompanying drawings;

(8) Solubility
Soluble in methanol, ethanol, ethyl acetate, acetone and chloroform;
sparingly soluble in benzene;
insoluble in water;

(9) Colour reaction
Brown-coloured with 50% v/v aqueous sulphuric acid; positive for iodine and potassium permanganate on silica gel thin layer chromatograms; negative for ninhydrin and 2,4-dinitrophenylhydrazine;

(10) Amino acid composition
1 mole each of glycine, proline, leucine, 2-amino-5-methylhexanoic acid, N-methylthreonine, N-methylleucine, methylproline and ethylproline, and 2 moles of N-methylvaline detected after hydrolysis with 6 N hydrochloric acid at 105° C. for 20 hours;

(11) Antibacterial activity
Strong antibacterial activity against various bacteria of the genus Mycobacterium.

4,336,250

LACTATION IMPROVEMENT METHOD

Curtis C. Scheifinger, Morristown, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Apr. 20, 1981, Ser. No. 255,901

Int. Cl.[3] A61K *37/00*, *31/70*

U.S. Cl. 424—177 8 Claims

1. A method for improving lactation in lactating ruminants comprising orally administering to a lactating ruminant having a developed rumen function an effective amount of an antibiotic which is a member of the virginiamycin family of antibiotics or the elfamycin family of antibiotics.

4,336,251

MEDICAMENTS CONTAINING AN ORGANOSILICON COMPOUND

Shigeshi Toyoshima, Funabashi; Ryuichi Sato, Urawa; Koichi Ito, Tokyo; Toshio Shinohara, Annaka; Yasushi Yamamoto, Takasaki, and Shoji Ichinohe, Annaka, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 64,805, Aug. 8, 1979, abandoned. This application Aug. 15, 1980, Ser. No. 178,359

Claims priority, application Japan, Aug. 15, 1978, 53-99196

Int. Cl.[3] A61K *31/695*

U.S. Cl. 424—184 7 Claims

1. A method for treating hypertension in human patients comprising administering to the patient a medicament composed of a carrier and an anti-hypertensive effective amount of an organosilicon compound represented by the formula

$$R_3Si(CH_2)_nCOOH,$$

where
R denotes an alkyl group having from 1 to 6 carbon atoms, and
n is an integer from 1 to 5 inclusive,
or a therapeutically acceptable salt thereof.

4,336,252

1-CYCLOALKYL PHOSPHONIUM SALTS

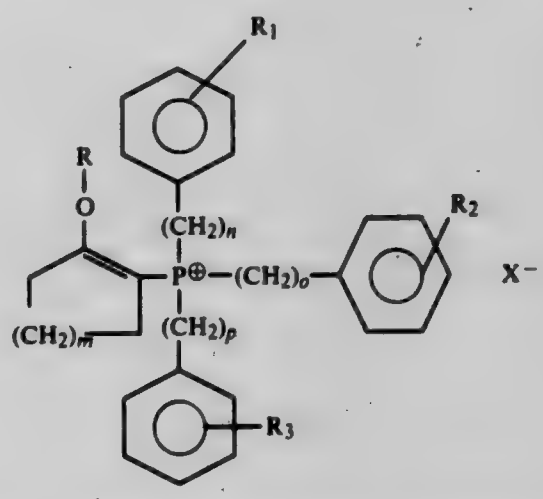
Richard A. Mueller, Glencoe, Ill., assignor to G. D. Searle & Co., Skokie, Ill.

Filed Aug. 6, 1980, Ser. No. 175,790

Int. Cl.[3] A01N *9/36*; A61K *31/66*; A61L *13/00*; C07F *9/54*

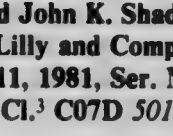
U.S. Cl. 424—198 34 Claims

1. A 1-cycloalkylphosphonium salt represented by the formula



wherein: R is selected from the group consisting of lower alkyl, hydroxy lower alkyl, halo lower alkyl, amino lower alkyl, cyano lower alkyl, lower alkenyl with the limitation that

the double bond is not on the carbon atom attached to the oxygen atom, benzyl, substituted benzyl and



wherein q is 0 or 1 and R_4 is selected from the group consisting of hydroxy, loweralkoxy, phenyl, substituted phenyl, and

wherein R_5 and R_6 are the same or different members of the group consisting of hydrogen and lower alkyl or taken together form a 5 or 6 membered ring; m is 1, 2 or 3; n is 0 or 1; o is 0 or 1; p is 0 or 1; R_1, R_2 and R_3 are the same or different members of the group consisting of hydrogen, lower alkyl, lower alkoxy and halo; and X is a pharmaceutically acceptable anion.

33. A method of treating pain in mammals comprising administering a therapeutically effective amount of a compound of claim **1**.

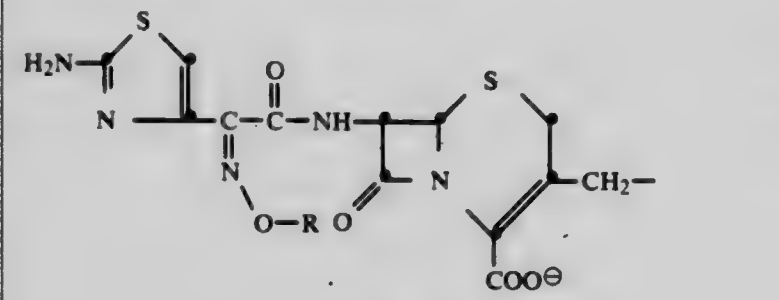
4,336,253

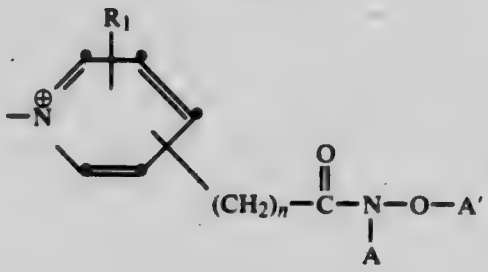
CEPHALOSPORIN ANTIBIOTICS

William H. W. Lunn, and John K. Shadle, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

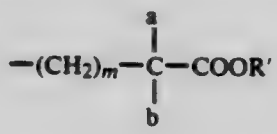
Filed Mar. 11, 1981, Ser. No. 242,792
Int. Cl.[3] **C07D** *501/38*
U.S. Cl. 424—246 **30 Claims**

1. A compound of the formula





wherein R is C_1-C_4 alkyl or a group of the formula



wherein m is 0, 1 or 2;
a and b independently are hydrogen or C_1-C_3 alkyl, or a and b taken together form a 3 to 6 membered carbocyclic ring; and R′ is hydrogen or a carboxy protecting group;
R_1 is hydrogen or C_1-C_4 alkyl;
n is 0, or an integer from 1 to 3;
A and A′ independently are hydrogen, allyl, or C_1-C_4 alkyl; and the pharmaceutically acceptable, non-toxic, salts thereof.

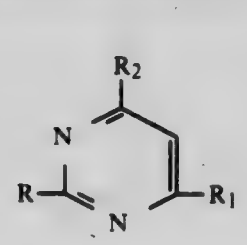
4,336,254

GUANIDINOPYRIMIDINE COMPOUNDS, COMPOSITIONS AND METHOD OF USING AS A DIURETIC

David L. Ladd, Overbrook Hills, Pa., assignor to SmithKline Corporation, Philadelphia, Pa.

Filed Mar. 24, 1981, Ser. No. 247,048
Int. Cl.[3] **A61K** *31/505;* **C07D** *239/30, 239/48, 239/50*
U.S. Cl. 424—251 **11 Claims**

1. A basic compound of the formula:



in which:
R and R_1 are guanidino or amino, at least one being guanidino; and
R_2 is hydrogen, halo or amino; together with the pharmaceutically acceptable acid addition salts thereof.

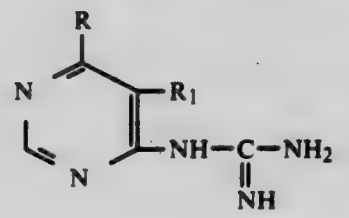
4,336,255

PHARMACEUTICAL COMPOSITIONS CONTAINING GUANIDINOPYRIMIDINES

David L. Ladd, Overbrook Hills, Pa., assignor to SmithKline Corporation, Philadelphia, Pa.

Filed Mar. 24, 1981, Ser. No. 247,049
Int. Cl.[3] **A61K** *31/505;* **C07D** *239/30, 239/48*
U.S. Cl. 424—251 **12 Claims**

1. A method of inducing diuretic activity in a patient in need thereof comprising administering orally or by injection a non-toxic diuretic quantity of a compound of the basic formula:



in which:
R is halo or amino; and
R_1 is amino or nitro; together with the pharmaceutically acceptable, acid addition salts thereof.

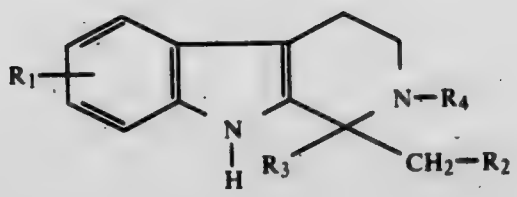
4,336,256

PYRIDOINDOLE DERIVATIVES

Gabor I. Koletar, Berkeley Heights, N.J.; Jonathan B. Frost, Palaiseau, France; Regis DuPont, Paris, France; Patrick Lardenois, Bourge la Reine, France; Claude Morel, Massy, France, and Henry Najer, Paris, France, assignors to Synthelabo, Paris, France

Division of Ser. No. 112,212, Jan. 15, 1980, Pat. No. 4,272,539. This application Sep. 4, 1980, Ser. No. 184,070
Claims priority, application France, Apr. 26, 1979, 79 10654
Int. Cl.[3] **C07D** *471/04;* **A61K** *31/435*
U.S. Cl. 424—256 **5 Claims**

1. A compound of the formula



wherein

R_1=H, halogen, C_{1-4} alkyl, C_{1-4} alkoxy or CF_3;

R_2=COO(C_{1-4} alkyl);

R_3=H, or COO (C_{1-4} alkyl); and

R_4=H, CH_3CO or CH_3;

or a pharmaceutically acceptable salt thereof.

5. A method of treating a patient for anoxia, comprising administering to the patient in need of such treatment a therapeutically effective dose of a compound as claimed in claim 1.

4,336,257

NOVEL 2-PYRIDYLBENZIMIDAZOLE COMPOUNDS

John J. Baldwin, Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 44,129, May 31, 1979, abandoned, which is a continuation-in-part of Ser. No. 883,629, Mar. 6, 1978, abandoned, which is a division of Ser. No. 755,777, Dec. 30, 1976, abandoned. This application Aug. 8, 1980, Ser. No. 176,237

Int. Cl.[3] A61K *31/415*

U.S. Cl. 424—256 2 Claims

1. A method of treating hypertension in humans which comprises administering an effective amount of a compound selected from 2-(4-pyridyl)-5-chlorobenzimidazole, 2-(3-pyridyl)-1H-imidazo[4,5-b]pyridine, 2-(4-pyridyl)-1H-imidazo[4,5-b]pyridine, 2-(4-pyridyl)-1H-imidazo[4,5-c]pyridine and pharmaceutically acceptable salts thereof.

2. A method of treating gout in humans which comprises administering an effective amount of a compound selected from 2-(4-pyridyl)-5-chlorobenzimidazole, 2-(4-pyridyl)-5,6-dichlorobenzimidazole, 2-(3-pyridyl)-1H-imidazo[4,5-c]-pyridine, 2-(4-pyridyl)-1H-imidazo[4,5-c]pyridine and pharmaceutically acceptable salts thereof.

4,336,258

DERIVATIVES OF EUGENOL AS MEDICAMENTS

Jean Blum, 44-46 rue du Gal Cremer, 92700 Colombes, France

Filed Sep. 26, 1980, Ser. No. 190,982

Claims priority, application France, Sep. 27, 1979, 79 24051

Int. Cl.[3] A61K *31/44, 31/465, 31/455;* C07D *211/90*

U.S. Cl. 424—263 5 Claims

1. A compound consisting of the eugenol ester of N-oxynicotinic acid.

5. A method for the treatment of stomatological disorders comprising the step of applying between 100 and 250 milligrams of a pharmaceutically acceptable ester of eugenol and N-oxynicotinic acid.

4,336,259

CERTAIN AZA-BICYCLO-BENZAMIDE DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME

Michael S. Hadley, Sawbridgeworth, and Francis D. King, Newport, both of England, assignors to Beecham Group Limited, England

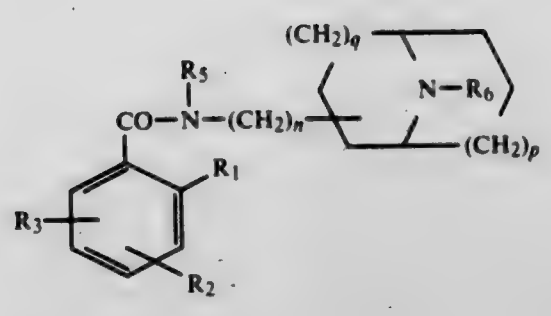
Division of Ser. No. 107,413, Dec. 26, 1979, Pat. No. 4,273,778. This application Oct. 27, 1980, Ser. No. 200,768

Claims priority, application United Kingdom, Dec. 30, 1978, 50380/78; Mar. 15, 1979, 7909262; Aug. 9, 1979, 7927831

Int. Cl.[3] C07D *451/04, 451/14;* A61K *31/46, 31/455*

U.S. Cl. 424—265 37 Claims

1. A compound of the formula (I) and pharmaceutically acceptable salts thereof:



(I)

wherein:

R_1 is a C_{1-6} alkoxy group;

R_2 is hydrogen, halogen, CF_3, C_{2-7} acyl, C_{2-7} acylamino, or amino or aminocarbonyl optionally substituted by one or two C_{1-6} alkyl groups, or nitro;

R_3 is aminosulphone optionally substituted by one or two C_{1-6} alkyl groups, or C_{1-6} alkylsulphone;

R_5 is hydrogen or C_{1-6} alkyl;

R_6 is C_{1-7} alkyl or a group $-(CH_2)_sR_7$ where s is 0 to 2 and R_7 is a C_{3-8} cycloalkyl group, or a group $-(CH_2)_tR_8$ where t is 1 or 2 and R_8 is C_{2-5} alkenyl or a phenyl group optionally substituted by one or two substituents selected from C_{1-6} alkyl, C_{1-4} alkoxy, trifluoromethyl and halogen; and

n, p and q are independently 0 to 2.

33. A pharmaceutical composition having dopamine antagonist activity which comprises a dopamine antagonist effective amount of the compound 5-sulphamoyl-2-methoxy-N-(3′β-[8′benzyl-8′-azabicyclo[3.2.1]octyl])benzamide, or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable carrier.

4,336,260

METHOD AND COMPOSITIONS USING 1-ARYL-1,2,3,4-TETRAHYDRO-β-CARBOLINE-3-CARBOXYLIC ACID FOR TREATING DEPRESSION

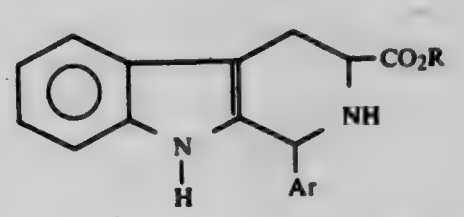
Alan J. Payne, Noblesville; Michael V. Aylott, Thorntown; Jimmie L. Moore, Indianapolis, all of Ind., and Edward M. Yokley, Cambridge, Mass., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 858,593, Dec. 8, 1977, abandoned. This application Mar. 2, 1979, Ser. No. 16,757

Int. Cl.[3] A61K *31/44, 31/435, 31/455*

U.S. Cl. 424—266 32 Claims

1. A method for treating depression in a mammal exhibiting the symptoms of central nervous system depression which comprises administering internally to the mammal an effective antidepressant amount of a compound having the formula



wherein R represents hydrogen or a lower alkyl and Ar represents aryl 3,4-methylenedioxyphenyl or substituted aryl wherein the substituted moiety is a member selected from the group consisting of lower alkyl, lower alkoxy, halo, nitro, amino, monoloweralkylamino, and diloweralkylamino, and further including when R is H the pharmaceutically-acceptable salts of the corresponding acids.

4,336,261

ARYLOXYPROPANOLAMINES

John J. Baldwin, Lansdale, and David E. McClure, Hatfield, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 77,815, Sep. 21, 1979, which is a division of Ser. No. 919,593, Jun. 27, 1978, Pat. No. 4,210,653. This application Dec. 15, 1980, Ser. No. 216,480

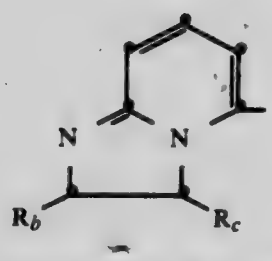
Int. Cl.[3] A61K *31/415;* C07D *235/30*

U.S. Cl. 424—273 R 8 Claims

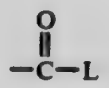
1. A compound having the formula

$$R_c—O—CH_2—CHOR—CH_2—NHR^1$$

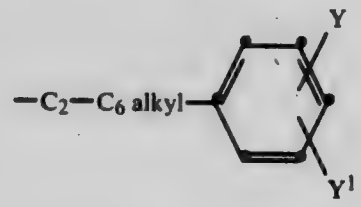
and pharmaceutically acceptable salts thereof wherein R_a is



wherein R_b and R_c are H, C_1-C_6 alkyl, SCF_3 or Cl,
R is H or

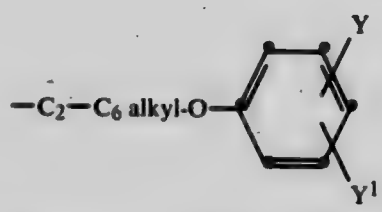


wherein
L is C_1-C_{10} alkyl, phenyl or mono- or di-substituted phenyl wherein said substituents are C_1-C_4 alkyl, C_1-C_4 alkoxy or halo and
R^1 is a phenyl C_2-C_6 alkyl group having the formula



(a)

or



(b)

wherein Y and Y^1 are H, $—OCH_3$, —OH, halo or CN, or are joined to form $—O—(CH_2)_{1\ or\ 2}—O—$.

7. Pharmaceutical composition for treating hypertension containing a therapeutically effective amount of a compound of claim 1 and a diluent.

4,336,262

POUR-ON VETERINARY ANTHELMINTIC

Peter J. Brooker, and John Goose, both of Saffron Walden, England, assignors to Fisons Ltd., England

Continuation of Ser. No. 773,111, Feb. 28, 1977, Pat. No. 4,070,467, which is a continuation of Ser. No. 443,522, Feb. 19, 1974, abandoned. This application Sep. 13, 1977, Ser. No. 832,916

Claims priority, application United Kingdom, Feb. 23, 1973, 8972/73; Jan. 25, 1974, 3521/74

Int. Cl.[3] A61K *31/425*

U.S. Cl. 424—270 29 Claims

1. A pour-on veterinary composition useful for the treatment of helminthic infestations in animals which comprises an anthelmintically effective amount of tetramisole, levamisole or a nontoxic acid addition salt thereof in combination with ethanol or isopropanol as diluent suitable for pour-on therapy.

4,336,263

1,4-CYCLOALKANO-OXAZEPINES, SALTS THEREOF AND ANALGESIC USES THEREOF

Hans J. Treiber, Bruehl; Dieter Lenke, Ludwigshafen, and Wolfgang Worstmann, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

PCT No. PCT/EP79/00080, § 371 Date Jun. 26, 1980, § 102(e) Date Jun. 16, 1980, PCT Pub. No. WO80/00838, PCT Pub. Date May 1, 1980

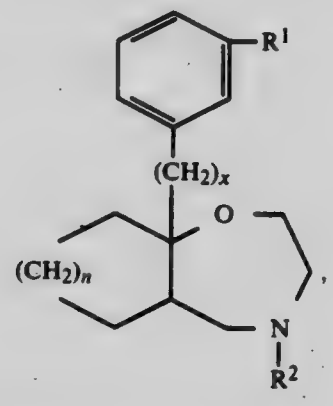
PCT Filed Oct. 22, 1979, Ser. No. 193,947

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846567

Int. Cl.[3] C07D *267/14, 267/12;* A61K *31/395*

U.S. Cl. 424—244 11 Claims

1. A 1,4-Cycloalkano-oxazepine of the general formula I



I

where R^1 is hydrogen, hydroxyl or alkoxy or acyloxy of 1 to 4 carbon atoms, R^2 is a hydrocarbon radical of 1 to 3 carbon atoms, n is 1, 2 or 3 and x is 0 or 1, or one of its salts with physiologically acceptable acids.

4,336,264

1-BENZOYL-3-(ISOXAZOLYL OR BENZISOXAZOLYL)-UREAS AND INSECTICIDAL USE THEREOF

David I. Wickiser, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Jun. 19, 1980, Ser. No. 160,805

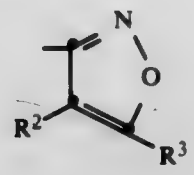
Int. Cl.[3] A01N *43/76;* C07D *263/32, 263/56*

U.S. Cl. 424—272 99 Claims

1. Compound of the formula

wherein each R is independently selected from the group consisting of:
H,
Br,
Cl,
F,
CH_3, or
OCH_3,
with the proviso that R cannot simultaneously represent more than one hydrogen atom, and with the further proviso that when one R moiety represents hydrogen the other R moiety cannot simultaneously represent OCH_3;
X=O or S;

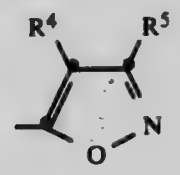
R^1=a 3-isoxazolyl of the formula



R^2=H,
Br,
Cl,
I,
C_1–C_3 alkyl, or
CN;

R^3=tert-butyl, phenyl, or meta- or para-substituted phenyl of which the substituent is chloro, fluoro, C_2–C_4 alkyl, C_2–C_4 alkoxy, $O_mC_nF_{2n+1}$, $O_mC_nF_{2n}H$, $-\phi$, or -0ϕ, m=0-1 and n independently=1–4, with the proviso that when the substituent is fluoro, or chloro, R is not OCH_3; or

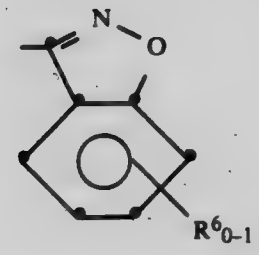
R^1=a 5-isoxazolyl of the formula



R^4=H,
Br,
Cl,
I,
C_1–C_3 alkyl, or
CN; and

R^5=CF_3, tert-butyl, phenyl, or a meta-or-para-substituted phenyl of which the substituent is fluoro, C_1–C_4 alkyl, C_1–C_4 alkoxy, $O_mC_nF_{2n+1}$, $O_mC_nF_{2n}H$, $-\phi$, or -0ϕ, m=0–1 and n independently=1–4, with the proviso that when the substituent is fluoro, R cannot simultaneously represent more than one chlorine atom; or

R^1=a 3-benzisoxazolyl of the formula



R^6=halo,
C_1–C_4 alkyl,
C_1–C_4 alkoxy,
$O_mC_nF_{2n+1}$,
$O_mC_nF_{2n}H$,
$-\phi$, or
-0ϕ,
m=0–1 and n independently=1–4.

34. Method of suppressing insects of an order selected from the group consisting of Coleoptera, Diptera, Lepidoptera, and Orthoptera, which comprises applying to the locus of the insects an effective amount of an active agent which is a compound of claim 1.

4,336,265

METHOD OF INCREASING FEED EFFICIENCY IN SWINE

Jesse E. Shively, Terre Haute, Ind., assignor to Pfizer Inc., New York, N.Y.

Filed Nov. 6, 1980, Ser. No. 204,731
Int. Cl.³ A61K *31/35*
U.S. Cl. 424—283 6 Claims

1. A method of increasing the utilization of feed by swine comprising orally administering to a pig weighing at least about 35 kg an effective amount of a compound selected from salinomycin and 4-methylsalinomycin and the physiologically acceptable esters and salts thereof.

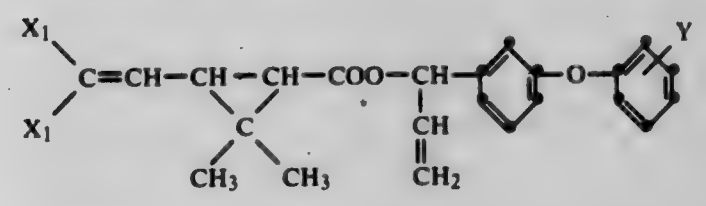
4,336,266

INSECTICIDAL 2,2-DIMETHYL-3-(2',2'-DIHALOVINYL)-CYCLOPROPANE CARBOXYLIC ACID 3-HALOPHENOXY-α-VINYLBENZYL ESTERS

Jozef Drabek, Oberwil; Peter Ackermann, Reinach; Saleem Farooq, Ettingen; Laurenz Gaell, Basel, and Odd Kristiansen, Möhlin, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 84,954, Oct. 15, 1979, abandoned. This application Mar. 3, 1981, Ser. No. 240,334
Claims priority, application Switzerland, Nov. 26, 1978, 11077/78; Sep. 11, 1979, 8504/79
Int. Cl.³ C07C *69/743;* A01N *53/00*
U.S. Cl. 424—305 8 Claims

1. A compound of formula



wherein each of X_1 and Y is fluorine, chlorine or bromine.

7. An insecticidal and acaricidal composition which contains, as active component, an insecticidally or acaricidally effective amount of a compound according to claim 1, together with a suitable carrier.

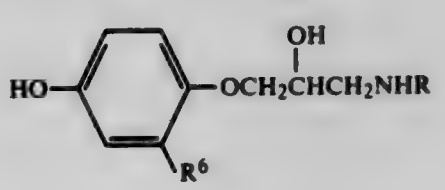
4,336,267

HEART ACTIVE COMPOUNDS AND METHODS OF USE

Enar I. Carlsson, Kungsbacka; Nils H. A. Persson, Dalby; Gustav B. R. Samuelsson, Molnlycke, and Kjell I. L. Wetterlin, Sandby, all of Sweden, assignors to Aktiebolaget Hässle, Goteborg, Sweden

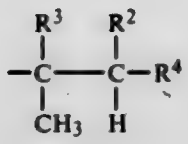
Division of Ser. No. 549,841, Feb. 13, 1975, Pat. No. 4,244,969. This application May 19, 1980, Ser. No. 150,883
Claims priority, application Sweden, Feb. 14, 1974, 7401958
Int. Cl.³ A61K *31/24;* C07C *101/72*
U.S. Cl. 424—309 12 Claims

1. A compound of formula I(a)

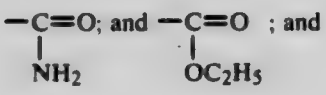


I(a)

wherein
R is

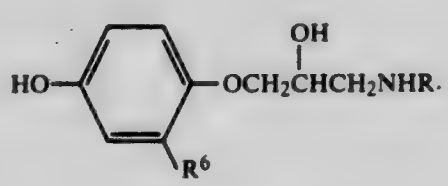


wherein
R^2 is hydrogen;
R^3 is selected from the group consisting of hydrogen and methyl;
R^4 is selected from the group consisting of



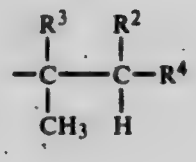
R^6 is selected from the group consisting of hydrogen, halogen and allyl; or
a pharmaceutically acceptable salt of a compound according to formula I(a).

4. A method of stimulating the β-receptors of the heart by administering to mammals, including man, suffering from symptoms and signs of cardiac failure, in an amount sufficient to mitigate said symptoms, a compound of the general formula I(a)

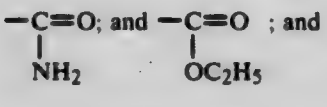


I(a)

wherein
R is



wherein
R^2 is hydrogen;
R^3 is selected from the group consisting of hydrogen and methyl;
R^4 is selected from the group consisting of



R^6 is selected from the group consisting of hydrogen, halogen and allyl;
or a pharmaceutically acceptable salt of a compound according to formula I(a).

4,336,268

CYCLOHEXENE DERIVATIVE ANALGESICS

Hans Bruderer, Benken; Albert E. Fischli, Riehen, and Rudolf Pfister, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

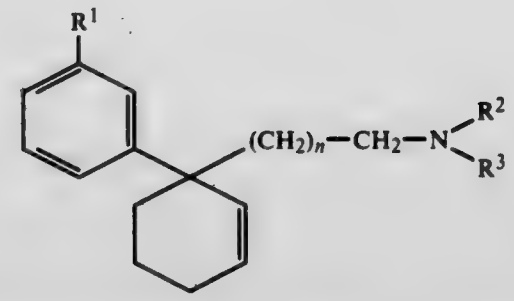
Filed Jan. 27, 1981, Ser. No. 228,793

Claims priority, application Switzerland, Jan. 29, 1980, 724/80

Int. Cl.³ A61K *31/135*

U.S. Cl. 424—330 **9 Claims**

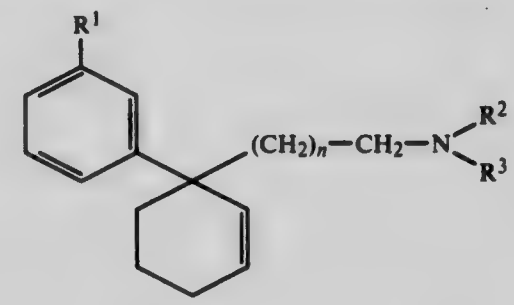
1. A compound of the formula



I

wherein R^1 is hydroxy or lower alkoxy, n is the integer 1 or 2, R^2 is lower alkyl and R^3 is hydrogen, lower alkyl, lower alkenyl or lower cycloalkylmethyl, or a pharmaceutically acceptable acid addition salt thereof.

7. An analgesic composition comprising an analgesically effective amount of a compound of the formula



I

wherein R^1 is hydroxy or lower alkoxy, n is the integer 1 or 2, R^2 is lower alkyl and R^3 is hydrogen, lower alkyl, lower alkenyl or lower cycloalkylmethyl, or a pharmaceutically acceptable acid addition salt thereof, and an inert carrier material.

4,336,269

PARA-NITROPHENYLALKYLAMINES

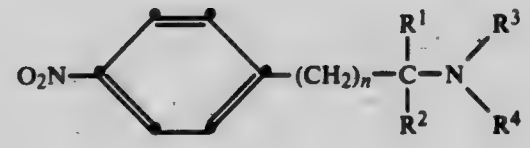
Bryan B. Molloy, North Salem, and Mitchell I. Steinberg, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 102,044, Dec. 10, 1979, Pat. No. 4,277,501, which is a continuation-in-part of Ser. No. 861,789, Dec. 19, 1977, abandoned. This application Feb. 24, 1981, Ser. No. 237,569

Int. Cl.³ A61K *31/135*; C07C *87/28*

U.S. Cl. 424—330 **9 Claims**

1. A method of treating arrhythmia comprising administering to a patient in need of said treatment a therapeutic or prophylactic antiarrhythmic amount of a compound of the formula



wherein:
n is 2–5;
R^1 is hydrogen or C_1–C_2 alkyl;
R^2 is hydrogen or C_1–C_3 alkyl;
R^3 is hydrogen or C_1–C_8 alkyl;
R^4 is C_1–C_{10} alkyl;
provided that when R^3 is hydrogen, R^4 is C_5–C_7 alkyl, or a pharmaceutically acceptable acid addition salt thereof.

4,336,270
O-BENZYLPHENOLS

Rene Muntwyler, Hofstetten, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

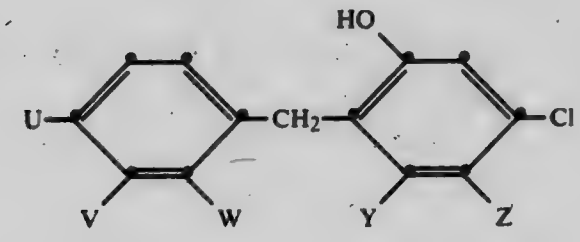
Continuation of Ser. No. 856,939, Dec. 2, 1977, abandoned, which is a continuation of Ser. No. 678,771, Apr. 20, 1976, abandoned, which is a continuation of Ser. No. 510,937, Oct. 1, 1974, abandoned. This application Oct. 5, 1979, Ser. No. 82,188

Claims priority, application Switzerland, Oct. 29, 1973, 15200/73

Int. Cl.³ C07C *39/367;* A01N *31/08*

U.S. Cl. 424—347 **17 Claims**

1. An o-benzylphenol of the formula



wherein
Y represents hydrogen or chlorine
Z represents hydrogen, chlorine or bromine,
U represents hydrogen, chlorine or fluorine,
V represents hydrogen or chlorine and
W represents hydrogen or chlorine.

4,336,271
TENDERIZATION OF MEAT BY NATURAL ENZYME CONTROL

Chunghee K. Kang, Hinsdale; Ronald F. Jodlowski, Lemont; Thomas H. Donnelly, Western Springs, and William D. Warner, Elmhurst, all of Ill., assignors to Swift Independent Packing Company, Chicago, Ill.

Filed Sep. 29, 1980, Ser. No. 191,372

Int. Cl.³ A22C *21/00;* A23L *1/31*

U.S. Cl. 426—55 **10 Claims**

1. An improved method for tenderizing meat by control of naturally occurring enzymes, comprising:

injecting live animals and fowl with an aqueous solution of a unionized calcium salt and a zinc chelating compound in an amount sufficient to raise the concentration of free calcium ions in the muscle tissue to at least 1 mM and to effectively bind the free zinc ions in the meat,

slaughtering the animals and fowl after injection,

holding the meat within the optimum temperature of the natural enzyme for a period of time and thereafter processing the tenderized meat in accordance with commercial processing procedures.

4,336,272
PROCESS FOR THE PREPARATION OF AN OIL-IN-WATER EMULSION

Cornelis T. Verrips, and Renee van Rhee, both of Maassluis, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

Filed Oct. 17, 1980, Ser. No. 198,084

Claims priority, application Netherlands, Oct. 25, 1979, 7907831

Int. Cl.³ A23D *5/00*

U.S. Cl. 426—250 **14 Claims**

1. A process for the preparation of an edible, microbiologically stable oil-in-water emulsion from components comprising an oil, water, a thickener and an emulsifier, at least one of said components being microbiologically contaminated, comprising:

(a) subjecting the microbiologically contaminated component to an osmotic shock and/or an acid shock;

(b) subjecting said component from step (a) to a temperature shock by raising the temperature at least 20° C. to a value between 40° and 55° C. within three minutes;

(c) processing the component from step (b) with the remaining ingredients into a final emulsion;

(d) filling the final emulsion into containers; and

(e) sealing the containers,

the temperature of the emulsion during the processing, filling and sealing steps being maintained within the temperature range of 40° to 55° C.

4,336,273
VEGETABLE AND FRUIT PRESERVATION PROCESS

Chi-Hang Lee, Walnut Creek, Calif., assignor to Del Monte Corporation, San Francisco, Calif.

Filed Oct. 3, 1980, Ser. No. 193,778

Int. Cl.³ A23B *7/14;* A23L *3/34*

U.S. Cl. 426—321 **39 Claims**

1. A process for treating fruit or vegetable material to minimize loss of texture which comprises contacting said material for a period of time sufficient to stabilize the texture of said material at a temperature of about 0° C. to 75° C. with at least 0.1 percent by weight based on the weight of said materials being treated of an organic compound selected from the group consisting of:

(a) alcohols,
(b) aldehydes,
(c) amides,
(d) esters,
(e) hydrocarbons,
(f) halogenated hydrocarbons,
(g) ketones,
(h) lactones and
(i) nitriles,

rinsing the fruit or vegetable material with water or a water-based medium to remove the major portion of said organic compound and heating the rinsed material at temperatures of at least 80° C. for a sufficient period of time to effect sterilization of the material.

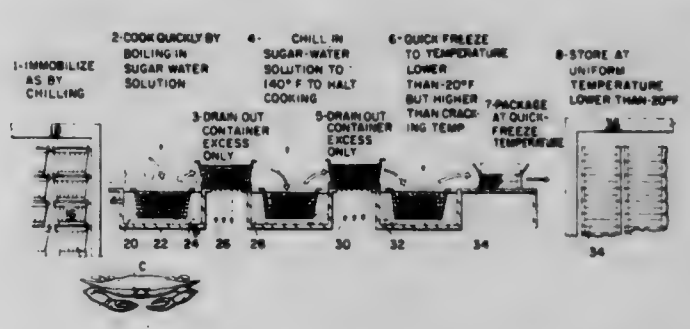
4,336,274
WHOLE BLUE CRAB FREEZING PROCESS

Kenneth B. Ross, Bel Air, and Carl R. Jones, Takoma Park, both of Md.

Continuation-in-part of Ser. No. 27,659, Apr. 6, 1979, abandoned, which is a continuation-in-part of Ser. No. 768,229, Feb. 14, 1977, abandoned. This application Jul. 30, 1980, Ser. No. 173,690

Int. Cl.³ A23B *4/08;* A23L *1/33*

U.S. Cl. 426—643 **9 Claims**



1. In a process for preserving whole blue crabs for later preparation and service as whole steamed crabs, including the sequential steps of cooking, quick cooling, quick freezing, packaging and storing, the improvement comprising preserving fresh whole crabmeat texture and taste through an extended shelf life by:

(a) in at least one of said cooking and cooling steps, saturating the whole crab interiors with a solution consisting of water having sugar therein, sufficient for preserving the taste of the meat of the whole crabs, but substantially free of salt;

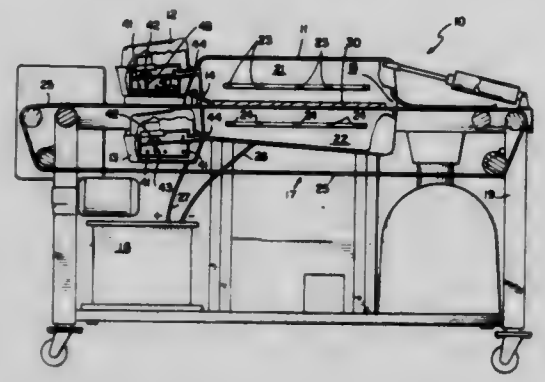
(b) quick freezing the cooked and cooled whole crabs; and then
(c) storing the solution-maintained quick frozen whole crabs at a temperature lower than −15° F.

4,336,275

METHOD AND APPARATUS FOR LUBRICATING CONDUCTIVE SUBSTRATES

Addison B. Scholes, Muncie, Ind., assignor to Ball Corporation, Muncie, Ind.

Filed Sep. 18, 1980, Ser. No. 188,335
Int. Cl.³ B05D 1/04; B05B 5/00
U.S. Cl. 427—27 **5 Claims**



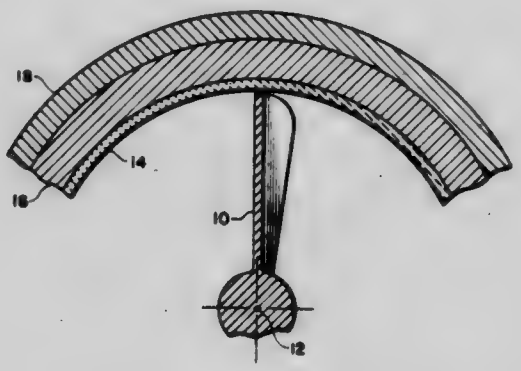
5. A method for providing an ungrounded metallic substrate with lubricating particles, comprising moving the ungrounded metallic substrate through a deposition zone defined by a pair of deposition chambers, one on each side of the substrate, providing separate supplies of lubricating particles to be deposited in the deposition zone, charging the lubricating particles for deposition, one separate supply of lubricating particles being provided to one of the deposition chambers on one side of the substrate with electrical charges of one polarity and the other separate supply of lubricating particles being provided to the other deposition chamber on the other side of the substrate with electrical charges of the opposite polarity, and providing a simultaneous flow of charged particles of both polarities to the ungrounded metallic substrate at about the same rate while in the deposition zone to avoid an accumulation of high voltage during deposition.

4,336,276

FULLY PLASMA-SPRAYED COMPLIANT BACKED CERAMIC TURBINE SEAL

Robert C. Bill, Rocky River, and Donald W. Wisander, Columbia Station, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 30, 1980, Ser. No. 145,209
Int. Cl.³ B05D 1/08
U.S. Cl. 427—34 **7 Claims**



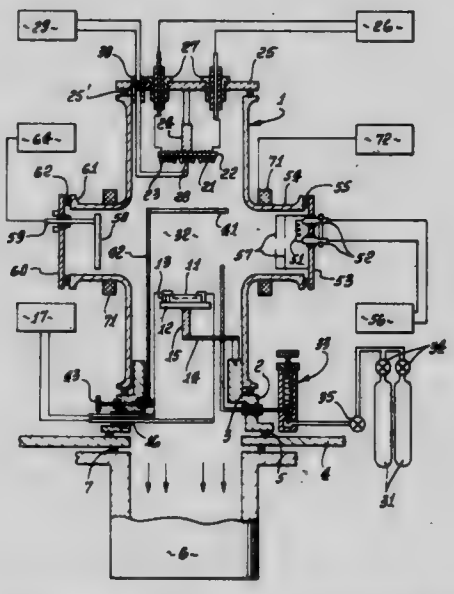
1. A method of making a seal comprising the steps of
providing a substrate of a dense metal,
simultaneously depositing a material that is easily decomposable at low temperatures and a high temperature oxidation-resistant metal onto said substrate to form a composite,
applying a metal bond coating onto said composite,
applying a ceramic layer onto said bond coating, and
heating the resulting system to volatilize the decomposable material in said composite.

4,336,277

TRANSPARENT ELECTRICAL CONDUCTING FILMS BY ACTIVATED REACTIVE EVAPORATION

Rointan Bunshah, Los Angeles, Calif., and Prem Nath, Troy, Mich., assignors to The Regents of the University of California, Berkeley, Calif.

Filed Sep. 29, 1980, Ser. No. 191,407
Int. Cl.³ C23C 13/12
U.S. Cl. 427—38 **21 Claims**



1. In a process for depositing a transparent electrical conducting film on a substrate by activated reactive evaporation, the steps of:
supporting the substrate in a vacuum;
evaporating a low melting point metal or alloy by resistive heating of the solid material producing a metal vapor in a zone between the resistance heat source and the substrate, with the substrate above the resistance heat source so that the metal vapor moves upward from the heat source toward the substrate;
introducing oxygen gas into the zone;
extracting low energy electrons from a heated cathode by a dc electric field directed across the path of the metal vapor in the zone between the resistance heat source and the substrate, which electric field is produced by applying an electrical potential between cathode and anode of about 20 to about 200 volts;
directing a beam of the low energy electrons laterally through the zone for colliding with the gas and metal atoms producing gas and metal ions and energetic neutral atoms which react with each other and with neutral metal and gas atoms in the zone resulting in a metal oxide deposit on the substrate; and
providing a magnetic field along the beam of electrons so that electrons travel in a helical path in the zone.

15. In an apparatus for producing transparent electrical conducting thin films by activated reactive evaporation, the combination of:
a vacuum chamber;
an electrical resistance heater mounted in said chamber;
means for connecting an electrical power supply to said heater;
a substrate holder mounted in said chamber spaced upward from said heater with a reaction zone therebetween and defining a first metal vapor path from said heater upward to said holder through said zone;
means for directing a gas into said zone;

a source of a beam of low energy electrons mounted in said chamber for directing an electron beam into said zone along a second electron path transverse to said first path; and

magnetic means for providing a magnetic field along said second path to cause said low energy electrons to travel in helical paths.

4,336,278

METHOD FOR COATING MAGNETIC, BINDER-CONTAINING DISPERSIONS ON FLEXIBLE SUBSTRATES

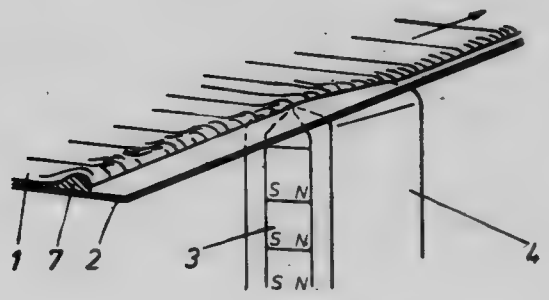
Albert Pertzsch, Munich; Siegfried Rieger, Groebenzell, and Friedrich Ankenbrand, Neuried, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 2, 1980, Ser. No. 183,054

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1979, 2936035

Int. Cl.³ B05D 3/14

U.S. Cl. 427—47 **3 Claims**



1. The method of forming a coat of dispersions in a binder on a plane surface of a substrate, the coating composition comprising magnetizable dispersions in a binder containing the dispersions,

the method steps including applying the composition of binder and magnetizable dispersions as a coat onto a plane surface of a flexible substrate and in a width narrower than that of the plane surface to provide a coat border spaced from the lateral edge of the substrate,

subjecting the magnetizable dispersion to a strong magnetic field emanating from a magnetic circuit comprised of a pair of saturated pole elements having edges positioned to provide a gap therebetween and to supply an induced flux of a magnetic field at the gap,

moving said coat and substrate together in a direction of travel past the pole elements with said plane surface moving in said direction of travel over the center line of the gap between the edges of the poles, and the substrate moving over the pole elements which are both positioned beneath the substrate with respect to the coat so that the center line of the gap forms an angle with the coat border of between 0.5 and 10°, and guiding the coat border through the induced flux of the magnetic field and moving the composition at the coat border toward the substrate lateral edge as the coat passes across the gap.

4,336,279

APPARATUS AND PROCESS FOR DRYING AND CURING COATED SUBSTRATES

Wesley A. Metzger, 3107 Knoll Dr., Falls Church, Va. 22402

Filed Jul. 4, 1978, Ser. No. 924,814

Int. Cl.³ B05D 3/06

U.S. Cl. 427—55 **12 Claims**

1. Apparatus for drying and curing coatings on substrates conveyed through said apparatus, comprising:

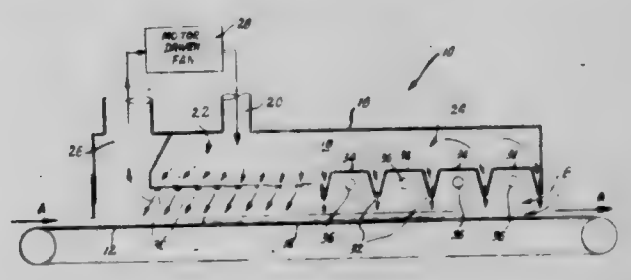
means for supplying high-velocity, hot air;

means fluidically connected to said air supply means for conducting said high-velocity, hot air onto said substrate so as to achieve flashing of volatile constituents from said substrate coating;

means fluidically connected to said air supply means and located downstream of said flashing means for conducting said high-velocity, hot air onto said substrate subsequent to said flashing operation so as to further dry and cure said substrate, and further including radiant heating means for further drying and curing said substrate in conjunction with said downstream fluidic means;

means, disposed upstream of said upstream fluidic means, for exhausting said air from the vicinity of said substrate and recirculating said air to said hot air supply means;

said downstream fluidic means comprising a plurality of air knives having their exhausts directed normal to the flow path of said conveyed substrate; and



said radiant heating means comprising heating elements and means defining reflector units about said radiant heating elements, said reflector means also defining said air knives.

10. A process for drying and curing coatings on substrates, comprising the steps of:

conveying the substrate along a defined path;

conducting high-velocity, hot air onto the full surface of the coating on said substrate so as to achieve flashing of volatile constituents from said substrate coating;

conducting high-velocity, hot air, along with radiant heat energy, onto said substrate at a position downstream from said flashing so as to achieve further drying and curing of said substrate; and

exhausting said hot air, at a position upstream of said flashing, so as to recirculate said hot air for said flashing and further drying and curing.

4,336,280

METHOD FOR CONTINUOUS PRODUCTION OF NIOBIUM-GERMANIUM LAYERS ON A SUBSTRATE

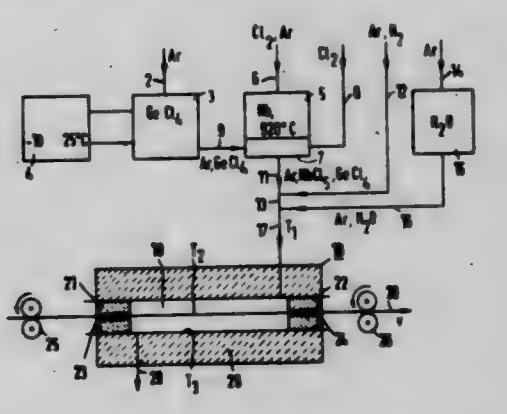
Alfred Müller, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Nov. 4, 1980, Ser. No. 203,968

Claims priority, application Fed. Rep. of Germany, Dec. 4, 1979, 2948735

Int. Cl.³ B05D 5/12

U.S. Cl. 427—62 **8 Claims**



1. A method for continuously producing layers of intermetallic superconducting A15 phase niobium-germanium Nb_3Ge by hydrogen reduction of gaseous halogenides of niobium and germanium, the method having the step of depositing the layers upon a heated substrate by conducting a gas mixture

having hydrogen and niobium and germanium halogenides to a reaction chamber through which the substrate is conducted, CHARACTERIZED IN THAT the heated substrate to be layered exceeds 100 meters in length and there is further provided the step of mixing water vapor with the gas mixture of hydrogen and niobium and germanium halogenides so as to produce an atmosphere in the reaction chamber having between 0.05 and 0.001 volume percent of water vapor.

4,336,281

METHOD OF MANUFACTURING A SOLAR CELL

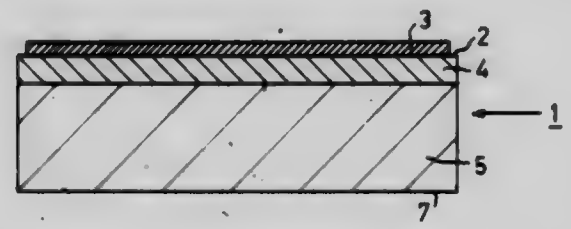
Jacobus H. C. van Mourik, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 24, 1980, Ser. No. 171,693

Claims priority, application Netherlands, Jul. 27, 1979, 7905817

Int. Cl.³ B05D *3/04, 3/10, 3/12*

U.S. Cl. 427—74 **14 Claims**



1. A method of manufacturing a solar cell having a silicon disc with a region of n-conductivity type adjoining a major surface comprising the steps of forming an electrode containing silver on said n-type region in a silk-screening process by using a paste containing silver and an addition in elementary form belonging to the group of elements consisting of bismuth, magnesium and indium; carrying out a thermal treatent in an oxidizing atmosphere after forming said electrode; and thereafter subjecting said electrode to a mechanical treatment by a scouring treatment to improve junction resistance with said silicon.

4,336,282

PROCESS FOR PRODUCTION OF ELECTRODE FOR USE IN ELECTROLYSIS

Hideo Sato, Chiba, and Takayuki Shimamune, Ichihara, both of Japan, assignors to Permelec Electrode Ltd., Tokyo, Japan

Division of Ser. No. 77,224, Sep. 20, 1979, Pat. No. 4,297,195. This application Feb. 5, 1981, Ser. No. 264,902

Claims priority, application Japan, Sep. 22, 1978, 53-115894

Int. Cl.³ C25B *11/08*

U.S. Cl. 427—125 **3 Claims**



1. A process for producing an electrode for use in the electrolysis of an aqueous solution of a metal halide, which comprises:

coating a solution containing a platinum compound and a tin compound, and optionally a cobalt compound, on an electrically conductive substrate,

and heat-treating the coated substrate in an oxidizing atmosphere thereby to form a coating on the substrate comprising:

(1) 50 to 95 mole % of platinum,

(2)(a) 5 to 50 mole % of tin oxide, or

(b) 5 to 50 mole % of tin oxide and cobalt oxide,

wherein the tin oxide is present in an amount of at least 5 mole % and the cobalt oxide is present in an amount up to 20 mole %, the total of (1) and (2) being 100 mole %.

4,336,283

PLASTICIZATION OF CARBON FIBERS

Leighton H. Peebles, Medfield; Donald R. Uhlmann, Newton, and Steven B. Warner, Brighton, all of Mass., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 471,942, May 21, 1974, abandoned. This application Aug. 16, 1976, Ser. No. 714,542

Int. Cl.³ B05D *3/10*

U.S. Cl. 427—154 **23 Claims**

1. In a method of manufacturing an article containing carbon fibers wherein the fibers are subjected to tortuous mechanical manipulation in order to impart a particular configuration thereto, the improvement comprising contacting said fibers with a plasticizing agent capable of intercalating single crystals of graphite prior to the manipulation of said fibers, and thereafter removing said plasticizing agent, whereby said fibers, after removal of the plasticizing agent, will retain to a measurable degree the configuration imparted thereto during the manipulation.

4,336,284

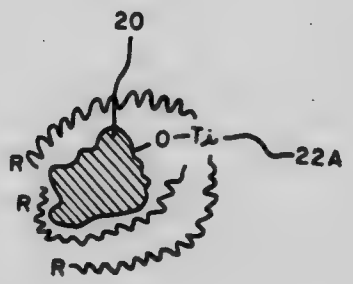
METHOD FOR PRETREATING COAL FLY ASH

Richard A. Wallace, 7304 SW. 53rd Ave., Portland, Oreg. 97219

Filed Dec. 15, 1980, Ser. No. 216,256

Int. Cl.³ B05D *7/00*; B32B *3/00*; C08K *9/02, 9/04, 9/06*

U.S. Cl. 427—213 **1 Claim**



1. A method for pretreating coal fly ash to obtain a partial monomolecular hydrophobic coating comprising the steps of:

(a) grinding predetermined quantities of non-uniform coal fly ash thereby obtaining predetermined quantities of coal fly ash powder;

(b) continuously moving said coal fly ash powder through a spray mixer using a fluidized bed type action so as to move and simultaneously agitate said powder;

(c) selecting a chemical agent from the long-chain organic group including stearic acid, organo-functional silanes and organotitanates;

(d) during said agitation of said powder, flowing in the range from 0.005% to 0.09% by weight, small amounts of said agent in any of mist, liquid and vapor form over said agitated powder thereby obtaining a partial monomolecular hydrophobic coating on the particles of said agitated powder which varies in particle coverage from one per-

cent to 99 percent coverage of the surfaces of said particles throughout said quantities of said agitated powder; and

(e) feeding said partially coated powder into a hopper for bagging operations.

4,336,285

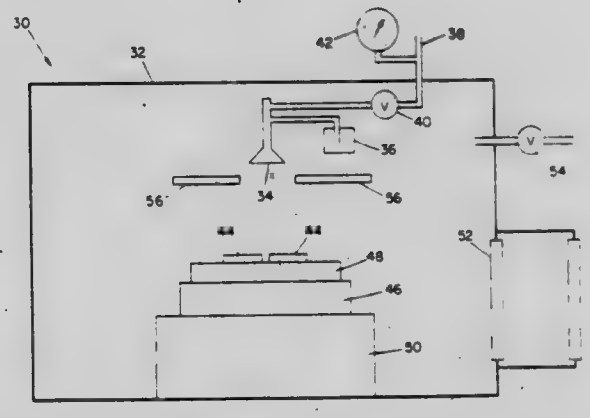
METHOD TO SYNTHESIZE AND PRODUCE THIN FILMS BY SPRAY PYROLYSIS

Michael R. Squillante, Waltham, Mass., assignor to Radiation Monitoring Devices, Inc., Watertown, Mass.

Filed Feb. 3, 1981, Ser. No. 231,128

Int. Cl.³ B05D *1/02, 3/02;* **C03C** *17/10, 17/22*

U.S. Cl. 427—314 **3 Claims**



1. In the process of making a thin film comprising preparing a solution with solute elements including a salt of a first constituent element of said film and spraying said solution onto a heated substrate to form a film on said substrate, the solute and solvent elements not constituting said film forming volatile reaction products after contacting said heated substrate, said solution also including an agent in sufficient amount to change the oxidation state of at least one said solute element after contacting said heated substrate,

the improvement wherein said agent is an organic acid with a solubility greater than 1 M in the solvent.

4,336,286

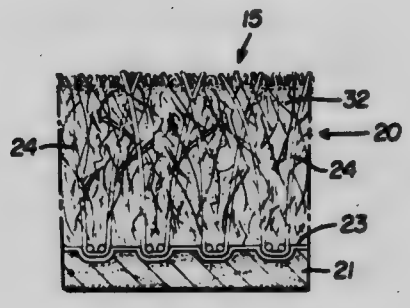
TENNIS COURT SURFACE WITH SAND TOPDRESSING

Seymour A. Tomarin, P.O. Box 730, 23 Smith St., St. Catherines, Ontario, Canada

Filed Nov. 26, 1980, Ser. No. 210,542

Int. Cl.³ A01N *3/00;* **A41G** *1/00*

U.S. Cl. 428—17 **2 Claims**



1. A stabilized sand surface for a tennis court formed of a synthetic pile carpet laid upon a flat, support surface, and covered with a granular material, comprising:

said pile carpet being formed of relatively thick, substantially equal length strands being of a synthetic fiber of between about one-half to two inches in length, with each of said strands being fastened at its lower end to a relatively resilient, generally flat carpet base sheet, and extending upright therefrom, and with the strands being densely packed together, with adjacent strands generally tending to partially intertwine together, to form a thick, dense, mat-like network, each of said strands being narrow, flat, strip-like, of substantially uniform cross-section, and having a width which is many times greater than the fiber thickness, and each of said strands having a plurality of side-by-side end portions to increase the intertwining with adjacent strands, said strands being formed of U-shaped, double bent, lengths of fibers which are clustered together into tufts, each comprising a substantial number of fibers per tuft, which are secured through the base sheet and wherein the lower surface of said base sheet includes a coating of a rubber-like material for providing a resilient base surface, and with the bights of the U-shaped, bent fibers being relatively thinly covered with the rubber-like base sheet coating to provide downwardly protruding treadlike formations on the lower surface of the carpet to thereby resist sliding movement of the carpet upon the support surface;

a uniform thickness coating of substantially dry, fine, silica sand, such as in the range of about 40–50 mesh size, covering the carpet base sheet, and the strands, with the coating being of a pre-selected height of between the free ends of the strands to a short distance beneath said free ends for exposing a pre-determined length portion of the tips of said free ends;

and said sand coating filling the interstices between the closely adjacent strands, whereby the mat-like network resiliently stabilizes the sand coating against permanently shifting under ball impact and wind blowing.

4,336,287

NON-HYDROGENATED THERMOPLASTIC ELASTOMER COATED FRAGMENT RETENTIVE RETURNABLE GLASS CONTAINERS AND PROCESS FOR THE PREPARATION THEREOF

Alex S. Forschirm, Parsippany, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Jan. 4, 1980, Ser. No. 109,583

Int. Cl.³ B65D *11/16*

U.S. Cl. 428—35 **9 Claims**

7. A fragment retentive, returnable glass container comprising a glass container having coated thereon a coating consisting essentially of an unhydrogenated thermoplastic elastomer which has been baked in the presence of oxygen gas at a temperature from about 150° to about 170° C. for a time period of from about 10 to about 45 minutes, said unhydrogenated thermoplastic elastomer comprising:

(A) a block copolymer which is unhydrogenated and has at least two kinds of polymer blocks wherein one polymer block is designated by A and a second polymer block is designated by B such that:

(1) each A is a polymer end block of a monovinyl of alpha alkyl monovinyl arene having a number average molecular weight in the range of from about 5,000 to about 75,000, said blocks A comprising from about 5 to about 50% by weight of the total block copolymer, and

(2) each B is a polymer mid block having a number average molecular weight of from about 30,000 to about 300,000, and formed from a conjugated diene selected from homopolymers of at least one conjugated diene having 4 to 10 carbon atoms per molecule, said blocks B comprising from about 50 to about 95% by weight of the total block copolymer.

4,336,288

TECHNIQUE FOR PREVENTING SALT MIGRATION

Ernest J. Leddy, Whippany, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

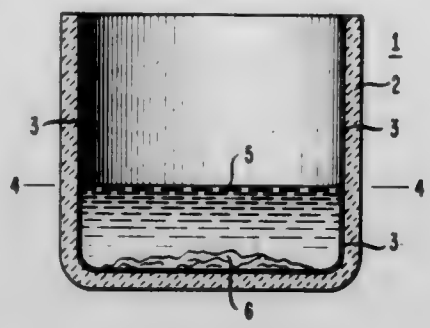
Filed Sep. 18, 1980, Ser. No. 188,499

Int. Cl.³ B05D *7/22, 5/08, 3/02;* **B32B** *1/02*

U.S. Cl. 428—35 **6 Claims**

1. A method for inhibiting migration of excess salt from an aqueous solution in a container comprising the steps of coating

the inside of said container with a room temperature vulcanizing silicone, allowing said silicone to cure so as to form a slippery surface within said container, and adding said solution



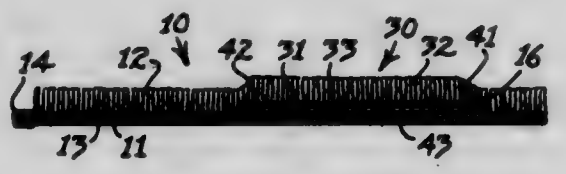
to the container such that the slippery surface of said cured silicone substantially inhibits said migration while the composition of said solution remains essentially uncontaminated in the presence of said silicone.

4,336,289

PRODUCT AND METHOD OF FORMING PATTERNED AREAS IN A PILE RUG

Edward L. Davis, 1087 Bailey Ave., Chattanooga, Tenn. 37404

Filed Jul. 6, 1981, Ser. No. 280,863
Int. Cl.³ B32B *35/00;* **C09J** *5/00*
U.S. Cl. 428—67 **11 Claims**



1. A method of making patterned areas of different designs in a pile rug including a base fabric and pile yarns projecting from one side of the base fabric to form a pile surface, comprising the steps of:

(a) carving out from a predetermined area of the pile rug, portions of the pile yarn in said area, to form a trough-like surface of reduced pile height in said area,

(b) forming at least one fabric pattern piece having a top surface and a bottom surface, whose total shape and area is substantially equal to the predetermined area of said trough-like surface,

(c) applying an adhesive material to the bottom surface of said fabric pattern piece, and

(d) inserting said pattern piece upon said trough-like surface so that said pattern piece fits said corresponding trough-like area, said adhesive material bonds the bottom surface of said pattern piece to said trough-like area, and the top surface of said pattern piece is exposed to view in design contrast with the uncarved pile surfaces of the pile rug.

4,336,290

PALLADIUM ALLOYS FOR FUSION TO PORCELAIN

Min H. Tsai, Van Nuys, Calif., assignor to Unitek Corporation, Monrovia, Calif.

Filed Apr. 13, 1981, Ser. No. 254,005
Int. Cl.³ A61K *6/04;* **C22C** *5/04*
U.S. Cl. 428—76 **11 Claims**

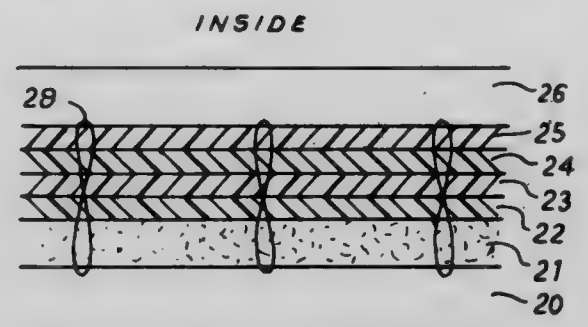
1. A semi-precious castable dental alloy suitable for bonding with dental porcelain comprising about 80–90% palladium, 5–15% indium, 1–5% gallium, 0.1–0.5% aluminum, 0.1–0.5% silicon and 0.01–1.0% of a member selected from the group consisting of ruthenium, osmium and mixtures thereof.

4,336,291

FLEXIBLE SELF-SEALING WALL MEMBER

Jeffrey C. Broadhurst; Richard A. Fletcher, both of Woodville Rubber Company, Hearthcote Rd., Swadlincote, Burton on Trent, Staffordshire, and Peter F. Jowitt, Royal Aircraft Establishment, Farnborough, Hampshire, all of England

Filed Dec. 14, 1978, Ser. No. 969,138
Claims priority, application United Kingdom, Dec. 15, 1977, 52347/77; Jul. 24, 1978, 30918/78
Int. Cl.³ B32B *7/08, 7/14, 25/20*
U.S. Cl. 428—101 **15 Claims**



1. A flexible self-sealing non-metallic wall member for forming a liquid non-metallic container, characterized by:

(a) said wall member having an inner surface directly contacting liquid filling the container, and an outer surface directly forming the outer surface of the container and being free of any contact with metallic sheet material, and

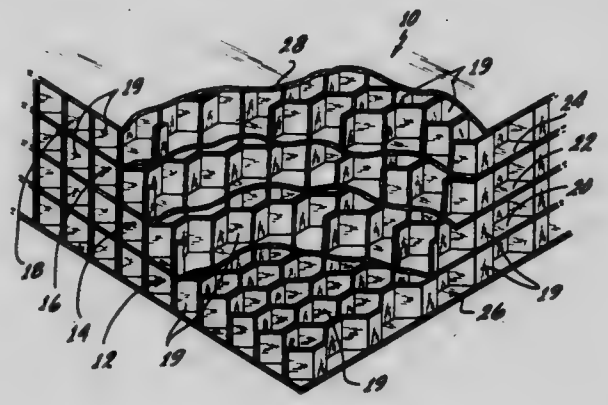
(b) said wall member comprising at least two solid non-porous sheets of elastomer in surface contact with one another, means joining said elastomer sheets together exclusively and only at a plurality of spaced positions, and a plurality of regions remaining between said spaced positions whereat said elastomer sheets are free to move laterally across each other.

4,336,292

MULTI-LAYER HONEYCOMB THERMO-BARRIER MATERIAL

Winford Blair, La Mesa, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Jul. 11, 1980, Ser. No. 168,661
Int. Cl.³ B32B *3/12*
U.S. Cl. 428—116 **12 Claims**



1. Thermal barrier material for use on space type vehicles to insulate during launch and re-entry comprising:

at least four metal honeycomb cellular cores;

a first and second metal facing sheet having exposed surfaces; and

at least three metal septum sheets;

said metal honeycomb cellular cores are stacked in the direction of the cell openings with the septum sheets positioned between and physically bonded to their adjacent cellular cores and said facing sheets are positioned and physically attached on the cell surfaces of the outer cores to provide

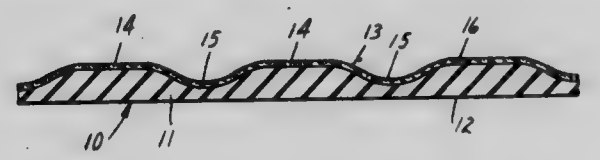
closures therefor whereby when the exposed surface of said first metal facing sheet is subjected to an operating temperature of 1000° F. to 2500° F., said thermal barrier material insulates said second metal facing sheet from said first metal facing sheet wherein the exposed surface temperature of said second metal facing sheet is a maximum of from 25% to 10% of the surface temperature of said first metal facing sheet.

4,336,293

ANTI-SLIP MAT

Ronald R. Eiden, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Feb. 27, 1981, Ser. No. 238,944
Int. Cl.³ B32B *3/28, 5/16*
U.S. Cl. 428—143 **3 Claims**



1. An anti-slip mat especially suited for use on floors in food service and industrial areas where the presence of grease, oil, water and the like may create a slippery, hazardous floor surface, said mat comprising:

(a) a shaped backing having a bottom surface adapted to permit the mat to lay flat on a flat surface and an opposite regularly undulated top surface characterized by having raised portions and depressed portions, said portions being shaped to permit liquids on said upper surface to substantially completely drain from said top surface when said mat is laid upon a flat surface, said backing being formed of an oil and water resistant polymeric composition having an inherent tensile strength greater than about 6.9 Pa, a modulus of at least 2.1 Pa at 100% elongation and a Shore A durometer of greater than 35 and having a thickness in said raised portions on the order of 3 to 13 mm and a difference of thickness between the raised and depressed portions of at least 1 mm;

(b) a polyurethane make adhesive resin adherently bonded to at least said raised portions of said backing;

(c) abrasive grains having a grit size on the order of 50–180 (0.3 to 0.1 mm average particle size) distributed over and adherently bonded by said make resin; and

(d) a polyurethane adhesive size resin covering said abrasive grain and said make adhesive resin, said make and size adhesive resins being included in the amount which provides firm adherent bonding of said abrasive grain to said top surface without obscuring the said grain whereby to provide an anti-slip surface and providing an abrasive layer which is adherently bonded to the upper surface of said backing to provide a 180° tensile strength between said abrasive layer and the backing of at least 5.8 kg per 25 mm width.

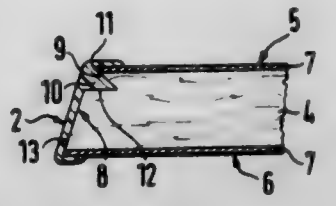
4,336,294

COATED BOARDS OF WOODEN MATERIAL IN PARTICULAR FOR USE IN FURNITURE

Max Meier, Stecket-Strasse 16, D-7585 Lichtenau-Scherzheim, Fed. Rep. of Germany

Filed Feb. 7, 1980, Ser. No. 119,419
Int. Cl.³ B32B *21/08*
U.S. Cl. 428—192 **6 Claims**

1. A board made of wooden material for use, for example, as a furniture board, such as a table top, said board comprising an upper side and a moisture-proof coating on said upper side, said board further comprising a cut edge surface covered with an edging of synthetic material sprayed under pressure onto said cut edge surface so as to form a strip overlapping an upper edge between said upper side and said cut edge surface, said cut edge surface being cut away directly adjacent to said upper side to form said upper edge, said cut edge surface extending into the interior of said board to form a back cut and further extending outwardly from the interior of said board, said synthetic material filling said cut edge surface, and wherein said synthetic material is a material adapted to shrink after application in said cut edge surface to increase the resistance of said edging to moisture penetration.

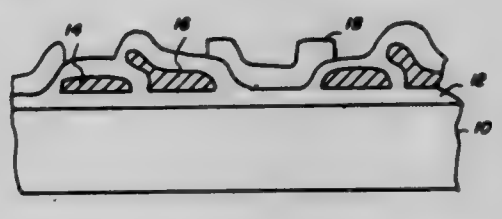


4,336,295

METHOD OF FABRICATING A TRANSPARENT METAL OXIDE ELECTRODE STRUCTURE ON A SOLID-STATE ELECTROOPTICAL DEVICE

Frank T. J. Smith, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,167
Int. Cl.³ C23F *1/02*; H01L *21/306*
U.S. Cl. 428—195 **10 Claims**



1. A method of fabricating an electrode structure of transparent metal oxide on a solid-state electrooptic device of the type having transparent gate electrodes through which light passes to expose the device, comprising the steps of:

depositing a layer of conductive transparent metal oxide on the device;

depositing a layer of pattern metal comprising a transition metal capable of forming a good electrical contact with the transparent metal oxide, and capable of being etched independently of the transparent metal oxide;

removing by etching, portions of the pattern metal to define a desired electrode pattern employing photolithographic techniques using an etchant that attacks the pattern metal, but does not substantially attack the metal oxide layer;

removing by etching, the portions of the metal oxide layer not covered by the pattern metal, using an etchant that attacks the transparent metal oxide but does not substantially attack the pattern metal;

further removing by etching, portions of the pattern metal from optically active areas of the device, but leaving pattern metal in the peripheral areas of the electrode structure where electrical contacts are to be made, using photolithographic techniques and an etchant that attacks the pattern metal but not the transparent metal oxide;

depositing a final layer of metal over the structure;

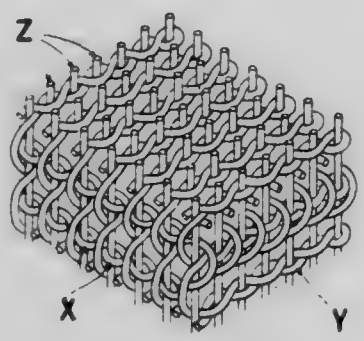
baking the structure at a temperature sufficient to promote adhesion of the final metal layer to the pattern metal; and

etching away portions of the final metal layer to define electrical conductive paths and bonding pads.

4,336,296
THREE-DIMENSIONALLY LATTICED FLEXIBLE-STRUCTURE COMPOSITE

Kenji Fukuta, Yokohama; Ryuzo Onooka, Ayase; Eiji Aoki, Hachioji, and Shigeo Tsumuraya, Yokohama, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Dec. 27, 1979, Ser. No. 107,913
Claims priority, application Japan, Dec. 27, 1978, 53-162704; Mar. 31, 1979, 54-39225
Int. Cl.³ D32B *7/00*
U.S. Cl. 428—257 4 Claims



1. A three-dimensional latticed flexible-structure composite comprising:

a plurality of substantially straight longitudinal strings, lateral strings, and vertical strings, each of said strings having a predetermined thickness;

a three-dimensional lattice which comprises said longitudinal strings and which further comprises said lateral and vertical strings wound and zigzagged about said longitudinal strings such that adjacent lateral and vertical strings orientated in the same direction form a first pitch greater than said predetermined thickness of said lateral and vertical strings and adjacent longitudinal strings form a second pitch greater than the combined predetermined thickness of said lateral and vertical strings therebetween; and

a matrix material impregnated on said longitudinal, lateral and vertical strings of said three-dimensional lattice such that said matrix material adheres to said longitudinal, lateral, and vertical strings so that said three-dimensional lattice composite has voids formed between the adjacent longitudinal, lateral and vertical strings coated with said matrix material.

4,336,297
ELECTRICAL LAMINATE

Yasuo Fushiki, Takatsuki; Masaharu Abe, and Masakazu Uekita, both of Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Apr. 23, 1980, Ser. No. 143,086
Claims priority, application Japan, Apr. 27, 1979, 54/53239
Int. Cl.³ B32B *7/00*
U.S. Cl. 428—284 24 Claims

1. In an electrical laminate suitable for use as a printed circuit wiring board comprising layers of a resin impregnated fibrous cellulosic substrate, said resin being a cured product of a mixture comprising an unsaturated polyester polymer and a cross-linking vinyl monomer therefor, the improvement which comprises said fibrous cellulose substrate being pre-impregnated with a solution consisting essentially of a nitrogen-containing composition having (a) a free or lower-alkylated methylol group attached to said nitrogen atom capable of etherifying with said cellulose substrate, and (b) an unsaturated group capable of copolymerizing with said cross-linking monomer.

4,336,298
ADHESIVE COMPOSITION AND COMPOSITE MADE THEREWITH

David S. Schwarz, Monroe Falls, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Jun. 12, 1981, Ser. No. 273,133
Int. Cl.³ B32B *15/00*
U.S. Cl. 428—285 8 Claims

8. A laminate comprised of two panels of fiberglass reinforced polyester adhered together with an adhesive comprising a reaction product of a reactive mixture of:

(a) 100 parts by weight of a polyester triol or polyether triol having a molecular weight of about 400 to 1000,

(b) an aromatic diisocyanate having a functionality of from about 2.3 to 2.7 and an equivalent weight of from about 85 to 150, said aromatic diisocyanate being present in an amount in excess of the amount necessary to stoichiometrically react with the polyester triol or polyether triol in said reaction mixture,

(c) sufficient para-phenylene diamine or ortho-phenylene diamine or a mixture thereof to produce adequate resistance to flow in said reactive mixture,

(d) sufficient tin compound catalyst to cause said reactive mixture to set within 15 minutes of the ambient temperature, and

(e) sufficient additional polyol free of nitrogen groups to provide functional hydroxyl groups essentially equivalent to the isocyanate groups in excess of the necessary isocyanate groups to stoichiometrically react with said polyester triol or polyether triol.

4,336,299
USE OF MODIFIED CELLULOSE HYDRATE FIBERS IN THE MANUFACTURE OF BONDED NON-WOVEN FABRICS AND PRODUCTS PREPARED IN THIS MANNER

Arno Holst, Wiesbaden; Reinhart Mayer, Kelheim, and Wilhelm Fischer, Pirmasens, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 20, 1979, Ser. No. 50,148
Claims priority, application Fed. Rep. of Germany, Jun. 24, 1978, 2827804
Int. Cl.³ D04H *1/58, 1/48, 5/04*
U.S. Cl. 428—288 6 Claims

1. A bonded non-woven fabric bonded by a chemical binder and capable of absorbing water vapor, containing fibers of modified cellulose hydrate either solely or blended with synthetic, natural or regenerated fibers, said modified cellulose hydrate being prepared prior to shaping into fibers by adding to viscose a modifying agent selected from the group consisting of a polysaccharide, a polysaccharide derivative, an acrylic polymer and a methacrylic polymer.

4,336,300
PROCESS FOR THE PRODUCTION OF WATER VAPOR-PERMEABLE SHEET MATERIALS

Ivan Lorant; Imre Csernyanszky; Gyula Murlasits, all of Budapest; Rezsö Rusznyak, , assignors to Bör-, Mübör-es Cipöipari Kutato Intezet, Budapest and Graboplast Györi Pamutszövöes Mübörgyar, Györ, both of, Hungary

Filed Apr. 30, 1980, Ser. No. 144,980
Int. Cl.³ B05D *3/02, 5/00;* B32B *5/18, 27/00*
U.S. Cl. 428—316.6 11 Claims

1. A process for the production of sheet materials which are water permeable, highly resistant to wear, water resistant and mechanically stressable comprising mechanically foaming a dispersion of polymers selected from the group consisting of PVC and vinyl chloride-vinyl acetate copolymers dispersed in a softener, in the presence of a surfactant, adjusting the density of the foam by the mechanical foaming to 0.55–0.85 g/cm^3, gelling the foamed dispersion at a temperature of 120° to 220°

C. for at most 10 minutes, and finishing the sheet material by spraying and rastering.

10. A water vapor permeable sheet prepared by the process of claim 1.

4,336,301

FILLER MATERIAL

Robert B. Shaw, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Oct. 20, 1980, Ser. No. 198,509
Int. Cl.³ B32B 5/16, 19/00
U.S. Cl. 428—323 15 Claims



1. A filler material for thermoplastic polymers comprising a mica-like, mineral sheet silicate having attached on a minor portion of the surfaces of said sheet silicate microscopic-size protrusions of a solid additive, wherein said additive has:

(a) a melting point below the decomposition point of said sheet silicate,

(b) a contact angle such that said additive wets the surface of said sheet silicate, and

(c) said additive upon cooling from a melt forms a solid material.

4,336,302

INSULATING TAPE FOR FABRICATING AN INSULATING SLEEVE FOR ELECTRIC CONDUCTORS IMPREGNATED WITH A THERMO-SETTING EPOXY RESIN/ACID ANHYDRIDE MIXTURE

Walter Ihlein, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Feb. 11, 1981, Ser. No. 227,384
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1980, 3003477
Int. Cl.³ B32B 5/16, 27/38
U.S. Cl. 428—324 10 Claims

1. An insulating tape for manufacturing an insulating sleeve for electric conductors and intended to be impregnated with a thermo-setting epoxy resin/acid anhydride hardener mixture, said tape comprising at least one layer of inorganic, breakdown-proof planar material, selected from the group consisting of mica flakes and thin mica films, applied to a flexible substrate, said layer or layers being cemented to the substrate and to each other with an epoxy resin binder containing as an accelerator for promoting the hardening reaction of the resin used for impregnation, a quaternary onium salt, said mixture of binder and accelerator forming a system which is self-hardening at the setting temperature of the thermo-setting impregnating resin, said epoxy resin binder and said accelerator being present, respectively, in amounts from about 3 to about 10% and from about 0.05 to about 3%, percents by weight of the total weight of the insulating tape.

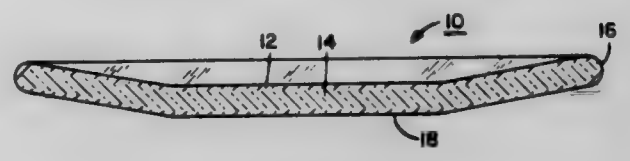
5. The insulating tape according to claim 1 wherein said mixture of binder and accelerator further contains an admixture acting as a hardener which becomes effective only at the setting temperature of the thermo-setting epoxy resin/acid anhydride hardener mixture, the amount of said admixture being from about 0.05 to about 10% by weight, referred to the weight of the binder.

4,336,303

INTEGRAL VITREOUS ARTICLE COMPOSED OF OPAQUE AND TRANSPARENT PORTIONS

Hermann L. Rittler, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Dec. 13, 1979, Ser. No. 103,414
Int. Cl.³ B32B 9/00, 17/00
U.S. Cl. 428—334 14 Claims



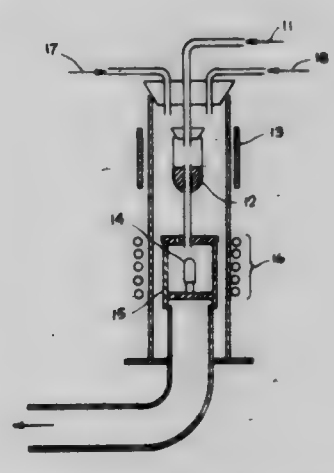
1. An integral vitreous article composed of an opaque portion encased within a thin, continuous, unbroken surface layer of transparent colored glass, the vitreous article having a uniform elemental composition throughout its mass consisting essentially of at least one alkali metal oxide and/or alkaline earth metal oxide, Al_2O_3, SiO_2, TiO_2, and, as a titania color coupler, A TiO_2-coupling agent selected from the group of a noble metal, a metal oxide other than an element from Groups I and II of the Periodic Table, and mixtures thereof, the opaque portion containing light scattering particles of a titaniferous nature.

4,336,304

CHEMICAL VAPOR DEPOSITION OF SIALON

Richard L. Landingham, and Alton W. Casey, both of Livermore, Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 21, 1979, Ser. No. 40,810
Int. Cl.³ B32B 9/04, 9/00; B05D 5/12
U.S. Cl. 428—336 11 Claims



1. A composite comprising a refractory material coated with a layer of sialon formed by chemical vapor deposition in a flowing atmosphere of air.

6. A method for coating a surface of a material with a sialon composition in a flowing atmosphere of air to provide a hard, dense, refractory surface, the method comprising:

a. exposing a surface of a refractory material to an ammonia-containing atmosphere;

b. heating the surface to at least about 1200° C.;

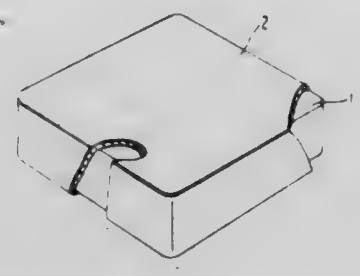
c. impinging a gas comprising N_2, $SiCl_4$, and $AlCl_3$ on the surface.

4,336,305

CERAMIC THROW-AWAY TIPS AND PROCESS FOR PRODUCING THE SAME

Hiroshi Tanaka, Aichi, Japan, assignor to NGK Spark Plug Co., Ltd., Aichi, Japan

Filed Dec. 13, 1979, Ser. No. 103,134
Claims priority, application Japan, Dec. 19, 1978, 53-155804
Int. Cl.[3] C23C *11/08*
U.S. Cl. 428—336 **6 Claims**



1. A ceramic throw-away tip which comprises a hot-pressed sinter of Si_3N_4 on the surface of which is a thin coating of at least one of Al_2O_3 and AlON.

4,336,306

ELECTROSTATIC IMAGING SHEET

Adrian N. Fellows, 48 Bury New Rd., Ramsbottom, Bury, Lancashire, England

Filed Nov. 13, 1979, Ser. No. 93,432
Claims priority, application United Kingdom, Nov. 13, 1978, 44242/78; Nov. 17, 1978, 45049/78; Aug. 22, 1979, 7929205
Int. Cl.[3] G01D *15/06, 15/34;* B32B *7/00;* G03G *7/00*
U.S. Cl. 428—341 **12 Claims**

1. An electrostatic imaging sheet which is comprised of a substrate treated to be suitably electrically conductive and a dielectric layer thereon which is the resultant of deposition from an aqueous dispersion comprising a mixture of a smectite clay and a dielectric polymer which is adapted to retain a latent electrostatic image, said clay forming at the interface between the conductive substrate and the dielectric layer a barrier layer which prevents migration and is substantially non-ionic.

4,336,307

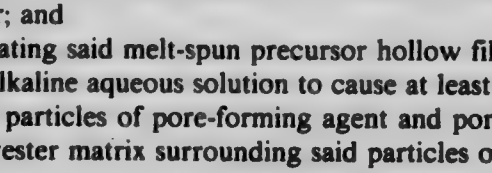
HOLLOW WATER ABSORBING POLYESTER FILAMENTS AND A PROCESS FOR PRODUCING THE SAME

Masahiro Shiozaki; Kiyoshi Nawata, both of Matsuyama; Osamu Wada, Takatsuki; Kiyokazu Tsunawaki, Matsuyama; Takatoshi Kuratsuji, Matsuyama; Wataru Funakoshi, Matsuyama, and Togi Suzuki, Matsuyama, all of Japan, assignors to Teijin Limited, Osaka, Japan

Continuation of Ser. No. 6,128, Apr. 24, 1979, abandoned. This application Jul. 14, 1980, Ser. No. 168,529
Claims priority, application Japan, Jan. 27, 1978, 53-7156
Int. Cl.[3] B29H *7/20;* D02G *3/00*
U.S. Cl. 428—398 **25 Claims**



1. Hollow water-absorbing polyester filaments, which consist essentially of a polyester having at least 90 molar percent of recurring units of the formula (I):



(I)

wherein l represents an integer of 2 to 6, and wherein each of said individual filaments has at least one hollow extending along the longitudinal axis of said filament and a number of pores, having a diameter of from about 0.01 to 1.0 micron, evenly distributed throughout said filament and extending approximately in parallel to the longitudinal axis of said filament, said hollow being connected to the outside of said filament at least through the portions of said pores which are connected to each other and wherein said filaments have a water absorption of at least 50 percent wherein said filaments are produced by;

(a) melt-spinning precursor hollow polyester filaments from a blend of polyester and 0.1 to 30% by weight based on the weight of said polyester of a pore forming agent consisting essentially of at least one organic sulfonate compound of the formula:

$$R'SO_3M' \text{ tm} \quad \text{(III)}$$

wherein R′ is a member selected from the group consisting of alkyl radicals having 3 to 30 carbon atoms, aryl radicals having 7 to 40 carbon atoms and alkaryl radicals having 7 to 40 carbon atoms; and M′ is a member selected from the group consisting of alkali metals and alkaline earth metals, whereby said pore-forming agent is dispersed in the form of particles separate from each other and extending approximately in parallel to the longitudinal axis of said filament, in a matrix consisting of said polyester; and

(b) treating said melt-spun precursor hollow filaments with an alkaline aqueous solution to cause at least a portion of said particles of pore-forming agent and portions of said polyester matrix surrounding said particles of pore-forming agent to be removed from said precursor hollow filament and to form said pores in said hollow filament.

4,336,308

MAGNETIC RECORDING MEDIA

Yasuyuki Yamada; Kenichi Masuyama, and Nobuo Tsuji, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 11, 1979, Ser. No. 74,467
Claims priority, application Japan, Sep. 11, 1978, 53/111580
Int. Cl.[3] G11B *5/70*
U.S. Cl. 428—425.9 **24 Claims**

1. In a magnetic recording medium comprising a nonmagnetic support and a recording layer comprising a finely divided ferromagnetic powder dispersed in a binder, the improvement wherein said binder comprises a 2-chloroacrylonitrile polymer and a thermoplastic polyurethane.

4,336,309

CURABLE COATING AGENTS AND PROCESS FOR THE PRODUCTION OF SCRATCH-RESISTANT COATINGS ON PLASTICS

Klaus-Peter Jäckel, Limburgerhof; Günter Heil, Ludwigshafen, and Herbert Spoor, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 6, 1980, Ser. No. 204,539

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2946474

Int. Cl.³ B32B *9/04;* C08G *77/18, 77/20;* B05D *3/06*

U.S. Cl. 428—447 5 Claims

1. A curable coating agent based on an olefinically unsaturated polysiloxane, wherein the olefinically unsaturated polysiloxane is a polycondensate of

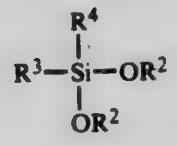
(a) from 1 to 40% by weight of a reaction product containing two or more carbon-carbon double bonds and one or more hydroxyl and/or alkoxy groups per molecule, obtained from an olefinically unsaturated silane containing 2 or more hydroxyl or C_1–C_4-alkoxy groups, whose olefinically unsaturated organic radical is bonded via a C—Si bond, and a hydroxyl-containing α,β-olefinically unsaturated monomer,

(b) from 20 to 80% by weight of an olefinically unsaturated silane of the general formula

$$R^1—Si(OR^2)_3$$

where R^1 is a vinyl or C_2–C_8-alkyl acrylate or methacrylate radical bonded to the Si atom via a C—Si bond and R^2 is hydrogen or a saturated hydrocarbon radical of 1 to 4 carbon atoms,

(c) from 5 to 55% by weight of a saturated silane of the general formula



where R^2 has the above meanings and R^3 and R^4 are identical or different and each is a saturated hydrocarbon radical of 1 to 6 carbon atoms or an unsubstituted or C_1–C_4-alkyl-substituted aromatic hydrocarbon radical, and

(d) from 0 to 30% by weight of an epoxide-containing silane containing 2 or more hydroxyl or C_1–C_4-alkoxy groups.

3. A process for producing a scratch-resistant coating on the surface of a plastic, wherein a curable coating agent as claimed in claim 1 is applied in a conventional manner to the surface of a plastic and is cured by ionizing radiation, by exposure to heat in the presence of a free radical initiator or initiator system, or by irradiation with ultraviolet light in the presence of conventional photoinitiators.

4,336,310

MAGNETIC RECORDING MEDIUM AND PREPARATION THEREOF

Kiyotaka Okuyama; Akihiko Hosaka, and Yukihiro Isobe, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Nov. 19, 1980, Ser. No. 208,265

Claims priority, application Japan, Jan. 28, 1980, 55-7813

Int. Cl.³ B32B *9/04;* H01F *10/02*

U.S. Cl. 428—447 3 Claims

1. A magnetic recording medium which comprises a substrate coated with a magnetic layer comprising a binder resin and a metallic magnetic powder supporting silica on its surface which is coated with sequential layers of hydrolyzed silane compound and oleic acid, wherein said hydrolyzed silane compound is bonded to said silica.

4,336,311

HUMIDITY- AND SALT-RESISTANT ELECTRONIC COMPONENT

Michael F. Lucey, North Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Aug. 25, 1980, Ser. No. 180,749

Int. Cl.³ B05D *3/06*

U.S. Cl. 428—521 12 Claims

1. An electronic component coated with an ultraviolet light cured coating comprising a urethane, a triacrylate-tetraacrylate blend, a photoinitiator, and a wet adhesion monomer chosen from the group of allylic and acrylic ureides, said coating providing resistance to humidity and to salt water.

4,336,312

WELDABLE NICKEL BASE CAST ALLOY FOR HIGH TEMPERATURE APPLICATIONS AND METHOD

Jeffrey J. Clark; Harry R. Fisk, and Larry A. Wallace, all of Tempe, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Jan. 30, 1980, Ser. No. 116,691

Int. Cl.³ B32B *15/00*

U.S. Cl. 428—680 11 Claims

1. A welded article of cast Nickel base super alloy for use at elevated temperatures up to about 1800 degrees F., characterized by resistance to weld cracking, room temperature ultimate strength of at least 100,000 psi, 0.2% offset yield strength of at least 95,000 psi with at least 3% elongation, and a minimum stress rupture time of 23 hours at a constant stress of 65,000 psi at 1500 degrees F., consisting essentially of an alloy of about 12 to 14% Chromium, about 3.8 to 5.2% Molybdenum, 4.5 to 5.5% Aluminum, 0.16 to (0.25%) 0.26% Carbon, 0.5 to 1.0% Titanium, 1.8 to 2.8% Columbium plus Tantalum, 0.05 to 0.10% Zirconium, and the balance substantially all Nickel.

4,336,313

LUMINESCENT MATERIAL, METHOD OF MAKING, AND SCREENS EMPLOYING SAME

Thomas E. Peters, Chelmsford, and James R. McColl, Concord, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Apr. 3, 1981, Ser. No. 251,028

Int. Cl.³ C09K *11/44, 11/24;* H01J *29/20*

U.S. Cl. 428—691 8 Claims

1. A green-emitting phosphor having a composition corresponding to the general formula:

$$[(1-w-x)(Zn_2SiO_4).w(Li_2ZnF_4)].xMn_2SiO_4.yAs_2O_z$$

wherein

$0.02 \leqq w \leqq 0.20$

$0.0005 \leqq x \leqq 0.06$

$0 \leqq y \leqq 0.001$

$3 \leqq z \leqq 5$.

4,336,314

PASTED TYPE LEAD-ACID BATTERY

Kunio Yonezu; Masaharu Tsubota, and Katsuhiro Takahashi, all of Kyoto, Japan, assignors to Japan Storage Battery Company, Ltd., Kyoto, Japan

Filed Apr. 2, 1980, Ser. No. 136,643

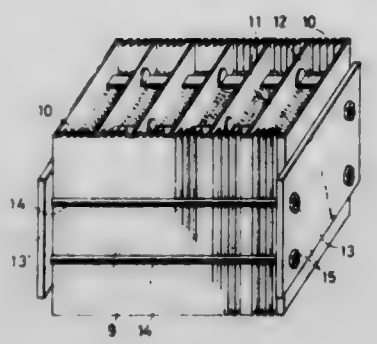
Claims priority, application Japan, Oct. 24, 1979, 54-138223

Int. Cl.³ H01M *2/16, 2/02*

U.S. Cl. 429—66 12 Claims

1. A pasted type lead-acid battery comprising: a plurality of positive and negative plates which comprises grids of lead-

based material pasted with an active material; separators for separating said plates; a plurality of glass mats in contact with surfaces of said positive plates; said glass mats having a dual layer structure comprising a first layer of glass fibers in contact with said surfaces of said positive plates and having a diameter of no more than 1 μm and a second layer of glass fibers having



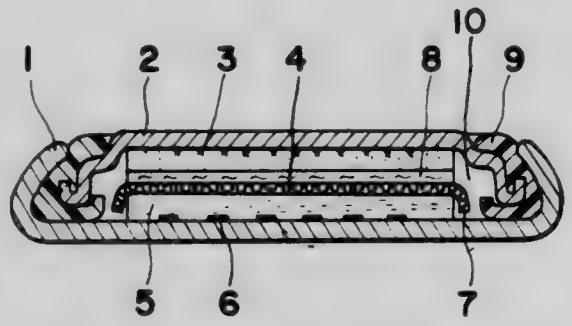
a diameter of at least 10 μm; a battery container in which are disposed assembled elements comprising said plates, said separators and said glass mats, pressure being applied to said assembled elements within said container, said pressure being within a range of 20 to 80 kg/dm^2 without electrolyte in said container.

4,336,315

ORGANIC ELECTROLYTE CELL WITH MANGANESE DIOXIDE CATHODE AND A LIGHT METAL ANODE

Nobuo Eda; Takashi Iijima, both of Hirakata, and Yoshinori Toyoguchi, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Filed Jan. 21, 1981, Ser. No. 227,785
Claims priority, application Japan, Jan. 21, 1980, 55-6208
Int. Cl.^{3} H01M *6/16*
U.S. Cl. 429—194 **6 Claims**



1. A cell composed of an anode with a light metal as an active material, an organic electrolyte comprising ester, and a cathode with manganese dioxide as an active material, said cathode containing an alkaline earth metal oxide.

4,336,316

IMAGE FORMING METHOD

Masamichi Sato, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 620,458, Oct. 7, 1975, abandoned. This application Oct. 20, 1978, Ser. No. 953,301
Claims priority, application Japan, Oct. 7, 1974, 49-115388
Int. Cl.^{3} G03C *5/04, 5/00, 5/30*
U.S. Cl. 430—5 **30 Claims**

8. A method for producing an image comprising:

(a) forming a silver image on a photographic material which comprises a transparent substrate having thereon a masking layer of a metal, a metal oxide, a semi-metal, a chalcogen glass, or a mixture thereof, said masking layer having thereon at least one silver halide emulsion layer, either directly or on at least one subbing layer on said masking layer, by exposing, developing and fixing said photograhic material;

(b) heating said photographic material at above 350° C. in an oxygen containing gas until the binder at said silver image areas is substantially removed;

(c) dissolving away the image-forming silver to uncover said masking layer lying thereunder; and

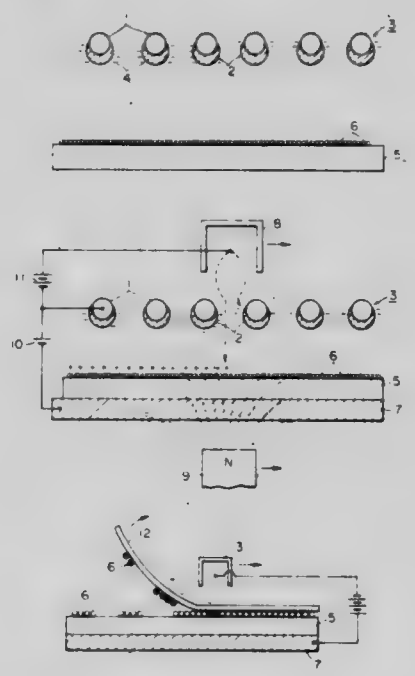
(d) then etching away said masking layer at the uncovered areas to leave said masking layer at the non-silver image areas.

4,336,317

METHOD FOR FORMING IMAGES USING A PHOTOSENSITIVE SCREEN

Yujiro Ando, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 17, 1980, Ser. No. 188,245
Claims priority, application Japan, Sep. 26, 1979, 54-123635
Int. Cl.^{3} G03G *13/22, 13/24*
U.S. Cl. 430—53 **7 Claims**



1. A method for forming an image, wherein an ion stream is applied to a control means which emits a controlled stream of ions to form an imagewise charge pattern in a layer of developer particles, which method comprises the steps of coating a uniform layer of magnetic electrically-insulating developer particles onto one surface of a developer supporting member, applying the controlled stream of ions to said uniform layer of developer particles to form the charge pattern in said layer while generating a magnetic field at an opposed surface of said developer particle supporting member when said layer is at the position for forming the charge pattern, and placing a transfer member onto said developer layer having the charge pattern to transfer the developer particles onto said transfer member in accordance with the charge pattern.

4,336,318

ELECTROSTATIC IMAGE DEVELOPING METHOD

Hiroshi Fukumoto, Kawasaki, and Yoshio Takasu, Tama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 31, 1980, Ser. No. 221,773
Claims priority, application Japan, Jan. 11, 1980, 55-1963
Int. Cl.^{3} G03G *13/08*
U.S. Cl. 430—120 **4 Claims**

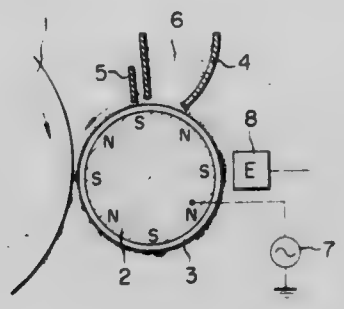
1. A method for developing electrostatic images comprising facing an electrostatic image bearing member bearing electrostatic images on the surface to a support member having a toner particle layer on the surface, characterized in that when the triboelectric charge of the toner is q(c/g), thickness of the

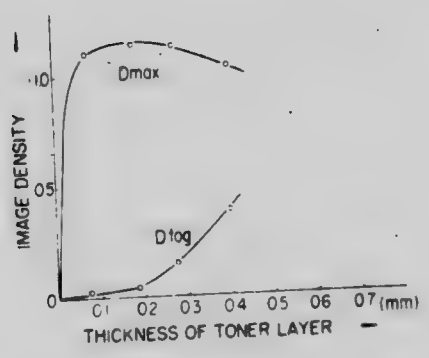
toner particle layer, d(mm), is adjusted to satisfy the following formula:

$$3\times10^{-8}<|q.d|<5=10^{-6}$$

4. The developing method according to claim 1, wherein said developing method comprises the steps of:

defining a developing zone wherein a latent image bearing member and a non-magnetic conductive member carrying a layer of magnetic toner particles on the surface thereof





are disposed in opposed relationship with a clearance between the surface of the latent image bearing member and the surface of the non-magnetic conductive member, the clearance being greater than the thickness of said toner layer so as to create an air gap;

providing a magnetic field in said developing zone;

moving said latent image bearing member and said non-magnetic conductive member in the same direction; and

imparting an alernating electric field sufficient to produce electric fields across said developing clearance.

4,336,319

LIGHT-SOLUBILIZABLE COMPOSITION

Akira Nagashima, and Nobuyuki Kita, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 22, 1980, Ser. No. 199,123

Claims priority, application Japan, Oct. 23, 1979, 54-136728

Int. Cl.³ G03C *1/60*; G03F *7/08*; G03C *1/94*

U.S. Cl. 430—165 **9 Claims**

1. A light-solubilizable composition comprising at least one o-quinonediazide compound and at least one alkali-soluble resin compatible therewith as essential components and containing fine particles dispersed therein which:

(1) have an average particle size of 500 mμ or less;

(2) are insoluble in an organic solvent used to coat the light-solubilizable composition and have a hydrophobic surface;

(3) are transparent or white; and

(4) have a refractive index of 1.3 to 1.7, in an amount of 0.1 to 50% by weight based on said light-solubilizable composition, wherein said fine particles are aerosols of silicon dioxide where hydrophilic silanol groups on the surface thereof have been processed to render the same hydrophobic.

4,336,320

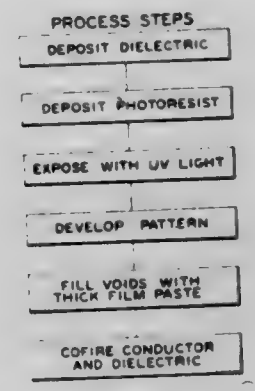
PROCESS FOR DIELECTRIC STENCILED MICROCIRCUITS

John P. Cummings, Bloomington; Janice D. Makos, Apple Valley, and David E. Pitkanen, St. Louis Park, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 12, 1981, Ser. No. 243,176

Int. Cl.³ G03C *7/00*

U.S. Cl. 430—198 **14 Claims**



1. A process for fabricating dielectric stenciled microcircuits comprising the steps of:

coating an insulating dielectric paste and photopatterning means over the surface of a substrate;

selectively exposing through a photolithography mask the substrate coating to light;

removing the exposed dielectric paste in the areas where the conductive circuit lines are to be located, thereby forming a dielectric stencil with voids;

filling the dielectric stencil voids with thick-film conductive paste to form the conductive lines; and,

cofiring the dielectric paste and the conductive paste.

4,336,321

SILVER HALIDE PHOTOGRAPHIC MATERIALS

Eiji Kanada; Yasuo Tsubai; Shoji Yamada; Yoshikazu Takaya, and Takao Senga, all of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Feb. 4, 1981, Ser. No. 231,445

Claims priority, application Japan, Feb. 7, 1980, 55-13904

Int. Cl.³ G03C *1/48, 1/34*

U.S. Cl. 430—234 **17 Claims**

1. A silver halide photographic material which comprises a support having thereon at least one photographic constituting layer including silver halide emulsion layer, wherein at least one of the constituting layer contains at least one compound represented by the general formulas (A): HS-R-Y or X-R-Y wherein R represents an alkylene or arylene group which may be substituted, Y represents a carboxyl or hydroxyl group and X represents a group capable of being released to produce HS-group and the silver halide emulsion layer contains at least one anion or betaine type cyanide sensitizing dye having one or two acidic groups selected from the group consisting of sulfoalkyl and carboxyalkyl.

2. A silver halide photographic material which comprises a support having thereon photographic constituting layers including silver halide emulsion layer and image receiving layer containing physical development nuclei, wherein at least one of the constituting layers contains at least one compound represented by the general formulas (A): HS-R-Y or X-R-Y wherein R represents an alkylene or arylene group which may be substituted, Y represents a carboxyl or hydroxyl group and X represents a group capable of being released to produce HS-group and the silver halide emulsion layer contains at least one anion or betaine type cyanine sensitizing dye having one or two acidic groups selected from the group consisting of sulfoalkyl and carboxyalkyl.

4,336,322

COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Shinsaku Fujita; Koichi Koyama; Yoshio Inagaki, and Kokichi Waki, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

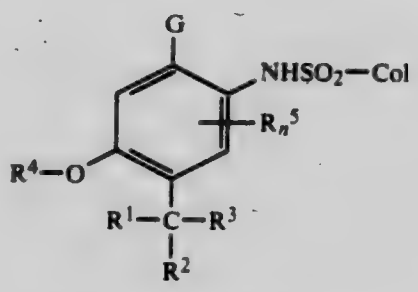
Filed Jul. 18, 1980, Ser. No. 170,261

Claims priority, application Japan, Jul. 18, 1979, 54-91187; Nov. 13, 1979, 54-146654; Nov. 13, 1979, 54-146655; Nov. 14, 1979, 54-148237; Nov. 19, 1979, 54-149777

Int. Cl.³ G03C *1/40, 5/54, 1/10*

U.S. Cl. 430—242 **23 Claims**

22. A method of producing a color image which comprises processing an exposed photographic light-sensitive material containing a dye-releasing redox compound in the presence of a 1-aryl-3-pyrazolidinone series developing wherein said dye-releasing redox compound has the formula



(I)

wherein G represents a hydroxy group or a group providing a hydroxy group by hydrolysis;

Col represents a dye or dye precursor;

R^1 and R^2, which may be the same or different, each represents an alkyl group or an aromatic group, and R^1 and R^2 together can form a ring;

R^3 represents hydrogen, an alkyl group or an aromatic group;

R^4 can represent an alkyl group or an aromatic group;

R^5 can represent an alkyl group, an alkoxy group, an alkylthio group, an arylthio group, a halogen atom or an acylamino group;

n is 0, 1 or 2, and when n is 2, the two R^5s can be different from each other; and

R^4 and an R^5 together can form a heterocyclic ring, R^1 and R^4 together can form a heterocyclc ring, R^1 and R^5 together can form a ring, R^1, R^2 and R^3 together can form an adamantyl ring, and the total number of carbon atoms of R^1, R^2, R_3, R^4 and R_n^5 is more than 7.

23. A method of producing a color image as in claim 22 wherein the method is a color diffusion transfer process.

4,336,323

DECOLORIZABLE IMAGING SYSTEM

John M. Winslow, South Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 101,144, Dec. 7, 1979, abandoned. This application Oct. 22, 1980, Ser. No. 199,426

Int. Cl.³ G03C *1/52, 1/84*

U.S. Cl. 430—339 **12 Claims**

1. A light insensitive imageable layer comprising a synthetic polymeric binder, and within said binder (1) a dye, (2) a nitrate salt, and (3) an acid, said dye being present in said binder in sufficient concentration to provide an optical density of at least 0.1 in the visible region of the electromagnetic spectrum or to absorb at least 20% of incident radiation in a 50 nm range within the infrared or ultraviolet wavelengths of the electromagnetic spectrum, and said nitrate ion being present in a ratio of at least 0.1 moles/mole of dye, said nitrate salt in said binder being capable of liberating a sufficient quantity of an oxidizing agent selected from the class consisting of HNO_3, NO, NO_2, and N_2O_4 when heated to 200° C. for 60 seconds to oxidize said dye to a different color or colorless state.

4,336,324

METHOD FOR THE PROCESSING OF SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS

Shigeharu Koboshi, and Masayuki Kurematsu, both of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jun. 12, 1981, Ser. No. 273,253

Claims priority, application Japan, Jun. 18, 1980, 55-83068

Int. Cl.³ G03C *7/00*

U.S. Cl. 430—372 **4 Claims**

1. In a method for the processing of a silver halide color photographic light-sensitive materials wherein said material, after being processed in a fixing bath or a bleach-fixing bath, is processed in a stabilization bath without through a substantial washing process, the improvement characterized in that the stabilization bath consists of a plurality of baths which are replenished by a multistage counterflow system, the replenishing quantity to the stabilization bath being in the range from three to fifty times as much as the quantity of a processing solution brought into the first stabilization bath from a preceding bath by a unit area of the light sensitive materials, and at least the final bath of said stabilization bath having a pH value of from 2.0 to 6.5.

4,336,325

COLOR PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENT

Kozo Aoki; Satoru Sawada, and Nobuo Furutachi, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

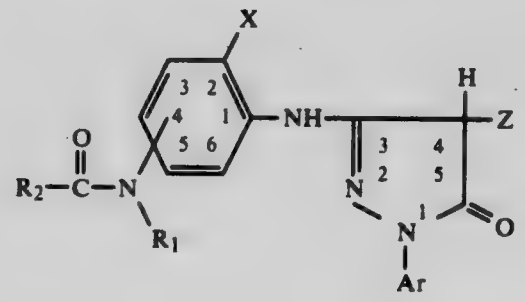
Filed Oct. 22, 1980, Ser. No. 199,125

Claims priority, application Japan, Oct. 23, 1979, 54-136730

Int. Cl.³ G03C *1/40*

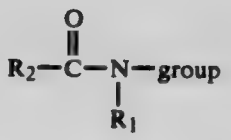
U.S. Cl. 430—505 **17 Claims**

1. A color photographic light-sensitive element comprising a support having thereon a silver halide emulsion layer containing therein a 3-anilino-5-pyrazolone magenta-color-forming coupler represented by formula (I)



(I)

wherein



(an N-substituted acylamino group) is present at the 4- or 5-position of the anilino group; R_1 represents a substituted or unsubstituted alkyl group, an alkenyl group, a cycloalkyl group, a cycloalkenyl group, or an aralkyl group; R_2 represents an aliphatic hydrocarbon group, a heterocyclic group, or an aryl group; X represents a halogen atom or an alkoxy group; Z represents hydrogen or a coupling-off group; and Ar represents an aryl group.

4,336,326

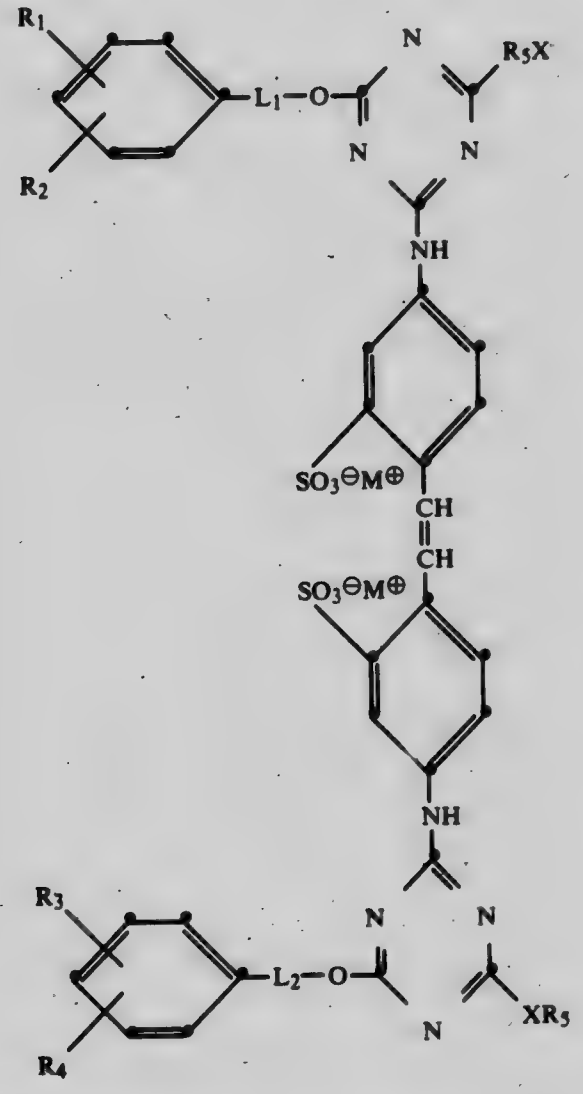
OPTICAL BRIGHTENING AGENTS AND PHOTOGRAPHIC MATERIALS WHICH CONTAIN THESE BRIGHTENING AGENTS

Graham Evans, Galleywood, England, assignor to Ciba-Geigy AG, Basel, Switzerland

Division of Ser. No. 171,869, Jul. 24, 1980, Pat. No. 4,302,579.
This application Apr. 6, 1981, Ser. No. 252,560
Claims priority, application United Kingdom, Aug. 21, 1979, 7929033
Int. Cl.³ G03C 1/76
U.S. Cl. 430—523 5 Claims

1. Photographic material having a white base and at least one silver halide emulsion layer and in one layer of the photographic material on the same side as the silver halide emulsion layer a brightening agent of the formula

(1)



wherein R_1 and R_3 are each hydrogen or methyl, R_2 and R_4 are alkyl having at least six carbon atoms, R_5 is hydrogen or alkyl, aryl or aralkyl, X is —NH—, —O— or —S—, L_1 and L_2 are each alkylene oxide chains having two to 20 alkylene oxide units in the chain and $M^{\oplus}$ is a hydrogen or an alkaline metal cation in a colloid binder.

4,336,327

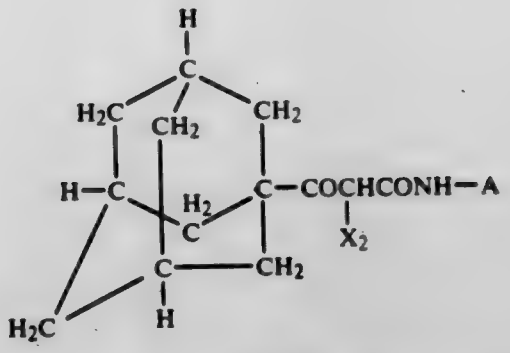
SILVER HALIDE EMULSION CONTAINING YELLOW COUPLER

Mitsugu Tanaka, and Momotoshi Tsuda, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

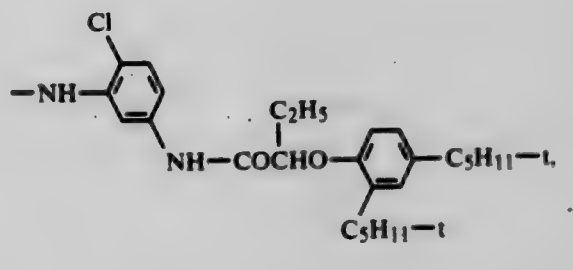
Filed Dec. 17, 1980, Ser. No. 217,302
Claims priority, application Japan, Dec. 17, 1979, 54-163721
Int. Cl.³ G03C 1/40
U.S. Cl. 430—556 12 Claims

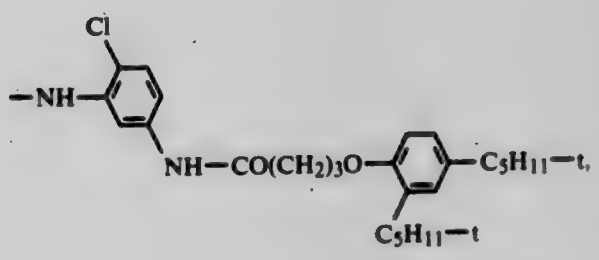
1. A silver halide color photographic light-sensitive material containing a yellow color coupler represented by the following general formula:

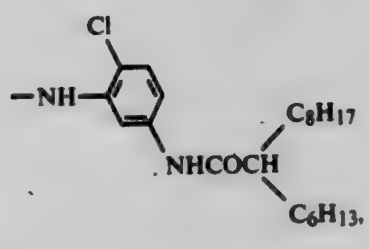
(II)

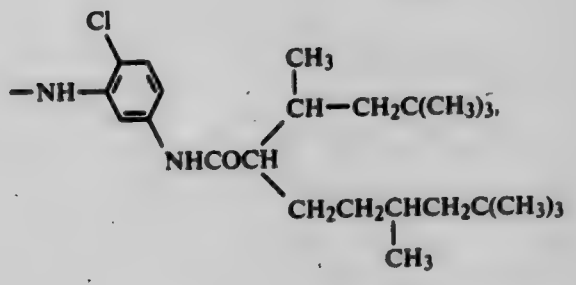


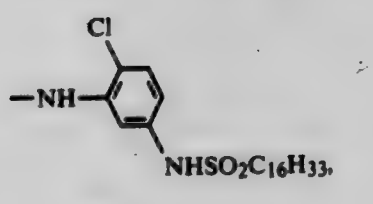
wherein X_2 represents a hydrogen atom or a group capable of coupling off; and A is a group selected from the group consisting of

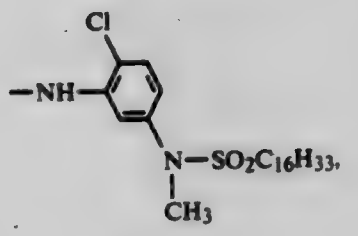


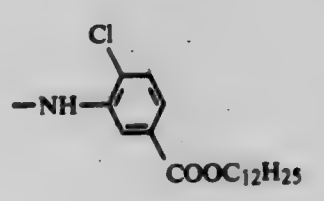




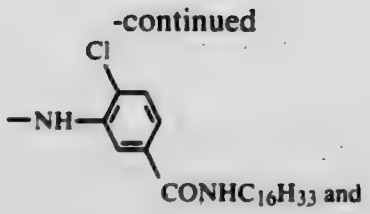




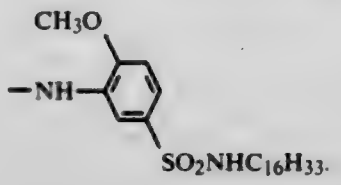




-continued



and

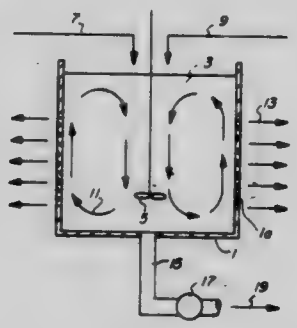


4,336,328

SILVER HALIDE PRECIPITATION PROCESS WITH DELETION OF MATERIALS THROUGH THE REACTION VESSEL

Barry M. Brown, Rochester; Malcolm L. Judd, Pittsford, and Roger N. Schindler, Fairport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 11, 1981, Ser. No. 272,612
Int. Cl.[3] G03C *1/02*
U.S. Cl. 430—569 16 Claims



1. In a process comprising

forming a radiation-sensitive silver halide dispersion by reacting silver and halide salts in solution, wherein the silver and halide salts are reacted to form silver halide grain nuclei in the presence of a dispersing medium and silver halide grain growth is allowed to proceed in a reaction vessel in which the silver halide grain nuclei and the dispersing medium are present,

the improvement comprising, during silver halide grain growth, withdrawing a portion of the dispersing medium from the reaction vessel through an ultrafiltration membrane while retaining the silver halide grains within the dispersing medium remaining within the reaction vessel.

4,336,329

METHOD AND APPARATUS FOR TREATMENT OF BIOLOGICAL SUBSTANCES, PARTICULARLY FOR CULTIVATION OF BIOLOGICAL CELLS AND TISSUES, OR OF MICROORGANISMS

Peter Hesse, Bruchköbel; Friedbert Schinle, Hanau am Main, and Helmut Loscher, Nidderau, all of Fed. Rep. of Germany, assignors to W. C. Heraeus GmbH, Hanau am Main, Fed. Rep. of Germany

Filed Jun. 17, 1980, Ser. No. 160,230
Claims priority, application Fed. Rep. of Germany, Jun. 18, 1979, 2924446
Int. Cl.[3] C12M *1/36;* C12Q *3/00*
U.S. Cl. 435—3 32 Claims

1. Method of treating biological materials comprising

positioning the materials in a container;

providing a housing structure (**11**) defining a treatment chamber (**10**) and a bypass duct (**1**);

introducing at least one container with the materials therein into the chamber;

maintaining the temperature within the chamber at a predetermined temperature level;

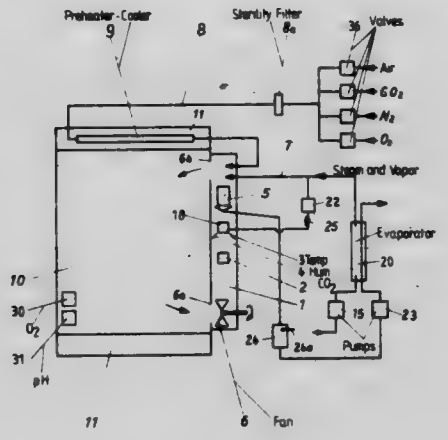
selectively introducing gas components into the chamber;

humidifying the atmosphere within the chamber to provide a predetermined humidity level within the chamber,

wherein the step of providing the predetermined humidity level comprises

generating sterile water vapor;

cooling the water vapor to a desired temperature;



controllably introducing the cooled water vapor into the bypass duct (**1**);

mixing the cooled water vapor with the gas component;

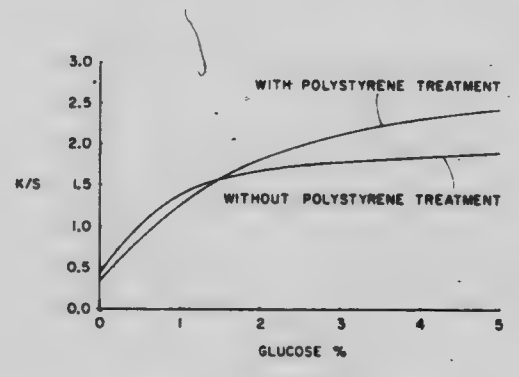
and circulating the atmosphere within the treatment chamber and the bypass duct to provide for uniformity of atmosphere and gaseous and vapor mixtures within the chamber and the bypass duct, and mixing of the components of the atmosphere and the vapor by turbulence.

4,336,330

DEVICE FOR DETECTING GLUCOSE CONCENTRATION

Robert Bauer, Bristol, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Dec. 15, 1980, Ser. No. 216,529
Int. Cl.[3] G01N *33/50;* C12Q *1/54*
U.S. Cl. 435—14 4 Claims



THE INFLUENCE OF A POLYSTYRENE TREATMENT ON QUANTITATION

1. In a test device for detecting the presence of glucose in a test sample, wherein said device comprises a carrier matrix which has been impregnated with glucose oxidase, peroxidase and a chromogen, the improvement wherein the carrier matrix is impregnated with a solution of from 0.5 percent to 1.5 percent on a weight/volume basis, of polystyrene in a suitable organic solvent, where the impregnation with polystyrene is subsequent to the impregnation with glucose oxidase, peroxidase and chromogen, and where components are present in amounts and proportions such that the device is capable of detecting the presence of from ½ to 10 percent glucose in a sample.

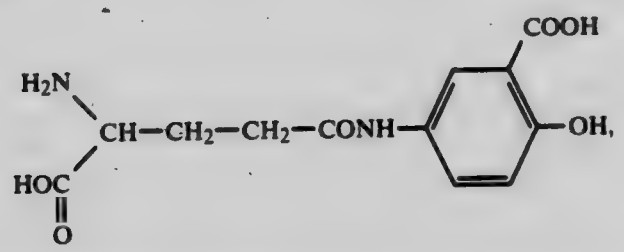
4,336,331

METHOD FOR ASSAYING THE ACTIVITY OF γ-GLUTAMYL TRANSPEPTIDASE IN SERUM

Takeshi Nagasawa; Katsumasa Kuroiwa; Katsuyuki Takabayashi, all of Koriyama; Norimasa Takizawa, Funabashi; Kazuyo Hagihara, Ichikawa, and Tadami Akatsuka, Tsuchiura, all of Japan, assignors to Nitto Boseki Co., Ltd., Fukushima and Iatron Laboratories, Inc., Tokyo, both of, Japan

Division of Ser. No. 94,072, Nov. 14, 1979, Pat. No. 4,281,181.
This application Mar. 20, 1981, Ser. No. 245,817
Claims priority, application Japan, Nov. 16, 1978, 53-14163
Int. Cl.³ C12Q *1/36*
U.S. Cl. 435—24 1 Claim

1. A method for assaying the activity of gamma-glutamyl transpeptidase in serum which comprises allowing the compound L-gamma-glutamyl-3-carboxy-4-hydroxyanilide represented by the formula



(I)

an acid addition salt thereof, or an alkali metal or amine salt thereof, to react with gamma-glutamyl transpeptidase in serum in a buffer solution, allowing 3-carboxy-4-hydroxyaniline formed by the reaction to undergo oxidative condensation with a coupler and then determining colorimetrically a colored substance formed by the condensation.

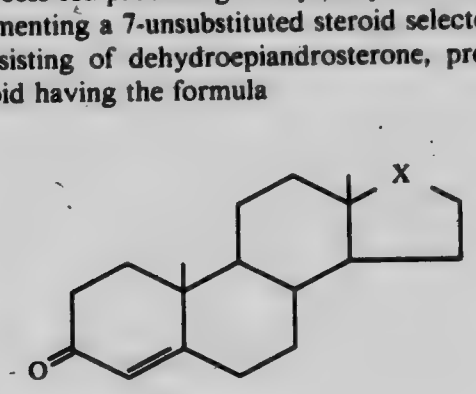
4,336,332

PROCESS FOR THE MANUFACTURE OF HYDROXYLATED STEROIDS

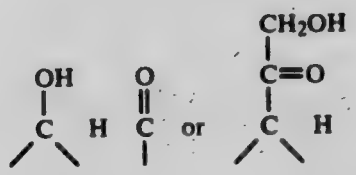
Mitsuhiko Fujiwara; Akiko Fujiwara, both of Kamakura, and Chikara Miyamoto, Yokohama, all of Japan, assignors to Hoffmann-La Roche, Inc., Nutley, N.J.

Filed Feb. 4, 1980, Ser. No. 118,282
Claims priority, application Switzerland, Feb. 20, 1979, 1675/79
Int. Cl.³ C12P *33/06*
U.S. Cl. 435—58 4 Claims

1. A process for producing 7α-hydroxylated steroids comprising fermenting a 7-unsubstituted steroid selected from the group consisting of dehydroepiandrosterone, pregnenolone, and a steroid having the formula



wherein X represents



with microorganisms of IFO 6469 or Botryodiplodia malorum CBS 134.50 in a culture solution or medium until the 7-unsubstituted steroid is hydroxylated.

4,336,333

PROCESS FOR PREPARING TUNICAMYCIN

Robert L. Hamill, Greenwood; Marvin M. Hoehn, and LaVerne D. Boeck, both of Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Mar. 13, 1981, Ser. No. 243,283
Int. Cl.³ C12P *19/60;* C12N *1/20;* C12R *1/52*
U.S. Cl. 435—75 11 Claims

1. A method for preparing tunicamycin which comprises cultivating *Streptomyces chartreusis* Calhoun and Johnson, 1956, NRRL 12338 in a culture medium containing assimilable sources of carbon, nitrogen, and inorganic salts under submerged aerobic conditions until a substantial amount of tunicamycin is produced.

11. A biologically pure culture of the strain of *Streptomyces chartreusis* Calhoun and Johnson, 1956, NRRL 12338, and all natural and artificial variants and mutants thereof, which on culturing in a medium containing assimilable sources of carbon, nitrogen, and inorganic salts under submerged aerobic conditions produces tunicamycin.

4,336,334

MICROBIOLOGICAL PROCESS FOR THE PRODUCTION OF POLY(β-HYDROXYBUTYRIC ACID)

Keith A. Powell, Yarm, and Barbara A. Collinson, Peterlee, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Feb. 21, 1980, Ser. No. 123,354
Claims priority, application United Kingdom, Feb. 21, 1979, 7906078
Int. Cl.³ C12N *1/32, 1/38;* C12P *7/42*
U.S. Cl. 435—146 6 Claims

1. A method of producing poly(β-hydroxybutyric acid) comprising aerobically culturing a purified methylobacterium organophilum micro-organism strain selected from strains designated by NCIB Nos. 11482 to 11488 inclusive and those mutants and variants derived from said strains that are capable of accumulating poly(β-hydroxybutyric acid) when grown on methanol as a carbon source.

4,336,335

FERMENTATION PROCESS

Werner C. Muller, Dobbs Ferry, N.Y., and Franklyn D. Miller, Cincinnati, Ohio, assignors to National Distillers & Chemical Corp., New York, N.Y.

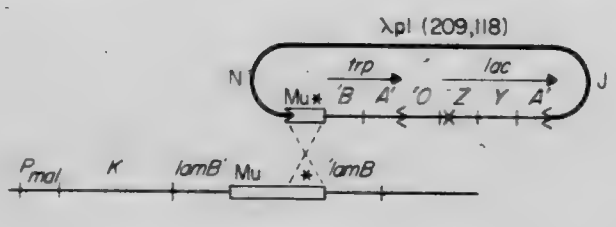
Filed May 22, 1980, Ser. No. 152,239
Int. Cl.³ C12P *7/06*
U.S. Cl. 435—161 13 Claims

1. In a process for producing a water soluble oxygenated hydrocarbon and by-product carbon dioxide gas from the exothermic fermentative action of a microorganism upon a substrate, wherein the improvement comprises scrubbing the by-product carbon dioxide gas with water to recover substantially all of the oxygenated hydrocarbon present therein as a dilute aqueous solution, heating the carbon dioxide gas to a temperature above the temperature of the fermentation medium, and passing the heated gas through at least a portion of fermentation medium to simultaneously vaporize and carry off oxygenated hydrocarbon present in said medium and reduce the temperature of the medium by the effect of evaporative cooling.

4,336,336
FUSED GENE AND METHOD OF MAKING AND USING SAME

Thomas J. Silhavy, Wollaston; Howard A. Shuman, Brookline; Jon Beckwith, Cambridge, all of Mass., and Maxime Schwartz, Paris, France, assignors to President and Fellows of Harvard College, Cambridge, Mass.

Filed Jan. 12, 1979, Ser. No. 3,082
Int. Cl.[3] C12N *15/00*
U.S. Cl. 435—172 19 Claims



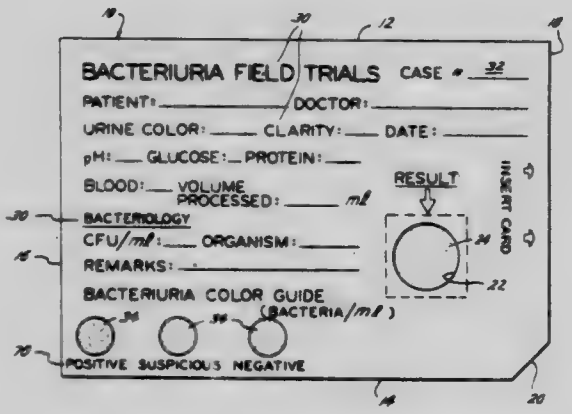
1. A fused gene which comprises a bacterial gene coding for a cytoplasmic protein fused to the non-cytoplasmic directing region of a gene coding for a non-cytoplasmic protein which is normally transported to or beyond the cell surface, such fused gene being capable of coding for a hybrid protein which is transported beyond the periplasmic space and either to the cell surface, or beyond the cell surface, of a bacterial host.

5. A method for making the fused gene of claim 1 which comprises, within a host bacterium, fusing to a gene coding for said cytoplasmic protein the non-cytoplasmic-directing region of a gene coding for a non-cytoplasmic protein, and selecting the bacteria containing the fused gene.

4,336,337
DETECTION OF BACTERIA

Craig Wallis, and Joseph L. Melnick, both of Houston, Tex., assignors to Baylor College of Medicine, Houston, Tex.

Continuation-in-part of Ser. No. 23,737, Mar. 26, 1979, abandoned, which is a continuation-in-part of Ser. No. 945,197, Sep. 25, 1978, abandoned. This application Jun. 16, 1980, Ser. No. 159,785
The portion of the term of this patent subsequent to Sep. 30, 1997, has been disclaimed.
Int. Cl.[3] C12M *1/12*; C12Q *1/04, 1/06*
U.S. Cl. 435—292 9 Claims



1. A kit for detecting bacteria, comprising:
(a) a cationic dye for staining bacteria at a pH of above 7.0;
(b) a chelating agent effective at a pH of above 7.0;
(c) an acid decolorizing wash at a pH of from 2.7 to 4.0; and
(d) a test substrate, said test substrate including a semi-permeable membrane which permits a test sample including bacteria to flow therethrough and which has a pore size to retain bacteria in the sample on the membrane for coloring thereon, said semi-permeable membrane having a net positive electrostatic surface charge to permit coloring of bacteria thereon with a cationic dye, without the membrane absorbing substantial amounts of said dye, the substrate including color differentiating indicia for providing a reading of bacterial concentration corresponding to color retained on the membrane.

4,336,338
HOLLOW MICROSPHERES OF SILICA GLASS AND METHOD OF MANUFACTURE

Raymond L. Downs, and Wayne J. Miller, both of Ann Arbor, Mich., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 15, 1980, Ser. No. 178,266
Int. Cl.[3] C03C *3/00, 3/06, 3/08*
U.S. Cl. 501—12 15 Claims

1. A metal organic gel adapted for use as a starting material in the manufacture of hollow glass microspheres, said gel having an oxide equivalent glass composition consisting essentially of oxides of boron in the amount of about 4% to 10%, potassium in the amount of about 8% to 15%, sodium in the amount of about 1% to 10% and the remainder silicon, with a ratio of potassium to sodium in excess of 1.5, and which, when crushed and sieved to a particle size in the range of about 106 μm to 125 μm and formed into hollow glass microspheres at about 1500° C. in the presence of water vapor, is characterized by a silica concentration in excess of 99%.

5. In a hollow glass microsphere consisting essentially of oxides of silicon, boron, potassium and sodium, the improvement wherein the concentration in mole percent of said oxide of silicon is at least 99%.

4,336,339
HIGH ZIRCONIA FUSED REFRACTORY PRODUCT

Masataro Okumiya, Chigasaki, and Kiyoharu Kuwabara, Yokohama, both of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Filed Feb. 23, 1981, Ser. No. 237,258
Claims priority, application Japan, Mar. 18, 1980, 55-34556
Int. Cl.[3] C04B *35/48*
U.S. Cl. 501—103 7 Claims

1. A high zirconia fused refractory product consisting essentially of the following constituents analytically, on a weight basis:
85% to 97% of ZrO_2;
0.1% to 3% of P_2O_5;
2% to 10% of SiO_2;
up to 3% of Al_2O_3; and
being full of rare earth oxide.

4,336,340
PROCESS FOR THE PRODUCTION OF BROKEN-DOWN ORGANIC LIGNIN-CELLULOSE POLYMERS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Continuation-in-part of Ser. No. 134,975, Mar. 3, 1980, Pat. No. 4,283,311, which is a continuation-in-part of Ser. No. 13,139, Feb. 21, 1979, Pat. No. 4,226,982. This application Nov. 17, 1980, Ser. No. 207,391
The portion of the term of this patent subsequent to Oct. 7, 1997, has been disclaimed.
Int. Cl.[3] C08J *9/02*; C08G *18/02*
U.S. Cl. 521—84 27 Claims

1. The process for the production of broken-down organic lignin-cellulose polymer by mixing and reacting the following components:
Component (a): Broken-down alkali metal lignin-cellulose polymer produced by mixing 2 to 5 parts by weight of an alkali metal hydroxide, selected from the group consisting of sodium hydroxide, potassium hydroxide and mixtures thereof with 3 parts by weight of a cellulose-containing plant particle, then heating the mixture at from 150° C. to 220° C. while agitating for 5 to 60 minutes;
Component (b): A mono-substituted organic compound having a substituent which will split off during the reaction to said broken-down alkali metal lignin-cellulose

polymer in the amount wherein the mols of the substituted radicals are about equal to the mols of the alkali radicals in the mixture.

4,336,341

PRODUCTION OF POLYISOCYANURATE FOAM

Tsuyoshi Fujiwara, Nagaokakyo; Osamu Sugimoto, Kyoto, and Chuzo Isoda, Uji, all of Japan, assignors to Dai-Ichi Kogyo Seiyaku Co., Ltd., Kyoto, Japan

Filed Nov. 26, 1980, Ser. No. 211,275
Claims priority, application Japan, Dec. 4, 1979, 54/157813
Int. Cl.³ C08G *18/14*
U.S. Cl. 521—109 10 Claims

1. In a method for producing polyisocyanurate foam comprising reacting a polysiocyanate component with a polyether-polyol component in the presence of a foaming agent and a catalyst for trimerizing said polyisocyanate, the improvement comrising employing the anhydrous reaction product between a dibasic carboxylic acid anhydride and a partially alcoholated polyether-polyol with an alkali metal hydroxide and/or an alkaline earth metal hydroxide as the polyether-polyol component, whereby said component simultaneously acts as a trimerization catalyst.

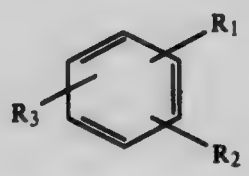
4,336,342

COST REDUCTION OF ACID CURING FOUNDRY BINDERS WITH ALKYLATED AROMATIC HYDROCARBON SOLVENTS

William R. Dunnavant, Columbus, and Young D. Kim, Dublin, both of Ohio, assignors to Ashland Oil, Inc., Ashland, Ky.

Filed Mar. 16, 1981, Ser. No. 244,521
Int. Cl.³ C08K *5/01*
U.S. Cl. 523—144 10 Claims

1. A foundry binder comprising a furan resin and an acid catalyst wherein said resin is a solution of 70% to 95% by weight furan resin and 5 to 30% by weight of a substituted benzene solvent having the formula



wherein R_1, R_2 and R_3 are selected from the group consisting of H, lower alkyl and lower alkoxy and wherein the solvent includes mixtures of such substituted benzenes.

4,336,343

POLYESTER MOLDING COMPOSITIONS HAVING INCREASED CRYSTALLIZATION TEMPERATURES

Shaul M. Aharoni, Morris Plains, N.J., assignor to Allied Corporation, Morris Township, Morris County, N.J.

Filed Jun. 25, 1981, Ser. No. 277,417
Int. Cl.³ C08K *5/09*
U.S. Cl. 523—455 22 Claims

1. A molding composition comprising:

a polyester; and

sodium citrate, wherein the quantity of sodium citrate is selected such that the crystallization temperature of said composition is greater than the crystallization temperature of said polyester.

4,336,344

COMPOSITIONS OF THERMOSETTABLE RESINS AND POLYDIENE RUBBERS HAVING IMPROVED SOLUTION STABILITY

Laurence J. Craigie, Broken Arrow, Okla., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 160,798, Jun. 19, 1980, abandoned. This application Aug. 24, 1981, Ser. No. 295,358
Int. Cl.³ C08L *63/00, 67/06*
U.S. Cl. 525—31 13 Claims

1. In a thermosettable resin composition comprising (a) a resin selected from the group consisting of an unsaturated polyester, a vinyl ester resin and a mixture thereof and (b) a carboxyl terminated polydiene rubber, the improvement wherein said composition includes as a compatibilizing agent a triblock polymer which has an elastomeric central block of the same carboxyl terminated polydiene rubber as (b) with the side blocks being a polyoxyalkylene ether.

4,336,345

COMPOSITION COMPRISING CONDENSATION CROSS-LINKABLE NOVEL METHACRYLATE POLYMERS

Sheldon N. Lewis, Willow Grove, and Richard A. Haggard, Fort Washington, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 905,812, May 15, 1978, Pat. No. 4,226,753, which is a division of Ser. No. 517,337, Oct. 23, 1974, Pat. No. 4,103,093, which is a continuation-in-part of Ser. No. 371,921, Jun. 20, 1973, abandoned, which is a continuation-in-part of Ser. No. 137,057, Apr. 23, 1971, abandoned. This application May 12, 1980, Ser. No. 149,098
Int. Cl.³ B32B *27/00;* C08F *8/00*
U.S. Cl. 525—107 30 Claims

1. A curable composition comprising (A) an anionically-polymerized addition polymer of at least one ester of methacrylic acid, the polymer comprising mers having condensation-crosslinkable functionality, wherein the average chain length of the polymer, n, is about 6 to about 50 mers; and (B) a crosslinking coreactant; in a weight ratio of (A) to (B) from about 1:99 to about 99:1.

4,336,346

COPOLYMERS CONTAINING BLOCKED ISOCYANATE GROUPS, AND THEIR USE IN ANODIC ELECTROCOATING

Juergen Gimpel; Karl-Heinz Feuerherd, both of Ludwigshafen, and Hans-Uwe Schenck, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 10, 1981, Ser. No. 252,802
Claims priority, application Fed. Rep. of Germany, May 8, 1980, 3017537
Int. Cl.³ C08L *63/00*
U.S. Cl. 525—109 8 Claims

1. A surface-coating binder based on a copolymer which contains carboxyl groups, blocked isocyanate groups, hydroxyl groups and ether groups and which, due to partial or complete salification with ammonia or with an organic base, is water-soluble or water-dispersible, wherein the copolymer contains, as copolymerized units:

(A) one or more α,β-olefinically unsaturated carboxylic acids of 3 to 5 carbon atoms or a half-ester of an α,β-olefinically unsaturated dicarboxylic acid of 3 to 5 carbon atoms,

(B) from 10 to 35% by weight of an N(1-alkenyl) isocyanate blocked with a CH-, OH- or NH-acidic blocking agent,

(C) from 20 to 50% by weight of an adduct of an epoxy resin, based on bisphenol A and epichlorohydrin and having a molecular weight of from 380 to 3,500, with an olefinically unsaturated alcohol of 3 to 20 carbon atoms, and

(D) from 5 to 64% by weight of one or more copolymerizable olefinically unsaturated compounds not already mentioned under (A) to (C)

with the provisos that the copolymer has a mean molecular weight of from 1,000 to 20,000 and contains component (A), as copolymerized units, in an amount such that the acid number of the copolymer is from 35 to 150 mg of KOH/g, and that the sum of the percentages of (A) to (D) is 100.

4,336,347

PROCESS FOR PRODUCTION OF PHENOLIC RESIN MODIFIED WITH LIQUID POLYBUTADIENE

Masakazu Sagoh, Ibaraki; Takanobu Noguchi, Takatsuki, and Seimei Yasui, Takarazuka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Oct. 1, 1980, Ser. No. 192,716

Claims priority, application Japan, Oct. 18, 1979, 54/134777

Int. Cl.³ C08L *61/14*

U.S. Cl. 525—139 **21 Claims**

1. A process for the production of a phenolic resin modified with a liquid polybutadiene which comprises reacting a liquid polybutadiene having a number average molecular weight of 150 to 5,000 with an α,β-unsaturated dicarboxylic acid or its anhydride to obtain an adduct (A), subjecting the adduct (A) to an addition reaction with one or a plurality of phenols in the presence of an acid catalyst to obtain a composition (A) and then reacting the composition (A) with formaldehyde in the presence of a basic catalyst.

4,336,348

THERMOPLASTIC COMPOSITIONS, PROCESS FOR THEIR PREPARATION AND THEIR USE

Dieter Margotte, Krefeld, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 25, 1980, Ser. No. 115,180

Claims priority, application Fed. Rep. of Germany, Feb. 8, 1979, 2904832

Int. Cl.³ C08L *69/00*

U.S. Cl. 525—146 **12 Claims**

1. A process for the production of a polyester based on a diphenol and a bis-acid halide by the phase boundary process, comprising an aqueous alkaline phase and an inert organic phase, in which the phase boundary process is carried out in the presence of a polymeric compound which is dissolved only in the organic phase and is inert under the conditions of the phase boundary process.

4,336,349

CHLORINATED CYCLOALIPHATIC (METH) ACRYLATE COMPOSITIONS

Hans R. Friedli, Lake Jackson, and Clinton J. Boriack, Freeport both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 62,198, Jul. 30, 1979, abandoned. This application Dec. 22, 1980, Ser. No. 219,071

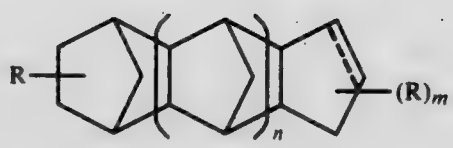
Int. Cl.³ C07C *67/04*; C08F *18/20, 299/00*

U.S. Cl. 525—210 **6 Claims**

1. A chlorinated cycloaliphatic (meth) acrylate composition which comprises the reaction product at a temperature in the range from −30° to 50° C. of chlorine with a cycloaliphatic (meth) acrylate composition having

(A) about 60 to 95 percent by weight of dicyclopentadiene acrylate, dicyclopentadiene methacrylate, or mixtures thereof,

(B) about 2 to 15 percent by weight of a mixture of polycyclopentadienyl acrylates of the formula



where

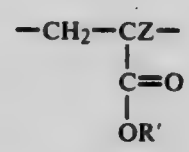
R is $CH_2{=}CZC(O){-}O{-}$

Z is H, or methyl p2 n is 1, or 2

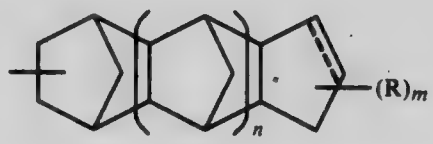
m is 0 or 1 and when m is 0 there is a double bond present,

(C) about 0 to about 21 percent by weight of a mixture of the copolymers of methacrylic acid or acrylic acid with adducts of cyclopentadiene with isoprene, piperylene, methylcyclopentadiene, or mixtures thereof,

(D) about 0.05 to 10 weight percent of a mixture of polyacrylates having the repeating unit:



where R′ is hydrogen or



R is $CH_2{=}CZ{-}C(O){-}O{-}$, Z is hydrogen or methyl, n is 0, 1 or 2, and m is 0 or 1, and when m is 0, there is a double bond present in the cyclopentadienyl group, whereby said reaction product has substantially all the original acrylic unsaturation, substantially no remaining cyclolefinic unsaturation and has 1 to 3 chlorine atoms attached to the cyclopentene ring.

4,336,350

COLD DRAWN FILM MADE OF AN OLEFIN POLYMER BLEND COMPOSITION

Isao Yoshimura, Fujisawa; Hideo Hata, and Takashi Kaneko, both of Yokohama, all of Japan, assignors to Asahi - Dow Limited, Tokyo, Japan

Division of Ser. No. 949,253, Oct. 6, 1978, Pat. No. 4,277,578. This application Jul. 25, 1979, Ser. No. 60,638

Claims priority, application Japan, Oct. 11, 1977, 52/120917; Nov. 22, 1977, 52/139431; May 30, 1978, 53/63870; May 30, 1978, 53/63872

Int. Cl.³ C08L *23/16, 23/12, 23/06, 23/08*

U.S. Cl. 525—211 **17 Claims**

1. A cold drawn film having a tensile strength of not less than 5.0 kg/mm² and a haze of not more than 4.0% which film comprises a homogeneous blend of the combination of components (B)+(C) wherein the components of the composition are in amounts such as to satisfy $0.90 \geqq B/(B+C) \geqq 0.30$ in terms of weight ratio;

(B) is a thermoplastic elastomer having a density of not more than 0.91 g/cm³ and made of an ethylene-α-olefin copolymer, and

(C) is at least one selected from the group consisting of crystalline polypropylene, high-density polyethylene and crystalline polybutene-1.

4,336,351

MODIFIED EP AND EPDM BLENDS WITH A COLD FLOW ADDITIVE

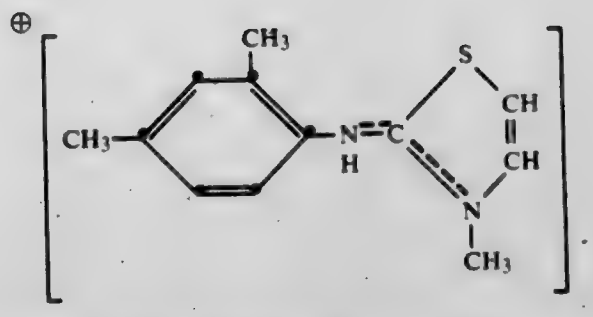
Bernard F. Cinadr, Brecksville, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Continuation-in-part of Ser. No. 117,607, Feb. 7, 1980, abandoned. This application Feb. 23, 1981, Ser. No. 237,231

Int. Cl.[3] C08L *23/16, 23/12*

U.S. Cl. 525—211 9 Claims

1. A raw and uncured heterogeneous composition that does not have a continuous polypropylene phase comprising, an essentially linear polymer of ethylene and propylene which normally exhibits plastic flow under ambient temperatures and storage conditions, said polymer of ethylene and propylene having yield strength of about 20 to 200 PSI, ultimate tensile strength of about 20 to 300 PSI, gel content of 1% or less and a low ethylene sequence index of less than about 25, and a sufficient amount up to about 20% by weight of added crystalline polypropylene having an average particle size of about ⅛" or in the range of about 0.1 to 1 millimeter to reduce the plastic flow but without significantly altering original physical properties of said polymer.



and an anion polymer selected from the group consisting of polyvinylsulfonic acids, polystyrenesulfonic acids, poly[N-(sulfoalkyl)-acrylamide], sulfonated cation exchangers from styrene and about 0.5–12 percent by weight of divinyl benzene (crosslinking agent) and sulfonated cation exchangers having macroporous structures, the proportion of the cation being at least 5% relative to the number of recurring structural elements of the polymer.

4,336,352

BLEND OF THREE ETHYLENE POLYMERS

Hisaya Sakurai; Yoshihiko Katayama; Tadashi Ikegami, and Shigeru Mizutani, all of Kurashiki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Aug. 11, 1980, Ser. No. 176,739

Claims priority, application Japan, Aug. 24, 1979, 54-107129

Int. Cl.[3] C08L *23/06, 23/08, 23/18*

U.S. Cl. 525—240 7 Claims

1. A composition comprising a mixture of three polymers (A), (B) and (C) which are selected from the group consisting of homopolymers of ethylene and copolymers of ethylene with a member selected from the group consisting of propylene, butene, pentene, 4-methylpentene-1, hexene, octene, and decene, the composition being characterized in that:

(i) the viscosity average molecular weight of (A) is 1,000–100,000, the viscosity average molecular weight of (B) is 100,000–1,000,000, the viscosity average molecular weight of (C) is 400,000–6,000,000, the molecular weight ratio of (B) to (A), (B/A), is 2–200, and the molecular weight ratio of (C) to (B), (C/B), is 1.5 or more,

(ii) the mixing ratio of (A) to (B), (A/B), is 30/70 to 70/30 and the mixing ratio of (C) to the total composition is 1–10% by weight,

(iii) melt index of the composition is 0.001–1, and

(iv) density of the composition is 0.976–0.935.

4,336,353

SALTS OF 3-METHYL-2-(2',4'-DIMETHYL-PHENYLIMINO)-4-THIAZOLINE WITH POLYMERS CONTAINING SULFONIC ACID GROUPS

Christian d'Hondt, Riehen; Dieter Lohmann, Muttenz, and Ernst Neuenschwander, Riehen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Sep. 2, 1980, Ser. No. 183,560

Claims priority, application Switzerland, Sep. 11, 1979, 8205/79; Mar. 11, 1980, 1900/80

Int. Cl.[3] C08F *8/30*

U.S. Cl. 525—275 2 Claims

1. A salt formed from a cation of the formula

4,336,354

METHOD OF PREPARING STYRENE-MALEIC ANHYDRIDE MOLDING COMPOSITION

Frank E. Lordi, and Jacob Triplett, both of West Chester, Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Mar. 26, 1981, Ser. No. 247,690

Int. Cl.[3] C08F *279/02*

U.S. Cl. 525—301 1 Claim

1. The method of making a thermoplastic composition useful in molding, extrusion, thermoforming, and the like which method comprises:

separately preparing a high impact polystyrene by copolymerizing alkadiene and a monomeric vinyl aromatic compound to provide a high impact polystyrene consisting essentially of from 4 to 16% alkadiene and 84 to 96% styrene, the molecular weight of said high impact polystyrene being at least 20% greater than the molecular weight of the hereinafter designated thermoplastic composition product;

preparing a solution of said high impact polystyrene in monomeric vinyl aromatic compound as a solvent and using said solution in the hereafter designated liquid system;

polymerizing to form an interpolymer in a liquid system featuring a monomeric vinyl aromatic compound as a solvent, a minor concentration of an unsaturated dicarboxylic acid moiety, said liquid system containing from 5 to 25 weight % of said high impact polystyrene, the polymerization conditions being so controlled that the interpolymer contains both (a) from 5 to 15 weight % moiety of unsaturated dicarboxylic acid, and (b) from 5 to 25 weight % of said high impact polystyrene;

devolatilizing the thus formed interpolymer to remove substantially all of said monomeric vinyl aromatic compound to provide an interpolymer a thermoplastic composition product derived predominantly from vinyl aromatic compound and comprising both (a) from 5 to 15 weight % moiety of unsaturated dicarboxylic acid, and (b) from 5 to 25 weight % of said high impact polystyrene; and

shaping said devolatilized interpolymer into particles of thermoplastic composition, said composition consisting of the interpolymer of 5 to 15% moiety of unsaturated dicarboxylic acid, 5 to 25% high impact polystyrene, and the balance vinyl aromatic compound.

4,336,355

PROCESS FOR GRAFTING LARGE RUBBER PARTICLES AS ABS POLYBLENDS

Wan C. Wu, Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Oct. 20, 1980, Ser. No. 198,674
Int. Cl.[3] C08F *291/02*
U.S. Cl. 525—316 18 Claims

1. A process for preparing ABS polyblends by grafting large diene rubber particles with alkenyl aromatic and alkenyl nitrile monomers comprising:

A. charging an aqueous latex containing diene rubber solids to a mixing zone, said rubber being dispersed in said latex by an anionic surfactant as particles having an average particle size diameter of about 0.05 to 0.20 microns,

B. mixing a water soluble organic acid anhydride having an ionization constant higher than that of the acid member of the anionic surfactant in said aqueous latex,

C. agglomerating said rubber particles, contained in said latex, to larger agglomerated particles having an average particle size of about 0.30 to 1.0 microns,

D. stabilizing said larger agglomerated rubber particles in said latex by the addition of a sufficient amount of an alkali metal salt of a polyfunctional carboxylic oligomeric surfactant to said latex to stabilize said latex,

E. polymerizing a mixture of alkenyl aromatic and alkenyl nitrile monomers in the presence of said stabilized latex so as to form a matrix phase polymer of said monomers and graft said agglomerated rubber particles with at least a portion of said monomers, providing a latex containing said grafted rubber particles and said matrix polymer essentially free of coagulum, and

F. separating said matrix polymers having said grafted diene rubber particle dispersed therein from said latex as an ABS polyblend.

4,336,356

PRODUCTION OF OZONIDES FROM UNSATURATED POLYMERS

Shaul M. Aharoni, Morris Plains; Dusan C. Prevorsek, Morristown; George J. Schmitt, Madison; Gary A. Harpell, Morristown, and Lester T. C. Lee, Parsippany, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 969,917, Dec. 15, 1978. This application Aug. 25, 1980, Ser. No. 180,753
Int. Cl.[3] C08F *8/06*
U.S. Cl. 525—388 19 Claims

1. A process for selectively ozonizing a carbon-carbon double bonds of an olefinically unsaturated organic polymer also containing carbon-carbon single bonds having a number average molecular weight larger than about 40,000 with between about 0.1 and 10 percent of the backbone carbon-carbon bonds being unsaturated, comprising:

dissolving the olefinically unsaturated organic polymer in a solvent system having a first component which is less reactive than said double bonds but more reactive than said single bonds toward ozone and a second component which is inert to ozone under the reaction conditions; and contacting the resulting solution with ozone containing gas, thereby forming an ozonide.

4,336,357

SUPERFICIALLY HYDROLYZED BIOCOMPATIBLE POLYAMIDE MATERIAL

Francesco Bartoli, Rome; Walter Marconi, San Donato Milanese; Franco Morisi, and Francesco Pittalis, both of Rome, all of Italy, assignors to Snamprogetti, S.p.A., Milan, Italy

Continuation of Ser. No. 26,892, Apr. 4, 1979, abandoned. This application Jul. 28, 1980, Ser. No. 172,957
Claims priority, application Italy, Apr. 12, 1978, 22222 A/78
Int. Cl.[3] C08G *69/48*
U.S. Cl. 525—420 9 Claims

1. A process for the preparation of a biocompatible polyamide material, said process consisting essentially of subjecting a polyamide material to superficial hydrolysis by reacting said polyamide material with a 3 to 4 normal hydrogen chloride solution and removing substantially all unreacted hydrogen chloride by first washing with a base and then washing with water.

4,336,358

ORGANOPOLYSILOXANE-URETHANE-VINYL GRAFT COPOLYMERS

Heinrich Alberts; Hans Friemann, both of Cologne; Hans Sattlegger, Odenthal, and Hans-Heinrich Moretto, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 14, 1980, Ser. No. 207,093
Claims priority, application Fed. Rep. of Germany, Nov. 28, 1979, 2947966
Int. Cl.[3] C08F *283/12, 283/02*
U.S. Cl. 525—439 8 Claims

1. A graft copolymer comprising (I) as a first polymeric moiety an organopolysiloxane with OH functional groups, (II) as a second polymeric moiety a polyester-urethane, and (III) units of vinyl monomers, units of the first and second polymeric moieties being linked via vinyl polymer bridges, all these units having been polymerized in the presence of mixtures of the first and second polymeric moieties, the first polymeric moiety being present in about 10–90% by weight, the second polymeric moiety being present in about 5–85% by weight, and the polymerized units of vinyl compounds being present in about 5 to 85% by weight.

4,336,359

NITRIC ACID STABILIZED THERMOSETTABLE RESINS

Virginia B. Messick, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jun. 26, 1981, Ser. No. 277,770
Int. Cl.[3] C08L *63/00*
U.S. Cl. 525—531 12 Claims

1. A thermosettable resin composition having improved storage stability, said composition comprising a vinyl ester resin, an unsaturated polyester or a mixture thereof and a stabilizing amount of nitric acid.

4,336,360

PROCESS FOR THE STEREOREGULAR POLYMERIZATION OF ALPHA-OLEFINS

Umberto Giannini; Antonio Cassata; Paolo Longi, all of Milan, and Romano Mazzocchi, Pernate, all of Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Continuation of Ser. No. 955,762, Oct. 30, 1978, Pat. No. 4,187,196, which is a continuation of Ser. No. 795,363, May 9, 1977, abandoned, which is a continuation-in-part of Ser. No. 503,766, Sep. 6, 1974, abandoned, which is a continuation of Ser. No. 265,455, Jun. 23, 1972, abandoned. This application Feb. 1, 1980, Ser. No. 117,789
Claims priority, application Italy, Jun. 25, 1971, 26275 A/71
The portion of the term of this patent subsequent to Aug. 15, 1995, has been disclaimed.
Int. Cl.[3] C08F *4/02, 10/00*
U.S. Cl. 526—114 1 Claim

1. Process for the stereoregular polymerization of alpha-olefins of the formula CH_2=CHR wherein R is an alkyl radical having 1–6 carbon atoms and mixtures thereof with ethylene, which process comprises polymerizing the olefins in contact with a catalyst the starting catalyst-forming components of which comprise:

(a) an addition reaction product of an electron-donor compound (or Lewis base) selected from the group consisting of esters of silicic acid with an Al-trialkyl compound or with an Al-alkyl compound containing two or more Al atoms linked together through an oxygen or a nitrogen

atom, the amount of Al-alkyl compound contained in a combined form with the ester in catalyst-forming component (a) being from 0.05 to 1.0 mole per mole of the starting Al-compound; and

(b) the product obtained by contacting a Ti compound selected from the group consisting of halogenated bi-, tri-, and tetravalent Ti compounds and complexes of said Ti compounds with an electron-donor compound, with a support which comprises, as the essential support material thereof, an anhydrous bihalide of Mg or Mn in an active state such that the X-rays powder spectrum of component (b) does not show the most intense diffraction lines as they appear in the X-rays powder spectrum of normal, nonactivated Mg or Mn bihalide, the X-rays powder spectrum of component (b) showing a broadening of said most intense diffraction lines.

4,336,361

PROCESS OF PREPARING LINEAR POLYDIVINYLBENZENE

Teiji Tsuruta, Yokohama, and Yoshiaki Nitadori, Nobeoka, both of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

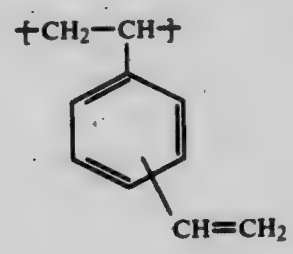
Division of Ser. No. 58,595, Jul. 18, 1979, abandoned. This application Nov. 17, 1980, Ser. No. 207,529

Claims priority, application Japan, Apr. 23, 1979, 54/48965; Apr. 23, 1979, 54/48966

Int. Cl.³ C08F *4/46*

U.S. Cl. 526—180 **12 Claims**

1. A process of preparing a linear polydivinylbenzene having recurring units of Formula (A),



(A)

and a number average molecular weight of about 500 to about 1,000,000, which comprises adding lithium diisopropylamide and divinylbenzene to an inert polar solvent in the presence of diisopropylamine.

4,336,362

ACETYLENE-TERMINATED DIANIL MONOMER AND THE POLYMER THEREFROM

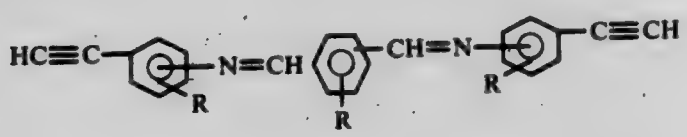
Theodore R. Walton, Annandale, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 102,293, Dec. 10, 1979, Pat. No. 4,283,557. This application Mar. 2, 1981, Ser. No. 239,833

Int. Cl.³ C08F *38/00*

U.S. Cl. 526—248 **6 Claims**

1. The polymer obtained by heating from about the melting point to about 300° C. the compound with the formula



wherein R is selected from the class consisting of H—, F—, Cl— $CH_{3-n}F_n$, and $CH_{3-n}Cl_n$ and n is an integer from 1 to 3.

4,336,363

HEAT CURABLE COMPOSITIONS CONTAINING SULFONIUM SALTS

James V. Crivello, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 11,102, Feb. 12, 1979, Pat. No. 4,230,814. This application Oct. 9, 1980, Ser. No. 195,322

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.³ G03C *1/68*; C08F *16/12*

U.S. Cl. 526—333 **10 Claims**

1. Heat curable compositions comprising

(A) a cationically polymerizable organic material

(B) an effective amount of a thermal curing agent consisting essentially of an organic oxidant and an aryl sulfonium salt selected from the class consisting of a triarylsulfonium salt and an aryl acyl dialkyl sulfonium salt.

4,336,364

METHOD OF PRODUCING ORGANOSILICON COMPOSITION WITH IN SITU PRODUCED CURE INHIBITOR

Myron T. Maxson, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jul. 20, 1981, Ser. No. 284,769

Int. Cl.³ C08G *77/06*

U.S. Cl. 528—15 **16 Claims**

1. A method of preparing a storage stable, one part, heat curable organosilicon composition consisting essentially of

(A) mixing (1) an organosilicon polymer having an average of from one to three groups per silicon atom selected from the group consisting of monovalent hydrocarbon radicals, aliphatic-unsaturation-free monovalent halohydrocarbon radicals, and cyanoalkyl radicals, there being an average per molecule of (1) of at least two monovalent hydrocarbon radicals containing aliphatic unsaturation, the remaining valences of the silicon atoms of said organosilicon polymer being satisfied by divalent radicals selected from the group consisting of divalent oxygen atoms, divalent hydrocarbon radicals, divalent hydrocarbon ether radicals, and divalent haloarylene radicals, said divalent radicals linking silicon atoms; (2) a platinum catalyst in an amount of at least 0.1 part by weight of platinum per one million parts by weight of the combined weights of organosilicon polymer (1) and organosilicon compound (5); (3) an acetylenic alcohol, liquid at the reaction conditions of step (B) and distillable at temperatures of less than 120° C. at a pressure of 133 pascal, in an amount sufficient to provide at least one mole of acetylenic radical for each 3 moles of silicon-bond hydrogen atoms in siloxane compound (4); (4) a siloxane compound having at least 3 silicon-bonded hydrogen atoms with no more than one silicon-bonded hydrogen atom per silicon atom, the organic groups on the silicon atoms being monovalent hydrocarbon radicals having no aliphatic unsaturation, the siloxane compound being a linear, branched, or cyclic molecule containing from 3 to 100 siloxane units, then

(B) heating to a temperature which is between 100° and 150° C. and which is also above the temperature at which an olefinic siloxane compound formed by the reaction of the acetylenic alcohol (3) and the siloxane compound (4) is no longer an inhibitor for the reaction in a closed container for a time sufficient to allow the reaction to produce the olefinic siloxane compound,

(C) cooling to below 50° C.,

(D) reducing pressure over the reaction mixture to an amount sufficient to remove any unreacted acetylenic alcohol (3), then

(E) admixing (5) an organosilicon compound containing silicon-bonded hydrogen atoms, there being in addition an average of up to 2 monovalent organic radicals per silicon atom selected from the group consisting of monovalent hydrocarbon radicals free of aliphatic unsaturation, mono-

valent halohydrocarbon radicals free of aliphatic unsaturation, and cyanoalkyl radicals, the remaining valences of the silicon atoms being satisfied by divalent radicals selected from the group consisting of divalent oxygen atoms, divalent hydrocarbon radicals free of aliphatic unsaturation, divalent hydrocarbon ether radicals, and divalent haloarylene radicals, said divalent radicals linking silicon atoms, there being an average of at least two silicon-bonded hydrogen atoms per molecule of organosilicon compound (5), the sum of the average number of aliphatic unsaturated monovalent radicals per molecule of organosilicon polymer (1) and the average number of silicon-bonded hydrogen atoms per molecule of organosilicon compound (5) being at least 4, the organosilicon composition further restricted in that the amount of organosilicon polymer (1) is sufficient to control the reaction exotherm.

4,336,365

PROCESS FOR THE CONTINUOUS PREPARATION OF POLYISOCYANATES CONTAINING URETDIONE GROUPS AND THEIR USE AS STARTING COMPONENTS FOR THE PRODUCTION OF POLYURETHANE RESINS

Artur Reischl; Bernd Quiring, and Claus Rathjen, all of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 2, 1981, Ser. No. 230,782

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1980, 3005106

Int. Cl.³ C08G *18/00*

U.S. Cl. 528—44 **4 Claims**

1. A process for the continuous preparation of polyisocyanates containing uretdione groups comprising dimerizing aromatic polyisocyanates which are free from uretdione groups in the presence of catalysts which accelerate the dimerization of isocyanates, at −30° to 90° C. in a self-cleaning, coolable screw reactor with continuous feeding in of the free polyisocyanate and of the dimerization catalyst, and in the presence of from 3 to 90% by weight, based on the whole mixture, of an additive containing hydroxyl groups, which additive comprises either (i) a compound within the molecular weight range of from 62 to 10,000 containing at least one hydroxyl group or (ii) a mixture of several compounds having an average molecular weight within the range of from 62 to 10,000 containing at least one hydroxyl group, wherein said hydroxyl-containing compound or compounds are added to the reaction mixture before the completion of the dimerization reaction.

4,336,366

THERMALLY POLYMERIZABLE MIXTURES AND PROCESSES FOR THE THERMALLY-INITIATED POLYMERIZATION OF CATIONICALLY POLYMERIZABLE COMPOUNDS

Godwin Berner, Rheinfelden, and Rudolf Kirchmayr, Aesch, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 20, 1981, Ser. No. 236,465

Claims priority, application Switzerland, Feb. 29, 1980, 1627/80

Int. Cl.³ C08F *2/50*; C08K *5/06, 5/11*; C08G *65/10*

U.S. Cl. 528—89 **13 Claims**

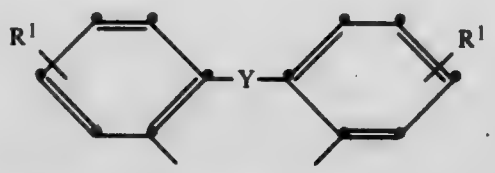
1. A thermally polymerisable mixture containing

(A) one or more cationically polymerisable compounds,

(B) a catalytic amount of an aromatic iodonium salt of the formula I

$$[(Ar^1)(Ar^2)I]+[MX_n]^- \quad (I)$$

in which Ar^1 and Ar^2 independently of one another are phenyl, naphthyl or phenyl which is substituted by one or more of the radicals C_1-C_8-alkyl, phenyl, phenoxy, halogen, nitro or C_1-C_4-alkoxy, or Ar^1 and Ar^2 together are a divalent radical of the formula II



(II)

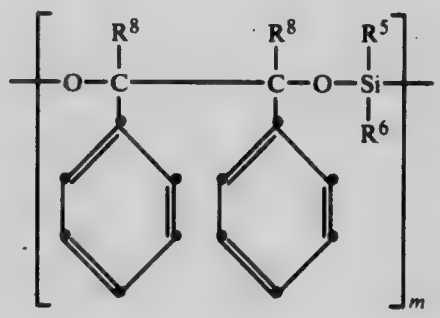
in which Y is a direct bond, —O—, —S—, or —CH_2— and R^1 is C_1-C_4-alkyl, halogen, nitro or C_1-C_4-alkoxy, M is a metal atom or metalloid atom from the series comprising B, P, As, Sb, Sn, Bi and Fe, X is fluorine or chlorine and n is 4, 5 or 6 and 1 larger than the valency of M, and

(C) a catalytic amount of a compound of the formula III



(III)

in which R^2 is C_1-C_4-alkoxy, —$OCOR^4$ or —O-$Si(R^5)(R^6)(R^7)$ and R^4 is C_1-C_8-alkyl or phenyl and R^5, R^6 and R^7 independently of one another are C_1-C_4-alkyl or phenyl and R^3 is phenyl or C_1-C_4-alkyl, or of a compound of the formula IV



(IV)

in which R^8 is phenyl, cyclohexyl or C_1-C_4-alkyl and m is 2 to 20.

4,336,367

EPOXY ADHESIVE COMPOSITION

David R. Morris, Beltsville, and Porter W. Erickson, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 15, 1969, Ser. No. 827,475

Int. Cl.³ C08L *63/00*

U.S. Cl. 524—770 **11 Claims**

1. An adhesive composition of matter comprising the resin obtained by the admixture of a 3,4-epoxycyclohexylalkyl 3,4-epoxycyclohexanecarboxylate, exo-exo bis(2,3-epoxycyclopentyl) ether, endo-exo bis(2,3-epoxycyclopentyl) ether and a trialkoxyboroxine.

4,336,368

4 DEOXY-4-METHYLENE OLEANDOMYCIN AND DERIVATIVES THEREOF

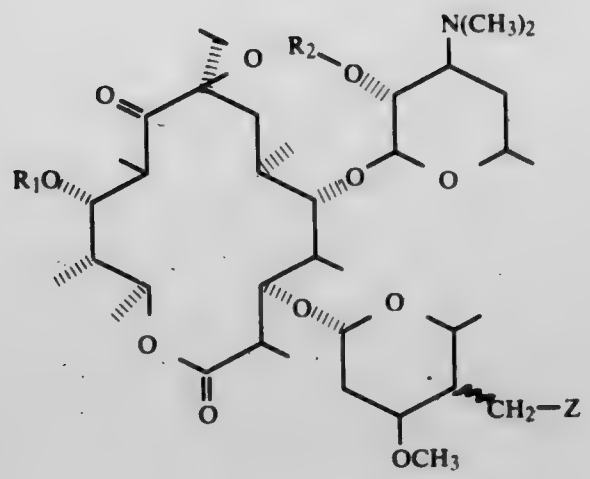
Arthur A. Nagel, Gales Ferry, Conn., assignor to Pfizer Inc., New York, N.Y.

Filed Apr. 20, 1981, Ser. No. 255,620

Int. Cl.³ C07H *17/08*; A01N *9/00*

U.S. Cl. 536—7.2 **19 Claims**

1. A compound having the formula



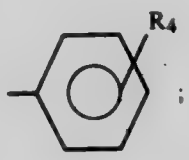
wherein

R_1 is hydrogen or trimethylsilyl;

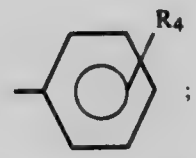
R_2 is hydrogen or alkanoyl having from two to three carbon atoms;

Z is H, OR_3, $COOR_3$, SR_3', $S(O)R_3'$, $S(O)_2R_3'$, CN or $-(CH_2)_n-NR_5R_6$;

R_3 is hydrogen, alkyl having from one to four carbon atoms or

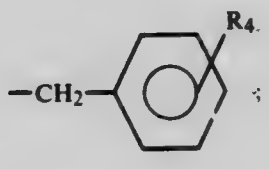


R_3' is alkyl having from one to four carbon atoms or

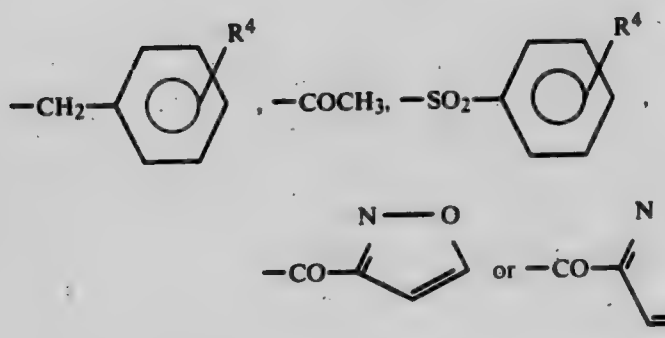


R_4 is hydrogen, chloro, bromo, alkyl having from one to four carbon atoms or alkoxy having from one to four carbon atoms;

R_5 is hydrogen or



R_6 is hydrogen,



R_5 and R_6 when taken together with the nitrogen to which they are attached are phthalimido; and

n is 0 or 1;

or a pharmaceutically acceptable acid addition salt thereof.

4,336,369

SELECTIVELY PROTECTED 1-N-(ω-AMINOALKOXYCARBONYL)-SISOMICIN DERIVATIVES

Uwe Petersen, Leverkusen; Eckart Voss, Cologne, and Peter Stadler, Haan, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

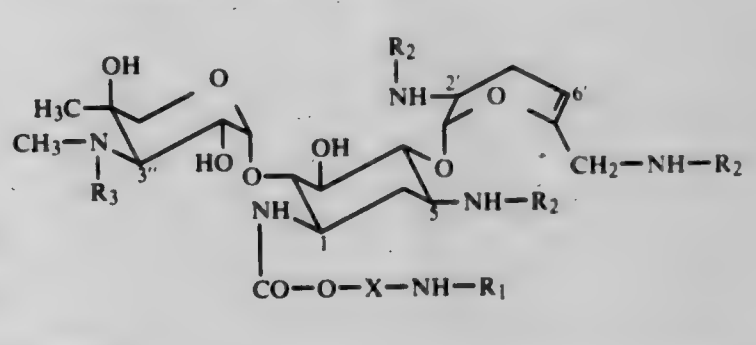
Filed May 13, 1980, Ser. No. 149,384

Claims priority, application Fed. Rep. of Germany, May 30, 1979, 2921974

Int. Cl.³ C07H *15/22*; A61K *31/71*

U.S. Cl. 536—13.9 **3 Claims**

1. A compound of the formula I



in which

X represents a straight-chain, branched or cyclic saturated or unsaturated aliphatic radical with 2 to 10 C atoms,

R_1 represents hydrogen, C_1-C_4-alkyl or benzyl,

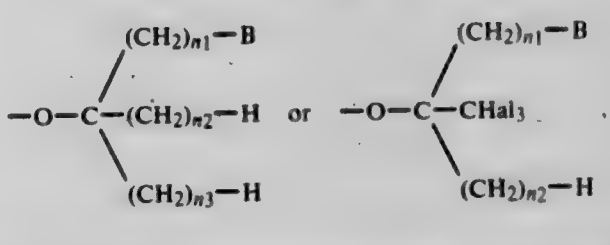
R_2 represents $CO-R_4$ or $S-R_5$ and

R_3 represents $S-R_5$,

wherein

R_4 denotes a radical of the formulae

$-CHal_3$, $-OA$,



A denotes phenyl which is unsubstituted or substituted by 1 to 3 substituents, said substituents being trifluoromethyl, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxycarbonyl and phenyl, or 1 to 5 halogen atoms,

B denotes hydrogen or phenyl which is unsubstituted or substituted by 1 to 3 substituents, said substituents being trifluoromethyl, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxycarbonyl and phenyl, or 1 to 5 halogen atoms,

n_1, n_2 and n_3 denote a number from 0 to 5, Hal denotes fluorine, chlorine or bromine and

R_5 denotes phenyl or di- or tri-phenylmethyl which is unsubstituted or substituted by 1 to 3 substituents, said substituents being trifluoromethyl, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkoxycarbonyl and phenyl, or 1 to 5 halogen atoms.

2. A compound according to claim 1, wherein

X denotes C_2-C_6-alkylene and

R_1 denotes hydrogen.

4,336,370

PROCESS FOR ACTIVATING CELLULOSE PULP TO IMPROVE EASE OF ESTERIFICATION

V. M. Yasnovsky, Sloatsburg, and Donald M. MacDonald, Monroe, both of N.Y., assignors to International Paper Company, New York, N.Y.

Filed Mar. 24, 1980, Ser. No. 132,913

Int. Cl.³ C08B *1/02*

U.S. Cl. 536—58 **13 Claims**

1. A process for the preparation for esterification of dis-

solving pulp derived from wood pulp wherein no further mechanical refining is required which comprises:

(a) treating dissolving pulp in slurry, sheet or flake form with 0.5 to 10% on an oven dry pulp weight basis of a carboxylic acid, of from 2 to about 18 carbon atoms; and

(b) for at least two hours prior to initiation of conventional esterification procedures maintaining the carboxylic acid-cellulose pulp mixture produced in step (a) above under conditions wherein substantial loss of carboxylic acid is prevented.

4,336,371

2-DECARBOXY-2-TETRAZOLYL-13,14-DIHYDRO-PG$_2$ COMPOUNDS

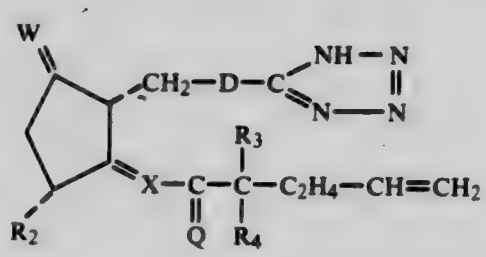
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979, Pat. No. 4,243,611. This application Oct. 17, 1979, Ser. No. 85,616

Int. Cl.^{3} C07D *257/06, 409/08;* A61K *31/41*

U.S. Cl. 542—429 **1 Claim**

1. A compound of the formula



wherein D is

(1) cis—CH=CH—CH$_2$—(CH$_2$)$_g$—CH$_2$—,

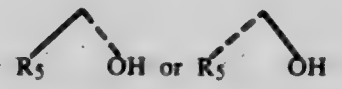
(2) cis—CH=CH—CH$_2$—(CH$_2$)$_g$—CF$_2$—,

(3) cis—CH$_2$—CH=CH—CH$_2$—CH$_2$—,

(4) trans—(CH$_2$)$_3$—CH=CH—,

wherein g is zero, one, 2, or 3,

wherein Q is

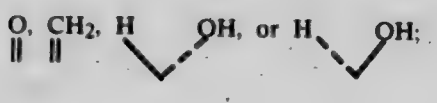


wherein R$_5$ is hydrogen or methyl,

wherein R$_2$ is hydrogen, hydroxyl, or hydroxymethyl;

wherein R$_3$ and R$_4$ are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R$_3$ and R$_4$ is fluoro only when the other is hydrogen or fluoro;

wherein W is



and wherein X is —CH$_2$CH$_2$—.

4,336,372

2-DECARBOXY-2-TETRAZOLYL-PG$_2$ COMPOUNDS

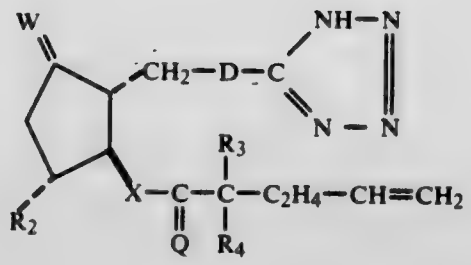
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979, Pat. No. 4,243,611. This application Oct. 17, 1979, Ser. No. 85,617

Int. Cl.^{3} C07D *257/06, 409/08;* A61K *31/41*

U.S. Cl. 542—429 **1 Claim**

1. A compound of the formula



wherein D is

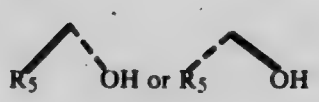
(1) cis—CH=CH—CH$_2$—(CH$_2$)$_g$—CH$_2$—,

(2) cis—CH=CH—CH$_2$—(CH$_2$)$_g$—CF$_2$—,

(3) cis—CH$_2$—CH=CH—CH$_2$—CH$_2$—,

(4) trans—(CH$_2$)$_3$—CH=CH—,

wherein Q is



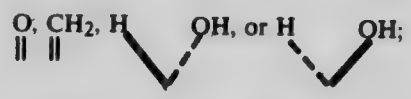
wherein g is zero, one, 2, or 3,

wherein R$_5$ is hydrogen or methyl,

wherein R$_2$ is hydrogen, hydroxyl, or hydroxymethyl;

wherein R$_3$ and R$_4$ are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R$_3$ and R$_4$ is fluoro only when the other is hydrogen or fluoro;

wherein W is



and wherein X is cis— or trans—CH=CH— or —C≡C—.

4,336,373

BIS-PIPERIDINE COMPOUNDS

Shingo Matsumura, Kyoto; Hiroshi Enomoto, Nagaokakyo; Yoshiaki Aoyagi, Otsu; Yoshiaki Yoshikuni, Uji; Masahiro Yagi, Kusatsu; Kohei Kura, Omi-Yahata, and Ichiro Shirahase, Kyoto all of Japan, assignors to Nippon Shinyaku Company, Ltd., Japan

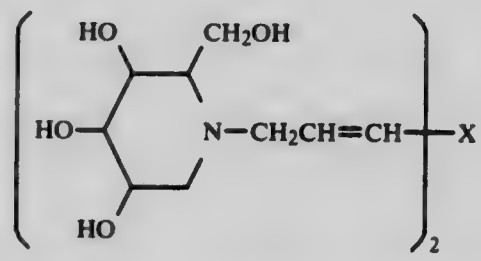
Continuation-in-part of Ser. No. 229,278, Jan. 28, 1981, abandoned. This application Mar. 26, 1981, Ser. No. 247,885

Claims priority, application Japan, Jan. 28, 1980, 55-9173

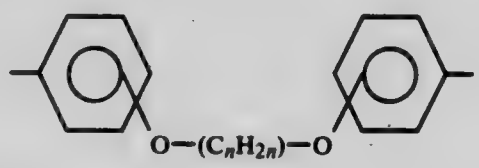
Int. Cl.^{3} C07D *401/10, 401/12*

U.S. Cl. 542—447 **11 Claims**

1. A compound of the formula:



wherein X is a divalent radical selected from the group consisting of phenylene, naphthylene and



in which n is 2 or 3.

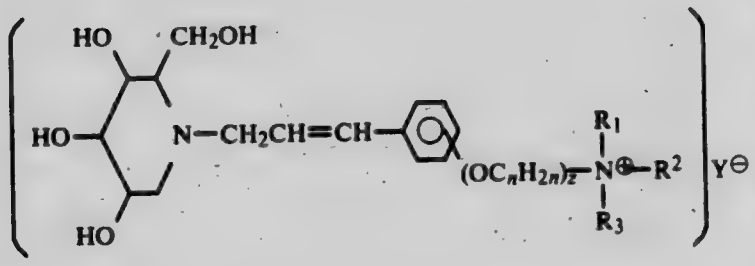
4,336,374

QUATERNARY AMMONIUM SUBSTITUTED N-CINNAMYLPIPERIDINES

Shingo Matsumura, Kyoto; Hiroshi Enomoto, Nagaokakyo; Yoshiaki Aoyagi, Otsu; Yoshiaki Yoshikuni, Uji; Masahiro Yagi, Kusatsu; Kohei Kura, Omi-Yahata, and Ichiro Shirahase, Kyoto, all of Japan, assignors to Nippon Shinyaku Co., Ltd., Japan

Continuation-in-part of Ser. No. 229,277, Jan. 28, 1981, abandoned. This application Mar. 26, 1981, Ser. No. 247,884
Claims priority, application Japan, Jan. 28, 1980, 55-9174
Int. Cl.[3] C07D *211/46*
U.S. Cl. 542—469 12 Claims

1. A compound of the formula:



wherein
n has a value of 2 or 3,
z has a value of 0 or 1,
R^1 is alkyl of 1 to 6 carbon atoms, each of R^2 and R^3 is alkyl of 1 to 6 carbon atoms or
R^2 and R^3 when taken together, together with the nitrogen atom to which they are bound, are 1-morpholinylidene, 1-pyrrolidinylidene or 1-piperidinylidene; and
$Y^{\ominus}$ is a pharmaceutically acceptable cation.

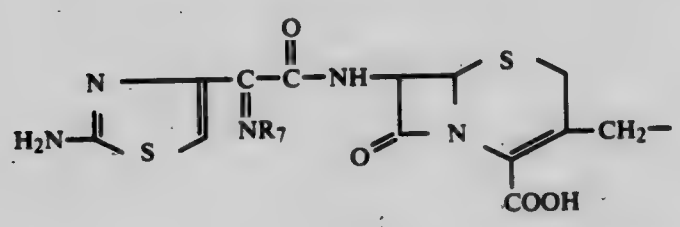
4,336,375

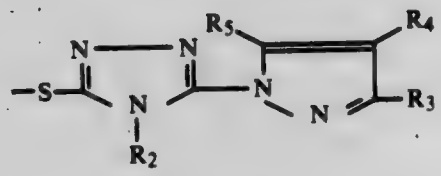
CEPHALOSPORANIC ACID DERIVATIVES

James H. Booth, Montvale, N.J., and Adma S. Ross, Suffern, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Apr. 30, 1980, Ser. No. 145,071
Int. Cl.[3] C07D *501/36*
U.S. Cl. 544—027 14 Claims

1. A compound of the formula:





wherein
R_2 is selected from the group hydrogen, amino, C_1–C_6 alkylamino and di-C_1–C_6-alkylamino;
R_3, R_4, and R_5 are the same or different and are selected from the group hydrogen, hydroxy, C_1–C_6 alkyl, C_1–C_6 alkoxy, trifluoromethyl, phenyl, substituted phenyl, heterocyclic aryl, and R_3 and R_4 or R_4 and R_5 taken together are the moiety $—CH_2—(CH_2)_2—CH_2—$;
wherein the substituents on the phenyl are mono- or di-substituents which are the same or different and which are selected from the group C_1–C_3 alkyl, C_1–C_3 alkoxy, fluoro, chloro, bromo, and trifluoromethyl; and
wherein the heterocyclic aryl is selected from the group of five- and six-membered aromatic ring compounds containing one to three heteroatoms which are the same or different and which are selected from the group oxygen, nitrogen, and sulfur, and wherein said heterocyclic aryl is optionally substituted as defined above for substituted phenyl;
R_7 is C_1–C_6 alkoxy;
and the pharmaceutically acceptable non-toxic salts thereof.

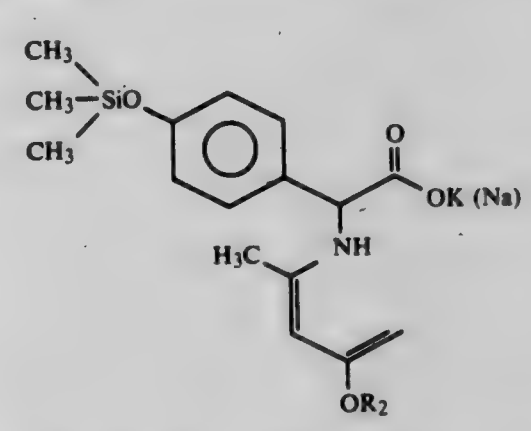
4,336,376

PROCESS FOR THE PREPARATION OF 7-(D(−)-ALPHA-AMINO-P-HYDROXY-PHENYLACETAMIDO)DESACETOXYCEPHALOSPORANIC ACID

Antonio L. P. Coll, Barcelona; Jose D. Meseguer, Granollers; Asuncion E. Bianchini, and Esteve S. Pitarch, both of Barcelona, all of Spain, assignors to Gema, S.A., Barcelona, Spain

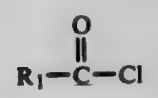
Filed Feb. 17, 1981, Ser. No. 234,896
Claims priority, application Spain, Feb. 20, 1980, 488.783
Int. Cl.[3] C07D *501/04*
U.S. Cl. 544—030 5 Claims

1. A process for the preparation of 7-(D(−)-alpha-amino-p-hydroxyphenylacetamido)desacetoxycephalosporanic acid, which comprises:
(a) reacting one equivalent of a sodium or potassium salt of D(−)-p-hydroxy-N-(1-alkoxycarbonyl-2-propenyl)-alpha-aminophenylacetic acid with one equivalent of trimethylsilyl-2-oxazolidinone at a temperature of from 20° to 25° C., to provide a compound V of the general formula:



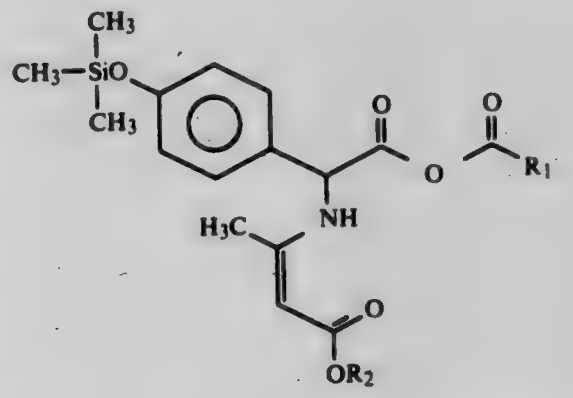
(V)

in which R_2 may be ethyl or methyl;
(b) reacting in situ the compound of general formula V with a compound VI of the general formula:



(VI)

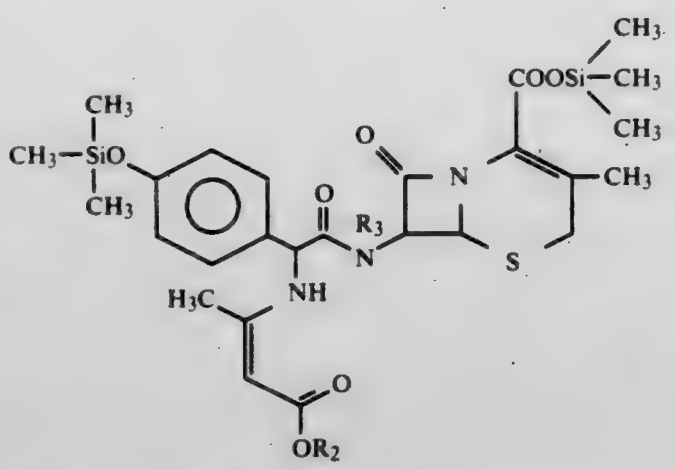
to provide a solution containing a mixed anhydride III of the general formula:



(III)

in which R_1 may be methoxy, ethoxy, phenyl or a C_4–C_9 aliphatic chain;
(c) reacting in situ said mixed anhydride of general formula III with silylated 7-aminodesacetoxycephalosporanic acid, obtained by silylation in acetonitrile with trimethyl-

silyl-2-oxazolidinone, to provide a solution containing a compound of the general formula:



in which R_3 is a hydrogen atom or a trimethylsilyl group, followed by unblocking in situ and precipitation to provide 7-(D(−)-alpha-amino-p-hydroxyphenylacetamido)-desacetoxycephalosporanic acid.

4,336,377

BASIC DIOXAZINE COMPOUNDS

Jean-Marie Adam, St. Louis, and Pierre Galafassi, Rixheim, both of France, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

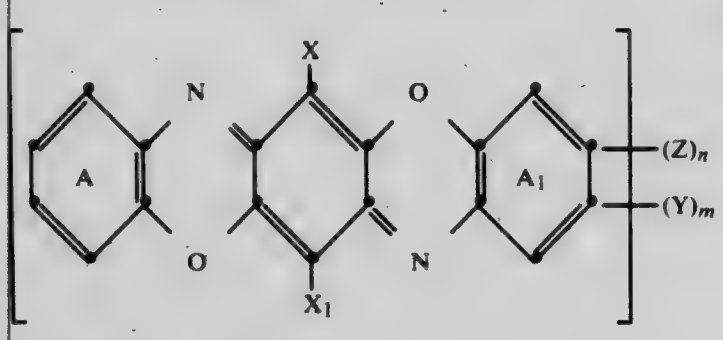
Filed Jan. 28, 1980, Ser. No. 116,196

Claims priority, application Switzerland, Feb. 2, 1979, 1041/79

Int. Cl.³ C09B *19/00*

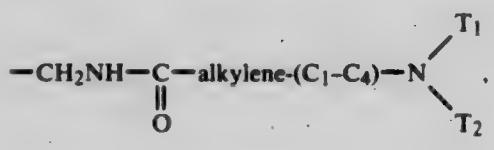
U.S. Cl. 544—74 **10 Claims**

1. A dioxazine compound of the formula I

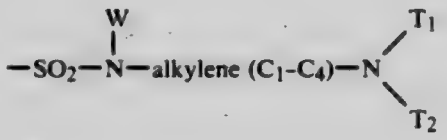


(I)

wherein Z is (a) a basic group of the formula

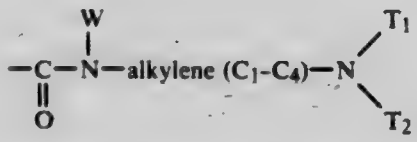


(i)



(ii)

or

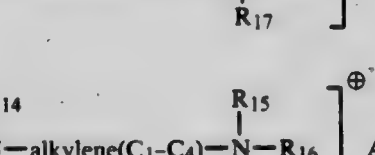


(iii)

wherein T_1 is hydrogen; C_1-C_4 alkyl which is unsubstituted or substituted by OH; cyclohexyl which is unsubstituted or substituted by 1-3 methyl groups; or phenyl; T_2 is C_1-C_4 alkyl which is unsubstituted or substituted by hydroxyl; or T_1 and T_2, together with the nitrogen atom to which they are attached, form a pyrrolidine, pyridine, morpholine or piperazine ring; and W is hydrogen or C_1-C_4 alkyl which is unsubstituted or substituted by OH or C_1-C_4 alkoxy; or (b) a cationic group of the formula

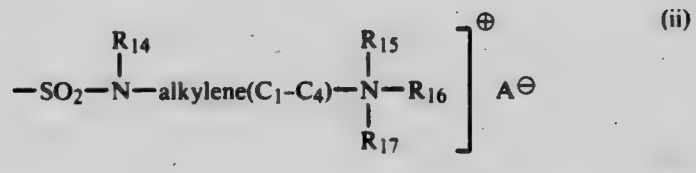
(i)

in which $K^{\oplus}$ is a radical of the formula

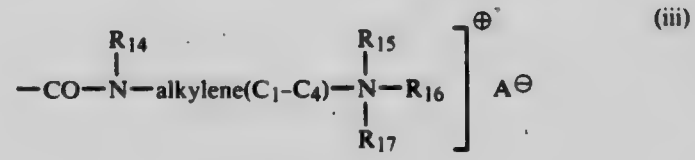


or

wherein R_7 and R_8, each independently of the other, is C_1-C_4 alkyl which is unsubstituted or substituted by OH, carbamoyl or cyano, or R_7 and R_8, together with the nitrogen atom to which they are attached, form a pyrrolidine, piperidine or morpholine ring; R_9 and R_{10} are H or C_1-C_4 alkyl; or R_7 and R_9 and R_8 and R_{10} together with the nitrogen atoms to which they are attached, form a 1,2-diazabicyclo-(3.3.0)-octane ring system; R_{11} is H or C_1-C_4 alkyl which is unsubstituted or substituted by OH; R_{12} and R_{13}, each independently of the other, is hydrogen, phenyl, C_1-C_4 alkoxy or C_1-C_4 alkyl which is unsubstituted or substituted by OH, carbamoyl or NH_2; or R_{11} and R_{12}, together with the nitrogen atom to which they are attached, form a piperadine, pyrrolidine or morpholine ring; or R_{11}, R_{12} and R_{13}, together with the nitrogen atom to which they are attached, form a pyridine ring which is unsubstituted or substituted by methyl, OH, NH_2, carboxy or CN or is annulated to form a quinoline radical; or R_{11}, R_{12} and R_{13}, together with the nitrogen atom to which there are attached, form a 1,4-diazabicyclo-(2.2.2.)-octane ring system; or Z is a cationic group of the formula

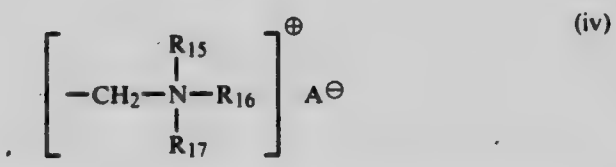


(ii)



(iii)

or



(iv)

wherein alkylene is an alkylene bridge which can be interrupted by —O—, —S—, —NH— or

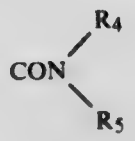


R_{14} is H or C_1-C_4 alkyl; R_{15} and R_{17}, each independently of the other, is C_1-C_4 alkyl; R_{16} is C_1-C_4 alkyl, C_1-C_4 alkoxy or NH_2; or R_{15} and R_{16} together with the nitrogen to which they are attached is pyridinium; A^- is an anion;

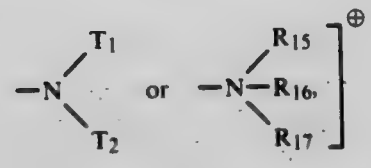
Y is an anionic group;

each of X and X_1, independently of the other, is H; halogen; CN; C_1-C_4 alkyl; phenyl which is unsubstituted or substituted by C_1-C_4 alkyl or halogen; $NHCOR_1$ wherein R_1 is C_1-C_4 alkyl, cyclohexyl, aryl which is unsubstituted or substituted by C_1-C_4 alkyl or halogen, or R_1 is a heterocycle selected from the group consisting of furane, thiophene, pyridine, quinoline, phenylthiazole and phenyl-

triazole; $OCOR_2$ wherein R_2 is C_1–C_4 alkyl which is unsubstituted or substituted by phenyl, or R_2 is cyclohexyl;



wherein R_4 and R_5, each independently of the other, is hydrogen, cyclohexyl, aryl, C_1–C_4 alkyl which is unsubstituted or substituted by phenyl,



wherein T_1, T_2, R_{15}, R_{16} and R_{17} are as defined above, or R_4 and R_5, together with the nitrogen atom to which they are attached, form a pyrrolidine, piperidine or morpholine ring; or $COOR_6$ wherein R_6 is hydrogen, cyclohexyl or C_1–C_4 alkyl which is unsubstituted or substituted by OH or phenyl;

each of the benzene radicals A and A_1, independently of the other, is unsubstituted or substituted by one or more substituents selected from the group consisting of halogen; CN; C_1–C_8 alkyl which is unsubstituted or substituted by phenyl; phenyl which is unsubstituted or substituted by halogen, C_1–C_4 alkyl or C_1–C_4 alkoxy; COOH; NO_2; NH_2; mono- or di-(C_1–C_4)-alkyl amino; $NHCO—C_6H_5$; $NHCOR_{18}$ where R_{18} is C_1–C_4 alkyl which is unsubstituted or substituted by phenyl, C_1–C_4 alkoxy, cyclohexyl or phenyl which is unsubstituted or substituted by halogen, C_1–C_4 alkoxy, C_1–C_4 alkyl, NO_2 or CN; SCN; benzothiazole which is unsubstituted or substituted by C_1–C_4 alkyl; C_1–C_4 alkoxy which is unsubstituted or substituted by C_1–C_4 alkyl, C_1–C_4 alkoxy, OH or phenyl; phenoxy which is unsubstituted or substituted by C_1–C_4 alkyl; NHR_{19} wherein R_{19} is H or phenyl which is unsubstituted or fused with a hetero ring to form a benzoxazole, benzthiazole or benzimidazole; C_1–C_4 alkylsulfonyl; or $CONHR_{20}$, wherein R_{20} is phenyl which is unsubstituted or substituted by halogen, phenyl or C_1–C_4 alkyl;

n is a number from 1 to 4 and m a number from 0 to 2, with the proviso that number m is small than n.

4,336,378

ISOXAZOLYL INDOLAMINES

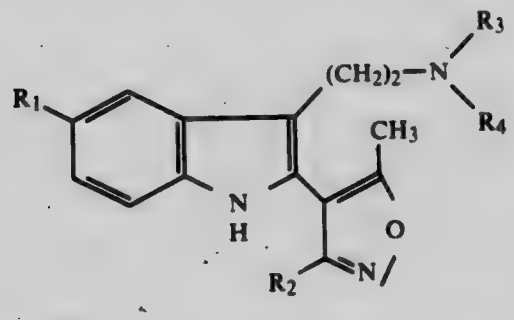
Leonard J. Brand, Randolph, and Jeffrey Nadelson, Denville both of N.J., assignors to Sandoz, Inc., E. Hanover, N.J.

Continuation-in-part of Ser. No. 138,873, Apr. 10, 1980, abandoned. This application Oct. 14, 1980, Ser. No. 196,784

Int. Cl.³ C07D *413/04, 413/14*

U.S. Cl. 544—137 **10 Claims**

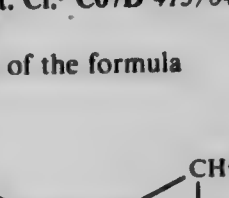
1. A compound of the formula



wherein

R_1 represents hydrogen, fluoro, chloro, lower alkyl having 1 to 4 carbon atoms, or lower alkoxy having 1 to 4 carbon atoms, and

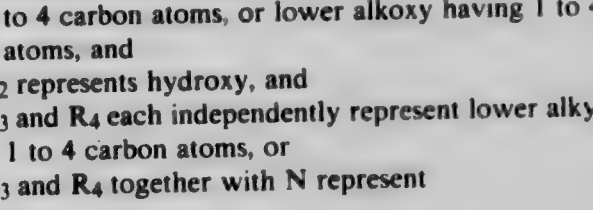
R_2 represents lower alkyl, i.e., alkyl having 1 to 4 carbon atoms, or



where R_5 represents hydrogen, fluoro, chloro, lower alkyl as defined above or lower alkoxy as defined above, and

R_3 and R_4 each independently represent lower alkyl as defined above, and

R_3 and R_4 together with N represent



or a pharmaceutically acceptable acid addition salt thereof.

4,336,379

ISOXAZOLYL INDOLAMINES

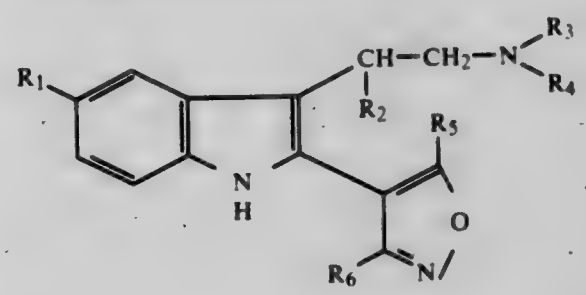
Leonard J. Brand, Randolph, and Jeffrey Nadelson, Denville, both of N.J., assignors to Sandoz, Inc., East Hanover, N.J.

Continuation-in-part of Ser. No. 196,785, Oct. 14, 1980, abandoned, which is a continuation-in-part of Ser. No. 138,872, Apr. 10, 1980, abandoned. This application Mar. 18, 1981, Ser. No. 245,188

Int. Cl.³ C07D *413/04, 413/14*

U.S. Cl. 544—137 **21 Claims**

1. A compound of the formula



(I)

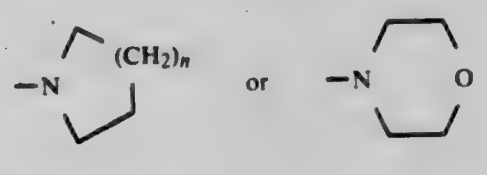
wherein

R_1 represents hydrogen, fluoro, chloro, lower alkyl having 1 to 4 carbon atoms, or lower alkoxy having 1 to 4 carbon atoms, and

R_2 represents hydroxy, and

R_3 and R_4 each independently represent lower alkyl having 1 to 4 carbon atoms, or

R_3 and R_4 together with N represent



wherein

n is 1, 2 or 3, and

R_5 and R_6 each independently represent hydrogen or lower alkyl having 1 to 4 carbon atoms,

or a pharmaceutically acceptable acid addition salt thereof.

4,336,380

OXADIAZOLOTRIAZINE DERIVATIVES

Jean-Claude Muller, Rixheim, France, and Henri Ramuz, Birsfelden, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 61,068, Jul. 26, 1979, Pat. No. 4,267,417. This application Feb. 17, 1981, Ser. No. 234,538

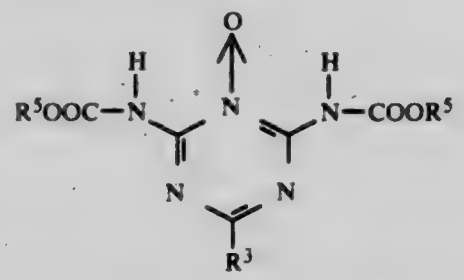
Claims priority, application Switzerland, Jul. 31, 1978, 8184/78; May 15, 1979, 4505/79

Int. Cl.³ C07D *251/66*

U.S. Cl. 544—198 **5 Claims**

1. A compound of the formula

IV



wherein R^3 is diallylamino or 3,6-dihydro-1(2H)-pyridyl and R^5 is alkyl of 1 to 8 carbon atoms, alkoxy of 1 to 8 carbon atoms-alkyl of 1 to 8 carbon atoms, benzyl, phenethyl, phenyl, halophenyl, dihalophenyl, methoxyphenyl, dimethoxyphenyl, nitrophenyl, tolyl, methoxycarbonylphenyl, naphthyl or allyl.

4,336,381

5-FLUOROURACIL DERIVATIVES

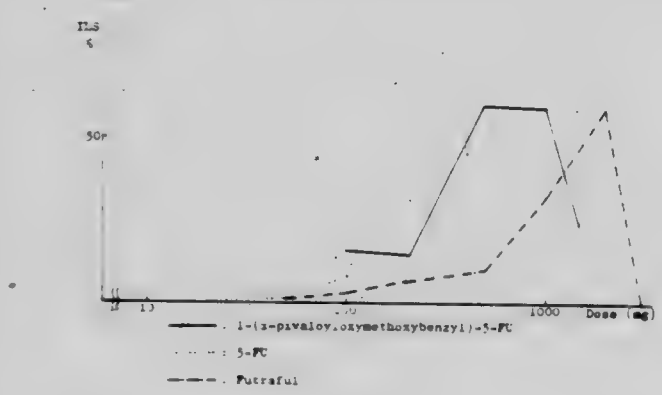
Wataru Nagata, Nishinomiya, and Susumu Kamata, Takarazuka, both of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Nov. 3, 1980, Ser. No. 203,363

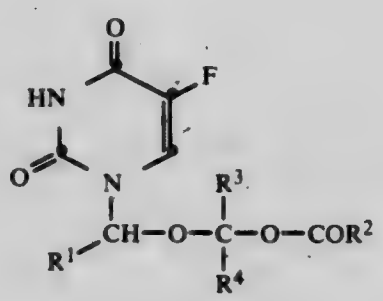
Claims priority, application Japan, Nov. 8, 1979, 54/145131

Int. Cl.³ C07D *239/55*

U.S. Cl. 544—313 **13 Claims**



1. A compound of the formula



wherein

R^1 is C_6 to C_{10} aryl or C_6 to C_{10} aryl substituted by halogen, C_1 to C_5 alkyl, C_1 to C_5 haloalkyl, C_1 to C_5 alkoxy, nitro, cyano or carboxy,

R^2 is C_1 to C_{30} straight or branched chain alkyl, C_3 to C_{11} cyclic alkyl wherein the cyclic moiety is 3 to 6 membered, adamantyl, C_6 to C_{10} aryl or C_6 to C_{10} aryl substituted by halogen, C_1 to C_5 alkyl, C_1 to C_5 haloalkyl, C_1 to C_5 alkoxy, nitro, cyano or carboxy, and

R^3 and R^4 are the same or different and each is hydrogen or lower alkyl.

4,336,382

1,4-DISUBSTITUTED PIPERAZINE COMPOUNDS

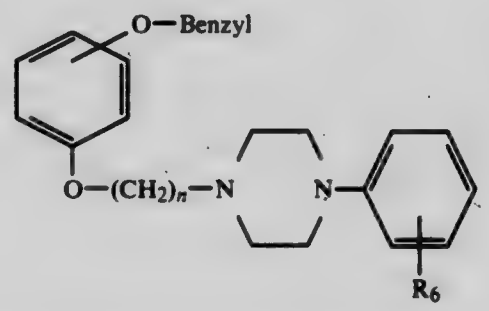
Kenneth E. Fahrenholtz, Bloomfield; Robert W. Guthrie, Saddle Brook; Richard W. Kierstead, and Jefferson W. Tilley, both of North Caldwell, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 73,051, Jun. 6, 1979, Pat. No. 4,247,710, which is a division of Ser. No. 875,966, Feb. 8, 1978, Pat. No. 4,206,129. This application Aug. 25, 1980, Ser. No. 181,256

Int. Cl.³ C07D *405/10*

U.S. Cl. 544—374 **11 Claims**

1. The compound of the formula



wherein R_6 is hydrogen or lower alkoxy and n is 2 to 20.

4,336,383

1-1-BINAPHTHYL-4,4',5,5',8,8'-HEXACARBOXYLIC ACID COMPOUNDS, METHOD OF PREPARATION AND USE THEREOF FOR THE SYNTHESIS OF ASYMMETRIC DERIVATIVES OF 3,4,9,10-PERYLENETETRACARBOXYLIC ACID, AND FOR DYEING AND PRINTING OF TEXTILE MATERIALS

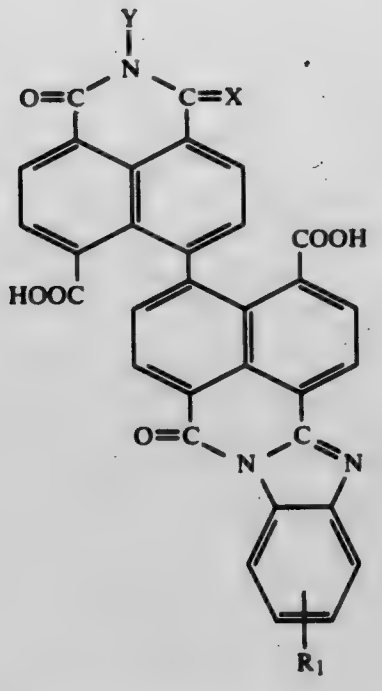
Georgy N. Vorozhtsov, Sadovo-Spasskaya ulitsa, 21, kv. 268; Natalia N. Masanova, prospekt Mira, 118-a, kv. 174; Nikolai B. Feldbljum, Bolshoi Golovin pereulok, 12, kv. 10, all of Moscow; Vasily I. Alexeev, ulitsa Mendeleeva, 33-b, kv. 83, Rubezhnoe; Vadim A. Shigalevsky, propspekt Kirova, 26, kv. 60, Rubezhnoe; Georgy G. Solomatin, prospekt Kirova, 10-b, kv. 16, Rubezhnoe; Olga I. Shulepova, prespekt Kirova, 30-49, Rubezhnoe; Galina G. Khaitun, ulitsa Krasny Kazanets 17-127, and Nadezhda V. Gordeeva, prospekt Vernadskogo, 89 kerpus, 5, kv 45, both of Moscow, all of U.S.S.R.

Filed May 7, 1980, Ser. No. 147,600

Int. Cl.³ C07D *519/00, 487/06, 487/16, 487/22*

U.S. Cl. 546—52 **1 Claim**

1. 1,1'-binaphthyl-4,4',5,5',8,8'-hexacarboxylic acid compounds of the formula:



wherein R_1 is selected from the group consisting of hydrogen, halogen, or alkyl; X is oxygen; and Y is selected from the group consisting of hydrogen, alkyl, cycloalkyl, or an aryl containing at least one substituent selected from the group consisting of halogen, alkyl, or alkoxy.

4,336,384

PREPARATION OF 4-AMINO-3,5,6-TRICHLOROPICOLINIC ACID

Edwin R. Henson, Lake Jackson, and David J. Koranek, Clute, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 23, 1981, Ser. No. 257,308
Int. Cl.³ C07D *213/55, 213/57*
U.S. Cl. 546—327 **7 Claims**

1. A method of preparing 4-amino-3,5,6-trichloropicolinic acid which comprises reacting 3,4,5,6-tetrachloropicolinonitrile with ammonium hydroxide and acidifying the so-formed reaction mixture to precipitate said 4-amino-3,5,6-trichloropicolinic acid.

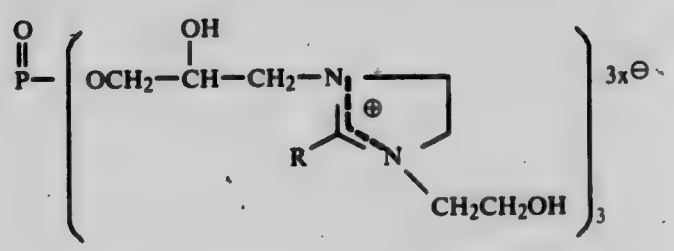
4,336,385

PHOSPHATE IMIDAZOLINIUM COMPOUNDS

Raymond L. Mayhew, Summit, and Anthony J. O'Lenick, Jr., Fairlawn, both of N.J., assignors to Mona Industries, Inc., Paterson, N.J.

Division of Ser. No. 965,458, Nov. 30, 1978, Pat. No. 4,209,449.
This application Apr. 4, 1980, Ser. No. 137,197
Int. Cl.³ C07F *9/65*
U.S. Cl. 548—112 **2 Claims**

1. Phosphate quaternary compound of the formula



wherein

x represents chloride, and

R represents an alkyl group of seven to seventeen carbon atoms.

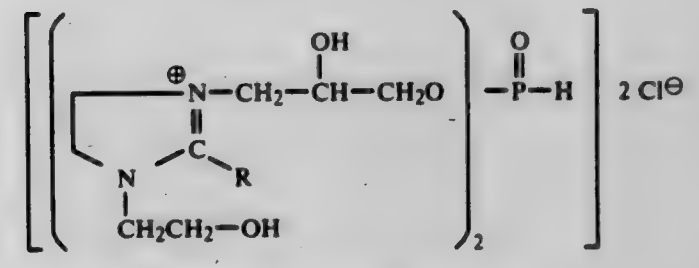
4,336,386

QUATERNARY IMIDAZOLINIUM PHOSPHITE DERIVATIVES

Anthony J. O'Lenick, Jr., Fairlawn, and Raymond L. Mayhew, Summit, both of N.J., assignors to Mona Industries, Inc., Paterson, N.J.

Division of Ser. No. 965,457, Nov. 30, 1978, Pat. No. 4,243,602.
This application Jun. 13, 1980, Ser. No. 159,409
Int. Cl.³ C07F *9/65*
U.S. Cl. 548—112 **2 Claims**

1. Quaternary compound of the formula



wherein R is alkyl of 7 to 17 carbon atoms.

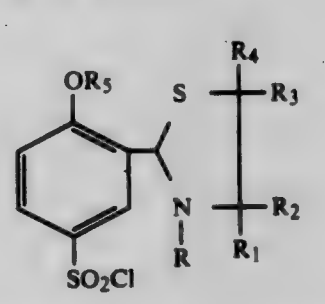
4,336,387

THIAZOLIDINE-SUBSTITUTED PHENYL SULFONYL CHLORIDES

Myron S. Simon, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Mar. 2, 1981, Ser. No. 239,358
Int. Cl.³ C07N *277/04*
U.S. Cl. 548—146 **8 Claims**

1. A compound of the formula



wherein R is selected from alkyl, aryl and aralkyl; R_1, R_2, R_3 and R_4 each are selected from hydrogen, alkyl and phenyl; and R_5 is hydrogen or acyl.

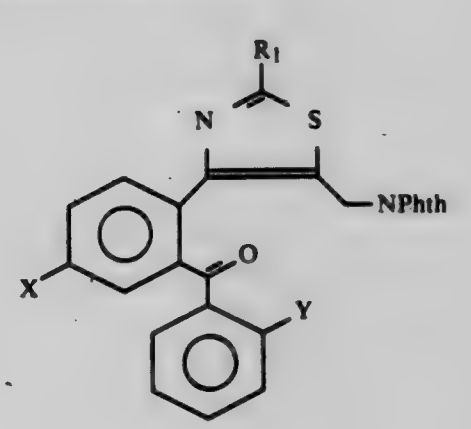
4,336,388

THIAZOLYL BENZOPHENONE COMPOUNDS

Rodney I. Fryer, North Caldwell, and Norman W. Gilman, Wayne, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 161,713, Jun. 23, 1980, Pat. No. 4,269,774.
This application Dec. 15, 1980, Ser. No. 216,097
Int. Cl.³ C07D *417/06*
U.S. Cl. 548—194 **1 Claim**

1. A compound of the formula



wherein X and Y are hydrogen or halogen, R_1 is lower alkyl or NR_2R_3
wherein R_2 and R_3 are hydrogen or lower alkyl and Phth is phthaloyl.

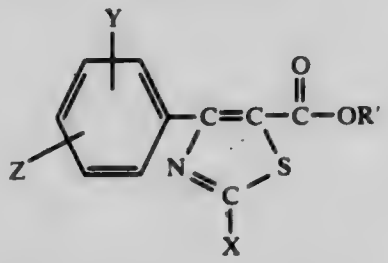
4,336,389

2-SUBSTITUTED-4-ARYL-5-THIAZOLECARBOXYLIC ACIDS AND THEIR DERIVATIVES AS SAFENING AGENTS

Robert K. Howe, Bridgeton, and Len F. Lee, Maryland Heights, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed May 15, 1978, Ser. No. 905,682
Int. Cl.³ C07D *277/20, 277/32, 277/34*
U.S. Cl. 548—201 **7 Claims**

1. A compound having the formula



wherein X is selected from the group consisting of halogen, lower alkoxy, phenoxy and halophenoxy; Y and Z are independently selected from the group consisting of hydrogen, halogen, trifluoromethyl, nitro and lower alkyl; and R′ is hydrogen, lower alkyl or agriculturally acceptable cations.

4,336,390

BENZOXAZOLONE PREPARATION

Noël Rouy, Lesigny, France, assignor to Rhone-Poulenc Agrochimie, Lyons, France

Filed Jun. 11, 1980, Ser. No. 158,494
Claims priority, application France, Jun. 20, 1979, 79 16334
Int. Cl.³ C07D *263/58*
U.S. Cl. 548—221 **16 Claims**

1. A process for the preparation of benzoxazolone, which comprises reacting salicylamide, a free base of salicylamide or an alkali metal phenate of salicylamide, with an alkali metal hypochlorite in an aqueous reaction medium comprising an alkali metal hydroxide, the alkali metals comprising said hypochlorite and said hydroxide including both sodium ions and potassium ions, and with the amount of sodium and potassium ions present being sufficient to effectively maintain a readily stirrable and homogenizable reaction medium.

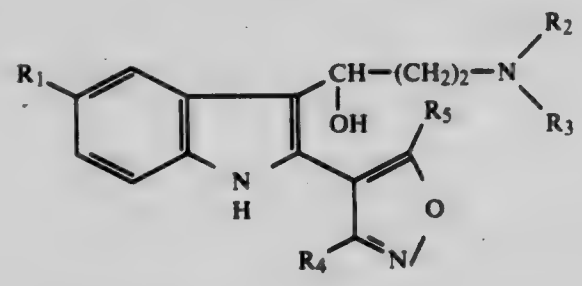
4,336,391

ISOXAZOLYL INDOLAMINES

Leonard J. Brand, Randolph, and Jeffrey Nadelson, Denville, both of N.J., assignors to Sandoz, Inc., East Hanover, N.J.

Filed Apr. 6, 1981, Ser. No. 251,068
Int. Cl.³ C07D *261/06, 209/10, 209/12, 209/14*
U.S. Cl. 548—247 **6 Claims**

1. A compound of the formula



wherein
R_1 represents hydrogen, fluoro, chloro, lower alkyl having 1 to 4 carbon atoms, or lower alkoxy having 1 to 4 carbon atoms, and
R_2 and R_3 each independently represent lower alkyl having 1 to 4 carbon atoms, or
R_2 and R_3 together with N represent



wherein
n is 1, 2 or 3, and
R_4 and R_5 each independently represent hydrogen or lower alkyl having 1 to 4 carbon atoms, or a pharmaceutically acceptable acid addition salt thereof.

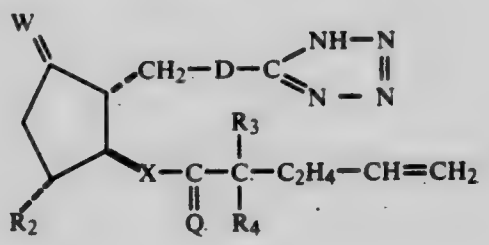
4,336,392

2-DECARBOXY-2-TETRAZOLYL-PG$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

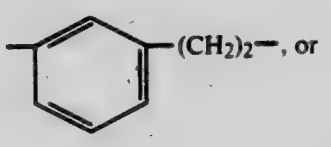
Division of Ser. No. 26,066, Apr. 2, 1979, Pat. No. 4,243,611. This application Oct. 17, 1979, Ser. No. 85,618
Int. Cl.³ C07D *257/06, 409/08;* **A61K** *31/41*
U.S. Cl. 548—253 **1 Claim**

1. A compound of the formula

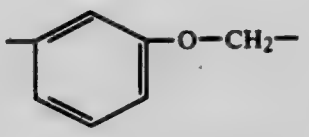


wherein D is
(1) $-(CH_2)_3-(CH_2)_g-CH_2-$,
(2) $-(CH_2)_3-CH_2-CF_2-$,
(3) $-(CH_2)_3-O-CH_2-$,
(4) $-(CH_2)_2-O-(CH_2)_2-$,
(5) $-CH_2-O-(CH_2)_3-$,

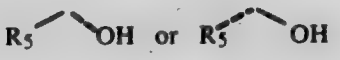
(6)



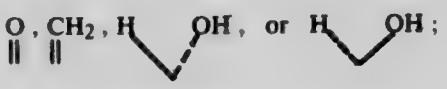
(7)



wherein g is zero, one, two, or three; wherein Q is



wherein R_5 is hydrogen or methyl, wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl; wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is



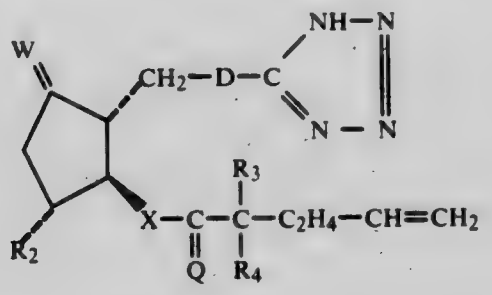
and wherein X is cis- or trans—CH=CH— or —C≡C—.

4,336,393
2-DECARBOXY-2-TETRAZOLYL-13,14-DIHYDRO-PG$_1$ COMPOUNDS

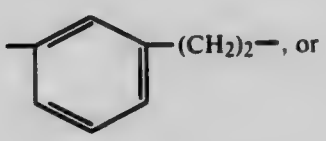
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979, Pat. No. 4,243,611. This application Oct. 17, 1979, Ser. No. 85,619
Int. Cl.[3] C07D *257/06, 409/08;* A61K *31/41*
U.S. Cl. 548—253 1 Claim

1. A compound of the formula

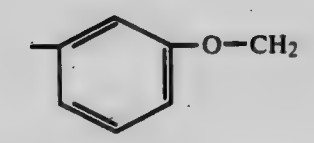


wherein D is
(1) $-(CH_2)_3-(CH_2)_g-CH_2-$,
(2) $-(CH_2)_3-CH_2-CF_2-$,
(3) $-(CH_2)_3-O-CH_2-$,
(4) $-(CH_2)_2-O-(CH_2)_2-$,
(5) $-CH_2-O-(CH_2)_3-$,

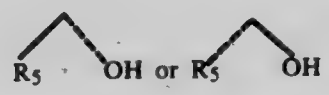


(6) wherein Ph is a phenyl group ($-C_6H_4-$), at least one X is a hydrolyzable group and Z is aminoethylamino.

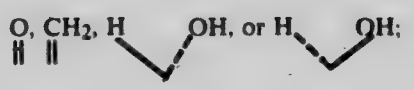
(7)



wherein g is zero, one, two, or three; wherein Q is



wherein R_5 is hydrogen or methyl, wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl; wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; wherein W is



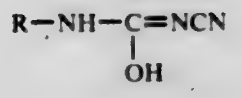
and wherein X is $-CH_2CH_2-$.

4,336,394
CYANO-UREAS, CYANO-THIOUREAS AND THEIR PREPARATION METHODS

Pierre J. Baudet, 15. ch. de Passoret, Geneva 1227, Switzerland

PCT No. PCT/CH80/00037, § 371 Date Nov. 14, 1980, § 102(e) Date Nov. 13, 1980, PCT Pub. No. WO80/01914, PCT Pub. Date Sep. 18, 1980
PCT Filed Mar. 14, 1980, Ser. No. 217,112
Claims priority, application Switzerland, Mar. 14, 1979, 2393/79
Int. Cl.[3] C07D *233/54*
U.S. Cl. 548—342 3 Claims

1. Cyano-ureas having the formula:



characterized by the imino-nitrile tautomer structure, wherein R is a 2-((4-methyl-5imidazolyl)-methylthio ethyl radical.

4,336,395
ETHYLENE BRIDGED AMINE FUNCTIONAL SILANES, COMPOSITES USING THE SAME, AND INTERMEDIATES THEREFOR

William R. Peterson, Jr., Fallsington, and Barry C. Arkles, Oreland, both of Pa., assignors to Petrarch Systems, Inc., Levittown, Pa.

Filed Mar. 12, 1980, Ser. No. 129,766
Int. Cl.[3] C07F *7/10*
U.S. Cl. 556—413 7 Claims

1. An ethylene bridged benzylamine trifunctional silane of the formula:

$$Z-CH_2-Ph-CH_2CH_2-SiX_3$$

wherein Ph is a phenyl group ($-C_6H_4-$), at least one X is a hydrolyzable group and Z is aminoethylamino.

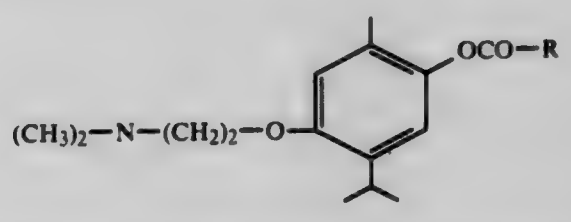
4,336,396
PROCESS FOR THE PREPARATION OF 4-[2-(DIMETHYLAMINO)-ETHOXY]2-METHYL-5-(1-METHYLETHYL)-PHENOL ESTERS AND THEIR SALTS

Claudio Giordano, Monza, and Aldo Belli, Novara, both of Italy, assignors to Biasinachim S.p.A., Milan, Italy

Filed Dec. 4, 1980, Ser. No. 212,796
Claims priority, application Italy, Dec. 20, 1979, 28251 A/79
Int. Cl.[3] C07C *79/46, 67/42*
U.S. Cl. 560—20 3 Claims

1. Process for the preparation of the products having the following formula:

(I)



wherein R is a member selected from the group consisting of a hydrogen atom, an alkyl radical, an unsubstituted aryl radical and an aryl radical substituted by a nitro group, characterized in that

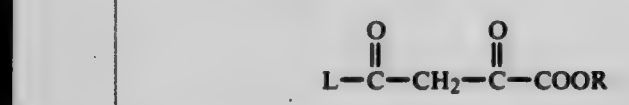
(a) thymol is reacted with a salt of an 1-halo-dimethylaminoethane, and
(b) the thus obtained ethylamine-N,N-dimethyl-2-(thymyloxy) is reacted with an acylating agent according to the Friedel and Kraft reaction, and
(c) the thus obtained 4-[2-(dimethylamino)-ethoxy]-2-methyl-5-(1-methylethyl)-1-acyl-benzene is oxidated and, if desired, the thus obtained 4-[2-(dimethylamino)-ethoxy]-2-methyl-5-(1-methylethyl-phenol esters is added with an organic or inorganic acid.

4,336,397
2,4-DIOXO-4-SUBSTITUTED-1-BUTANOIC ACID DERIVATIVES USEFUL IN TREATING URINARY TRACT CALCIUM OXALATE LITHIASIS

Edward J. Cragoe, Jr., Lansdale, Pa.; Arthur A. Patchett, Westfield, N.J.; Clarence S. Rooney, Worcester, Pa., and Haydn W. R. Williams, Dollard des Ormeaux, Canada, assignors to Merck & Co., Inc., Rahway, N.J.

Filed Dec. 29, 1980, Ser. No. 221,159
Int. Cl.³ C07C *69/76*
U.S. Cl. 560—51 8 Claims

1. A compound of the formula:

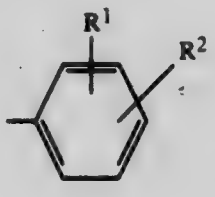


(I)

where

R is hydrogen or C_{1-4} alkyl and

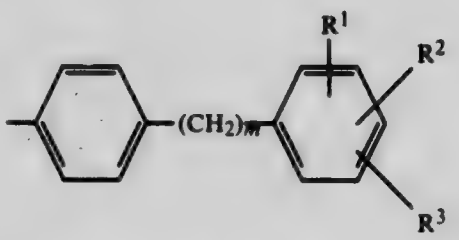
L is a lipophilic group consisting essentially of:



(1)

where

R^1 and R^2 are each independently selected from the group consisting of (a) hydrogen; (b) C_{4-12} straight or branched chain alkyl; (c) C_{4-7} cycloalkyl; and (d) tetrahydronaphthyl; provided that R^1 and R^2 may not both be hydrogen; and when one of R^1 or R^2 is tetrahydronaphthyl, the other must be some other substituent; and that positions 2 and 6 of the substituted phenyl moiety may not be substituted; and



(2)

where R^1, and R^2 have the same meaning as above except tetrahydronaphthyl;

R^3 is bromine, chlorine, or fluorine;

m is 0 to 3;

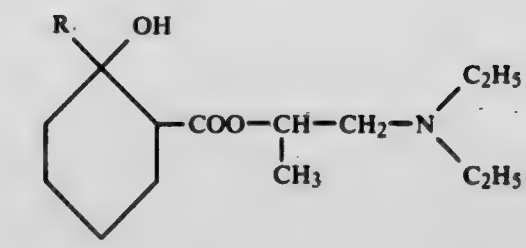
or a pharmaceutically acceptable salt thereof.

4,336,398
PROCESS FOR THE PREPARATION OF BASIC ESTERS OF SUBSTITUTED HYDROXYCYCLOHEXANECARBOXYLIC ACIDS

Giorgio Sagramora, Padua, Italy, assignor to Laboratorio Guidotti & C. S.p.A., Pisa, Italy

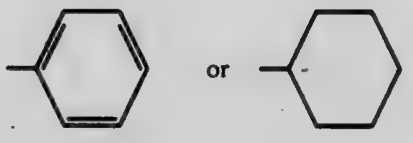
Filed Nov. 23, 1979, Ser. No. 96,938
Claims priority, application Italy, Nov. 24, 1978, 30163 A/78
Int. Cl.³ C07C *69/76*
U.S. Cl. 560—59 5 Claims

1. In a process for the preparation of an ester from mixed esters of substituted hydroxycyclohexanecarboxylic acids involving the thermal isomerization of said mixture of esters, the process comprising preparation of basic esters of substituted hydroxycyclohexanecarboxylic acids having general formula



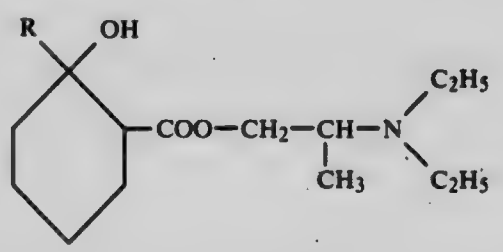
(1)

wherein R represents



or

of the type in which a substituted hydroxycyclohexanecarboxylic acid is reacted with a diethylaminoisopropyl hydrochloride, giving place to an isomer mixture comprising the desired basic ester having the formula (1) and the isomer thereof having the formula



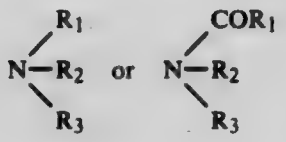
characterized in that the reaction mixture, after isolation, is subjected to thermal isomerization by heating for at least 3 hours at a temperature of between 160° C. and 240° C., and the thus heated mixture is fractionatedly distilled under reduced pressure at a temperature not less than that of said heating.

4,336,399
PROCESS FOR PRODUCING CARBOXYLIC ACIDS AND/OR ESTERS THEREOF

Tomiya Isshiki, Tokyo; Yasuhiko Kijima, and Yuh Miyauchi, both of Matsudo, all of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Continuation of Ser. No. 946,525, Sep. 26, 1978, abandoned. This application Nov. 10, 1980, Ser. No. 205,591
Claims priority, application Japan, Sep. 29, 1977, 52-117171
Int. Cl.³ C07C *67/36, 69/76, 51/12*
U.S. Cl. 560—61 8 Claims

1. A process for producing a carboxylic acid and/or its ester, which comprises reacting an alcohol selected from the group consisting of an aliphatic alcohol having 1 to 20 carbon atoms and an aromatic alcohol having 7 to 20 carbon atoms, or an ether selected from the group consisting of an aliphatic ether having 2 to 30 carbon atoms and an aromatic ether having 7 to 30 carbon atoms, with carbon monoxide in the presence of (1) elemental nickel or a nickel compound, (2) an organic nitrogen compound selected from the group consisting of (a) a compound of the formula



wherein R_1, R_2 and R_3 are identical or different and each represents hydrogen, alkyl or aryl, (b) a heterocyclic compound of trivalent nitrogen, and (c) a nitrile, and (3) iodine or an iodine compound selected from the following formulae (I) to (IV),

RX_n (I)

wherein R represents a hydrogen atom or an alkyl or alkylene group, X represents an iodine or bromine atom, and n is an integer of 1 to 3, at least one of n-X's being an iodine atom,

I_2 or I_3- (II)

RCOI (III)

wherein R represents an alkyl group,

MI_2 (IV)

wherein M represents an alkaline earth metal; the amount of the iodine or iodine compound being such that the amount of the free iodine or iodine compound not chemically bonded to the nickel or nickel compound or the organic nitrogen compound is at least 0.2 mole as elemental iodine per mole of each of the organic nitrogen compound and the nickel or nickel compound; the reaction being carried out at a carbon monoxide partial pressure of from 4 to 70 kg/cm^2-G.

4,336,400

3-(HYDROXY OR HYDROXYMETHYL)-4-HYDROXY-ALPHA(AMINOMETHYL)BENZYL ALCOHOLS AND METHODS OF USE

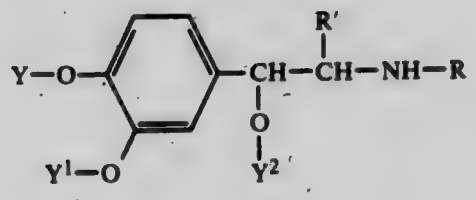
Hiroaki Minatoya, East Greenbush, N.Y.; Benjamin F. Tullar, Laurel Park, N.C., and Walter D. Conway, Amherst, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 654,700, Feb. 2, 1976, Pat. No. 4,138,581, which is a continuation-in-part of Ser. No. 496,538, Aug. 12, 1974, which is a division of Ser. No. 123,834, Mar. 12, 1971, Pat. No. 3,904,671, which is a continuation-in-part of Ser. No. 812,370, Apr. 1, 1969, abandoned. This application Aug. 30, 1978, Ser. No. 937,949

Int. Cl.^{3} C07C *69/76*

U.S. Cl. 560—73 **81 Claims**

1. An ester of 3,4-dihydroxy-alpha-(amino- and N-substituted amino-methyl)benzyl alcohol having the formula



wherein

R is hydrogen, alkyl having 1–4 carbon atoms, or cycloalkyl having 3–6 carbon atoms;

R′ is hydrogen or ethyl;

Y is an acyl member which is alkanoyl having 1–22 carbon atoms, alkenoyl having one or two double bonds and having 4–22 carbon atoms, cycloalkyl—C_nH_{2n}—CO— having a total of 4–10 carbon atoms of which 3–7 are ring carbon atoms in cycloalkyl and wherein n is zero, one or two, 1- or 2-adamantanecarbonyl, phenoxyacetyl, naphthalenecarbonyl, or Z—C_nH_{2n}—CO— wherein n is zero, one or two and Z is phenyl substituted by 1–3 members of the group consisting of alkoxy having 1–4 carbon atoms, and

Y^1 and Y^2 are the same or different and are hydrogen or one of the acyl members defined by Y, and

wherein at least one of Y and Y^1 contains no less than four carbon atoms when R is tert-butyl or cycloalkyl and no less than seven carbon atoms when R is hydrogen or alkyl other than tert-butyl;

or a pharmaceutically acceptable acid-addition salt thereof.

4,336,401

PROCESS FOR THE PREPARATION OF DAMASCENONE

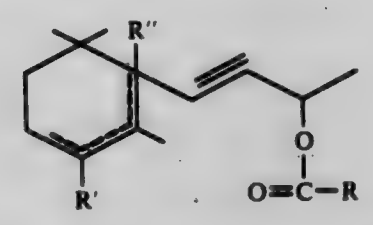
Lumbertus A. Hulshof, Hoevelaken, Netherlands, assignor to Hercules Incorporated, Wilmington, Del.

Filed Jul. 17, 1980, Ser. No. 169,681

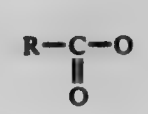
Int. Cl.^{3} C07C *69/76, 67/02*

U.S. Cl. 560—106 **10 Claims**

1. A method of preparing 1-crotonoyl-2,6,6-trimethylcyclohexa-1,3-diene which comprises treating a compound having the general formula



where R is a 1 to 6 carbon alkyl group, a phenyl radical or an alkylphenyl radical, the dotted lines represent a sole double bond in the 1- or 2-position or conjugated double bonds in the 1,3-position, and when the double bond is in the 1-position only, R′ is hydroxyl or



and R″ is absent, when the double bond is in the 2-position, R″ is hydroxyl and R′ is absent, and when conjugated double bonds are present, R′ is hydrogen and R″ is absent with a catalytic amount of an essentially anhydrous mineral or organic proton acid reagent in an organic solvent capable of forming an azeotrope with water.

4,336,402

PROCESS FOR THE PREPARATION OF N-ALKYL-MONOSUBSTITUTED CARBAMIC ACID ESTERS

Samuel J. Falcone, West Chester, and John J. McCoy, Media, both of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Jul. 30, 1980, Ser. No. 173,579

Int. Cl.^{3} C07C *125/065*

U.S. Cl. 560—157 **20 Claims**

1. A process for the preparation of an N-alkyl-monosubstituted carbamic acid ester which comprises reacting an unsubstituted carbamic acid ester having the formula NH_2CO_2R wherein R is a straight or branched chain alkyl group containing from 1 to 18 carbon atoms, with an aliphatic primary amine having the formula $R'NH_2$ wherein R′ is a straight or branched chain alkyl group containing from 1 to 18 carbon atoms, at a temperature in the range of from about 125° C. to 250° C. in the presence of a monohydric aliphatic alcohol having from 1 to 18 carbon atoms.

11. A process according to claim 1 wherein the process is carried out in the presence of a catalytic amount of from about 0.01 to 35 mole percent based on the aliphatic primary amine employed of a tertiary amine containing from 1 to 18 carbon atoms and selected from the group consisting of trialkylamines, triphenylamine, n-dodecyldimethylamine, n-tetradecyldimethylamine, n-hexyldecyldimethylamine, n-octyldecyldimethylamine, N,N,N′,N′-tetramethylethylenediamine, N,N-dioctyl-1-octylamine, 1,4-diazabicyclo-[2.2.2]octane, 4(N,N-dimethylamino)-pyridine, pyridine, 1,5-diazabicyclo[3.4.0]non-5-ene, 1,8-diazabicyclo[5.4.0]-undec-7-ene, 1,1,3,3-tetramethylbutylamine, methyldiethylamine, butyldimethylamine, and benzyldimethylamine.

4,336,403

PREPARATION OF METHYL METHACRYLATE BY REACTION OF METHYL PROPIONATE AND METHANOL

Franz Merger, Frankenthal, and Gerd Fouquet, Neustadt, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 26, 1981, Ser. No. 228,284

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1980, 3004467

Int. Cl.³ C07C *67/343*

U.S. Cl. 560—211 2 Claims

1. A process for the preparation of methyl methacrylate from methyl propionate and methanol at 200°–550° C. in the presence of a catalyst, wherein the reaction is carried out over a catalyst mixture consisting of an oxide catalyst containing copper, zinc and tellurium in the atomic ratio of 1:0.01–0.5:0.0-01–0.3 and of silicon dioxide modified with potassium.

4,336,404

1-ACYLOXY-15-DEOXY-16-HYDROXY-ANALOGS OF PROSTAGLANDIN E_1

William G. Biddlecom; Harold C. Kluender, and Warren D. Woessner, all of Madison, Wis., assignors to Miles Laboratories, Inc., Elkhart, Ind.

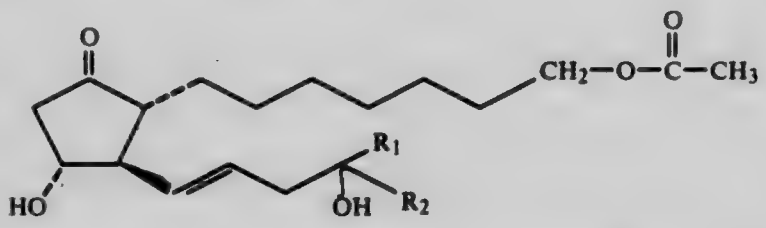
Continuation of Ser. No. 38,640, May 14, 1979, abandoned. This application May 29, 1980, Ser. No. 154,384

The portion of the term of this patent subsequent to Jan. 2, 1996, has been disclaimed.

Int. Cl.³ C07C *69/18*

U.S. Cl. 560—231 4 Claims

1. 1-acyloxy-15-deoxy-16-hydroxy-prostaglandin E_1 analogs characterized by the formula:



wherein R_1 is H or methyl and R_2 is $C(CH_3)_2$ $(CH_2)_2CH_3$ or $(CH_2)_3CH_3$ provided that when R_1 is methyl, R_2 is $(CH_2)_3CH_3$ and when R_1 is H, R_2 is $C(CH_3)_2(CH_2)_2CH_3$.

4,336,405

SILVER HALIDE DEVELOPING AGENTS

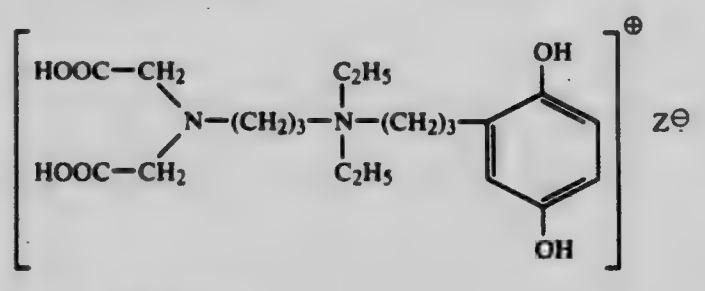
Elbert M. Idelson, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 89,556, Oct. 29, 1979, abandoned, which is a continuation-in-part of Ser. No. 1,447, Jan. 8, 1979, abandoned. This application Jul. 11, 1980, Ser. No. 168,641

Int. Cl.³ C07C *101/72*; G03C *5/30*

U.S. Cl. 562—448 2 Claims

1. A compound which is represented by the formula



wherein Z is an anion.

4,336,406

POLYOL EXTRACTION BY HIGH BOILING ALKANES

John L. Gerlock, Dearborn; Jacob Braslaw, Southfield, both of Mich., and William E. Stevens, Long Valley, N.J., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 24, 1981, Ser. No. 237,568

Int. Cl.³ C07C *41/01*

U.S. Cl. 568—621 25 Claims

1. A process for recovery of substantially pure polyether polyol from polyether polyurethane foam which can be used to make high quality new foam, comprising the steps of:

(a) forming a solution by dissolving said polyether polyurethane foam in a saturated alcohol having a boiling point of between about 225° C. and about 280° C. at a temperature between about 185° C. and about 220° C. under a non-oxidizing atmosphere;

(b) refluxing said solution under said non-oxidizing atmosphere in the presence of an alkali metal hydroxide catalyst and water, said water being included in said solution in an amount sufficient to create a mixture which has a boiling point within the temperature range of from about 175° C. to about 220° C., for a time necessary to substantially hydrolyze dissolution products subject to hydrolysis into amines and alcohol while (1) periodically adding a sufficient amount of water to maintain a mixture having a boiling point within said range of from about 175° C. to about 220° C. and (2) maintaining said solution at a temperature in said range, and wherein said alkali metal hydroxide catalyst is included in said solution in an amount of at least 0.1 weight percent based on the weight of said polyurethane foam;

(c) removing water remaining after hydrolysis from said solution under a non-oxidizing atmosphere;

(d) extracting said polyol from the hydrolyzed solution under a non-oxidizing atmosphere with an alkane substantially immiscible with said alcohol and having a boiling point between about 230° C. and about 300° C.; and

(e) subjecting the extracted polyol to vacuum purification at a temperature below about 230° C. so as to allow recovery therefrom of substantially pure polyether polyol.

4,336,407

CATALYTIC DISTILLATION PROCESS

Lawrence A. Smith, Jr., Bellaire, Tex., assignor to Chemical Research & Licensing Company, Houston, Tex.

Continuation-in-part of Ser. No. 124,433, Feb. 25, 1980, which is a division of Ser. No. 13,559, Feb. 21, 1979, Pat. No. 4,232,177. This application Feb. 17, 1981, Ser. No. 234,653

The portion of the term of this patent subsequent to Dec. 22, 1998, has been disclaimed.

Int. Cl.³ C07C *41/06*

U.S. Cl. 568—697 48 Claims

1. A process for reacting C_4 and C_5 olefins with C_1 to C_6 alcohols to produce the corresponding ethers comprising

(a) feeding a stream containing C_4 to C_5 olefins or a mixture thereof to a distillation column reactor into a feed zone,

(b) feeding alcohol having one to six carbon atoms or mixtures thereof in said feed zone,

(c) concurrently:

(1) contacting said stream containing said olefins and said alcohol with a fixed bed acidic cation exchange resin packing in a distillation reaction zone thereby catalytically reacting at least a portion of said olefins and said alcohol to form an ether product and

(2) fractionating the resultant ether product from unreacted materials,

(d) withdrawing the ether from the distillation column reactor at a point below said feed zone, and

(e) withdrawing unreacted materials from the distillation column reactor at a point above said feed zone.

4,336,408

2-HYDROXYMETHYL-1,3-PROPANEDIOL PREPARATION

Michael W. Barnes, Brigham City, Utah, assignor to Thiokol Corporation, Newtown, Pa.

Division of Ser. No. 854,946, Nov. 25, 1977, abandoned. This application Jun. 26, 1979, Ser. No. 52,155

Int. Cl.[3] C07C *31/22, 29/14*

U.S. Cl. 568—853 6 Claims

1. A process for the preparation of 2-hydroxymethyl-1, 3-propanediol which comprises the treatment of bis-(hydroxymethyl) acetaldehyde with an aldehyde carbonyl group reducing agent selected from hydrogen adsorbed on a hydrogenation catalyst or an alkali metal dissolving in a lower alkanol.

4,336,409

PROCESS FOR PRODUCING CONJUGATED DIOLEFINS

Haruhisa Yamamoto, and Shinji Matumoto, both of Takaoka, Japan, assignors to Nippon Zeon Co. Ltd., Tokyo, Japan

Filed Apr. 17, 1981, Ser. No. 255,250

Claims priority, application Japan, Apr. 22, 1980, 55/53424

Int. Cl.[3] C07C *5/48*

U.S. Cl. 585—622 5 Claims

1. In a process for producing a conjugated diolefin which comprises oxidatively dehydrogenating a monolefin having at least 4 carbon atoms in the vapor phase with molecular oxygen to form the corresponding conjugated diolefin; the improvement wherein the oxidative dehydrogenation is carried out in the presence of a catalyst having the general composition formula

$$Mo_aBi_bCr_cNi_dX_eY_fO_g$$

wherein X represents at least one element selected from Li, Na, K, Rb, Cs, Tl and P, Y represents at least one element selected from metal elements of Group II of the periodic table, and a, b, c, d, e, f and g respectively represent the number of Mo, Bi, Cr, Ni, X, Y and O atoms, and when a=12, b=0.05-20, c=0.05-20, d=0.1-30, e=0.01-10, f=0.01-20, and g is the number of oxygen atoms which satisfies the atomic valences of the other elements.

4,336,410

PROCESS FOR ABSORPTIVE SEPARATION OF CYCLOHEXENE

Tsuneyuki Kondo, Nagoya, Japan, assignor to Toray Industries, Inc., Tokyo, Japan

Filed Apr. 3, 1981, Ser. No. 250,548

Claims priority, application Japan, Apr. 7, 1980, 55/44573

Int. Cl.[3] C07C *7/12;* C10G *25/00, 25/02*

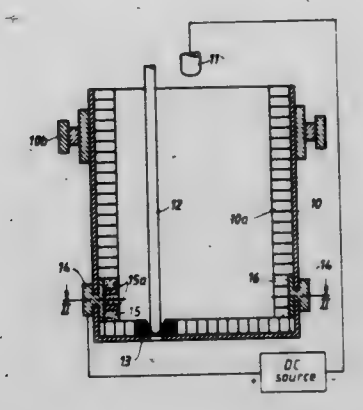
U.S. Cl. 585—827 8 Claims

1. An improvement in a process for separating cyclohexene from a mixture containing as main components benzene, cyclohexene and cyclohexane wherein said mixture is brought into contact with a type X aluminosilicate zeolite as an adsorbent whereby cyclohexene is selectively adsorbed thereon, and then, cyclohexene is desorbed therefrom, said improvement comprising using as an adsorbent a type X aluminosilicate zeolite which has been ion-exchanged with a silver ion.

4,336,411
MOLTEN METAL HEATING, STIRRING AND CASTING APPARATUS

Bertil Hanas, and Sven-Einar Stenkvist, both of Västeros, Sweden, assignors to ASEA Aktibolag, Västeros, Sweden

Filed Feb. 24, 1981, Ser. No. 237,599
Claims priority, application Sweden, Mar. 10, 1980, 8001838
Int. Cl.[3] H05B *7/00*
U.S. Cl. 373—85 5 Claims

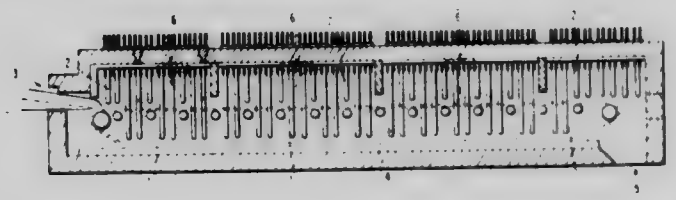


1. A metal heating, stirring and casting apparatus comprising a ladle having bottom and side walls and refractory lining covering the insides of said walls for containing the molten metal, a valved casting nozzle in said bottom wall, an electric contact in said side wall at a position offset from said nozzle and adjacent to said bottom wall so as to be contacted by the molten metal when in said ladle, an arcing electrode positioned above said ladle so as to form an arc with the molten metal when in the ladle, and means for connecting said contact and electrode with DC for powering said arc.

4,336,412
HEAT TREATMENT FURNACE

Ture Thomander, Hallstahammar, Sweden, assignor to Bulten-Kanthal AB, Hallstahammar, Sweden

Continuation of Ser. No. 917,751, Jun. 21, 1978, abandoned.
This application Jul. 3, 1980, Ser. No. 165,576
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1977, 2756402
Int. Cl.[3] F27B *5/04, 9/04;* H05B *3/12*
U.S. Cl. 373—110 5 Claims

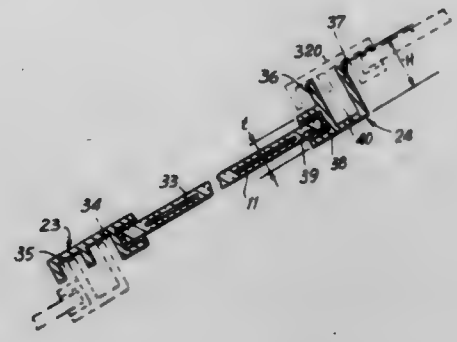


1. Heat treatment furnace comprising
(a) a housing having a feed zone therein;
(b) a plurality of electrical heating elements at least some of which are positioned in said feed zone;
(c) means for introducing into said furnace a nonoxidizing atmosphere at maximally about 1050° C.;
(d) at least those heating elements which are positioned in said feed zone comprising electrical resistance elements of substantially poreless material principally comprising molybdenum disilicide; and
(e) said resistance elements being free of any protective coating in order to place them in unobstructed contact with said non-oxidizing atmosphere.

4,336,413
SOLAR PANELS

Michel Tourneux, Velizy Villacoublay, France, assignor to R.T.C. La Radiotechnique Compelec, Suresnes, France

Filed Sep. 8, 1980, Ser. No. 185,255
Claims priority, application France, Sep. 10, 1979, 79 22596
Int. Cl.[3] H01L *31/04*
U.S. Cl. 136—251 6 Claims



1. A photovoltaic generating panel of generally quadrangular shape having a multiple number of semiconductor solar cells inside a laminate for immobilizing and protecting said cells and connecting means on the periphery of said laminate partially overlapping several identical panels to assure waterproofing by direct laying of said panels on the frame of a sloping roof, said connecting means comprising:
first and second frame pieces fastened on opposite edges of said laminate pointed in the direction of the pitch of the roof and having identical sections including a U-shaped portion fitted side ways on opposite edges of a said laminate, an extension of one side of the branches of said U, and at least one wing perpendicular to said extension having a height less than the thickness of said U-shaped portion, said extension and wing forming at least one sealing groove, said sealing grooves of said first and second pieces pointing in opposite directions;
a third frame piece fastened on the bottom edge of said laminate pointed level with the roof and having a section identical to that of said first and second frame pieces, the sealing groove of said third frame piece directed to emerge opposite the exposed face of said panel; and a fourth frame piece fastened on the top edge of said laminate pointed level with the roof and having a section including a U-shaped portion similar to that of said first three framed pieces and at least one sealing wing having a height which is greater than the thickness of said U-shaped portion and less than double the thickness of said U-shaped portion, and said wing being directed to emerge toward the exposed face of the panel.

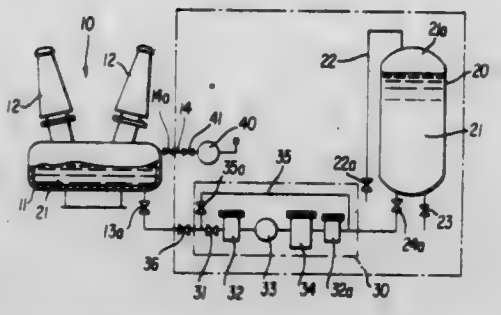
4,336,414
METHOD AND APPARATUS FOR TREATING NOXIOUS GASES

Toshio Suzuki, Tokyo; Junichi Ise, Yokohama; Satoru Yanabu, Machida, and Hitoshi Mizoguchi, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 22, 1980, Ser. No. 189,712
Claims priority, application Japan, Sep. 21, 1979, 54/120739; Oct. 11, 1979, 54/129955
Int. Cl.[3] H01B *17/36;* B03C *3/70*
U.S. Cl. 174—14 R 12 Claims

11. A process for treating noxious gases and substances which are produced in a gas-insulated electrical housing by virtue of an electric arc due to corona discharge during a switching operation, comprising introducing a cleaning solution including a volatile solvent into the gas-insulated electrical housing, utilizing said solution to wash the contaminants resulting from said corona discharge within the apparatus, ren-

dering the solution harmless by removing said contaminants, collecting the solution, and applying a vacuum to said housing



by vacuum producing means before introducing said cleaning solution for reducing the pressure in said housing.

4,336,415

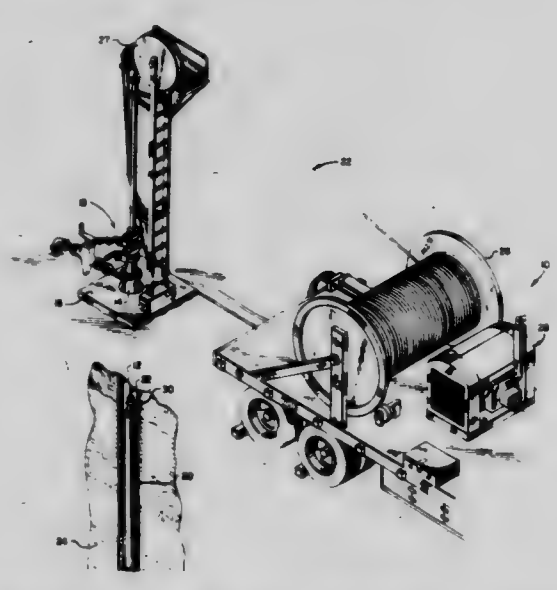
FLEXIBLE PRODUCTION TUBING

John B. Walling, 5613 Trail Lake Dr., Fort Worth, Tex. 76133

Continuation-in-part of Ser. No. 150,615, May 16, 1980. This application Jul. 21, 1980, Ser. No. 170,610

Int. Cl.³ F16L *11/12*

U.S. Cl. 174—47 **2 Claims**



1. Flexible production tubing comprising, in combination:
a protective, high tensile strength tubular sheath;
a relatively large diameter core tube extending along an undulating path through said protective sheath; and,
a complementary injection body of load-bearing filler material disposed in the annulus intermediate said undulating core tube and said protective sheath, said core tube being at least partially embedded within the injection body, said injection body yieldably supporting said core tube along said undulating path.

4,336,416

FIRE-RATED FEED-THROUGH FITTING FOR TRANSFERRING INSULATED WIRES THROUGH A CONCRETE FLOOR

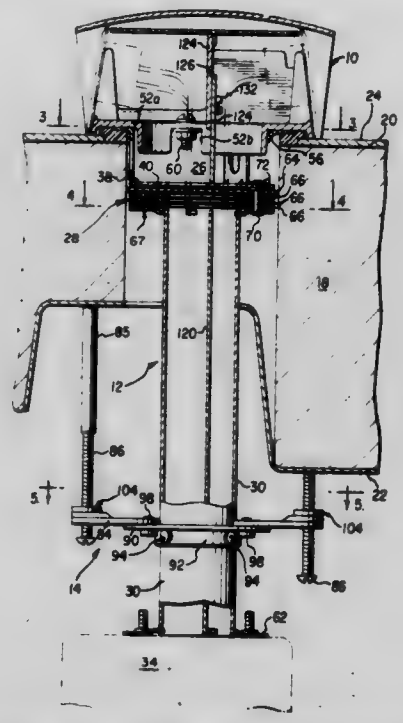
John P. Goodsell, Stratford, Conn., assignor to Harvey Hubbell Incorporated, Orange, Conn.

Filed Jun. 15, 1979, Ser. No. 48,703

Int. Cl.³ H02G *3/22*

U.S. Cl. 174—48 **42 Claims**

41. A feed-through floor fitting comprising;
first and second flanges having respective first and second opposing surface portions mounted in opposed, spaced-apart relationship;
a member composed at least in part of an intumescent material positioned between said surface portions, said member having an aperture extending therethrough for receiving electrical conductor means insertable in said aperture, the wall of the aperture being formed by the intumescent material;
each of said flanges having an opening extending therethrough communicating with a different end of the aperture in the intumescent member;
a conduit having a first and a second end;
means mounting the first end of said conduit on one of said flanges in substantial alignment with the corresponding



flange opening, said flanges being spaced-apart at opposite ends of the aperture;
the aperture being devoid of any body with the exception of the electrical conductor means inserted into said aperture, (1) having good thermal conductivity and extending at least the length of the aperture between said flanges, or (2) which prevents intumescing of the material of said member from closing said aperture.

4,336,417

COVER ASSEMBLIES FOR ELECTRICAL APPARATUS

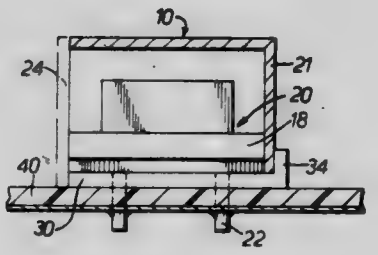
David J. Hickling, Beeston, England, assignor to Plessey Handel und Investments AG, Zug, Switzerland

Filed Jul. 7, 1980, Ser. No. 166,328

Claims priority, application United Kingdom, Jul. 10, 1979, 7924065

Int. Cl.³ H05K *5/03*

U.S. Cl. 174—52 R **5 Claims**



1. A cover assembly covering an electrical apparatus in a permanently secure manner, said electrical apparatus being of the kind having projecting pins in engagement with holes formed in a mounting surface, said cover assembly comprising a cover member having flange means accepting said electrical apparatus to secure said electrical apparatus inside said cover member, said cover member having an end wall contacting said electrical apparatus, a mounting member comprising a pad having holes accepting said projecting pins of said electrical apparatus, said mounting member also comprising a projection secured to said pad, said projection engaging the outside sur-

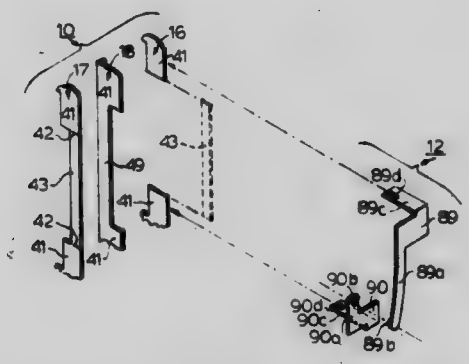
face of said end wall, whereby to prevent the removal of said cover from said electrical apparatus.

4,336,418

LAMINATED JUNCTION BOX MODULE AND LAMINATED PLUG-IN ACCESSORY MODULES SELECTIVELY USABLE THEREWITH

Richard L. Hoag, 18663 - 26 Mile Rd., Albion, Mich. 49224

Filed Nov. 25, 1980, Ser. No. 210,163
Int. Cl.³ H02G 3/18
U.S. Cl. 174—53 6 Claims



5. An electrical outlet structure adapted to have external wires connected thereto, comprising

a non-conductive generally rectangular box consisting of a back wall with side and end walls forming a front opening;

laterally spaced and longitudinally extending hot, neutral and ground bus bars in said box, each of said bus bars having a coupler for said wires on each of its opposite ends, and at least said hot and neutral bars being disposed in said box with its intermediate segment spanning said opening;

a pair of outlet sockets in said housing, the first of said sockets being connectable between the ends of said hot and neutral bars at one end of the housing and the second of said sockets being connectable between the opposite ends of said last-named bars, and

means for detachably securing said intermediate segments to said hot and neutral bus bars, respectively, whereby detachment of the segments will interrupt the flow of current through the bars to provide independently controllable first and second sockets.

6. An electrical wiring structure adapted to have external wires connected thereto, comprising

a non-conductive generally rectangular box consisting of a back wall with side walls and end walls forming a front opening;

laterally spaced and longitudinally extending hot, neutral and ground bus bars in said box, each of said bus bars having a coupler for said wires on each of its opposite ends, and at least said hot bar being disposed in said box with its intermediate segment spanning said opening;

a non-conductive rectangular housing telescopically mounted in said opening;

a switch mounted in said housing and connectable between the opposite ends of said hot bus bar, and

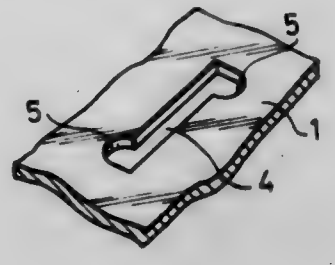
means for detachably securing said intermediate segment to said hot bus bar whereby detachment of the segment will interrupt the flow of current through the bar and divert it to said connectable switch.

4,336,419

CONSTRUCTION FOR MOUNTING PLATE-LIKE ELECTRIC PARTS

Yoichi Wakayama, and Tadao Kikuchi, both of Soma, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Jul. 14, 1980, Ser. No. 167,754
Claims priority, application Japan, Jul. 14, 1979, 54-97237[U]
Int. Cl.³ H05K 1/18
U.S. Cl. 174—68.5 3 Claims



1. A construction for mounting plate-like electric parts having exposed leads extending along opposite sides thereof to a substrate, comprising: a substrate having electrically conductive patterns on one surface thereof and at least one elongated insertion hole extending through said substrate; a respective plate-like electric part adapted to be inserted in each said insertion hole with its exposed leads held by the edge portions of the respective hole and adapted to be soldered to an electrically conductive pattern; and means including holes formed contiguous with said insertion holes but separated from said exposed leads for allowing escape of any gases formed during soldering of said electric part to the conductive pattern.

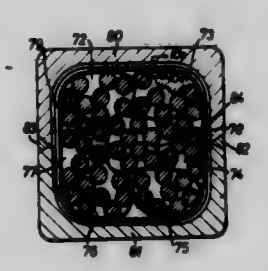
4,336,420

SUPERCONDUCTING CABLE

Hans Benz, Zurich, Switzerland, assignor to BBC, Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Apr. 17, 1980, Ser. No. 141,253
Claims priority, application Switzerland, Jun. 5, 1979, 5183/79
Int. Cl.³ H01B 5/08
U.S. Cl. 174—128 S 17 Claims





1. A super-conducting cable comprising:

a plurality of wires combined in groups to form plural wire bundles, said plural wire bundles combined in groups to form plural ropes, and said plural ropes being combined; and

a vacuum tight casing enclosing said plural combined ropes; said wires in each of said bundles having plural mutual wire contact sites, said bundles in each of said ropes having

plural mutual bundle contact sites, and said ropes enclosed in said casing having plural mutual rope contact sites;

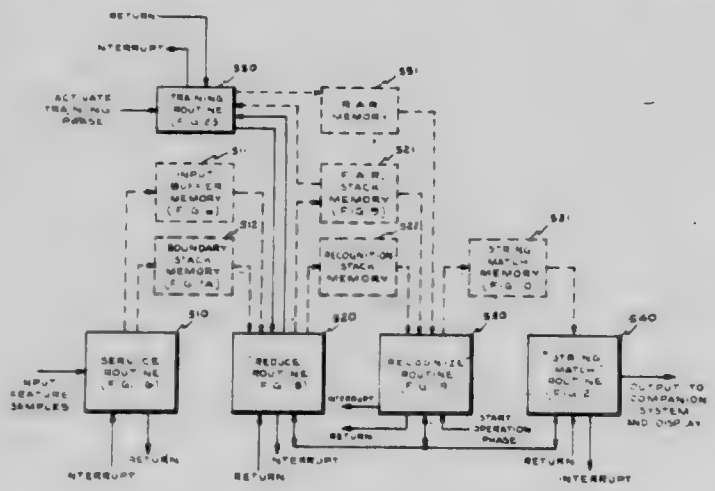
wherein there is provided a substantially homogeneous metal-to-metal connection at said wire contact sites, said bundle contact sites and said rope contact sites, said wire bundles including a stabilizing material having contact sites connected to wires adjacent thereto by means of a substantially homogeneous metal-to-metal connection at the respective contact sites.

4,336,421

APPARATUS AND METHOD FOR RECOGNIZING SPOKEN WORDS

John R. Welch, Riverton, and Sheldon C. Oxenberg, Cherry Hill, both of N.J., assignors to Threshold Technology, Inc., Delran, N.J.

Filed Apr. 8, 1980, Ser. No. 138,643
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1 SD **38 Claims**



1. Apparatus for receiving input spoken vocabulary words during a training phase of operation and for subsequently recognizing strings of received input spoken command words, comprising:

feature extraction means for generating digital feature signals dependent on the features present in input words;

reference array formation means for forming and storing, for each vocabulary word, a time-dependent reference array dependent on the feature signals present during the vocabulary word as spoken during the training phase;

boundary detection means for detecting relatively long duration pauses between speech sounds as inter-string pauses from which string boundaries are determined, the string boundaries defining the beginning and end of a string of words, and for detecting relatively short duration pauses between speech sounds as inter-segment pauses from which speech segment boundaries are determined within a string of words;

candidate feature array formation means for forming and storing, for each command word candidate consisting of each segment and each sequence of up to a predetermined number of segments, a time-dependent candidate feature array dependent upon the feature signals present during said command word candidate;

array correlation means for comparing each candidate feature array with each reference array and for storing, for each command word candidate, the vocabulary word whose reference array results in the highest correlation and a record of the score of said highest correlation;

string matching means responsive to the stored correlation scores for determining the sequence of vocabulary words that yields the highest overall correlation score for the string; and

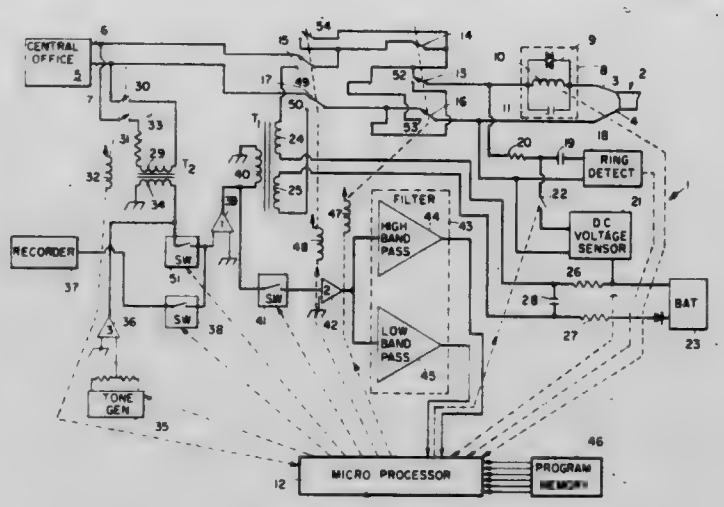
means for generating output indications of the determined sequence of vocabulary words.

4,336,422

TOLL RESTRICTOR

Regis B. Mellon, Mulberry, Fla., assignor to Akzona Incorporated, Asheville, N.C.

Continuation of Ser. No. 922,126, Jul. 5, 1978, abandoned. This application Sep. 13, 1979, Ser. No. 75,341
Int. Cl.³ H04M *1/66*
U.S. Cl. 179—18 DA **8 Claims**



1. A telephone circuit for use with a telephone system having a pair of conductors connected between a central office and a telephone instrument, the telephone instrument providing a signal indicative of a telephone number, said circuit comprising: means for connecting said telephone circuit to the conductors; switch means connected to at least one of the conductors for opening and closing the connection between the central office and the instrument; said switch means being closed when dialing signals are generated from the central office but not from the instrument; means for continuously analyzing said signal from the telephone instrument for permitting or denying a telephone call; said switch means being open during the analyzing of said signal from the telephone instrument; a hold circuit connected to said pair of conductors; means for connecting the instrument to an energy source separate from the central office energy source during analyzing of said signals from the instrument; whereby separate circuits are provided for powering the telephone instrument and for holding the connection to the central office for maintaining loop current during such analyzing; means for regenerating a signal which approximates said analyzed signal from the telephone instrument; said means for regenerating being connected to said means for analyzing and to the pair of conductors; said means for regenerating providing a signal to the central office in response to said means for analyzing having permitted a telephone call; said switch means being closed in response to said means for analyzing having permitted a telephone call.

4,336,423

DEVICE FOR INCREASING THE PARALLEL INDUCTANCE OF A TRANSFORMER

Emile Morlec, Cros de Cagnes; Daniel Reynes, Villeneuve Loubet, and Jean-Pierre Suzzoni, Cros de Cagnes, all of France, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jul. 10, 1980, Ser. No. 167,573
Claims priority, application France, Jul. 20, 1979, 79 19131
Int. Cl.³ H04B *3/30, 3/36;* H04Q *3/52*
U.S. Cl. 179—18 GF **10 Claims**

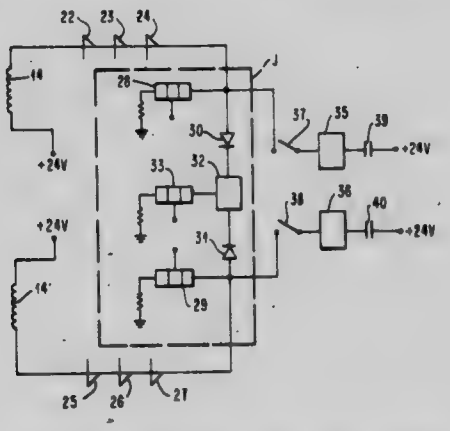
1. A telephone switching network for selectively connecting a plurality of telephone lines, said network including means to compensate for serial and parallel losses, comprising:

a plurality of transformers having primary and secondary windings, said primary windings being respectively connected to said telephone lines, and said secondary windings each having a first terminal connected to a first voltage source,

a plurality of matrices having semiconductor crosspoint switches arranged and interconnected to form said network, and to define a plurality of network inputs,

a plurality of network outputs and a plurality of selectively controllable half voice paths between said inputs and said outputs, said inputs being respectively connected to second terminals of said transformer secondary windings,

a plurality of controllable two-terminal junctors, said outputs being connected, in pairs, to the respective two terminals of said junctors, a first terminal of any given junctor being also connected to a second voltage source through a first switch and to a first terminal of a first diode, with the potential difference between said first voltage source and said junctor first terminal being such that the semiconductor switches of a path ending at said junctor first terminal are forward biased when said first switch is closed, the second terminal of any given junctor being similarly connected to said second voltage source through a second switch and to a first terminal of a second diode, with the



potential difference between said first voltage source and said junctor second terminal being such that the semiconductor switches of a path ending at said junctor second terminal are forward biased when said second switch is closed, the second terminals of said first and second diodes being both connected to a third voltage source through two respective resistors and a single common third switch, with the potential difference between said junctor first and second terminals and said third voltage source being such that said first and second diodes are forward biased when said first, second and third switches are closed,

a negative resistance element connected between the second terminals of each couple formed by said first and second diodes of a given junctor,

and first and second negative inductance elements, the first one being connected between the first terminal of said first diode and said first voltage source, and the second one being connected between the first terminal of said second diode and said first voltage source.

4,336,424

CIRCUIT ARRANGEMENT FOR MONITORING OPERATING CONDITIONS OF DIRECT CURRENT DEVICES

Robert Lechner, Otterfing, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 8, 1980, Ser. No. 184,670

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1979, 2938946

Int. Cl.³ H04M *3/22*

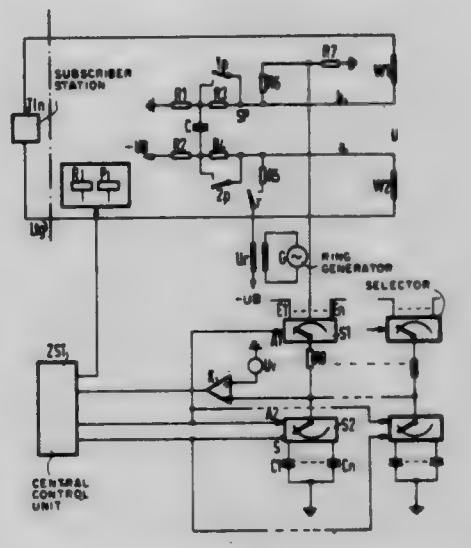
U.S. Cl. 179—18 FG **6 Claims**

1. A circuit arrangement for monitoring operating conditions of a group of direct current devices, said operating conditions represented by different potentials occurring at a sampling connector of each direct current device, said circuit arrangement comprising:

(a) a first and a second selector unit, each having parallel signal inputs, an output and a control input for receiving a control signal causing step-by-step action of the respective selector unit, the outputs of said selector units being connected, and each of said signal inputs of said first selector being connected to a respective sampling connector of one of said direct current devices;

(b) means for generating a control signal train and having an output commonly connected to said control inputs of both selector units;

(c) a plurality of filter capacitors arranged in parallel with respect to each other and being commonly connected to ground, each of said capacitors being connected to a



respective one of said signal inputs of the second selector unit;

(d) a voltage source for generating a reference voltage with respect to said potentials at said sampling connectors; and

(e) a comparator having a first input connected to said reference voltage source, a second input connected to said outputs of said selector units and an output for delivering a binary output signal evaluating the potential at the presently selected sampling connector with respect to said reference voltage.

4,336,425

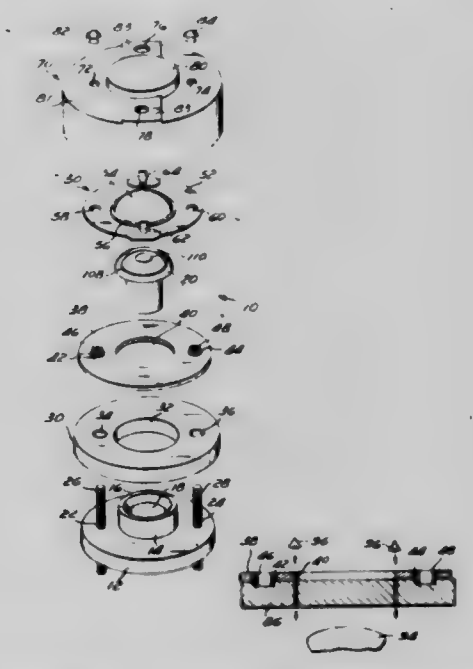
HIGH FREQUENCY COMPRESSION DRIVER AND METHOD OF MANUFACTURE THEREOF

Jonas A. Renkus, Santa Ana, Calif., assignor to Renkus-Heinz, Inc., Irvine, Calif.

Filed May 6, 1980, Ser. No. 147,180

Int. Cl.³ H04R *9/02, 9/04, 9/06, 31/00*

U.S. Cl. 179—115.5 H **19 Claims**



1. In assemblying a loud speaker, a method for contributing

to precise positioning of a voice coil between two magnetic poles comprising

(a) providing an annular member having a large central opening and at least two smaller apertures, said member being adapted to be one of said poles;

(b) positioning a bushing within each of said apertures;

(c) providing a fixture having depressions spaced to receive said bushings and having a plurality of small openings arranged in a circle in the central area of said fixture;

(d) providing a source of light beneath said fixture;

(e) placing said member on said fixture with the bushings positioned within said depressions; and

(f) aligning said member with respect to said fixture such that said member permits a fraction of the area of each of said openings to transmit light through the central opening in said member.

2. A method for manufacturing a speaker having a cylindrical first magnetic pole which extends through a central opening in an annular second magnetic pole and a diaphragm assembly with apertures precisely positioned with respect to a voice coil, said voice coil being affixed to said diaphragm assembly and positioned between said first and second magnetic poles comprising:

(a) precisely aligning mounting means within apertures in said second magnetic pole with respect to said opening said mounting means being sized to fit tightly within said diaphragm assembly apertures;

(b) precisely spacing said first magnetic pole from said second magnetic pole; and

(c) placing said apertures in said diaphragm assembly over said mounting means to precisely position said voice coil between said first and second magnetic poles.

15. A loud speaker assembly comprising:

(a) first and second magnetizable materials spaceably mounted from one another;

(b) a magnet which polarizes said materials;

(c) a stud extending through said assembly, said stud extending through an aperture in said second material;

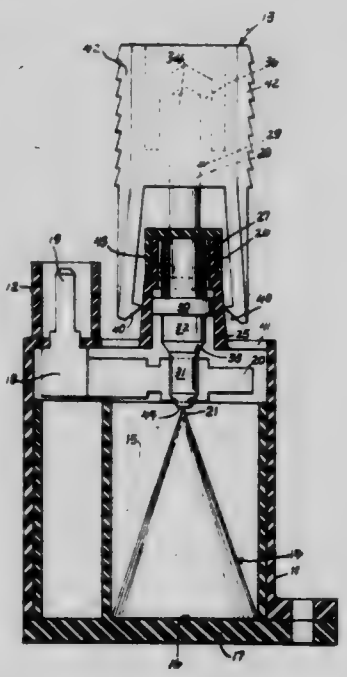
(d) an adhesive positioned between said stud and said second material aperture to prevent said second material from shifting relative to said first material.

4,336,426

INERTIA SWITCH

Walter L. Cherry, Winnetka, Ill., assignor to Cherry Electrical Products Corporation, Waukegan, Ill.

Filed Sep. 5, 1980, Ser. No. 184,473
Int. Cl.³ H01H *35/14*
U.S. Cl. 200—615 **10 Claims**



1. An inertia switch comprising:

(a) a hollow housing providing an internal circular compartment,

(b) a switch plunger having a first and a second end, movable within said housing,

(c) means normally urging said plunger for movement in one direction within said housing from a retained position into an activating position,

(d) an electric switch within said housing and having a pair of switch blades normally biased into contact with each other with said switch blades disposed in the path of movement of said first end of said plunger,

(e) an inertia mass within said housing which, when in its stable condition, is in contact with said first end of said plunger for resisting movement of said plunger in one direction within said housing and for maintaining it in its retained position,

(f) said inertia mass responsive uniformly to any impact force upon said housing in any direction through the horizontal plane for unstabilizing said inertia mass and moving it out of the path of said plunger, permitting said plunger to move into its activating position so as to effect separation of said switch blades and de-energization of said switch, and

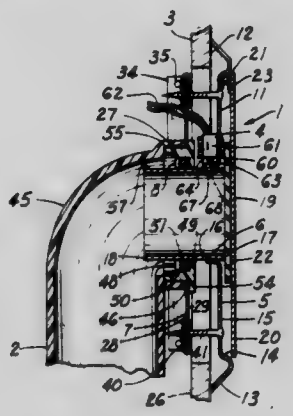
(g) a carrier mounted to said plunger, having means for releasably latching said plunger into its activating position when said inertia mass has been moved into its unstabilizing position, and further having means for manually unlatching said latching means to release said plunger from its activating position to allow the same to return to its retained position as said inertia mass is returned to its stable condition.

4,336,427

OUTLET ASSEMBLY FOR A VACUUM CLEANING SYSTEM

Winston S. Lindsay, Ponca City, Okla., assignor to Vacu-Maid, Inc., Ponca City, Okla.

Filed Oct. 3, 1980, Ser. No. 193,825
Int. Cl.³ H01H *27/06*
U.S. Cl. 200—61.6 **9 Claims**



9. An outlet assembly for a vacuum cleaning system and comprising:

(a) a face plate having a central aperture and adapted to be positioned against an exterior surface of a building wall, said face plate having a cover swingably mounted thereto and biasing means urging said cover to a closed position, said cover having a sealing surface;

(b) an annular inlet bushing having an outer surface and a through bore and extending through said building wall and having one open end situated to the interior of said building wall and a second open end normally closed and sealed by the cover of said face plate;

(c) a back plate with inner rim portions defining a central aperture, opposite surfaces and opposite sides with spaced flange portions extending generally perpendicularly from said sides and from one of said surfaces, said inlet bushing extending through said central aperture of said back plate;

(d) a vacuum conduit having a elbow portion and terminat-

ing in an open end adjacent said back plate and in alignment with the open end of said inlet bushing; and

(e) an annular seal fitting member engaging said back plate and sleeved about said inlet bushing, said seal fitting member having an annular inner grooved portion with a plurality of alternating recesses and spaced finger portions defining a seal seat and a resilient O-ring seal received therein and engaging the outer surface of said inlet bushing in air-tight relationship, an annular end wall portion providing a stop against inner rim portions defining the central aperture of said back plate and an annular flange portion snugly received within the open end of said vacuum conduit and securing said vacuum conduit to said inlet bushing in air-tight relationship;

(f) said back plate being removably fastened to said face plate and being reversible to face either of said opposite surfaces toward the building wall whereby, when said flange portion is directed toward said building wall, said flange portions space said back plate and said vacuum conduit a first distance from said building wall and, when said flange portion is directed away from said building wall, the opposite of said back plate surfaces abuts said building wall and spaces said vacuum conduit a second distance less than said first distance away from said building wall.

4,336,428

STEERING COLUMN ASSEMBLY SWITCH FOR AUTOMOTIVE VEHICLES

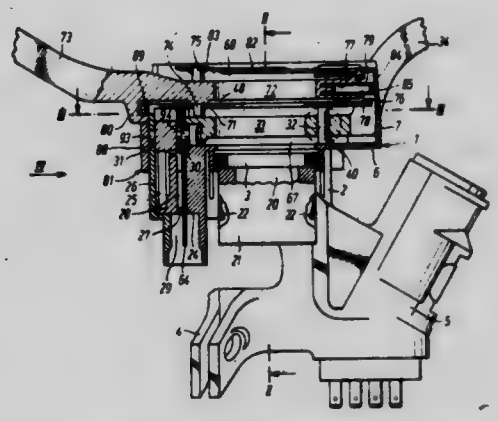
Werner E. Berginski, Werdohleveking, Fed. Rep. of Germany, assignor to Firma Leopold Kostal, Ludenscheid, Fed. Rep. of Germany

Filed Jun. 11, 1979, Ser. No. 47,335

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1978, 2828592

Int. Cl.³ H01H 9/00

U.S. Cl. 200—61.54 **12 Claims**



1. A steering column assembly switch comprising:

an integral housing defining a supporting sleeve and an annular chamber configured to surround the steering column of a vehicle;

said annular chamber having a bottom wall provided with sockets extending downwardly from said chamber;

a separate annular partition of insulating material in said annular chamber and dividing the same into upper and lower chambers, said annular partition being a printed circuit board having conductor bars and switch contacts on opposite faces thereof exposed to said upper and lower chambers, respectively;

an annular rotatable and tiltable contact member in each of said chambers having contact means selectively engageable with said switch contacts;

said conductor bars having portions extending axially of said annular chamber into said sockets for connection to external electric circuits.

4,336,429

SWITCH UNIT

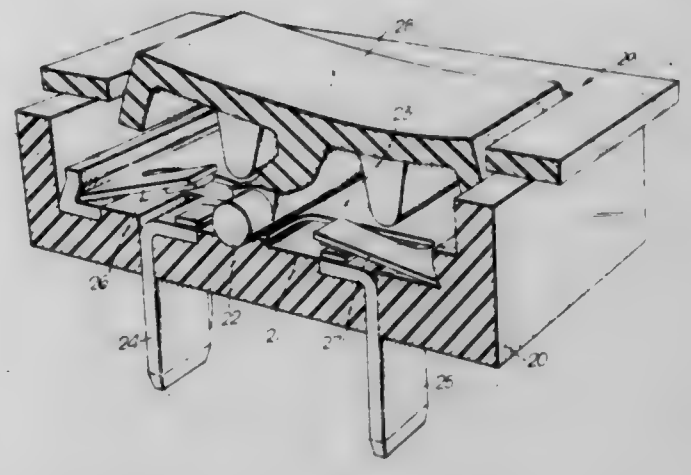
Thomas M. Jackson, Bishops Stortford; Robert J. Hodges, Cheshunt, and Stephen L. Amphlett, Bishops Stortford, all of England, assignors to ITT Industries, Inc., New York, N.Y.

Filed Oct. 14, 1980, Ser. No. 196,622

Claims priority, application United Kingdom, Oct. 16, 1979, 7935896

Int. Cl.³ H01H 5/18

U.S. Cl. 200—67 DB **1 Claim**



1. An electrical snap-action switch, which includes a strip of a springy material held captive in a frame such that the strip is bowed, a rod extending across the frame at right-angles to the length of the strip and located between the ends of the frame, a supporting surface adjacent to the strip and on the opposite side thereof from the rod, which surface extends between the points of the frame at which the strip is held captive and is generally parallel to the length of the strip, the rod bearing on the strip so as to constrain it into a position wherein the portion thereof between one end of the frame and the rod is bowed away from the supporting surface while the portion thereof between the rod and the other end of the frame lies along a substantial portion of the supporting surface, an operating element adjacent to the strip and on the opposite side thereof from the supporting surface, which element when operated depresses the bowed portion of the strip to cause that strip to snap to a position in which its bowed portion lies along the supporting surface while its other portion is bowed away from the surface, the rod thus providing a pivot for the strip, and contact means so located on the supporting surface as the co-operate with further contact means controlled by the movement of the springy strip between its non-operated and its operated positions, wherein said further contact means is carried by a portion of material controlled by the springy strip but separate from or additional to the bowed portion of the springy strip and wherein said further contact means in response to said operating element is alternately bowed away from the supporting surface or lies along the supporting surface.

4,336,430

VACUUM INTERRUPTER

Yukio Kurosawa; Yukio Kawakubo, both of Hitachi, and Nobuo Abe, Tokaimura, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 21, 1979, Ser. No. 96,386

Claims priority, application Japan, Nov. 22, 1978, 53-143392

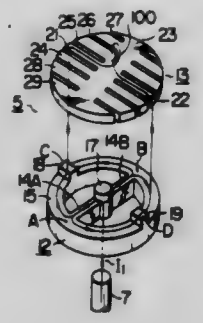
Int. Cl.³ H01H 33/66

U.S. Cl. 200—144 B **14 Claims**

1. A vacuum interrupter including a vacuum vessel, a pair of electrode assemblies arranged separably with respect to each other in said vacuum vessel, and conductor rods on which said pair of electrode assemblies are mounted respectively, each of said electrode assemblies including a coil electrode and a main electrode, said coil electrode including arms for branching the current flowing in said conductor rod to a plurality of different

radial directions with respect to said conductor rod, said coil electrode further including a current dividing section for branching the current flowing in each of said arms in different circumferential directions with respect to said conductor rod thereby generating axial magnetic fields in different directions, said main electrode being electrically connected to said current dividing section, wherein said main electrode comprises at least two main electrode sections, each of said main electrode sections including:

(a) a first current path with an end thereof electrically connected to said current dividing section for passing the



current from said current dividing section toward said conductor rod,

(b) a plurality of second current paths each having one end thereof connected to said first current path for branching the current in said first current path from said conductor rod side toward said current dividing section side, and

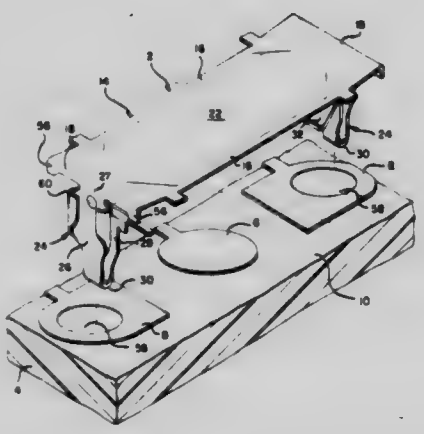
(c) a plurality of third current paths each having one end thereof connected to said associated second current path for passing the current in said associated second current path to the direction in parallel and opposite to the current in said first current path.

4,336,431

SOLDERLESS CIRCUIT BOARD CONTACT

Winfield W. Loose, Linglestown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 10, 1980, Ser. No. 195,810
Int. Cl.³ H01H *1/14, 3/12*
U.S. Cl. 200—292 **9 Claims**



1. A platelike spring metal contact spring mounted on one surface of a circuit board and normally spaced from a first conductor on said one surface of said circuit board, said contact member having a pair of mounting legs extending into openings in said circuit board, at least one of said mounting legs being electrically connected to a second conductor in said circuit board whereby upon resilient movement of portions of said platelike member towards said circuit board, said platelike member contacts said first conductor, and a circuit path is established from said first conductor to said second conductor, said contact member being characterized in that:

each of said mounting legs comprises an elongated strip, said strip having a first straight portion which is integral at one end with, and which extends from, said platelike member, an intermediate bight portion, a second straight portion, and a free end spring portion,

said first and second straight portions being in the associated opening in said circuit board, said first and second straight portions of each of said legs having opposed bosses thereon, said bosses being against each other and urging said first and second straight portions of said legs against the walls of said openings,

said intermediate bight portion being located proximate to the other surface of said circuit board, said intermediate bight portion having deformed portions which extend laterally of said first and second straight portions,

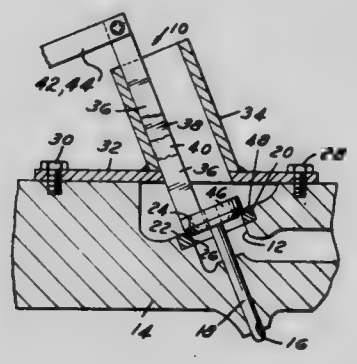
said free end spring portion extending from said second straight portion laterally across said one surface of said circuit board and inwardly with respect to said platelike metal contact member, said free end spring portion being beneath said platelike metal contact member and having a contact portion which is against said second conductor.

4,336,432

INDUCTION HARDENING OF VALVE SEAT INSERTS

Benjamin T. Bajorek, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Sep. 19, 1980, Ser. No. 188,448
Int. Cl.³ H05B *6/38;* C21D *1/10*
U.S. Cl. 219—10.41 **9 Claims**



1. A method for joining a metal insert located in a recess formed in a second component having a coefficient of thermal expansion greater than the metal from which the insert is made and for hardening the insert comprising the steps of:

fitting the insert in place in the recess by means of an interference fit;

machining the surface of the insert to produce a seating surface thereon;

locating an induction heater adjacent the surface of the insert to be hardened, the heating element of the induction heater being spaced from the surface of the insert; and

energizing the heating element from a high frequency alternating current electrical energy source for a period lasting between 0.20–0.60 seconds.

4,336,433

HEATING CONTROL APPARATUS FOR COOKING OVEN WITH VAPOR SENSOR

Seiki Yokozeki, Yamatokoriyama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 11, 1980, Ser. No. 168,338
Claims priority, application Japan, Jul. 11, 1979, 54-88584
Int. Cl.³ H05B *6/68*
U.S. Cl. 219—10.55 B **2 Claims**

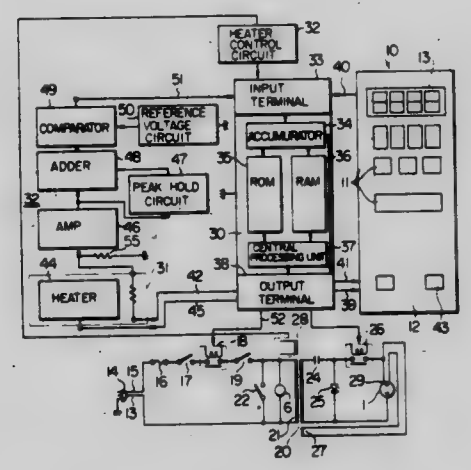
1. A heating control apparatus for a microwave oven wherein an object to be cooked is placed in a heating chamber

and heated by microwave energy radiated from a microwave generator, said heating control apparatus comprising:

a vapor sensor for sensing a change in the vapor content of air exhausted from said heating chamber;

counting means for determining the period of time T_1 from the instant that heating is started to the detection by said vapor sensor of a rapid increase in said vapor content thereby indicating the generation of vapor from said cooking object, said counted time period T_1 being proportional to the weight of said cooking object;

means for storing a plurality of constants for each of a plurality of predetermined kinds of cooking objects and for each



of a plurality of said counted time periods T_1, said constants being functions of the weights of said cooking objects and therefore of the counted time periods T_1 for specific kinds of cooking objects;

means for selecting a value K of said constant corresponding to the kind of cooking object and to said time period T_1;

means for determining a further heating time period T_2 by multiplying said time period T_1 by said selected constant value K; and

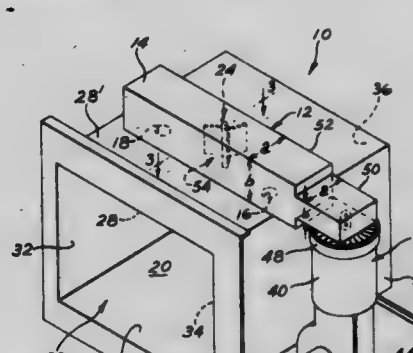
means for terminating the operation of said microwave generator after a total heating time consisting of the sum of said counted time period T_1 and said further heating period T_2, where $T_2=KT_1$.

4,336,434

MICROWAVE OVEN CAVITY EXCITATION SYSTEM EMPLOYING CIRCULARLY POLARIZED BEAM STEERING FOR UNIFORMITY OF ENERGY DISTRIBUTION AND IMPROVED IMPEDANCE MATCHING

Matthew S. Miller, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Aug. 15, 1980, Ser. No. 178,324
Int. Cl.³ H05B 6/72
U.S. Cl. 219—10.55 F **14 Claims**



1. An excitation system for a microwave oven cooking cavity, having electrically conductive walls said excitation system comprising:

at least a pair of feed points spaced along one wall of the cooking cavity for introducing microwave energy into the cooking cavity; and

an arrangement for providing a plurality of relative phase shifts between said feed points as a function of time;

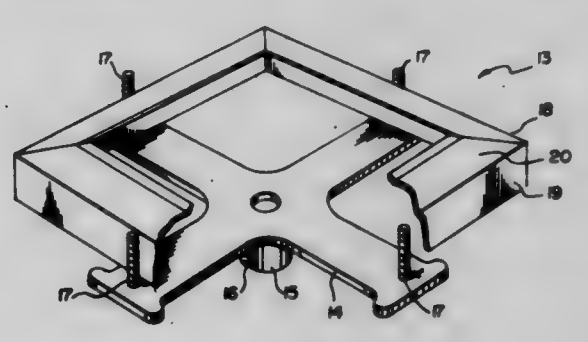
whereby the electromagnetic energy fields from said feed points combine in said cavity to produce a concentrated beam of energy, the direction of which depends upon the particular phase shift between said feed points.

4,336,435

MICROWAVE APPARATUS FOR HEATING LIQUID IN A CLOSED PLASTIC CONTAINER

Satish Kashyap, Kanata; John G. Dunn, Hammond; Lorne Woods, Ottawa, and Frank Vachon, Hull, all of Canada, assignors to Canadian Patents & Dev. Limited, Ottawa, Canada

Filed Mar. 23, 1981, Ser. No. 246,892
Int. Cl.³ H05B 6/80
U.S. Cl. 219—10.55 F **13 Claims**



1. Microwave apparatus for thawing liquid frozen in a plastic bag comprising:

microwave means having a microwave cavity for receiving the plastic bag and a microwave power source for energizing the microwave cavity to thaw the frozen liquid in the bag;

holder means within the microwave cavity for retaining the plastic bag in a substantially vertical position and for shielding strategic areas of the plastic bag from microwave energy;

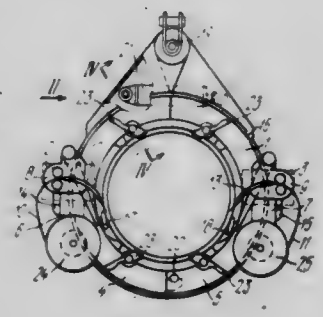
means fixed to the holder means within the microwave cavity for imparting a motion to plastic bag thereby agitating the thawing liquid in the plastic bag; and

temperature means for detecting the temperature of the thawing liquid in the bag and for deenergizing the cavity at a preselected temperature.

4,336,436
METHOD FOR WELDING GIRTH JOINTS IN PIPE LINES

Vasily Y. Dubovetsky, Bulvar Lesi Ukrainki, 2, kv. 35; Leonid N. Kopylov, ulitsa Saljutnaya, 27, kv. 44; Valentin A. Kotov, ulitsa Lenina, 88, kv. 64; Jury I. Saprykin, ulitsa Semashko, 21, kv. 34; Vladimir I. Slepchenko, ulitsa Uritskogo, 11, kv. 92; Boris E. Paton, ulitsa Chkalova, 41a, kv. 26; Igor K. Pokhodnya, ulitsa Chkalova, 41a, kv. 25; Vladimir E. Paton, ulitsa Anri Barbjusa, 22/26, kv. 64; Mikhail G. Belfor, pereulok Ivana Maryanenko, 11, kv. 28; Efim Y. Leschinsky, ulitsa Fedorova, 16, kv. 13; Andrei N. Kutovoi, ulitsa Gogolevskaya, 32, kv. 5; Mikhail R. Unigovsky, ulitsa Pushkinskaya, 21, kv. 33; Veniamin S. Rotenfeld, ulitsa Sh.Aleikhema, 1, kv. 17; Valery N. Shlepakov, ulitsa Pushkinskaya, 45, kv. 9; Jury A. Gavriljuk, ulitsa Parkhomenko, 9, kv. 36, all of Kiev; Alexandr G. Mazel, Aptekarsky pereulok, 8/2, kv. 9; Mark Z. Sheinkin, ulitsa Kedrova, 3, kv. 91, both of Moscow, and Orest M. Serafin, ulitsa Derezhabelnaya, 28, korpus 1, kv. 45, Dolgoprudny, Moskovskaya oblast, all of U.S.S.R.

Filed Jan. 29, 1979, Ser. No. 7,193
Int. Cl.³ B23K *31/06, 9/12*
U.S. Cl. 219—61 **7 Claims**



1. A method for welding girth joints in pipe lines using several welding heads, comprising the steps of:

moving each of said welding heads around the pipe line and a respective section of the girth joint so that the welding heads are moved upwards;

feeding a welding wire to each of the welding heads so that the welding wire is fed substantially tangentially with respect to the surface of the pipe while welding the girth joint at the lower and lateral sections of the pipe line and then feeding said welding wire through the depth of the girth joint by angularly positioning said welding wire from 15° to 20° with respect to the tangent to the surface of the pipe while welding the uppermost portions of the girth joint as said welding heads move upwards;

forming a circumferential weld along the whole of the girth joint;

moulding the circumferential weld simultaneously with the formation thereof to hold the molten metal of the welding bath in the welding zone.

4,336,437
METHOD OF EXTRUSION-FUSION WELDING OF LEAD PARTS THROUGH AN APERTURE IN A BATTERY CASE

William J. Eberle, Reading, Pa., assignor to General Battery Corporation, Reading, Pa.

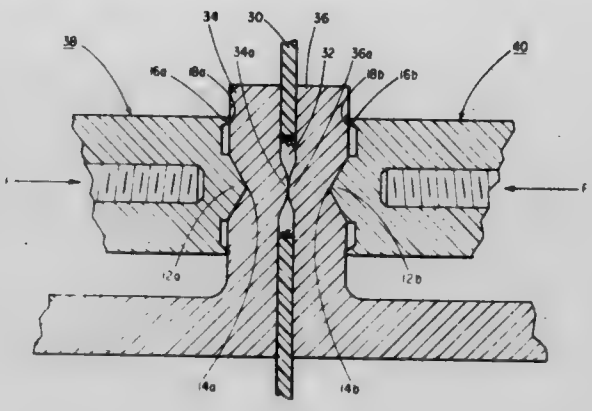
Continuation of Ser. No. 948,979, Oct. 5, 1978, and a continuation-in-part of Ser. No. 790,88[illegible], Apr. 26, 1977, Pat. No. 4,166,210. This application Nov. 14, 1980, Ser. No. 206,758
Int. Cl.³ B23K *11/16*
U.S. Cl. 219—78.16 **11 Claims**

1. A method of welding lead parts through an aperture in a wall of a battery case utilizing an electrode comprising at least an extruding portion for extruding portions of said parts to touch within said aperture, and a contacting portion for contacting other portions of said parts during the welding of said parts, comprising the steps of:

a. positioning said parts on opposite sides of said aperture to at least entirely overlap said aperture;

b. extruding at least a portion of said parts into said aperture at least until said contacting portion contacts a surface of said part and said extruded portions touch within said aperture;

c. limiting the degree of contact between said parts within said aperture responsive to the degree of contact between said contacting portion and said lead part;



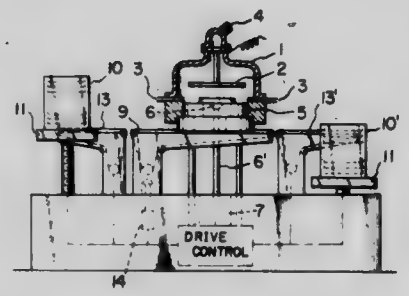
d. passing current through said parts to melt said portions of said parts at least within said aperture; and

e. compressing at least said melted portions within said aperture.

4,336,438
APPARATUS FOR AUTOMATIC SEMI-BATCH SHEET TREATMENT OF SEMICONDUCTOR WAFERS BY PLASMA REACTION

Akira Uehara, Yokohama; Hiroyuki Kiyota, Hiratsuka; Shigekazu Miyazaki, Sagamihara, and Hisashi Nakane, Kawasaki, all of Japan, assignors to Tokyo Ohka Kogyo Kabushiki Kaisha, Kanagawa, Japan

Filed Sep. 16, 1980, Ser. No. 187,748
Claims priority, application Japan, Sep. 11, 1979, 54-124709[U]
Int. Cl.³ B23K *9/00;* B65H *1/06*
U.S. Cl. 219—121 PG **7 Claims**

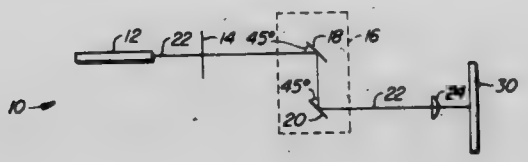


1. An apparatus for the automatic sheet by sheet semibatch treatment of a wafer by plasma reaction, which apparatus comprises wafer carrying means substantially comprising along a horizontal longitudinal axis a conveyor for carrying a wafer to be treated, a pair of open-close type wafer carrying wire conveyors being parallel spaced at a certain distance, a means for opening and closing the wafer carrying wire conveyors operatively associated therewith, and a treated wafer carrying conveyor; a reaction chamber with an opening at the bottom disposed above wafer carrying wire conveyors; a wafer table disposed beneath the opening of the reaction chamber, vertically movable to be fixed vacuum-tightly to the opening of the reaction chamber at an uppermost position; a sub-table which is fittable vacuum-tightly in the center of the wafer table and is vertically movable separately therefrom; elevator means for vertically moving the wafer table and the sub-table to take the wafer mounted thereon into and out of the reaction chamber; and control means for driving the wafer carrying means, the reaction chamber, the wafer table and the sub-table in linkage motion.

4,336,439
METHOD AND APPARATUS FOR LASER SCRIBING AND CUTTING

Michael W. Sasnett, Los Altos, and Richard J. Saunders, San Jose, both of Calif., assignors to Coherent, Inc., Palo Alto, Calif.

Filed Oct. 2, 1980, Ser. No. 193,330
Int. Cl.³ B23K 27/00
U.S. Cl. 219—121 LH 15 Claims

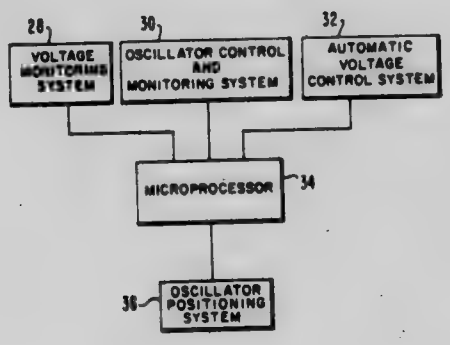


1. An apparatus adapted for removing a portion of a rigid material by thermal reaction, said apparatus comprising:
laser means for generating a high power beam of electromagnetic coherent radiation characterized by a state of polarization;
means for aligning said beam to impinge said material; and
means for controlling the polarization of said beam with respect to said material wherein said portion removed is symmetrically shaped.

4,336,440
WELD TRACKING/ELECTRONIC ARC SENSING SYSTEM

George E. Cook, Brentwood; George J. Merrick, Franklin, both of Tenn.; Urban A. Schneider, St. Petersburg, and Willibald R. Rosenberger, Pensacola, both of Fla., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 3, 1979, Ser. No. 54,517
Int. Cl.³ B23K 9/10
U.S. Cl. 219—124.34 2 Claims

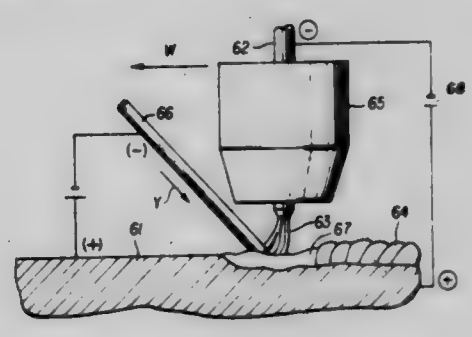


1. A welding electrode tracking system for tracking a welding electrode within a weld groove comprising:
means for oscillating the arc struck between the welding electrode and the workpiece, laterally within the weld groove;
means for providing an indication representative of the width of oscillation of the arc from a pre-established null;
means for providing an electrical output representative of the voltage drop between the welding electrode and a side wall of the weld groove when the welding arc is extended by its oscillating means a given distance towards the weld groove side wall;
means for automatically adjusting the pre-established null as a function of the magnitude of the voltage drop between the electrode and the weld groove side wall and the given width of oscillation at which the voltage is measured to maintain the null at a preselected position along the lateral line of oscillation;
a constant current source for exciting the welding electrode; and
an automatic arc voltage system for automatically spacing the electrode a prearranged distance from the bottom of the weld groove wherein the automatic arc voltage control system is inoperable when the oscillating means extends the welding arc from the null a distance equal to or greater than the given distance and wherein the automatic voltage control system measures the voltage between the welding electrode and the bottom of the weld groove for each of a plurality of cycles of oscillation during that portion of the oscillation path for which it is operative; averages the voltages measured between the electrode and the bottom of the weld groove over a preselected number of cycles of oscillation; compares the measured voltage with a preselected setpoint corresponding to the prearranged distance; and is responsive to an indication of a difference in the average measured voltage and the setpoint to adjust the spacing between the electrode and the bottom of the weld groove to substantially nullify the difference.

4,336,441
WELDING PROCESS

Tomokazu Godai; Tohru Sugiyama, both of Kamakura, and Yutaka Nishikawa, Fujisawa, all of Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Oct. 15, 1979, Ser. No. 84,829
Claims priority, application Japan, Oct. 27, 1978, 53/133005; Jul. 7, 1979, 54/086299
Int. Cl.³ B23K 35/00
U.S. Cl. 219—137 WM 22 Claims



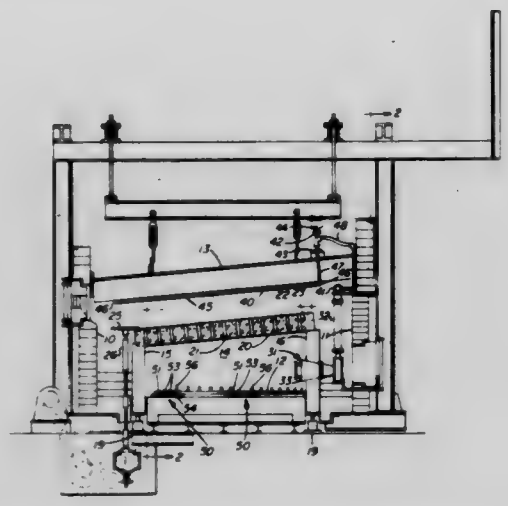
1. A welding method for welding a base metal which comprises:
welding said base metal with a welding wire wherein said base metal comprises 3.5%–9.5% nickel by weight, less than 100 ppm oxygen and less than 100 ppm nitrogen and said welding wire comprises 8–15% nickel by weight, 0.1–0.8% manganese by weight, less than 0.15% silicon by weight, less than 0.1% carbon by weight, less than 0.1% aluminum by weight, less than 0.1% titanium, less than 0.0006% boron by weight, less than 100 ppm oxygen and less than 100 ppm nitrogen, wherein the sum of the oxygen content of the wire and twice the oxygen content of the base metal is less than 200 ppm and the sum of the nitrogen content of the wire and twice the nitrogen content of the base metal is less than 200 ppm;
feeding said wire into an arc column developed between a nonconsumable electrode and said base metal;
deflecting said arc forward in the welding advance direction by the influence of magnetic fields resulting from the connection of both said nonconsumable electrode and said wire to a DC voltage source for DC TIG welding such that the directions of current flowing through said wire and said nonconsumable electrode are the same when said wire is ahead of said nonconsumable electrode along a welding advance direction, and
deflecting said arc forward in the welding advance direction by the influence of magnetic fields resulting from the connection of both said nonconsumable electrode and said wire to a DC voltage source for DC TIG welding such that the directions of current flowing through said wire and said nonconsumable electrode are opposite when said weld wire is behind said nonconsumable electrode.

4,336,442

COMBINATION RADIATION AND CONVECTION HEATER WITH CONVECTION CURRENT DIRECTING MEANS

Eugene W. Starr, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 12, 1981, Ser. No. 224,608
Int. Cl.³ F27D *11/02*
U.S. Cl. 219—400 **11 Claims**



1. A heating system comprising a combination radiation and convection heater comprising a serpentine pipe structure of electroconductive metal comprising an inlet pipe, a plurality of intermediate pipes communicating with said inlet pipe and one another in end to end relation, and a closed end outlet pipe communicating with the last of said intermediate pipes, said pipes being arranged transversely spaced from one another and extending parallel to one another in serpentine relation to occupy an area, means to apply electrical energy to said pipe structure to heat said pipe structure to a temperature at which it radiates heat into a desired area within the adjacent environment, means to apply gas under pressure to said inlet pipe for conveyance through said intermediate pipes and said outlet pipe when said pipe structure is electrically heated, said outlet pipe having a plurality of axially aligned, longitudinally spaced openings for discharge of said gas to said desired area within said adjacent environment, further including means to direct said discharged gas in a desired direction toward said desired area, said means comprising nozzles extending in an outward direction from said axially aligned openings toward said desired area in the direction desired for convection heating.

4,336,443

MODULAR BAKE OVEN FOR DRYING VARNISHED ELECTRICAL COMPONENTS

Joseph M. Benedetto, 2059 Maybank Hwy., Charleston, S.C. 29412

Filed Jan. 22, 1981, Ser. No. 227,284
Int. Cl.³ F27D *11/02*
U.S. Cl. 219—400 **10 Claims**

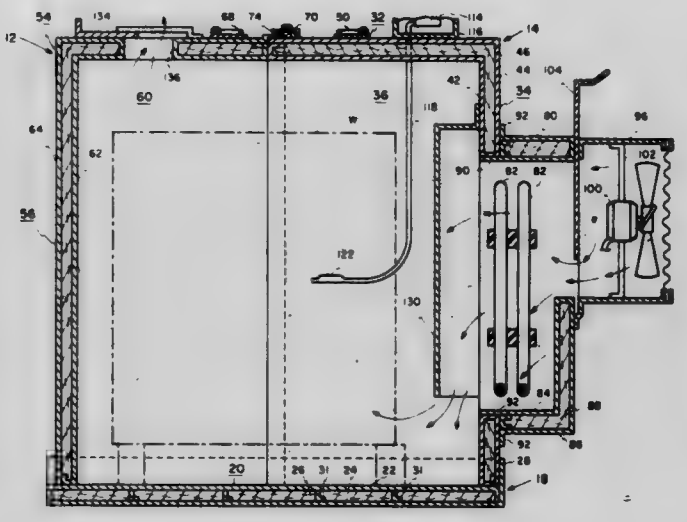
1. A modular oven device for baking electrical components located in a workspace having an access passageway of predetermined dimensions less than will pass said oven device when assembled, said oven device comprising in combination:

a rectangular base section having a thermally insulated bottom wall and an upstanding flange extending vertically above said bottom wall along three sides thereof, a fourth side being free of said flange;

first and second thermally insulated oven sections, each comprising first and second vertical side walls, an end wall, and a top wall, said first and second oven sections being disposed with complementary edges of said side and top walls in abutting relation and having their lower edges resting on said bottom wall within said upstanding flange so as to define a workpiece receiving oven chamber;

said edges of one of said oven sections having lip means overlying the line of abuttment with said complementary edges of the other thereof;

a heater and blower section mounted on the end wall of one of said oven sections and comprising a thermally insulated heater element housing, a blower housing, heating element means within said heater element housing, blower means within said blower housing, and an inlet air flow control means disposed between said housings and adapted to regulate air flow through said housings and into said chamber;



said other of said oven sections having an exhaust air outlet opening defined in said top wall thereof;

an exhaust air flow control means mounted on said other of said oven sections and adapted to regulate the air flow out of said chamber; and

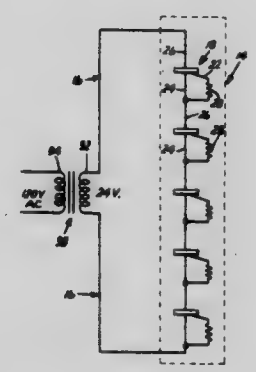
said first and second oven sections, said base section, and said heater and blower section being separable from each other for transportation through said passageway and reassembly together within said workspace.

4,336,444

APPARATUS AND METHOD FOR CONVERTING ELECTRICAL ENERGY INTO HEAT ENERGY

Howard W. Bice, Fort Wayne, Ind., and Don W. Williams, Van Wert, Ohio, assignors to Gust, Irish, Jeffers & Hoffman, Fort Wayne, Ind.

Filed Jan. 14, 1980, Ser. No. 111,523
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—505 **12 Claims**



1. A heat-generating apparatus for converting electrical energy into heat energy comprising semiconductor means having a plurality of more than two semiconductor regions with junctions therebetween, a first of said regions serving as a control element, said first region in combination with a second region and other regions and junctions therebetween constituting a heat-producing section of said semiconductor means when an alternating current voltage of predetermined magnitude is connected thereacross,

an alternating current voltage source connected to said first and second regions, the connections between said source

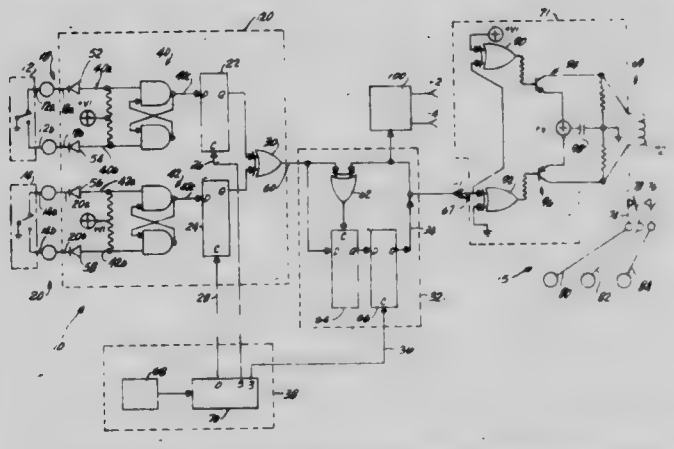
and said first and second regions being bi-directionally conductive, said alternating current voltage and the impedance of said heating section providing a current through the latter at a value which maximizes the power loss thereacross thereby raising the temperature thereof to a predetermined level, and means proportioned and arranged for transferring the heat generated at a rate that maintains such power loss but prevents exceeding the same to an extent as will damage said semiconductor means.

4,336,445

ELECTRICAL TOTALIZER

Thomas E. Baker, 9781 La Zapatilla Cir., Fountain Valley, Calif. 92708, and John P. Robertson, 2307 Aralia St., Newport Beach, Calif. 92660

Division of Ser. No. 901,138, Apr. 28, 1978, Pat. No. 4,227,070.
This application Nov. 5, 1979, Ser. No. 91,381
The portion of the term of this patent subsequent to Oct. 7, 1997, has been disclaimed.
Int. Cl.³ G06M *3/08*
U.S. Cl. 235—92 ST **13 Claims**



1. A totalizer circuit for asynchronous occurrences in first and second input signals comprising:

a first bistable state circuit characterized in that it changes states, to one of two stable states, only once for each sequential occurrence in the first input signal in response to one or more strobes and each subsequent occurrence in the first input signal causes a different one of such two stable states to be assumed;

a second bistable state circuit characterized in that it changes states, to one of two stable states, only once for each sequential occurrence in the second input signal in response to one or more strobes and each subsequent occurrence in the second input signal causing a different one of both of such two stable states to be assumed;

means for applying said strobes to the first and second bistable state circuits alternately and at differing times and at a fixed rate; and

exclusive OR gating means coupled to the first and second bistable state circuits for forming output indications corresponding to the various relations in states between the first and second bistable state circuits and to thereby form a different output indication for each sequential occurrence in each of said input signals.

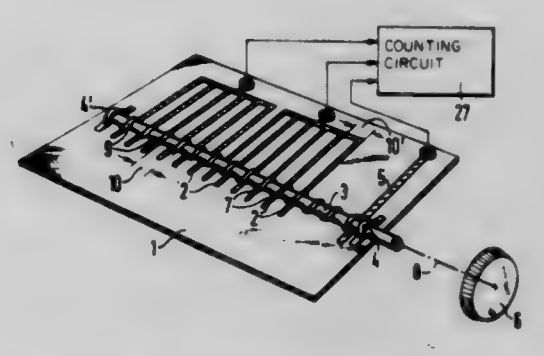
4,336,446

APPARATUS FOR THE MANUAL PRODUCTION OF DIGITAL PULSES

Dieter Hafner, Nuremberg, Fed. Rep. of Germany, assignor to Diehl GmbH & Co., Nuremberg, Fed. Rep. of Germany

Filed Nov. 15, 1979, Ser. No. 94,389
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1978, 2853505
Int. Cl.³ G06M *3/14*
U.S. Cl. 235—92 DE **9 Claims**

1. In a device for the manual production of digital pulse for input into an electronic forward-backward counter, the device comprising a rotatable actuating element connected mechanically with at least one pulse-producing means, several pulse-receiving elements, and an evaluating logic whereby individual pulses or pulse trains can be produced upon rotation of the actuating element by mutual interaction of the pulse-producing means with the pulse-receiving elements and which, depending on the direction of rotation of the actuating element, are to be counted in the forward counting input or the backward counting input of the forward-backward counter, the improvement wherein the pulse-producing means is arranged helically on a



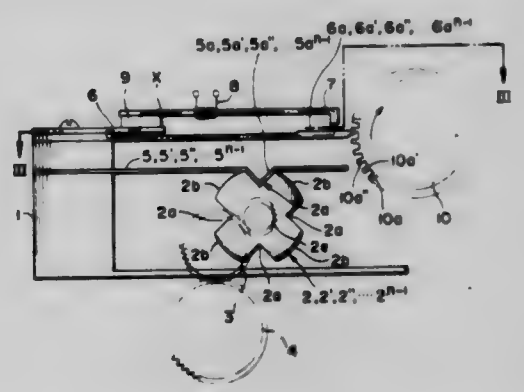
rotatable axle operably connected with the actuating element, the pulse-receiving elements are arranged linearly along the rotating axle in at least one row to be actuated by the helically-arranged pulse-producing means, the distance between the pulse-receiving elements is different from the pitch of the helical line defined by the pulse-producing means, and the pulse-receiving elements interact electrically in at least two groups such that upon rotation of the actuating element, at least two pulses are produced which are offset in time and overlapping.

4,336,447

CONVERTER OF METER-GAUGE READINGS

Yuzo Oguchi; Takayuki Itakura, both of Suwa, and Akio Kawano, Osaka, all of Japan, assignors to Osaka Gas Co., Ltd., Osaka, Japan

PCT No. PCT/JP78/00025, § 371 Date Jul. 16, 1979, § 102(e) Date Jul. 9, 1979, PCT Pub. No. WO79/00293, PCT Pub. Date Apr. 31, 1979
PCT Filed Nov. 14, 1978, Ser. No. 128,352
Claims priority, application Japan, Nov. 14, 1977, 52-136374; Nov. 8, 1978, 53-153639
Int. Cl.³ G06M *1/276*; G08C *19/16*
U.S. Cl. 235—92 EA **11 Claims**



1. A meter-gauge reading converter comprising:

a plurality of cam pieces rotating with a counting action of a meter gauge, said cam pieces converting the counting action into a binary code, said cam pieces having concaves and convexes formed in a circumferential direction on circumferential faces corresponding to binary digits, said cam pieces having teeth circumferentially on one side thereof and digit-adding teeth on the other side thereof;

a digit-adding gear located between two adjacent cam pieces, said digit-adding gear meshing with teeth on said one side of

one of said adjacent cam pieces, said digit-adding gears teeth having wide teeth with a constant pitch at a constant interval for binary condification which intermittently mesh with said digit-adding teeth on the remaining of said adjacent cam pieces, said digit-adding gear effecting raising of the digit in said remaining adjacent cam piece;

a plurality of oscillators having a first end fixed and a remaining end opposed respectively to the face of a cam piece;

hold pieces of flexible material each having one end fixed and the other end opposed to one of said oscillators, said hold pieces other ends being positioned to be displaceable by a convex as corresponding cam piece rotates, whereby said hold piece is urged into contact with said oscillator suppressing an oscillation of said oscillator;

means for successively flexing said oscillators at the time said readings are to be detected; and

means for detecting the vibration of oscillators whereby a first set of oscillations are detected when said hold piece is adjacent a concave and a second set of oscillations are detected when said hold piece is adjacent said convex indicating a binary digit represented by said cam position.

4,336,448

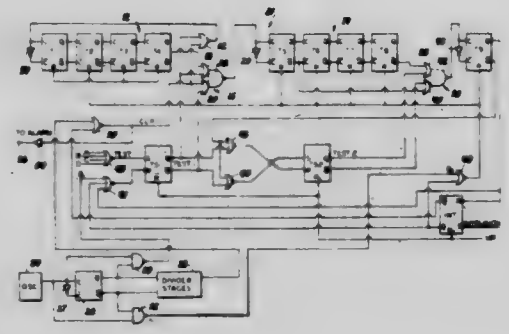
BINARY COUNTER AND CIRCUIT FOR TESTING SAME

Robert A. Shipp, and Chuan-Yung Hung, both of Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 18, 1980, Ser. No. 141,344

Int. Cl.³ H03K *21/30*; G06M *3/12*

U.S. Cl. 235—92 MS* **3 Claims**



1. A counter and circuitry for testing same, said counter partitioned into at least first and second portions, each portion containing a plurality of stages,

first gate means adapted when enabled to apply a clock signal to the first stage of said first portion,

steering gate means for selectively steering said clock signal or the output of the last stage of said first portion of said counter to the first stage of said second portion of said counter,

control means responsive to a test input for controlling said first gate means and said steering gate means in a predetermined sequence to selectively apply said clock signal to the first stage of either said first portion or said second portion of said counter and for respectively detecting overflow of the first stage or last stage of said second portion of said counter.

4,336,449

INTERFACE UNIT

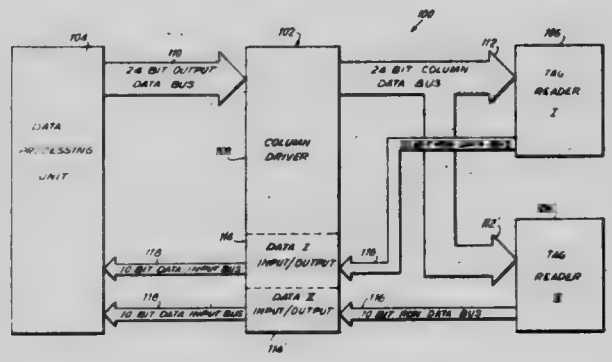
Russell C. Perry, St. James, N.Y., assignor to George F. Heinrich, Bayside, N.Y.

Filed Aug. 19, 1980, Ser. No. 179,660

Int. Cl.³ G06K *7/10*

U.S. Cl. 235—429 **6 Claims**

1. An interface unit for transferring coded information on a real time basis directly from a tag reader having a memory arranged in a preselected number of columns and rows and having a plurality of column terminals and row terminals for reading and storing information from encoded garment tags and a data processing unit which stores the transferred coded information, said interface unit being coupled to said data processing unit by an output data bus and a data input bus, said interface unit being coupled to said tag reader by a column data bus coupling said interface unit in parallel to the column terminals in the tag reader memory and a row data coupling the row terminals in the tag reader memory in parallel to the interface unit, said interface unit comprising means responsive to a sequential series of voltage level increases received over said output data bus in response to encoded information from the garment tag being stored in the tag reader memory for



producing a sequence of amplified output voltages sequentially on said column data bus for serial application to each column in the tag reader memory, and data input/output means responsive to decimal coded voltages received by said interface unit on said row data bus and produced by the memory in the tag reader responding to said output voltages to cause decimally coded voltages to appear at the row output terminals of said tag reader sequentially as each column in said tag reader is interrogated for transferring said information by said data input bus on a real time basis to said data processing unit for storage therein.

4,336,450

FOCUS DETECTING APPARATUS

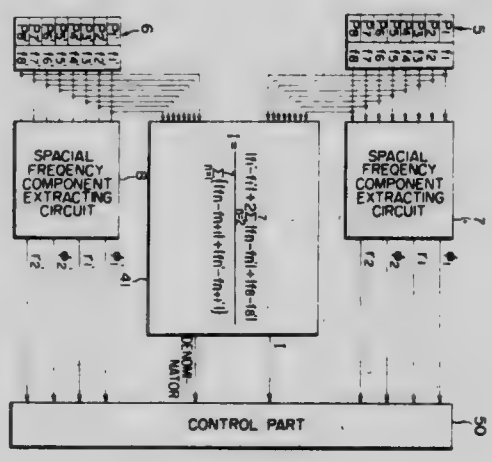
Ken Utagawa; Akira Ogasawara, both of Yokohama; Hiroshi Shirasu, and Kunihisa Hoshino, both of Kawasaki, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Jan. 15, 1980, Ser. No. 112,350

Claims priority, application Japan, Jan. 20, 1979, 54-5270; Mar. 16, 1979, 54-30046

Int. Cl.³ G01J *1/20*

U.S. Cl. 250—201 **9 Claims**



1. A focus detecting apparatus provided with a pair of first and second photosensor arrays each having plural photosensor elements arranged in a determined direction; and optical means for projecting light images of the same object onto said first and second photosensor arrays and modifying at least one of the relative position of the first photosensor array with respect

to the light image thereon and the relative position of the second photosensor array with respect to the light image thereon in response to the change of the focal position of an objective lens, whereby the focus state of said objective lens is detected from the relationship between said two relative positions, the improvement comprising:

(a) first means for forming phase outputs from said first and second photosensor arrays of phases respectively corresponding to the relative positions of said first and second photosensor arrays with respect to the light images thereon;

(b) second means for comparing the output corresponding to the amount of light entering said first photosensor array with the output corresponding to the amount of light entering said second photosensor array and forming an output corresponding to said comparison;

(c) third means for forming outputs according to the magnitude of variation of the amount of light caused by said light image in said direction of said arranged plural photosensor elements; and

(d) prooessing means for generating a synthesized output signal representing the focus state of said objective lens with respect to the object from the outputs of said first, second and third means.

4,336,451

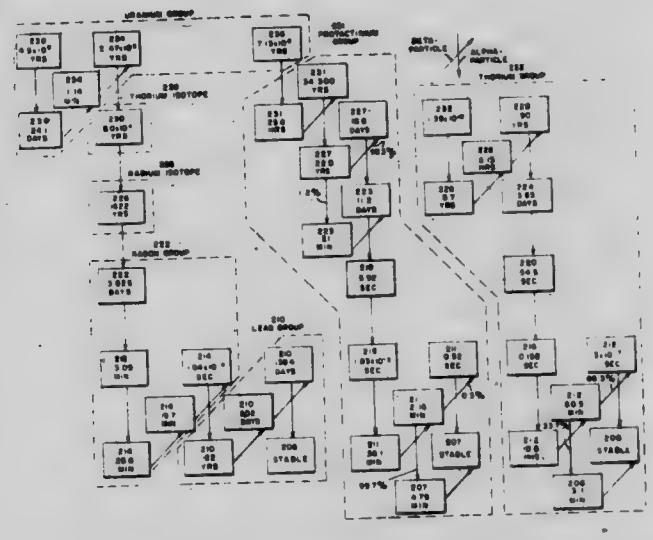
FIELD METHOD FOR DETECTING DEPOSITS CONTAINING URANIUM AND THORIUM

Lorin R. Stieff, P.O. Box 263, Kensington, Md. 20795

Continuation-in-part of Ser. No. 879,578, Feb. 21, 1978, Pat. No. 4,216,380, and Ser. No. 899,937, Apr. 25, 1978, Pat. No. 4,268,748. This application Dec. 21, 1979, Ser. No. 106,424

Int. Cl.³ G01V *5/00*; G01T *5/00*

U.S. Cl. 250—255 **13 Claims**



1. A field method for detecting location of a deposit containing uranium or thorium and for distinguishing between uranium or thorium containing deposits having characteristic radioactive daughter products near the deposit comprising collecting subsurface samples from a vicinity of the deposit, studying the samples for characteristic radioactive daughter product matter, comprising the steps of contacting alpha particle sensitive films with the radioactive matter, etching the films, studying the etched films for alpha particle damage, detecting presence of the deposit containing uranium or thorium based on the alpha particle damage in the films caused by characteristic radioactive daughter product matter in the samples, plotting sample locations and alpha particle damage populations, and determining location of deposits containing uranium or thorium from the plotting, wherein the process of studying the samples comprises depositing a radioactive daughter product from a solution on a planchet or silver foil and exposing the films with the planchet or silver foil on which the radioactive daughter product has been deposited, and wherein the exposing comprises directly placing the planchet or foil on the films.

4,336,452

RADIATION DETECTOR CIRCUITS WHICH INHIBIT DEPOLING OF THE DETECTOR

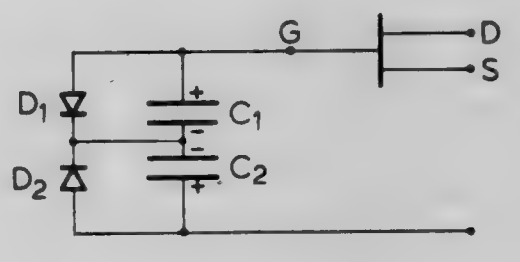
Geoffrey Baker, Southampton, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 3, 1980, Ser. No. 137,028

Claims priority, application United Kingdom, Apr. 12, 1979, 7912912

Int. Cl.³ G01J *1/00*

U.S. Cl. 250—338 **13 Claims**



1. An electrical circuit arrangement comprising a pair of first and second detector elements formed of electrically polarized material, each of said elements having opposite first and second surfaces extending transverse to the direction of polarization, each of said first and second surfaces being provided with first and second electrodes, respectively, said detector elements being electrically connected in series by their first electrodes such that their directions of polarization are opposite each other;

characterized in that the circuit further comprises first and second diodes, the first diode electrically connected in parallel across one detector element and the second diode electrically connected in parallel across the other detector element, the polarities of the diodes being chosen such that for a decrease in the polarization of either one or both of the detector elements, the potential developed across said element will reverse bias the diode connected in parallel therewith.

4,336,453

NON-DISPERSION TYPE INFRARED ANALYZER FOR SIMULTANEOUSLY DETERMINING PLURAL COMPONENTS

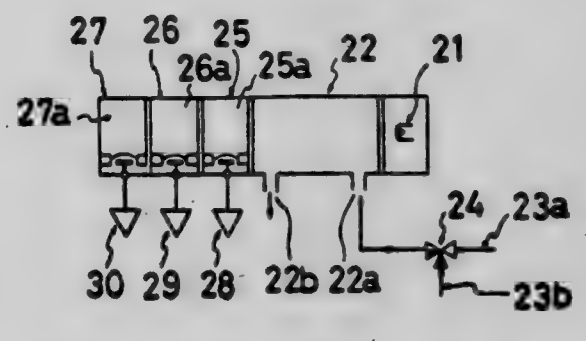
Takao Imaki; Hajime Mikasa, and Niro Sakai, all of Miyanohigashi, Japan, assignors to Horiba Limited, Kyoto, Japan

Filed Jul. 21, 1980, Ser. No. 170,879

Claims priority, application Japan, Jul. 20, 1979, 54-92829

Int. Cl.³ G01J *1/00*

U.S. Cl. 250—344 **3 Claims**



1. A non-dispersion type infrared analyzer for simultaneously determining plural components of a sample fluid and comprising:

a light source;

a sample cell;

a plurality of pneumatic detectors arranged in a row adjacent said sample cell, wherein said light source provides light rays arranged to pass serially through said sample cell and said plurality of pneumatic detectors;

a first conduit for supplying said sample fluid;

a second conduit for supplying a standard fluid;

a fluid flow path change-over means connected to said first and second conduits and said sample cell for alternately supplying fixed amounts of said standard fluid and said sample fluid to said sample cell;

wherein each of said plurality of pneumatic detectors is arranged to respectively correspond to one of said plural components to be determined.

4,336,454

SMOKE DETECTOR IONISATION CHAMBER USING NICKEL-63 SOURCE

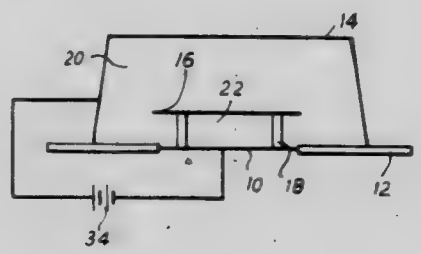
Jack Bryant, and Mark Janicki, both of Amersham, England, assignors to The Radiochemical Centre Limited, Amersham, England

Filed Aug. 27, 1979, Ser. No. 70,051

Claims priority, application United Kingdom, May 18, 1979, 7917447

Int. Cl.³ G01T *1/18*

U.S. Cl. 250—381 **10 Claims**



1. A smoke sensing detector for use with an indicating device, said smoke detector comprising:

a chamber defining means defining a chamber adapted for allowing smoke to pass therethrough;

said chamber having a base which is an inner electrode and insulated from the remainder of the chamber, said remainder of chamber being an outer electrode;

said chamber having therein a collector electrode, at least one pillar of an insulating material on said inner electrode on which said collector electrode is mounted, said collector electrode being positioned for dividing said chamber into two regions having different electrical characteristics when an appropriate potential difference is maintained across said inner and outer electrodes, said two regions being an outer ionisation region defined by said outer electrode and said collector electrode for having a current which passes therethrough significantly affected by ingress of smoke into said chamber, and a reference ionisation region defined by said inner electrode and said collector electrode, for having an essentially constant current passing therethrough which is substantially unaffected by ingress of smoke into said chamber;

said collector electrode having structurally associated therewith a nickel-63 radioactive source emitting radiation into both ionisation regions.

4,336,455

SMOKE DETECTORS

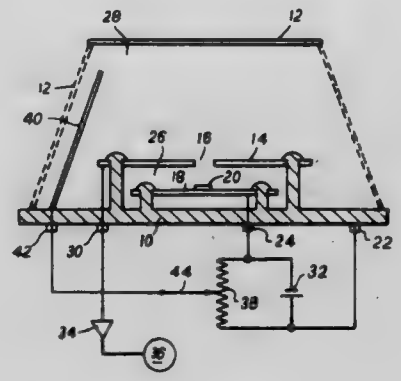
Jack Bryant, Buckinghamshire, England, assignor to The Radiochemical Centre Limited, Buckinghamshire, England

Continuation of Ser. No. 959,772, Nov. 13, 1978, abandoned. This application Nov. 3, 1980, Ser. No. 203,366

Claims priority, application United Kingdom, Nov. 18, 1977, 48155/77

Int. Cl.³ G01T *1/18*

U.S. Cl. 250—385 **10 Claims**



1. A smoke detector comprising:

first and second electrodes positioned to define therebetween an ionization chamber;

a radioactive substance positioned for emitting radiation into said ionization chamber for causing ionization of a gas therein;

first means for maintaining a potential difference across said first and second electrodes for causing an ion current to flow therebetween, said current being caused to vary when smoke enters said ionization chamber;

second means for testing the detector or for adjusting its sensitivity, said second means comprising an auxiliary electrode located in said ionization chamber for affecting the electric field between said first and second electrodes; and

third means for creating, controlling and varying an externally applied potential difference between said first electrode and said auxiliary electrode.

4,336,456

DEVICE FOR THE STERILIZATION OF LIQUIDS BY MEANS OF ULTRAVIOLET RAYS

Dieter Kuse, Niederrohrdorf; Heinz Wiederkehr, Brugg, and Norbert Winkler, Wettingen, all of Switzerland, assignors to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Feb. 25, 1980, Ser. No. 124,114

Claims priority, application Switzerland, May 9, 1979, 4338/79

Int. Cl.³ G01N *21/24*

U.S. Cl. 250—436 **4 Claims**

1. An apparatus for sterilizing liquids by means of ultraviolet rays wherein the source of radiation used is a low-pressure high-current mercury vapor lamp which is provided with a cecum-shaped piece of tubing located on a discharge tube, comprising:

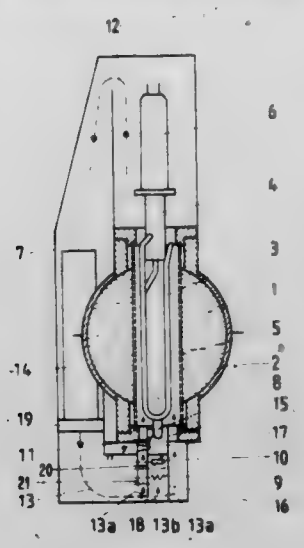
a pipeline through which said liquids flow disposed around said discharge tube;

at least one electrode bulb;

means for circulating a stream of air through the apparatus such that air travels past said at least one electrode bulb to an outer wall of the pipeline and such that air that has cooled on the outer wall of the pipeline is returned to said mercury vapor lamp at a temperature lower than the operating temperature of said cecum-shaped piece of tubing;

means for separating said stream of cooled air upstream of said cecum-shaped piece of tubing into first and second streams of cooled air such that said second stream of

cooled air communicates with said cecum-shaped piece of tubing and said first stream of cooled air directly communicates with said discharge tube; and



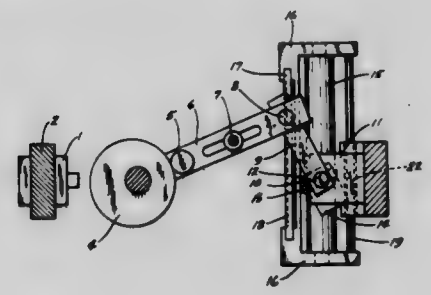
heating means positioned in said second stream of cooled air for heating said second stream of cooled air and for controlling the temperature of said cecum-shaped piece of tubing.

4,336,457

MOTION MECHANISM OF X-RAY FILM IN PANORAMIC RADIOGRAPHY

Timo Nieminen, Helsinki, Finland, assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Division of Ser. No. 9,686, Feb. 5, 1979, Pat. No. 4,198,566, which is a continuation of Ser. No. 870,621, Jan. 19, 1978, abandoned. This application Dec. 5, 1979, Ser. No. 100,389
Claims priority, application Finland, Jan. 24, 1977, 770210
Int. Cl.³ G03B *41/16*
U.S. Cl. 250—439 P **7 Claims**



1. A mechanism for moving a planar X-ray sensitive film cassette in a panoramic X-ray system having a stationary frame, a rotatable support arm supported by the stationary frame, an X-ray source attached to one end of the rotatable support arm, and a film cassette holder attached to the opposite end of the rotatable support arm, the film cassette holder adapted to receive the planar film cassette for linear movement relative to the rotatable support arm;

said mechanism comprising:

(a) a rotatable rod supported by the film cassette holder with the longitudinal axis thereof parallel to the plane of the film cassette;

(b) a traction wheel in frictional driving engagement with said rotatable rod, said traction wheel having a rotational axis;

(c) means for rotating said traction wheel; and

(d) means for varying in a predetermined manner the angle between the rotational axis of said traction wheel and the longitudinal axis of said rotatable rod;

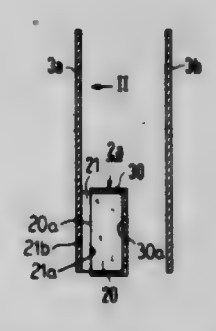
whereby the linear speed of the film cassette relative to the rotatable support arm during radiographic exposure is varied in a predetermined manner which is dependent upon the angle between the longitudinal axis of said rotatable rod and the rotational axis of said traction wheel.

4,336,458

DIAGNOSTIC RADIOLOGY APPARATUS FOR PRODUCING LAYER IMAGES OF AN EXAMINATION SUBJECT

Hans J. Krumme, Uttenreuth; Martin Schmidt, Erlangen; Guenter Schmitt, Erlangen, and Wolfgang Schubert, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 29, 1980, Ser. No. 191,430
Claims priority, application Fed. Rep. of Germany, Oct. 24, 1979, 2943027
Int. Cl.³ A61B *6/00*; G01T *1/20*; H01J *35/16*
U.S. Cl. 250—445 T **4 Claims**



1. Diagnostic radiology apparatus for producing layer images of an examination subject, comprising a patient support, a measuring arrangement for irradiating the examination subject from different directions having a radiation source which emits a radiation beam penetrating the layer to be examined whose extent perpendicular to the layer plane is equal to the layer thickness, and having a radiation receiver which supplies electric output signals corresponding to the measured radiation intensity, and a computer connected to the radiation receiver for computing the attenuation values of specific image points of the irradiated body layer from the output signals of the radiation receiver, the radiation receiver having a row of detectors having a collimator with one collimator grid compartment for each detector and having a plate supporting every detector in the collimator grid compartment associated with and providing radiation-absorbing material bounding the grid compartment and having a scintillator crystal and a photoelectric transducer optically in connection therewith, said photoelectric transducer being mounted on the plate, characterized in that the scintillator crystal (20) is mounted on the surface of the photoelectric transducer (21) such that the transducer is disposed between the plate (3*a*) and the scintillator crystal (20), the scintillator crystal (20) being coated with an optical seal (30) on its surface, with the exception of the surface confronting the photoelectric transducer (21).

4,336,459

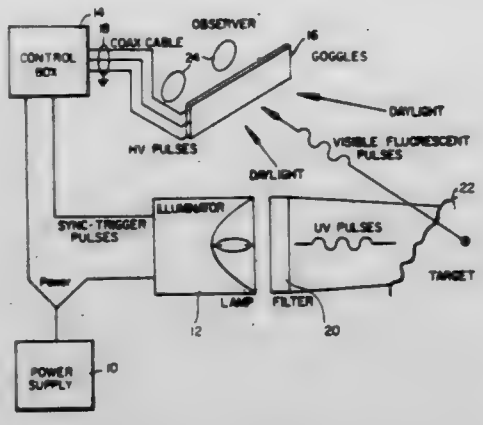
METHOD AND APPARATUS FOR DETECTING FLUORESCENCE UNDER AMBIENT LIGHT CONDITIONS

Homer Fay, Snyder, N.Y., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 11, 1980, Ser. No. 158,642
Int. Cl.³ F21V *9/16*; G01N *21/64*
U.S. Cl. 250—459 **44 Claims**

1. Method of detecting visually under daylight conditions the presence of a fluorescent material, which method comprises observing said material through a gated aperture which is opened at predetermined intervals for periods of predetermined duration while simultaneously exposing said material to periodic pulses of stimulating light of a wavelength appropriate to cause fluorescence of said material, the frequency of said

stimulating light pulses being synchronized with the frequency of the opening of said gated aperture, whereby said aperture is



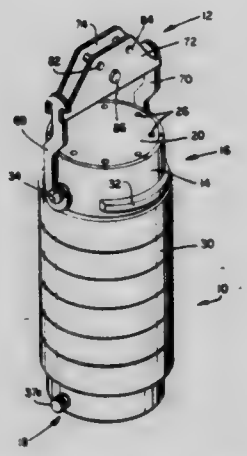
open for at least a portion of the period during which fluorescence is produced by said stimulating light pulses.

4,336,460

SPENT FUEL CASK

Ralph E. Best, Dublin, Ohio; Vijay Bhandari, Chamblee, Ga.; Richard L. Creeden, Poway, Calif.; Michael E. Mason, Lilburn, Ga.; Harrison R. Panter, Norcross, Ga.; Jack D. Rollins, Roswell, Ga., and Richard A. Schreiber, Decatur, Ga., assignors to Nuclear Assurance Corp., Atlanta, Ga.

Filed Jul. 25, 1979, Ser. No. 60,794
Int. Cl.[3] G21F *5/00*
U.S. Cl. 250—506 **8 Claims**



1. A cask for spent nuclear fuel assemblies, said cask comprising:

an elongate body member for containing said spent nuclear fuel assemblies, said body member having a top end and an outer surface;

a pair of trunnions disposed on said outer surface adjacent said top end, each of said trunnions comprising:

a surface for selective engagement by a lifting means;

a first element attachable to said body member to provide a first load path for supporting the weight of the body member when said trunnion surface is engaged by a lifting means;

a second element attachable to said body member to provide a second said load path; and

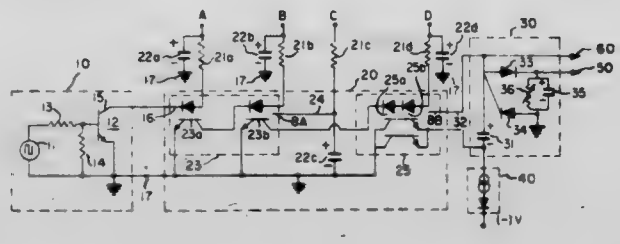
means for attaching said first element and said second element to said body member, so that the first and second elements of each trunnion provide redundant first and second load paths for supporting the weight of said body member between the body member and the lifting means engaging the trunnion.

4,336,461

FAIL-SAFE APPARATUS

Edward S. Ida, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 22, 1980, Ser. No. 189,626
Int. Cl.[3] G02B *27/00*
U.S. Cl. 250—551 **4 Claims**



1. A fail-safe circuit comprising:

(a) a first opto-isolator having a gain of at least unity and having input switching element, output switching element and input LED element terminals;

(b) a second opto-isolator having a gain of at least unity and having input switching element, output switching element and input LED element terminals, said input LED element terminal of said second opto-isolator being connected to the output switching element terminal of said first opto-isolator;

(c) a pulsating signal source connected to the input LED element terminal of said first opto-isolator;

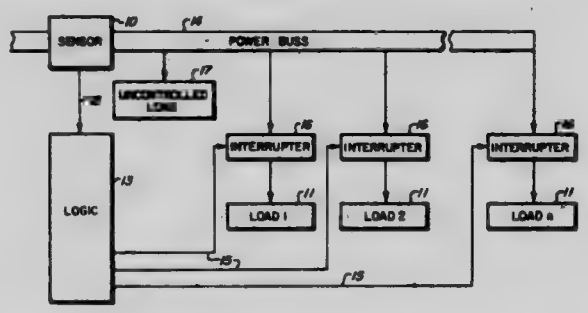
(d) means for simultaneously applying a DC high binary logic level signal to the input switching element terminals of said first and second opto-isolator whereby a pulsating logic signal is generated at the output switching element terminal of said second opto-isolator.

4,336,462

ELECTRICAL LOAD RESTORATION SYSTEM

Walter P. Hedges, Laveen, and C. Gardner Sullivan, II, Phoenix, both of Ariz., assignors to Cyborex Laboratories, Inc., Phoenix, Ariz.

Continuation of Ser. No. 909,850, May 26, 1978, Pat. No. 4,211,933. This application May 30, 1980, Ser. No. 154,775
The portion of the term of this patent subsequent to Jul. 8, 1997, has been disclaimed.
Int. Cl.[3] H02J *3/14*
U.S. Cl. 307—35 **3 Claims**



1. In an energy management method employing apparatus for automatically limiting the total instantaneous consumption of electrical energy in a residence having a plurality of energy-consumming variable demand loads having different nominal current demands, said method including

measuring a quantity indicative of the total power to the loads which are then in operation, and

automatically interrupting the current, if any, to each of said loads in a predetermined sequence when the quantity indicative of the total power to the loads then in operation exceeds a predetermined peak value of the quantity indicative of the total power demand of the residence, until the quantity indicative of the total power is less than the predetermined peak value of the quantity indicative of the total power demand,

the improvement whereby the quantity indicative of the total power is maintained as high as possible without exceeding said predetermined peak value of the quantity indicative of the total power demand, said improvement comprising:

(a) establishing a predetermined load shedding sequence which is independent of the nominal current demands of said loads;

(b) measuring the actual values of the quantities indicative of the power consumption of each load which is interrupted;

(c) selecting from among those loads which have been interrupted, the loads which, according to said actual values and independent of said nominal current demands, can be restored without causing said quantity indicative of the total power to exceed said predetermined peak value of the quantity indicative of the total power demand; and

(d) automatically restoring said selected loads to operation; the measurement of said actual values of the quantity indicative of the power consumption enabling load restoration selections based thereon without modification of said energy management apparatus to account for variations in the nominal current demands of said loads.

4,336,463

ANNUNCIATOR

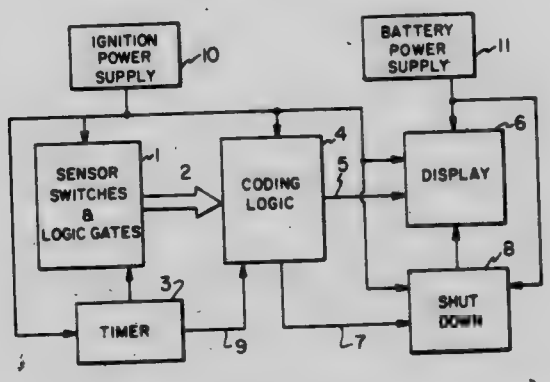
Bruce R. Beeghly, Youngstown, Ohio, assignor to The Economy Engine Company, Youngstown, Ohio

Continuation-in-part of Ser. No. 923,591, Jul. 12, 1978, Pat. No. 4,246,493, which is a continuation-in-part of Ser. No. 826,389, Aug. 22, 1977, abandoned. This application Nov. 14, 1980, Ser. No. 206,884

The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.

Int. Cl.³ H02J 9/06

U.S. Cl. 307—66 **12 Claims**



1. A shut-down and first-out annunciator device for an internal combustion engine or the like comprising:

a. a plurality of parallel connected sensor switches which change condition when a fault condition occurs,

b. a logic circuit which converts the change in condition on one of the plurality of sensor switches into a binary digital output indicative of the sensor switch which has changed condition and for creating a temporary shut-down signal,

c. a digital display means for converting the binary digital signal produced by the logic circuit into a digital readout,

d. shut-down means responsive to the temporary shut-down signal for creating continuous signals for latching the digital display and power FET having a control element by application of the signal to said control element,

e. a first power supply circuit outputting energy only during normal operation to power the sensor switches, logic means, display means and shut-down means during normal operation, and

f. a second power circuit comprising a battery for powering during and after shut-down a portion of the device including the display means and shut-down means but excluding the sensor switches.

4,336,464

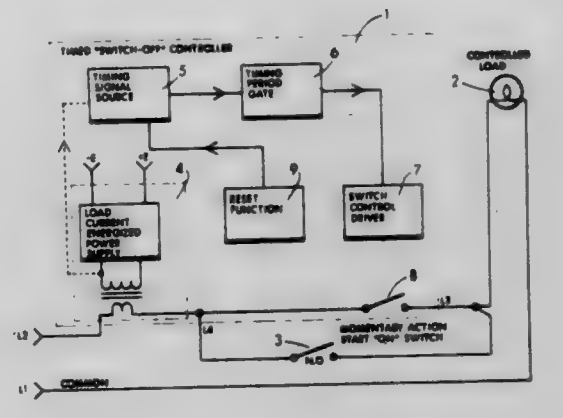
TWO TERMINAL TIMED ELECTRIC SWITCH PROVIDING ZERO OFF-STATE CURRENT FLOW THERETHROUGH

Harold J. Weber, 20 Whitney Dr., Sherborn, Mass. 01770

Filed May 10, 1979, Ser. No. 37,822

Int. Cl.³ H01H 7/00

U.S. Cl. 307—141.4 **18 Claims**



1. Two terminal timed switch device which serves to substantially connect into but one side of an electric power circuit from which all operative power is therefrom derived for operation of the time control functions through utilization of the effects of current flow through the said device during the timing period "on" state; said timed switch substantially including:

a. a source of electric a.c. power;

b. an a.c. load means;

c. at least two conductive elements coupled between the said source and said load, wherein the said elements form substantially a first electric circuit path and a second electric circuit path for the effective flow of electric energy between the said source and said load;

d. controlled switch element means coupled effectively in series with at least one of the conductive element electric circuit paths so as to alterably effect a condition of maximum electric current flow therethrough during the timing period and negligible electric current flow therethrough upon cessation of the said timing period;

e. control means coupled to said switch element means and cooperative therewith so as to establish the instantaneous condition of electric current flow therethrough;

f. time delay means including a combination of electronic semiconductor circuit means, effective so as to provide a time related event signal which couples to the said control means;

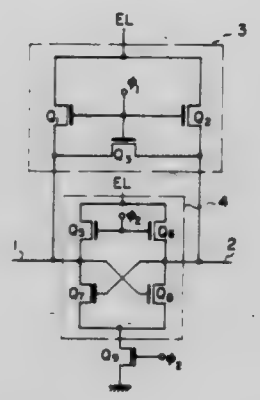
g. power supply means, the output of which is coupled to at least the said control means and said time delay means so as to effect the operation thereof; importantly having but two essential input terminals thereto; said input terminals further being coupled in series with but one said electric circuit path between the said source and said a.c. load and operative to receive power therefrom during the period of maximum current flow, whereas negligible, substantially zero power flow occurs once the timing period is complete; and,

h. initiating means coupled effectively at least in parallel with said switch element means and effectively in series with said power supply means and operative to produce at least a momentary flow of current through the electric circuit path between the said source and said load and to thereby effect the control means to establish current flow through the controlled switch element means for a finite period of time until the said time related event signal occurs, whereupon the current flow through the controlled switch element ceases.

4,336,465
RESET CIRCUIT

Masao Nakano; Yoshihiro Takemae, and Katsuhiko Kabashima, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 27, 1979, Ser. No. 61,252
Claims priority, application Japan, Jul. 28, 1978, 53-92308
Int. Cl.[3] H03K 5/00
U.S. Cl. 307—238.3 5 Claims



1. A reset circuit for resetting the state of first and the second circuits by bringing the first and second circuits to a predetermined common potential, said reset circuit comprising

first and second reset transistors for respectively connecting said first and second circuits to a common voltage source corresponding to said predetermined potential,

a short circuit transistor, having a lower threshold voltage than the threshold voltages of said first and second reset transistors, for connecting in common said first and second circuits, and

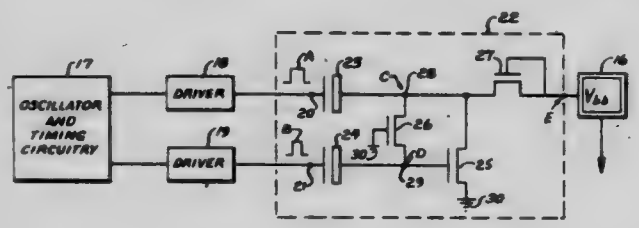
means for applying a signal simultaneously to said first and second reset transistors and to said short circuit transistor for causing conduction of said short circuit transistor to occur before conduction of said first and second reset transistors as a result of said difference in threshold voltages, said difference being due to selectively implanted ions in the manufacture of the respective transistors,

wherein said threshold voltages of said first and second reset transistors are approximately in the range from 2.2 to 2.8 volts, and said threshold voltage of said short circuit transistor is approximately in the range from 1.2 to 1.3 volts.

4,336,466
SUBSTRATE BIAS GENERATOR

Rahul Sud, Colorado Springs, and Kim C. Hardee, Manitou Springs, both of Colo., assignors to Inmos Corporation, Colorado Springs, Colo.

Filed Jun. 30, 1980, Ser. No. 164,284
Int. Cl.[3] H03L 1/00; H03K 3/354, 3/017
U.S. Cl. 307—297 9 Claims



1. A bias generator for the substrate of a metal-oxide-semiconductor integrated circuit which includes a circuit reference voltage and transistors each having an inherent threshold voltage conduction point, said generator comprising:

means for generating first and second trains of period pulses such that said first periodic pulses and said second periodic pulses have the same frequency and are phase synchronized, and such that said first periodic pulses are first occurring and have a duty cycle greater than that of said second periodic pulses;

a first input terminal for receiving the train of first periodic pulses;

a second input terminal for receiving the train of second periodic pulses;

a first node capacitively coupled to said first terminal for receiving positive and negative voltage transitions derived from positive and negative amplitude transitions associated with said first pulses;

a second node capacitively coupled to said second terminal for receiving positive and negative voltage transitions derived from positive and negative amplitude transitions associated with said second pulses;

a first transistor coupled to said first and second nodes and biased by the reference voltage so as to couple voltage transitions between said first and second nodes;

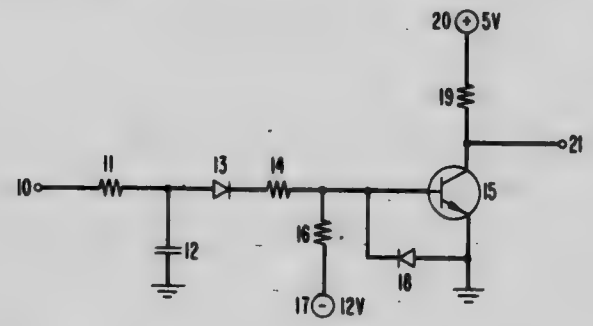
a second transistor coupled between the reference voltage and said first node and controlled by the voltage on said second node for clamping said first node to the reference voltage in response to voltage transitions which drive the potential of said second node a threshold voltage more positive than the reference voltage; and

means for driving the substrate voltage to a voltage level slightly more positive than the voltage at said first node.

4,336,467
VOLTAGE DETECTOR

Richard J. Lisco, Whippany, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 31, 1980, Ser. No. 117,051
Int. Cl.[3] H03K 5/153
U.S. Cl. 307—350 2 Claims



1. A telephone line voltage detector for use in telephone pair gain systems and for detecting the presence of positive test voltages greater than a predetermined threshold on either conductor of said telephone line and, in response to the detection of said test voltage, generating an output signal from said detector, said output signal being used to initiate testing of said pair gain system and of said telephone line, said detector comprising in sequence

a low-pass filter,

a first diode,

a first resistor, and

a threshold detector, the two ends of said first resistor connected between said first diode and said threshold detector, thereby enabling said low-pass filter to operate substantially linearly,

said threshold detector comprising

a transistor, and

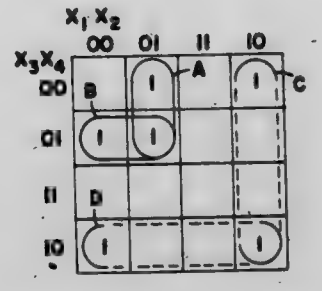
means comprising a second diode and a second resistor for biasing said transistor to the cut-off state, said second diode providing a compensating voltage drop opposite to the voltage drop across said first diode in response to said input voltage applied to said detector.

4,336,468

SIMPLIFIED COMBINATIONAL LOGIC CIRCUITS AND METHOD OF DESIGNING SAME

Richard Spillman, Davis, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed Nov. 15, 1979, Ser. No. 94,450
Int. Cl.[3] H03K *19/00, 19/20*
U.S. Cl. 307—440 8 Claims



1. A logic circuit for implementing a given, partially symmetric Boolean function $f(x_1-x_n)$ having one output and which is symmetric with respect to several variables of the input variables x_1-x_n such that the function is invariant under the permutation of the several variables, comprising:

(a) symmetric logic means for filtering only redundant values of the several variables, the redundant values being "don't cares"; and

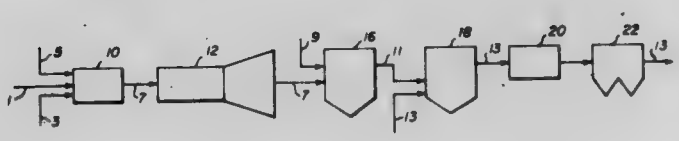
(b) combinational logic means, connected to said symmetric logic means, for generating the one output and having a construction as a function of the "don't cares"

4,336,469

METHOD OF OPERATING A MHD POWER PLANT

Stanley R. Wysk, Suffield, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Nov. 13, 1980, Ser. No. 206,584
Int. Cl.[3] H02N *4/02*
U.S. Cl. 310—11 7 Claims



1. A method of operating a magnetohydrodynamic power plant comprising the steps of:

a. combusting a fossil fuel substoichiometrically to produce a product gas having temperature of approximately 2500 C. and containing nitrogen oxides;

b. passing the product gas through a magnetohydrodynamic channel to generate electricity;

c. passing the product gas leaving the magnetohydrodynamic channel to a dwell chamber;

d. injecting reducing agent into the product gas passing from the magnetohydrodynamic channel to the dwell chamber;

e. holding the nitrogen oxides containing product gas in the dwell chamber at a temperature of at least 950 C. for a period of about 1 second, thereby permitting said reducing agent to react with the nitrogen oxides contained in the product gas to reduce a substantial portion of the nitrogen oxides to molecular nitrogen;

f. combusting the product gas leaving the dwell chamber in air to completely oxidize any reducing agent remaining in the product gas leaving the dwell chamber; and

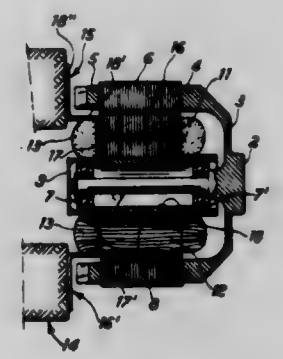
g. venting the completely combusted, reduced nitrogen oxide content product gas to the atmosphere.

4,336,470

ROTARY ELECTRIC MACHINE OF THE IN-OUT TYPE PROVIDED WITH INTEGRAL STATOR SUPPORTING MEANS, COMPONENT FOR SAID MACHINE AND METHOD FOR ASSEMBLING THE SAME

Giorgio Gutris, 231.6.2 Avenida de 27 de Enero, Premia de Mar, Spain

Continuation of Ser. No. 804,755, Jun. 8, 1977, abandoned. This application Oct. 18, 1979, Ser. No. 85,958
Claims priority, application Italy, Jun. 15, 1976, 24283 A/76
Int. Cl.[3] H02K *15/00*
U.S. Cl. 310—42 23 Claims



1. A rotary electric machine of the in-out type comprising:

an inner stator including a stator core of ferromagnetic material and at least one stator winding;

said stator core having substantially planar opposite faces and cavities;

said stator winding including internal portions housed in said cavities and head portions positioned axially external to said planar faces of said stator core;

an outer rotor supported for rotation about the axis of said stator; and

support means for connecting said stator to a static external structure, said support means comprising at least one plate-shaped rigid intermediate component including a portion in abutting contact with at least one of said planar opposite faces of said stator core and at least one of said head portions of said stator winding adjacent thereto; said portion of said support means being gripped between and in pressure engagement with said at least one planar opposite face and said at least one head portion due to the tension of said winding.

4,336,471

STATOR ASSEMBLY FOR STEPPING MOTOR

Michel G. Plancon, Besancon, France, assignor to Timex Corporation, Waterbury, Conn.

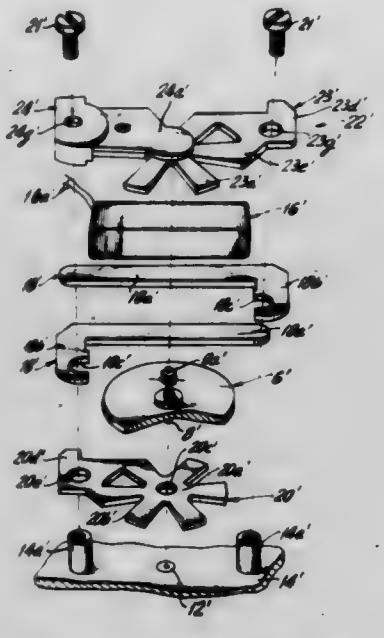
Filed Oct. 24, 1980, Ser. No. 200,229
Int. Cl.[3] H02K *37/00*
U.S. Cl. 310—49 R 4 Claims

1. In a stepping motor of the type having first and second stator members in spaced apart, overlapping relation to define a gap therebetween in which a rotor disc is mounted on a central axle for rotation and having a coil magnetically coupled to the first and second stator members, the improvement comprising:

(a) a magnetically permeable first stator member having a central hub, multiple spoke-like first pole pieces radiating from the hub with at least one of said first pole pieces extending beyond said rotor disc in a first direction forming a first motor arm and a central aperture in the hub through which one end of the rotor axle extends for rotation;

(b) a stator bridge assembly comprising a magnetically permeable second stator member having a central hub and multiple spoke-like second pole pieces radiating from the hub in spaced, overlapping relation to the hub and pole pieces of the first stator member with at least one of said second pole pieces extending beyond said rotor disc forming a second motor arm in a second direction from said first motor arm for providing spaced, non-overlapping relation between said

first motor arm and said second motor arm for substantially reducing magnetic losses and further comprising a non-magnetically permeable plastic holder member united to the second stator member, said second stator member having a central aperture in the hub axially aligned with the central aperture of the first stator member and said plastic holder



member having portions forming a bushing in the central aperture of second stator member for receiving the other end of the rotor axle with remaining portions of the plastic holder member forming a support bridge between the first and second stator members; and

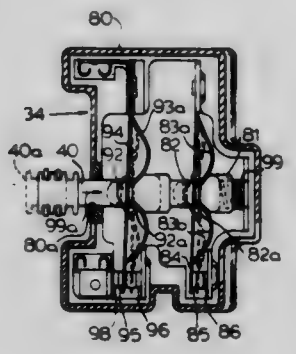
(c) means for holding the stator bridge assembly and first stator member together.

4,336,472

CENTRIFUGAL SWITCH ACTUATOR FOR A MOTOR

James I. Czech, Lincoln Township, Berrien County, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Jan. 7, 1980, Ser. No. 109,797
Int. Cl.³ H02K *11/00*
U.S. Cl. 310—68 E **12 Claims**



1. A linkage for operating a stationary switch in response to the rotational velocity of a motor shaft, said shaft having a centrifugal mechanism mounted thereon and movable in response to a change in the rotational velocity of said motor shaft, and linkage comprising:

a lever mounted adjacent to and adapted to be moved by said centrifugal mechanism, said lever having a notched end, and

an actuator for said stationary switch having a plurality of adjacent grooves thereon, said notched end of said lever positioned to mate with one of said grooves,

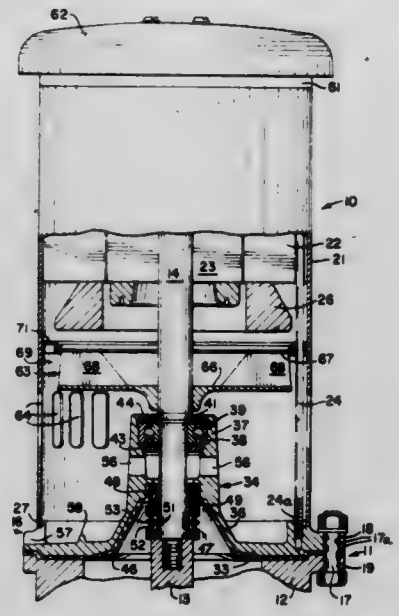
whereby the relative position of said lever with respect to said centrifugal mechanism and said actuator can be fixed by selective positioning of said notch in one of said grooves.

4,336,473

ELECTRIC MOTOR

Dale D. Wetters, and Gene L. Meyer, both of Bluffton, Ind., assignors to Franklin Electric Co., Inc., Bluffton, Ind.

Filed Nov. 5, 1979, Ser. No. 91,074
Int. Cl.³ H02K *5/10*
U.S. Cl. 310—88 **9 Claims**



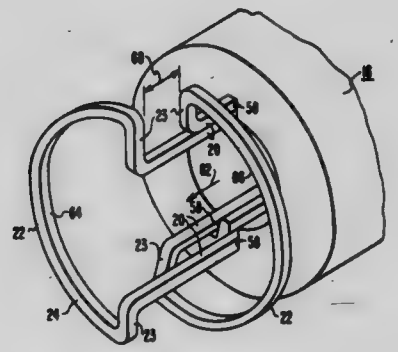
1. An electric motor including a drive shaft for driving a liquid pump, comprising a motor shell, an end bell fastened to said shell adjacent one end thereof, said end bell and said shell forming a rotor cavity and said shaft extending through said cavity, said end bell comprising a wall having an opening therein and said drive shaft extending through said opening for connection to said pump, a bearing within said cavity and mounted on said wall and supporting said shaft, said wall forming a common wall between the motor and the pump and the wall having a motor side and a pump side, said motor cavity being on said motor side and a liquid being pumped being on said pump side, said end bell being made of a material having a relatively high coefficient of thermal conductivity, and a cover having a relatively low coefficient of thermal conductivity extending across said pump side of said end bell and forming a layer of thermal insulation between said end bell and a liquid flowing through the pump, thereby preventing condensation around said bearing.

4,336,474

PHASE INTERLEAVED PERIPHERAL CONNECTOR RING END WINDING

Kent R. Davey, College Station, Tex., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 10, 1980, Ser. No. 139,082
Int. Cl.³ H02K *3/12*
U.S. Cl. 310—179 **6 Claims**



1. A dynamoelectric machine comprising:

a generally tubular stator core having a plurality of slots in said core's inner periphery;

a multiphase winding constituting a plurality of phase coils,

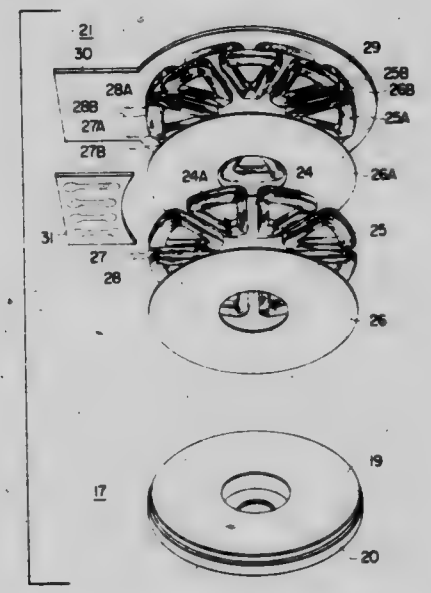
each of said phase coils including a plurality of coil sides receivable in said stator slots and a plurality of arcuate connector ring segments disposed on each end of the stator core electrically joining the coil sides, said connector ring segments being axially interspersed according to phase.

4,336,475

SLOTLESS BRUSHLESS MOTOR

Shigeki Morinaga; Kunio Miyashita; Tadashi Takahashi; Takeo Maeda, all of Hitachi, and Seizi Yamashita, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 14, 1979, Ser. No. 66,767
Claims priority, application Japan, Aug. 14, 1978, 53/98150
Int. Cl.[3] H02K *3/00*
U.S. Cl. 310—198 12 Claims



1. A slotless and brushless motor provided with a shaft mounted for rotation, a permanent magnet rotor integrally rotating with the shaft, a stator of armature including coils each of which consists of a plurality of concentrically wound coil portions formed in sequence and disposed opposite the permanent magnet rotor, and a supporting member for supporting the stator, wherein the stator comprises three coils each phase of which differs by 120°, the coils are disposed adjacent each other in spaced parallel planes, each coil consists of eight coil portions and is provided with two terminals; a prepreg or adhesive sheet is respectively disposed between said three coils; and, each of the coil portions is made from a self-melting and adhering conductor.

4,336,476

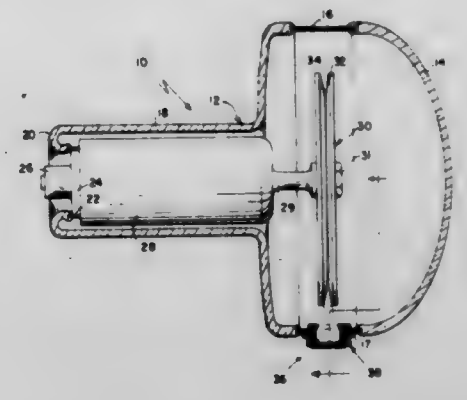
GROOVED X-RAY GENERATOR

William P. Holland, and Donld F. DeCou, Jr., both of West Redding, Conn., assignors to The Machlett Laboratories, Incorporated, Stamford, Conn.

Continuation of Ser. No. 939,566, Sep. 5, 1978, abandoned. This application Nov. 23, 1979, Ser. No. 96,867
Int. Cl.[3] H01J *35/10*
U.S. Cl. 313—60 16 Claims

1. An X-ray target of the rotating type comprising:

a disc provided with an outer peripheral rim surface having therein a focal track groove; and a focal area means therein including inwardly extended wall surfaces of the



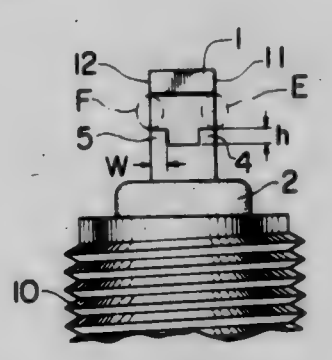
groove for producing an X-ray beam having substantially uniform intensity in a plane perpendicular to the groove.

4,336,477

SPARK PLUG

Shigeyasu Yamada, Nagoya, Japan, assignor to NGK Spark Plug Co., Ltd., Aichi, Japan

Filed Jun. 5, 1979, Ser. No. 45,816
Claims priority, application Japan, Jul. 28, 1978, 53/93044
Int. Cl.[3] H01T *13/20*
U.S. Cl. 313—142 7 Claims



1. A spark plug comprising: a mount having a region of electric insulative material, a center electrode disposed in said insulative material and projecting outward, an outer electrode having a flat inner surface confronting an end surface of said center electrode and, means on said end surface of said center electrode defining projections extending toward said outer electrode, said means comprising a groove formed in said end surface of said center electrode to define raised portions positioned on the end surface of said center electrode.

4,336,478

METHOD OF EXTENDING THE LIFE OF A CATHODE RAY TUBE

John H. Quilty, Wilmington, and Lawrence M. Scholten, Sudbury, both of Mass., assignors to Itek Corporation, Lexington, Mass.

Filed Apr. 21, 1980, Ser. No. 142,584
Int. Cl.[3] H01J *31/10*
U.S. Cl. 313—478 15 Claims

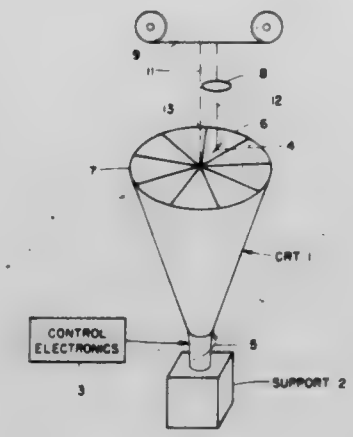
1. A method of greatly extending the life of a cathode ray tube which includes a cathode ray tube screen having a centralized screen portion in the neighborhood of an axis of rotation about which said cathode ray tube screen may be rotated, and a plurality of noncentralized screen portions, comprising the steps of:

a. generating a luminous image upon a first noncentralized portion of said screen over a first extended time period while maintaining said cathode ray tube screen stationary;

b. thereafter rotating said cathode ray tube screen about said axis of rotation through a given angle after the termination of said first extended time period during which said lumi-

nous image is produced in said first outer portion of said screen;

c. thereafter generating said luminous image in a second noncentralized portion of said screen over a second extended time period while maintaining said cathode ray tube screen stationary; and,



d. thereafter again rotating said cathode ray tube screen about said axis of rotation through a given angle for enabling generation of a luminous image in a third noncentralized portion of said cathode ray tube screen during a third extended time period while said screen is maintained stationary.

4,336,479

FLUORESCENT LAMP HAVING REFLECTIVE LAYER AND A METHOD FOR FABRICATING THE SAME

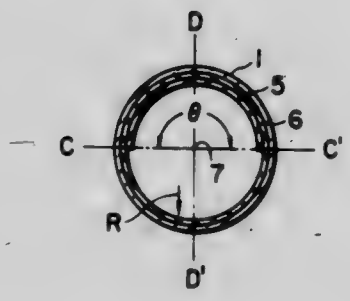
Churyo Kodama, Ohme; Taisuke Hirota, Hachioji; Hiroshi Ohno, and Etsuo Urataki, both of Ohme, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 31, 1979, Ser. No. 89,744

Claims priority, application Japan, Nov. 8, 1978, 53/136806; Mar. 30, 1979, 54/36888

Int. Cl.³ H01J *61/35, 61/48*

U.S. Cl. 313—487 **8 Claims**



1. A fluorescent lamp comprising a glass tube having electrodes sealed in both ends thereof and containing mercury and a rare gas in suitable amounts, a first layer of phosphor formed on the entire inner surface of said glass tube, and a second layer of phosphor formed on said first layer of phosphor and restricted to an area subtended by a predetermined angle of less than 360° along the circumference as seen in axial cross section and extending in the axial direction along substantially the entire length of said glass tube.

4,336,480

CATHODE RAY TUBE

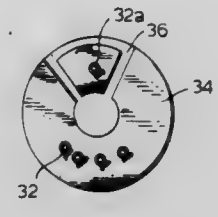
Hiroo Kobayashi, Nagaokakyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

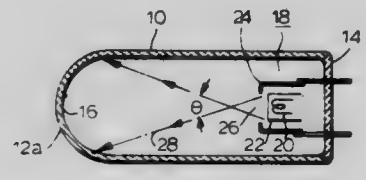
Filed Mar. 20, 1980, Ser. No. 132,161

Claims priority, application Japan, Mar. 24, 1979, 54-35919; May 29, 1979, 54-68612; Aug. 23, 1979, 54-107853; Nov. 12, 1979, 54-148261; Jan. 11, 1980, 55-2365

Int. Cl.³ H01J *29/92*

U.S. Cl. 313—495 **9 Claims**





1. A cathode ray tube for a display system, comprising: an evacuated envelope including a pair of opposite ends, a face plate disposed at one of the opposite ends of said evacuated envelope, a monochromatic phosphor screen disposed on the inner surface of said face plate to luminesce in a color taken from among the colors red, green and blue, and an electron gun disposed within said evacuated envelope positioned at the other end of said evacuated envelope, said electron gun generating an unfocussed beam of electrons directed toward said phosphor screen and said unfocussed beam flooding said phosphor screen with electrons from said electron gun for causing said screen to luminesce simultaneously over substantially the entire area of said phosphor screen, and a base portion disposed at the other end of said evacuated envelope, and means extending through said base portion to said electron gun capable of carrying anode voltage supplied to said cathode ray tube of not less than 5 kilovolts.

4,336,481

METHOD OF AND APPARATUS FOR AUTOMATIC ELECTRONIC FLASH LAMP CONTROL

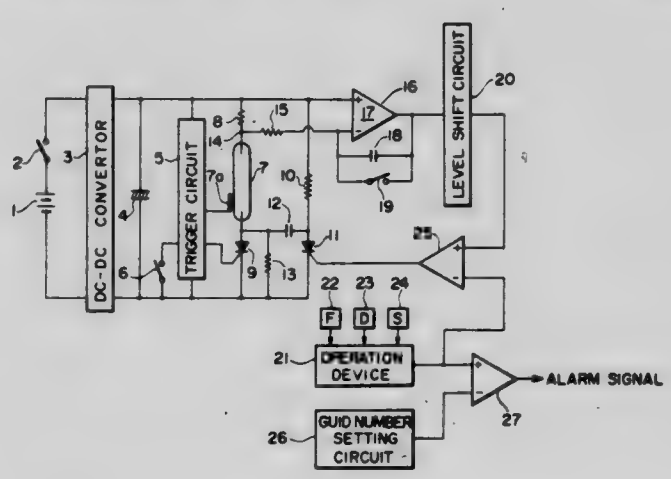
Saburo Numata, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Saitama, Japan

Filed Oct. 27, 1980, Ser. No. 201,124

Claims priority, application Japan, Oct. 26, 1979, 54-137587

Int. Cl.³ H05B *41/32*

U.S. Cl. 315—241 P **7 Claims**



1. A method for automatically controlling the amount of light produced by an electronic flash lamp discharge apparatus in which a flash lamp discharge tube stops its discharge when

the amount of light required to properly expose the object being photographed with success is produced, comprising the steps of presetting the desired amount of light to be produced depending on the object distance, the lens diaphragm aperture and the film speed, said desired amount of light being enough to properly expose said object; measuring the actual amount of light produced in said electronic flash lamp apparatus by measuring a portion of the discharge current of said flash lamp discharge tube for the flash duration; and terminating the discharge of said flash lamp discharge tube when a predetermined relationship between said desired and actual amounts of light is reached.

4,336,482

REAR WINDOW WIPER MOTOR CONTROL

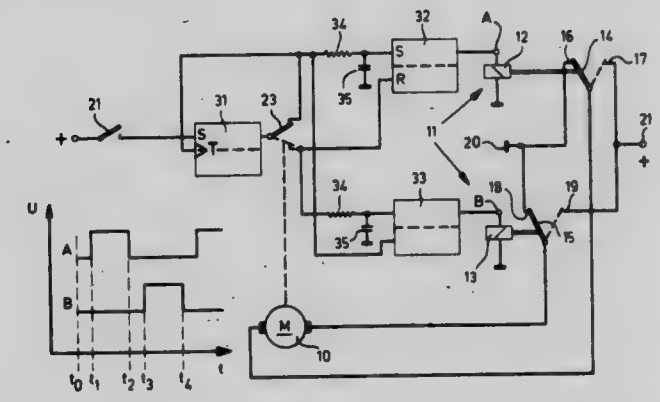
Horst Goertler, Sachsenheim; Joachim Munz, Gemmrigheim; Hans Prohaska, and Horst Rachner, both of Bietigheim-Bissingen, all of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Nov. 27, 1979, Ser. No. 97,848

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851770

Int. Cl.³ H02P *1/04*

U.S. Cl. 318—443 **1 Claim**



1. In an windshield wiper system having a current-controlled electric motor for driving windshield wipers through repeating wiping cycles by reversing the direction of rotation of the motor through a reversing switch comprising a pair of relays which control the polarity of current applied to the motor, the improvement therewith comprising: a limit switch mechanically coupled to said motor for detecting the end positions of said motor and for providing input signals indicative of said end positions; and, first and second time delay circuits each having an output respectively coupled to one of said relays and each of said delay circuits having a pair of inputs coupled to said limit switch, the first input of each delay circuit being responsive to respective ones of said input signals to activate the output of the delay circuit after a predetermined delay period and the second input of each delay circuit being responsive to respective ones of said input signals to deactivate the output of the delay circuit upon the application of an input signal, with the first input of the first delay circuit and the second input of the second delay circuit being responsive to a first one of said input signals provided by said limit switch when said limit switch detects a first end position of said motor, and with the first input of the second delay circuit and the second input of the first delay circuit being responsive to a second one of said input signals provided by said limit switch when said limit switch detects the other end position of said motor.

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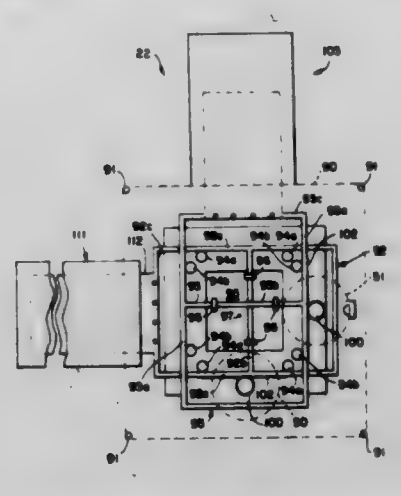
CAPACITIVE POSITION SENSOR

Richard L. Smith, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 24, 1980, Ser. No. 114,998

Int. Cl.³ G05B *1/06*

U.S. Cl. 318—662 **3 Claims**



1. Apparatus for positioning a projected image in response to a dc input signal corresponding to a commanded position, said apparatus comprising:

a movable projector mechanism whose position determines the position of the projected image;

a motor connected to drive said projector mechanism;

means for providing a position feedback signal comprising a capacitive position transducer for developing a capacitance corresponding to the position of said projector mechanism and means for deriving a DC position signal corresponding to said capacitance, said transducer comprising a pair of plate-like electrodes fixedly spaced apart in opposed relation with respect to each other and a generally rectangularly shaped dielectric member defining a pair of orthogonal axes, said dielectric member being mechanically coupled to said projector mechanism so that movement of said projector mechanism causes movement of said dielectric member in a direction parallel to one of its said axes along a parallel plane between said electrodes so as to vary the proportion of said dielectric member between said electrodes and thereby vary the capacitance of said transducer linearly in correspondence with the position of said projector mechanism; and

means for converting the position signal with the input signal to provide a drive signal for the DC motor.

4,336,484

MOTOR CONTROL

Joseph A. Marinko, Ambler, Pa., assignor to Textron, Inc., Providence, R.I.

Filed Jul. 3, 1980, Ser. No. 165,960

Int. Cl.³ G05B *19/40*

U.S. Cl. 318—696 **11 Claims**

1. A step motor drive for a motor having at least one field winding for each of two phases comprising:

a solid state control device in series with each field winding and having a control terminal selectively permitting stepping drive current flow through its winding;

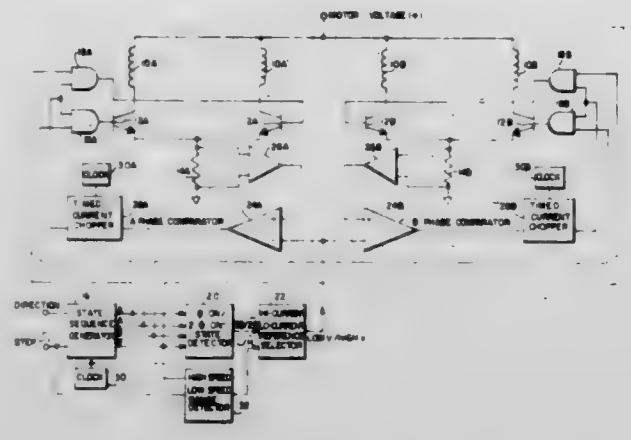
gate means for each of said control terminal;

sequence control means selecting the sequence of application of control signals to the gate means of the selected control device to determine the sequence of energizing the series windings;

timed current chopper means to apply a timed signal to the gate means to determine when the control signal may be applied to the control electrode of the control device to render it conductive and to determine what part of a drive signal current wave may be applied across that series field winding, and

means sensing the current flow in each phase to provide a

signal to a comparator which also receives a reference signal for comparison to provide a comparator signal to



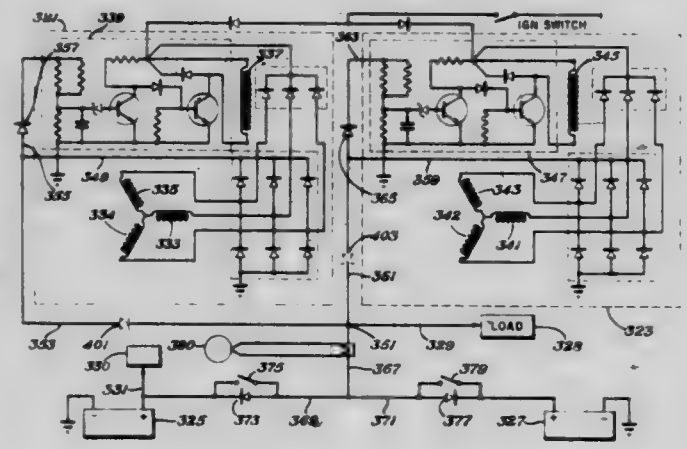
the timed current chopper means whereby the timed signal of the chopper to the gate means is varied according to the motor velocity.

4,336,485

DUAL ALTERNATOR FEEDBACK SYSTEM

Lebern W. Stroud, 3237 Gerome, Fort Worth, Tex. 76118

Continuation-in-part of Ser. No. 33,443, Apr. 26, 1979. This application May 27, 1980, Ser. No. 153,426
Int. Cl.[3] H02J 7/14
U.S. Cl. 320—15 1 Claim



1. In a motor vehicle which includes electrically operated means employed in the operation of said vehicle and which carries electrically operated equipment used for emergency purposes, an electrical power system, comprising:

a first battery having a positive terminal coupled to said electrically operated means,

a second battery,

first alternator means driven by the engine of said motor vehicle and having an output lead,

second alternator means driven by the engine of said motor vehicle and having an output lead,

means for coupling said electrically operated equipment to said two output leads,

first electrical lead coupled to said two output leads and to the positive terminal of said first battery,

second electrical lead coupled to said two output leads and to the positive terminal of said second battery,

first diode means coupled to said first electrical lead for allowing the flow of current only from said two output leads to said first battery,

second diode means coupled to said second electrical lead for allowing the flow of current only from said two output leads to said second battery,

first regulator means for regulating the electrical voltage applied to said first alternator means,

second regulator means for regulating the electrical voltage applied to said second alternator means,

third electrical lead coupled to said output lead of said first alternator means and to the input of said first regulator means,

third diode means coupled to said third electrical lead for allowing the flow of current only from said output lead of said first alternator means to said input of said first regulator means,

fourth electrical lead coupled to said output lead of said second alternator means and to the input of said second regulator means, and

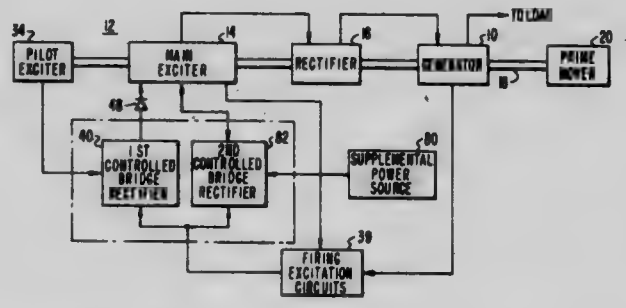
fourth diode means coupled to said fourth electrical lead for allowing the flow of current only from said output lead of said second alternator to said input of said second regulator means.

4,336,486

DYNAMOELECTRIC MACHINES BRUSHLESS SUPPLEMENTAL EXCITATION SYSTEM

Dale I. Gorden, Pittsburgh, and Sigrud R. Petersen, North Huntingdon, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 9, 1980, Ser. No. 110,570
Int. Cl.[3] H02P 9/14, 9/30
U.S. Cl. 322—63 7 Claims



1. In combination,

a synchronous dynamoelectric machine having a stator member carrying an alternating current armature winding and a rotor member carrying a direct current field winding;

a main exciter for said synchronous dynamoelectric machine having a rotor member carrying an armature winding, and a stator member having both a first and a second field winding, said first and said second field windings connected in parallel electrical relation to one another;

a rotatable rectifier assembly having an input circuit connected to receive alternating current power from said main exciter armature, and an output circuit connected to conduct direct current excitation through said synchronous machine rotor field winding;

a pilot exciter having a stator member carrying an armature winding and a permanent magnet rotor member, said pilot exciter being connected electrically in series with said first field winding;

means mechanically connecting said dynamoelectric machine rotor member, said rotatable rectifier assembly, said main exciter rotor member, and said pilot exciter permanent magnet rotor member for rotation;

means for converting alternating current to direct current having an input circuit connected to receive electrical power from said pilot exciter armature winding and having an output circuit connected to supply direct current to said first field winding of said main exciter;

means for deriving direct current excitation from a supplemental power source, said deriving means having an input circuit connected to receive electrical power from said supplemental power source and having an output circuit connected to supplement the direct current excitation applied to said second field winding of said main exciter, said supplemental power source being connected electrically in series with said second field winding and electrically independent of said dynamoelectric machine; and

whereby said pilot exciter and said supplemental power

source are connected electrically in parallel to and regulated independently of each other.

4,336,487

GENERATION CONTROL APPARATUS FOR VEHICLE GENERATORS

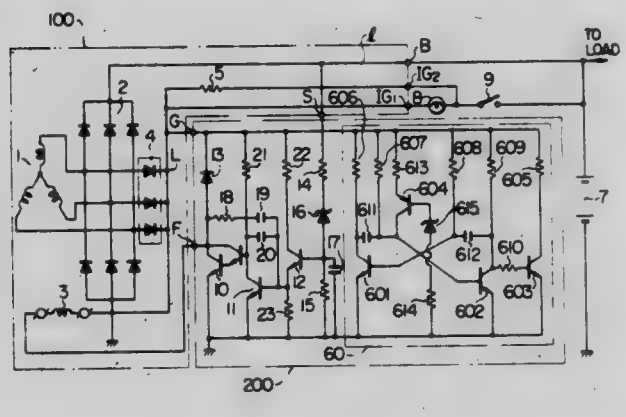
Shigeru Tanaka, Kariya; Katsutaro Iwaki, Chiryu; Hajime Matsuhashi, Kariya, and Keiichiro Banzai, Toyota all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 4, 1980, Ser. No. 156,466

Claims priority, application Japan, Jun. 7, 1979, 54-71961

Int. Cl.³ H02J *7/14*

U.S. Cl. 322—99 **7 Claims**



1. A generation control apparatus for vehicle generators comprising:

a vehicle A.C. generator having armature windings and an excitation winding;

a battery;

indicating means including a lamp or the like for indicating a status of said A.C. generator;

a key switch;

a first rectifier circuit connected to said armature windings, said first rectifier circuit having a first rectified output terminal connected to said battery;

a second rectifier circuit connected to said armature windings, said second rectifier circuit having a second rectified output terminal connected to said battery through said indicating means and said key switch;

a voltage regulating circuit connected to said second rectified output terminal through said excitation winding, for regulating a generated voltage of said vehicle A.C. generator at a predetermined value;

break detecting circuit means, connected to said second rectified output terminal in parallel with said voltage regulating circuit, for detecting a break of a line in the circuit of said excitation winding; and

an energization circuit for causing, responsive to an output of said break detecting circuit a current to intermittently flow said indicating means in such an on/off ratio that it flashes on and off at a human perceivable rate when the break of said line is detected by said break detecting circuit.

4,336,488

TRANSFORMER FOR THE CONTROLLABLE SHIFTING OF THE PHASE ANGLE OF OUTPUT VOLTAGES IN RELATION TO THE PHASE ANGLES OF INPUT VOLTAGES

Hans Glavitsch, Nussbaumen, and Gerhard Güth, Baden, both of Switzerland, assignors to BBC Brown, Boveri & Company Limited, Baden, Switzerland

Filed Jul. 14, 1980, Ser. No. 168,494

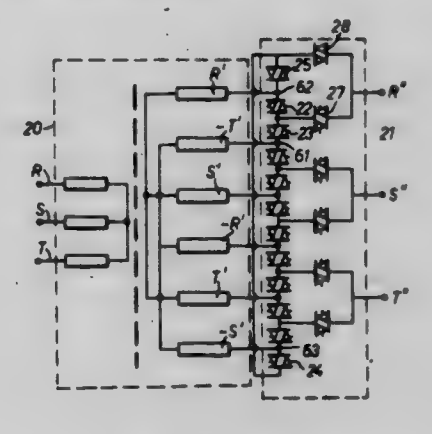
Claims priority, application Switzerland, Jul. 25, 1979, 6874/79

Int. Cl.³ H03K *3/352*

U.S. Cl. 323—215 **4 Claims**

1. A transformer for the controllable shifting of the phase angle of the output voltages in relation to the phase angles of the input voltages, especially for an alternating-current compound network, including at least one three-phase secondary winding galvanically decoupled from the primary winding, and in which the inner ends of the secondary winding sections corresponding to the phases are coupled with one another, each secondary winding section being divided into stages, and having a switch connected between the neighboring stages of each secondary winding section, comprising:

two three-phase secondary windings, the voltages of which are shifted through 60° in the mutually corresponding winding sections and whose phase angles neighbor one another in the phase diagram;



respective connection lines provided between the inner end of each stage of each winding section and the inner ends of the corresponding stages of at least one of the winding sections neighboring one another in the phase diagram; and

respective switches provided for predetermined ones of said connection lines which connect the inner ends of the stages of one winding with the corresponding ends of the stages of both of the neighboring windings in the phase diagram.

4,336,489

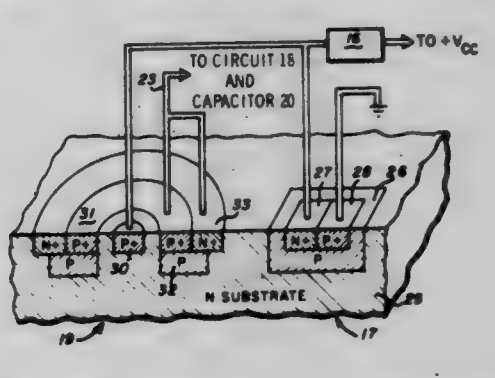
ZENER REGULATOR IN BUTTED GUARD BAND CMOS

Thomas M. Frederiksen, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jun. 30, 1980, Ser. No. 164,851

Int. Cl.³ H01C *27/04*; G05F *3/18*

U.S. Cl. 323—231 **9 Claims**



1. A voltage limiting circuit for use in butted guard band CMOS integrated circuit chip structures that may be operated at supply voltages in excess of the breakdown voltage of said structures, said butted guard band structures including relatively heavily doped P and N type regions located respectively within lightly doped substrate material and acting to prevent surface inversion layers in said lightly doped substrate material, said relatively heavily doped P and N regions abutting each other, said circuit chip comprising:

an isolated zener diode having first and second electrodes and having a reverse biased breakdown voltage substantially equal to the breakdown voltage of said butted guard band structures;

means for coupling said first diode electrode to the first terminal of said supply voltage;

voltage dropping means for coupling said second diode electrode to the second terminal of said supply voltage; and

a lateral transistor having heavily doped collector and emitter regions of said one conductivity type spaced apart laterally on the surface of said chip and separated by a base region of opposite conductivity type, said emitter being coupled to said second diode electrode and said base and collector being coupled together and to the operating circuitry on said chip structure.

4,336,490

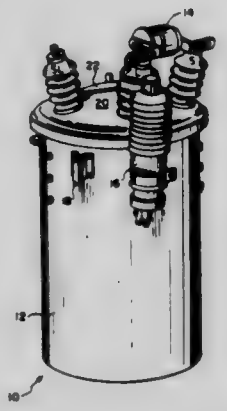
VOLTAGE SENSING APPARATUS FOR A VOLTAGE REGULATING TRANSFORMER

Charles E. Lewis, Zanesville, Ohio, assignor to McGraw-Edison Company, Rolling Meadows, Ill.

Filed Jan. 28, 1981, Ser. No. 229,171

Int. Cl.³ G05F *3/04*

U.S. Cl. 323—305 **15 Claims**



1. Bidirectional voltage sensing apparatus for sensing the voltage across the input and output terminals of a voltage regulating transformer having a shunt winding, a tapped series winding electrically and magnetically connected to said shunt winding, a tap changing mechanism for said series winding, and automatic control means which operates in response to a voltage signal representative of the voltage across said output terminals for controlling said tap changing mechanism to produce a preselected voltage across said output terminals, said bidirectional voltage sensing apparatus, comprising:

a sensing winding electromagnetically coupled to said shunt winding and having a predetermined turns ratio with respect to said shunt winding; and

potential means, electrically connected across the energized portion of said series winding, for producing a control voltage related to the voltage across said series winding by said predetermined turns ratio,

said sensing winding and said potential means being electrically connected in series such that the voltage across said sensing winding and said control voltage when taken together produces a total voltage which is representative of the voltage across said shunt and series windings, whereby the automatic control means can be operated in response to said total voltage to control the voltage across said output terminals with current flowing either into or out of said input terminals.

4,336,491

ELECTRONIC MONITORING SYSTEM STABILIZED AGAINST ACCIDENTAL TRIGGERING

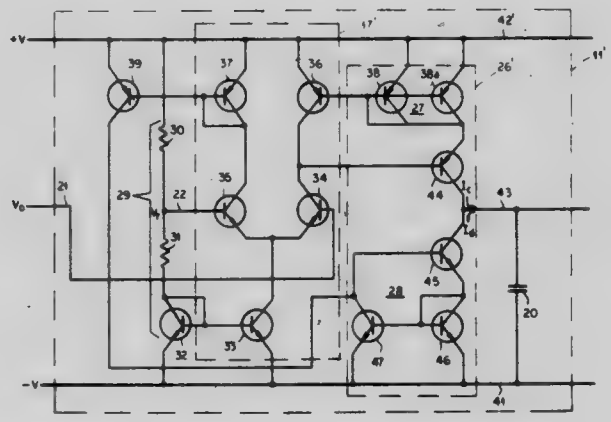
Robert Buck, Neukirch, and Ingo S. Ozech, Friedrichshafen, both of Fed. Rep. of Germany, assignors to i f m electronic GmbH, Essen, Fed. Rep. of Germany

Filed Feb. 6, 1981, Ser. No. 232,186

Claims priority, application Fed. Rep. of Germany, Feb. 9, 1980, 3004829

Int. Cl.³ H01H *36/00*

U.S. Cl. 323—326 **10 Claims**



1. An electronic monitoring system comprising:

detector means sensitive to an ambient condition, including an oscillator emitting a periodically varying voltage wave whose amplitude significantly increases upon a predetermined change in said condition;

comparison means connected to said oscillator and to a source of reference voltage for producing a control pulse during a fraction of each cycle of said voltage wave as long as said amplitude surpasses said reference voltage;

a storage capacitor provided with circuit means for alternately establishing a charging path and a discharging path therefor, said circuit means being responsive to said comparison means for establishing one of said paths in the presence and the other of said paths in the absence of said control pulse; and

electronic switch means triggerable by said storage capacitor for energizing a load upon the charge of said capacitor attaining a predetermined value indicative of said change in said condition.

4,336,492

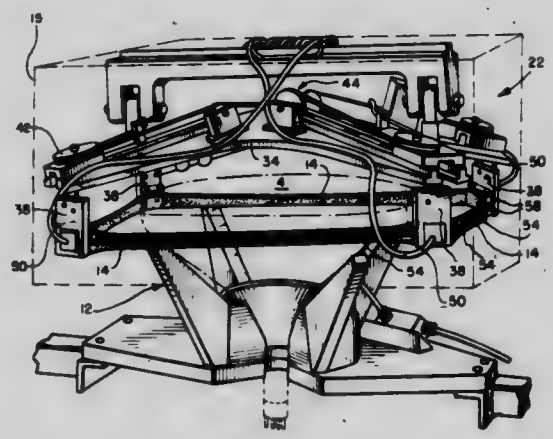
APPARATUS FOR TESTING AN HERMETIC SEAL IN A GLASS CATHODE RAY TUBE

Alton J. Torre, Wheaton, and Victor R. Schuster, Chicago, both of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed May 5, 1980, Ser. No. 146,970

Int. Cl.³ G01R *31/16, 31/24;* H01J *9/42*

U.S. Cl. 324—54 **2 Claims**



1. For use in the manufacture of a cathode ray tube, an apparatus for testing an hermetic, glass-like frit seal between

the funnel and the faceplate of an in-process cathode ray tube wherein the inside of said funnel has a conductive coating adapted to receive a test voltage applied to an anode button on a wall of said funnel, and wherein a discontinuity in the hermetic seal causes a high voltage breakdown in the seal, said apparatus including:

an electrically conductive elastomeric band capable of being stretched over the tube so as to conform to said hermetic seal between said funnel and faceplate;

means for supporting and locating said cathode ray tube in a position to be tested;

band mounting means for holding said elastomeric band and for stretching said elastomeric band to a rectangular stretched configuration larger than the size of the faceplate of the tube to be tested, and for relaxing the band such that it makes a static fit around said hermetic seal on said tube and conforms intimately to said seal to make an uninterrupted electrical and mechanical engagement therewith; and

means for applying a test voltage across the hermetic seal of said cathode ray tube between said conductive coating and said band;

an improvement comprising electrically conductive spring means embracing said elastomeric band at its periphery, said spring means being attached to said band mounting means for stretching and relaxing in concert with said elastomeric band, such that said spring means provides for more uniform grounding of said band with respect to said frit seal, and the added inward pressure against said band exerted by said spring means provides for more intimate electrical grounding contact of said band with said frit seal.

4,336,493

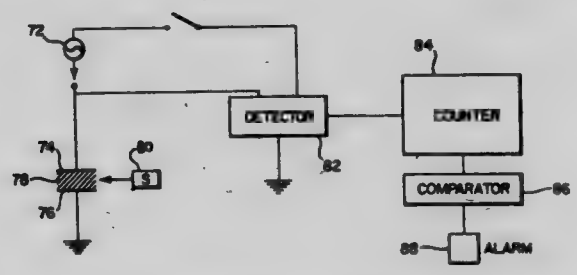
IDENTIFICATION OF MATERIALS USING THEIR COMPLEX DIELECTRIC RESPONSE

William D. Gregory, Vienna; Larry H. Capots, Annandale; Luigi Morelli, Sterling, all of Va.; John Muhlke, III, Bethesda, and Thomas A. Nolan, Jr., Chevy Chase, both of Md., assignors to Georgetown University, Washington, D.C.

Division of Ser. No. 28,452, Apr. 9, 1979. This application Aug. 10, 1979, Ser. No. 65,440

Int. Cl.³ G01R *27/26*

U.S. Cl. 324—61 R **6 Claims**



3. Apparatus for identifying materials having frequency-responsive conductive and/or dielectric properties, comprising:

(a) capacitive means for producing a capacitive output signal and for producing a change in capacitive value when said material is placed in physical association therewith, said capacitive means including a capacitive element connected in series;

(b) capacitive response means connected with said capacitive element for evaluating the change of capacitive value from the capacitive means, said capacitive response means including a detector; and

(c) frequency generating means connected across said capacitive means for applying a plurality of frequencies thereto, and for producing a balanced electrical output signal which is reflective of the capacitive value of the capacitive means and which identifies said material.

4,336,494

INSULATION RESISTANCE TESTER

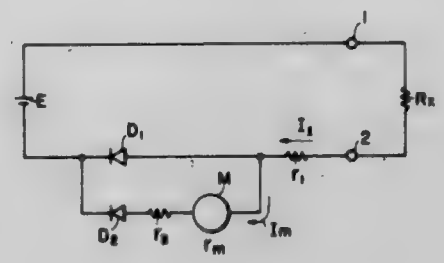
Shotaro Shindo, and Eiji Hayashi, both of Musashino, Japan, assignors to Yokogawa Electric Works, Ltd., Tokyo, Japan

Filed Jun. 26, 1980, Ser. No. 163,224

Claims priority, application Japan, Jul. 12, 1979, 54/88466; Jul. 12, 1979, 54/88467

Int. Cl.³ G01R *27/02*

U.S. Cl. 324—62 **5 Claims**



1. An insulation resistance tester comprising first and second semiconductor elements thermally balanced by each other, each of said semiconductor elements having a logarithmic characteristic, a series circuit including said second semiconductor element, a resistance and a meter, said first semiconductor element being connected in parallel with said series circuit.

4,336,495

INTEGRATED CIRCUIT ARRANGEMENT IN MOS-TECHNOLOGY WITH FIELD-EFFECT TRANSISTORS

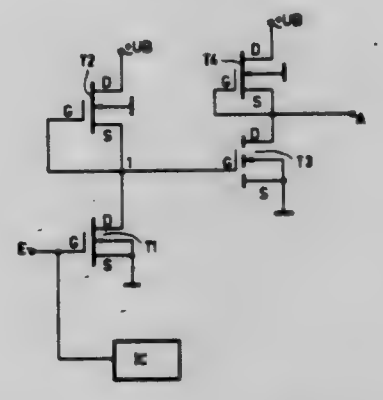
Friedrich Hapke, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 1, 1980, Ser. No. 117,884

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1979, 2905294

Int. Cl.³ G01R *31/22, 15/12*

U.S. Cl. 324—158 T **2 Claims**



1. An MOS field-effect transistor integrated circuit having an internal test circuit, which comprises:

an external connection to said integrated circuit having an operating voltage range of between zero and a selected voltage of a first polarity during the normal operating cycle of said integrated circuit, said external connection being required for the normal operation of said integrated circuit;

an internal test circuit input terminal which is internally connected to said external connection; and

an internal test circuit output terminal which is internally connected to a selected location within said integrated circuit to provide a test activation signal to said selected location, said test circuit being activated by the application of a test signal of a second polarity opposite to that of said first polarity to said external integrated circuit connection.

4,336,496

ELECTRICAL CONTACT TEST APPARATUS TO TEST CONTACT RESISTANCE OF A SAMPLE TERMINAL

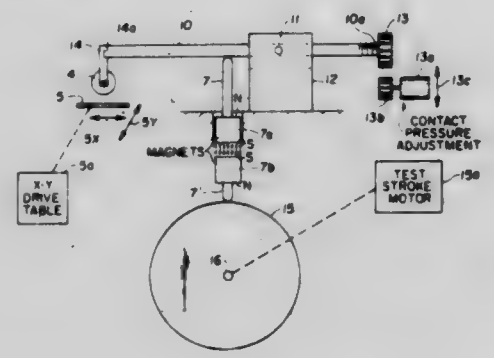
Rudolf Schnabl, Rodenbach, and Helmut Becker, Hanau, both of Fed. Rep. of Germany, assignors to W. C. Heraeus GmbH, Hanau, Fed. Rep. of Germany

Filed Oct. 1, 1980, Ser. No. 193,176

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1979, 2939901

Int. Cl.³ G01R *31/22*

U.S. Cl. 324—158 P **10 Claims**



1. Electrical contact material test apparatus to test contact resistance of a sample (5) having

a sample carrier (5*a*) on which the sample (5) is placed;

a scale beam (10) defining two scale arms, a probe (4) positioned at one end of one of the scale arms and located in alignment with the sample carrier;

a balance counter weight (13) positioned on the other scale arm to determine the contact pressure between the probe (4) and the sample (5) when the probe is in engagement with the sample;

a test stroke operating means (15, 15*a*, 16) including a rotatable camming disk (15) engageable with a scale beam (10) and rotatable to selectively lift the test beam off the sample, and permit engagement of the test probe with the sample with the contact pressure determined by said balance counter weight when the beam is permitted to drop, comprising, in accordance with the invention,

a connecting link (7, 7*a*, 7*b*, 7′) for soft engagement of the camming disk (15) with the scale beam (10) including a cam follower (7′) in engagement with the camming disk, an engagement element (7) in engagement with the scale beam, and a pair of magnets (7*a*, 7*b*) interposed between the cam follower and the engagement element having like poles facing each other to provide a repelling force cushion between the cam follower and the engagement element and hence gentle engagement of the probe (4) on the sample (5) upon rotation of the disk controlling tipping of the beam.

4,336,497

ACCELERATION SENSOR

Richard G. Woodhouse, and Peter H. Salway, both of Birmingham, England, assignors to Lucas Industries Limited, Birmingham, England

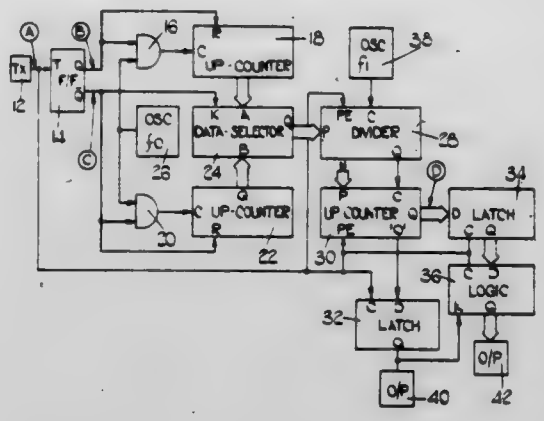
Filed Feb. 27, 1980, Ser. No. 125,111

Claims priority, application United Kingdom, Mar. 14, 1979, 7908985

Int. Cl.³ G01P *3/42, 15/00*

U.S. Cl. 324—162 **8 Claims**

1. A method of measuring the rate of change of frequency of a signal pulse train comprising: counting the number of pulses in a first fixed frequency pulse train occurring during each timing interval between successive pulses of the signal pulse train to derive a first count in each timing interval; dividing the frequency of a second fixed frequency pulse train by said first count for the immediately preceding interval to generate a divided pulse train; and counting the number of pulses in said divided pulse train in each timing interval to generate a second count related to the ratio of the change in the duration of the



time interval to the duration of the immediately preceding interval.

4,336,498

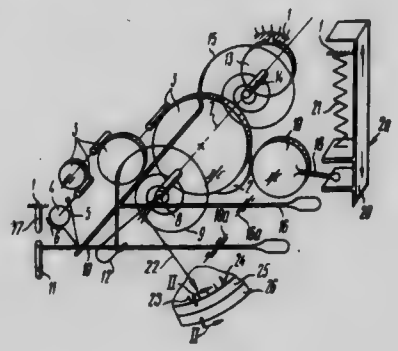
MAGNETIC THICKNESS GAUGE

Alexandr A. Lukhvich, ulitsa A.Kulman, 15, kv. 18; Valery A. Rudnitsky, ulitsa Slavinskogo, 35, kv. 36; Ivan I. Linnik, prospekt Partizansky, 32, korpus 1, kv. 91, and Genrikh B. Gavris, Leninsky prospekt, 127, kv. 265, all of Minsk, U.S.S.R.

Filed Jul. 24, 1979, Ser. No. 60,205

Int. Cl.³ G01B *7/10*; G01R *33/12*

U.S. Cl. 324—230 **1 Claim**



1. An apparatus for gauging the thickness of coatings on metal products, comprising:

a casing;

a wheel system accommodated in said casing and having a central shaft supporting a wheel of the system;

spring actuator means connected to one of the members of said wheel system, said spring actuator means, when wound up, exerting a biasing force for rotating said wheel system;

a gauging permanent magnet adapted to interact, by virtue of its field, with a ferromagnetic coating of the product, or with the base thereof in case of a nonmagnetic coating;

two balanced levers;

the first of said balanced levers carrying said gauging permanent magnet;

the second of said balanced levers adapted to interact with said first balanced lever in cases where a break away force of said first lever is not high enough to break away said gauging permanent magnet from the product being gauged;

two coiled springs;

the first of said coiled springs connected through one of its ends to said first balanced lever, and through its other end, to one of the shafts of said wheel system, said first coiled spring exerting a break away force on said first balanced lever tending to overcome the magnetic attraction between said gauging permanent magnet and the product being gauged to thereby break said gauging permanent

magnet away from the product, rotation of said wheel system by said spring actuator means increasing the break away force;

the second of said coiled springs connected through one of its ends to said second balanced lever, and through its other end, to said casing in such a manner as to adjust the spring tension;

a magnetic element made fast on said casing and adapted to attract said gauging permanent magnet after its having been broken away from the product being gauged;

a reset lever to bring said first balanced lever into an initial position prior to gauging a product, said reset lever being locked-in with the central shaft of said wheel system;

means for winding up said spring actuator means comprising a movable lever, an intermediate member adapted to get in mesh with said spring actuator means and locked-in with said movable lever, and a spring-actuated frame mounted on said casing traversably with respect thereto and adapted to contact the free end of said movable lever while traversing so as to turn the latter;

a circular scale rigidly fixed in position on said casing; and

a pointer set on the central shaft of said wheel system to indicate the gauged thickness on said circular scale.

4,336,499

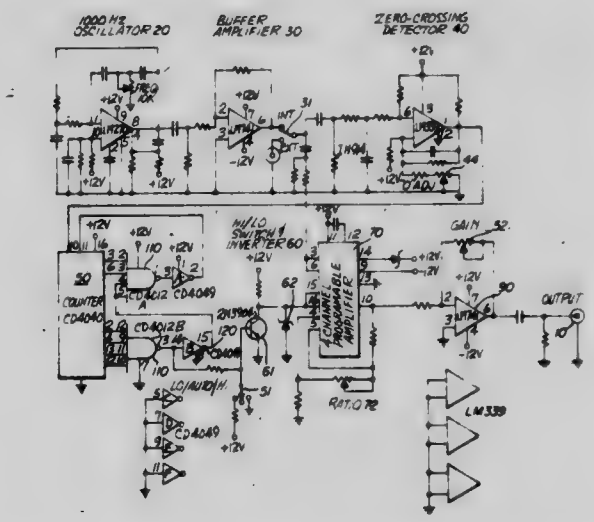
DYNAMIC HEADROOM TEST GENERATOR

Tyson C. A. Hoole, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Mar. 31, 1980, Ser. No. 135,822

Int. Cl.³ H03K *4/02*

U.S. Cl. 328—188 **2 Claims**



1. A dynamic headroom test signal generator circuit comprising in combination:

a 1000 Hz oscillator circuit;

a zero-crossing detector circuit;

buffer amplifier circuit means coupled between said 1000 Hz oscillator circuit and said zero-crossing detector circuit;

a counter circuit;

said zero-crossing detector circuit having a square wave output signal coupled to said counter circuit for clocking said counter circuit;

a programmable amplifier circuit;

switching and inverter circuit means coupled between said counter circuit and said programmable amplifier circuit; and,

an output circuit including an amplifier circuit coupled to said programmable amplifier circuit for providing a dynamic headroom test signal.

4,336,500

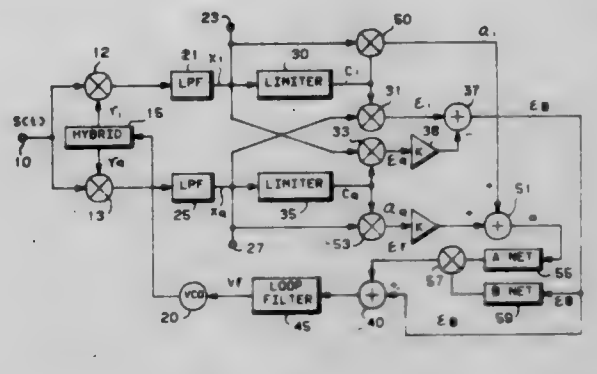
MSK DEMODULATOR FREQUENCY ACQUISTION APPARATUS AND METHOD

Stanley W. Attwood, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 14, 1980, Ser. No. 167,895

Int. Cl.³ H04L *27/22*

U.S. Cl. 329—50 **7 Claims**



1. In conjunction with a PSK demodulator, a frequency discriminator for preventing false lock comprising:

(a) detection means connected to the demodulator for developing an amplitude signal which is proportional to the absolute value of the demodulated signal;

(b) phase shifting means connected to receive the amplitude signal from said detection means and connected to receive a phase error signal from the demodulator for shifting the phase of one of the phase error signal and the amplitude signal with respect to the other;

(c) multiplying means for receiving the one phase shifted signal and the other signal from said phase shifting means and providing a frequency error signal at an output thereof; and

(d) means for combining the frequency error signal with the phase error signal in the demodulator for controlling the demodulator to lock onto the corrent carrier frequency.

4,336,501

FREQUENCY CHARACTERISTIC ADJUSTING CIRCUIT

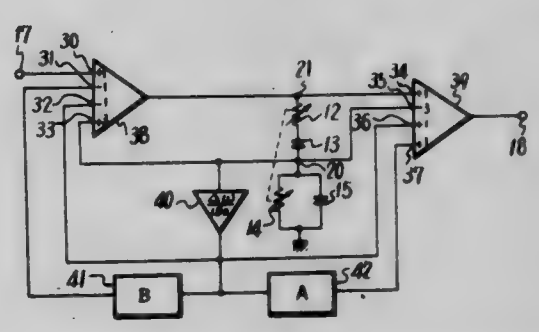
Kazumasa Ishikawa, Kawasaki; Shin-ichi Takahashi, Yokohama, and Masahide Yoneyama, Kawasaki, all of Japan, assignors to Nippon Columbia Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 18, 1979, Ser. No. 76,765

Claims priority, application Japan, Sep. 26, 1978, 53-118291; Sep. 26, 1978, 53-118292; Oct. 2, 1978, 53-121299; Oct. 2, 1978, 53-121300

Int. Cl.³ H03 *1/34*

U.S. Cl. 330—109 **17 Claims**



1. A frequency characteristic adjusting circuit, comprising:

(a) first adding means supplied with an input signal,

(b) second adding means supplied with an output signal from said first adding means;

(c) a filter circuit consisting of a series connection of a first resistor and a first capacitor and a parallel connection of a second resistor and a second capacitor, said series and parallel connections being connected in series and supplied with an output of said first adding means, the con-

nection point between said series and parallel connections forming an output terminal of said filter circuit;

(d) feedback means for feeding back an output at said output terminal of said filter circuit to said first adding means;

(e) feedforward means for feeding forward the output at said output terminal of said filter circuit to said second adding means; wherein when a desired value of an angular velocity of a center frequency at a resonance point of a resonance characteristic of the frequency characteristic adjusting circuit is taken as ω_0 and a desired value of a band width of said resonance characteristic is taken as $\Delta\omega$

said feedback means having a transfer factor

$$3 - (1 + B)\frac{\Delta\omega}{\omega_o}$$

and said feedforward means having a transfer factor

$$(1 + A)\frac{\Delta\omega}{\omega_o} - 3$$

where A and B are each constants; and

(f) means for selecting one of said constants A and B as zero;

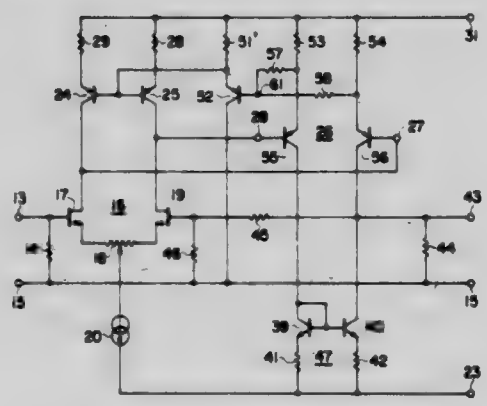
(g) said feedback means comprising a first feedback means for feeding back an output of said filter circuit, and a second feedback means for feeding back said output of said filter circuit through a transfer circuit having a transfer factor $\Delta\omega/\omega_0$ and said feedforward means comprises a first feedforward means for feeding forward the output of said filter circuit and a second feed forward means for feeding forward said output of said filter circuit through said transfer circuit.

4,336,502

AMPLIFIER WITH INPUT STAGE DIFFERENTIAL AMPLIFYING CIRCUIT

Motoomi Goto, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Dec. 27, 1979, Ser. No. 107,637
Claims priority, application Japan, Dec. 28, 1978, 53-164842
Int. Cl.[3] H03F *3/45*
U.S. Cl. 330—253 6 Claims



1. An amplifier comprising:

an input stage differential amplifying circuit including differentially connected first and second transistors each having a conduction path, a constant current source commonly connected between one ends of the conduction paths of said first and second transistors and a first power supply, third and fourth transistors cascade-connected respectively to said first and second transistors at the other ends of said conduction paths and having control electrodes connected in common, and first and second resistance means connected between said third and fourth transistors and a second power supply, respectively;

a succeeding stage amplifying circuit including fifth and sixth transistors having conduction paths and control electrodes which electrodes are connected respectively to said other ends of the conduction paths of said first and second transistors;

first circuit means for detecting a sum of driving currents flowing through the conduction paths of said fifth and sixth transistors, and comprising third and fourth resistance means inserted respectively between one ends of the conduction paths of the fifth and sixth transistors and the second power supply, and fifth and sixth resistance means having one ends connected to the connection points of said third resistance means and said fifth transistor and of said fourth resistance means and said sixth transistor, respectively and the other ends connected in common; and

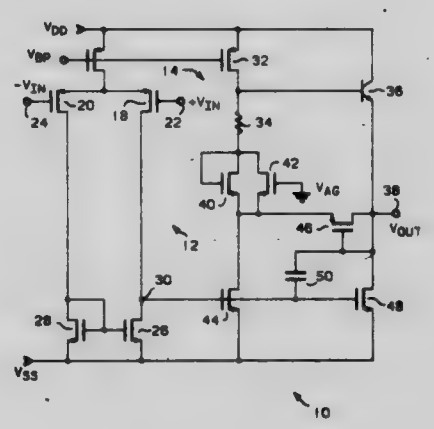
second circuit means for controlling potential of the common control electrodes of said third and fourth transistors in accordance with the sum of the driving currents of said fifth and sixth transistors, and inserted between the common control electrodes of said third and fourth transistors and the common connection point of said fifth and sixth resistance means, thereby maintaining constant said common control electrode potential of the third and fourth transistors.

4,336,503

DRIVER CIRCUIT HAVING REDUCED CROSS-OVER DISTORTION

Roger A. Whatley, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 16, 1980, Ser. No. 217,073
Int. Cl.[3] H03F *3/30, 3/45*
U.S. Cl. 330—253 6 Claims



1. A driver circuit comprising:

current source means for sourcing output current via an output terminal in proportion to an applied drive current;

current sink means for sinking output current via the output terminal in proportion to a first control voltage;

drive means for applying the drive current to the current source means in proportion to a second control voltage;

shunt means for shunting the drive current away from the current source means in proportion to the first control voltage; and

cross-over compensation means for biasing the current source means at least a predetermined bias voltage above the output terminal, comprising:

a resistor having a portion coupled to both the current source means and the drive means;

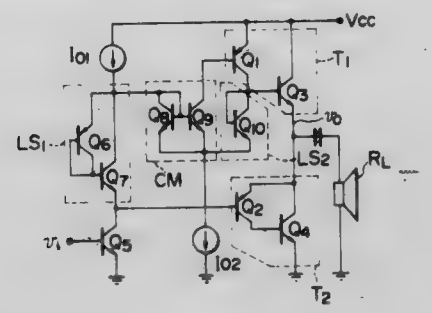
a first diode-connected device coupled between said resistor and said shunt means; and

a second diode-connected device coupled between said first diode-connected device and both the output terminal and the current sink means.

4,336,504
PUSH-PULL OUTPUT CIRCUIT

Kunio Seki, Tokyo, and Norihisa Katoh, Higashimurayama, both of Japan, assignors to Hitachi, Ltd. and Hitachi Ome Electronic Co., Ltd., both of Tokyo, Japan

Filed Apr. 21, 1980, Ser. No. 142,128
Claims priority, application Japan, Apr. 25, 1979, 54-50273
Int. Cl.[3] H03F *3/26*
U.S. Cl. 330—274 7 Claims



1. A push-pull output circuit comprising:

(a) a first transistor group having at least a portion thereof connected between a first operating potential point and an output terminal and including first transistor of a first conductivity type and second transistor of a second conductivity type which are connected in inverted Darlington configuration;

(b) a second transistor group having at least a portion thereof connected between said output terminal and a second operating potential point and including third transistor of said first conductivity type and fourth transistor of said second conductivity type which are connected in inverted Darlington configuration, the base of said third transistor receiving an input signal;

(c) a first level shifting circuit having one terminal thereof connected to receive said input signal;

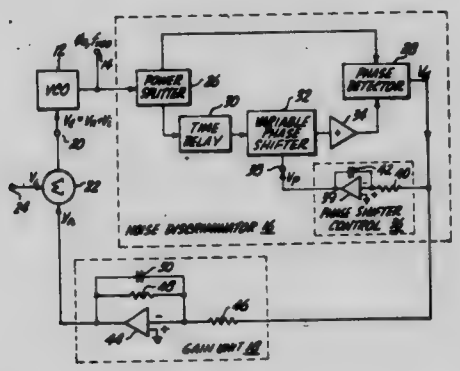
(d) a current mirror circuit including two transistors of said second conductivity type, the emitters of said two transistors being connected together, the input terminal and the output terminal of said current mirror circuit being connected to another terminal of said first level shifting circuit and the base of said first transistor of said first transistor group, respectively; and

(e) a second level shifting circuit connected between the commonly connected emitters of said two transistors of said current mirror circuit and the base of said second transistor of said first transistor group.

4,336,505
CONTROLLED FREQUENCY SIGNAL SOURCE APPARATUS INCLUDING A FEEDBACK PATH FOR THE REDUCTION OF PHASE NOISE

Donald G. Meyer, Sultan, Wash., assignor to John Fluke Mfg. Co., Inc., Everett, Wash.

Filed Jul. 14, 1980, Ser. No. 168,065
Int. Cl.[3] H03L *7/00, 7/18, 7/22*
U.S. Cl. 331—1 R 13 Claims



1. A low phase noise signal source comprising:

controlled oscillator means having an output terminal and a frequency control terminal, said controlled oscillator means for generating a periodic signal at a frequency determined by a frequency control signal supplied to said frequency control terminal;

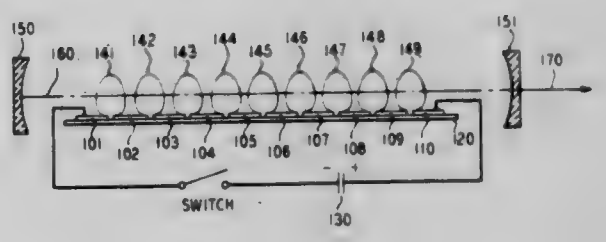
a first feedback path including noise discriminator means connected for supplying a feedback signal from said output terminal of said controlled oscillator means to said frequency control terminal thereof, said noise discriminator means including phase detector means having first and second input ports and an output port, said first and second input ports of said phase detector means being connected for receiving at least a portion of the signal supplied at said output terminal of said voltage-controlled oscillator means, said phase detector means including means for supplying a signal at said output port thereof that is representative of the phase difference between signals supplied to said first and second input ports; said noise discriminator means including time delay means for delaying an applied signal by a predetermined amount of time τ, said time delay means connected to delay the signal coupled to one of said first and second input ports of said phase detector means from said output terminal of said controlled oscillator means; said noise discriminator means including variable phase shift means having a phase shift control terminal and including means for shifting the phase of an applied signal by an amount determined by a phase shift control signal applied to said phase shift control terminal, said variable phase shift means being connected to shift the phase of the signal being coupled to one of said first and second input ports of said phase detector means from said output terminal of said controlled oscillator means; said noise discriminator means further including phase shift control means for supplying said phase shift control signal to said variable phase shift means, said phase shift control means being responsive to the signal supplied at said output port of said phase detector means and supplying a signal representative thereof to cause said variable phase shift means to supply a phase shift that minimizes the signal at said output port of said phase detector means; and

signal coupling means for coupling said signal supplied at said output port of said phase detector means as said noise discriminator feedback signal that is coupled to said frequency control terminal of said controlled oscillator means, said signal coupling means including means for establishing said feedback signal as negative feedback.

4,336,506
SEGMENTED PLASMA EXCITATION-RECOMBINATION LASER

William T. Silfvast, Holmdel; Leo H. Szeto, Howell, both of N.J., and Obert R. Wood, II, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 5, 1979, Ser. No. 82,308
Int. Cl.[3] H01S *3/093*
U.S. Cl. 372—62 11 Claims



1. A recombination laser comprising:

a resonant laser cavity (150, 151) containing a laser medium and energy abstracting means;

excitation means (130) for producing said laser medium in said resonant laser cavity;

characterized in that

said excitation means comprises at least two conductor strips (101–110) having at least one gap, which at least one gap provides at least one intervening discharge path; and

means for applying a high-voltage, high-current pulse to said at least two conductor strips;

said at least two conductor strips are fabricated from a material which is converted into a plasma as a result of the application of said high-voltage, high-current pulse, which plasma cools and recombines to form said laser medium.

4,336,507

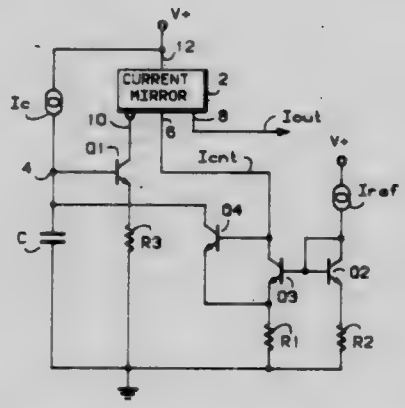
CURRENT OUTPUT RELAXATION OSCILLATOR

Byron G. Bynum, and Robert B. Jarrett, both of Tempe, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 29, 1981, Ser. No. 229,485

Int. Cl.³ H03K *3/282*

U.S. Cl. 331—108 D **16 Claims**



1. A circuit for generating an oscillating output current, comprising:

a capacitor;

first means coupled to said capacitor for charging said capacitor;

second means coupled to said first means and responsive to voltage across said capacitor for generating said output current and a control current proportional to said output current; and

third means coupled to said second means and adapted to receive a reference current for providing said capacitor with a discharge path when said control current exceeds some predetermined value with respect to said reference current.

4,336,508

VOLTAGE CONTROLLED INTEGRATED CIRCUIT ASTABLE MULTIVIBRATOR

Terence G. Cole, and Stuart E. Marshall, both of Hampshire, England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,073

Claims priority, application United Kingdom, Jun. 18, 1979, 7921193

Int. Cl.³ H03K *3/282*

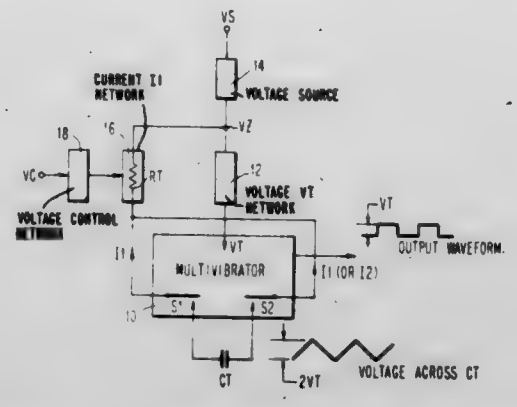
U.S. Cl. 331—113 R **11 Claims**

1. A voltage controlled oscillator comprising:

a voltage control network adapted to receive a control voltage input;

an astable multivibrator having a center frequency timed by the constant current charge and discharge of a capacitor, the period timed being proportional to VT/I where VT is half the voltage swing of the capacitor and I is a constant current;

integrated circuit means, responsive to the voltage control network, for generating both a voltage VT and constant currents I for the capacitor from a common voltage source via similar matched transistor/resistor networks so that the voltage VT and constant currents I track each



other in order to minimize variations in center frequency due to temperature and supply voltage variations.

4,336,509

OSCILLATION GENERATOR FOR AN ULTRASONIC LIQUID ATOMIZER

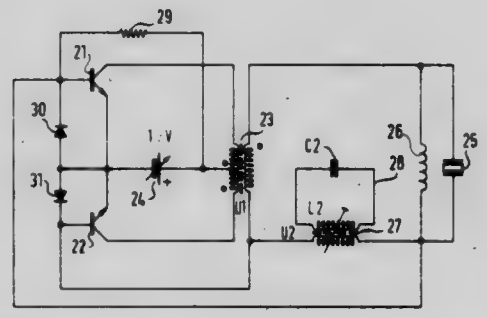
Franz Bernitz, Anzing, Fed. Rep. of Germany, assignor to Bosch-Siemens Hausgeräte GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,596

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1979, 2906499

Int. Cl.³ B05B *17/06*; H03B *5/36*

U.S. Cl. 331—114 **10 Claims**



1. Oscillation generator for an ultrasonic liquid atomizer, including an oscillator circuit, a push-pull amplifier with inputs and inductive positive feedback connected in said circuit, a piezoceramic atomizer vibrator element and a load-dependent regenerative feedback coupling connected to said circuit, said coupling comprising a parallel resonant tunable frequency-selective sensor element having outputs connected to said inputs of said amplifier.

4,336,510

OSCILLATOR WITH A FEEDBACK CIRCUIT EMPLOYING A PRE-POLARIZED CERAMIC PIEZOELECTRIC OSCILLATING UNIT

Masashige Miyamori, Hakui, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed Jan. 3, 1980, Ser. No. 109,284

Claims priority, application Japan, Jan. 11, 1979, 54/2494

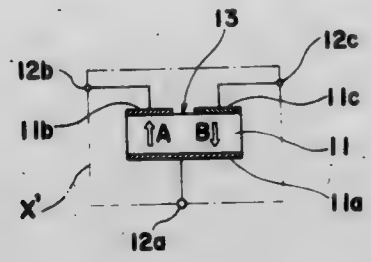
Int. Cl.³ H03B *5/32*

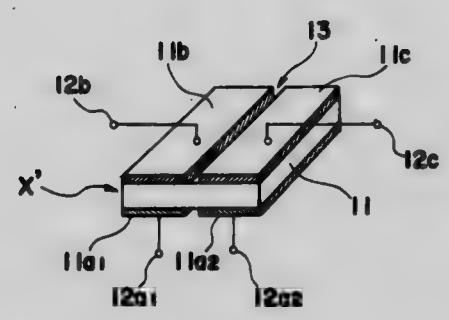
U.S. Cl. 331—163 **10 Claims**

9. An oscillator including an amplifier and a feedback circuit connecting between an output and an input of the amplifier, characterized in that said feedback circuit comprises a piezoelectric oscillating unit comprising:

a ceramic piezoelectric body having first and second surfaces in face-to-face relation to each other, said piezoelectric body having a first section pre-polarized in one direction between said first and second surfaces and a second section pre-polarized in the opposite direction to said one direction;

a first electrode provided on said first surface over said first section of said piezoelectric body; a second electrode provided on said first surface, in spaced relation to said first electrode and over said second section of said piezoelectric body; counter electrode provided on said second surface over both the first and second section of said piezoelectric body;





means coupling an output signal produced at the output of said amplifier across said first electrode and said counter electrode; and

means coupling an output signal produced across said second electrode and said counter electrode to the input of said amplifier.

4,336,511

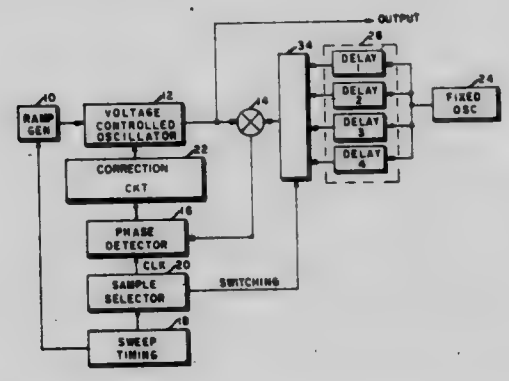
METHOD AND APPARATUS FOR INCREASING THE SWEEP RATE OF A LINEARLY SWEPT FREQUENCY OSCILLATOR

Chester E. Stromswold, Nashua; Robert T. Martel, Derry, both of N.H.; John Apostolos, Malden, Mass., and Robert P. Boland, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Apr. 9, 1979, Ser. No. 27,953

Int. Cl.³ H03B *23/00*

U.S. Cl. 331—178 **13 Claims**



1. A method for increasing the sweep rate and/or providing a more linear sweep frequency of a frequency generator whose frequency changes linearly in time where the phase of the generator's output is sampled at regularly occurring sampling intervals during the sweep, and in which the output frequency of the generator is corrected in accordance with sampled information so as to effect a linear frequency sweep with time comprising the steps of:

heterodyning the output of the frequency generator;

introducing a phase shift in the heterodyned output of the frequency generator by predetermined amounts in a specific periodic manner in specific time periods during the sweep of the frequency generator so as to produce more zero axis crossings of the heterodyned output of the generator than would occur without said phase shifting, whereby the number of samples of the frequency generator output per unit time is increased, thereby causing an increase in the amount of sampled information which is used to linearize the sweep of the frequency generator.

4,336,512

PULSE WIDTH GENERATOR HAVING A VARIABLE MARK-TO-SPACE RATIO

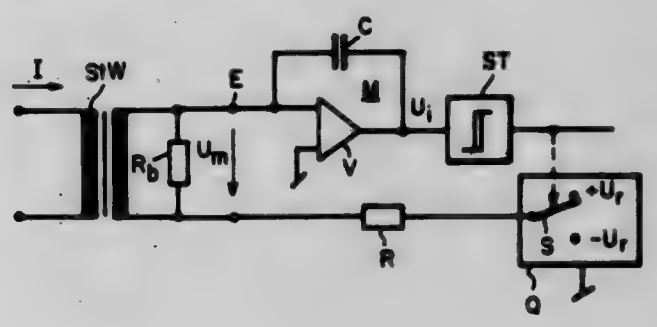
Jacob de Vries, Allenwinden, Switzerland, assignor to LGZ Landis & Gyr Zug AG, Zug, Switzerland

Filed Nov. 5, 1979, Ser. No. 91,114

Claims priority, application Switzerland, Nov. 13, 1978, 11635/78

Int. Cl.³ H03K *7/08*

U.S. Cl. 332—9 R **9 Claims**



1. A variable pulse width generator for generating a waveform having a periodically recurring and variable mark-to-space ratio, wherein the ratio of the difference between the space and mark durations to the sum of the space and mark durations is proportional to a selectable voltage,

comprising in combination:

integrator means, at least a portion of the selectable voltage being applied to the input of said integrator means,

switching means postcoupled to said integrator means for receiving a reference voltage of selectable polarity, the polarity of the reference voltage being selectable in dependence of the integrating action of said integrator means, and

a feedback path permanently connecting the output of said switching means to the input of said integrating means, and including a first resistor connected to said switching means and a second resistor in series therewith connected to said integrator means, said selectable voltage being applied across a selected one of said resistors, the junction of said resistors being free from any direct connection to either of said means,

at least a portion of a voltage developed across the output of said switching means being thereby applied across the input of said integrator means,

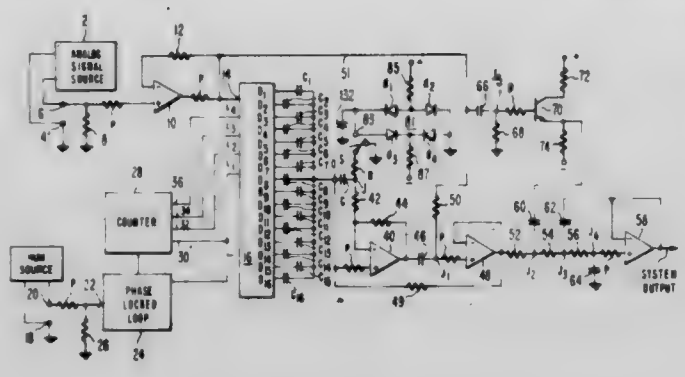
said switching means thereby operating in dependence of at least a portion of the voltage sum of said selectable and reference voltages appearing at the input of, and being integrated at the output of said integrator means, and the ratio of the difference between the space and mark durations to the sum of the space and mark durations being thereby substantially independent of the other of said first and second resistors.

4,336,513

HUM REDUCTION CIRCUIT

Richard J. Regan, Beverly, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 2, 1980, Ser. No. 165,171
Int. Cl.³ H03H *19/00, 17/00, 17/02*
U.S. Cl. 333—173 **13 Claims**



1. Apparatus for reducing the fundamental frequency and harmonic frequencies of hum in a desired signal, comprising

a first input to which a desired signal which may include hum may be applied,

a second input to which a signal having the same frequency as the fundamental frequency of the hum may be applied,

an output,

a plurality of signal storage means,

circuit means coupled to said first input and said output into which a signal storage means may be inserted for subtracting a value of the signal stored by the storage means from the signals passing from said first input to said output and for changing the value stored in the storage means by a fraction of the difference between a signal at said first input and the signal stored in said signal storage means,

commutating means for connecting said storage means, one after the other, into said circuit means in a repeated sequence having the frequency of the fundamental of said hum so that the value stored in each storage means eventually becomes approximately equal to the value of any hum in the desired signal occurring at the time the storage means is connected to said circuit means,

means coupled to said first input for deriving the second harmonic of signals appearing thereat, and

means for adding said second derivative to the signals appearing at said output whereby the attenuation of any harmonics of the hum is more nearly the same, and

a system output connected to said latter means.

4,336,514

ACOUSTIC WAVE DEVICES

Edward G. S. Paige, Horton-Cum-Studley, England, assignor to National Research Development Corporation, London, England

Filed Sep. 18, 1980, Ser. No. 188,284
Claims priority, application United Kingdom, Sep. 20, 1979, 7932716
Int. Cl.³ H03H *9/135, 9/64*
U.S. Cl. 333—195 **26 Claims**



1. In a surface acoustic wave (SAW) device including input means for generating acoustic waves, output means for delivering a signal from the device and a frequency-selective reflective array which comprises a plurality of parallel rows of individual scatterers, each scatterer forming one or more scattering centres from which acoustic waves, generated by the input means and propagated to the array, are scattered in a desired predetermined direction by Bragg reflection, the improvement consisting essentially of and in combination with the above elements:

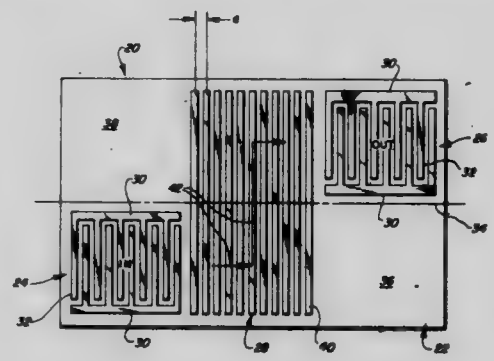
the scatterers being disposed such that the local spacing between scattering centres, in relation to the acoustic wavelength at the frequency at which Bragg reflection occurs in the desired direction, said Bragg reflection frequency being determined by the inter-row spacing associated with the row or rows containing those scattering centres, causes the acoustic waves scattered from the individual scattering centres at the Bragg reflection frequency to constructively interfere in the desired predetermined direction and to not constructively interfere in directions other than the desired direction.

4,336,515

ACOUSTIC FILTER WITH HARMONIC REJECTION

Adrian J. DeVries, Mount Prospect, and Kai Hansen, Arlington Heights, both of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed Oct. 10, 1980, Ser. No. 195,998
Int. Cl.³ H03H *9/64, 9/72*
U.S. Cl. 333—195 **12 Claims**



1. In a surface acoustic wave component including a substrate divisible into at least two surface regions, input surface acoustic transducing means capable of efficiently transmitting surface acoustic waves of first and second frequencies to a first but not a second one of said regions, output surface acoustic transducing means capable of receiving said waves in said second but not said first region, and means having an average periodic structure for coupling acoustic waves of said first frequency from said first to said second region; the improvement wherein:

said coupling means inefficiently couples an acoustic signal when said average periodicity of said coupling means is an integral number of surface acoustic wavelengths of said signal on said substrate;

and said average periodicity is substantially equal to an integral number of surface acoustic wavelengths of said second but not said first frequency on said substrate.

4,336,516

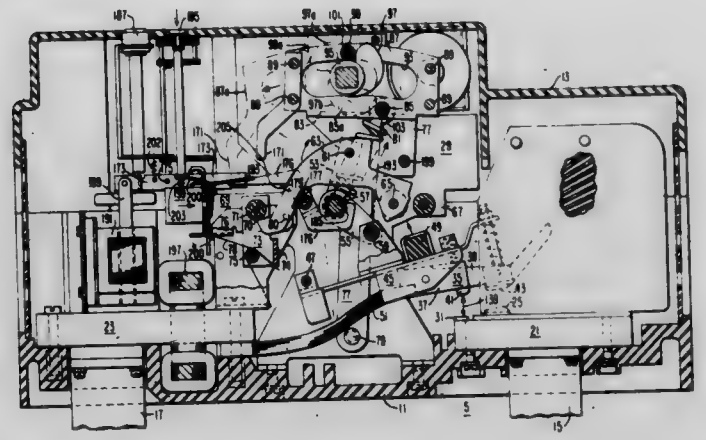
CIRCUIT BREAKER WITH STORED ENERGY TOGGLE-LOCK STRUCTURE

Walter V. Bratkowski, McKeesport; John A. Wafer, Brighton Township, Beaver County, and James P. Ellsworth, Beaver, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 31, 1980, Ser. No. 135,551
Int. Cl.³ H01H *9/24*
U.S. Cl. 335—171 **6 Claims**

1. A circuit breaker comprising a housing, a circuit breaker

structure in the housing and having contact means operable to open and close an electric circuit, the structure also having an operating lever and a releasable trip member, a pair of toggle links connected between the contact means and the releasable trip member, a pivot pin connecting the links together, toggle spring means extending between the pivot pin and the operating lever, the operating lever being movable to charge the toggle spring means, a toggle lock lever releasably locking the pivot pin whereby the contact means are partially closed, unlock means for unlocking the toggle lock lever to enable the contact means to close, and latch means for latching the releasable trip member in position to discharge the toggle spring means and open the circuit.



4,336,517

REVOLUTION DETECTING DEVICE

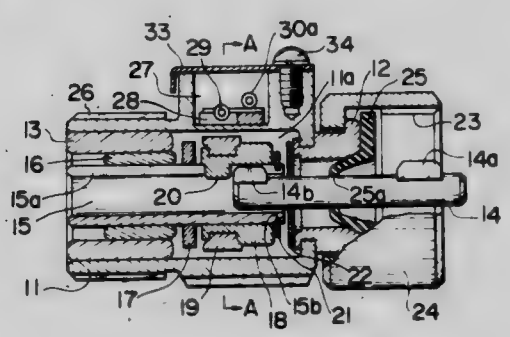
Kyoji Kobayashi, Chigasaki, and Takeo Furuya, Yokohama, both of Japan, assignors to Jidosha Denki Kogyo Kabushiki Kaisha, Yokohama, Japan

Filed Sep. 12, 1979, Ser. No. 74,625

Claims priority, application Japan, Sep. 21, 1978, 53-128616[U]; Sep. 21, 1978, 53-128617[U]; Jun. 26, 1979, 54-86633[U]

Int. Cl.³ H01H *9/00*; H02K *11/00*

U.S. Cl. 335—205 **7 Claims**



1. A device for detecting the number of revolutions of a connection shaft means, the device comprising a connection shaft means, a permanent magnet body attached to the connection shaft means and a pulse generating means disposed apart from the magnetic body, wherein

said pulse generating means is arranged in a housing isolated from a casing containing said connection shaft means; and

said connection shaft means comprises a pair of shafts connected in driving relation in said casing radially inboard of said pulse generating means, one said shaft being a hollow outer shaft supported for rotation within said casing, the other shaft being an inner shaft having an end axially received within said hollow shaft, said magnetic body being fixed on a hollow nonmagnetic member sleeved over said hollow shaft at the end of said inner shaft, said outer shaft having means drivingly interconnecting said hollow magnetic member and inner shaft.

4,336,518

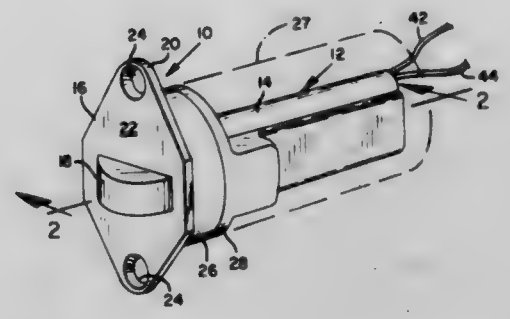
PLUNGER OPERATED MAGNETIC CONTACT SWITCH ASSEMBLY

Thomas J. Holce, Portland, and Charles M. Huckins, Tigard, both of Oreg., assignors to Sentrol, Inc., Portland, Oreg.

Filed Nov. 17, 1980, Ser. No. 207,263

Int. Cl.³ H01H *9/00*

U.S. Cl. 335—205 **10 Claims**



1. A plunger operated electrical switch assembly, comprising:

(a) a magnetic reed switch;

(b) means for holding said magnetic reed switch in a predetermined position;

(c) a plunger;

(d) a plunger guide located adjacent said means for holding said magnetic reed switch, said plunger guide permitting reciprocal movement of said plunger alongside and longitudinally of said magnetic reed switch, between a predetermined extended position and a depressed position;

(e) an elongate actuating magnet; and

(f) cavity means defined in said plunger for holding said actuating magnet in one of a plurality of predetermined positions relative to said magnetic reed switch when said plunger is in said extended position, said cavity means including a plurality of intersecting similarly oriented magnet receiving cavities, each including means for positively establishing a different predetermined location for said actuating magnet within said plunger.

4,336,519

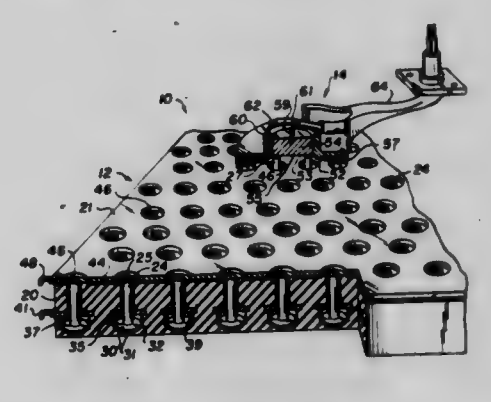
MAGNETIC ELECTRICAL CONTACT SYSTEMS

Maurice G. N. G. Lebecque, 9125 Wiltshire Pl., Burnaby, British Columbia, Canada (V3L 4N6)

Filed Aug. 8, 1980, Ser. No. 176,329

Int. Cl.³ H01H *36/00*

U.S. Cl. 335—206 **23 Claims**



1. A magnetic electrical contact system comprising

a first electrical member comprising

a surface with a plurality of closely spaced holes opening outwardly therefrom,

a plunger movably mounted in the first member in each hole thereof and movable longitudinally between a normal position and an operative position,

first electrical circuit means, and

first contact means on each plunger to form part of the first

circuit when said each plunger is moved from the normal position to the operative position thereof; and

a second electrical member to be moved over the surface of the first member and adapted to move each plunger away from its normal position to its operative position as said second member moves over said each plunger, said second member comprising

second electrical circuit means, and

second contact means forming part of the second circuit means to be engaged by said each plunger when moved to the operative position thereof,

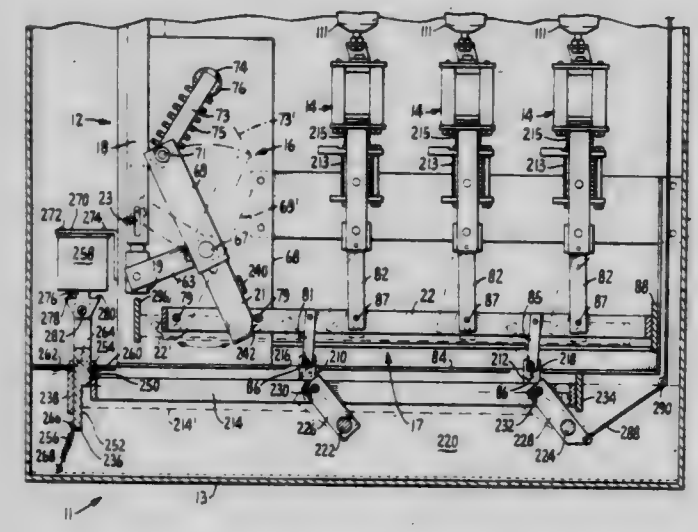
whereby said first circuit means is electrically connected to said second circuit means when said each plunger of the first member is moved to its operative position and into engagement with said second contact means of the second member.

4,336,520

METHOD AND APPARATUS FOR SHORT CIRCUIT PROTECTION OF HIGH VOLTAGE DISTRIBUTION SYSTEMS

Frank C. Trayer, 25690 LaLanne Ct., Los Altos Hills, Calif. 94022

Filed Jul. 25, 1980, Ser. No. 172,211
Int. Cl.³ H01H *3/00*
U.S. Cl. 337—191 **8 Claims**



1. A vacuum circuit breaker, comprising:

vacuum switch means;

first toggle means having a first stable state and a second stable state;

actuating means for actuating said first toggle means to change its state from either of said stable states to the other;

second toggle means for keeping said switch means closed when in a first stable state and allowing said switch means to remain open when in a second stable state, said second toggle means being operated between said stable states by said first toggle means, and comprising pivot means which are substantially unmoved during the operation of said second toggle means by said first toggle means;

displacing means for displacing said pivot means independently of said first toggle means and thereby opening said switch means; and

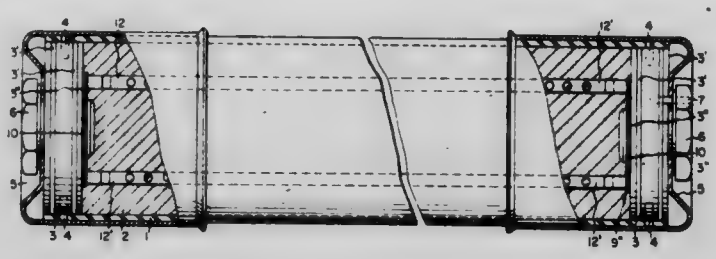
tripping means for causing said displacing means to rapidly displace said pivot means and thus rapidly open said switch means.

4,336,521

ELECTRIC FUSE

Frederick J. Kozacka, Main Ave., S. Hampton, N.H. 01913, and Richard A. Belcher, Drinkwater Rd., Hampton Falls, N.H. 03844

Filed Mar. 11, 1981, Ser. No. 242,771
Int. Cl.³ H01H *85/14*
U.S. Cl. 337—248 **6 Claims**



1. An electric fuse comprising

(a) a tubular casing of electric insulating material;

(b) a granular arc-quenching filler inside said casing;

(c) a pair of plug terminals closing said casing;

(d) a pair of recesses each in the center of one of the axially inner end surfaces of one of said pair of plug terminals;

(e) a pair of inserts each having a radially inner portion fitted into one of said pair of recesses, and each having a radially outer portion, said radially outer portion of one of said pair of inserts overlapping the axially inner end surfaces of one of said pair of plug terminals and defining a pair of gaps therebetween;

(f) a plurality of slots extending radially inwardly from the periphery of said radially outer portion of each of said pair of inserts;

(g) a plurality of ribbon-type fusible elements extending between and conductively connecting said pair of plug terminals;

(h) each of said plurality of fusible elements including a middle section and a pair of end sections bent at right angles to said middle section;

(i) said middle section of each of said plurality of fusible elements being inserted near the ends thereof into a pair of said plurality of slots in said radially outer portion of said pair of inserts;

(j) said end sections of each of said plurality of fusible elements being inserted into said pair of gaps defined between said radially outer portion of each of said pair of inserts and said axially inner end surface of one of said pair of plug terminals; and

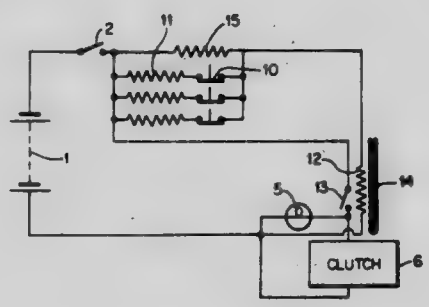
(k) solder joints conductively connecting said radially outer portion of said pair of inserts, said end sections of said plurality of fusible elements and said axially inner end surface of one of said pair of plug terminals.

4,336,522

VEHICLE SEAT-OCCUPANCY RECORDER

Kenneth G. Graham, 23 Apple Orchard Path, Thornhill, Ontario, Canada (L3T 3B5)

Filed Oct. 15, 1979, Ser. No. 85,017
Int. Cl.³ B60Q *1/26*
U.S. Cl. 340—52 R **2 Claims**



1. In apparatus for recording the degree of occupancy of

passenger seats of a vehicle comprising means to sense occupancy of at least one passenger seat of the vehicle, a totalizing recorder responsive to the extent of operation of the vehicle, and means responsive to said sensing means for controlling said recorder,

the improvement wherein the sensing means senses the number of passenger seats occupied, and the response means is adapted to control the rate of incrementation of the totalizing recorder in proportion to the number of seats unoccupied.

4,336,523

SUPERCONDUCTIVE SWITCHING AND STORAGE DEVICE

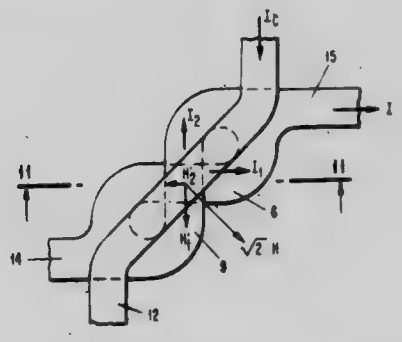
Rudolf Jaggi, Langnau, Switzerland, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 29, 1980, Ser. No. 154,547

Claims priority, application Switzerland, May 29, 1979, 4980/79

Int. Cl.³ H03K *19/95*; G11Q *11/44*

U.S. Cl. 340—825.79 **17 Claims**



1. A superconductive device exhibiting multistable states, comprising in combination:

a superconductor whose internal inductivity can be controlled by application of a magnetic field thereto and having at least one dimension which is comparable to or smaller than the penetration depth of said magnetic field in said superconductor, wherein said superconductor includes two branches over a certain length, said branches having mutual magnetic coupling such that an electrical current in said superconductor of at least a minimum amplitude necessary to cause bistability of said device will flow substantially in only one branch thereof when both branches are in their superconductive state,

means for producing said magnetic field for controlling the magnitude of said internal inductivity in said superconductor, said means including means for producing a magnetic field which magnetically co-acts with at least one of said branches of said superconductor to control the internal inductivity thereof, said branches remaining in their superconductive states in the presence of said magnetic field, and wherein the branch in which said current substantially flows can be controlled by application of said magnetic field.

4,336,524

VIDEO DISPLAY PAGER RECEIVER WITH MEMORY

Alfred B. Levine, 2924 Terrace Dr., Chevy Chase, Md. 20015

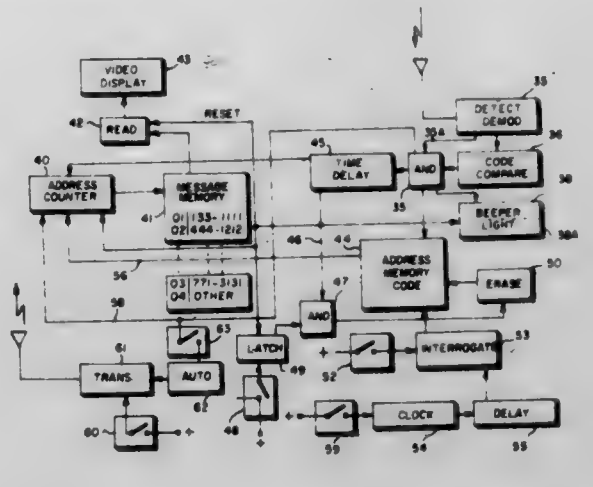
Division of Ser. No. 58,250, Jul. 17, 1979, Pat. No. 4,263,480. This application May 12, 1980, Ser. No. 148,877

Int. Cl.³ G08B *5/22*; H04B *7/24*; H04M *11/00*

U.S. Cl. 340—311.1 **8 Claims**

1. In a portable carried radio pager receiver having a video display for visually displaying a message, a memory for storing a series of limited content messages, and selectively controllable means actuatable from a remote transmitter to retrieve previously stored messages from the memory for visual display, the improvement comprising:

means enabling the previous entry of said series of limited content messages into the memory for pre-storing said messages, with each such message assigned a unique retrieval address code having fewer digits than the number of digits in the message,



and said controllable means responsive to receipt of one of said address codes to selectively retrieve the associated prestored message from the memory and applying that message to the video display for visual presentation.

4,336,525

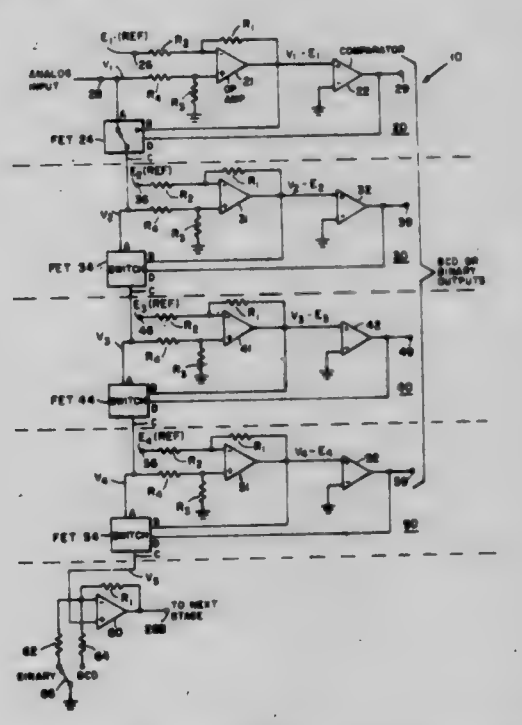
DIRECT CONVERSION ANALOG TO DIGITAL CONVERTER

William E. Chapple, III, Hartselle, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 7, 1980, Ser. No. 137,651

Int. Cl.³ H03K *13/02, 13/09*

U.S. Cl. 340—347 AD **1 Claim**



1. A subtractor analog to digital converter for providing direct conversion of analog signals and comprising: a plurality of analog signal processing sections each having an analog signal input, a digital signal output, and an analog signal output, the input of each of said signal processing sections being adapted for receiving an analog signal input for processing, the digital output being disposed for providing a binary output signal and said analog output being adapted for providing a selectable analog voltage output; said signal processing sections being arranged in sequence such that the input of a first signal processing section is adapted for receiving an externally supplied analog signal to be converted and subsequent sections being disposed sequentially such that the analog output of a preceding section provides the input to a succeeding section,

the digital output from each section compositely providing a digital representation of the signal level of the analog input signal coupled to said converter; each of said signal processing sections comprising an operational amplifier having first and second inputs and an output, a comparator amplifier having first and second inputs and an output, and switching means for selectively switching between two input signals; said operational amplifier first input being coupled to receive said analog signal input, said second input being adapted to receive a predetermined reference voltage and said output being coupled as the first input to said comparator, the second input of said comparator being set at a fixed voltage reference for providing a polarity difference comparator output in response to variations between the two comparator input signals thereby providing binary output signals therefrom; said switching means having first, second and third terminals, said first terminal being coupled directly to said analog signal input, said second terminal being coupled to the output of said operational amplifier and said third terminal being coupled as said analog signal output of each of said sections; each of said sections switching means being a field effect transister circuit for selectively switching between the respective section analog signal input and the operational amplifier analog signal output for coupling the operational amplifier analog signal output through said field effect transistor switch when the analog signal input exceeds the predetermined reference voltage input to said operational amplifier second input and simultaneously providing a comparator output signal which is a binary one; said plurality of signal processing sections are grouped into a plurality of signal processing stages, each stage comprising at least four sections; and further comprising means coupled between each of said processing stages for preparing any input analog signal from a preceding stage for processing thereby, said means for preparing comprising an operational amplifier having a first input adapted to receive said analog input signal from a preceding stage, a second input, and an output adapted to provide any residual analog output for processing by a subsequent stage, first and second resistances coupled respectively to said amplifier second input, single pole-double throw switching means coupled between ground, said first resistance and said second resistance for changing the signal applied to the second input of said operational amplifier and thereby changing the amplification of said amplifier on said analog signal input for providing a selectable amplification factor of 10 or 16 to the input analog signal.

4,336,526

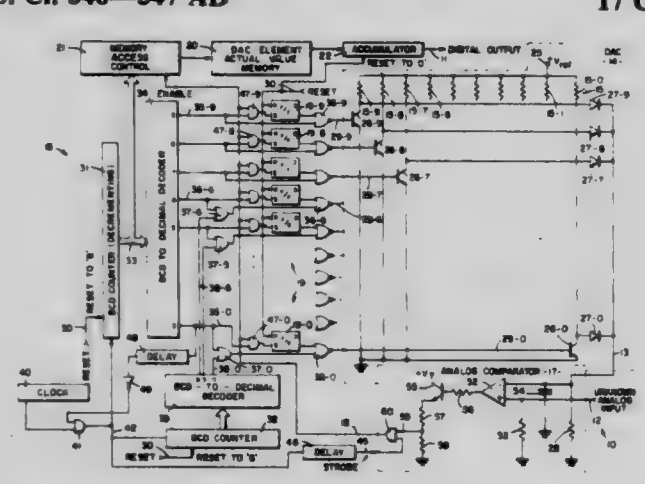
SUCCESSIVE APPROXIMATION ANALOG-TO-DIGITAL CONVERTER USING NON-BINARY SERIES

Basil Weir, San Jose, Calif., assignor to Intersil, Inc., Cupertino, Calif.

Continuation of Ser. No. 931,166, Aug. 4, 1978, abandoned. This application Apr. 22, 1980, Ser. No. 142,644

Int. Cl.³ H03K *13/05*

U.S. Cl. 340—347 AD **17 Claims**



1. In a successive approximation type analog-to-digital converter wherein the unknown analog input is successively compared with reference signals having stepped values from an analog generator, wherein said reference signals are related by a selected series, the improvement wherein digital equivalents of the actual step values produced by said analog generator are stored in an actual value memory, and including digital summing means for summing the stored digital equivalents of the actual step values included in the analog reference signal that results in the closest comparison with the unknown analog input to obtain a digital representation of said analog input, whereby the digital representation will be accurate despite inaccuracies in the reference signals with respect to the selected series.

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DIGITAL-TO-ANALOG CONVERTER

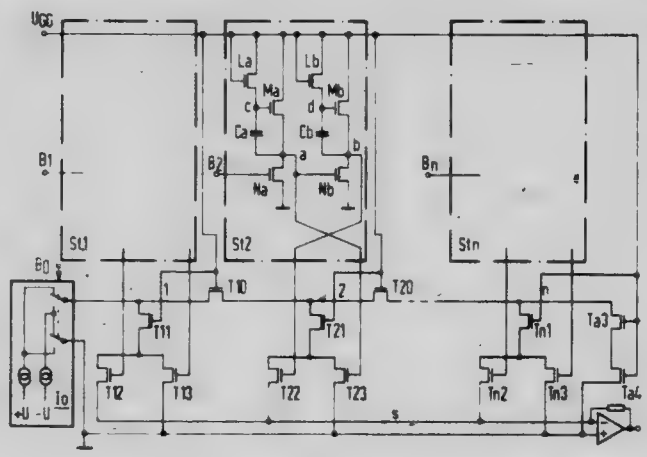
Frithjof von Sichart, Munich, and Wolf Springstubbe, Gauting, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 24, 1980, Ser. No. 190,238

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939455

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 DA **2 Claims**



1. In a digital-to-analog converter for converting a digital input signal representing a plurality of binary digits into a corresponding analog output signal, said converter having (1) an R-2R-ladder network with a plurality of chained ladder cells corresponding in number to the number of said digits wherein each of the resistances of the R-2R-ladder network is formed of a respective drain-source path of mutually identical MOS transistors integrated on a common chip and wherein each ladder cell is composed of a series transistor inserted between two neighboring nodes of the ladder network and of cross transistors arranged between the node in front of said series transistor and a sum current output line and a common ground connection, respectively; (2) a constant current source arranged at one end of said ladder network; (3) a reference voltage source directly connected in common to the gates of said series transistors; and (4) a plurality of control circuits each receiving a respective digit of said digital input signal at a signal input, each of said control circuits associated with one cell of said ladder network and having two signal outputs for supplying alternate control signals to the gates of said cross transistors, the improvement comprising:

said cells of the R-2R-ladder network each being composed of a series transistor and of first, second and third cross transistors commonly connected by one of their main electrodes to a star circuit, and each of said first, second and third cross transistors connected by their second main electrodes to said node in front of the series transistor, to the sum current output line and to the common ground connection, respectively, wherein the gates of said first cross transistors are directly connected to said reference voltage source and each of the gates of said second and said third cross transistors is connected to a respective one of the alternatively operative signal outputs of the associated control circuit, and

said control circuits being connected in parallel to said refer-

ence voltage source and including switch means arranged between the reference voltage source and the signal outputs for shunting said reference voltage alternatively to one of said signal outputs in dependence upon the state of the respective digit of the digital input signals.

4,336,528

SEMICONDUCTOR RESISTIVE NETWORK

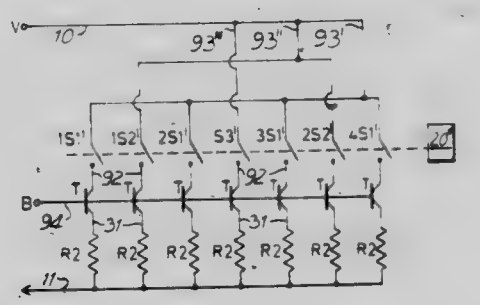
Jeffrey Kane, Cheadle Hulme, England, assignor to Ferranti Limited, Hollinwood, England

Continuation-in-part of Ser. No. 710,746, Aug. 2, 1976, abandoned. This application Nov. 28, 1977, Ser. No. 855,258

Claims priority, application United Kingdom, Nov. 27, 1976, 49575/76

Int. Cl.³ H01L *27/04*; G08C *9/00*

U.S. Cl. 340—347 DA **14 Claims**



1. A semiconductor device in a monolithic semiconductor body comprising

(a) a plurality of weighted resistors of differing resistances;

(b) each of said plurality of resistors comprising a selected number of substantially identical resistor portions coupled in parallel to each other, the number of identical resistor portions being selected to provide the required differing resistances of its weighted resistor;

(c) said substantially identical resistor portions of each of said resistors of said plurality being spaced from each other by identical resistor portions of other resistors of said plurality in an interdigitated fashion, and being substantially uniformly distributed throughout said plurality of resistors; and each of said substantially identical resistor portions of said plurality of resistors extending linearly within said semiconductor body in a parallel relation with each other, and being electrically isolated within said semiconductor body from each other.

4,336,529

POSTAGE METER HAVING SHIELDED KEYBOARD TO PROTECT AGAINST ELECTROMAGNETIC RADIATION

Danilo P. Buan, Easton, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Feb. 19, 1980, Ser. No. 122,791

Int. Cl.³ G06F *3/02*; G07G *1/00*

U.S. Cl. 340—365 R **4 Claims**

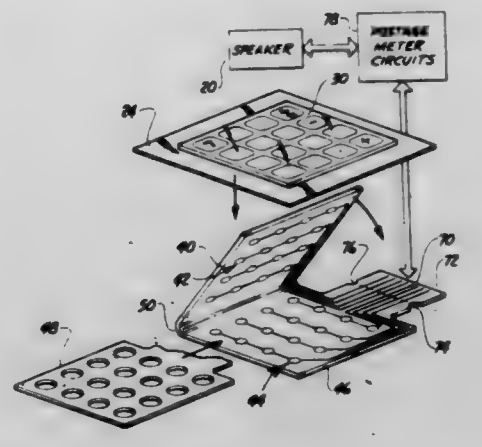
1. In a postage meter of the type adapted to imprint postage on a mail piece, a system comprising:

electronic circuit means for controlling the operation of said postage meter, said circuit means including means for accounting for postage which has been printed;

a conductive housing supporting said circuit means said conductive housing having a recessed area adapted to receive a keyboard means;

a keyboard means including switch means for entering data into said circuit means to effectuate operation of said postage meter, said switch means secured to said housing recessed area and including a plurality of switches electrically connected to said electronic circuit means;

said keyboard means further including a conductive flexible sheet disposed above and forming a continuous conductive surface covering all of said plurality of switches, said flexible conductive sheet electrically connected to said housing and positioned above said recessed area and of size so that the margins of said conductive flexible sheet physically engage non recessed areas of said housing and



operable to enable a force applied to said conductive sheet to be transmitted to actuate a selected switch to affectuate operation of said postage meter.

4,336,530

THIN KEYBOARD WITH CHANGEABLE KEY INDICIA

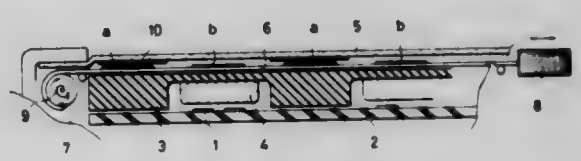
Mamoru Koike, Nara; Shigeki Komaki, Yamatokoriyama; Tomohiro Inoue, Yoshino; Akira Tanimoto, Kashihara, and Yoshisaburo Yoshida, Yaita, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 26,568, Apr. 3, 1979, abandoned. This application Jan. 16, 1981, Ser. No. 225,257

Claims priority, application Japan, Apr. 6, 1978, 53-45488[U]

Int. Cl.³ G06F *3/02*

U.S. Cl. 340—365 VL **7 Claims**



1. A substantially thin keyboard for use in a multifunction calculator, said keyboard comprising:

a frame;

a plurality of keys having at least first and second functions, said plurality of keys being spaced apart at a predetermined distance in a first direction and including,

a plurality of stationary key contacts positioned on said frame;

a plurality of electrically conductive movable contacts operatively associated with said stationary key contacts, each of said plurality of electrically conductive contacts being movable to bridge an associated one of said stationary key contacts;

an indicia sheet of relatively thin material having indicia imprinted thereon, each of said first and second functions of each key having an indicia associated therewith, said indicia being separated by less than said predetermined distance is said first direction;

a function selection switch for selecting the function of said plurality of keys, said function switch having at least a first position for selection of the first function and a second position for selection of the second function;

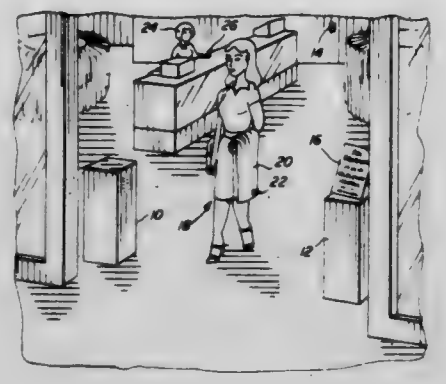
said function selection switch being operatively connected to said indicia sheet to shift said indicia sheet less than said predetermined distance in said first direction to place the indicia associated with the function selected into view; and

mask means for concealing from view indicia not associated with the function selected.

4,336,531
SHOPLIFTING ALARM SYSTEM AND METHOD

Robert A. Kincaid, 1201 N. Alvernon - #34, Tucson, Ariz. 85712

Filed Nov. 3, 1980, Ser. No. 203,535
Int. Cl.[3] G08B *13/00*
U.S. Cl. 340—568 9 Claims



1. A shoplifting alarm/deterent system comprising in combination:

(a) a first pedestal-like housing means positioned in a store adjacent to one side of an exit of the store;

(b) a second pedestal-like housing means in the store positioned adjacent to an opposite side of the exit, said second pedestal-like housing means having an appearance substantially similar to the appearance of said first pedestal-like housing means;

(c) means for wirelessly transmitting a first signal indicating detection by an employee of shoplifting activity by a would-be shoplifter, said transmitting means including manually actuatable switching means for causing said transmitting means to transmit said first signal;

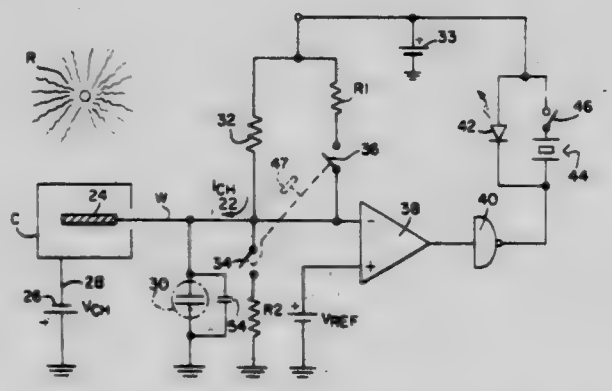
(d) receiving means concealed in said second pedestal-like housing means for receiving said first signal and producing an alarm actuating signal in response to said first signal; and

(e) alarm means responsive to said alarm actuating signal for producing an audible alarm sound.

4,336,532
INTEGRATED NUCLEAR RADIATION DETECTOR AND MONITOR

Brian L. Biehl, Adelphi, and Stuart I. Lieberman, Silver Spring, both of Md., assignors to Radiation Engineering Inc., Beltsville, Md.

Filed May 22, 1980, Ser. No. 152,273
Int. Cl.[3] G01T *1/16*; G08B *21/00*
U.S. Cl. 340—600 7 Claims



1. An integrated nuclear radiation detector and monitor comprising in combination:

means constituting an ionization chamber (C) including walls defining said chamber;

an electrode (24) positioned inside said chamber and electrically insulated from said chamber;

means for maintaining a potential (V_{CH}) between said electrode and said chamber so that the current flowing from said electrode is equal to the saturation current of said ionization chamber for any given level of radiation;

an electrical circuit including a source of potential (33);

means interposed in the electrical circuit between said source of potential (33) and said electrode (24) providing a high resistance between said source of potential (33) and said electrode (24);

means producing an adjustable reference potential (V_{ref});

a comparator (38) one terminal of which is connected to said reference potential (V_{ref}) and another terminal of which is connected to said electrode (24) for comparing the reference voltage with the voltage at said electrode, thereby producing an output signal;

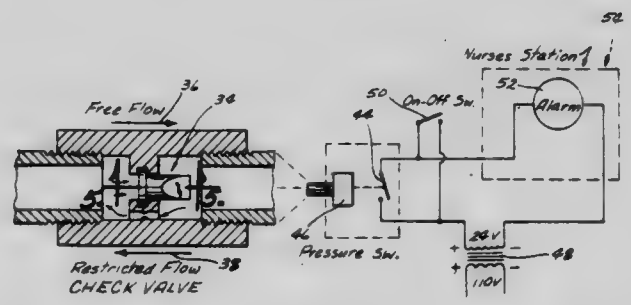
a solid state invertor (40) electrically connected to the output side of said comparator to receive said output signal; and

an alarm electrically connected to said solid state invertor and actuated by said output signal.

4,336,533
FLUID ACTIVATED ALARM DEVICE

Robert S. Wettach, 204 N. Main St., Mt. Pleasant, Iowa 52641

Filed Dec. 22, 1980, Ser. No. 219,315
Int. Cl.[3] G08B *21/00*
U.S. Cl. 340—666 10 Claims



1. A liquid activatable alarm pad for a hospital bed comprising:

a flexible pressure sensitive pad having means for containment of a flowable liquid, a liquid inlet and a liquid outlet line,

a check valve in communication with said outlet line, allowing free flow of said fluid out of said pad through said outlet line but restricted flow back through said outlet line to said pad,

a pressure sensitive switch in fluid communication with said check valve, said switch being normally open, and closing only when pressure against said switch is reduced,

said switch being connected to a circuit and a power source, and

said circuit being connected to a signal means which is electrically responsive to reduction in pressure caused by removal of pressure from said pad.

4,336,534
CONTROL GENERATOR FOR USE IN BROADCAST RECEIVER INCLUDING IMPROVED SIGNAL LEVEL INDICATOR

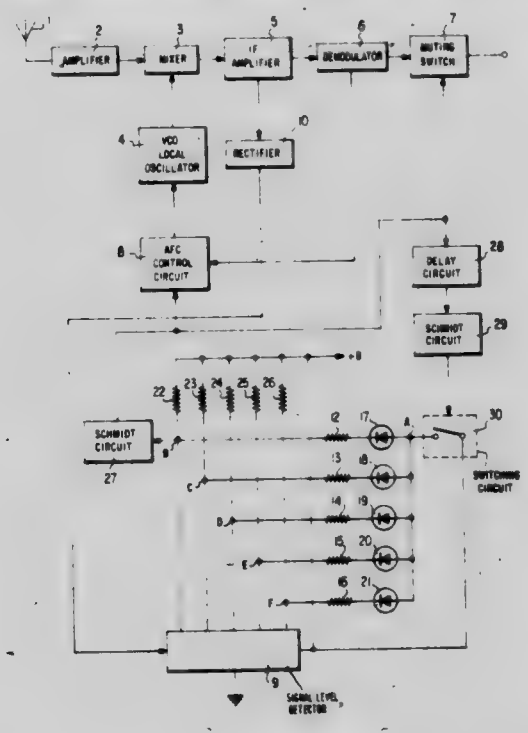
Morio Kumagai, Tokyo, Japan, assignor to Trio Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 2, 1979, Ser. No. 53,714
Claims priority, application Japan, Jul. 17, 1978, 53-86966; Jul. 17, 1978, 53-98241[U]
Int. Cl.[2] G09G *3/00*
U.S. Cl. 340—753 13 Claims

1. In a light-emitting level indicator which includes a signal level detector which sequentially provides a plurality of output signals at a respective plurality of output terminals thereof to thereby sequentially light luminous elements respectively connected to said output terminals in response to predetermined changes in the input signal applied to an input terminal of the

signal level detector so that the number of lit luminous elements indicates the magnitude of the input signal,

the improvement of converter means for converting arbitrarily selected changes in said input voltage to said predetermined changes where said arbitrarily selected changes are different from said predetermined changes so that said plurality of luminous elements can be sequentially lit in accordance with the arbitrarily selected changes in the input voltage where said converter means comprises only



passive elements including (a) a plurality of impedance means respectively connected to the output terminals of said signal level detector, the opposite terminals of said impedance means being connected to a common connection point, (b) a further impedance means connected between said common connection point and a fixed predetermined voltage and (c) means for connecting said common connection point to the said input terminal of the signal level detector.

4,336,535

CURSOR FOR PLASMA SHIFT REGISTER DISPLAY

Herman Albertine, Jr., Dallas, Tex., assignor to NCR Corporation, Dayton, Ohio

Filed Apr. 16, 1980, Ser. No. 140,649
Int. Cl.³ G09G *3/28*
U.S. Cl. 340—768 **21 Claims**

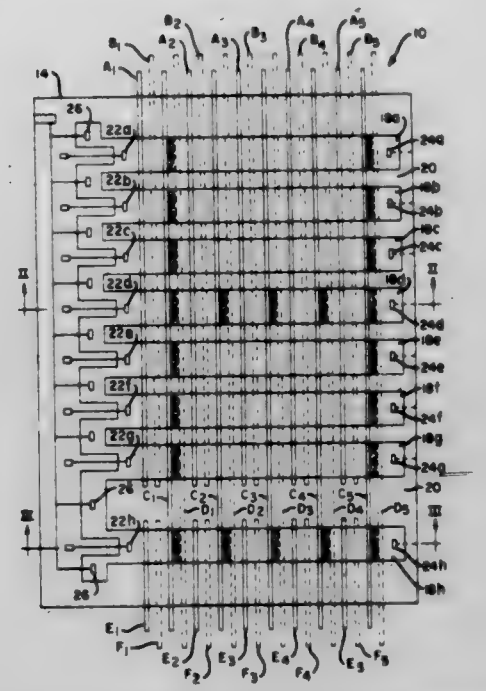
1. A plasma shift register display panel comprising:

at least one display channel defined by a front wall surface and an opposite rear wall surface and containing an ionizable medium;

a cursor channel defined by a front wall surface and an opposite rear wall surface, said cursor channel being positioned adjacent to said display channel and containing an ionizable medium;

a first plurality of transfer electrodes periodically positioned within said display channel;

a second plurality of transfer electrodes periodically positioned within said cursor channel; and



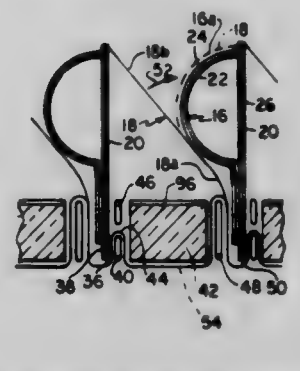
at third plurality of transfer electrodes periodically positioned within said display channel and within said cursor channel.

4,336,536

REFLECTIVE DISPLAY AND METHOD OF MAKING SAME

Charles G. Kalt, 29 Hawthorne Rd., Williamstown, Mass. 01267, and Bryce Babcock, 1025 State Rd., North Adams, Mass. 01247

Filed Dec. 17, 1979, Ser. No. 103,995
Int. Cl.³ G09G *3/16*
U.S. Cl. 340—783 **15 Claims**



1. A multi-element reflective display device, comprising:

(a) a plurality of shielding means positioned at spaced intervals with respect to each other, each of said shielding means having a surface of first reflectivity;

(b) a plurality of conductive fixed electrodes, each of said fixed electrodes having a surface of second reflectivity, said second reflectivity being different from said first reflectivity, each of said fixed electrodes being positioned between adjacent shielding means with its surface of second reflectivity in facing relationship to a respective one of said surfaces of first reflectivity;

(c) a single sheet of conductive material defining a plurality of tongues, each of said tongues having a base portion and tip portion, said plurality of tongues being defined in a row;

(d) means for supporting said fixed electrodes and each of said shielding means in said facing relationship and for supporting each of said tongues with their tips between a surface of first reflectivity and its respective facing surface of second reflectivity and in spaced relationship to said surface of second reflectivity;

(e) first conductor means integral with said single sheet for connecting to all of said tongues; and

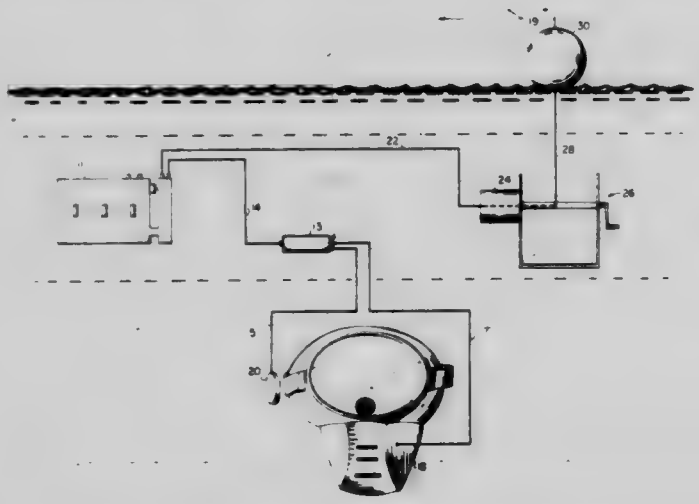
(f) a plurality of second conductor means for electrically connecting to each of said fixed electrodes, whereby application of a voltage to said first conductor means and one of said second conductor means results in attraction of the tongue adjacent the electrode associated with said one of said second conductor means to said associated electrode.

4,336,537

BI-DIRECTIONAL UNDERWATER COMMUNICATION SYSTEM

Fredrick G. Strickland, NAVSPECWARUNIT ONE Box 37, c/o FPO, San Francisco, Calif. 96651

Filed Dec. 17, 1980, Ser. No. 217,270
Int. Cl.³ H04B *11/00*
U.S. Cl. 340—850 **5 Claims**



1. A system for bi-directional radio communication between a diver and a remote location comprising:
a separate watertight radio transceiver;
watertight microphone means operatively connected to the transceiver for transmitting and receiving voice communication;
a face mask for the diver;
the watertight microphone means including a separate earphone worn in the ear of the diver and a separate mouth piece mounted in the facemask;
buoyant antenna means operatively connected by a cable to the transceiver for floating at the surface of a body of water;
said buoyant antenna means including a buoy having top and bottom ends and an antenna which is mounted on the top of the buoy for extending upwardly therefrom above the water; and
reel-means interconnected in the cable between the transceiver and the buoyant antenna means in proximity to the diver for reeling and unreeling the cable so that the antenna can remain above the surface of the water while the transceiver is submerged at various depths.

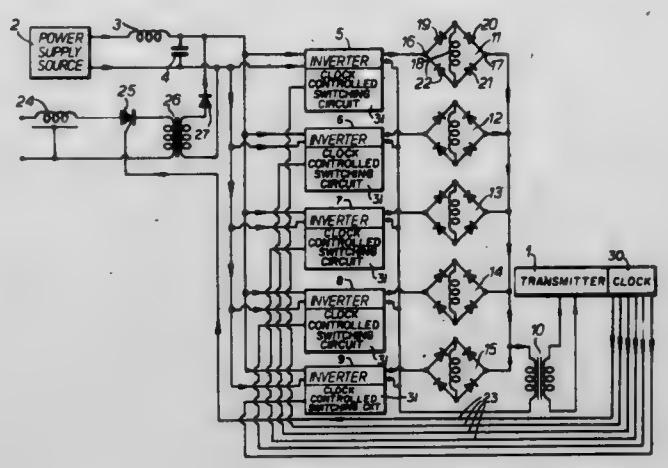
4,336,538

RADAR SYSTEMS

Matthew F. Radford, Danbury, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Jul. 21, 1976, Ser. No. 706,481
Claims priority, application United Kingdom, Jul. 26, 1975, 31374/75
Int. Cl.³ G01S *7/02*
U.S. Cl. 343—5 R **2 Claims**

1. A radar system including a radar transmitter and a power supply connected to said radar transmitter, said power supply including a power source having means for selectively increasing the power supplied thereby to said radar transmitter to increase the average power output of the radar transmitter to



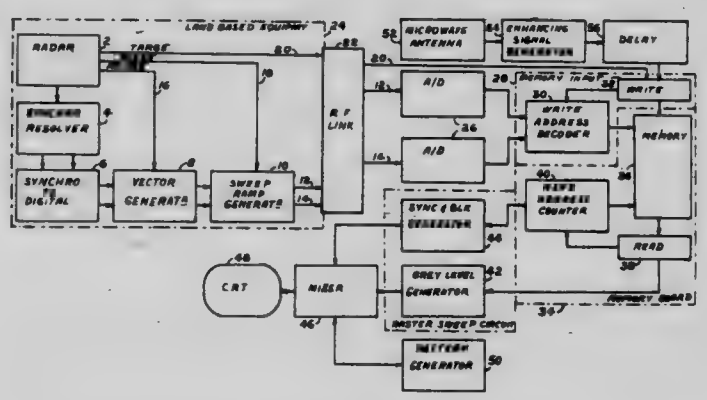
a value above its rated mean power output during a dwell time during which the radar beam traverses a target of interest.

4,336,539

NAVIGATIONAL AID DEVICE

Alvin E. Hendrickson, 457 Elm Ave., Chula Vista, Calif. 92010

Continuation-in-part of Ser. No. 948,702, Oct. 5, 1978, abandoned. This application Feb. 11, 1980, Ser. No. 120,656
Int. Cl.³ G01S *7/06*; H04N *7/12*
U.S. Cl. 343—6 TV **11 Claims**

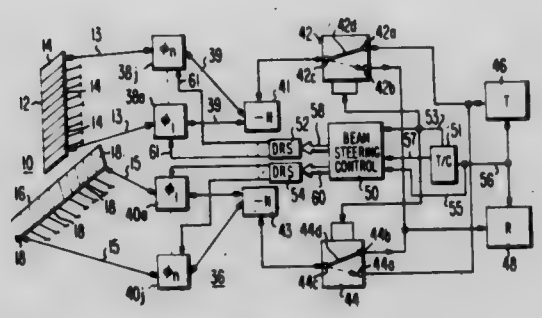


1. A navigational aid device which comprises:
a radar station having a narrow beam antenna scanning an area traveled by at least one craft;
means for broadcasting over said area a signal carrying an instantaneous indication of the azimuthal orientation of the antenna, and a representation of the radar pulse and target echo timing;
on board said craft,
means for receiving said signal;
a digital storage means;
means for sequentially addressing said storage means;
means for randomly addressing said storage means in function of the sine and cosine components of said indication wherein the combined instantaneous values of sine and cosine components define the address locations in the storage means;
first means, responsive to said pulse and target echo timing, for writing information into said storage means in a location defined by the said instantaneous values at the time corresponding to the detection of said target echo by the radar station;
means for extracting said information from said storage means
by equal increments of said means for sequentially addressing;
video means for displaying said information; and
means for synchronizing the raster scan sequence of said video means with said means for sequentially addressing.

4,336,540
RADAR SYSTEM

William V. Goodwin, Cinnaminson, N.J., and James S. Williams, deceased, late of Moorestown, N.J. (by Elizabeth J. Williams, executrix), assignors to RCA Corporation, New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 191,664
Int. Cl.³ G01S 3/14
U.S. Cl. 343—16 R 4 Claims

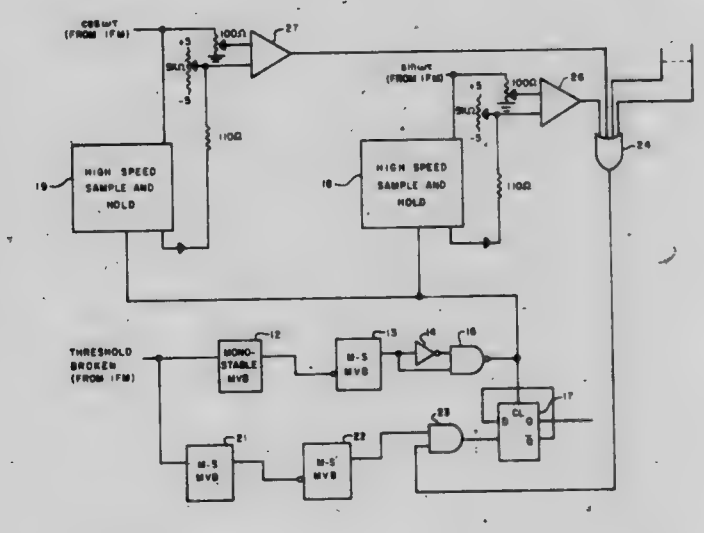


1. A radar system comprising:
means including a first antenna for transmitting RF burst signals in a fan beam pattern with the beamwidth in one geometric plane being relatively wide relative to the beamwidth in a second orthogonal geometric plane;
means for receiving reflected RF burst signals, said receiving means including a receiving antenna of the type exhibiting a second fan beam pattern orthogonal to said first fan beam pattern where said beamwidth is relatively narrow in said one geometric plane relative to said second orthogonal geometric plane;
means coupled to said receiving antenna for scanning said second fan beam associated therewith in said one geometric plane, said means for scanning including means for sequentially stepping said second fan beam pattern over the region covered by said first fan beam pattern in said one geometric plane; and
means for repetitively transmitting said RF burst signals in said first fan beam pattern between each sequence step of said second fan beam.

4,336,541
SIMULTANEOUS SIGNAL DETECTOR FOR AN INSTANTANEOUS FREQUENCY MEASUREMENT RECEIVER

James B. Y. Tsui, Centerville; Rudy L. Shaw, Montgomery County, and Joseph Caschera, Riverside, all of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 8, 1980, Ser. No. 176,434
Int. Cl.³ G01S 7/36
U.S. Cl. 343—18 E 6 Claims

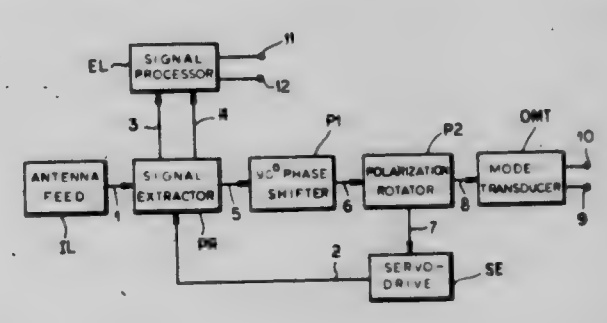


1. An apparatus for detecting the receipt of two or more RF signals, differing in frequency and arrival time, in the video stage of an instantaneous frequency measurement receiver, comprising:
means for converting RF frequencies to proportional video stage voltage levels;
means for sampling the voltage levels, in the means for converting, upon stabilization of the video voltage levels immediately succeeding the reception of the first RF pulse;
means for comparing the sampled video stage voltage levels with the video levels later in time, and providing an output signal when the levels later in time are not substantially equal to the sampled levels; and
means for terminating the comparison upon completion of the frequency measurement encoding by the receiver.

4,336,542
METHOD OF AND SYSTEM FOR TRACKING AN OBJECT RADIATING A CIRCULARLY OR LINEARLY POLARIZED ELECTROMAGNETIC SIGNAL

Paolo Bielli, Cirie-Torino; Salvatore De Padova, and Dario Savini, both of Turin, all of Italy, assignors to CSELT, Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Nov. 2, 1979, Ser. No. 90,618
Claims priority, application Italy, Nov. 6, 1978, 69540 A/78
Int. Cl.³ H04B 7/00
U.S. Cl. 343—100 PE 8 Claims



1. A method of tracking a remote object emitting an electromagnetic radio signal, comprising the steps of:
receiving the emitted radio signal and passing same through a circular waveguide section capable of propagating modes TE_{11} and TE_{21};
extracting signal components of mode TE_{21} from said waveguide section via two pairs of diametrically opposite lateral slots located in axial planes mutually offset by 45° while transmitting a signal wave of mode TE_{11} to an output port;
subtractively combining the signal component extracted from each pair of slots to form a first and a second difference signal;
obtaining from the signal of mode TE_{11} arriving at said output port a reference signal of the same frequency as said difference signals; and
multiplying each of said difference signals by said reference signal to produce a pair of output signals proportional to spatial coordinates of said object in a predetermined Cartesian system having an axis coinciding with that of said waveguide section.

4,336,543
ELECTRONICALLY SCANNED AIRCRAFT ANTENNA SYSTEM HAVING A LINEAR ARRAY OF YAGI ELEMENTS

Frederick M. Ganz, Smithtown; Justine D. Cermignani, Fort Salonga, and Richard H. Imgram, Plainview, all of N.Y., assignors to Grumman Corporation, Bethpage, N.Y.

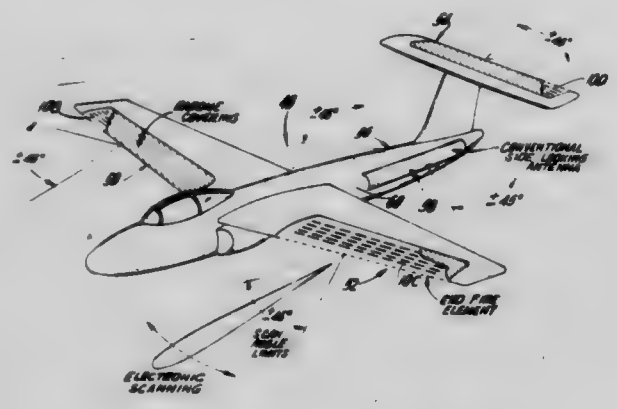
Continuation of Ser. No. 798,085, May 18, 1977, abandoned, which is a continuation of Ser. No. 618,401, Oct. 1, 1975, abandoned. This application Apr. 22, 1980, Ser. No. 142,772
Int. Cl.³ H01Q 1/28, 21/08
U.S. Cl. 343—705 15 Claims

1. An antenna system for conformal mounting on an aircraft

for generating an electronically scanned main radiation lobe comprising:

(a) a linear array of Yagi antennas which are laterally spaced from one another a distance of about 0.3λ to 0.9λ center to center, each of said Yagi antennas including a driven element, a reflector member and a director member, each of which having a length less than the spacing between each adjacent Yagi antenna, each of said Yagi antennas being operative to radiate:

i. free space beam widths Bx and By in the coordinate X



and Y planes, respectively, the values of Bx and By being substantially less than 90°; and

ii. free space maximum gain in the direction of the lengths of said Yagi antennas; and

(b) means for scanning the antenna system main lobe in the X plane over an angle A substantially greater than Bx, while at the same time maintaining a system main lobe beam width in the Y plane which approximates By, said scan angle A being able to be broadened to greater than 90° as a result of enhanced mutual coupling between said Yagi antennas.

4,336,544

METHOD AND APPARATUS FOR DROP-ON-DEMAND INK JET PRINTING

David K. Donald, Redwood City; Michael J. Lee, and John L. Vaught, both of Palo Alto, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 18, 1980, Ser. No. 179,206
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—1.1 **6 Claims**

1. An apparatus for performing ink jet printing comprising:

conduit means coupled to a fluid reservoir and having an orifice at an unaffixed end thereof for discharging a preselected drop of fluid from said orifice in response to interruption of the travel of said conduit means;

actuator means for causing the conduit means to travel along a preselected path in response to a first electrical signal; and

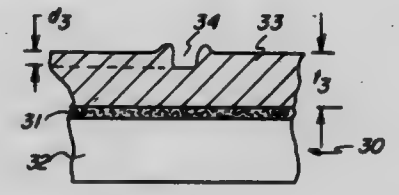
means for interrupting the travel of said conduit.

4,336,545

OPTICAL DISC STRUCTURE, METHOD AND APPARATUS PHYSICALLY OPTIMIZED FOR WRITING AND READING WITH A SINGLE WAVELENGTH

Dennis G. Howe, Pittsford; Alan B. Marchant, and Joseph J. Wrobel, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 18, 1980, Ser. No. 217,646
Int. Cl.³ G01D *9/00, 15/34*
U.S. Cl. 346—1.1 **44 Claims**



23. A method for the real-time, optical writing and reading of high density information with light of a given wavelength, said method comprising:

(a) scanning a record element of the type having a recording stratum, including a heat-deformable dye-binder layer overlying a reflectively surfaced support, with respect to a writing laser beam of said given wavelength, said dye binder layer having optical constants such that the reflectance versus thickness variation curve of said stratum, with respect to said given wavelength, exhibits a first reflectance minimum having a high depth of modulation and said stratum having a nominal thickness sufficiently greater than the thickness corresponding to said first reflection minimum to effect reflection of a significant minor proportion of light of said given wavelength;

(b) modulating the intensity of said laser beam to form tracks comprising a plurality of discrete thermal deformation pits, said pits being recorded to a depth such that, upon reading of said record element with a reading laser beam of said given wavelength, the proportions of such beam reflected from pitted and non-pitted portions of said element are approximately equal;

(c) scanning such tracks with a reading laser beam of radiation of said given wavelength which has an energy less than will effect melting of the scanned dye-binder layer; and

(d) sensing the reading beam, reflected from said record element, with a far field detector adapted to detect and produce output signals primarily in response to differences in phase of the read beam reflected from pitted and non-pitted portions of said element.

4,336,546

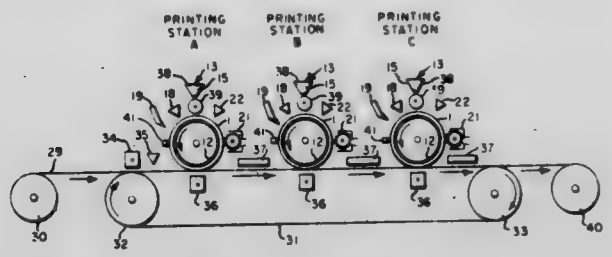
MAGNETIC PRINTING APPARATUS

Donald W. Edwards, Wilmington, Del.; Emery J. Gorondy, Chadds Ford, and Arend Van Roggen, Kennett Square, both of Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 777,241, Mar. 15, 1977, Pat. No. 4,191,961, and a continuation-in-part of Ser. No. 892,292, Mar. 31, 1978, abandoned, which is a division of Ser. No. 771,061, Feb. 25, 1977, Pat. No. 4,099,186, said Ser. No. 777,241, which is a continuation-in-part of Ser. No. 771,061, , which is a continuation-in-part of Ser. No. 672,552, Mar. 31, 1976, abandoned. This application Aug. 30, 1979, Ser. No. 71,194
The portion of the term of this patent subsequent to Jul. 4, 1995, has been disclaimed.
Int. Cl.³ G01D *15/06;* G11B *9/00*
U.S. Cl. 346—74.7 **15 Claims**

1. Magnetic printing apparatus for forming on a substrate a colored print of an original colored design comprising a ferromagnetic printing means capable of continuously discharging an electric charge through its thickness to a grounded electrically conductive support on which it is imposed; means for

forming on said ferromagnetic printing means a magnetic image of a photocolor-separated film positive of the original colored design, means for developing said magnetic image on said ferromagnetic means with a toner comprising a ferromagnetic component, a dye and a resin which substantially encapsulates said component and dye; means for neutralizing static electricity on said toner; means for removing from said ferromagnetic means neutralized toner particles which prior to neutralization had been adhered thereto by static electricity; and means for transferring the developed image to the substrate.



4,336,547

PUMP SYNCHRONIZATION IN AN INK JET SYSTEM PRINTER

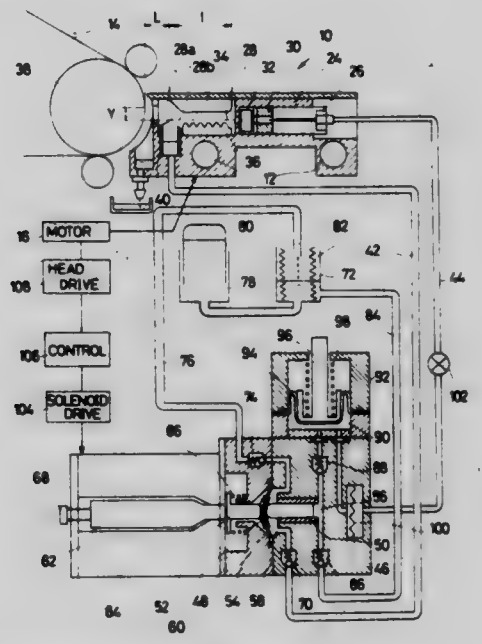
Masafumi Matsumoto; Matahira Kotani, both of Nara, and Hiromu Sasaki, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 11, 1980, Ser. No. 186,349

Claims priority, application Japan, Sep. 28, 1979, 54-125793

Int. Cl.[3] B41J *27/00*; G01D *15/02*

U.S. Cl. 346—75 **6 Claims**



1. An ink jet system printer comprising:

a printer head for emitting ink droplets;

a print receiving member for receiving the ink droplets emitted from said printer head;

head drive means for reciprocating said printer head with respect to said print receiving member;

ink liquid supply means for supplying ink liquid to said printer head, said ink liquid supply means including a constant flow rate plunger pump and a pressure accumulator disposed between said flow rate pump and said printer head;

pump drive means for activating said constant flow rate pump comprising a solenoid for activating said plunger pump; and

synchronization means for developing a synchronization signal in order to synchronize the operation of the pump drive means with the operation of the head drive means so as to establish printing and non-printing periods, such that, during the actual printing period, the plunger pump is not driven to operate and said ink liquid supply is conducted through the use of the pressurized ink liquid contained in said pressure accumulator, while, during the non-printing period, said plunger pump is driven to increase the ink liquid pressure in said pressure accumulator.

4,336,548

DROPLETS FORMING DEVICE

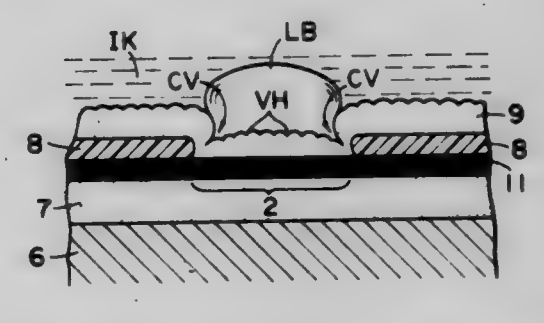
Shigeyuki Matsumoto, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 24, 1980, Ser. No. 162,531

Claims priority, application Japan, Jul. 4, 1979, 54-84851; Jul. 4, 1979, 54-84852; Jul. 9, 1979, 54-87146

Int. Cl.[3] G01D *15/18*

U.S. Cl. 346—140 R **27 Claims**



1. A droplets forming device comprising means defining a chamber into which a liquid is introduced, said chamber being in communication with a liquid droplets discharging orifice, and heat generating means provided in a surface of said chamber defining means for heating the liquid so that the thus heated liquid is discharged from the orifice in the form of droplets, said heat generating means including at least a heat generating resistive body and a barrier layer to isolate said resistive body from the liquid in said chamber, and wherein the surface of said barrier layer in contact with the liquid has a surface coarseness of from 0.05 S to 2 S measured in accordance with Japanese Industrial Standard JIS B 0601.

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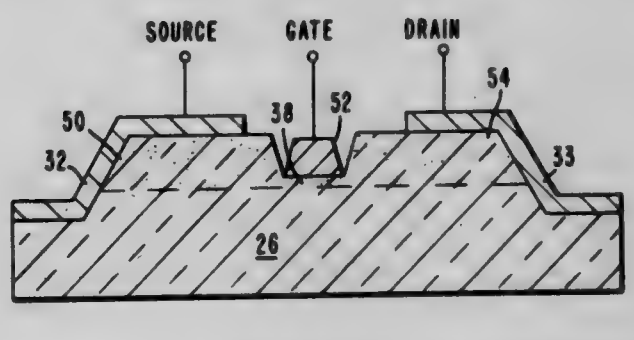
SCHOTTKY-BARRIER GATE GALLIUM ARSENIDE FIELD EFFECT DEVICES

Glenn O. Ladd, Jr., Agoura, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 879,651, Feb. 21, 1978, Pat. No. 4,265,934, which is a continuation of Ser. No. 640,124, Dec. 12, 1975, abandoned. This application Jul. 25, 1980, Ser. No. 172,325

Int. Cl.[3] H01L *29/48*

U.S. Cl. 357—15 **6 Claims**



1. A Schottky-barrier gate field effect transistor comprising:

(a) a semi-insulating gallium arsenide substrate;

(b) a conducting channel selectively formed on said substrate;

(c) ohmic contacts formed on two chosen regions of the surface of said conducting channel to thereby form source

and drain electrodes and define source and drain regions for said field effect transistor;

(d) a relatively shallow conducting region of uniform thickness on said conducting channel, formed by selectively removing a predetermined portion of said conducting channel between said source and drain electrodes, to thereby form a trapezoidal shaped interval mesa cavity region in said conducting channel with the flat horizontal lower surface of said cavity region parallel to the interface between said substrate and said conducting channel, and angled side walls of said cavity region extending to said surface of said conducting channel at edges remote from said source and drain electrodes, and to thereby form the gate region for said Schottky-barrier gate field effect transistor; and

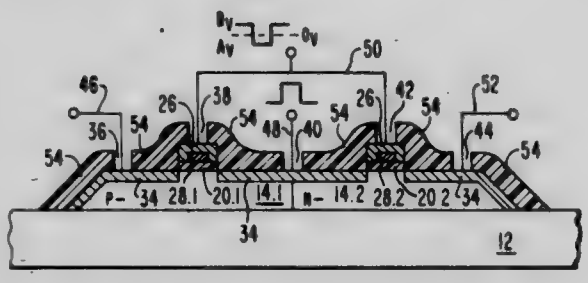
(e) a thin strip of metallization located between said source and drain electrodes, primarily covering said flat horizontal lower surface of said trapezoidal shaped cavity region and with minimal contact with said side walls of said cavity region, and in intimate contact with said shallow conduction region, to thereby form a Schottky-barrier gate electrode for said field effect transistor that is remote from said source and drain electrodes, whereby voltages applied to said gate electrode are operative to control the conductivity of said shallow conducting region.

4,336,550

CMOS DEVICE WITH SILICIDED SOURCES AND DRAINS AND METHOD

Lawrence B. Medwin, Edmonds, Wash., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 20, 1980, Ser. No. 132,138
Int. Cl.[3] H01L *27/02*
U.S. Cl. 357—42 **2 Claims**



1. A thin film deep depletion circuit device comprising:

first and second insulated gate field effect transistors formed from an island of semiconductor material of first and second respective opposite conductivity types, the transistors formed on an insulative substrate selected from the group consisting of sapphire, spinel and monocrystalline beryllium oxide;

each transistor being characterized by the absence of discrete drain and source zones; and

each transistor further including;

a gate structure on only a portion of the surface of the island associated with each transistor and insulated therefrom;

shallow metal silicided areas on the remainder of the surface of the island adjacent each gate structure; and

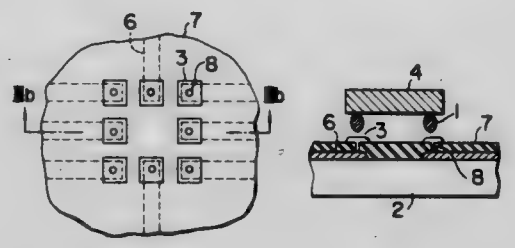
lead lines in ohmic contact with the silicided areas and with each gate structure.

4,336,551

THICK-FILM PRINTED CIRCUIT BOARD AND METHOD FOR PRODUCING THE SAME

Tsuyoshi Fujita; Tomio Yokoyama, and Ichiro Ishi, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 909,941, May 26, 1978, abandoned.
This application Jul. 2, 1980, Ser. No. 165,333
Claims priority, application Japan, May 30, 1977, 52-62125
Int. Cl.[3] H01L *39/02, 23/48, 29/44*
U.S. Cl. 357—80 **5 Claims**



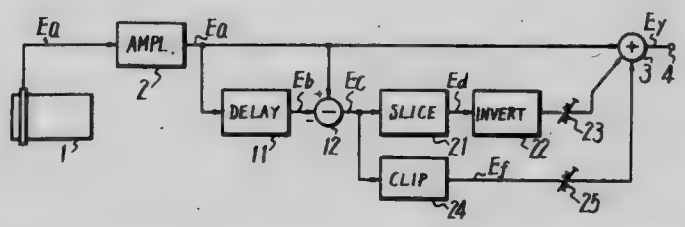
1. In a thick-film printed circuit board including a substrate of insulating ceramic material and a plurality of wiring conductors on said substrate for direct connection with a semiconductor chip, the improvement comprising a layer of insulating material arranged on said substrate to cover at least the connecting ends of said wiring conductors before connection with said semiconductor chip, said layer being providing with through holes at positions corresponding to said connecting ends of said wiring conductors, and a plurality of conductor pedestals filled in said through holes of said insulating layer and electrically connected with said wiring conductors, each of said conductor pedestals including a part of a predetermined area that extends on said insulating layer, the areas and shapes of said parts of said conductor pedestals being substantially uniform; and each of said through holes having a diameter that is less than the width of the corresponding connecting end of a wiring conductor and having a cross-sectional area that is smaller than said area of the part of the conductor pedestal that extends on said insulating layer so that the through holes compensate for a positioning error that may occur between the formation of said wiring conductors and the formation of said conductor pedestals.

4,336,552

VERTICAL APERTURE CORRECTION CIRCUIT

Sadaaki Tanaka, Hadano, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 17, 1980, Ser. No. 217,419
Int. Cl.[3] H04N *9/535, 5/14*
U.S. Cl. 358—21 R **17 Claims**



11. In a color image pickup device of the type which generates a video signal having a superimposed periodic, fluctuating index signal thereon resulting in periodic fluctuating levels of said video signal having a line-crawling effect on the video picture ultimately reproduced from said video signal, a vertical aperture correction circuit comprising delay means for imparting a relative delay to said video signal; means responsive to relatively delayed and undelayed video signals for emphasizing changes in brightness of the video signal from one horizontal scanning interval to the next and for emphasizing said periodic fluctuating levels; clipping means for passing those portions of the output of said means for emphasizing which exceed predetermined clipping levels; slicing means for passing that portion

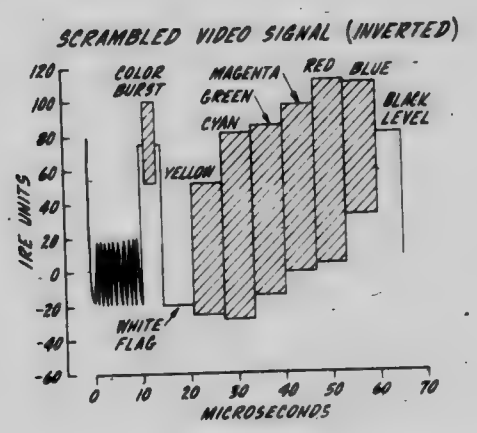
of said output of said means for emphasizing which lies between said predetermined clipping levels; and mixing means for mixing the video signal and the portions passed by said clipping and slicing means, whereby the portions passed by said slicing means are subtracted from the sum of the video signal and the portions passed by said clipping means.

4,336,553

METHOD OF CODING AUDIO AND VIDEO SIGNALS

Pieter den Toonder, Dordrecht; Johannes C. Seltenrijch, Gorichem, both of Netherlands; Graham S. Stubbs, Poway, Calif., and Richard G. Merrell, Hebron, Ill., assignors to Oak Industries, Rancho Bernardo, Calif.

Filed May 14, 1980, Ser. No. 149,706
Int. Cl.³ H04N *7/16*
U.S. Cl. 358—120 **11 Claims**



1. Means for coding video and audio signals including means for deriving clock and internal timing signals from the video signal, means controlled by said internal timing signals for providing digital data representation of the audio signal,

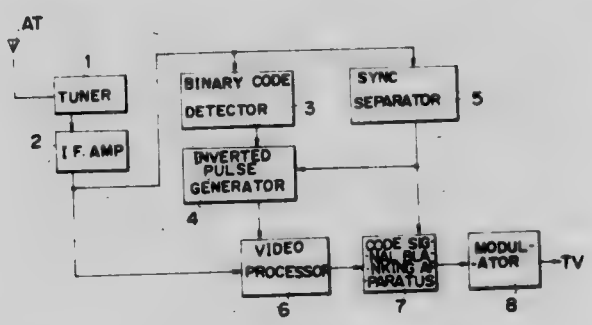
means for suppressing the video signal during horizontal blanking intervals, means for inserting the digital audio data in pulse form into the suppressed horizontal blanking intervals, and means for applying a changing voltage level to the video signal and audio data pulses during the horizontal blanking intervals to enhance video signal coding.

4,336,554

CODE SIGNAL BLANKING APPARATUS

Masataka Okada, and Toshimi Shiun, both of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed Jun. 23, 1980, Ser. No. 161,696
Int. Cl.³ H04N *7/16*; H04K *1/04*
U.S. Cl. 358—124 **9 Claims**



1. A code signal blanking apparatus which comprises:

a means for receiving a television signal with a code signal superposed thereon during a vertical blanking period;

a sync separator means for producing horizontal and vertical synchronizing signals from said television signal;

a pulse generating means for producing a code signal blanking pulse in response to said horizontal and vertical synchronizing signals;

a switching transistor means adapted to receive the television signal;

an output terminal for outputting the television signal through said switching means; and

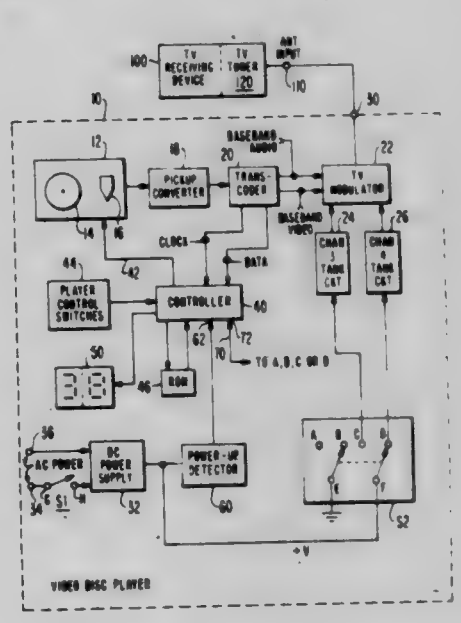
a gate means responsive to said horizontal synchronizing signal and said code signal blanking pulse for operating said switching means to supply a reference level to said output terminal through said switching means during a given period within the vertical blanking period, thereby blanking the code signal from the television signal.

4,336,555

VIDEO ACCESSORY HAVING CHANNEL IDENTIFIER

Charles M. Wine, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 15, 1980, Ser. No. 187,159
Int. Cl.³ H04N *5/76*
U.S. Cl. 358—127 **5 Claims**



1. A video accessory for use with a television receiving means, said accessory comprising, in combination:

first switch means for applying operating power to said accessory;

signal source means for providing a baseband video signal;

modulator means, responsive to said baseband video signal, for producing a modulated carrier wave within a selected channel of a plurality of television channels for application to said television receiving means;

second switch means for applying a control signal to said modulator means for controlling selection of the television channel occupied by said carrier wave; and

channel prompting means in said accessory, responsive to initial closure of said first switch means and to a control signal manifestation produced by said second switch means, for producing a message perceptable to a user of said accessory, said message being indicative of the selected television channel of said modulator means for prompting the user to select the corresponding channel on said television receiving means.

4,336,556

SOLID-STATE IMAGE PICK-UP DEVICE

Hirokazu Sekine, Fujisawa, and Nobuo Suzuki, Kamakura, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Jun. 3, 1980, Ser. No. 155,974
Claims priority, application Japan, Jun. 8, 1979, 54-71280
Int. Cl.³ H04N *3/15*
U.S. Cl. 358—213 **4 Claims**

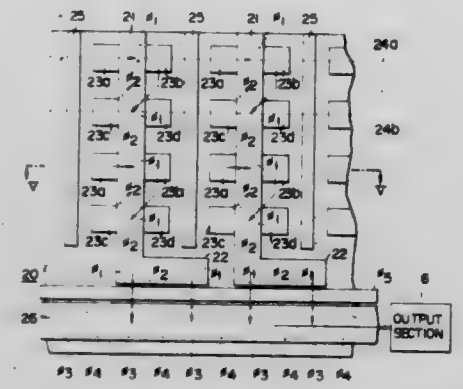
1. A solid-state image pick-up device comprising:

a semiconductor substrate;

a plurality of picture elements arranged for information transfer on said semiconductor substrate in vertical columns and horizontal scan lines, said picture elements

having a predetermined horizontal pitch interval and storing signal charges;

a plurality of shift registers arranged on said semiconductor substrate and extending vertically between two adjacent columns of picture elements for shifting said signal charges stored in said picture elements forming said adjacent columns, each of said plurality of shift registers including at one end a register section extending horizontally;



an output section; and

a single horizontal shift register adjacent to said horizontal register sections and to said output section for transferring said signal charges in said plurality of shift registers to said output section, said single shift register receiving simultaneously from each register section a pair of picture elements.

4,336,557

MONOLITHICALLY INTEGRATED CIRCUIT FOR RELATIVELY SLOW READOUT FROM A TWO-DIMENSIONAL IMAGE SENSOR

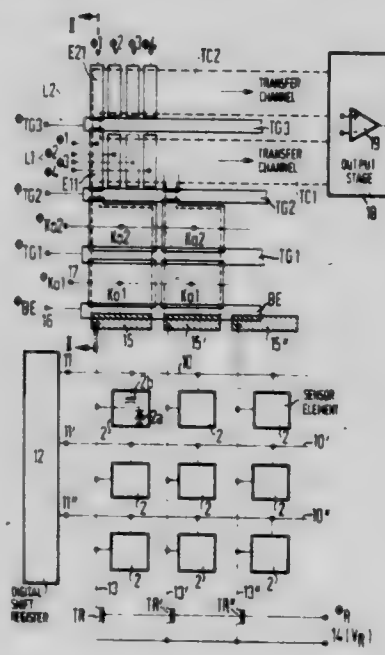
Rudolf Koch, Germering, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 30, 1980, Ser. No. 164,258

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1979, 2936703

Int. Cl.³ G11C *11/40*

U.S. Cl. 358—213 **20 Claims**



1. In a circuit monolithically integrated on a semiconductor substrate having a two-dimensional semiconductor image sensor with a plurality of sensor elements disposed in rows and columns, a plurality of column lines connecting all sensor elements in respective columns, a plurality of oppositely doped semiconductor regions respectively connected to said column lines for respectively generating charge packets corresponding to signals on said column lines, an output stage, a means for transferring charge to said output stage, a first storage capacitor supplied with a clock pulse voltage, a barrier element disposed between said first capacitor and said oppositely doped region, said barrier element supplied with a voltage for effecting transfer of charge from said oppositely doped region into said first storage capacitor, and a first transfer gate for transferring charge into said means for transferring charge to said output stage, the improvement of:

a second storage capacitor disposed between said barrier element and said first transfer gate, said second storage capacitor supplied with a clock pulse voltage for transferring charge into said second storage capacitor from said oppositely doped region after charge previously in said oppositely doped region is transferred to said first storage capacitor.

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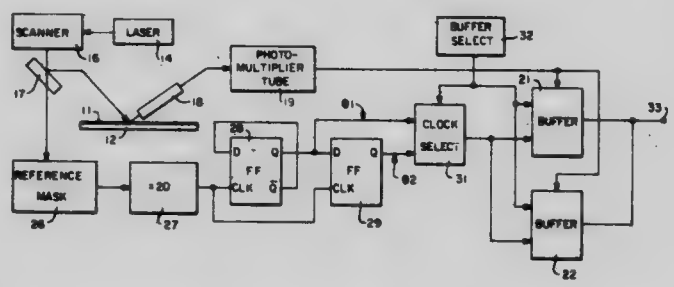
IMAGING SYSTEM AND METHOD WITH REDUCED MOIRE INTERFERENCE

Yung Lew, Huntington Beach, Calif., assignor to American Hoechst Corp., Somerville, N.J.

Filed Apr. 23, 1980, Ser. No. 142,884

Int. Cl.³ H04N *1/04, 7/12, 1/36*

U.S. Cl. 358—285 **6 Claims**



1. In a method of forming an image of an object on an output medium, the steps of: scanning the object along successive scan lines to provide a video signal representative of the object, scanning a reference mask concurrently with the object to provide a reference signal corresponding to the position of the scan, providing first and second clock signals in response to the reference signal, said clock signals being equal in rate and displaced from each other in phase, sampling the video signal for alternate ones of the scan lines in accordance with respective ones of the clock signals to provide output signals which are displaced in phase for adjacent ones of the scan lines, scanning a writing beam along successive lines on the output medium, and modulating the writing beam for alternate lines in accordance with respective ones of the output signals to form an image of the object on the output medium in which adjacent ones of the lines forming the image are displaced from each other in accordance with the phase displacement of the clock signals.

4,336,559

RECORDED TAPE TRAVEL CONTROL SYSTEM

Tsuneyuki Koyama, No. 5408, Hino-Machi, Kohnan-Ku, Yokohama-City, Kanagawa-ken, and Katsuya Yasutake, No. 410 Katakura-Cho, Kanagawa-Ku, Yokohama-City, Kanagawa-ken, both of Japan

Filed Nov. 9, 1978, Ser. No. 959,109

Claims priority, application Japan, Nov. 11, 1977, 52-135321

Int. Cl.³ G11B *15/48;* H02P *5/00*

U.S. Cl. 360—73 **6 Claims**

1. A tape travel control system comprising:

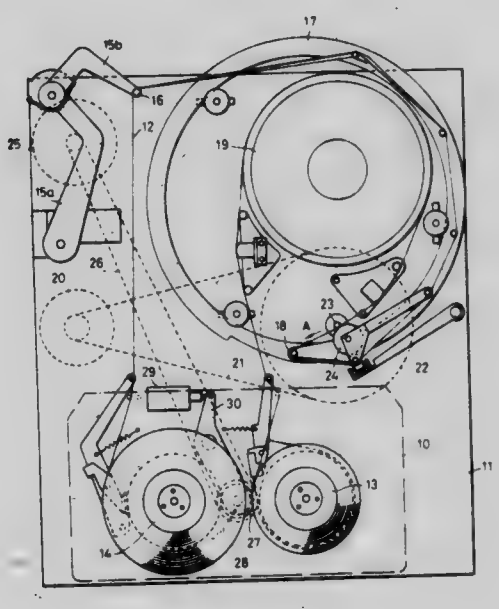
a motor and a capstan, said motor rotationally driving said capstan for transporting a tape;

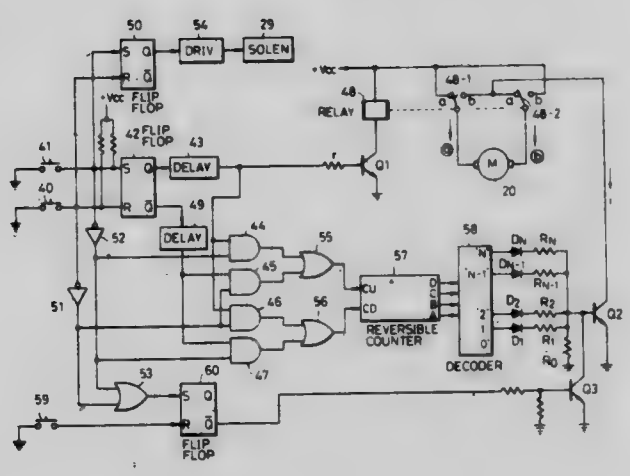
forward and reverse manipulation means for respectively generating forward and reverse signals responsive to a selective manipulation thereof;

rotational direction changing means selectively responsive to said forward and reverse signals for selectively chang-

ing the rotational direction of the motor in order to rotate the motor in a forward direction in response to the forward signal generated by manipulating the forward manipulation means and to rotate the motor in a reverse direction in response to the reverse signal generated by manipulating the reverse manipulation means;

speed changing means operating repeatedly in response to the number of the forward signals or the reverse signals which are generated by sequentially manipulating either the forward or the reverse manipulation means a plurality of times in a continuous succession, each of said manipulations changing the rotational speed of the motor in a step





manner, said speed changing means operating in response to the sequence of forward and reverse signals generated by alternately manipulating the forward and reverse manipulation means in order to decrease the rotational speed of the motor in a step manner, said rotational direction changing means and said speed changing means being operated responsive to the signals generated by the forward and the reverse manipulation means; and

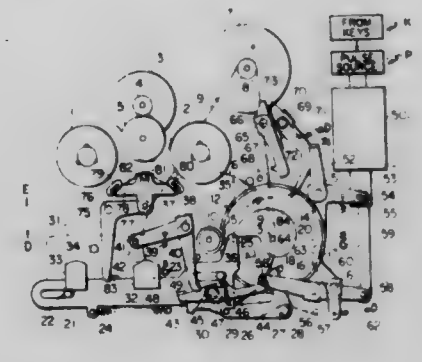
means for independently stopping the rotation of the motor, whereby said manipulation means may be operated to bring the tape to a desired location and then the independent stopping means may be operated to bring the tape to rest at that desired location.

4,336,560

PULSE-OPERATED MODE SWITCHING MECHANISM FOR TAPE RECORDERS

Sigeru Matsumoto, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Mar. 28, 1980, Ser. No. 134,990
Claims priority, application Japan, Mar. 30, 1979, 54-38006
Int. Cl.³ G11B *15/00*
U.S. Cl. 360—137 **15 Claims**



1. A tape recording and reproducing apparatus having a plurality of manually operated keys for effecting various operations, an electromagnetic transducer, a motor, and a mode switching mechanism, said mode switching mechanism comprising:

a single solenoid energizable in response to pulses applied thereto of different durations dependent upon selective operation of said operating keys, said different pulses being respectively of relatively long, intermediate and relatively short durations;

a movable carrier member carrying thereon said electromagnetic transducer and movable between a first position wherein said transducer is displaced from a recording tape and a second position wherein said transducer fully contacts said recording tape;

a rotary wheel engageable through a drive gear with said motor, said rotary wheel revolving 360° from a predetermined angular position in response to energization of said solenoid;

means for moving said movable carrier member to said second position using rotational power of said rotary wheel when said solenoid is energized for substantially the long duration and moving said carrier member from said second position to said first position in response to subsequent energization of said solenoid; and

locking means movable a variable distance dependent upon the period of solenoid energization from an inactive position towards an active position for locking said carrier member in an intermediate position between said first and second positions to allow said transducer to make slight contact with said tape, whereby subsequent energization of the solenoid for substantially the intermediate duration causes said carrier member to move from said second position to said intermediate position to be locked therein and a subsequent energization of said solenoid for substantially the short duration causes said carrier member to move from said second or intermediate position to said first position.

4,336,561

SUPERCONDUCTING TRANSFORMER

John H. Murphy, Wilkins Township, Allegheny County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 116,328, Jan. 28, 1980. This application Mar. 13, 1981, Ser. No. 243,325
Int. Cl.³ H01F *27/00*
U.S. Cl. 361—19 **11 Claims**

1. A superconducting transformer comprising:

a main primary winding having a plurality of turns formed of

superconducting wire and adapted for connection to an external alternating energizing source;

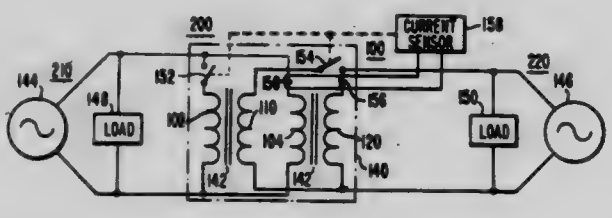
a main secondary winding including at least two serially connected concentrically adjacent layers each having a plurality of turns formed of superconducting wire, said main secondary winding being adapted for connection to an external load;

said main secondary winding being disposed adjacent to and concentric with the periphery of said main primary winding, such that when said main primary and main secondary windings are energized two minimum field regions are created, one within the innermost winding and one external to the outermost winding;

an auxiliary primary winding having a plurality of turns formed of superconducting wire disposed adjacent to and concentric with the periphery of said main primary winding, within one of said minimum field regions;

and an auxiliary secondary winding including at least two serially connected, concentrically adjacent layers each having a plurality of turns formed of superconducting wires, said auxiliary secondary winding being disposed adjacent to and concentric with the periphery of said main secondary winding, within the remaining of said minimum field regions;

said main primary and main secondary windings being sized to carry normal operating currents of said transformer;



said auxiliary primary and secondary windings being sized to carry predetermined fault and overload currents of said transformer;

said auxiliary primary winding being connected in parallel with said main primary winding, and said auxiliary secondary winding being connected in parallel with said main secondary winding;

said auxiliary primary and secondary windings having a predetermined radial spacing relative to the main primary and secondary windings respectively, selected to provide different impedance paths, such that negligible current flows in the auxiliary primary and secondary windings until predetermined currents are exceeded in the main primary and secondary windings, at which time the impedance of the main primary and secondary windings increases to cause the auxiliary primary and secondary windings to carry the excess current;

said main secondary winding layers having a predetermined radial spacing relative to said main primary winding selected to cause said superconducting transformer to have a lower input impedance when current flows in said main primary and secondary windings, and said auxiliary secondary winding layers having a predetermined radial spacing relative to said auxiliary primary winding selected to cause the input impedance of said superconducting transformer to increase when current flow increases in said auxiliary primary and secondary windings.

4,336,562

H-SWITCH HAVING SHORT TO PLUS PROTECTION

Thomas W. Kotowski, Noblesville, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 23, 1981, Ser. No. 237,283

Int. Cl.³ H02H *3/20*

U.S. Cl. 361—88 **2 Claims**

1. A switching circuit having short circuit protection comprising:

a power supply having positive and negative voltage terminals;

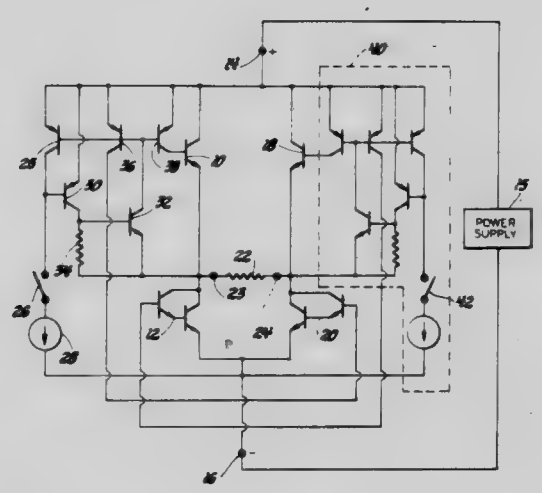
a load impedance;

a first load energizing transistor having emitter and collector electrodes coupled between one side of the load impedance and the negative voltage terminal of the power supply and having a base electrode;

a second load energizing transistor having emitter and collector electrodes coupled between the other side of the load impedance and the positive voltage terminal of the power supply and having a base electrode, the second load energizing transistor providing isolation between the load impedance and the positive voltage terminal of the power supply when biased nonconductive;

a first driver transistor having an output electrode coupled with the base electrode of the first load energizing transistor and having a base electrode effective when supplied with turn-on bias current to bias the first load energizing transistor conductive to couple the negative voltage terminal of the power supply to the load impedance;

a second driver transistor having an output electrode coupled with the base electrode of the second load energizing



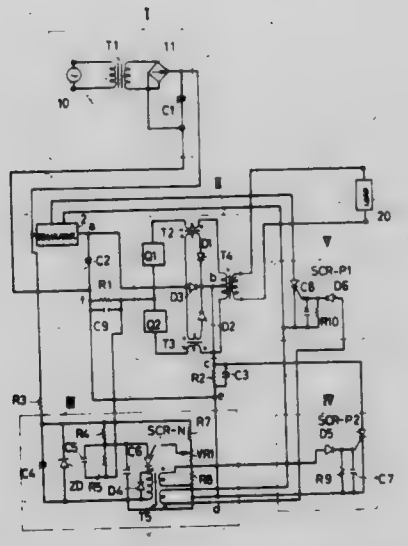
transistor and having a base electrode effective when supplied with turn-on bias current to bias the second load enegizing transistor conductive to couple the positive voltage terminal of the power supply to the load impedance; and

means effective to selectively energize the load impedance, said last-mentioned means including an NPN transistor having a collector coupled with the base electrodes of the first and second driver transistors, an emitter electrode coupled to the load impedance and a base electrode, and means effective to selectively supply current from the positive voltage terminal of the power supply to the base electrode of the NPN transistor to selectively energize the load impedance, whereby when the first and second load energizing transistors are deenergized and the load impedance is normally isolated from the positive voltage terminal by the second load energizing transistor, a short between the load impedance and the positive voltage terminal of the voltage supply is effective to short the base and emitter electrodes of the NPN transistor to inhibit conduction of all of the transistors and provide short circuit protection for the first load energizing transistor.

4,336,563
OVERCURRENT PROTECTION CIRCUIT FOR INVERTER

Masakazu Suzuki, Kyoto, Japan, assignor to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

Filed Aug. 26, 1980, Ser. No. 181,664
Claims priority, application Japan, Aug. 28, 1979, 54-118624[U]
Int. Cl.³ H02H 3/00, 7/122
U.S. Cl. 361—93 3 Claims

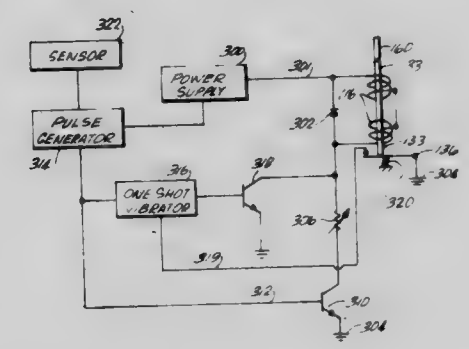


1. An overcurrent protection circuit for an inverter having a switching regulator, characterized in that said circuit comprises a pulse generation circuit connected to said switching regulator for generating a trigger pulse when an input current of said inverter exceeds a preset value, a first conduction circuit provided across said input current to said inverter and responsive to said trigger pulse from said pulse generation circuit to instantaneously shut off said input current to said inverter when said pulse generation circuit generates a trigger pulse and a second conduction circuit coupled to said switching regulator and responsive to said trigger pulse from said pulse generation circuit to instantaneously shut off a driving signal of said switching regulator when said pulse generation circuit generates a trigger pulse.

4,336,564
SOLENOID CONTROL CIRCUIT

Waldemar S. Wisniewski, Orangevale, and Henry S. More, Carmichael, both of Calif., assignors to Exploration Logging, Inc., Sacramento, Calif.

Continuation-in-part of Ser. No. 26,881, Apr. 4, 1979. This application Jul. 17, 1980, Ser. No. 169,763
Int. Cl.³ G01V 1/14
U.S. Cl. 361—154 5 Claims

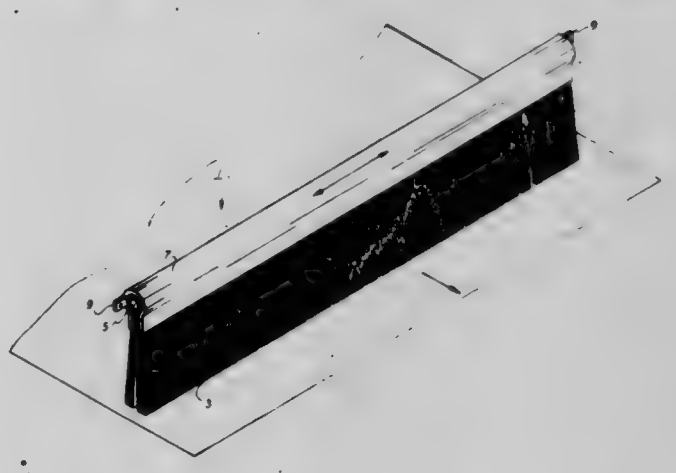


1. A circuit comprising:
(a) a source of electrical power having a pair of output terminals;
(b) a solenoid winding;
(c) an armature mounted adjacent the winding to move when an electric current passes through the winding;
(d) a first switch arranged to connect the winding across the terminals through a first path of relatively low electrical impedance;
(e) a second switch arranged to connect the winding across the terminals through a second path of relatively high electrical impedance;
(f) a long-pulse generator having an input and an output;
(g) a short-pulse generator having an input and an output;
(h) means connecting the long-pulse generator output to the input of the short-pulse generator and to the second switch;
(i) means connecting the short-pulse generator output to the first switch;
(j) means for activating the long-pulse generator to apply a relatively long pulse to the short-pulse generator input and to the second switch, whereby the first switch is made conducting for the duration of a short pulse from the short-pulse generator, and the second switch is made conducting for the duration of the long pulse;
(k) means for sensing the movement of the armature; and
(l) means responsive to armature movement for terminating the output of the short-pulse generator to interrupt the current through the first path.

4,336,565
CHARGE PROCESS WITH A CARBON FIBER BRUSH ELECTRODE

Hugh Murray, and Lawrence M. Marks, both of Mississauga, Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 4, 1980, Ser. No. 174,783
Int. Cl.³ G03G 13/02
U.S. Cl. 361—225 7 Claims



1. A process for applying an electrostatic charge on the electrically insulating surface of a moving web which comprises contacting the surface with at least one brush electrode raised to an applied potential, said brush electrode being made with electrically conductive carbon fiber filaments, and oscillating said at least one brush electrode in a direction transverse to the direction of the web movement.

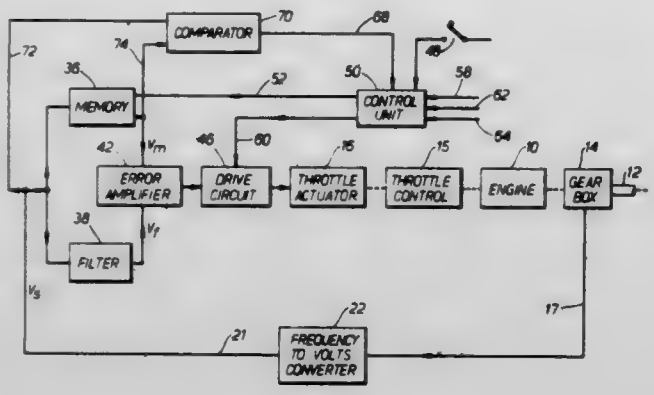
4,336,566
VEHICLE SPEED CONTROL SYSTEMS

John Noddings, Coventry, and Roland K. Borton, Rugby, both of England, assignors to Associated Engineering Limited, Leamington Spa, England

Filed Jul. 24, 1980, Ser. No. 171,973
Claims priority, application United Kingdom, Aug. 3, 1979, 7927128
Int. Cl.³ B60K 31/00
U.S. Cl. 361—242 16 Claims

1. A vehicle speed control system arranged when rendered operative to control the engine of the vehicle so as to tend to hold the vehicle to run at a desired speed, and disabling means responsive to the speed of the vehicle and the desired speed to

render the system inoperative when the actual vehicle speed exceeds the desired speed by more than a predetermined



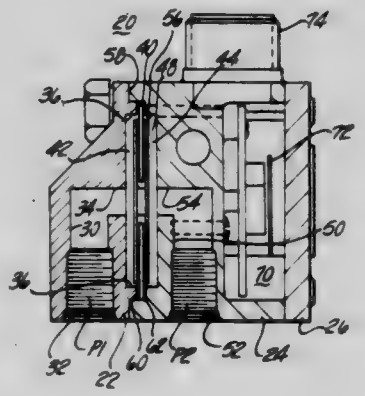
amount and when the actual vehicle speed falls below the desired speed by more than a predetermined amount.

4,336,567

DIFFERENTIAL PRESSURE TRANSDUCER

Harry G. Anastasia, Hillsdale, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Jun. 30, 1980, Ser. No. 164,758
Int. Cl.³ G01L *9/12*
U.S. Cl. 361—283 **24 Claims**



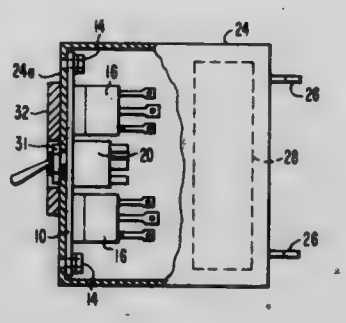
1. A pressure sensing capsule comprising:
a central member having first and second opposing sides and an opening therethrough;
first diaphragm means spaced from said first side and having a first pressure receiving surface thereon that is deformable in response to the pressure of a first media input thereto;
first annular sealing means interposing said first side and said first diaphragm means, and located in surrounding relationship to said opening for peripherially sealing said first diaphragm means to and for spacing said first diaphragm means from said central member;
second diaphragm means spaced from said second side and having a second pressure receiving surface thereon that is deformable in response to a second media input thereto;
second annular sealing means, interposing said second side and said second diaphragm means and located in surrounding relationship to said opening for peripherally sealing said second diaphragm means to said second side of said central member;
electrode means attached to said central member and one of said first or second diaphragm means for transducing the pressure to be measured into a capacitive signal; and
first means slidably received through said opening for causing the motion of one diaphragm to dependent upon the motion of the other.

4,336,568

PACKAGED SOLID STATE POWER CONTROLLER WITH SEPARABLE MOUNTING FOR A POWER SWITCHING DEVICE, AND METHOD OF ASSEMBLY

James T. Mitchell, Lima, Ohio, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 24, 1980, Ser. No. 171,608
Int. Cl.³ H05K *7/20*
U.S. Cl. 361—386 **6 Claims**



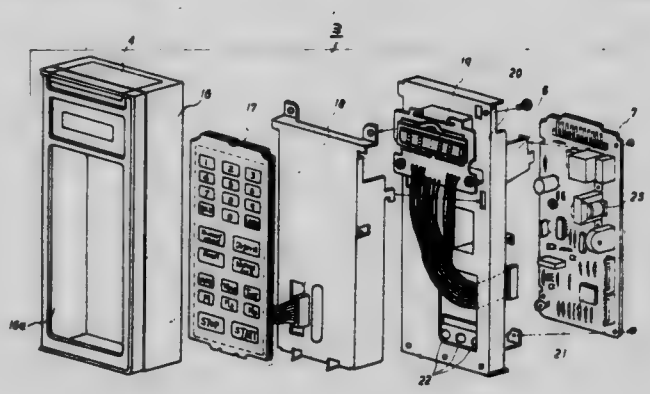
1. A solid state power controller assembly comprising:
a box-like housing of thermally conductive material having a front wall, a rear wall, and side walls;
a plurality of electrically operative circuit elements contained by and mounted within said housing;
means for interconnection of said circuit elements and for connection of said circuit elements with terminals extending through a wall of said housing;
said circuit elements including a solid state power switching device that is enclosed in a case;
a metal mounting plate that is a separate element from said walls of said housing;
said switching device case being bonded to a layer of electrically insulating and thermally conducting material which is bonded to said mounting plate; and
said mounting plate being joined by primary fasteners flat against the inner surface of said housing front wall.

4,336,569

CONTROL PANEL ASSEMBLY

Tatsuya Tsuda, and Yoshikatsu Ohno, both of Osaka, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 25, 1979, Ser. No. 51,393
Claims priority, application Japan, Jun. 26, 1978, 53-77680
Int. Cl.³ H05B *6/66*; H05K *1/14*
U.S. Cl. 361—395 **5 Claims**



1. A control unit for controlling the operation of a cooking utensil, comprising:
a panel forming a front surface of the control unit and having a control means disposed thereon for introducing control instructions into said cooking utensil;
a printed wiring board forming a back surface of the control unit, said printed wiring board including circuit elements and a semiconductor chip device arranged thereon,
said circuit elements and said semiconductor chip device being mounted on a first surface of the printed wiring

board, the first surface facing the interior portion of the control unit; and

electrical connectors connecting the circuit elements and the semiconductor chip device together, said electrical connectors being supported on a second surface of the printed wiring board, the second surface being an opposite surface relative to the first surface and being an exterior surface of said control unit on the back surface thereof,

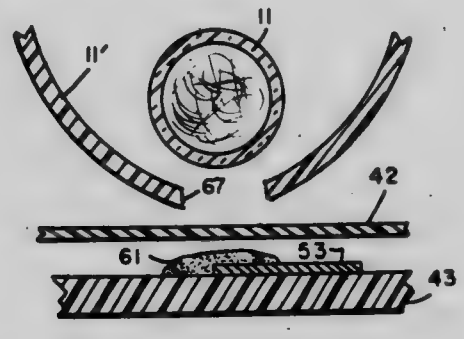
the second surface being substantially flat.

4,336,570

RADIATION SWITCH FOR PHOTOFLASH UNIT

Boyd G. Brower, Williamsport, and Gary L. Houseknecht, Hughesville, both of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed May 9, 1980, Ser. No. 148,119
Int. Cl.³ G03B *15/02*
U.S. Cl. 362—4 **10 Claims**



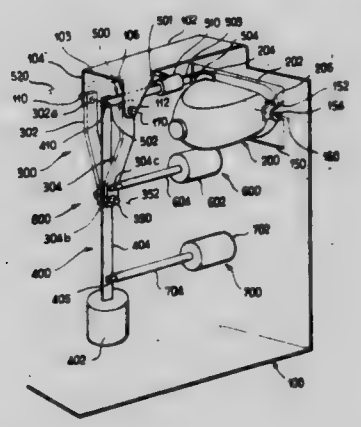
1. A radiation switch for a photoflash unit which is capable of conversion from a high electrical resistance to a low electrical resistance over a finite time interval when exposed to radiation emitted from a flashlamp disposed adjacent to the switch, said switch comprising an admixture of silver carbonate and/or silver oxide, silver-coated glass beads, and a binder, wherein the composition of the mixture is selected to provide a predetermined conversion time of about 12 milliseconds or greater.

4,336,571

CORRECTIVE DEVICE FOR THE ORIENTATION OF A HEADLIGHT OF A MOTOR VEHICLE

Charles H. Marchand, Drancy, France, assignor to Cibie Projecteurs, France

Filed Jun. 11, 1980, Ser. No. 158,500
Claims priority, application France, Jun. 20, 1979, 79 15800
Int. Cl.³ B60Q *1/12*
U.S. Cl. 362—60 **9 Claims**



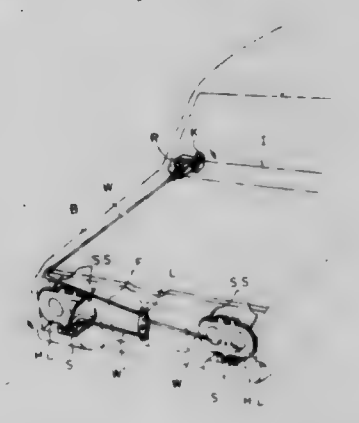
1. A corrective device for the orientation of a headlight on a motor vehicle wherein the headlight is mounted to rotate about a fixed horizontal axis on a suspended body of the vehicle, comprising an inertial pendulum movable in relation to the body and joined to a point on the headlight said point not being situated on said axis of rotation, a chassis suspended to pivot relatively to the body about a primary axis extending transversely of the body, first shock absorbing means fitted to the chassis for limiting swinging of the chassis in relation to the body, the inertial pendulum being suspended from the chassis and being pivotable about a secondary axis extending transversely of the body, second shock absorbing means fitted to the pendulum for limiting the movement of the pendulum in relation to the body, and said pendulum being joined to the headlight by the intermediary of a mechanical control link joined to the pendulum at the level of said primary axis.

4,336,572

REMOTE CONTROLLER AND MORE PARTICULARLY TO SLIDE MEMBER THEREOF

Yasunobu Takata, Odawara, Japan, assignor to Nissan Motor Company Limited and Ichiko Industries Limited, both of Tokyo, Japan

Continuation of Ser. No. 944,006, Sep. 20, 1978, abandoned. This application Mar. 17, 1980, Ser. No. 131,179
Claims priority, application Japan, Sep. 26, 1977, 52-129671
Int. Cl.³ B60Q *1/06*
U.S. Cl. 362—66 **2 Claims**



1. A remote controller in a headlight beam adjusting device for a motor vehicle having a body and a headlight, the headlight beam adjusting device having pivotal mounting means for pivotally mounting the headlight on the vehicle body, means for biasing the headlight in one direction of tilt and cable means connected at one terminal thereof to the mounting means for pulling the headlight in the opposite direction, the remote controller comprising:

a guide case of box-like shape fixed to the vehicle body at a location remote from the headlight;

a box-like slide member mounted within said guide case for axial movement but against rotation with respect to said guide case, said slide member having one open axial side and an opposed cylindrically shaped axial inner wall provided with a threaded portion and an end connected to the other terminal of said cable means; and

a shaft rotably mounted within said guide case for rotation but against axial movement with respect to said guide case, said rotatable shaft having a threaded portion engaging said threaded portion of said slide member with respect to said guide case and thereby adjusting the tilt of the headlight.

4,336,573

ILLUMINATED SKATE

Leonard C. Carter, 1335 Willis St., Redding, Calif. 96001

Filed Jul. 16, 1980, Ser. No. 169,442
Int. Cl.³ B60Q *1/00*
U.S. Cl. 362—78 **7 Claims**

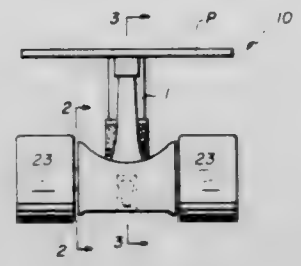
1. An illuminated skate such as a skateboard, roller skates, or the like having a person carrying platform, comprising in combination:

wheel support means depending from the platform and carrying wheels thereon including,

first and second bars depending from the platform and angulated to intersect and terminate remote from the platform,

an axle eminating from the intersection thereof transverse to a plane formed by said bars, said axle carrying said wheels,

battery means carried on and below the platform and illumination means operatively connected to said battery means



below the platform whereby when energized, said illumination means illuminates an area below the platform,

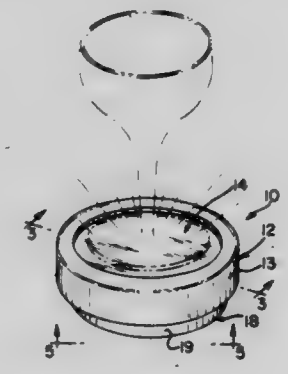
wherein said illumination means comprises an elongate shroud having an upwardly extending slot therein, walls of said slot frictionally engaging said axle, and light means in said shroud, and said shroud is light transmitting.

4,336,574

LIGHTED COASTER FOR DRINKING GLASSES

Donald Goodman, 258 Roger Williams, Highland Park, Ill. 60035

Filed Aug. 19, 1980, Ser. No. 179,494
Int. Cl.³ A47G *23/03;* F21V *33/00*
U.S. Cl. 362—101 **11 Claims**



1. A lighted coaster for drinking glasses and adapted to be lighted when supporting a glass and be off when not supporting a glass, the improvement comprising:

a base;

light means positioned within the base;

current carrying first contact means supporting the light means and including first, movable connector means associated with the light means and movable between an off and on position;

second, electrical connector means located in alignment with the light means and spaced therefrom when the coaster is not supporting a glass;

a battery with circuit means connected with both the first movable connector means and the second connector means to power said light;

a cover;

said cover including a non permeable top providing a glass supporting lense means;

guide means interconnecting the base and cover and including locking means and means to allow limited relative vertical movement between the cover and base yet prevent the cover from being unintentionally removed from the base when lifted;

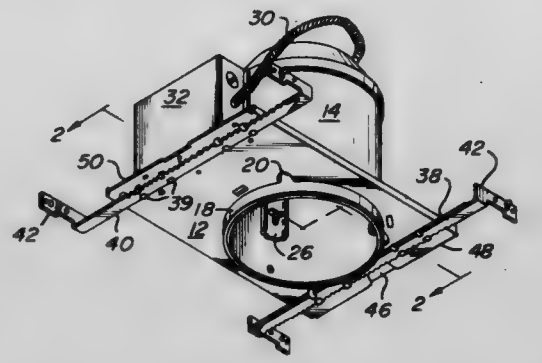
said first contact means providing biasing means for urging the first movable connector means to the off position away from the second connector means and thereby lift said cover when said glass is removed from the coaster.

4,336,575

BREAKAWAY PLASTER FRAME

Lester Gilman, South Hampton, Pa., assignor to Kidde Consumer Durables Corp., Bala Cynwyd, Pa.

Filed Sep. 4, 1980, Ser. No. 183,877
Int. Cl.³ F21S *1/02*
U.S. Cl. 362—147 **10 Claims**



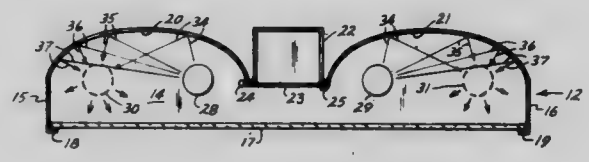
5. A recessed electrical lighting fixture comprising a rectangular metal plate having first and second shorter sides, said plate having a hole therethrough, said hole being closer to said first shorter side than said second shorter side, an integral breakaway zone extending between said hole and said first shorter side, said zone when removed facilitating introducing the frame plate through a hole in a ceiling panel and wherein the ceiling panel hole is approximately the same size as said hole in said plate, an open bottom housing removably mounted on said plate coaxial with the plate hole and being of a size so that it may extend entirely through said plate hole from below the plate, said housing having an electrical receptacle for receiving an electric bulb, a box on said frame, a prewired cable extending from said box to said receptacle.

4,336,576

LIGHTING APPARATUS

Daniel B. Crabtree, 10426 Moorberry, Houston, Tex. 77043

Filed Apr. 7, 1980, Ser. No. 138,215
Int. Cl.³ F21V *7/02*
U.S. Cl. 362—240 **26 Claims**



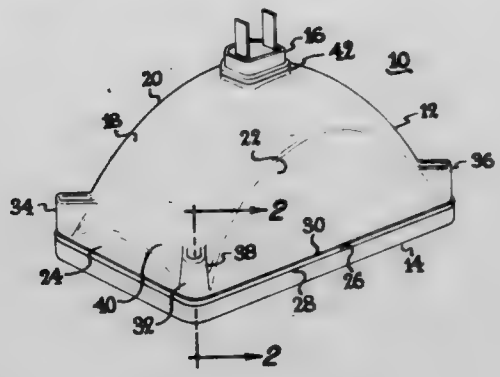
11. Lighting apparatus, comprising at least one reflector means, at least one light source means, and at least one diffuser plate means, at least one of said light source means being supported spacedly adjacent at least one first portion of each of said diffuser plate means, each said diffuser plate means having at least one second portion extending from each said first portion laterally spaced from a said light source means, a said reflector means extending spacedly over each said diffuser plate means with at least one of said light source means spacedly between each said diffuser plate first portion and said reflector means, each said reflector means being adapted to reflect a substantial portion of the light from one side of each said light source means spacedly adjacent thereto toward each said second portion of said diffuser plate means extending from the first portion of said diffuser plate means adjacent the other side of said light source means, whereby each said diffuser plate means is principally illuminated at each said first portion thereof by direct light from said light source means spacedly adjacent thereto and is principally illuminated at each said second portion thereof by reflected light from said light source means, the illumination of said first and second portions of each said diffuser plate means being substantially equal.

4,336,577

MOUNTING PADS FOR PLASTIC PAR LAMP

James M. Hanson, Euclid, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 30, 1979, Ser. No. 61,910
Int. Cl.[3] F21V *29/00*
U.S. Cl. 362—267 2 Claims



1. A reflector lamp which comprises:
(a) a rectangular shaped plastic reflector having a parabolic shaped cavity that includes opposing generally parallel planes which intersect the parabolic contour and terminate in an outer sealing rim, receptacle means disposed on the rear side of said reflector which accommodates a prefocused mount construction to locate a tungsten halogen lamp at the focus of said reflector, and mounting pads on the rear side of rectangular shape in the sealing rim region, said mounting pads having a completely hollow construction to avoid deformation of the parabolic cavity when said reflector member is formed, said mounting pad terminating in an open ended manner on the rear side of said reflector,
(b) a rectangular shaped plastic lens sealed to front surface of the sealing rim of said reflector, and
(c) a prefocused light source mount sealed to the receptacle means of said reflector, said prefocused tungsten halogen lamp mount comprising at least two lead wires, at least two electrical connecting means joined one each to said lead wires, a hollow plastic block having mating parts defining a cavity for receiving said joined lead wires, an elastomeric polymer in the cavity of said block to provide a leak-proof seal, wherein the mating parts of said block comprise an inner container member defining said cavity and fitted into an outer housing member, said inner and outer members being sealed together after assembly to form a leak-proof enclosure, and said tungsten halogen lamp is externally connected to the end of said lead wires nearest to the focus of the reflector.

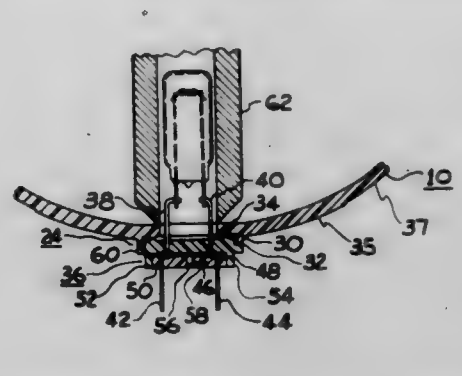
4,336,578

PLASTIC PAR LAMP CONSTRUCTION WITH REINFORCED RECEPTICLE AREA

Irving Bradley, Novelty, and Vincent Vodicka, South Euclid, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 30, 1979, Ser. No. 61,912
Int. Cl.[3] F21V *29/00*
U.S. Cl. 362—267 1 Claim

1. In a rectangular shaped plastic reflector lamp comprising a plastic reflector member having a parabolic shaped cavity, one pair of opposing generally parallel planes which intersect the parabolic cavity to form the longer sides of said rectangular shape, a second pair of opposing generally parallel planes which intersect the parabolic cavity to form the shorter sides of said rectangular shape, all said planes terminating at a rectangular shaped sealing rim, receptacle means disposed on the rear side of said reflector which accommodates a prefocused plastic mount construction to locate a tungsten halogen lamp at the focus of said reflector and with said prefocused mount being sealed directly to the receptacle means of said reflector, said prefocused mount including at least two lead wires, at least two electrical connecting means joined one each to said lead wires, a hollow plastic block having mating parts defining a cavity for receiving said joined lead wires, an elastomeric polymer in the cavity of said block to provide a leak proof seal around the lead wires, wherein the mating parts of said block comprise an inner container member defining said cavity and fitted into an outer housing member, said inner and outer members being sealed together after assembly to form a leak proof enclosure,



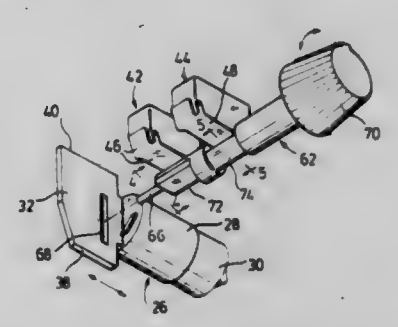
and said tungsten halogen lamp being externally connected to the end of said lead wires nearest to the focus of the reflector, the improvement wherein the wall thickness of the parabolic shaped cavity is sufficiently greater in the apex region of said parabolic cavity in a circular area commencing at the edge of the receptacle means and extending radially outward therefrom to avoid mechanical and heat distortion when the prefocused mount is sealed to the reflector as well as during subsequent lamp operation.

4,336,579

LAMP ASSEMBLY WITH SWITCH AND FOCUSSING MECHANISMS

Ronald D. Lord, Willowdale, Canada, assignor to Mining Industry Research Organization of Canada, Toronto, Canada

Filed Sep. 22, 1980, Ser. No. 189,239
Int. Cl.[3] F21V *21/26*
U.S. Cl. 362—272 6 Claims

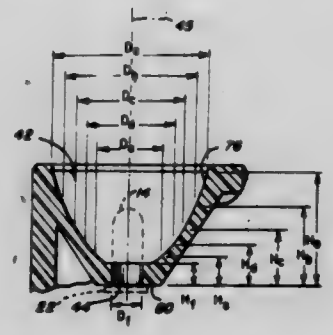


1. A lamp assembly comprising a housing having opposed grooves, a lamp bulb carrier having opposite edges slidably mounted in the opposed grooves of the housing for reciprocating movement along the optical axis of the lamp bulb, an actuator mounted in the housing for angular movement about an axis substantially perpendicular to the optical axis of the lamp bulb, said actuator having an eccentric portion projecting into an opening in the lamp bulb carrier, the opening having side walls engageable by the eccentric portion of the actuator to effect reciprocation of the lamp bulb carrier when the actuator is angularly moved, and a first switch carried by the housing connected to the lamp bulb and connectable to an electrical power supply, said actuator also having first cam means which engages and actuates the first switch over a first predetermined range of angular movement of the actuator to cause the lamp to be illuminated while the lamp is reciprocated along its optical axis.

4,336,580
ALPHA-NUMERIC DISPLAY ARRAY AND METHOD OF MANUFACTURE

Arthur A. Mouyard, Glendale Heights; Michael V. Hamby, Chicago, and Paul A. Tomaszek, Des Plaines, all of Ill., assignors to General Instrument Corporation, Clifton, N.J.

Division of Ser. No. 936,728, Aug. 25, 1978, Pat. No. 4,254,453.
This application Oct. 14, 1980, Ser. No. 196,451
Int. Cl.[3] F21V *7/00*
U.S. Cl. 362—347 9 Claims

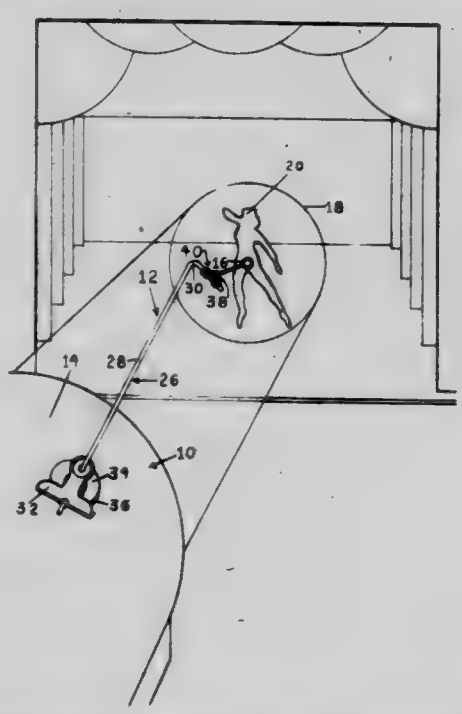


1. A generally dish shaped reflector cavity having a reflector surface comprising means for collimating light emanating from a series of points along the central axis of the reflector cavity, said collimating means comprising a predetermined surface characteristic of said reflector surface including a plurality of parabolic surfaces having different foci and being arranged in the same order as their respective foci are arranged along said central axis.

4,336,581
FOLLOW SPOT SIGHTING DEVICE

Albert W. Morris, Jr., 2700 Connecticut Ave., Washington, D.C. 20008

Filed May 15, 1980, Ser. No. 150,161
Int. Cl.[3] F21S *17/00;* F21P *5/00*
U.S. Cl. 362—457 18 Claims



1. In combination, a theatrical follow spotlight capable of being directed toward a moving performer or an object in order to throw a beam of light on the moving performer or object and a theatrical follow spotlight sighting device mountable on the spotlight to allow the spotlight to be positioned to controllably throw the beam of light on said moving performer or object, the sighting device comprising:

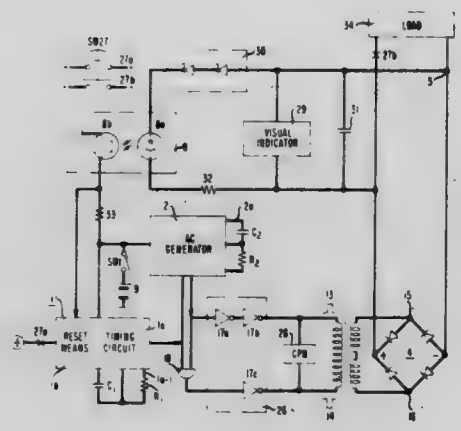
means for following a performer in motion to enable alignment of the theatrical follow spotlight with the moving performer; and,

means for mounting the following means on the spotlight.

4,336,582
ENERGY SAVING DC-DC CONVERTER CIRCUIT

William C. Brantley, Allentown, N.J., and John E. Edington, Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 20, 1980, Ser. No. 132,166
Int. Cl.[3] H02M *3/22*
U.S. Cl. 363—15 10 Claims



1. A regulated DC-DC converter circuit of the type adapted to develop a continuously increasing direct current voltage across a direct current voltage storage means (31) upon the presentation of a direct current voltage to the input of the DC-DC converter circuit

Characterized by

energy conserving means (30, 8, 1) connected across the voltage storage means (31) and adapted to inhibit the presentation of the input direct current voltage for a selectable voltage cut-off interval (t_1) when the stored direct current voltage exceeds a predetermined value (L), the energy conserving means comprising:

means (30) comprising a plurality of reference voltage diodes for detecting when the stored direct current voltage exceeds a predetermined value,

activation means (8) comprising an opto-isolator circuit responsive to the detection means and

means (1), responsive to the activation means (8), for inhibiting the presentation of the direct current voltage to the input of the DC-DC converter circuit for the selectable voltage cut-off interval (t_1).

4,336,583
CONTROLLED INDUCTIVE STORAGE DC-TO-DC CONVERTER

Stephen J. Campbell, Needham; Warren E. Hambly, West Bridgewater, and George C. Harrison, Chelmsford, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 15, 1980, Ser. No. 216,132
Int. Cl.[3] H02M *3/335*
U.S. Cl. 363—21 15 Claims

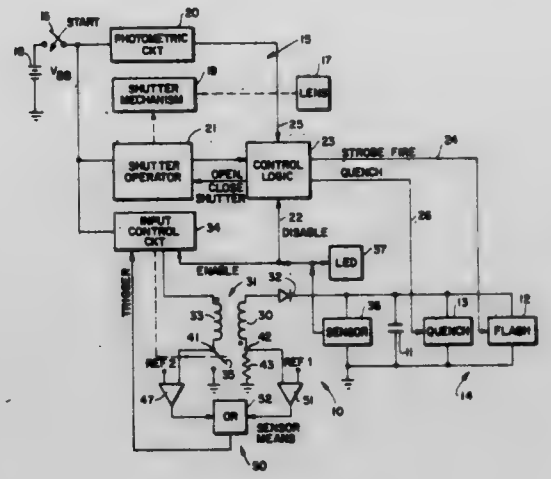
1. A DC-to-DC converter for charging a capacitor from a low-level DC power supply comprising:

a transformer having a secondary winding for connection to the capacitor, and having a primary winding;

an input control circuit for selectively connecting said primary winding to the DC power supply for a predetermined time interval in response to an input signal thereto whereby current flows in said primary winding establishing a magnetic field that stores energy and whereby at the end of said predetermined time interval the current flow in said primary winding is interrupted to cause the magnetic field to start to collapse and induce current to flow in said secondary winding so as to transfer energy from the field to the capacitor; and

first sensor means responsive to a variation in voltage indicative of the collapse of the magnetic field in said primary winding subsequent to the interruption of the current flow in said primary winding by said input control circuit for

providing a signal having a discontinuity at the instant the magnetic field collapses to zero and for signalling said input control circuit when the discontinuity occurs so that



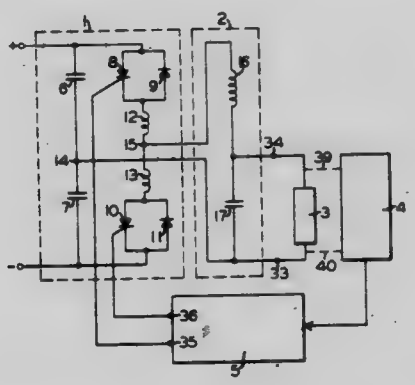
said input control circuit can again connect the power supply to said primary winding for said predetermined time.

4,336,584

AUTORESONANT STATIC CONVERTER

Giuseppe Careglio, Turin, Italy, assignor to WABCO Westinghouse Compagnia Freni S.p.A., Turin, Italy

Filed Mar. 28, 1980, Ser. No. 135,049
Claims priority, application Italy, Apr. 4, 1979, 67700 A/79
Int. Cl.³ H02M *3/315, 7/515*
U.S. Cl. 363—28 **4 Claims**



1. Static converter apparatus for transforming a direct current voltage from a source into another voltage of different level to supply a load with a predetermined voltage level, comprising,

(a) a static inverter network coupled to receive the direct current voltage from said source and operable for transforming that voltage into an alternating current voltage,

(b) control means coupled for driving said inverter network to normally produce said alternating current voltage at a selected frequency,

(c) an LC series resonant regulator circuit tuned to said selected frequency and coupled to receive said alternating current voltage from said inverter network and responsive for varying an output voltage level as the frequency shifts from said selected frequency,

(d) output means coupled across the capacitor element of said series regulator circuit for supplying said output voltage to said load, and

(e) a level detector means coupled to said output means for detecting variations of the supplied output voltage from said predetermined level and responsive thereto for generating a feedback signal representative of the variation,

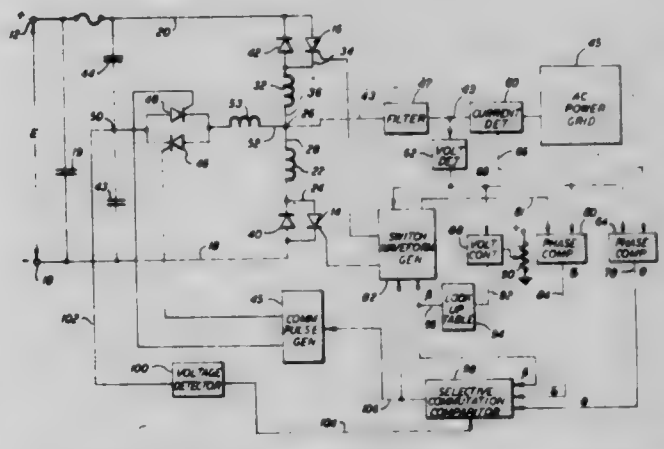
(f) said control means also coupled to said level detector means and responsive to reception of a feedback signal for shifting the frequency of the alternating current voltage produced by said inverter network so that said resonant regulator circuit varies said output voltage to adjust the load voltage to said predetermined level.

4,336,585

SELECTIVE COMMUTATION FOR AN INVERTER

Robert M. Moriarty, Ballston Spa, N.Y.; John W. Walton, Glastonbury, Conn., and Samuel C. Caldwell, Raleigh, N.C., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 23, 1980, Ser. No. 219,773
Int. Cl.³ H02P *13/00*
U.S. Cl. 363—79 **3 Claims**



1. A selective commutation circuit for use with an inverter which transforms DC electrical energy from a source providing a negative input and a positive input to AC electrical energy at an output node, comprising:

main switch means responsive to a control waveform for alternatively connecting said positive input to said output node, and connecting said negative input to said output node;

commutation means for providing a pulse of stored energy to displace that from said source to said output node at preselected times in response to commutation control pulses so that said main switch means can be transitioned to its nonconducting state; and

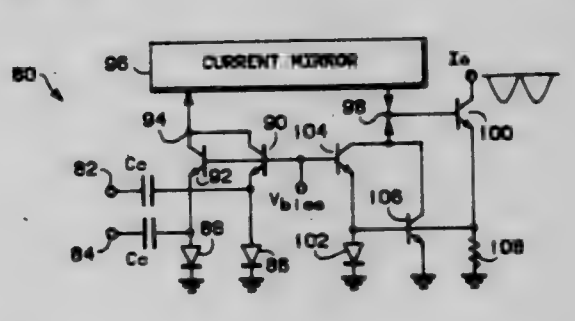
comparator means of sensing the phase relationship of preselected waveforms related to said inverter operation and for modifying said commutation control pulses in the event that said main switch means can be transition to the off state merely by the removal of a control pulse.

4,336,586

LINEAR FULL WAVE RECTIFIER CIRCUIT

Gerald K. Lunn, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 29, 1980, Ser. No. 220,329
Int. Cl.³ H02M *7/217*
U.S. Cl. 363—127 **6 Claims**



1. A full wave rectifier, comprising:

first rectifier means adapted to receive an alternating input signal at first and second inputs for producing an output signal that is a full wave rectified version of said alternating input signal;

current turnaround means responsive to said output signal from said first rectifier means for producing an output signal at an output substantially identical to said output signal from said first rectifier means;

second rectifier means coupled to said output of said current turnaround means having a substantially identical transfer characteristic to said first rectifier means; and

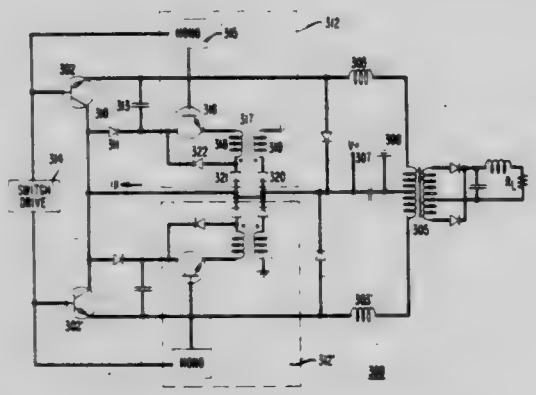
circuit means coupled between said output of said current turnaround means and said second rectifier means for providing feedback to said second rectifier means such that the signal appearing between said output of said current turnaround means and said second rectifier means is substantially an exact full wave rectified version of said alternating input signal.

4,336,587

HIGH EFFICIENCY TURN-OFF LOSS REDUCTION NETWORK WITH ACTIVE DISCHARGE OF STORAGE CAPACITOR

Charles W. Boettcher, Jr., R.D. 3 Box F-118, Cliffwood Rd., Chester, N.J. 07930, and Robert E. Schroeder, 4 Ramar St., Flanders, N.J. 07836

Filed Jun. 29, 1981, Ser. No. 278,354
Int. Cl.³ H02M 7/537
U.S. Cl. 363—134 **8 Claims**



1. In combination; an inverter circuit including

first and second high efficiency turn-off loss reduction networks each coupled to reduce turn-off loss in first and second power switching transistors coupling a DC voltage source to a power transformer, each of the first and second turn-off loss reduction networks comprising;

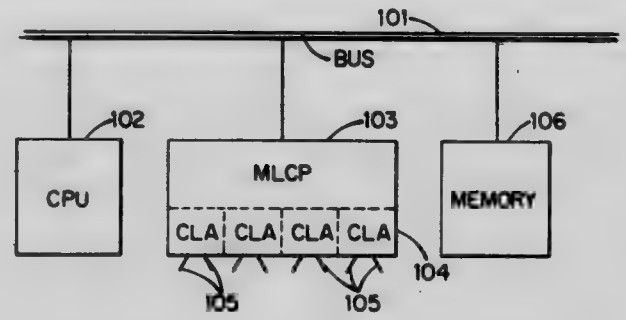
a charge storage capacitor coupled to a main conduction path electrode of a power switching transistor of the inverter, a charging path coupled for providing an alternate path for current flow from the power transformer when the power transistor is being biased from conduction to nonconduction, and a resonant discharge path coupled to transfer energy stored in the charge storage capacitor into the DC voltage source when the power transistor is biased conducting, including a gating transistor switch biased into conduction when the power transistor is biased conducting and coupled to deliver energy to an inductive storage medium, timing circuitry to bias the gating transistor switch nonconducting at a predetermined time interval, and a flyback discharge path coupling the inductive storage medium to the DC voltage source in order to discharge energy thereto when the gating transistor switch is biased nonconducting.

4,336,588

COMMUNICATION LINE STATUS SCAN TECHNIQUE FOR A COMMUNICATIONS PROCESSING SYSTEM

John H. Vernon, Milford, Mass.; John P. Grandmaison, Hampton, N.H., and Robert E. Huettner, Acton, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 19, 1977, Ser. No. 760,784
Int. Cl.³ G06F 3/04, 7/04
U.S. Cl. 364—200 **9 Claims**



1. In a data processing system including a communications processor coupled by means of a plurality of line adapters to transmit or receive data between a plurality of communications lines, each having a present status, and a main memory upon issuance of interrupt signals, an indication of the prior status of said lines being stored in said processor, said main memory coupled in the system to store said data, said system further including a central processing unit coupled to communicate control information to said processor, a process implemented by said communications processor after said system responds to said interrupt signals as issued by said central processing unit or one of said line adapters comprising the steps of:

A. determining the present status of one of said lines selected by said processor;

B. comparing said present status with said stored prior status of said selected line;

C. scanning for other data sources which may require service if said step of comparing produces an equal comparison; and

D. executing, in response to a not equal comparison produced during said step of comparing, a command previously stored in said processor, said command enabling the servicing of said one of said lines, whereby line service operations are entered into in response to said interrupt signals only after the status of a line has changed.

4,336,589

WAREHOUSING MONITOR AND CONTROL SYSTEM

Charles A. Smith, and Robert T. Danevicz, both of Grand Rapids, Mich., assignors to Rapistan Division, Lear Siegler, Inc., Grand Rapids, Mich.

Filed Apr. 7, 1980, Ser. No. 138,250
Int. Cl.³ G06F 15/24
U.S. Cl. 364—403 **17 Claims**

1. A system for monitoring and controlling the flow of articles in a warehousing system including a sorting conveyer with a plurality of discharge locations in which stored articles are to be batch picked and sorted for shipment comprising:

means for storing data representing each article to be picked, said data including a number assigned to each article which is unique to each article and sort destination information for each article;

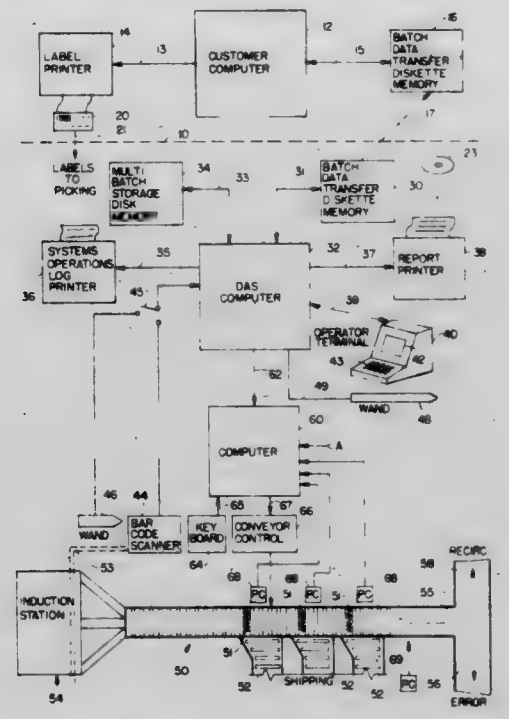
indicia mean associated with each article to be picked including said unique number;

scanning means for scanning said indicia means on an article transported within the warehousing system;

computer circuit means coupled to said data storing means and to said scanning means for correlating position information of each article with the article identification number;

display means coupled to said computer circuit means for providing display information to an operator of the status of each article to be picked and sorted;

a conveyer control circuit for selectively controlling the discharge of articles; and



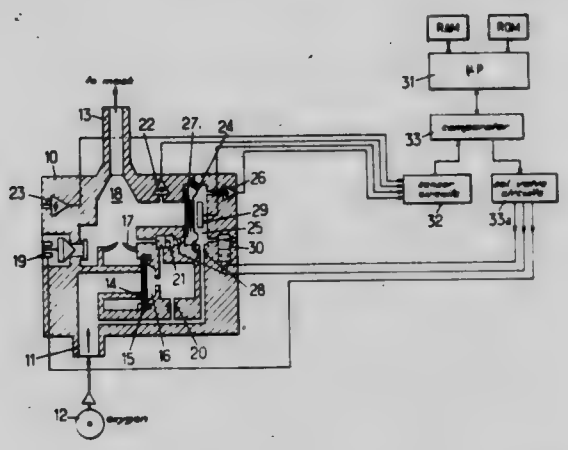
means coupling said conveyer control circuit to said computer circuit means for controlling the diverting of articles in response to the correlation of their unique identification number with associated sort destination information stored in said data storing means.

4,336,590

DEVICES FOR CONTROLLING GAS FLOWS

Georges Jacq-Maurepas, and Pierre Damico, Villepreux, both of France, assignors to Intertechnique, Plaisir, France

Filed May 1, 1980, Ser. No. 145,844
Claims priority, application France, May 2, 1979, 79 11072
Int. Cl.³ A62B *7/14*
U.S. Cl. 364—418 **10 Claims**



1. In a transportation aircraft, an apparatus for distributing oxygen to passenger breathing masks, comprising:

a source of oxygen under pressure;

an oxygen distribution line;

a first gas flow control device having an inlet connected to said source and an outlet connected to said distribution line;

a pressure reducer having an inlet connected to said source and adapted to deliver oxygen at a predetermined reduced pressure at an outlet;

a second gas flow control device having an inlet connected to the outlet of said pressure reducer and an outlet connected to said line;

each of said gas flow control devices having a servo-valve controlling communication between the inlet and the outlet thereof and a pilot two-position solenoid valve for controlling said servo-valve in response to a control signal;

sensor means for sensing the pressure in the cabin of the aircraft and delivering a signal responsive of said pressure; and

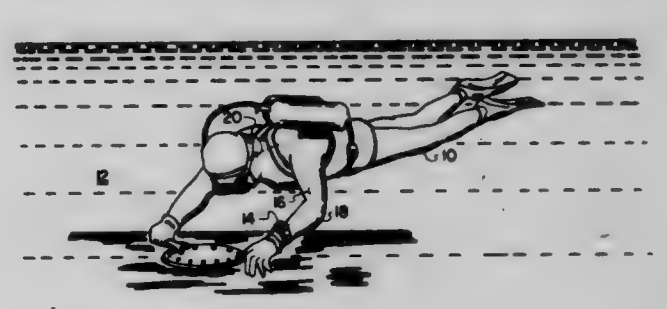
computer control means connected to receive said pressure responsive signal for delivering a control signal to the solenoid valve of said first gas flow control device in response to said pressure responsive signal being lower than a threshold corresponding to a first predetermined altitude and for delivering a temporary control signal to the solenoid valve of said first gas flow control device and then a continuous control signal to the solenoid valve of said second gas flow control device in response to said pressure responsive signal being comprised between said first threshold and a second threshold corresponding to a second altitude lower than the first altitude.

4,336,591

MAXIMUM DEPTH MONITORING APPARATUS

Peter F. Berdzar, Ramona, and Robert S. Acks, San Diego, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 7, 1980, Ser. No. 166,413
Int. Cl.³ G06F *15/42*
U.S. Cl. 364—418 **5 Claims**



1. An apparatus for diver safety comprising:

a package sized to be mountable upon a diver's wrist;

solid state electronic depth monitoring means for monitoring the maximum depth of a diver during the period that the diver is submerged being disposed in the wrist mountable package;

indicating means disposed in the wrist mountable package coupled to said depth monitoring means for enabling said diver to readily determine at any given time during said period his maximum depth of submergence; and

an audio alarm means coupled to said depth monitoring means for alerting said diver when said diver descends below a preselected critical maximum depth, said audio alarm comprising a bone conduction earphone means electrically connected to said package by a small conductor disposed inside a diver's wetsuit and extending between said earphone means and said package.

4,336,592

ANTISKID CONTROL SYSTEM FOR BRAKES WHICH EXHIBIT LARGE CHANGES IN LINING FRICTION COEFFICIENT

Arnold A. Beck, Clinton, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Jun. 23, 1980, Ser. No. 161,812
Int. Cl.³ B60T *8/08*
U.S. Cl. 364—426 **11 Claims**

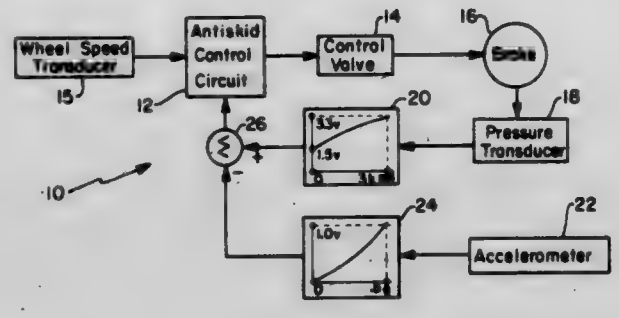
1. In an antiskid control system for a braked wheel vehicle wherein the system includes a brake on a wheel, a control valve regulating pressure at the brake, and a control circuit connected to the control valve and applying thereto an antiskid control signal, the improvement, comprising:

first means comprising a first amplifer having variable gain, said first means being connected to the brake for producing an output signal corresponding to the brake pressure at the brake;

second means connected to the vehicle for producing an output signal analogous to the torque of the brake;

summing means interconnected between said first and second means for receiving and summing said output signals therefrom; and

modification means for receiving both the antiskid control signal and the sum of said output signals from said summing means, said modification means modifying the antiskid control signal as a function of said sum and then supplying the modified antiskid control signal to the control valve.

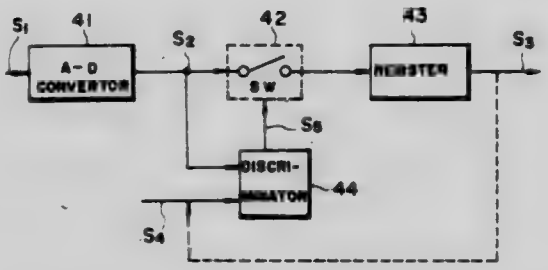


4,336,593

DATA PROCESSING SYSTEM FOR ELECTRONIC CONTROL OF AUTOMOTIVE VEHICLE DEVICES WITH NOISE PREVENTION

Sadao Takase, Yokohama, Japan, assignor to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Feb. 22, 1980, Ser. No. 123,649
Claims priority, application Japan, Feb. 26, 1979, 54-20773
Int. Cl.³ G06B *1/08, 15/02*
U.S. Cl. 364—431 **12 Claims**



7. A noise prevention device for use in a data processing system for an automotive vehicle electronic control, said system controlling automotive fuel injection, spark ignition timing, engine speed and other engine operating conditions, said device being operative to prevent the effects of noise generated by spark ignition and other engine functions from detrimentally affecting operation of said system, said device comprising:

an input unit having an input register temporarily storing inputted sensor signal values indicative of various engine operating parameters, said input register being capable of being updated with present sensor signal values in place of previous sensor signal values;

discriminator means for receiving inputted sensor signals and comparing successive sensor signal values with a predetermined first reference signal defining a varying input signal range to determine when said successive sensor signal values are in said input signal range; and, when said successive sensor signal values are outside of said input signal range, producing differences between said successive sensor signal values and comparing said differences with a second reference value defining an allowable difference range, and measuring the period of time during which said differences are maintained in said allowable difference range; said discriminator means comparing said measured period with a predetermined period and producing a command signal if said sensor signal values are out of said input signal range and said measured period is shorter than said predetermined period; and

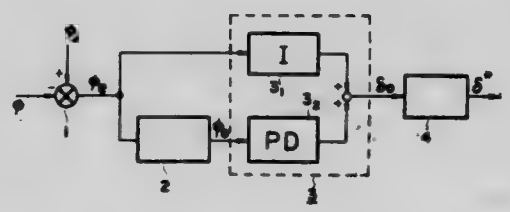
switch means for applying said sensor signal values to said input register, said switch means being responsive to said discriminator means for applying said inputted sensor signal values to said input register only in the absence of said command signal.

4,336,594

AUTOMATIC STEERING APPARATUS FOR SHIPS

Isao Masuzawa; Kanshi Yamamoto, both of Kuroiso, and Yoichi Hirokawa, Kamakura, all of Japan, assignors to Tokyo Keiki Co., Ltd., Tokyo, Japan

PCT No. PCT/JP78/00070, § 371 Date Aug. 28, 1979, § 102(e) Date Aug. 24, 1979, PCT Pub. No. WO79/00447, PCT Pub. Date Jul. 26, 1979
PCT Filed Dec. 27, 1978, Ser. No. 154,397
Claims priority, application Japan, Dec. 28, 1977, 52-160612
Int. Cl.³ B63H *25/04;* G06G *7/78*
U.S. Cl. 364—457 **8 Claims**



1. An automatic steering apparatus for ships comprising:

an adding mechanism for obtaining a deviation signal representing a difference between a predetermined course of a ship and the ship's heading, and providing an output signal; a compensating circuit for generating a compensating signal comprising an amplifying circuit which receives said deviation signal and having a gain which is increased when said deviation signal is in a small range which results in two stable steady turning conditions and thereby causing directional instability; an operational circuit which receives said compensating signal from the compensating circuit and the output signal of the adding mechanism, and which performs a proportional-plus-integral-plus derivative (PID) action to produce an output signal; a servomechanism which receives the output signal of the operational circuit and which generates a command rudder angle signal for application to the steering gear of said ship.

4,336,595

STRUCTURAL LIFE COMPUTER

Thomas E. Adams, Marietta; Walter D. Murray, Roswell, and Raymond F. Woolf, Smyrna, all of Ga., assignors to Lockheed Corporation, Burbank, Calif.

Continuation-in-part of Ser. No. 959,983, Nov. 13, 1978, abandoned, which is a continuation of Ser. No. 826,720, Aug. 22, 1977, abandoned. This application Jun. 26, 1981, Ser. No. 277,904
Int. Cl.³ G01M *5/00*
U.S. Cl. 364—508 **9 Claims**

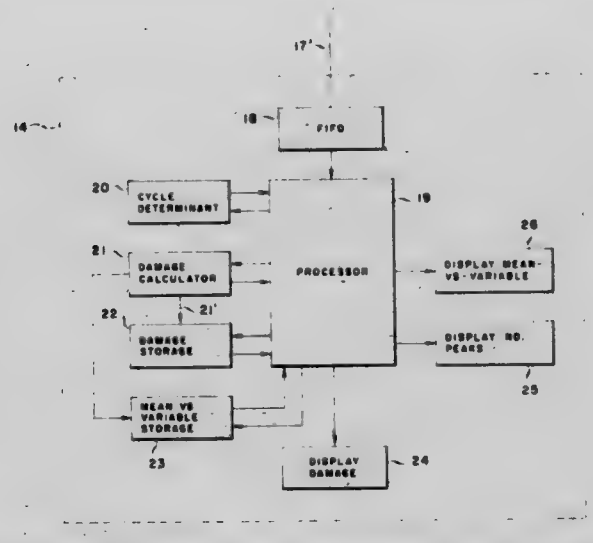
1. A structural life computer to receive electrical signals from a sensor located on a structure under cyclic loads which signals have been converted to digital signals corresponding to maximum and minimum values of stress changes in said structure, and to calculate the structural damage to said structure as indicated by said stress changes, said computer comprising:

a processor operatively connected to said sensor to receive said digital signals:

a cycle determinant operatively connected to said processor to

separate said digital signals into discrete peak values corresponding to each stress change and return said peak values to said processor;

a damage calculator operatively connected to said processor to receive said peak values and compute the analytical structure damage value by comparing said discrete peak values with pre-established peak values determined experimentally and return said structural damage value to said processor;



a damage storage operatively connected to said damage calculator and to said processor to receive and accumulate the damage value computed as aforesaid and return said accumulated damage value to said processor; and

a display operatively connected to said processor to indicate said accumulated damage value.

4,336,596

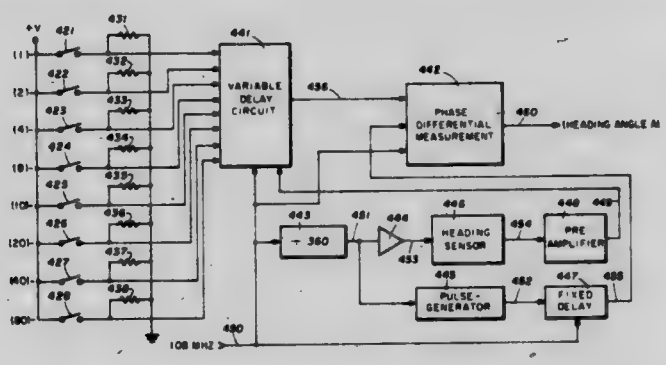
METHOD AND APPARATUS FOR ELECTRONICALLY ROTATING A HEADING SIGNAL

Willie E. Martin, Garland, Tex., assignor to E-Systems, Inc., Dallas, Tex.

Division of Ser. No. 927,512, Jul. 24, 1978, Pat. No. 4,238,829, which is a division of Ser. No. 783,697, Apr. 1, 1977, Pat. No. 4,124,897. This application Jan. 28, 1980, Ser. No. 116,032

Int. Cl.³ G01C *21/00*

U.S. Cl. 364—559 **6 Claims**



1. The method of electronically rotating the heading signal output of a solid state Hall effect compass having a reference driving signal connected thereto to provide an electronically rotated heading signal, comprising the steps of:

(a) inputting a rotation number that determines the magnitude of rotation desired to a delay means,

(b) generating a timing signal that occurs at a fixed time delay following a positive going zero transition of said reference driving signal;

(c) time delaying said heading signal output connected to the delay means wherein said delay depends on the rotation number, and

(d) measuring the phase difference between the timing signal and the time delayed heading signal output of the delay means as an indication of an electronically rotated heading signal.

4,336,597

METHOD AND SYSTEM FOR MEASURING THE DIAMETER OF AN ELECTRON BEAM

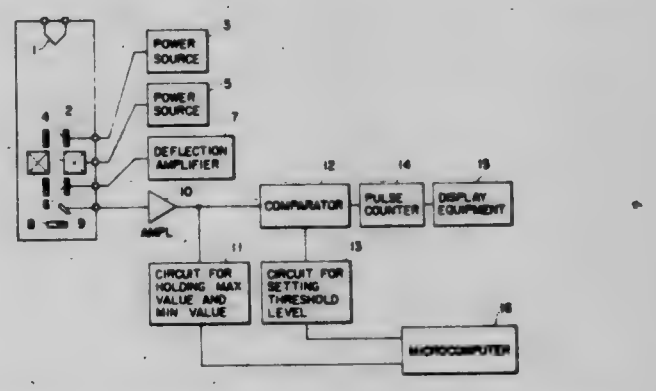
Tsuneo Okubo, Hachioji; Yasuo Kato, Zama, and Genya Matsuoka, Tokyo, all of Japan, assignors to Nippon Telegraph and Telephone Public Corp. and Hitachi, Ltd., both of Tokyo, Japan

Filed Jun. 26, 1980, Ser. No. 163,295

Claims priority, application Japan, Jul. 23, 1979, 54-92677

Int. Cl.³ G01N *23/00*

U.S. Cl. 364—560 **9 Claims**



8. A system for measuring an electron beam diameter, comprising means for scanning the beam successively over a mark area formed on a boundary between areas having different material characteristics on a specimen; first detecting means for detecting electrons received from said specimen as a result of said scanning and for producing a detector signal; second detecting means for detecting the maximum and minimum values of said detector signal; means for storing first and second threshold signals representing said maximum and minimum values, respectively, as received from said second detecting means; means for measuring the time during which the level of the detector signal is between the levels of said first and second threshold signals; and means for calculating the diameter of said electron beam on the basis of said measured time.

4,336,598

ELECTRONIC CALCULATOR WITH MUSICAL NOTE GENERATION

Mikio Yanagawa, Akishima, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Nov. 27, 1979, Ser. No. 97,841

Claims priority, application Japan, Nov. 30, 1978, 53-148143

Int. Cl.³ G06F *3/16*

U.S. Cl. 364—710 **6 Claims**

1. An electronic calculator with musical note producing and sounding means, comprising:

key input means (7) including ten keys representing respective numerals and function keys representing respective functions, said ten keys and said function keys generating input information corresponding to numerals and functions when actuated, at least said keys of said ten keys having a corresponding relation to respective different musical notes;

memory means (2) coupled to said key input means (7) and including means for storing said input information;

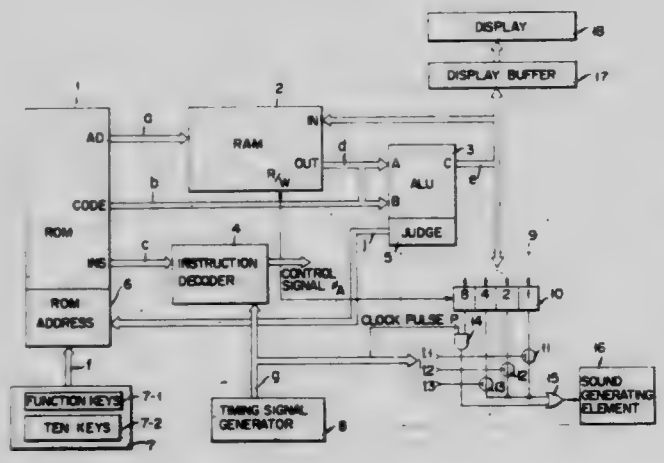
calculation means (3) coupled to said memory means (2) for receiving signals corresponding to said input information and including means for performing at least one calculation with respect to said input information to produce calculation result data for each calculation and means for generating any one of said calculation result data corresponding to the numerals representing the result of said at least one calculation;

said memory means (2) further including means for storing said calculation result data generated by said calculation means (3) in accordance with said input information;

display means (18) coupled to said calculation means (3) for displaying the numerals representing at least one of said input data and said calculation result data as display data;

timing signal generating means (8) for generating timing signals and coupled at least to said calculation means and memory means (2) for sending timing signals at least to said calculation means and to said memory means;

control means (1) coupled to said key input means (7) for delivering pre-set code signals corresponding to said numerals of said display data, so that a frequency signal corresponding to the musical note can be obtained;



note generating means coupled to said calculation means (3), to said control means (1) and to said timing signal generating means, and including means responsive at least to a code signal from said control means and to said timing signals for producing a frequency signal of a musical note corresponding to a respective numeral of said display data, on the basis of a code signal outputted from said control means (1) and the timing signal from said timing signal generating means; and

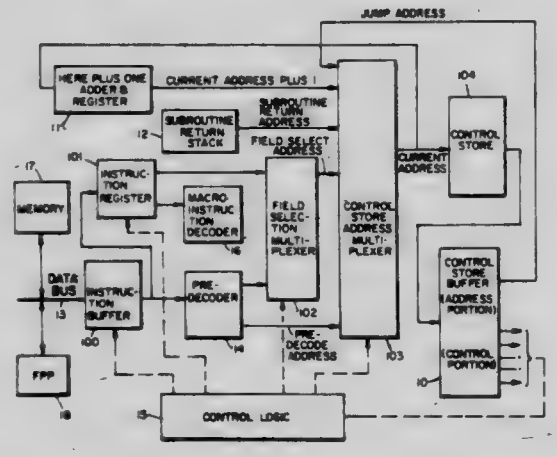
sound generating means coupled to said note generating means for generating the respective musical note corresponding to a respective numeral of said display data upon receipt of said frequency signal.

4,336,599

CIRCUIT FOR PERFORMING A SQUARE ROOT CALCULATION

Wilson T. C. Wong, Irvine, Calif., assignor to Sperry Corporation, New York, N.Y.

Filed Jun. 9, 1980, Ser. No. 157,500
Int. Cl.³ G06F *7/552*
U.S. Cl. 364—752 **21 Claims**



1. A circuit for performing the squareroot function on a floating point number comprising,

a source for supplying a floating point number,

instruction register means connected to receive said floating point number from said source,

decoder means connected to receive said floating point number from said instruction register means,

field select multiplexer means connected to receive an address signal from said decoder means and a coded signal from said instruction register means,

control store address multiplexer means also connected to receive a decode address signal from said decoder means and a field select address from said field select multiplexer means, and

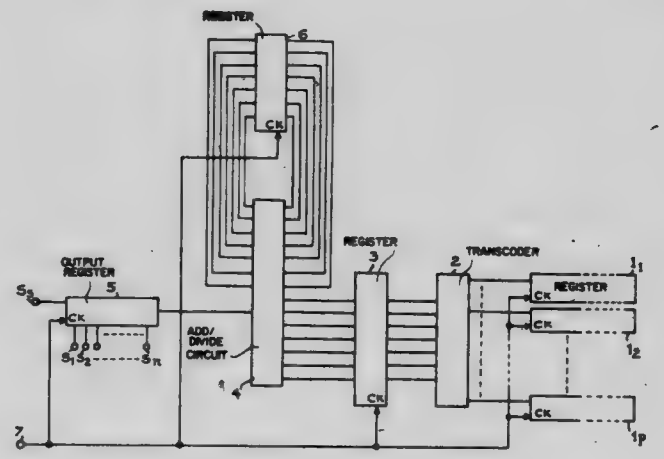
control store means for storing microprogram information therein and connected to receive a current address from said control store address multiplexer means such that the next microinstruction is selected to designate constants for linear approximations which depend upon the value of the floating point number.

4,336,600

BINARY WORD PROCESSING METHOD USING A HIGH-SPEED SEQUENTIAL ADDER

Jean-Pierre Houdard; Jean-Jacques Julie, and Bernard G. Leoni, all of Colombes, France, assignors to Thomson-CSF, Paris, France

Filed Apr. 10, 1980, Ser. No. 138,893
Claims priority, application France, Apr. 12, 1979, 79 09325
Int. Cl.³ G06F *7/50*
U.S. Cl. 364—785 **5 Claims**



1. An adding device for simultaneously adding a large number of words with each of said words being stored in an individual shift register and extracted on the serial output of said register, said device comprising:

a transcoder device whose inputs are connected to the serial outputs of the plurality of said individual shift registers in which are stored said words to be added together, wherein said transcoder device is connected in order to present pure binary form outputs indicating the number of "one's" present on its input;

a bistable flip-flop register connected to the output of said transcoder device;

a parallel-bit add-divide circuit whose binary weight inputs are connected to the output of said flip-flop register.

a separate shift register connected to the least significant bit output of said add-divide circuit;

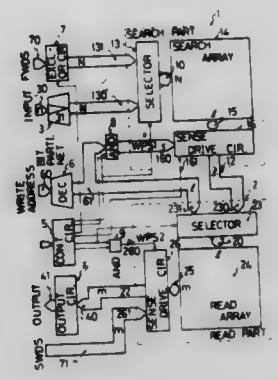
second separate register connected to the remaining outputs of said add-divide circuit which outputs a series of signals to correspondingly weighted inputs of said add-divide circuit, wherein said add-divide circuit calculates the half-sum of its inputs and provides a "one" output to said first separate register when said half-sum is not a whole number and wherein said add-divide circuit provides an output equal to the number of the whole part of said half-sum to said second separate register which represents the number of carried "one's" for use when calculating a subsequent half-sum.

4,336,601

REWRITABLE PROGRAMMABLE LOGIC ARRAY

Mamoru Tanaka, 5-16-7, Higashi-jujo, Kita-ku, Tokyo, 114, Japan

Filed Jul. 5, 1979, Ser. No. 55,009
Claims priority, application Japan, Jul. 4, 1978, 53-80531
Int. Cl.³ H03K *19/20;* G11C *15/00*
U.S. Cl. 364—900 4 Claims



1. A rewritable programmable logic array (R-PLA), which loads a word pattern of bit personalities to generate specific logic function into memory cells from the word direction comprising:

a SEARCH array (**14**) comprising bit lines (**10**), sense-drive word lines (**15**) having end terminals thereon and multi-emitter type bistable Current Mode Logic (CML) memory cells (**11**) at all intersections of said bit lines with said sense-drive word lines;

a READ array (**24**) comprising word lines (**20**), sense-drive bit lines (**25**) having end terminals thereon and multi-emitter type bistable CML memory cells at all intersections of said word lines with said sense-drive word lines;

a first two-channel selector (**13**) comprising first READ inputs (**130**) and first WRITE inputs (**131**) to which input signals are respectively supplied, the outputs of said first selector being connected to said bit lines of said SEARCH array;

first sense-drive circuits (**160**) operable in a READ mode and a WRITE mode connected to said terminals of said sense-drive word lines of said SEARCH array, having first DRIVE inputs (**161**) and first WRITE pulse signal inputs (**160**) respectively receiving signals in said WRITE mode and having first READ outputs (**12**) for generating AND-function signals in response to said first READ inputs of said first selector in said READ mode;

a second two-channel selector (**23**) comprising second READ inputs (**230**) and second WRITE inputs (**231**) to which input signals are respectively supplied, and second READ inputs of said second selector being connected to said first READ outputs of said first sense-drive circuits, the outputs of said second selector being connected to said word lines of said READ array;

second sense-drive circuits (**26**) operable in a READ mode and a WRITE mode connected to said terminals of said sense-drive bit lines of said READ array, having second DRIVE inputs (**261**) and second WRITE pulse signal inputs (**260**) respectively receiving signals in said WRITE mode and having second READ outputs (**22**) for generating AND-function signals in response to said second READ inputs of said second selector in said READ mode;

bit partitioning networks (**3**) having inputs (**30**) for receiving input variables and having outputs (**130**) connected to said first READ inputs of said first selector to deliver signals to said first selector;

a WRITE address decoder (**6**) having inputs (**60**) for receiving WRITE address signals and outputs (**61**) connected, through means (**8**) for generating said first WRITE pulse signals, to said first WRITE pulse signal inputs of said first sense-drive circuit and also connected to said second WRITE inputs of said second selector,

first READ/WRITE control circuits (**5, 6, 7 and 8**) including said means for generating said first WRITE pulse signals and connected to said first WRITE inputs to a selected control lines (SLI) of said first selector and to said first sense-drive circuits; and

second READ/WRITE control circuits (**5, 9**) connected to said second selector and also to said second sense-drive circuits;

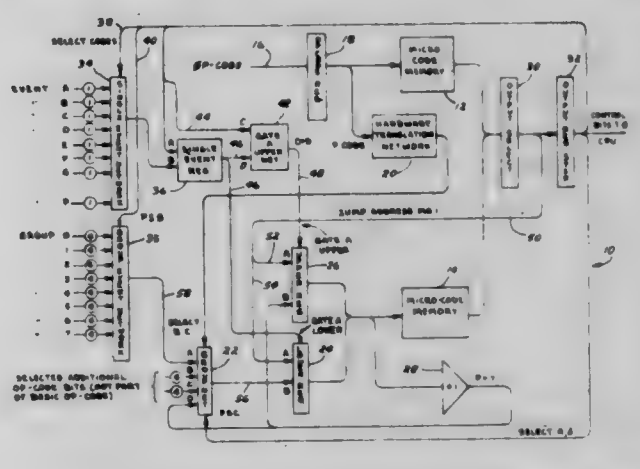
whereby AND-functions are conducted by using one multi-emitter of a transistor in each said CML memory cell and an emitter of a reference transistor in each of said sense-drive circuits in the READ mode of said R-PLA.

4,336,602

NETWORK FOR GENERATING MODIFIED MICROCODE ADDRESSES

Lawrence M. Kruger, Clifton Park, N.Y., assignor to Control Data Corporation, Minneapolis, Minn.

Filed Sep. 24, 1979, Ser. No. 77,955
Int. Cl.³ G06F *9/26, 13/00*
U.S. Cl. 364—900 7 Claims



1. A microcode control memory for generating modified addressing, said memory being adapted to be associated with a central processor, comprising:

(a) a first microcode memory for single step microcode control instructions for receiving an input instruction code from said central processor,

(b) a second microcode memory for multistep microcode control instructions,

(c) an output select network connected to said first and said second microcode memories for determining which memory is to be an output of the system,

(d) a first input register having a plurality of inputs and one output connected to said second microcode memory for gating a first portion of an input address to said second microcode memory,

(e) a second input register having a plurality of inputs and one output connected to said second microcode memory for gating a second portion of an input address to said second microcode memory, wherein said second input register is comprised of a second input register and a group network address register for receiving as an input groups of bits representing sensed central processor events and controlled by control signals determined from an input address including means for selecting in response to said control signals a modified jump address determined from said output selection network or the output of said group network address register to be gated as an address portion to said second microcode memory,

(f) means for controlling said first input register said means being responsive to a control signal to determine which of said plurality of inputs to said first input register is to be selected as an output,

(g) means for providing input control signals to said second input register to determine which of said plurality of

inputs is to be used as an output of said second input register, wherein said means for supplying an input control signal to said second input register is comprised of a hardware translation network for receiving the input instruction code to said first microcode memory and producing a control signal for said second input register in response to decoding said input instruction code,

(h) means for supplying as an input to said first input register a first jump address portion from said output select network,

(i) means for supplying as an input to said first input register at least one additional different first address portion,

(j) means for supplying as an input to said second input register a second jump address portion from said output select network,

(k) means for supplying as an input to said second input register an incremented different second address portion, and

(l) means for supplying as an input to said second input register a plurality of bits constituting a modifier portion of said second jump address portion consisting of signals of sensed events in said central processor, whereby said system performs a modified conditional branching address function as a result of said means for controlling said first input register and said means for providing an input control signal to said second input register operating at the same microcode memory cycle as said plurality of inputs is provided to said first input register and to said second input register so that said second microcode memory receives an input jump address which had been determined from preselected possible input addresses.

4,336,603

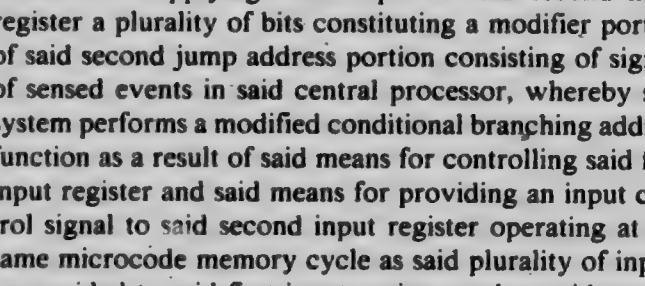
THREE TERMINAL ELECTRICALLY ERASABLE PROGRAMMABLE READ ONLY MEMORY

Harish N. Kotecha, Essex Junction, and Francis W. Wiedman, III, Stowe, both of Vt., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,530

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—182 **21 Claims**



1. A system comprising;

a field effect transistor having, a current carrying electrode, a floating gate and a control gate,

a first capacitor disposed between said control gate and said floating gate,

a second capacitor disposed between said current carrying electrode and said floating gate, one of said capacitors having a dual charge injector system having a graded band gap insulator structure and a capacitance value less than that of the other of said capacitors, and

means for applying pulses to said control gate and said current carrying electrode for selectively charging and discharging said floating gate.

4,336,604

MONOLITHIC STATIC MEMORY CELL

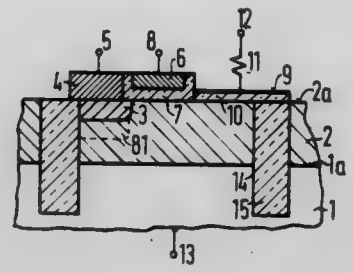
Armin Wieder, Gauting, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 16, 1980, Ser. No. 169,449

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1979, 2935291

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—182 **18 Claims**



1. A monolithic static memory cell, comprising

a semiconductor body of a first conductivity type having a first surface;

a semiconductor layer of a second conductivity type carried on said first surface and having a second surface;

a region of said first conductivity type in said semiconductor layer extending to said second surface;

a first drive line carried on said second surface in electrical contact with said region;

a first insulator carried on said second surface adjacent said region;

a second drive line;

a gate carried on said first insulator and connected to said second drive line;

a second, thin insulator carried on said second surface over a zone of said semiconductor layer; and

a conductive coating carried on said second insulator and adapted to receive a potential to produce a tunnel current between said second surface and said conductive coating.

4,336,605

MULTIPLEXER FOR ULTRASONIC RANGING DEVICE

John Vancha, Bolingbrook, Ill., assignor to Hurst Performance, Inc., Warminster, Pa.

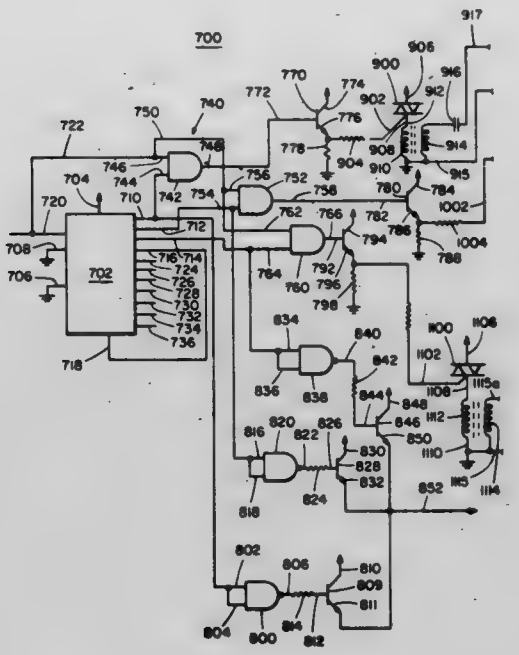
Continuation-in-part of Ser. No. 171,529, Jul. 23, 1980. This application Sep. 26, 1980, Ser. No. 191,461

Int. Cl.³ G01S *15/88*

U.S. Cl. 367—105 **2 Claims**

1. A multiplexer for an ultrasonic ranging device for a vehicle comprising resettable counter means for receipt of a timing pulse train and providing a counter output signal indicative of a stored count of the number of pulses in said pulse train, said counter means resetting to zero upon a predetermined periodic output condition, switch means receiving said counter output signal and providing a switch output signal in response thereto, a plurality of ultrasonic transducers connected to said switch means, said transducers being successively sequentially energized in response to said output signal from said switch means, said switch means including a transmit gate which controls energization of a transmission control transistor connected between said transmit gate and one of said transducers and a receiver gate adapted to isolate selectively one of the transducers from a portion of a receiver by controlling a receiver con-

trol transistor connected to said receiver gate and to a portion of said receiver to shunt selectively a transducer return signal



to ground when said receiver control transistor is in conduction.

4,336,606

WIND SPEED MEASUREMENT

Maurice C. Heard, Hullbridge, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Sep. 23, 1980, Ser. No. 189,914

Claims priority, application United Kingdom, Sep. 25, 1979, 7933161

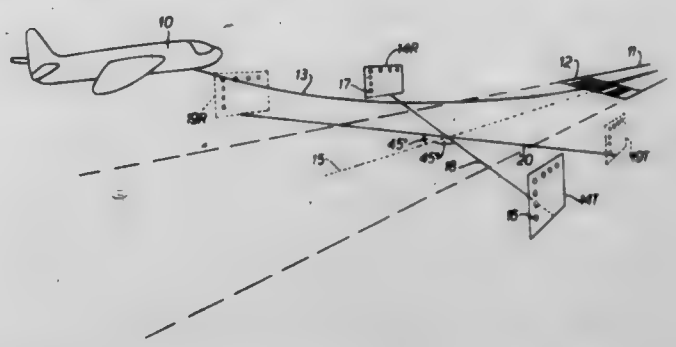
Int. Cl.[3] G01S *11/00*; G01W *1/00*

U.S. Cl. 367—117 10 Claims

1. Apparatus for the detection and measurement of wind gradient at a location, which apparatus comprises:

means for transmitting and means for receiving a regular sound wave train, which two means are positioned facing each other, and like orientated in a selected direction, at each of two or more heights at the location;

means for noting the phase of each received sound wave train, for comparing that phase with the phase of the wave train as transmitted, and for thereby deducing the wind-caused phase change; and



means for calculating from the deduced phase change at each height the wind speed in the selected direction at that height.

4,336,607

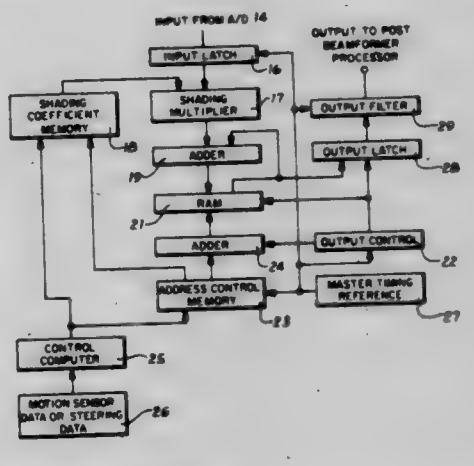
BEAMFORMER HAVING RANDOM ACCESS MEMORY DELAY

Eugene Hill, Cornwall, Canada; Arnolds Jansons, Indianapolis, Ind., and James J. Truchard, Austin, Tex., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 10, 1980, Ser. No. 214,830

Int. Cl.[3] G01S *3/80*

U.S. Cl. 367—123 3 Claims



1. A beamformer comprising,

a sonar receiver having a plurality of spatially distributed hydrophones for transforming sound pressure signals into analog electrical signals,

an analog multiplexer for sequentially obtaining said analog electrical signals from said sonar receiver,

an analog to digital converter connected to said analog multiplexer for digitizing said analog electrical signals,

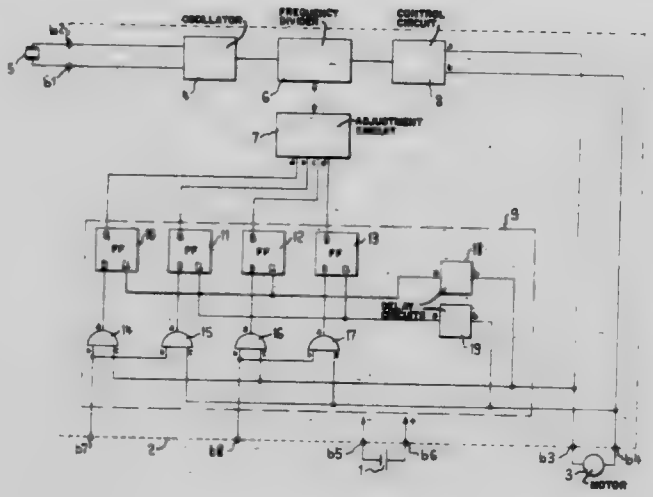
a random access memory for storing digital words at an address to be read out after a time delay, and

an adder having one input connected with an output of said analog to digital converter and another input connected with said random access memory and having an output connected with said random access memory.

4,336,608
ELECTRONIC TIMEPIECE

Jean-Claude Berney, Epalinges, Switzerland, assignor to Ebauches S.A., Neuchatel, Switzerland

Continuation of Ser. No. 881,162, Feb. 24, 1978, abandoned.
This application Mar. 31, 1980, Ser. No. 135,741
Claims priority, application Switzerland, Feb. 28, 1977, 2460/77
Int. Cl.[3] G04C *19/00*; G04F *5/00*; G04B *17/12*
U.S. Cl. 368—82 4 Claims



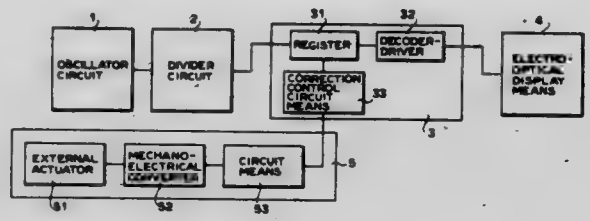
1. An electronic timepiece, comprising:
a power source;
means for displaying time data in response to display control signals;
an integrated circuit provided with m terminals comprising power terminals for connecting said power source and display terminals for connecting said displaying means, and further provided with n terminals for applying input signals, said integrated circuit including means for producing time base pulses, means for producing said display control signals in response to said time base pulses, an introduction circuit for producing auxiliary data in response to said input signals and said display control signals, and means for performing an auxiliary function in response to said auxiliary data; and
a plurality of connections external to said integrated circuit for selectively connecting each of said n terminals to one of said m terminals, said input signals and, thus, said auxiliary data being different for each of the m^n possible combinations of said connections and each different set of said auxiliary data being present only so long as said corresponding combination of said connections remain in place.

4,336,609
DIGITAL INPUT MEANS FOR MINIATURE TYPE ELECTRONIC DEVICES

Kazunari Kume, and Sizuo Yamaguchi, both of Saitama, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 87,500, Oct. 23, 1979, abandoned. This application Apr. 8, 1981, Ser. No. 252,226
Claims priority, application Japan, Dec. 6, 1978, 53-151382
Int. Cl.[3] G04C *9/00*
U.S. Cl. 368—188 2 Claims

1. A digital input means for miniature type electronic devices comprising:
(a) an oscillator circuit for generating a reference signal;
(b) a frequency divider circuit for generating a unit signal from said reference signal delivered from said oscillator circuit;
(c) a data holding circuit means for generating a driving signal from said unit signal delivered from said frequency divider circuit;
(d) an electro-optical display means for performing a digital display by means of the driving signal delivered from said data holding circuit means;
(e) a piezo-electric element driven by an externally actuating means; and
(f) a circuit means for controlling pulses generated by said piezo-electric element, said circuit means being connected to said data holding circuit means for transmitting pulses

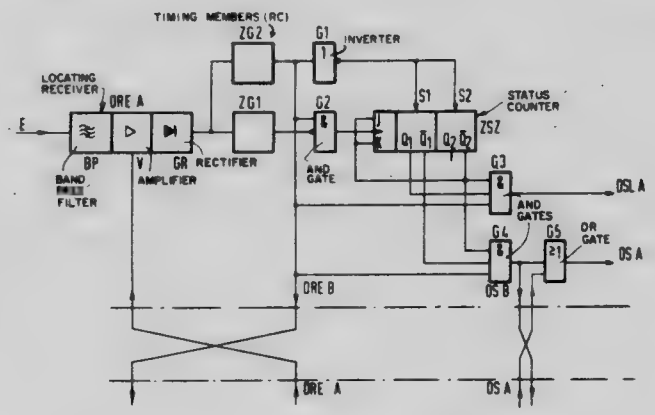


thereto and said circuit means comprising a signal discriminating circuit means and a control circuit means, whereby said externally actuating means is driven so that said signal discriminating circuit means may discriminate the directions of the pulses generated by said piezo-electric element, and that said control circuit means may shape the pulses, and thereby the pulses being transmitted to the input of said data holding circuit means.

4,336,610
METHOD AND AN ARRANGEMENT FOR ADDRESS-FREE FAULT LOCATION BY LOOP CLOSURE IN MESSAGE TRANSMISSION LINKS

Erhard Steiner, Eichenau, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 104,271
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1979, 2904057
Int. Cl.[3] H04J *3/14*; H04B *3/46*
U.S. Cl. 370—15 12 Claims



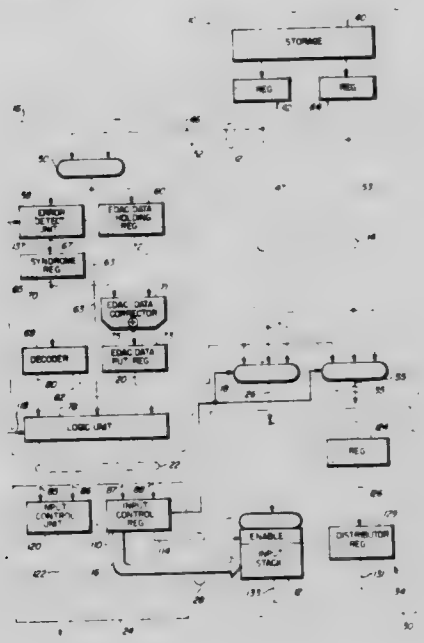
11. In an intermediate station of a message transmission link for transmission in both locating transmission directions, a respective receiver, including an amplifier, for each transmission direction for receiving a loop closure signal and responsive thereto to switch on a predetermined logic state, a first memory connected to the output of said amplifier for storing the loop closure signal for first and second predetermined holding times and during a predetermined interruption interval of the loop closure signal as a switching pulse interval, and a second memory connected to the output of said first memory including a counter for storing the count thereof in each case corresponding to the appearance of switching pulses which are equal to or greater than the switching pulse interval.

4,336,611

ERROR CORRECTION APPARATUS AND METHOD

Donn E. Bernhardt, and Lowell D. McCulley, Jr., both of Phoenix, Ariz., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Dec. 3, 1979, Ser. No. 99,351
Int. Cl.[3] G06F *11/10*
U.S. Cl. 371—38 10 Claims



1. Apparatus for providing data groups from a memory to a destination circuitry comprising:

a. a first path from said memory to said destination circuitry; and

b. a second path from said memory to said destination circuitry, said second path including error detection and correction circuitry for detecting at least one data group from said memory having an error therein and substituting a corrected data group therefor; and

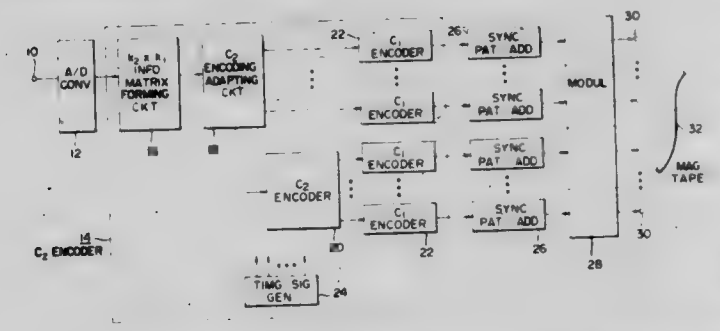
c. a control unit operatively connected to said error detection and correction circuitry and to said destination circuitry for indicating said error, said destination circuitry responding to said control unit to replace said one data group with said corrected data group and to receive subsequent data groups from said error detection and correction circuitry.

4,336,612

ERROR CORRECTION ENCODING AND DECODING SYSTEM

Toru Inoue; Yasuo Sugiyama, and Ken Onishi, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 3,941, Jan. 16, 1979, abandoned. This application May 16, 1980, Ser. No. 150,654
Claims priority, application Japan, Jan. 17, 1978, 53-4012
Int. Cl.[3] G06F *11/10*
U.S. Cl. 371—39 14 Claims



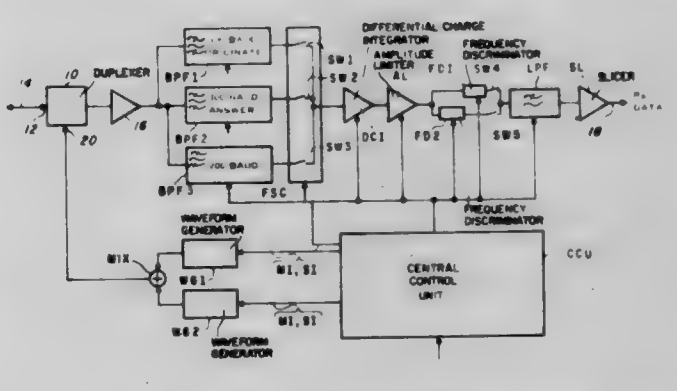
1. An encoding and decoding system for digital information having a rectangular array of bits including k_1 bits in a first direction and k_2 bits in a second direction orthogonal to the first direction which system comprises encoding means including an encoding adapting circuit for codes C_2 for dividing the k_1 bits in the first direction into b bits apiece, and forming a plurality of $k_2 \times b$ bit rectangular arrays each including the b bits in the first direction and the k_2 bits in the second direction, a C_2 encoder for encoding the plurality of $k_2 \times b$ bit rectangular arrays into a plurality of $n_2 \times b$ bit rectangular arrays each including the b bits in the first direction and n_2 bits in the second direction, a C_1 encoder for encoding the k_1 bits in the first direction into n_1 bits by adding $n_1 - k_1$ check bits to the k_1 bits in the first direction, and a timing generator circuit for generating timing signals for controlling the operation of said encoding means to thereby encode the digital information into a codeword of a generalized product code including the n_1 bits in the first direction and the n_2 bits in the second direction; and decoding means operatively connected to said encoding means by a transmission means for decoding the digital information encoded by the encoding means; wherein said C_1 and C_2 encoders are operative to encode in response to said timing signals of said timing generator and wherein either said C_1 encoder or said C_2 encoder provides said generalized product code.

4,336,613

CHARGE COUPLED DEVICE FILTERS AND MODEMS INCORPORATING SUCH FILTERS

Charles R. Hewes, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 30, 1977, Ser. No. 811,657
Int. Cl.[3] H04L *27/10*
U.S. Cl. 375—9 22 Claims

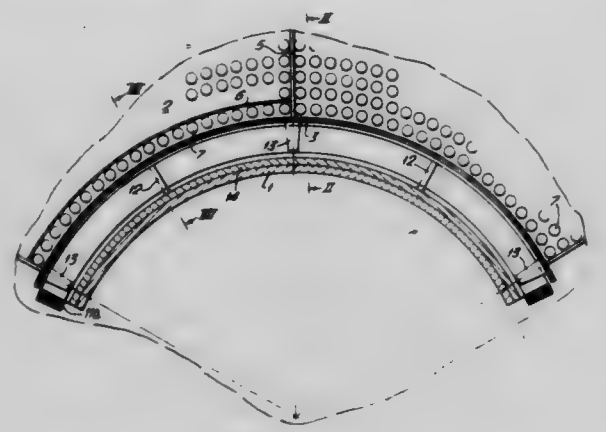


1. Apparatus for receiving and filtering modulated analog signals having different carrier frequencies including input terminal means for receiving said modulated analog signals on at least two frequency channels, a signal transmission path, an individual charge coupled device bandpass filter means for each of said two channels, switching means operable to select and connect one of said bandpass filter means between said input terminal means and said signal transmission path; each said bandpass filter means including phase electrode sets, each said set including a split electrode for signal amplitude weighting, the split electrodes of each filter means disposed and configured to define a bandpass characteristic for said filter means, means for applying phased pulses to said bandpass filter phase electrodes such that the frequencies of said phased pulses are different for each said filter and each filter has a predetermined center frequency, and means for applying switching pulses to operate said switch means to select a particular bandpass filter having a center frequency matched with the carrier frequency of the analog signal received at said input terminal means.

4,336,614
TUBE-IN-SHELL HEAT EXCHANGERS

Colin H. Mitchell, Knutsford, and Michael J. Young, Warrington, both of England, assignors to Nuclear Power Company Limited, London, England

Filed Aug. 28, 1979, Ser. No. 70,433
Claims priority, application United Kingdom, Sep. 19, 1978, 37299/78
Int. Cl.³ G21C *15/00*
U.S. Cl. 376—405 4 Claims

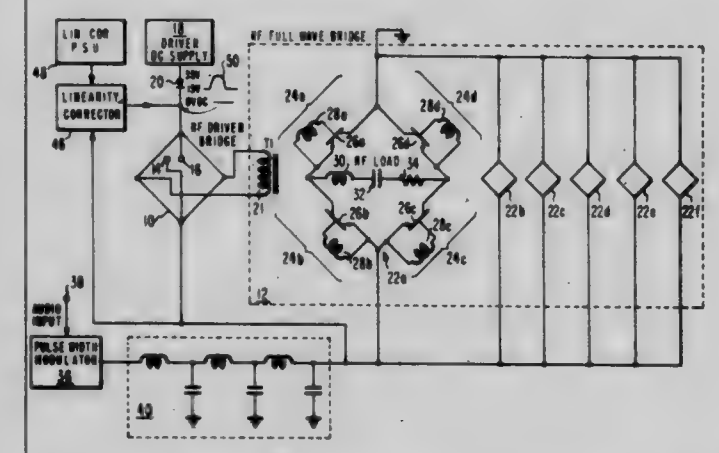


1. A tube-in-shell heat exchanger comprising
a tubular shell having inlet ports for conducting a first heat exchange fluid through the shell,
a plurality of spaced heat exchange tubes extending longitudinally within the shell, the tubes penetrating at least one end closure of the shell for conducting a second heat exchange fluid,
a series of longitudinally spaced transverse grids for bracing the heat exchange tubes apart,
a spine disposed on the longitudinal axis of the shell for supporting said transverse grids, and
resiliently yieldable means for mounting said grids on the spine, each resiliently yieldable means comprising
an annular series of brackets rigidly secured to the spine, the brackets each having a pair of radially outwardly extending forked arms,
a complementary annular series of forked brackets having radially inwardly extending arms rigidly secured to a grid, each bracket of one series being interposed between two neighbouring brackets of the complementary series and
a resiliently flexible annular member disposed transversely to the spine in engagement with the forked arms of both complementary series of brackets.

4,336,615
LINEAR LOADING FOR PWM FILTER

Richard F. Abt, and William L. Behrend, both of Pittsburgh, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 2, 1980, Ser. No. 193,023
Int. Cl.³ H03G *11/04*; H03C *1/06*
U.S. Cl. 455—108 8 Claims

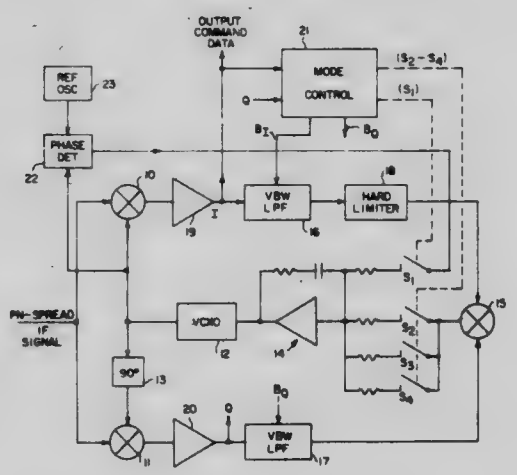


1. An apparatus comprising an RF driver stage, an RF power amplifier stage coupled to said RF driver stage, a pulse width modulator having input means for receiving a modulating signal, a pulse width filter having an input coupled to said pulse width modulator and an output coupled to said RF driver stage and to said RF power amplifier stage, said RF power amplifier stage presenting a nonlinear load to said pulse width filter during a portion of the conduction cycle of said modulation signal, and linearity correction means having an input coupled to said pulse width filter output and an output coupled to said RF driver stage for ensuring a linear load on said pulse width filter by modulating a DC supply voltage applied to said driver stage in accordance with the modulation voltage applied to said stages during said portion of the conduction cycle of the modulation signal when a nonlinearity occurs.

4,336,616
DISCRIMINATOR AIDED PHASE LOCK ACQUISITION FOR SUPPRESSED CARRIER SIGNALS

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Lansing M. Carson, and F. Elvin Krasin, both of Scottsdale, Ariz.

Filed Dec. 15, 1978, Ser. No. 969,762
Int. Cl.³ H04B *1/68*
U.S. Cl. 455—202 5 Claims



3. In a Costas loop for acquisition and tracking a suppressed carrier signal, said loop having an in-phase and a quadrature-phase channel, said in-phase channel having a phase detector for comparing the phase of said carrier signal and a signal from a voltage controlled oscillator and having a low-pass filter and hard limiter in series between the output of said in-phase phase detector and the input of a multiplier for the output signals of the in-phase and quadrature-phase channels, said quadrature-phase channel having means for shifting the output of said voltage controlled oscillator by 90° and a phase detector for comparing the phase of said carrier signal and a signal from said voltage controlled oscillator shifted 90°, and having a variable low-pass filter in series between the output of said quadrature phase detector and the input of said multiplier, said loop further having a variable loop filter in series between the output of said multiplier and said voltage controlled oscillator, the improvement comprised of means for varying said quadrature-phase channel low-pass filter to a bandwidth greater than the bandwidth of the in-phase channel low-pass filter by a factor of at least ten, thereby producing a frequency discriminator effect at the output of said multiplier to aid carrier acquisition, and for varying the bandwidth of the quadrature-phase channel filter to a bandwidth substantially equal to the bandwidth of the in-phase channel low-pass filter for carrier tracking, and means for controlling said variable loop filter to have a wide bandwidth for carrier acquisition while said means for varying said quadrature channel filter is set for carrier acquisition and to have a narrower bandwidth for carrier tracking while said means for varying said quadrature channel filter is set for carrier tracking.

DESIGN PATENTS

GRANTED JUN. 22, 1982

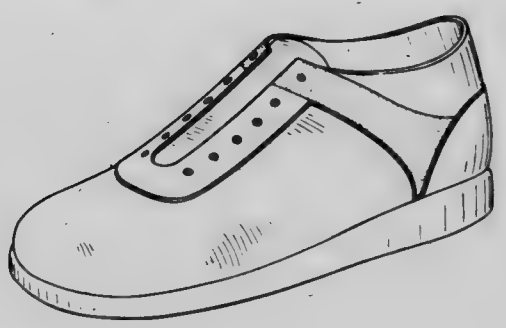
ERRATA

For CLASS	See PATENT NO.
D32–058	265,045

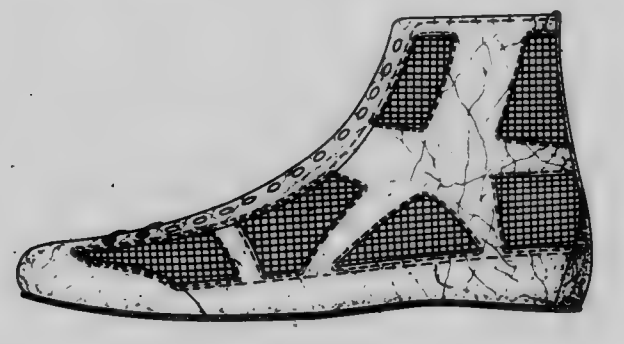
DESIGNS

JUNE 22, 1982

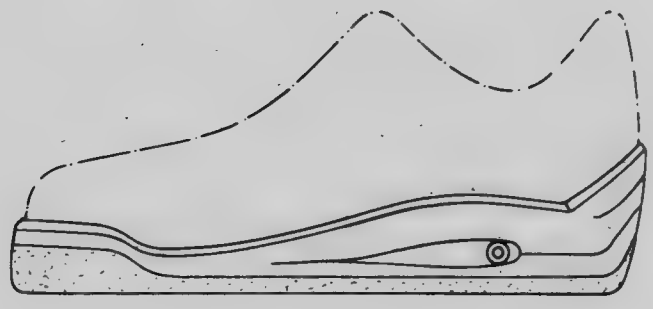
265,015
SPORT SHOE
Kenneth D. Higgins, Scarborough, Canada, assignor to Warrington Inc., Mississauga, Canada
Filed Dec. 21, 1979, Ser. No. 106,112
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—309



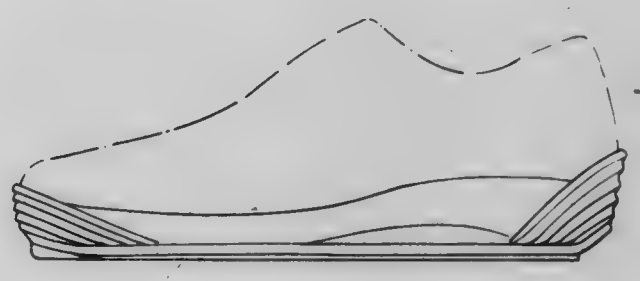
265,016
ATHLETIC SHOE
Billy J. Haddox, Rte. 2, Box 535 B, Chesterton, Ind. 46304
Filed Oct. 29, 1979, Ser. No. 89,596
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—310



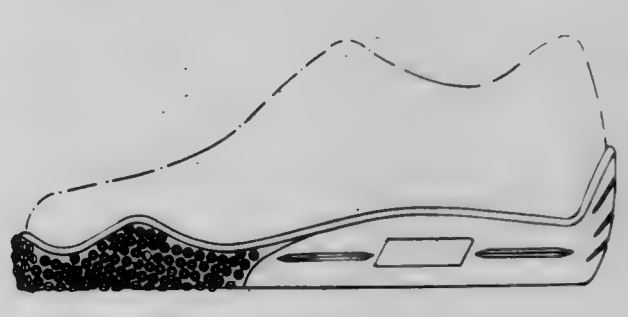
265,017
SHOE SOLE
Christian Vermonet, Cholet, France, assignor to Societe Technisynthese (S.A.R.L.), Saint Pierre Montlimart, France
Filed May 6, 1980, Ser. No. 147,316
Claims priority, application France, Nov. 6, 1979, 277
Term of patent 7 years
Int. Cl. D2—*04*
U.S. Cl. D2—320



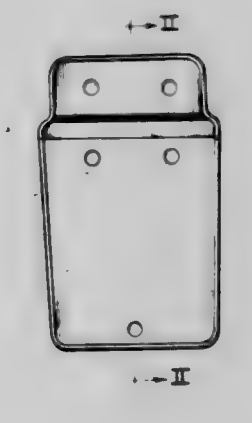
265,018
SHOE SOLE
Christian Vermonet, Cholet, France, assignor to Societe Technisynthese (S.A.R.L.), Saint Pierre Montlimart, France
Filed May 6, 1980, Ser. No. 147,317
Term of patent 7 years
Int. Cl. D2—*04*
U.S. Cl. D2—320



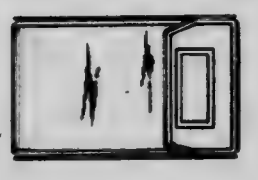
265,019
SHOE SOLE
Christian Vermonet, Cholet, France, assignor to Societe Technisynthese (S.A.R.L.), Saint Pierre Montlimart, France
Filed May 6, 1980, Ser. No. 147,318
Claims priority, application France, Nov. 6, 1979, 277
Term of patent 7 years
Int. Cl. D2—*04*
U.S. Cl. D2—320



265,020
LACE-ONTO-SHOE PURSE OR SIMILAR ARTICLE
Hannah L. Silton, 2419 Meadow Dr. South, Wilmette, Ill. 60091
Filed Mar. 19, 1980, Ser. No. 131,841
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—42



265,021
CHECKBOOK COVER
Eric R. Hayman, Maple Glen, and Scott R. Penniman, Lansdale, both of Pa., assignors to Safeguard Business Systems, Inc., Fort Washington, Pa.
Filed Jun. 26, 1980, Ser. No. 163,170
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—56

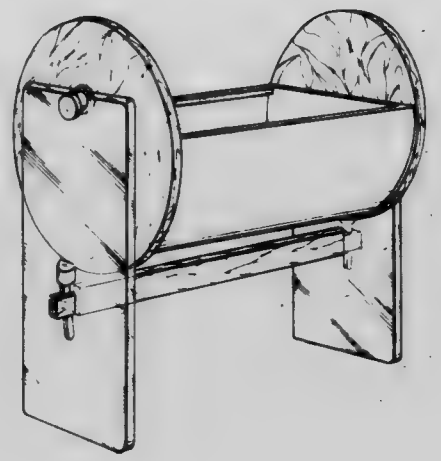




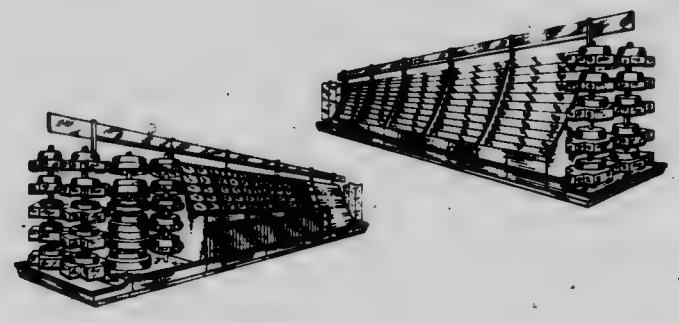
265,022
DOLL-BAG
William D. Parker, 7421 Daniel Webster Dr., Orlando, Fla. 32807
Continuation-in-part of Ser. No. 754,592, May 27, 1976, abandoned. This application Apr. 9, 1979, Ser. No. 28,078
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—66



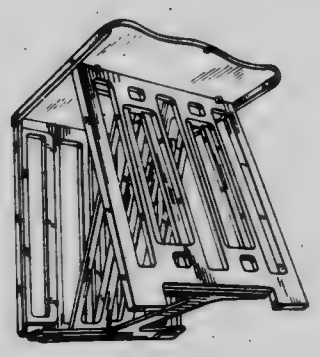
265,023
CRADLE
Armand A. Giglio, Turk Hill Rd., Brewster, N.Y. 10509
Filed Dec. 3, 1979, Ser. No. 99,972
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—15



265,024
GREETING CARD AND GIFT WRAP DISPLAY UNIT OR THE LIKE
John Johnson, and Ed Gandolf, both of Strongsville, Ohio, assignors to American Greetings Corporation, Cleveland, Ohio
Filed Sep. 25, 1978, Ser. No. 945,560
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—24



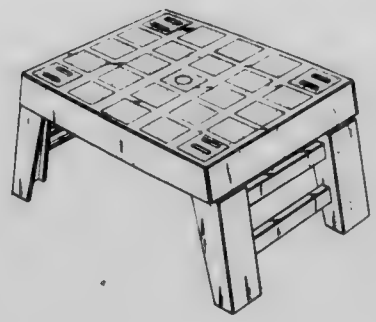
265,025
PORTABLE SEAT OR SIMILAR ARTICLE
James Nichols, Old Saybrook, Conn., and Franklyn M. Markus, 5725 Cote St. Luc, Hampstead, Quebec, Canada (H3X 2E6), assignors to Franklyn M. Markus, Hampstead, Canada
Filed May 13, 1980, Ser. No. 149,407
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—32



265,026
FOLDABLE STOOL

Jan M. Macho, La Canada, and Richard O. Oxford, Los Angeles, both of Calif., assignors to Dial Industries, Los Angeles, Calif.

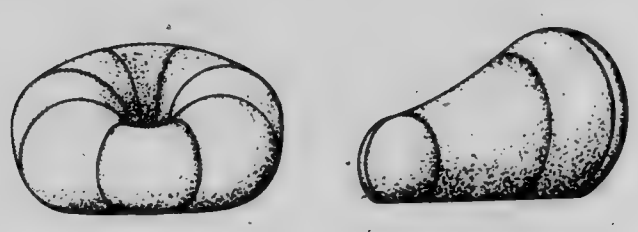
Filed May 15, 1980, Ser. No. 150,062
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—32



265,027
SEAT

Marc A. Meyers, Socorro, N. Mex., assignor to Samuel V. Abramo and John G. Abramo, both of Wilmington, Del., a part interest

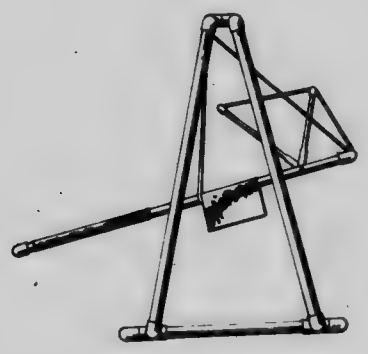
Filed Apr. 16, 1980, Ser. No. 140,775
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—37



265,028
SWINGING CHAISE

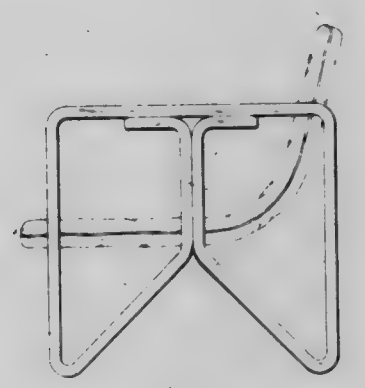
Vincent P. Sorrentino, Parkland, Fla., assignor to Bright Industries Inc., Fort Lauderdale, Fla.

Filed Sep. 10, 1979, Ser. No. 73,787
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—52



265,029
CHAIR

Steven D. Gageby, 12 Hay Camp Rd., North Oaks, Minn. 55110
Division of Ser. No. 911,470, Jun. 1, 1978, which is a division of Ser. No. 677,747, Apr. 16, 1976. This application Jun. 1, 1979, Ser. No. 44,412
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—73

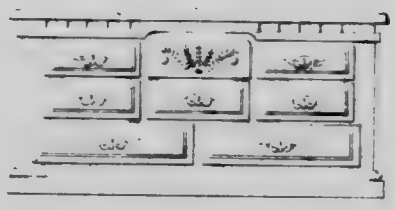


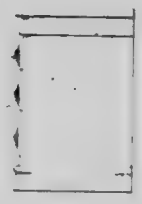
265,030
DISPLAY DEVICE FOR BOOTS

Claudio Gallon, Padua, Italy, assignor to Rigon S.p.A., Italy
Filed Sep. 10, 1979, Ser. No. 73,637
Claims priority, application Italy, Mar. 8, 1979, 21033/79[U]
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—85

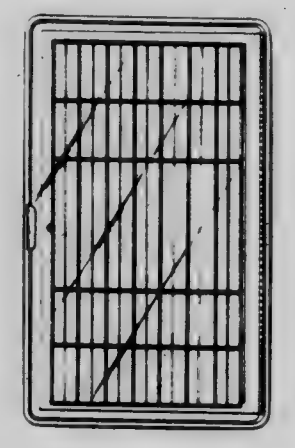


265,031
DRESSER OR THE LIKE
Harold V. Aulbert, Guilford, and Charles M. Horton, Iredell, both of N.C., assignors to Burlington Furniture Div. of Burlington Industries, Inc., Greensboro, N.C.
Filed Apr. 11, 1980, Ser. No. 139,354
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—154

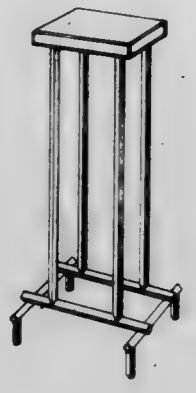




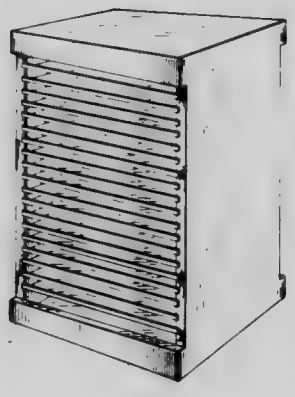
265,032
MERCHANDISE DISPLAY RACK
Philip R. Brown, Huntington, N.Y.; Charles M. Baffo, Wilton, Conn., and Edward J. Meyers, Wayne, Pa., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Aug. 16, 1979, Ser. No. 66,955
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—172



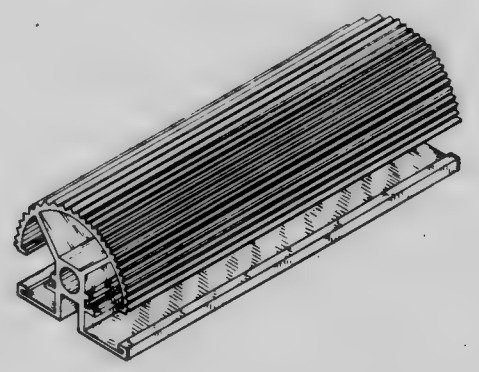
265,033
TABLE
Kaloust P. Sogoian, 21820 W. Eight Mile Rd., Southfield, Mich. 48075
Filed Jul. 26, 1979, Ser. No. 61,136
Term of patent 14 years
Int. Cl. D6—*01, 03*
U.S. Cl. D6—177



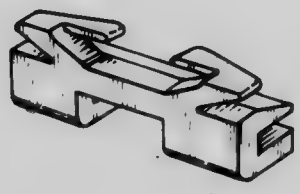
265,034
CABINET FOR STORING PIZZA SKINS OR THE LIKE
Donald H. Lickey, Rte. 4, Box 562A, Scappoose, Oreg. 97056
Filed Oct. 1, 1979, Ser. No. 80,922
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—186



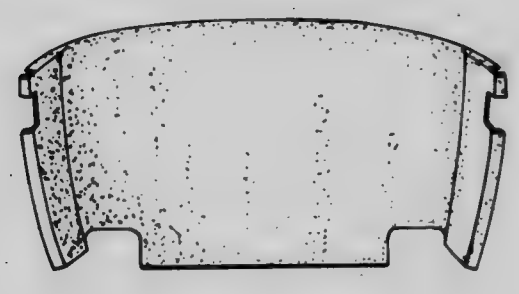
265,035
CORNER CONNECTOR FOR FURNITURE PANELS
Kenneth B. Fether; Maurice Grosse, and Michael Carson, all of London, England, assignors to Planned Space Products Limited, England
Filed Aug. 16, 1979, Ser. No. 67,037
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



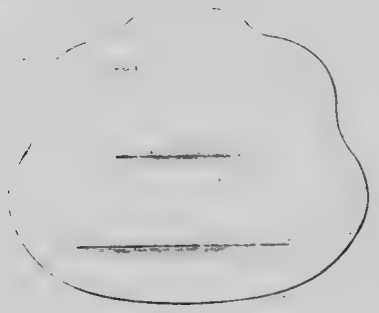
265,036
BEARING MEMBER FOR SUPPORTING A DRAWER ON A RUNNER
Leon G. Litchfield, Youlgrave, and Terence Hardy, Ripley, both of England, assignors to L.B. (Plastics) Limited, Derby, England
Filed Oct. 9, 1979, Ser. No. 83,106
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



265,037
CHAIR BACK FOR AN AUTOMOBILE
George D. Bowman, Detroit, Mich., assignor to The Model A and Model T Motor Car Reproduction Corporation, Battle Creek, Mich.
Filed Sep. 24, 1979, Ser. No. 78,656
Term of patent 3½ years
Int. Cl. D6—*06*
U.S. Cl. D6—197



265,038
PLACE MAT
Anne S. Tomasi, San Jose, Calif., assignor to Apron Linen Tree of California, Inc., San Jose, Calif.
Filed Jun. 9, 1980, Ser. No. 157,404
Term of patent 14 years
Int. Cl. D6—*13*
U.S. Cl. D6—271



265,039
PLATE OR SIMILAR ARTICLE
Jean-Jacques Durand, LaGarenne, 62510 Arques, France
Filed Sep. 8, 1980, Ser. No. 185,030
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—5



265,040
DINNER PLATE OR SIMILAR ARTICLE
Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jul. 14, 1980, Ser. No. 168,693
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

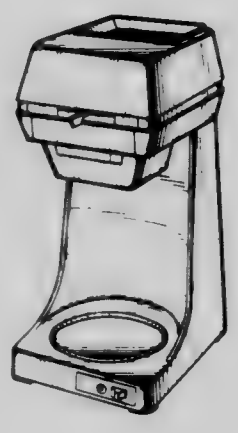


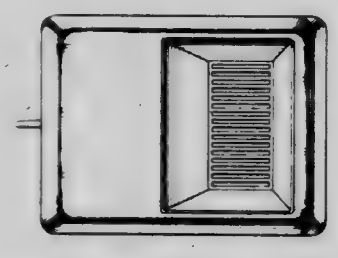
265,041

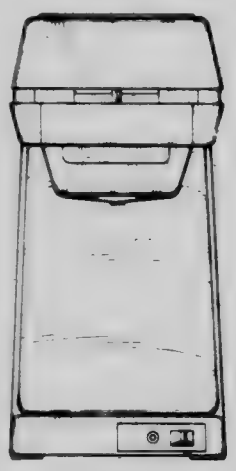
COFFEEMAKER

Ernest Lee, Park Ridge, and Robert O. Ernest, Oak Park, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed Jun. 19, 1980, Ser. No. 160,881
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—41





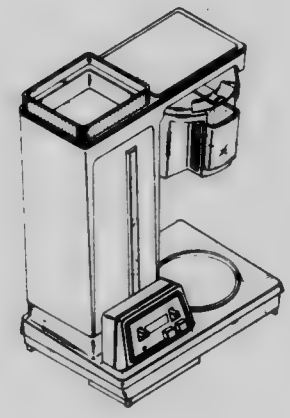


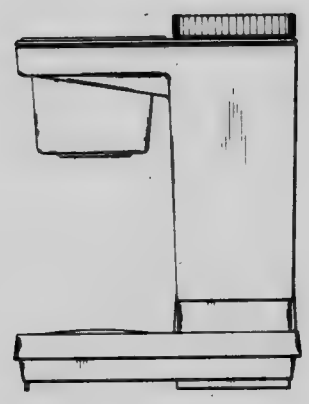
265,042

COFFEE MAKER

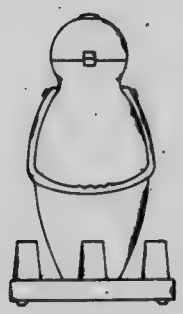
Thomas E. Hanson, Phoenixville, Pa., and William L. Wolfe, deceased, late of Pompey, N.Y. (by Ellen M. Wolfe, administratrix), assignors to SCM Corporation, New York, N.Y.

Filed Oct. 14, 1980, Ser. No. 196,906
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—41

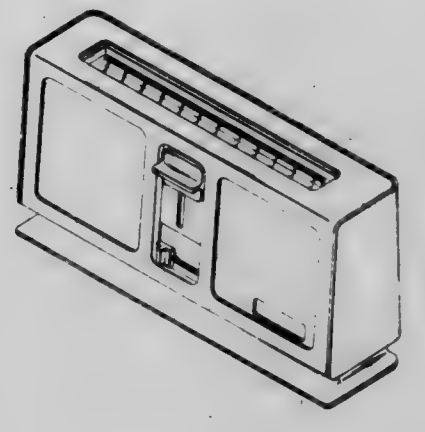


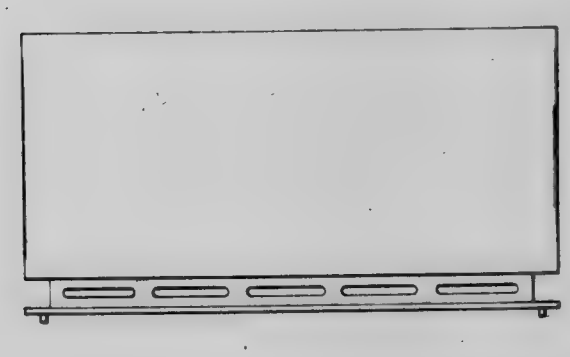


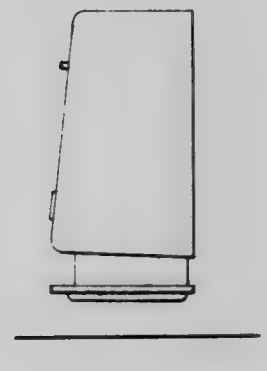
265,043
COMBINED INSULATED BEVERAGE DISPENSER AND TUMBLER HOLDER
Yung-Kuan Wei, No. 196, Yen Tien Li An Nan District, Tainan, Taiwan
Filed Apr. 3, 1980, Ser. No. 136,917
Term of patent 14 years
Int. Cl. D07—*01, 99*
U.S. Cl. D7—51



265,044
TOASTER
Thomas E. Hanson, Phoenixville, and Craig B. Kelley, Wayne, both of Pa., assignors to SCM Corporation, New York, N.Y.
Filed Jul. 14, 1980, Ser. No. 167,965
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—93

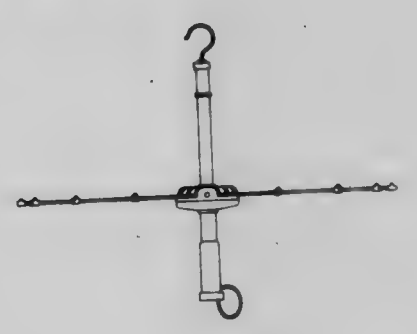




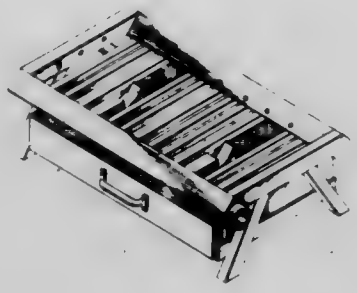




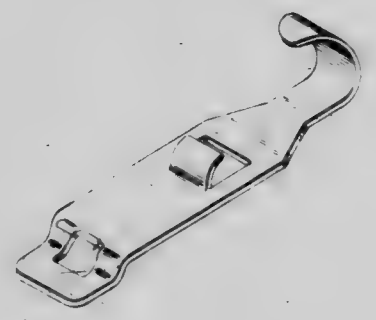
265,045
DEVICE FOR DRYING CLOTHES
Masayo Taniyama, 1347, Fuchu, Wakayama-shi, Wakayama-Ken, Japan
Filed Jun. 28, 1979, Ser. No. 53,184
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D32—58



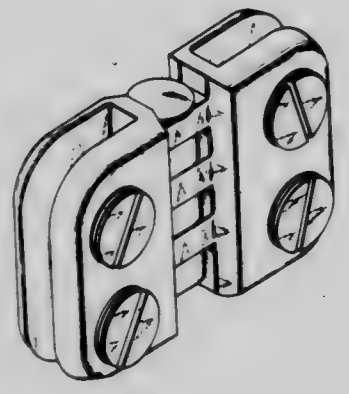
265,046
FIREPLACE GRATE AND BLOWER TUBE SURROUND ASSEMBLY
Byron D. Lane, 212 16 Ave. SW., Minot, N. Dak. 58701
Filed Jun. 30, 1980, Ser. No. 164,011
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D7—207



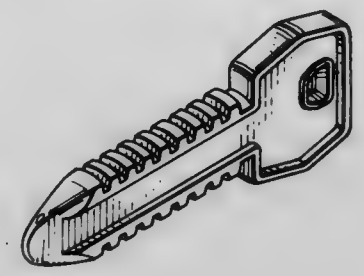
265,047
COMBINED PULL TAB AND CAN OPENER
Paul F. Reel, 836 Adams St., NW., Warren, Ohio 44482
Filed Dec. 6, 1979, Ser. No. 100,867
Term of patent 14 years
Int. Cl. D07—*99*
U.S. Cl. D8—18



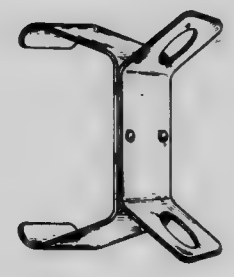
265,048
HINGED CLAMP
James F. Guardia, Yorba Linda, Calif., assignor to Cal-Tuf Glass Corporation, Alhambra, Calif.
Filed Apr. 7, 1980, Ser. No. 137,859
Term of patent 14 years
Int. Cl. D8—*06, 08*
U.S. Cl. D8—328



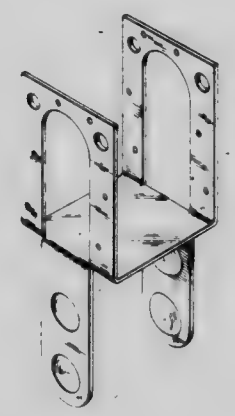
265,049
ELECTRONIC INFORMATION KEY
William P. Flies, Burnsville, Minn., assignor to Datakey, Inc., Minneapolis, Minn.
Filed May 27, 1980, Ser. No. 153,720
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—347



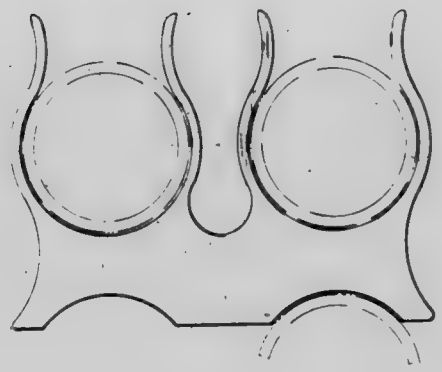
265,050
ELECTRICAL OUTLET BOX RETAINER
Marvin W. Riedl, Rte. 2, Box 122, Zimmerman, Minn. 55398
Filed Apr. 28, 1980, Ser. No. 144,408
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—354



265,051
WET POST ANCHOR BASE
Walter G. Hentzschel, Bethesda, and George W. Kingston, Chevy Chase, both of Md., assignors to TECO Products & Testing Corporation, Washington, D.C.
Filed Jun. 23, 1980, Ser. No. 161,872
Term of patent 14 years
Int. Cl. D8—*08*
U.S, Cl. D8—354



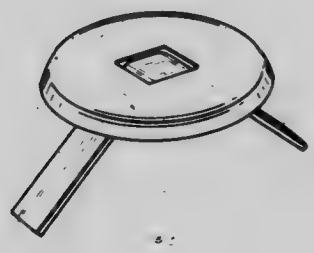
265,052
CONDUIT SPACER
Royce H. Husted, 711 Lakeside Dr., Wheaton, Ill. 60187
Filed Jun. 16, 1980, Ser. No. 159,856
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—356



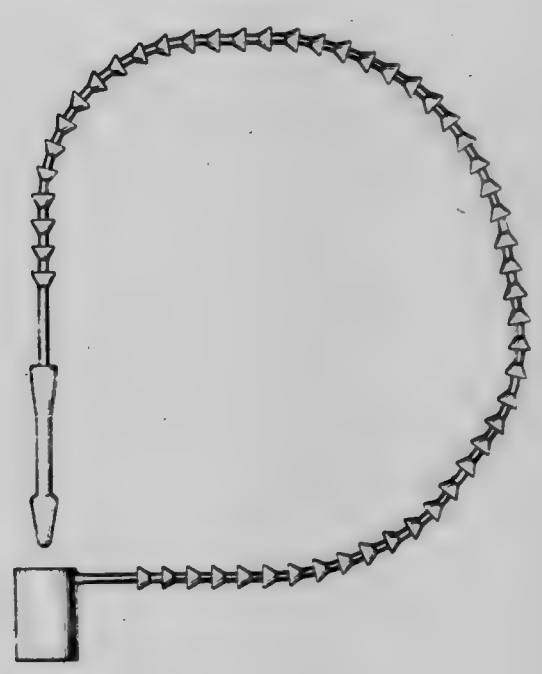
265,053
PICTURE FRAME HOOK
Arthur O. Aerne, 25083 W. Forest Dr., Lake Villa, Ill. 60046
Filed Jan. 21, 1980, Ser. No. 113,483
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—370



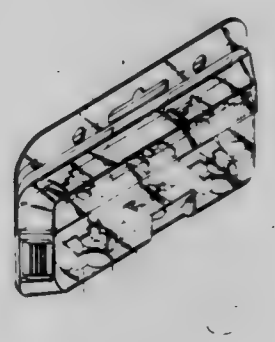
265,054
FASTENER
Syozo Kumada, Nagoya, Japan, assignor to Tsutai Company Limited, Aichi, Japan
Filed Jan. 30, 1979, Ser. No. 7,703
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—389



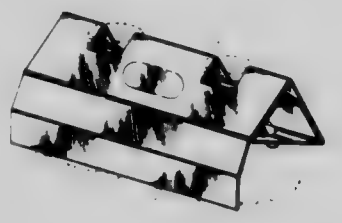
265,055
BUNDLING TIE
Arnold R. Bone, Needham, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.
Division of Ser. No. 929,592, Jul. 31, 1978. This application May 12, 1980, Ser. No. 149,225
Term of patent 14 years
Int. Cl. D9—*06*
U.S. Cl. D8—394



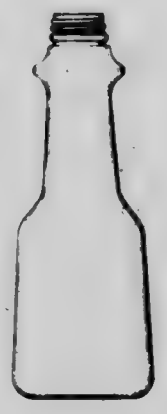
265,056
PACKING CONTAINER FOR SAFETY RAZORS
Frederick B. Hadtke, New Providence, N.J., assignor to American Safety Razor Company, Verona, Va.
Filed Jun. 16, 1980, Ser. No. 159,727
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—342



265,057
ARTICLE CARRIER
Prentice J. Wood, Hapeville, and Richard K. Watkins, Lithonia, both of Ga., assignors to The Mead Corporation, Dayton, Ohio
Filed Jun. 24, 1980, Ser. No. 162,669
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—346



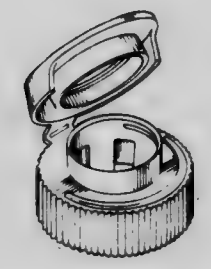
265,058
BOTTLE OR THE LIKE
Edwin E. Ewry, 453 Wellesby St., Mill Valley, Calif. 94941
Filed May 5, 1980, Ser. No. 146,774
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—349



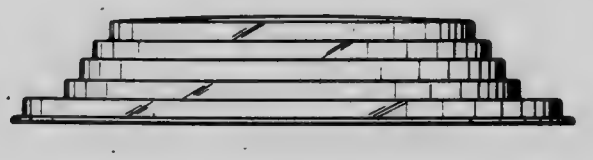
265,059
BOTTLE
Thomas Q. White, Chicago, and Archie G. Drummond, Jr., Palatine, both of Ill., assignors to The Drackett Company, Cincinnatti, Ohio
Filed Jul. 8, 1980, Ser. No. 166,930
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—376



265,060
DISPENSING CLOSURE
Elliott E. Blank, Fairfax, Calif., assignor to The Clorox Company, Oakland, Calif.
Filed Sep. 13, 1979, Ser. No. 75,503
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—446



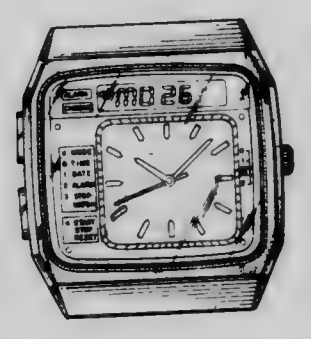
265,061
CAN LID
Bruce E. Tricinella, 6242 Warner, Huntington Beach, Calif. 92647
Filed Jun. 17, 1980, Ser. No. 160,559
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—454



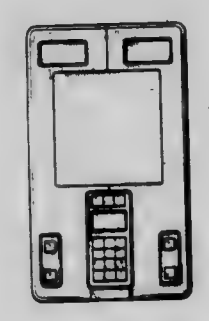
265,062
WATCHCASE
Yoshio Hirabayashi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed May 9, 1980, Ser. No. 148,333
Claims priority, application Japan, Nov. 14, 1979, 54-47633
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38



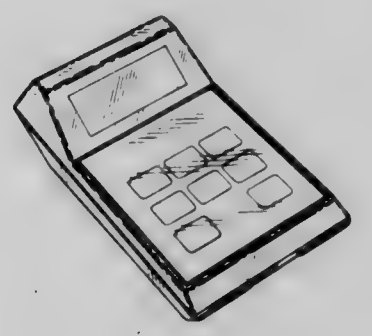
265,063
WATCH
Kaoru Iida, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Jul. 10, 1980, Ser. No. 167,264
Claims priority, application Japan, Jan. 10, 1980, 55-284
Term of patent 7 years
Int. Cl. D10—*02*
U.S. Cl. D10—38



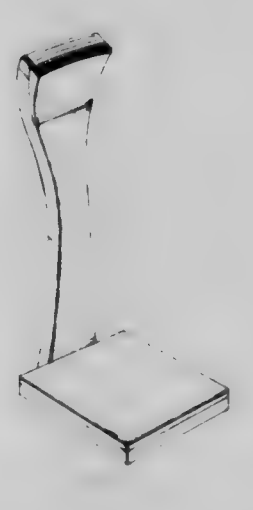
265,064
DARTS SCORING MACHINE
William J. Martin, Jr., London, England, assignor to Nodor Scores Limited, London, England
Filed Jan. 23, 1980, Ser. No. 114,682
Claims priority, application United Kingdom, Jul. 27, 1979, 990952
Term of patent 14 years
Int. Cl. D10—*99*
U.S. Cl. D10—46.1



265,065
CARDIAC PACEMAKER TESTER
Tex Yukl, Banks, Oreg., assignor to Powers Medical Systems, Inc., Beaverton, Oreg.
Filed May 12, 1980, Ser. No. 148,996
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—78



265,066
DIGITAL SCALE
Joe Solomon, 3586 Barham Blvd., Los Angeles, Calif. 90068
Filed Jul. 30, 1979, Ser. No. 61,686
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—93

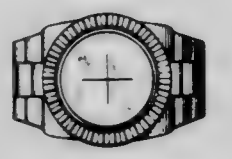


265,067

BEZEL RING OR SIMILAR ARTICLE

Mark Grosskopf, Palm Beach, Fla., assignor to Jewelmasters, Inc., Palm Beach, Fla.

Filed Jul. 10, 1980, Ser. No. 168,208
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—30



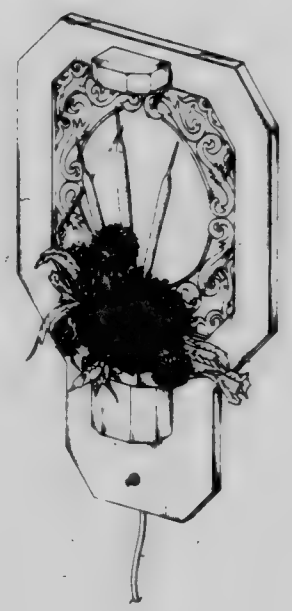


265,068

WALL PLAQUE

Marvin Jackson, Jr., 4527 Oak Shadows, Houston, Tex. 77091

Filed Dec. 1, 1978, Ser. No. 957,798
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—139

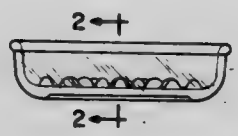


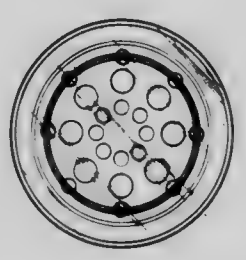
265,069

TRAY FOR FLOWER POTS OR THE LIKE

Kenneth R. LeVan, Kintnersville, Pa., assignor to Corning Glass Works, Corning, N.Y.

Filed Jul. 16, 1979, Ser. No. 58,098
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—164





265,070

PENNANT

Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064

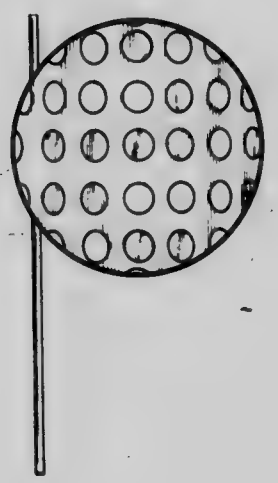
Filed Mar. 13, 1980, Ser. No. 115,894
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



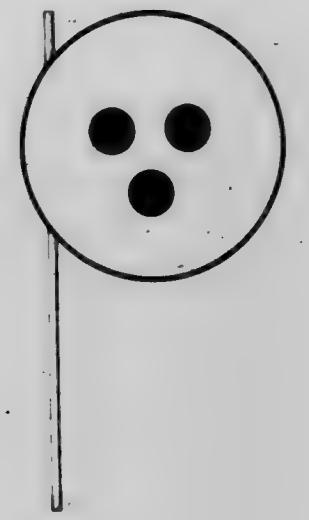
265,071
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,048
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



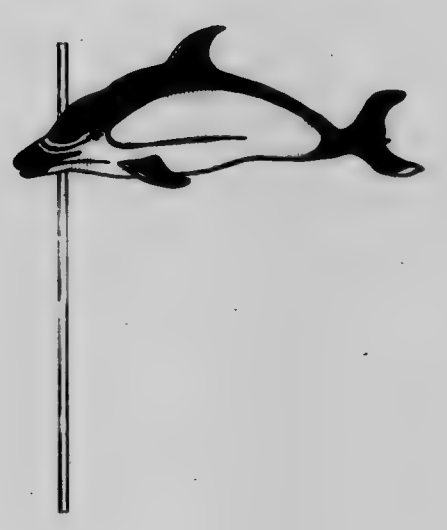
265,072
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,165
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



265,073
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,166
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



265,074
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,167
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



265,075
PENNANT
Larry B. Ornatek, 100 - 14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,169
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



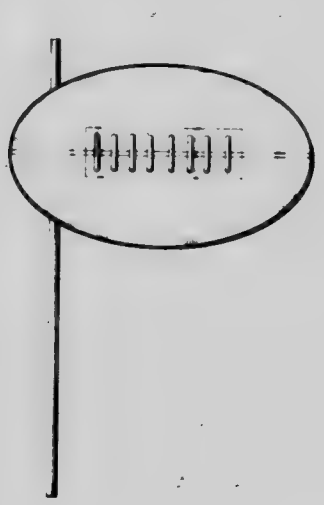
265,076
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,261
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



265,077
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,262
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



265,078
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,263
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



265,079
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,267
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



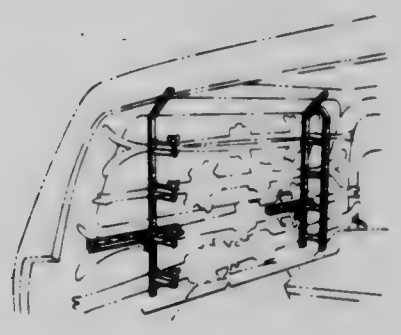
265,080
BICYCLE
Jan G. Olsson, Sjögangen 6, 421 71 V. Frölunda, and Lars E. Samuelsson, Hedangen 5, 433 00 Partille, both of Sweden
Filed Sep. 12, 1979, Ser. No. 74,814
Claims priority, application Sweden, Mar. 12, 1979, 79-0624; Mar. 12, 1979, 79-0625
Term of patent 14 years
Int. Cl. D12—*111*
U.S. Cl. D12—111



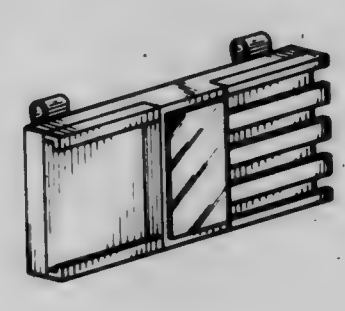
265,081
TRACTION TIRE CLAMP FOR A MOTOR VEHICLE WHEEL
Edmund A. Zielinski, R.D. 4, Box 418, Newton, N.J. 07860
Filed Mar. 21, 1979, Ser. No. 22,604
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—154



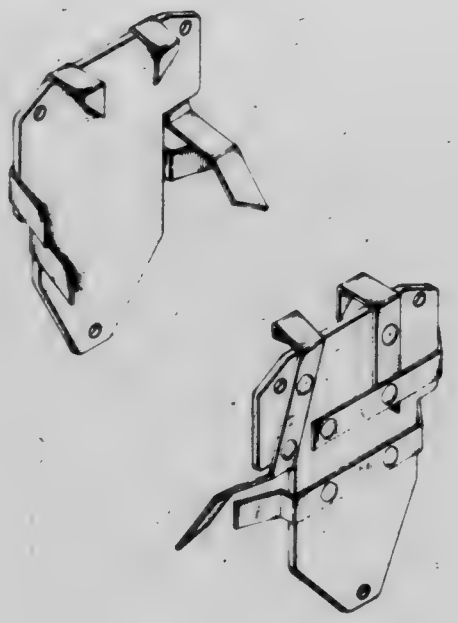
265,082
SET OF BRACKETS FOR MOUNTING IN THE INTERIOR OF A VEHICLE FOR SUPPORTING SKIS
Anton P. Welder, Box 63, Napoleon, N. Dak. 58561
Filed Aug. 6, 1979, Ser. No. 64,472
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—157



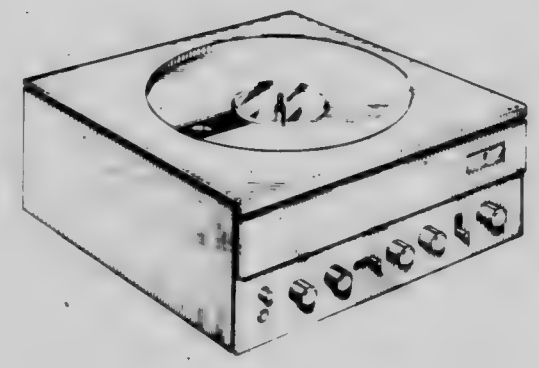
265,083
INFORMATION DISPLAY DEVICE FOR MOTOR VEHICLE INTERIOR
Alvin L. Divoky, 1207 Childs Rd., Omaha, Nebr. 68147
Filed Nov. 5, 1979, Ser. No. 91,260
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—191



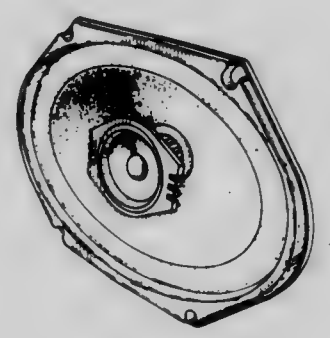
265,084
CIRCUIT BOARD
Gerald Goldin, 138 S. Parkview Ave., Columbus, Ohio 43209
Filed Oct. 9, 1979, Ser. No. 82,923
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—10



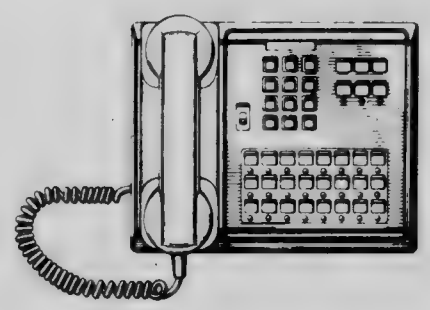
265,085
PHONOGRAPH
Earl E. Masterson, Minneapolis, Minn., assignor to Masterson Engineering Inc., St. Louis Park, Minn.
Filed Nov. 15, 1978, Ser. No. 960,849
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—14

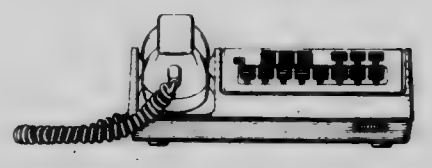


265,086
LOUDSPEAKER
Manabu Kawachi, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 17, 1979, Ser. No. 67,705
Claims priority, application Japan, Apr. 5, 1979, 54-13717
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—30



265,087
TELEPHONE UNIT
Ryoji Yamaguchi, Kokubunji, and Noboru Mihara, Mitaka, both of Japan, assignors to Iwatsu Electric Co., Ltd., Tokyo, Japan
Filed Sep. 27, 1979, Ser. No. 79,428
Claims priority, application Japan, Apr. 20, 1979, 54-16254; Apr. 20, 1979, 54-16255
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



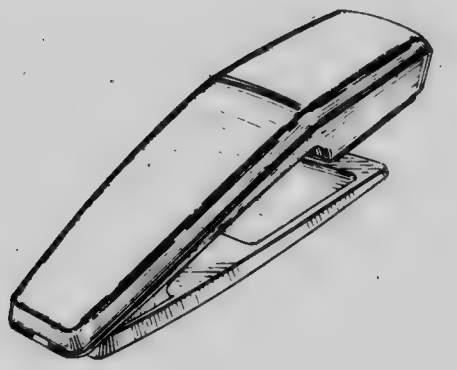


265,088

COMBINED TELEPHONE SET AND BASE THEREFOR

George M. Janda, Wheaton, and Richard E. Cobb, Western Springs, both of Ill., assignors to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 28, 1979, Ser. No. 107,955
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



265,089

TELEPHONE SET BASE

James W. M. Bee, Palo Alto, Calif., assignor to Northern Telecom Limited, Montreal, Canada

Filed Oct. 31, 1979, Ser. No. 89,939
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—60

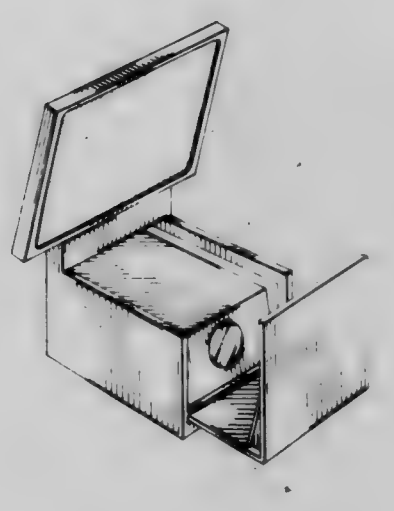


265,090

PROJECTION TELEVISION CABINET

Muzaffer Coban, 3106 W. Thomas Rd., Suite 1101, Phoenix, Ariz. 85017

Filed Mar. 26, 1979, Ser. No. 23,839
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—79

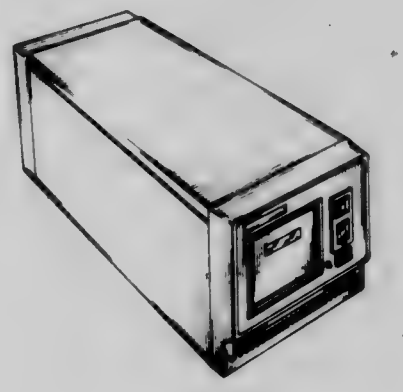


265,091

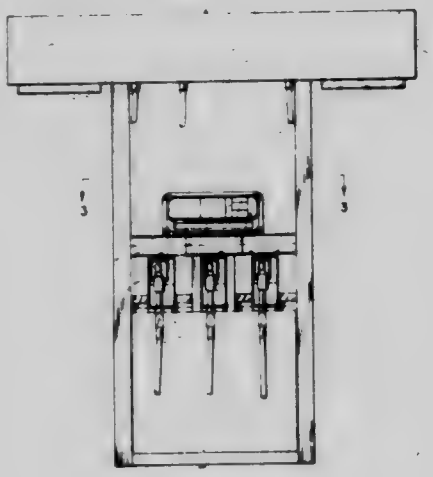
MEDIA CONVERTER UNIT FOR A TAPE CASSETTE FOR DATA PROCESSING DISPLAY SYSTEM

Claude H. Hutcheson, Garland, Tex., assignor to Xerox Corporation, Stamford, Conn.

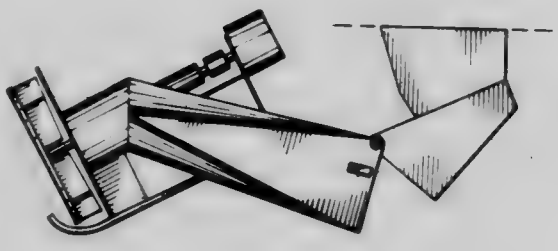
Filed Oct. 10, 1979, Ser. No. 83,210
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—107



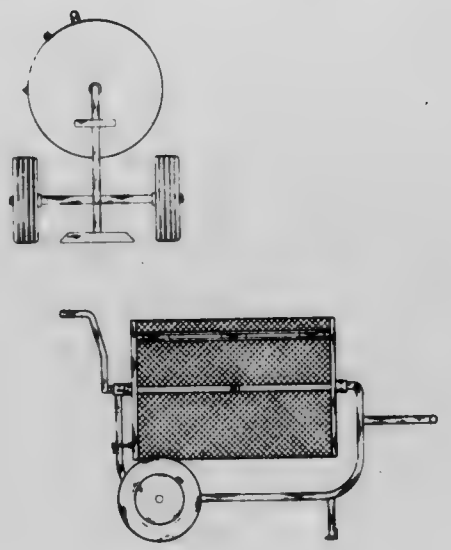
265,092
GASOLINE DISPENSER
George D. Robinson, Jr.; Lacivita, Angelo M. Lacevita, both of Greensboro; Hal C. Hartsell, Jr., Kernersville, all of N.C., and David D. Tompkins, Worthington, Ohio, assignors to Gilbert & Barker Manufacturing Co., Inc., Greensboro, N.C.
Filed Jun. 6, 1980, Ser. No. 157,062
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D15—9.2



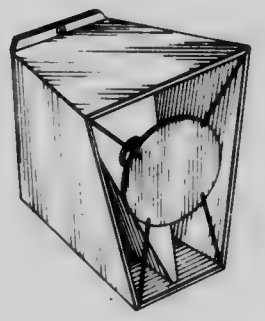
265,093
RETRACTABLE AIRCRAFT MOUNTED DRY MATERIAL SPREADER
Theodore Croghan, P.O. Box 257, Grimes, Calif. 95950
Filed May 23, 1980, Ser. No. 152,778
Term of patent 14 years
Int. Cl. D15—*03*; D12—*07*
U.S. Cl. D15—13



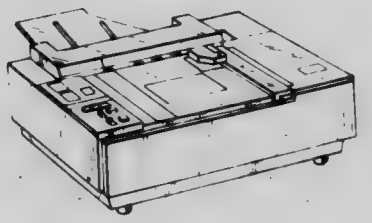
265,094
SEPARATOR
William L. Williams, 1900 Capri Rd., Valrico, Fla. 33594
Filed Sep. 17, 1979, Ser. No. 76,271
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—147



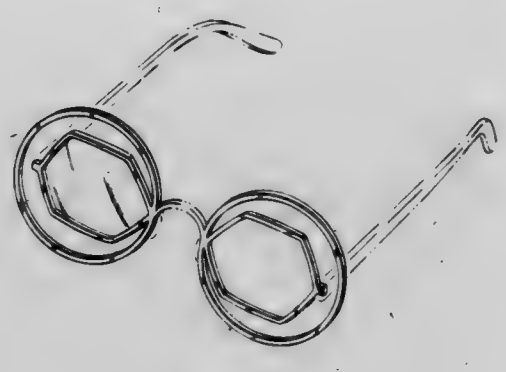
265,095
PROJECTION KALEIDOSCOPE
Lawrence M. Butler, 37 Turning Mill Rd., Lexington, Mass. 02173
Filed Mar. 23, 1979, Ser. No. 23,326
Term of patent 14 years
Int. Cl. D16—*02*
U.S. Cl. D16—11



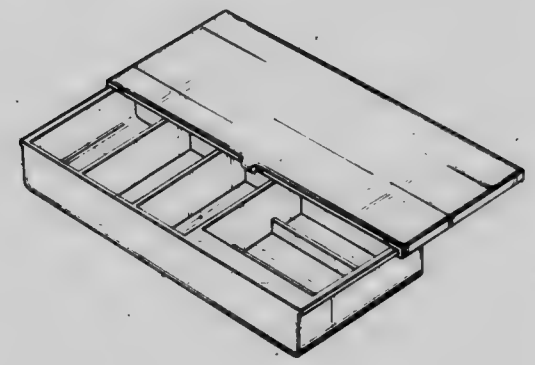
265,096
FACSIMILE ELECTROSTATIC COPIER
Nobuo Masaki, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 29, 1980, Ser. No. 145,006
Claims priority, application Japan, Nov. 1, 1979, 54-46326
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—31



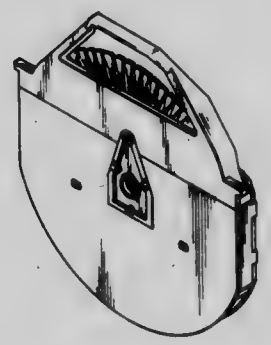
265,097
PAIR OF SPECTACLE FRAME EYE PIECES
Shari Lewis, 603 Alta Dr., Beverly Hills, Calif. 90210
Continuation-in-part of Ser. No. 911,362, Jun. 1, 1978, Pat. No. Des. 256,025. This application Jan. 17, 1980, Ser. No. 112,855
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—122



265,098
CONTACT LENS AND ACCESSORY CONTAINER
William F. Crowe, 1405 Ocean Dr., Oxnard, Calif. 93030
Filed Mar. 10, 1980, Ser. No. 128,446
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D16—129



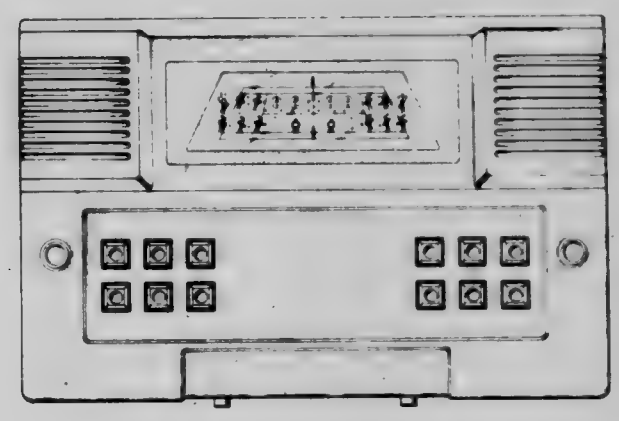
265,099
PRINT WHEEL CARTRIDGE OR THE LIKE
Paul Feinstein, Jr.; Adolph B. Habich, both of Austin; Ronald E. Hunt, Georgetown, and Herbert E. Meister, Jr., Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jun. 16, 1980, Ser. No. 159,556
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D18—12



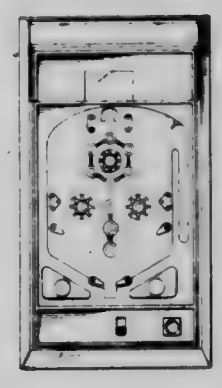
265,100
INDICATOR FOR CLASSROOM CONTROL AND EDUCATION
Ruth R. Oettinger, 525 N. Fifth St., Albemarle, N.C. 28001
Filed Oct. 4, 1979, Ser. No. 81,865
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D19—64



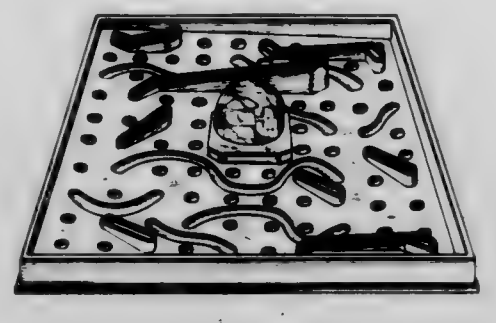
265,101
ELECTRONIC TENNIS GAME HOUSING
Akio Tsuyuki, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed May 27, 1980, Ser. No. 153,326
Claims priority, application Japan, Dec. 15, 1979, 54-52796
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



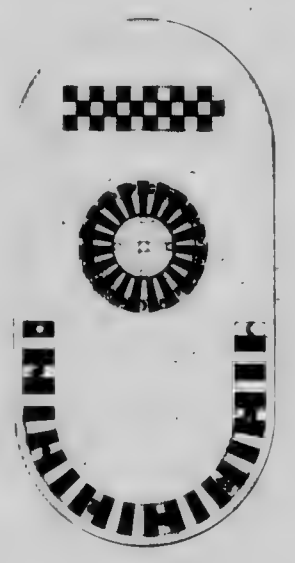
265,102
ELECTRONIC PINBALL GAME HOUSING
Katsumi Sato, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Jun. 6, 1980, Ser. No. 157,034
Claims priority, application Japan, Dec. 20, 1979, 54-53514
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



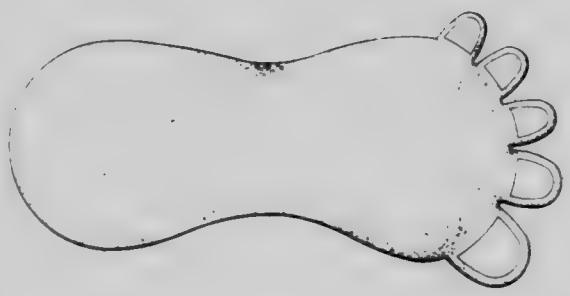
265,103
GAME BOARD
Frederick H. Kroll, 72 Wood Hollow La., New Rochelle, N.Y. 10804
Filed Jun. 30, 1980, Ser. No. 164,355
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—17



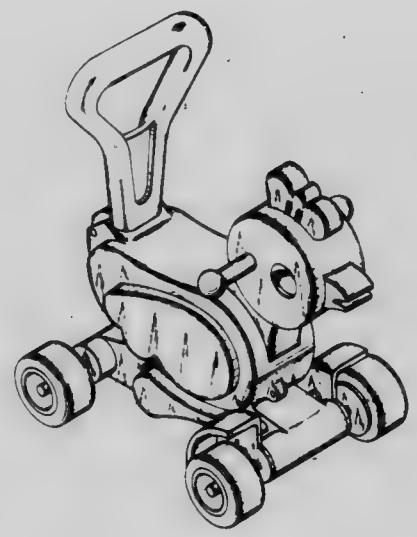
265,104
GAME BOARD
David G. de Keller, c/o The East India & Sports Club, 16, St. James's Sq., London, S.W.1., England
Filed Jul. 27, 1979, Ser. No. 61,453
Claims priority, application United Kingdom, Feb. 2, 1979, 79988385; Jul. 16, 1979, 79990713
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—40



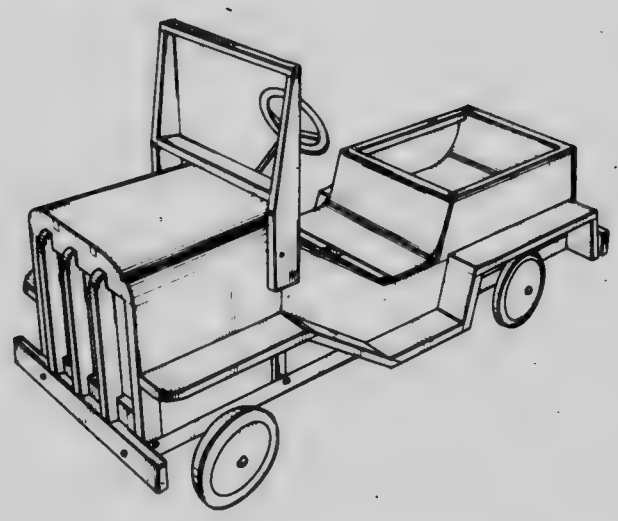
265,105
STEPPING PAD FOR A GAME
Alfred D. Arballo, 15840 Multiview Dr., Perris, Calif. 92370
Filed Apr. 28, 1980, Ser. No. 144,225
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—48



265,106
RIDING TOY
Masami Shiraishi, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Jul. 21, 1980, Ser. No. 170,483
Claims priority, application Japan, Jul. 5, 1979, 54-28255
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—74



265,107
TOY AUTOMOBILE
Allan Landsman, 843 Maple La., East Meadow, N.Y. 11554
Filed Dec. 31, 1979, Ser. No. 108,664
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—137



265,108
TOY FIGURE

George W. Lucas, Jr., San Anselmo; Ralph McQuarrie, Berkeley, and Philip Tippett, Oakland, all of Calif., assignors to Lucasfilm, Ltd., San Rafael, Calif.

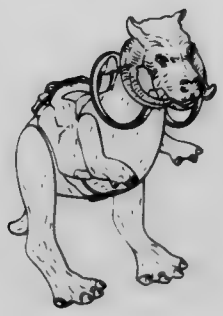
Filed Apr. 18, 1980, Ser. No. 141,463

Claims priority, application Taiwan, Apr. 29, 1981, 7031143

Term of patent 14 years

Int. Cl. D21—*01*

U.S. Cl. D21—148



265,109
TOY FIGURE

Stuart Freeborn, Esher, England; George W. Lucas, Jr., San Anselmo, and Ralph McQuarrie, Berkeley, both of Calif., assignors to Lucasfilm, Ltd., San Rafael, Calif.

Filed Apr. 18, 1980, Ser. No. 141,596

Term of patent 14 years

Int. Cl. D21—*01*

U.S. Cl. D21—175



265,110
PHYSICAL EXERCISER

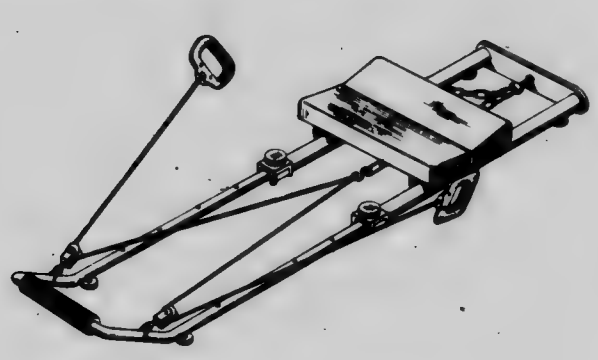
Jean-Pierre M. Lafont, 6, rue du Centre, Neuilly-sur-Seine, France

Filed Apr. 2, 1979, Ser. No. 26,182

Term of patent 14 years

Int. Cl. D21—*02*

U.S. Cl. D21—195



265,111
PHYSICAL EXERCISER

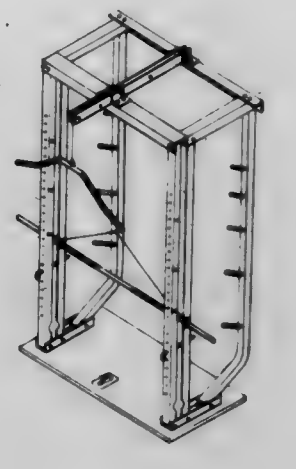
Robert G. Lynn, 798 Holbrook Ave., Simi Valley, Calif. 93065

Filed Jul. 16, 1979, Ser. No. 57,950

Term of patent 14 years

Int. Cl. D21—*02*

U.S. Cl. D21—195



265,112
GOLF CLUB HEAD

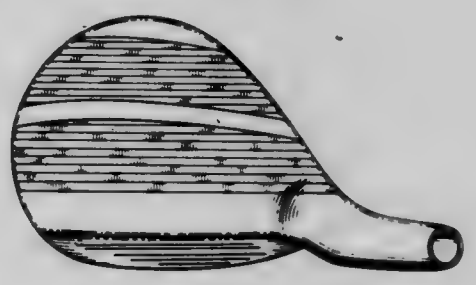
Charles J. Lyons, Jr., 3415 Clandara St., Las Vegas, Nev. 89121

Filed Sep. 18, 1980, Ser. No. 188,384

Term of patent 14 years

Int. Cl. D21—*02*

U.S. Cl. D21—214



265,113
GOLF CLUB HEAD

Charles J. Lyons, Jr., 3415 Clandara St., Las Vegas, Nev. 89121

Filed Sep. 18, 1980, Ser. No. 188,386

Term of patent 14 years

Int. Cl. D21—*02*

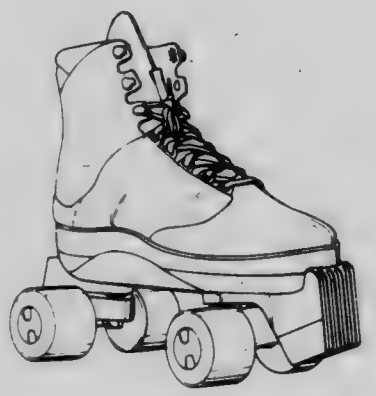
U.S. Cl. D21—220



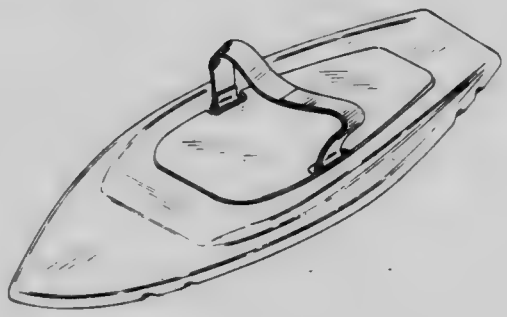
265,114
GOLF CLUB HEAD
Charles J. Lyons, Jr., 3415 Clandara St., Las Vegas, Nev. 89121
Filed Sep. 18, 1980, Ser. No. 188,387
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—220



265,115
ROLLER SKATE
Eike Dornseif, Radevormwald, Fed. Rep. of Germany, assignor to Dornseif Sport Gesellschaft mit beschraenkter Haftung, Radevormwald, Fed. Rep. of Germany
Filed May 2, 1980, Ser. No. 146,175
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 7 MR 247
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—226



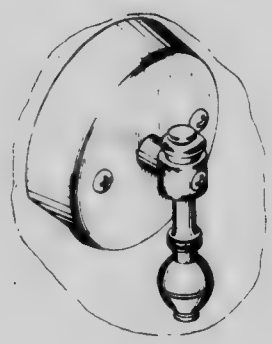
265,116
AQUA PLANING BOARD
Robert L. Churchill, San Bernadino County, Calif., assignor to Kransco Manufacturing, Inc., South San Francisco, Calif.
Continuation-in-part of Ser. No. 868,133, Jan. 9, 1978. This application Feb. 19, 1980, Ser. No. 121,991
Term of patent 14 years
Int. Cl. D21—*99*
U.S. Cl. D21—228



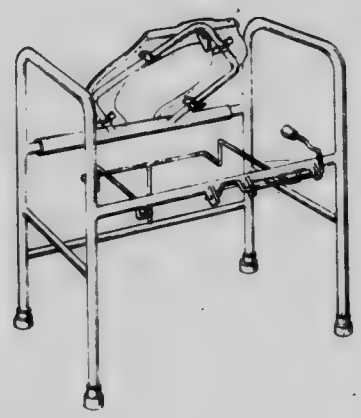
265,117
BATHROOM HANDLE OR THE LIKE
Gary A. Fleischmann, Sheboygan, Wis., and Lawrence C. Peabody, Rindge, N.H., assignors to Kohler Co., Kohler, Wis.
Filed Apr. 10, 1980, Ser. No. 138,835
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—29



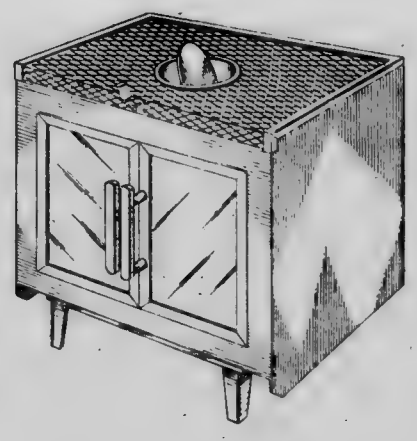
265,118
COMBINED BATHTUB DRAIN COVER AND HANDLE
Gary A. Fleischmann, Sheboygan, Wis., and Lawrence C. Peabody, Rindge, N.H., assignors to Kohler Co., Kohler, Wis.
Filed Apr. 10, 1980, Ser. No. 138,833
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—31



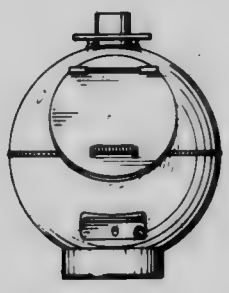
265,119
STOOL FOR INVALIDS OR THE LIKE
Thomas P. Hurley, 180 Hastings Parade, North Bondi, New South Wales 2026, Australia
Filed Aug. 15, 1979, Ser. No. 66,877
Claims priority, application Australia, Apr. 30, 1979, 77710
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—48



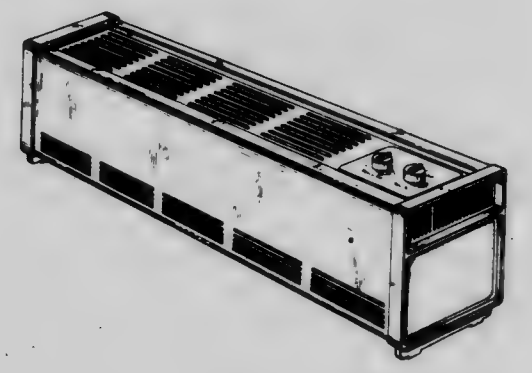
265,120
FREESTANDING WOOD BURNING STOVE
Joseph Henriques, 32 Hidden Brook Dr., Brookfield, Conn. 06804
Filed Aug. 13, 1979, Ser. No. 65,897
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



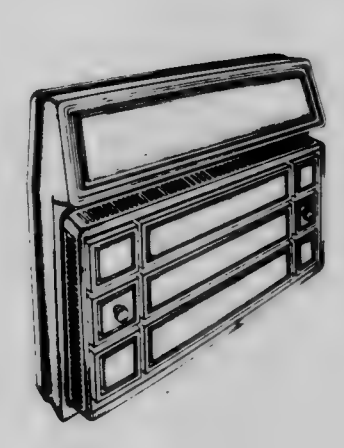
265,121
WOOD BURNING HEATER
Gerald T. Bergin, 122 2nd Ave. SE., Dilworth, Minn. 56529
Filed Jun. 6, 1980, Ser. No. 157,291
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



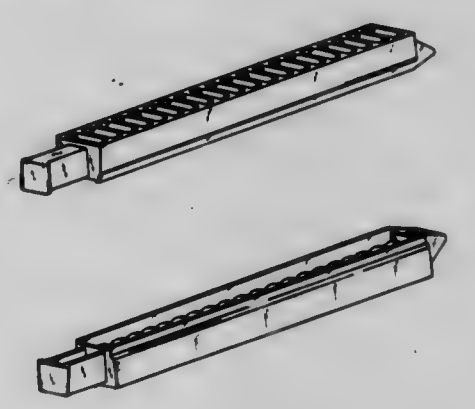
265,122
PORTABLE ELECTRIC HEATER
Donald L. Townsend, and Rex L. Notbohm, both of Columbia, Mo., assignors to Toastmaster, Inc., Columbia, Mo.
Filed May 21, 1979, Ser. No. 40,887
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—122



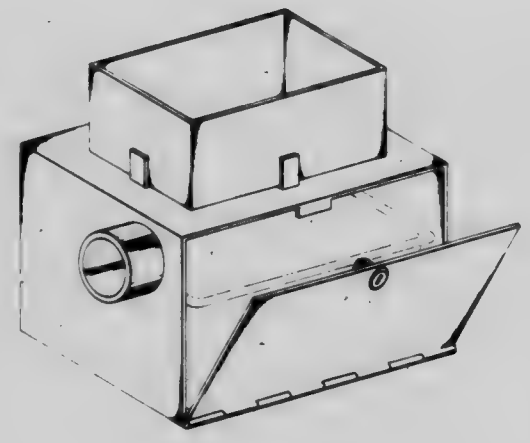
265,123
FRONT PANEL FOR AN AIR CONDITIONING UNIT
Walter W. Hoyle, Fayetteville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Filed Aug. 3, 1979, Ser. No. 63,647
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—141



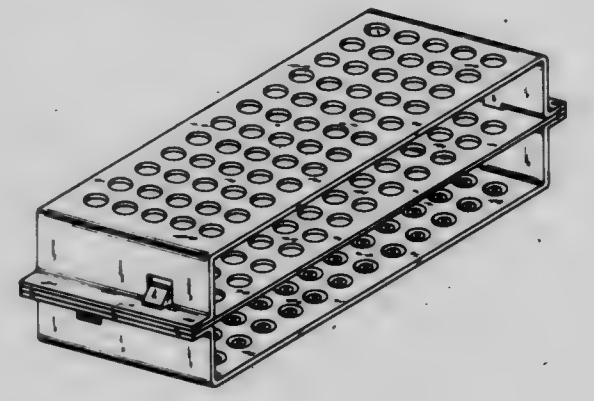
265,124
MULTIPLE CUVETTE ASSEMBLY
Harold S. Terk, Richardson, Tex., assignor to Abbott Laboratories, North Chicago, Ill.
Continuation-in-part of Ser. No. 946,303, Sep. 27, 1978, Pat. No. Des. 257,175. This application Mar. 19, 1979, Ser. No. 21,401
The portion of the term of this patent subsequent to Sep. 30, 1997, has been disclaimed.
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—29



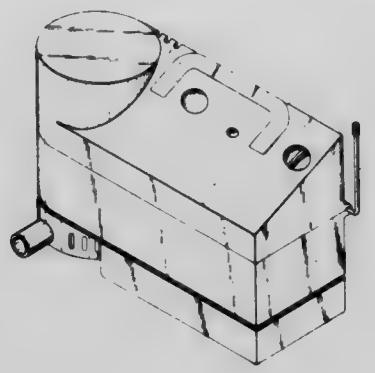
265,125
RECEPTACLE FOR SYRINGES AND OTHER SHARP ARTICLES WITH A TRASH COMPARTMENT ON TOP THEREOF
Alfred R. Jordan, 1118 E. U.S. 40, Craig, Colo. 81625
Filed Apr. 18, 1979, Ser. No. 31,197
Term of patent 14 years
Int. Cl. D24—*29*
U.S. Cl. D24—29



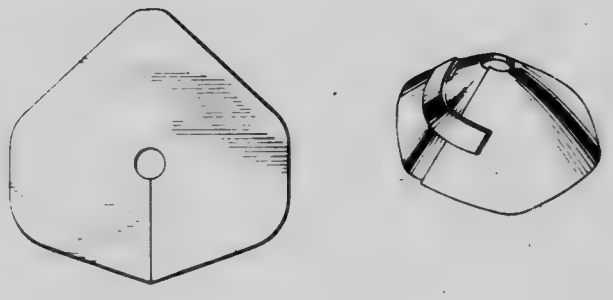
265,126
TEST TUBE RACK OR THE LIKE
Glenn L. Beall, Gurnee, Ill., assignor to Abbott Laboratories, North Chicago, Ill.
Filed May 8, 1980, Ser. No. 147,883
Term of patent 14 years
Int. Cl. D24—*02*; D6—*04*
U.S. Cl. D24—32



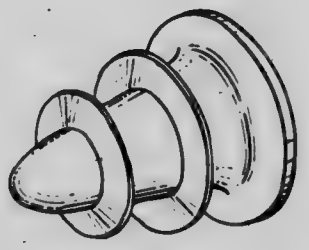
265,127
HYDROMASSAGE DEVICE
Morison S. Cousins, New York, N.Y., assignor to The Gillette Company, Boston, Mass.
Filed Jun. 6, 1979, Ser. No. 46,200
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—38



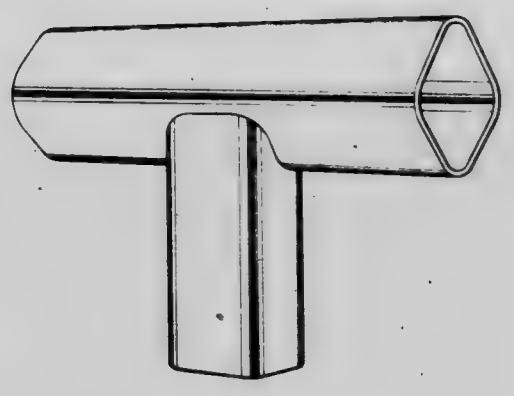
265,128
MAMMARY BANDAGE
David Foerster, Oklahoma City, Okla., assignor to Medical Engineering Corporation, Racine, Wis.
Filed Apr. 17, 1980, Ser. No. 141,085
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—49



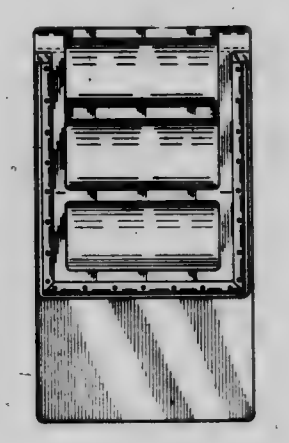
265,129
EAR PLUG WITH FLANGES
Charles Leight, 3511 Shoreheights Dr., Malibu, Calif. 90265
Filed Sep. 10, 1979, Ser. No. 74,385
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—67



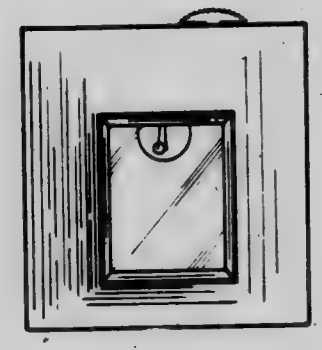
265,130
CONNECTING PIECE FOR FENCES
Tommy B. B. Persson, Allansgatan 54, S-214 65 Malmö, Sweden
Filed Dec. 23, 1977, Ser. No. 863,615
Claims priority, application Sweden, Jun. 23, 1977, 77-1404; Denmark, Dec. 22, 1977, 988/77; Finland, Dec. 22, 1977, 775/77; Norway, Dec. 22, 1977, 58812
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—44



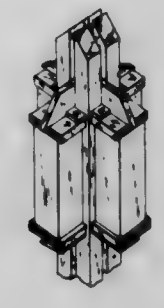
265,131
STAIR FOR A SWIMMING POOL
Ronald C. Wallin, and Wesley A. Wallin, both of 132 Federal Rd., Danbury, Conn. 06810
Filed May 19, 1980, Ser. No. 151,194
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—63



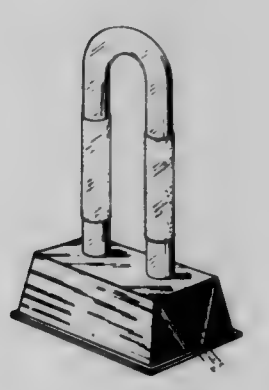
265,132
HANDBAG LIGHT
Nolan R. Brooks, 12350 E. Del Amo Blvd. No. 1606, Lakewood, Calif. 90715
Filed May 4, 1979, Ser. No. 35,926
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—24



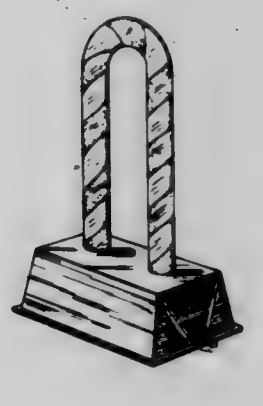
265,133
LAMP
John O. Black, 9607 Sturgeon Valley Rd., Vanderbilt, Mich. 49795
Filed Oct. 11, 1979, Ser. No. 83,807
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D26—70



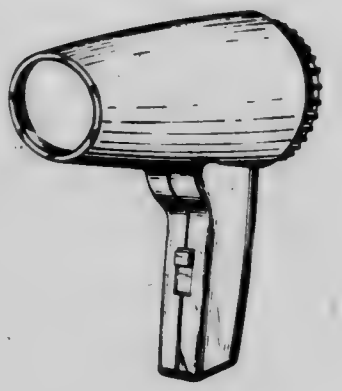
265,134
LAMP
Carlo S. Bessone, Woburn, and William J. Roche, Merrimac, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.
Filed Dec. 28, 1979, Ser. No. 108,181
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—93



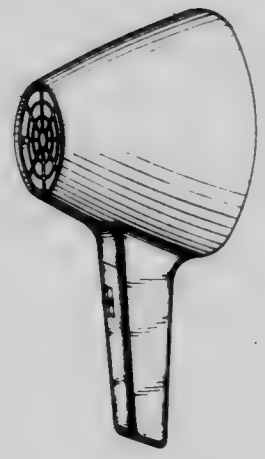
265,135
LAMP
Carlo S. Bessone, Woburn, Mass., assignor to GTE Products Corporation, Stamford, Conn.
Filed Dec. 28, 1979, Ser. No. 108,201
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—93



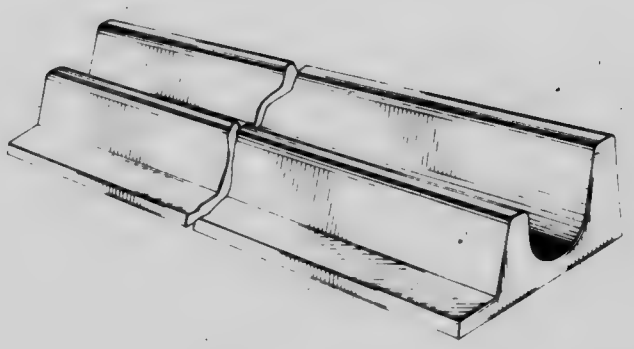
265,136
HAND HELD HAIR DRYER
Alfred W. Madl, Milwaukee, Wis., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Jul. 11, 1980, Ser. No. 167,635
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—13



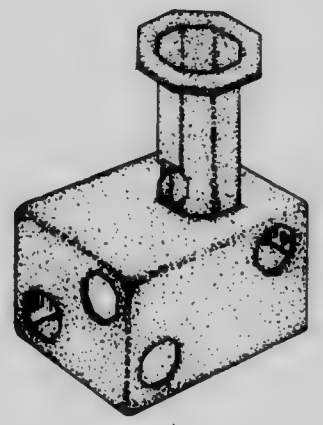
265,137
HAIR DRYER
Douglas G. Long, Lombard, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Jul. 14, 1980, Ser. No. 167,865
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—13



265,138
CATTLE FEED BUNKER
Richard E. Bunger, and Roy J. Hancock, both of Phoenix, Ariz., assignors to Corral Industries, Inc., Phoenix, Ariz.
Filed Jul. 14, 1980, Ser. No. 168,118
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13



265,139
CAT PLAYGROUND OR THE LIKE
Nicholas J. Salvato, 1537 Stuyvesant Ave., Union, N.J. 07083
Filed Jun. 30, 1980, Ser. No. 164,680
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—42



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 22ND DAY OF JUNE, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Abbott, John, to Coal Industry (Patents) Limited. Controlling the treatment of mixtures comprising solid and liquid. 4,336,143, Cl. 210-740.000.

Abbott Laboratories: *See—*
- Bujan, Albert F.; and Dawe, Garfield A., 4,335,717, Cl. 128-214.00G.
- Bujan, Albert F., 4,335,866, Cl. 251-9.000.

Abe, Masaharu: *See—*
- Fushiki, Yasuo; Abe, Masaharu; and Uekita, Masakazu, 4,336,297, Cl. 428-284.000.

Abe, Nobuo: *See—*
- Kurosawa, Yukio; Kawakubo, Yukio; and Abe, Nobuo, 4,336,430, Cl. 200-144.00B.

Abe, Osame; Suda, Seiji; and Furuhashi, Toshio, to Hitachi, Ltd. Electronic type air/fuel ratio control system. 4,335,689, Cl. 123-339.000.

Abernethy, Lynn W., to AMP Incorporated. Line assignment module. 4,335,929, Cl. 339-97.00R.

Abex Corporation: *See—*
- Kramer, William D.; and Born, Ellis H., 4,336,003, Cl. 417-217.000.

Abt, Richard F.; and Behrend, William L., to RCA Corporation. Linear loading for PWM filter. 4,336,615, Cl. 455-108.000.

Ackermann, Peter: *See—*
- Drabek, Jozef; Ackermann, Peter; Farooq, Saleem; Gsell, Laurenz; and Kristiansen, Odd, 4,336,266, Cl. 424-305.000.

Ackley, Edward M., deceased; Ackley, Edward M., executor; and Ackley, James B., executor, to R. W. Hartnett Co. Capsule turning apparatus (random spin printing). 4,335,810, Cl. 198-380.000.

Ackley, Edward M., executor: *See—*
- Ackley, Edward M., deceased; Ackley, Edward M., executor; and Ackley, James B., executor, 4,335,810, Cl. 198-380.000.

Ackley, James B., executor: *See—*
- Ackley, Edward M., deceased; Ackley, Edward M., executor; and Ackley, James B., executor, 4,335,810, Cl. 198-380.000.

Acks, Robert S.: *See—*
- Berdzar, Peter F.; and Acks, Robert S., 4,336,591, Cl. 364-418.000.

Acme Resin Corporation: *See—*
- Iyer, Raja, 4,336,179, Cl. 523-145.000.

Action Manufacturing Company: *See—*
- Gal, Uzi, 4,335,643, Cl. 89-196.000.

Acu-Edge, Inc.: *See—*
- Gunzner, Fred G., 4,335,630, Cl. 76-25.00R.

Adam, Jean-Marie; and Galafassi, Pierre, to Ciba-Geigy Corporation. Basic dioxazine compounds. 4,336,377, Cl. 544-74.000.

Adams, Richard C.: *See—*
- Koch, Paul E.; Bond, Thomas J.; and Adams, Richard C., 4,336,012, Cl. 425-131.100.

Adams, Thomas E.; Murray, Walter D.; and Woolf, Raymond F., to Lockheed Corporation. Structural life computer. 4,336,595, Cl. 364-508.000.

Adams, Wade J., to Upjohn Company, The. Temperature controlled sample carrier. 4,335,620, Cl. 73-863.110.

Adeka Argus Chemical Co., Ltd.: *See—*
- Nakahara, Yutaka; Shibata, Toshihiro; and Kubota, Naohiro, 4,336,183, Cl. 524-95.000.

Adickes, Henning, to Deere & Company. Tractor. 4,335,798, Cl. 180-90.000.

Agency of Industrial Science and Technology: *See—*
- Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,336,211, Cl. 264-22.000.
- Fukuta, Kenji; Onooka, Ryuzo; Aoki, Eiji; and Tsumuraya, Shigeo, 4,336,296, Cl. 428-257.000.
- Koyama, Shuntaro; Miyamoto, Tomohiko; and Hirato, Mizuho, 4,336,227, Cl. 422-111.000.

Agfa-Gevaert Aktiengesellschaft: *See—*
- Findeis, Gunter; Fergg, Berthold; Osegowitsch, Viktor; Huber, Hans P.; and Meckl, Heinz, 4,335,956, Cl. 355-27.000.
- Pertzsch, Albert; Rieger, Siegfried; and Ankenbrand, Friedrich, 4,336,278, Cl. 427-47.000.

Aharoni, Shaul M., to Allied Corporation. Polyester molding compositions having increased crystallization temperatures. 4,336,343, Cl. 523-455.000.

Aharoni, Shaul M.; Prevorsek, Dusan C.; Schmitt, George J.; Harpell, Gary A.; and Lee, Lester T. C., to Allied Corporation. Production of ozonides from unsaturated polymers. 4,336,356, Cl. 525-388.000.

Ahlberg, Carl S.: *See—*
- Van Kampen, Craig L.; and Ahlberg, Carl S., 4,336,097, Cl. 156-527.000.

Air Products and Chemicals, Inc.: *See—*
- Dalton, Augustine I., Jr.; Greskovich, Eugene J.; and Skinner, Ronald W., 4,336,238, Cl. 423-584.000.
- Dalton, Augustine I., Jr.; and Skinner, Ronald W., 4,336,239, Cl. 423-584.000.
- Moseley, Fred; and Dyer, Paul N., 4,336,240, Cl. 423-584.000.

Airwick Industries, Inc.: *See—*
- Denissenko, Serge; and Rossard, Jean-Claude, 4,336,024, Cl. 8-142.000.

Aisin Seiki Kabushiki Kaisha: *See—*
- Mitsumoto, Takashi; and Nakashima, Hiroshi, 4,335,747, Cl. 137-614.060.
- Motonami, Masanao; and Ishikawa, Yoshiaki, 4,335,902, Cl. 280-804.000.
- Nishikawa, Masumi, 4,335,625, Cl. 74-493.000.
- Sugimoto, Hitoshi, 4,335,579, Cl. 62-6.000.

Akatsuka, Tadami: *See—*
- Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,336,331, Cl. 435-24.000.

Akebono Brake Industry Company Limited: *See—*
- Maehara, Toshifumi; and Fujita, Tomohiro, 4,335,736, Cl. 137-87.000.

Akiyama, Seiji; Kurihara, Mamoru; and Ueki, Kazuhiko, to Mitsubishi Jukogyo Kabushiki Kaisha. Cargo handling equipment. 4,335,981, Cl. 405-221.000.

Aktiebolaget Bofors: *See—*
- Bratt, Sven-Erik; Nygaard, Kurt; and Nygards, Olof, 4,335,653, Cl. 102-202.800.
- Bratt, Sven-Erik, 4,335,654, Cl. 102-202.800.
- Winblad, Nils, 4,335,795, Cl. 180-6.200.

Aktiebolaget Hassle: *See—*
- Carlsson, Enar I.; Persson, Nils H. A.; Samuelsson, Gustav B. R.; and Wetterlin, Kjell I. L., 4,336,267, Cl. 424-309.000.

Akzona Incorporated: *See—*
- Bos, Cornelis, 4,335,588, Cl. 66-125.00A.
- Mellon, Regis B., 4,336,422, Cl. 179-18.0DA.

Alaimo, Robert J.; and Gray, Joseph E., to Morton-Norwich Products, Inc. 5-(2,4-Dichlorophenyl)-3-furancarboxaldehyde-O-[(methylamino)carbonyl]oxime. 4,336,199, Cl. 549-496.000.

Albertine, Herman, Jr., to NCR Corporation. Cursor for plasma shift register display. 4,336,535, Cl. 340-768.000.

Alberts, Heinrich; Friemann, Hans; Sattlegger, Hans; and Moretto, Hans-Heinrich, to Bayer Aktiengesellschaft. Organopolysiloxane-urethane-vinyl graft copolymers. 4,336,358, Cl. 525-439.000.

Alexeev, Vasily I.: *See—*
- Vorozhtsov, Georgy N.; Masanova, Natalia N.; Feldbljum, Nikolai B.; Alexeev, Vasily I.; Shigalevsky, Vadim A.; Solomatin, Georgy G.; Shulepova, Olga I.; Khaitun, Galina G.; and Gordeeva, Nadezhda V., 4,336,383, Cl. 546-52.000.

Alfelder Eisenwerke Carl Heise Kom. Ges.: *See—*
- Junghanel, Arnold, 4,335,607, Cl. 73-290.00R.

Allen, Ron P. Combined plant container and watering device. 4,335,540, Cl. 47-79.000.

Allen, Terry S.; and Jacobson, Peter E., to Sperry Corporation. Multi-circuit rotary electrical conductor assembly. 4,335,927, Cl. 339-5.00R.

Alley, Francis P.; and Duffee, Michael T. Game transportation device. 4,335,891, Cl. 280-19.000.

Allied Corporation: *See—*
- Aharoni, Shaul M., 4,336,343, Cl. 523-455.000.
- Aharoni, Shaul M.; Prevorsek, Dusan C.; Schmitt, George J.; Harpell, Gary A.; and Lee, Lester T. C., 4,336,356, Cl. 525-388.000.
- Diamond, Steven E.; Tovrog, Benjamin S.; Mares, Frank; and Tang, Reginald T., 4,336,241, Cl. 423-588.000.
- Pez, Guido P., 4,336,162, Cl. 252-438.000.

Allred, Roe. Trotline guide. 4,335,534, Cl. 43-27.400.

Alm, Bernard D.: *See—*
- Bubik, Leslie; Barclay, Stanley B.; Knaitner, Eugene L.; Williams, Frederic D. M.; and Alm, Bernard D., 4,335,772, Cl. 157-1.280.

Alps Electric Co., Ltd.: *See—*
- Wakayama, Yoichi; and Kikuchi, Tadao, 4,336,419, Cl. 174-68.500.

Alsina, Pierre A., to SpinOptic, Inc. Mirror mount for automotive alignment apparatus. 4,335,519, Cl. 33-288.000.

Alsthom-Atlantique: *See—*
- Riollet, Gilbert; and Bessay, Raymond, 4,335,995, Cl. 415-144.000.

Altman, Daniel E.: *See—*
- Pavlopoulos, Theodore G.; and Altman, Daniel E., 4,336,047, Cl. 65-3.310.

Amaya, Nestor R.: *See—*
- Buck, Rainer; Kopse, Odon; and Amaya, Nestor R., 4,335,601, Cl. 73-119.00A.

American Carrier Equipment, Inc.: *See—*
- Sweet, Philip J.; Hamlet, Buck C.; and Sweet, David L., 4,335,991, Cl. 414-519.000.

American Cyanamid Company: *See—*
- Booth, James H.; and Ross, Adma S., 4,336,375, Cl. 544-027.000.

Giglia, Robert D.; and Huang, Sun Y., 4,335,938, Cl. 350-357.000.
Like, Burton M.; Smialowicz, Dennis; and Brandli, Eugene, 4,336,151, Cl. 252-106.000.
Like, Burton M.; Smialowicz, Dennis; and Brandli, Eugene, 4,336,152, Cl. 252-106.000.

American Hoechst Corp.: *See—*
Lew, Yung, 4,336,558, Cl. 358-285.000.
Walls, John E.; Dragon, Robert L.; and Dunder, Thomas A., 4,336,113, Cl. 204-17.000.

American Tourister, Inc.: *See—*
Koffler, Sol; and Berry, William M., 4,335,896, Cl. 280-47.170.

AMF Incorporated: *See—*
Leeke, Gordon; and Webster, Timothy, 4,336,036, Cl. 55-159.000.

Amigos Food Company, Inc.: *See—*
Velasco, Ralph E., Jr.; and Pinson, A. G., 4,335,649, Cl. 99-327.000.

Amikura, Takashi: *See—*
Tsunekawa, Tokuichi; and Amikura, Takashi, 4,335,942, Cl. 354-25.000.

AMP Incorporated: *See—*
Abernethy, Lynn W., 4,335,929, Cl. 339-97.00R.
Casey, Daniel T., 4,335,497, Cl. 29-566.200.
Feldman, Steven, 4,335,930, Cl. 339-183.000.
Herrmann, Henry O., Jr., 4,335,932, Cl. 339-218.00M.
Loose, Winfield W., 4,336,431, Cl. 200-292.000.

Amphlett, Stephen L.: *See—*
Jackson, Thomas M.; Hodges, Robert J.; and Amphlett, Stephen L., 4,336,429, Cl. 200-67.0DB.

Anastasia, Harry G., to Bendix Corporation, The. Differential pressure transducer. 4,336,567, Cl. 361-283.000.

Anatros Corporation: *See—*
Beigler, Myron A.; and Danby, Hal C., 4,335,835, Cl. 222-95.000.

Andersson, Anders G. T.: *See—*
Gylden, Nils O.; Karlen, Nial T.; Andersson, Jarl B. E.; and Andersson, Anders G. T., 4,336,209, Cl. 264-3.00R.

Andersson, Jarl B. E.: *See—*
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Ando, Yujiro, to Canon Kabushiki Kaisha. Method for forming images using a photosensitive screen. 4,336,317, Cl. 430-53.000.

Andreas Stihl: *See—*
Gerhardy, Reinhard, 4,336,208, Cl. 261-71.000.

Andrew, Eduardo V.; Naunas, Robert A., Jr.; and Armstrong, Richard C., Jr., to Frick Company. Solid state compressor control system. 4,336,001, Cl. 417-63.000.

Anhenn, Jorg: *See—*
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.

Ankenbrand, Friedrich: *See—*
Pertzsch, Albert; Rieger, Siegfried; and Ankenbrand, Friedrich, 4,336,278, Cl. 427-47.000.

Aoki, Eiji: *See—*
Fukuta, Kenji; Onooka, Ryuzo; Aoki, Eiji; and Tsumuraya, Shigeo, 4,336,296, Cl. 428-257.000.

Aoki, Kozo; Sawada, Satoru; and Furutachi, Nobuo, to Fuji Photo Film Co., Ltd. Color photographic light-sensitive element. 4,336,325, Cl. 430-505.000.

Aonuma, Masaru; and Nanaumi, Kazuyuki, to Orion Machinery Company Limited. Filter unit construction for a filtration assembly. 4,336,043, Cl. 55-483.000.

Aoyagi, Yoshiaki: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,373, Cl. 542-447.000.
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,374, Cl. 542-469.000.

Apostolos, John: *See—*
Stromswold, Chester E.; Martel, Robert T.; Apostolos, John; and Boland, Robert P., 4,336,511, Cl. 331-178.000.

Appl, Max; Wagner, Ulrich; Henrici, Hans J.; Kuessner, Klaus; Volkamer, Klaus; and Fuerst, Ernst, to BASF Aktiengesellschaft. Removal of CO_2 and/or H_2S and/or COS from gases containing these constituents. 4,336,233, Cl. 423-228.000.

Apter, Carl: *See—*
Apter, Robert F.; Apter, Carl; and Soliday, Joseph, 4,335,990, Cl. 414-457.000.

Apter, Robert F.; Apter, Carl; and Soliday, Joseph, to R. A. Industries, Inc. Knock down barrel handling apparatus. 4,335,990, Cl. 414-457.000.

Arabian, Sandro, to Europtool Trust. Soap solution dispenser. 4,335,833, Cl. 222-23.000.

Arai, Mamoru; Torikata, Akio; Enokita, Ryuzou; Haneishi, Tatsuo; and Nakajima, Mutsuo, to Sankyo Company Limited. Antibiotic substance. 4,336,249, Cl. 424-121.000.

Arato, Laszlo. Vehicle with at least three wheels pivoting about a vertical axis. 4,335,800, Cl. 180-236.000.

Arkles, Barry C.: *See—*
Peterson, William R., Jr.; and Arkles, Barry C., 4,336,395, Cl. 556-413.000.

Armour Pharmaceutical Company: *See—*
Orlowski, Ronald C.; Groginsky, Charles M.; and Seyler, Jay K., 4,336,187, Cl. 260-112.50T.

Armstrong, Richard C., Jr.: *See—*
Andrew, Eduardo V.; Naunas, Robert A., Jr.; and Armstrong, Richard C., Jr., 4,336,001, Cl. 417-63.000.

Armstrong World Industries, Inc.: *See—*
Beck, Martin J.; and Boesel, George F. W., 4,335,973, Cl. 403-300.000.

Arnold, Edgar, to Pantex-Stahl AG. Frame girder for underground drift and shaft construction. 4,335,556, Cl. 52-655.000.

Arnon, Oded: *See—*
Chou, Tzeyang J.; and Arnon, Oded, 4,335,961, Cl. 356-361.000.

Arvidsson, Willy B. L.; and Lindgren, Anders S. G. Sealing device in a rotary regenerative type heat exchanger. 4,335,784, Cl. 165-9.000.

Asahi-Dow Limited: *See—*
Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,336,212, Cl. 264-22.000.
Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,336,350, Cl. 525-211.000.

Asahi Glass Company Ltd.: *See—*
Okumiya, Masataro; and Kuwabara, Kiyoharu, 4,336,339, Cl. 501-103.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Nonaka, Kohei; Koyama, Masahiro; Gonmori, Makoto; Kimura, Takeo; and Shiga, Tetsuo, 4,335,957, Cl. 355-30.000.
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Mizutani, Shigeru, 4,336,352, Cl. 525-240.000.
Tsuruta, Teiji; and Nitadori, Yoshiaki, 4,336,361, Cl. 526-180.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Kurei, Hiroshi, 4,335,946, Cl. 354-228.000.

Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, to Agency of Industrial Science and Technology; and Shin-Etsu Chemical Company, Limited. Method for the preparation of shaped articles of a vinyl chloride based resin having improved surface properties. 4,336,211, Cl. 264-22.000.

Asarco Incorporated: *See—*
Kudryk, Val; and Goffman, Martin, 4,336,237, Cl. 423-531.000.

ASEA Aktibolag: *See—*
Hanas, Bertil; and Stenkvist, Sven-Einar, 4,336,411, Cl. 373-85.000.

Ashcroft, Richard I.; and Kaktovics, David, to United Glass Limited. Apparatus for detecting the presence of surface irregularities in articles made of transparent material. 4,335,960, Cl. 356-240.000.

Ashland Oil, Inc.: *See—*
Dunnavant, William R.; and Kim, Young D., 4,336,342, Cl. 523-144.000.

Ashmore, Michael P.; How, Thien V.; and Rolfe, Peter, to Vickers Limited. Flowmeter. 4,335,617, Cl. 73-861.250.

Asko, Inc.: *See—*
Dempsey, Martin J., 4,336,083, Cl. 148-127.000.

Asperger, Dan A., to Dow Chemical Company, The. Method of preparing polyurethane foam carpet underlay having a barrier film attached thereto. 4,336,089, Cl. 156-152.000.

Associated Engineering Limited: *See—*
Noddings, John; and Borton, Roland K., 4,336,566, Cl. 361-242.000.

Atkin, Curtis L.: *See—*
Stephen, Robert L.; Kablitz, Carl; van Dura, Dietz; Atkin, Curtis L.; and Jacobsen, Stephen C., 4,335,716, Cl. 128-213.00A.

Atlantic Richfield Company: *See—*
Falcone, Samuel J.; and McCoy, John J., 4,336,402, Cl. 560-157.000.
Lordi, Frank E.; and Triplett, Jacob, 4,336,354, Cl. 525-301.000.

Attwood, Stanley W., to Motorola, Inc. MSK Demodulator frequency acquistion apparatus and method. 4,336,500, Cl. 329-50.000.

Audi NSU Auto Union Aktiengesellschaft: *See—*
Kohler, Karl-Heinz, 4,335,599, Cl. 73-116.000.
van Bashuysen, Richard, 4,335,849, Cl. 237-12.30B.

Augerscope, Inc.: *See—*
Irwin, Lawrence F.; and Millray, Robert, 4,335,632, Cl. 81-446.000.

Aughton, John: *See—*
Stovell, John E.; Aughton, John; and Yi, Alberto, 4,335,939, Cl. 350-385.000.

Autologic, S.A.: *See—*
Morgan, Grant T., 4,335,940, Cl. 354-8.000.
Moyroud, Louis M.; and Morgan, Grant T., 4,335,941, Cl. 354-15.000.

Automation Industries, Inc.: *See—*
Timmons, David R., 4,335,647, Cl. 98-40.00D.

Avers, Daniel C.: *See—*
Knize, Elmer J.; and Avers, Daniel C., 4,335,827, Cl. 220-284.000.

Avon Products, Inc.: *See—*
Leon-Pekarek, Diane, 4,336,246, Cl. 424-70.000.

Axter, Sven E.: *See—*
Quist, William E.; Hyatt, Michael V.; and Axter, Sven E., 4,336,075, Cl. 148-2.000.

Ayer, Donald E.; and Schlagel, Carl A., to Upjohn Company, The. 17α-Acyloxy-5β-corticoids. 4,336,200, Cl. 260-397.450.

Aylott, Michael V.: *See—*
Payne, Alan J.; Aylott, Michael V.; Moore, Jimmie L.; and Yokley, Edward M., 4,336,260, Cl. 424-266.000.

Azzato, Robert N.; Staats, Henry N.; and Morrissey, Neal J., to General Binding Corporation. Restorable gang apparatus for telephone book binders. 4,335,659, Cl. 108-28.000.

B. F. Goodrich Company, The: *See—*
Cinadr, Bernard F., 4,336,351, Cl. 525-211.000.
Schwarz, David S., 4,336,298, Cl. 428-285.000.

B & H Manufacturing Company, Inc.: *See—*
Hoffmann, Wolfgang, 4,336,095, Cl. 156-361.000.

Babcock, Bryce: *See—*
Kalt, Charles G.; and Babcock, Bryce, 4,336,536, Cl. 340-783.000.

Babcock & Wilcox Company, The: *See*—
James, Harold S.; and Roseveare, Ronald N., 4,335,517, Cl. 33-174.00L.
Babiol, Pierre; and Gallais, Philippe, to Societe Nouvelle de Bouchons Plastiques. Flexible package for storing and dispensing liquid or pasty matters. 4,335,815, Cl. 206-277.000.
Bac, Jean-Claude, to Pneumatiques Caoutchouc Manufacture et Plastiques Kleber-Colombes. Tanks and connecting ducts therefor. 4,335,905, Cl. 285-20.000.
Bachmann, Rainer, to Black & Decker Inc. Depth of cut adjustment mechanism. 4,335,768, Cl. 145-4.000.
Backhouse, Alan J.; Bromley, Charles; and Thompson, Morice W., to Imperial Chemical Industries Limited. Polymerization process. 4,336,177, Cl. 523-201.000.
Badalamenti, Michael J. Traction device for shoes. 4,335,529, Cl. 36-59.00R.
Badrock, John, to World Stress (Gas Contracts) Limited. Burners. 4,336,016, Cl. 431-158.000.
Bahr, Karl E., to Talon, Inc. Easy openable and closable bag with slide fastener. 4,335,817, Cl. 206-610.000.
Bailey, Howard S. Swimming pool liner supports and coping. 4,335,474, Cl. 4-506.000.
Bains, William R., to Ford Aerospace & Communications Corp. Ammunition round with retained piston. 4,335,657, Cl. 102-433.000.
Bajorek, Benjamin T., to Ford Motor Company. Induction hardening of valve seat inserts. 4,336,432, Cl. 219-10.410.
Baker, Geoffrey, to U.S. Philips Corporation. Radiation detector circuits which inhibit depoling of the detector. 4,336,452, Cl. 250-338.000.
Baker, Thomas E.; and Robertson, John P. Electrical totalizer. 4,336,445, Cl. 235-92.0ST.
Balda-Werke Photographische Gerate und Kunststoff GmbH & Co., KG: *See*—
Lange, Karl-Heinz, 4,335,947, Cl. 354-230.000.
Baldwin, John J., to Merck & Co., Inc. Novel 2-pyridylbenzimidazole compounds. 4,336,257, Cl. 424-256.000.
Baldwin, John J.; and McClure, David E., to Merck & Co., Inc. Aryloxypropanolamines. 4,336,261, Cl. 424-273.00R.
Baldwin-Korthe Web Controls, Inc.: *See*—
Larson, Clifford L., 4,335,634, Cl. 83-13.000.
Ball Corporation: *See*—
Scholes, Addison B., 4,336,275, Cl. 427-27.000.
Banka, Eugene F.: *See*—
Goldis, Alexander; Sellen, Kenneth R.; and Banka, Eugene F., 4,336,037, Cl. 55-171.000.
Banzai, Keiichiro: *See*—
Tanaka, Shigeru; Iwaki, Katsutaro; Matsuhashi, Hajime; and Banzai, Keiichiro, 4,336,487, Cl. 322-99.000.
Barber, William R., Jr.: *See*—
Hahn, Frederick C.; Barber, William R., Jr.; and Hampel, David A., 4,335,532, Cl. 37-142.00R.
Barbieri, Stephen C.: *See*—
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Barclay, Stanley B.: *See*—
Bubik, Leslie; Barclay, Stanley B.; Knaitner, Eugene L.; Williams, Frederic D. M.; and Alm, Bernard D., 4,335,772, Cl. 157-1.280.
Barcrest Limited: *See*—
Wain, John L., 4,335,809, Cl. 194-1.00R.
Bardin, Viktor P.; Petrov, Evgeny A.; Rudelson, Viktor M.; and Sternik, Jury L. Vortex-type oil mist generator. 4,335,804, Cl. 184-55.00A.
Barker, Ray E.; Scott, Charles D.; and Ryon, Allen D., to United States of America, Energy. Process for separating coal synthesized methane from unreacted intermediate and contaminant gases. 4,336,044, Cl. 62-17.000.
Barnes, Michael W., to Thiokol Corporation. 2-Hydroxymethyl-1,3-propanediol preparation. 4,336,408, Cl. 568-853.000.
Barrett, David M.; Love, William D.; and Donaldson, Joseph L., to General Electric Company. High voltage connector for x-ray equipment. 4,335,928, Cl. 339-94.00C.
Bartoli, Francesco; Marconi, Walter; Morisi, Franco; and Pittalis, Francesco, to Snamprogetti, S.p.A. Superficially hydrolyzed biocompatible polyamide material. 4,336,357, Cl. 525-420.000.
Bartz, Gerald L., to Phillips Petroleum Company. Soil gas probe. 4,335,622, Cl. 73-864.740.
Baruffaldi Frizioni S.p.A.: *See*—
Boffelli, Pier C., 4,335,633, Cl. 82-31.000.
BASF Aktiengesellschaft: *See*—
Appl, Max; Wagner, Ulrich; Henrici, Hans J.; Kuessner, Klaus; Volkamer, Klaus; and Fuerst, Ernst, 4,336,233, Cl. 423-228.000.
Eicken, Karl; Rohr, Wolfgang; Goetz, Norbert; and Wuerzer, Bruno, 4,336,061, Cl. 71-92.000.
Feichtmayr, Franz; Naarmann, Herbert; Paust, Joachim; and Penzien, Klaus, 4,336,201, Cl. 260-410.90V.
Gimpel, Juergen; Feuerherd, Karl-Heinz; and Schenck, Hans-Uwe, 4,336,346, Cl. 525-109.000.
Jackel, Klaus-Peter; Heil, Gunter; and Spoor, Herbert, 4,336,309, Cl. 428-447.000.
Leutner, Bernd; Schlimper, Hans-Ulrich; Roth, Dieter; Kreitner, Ludwig; and Spahn, Heinrich, 4,336,234, Cl. 423-329.000.
Merger, Franz; and Fouquet, Gerd, 4,336,403, Cl. 560-211.000.
Schupp, Eberhard; Kempter, Fritz E.; and Gulbins, Erich, 4,336,116, Cl. 204-159.110.
Steiner, Gerd; and Franke, Albrecht, 4,336,192, Cl. 260-239.30T.
Treiber, Hans J.; Lenke, Dieter; and Worstmann, Wolfgang, 4,336,263, Cl. 424-244.000.
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Battelle Memorial Institute: *See*—
Patten, James W.; Moss, Ronald W.; and McClanahan, Edwin D., 4,336,118, Cl. 204-192.0EC.
Baudet, Pierre J. Cyano-ureas, cyano-thioureas and their preparation methods. 4,336,394, Cl. 548-342.000.
Bauer, Robert, to Miles Laboratories, Inc. Device for detecting glucose concentration. 4,336,330, Cl. 435-14.000.
Bauer, Werner R.; and Van Fossen, Robert A., to Robertshaw Controls Company. Reversing valve construction and piston head assembly therefor and methods of making the same. 4,335,750, Cl. 137-625.290.
Baxter Travenol Laboratories, Inc.: *See*—
Kartinos, Nicholas J., 4,336,157, Cl. 252-408.000.
Kulle, Lee K.; and Larson, Kenneth W., 4,335,770, Cl. 150-8.000.
Bayer Aktiengesellschaft: *See*—
Alberts, Heinrich; Friemann, Hans; Sattlegger, Hans; and Moretto, Hans-Heinrich, 4,336,358, Cl. 525-439.000.
Margotte, Dieter, 4,336,348, Cl. 525-146.000.
Petersen, Uwe; Voss, Eckart; and Stadler, Peter, 4,336,369, Cl. 536-13.900.
Recker, Klaus; and Grogler, Gerhard, 4,336,180, Cl. 524-847.000.
Reinehr, Ulrich; Jungverdorben, Hermann-Josef; Herbertz, Toni; Nogaj, Alfred; and Kleinschmidt, Peter, 4,336,214, Cl. 264-49.000.
Reischl, Artur; Quiring, Bernd; and Rathjen, Claus, 4,336,365, Cl. 528-44.000.
Baylor College of Medicine: *See*—
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BBC, Brown, Boveri & Company, Limited: *See*—
Benz, Hans, 4,336,420, Cl. 174-128.00S.
Domer, Wolfgang, 4,335,923, Cl. 308-15.000.
Glavitsch, Hans; and Guth, Gerhard, 4,336,488, Cl. 323-215.000.
Kuse, Dieter; Wiederkehr, Heinz; and Winkler, Norbert, 4,336,456, Cl. 250-436.000.
Beatrice Foods Co.: *See*—
Chow, Ho, 4,335,852, Cl. 239-68.000.
Beatty, Bobby D.; Daniel, Russell D.; Humerickhouse, Billy J.; and Williams, Richard, to United States of America, Navy. Underwater launched parachute flare. 4,335,656, Cl. 102-340.000.
Beck, Arnold A., to Goodyear Aerospace Corporation. Antiskid control system for brakes which exhibit large changes in lining friction coefficient. 4,336,592, Cl. 364-426.000.
Beck, Martin J.; and Boesel, George F. W., to Armstrong World Industries, Inc. Runner splicer bar. 4,335,973, Cl. 403-300.000.
Becker, Helmut: *See*—
Schnabl, Rudolf; and Becker, Helmut, 4,336,496, Cl. 324-158.00P.
Becker, Reinhold, to Hoechst Aktiengesellschaft. Device for filling a shirred tubular casing. 4,335,488, Cl. 17-33.000.
Beckerman, Howard L.; and Mauro, Charles L., to Singer Company, The. Pattern selection arrangement for a multiple pattern sewing machine. 4,335,667, Cl. 112-158.00E.
Beckwith, Jon: *See*—
Silhavy, Thomas J.; Shuman, Howard A.; Beckwith, Jon; and Schwartz, Maxime, 4,336,336, Cl. 435-172.000.
Becton, Dickinson and Company: *See*—
Calabrese, Frank B., 4,335,718, Cl. 128-218.00N.
Beecham Group Limited: *See*—
Hadley, Michael S.; and King, Francis D., 4,336,259, Cl. 424-265.000.
Beeghly, Bruce R., to Economy Engine Company, The. Annunciator. 4,336,463, Cl. 307-66.000.
Behrend, William L.: *See*—
Abt, Richard F.; and Behrend, William L., 4,336,615, Cl. 455-108.000.
Beigler, Myron A.; and Danby, Hal C., to Anatros Corporation. Device for the intravenous or enteric infusion of liquids into the human body at a predetermined constant rate. 4,335,835, Cl. 222-95.000.
Bekku, Norikatsu: *See*—
Edamura, Mizuo; Takamoto, Shyunji; Furuitsu, Satoshi; Bekku, Norikatsu; and Katayama, Toshiaki, 4,336,076, Cl. 148-3.000.
Belcher, Richard A.: *See*—
Kozacka, Frederick J.; and Belcher, Richard A., 4,336,521, Cl. 337-248.000.
Belfor, Mikhail G.: *See*—
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Venianin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.
Bell Telephone Laboratories, Incorporated: *See*—
Brantley, William C.; and Edington, John E., 4,336,582, Cl. 363-15.000.
Leddy, Ernest J., 4,336,288, Cl. 428-35.000.
Lisco, Richard J., 4,336,467, Cl. 307-350.000.
Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, 4,336,506, Cl. 372-62.000.
Belli, Aldo: *See*—
Giordano, Claudio; and Belli, Aldo, 4,336,396, Cl. 560-20.000.

Bellmann, Bernhard: *See—*
Wermeister, Gunter; and Bellmann, Bernhard, 4,335,983, Cl. 407-41.000.
Beloit Corporation: *See—*
Locke, Stephen A., 4,335,603, Cl. 73-159.000.
Benassi, GianCarlo, to Fiat Tratfori S.p.A. Sealing device for use with flexible dynamometric bars. 4,335,887, Cl. 277-84.000.
Bendix Corporation, The: *See—*
Anastasia, Harry G., 4,336,567, Cl. 361-283.000.
Cramer, Robert L.; and Henneberger, Roy L., 4,335,735, Cl. 137-81.100.
Grabb, Frederick G., 4,336,004, Cl. 417-283.000.
Phipps, Jack R., 4,335,695, Cl. 123-478.000.
Benedetto, Joseph M. Modular bake oven for drying varnished electrical components. 4,336,443, Cl. 219-400.000.
Benjamin, Martin E.: *See—*
Cather, Douglas A., Jr.; and Benjamin, Martin E., 4,335,889, Cl. 277-152.000.
Benkelman, William D.; and Carlyon, George C., to Dayco Corporation. Skylight construction and method of making same. 4,335,551, Cl. 52-200.000.
Bennett, Robert S.; and Griffiths, William E., to Ferranti Limited. Accelerometer. 4,335,611, Cl. 73-517.00B.
Benning, Leroy J.; and Thorman, Charles A. Bottle carton with integral opener. 4,335,814, Cl. 206-198.000.
Bentley-Harris Manufacturing Co.: *See—*
Flasher, Gary L., 4,335,589, Cl. 66-202.000.
Benz, Hans, to BBC, Brown, Boveri & Company, Limited. Superconducting cable. 4,336,420, Cl. 174-128.00S.
Berdzar, Peter F.; and Acks, Robert S., to United States of America, Navy. Maximum depth monitoring apparatus. 4,336,591, Cl. 364-418.000.
Berginski, Werner E., to Leopold Kostal, Firma. Steering column assembly switch for automotive vehicles. 4,336,428, Cl. 200-61.540.
Bergmann, Gerhard; and Wade, Heinz, to Karl Mayer Textilmaschinenfabrik GmbH. Guidebar shogging linkage arrangement for warp knitting machines. 4,335,590, Cl. 66-207.000.
Bergmann, Hans; Bormann, Rudiger; Freyhardt, Herbert C.; and Mordike, Barry L. Method for the manufacture of a composite material by powder metallurgy. 4,336,065, Cl. 75-200.000.
Berisch, Volker; and Keiner, Karl, to ITT Industries, Inc. Pressure control unit. 4,335,922, Cl. 303-6.00C.
Berlin, Daniel, to Roblin Industries, Inc. Cart with improved storage-preventing base. 4,335,892, Cl. 280-33.99R.
Berner, Godwin; and Kirchmayr, Rudolf, to Ciba-Geigy Corporation. Thermally polymerizable mixtures and processes for the thermally-initiated polymerization of cationically polymerizable compounds. 4,336,366, Cl. 528-89.000.
Berney, Jean-Claude, to Ebauches S.A. Electronic timepiece. 4,336,608, Cl. 368-82.000.
Bernhardt, Donn E.; and McCulley, Lowell D., Jr., to Honeywell Information Systems Inc. Error correction apparatus and method. 4,336,611, Cl. 371-38.000.
Bernitz, Franz, to Bosch-Siemens Hausgerate GmbH. Oscillation generator for an ultrasonic liquid atomizer. 4,336,509, Cl. 331-114.000.
Berry, William M.: *See—*
Koffler, Sol; and Berry, William M., 4,335,896, Cl. 280-47.170.
Bertelsen, Corey A., to Chevron Research Company. Process for burning retorted oil shale and improved combustor. 4,336,126, Cl. 208-11.00R.
Bertelsen, Corey A., to Chevron Research Company. Staged burning of retorted carbon-containing solids. 4,336,127, Cl. 208-11.00R.
Bertsch, Dieter: *See—*
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.
Bertsch, Richard: *See—*
Schnurle, Hans; Horbelt, Michael; Drews, Ulrich; Werner, Peter; Glockler, Otto; Gunther, Dieter; and Bertsch, Richard, 4,335,696, Cl. 123-492.000.
Bessay, Raymond: *See—*
Riollet, Gilbert; and Bessay, Raymond, 4,335,995, Cl. 415-144.000.
Bessett, Clifford H.; and Misdom, Theodore H., to Packaging Corporation of America. Carton for fragile articles. 4,335,813, Cl. 206-45.330.
Best, Ralph E.; Bhandari, Vijay; Creeden, Richard L.; Mason, Michael E.; Panter, Harrison R.; Rollins, Jack D.; and Schreiber, Richard A., to Nuclear Assurance Corp. Spent fuel cask. 4,336,460, Cl. 250-506.000.
Bethe, Hans A.; and Chang, Ching S., to Jersey Nuclear-Avco Isotopes, Inc. Frequency chirp in isotopically selective photoexcitation. 4,336,230, Cl. 423-3.000.
Bey, Roger, to Control Components, Inc. Quiet safety relief valve. 4,335,744, Cl. 137-522.000.
Bhandari, Vijay: *See—*
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Bianchini, Asuncion E.: *See—*
Coll, Antonio L. P.; Meseguer, Jose D.; Bianchini, Asuncion E.; and Pitarch, Esteve S., 4,336,376, Cl. 544-030.000.
Bice, Howard W.; and Williams, Don W., to Gust, Irish, Jeffers & Hoffman. Apparatus and method for converting electrical energy into heat energy. 4,336,444, Cl. 219-505.000.
Biddlecom, William G.; Kluender, Harold C.; and Woessner, Warren D., to Miles Laboratories, Inc. 1-Acyloxy-15-deoxy-16-hydroxy-analogs of prostaglandin E_1. 4,336,404, Cl. 560-231.000.
Biehl, Brian L.; and Lieberman, Stuart I., to Radiation Engineering Inc. Integrated nuclear radiation detector and monitor. 4,336,532, Cl. 340-600.000.
Bielli, Paolo; De Padova, Salvatore; and Savini, Dario, to CSELT, Centro Studi e Laboratori Telecomunicazioni S.p.A. Method of and system for tracking an object radiating a circularly or linearly polarized electromagnetic signal. 4,336,542, Cl. 343-100.0PE.
Bieringer, Hermann; and Handte, Reinhard, to Hoechst Aktiengesellschaft. Herbicides. 4,336,057, Cl. 71-88.000.
Bihlmaier, John A. Pneumatic-hydraulic actuator system. 4,335,867, Cl. 251-28.000.
Bill, Robert C.; and Wisander, Donald W., to United States of America, National Aeronautics and Space Administration. Fully plasma-sprayed compliant backed ceramic turbine seal. 4,336,276, Cl. 427-34.000.
Billett, Ronald J., to FMC Corporation. Apparatus for freezing confections. 4,335,583, Cl. 62-345.000.
Binks Manufacturing Company: *See—*
Lamontagne, Robert E.; and Scull, Jon V., 4,335,999, Cl. 417-38.000.
Biotest-Serum-Institut GmbH: *See—*
Bonhard, Klaus; and Boysen, Uwe, 4,336,248, Cl. 424-101.000.
Birger Company, The: *See—*
DiPierro, Michael A.; and Roche, David E., 4,335,487, Cl. 16-126.000.
Bisk, Leonard; and Rogahn, Gunther, to Independent Products Company, Inc. Skirt and trouser clip for hanger. 4,335,838, Cl. 223-91.000.
Bittmann, Peter: *See—*
Rapp, Joachim; and Bittmann, Peter, 4,335,966, Cl. 366-2.000.
Black & Decker Inc.: *See—*
Bachmann, Rainer, 4,335,768, Cl. 145-4.000.
Close, Albert R.; and Oster, Winton, 4,335,510, Cl. 30-276.000.
Overy, Colin; and Dynie, Ernest R., 4,335,514, Cl. 30-382.000.
Black, Philip W.; and Irven, John, to International Standard Electric Corporation. Single mode fibre and method of making. 4,335,934, Cl. 350-96.330.
Blair, Winford, to Rohr Industries, Inc. Multi-layer honeycomb thermo-barrier material. 4,336,292, Cl. 428-116.000.
Blanchett, Paul T.; and Blanchett, Philip J. Glazing bead. 4,335,552, Cl. 52-202.000.
Blanchett, Philip J.: *See—*
Blanchett, Paul T.; and Blanchett, Philip J., 4,335,552, Cl. 52-202.000.
Blasinachim S.p.A.: *See—*
Giordano, Claudio; and Belli, Aldo, 4,336,396, Cl. 560-20.000.
Blount, David H. Process for the production of broken-down organic lignin-cellulose polymers. 4,336,340, Cl. 521-84.000.
Blue Circle Industries Limited: *See—*
Bye, Gerald C., 4,336,142, Cl. 210-724.000.
Blum, Christian: *See—*
Winker, Gerald; Thrandorf, Hans-Peter; and Blum, Christian, 4,335,674, Cl. 118-110.000.
Blum, Jean. Derivatives of eugenol as medicaments. 4,336,258, Cl. 424-263.000.
Boden, Richard M., to International Flavors & Fragrances Inc. Branched chain olefinic alcohols useful in perfume compositions. 4,336,164, Cl. 252-522.00R.
Bodle, William W.: *See—*
Weil, Sanford A.; Punwani, Dharamvir; and Bodle, William W., 4,336,125, Cl. 208-8.00R.
Boeck, LaVerne D.: *See—*
Hamill, Robert L.; Hoehn, Marvin M.; and Boeck, LaVerne D., 4,336,333, Cl. 435-75.000.
Boeing Company, The: *See—*
Graunke, Donald R., 4,336,111, Cl. 204-1.00T.
Hilton, R. John, 4,336,090, Cl. 156-154.000.
Hoole, Tyson C. A., 4,336,499, Cl. 328-188.000.
Jones, Earle H., 4,335,807, Cl. 191-32.000.
Quist, William E.; Hyatt, Michael V.; and Axter, Sven E., 4,336,075, Cl. 148-2.000.
Stachowiak, Claude R.; and Kunze, Fred R., 4,335,801, Cl. 181-213.000.
Warner, Gary J.; and Meldahl, Kenneth R., 4,335,671, Cl. 114-274.000.
Boesel, George F. W.: *See—*
Beck, Martin J.; and Boesel, George F. W., 4,335,973, Cl. 403-300.000.
Boettcher, Charles W., Jr.; and Schroeder, Robert E. High efficiency turn-off loss reduction network with active discharge of storage capacitor. 4,336,587, Cl. 363-134.000.
Boffelli, Pier C., to Baruffaldi Frizioni S.p.A. Tailstock for machine tools, in particular lathes or the like with electric actuator having a monitored thrust. 4,335,633, Cl. 82-31.000.
Boland, Robert P.: *See—*
Stromswold, Chester E.; Martel, Robert T.; Apostolos, John; and Boland, Robert P., 4,336,511, Cl. 331-178.000.
Boley, Jack W., to Texas Oil and Gas Corporation. Wellhead bunker. 4,335,740, Cl. 137-364.000.
Bonanno, Anthony J.: *See—*
Greenfield, Charles; Casparian, Robert E.; and Bonanno, Anthony J., 4,336,101, Cl. 159-16.00S.
Bond, Thomas J.: *See—*
Koch, Paul E.; Bond, Thomas J.; and Adams, Richard C., 4,336,012, Cl. 425-131.100.

Bonhard, Klaus; and Boysen, Uwe, to Biotest-Serum-Institut GmbH. Preparation of coupled hemoglobin molecules. 4,336,248, Cl. 424-101.000.

Bono, Robert P. Dispensing container for proportional mixing of fluids. 4,335,837, Cl. 222-137.000.

Booth, James H.; and Ross, Adma S., to American Cyanamid Company. Cephalosporanic acid derivatives. 4,336,375, Cl. 544-027.000.

Bor-, Mubor-es Cipoipari Kutato Intezet: *See*—
Lorant, Ivan; Csernyanszky, Imre; Murlasits, Gyula; Rusznyak, Rezso; and Szabo nee Paulyuk, Paula, 4,336,300, Cl. 428-316.600.

Bora, F. William, Jr. Device for oral hygiene care. 4,335,731, Cl. 132-84.00R.

Borg-Warner Chemicals, Inc.: *See*—
Halpern, Yuval, 4,336,184, Cl. 523-179.000.

Borggrefe, Hans-Helmut: *See*—
Kaas, Werner; Borggrefe, Hans-Helmut; and Unger, Klaus-Dieter, 4,336,218, Cl. 264-111.000.

Boriack, Clinton J.: *See*—
Friedli, Hans R.; and Boriack, Clinton J., 4,336,349, Cl. 525-210.000.

Bormann, Rudiger: *See*—
Bergmann, Hans; Bormann, Rudiger; Freyhardt, Herbert C.; and Mordike, Barry L., 4,336,065, Cl. 75-200.000.

Born, Ellis H.: *See*—
Kramer, William D.; and Born, Ellis H., 4,336,003, Cl. 417-217.000.

Borton, Roland K.: *See*—
Noddings, John; and Borton, Roland K., 4,336,566, Cl. 361-242.000.

Bos, Cornelis, to Akzona Incorporated. Yarn process and apparatus. 4,335,588, Cl. 66-125.00A.

Bosch-Siemens Hausgerate GmbH: *See*—
Bernitz, Franz, 4,336,509, Cl. 331-114.000.

Bouveret, Marcel; and Devaud, Gerard, to S.A.M.M.-Societe d'Applications des Machines Motrices. Hydraulic distributor, especially for servo-control systems of aircraft and helicopters. 4,335,745, Cl. 137-554.000.

Bowling, Dan P. Dry wall outlet box locator and cutter assembly. 4,335,511, Cl. 30-366.000.

Boyd, Branin A., to Thermal Instrument Company. Mass flow meter. 4,335,605, Cl. 73-204.000.

Boysen, Uwe: *See*—
Bonhard, Klaus; and Boysen, Uwe, 4,336,248, Cl. 424-101.000.

Bozich, Stan A. Ball projecting apparatus with adjustable ball impact means. 4,335,701, Cl. 124-26.000.

Bozzuto, Carl R.: *See*—
Jacobs, Lawrence J.; and Bozzuto, Carl R., 4,336,102, Cl. 162-30.100.

Brad Harrison Company: *See*—
Kinnear, Joseph D., 4,335,931, Cl. 339-217.00S.

Bradford, Charles L., Jr.: *See*—
Bradford, Judson T.; Bradford, Charles L., Jr.; and Shepherd, Charles J., 4,335,842, Cl. 229-15.000.

Bradford, Judson T.; Bradford, Charles L., Jr.; and Shepherd, Charles J., to W. J. Bradford Paper Company. Three compartment divider. 4,335,842, Cl. 229-15.000.

Bradley, Irving; and Vodicka, Vincent, to General Electric Company. Plastic par lamp construction with reinforced recepticle area. 4,336,578, Cl. 362-267.000.

Brainard, William A.; and Wheeler, Donald R., to United States of America, National Aeronautics and Space Administration. Refractory coatings and method of producing the same. 4,336,117, Cl. 204-192.00C.

Brand, Derek A.: *See*—
Meyer, Burton C.; Licitis, Gunars; and Brand, Derek A., 4,335,880, Cl. 273-310.000.

Brand, Leonard J.; and Nadelson, Jeffrey, to Sandoz, Inc. Isoxazolyl indolamines. 4,336,378, Cl. 544-137.000.

Brand, Leonard J.; and Nadelson, Jeffrey, to Sandoz, Inc. Isoxazolyl indolamines. 4,336,379, Cl. 544-137.000.

Brand, Leonard J.; and Nadelson, Jeffrey, to Sandoz, Inc. Isoxazolyl indolamines. 4,336,391, Cl. 548-247.000.

Brandli, Eugene: *See*—
Like, Burton M.; Smialowicz, Dennis; and Brandli, Eugene, 4,336,151, Cl. 252-106.000.
Like, Burton M.; Smialowicz, Dennis; and Brandli, Eugene, 4,336,152, Cl. 252-106.000.

Brantley, William C.; and Edington, John E., to Bell Telephone Laboratories, Incorporated. Energy saving DC-DC converter circuit. 4,336,582, Cl. 363-15.000.

Braslaw, Jacob: *See*—
Gerlock, John L.; Braslaw, Jacob; and Stevens, William E., 4,336,406, Cl. 568-621.000.

Bratkowski, Walter V.; Wafer, John A.; and Ellsworth, James P., to Westinghouse Electric Corp. Circuit breaker with stored energy toggle-lock structure. 4,336,516, Cl. 335-171.000.

Bratschitsch, John, to J. B. Systems, Ltd.; and Georgia Equipment Manufacturing Inc. Apparatus for wetting divided solid material. 4,335,982, Cl. 406-48.000.

Bratt, Sven-Erik; Nygaard, Kurt; and Nygards, Olof, to Aktiebolaget Bofors. Electric igniter with conductive bodies and thin connector. 4,335,653, Cl. 102-202.800.

Bratt, Sven-Erik, to Aktiebolaget Bofors. Electric igniter. 4,335,654, Cl. 102-202.800.

Braun AG: *See*—
Grandel, Johannes; and Falkenbach, Gunther, 4,335,860, Cl. 241-37.500.

Brendel, Thomas E.: *See*—
Hannett, William J.; Brendel, Thomas E.; and Wilson, David S., 4,335,580, Cl. 62-79.000.

Brent Chemicals Corporation: *See*—
Gillespie, Robert A., 4,335,591, Cl. 68-12.00R.

Brettschneider, Johannes: *See*—
Mausner, Eberhard; and Brettschneider, Johannes, 4,335,694, Cl. 123-478.000.

Briscoe, James E., to Halliburton Company. Liquid gel concentrates and methods of using the same. 4,336,145, Cl. 252-8.55R.

British Petroleum Company Limited, The: *See*—
Desty, Denis H., 4,336,017, Cl. 431-202.000.

Broadhurst, Jeffrey C.; Fletcher, Richard A.; and Jowitt, Peter F. Flexible self-sealing wall member. 4,336,291, Cl. 428-101.000.

Bromley, Charles: *See*—
Backhouse, Alan J.; Bromley, Charles; and Thompson, Morice W., 4,336,177, Cl. 523-201.000.

Brooker, Peter J.; and Goose, John, to Fisons Ltd. Pour-on veterinary anthelmintic. 4,336,262, Cl. 424-270.000.

Brower, Boyd G.; and Houseknecht, Gary L., to GTE Products Corporation. Radiation switch for photoflash unit. 4,336,570, Cl. 362-4.000.

Brown, Barry M.; Judd, Malcolm L.; and Schindler, Roger N., to Eastman Kodak Company. Silver halide precipitation process with deletion of materials through the reaction vessel. 4,336,328, Cl. 430-569.000.

Brown, Michael D.: *See*—
Moore, Ronnie J.; and Brown, Michael D., 4,336,072, Cl. 134-4.000.

Bruderer, Hans; Fischli, Albert E.; and Pfister, Rudolf, to Hoffmann-La Roche Inc. Cyclohexene derivative analgesics. 4,336,268, Cl. 424-330.000.

Brunmayer, Peter: *See*—
Kalfa, Horst; Schubert, Bruno; Brunmayer, Peter; and Gellermann, Siegfried, 4,335,615, Cl. 73-799.000.

Brunn, Otto: *See*—
Schmidt, Peter; Brunn, Otto; Forker, Dieter; and Schmidt, Willi, 4,335,492, Cl. 29-25.130.

Brunsch, Klaus: *See*—
Thomamueller, Dieter; and Brunsch, Klaus, 4,335,587, Cl. 64-11.00B.

Bryan, Paul J., to Du Pont de Nemours, E. I., and Company. Non-electric delay detonator. 4,335,652, Cl. 102-202.100.

Bryant, Gladys M. Tool for adjustably aligning pipe flanges and structural members. 4,335,523, Cl. 33-371.000.

Bryant, Jack; and Janicki, Mark, to Radiochemical Centre Limited, The. Smoke detector ionisation chamber using nickel-63 source. 4,336,454, Cl. 250-381.000.

Bryant, Jack, to Radiochemical Centre Limited, The. Smoke detectors. 4,336,455, Cl. 250-385.000.

BSG International Limited: *See*—
Cunningham, Douglas J., 4,335,918, Cl. 297-216.000.

Buan, Danilo P., to Pitney Bowes Inc. Postage meter having shielded keyboard to protect against electromagnetic radiation. 4,336,529, Cl. 340-365.00R.

Bubik, Leslie; Barclay, Stanley B.; Knaitner, Eugene L.; Williams, Frederic D. M.; and Alm, Bernard D., to FMC Corporation. Tire changing machine. 4,335,772, Cl. 157-1.280.

Buchanan, Beverly J. Fishing lure fabrication, including pattern application. 4,335,495, Cl. 29-428.000.

Buck, Rainer; Kopse, Odon; and Amaya, Nestor R., to Robert Bosch GmbH. Fuel injection nozzle with movement switch. 4,335,601, Cl. 73-119.00A.

Buck, Richard F. Tandem roller devices for applying coating liquids. 4,335,483, Cl. 15-230.110.

Buck, Robert; and Ozech, Ingo S., to i f m electronic GmbH. Electronic monitoring system stabilized against accidental triggering. 4,336,491, Cl. 323-326.000.

Bucsky, Gyorgy; Kiss, Zoltan; Matyas, Ivan; Pazmany, Jozsef; Selyem, Gyula; and Tatrai, Lajos, to Magyar Tudomanyos Akademia Muszaki Kemiai Kutato Intezet. Apparatus for measuring the volume of flowing fluids. 4,335,618, Cl. 73-861.560.

Budd Company, The: *See*—
Iseler, Kenneth A.; and Shah, Vinod C., 4,336,181, Cl. 523-501.000.

Bujan, Albert F.; and Dawe, Garfield A., to Abbott Laboratories. I.V. Administration set with retrograde volume. 4,335,717, Cl. 128-214.00G.

Bujan, Albert F., to Abbott Laboratories. Flow control device. 4,335,866, Cl. 251-9.000.

Bulten-Kanthal AB: *See*—
Thomander, Ture, 4,336,412, Cl. 373-110.000.

Bunshah, Rointan; and Nath, Prem, to University of California, The Regents of the. Transparent electrical conducting films by activated reactive evaporation. 4,336,277, Cl. 427-38.000.

Burge, Donald G. Push-in tube connector. 4,335,908, Cl. 285-250.000.

Burkhard, Max. Continuous casting plant. 4,335,780, Cl. 164-441.000.

Burroughs Corporation: *See*—
Goldis, Alexander; Sellen, Kenneth R.; and Banka, Eugene F., 4,336,037, Cl. 55-171.000.

Buschmann, Ernst: *See*—
Zeeh, Bernd; Buschmann, Ernst; and Jung, Johann, 4,336,055, Cl. 71-76.000.

Bush, Randall G., to Sunbeam Plastics Corporation. Child-resistant tamper indicating package. 4,335,824, Cl. 215-224.000.

Bush, Randall G.: *See*—
Montgomery, Gary V.; and Bush, Randall G., 4,335,823, Cl. 215-206.000.

Buttner, Werner, to Merck Patent Gesellschaft mit beschrankter Haftung. Transport and emptying container. 4,335,822, Cl. 215-12.00R.
Bye, Gerald C., to Blue Circle Industries Limited. Removal of heavy metals with gamma dicalcium silicate. 4,336,142, Cl. 210-724.000.
Byers, Edward V. Scavenging apparatus. 4,336,137, Cl. 210-242.300.
Bynum, Byron G.; and Jarrett, Robert B., to Motorola, Inc. Current output relaxation oscillator. 4,336,507, Cl. 331-108.00D.
C. J. Edwards Company: *See—*
Kiefer, Henry, 4,335,873, Cl. 269-228.000.
Calabrese, Frank B., to Becton, Dickinson and Company. Needle cannula. 4,335,718, Cl. 128-218.00N.
Caldwell, Charles A.; and Dickson, William R., to Domain Building Systems Corporation. Prefabricated polygonal building. 4,335,558, Cl. 52-13.000.
Caldwell, Samuel C.: *See—*
Moriarty, Robert M.; Walton, John W.; and Caldwell, Samuel C., 4,336,585, Cl. 363-79.000.
California Strolee, Inc.: *See—*
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Leach, J. Michael; and Harvey, Walter L., 4,336,077, Cl. 148-3.000.
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Smith, Lawrence A., Jr., 4,336,407, Cl. 568-697.000.
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Harvill, William A., 4,335,836, Cl. 222-108.000.
Cocco, Vincent L., to Polaroid Corporation. Film retriever. 4,335,948, Cl. 354-275.000.
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McGee, Arthur L., 4,335,763, Cl. 144-209.00A.
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Jones, Brian C., 4,335,662, Cl. 110-263.000.
Owens, Clark McG., 4,336,079, Cl. 148-11.50N.
Wysk, Stanley R., 4,336,469, Cl. 310-11.000.
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Rittler, Hermann L., 4,336,303, Cl. 428-334.000.
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Cragoe, Edward J., Jr.; Patchett, Arthur A.; Rooney, Clarence S.; and Williams, Haydn W. R., to Merck & Co., Inc. 2,4-Dioxo-4-substituted-1-butanoic acid derivatives useful in treating urinary tract calcium oxalate lithiasis. 4,336,397, Cl. 560-51.000.
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Daicel Chemical Industries, Ltd.: *See—*
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Dalton, Augustine I., Jr.; Greskovich, Eugene J.; and Skinner, Ronald W., to Air Products and Chemicals, Inc. Process for producing hydrogen peroxide. 4,336,238, Cl. 423-584.000.
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Debs, Victor, to Levolor Lorentzen, Inc. Tassel weight. 4,335,776, Cl. 160-320.000.
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de Pous, Bernard, to Zodiac. Water reservoirs, particularly swimming pools. 4,335,473, Cl. 4-488.000.
DePriester, Coral L., to Chevron Research Company. Hull heating system for an arctic offshore production structure. 4,335,980, Cl. 405-217.000.
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Dean, Robert W., Jr., 4,335,549, Cl. 52-98.000.
Desty, Denis H., to British Petroleum Company Limited, The. Flare with inwardly directed Coanda nozzle. 4,336,017, Cl. 431-202.000.
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Kochendorfer, Richard; and Vogler, Helmut, 4,335,586, Cl. 464-81.000.
Devaud, Gerard: *See—*
Bouveret, Marcel; and Devaud, Gerard, 4,335,745, Cl. 137-554.000.
de Volo, Nick B.: *See—*
Maloney, Kenneth L.; and de Volo, Nick B., 4,335,660, Cl. 110-206.000.
DeVries, Adrian J.; and Hansen, Kai, to Zenith Radio Corporation. Acoustic filter with harmonic rejection. 4,336,515, Cl. 333-195.000.
de Vries, Jacob, to LGZ Landis & Gyr Zug AG. Pulse width generator having a variable mark-to-space ratio. 4,336,512, Cl. 332-9.00R.
d'Hondt, Christian; Lohmann, Dieter; and Neuenschwander, Ernst, to Ciba-Geigy Corporation. Salts of 3-methyl-2-(2',4'-dimethylphenylimino)-4-thiazoline with polymers containing sulfonic acid groups. 4,336,353, Cl. 525-275.000.
Diamond, Steven E.; Tovrog, Benjamin S.; Mares, Frank; and Tang, Reginald T., to Allied Corporation. Process for hydrogen peroxide production from hydrogen and oxygen. 4,336,241, Cl. 423-588.000.
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Caldwell, Charles A.; and Dickson, William R., 4,335,558, Cl. 52-13.000.
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Wunderlich, Egmar; Meckel, Joachim; Wagener, Dietrich; and Smieskol, Stefan, 4,336,229, Cl. 422-148.000.
Diederich, Paul W., Jr. Coupling adapter for fluid cooling and filtering. 4,335,688, Cl. 123-196.00A.
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Hafner, Dieter, 4,336,446, Cl. 235-92.0DE.
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Dierks, Raymond W., deceased; by Noviello, Nicholas, Jr., executor; and by Glass, Seymour, executor. Carrier sheet with envelope letter sheet device secured thereto. 4,335,845, Cl. 229-69.000.
Dignan, Donald J.: *See—*
Swan, Jye P.; Pastva, John V., Jr.; and Dignan, Donald J., 4,335,595, Cl. 70-149.000.
Di Matteo, Paul; and Ross, Joseph A., to Robotic Vision Systems, Inc. Method and apparatus for determining spatial information. 4,335,962, Cl. 356-376.000.
Dinkelacker, Albrecht, to Max-Planck-Gesellschaft zur Forderung der Wissenschaft e. V. Method and apparatus for cleaning drains. 4,336,074, Cl. 134-8.000.
DiPierro, Michael A.; and Roche, David E., to Birger Company, The. Supporting handle. 4,335,487, Cl. 16-126.000.
DITO: *See—*
Prevot, Olivier H. C., 4,335,650, Cl. 99-593.000.
Dix, Kurt. Closure assembly for horizontal-chamber coking ovens. 4,336,108, Cl. 202-248.000.
Dixon, Dennie W.: *See—*
Schorre, Kenneth R.; Nye, James O.; Dixon, Dennie W.; and Nepute, Carl, 4,336,046, Cl. 62-28.000.
Dodson, Vance H.; and Roberts, Lawrence R., to W. R. Grace & Co. High strength aggregate for concrete. 4,336,069, Cl. 106-97.000.
Dolhyj, Serge R.; and Pepera, Marc A., to Standard Oil Company, The. Preparation of maleic anhydride using coated catalysts containing high loading of active phase. 4,336,198, Cl. 549-259.000.
Domain Building Systems Corporation: *See—*
Caldwell, Charles A.; and Dickson, William R., 4,335,558, Cl. 52-13.000.
Domer, Wolfgang, to BBC Brown, Boveri & Company Limited. Bearing housing support. 4,335,923, Cl. 308-15.000.
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Guzman-Bofill, Carlos; and Dominguez-Ahedo, Carlos, 4,336,063, Cl. 75-35.000.
Donald, David K.; Lee, Michael J.; and Vaught, John L., to Hewlett-Packard Company. Method and apparatus for drop-on-demand ink jet printing. 4,336,544, Cl. 346-1.100.
Donaldson, Joseph L.: *See—*
Barrett, David M.; Love, William D.; and Donaldson, Joseph L., 4,335,928, Cl. 339-94.00C.
Donnelly, Thomas H.: *See—*
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Dornier System GmbH.: *See—*
Schmidberger, Rainer; and Franke, Hilmar, 4,336,242, Cl. 423-594.000.
Dorrell, Peter M., to Steetley Minerals Limited. Lubricant. 4,336,150, Cl. 252-56.00R.
Dow Chemical Company, The: *See—*
Asperger, Dan A., 4,336,089, Cl. 156-152.000.
Craigie, Laurence J., 4,336,344, Cl. 525-31.000.
Friedli, Hans R.; and Boriack, Clinton J., 4,336,349, Cl. 525-210.000.
Henson, Edwin R.; and Koranek, David J., 4,336,384, Cl. 546-327.000.
Messick, Virginia B., 4,336,359, Cl. 525-531.000.
Payne, Alan J.; Aylott, Michael V.; Moore, Jimmie L.; and Yokley, Edward M., 4,336,260, Cl. 424-266.000.
Renga, James M., 4,336,195, Cl. 549-462.000.
Dow Corning Corporation: *See—*
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Christenson, Roger M.; Maska, Rudolf; Dowbenko, Rostyslaw; and Hockswender, Thomas R., 4,335,829, Cl. 220-458.000.
Downs, Raymond L.; and Miller, Wayne J., to United States of America, Energy. Hollow microspheres of silica glass and method of manufacture. 4,336,338, Cl. 501-12.000.
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Drabek, Jozef; Ackermann, Peter; Farooq, Saleem; Gsell, Laurenz; and Kristiansen, Odd, to Ciba-Geigy Corporation. Insecticidal 2,2-dimethyl-3-(2',2'-dihalovinyl)-cyclopropane carboxylic acid 3-halophenoxy-α-vinylbenzyl esters. 4,336,266, Cl. 424-305.000.

Dragon, Robert L.: *See—*
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Dresser Industries, Inc.: *See—*
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Walkow, Arnold M., 4,335,602, Cl. 73-152.000.

Drews, Ulrich: *See—*
Schnurle, Hans; Horbelt, Michael; Drews, Ulrich; Werner, Peter; Glockler, Otto; Gunther, Dieter; and Bertsch, Richard, 4,335,696, Cl. 123-492.000.

DuBois, Donald W., to PPG Industries, Inc. Electrolytic apparatus utilizing a transition metal-graphite intercalation compound cathode. 4,336,123, Cl. 204-252.000.

Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M. Method for welding girth joints in pipe lines. 4,336,436, Cl. 219-61.000.

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Duffy, Victor P., to Motorola Inc. High power cooler and method thereof. 4,335,781, Cl. 165-1.000.

Dunder, Thomas A.: *See—*
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Dunham-Bush, Inc.: *See—*
Shaw, David N.; and Gagnon, Joseph A. L. N., 4,335,582, Cl. 62-196.00R.

Dunn, John G.: *See—*
Kashyap, Satish; Dunn, John G.; Woods, Lorne; and Vachon, Frank, 4,336,435, Cl. 219-10.55F.

Dunnavant, William R.; and Kim, Young D., to Ashland Oil, Inc. Cost reduction of acid curing foundry binders with alkylated aromatic hydrocarbon solvents. 4,336,342, Cl. 523-144.000.

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Bryan, Paul J., 4,335,652, Cl. 102-202.100.
Edwards, Donald W.; Gorondy, Emery J.; and Van Roggen, Arend, 4,336,546, Cl. 346-74.700.
Gibbs, Hugh H., 4,336,175, Cl. 524-726.000.
Ida, Edward S., 4,336,461, Cl. 250-551.000.
Krussig, Karlheinz F., 4,335,672, Cl. 118-50.000.
Lynch, Charles E.; and Wilkinson, William K., 4,336,022, Cl. 8-115.500.
Reimer, Ronald A., 4,336,110, Cl. 203-60.000.

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Koletar, Gabor I.; Frost, Jonathan B.; DuPont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,336,256, Cl. 424-256.000.

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Haberl, Johann, 4,336,040, Cl. 55-304.000.

Dustell Ltee: *See—*
Jolin, Marcel, 4,336,041, Cl. 55-341.00R.

Dworak, Wilhelm: *See—*
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.

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Dybel, Frank R.; Dybel, William F.; and MacDonald, Kenneth, 4,335,614, Cl. 73-774.000.

Dyer, Paul N.: *See—*
Moseley, Fred; and Dyer, Paul N., 4,336,240, Cl. 423-584.000.

Dynie, Ernest R.: *See—*
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E. B. Eddy Forest Products, Ltd.: *See—*
Gladish, Herbert E., 4,335,901, Cl. 280-711.000.

E. R. Squibb & Sons, Inc.: *See—*
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E-Systems, Inc.: *See—*
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Eastern Company, The: *See—*
Swan, Jye P.; Pastva, John V., Jr.; and Dignan, Donald J., 4,335,595, Cl. 70-149.000.

Eastman Kodak Company: *See—*
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Gottermeier, William F., 4,336,091, Cl. 156-244.120.
Howe, Dennis G.; Marchant, Alan B.; and Wrobel, Joseph J., 4,336,545, Cl. 346-1.100.
Smith, Frank T. J., 4,336,295, Cl. 428-195.000.

Eaton, Benny J., to Eli Lilly and Company. Herbicidal method for fallow land. 4,336,056, Cl. 71-88.000.

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Berney, Jean-Claude, 4,336,608, Cl. 368-82.000.

Eberle, William J., to General Battery Corporation. Method of extrusion-fusion welding of lead parts through an aperture in a battery case. 4,336,437, Cl. 219-78.160.

Eck, Herbert: *See—*
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Eckstrom, Peter M.: *See—*
Schmidt, H. Dean; and Eckstrom, Peter M., 4,336,131, Cl. 209-3.000.

Economy Engine Company, The: *See—*
Beeghly, Bruce R., 4,336,463, Cl. 307-66.000.

Eda, Nobuo; Iijima, Takashi; and Toyoguchi, Yoshinori, to Matsushita Electric Industrial Co., Ltd. Organic electrolyte cell with manganese dioxide cathode and a light metal anode. 4,336,315, Cl. 429-194.000.

Edamura, Mizuo; Takamoto, Shyunji; Furuitsu, Satoshi; Bekku, Norikatsu; and Katayama, Toshiaki, to Kawasaki Jukogyo Kabushiki Kaisha. Method for manufacturing engine cylinder block. 4,336,076, Cl. 148-3.000.

Edelstein, Arthur, to Oriel Corporation. Power driven micrometer. 4,335,516, Cl. 33-164.00R.

Edgerton, Milton T.; Granato, Roberto C.; and Lynch, Henry W., to Medical Engineering Corporation. Implant for penile construction. 4,335,714, Cl. 128-79.000.

Edington, John E.: *See—*
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Edwards, Donald W.; Gorondy, Emery J.; and Van Roggen, Arend, to Du Pont de Nemours, E. I., and Company. Magnetic printing apparatus. 4,336,546, Cl. 346-74.700.

EG & G, Inc.: *See—*
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Egger, Eugen: *See—*
Herdin, Gunther; Kauer, Erhard; Muckenhuber, Maximilian; and Egger, Eugen, 4,335,686, Cl. 123-90.600.

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Eichmeier, Larry S.: *See—*
Caplis, Michael E.; and Eichmeier, Larry S., 4,335,872, Cl. 269-43.000.

Eicken, Karl; Rohr, Wolfgang; Goetz, Norbert; and Wuerzer, Bruno, to BASF Aktiengesellschaft. Herbicidal azolyl chloroacetanilides, compositions and method of use. 4,336,061, Cl. 71-92.000.

Eidejus, Edvardas. System of central heating. 4,335,848, Cl. 237-8.00R.

Eiden, Ronald R., to Minnesota Mining and Manufacturing Company. Anti-slip mat. 4,336,293, Cl. 428-143.000.

Eisen- und Drahtwerk Erlau Aktiengesellschaft: *See—*
Muller, Anton; Rauscher, Martin; and Witzel, Gunter, 4,335,489, Cl. 24-68.0CT.

Eissens, Alvin J.: *See—*
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Rapp, Joachim; and Bittmann, Peter, 4,335,966, Cl. 366-2.000.

Eley, James M.: *See—*
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Eli Lilly and Company: *See—*
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Hamill, Robert L.; Hoehn, Marvin M.; and Boeck, LaVerne D., 4,336,333, Cl. 435-75.000.
Kukolja, Stjepan, 4,336,191, Cl. 260-239.00A.
Lunn, William H. W.; and Shadle, John K., 4,336,253, Cl. 424-246.000.
Molloy, Bryan B.; and Steinberg, Mitchell I., 4,336,269, Cl. 424-330.000.
Scheifinger, Curtis C., 4,336,250, Cl. 424-177.000.
Wickiser, David I., 4,336,264, Cl. 424-272.000.

Elkin, Orville E. Jogging rope harness. 4,335,875, Cl. 272-70.000.

Ellsworth, James P.: *See—*
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Enokita, Ryuzou: *See—*
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Enomoto, Tatsuya: *See—*
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Envirotech Corporation: *See—*
Mueller, Max A.; Vandertoolen, Dirk; and Minear, Gerald, 4,336,139, Cl. 210-401.000.

Enzer, Steven E.; Sarrine, Robert J.; and Wilfong, William L., to Transidyne General Corporation. Apparatus for measuring electrochemical activity. 4,336,121, Cl. 204-195.00R.

Erckel, Rudiger: *See*—
Martini, Thomas; Erckel, Rudiger; Fruhbeis, Horst; Rosch, Gunter; and Probst, Heinz, 4,336,155, Cl. 252-301.210.
ERCO Industries Limited: *See*—
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Erickson, Porter W.: *See*—
Morris, David R.; and Erickson, Porter W., 4,336,367, Cl. 524-770.000.
Eriksen, Arthur E. Body system nutrient material. 4,336,247, Cl. 424-95.000.
ESCO Corporation: *See*—
Hahn, Frederick C.; Barber, William R., Jr.; and Hampel, David A., 4,335,532, Cl. 37-142.00R.
Etablissements Francois Salomon & Fils: *See*—
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Evans, Graham, to Ciba-Geigy AG. Optical brightening agents and photographic materials which contain these brightening agents. 4,336,326, Cl. 430-523.000.
Evans, John C., Jr.; Chai, An-Ti; and Goradia, Chandra P., to United States of America, National Aeronautics and Space Administration. Method of making a high voltage V-groove solar cell. 4,335,503, Cl. 29-572.000.
Evans, Robert F. Pressure compensator and lubricating reservoir with improved response to substantial pressure changes and adverse environment. 4,335,791, Cl. 175-228.000.
Evenstad, Donovan; and Lander, Cecil, to Wheelabrator-Frye Inc. Dust collector and filter bags therefor. 4,336,035, Cl. 55-97.000.
Ewing, Bruce A.; and Lindgren, Leonard C., to General Motors Corporation. Stress resistant hybrid radial turbine wheel. 4,335,997, Cl. 416-185.000.
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Wisniewski, Waldemar S.; and More, Henry S., 4,336,564, Cl. 361-154.000.
Exxon Research & Engineering Co.: *See*—
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Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., to Hoffmann-La Roche Inc. 1,4-Disubstituted piperazine compounds. 4,336,382, Cl. 544-374.000.
Fahrner, Donald A. Vehicle body surfacing and dolly assembly. 4,335,986, Cl. 409-116.000.
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Falkenbach, Gunther: *See*—
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Falzoni, Gianluigi, to Fiat Auto S.p.A. Drive transmission unit incorporating expansible-pulley stepless speed changer. 4,335,629, Cl. 74-689.000.
Fankhauser, Peter, to Firmenich SA. 6-Ethyl-2,10,10-trimethyl-1-oxaspiro[4.5]deca-3,6-diene. 4,336,197, Cl. 549-331.000.
Farkas, Michael S.: *See*—
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Farooq, Saleem: *See*—
Drabek, Jozef; Ackermann, Peter; Farooq, Saleem; Gsell, Laurenz; and Kristiansen, Odd, 4,336,266, Cl. 424-305.000.
Faverty, Delmar A.; and Shuck, Robert E., to Dresser Industries, Inc. Fiber-resin blending technique. 4,335,965, Cl. 366-150.000.
Fay, Homer, to Union Carbide Corporation. Method and apparatus for detecting fluorescence under ambient light conditions. 4,336,459, Cl. 250-459.000.
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Peronek, Michael H., 4,335,761, Cl. 141-371.000.
Feichtmayr, Franz; Naarmann, Herbert; Paust, Joachim; and Penzien, Klaus, to BASF Aktiengesellschaft. Preparation of electrically conductive carotenoids. 4,336,201, Cl. 260-410.90V.
Feldbljum, Nikolai B.: *See*—
Vorozhtsov, Georgy N.; Masanova, Natalia N.; Feldbljum, Nikolai B.; Alexeev, Vasily I.; Shigalevsky, Vadim A.; Solomatin, Georgy G.; Shulepova, Olga I.; Khaitun, Galina G.; and Gordeeva, Nadezhda V., 4,336,383, Cl. 546-52.000.
Feldman, Steven, to AMP Incorporated. Toolless phone plug. 4,335,930, Cl. 339-183.000.
Felix, Raymond A., to Stauffer Chemical Company. 2-Methyl-4-(chloroacetamido)methyl-4-(2-chlorophenyl)-1,3-dioxane herbicide antidote. 4,336,058, Cl. 71-88.000.
Felix, Raymond A., to Stauffer Chemical Company. Herbicidal cyclohexenone derivatives. 4,336,062, Cl. 71-98.000.
Fellows, Adrian N. Electrostatic imaging sheet. 4,336,306, Cl. 428-341.000.
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Ferranti Limited: *See*—
Bennett, Robert S.; and Griffiths, William E., 4,335,611, Cl. 73-517.00B.
Kane, Jeffrey, 4,336,528, Cl. 340-347.0DA.
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Gimpel, Juergen; Feuerherd, Karl-Heinz; and Schenck, Hans-Uwe, 4,336,346, Cl. 525-109.000.
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Fiat Trattori S.p.A.: *See*—
Benassi, GianCarlo, 4,335,887, Cl. 277-84.000.
Fiber Industries, Inc.: *See*—
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Fields, Robert E. Slider valves. 4,335,739, Cl. 137-269.000.
Figlhuber, Dietgar; Gallwas, Johannes; Weber, Robert; and Weber, Jakob, to Kraftwerk Union Aktiengesellschaft. Inspection and testing device. 4,336,104, Cl. 376-249.000.
Fildan, Gerhard. Fastener for maternity-nursing brassiere. 4,335,728, Cl. 128-460.000.
Findeis, Gunter; Fergg, Berthold; Osegowitsch, Viktor; Huber, Hans P.; and Meckl, Heinz, to Agfa-Gevaert Aktiengesellschaft. Method and apparatus for adjusting associated photographic copying and developing machines. 4,335,956, Cl. 355-27.000.
Finike Italiana Marposs, S.p.A.: *See*—
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Finke, Manfred: *See*—
Mundnich, Rainer; Finke, Manfred; Rupp, Walter; and Dehmer, Klaus, 4,336,206, Cl. 260-465.400.
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Fischli, Albert E.: *See*—
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Fisher, James L. Variable ratio rotary positioning mechanism and camera dolly steering mechanism embodying same. 4,335,626, Cl. 74-496.000.
Fisher, Theodore F.; and Saunders, John B., to Union Carbide Corporation. Acetylene removal in ethylene and hydrogen separation and recovery process. 4,336,045, Cl. 62-17.000.
Fisk, Harry R.: *See*—
Clark, Jeffrey J.; Fisk, Harry R.; and Wallace, Larry A., 4,336,312, Cl. 428-680.000.
Fisons Ltd.: *See*—
Brooker, Peter J.; and Goose, John, 4,336,262, Cl. 424-270.000.
Fitzmaurice, Richard W., to FMC Corporation. Harvesting shaker for crops such as tomatoes or the like. 4,335,570, Cl. 56-327.00R.
Fivizzani, Mary A.: *See*—
DeLuca, Hector F.; Schnoes, Heinrich K.; Paaren, Herbert E.; Wichmann, Joseph K.; and Fivizzani, Mary A., 4,336,193, Cl. 260-239.570.
Fixot, Marcel J. Apparatus for the coloring of slides. 4,335,673, Cl. 118-52.000.
Flasher, Gary L., to Bentley-Harris Manufacturing Co. Grounding structures comprising composite knitted fabrics. 4,335,589, Cl. 66-202.000.
Fleischer, Henry. Collapsible frames for baby carriers. 4,335,900, Cl. 280-649.000.
Fletcher, Richard A.: *See*—
Broadhurst, Jeffrey C.; Fletcher, Richard A.; and Jowitt, Peter F., 4,336,291, Cl. 428-101.000.
Flint & Walling, Inc.: *See*—
Robinson, Jimmie R.; and Thompson, Max E., 4,335,828, Cl. 220-334.000.
Fluid-Air Components, Inc.: *See*—
Nowak, Andrew, 4,335,993, Cl. 414-748.000.
FMC Corporation: *See*—
Billett, Ronald J., 4,335,583, Cl. 62-345.000.
Bubik, Leslie; Barclay, Stanley B.; Knaitner, Eugene L.; Williams, Frederic D. M.; and Alm, Bernard D., 4,335,772, Cl. 157-1.280.
Fitzmaurice, Richard W., 4,335,570, Cl. 56-327.00R.
Fogarasy, Attila A., to Xerox Corporation. Wire stitchers. 4,335,841, Cl. 227-90.000.
Fohl, Artur, to Repa Feinstanzwerk GmbH. Belt-lock for a safety belt. 4,335,491, Cl. 24-230.00A.
Fontani, Spartaco: *See*—
Landoni, Gianluigi; Fontani, Spartaco; and Cicchetti, Osvaldo, 4,336,182, Cl. 524-416.000.
Ford Aerospace & Communications Corp.: *See*—
Bains, William R., 4,335,657, Cl. 102-433.000.
Osborn, Douglas B.; and Pons, Robert L., 4,335,578, Cl. 60-641.800.
Ford Motor Company: *See*—
Bajorek, Benjamin T., 4,336,432, Cl. 219-10.410.
Gerlock, John L.; Braslaw, Jacob; and Stevens, William E., 4,336,406, Cl. 568-621.000.
Forker, Dieter: *See*—
Schmidt, Peter; Brunn, Otto; Forker, Dieter; and Schmidt, Willi, 4,335,492, Cl. 29-25.130.
Forschirm, Alex S., to Celanese Corporation. Non-hydrogenated thermoplastic elastomer coated fragment retentive returnable glass containers and process for the preparation thereof. 4,336,287, Cl. 428-35.000.

Foster Wheeler Energy Corporation: *See—*
Criswell, Robert L.; and Polagye, Michael C., 4,335,683, Cl. 122-4.00D.
Stewart, Robert D.; and Taylor, Thomas E., 4,335,661, Cl. 110-245.000.

Fouquet, Gerd: *See—*
Merger, Franz; and Fouquet, Gerd, 4,336,403, Cl. 560-211.000.

Fox, Steve A. Plastic extrusion apparatus and method. 4,336,213, Cl. 264-40.100.

Francis, John F.; Kirk, Bryan R.; and Terry, John C., to Gillette Company, The. Safety razor heads. 4,335,508, Cl. 30-47.000.

Frank, Clyde W.; Nord, Paul J.; and Cox, Robert D., to University of Iowa Research Foundation. Composition for determination of N-nitrosamines. 4,336,158, Cl. 252-408.000.

Franke, Albrecht: *See—*
Steiner, Gerd; and Franke, Albrecht, 4,336,192, Cl. 260-239.30T.

Franke, Hilmar: *See—*
Schmidberger, Rainer; and Franke, Hilmar, 4,336,242, Cl. 423-594.000.

Franklin Electric Co., Inc.: *See—*
Wetters, Dale D.; and Meyer, Gene L., 4,336,473, Cl. 310-88.000.

Franklin, Grover C., Jr. Method for mixing gases with liquids. 4,336,144, Cl. 210-758.000.

Frantz, Lanier: *See—*
Frantz, Virgil L.; and Frantz, Lanier, 4,336,042, Cl. 55-387.000.

Frantz, Virgil L.; and Frantz, Lanier, to Graham-White Sales Corporation. Canister-compactor assembly. 4,336,042, Cl. 55-387.000.

Frederiksen, Thomas M., to National Semiconductor Corporation. Zener regulator in butted guard band CMOS. 4,336,489, Cl. 323-231.000.

Frei, Hans-Joachim; and Wolf, Karl. Solarium. 4,335,724, Cl. 128-395.000.

Frentzel, Kurt H.; and Oskam, Herman, to Hunter Douglas International, N.V. Rotatable louver holder for louvered vertical venetian blind. 4,335,775, Cl. 160-177.000.

Frey, Max; and Krebs, Paul B., to Cornell Pump Company. Labyrinth seal with current-forming sealing passages. 4,335,886, Cl. 277-25.000.

Freyhardt, Herbert C.: *See—*
Bergmann, Hans; Bormann, Rudiger; Freyhardt, Herbert C.; and Mordike, Barry L., 4,336,065, Cl. 75-200.000.

Frick Company: *See—*
Andrew, Eduardo V.; Naunas, Robert A., Jr.; and Armstrong, Richard C., Jr., 4,336,001, Cl. 417-63.000.

Friedli, Hans R.; and Boriack, Clinton J., to Dow Chemical Company, The. Chlorinated cycloaliphatic (meth) acrylate compositions. 4,336,349, Cl. 525-210.000.

Friedrich, Hans-Helmut: *See—*
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Friemann, Hans: *See—*
Alberts, Heinrich; Friemann, Hans; Sattlegger, Hans; and Moretto, Hans-Heinrich, 4,336,358, Cl. 525-439.000.

Frost, Jonathan B.: *See—*
Koletar, Gabor I.; Frost, Jonathan B.; DuPont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,336,256, Cl. 424-256.000.

Fruhbeis, Horst: *See—*
Martini, Thomas; Erckel, Rudiger; Fruhbeis, Horst; Rosch, Gunter; and Probst, Heinz, 4,336,155, Cl. 252-301.210.

Frye, Richard D. Hose connectors and hoses equipped with same. 4,335,753, Cl. 138-109.000.

Fryer, Rodney I.; and Gilman, Norman W., to Hoffmann-La Roche Inc. Thiazolyl benzophenone compounds. 4,336,388, Cl. 548-194.000.

Fuerst, Ernst: *See—*
Appl, Max; Wagner, Ulrich; Henrici, Hans J.; Kuessner, Klaus; Volkamer, Klaus; and Fuerst, Ernst, 4,336,233, Cl. 423-228.000.

Fuji Photo Film Co., Ltd.: *See—*
Aoki, Kozo; Sawada, Satoru; and Furutachi, Nobuo, 4,336,325, Cl. 430-505.000.
Fujita, Shinsaku; Koyama, Koichi; Inagaki, Yoshio; and Waki, Kokichi, 4,336,322, Cl. 430-242.000.
Kohayakawa, Ken; Ohba, Hisao; and Sano, Atuhiro, 4,336,093, Cl. 29-399.000.
Nagashima, Akira; and Kita, Nobuyuki, 4,336,319, Cl. 430-165.000.
Sato, Masamichi, 4,336,316, Cl. 430-5.000.
Tanaka, Mitsugu; and Tsuda, Momotoshi, 4,336,327, Cl. 430-556.000.
Yamada, Yasuyuki; Masuyama, Kenichi; and Tsuji, Nobuo, 4,336,308, Cl. 428-425.900.

Fuji Photo Optical Co., Ltd.: *See—*
Numata, Saburo, 4,336,481, Cl. 315-241.00P.

Fujikura Cable Works, Ltd.: *See—*
Takahashi, Shiro; Sanada, Kazuo; Inada, Koichi; and Fukuda, Osamu, 4,336,049, Cl. 65-3.120.

Fujita, Shinsaku; Koyama, Koichi; Inagaki, Yoshio; and Waki, Kokichi, to Fuji Photo Film Co., Ltd. Color photographic light-sensitive material. 4,336,322, Cl. 430-242.000.

Fujita, Tomohiro: *See—*
Maehara, Toshifumi; and Fujita, Tomohiro, 4,335,736, Cl. 137-87.000.

Fujita, Tsuyoshi; Yokoyama, Tomio; and Ishi, Ichiro, to Hitachi, Ltd. Thick-film printed circuit board and method for producing the same. 4,336,551, Cl. 357-80.000.

Fujita, Yoshiji: *See—*
Torii, Sigeru; Uneyama, Kenji; Onishi, Takashi; Fujita, Yoshiji; Ishiguro, Michihiro; and Nishida, Takashi, 4,336,202, Cl. 549-466.000.

Fujitsu Limited: *See—*
Nakano, Masao; Takemae, Yoshihiro; and Kabashima, Katsuhiko, 4,336,465, Cl. 307-238.300.

Fujiwara, Akiko: *See—*
Fujiwara, Mitsuhiko; Fujiwara, Akiko; and Miyamoto, Chikara, 4,336,332, Cl. 435-58.000.

Fujiwara, Mitsuhiko; Fujiwara, Akiko; and Miyamoto, Chikara, to Hoffmann-La Roche, Inc. Process for the manufacture of hydroxylated steroids. 4,336,332, Cl. 435-58.000.

Fujiwara, Tsuyoshi; Sugimoto, Osamu; and Isoda, Chuzo, to Dai-Ichi Kogyo Seiyaku Co., Ltd. Production of polyisocyanurate foam. 4,336,341, Cl. 521-109.000.

Fukuda, Norio: *See—*
Sata, Takeo; Takamura, Masayuki; Iijima, Kenzaburo; and Fukuda, Norio, 4,336,066, Cl. 75-211.000.

Fukuda, Osamu: *See—*
Takahashi, Shiro; Sanada, Kazuo; Inada, Koichi; and Fukuda, Osamu, 4,336,049, Cl. 65-3.120.

Fukumoto, Hiroshi; and Takasu, Yoshio, to Canon Kabushiki Kaisha. Electrostatic image developing method. 4,336,318, Cl. 430-120.000.

Fukuta, Kenji; Onooka, Ryuzo; Aoki, Eiji; and Tsumuraya, Shigeo, to Agency of Industrial Science & Technology; and Ministry of International Trade & Industry. Three-dimensionally latticed flexible-structure composite. 4,336,296, Cl. 428-257.000.

Funakoshi, Wataru: *See—*
Shiozaki, Masahiro; Nawata, Kiyoshi; Wada, Osamu; Tsunawaki, Kiyokazu; Kuratsuji, Takatoshi; Funakoshi, Wataru; and Suzuki, Togi, 4,336,307, Cl. 428-398.000.

Furuhashi, Toshio: *See—*
Abe, Osame; Suda, Seiji; and Furuhashi, Toshio, 4,335,689, Cl. 123-339.000.

Furuitsu, Satoshi: *See—*
Edamura, Mizuo; Takamoto, Shyunji; Furuitsu, Satoshi; Bekku, Norikatsu; and Katayama, Toshiaki, 4,336,076, Cl. 148-3.000.

Furuoya, Itsuo: *See—*
Onishi, Isatsugu; Furuoya, Itsuo; and Minato, Ichiro, 4,336,205, Cl. 260-465.00C.

Furutachi, Nobuo: *See—*
Aoki, Kozo; Sawada, Satoru; and Furutachi, Nobuo, 4,336,325, Cl. 430-505.000.

Furuya, Takeo: *See—*
Kobayashi, Kyoji; and Furuya, Takeo, 4,336,517, Cl. 335-205.000.

Fushiki, Yasuo; Abe, Masaharu; and Uekita, Masakazu, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Electrical laminate. 4,336,297, Cl. 428-284.000.

Fuzita, Yasuhiro, to Hitachi, Ltd. Coil winding machine. 4,335,856, Cl. 242-7.05B.

G. D. Searle & Co.: *See—*
Mueller, Richard A., 4,336,252, Cl. 424-198.000.
Sanvordeker, Dilip R.; Cooney, James G.; and Wester, Ronald C., 4,336,243, Cl. 424-28.000.

G. Siempelkamp GmbH & Co.: *See—*
Pesch, Jurgen, 4,336,008, Cl. 425-406.000.

Gagnon, Joseph A. L. N.: *See—*
Shaw, David N.; and Gagnon, Joseph A. L. N., 4,335,582, Cl. 62-196.00R.

Gal, Uzi, to Action Manufacturing Company. Semi-automatic firearms. 4,335,643, Cl. 89-196.000.

Galafassi, Pierre: *See—*
Adam, Jean-Marie; and Galafassi, Pierre, 4,336,377, Cl. 544-74.000.

Gallais, Philippe: *See—*
Babiol, Pierre; and Gallais, Philippe, 4,335,815, Cl. 206-277.000.

Gallwas, Johannes: *See—*
Figlhuber, Dietgar; Gallwas, Johannes; Weber, Robert; and Weber, Jakob, 4,336,104, Cl. 376-249.000.

Ganz, Frederick M.; Cermignani, Justine D.; and Imgram, Richard H., to Grumman Corporation. Electronically scanned aircraft antenna system having a linear array of yagi elements. 4,336,543, Cl. 343-705.000.

Garabedian, Armen. Process for making a stress-free plastic article. 4,336,221, Cl. 264-241.000.

Garganese, Richard S., to Industrial Packaging Co., Inc. Solution container. 4,335,830, Cl. 220-462.000.

Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E. Analytical fluorogenic substrates for proteolytic enzymes. 4,336,186, Cl. 260-112.50R.

Garlock Inc.: *See—*
Cather, Douglas A., Jr.; and Benjamin, Martin E., 4,335,889, Cl. 277-152.000.

Garman, Ronald H.; and Welker, Gerald H., to Caterpillar Tractor Co. Governor and decelerator control linkage. 4,335,624, Cl. 74-482.000.

Garrett Corporation, The: *See—*
Clark, Jeffrey J.; Fisk, Harry R.; and Wallace, Larry A., 4,336,312, Cl. 428-680.000.
Parker, Kenneth O., 4,335,782, Cl. 165-1.000.

Garshelis, Ivan J.: *See—*
Wood, Russell J.; and Garshelis, Ivan J., 4,335,608, Cl. 73-301.000.

Garza, Philip A.; and Carter, Barbara A. Sanitary catcher and scooper. 4,335,678, Cl. 119-1.000.

Gates Rubber Company, The: *See—*
Haines, William M., 4,336,021, Cl. 474-256.000.

Gavriljuk, Jury A.: *See*—
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.
Gavris, Genrikh B.: *See*—
Lukhvich, Alexandr A.; Rudnitsky, Valery A.; Linnik, Ivan I.; and Gavris, Genrikh B., 4,336,498, Cl. 324-230.000.
Gebruder Linck, Maschinenfabrik und Eisengiesserei "Gatterlinck": *See*—
Reuter, Alfred, 4,335,767, Cl. 144-370.000.
Geldmacher, Barbara J. Therapeutic heat cushion. 4,335,725, Cl. 128-399.000.
Gellermann, Siegfried: *See*—
Kalfa, Horst; Schubert, Bruno; Brunmayer, Peter; and Gellermann, Siegfried, 4,335,615, Cl. 73-799.000.
Gema, S.A.: *See*—
Coll, Antonio L. P.; Meseguer, Jose D.; Bianchini, Asuncion E.; and Pitarch, Esteve S., 4,336,376, Cl. 544-030.000.
General Battery Corporation: *See*—
Eberle, William J., 4,336,437, Cl. 219-78.160.
General Binding Corporation: *See*—
Azzato, Robert N.; Staats, Henry N.; and Morrissey, Neal J., 4,335,659, Cl. 108-28.000.
General Dynamics, Pomona Division: *See*—
Palmer, John P., 4,335,933, Cl. 350-96.190.
General Electric Company: *See*—
Barrett, David M.; Love, William D.; and Donaldson, Joseph L., 4,335,928, Cl. 339-94.00C.
Bradley, Irving; and Vodicka, Vincent, 4,336,578, Cl. 362-267.000.
Crivello, James V., 4,336,363, Cl. 526-333.000.
Hanson, James M., 4,336,577, Cl. 362-267.000.
Miller, Matthew S., 4,336,434, Cl. 219-10.55F.
Rosenberry, George M., Jr., 4,335,972, Cl. 403-11.000.
Tantraporn, Wirojana, 4,336,099, Cl. 156-614.000.
Wright, Jack D., 4,335,573, Cl. 60-261.000.
Wu, Peter T.; and Grabkowski, Stephen E., 4,335,600, Cl. 73-117.300.
General Electric Company Limited, The: *See*—
Wickenden, Dennis K.; and Vincent, Vera M., 4,335,501, Cl. 29-569.00L.
General Instrument Corporation: *See*—
Mouyard, Arthur A.; Hamby, Michael V.; and Tomaszek, Paul A., 4,336,580, Cl. 362-347.000.
General Motors Corporation: *See*—
Ewing, Bruce A.; and Lindgren, Leonard C., 4,335,997, Cl. 416-185.000.
Kazewych, Bohdan, 4,335,541, Cl. 49-360.000.
Kotowski, Thomas W., 4,336,562, Cl. 361-88.000.
Shipp, Robert A.; and Hung, Chuan-Yung, 4,336,448, Cl. 235-92.0MS.
George Koch Sons, Inc.: *See*—
Williams, Stanley E., 4,335,758, Cl. 140-88.000.
George, Robert W.; Miller, Casper W.; and Rapey, Kenneth, to National Can Corporation. Apparatus for applying liners to closures. 4,336,011, Cl. 425-129.00R.
Georgetown University: *See*—
Gregory, William D.; Capots, Larry H.; Morelli, Luigi; Muhlke, John, III; and Nolan, Thomas A., Jr., 4,336,493, Cl. 324-61.00R.
Georgia Equipment Manufacturing Inc.: *See*—
Bratschitsch, John, 4,335,982, Cl. 406-48.000.
Gerard, Francois; and Machat, Jean-Yves, to Compagnie Generale des Etablissements Michelin. Electrodes with current outlets. 4,336,124, Cl. 204-284.000.
Gerhardy, Reinhard, to Andreas Stihl. Carburetor for internal combustion engine. 4,336,208, Cl. 261-71.000.
Gerlock, John L.; Braslaw, Jacob; and Stevens, William E., to Ford Motor Company. Polyol extraction by high boiling alkanes. 4,336,406, Cl. 568-621.000.
Gesellschaft fur Schneidtechnik mit beschrankter Haftung: *See*—
Schocher, Werner, 4,335,638, Cl. 83-801.000.
Giannini, Umberto; Cassata, Antonio; Longi, Paolo; and Mazzocchi, Romano, to Montecatini Edison S.p.A. Process for the stereoregular polymerization of alpha-olefins. 4,336,360, Cl. 526-114.000.
Gibbs, Hugh H., to Du Pont de Nemours, E. I., and Company. Polyimide precursor solutions. 4,336,175, Cl. 524-726.000.
Gierenz, Gerhard: *See*—
Kohlstadt, Hans-Peter; Ozelli, Riza N.; and Gierenz, Gerhard, 4,336,171, Cl. 524-510.000.
Giglia, Robert D.; and Huang, Sun Y., to American Cyanamid Company. Electrochromic cells with improved electrolyte system. 4,335,938, Cl. 350-357.000.
Giguere, Marcel L. System for processing soils contaminated by crude oils or other refined petroleum products. 4,336,136, Cl. 210-178.000.
Gillery, F. Howard, to PPG Industries, Inc. Method of and apparatus for control of reactive sputtering deposition. 4,336,119, Cl. 204-192.00P.
Gillespie, Robert A., to Brent Chemicals Corporation. Multiple washer laundry system with common function control. 4,335,591, Cl. 68-12.00R.
Gillette Company, The: *See*—
Francis, John F.; Kirk, Bryan R.; and Terry, John C., 4,335,508, Cl. 30-47.000.
Gilman, Lester, to Kidde Consumer Durables Corp. Breakaway plaster frame. 4,336,575, Cl. 362-147.000.
Gilman, Norman W.: *See*—
Fryer, Rodney I.; and Gilman, Norman W., 4,336,388, Cl. 548-194.000.
Gimpel, Juergen; Feuerherd, Karl-Heinz; and Schenck, Hans-Uwe, to BASF Aktiengesellschaft. Copolymers containing blocked isocyanate groups, and their use in anodic electrocoating. 4,336,346, Cl. 525-109.000.
Giordano, Claudio; and Belli, Aldo, to Blasinachim S.p.A. Process for the preparation of 4-[2-(dimethylamino)-ethoxy]2-methyl-5-(1-methylethyl)-phenol esters and their salts. 4,336,396, Cl. 560-20.000.
Glacier Metal Company, Limited, The: *See*—
Stopp, Peter G., 4,335,925, Cl. 308-160.000.
Gladish, Herbert E., to E. B. Eddy Forest Products, Ltd. Suspension override system. 4,335,901, Cl. 280-711.000.
Glass, Seymour, executor: *See*—
Dierks, Raymond W., deceased; Noviello, Nicholas, Jr., executor; and Glass, Seymour, executor, 4,335,845, Cl. 229-69.000.
Glassman, Jacob A. Catamenial tampon with hollow core. 4,335,720, Cl. 128-270.000.
Glavitsch, Hans; and Guth, Gerhard, to BBC Brown, Boveri & Company Limited. Transformer for the controllable shifting of the phase angle of output voltages in relation to the phase angles of input voltages. 4,336,488, Cl. 323-215.000.
Glockle, Werner A.: *See*—
Schwaab, Konstantin H.; Petzold, W. Andreas; and Glockle, Werner A., 4,335,666, Cl. 112-130.000.
Glockler, Otto: *See*—
Schnurle, Hans; Horbelt, Michael; Drews, Ulrich; Werner, Peter; Glockler, Otto; Gunther, Dieter; and Bertsch, Richard, 4,335,696, Cl. 123-492.000.
Godai, Tomokazu; Sugiyama, Tohru; and Nishikawa, Yutaka, to Kobe Steel, Ltd. Welding process. 4,336,441, Cl. 219-137.0WM.
Goertler, Horst; Munz, Joachim; Prohaska, Hans; and Rachner, Horst, to ITT Industries, Inc. Rear window wiper motor control. 4,336,482, Cl. 318-443.000.
Goes, Michael J.; and Schmidlin, Albertus E. Fluidic recoil buffer for small arms. 4,335,644, Cl. 89-198.000.
Goetz, Norbert: *See*—
Eicken, Karl; Rohr, Wolfgang; Goetz, Norbert; and Wuerzer, Bruno, 4,336,061, Cl. 71-92.000.
Goffman, Martin: *See*—
Kudryk, Val; and Goffman, Martin, 4,336,237, Cl. 423-531.000.
Goldis, Alexander; Sellen, Kenneth R.; and Banka, Eugene F., to Burroughs Corporation. Continuous deaeration system for a fluid pump system. 4,336,037, Cl. 55-171.000.
Gomibuchi, Reizo: *See*—
Tomibe, Shinji; Gomibuchi, Reizo; and Takahashi, Kiyofumi, 4,336,028, Cl. 8-624.000.
Gonda, Gerald J.; and Vancza, John, Jr., to Tri-Tronics, Inc. Animal training apparatus. 4,335,682, Cl. 119-29.000.
Gonmori, Makoto: *See*—
Nonaka, Kohei; Koyama, Masahiro; Gonmori, Makoto; Kimura, Takeo; and Shiga, Tetsuo, 4,335,957, Cl. 355-30.000.
Goodfellow, Robert D., to Kennametal Inc. Rotary cone cutter. 4,335,794, Cl. 175-337.000.
Goodman, Donald. Lighted coaster for drinking glasses. 4,336,574, Cl. 362-101.000.
Goodsell, John P., to Harvey Hubbell Incorporated. Fire-rated feed-through fitting for transferring insulated wires through a concrete floor. 4,336,416, Cl. 174-48.000.
Goodwin, William V.; and Williams, James S., deceased (by Williams, Elizabeth J., executrix), to RCA Corporation. Radar system. 4,336,540, Cl. 343-16.00R.
Goodyear Aerospace Corporation: *See*—
Beck, Arnold A., 4,336,592, Cl. 364-426.000.
Goodyear Tire & Rubber Company, The: *See*—
Reuter, Rene F., 4,335,771, Cl. 152-361.0FP.
Goose, John: *See*—
Brooker, Peter J.; and Goose, John, 4,336,262, Cl. 424-270.000.
Goradia, Chandra P.: *See*—
Evans, John C., Jr.; Chai, An-Ti; and Goradia, Chandra P., 4,335,503, Cl. 29-572.000.
Gordeeva, Nadezhda V.: *See*—
Vorozhtsov, Georgy N.; Masanova, Natalia N.; Feldbljum, Nikolai B.; Alexeev, Vasily I.; Shigalevsky, Vadim A.; Solomatin, Georgy G.; Shulepova, Olga I.; Khaitun, Galina G.; and Gordeeva, Nadezhda V., 4,336,383, Cl. 546-52.000.
Gorden, Dale I.; and Petersen, Sigrud R., to Westinghouse Electric Corp. Dynamoelectric machines brushless supplemental excitation system. 4,336,486, Cl. 322-63.000.
Gorondy, Emery J.: *See*—
Edwards, Donald W.; Gorondy, Emery J.; and Van Roggen, Arend, 4,336,546, Cl. 346-74.700.
Goto, Motoomi, to Nippon Gakki Seizo Kabushiki Kaisha. Amplifier with input stage differential amplifying circuit. 4,336,502, Cl. 330-253.000.
Gottermeier, William F., to Eastman Kodak Company. Method of making capillary bridge in apparatus for determining ionic activity. 4,336,091, Cl. 156-244.120.
Gould, Gerald, to Gould, Roger E., a part interest. Building block system. 4,335,553, Cl. 52-375.000.
Gould, Roger E.: *See*—
Gould, Gerald, 4,335,553, Cl. 52-375.000.

Grabb, Frederick G., to Bendix Corporation, The. Movable end plate for a vacuum pump. 4,336,004, Cl. 417-283.000.
Grabkowski, Stephen E.: *See—*
Wu, Peter T.; and Grabkowski, Stephen E., 4,335,600, Cl. 73-117.300.
Graboplast Gyori Pamutszovo-es Muborgyar: *See—*
Lorant, Ivan; Csernyanszky, Imre; Murlasits, Gyula; Rusznyak, Rezso; and Szabo nee Paulyuk, Paula, 4,336,300, Cl. 428-316.600.
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, to Robert Bosch GmbH. Gear positive displacement machine with gaps between bearing members and housing. 4,336,006, Cl. 418-131.000.
Graham, Kenneth G. Vehicle seat-occupancy recorder. 4,336,522, Cl. 340-52.00R.
Graham-White Sales Corporation: *See—*
Frantz, Virgil L.; and Frantz, Lanier, 4,336,042, Cl. 55-387.000.
Gramera, Robert E. Magnetically-automated uncoupling system for model railroads. 4,335,820, Cl. 213-75.0TC.
Granato, Roberto C.: *See—*
Edgerton, Milton T.; Granato, Roberto C.; and Lynch, Henry W., 4,335,714, Cl. 128-79.000.
Grandel, Johannes; and Falkenbach, Gunther, to Braun AG. Electric household blender with motor enabled by lid locking. 4,335,860, Cl. 241-37.500.
Grandmaison, John P.: *See—*
Vernon, John H.; Grandmaison, John P.; and Huettner, Robert E., 4,336,588, Cl. 364-200.000.
Grass, Gunter. Lift device. 4,335,805, Cl. 187-12.000.
Graunke, Donald R., to Boeing Company, The. Method for determining the strength of a metal processing solution. 4,336,111, Cl. 204-1.00T.
Gray, Joseph E.: *See—*
Alaimo, Robert J.; and Gray, Joseph E., 4,336,199, Cl. 549-496.000.
Greenberg, Sheldon, to Shelcore, Inc. Inflatable overhead crib gym toy. 4,335,538, Cl. 46-88.000.
Greenfield, Charles; Casparian, Robert E.; and Bonanno, Anthony J., to Hanover Research Corporation. Process and apparatus for recovering clean water and solids from aqueous solids. 4,336,101, Cl. 159-16.00S.
Gregory, William D.; Capots, Larry H.; Morelli, Luigi; Muhlke, John, III; and Nolan, Thomas A., Jr., to Georgetown University. Identification of materials using their complex dielectric response. 4,336,493, Cl. 324-61.00R.
Greiner, Yvan, to Portescap. Device for measuring the operation of a timepiece movement. 4,335,596, Cl. 73-6.000.
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Holter, Heinz; Gresch, Heinz; and Igelbuscher, Heinrich, 4,335,708, Cl. 126-442.000.
Greskovich, Eugene J.: *See—*
Dalton, Augustine I., Jr.; Greskovich, Eugene J.; and Skinner, Ronald W., 4,336,238, Cl. 423-584.000.
Griesemer, Douglas E., Sr., to RCA Corporation. Method for vaporizing getter material in a succession of cathode-ray tubes. 4,335,926, Cl. 316-3.000.
Griffin, Gladys B. Collector assembly and specimen tube therefor. 4,335,730, Cl. 128-760.000.
Griffiths, William E.: *See—*
Bennett, Robert S.; and Griffiths, William E., 4,335,611, Cl. 73-517.00B.
Groginsky, Charles M.: *See—*
Orlowski, Ronald C.; Groginsky, Charles M.; and Seyler, Jay K., 4,336,187, Cl. 260-112.50T.
Grogler, Gerhard: *See—*
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Grumman Corporation: *See—*
Ganz, Frederick M.; Cermignani, Justine D.; and Imgram, Richard H., 4,336,543, Cl. 343-705.000.
Gsell, Laurenz: *See—*
Drabek, Jozef; Ackermann, Peter; Farooq, Saleem; Gsell, Laurenz; and Kristiansen, Odd, 4,336,266, Cl. 424-305.000.
GTE Laboratories Incorporated: *See—*
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GTE Products Corporation: *See—*
Brower, Boyd G.; and Houseknecht, Gary L., 4,336,570, Cl. 362-4.000.
Gulbins, Erich: *See—*
Schupp, Eberhard; Kempter, Fritz E.; and Gulbins, Erich, 4,336,116, Cl. 204-159.110.
Gulf & Western Manufacturing Company: *See—*
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Gunther, Dieter: *See—*
Schnurle, Hans; Horbelt, Michael; Drews, Ulrich; Werner, Peter; Glockler, Otto; Gunther, Dieter; and Bertsch, Richard, 4,335,696, Cl. 123-492.000.
Gunzelmann, Edward J.; Thettu, Raghulinga R.; and Wood, Larry M., to Xerox Corporation. Frame assembly with upper and lower frame members for automatic reproducing apparatus. 4,335,950, Cl. 355-3.00R.
Gunzner, Fred G., to Acu-Edge, Inc. High-speed manufacturing system for saber sawblades and the like. 4,335,630, Cl. 76-25.00R.
Gurth, Max I. Method and apparatus for pumping large solid articles. 4,335,994, Cl. 415-90.000.
Gust, Irish, Jeffers & Hoffman: *See—*
Bice, Howard W.; and Williams, Don W., 4,336,444, Cl. 219-505.000.
Gutgsell, David R. Truck bed cap structure. 4,335,916, Cl. 296-100.000.
Guth, Gerhard: *See—*
Glavitsch, Hans; and Guth, Gerhard, 4,336,488, Cl. 323-215.000.
Guthrie, Robert W.: *See—*
Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., 4,336,382, Cl. 544-374.000.
Gutris, Giorgio. Rotary electric machine of the in-out type provided with integral stator supporting means, component for said machine and method for assembling the same. 4,336,470, Cl. 310-42.000.
Guzman-Bofill, Carlos; and Dominguez-Ahedo, Carlos, to Hylsa, S.A. Method and apparatus for the gaseous reduction of iron ore to sponge iron. 4,336,063, Cl. 75-35.000.
Gylden, Nils O.; Karlen, Nial T.; Andersson, Jarl B. E.; and Andersson, Anders G. T. Process and device for preparing cast explosive bodies. 4,336,209, Cl. 264-3.00R.
Haberl, Johann, to Dustcontrol AB. Dust separator. 4,336,040, Cl. 55-304.000.
Hackney, John. Sail batten improvements. 4,335,669, Cl. 114-103.000.
Hadley, Michael S.; and King, Francis D., to Beecham Group Limited. Certain aza-bicyclo-benzamide derivatives and pharmaceutical compositions containing same. 4,336,259, Cl. 424-265.000.
Hafner, Dieter, to Diehl GmbH & Co. Apparatus for the manual production of digital pulses. 4,336,446, Cl. 235-92.0DE.
Haggard, Richard A.: *See—*
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Hagihara, Kazuyo: *See—*
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Hague, Robert Z.; Marsicano, Matthew F.; and Hantman, Edwin F., to Textron, Inc. Machine tool. 4,335,498, Cl. 29-568.000.
Hahn, Frederick C.; Barber, William R., Jr.; and Hampel, David A., to ESCO Corporation. Excavating tooth. 4,335,532, Cl. 37-142.00R.
Haines, William M., to Gates Rubber Company, The. Emergency belting and kit. 4,336,021, Cl. 474-256.000.
Hall, James O.: *See—*
Reaume, Leonard V.; and Hall, James O., 4,335,762, Cl. 144-194.000.
Halliburton Company: *See—*
Briscoe, James E., 4,336,145, Cl. 252-8.55R.
Murphey, Joseph R.; and Young, Bill M., 4,335,788, Cl. 166-278.000.
Halpern, Yuval, to Borg-Warner Chemicals, Inc. Intumescent flame retardant thermoplastic polyphenylene ether compositions. 4,336,184, Cl. 523-179.000.
Halstead, William M. Cable tie installing and releasing tool. 4,335,477, Cl. 7-158.000.
Hamala, Sirpa L.; Koivunen, Seppo T.; Kontturi, Anna-Kaisa; and Sarkkinen, Veli J., to Oy Tampella AB. Process for recovering lignosulfonates from spent sulfite liquor. 4,336,189, Cl. 260-124.00R.
Hambly, Warren E.: *See—*
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Hamby, Michael V.: *See—*
Mouyard, Arthur A.; Hamby, Michael V.; and Tomaszek, Paul A., 4,336,580, Cl. 362-347.000.
Hamer, George D.; and Russell, Robert F., to Scott Bader Company Limited. Unsaturated polyester resins. 4,336,169, Cl. 523-511.000.
Hamill, Robert L.; Hoehn, Marvin M.; and Boeck, LaVerne D., to Eli Lilly and Company. Process for preparing tunicamycin. 4,336,333, Cl. 435-75.000.
Hamlet, Buck C.: *See—*
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Hampel, David A.: *See—*
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Hanas, Bertil; and Stenkvist, Sven-Einar, to ASEA Aktibolag. Molten metal heating, stirring and casting apparatus. 4,336,411, Cl. 373-85.000.
Hand, George E., to Kerr Concrete Pipe Company. Apparatus for forming concrete articles of uniform density. 4,336,013, Cl. 425-145.000.
Handte, Reinhard: *See—*
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Haneishi, Tatsuo: *See—*
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Hanford, William E., Jr.; and Hanford, William E., Sr. Water decontamination apparatus. 4,336,225, Cl. 422-106.000.
Hanford, William E., Sr.: *See—*
Hanford, William E., Jr.; and Hanford, William E., Sr., 4,336,225, Cl. 422-106.000.
Hannett, William J.; Brendel, Thomas E.; and Wilson, David S., to Carrier Corporation. Refrigeration unit with water cooled condenser. 4,335,580, Cl. 62-79.000.
Hanover Research Corporation: *See—*
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Hanson, James M., to General Electric Company. Mounting pads for plastic par lamp. 4,336,577, Cl. 362-267.000.
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Hapke, Friedrich, to U.S. Philips Corporation. Integrated circuit arrangement in MOS-technology with field-effect transistors. 4,336,495, Cl. 324-158.00T.
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Harpell, Gary A.: *See—*
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Harvey Hubbell Incorporated: *See—*
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Harvey, Walter L.: *See—*
Leach, J. Michael; and Harvey, Walter L., 4,336,077, Cl. 148-3.000.
Harvill, William A., to Cornelius Company, The; and Coca-Cola Company, The. Beverage dispenser having an improved level control for a liquid heat exchange medium. 4,335,836, Cl. 222-108.000.
Hasegawa, Toshifumi: *See—*
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Hashimoto, Toshio: *See—*
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Hastings, Donald R., to Nordson Corporation. Electrostatic spray gun. 4,335,851, Cl. 239-3.000.
Hata, Hideo: *See—*
Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,336,212, Cl. 264-22.000.
Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,336,350, Cl. 525-211.000.
Hattori, Yoshiyuki: *See—*
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Hauler, Peter; and Hinke, Walter, to Robert Bosch GmbH. Pulse generator, particularly to provide ignition pulses for internal combustion engines. 4,335,700, Cl. 123-617.000.
Hautemont, Jean-Claude, to Pak Pro International N.V. Device for severing and transferring a label. 4,335,635, Cl. 83-160.000.
Hayashi, Eiji: *See—*
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Hayes, Stanley B., Jr.; and O'Connor, Robert T., to EG & G, Inc. Dew point hygrometer with two cooled reflective surfaces. 4,335,597, Cl. 73-17.00A.
Heard, Maurice C., to Marconi Company Limited, The. Wind speed measurement. 4,336,606, Cl. 367-117.000.
Hedges, Walter P.; and Sullivan, C. Gardner, II, to Cyborex Laboratories, Inc. Electrical load restoration system. 4,336,462, Cl. 307-35.000.
Heiba, El-Ahmadi I.: *See—*
Chen, Tsong M.; Heiba, El-Ahmadi I.; and John, William W., 4,336,052, Cl. 71-28.000.
Heidingher, Alexandru; and Sinko, Ioan, to Centrala Minereurilor si Metalurgiei, Neferoase Baia Mare. Process for preparing abrasion and corrosion resistant material. 4,336,178, Cl. 523-206.000.
Heikel, Aslak R.: *See—*
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Hellige GmbH: *See—*
Hopmeier, Joachim; Leist, Helmut; and Ullrich, Georg J., 4,336,031, Cl. 23-232.00R.
Hendrickson, Alvin E. Navigational aid device. 4,336,539, Cl. 343-6.0TV.
Henkel Corporation: *See—*
Lindner, Robert A., 4,336,176, Cl. 524-310.000.
Henkel Kommanditgesellschaft auf Aktien (Henkel GaA): *See—*
Kohlstadt, Hans-Peter; Ozelli, Riza N.; and Gierenz, Gerhard, 4,336,171, Cl. 524-510.000.
Henneberger, Roy L.: *See—*
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Henson, Edwin R.; and Koranek, David J., to Dow Chemical Company, The. Preparation of 4-amino-3,5,6-trichloropicolinic acid. 4,336,384, Cl. 546-327.000.
Herbertz, Toni: *See—*
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Hulshof, Lumbertus A., 4,336,401, Cl. 560-106.000.
Majewicz, Thomas G.; and Podlas, Thomas J., 4,336,146, Cl. 252-8.55R.
Herdin, Gunther; Kauer, Erhard; Muckenhuber, Maximilian; and Egger, Eugen, to Steyr-Daimler-Puch Aktiengesellschaft. Valve control and pump-actuating means of internal combustion engine with fuel injection. 4,335,686, Cl. 123-90.600.
Herrmann, Henry O., Jr., to AMP Incorporated. Elastomeric potting shell. 4,335,932, Cl. 339-218.00M.
Heshmat, Hooshang, to Mechanical Technology Incorporated. Plural fluid magnetic/centrifugal seal. 4,335,885, Cl. 277-13.000.
Hesse, Peter; Schinle, Friedbert; and Loscher, Helmut, to W. C. Heraeus GmbH. Method and apparatus for treatment of biological substances, particularly for cultivation of biological cells and tissues, or of microorganisms. 4,336,329, Cl. 435-3.000.
Hetherington, Richard J.; Melvin, George E.; Milkovich, Stephen A.; and Urfer, Ernest N., to International Business Machines Corp. Method of fabricating an improved multi-layer ceramic substrate. 4,336,088, Cl. 156-89.000.
Hewes, Charles R., to Texas Instruments Incorporated. Charge coupled device filters and modems incorporating such filters. 4,336,613, Cl. 375-9.000.
Hewlett-Packard Company: *See—*
Donald, David K.; Lee, Michael J.; and Vaught, John L., 4,336,544, Cl. 346-1.100.
Regan, Richard J., 4,336,513, Cl. 333-173.000.
Hickling, David J., to Plessey Handel und Investments AG. Cover assemblies for electrical apparatus. 4,336,417, Cl. 174-52.00R.
Hijikata, Toshio; and Kawasaki, Kazuhiro, to Neturen Company, Ltd. Process of preparing steel coil spring. 4,336,081, Cl. 148-12.00B.
Hill, Eugene; Jansons, Arnolds; and Truchard, James J., to United States of America, Navy. Beamformer having random access memory delay. 4,336,607, Cl. 367-123.000.
Hillman, Leon. Ultraviolet method for disinfection and sterilization of fluids. 4,336,223, Cl. 422-24.000.
Hilton, R. John, to Boeing Company, The. Method of making sandwich panel. 4,336,090, Cl. 156-154.000.
Hinkamp, James B., to Ethyl Corporation. Fuel compositions containing iron pentacarbonyl. 4,336,033, Cl. 44-68.000.
Hinke, Walter: *See—*
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Hirato, Mizuho: *See—*
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Hirokawa, Yoichi: *See—*
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Hirth, Emil, to Sybron Corporation. Headrest for a dental chair. 4,335,920, Cl. 297-408.000.
Hiscock, Roger F. Wheel for toy vehicle. 4,335,899, Cl. 280-259.000.
Hitachi, Ltd.: *See—*
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Fujita, Tsuyoshi; Yokoyama, Tomio; and Ishi, Ichiro, 4,336,551, Cl. 357-80.000.
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Kanamaru, Hisanobu; Tohkairin, Akira; Tatsumi, Hideo; and Okabe, Moisei, 4,335,496, Cl. 29-520.000.
Kodama, Churyo; Hirota, Taisuke; Ohno, Hiroshi; and Urataki, Etsuo, 4,336,479, Cl. 313-487.000.
Kurosawa, Yukio; Kawakubo, Yukio; and Abe, Nobuo, 4,336,430, Cl. 200-144.00B.
Morinaga, Shigeki; Miyashita, Kunio; Takahashi, Tadashi; Maeda, Takeo; and Yamashita, Seizi, 4,336,475, Cl. 310-198.000.
Okubo, Tsuneo; Kato, Yasuo; and Matsuoka, Genya, 4,336,597, Cl. 364-560.000.
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Hitachi Ome Electronic Co., Ltd.: *See—*
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Hoag, Richard L. Laminated junction box module and laminated plug-in accessory modules selectively usable therewith. 4,336,418, Cl. 174-53.000.
Hoch, Samuel; and Ceprini, Mario Q., to Tenneco Chemicals, Inc. Stable liquid antimony stabilizer compositions and vinyl halide resins containing same. 4,336,168, Cl. 524-300.000.
Hockswender, Thomas R.: *See—*
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Hodges, James L.; and Cerkanowicz, Anthony E. Apparatus and method for controlling heat transfer between a fluidized bed and tubes immersed therein. 4,335,785, Cl. 165-39.000.
Hodges, Robert J.: *See—*
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Hoechst Aktiengesellschaft: *See—*
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Bieringer, Hermann; and Handte, Reinhard, 4,336,057, Cl. 71-88.000.
Holst, Arno; Mayer, Reinhart; and Fischer, Wilhelm, 4,336,299, Cl. 428-288.000.

Martini, Thomas; Erckel, Rudiger; Fruhbeis, Horst; Rosch, Gunter; and Probst, Heinz, 4,336,155, Cl. 252-301.210.
Mundnich, Rainer; Finke, Manfred; Rupp, Walter; and Dehmer, Klaus, 4,336,206, Cl. 260-465.400.
Schneider, Manfred; Kruse, Hubert; and Opitz, Konrad, 4,336,025, Cl. 8-527.000.
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Hoehn, Marvin M.: *See—*
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Hoesch Werke Aktiengesellschaft: *See—*
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Hoff, Stephen J., to Hoffco, Inc. Lawn trimmer construction. 4,335,585, Cl. 464-52.000.

Hoffco, Inc.: *See—*
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Hoffmann, Harald: *See—*
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Hoffmann-La Roche Inc.: *See—*
Bruderer, Hans; Fischli, Albert E.; and Pfister, Rudolf, 4,336,268, Cl. 424-330.000.
Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., 4,336,382, Cl. 544-374.000.
Fryer, Rodney I.; and Gilman, Norman W., 4,336,388, Cl. 548-194.000.
Fujiwara, Mitsuhiko; Fujiwara, Akiko; and Miyamoto, Chikara, 4,336,332, Cl. 435-58.000.
Muller, Jean-Claude; and Ramuz, Henri, 4,336,380, Cl. 544-198.000.

Hoffmann, Wolfgang, to B & H Manufacturing Company, Inc. Machine for labeling bodies and shoulders of containers. 4,336,095, Cl. 156-361.000.

Holce, Thomas J.; and Huckins, Charles M., to Sentrol, Inc. Plunger operated magnetic contact switch assembly. 4,336,518, Cl. 335-205.000.

Holland, Eddie L., to U.S. Industries, Inc. Manure shield for multi-tier poultry cage constructions. 4,335,681, Cl. 119-17.000.

Holland, William P.; and DeCou, Donld F., Jr., to Machlett Laboratories, Incorporated, The. Grooved X-ray generator. 4,336,476, Cl. 313-60.000.

Holst, Arno; Mayer, Reinhart; and Fischer, Wilhelm, to Hoechst Aktiengesellschaft. Use of modified cellulose hydrate fibers in the manufacture of bonded non-woven fabrics and products prepared in this manner. 4,336,299, Cl. 428-288.000.

Holter, Heinz; Gresch, Heinz; and Igelbuscher, Heinrich, to Holter, Heinz. Solar collector. 4,335,708, Cl. 126-442.000.

Honda Giken Kogyo Kabushiki Kaisha: *See—*
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Totsune, Atsushi; Itoh, Yasuhito; and Yamabe, Hitoshi, 4,335,699, Cl. 123-568.000.

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Honeywell Information Systems Inc.: *See—*
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Vernon, John H.; Grandmaison, John P.; and Huettner, Robert E., 4,336,588, Cl. 364-200.000.

Hooker Chemicals & Plastics Corp.: *See—*
Mayer, Linda J.; and Barbieri, Stephen C., 4,336,114, Cl. 204-52.00R.

Hoole, Tyson C. A., to Boeing Company, The. Dynamic headroom test generator. 4,336,499, Cl. 328-188.000.

Hopf, Dieter. String instrument. 4,335,641, Cl. 84-297.00R.

Hopfe, Harold H. Wave energy desalinization. 4,335,576, Cl. 60-398.000.

Hopmeier, Joachim; Leist, Helmut; and Ullrich, Georg J., to Hellige GmbH. Method for the calibration of an oxygen sensing unit and calibration agent therefor. 4,336,031, Cl. 23-232.00R.

Horbelt, Michael: *See—*
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Horiba Limited: *See—*
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Horiike, Tetsuro; Okimoto, Tomoyuki; and Shiozaki, Tomoharu, to Kanzaki Paper Manufacturing Co., Ltd. Method of treatment of an aqueous dispension of microcapsules. 4,336,170, Cl. 521-55.000.

Hosaka, Akihiko: *See—*
Okuyama, Kiyotaka; Hosaka, Akihiko; and Isobe, Yukihiro, 4,336,310, Cl. 428-447.000.

Hosaka, Hirokazu; Tanimoto, Kenji; Tanaka, Kunihiko; Morita, Toshiharu; Shiota, Katsuyuki; Ueda, Yuji; and Kai, Seiichi, to Sumitomo Chemical Company, Limited. Method for the recovery of acetone. 4,336,109, Cl. 203-34.000.

Hoshino, Kunihisa: *See—*
Utagawa, Ken; Ogasawara, Akira; Shirasu, Hiroshi; and Hoshino, Kunihisa, 4,336,450, Cl. 250-201.000.

Hosokawa, Hiroyuki; and Maeda, Shiro, to Nippondenso Co., Ltd. Temperature-detection type change-over valve. 4,335,690, Cl. 123-407.000.

Hosoya, Yoshihiro: *See—*
Nakaoka, Kazuhide; Nishimoto, Akihiko; and Hosoya, Yoshihiro, 4,336,080, Cl. 148-12.00C.

Houdard, Jean-Pierre; Julie, Jean-Jacques; and Leoni, Bernard G., to Thomson-CSF. Binary word processing method using a high-speed sequential adder. 4,336,600, Cl. 364-785.000.

Houseknecht, Gary L.: *See—*
Brower, Boyd G.; and Houseknecht, Gary L., 4,336,570, Cl. 362-4.000.

How, Thien V.: *See—*
Ashmore, Michael P.; How, Thien V.; and Rolfe, Peter, 4,335,617, Cl. 73-861.250.

Howe, Dennis G.; Marchant, Alan B.; and Wrobel, Joseph J., to Eastman Kodak Company. Optical disc structure, method and apparatus physically optimized for writing and reading with a single wavelength. 4,336,545, Cl. 346-1.100.

Howe, Floyd M. Combination belt and disk sander machine. 4,335,542, Cl. 51-3.000.

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Hoyer, Ernst: *See—*
Schwaiger, Gunther; and Hoyer, Ernst, 4,336,190, Cl. 260-149.000.

Huang, Sun Y.: *See—*
Giglia, Robert D.; and Huang, Sun Y., 4,335,938, Cl. 350-357.000.

Huber, Hans P.: *See—*
Findeis, Gunter; Fergg, Berthold; Osegowitsch, Viktor; Huber, Hans P.; and Meckl, Heinz, 4,335,956, Cl. 355-27.000.

Huckins, Charles M.: *See—*
Holce, Thomas J.; and Huckins, Charles M., 4,336,518, Cl. 335-205.000.

Hudson, Patricia M.: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,336,186, Cl. 260-112.50R.

Huebner, Friedhelm; and Weiffen, Karl-Heinz, to Klockner-Humboldt-Deutz AG. Valve for a wet jigging machine for separating minerals. 4,336,132, Cl. 209-500.000.

Huettner, Robert E.: *See—*
Vernon, John H.; Grandmaison, John P.; and Huettner, Robert E., 4,336,588, Cl. 364-200.000.

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Ladd, Glenn O., Jr., 4,336,549, Cl. 357-15.000.

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Hultgren, Claes L. Miniature slide storage tray and method of using same. 4,335,989, Cl. 414-405.000.

Humerickhouse, Billy J.: *See—*
Beatty, Bobby D.; Daniel, Russell D.; Humerickhouse, Billy J.; and Williams, Richard, 4,335,656, Cl. 102-340.000.

Hung, Chuan-Yung: *See—*
Shipp, Robert A.; and Hung, Chuan-Yung, 4,336,448, Cl. 235-92.0MS.

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Frentzel, Kurt H.; and Oskam, Herman, 4,335,775, Cl. 160-177.000.

Hurd, Lyle E., to Toro Company, The. Control system for power equipment. 4,335,566, Cl. 56-11.800.

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Vancha, John, 4,336,605, Cl. 367-105.000.

Huseby, Rolf M.: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,336,186, Cl. 260-112.50R.

Hyatt, Michael V.: *See—*
Quist, William E.; Hyatt, Michael V.; and Axter, Sven E., 4,336,075, Cl. 148-2.000.

Hyde, Richard E.: *See—*
Carmichael, Lee T.; Hyde, Richard E.; and Smith, Gary L., 4,335,893, Cl. 280-42.000.

Hylsa, S.A.: *See—*
Guzman-Bofill, Carlos; and Dominguez-Ahedo, Carlos, 4,336,063, Cl. 75-35.000.

i f m electronic GmbH: *See—*
Buck, Robert; and Ozech, Ingo S., 4,336,491, Cl. 323-326.000.

Iatron Laboratories, Inc.: *See—*
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,336,331, Cl. 435-24.000.

Ichiko Industries Limited: *See—*
Takata, Yasunobu, 4,336,572, Cl. 362-66.000.

Ichinohe, Shoji: *See—*
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; Yamamoto, Yasushi; and Ichinohe, Shoji, 4,336,251, Cl. 424-184.000.

Ichinose, Noboru; Yokomizo, Yuhji; and Katsura, Masaki, to Tokyo Shibaura Electric Co., Ltd. Oxide negative resistance element. 4,336,163, Cl. 252-518.000.

Icking, Eugen: *See—*
Diener, Arnulf; Laucht, Walter; and Icking, Eugen, 4,335,870, Cl. 266-193.000.

Ida, Edward S., to Du Pont de Nemours, E. I., and Company. Fail-safe apparatus. 4,336,461, Cl. 250-551.000.

Idelson, Elbert M., to Polaroid Corporation. Silver halide developing agents. 4,336,405, Cl. 562-448.000.

Igelbuscher, Heinrich: *See—*
Holter, Heinz; Gresch, Heinz; and Igelbuscher, Heinrich, 4,335,708, Cl. 126-442.000.

Ihlein, Walter, to Siemens Aktiengesellschaft. Insulating tape for fabricating an insulating sleeve for electric conductors impregnated with

a thermo-setting epoxy resin/acid anhydride mixture. 4,336,302, Cl. 428-324.000.
Ihli, Vincent V. Water storage and distribution system. 4,335,977, Cl. 405-52.000.
Iijima, Kenzaburo: *See*—
Sata, Takeo; Takamura, Masayuki; Iijima, Kenzaburo; and Fukuda, Norio, 4,336,066, Cl. 75-211.000.
Iijima, Takashi: *See*—
Eda, Nobuo; Iijima, Takashi; and Toyoguchi, Yoshinori, 4,336,315, Cl. 429-194.000.
Iizuka, Haruhiko: *See*—
Sugasawa, Fukashi; Iizuka, Haruhiko; Etoh, Yukihiro; and Tanaka, Toshiaki, 4,335,687, Cl. 123-198.00F.
Ikegami, Tadashi: *See*—
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Mizutani, Shigeru, 4,336,352, Cl. 525-240.000.
Imada, Kiyoshi: *See*—
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,336,211, Cl. 264-22.000.
Imaki, Takao; Mikasa, Hajime; and Sakai, Niro, to Horiba Limited. Non-dispersion type infrared analyzer for simultaneously determining plural components. 4,336,453, Cl. 250-344.000.
Imgram, Richard H.: *See*—
Ganz, Frederick M.; Cermignani, Justine D.; and Imgram, Richard H., 4,336,543, Cl. 343-705.000.
Imperial Chemical Industries Limited: *See*—
Backhouse, Alan J.; Bromley, Charles; and Thompson, Morice W., 4,336,177, Cl. 523-201.000.
Dalton, Raymond F., 4,336,231, Cl. 423-24.000.
Powell, Keith A.; and Collinson, Barbara A., 4,336,334, Cl. 435-146.000.
Inada, Koichi: *See*—
Takahashi, Shiro; Sanada, Kazuo; Inada, Koichi; and Fukuda, Osamu, 4,336,049, Cl. 65-3.120.
Inagaki, Yoshio: *See*—
Fujita, Shinsaku; Koyama, Koichi; Inagaki, Yoshio; and Waki, Kokichi, 4,336,322, Cl. 430-242.000.
Incom International Inc.: *See*—
McCloskey, Albert R., 4,335,924, Cl. 308-72.000.
Independent Products Company, Inc.: *See*—
Bisk, Leonard; and Rogahn, Gunther, 4,335,838, Cl. 223-91.000.
Industrial Packaging Co., Inc.: *See*—
Garganese, Richard S., 4,335,830, Cl. 220-462.000.
Industrial Systems, Inc.: *See*—
Scott, Bernard E., 4,335,907, Cl. 285-157.000.
Industrie Pirelli S.p.A.: *See*—
Tarantola, Luciano, 4,335,571, Cl. 57-58.520.
Inficon Leybold-Heraeus: *See*—
Chou, Tzeyang J.; and Arnon, Oded, 4,335,961, Cl. 356-361.000.
Inmos Corporation: *See*—
Sud, Rahul; and Hardee, Kim C., 4,336,466, Cl. 307-297.000.
Inoue, Tomohiro: *See*—
Koike, Mamoru; Komaki, Shigeki; Inoue, Tomohiro; Tanimoto, Akira; and Yoshida, Yoshisaburo, 4,336,530, Cl. 340-365.0VL.
Inoue, Toru; Sugiyama, Yasuo; and Onishi, Ken, to Mitsubishi Denki Kabushiki Kaisha. Error correction encoding and decoding system. 4,336,612, Cl. 371-39.000.
Institute of Gas Technology: *See*—
Weil, Sanford A.; Punwani, Dharamvir; and Bodle, William W., 4,336,125, Cl. 208-8.00R.
International Business Machines Corporation: *See*—
Chiu, George T.; Joseph, Robert R.; and Ozols, Gunars M., 4,335,506, Cl. 29-591.000.
Cole, Terence G.; and Marshall, Stuart E., 4,336,508, Cl. 331-113.00R.
Conly, Douglas J.; Larson, David D.; and Riddle, Stanley T., 4,335,952, Cl. 355-14.00R.
Cranna, Darlene K. N., 4,335,858, Cl. 242-195.000.
Hetherington, Richard J.; Melvin, George E.; Milkovich, Stephen A.; and Urfer, Ernest N., 4,336,088, Cl. 156-89.000.
Jaggi, Rudolf, 4,336,523, Cl. 340-825.790.
Kotecha, Harish N.; and Wiedman, Francis W., III, 4,336,603, Cl. 365-182.000.
Morlec, Emile; Reynes, Daniel; and Suzzoni, Jean-Pierre, 4,336,423, Cl. 179-18.0GF.
Pawletko, Joseph P., 4,335,967, Cl. 400-119.000.
International Chemical Engineering Establishment: *See*—
Prohn, Christiaan M., 4,336,222, Cl. 264-519.000.
International Flavors & Fragrances Inc.: *See*—
Boden, Richard M., 4,336,164, Cl. 252-522.00R.
International Harvester Co.: *See*—
Swanson, William C.; and Orsborn, Jesse H., 4,335,561, Cl. 56-10.200.
Swanson, William C., 4,335,894, Cl. 280-43.230.
International Measurement & Control Company: *See*—
Dybel, Frank R.; Dybel, William F.; and MacDonald, Kenneth, 4,335,614, Cl. 73-774.000.
International Paper Company: *See*—
Yasnovsky, V. M.; and MacDonald, Donald M., 4,336,370, Cl. 536-58.000.
International Standard Electric Corporation: *See*—
Black, Philip W.; and Irven, John, 4,335,934, Cl. 350-96.330.
Maries, Alan; and Shreeve, Francesca M., 4,336,153, Cl. 252-182.000.
Schmidt, Peter; Brunn, Otto; Forker, Dieter; and Schmidt, Willi, 4,335,492, Cl. 29-25.130.
Intersil, Inc.: *See*—
Weir, Basil, 4,336,526, Cl. 340-347.0AD.
Intertechnique: *See*—
Jacq, Georges; and Damico, Pierre, 4,336,590, Cl. 364-418.000.
Irven, John: *See*—
Black, Philip W.; and Irven, John, 4,335,934, Cl. 350-96.330.
Irwin, Lawrence F.; and Millray, Robert, to Augerscope, Inc. Internal pipe wrench. 4,335,632, Cl. 81-446.000.
Irwin, Rodney C., to Koppers Company, Inc. Aligning device. 4,336,107, Cl. 202-239.000.
Ise, Junichi: *See*—
Suzuki, Toshio; Ise, Junichi; Yanabu, Satoru; and Mizoguchi, Hitoshi, 4,336,414, Cl. 174-14.00R.
Iseler, Kenneth A.; and Shah, Vinod C., to Budd Company, The. Flame retardant molding compound. 4,336,181, Cl. 523-501.000.
Ishi, Ichiro: *See*—
Fujita, Tsuyoshi; Yokoyama, Tomio; and Ishi, Ichiro, 4,336,551, Cl. 357-80.000.
Ishiguro, Michihiro: *See*—
Torii, Sigeru; Uneyama, Kenji; Onishi, Takashi; Fujita, Yoshiji; Ishiguro, Michihiro; and Nishida, Takashi, 4,336,202, Cl. 549-466.000.
Ishikawa, Kazumasa; Takahashi, Shin-ichi; and Yoneyama, Masahide, to Nippon Columbia Kabushiki Kaisha. Frequency characteristic adjusting circuit. 4,336,501, Cl. 330-109.000.
Ishikawa, Yoshiaki: *See*—
Motonami, Masanao; and Ishikawa, Yoshiaki, 4,335,902, Cl. 280-804.000.
Isobe, Yukihiro: *See*—
Okuyama, Kiyotaka; Hosaka, Akihiko; and Isobe, Yukihiro, 4,336,310, Cl. 428-447.000.
Isoda, Chuzo: *See*—
Fujiwara, Tsuyoshi; Sugimoto, Osamu; and Isoda, Chuzo, 4,336,341, Cl. 521-109.000.
Isshiki, Tomiya; Kijima, Yasuhiko; and Miyauchi, Yuh, to Mitsubishi Gas Chemical Company, Inc. Process for producing carboxylic acids and/or esters thereof. 4,336,399, Cl. 560-61.000.
Isui, James B. Y.; Shaw, Rudy L.; and Caschera, Joseph, to United States of America, Air Force. Simultaneous signal detector for an instantaneous frequency measurement receiver. 4,336,541, Cl. 343-18.00E.
Itakura, Takayuki: *See*—
Oguchi, Yuzo; Itakura, Takayuki; and Kawano, Akio, 4,336,447, Cl. 235-92.0EA.
Itaya, Nobushige: *See*—
Ohsumi, Tadashi; Itaya, Nobushige; and Hirano, Masachika, 4,336,194, Cl. 548-562.000.
Itek Corporation: *See*—
Quilty, John H.; and Scholten, Lawrence M., 4,336,478, Cl. 313-478.000.
Ito, Koichi: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; Yamamoto, Yasushi; and Ichinohe, Shoji, 4,336,251, Cl. 424-184.000.
Itoh, Yasuhito: *See*—
Totsune, Atsushi; Itoh, Yasuhito; and Yamabe, Hitoshi, 4,335,699, Cl. 123-568.000.
Itoi, Shigenari: *See*—
Ohba, Kanji; and Itoi, Shigenari, 4,335,888, Cl. 277-96.100.
ITT Industries, Inc.: *See*—
Berisch, Volker; and Keiner, Karl, 4,335,922, Cl. 303-6.00C.
Goertler, Horst; Munz, Joachim; Prohaska, Hans; and Rachner, Horst, 4,336,482, Cl. 318-443.000.
Jackson, Thomas M.; Hodges, Robert J.; and Amphlett, Stephen L., 4,336,429, Cl. 200-67.0DB.
Lupertz, Hans-Henning, 4,335,806, Cl. 188-73.330.
Iwaki, Katsutaro: *See*—
Tanaka, Shigeru; Iwaki, Katsutaro; Matsuhashi, Hajime; and Banzai, Keiichiro, 4,336,487, Cl. 322-99.000.
Iwata, Nobuo; and Suzuki, Takami, to Ricoh Company, Ltd. Type wheel for serial printing apparatus. 4,335,970, Cl. 400-144.200.
Iyer, Raja, to Acme Resin Corporation. Resin binders for foundry sand cores and molds. 4,336,179, Cl. 523-145.000.
Izuno, Sadami; and Kiyomitsu, Isao, to Toyo Kogyo Co., Ltd.; and Delta Kogyo Co., Ltd. Reclining arrangement. 4,335,917, Cl. 297-366.000.
J. B. Systems, Ltd.: *See*—
Bratschitsch, John, 4,335,982, Cl. 406-48.000.
J. I. Case Company: *See*—
Schmitz, Floyd A., Jr., 4,335,909, Cl. 292-5.000.
J. M. Huber Corporation: *See*—
Lamond, Trevor G., 4,336,219, Cl. 264-117.000.
Wason, Satish K., 4,336,245, Cl. 424-49.000.
J. M. Voith GmbH: *See*—
Waldvogel, Hartmut, 4,335,675, Cl. 118-126.000.
J. S. Staedtler, Firma: *See*—
Schnorrer, Heinrich, 4,336,071, Cl. 106-170.000.
Jackel, Klaus-Peter; Heil, Gunter; and Spoor, Herbert, to BASF Aktiengesellschaft. Curable coating agents and process for the production of scratch-resistant coatings on plastics. 4,336,309, Cl. 428-447.000.
Jackson, David M., to Kimberly-Clark Corporation. Wrapped superabsorbent core tampon. 4,335,722, Cl. 128-285.000.
Jackson, Thomas M.; Hodges, Robert J.; and Amphlett, Stephen L., to ITT Industries, Inc. Switch unit. 4,336,429, Cl. 200-67.0DB.

Jacobs, Lawrence J.; and Bozzuto, Carl R., to Combustion Engineering, Inc. Method for recovery and reuse of ammonia in ammonia-base sulfite cooking liquors. 4,336,102, Cl. 162-30.100.

Jacobsen, Stephen C.: *See—*
Stephen, Robert L.; Kablitz, Carl; van Dura, Dietz; Atkin, Curtis L.; and Jacobsen, Stephen C., 4,335,716, Cl. 128-213.00A.

Jacobson, Peter E.: *See—*
Allen, Terry S.; and Jacobson, Peter E., 4,335,927, Cl. 339-5.00R.

Jacq, Georges; and Damico, Pierre, to Intertechnique. Devices for controlling gas flows. 4,336,590, Cl. 364-418.000.

Jacquet, Maurice A.; and Lignereux, Jean-Pierre, to Societe Anonyme Francaise du Ferodo. Vehicle air conditioner blower and mount. 4,335,646, Cl. 98-2.000.

Jacyno, Henry, to Singer Company, The. Evaporator pressure regulator. 4,335,742, Cl. 137-494.000.

Jagenberg Werke AG: *See—*
Zodrow, Rudolf, 4,336,098, Cl. 156-568.000.

Jaggi, Rudolf, to International Business Machines Corporation. Superconductive switching and storage device. 4,336,523, Cl. 340-825.790.

James, Harold S.; and Roseveare, Ronald N., to Babcock & Wilcox Company, The. Zero force touch probe. 4,335,517, Cl. 33-174.00L.

Jameson, James J.; Mount, Fred L.; and Fernandez, Joe L., to Cooper Industries. Output coupling for concrete mixer transmission. 4,335,963, Cl. 366-63.000.

Janicki, Mark: *See—*
Bryant, Jack; and Janicki, Mark, 4,336,454, Cl. 250-381.000.

Jansen, Martin B.: *See—*
Saliger, Kenneth C.; and Jansen, Martin B., 4,335,904, Cl. 285-18.000.

Jansons, Arnolds: *See—*
Hill, Eugene; Jansons, Arnolds; and Truchard, James J., 4,336,607, Cl. 367-123.000.

Japan Organo Company, Ltd.: *See—*
Miyahara, Akimitsu; Kanazawa, Toshihiko; Takahashi, Kokaji; Ushikubo, Hiroji; and Kawano, Kuniaki, 4,335,746, Cl. 137-576.000.

Japan Storage Battery Company, Ltd.: *See—*
Yonezu, Kunio; Tsubota, Masaharu; and Takahashi, Katsuhiro, 4,336,314, Cl. 429-66.000.

Japanese National Railways: *See—*
Mitsumoto, Takashi; and Nakashima, Hiroshi, 4,335,747, Cl. 137-614.060.

Jarboe, Joseph E. Woodburning stove. 4,335,702, Cl. 126-15.00R.

Jarrett, Robert B.: *See—*
Bynum, Byron G.; and Jarrett, Robert B., 4,336,507, Cl. 331-108.00D.

Jenoptik Jena GmbH: *See—*
Pohlack, Hubert, 4,335,935, Cl. 350-166.000.

Jersey Nuclear-Avco Isotopes, Inc.: *See—*
Bethe, Hans A.; and Chang, Ching S., 4,336,230, Cl. 423-3.000.

Jidosha Denki Kogyo Kabushiki Kaisha: *See—*
Kobayashi, Kyoji; and Furuya, Takeo, 4,336,517, Cl. 335-205.000.

Jodlowski, Ronald F.: *See—*
Kang, Chunghee K.; Jodlowski, Ronald F.; Donnelly, Thomas H.; and Warner, William D., 4,336,271, Cl. 426-55.000.

John Fluke Mfg. Co., Inc.: *See—*
Meyer, Donald G., 4,336,505, Cl. 331-1.00R.

John, William W.: *See—*
Chen, Tsong M.; Heiba, El-Ahmadi I.; and John, William W., 4,336,052, Cl. 71-28.000.

Johnson, Bruce K.; and Launie, Kenneth J., to Polaroid Corporation. Camera with structure for adjusting lens disc velocity and calibration method. 4,335,945, Cl. 354-197.000.

Johnson, David P. Prime window unit installation system. 4,335,550, Cl. 52-99.000.

Johnson, Earl R., to Loffland Brothers Company. Multiple biscuit clutch or brake. 4,335,808, Cl. 192-85.0AB.

Johnson, Robert C. Ethylene glycol antifreeze repurification apparatus. 4,336,133, Cl. 210-95.000.

Johnston, Samuel R. Irrigation device. 4,335,719, Cl. 128-246.000.

Jolin, Marcel, to Dustell Ltee. Mobile dust collector used on quarries. 4,336,041, Cl. 55-341.00R.

Joly, Luc: *See—*
Oliva, Ambro; and Joly, Luc, 4,335,616, Cl. 73-861.050.

Jones, Brian C., to Combustion Engineering, Inc. Solid fuel feed system for a fluidized bed. 4,335,662, Cl. 110-263.000.

Jones, Carl R.: *See—*
Ross, Kenneth B.; and Jones, Carl R., 4,336,274, Cl. 426-643.000.

Jones, Earle H., to Boeing Company, The. Power rail support apparatus. 4,335,807, Cl. 191-32.000.

Jones, Harold G. Game call. 4,335,539, Cl. 46-179.000.

Jones, Leon. Milking machine system, and pressure regulator incorporated therein. 4,335,743, Cl. 137-494.000.

Jones, Peter A., to Melford Engineering Limited. Rotary brush mounting. 4,335,482, Cl. 15-87.000.

Jones, Raymond L. Drafting device for producing concentric lines. 4,335,515, Cl. 33-27.00L.

Jorgensen, Hans; Sinnerup, Ib O.; and Danborg, Ole E., to Radiometer A/S. Liquid dosage piston pump. 4,336,000, Cl. 417-53.000.

Joseph, Robert R.: *See—*
Chiu, George T.; Joseph, Robert R.; and Ozols, Gunars M., 4,335,506, Cl. 29-591.000.

Jowitt, Peter F.: *See—*
Broadhurst, Jeffrey C.; Fletcher, Richard A.; and Jowitt, Peter F., 4,336,291, Cl. 428-101.000.

Judd, Malcolm L.: *See—*
Brown, Barry M.; Judd, Malcolm L.; and Schindler, Roger N., 4,336,328, Cl. 430-569.000.

Julie, Jean-Jacques: *See—*
Houdard, Jean-Pierre; Julie, Jean-Jacques; and Leoni, Bernard G., 4,336,600, Cl. 364-785.000.

Jung, Johann: *See—*
Zeeh, Bernd; Buschmann, Ernst; and Jung, Johann, 4,336,055, Cl. 71-76.000.

Junghanel, Arnold, to Alfelder Eisenwerke Carl Heise Kom. Ges. Apparatus for measuring the filling level of containers. 4,335,607, Cl. 73-290.00R.

Jungverdorben, Hermann-Josef: *See—*
Reinehr, Ulrich; Jungverdorben, Hermann-Josef; Herbertz, Toni; Nogaj, Alfred; and Kleinschmidt, Peter, 4,336,214, Cl. 264-49.000.

Kaas, Werner; Borggrefe, Hans-Helmut; and Unger, Klaus-Dieter. Method for recovering residual matter accumulated in the production and machining of steel. 4,336,218, Cl. 264-111.000.

Kabadi, Balachandra N.; and Farkas, Michael S., to E. R. Squibb & Sons, Inc. Apparatus for holding a syringe and filling an ampule. 4,335,760, Cl. 141-129.000.

Kabashima, Katsuhiko: *See—*
Nakano, Masao; Takemae, Yoshihiro; and Kabashima, Katsuhiko, 4,336,465, Cl. 307-238.300.

Kablitz, Carl: *See—*
Stephen, Robert L.; Kablitz, Carl; van Dura, Dietz; Atkin, Curtis L.; and Jacobsen, Stephen C., 4,335,716, Cl. 128-213.00A.

Kabushiki Kaisha Morita Seisakusho: *See—*
Suzuki, Masakazu, 4,336,563, Cl. 361-93.000.

Kai, Seiichi: *See—*
Hosaka, Hirokazu; Tanimoto, Kenji; Tanaka, Kunihiko; Morita, Toshiharu; Shiota, Katsuyuki; Ueda, Yuji; and Kai, Seiichi, 4,336,109, Cl. 203-34.000.

Kaktovics, David: *See—*
Ashcroft, Richard I.; and Kaktovics, David, 4,335,960, Cl. 356-240.000.

Kalfa, Horst; Schubert, Bruno; Brunmayer, Peter; and Gellermann, Siegfried, to DECHEMA. Equipment for testing materials for stress corrosion cracking. 4,335,615, Cl. 73-799.000.

Kalt, Charles G.; and Babcock, Bryce. Reflective display and method of making same. 4,336,536, Cl. 340-783.000.

Kaltenbach, Dieter. Circular saw. 4,335,637, Cl. 83-452.000.

Kamata, Susumu: *See—*
Nagata, Wataru; and Kamata, Susumu, 4,336,381, Cl. 544-313.000.

Kamijo, Ken: *See—*
Nagashima, Hideyuki; and Kamijo, Ken, 4,335,919, Cl. 297-362.000.

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Munekata, Kenichi; Ohkoshi, Fumihiko; Kamiya, Yoji; and Hasegawa, Toshifumi, 4,335,500, Cl. 29-568.000.

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Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See—*
Fushiki, Yasuo; Abe, Masaharu; and Uekita, Masakazu, 4,336,297, Cl. 428-284.000.

Kaneko, Takashi: *See—*
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Kang, Chunghee K.; Jodlowski, Ronald F.; Donnelly, Thomas H.; and Warner, William D., to Swift Independent Packing Company. Tenderization of meat by natural enzyme control. 4,336,271, Cl. 426-55.000.

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Horiike, Tetsuro; Okimoto, Tomoyuki; and Shiozaki, Tomoharu, 4,336,170, Cl. 521-55.000.

Karl Mayer Textilmaschinenfabrik GmbH: *See—*
Bergmann, Gerhard; and Wade, Heinz, 4,335,590, Cl. 66-207.000.

Karlen, Nial T.: *See—*
Gylden, Nils O.; Karlen, Nial T.; Andersson, Jarl B. E.; and Andersson, Anders G. T., 4,336,209, Cl. 264-3.00R.

Kartinos, Nicholas J., to Baxter Travenol Laboratories, Inc. Process for reclaiming biliverdin-containing fluids. 4,336,157, Cl. 252-408.000.

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Nishimura, Yoshitugu; and Kotera, Noboru, 4,336,154, Cl. 252-301.40H.

Kashyap, Satish; Dunn, John G.; Woods, Lorne; and Vachon, Frank, to Canadian Patents & Dev. Limited. Microwave apparatus for heating liquid in a closed plastic container. 4,336,435, Cl. 219-10.55F.

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Edamura, Mizuo; Takamoto, Shyunji; Furuitsu, Satoshi; Bekku, Norikatsu; and Katayama, Toshiaki, 4,336,076, Cl. 148-3.000.

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Kato, Yasuo: *See—*
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Katoh, Norihisa: *See—*
Seki, Kunio; and Katoh, Norihisa, 4,336,504, Cl. 330-274.000.
Katscher, Erich; Knecht, Klaus; and Knaab, Heinz, to Kraftwerk Union Aktiengesellschaft AG. Method of repairing partly burnt-off fuel elements in the fuel-element pit pressurized water reactors and device therefor. 4,336,103, Cl. 376-245.000.
Katsura, Masaki: *See—*
Ichinose, Noboru; Yokomizo, Yuhji; and Katsura, Masaki, 4,336,163, Cl. 252-518.000.
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Herdin, Gunther; Kauer, Erhard; Muckenhuber, Maximilian; and Egger, Eugen, 4,335,686, Cl. 123-90.600.
Kawakubo, Yukio: *See—*
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Kawano, Akio: *See—*
Oguchi, Yuzo; Itakura, Takayuki; and Kawano, Akio, 4,336,447, Cl. 235-92.0EA.
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Edamura, Mizuo; Takamoto, Shyunji; Furuitsu, Satoshi; Bekku, Norikatsu; and Katayama, Toshiaki, 4,336,076, Cl. 148-3.000.
Kawasaki, Kazuhiro: *See—*
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Kazewych, Bohdan, to General Motors Corporation. Window drive arrangement. 4,335,541, Cl. 49-360.000.
Keeney, Donald A.; and Scherbring, David J., to Toro Company, The. Reel to bedknife adjustment system. 4,335,569, Cl. 56-249.000.
Keiner, Karl: *See—*
Berisch, Volker; and Keiner, Karl, 4,335,922, Cl. 303-6.00C.
Kelly, Thomas L. Extruded aluminum termination bar. 4,335,546, Cl. 52-58.000.
Kemmner, Ulrich: *See—*
Rose, Klaus; Kemmner, Ulrich; and Ruhl, Karl, 4,336,002, Cl. 417-203.000.
Kempter, Fritz E.: *See—*
Schupp, Eberhard; Kempter, Fritz E.; and Gulbins, Erich, 4,336,116, Cl. 204-159.110.
Kendall Company, The: *See—*
Kolstedt, Mark W., 4,335,726, Cl. 128-400.000.
Patel, Bhupendra C., 4,335,723, Cl. 128-349.00B.
Rappleyea, Frederick A., 4,335,472, Cl. 2-421.000.
Kennametal Inc.: *See—*
Goodfellow, Robert D., 4,335,794, Cl. 175-337.000.
Kent, Ronald I., to Stone Container Corporation. Partitioned stacking crate and blank therefor. 4,335,843, Cl. 229-27.000.
Kenton, Joseph R., to Phillips Petroleum Company. Fertilizer solutions stabilized with inorganic acids. 4,336,053, Cl. 71-40.000.
Kerr Concrete Pipe Company: *See—*
Hand, George E., 4,336,013, Cl. 425-145.000.
Kessler, Milton; and Kessler, Ronald N. Coat hanger carrier. 4,335,839, Cl. 294-142.000.
Kessler, Ronald N.: *See—*
Kessler, Milton; and Kessler, Ronald N., 4,335,839, Cl. 294-142.000.
Khaitun, Galina G.: *See—*
Vorozhtsov, Georgy N.; Masanova, Natalia N.; Feldbljum, Nikolai B.; Alexeev, Vasily I.; Shigalevsky, Vadim A.; Solomatin, Georgy G.; Shulepova, Olga I.; Khaitun, Galina G.; and Gordeeva, Nadezhda V., 4,336,383, Cl. 546-52.000.
Kidde Consumer Durables Corp.: *See—*
Gilman, Lester, 4,336,575, Cl. 362-147.000.
Kiefer, Henry, to C. J. Edwards Company. Toggle bolt clamp. 4,335,873, Cl. 269-228.000.
Kierstead, Richard W.: *See—*
Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., 4,336,382, Cl. 544-374.000.
Kijima, Yasuhiko: *See—*
Isshiki, Tomiya; Kijima, Yasuhiko; and Miyauchi, Yuh, 4,336,399, Cl. 560-61.000.
Kikuchi, Tadao: *See—*
Wakayama, Yoichi; and Kikuchi, Tadao, 4,336,419, Cl. 174-68.500.
Kim, Young D.: *See—*
Dunnavant, William R.; and Kim, Young D., 4,336,342, Cl. 523-144.000.
Kimberly-Clark Corporation: *See—*
Jackson, David M., 4,335,722, Cl. 128-285.000.
Matthews, Billie J., 4,335,721, Cl. 128-285.000.
Kimura, Tadao. Tin-rich lead-bronze based forged and rolled materials. 4,336,082, Cl. 148-433.000.
Kimura, Takeo: *See—*
Nonaka, Kohei; Koyama, Masahiro; Gonmori, Makoto; Kimura, Takeo; and Shiga, Tetsuo, 4,335,957, Cl. 355-30.000.
Kincaid, Robert A. Shoplifting alarm system and method. 4,336,531, Cl. 340-568.000.
Kinetico, Inc.: *See—*
Prior, William C., 4,336,134, Cl. 210-127.000.
King, Francis D.: *See—*
Hadley, Michael S.; and King, Francis D., 4,336,259, Cl. 424-265.000.
Kinnear, Joseph D., to Brad Harrison Company. Power cable connector with retention spring. 4,335,931, Cl. 339-217.00S.
Kipping, Vernon L. System for method for production of marine food using submerged platforms. 4,335,680, Cl. 119-3.000.
Kirchmayr, Rudolf: *See—*
Berner, Godwin; and Kirchmayr, Rudolf, 4,336,366, Cl. 528-89.000.
Kirk, Bryan R.: *See—*
Francis, John F.; Kirk, Bryan R.; and Terry, John C., 4,335,508, Cl. 30-47.000.
Kirkley, William H. Osteotomy guide. 4,335,715, Cl. 128-92.0EB.
Kirschner, Francis, to Soundcoat Company, Inc., The. Sound absorbing material. 4,335,802, Cl. 181-290.000.
Kishimoto, Michimasa: *See—*
Taniyama, Tsukasa; Sekino, Masaaki; and Kishimoto, Michimasa, 4,336,138, Cl. 210-321.400.
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Bucsky, Gyorgy; Kiss, Zoltan; Matyas, Ivan; Pazmany, Jozsef; Selyem, Gyula; and Tatrai, Lajos, 4,335,618, Cl. 73-861.560.
Kistler, Viktor, to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG. Control apparatus for controlling a feed movement in a gear cutting machine. 4,335,985, Cl. 409-3.000.
Kita, Nobuyuki: *See—*
Nagashima, Akira; and Kita, Nobuyuki, 4,336,319, Cl. 430-165.000.
Kitamura, Shigeo; Yoshioka, Kazuo; Seriyama, Yoshiharu; and Misuta, Hiroshi, to Nippon Soda Company Limited; and Shionogi Company Limited. Process for the production of phenylmalonic acid monoesters. 4,336,196, Cl. 549-416.000.
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Izuno, Sadami; and Kiyomitsu, Isao, 4,335,917, Cl. 297-366.000.
Kiyota, Hiroyuki: *See—*
Uehara, Akira; Kiyota, Hiroyuki; Miyazaki, Shigekazu; and Nakane, Hisashi, 4,336,438, Cl. 219-121.0PG.
Klank, Benno E. O. Heat conservation and storage apparatus and system. 4,335,703, Cl. 126-121.000.
Klaric, Dinko. Shelving system. 4,335,861, Cl. 248-246.000.
Kleinschmidt, Peter: *See—*
Reinehr, Ulrich; Jungverdorben, Hermann-Josef; Herbertz, Toni; Nogaj, Alfred; and Kleinschmidt, Peter, 4,336,214, Cl. 264-49.000.
Klockner-Humboldt-Deutz AG: *See—*
Huebner, Friedhelm; and Weiffen, Karl-Heinz, 4,336,132, Cl. 209-500.000.
Kluender, Harold C.: *See—*
Biddlecom, William G.; Kluender, Harold C.; and Woessner, Warren D., 4,336,404, Cl. 560-231.000.
Knaab, Heinz: *See—*
Katscher, Erich; Knecht, Klaus; and Knaab, Heinz, 4,336,103, Cl. 376-245.000.
Knaitner, Eugene L.: *See—*
Bubik, Leslie; Barclay, Stanley B.; Knaitner, Eugene L.; Williams, Frederic D. M.; and Alm, Bernard D., 4,335,772, Cl. 157-1.280.
Knapp, Merton C. Truck trailer load cover (tarpaulin) receiver. 4,335,915, Cl. 296-98.000.
Knecht, Klaus: *See—*
Katscher, Erich; Knecht, Klaus; and Knaab, Heinz, 4,336,103, Cl. 376-245.000.
Knepper, Larimer J., to Sperry Corporation. Electronically actuated stone trap trip mechanism. 4,335,564, Cl. 56-10.200.
Knepper, Larimer J.; and Komancheck, John J., to Sperry Corporation. Latch mechanism for combine having electronic and mechanical stone detectors. 4,335,565, Cl. 56-10.200.
Knepper, Larimer J.: *See—*
Rice, Robert L.; and Knepper, Larimer J., 4,335,563, Cl. 56-10.200.
Knize, Elmer J.; and Avers, Daniel C., to Lippy Can Company, Ltd. Can or container and lid therefor. 4,335,827, Cl. 220-284.000.
Kobayashi, Hiroo, to Mitsubishi Denki Kabushiki Kaisha. Cathode ray tube. 4,336,480, Cl. 313-495.000.
Kobayashi, Kyoji; and Furuya, Takeo, to Jidosha Denki Kogyo Kabushiki Kaisha. Revolution detecting device. 4,336,517, Cl. 335-205.000.
Kobe Steel, Ltd.: *See—*
Godai, Tomokazu; Sugiyama, Tohru; and Nishikawa, Yutaka, 4,336,441, Cl. 219-137.0WM.
Koboshi, Shigeharu; and Kurematsu, Masayuki, to Konishiroku Photo Industry Co., Ltd. Method for the processing of silver halide color photographic light-sensitive materials. 4,336,324, Cl. 430-372.000.
Koch, Paul E.; Bond, Thomas J.; and Adams, Richard C., to Standard Oil Company, The. Coextrusion device. 4,336,012, Cl. 425-131.100.
Koch, Rudolf, to Siemens Aktiengesellschaft. Monolithically integrated circuit for relatively slow readout from a two-dimensional image sensor. 4,336,557, Cl. 358-213.000.
Kochendorfer, Heinrich: *See—*
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.
Kochendorfer, Richard; and Vogler, Helmut, to Deutsche Forschungs- und Versuchsanstalt fur Luft- und Raumfahrt e.V. Shaft-disc assembly. 4,335,586, Cl. 464-81.000.
Kochte, Werner W., to Scott & Fetzer Company, The. Surface cleaning machine. 4,335,486, Cl. 15-321.000.
Kodama, Churyo; Hirota, Taisuke; Ohno, Hiroshi; and Urataki, Etsuo, to Hitachi, Ltd. Fluorescent lamp having reflective layer and a method for fabricating the same. 4,336,479, Cl. 313-487.000.

Koffler, Sol; and Berry, William M., to American Tourister, Inc. Luggage case having a detachable roller assembly. 4,335,896, Cl. 280-47.170.

Kohayakawa, Ken; Ohba, Hisao; and Sano, Atuhiro, to Fuji Photo Film Co., Ltd. Method of stacking metal sheet materials. 4,336,093, Cl. 29-399.000.

Kohler, Karl-Heinz, to Audi NSU Auto Union Aktiengesellschaft. Device for generating a reference signal corresponding to a given operational state of a four-cycle internal combustion engine. 4,335,599, Cl. 73-116.000.

Kohlstadt, Hans-Peter; Ozelli, Riza N.; and Gierenz, Gerhard, to Henkel Kommanditgesellschaft auf Aktien (Henkel GaA). Aqueous binder dispersion for producing vulcanization bonds between rubber and a solid substrate. 4,336,171, Cl. 524-510.000.

Koike, Mamoru; Komaki, Shigeki; Inoue, Tomohiro; Tanimoto, Akira; and Yoshida, Yoshisaburo, to Sharp Kabushiki Kaisha. Thin keyboard with changeable key indicia. 4,336,530, Cl. 340-365.0VL.

Koivisto, Eero: *See—*
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Koivunen, Seppo T.: *See—*
Hamala, Sirpa L.; Koivunen, Seppo T.; Kontturi, Anna-Kaisa; and Sarkkinen, Veli J., 4,336,189, Cl. 260-124.00R.

Kokki, Heikki: *See—*
Pattiniemi, Veikko; Koivisto, Eero; Kokki, Heikki; and Heikel, Aslak R., 4,335,759, Cl. 141-5.000.

Kolakowski, Michael A.; and Valachovic, John J., to NL Industries, Inc. Double precipitation reaction for the formation of high purity basic lead carbonate and high purity normal lead carbonate. 4,336,236, Cl. 423-435.000.

Koletar, Gabor I.; Frost, Jonathan B.; DuPont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, to Synthelabo. Pyridoindole derivatives. 4,336,256, Cl. 424-256.000.

Kollmorgen Technologies Corporation: *See—*
Passlick, Theodor, 4,336,100, Cl. 156-630.000.

Kolstedt, Mark W., to Kendall Company, The. Therapeutic device with temperature and pressure control. 4,335,726, Cl. 128-400.000.

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Koike, Mamoru; Komaki, Shigeki; Inoue, Tomohiro; Tanimoto, Akira; and Yoshida, Yoshisaburo, 4,336,530, Cl. 340-365.0VL.

Komancheck, John J.: *See—*
Knepper, Larimer J.; and Komancheck, John J., 4,335,565, Cl. 56-10.200.

Komiya, Osamu, to Olympus Optical Co., Ltd. Otoscope. 4,335,713, Cl. 128-9.000.

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Tervamaki, Jukka; and Suovaniemi, Osmo, 4,335,621, Cl. 73-863.320.

Kondo, Tsuneyuki, to Toray Industries, Inc. Process for absorptive separation of cyclohexene. 4,336,410, Cl. 585-827.000.

Konishi, Hideki, to Nissan Motor Co., Ltd. Altitude compensation ignition system. 4,335,691, Cl. 123-410.000.

Konishiroku Photo Industry Co., Ltd.: *See—*
Koboshi, Shigeharu; and Kurematsu, Masayuki, 4,336,324, Cl. 430-372.000.

Kontturi, Anna-Kaisa: *See—*
Hamala, Sirpa L.; Koivunen, Seppo T.; Kontturi, Anna-Kaisa; and Sarkkinen, Veli J., 4,336,189, Cl. 260-124.00R.

Koppers Company, Inc.: *See—*
Irwin, Rodney C., 4,336,107, Cl. 202-239.000.
Miller, A. Leslie, 4,335,869, Cl. 266-158.000.

Kopse, Odon: *See—*
Buck, Rainer; Kopse, Odon; and Amaya, Nestor R., 4,335,601, Cl. 73-119.00A.

Kopylov, Leonid N.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Koranek, David J.: *See—*
Henson, Edwin R.; and Koranek, David J., 4,336,384, Cl. 546-327.000.

Korbel, Adrian C., to Deere & Company. Grapple pivot joint with swing dampener. 4,335,914, Cl. 294-86.00R.

Koshugi, Junichi, to Kureha Kagaku Kogyo Kabushiki Kaisha. Process for preparing porous shaped material of acylated chitin derivative. 4,336,070, Cl. 106-122.000.

Kotani, Matahira: *See—*
Matsumoto, Masafumi; Kotani, Matahira; and Sasaki, Hiromu, 4,336,547, Cl. 346-75.000.

Kotecha, Harish N.; and Wiedman, Francis W., III, to International Business Machines Corp. Three terminal electrically erasable programmable read only memory. 4,336,603, Cl. 365-182.000.

Kotera, Noboru: *See—*
Nishimura, Yoshitugu; and Kotera, Noboru, 4,336,154, Cl. 252-301.40H.

Kotov, Valentin A.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Kotowski, Thomas W., to General Motors Corporation. H-Switch having short to plus protection. 4,336,562, Cl. 361-88.000.

Koumura, Masahiko; and Mizuno, Hiroshi, to Rinnai Kabushiki Kaisha. Door locking apparatus. 4,335,912, Cl. 292-336.300.

Koves, Thomas. Artist's sketch box tray and carrying case for the same. 4,335,812, Cl. 206-1.800.

Koyama, Koichi: *See—*
Fujita, Shinsaku; Koyama, Koichi; Inagaki, Yoshio; and Waki, Kokichi, 4,336,322, Cl. 430-242.000.

Koyama, Masahiro: *See—*
Nonaka, Kohei; Koyama, Masahiro; Gonmori, Makoto; Kimura, Takeo; and Shiga, Tetsuo, 4,335,957, Cl. 355-30.000.

Koyama, Shuntaro; Miyamoto, Tomohiko; and Hirato, Mizuho, to Agency of Industrial Science and Technology, The. Fluidized bed reactor. 4,336,227, Cl. 422-111.000.

Koyama, Tsuneyuki; and Yasutake, Katsuya. Recorded tape travel control system. 4,336,559, Cl. 360-73.000.

Kozacka, Frederick J.; and Belcher, Richard A. Electric fuse. 4,336,521, Cl. 337-248.000.

Kraftwerk Union Aktiengesellschaft: *See—*
Figlhuber, Dietgar; Gallwas, Johannes; Weber, Robert; and Weber, Jakob, 4,336,104, Cl. 376-249.000.

Kraftwerk Union Aktiengesellschaft AG: *See—*
Katscher, Erich; Knecht, Klaus; and Knaab, Heinz, 4,336,103, Cl. 376-245.000.

Kramer, William D.; and Born, Ellis H., to Abex Corporation. Crane swing control. 4,336,003, Cl. 417-217.000.

Krasin, F. Elvin: *See—*
United States of America, National Aeronautics and Space Administration; Carson, Lansing M.; and Krasin, F. Elvin, 4,336,616, Cl. 455-202.000.

Krebs, Paul B.: *See—*
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Kreitner, Ludwig: *See—*
Leutner, Bernd; Schlimper, Hans-Ulrich; Roth, Dieter; Kreitner, Ludwig; and Spahn, Heinrich, 4,336,234, Cl. 423-329.000.

Kreps, Ralph L. Hot water heating system. 4,335,850, Cl. 237-54.000.

Krishnakumar, Suppayan M.: *See—*
Collette, Wayne N.; Krishnakumar, Suppayan M.; and Mahajan, Gautam K., 4,335,821, Cl. 215-1.00C.

Kristiansen, Odd: *See—*
Drabek, Jozef; Ackermann, Peter; Farooq, Saleem; Gsell, Laurenz; and Kristiansen, Odd, 4,336,266, Cl. 424-305.000.

Kroenke, June E. Cushioned needlework blocking board. 4,335,533, Cl. 38-141.000.

Kronstadt, Victor, to Mack Trucks, Inc. Transmission shift control mechanism. 4,335,623, Cl. 74-477.000.

Kruger, Lawrence M., to Control Data Corporation. Network for generating modified microcode addresses. 4,336,602, Cl. 364-900.000.

Kruka, Vitold R.: *See—*
Drake, Bruce S.; and Kruka, Vitold R., 4,335,964, Cl. 366-114.000.

Krumme, Hans J.; Schmidt, Martin; Schmitt, Guenter; and Schubert, Wolfgang, to Siemens Aktiengesellschaft. Diagnostic radiology apparatus for producing layer images of an examination subject. 4,336,458, Cl. 250-445.00T.

Kruse, Hubert: *See—*
Schneider, Manfred; Kruse, Hubert; and Opitz, Konrad, 4,336,025, Cl. 8-527.000.

Krussig, Karlheinz F., to Du Pont de Nemours, E. I., and Company. Apparatus for coating a web with a viscous coating material. 4,335,672, Cl. 118-50.000.

Kubota, Naohiro: *See—*
Nakahara, Yutaka; Shibata, Toshihiro; and Kubota, Naohiro, 4,336,183, Cl. 524-95.000.

Kudryk, Val; and Goffman, Martin, to Asarco Incorporated. Removal of mercury from sulfuric acid. 4,336,237, Cl. 423-531.000.

Kuessner, Klaus: *See—*
Appl, Max; Wagner, Ulrich; Henrici, Hans J.; Kuessner, Klaus; Volkamer, Klaus; and Fuerst, Ernst, 4,336,233, Cl. 423-228.000.

Kukolja, Stjepan, to Eli Lilly and Company. Penicillin conversion by halogen electrophiles and anti-bacterials derived thereby. 4,336,191, Cl. 260-239.00A.

Kukucka, William P.; and Daughton, John W., to Xerox Corporation. Reproduction machine with recirculating document handler diagnostics. 4,335,949, Cl. 355-3.00R.

Kulle, Lee K.; and Larson, Kenneth W., to Baxter Travenol Laboratories, Inc. Enteral feeding container. 4,335,770, Cl. 150-8.000.

Kumagai, Morio, to Trio Kabushiki Kaisha. Control generator for use in broadcast receiver including improved signal level indicator. 4,336,534, Cl. 340-753.000.

Kume, Kazunari; and Yamaguchi, Sizuo, to Citizen Watch Co., Ltd. Digital input means for miniature type electronic devices. 4,336,609, Cl. 368-188.000.

Kunze, Fred R.: *See—*
Stachowiak, Claude R.; and Kunze, Fred R., 4,335,801, Cl. 181-213.000.

Kupka, Genevieve L.; and Zar-Ayan, Mehdi, to PCUK Produits Chimiques Ugine Kuhlmann. Process for stabilizing mixtures of gasoline and methanol. 4,336,032, Cl. 44-56.000.

Kura, Kohei: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,373, Cl. 542-447.000.

Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,374, Cl. 542-469.000.

Kuraray Co., Ltd.: *See—*
Torii, Sigeru; Uneyama, Kenji; Onishi, Takashi; Fujita, Yoshiji; Ishiguro, Michihiro; and Nishida, Takashi, 4,336,202, Cl. 549-466.000.

Kuratsuji, Takatoshi: *See—*
Shiozaki, Masahiro; Nawata, Kiyoshi; Wada, Osamu; Tsunawaki, Kiyokazu; Kuratsuji, Takatoshi; Funakoshi, Wataru; and Suzuki, Togi, 4,336,307, Cl. 428-398.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Koshugi, Junichi, 4,336,070, Cl. 106-122.000.

Kurei, Hiroshi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Controlled disengaging device in automatic exposure camera of the lens stop value control type. 4,335,946, Cl. 354-228.000.

Kurematsu, Masayuki: *See—*
Koboshi, Shigeharu; and Kurematsu, Masayuki, 4,336,324, Cl. 430-372.000.

Kurihara, Mamoru: *See—*
Akiyama, Seiji; Kurihara, Mamoru; and Ueki, Kazuhiko, 4,335,981, Cl. 405-221.000.

Kuroiwa, Katsumasa: *See—*
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,336,331, Cl. 435-24.000.

Kurosawa, Yukio; Kawakubo, Yukio; and Abe, Nobuo, to Hitachi, Ltd. Vacuum interrupter. 4,336,430, Cl. 200-144.00B.

Kurotaki, Kiyomitu. Smoke collecting and exhausting system for a roaster. 4,335,705, Cl. 126-299.00R.

Kuse, Dieter; Wiederkehr, Heinz; and Winkler, Norbert, to BBC Brown, Boveri & Company, Limited. Device for the sterilization of liquids by means of ultraviolet rays. 4,336,456, Cl. 250-436.000.

Kutovoi, Andrei N.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Kuwabara, Kiyoharu: *See—*
Okumiya, Masataro; and Kuwabara, Kiyoharu, 4,336,339, Cl. 501-103.000.

Laboratorio Guidotti & C. S.p.A.: *See—*
Sagramora, Giorgio, 4,336,398, Cl. 560-59.000.

Lacroix, Hubert: *See—*
Debayeux, Christian; Lacroix, Hubert; and Sternicha, Felix, 4,335,676, Cl. 118-303.000.

Lacroix, Roger, to Ciba-Geigy Corporation. Liquid preparation of an anionic dye of the disazo class. 4,336,026, Cl. 8-527.000.

Ladd, David L., to SmithKline Corporation. Guanidinopyrimidine compounds, compositions and method of using as a diuretic. 4,336,254, Cl. 424-251.000.

Ladd, David L., to SmithKline Corporation. Pharmaceutical compositions containing guanidinopyrimidines. 4,336,255, Cl. 424-251.000.

Ladd, Glenn O., Jr., to Hughes Aircraft Company. Schottky-barrier gate gallium arsenide field effect devices. 4,336,549, Cl. 357-15.000.

L'Air Liquide, Societe Anonyme pour d'Etude et l'Exploitation des Procedes Georges Claude: *See—*
Lermuzeaux, Andre, 4,335,584, Cl. 62-388.000.

Lamond, Trevor G., to J. M. Huber Corporation. Method for pelletizing silica. 4,336,219, Cl. 264-117.000.

Lamontagne, Robert E.; and Scull, Jon V., to Binks Manufacturing Company. Pressure control for pumps. 4,335,999, Cl. 417-38.000.

Lander, Cecil: *See—*
Evenstad, Donovan; and Lander, Cecil, 4,336,035, Cl. 55-97.000.

Landingham, Richard L.; and Casey, Alton W., to United States of America, Energy. Chemical vapor deposition of sialon. 4,336,304, Cl. 428-336.000.

Landoni, Gianluigi; Fontani, Spartaco; and Cicchetti, Osvaldo, to Montedison S.p.A. Self-extinguishing polymeric compositions. 4,336,182, Cl. 524-416.000.

Lang, Robert J.; and Pabst, Joanne K., to Exxon Research & Engineering Co. Process for the catalytic gasification of coal. 4,336,034, Cl. 48-202.000.

Lange, Karl-Heinz, to Balda-Werke Photographische Gerate und Kunststoff GmbH & Co., KG. Camera shutter assembly. 4,335,947, Cl. 354-230.000.

Langenstein, Max, to Max Langenstein Feld- und Gartengerate GmbH & Co. Filament-type vegetation trimmer with automatic line sensor. 4,335,568, Cl. 56-12.700.

Lankston, Robert J., to Gulf & Western Manufacturing Company. Temporary pipeline capping unit and method of using same. 4,335,757, Cl. 138-92.000.

Lardenois, Patrick: *See—*
Koletar, Gabor I.; Frost, Jonathan B.; DuPont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,336,256, Cl. 424-256.000.

Larson, Clifford L., to Baldwin-Korthe Web Controls, Inc. Web severing device. 4,335,634, Cl. 83-13.000.

Larson, David D.: *See—*
Conly, Douglas J.; Larson, David D.; and Riddle, Stanley T.; 4,335,952, Cl. 355-14.00R.

Larson, Kenneth W.: *See—*
Kulle, Lee K.; and Larson, Kenneth W., 4,335,770, Cl. 150-8.000.

Laucht, Walter: *See—*
Diener, Arnulf; Laucht, Walter; and Icking, Eugen, 4,335,870, Cl. 266-193.000.

Launie, Kenneth J.: *See—*
Johnson, Bruce K.; and Launie, Kenneth J., 4,335,945, Cl. 354-197.000.

Laxo, Darryl E., to United States of America, Navy. Apparatus for vertically stacking flat weights. 4,335,987, Cl. 414-27.000.

Leach, J. Michael; and Harvey, Walter L., to Caterpillar Tractor Co. Method of cryogenically hardening an insert in an article. 4,336,077, Cl. 148-3.000.

Lebanon Steel Foundry: *See—*
Vogel, Edward G.; and Westlund, Rodney C., 4,336,068, Cl. 106-84.000.

Lebecque, Maurice G. N. G: Magnetic electrical contact systems. 4,336,519, Cl. 335-206.000.

Lechner, Robert, to Siemens Aktiengesellschaft. Circuit arrangement for monitoring operating conditions of direct current devices. 4,336,424, Cl. 179-18.0FG.

Leddy, Ernest J., to Bell Telephone Laboratories, Incorporated. Technique for preventing salt migration. 4,336,288, Cl. 428-35.000.

Lee, Chi-Hang, to Del Monte Corporation. Vegetable and fruit preservation process. 4,336,273, Cl. 426-321.000.

Lee, Len F.: *See—*
Howe, Robert K.; and Lee, Len F., 4,336,389, Cl. 548-201.000.

Lee, Lester T. C.: *See—*
Aharoni, Shaul M.; Prevorsek, Dusan C.; Schmitt, George J.; Harpell, Gary A.; and Lee, Lester T. C., 4,336,356, Cl. 525-388.000.

Lee, Michael J.: *See—*
Donald, David K.; Lee, Michael J.; and Vaught, John L., 4,336,544, Cl. 346-1.100.

Lee, Robert G. H.: *See—*
Savard, Guy; and Lee, Robert G. H., 4,336,064, Cl. 75-60.000.

Lee, Steven N., to Rockwell International Corporation. Method of making CMOS devices. 4,335,504, Cl. 29-576.00B.

Leeke, Gordon; and Webster, Timothy, to AMF Incorporated. Filter and method of making same. 4,336,036, Cl. 55-159.000.

Lehrkind, Nancy Northup: *See—*
Northup, John D., 4,336,050, Cl. 65-82.000.

Leist, Helmut: *See—*
Hopmeier, Joachim; Leist, Helmut; and Ullrich, Georg J., 4,336,031, Cl. 23-232.00R.

Lemelson, Jerome H. Method of roll forming a composite. 4,335,494, Cl. 29-420.500.

Lenke, Dieter: *See—*
Treiber, Hans J.; Lenke, Dieter; and Worstmann, Wolfgang, 4,336,263, Cl. 424-244.000.

Lenselink, Willem, to Polak's Frutal Works, B.V. Menthene nitriles and use as perfume chemicals. 4,336,204, Cl. 260-464.000.

Leon-Pekarek, Diane, to Avon Products, Inc. Hair makeup products. 4,336,246, Cl. 424-70.000.

Leonard, Willie B. Fluidic repeater. 4,335,645, Cl. 91-388.000.

Leoni, Bernard G.: *See—*
Houdard, Jean-Pierre; Julie, Jean-Jacques; and Leoni, Bernard G., 4,336,600, Cl. 364-785.000.

Leopold Kostal, Firma: *See—*
Berginski, Werner E., 4,336,428, Cl. 200-61.540.

Lermuzeaux, Andre, to L'Air Liquide, Societe Anonyme pour d'Etude et l'Exploitation des Procedes Georges Claude. Process and apparatus for quick-freezing of food products. 4,335,584, Cl. 62-388.000.

Le Roux, Jean; and Plagnard, Andre, to Novatome. Sealing device for a component vertically disposed within the primary vessel of a nuclear reactor. 4,335,883, Cl. 277-3.000.

Lesarge, Kenneth: *See—*
Orosz, Andrew; and Lesarge, Kenneth, 4,335,898, Cl. 280-81.00R.

Leschinsky, Efim Y.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Leutner, Bernd; Schlimper, Hans-Ulrich; Roth, Dieter; Kreitner, Ludwig; and Spahn, Heinrich, to BASF Aktiengesellschaft. Preparation of storage-stable, pumpable and pourable aluminosilicate suspensions by wet milling. 4,336,234, Cl. 423-329.000.

Lever Brothers Company: *See—*
Verrips, Cornelis T.; and van Rhee, Renee, 4,336,272, Cl. 426-250.000.

Levine, Alfred B. Video display pager receiver with memory. 4,336,524, Cl. 340-311.100.

Levine, Michael R. Electronic thermostat with repetitive operation cycle. 4,335,847, Cl. 236-46.00R.

Levolor Lorentzen, Inc.: *See—*
Debs, Victor, 4,335,776, Cl. 160-320.000.

Lew, Yung, to American Hoechst Corp. Imaging system and method with reduced moire interference. 4,336,558, Cl. 358-285.000.

Lewis, Charles E., to McGraw-Edison Company. Voltage sensing apparatus for a voltage regulating transformer. 4,336,490, Cl. 323-305.000.

Lewis, Sheldon N.; and Haggard, Richard A., to Rohm and Haas Company. Composition comprising condensation cross-linkable novel methacrylate polymers. 4,336,345, Cl. 525-107.000.

LGZ Landis & Gyr Zug AG: *See—*
de Vries, Jacob, 4,336,512, Cl. 332-9.00R.

Licitis, Gunars: *See—*
Meyer, Burton C.; Licitis, Gunars; and Brand, Derek A., 4,335,880, Cl. 273-310.000.

Lick, George R. Ceiling tile replacing and positioning apparatus. 4,335,913, Cl. 294-19.00R.

Lieberman, Stuart I.: *See—*
Biehl, Brian L.; and Lieberman, Stuart I., 4,336,532, Cl. 340-600.000.

Lignereux, Jean-Pierre: *See—*
Jacquet, Maurice A.; and Lignereux, Jean-Pierre, 4,335,646, Cl. 98-2.000.

Like, Burton M.; Smialowicz, Dennis; and Brandli, Eugene, to American Cyanamid Company. Disinfectant/cleanser compositions exhibiting reduced eye irritancy potential. 4,336,151, Cl. 252-106.000.

Like, Burton M.; Smialowicz, Dennis; and Brandli, Eugene, to American Cyanamid Company. Disinfectant/cleanser compositions exhibiting reduced eye irritancy potential. 4,336,152, Cl. 252-106.000.

Lindauer Dornier Gesellschaft mbH: *See—*
Strahm, Christian; and Strudel, Werner, 4,335,593, Cl. 68-13.00R.

Lindenbauer, Leo K. Solar energy collector and energy storage cell. 4,335,707, Cl. 126-440.000.

Lindgren, Anders S. G.: *See—*
Arvidsson, Willy B. L.; and Lindgren, Anders S. G., 4,335,784, Cl. 165-9.000.

Lindgren, Leonard C.: *See—*
Ewing, Bruce A.; and Lindgren, Leonard C., 4,335,997, Cl. 416-185.000.

Lindley, Donald C. Rodent trap. 4,335,535, Cl. 43-61.000.

Lindner, Robert A., to Henkel Corporation. Polyvinyl chloride processing. 4,336,176, Cl. 524-310.000.

Lindsay, Winston S., to Vacu-Maid, Inc. Outlet assembly for a vacuum cleaning system. 4,336,427, Cl. 200-61.600.

Linnik, Ivan I.: *See—*
Lukhvich, Alexandr A.; Rudnitsky, Valery A.; Linnik, Ivan I.; and Gavris, Genrikh B., 4,336,498, Cl. 324-230.000.

Lippy Can Company, Ltd.: *See—*
Knize, Elmer J.; and Avers, Daniel C., 4,335,827, Cl. 220-284.000.

Lisco, Richard J., to Bell Telephone Laboratories, Incorporated. Voltage detector. 4,336,467, Cl. 307-350.000.

Liu, Poo-Sung. Electric rotary toothbrush. 4,335,480, Cl. 15-23.000.

Lobmeyer, Raymond J.; and Miller, James A., to Deere & Company. Hydraulic system having variable displacement pumps controlled by power beyond flow. 4,335,577, Cl. 60-421.000.

Locke, Stephen A., to Beloit Corporation. Sonic measurement of web tension. 4,335,603, Cl. 73-159.000.

Lockheed Corporation: *See—*
Adams, Thomas E.; Murray, Walter D.; and Woolf, Raymond F., 4,336,595. Cl. 364-508.000.

Loffland Brothers Company: *See—*
Johnson, Earl R., 4,335,808, Cl. 192-85.0AB.

Lofgren, Letcher A., to United States of America, Army. Method and apparatus for detonating explosive in response to detonation of remote explosive. 4,335,655, Cl. 102-209.000.

Lohmann, Dieter: *See—*
d'Hondt, Christian; Lohmann, Dieter; and Neuenschwander, Ernst, 4,336,353, Cl. 525-275.000.

Long, Donald L. Round table tennis table. 4,335,877, Cl. 273-30.000.

Longi, Paolo: *See—*
Giannini, Umberto; Cassata, Antonio; Longi, Paolo; and Mazzocchi, Romano, 4,336,360, Cl. 526-114.000.

Loose, Winfield W., to AMP Incorporated. Solderless circuit board contact. 4,336,431, Cl. 200-292.000.

Lopata, Ira, to Ragen Precision Industries, Inc. Electrostatic display apparatus. 4,335,955, Cl. 355-16.000.

Lopdrup, Kim A.: *See—*
Paine, John N.; and Lopdrup, Kim A., 4,335,485, Cl. 15-235.800.

Lorant, Ivan; Csernyanszky, Imre; Murlasits, Gyula; Rusznyak, Rezso; and Szabo nee Paulyuk, Paula, to Bor-, Mubor-es Cipoipari Kutato Intezet; and Graboplast Gyori Pamutszovo-es Muborgyar. Process for the production of water vapor-permeable sheet materials. 4,336,300, Cl. 428-316.600.

Lord, Ronald D., to Mining Industry Research Organization of Canada. Lamp assembly with switch and focussing mechanisms. 4,336,579, Cl. 362-272.000.

Lordi, Frank E.; and Triplett, Jacob, to Atlantic Richfield Company. Method of preparing styrene-maleic anhydride molding composition. 4,336,354, Cl. 525-301.000.

Loscher, Helmut: *See—*
Hesse, Peter; Schinle, Friedbert; and Loscher, Helmut, 4,336,329, Cl. 435-3.000.

Love, William D.: *See—*
Barrett, David M.; Love, William D.; and Donaldson, Joseph L., 4,335,928, Cl. 339-94.00C.

Lucas Industries Limited: *See—*
Woodhouse, Richard G.; and Salway, Peter H., 4,336,497, Cl. 324-162.000.

Lucas, Jean M.; and Molle, Jean F., to Cemagref. Method and apparatus for the thermal treatment of combustible material. 4,335,664, Cl. 110-346.000.

Lucey, Michael F., to Sprague Electric Company. Humidity- and salt-resistant electronic component. 4,336,311, Cl. 428-521.000.

Lukhvich, Alexandr A.; Rudnitsky, Valery A.; Linnik, Ivan I.; and Gavris, Genrikh B. Magnetic thickness gauge. 4,336,498, Cl. 324-230.000.

Lunn, Gerald K., to Motorola, Inc. Linear full wave rectifier circuit. 4,336,586, Cl. 363-127.000.

Lunn, William H. W.; and Shadle, John K., to Eli Lilly and Company. Cephalosporin antibiotics. 4,336,253, Cl. 424-246.000.

Lupertz, Hans-Henning, to ITT Industries, Inc. Spot-type disc brake having a simple guiding arrangement for the caliper and shoes at the carrier. 4,335,806, Cl. 188-73.330.

Luukkala, Mauri, to Vaisala Oy. Apparatus for indicating the freezing of the surface of an asphalt road, paved runway, or the like. 4,335,613, Cl. 73-599.000.

Lynch, Charles E.; and Wilkinson, William K., to Du Pont de Nemours, E. I., and Company. Acrylic precursor fibers suitable for preparing carbon or graphite fibers. 4,336,022, Cl. 8-115.500.

Lynch, Henry W.: *See—*
Edgerton, Milton T.; Granato, Roberto C.; and Lynch, Henry W., 4,335,714, Cl. 128-79.000.

Lyntone Engineering, Inc.: *See—*
Szemeredi, Robert S.; and Troup, Edward M., 4,335,853, Cl. 239-239.000.

MacDonald, Donald M.: *See—*
Yasnovsky, V. M.; and MacDonald, Donald M., 4,336,370, Cl. 536-58.000.

MacDonald, Kenneth: *See—*
Dybel, Frank R.; Dybel, William F.; and MacDonald, Kenneth, 4,335,614, Cl. 73-774.000.

Machat, Jean-Yves: *See—*
Gerard, Francois; and Machat, Jean-Yves, 4,336,124, Cl. 204-284.000.

Machlett Laboratories, Incorporated, The: *See—*
Holland, William P.; and DeCou, Donld F., Jr., 4,336,476, Cl. 313-60.000.

Mack, John H. Glass cleaning process and apparatus. 4,336,073, Cl. 134-6.000.

Mack Trucks, Inc.: *See—*
Kronstadt, Victor, 4,335,623, Cl. 74-477.000.

Maeda, Shiro: *See—*
Hosokawa, Hiroyuki; and Maeda, Shiro, 4,335,690, Cl. 123-407.000.

Maeda, Takeo: *See—*
Morinaga, Shigeki; Miyashita, Kunio; Takahashi, Tadashi; Maeda, Takeo; and Yamashita, Seizi, 4,336,475, Cl. 310-198.000.

Maehara, Toshifumi; and Fujita, Tomohiro, to Akebono Brake Industry Company Limited. Double piping type hydraulic pressure control device. 4,335,736, Cl. 137-87.000.

Magid, Sidney H.; and Chung, Wang C. Inflatable throwing toy. 4,335,536, Cl. 46-74.00D.

Magna American Corporation: *See—*
Reaume, Leonard V.; and Hall, James O., 4,335,762, Cl. 144-194.000.

Magyar Tudomanyos Akademia Muszaki Kemiai Kutato Intezet: *See—*
Bucsky, Gyorgy; Kiss, Zoltan; Matyas, Ivan; Pazmany, Jozsef; Selyem, Gyula; and Tatrai, Lajos, 4,335,618, Cl. 73-861.560.

Mahajan, Gautam K.: *See—*
Collette, Wayne N.; Krishnakumar, Suppayan M.; and Mahajan, Gautam K., 4,335,821, Cl. 215-1.00C.

Mahan, Michael S. Working board for drilling rig. 4,335,792, Cl. 175-52.000.

Mahl, Willy: *See—*
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.

Majewicz, Thomas G.; and Podlas, Thomas J., to Hercules Incorporated. Method of thickening heavy brine solutions. 4,336,146, Cl. 252-8.55R.

Makos, Janice D.: *See—*
Cummings, John P.; Makos, Janice D.; and Pitkanen, David E., 4,336,320, Cl. 430-198.000.

Maloney, Kenneth L.; and de Volo, Nick B., to Research Cottrell Technologies, Inc. Apparatus and method for flue gas recirculation in a solid fuel boiler. 4,335,660, Cl. 110-206.000.

Mannesmann Aktiengesellschaft: *See—*
Ott, Hubert, 4,335,969, Cl. 400-124.000.

Manning, Monis J., to Polaroid Corporation. Optical element for photographic radiometer. 4,335,959, Cl. 356-218.000.

Manson, Ernest T., to RCA Corporation. Stone-positioning apparatus and method. 4,335,544, Cl. 51-277.000.

Manville Service Corporation: *See—*
Sadler, Thomas H.; and Richlie, Daniel G., 4,335,755, Cl. 138-145.000.

Marchand, Charles H., to Cibie Projecteurs. Corrective device for the orientation of a headlight of a motor vehicle. 4,336,571, Cl. 362-60.000.

Marchant, Alan B.: *See—*
Howe, Dennis G.; Marchant, Alan B.; and Wrobel, Joseph J., 4,336,545, Cl. 346-1.100.

Marconi Company Limited, The: *See—*
Heard, Maurice C., 4,336,606, Cl. 367-117.000.
Radford, Matthew F., 4,336,538, Cl. 343-5.00R.

Marconi, Walter: *See—*
Bartoli, Francesco; Marconi, Walter; Morisi, Franco; and Pittalis, Francesco, 4,336,357, Cl. 525-420.000.

Mares, Frank: *See—*
Diamond, Steven E.; Tovrog, Benjamin S.; Mares, Frank; and Tang, Reginald T., 4,336,241, Cl. 423-588.000.

Margotte, Dieter, to Bayer Aktiengesellschaft. Thermoplastic compositions, process for their preparation and their use. 4,336,348, Cl. 525-146.000.

Maries, Alan; and Shreeve, Francesca M., to International Standard Electric Corporation. Glass composition for water setting ion-polymer cements. 4,336,153, Cl. 252-182.000.

Marinko, Joseph A., to Textron, Inc. Motor control. 4,336,484, Cl. 318-696.000.

Marks, Lawrence M.: *See—*
Murray, Hugh; and Marks, Lawrence M., 4,336,565, Cl. 361-225.000.

Marquardt, Klaus; Eck, Herbert; and Bathelt, Werner, to Wacker-Chemie GmbH. Aqueous dispersions of cross-linkable copolymers based on (meth)acrylates, their preparation and use as stoving enamels. 4,336,172, Cl. 524-555.000.

Marquez, Juan U. Process for the production of a soil improving composition. 4,336,051, Cl. 71-6.000.

Marsden, Dennis, to Pullman Incorporated. Trackside cam centering arrangement. 4,335,988, Cl. 414-387.000.

Marshall, Albert H.; Shaw, Bon F.; Towle, Herbert C.; Riordan, Thomas J.; and Siragusa, George A., to United States of America, Navy. Electro-optic infantry weapons trainer. 4,336,018, Cl. 434-22.000.

Marshall, Duane. Apparatus for underwater image-recording as by sonar-triggered elapsed time strobe photography and the like. 4,335,944, Cl. 354-64.000.

Marshall, Keith: *See—*
Woznicki, Edward J.; Rosania, Lawrence J.; and Marshall, Keith, 4,336,244, Cl. 424-35.000.

Marshall, Stuart E.: *See—*
Cole, Terence G.; and Marshall, Stuart E., 4,336,508, Cl. 331-113.00R.

Marsicano, Matthew F.: *See—*
Hague, Robert Z.; Marsicano, Matthew F.; and Hantman, Edwin F., 4,335,498, Cl. 29-568.000.

Martel, Robert T.: *See—*
Stromswold, Chester E.; Martel, Robert T.; Apostolos, John; and Boland, Robert P., 4,336,511, Cl. 331-178.000.

Martin, Willie E., to E-Systems, Inc. Method and apparatus for electronically rotating a heading signal. 4,336,596, Cl. 364-559.000.

Martini, Thomas; Erckel, Rudiger; Fruhbeis, Horst; Rosch, Gunter; and Probst, Heinz, to Hoechst Aktiengesellschaft. Mixtures of optical brighteners. 4,336,155, Cl. 252-301.210.

Martuch, Leon L.; and Martuch, Michael L. Method of marking fishing lines. 4,336,087, Cl. 156-85.000.

Martuch, Michael L.: *See—*
Martuch, Leon L.; and Martuch, Michael L., 4,336,087, Cl. 156-85.000.

Marvin Glass & Associates: *See—*
Meyer, Burton C.; Licitis, Gunars; and Brand, Derek A., 4,335,880, Cl. 273-310.000.

Masanova, Natalia N.: *See—*
Vorozhtsov, Georgy N.; Masanova, Natalia N.; Feldbljum, Nikolai B.; Alexeev, Vasily I.; Shigalevsky, Vadim A.; Solomatin, Georgy G.; Shulepova, Olga I.; Khaitun, Galina G.; and Gordeeva, Nadezhda V., 4,336,383, Cl. 546-52.000.

Masi, Lamberto. Winding up sunshade curtain for motor-vehicles. 4,335,773, Cl. 160-23.00R.

Maska, Rudolf: *See—*
Christenson, Roger M.; Maska, Rudolf; Dowbenko, Rostyslaw; and Hockswender, Thomas R., 4,335,829, Cl. 220-458.000.

Mason, Michael E.: *See—*
Best, Ralph E.; Bhandari, Vijay; Créeden, Richard L.; Mason, Michael E.; Panter, Harrison R.; Rollins, Jack D.; and Schreiber, Richard A., 4,336,460, Cl. 250-506.000.

Massie, Lewis E. Door restraining device. 4,335,910, Cl. 292-259.00R.

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Masuzawa, Isao; Yamamoto, Kanshi; and Hirokawa, Yoichi, to Tokyo Keiki Co., Ltd. Automatic steering apparatus for ships. 4,336,594, Cl. 364-457.000.

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Tanaka, Shigeru; Iwaki, Katsutaro; Matsuhashi, Hajime; and Banzai, Keiichiro, 4,336,487, Cl. 322-99.000.

Matsukas, George A.: *See—*
Passarelli, Frank J.; Matsukas, George A.; and Caspary, Charles P., 4,335,706, Cl. 126-435.000.

Matsumoto, Masafumi; Kotani, Matahira; and Sasaki, Hiromu, to Sharp Kabushiki Kaisha. Pump synchronization in an ink jet system printer. 4,336,547, Cl. 346-75.000.

Matsumoto, Shigeyuki, to Canon Kabushiki Kaisha. Droplets forming device. 4,336,548, Cl. 346-140.00R.

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Watanabe, Masakazu; Okuno, Akiyasu; and Matsuo, Yasushi, 4,336,216, Cl. 264-65.000.

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Okubo, Tsuneo; Kato, Yasuo; and Matsuoka, Genya, 4,336,597, Cl. 364-560.000.

Matsushita Electric Industrial Co., Ltd.: *See—*
Eda, Nobuo; Iijima, Takashi; and Toyoguchi, Yoshinori, 4,336,315, Cl. 429-194.000.
Yokozeki, Seiki, 4,336,433, Cl. 219-10.55B.

Matthews, Billie J., to Kimberly-Clark Corporation. Tampon containing fusible portions. 4,335,721, Cl. 128-285.000.

Mattock, Patrick: *See—*
Rosevear, Alan; and Mattock, Patrick, 4,336,161, Cl. 252-426.000.

Matumoto, Shinji: *See—*
Yamamoto, Haruhisa; and Matumoto, Shinji, 4,336,409, Cl. 585-622.000.

Matyas, Ivan: *See—*
Bucsky, Gyorgy; Kiss, Zoltan; Matyas, Ivan; Pazmany, Jozsef; Selyem, Gyula; and Tatrai, Lajos, 4,335,618, Cl. 73-861.560.

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Dean, Robert R.; Mauleon, Jean-Louis; and Pfeiffer, Robert W., 4,336,160, Cl. 252-417.000.

Mauro, Charles L.: *See—*
Beckerman, Howard L.; and Mauro, Charles L., 4,335,667, Cl. 112-158.00E.

Mausner, Eberhard; and Brettschneider, Johannes, to Robert Bosch GmbH. Fuel supply system for internal combustion engines. 4,335,694, Cl. 123-478.000.

Max Langenstein Feld- und Gartengerate GmbH & Co.: *See—*
Langenstein, Max, 4,335,568, Cl. 56-12.700.

Max-Mi Corporation: *See—*
Stephens, Christopher M., 4,335,698, Cl. 123-537.000.

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Dinkelacker, Albrecht, 4,336,074, Cl. 134-8.000.

Maxson, Myron T., to Dow Corning Corporation. Method of producing organosilicon composition with in situ produced cure inhibitor. 4,336,364, Cl. 528-15.000.

Maxwell, Thomas J. Hydraulic flywheel. 4,335,627, Cl. 74-572.000.

Maxwell, Westelle. Balcony greenhouse. 4,335,547, Cl. 52-66.000.

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Holst, Arno; Mayer, Reinhart; and Fischer, Wilhelm, 4,336,299, Cl. 428-288.000.

Mayer, Siegfried: *See—*
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.

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O'Lenick, Anthony J., Jr.; and Mayhew, Raymond L., 4,336,386, Cl. 548-112.000.

Mazel, Alexandr G.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Mazzocchi, Romano: *See—*
Giannini, Umberto; Cassata, Antonio; Longi, Paolo; and Mazzocchi, Romano, 4,336,360, Cl. 526-114.000.

McBrayer, Robert D.; and Pujari, Vimal K., to Corning Glass Works. Method for improving thermal shock resistance of honeycombed structures formed from joined cellular segments. 4,335,783, Cl. 165-8.000.

McBurnett, James R.; and Eley, James M., to Tyrone Hydraulics, Inc. Gear pumps and motors. 4,336,005, Cl. 418-126.000.

McClain, Dorothee M., to National Distillers & Chemical Corp. Process for the preparation of finely divided thermoplastic resin. 4,336,210, Cl. 264-8.000.

McClanahan, Edwin D.: *See—*
Patten, James W.; Moss, Ronald W.; and McClanahan, Edwin D., 4,336,118, Cl. 204-192.0EC.

McCleary, David R.; and Slivar, Djuro, to Superior Rubber Industries Ltd. Balloon dryer. 4,335,525, Cl. 34-4.000.

McCloskey, Albert R., to Incom International Inc. Wear resistant bearing. 4,335,924, Cl. 308-72.000.

McClure, David E.: *See—*
Baldwin, John J.; and McClure, David E., 4,336,261, Cl. 424-273.00R.

McColl, James R.: *See—*
Peters, Thomas E.; and McColl, James R., 4,336,313, Cl. 428-691.000.

McCoy, John J.: *See—*
Falcone, Samuel J.; and McCoy, John J., 4,336,402, Cl. 560-157.000.

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Bernhardt, Donn E.; and McCulley, Lowell D., Jr., 4,336,611, Cl. 371-38.000.

McGee, Arthur L., to Coe Manufacturing Co., The. Veneer lathe charger having improved positioning for charger spindles. 4,335,763, Cl. 144-209.00A.

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Lewis, Charles E., 4,336,490, Cl. 323-305.000.
McLean, Kerry L. Internal combustion engine dual fuel system. 4,335,697, Cl. 123-527.000.
McManus, Gerald P. M. Foldable container. 4,335,769, Cl. 150-1.000.
McPherson, William E. Pacemaker assembly having ventricular inhibited and ventricular triggered pacemaker units. 4,335,727, Cl. 128-419.0PG.
Mead Corporation, The: *See—*
Shackle, Dale R.; and Young, Ainslie T., Jr., 4,336,067, Cl. 106-21.000.
Mechanical Technology Incorporated: *See—*
Heshmat, Hooshang, 4,335,885, Cl. 277-13.000.
Meckel, Joachim: *See—*
Wunderlich, Egmar; Meckel, Joachim; Wagener, Dietrich; and Smieskol, Stefan, 4,336,229, Cl. 422-148.000.
Meckl, Heinz: *See—*
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Edgerton, Milton T.; Granato, Roberto C.; and Lynch, Henry W., 4,335,714, Cl. 128-79.000.
Medwin, Lawrence B., to RCA Corporation. CMOS Device with silicided sources and drains and method. 4,336,550, Cl. 357-42.000.
Megna, Salvatore. Hair curling iron. 4,335,732, Cl. 132-123.000.
Meier, Max. Coated boards of wooden material in particular for use in furniture. 4,336,294, Cl. 428-192.000.
Melanson, Paul C.: *See—*
Selby, Howard W., III; and Melanson, Paul C., 4,336,115, Cl. 204-98.000.
Meldahl, Kenneth R.: *See—*
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Jones, Peter A., 4,335,482, Cl. 15-87.000.
Mellon, Regis B., to Akzona Incorporated. Toll restrictor. 4,336,422, Cl. 179-18.0DA.
Melnick, Joseph L.: *See—*
Wallis, Craig; and Melnick, Joseph L., 4,336,337, Cl. 435-292.000.
Melse, Jan L.: *See—*
Van Hoek, Martinus A. F.; and Melse, Jan L., 4,336,112, Cl. 204-5.000.
Melvin, George E.: *See—*
Hetherington, Richard J.; Melvin, George E.; Milkovich, Stephen A.; and Urfer, Ernest N., 4,336,088, Cl. 156-89.000.
Merck & Co., Inc.: *See—*
Baldwin, John J., 4,336,257, Cl. 424-256.000.
Baldwin, John J.; and McClure, David E., 4,336,261, Cl. 424-273.00R.
Cragoe, Edward J., Jr.; Patchett, Arthur A.; Rooney, Clarence S.; and Williams, Haydn W. R., 4,336,397, Cl. 560-51.000.
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Buttner, Werner, 4,335,822, Cl. 215-12.00R.
Merger, Franz; and Fouquet, Gerd, to BASF Aktiengesellschaft. Preparation of methyl methacrylate by reaction of methyl propionate and methanol. 4,336,403, Cl. 560-211.000.
Merlini, Marjorie A. Newspaper holder. 4,335,864, Cl. 248-316.00D.
Merrell Dow Pharmaceuticals Inc.: *See—*
Sjoerdsma, Albert, 4,336,054, Cl. 71-67.000.
Merrell, Richard G.: *See—*
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; and Merrell, Richard G., 4,336,553, Cl. 358-120.000.
Merrick, George J.: *See—*
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Merritt, Mitchell: *See—*
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Meseguer, Jose D.: *See—*
Coll, Antonio L. P.; Meseguer, Jose D.; Bianchini, Asuncion E.; and Pitarch, Esteve S., 4,336,376, Cl. 544-030.000.
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Thomamueller, Dieter; and Brunsch, Klaus, 4,335,587, Cl. 64-11.00B.
Messick, Virginia B., to Dow Chemical Company, The. Nitric acid stabilized thermosettable resins. 4,336,359, Cl. 525-531.000.
Metzger, Wesley A. Apparatus and process for drying and curing coated substrates. 4,336,279, Cl. 427-55.000.
Meyer, Burton C.; Licitis, Gunars; and Brand, Derek A., to Marvin Glass & Associates. Electric eye actuated gun arcade. 4,335,880, Cl. 273-310.000.
Meyer, Donald G., to John Fluke Mfg. Co., Inc. Controlled frequency signal source apparatus including a feedback path for the reduction of phase noise. 4,336,505, Cl. 331-1.00R.
Meyer, Gene L.: *See—*
Wetters, Dale D.; and Meyer, Gene L., 4,336,473, Cl. 310-88.000.
Meyers, Alma D.; Tesluck, Robert L.; and Tesluck, Thomas R. Rock trap for farm vehicle. 4,335,562, Cl. 56-10.200.
Michalak, Janusz K. Apparatus and method for measuring fluid. 4,335,606, Cl. 73-298.000.
Midland-Ross Corporation: *See—*
Schmidt, H. Dean; and Eckstrom, Peter M., 4,336,131, Cl. 209-3.000.
Mikasa, Hajime: *See—*
Imaki, Takao; Mikasa, Hajime; and Sakai, Niro, 4,336,453, Cl. 250-344.000.
Miles Laboratories, Inc.: *See—*
Bauer, Robert, 4,336,330, Cl. 435-14.000.
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Milkovich, Stephen A.: *See—*
Hetherington, Richard J.; Melvin, George E.; Milkovich, Stephen A.; and Urfer, Ernest N., 4,336,088, Cl. 156-89.000.
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Rehbein, Erwin G., 4,335,548, Cl. 52-169.110.
Miller, A. Leslie, to Koppers Company, Inc. Iron blast furnace casting cage. 4,335,869, Cl. 266-158.000.
Miller, Casper W.: *See—*
George, Robert W.; Miller, Casper W.; and Rapey, Kenneth, 4,336,011, Cl. 425-129.00R.
Miller, Franklyn D.: *See—*
Muller, Werner C.; and Miller, Franklyn D., 4,336,335, Cl. 435-161.000.
Miller, J. Wayne; and Ward, John W., to Union Oil Company of California. Desulfurization of hydrocarbons. 4,336,130, Cl. 208-243.000.
Miller, James A.: *See—*
Lobmeyer, Raymond J.; and Miller, James A., 4,335,577, Cl. 60-421.000.
Miller, Matthew S., to General Electric Company. Microwave oven cavity excitation system employing circularly polarized beam steering for uniformity of energy distribution and improved impedance matching. 4,336,434, Cl. 219-10.55F.
Miller, Wayne J.: *See—*
Downs, Raymond L.; and Miller, Wayne J., 4,336,338, Cl. 501-12.000.
Millray, Robert: *See—*
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Mills, Leland F., to Crathern Engineering Co., Inc. System for and method of laminating. 4,336,094, Cl. 156-299.000.
Minato, Ichiro: *See—*
Onishi, Isatsugu; Furuoya, Itsuo; and Minato, Ichiro, 4,336,205, Cl. 260-465.00C.
Minatoya, Hiroaki; Tullar, Benjamin F.; and Conway, Walter D., to Sterling Drug Inc. 3-(Hydroxy or hydroxymethyl)-4-hydroxy-alpha(aminomethyl)benzyl alcohols and methods of use. 4,336,400, Cl. 560-73.000.
Minear, Gerald: *See—*
Mueller, Max A.; Vandertoolen, Dirk; and Minear, Gerald, 4,336,139, Cl. 210-401.000.
Mining Industry Research Organization of Canada: *See—*
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Ministry of International Trade & Industry: *See—*
Fukuta, Kenji; Onooka, Ryuzo; Aoki, Eiji; and Tsumuraya, Shigeo, 4,336,296, Cl. 428-257.000.
Minnesota Mining and Manufacturing Company: *See—*
Eiden, Ronald R., 4,336,293, Cl. 428-143.000.
Van Kampen, Craig L.; and Ahlberg, Carl S., 4,336,097, Cl. 156-527.000.
Winslow, John M., 4,336,323, Cl. 430-339.000.
Misdom, Theodore H.: *See—*
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Misuta, Hiroshi: *See—*
Kitamura, Shigeo; Yoshioka, Kazuo; Seriyama, Yoshiharu; and Misuta, Hiroshi, 4,336,196, Cl. 549-416.000.
Mitchell, Arthur W. Chimney cowls. 4,335,648, Cl. 98-59.000.
Mitchell, Colin H.; and Young, Michael J., to Nuclear Power Company Limited. Tube-in-shell heat exchangers. 4,336,614, Cl. 376-405.000.
Mitchell, Gary A.: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,336,186, Cl. 260-112.50R.
Mitchell, James T., to Westinghouse Electric Corp. Packaged solid state power controller with separable mounting for a power switching device, and method of assembly. 4,336,568, Cl. 361-386.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Inoue, Toru; Sugiyama, Yasuo; and Onishi, Ken, 4,336,612, Cl. 371-39.000.
Kobayashi, Hiroo, 4,336,480, Cl. 313-495.000.
Mitsubishi Gas Chemical Company, Inc.: *See—*
Isshiki, Tomiya; Kijima, Yasuhiko; and Miyauchi, Yuh, 4,336,399, Cl. 560-61.000.
Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Akiyama, Seiji; Kurihara, Mamoru; and Ueki, Kazuhiko, 4,335,981, Cl. 405-221.000.
Mitsubishi Paper Mills, Ltd.: *See—*
Kanada, Eiji; Tsubai, Yasuo; Yamada, Shoji; Takaya, Yoshikazu; and Senga, Takao, 4,336,321, Cl. 430-234.000.
Mitsumoto, Takashi; and Nakashima, Hiroshi, to Aisin Seiki Kabushiki Kaisha; and Japanese National Railways. Connecting device for conduits. 4,335,747, Cl. 137-614.060.
Miura, Nobuo, to Honda Giken Kogyo Kabushiki Kaisha. Spark ignition timing control system for internal combustion engines. 4,335,692, Cl. 123-418.000.
Miyahara, Akimitsu; Kanazawa, Toshihiko; Takahashi, Kokaji; Ushikubo, Hiroji; and Kawano, Kuniaki, to Japan Organo Company, Ltd. Liquid storage tank. 4,335,746, Cl. 137-576.000.
Miyamori, Masashige, to Murata Manufacturing Co., Ltd. Oscillator with a feedback circuit employing a pre-polarized ceramic piezoelectric oscillating unit. 4,336,510, Cl. 331-163.000.

Miyamoto, Chikara: *See—*
Fujiwara, Mitsuhiko; Fujiwara, Akiko; and Miyamoto, Chikara, 4,336,332, Cl. 435-58.000.
Miyamoto, Tomohiko: *See—*
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Mizuno, Hiroshi: *See—*
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Mobil Oil Corporation: *See—*
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Molders, Werner, to Stabilus GmbH. Pressurized fluid device. 4,335,871, Cl. 267-64.280.
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Mona Industries, Inc.: *See—*
Mayhew, Raymond L.; and O'Lenick, Anthony J., Jr., 4,336,385, Cl. 548-112.000.
O'Lenick, Anthony J., Jr.; and Mayhew, Raymond L., 4,336,386, Cl. 548-112.000.
Monsanto Company: *See—*
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Wu, Wan C., 4,336,355, Cl. 525-316.000.
Montecatini Edison S.p.A.: *See—*
Giannini, Umberto; Cassata, Antonio; Longi, Paolo; and Mazzocchi, Romano, 4,336,360, Cl. 526-114.000.
Montedison S.p.A.: *See—*
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Montgomery, Gary V.; and Bush, Randall G., to Sunbeam Plastics Corporation. Child-resistant package. 4,335,823, Cl. 215-206.000.
Moore, Jimmie L.: *See—*
Payne, Alan J.; Aylott, Michael V.; Moore, Jimmie L.; and Yokley, Edward M., 4,336,260, Cl. 424-266.000.
Moore, Ronnie J.; and Brown, Michael D., to Moore, Ronnie James. Method for removing vinyl decals. 4,336,072, Cl. 134-4.000.
Moore, Ronnie James: *See—*
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Mordike, Barry L.: *See—*
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Morel, Claude: *See—*
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Morgan, Grant T., to Autologic, S.A. Photocomposing machine. 4,335,940, Cl. 354-8.000.
Morgan, Grant T.: *See—*
Moyroud, Louis M.; and Morgan, Grant T., 4,335,941, Cl. 354-15.000.
Morianz, Josef V., to Swiss Aluminium Ltd. Device for continuous horizontal casting. 4,335,779, Cl. 164-440.000.
Moriarty, Robert M.; Walton, John W.; and Caldwell, Samuel C., to United Technologies Corporation. Selective commutation for an inverter. 4,336,585, Cl. 363-79.000.
Morinaga, Shigeki; Miyashita, Kunio; Takahashi, Tadashi; Maeda, Takeo; and Yamashita, Seizi, to Hitachi, Ltd. Slotless brushless motor. 4,336,475, Cl. 310-198.000.
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Bartoli, Francesco; Marconi, Walter; Morisi, Franco; and Pittalis, Francesco, 4,336,357, Cl. 525-420.000.
Morita, Toshiharu: *See—*
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Moritz, George J. Production of purified brine. 4,336,232, Cl. 423-164.000.
Morlec, Emile; Reynes, Daniel; and Suzzoni, Jean-Pierre, to International Business Machines Corp. Device for increasing the parallel inductance of a transformer. 4,336,423, Cl. 179-18.0GF.
Morris, Albert W., Jr. Follow spot sighting device. 4,336,581, Cl. 362-457.000.
Morris, David R.; and Erickson, Porter W., to United States of America, Navy. Epoxy adhesive composition. 4,336,367, Cl. 524-770.000.
Morrison, Donald R. Winch apparatus for vibrating concrete screed. 4,335,976, Cl. 404-114.000.
Morrissey, Neal J.: *See—*
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Morton-Norwich Products, Inc.: *See—*
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Morton, Virgil R., to Verco Manufacturing, Inc. Shear load resistant structure. 4,335,557, Cl. 52-741.000.
Moseley, Fred; and Dyer, Paul N., to Air Products and Chemicals, Inc. Method of manufacturing hydrogen peroxide. 4,336,240, Cl. 423-584.000.
Moss, Ronald W.: *See—*
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Motomura, Noriyuki; and Tsuboi, Hiroyuki, to Toshiba Kikai Kabushiki Kaisha. Apparatus for measuring injection speeds of die casting machines. 4,335,778, Cl. 164-150.000.
Motonami, Masanao; and Ishikawa, Yoshiaki, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Passive seatbelt driving mechanism. 4,335,902, Cl. 280-804.000.
Motorola, Inc.: *See—*
Attwood, Stanley W., 4,336,500, Cl. 329-50.000.
Bynum, Byron G.; and Jarrett, Robert B., 4,336,507, Cl. 331-108.00D.
Duffy, Victor P., 4,335,781, Cl. 165-1.000.
Lunn, Gerald K., 4,336,586, Cl. 363-127.000.
Whatley, Roger A., 4,336,503, Cl. 330-253.000.
Mount, Fred L.: *See—*
Jameson, James J.; Mount, Fred L.; and Fernandez, Joe L., 4,335,963, Cl. 366-63.000.
Mouyard, Arthur A.; Hamby, Michael V.; and Tomaszek, Paul A., to General Instrument Corporation. Alpha-numeric display array and method of manufacture. 4,336,580, Cl. 362-347.000.
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Herdin, Gunther; Kauer, Erhard; Muckenhuber, Maximilian; and Egger, Eugen, 4,335,686, Cl. 123-90.600.
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Mueller, Richard A., to G. D. Searle & Co. 1-Cycloalkyl phosphonium salts. 4,336,252, Cl. 424-198.000.
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Gregory, William D.; Capots, Larry H.; Morelli, Luigi; Muhlke, John, III; and Nolan, Thomas A., Jr., 4,336,493, Cl. 324-61.00R.
Muller, Alfred, to Siemens Aktiengesellschaft. Method for continuous production of niobium-germanium layers on a substrate. 4,336,280, Cl. 427-62.000.
Muller, Anton; Rauscher, Martin; and Witzel, Gunter, to Eisen- und Drahtwerk Erlau Aktiengesellschaft. Tensioning device, especially for lashing chains. 4,335,489, Cl. 24-68.0CT.
Muller, Henry J., Jr. Garden cart with removable container. 4,335,897, Cl. 280-47.180.
Muller, Jean-Claude; and Ramuz, Henri, to Hoffmann-La Roche Inc. Oxadiazolotriazine derivatives. 4,336,380, Cl. 544-198.000.
Muller, Karl-Heinz: *See—*
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.
Muller, Tore B. Process for continuous crystallization. 4,336,030, Cl. 23-301.000.
Muller, Werner C.; and Miller, Franklyn D., to National Distillers & Chemical Corp. Fermentation process. 4,336,335, Cl. 435-161.000.
Mundnich, Rainer; Finke, Manfred; Rupp, Walter; and Dehmer, Klaus, to Hoechst Aktiengesellschaft. Process for the manufacture of cyanohydrin acylates of aldehydes. 4,336,206, Cl. 260-465.400.
Munekata, Kenichi; Ohkoshi, Fumihiko; Kamiya, Yoji; and Hasegawa, Toshifumi, to Toyoda Koki Kabushiki Kaisha. Tool storage magazine for machine tool. 4,335,500, Cl. 29-568.000.
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Munz, Joachim: *See—*
Goertler, Horst; Munz, Joachim; Prohaska, Hans; and Rachner, Horst, 4,336,482, Cl. 318-443.000.
Murata Manufacturing Co., Ltd.: *See—*
Miyamori, Masashige, 4,336,510, Cl. 331-163.000.
Murlasits, Gyula: *See—*
Lorant, Ivan; Csernyanszky, Imre; Murlasits, Gyula; Rusznyak, Rezso; and Szabo nee Paulyuk, Paula, 4,336,300, Cl. 428-316.600.
Murphey, Joseph R.; and Young, Bill M., to Halliburton Company. Acid dissolvable cements and methods of using the same. 4,335,788, Cl. 166-278.000.
Murphy, John H., to Westinghouse Electric Corp. Superconducting transformer. 4,336,561, Cl. 361-19.000.

Murphy, Rholand D. Portable multi-purpose construction table. 4,335,765, Cl. 144-286.00R.
Murray, Hugh; and Marks, Lawrence M., to Xerox Corporation. Charge process with a carbon fiber brush electrode. 4,336,565, Cl. 361-225.000.
Murray, Walter D.: *See—*
Adams, Thomas E.; Murray, Walter D.; and Woolf, Raymond F., 4,336,595, Cl. 364-508.000.
Mutch, Robert D. Induced intragradient system for secure landfill. 4,335,978, Cl. 405-129.000.
Naarmann, Herbert: *See—*
Feichtmayr, Franz; Naarmann, Herbert; Paust, Joachim; and Penzien, Klaus, 4,336,201, Cl. 260-410.90V.
Nadelson, Jeffrey: *See—*
Brand, Leonard J.; and Nadelson, Jeffrey, 4,336,378, Cl. 544-137.000.
Brand, Leonard J.; and Nadelson, Jeffrey, 4,336,379, Cl. 544-137.000.
Brand, Leonard J.; and Nadelson, Jeffrey, 4,336,391, Cl. 548-247.000.
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, to Nitto Boseki Co., Ltd.; and Iatron Laboratories, Inc. Method for assaying the activity of γ-glutamyl transpeptidase in serum. 4,336,331, Cl. 435-24.000.
Nagashima, Akira; and Kita, Nobuyuki, to Fuji Photo Film Co., Ltd. Light-solubilizable composition. 4,336,319, Cl. 430-165.000.
Nagashima, Hideyuki; and Kamijo, Ken, to Nissan Motor Co., Ltd. Seat reclining device. 4,335,919, Cl. 297-362.000.
Nagata, Koji; Ogiso, Akio; and Sudo, Kyuji, to Sumitomo Light Metal Industries, Ltd. Coating of the inner surface of tubes. 4,335,677, Cl. 118-306.000.
Nagata, Wataru; and Kamata, Susumu, to Shionogi & Co., Ltd. 5-Fluorouracil derivatives. 4,336,381, Cl. 544-313.000.
Nagel, Arthur A., to Pfizer Inc. 4 Deoxy-4-methylene oleandomycin and derivatives thereof. 4,336,368, Cl. 536-7.200.
Nail, James A., to Chicago Bridge & Iron Company. Falling film freeze exchanger. 4,335,581, Cl. 62-123.000.
Najer, Henry: *See—*
Koletar, Gabor I.; Frost, Jonathan B.; DuPont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,336,256, Cl. 424-256.000.
Nakahara, Yutaka; Shibata, Toshihiro; and Kubota, Naohiro, to Adeka Argus Chemical Co., Ltd. 2,2,6,6-Tetramethyl-4-piperidyl carboxylic acid esters and amides of mono and poly alcohols, phenols and amines as stabilizers for synthetic polymers. 4,336,183, Cl. 524-95.000.
Nakajima, Mutsuo: *See—*
Arai, Mamoru; Torikata, Akio; Enokita, Ryuzou; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,336,249, Cl. 424-121.000.
Nakane, Hisashi: *See—*
Uehara, Akira; Kiyota, Hiroyuki; Miyazaki, Shigekazu; and Nakane, Hisashi, 4,336,438, Cl. 219-121.0PG.
Nakano, Masao; Takemae, Yoshihiro; and Kabashima, Katsuhiko; to Fujitsu Limited. Reset circuit. 4,336,465, Cl. 307-238.300.
Nakaoka, Kazuhide; Nishimoto, Akihiko; and Hosoya, Yoshihiro, to Nippon Kokan Kabushiki Kaisha. Method for manufacturing high-strength cold-rolled steel strip excellent in press-formability. 4,336,080, Cl. 148-12.00C.
Nakashima, Hiroshi: *See—*
Mitsumoto, Takashi; and Nakashima, Hiroshi, 4,335,747, Cl. 137-614.060.
Nanaumi, Kazuyuki: *See—*
Aonuma, Masaru; and Nanaumi, Kazuyuki, 4,336,043, Cl. 55-483.000.
Nasser, Karim W. Fluid level controller. 4,335,741, Cl. 137-426.000.
Nassir, Nicholas. Butterfly valve. 4,335,738, Cl. 137-246.220.
Natale, Peter J., to Ortho Diagnostic Systems Inc. Method and reagents for quantitative determination of reticulocytes and platelets in whole blood. 4,336,029, Cl. 23-230.00B.
Nath, Prem: *See—*
Bunshah, Rointan; and Nath, Prem, 4,336,277, Cl. 427-38.000.
National Can Corporation: *See—*
George, Robert W.; Miller, Casper W.; and Rapey, Kenneth, 4,336,011, Cl. 425-129.00R.
National Distillers & Chemical Corp.: *See—*
McClain, Dorothee M., 4,336,210, Cl. 264-8.000.
Muller, Werner C.; and Miller, Franklyn D., 4,336,335, Cl. 435-161.000.
National Research Development Corporation: *See—*
Paige, Edward G. S., 4,336,514, Cl. 333-195.000.
National Semiconductor Corporation: *See—*
Frederiksen, Thomas M., 4,336,489, Cl. 323-231.000.
National Starch and Chemical Corporation: *See—*
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Naunas, Robert A., Jr.: *See—*
Andrew, Eduardo V.; Naunas, Robert A., Jr.; and Armstrong, Richard C., Jr., 4,336,001, Cl. 417-63.000.
Nausedas, Joseph A., to Union Carbide Corporation. Dual pressure closure clipping system for chamber evacuator. 4,335,559, Cl. 53-138.00A.
Nawata, Kiyoshi: *See—*
Shiozaki, Masahiro; Nawata, Kiyoshi; Wada, Osamu; Tsunawaki, Kiyokazu; Kuratsuji, Takatoshi; Funakoshi, Wataru; and Suzuki, Togi, 4,336,307, Cl. 428-398.000.
NCR Corporation: *See—*
Albertine, Herman, Jr., 4,336,535, Cl. 340-768.000.
Nelson, Stephen J., to Upjohn Company, The. Phosphorus derivatives of aminothiocarbamoyl halides. 4,336,207, Cl. 260-936.000.
Nepute, Carl: *See—*
Schorre, Kenneth R.; Nye, James O.; Dixon, Dennie W.; and Nepute, Carl, 4,336,046, Cl. 62-28.000.
Neturen Company, Ltd.: *See—*
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Neuenschwander, Ernst: *See—*
d'Hondt, Christian; Lohmann, Dieter; and Neuenschwander, Ernst, 4,336,353, Cl. 525-275.000.
Newell, Chester W.: *See—*
Pfost, R. Fred; Seaman, William E.; and Newell, Chester W., 4,335,857, Cl. 242-192.000.
Newell Research Corporation: *See—*
Pfost, R. Fred; Seaman, William E.; and Newell, Chester W., 4,335,857, Cl. 242-192.000.
NGK Spark Plug Co., Ltd.: *See—*
Tanaka, Hiroshi, 4,336,305, Cl. 428-336.000.
Watanabe, Masakazu; Okuno, Akiyasu; and Matsuo, Yasushi, 4,336,216, Cl. 264-65.000.
Yamada, Shigeyasu, 4,336,477, Cl. 313-142.000.
Nicholson, Charles E. Adjustable support device to secure a patch in hollow walls. 4,335,554, Cl. 52-514.000.
Nicholson, Terence P. Gasket for cylinder head. 4,335,890, Cl. 277-235.00B.
Niederer, Lee H.; and Niederer, Thomas O., to Otto Niederer Sons, Inc. Egg arranging apparatus. 4,335,811, Cl. 198-446.000.
Niederer, Thomas O.: *See—*
Niederer, Lee H.; and Niederer, Thomas O., 4,335,811, Cl. 198-446.000.
Nieminen, Timo, to Syntex (U.S.A.) Inc. Motion mechanism of X-ray film in panoramic radiography. 4,336,457, Cl. 250-439.00P.
Nihon Sanmo Dyeing Co., Ltd.: *See—*
Tomibe, Shinji; Gomibuchi, Reizo; and Takahashi, Kiyofumi, 4,336,028, Cl. 8-624.000.
Nippon Columbia Kabushiki Kaisha: *See—*
Ishikawa, Kazumasa; Takahashi, Shin-ichi; and Yoneyama, Masahide, 4,336,501, Cl. 330-109.000.
Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Goto, Motoomi, 4,336,502, Cl. 330-253.000.
Okamoto, Eisaku, 4,335,639, Cl. 84-1.010.
Sata, Takeo; Takamura, Masayuki; Iijima, Kenzaburo; and Fukuda, Norio, 4,336,066, Cl. 75-211.000.
Nippon Kogaku K.K.: *See—*
Utagawa, Ken; Ogasawara, Akira; Shirasu, Hiroshi; and Hoshino, Kunihisa, 4,336,450, Cl. 250-201.000.
Nippon Kokan Kabushiki Kaisha: *See—*
Nakaoka, Kazuhide; Nishimoto, Akihiko; and Hosoya, Yoshihiro, 4,336,080, Cl. 148-12.00C.
Nippon Pillar Packing Co. Ltd.: *See—*
Ohba, Kanji; and Itoi, Shigenari, 4,335,888, Cl. 277-96.100.
Nippon Shinyaku Company, Ltd.: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,373, Cl. 542-447.000.
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,374, Cl. 542-469.000.
Nippon Soda Company Limited: *See—*
Kitamura, Shigeo; Yoshioka, Kazuo; Seriyama, Yoshiharu; and Misuta, Hiroshi, 4,336,196, Cl. 549-416.000.
Nippon Soken, Inc.: *See—*
Sato, Susumu; Takeuchi, Yukihisa; and Tomita, Masahiro, 4,335,574, Cl. 60-311.000.
Takeda, Kenji; Hattori, Yoshiyuki; and Kasagi, Takao, 4,336,007, Cl. 418-183.000.
Nippon Steel Chemical Co., Ltd.: *See—*
Yoshimura, Tokuo; Okazaki, Hiroshi; Soeda, Mahito; and Yushima, Takeharu, 4,336,129, Cl. 208-180.000.
Nippon Telegraph and Telephone Public Corp.: *See—*
Okubo, Tsuneo; Kato, Yasuo; and Matsuoka, Genya, 4,336,597, Cl. 364-560.000.
Takahashi, Shiro; Sanada, Kazuo; Inada, Koichi; and Fukuda, Osamu, 4,336,049, Cl. 65-3.120.
Nippon Zeon Co. Ltd.: *See—*
Yamamoto, Haruhisa; and Matumoto, Shinji, 4,336,409, Cl. 585-622.000.
Nippondenso Co., Ltd.: *See—*
Hosokawa, Hiroyuki; and Maeda, Shiro, 4,335,690, Cl. 123-407.000.
Tanaka, Shigeru; Iwaki, Katsutaro; Matsuhashi, Hajime; and Banzai, Keiichiro, 4,336,487, Cl. 322-99.000.
Nishida, Takashi: *See—*
Torii, Sigeru; Uneyama, Kenji; Onishi, Takashi; Fujita, Yoshiji; Ishiguro, Michihiro; and Nishida, Takashi, 4,336,202, Cl. 549-466.000.
Nishikawa, Masumi, to Aisin Seiki Kabushiki Kaisha. Tiltable steering shaft mechanism for automobiles. 4,335,625, Cl. 74-493.000.
Nishikawa, Yutaka: *See—*
Godai, Tomokazu; Sugiyama, Tohru; and Nishikawa, Yutaka, 4,336,441, Cl. 219-137.0WM.
Nishimiya, Toru, to Tomy Kogyo Co., Inc. Game having reciprocally moving interference members. 4,335,878, Cl. 273-119.00R.
Nishimoto, Akihiko: *See—*
Nakaoka, Kazuhide; Nishimoto, Akihiko; and Hosoya, Yoshihiro, 4,336,080, Cl. 148-12.00C.

Nishimura, Yoshitugu; and Kotera, Noboru, to Kasei Optonix, Ltd. Phosphor and radiation image storage panel utilizing the same. 4,336,154, Cl. 252-301.40H.

Nissan Motor Co., Ltd.: *See—*
Konishi, Hideki, 4,335,691, Cl. 123-410.000.
Nagashima, Hideyuki; and Kamijo, Ken, 4,335,919, Cl. 297-362.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; Etoh, Yukihiro; and Tanaka, Toshiaki, 4,335,687, Cl. 123-198.00F.
Takase, Sadao, 4,336,593, Cl. 364-431.000.
Takata, Yasunobu, 4,336,572, Cl. 362-66.000.

Niswender, Gordon D., to Rohm and Haas Company. Folic acid derivatives. 4,336,185, Cl. 260-112.00R.

Nitadori, Yoshiaki: *See—*
Tsuruta, Teiji; and Nitadori, Yoshiaki, 4,336,361, Cl. 526-180.000.

Nitto Boseki Co., Ltd.: *See—*
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,336,331, Cl. 435-24.000.

NL Industries, Inc.: *See—*
Kolakowski, Michael A.; and Valachovic, John J., 4,336,236, Cl. 423-435.000.
Saliger, Kenneth C.; and Jansen, Martin B., 4,335,904, Cl. 285-18.000.

Noddings, John; and Borton, Roland K., to Associated Engineering Limited. Vehicle speed control systems. 4,336,566, Cl. 361-242.000.

Nogaj, Alfred: *See—*
Reinehr, Ulrich; Jungverdorben, Hermann-Josef; Herbertz, Toni; Nogaj, Alfred; and Kleinschmidt, Peter, 4,336,214, Cl. 264-49.000.

Noguchi, Takanobu: *See—*
Sagoh, Masakazu; Noguchi, Takanobu; and Yasui, Seimei, 4,336,347, Cl. 525-139.000.

Nolan, Thomas A., Jr.: *See—*
Gregory, William D.; Capots, Larry H.; Morelli, Luigi; Muhlke, John, III; and Nolan, Thomas A., Jr., 4,336,493, Cl. 324-61.00R.

Nomura, Hirokazu: *See—*
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Nonaka, Kohei; Koyama, Masahiro; Gonmori, Makoto; Kimura, Takeo; and Shiga, Tetsuo, to Asahi Kasei Kogyo Kabushiki Kaisha. Image forming method and apparatus therefor. 4,335,957, Cl. 355-30.000.

Nonomura, Keisaku; Uede, Hisashi; Wada, Tomio; and Takamatsu, Toshiaki, to Sharp Kabushiki Kaisha. Matrix electrode structure in a multi-layer matrix type liquid crystal display. 4,335,936, Cl. 350-335.000.

Nonomura, Keisaku: *See—*
Takamatsu, Toshiaki; Shimizu, Keiichiro; Wada, Tomio; and Nonomura, Keisaku, 4,335,937, Cl. 350-336.000.

Nord, Paul J.: *See—*
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Nordson Corporation: *See—*
Hastings, Donald R., 4,335,851, Cl. 239-3.000.

Northrup, John D., Jr.: *See—*
Northup, John D., 4,336,050, Cl. 65-82.000.

Northup, John D., to Northrup, John D., Jr.; Northup, Ruth; Lehrkind, Nancy Northup; and Northup, Mary. Method for manufacturing glass bottles. 4,336,050, Cl. 65-82.000.

Northup, Mary: *See—*
Northup, John D., 4,336,050, Cl. 65-82.000.

Northup, Ruth: *See—*
Northup, John D., 4,336,050, Cl. 65-82.000.

Novatome: *See—*
Le Roux, Jean; and Plagnard, Andre, 4,335,883, Cl. 277-3.000.

Noviello, Nicholas, Jr., executor: *See—*
Dierks, Raymond W., deceased; Noviello, Nicholas, Jr., executor; and Glass, Seymour, executor, 4,335,845, Cl. 229-69.000.

Nowak, Andrew, to Fluid-Air Components, Inc. Hydraulic-positioning system for high-impact applications. 4,335,993, Cl. 414-748.000.

Nuclear Assurance Corp.: *See—*
Best, Ralph E.; Bhandari, Vijay; Creeden, Richard L.; Mason, Michael E.; Panter, Harrison R.; Rollins, Jack D.; and Schreiber, Richard A., 4,336,460, Cl. 250-506.000.

Nuclear Power Company Limited: *See—*
Mitchell, Colin H.; and Young, Michael J., 4,336,614, Cl. 376-405.000.

Numata, Saburo. Color compensating device for a camera. 4,335,943, Cl. 354-60.00R.

Numata, Saburo, to Fuji Photo Optical Co., Ltd. Method of and apparatus for automatic electronic flash lamp control. 4,336,481, Cl. 315-241.00P.

Nye Engineering, Incorporated: *See—*
Schorre, Kenneth R.; Nye, James O.; Dixon, Dennie W.; and Nepute, Carl, 4,336,046, Cl. 62-28.000.

Nye, James O.: *See—*
Schorre, Kenneth R.; Nye, James O.; Dixon, Dennie W.; and Nepute, Carl, 4,336,046, Cl. 62-28.000.

Nygaard, Kurt: *See—*
Bratt, Sven-Erik; Nygaard, Kurt; and Nygards, Olof, 4,335,653, Cl. 102-202.800.

Nygards, Olof: *See—*
Bratt, Sven-Erik; Nygaard, Kurt; and Nygards, Olof, 4,335,653, Cl. 102-202.800.

Oak Industries: *See—*
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; and Merrell, Richard G., 4,336,553, Cl. 358-120.000.

O'Connor, Robert T.: *See—*
Hayes, Stanley B., Jr.; and O'Connor, Robert T., 4,335,597, Cl. 73-17.00A.

Odermann, Charles R., to Singer Company, The. Pattern controlled sewing machine for producing tailor tacks. 4,335,668, Cl. 112-158.00E.

Officine Savio S.p.A.: *See—*
Courvoisier, Guy, 4,335,859, Cl. 242-35.50A.

Ogasawara, Akira: *See—*
Utagawa, Ken; Ogasawara, Akira; Shirasu, Hiroshi; and Hoshino, Kunihisa, 4,336,450, Cl. 250-201.000.

Ogiso, Akio: *See—*
Nagata, Koji; Ogiso, Akio; and Sudo, Kyuji, 4,335,677, Cl. 118-306.000.

Oguchi, Yuzo; Itakura, Takayuki; and Kawano, Akio, to Osaka Gas Co., Ltd. Converter for meter-gauge readings. 4,336,447, Cl. 235-92.0EA.

Ohba, Hisao: *See—*
Kohayakawa, Ken; Ohba, Hisao; and Sano, Atuhiro, 4,336,093, Cl. 29-399.000.

Ohba, Kanji; and Itoi, Shigenari, to Nippon Pillar Packing Co. Ltd. Mechanical seal. 4,335,888, Cl. 277-96.100.

Ohkoshi, Fumihiko: *See—*
Munekata, Kenichi; Ohkoshi, Fumihiko; Kamiya, Yoji; and Hasegawa, Toshifumi, 4,335,500, Cl. 29-568.000.

Ohno, Hiroshi: *See—*
Kodama, Churyo; Hirota, Taisuke; Ohno, Hiroshi; and Urataki, Etsuo, 4,336,479, Cl. 313-487.000.

Ohno, Yoshikatsu: *See—*
Tsuda, Tatsuya; and Ohno, Yoshikatsu, 4,336,569, Cl. 361-395.000.

Ohsumi, Tadashi; Itaya, Nobushige; and Hirano, Masachika, to Sumitomo Chemical Company, Limited. Benzyl pyrrolyl methyl carboxylate insecticides and acaricides. 4,336,194, Cl. 548-562.000.

Okabe, Moisei: *See—*
Kanamaru, Hisanobu; Tohkairin, Akira; Tatsumi, Hideo; and Okabe, Moisei, 4,335,496, Cl. 29-520.000.

Okada, Masataka; and Shiun, Toshimi, to Clarion Co., Ltd. Code signal blanking apparatus. 4,336,554, Cl. 358-124.000.

Okamoto, Eisaku, to Nippon Gakki Seizo Kabushiki Kaisha. Preferential circuit for electronic musical instrument. 4,335,639, Cl. 84-1.010.

Okamura, Kiyohito: *See—*
Yajima, Seishi; Okamura, Kiyohito; Hasegawa, Yoshio; and Yamamura, Takemi, 4,336,215, Cl. 264-63.000.

Okazaki, Hiroshi: *See—*
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Okimoto, Tomoyuki: *See—*
Horiike, Tetsuro; Okimoto, Tomoyuki; and Shiozaki, Tomoharu, 4,336,170, Cl. 521-55.000.

Okubo, Tsuneo; Kato, Yasuo; and Matsuoka, Genya, to Nippon Telegraph and Telephone Public Corp.; and Hitachi, Ltd. Method and system for measuring the diameter of an electron beam. 4,336,597, Cl. 364-560.000.

Okumiya, Masataro; and Kuwabara, Kiyoharu, to Asahi Glass Company Ltd. High zirconia fused refractory product. 4,336,339, Cl. 501-103.000.

Okuno, Akiyasu: *See—*
Watanabe, Masakazu; Okuno, Akiyasu; and Matsuo, Yasushi, 4,336,216, Cl. 264-65.000.

Okuyama, Kiyotaka; Hosaka, Akihiko; and Isobe, Yukihiro, to TDK Electronics Co., Ltd. Magnetic recording medium and preparation thereof. 4,336,310, Cl. 428-447.000.

Olansen, Ronald A.; and Pavelski, Linda, to Posi-Seal International, Inc. Bidirectional control valve. 4,335,748, Cl. 137-614.110.

O'Lenick, Anthony J., Jr.; and Mayhew, Raymond L., to Mona Industries, Inc. Quaternary imidazolinium phosphite derivatives. 4,336,386, Cl. 548-112.000.

O'Lenick, Anthony J., Jr.: *See—*
Mayhew, Raymond L.; and O'Lenick, Anthony J., Jr., 4,336,385, Cl. 548-112.000.

Olin Corporation: *See—*
Urs, Venkataramaraj S., 4,336,084, Cl. 149-24.000.

Oliva, Ambro; and Joly, Luc. Process and device for measuring the flow rate of a fluid. 4,335,616, Cl. 73-861.050.

Olson, Edward A. Method and device for supplying venous pressure in a portal vein. 4,335,711, Cl. 128-1.00R.

Olympus Optical Co., Ltd.: *See—*
Komiya, Osamu, 4,335,713, Cl. 128-9.000.

Omnitronics Research Corporation: *See—*
Williamson, John D., 4,335,710, Cl. 128-1.00C.

Onishi, Isatsugu; Furuoya, Itsuo; and Minato, Ichiro, to Takeda Chemical Industries, Ltd. Method for producing aromatic nitriles. 4,336,205, Cl. 260-465.00C.

Onishi, Ken: *See—*
Inoue, Toru; Sugiyama, Yasuo; and Onishi, Ken, 4,336,612, Cl. 371-39.000.

Onishi, Takashi: *See—*
Torii, Sigeru; Uneyama, Kenji; Onishi, Takashi; Fujita, Yoshiji; Ishiguro, Michihiro; and Nishida, Takashi, 4,336,202, Cl. 549-466.000.

Onooka, Ryuzo: *See—*
Fukuta, Kenji; Onooka, Ryuzo; Aoki, Eiji; and Tsumuraya, Shigeo, 4,336,296, Cl. 428-257.000.

Onuchukwu, Anthony I.: *See—*
Tseung, Alfred C. C.; Onuchukwu, Anthony I.; and Chan, Ho C., 4,335,754, Cl. 138-146.000.

Opitz, Konrad: *See—*
Schneider, Manfred; Kruse, Hubert; and Opitz, Konrad, 4,336,025, Cl. 8-527.000.

Oriel Corporation: *See—*
Edelstein, Arthur, 4,335,516, Cl. 33-164.00R.

Orion Machinery Company Limited: *See—*
Aonuma, Masaru; and Nanaumi, Kazuyuki, 4,336,043, Cl. 55-483.000.

Orlowski, Ronald C.; Groginsky, Charles M.; and Seyler, Jay K., to Armour Pharmaceutical Company. Purification of calcitonin by partition chromatography. 4,336,187, Cl. 260-112.50T.

Orosz, Andrew; and Lesarge, Kenneth, to Westank-Willock, a Division of Willock Industries Ltd. Load shifter assembly for trailers. 4,335,898, Cl. 280-81.00R.

Orsborn, Jesse H.: *See—*
Swanson, William C.; and Orsborn, Jesse H., 4,335,561, Cl. 56-10.200.

Ortho Diagnostic Systems Inc.: *See—*
Natale, Peter J., 4,336,029, Cl. 23-230.00B.

Osaka Gas Co., Ltd.: *See—*
Oguchi, Yuzo; Itakura, Takayuki; and Kawano, Akio, 4,336,447, Cl. 235-92.0EA.

Osborn, Douglas B.; and Pons, Robert L., to Ford Aerospace & Communications Corporation. Solar power converter with pool boiling receiver and integral heat exchanger. 4,335,578, Cl. 60-641.800.

Osegowitsch, Viktor: *See—*
Findeis, Gunter; Fergg, Berthold; Osegowitsch, Viktor; Huber, Hans P.; and Meckl, Heinz, 4,335,956, Cl. 355-27.000.

Oskam, Herman: *See—*
Frentzel, Kurt H.; and Oskam, Herman, 4,335,775, Cl. 160-177.000.

Oster, Winton: *See—*
Close, Albert R.; and Oster, Winton, 4,335,510, Cl. 30-276.000.

Osthaus, Georg: *See—*
Zücker, Friedrich J.; Osthaus, Georg; and Plassmann, Paul, 4,336,203, Cl. 260-417.000.

Ott, Hubert, to Mannesmann Aktiengesellschaft. Print head. 4,335,969, Cl. 400-124.000.

Otto Niederer Sons, Inc.: *See—*
Niederer, Lee H.; and Niederer, Thomas O., 4,335,811, Cl. 198-446.000.

Overy, Colin; and Dynie, Ernest R., to Black & Decker Inc. Switch-brake interlock for chain saw. 4,335,514, Cl. 30-382.000.

Owens, Clark McG., to Combustion Engineering, Inc. Stabilization of carbon in austenitic alloy tubing. 4,336,079, Cl. 148-11.50N.

Owens-Corning Fiberglas Corporation: *See—*
Swaney, William A., 4,335,831, Cl. 220-901.000.

Owens, James L. Safety bar for use with chain saw or the like. 4,335,513, Cl. 30-382.000.

Oxenberg, Sheldon C.: *See—*
Welch, John R.; and Oxenberg, Sheldon C., 4,336,421, Cl. 179-1.0SD.

Oy Tampella AB: *See—*
Hamala, Sirpa L.; Koivunen, Seppo T.; Kontturi, Anna-Kaisa; and Sarkkinen, Veli J., 4,336,189, Cl. 260-124.00R.

Ozech, Ingo S.: *See—*
Buck, Robert; and Ozech, Ingo S., 4,336,491, Cl. 323-326.000.

Ozelli, Riza N.: *See—*
Kohlstadt, Hans-Peter; Ozelli, Riza N.; and Gierenz, Gerhard, 4,336,171, Cl. 524-510.000.

Ozols, Gunars M.: *See—*
Chiu, George T.; Joseph, Robert R.; and Ozols, Gunars M., 4,335,506, Cl. 29-591.000.

Paaren, Herbert E.: *See—*
DeLuca, Hector F.; Schnoes, Heinrich K.; Paaren, Herbert E.; Wichmann, Joseph K.; and Fivizzani, Mary A., 4,336,193, Cl. 260-239.570.

Pabst, Joanne K.: *See—*
Lang, Robert J.; and Pabst, Joanne K., 4,336,034, Cl. 48-202.000.

Packaging Corporation of America: *See—*
Bessett, Clifford H.; and Misdom, Theodore H., 4,335,813, Cl. 206-45.330.

Pagliuca, Basilio. Exhaust back pressure reducer for internal combustion engine. 4,335,575, Cl. 60-319.000.

Paige, Edward G. S., to National Research Development Corporation. Acoustic wave devices. 4,336,514, Cl. 333-195.000.

Paine, John N.; and Lopdrup, Kim A. Variable pitch trowels. 4,335,485, Cl. 15-235.800.

Pak Pro International N.V.: *See—*
Hautemont, Jean-Claude, 4,335,635, Cl. 83-160.000.

Palmer, John P., to General Dynamics, Pomona Division. Fiber optic wavelength demultiplexer. 4,335,933, Cl. 350-96.190.

Panter, Harrison R.: *See—*
Best, Ralph E.; Bhandari, Vijay; Creeden, Richard L.; Mason, Michael E.; Panter, Harrison R.; Rollins, Jack D.; and Schreiber, Richard A., 4,336,460, Cl. 250-506.000.

Pantex-Stahl AG: *See—*
Arnold, Edgar, 4,335,556, Cl. 52-655.000.

Pappa, Rosario: *See—*
Zappelli, Piergiorgio; Rossodivita, Antonio; Pappa, Rosario; and Re, Luciano, 4,336,188, Cl. 260-112.50R.

Parker-Hannifin Corporation: *See—*
Cardinale, Paul J.; and Partelow, Leonard E., Jr., 4,335,906, Cl. 285-22.000.

Parker, Kenneth O., to Garrett Corporation, The. Heat exchanger method. 4,335,782, Cl. 165-1.000.

Parmann, Gunnar, to Rieber & Son A/S. System for mounting a forming element on a mandrel. 4,336,014, Cl. 425-403.000.

Partelow, Leonard E., Jr.: *See—*
Cardinale, Paul J.; and Partelow, Leonard E., Jr., 4,335,906, Cl. 285-22.000.

Pask, James B. Disposable boots. 4,335,527, Cl. 36-7.10R.

Passarelli, Frank J.; Matsukas, George A.; and Caspary, Charles P. Energy collector and transfer apparatus. 4,335,706, Cl. 126-435.000.

Passlick, Theodor, to Kollmorgen Technologies Corporation. Method of production of electrically conductive panels and insulating base materials. 4,336,100, Cl. 156-630.000.

Pastva, John V., Jr.: *See—*
Swan, Jye P.; Pastva, John V., Jr.; and Dignan, Donald J., 4,335,595, Cl. 70-149.000.

Patchett, Arthur A.: *See—*
Cragoe, Edward J., Jr.; Patchett, Arthur A.; Rooney, Clarence S.; and Williams, Haydn W. R., 4,336,397, Cl. 560-51.000.

Patel, Bhupendra C., to Kendall Company, The. Catheter having inflatable retention means. 4,335,723, Cl. 128-349.00B.

Paton, Boris E.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Paton, Vladimir E.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Patten, James W.; Moss, Ronald W.; and McClanahan, Edwin D., to Battelle Memorial Institute. Methods for making deposited films with improved microstructures. 4,336,118, Cl. 204-192.0EC.

Pattiniemi, Veikko; Koivisto, Eero; Kokki, Heikki; and Heikel, Aslak R., to Winter Osakeyhtio. Method of mixing paints and their toners. 4,335,759, Cl. 141-5.000.

Paust, Joachim: *See—*
Feichtmayr, Franz; Naarmann, Herbert; Paust, Joachim; and Penzien, Klaus, 4,336,201, Cl. 260-410.90V.

Pavelski, Linda: *See—*
Olansen, Ronald A.; and Pavelski, Linda, 4,335,748, Cl. 137-614.110.

Pavlopoulos, Theodore G.; and Altman, Daniel E., to United States of America, Navy. Method for fabricating single-mode and multimode fiber optic access couplers. 4,336,047, Cl. 65-3.310.

Pawletko, Joseph P., to International Business Machines Corporation. Electrolytic printing apparatus including preheating pressure pad therefor. 4,335,967, Cl. 400-119.000.

Payne, Alan J.; Aylott, Michael V.; Moore, Jimmie L.; and Yokley, Edward M., to Dow Chemical Company, The. Method and compositions using 1-aryl-1,2,3,4-tetrahydro-β-carboline-3-carboxylic acid for treating depression. 4,336,260, Cl. 424-266.000.

Payne, Harry R., to Cavalier Corporation. Cross link mechanism for staggered stack vending machine. 4,335,832, Cl. 221-67.000.

Pazmany, Jozsef: *See—*
Bucsky, Gyorgy; Kiss, Zoltan; Matyas, Ivan; Pazmany, Jozsef; Selyem, Gyula; and Tatrai, Lajos, 4,335,618, Cl. 73-861.560.

PCUK Produits Chimiques Ugine Kuhlmann: *See—*
Kupka, Genevieve L.; and Zar-Ayan, Mehdi, 4,336,032, Cl. 44-56.000.

Peebles, Leighton H.; Uhlmann, Donald R.; and Warner, Steven B., to United States of America, Navy. Plasticization of carbon fibers. 4,336,283, Cl. 427-154.000.

Penczuk, Anatole G.; and Sirota, Julius, to National Starch and Chemical Corporation. Cold water resistant adhesive. 4,336,166, Cl. 524-53.000.

Pennwalt Corporation: *See—*
Shapiro, Leonard, 4,335,846, Cl. 233-7.000.

Penzien, Klaus: *See—*
Feichtmayr, Franz; Naarmann, Herbert; Paust, Joachim; and Penzien, Klaus, 4,336,201, Cl. 260-410.90V.

Pepera, Marc A.: *See—*
Dolhyj, Serge R.; and Pepera, Marc A., 4,336,198, Cl. 549-259.000.

Peploe, Trevor A.: *See—*
Smith, Joseph H.; and Peploe, Trevor A., 4,336,140, Cl. 210-677.000.

Perkin-Elmer Corporation, The: *See—*
deMey, Charles F., II, 4,335,971, Cl. 400-619.000.

Permelec Electrode Ltd.: *See—*
Sato, Hideo; and Shimamune, Takayuki, 4,336,282, Cl. 427-125.000.

Permutit-Boby Limited: *See—*
Smith, Joseph H.; and Peploe, Trevor A., 4,336,140, Cl. 210-677.000.

Peronek, Michael H., to FCI, Inc. Reciprocal bottle filling device. 4,335,761, Cl. 141-371.000.

Perry, Russell C., to Heinrich, George F. Interface unit. 4,336,449, Cl. 235-429.000.

Persson, Nils H. A.: *See—*
Carlsson, Enar I.; Persson, Nils H. A.; Samuelsson, Gustav B. R.; and Wetterlin, Kjell I. L., 4,336,267, Cl. 424-309.000.
Pertzsch, Albert; Rieger, Siegfried; and Ankenbrand, Friedrich, to Agfa-Gevaert Aktiengesellschaft. Method for coating magnetic, binder-containing dispersions on flexible substrates. 4,336,278, Cl. 427-47.000.
Pesch, Jurgen, to G. Siempelkamp GmbH & Co. Adjustable spacer assembly for platen press. 4,336,008, Cl. 425-406.000.
Peters, Thomas E.; and McColl, James R., to GTE Laboratories Incorporated. Luminescent material, method of making, and screens employing same. 4,336,313, Cl. 428-691.000.
Petersen, Sigrud R.: *See—*
Gorden, Dale I.; and Petersen, Sigrud R., 4,336,486, Cl. 322-63.000.
Petersen, Uwe; Voss, Eckart; and Stadler, Peter, to Bayer Aktiengesellschaft. Selectively protected 1-N-(ω-aminoalkoxycarbonyl)-sisomicin derivatives. 4,336,369, Cl. 536-13.900.
Peterson, William R., Jr.; and Arkles, Barry C., to Petrarch Systems, Inc. Ethylene bridged amine functional silanes, composites using the same, and intermediates therefor. 4,336,395, Cl. 556-413.000.
Petrarch Systems, Inc.: *See—*
Peterson, William R., Jr.; and Arkles, Barry C., 4,336,395, Cl. 556-413.000.
Petrolite Corporation: *See—*
Quinlan, Patrick M., 4,336,156, Cl. 252-389.00A.
Petrov, Evgeny A.: *See—*
Bardin, Viktor P.; Petrov, Evgeny A.; Rudelson, Viktor M.; and Sternik, Jury L., 4,335,804, Cl. 184-55.00A.
Petzold, W. Andreas: *See—*
Schwaab, Konstantin H.; Petzold, W. Andreas; and Glockle, Werner A., 4,335,666, Cl. 112-130.000.
Pez, Guido P., to Allied Corporation. Alkali metal amide catalyst. 4,336,162, Cl. 252-438.000.
Pfeiffer, Robert W.: *See—*
Dean, Robert R.; Mauleon, Jean-Louis; and Pfeiffer, Robert W., 4,336,160, Cl. 252-417.000.
Pfister, Rudolf: *See—*
Bruderer, Hans; Fischli, Albert E.; and Pfister, Rudolf, 4,336,268, Cl. 424-330.000.
Pfizer Inc.: *See—*
Nagel, Arthur A., 4,336,368, Cl. 536-7.200.
Shively, Jesse E., 4,336,265, Cl. 424-283.000.
Pfost, R. Fred; Seaman, William E.; and Newell, Chester W., to Newell Research Corporation. Web aligning system. 4,335,857, Cl. 242-192.000.
Phelps, Russell L., to Xerox Corporation. Copier registration method and apparatus. 4,335,954, Cl. 355-14.0SH.
Phillips Petroleum Company: *See—*
Bartz, Gerald L., 4,335,622, Cl. 73-864.740.
Kenton, Joseph R., 4,336,053, Cl. 71-40.000.
Scott, Richard L., 4,335,610, Cl. 73-432.0PS.
Stapp, Paul R., 4,335,787, Cl. 166-273.000.
Phipps, Jack R., to Bendix Corporation, The. Control method for internal combustion engines. 4,335,695, Cl. 123-478.000.
Pike, Carl A. Method and means of manufacturing an improved disc reel mower. 4,335,543, Cl. 51-145.00R.
Pinson, A. G.: *See—*
Velasco, Ralph E., Jr.; and Pinson, A. G., 4,335,649, Cl. 99-327.000.
Pitarch, Esteve S.: *See—*
Coll, Antonio L. P.; Meseguer, Jose D.; Bianchini, Asuncion E.; and Pitarch, Esteve S., 4,336,376, Cl. 544-030.000.
Pitkanen, David E.: *See—*
Cummings, John P.; Makos, Janice D.; and Pitkanen, David E., 4,336,320, Cl. 430-198.000.
Pitney Bowes Inc.: *See—*
Buan, Danilo P., 4,336,529, Cl. 340-365.00R.
Scribner, Albert W., 4,335,951, Cl. 355-3.0FU.
Pittalis, Francesco: *See—*
Bartoli, Francesco; Marconi, Walter; Morisi, Franco; and Pittalis, Francesco, 4,336,357, Cl. 525-420.000.
Pittman, Alan K. Protective caps for water ski tow line handle. 4,335,478, Cl. 441-69.000.
Plagnard, Andre: *See—*
Le Roux, Jean; and Plagnard, Andre, 4,335,883, Cl. 277-3.000.
Plancon, Michel G., to Timex Corporation. Stator assembly for stepping motor. 4,336,471, Cl. 310-49.00R.
Plassmann, Paul: *See—*
Zucker, Friedrich J.; Osthaus, Georg; and Plassmann, Paul, 4,336,203, Cl. 260-417.000.
Platmanufaktur AB: *See—*
Egli, Alwin, 4,335,844, Cl. 229-43.000.
Plectrum Pty. Limited: *See—*
Walker, Terence J., 4,335,537, Cl. 46-79.000.
Plessey Handel und Investments AG: *See—*
Hickling, David J., 4,336,417, Cl. 174-52.00R.
Pneumatiques Caoutchouc Manufacture et Plastiques Kleber-Colombes: *See—*
Bac, Jean-Claude, 4,335,905, Cl. 285-20.000.
Pochron, Sharon P.: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,336,186, Cl. 260-112.50R.
Podlas, Thomas J.: *See—*
Majewicz, Thomas G.; and Podlas, Thomas J., 4,336,146, Cl. 252-8.55R.
Pogoda, Gary S. Stroboscopic tuning. 4,335,642, Cl. 84-454.000.
Pohlack, Hubert, to Jenoptik Jena GmbH. Arrangement for the induced absorption of electromagnetic radiation. 4,335,935, Cl. 350-166.000.
Pokhodnya, Igor K.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M. 4,336,436, Cl. 219-61.000.
Polagye, Michael C.: *See—*
Criswell, Robert L.; and Polagye, Michael C., 4,335,683, Cl. 122-4.00D.
Polak's Frutal Works, B.V.: *See—*
Lenselink, Willem, 4,336,204, Cl. 260-464.000.
Polaroid Corporation: *See—*
Campbell, Stephen J.; Hambly, Warren E.; and Harrison, George C., 4,336,583, Cl. 363-21.000.
Cocco, Vincent L., 4,335,948, Cl. 354-275.000.
Idelson, Elbert M., 4,336,405, Cl. 562-448.000.
Johnson, Bruce K.; and Launie, Kenneth J., 4,335,945, Cl. 354-197.000.
Manning, Monis J., 4,335,959, Cl. 356-218.000.
Simon, Myron S., 4,336,387, Cl. 548-146.000.
Smith, Richard L., 4,336,483, Cl. 318-662.000.
Pons, Robert L.: *See—*
Osborn, Douglas B.; and Pons, Robert L., 4,335,578, Cl. 60-641.800.
Pope, John B., to Fiber Industries, Inc. Process for production of textured yarn useful in the formation of a crepe fabric. 4,335,572, Cl. 57-283.000.
Portalign Toll Corporation: *See—*
Sheps, Martin I.; Christensen, George S.; and Robson, George E., 4,335,512, Cl. 30-376.000.
Porter, Michael J., to United States Gypsum Company. Apparatus for cutting a moving sheet. 4,335,636, Cl. 83-177.000.
Portescap: *See—*
Greiner, Yvan, 4,335,596, Cl. 73-6.000.
Posi-Seal International, Inc.: *See—*
Olansen, Ronald A.; and Pavelski, Linda, 4,335,748, Cl. 137-614.110.
Postalia GmbH: *See—*
Schleuchardt, Manfred, 4,335,651, Cl. 101-110.000.
Powell, Keith A.; and Collinson, Barbara A., to Imperial Chemical Industries Limited. Microbiological process for the production of poly(β-hydroxybutyric acid). 4,336,334, Cl. 435-146.000.
Power, Harold H. Proportioning and mixing immiscible liquids. 4,335,737, Cl. 137-98.000.
PPG Industries, Inc.: *See—*
Christenson, Roger M.; Maska, Rudolf; Dowbenko, Rostyslaw; and Hockswender, Thomas R., 4,335,829, Cl. 220-458.000.
DuBois, Donald W., 4,336,123, Cl. 204-252.000.
Gillery, F. Howard, 4,336,119, Cl. 204-192.00P.
Starr, Eugene W., 4,336,442, Cl. 219-400.000.
Prain, Henry M.; and Scott, Andrew M. Release device for a container. 4,335,826, Cl. 220-260.000.
Prat, Serge, to Regie Nationale des Usines Renault. Device for rapid changing of tools, particularly on large-scale machines. 4,335,499, Cl. 29-568.000.
Preble, Derwood: *See—*
Davis, Lawny; and Preble, Derwood, 4,335,766, Cl. 144-343.000.
President and Fellows of Harvard College: *See—*
Silhavy, Thomas J.; Shuman, Howard A.; Beckwith, Jon; and Schwartz, Maxime, 4,336,336, Cl. 435-172.000.
Prevorsek, Dusan C.: *See—*
Aharoni, Shaul M.; Prevorsek, Dusan C.; Schmitt, George J.; Harpell, Gary A.; and Lee, Lester T. C., 4,336,356, Cl. 525-388.000.
Prevot, Olivier H. C., to DITO. Peeling machine having a rotating cutter plate. 4,335,650, Cl. 99-593.000.
Price, Richard H. Submerged anaerobic filter waste treatment apparatus. 4,336,135, Cl. 210-151.000.
Price, Timothy K. Thermal window barrier of soft fabric. 4,335,774, Cl. 160-84.00R.
Prior, William C., to Kinetico, Inc. Float-actuated level control valve. 4,336,134, Cl. 210-127.000.
Probst, Heinz: *See—*
Martini, Thomas; Erckel, Rudiger; Fruhbeis, Horst; Rosch, Gunter; and Probst, Heinz, 4,336,155, Cl. 252-301.210.
Produits Chimiques Ugine Kuhlmann: *See—*
Deabriges, Jean, 4,336,235, Cl. 423-332.000.
Prohaska, Hans: *See—*
Goertler, Horst; Munz, Joachim; Prohaska, Hans; and Rachner, Horst, 4,336,482, Cl. 318-443.000.
Prohn, Christiaan M., to International Chemical Engineering Establishment. Process of and an apparatus for bending stretched plastic casings. 4,336,222, Cl. 264-519.000.
Pujari, Vimal K.: *See—*
McBrayer, Robert D.; and Pujari, Vimal K., 4,335,783, Cl. 165-8.000.
Pullman Incorporated: *See—*
Marsden, Dennis, 4,335,988, Cl. 414-387.000.
Punwani, Dharamvir: *See—*
Weil, Sanford A.; Punwani, Dharamvir; and Bodle, William W., 4,336,125, Cl. 208-8.00R.

PureCycle Corporation: *See—*
Selby, Howard W., III; and Melanson, Paul C., 4,336,115, Cl. 204-98.000.
Quigley, Penny P.: *See—*
Quigley, Richard I., Jr.; and Quigley, Penny P., 4,335,471, Cl. 2-12.000.
Quigley, Richard I., Jr.; and Quigley, Penny P. Headgear. 4,335,471, Cl. 2-12.000.
Quilty, John H.; and Scholten, Lawrence M., to Itek Corporation. Method of extending the life of a cathode ray tube. 4,336,478, Cl. 313-478.000.
Quinlan, Patrick M., to Petrolite Corporation. Quaternary ammonium salts of α-1,4-thiazine alkanephosphonic acids. 4,336,156, Cl. 252-389.00A.
Quiring, Bernd: *See—*
Reischl, Artur; Quiring, Bernd; and Rathjen, Claus, 4,336,365, Cl. 528-44.000.
Quist, William E.; Hyatt, Michael V.; and Axter, Sven E., to Boeing Company, The. Aluminum alloy products and method of making same. 4,336,075, Cl. 148-2.000.
R. A. Industries, Inc.: *See—*
Apter, Robert F.; Apter, Carl; and Soliday, Joseph, 4,335,990, Cl. 414-457.000.
R.T.C. La Radiotechnique Compelec: *See—*
Tourneux, Michel, 4,336,413, Cl. 136-251.000.
R. W. Hartnett Co.: *See—*
Ackley, Edward M., deceased; Ackley, Edward M., executor; and Ackley, James B., executor, 4,335,810, Cl. 198-380.000.
Rachner, Horst: *See—*
Goertler, Horst; Munz, Joachim; Prohaska, Hans; and Rachner, Horst, 4,336,482, Cl. 318-443.000.
Radford, Matthew F., to Marconi Company Limited, The. Radar systems. 4,336,538, Cl. 343-5.00R.
Radiation Engineering Inc.: *See—*
Biehl, Brian L.; and Lieberman, Stuart I., 4,336,532, Cl. 340-600.000.
Radiation Monitoring Devices, Inc.: *See—*
Squillante, Michael R., 4,336,285, Cl. 427-314.000.
Radiochemical Centre Limited, The: *See—*
Bryant, Jack; and Janicki, Mark, 4,336,454, Cl. 250-381.000.
Bryant, Jack, 4,336,455, Cl. 250-385.000.
Radiometer A/S: *See—*
Jorgensen, Hans; Sinnerup, Ib O.; and Danborg, Ole E., 4,336,000, Cl. 417-53.000.
Radtke, Waldemar, to Thyssen Aktiengesellschaft. Process and apparatus for the separation of metallurgical products. 4,336,078, Cl. 148-9.00R.
Ragen Precision Industries, Inc.: *See—*
Lopata, Ira, 4,335,955, Cl. 355-16.000.
Rager, Edgar A. Latch assembly for disk pack handle and the like. 4,335,816, Cl. 206-444.000.
Rainville, Dewey N. Apparatus for blow molding with active ingredient in blowing gas. 4,336,015, Cl. 425-74.000.
Ramuz, Henri: *See—*
Muller, Jean-Claude; and Ramuz, Henri, 4,336,380, Cl. 544-198.000.
Rapey, Kenneth: *See—*
George, Robert W.; Miller, Casper W.; and Rapey, Kenneth, 4,336,011, Cl. 425-129.00R.
Rapistan Division, Lear Siegler, Inc.: *See—*
Smith, Charles A.; and Danevicz, Robert T., 4,336,589, Cl. 364-403.000.
Rapp, Joachim; and Bittmann, Peter, to Elba-Werk Maschinen-Gesellschaft mbH & Co. Method of preparing concrete mixtures. 4,335,966, Cl. 366-2.000.
Rappleyea, Frederick A., to Kendall Company, The. Retaining assembly for protective headgear. 4,335,472, Cl. 2-421.000.
Rapps, John W. Holding device for attachment to electrical installations. 4,335,863, Cl. 248-316.00D.
Rast, James P. Method of lining a furnace with roll-type insulation. 4,336,086, Cl. 156-71.000.
Rathjen, Claus: *See—*
Reischl, Artur; Quiring, Bernd; and Rathjen, Claus, 4,336,365, Cl. 528-44.000.
Rausch, Arthur B.: *See—*
Skaalen, Clifford I.; and Rausch, Arthur B., 4,335,670, Cl. 114-249.000.
Rauscher, Martin: *See—*
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RCA Corporation: *See—*
Abt, Richard F.; and Behrend, William L., 4,336,615, Cl. 455-108.000.
Goodwin, William V.; and Williams, James S., deceased, 4,336,540, Cl. 343-16.00R.
Griesemer, Douglas E., Sr., 4,335,926, Cl. 316-3.000.
Manson, Ernest T., 4,335,544, Cl. 51-277.000.
Medwin, Lawrence B., 4,336,550, Cl. 357-42.000.
Wine, Charles M., 4,336,555, Cl. 358-127.000.
Re, Luciano: *See—*
Zappelli, Piergiorgio; Rossodivita, Antonio; Pappa, Rosario; and Re, Luciano, 4,336,188, Cl. 260-112.50R.
Reaume, Leonard V.; and Hall, James O., to Magna American Corporation. Log splitter attachment for garden tiller. 4,335,762, Cl. 144-194.000.
Recker, Klaus; and Grogler, Gerhard, to Bayer Aktiengesellschaft. Solvent-free polyurethanes with fibrous reinforcing agents. 4,336,180, Cl. 524-847.000.
Reed, Charles C.: *See—*
Sharp, Russell G.; Reed, Charles C.; Cooley, Denton A.; Crane, Terry N.; and Wilkinson, William R., 4,335,756, Cl. 138-89.000.
Reef, Jan. Thread gaging instrument. 4,335,518, Cl. 33-199.00R.
Reeh, Ulrike; and Denk, Hans, to Siemens Aktiengesellschaft. Quick-setting epoxy resin compounds. 4,336,167, Cl. 523-451.000.
Reeves, Jerry L., to Towmotor Corporation. Side shift fork adjustable carriage. 4,335,992, Cl. 414-667.000.
Regan, Richard J., to Hewlett-Packard Company. Hum reduction circuit. 4,336,513, Cl. 333-173.000.
Regie Nationale des Usines Renault: *See—*
Prat, Serge, 4,335,499, Cl. 29-568.000.
Regnault, Luc, to Thomson-CSF. Tint restoring device employing a thermal printing head. 4,335,968, Cl. 400-120.000.
Rehbein, Erwin G., to Millcraft Housing Corp. Insulating skirt. 4,335,548, Cl. 52-169.110.
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Sanfilippo, Salvatore G.; and White, James T., 4,336,174, Cl. 524-512.000.
Reimer, Ronald A., to Du Pont de Nemours, E. I., and Company. Separation of benzene from cyclohexane. 4,336,110, Cl. 203-60.000.
Reinehr, Ulrich; Jungverdorben, Hermann-Josef; Herbertz, Toni; Nogaj, Alfred; and Kleinschmidt, Peter, to Bayer Aktiengesellschaft. Process for hygroscopic, fibres and filaments of synthetic polymers. 4,336,214, Cl. 264-49.000.
Reischl, Artur; Quiring, Bernd; and Rathjen, Claus, to Bayer Aktiengesellschaft. Process for the continuous preparation of polyisocyanates containing uretdione groups and their use as starting components for the production of polyurethane resins. 4,336,365, Cl. 528-44.000.
Renga, James M., to Dow Chemical Company, The. Preparation of cyclic ethers. 4,336,195, Cl. 549-462.000.
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Renkus, Jonas A., 4,336,425, Cl. 179-115.50H.
Renkus, Jonas A., to Renkus-Heinz, Inc. High frequency compression driver and method of manufacture thereof. 4,336,425, Cl. 179-115.50H.
Repa Feinstanzwerk GmbH: *See—*
Fohl, Artur, 4,335,491, Cl. 24-230.00A.
Research Cottrell Technologies, Inc.: *See—*
Maloney, Kenneth L.; and de Volo, Nick B., 4,335,660, Cl. 110-206.000.
Reuter, Alfred, to Gebruder Linck, Maschinenfabrik und Eisengiesserei "Gatterlinck". Method and apparatus for the chipping dissection of tree logs into all-round machined lumber products. 4,335,767, Cl. 144-370.000.
Reuter, Rene F., to Goodyear Tire & Rubber Company, The. Tire with a reinforcing belt structure. 4,335,771, Cl. 152-361.0FP.
Reynes, Daniel: *See—*
Morlec, Emile; Reynes, Daniel; and Suzzoni, Jean-Pierre, 4,336,423, Cl. 179-18.0GF.
Reynolds, Gordon S.; and Todd, Robert J., to Sorenson Research Co., Inc. Apparatus and method for suppressing resonance in an electromanometry system. 4,335,729, Cl. 128-674.000.
Reynoso, Arturo S. Adjustable spa jet water aerator. 4,335,854, Cl. 239-428.500.
Rhone-Poulenc Agrochimie: *See—*
Rouy, Noel, 4,336,390, Cl. 548-221.000.
Ribbert, Hans. Device adapted to afford protection against falling rocks and avalanches in mountainous terrain. 4,335,868, Cl. 256-1.000.
Rice, Robert L.; and Knepper, Larimer J., to Sperry Corporation. Combine stone trap latch release. 4,335,563, Cl. 56-10.200.
Richards, John A. Valve for use in handling abrasive materials and method of wear prevention. 4,335,733, Cl. 137-1.000.
Richlie, Daniel G.: *See—*
Sadler, Thomas H.; and Richlie, Daniel G., 4,335,755, Cl. 138-145.000.
Richman, Paul, to Standard Microsystems Corporation. Method for manufacturing metal-oxide silicon devices. 4,335,502, Cl. 29-571.000.
Ricoh Company, Ltd.: *See—*
Iwata, Nobuo; and Suzuki, Takami, 4,335,970, Cl. 400-144.200.
Riddle, Stanley T.: *See—*
Conly, Douglas J.; Larson, David D.; and Riddle, Stanley T., 4,335,952, Cl. 355-14.00R.
Ridge, Edward J.; and Wilton, Graham H. Fence picket roller painter. 4,335,484, Cl. 15-230.110.
Rieber & Son A/S: *See—*
Parmann, Gunnar, 4,336,014, Cl. 425-403.000.
Rieger, Siegfried: *See—*
Pertzsch, Albert; Rieger, Siegfried; and Ankenbrand, Friedrich, 4,336,278, Cl. 427-47.000.
Rinnai Kabushiki Kaisha: *See—*
Koumura, Masahiko; and Mizuno, Hiroshi, 4,335,912, Cl. 292-336.300.
Riollet, Gilbert; and Bessay, Raymond, to Alsthom-Atlantique. Set of blades for a turbine and a turbine which includes such a set of blades. 4,335,995, Cl. 415-144.000.
Riordan, Thomas J.: *See—*
Marshall, Albert H.; Shaw, Bon F.; Towle, Herbert C.; Riordan, Thomas J.; and Siragusa, George A., 4,336,018, Cl. 434-22.000.
Rittler, Hermann L., to Corning Glass Works. Integral vitreous article composed of opaque and transparent portions. 4,336,303, Cl. 428-334.000.

Robert Bosch GmbH: *See—*
Buck, Rainer; Kopse, Odon; and Amaya, Nestor R., 4,335,601, Cl. 73-119.00A.
Grabow, Kurt; Mahl, Willy; Muller, Karl-Heinz; Kochendorfer, Heinrich; Bertsch, Dieter; Mayer, Siegfried; Anhenn, Jorg; and Dworak, Wilhelm, 4,336,006, Cl. 418-131.000.
Hauler, Peter; and Hinke, Walter, 4,335,700, Cl. 123-617.000.
Mausner, Eberhard; and Brettschneider, Johannes, 4,335,694, Cl. 123-478.000.
Rose, Klaus; Kemmner, Ulrich; and Ruhl, Karl, 4,336,002, Cl. 417-203.000.
Schnurle, Hans; Horbelt, Michael; Drews, Ulrich; Werner, Peter; Glockler, Otto; Gunther, Dieter; and Bertsch, Richard, 4,335,696, Cl. 123-492.000.

Roberts, Lawrence R.: *See—*
Dodson, Vance H.; and Roberts, Lawrence R., 4,336,069, Cl. 106-97.000.

Robertshaw Controls Company: *See—*
Bauer, Werner R.; and Van Fossen, Robert A., 4,335,750, Cl. 137-625.290.

Robertson, John P.: *See—*
Baker, Thomas E.; and Robertson, John P., 4,336,445, Cl. 235-92.0ST.

Robinson, J. Ronald, to Crafco, Inc. Method for containerizing asphalt. 4,335,560, Cl. 53-440.000.

Robinson, Jimmie R.; and Thompson, Max E., to Flint & Walling, Inc. Refuse container lid system. 4,335,828, Cl. 220-334.000.

Roblin Industries, Inc.: *See—*
Berlin, Daniel, 4,335,892, Cl. 280-33.99R.

Roblin, Pierre G., to Soudure et Mecanique Appliquees du val Notre-Dame. Process and apparatus for boring sites. 4,335,793, Cl. 175-65.000.

Robotic Vision Systems, Inc.: *See—*
Di Matteo, Paul; and Ross, Joseph A., 4,335,962, Cl. 356-376.000.

Robson, George E.: *See—*
Sheps, Martin I.; Christensen, George S.; and Robson, George E., 4,335,512, Cl. 30-376.000.

Roche, David E.: *See—*
DiPierro, Michael A.; and Roche, David E., 4,335,487, Cl. 16-126.000.

Rockwell International Corporation: *See—*
Lee, Steven N., 4,335,504, Cl. 29-576.00B.

Rogahn, Gunther: *See—*
Bisk, Leonard; and Rogahn, Gunther, 4,335,838, Cl. 223-91.000.

Rohm and Haas Company: *See—*
Lewis, Sheldon N.; and Haggard, Richard A., 4,336,345, Cl. 525-107.000.
Niswender, Gordon D., 4,336,185, Cl. 260-112.00R.
Warburton, Charles E., Jr., 4,336,023, Cl. 8-115.700.

Rohr Industries, Inc.: *See—*
Blair, Winford, 4,336,292, Cl. 428-116.000.

Rohr, Wolfgang: *See—*
Eicken, Karl; Rohr, Wolfgang; Goetz, Norbert; and Wuerzer, Bruno, 4,336,061, Cl. 71-92.000.

Rolfe, Peter: *See—*
Ashmore, Michael P.; How, Thien V.; and Rolfe, Peter, 4,335,617, Cl. 73-861.250.

Rollins, Jack D.: *See—*
Best, Ralph E.; Bhandari, Vijay; Creeden, Richard L.; Mason, Michael E.; Panter, Harrison R.; Rollins, Jack D.; and Schreiber, Richard A., 4,336,460, Cl. 250-506.000.

Rooney, Clarence S.: *See—*
Cragoe, Edward J., Jr.; Patchett, Arthur A.; Rooney, Clarence S.; and Williams, Haydn W. R., 4,336,397, Cl. 560-51.000.

Rosania, Lawrence J.: *See—*
Woznicki, Edward J.; Rosania, Lawrence J.; and Marshall, Keith, 4,336,244, Cl. 424-35.000.

Rosch, Gunter: *See—*
Martini, Thomas; Erckel, Rudiger; Fruhbeis, Horst; Rosch, Gunter; and Probst, Heinz, 4,336,155, Cl. 252-301.210.

Rose, Klaus; Kemmner, Ulrich; and Ruhl, Karl, to Robert Bosch GmbH. Two stage pump having an electromotor device. 4,336,002, Cl. 417-203.000.

Rosenberger, Willibald R.: *See—*
Cook, George E.; Merrick, George J.; Schneider, Urban A.; and Rosenberger, Willibald R., 4,336,440, Cl. 219-124.340.

Rosenberry, George M., Jr., to General Electric Co. Apparatus having positioning and mounting means for joining two parts and method of using same. 4,335,972, Cl. 403-11.000.

Rosevear, Alan; and Mattock, Patrick, to United Kingdom Atomic Energy Authority. Composite materials comprising deformable xerogel within the pores of particulate rigid supports useful in chromatography. 4,336,161, Cl. 252-426.000.

Roseveare, Ronald N.: *See—*
James, Harold S.; and Roseveare, Ronald N., 4,335,517, Cl. 33-174.00L.

Ross, Adma S.: *See—*
Booth, James H.; and Ross, Adma S., 4,336,375, Cl. 544-027.000.

Ross, Joel M. Windmill construction. 4,335,996, Cl. 416-88.000.

Ross, Joseph A.: *See—*
Di Matteo, Paul; and Ross, Joseph A., 4,335,962, Cl. 356-376.000.

Ross, Kenneth B.; and Jones, Carl R. Whole blue crab freezing process. 4,336,274, Cl. 426-643.000.

Rossard, Jean-Claude: *See—*
Denissenko, Serge; and Rossard, Jean-Claude, 4,336,024, Cl. 8-142.000.

Rossodivita, Antonio: *See—*
Zappelli, Piergiorgio; Rossodivita, Antonio; Pappa, Rosario; and Re, Luciano, 4,336,188, Cl. 260-112.50R.

Rotenfeld, Veniamin S.: *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Roth, Dieter: *See—*
Leutner, Bernd; Schlimper, Hans-Ulrich; Roth, Dieter; Kreitner, Ludwig; and Spahn, Heinrich, 4,336,234, Cl. 423-329.000.

Rouy, Noel, to Rhone-Poulenc Agrochimie. Benzoxazolone preparation. 4,336,390, Cl. 548-221.000.

Rudelson, Viktor M.: *See—*
Bardin, Viktor P.; Petrov, Evgeny A.; Rudelson, Viktor M.; and Sternik, Jury L., 4,335,804, Cl. 184-55.00A.

Rudnitsky, Valery A.: *See—*
Lukhvich, Alexandr A.; Rudnitsky, Valery A.; Linnik, Ivan I.; and Gavris, Genrikh B., 4,336,498, Cl. 324-230.000.

Ruhl, Karl: *See—*
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Rupp, Walter: *See—*
Mundnich, Rainer; Finke, Manfred; Rupp, Walter; and Dehmer, Klaus, 4,336,206, Cl. 260-465.400.

Russell, John. Tool for weaving. 4,335,665, Cl. 112-80.000.

Russell, Robert F.: *See—*
Hamer, George D.; and Russell, Robert F., 4,336,169, Cl. 523-511.000.

Rusznyak, Rezso: *See—*
Lorant, Ivan; Csernyanszky, Imre; Murlasits, Gyula; Rusznyak, Rezso; and Szabo nee Paulyuk, Paula, 4,336,300, Cl. 428-316.600.

Rutherford, Terry G. Method and apparatus for geographic location. 4,335,521, Cl. 33-340.000.

Ryon, Allen D.: *See—*
Barker, Ray E.; Scott, Charles D.; and Ryon, Allen D., 4,336,044, Cl. 62-17.000.

S.A.M.M.-Societe d'Applications des Machines Motrices: *See—*
Bouveret, Marcel; and Devaud, Gerard, 4,335,745, Cl. 137-554.000.

S. C. Johnson & Son, Inc.: *See—*
Weisensel, Hubert C., 4,336,165, Cl. 252-528.000.

Sadler, Thomas H.; and Richlie, Daniel G., to Manville Service Corporation. Coating for pipe. 4,335,755, Cl. 138-145.000.

Sagoh, Masakazu; Noguchi, Takanobu; and Yasui, Seimei, to Sumitomo Chemical Company, Limited. Process for production of phenolic resin modified with liquid polybutadiene. 4,336,347, Cl. 525-139.000.

Sagramora, Giorgio, to Laboratorio Guidotti & C. S.p.A. Process for the preparation of basic esters of substituted hydroxycyclohexanecarboxylic acids. 4,336,398, Cl. 560-59.000.

Sakai, Niro: *See—*
Imaki, Takao; Mikasa, Hajime; and Sakai, Niro, 4,336,453, Cl. 250-344.000.

Sakakura, Mitsuo; and Takaku, Tetsuo, to Toko, Inc. Method of fabricating a zinc oxide thin film. 4,336,120, Cl. 204-192.0SP.

Sakazume, Takeshi, to Tokico Ltd. Reservoir tank. 4,335,825, Cl. 220-82.00R.

Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Mizutani, Shigeru, to Asahi Kasei Kogyo Kabushiki Kaisha. Blend of three ethylene polymers. 4,336,352, Cl. 525-240.000.

Saliger, Kenneth C.; and Jansen, Martin B., to NL Industries, Inc. Toggle mechanism connector. 4,335,904, Cl. 285-18.000.

Salomon, Georges P. J., to Etablissements Francois Salomon & Fils. Cross country ski boot. 4,335,531, Cl. 36-117.000.

Salway, Peter H.: *See—*
Woodhouse, Richard G.; and Salway, Peter H., 4,336,497, Cl. 324-162.000.

Samuelsson, Gustav B. R.: *See—*
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Sanada, Kazuo: *See—*
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Sanders Associates, Inc.: *See—*
Stromswold, Chester E.; Martel, Robert T.; Apostolos, John; and Boland, Robert P., 4,336,511, Cl. 331-178.000.

Sandoz, Inc.: *See—*
Brand, Leonard J.; and Nadelson, Jeffrey, 4,336,378, Cl. 544-137.000.
Brand, Leonard J.; and Nadelson, Jeffrey, 4,336,379, Cl. 544-137.000.
Brand, Leonard J.; and Nadelson, Jeffrey, 4,336,391, Cl. 548-247.000.

Sandvik GmbH: *See—*
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Sanfilippo, Salvatore G.; and White, James T., to Reichhold Chemicals, Incorporated. Hardboard treating composition and process for forming hardboard surfaces. 4,336,174, Cl. 524-512.000.

Sankyo Company Limited: *See—*
Arai, Mamoru; Torikata, Akio; Enokita, Ryuzou; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,336,249, Cl. 424-121.000.

Sano, Atuhiro: *See*—
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Santora, Scott A., to Waste Conversion Technology, Inc. Wastewater treatment. 4,336,141, Cl. 210-694.000.

Sanvordeker, Dilip R.; Cooney, James G.; and Wester, Ronald C., to G. D. Searle & Co. Transdermal nitroglycerin pad. 4,336,243, Cl. 424-28.000.

Saprykin, Jury I.: *See*—
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Sarkkinen, Veli J.: *See*—
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Sarrine, Robert J.: *See*—
Enzer, Steven E.; Sarrine, Robert J.; and Wilfong, William L., 4,336,121, Cl. 204-195.00R.

Sasaki, Hiromu: *See*—
Matsumoto, Masafumi; Kotani, Matahira; and Sasaki, Hiromu, 4,336,547, Cl. 346-75.000.

Sasnett, Michael W.; and Saunders, Richard J., to Coherent, Inc. Method and apparatus for laser scribing and cutting. 4,336,439, Cl. 219-121.0LH.

Sata, Takeo; Takamura, Masayuki; Iijima, Kenzaburo; and Fukuda, Norio, to Nippon Gakki Seizo Kabushiki Kaisha. Method for manufacturing components for magnetic heads of increased abrasion resistance. 4,336,066, Cl. 75-211.000.

Sato, Hideo; and Shimamune, Takayuki, to Permelec Electrode Ltd. Process for production of electrode for use in electrolysis. 4,336,282, Cl. 427-125.000.

Sato, Masamichi, to Fuji Photo Film Co., Ltd. Image forming method. 4,336,316, Cl. 430-5.000.

Sato, Ryuichi: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; Yamamoto, Yasushi; and Ichinohe, Shoji, 4,336,251, Cl. 424-184.000.

Sato, Susumu; Takeuchi, Yukihisa; and Tomita, Masahiro, to Nippon Soken, Inc. Carbon particles removing device. 4,335,574, Cl. 60-311.000.

Sattlegger, Hans: *See*—
Alberts, Heinrich; Friemann, Hans; Sattlegger, Hans; and Moretto, Hans-Heinrich, 4,336,358, Cl. 525-439.000.

Sauer, Hans, to Varta Batterie A.G. Continuous production of gas diffusion electrodes. 4,336,217, Cl. 264-105.000.

Saulsbury, Carol A. Measuring cup. 4,335,609, Cl. 73-426.000.

Saunders, John B.: *See*—
Fisher, Theodore F.; and Saunders, John B., 4,336,045, Cl. 62-17.000.

Saunders, Richard J.: *See*—
Sasnett, Michael W.; and Saunders, Richard J., 4,336,439, Cl. 219-121.0LH.

Savard, Guy; and Lee, Robert G. H., to Canadian Liquid Air Ltd. Method of improving the performance of submerged oxygen injectors. 4,336,064, Cl. 75-60.000.

Savini, Dario: *See*—
Bielli, Paolo; De Padova, Salvatore; and Savini, Dario, 4,336,542, Cl. 343-100.0PE.

Sawada, Satoru: *See*—
Aoki, Kozo; Sawada, Satoru; and Furutachi, Nobuo, 4,336,325, Cl. 430-505.000.

Scheifinger, Curtis C., to Eli Lilly and Company. Lactation improvement method. 4,336,250, Cl. 424-177.000.

Schenck, Hans-Uwe: *See*—
Gimpel, Juergen; Feuerherd, Karl-Heinz; and Schenck, Hans-Uwe, 4,336,346, Cl. 525-109.000.

Scherbring, David J.: *See*—
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Schimming, Fred H. Spirit level. 4,335,524, Cl. 33-388.000.

Schindler, Roger N.: *See*—
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Schinle, Friedbert: *See*—
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Schlagel, Carl A.: *See*—
Ayer, Donald E.; and Schlagel, Carl A., 4,336,200, Cl. 260-397.450.

Schleuchardt, Manfred, to Postalia GmbH. Setting device for denominations in franking and value stamping machines. 4,335,651, Cl. 101-110.000.

Schlimper, Hans-Ulrich: *See*—
Leutner, Bernd; Schlimper, Hans-Ulrich; Roth, Dieter; Kreitner, Ludwig; and Spahn, Heinrich, 4,336,234, Cl. 423-329.000.

Schmidberger, Rainer; and Franke, Hilmar, to Dornier System GmbH. Hard ferrite powder and process for the preparation thereof. 4,336,242, Cl. 423-594.000.

Schmidlin, Albertus E.: *See*—
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Schmidt, Charles J. Veneer peeling apparatus. 4,335,764, Cl. 144-209.00R.

Schmidt, H. Dean; and Eckstrom, Peter M., to Midland-Ross Corporation. Gasification furnace with discharge hopper. 4,336,131, Cl. 209-3.000.

Schmidt, Martin: *See*—
Krumme, Hans J.; Schmidt, Martin; Schmitt, Guenter; and Schubert, Wolfgang, 4,336,458, Cl. 250-445.00T.

Schmidt, Peter; Brunn, Otto; Forker, Dieter; and Schmidt, Willi, to International Standard Electric Corporation. Method of aligning a color tube cone and apparatus for carrying out the method. 4,335,492, Cl. 29-25.130.

Schmidt, Willi: *See*—
Schmidt, Peter; Brunn, Otto; Forker, Dieter; and Schmidt, Willi, 4,335,492, Cl. 29-25.130.

Schmitt, George J.: *See*—
Aharoni, Shaul M.; Prevorsek, Dusan C.; Schmitt, George J.; Harpell, Gary A.; and Lee, Lester T. C., 4,336,356, Cl. 525-388.000.

Schmitt, Guenter: *See*—
Krumme, Hans J.; Schmidt, Martin; Schmitt, Guenter; and Schubert, Wolfgang, 4,336,458, Cl. 250-445.00T.

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Jacquet, Maurice A.; and Lignereux, Jean-Pierre, 4,335,646, Cl. 98-2.000.

Societe Anonyme: "MAVIL": *See—*
Simon, Alexandre M. V., 4,335,777, Cl. 160-332.000.

Societe Chimique des Charbonnages S.A.: *See—*
Debayeux, Christian; Lacroix, Hubert; and Sternicha, Felix, 4,335,676, Cl. 118-303.000.

Societe ECA: *See—*
Darche, Michel, 4,335,884, Cl. 277-3.000.

Societe Nouvelle de Bouchons Plastiques: *See—*
Babiol, Pierre; and Gallais, Philippe, 4,335,815, Cl. 206-277.000.

Soeda, Mahito: *See—*
Yoshimura, Tokuo; Okazaki, Hiroshi; Soeda, Mahito; and Yushima, Takeharu, 4,336,129, Cl. 208-180.000.

Sohre, John S. Geothermal turbine. 4,336,039, Cl. 55-277.000.

Solaroli, Sergio, to Finike Italiana Marposs, S.p.A. Apparatus for sorting workpieces of different classification classes and for forming groups having pre-set number of workpieces of the same class. 4,335,818, Cl. 209-592.000.

Soliday, Joseph: *See—*
Apter, Robert F.; Apter, Carl; and Soliday, Joseph, 4,335,990, Cl. 414-457.000.

Solomatin, Georgy G.: *See—*
Vorozhtsov, Georgy N.; Masanova, Natalia N.; Feldbljum, Nikolai B.; Alexeev, Vasily I.; Shigalevsky, Vadim A.; Solomatin, Georgy G.; Shulepova, Olga I.; Khaitun, Galina G.; and Gordeeva, Nadezhda V., 4,336,383, Cl. 546-52.000.

Soma, Ikuo: *See—*
Tsuchiya, Hiroaki; and Soma, Ikuo, 4,335,953, Cl. 355-14.0CH.

Sony Corporation: *See—*
Tanaka, Sadaaki, 4,336,552, Cl. 358-21.00R.

Sorenson Research Co., Inc.: *See—*
Reynolds, Gordon S.; and Todd, Robert J., 4,335,729, Cl. 128-674.000.
Soudure et Mecanique Appliquees du val Notre-Dame: *See—*
Roblin, Pierre G., 4,335,793, Cl. 175-65.000.
Soundcoat Company, Inc., The: *See—*
Kirschner, Francis, 4,335,802, Cl. 181-290.000.
Southerland, Robert; and Canition, James, to Southerland, Robert D. Rafter assembly and fixtures. 4,335,555, Cl. 52-639.000.
Southerland, Robert D.: *See—*
Southerland, Robert; and Canition, James, 4,335,555, Cl. 52-639.000.
Spahn, Heinrich: *See—*
Leutner, Bernd; Schlimper, Hans-Ulrich; Roth, Dieter; Kreitner, Ludwig; and Spahn, Heinrich, 4,336,234, Cl. 423-329.000.
Specific Cruise Systems, Inc.: *See—*
Shields, Neal G., 4,335,799, Cl. 180-175.000.
Sperry Corporation: *See—*
Allen, Terry S.; and Jacobson, Peter E., 4,335,927, Cl. 339-5.00R.
Knepper, Larimer J., 4,335,564, Cl. 56-10.200.
Knepper, Larimer J.; and Komancheck, John J., 4,335,565, Cl. 56-10.200.
Rice, Robert L.; and Knepper, Larimer J., 4,335,563, Cl. 56-10.200.
Wong, Wilson T. C., 4,336,599, Cl. 364-752.000.
Spillman, Richard, to University of California, The Regents of the. Simplified combinational logic circuits and method of designing same. 4,336,468, Cl. 307-440.000.
SpinOptic, Inc.: *See—*
Alsina, Pierre A., 4,335,519, Cl. 33-288.000.
Spirig, Ernst. Electrolysis apparatus. 4,336,122, Cl. 204-222.000.
Spoor, Herbert: *See—*
Jackel, Klaus-Peter; Heil, Gunter; and Spoor, Herbert, 4,336,309, Cl. 428-447.000.
Sprague Electric Company: *See—*
Lucey, Michael F., 4,336,311, Cl. 428-521.000.
Springstubbe, Wolf: *See—*
von Sichart, Frithjof; and Springstubbe, Wolf, 4,336,527, Cl. 340-347.0DA.
Squillante, Michael R., to Radiation Monitoring Devices, Inc. Method to synthesize and produce thin films by spray pyrolysis. 4,336,285, Cl. 427-314.000.
Staats, Henry N.: *See—*
Azzato, Robert N.; Staats, Henry N.; and Morrissey, Neal J., 4,335,659, Cl. 108-28.000.
Stabilus GmbH: *See—*
Molders, Werner, 4,335,871, Cl. 267-64.280.
Stachowiak, Claude R.; and Kunze, Fred R., to Boeing Company, The. Noise suppressing nozzle. 4,335,801, Cl. 181-213.000.
Stadler, Peter: *See—*
Petersen, Uwe; Voss, Eckart; and Stadler, Peter, 4,336,369, Cl. 536-13.900.
Stafford, Donald C., to Chicago Bridge & Iron Company. Offshore tower with ball and socket joint having fluid flow passage. 4,335,979, Cl. 405-202.000.
Standard Microsystems Corporation: *See—*
Richman, Paul, 4,335,502, Cl. 29-571.000.
Standard Oil Company, The: *See—*
Dolhyj, Serge R.; and Pepera, Marc A., 4,336,198, Cl. 549-259.000.
Koch, Paul E.; Bond, Thomas J.; and Adams, Richard C., 4,336,012, Cl. 425-131.100.
Stapp, Paul R., to Phillips Petroleum Company. Method of oil recovery with surfactant flooding. 4,335,787, Cl. 166-273.000.
Starr, Eugene W., to PPG Industries, Inc. Combination radiation and convection heater with convection current directing means. 4,336,442, Cl. 219-400.000.
Staskal, Maynard L.; and Eissens, Alvin J. Dry particle distributor for the treatment of forage. 4,335,855, Cl. 239-654.000.
Stauffer Chemical Company: *See—*
Felix, Raymond A., 4,336,058, Cl. 71-88.000.
Felix, Raymond A., 4,336,062, Cl. 71-98.000.
Stayner, Robert A., to Chevron Research Company. Borate-containing water-in-oil microemulsion fluid. 4,336,147, Cl. 252-49.500.
Steele, Thomas L.: *See—*
Swisher, George W., Jr.; and Steele, Thomas L., 4,335,921, Cl. 299-86.000.
Steetley Minerals Limited: *See—*
Dorreil, Peter M., 4,336,150, Cl. 252-56.00R.
Steinberg, Mitchell I.: *See—*
Molloy, Bryan B.; and Steinberg, Mitchell I., 4,336,269, Cl. 424-330.000.
Steiner, Erhard, to Siemens Aktiengesellschaft. Method and an arrangement for address-free fault location by loop closure in message transmission links. 4,336,610, Cl. 370-15.000.
Steiner, Gerd; and Franke, Albrecht, to BASF Aktiengesellschaft. 5,6-Dihydro-11-alkylene-morphanthridin-6-ones. 4,336,192, Cl. 260-239.30T.
Stenkvist, Sven-Einar: *See—*
Hanas, Bertil; and Stenkvist, Sven-Einar, 4,336,411, Cl. 373-85.000.
Stephen, Robert L.; Kablitz, Carl; van Dura, Dietz; Atkin, Curtis L.; and Jacobsen, Stephen C., to University of Utah Research Foundation. Composition and method for prevention and treatment of dialysis induced peritonitis. 4,335,716, Cl. 128-213.00A.
Stephens, Christopher M., to Max-Mi Corporation. Vaporization chamber. 4,335,698, Cl. 123-537.000.
Sterling Drug Inc.: *See—*
Minatoya, Hiroaki; Tullar, Benjamin F.; and Conway, Walter D., 4,336,400, Cl. 560-73.000.
Sternicha, Felix: *See—*
Debayeux, Christian; Lacroix, Hubert; and Sternicha, Felix, 4,335,676, Cl. 118-303.000.
Sternik, Jury L.: *See—*
Bardin, Viktor P.; Petrov, Evgeny A.; Rudelson, Viktor M.; and Sternik, Jury L., 4,335,804, Cl. 184-55.00A.
Stevens, William E.: *See—*
Gerlock, John L.; Braslaw, Jacob; and Stevens, William E., 4,336,406, Cl. 568-621.000.
Stewart, Robert D.; and Taylor, Thomas E., to Foster Wheeler Energy Corporation. Fluidized bed heat exchanger having an air assisted bed drain. 4,335,661, Cl. 110-245.000.
Steyr-Daimler-Puch Aktiengesellschaft: *See—*
Herdin, Gunther; Kauer, Erhard; Muckenhuber, Maximilian; and Egger, Eugen, 4,335,686, Cl. 123-90.600.
Stieff, Lorin R. Field method for detecting deposits containing uranium and thorium. 4,336,451, Cl. 250-255.000.
Stone Container Corporation: *See—*
Kent, Ronald I., 4,335,843, Cl. 229-27.000.
Stopp, Peter G., to Glacier Metal Company, Limited, The. Thrust bearing. 4,335,925, Cl. 308-160.000.
Stovell, John E.; Aughton, John; and Yi, Alberto, to Crosfield Electronics Limited. Optical modulators and apparatus including such modulators. 4,335,939, Cl. 350-385.000.
Strahm, Christian; and Strudel, Werner, to Lindauer Dornier Gesellschaft mbH. Chainless mercerizing equipment using a dye padder. 4,335,593, Cl. 68-13.00R.
Strickland, Fredrick G. Bi-directional underwater communication system. 4,336,537, Cl. 340-850.000.
Stromswold, Chester E.; Martel, Robert T.; Apostolos, John; and Boland, Robert P., to Sanders Associates, Inc. Method and apparatus for increasing the sweep rate of a linearly swept frequency oscillator. 4,336,511, Cl. 331-178.000.
Stroud, Lebern W. Dual alternator feedback system. 4,336,485, Cl. 320-15.000.
Strudel, Werner: *See—*
Strahm, Christian; and Strudel, Werner, 4,335,593, Cl. 68-13.00R.
Stubblefield, Jerry D. Shoe sole construction. 4,335,530, Cl. 36-83.000.
Stubbs, Graham S.: *See—*
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; and Merrell, Richard G., 4,336,553, Cl. 358-120.000.
Sud, Rahul; and Hardee, Kim C., to Inmos Corporation. Substrate bias generator. 4,336,466, Cl. 307-297.000.
Suda, Seiji: *See—*
Abe, Osame; Suda, Seiji; and Furuhashi, Toshio, 4,335,689, Cl. 123-339.000.
Suda, Yoshio: *See—*
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,336,211, Cl. 264-22.000.
Sudo, Kyuji: *See—*
Nagata, Koji; Ogiso, Akio; and Sudo, Kyuji, 4,335,677, Cl. 118-306.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; Etoh, Yukihiro; and Tanaka, Toshiaki, to Nissan Motor Company, Limited. Internal combustion engine. 4,335,687, Cl. 123-198.00F.
Sugimoto, Hitoshi, to Aisin Seiki Kabushiki Kaisha. Refrigerating system. 4,335,579, Cl. 62-6.000.
Sugimoto, Osamu: *See—*
Fujiwara, Tsuyoshi; Sugimoto, Osamu; and Isoda, Chuzo, 4,336,341, Cl. 521-109.000.
Sugimura, Kazuo; and Sugimura, Nobuyuki. Accumulator. 4,335,751, Cl. 138-30.000.
Sugimura, Nobuyuki: *See—*
Sugimura, Kazuo; and Sugimura, Nobuyuki, 4,335,751, Cl. 138-30.000.
Sugita Sangyo Kabushiki Kaisha: *See—*
Sugita, Toshimaru, 4,335,803, Cl. 182-12.000.
Sugita, Toshimaru, to Sugita Sangyo Kabushiki Kaisha. Gangway ladder arrangement. 4,335,803, Cl. 182-12.000.
Sugiyama, Tohru: *See—*
Godai, Tomokazu; Sugiyama, Tohru; and Nishikawa, Yutaka, 4,336,441, Cl. 219-137.0WM.
Sugiyama, Yasuo: *See—*
Inoue, Toru; Sugiyama, Yasuo; and Onishi, Ken, 4,336,612, Cl. 371-39.000.
Sullivan, C. Gardner, II: *See—*
Hedges, Walter P.; and Sullivan, C. Gardner, II, 4,336,462, Cl. 307-35.000.
Sumitomo Chemical Company, Limited: *See—*
Hosaka, Hirokazu; Tanimoto, Kenji; Tanaka, Kunihiko; Morita, Toshiharu; Shiota, Katsuyuki; Ueda, Yuji; and Kai, Seiichi, 4,336,109, Cl. 203-34.000.
Ohsumi, Tadashi; Itaya, Nobushige; and Hirano, Masachika, 4,336,194, Cl. 548-562.000.
Sagoh, Masakazu; Noguchi, Takanobu; and Yasui, Seimei, 4,336,347, Cl. 525-139.000.
Sumitomo Light Metal Industries, Ltd.: *See—*
Nagata, Koji; Ogiso, Akio; and Sudo, Kyuji, 4,335,677, Cl. 118-306.000.
Sumner, Maurice N., to Sea Horse Corporation, The. Flanged pipe. 4,335,752, Cl. 138-97.000.
Sunbeam Plastics Corporation: *See—*
Bush, Randall G., 4,335,824, Cl. 215-224.000.

Montgomery, Gary V.; and Bush, Randall G., 4,335,823, Cl. 215-206.000.

Suovaniemi, Osmo: *See*—
Tervamaki, Jukka; and Suovaniemi, Osmo, 4,335,621, Cl. 73-863.320.

Superior Rubber Industries Ltd.: *See*—
McCleary, David R.; and Slivar, Djuro, 4,335,525, Cl. 34-4.000.

Suzuki, Masakazu, to Kabushiki Kaisha Morita Seisakusho. Overcurrent protection circuit for inverter. 4,336,563, Cl. 361-93.000.

Suzuki, Nobuo: *See*—
Sekine, Hirokazu; and Suzuki, Nobuo, 4,336,556, Cl. 358-213.000.

Suzuki, Takami: *See*—
Iwata, Nobuo; and Suzuki, Takami, 4,335,970, Cl. 400-144.200.

Suzuki, Togi: *See*—
Shiozaki, Masahiro; Nawata, Kiyoshi; Wada, Osamu; Tsunawaki, Kiyokazu; Kuratsuji, Takatoshi; Funakoshi, Wataru; and Suzuki, Togi, 4,336,307, Cl. 428-398.000.

Suzuki, Toshio; Ise, Junichi; Yanabu, Satoru; and Mizoguchi, Hitoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Method and apparatus for treating noxious gases. 4,336,414, Cl. 174-14.00R.

Suzzoni, Jean-Pierre: *See*—
Morlec, Emile; Reynes, Daniel; and Suzzoni, Jean-Pierre, 4,336,423, Cl. 179-18.0GF.

Swan, Jye P.; Pastva, John V., Jr.; and Dignan, Donald J., to Eastern Company, The. Paddle lock with handle disconnect. 4,335,595, Cl. 70-149.000.

Swaney, William A., to Owens-Corning Fiberglas Corporation. Insulated cryogenic liquid container. 4,335,831, Cl. 220-901.000.

Swanson, William C.; and Orsborn, Jesse H., to International Harvester Co. Header height position control for a cotton harvester. 4,335,561, Cl. 56-10.200.

Swanson, William C., to International Harvester Co. Implement level lift system with rephasing valves. 4,335,894, Cl. 280-43.230.

Sweet, David L.: *See*—
Sweet, Philip J.; Hamlet, Buck C.; and Sweet, David L., 4,335,991, Cl. 414-519.000.

Sweet, Philip J.; Hamlet, Buck C.; and Sweet, David L., to American Carrier Equipment, Inc. Mobile transport for fluid cargo. 4,335,991, Cl. 414-519.000.

Swift Independent Packing Company: *See*—
Kang, Chunghee K.; Jodlowski, Ronald F.; Donnelly, Thomas H.; and Warner, William D., 4,336,271, Cl. 426-55.000.

Swisher, George W., Jr.; and Steele, Thomas L., to CMI Corporation. Cutting head for a paved roadway resurfacing apparatus. 4,335,921, Cl. 299-86.000.

Swiss Aluminium Ltd.: *See*—
Morianz, Josef V., 4,335,779, Cl. 164-440.000.

Sybron Corporation: *See*—
Hirth, Emil, 4,335,920, Cl. 297-408.000.

Syntex (U.S.A.) Inc.: *See*—
Nieminen, Timo, 4,336,457, Cl. 250-439.00P.

Synthelabo: *See*—
Koletar, Gabor I.; Frost, Jonathan B.; DuPont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,336,256, Cl. 424-256.000.

Szabo nee Paulyuk, Paula: *See*—
Lorant, Ivan; Csernyanszky, Imre; Murlasits, Gyula; Rusznyak, Rezso; and Szabo nee Paulyuk, Paula, 4,336,300, Cl. 428-316.600.

Szemeredi, Robert S.; and Troup, Edward M., to Lyntone Engineering, Inc. Motion transmission device. 4,335,853, Cl. 239-239.000.

Szeto, Leo H.: *See*—
Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, 4,336,506, Cl. 372-62.000.

Takabayashi, Katsuyuki: *See*—
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,336,331, Cl. 435-24.000.

Takahashi, Katsuhiro: *See*—
Yonezu, Kunio; Tsubota, Masaharu; and Takahashi, Katsuhiro, 4,336,314, Cl. 429-66.000.

Takahashi, Kihei, to Yoshida Kogyo K.K. Method of and apparatus for manufacturing a continuous slide fastener stringer. 4,336,220, Cl. 264-229.000.

Takahashi, Kiyofumi: *See*—
Tomibe, Shinji; Gomibuchi, Reizo; and Takahashi, Kiyofumi, 4,336,028, Cl. 8-624.000.

Takahashi, Kokaji: *See*—
Miyahara, Akimitsu; Kanazawa, Toshihiko; Takahashi, Kokaji; Ushikubo, Hiroji; and Kawano, Kuniaki, 4,335,746, Cl. 137-576.000.

Takahashi, Shigeru: *See*—
Yasugi, Masahiko; Takahashi, Shigeru; and Hashimoto, Toshio, 4,335,612, Cl. 73-593.000.

Takahashi, Shin-ichi: *See*—
Ishikawa, Kazumasa; Takahashi, Shin-ichi; and Yoneyama, Masahide, 4,336,501, Cl. 330-109.000.

Takahashi, Shiro; Sanada, Kazuo; Inada, Koichi; and Fukuda, Osamu, to Nippon Telegraph & Telephone Public Corporation; and Fujikura Cable Works, Ltd. Method for producing multi-component glass fiber preform. 4,336,049, Cl. 65-3.120.

Takahashi, Tadashi: *See*—
Morinaga, Shigeki; Miyashita, Kunio; Takahashi, Tadashi; Maeda, Takeo; and Yamashita, Seizi, 4,336,475, Cl. 310-198.000.

Takaku, Tetsuo: *See*—
Sakakura, Mitsuo; and Takaku, Tetsuo, 4,336,120, Cl. 204-192.0SP.

Takamatsu, Toshiaki; Shimizu, Keiichiro; Wada, Tomio; and Nonomura, Keisaku, to Sharp Kabushiki Kaisha. Electrode assembly of a liquid crystal display. 4,335,937, Cl. 350-336.000.

Takamatsu, Toshiaki: *See*—
Nonomura, Keisaku; Uede, Hisashi; Wada, Tomio; and Takamatsu, Toshiaki, 4,335,936, Cl. 350-335.000.

Takamoto, Shyunji: *See*—
Edamura, Mizuo; Takamoto, Shyunji; Furuitsu, Satoshi; Bekku, Norikatsu; and Katayama, Toshiaki, 4,336,076, Cl. 148-3.000.

Takamura, Masayuki: *See*—
Sata, Takeo; Takamura, Masayuki; Iijima, Kenzaburo; and Fukuda, Norio, 4,336,066, Cl. 75-211.000.

Takase, Sadao, to Nissan Motor Company, Ltd. Data processing system for electronic control of automotive vehicle devices with noise prevention. 4,336,593, Cl. 364-431.000.

Takasu, Yoshio: *See*—
Fukumoto, Hiroshi; and Takasu, Yoshio, 4,336,318, Cl. 430-120.000.

Takata, Yasunobu, to Nissan Motor Company Limited; and Ichiko Industries Limited. Remote controller and more particularly to slide member thereof. 4,336,572, Cl. 362-66.000.

Takaya, Yoshikazu: *See*—
Kanada, Eiji; Tsubai, Yasuo; Yamada, Shoji; Takaya, Yoshikazu; and Senga, Takao, 4,336,321, Cl. 430-234.000.

Takeda Chemical Industries, Ltd.: *See*—
Onishi, Isatsugu; Furuoya, Itsuo; and Minato, Ichiro, 4,336,205, Cl. 260-465.00C.

Takeda, Kenji; Hattori, Yoshiyuki; and Kasagi, Takao, to Nippon Soken, Inc. Worm type compressor with compressed fluid escape grooves. 4,336,007, Cl. 418-183.000.

Takemae, Yoshihiro: *See*—
Nakano, Masao; Takemae, Yoshihiro; and Kabashima, Katsuhiko, 4,336,465, Cl. 307-238.300.

Takeuchi, Yukihisa: *See*—
Sato, Susumu; Takeuchi, Yukihisa; and Tomita, Masahiro, 4,335,574, Cl. 60-311.000.

Takizawa, Norimasa: *See*—
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,336,331, Cl. 435-24.000.

Talon, Inc.: *See*—
Bahr, Karl E., 4,335,817, Cl. 206-610.000.

Tamm, Paul W., to Chevron Research Company. Combustion of pyrolyzed carbon containing solids in staged turbulent bed. 4,336,128, Cl. 208-11.00R.

Tanaka, Hiroshi, to NGK Spark Plug Co., Ltd. Ceramic throw-away tips and process for producing the same. 4,336,305, Cl. 428-336.000.

Tanaka, Kunihiko: *See*—
Hosaka, Hirokazu; Tanimoto, Kenji; Tanaka, Kunihiko; Morita, Toshiharu; Shiota, Katsuyuki; Ueda, Yuji; and Kai, Seiichi, 4,336,109, Cl. 203-34.000.

Tanaka, Mamoru. Rewritable programmable logic array. 4,336,601, Cl. 364-900.000.

Tanaka, Mitsugu; and Tsuda, Momotoshi, to Fuji Photo Film Co., Ltd. Silver halide emulsion containing yellow coupler. 4,336,327, Cl. 430-556.000.

Tanaka, Sadaaki, to Sony Corporation. Vertical aperture correction circuit. 4,336,552, Cl. 358-21.00R.

Tanaka, Shigeru; Iwaki, Katsutaro; Matsuhashi, Hajime; and Banzai, Keiichiro, to Nippondenso Co., Ltd. Generation control apparatus for vehicle generators. 4,336,487, Cl. 322-99.000.

Tanaka, Toshiaki: *See*—
Sugasawa, Fukashi; Iizuka, Haruhiko; Etoh, Yukihiro; and Tanaka, Toshiaki, 4,335,687, Cl. 123-198.00F.

Tang, Reginald T.: *See*—
Diamond, Steven E.; Tovrog, Benjamin S.; Mares, Frank; and Tang, Reginald T., 4,336,241, Cl. 423-588.000.

Tanimoto, Akira: *See*—
Koike, Mamoru; Komaki, Shigeki; Inoue, Tomohiro; Tanimoto, Akira; and Yoshida, Yoshisaburo, 4,336,530, Cl. 340-365.0VL.

Tanimoto, Kenji: *See*—
Hosaka, Hirokazu; Tanimoto, Kenji; Tanaka, Kunihiko; Morita, Toshiharu; Shiota, Katsuyuki; Ueda, Yuji; and Kai, Seiichi, 4,336,109, Cl. 203-34.000.

Taniyama, Tsukasa; Sekino, Masaaki; and Kishimoto, Michimasa, to Toyobo Co., Ltd. Permeation separation apparatus. 4,336,138, Cl. 210-321.400.

Tantraporn, Wirojana, to General Electric Company. Method for producing gallium arsenide single crystal ribbons. 4,336,099, Cl. 156-614.000.

Tarantola, Luciano, to Industrie Pirelli S.p.A. Apparatus for cabling wires. 4,335,571, Cl. 57-58.52R.

Tatrai, Lajos: *See*—
Bucsky, Gyorgy; Kiss, Zoltan; Matyas, Ivan; Pazmany, Jozsef; Selyem, Gyula; and Tatrai, Lajos, 4,335,618, Cl. 73-861.560.

Tatsumi, Hideo: *See*—
Kanamaru, Hisanobu; Tohkairin, Akira; Tatsumi, Hideo; and Okabe, Moisei, 4,335,496, Cl. 29-520.000.

Taylor, James L., to Caterpillar Tractor Co. Door holder. 4,335,911, Cl. 292-262.000.

Taylor, Thomas E.: *See*—
Stewart, Robert D.; and Taylor, Thomas E., 4,335,661, Cl. 110-245.000.

TDK Electronics Co., Ltd.: *See*—
Okuyama, Kiyotaka; Hosaka, Akihiko; and Isobe, Yukihiro, 4,336,310, Cl. 428-447.000.

Teachout, Donald O. Band and clip article. 4,335,490, Cl. 24-114.500.
Teijin Limited: *See—*
Shiozaki, Masahiro; Nawata, Kiyoshi; Wada, Osamu; Tsunawaki, Kiyokazu; Kuratsuji, Takatoshi; Funakoshi, Wataru; and Suzuki, Togi, 4,336,307, Cl. 428-398.000.
Tenneco Chemicals, Inc.: *See—*
Hoch, Samuel; and Ceprini, Mario Q., 4,336,168, Cl. 524-300.000.
Tenneco Oil Company: *See—*
Schorre, Kenneth R.; Nye, James O.; Dixon, Dennie W.; and Nepute, Carl, 4,336,046, Cl. 62-28.000.
Terrell, George C., to Conservation Technologies, Inc. Thermal processing system. 4,335,663, Cl. 110-264.000.
Terry, John C.: *See—*
Francis, John F.; Kirk, Bryan R.; and Terry, John C., 4,335,508, Cl. 30-47.000.
Tervamaki, Jukka; and Suovaniemi, Osmo, to kommandiittiyhtio Finnpipette Osmo A. Suovaniemi. Pipette. 4,335,621, Cl. 73-863.320.
Tesluck, Robert L.: *See—*
Meyers, Alma D.; Tesluck, Robert L.; and Tesluck, Thomas R., 4,335,562, Cl. 56-10.200.
Tesluck, Thomas R.: *See—*
Meyers, Alma D.; Tesluck, Robert L.; and Tesluck, Thomas R., 4,335,562, Cl. 56-10.200.
Texaco Inc.: *See—*
Woodle, Robert A., 4,335,598, Cl. 73-53.000.
Texas Instruments Incorporated: *See—*
Hewes, Charles R., 4,336,613, Cl. 375-9.000.
Texas Medical Products, Inc.: *See—*
Sharp, Russell G.; Reed, Charles C.; Cooley, Denton A.; Crane, Terry N.; and Wilkinson, William R., 4,335,756, Cl. 138-89.000.
Texas Oil and Gas Corporation: *See—*
Boley, Jack W., 4,335,740, Cl. 137-364.000.
Textron, Inc.: *See—*
Hague, Robert Z.; Marsicano, Matthew F.; and Hantman, Edwin F., 4,335,498, Cl. 29-568.000.
Marinko, Joseph A., 4,336,484, Cl. 318-696.000.
Thermal Instrument Company: *See—*
Boyd, Branin A., 4,335,605, Cl. 73-204.000.
Thermo Electron Corporation: *See—*
Davis, Jerry P., 4,335,684, Cl. 123-1.00A.
Thettu, Raghulinga R.: *See—*
Gunzelmann, Edward J.; Thettu, Raghulinga R.; and Wood, Larry M., 4,335,950, Cl. 355-3.00R.
Thiokol Corporation: *See—*
Barnes, Michael W., 4,336,408, Cl. 568-853.000.
Thomamueller, Dieter; and Brunsch, Klaus, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Universal coupling member for two shafts and method of manufacturing such a coupling member. 4,335,587, Cl. 64-11.00B.
Thomander, Ture, to Bulten-Kanthal AB. Heat treatment furnace. 4,336,412, Cl. 373-110.000.
Thompson, Daniel T. Dough forming, dividing and cutting apparatus. 4,336,010, Cl. 425-141.000.
Thompson, Max E.: *See—*
Robinson, Jimmie R.; and Thompson, Max E., 4,335,828, Cl. 220-334.000.
Thompson, Morice W.: *See—*
Backhouse, Alan J.; Bromley, Charles; and Thompson, Morice W., 4,336,177, Cl. 523-201.000.
Thomson-CSF: *See—*
Houdard, Jean-Pierre; Julie, Jean-Jacques; and Leoni, Bernard G., 4,336,600, Cl. 364-785.000.
Regnault, Luc, 4,335,968, Cl. 400-120.000.
Thorman, Charles A.: *See—*
Benning, Leroy J.; and Thorman, Charles A., 4,335,814, Cl. 206-198.000.
Thrandorf, Hans-Peter: *See—*
Winkel, Gerald; Thrandorf, Hans-Peter; and Blum, Christian, 4,335,674, Cl. 118-110.000.
Threshold Technology, Inc.: *See—*
Welch, John R.; and Oxenberg, Sheldon C., 4,336,421, Cl. 179-1.0SD.
Thyssen Aktiengesellschaft: *See—*
Radtke, Waldemar, 4,336,078, Cl. 148-9.00R.
Tilley, Jefferson W.: *See—*
Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., 4,336,382, Cl. 544-374.000.
Timex Corporation: *See—*
Plancon, Michel G., 4,336,471, Cl. 310-49.00R.
Timmons, David R., to Automation Industries, Inc. Air device with flexible mounting system. 4,335,647, Cl. 98-40.00D.
Todd, Robert J.: *See—*
Reynolds, Gordon S.; and Todd, Robert J., 4,335,729, Cl. 128-674.000.
Tohkairin, Akira: *See—*
Kanamaru, Hisanobu; Tohkairin, Akira; Tatsumi, Hideo; and Okabe, Moisei, 4,335,496, Cl. 29-520.000.
Tokico Ltd.: *See—*
Sakazume, Takeshi, 4,335,825, Cl. 220-82.00R.
Toko, Inc.: *See—*
Sakakura, Mitsuo; and Takaku, Tetsuo, 4,336,120, Cl. 204-192.0SP.
Tokyo Keiki Co., Ltd.: *See—*
Masuzawa, Isao; Yamamoto, Kanshi; and Hirokawa, Yoichi, 4,336,594, Cl. 364-457.000.
Tokyo Ohka Kogyo Kabushiki Kaisha: *See—*
Uehara, Akira; Kiyota, Hiroyuki; Miyazaki, Shigekazu; and Nakane, Hisashi, 4,336,438, Cl. 219-121.0PG.
Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Sekine, Hirokazu; and Suzuki, Nobuo, 4,336,556, Cl. 358-213.000.
Suzuki, Toshio; Ise, Junichi; Yanabu, Satoru; and Mizoguchi, Hitoshi, 4,336,414, Cl. 174-14.00R.
Torita, Fumio, 4,335,592, Cl. 68-12.00R.
Tokyo Shibaura Electric Co., Ltd.: *See—*
Ichinose, Noboru; Yokomizo, Yuhji; and Katsura, Masaki, 4,336,163, Cl. 252-518.000.
Tomarin, Seymour A. Tennis court surface with sand topdressing. 4,336,286, Cl. 428-17.000.
Tomaszek, Paul A.: *See—*
Mouyard, Arthur A.; Hamby, Michael V.; and Tomaszek, Paul A., 4,336,580, Cl. 362-347.000.
Tomibe, Shinji; Gomibuchi, Reizo; and Takahashi, Kiyofumi, to Nihon Sanmo Dyeing Co., Ltd. Method of making electrically conducting fibers. 4,336,028, Cl. 8-624.000.
Tomita, Masahiro: *See—*
Sato, Susumu; Takeuchi, Yukihisa; and Tomita, Masahiro, 4,335,574, Cl. 60-311.000.
Tomy Kogyo Co., Inc.: *See—*
Nishimiya, Toru, 4,335,878, Cl. 273-119.00R.
Toray Industries, Inc.: *See—*
Kondo, Tsuneyuki, 4,336,410, Cl. 585-827.000.
Torii, Sigeru; Uneyama, Kenji; Onishi, Takashi; Fujita, Yoshiji; Ishiguro, Michihiro; and Nishida, Takashi, to Kuraray Co., Ltd. 1,3-Cyclohexanedione derivatives. 4,336,202, Cl. 549-466.000.
Torikata, Akio: *See—*
Arai, Mamoru; Torikata, Akio; Enokita, Ryuzou; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,336,249, Cl. 424-121.000.
Torita, Fumio, to Tokyo Shibaura Denki Kabushiki Kaisha. Automatic washer. 4,335,592, Cl. 68-12.00R.
Toro Company, The: *See—*
Comer, Robert C., 4,335,567, Cl. 56-12.700.
Hurd, Lyle E., 4,335,566, Cl. 56-11.800.
Keeney, Donald A.; and Scherbring, David J., 4,335,569, Cl. 56-249.000.
Torre, Alton J.; and Schuster, Victor R., to Zenith Radio Corporation. Apparatus for testing an hermetic seal in a glass cathode ray tube. 4,336,492, Cl. 324-54.000.
Toshiba Kikai Kabushiki Kaisha: *See—*
Motomura, Noriyuki; and Tsuboi, Hiroyuki, 4,335,778, Cl. 164-150.000.
Totsune, Atsushi; Itoh, Yasuhito; and Yamabe, Hitoshi, to Honda Giken Kogyo Kabushiki Kaisha. Exhaust gas recirculation system. 4,335,699, Cl. 123-568.000.
Tourneux, Michel, to R.T.C. La Radiotechnique Compelec. Solar panels. 4,336,413, Cl. 136-251.000.
Tovrog, Benjamin S.: *See—*
Diamond, Steven E.; Tovrog, Benjamin S.; Mares, Frank; and Tang, Reginald T., 4,336,241, Cl. 423-588.000.
Towle, Herbert C.: *See—*
Marshall, Albert H.; Shaw, Bon F.; Towle, Herbert C.; Riordan, Thomas J.; and Siragusa, George A., 4,336,018, Cl. 434-22.000.
Towmotor Corporation: *See—*
Reeves, Jerry L., 4,335,992, Cl. 414-667.000.
Toyo Kogyo Co., Ltd.: *See—*
Izuno, Sadami; and Kiyomitsu, Isao, 4,335,917, Cl. 297-366.000.
Toyobo Co., Ltd.: *See—*
Taniyama, Tsukasa; Sekino, Masaaki; and Kishimoto, Michimasa, 4,336,138, Cl. 210-321.400.
Toyoda Koki Kabushiki Kaisha: *See—*
Munekata, Kenichi; Ohkoshi, Fumihiko; Kamiya, Yoji; and Hasegawa, Toshifumi, 4,335,500, Cl. 29-568.000.
Toyoguchi, Yoshinori: *See—*
Eda, Nobuo; Iijima, Takashi; and Toyoguchi, Yoshinori, 4,336,315, Cl. 429-194.000.
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; Yamamoto, Yasushi; and Ichinohe, Shoji, to Shin-Etsu Chemical Co., Ltd. Medicaments containing an organosilicon compound. 4,336,251, Cl. 424-184.000.
Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Motonami, Masanao; and Ishikawa, Yoshiaki, 4,335,902, Cl. 280-804.000.
Yasugi, Masahiko; Takahashi, Shigeru; and Hashimoto, Toshio, 4,335,612, Cl. 73-593.000.
Transidyne General Corporation: *See—*
Enzer, Steven E.; Sarrine, Robert J.; and Wilfong, William L., 4,336,121, Cl. 204-195.00R.
Travenol Laboratories, Inc.: *See—*
Siposs, George G., 4,336,224, Cl. 422-46.000.
Trayer, Frank C. Method and apparatus for short circuit protection of high voltage distribution systems. 4,336,520, Cl. 337-191.000.
Treiber, Hans J.; Lenke, Dieter; and Worstmann, Wolfgang, to BASF Aktiengesellschaft. 1,4-Cycloalkano-oxazepines, salts thereof and analgesic uses thereof. 4,336,263, Cl. 424-244.000.
Trexler, Philip C. Isolation enclosure members. 4,335,712, Cl. 128-1.00R.
Tri-Tronics, Inc.: *See—*
Gonda, Gerald J.; and Vancza, John, Jr., 4,335,682, Cl. 119-29.000.
Trinkwalder, Joseph C., to Sherwood-Selpac Corp. Float warning device. 4,335,734, Cl. 137-77.000.
Trio Kabushiki Kaisha: *See—*
Kumagai, Morio, 4,336,534, Cl. 340-753.000.

Triplett, Jacob: *See—*
Lordi, Frank E.; and Triplett, Jacob, 4,336,354, Cl. 525-301.000.

Troup, Edward M.: *See—*
Szemeredi, Robert S.; and Troup, Edward M., 4,335,853, Cl. 239-239.000.

Truchard, James J.: *See—*
Hill, Eugene; Jansons, Arnolds; and Truchard, James J., 4,336,607, Cl. 367-123.000.

Tsai, Min H., to Unitek Corporation. Palladium alloys for fusion to porcelain. 4,336,290, Cl. 428-76.000.

Tseung, Alfred C. C.; Onuchukwu, Anthony I.; and Chan, Ho C. Prevention of hydrogen embrittlement of metals in corrosive environments. 4,335,754, Cl. 138-146.000.

Tsubai, Yasuo: *See—*
Kanada, Eiji; Tsubai, Yasuo; Yamada, Shoji; Takaya, Yoshikazu; and Senga, Takao, 4,336,321, Cl. 430-234.000.

Tsuboi, Hiroyuki: *See—*
Motomura, Noriyuki; and Tsuboi, Hiroyuki, 4,335,778, Cl. 164-150.000.

Tsubota, Masaharu: *See—*
Yonezu, Kunio; Tsubota, Masaharu; and Takahashi, Katsuhiro, 4,336,314, Cl. 429-66.000.

Tsuchiya, Hiroaki; and Soma, Ikuo, to Canon Kabushiki Kaisha. Variable magnification copying apparatus. 4,335,953, Cl. 355-14.0CH.

Tsuda, Momotoshi: *See—*
Tanaka, Mitsugu; and Tsuda, Momotoshi, 4,336,327, Cl. 430-556.000.

Tsuda, Tatsuya; and Ohno, Yoshikatsu, to Sharp Kabushiki Kaisha. Control panel assembly. 4,336,569, Cl. 361-395.000.

Tsuji, Nobuo: *See—*
Yamada, Yasuyuki; Masuyama, Kenichi; and Tsuji, Nobuo, 4,336,308, Cl. 428-425.900.

Tsumuraya, Shigeo: *See—*
Fukuta, Kenji; Onooka, Ryuzo; Aoki, Eiji; and Tsumuraya, Shigeo, 4,336,296, Cl. 428-257.000.

Tsunawaki, Kiyokazu: *See—*
Shiozaki, Masahiro; Nawata, Kiyoshi; Wada, Osamu; Tsunawaki, Kiyokazu; Kuratsuji, Takatoshi; Funakoshi, Wataru; and Suzuki, Togi, 4,336,307, Cl. 428-398.000.

Tsunekawa, Tokuichi; and Amikura, Takashi, to Canon Kabushiki Kaisha. Camera provided with automatic focus detector. 4,335,942, Cl. 354-25.000.

Tsuruta, Teiji; and Nitadori, Yoshiaki, to Asahi Kasei Kogyo Kabushiki Kaisha. Process of preparing linear polydivinylbenzene. 4,336,361, Cl. 526-180.000.

Tullar, Benjamin F.: *See—*
Minatoya, Hiroaki; Tullar, Benjamin F.; and Conway, Walter D., 4,336,400, Cl. 560-73.000.

Tussing, Reinhold, to Siemens Aktiengesellschaft. Dyeing and marking agent. 4,336,027, Cl. 8-611.000.

Tyrone Hydraulics, Inc.: *See—*
McBurnett, James R.; and Eley, James M., 4,336,005, Cl. 418-126.000.

Ube Industries, Ltd.: *See—*
Yajima, Seishi; Okamura, Kiyohito; Hasegawa, Yoshio; and Yamamura, Takemi, 4,336,215, Cl. 264-63.000.

Ueda, Yuji: *See—*
Hosaka, Hirokazu; Tanimoto, Kenji; Tanaka, Kunihiko; Morita, Toshiharu; Shiota, Katsuyuki; Ueda, Yuji; and Kai, Seiichi, 4,336,109, Cl. 203-34.000.

Uede, Hisashi: *See—*
Nonomura, Keisaku; Uede, Hisashi; Wada, Tomio; and Takamatsu, Toshiaki, 4,335,936, Cl. 350-335.000.

Uehara, Akira; Kiyota, Hiroyuki; Miyazaki, Shigekazu; and Nakane, Hisashi, to Tokyo Ohka Kogyo Kabushiki Kaisha. Apparatus for automatic semi-batch sheet treatment of semiconductor wafers by plasma reaction. 4,336,438, Cl. 219-121.0PG.

Ueki, Kazuhiko: *See—*
Akiyama, Seiji; Kurihara, Mamoru; and Ueki, Kazuhiko, 4,335,981, Cl. 405-221.000.

Uekita, Masakazu: *See—*
Fushiki, Yasuo; Abe, Masaharu; and Uekita, Masakazu, 4,336,297, Cl. 428-284.000.

Ueno, Susumu: *See—*
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,336,211, Cl. 264-22.000.

Ugelstad, John, to SINTEF. Process for preparing an aqueous emulsion or dispersion of a partly water-soluble material, and optionally further conversion of the prepared dispersion or emulsion to a polymer dispersion when the partly water-soluble material is a polymerizable monomer. 4,336,173, Cl. 523-205.000.

Uhlmann, Donald R.: *See—*
Peebles, Leighton H.; Uhlmann, Donald R.; and Warner, Steven B., 4,336,283, Cl. 427-154.000.

Ullrich, Georg J.: *See—*
Hopmeier, Joachim; Leist, Helmut; and Ullrich, Georg J., 4,336,031, Cl. 23-232.00R.

Uneyama, Kenji: *See—*
Torii, Sigeru; Uneyama, Kenji; Onishi, Takashi; Fujita, Yoshiji; Ishiguro, Michihiro; and Nishida, Takashi, 4,336,202, Cl. 549-466.000.

Unger, Klaus-Dieter: *See—*
Kaas, Werner; Borggrefe, Hans-Helmut; and Unger, Klaus-Dieter, 4,336,218, Cl. 264-111.000.

Unigovsky, Mikhail R.; *See—*
Dubovetsky, Vasily Y.; Kopylov, Leonid N.; Kotov, Valentin A.; Saprykin, Jury I.; Slepchenko, Vladimir I.; Paton, Boris E.; Pokhodnya, Igor K.; Paton, Vladimir E.; Belfor, Mikhail G.; Leschinsky, Efim Y.; Kutovoi, Andrei N.; Unigovsky, Mikhail R.; Rotenfeld, Veniamin S.; Shlepakov, Valery N.; Gavriljuk, Jury A.; Mazel, Alexandr G.; Sheinkin, Mark Z.; and Serafin, Orest M., 4,336,436, Cl. 219-61.000.

Union Carbide Corporation: *See—*
Fay, Homer, 4,336,459, Cl. 250-459.000.
Fisher, Theodore F.; and Saunders, John B., 4,336,045, Cl. 62-17.000.
Nausedas, Joseph A., 4,335,559, Cl. 53-138.00A.

Union Oil Company of California: *See—*
Miller, J. Wayne; and Ward, John W., 4,336,130, Cl. 208-243.000.

Union Special G.m.b.H.: *See—*
Schwaab, Konstantin H.; Petzold, W. Andreas; and Glockle, Werner A., 4,335,666, Cl. 112-130.000.

United Glass Limited: *See—*
Ashcroft, Richard I.; and Kaktovics, David, 4,335,960, Cl. 356-240.000.

United Kingdom Atomic Energy Authority: *See—*
Rosevear, Alan; and Mattock, Patrick, 4,336,161, Cl. 252-426.000.

United States Gypsum Company: *See—*
Porter, Michael J., 4,335,636, Cl. 83-177.000.

U.S. Industries, Inc.: *See—*
Holland, Eddie L., 4,335,681, Cl. 119-17.000.

United States of America
Air Force: *See—*
Isui, James B. Y.; Shaw, Rudy L.; and Caschera, Joseph, 4,336,541, Cl. 343-18.00E.

Army: *See—*
Chapple, William E., III, 4,336,525, Cl. 340-347.0AD.
Lofgren, Letcher A., 4,335,655, Cl. 102-209.000.

Energy: *See—*
Barker, Ray E.; Scott, Charles D.; and Ryon, Allen D., 4,336,044, Cl. 62-17.000.
Christensen, Leslie D., 4,336,226, Cl. 422-109.000.
Downs, Raymond L.; and Miller, Wayne J., 4,336,338, Cl. 501-12.000.
Landingham, Richard L.; and Casey, Alton W., 4,336,304, Cl. 428-336.000.

National Aeronautics and Space Administration; administrator; with respect to an invention of:
Carson, Lansing M.; and Krasin, F. Elvin. Discriminator aided phase lock acquisition for suppressed carrier signals. 4,336,616, Cl. 455-202.000.

National Aeronautics and Space Administration: *See—*
Bill, Robert C.; and Wisander, Donald W., 4,336,276, Cl. 427-34.000.
Brainard, William A.; and Wheeler, Donald R., 4,336,117, Cl. 204-192.00C.
Evans, John C., Jr.; Chai, An-Ti; and Goradia, Chandra P., 4,335,503, Cl. 29-572.000.

Navy: *See—*
Beatty, Bobby D.; Daniel, Russell D.; Humerickhouse, Billy J.; and Williams, Richard, 4,335,656, Cl. 102-340.000.
Berdzar, Peter F.; and Acks, Robert S., 4,336,591, Cl. 364-418.000.
Hill, Eugene; Jansons, Arnolds; and Truchard, James J., 4,336,607, Cl. 367-123.000.
Laxo, Darryl E., 4,335,987, Cl. 414-27.000.
Marshall, Albert H.; Shaw, Bon F.; Towle, Herbert C.; Riordan, Thomas J.; and Siragusa, George A., 4,336,018, Cl. 434-22.000.
Morris, David R.; and Erickson, Porter W., 4,336,367, Cl. 524-770.000.
Pavlopoulos, Theodore G.; and Altman, Daniel E., 4,336,047, Cl. 65-3.310.
Peebles, Leighton H.; Uhlmann, Donald R.; and Warner, Steven B., 4,336,283, Cl. 427-154.000.
Skaalen, Clifford I.; and Rausch, Arthur B., 4,335,670, Cl. 114-249.000.
Walton, Theodore R., 4,336,362, Cl. 526-248.000.
Wilson, Jeffrey V., 4,335,520, Cl. 33-312.000.

U.S. Philips Corporation: *See—*
Baker, Geoffrey, 4,336,452, Cl. 250-338.000.
Hapke, Friedrich, 4,336,495, Cl. 324-158.00T.
Slaats, Antonius A. A., 4,335,709, Cl. 126-443.000.
van der Steen, Gerardus H. A. M.; and Van Hove, Eddy F. C., 4,336,048, Cl. 65-18.400.
Van Hoek, Martinus A. F.; and Melse, Jan L., 4,336,112, Cl. 204-5.000.
van Mourik, Jacobus H. C., 4,336,281, Cl. 427-74.000.

United Technologies Corporation: *See—*
Moriarty, Robert M.; Walton, John W.; and Caldwell, Samuel C., 4,336,585, Cl. 363-79.000.

Unitek Corporation: *See—*
Tsai, Min H., 4,336,290, Cl. 428-76.000.

University of California, The Regents of the: *See—*
Bunshah, Rointan; and Nath, Prem, 4,336,277, Cl. 427-38.000.
Spillman, Richard, 4,336,468, Cl. 307-440.000.

University of Iowa Research Foundation: *See—*
Frank, Clyde W.; Nord, Paul J.; and Cox, Robert D., 4,336,158, Cl. 252-408.000.

University of Utah Research Foundation: *See—*
Stephen, Robert L.; Kablitz, Carl; van Dura, Dietz; Atkin, Curtis L.; and Jacobsen, Stephen C., 4,335,716, Cl. 128-213.00A.

UOP Inc.: *See—*
Winter, George R., III, 4,336,106, Cl. 196-14.520.

Upjohn Company, The: *See—*
Adams, Wade J., 4,335,620, Cl. 73-863.110.
Ayer, Donald E.; and Schlagel, Carl A., 4,336,200, Cl. 260-397.450.
Nelson, Stephen J., 4,336,207, Cl. 260-936.000.
Sih, John C., 4,336,371, Cl. 542-429.000.
Sih, John C., 4,336,372, Cl. 542-429.000.
Sih, John C., 4,336,392, Cl. 548-253.000.
Sih, John C., 4,336,393, Cl. 548-253.000.
Urataki, Etsuo: *See—*
Kodama, Churyo; Hirota, Taisuke; Ohno, Hiroshi; and Urataki, Etsuo, 4,336,479, Cl. 313-487.000.
Urfer, Ernest N.: *See—*
Hetherington, Richard J.; Melvin, George E.; Milkovich, Stephen A.; and Urfer, Ernest N., 4,336,088, Cl. 156-89.000.
Urs, Venkataramaraj S., to Olin Corporation. Method for making primer constituents. 4,336,084, Cl. 149-24.000.
Ushikubo, Hiroji: *See—*
Miyahara, Akimitsu; Kanazawa, Toshihiko; Takahashi, Kokaji; Ushikubo, Hiroji; and Kawano, Kuniaki, 4,335,746, Cl. 137-576.000.
Utagawa, Ken; Ogasawara, Akira; Shirasu, Hiroshi; and Hoshino, Kunihisa, to Nippon Kogaku K.K. Focus detecting apparatus. 4,336,450, Cl. 250-201.000.
Vachon, Frank: *See—*
Kashyap, Satish; Dunn, John G.; Woods, Lorne; and Vachon, Frank, 4,336,435, Cl. 219-10.55F.
Vacu-Maid, Inc.: *See—*
Lindsay, Winston S., 4,336,427, Cl. 200-61.600.
Vaisala Oy: *See—*
Luukkala, Mauri, 4,335,613, Cl. 73-599.000.
Valachovic, John J.: *See—*
Kolakowski, Michael A.; and Valachovic, John J., 4,336,236, Cl. 423-435.000.
van Bashuysen, Richard, to Audi Nsu Auto Union Aktiengesellschaft. Motor vehicle having a passenger compartment heating device. 4,335,849, Cl. 237-12.30B.
Vancha, John, to Hurst Performance, Inc. Multiplexer for ultrasonic ranging device. 4,336,605, Cl. 367-105.000.
Vancza, John, Jr.: *See—*
Gonda, Gerald J.; and Vancza, John, Jr., 4,335,682, Cl. 119-29.000.
VanderKelen, James B., to Snow Machines Incorporated. Downhill slide system. 4,335,658, Cl. 104-69.000.
van der Lely, Cornelis. Soil cultivating implements. 4,335,789, Cl. 172-49.500.
van der Lely, Cornelis. Soil cultivating implements. 4,335,790, Cl. 172-49.500.
van der Steen, Gerardus H. A. M.; and Van Hove, Eddy F. C., to U.S. Philips Corporation. Method of producing doped quartz glass. 4,336,048, Cl. 65-18.400.
Vandertoolen, Dirk: *See—*
Mueller, Max A.; Vandertoolen, Dirk; and Minear, Gerald, 4,336,139, Cl. 210-401.000.
van Dura, Dietz: *See—*
Stephen, Robert L.; Kablitz, Carl; van Dura, Dietz; Atkin, Curtis L.; and Jacobsen, Stephen C., 4,335,716, Cl. 128-213.00A.
Van Fossen, Robert A.: *See—*
Bauer, Werner R.; and Van Fossen, Robert A., 4,335,750, Cl. 137-625.290.
Van Hoek, Martinus A. F.; and Melse, Jan L., to U.S. Philips Corporation. Method of manufacturing moulds for disc-shaped record carriers, and moulds manufactured by means of such a method. 4,336,112, Cl. 204-5.000.
Van Hove, Eddy F. C.: *See—*
van der Steen, Gerardus H. A. M.; and Van Hove, Eddy F. C., 4,336,048, Cl. 65-18.400.
Van Kampen, Craig L.; and Ahlberg, Carl S., to Minnesota Mining and Manufacturing Company. Dispenser for liner-wound tape. 4,336,097, Cl. 156-527.000.
van Mourik, Jacobus H. C., to U.S. Philips Corporation. Method of manufacturing a solar cell. 4,336,281, Cl. 427-74.000.
van Rhee, Renee: *See—*
Verrips, Cornelis T.; and van Rhee, Renee, 4,336,272, Cl. 426-250.000.
Van Roggen, Arend: *See—*
Edwards, Donald W.; Gorondy, Emery J.; and Van Roggen, Arend, 4,336,546, Cl. 346-74.700.
Varta Batterie A.G.: *See—*
Sauer, Hans, 4,336,217, Cl. 264-105.000.
Vaught, John L.: *See—*
Donald, David K.; Lee, Michael J.; and Vaught, John L., 4,336,544, Cl. 346-1.100.
VEB Kombinat Polygraph "Werner Lamberz" Leipzig: *See—*
Winker, Gerald; Thrandorf, Hans-Peter; and Blum, Christian, 4,335,674, Cl. 118-110.000.
Velasco, Ralph E., Jr.; and Pinson, A. G., to Amigos Food Company, Inc. Method and apparatus for producing masa corn. 4,335,649, Cl. 99-327.000.
Verco Manufacturing, Inc.: *See—*
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Yanagawa, Mikio, to Casio Computer Co., Ltd. Electronic calculator with musical note generation. 4,336,598, Cl. 364-710.000.

Yasnovsky, V. M.; and MacDonald, Donald M., to International Paper Company. Process for activating cellulose pulp to improve ease of esterification. 4,336,370, Cl. 536-58.000.

Yasugi, Masahiko; Takahashi, Shigeru; and Hashimoto, Toshio, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of detecting irregularities on bevel gears. 4,335,612, Cl. 73-593.000.

Yasui, Seimei: *See*—
Sagoh, Masakazu; Noguchi, Takanobu; and Yasui, Seimei, 4,336,347, Cl. 525-139.000.

Yasutake, Katsuya: *See*—
Koyama, Tsuneyuki; and Yasutake, Katsuya, 4,336,559, Cl. 360-73.000.

Yi, Alberto: *See*—
Stovell, John E.; Aughton, John; and Yi, Alberto, 4,335,939, Cl. 350-385.000.

Yokley, Edward M.: *See*—
Payne, Alan J.; Aylott, Michael V.; Moore, Jimmie L.; and Yokley, Edward M., 4,336,260, Cl. 424-266.000.

Yokogawa Electric Works, Ltd.: *See*—
Shindo, Shotaro; and Hayashi, Eiji, 4,336,494, Cl. 324-62.000.

Yokomizo, Yuhji: *See*—
Ichinose, Noboru; Yokomizo, Yuhji; and Katsura, Masaki, 4,336,163, Cl. 252-518.000.

Yokoyama, Tomio: *See*—
Fujita, Tsuyoshi; Yokoyama, Tomio; and Ishi, Ichiro, 4,336,551, Cl. 357-80.000.

Yokozeki, Seiki, to Matsushita Electric Industrial Co., Ltd. Heating control apparatus for cooking oven with vapor sensor. 4,336,433, Cl. 219-10.55B.

Yoneyama, Masahide: *See*—
Ishikawa, Kazumasa; Takahashi, Shin-ichi; and Yoneyama, Masahide, 4,336,501, Cl. 330-109.000.

Yonezu, Kunio; Tsubota, Masaharu; and Takahashi, Katsuhiro, to Japan Storage Battery Company, Ltd. Pasted type lead-acid battery. 4,336,314, Cl. 429-66.000.

Yoshida Kogyo K.K.: *See—*
Takahashi, Kihei, 4,336,220, Cl. 264-229.000.

Yoshida, Yoshisaburo: *See—*
Koike, Mamoru; Komaki, Shigeki; Inoue, Tomohiro; Tanimoto, Akira; and Yoshida, Yoshisaburo, 4,336,530, Cl. 340-365.0VL.

Yoshikuni, Yoshiaki: *See—*
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,373, Cl. 542-447.000.
Matsumura, Shingo; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Yoshikuni, Yoshiaki; Yagi, Masahiro; Kura, Kohei; and Shirahase, Ichiro, 4,336,374, Cl. 542-469.000.

Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, to Asahi-Dow Limited. Composition for drawn film, cold drawn film made of said composition and process for manufacture of said film. 4,336,212, Cl. 264-22.000.

Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, to Asahi - Dow Limited. Cold drawn film made of an olefin polymer blend composition. 4,336,350, Cl. 525-211.000.

Yoshimura, Tokuo; Okazaki, Hiroshi; Soeda, Mahito; and Yushima, Takeharu, to Nippon Steel Chemical Co., Ltd.; and Shinnikka Environmental Engineering Co., Ltd. Method for treating a water-containing waste oil. 4,336,129, Cl. 208-180.000.

Yoshioka, Kazuo: *See—*
Kitamura, Shigeo; Yoshioka, Kazuo; Seriyama, Yoshiharu; and Misuta, Hiroshi, 4,336,196, Cl. 549-416.000.

Young, Ainslie T., Jr.: *See—*
Shackle, Dale R.; and Young, Ainslie T., Jr., 4,336,067, Cl. 106-21.000.

Young, Bill M.: *See—*
Murphey, Joseph R.; and Young, Bill M., 4,335,788, Cl. 166-278.000.

Young, Michael J.: *See—*
Mitchell, Colin H.; and Young, Michael J., 4,336,614, Cl. 376-405.000.

Yushima, Takeharu: *See—*
Yoshimura, Tokuo; Okazaki, Hiroshi; Soeda, Mahito; and Yushima, Takeharu, 4,336,129, Cl. 208-180.000.

Zacharin, David. Jigsaw puzzle for use in bilingual education. 4,336,020, Cl. 434-157.000.

Zahnradfabrik Friedrichshafen, AG.: *See—*
Walter, Wolfgang, 4,335,749, Cl. 137-625.220.

Zappelli, Piergiorgio; Rossodivita, Antonio; Pappa, Rosario; and Re, Luciano, to Snamprogetti, S.p.A. Method for the preparation of macromolecularized adenine derivatives. 4,336,188, Cl. 260-112.50R.

Zar-Ayan, Mehdi: *See—*
Kupka, Genevieve L.; and Zar-Ayan, Mehdi, 4,336,032, Cl. 44-56.000.

Zeeh, Bernd; Buschmann, Ernst; and Jung, Johann, to BASF Aktiengesellschaft. Agents for regulating plant growth containing triazolyl glycol ethers, and the use thereof. 4,336,055, Cl. 71-76.000.

Zenith Radio Corporation: *See—*
DeVries, Adrian J.; and Hansen, Kai, 4,336,515, Cl. 333-195.000.
Torre, Alton J.; and Schuster, Victor R., 4,336,492, Cl. 324-54.000.

Zepkin, Marvin. Hand held electric ejecting device. 4,335,834, Cl. 222-63.000.

Ziman, Stephen D., to Chevron Research Company. Herbicidal and plant-growth-regulating N-(heterocyclyl)-methylacetanilide. 4,336,059, Cl. 71-90.000.

Zodiac: *See—*
de Pous, Bernard, 4,335,473, Cl. 4-488.000.

Zodrow, Rudolf, to Jagenberg Werke AG. Labeling station for a labeling machine, especially for bottles. 4,336,098, Cl. 156-568.000.

Zucker, Friedrich J.; Osthaus, Georg; and Plassmann, Paul, to Zucker, Friedrich J. Process for the continuous production of alkali metal salts of fatty acids. 4,336,203, Cl. 260-417.000.

Zweekly, Raymond. Metalcutting insert for roughing and finishing. 4,335,984, Cl. 407-114.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 22ND DAY OF JUNE, 1982

NOTE —Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Ex-Cell-O Corporation: *See—*
Wunder, William G., Re. 30,976, Cl. 51-58.000.

Finmac Incorporated: *See—*
Zecher, Robert F., Re. 30,977, Cl. 51-422.000.

Jacobson, Clayton J. Self-righting power-driven aquatic vehicle. Re. 30,978, Cl. 114-270.000.

Jounstone, Richard: *See—*
Stobbe, Richard E.; and Jounstone, Richard, Re. 30,975, Cl. 33-174.00L.

Kearney & Trecker Corporation: *See—*
Stobbe, Richard E.; and Jounstone, Richard, Re. 30,975, Cl. 33-174.00L.

Stobbe, Richard E.; and Jounstone, Richard, to Kearney & Trecker Corporation. Spindle probe with orbital transformer. Re. 30,975, Cl. 33-174.00L.

Technicon Instruments Corporation: *See—*
Watts, Leonard, Re. 30,979, Cl. 164-119.000.

Watts, Leonard, to Technicon Instruments Corporation. Method and apparatus for casting metals. Re. 30,979, Cl. 164-119.000.

Wunder, William G., to Ex-Cell-O Corporation. Honing machine. Re. 30,976, Cl. 51-58.000.

Zecher, Robert F., to Finmac Incorporated. Method and apparatus for deflashing. Re. 30,977, Cl. 51-422.000.

LIST OF DESIGN PATENTEES

Abbott Laboratories: *See—*
Beall, Glenn L., 265,126, Cl. D24-32.000.
Terk, Harold S., 265,124, Cl. D24-29.000.

Abramo, John G.: *See—*
Meyers, Marc A., 265,027, Cl. D6-37.000.

Abramo, Samuel V.: *See—*
Meyers, Marc A., 265,027, Cl. D6-37.000.

Aerne, Arthur O. Picture frame hook. 265,053, 6-22-82, Cl. D8-370.000.

American Greetings Corporation: *See—*
Johnson, John; and Gandolf, Ed, 265,024, Cl. D6-24.000.

American Safety Razor Company: *See—*
Hadtke, Frederick B., 265,056, Cl. D9-342.000.

Apron Linen Tree of California, Inc.: *See—*
Tomasi, Anne S., 265,038, Cl. D6-271.000.

Arballo, Alfred D. Stepping pad for a game. 265,105, 6-22-82, Cl. D21-48.000.

Aulbert, Harold V.; and Horton, Charles M., to Burlington Furniture Div. of Burlington Industries, Inc. Dresser or the like. 265,031, 6-22-82, Cl. D6-154.000.

Baffo, Charles M.: *See—*
Brown, Philip R.; Baffo, Charles M.; and Meyers, Edward J., 265,032, Cl. D6-172.000.

Beall, Glenn L., to Abbott Laboratories. Test tube rack or the like. 265,126, 6-22-82, Cl. D24-32.000.

Bee, James W. M., to Northern Telecom Limited. Telephone set base. 265,089, 6-22-82, Cl. D14-60.000.

Bergin, Gerald T. Wood burning heater. 265,121, 6-22-82, Cl. D23-97.000.

Bessone, Carlo S.; and Roche, William J., to GTE Products Corporation. Lamp. 265,134, 6-22-82, Cl. D26-93.000.

Bessone, Carlo S., to GTE Products Corporation. Lamp. 265,135, 6-22-82, Cl. D26-93.000.

Black, John O. Lamp. 265,133, 6-22-82, Cl. D26-70.000.

Blank, Elliott E., to Clorox Company, The. Dispensing closure. 265,060, 6-22-82, Cl. D9-446.000.

Bone, Arnold R., to Dennison Manufacturing Company. Bundling tie. 265,055, 6-22-82, Cl. D8-394.000.

Bowman, George D., to Model A and Model T Motor Car Reproduction Corporation, The. Chair back for an automobile. 265,037, 6-22-82, Cl. D6-197.000.

Bright Industries Inc.: *See—*
Sorrentino, Vincent P., 265,028, Cl. D6-52.000.

Brooks, Nolan R. Handbag light. 265,132, 6-22-82, Cl. D26-24.000.

Brown, Philip R.; Baffo, Charles M.; and Meyers, Edward J., to Mobil Oil Corporation. Merchandise display rack. 265,032, 6-22-82, Cl. D6-172.000.

Bunger, Richard E.; and Hancock, Roy J., to Corral Industries, Inc. Cattle feed bunker. 265,138, 6-22-82, Cl. D30-13.000.

Burlington Furniture Div. of Burlington Industries, Inc.: *See—*
Aulbert, Harold V.; and Horton, Charles M., 265,031, Cl. D6-154.000.

Butler, Lawrence M. Projection kaleidoscope. 265,095, 6-22-82, Cl. D16-11.000.

Cal-Tuf Glass Corporation: *See—*
Guardia, James F., 265,048, Cl. D8-328.000.

Canon Kabushiki Kaisha: *See—*
Masaki, Nobuo, 265,096, Cl. D16-31.000.

Carrier Corporation: *See—*
Hoyle, Walter W., 265,123, Cl. D23-141.000.

Carson, Michael: *See—*
Fether, Kenneth B.; Grosse, Maurice; and Carson, Michael, 265,035, Cl. D6-191.000.

Churchill, Robert L., to Kransco Manufacturing, Inc. Aqua planing board. 265,116, 6-22-82, Cl. D21-228.000.

Clorox Company, The: *See—*
Blank, Elliott E., 265,060, Cl. D9-446.000.

Coban, Muzaffer. Projection television cabinet. 265,090, 6-22-82, Cl. D14-79.000.

Cobb, Richard E.: *See—*
Janda, George M.; and Cobb, Richard E., 265,088, Cl. D14-53.000.

Corning Glass Works: *See—*
LeVan, Kenneth R., 265,069, Cl. D11-164.000.

Corral Industries, Inc.: *See—*
Bunger, Richard E.; and Hancock, Roy J., 265,138, Cl. D30-13.000.

Cousins, Morison S., to Gillette Company, The. Hydromassage device. 265,127, 6-22-82, Cl. D24-38.000.

Croghan, Theodore. Retractable aircraft mounted dry material spreader. 265,093, 6-22-82, Cl. D15-13.000.

Crowe, William F. Contact lens and accessory container. 265,098, 6-22-82, Cl. D16-129.000.

Datakey, Inc.: *See—*
Flies, William P., 265,049, Cl. D8-347.000.

de Keller, David G. Game board. 265,104, 6-22-82, Cl. D21-40.000.

Dennison Manufacturing Company: *See—*
Bone, Arnold R., 265,055, Cl. D8-394.000.

Dial Industries: *See—*
Macho, Jan M.; and Oxford, Richard O., 265,026, Cl. D6-32.000.

Divoky, Alvin L. Information display device for motor vehicle interior. 265,083, 6-22-82, Cl. D12-191.000.

Dornseif, Eike, to Dornseif Sport Gesellschaft mit beschraenkter Haftung. Roller skate. 265,115, 6-22-82, Cl. D21-226.000.

Dornseif Sport Gesellschaft mit beschraenkter Haftung: *See—*
Dornseif, Eike, 265,115, Cl. D21-226.000.

Drackett Company, The: *See—*
White, Thomas Q.; and Drummond, Archie G., Jr., 265,059, Cl. D9-376.000.

Drummond, Archie G., Jr.: *See—*
White, Thomas Q.; and Drummond, Archie G., Jr., 265,059, Cl. D9-376.000.

Durand, Jean-Jacques. Plate or similar article. 265,039, 6-22-82, Cl. D7-5.000.

Ernest, Robert O.: *See—*
Lee, Ernest; and Ernest, Robert O., 265,041, Cl. D7-41.000.

Ewry, Edwin E. Bottle or the like. 265,058, 6-22-82, Cl. D9-349.000.

Feinstein, Paul, Jr.; Habich, Adolph B.; Hunt, Ronald E.; and Meister, Herbert E., Jr., to International Business Machines Corporation. Print wheel cartridge or the like. 265,099, 6-22-82, Cl. D18-12.000.

Fether, Kenneth B.; Grosse, Maurice; and Carson, Michael, to Planned Space Products Limited. Corner connector for furniture panels. 265,035, 6-22-82, Cl. D6-191.000.

Fleischmann, Gary A.; and Peabody, Lawrence C., to Kohler Co. Bathroom handle or the like. 265,117, 6-22-82, Cl. D23-29.000.

Fleischmann, Gary A.; and Peabody, Lawrence C., to Kohler Co. Combined bathtub drain cover and handle. 265,118, 6-22-82, Cl. D23-31.000.

Flies, William P., to Datakey, Inc. Electronic information key. 265,049, 6-22-82, Cl. D8-347.000.

Foerster, David, to Medical Engineering Corporation. Mammary bandage. 265,128, 6-22-82, Cl. D24-49.000.

Freeborn, Stuart; Lucas, George W., Jr.; and McQuarrie, Ralph, to Lucasfilm, Ltd. Toy figure. 265,109, 6-22-82, Cl. D21-175.000.

Friedman, Alan H., to Syracuse China Corporation. Dinner plate or similar article. 265,040, 6-22-82, Cl. D7-35.000.

Gageby, Steven D. Chair. 265,029, 6-22-82, Cl. D6-73.000.

Gallon, Claudio, to Rigon S.p.A. Display device for boots. 265,030, 6-22-82, Cl. D6-85.000.

Gandolf, Ed: *See—*
Johnson, John; and Gandolf, Ed, 265,024, Cl. D6-24.000.

Giglio, Armand A. Cradle. 265,023, 6-22-82, Cl. D6-15.000.

Gilbert & Barker Manufacturing Co., Inc.: *See—*
Robinson, George D., Jr.; Lacivita, Angelo M.; Hartsell, Hal C., Jr.; and Tompkins, David D., 265,092, Cl. D15-9.200.

Gillette Company, The: *See—*
Cousins, Morison S., 265,127, Cl. D24-38.000.

Goldin, Gerald. Circuit board. 265,084, 6-22-82, Cl. D13-10.000.

Grosse, Maurice: *See—*
Fether, Kenneth B.; Grosse, Maurice; and Carson, Michael, 265,035, Cl. D6-191.000.

Grosskopf, Mark, to Jewelmasters, Inc. Bezel ring or similar article. 265,067, 6-22-82, Cl. D11-30.000.

GTE Automatic Electric Labs Inc.: *See—*
Janda, George M.; and Cobb, Richard E., 265,088, Cl. D14-53.000.

GTE Products Corporation: *See—*
Bessone, Carlo S.; and Roche, William J., 265,134, Cl. D26-93.000.
Bessone, Carlo S., 265,135, Cl. D26-93.000.

Guardia, James F., to Cal-Tuf Glass Corporation. Hinged clamp. 265,048, 6-22-82, Cl. D8-328.000.

Habich, Adolph B.: *See—*
Feinstein, Paul, Jr.; Habich, Adolph B.; Hunt, Ronald E.; and Meister, Herbert E., Jr., 265,099, Cl. D18-12.000.

Haddox, Billy J. Athletic shoe. 265,016, 6-22-82, Cl. D2-310.000.

Hadtke, Frederick B., to American Safety Razor Company. Packing container for safety razors. 265,056, 6-22-82, Cl. D9-342.000.

Hancock, Roy J.: *See—*
Bunger, Richard E.; and Hancock, Roy J., 265,138, Cl. D30-13.000.

Hanson, Thomas E.; and Wolfe, William L., deceased (by Wolfe, Ellen M., administratrix), to SCM Corporation. Coffee maker. 265,042, 6-22-82, Cl. D7-41.000.

Hanson, Thomas E.; and Kelley, Craig B., to SCM Corporation. Toaster. 265,044, 6-22-82, Cl. D7-93.000.

Hardy, Terence: *See—*
Litchfield, Leon G.; and Hardy, Terence, 265,036, Cl. D6-191.000.

Hartsell, Hal C., Jr.: *See—*
Robinson, George D., Jr.; Lacivita, Angelo M.; Hartsell, Hal C., Jr.; and Tompkins, David D., 265,092, Cl. D15-9.200.

Hayman, Eric R.; and Penniman, Scott R., to Safeguard Business Systems, Inc. Checkbook cover. 265,021, 6-22-82, Cl. D3-56.000.

Henriques, Joseph. Freestanding wood burning stove. 265,120, 6-22-82, Cl. D23-97.000.

Hentzschel, Walter G.; and Kingston, George W., to TECO Products & Testing Corporation. Wet post anchor base. 265,051, 6-22-82, Cl. D8-354.000.

Higgins, Kenneth D., to Warrington Inc. Sport shoe. 265,015, 6-22-82, Cl. D2-309.000.

Hirabayashi, Yoshio, to Kabushiki Kaisha Suwa Seikosha. Watchcase. 265,062, 6-22-82, Cl. D10-38.000.

Horton, Charles M.: *See—*
Aulbert, Harold V.; and Horton, Charles M., 265,031, Cl. D6-154.000.

Hoyle, Walter W., to Carrier Corporation. Front panel for an air conditioning unit. 265,123, 6-22-82, Cl. D23-141.000.

Hunt, Ronald E.: *See—*
Feinstein, Paul, Jr.; Habich, Adolph B.; Hunt, Ronald E.; and Meister, Herbert E., Jr., 265,099, Cl. D18-12.000.

Hurley, Thomas P. Stool for invalids or the like. 265,119, 6-22-82, Cl. D23-48.000.

Husted, Royce H. Conduit spacer. 265,052, 6-22-82, Cl. D8-356.000.

Hutcheson, Claude H., to Xerox Corporation. Media converter unit for a tape cassette for data processing display system. 265,091, 6-22-82, Cl. D14-107.000.

Iida, Kaoru, to Kabushiki Kaisha Suwa Seikosha. Watch. 265,063, 6-22-82, Cl. D10-38.000.

International Business Machines Corporation: *See—*
Feinstein, Paul, Jr.; Habich, Adolph B.; Hunt, Ronald E.; and Meister, Herbert E., Jr., 265,099, Cl. D18-12.000.

Iwatsu Electric Co., Ltd.: *See—*
Yamaguchi, Ryoji; and Mihara, Noboru, 265,087, Cl. D14-53.000.

Jackson, Marvin, Jr. Wall plaque. 265,068, 6-22-82, Cl. D11-139.000.

Janda, George M.; and Cobb, Richard E., to GTE Automatic Electric Labs Inc. Combined telephone set and base therefor. 265,088, 6-22-82, Cl. D14-53.000.

Jewelmasters, Inc.: *See—*
Grosskopf, Mark, 265,067, Cl. D11-30.000.

Johnson, John; and Gandolf, Ed, to American Greetings Corporation. Greeting card and gift wrap display unit or the like. 265,024, 6-22-82, Cl. D6-24.000.

Jordan, Alfred R. Receptacle for syringes and other sharp articles with a trash compartment on top thereof. 265,125, 6-22-82, Cl. D24-29.000.

Kabushiki Kaisha Suwa Seikosha: *See—*
Hirabayashi, Yoshio, 265,062, Cl. D10-38.000.
Iida, Kaoru, 265,063, Cl. D10-38.000.

Kawachi, Manabu, to Pioneer Kabushiki Kaisha. Loudspeaker. 265,086, 6-22-82, Cl. D14-30.000.

Kelley, Craig B.: *See—*
Hanson, Thomas E.; and Kelley, Craig B., 265,044, Cl. D7-93.000.

Kingston, George W.: *See—*
Hentzschel, Walter G.; and Kingston, George W., 265,051, Cl. D8-354.000.

Kohler Co.: *See—*
Fleischmann, Gary A.; and Peabody, Lawrence C., 265,117, Cl. D23-29.000.
Fleischmann, Gary A.; and Peabody, Lawrence C., 265,118, Cl D23-31.000.

Kransco Manufacturing, Inc.: *See—*
Churchill, Robert L., 265,116, Cl. D21-228.000.

Kroll, Frederick H. Game board. 265,103, 6-22-82, Cl. D21-17.000.

Kumada, Syozo, to Tsutai Company Limited. Fastener. 265,054, 6-22-82, Cl. D8-389.000.

L.B. (Plastics) Limited: *See—*
Litchfield, Leon G.; and Hardy, Terence, 265,036, Cl. D6-191.000.

Lacivita, Angelo M.: *See—*
Robinson, George D., Jr.; Lacivita, Angelo M.; Hartsell, Hal C., Jr.; and Tompkins, David D., 265,092, Cl. D15-9.200.

Lafont, Jean-Pierre M. Physical exerciser. 265,110, 6-22-82, Cl. D21-195.000.

Landsman, Allan. Toy automobile. 265,107, 6-22-82, Cl. D21-137.000.

Lane, Byron D. Fireplace grate and blower tube surround assembly. 265,046, 6-22-82, Cl. D7-207.000.

Lee, Ernest; and Ernest, Robert O., to Sunbeam Corporation. Coffeemaker. 265,041, 6-22-82, Cl. D7-41.000.

Leight, Charles. Ear plug with flanges. 265,129, 6-22-82, Cl. D24-67.000.

LeVan, Kenneth R., to Corning Glass Works. Tray for flower pots or the like. 265,069, 6-22-82, Cl. D11-164.000.

Lewis, Shari. Pair of spectacle frame eye pieces. 265,097, 6-22-82, Cl. D16-122.000.

Lickey, Donald H. Cabinet for storing pizza skins or the like. 265,034, 6-22-82, Cl. D6-186.000.

Litchfield, Leon G.; and Hardy, Terence, to L.B. (Plastics) Limited. Bearing member for supporting a drawer on a runner. 265,036, 6-22-82, Cl. D6-191.000.

Long, Douglas G., to Sunbeam Corporation. Hair dryer. 265,137, 6-22-82, Cl. D28-13.000.

Lucas, George W., Jr.; McQuarrie, Ralph; and Tippett, Philip, to Lucasfilm, Ltd. Toy figure. 265,108, 6-22-82, Cl. D21-148.000.

Lucas, George W., Jr.: *See—*
Freeborn, Stuart; Lucas, George W., Jr.; and McQuarrie, Ralph, 265,109, Cl. D21-175.000.

Lucasfilm, Ltd.: *See—*
Freeborn, Stuart; Lucas, George W., Jr.; and McQuarrie, Ralph, 265,109, Cl. D21-175.000.
Lucas, George W., Jr.; McQuarrie, Ralph; and Tippett, Philip, 265,108, Cl. D21-148.000.

Lynn, Robert G. Physical exerciser. 265,111, 6-22-82, Cl. D21-195.000.

Lyons, Charles J., Jr. Golf club head. 265,112, 6-22-82, Cl. D21-214.000.

Lyons, Charles J., Jr. Golf club head. 265,113, 6-22-82, Cl. D21-220.000.

Lyons, Charles J., Jr. Golf club head. 265,114, 6-22-82, Cl. D21-220.000.

Macho, Jan M.; and Oxford, Richard O., to Dial Industries. Foldable stool. 265,026, 6-22-82, Cl. D6-32.000.

Madl, Alfred W., to Sunbeam Corporation. Hand held hair dryer. 265,136, 6-22-82, Cl. D28-13.000.

Markus, Franklyn M.: *See—*
Nichols, James; and Markus, Franklyn M., 265,025, Cl. D6-32.000.

Martin, William J., Jr., to Nodor Scores Limited. Darts scoring machine. 265,064, 6-22-82, Cl. D10-46.100.

Masaki, Nobuo, to Canon Kabushiki Kaisha. Facsimile electrostatic copier. 265,096, 6-22-82, Cl. D16-31.000.

Masterson, Earl E., to Masterson Engineering Inc. Phonograph. 265,085, 6-22-82, Cl. D14-14.000.

Masterson Engineering Inc.: *See—*
Masterson, Earl E., 265,085, Cl. D14-14.000.

McQuarrie, Ralph: *See—*
Freeborn, Stuart; Lucas, George W., Jr.; and McQuarrie, Ralph, 265,109, Cl. D21-175.000.
Lucas, George W., Jr.; McQuarrie, Ralph; and Tippett, Philip, 265,108, Cl. D21-148.000.

Mead Corporation, The: *See—*
Wood, Prentice J.; and Watkins, Richard K., 265,057, Cl. D9-346.000.

Medical Engineering Corporation: *See—*
Foerster, David, 265,128, Cl. D24-49.000.

Meister, Herbert E., Jr.: *See—*
Feinstein, Paul, Jr.; Habich, Adolph B.; Hunt, Ronald E.; and Meister, Herbert E., Jr., 265,099, Cl. D18-12.000.

Meyers, Edward J.: *See—*
Brown, Philip R.; Baffo, Charles M.; and Meyers, Edward J., 265,032, Cl. D6-172.000.

LIST OF DESIGN PATENTEES

Meyers, Marc A., to Abramo, Samuel V.; and Abramo, John G., a part interest. Seat. 265,027, 6-22-82, Cl. D6-37.000.
Mihara, Noboru: *See—*
Yamaguchi, Ryoji; and Mihara, Noboru, 265,087, Cl. D14-53.000.
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Brown, Philip R.; Baffo, Charles M.; and Meyers, Edward J., 265,032, Cl. D6-172.000.
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Bowman, George D., 265,037, Cl. D6-197.000.
Nichols, James; and Markus, Franklyn M., to Markus, Franklyn M. Portable seat or similar article. 265,025, 6-22-82, Cl. D6-32.000.
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Martin, William J., Jr., 265,064, Cl. D10-46.100.
Northern Telecom Limited: *See—*
Bee, James W. M., 265,089, Cl. D14-60.000.
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Peabody, Lawrence C.: *See—*
Fleischmann, Gary A.; and Peabody, Lawrence C., 265,117, Cl. D23-29.000.
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Fether, Kenneth B.; Grosse, Maurice; and Carson, Michael, 265,035, Cl. D6-191.000.
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Yukl, Tex, 265,065, Cl. D10-78.000.
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Roche, William J.: *See—*
Bessone, Carlo S.; and Roche, William J., 265,134, Cl. D26-93.000.
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Hayman, Eric R.; and Penniman, Scott R., 265,021, Cl. D3-56.000.
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Samuelsson, Lars E.: *See—*
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Hanson, Thomas E.; and Wolfe, William L., deceased, 265,042, Cl. D7-41.000.
Hanson, Thomas E.; and Kelley, Craig B., 265,044, Cl. D7-93.000.
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Long, Douglas G., 265,137, Cl. D28-13.000.
Madl, Alfred W., 265,136, Cl. D28-13.000.
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Tippett, Philip: *See—*
Lucas, George W., Jr.; McQuarrie, Ralph; and Tippett, Philip, 265,108, Cl. D21-148.000.
Toastmaster, Inc.: *See—*
Townsend, Donald L.; and Notbohm, Rex L., 265,122, Cl. D23-122.000.
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Sato, Katsumi, 265,102, Cl. D21-13.000.
Shiraishi, Masami, 265,106, Cl. D21-74.000.
Tsuyuki, Akio, 265,101, Cl. D21-13.000.
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Higgins, Kenneth D., 265,015, Cl. D2-309.000.
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Hanson, Thomas E.; and Wolfe, William L., deceased, 265,042, Cl. D7-41.000.
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CLASSIFICATION OF PATENTS

ISSUED JUNE 22, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2

12	4,335,471
421	4,335,472

CLASS 4

488	4,335,473
506	4,335,474

CLASS 5

14	4,335,475
464	4,335,476

CLASS 7

158	4,335,477

CLASS 8

115.5	4,336,022
115.7	4,336,023
142	4,336,024
527	4,336,025
	4,336,026
611	4,336,027
624	4,336,028

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18	4,335,479

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23	4,335,480
29	4,335,481
87	4,335,482
230.11	4,335,483
	4,335,484
235.8	4,335,485
321	4,335,486

CLASS 16

126	4,335,487

CLASS 17

33	4,335,488

CLASS 23

230 B	4,336,029
232 R	4,336,031
301	4,336,030

CLASS 24

68 CT	4,335,489
114.5	4,335,490
230 A	4,335,491

CLASS 29

25.13	4,335,492
254	4,335,493
399	4,336,093
420.5	4,335,494
428	4,335,495
520	4,335,496
566.2	4,335,497
568	4,335,498
	4,335,499
	4,335,500
569 L	4,335,501
571	4,335,502
572	4,335,503
576 B	4,335,504
577 R	4,335,505
591	4,335,506
876	4,335,507

CLASS 30

47	4,335,508
48	4,335,509
276	4,335,510
366	4,335,511
376	4,335,512
382	4,335,513
	4,335,514

CLASS 33

27 L	4,335,515
164 R	4,335,516
174 L	Re.30,975
	4,335,517
199 R	4,335,518
288	4,335,519
312	4,335,520
340	4,335,521
353	4,335,522
371	4,335,523
388	4,335,524

CLASS 34

4	4,335,525
229	4,335,526

CLASS 36

7.1 R	4,335,527
30 R	4,335,528
59 R	4,335,529
83	4,335,530
117	4,335,531

CLASS 37

142 R	4,335,532

CLASS 38

141	4,335,533

CLASS 43

27.4	4,335,534
61	4,335,535

CLASS 44

56	4,336,032
68	4,336,033

CLASS 46

74 D	4,335,536
79	4,335,537
88	4,335,538
179	4,335,539

CLASS 47

79	4,335,540

CLASS 48

202	4,336,034

CLASS 49

360	4,335,541

CLASS 51

3	4,335,542
58	Re.30,976
145 R	4,335,543
277	4,335,544
422	Re.30,977

CLASS 52

2	4,335,545
13	4,335,558
58	4,335,546
66	4,335,547
98	4,335,549
99	4,335,550
169.11	4,335,548
200	4,335,551
202	4,335,552
375	4,335,553
514	4,335,554
639	4,335,555
655	4,335,556
741	4,335,557

CLASS 53

138 A	4,335,559
440	4,335,560

CLASS 55

97	4,336,035
159	4,336,036
171	4,336,037
274	4,336,038
277	4,336,039
304	4,336,040
341 R	4,336,041
387	4,336,042
483	4,336,043

CLASS 56

10.2	4,335,561
	4,335,562
	4,335,563
	4,335,564
	4,335,565
11.8	4,335,566
12.7	4,335,567
	4,335,568
249	4,335,569
327 R	4,335,570

CLASS 57

58.52	4,335,571
283	4,335,572

CLASS 60

261	4,335,573
311	4,335,574
319	4,335,575
398	4,335,576
421	4,335,577
641.8	4,335,578
644.1	4,336,105

CLASS 62

6	4,335,579
17	4,336,044
	4,336,045
28	4,336,046
79	4,335,580
123	4,335,581
196 R	4,335,582
345	4,335,583
388	4,335,584

CLASS 64

11 B	4,335,587

CLASS 65

3.12	4,336,049
3.31	4,336,047
18.4	4,336,048
82	4,336,050

CLASS 66

125 A	4,335,588
202	4,335,589
207	4,335,590

CLASS 68

12 R	4,335,591
	4,335,592
13 R	4,335,593

CLASS 69

19.3	4,335,594

CLASS 70

149	4,335,595

CLASS 71

6	4,336,051
28	4,336,052
40	4,336,053
67	4,336,054
76	4,336,055
88	4,336,056
	4,336,057
	4,336,058
90	4,336,059
	4,336,060
92	4,336,061
98	4,336,062

CLASS 73

6	4,335,596
17 A	4,335,597
53	4,335,598
116	4,335,599
117.3	4,335,600
119 A	4,335,601
152	4,335,602
159	4,335,603
163	4,335,604
204	4,335,605
290 R	4,335,607
298	4,335,606
301	4,335,608
426	4,335,609
432 PS	4,335,610
517 B	4,335,611
593	4,335,612
599	4,335,613
774	4,335,614
799	4,335,615
861.05	4,335,616
861.25	4,335,617
861.56	4,335,618
862.17	4,335,619
863.11	4,335,620
863.32	4,335,621
864.74	4,335,622

CLASS 74

477	4,335,623
482	4,335,624
493	4,335,625
496	4,335,626
572	4,335,627
594.4	4,335,628
689	4,335,629

CLASS 75

35	4,336,063
60	4,336,064
200	4,336,065
211	4,336,066

CLASS 76

25 R	4,335,630
104 A	4,335,631

CLASS 81

446	4,335,632

CLASS 82

31	4,335,633

CLASS 83

13	4,335,634
160	4,335,635
177	4,335,636
452	4,335,637
801	4,335,638

CLASS 84

1.01	4,335,639
218	4,335,640
297 R	4,335,641
454	4,335,642

CLASS 89

196	4,335,643
198	4,335,644

CLASS 91

388	4,335,645

CLASS 98

2	4,335,646
40 D	4,335,647
59	4,335,648

CLASS 99

327	4,335,649
593	4,335,650

CLASS 101

110	4,335,651

CLASS 102

202.1	4,335,652
202.8	4,335,653
	4,335,654
209	4,335,655
340	4,335,656
433	4,335,657

CLASS 104

69	4,335,658

CLASS 106

21	4,336,067
84	4,336,068
97	4,336,069
122	4,336,070
170	4,336,071

CLASS 108

28	4,335,659

CLASS 110

206	4,335,660
245	4,335,661
263	4,335,662
264	4,335,663
346	4,335,664

CLASS 112

80	4,335,665
130	4,335,666
158 E	4,335,667
	4,335,668

CLASS 114

103	4,335,669
249	4,335,670
270	Re.30,978
274	4,335,671

CLASS 118

50	4,335,672
52	4,335,673
110	4,335,674
126	4,335,675
303	4,335,676
306	4,335,677

CLASS 119

1	4,335,678
	4,335,679
3	4,335,680
17	4,335,681
29	4,335,682

CLASS 122

4 D	4,335,683

CLASS 123

1 A	4,335,684
90.5	4,335,685
90.6	4,335,686
196 A	4,335,688
198 F	4,335,687
339	4,335,689
407	4,335,690
410	4,335,691
418	4,335,692
438	4,335,693
478	4,335,694
	4,335,695
492	4,335,696
527	4,335,697
537	4,335,698
568	4,335,699
617	4,335,700

CLASS 124

26	4,335,701

CLASS 126

15 R	4,335,702
121	4,335,703
293	4,335,704
299 R	4,335,705
435	4,335,706
440	4,335,707
442	4,335,708
443	4,335,709

CLASS 128

1 C	4,335,710
1 R	4,335,711
	4,335,712
9	4,335,713
79	4,335,714
92 EB	4,335,715
213 A	4,335,716
214 G	4,335,717
218 N	4,335,718
246	4,335,719
270	4,335,720
285	4,335,721
	4,335,722
349 B	4,335,723
395	4,335,724
399	4,335,725
400	4,335,726
419 PG	4,335,727
460	4,335,728
674	4,335,729
760	4,335,730

CLASS 132

84 R	4,335,731
123	4,335,732

CLASS 134

4	4,336,072
6	4,336,073
8	4,336,074

CLASS 136

251	4,336,413

CLASS 137

1	4,335,733
77	4,335,734
81.1	4,335,735
87	4,335,736
98	4,335,737
246.22	4,335,738
269	4,335,739
364	4,335,740
426	4,335,741
494	4,335,742
	4,335,743
522	4,335,744
554	4,335,745
576	4,335,746
614.06	4,335,747
614.11	4,335,748
625.22	4,335,749
625.29	4,335,750

CLASS 138

30	4,335,751
89	4,335,756
92	4,335,757
97	4,335,752
109	4,335,753
145	4,335,755
146	4,335,754

CLASS 140

88	4,335,758

CLASS 141

9	4,335,759
129	4,335,760
371	4,335,761

CLASS 144

194	4,335,762
209 A	4,335,763
209 R	4,335,764
286 R	4,335,765
343	4,335,766
370	4,335,767

CLASS 145

4	4,335,768

CLASS 148

2	4,336,075
3	4,336,076
	4,336,077
9 R	4,336,078
11.5 N	4,336,079
12 B	4,336,081
12 C	4,336,080
127	4,336,083
433	4,336,082

CLASS 149

24	4,336,084
45	4,336,085

CLASS 150

1	4,335,769
8	4,335,770

CLASS 152

361 FP	4,335,771

CLASS 156

71	4,336,086
85	4,336,087
89	4,336,088
152	4,336,089
154	4,336,090
244.12	4,336,091
269	4,336,092
299	4,336,094
361	4,336,095
498	4,336,096
527	4,336,097
568	4,336,098
614	4,336,099
630	4,336,100

CLASS 157

1.28	4,335,772

CLASS 159

16 S	4,336,101

CLASS 160

23 R	4,335,773
84 R	4,335,774
177	4,335,775
320	4,335,776
332	4,335,777

CLASS 162

30.1	4,336,102

CLASS 164

119	Re 30,979
150	4,335,778
440	4,335,779
441	4,335,780

CLASS 165

1	4,335,781

4,335,782
8 4,335,783
9 4,335,784
39 4,335,785

CLASS 166

106 4,335,786
273 4,335,787
278 4,335,788

CLASS 172

49.5 4,335,789
4,335,790

CLASS 174

14 R 4,336,414
47 4,336,415
48 4,336,416
52 R 4,336,417
53 4,336,418
68.5 4,336,419
128 S 4,336,420

CLASS 175

52 4,335,792
65 4,335,793
228 4,335,791
337 4,335,794

CLASS 179

1 SD 4,336,421
18 DA 4,336,422
18 FG 4,336,424
18 GF 4,336,423
115.5 H 4,336,425

CLASS 180

6.2 4,335,795
53 D 4,335,796
69 R 4,335,797
90 4,335,798
175 4,335,799
236 4,335,800

CLASS 181

213 4,335,801
290 4,335,802

CLASS 182

12 4,335,803

CLASS 184

55 A 4,335,804

CLASS 187

12 4,335,805

CLASS 188

73.33 4,335,806

CLASS 191

32 4,335,807

CLASS 192

85 AB 4,335,808

CLASS 194

1 R 4,335,809

CLASS 196

14.52 4,336,106

CLASS 198

380 4,335,810
446 4,335,811

CLASS 200

61.54 4,336,428
61.6 4,336,427
67 DB 4,336,429
144 B 4,336,430
292 4,336,431
615 4,336,426

CLASS 202

239 4,336,107
248 4,336,108

CLASS 203

34 4,336,109
60 4,336,110

CLASS 204

1 T 4,336,111
5 4,336,112
17 4,336,113
52 R 4,336,114
98 4,336,115
159.11 4,336,116
192 C 4,336,117
192 EC 4,336,118
192 P 4,336,119
192 SP 4,336,120
195 R 4,336,121
222 4,336,122
252 4,336,123
284 4,336,124

CLASS 206

1.8 4,335,812
45.33 4,335,813
198 4,335,814
277 4,335,815
444 4,335,816
610 4,335,817

CLASS 208

8 R 4,336,125
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4,335,986	4,335,743	4,336,526	4,335,941	4,336,426	4,336,245
4,336,174	4,335,782	4,336,537	4,336,018	4,336,492	4,336,274
4,336,525	4,335,791	4,336,539	4,336,087	4,336,515	4,336,367
04 : 4,335,526	4,335,812	4,336,544	4,336,186	4,336,574	4,336,451
4,335,560	4,335,814	4,336,549	4,336,422	4,336,580	4,336,524
4,335,627	4,335,816	4,336,558	13 : 4,335,681	4,336,605	4,336,532
4,335,659	4,335,819	4,336,564	4,335,715	18 : 4,335,544	25 : 4,335,479
4,335,682	4,335,835	4,336,573	4,335,836	4,335,585	4,335,487
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4,336,462	4,335,893	4,335,755	4,335,554	4,335,997	4,335,864
4,336,500	4,335,895	4,335,820	4,335,559	4,336,004	4,335,865
4,336,507	4,335,897	4,335,952	4,335,561	4,336,056	4,335,940
4,336,531	4,335,910	4,335,999	4,335,581	4,336,086	4,335,944
4,336,586	4,335,933	4,336,021	4,335,603	4,336,191	4,335,945
4,336,611	4,335,977	4,336,115	4,335,614	4,336,250	4,335,948
4,336,616	4,335,980	4,336,185	4,335,624	4,336,253	4,335,959
05 : 4,335,879	4,335,987	4,336,466	4,335,631	4,336,260	4,335,973
06 : Re.30,978	4,335,991	09 : 4,335,546	4,335,636	4,336,264	4,336,029
4,335,478	4,335,994	4,335,553	4,335,678	4,336,265	4,336,039
4,335,493	4,336,010	4,335,582	4,335,685	4,336,269	4,336,069
4,335,495	4,336,020	4,335,591	4,335,717	4,336,275	4,336,283
4,335,504	4,336,047	4,335,662	4,335,723	4,336,330	4,336,285
4,335,510	4,336,058	4,335,737	4,335,726	4,336,333	4,336,311
4,335,511	4,336,059	4,335,748	4,335,758	4,336,444	4,336,313
4,335,512	4,336,062	4,335,785	4,335,770	4,336,448	4,336,336
4,335,520	4,336,085	4,335,924	4,335,797	4,336,473	4,336,355
4,335,523	4,336,095	4,335,951	4,335,813	4,336,562	4,336,387
4,335,535	4,336,126	4,335,971	4,335,827	19 : 4,335,577	4,336,405
4,335,540	4,336,127	4,336,036	4,335,848	4,335,735	4,336,464
4,335,543	4,336,128	4,336,079	4,335,866	4,335,909	4,336,478
4,335,545	4,336,130	4,336,102	4,335,880	4,335,914	4,336,483
4,335,557	4,336,144	4,336,368	4,335,894	4,335,915	4,336,513
4,335,570	4,336,147	4,336,416	4,335,911	4,336,158	4,336,536
4,335,575	4,336,149	4,336,469	4,335,931	4,336,533	4,336,583
4,335,578	4,336,224	4,336,476	4,335,979	20 : 4,335,480	4,336,588
4,335,583	4,336,226	4,336,529	4,335,989	4,335,757	26 : Re.30,976
4,335,626	4,336,273	10 : 4,336,175	4,336,011	4,335,963	4,335,490
4,335,632	4,336,277	4,336,461	4,336,077	21 : 4,335,702	4,335,509
4,335,647	4,336,290	4,336,546	4,336,084	4,336,434	4,335,518
4,335,657	4,336,292	11 : 4,336,581	4,336,106	22 : 4,335,875	4,335,529
4,335,660	4,336,304	12 : Re.30,979	4,336,125	23 : 4,335,483	4,335,541
4,335,670	4,336,340	4,335,634	4,336,157	4,335,766	4,335,551
4,335,680	4,336,425	4,335,669	4,336,179	24 : 4,335,477	4,335,562
4,335,688	4,336,439	4,335,720	4,336,184	4,335,623	4,335,620
4,335,706	4,336,445	4,335,727	4,336,187	4,335,655	4,335,658
4,335,732	4,336,468	4,335,753	4,336,243	4,335,881	4,335,693
4,335,733	4,336,489	4,335,834	4,336,252	4,336,073	4,335,695

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June 29, 1982 Volume 1019 Number 5

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

Jan. 19, 1982.

Board of Appeals Decisions Rendered in the Month of May 1982

Affirmed	203
Affirmed in Part	20
Reversed	77
Total	300

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

D. 260,218, Re. S.N. 364,583, Filed Apr. 1, 1982, Cl. 6/253, COMBINED SKIRT AND TROUSER HANGER, Leonard Bisk, Owner of Record: *Inventor,* Attorney or Agent: A.D. Caesar, et al., Ex. Gp.: 290

3,563,286, Re. S.N. 372,191, Filed Apr. 26, 1982, Cl. 83/855, SAW, Keene S. Strobel, et al., Owner of Record: *Weyerhaeuser Co., Tacoma, Wash.,* Attorney or Agent: Gordon D. Schmidt, et al., Ex. Gp.: 323

3,888,674, Re. S.N. 352,690, Filed Feb. 25, 1982, Cl. 430,311, AUTOMATIC SLICE PROCESSING, James R. Moreland, et al., Owner of Record: *Texas Instruments, Inc., Dallas, Tex.,* Attorney or Agent: Thomas W. DeMond, Ex. Gp.: 166

4,062,278, Re. S.N. 374,621, Filed May 3, 1982, Cl. 100/4, EXPANDING STRAP LOOP FORMING AND FRICTION FUSION MACHINE, Nelson Cheung, Owner of Record: *Signode Corp., Glenview, Ill.,* Attorney or Agent: Max Dressler, et al., Ex. Gp.: 242

4,067,286, Re. S.N. 374,663, Filed May 4, 1982, Cl. 114/283, HYDRO-SKI CRAFT WITH LONGITUDINAL FLAPS, Ernest G. Stout, et al., Owner of Record: *Lockheed Aircraft Corp., Burbank, Calif.,* Attorney or Agent: John M. May, Ex. Gp.: 315

4,162,992, Re. S.N. 373,066, Filed Apr. 29, 1982, Cl. 252/456, OXIDATION AND AMMOXIDATION CATALYSTS, Kenneth W. Wise, Owner of Record: *Monsanto Co., St. Louis, Mo.,* Attorney or Agent: A. Milton Cornwell, Ex. Gp.: 116

4,165,542, Re. S.N. 376,689, Filed May 10, 1982, Cl. 2/209.1, HEAD COVERING, Rita E. McLaughlin, Owner of Record: *Inventor,* Attorney or Agent: Robert J. Schiller, et al., Ex. Gp.: 353

4,186,283, Re. S.N. 344,228, Filed Jan. 28, 1982, Cl. 179/175.3R, TEST SET, James F. Simmons, Owner of Record: *Perkins Research & Manufacturing Co., Inc., Canoga Park, Calif.,* Attorney or Agent: Donald A. Streck, Ex. Gp.: 234

4,187,173, Re. S.N. 346,364, Filed Feb. 5, 1982, Cl. 210/655, REVERSE OSMOSIS METHOD AND APPARATUS, Bowie G. Keefer, Owner of Record: *Seagold Industries Corp., Burnaby, British Columbia, Canada,* Attorney or Agent: Daniel R. Bereskin, Ex. Gp.: 176

4,197,833, Re. S.N. 340,601, Filed Jan. 19, 1982, Cl. 126/432, SOLAR COLLECTOR SYSTEM USING SLATE ABSORBER PANELS, James D. Pelish, Owner of Record: *Inventor,* Attorney or Agent: S. Delvalle Goldsmith, et al., Ex. Gp.: 345

4,201,953, Re. S.N. 372,221, Filed Apr. 26, 1982, Cl. 331/94.5PL, LASER SYSTEM WITH TRIANGULATED CAPACITOR ENCIRCLING THE LASER HEAD, Gene Allen Robbins, Owner of Record: *Inventor,* Attorney or Agent: None, Ex. Gp.: 254

4,226,897, Re. S.N. 355,202, Filed Mar. 5, 1982, Cl. 427/39, METHOD OF FORMING SEMICONDUCTING MATERIALS AND BARRIERS, John Howard Coleman, Owner of Record: *Inventor,* Attorney or Agent: None, Ex. Gp.: 162

4,247,773, Re. S.N. 374,327, Filed May 3, 1982, Cl. 250/339, METHOD FOR QUANTITATIVELY DETERMINING FAT IN A FAT-CONTAINING SAMPLE, Sten A. Nexo, et al., Owner of Record: *Foss America, Inc., Fishkill, N.Y.,* Attorney or Agent: Richard R. Treler, et al., Ex. Gp.: 256

4,249,229, Re. S.N. 376,638, Filed May 10, 1982, Cl. 361,399, TRANSFORMER HAVING NOVEL MULTIPLE WINDING AND SUPPORT STRUCTURE AND METHOD OF MAKING SAME, Thomas E. Hester, Owner of Record: *Litton Systems, Inc., Huntington, Ind.,* Attorney or Agent: Robert H. Lentz, et al., Ex. Gp.: 217

4,262,448, Re. S.N. 352,878, Filed Feb. 26, 1982, Cl. 49/367, SAFETY STORAGE CABINET, Frank S. Flider, Owner of Record: *Justrite Manufacturing Co., Mattoon, Ill.,* Attorney or Agent: Irwin C. Alter, Ex. Gp.: 352

4,266,206, Re. S.N. 375,433, Filed May 5, 1982, Cl. 333/204, STRIPLINE FILTER DEVICE, Brian E. Bedard, et al., Owner of Record: *Motorola, Inc., Schaumburg, Ill.,* Attorney or Agent: James W. Gillman, et al., Ex. Gp.: 256

4,304,766, Re. S.N. 375,888, Filed May, 7, 1982, Cl. 424/52, COMPOSITIONS FOR REDUCING ELUTION OF THERAPEUTIC AGENTS FROM TEETH, Robert W.H. Chang, Owner of Record: *Inventor,* Attorney or Agent: Cruzan Alexander, et al., Ex. Gp.: 125

4,308,393, Re. S.N. 367,756, Filed Apr. 12, 1982, Cl. 556/445, FLUORINE CONTAINING ORGANOSILICON COMPOUNDS, David Apotheker, Owner of Record: *E.I. DuPont de Nemours & Co., Wilmington, Del.,* Attorney or Agent: Paul R. Steyermark, Ex. Gp.: 117

4,309,096, Re. S.N. 372,851, Filed Apr. 28, 1982, Cl. 354/021, FILM CARTRIDGE ASSEMBLY WITH PRESSURE PLATE, Gurdip S. Sethi, Owner of Rec-

ord: *Eastman Kodak Co., Rochester, N.Y.*, Attorney or Agent: James A. Smith, et al., Ex. Gp.: 211

4,317,205, Re. S.N. 371,605, Filed Apr. 26, 1982, Cl. 375/7, WIDEBAND TRANSCEIVER WITH EMI SUPPRESSION, Tat C. Lam, Owner of Record: *TCL., Inc., Santa Clara, Calif.*, Attorney or Agent: Karl A. Limbach, et al., Ex. Gp.: 233

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b).

Re. 28,474, Reexam. No. 90/000,213, Requested: June 3, 1982, Cl. 523/336, PROCESS FOR RAPIDLY DISSOLVING WATER-SOLUBLE POLYMERS, Donald R. Anderson, et al., Owner of Record: *Nalco Chemical Co., Oak Brook, Ill.*, Attorney or Agent: Hume, Clement, Brinks, Williams, Olds & Cook, Ex. Gp.: 140, Requester: Lawrence Rosen, New York, N.Y.

Re. 29,694, Reexam. No. 90/000,209, Requested: June 1, 1982, Cl. 29/36, TOOL SUPPORT FOR USE IN MACHINE TOOLS PARTICULARLY IN TURNING MACHINES, Gerhard Foll, et al., Owner of Record: *Index-Werke KG, Hahn & Tessky, Esslingen/Necker, Germany*, Attorney or Agent: Theodore W. Anderson, Ex. Gp.: 320, Requester: Giddings & Lewis, Inc., Fond du Lac, Wis.

3,476,438, Reexam. No. 90/000,207, Requested: May 28, 1982, Cl. 229/86, CUTTER BIT, Arnold B. Bower, Jr., Owner of Record: *Hughes Tool Co., Houston, Tex.*, Attorney or Agent: Harold J. Holt, Ex. Gp.: 240, Requester: Robert E. Walter, PMG Pat. Dept., GTE Service Corp., Danvers, Mass.

3,671,726, Reexam. No. 90/000,205, Requested: May 25, 1982, Cl. 364/563, ELECTRO-OPTICAL APPARATUS FOR PRECISE ON-LINE MEASUREMENT OF THE THICKNESS OF MOVING STRIP MATERIAL, James R. Kerr, Owner of Record: *Morvue, Inc., Tigard, Oreg.*, Attorney or Agent: Daniel P. Chernoff, Ex. Gp.: 230, Requester: Trienco, Inc., Montrose, Colo.

3,720,760, Reexam. No. 90/000,199, Requested: May 14, 1982, Cl. 424/1, METHOD FOR DETERMINING THE PRESENCE OF REAGIN-IMMUNOGLOBULINS (REAGIN-IG) DIRECTED AGAINST CERTAIN ALLERGENS, IN AQUEOUS SAMPLES, Hans H. Bennich, et al., Owner of Record: *Pharmacia, Inc., Piscataway, N.J.*, Attorney or Agent: Fred C. Philpitt, Ex. Gp.: 220, Requester: Ventrex Labs., Inc., Portland, Me.

3,874,852, Reexam. No. 90/000,211, Requested: June 1, 1982, Cl. 23/230, REAGENT AND METHOD FOR DETERMINING LEUKOCYTES AND HEMOGLOBIN IN THE BLOOD, Thomas E. Hamill, Owner of Record: *Coulter Diagnostics, Inc., Hialeah, Fla.*, Attorney or Agent: Silvermann & Cass, Ex. Gp.: 170, Requester: John L. White, Millen & White, P.C., Arlington, Va.

4,123,415, Reexam. No. 90/000,203, Requested: May 24, 1982, Cl. 116/28.1, REINFORCED THERMOPLASTIC POLYESTER COMPOSITIONS HAVING IMPROVED RESISTANCE TO HEAT DEFLECTION, Allen D. Wambach, Owner of Record: *General Electric Co., Pittsfield, Mass.*, Attorney or Agent: Edward A. Hedman, Ex. Gp.: 240, Requester: Aron Preis, Mobay Chemical, Corp., Pittsburgh, Pa.

4,154,382, Reexam. No. 90/000,206, Requested: May 27, 1982, Cl. 224/39, BICYCLE RACK, James R. Blackburn, Owner of Record: *Inventor*, Attorney or Agent: Claude A.S. Hamrick, et al., Ex. Gp.: 241, Requester: James R. Blackburn, c/o Claude A.S. Hamrick, Santa Clara, Calif.

Patents Available for License or Sale

3,961,386. TOILET SEAT COVER APPARATUS. *Ferdinand Beno*, 820 S. Park Ter., Suite 204, Chicago, Ill. 60605, (312) 786-9349.

3,698,594. DISPOSABLE FEEDING DISH AND ITS COMPLEMENTARY RECEPTACLE. *Marjorie A. Boehlert*, 2320 Great Falls St., Falls Church, Va. 22046.

3,844,037. CABLE CUTTER, *Carl F. Geller*, Luner Damn 17 3140 Luneburg, Federal Republic of Germany. Correspondence to: Michael J. Striker, 360 Lexington Ave., New York, N.Y. 10017.

4,081,798. LET-BALL DETECTORS. *Lowell S. Pelfrey*, 1773 Pine Ave., Long Beach, Calif. 90813.

4,136,764. MOTHER ALICE'S BREAD VENDING MACHINE. *Alice Johnson*, 8650 Belford Ave. #1 Los Angeles, Calif. 90045. 213-645-4476.

4,279,396. SHOWER CURTAIN CLIP. *E.M. Bendock*, 35 South Franklin Ave., Lynbrook, N.Y. 11563.

4,293,152. FLEXIBLE PIPE-CONNECTIN FITTING. *Hans Berghofer*, Alte Landstrasse 274,2000 Hamburg, 65, Federal Republic of Germany. Correspondence to: Michael J. Striker, 360 Lexington Ave., New York, N.Y. 10017.

4,291,922. ANTI-SKID MECHANISM FOR WHELLED VEHICLE. *Andrew E. Piece*, 28729 Bannockburn, Farmington Hills, Mich. 48018.

4,299,268. AUTOMATICALLY CONTROLLED CASTING PLANT. *James A. Oliff, Stevens, Davis, Miller & Mosher*, 1911 Jefferson Davis Hwy., Suite 600, Crystal Mall 1, Arlington, Va., 22202. 703-920-8900.

4,302,180. FUEL BURNER. *Neil F. Greenblum, Sandler & Greenblum*, 701 South 23rd St., Arlington, Va. 22202. (703) 521-7800.

The following two patents are offered by Elmer R. Hagen, Royal Arms Apt. #3, 230 W. Genesee St., Auburn, N.Y. 13021.

3,790,043. METHOD AND APPARATUS FOR REMOVING WRINKLES FROM SLACKS OR THE LIKE.

3,893,706. CHILDRENS' RIDING TOY.

The following two patents are offered by Lester G. Peters, General Delivery, Bartlett, N.H. 03812.

4,204,467. DE-STONING AND SIMULTANEOUSLY FILING A DRUPE.

3,987,948. APPARATUS FOR OPENING DRUPACEOUS FRUT.

The following two patents are offered by: Techni Research Associates, Inc., 41 Easton Rd., Willow Grove, Pa. 19090.

4,161,409. CORROSION INHIBITIVE PIGMENT.

4,205,929. SLURRY TRANSPORT MEDIUM.

The following patents are offered by Barry G. Magidoff, 521 Fifth Ave., New York, N.Y. 10175, (212) 697-0875.

3,773,635. PROCESSING OF MANGANESE NODULES FROM THE OCEAN FLOOR FOR METAL VALUES.

3,752,745. RECOVERY OF METAL VALUES FROM OCEAN FLOOR NODULES.

3,950,486. METHOD FOR SEPARATING METAL CONSTITUENTS FROM OCEAN FLOOR NODULES.

4,042,664. METHOD FOR SEPARATING METAL CONSTITUENTS FROM OCEAN FLOOR NODULES.

4,903,236. METHOD FOR OBTAINING METAL VALUES BY THE HALIDATION OF A BASIC MANGANIFEROUS ORE WITH FERRIC CHLORIDE PRETRETMENT.

The RCA Corp. offers to grant non-exclusive licenses on reasonable terms and conditions under the patents listed below. Inquiries respecting licenses under RCA patents should be addressed to RCA Corp., Sr. Vice President, Licensing, 30 Rockefeller Plz., New York, N.Y. 10020.

4,323,755. METHOD OF MAKING A MACHINE-READABLE MARKING IN A WORKPIECE.

4,323,789. SEQUENCER FOR POWER SUPPLY VOLTAGES.

4,323,813. SPRING-LOADED RESISTIVE LENS STRUCTURE FOR ELECTRON GUN.

4,323,814. MESH ASSEMBLY HAVING REDUCED MICROPHONICS FOR A PICK-UP TUBE.

4,323,815. UNITARY BEAM GUIDE/ELECTRON GUN ASSEMBLY FOR FLAT PANEL DISPLAY DEVICES.

4,323,816. SYSTEM FOR ENHANCING DEFLECTION IN KINESCOPES.

4,323,910. MNOS MEMORY TRANSISTOR.

4,323,916. DATA RATE REDUCTION FOR DIGITAL VIDEO SIGNALS BY SUBSAMPLING AND ADAPTIVE RECONSTRUCTION.

4,323,918. OPTICAL ASSEMBLY FOR COLOR TELEVISION.

4,323,963. HARDWARE INTERPRETIVE MODE MICROPROCESSOR.

4,323,998. VIDEO DISC LOCKED GROOVE CORRECTOR.

4,324,132. APPARATUS AND METHOD FOR MEASURING THE RATE OF EVAPORATION OF A LIQUID.

4,324,814. METHOD FOR FORMING A NARROW THIN FILM LINE.

4,325,017. TEMPERATURE-CORRECTION NETWORK FOR EXTRAPOLATED BAND-GAP VOLTAGE REFERENCE CIRCUIT.

4,325,018. TEMPERATURE-CORRECTION NETWORK WITH MULTIPLE CORRECTIONS AS FOR EXTRAPOLATED BAND-GAP VOLTAGE REFERENCE CIRCUITS.

4,325,021. REGULATED SWITCHING APPARATUS.

4,325,040. APPARATUS FOR AUTOMATIC ADJUSTMENT OF AN INDUCTOR IN A TUNED CIRCUIT.

4,325,076. ELECTRONIC FILTER FOR GENERATING A THIRD HARMONIC SIGNAL.

4,325,134. VIDEO DISC DEFECT DETECTOR.

4,325,136. VIDEO DISC PLAYER HAVING CARRIAGE DRIVE APPARATUS.

4,325,419. APPARATUS FOR TRANSFERRING PURE ABRASIVE MATERIAL FROM ONE HOPPER TO ANOTHER.

4,325,489. ENVELOPE FOR FLAT PANEL DISPLAY DEVICES.

4,326,151. SCANNING WAVEFORM GENERATOR FOR FLAT PANEL DISPLAY DEVICES.

4,326,284. VIDEO DISC PLAYER HAVING TURNTABLE ASSIST APPARATUS.

4,326,325. METHOD AND APPARATUS FOR DEFLASHING MOLDED RECORDED DISCS.

4,326,494. WAFER AND BOULE PROTECTION DURING THE BLADE RETURN STROKE OF A WAFER SAW.

4,326,553. MEGASONIC JET CLEANER APPARATUS.

4,320,490. VIDEO DISC CARTRIDGE HAVING A SELF RETAINING ELECTRODE.

4,320,491. APPARATUS FOR VIDEO DISC STYLUS ELECTRODE RECONDITIONING.

4,320,503. SYNCHRONIZING TRANSMISSIONS FROM TWO EARTH STATIONS TO SATELLITE.

4,320,567. OPTICAL INSPECTION METHOD FOR DETERMINING MACHINABILITY.

4,321,470. ELECTRON FLOOD EXPOSURE APPARATUS.

4,321,491. LEVEL SHIFT CIRCUIT.

4,321,492. TWO INPUT SENSE CIRCUIT.

4,321,511. LINEARITY CORRECTED DEFLECTION CIRCUIT.

4,321,513. TELEVISION RECEIVER HIGH VOLTAGE PROTECTION CIRCUIT.

4,321,514. COMMUTATED SCR REGULATOR FOR A HORIZONTAL DEFLECTION CIRCUIT.

4,321,543. THREE-CONDITION DISPLAY SYSTEM.

4,321,602. FREQUENCY-TRACKING FILTER, AS FOR USE IN FM-CW RADAR.

4,321,624. AFT CIRCUIT.

4,321,648. OVER-CURRENT PROTECTION CIRCUITS FOR POWER TRANSISTORS.

4,321,702. CARRIAGE RESET APPARATUS FOR DISC RECORD PLAYER.

4,321,772. LEVELABLE LAPPING MACHINE.

4,322,253. METHOD OF MAKING SELECTIVE CRYSTALLINE SILICON REGIONS CONTAINING ENTRAPPED HYDROGEN BY LASER TREATMENT.

4,322,277. STEP MASK FOR SUBSTRATE SPUTTERING.

4,322,592. SUSCEPTOR FOR HEATING SEMICONDUCTOR SUBSTRATES.

4,322,599. APPARATUS FOR RESISTANCE WELDING OF AN ELECTRO-OPTIC DEVICE HOUSING.

4,322,643. DIGITAL PHASE COMPARATOR WITH IMPROVED SENSITIVITY FOR SMALL PHASE DIFFERENCES.

4,322,691. CIRCUITRY FOR GENERATING ELECTRIC SIGNALS WITH PROPORTIONAL OPPOSITE-SENSE RATES OF CHANGE.

4,322,747. RAPID SYNCHRONIZATION OF INFORMATION ON SEPARATE RECORDED MEDIUMS.

4,322,770. LATCH-UP PREVENTION CIRCUIT FOR POWER OUTPUT DEVICES USING INDUCTIVE LOADS.

4,317,427. CARRIER FOR ROTATABLY HOLDING KINESCOPE FACEPLATE DURING PROCESSING.

4,317,844. SEMICONDUCTOR DEVICE HAVING A BODY OF AMORPHOUS SILICON AND METHOD OF MAKING THE SAME.

4,318,015. LEVEL SHIFT CIRCUIT.

4,318,026. METHOD OF MAKING A GRID FOR A CATHODE-RAY TUBE ELECTRON GUN.

4,318,027. HIGH POTENTIAL, LOW MAGNIFICATION ELECTRON GUN.

4,318,035. SIDE PINCUSHION CORRECTION CIRCUIT.

4,318,045. SYMMETRICAL WAVEFORM SIGNAL GENERATOR HAVING COHERENT FREQUENCY SHIFT CAPABILITY.

4,318,051. SYMMETRICALLY GAIN CONTROLLED DIFFERENTIAL AMPLIFIER.

4,318,087. SWITCH CLOSURE SENSING CIRCUIT.

4,318,120. COLOR TV BURIED SUBCARRIER SYSTEM.

4,318,123. SOLID-STATE, COLOR-ENCODING TELEVISION CAMERA.

4,318,216. EXTENDED DRAIN SELF-ALIGNED SILICON GATE MOSFET.

4,318,749. WETTABLE CARRIER IN GAS DRYING SYSTEM FOR WAFERS.

4,318,877. VIDEO DISC MOLDING PROCESS.

4,319,163. ELECTRON GUN WITH DEFLECTION-SYNCHRONIZED ASTIGMATIC SCREEN GRID MEANS.

4,319,167. HIGH FREQUENCY FERRORESONANT POWER SUPPLY FOR A DEFLECTION AND HIGH VOLTAGE CIRCUIT.

4,319,187. METHOD FOR MEASURING THE DRIFT MOBILITY IN DOPED SEMICONDUCTORS.

4,319,245. DOPPLER SIGNAL PROCESSING APPARATUS.

4,319,273. TELEVISION SIGNAL WITH ENCODED SYNCHRONIZING SIGNALS.

4,319,277. INSTITUTIONAL AUDIO-VISUAL SYSTEM INCLUDING A PLURAL OPERATING MODE TELEVISION RECEIVER.

4,319,284. REPETITIVE READOUT OF ELECTROSTATICALLY STORED INFORMATION.

4,319,359. RADIO TRANSMITTER ENERGY RECOVERY SYSTEM.

4,319,954. METHOD OF FORMING POLYCRYSTALLINE SILICON LINES AND VIAS ON A SILICON SUBSTRATE.

4,320,373. POWER TRANSFORMER WITH HIGH COUPLING COEFFICIENT.

4,320,416. TECHNIQUE FOR OPTIMALLY ENCODING DIGITALLY ENCODED VIDEO SIGNALS.

4,320,487. VIDEO DISC STYLUS CONTROL APPARATUS.

4,320,489. REVERSIBLE OPTICAL STORAGE MEDIUM AND A METHOD FOR RECORDING INFORMATION THEREIN.

4,327,047. METHOD FOR PRODUCING DISC RECORDS HAVING MOLDED-IN CENTER HOLES.

4,327,048. HIGH DENSITY INFORMATION DISC PROCESSING.

4,327,123. METHOD OF METALLIZING A PHOSPHOR SCREEN.

4,327,140. HIGH DENSITY INFORMATION DISC LUBRICANTS.

4,327,283. WORKPIECE WITH MACHINE-READABLE MARKING RECESSED THEREIN AND METHOD OF MAKING SAME.

4,327,325. CHUCK FOR USE IN TESTING OF SEMICONDUCTOR PELLETS.

4,327,332. CIRCUIT ARRANGEMENT USEFUL IN DEVELOPING DECOUPLED OPERATING VOLTAGES FOR IF AMPLIFIER STAGES OF AN INTEGRATED CIRCUIT.

4,327,370. RESILIENT CONTACT RING FOR PROVIDING A LOW IMPEDANCE CONNECTION TO THE BASE REGION OF A SEMICONDUCTOR DEVICE.

4,327,376. DUAL PHASE-CONTROL LOOP HORIZONTAL DEFLECTION SYNCHRONIZING CIRCUIT.

4,327,431. VIDEO DISC PLAYER WITH VARIABLE OFFSET RFI REDUCTION CIRCUIT.

4,327,432. VIDEO DISC PLAYER WITH RFI REDUCTION CIRCUIT.

4,327,434. VIDEO DISC STYLUS POSITION SENSOR SYSTEM.

The General Electric Co. is prepared to grant non-exclusive license under the following patents upon reasonable terms to domestic manufactureres.

Applications for license may be addressed to Patent Counsel, Medical Systems Division, General Electric Co., P.O. Box 414, Milwaukee, Wisc. 53201.

4,262,182. FULLY ILLUMINATED BACKLIT MEMBRANE TOUCH SWITCH.

Application for license may be addressed to: Group Patent Counsel, Lighting Business Group, General Electric Co., Nela Park, Cleveland, Ohio 44112.

4,186,433. LUMINAIRE.

Applications for licences may be addressed to: Division Patent Counsel, Housewares & Audio Business Division-21BW, General Electric Co., 1285 Boston Ave., Bridgeport, Conn. 06602.

3,275,919. RECHARGER CONTACTS FOR ELECTRIC TOOTHBRUSH. Patented on Sept. 27, 1965 on an application by George A. Decker and Daniels B. Fisk.

3,308,498. BATTERY-POWERED CLOTHES BRUSH. Patented on Mar. 14, 1967 on an application by R.M. Evans, Jr.

3,316,577. BATTERY-POWERED CLOTHES BRUSH. Patented on May 2, 1967 on an application by J. Kravos.

3,319,350. HAIR CURL DRYING APPARATUS. Patented on May 16, 1967 on an application by Simon Hlubik.

3,358,383. HAIR DRYER BONNET COMPRISING AN INFLATABLE ANNULAR AIR CUSHION. Patented on Dec. 19, 1967 on an application by Gerald H. Snider.

3,362.086. HAIR DRYER WITH SELECTIVE TELESCOPIC ADJUSTING MEANS. Patented on Jan. 2, 1968 on an application by James O. McLean.

3,418,552. SEPARABLE TRANSFORMER BATTERY CHARGER. Patented on Dec. 24, 1968 on an application by Robert G. Holmes.

3,420,250. ELECTRIC MANICURIST POWER HANDLE. Patented on Jan. 7, 1969 on an application by Robert G. Holmes.

3,431,611. METHOD FOR FORMING NONWOVEN ELECTRIC BLANKET SHELLS. Patented on Mar. 11, 1969 on an application by John C. Rentz.

3,461,859. HAND OPERATED VIBRATOR. Patented on Aug. 19, 1969 on an application by George A. Fortnam.

3,474,794. HEAD SUPPORTING AND SEALING MEANS FOR HAIR TREATING APPARATUS. Patented on Oct. 28, 1969 on an application by Thomas F. Nelson.

3,510,747. TWO PART SEPARABLE BATTERY CHARGER. Patented on May 5, 1970 on an application by Christie Petrides.

3,536,032. WATER LEVEL INDICATOR. Patented on Oct. 27, 1970 on an application by Thomas W. Ridding.

3,550,285. HAIR DRYER APPARATUS. Patented on Dec. 29, 1970 on an application by William A. Omohundro.

3,588,444. HAIR TREATING APPARATUS. Patented on June 28, 1971 on an application by William A. Omohundro.

3,610,589. HUMIDIFIER. Patented on Oct. 5, 1971 on an application by William P. Paulin.

3,702,031. HAIR DRYER HOOD TILT MECHANISM. Patented on Nov. 7, 1972 on an application by William D. Rychman, Jr.

3,777,406. HAIR DRYER. Patented on Dec. 11, 1973 on an application by Esko J. Nopanen.

4,030,086. BATTERY VOLTAGE DETECTION AND WARNING MEANS. Patented on June 30, 1977 on an application by Robert J. Salem.

4,107,553. TIMER CONTROL CIRCUIT. Patented on Aug. 15, 1978 on an application by Robert A. Carter.

4,141,473. A SPOUT COVER ASSEMBLY. Patented on Feb. 27, 1979 on an application by B. L. Hudson.

Applications for license may be addressed to: Patent Counsel, Aircraft Engine Business Group, General Electric Co., 1000 Western Ave., Lynn, Mass. 01910.

3,508,403. TURBOFAN ENGINES.

3,533,712. COOLED VANE STRUCTURE FOR HIGH TEMPERATURE TURBINES.

3,772,090. ALLOY MICROSTRUCTURE CONTROL.

3,833,207. APPARATUS FOR ALLOY MICROSTRUCTURE CONTROL.

3,887,363. NICKEL-BASE SUPERALLOY CAST ARTICLE.

3,890,816. ELIMINATION OF CARBIDE SEGREGATION TO PRIOR PARTICLE BOUNDARIES.

3,983,379. RANDOM SAMPLE STATISTICAL FUNCTION ANALYZER.

4,029,477. COATED NI-CR BASE DISPERSION-MODIFIED ALLOY ARTICLE.

4,031,274. METHOD FOR COATING CAVITIES WITH METAL.

4,087,589. COATED ARTICLE.

4,137,949. METHOD OF MAKING A FIRE RETARDANT CONDUIT.

4,148,936. METHOD FOR DIFFUSION COATING AN FE-NI BASE ALLOY WITH CHROMIUM.

4,169,020. METHOD FOR MAKING AN IMPROVED GAS SEAL.

4,169,726. CASTING ALLOY AND DIRECTIONALLY SOLIDIFIED ARTICLE.

4,169,742. CAST NICKEL-BASE ALLOY ARTICLE.

4,177,004. COMBINED TURBINE SHROUD AND VANE SUPPORT STRUCTURE.

4,198,839. METHOD FOR MAKING LIGHTWEIGHT COMPOSITE ARTICLE.

4,214,355. METHOD FOR REPAIRING A TURBOMACHINERY BLADE TIP.

4,227,703. GAS SEAL WITH TIP OF ABRASIVE PARTICLES.

4,232,995. GAS SEAL FOR TURBINE BLADE TIP.

4,247,254. TURBOMACHINERY BLADE WITH IMPROVED TIP CAP.

Subscription Pricing Information

The annual subscription prices on the following publications have been changed, as indicated below:

Title: Patent and Trademark Office Notices

First-class domestic mailing	$75.00
Second-class domestic mailing	60.00
Second-class foreign mailing	75.00
Single copies: not available	.....

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U.S. Government Printing Office
Washington, D.C. 20402

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This change is effective with Government Periodicals and Subscription Services Price List 36, dated Summer, 1982.

June 3, 1982.

THERESA A. BRELSFORD,
Acting Assistant Commissioner for Administration.

New Location of Trademark Post Registration Section and Trademark Classification Team

The Trademark Post Registration Section and Trademark Classification Team are moving from the lobby level of Crystal Plz. Building 1 to the 8th floor of Crystal Plz. Building 2 near the end of June. Access to application and registration files in these units may be interrupted for a day or two, but the units will remain open to the public every day. The telephone numbers will be unchanged: 703-557-2923 for the Post Registration Section; 703-557-3326 for the Classification Team.

The offices will be located on the 8th floor until late fall, at which time the entire Trademark Examining Operation will be consolidated on the 2nd, 3rd, and 4th floors of Crystal Plz. Building 2. A new directory of room numbers and telephone numbers for the Trademark Examining Operation will be published in the *Official Gazette* at that time.

June 8, 1982.

MARGARET M. LAURENCE,
Assistant Commissioner for Trademarks.

Status of PTO Services

The following is an update of the status of PTO services as of June 8, 1982:

Service Item	FY 1982 Performance Goal (Calendar Days)	Actual	Comment
Internal Mail Processing & Delivery	4	3.5	See note below.
Filing Receipts:			
Patents	22	79	Reduction of 20 days since February.
Trademarks	30	26	Reduction of 1 day since last report.
Patent Copies:			
Window Coupons	5	67% within 5 days 93% within 10 days	Significant improvements expected within a month. Increased by 28%.
Mail Coupons*	15	99% within 15 days 99% within 20 days	
Letter Orders*	20	95% within 20 days	
Certified Copies:			
Trademark Regs.	30	26	
Applications-As-Filed*	20	95% within 15 days	
File-Wrapper/Contents*		20% within 15 days 85% within 30 days	
Walk-up Certification	1	99% within 1 day	Service now includes applications-as-filed.
Trademark Search Room:			
Filing Drawings	21	21	
Filing Reg. Certificates	3	3	
Patent Assignments	15	49	Backlog due to unavailable funding. Expect reduction in FY 1983.
Trademark Assignments	21	103	Backlog due to unavailable funding. Expect reduction in FY 1983.
Patent Official Gazette	Issue Date	On Schedule	
Patent Grants	Issue Date	On Schedule	
Trademark Official Gazette	Issue Date	On Schedule	
Trademark Registrations	Issue Date	On Schedule	

*Figures exclude mail processing and delivery time.

Note: Mail Processing and Delivery

The statistics for mail processing and delivery indicate the average time required to process mail from the time it is received in the Mail Room of the Patent and Trademark Office until it is delivered to the organization. For example, it reflects the time it takes for a paper to be delivered to an Examining Group, not the Examiner. Mail often receives additional clerical processing in the Group, depending on the type of document. It is not unusual for mail to take a few weeks to actually reach the Examiner. However, the official receipt date is that which is stamped in the Mail Room, reflecting the date the mail was received in the Office.

June 8, 1982.

THERESA A. BRELSFORD,
Acting Assistant Commissioner for Administration.

PATENT NOTICES

Certificates of Correction for the Week of June 29, 1982

Re. 29,783	4,304,101	4,314,268	4,322,692
4,178,233	4,304,466	4,315,010	4,322,825
4,211,602	4,304,673	4,315,091	4,322,863
4,211,881	4,305,306	4,315,314	4,322,899
4,218,217	4,305,348	4,315,537	4,323,010
4,221,688	4,305,460	4,316,490	4,323,187
4,228,514	4,306,006	4,316,900	4,323,385
4,230,976	4,307,295	4,317,124	4,323,425
4,246,747	4,308,486	4,317,704	4,323,443
4,265,785	4,308,598	4,317,735	4,323,537
4,267,629	4,308,866	4,317,996	4,323,592
4,270,036	4,309,239	4,318,101	4,323,846
4,270,730	4,310,145	4,318,112	4,324,150
4,281,565	4,310,595	4,318,674	4,324,293
4,282,449	4,310,648	4,319,756	4,326,867
4,289,795	4,310,722	4,319,926	4,326,977
4,292,105	4,311,285	4,320,020	4,327,063
4,292,449	4,311,379	4,320,106	4,327,096
4,293,801	4,311,790	4,320,749	4,327,235
4,295,602	4,312,203	4,320,945	4,327,416
4,296,811	4,312,205	4,321,054	4,327,565
4,298,903	4,312,575	4,321,841	4,327,843
4,299,010	4,312,778	4,322,109	4,328,001
4,299,135	4,312,784	4,322,347	4,328,267
4,302,914	4,313,214	4,322,459	
4,303,795	4,313,446	4,322,590	

Dedication

4,111,657.—*Jerry W. Denney,* Carmel, Ind., and *Robert L. Long,* Spartanburg, S.C. CREATININE ASSAY AND REAGENT SYSTEM. Patent dated Sept. 5, 1978. Dedication filed Feb. 25, 1982, by the assignee, *American Monitor Corp.*

Hereby dedicates to the Public the entire remaining term of said patent.

Disclaimers

3,990,460.—*John C. Shalvoy,* Fairfield, Conn. DRYING HAIR CURLER. Patent dated Nov. 9, 1976. Disclaimer filed Apr. 30, 1982, by the assignee, *General Electric Co.*

Hereby enters this disclaimer to all claims of said patent.

4,031,661.—*Robert B. Bernhard,* Port Washington, N.Y. MINIATURE VEHICLE WITH MAGNETIC ENHANCEMENT OF TRACTION. Patent dated June 28, 1977. Disclaimer filed Mar. 15, 1982, by the assignee, *Aurora Products Canada, Ltd.*

The term of this patent subsequent to June 22, 1993, has been disclaimed.

4,103,932.—*Robert J. Parker,* Southfield, Mich. PIVOT CONSTRUCTION FOR A MOTOR VEHICLE SUSPENSION SYSTEM. Patent dated Aug. 1, 1978. Disclaimer filed Apr. 14, 1982, by the assignee, *Ford Motor Co.*

Hereby enters this disclaimer to claims 1, 3, 4 and 6 of said patent.

4,224,024.—*Helmut Gies,* Hofheim/Taunus and *Fritz Meininger,* Frankfurt/Main, Germany. PROCESS FOR THE REACTIVE DYEING AND PRINTING OF FIBROUS MATERIALS CONTAINING HYDROXY GROUPS WITH A WATER-SOLUBLE ORGANIC DYESTUFF CONTAINING AT LEAST ONE PHOSPHONIC ACID-MONOFLUORIDE GROUP AND AT LEAST ONE IONIC WATER-SOLUBILIZING GROUP. Patent dated Sept. 23, 1980. Disclaimer filed May 3, 1982, by the assignee, *Hoechst Aktiengesellschaft.*

Hereby enters this disclaimer to claims 6 and 7 of said patent.

4,297,350.—*John C. Babcock;* and *J. Allan Campbell,* Kalamazoo, and *Thomas J. Lobi,* Portage, Mich. MALE CONTRACEPTIVE STEROIDS AND METHODS OF USE. Patent dated Oct. 27, 1981. Disclaimer filed May 15, 1982, by the assignee, *The Upjohn Co.*

Hereby enters this disclaimer to claims 192, 194-196 and 198-203 of said patent.

4,307,316.—*Ian C. McKechnie,* Las Vegas, Nev. SELF CLEANING SPARK PLUG. Patent dated Dec. 22, 1981. Disclaimer filed Apr. 19, 1982, by the inventor.

Hereby enters this disclaimer to claims 3 and 4 of said patent.

Disclaimers and Dedications

3,912,336.—*Arthur J. Ritter, Jr.,* Metamore, and *David L. Perry,* Peoria, Ill. PROTECTIVE SHROUD FOR THE DRIVE SPROCKET OF A TRACK-TYPE VEHICLE. Patent dated Oct. 14, 1975. Disclaimer and Dedication filed Apr. 19, 1982, by the assignee, *Caterpillar Tractor Co.*

Hereby disclaims and dedicates to the Public the entire remaining term of said patent.

4,098,770.—*Antoine Berchem,* St-Hippolyte; *Krishan Kumar Sudan,* Le-Corbusier and *Edward Michael Gres,* Weston, Canada. SPRAY-DRIED PHENOLIC ADHESIVES. Patent dated July 4, 1978. Disclaimer and Dedication filed May 7, 1982, by the assignee, *Reichhold Ltd.*

Hereby disclaims and dedicates to the Public the entire term of said patent.

4,325,777.—*John C. Yarwood,* Madison; *Derek E. Tyler,* Cheshire and *Joseph Winter,* New Haven, Conn. METHOD AND APPARATUS FOR REFORMING AN IMPROVED STRIP OF MATERIAL FROM A STARTER STRIP OF MATERIAL. Patent dated Apr. 20, 1982. Disclaimer and Dedication filed Apr. 27, 1982, by the assignee, *Olin Corp.*

Hereby disclaims and dedicates to the Public the remaining term of said patent.

DEPARTMENT OF COMMERCE
Patent and Trademark Office
37 CFR Parts 1 and 3

Revision of Fees

AGENCY: Patent and Trademark Office, Commerce

ACTION: Notice of proposed rulemaking.

SUMMARY: The Patent and Trademark Office proposes to amend the rules of practice in patent cases to establish procedures and fees in amounts which comply with the requirements of Public Law 96-517 or which would apply with enactment of H.R. 6260 as a Public Law. A separate rulemaking proposal is being published relating to trademark fees.

DATES: Comments must be submitted on or before July 9, 1982; a public hearing will be held July 9, 1982, 9:30 a.m.; requests to present oral testimony should be received prior to July 9, 1982.

ADDRESSES: Address written comments and requests to present oral testimony to the Commissioner of Patents and Trademarks, Attention: R. Franklin Burnett, Room 3-11A13, Washington, D. C. 20231. The hearing will be held in Room A of Suite 1006 on the 10th floor of Building 5; Crystal Square, located at 1755 South Jefferson Davis Highway, Arlington, Virginia. Written comments and a transcript of the public hearing will be available for public inspection in Room 11E10 of Building 3, Crystal Plaza at 2021 Jefferson Davis Highway, Arlington, Virginia.

FOR FURTHER INFORMATION CONTACT: R. Franklin Burnett by telephone at (703) 557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Washington, D. C. 20231.

SUPPLEMENTARY INFORMATION: This proposed rule change is designed primarily to implement the Patent and Trademark Office fees which are provided for by Public Law 96-517, or which would be set in, or provided for by, H.R. 6260.

Public Law 96-517

Public Law 96-517 presently requires that fees be established by the Commissioner for the processing of patent applications from filing through issuance or abandonment, for maintaining a patent in force, and for providing all other services and materials related to patents. Public Law 96-517 requires that by October 1, 1982, fees for the processing of patent applications, other than design patents, be set by the Commissioner to recover in aggregate 25 per centum of the estimated average cost to the Office of such processing. Similarly, fees for processing design

patents are to be set to recover in aggregate 50 per centum of the estimated average cost to the Office of such processing. By October 1, 1982, fees for all other services or materials related to patents are to be set to recover the estimated average cost to the Office of performing the service or furnishing the material.

Public Law 96-517 also requires that fees be set for maintaining all patents filed on or after December 12, 1980, other than design patents, in force. It also requires that maintenance fees must recover 25 per centum of the estimated cost to the Office of processing patent applications, other than design patent applications, by the fifteenth fiscal year following December 12, 1980. Under Public Law 96-517, the maintenance fees are due 3½, 7½, and 11½ years after grant of the patent.

Public Law 96-517 is presently effective and this rule change is designed to implement the fee provisions of that law if it remains fully effective on October 1, 1982. However, on June 8, 1982, the House of Representatives passed H.R. 6260. This rule change proposal is also designed to permit the implementation of the fee provisions of H.R. 6260. This proposed rule change is intended to obtain comments which would enable a final rulemaking to be adopted based on Public Law 96-517 and/or on H.R. 6260, without a further notice of proposed rulemaking. Accordingly, comments on proposed rule changes which are common to Public Law 96-517 and to H.R. 6260 are requested herein as well as comments on alternative rule changes which are specific to Public Law 96-517 (Alternative A) and to H.R. 6260 (Alternative B).

H.R. 6260

H.R. 6260 would establish a number of statutory fees which the Commissioner is required to charge. Among the more significant of these are fees for filing, issuing, and maintaining a patent in force. The fees for filing and issuing a patent would be set forth in §41(a) of Title 35, United States Code, as proposed to be amended by H.R. 6260. Certain other fees, such as appeal fees, the fee for filing a disclaimer, and fees for filing petitions seeking to revive an abandoned application and for extensions of time, would also be set in §41(a) of Title 35, United States Code. Section 41(b) of Title 35, United States Code, as proposed to be amended by H.R. 6260, would set forth the fees for maintaining a patent in force. These fees would be due 3½, 7½, and 11½ years after grant of the patent or within a grace period of six months thereafter. Section 41(c) of Title 35, United States Code, as proposed to be amended by H.R. 6260, would provide for the acceptance of maintenance fees after the statutory grace period under certain conditions and with certain effects.

H.R. 6260 would also provide for the reduction by 50 per centum in the fees paid under §41(a) and (b) of Title 35, United States Code, by independent inventors, small business concerns, and

nonprofit organizations, who meet the definitions established, and to be established therefor.

Section 41(d) of Title 35, United States Code, as proposed to be amended by H.R. 6260, would also provide that the Commissioner establish fees for all other processing, services, or materials related to patents which are not covered in §41(a)-(c) of Title 35, United States Code, to recover the estimated average cost to the Office of the processing, services, or materials. H.R. 6260 includes other provisions which would be the subject of other proposals for rulemaking.

This proposed rulemaking places into the appropriate sections of Title 37, Code of Federal Regulations, the various fees which are due on filing, during the pendency of a patent application, or during the term of a patent. A number of significant changes are proposed in order to implement either Public Law 96-517 or H.R. 6260.

Under H.R. 6260, and Alternative B of this proposed rulemaking, fees under §41(a) and (b) of Title 35, United States Code, would be reduced by 50 per centum for independent inventors, small business concerns, and nonprofit organizations. H.R. 6260 would give the Commissioner authority to establish regulations defining independent inventors and nonprofit organizations. H.R. 6260 defines small business concerns by reference to §3 of the Small Business Act and regulations established by the Small Business Administration. This proposed rulemaking proposes implementation of the fee system which would be established by H.R. 6260 and lists all applicable fees.

Another significant change contained in this proposal relates to fees established under Public Law 96-517 and which would be established by H.R. 6260 for petitions for extensions of time to take actions required by the Commissioner in an application. H.R. 6260 would establish a fee of $50 for filing a petition for a first one-month extension of time, an additional fee of $100 for filing a petition for a second one-month extension of time which would expire two months after the end of the time period set for taking action, and an additional fee of $200 for filing a petition for a third one-month extension of time which would expire three months after the end of the time period set for taking action. A fourth one-month extension with an additional fee of $200 could be requested if additional time was available under the statute. Under H.R. 6260, the Commissioner would have authority to issue regulations providing when, within any maximum time period permitted by statute, petitions for extensions of time, and the required fee therefor, may be filed. The Commissioner would also not be precluded by H.R. 6260 from waiving the fee for filing a petition for an extension of time where the Office extends the period due to equity considerations or sufficient cause. This proposed rulemaking proposes to implement the extension of time provisions of H.R. 6260 by

permitting applicants in the majority of situations to file the petition for an extension of time and the fee at the time of and along with the filing of the response for which a non-statutory or shortened statutory time period has been set. This would reduce the amount of paperwork involved and should significantly reduce the expenses of applicants and the Office since resources now devoted to the separate processing of petitions for extensions of time would no longer be required to be expended thereon. The fees are set to provide a proper control on the number of extensions of time given. This proposal would establish, under Public Law 96-517, the same procedures relating to extensions of time which would be established under H.R. 6260.

Another significant change contained in this proposal relates to the implementation of the fee for revival of an unintentionally abandoned application which would be authorized under H.R. 6260. H.R. 6260 would establish two different fees for filing petitions with different standards to revive abandoned patent applications. The same two fees would be applicable to petitions to accept the delayed payment of the fee for issuing a patent. Under H.R. 6260, a fee of $50 would be established in §1.17(l) for filing a petition for revival under §§133 or 151 of Title 35, United States Code, in accordance with standards presently in effect where the delay resulting in the abandonment, or the delay in payment of the issue fee, was unavoidable. Under H.R. 6260, a fee of $500 would be established in §1.17(m) for filing each petition for revival, or for acceptance of the delayed payment of an issue fee, where the abandonment or the failure to pay the issue fee was unintentional. A mere statement that abandonment was unintentional plus the $500 fee is all that would be required in this case for this purpose. Under H.R. 6260 and the proposed rulemaking an applicant would have a choice of which petition and fee to file seeking revival depending on the circumstances involved.

The proposed rulemaking also provides for fees for filing certain petitions which have, in some cases, heretofore, been decided without a charge. These fees are proposed under Public Law 96-517 and are provided for by the amendment of §41(d) of Title 35, United States Code, which would be introduced by H.R. 6260. Under §41 of Title 35, United States Code, as amended by Public Law 96-517 or as it would be amended by H.R. 6260, fees are provided for the processing of various petitions desiring certain actions to be taken regarding patent applications, for the recording of assignments, for reexamination of patents, and for the processing of international applications under the Patent Cooperation Treaty. In general, fees are not being proposed for those petitions which are supervisory in nature. For example, where applicants are petitioning from an allegedly improper action of the examiner, it is felt that such petitions should be processed and decided without charge since they are not asking for any special privilege but are attempting to correct an allegedly incorrect Office holding.

Many of the fees currently set forth in §1.21 are proposed to be increased to reflect the cost of currently performing that service.

DISCUSSION OF SPECIFIC SECTIONS PROPOSED TO BE CHANGED

The sections proposed to be changed are grouped in this proposal under three different categories. Those changes which are common to Public Law 96-517 and H.R. 6260 appear first and are numbered 1-56. Those changes which relate only to Public Law 96-517 appear as Alternative A and are numbered 57-63. Those changes which are dependent upon enactment of H.R. 6260 appear as Alternative B and are numbered 64-74.

Proposed Rule Changes Common To Public Law 96-517 and H.R. 6260

The following sections are proposed to be changed under either Public Law 96-517 or H.R. 6260:

Section 1.11, if amended as proposed, would change the reference for the reexamination request fee to that proposed in this change.

Section 1.12, if amended as proposed, would break the section into four paragraphs. Proposed paragraph (a) maintains current practice but adds specific reference to §1.19(a)(5) which sets the cost of copies. Proposed paragraph (b) maintains current wording except for changing "his" to "applicant's". Proposed paragraph (c) includes new language relating to obtaining copies of assignment records not open to the public. Access can be obtained only with the applicant's permission or by petition with fee to the Commissioner for such access in particular situations. No change in the showing required by petition to obtain access is intended by this proposal. Proposed paragraph (d) contains present language except for reference to the specific rule which sets forth the charge for time consumed in making assignment searches.

Proposed new paragraph (e) of §1.14, if added as proposed, would set forth the two ways in which access can be obtained to patent applications which are not open to the public. The two ways are (1) by petitioning and paying the petition fee and approval of the Commissioner of such petition and (2) by obtaining written approval from the applicant.

Proposed new §1.19 would provide fees for copies of various documents supplied by the Office. The fees have been grouped into 5 paragraphs. Proposed new paragraph (a) provides fees for uncertified copies. Proposed subparagraphs (a)(1) and (2) indicate the prices of printed patent copies. Proposed subparagraph (a)(3) would provide a single fee for a copy of an application, as filed, for each 50 pages, or fraction thereof.

This practice should make it much easier to determine the amount of the required fee. Proposed subparagraph (a)(4) would set a single fee for a copy of each 100 pages, or fraction thereof, of a patent file wrapper. Proposed subparagraph (a)(5) would provide for a charge of 30 cents per page for copies of Office records other than those covered by proposed subparagraphs (a)(3) and (4). Proposed subparagraph (a)(6) would provide a fee for a microfiche copy of a microfiche.

Proposed paragraph (b) of §1.19 sets fees for certified copies of Office documents. Subparagraph (b)(1) sets a fee for certifying Office records. Subparagraph (b)(2) provides a single fee for searching assignment records, preparing an abstract of the title and certification thereof. Subparagraph (b)(3) provides a fee for comparing copies not prepared by the Office prior to certification in order to provide basis for certification. Proposed paragraph 1.19(c) sets the fees for subscribing to all of the patents issued annually in particular subclasses. This charge is in addition to the normal copy charge under §1.19(a)(1) and (2). Proposed paragraph 1.19(d) sets the fee for providing patent copies to libraries under 35 U.S.C. 13. Proposed paragraph 1.19(e) provides fees for lists of United States patents in particular subclasses.

Section 1.21, if amended as proposed, would contain those miscellaneous fees which do not relate to the topics covered in proposed §§1.16-1.20. Current §1.21 has not been reproduced to show deletions in view of the length of the present rule. All of the fees in §1.21 are proposed under the authority given the Commissioner by 35 U.S.C. 41(d) as amended by Public Law 96-517 or as proposed in H.R. 6260. Proposed paragraph 1.21(a) would establish fees for admission to the examination for registration to practice, registration, reinstatement and issuance of certificates of good standing of patent attorneys and agents. Proposed subparagraph 1.21(b)(1) sets forth the fee for establishing and reinstating deposit accounts, while subparagraph 1.21(b)(2) sets forth the fee due when the balance at the end of each month is below $40. Proposed paragraph 1.21(c) sets the fee for filing a disclosure document. Proposed paragraph 1.21(d) sets the fee for renting a delivery box. Proposed paragraph 1.21(e) sets the fee for an international-type search report. Although all national applications now receive what is known as an international-type search, if a report thereof is desired in addition to an Office action, the fee set in §1.21(e) is required. Proposed paragraph 1.21(f) sets a fee for searching Office records for purposes not otherwise specified. Proposed paragraph 1.21(g) sets the fee for tokens for copying machines. Proposed paragraph 1.21(h) would set the fee for recording assignments, agreements, and other documents. Proposed paragraph 1.21(i) would set forth the fee for publishing a notice of availability of a patent for licensing or sale in the Official Gazette. Proposed paragraph 1.21(j) would set the fee for the Office providing a duplicate or replacement of a permanent Office

user pass. Proposed paragraph 1.21(k) would indicate that the Commissioner may specify charges for items and services not otherwise specified at a level to recover the actual cost of providing such a service by the Office.

Section 1.24 is proposed to be revised so that the denomination of coupons sold by the Office will be in more convenient amounts for fees as proposed.

Section 1.25, if amended as proposed, would provide in paragraph (a), a reference to the fee for establishing a deposit account and a service charge if the end of the month balance is below $40.00. Paragraph (b) is proposed to be amended by revising the present sentence to refer to post-issuance fees and by adding a second sentence which would specifically provide in the regulations for the possibility of an applicant giving a general authorization to charge any fee due under §§1.16-1.18 in a particular application to a deposit account during the entire pendency of the application. This general authorization would not apply after the patent issues, e.g., to maintenance fees. The last sentence of paragraph (b) would permit fees during reexamination to be charged to a deposit account by filing an authorization with the request for reexamination.

Section 1.26, if amended as proposed, would provide in paragraph (a) that a withdrawal of a request for an oral hearing would not entitle appellant to a refund. Proposed paragraph 1.26(a) would also raise the amount which would not be refunded without specific request from fifty cents to one dollar. Present paragraph (b) relating to refunds of international search fees during subsequent examination of a national application would be deleted since such refunds have been found to be without a sound financial basis and cause difficulties in administration. The time difference required to prepare international search reports with and without a prior application has been found to be very small and the effort required to process refunds has been found to be quite large. Accordingly, it is proposed that paragraph (b) be deleted. Paragraph (c) is proposed to be amended to bring the spelling of "requester" into conformance with that used in other sections of the regulations.

Section 1.45, if amended as proposed, would provide in paragraphs (b) and (c) for a petition and petition fee to be filed to correct misjoinder of inventorship situations in pending applications. The fee would cover the additional time required by the Office to process such applications.

Section 1.47, if amended as proposed, would provide for petitions and fees for filing applications signed by less than all inventors.

Section 1.51, if amended as proposed, would refer to the filing fees in proposed new §1.16 and add a new paragraph (c) indicating

that applicants may file authorizations to charge fees required under any of §§1.16-1.18 to deposit accounts.

Section 1.52, if amended as proposed, would add a reference in paragraph (a) to proposed new paragraph (d). Proposed new paragraph (d) would provide in the rules for filing an application in a language other than English if a verified English translation and fee under §1.17(k) are timely submitted.

Section 1.55, if amended as proposed, would amend paragraph (b) to require a petition and fee for processing priority papers submitted after the issue fee is paid.

Section 1.75, if amended as proposed, would add a reference to proposed §1.16 and a sentence referring to the fee for multiple dependent claims set forth in proposed §1.16(d).

Section 1.85, if amended as proposed, would delete the sentence relating to mounting of informal drawings.

Section 1.86, if removed as proposed, would delete the reference to the Office draftsman making drawings since such service is no longer available.

Section 1.102, if amended as proposed, would amend paragraph (a) and add new paragraphs (c) and (d). Revised paragraph (a) would refer to paragraph (b) and added paragraphs (c) and (d). Proposed paragraph (c) requires a petition but no fee where the basis for the petition to make special is the applicant's age or health or the impact of the invention on improving the environment or conservation of energy. Proposed paragraph (d) would require a petition and the fee set forth in §1.17(i) for petitions to make special on grounds other than those above.

Section 1.103, if amended as proposed, would amend paragraph (a) to provide for filing a petition and the fee set forth in §1.17(i) for a suspension of action except that no fee would be required where the reason for the suspension is the fault of the Patent and Trademark Office. Paragraph (b) is amended to clearly indicate that suspensions are directed to actions by the Office and not responses by the applicant.

Section 1.104, paragraph (d), if amended as proposed, would change the fee reference to correspond to proposed §1.21(e).

Section 1.134, if added as proposed, would indicate that unless applicant is notified of any non-statutory or shortened statutory period in an Office action, a maximum period for response of six months is allowed.

Section 1.135, if amended as proposed, would provide that if no response is filed within the time set in the Office action under proposed §1.134 or as it may be extended under proposed §1.136,

the application would be abandoned unless an Office action would indicate that another consequence, such as disclaimer, would take place. Paragraph (b), as proposed, would include a reference to paragraph (a). Paragraph (c), as proposed to be amended, would add that applicant's reply must be a bona fide attempt to respond as well as to advance the case to final action in order for applicant to be given an opportunity to supply any omission.

Section 1.136, if amended as proposed, would revise the title and provide for two distinct procedures to extend the period for action or response in particular situations. The procedure which is available for use in a particular situation would depend upon the circumstances. Paragraph 1.136(a), as proposed, would permit an applicant to file a petition for extension of time and a fee as proposed in §1.17(a), (b), (c), or (d) up to four months after the end of the time period to take action except (1) where prohibited by statute, (2) in interference proceedings, or (3) where applicant has been notified otherwise in an Office action. The petition and fee could be filed prior to or with the response. The filing of the petition and fee would extend the time period to take action up to four months dependent on the amount of the fee paid except in those circumstances noted above. Proposed paragraph 1.136(a) would effectively reduce the amount of paperwork required by applicants and the Office since the extension would be effective upon filing of the petition and without acknowledgment or action by the Office and since the petition and fee could be filed with the response. Proposed paragraph (b) provides for requests for extensions of time upon a showing of sufficient cause when the procedure of proposed paragraph (a) is not available. Although the petition and fee procedure of §1.136(a) would normally be available within 4 months after a set period for response has expired, an extension request for cause under §1.136(b) must be filed during the set period for response. If paragraph (b) is amended as proposed, the sentence relating to who may grant an extension under paragraph (b) would be eliminated thereby providing additional flexibility to designate persons to act on requests under paragraph (b). Extensions of time in interference proceedings are governed by §1.245.

Section 1.165, paragraph (b), if amended as proposed, would have deleted therefrom the last sentence which refers to a fee for mounting copies. Since little or no need has been found for this provision in the rules, it is being proposed to be deleted.

Section 1.171, as proposed, would add a reference to proposed §1.19(b)(2) which sets forth the fee for title reports.

Section 1.177, if amended as proposed, would require a petition and fee as set forth in proposed §1.17(i) where it is desired that divisions of a reissue issue on different dates.

Section 1.181, if amended as proposed, would indicate in paragraph (d) that if a petition to the Commissioner is filed under the provisions of a section which requires a petition fee and the required fee is not paid, the petition will be dismissed. The proposed amendment to paragraph (g) would delete the reference to §1.183.

Section 1.182, if amended as proposed, would add a sentence requiring any petition filed under this section to be accompanied by the petition fee set forth in §1.17(h).

Section 1.183, if amended as proposed, would specifically provide for the inherent authority of the Commissioner to suspend or waive the rules at the Commissioner's initiative. The proposed amendment also recognizes the Commissioner's authority to designate others to act for the Commissioner in appropriate circumstances. The proposed rule language would also require the payment of the petition fee set forth in §1.17(h) if a petition to suspend or waive the rules is filed.

Section 1.191, if amended as proposed, would change the fee reference for filing a notice of appeal to proposed §1.17(e) and would delete the word "primary" since some actions which are subject to appeal are not made by a "primary" examiner.

Section 1.192, paragraph (a), if amended as proposed, would refer to the fee for filing an appeal brief set forth in proposed §1.17(f) and the fee for an oral hearing set forth in proposed §1.17(g). It is also proposed to remove from paragraph 1.192(a) the present language requiring a showing of sufficient cause for extensions of time for filing the brief. Under the proposed amendment to paragraph 1.192(a), the provisions of §1.136 would apply to extensions of time for filing the brief.

Section 1.194, if amended as proposed, would revise paragraphs (b) and (c) to refer to the fee for oral hearing in proposed §1.17(g).

Section 1.197, paragraph (b), if amended as proposed, would modify the last sentence relating to extensions of time to make the provisions of §1.136 applicable thereto. Paragraph 1.197(b) is also proposed to be amended to limit requests for rehearing, reconsideration or modification of a Board decision to one. This would not significantly change present practice since such requests are now required to be filed within thirty days from the date of the original decision.

Section 1.231, paragraph (a)(1), if amended as proposed, would change the reference to the fee for filing a request for reexamination to §1.20(c).

Sections 1.245 and 1.246, if amended as proposed, would indicate that the provisions of proposed §1.136 do not apply to time periods in interferences.

Section 1.263, if amended as proposed, would add a reference to the proposed fee for filing a disclaimer contained in proposed §1.20(d).

New section 1.268, if added as proposed, would provide a rule relating to the filing of interference settlement agreements. The rule generally follows 35 U.S.C. 135(c) and provides for filing of petitions and fees in proposed paragraphs 1.268(b) and (c).

Section 1.292, paragraph (a), if amended as proposed, would require the payment of the fee set forth in proposed §1.17(j) with any petition for the institution of public use proceedings.

Section 1.304, paragraph (a), if amended as proposed, would provide for extension of the time period for filing an appeal or civil action to be subject to the proposed provisions of §1.136 and refer to the Court of Appeals for the Federal Circuit rather than to the Court of Customs and Patent Appeals.

Section 1.311, if amended as proposed, would designate the present section as paragraph (a) and revise it in several ways. Proposed paragraph (a) would indicate that the notice of allowance would be sent to the correspondence address as indicated under §1.33. The issue fee (§1.18) would be indicated as being due 3 months from the date of mailing of the notice of allowance. Proposed paragraph 1.311(b) would permit an authorization to be filed either before or after the mailing of the notice of allowance to charge the issue fee to a deposit account.

Section 1.312, if amended as proposed, would divide the section into two paragraphs and would require a petition and payment of the fee under §1.17(i) for any amendment filed after payment of the issue fee.

Section 1.313, if amended as proposed, would provide in paragraph (a) clear basis for the Office withdrawing applications from issue on its own initiative or upon petition by applicant accompanied by the petition fee set forth in proposed §1.17(i). Any accompanying amendment must comply with the requirements of proposed §1.312. Proposed paragraph (b) clarifies when an application will be withdrawn from issue after assignment of the issue date and patent number.

Section 1.314, if amended as proposed, would revise the wording in view of the proposed issue fees and would add reference to the possibility that an application in which the issue fee was paid

could be withdrawn from issue under §1.313 or the issuance thereof deferred pursuant to a petition by the applicant and the payment of the petition fee under §1.17(i).

Section 1.317, paragraph (a), is proposed to be amended to show that it applies only to applications in which the issue fee was paid prior to October 1, 1982. Issue fees paid on or after that date will be in accordance with §1.18.

Section 1.321, if amended as proposed, would include references in both paragraphs (a) and (b) to the statutory disclaimer fee in proposed §1.20(d) and delete the reference to §1.21.

Section 1.324, if amended as proposed, would include reference to the fee in proposed §1.20(b) and change the word "application" to --petition--.

Section 1.331, paragraph (a), if amended as proposed, would have a new sentence which gives the citation of the fee for recording assignments and indicates that instruments recorded on the Government register under Part 7 of Title 37, Code of Federal Regulations do not require payment of such fee.

Section 1.332, if amended as proposed, would refer to the proposed fee in §1.21(h) for recording an assignment.

Section 1.334, if amended as proposed, would divide the rule into three paragraphs and would also require an address of the assignee so that correspondence could be directed to the assignee if required. Proposed new paragraph (c) would provide for filing a petition and the fee set in proposed §1.17(i) seeking to have the patent issue to the assignee where such assignment was not recorded at the time the issue fee was paid.

Section 1.341, paragraph (h), if amended as proposed, would refer to the proposed fee set forth in §1.21(a)(2) for registration of an attorney or agent.

Section 1.347, if amended as proposed, would add a sentence referring to the proposed fee set forth in §1.21(a)(3) for reinstatement of an attorney or agent.

Section 1.445, if amended as proposed, would increase the PCT transmittal fee and search fee to a level needed to cover the cost of performing the required functions. The supplemental search fee for inventions in addition to the first, where lack of unity of invention has been found, is being proposed to be reduced since the present fee is more than is required to cover the costs. The national fee amount is proposed to be the same as the national application filing fees in proposed §1.16(a)-(d).

Section 1.446, if amended as proposed, would delete paragraph (b) which provides for refunds of PCT search fees where such search

is based in part on an earlier application. Experience has shown that the value of the earlier search and the cost of processing refunds do not warrant the substantial refund provisions and that the refund provisions are difficult to administer equitably.

Section 1.451, if amended as proposed in paragraph (b), would revise the citation of the fees for a certified copy.

Section 1.510, if amended as proposed, would cite the proposed section which sets forth the fee for requesting reexamination. There is no change in the amount of this fee.

Part 3, if deleted as proposed, would eliminate all of the patent forms from the Code of Federal Regulations. The Patent and Trademark Office has prepared a booklet entitled "Patent and Trademark Forms Booklet" which is available from the Superintendent of Documents and includes full size copies of substantially all of the forms in Part 3. Since the forms are not mandatory, no need is seen to retain them in the Code of Federal Regulations.

Alternative A - Proposed Rule Changes Under Only Public Law 96-517

The following sections are proposed to be changed under only Public Law 96-517:

Proposed new §1.16 relates to application filing fees. Proposed paragraph (a) sets a basic filing fee of $150 which would be required in all original patent applications. The term "original" as used in the regulations means "non-reissue". An "original" application could be a first filing, a division, a continuation, or a continuation-in-part application. Proposed paragraph 1.16 (b) provides for an additional fee of $15 for each independent claim in excess of 3 in an original application. Proposed new paragraph 1.16(c) would provide for an additional fee of $5 for each claim in excess of 20, whether independent or dependent. A multiple dependent claim will be considered to be that number of claims to which direct reference is made. Also, any claim which refers to a multiple dependent claim will be considered for fee calculation purposes to be the number of claims to which direct reference is made in the multiple dependent claim. Proposed paragraph 1.16(d) provides for a new fee of $50 in each application which contains one or more multiple dependent claims. The note following proposed paragraph 1.16(d) is intended to clearly indicate that the applicant, attorney, or agent may pay any additional fees required under proposed paragraphs (b), (c) and (d) of §1.16, or cancel such claims without payment of such additional fees, either at the time of filing or by the time a response is due to any notice of fee deficiency mailed by the Office. If the fees are not paid or the claims cancelled by the end of the period set for response to the notice of fee deficiency, the application would be held

abandoned. Paragraph 1.16(e) would be reserved under this Alternative (Alternative A). Proposed new paragraph 1.16(f) provides for a filing fee of $63.00 for a design application.

Proposed paragraphs 1.16(g) and (h) would establish the filing fees for plant and reissue applications.

Proposed paragraphs 1.16(i) and (j) would set forth the additional claim fees required in reissue applications based on claims in excess of those in the original patent.

Proposed new §1.17 relates to patent application processing fees which are normally due during the time a patent application is pending. Proposed new paragraphs (a), (b), (c) and (d) provide for the payment of an extension fee for obtaining an automatic extension of time upon filing a petition as provided for in proposed §1.136(a). The extension fee could be paid during the period for which an extension of time to respond is desired, or after the original period for response has expired, provided that any maximum statutory period which may apply has not expired. The fees set forth in proposed §1.17 are the total fees required under §1.136(a) for the periods indicated and any extension fee previously paid to extend a particular period is credited toward the total extension fee required. Proposed paragraph (e) would set forth the fee for filing a notice of appeal to the Board of Appeals. Proposed paragraph (f) would set forth the fee for filing an appeal brief by appellant. Proposed paragraph (g) would provide for a new fee for requesting an oral hearing before the Board of Appeals. Proposed paragraphs (h) and (i) would set forth fees which would be required with petitions to the Commissioner under those sections of the regulations which specifically indicate that such petition fees are required. The amounts of the fees are set at two levels based on the degree of complexity of the petitions in order to recover the estimated average cost to the Office of processing the petitions. Proposed paragraph (j) would provide for a fee to be paid with any petition for institution of a public use proceeding to cover the estimated average cost of such a proceeding. Proposed new paragraph (k) would set forth a new fee for processing an application filed with a non-English language specification. The fee would cover the additional processing costs involved in such applications. Proposed new paragraph (l) would incorporate into the regulations the fee which would be charged for filing a petition to revive or to accept late payment of the issue fee where the delay was unavoidable.

Proposed new §1.18 would set the amount of the issue fees pursuant to the authority contained in Public Law 96-517. Proposed new paragraph (a) would establish an issue fee of $250.00 for all original and reissue patents except for designs and plants. Proposed new paragraph (b) would set the amount of the issue fee for a design patent at a uniform $88.00 even though

terms of 3½, 7, or 14 years may be requested. Proposed new paragraph (c) would establish the issue fee for a plant patent.

Proposed new §1.20 would set fees for various post-issuance functions performed by the Office. Proposed new paragraph (a) would set forth a fee for providing a certificate of correction of an applicant's mistake. Proposed new paragraph (b) would set a fee to accompany a petition to correct inventorship in a patent under §1.324. Proposed new paragraph (c) would transfer the $1,500.00 fee for requesting reexamination from present §1.21(x) to this new section. Proposed new paragraph (d) would provide for a fee for filing a disclaimer under §1.321. Maintenance fees required by Public Law 96-517 are placed in this section. Specific maintenance fees, which are required by Public Law 96-517, for those patents resulting from applications filed on and after December 12, 1980 and up to the date of enactment of H.R. 6260 are being proposed at this time in paragraphs 1.20(e)-(g). The fees proposed in paragraphs 1.20(e)-(g) are only set at one level because they are proposed under Public Law 96-517 and are not subject to reduction for small entities. The details implementing the payment of maintenance fees are not being proposed at this time.

Section 1.137, as proposed, would designate the existing section as paragraph (a), add a reference to the proposed new fee under §1.17(l) for a petition for revival where the delay which resulted in abandonment was unavoidable, and state when the showing that the delay was unavoidable must be verified. Paragraph 1.137(b) would be reserved under this Alternative (Alternative A). Proposed paragraph (c) would require that any petition for revival under paragraphs (a) of §1.137 be promptly filed and that a terminal disclaimer, equivalent to the period of abandonment of the application, be filed with any petition filed more than six months after the date of abandonment.

Section 1.155, if amended as proposed, would refer in paragraph (a) to proposed §1.18(b) which sets forth the issue fee for a design application as being $88.00. Paragraph 1.155(b), as proposed, would include a reference to the fee for delayed payment of the issue fee set forth in §1.17(l) where the delay in payment was unavoidable and state when showings that the delay was unavoidable must be verified. Paragraph 1.155(c) would be reserved under this Alternative (Alternative A). Paragraph 1.155(d) is proposed to be added to require a terminal disclaimer equivalent to the period of abandonment of the application where any petition under this section is not filed within six months of the date of abandonment.

Section 1.316 is proposed to be amended to clarify the language and to delete reference to the fee specified in the notice of allowance. Paragraph (b) is proposed to be amended to provide for petitions for revival with the fee in proposed §1.17(l) where the delay in payment was unavoidable and to state when showings

that the delay was unavoidable must be verified. Paragraph (c) would be reserved under this Alternative (Alternative A). Paragraph (d) is proposed to be added to require a terminal disclaimer equivalent to the period of abandonment of the application where any petition under this section is not filed within six months of the date of abandonment.

Alternative B - Proposed Rule Changes Under H.R. 6260

The following sections are proposed to be changed under H.R. 6260:

Section 1.9, if amended as proposed, would add new paragraphs (c) - (f) which define independent inventor, small business concern, and nonprofit organization as used in 37 CFR, Chapter I. Each of these would be identified as a "small entity" for purposes of paying fees which would be set under §41(a) and (b) of Title 35, United States Code, as amended by H.R. 6260.

H.R. 6260 would authorize the Commissioner to establish regulations defining independent inventors and nonprofit organizations. Proposed §1.9(c) would define an independent inventor as any inventor who (1) has not assigned, granted, conveyed, or licensed, and (2) is under no obligation to assign, grant, convey, or license, any rights in the invention, including (i) the right to make, use or sell the invention, and (ii) the right to exclude others from making, using, or selling the invention, to any person who could not likewise be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under §1.9. Once an individual sole inventor, or one of several joint inventors, has assigned, granted, conveyed, or licensed, or comes under an obligation to assign, grant, convey, or license, any rights to the invention to anyone who could not likewise obtain status as a small entity, the inventor(s) would no longer be entitled to pay fees in the amounts established for an independent inventor (§1.9(c)). Proposed §1.9(c) would permit an individual inventor to make an assignment, grant, conveyance, or license of partial rights in the invention to another individual or individuals who could qualify as an independent inventor or inventors if they had made the invention. In addition, proposed §1.9(c) would permit an individual inventor to make an assignment, grant, conveyance, or license of partial rights in the invention to a small business concern or nonprofit organization. Under the circumstances described in the previous two sentences the individual inventor could still qualify as an independent inventor. However, if the independent inventor assigned, granted, conveyed, or licensed, or came under an obligation to assign, grant, convey, or license, any rights to the invention to any individual or organization which could not qualify as a small entity (§1.9(f)), then the inventor would no longer qualify as an independent inventor. Proposed §1.9(d) would define a small business concern by

reference to regulations established by the Small Business Administration. This requirement would be established by enactment of H.R. 6260. Proposed §1.9(e) would define a nonprofit organization by utilizing the definition contained in 35 U.S.C. 201(i). Since a nonprofit organization has already been defined in Title 35, United States Code, that definition is used in this proposal. Proposed §1.9(f) would identify an independent inventor, a small business concern or a nonprofit organization as a "small entity" for purposes of paying fees set under §41(a) and (b) of Title 35, United States Code, as amended by H.R. 6260. Fees established under §41(c) or (d) of Title 35, United States Code, would not be reduced for small entities since such a reduction is not permitted or authorized by H.R. 6260. Proposed paragraphs (c)-(f) of §1.9 should be read together with proposed new §§1.27 and 1.28 which deal with establishing status as a small entity and the effect thereof.

Section 1.16, as proposed in Alternative B, would establish in the regulations those statutory fees which would be charged by the Commissioner for filing patent applications under H.R. 6260. Section 1.16 also includes additional filing fees set in 35 U.S.C. 41(a)(1) to cover the cost of examining complexities presented by certain applications, e.g., applications containing more than a specified number of claims and any application containing a multiple dependent claim. Proposed §1.16 also provides that fees will be charged when the number of claims is increased above the specified number or when a multiple dependent claim is first presented, whether on filing or at a later point in processing.

Under 35 U.S.C. 41(a) as it would be amended by H.R. 6260, the filing fee for an original patent, except in design or plant cases, is $300. In addition, on filing or on presentation at any other time, $30 is due for each claim in independent form which is in excess of three, $10 is due for each claim (whether independent or dependent) which is in excess of twenty, and $100 is due for each application containing a multiple dependent claim. The latter fee is a one-time charge per application due the first time a multiple dependent claim is presented for examination. For the purpose of computing fees, a multiple dependent claim as referred to in §112 of Title 35, United States Code, or any claim depending therefrom, will be considered as separate dependent claims in accordance with the number of claims to which reference is made.

The fees proposed in §1.16 are reduced by 50 per centum for applications filed by independent inventors, nonprofit organizations and small business concerns in accordance with H.R. 6260. Therefore, two fees are listed under each proposed paragraph.

Proposed new §1.16 relates to application filing fees. Proposed paragraph (a) sets a basic filing fee of $300 which would be

required in all original patent applications. The term "original" as used in the regulations means "non-reissue". An "original" application could be a first filing, a division, a continuation, or a continuation-in-part application. Proposed paragraph 1.16 (b) provides for an additional fee of $30 for each independent claim in excess of 3 in an original application. Proposed new paragraph 1.16(c) would provide for an additional fee of $10 for each claim in excess of 20, whether independent or dependent. A multiple dependent claim will be considered to be that number of claims to which direct reference is made. Also, any claim which refers to a multiple dependent claim will be considered for fee calculation purposes to be the number of claims to which direct reference is made in the multiple dependent claim. Proposed paragraph 1.16(d) provides for a new fee of $100 in each application which contains one or more multiple dependent claims. The note following proposed paragraph 1.16(d) is intended to clearly indicate that the applicant, attorney, or agent may pay any additional fees required under proposed paragraphs (b), (c) and (d) of §1.16, or cancel such claims without payment of such additional fees, either at the time of filing or by the time a response is due to any notice of fee deficiency mailed by the Office. If the fees are not paid or the claims cancelled by the end of the period set for response to the notice of fee deficiency, the application would be held abandoned. Proposed new paragraph 1.16(e) would establish the amount of the surcharge for filing the basic filing fee or oath or declaration on a date later than the filing date of the application. This fee is being proposed at this time, but would only be made effective when the statutory authority for the late filing of the fee or the oath or declaration becomes effective under 35 U.S.C. 111, as it would be amended by H.R. 6260. Proposed new paragraph 1.16(f) provides for a filing fee of $125.00 for a design application.

Proposed paragraphs 1.16(g) and (h) would incorporate into the regulations the filing fees for plant and reissue applications.

Proposed paragraphs 1.16(i) and (j) would set forth the additional claim fees required in reissue applications based on claims in excess of those in the original patent.

Proposed new §1.17 relates to patent application processing fees which are normally due during the time a patent application is pending. Proposed new paragraphs (a), (b), (c) and (d) provide for the payment of an extension fee for obtaining an automatic extension of time upon filing a petition as provided for in proposed §1.136(a). The extension fee could be paid during the period for which an extension of time to respond is desired, or after the original period for response has expired, provided that any maximum statutory period which may apply has not expired. The fees set forth in proposed §1.17 are the total fees required under §1.136(a) for the periods indicated and any extension fee previously paid to extend a particular period is credited toward

the total extension fee required. Proposed paragraph (e) would set forth the fee for filing a notice of appeal to the Board of Appeals. Proposed paragraph (f) would set forth the fee for filing an appeal brief by appellant. Proposed paragraph (g) would provide for a new fee for requesting an oral hearing before the Board of Appeals. Proposed paragraphs (h) and (i) would set forth fees which would be required with petitions to the Commissioner under those sections of the regulations which specifically indicate that such petition fees are required. The amounts of the fees are set at two levels based on the degree of complexity of the petitions in order to recover the estimated average cost to the Office of processing the petitions. Proposed paragraph (j) would provide for a fee to be paid with any petition for institution of a public use proceeding to cover the estimated average cost of such a proceeding. Proposed new paragraph (k) would set forth a new fee for processing an application filed with a non-English language specification. The fee would cover the additional processing costs involved in such applications. Proposed new paragraph (l) would incorporate into the regulations the fee which would be charged for filing a petition to revive or to accept late payment of the issue fee where the delay was unavoidable. Proposed new paragraph (m) would incorporate into the regulations the fee which would be established in 35 U.S.C. 41(a) 7, as amended by H.R. 6260, to be charged for a petition for the revival of an unintentionally abandoned application for patent or for the unintentionally delayed payment of an issue fee.

Since proposed paragraphs 1.17(h), (i), (j) and (k) are proposed under the authority given the Commissioner under 35 U.S.C. 41(d) as it would be amended by H.R. 6260, only one level of fee is proposed. H.R. 6260 would only provide for the reduction of fees charged to small entities of those fees established in 35 U.S.C. 41(a) and (b).

Proposed new §1.18 would set the amount of the issue fees specified by H.R. 6260. Proposed new paragraph (a) would establish an issue fee of $500.00 for all original and reissue patents except for designs and plants. Proposed new paragraph (b) would set the amount of the issue fee for a design patent. Proposed new paragraph (c) would set forth the issue fee for a plant patent. All fees proposed in §1.18 would be reduced by 50 per centum for small entities.

Proposed new §1.20 would set fees for various post-issuance functions performed by the Office. Proposed new paragraph (a) would set forth a fee for providing a certificate of correction of an applicant's mistake. Proposed new paragraph (b) would set a fee to accompany a petition to correct inventorship in a patent under §1.324. Proposed new paragraph (c) would transfer the $1,500.00 fee for requesting reexamination from present §1.21(x) to this new section. Proposed new paragraph (d) would provide for a fee for filing a disclaimer under §1.321. Maintenance fees

required by Public Law 96-517 and which would be set in H.R. 6260 are placed in this section. Specific maintenance fees, which are required by Public Law 96-517, for those patents resulting from applications filed on and after December 12, 1980 and up to the date of enactment of H.R. 6260 are being proposed at this time in paragraphs 1.20(e)-(g). Proposed new paragraphs 1.20(h)-(j) would incorporate into the regulations the maintenance fees which would be provided in 35 U.S.C. 41(b) by H.R. 6260. The fees proposed in paragraphs 1.20(a)-(c) are only set at one level because they are proposed under 35 U.S.C. 41(d). The fees proposed in paragraphs 1.20(e)-(g) are only set at one level because they are proposed under Public Law 96-517 and are not subject to reduction for small entities. The details implementing the payment of maintenance fees are not being proposed at this time.

Proposed new §1.27 would provide in paragraph (a) that any person seeking to establish status as a small entity as defined in proposed §1.9(f) for the purpose of paying reduced fees must file a statement to that effect prior to or with the payment of such fees. Proposed paragraph 1.27(b) provides specifically for inventors filing statements claiming status as independent inventors. Proposed paragraph 1.27(c) would provide for claiming status as a small business concern. Proposed paragraph 1.27(d) would provide for claiming status as a nonprofit organization. Under proposed §1.27, as long as all of the rights remain in small entities, the fees for a small entity can be paid. This would include circumstances where the rights were divided between an independent inventor, a small business concern and a nonprofit organization or any combination thereof.

Proposed new §1.28 would provide guidance as to the effect of failure to establish, or notify the Office of any change from, small entity status. Proposed paragraph 1.28(a) would also provide that once status as a small entity has been established in an application or patent, the status remains in that application or patent without the filing of a further verified statement pursuant to §1.27, unless the status is changed. Under proposed paragraph 1.28(a), status as a small entity in one application or patent does not affect any other application or patent. Proposed paragraph 1.28(b) requires that notification of any change in status resulting in loss of entitlement to small entity status be filed in the application or patent prior to paying, or at the time of paying, any fee due after the date on which status as a small entity is no longer appropriate. Proposed paragraph 1.28(b) would also provide that the payment of any fee in an application or patent as a small entity, once small entity status has been established, would serve as a representation that such payment as a small entity is proper at the time the payment is made. Section 1.28 also would provide guidance as to the effect of improperly establishing status as a small entity. The intent of the reduced fees for small entities is to soften the impact of the fee increases under §41(a) and (b)

of Title 35, United States Code, as such sections would be amended by H.R. 6260, upon those who are least able to absorb the increased fees without overall damage to their ability to participate in the patent system through the filing, issuing and maintaining of patents. Accordingly, any attempt to improperly establish status as a small entity would be viewed as a serious matter by the Office and proposed paragraph 1.28(d) indicates that any attempt to fraudulently establish status as a small entity or pay fees as a small entity will be considered as a fraud practiced or attempted on the Office. Likewise, improperly and through gross negligence establishing status as a small entity or paying fees as a small entity will be considered as a fraud practiced or attempted on the Office. Normally, the Office will not question a claim to status as a small entity. However, if the Office must resolve such an issue in a question arising before it, the Office will look to the actual or practical status of the individual or organization claiming status as a small entity rather than the professed or apparent status.

Section 1.66, if amended as proposed, would provide for the use of an apostille of a foreign official to attest to oaths or affirmations made in foreign countries in accordance with 35 U.S.C. 115 and 261, as amended by H.R. 6260.

Section 1.137, as proposed, would designate the existing section as paragraph (a), add a reference to the proposed new fee under §1.17(l) for a petition for revival where the delay which resulted in abandonment was unavoidable, and state when the showing that the delay was unavoidable must be verified. Proposed new paragraph 1.137(b) would provide for filing a statement and a fee under proposed §1.17(m) for revival of an application which was unintentionally abandoned. Proposed paragraph (c) would require that any petition for revival under paragraphs (a) or (b) of §1.137 be promptly filed and that a terminal disclaimer, equivalent to the period of abandonment of the application, be filed with any petition filed more than six months after the date of abandonment.

Section 1.155, if amended as proposed, would refer in paragraph (a) to proposed §1.18(b) which sets forth the issue fee for a design application. Paragraph 1.155(b), as proposed, would include a reference to the fee for delayed payment of the issue fee set forth in §1.17(l) where the delay in payment was unavoidable and state when showings that the delay was unavoidable must be verified. Proposed new paragraph 1.155(c) would provide for acceptance of the late payment of the issue fee where the delay was unintentional upon petition and payment of the fee set forth in proposed §1.17(m). Paragraph 1.155(d) is proposed to be added to require a terminal disclaimer equivalent to the period of abandonment of the application where any petition under this section is not filed within six months of the date of abandonment.

Section 1.316, if amended as proposed, would implement the statutory provisions of 35 U.S.C. 41(a) with regard to petition fees for revival of applications abandoned for failure to pay the issue fee. Paragraph (b) is proposed to be amended to provide for petitions for revival with the fee in proposed §1.17(l) where the delay in payment was unavoidable and to state when showings that the delay was unavoidable must be verified. Paragraph (c) is proposed to be added to provide for petitions for revival with the fee in proposed §1.17(m) where the delay was unintentional. Paragraph (d) is proposed to be added to require a terminal disclaimer equivalent to the period of abandonment of the application where any petition under this section is not filed within six months of the date of abandonment.

Environmental, energy, and other considerations: The proposed rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The proposed rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act. Pub. L. 96-354) for several reasons. The fees proposed under Public Law 96-517 are set to recover 50% of patent processing costs rather than full costs and generally the rate of increase in the fees is less than that of inflation since the last increase in fees in 1965. Under H.R. 6260 and this proposed rulemaking, small entities would be able to pay reduced fees for filing, issuance, and maintenance in force of patents. In general, the rule change will also expedite proceedings before the Patent and Trademark Office, changing existing procedures where they can be simplified.

The Patent and Trademark Office has determined that this proposed rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This proposed rule change would not impose a burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et. seq., since no additional record keeping or reporting requirements are placed upon the public.

List of Subjects in 37 CFR Parts 1 and 3

Administration practice and procedure, Colleges and universities, Courts, Fraud, Inventions and patents, Lawyers, Nonprofit organizations, Small businesses.

PROPOSED AMENDMENT OF REGULATIONS

Notice is hereby given that, pursuant to the authority granted to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, the Patent and Trademark Office proposes to amend Title 37 of the Code of Federal Regulations as set forth below.

It is proposed to amend 37 CFR, Parts 1 and 3, as follows with deletions indicated by brackets and additions by arrows with the exception that present §1.21 and deleted Part 3 are not shown:

PROPOSED RULE CHANGES COMMON TO PUBLIC LAW 96-517 AND H.R. 6260

1. Section 1.11 is proposed to be amended by revising paragraph (c) to read as follows:

§1.11 Files open to the public.

* * * * *

(c) All requests for reexamination for which the fee under §[1.21(x)] ▶ 1.20(c) ◀ has been paid, will be announced in the Official Gazette. Any reexaminations at the initiative of the Commissioner pursuant to §1.520 will also be announced in the Official Gazette. The announcement shall include at least the date of the request, if any, the reexamination request control number or the Commissioner initiated order control number, patent number, title, class and subclass, name of the inventor, name of the patent owner of record, and the examining group to which the reexamination is assigned.

* * * * *

2. Section 1.12 is proposed to be revised to read as follows:

1.12 Assignment records open to public inspection.

▶(a)◀ The assignment records, relating to original or reissue patents, including digests and indexes, ▶ and assignment records relating to pending or abandoned trademark applications and to trademark registrations, ◀ are open to public inspection and copies of any instrument recorded may be obtained upon ▶ request and ◀ payment of the fee ▶ set forth in §1.19(a)(5) ◀ [therefor].

▶(b)◀ Assignment records, digests, and indexes, relating to any pending or abandoned application are not available to the public. Copies of any such assignment records and information with respect thereto shall be obtainable only upon written authority of the applicant or ▶ applicant's ◀ [his] assignee or attorney or agent or upon a showing that the person seeking such information is a bona fide prospective or actual purchaser,

mortgagee, or licensee of such application, unless it shall be necessary to the proper conduct of business before the Office or as provided by these rules.

▶(c) Any request by a member of the public seeking copies of any assignment records of any pending or abandoned patent application preserved in secrecy under §1.14, or any information with respect thereto, must (1) be in the form of a petition accompanied by the petition fee set forth in §1.17(i) or (2) include written authority granting access to the member of the public to the particular assignment records from the applicant or applicant's assignee or attorney or agent of record.◀

▶(d)◀ An order for a copy of an assignment should give the identification of the record. If identified only by the name of the patentee and number of the patent, or in the case of a trademark registration by the name of the registrant and number of the registration, or by name of the applicant and serial number or international application number of the application, an extra charge ▶ as set forth in §1.21(f) ◀will be made for the time consumed in making a search for such assignment.

3. Section 1.14 is proposed to be amended by adding a new paragraph (e) to read as follows:

§1.14 Patent applications preserved in secrecy.

* * * * *

▶(e) Any request by a member of the public seeking access to, or copies of, any pending or abandoned application preserved in secrecy pursuant to paragraphs (a) and (b) of this section, or of any papers relating thereto, must (1) be in the form of a petition and be accompanied by the petition fee set forth in §1.17(i) or (2) include written authority granting access to the member of the public in that particular application from the applicant or the applicant's assignee or attorney or agent of record.◀

4. A new §1.19 is proposed to be added which reads as follows:

▶ §1.19 Document supply fees.

The Patent and Trademark Office will supply copies of the following documents upon payment of the fees indicated:

(a) Uncertified copies of Office documents

(1) Printed copy of a patent, including a design patent, or defensive publication document, except color plant patent---------- $ 1.00

(2) Printed copy of a plant patent

in color---------- $ 8.00

(3) Copy of patent application as filed, each 50 pages or fraction thereof---------- $18.00

(4) Copy of patent file wrapper and contents, each 100 pages or fraction thereof---------- $30.00

(5) Copy of Office records, except as provided in subparagraphs (3) and (4) of this paragraph, per page---------- $ 0.30

(6) Microfiche copy of microfiche, per microfiche---------- $ 2.00

(b) Certified copies of Office documents

(1) For certifying Office records, per certificate---------- $ 3.50

(2) For a search of assignment records, abstract of title and certification, per patent---------- $12.00

(3) For comparing copies not prepared by the Office with the original, prior to certification of the copies, per page---------- $ 0.10

(c) Subscription services

(1) Subscription orders for printed copies of patents as issued, annual service charge for entry of order and one subclass---------- $ 4.00

(2) For annual subscription to each additional subclass in addition to the one covered by the fee under subparagraph (1) of this paragraph, per subclass---------- $ 0.40

(d) Library service (35 U.S.C. 13)

For providing to libraries copies of all patents issued annually, per annum---------- $ 50.00

(e) Lists of patents in subclass

(1) For list of all United States patents in a subclass, per 100 patent numbers or fraction thereof---------- $ 2.00

(2) For list of United States patents in a subclass limited by date or patent number,

per 50 patent numbers or fraction thereof--------- $ 2.00.◀

5. Section 1.21 is proposed to be revised to read as follows:

▶ §1.21 Miscellaneous fees and charges.

The Patent and Trademark Office has established the following fees for the services indicated:

(a) Registration of attorneys and agents

(1) For admission to examination for registration to practice, fee payable upon application----------	$75.00
(2) On registration to practice----------	$50.00
(3) For reinstatement to practice----------	$25.00
(4) For certificate of good standing as an attorney or agent----------	$10.00

(b) Deposit accounts

(1) For establishing or reinstating a deposit account----------	$10.00
(2) Service charge for each month when the balance at the end of the month is below $40----------	$ 2.00

(c) Disclosure document

For filing a disclosure document----------	$10.00

(d) Delivery box

Local delivery box rental, per annum----------	$24.00

(e) International-type search reports

For preparing an international-type search report of an international-type search made at the time of the first action on the merits in a national patent application----------	$25.00

(f) Search of Office records

For searching Patent and Trademark Office records for purposes not otherwise specified, per one-half hour or fraction thereof----------	$10.00

(g) Copy machine tokens

Token for copying machine, each---------- $ 0.20

(h) Recording of documents

(1) For recording each assignment, agreement or other paper relating to the property in a patent or application---------- $20.00

(2) Where a document to be recorded under subparagraph (1) of this paragraph refers to more than one patent or application, for each additional patent or application---------- $ 5.00

(i) Publication in Official Gazette

For publication in the Official Gazette of a notice of the availability of an application or a patent for licensing or sale, each application or patent---------- $ 6.00

(j) For a duplicate or replacement of a permanent Office user pass (There is no charge for the first permanent user pass).--------- $ 5.00

(k) For items and services, that the Commissioner finds may be supplied, for which fees are not specified by statute or by this section, such charges as may be determined by the Commissioner with respect to each such item or service---------- actual cost. ◀

6. Section 1.24 is proposed to be revised to read as follows:

§1.24 Coupons.

Coupons in [denominations] ▶ the denomination ◀ of [twenty cents and fifty-cents] ▶ one dollar ◀ are sold by the Patent and Trademark Office for the convenience of regular purchasers of U.S. patents[, designs,] and trademark registrations; these coupons may not be used for any other purpose. [The 20-cent coupons are sold individually and in books of 50 with stubs for record for $10.] The [50-cent] ▶ one dollar ◀ coupons are sold individually [and in pads of 10 for $5] and in books of 50 with stubs for record for [$25] ▶ $50 ◀. These coupons are good until used; they may be transferred but cannot be redeemed.

7. Section 1.25 is proposed to be revised to read as follows:

§1.25 Deposit accounts.

(a) For the convenience of attorneys, agents, and the general public ▶ in paying any fees due, ◀ in ordering services offered

by the Office, copies of records, etc., [special] deposit accounts may be established in the Patent and Trademark Office ▶ upon payment of the fee for establishing a deposit account (§1.21(b)(1)) ◀ . A minimum deposit of $50 or more, depending on the activity of the individual account, is required. At the close of each month's business, a statement will be rendered. A remittance must be made promptly upon receipt of the statement to cover the value of items or services charged to the account and thus restore the account to its established normal deposit value. An amount sufficient to cover all services, copies, etc., requested must always be on deposit. A service charge ▶ (§1.21(b)(2)) ◀ will be assessed for each month that the balance at the end of the month is below $40.

(b) Filing, issue, appeal, international-type search report, international application processing, [and] petition ▶ , and post-issuance ◀ fees may be charged against these accounts. ▶ A general authorization to charge all fees, or only certain fees, set forth in §§1.16 to 1.18 to a deposit account may be filed in an individual application, either for the entire pendency of the application or with respect to a particular paper filed. An authorization to charge to a deposit account the fee for a request for reexamination pursuant to §1.510 and any other fees required in a reexamination proceeding in a patent may also be filed with the request for reexamination. ◀

8. Section 1.26 is proposed to be revised to read as follows:

§1.26 Refunds.

(a) Money paid by actual mistake or in excess, such as a payment not required by law, will be refunded, but a mere change of purpose after the payment of money, as when a party desires to withdraw [his] ▶ an ◀ application ▶ , ◀ [or to withdraw] an appeal, ▶ or a request for oral hearing, ◀ will not entitle a party to demand such a return. Amounts of ▶ one dollar ◀ [fifty cents] or less will not be returned unless specifically demanded within a reasonable time, nor will the payer be notified of such amount; amounts over [fifty cents but less than] one dollar may be returned [in postage stamps, and other amounts] by check or, if requested, by credit to a deposit account.

(b) [Refund of a portion of any international search fee paid to the Patent and Trademark Office may be made where the prior art search made during the subsequent examination of a national application is wholly or partly based on the earlier international search made in the international application for which the search fee was paid. The amount of the refund will be as determined by the examiner according to the value of the prior international search made by the Patent and Trademark Office as an International Searching Authority, as 90 percent, 45 percent, or 0 percent of the international search fee. If the amount of the refund is not a multiple of $5, it will be rounded to the

next higher multiple of $5. (Note §1.446 for refund of the search fee in an international application.)] ▶ (Reserved) ◀

(c) If the Commissioner decides not to institute a reexamination proceeding, a refund of $1,200.00 will be made to the [requestor] ▶ requester ◀ of the proceeding. Reexamination [requestors] ▶ requesters ◀ should indicate whether any refund should be made by check or by credit to a deposit account.

9. Section 1.45 is proposed to be amended by revising paragraphs (b) and (c) to read as follows:

§1.45 Joint inventors.

* * * * *

(b) If an application for patent has been made through error and without any deceptive intention by two or more persons as joint inventors when they were not in fact joint inventors, the application may be amended to remove the names of those not inventors upon filing ▶ of a petition including ◀ a statement of the facts verified by all of the original applicants, ▶ the required fee (§1.17(h), ◀ and an oath or declaration as required by §1.65 by the applicant who is the actual inventor, provided the amendment is diligently made. Such amendment must have the written consent of any assignee.

(c) If an application for patent has been made through error and without any deceptive intention by less than all the actual joint inventors, the application may be amended to include all the joint inventors upon filing ▶ of a petition including ◀ a statement of the facts verified by, and an oath or declaration as required by §1.65 executed by, all the actual joint inventors, ▶ along with the required fee (§1.17(h), ◀ provided the amendment is diligently made. Such amendment must have the written consent of any assignee.

10. Section 1.47 is proposed to be revised to read as follows:

§1.47 Filing ▶ when an ◀ [by other than] inventor ▶ refuses to sign or cannot be reached ◀.

(a) If a joint inventor refuses to join in an application for patent or cannot be found or reached after diligent effort, the application may be made by the other inventor on behalf of himself ▶ or herself ◀ and the omitted inventor. [Such] ▶ The oath or declaration in such an ◀ application must be accompanied by ▶ a petition including ◀ proof of the pertinent facts ▶ and by the required fee (§1.17(h)) ◀ and must state the last known address of the omitted inventor. The Patent and Trademark Office shall forward notice of the filing of the application to the omitted inventor at said address. Should such notice be returned to the Office undelivered, or should the address of the omitted

inventor be unknown, notice of the filing of the application shall be published in the Official Gazette. The omitted inventor may subsequently join in the application on filing an oath or declaration of the character required by §1.65. A patent may be granted to the inventor making the application, upon a showing satisfactory to the Commissioner, subject to the same rights which the omitted inventor would have had if he ▶ or she ◀ had been joined.

(b) Whenever an inventor refuses to execute an application for patent, or cannot be found or reached after diligent effort, a person to whom the inventor has assigned or agreed in writing to assign the invention or who otherwise shows sufficient proprietary interest in the matter justifying such action may make application for patent on behalf of and as agent for the inventor. [Such] ▶The oath or declaration in such an◀ application must be accompanied by ▶ a petition including ◀ proof of the pertinent facts and a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage, ▶ and by the required fee (§1.17(h))◀ and must state the last known address of the inventor. The assignment, written agreement to assign or other evidence of proprietary interest, or a verified copy thereof, must be filed in the Patent and Trademark Office. The Office shall forward notice of the filing of the application to the inventor at the address stated in the application. Should such notice be returned to the Office undelivered, or should the address of the inventor be unknown, notice of the filing of the application shall be published in the Official Gazette. The inventor may subsequently join in the application on filing an oath or declaration of the character required by §1.65. A patent may be granted to the inventor upon a showing satisfactory to the Commissioner.

11. Section 1.51 is proposed to be amended by revising subparagraph (a)(4) and by adding a new paragraph (c) to read as follows:

§1.51 General requisites of an application.

(a) Applications for patents must be made to the Commissioner of Patents and Trademarks. A complete application comprises:

* * *

(4) The prescribed filing fee[. (See 35 U.S.C. section 41 for filing fees.)] ▶ , see §1.16.◀

* * * * *

▶(c) Applicants may desire and are permitted to file with, or in, the application an authorization to charge, at any time during the pendency of the application, any fees required under

any of §§1.16 to 1.18 to a deposit account established and maintained in accordance with §1.25. ◀

12. Section 1.52 is proposed to be amended by revising paragraph (a) and by adding a new paragraph (d) to read as follows:

§1.52 Language, paper, writing, margins.

(a) The application, any amendments or corrections thereto, and the oath or declaration must be in the English language except as provided for in §1.69 ▶ and paragraph (d) of this section ◀ , or be accompanied by a verified translation of the application and a translation of any corrections or amendments into the English language. All papers which are to become a part of the permanent records of the Patent and Trademark Office must be legibly written, typed, or printed in permanent ink or its equivalent in quality. All of the application papers must be presented in a form having sufficient clarity and contrast between the paper and the writing, typing, or printing thereon to permit the direct [production] ▶ reproduction ◀ of readily legible copies in any number by use of photographic, electrostatic, [photooffset] ▶ photo-offset ◀, and microfilming processes. If the papers are not of the required quality, substitute typewritten or printed papers of suitable quality may be required.

* * * * *

▶(d) An application including a signed oath or declaration may be filed in a language other than English if it is accompanied by the fee set forth in §1.17(k). A verified English translation of the non-English language application is required to be filed with the application or within such time as may be set by the Office. ◀

13. Section 1.55 is proposed to be amended by revising paragraph (b) to read as follows:

§1.55 Serial number and filing date of application.

* * * * *

(b) An applicant may claim the benefit of the filing date of a prior foreign application under the conditions specified in 35 U.S.C. 119. The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by §1.65. The claim for priority and the certified copy of the foreign application specified in the second paragraph of 35 U.S.C. 119 must be filed in the case of interference (§1.224); when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner; and in all other cases they must be filed not later than the date the issue fee is paid. If the papers filed are not in the English language, a translation need not be filed except in the three

particular instances specified in the preceding sentence, in which event a sworn translation or a translation certified as accurate by a sworn or official translator must be filed. ▶ If the priority papers are submitted after the date the issue fee is paid, they must be accompanied by a petition requesting their entry and the fee set forth in §1.17(i). ◀

* * * * *

14. Section 1.75 is proposed to be amended by revising paragraph (c) to read as follows:

§1.75 Claim(s).

* * * * *

(c) One or more claims may be presented in dependent form, referring back to and further limiting another claim or claims in the same application. Any dependent claim which refers to more than one other claim ("multiple dependent claim") shall refer to such other claims in the alternative only. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. For fee calculation purposes ▶ under §1.16 ◀, a multiple dependent claim will be considered to be that number of claims to which direct reference is made therein. For fee calculation purposes, also, any claim depending from a multiple dependent claim will be considered to be that number of claims to which direct reference is made in that multiple dependent claim. ▶ In addition to the other filing fees, any original application which is filed with, or is amended to include, multiple dependent claims must have paid therein the fee set forth in §1.16(d). ◀ Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim. A multiple dependent claim shall be construed to incorporate by reference all the limitations of each of the particular claims in relation to which it is being considered.

* * * * *

15. Section 1.85 is proposed to be revised to read as follows:

§1.85 Informal drawings.

The requirements of §1.84 relating to drawings will be strictly enforced. A drawing not executed in conformity thereto, if suitable for reproduction, may be admitted but in such case the drawing must be corrected or a new one furnished, as required. [The necessary corrections or mounting will be made by the Office upon applicant's request or permission and at his expense. (See §§1.21 and 1.165.)]

16. Section 1.86 is proposed to be removed:

[§1.86 Draftsman to make drawings.

(a) Applicants are advised to employ competent draftsmen to make their drawings.

(b) The Office may furnish the drawings at the applicant's expense as promptly as its draftsmen can make them, for applicants who can not otherwise conveniently procure them. (See §1.21.)]

17. Section 1.102 is proposed to be amended by revising paragraph (a) and adding new paragraphs (c) and (d) to read as follows:

§1.102 Advancement of examination.

(a) Applications will not be advanced out of turn for examination or for further action except as provided by this part, or upon order of the Commissioner to expedite the business of the Office, or upon ▶ filing of a request under paragraph (b) of this section or upon filing a petition under paragraphs (c) or (d) of this section with ◀ a verified showing which, in the opinion of the Commissioner, will justify so advancing it.

* * * * *

▶(c) A petition to make an application special may be filed without a fee if the basis for the petition is the applicant's age or health or that the invention will materially enhance the quality of the environment or materially contribute to the development or conservation of energy resources.◀

▶(d) A petition to make an application special on grounds other than those referred to in paragraph (c) of this section must be accompanied by the petition fee set forth in §1.17(i).◀

18. Section 1.103 is proposed to be amended by revising paragraphs (a) and (b) to read as follows:

§1.103 Suspension of action.

(a) Suspension of action by the Office will be granted [at the request of the applicant] for good and sufficient cause and for a reasonable time specified ▶ upon petition by the applicant and, if such cause is not the fault of the Office, the payment of the fee set forth in §1.17(i). Action will not be suspended when a response by the applicant to an Office action is required ◀. [Only one suspension may be granted by the primary examiner; any further suspension must be approved by the Commissioner.]

(b) If action ▶ by the Office ◀ on an application is suspended when not requested by the applicant, the applicant shall be notified of the reasons therefor.

* * * * *

19. Section 1.104 is proposed to be amended by revising paragraph (d) to read as follows:

§1.104 Nature of examination; examiner's action.

* * * * *

(d) Any national application may also have an international-type search report prepared thereon at the time of the national examination on the merits, upon specific written request therefor and payment of the international-type search report fee. See §1.21[(w)] ▶ (e) ◀ for amount of fee for preparation of international-type search report.

20. Section 1.134 is proposed to be added and reads as follows:

▶ §1.134 Time period for response to an Office action.

An Office action will notify the applicant of any non-statutory or shortened statutory time period set for response to an Office action. Unless the applicant is notified in writing that response is required in less than six months, a maximum period of six months is allowed. ◀

21. Section 1.135 is proposed to be amended by revising paragraphs (a), (b) and (c) to read as follows:

§1.135 Abandonment for failure to respond within time ▶ period ◀ [limit].

(a) If an applicant ▶ of a patent application ◀ fails to ▶ respond within the time period provided under §§1.134 and 1.136 ◀ [prosecute his application within six months after the date when the last official notice of any action by the Office was mailed to him, or within such shorter time as may be fixed (§1.136)], the application will become abandoned ▶ unless an Office action indicates otherwise ◀ .

(b) Prosecution of an application to save it from abandonment ▶ pursuant to paragraph (a) of this section ◀ must include such complete and proper action as the condition of the case may require. The admission of an amendment not responsive to the last official action, or refusal to admit the same, and any proceedings relative thereto, shall not operate to save the application from abandonment.

(c) When action by the applicant is a bona fide attempt to ▶ respond and to ◀ advance the case to final action, and is substantially a complete response to the [examiner's] ▶ Office ◀ action, but consideration of some matter or compliance with some requirement has been inadvertently omitted, opportunity to

explain and supply the omission may be given before the question of abandonment is considered.

* * * * *

22. Section 1.136 is proposed to be revised to read as follows:

§1.136 ▶Filing of timely responses with petition and fee for extension of time and extensions of time for cause. ◀[Time less than six months.]

(a) ▶ If an ◀[An] applicant ▶ is ◀[may be] required to ▶ respond within a non-statutory or shortened statutory time period, applicant may respond up to four months after the time period set if a petition for an extension of time and the fee set in §1.17 are filed prior to or with the response, unless (1) applicant is notified otherwise in an Office action or (2) the application is involved in an interference declared pursuant to §1.207. The date on which the response, the petition, and the fee have been filed is the date of the response and also the date for purposes of determining the period of extension and the corresponding amount of the fee. The expiration of the time period is determined by the amount of the fee paid. In no case may an applicant respond later than the maximum time period set by statute, or be granted an extension of time under paragraph (b) of this section when the provisions of this paragraph are available. ◀[prosecute his application in a shorter time than six months, but not less than thirty days, whenever such shorter time is deemed necessary or expedient. Unless the applicant is notified in writing that response is required in less than six months, the maximum period of six months is allowed.]

(b) ▶When a response with petition and fee for extension of time cannot be filed pursuant to paragraph (a) of this section, the time for response ◀[The time for reply, when a time less than six months has been set,] will be extended only for sufficient cause, and for a reasonable time specified. Any request for such extension must be filed on or before the day on which action by the applicant is due, but in no case will the mere filing of the request effect any extension. [Only one extension may be granted by the primary examiner in his discretion; any further extension must be approved by the Commissioner.] In no case can any extension carry the date on which response to an ▶Office◀ action is due beyond [six months from the date of the action.]▶ the maximum time period set by statute or be granted when the provisions of paragraph (a) of this section are available. See §1.245 for extension of time in interference proceedings.◀

23. Section 1.165 is proposed to be amended by revising paragraph (b) to read as follows:

§1.165 Drawings.

* * * * *

(b) The drawing may be in color and when color is a distinguishing characteristic of the new variety, the drawing must be in color. Two copies of color drawings must be submitted. Color drawings may be made either in permanent water color or oil, or in lieu thereof may be photographs made by color photography or properly colored on sensitized paper. Permanently mounted color photographs are acceptable. The paper in any case must correspond in size, weight and quality to the paper required for other drawings. See §1.84 [Nonpermanently mounted copies will be correctly mounted at applicant's expense, §1.21(v)].

24. Section 1.171 is proposed to be revised to read as follows:

§1.171 Application for reissue.

An application for reissue must contain the same parts required for an application for an original patent, complying with all the rules relating thereto except as otherwise provided, and in addition, must comply with the requirements of the rules relating to reissue applications. The application must be accompanied by a certified copy of an abstract of title or an order for a title report ▶ accompanied by the fee set forth in §1.19(b)(2) ◀, to be placed in the file, and by an offer to surrender the original patent (§1.178).

25. Section 1.177 is proposed to be revised to read as follows:

§1.177 Reissue in divisions.

The Commissioner may, in his ▶ or her ◀ discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for each division. Each division of a reissue constitutes the subject of a separate specification descriptive of the part or parts of the invention claimed in such division; and the drawing may represent only such part or parts, subject to the provisions of §§1.83 and 1.84. On filing divisional reissue applications, they shall be referred to the Commissioner. Unless otherwise ordered by the Commissioner ▶ upon petition and payment of the fee set forth in §1.17(i) ◀, all the divisions of a reissue will issue simultaneously; if there be any controversy as to one division, the others will be withheld from issue until the controversy is ended, unless the Commissioner shall otherwise order.

26. Section 1.181 is proposed to be amended by revising paragraphs (d) and (g) to read as follows:

§1.181 Petition to the Commissioner.

* * * * *

(d) ▶ Where a ◀ [No] fee is required for a petition to the Commissioner ▶ the appropriate section of this part will so indicate ◀ [except in the case of a petition to revive an abandoned application (§1.137) or for the delayed payment of an issue fee (§1.317)]. ▶ If any required fee does not accompany the petition, the petition will be dismissed. ◀

* * * * *

(g) The Commissioner may delegate to appropriate Patent and Trademark Office officials the determination of petitions [under this section, with the exception of petitions under §1.183].

27. Section 1.182 is proposed to be revised to read as follows:

§1.182 Questions not specifically provided for.

All cases not specifically provided for in the regulations of this part will be decided in accordance with the merits of each case by or under the authority of the Commissioner, and such decision will be communicated to the interested parties in writing. ▶ Any petition seeking a decision under this section must be accompanied by the petition fee set forth in §1.17(h). ◀

28. Section 1.183 is proposed to be revised to read as follows:

§1.183 Suspension of rules.

In an extraordinary situation, when justice requires, any requirement of the regulations in this part which is not a requirement of the statutes may be suspended or waived by the Commissioner [in person] ▶ or the Commissioner's designee, sua sponte, or ◀ on petition of the interested party, subject to such other requirements as may be imposed. ▶ Any petition under this section must be accompanied by the petition fee set forth in §1.17(h). ◀

29. Section 1.191 is proposed to be amended by revising paragraph (a) to read as follows:

§1.191 Appeal to Board of Appeals.

(a) Every applicant for a patent or for reissue of a patent, or every owner of a patent under reexamination, any of the claims of which have been twice rejected, or who has been given a final rejection (§1.113), may, upon the payment of the fee ▶ set forth in §1.17(e) ◀ [required by law], appeal from the decision of the [primary] examiner to the Board of Appeals within the time allowed for response.

* * * * *

30. Section 1.192 is proposed to be amended by revising paragraph (a) to read as follows:

§1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the notice of appeal under §1.191 in an application, reissue application, or patent under reexamination, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate. The brief must be accompanied by the requisite fee ▶ set forth in §1.17(f) ◀ and must set forth the authorities and arguments on which the appellant will rely to maintain the appeal. The brief must include a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved. Appellant must also indicate at the time of filing the brief if an oral hearing is desired ▶ and submit therewith the fee set forth in §1.17(g). The time periods set forth herein are subject to the provisions of §1.136 ◀. [Upon a showing of sufficient cause, the Commissioner may grant extensions of time for filing the brief. The determination of such requests may be delegated by the Commissioner to appropriate Patent and Trademark Office officials. All requests for extensions must be filed prior to the expiration of the period sought to be extended. The filing of a request for extension of time does not stay any period unless and until granted.]

* * * * *

31. Section 1.194 is proposed to be amended by revising paragraphs (b) and (c) to read as follows:

§1.194 Oral hearing.

* * * * *

(b) If appellant requests an oral hearing ▶ and submits therewith the fee set forth in §1.17(g) ◀, an oral argument may be presented by, or on behalf of, the primary examiner if considered desirable by either the primary examiner or the Board.

(c) If no request ▶ and fee ◀ for oral hearing ▶ have ◀ [has] been ▶ filed ◀ [made] by the appellant, the appeal will be assigned for consideration and decision. If the appellant has requested an oral hearing ▶ and has submitted the fee set forth in §1.17(g) ◀, a day of hearing will be set, and due notice thereof given to the appellant and to the primary examiner. Hearing will be held as stated in the notice, and oral argument will be limited to twenty minutes for the appellant and fifteen minutes for the primary examiner unless otherwise ordered before the hearing begins.

32. Section 1.197 is proposed to be amended by revising paragraph (b) to read as follows:

§1.197 Action following decision.

* * * * *

(b) ▶ A single ◀ [Any] request for rehearing or reconsideration, or modification of the decision, [must] ▶ may ◀ be ▶ made if ◀ filed within thirty days from the date of the original decision, unless that decision is so modified as to become, in effect, a new decision, and the Board of Appeals so states. Such time may be extended [by the Board of Appeals upon a showing of sufficient cause] ▶ under the provisions of §1.136 ◀.

* * * * *

33. Section 1.231 is proposed to be amended by revising paragraph (a)(1) to read as follows:

§1.231 Motions before the primary examiner.

(a) Within the period set in the notice of interference for filing motions any party to an interference may file a motion seeking:

(1) To dissolve as to one or more counts, except that such motion based on facts sought to be established by affidavits, declarations or evidence outside of official records and printed publications will not normally be considered. A motion to dissolve an interference in which a patentee is a party on the ground that the claims corresponding to the counts are unpatentable to the patentee over patents or printed publications will be considered through reexamination if it complies with the requirements of §1.510(b) and is accompanied by the fee for requesting reexamination set in § ▶ 1.20(c) ◀ [1.21(x)]. Otherwise, a motion to dissolve an interference in which a patentee is a party will not be considered if it would necessarily result in the conclusion that the claims of the patent which correspond to the counts are unpatentable to the patentee on a ground which is not ancillary to priority. Where a motion to dissolve is based on prior art, service on opposing parties must include copies of such prior art. A motion to dissolve on the ground that there is no interference in fact will not be considered unless the interference involves a design or plant patent or application or unless it relates to a count which differs from the corresponding claim of an involved patent or of one or more of the involved applications as provided in §§1.203(a) and 1.205(a).

* * *

* * * * *

34. Section 1.245 is proposed to be revised to read as follows:

§1.245 Extension of time.

Extensions of time in any [case] ▶ interference proceeding ◀ not otherwise provided for may be had by stipulation of the parties, subject to approval, or on motion duly brought, sufficient cause being shown for such extension. ▶ The provisions of §1.136 do not apply to time periods in interferences. ◀

35. Section 1.246 is proposed to be revised to read as follows:

§1.246 Late papers.

A motion or other paper belatedly filed will not normally be considered except upon a showing, under oath or in the form of a declaration (§1.68), of sufficient cause as to why such motion or paper was not timely presented. ▶ The provisions of §1.136 do not apply to time periods in interferences. ◀

36. Section 1.263 is proposed to be revised to read as follows:

§1.263 Statutory disclaimer by patentee.

The disclaimer referred to in §1.262, when made by a patentee in interference is not a disclaimer under 35 U.S.C. 253. If a disclaimer under the statute ▶ and the fee set forth in §1.20(d) ◀ (see §1.321) cancelling claims involved in the interference from the patent, is made by the patentee, including all assignees as shown by the records of the Patent and Trademark Office, the interference will be dissolved pro forma as to such claims.

37. Section 1.268 is proposed to be added and to read as follows:

▶ §1.268 Filing of interference settlement agreements.

(a) Any agreement or understanding between parties to an interference, including any collateral agreements referred to therein, made in connection with or in contemplation of the termination of the interference, must be in writing and a true copy thereof filed in the Patent and Trademark Office, directed to the Board of Patent Interferences, before the termination of the interference as between the said parties to the agreement or understanding.

(b) If any party filing the agreement or understanding pursuant to paragraph (a) of this section so requests, the copy will be kept separate from the file of the interference, and made available only to Government agencies on written request, or to any person upon petition accompanied by the fee set forth in §1.17(i) and on a showing of good cause.

(c) Failure to file the copy of the agreement or understanding pursuant to paragraph (a) of this section, will render permanently unenforceable such agreement or understanding and any patent of the parties involved in the interference or any patent subsequently issued on any application of the parties so involved. The Commissioner may, however, upon petition accompanied by the fee set forth in §1.17(h) and on a showing of good cause for failure to file within the time prescribed, permit the filing of the agreement or understanding during the six-month period subsequent to the termination of the interference as between the parties to the agreement or understanding.◀

38. Section 1.292 is proposed to be amended by revising paragraph (a) to read as follows:

§1.292 Public use proceedings.

(a) When a petition for the institution of public use proceedings, supported by affidavits or declarations ▶ and the fee set forth in §1.17(j) ◀ is filed by one having information of the pendency of an application and is found, on reference to the primary examiner, to make a prima facie showing that the invention involved in an interference or claimed in an application believed to be on file had been in public use or on sale one year before the filing of the application, or before the date alleged by an interfering party in his ▶ or her ◀ preliminary statement or the date of invention established by such party, a hearing may be had before the Commissioner to determine whether a public use proceeding should be instituted. If instituted, times may be set for taking testimony, which shall be taken as provided by §§1.271 to 1.286. The petitioner will be heard in the proceedings but after decision therein will not be heard further in the prosecution of the application for patent.

* * * * *

39. Section 1.304 is proposed to be amended by revising paragraph (a) to read as follows:

§1.304 Time for appeal or civil action.

(a) The time for filing the notice and reasons of appeal to the U.S. Court of [Customs and Patent] Appeals ▶ for the Federal Circuit ◀ ([section] ▶ § ◀ 1.302) or for commencing a civil action ([section] ▶ § ◀ 1.303) is sixty days from the date of the decision of the Board of Appeals or the Board of Patent Interferences. If a request for rehearing or reconsideration, or modification of the decision, is filed within the time [specified in section] ▶ provided pursuant to § ◀ 1.197(b) or ▶ § ◀ 1.256(b), [or within any extension of time granted thereunder,] the time for filing an appeal or commencing a civil action shall expire at the end of the sixty-day period or thirty days after action on the request, whichever is later. The [sixty and thirty

day] ▶ time ◀ periods [may be extended by the Commissioner upon a showing of sufficient cause.] ▶ set forth herein are subject to the provisions of §1.136. ◀

* * * * *

40. Section 1.311 is proposed to be revised to read as follows:

§1.311 Notice of allowance.

▶(a) ◀ If, on examination, it shall appear that the applicant is entitled to a patent under the law, a notice of allowance will be sent to [him, his attorney or his agent] ▶ applicant at the correspondence address indicated in §1.33 ◀ , calling for the payment of a specified sum constituting the issue fee ▶(§1.18)◀ , [or a portion thereof,] which shall be paid within 3 months from the date of the ▶ mailing of the ◀ notice of allowance.

▶(b) An authorization to charge the issue fee (§1.18) to a deposit account may be filed in an individual application, either before or after mailing of the notice of allowance. Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of the notice of allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. ◀

41. Section 1.312 is proposed to be revised to read as follows:

§1.312 Amendments after allowance.

▶ (a) No amendment may be made as a matter of right in an application after the mailing of the notice of allowance. Any amendment pursuant to this paragraph filed before the payment of the issue fee may be entered ◀[Amendments after the notice of allowance of an application will not be permitted as a matter of right. However, such amendments may be made if filed not later than the date the issue fee is paid,] on the recommendation of the primary examiner, approved by the Commissioner, without withdrawing the case from issue.

▶(b) Any amendment pursuant to paragraph (a) of this section filed after the date the issue fee is paid must be accompanied by a petition including the fee set forth in §1.17(i) and a showing of good and sufficient reasons why the amendment is necessary and was not earlier presented. ◀

42. Section 1.313 is proposed to be revised to read as follows:

§1.313 Withdrawal from issue.

(a) ▶ Applications may be withdrawn from issue for further action at the initiative of the Office or upon petition by the applicant. Any such petition by the applicant must include a

showing of good and sufficient reasons why withdrawal of the application is necessary and, if the reason for the withdrawal is not the fault of the Office, must be accompanied by the fee set forth in §1.17(i). If the application is withdrawn from issue ◀ [After the notice of allowance of an application is sent, the case will not be withdrawn from issue except by approval of the Commissioner, and if withdrawn for further action on the part of the Office], a new notice of allowance will be sent if the application is again allowed. ▶ Any amendment accompanying a petition to withdraw an application from issue must comply with the requirements of §1.312. ◀

(b) When the issue fee [or that portion thereof specified in the notice of allowance] has been paid, and the patent to be issued has received its ▶ issue ◀ date and ▶ patent ◀ number, the application will not be withdrawn from issue [on account of any mistake or change of purpose of the applicant, his attorney or his agent, nor for the purpose of enabling the inventor to procure a foreign patent, nor] for any [other reasons] ▶ reason ◀ except ▶ (1) ◀ mistake on the part of the Office, [or because of fraud] ▶ (2) a violation of §1.56 ◀ or illegality in the application, ▶ (3) unpatentability of one or more claims, ◀ or ▶ (4) ◀ for interference.

43. Section 1.314 is proposed to be revised to read as follows:

§1.314 Issuance of patent.

If payment of the issue fee [or that portion thereof specified in the notice of allowance] is timely made, the patent will issue in regular course ▶ unless (1) the application is withdrawn from issue (§1.313) or (2) issuance of the patent is deferred. Any petition by the applicant requesting deferral of the issuance of a patent must be accompanied by the fee set forth in §1.17(i) and must include a showing of good and sufficient reasons why it is necessary to defer issuance of the patent ◀ .

44. Section 1.317 is proposed to be amended by revising paragraph (a) to read as follows:

§1.317 Lapsed patents; delayed payment of balance of issue fee.

(a) ▶ If the issue fee was paid prior to October 1, 1982, any ◀ [Any] remaining balance of the issue fee is to be paid within three months from the date of notice thereof and, if not paid, the patent will lapse at the termination of the three month period.

* * * * *

45. Section 1.321 is proposed to be revised to read as follows:

§1.321 Statutory disclaimer.

(a) A disclaimer under 35 U.S.C. 253 must ▶ be accompanied by the fee set forth in §1.20(d) and ◀ identify the patent and the claim or claims which are disclaimed, and be signed by the person making the disclaimer, who shall state therein the extent of his ▶ or her ◀ interest in the patent. A disclaimer which is not a disclaimer of a complete claim or claims may be refused recordation. A notice of the disclaimer is published in the Official Gazette and attached to the printed copies of the specification. In like manner any patentee or applicant may disclaim or dedicate to the public the entire term, or any terminal part of the term, of the patent granted or to be granted.

(b) A terminal disclaimer, when filed in an application to obviate a double patenting rejection, must ▶ be accompanied by the fee set forth in §1.20(d) and ◀ include a provision that any patent granted on that application shall be enforceable only for and during such period that said patent is commonly owned with the application or patent which formed the basis for the rejection. [See §1.21 for fee.]

46. Section 1.324 is proposed to be revised to read as follows:

§1.324 Correction of [error in joining inventor] ▶ inventorship in patent ◀ .

Whenever a patent is issued and it appears that there was a misjoinder or nonjoinder of inventors and that such misjoinder or omission occurred by error and without deceptive intention, the Commissioner may, on ▶ petition ◀ [application] of all the parties and the assignees and satisfactory proof of the facts ▶ and payment of the fee set forth in §1.20(b) ◀ , or on order of a court before which such matter is called in question, issue a certificate deleting the misjoined inventor from the patent or adding the non-joined inventor to the patent.

47. Section 1.331 is proposed to be amended by revising paragraph (a) to read as follows:

§1.331 Recording of assignments.

(a) Assignments, including grants and conveyances, of patents, national applications, or international applications which designate the United States of America, will be recorded in the Patent and Trademark Office under 35 U.S.C. 261. Other instruments affecting title to a patent, a national application, or an international application which designates the United States of America, and licenses, even though the recording thereof may not serve as constructive notice under 35 U.S.C. 261, will be recorded as provided in this section or at the discretion of the Commissioner. ▶ Any instrument to be recorded, except

those under Part 7 of this title, must be accompanied by the fee set forth in §1.21(h). ◀

* * * * *

48. Section 1.332 is proposed to be revised to read as follows:

§1.332 Receipt and recording.

Assignments are recorded in regular order as promptly as possible, and then transmitted with the date and identification of the record stamped thereon to the persons entitled to them. The date of the record is the date of the receipt of the assignment at the Office in proper form and accompanied by the [full legal] fee [for recording specified in 35 U.S.C. 41(a)10.] ▶set forth in §1.21(h).◀

49. Section 1.334 is proposed to be revised to read as follows:

§1.334 Issue of patent to assignee.

▶(a)◀ In case of an assignment of the entire interest in the invention and application, or of the entire interest in the patent to be granted, the patent will normally issue to the assignee. If the assignee should hold an undivided part interest, the patent will normally issue jointly to the inventor and the assignee. If it is desired that the patent so issue ▶,◀ the assignment in either case must first have been recorded, and at a day not later than the date payment is made of the issue fee [or portion thereof specified in the notice of allowance].

▶(b)◀ At the time of payment of the issue fee, a statement must be furnished indicating whether or not an assignment has been filed with the Patent and Trademark Office. In the event an assignment has been filed, such statement must include the name ▶and address◀ of the assignee and indicate whether or not an acknowledgement of a recorded assignment has been received from the Patent and Trademark Office.

▶(c) If the assignment is recorded after the date of payment of the issue fee, the assignee may petition that the patent issue to the assignee as recorded. Any such petition must be accompanied by the fee set forth in §1.17(i).◀

50. Section 1.341 is proposed to be amended by revising paragraph (h) to read as follows:

§1.341 Registration of attorneys and agents.

* * * * *

(h) Oath and registration fee. Before his ▶ or her ◀ name may be entered on the register of attorneys or on the register of agents, every applicant for registration must, after his ▶ or her ◀ application is approved, subscribe and swear to an oath or make a declaration prescribed by the Commissioner of Patents and Trademarks and pay the prescribed registration fee. (See §1.21[(h)] ▶ (a)(2) ◀ .)

* * * * *

51. Section 1.347 is proposed to be revised to read as follows:

§1.347 Removing names from registers.

Attorneys and agents, registered to practice before the Patent and Trademark Office, should notify the Office of any change of address for entry on the register, by letter separate from any notice of change of address filed in individual applications. The Office may address a letter to any person on the registers, at the address of which separate notice for the register was last received, for the purpose of ascertaining whether such person desires to remain on the register. The name of any person failing to reply and give the information requested within a time limit specified will be removed from the register, and the names so removed published in the Official Gazette. Any name so removed may be reinstated, either on the register of attorneys or the register of agents, as may be appropriate. ▶ Any request for reinstatement must be accompanied by the fee set forth in §1.21(a)(3). ◀

52. Section 1.445 is proposed to be amended by revising paragraphs (a)(1)-(4) to read as follows:

§1.445 International application filing and processing fees.

(a) The following fees and charges are established by the Patent and Trademark Office under the authority of 35 U.S.C. 376:

(1) A transmittal fee (see 35 U.S.C. 361(d) and PCT Rule 14) - [$35] ▶ $125.00 ◀ .

(2) A search fee (see 35 U.S.C. 361(d) and PCT Rule 16) - [$300] ▶ $500.00 ◀ .

(3) A supplemental search fee when required (see PCT Art. 17(3)(a) and PCT Rule 40.2) - [$200] ▶ $125.00 ◀ per additional invention.

(4) The national fee, that is, the amount set forth as the filing fee under [35 U.S.C. 41(a)(1)] ▶ §1.16(a)-(d) ◀ .

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53. Section 1.446 is proposed to be amended by deleting paragraph (b).

§1.446 Refund of international application filing and processing fees.

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(b) [Refunds of a portion of the search fee may be made if the international search report is wholly or partly based on an earlier international or international-type search (PCT Rules 16 and 41). The amount of the refund will be as determined by the examiner according to the value of the prior international-type search or international search as 90%, 45% or 0% of the international search fee. If the amount of the refund is not a multiple of $5, it will be rounded to the next higher multiple of $5. See §1.26 for refund of a portion of the international search fee during subsequent national examination of the application.] ▶ (Reserved) ◀

* * * * *

54. Section 1.451 is proposed to be amended by revising paragraph (b) to read as follows:

§1.451 The priority claim and priority document in an international application.

* * * * *

(b) Whenever the priority of an earlier United States national application is claimed in an international application, the applicant may request in a letter of transmittal accompanying the international application upon filing with the United States Receiving Office, that the Patent and Trademark Office prepare a certified copy of the national application for transmittal to the International Bureau (PCT Art. 8 and PCT Rule 17). The fee for preparing a certified copy is stated in §[1.21(b) and 35 U.S.C. 41(11).] ▶ 1.19(a)(4) and (b)(1). ◀

* * * * *

55. Section 1.510 is proposed to be amended by revising paragraph (a) to read as follows:

§1.510 Request for reexamination.

(a) Any person may, at any time during the period of enforceability of a patent, file a request for reexamination by the Patent and Trademark Office of any claim of the patent on the basis of prior art patents or printed publications cited under

§1.501. The request must be accompanied by the fee for requesting reexamination set in §[1.21(x).] ▶1.20(c).◀

* * * * *

56. Part 3 is proposed to be removed.

ALTERNATIVE A - PROPOSED RULE CHANGES UNDER ONLY PUBLIC LAW 96-517

57. A new §1.16 is proposed to be added which reads as follows:

▶ §1.16 National application filing fees.

(a) Basic fee for filing each application for an original patent, except design or plant cases---------- $150.00

(b) In addition to the basic filing fee in an original application, for filing or later presentation of each independent claim in excess of 3---------- $ 15.00

(c) In addition to the basic filing fee in an original application, for filing or later presentation of each claim (whether independent or dependent) in excess of 20 (Note that §1.75(c) indicates how multiple dependent claims are considered for fee calculation purposes.)---------- $ 5.00

(d) In addition to the basic filing fee in an original application, if the application contains, or is amended to contain, a multiple dependent claim(s), per application------- $ 50.00

(If the additional fees required by paragraphs (b), (c) and (d) are not paid on filing or on later presentation of the claims for which the additional fees are due, they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Office in any notice of fee deficiency.)

(e) (Reserved)

(f) For filing each design application----------$ 63.00

(g) Basic fee for filing each plant application-------- $100.00

(h) Basic fee for filing each reissue application------ $150.00

(i) In addition to the basic filing fee in a reissue application, for filing or later presentation

of each independent claim which is in excess of the number of independent claims in the original patent---------- $ 15.00

(j) In addition to the basic filing fee in a reissue application, for filing or later presentation of each claim (whether independent or dependent) in excess of 20 and also in excess of the number of claims in the original patent, (Note that §1.75(c) indicates how multiple dependent claims are considered for fee purposes.)---------- $ 5.00

(Note, see §1.445 for international application filing and processing fees.).◀

58. A new §1.17 is proposed to be added which reads as follows:

▶ §1.17 Patent application processing fees.

(a) Extension fee for response within first month pursuant to §1.136(a)---------- $ 50.00

(b) Extension fee for response within second month pursuant to §1.136(a)---------- $150.00

(c) Extension fee for response within third month pursuant to §1.136(a)---------- $350.00

(d) Extension fee for response within fourth month pursuant to §1.136(a)---------- $550.00

(e) For filing a notice of appeal from the examiner to the Board of Appeals---------- $ 58.00

(f) In addition to the fee for filing a notice of appeal, for filing a brief in support of an appeal---------- $ 58.00

(g) For filing a request for an oral hearing before the Board of Appeals---------- $ 50.00

(h) For filing a petition to the Commissioner under a section of this part listed below which refers to this paragraph----------$120.00

--§1.45 - for correction of inventorship
--§1.47 - for filing by other than all the inventors
--§1.182 - for decision on questions not specifically provided for
--§1.183 - to suspend the rules
--§1.268 - for late filing of interference settlement agreement

(i) For filing a petition to the Commissioner under a section of this part listed below which refers to this paragraph----------$ 60.00

--§1.12 - for access to an assignment record
--§1.14 - for access to an application
--§1.55 - for entry of late priority papers
--§1.102 - to make application special
--§1.103 - to suspend action in application
--§1.177 - for divisional reissues to issue separately
--§1.268 - for access to interference settlement agreement
--§1.312 - for amendment after payment of issue fee
--§1.313 - to withdraw an application from issue
--§1.314 - to defer issuance of a patent
--§1.334 - for patent to issue to assignee, assignment recorded late

(j) For filing a petition to institute a public use proceeding under §1.292----------$750.00

(k) For processing an application filed with a specification in a non-English language (§1.52(d))----------$ 20.00

(l) For filing a petition (1) for the revival of an abandoned application under 35 U.S.C. 133, or (2) for delayed payment of the issue fee under 35 U.S.C. 151----------$120.00.◀

59. A new §1.18 is proposed to be added which reads as follows:

▶ §1.18 Patent issue fees.

(a) Issue fee for issuing each original or reissue patent, except a design or plant patent----------$250.00

(b) Issue fee for issuing a design patent for a 3½, 7 or 14 year term----------$ 88.00

(c) Issue fee for issuing a plant patent----------$125.00.◀

60. A new §1.20 is proposed to be added which reads as follows:

▶ §1.20 Post-issuance fees.

(a) For providing a certificate of correction of applicant's mistake (§1.323)----------$ 40.00

(b) Petition for correction of inventorship in patent (§1.324)----------$ 120.00

(c) For filing a request for reexamination

(§1.510(a))----------$1,500.00

(d) For filing each statutory disclaimer (§1.321)----------$ 50.00

(e) For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant-------- $ 200.00

(f) For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980, in force beyond 8 years; the fee is due by seven years and six months after the original grant---------- $ 400.00

(g) For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980, in force beyond 12 years; the fee is due by eleven years and six months after the original grant---------- $ 600.00.◀

61. Section 1.137 is proposed to be revised to read as follows:

§1.137 Revival of abandoned application.

▶ (a) ◀ An application abandoned for failure to prosecute may be revived as a pending application if it is shown to the satisfaction of the Commissioner that the delay was unavoidable. A petition to revive an abandoned application must be accompanied by a [verified] showing of the causes of the delay, by the proposed response unless it has been previously filed, and by the petition fee ▶ set forth in §1.17(l). Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office ◀.

▶ (b) (Reserved) ◀

▶ (c) Any petition filed pursuant to paragraph (a) of this section must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment. Any such petition not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under §1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application. ◀

62. Section 1.155 is proposed to be revised to read as follows:

§1.155 Issue and term of design patents.

(a) If, on examination, it shall appear that the applicant is entitled to a design patent under the law, a notice of allowance will be sent to ▶ the applicant, or applicant's ◀ [him, his] attorney or [his] agent, calling for the payment of ▶ the ◀ [an] issue fee ▶ (§1.18(b)) ◀ [in an appropriate amount dependent on the duration of the term desired by the applicant]. If this issue fee is not paid within 3 months of the date of the notice of allowance, the application shall be regarded as abandoned.

(b) The Commissioner may accept the [late] payment of the ▶ issue ◀ fee [specified in the notice of allowance] later than three months after the mailing of the notice ▶ of allowance ◀ as though no abandonment had ever occurred if upon petition the delay in payment is shown to have been unavoidable. The petition to accept the delayed payment must be accompanied by ▶ (1) ◀ the issue fee [or portion thereof specified in the notice of allowance], unless it has been previously submitted, ▶ (2) ◀ the fee for delayed payment ▶ (§1.17(1)) ◀ , and ▶ (3) ◀ a showing [in the form of an oath or declaration as to the causes of] ▶ that ◀ the delay ▶ was unavoidable. Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office ◀ .

▶ (c) (Reserved) ◀

▶ (d) Any petition filed pursuant to paragraph (b) of this section must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment. Any such petition not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under §1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application. ◀

63. Section 1.316 is proposed to be revised to read as follows:

§1.316 Application abandoned for failure to pay issue fee.

(a) If the ▶ issue ◀ fee [specified in the notice of allowance] is not paid within 3 months from the date of the notice ▶ of allowance, ◀ the application will be regarded as abandoned. Such an abandoned application will not be considered as pending before the Patent and Trademark Office.

(b) The Commissioner may accept the [late] payment of the ▶ issue ◀ fee [specified in the notice of allowance] later than three months after the mailing of the notice ▶ of allowance ◀ as though no abandonment had ever occurred if upon petition the delay in payment is shown to have been unavoidable. The petition to accept the delayed payment must be accompanied by ▶ (1) ◀ the issue fee [or portion thereof specified in the notice of

allowance], unless it has been previously submitted, ▶(2)◀ the fee for delayed payment ▶(§1.17(1))◀, and ▶(3)◀ a showing [in the form of an oath or declaration as to the causes of] ▶that ◀the delay ▶was unavoidable. Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office◀.

▶(c) (Reserved)◀

▶(d) Any petition filed pursuant to paragraph (b) of this section must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment. Any such petition not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under §1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application.◀

ALTERNATIVE B - PROPOSED RULE CHANGES UNDER H.R. 6260.

64. Section 1.9 is proposed to be amended by adding new paragraphs (c)-(f) to read as follows:

§1.9 Definitions.

* * * * *

▶(c) An independent inventor as used in this chapter means any inventor who (1) has not assigned, granted, conveyed, or licensed, and (2) is under no obligation under contract, law, or otherwise, to assign, grant, convey, or license, any rights in the invention, including (i) the right to make, use, or sell the invention, and (ii) the right to exclude others from making, using, or selling the invention, to any person who could not likewise be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section.◀

▶(d) A small business concern as used in this chapter means any business concern which, including affiliates as defined in 13 CFR 121.3-2(a), meets the standards for a small business concern as defined in regulations established by the Small Business Administration.◀

▶(e) A nonprofit organization as used in this chapter means (1) a university or other institution of higher education; (2) an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a); or (3) any nonprofit scientific or educational organization qualified under a nonprofit organization statute of a state of this country (35 U.S.C. 201(i)).◀

▶(f) A small entity as used in this chapter means an independent inventor, a small business concern or a nonprofit organization as defined in this section.◀

65. A new §1.16 is proposed to be added which reads as follows:

▶ §1.16 National application filing fees.

(a) Basic fee for filing each application for an original patent, except design or plant cases:

By a small entity (§1.9(f))	$150.00
By other than a small entity	$300.00

(b) In addition to the basic filing fee in an original application, for filing or later presentation of each independent claim in excess of 3:

By a small entity (§1.9(f))	$ 15.00
By other than a small entity	$ 30.00

(c) In addition to the basic filing fee in an original application, for filing or later presentation of each claim (whether independent or dependent) in excess of 20 (Note that §1.75(c) indicates how multiple dependent claims are considered for fee calculation purposes.):

By a small entity (§1.9(f))	$ 5.00
By other than a small entity	$ 10.00

(d) In addition to the basic filing fee in an original application, if the application contains, or is amended to contain, a multiple dependent claim(s), per application:

By a small entity (§1.9(f))	$ 50.00
By other than a small entity	$100.00

(If the additional fees required by paragraphs (b), (c) and (d) are not paid on filing or on later presentation of the claims for which the additional fees are due, they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Office in any notice of fee deficiency.)

(e) Surcharge for filing the basic filing fee or oath or declaration on a date later than the filing date of the application:

By a small entity (§1.9(f))---------- $ 50.00
By other than a small entity---------- $100.00

(f) For filing each design application:

By a small entity (§1.9(f))---------- $ 62.50
By other than a small entity---------- $125.00

(g) Basic fee for filing each plant application:

By a small entity (§1.9(f))---------- $100.00
By other than a small entity---------- $200.00

(h) Basic fee for filing each reissue application:

By a small entity (§1.9(f))---------- $150.00
By other than a small entity---------- $300.00

(i) In addition to the basic filing fee in a reissue application, for filing or later presentation of each independent claim which is in excess of the number of independent claims in the original patent:

By a small entity (§1.9(f))---------- $ 15.00
By other than a small entity---------- $ 30.00

(j) In addition to the basic filing fee in a reissue application, for filing or later presentation of each claim (whether independent or dependent) in excess of 20 and also in excess of the number of claims in the original patent, (Note that §1.75(c) indicates how multiple dependent claims are considered for fee purposes.):

By a small entity (§1.9(f))---------- $ 5.00
By other than a small entity---------- $ 10.00

(Note, see §1.445 for international application filing and processing fees.). ◀

66. A new §1.17 is proposed to be added which reads as follows:

▶ §1.17 Patent application processing fees.

(a) Extension fee for response within first month pursuant to §1.136(a):

By a small entity (§1.9(f))---------- $ 25.00
By other than a small entity---------- $ 50.00

(b) Extension fee for response within second

month pursuant to §1.136(a):

By a small entity (§1.9(f))---------- $ 75.00
By other than a small entity---------- $150.00

(c) Extension fee for response within third month pursuant to §1.136(a):

By a small entity (§1.9(f))---------- $175.00
By other than a small entity---------- $350.00

(d) Extension fee for response within fourth month pursuant to §1.136(a):

By a small entity (§1.9(f))---------- $275.00
By other than a small entity---------- $550.00

(e) For filing a notice of appeal from the examiner to the Board of Appeals:

By a small entity (§1.9(f))---------- $ 57.50
By other than a small entity---------- $115.00

(f) In addition to the fee for filing a notice of appeal, for filing a brief in support of an appeal:

By a small entity (§1.9(f))---------- $57.50
By other than a small entity---------- $115.00

(g) For filing a request for an oral hearing before the Board of Appeals:

By a small entity (§1.9(f))---------- $ 50.00
By other than a small entity---------- $100.00

(h) For filing a petition to the Commissioner under a section of this part listed below which refers to this paragraph----------$120.00

--§1.45 - for correction of inventorship.
--§1.47 - for filing by other than all the inventors
--§1.182 - for decision on questions not specifically provided for
--§1.183 - to suspend the rules
--§1.268 - for late filing of interference settlement agreement

(i) For filing a petition to the Commissioner under a section of this part listed below which refers to this paragraph----------$ 60.00

--§1.12 - for access to an assignment record
--§1.14 - for access to an application
--§1.55 - for entry of late priority papers
--§1.102 - to make application special
--§1.103 - to suspend action in application
--§1.177 - for divisional reissues to issue separately
--§1.268 - for access to interference settlement agreement
--§1.312 - for amendment after payment of issue fee
--§1.313 - to withdraw an application from issue
--§1.314 - to defer issuance of a patent
--§1.334 - for patent to issue to assignee, assignment recorded late

(j) For filing a petition to institute a public use proceeding under §1.292----------$750.00

(k) For processing an application filed with a specification in a non-English language (§1.52(d))----------$ 20.00

(l) For filing a petition (1) for the revival of an abandoned application under 35 U.S.C. 133, or (2) for delayed payment of the issue fee under 35 U.S.C. 151:

By a small entity (§1.9(f))----------$ 25.00
By other than a small entity----------$ 50.00

(m) For filing a petition (1) for revival of an unintentionally abandoned application or (2) for the unintentionally delayed payment of the fee for issuing a patent:

By a small entity (§1.9(f))----------$250.00
By other than a small entity----------$500.00. ◀

67. A new §1.18 is proposed to be added which reads as follows:

▶ §1.18 Patent issue fees.

(a) Issue fee for issuing each original or reissue patent, except a design or plant patent:

By a small entity (§1.9(f))---------- $250.00
By other than a small entity---------- $500.00.

(b) Issue fee for issuing a design patent:

By a small entity (§1.9(f))---------- $ 87.50
By other than a small entity---------- $175.00.

(c) Issue fee for issuing a plant patent:

By a small entity (§1.9(f))---------- $125.00
By other than a small entity---------- $250.00.◀

68. A new §1.20 is proposed to be added which reads as follows:

▶ §1.20 Post-issuance fees.

(a)	For providing a certificate of correction of applicant's mistake (§1.323)----------	$ 40.00
(b)	Petition for correction of inventorship in patent (§1.324)----------	$ 120.00
(c)	For filing a request for reexamination (§1.510(a))----------	$1,500.00
(d)	For filing each statutory disclaimer (§1.321):	
	By a small entity (§1.9(f))----------	$ 25.00
	By other than a small entity----------	$ 50.00
(e)	For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980 and before (date of enactment), in force beyond 4 years; the fee is due by three years and six months after the original grant----------	$ 200.00
(f)	For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980 and before (date of enactment), in force beyond 8 years; the fee is due by seven years and six months after the original grant----------	$ 400.00
(g)	For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980 and before (date of enactment), in force beyond 12 years; the fee is due by eleven years and six months after the original grant----------	$ 600.00
(h)	For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after (date of enactment), in force beyond 4 years; the fee is due by three years and six months after the original grant:	

By a small entity (§1.9(f))---------- $ 200.00
By other than a small entity---------- $ 400.00

(i) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after (date of enactment), in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§1.9(f))---------- $ 400.00
By other than a small entity---------- $ 800.00

(j) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after (date of enactment), in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§1.9(f))---------- $ 600.00
By other than a small entity---------- $1200.00. ◀

69. Section 1.27 is proposed to be added to read as follows:

▶§1.27 Statement of status as small entity.

(a) Any person seeking to establish status as a small entity (§1.9(f)) for purposes of paying fees in an application or a patent must file a verified statement in the application or patent prior to or with any fee paid as a small entity. Such a verified statement need only be filed once in an application or patent and remains in effect until changed.

(b) Any verified statement filed pursuant to paragraph (a) of this section on behalf of an independent inventor must be signed by the independent inventor except as provided in §§1.42, 1.43, or 1.47, and must aver that the inventor qualifies as an independent inventor in accordance with §1.9(c). Where there are joint inventors in an application, each inventor must file a verified statement establishing status as an independent inventor in order to qualify as a small entity. Where any rights have been assigned, granted, conveyed, or licensed, or there is an obligation to assign, grant, convey, or license, any rights to a small business concern, a nonprofit organization, or any other individual, a verified statement must be filed by the individual, or a person entitled to act on behalf of the small business concern or nonprofit organization averring to their status.

(c) Any verified statement filed pursuant to paragraph (a) of this section on behalf of a small business concern must (1) be signed by the person entitled to act on behalf of the concern; (2) aver that the concern qualifies as a small business concern

as defined in §1.9(d); and (3) aver that the exclusive rights to the invention have been conveyed to and remain with the concern or if the rights are not exclusive, that all other rights belong to small entities as defined in §1.9. Where the rights of the small business concern as a small entity are not exclusive, a verified statement must also be filed by the other small entities having rights averring to their status as such.

(d) Any verified statement filed pursuant to paragraph (a) of this section on behalf of a nonprofit organization must (1) be signed by the person entitled to act on behalf of the organization; (2) aver that the organization qualifies as a nonprofit organization as defined in §1.9(e) specifying under which one of §1.9(e)(1), (e)(2) or (e)(3) the organization qualifies; and (3) aver that exclusive rights to the invention have been conveyed to and remain with the organization or if the rights are not exclusive, that all other rights belong to small entities as defined in §1.9. Where the rights of the nonprofit organization as a small entity are not exclusive, a verified statement must also be filed by the other small entities having rights averring to their status as such. ◀

70. Section 1.28 is proposed to be added to read as follows:

▶§1.28 Effect on fees of failure to establish status, or change in status, as a small entity.

(a) The failure to establish status as a small entity (§§1.9(f) and 1.27) in any application prior to paying, or at the time of paying, any fee (1) precludes payment of the fee in the amount established for small entities; and (2) precludes a refund pursuant to §1.26 of any portions of fees paid prior to establishing status as a small entity. Status as a small entity is waived for any fee by the failure to establish the status prior to paying, or at the time of paying, the fee. Status as a small entity must be specifically established by a verified statement filed in each application in which the status is available and desired. Once status as a small entity has been established in an application or patent, the status remains in that application or patent without the filing of a further verified statement pursuant to §1.27 unless changed, but does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established.

(b) Once status as a small entity has been established in an application or patent, notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application or patent prior to paying, or at the time of paying, any fee due after the date on which status as a small entity is no longer appropriate pursuant to §1.9. The payment of any fee in an application or patent as a small entity, once small entity status has been established, shall serve as a

representation that such payment as a small entity is proper at the time the payment is made. The notification may be signed by the applicant, any person authorized to sign on behalf of the assignee, or an attorney or agent of record or acting in a representative capacity pursuant to §1.34(a).

(c) If status as a small entity is established in good faith, and fees as a small entity are paid in good faith, in any application or patent, and it is later discovered that such status as a small entity was established in error or that through error the Office was not notified of a change in status as required by paragraph (b) of this section, the error will be excused if (1) any deficiencies between the amounts paid and the amounts due are promptly paid and (2) the payment of the deficiencies is accompanied by a verified statement explaining how the error in good faith occurred and how and when it was discovered.

(d) Any attempt to fraudulently (1) establish status as a small entity or (2) pay fees as a small entity shall be considered as a fraud practiced or attempted on the Office. Improperly and through gross negligence (1) establishing status as a small entity or (2) paying fees as a small entity shall be considered as a fraud practiced or attempted on the Office. See §§1.56(d) and 1.555. ◀

71. Section 1.66 is proposed to be revised to read as follows:

§1.66 Officers authorized to administer oaths.

(a) The oath or affirmation may be made before any person within the United States authorized by law to administer oaths [, or, when] ▶ . An oath ◀ made in a foreign country ▶ may be made ◀ [,] before any diplomatic or consular officer of the United States authorized to administer oaths, or before any officer having an official seal and authorized to administer oaths in the foreign country in which the applicant may be, whose authority shall be proved by a certificate of a diplomatic or consular officer of the United States, ▶ or by an apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States. ◀[the] ▶ The ◀oath [being] ▶ shall be ◀ attested in all cases in this and other countries, by the proper official seal of the officer before whom the oath or affirmation is made. Such oath or affirmation shall be valid as to execution if it complies with the laws of the State or country where made. When the person before whom the oath or affirmation is made in this country is not provided with a seal, his official character shall be established by competent evidence, as by a certificate from a clerk of a court of record or other proper officer having a seal.

(b) When the oath is taken before an officer in a country foreign to the United States, ▶ any accompanying ◀ [all the]

application papers, except the drawings, must be attached together ▶ with the oath ◀ and a ribbon passed one or more times through all the sheets of the application, except the drawings, and the ends of said ribbon brought together under the seal before the latter is affixed and impressed, or each sheet must be impressed with the official seal of the officer before whom the oath is taken. If the papers as filed are not properly ribboned or each sheet impressed with the seal, the case will be accepted for examination, but before it is allowed, duplicate papers, prepared in compliance with the foregoing sentence, must be filed.

72. Section 1.137 is proposed to be revised to read as follows:

§1.137 Revival of abandoned application.

▶ (a) ◀ An application abandoned for failure to prosecute may be revived as a pending application if it is shown to the satisfaction of the Commissioner that the delay was unavoidable. A petition to revive an abandoned application must be accompanied by a [verified] showing of the causes of the delay, by the proposed response unless it has been previously filed, and by the petition fee ▶ set forth in §1.17(l). Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office ◀ .

▶ (b) An application unintentionally abandoned for failure to prosecute may be revived as a pending application if the delay was unintentional. A petition to revive an unintentionally abandoned application must be accompanied by (1) a statement that the abandonment was unintentional, (2) a proposed response unless it has been previously filed, and (3) a petition fee as set forth in §1.17(m). Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. The Commissioner may require additional information where there is a question whether the abandonment was unintentional. ◀

▶ (c) Any petition filed pursuant to paragraph (a) or (b) of this section must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment. Any such petition not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under §1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application. ◀

73. Section 1.155 is proposed to be revised to read as follows:

§1.155 Issue and term of design patents.

(a) If, on examination, it shall appear that the applicant is entitled to a design patent under the law, a notice of allowance

will be sent to ▶ the applicant, or applicant's ◀[him, his] attorney or [his] agent, calling for the payment of ▶ the ◀ [an] issue fee ▶ (§1.18(b)) ◀[in an appropriate amount dependent on the duration of the term desired by the applicant]. If this issue fee is not paid within 3 months of the date of the notice of allowance, the application shall be regarded as abandoned.

(b) The Commissioner may accept the [late] payment of the ▶ issue ◀ fee [specified in the notice of allowance] later than three months after the mailing of the notice ▶ of allowance ◀ as though no abandonment had ever occurred if upon petition the delay in payment is shown to have been unavoidable. The petition to accept the delayed payment must be accompanied by ▶ (1) ◀ the issue fee [or portion thereof specified in the notice of allowance], unless it has been previously submitted, ▶ (2) ◀ the fee for delayed payment ▶ (§1.17(l)) ◀ , and ▶ (3) ◀ a showing [in the form of an oath or declaration as to the causes of] ▶ that ◀ the delay ▶ was unavoidable. Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office ◀.

▶ (c) The Commissioner may, upon petition, accept the payment of the issue fee later than three months after the mailing of the notice of allowance as though no abandonment had ever occurred if the delay in payment was unintentional. The petition to accept the delayed payment must be accompanied by (1) the issue fee, unless it has been previously submitted, (2) the fee for unintentionally delayed payment (§1.17(m)), and (3) a statement that the delay was unintentional. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office.◀

▶ (d) Any petition filed pursuant to paragraph (b) or (c) of this section must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment. Any such petition not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under §1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application.◀

74. Section 1.316 is proposed to be revised to read as follows:

§1.316 Application abandoned for failure to pay issue fee.

(a) If the ▶ issue ◀ fee [specified in the notice of allowance] is not paid within 3 months from the date of the notice ▶ of allowance, ◀ the application will be regarded as abandoned. Such an abandoned application will not be considered as pending before the Patent and Trademark Office.

(b) The Commissioner may accept the [late] payment of the

▶issue◀ fee [specified in the notice of allowance] later than three months after the mailing of the notice ▶ of allowance◀ as though no abandonment had ever occurred if upon petition the delay in payment is shown to have been unavoidable. The petition to accept the delayed payment must be accompanied by ▶ (1)◀ the issue fee [or portion thereof specified in the notice of allowance], unless it has been previously submitted, ▶(2)◀ the fee for delayed payment ▶ (§1.17(l))◀, and ▶ (3)◀ a showing [in the form of an oath or declaration as to the causes of]▶ that ◀ the delay ▶ was unavoidable. Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office ◀.

▶(c) The Commissioner may, upon petition, accept the payment of the issue fee later than three months after the mailing of the notice of allowance as though no abandonment had ever occurred if the delay in payment was unintentional. The petition to accept the delayed payment must be accompanied by (1) the issue fee, unless it has been previously submitted, (2) the fee for unintentionally delayed payment (§1.17(m)), and (3) a statement that the delay was unintentional. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office.◀

▶(d) Any petition filed pursuant to paragraph (b) or (c) of this section must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment. Any such petition not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under §1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application.◀

6/21/82
Date

Gerald J. Mossinghoff
Commissioner of Patents
and Trademarks

DEPARTMENT OF COMMERCE

Patent and Trademark Office

37 CFR Part 2

Trademark Fee Revision

AGENCY: Patent and Trademark Office, Commerce

ACTION: Proposed rulemaking.

SUMMARY: Patent and Trademark Office proposes amendments of the rules of practice in trademark cases to establish fees in amounts authorized by Public Law 96-517, or as they would be authorized under H.R. 6260.

DATES: Comments must be submitted on or before July 9, 1982. A public hearing will be held July 9, 1982, beginning at 2:00 PM. Requests to present oral testimony should be received prior to July 9, 1982.

ADDRESSES: Address written comments and requests to present oral testimony to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, Attention: Miss Maude Williams. The hearing will be held in Room A of Suite 1006 on the 10th floor of Building 5, Crystal Square, located at 1755 South Jefferson Davis Highway, Arlington, Virginia. Written comments and a transcript of the hearing will be available for public inspection in Room 11E-10 of Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Virginia.

FOR FURTHER INFORMATION CONTACT: Miss Maude Williams by telephone at (703) 557-2222 or by mail marked to her attention and addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

SUPPLEMENTARY INFORMATION: The proposed amendments will establish fees for the filing and processing of an application for the registration of a trademark or other mark, and for providing all other services and materials relating to trademarks and other marks.

Public Law 96-517 authorizes the Commissioner to establish fees for the filing and processing of an application for the registration of a trademark or other mark, and for providing all other services and materials relating to trademarks and other marks. Public Law 96-517 requires that by October 1, 1982, fees for the filing and processing of an application for the registration of a trademark or other mark be set to recover in the aggregate 50 percent of the estimated average cost to the Office of such processing. Also by October 1, 1982, fees for providing all other services and materials

relating to trademarks and other marks are to be set to recover the estimated average cost to the Office of performing the service or furnishing the material.

The proposed rule changes are designed to implement the fee provisions of Public Law 96-517 on October 1, 1982. However, on June 8, 1982, the House of Representatives passed H.R. 6260. This bill would amend the fee provisions to be implemented on October 1, 1982. This rule change proposal therefore is also designed to implement the fee provisions as they would be amended by H.R. 6260.

The rule change proposal is intended to obtain comments which will enable adoption of final rule changes based on Public Law 96-517 and/or H.R. 6260 without further notice of proposed rulemaking. Accordingly, comments are solicited on proposed rule changes which are common to Public Law 96-517 and H.R. 6260, as well as alternative rule changes which are specific to Public Law 96-517 (Alternative A) and to H.R. 6260 (Alternative B).

H.R. 6260 would repeal the provisions in Public Law 96-517 requiring that filing and processing fees be set to recover in the aggregate 50 percent of the estimated average cost of such processing to the Office, and that fees for providing all other services and materials relating to trademarks and other marks be set to recover the estimated average cost to the Office of performing the service or furnishing the material. Instead, in passing H.R. 6260, the House of Representatives recommended a fee schedule to the Commissioner for fiscal year 1983. The fee proposal in Alternative B adopts the House recommendation.

This rule change proposal does not include rule changes for implementing provisions of Public Law 96-517 or H.R. 6260 other than the fee provisions. Rule changes for implementing provisions other than the fee provisions will be published in a later rulemaking proposal.

The specific rules for which changes are proposed are §§2.6, 2.85, 2.101, 2.146, 2.162 and 2.167.

Proposed Rule Changes Common to
Public Law 96-517 and H.R. 6260

Paragraph (3) of §2.85 is proposed to be amended to add reference to the fee, not previously charged, for filing a §15 affidavit.

§2.101, paragraph (c) is proposed to be amended to delete the reference to a service charge which will no longer be charged for late-filed fees on oppositions.

§2.146(b) is proposed to be changed to add a fee for petitioning the Commissioner. Paragraph (f) of this section is proposed to be deleted.

§2.162, paragraph (d) is proposed to be amended to remove the reference to a service charge for late-filed fees on §8 affidavits.

§2.167, paragraph (g) is proposed to be added to establish procedures relating to the fee for affidavits under §15, 15 U.S.C. 1065, and to state the Office's action when no fee or an insufficient fee is filed.

Part 4 is proposed to be deleted to eliminate all of the trademark forms from the Code of Federal Regulations. The Patent and Trademark Office has prepared a booklet entitled "Patent and Trademark Forms Booklet" which is available from the Superintendent of Documents and includes full size copies of all of the forms in Part 4. Since the forms are not mandatory, no need is seen to retain them in the Code of Federal Regulations.

Alternative A
Proposed Rule Change only
under Public Law 96-517

§2.6 is proposed to be revised to establish the fees authorized by Public Law 96-517 for filing and processing applications for the registration of trademarks or other marks and for providing services and materials relating to trademarks or other marks.

Alternative B
Proposed Rule Change only
under H.R. 6260

§2.6 is proposed to be revised to establish the fees recommended by the House of Representatives under H.R. 6260 for filing and processing applications for the registration of trademarks or other marks and for providing services and materials relating to trademarks or other marks. The $10 fee recommended by the House for certified copies appears in paragraphs (m) and (n) as a fee of $6.50 for a copy of a registered mark showing title and/or status and a fee of $3.50 for the certificate.

Other Considerations

The Patent and Trademark Office has determined that the proposed amendments are not major rules under Executive Order 12291. The annual effect on the economy will be less than $100 million. Although the proposed fees are higher

than current fees, the effect will be offset by a reduction in the level of taxpayer support. Competition, employment investment, productivity, innovation or the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets will not be adversely affected to any significant degree.

The proposed amendments will not have significant adverse economic effect on a substantial number of small entities. (Regulatory Flexibility Act, 5 U.S.C. §§601 et seq.). The application filing fee has been kept as low as possible to foster use of the Federal registration system.

The proposed amendments do not impose a reporting or record keeping burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq. No additional information is required from the public and no additional records are required to be maintained by the Patent and Trademark Office.

Environmental, energy, and other considerations: The proposed amendments will not have a significant impact on the quality of the human environment or the conservation of energy resources.

List of Subjects in 37 CFR Part 3

Administrative practice and procedure, Trademarks.

Proposed Amendment of Regulations

Notice is hereby given that pursuant to the Commissioner's authority under Sections 31 and 41 of the Trademark Act of July 5, 1946, 15 U.S.C. §§1113, and 1123, the Patent and Trademark Office proposes to amend Parts 2 and 4 of Title 37 of the Code of Federal Regulations as set forth below with deletions indicated by brackets and additions by arrows, with the exception that deleted Part 4 is not shown.

It is proposed to amend 37 CFR, Parts 2 and 4 as follows:

Proposed Rule Changes Common to Public Law 96-517 and H.R. 6260

1. Section 2.85 is proposed to be amended by revising paragraph (e) to read as follows:

§2.85 Classification schedules.

* * * * *

(e) Where the amount of the fee received on filing an appeal in connection with an application or on filing an affidavit under Section 8(a) or 8(b) ▶ or Section 15 ◀

or on an application for renewal or in connection with an opposition or petition for cancellation is sufficient for at least one class of goods or services but is less than the required amount because multiple classes in an application or registration are involved, the appeal or the affidavit or renewal application or opposition or petition for cancellation will not be refused on the ground that the amount of the fee was insufficient if the required additional amount of the fee is received in the Patent and Trademark Office within the time limit set forth in the notification of this defect by the Office, or if action is sought only for the number of classes equal to the number of fees submitted.

* * * * *

2. Section 2.101 is proposed to be amended by revising paragraph (c) to read as follows:

§2.101 Filing an opposition.

* * * * *

(c) If no fee, or a fee insufficient to cover at least one class, is filed within 30 days after publication of the mark to be opposed or within an extension of the time for filing an opposition, the opposition will not be refused if the required fee(s) [and service charge (see §2.6(g)] are filed in the Patent and Trademark Office within the time limit set forth in the notification of this defect by the Office.

* * * * *

3. Section 2.146 is proposed to be amended by revising paragraph (b) to read as follows, and by deleting paragraph (f):

§2.146 Petition to the Commissioner

* * * * *

(b) Any such petition must contain a statement of the facts involved and the point or points to be reviewed and the action requested ▶ and the requisite fee ◀ .

* * * * *

[(f) No fee is required for a petition to the Commissioner.]

4. Section 2.162 is proposed to be amended by revising paragraph (d) to read as follows:

§2.162 Requirements for affidavit or declaration during sixth year.

* * * * *

(d) Include the required fee for each class to which the affidavit or declaration pertains in the registration. If no fee, or a fee insufficient to cover at least one class, is filed before the expiration of the sixth year following the date of registration or of publication under §12(c) of the Act, the affidavit or declaration will not be refused if the required fee(s) [and service charge] (See §2.6 ([g] ▶ h ◀)) are filed in the Patent and Trademark Office within the time limit set forth in the notification of this defect by the Office. In situations where a notice of deficiency is sent because no fee, or a fee insufficient to cover at least one class, is filed, §2.85(e) may not be utilized. If insufficient fees are included to cover all classes in the registration, the particular class or classes to which the affidavit or declaration pertains should be specified.

* * * * *

5. Section 2.167 is proposed to be amended to add a paragraph (g) as follows:

§2.167 Affidavit or declaration under Section 15.

* * * * *

▶(g) Include the required fee for each class to which the affidavit or declaration pertains in the registration. If no fee, or a fee insufficient to cover at least one class, is filed at an appropriate time, the affidavit or declaration will not be refused if the required fee(s) (see §2.6(i)) are filed in the Patent and Trademark Office within the time limit set forth in the notification of this defect by the Office. In situations where a notice of deficiency is sent because no fee, or fee insufficient to cover at least one class, is filed, §2.85(e) may not be utilized. If insufficient fees are included to cover all classes in the registration, the particular class or classes to which the affidavit or declaration pertains should be specified.◀

* * * * *

6. Part 4 is proposed to be removed.

Alternative A
Proposed Rule Change Only
Under Public Law 96-517

7. Section 2.6 is proposed to be revised to read as follows:

§2.6 Trademark fees

[In addition to the fee prescribed by statute, the] ▶ The ◀ following fees and charges are established by the Patent and Trademark Office for trademark cases:

[(a) For each printed copy of a registration with data entered of record as of date of mailing, relating to renewal, cancellation, publication under section 12(c), of the 1946 Trademark Act and affidavits or declarations under sections 8 and 15 of such act.
Omitting title $1.70
Showing title 3.70
(b) For photocopies or other reproductions of records, drawings, or printed material, per page of material copied 0.30
(c) [Deleted]
(d) For making drawings, when facilities are available, the cost of making the same.
Rate per hour $12.00
Minimum charge per sheet 10.00
(e) For correcting drawings, the cost of making the correction:
Rate per hour (including a photoprint of the uncorrected drawing) 12.00
Minimum charge 3.00
(f) For abstracts of title to each registration or application:
For the search, one hour or less, and certificate 5.00
Each additional hour or fraction thereof 2.50
For each brief from the digest of assignments, of 200 words or less 2.00
Each additional 100 words or fraction thereof ..... .20
(g) For the special service of handling late filed fees in connection with an:
Affidavit or declaration under §8 ..... 10.00
Opposition ..... 25.00]

▶(a) For filing an application, per class $88.00
(b) For filing an application for renewal of a registration, per class 150.00
(c) For filing to publish a mark under §12(c), per class 50.00
(d) For issuing a new certificate of registration upon request of assignee 50.00
(e) For a certificate of correction of registrant's error 50.00
(f) For filing a disclaimer to a registration 50.00

(g) For filing an amendment to a registration 50.00
(h) For filing an affidavit under §8 of the Act, per class 50.00
(i) For filing an affidavit under §15 of the Act, per class 50.00
(j) For petitions to the Commissioner 50.00
(k) For filing petition to cancel or notice of opposition, per class 100.00
(l) For ex parte appeal to the Trademark Trial and Appeal Board, per class 50.00
(m) For printed copy of registered mark
Copy only ..... .40
Copy showing title and/or status 6.50
(n) For certifying trademark records, per certificate 3.50
(o) For photocopies or other reproductions of records, drawings, or printed material, per page of the material copied ..... .30
(p) For recording trademark assignment, per document 20.00
For each mark in addition to 1 assigned in the same document 5.00
(q) For abstracts of title to each registration or application, including the search 12.00
(r) For special service handling of late filed fees in connection with a renewal 50.00
(s) For items and services that the Commissioner finds may be supplied, for which fees are not specified, such charges as may be determined by the Commissioner with respect to each such item or service ..... actual cost ◀

Alternative B
Proposed Rule
Change Only Under H.R. 6260

8. Section 2.6 is proposed to be revised to read as follows:

§2.6 Trademark fees

[In addition to the fee prescribed by statute, the] ▶The◀ following fees and charges are established by the Patent and Trademark Office for trademark cases:

[(a) For each printed copy of a registration with data entered of record as of date of mailing, relating to renewal, cancellation, publication under section 12(c), of the 1946 Trademark Act and affidavits or declarations under sections 8 and 15 of such act.
Omitting title $1.70
Showing title 3.70

(b) For photocopies or other reproductions of records, drawings, or printed material, per page of material copied 0.30
(c) [Deleted]
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Date: 6/21/82

Gerald J. Mossinghoff
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Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

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Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
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North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
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	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 15, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-04-80
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-04-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	4-09-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-08-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	4-15-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	8-29-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-20-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	6-04-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	8-11-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	10-02-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	1-07-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	6-26-80

Expiration of patents: The patents within the range of numbers indicated below expire during May 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,181,175 to 3,186,003, inclusive

Plant Patents ..... Numbers 2,502 to 2,521 inclusive

REISSUES

JUNE 29, 1982

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,980
WALL SYSTEM

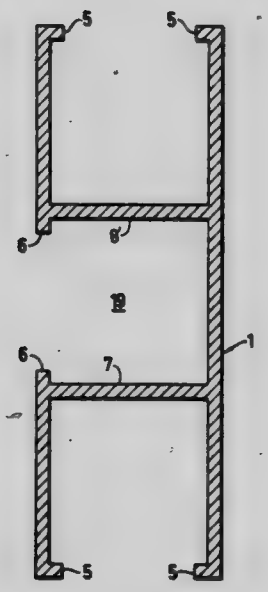
Timothy K. Potter, Trollhättan, and Raimundo Lopez Gomez, Vänersborg, both of Sweden, assignors to Gotaverken Aluminum AB, Gothenburg, Sweden

Original No. 4,223,504, dated Sep. 23, 1980, Ser. No. 928,034, Jul. 25, 1978. Application for reissue Mar. 13, 1981, Ser. No. 243,277

Claims priority, application Sweden, Aug. 1, 1977, 7708761

Int. Cl.[3] E04B *2/60*

U.S. Cl. 52—479 17 Claims



1. An interlocking frame assembly for constructing and supporting a wall system and the like, and comprising:

a plurality of substantially similarly-shaped support sections, each support section having a substantially H-shaped cross-sectional configuration defined by two pairs of oppositely directed leg members attached to one another and a web portion extending therebetween,

each pair of said oppositely directed leg members having confronting leg surfaces, with at least one pair of projections formed on each pair of confronting leg surfaces;

each pair of said H-shaped support sections further including at least one pair of parallel extending, spaced flange members attached to an outer surface of said support section and extending substantially perpendicular with respect thereto;

at least one substantially H-shaped connecting means extending between and engaging a pair of said projections formed on confronting leg surfaces of each of two perpendicularly extending support sections for interlocking said perpendicular support sections to one another, and

at least one further substantially H-shaped connecting means extending between and engaging a pair of said parallel extending, spaced flange members attached to each of two parallel extending support sections for interlocking said parallel support sections to one another.

Re. 30,981
TRANSMISSION DEVICES

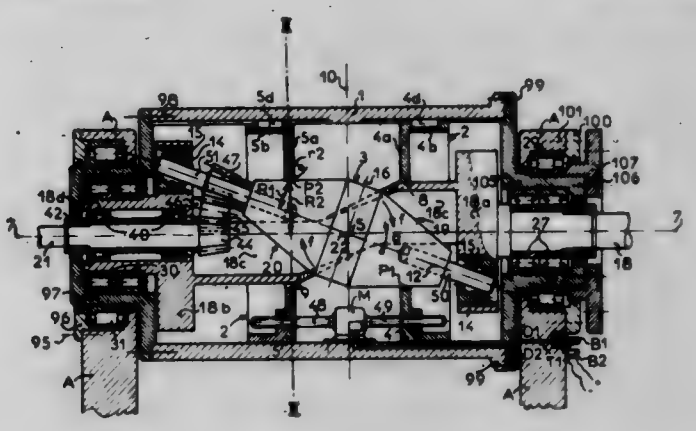
Yves Kemper, Birmingham, Mich., assignor to Vadetec Corporation, Troy, Mich.

Original No. 4,152,946, dated May 8, 1979, Ser. No. 706,291, Jul. 19, 1976. Continuation-in-part of Ser. No. 598,625, Jul. 24, 1975, abandoned. Application for reissue Jun. 13, 1979, Ser. No. 48,182

Claims priority, application Switzerland, Jul. 29, 1974, 10432/74; France, Aug. 1, 1975, 75 24130; Apr. 21, 1976, 76 11753; Jul. 12, 1976, 76 21298; Jul. 12, 1976, 76 21299

Int. Cl.[3] F16H *15/16, 15/08*

U.S. Cl. 74—193 69 Claims



41. In a transmission device having a frame, drive input means, and drive output means, means interconnecting said input and output means comprising:

a first element on a first axis fixed in the frame and having rolling surfaces of revolution about said first axis, one such rolling surface on each side of a first plane perpendicular to said first axis at a point of axes intersection;

a second element on a second axis intersecting said first axis at said point of axes intersection and having concentric journal and rolling surfaces of revolution about said second axis, the rolling surfaces of said second element being disposed one on each side of a second plane passing through said point of axes intersection and perpendicular to said second axis *said journal surfaces also being disposed one on each side of said second plane;*

support means rotatable on said first axis and journalled with said journal surfaces to support said second element *in a manner to positively establish the angle of intersection between said first and second axes and* for movement *of said second element and said second axis* in a biconical path circumferentially of said first axis, [the apex of] said biconical path [being] *having a central apex* coincident with said point of axes intersection *and diverging oppositely from said central apex at a rate of divergence established by the support of said second element from said support means;*

the respective rolling surfaces on said first and second elements being symmetrical with respect to said point of axes intersection and being in rolling frictional engagement at two points of contact in a third plane containing said first and second axes and located one on each side of said first plane;

the rolling surfaces of at least one of said elements being defined by generatrices inclined oppositely with respect to the axis of revolution thereof, thereby to provide in the respective rolling surfaces of said first and second elements a variable ratio of rolling surface radii at said points of contact for variation in the spacing of said points of contact from said first plane; and

means for forcing said respective rolling surfaces on said

first and second elements into rolling friction engagement with each other at said two points.

Re. 30,982

TIME SHARED TONE KEYING SYSTEM IN ELECTRONIC MUSICAL INSTRUMENT

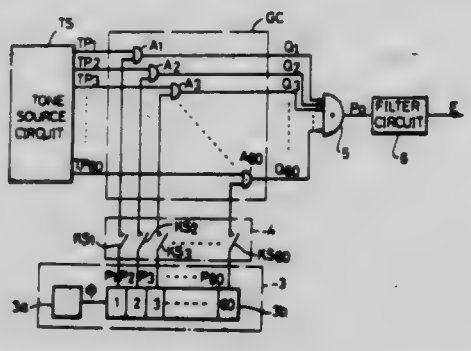
Eiichiro Aoki, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Original No. 4,108,038, dated Aug. 22, 1978, Ser. No. 671,861, Mar. 30, 1976. Application for reissue Jan. 28, 1980, Ser. No. 116,110

Claims priority, application Japan, Apr. 4, 1975, 50-41022; Apr. 8, 1975, 50-42670; Apr. 9, 1975, 50-43806

Int. Cl.³ G10H *1/02*

U.S. Cl. 84—1.19 **9 Claims**



9. A time division multiplexed keyboard musical instrument, comprising:

a keyboard having keys each corresponding to a musical note,

a multiplexed tone source means for producing a time division multiplex signal having a plurality of time slots corresponding to said keyboard, each of said time slots being allocated to a corresponding individual key of said keyboard, said signal in each of those time slots corresponding to selected keys consisting of amplitude samples of a harmonic-rich tone source waveform having a note frequency designated by the individual selected key allocated to that time slot, there being no amplitude samples in the remaining time slots which correspond to non-selected keys,

a single format filter connected directly to receive said time division multiplex signal, said single formant filter controlling the frequency components of all of the time division multiplexed tone source waveform amplitude samples and providing as an output a musical tone signal having a predetermined tone color, and

an audio system receiving said musical tone signal and producing corresponding audio musical sounds therefrom.

Re. 30,983

COLORIMETRIC DETERMINATION OF IRON

Lawrence L. Stookey, Ames, Iowa, assignor to Hach Chemical Company, Ames, Iowa

Original No. 3,836,331, dated Sep. 17, 1974, Ser. No. 352,734, Apr. 19, 1973. Division of Ser. No. 49,579, Jun. 24, 1970. Application for reissue Oct. 17, 1979, Ser. No. 85,500

Int. Cl.³ G01N *31/22, 33/18, 33/20*

U.S. Cl. 23—230 R **2 Claims**

1. In a method for quantitatively determining the presence of iron in a sample solution which includes adding a reagent to a sample solution containing iron in the ferrous state to form a colored complex and colorimetrically determining the iron content, the improvement comprising using 3-(2-pyridyl)-5,6-bis(phenylsulfonic acid)-1,2,4 triazine as the reagent *to provide greater sensitivity as compared to that obtained with 3-(2-pyridyl)-5,6-diphenyl-1,2,4-triazine.*

Re. 30,984

STRUCTURAL LAMINATE AND METHOD FOR MAKING SAME

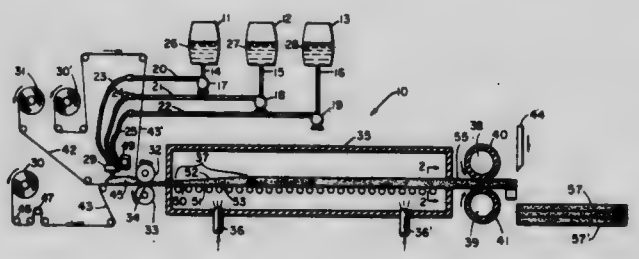
Donald E. Hipchen, Seminole; Michael Skowronski, and Joseph R. Hagan, both of Clearwater, all of Fla., assignors to The Celotex Corporation, Tampa, Fla.

Original No. 4,118,533, dated Oct. 3, 1978, Ser. No. 649,976, Jan. 19, 1976. Application for reissue Oct. 2, 1980, Ser. No. 194,184

The portion of the term of this patent subsequent to Jun. 7, 1994, has been disclaimed.

Int. Cl.³ B32B *5/20*

U.S. Cl. 428—297 **63 Claims**



1. A process for producing a structural laminate comprising the steps of:

I. contacting a thin, substantially incompressible yet expansible mat of glass fibers with a foam-forming mixture comprising:

A. an organic polyisocyanate, and

B. a diol having an equivalent weight between 30 and 100,

II. positioning a facing sheet on each face of the mat,

III. passing the facing sheets having the mat and the foam-forming mixture there between through the nip of two rotating rolls,

the mat of glass fibers being further characterized by

A. the glass fibers being arranged in layers,

B. the glass fibers within each layer being long, straight and substantially parallel, and

C. the glass fibers in each layer being at an acute angle to the glass fibers in each next adjacent layer, and

IV. permitting the mat of glass fibers to expand under the sole influence of the expansion of the foam-forming mixture.

Re. 30,985

SERUM-FREE CELL CULTURE MEDIA

Oscar A. Cartaya, 125 Pleasant St., Apt. #401, Brookline, Mass. 02146

Original No. 4,205,126, dated May 27, 1980, Ser. No. 969,590, Dec. 14, 1978. Continuation-in-part of Ser. No. 951,500, Oct. 6, 1978, abandoned, which is a continuation-in-part of Ser. No. 866,338, Jan. 1, 1978, abandoned. Application for reissue Feb. 6, 1981, Ser. No. 232,020

Int. Cl.³ A01N *1/02*

U.S. Cl. 435—240 **13 Claims**

1. [An MEM zinc option] *A cell culturing* medium wherein the amino acid profile is about as follows:

Item	Amount (milligrams per liter)
L alanine	8.9
L asparagine	75.0
L aspartic acid	13.0
L glutamic acid	14.7
L glycine	7.5
L proline	11.5
L serine	52.5
L arginine HCl	196.52
L cystine	37.2
L glutamine	584.0
L histidine HCl	65.0
L isoleucine	80.88
L leucine	160.88

-continued

Item	Amount (milligrams per liter)
L lysine	112.38
L methionine	23.30
L phenyl-alanine	50.15
L threonine	74.18
L tryptophan	15.61
L valine	71.4
L tyrosine	45.9

Re. 30,986

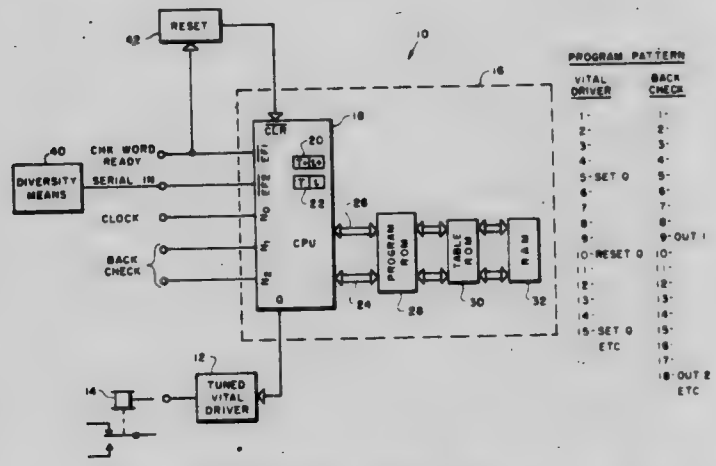
VITAL RELAY DRIVER HAVING CONTROLLED RESPONSE TIME

Henry C. Sibley, Adams Basin, N.Y., assignor to General Signal Corporation, Stamford, Conn.

Original No. 4,181,849, dated Jan. 1, 1980, Ser. No. 873,574, Jan. 30, 1978. Application for reissue Jun. 27, 1980, Ser. No. 163,759

Int. Cl.³ G07C *11/00*

U.S. Cl. 235—92 T 11 Claims



1. A system for providing a signal, *based on a time cycle* to a tuned vital driver so as selectively to hold up or sustain a vital relay, which is connected to the driver, for a variety of predetermined time intervals, *corresponding to a required number of cycles,* comprising

means for selectively generating each of the predetermined time intervals, said means including a digital microprocessor having one of its outputs connected to said tuned vital driver, said microprocessor generating a dynamic signal at said one output of fixed frequency and extending for a specified time interval so long as a cycle number is being continually replenished in the microprocessor in response to the presence of a safe condition;

a diversity means connected to the input of said microprocessor for selectively supplying, in response to differing safe conditions, both a respective check word and the complement of said check word as controlling inputs of said microprocessor for developing the required number of cycles for the dynamic output signal from said processor, whereby a respective time interval is generated during which the vital relay will be sustained;

a pair of registers within said microprocessor for storing a pair of time numbers corresponding to said check word and its complement, said time numbers representing the selected time interval during which the vital relay is to be sustained;

means for continuously and repetitively decrementing the time number values in said registers;

a cycle checking means *located in said microprocessor* for continuously and repetitively checking on the programmed operations of said microprocessor.

Re. 30,987

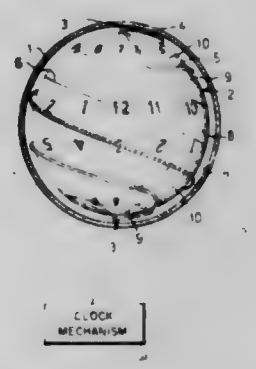
OMNIDIRECTIONAL CLOCK

David G. Jones, 74 Junction, London N. 19, England

Original No. 4,144,708, dated Mar. 20, 1979, Ser. No. 761,610, Jan. 24, 1977. Application for reissue May 5, 1980, Ser. No. 146,387

Int. Cl.³ G04B *19/00*

U.S. Cl. 368—76 12 Claims



1. A clock comprising a clock face with an annular clock face surface which extends radially outwardly and axially from each end thereof toward the other end and which is thereby viewable from any radial direction and both axial directions thereof, hour and minute hands mounted coaxially with the annular clock face surface for relative rotation with respect thereto, the clock face having a plurality of at least four regularly spaced sets of time indicia each comprising a plurality of time indicia angularly spaced about the clock surface, each of said hands extending in generally spaced parallel relationship with the clock face surface between the ends thereof and extending angularly at least 360° for indicating the hour and minutes with the clock face indicia from any radial direction and both axial directions of the clock face surface, and a clock mechanism for rotating the hour and minute hands relative to the clock face.

PLANT PATENTS

GRANTED JUNE 29, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,861

PEACH TREE (7-7-52)

Luther D. Davis, deceased, late of Davis, Calif., and by Donald R. Brooks, executor, West Sacramento, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed Oct. 20, 1980, Ser. No. 198,915

Int. Cl.[3] A01H *5/03*

U.S. Cl. Plt.—43 1 Claim

1. A new and distinct variety of peach tree, substantially as illustrated and described, which regularly and with high productivity bears large, uniform, globose, clingstone fruit having firm, highly flavored flesh; the fruit, which ripens approximately with the Carolyn and is similar in shape, is particularly distinctive, in comparison, by not dropping fruit before harvest, by less blush on the skin, by a stone which is eroded near the apex of the dorsal side, and by leaf glands which are reniform and not globose as are those of the Carolyn.

4,862

IMPATIENS PLANT NAMED POMO

John J. Ryan, 39877 Sundale Dr., Fremont, Calif. 94538

Filed May 16, 1980, Ser. No. 150,616

Int. Cl.[3] A01H *5/00*

U.S. Cl. Plt.—68 1 Claim

1. A new and distinct form of Impatiens plant as described and illustrated, known by the cultivar name Pomo.

PATENTS

GRANTED JUN. 29, 1982

ERRATA

For CLASS	See PATENT NO.
464–111	4,336,696
374–138	4,336,712
374–197	4,336,713
294–087	4,336,898
420–472	4,337,089
148–402	4,337,090
376–210	4,337,118
523–128	4,337,181
524–609	4,337,182
524–446	4,337,183
524–726	4,337,184
524–458	4,337,185
525–362	4,337,186
524–504	4,337,187
524–140	4,337,188
523–332	4,337,189
524–599	4,337,190
524–599	4,337,191
523–212	4,337,192
548–451	4,337,200
548–413	4,337,201
549–314	4,337,202
549–396	4,337,203
549–465	4,337,204
290–001	4,337,399
372–013	4,337,442
372–049	4,337,443
337–167	4,337,447

PATENTS

GRANTED JUNE 29, 1982

GENERAL AND MECHANICAL

4,336,617

PROSTHETIC SUBSTITUTED MEMBER FOR LIVING BODY AND A METHOD FOR THE SURGICAL TREATMENT BY USE THEREOF

Takuji Shikita, Matsubara, and Susumu Sakaguchi, Yokohama, both of Japan, assignors to Shin-Etsu Chemical Company Limited, Tokyo, Japan and Siemens Aktiengesellschaft, Erlangen, Fed. Rep. of Germany

Filed Jan. 21, 1981, Ser. No. 226,704
Claims priority, application Japan, Jan. 21, 1980, 55-5519
Int. Cl.[3] A61F *1/24, 5/04;* A61B *17/18*
U.S. Cl. 3—1.9 4 Claims

1. A prosthetic substitute member of a structure comprising a core, an outer layer covering the core made of metallic aluminum and a surface layer on the said outer layer formed of an anodically oxidized aluminum oxide.

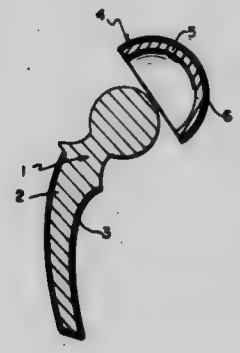
4. A method of surgical treatment which comprises using a prosthetic member, as a bone substitute, having a structure comprising a core, an outer layer covering the core made of metallic aluminum and a surface layer on the said outer layer formed of an anodically oxidized aluminum oxide.

4,336,618

BONE CONNECTIVE PROSTHESES ADAPTED TO MAXIMIZE STRENGTH AND DURABILITY OF PROSTHESES-BONE CEMENT INTERFACE; AND METHODS OF FORMING SAME

Simon Raab, 5872 Westbury Ave., Montreal, Quebec H3W 2W9, Canada

Division of Ser. No. 45,657, Jun. 5, 1979, Pat. No. 4,281,420.
This application Dec. 31, 1980, Ser. No. 221,574
Claims priority, application United Kingdom, Feb. 15, 1979, 7905445
Int. Cl.[3] A61F *1/04*
U.S. Cl. 3—1.913 56 Claims



1. A prosthesis comprising a prosthetic element and a polymethylmethacrylate film fixedly adhered to at least a portion of the surface of said prosthetic element;

said prosthesis comprising a surface adapted to be fixedly attached to bone by means of bone cement;

said prosthetic element bearing said polymethylmethacrylate film at least upon said attachment surface;

said polymethylmethacrylate film being adhered to said prosthetic element by a process which comprises:

treating said prosthetic element surface to eliminate any weak boundary layer;

applying polymethylmethacrylate to said treated surface;

and thereafter annealing said polymethylmethacrylate film.

32. A process for preparing an improved prosthesis adapted to be joined to bone by means of bone cement which comprises:

treating said prosthetic element surface to eliminate any weak boundary layer;

applying a polymethylmethacrylate film to said treated surface;

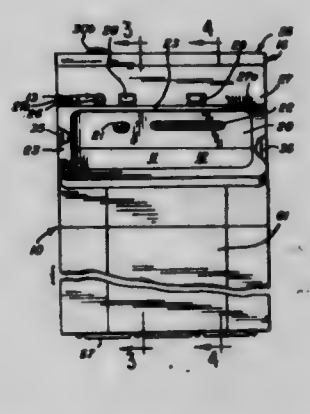
and thereafter annealing said polymethylmethacrylate film.

4,336,619

HAND WASHER AND DRIER MOUNTING STRUCTURE

Lester H. Hinkel, Benton Harbor, and Robert M. Chandler, St. Joseph, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Continuation of Ser. No. 866,176, Dec. 30, 1977, abandoned.
This application Nov. 13, 1979, Ser. No. 93,905
Int. Cl.[3] E03C *1/04, 1/32;* A47K *1/04, 10/48*
U.S. Cl. 4—619 12 Claims



1. A hand washing and drying device comprising:

a bowl defining a hand washing and drying space, a backside and first and second openings;

means for supplying hand washing material to said space including a water heating tank having an outlet, said water heating tank being mounted to said backside with said outlet opening through said first bowl opening;

air moving means including a motor-driven blower, said air moving means including said blower being mounted as a unit to said backside of said bowl, said air moving means further including an outlet received in said second bowl opening to open to said space for supplying hand drying air to said space to permit sequential washing and drying of a user's hands in said space;

means for supporting the assembled bowl and mounted;

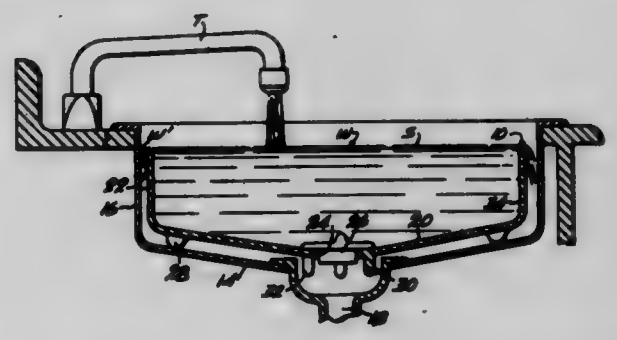
and wherein said bowl backside defines first and second mounting bosses and said air moving means is mounted to said first mounting boss and said water heating tank is mounted to said second mounting boss to form therewith an integral unitary subassembly.

4,336,620

SELF-SKIMMING DISH RINSER

Peter P. Gresh, 389 Linwood Dr., Miami Springs, Fla. 33166

Filed Jul. 7, 1980, Ser. No. 166,565
Int. Cl.[3] A47K *1/12, 4/00*
U.S. Cl. 4—639 1 Claim



1. In combination, a sink having a well bounded by upstanding side walls spaced from one another a predetermined dis-

tance and being of a predetermined height and including a bottom with a central recessed drain opening; and a sink-skimming rinser sized for and received within the well, said rinser comprising a tray having a bottom and upstanding side walls of a predetermined height approximately equal to but less than the predetermined height of the sink side walls, said bottom having a drain opening to register with the sink drain opening, centering means extending downwardly from the tray bottom and received in the recessed drain opening for aligning the rinser and sink drain openings, a drain plug sized to cover and close the tray drain opening and feet means on the tray bottom spaced from the tray a predetermined distance from the sink bottom for supporting the tray bottom above the sink bottom, said centering means comprising downwardly extending finger-like projections and said tray being sized with respect to the centering means such that the walls of the tray are spaced inwardly from the walls of the sink to allow overflow water to drain past the rinser side walls and down between the sink side walls and the rinser side walls to the sink drain opening to flow between the finger-like projections;

said sink bottom and tray bottom being angled inwardly and downwardly toward their repective drain openings; and

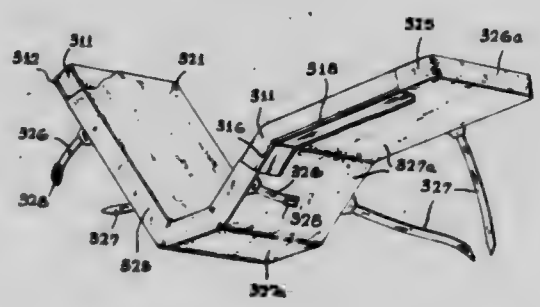
said side walls of said tray being recessed inwardly from the side walls of the sink at a zone to facilitate lifting of the device out of engagement with the sink and pouring of matter from dishes directly into the sink such as coffee remaining in a cup.

4,336,621

DISPOSABLE ORTHOPEDIC OVERMATTRESS FOR ARTICULATED BEDS

Donald R. Schwartz, 1501 S. Beverly Dr., Los Angeles, Calif. 90035, and Stuart H. Baumgard, 16031 Jeanne La., Encino, Calif. 91436

Filed Feb. 25, 1980, Ser. No. 124,320
Int. Cl.³ A61G *7/00, 7/04;* A47C *27/16*
U.S. Cl. 5—446 **18 Claims**



1. A low-cost, light-weight disposable orthopedic overmattress, for use in conjunction with a hospital-style articulated bed having at least three rigid sections hinged together at their mutually abutting edges and having a conventional mattress disposed upon such rigid sections, said rigid sections including a stationary middle section, and movable upper and lower sections, said overmattress comprising:

continuous, compliant but firm cushion means for substantially directly supporting a person, said cushion means comprising polyurethane foam having a load deflection rating of about ILD 80, and being from about two to about three inches in thickness, and generally the same length and width as, but substantially thinner than, such conventional mattress; and

means for supplementing the support provided by said conventional mattress for supporting orthopedic patients having back problems, said means including a plurality of stiff backing plates including at least a middle, an upper and a lower plate, one plate for each rigid section of an articulated bed, said plates being composed of a rigid material, and being permanently secured in a sequence along the underside of the cushion means, each plate having generally the same width as the cushion means; the lengths of the backing plates and their positioning longitudinally along the cushion means being for functional alignment with such mutually abutting edges of such bed sections;

said middle plate being substantially the same length as the middle section of an articulated bed, each of two opposite edges of said middle plate being disposed in close proximity to one edge of said upper and lower plates, respectively, the length of each of said upper and lower plates being shorter than the corresponding upper and lower sections of said bed;

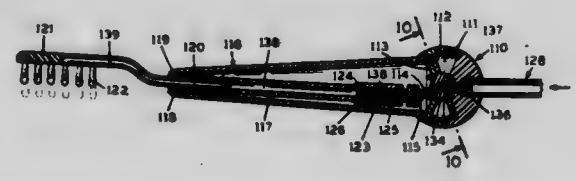
the stiffness of the backing plates and compliance of the cushion means being adapted to cooperate with a conventional mattress and rigid bed sections to attain a desired composite degree of firmness.

4,336,622

POWER TOOTHBRUSH OR THE LIKE WITH ORBITAL BRUSH ACTION

Walter D. Teague, Jr., Tweed Blvd., Nyack, N.Y. 10960, and Arthur T. Sempliner, 37-04 Van Nostrand Pl., Douglaston, N.Y. 11363

Division of Ser. No. 70,689, Aug. 29, 1979, Pat. No. 4,276,672, which is a division of Ser. No. 848,807, Nov. 7, 1977, Pat. No. 4,175,299. This application Mar. 24, 1981, Ser. No. 247,514
Int. Cl.³ A46B *13/06*
U.S. Cl. 15—22 R **4 Claims**



1. A powered toothbrush appliance or the like, which comprises

(a) a housing,

(b) a non-rotatable, orbitally movable wobble shaft mounted for universal pivoting movement in said housing,

(c) said wobble shaft including a first end supporting a working element and a second driven end,

(d) orbital output drive means in said housing comprising a fluid-powered, nutating action motor having an orbitally moving output element,

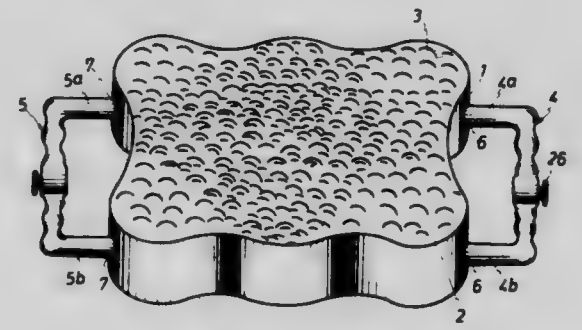
(e) means directly connecting the orbitally moving output element of the nutating action motor to the driven end of the wobble shaft.

4,336,623

BATHING BRUSH

Yih-Chou Lin, No. 31, Dormitory of E. District, Veterans General Hospital, Shihpai, Taipei, Taiwan

Filed May 19, 1980, Ser. No. 150,747
Int. Cl.³ A47K *7/02*
U.S. Cl. 15—222 **5 Claims**



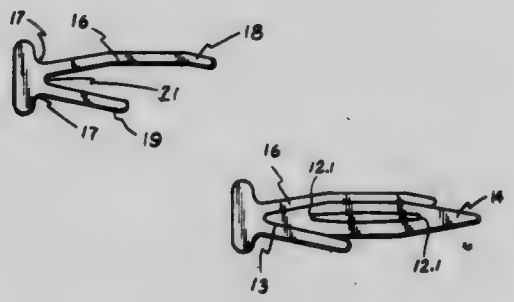
1. A bathing brush comprising:

a body member containing two coil springs each contained within a cylindrical housing;

housing lids mounted on top of said housings

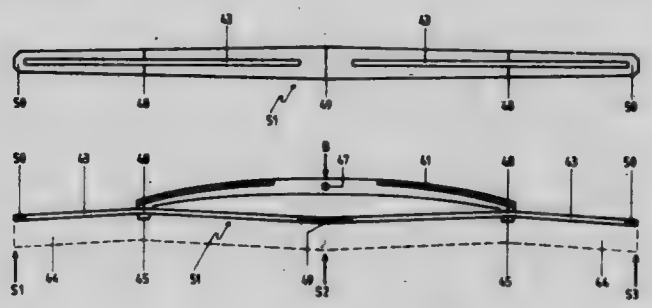
two pair of strings, wherein springs and retractable within the housings;
a pair of handles each connected to one set of said strings;
a sponge inner layer covering said body member; and
a velvet-like outer layer covering said sponge.

4,336,624
SQUEEGEE ASSEMBLY
Franklin D. Pichelman, and Donald N. Mehl, both of Minnetonka, Minn., assignors to Flo-Pac Corporation, Minneapolis, Minn.
Continuation of Ser. No. 99,706, Dec. 3, 1979, abandoned. This application May 22, 1981, Ser. No. 266,508
Int. Cl.³ A47L *1/06*
U.S. Cl. 15—245 2 Claims



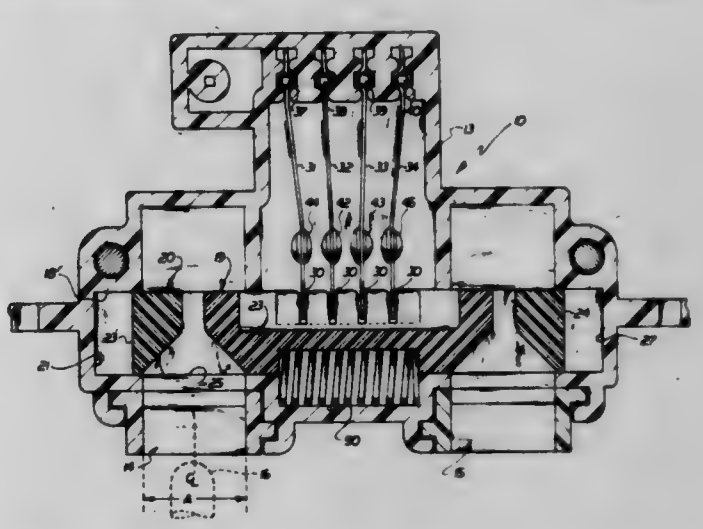
1. A squeegee assembly comprising
(a) blade means for providing a blade edge that is not significantly susceptible to developing a wavy surface, comprising:
(i) a first substantially flexible blade member having opposite substantially parallel longitudinal tapered edges; and
(ii) a second flexible blade member substantially disposed symmetrically longitudinally around and permanently attached to said first blade member and having opposite tapered blade edges formed longitudinally thereon; and
(b) handle means for supporting said blade means.

4,336,625
WIPER BLADE
Guiseppe Maiocco, Rivoli, Italy, assignor to ARMAN S.p.A., Turin, Italy
Filed Mar. 24, 1980, Ser. No. 133,274
Claims priority, application Italy, Mar. 23, 1979, 67608 A/79
Int. Cl.³ B60S *1/04*
U.S. Cl. 15—250.42 3 Claims



1. A wiper blade comprising a superstructure, a resilient wiping element and a backing strip, said backing strip having two sides embedded in two longitudinal, lateral grooves in said resilient wiping element, characterized in that said backing strip (51) changes angular direction in a plane perpendicular to the surface to be cleaned, said backing strip changes angular direction three times in such a way that the general form of the strip (51) is substantially similar to the form of an inverted and flattened W, the flexibility of said backing strip (51) diminishes in a continuous manner from its two extremities (50) to its center portion (49), and said superstructure comprises a single bridge (41) provided with claws (45), said claws gripping the backing strip (51) at the two high points of the inverted W.

4,336,626
CONTROLLED FORCE SAFETY SWITCH MECHANISM
Ronald D. Hone, Fairview, Tenn.; William Harris, Lakewood, Ohio, and James D. Edwards, Brentwood, Tenn., assignors to The Scott & Fetzer Company, Fairview, Tenn.
Filed Dec. 11, 1980, Ser. No. 215,232
Int. Cl.³ A47L *9/28*
U.S. Cl. 15—319 4 Claims

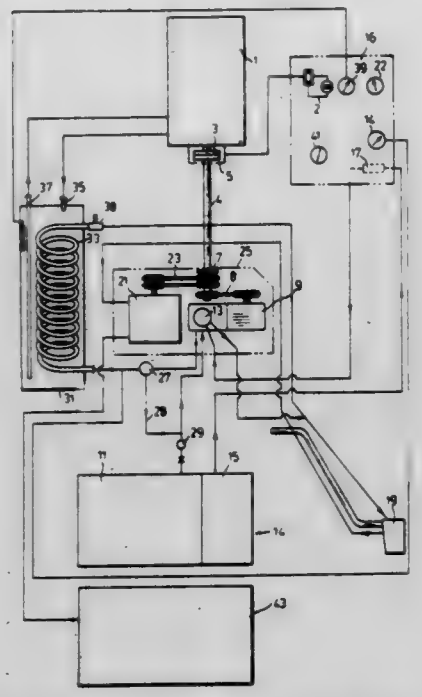


1. A safety switch for a vacuum cleaner comprising a vacuum cleaner housing, at least two attachments adapted to be affixed to said housing, a switch casing fixed to said housing, first and second slides mounted for reciprocation in said casing relative to the casing and relative to each other, a pair of socket openings in said casing, each of said slides having a cam surface positioned in each socket opening, each cam surface sloping inwardly toward a central axis of each socket, each attachment having a probe adapted to enter one or the other of said sockets when the attachment is mounted on the cleaner, each of said probes being adapted to move said first and second slides in opposite directions a predetermined total relative distance, said first slide being adapted to operate a first plurality of switch arms, said second slide being adapted to operate a second plurality of switch arms, the switch arms comprising one of said plurality alternating with the switch arms comprising the other one of said plurality, whereby contact will be made between at least two switch arms of each plurality when a probe is inserted in one of said sockets, and whereby contact will be made between at least four switch arms of each plurality when a probe is inserted in the other socket.

4,336,627
WATER CONDITIONING SYSTEMS
Lionel D. Bascus, 2300 Finch Ave. W., Unit 22, Weston, Ontario, Canada
Filed May 19, 1980, Ser. No. 150,990
Int. Cl.³ A47L *5/12*
U.S. Cl. 15—321 11 Claims

1. In a mobile carpet cleaning system operated from a van having an internal combustion engine and a drive shaft from the van engine, said system comprising a high pressure pump operated off the drive shaft, a water supply tank in the van feeding water to said high pressure pump, an immersion heat exchanger downstream of said high pressure pump and having internal passages immersed in heated coolant from the van engine, said high pressure pump driving the water through the internal passages of the heat exchanger where it is heated by the heated coolant from the van engine; a chemical tank, a pulse pump operated by pulses of the high pressure pump and ihjecting chemicals from the chemical tank into the heated water downstream of the heat exchanger; a cleaning wand from which the chemically treated and heated water is dispersed onto a carpet to be cleaned, an unloader valve operated

by said cleaning wand for regulating the pressure at which the water is dispersed from the cleaning wand and for bypassing water to the high pressure pump when the cleaning wand is



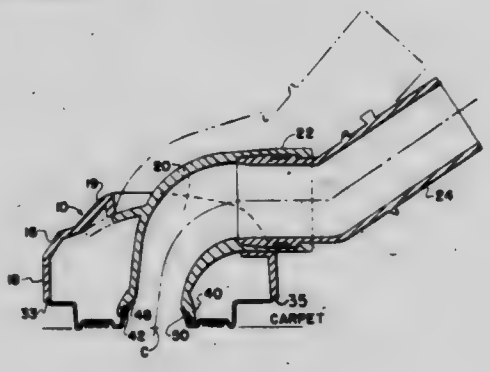
inoperative, a blower driven off the drive shaft of the van engine for vacuuming the water from the carpet and a recovery tank for holding the vacuumed water.

4,336,628

NOZZLE WITH PIVOTED WAND

David A. Bradshaw, and Joseph F. Oles, both of Canton, Ohio, assignors to The Hoover Company, North Canton, Ohio

Filed Jun. 5, 1980, Ser. No. 156,596
Int. Cl.[3] A47L *9/06*
U.S. Cl. 15—415 R 6 Claims



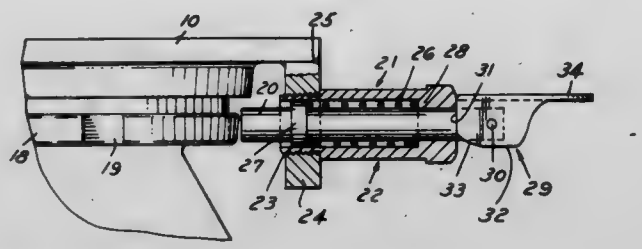
3. A pivoting nozzle and wand arrangement including;
(a) a nozzle body,
(b) a bottom plate attached to the bottom of the nozzle body,
(c) an arcuately shaped portion formed in said bottom plate,
(d) at least one arcuately shaped portion formed in said nozzle body,
(e) a wand piece disposed between said arcuately shaped portions and having surfaces cooperating with said nozzle body and bottom plate arcuate shaped portions,
(f) said arcuately shaped portions forming conforming surfaces for pivotal reception of said wand piece,
(g) said conforming arcuately shaped portions having as their center a pivot point,
(h) said pivot point being located at floor level,
(i) whereby friction induced forces generated by nozzle movement over a floor produce substantially no unbalanced moment to the nozzle.

4,336,629

CASTER SWIVEL LOCK

Grover F. Jarvis, Jr., Farmington Hills, and George E. Arold, Brownstown, both of Mich., assignors to Rose Truck and Caster Company, Detroit, Mich.

Filed Jan. 19, 1981, Ser. No. 226,418
Int. Cl.[3] B60B *33/00*
U.S. Cl. 16—35 R 18 Claims



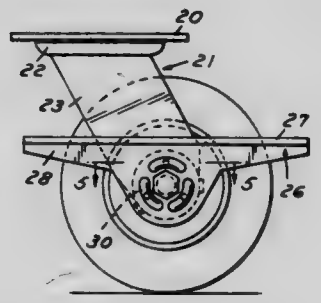
1. A caster swivel lock construction comprising
a base,
a yoke rotatably mounted on said base for rotation about a vertical axis,
said yoke having a ring plate and spaced legs extending from the ring plate,
an axle extending between the legs and a wheel rotatably mounted on said axle,
said ring plate having at least one radially extending notch in the periphery thereof,
a spring loaded plunger assembly comprising a body,
a plunger movable axially in said body,
a spring associated with said plunger,
a foot pad pivoted to said plunger on the other end and having a cam portion urged by said spring to engage a portion of said body so that the plunger is moved axially inwardly and outwardly by manipulation of said foot pad,
means for removably mounting said plunger assembly on said base plate so that the plunger axis extends radially inwardly toward said ring plate and movement of said foot pad causes said plunger to move radially inwardly and outwardly for engagement and disengagement with said notch,
said cam portion having a configuration such that in one position of said foot pad, said one end of said plunger is out of engagement with said notch, and in another position, said one end of said plunger is in engagement with said notch.

4,336,630

CASTER BRAKE

Lucille A. Page, Allen Park, Mich., assignor to Rose Truck and Caster Company, Detroit, Mich.

Filed Feb. 13, 1981, Ser. No. 234,246
Int. Cl.[3] B60B *33/00*
U.S. Cl. 16—35 R 10 Claims



1. A caster brake construction comprising
a base,
a yoke rotatably mounted on said base and having downwardly extending legs,
an axle extending between said legs,
a wheel rotatably mounted on said axle,
a washer on said axle exteriorly of one of said legs,

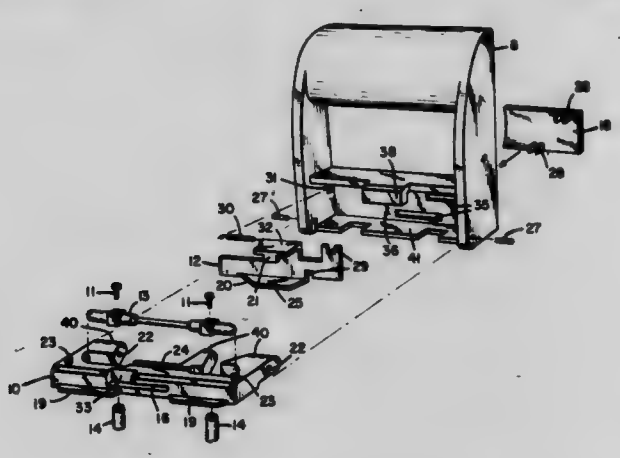
means between said one leg and said washer for preventing rotation of said washer relative to said one leg,
a pedal mounted on said axle exteriorly of said washer,
said pedal having arcuate camways at circumferentially spaced points thereof,
each camway being tapered inwardly toward the center thereof,
and a plurality of circumferentially spaced projections on said washer normally engaging the deepest portions of said camways such that when the pedal is rotated in either direction from said normal position, said camways force said projections axially inwardly thereby forcing said one leg against said wheel to lock said wheel against rotation, and when said pedal is returned to its original position, said braking force is relieved.

4,336,631

HANDLE ASSEMBLY, TOP-LOAD CARTRIDGE

James A. Duff, Omaha, Nebr., and Donald R. Boisvert, Minneapolis, Minn., assignors to Magnetic Peripherals, Inc., Minneapolis, Minn.

Filed May 12, 1980, Ser. No. 138,252
Int. Cl.³ G11B *23/02*
U.S. Cl. 16—126 **3 Claims**



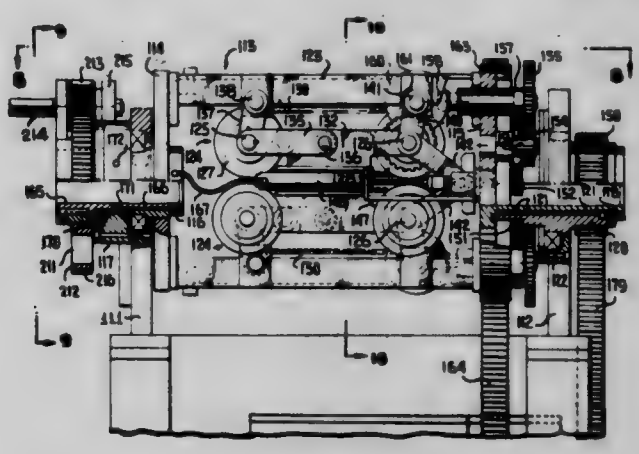
1. In a double-acting disc memory module handle of the type pivotally attached to a bracket, said bracket pivotally attached in turn to connecting rods attached to a draw plate within the disc hub,
said handle and bracket including a latch mechanism locking, by manual actuation of a spring loaded slide, the handle and bracket together when the handle and bracket are lying flat against the module top surface, and drawing the draw plate toward the module top by leverage exerted on the connecting rods while the handle and bracket are locked together and manually rotated to a raised position relative the module top with the module top forming a fulcrum support,
said handle further independently rotatable to the raised position without affecting the position of the bracket when the handle and bracket are not locked together, the improvement comprising a locking mechanism including
(a) an area of the bracket spaced farther from the handle to bracket pivot axis than from the bracket to connecting rod pivot axis, said area incorporating a slot parallel to the pivot axis between the bracket and the connecting rods, an entry port in the slot at a first end thereof extending away from the module top, the width of the entry port being greater than a predetermined width dimension; and
(b) a carrier comprising the latch mechanism shiftable parallel to the connecting rod to bracket pivot axis and carried by the handle, and having a projection extending transverse to the pivot axes and lying in the entry port, and aligned with the entrance to the slot when the bracket and the handle are lying flat against the module top, said projection having the predetermined width dimension and being less thick than the slot's width, wherein manual actuation of the latch mechanism shifts the carrier-supported projection into the slot between its second end and the entry port, and manually rotating the handle toward its raised position while the latch mechanism is actuated causes the projection to engage the side of the slot thereby causing the bracket and handle to rotate as a unit, and wherein the projection moves relatively through the entry port as the handle is rotated between its flat and raised positions with the latch mechanism not actuated.

4,336,632

CONTINUOUS SHIRRING AND SPINNING APPARATUS FOR CASINGS

Willard T. Wilson; Harold H. Martinek, both of Danville, Ill.; Thomas W. Martinek, Covington, Ind., and Alfred D. Story, Danville, Ill., assignors to Teepak, Inc., Chicago, Ill.

Filed May 8, 1980, Ser. No. 147,774
Int. Cl.³ A22C *13/02*
U.S. Cl. 17—1 R **15 Claims**



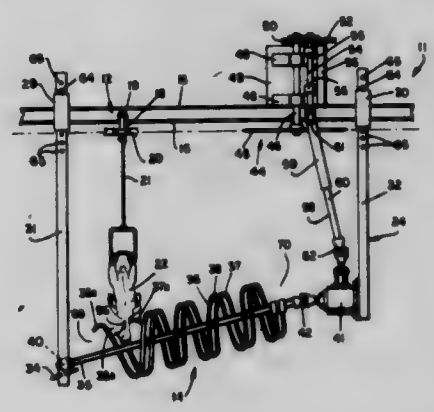
1. A device for controlling the density of continuously shirred casing and spinning such casing, said device comprising a frame, bearing means mounting said frame for rotation about a fixed axis, at least two drive belts having spaced driving runs opposing said axis for cooperation to drive a shirred casing along said fixed axis, first drive means for driving said drive belts in unison, and second drive means for rotating said frame about said axis.

4,336,633

POULTRY PROCESSING METHOD AND APPARATUS

Horace J. De Long, Rte. 6, Garrison Rd., Box 257A, Macon, Ga. 31201

Filed Aug. 20, 1979, Ser. No. 68,204
Int. Cl.³ A22B *3/06*; A22C *21/00*
U.S. Cl. 17—51 **17 Claims**



1. In a poultry processing system wherein a plurality of birds are suspended in an inverted attitude and moved in a series along a processing path by a conveyor through a plurality of processing steps, the improvement comprising wiping the neck feathers on opposite sides of the neck of each bird in a direction extending laterally across the length of the neck of each bird in

a direction transverse to the processing path as the birds move along the processing path to move the feathers out of the way of a cutting means, and cutting with a cutting means through the skin and tissue of the neck on opposite sides of the neck at the areas of the neck where the feathers have been wiped with a motion laterally transverse to the processing path.

4,336,634

APPARATUS FOR THE SEVERING OF THE FILLETS FROM THE SKELETON OF FISH

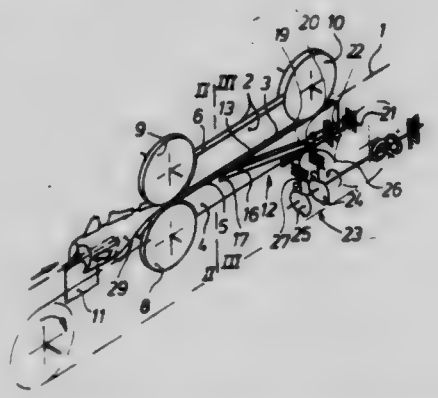
Horst Braeger, Lübeck, Fed. Rep. of Germany, assignor to Nordischer Maschinenbau Rud. GmbH Co. KG, Lübeck, Fed. Rep. of Germany

Filed May 1, 1980, Ser. No. 145,664

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1979, 2946042

Int. Cl.³ A22C *25/16*

U.S. Cl. 17—57 **5 Claims**



1. Apparatus for the severing of the fillets from the skeleton of fish, said apparatus comprising

means for conveying a fish with tail forwards along a guide path,

belly filleting means and back filleting means located downstream of said guide path, and fillet severing means located downstream of said guide path,

guide means for guiding said fish from said belly and back filleting means to said fillet severing means, and comprising spaced belly guide members and spaced back guide members aligned with said belly guide members and located thereabove, with the lower edges of said back guide members being spaced above the upper edges of said belly guide members to provide a space therebetween, said guide means being located in the planes of said belly filleting means and back filleting means and extending downstream thereof,

and tool means for cutting free the ribs of said fish, located downstream of said belly and back filleting means and upstream of said severing means,

wherein said tool means comprises respective scraper knives arranged on opposite sides of said guide means, a backing support member associated with each of said scraper knives, and drive means for moving said scraper knives and backing support members selectively between a lowered position and a raised position,

each scraper knife and backing support member having a tip portion located proximate to the outer surface of said guide means, said scraper knife having an elongated body formed with a cutting edge along one side thereof, said cutting edge diverging angularly outward from said tip toward the opposite end thereof, the tip of each backing support member being bulge-shaped and being spaced from the cutting edge of said scraper knife to form a gap therebetween,

said drive means being operable, in response to movement of the abdominal cavity of a fish into proximity to said tool means, to move each scraper knife from its lowered position, in which its tip portion is located below the upper edge of said belly guide member, to its raised position in which its tip portion is located substantially at the level of the lower edge of said back guide member, and also to move each backing support member from its lowered position, in which its tip is located adjacent to an intermediate portion of said belly guide member, to its raised position in which its tip portion is located at the level of the upper edge of said belly guide member.

4,336,635

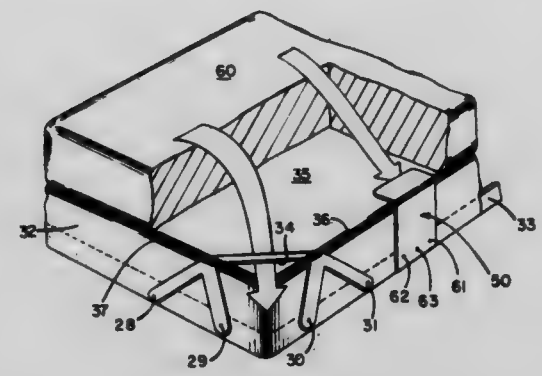
BED SHEET OR THE LIKE SECURING MEANS

Rose M. Lantz, 170 Sylvia St., Arlington, Mass. 02174

Filed Apr. 13, 1979, Ser. No. 29,747

Int. Cl.³ A47C *21/02*; A47G *9/04*

U.S. Cl. 24—72.5 **8 Claims**



1. Means for securing and maintaining a bed sheet or the like on a mattress of a bed supported on a platform like support means having a planar upper surface, said securing means comprising in combination a centrally disposed, elongated body member for association with the planar upper surface of said support means and defined by first and second sides and first and second ends, and bifurcated members comprising first and second branches pivotally connected to each said first and second ends of the body member capable of when pivoted depending perpendicularly downwardly of fastening said body member in close association with said planar upper surface whereby the said bed sheet or the like can be secured between said securing means and the said support means.

4,336,636

FASTENING DEVICE

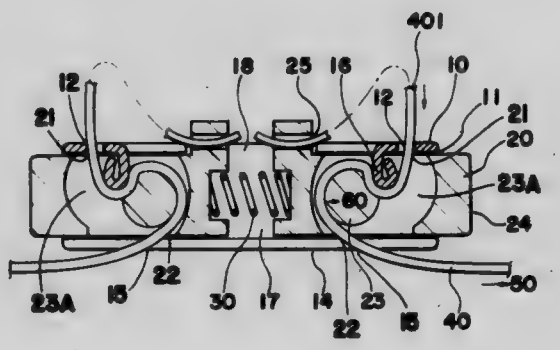
Yoshihiko Ishiguro; Keiko Ishiguro, both of 9-5 Minamikyutaro-cho 4-chome, and Hiromi Shiotani, 9, Ryuzoji-cho, all of Higashi-ku, Osaka-shi, Osaka-fu, Japan

Filed Jan. 30, 1980, Ser. No. 116,830

Claims priority, application Japan, Jan. 30, 1979, 54-9815

Int. Cl.³ F16G *11/04, 11/00*; A44B *11/10*

U.S. Cl. 24—115 M **13 Claims**



1. A fastening device to be used with an object having at least one string which fixes the string in position in relation to an object when the string is affixed by the fastening device, said device comprising:

a casing having a first and second longitudinal sides and having two lateral open ends, said longitudinal sides being oppositely positioned with respect to one another;

said first longitudinal side having a central bore through the center thereof;

said second longitudinal side having two first apertures

therethrough, each of said first apertures being respectively positioned between the axis of said central bore and one of said lateral open ends;

a pair of block members, said block members being oppositely slidably positioned within said casing and respectively having end portions which respectively project from said lateral open ends;

each of said block members having a chamber therein and having a first opening therein which communicates with said chamber, said first opening being substantially aligned with one of said first apertures and communicating therewith;

said block members having two bar members respectively fixedly positioned in said chamber of each of said blocks, each of said bar members extending in a direction substantially transverse to the longitudinal direction of said casing, each of said block members having a shoulder extending outwardly from said central bore for abutting the outer periphery of said central bore for limiting outward movement of the corresponding block member with respect to said casing;

a biasing means positioned within said casing for biasing said block members away from one another; and

said first longitudinal side having two inwardly projecting engaging portions, each of said engaging portions being respectively operatively associated with a corresponding one of said bar members for, when said block members are biased by said biasing means, abutting and affixing a corresponding string, threaded through one of said first apertures and said first opening associated with a corresponding one of said block members and wound at least partially around the associated one of said bar members, against the associated said one of said bar members and thereby preventing the corresponding string from substantial movement in the longitudinal direction thereof with respect to the corresponding block member and thereby fixing the string in position in relation to the object.

4,336,637

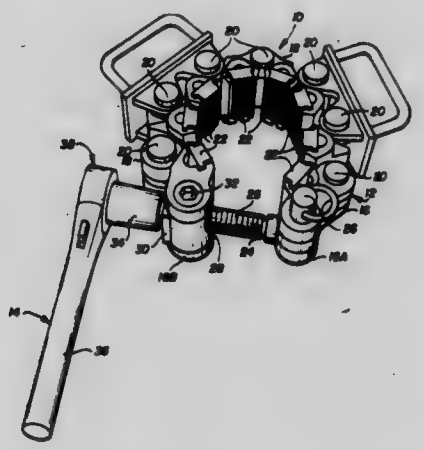
SAFETY CLAMP

Robert E. Patterson, 614 Shady Glen, Allen, Tex. 75002

Filed May 12, 1980, Ser. No. 148,919

Int. Cl.³ A44B *21/00*

U.S. Cl. 24—249 DP **5 Claims**



1. A clamp used on a pipe, comprising: a clamp portion for extending around and attaching to the pipe, said clamp portion including a body adapted to be positioned around the pipe having a first and a second end, gripping members for engaging the pipe connected to the body, and a screw member pivotally connected to the first end of the body for extending through a passageway in a member connected to the second end of the body; and a wrench portion for tightening said clamp portion around the pipe, said wrench portion including a nut for moving the threaded member relative thereto, a handle for transferring a torque to said nut, and means for connecting the nut to the handle, said connecting means having ratchet means for transferring the torque to the nut when the handle is turned in a first direction while permitting movement of the handle in an opposed direction without applying torque to the nut, said wrench portion and said ratchet means further comprising a cylindrical passageway coaxial with said nut to enable said screw member to extend through said wrench portion as said clamp is tightened around said pipe.

4,336,638

APPARATUS FOR STRETCHING PLASTIC WEBS

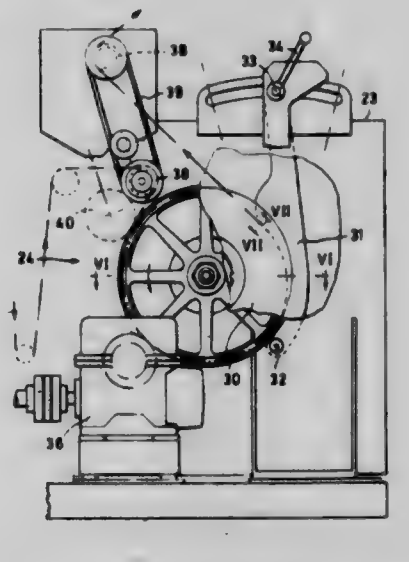
Frank B. Mercer, Blackburn, England, assignor to Netlon Limited, Blackburn, England

Continuation-in-part of Ser. No. 873,945, Jan. 31, 1978, abandoned, which is a division of Ser. No. 689,127, May 24, 1976, Pat. No. 4,087,226. This application Oct. 17, 1978, Ser. No. 952,211

Claims priority, application United Kingdom, May 23, 1975, 22649/75; Oct. 17, 1977, 43159/77; Feb. 9, 1978, 5305/78; May 31, 1978, 43159/78

Int. Cl.³ D06C *3/06*

U.S. Cl. 26—99 **14 Claims**

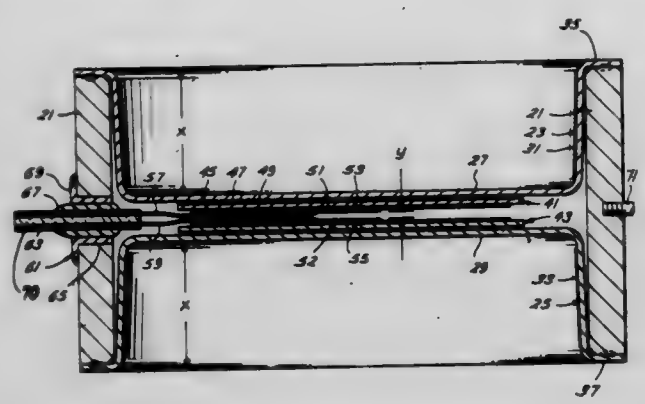


1. Apparatus for transversely stretching and molecularly orientating a continuously advancing flexible web, comprising restraining means for preventing substantial inward movement of the web margins, a pair of opposed banks of transversely-spaced pressure elements between which banks the web can travel while its margins are engaged by the restraining means, the pressure elements of one bank being transversely staggered in relation to the elements of the other bank and, as seen looking in the transverse direction, overlapping the pressure elements of the other bank with such a degree of overlap that the pressure elements cause the web to take up an extended form from margin to margin by applying opposed forces respectively to the opposite surfaces of the web at spaced locations across the width of the web and transversely stretch the web into a pleated form without substantial inward movement of the web margins, the pressure elements of at least one of the banks being stationary pressure members providing slide surfaces extending in the direction of advance of the web wherein the slide surfaces provide a reduced initial rate of stretch of the web which increases at a substantially constant rate of stretch in transit between the opposed pressure elements, said reduced initial rate of stretch being provided by biasing of the stationary pressure members against one side of the web, which web is biased on its other side by the opposed pressure elements, the relationship between the pressure elements being such that the distance between the slide surfaces of the stationary pressure members and the surfaces of the opposed pressure elements increases with the distance along the slide surfaces, the initial contact point of the stationary pressure members with the web being substantially tangential to the peripheries of the opposed pressure elements, and drive means for continuously advancing the web between the banks whereby the pressure elements continuously transversely stretch the web.

4,336,639
METHOD OF MAKING A SEISMIC APPARATUS

Carl O. Berglund, Houston, Tex., assignor to Teledyne Exploration Company, Houston, Tex.

Filed Mar. 31, 1980, Ser. No. 135,476
Int. Cl.[3] H01L *41/22*
U.S. Cl. 29—25.35 6 Claims



1. The method of manufacturing a hydrophone including the steps of

(a) electroconductively fastening the leaf forming the body of a lollypop shaped electric conductor to one side of a piezoelectric wafer,

(b) electroconductively fastening the other side of said wafer to one side of a diaphragm,

(c) repeating steps (a) and (b) with the leaf of another electric conductor, another wafer and another diaphragm,

(d) and the further step performed before, during, or after steps (a), (b), and (c) of insulatingly mounting an electrically conductive tube in an aperture in a conductive ring to form a feedthrough terminal,

(e) and after steps (a), (b), (c) and (d) threading the distal ends of handle portions of said lollypop shaped electric connectors attached to each wafer through said feedthrough terminal,

(f) inserting said diaphragms coaxially in said ring by holding on to flanges extending axially from the rims of the diaphragms,

(g) moving said diaphragms into said ring until lips on the flanges engage the ends of the ring,

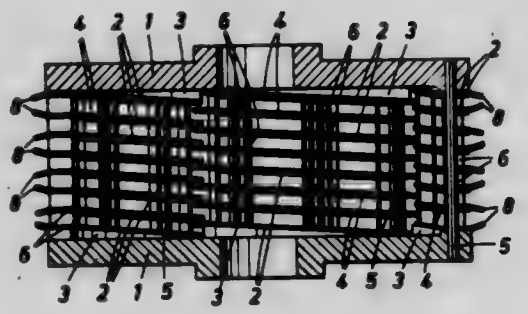
(h) welding said flanges to the ends of said ring,

(i) filling with electroconductive solder said tube of said feedthrough terminal to join said tube and said electric conductors therein electroconductively.

4,336,640
CYLINDRICAL TURNING TOOL

Karl Willinger, Vienna, Austria, assignor to Miba Sintermetall Aktiengesellschaft, Laskirchen, Austria

Filed Oct. 20, 1980, Ser. No. 198,443
Claims priority, application Austria, Nov. 5, 1979, 7083/79
Int. Cl.[3] B23D *71/00*; B21K *21/00*
U.S. Cl. 29—79 4 Claims



1. In a cylindrical turning tool for machining pneumatic tires for vehicles, which tool comprises a plurality of peripherally consecutive, segment-shaped cutter blades, which constitute a peripheral surface of the tool and are axially spaced apart and extend in planes that are transverse to the axis of the tool, each of said blades having a radially outer edge and cutting teeth carried by said outer edge,

the improvement residing in that

said radially outer edge of each of said blades comprises at least one tooth-carrying edge portion which is bent out of the plane of said blade,

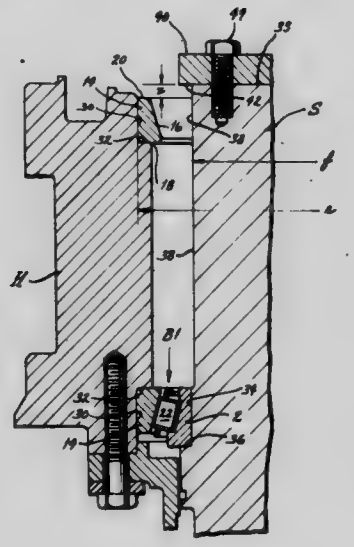
and

peripherally consecutive ones of said tooth-carrying edge portions of said tool are bent out to opposite sides.

4,336,641
BEARING SETTING PROCESS

Ravi R. Bhatia, Canton, Ohio, assignor to The Timken Company, Canton, Ohio

Filed Mar. 16, 1979, Ser. No. 21,232
Int. Cl.[3] B21D *53/10*
U.S. Cl. 29—148.4 A 6 Claims



1. A process for assembling and setting a bearing arrangement that permits an inner member of a mounting to rotate relative to an outer member of the mounting or vice-versa and includes first and second bearings that are spaced apart along an axis of rotation, with each bearing including an inner race mounted on the inner member and having a back face and an outwardly presented raceway, an outer race mounted on the outer member and having a back face and an inwardly presented raceway surrounding the raceway of the inner race, and rolling elements arranged in a single row between the two raceways, there being an interference fit between at least one of the races for the second bearing and the member on which that race is mounted, each bearing being capable of taking thrust loading in the axial direction which causes the back faces of its two races to be urged toward each other, the two bearings being mounted in opposition so that the back faces for corresponding races of the two bearings face in opposite directions, whereby the bearing arrangement will accommodate thrust loading in both axial directions as well as radial loading; said process comprising: installing the inner race of the first bearing against an abutment on the inner member; installing the outer race of the first bearing against an abutment on the outer member; installing one race of the second bearing against an abutment on the member for that race; thereafter placing the first bearing under a thrust load to properly seat the rolling elements thereof against the raceways for that bearing so that no end play exists in the first bearing; measuring the axial distance between a location on said one race of the second bearing and a radial surface along the member on which the other race of the second bearing is to be mounted; noting from a code associated with the second bearing, deviations from the nominal value of the standout for that bearing and from the nominal value of the diameter of at least one surface on that bearing along which an interference fit exists; consulting a reference source which for various combinations of coded

standout and interference fit deviations provides an axial dimension that reflects the algebraic sum of at least the nominal bearing standout, the deviation in the bearing standout, the lateral removed as a result of the interference fit at said one surface when the diameter of that surface is considered at its nominal value, the further lateral removed as a result of any deviation from the nominal value of the diameter of said one surface; selecting a spacer for installation against the radial surface that is along the member along which said other race of the second bearing is to be mounted, the thickness of the spacer being derived by algebraically combining the measured distance and the axial dimension derived from the reference source; installing said other race of the second bearing along the member for that race and into an operative position with respect to said one race of the second bearing; installing the spacer on the member on which said other race of the second bearing is mounted; and installing an abutment on the member on which said other race of the second bearing is mounted such that the abutment along with the spacer control the axial position of said other race of the second bearing along the member on which said other race is mounted.

4,336,642

METHOD OF ENLARGING THE HEAT EXCHANGE SURFACE OF A TUBULAR ELEMENT

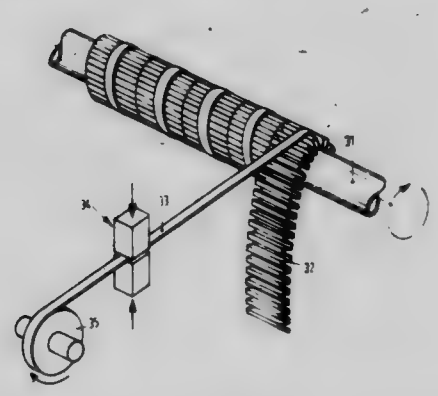
Gerhardus A. Engelberts, Breda, Netherlands, assignor to B.V. Machinefabriek Breda v/h Backer & Rueb, Breda, Netherlands

Division of Ser. No. 830,311, Sep. 2, 1977, Pat. No. 4,163,473, which is a continuation of Ser. No. 640,765, Dec. 15, 1975, abandoned. This application Aug. 2, 1979, Ser. No. 63,342

Claims priority, application Netherlands, Dec. 24, 1974, 7416886; Dec. 24, 1974, 7416887

Int. Cl.³ B23P *15/26*

U.S. Cl. 29—157.3 A **4 Claims**



1. The method of fabricating a heat exchange element including a corrugated heat transfer strip secured to a tubular element by a clamping strip, said method comprising the steps of providing a tubular element, a length of a corrugated heat transfer strip, and a clamping strip, securing one end of said clamping strip to said tubular element, placing one end of said corrugated strip between said clamping strip and said tubular element, helically winding said clamping strip and said corrugated strip simultaneously on said tubular element while said clamping strip is maintained under tension so that said corrugated strip is continuously clamped to said tubular element, and after said length of corrugated strip is clamped to said tubular element securing said clamping strip to the thus formed heat exchange element.

4,336,643

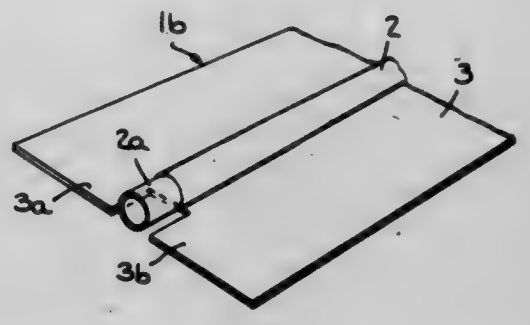
METHOD FOR THE PROCESSING OF HEAT EXCHANGER, TUBE-STRIP ELEMENTS

Sidney Roberts, Stamford, Conn., assignor to Thermatool Corp., Stamford, Conn.

Filed Feb. 19, 1980, Ser. No. 122,468

Int. Cl.³ B23P *15/26*

U.S. Cl. 29—157.3 C **5 Claims**



1. Method for processing a heat exchanger panel element comprising a metal tube substantially continuously secured throughout its length to a metal strip, said strip being wide relative to the cross-sectional dimension of said tube, said method comprising the steps of:

when the tube is not rectilinear along its axis, gripping at least said tube at its opposite ends and mechanically stretching it length-wise to at least cause said tube to be substantially rectilinear along its axis;

mechanically modifying the portions of the element at opposite ends of the element to:

(a) remove any non-circular cross-section of the end portions of the tube;

(b) provide an exterior diameter for the end portions of the tube which is not greater than a desired diameter; and

(c) remove portions of the strip outwardly of and adjacent to said end portions of said tube while leaving other portions of the strip outwardly of the portions thereof which are removed; and

modifying the remaining portions of said strip outwardly of said tube portions at said opposite ends, so that said tube portions extend beyond the ends of the strip, the steps being performed in any order.

4,336,644

METHOD OF INSTALLING BULLETPROOF WINDOWS IN AN ARMORED AUTOMOBILE

Richard C. Medlin, 6940 NW. 14th Ave., Ft. Lauderdale, Fla. 33309

Continuation-in-part of Ser. No. 920,715, Jun. 30, 1978. This application Dec. 24, 1980, Ser. No. 219,882

Int. Cl.³ F41H *7/04*; B60J *1/00*

U.S. Cl. 29—401.1 **9 Claims**

1. A method of installing bulletproof front and/or rear windows of an aromored automobile consisting of the following steps:

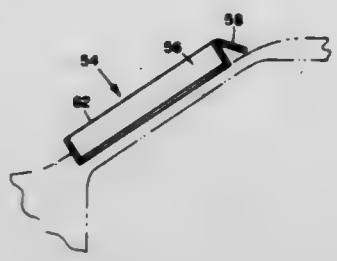
removing original windows and molding;

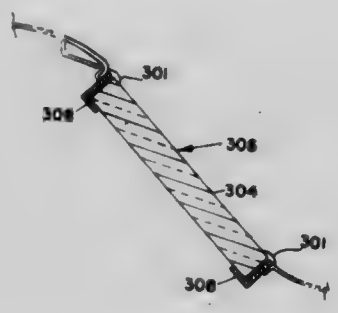
altering the window frame area to accommodate a thicker depth of said bulletproof window by the following;

removing a first lip of a mechanism that retains said original windows in position; and

replacing said first lip with a second lip that will provide said thicker depth to retain said bulletproof window in position;

installing said bulletproof window in said altered window frame area; and





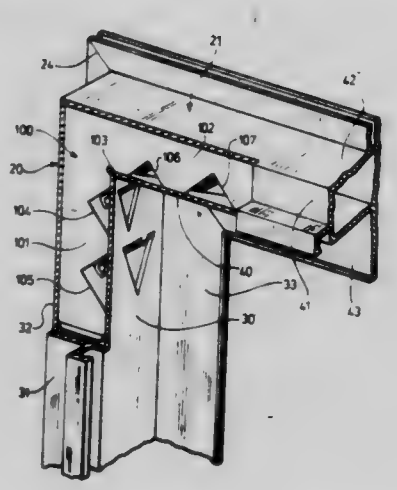
restoring said window frame with said bulletproof window in position so said armored automobile appears as an ordinary automobile.

4,336,645

FRAME CORNER STRUCTURE

Carlo G. Bucci, Bronte, Canada, assignor to Repla Limited, Oakville, Canada

Division of Ser. No. 831,521, Sep. 8, 1977, Pat. No. 4,192,624.
This application Nov. 8, 1979, Ser. No. 92,526
Claims priority, application Canada, Jul. 20, 1977, 283119
Int. Cl.[3] B21D *39/00;* B23P *11/00*
U.S. Cl. 29—510 5 Claims



5. A method of manufacturing a corner structure for window frames and the like comprising:

providing a pair of metal frame members each having a longitudinally extending channel extending from a mitred end, each channel being defined by opposed sides,

providing a bracket having a pair of angularly disposed legs slidably receivable in the channels of said frame members, each leg having a surface opposed to a surface on an adjacent leg, and each opposed surface having a pair of longitudinally spaced depressions therein, the depression in each leg nearest the other leg having a depth less than the depth of the other depression in the leg by at least the thickness of a side of the channel of a frame member,

inserting the bracket legs into the channels of the frame members to cause the mitred ends of the frame members to abut,

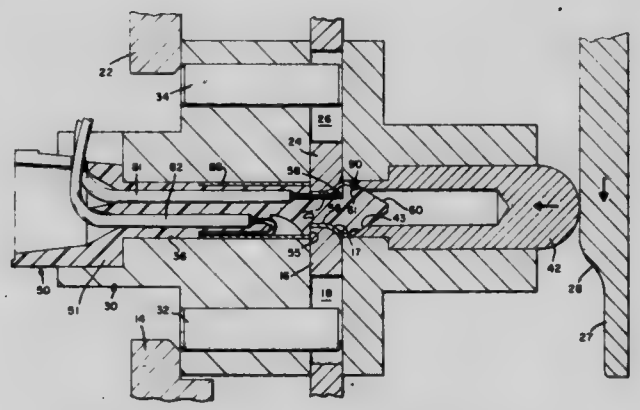
forcing a die, having four striking elements, such that the striking elements are of a dimension that permits two of the striking elements to make contact and traverse the walls of the opposed sides of the corner structure, before the other two striking elements make contact with said opposed sides, against the frame member channels to strike out tongues from each frame member channel into the deeper depressions in the bracket arms and immediately thereafter to strike out tongues from each frame member into the depressions of less depth in the bracket arms to urge the mitred ends of the frame members together, each tongue extending in a direction away from the respective mitred end.

4,336,646

APPARATUS FOR SHEARING AND CRIMPING

Steven Feldman, Seminole, Fla., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 16, 1980, Ser. No. 197,403
Int. Cl.[3] H01R *43/04*
U.S. Cl. 29—564.2 2 Claims



1. An apparatus for shearing and crimping a preformed tubular metal sleeve to form discrete coaxial first and second conductive surfaces on a generally cylindrical dielectric plug body, said plug body having a tapered leading end and a circumferential recess spaced from said end, said metal sleeve being dimensioned to fit concentrically on said plug body and extend from said leading end to a point beyond said recess, said apparatus comprising:

a holder with a plug passage therein profiled to receive said plug body with said sleeve assembled thereto,

a pair of opposed neck dies which are slideably mounted in said holder for radial movement toward said passage, said passage being dimensioned to position said plug body with said recess positioned centrally of said neck dies when said plug body with said sleeve assembled thereto is fully received in said passage,

a nose die slideably mounted in said holder for axial movement toward said passage,

actuating means for initially driving said neck dies radially inward toward said passage and thereafter to drive said nose die axially toward said passage, whereby,

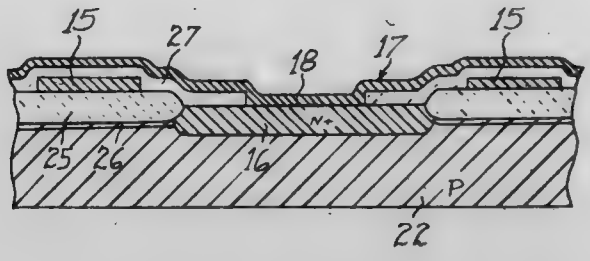
said plug body with said sleeve assembled thereto may be placed in said passage with said recess positioned centrally of said neck dies, said neck dies may be driven toward said plug body to shear said sleeve and crimp it into said recess forming said discrete first and second conductive surfaces, and said nose die may be moved axially toward said tapered leading end to form said sleeve thereto.

4,336,647

METHOD OF MAKING IMPLANT PROGRAMMABLE N-CHANNEL READ ONLY MEMORY

David J. McElroy, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 21, 1979, Ser. No. 106,126
Int. Cl.[3] H01L *21/425*; G11C *11/40*
U.S. Cl. 29—571 11 Claims



1. A method of making a read-only-memory comprising the steps of:

forming a plurality of insulated gate field effect transistors in a face of a semiconductor body, each of the transistors having a source, a drain and a polysilicon gate, the transistors being in a regular pattern of rows and columns to provide an array of memory cells, metal column lines extending along said face and making electrical contact to all of the sources and drains;

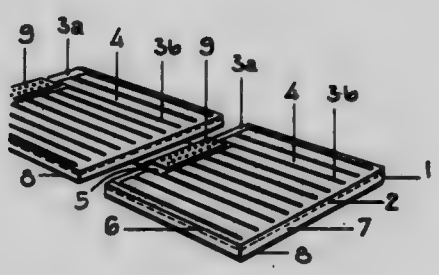
masking said face to expose areas above selected ones of said gates and cover the gates of other of the transistors, and thereafter ion-implanting to program the array of memory cells by the masked ion implant in areas between the metal lines and penetrating through the gates of said selected ones of the field effect transistors.

4,336,648

METHOD OF CONTACTING A SOLAR CELL

Willi Pschunder, Ilsfeld, and Gerhard Steinmetz, Bretzfeld-Dimbach, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 31, 1980, Ser. No. 202,731
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1979, 2944185
Int. Cl.[3] H01L *31/18*
U.S. Cl. 29—572 11 Claims



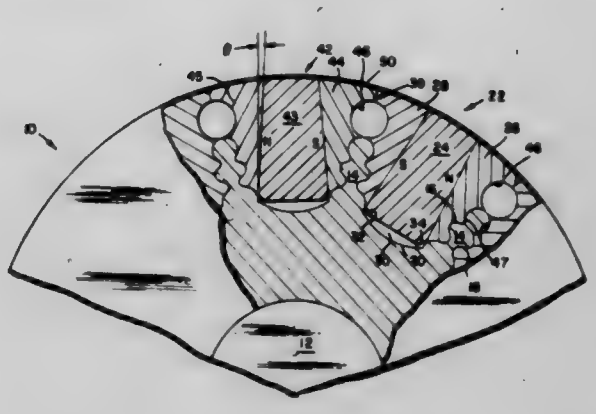
1. In a method for fabricating a solar cell composed of a semiconductor body containing a pn-junction and presenting opposed surfaces, one of which surfaces is a front surface provided with a metallized area including a front connection region and arranged to be exposed to incident light, and the other of which surfaces is a rear surface presenting a rear connection region, which method includes providing a reflection reducing layer on the front surface to completely cover the metallized area including the entirety of the front connection region, the improvement comprising fixing a metal connector to the front connection region by placing the connector against the reflection reducing layer and conductively connecting the connector to the first connection region while concurrently eliminating the reflection reducing layer from that region.

4,336,649

METHOD OF MAKING ROTOR ASSEMBLY HAVING ANCHOR WITH UNDULATING SIDES

Jerry Glaser, Playa del Rey, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 973,345, Dec. 26, 1978. This application Apr. 7, 1980, Ser. No. 138,019
Int. Cl.[3] H02K *15/02*
U.S. Cl. 29—598 4 Claims



1. A method of forming a rotor for a permanent magnet machine, comprising the steps of:

forming a non-magnetic rotor hub having a plurality of equally spaced, radially extending tongues with undulating sides;

forming a plurality of assemblies of a wedge-shaped tangentially magnetized permanent magnet having outwardly converging sides between a pair of wedge-shaped ferromagnetic support members, each of said support members having a smooth side secured to the permanent magnet and an opposite side having a radially outer smooth portion and a radially inner undulating portion; and

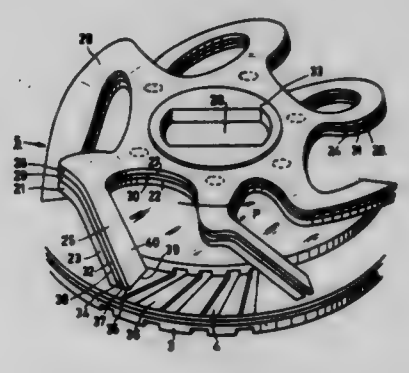
inserting a formed assembly between the radially extending tongues of the rotor hub with radially outer smooth portions of adjacent assemblies in contact and the radially inner undulating portions cooperating with the corresponding undulating sides of the radially extending tongues.

4,336,650

CUTTING UNIT FOR A SHAVING APPARATUS

Willem K. Gorter, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 17, 1980, Ser. No. 207,322
Claims priority, application Netherlands, Dec. 17, 1979, 7909059
Int. Cl.[3] B26B *19/42*
U.S. Cl. 30—34.2 7 Claims



1. A shaving apparatus having a circular shear plate provided with hair-entrance apertures and a cutting unit associated with and rotatable relative to the shear plate; said cutting unit comprising a cutting member having a circular central body, cutters extending from the circumference of said central body toward the shear plate, a lead-cutting element having a

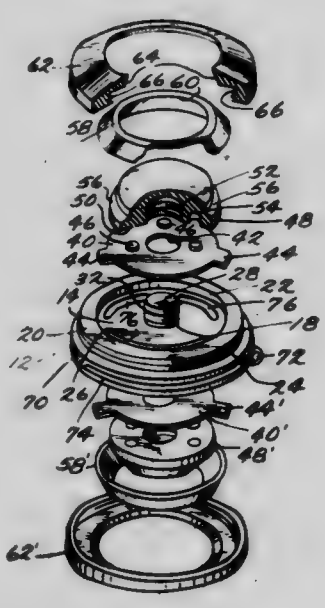
circular central portion, lead cutters extending from the circumference of said central portion toward the shear plate and respectively associated with and movable relative to the cutters away from and toward the shear plate, each lead cutter, with reference to the direction of rotation of the cutting unit, being positioned in front of its associated cutter, and a spacer interposed between each cutter and its associated lead cutter.

4,336,651

CIRCULAR SAFETY RAZOR

Israel Caro, P.O. Box 841, Munoz Rivera 18 St., Rincon, P.R. 00743

Filed May 21, 1980, Ser. No. 151,940
Int. Cl.³ B26B *21/00*
U.S. Cl. 30—49 **15 Claims**



1. A razor assembly comprising:

a disc-shaped support member defining first and second opposed and substantially planar surfaces and a circumferential surface extending between said first and second surfaces, and an axially positioned aperture extending through said member between said opposed surfaces;

a first annular boss defining inner and outer surfaces and projecting from said first planar surface in cooperating relationship with said first planar surface to define a first interior space;

a substantially cylindrically shaped control member defining a centrally located smooth exterior surface and a threaded end, said control member positioned within said aperture with said smooth exterior surface in frictional but movable engagement with the surface of said aperture;

a first annular blade having a cutting edge along its inner margin;

first means in operative relationship with said blade, said boss, said support member and with said control member for positioning and enabling adjustment of the position of said blade to control the depth of the cut of the hair or beard;

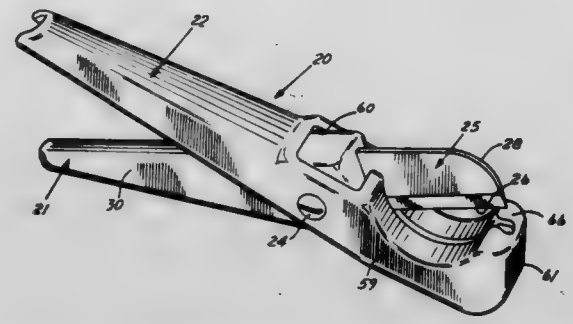
said first means including a first substantially planar spacer member defining a centrally positioned aperture and a plurality of substantially coplanar lugs, said spacer member positioned on said first planar surface within said first interior space with said lugs adjacent to said inner surface of said annular boss and with said control member projecting through said spacer member aperture, and a first plurality of projecting members extending from one side of said spacer member.

4,336,652

CUTTING TOOL FOR FLEXIBLE PLASTIC CONDUIT

Duane D. Robertson, 105 Flora Way, Golden, Colo. 80401

Filed Aug. 1, 1980, Ser. No. 174,727
Int. Cl.³ B26B *13/00*
U.S. Cl. 30—258 **7 Claims**



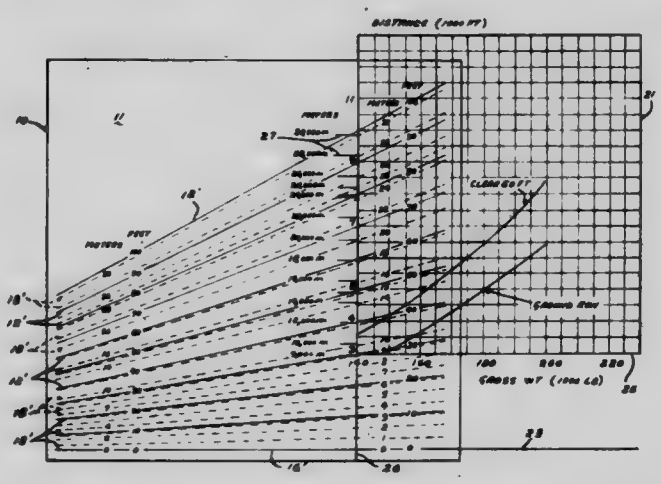
1. A cutting tool for cutting flexible plastic conduit comprising a pair of handled jaws pivotally connected intermediate their ends, one of said jaws having a handle at one end and a knife blade extending from the other end thereof opposite to said handle, said knife blade having a longitudinal cutting edge, the other of said jaws defining a channel-shaped handle at one end and a semi-circular concave anvil at the other end, said anvil having an axially extending slot therein for receiving the cutting edge of said knife blade when said handles are closed together with the said one handle nested within said channel-shaped handle, whereby a conduit supported in said semi-circular anvil can be cut readily by said knife blade upon squeezing said handles together while swinging said tool relative to said conduit and said conduit being completely severed as said knife blade edge is received in said slot.

4,336,653

ENGLISH UNIT TO METRIC UNIT CONVERSION DEVICE

Robert P. Stanton, 1436 Millrace, Fairborn, Ohio 45324

Filed Sep. 27, 1976, Ser. No. 727,324
Int. Cl.³ G01B *3/02*
U.S. Cl. 33—1 B **1 Claim**



1. The method of determining dimensions in one system of measurements on a drawing having at least one known dimension in a second system of measurements, comprising: placing a transparent sheet having; a base line and a first series of diverging straight lines each spaced distances proportional to an integral number of units along any perpendicular in said one system of measurement from the base line and a second series of divergent straight lines, on the same side of the base line as the first series of straight lines, each spaced from the base line distances proportional to an integral number of units along any perpendicular in the second system of measurement; over the drawing; moving the transparent sheet over the drawing until the known dimension on the drawing coincides with the corresponding dimension along a certain perpendicular to the base line in the second system of measurement; drawing a line on

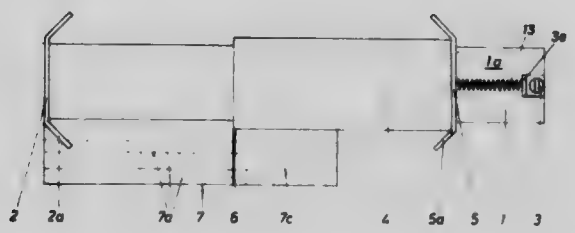
said transparent sheet along said certain perpendicular; moving the line along said certain perpendicular to other portions of the drawing to determine the dimensions.

4,336,654

ADJUSTING DEVICE FOR SKI BINDINGS

Josef Svoboda, and Rupert Hofbauer, both of Schwechat, Austria, assignors to TMC Corporation, Baar, Switzerland

Filed Sep. 12, 1979, Ser. No. 74,624
Claims priority, application Austria, Sep. 29, 1978, 7068/78
Int. Cl.³ A43D *1/00*; A63C *9/08*
U.S. Cl. 33—3 A 4 Claims



1. An adjusting device for facilitating a correct adjustment of a thrust force applied by a thrust spring onto a heel holder for urging said heel holder toward a toe jaw, said thrust spring yielding in response to the placement of a ski boot between said heel holder and said toe jaw, comprising in combination:
an elongated first rail member;
an elongated slide member movably mounted on said first rail member;
support means mounted on each of said first rail member and said slide member and adjacent ends thereof that are remote from each other for releasably engaging respectively one of a toe portion and a heel portion on said ski boot, said support means including a support surface on said first rail member and on said slide member and at least one guide plate associated with each said support surface, each said guide plate being bent approximately 45° with respect to said associated support surface, the height of each of said support surfaces and of said guide plates corresponding at least with the thickness of a sole of said ski boot which is to be measured, wherein between an upper surface of said first rail member and the underside of said guide plate associated with said support surface on said first rail member there is provided a free space which permits a movement of said slide member to a position abutting said support surface on said first rail member;
first scale means mounted on one of said first rail member and said slide member and having first indicating indicia thereon, first pointer means mounted on the other of said first rail member and said slide member for pointing at an appropriate one of said first indicia in response to a certain length ski boot being present between, and with said toe portion and said heel portion thereof engaging, said support means and;
a heel binding comprising an elongated second rail member which is adapted to be mounted on a ski and a carriage having said heel holder mounted thereon movably mounted on said second rail member, a second scale means mounted on one of said second rail member and said carriage and having second indicating indicia thereon, and a second pointer means mounted on the other of said second rail member and said carriage for pointing at a selected one of said second indicia in response to a relative movement between said second rail member and said carriage and corresponding to the indicia indicated on said first scale means by said first pointer, whereby the position of said carriage and, consequently the position of said heel holder, will be appropriately oriented relative to said toe jaw on said ski.

3. An adjusting device for facilitating a correct adjustment of a thrust force applied by a thrust spring onto a heel holder for urging said heel holder toward a toe jaw, said thrust spring yielding in response to the placement of a ski boot between said heel holder and said toe jaw, comprising in combination:
an elongated first rail member;
an elongated slide member movably mounted on said first rail member;
support means mounted on each of said first rail member and said slide member and adjacent ends thereof that are remote from each other for releasably engaging respectively one of a toe portion and a heel portion on said ski boot;
stop means for determining the largest inside dimension between said support means on said first rail member and said slide member, said stop means including a stop which is provided on the end of said first rail member remote from said support means thereon and is arranged on the longitudinal axis of said first rail member, and further including securement means for preventing a loss of said stop;
a compression spring for biasing said slide member, one end of said spring being fastened to said stop and the other end of said spring being fastened to said support means on said slide member;
first scale means mounted on one of said first rail member and said slide member and having first indicating indicia thereon, first pointer means mounted on the other of said first rail member and said slide member for pointing at an appropriate one of said first indicia in response to a certain length ski booth being present between, and with said toe portion and said heel portion thereof engaging, said support means; and
a heel binding comprising an elongated second rail member which is adapted to be mounted on a ski and a carriage having said heel holder mounted thereon movably mounted on said second rail member, a second scale means mounted on one of said second rail member and said carriage and having second indicating indicia thereon, and a second pointer means mounted on the other of said second rail member and said carriage for pointing at a selected one of said second indicia in response to a relative movement between said second rail member and said carriage and corresponding to the indicia indicated on said first scale means by said first pointer, whereby the position of said carriage and, consequently the position of said heel holder, will be appropriately oriented relative to said toe jaw on said ski.

4. An adjusting device for facilitating a correct adjustment of a thrust force applied by a thrust spring onto a heel holder for urging said heel holder toward a toe jaw, said thrust spring yielding in response to the placement of a ski boot between said heel holder and said toe jaw, comprising in combination:
an elongated first rail member;
an elongated slide member movably mounted on said first rail member;
support means mounted on each of said first rail member and said slide member and adjacent ends thereof that are remote from each other for releasably engaging respectively one of a toe portion and a heel portion on said ski boot;
first scale means mounted on one of said first rail member and said slide member and having first indicating indicia thereon, first pointer means mounted on the other of said first rail member and said slide member for pointing at an appropriate one of said first indicia in response to a certain length ski boot being present between, and with said toe portion and said heel portion thereof engaging, said support means, said first indicia including plural rows of markings, of which one row is designated for a children's ski binding and the other two rows are designated for adult ski bindings; and
a heel binding comprising an elongated second rail member which is adapted to be mounted on a ski and a carriage having said heel holder mounted thereon movably mounted on said second rail member, a second scale means mounted on one of said second rail member and said carriage and having second indicating indicia thereon, and a second pointer means mounted on the other of said second rail member and said carriage for pointing at a selected one of said second indicia in response to a relative movement between said second rail member and said carriage and corresponding to the indicia indicated on said first scale means by said first pointer, whereby the position of said carriage and,

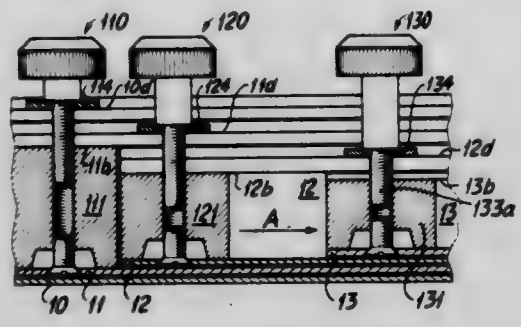
consequently the position of said heel holder, will be appropriately oriented relative to said toe jaw on said ski.

4,336,655

RULE OR MEASURING ROD

Hans K. Thingstad, Fornbacken 5, 151 58 Södertälje, Sweden

Filed Aug. 1, 1980, Ser. No. 174,629
Claims priority, application Sweden, Aug. 1, 1979, 7906655
Int. Cl.³ G01B *3/08*
U.S. Cl. 33—161 **4 Claims**



1. A rule or measuring rod comprising a plurality of telescopic components arranged to slide in relation to each other, two components may be clamped together by a locking device, each component being in the form of a rail of substantially U-shaped cross section, the extremities of the legs of each of the sections are in the form of projections which face each other, one end of the outermost component provides a rigid support for a clamping device for one rod, a second clamping device for a second rod being arranged to slide inside the innermost component, an end of the innermost component remote from the one end of the outermost component includes a stop to restrict the travel of the second clamping device, whereby with the first clamping device attached to the one end of the outermost component and with the second clamping device attached to the end of the innermost component, the relative position of the rods may be increased by extending the components relative to each other, each of the clamping devices for the rods is provided with two holes set at right angles to each other and capable of completely surrounding the respective rod, each of the rods forms a right angle to the direction of travel of the components when positioned in a first hole, each of the rods being parallel to the direction of travel when positioned in a second hole in a respective clamping device, and a single clamping screw is provided to secure the respective rod either in one or the other of the two holes in each clamping device.

4,336,656

METHOD AND APPARATUS FOR POSITIONING A TAPERED MEMBER TO VERIFY THE ACCURACY OF THE TAPER

H. Glenn Lewis, Westland, Mich., assignor to Sandvik AB, Sandviken, Sweden

Filed Jun. 9, 1980, Ser. No. 157,844
Int. Cl.³ G01B *3/56, 5/24*
U.S. Cl. 33—174 E **18 Claims**

1. Apparatus adapted for use with a gauge to position a tapered member so that the taper of a tapered surface thereof may be detected and verified by the gauge, said apparatus comprising:

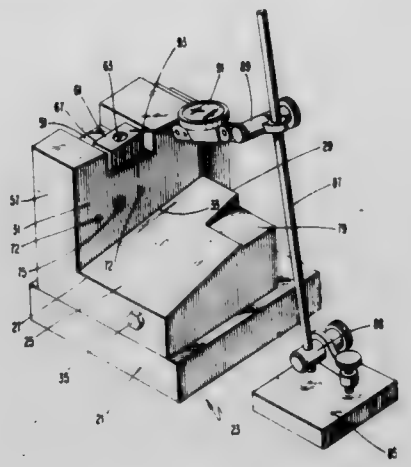
first surface means;

second surface means extending at an angle relative to a first longitudinal axis of said first surface means, said angle comprising one half the included angle of the desired taper;

with the tapered surface positioned against said first and second surface means and with the taper corresponding to the desired taper:

said first axis is coplanar with a centerline of said member, and

a portion of said tapered surface remote from said first surface means is disposed at a preselected level suitable for gauge detection; and



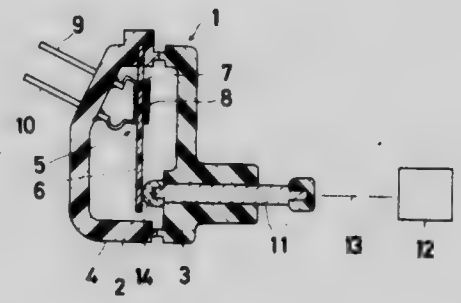
a surface fixed relative to said first and second surface means and disposed at said preselected level for being contacted by a gauge to enable the gauge to be preset.

4,336,657

POSITION SENSOR

Shinichiro Iwasaki, Auburn Heights, Mich., assignor to Aisin Seiki Company, Limited, Kariya, Japan

Filed Aug. 29, 1980, Ser. No. 182,696
Int. Cl.³ G01B *7/24*
U.S. Cl. 33—174 L **5 Claims**



1. A position sensor for detecting displacement of an operative device, comprising:

a movable member coupled to said operative device;

core means including a magnetically soft amorphous metal member in which is produced a stress in response to the displacement of said movable member and an elastic member operatively connected to said movable member, said magnetically soft amorphous metal member being cemented integrally on a surface of said elastic member;

electrical coil means including at least one coil wound on said core means for sensing a change in permeability of said magnetically soft amorphous metal member as produced by said displacement responsive stress;

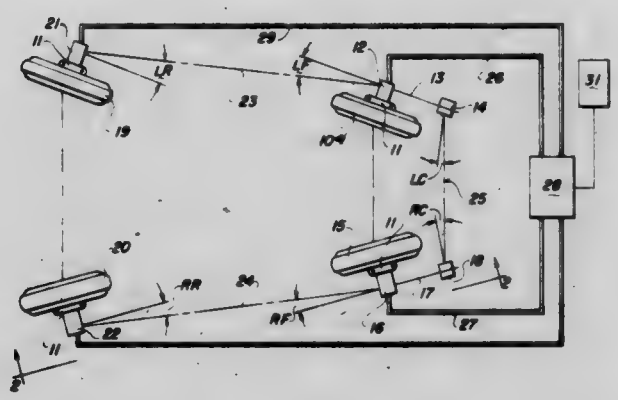
means for applying an electrical signal to said coil to saturate magnetically said core means; and

means for producing a displacement output signal indicative of the displacement of said operative device based on the amount of time between application of said electrical signal and saturation of said core means.

4,336,658
METHOD OF EFFECTING COMPENSATION OF COOPERATIVELY COUPLED VEHICLE WHEEL ALIGNER INSTRUMENTS

Daniel B. January, Bel-Ridge; Dean O. Grubbs, Manchester, and James M. Grossman, Chesterfield, all of Mo., assignors to Hunter Engineering Company, Bridgeton, Mo.

Filed Jul. 28, 1980, Ser. No. 172,815
Int. Cl.³ G01B *11/275*
U.S. Cl. 33—288 8 Claims



1. A method of effecting compensation of the signals from cooperatively coupled transducer instruments in vehicle wheel alignment apparatus for aberrations in said apparatus and in said vehicle wheels, said method comprising:

(a) Mounting a pair of transducer instruments, one to each of a pair of vehicle wheels, such that the transducer instruments are in cooperatively coupled relationship and generate signals responsive to the angular position of said vehicle wheels;

(b) Rotating said vehicle wheels, one at a time, into selected positions substantially 180° apart;

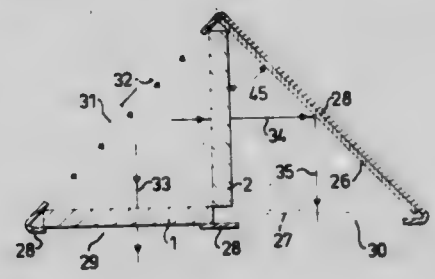
(c) Storing said signals generated by both transducer instruments at each selected position of each said vehicle; and

(d) Compensating the signal from one of the cooperatively coupled pair of transducer instruments with the stored signals generated in response to aberrations in the other transducer instrument of the cooperatively coupled pair on the vehicle wheels and from the reaction of the vehicle wheels upon being rotated into the selected positions.

4,336,659
ANGLE INDICATOR FOR INDICATING TWO MUTUALLY PERPENDICULAR DIRECTIONS

Lars A. Bergkvist, Gottne, 890 42 Mellansel, Sweden

Continuation of Ser. No. 40,393, May 18, 1979, abandoned. This application Dec. 30, 1980, Ser. No. 221,374
Claims priority, application Sweden, May 25, 1978, 7806036
Int. Cl.³ G01C *9/16*
U.S. Cl. 33—395 5 Claims

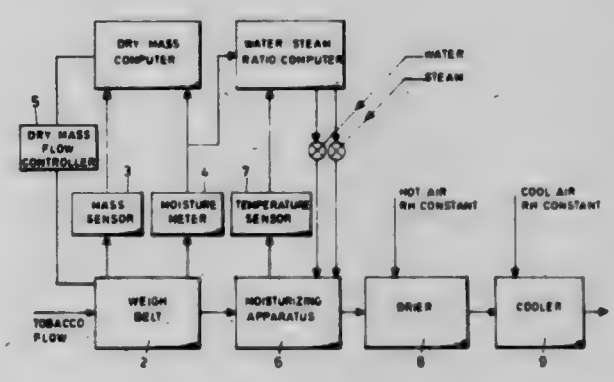


1. Angle indicator for indicating an arbitrary angle to a plumb line in two mutually perpendicular directions comprising two angle indicating devices which each comprise a couple of screens where each screen consists of opaque lines separated by transparent gaps and where screens are placed parallel to one another, whereby interference patterns, so-called moire patterns, are formed when light is transmitted through each of the screen units and where the first screen is rotatably adjustable and the other freely rotable to a pre-determined position relative to the plumb-line, characterized by the fact that each one of the pairs of screens are placed in mutually perpendicular planes and by the fact that a mirror is mounted in a plane which intersects the planes of the two pairs of screens at parallel lines of intersection to project a mirror image of the second of said pair of screens in one plane in which a first pair of said pair of screens is located and to the side of said first pair, whereby in viewing the angle indicator the two moire patterns formed through the two angle indicating devices appear to be lying beside each other; a common housing mounts said mirror and both devices with means enabling rotatable adjustment of said first screens of each device.

4,336,660
DRYING OF TOBACCO PRODUCTS

Mauritz L. Strydom, Cape Province, South Africa, assignor to Tobacco Research and Development Institute Ltd., Zug, Switzerland

Filed Oct. 24, 1980, Ser. No. 200,426
Claims priority, application South Africa, Oct. 25, 1979, 79/5710
Int. Cl.³ F26B *21/06*
U.S. Cl. 34—28 4 Claims



1. A method of drying and cooling a tobacco product to a constant moisture content in which the product is premoistened to a constant moisture content prior to being fed to the drying stage, with the improvement that:

(a) the rate of dry mass flow of the product is controlled to be constant;

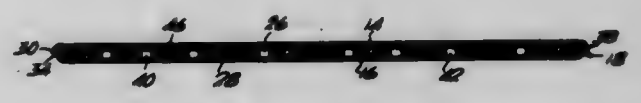
(b) the temperature of the product, prior to being fed to the drying stage, is controlled to be constant; and

(c) drying and cooling are effected by contacting the product with air at constant relative humidities and constant temperatures and by contact with heated surfaces at constant heat exchange levels.

4,336,661
SHOE INSERT

Walter A. Medrano, 13420 SW. 51 St., Miami, Fla. 33175

Filed Apr. 21, 1980, Ser. No. 142,260
Int. Cl.³ A43B *13/38, 13/40, 7/08*
U.S. Cl. 36—44 2 Claims



1. A shoe insert comprising:

an envelope of air impervious material, said envelope, as seen in plan, tracing the outline of a human foot;

said envelope having an upper surface and a lower surface and a side surface joining said upper and lower surfaces,

said outline having a heel zone, a forward zone and an intermediate zone,

a flat pad of cushioning foam material in the envelope nestled betweeen the upper and lower and side surfaces;

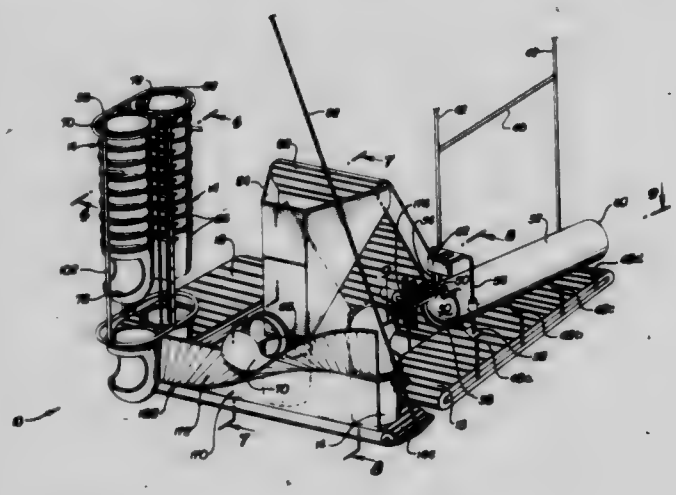
said side surface comprising a portion extending downwardly and outwardly from said top surface toward but not to said bottom surface and said side surface further comprises a portion extending upwardly from said bottom surface toward but not to said upper surface, and said downwardly extending portion having an inside surface and said portion extending upwardly having an outside surface and said upwardly and downwardly extending portions being heat-sealed at the inside surface of the downwardly extending portion and the outside surface of the upwardly extending portion to enshroud the upwardly extending portion a hole being provided through the upper surface in said intermediate zone spaced from said side surface.

4,336,662

APPARATUS FOR COLLECTING AND RAISING MATERIALS FROM THE OCEAN FLOOR

Dennis L. Baird, 4315 W. 182nd St., No. 334, Torrance, Calif. 90504

Filed Jul. 21, 1980, Ser. No. 170,633
Int. Cl.³ E02F *3/00*
U.S. Cl. 37—54 48 Claims



1. A deep sea mining apparatus comprising:

an underwater collection device for gathering material from the ocean floor;

at least one substantially spherical buoyant body;

at least one container, said container including a repository for holding said material and a convex lid for receiving said buoyant body;

means for delivering said container to the ocean floor and dispensing said container;

loading means for depositing said material into said container;

a receptable for delivering said buoyant body to the ocean floor, said receptacle having sufficient density to cause said receptacle holding said buoyant body to sink to the ocean floor;

transfer means for transferring said buoyant body to said container, for ascent of said container and its contents to the ocean surface under the buoyancy of said buoyant body;

means for controlling the ascent of said containers; and

means for discarding said delivering and dispensing means; and for discarding said receptacle.

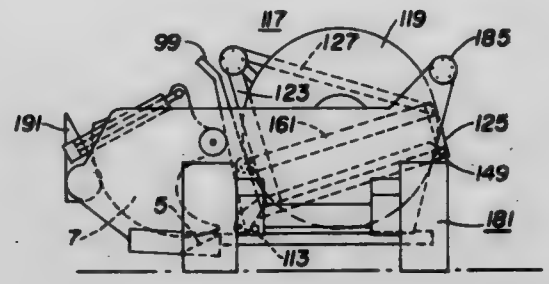
4,336,663

EARTH SCRAPER ASSEMBLY

Frank Moberly, P.O. Box 3212, Napa, Calif. 94558

Filed May 19, 1980, Ser. No. 151,014
Int. Cl.³ E02F *3/62*
U.S. Cl. 37—129 14 Claims

1. Earth scraping equipment adapted for towing behind a vehicle, said earth scraping equipment comprising a scraper including a bed rotatable about an axis located behind said bed and including a forward projected blade at the forward end of said bed for slicing into the earth to be scraped, ground engaging support means behind said bed for rear rotatable support of said scraper, a front attachment assembly including a towing tongue having a towing end for connecting said scraper at said towing end to towing apparatus on such towing vehicle, and hoisting means for controlling the elevation of said blade and said scraper bed without altering the elevation of the towing



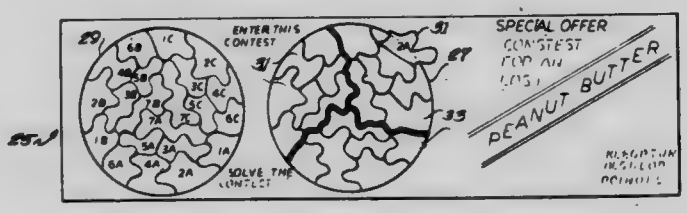
end of said towing tongue, said hoisting means comprising an adjustable linkage assembly including a plurality of pivotally connected links of at least three different lengths, means for pivoting said links with respect to each other to change the angle between adjacent links, whereby said unequal lengths of said links increase the range of said hoisting limits without altering the elevation of said towing end of said towing tongue.

4,336,664

PROMOTIONAL PUZZLE

Ib Penick, Prospect Heights, and John K. Volkert, Northfield, both of Ill., assignors to Compak System, Inc., Northfield, Ill.

Filed Jul. 14, 1977, Ser. No. 815,657
Int. Cl.³ G09F *7/12, 19/00;* A63F *9/10*
U.S. Cl. 40—594 3 Claims



1. An advertising or promotional item comprising a frame, which frame carries an announcement in one portion thereof, and

a plurality of separate interfitting pieces of irregular shape formed within another portion bounded by said frame and formed of a lamination of upper and lower sheet material layers, which pieces are formed as a part of said upper layer and are arranged in a first interfitting relationship which totally occupies said other portion within said frame, said lower layer including a release coating and said pieces being held thereto by a pressure-sensitive adhesive.

substantially all of said pieces each having the same irregular shape as at least one other piece so that it can be interchanged in location with said other piece,

said pieces when rearranged to a second predetermined interfitting relationship which also totally occupies said other portion within said frame presenting an intended advertising or promotional message,

said pieces being printed and formed in said first relationship wherein the message is scrambled so that recipients of the item must rearrange the scrambled pieces to discover the hidden message which relates directly to said announcement, and

still another portion of said frame being provided with indicia including an outline of the shape of said pieces and

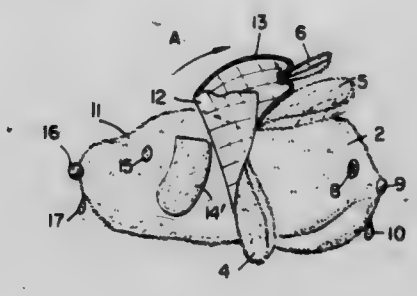
with a release coating to which said pieces can be releasably adhered.

4,336,665

CONVERTIBLE STUFFED TOY

Claude R. M. Moreau, Elmhurst, N.Y., assignor to AMTOY, Inc., New York, N.Y.

Filed Aug. 20, 1980, Ser. No. 179,759
Int. Cl.[3] A63H *3/12*
U.S. Cl. 46—153 6 Claims



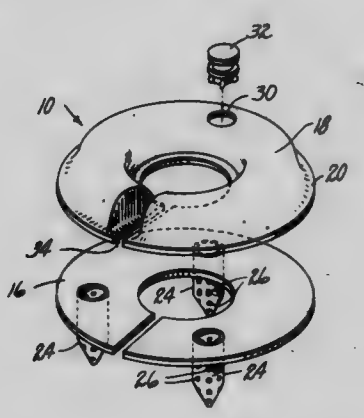
1. A convertible toy, comprising first and second soft generally round, head members, each head member having a face portion at one end and a neck portion opposite thereto, said head members being disposed with their neck portions connected together with a common juncture and with their face portions disposed toward opposite directions, and a reversible fabric cover in the form of a shell cover connected to said head members along said common juncture for flipping movement about said common juncture, said cover being selectively movable between a first position in which said first head member is covered by said cover and the face portion thereof is concealed by said cover while said second head member is visible and a second position in which said second head member is covered by said cover and the face portion thereof is concealed by said cover while said first head member is visible, said cover being movable between said positions by lifting said cover off one of the head members, turning it inside out and flipping it over the other head member, the head member concealed by said cover serving as a body associated with the visible head member, a plurality of appendage members connected to said shell cover, said plurality of appendage members being movable with said shell cover and in either of said first or second positions of said shell cover forming all of the appendages visibly associated with the head member which is visible, and said appendage members being designed so that when said shell is moved from one of said positions to the other all of the appendage members are reversed and visibly associated with the head which is visible.

4,336,666

PLANT WATERERS

Adolph Caso, 158 Hickory Rd., Weston, Mass. 02193

Filed Feb. 7, 1980, Ser. No. 119,300
Int. Cl.[3] A01G *29/00*
U.S. Cl. 47—48.5 1 Claim



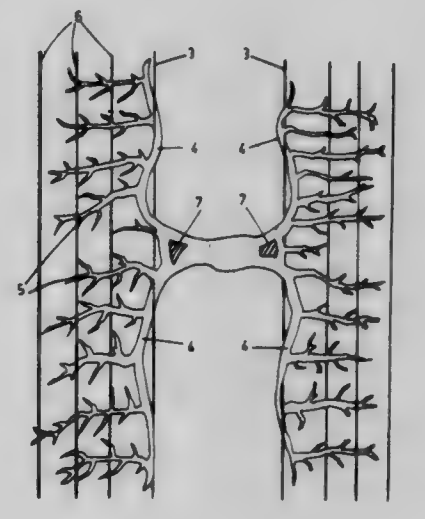
1. A plant waterer, comprising a flexible and hollow reservoir adapted to lie upon the soil in which a plant is potted and including upper and lower C-shaped flexible co-extensive plastic sheets each having a single continuous edge sealed along its entire length to the edge of the other sheet, the bottom sheet being essentially flat and the upper sheet being dome shaped in a vertical plane and formed with an inlet opening for fluids, the waterer further comprising a plurality of metering nozzles formed in imperforate condition, integral with the bottom sheet and adapted to be perforated at the time of being placed in service to adapt the quantity of fluid furnished to the plant extending upwardly through the central portion of the reservoir.

4,336,667

FRUIT CULTIVATION

Eric R. Evans, R.D. 3, Napier, New Zealand

Filed Aug. 26, 1980, Ser. No. 181,351
Claims priority, application New Zealand, Sep. 6, 1979, 191490
Int. Cl.[3] A01G *17/06*
U.S. Cl. 47—58 9 Claims



1. A method of training the growth of a twin leader fruit bearing tree in a row of such fruit bearing trees which comprises engaging or holding at at least one level two laterals from one of the two leaders to a main row wise extending member selected from the group consisting wire, tapes, chain, cord, braiding, rope and string so that the distal ends of those laterals are directed oppositely and substantially in a row wise direction and simultaneously and/or subsequently training through, around, over and/or under progressively more outwardly disposed row wise extending members substantially of the same level fruiting branches from said laterals so as to leave the same enmeshed in such row wise extending members to thereby define a layer of fruiting branches.

4,336,668

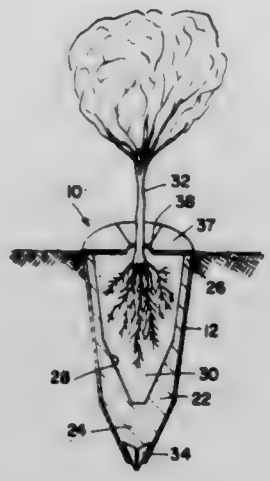
METHOD FOR PRODUCING GROUND COVER SODS

Henry F. Decker, 4751 Stover Rd., Ostrander, Ohio 43061

Filed Jan. 29, 1981, Ser. No. 229,545
Int. Cl.[3] A01G *17/00*
U.S. Cl. 47—58 4 Claims

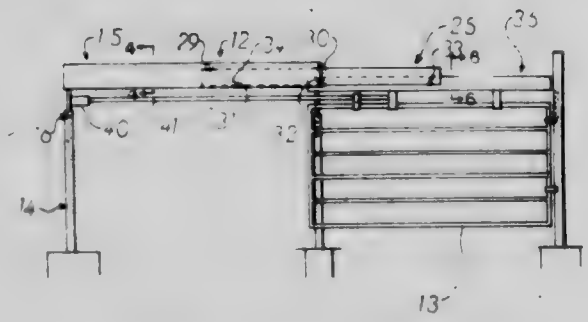
1. A method for producing ground cover sods, comprising establishing parallel spaced row/hill nurseries of ground cover plants which spread laterally by stolons, rhizomes, runners, or tillers, placing plastic sheeting or film on the ground in the spaces between said nurseries, covering said sheeting or film with a growing medium enabling rooting therein by the lateral growth from said nurseries, which growth becomes matted to form a sod, harvesting said sod by cutting off said growth in lines along both edges of the plastic film or sheeting, and removing said sod from between said nurseries.

4,336,669
PLANTING CONTAINER
George N. Gordon, 203 Missouri St., San Francisco, Calif. 94107
Filed Dec. 23, 1980, Ser. No. 219,844
Int. Cl.[3] A01G *9/02*
U.S. Cl. 47—74 54 Claims



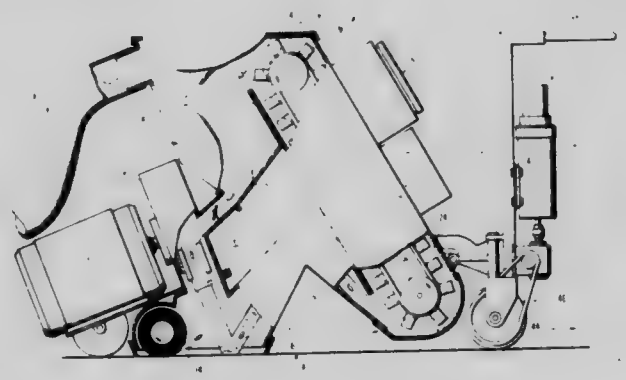
1. A planting container comprising:
at least one tubular cone having a tapered lower end, an open upper end, and an inner cavity for receiving soil and a seed or seedling, the tubular cone being formed by fluid hardened by freezing.

4,336,670
GATE ASSEMBLY
Andrew J. Brutosky, Box 883, Choteau, Mont. 59422
Filed Aug. 25, 1980, Ser. No. 180,572
Int. Cl.[3] E05D *13/02*
U.S. Cl. 49—409 10 Claims



1. A gate assembly including an upstanding frame member, an elongated main support member affixed to said frame member, said main support member being disposed in a generally horizontal position, said main support member including vertically disposed spaced support sections, an upper horizontal section connecting said main vertical support sections, opposed horizontally disposed lower support sections extending from said main vertical support sections toward one another but terminating short thereof to provide a longitudinal opening therebetween, an elongated intermediate support member telescoping into said main support member, said intermediate support member including vertically disposed, spaced support sections, a plurality of roller means mounted on said intermediate vertical support sections, said roller means being rotatable on horizontal shafts extending from said intermediate vertical support sections, certain of said roller means extending slightly above the top edges of said intermediate vertical support sections and other of said roller means extending slightly below the bottom edges of said intermediate vertical support sections, an elongated inner support member having a generally T-shaped cross section with the top portion of the T member being disposed in a generally horizontal position, said inner support member telescoping into said intermediate support member, the horizontal portion of said T member having a thickness slightly smaller than the vertical spacing between said upper and lower roller means of said intermediate support section, said vertical portion of said T member having a thickness slightly smaller than the spacing between said opposed spaced horizontal lower support sections of said main support member, and mechanism for suspending a gate below said inner support member, whereby a gate suspended below said inner support member can be moved from a position below said main support member to a position to one side of said main support member.

4,336,671
SURFACE CLEANING APPARATUS
Robert T. Nelson, P.O. Box 763, Oklahoma City, Okla. 73101
Filed Apr. 25, 1980, Ser. No. 143,731
Int. Cl.[3] B24C *3/06*
U.S. Cl. 51—424 7 Claims

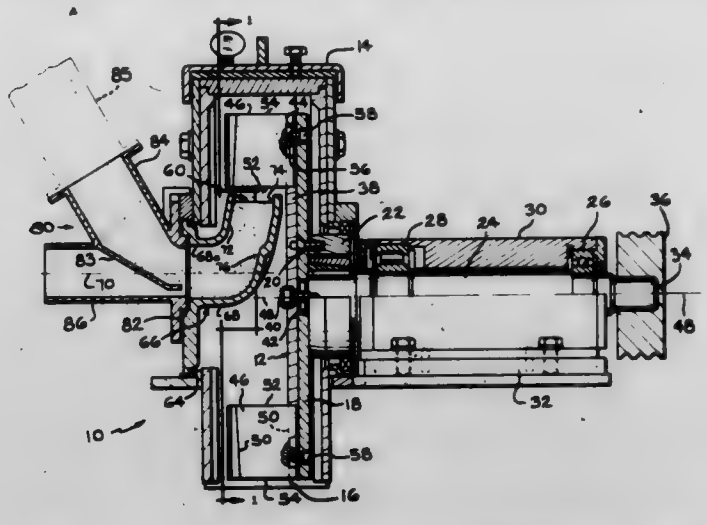


1. A surface-treating apparatus comprising:
an enclosure having an opening adapted to be positioned adjacent a surface to be treated and expose the surface to said enclosure;
propelling means for propelling abrasive in a path through said opening of said enclosure against an exposed portion of the surface;
a blast chamber defined by said enclosure in communication with said opening;
means for recovering abrasive propelled against said exposed surface and rebounded therefrom;
means for recovering abrasive on said exposed portion of the surface by moving said abrasive into said path; and
said means for recovering said abrasive on an exposed portion of the surface including brush means located within said blast chamber for directing abrasive on an exposed portion of the surface into said path for said abrasive from said propelling means.

4,336,672
CENTRIFUGAL BLASTING APPARATUS
William S. Kwolek, Manchester, Mich., assignor to Ervin Industries, Inc., Ann Arbor, Mich.
Filed Apr. 21, 1980, Ser. No. 141,947
Int. Cl.[3] B24C *7/00*
U.S. Cl. 51—432 4 Claims

1. In a centrifugal blasting machine, a rotatably supported member having a plurality of outwardly extending abrasive impelling blades projecting therefrom, the inner ends of said blades terminating at positions spaced a uniform and predetermined distance short of the axis of rotation of said member so as to define an abrasive supply space between the inner ends of said blades, a tubular member extending into said supply space for delivering abrasive to the inner ends of said blades, said tubular member having an axis generally parallel to said axis of rotation and spaced radially outwardly therefrom, an extension on the inner end of said tubular member extending radially

outwardly relative to said tubular member axis and said axis of rotation and terminating in a closely spaced relation with the



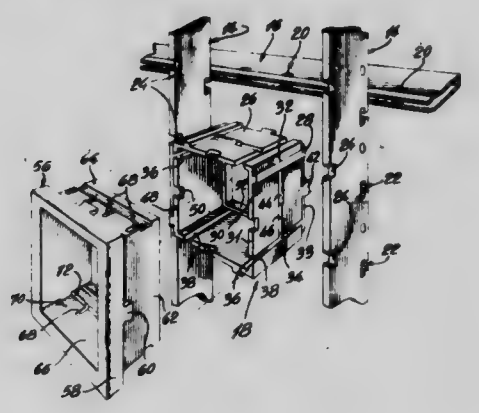
inner ends of said blades, and means for delivering air under pressure and abrasive to said tubular member.

4,336,673

MOSAIC DISPLAY PANEL

Gaston Duchesne, Quebec; Marc Laflamme, Bellechasse, and Denis Matte, Ste-Foy, all of Canada, assignors to Monitronik Ltee., Quebec, Canada

Filed Sep. 5, 1980, Ser. No. 184,621
Int. Cl.³ E04F *19/00*; G12B *9/08*; E04F *13/00*
U.S. Cl. 52—27 **8 Claims**



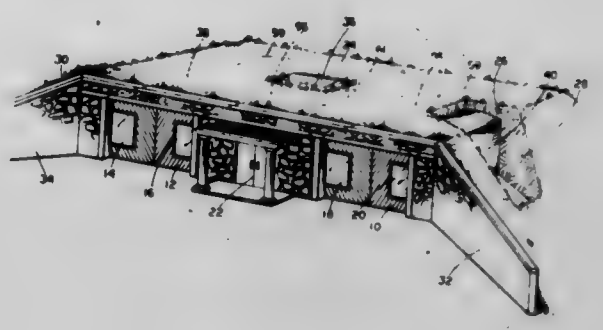
1. In a mosaic display panel formed of horizontal and vertical supports and of a mosaic of tiles and control instruments, a cluster of interfittingly connected elements for mounting said tiles and control instruments to said vertical supports; each mounting element being formed of side walls, each side wall including front, rear and side edges; said rear edge having means engageable with said vertical supports; said front edge having means engageable with said tiles or said control instruments; each said side wall having an outer face displaying thereon a longitudinal projecting tab distanced from one of said side edges of said side wall and a longitudinal guideway distanced from the other of said side edges; said tab and said guideway being substantially complementary in shape so that the tab and guideway of said side wall may be respectively inter-connected with the guideway and tab of the side wall of an adjacently disposed mounting element whereby said cluster of mounting elements may be formed and mounted to two adjacent vertical supports.

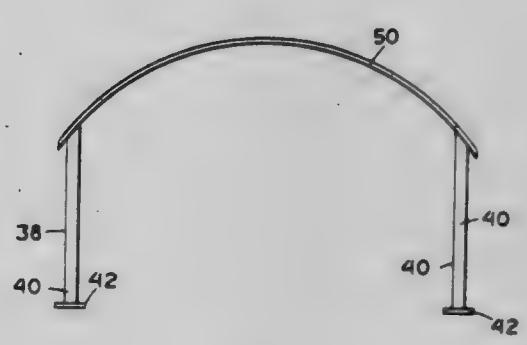
4,336,674

UNDERGROUND STRUCTURE FOR RESIDENTIAL AND BUSINESS USE

Raymond C. Weber, P.O. Box 108, Ligonier, Ind. 46767

Filed Aug. 24, 1979, Ser. No. 69,281
Int. Cl.³ E04H *9/00*; E02D *29/00*
U.S. Cl. 52—169.6 **8 Claims**





1. A subsurface construction including at least one uncovered apertured wall, additional load-bearing walls located at a subsurface level and extending below ground surface to be surrounded by earth on at least two sides of said construction, an unstressed arched roof extending between two of the load-bearing walls and forming between the confronting arches a channel for directing water in each of opposite directions to drain water to a location beyond the outlines of the construction, an overhead layer of earth above the roof line to completely encompass the structure with an earthen layer on at least two sides of the structure, an inverted T-shaped means carried on an internal wall for bracing the roof structure between arch spans by opposing the tendency of the arched span ends to expand under the weight of the overhead earth and providing a common vertical support therefor, elongated pipe drainage means for conducting water away from the vicinity of the base of the structure and away from the roof structure, said roof structure being ribbed with corrugations extending throughout the entire length of the weight-supporting roof spans and being scalloped throughout the entire roof line thereof, said ribbed corrugations radiating from the horizontal axis of the roof structure and being in communication with said water drainage means to direct water from between the earth and the arched roof, and an arcuate cross section member extending across the intersection of the arch spans providing a support surface for said elongated pipe means and to shield the intersection against infiltration of water.

4,336,675

CONSTRUCTION SYSTEM

Marcel Pereira, 1605 Croissant Donnacona, Duvernay, Laval, Quebec, Canada

Continuation of Ser. No. 794,254, May 5, 1977, abandoned. This application Sep. 29, 1980, Ser. No. 191,874
Int. Cl.³ E04B *1/00*
U.S. Cl. 52—267 **3 Claims**

1. For use in a building structure including a supporting floor, and a load-bearing wall construction comprising:

a plurality of manually-portable, preformed wall members comprising a relatively thin web integral, at opposite ends, with a symmetrically-disposed, transverse wall from

which project spaced legs parallel to the web forming both vertically and outwardly opening channels, said legs, wall and webs extending vertically and being co-extensive in height, each wall member comprising a manually-portable module permitting the wall to be manually erected by workmen,

the modules having a height-to-length ratio between 1:5 and 1:25,

the wall comprising modules lying on edge one-on-top-of-the-other, with the vertically opening channels being in vertical alignment, and vertically-open channels of next adjacent modules being in abutment with and opening into open channels of next adjacent modules and forming therewith vertically extending chambers extending the height of the wall structure, interior and exterior cladding



juxtaposed on and secured to outer and inner surfaces of the module legs and forming on opposite sides of the webs spaces for receiving insulation and utilities, portions of said cladding projecting vertically beyond the vertically-extending chambers at said channels, said exterior cladding being of a height greater than the height of said modules and overlapping adjacent horizontal margins of said modules forming the wall construction for stabilizing the same; and

concrete poured into said vertically extending chambers and between said cladding beyond said vertically extending chambers and forming an integrating concrete connection in the vertically extending chambers and thereabove to provide a crown for a floor and to integrate the modules at the load-bearing wall.

4,336,676

COMPOSITE STRUCTURAL PANEL WITH OFFSET CORE

Richard F. Artzer, Riverside, Calif., assignor to Covington Brothers, Inc., Fullerton, Calif.

Continuation-in-part of Ser. No. 857,235, Dec. 5, 1977, Pat. No. 4,226,067. This application Mar. 26, 1979, Ser. No. 23,590

Int. Cl.³ E04C *2/26*

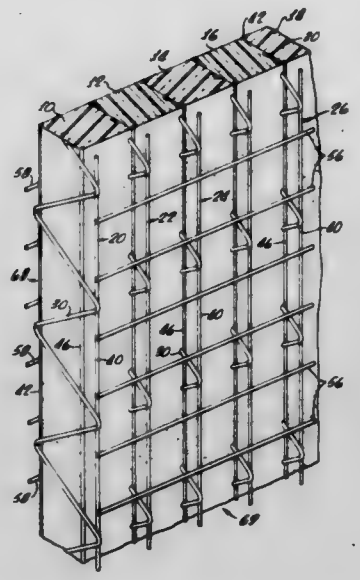
U.S. Cl. 52—309.7 **26 Claims**

1. A method of making a reinforced panel comprising the steps of:

stacking a plurality of elongated filler elements and a plurality of substantially flat lattice structures in consecutive alternation with sides of said filler elements spaced inwardly of laterally outermost portions of said lattice structures,

fixedly securing said lattice structures to one another, and

laterally shifting at least a portion of each of a group of said filler elements outwardly to a displaced position in which outer sides of said shifted portions at one side of said panel



are positioned substantially at said lateral outer portions of said lattice structures at said one panel side.

4,336,677

ARRANGEMENT FOR PRESTRESSED ASSEMBLY OF MACHINE AND BASE-MODULES

Carl G. R. Ossbahr, Brahegatan 5 A S-722 16, Västerås, Sweden

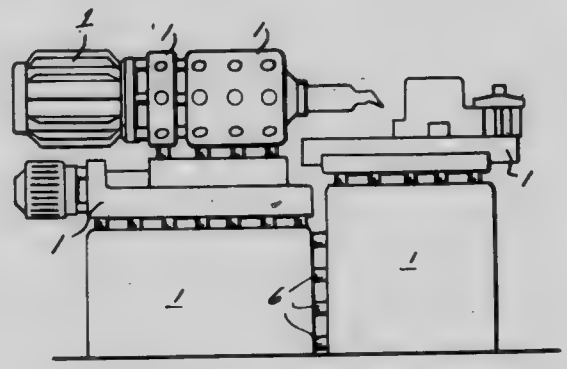
PCT No. PCT/SE79/00160, § 371 Date Mar. 31, 1980, § 102(e) Date Mar. 27, 1980, PCT Pub. No. WO80/00322, PCT Pub. Date Mar. 6, 1980

PCT Filed Jul. 19, 1979, Ser. No. 190,856

Claims priority, application Sweden, Jul. 31, 1978, 7808285

Int. Cl.³ E04C *1/10*

U.S. Cl. 52—584 **8 Claims**



1. An assembly formed from two or more base modular elements having faces capable of being attached to and disconnected from one another in parting planes locatable in a cartesian, three-dimensional system of co-ordinates, the said parting planes each being parallel to two axes in the co-ordinated system and intersecting points along the third axis defined by a modular element length in the co-ordinate system, each modular element comprising a plurality of load-bearing devices by means of which the said elements are attached to one another with their faces abutting to form an integral assembly where the elements are incrementally displaceable and rotatable in discrete geometric positions, the improvement comprising said load-bearing devices each having a circular conical concave abutment face with the apex of the conical face pointing toward said respective element, the center axis of the conical face being at a right angle to the parting plane so that the position of the center axis of the conical face in the co-ordinate system is defined by the fact that it intersects the parting plane at a co-ordinate point defined by the co-ordinates: $(a-\frac{1}{2})\cdot M$; $(b-\frac{1}{2})\cdot M$; where *a* and *b* are integers and M is the length of the modular element, the said conical abutment face being located on the respective modular elements so that when two modular

elements are assembled with one another, a gap results between the opposing conical abutment faces of the adjacent elements, said gap being of a size to permit insertion of a position-setting spacer member so that said spacer member contacts the opposing conical abutment faces of the two modular elements.

4,336,678

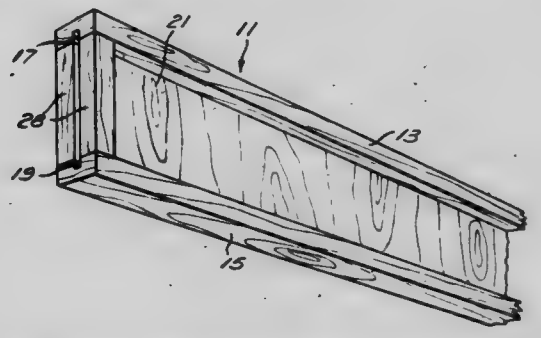
I-BEAM TRUSS STRUCTURE

Dierk D. Peters, P.O. Box 137, Rancho Sante Fe, Calif. 92067

Continuation-in-part of Ser. No. 927,618, Jul. 24, 1978, abandoned. This application Jul. 26, 1979, Ser. No. 60,908

Int. Cl.³ E04C *3/14*

U.S. Cl. 52—729 **12 Claims**



1. A web-type wooden truss comprising:

a pair of spaced wooden chords each including a straight groove facing and in registration with the groove of the other chord, said grooves containing glue; and

a web member having opposite edges fitting within said chord grooves, said edges having undulating cross-sections in a direction parallel to the length of said grooves to provide, in cooperation with said grooves, individual glue dispersion pockets which evenly distribute the glue in the web/chord interface, said edge cross-sections undulating between a more acutely tapered edge having a more acute taper than the taper of said grooves and a less acutely tapered edge having a less acute taper than the taper of said grooves.

4,336,679

FILM WEB DRIVE STRETCH WRAPPING APPARATUS AND PROCESS

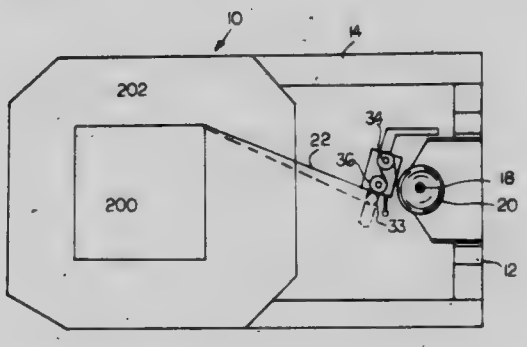
Patrick R. Lancaster, Anchorage, and William G. Lancaster, Louisville, both of Ky., assignors to Lantech Inc., Louisville, Ky.

Division of Ser. No. 96,384, Nov. 21, 1979, Pat. No. 4,302,920. This application Dec. 11, 1980, Ser. No. 215,249

The portion of the term of this patent subsequent to Dec. 1, 1998, has been disclaimed.

Int. Cl.³ B65B *13/04*

U.S. Cl. 53—399 **17 Claims**



1. A process for wrapping a web of stretchable film material around a package comprising:

a. placing a roll of stretchable plastic material on a ring mechanism;

b. withdrawing the leading end of said web of plastic material from said roll through elongation means comprising an upstream roller means and a downstream roller means mounted on said ring mechanism; the roller means of said assembly being interconnected and positioned to extend across the web width of the stretchable material to engage the plastic material;

c. holding the leading end of said web of stretchable plastic material adjacent a package;

d. rotating said ring around said package causing said plastic material to be pulled through said elongation means to drive said roller means;

e. elongating said stretchable plastic material by pulling said web of material past the interconnected roller means of said roller assembly proportionally driving the roller means by the engagement of the moving web so that the downstream roller means controls the upstream roller means at a speed less than the downstream roller means causing the film web to be substantially elongated between the upstream and downstream roller means; and

f. wrapping said substantially elongated web around said load with a force less than the maximum force incurred between the rollers.

4,336,680

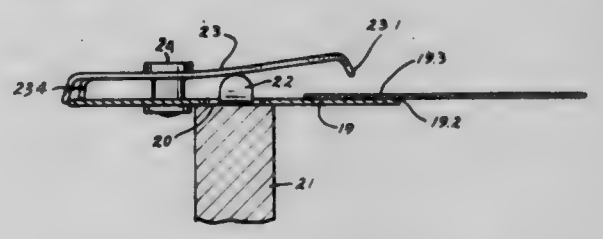
STAINLESS STEEL TRANSPORT BAND

John J. Grevich, Star Prairie, Wis., assignor to Nordson Corporation, Amherst, Ohio

Filed Jan. 4, 1980, Ser. No. 109,657

Int. Cl.³ B65B *41/14*

U.S. Cl. 53—389 **1 Claim**



1. In a machine for packaging items of goods,

means for supplying a web of plastic film into the machine and

carrier means for gripping and horizontally conveying the web of plastic film for carrying the items thereon, the carrier means including an elongate endless steel band with a top run to support the web of plastic film being conveyed, the band having a multiplicity of clips thereon releasably gripping the edge of the web of plastic film and carrying the film with the band through the machine, each of the clips having a jaw confronting and bearing against the steel band to clamp the film onto the band, and the band having a multiplicity of apertures therethrough each adjacent a respective clip, a sprocket wheel at one end of the top run of the endless band and mounting the band for travel as the sprocket is revolved, the sprocket having a plurality of protrusions each projecting through a respective aperture of the band and bearing against the clip and urging the clip away from the band to open the jaw and allow movement of the web of plastic film between the jaw and the band.

4,336,681

METHOD OF TRANSFERRING STRIP-LIKE PLASTICS BAG MATERIAL IN PACKING MACHINE

Masami Onishi, Tokyo, Japan, assignor to Taiyo Shokai Co., Ltd., Japan

Filed May 16, 1980, Ser. No. 150,360

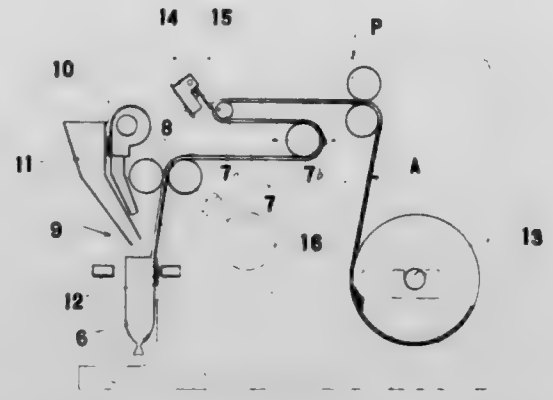
Claims priority, application Japan, May 17, 1979, 54-59668

Int. Cl.³ B65B *43/12*

U.S. Cl. 53—459 **4 Claims**

1. A method of transferring a strip-like plastic bag material in a packing machine, comprising the steps of: transferring the bag material by a pair of intermittently operated pinching rollers, said bag material comprising a series of interconnected bags each having a heat-sealed bottom portion with a flap-like

margin; raising said flap-like margin during transfer of said bag material by guide means; detecting said bottom portion by means of a microswitch having an elongated contact adapted to be releasably engaged with said flap-like margin as said



flap-like margin is raised by said guide means during transfer of said bag material; and stopping said bag material for packing operation in response to detection by said microswitch of said bottom portion.

4,336,682

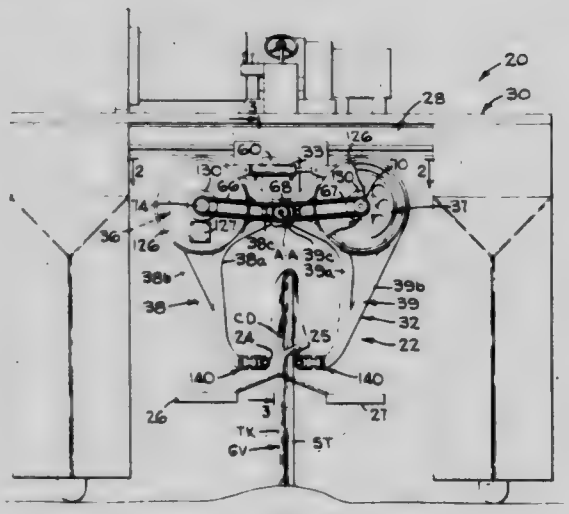
CONTINUOUS HARVESTER FOR PLANTS GROWN IN ROWS

Franklin P. Orlando, Morgan Hill, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed Aug. 15, 1980, Ser. No. 178,327

Int. Cl.³ A01D *46/26*

U.S. Cl. 56—330 **18 Claims**



1. An harvester for plants that are grown in rows, such as grapevines, comprising: a harvester vehicle that is adapted to straddle a row of plants to be harvested as it is driven down the row, a shaker assembly suspended from the harvester vehicle for continuously harvesting the plants as the vehicle is driven down the row, the shaker assembly including a front shaker frame section, a separate rear shaker frame section, means for pivotally mounting the front and rear shaker frame sections to the harvester vehicle for independent and free rotation about a generally horizontal axis that is above the plants in the row and that is parallel to the direction of the travel of the vehicle, a pair of elongated striker members with one member being movably secured to portions of said front and rear frame sections on one side of said axis and the other striker member being movably secured to said front and rear sections on the other side of said axis, and means for oscillating the front and rear shaker frame sections to cause striker members attached thereto to impart a varying shaking action on a plant in the row as the harvester is driven forwardly relative to the plant by causing the front portions of the elongated striker members to move transversely of said axis and out-of-phase with the rear portions of said striker members.

4,336,683

MECHANISM FOR THE PRODUCTION OF A WRAPPED YARN

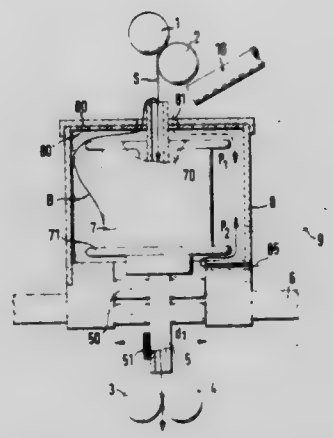
Erich Bock; Burkhard Wulfhorst, both of Ingolstadt; Eugen Hini, Lenting, and Bernhard Grupp, Ingolstadt, all of Fed. Rep. of Germany, assignors to Schubert & Salzer

Filed Jan. 21, 1980, Ser. No. 113,507

Claims priority, application Fed. Rep. of Germany, Jan. 23, 1979, 2902404

Int. Cl.³ D02G *3/36*; D01H *7/18, 11/00*

U.S. Cl. 57—18 **8 Claims**



1. A mechanism for the production of a wrapped yarn which consists of a bundle of spun fibers wrapped round by a binding thread, having a hollow spindle supported between a pair of delivery rolls and a pair of draw-off rolls, a rotating binding-thread bobbin arranged coaxial with the hollow spindle and a housing surrounding the binding-thread bobbin, said binding-thread bobbin having a radially extending flange adjacent a lower end thereof, said mechanism comprising:

means for stationarily supporting said housing relative to said rotating binding-thread bobbin;

a cover (**80**) closing said housing and having a hole (**81**) lying concentric with said hollow spindle (**5**);

an airflow (P_2) being fed into said housing (**8**) building the pressure in the region of said hole (**81**) to a level at least equal to the outside pressure surrounding said hole (**81**); and

at least one inlet air opening (**85**) through which said air flow (P_2) is fed which extends inside the housing (**8**) and lies with its mouth near to said bobbin flange (**71**) adjacent a lower end of said bobbin (**70**) remote from the cover (**80**) of the housing (**8**).

4,336,684

DRIVING ASSEMBLY FOR RING SPINNING OR TWISTING MACHINE

Max Hartmannsgruber, Kirchheim, and Horst Wolf, Albershausen, both of Fed. Rep. of Germany, assignors to Zinser Textilmaschinen GmbH, Ebersbach, Fed. Rep. of Germany

Filed Mar. 24, 1980, Ser. No. 132,770

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911378

Int. Cl.³ D01H *1/20, 1/22, 1/24*

U.S. Cl. 57—93 **9 Claims**

1. In a textile machine provided with a ring rail, a bank of parallel spindles traversing said ring rail, feed means for supplying filamentary materials to said spindles, first a-c motor means for reciprocating said ring rail along the axes of said spindles, second a-c motor means for rotating said spindles about their axes, and third a-c motor means for driving said feed means,

the combination therewith of:

a power supply;

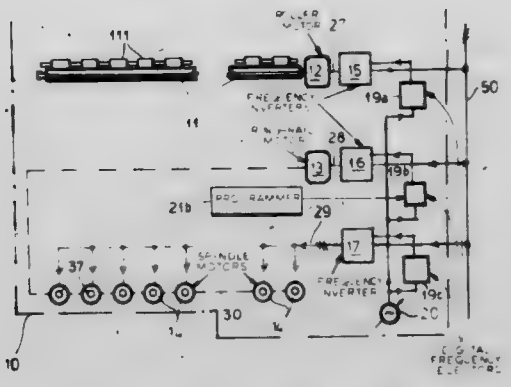
a first adjustable frequency changer inserted between said power supply and said first motor means;

a second adjustable frequency changer inserted between said power supply and said second motor means;

a third adjustable frequency changer inserted between said power supply and said third motor means;

first, second and third frequency selectors respectively connected to said first, second and third frequency changers for independently varying the frequency of an alternating current fed thereby to said first, second and third motor means, respectively; and

a pulse generator in the form of a free-running oscillator delivering identical timing signals to said first, second and third frequency selectors.



4,336,685

SYNTHETIC POLYMER FILMS AND FIBERS RENDERED PERMANENTLY ANTI-STATIC

Stephen E. Eisenstein, Oak Park, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Mar. 30, 1981, Ser. No. 249,097

Int. Cl.³ B29C *25/00;* B29D *7/20;* D02G *3/02, 3/04*

U.S. Cl. 57—238 **19 Claims**

1. The process of producing a synthetic polymer film or textile fiber or filament having improved antistatic properties by the steps comprising:

(A) admixing a hydrophobic, film- or fiber-forming synthetic polymer with about 5 to about 50 percent by weight, based upon the total weight of said polymer, of a sulfur-containing polyester containing repeating carbonyloxy units wherein said units are an integral part of the polymer chain, said polyester comprising the reaction products of (1) a diol or polyglycol, (2) a polycarboxylic acid, and (3) an organic reactant containing a metal salt of a sulfonic acid attached to an aromatic nucleus through an aliphatic or cycloaliphatic chain and ester linkage, said sulfur-containing polyester containing about 5 mole percent to about 50 mole percent, based upon the sum of the theoretical mole percentages of the other carboxylic acid components of said polyester, of at least one organic reactant containing the alkali metal sulfonate group, wherein said organic reactant consists of the at least monofunctional reaction product of an aromatic polycarboxylic acid, anhydride, or derivative thereof and an aliphatic or cycloaliphatic hydrocarbon hydroxysulfonic acid metal salt to form an extrudable mixture, thereafter

(B) extruding a film or textile fiber, and subsequently

(C) exposing said film or textile fiber to an aqueous solution containing about 0.05% to about 2% by weight, based upon the total weight of said sulfur-containing polyester present in said film or textile fiber, of a polyvalent metal ion reactive with the sulfate groups present in said sulfur-containing polyester.

10. The process of claim **1**, **2** or **6** wherein said polyvalent metal ion is selected from the group consisting of at least one of Ca^{++} Co^{30+}, Co^{+++}, Al^{+++}, Mg^{30+}, and Fe^{+++} ions.

11. An antistatic film or textile fiber, filament or yarn which is the product of the process of claims **1**, **2**, or **6**.

12. An antistatic textile yarn comprising the antistatic synthetic polymeric fiber produced by the process of claim **10** wherein said yarn is prepared from spun or continuous filament fiber selected from the group consisting of at least one of poly(ethylene glycol terephthalate), polyolefin, polyamide, polyacrylate, and polyacrylamide; or said fiber in combination with a natural fiber consisting of at least one of cotton and wool.

4,336,686

CONSTANT VOLUME, CONTINUOUS EXTERNAL COMBUSTION ROTARY ENGINE WITH PISTON COMPRESSOR AND EXPANDER

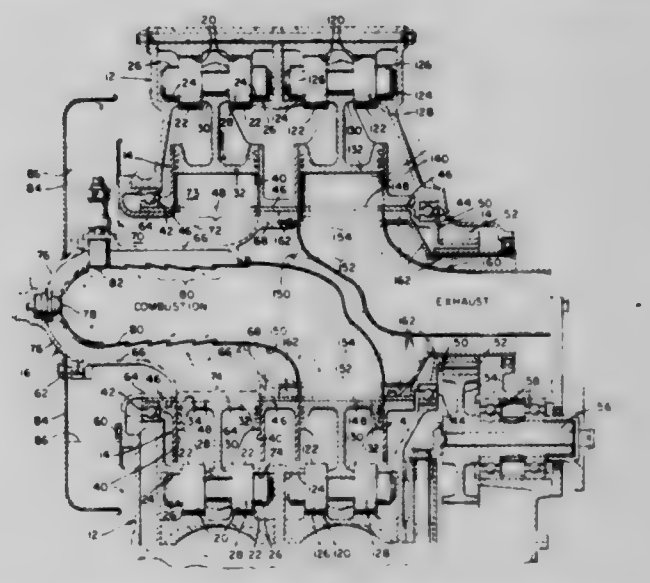
Kenneth W. Porter, Mercer Island, Wash., assignor to Combustion Research & Technology, Inc., Seattle, Wash.

Filed Apr. 21, 1978, Ser. No. 898,915

The portion of the term of this patent subsequent to May 29, 1998, has been disclaimed.

Int. Cl.³ F02G *3/02*

U.S. Cl. 60—39.63 **40 Claims**



1. Constant volume, continuous external combustion rotary engine, comprising:

(a) an external housing including stationary continuous internal generally symmetrical drive cam track which is generally shaped to define lobes to effect alternate movement of a piston to at least two of an outer dead center and to two of an inner dead center position at predetermined degrees,

(b) a rotatable cylinder block within said housing containing (1) at least one bank of radially disposed cylinders numbering at least two defining a compressor section and at least one bank of radially disposed cylinders numbering at least two to define an expander section, (2) said cylinder block further including pistons within said cylinders for reciprocating radial movement and said pistons having connector sections with cam follower means thereon for engaging said drive cam track means, (3) said cylinder block also including a generally cylindrical inner wall enclosing said cylinders to define a cylinder cavity within each cylinder, said inner wall also including opening means of predetermined size, shape and location for each cylinder for the selective intake and release of air and gases, said rotatable cylinder block having a power output means connected thereto,

(c) a stationary manifolding and combustion assembly within said cylinder block inner wall, including (1) a compressor portion having air inlet passage and opening means for directing air to at least one first cylinder in said compressor bank at given degrees of rotation of the block and also having compressed air passages and openings for directing compressed air away from said first cylinders at given degrees of rotation of the block, said assembly also including (2) a fuel combustion chamber within said manifolding and combustion assembly for receiving said compressed air and further including fuel igniter and fuel injection means for continuous combustion of the air and fuel mixture within said combustion chamber, (3) an expander portion including hot gas passage and opening means for

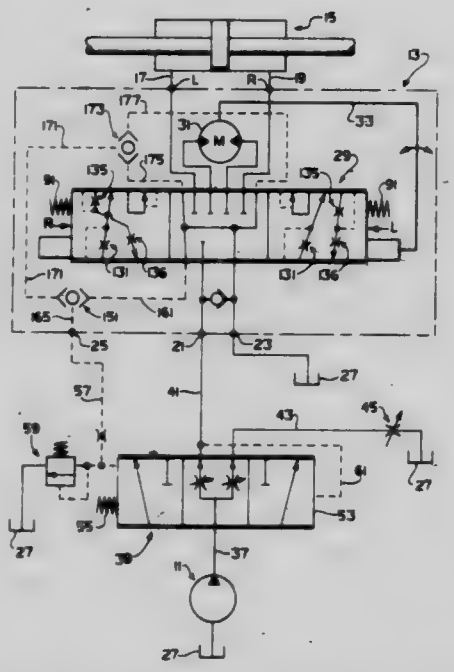
directing hot gases to said second cylinders in said expander bank during predetermined degrees of rotation of said block and also having exhaust opening and passages for exiting expanded and spent gases away from said second cylinder and out of said engine.

4,336,687

LOAD SENSING CONTROLLER

David F. Morgan, Minnetonka, Minn., assignor to Eaton Corporation, Cleveland, Ohio

Filed Apr. 21, 1980, Ser. No. 142,526
Int. Cl.³ B62D 5/08
U.S. Cl. 60—384 **13 Claims**



1. A controller operable to control the flow of fluid from a source of pressurized fluid to a fluid pressure operated device of the type which may be subjected to overrunning loads, the source of fluid including pressure responsive means for varying the delivery of fluid to said controller in response to the variations in demand for fluid by said controller, said controller comprising:

(a) housing means including an inlet port for connection to the source of fluid, a return port for connection to a reservoir, first and second control fluid ports for connection to the fluid pressure operated device, and a load signal port for connection to the pressure responsive means;

(b) valve means disposed in said housing means and defining a neutral position and an operating position;

(c) said housing means and said valve means cooperating to define a first fluid path communicating between said inlet port and said first control fluid port and a second fluid path communicating between said second control fluid port and said return port when said valve means is in said operating position;

(d) fluid-actuated means for imparting follow-up movement to said valve means proportional to the volume flow of fluid through said first fluid path, said first fluid path flowing through said fluid-actuated means;

(e) said first fluid path including a first variable flow control orifice having its minimum flow area when said valve means is in said neutral position and an increasing flow area when said valve means is in said operating position;

(f) said second fluid path including a second variable orifice having its minimum flow area when said valve means is in said neutral position and an increasing flow area when said valve means is in said operating position;

(g) shuttle valve means disposed within said housing means and having first and second shuttle inlets and a shuttle outlet connected to said load signal port;

(h) means operable to communicate a first load signal from said first fluid path, downstream of said first variable flow control orifice, to said first shuttle inlet; and

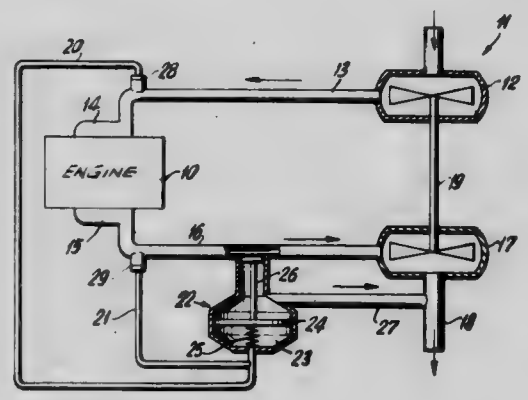
(i) means operable to communicate a second load signal from said second fluid path to said second shuttle inlet to insure that the pressure responsive means is responsive to whichever of said first and second fluid paths is at a higher load pressure.

4,336,688

TURBOCHARGER CONTROL SYSTEM

Fred J. Dellis, Westbury, N.Y., assignor to Windblown Systems, Inc., Amityville, N.Y.

Filed Nov. 5, 1979, Ser. No. 90,976
Int. Cl.³ F02B 37/00
U.S. Cl. 60—602 **4 Claims**



1. In an internal combustion engine having an intake manifold, an exhaust manifold and an exhaust driven turbocharger for compressing the intake charge, said turbocharger including a wastegate for limiting the boost pressure to a predetermined value, a pneumatic chamber for controlling said wastegate, the improvement comprising:

a first control line coupled for fluid communication between said intake manifold and said pneumatic chamber of said wastegate;

a second control line coupled for fluid communication between said exhaust manifold and said pneumatic chamber of said wastegate;

said first control line communicating the pressure within said intake manifold to said pneumatic chamber, said second control line communicating the pressure within said exhaust manifold to said pneumatic chamber;

said first and second control lines being constructed and arranged so as to be capable of fluid communication with each other to thereby effect a third pressure acting on said pneumatic chamber to thereby control said wastegate.

4,336,689

PROCESS FOR DELIVERING LIQUID CRYOGEN

Robert B. Davis, Nyack, N.Y., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jul. 10, 1981, Ser. No. 282,256
Int. Cl.³ F17C 7/02
U.S. Cl. 62—55 **2 Claims**

1. A process for delivering a liquid cryogen to a use point in an essentially liquid phase at an about constant flow rate in the range of about 1 to about 40 pounds per hour, said use point having a variable internal pressure drop, comprising the following steps:

(i) providing said liquid cryogen at a line pressure in the range of about 4 to about 10 times the maximum use point operating pressure;

(ii) subcooling the liquid cryogen of step (i) to an equilibrium pressure of no greater than about one atmosphere while maintaining said line pressure;

(iii) passing the liquid cryogen of step (ii) through a device having a flow coefficient in the range of about 0.0002 to about 0.005 while cooling said device externally to a

temperature, which will maintain the liquid cryogen in essentially the liquid phase; and

(iv) passing the liquid cryogen exiting the device in step (iii) through an insulated tube having an internal diameter in the range of about 0.020 inch to about 0.200 inch to the use point.

4,336,690

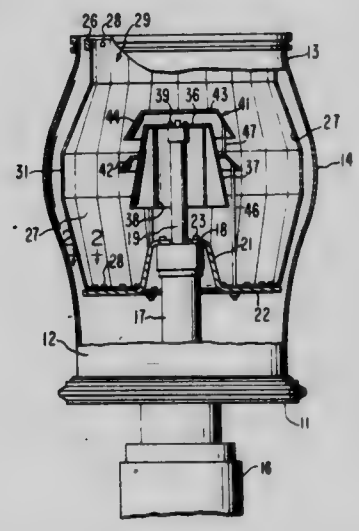
CRYOGENIC PUMP WITH RADIATION SHIELD

Kimo M. Welch, Mountain View, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Continuation of Ser. No. 79,860, Sep. 28, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,512

Int. Cl.³ B01D *8/00*

U.S. Cl. 62—55.5 **10 Claims**



1. In a cryogenic pump for removing gaseous species from a chamber: a first stage having an inlet opening at one end thereof for gaseous communication with the chamber and a generally cylindrical pumping surface maintained at a first temperature for removing a portion of the gaseous species, a second stage positioned coaxially within the first stage and having a pumping surface maintained at a temperature lower than the first temperature for removing an additional portion of the gaseous species, and a plurality of baffle members spaced axially apart between the first and second stages for shielding the pumping surface of the second stage from direct exposure to the inlet opening while permitting substantially unimpeded flow of the gaseous species from the inlet opening to the second stage.

4,336,691

CRYOJET RAPID FREEZING APPARATUS

Neal L. Burstein, Stanford, and David M. Maurice, Atherton, both of Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

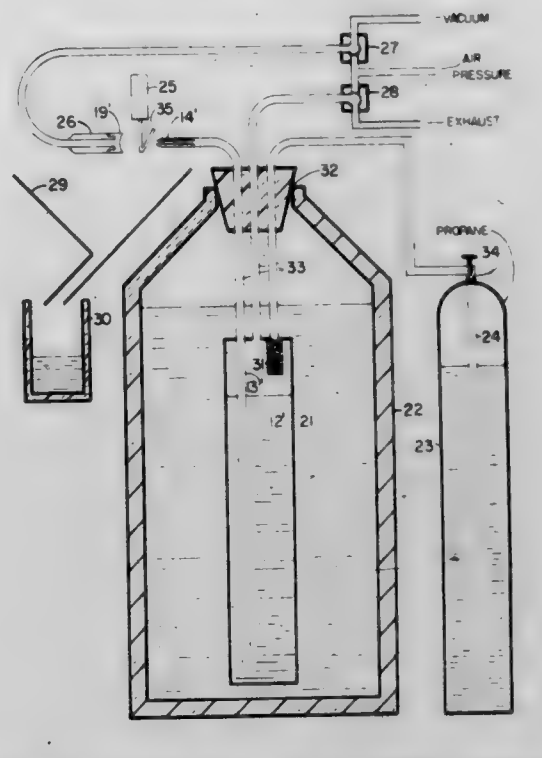
Filed Dec. 13, 1979, Ser. No. 103,216

Int. Cl.³ F25D *17/02*

U.S. Cl. 62—64 **17 Claims**

1. A process for rapid freezing of at least a portion of the surface of an object, comprising:

supplying a stream of quenchant cooled to, or close to, the freezing point thereof, said quenchant having a freezing point below about −80° C. and a temperature difference



between the melting point and the boiling point thereof of more than about 60° C.; and

directing said stream at the surface to be frozen.

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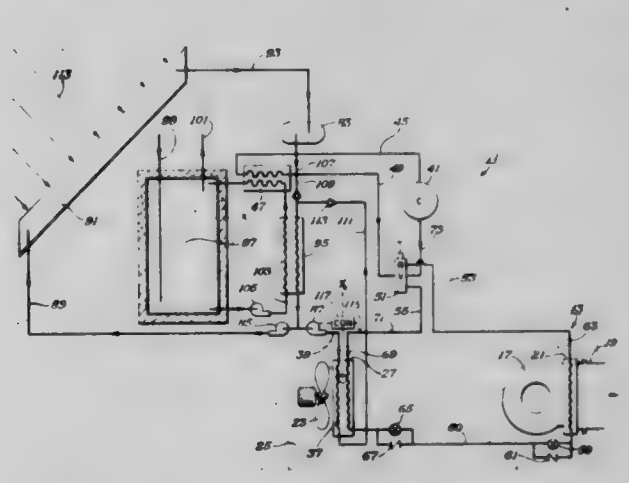
DUAL SOURCE HEAT PUMP

Amir L. Ecker, and Joseph A. Pietsch, both of Dallas, Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Apr. 16, 1980, Ser. No. 140,706

Int. Cl.³ F25B *27/00*; F25D *21/10*; G05D *23/00*

U.S. Cl. 62—82 **2 Claims**



1. Apparatus for conditioning a fluid temperature-wise and affording a single temperature hot water storage system for domestic using, defrosting, and supplying heat to a heat pump, comprising:

a. a hot water storage tank connected to conventional hot water inlet and outlet lines;

b. a fluid handler and fluid path means for circulating said fluid in a path in heat exchange relationship with a refrigerant fluid;

c. at least two refrigerant heat exchangers; a first of the heat exchangers being disposed in the path of the fluid such that the fluid is passed in heat exchange relationship therewith, and a second of the refrigerant heat exchangers being disposed in a heat exchange fluid circuit for circulating the refrigerant in heat exchange relationship with a heat exchange fluid and in heat exchange relationship with ambient air;

d. at least one compressor connected into a refrigerant circuit for efficiently compressing the refrigerant from its

inlet pressure to its discharge pressure under conditions of operation of the refrigerant circuit;

e. at least one metering valve connected at the inlet of a heat exchanger in which liquid refrigerant is being vaporized;

f. a refrigerant circuit serially connecting said heat exchangers, metering valve and compressor and defining a flow path for said refrigerant;

g. a reversing valve included in said refrigerant circuit for effecting operation respectively in a heating mode and in a cooling mode;

h. means for selecting the heat exchangers and direction of flow of refrigerant therethrough for selecting a particular mode of operation of the heat pump;

i. refrigerant disposed in said refrigerant circuit and adapted to be circulated in a selected flow path for transferring heat at a coefficient of performance greater than one;

j. a source of heat in the form of a heat exchange fluid;

k. heat exchange fluid circulating means for circulating said heat exchange fluid in a heat exchange circuit and in heat exchange relationship with said refrigerant;

l. a heat exchange circuit serially connecting said heat exchange fluid source, circulating means and second refrigerant-heat exchange fluid heat exchanger; whereby said heat exchange fluid can be circulated through said second heat exchanger to provide optionally melting of accumulated frost and a secondary source of heat;

m. temperature sensor disposed in said second heat exchanger to measure the temperature therewithin;

n. control means to energize said heat exchange fluid circulating means when the temperature measured in said second heat exchanger is less than 32° F. and to keep said heat exchanger fluid circulating means operative until the ice is melted from said second heat exchanger and the temperature in said second heat exchanger is above the freezing point of water whereby accumulated frost is detected and melted; said second heat exchanger having an ambient air circulation means for circulating ambient air past said second heat exchanger; and said control means including means for deenergizing said ambient air circulation means during defrosting;

o. solar heating circuit connected with said heat exchange circuit;

p. solar fluid circulating means disposed in said solar heating circuit for circulating said heat exchange fluid therethrough; said hot water storage tank having a hot water fluid circulating means serially connected in a hot water circulating circuit that also incorporates a desuperheater heat exchanger and a water-heat exchange fluid heat exchanger for heat exchanging respectively with hot refrigerant and heat exchange fluid; said desuperheater also being serially incorporated in said refrigerant circuit downstream of said compressor; said water-heat exchange fluid heat exchanger also being serially incorporated in said solar heating circuit with said solar fluid circulating means for heat exchange between said heat exchange fluid and said hot water; whereby a single temperature hot water storage serves optionally as a heat sink and a heat source to allow storing heat during periods of sun and using heat optionally for defrosting and for increasing efficiency of the heat pump.

4,336,693

REFRIGERATION PROCESS USING TWO-PHASE TURBINE

Lance G. Hays, Los Angeles; Walter R. Studhalter, Woodland Hills, and Emil W. Ritzi, Manhattan Beach, all of Calif., assignors to Research-Cottrell Technologies Inc., Santa Monica, Calif.

Filed May 1, 1980, Ser. No. 145,470

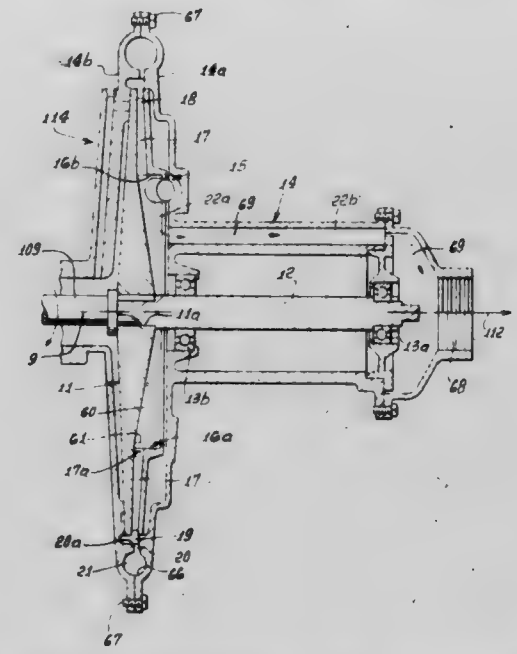
Int. Cl.³ F25B *1/00*

U.S. Cl. 62—116 **16 Claims**

1. In a refrigeration process employing a circulating fluid refrigerant, the process including compressing and cooling the refrigerant, expanding the cooled refrigerant to lower temperature and pressure levels, and then passing the expanded refrigerant through a refrigeration zone wherein heat is absorbed by the refrigerant, the steps that include

(a) carrying out said expansion through a first nozzle flow region to produce a liquid and vapor discharge,

(b) providing a rotor and collecting the liquid discharge in a ring on the rotor in such manner as to centrifugally pressurize the collected liquid,



(c) providing reaction nozzle means to rotate with the rotor and in communication with the ring of collected liquid and controllably passing the collected liquid through said reaction nozzle means to produce torque to rotate the rotor and to maintain said ring, and

(d) collecting liquid discharged from said reaction nozzle means for supply to said refrigeration zone.

4,336,694

SPRAYING SYSTEM FOR CRYOGENIC COOLANTS

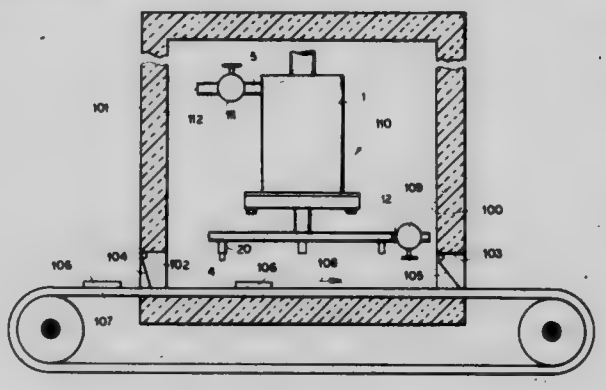
Georg Schmitt, Höllriegelskreuth, and Georg Göstl, Neufahrn, both of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Höllriegelskreuth, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,248

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1979, 2906480; Feb. 20, 1979, 2906488

Int. Cl.³ F25D *17/02*

U.S. Cl. 62—374 **11 Claims**



1. A deep freezing system comprising:

an insulated chamber adapted to receive a product to be deep frozen;

a distribution pipe provided with at least one spray nozzle for a liquid cryogen, said spray nozzle having a passage formed by a cylindrical bore for said liquid cryogen extending downwardly from said pipe, and a downwardly opening slit-shaped elongate long and narrow orifice formed by a V-section groove intersecting said bore for discharging a spray of the liquid cryogen onto said product; and

means for feeding a liquid cryogen to said distribution pipe.

4,336,695

COMPRESSION REFRIGERATION UNIT ADJUSTABLE IN ACCORDANCE WITH THE LIQUID FLOWING OUT FROM THE EVAPORATOR

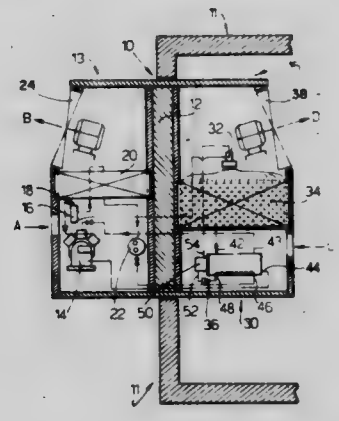
Egidio Ceolotto, Varedo, Italy, assignor to Monseol Limited, Chiasso, Switzerland

Filed Jul. 23, 1980, Ser. No. 171,550

Claims priority, application Switzerland, Apr. 18, 1980, 3037/80; Jun. 16, 1980, 4595/80

Int. Cl.³ F25B *39/02*

U.S. Cl. 62—504 6 Claims



1. In a compression type refrigerator, comprising a compressor, a condenser for cooling and condensing said fluid from said compressor, an expander for expanding the cooled fluid, and an evaporator for evaporating the expanded fluid; the improvement in which said expander comprises two expansion nozzles in parallel with each other, one said nozzle being fixed and the other said nozzle having an adjustable cross-sectional area, and means responsive to the amount of liquid leaving said evaporator to vary said cross-sectional area inversely as said amount.

4,336,696

TRIPOD TYPE CONSTANT VELOCITY UNIVERSAL JOINT

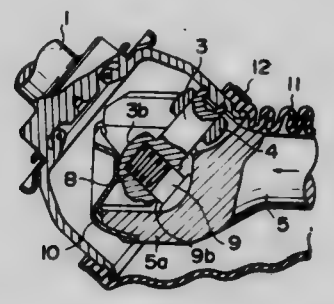
Yoshifumi Tsukiyama, Okazaki; Yasunori Hatanaka, Toyota; Akiyoshi Ogawa, Nishikamo, and Hitoshi Mizutani, Aichi, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Feb. 6, 1980, Ser. No. 119,155

Claims priority, application Japan, Feb. 9, 1979, 54-14804

Int. Cl.³ F16D *3/30*

U.S. Cl. 464—111 8 Claims



1. A tripod type constant velocity universal joint, wherein a trunnion portion of tripod shafts fixed on a first shaft are urged against and supported by a tulip portion of a second shaft through a tripod spring, a mushroom-shaped member with a spherical head is provided in a mounting hole of said trunnion portion, said mushroom-shaped member is biased by a compression spring to keep the spherical head of said mushroom-shaped member in contact with a recess of said tulip portion, and the external configuration of the head of the mushroom-shaped member is formed in a manner that the distance from the center of the joint is increased as the point on the external configuration leaves from the center of the surface of said head toward the outer periphery of the head of the mushroom-shaped member.

4,336,697

METHOD OF AND MECHANISM FOR TRANSFERRING KNITTED FABRIC FROM A KNITTING MACHINE TO A MAGAZINE

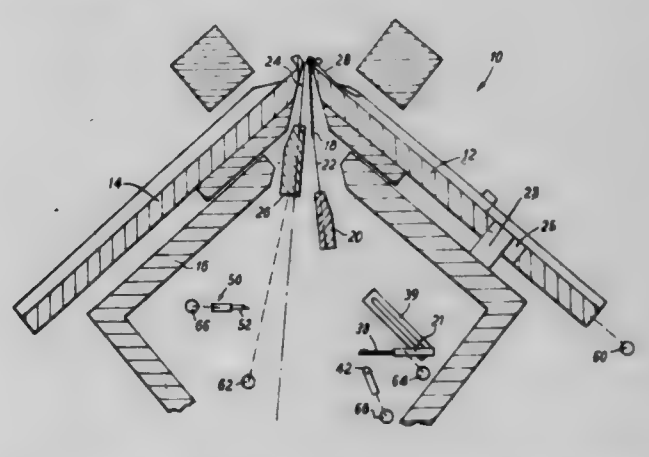
Reinhards Vitols, 12 Sunningdale Dr., Tollerton, Nottinghamshire; Adrian M. Woodward, 22 Abbortsburg Close, Rise Park, Bulwell, Nottinghamshire; John E. Baker, 42 Park Rd., Birstall, Leicester, and Gordon R. Wray, Stonestack, Main St., Rempstone, Nottinghamshire, all of England

Filed Nov. 5, 1979, Ser. No. 91,190

Claims priority, application United Kingdom, Nov. 6, 1978, 43366/78

Int. Cl.³ D04B *9/40, 35/00*

U.S. Cl. 66—148 17 Claims



1. A method of transferring a knitted fabric from the knitting needles of a flat knitting machine to the needles of a magazine bar comprising the steps of displacing one bed of the knitting machine a preselected distance from a position in which knitting takes place; moving a plurality of intermediate transfer elements into juxtaposition with the needles of said one bed and engaging each said element with a respective needle and transferring the knitted loops of said knitted fabric from the needles of said one bed to said elements; removing said elements from adjacent the needles of said one bed and into engagement with the needles of said magazine bar; and transferring the loops of the knitted fabric from said elements to the needles of said magazine bar.

4,336,698

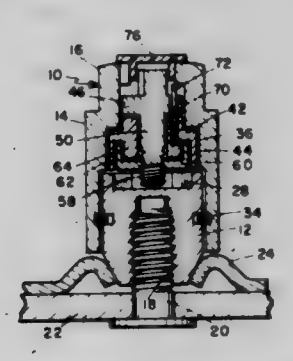
LUG NUT LOCK

Gary L. Hurd, 5870 Salacot Ct., San Diego, Calif. 92124

Filed Jul. 6, 1979, Ser. No. 55,691

Int. Cl.³ F16B *41/00*; E05B *27/08, 13/10*

U.S. Cl. 70—231 9 Claims



1. A locking device comprising in combination:

a lug nut having a threaded bore threadably engaging a first member for securing a second member thereto, said lug nut having a generally cylindrical outer surface and being rotatable into and out of a securing position:

a sleeve having multiple stepped cylindrical bores rotatably mounted on and covering said cylindrical surface of said lug nut and an annular shoulder engaging the end of said nut, and annular retainer ring retaining said sleeve on said nut, said sleeve having a hex outer portion for engagement for rotation by a wrench for removal of said fastening element from said first member,

said nut including a substantially coaxial, hexagonal shaped bore formed therein, said sleeve includes a locking housing non-rotatably mounted within said sleeve, said housing having a cylindrical bore and an outer hexagonal configuration, said sleeve also including a coaxial bore formed therein of a hexagonal configuration, a threaded key shaft coaxially rotatably mounted in said housing cylindrical bore and rotatable by means of a key, and a coupling element having a hexagonal shaped outer portion coaxially threadably mounted on said key shaft and movable between a non-coupling position retracted within said bore in said sleeve and a coupling position within both said sleeve and said bore in said nut upon rotation of said key shaft a multiple number of turns,

wherein the key shaft includes locking means for preventing rotation of said key shaft including a plurality of pins biased between said locking housing and an annular flange on said key shaft for preventing the rotation of said key shaft;

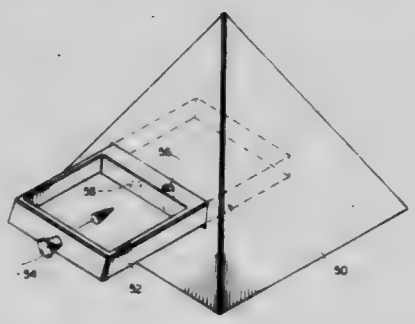
said key shaft and said sleeve including means defining an annular bore for receiving an annular key for cooperatively engaging at least a plurality of locking pins for permitting rotation of said key shaft within said housing wherein said locking housing defines a skirt for encompassing said coupling element and is responsive to axial force thereon for crimping onto said coupling elements.

4,336,699

SYSTEM FOR INTERLOCKING OBJECTS

Robert D. Green, 423 University Village, Salt Lake City, Utah 84108

Filed Nov. 5, 1979, Ser. No. 91,047
Int. Cl.³ E05B *37/20*; A63H *9/00*
U.S. Cl. 70—290 **7 Claims**



1. A system for interlocking objects comprising:

a polyhedron, adapted to be hand held, including:

a first locking channel located therein, one end of said locking channel originating at a surface of said polyhedron, and

at least one enclosed blocking channel, each blocking channel having a blocking pin inserted therein, each blocking channel originating and terminating within said polyhedron, and each channel orthogonally intersecting at least one other channel within said polyhedron, at least one blocking channel orthogonally intersecting said locking channel;

a drawer adapted to be inserted into said polyhedron such that the surface of said polyhedron where said first locking channel originates is adjacent to a surface of said drawer in which a second locking channel originates, said second locking channel being aligned with said first locking channel so that one serves as an extension of the other when said drawer is inserted into said polyhedron;

a locking pin inserted into one of said locking channels, said pin being dimensioned such that it may freely move longitudinally within said locking channels but may not move laterally therewithin; and

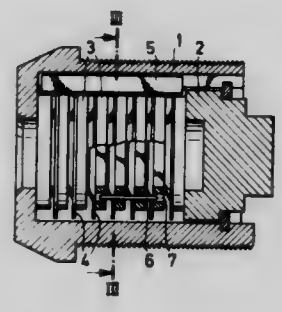
indirect force means for selectively moving said locking and blocking pins longitudinally within their respective locking and blocking channels, said force means making no direct physical contact with said pins, thereby allowing said locking pin to be positioned within said locking channels so that it simultaneously extends part way into said polyhedron and part way into said drawer when said drawer is inserted into said polyhedron and said locking channels are aligned, thus locking all lateral movement between the surfaces of said drawer and polyhedron, and thereby further allowing said blocking pins to be selectively positioned at the intersections of said channels, each of said blocking pins thus serving to block the movement of the locking or blocking pins within their respective channels.

4,336,700

CYLINDER LOCK

Arne Baltscheffsky, Kauniainen, and Alpo Kärkkäinen, Kulbo, both of Finland, assignors to Oy Wartsila Ab, Helsinki, Finland

Continuation of Ser. No. 904,513, May 10, 1978, abandoned. This application Jan. 22, 1980, Ser. No. 114,369
Claims priority, application Finland, May 24, 1977, 771639
Int. Cl.³ E05B *29/00*
U.S. Cl. 70—366 **22 Claims**



1. A cylinder lock comprising a lock mechanism with a mechanically positively guided function independent of any spring means, said mechanism comprising a non-rotatable cylinder housing having therein a key operated lock mechanism including a turnable cylinder and a plurality of locking discs which are turnable by a key and which, when being in a position allowing insertion of said key into said lock, hereinafter called zero position, keeps said lock mechanism in a locking position, thereby preventing said cylinder from turning relatively to said cylinder housing, said locking discs being turnable to a cylinder releasing position, said mechanism further including spring means operative to urge at least some of said locking discs in a direction away from their cylinder releasing position towards their zero position, said spring means being functionally redundant with respect to the normal function of said lock mechanism.

4,336,701

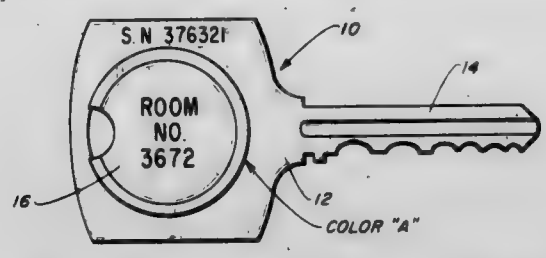
KEYING PROCESS FOR RESETTABLE LOCK

James W. Raymond, 1801 Port Margate Pl., Newport, Calif. 92660

Continuation of Ser. No. 723,938, Sep. 16, 1976, abandoned. This application Oct. 31, 1977, Ser. No. 847,080
Int. Cl.³ E05B *19/00*
U.S. Cl. 70—395 **3 Claims**

1. A process for use in conjunction with resettable room locks in a hotel, motel, or the like, including: providing a plurality of keys each having a stem portion and a handle portion having an opening therein; providing identifying indicia on said keys; grouping said keys with duplicates having the same identifying indicia; providing a plurality of plug members all having the same room number inscribed thereon; causing

said plug members to be selectively removably retained in said opening in each of said key; causing said plugs to be replaced by one another each time a corresponding resettable room lock



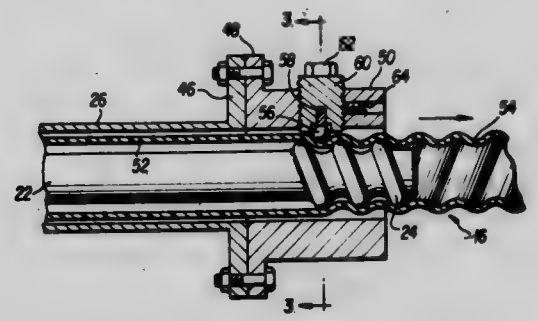
is changed; causing each of said plugs to include means for distinguishing it from the other plugs; and indicating the current key for any resettable room lock as established by the distinguishing means of the plug inserted into the current key.

4,336,702

METHOD OF AND APPARATUS FOR MAKING SPIRAL TUBES

Juan J. Amado, Jr., Aptdo. 4241, Panama City, Panama

Filed Sep. 12, 1980, Ser. No. 186,658
Int. Cl.³ B21D *15/04*
U.S. Cl. 72—75 10 Claims



1. A method of forming spiral tubes which comprises the steps of

a. providing a female spirally shaped die track on a rotatable shaft,

b. suspending only a single metal ball from a rotatable holder with said ball being positioned in registry with said die track,

c. inserting a tube to be formed between said die track and said metal ball,

d. clamping said tube to be formed so as to prevent rotation thereof while permitting axial movement of said tube,

e. advancing said metal ball to obtain a desired radial inward depression in said tube to be formed,

f. and rotating said rotatable holder and said rotatable shaft in unison to form a spirally-shaped groove in said tube.

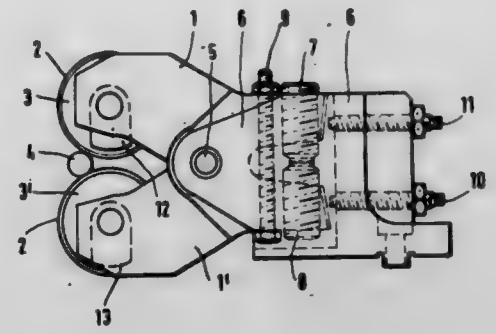
4,336,703

TANGENTIAL ROLLING HEAD

Diethard Thomas, Schwarzenbek, Fed. Rep. of Germany, assignor to Wilhelm Fette GmbH, Schwarzenbek, Fed. Rep. of Germany

Filed Oct. 30, 1980, Ser. No. 202,054
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 2944999
Int. Cl.³ B21H *3/04*
U.S. Cl. 72—104 14 Claims

1. Tangential roller head for cold forming of screwthreads on rotary workpieces, comprising two threaded rollers arranged opposite each other on supporting means for free rotation about parallel axes, and unbalancing means provided on



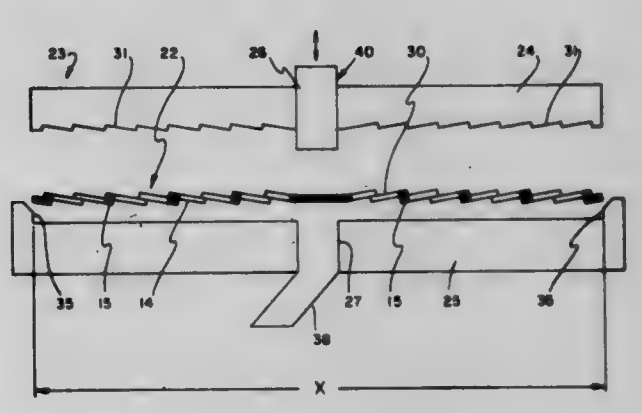
respective rollers to rotate the same by the force of gravity into a predetermined starting position.

4,336,704

APPARATUS FOR ORIENTING AND SIZING BATTERY GRIDS

Jerry T. McDowell, Greeneville, Tenn., assignor to Ball Corporation, Muncie, Ind.

Division of Ser. No. 949,934, Oct. 10, 1978, Pat. No. 4,220,030.
This application Mar. 28, 1980, Ser. No. 134,830
Int. Cl.³ B21D *28/02, 28/32*
U.S. Cl. 72—324 1 Claim

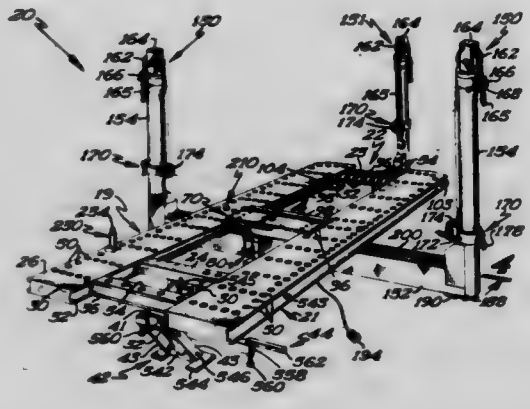


1. An apparatus for sizing and orienting grids having an open network section and a nonopen section, said open network section having nodes, said apparatus comprising opposing movable die plates having surfaces for engagement with grids disposed intermediate said plates, said plates being mounted on a frame, means for advancing the grids along a predetermined path and into an area intermediate said plates so that said grids are positioned for the sizing and orienting operation by said plates, means centrally mounted in said plates for cutting out a portion of the nonopen section and retaining the cut-out portion of a fixed position within said path, and means connected to said cutting means for advancing said cutting means and plates into engagement with said grids, said surface of at least one plate having an array of parallel inclined planes each plane connected by an array of single flat surfaces for making pressing contact with said nodes, wherein a cross section of said array of planes constitutes a substantially serrated configuration and the surface of the other plate being flat, said array pressing simultaneously while said nonopen section is being retained to work the nodes, moving said nodes outwardly and away from said nonopen section, said one of said plates provided with confining means proximate the periphery of said one of said plates and cooperating with said other plate to confine the grids during their outward movement to a given width to thereby size and orient said grids.

4,336,705
APPARATUS FOR REPAIRING AND STRAIGHTENING

Gerald A. Specktor, 409 Cleveland Ave. South, St. Paul, Minn. 55105

Continuation of Ser. No. 496,848, Aug. 12, 1974, Pat. No. 4,151,737. This application Mar. 9, 1979, Ser. No. 18,959
The portion of the term of this patent subsequent to May 1, 1996, has been disclaimed.
Int. Cl.[3] B21D *1/12*
U.S. Cl. 72—457 25 Claims



1. Apparatus for repairing and straightening the body and frame of a wheeled vehicle comprising, in combination: a tread member having a first end and a second end and having a top surface and a bottom surface and including a right track member and a left track member, each of the right and left track members having a top surface formed thereon to allow support of the vehicle thereon; means for allowing placement of a vehicle upon the tread member; at least one means for applying a force to the vehicle; a tram body; means for pivotally interconnecting the force applying means to the tram body to allow positioning the force applying means on the outside of the tread member; and means for movably mounting the tram body having the force applying means pivotally interconnected thereto in the space which separates the right and left track members including means for moving the tram body along the right and left track members to thereby allow the tram body to be positioned at substantially any position between the first end and the second end of the tread member and to allow the force applying means to be positioned at any desired angle around the tread member such that the reparing and straightening force can be applied at any angle around the entire 360 degree periphery of the vehicle.

4,336,706
LATHEKIN

Alberto A. Garcia, 6940 56th Ave. South, Seattle, Wash. 98118

Filed May 15, 1980, Ser. No. 150,001
Int. Cl.[3] B21D *3/16*
U.S. Cl. 72—479 11 Claims



1. A lathekin for opening the leaves which form the channel of came, which comprises:

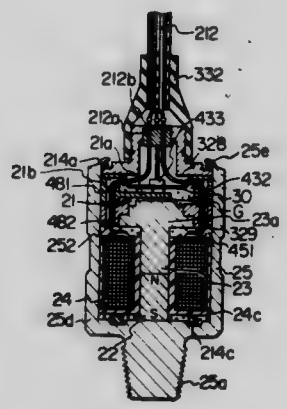
(a) a blade having an elongated main edge insertable within the channel;

(b) a pair of peaked projections extending oppositely from the sides of the blade in a plane substantially normal to the plane of the blade, each having a sloping leading surface and a sloping trailing surface on either side of the peak extending along the blade adjacent to a portion of the edge, said sloping leading surfaces of the projections defining a point located substantially in the plane of the blade the peaks of the projections extending outward from the sides of the blade to engage the leaves of the came and space them relative to each other.

4,336,707
KNOCK DETECTING APPARATUS FOR INTERNAL COMBUSTION ENGINES

Hiroaki Yamaguchi, Anjo; Tadashi Hattori, and Yoshinori Ootsuka, both of Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed May 27, 1980, Ser. No. 152,986
Claims priority, application Japan, Jun. 4, 1979, 54-70495; Oct. 24, 1979, 54-138032
Int. Cl.[3] G01L *23/22*
U.S. Cl. 73—35 1 Claim



1. A knock detecting apparatus for an internal combustion engine comprising:

vibrating means having at least one resonant frequency within a knocking frequency range;

magnetic means arranged to form a magnetic path in association with said vibrating means, said magnetic path including a gap formed between said vibrating means and said magnetic means;

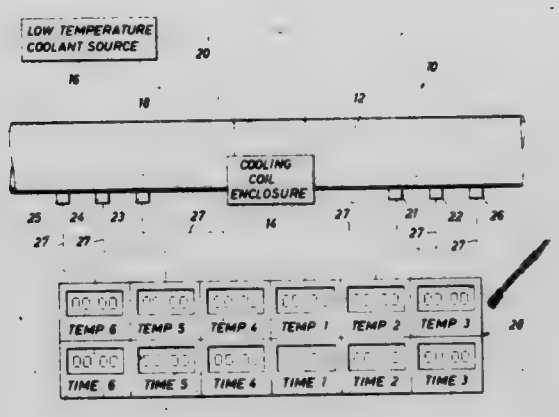
means connected to said magnetic means to generate magnetic flux in said magnetic path;

magnetically sensitive means connected to said magnetic means to sense a change in said magnetic flux in said magnetic path caused by the vibration of said vibrating means;

a housing secured to an internal combustion engine, said housing having said vibrating means, magnetic means, flux generating means and magnetically sensitive means mounted thereon, the housing including a side peripheral wall portion formed into a substantially cylindrical cup shape, said vibrating means being disposed within the housing such that the vibrating means has its lengthwise direction arranged in a diametrical direction of said housing, the magnetic means being disposed within the housing less remote from the engine than said vibrating means and arranged such that its lengthwise direction is along an axial direction of said housing, said housing further including plate means positioned within the housing so as to be more remote from the engine than said vibrating means, the housing and said plate means defining a space filled with damper means which surrounds the vibrating means so as to restrict the vibration thereof; and

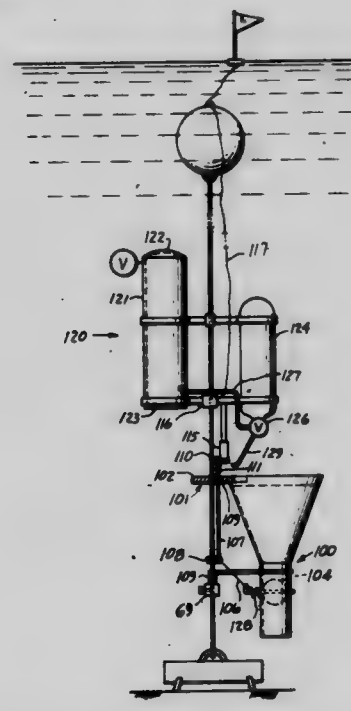
heating means mounted on the plate means to heat the damper means through the plate means.

4,336,708
PIPELINE LEAK LOCATOR
Terry W. Hobgood, 7726 Pella St., Houston, Tex. 77036, and James C. Knox, Jr., 7043 Concho, Houston, Tex. 77074
Filed Oct. 14, 1980, Ser. No. 196,618
Int. Cl.[3] G01M *3/00;* G01N *25/00*
U.S. Cl. 73—40.5 R 11 Claims



1. A device for locating leaks in a pipeline carrying a fluid comprising:
(a) means for changing the temperature of a pipeline section, said temperature changing means being selectably attachable at a selected location of the pipeline section;
(b) a plurality of temperature sensors selectably attachable to the pipeline section, said temperature sensors being equally spaced from said temperature changing means along the length of the pipeline section; and
(c) monitor means connected to said temperature sensors for monitoring change in the temperature of the pipeline section.

4,336,709
RETRIEVAL OF ARTICLES FROM BENEATH THE SURFACE OF A BODY OF WATER
Robert P. Meek, Santa Barbara, Calif., assignor to Ecomar, Inc., Goleta, Calif.
Continuation of Ser. No. 29,450, Apr. 12, 1979, abandoned. This application Nov. 19, 1980, Ser. No. 208,266
Int. Cl.[3] G01N *1/04*
U.S. Cl. 73—61.2 6 Claims



1. Apparatus adapted to follow an upright cable beneath the surface of a body of water to a first depth, and later to rise to a lesser second depth, said apparatus comprising:
guide means adapted to embrace and slide along said cable;
a retrievable article mounted to said guide means for movement therewith, the combination of said guide means and article having a negative buoyancy so as to sink;
stop means, the depth of which is adjustable, and which can be rigidly attached to said cable to determine said first depth, said stop means restraining said article at said first depth;
buoyancy means adapted to slide along said cable comprising a body having a floodable cavity, said body when the cavity is flooded with water having an inherently negative buoyance, and having positive buoyancy when filled with gas;
attachment means comprising a magnet carried by said buoyancy means so disposed and arranged as to abut against and attach to said guide means when said buoyancy means sinks to the depth of said guide means;
gas supply means carried by said buoyancy means comprising a compressed gas tank connected to said cavity;
gas valve means carried by said buoyancy means connected to said gas supply means to retain gas in said gas supply means until the gas valve means is opened, said gas valve means comprising an operator which is movable and so disposed and arranged relative to said guide means as to open said gas valve means by abutment force when said attachment means is magnetically attached to said guide means, whereby to release gas from said gas supply means to expel water from said cavity, the resulting positive buoyancy of said buoyancy means being adequate to cause the combination of article, buoyancy means, attachment means, guide means, gas supply means, and gas valve means to rise to said second depth.

4,336,710
HARDNESS TESTER
Arthur Miller, 1602 Myrtlewood St., Costa Mesa, Calif. 92626
Filed Jun. 9, 1980, Ser. No. 157,533
Int. Cl.[3] G01N *3/52*
U.S. Cl. 73—79 12 Claims



1. A hardness tester for testing the hardness of a surface of a test specimen, said hardness tester comprising:
a tubular element having upper and lower ends;
means for mounting the tubular element in a generally upright position;
a ball;
means on said tubular element for releasably retaining said ball above said lower end;
passage means extending from said retaining means through the tubular element and terminating in an opening adapted to be positioned over the surface of the test specimen;
said tubular element having a wall through which the pas-

sage means is visible from the exterior of the tubular element and indicia on said wall;

said ball having a lesser cross-sectional area than said passage means below the retaining means and a lesser cross-sectional area than said opening whereby the ball is sized to pass completely through said opening and when the ball is released from the retaining means, it falls by gravity through the passage means without touching the wall of the passage means and contacts the surface of the test specimen and rebounds from such surface, the height of said rebound being relatable to a known hardness value by means of said indicia; and

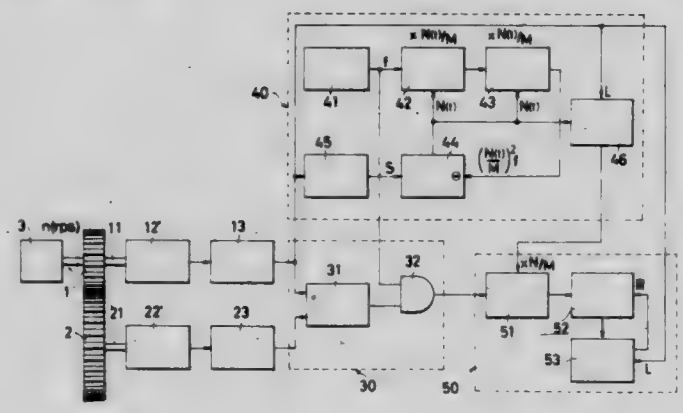
a collector, a base and means for rotatably mounting said collector on said base, said tubular element being mounted on said collector, said passage means extending through said collector and said base with said opening being in said base, said collector and said base being relatively rotatable to displace said opening from said passage means and to permit said base to at least partially close off the lower end of said passage means.

4,336,711

GEAR MESH TESTING INSTRUMENTS

Osamu Maehara, Kawasaki, and Tsutomu Harada, Yokohama, both of Japan, assignors to Ono Sokki Co., Ltd., Tokyo, Japan

Filed Nov. 27, 1979, Ser. No. 97,660
Claims priority, application Japan, Dec. 11, 1978, 53-153471
Int. Cl.³ G01M *13/02*
U.S. Cl. 73—162 **3 Claims**



1. A gear mesh testing instrument comprising:

pulse producing means for producing two pulse signals respectively having frequencies proportional to the rotational frequency of the driving gear and the rotational frequency of the driven gear;

frequency compensation means for compensating the frequencies of the two pulse signals into a same frequency;

a time difference calculation means for detecting the phase difference time between the two pulse signals with the same frequency;

a reciprocal value calculating means for calculating out the reciprocal value of the period of a first pulse signal out of the two pulsed signals with the same frequency; and

a multiplication means for calculating the product of the phase difference time and the reciprocal value of the period.

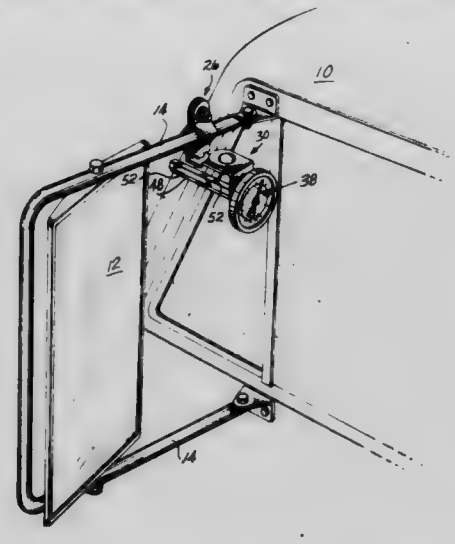
4,336,712

VEHICULAR TEMPERATURE GAUGE

Robert S. Hawkins, 3002 Cascade view Rd., Sumner, Wash. 98390

Filed Apr. 14, 1980, Ser. No. 139,897
Int. Cl.³ G01K *13/02*
U.S. Cl. 374—138 **2 Claims**

1. A vehicular temperature gauge comprising a thermometer having a temperature-sensing rod element; a direct reading dial connected with said sensing rod and disposed at right angles thereto; an externally threaded nipple connected with said thermometer and coaxially disposed on said rod element; a first washer disposed on said rod element and disposed adjacent said thermometer; bracket means disposed on said threaded nipple and having two opposite surfaces, one surface thereof abutting said washer, said bracket means providing a unit for detachably mounting the thermometer on a vehicle; a second washer disposed on said rod element and disposed adjacent the opposite surface of the bracket means; an internally threaded tube surrounding said rod element in spaced relation thereto,



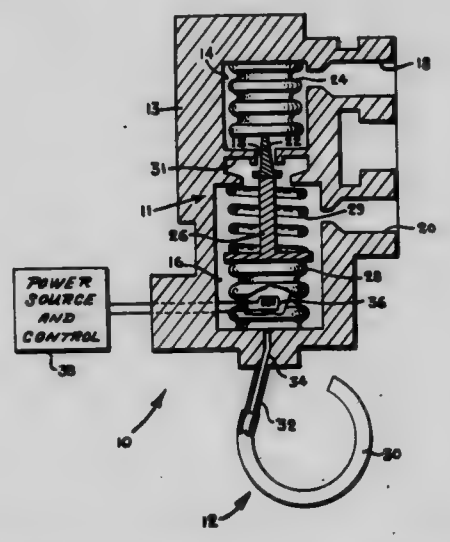
providing a chamber between it and the rod element, threadedly connected with the threaded nipple, and disposed to urge said second washer against the opposite surface of the bracket means, said tube being provided with means to connect the chamber with external air conditions; and readily detachable mounting means connected with said bracket and mounting said unit on the exterior of a vehicle and at a location within the area of the normal view of the operator of the vehicle.

4,336,713

COMPENSATED TEMPERATURE SENSING DEVICE

Arthur S. Meyer, West Chester, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 6, 1980, Ser. No. 175,794
Int. Cl.³ G01K *1/22*
U.S. Cl. 374—197 **9 Claims**



1. A compensated temperature sensing device comprising means for sensing the temperature adjacent thereto, said temperature sensing means including a tubular element and a gas contained therein wherein a change in said temperature alters the pressure of said gas, said altered pressure providing a first signal responsive to said temperature change, means operably connected to said temperature sensing means for providing a second signal representative of said first signal, and means operably associated with said temperature sensing means and said second signal providing means for substantially increasing

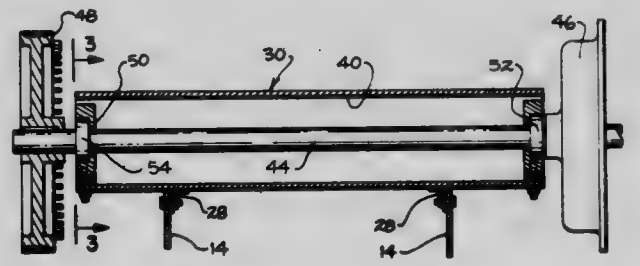
the speed at which said second signal is indicative of said temperature change sensed by said temperature sensing means whereby said second signal virtually instantaneously provides an indication of said temperature change.

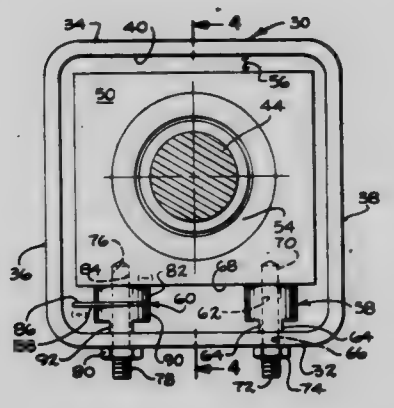
4,336,714
Patent Not Issued For This Number

4,336,715
TRANSDUCER MOUNT FOR WHEEL BALANCING MACHINES

Arthur K. Arnold, and Donald R. Sherman, both of San Jose, Calif., assignors to Autotron Equipment Corporation, Mountain View, Calif.

Continuation of Ser. No. 128,946, Mar. 10, 1980, abandoned. This application Aug. 31, 1981, Ser. No. 297,730
Int. Cl.³ G01M 1/22
U.S. Cl. 73—462 **4 Claims**



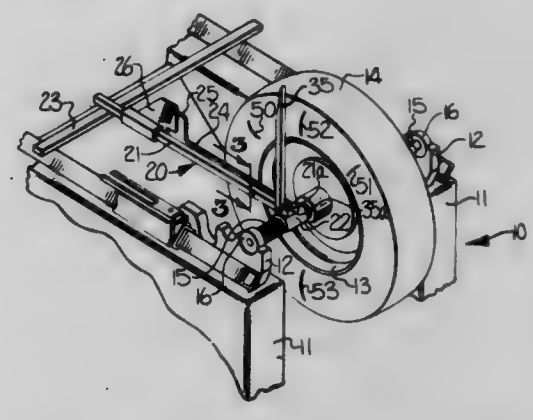


1. In a wheel balancing machine of a type having a driven shaft adapted to carry a wheel/tire assembly at one end thereof for rotation with the driven shaft, an improved mounting structure for supporting said shaft to provide electric signals representative of dynamic forces imposed thereon by weight imbalance during rotation of said wheel/tire assembly and shaft, said mounting structure comprising an elongate, rigid, multisided housing disposed about said shaft, a bearing block disposed about said shaft at each end of said housing, bearings within said bearing blocks for receiving said shaft for rotation with respect to said housing, spacer means supporting each said block from a given side of said rigid housing to provide an uninterrupted peripheral gap extending around said blocks and defined between the inner wall surface of said rigid housing and the outer periphery of said blocks exclusive of that portion of said outer periphery disposed adjacent said given side of said housing, said bearing blocks remaining otherwise decoupled from and independent of each other and of said housing to inhibit movement of one from effecting movement in the other, said spacer means comprising a pair of spacer units at each end of said rigid housing, each said pair including both an active and a passive spacer unit supporting a given one of said bearing blocks from said given side of said rigid housing and in spaced relation to the inner wall of said rigid housing, each said active unit including a force transducer for sensing dynamic imbalance forces applied thereto.

4,336,716
WHEEL BALANCING DEVICE AND METHOD

Jerry P. Poppell, 3430 Willis Rd., Mulberry, Fla. 33860

Filed Dec. 8, 1980, Ser. No. 214,574
Int. Cl.³ G01M 1/12
U.S. Cl. 73—480 **6 Claims**



1. A device to facilitate the static balancing of a wheel which is mounted for free rotation about a generally horizontally extending axis, said device comprising

an elongate deflectable pointer,

means cooperating with one end of said pointer for mounting the pointer so as to extend in a cantilever manner alongside the wheel,

a scale mounted to cooperate with the elongate deflectable pointer at a location spaced from said one end thereof and having indicia thereon indicating the amount of weight needed to be added to the wheel in order to bring the wheel into balance, and

a finger adapted to be secured to the wheel at a selected circumferential location in relation to the heaviest point on the wheel and having a projecting portion extending laterally from the wheel for engaging and deflecting said pointer whereby the amount of deflection of the pointer can be read directly from the scale and the amount of weight needed to bring the wheel into balance can be readily determined, thus greatly reducing the amount of time required for balancing the wheel.

4,336,717
DEVICE TO CLAMP A WHEEL ON THE SHAFT OF A BALANCING MACHINE

Eickhart Goebel, Pfungstadt, Fed. Rep. of Germany, assignor to Gebr. Hofmann GmbH & Co. KG, Maschinenfabrik, Darmstadt, Fed. Rep. of Germany

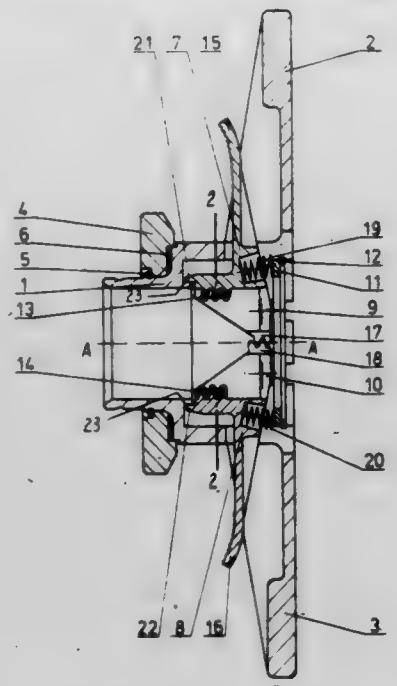
Filed Aug. 28, 1980, Ser. No. 181,981
Claims priority, application Fed. Rep. of Germany, Aug. 31, 1979, 2935216
Int. Cl.³ G01M 1/06
U.S. Cl. 73—487 **10 Claims**

1. Clamping device for clamping a vehicle wheel on a threaded clamping shaft of a test machine comprising:

means for defining a basic body (1) positionable on and translatable and rotatable with respect to a threaded clamping shaft (S) of a balancing machine; and

a pair of swivelling levers (7,8) pivotally mounted on said basic body, each of said levers having an extremity thereof forming a threaded segment (13,14) movable into an out of engagement with the threaded clamping shaft, an extremity forming an actuating lever (15,16) for controlling engagement of said threaded segment with the threaded

clamping shaft, and a portion (17,18) thereof cooperating with a corresponding portion of the other lever in such manner that movement of one of said levers results in conjoint movement of the other of said levers.

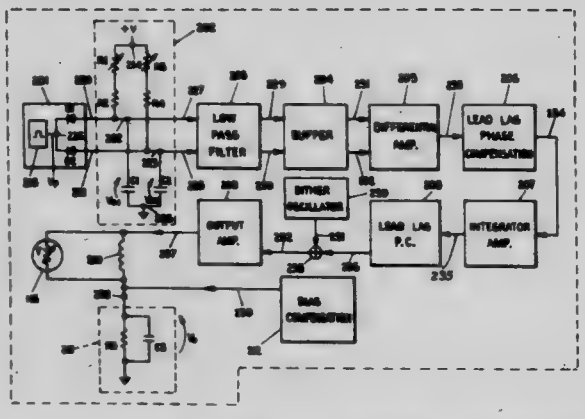


4,336,718

CONTROL CIRCUIT FOR ACCELEROMETER

John R. Washburn, Grand Rapids, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Sep. 8, 1980, Ser. No. 184,796
Int. Cl.³ G01P *15/13*
U.S. Cl. 73—517 B **22 Claims**



1. An accelerometer adapted to measure magnitude and direction of an acceleration force externally applied thereto and comprising:

an accelerometer housing assembly;

indicating means pendulously supported within said housing assembly for indicating, via a positional displacement thereof, the occurrence of said acceleration force, wherein said indicating means is pendulously supported at a null position in the absence of said acceleration force;

detection circuit means for detecting said positional displacement of said indicating means and for generating a restoring signal representative of the magnitude and direction of said positional displacement;

restoring means coupled to said detection circuit means and responsive to said restoring signal for restoring said indicating means to said null position;

output circuit means electrically coupled to said restoring means and comprising an output terminal for generating an output signal thereat indicative of the magnitude and direction of said externally applied acceleration force; and

characterized in that

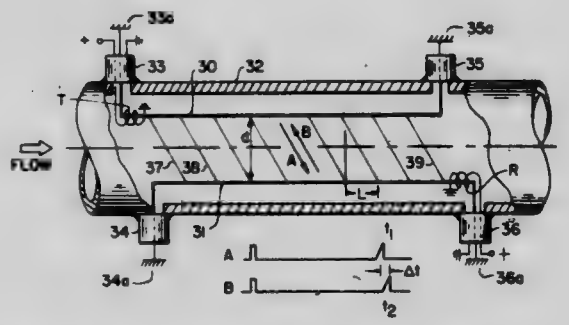
said accelerometer further comprises bias compensation circuit means connected to said output terminal and selectively adjustable to apply a correction signal to said output circuit means, wherein said correction signal is of a substantially equal magnitude and opposite in direction to components of said output signal due to static bias factors.

4,336,719

ULTRASONIC FLOWMETERS USING WAVEGUIDE ANTENNAS

Lawrence C. Lynnworth, Waltham, Mass., assignor to Panametrics, Inc., Waltham, Mass.

Filed Jul. 11, 1980, Ser. No. 168,325
Int. Cl.³ G01F *1/66*
U.S. Cl. 73—861.27 **44 Claims**



1. Apparatus for measuring the flow velocity of a fluid comprising:

at least one pair of spaced apart, elongated waveguide antennas for propagating ultrasonic waves, each antenna containing at least one segment immersed in said fluid, and wherein at least one immersed segment in each of said antennas lies in a plane which is substantially parallel to the flow velocity vector of said fluid;

first transducer means for launching an ultrasonic wave at a first time along one of said waveguide antennas for transmission through said fluid;

second transducer means for detecting at a second time said ultrasonic wave received in another of said waveguide antennas; and

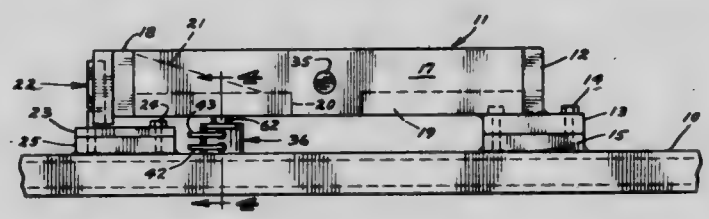
processing means operating on said received ultrasonic wave for computing the flow velocity of said fluid.

4,336,720

LOAD SENSING SYSTEM

James A. Prokop, St. Paul, Minn., assignor to Lull Engineering Company, Inc., St. Paul, Minn.

Filed Aug. 22, 1980, Ser. No. 180,376
Int. Cl.³ G01D *1/00*; B66C *13/50*
U.S. Cl. 73—862.53 **8 Claims**



1. A load sensor system for a load carrying vehicle having a hydraulically controlled load carrier subject to cantilever loading, said vehicle including a load bearing frame and an axle supporting said frame, said sensor system comprising:

(A) a sub-frame assembly comprising part of the load bearing frame by which said frame is secured to said axle so as to be partially separable therefrom,

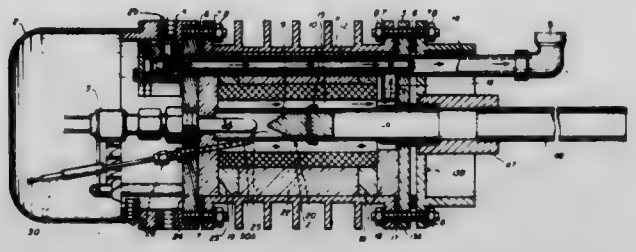
(B) a hydraulic system including double acting cylinders for lifting and extending the load carrier, and

(C) a mechanically actuated relief valve load sensing device connected into said hydraulic system and disposed between said axle and sub-frame assembly.

4,336,721
GAS ANALYZER

Richard H. Curtis, Gorham, Me., assignor to Hague International, South Portland, Me.

Filed Jun. 3, 1980, Ser. No. 155,940
Int. Cl.³ G01N *1/22*
U.S. Cl. 73—863.11 18 Claims

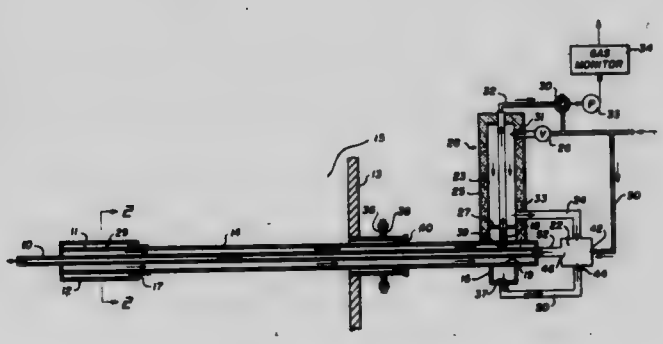


1. Gas sampling apparatus comprising;
a housing,
an inlet tube means for receiving a sample of gas and supported within said housing,
a gas sensing cell,
means disposing the gas sensing cell in the housing in a position to have the gas sample pass thereover,
a heating means,
means supporting the heating means in the housing about at least a section of the inlet tube means and forming a heated gas passage disposed about the inlet tube means,
means providing gas communication from the inlet tube means to the gas passage,
nozzle means,
means supporting the nozzle means in the inlet tube means in a position to block a portion of the inlet tube and meter the gas flow, and
aspirator means at least in part in the housing for purging the gas sample from the heated passage.

4,336,722
METHOD AND APPARATUS FOR SAMPLING WASTE GASES

Ernest D. Schweitzer, Saanichton, Canada, assignor to Candel Industries, Limited, Victoria, Canada

Filed Nov. 4, 1980, Ser. No. 203,935
Int. Cl.³ G01N *1/14*
U.S. Cl. 73—863.12 18 Claims

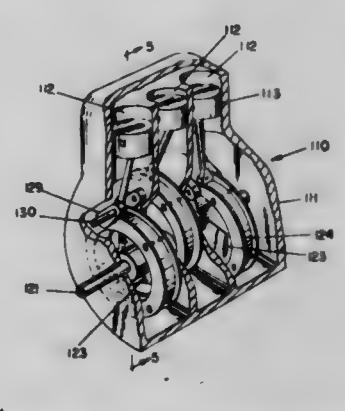


1. Apparatus for continuously withdrawing a gas sub-sample from a waste gas chamber enclosing a source of waste gas for introduction of the sub-sample to a gas monitor, comprising:
(a) a sample probe tube having a sample gas probe inlet located within said chamber and a gas passageway extending from the probe inlet to an exit region exterior to said chamber for continuously withdrawing a sample of said waste gas, said probe inlet for filtering out particulate matter present in the waste gas;
(b) a baffle located proximate the sample gas inlet for deflecting particulate matter present in the waste gas;
(c) an aspirator having an aspirating gas inlet for coupling to a source of aspirating gas, an exhaust outlet and a sump line inlet;
(d) a sump line connected to said exit region and extending to the aspirator sump line inlet for conducting gas flowing through the exit region to the aspirator;
(e) a return tube extending from said aspirator exhaust outlet to the interior of said waste gas chamber for conducting excess sample gas and aspirator gas thereto;
(f) a sub-sample tube connected to the exit region at one end and couplable at its other end to a gas monitor; and
(g) an adiabatic cooling chamber having a cooling gas inlet and outlet, said chamber enclosing at least a portion of said sub-sample tube for cooling sub-sample gas therein below the ambient dew point so that resultant condensate from the sub-sample gas falls back into the flow of sample gas and is conducted thereby to the aspirator and then out through said return tube into said waste gas chamber.

4,336,723
POWER TRANSMISSION

Jose M. Barcita, 2809 Oakland Ave., Richmond, Va. 23228

Division of Ser. No. 946,732, Sep. 28, 1978, Pat. No. 4,236,416.
This application Sep. 5, 1980, Ser. No. 184,268
Int. Cl.³ F16H *21/22*; G05G *1/00*
U.S. Cl. 74—44 3 Claims



1. A power transmission for a plurality of in line reciprocating piston and cylinder devices, comprising a power shaft having an axis from which said piston and cylinder devices are radially spaced, a plurality of eccentric discs corresponding in number to said piston and cylinder devices spaced along said power shaft and made fast thereto, each of said eccentric discs being interposed between a different one of said piston and cylinder devices and said power shaft, an eccentric strap bearing on each of said eccentric discs, a pair of cranks journaled on opposite sides of each eccentric strap, each of said cranks having a crankpin connecting said crank to one side of a respective one of said eccentric straps and a crankshaft rotatable about an axis parallel to said power shaft, each of the crank shafts being axially aligned with all of the other crankshafts, and a plurality of pitmans, each pitman connecting a different one of said pistons to the eccentric strap interposed between the respective piston and power shaft, the throw of each pair of cranks being parallel to the throw of the eccentric strap to which the pair is connected, said eccentrics having a throw substantially greater than the throw of said cranks so that a positive mechanical advantage is obtained by said power transmission in the transfer of power from said pistons to said power shaft.

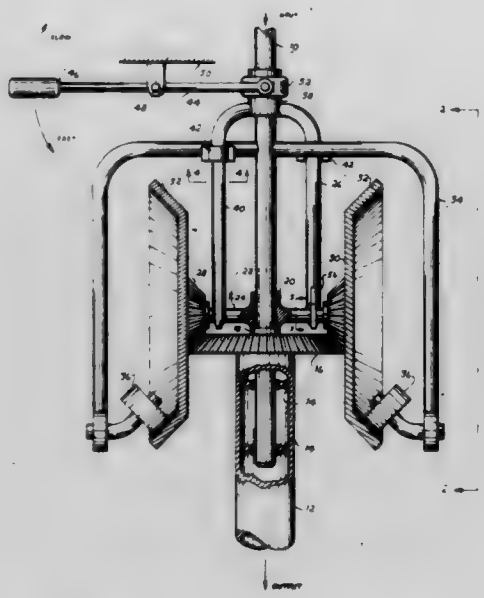
4,336,724
VARIABLE SPEED TRANSMISSION

Pete Mize, Rte. 3, Comanche, Tex. 76442

Filed May 28, 1980, Ser. No. 154,001
Int. Cl.³ F16H *3/44, 57/10*
U.S. Cl. 74—750 R 9 Claims

1. A variable speed transmission comprising in combination
a. an input shaft,
b. an output shaft coaxial with the input shaft,
c. a bevel gear with teeth coaxial with and rigidly fixed to the output shaft,
d. a cross shaft journalled to the input shaft,

e. at least one pinion with teeth journalled on the cross shaft and having its teeth engaged with the gear teeth,
f. a disc rigidly fixed to the pinion,
g. a rim on the disc,
h. a roller engaging the rim of the disc, so arranged and constructed that the gear is between the roller and pinion,



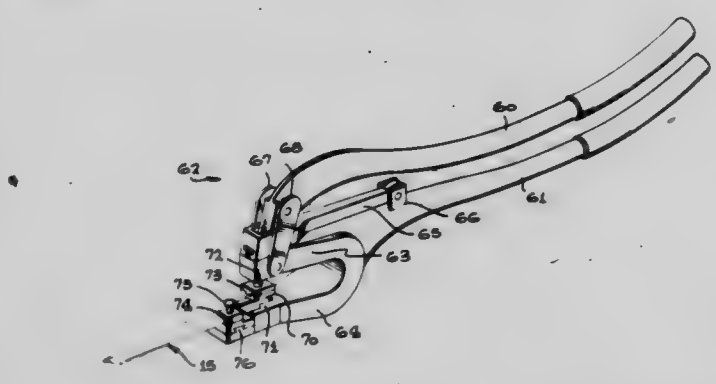
i. a bracket rigidly fixed to the input shaft,
j. said roller journalled to said bracket, and
k. fork means attached to the input shaft for angularly moving the cross shaft on the input shaft.

4,336,725

APPARATUS FOR REPRODUCING CODED CONTOUR SHAPES IN SAW BLADES

Dennis O. Patterson, 11842 Victory Blvd. #11, North Hollywood, Calif. 91606

Filed May 2, 1980, Ser. No. 146,070
Int. Cl.³ B26F *1/36, 1/40*
U.S. Cl. 76—25 R **6 Claims**



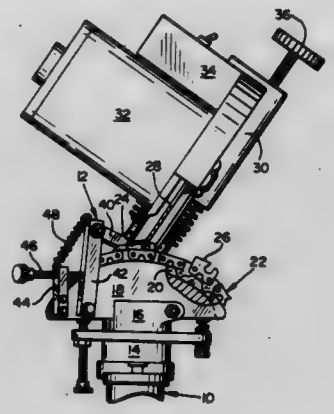
1. An apparatus for reproducing a coded portion of a saw blade in a severed or broken saw blade comprising the combination of:
a support block;
a movable plunger operably carried over said support block;
a die set having one die member fixed on said support block and the other die member carried on said plunger;
said die set members aligned with respect to each other so as to lie on a common axis;
said die set members having opposing faces carrying a cutting die shaped in the form of the coded portion intended to be reproduced;
a clamping and squaring means carried on said support block immediately ahead of said die set for receiving and holding the severed or broken saw blade so as to lie between said die set members;
said plunger adapted to receive applied force urging said die set members together to form said saw blade;
said apparatus is of a plier type having a pair of jaws; and
said plunger operating through a selected one of said jaws effecting closure of said die set members together to form said saw blade.

4,336,726

CHAIN STOP FOR SAW CHAIN GRINDER

Elmer R. Silvey, 1231 Dutton Rd., Eagle Point, Oreg. 97524

Filed May 8, 1980, Ser. No. 148,168
Int. Cl.³ B23D *63/16*
U.S. Cl. 76—25 A **6 Claims**



1. A machine for sharpening the cutter links of a saw chain having both cutter links and connecting drive links comprising a grinding wheel, means for supporting the grinding wheel for rotation in a first plane, a holder for supporting the saw chain in a second plane so that a cutter link located in a sharpening station on the holder will have its cutting edge oriented properly for sharpening by the grinding wheel, and a chain stop mechanism mounted adjacent to the sharpening station for holding the cutter link in proper position in the sharpening station, the chain stop mechanism being characterized by:
a pawl pivotally supported for free rotational movement rearwardly of a rotatable working end, a first surface on the rotatable end adapted to contact an outer surface of the cutter link to resist the tendency of the cutter link to lift away from the holder during sharpening, and a second surface on the rotatable end adapted to contact a rearward surface of the cutter link to resist the tendency of the cutter link to move away from the grinding wheel during sharpening; and
adjustable limiting means cooperable with the pawl for establishing a lower limit position independent of the saw chain, said limit position being vertically adjustable to accommodate different size saw chains and below which the rotatable end of the pawl cannot drop and permitting free swinging movement of the rotatable end away from the lower limit position to allow the rotatable end to swing above the cutter link by engagement with the cutter link as it passes underneath, the lower limit position being spaced apart from the path of the connecting drive links, the limiting means being operable to enable the rotatable working end of the pawl to automatically drop freely into the lower limit position to engage the cutter link as it reaches the sharpening station with the first surface of the rotatable end in contact with the outer surface of the cutter link and the second surface of the rotatable end in contact with the rearward surface of the cutter link.

4,336,727

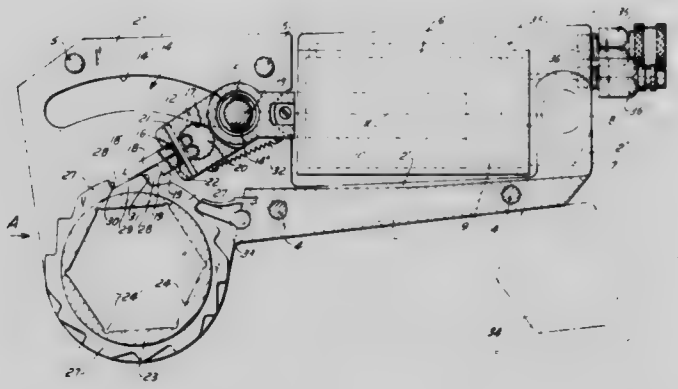
HYDRAULIC WRENCH FOR LIMITED SPACE APPLICATION

John K. Junkers, 7 Arrowhead La., Saddle River, N.J. 07458

Filed Feb. 28, 1980, Ser. No. 126,859
Int. Cl.³ B25B *13/46*
U.S. Cl. 81—57.39 **17 Claims**

1. A hydraulic wrench comprising support means; fluid operated means including a cylinder having an axis and being mounted on said support means against movement in axial

direction, a piston reciprocatable along said axis in said cylinder and a piston rod fixed to said piston for reciprocation therewith; a socket having an outer cylindrical surface and being mounted on said support means for turning about a second axis substantially normal to and laterally of said cylinder, said socket being formed with a passage of polygonal cross-section therethrough extending along said second axis for engagement with a polygonal head of a threaded connector to be turned, the corners of said polygonal passage being closely adjacent to said outer peripheral surface of said socket; and ratchet means between said fluid operated means and said



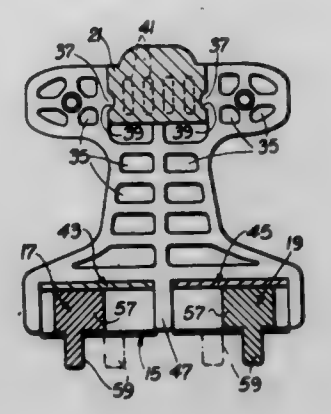
socket for turning the latter about said second axis during reciprocation of said piston in said cylinder, said ratchet means comprising pawls means tiltably connected to said piston rod and a ratchet wheel fixed to said outer peripheral surface of said socket, said ratchet wheel having an outer cylindrical rim concentric with said outer surface and having a series of circumferentially spaced solid uninterrupted portions respectively arranged in the regions of said corners of said passage and gear teeth in said rim between said solid portions to be engaged by said pawl means, so that considerable forces may be used for tightening the head of a threaded connector without any danger of destroying said socket or said ratchet wheel.

4,336,729

COMPOSITE TOOL

Lawrence C. Eppenbach, 419 Kennedy St., Juneau, Ak. 99801

Filed Aug. 4, 1980, Ser. No. 174,883
Int. Cl.[3] B25B *23/00*
U.S. Cl. 81—439 8 Claims



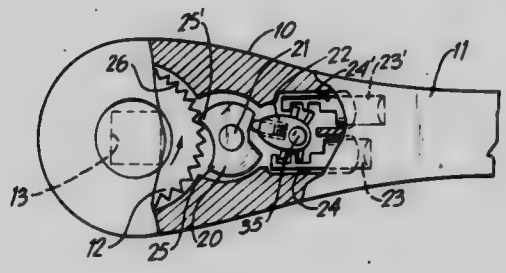
1. A composite tool comprising:
first and second half sections of plastic material;
means for attaching said half sections to each other to form a tool body, a first portion of said tool body defining a handle;
a channel assembly mounted within a second portion of said tool body and spaced from said handle portion;
first and second pin members mounted within said channel assembly for movement toward and away from each other;
each of said pin members having a workpiece engaging section extending from the tool body and adapted to engage a workpiece and apply torque thereto; and
said channel assembly including a first channel having at least one of said pin members mounted therein, said first channel including at least one shoulder projecting from said channel and received by a corresponding groove in at least one of said half sections to thereby at least assist in mounting said first channel on said tool body.

4,336,728

PUSH-BUTTON REVERSIBLE RATCHET AND PAWL SOCKET WRENCH HANDLE

Raymond L. Deibert, 105 Milford Ave., Greenmount, Wilmington, Del. 19809

Filed Oct. 8, 1980, Ser. No. 195,186
Int. Cl.[3] B25B *13/46*
U.S. Cl. 81—62 8 Claims



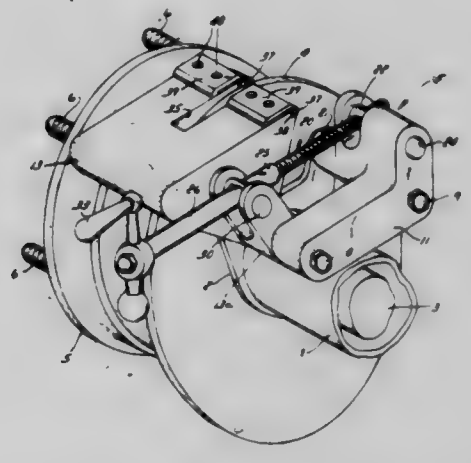
1. A cam rod operated reversible ratchet and pawl for use in a reversible socket wrench handle comprising:
a ratchet wheel;
a pivotably mounted pawl having a front end in contact with said ratchet wheel and a back end;
a pivotably mounted actuator comprising at least one driving surface and a resiliently mounted pin in contact with said back end of the pawl, and at least two cam rods slideably mounted in said wrench handle, extending through said handle and engaging the driving surface on the actuator.

4,336,730

FIXTURE FOR RESURFACING VEHICLE BRAKE DISCS

William L. Kopecko, P.O. Box 183; Robert L. Fuller, 309 Alban St., and Joseph O. Duchac, Rte. 6, all of Rhinelander, Wis. 54501

Filed Jul. 23, 1980, Ser. No. 171,312
Int. Cl.[3] B23B *5/04*
U.S. Cl. 82—4 A 5 Claims



1. A resurfacing tool fixture for simultaneous resurfacing opposite sides of a brake disc of a wheel of a vehicle without removing said disc from said vehicle but when said wheel has been removed; said fixture comprising a swingable tool holder frame, means for pivotally mounting said frame on said vehicle, adjustable means for swinging said swingable frame rela-

tive to said disc, a pair of cutting tools carried by said swingable tool holder frame, one on each side of said disc for simultaneous cutting contact with opposite sides of said disc as said swingable frame is swung by said adjustable means.

2. A resurfacing tool fixture for simultaneous resurfacing opposite sides of a brake disc of a wheel of a vehicle without removing said disc from said vehicle but when said wheel has been removed; said fixture comprising a fixed frame rigidly and removably mounted on said vehicle, a swingable tool holder frame having a pivotal mounting on said fixed frame, adjustable means for swinging said swingable tool holder frame relative to said fixed frame and said disc, said swingable tool holder frame defining a slot therein for receiving said disc in said slot, a pair of cutting tools carried by said swingable tool holder frame, one on each side of said slot and adjacent said disc for simultaneous cutting contact with opposite sides of said disc as said swingable tool holder frame is swung about its pivotable mounting by actuation of said adjustable means.

4,336,731

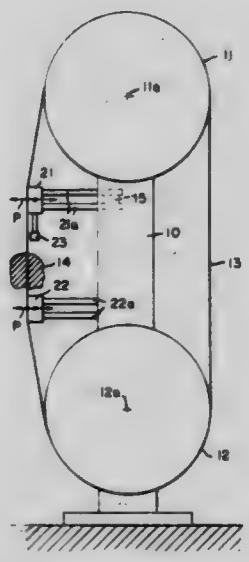
BAND SAWING MACHINE HAVING MEANS TO APPLY CORRECTIVE TWIST TO THE BLADE

Urban Eklund, Soderhamn, Sweden, assignor to Kockums Industri AB, Malmo, Sweden

Continuation-in-part of Ser. No. 873,263, Jan. 30, 1978, which is a continuation-in-part of Ser. No. 709,852, Jul. 29, 1976, Pat. No. 4,085,636. This application Mar. 20, 1980, Ser. No. 132,287

Int. Cl.³ B23D *55/08*

U.S. Cl. 83—74 **25 Claims**



1. A band saw machine comprising:

a machine stand;

an endless generally planar saw blade having a front edge and a rear edge and a row of teeth formed along the front edge and extending between a top line and a root line;

a pair of spaced-apart pulleys rotatable about respective parallel rotational axes mounted in a common plane on said machine stand, each pulley having a flat peripheral edge and said blade being tensionally disposed on and entrained over opposed portions of said edges on both pulleys such that a planar portion of said blade is maintained in contact with the flat peripheral edges of said pulleys;

a pair of spaced-apart blade guides carried by said machine stand, having a planar guide surface which is substantially parallel to said common plane, said planar surface of said blade being held in contact with said guide surfaces by the inherent tension of said blade such that said blade is free of substantial twist, the portion of the blade between the two blade guides defining a working zone of the blade which is substantially parallel to said common plane, the front face on at least one blade guide being displaceable, during sawing, relative to the machine stand;

a position sensor for continuously sensing, during sawing, lateral displacement of the said working zone of the blade from a position of correct cut and for generating a corresponding electrical signal;

a processing means for receiving the generated signal and processing it into an electrical operative signal; and

driving means receiving the operative signal for applying a corrective force to said planar guide surface on at least one blade guide which is linearly proportional to said operative signal to cause said blade to move laterally in linear proportion to and in the opposite sense of the sensed lateral displacement of the blade irrespective of the direction of the sensed lateral displacement.

4,336,732

DEVICE FOR CUTTING OUT AND TRANSPORTING A SILAGE BLOCK

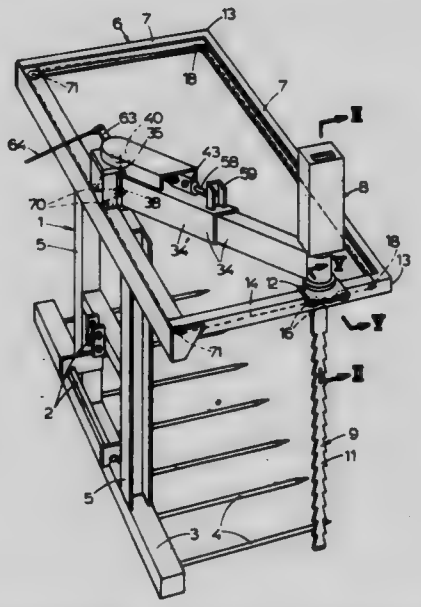
Fredericus Liet, HD Losser, and Cornelis H. Liet, PJ Losser, both of Netherlands, assignors to Trioliet Silo Europe B.V., AE Losser, Netherlands

Filed Jun. 6, 1980, Ser. No. 157,170

Claims priority, application Netherlands, Jun. 8, 1979, 7904534

Int. Cl.³ A01F *25/20*; B65G *65/40*

U.S. Cl. 83—109 **26 Claims**

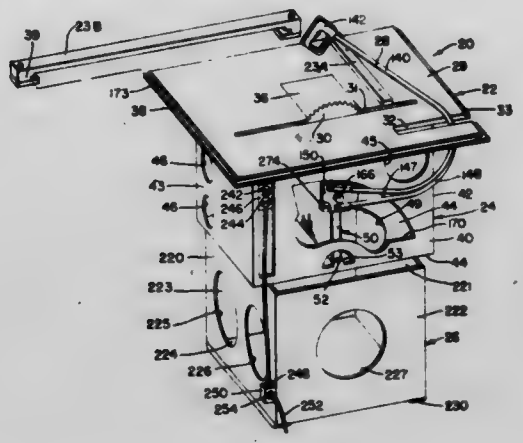


1. A device for cutting out and transporting a silage block, comprising a main frame, means to connect said frame to a tractor, said main frame comprising a substantially horizontal cross-beam, a plurality of substantially horizontal parallel tines attached to said cross-beam, an upstanding main frame part connected to said cross-beam, a substantially horizontal frame member supported at the upper end of said upstanding main frame part, a substantially U-shaped guide member integral with said horizontal frame member, a drive housing operatively engaging said guide member for movement therealong, a sawing means mounted and guided in said drive housing for upward and downward movement, drive means on said horizontal frame member for moving said drive housing along said U-shaped guide member, both corners of said U-shaped guide member remote from the upstanding main frame part being substantially right angle corners, and means for rotating said sawing means at said corners through at least approximately 90° about an axis of rotation which is substantially stationary during this rotating motion and which substantially coincides with the longitudinal center line of the sawing means.

4,336,733
ROCKING ARM SAW

Albert A. Macksoud, R.R. #1, Leamington, Ontario, Canada N8H 3V4

Filed Jun. 6, 1980, Ser. No. 157,073
Int. Cl.³ B27B 5/06, 5/18; B23D 45/04
U.S. Cl. 83—477.2 4 Claims



1. In a saw of the type having a housing including a work piecesupporting surface provided with a slot through which a circular disk-type saw blade may selectively project from beneath said surface, a rocker arm pivotally mounted within said housing for swinging movement about an axis parallel with the rotational axis of said saw blade, motor means secured to said rocker arm for swinging movement therewith and for selectively causing said saw blade to rotate, a manually operable handle secured to said rocker arm and normally projecting above said surface for access by the saw operator, said rocker arm being movable by said handle between a first position wherein said saw blade is completely withdrawn below said surface and a second position wherein said saw blade projects upwardly through said slot for cutting of work pieces located on said surface, said handle permitting an operator to pull said saw blade through a fixed work piece for cutting thereof as said rocker arm blade is pulled from said first position toward said second position, locking means for selectively locking said rocker arm and saw blade in a fixed position relative to said surface to permit said saw to be utilized as a table saw with a portion of said blade projecting upwardly through said slot; the improved arrangement for mounting said motor means and for controlling the movement of said rocker arm comprising:

said motor means being mounted on the end of said rocker arm remote from the pivot axis thereof for swinging movement therewith and being located immediately beneath the underside of said surface when said saw blade projects through said slot, and the drive train from the motor to the saw blade being substantially fully enclosed to block accumulation of saw dust thereon;

resilient means urging said rocker arm from said second position toward said first position to cause said saw blade to be safely withdrawn beneath said surface unless it has been locked in an exposed position or unless a manually applied force is maintained to overcome the biasing force from said resilient means.

4,336,734
DIGITAL HIGH SPEED GUITAR SYNTHESIZER

Robert D. Polson, 1140 S. 500 East, Apt. #2, Salt Lake City, Utah 84105

Filed Jun. 9, 1980, Ser. No. 157,423
Int. Cl.³ G10H 1/00
U.S. Cl. 84—1.01 16 Claims

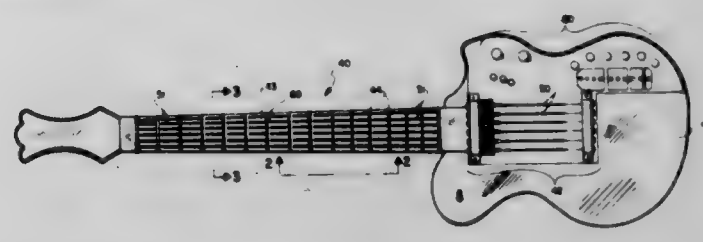
1. An electronic instrument configurated and arranged for operation by approximately the same physical motions involved in playing an electronic guitar to produce electronically generated music, comprising:

an arm with a grid of addresses corresponding to the intersection regions of a plurality of ranks of fret locations and a plurality of files of string locations, each said address being associated with touch-sensitive electronic means in circuit with pitch-control means;

a strum structure including at least one strum switch in circuit with tone-generating means; and

control circuit means interconnecting said pitch control means, said tone-generating means and a power supply,

wherein said touch-sensitive, electronic means associated with an address is a normally-open switching circuit including:



a conductive element carried by said arm and arranged for contact with the palm of the hand of an individual holding the arm to press the fret location of that address in the manner of a guitar player, said conductive element constituting a first contact and

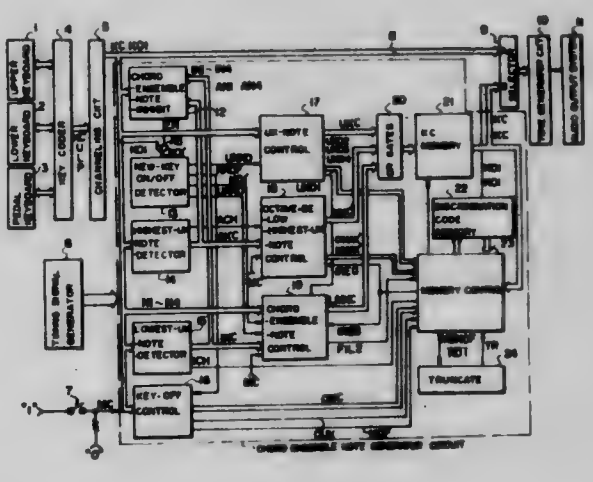
said fret location including a second contact at that address; and

said normally-open switching circuit is adapted to close when said first and second contacts are connected through the hand of an individual holding said arm and touching said fret location at that address.

4,336,735
ELECTRONIC MUSICAL INSTRUMENT GENERATING SUPPLEMENTARY NOTES AUTOMATICALLY ESTABLISHED FROM PLAYED NOTES

Takehisa Amano; Seiya Hamada; Sigeki Isii, and Toshio Takeda, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Dec. 16, 1980, Ser. No. 216,961
Claims priority, application Japan, Dec. 17, 1979, 54/163884
Int. Cl.³ G10H 1/22
U.S. Cl. 84—1.17 18 Claims



1. A polyphonic, keyboard-type electronic musical instrument comprising:

(a) keyboard means including keys for playing notes;

(b) means for generating in response to actuation of said keys primary key data each representative of a first note which is a note played by each of said keys;

(c) means for generating in response to actuation of said keys secondary key data each representative of a second note which is a note other than said first note and having a predetermined relationship to said first note;

(d) tone generator means having a plurality of sounding

channels for simultaneous production of tones in response to said primary and the secondary key data;

(e) first memory means having a plurality of storage channels for storing said primary and the secondary key data and delivering to respective ones of said sounding channels of said tone generator means;

(f) second memory means having a plurality of storage locations, respectively corresponding to the storage channels of said first memory means, each for storing a data representing the discrimination between said primary and the secondary key data stored in each corresponding storage channel of said first memory means; and

(g) control means for causing the first memory means to store in each of said storage channels the primary or the secondary key data as selected in accordance with said data stored in each storage location of said second memory means.

4,336,736

ELECTRONIC MUSICAL INSTRUMENT

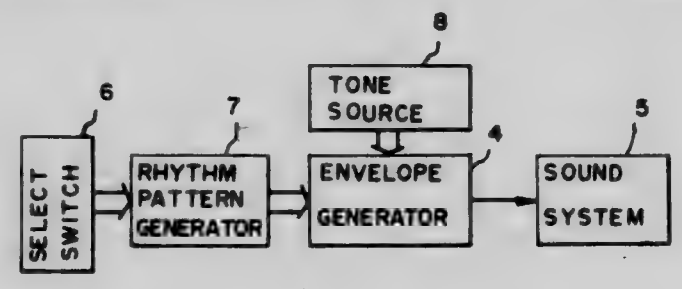
Toshio Mishima, Kitamoto, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Japan

Filed Jan. 28, 1980, Ser. No. 116,000

Claims priority, application Japan, Jan. 31, 1979, 54-10544; Jan. 31, 1979, 54-10545; Feb. 3, 1979, 54-11529; Feb. 5, 1979, 54-12025; Feb. 5, 1979, 54-12026; Mar. 17, 1979, 54-31410; Aug. 4, 1979, 54-99637; Nov. 8, 1979, 54-144816

Int. Cl.³ G10H *1/02*

U.S. Cl. 84—1.26 **7 Claims**



1. An electronic musical instrument comprising:

a rhythm pattern generator producing an external attack signal;

an attack/decay coefficient memory having stored therein coefficients relating to attack and decay times respectively for each of a plurality of external attack signals;

an accumulator for accumulating the coefficients at a constant speed to output the accumulated output signal in response to a clock and outputting attack and decay end signals;

an envelope control circuit for controlling the accumulated output signal from the accumulator by the external attack signal and the attack and decay end signals from the accumulator;

an envelope waveshape memory having stored therein envelope waveshapes, which are read by the accumulated output signal; and

means for inverting the output signal from the envelope waveshape memory by the attack end signal from the accumulator.

4,336,737

RELAY VALVE ASSEMBLY FOR PLAYER PIANOS

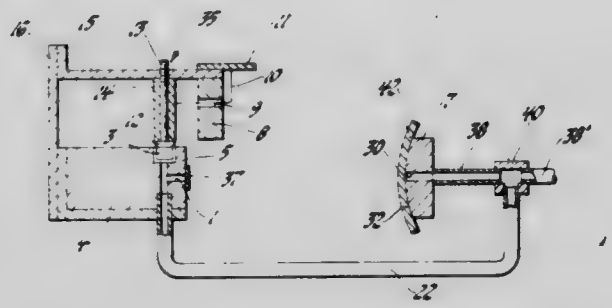
Harry A. Pomber, Sault Ste. Marie, Canada, assignor to Sounds Alive Systems, Inc., Houghton Lake, Mich.

Filed Apr. 21, 1980, Ser. No. 142,088

Int. Cl.³ G10F *5/04*

U.S. Cl. 84—151 **3 Claims**

1. Apparatus for controlling operation of a player piano of the type that generally includes a vacuum source, a tracker bar having an array of holes positioned so as to extend through the tracker bar and be selectively exposed to the atmosphere as a perforated music sheet is passed across the tracker bar, and an array of pneumatic tubes which each connect the vacuum source to one of the tracker bar holes opposite the music sheet, comprising, in combination, an array of "T" connections each of which is inserted in one of said pneumatic tubes; a valve board; an array of holes which each have first and second openings in said valve board; a second array of pneumatic tubes which each connect one of said "T" connections to a first opening of one of said valve board holes; and an array of selectively operable electromagnetic valves which each selectively connect a second opening of one of said valve board holes to the atmosphere in response to an electric signal, each one of said valve board hole second openings including a valve



seat and each one of said electromagnetic valves including a cylindrical free floating magnetic valve having a substantial height positioned so as to be held by gravity on one of said valve seats to prevent one of said valve board hole second openings connecting to the atmosphere and an electromagnet positioned above said cylindrical free floating magnetic valve so as to lift said free floating magnetic valve off said valve seat when said electromagnet is energized whereby said vacuum source may be selectively connected to the atmosphere (A) through said tracker bar holes in response to said music sheet or (B) through said valve board in response to said electric signals.

4,336,738

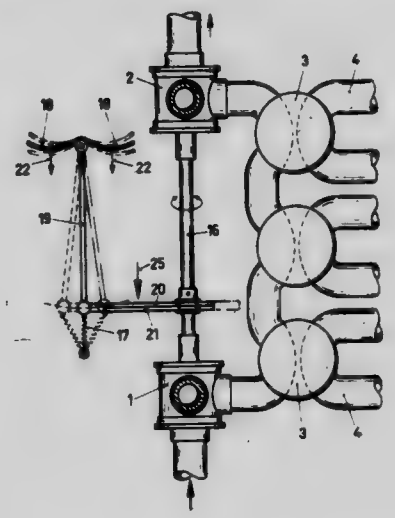
MUSICAL INSTRUMENT

Anton Alexander, Mainz, Fed. Rep. of Germany, assignor to Fa. Gebr. Alexander Rheinische Musikinstrumentenfabrik GmbH, Mainz, Fed. Rep. of Germany

Filed Jun. 10, 1980, Ser. No. 158,224

Int. Cl.³ G10D *9/04*

U.S. Cl. 84—390 **3 Claims**



1. A metallic wind instrument with multiple tuning slide valve blocks and a pair of directional air control valves for selecting one tuning slide valve block, there being only one pair of directional air control valves which directs the air current selectively to one tuning slide valve block, each of said directional air control valves consisting of a cylindrical housing having a plurality of apertures for the passage of air therethrough in the cylinder casing thereof and one aperture for the passage of air therethrough in one axial end wall of the cylin-

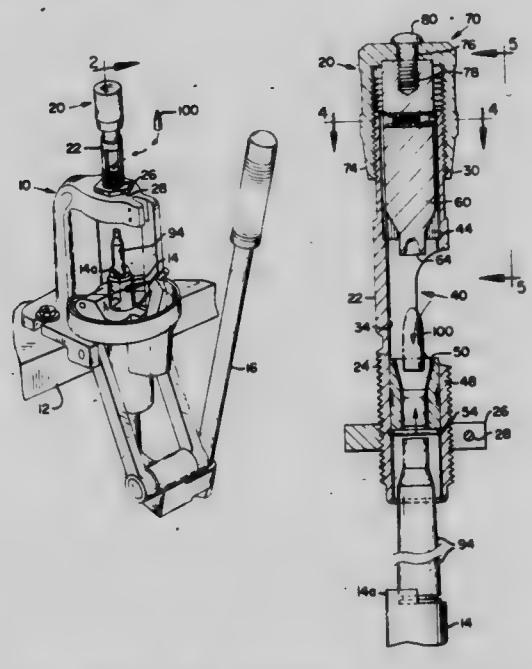
der, and a valve body having an internal passage that is in the form of a pipe elbow and is rotatable in the housing to register with one of the plurality of apertures at one time, wherein the two valve bodies of the pair of directional air control valves are disposed on a common rotating axle which is maintained in one control position by spring tension and is selectively brought into the other control positions by means of a lever mechanism.

4,336,739

BULLET SEATING DIE

Kenneth L. Alexander, Lewiston, Id., assignor to Omark Industries, Inc., Portland, Oreg.

Filed Oct. 2, 1980, Ser. No. 193,100
Int. Cl.³ F42B *11/02*
U.S. Cl. 86—43 **15 Claims**



1. A bullet seating die comprising

a body member having an elongate bore therein,

a bullet seating member mounted in said body member for shifting longitudinally of said bore between selected adjusted positions, and

yieldable stop means operable to produce resistance to adjustment of said seating member at pre-selected intervals of adjustment, which resistance may be manually sensed and overcome to permit readjustment, said stop means comprising a plurality of depressions defined in one of said members and an element on the other of said members yieldably biased into a position to engage said depressions as said seating member is shifted to selected adjusted positions.

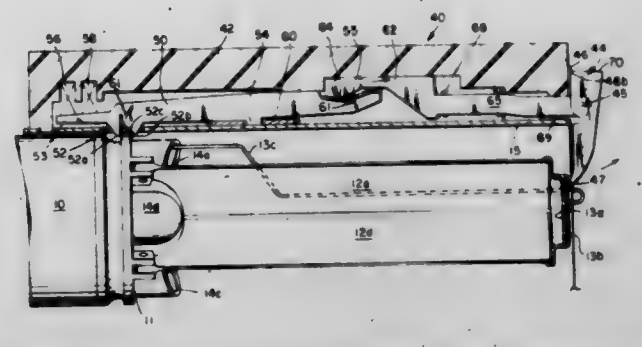
4,336,740

AUTOMATIC BLAST ACTUATED POSITIVE RELEASE MISSILE DETENT

Michael L. Leigh, Agoura, and Richard D. Stubbs, Woodland Hills, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 29, 1978, Ser. No. 974,479
Int. Cl.³ F41F *3/04*
U.S. Cl. 89—1.806 **16 Claims**

12. In a missile launcher having a support slidably supporting a rocket propelled missile, a movable restraining member releasably engaging said missile and restraining said missile against sliding movement along said support, and an arrangement for igniting the propellant of said rocket, the improvement comprising a pivoted rocker disposed as said movable restraining member, and a spring-loaded toggle linkage engaging said rocker and operated by a gas blast from said rocket for pivoting said rocker to release said missile.

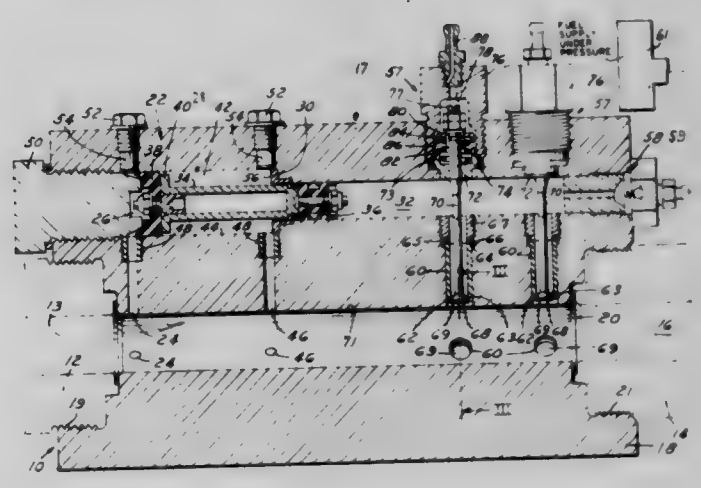


4,336,741

LIQUID PROPELLANT VELOCITY ASSISTANCE SYSTEM FOR GUNS

William R. Baines, Lake Elsinore, Calif., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jan. 17, 1980, Ser. No. 112,779
Int. Cl.³ F41F *1/04*
U.S. Cl. 89—7 **24 Claims**



23. A projectile velocity assistance mechanism for a gun having an initial explosive means constructed to provide an initial hot gas pressure charge;

said mechanism including a bore having a firing chamber end and a muzzle end and through which a projectile is propelled by said hot gas pressure charge;

said mechanism also including a liquid propellant supply and metering means constructed to meter liquid propellant from said supply into said bore at a location intermediate said ends of said bore;

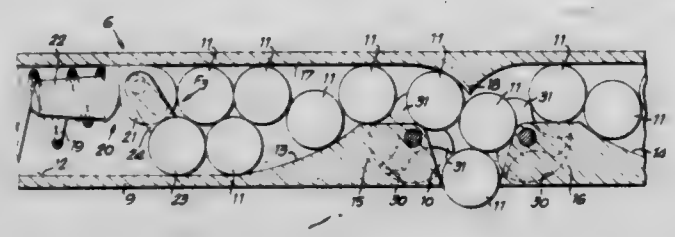
gas pressure responsive means coupled with said metering means and constructed to cause said metering means to meter propellant into said bore at a point in time after said initial explosive means has provided said hot gas pressure charge and a projectile propelled by said charge is between said location and said muzzle end of said bore whereby said propellant is ignited in said bore and increases the gas pressure behind said projectile and thus the velocity of said projectile.

4,336,742

LOADER FOR MACHINE-PISTOL AND SIMILAR

Maurice V. Bourlet, Liege, Belgium, assignor to Fabrique Nationale Herstal, Herstal, Belgium

Filed Oct. 30, 1979, Ser. No. 89,318
Claims priority, application Belgium, Nov. 16, 1978, 57416
Int. Cl.[3] F41C *25/04*
U.S. Cl. 89—34 1 Claim



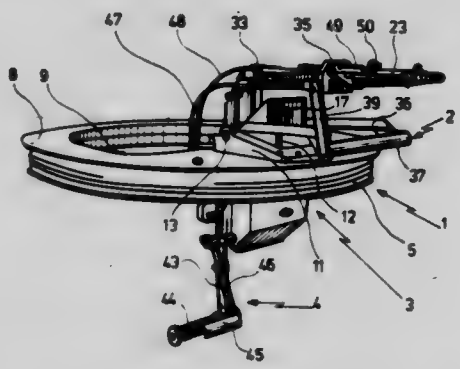
1. Loader for a weapon, including a prismatic tube closed at both ends and having in the central portion of one of its longitudinal walls, a loading-feeding port, and two symmetrical ammunition conveying devices mounted within said tube and each comprising a spring one end of which bears on an adjacent end wall of said closed tube and the other end of which is connected to a plurality of interconnected cylindrical bodies in the tube to permit the complete emptying of the loader, said plurality of cylindrical bodies comprising a first cylindrical body having an oblong slot into which a radial finger of a second cylindrical body adjacent thereto is engaged in order to permit an angular movement and displacement of said second cylindrical body with respect to said first cylindrical body to a position spaced therefrom.

4,336,743

GUN MOUNT FOR LIGHT AUTOMATIC WEAPONS

Kurt Horn, Oberndorf; Walter Müller, Rötenberg, and Adolf Schneider, Altoberndorf, all of Fed. Rep. of Germany, assignors to Heckler & Koch GmbH, Oberndorf, Fed. Rep. of Germany

Filed Jan. 10, 1980, Ser. No. 110,909
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2902992
Int. Cl.[3] F41F *21/14*
U.S. Cl. 89—37 B 17 Claims



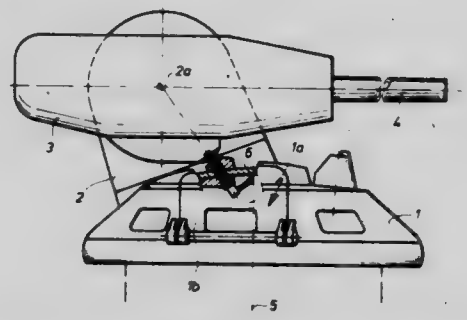
1. A gun mount for light automatic weapons, comprising an upper mount having cradle means for the detachable attachment of the weapon thereto, and having a lower mount having a circular track and being adapted to be attached to a vehicle in such a manner that the upper mount can be rotated about the vertical axis of the circular track together with the weapon, said cradle being pivotable about a horizontal weapon traverse axis aiming means comprising a rigid periscope having fixed reflecting mirrors, whose eyepiece is located below the circular track and whose sight radius is coupled with the traverse motion of the weapon about the weapon traverse axis said aiming means being pivotable about a sight axis which is parallel to the horizontal weapon traverse axis and attached to a blinder having surface areas which are rotationally symmetrical to the sight axis, a connecting rod having one end pivotable about a first traverse axle parallel to the sight axis and rigidly connected to the blinder and the other end articulated about a second traverse axle on said cradle said sight axis, said weapon traverse axis, said first traverse axle and said second traverse axle forming the corners of a parallelogram.

4,336,744

ARMORED VEHICLE

Gert Kausträter, Augsburg, Fed. Rep. of Germany, assignor to Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 27, 1979, Ser. No. 97,647
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1978, 2851604
Int. Cl.[3] F41H *7/02*
U.S. Cl. 89—40 K 12 Claims



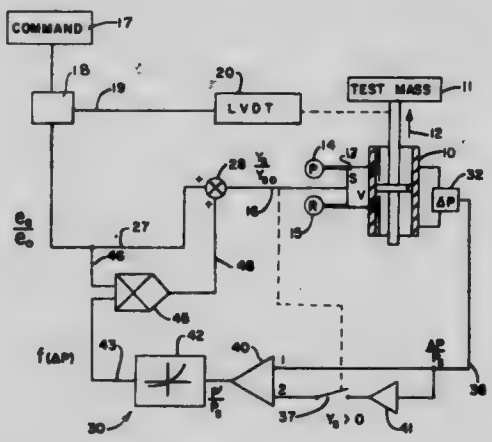
1. In an armored vehicle with a full-circle swivelable turret and with a rapid-fire gun which outside the turret is elevationally aimable on a specific weapon carrier which is constructionally connected with the turret and interacts with mechanical means by which it can together with the weapon be selectively blocked in its zero position ("tied position") or, upon release of the mechanical means ("untied position"), moved into any firing position, the improvement wherein the mechanical means consist essentially of a forced control (**6**, *7a*, **11**) which effects the blocking, release and partial release of the weapon support (**3**) exclusively from the turret interior and which triggers, at least in the blocked position, automatically at least one signalling means (**13**, **14**), the forced control including a gate type guide (*7a*) having cam surfaces defining lock-in positions (*7b*, *7c*, *7d*) which permit movement of an operator (**6**) from a blocking position (*7b*) through a partially released position (*7c*) to a position of release (*7d*) and vice versa.

4,336,745

SERVOVALVE FLOW LINEARIZATION CIRCUIT

Richard A. Lund, Chaska, Minn., assignor to MTS Systems Corporation, Eden Prairie, Minn.

Continuation of Ser. No. 929,573, Jul. 31, 1978, abandoned. This application Feb. 22, 1980, Ser. No. 123,720
Int. Cl.[3] F15B *21/02, 13/16*
U.S. Cl. 91—35 5 Claims



1. A flow control linearizing circuit for obtaining desired flow rates from a servovalve having a spool and having a pair of output passageways coupled to an actuator having means

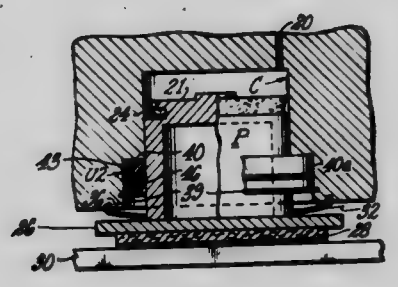
for reciprocating a load in a loading cycle which results in different differential pressures at the output passageways of the servovalve during the loading cycle, the flow in said output passageways being a function of a spool position input command signal provided to said servovalve and which changes in sign between negative and positive during the loading cycle, and including means providing an error control signal representing a combined programmed command signal and feedback signal, wherein the improvement comprises means to compensate the error control signal including means to provide a signal representative of the differential pressure at the output passageways of the servovalve during operation, means to process said signal from said means to provide and to deliver a processed signal which is a desired function of the signal from the means to provide and is correlated to the sign of the spool position input command signal, function generator means coupled to said means to process to provide a predetermined output compensation signal as a function of said processed signal, and means to combine said compensation signal with said error control signal to adjust the error control signal as a function of the signal representing differential pressure and provide an output comprising the spool position input command signal whereby the spool position input command signal controls the servovalve to provide output flows from the servovalve that are substantially linear during changes of said differential pressure at the output passageways.

4,336,746

SELF RETRACTING PISTON APPLICABLE FOR DISK BRAKE ASSEMBLIES

Franklin J. Morith, 2112 Lee Ave., South El Monte, Calif. 91733

Filed Nov. 21, 1980, Ser. No. 209,049
Int. Cl.³ F01B *31/00*; F16J *15/18*
U.S. Cl. 92—130 B **6 Claims**



1. In combination, a first member comprising a piston, a second member comprising a wall circumferentially surrounding said piston and defining a piston chamber for receiving said piston, and means for applying and relieving operating pressure to the piston for its axial extension and retraction within the piston chamber:

a retraction control unit surrounding the piston and carried by one of said members disposed axially slidable relative to the other said member, said unit comprising a positioning bracket holding a pair of coaxial rings within a peripheral recess formed in one of said members along said interface, a first one of said rings being an axially compressible, resilient ring, and a second one being a radially tensioned anchorage ring formed with a pair of generally parallel, circumferential faces, radially spaced apart and surrounding said piston, one of said parallel faces being disposed surrounding said piston so as to define an axial slideway for reciprocable movement of the piston, and the other parallel face being radially tensioned so as to frictionally engage one of said members for anchorage of the control unit thereto,

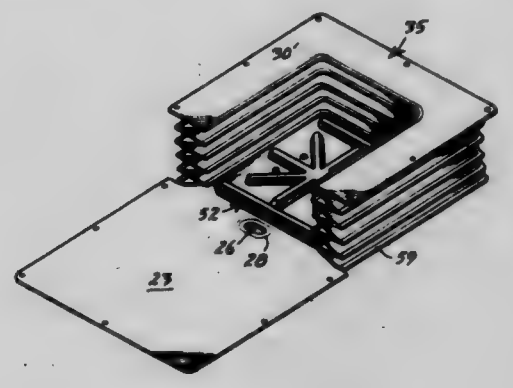
stop means disposed along said slideway adjacent said control unit and positioned to limit the axial compression of said first ring when effected by extension of the piston to an operating position, whereby upon release of operating pressure, resilient expansion of said first ring by the amount of its compression causes retraction of the piston by a corresponding amount.

4,336,747

PRODUCT AND METHOD OF MAKING BELLOWS

Ray S. Totty; Gary N. Love, and Jeffrey L. Zolot, all of Columbia, Tenn., assignors to Packaging Associates, Inc., Columbia, Tenn.

Filed Apr. 28, 1980, Ser. No. 144,290
Int. Cl.³ F01B *19/00*
U.S. Cl. 92—43 **9 Claims**



1. A bellows comprising:

(a) a top panel of plastic sheet material having front, side and rear edges,

(b) a bottom panel of plastic sheet material having front, side and rear edges, the rear edge of said bottom panel integrally joining the rear edge of said top panel to form a hinged connection,

(c) a generally U-shaped, accordion-like wall comprising a plurality of vertically stacked, substantially U-shaped gussets, including a top gusset and a bottom gusset,

(d) each of said gussets being formed of a strip of flexible plastic sheet material and comprising a continuous front portion and opposed side portions coplanar with said strip of sheet material, each gusset having an inside edge and an outside edge,

(e) means integrally and continuously joining alternate adjacent pairs of said inside edges and said outside edges to form said accordion-like wall having expansible front and side wall portions,

(f) means integrally and continuously joining the outside edges of the top and bottom gussets to said top and bottom panels, respectively, to form an air chamber between said top and bottom panels and said accordion-like wall,

(g) an air inlet extending through one of said top or bottom panels to communicate with said air chamber, and

(h) a spacer member within said air chamber of generally uniform height for engaging and separating said top and bottom panels when said bellows is in its collapsed position.

4,336,748

FLUID EXCHANGER

Stanley I. Martin, Ailsa Craig, and Edward J. Martin, Ballinafad, both of Canada, assignors to Axis Products Limited, Ballinafad, Canada

Continuation-in-part of Ser. No. 74,241, Sep. 30, 1979, abandoned. This application Dec. 5, 1980, Ser. No. 213,465
Int. Cl.³ F24F *13/00*
U.S. Cl. 98—33 A **9 Claims**

7. A vent means for buildings and the like said means comprising:

ducting means defining separate first and second ducts side by side and having spaced apart parallel axes and having inside and outside ends;

a fan mounting frame means attached on the inside end of said ducting means, and being releasably movable relative thereto;

inlet fan means mounted on said frame means in communication with said first duct for introducing air into said building;

outlet fan means mounted on said frame means in communication with said second duct for drawing air from the interior of said building through said second duct;

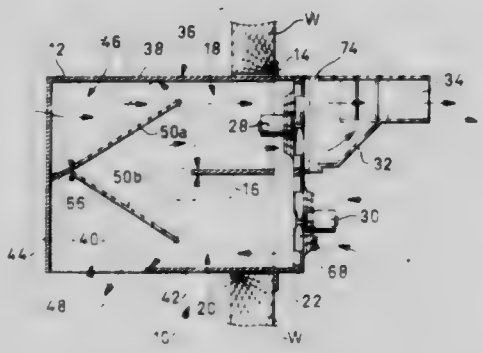
transfer chamber means communicating with the outer end of said ducting means;

air intake means communicating with one portion of said transfer chamber means for admitting fresh atmospheric air;

air outlet means communicating with another portion of said transfer chamber means for discharge of air therefrom, said transfer chamber means communicating with both said ducts of said housing means and permitting transfer of air from one duct to the other;

first and second damper blade means moveably mounted within said transfer chamber means;

swingable mounting means mounting said blade means along adjacent edges, with their swinging axes being spaced



apart and parallel to one another and located between said intake and outlet means in said chamber means, and with their opposite edges being free and directed towards said ducting means, said damper blade means, when swung together lying parallel side by side in closely overlying relation and substantially dividing said transfer chamber means into two parallel duct extensions constituting endwise extensions of said first and second ducts, having central axes that are parallel and spaced apart, whereby transfer of air from one said duct to the other is substantially eliminated and when swung apart, said first blade means moves into the path of said first duct and said second blade means moves into the path of said second duct thereby causing transfer of at least some air from said second duct back into said first duct;

linkage means interconnecting said damper blade means whereby the same move in unison in opposite directions, and,

power operated means connected with said damper blade means for moving the same.

4,336,749

FAN HOUSING UNIT AND MOUNTING DEVICE THEREFOR

David A. Barnhart, Madiera; John E. Kroger, Centerville, and David A. Walters, Middletown, all of Ohio, assignors to The Celotex Corporation, Tampa, Fla.

Filed Apr. 18, 1979, Ser. No. 31,268
Int. Cl.³ F24F *7/00*
U.S. Cl. 98—43 R **16 Claims**

1. A fan housing assembly for attachment to a supporting structure of an enclosure to be exhausted comprising:

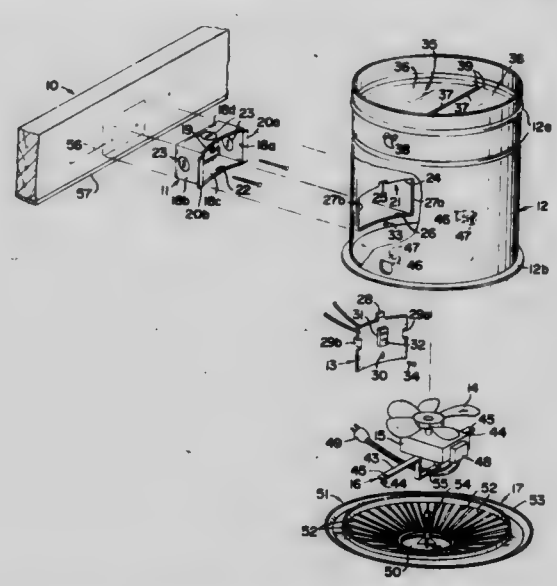
(a) a fan housing comprising a generally cylindrical hollow casing which includes openings at its two ends and means securing said casing to said supporting structure, said casing being vertically positioned on said supporting structure, with the opening at its lower end serving as an air intake opening and the opening at its upper end serving as an air discharge opening,

(b) a blower means for drawing air from said enclosure and blowing the same through said casing to the outside thereof,

(c) an air permeable, decorative grill covering said air intake opening of said casing,

(d) support means for said blower means and said decorative grill, and

(e) a damper member comprising two semicircular plates having their straight edges closely adjacent one another and disposed to either side of a diametrical plane through said casing, each of said plates being rotatably mounted in the top portion of said casing by means of two half-cylin-



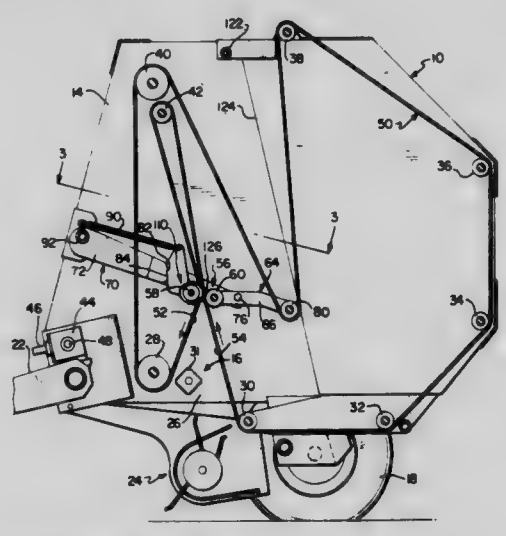
drical tabs projecting from the two opposite ends of its straight edge through cooperating apertures in said casing wall, said cooperating apertures being not fully circular holes, said plates being supported in a generally horizontal position blocking said air discharge opening of said casing with the flat diametrical surface of each of said tabs in a generally horizontal position, and being rotatable by air blown through said casing to a generally vertical position not blocking said air discharge opening, wherein said flat surface of each of said tabs assumes a generally vertical position, said plates being normally biased to said generally horizontal blocking position.

4,336,750

STRAY CROP BUILDUP EXPELLER FOR ROTARY BALERS

Bruce L. White, North Newton, and Bobby D. McWhirt, Hesston, both of Kans., assignors to Hesston Corporation, Hesston, Kans.

Filed Aug. 18, 1980, Ser. No. 179,048
Int. Cl.³ B30B *5/06;* A01D *39/00*
U.S. Cl. 100—88 **4 Claims**



1. In a rotary crop baler:

a pair of spaced apart sidewalls defining a baling chamber therebetween;

a pair of spaced apart arms shiftable generally vertically within said chamber adjacent opposite ones of said sidewalls;

a pair of shafts spanning said arms for shiftable movement therewith and normally bearing against and riding upon the upper periphery of a bale during its formation,

said shafts being transversely spaced apart a sufficient distance to define a gap therebetween;

a flexible, driven web disposed within said chamber for rolling crop material into a cylindrical bale,

said web including a pair of stretches in engagement with opposite ones of said shafts and normally driven in mutually opposite, generally vertical directions through said gap,

one of said shafts and web stretches normally operating in a direction to move the one stretch generally downwardly away from said gap and toward a bale forming in the chamber,

the other of said shafts and web stretches normally operating in a direction to move the other web stretch generally upwardly away from the forming bale and toward said gap; and

means carried only by said one shaft for engaging and expelling stray crop material from the vicinity of said shafts during bale formation,

said engaging and expelling means including a pair of devices adjacent opposite ends of said one shaft, each located between the corresponding arm and the proximal edge of the web stretch associated with said one shaft.

4,336,751

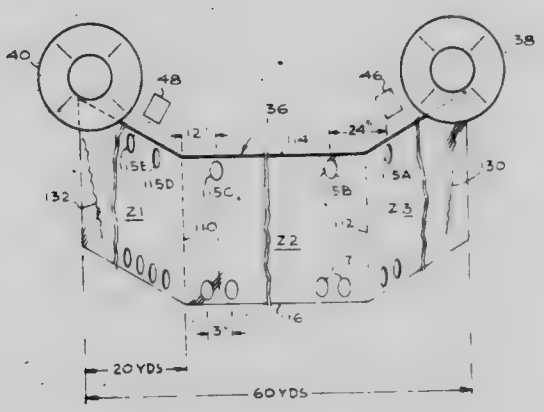
APPARATUS FOR PRODUCING A MULTIPLE COLOR HARD COPY IMAGE

Raymond F. Melissa; Lorne H. Grummett, both of Costa Mesa, and Joseph J. Fischer, Santa Ana, all of Calif., assignors to Trilog, Inc., Irvine, Calif.

Division of Ser. No. 31,076, Apr. 18, 1979, Pat. No. 4,289,069. This application Mar. 6, 1981, Ser. No. 241,448

Int. Cl.³ B41J *7/70*

U.S. Cl. 101—93.04 **18 Claims**



1. A printer/plotter apparatus for use in combination with a source of data signals identifying a first color and a first pattern to be printed in said first color and a second color and a second pattern to be printed in said second color, said apparatus comprising:

a plurality of substantially identical individually actuatable dot hammers mounted for impacting along a line defining a print station;

paper control means for moving an elongated paper web selectively in first and second opposite directions along a path extending substantially perpendicular to said print station line;

ribbon control means including an elongated ribbon comprised of at least first and second zones of different first and second colors, each zone extending along a different portion of the length of said ribbon, and means for moving said ribbon along a path extending between said print station line and said paper path, said ribbon control means including means responsive to said first color identified by said data signals for moving said ribbon to position said first zone of said ribbon adjacent said print station line and responsive to said second color identified by said data signals for moving said ribbon to position said second zone of said ribbon adjacent said print station line; and

hammer driver means responsive to said data signals for selectively actuating said dot hammers to cause the actuated hammers to impact said ribbon and paper to print substantially identically shaped dots on said paper along said print station line;

said paper control means including means for incrementally moving said paper web in said first direction past said print station to sequentially print said first pattern when said ribbon first zone is adjacent said print station line and said second pattern when said ribbon second zone is adjacent said print station line and including means for moving said paper web in said second direction prior to printing said second pattern whereby said first and second patterns can be printed within the same area of said paper web.

4,336,752

PRINTING APPARATUS OF CHARACTER WHEEL SELECTION, STOP AND SIMULTANEOUSLY PRINTING TYPE

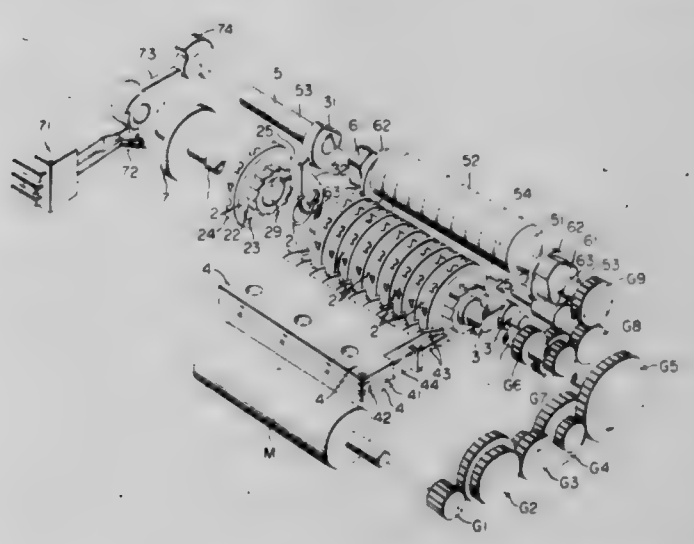
Osamu Asakura, Tokyo, and Mineo Nozaki, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 94,789

Claims priority, application Japan, Nov. 28, 1978, 53/146786; Nov. 28, 1978, 53/146787; Nov. 28, 1978, 53/146788; Nov. 28, 1978, 53/146789; Nov. 28, 1978, 53/146790; Nov. 28, 1978, 53/146791; Mar. 23, 1979, 54/34509

Int. Cl.³ B41J *1/44*

U.S. Cl. 101—99 **5 Claims**



1. A printing apparatus of the character wheel selection, stop and simultaneously printing type comprising:

a plurality of character wheels;

a shaft rotatably bearing said character wheels;

a plurality of friction springs engaged with said character wheels each having a normally smaller inner diameter than the diameter of said shaft to frictionally engage the circular surface thereof and thereby transmit a rotational force from said shaft to said character wheels;

a ferro-magnetic member provided on a side of each of said character wheels;

a comb-tooth-like magnetic plate having a permanent magnet and being magnetically engagable with said ferro-magnetic members to thereby apply a restraining force to said character wheels;

a plurality of coils each associated with a character wheel for disengaging said magnetic plate from said ferro-magnetic members at selected times, thereby causing associ-

ated character wheels to rotate with said shaft under the rotational forces transmitted by said springs;

stop means for simultaneously causing each of said character wheels to be stationary at a prescribed printing position;

an eccentrically mounted printing platen for effecting printing when said plural character wheels are caused to be stationary by said stop means;

gears for rotating said shaft and said printing platen; and

a motor engaged with said gears;

wherein, during a first rotation of said shaft, said coils are selectively energized to cause associated character wheels to rotate therewith, during a second rotation of said shaft, said stop means causes said character wheels to be stationary at prescribed printing positions and said platen effects printing, and during a third rotation of said shaft, said stop means releases said character wheels causing them to rotate to prescribed reset positions to be there restrained by said magnetic plate.

4,336,753

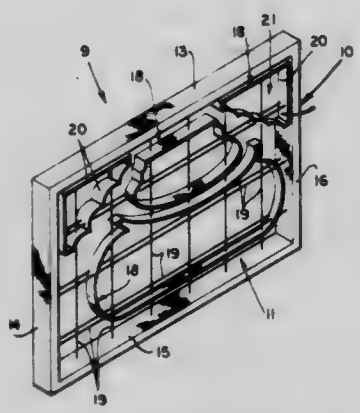
RUG PRINTING SYSTEM

Ted Vidalis, P.O. Box 1875, Dalton, Ga. 30720

Continuation of Ser. No. 919,862, Jun. 28, 1978, abandoned. This application Sep. 5, 1980, Ser. No. 184,400

Int. Cl.³ B41N *1/24*; B41F *15/04*; B05C *17/06*

U.S. Cl. 101—127 **2 Claims**



1. A stencil, for use in dye printing pile fabric wherein said stencil is placed against said fabric and at least two different dyes are applied through said stencil to dye said pile fabric, said stencil including a generally rigid frame disposable beyond the area to be printed, a plurality of divider walls within the confines of said frame for separating the pile of said pile fabric, each divider wall of said plurality of divider walls being disposable perpendicularly to said pile fabric and having a lower edge for engaging the backing of said pile fabric, means for supporting said divider walls comprising a first plurality of wires fixed to said frame and extending across said frame in a first direction generally parallel to the plane of said pile fabric, a second plurality of wires fixed to said frame and extending across said frame in a second direction generally parallel to the plane of said pile fabric, said second direction being angularly related to said first direction, each divider wall of said plurality of divider walls being fixed to at least some of said first plurality of wires and said second plurality of wires, and further including a third plurality of wires fixed to said frame and extending parallel to said first plurality of wires, each wire of said third plurality of wires being above one wire of said first plurality of wires, said second direction being generally perpendicular to said first direction.

4,336,754

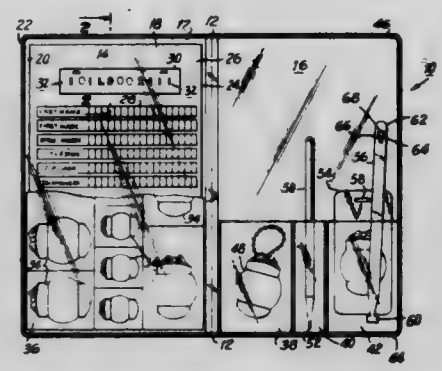
PROPERTY IDENTIFICATION SYSTEM

Warner Loeb, Stony Brook, N.Y., assignor to Identifax Nationwide Registry, Stony Brook, N.Y.

Continuation-in-part of Ser. No. 959,088, Nov. 9, 1978, abandoned, which is a continuation of Ser. No. 743,643, Nov. 22, 1976, abandoned. This application Oct. 3, 1980, Ser. No. 193,483

Int. Cl.³ B41L *13/12*; B41F *15/02*; B42D *3/12*

U.S. Cl. 101—127 **1 Claim**



1. A plurality of stencils for the marking of personal property with owner identification symbols, each stencil bearing a unique permutation of symbols and being assignable to one specific person who is an owner of personal property, each stencil comprising an elongated flat strip of flexible material, each stencil having a group of openings aligned substantially in a line, each of said openings being shaped to correspond to a recognizable symbol, a scribing tool having a hard pointed scribing tip for cooperating with said openings to engrave on items of personal property a group of symbols corresponding to the group of openings on the stencil, whereby the group of symbols thus scribed onto items of personal property with each stencil are the same for a specific person, at least two of said symbols at individually interspersed predetermined fixed spaced positions in the group of symbols on each stencil of the plurality of stencils being identical for all of the plurality of stencils and constituting identical master symbols identifying a specific master code list that is different for every different plurality of stencils, the balance of the symbols of each stencil, in combination with said two symbols, being a unique permutation different from the permutations of symbols on each of the remainder of the plurality of stencils, whereby the group of symbols on every single stencil is distinctly different from the group of symbols on every other stencil of the plurality of stencils by virtue of the unique permutation of symbols carried thereby, exclusive of said two symbols, and is the same as every other stencil of said plurality of stencils in respect of the common two said symbols, so that the singular group of symbols on each stencil can be associated with a specific owner of personal property and all of said singular groups of the plurality of stencils when engraved on an item of personal property can be associated with a single master list identified by said two symbols and each group can be associated with a common specific owner on said common specific master list.

4,336,755

DEVICE FOR THE AXIAL AND THE RADIAL SETTING OF THE FORM CYLINDER FOR REGISTER PRINTING

Zbynek Liska, Adamov, Czechoslovakia, assignor to Adamovske strojirny, narodni podnik, Adamov, Czechoslovakia

Filed Aug. 6, 1980, Ser. No. 175,879

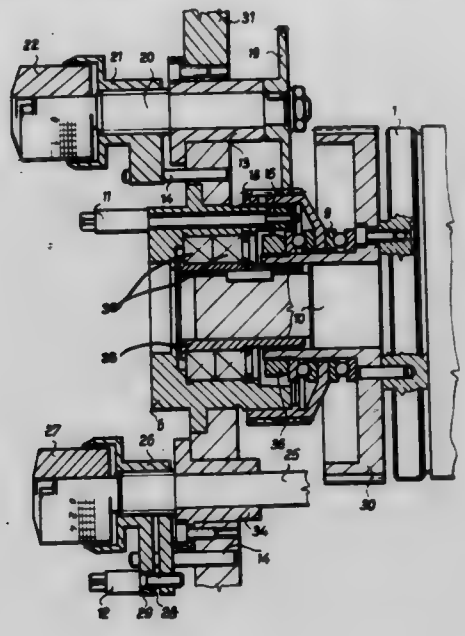
Claims priority, application Czechoslovakia, Aug. 24, 1979, 5753-79

Int. Cl.³ B41F *13/24*

U.S. Cl. 101—248 **5 Claims**

1. A device for the axial and radial setting of the forme cylinder for register printing during printing operation, particularly on multicolor printing machines, which comprises: a first shaft mount, for engaging a first shaft of a forme cylinder, mounted in a first side wall of a printing machine; a first

toothed nut shiftingly arranged on said first shaft mount in engagement with a first gear fixed to a first gear shaft turnably arranged in the first side wall of the printing machine and in a bearing arrangement with said forme cylinder for axially adjusting the position of the forme cylinder, said first shaft mount having a recess and a securing screw which cooperate to form a securing clamp for securing the axial setting of said forme cylinder; a second shaft mount, which engages a second shaft



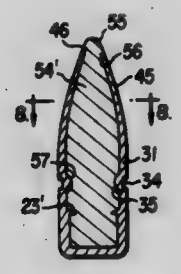
of the forme cylinder, mounted in a second sidwall of the printing machine, a second toothed nut shiftably arranged on said second shaft mount in engagement with a second gear fixed on a second gear shaft, a slideable drive gear, bearingly in communication with said second toothed nut and having a carrier pin which engages a recess provided in the side wall of the forme cylinder, mounted on said second shaft of said forme cylinder whereby the radial setting of said forme cylinder is adjusted.

4,336,756

JACKETED BULLET AND METHOD OF MANUFACTURE

Charles J. Schreiber, Grand Island, Nebr., assignor to Hornady Manufacturing Company, Grand Island, Nebr.

Filed Aug. 16, 1978, Ser. No. 934,184
Int. Cl.³ F42B *11/10*
U.S. Cl. 102—516 **10 Claims**



1. A pre-form jacket with an open upper end and closed bottom end adapted to have a core inserted through its open end for a jacketed bullet comprising:

a cylindrical tube of material which can be cold worked;

said tube comprising an upper portion, a mid portion and a base portion;

said mid portion having a substantially cylindrical inner surface;

the interior diameter of the mid portion being less than the interior diameter of the upper portion;

a base portion having an arcuate bottom surface and a substantially cylindrical interior surface;

the interior diameter of the base portion being less than the diameter of said mid portion;

the juncture of the bottom portion and the mid portion forming an annular ledge within the jacket;

an inwardly extending ring integrally formed with the top edge of said annular ledge;

said inwardly extending ring having a downwardly and inwardly sloping upper surface and an upwardly and inwardly sloping bottom surface forming a knife edge; and

the inner surface of the mid portion being joined to the inner surface of the upper portion by a frusto-conical surface.

6. A bullet comprising:

an outer jacket of a cold-workable, metal composition;

an inner core of a high density malleable metallic composition;

said jacket comprising an upper portion, a mid portion and a base portion;

said mid portion having walls thicker than the walls of said upper portion and thinner than the walls of said base portion;

said base portion having a substantially cylindrical inner surface with an inner diameter less than the diameter of said mid portion forming an annular ledge between said mid portion and said base portion;

said annular ledge containing on its interior an annular, inwardly-extending ring spaced apart from the base of the bullet to engage and hold said core; and

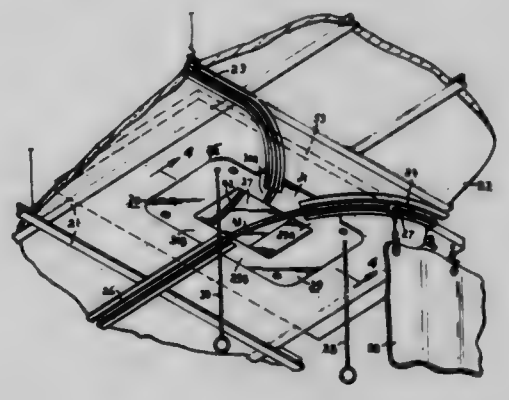
said annular ring having a downwardly and inwardly sloping first surface and an under surface extending inwardly perpendicular to the wall of said jacket, the upper surface and under surface meeting in a knife-like edge.

4,336,757

TRACK SWITCH

Ellis I. Toder, 341 Militia Hill Rd., Fort Washington, Pa. 19034

Division of Ser. No. 881,394, Feb. 27, 1978, Pat. No. 4,229,857.
This application Sep. 24, 1979, Ser. No. 78,247
Int. Cl.³ E01B *7/08*
U.S. Cl. 104—102 **7 Claims**



1. A track switch for use in a curtain track system of the type comprising first and second branch tracks and a common track, said track switch being adapted for operative coupling to each of said first and second and common tracks, said track switch including,

(a) shiftable track means for selectively interconnecting said common track to one of said first and second branch tracks, said shiftable track means comprising first and second separate switch track sections fixedly intercoupled and movable as a unit, said first switch track section being movable into position to interconnect said first branch track to said common track when said actuating means is actuated in a first way, and said second switch track section being movable into position to interconnect said second branch track to said common track when said actuating means is actuated in a second way,

(b) actuating means for selectively shifting said shiftable track means to connect said common track as desired to either of said first or second branch tracks, and

(c) a hollow switch body having a closed top, a closed bottom having a central aperture, a pair of closed opposite side walls and a pair of opposite end walls intersecuring said top and bottom, one of said pair of end walls having a separate track-end receiving opening for each of said first and second branch tracks and the other of said pair of end walls having a track-end receiving opening for said common track, said shiftable track means comprising a slider unit held captive within said hollow switch body and closing the central aperture in said switch body bottom irrespective of the position of said shiftable track means.

4,336,758

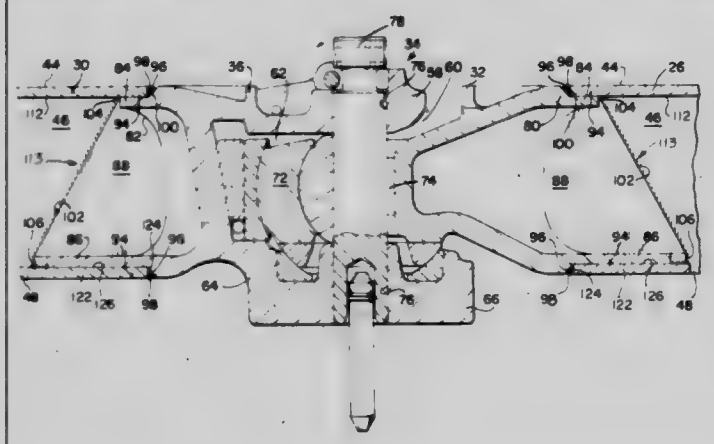
RAILROAD CAR SILL-ARTICULATING DEVICE MEMBER CONNECTION

Robert P. Radwill, Chicago, Ill., assignor to AMSTED Industries Incorporated, Chicago, Ill.

Filed Jun. 13, 1980, Ser. No. 159,213

Int. Cl.³ B61D *15/00*; B61F *3/12*

U.S. Cl. 105—4 R **7 Claims**



1. In an articulating device comprising a male connecting member joined to a rear sill of a forward railroad car body of a unit and a female connecting member joined to a front sill of a rearward railroad car body of said unit, said sills each having a box-like configuration defined by an upper member joined to spaced side members with an open bottom and end, said connecting members joinable by a pin and said device supportable on a railroad car truck located below said device, an improvement in a connection between each connecting member and sill comprising,

an inner end portion of said connecting member formed with a hollow body defined by a top wall and a bottom wall joined together by spaced sidewalls, said sidewalls having sloped end surfaces joining an end surface of said top wall at a point longitudinally offset from a joinder of said sidewall end surfaces with an end surface of said bottom wall,

said connecting member inner end sidewalls spaced to fit snugly against an inner surface of said sill side members with said connecting member inner end top wall and said sidewalls joinable to said sill by a series of internal weld seams to produce said connecting member-sill connection,

wherein said connection may withstand high forces imposed by static and dynamic loads transmitted between said car bodies and said truck during operation of said unit.

4,336,759

ARTICLE DISPLAY STAND

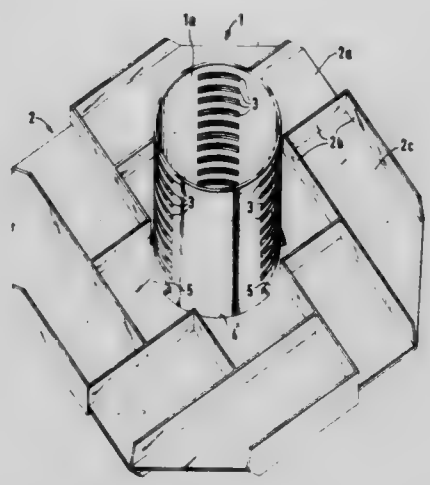
Wolf-Dietrich Hannecke, Rischenau Weg 6, 3410 Northeim, Fed. Rep. of Germany

Filed Aug. 3, 1977, Ser. No. 821,410

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1977, 7706489[U]; Mar. 4, 1977, 7706490[U]; Mar. 4, 1977, 7706706[U]

Int. Cl.³ A47B *57/06*

U.S. Cl. 108—144 **35 Claims**



1. An article display stand, comprising an elongated upright support extending in a first direction and having a plurality of recesses which are spaced from and located adjacent to each other in said first direction; and an article supporting element mountable in said support in any of a plurality of positions spaced longitudinally of said support; said article supporting element having a base plate which extends in a second direction transverse to said first direction and is provided with a central opening through which said support extends so that said support is located inwardly of said article supporting element and the latter is located outwardly of said support, said base plate having a projection which projects in said second direction inwardly of said opening and is detachably engageable with respective ones of said recesses so that, when said projection of said base plate of said article supporting element engages in one of said recesses of said support, said article supporting element is fixed in a respective one of said positions, said inwardly located support being resiliently deformable in said second direction so that said inwardly located support is deformed inwardly in said second direction in response to displacement of said article supporting element over said support in said first direction whereby said article supporting element can be displaced from one to another of said positions.

4,336,760

EARTH WORKING APPARATUS INCLUDING AERATORS AND MATERIAL DISPENSERS

Sidney Cohen, Spring Valley, and Robert Schlemmer, West Nyack, both of N.Y., assignors to Improved Lawn Equipment Corporation, Spring Valley, N.Y.

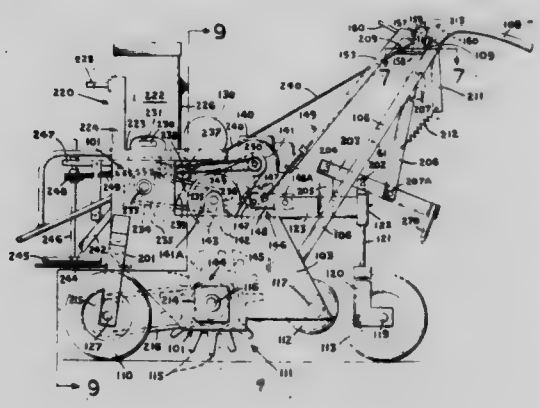
Filed Mar. 13, 1981, Ser. No. 243,368

Int. Cl.³ A01B *49/06, 45/02*

U.S. Cl. 111—11 **19 Claims**

7. A self-propelled aerator and material dispenser comprising a frame, front wheels rotatably secured to said frame, an aerator member including blades rotatably secured to said frame, rear wheels rotatably secured to said frame, a dolly wheel mounted on said frame for rotation about a vertical axis at a location rearwards of the rear wheels, support means for vertical movement of the dolly wheel between raised and lowered positions, said front wheels and rear wheels being positioned on said frame in relation to said dolly wheel and aerator member such that with said dolly wheel in said raised position the front wheels and dolly wheel define a common tangential plane which is at a level above the tips of the blades

of the aerator member and below said rear wheels thereby establishing an operative aerating position whereas in said lowered position of the dolly wheel the front wheels and dolly wheel define a common tangential plane which is below said aerator member and said rear wheels thereby establishing a transport position, handle means extending upwardly from said frame for manual guidance and propulsion of said frame, first linkage means between said support means and said handle means for effecting raising and lowering of said dolly wheel, said linkage means including a lever having one end pivotably connected to said frame means on the other end of said lever, a foot-engageable actuator, said lever being pivotably connected to said support means at a location intermediate said ends such that by the lever is pivotable between a first position in which the dolly wheel is lowered and a second position in which the dolly wheel is raised, locking means on said lever and said handle means for locking the dolly wheel in the lowered position, a motor on said frame, a drive pulley rotatably mounted on said frame, a first sprocket wheel secured to said aerator member, a second sprocket wheel secured to said front wheels, a drive means drivingly connecting said first and second sprocket wheels and driven by said drive pulley, a belt on said drive pulley driven by said motor, a tensioning pulley engaging said belt and having a first position in which the belt is tensioned and drive power is transmitted from the motor to the drive pulley and then to the aerator member and front



wheels and a second position in which the belt travels idly on the drive pulley and thereby the aerator member and front wheels are at rest, a plate pivotably mounted on said frame, said tensioning pulley being rotatably mounted on said plate for travel therewith, second linkage means between said plate and said handle means for pivotably moving the plate to move the tensioning pulley between said first and second positions, said second linkage means comprising a bracket pivotably mounted on said handle means for movement about a pivot axis, rod means pivotably connected to said plate and to said bracket, and a further actuator lever connected to said bracket to pivotably move the bracket and thereby said plate, said rod means having an axis along which a line of force is transmitted from said bracket to said plate, said line of force extending on opposite sides of said pivot axis when the tensioning pulley is in said first and second positions such that the second linkage means and thereby said tensioning pulley are in stable position for both positions of said tensioning pulley, a rotatable dispensing plate on said frame, drive means connecting said dispensing plate to said motor for rotation of said dispensing plate, a chute on said frame having an inlet and an outlet, said outlet facing said dispensing plate, hopper means mountable on said frame for storing material to be dispensed by said dispenser plate, said hopper means having an outlet, and feed means driven from said drive pulley for feeding measured amounts of material from the outlet of said hopper means to the inlet of said chute.

4,336,761

AUTOMATIC SEWING APPARATUS

Alfredo J. Magnan, Miami, Fla., assignor to Suave Shoe Corporation, Miami Shores, Fla.

Filed May 22, 1980, Ser. No. 152,482
Int. Cl.³ D05B *21/00*
U.S. Cl. 112—121.12 **11 Claims**



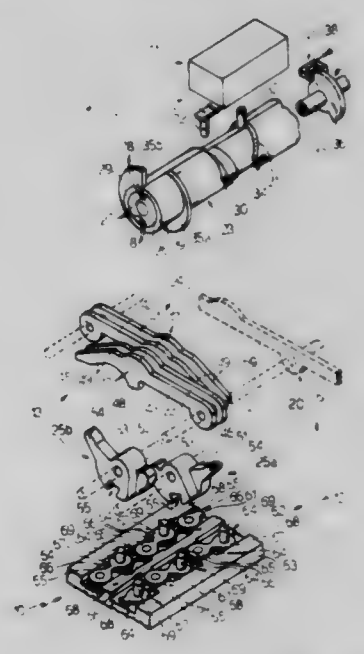
1. In an automatic sewing apparatus having a sewing head, a pallet for holding a workpiece to be sewn, means for moving the pallet relative to the sewing head according to a predetermined pattern for stitching the workpiece and for backstitching, the sewing head including a presser foot for engaging the workpiece and needle means for stitching and backstitching the workpiece, and first and second control means for initiating stitching and backstitching, respectively, the improvement comprising means responsive to the operation of the second control means for preventing the presser foot from engaging the workpiece during backstitching.

4,336,762

ELECTROMECHANICAL ACTUATOR DEVICE FOR A SEWING MACHINE

Nicolo' Giolitti, Ivrea, Italy, assignor to Arnaldo Vigorelli S.p.A., Pavia, Italy

Filed Apr. 17, 1980, Ser. No. 140,980
Claims priority, application Italy, Apr. 23, 1979, 67846 A/79
Int. Cl.³ D05B *3/02*
U.S. Cl. 112—158 E **20 Claims**



6. An electromechanical actuator device for a sewing machine, characterized by comprising a plurality of electromagnets (11), each of which is arranged to be put into either a rest state or a working state, depending upon a respective electrical feed signal; at least one actuator member (12) connectable to a fabric conveying foot in the said sewing machine and arranged to assume either a rest position or a working position corresponding respectively to said rest state or working state of each of said electromagnets; a plurality of mechanical coupling means (13), disposed between said plurality of electromagnets (11) and said actuator member (12), and a drive shaft (17)

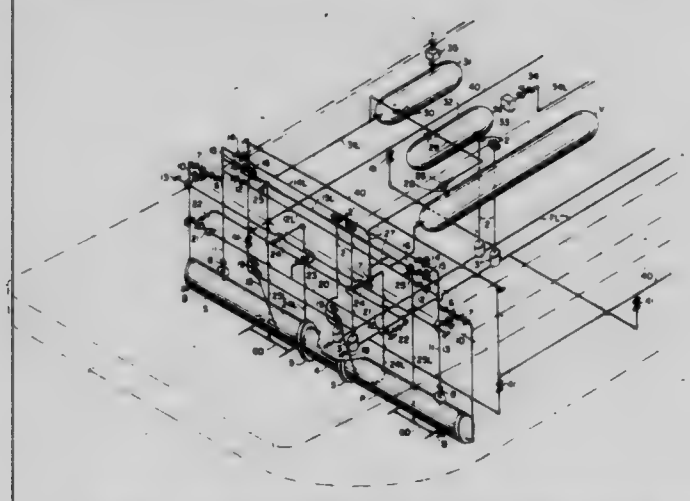
which is actuated by means of a power take-off and actuates the said mechanical coupling means (13); each of said mechanical coupling means (13) being arranged to be put either into a respective rest position or working position, depending on the state of a corresponding electromagnet (11), and to mechanically set said actuator (12) into either said rest position or working position; each of said mechanical coupling means including at least one element (29) axially slidable relative to the said drive shaft (17); the said slidable element (29) being arranged to be set into a rest position or working position following the receipt of a mechanical control signal produced by a corresponding electromagnet (11); said slidable element (29) comprises a zeroing recess (31) and a positioning recess (33) which are angularly displaced from each other and are arranged to cooperate with a peg (32) and with an armature (21) of said electromagnet (11) respectively, in order to set said element into said rest position or working position.

4,336,763

MARINE VESSEL TRANSFER SYSTEM

Robert C. Wolff, 955 Crystal St., New Orleans, La. 70124

Division of Ser. No. 411,848, Nov. 1, 1973, Pat. No. 3,883,269.
This application May 14, 1974, Ser. No. 469,807
The portion of the term of this patent subsequent to May 13, 1992, has been disclaimed.
Int. Cl.³ B63B *25/08*
U.S. Cl. 114—74 R 22 Claims



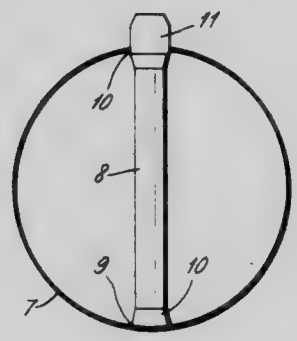
1. A marine vessel for transporting and transferring material in a liquid or slurry form comprising:
(a) a hull;
(b) at least one cargo tank for storing the material in said hull; and
(c) a material transfer system connected to said cargo tank for transferring the material out of said cargo tank; said material transfer system comprising -
(i) at least two pumping chambers;
(ii) a common discharge line for said pumping chambers;
(iii) material inlet means connected between said cargo tank and said pumping chambers for alternately filling said pumping chambers with the material to be transferred;
(iv) material outlet means connected between said pumping chambers and said common discharge line for alternately transferring the material from said pumping chambers to said common discharge line;
(v) fluid pressure head means connected to said pumping chambers for supplying a pumping fluid pressure head to said pumping chambers for forcing the material out of said pumping chambers;
(vi) fluid exhaust line means connected to said pumping chambers for exhausting the pumping fluid pressure head from the pumping chambers after the material has been forced out of them;
(vii) cargo tank fluid line means connected between said exhaust line means and the cargo tank for increasing the static pressure head in said cargo tank; whereby the rate of flow of the material to said pumping chambers is increased and complete emptying of the cargo tank is enhanced; and
(viii) control means connected to said pumping chambers for controlling said inlet means, said outlet means, said fluid pressure hed means and said fluid exhaust line means in proper sequence; whereby the material can be transferred from the vessel's cargo tank(s) without all the problems and hazards found in the transfer systems for marine vessels used in the prior art.

4,336,764

MODIFICATION OF THE TOWER CONSTRUCTION IN A SPHERICAL TANK

Arne Tonnessen, Moss, Norway, assignor to Moss Rosenberg Verft A/S, Moss, Norway

Continuation of Ser. No. 844,901, Oct. 25, 1977, abandoned.
This application Feb. 28, 1979, Ser. No. 15,944
Claims priority, application Norway, Oct. 26, 1976, 763650
Int. Cl.³ B63B *25/08*
U.S. Cl. 114—74 A 3 Claims



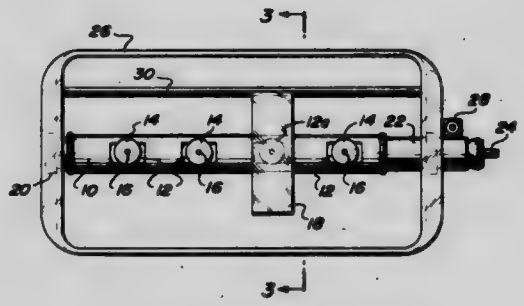
1. In a marine vessel having a hull structure, a spherical tank adapted to contain liquefied gas and supported by an annular skirt having a vertical axis and positioned around the horizontal equator of said tank with said skirt being rigidly attached to said tank and to said hull whereby said tank is supported by said hull through said skirt with the respective upper and lower hemispheres of the tank being rigidly connected at their peripheries to said skirt, and a vertical tower which is rigid and is positioned within said tank with its axis substantially concentric with said axis of said skirt, said tower extending vertically between the top and bottom extremities of said tank with the ends thereof being rigidly connected to the respective of said extremities of said tank to thereby form an integral structure comprising said tower and said hemispheres.

4,336,765

VACUUM WORK PIECE HOLDER

Vincent D. Coughlin, Box 608, R.D. #1, Oxford, N.J. 08901

Filed Jun. 12, 1981, Ser. No. 272,917
Int. Cl.³ C23C *13/08*; G01N *33/48*
U.S. Cl. 118—50 5 Claims



1. A vacuum work piece holder, suitable for securing slides or the like, comprising:
(a) at least one elongated and generally cylindrical vacuum chamber including two ends;
(b) tray means of a length and width sufficient to contain said chamber said tray also including sides which are adapted

to rotatably support said chamber above said tray bottom; and,

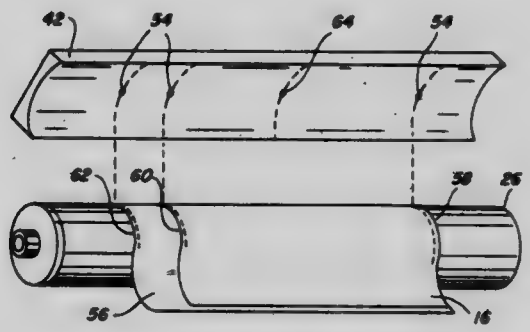
(c) a plurality of ports extending generally in a linear path along the long axis of said chamber, and of a cross section sufficient to support a work piece securely thereon by suctional engagement.

4,336,766

ROLL FUSING APPARATUS FOR ELECTROPHOTOGRAPHY AND RELEASE AGENT MANAGEMENT SYSTEM THEREFOR

James C. Maher, and Michael Carlotta, both of Sodus, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 24, 1980, Ser. No. 209,578
Int. Cl.[3] G03G *15/20*
U.S. Cl. 118—60 3 Claims



1. Roll fuser apparatus comprising:

a pair of fuser rolls one of which is heated and has an elastomeric outer layer, said rolls being sufficiently long to fuse toner images to various sizes of copy sheets passed therebetween wherein the edges of the sheets contact said heated roll at various positions along the longitudinal axis of said fuser rolls;

a release agent management system positioned to contact said heated fuser roll, said system comprising;

a hollow silicone oil containing member;

a compound wick supported by said hollow member, said wick including a relatively thick wick member utilized as a feeder and a relatively thin wick member said relatively thick wick member being in intimate contact with one surface of said hollow member, said relatively thin member being in contact with said outer layer;

said one surface of said hollow member having a plurality of outlet apertures therein, there being one aperture for each of said various positions, each aperture being spaced relative to one of said various positions whereby a quantity of silicone oil is applied to said elastomeric outer layer adjacent said various positions.

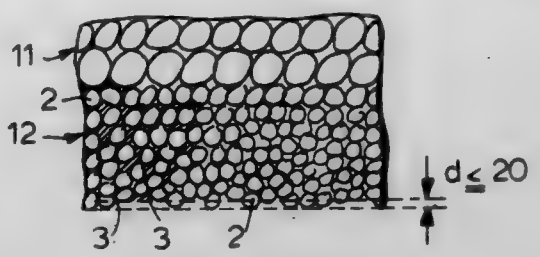
4,336,767

SURFACE LAYER STRUCTURE OF AN INK TRANSFER DEVICE

Hiroshi Wada, Kobe, Japan, assignor to Bando Chemical Industries, Ltd., Kobe, Japan

Filed Aug. 6, 1979, Ser. No. 63,727
Claims priority, application Japan, Aug. 4, 1978, 53-95600; Aug. 24, 1978, 53-103417
Int. Cl.[3] B32B *3/26*; B41K *1/50, 1/52, 1/54*
U.S. Cl. 118—264 4 Claims

1. An ink transfer device comprising a molded resilient ink transfer layer of heat compressed thermoplastic resin powder having particles of sizes of less than 50 microns in diameter with an ink transfer surface on one side thereof, with continuous pores therein, and thickness of 0.2 to 2 mm, and porosity of 8 to 30%, and inking surface variation of less than 20 microns; and a molded resilient ink storage layer having one side thereof connected to the side of said ink transfer layer opposite said ink transfer surface and consisting essentially of heat compressed thermoplastic resin powder having particles of sizes larger than that of said ink transfer layer and further having pore size, porosity and thickness greater than said ink transfer layer; whereby said pores in both said ink transfer and ink storage layers are continuous and communicated with each other; and



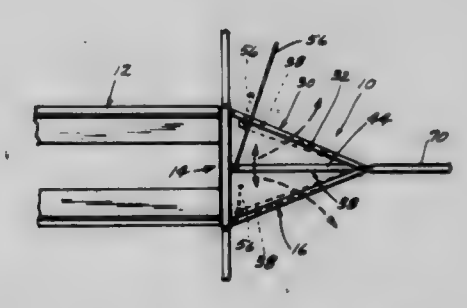
whereby the magnitude of ink flow current to the inking surface is limited by the ink transfer layer and not by the ink storage layer; and whereby the ink is substantially at said ink transfer surface when ink is in said ink transfer layer.

4,336,768

ANIMAL SORTING GATE

Robert L. Wagner, Hampton, Iowa, assignor to Ram Handler, Ltd., Kesley, Iowa

Filed Nov. 10, 1980, Ser. No. 205,263
Int. Cl.[3] A01K *29/00*
U.S. Cl. 119—155 11 Claims



1. An animal sorting gate assembly comprising,

first and second open frame members pivotally interconnected to pivot about a common vertical axis,

a gate member positioned to pivot about said common pivotal axis and between each of said first and second frame members, and

said first frame member including inner and outer vertical elements interconnected by top and bottom elements and said inner element functions as the axis of pivotal movement for said second frame member and said gate which are connected thereto,

said second frame member including an outer vertical frame element and top and bottom frame elements having their inner ends pivotally connected to said inner frame element of said first frame member,

said pivot connections for said second frame member being between the connections of said top and bottom elements to said inner vertical element of said first frame member,

said pivotal connection of said gate including a tube in which said inner element of said first frame member is positioned, said tube extending the substantial length of said inner element of said first frame and said second frame connection including sleeves at the ends of said top and bottom frame elements through which said inner element of said first frame member extends,

said sleeve on said bottom frame element of said second frame member abuts against the bottom element of said first frame member and said tube on said gate abuts against said sleeve on said bottom element of said second frame member and said sleeve on the top element of said second frame member being closely adjacent and between said tube and said top element of said first frame member whereby said gate is vertically confined between the sleeves of said second frame member and said sleeves of

the second frame member are vertically confined between said tube and top and bottom elements of said first frame member, respectively, the top and bottom elements of said first and second frame members being vertically spaced from one another and from said gate for noninterfering pivotal movement of said first and second frame members and gate relative to one another, and

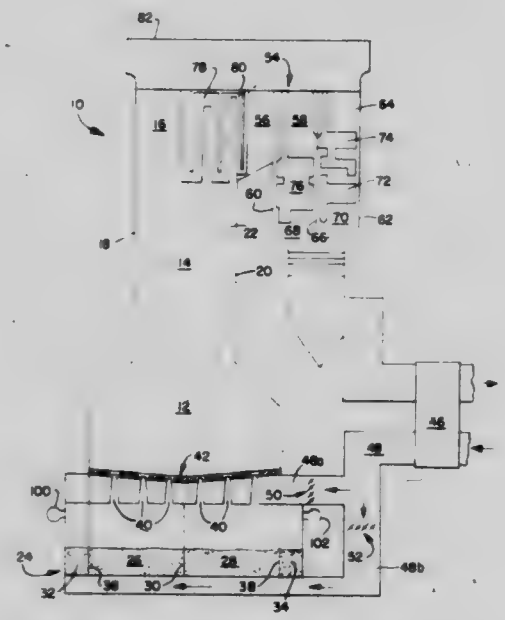
cooperative stop means being provided between said gate and said first and second frame members to limit pivotal movement to between the planes of said frame members.

4,336,769

INTEGRAL VAPOR GENERATOR/GASIFIER SYSTEM

Ernest L. Daman, Westfield, N.J., assignor to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Mar. 31, 1981, Ser. No. 249,565
Int. Cl.³ F28D *13/00*
U.S. Cl. 122—4 D **9 Claims**



1. An integral generator/gasifier system comprising a vapor generator including an upright furnace section and a plurality of nozzles, each having one end registering with the interior of said furnace section, a gasifier extending adjacent said furnace section, means for introducing fuel to said gasifier, means in said gasifier for supporting a bed of adsorbent material for the sulfur generated as a result of the gasification of said fuel, means for passing air through said bed of adsorbent material to fluidize said material so that, upon gasification of said fuel, a substantially sulfur-free product gas is produced, the other end of said nozzles communicating with said gasifier so that the said product gas passes from said gasifier, through said nozzles and into said furnace section such that combustion of the gas and unreacted carbon occurs.

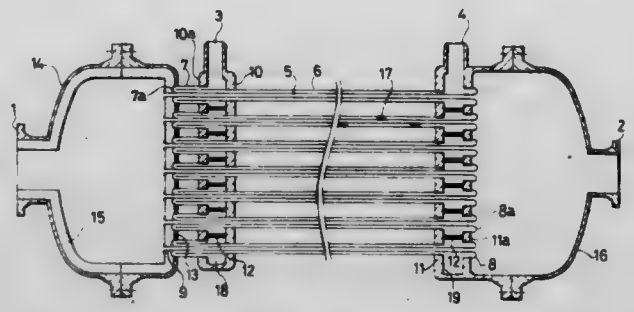
4,336,770

WASTE HEAT BOILER

Takayuki Kaneko, and Sadami Ninagawa, both of Chiba, Japan, assignors to Toyo Engineering Corporation, Japan

Filed Jul. 21, 1980, Ser. No. 170,454
Claims priority, application Japan, Jul. 30, 1979, 54-96148
Int. Cl.³ F22B *25/00*
U.S. Cl. 122—266 **8 Claims**

1. A double-tube type waste heat boiler comprising, in combination, water chamber means; water vapor chamber means; both said chamber means being surrounded by an opposed pair of tube plates, respectively; a plurality of inner tube means extending in communication with and between a gas inlet channel means and a gas outlet channel means; a plurality of outer tube means arranged with one extending in concentric relation with each of said plurality of inner tube means with an annular gap therearound; a plurality of outermost tube means arranged with one extending in concentric relation with each of said plurality of inner and outer tube means with an annular gap therearound in such a manner that the tube end areas of said plurality of outermost tube means and said plurality of inner and outer tube means may be of a triplicate structure at least on the side of the gas inlet channel; and a plurality of annular or torus cap means connecting hermetically the ends of each of said plurality of outermost tube means and of each of



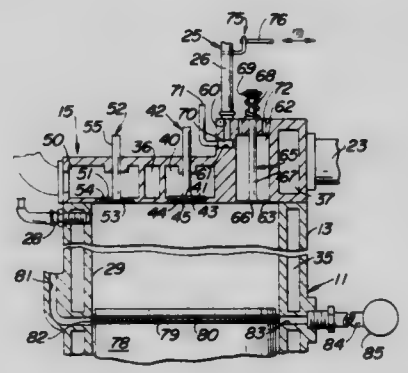
said plurality of inner tube means in such a manner that an annular gap defined by and between each of said plurality of inner tube means and said plurality of outer tube means and an annular gap defined by and between each of said plurality of outer tube means and said plurality of outermost tube means communicate with each other at the tube ends thereof.

4,336,771

SOLID FUEL BURNING INTERNAL COMBUSTION ENGINE

Charles M. Perkins, R.F.D. 4, Albion, Ill. 62806

Filed Jul. 14, 1980, Ser. No. 168,596
Int. Cl.³ F02B *45/02*
U.S. Cl. 123—23 **8 Claims**

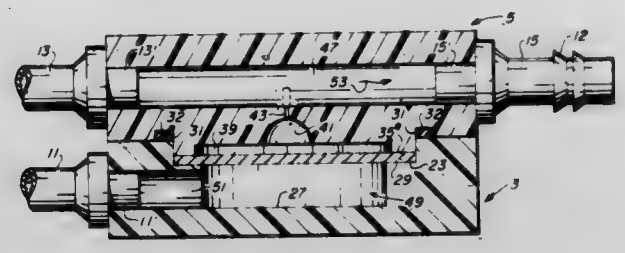


1. A solid fuel burning internal combustion engine comprising a power cylinder, a head closing one end of the power cylinder, a power piston reciprocable in said power cylinder toward and away from said head, an inlet valve in said head for passing air into said power cylinder, an exhaust valve in said head for passing combustion products from said power cylinder, a fuel valve in said head for retaining a quantity of fuel and opening on pressure reduction in said power cylinder to introduce said quantity of fuel to said power cylinder, ignition means in said cylinder for igniting said fuel, and including at least one piston ring, and piston ring cleaning means comprising an inlet oil passageway communicating with said power cylinder at bottom dead center of said piston ring via a first port, an outlet oil passageway communicating with said power cylinder at bottom dead center of said piston ring remote from said inlet oil passageway via a second port, wherein said first and second ports are within a plane defined by said piston ring, and oil moving means communicating with said inlet and outlet oil passageways along said plane of said piston ring for moving oil and combustion products from said piston ring.

4,336,772
WATER VAPOR INJECTION SYSTEM

Don H. Young, 2215 N. 38th Way, Phoenix, Ariz. 85008, and Russell W. Wellman, 141-40 Dryke Rd., Sequim, Wash. 98382

Filed Feb. 11, 1980, Ser. No. 120,691
Int. Cl.³ F02D *19/00*
U.S. Cl. 123—25 L 9 Claims



1. A vapor injection system for introducing water vapor into an internal combustion engine, said system comprising in combination:

a housing having a first chamber therein;

a container for holding liquid water, said container being unpressurized;

inlet means for conducting said liquid water from said container into said first chamber, said housing also having a second chamber therein;

filter means disposed between and separating said first and second chambers for filtering water passing from said first chamber into said second chamber;

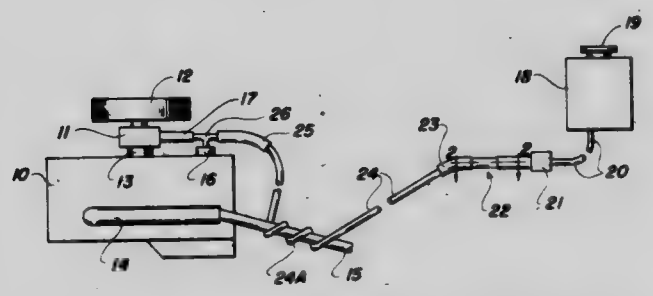
orifice means extending from said second chamber into a third chamber for conducting liquid water in said second chamber to a boundary of said third chamber and effecting vaporization of said water at said boundary when the air pressure in said third chamber is substantially reduced from ambient atmospheric pressure; and

outlet means for conducting water vapor from said third chamber into a portion of a carburetor located above a throttle valve of the carburetor, the carburetor being connected to the internal combustion engine, said outlet means being airtight to cause air pressure in said third chamber to be substantially equal to air pressure in said portion of the carburetor.

4,336,773
ENERGY CONSERVATION APPARATUS FOR INTERNAL COMBUSTION ENGINES

Middleton M. Carouthers, 573 Briarwyck, Ballwin, Mo. 63011, and Robert L. Klamm, St. Charles, Mo., assignors to Middleton M. Carouthers, Ballwin, Mo.

Filed Jun. 30, 1980, Ser. No. 164,021
Int. Cl.³ F02M *25/02*; F02D *19/00*
U.S. Cl. 123—25 B 12 Claims



1. Energy conservation apparatus for internal combustion engines having a carburetor for inducting fuel and air to form a combustible mix, and hot exhaust gas discharge means, said apparatus comprising:

(a) a source of vaporizable fluid; and

(b) fluid flow conducting means between said fluid source and the engine carburetor, including in fluid flow relationship:

(1) heat exchange means in advance of the engine carburetor for imparting engine exhaust gas heat to the fluid to vaporize the fluid,

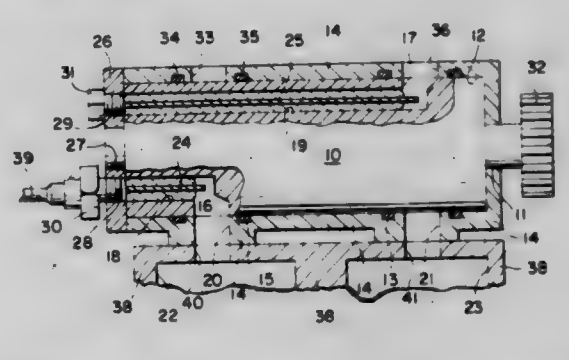
(2) fluid flow restricting means having a non-adjustable fixed diameter and constantly open tube through which the fluid is directed, and

(3) a fluid connection at the engine carburetor, whereby the induction effect generated by the engine at the carburetor establishes a negative pressure in said fluid flow conducting means to move the vaporizable fluid past said heat exchange means and into the carburetor.

4,336,774
ROTATING IGNITER FOR ENGINES

Louis Forde; L. Gregory Forde; Alonzo Forde; Alfredo Forde, and Raymond Forde, all of 482 Berriman St., Brooklyn, N.Y. 11208

Continuation-in-part of Ser. No. 880,204, Feb. 22, 1978, abandoned, which is a continuation-in-part of Ser. No. 671,661, Mar. 29, 1976, abandoned. This application Jan. 3, 1980, Ser. No. 109,347
Int. Cl.³ F02P *15/00*
U.S. Cl. 123—143 B 6 Claims

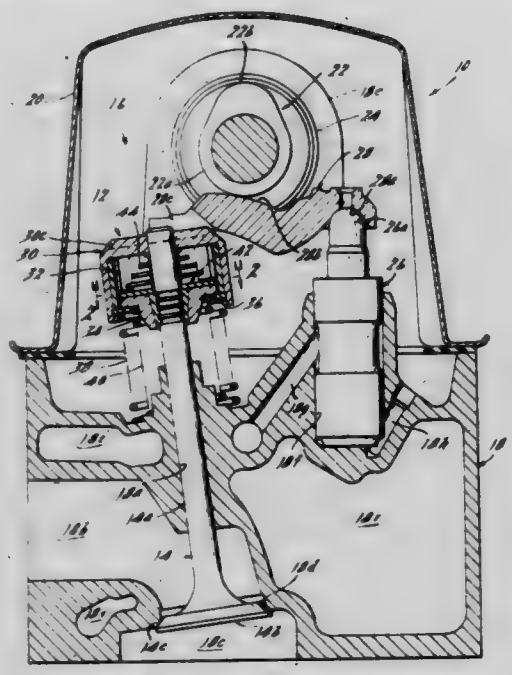


1. Apparatus for conveying igniters in an engine comprising: synchronizing casing means including first inspecting apertures means positioned in radial alignment with first outlet means positioned in said casing, and second inspecting aperture means positioned in radial alignment with second outlet means positioned in said casing, conveying means consisting of rotary member means rotated within said casing; means for rotating the member in synchronism with the engine rotations, said rotary member having disposed within first firing means and second firing means arranged at equal angular relationship with each other and vary-distant from an end of said rotary member means, first orifice means intermediate said first firing means and said end of said rotary member means defining first channel means within said rotary member means, igniting elements removably fitted into said first channel means defining first conduit means, second orifice means intermediate said second firing means and said end defining second channel means, igniting elements removably fitted into said second channel means defining second conduit means within said rotary member means, said first and said second conduit means disposed in planes arranged parallel to the axis of the rotation of said rotary member means having journal means moving and resting in said casing means and in cover means mating and enclosing said rotary member within said casing means, said cover means includes a first predeterminely positioned bore, conducting means including an input connector removably fitted into said bore, said conducting means being connected to an energy source, wherein upon rotation said rotary member means places said 1st conduit means in alignment with said conducting means, wherein said 1st conduit means conveys supply from said source into said first outlet means, and wherein said second inspecting aperture is in registry with and providing access into said second firing means at a respective time in the cycle.

4,336,775
VALVE SELECTOR

Lawrence L. Meyer, Northville, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Continuation of Ser. No. 640,132, Dec. 12, 1975, abandoned.
This application Feb. 1, 1980, Ser. No. 117,705
Int. Cl.³ F02D *13/06*
U.S. Cl. 123—198 F 20 Claims



1. In a machine having a valve disabling device selectively operative to disable a valve which is normally opened and closed in response to pivotal movement of a rocker arm, said disabling device comprising:

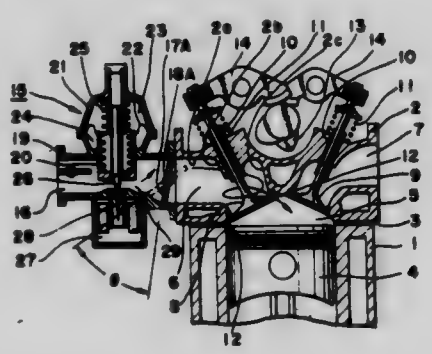
drive means installed intermediate one end of said rocker arm and said valve and in driving contact with said one end of said rocker arm; and

means moveable from a valve enabling position preventing relative movement between said drive means and said valve for enabling said valve for normal opening and closing and moveable to a valve disabling position allowing relative movement between said drive means and said valve for disabling said valve.

4,336,776
SWIRL-INDUCING APPARATUS FOR INTERNAL COMBUSTION ENGINES

Masaharu Sumiyoshi; Setsuro Sekiya; Katsuhiko Motosugi; Hiroshi Takahashi, and Shuhei Toyoda, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 31, 1979, Ser. No. 44,254
Claims priority, application Japan, Jun. 15, 1978, 53-72590
Int. Cl.³ F02B *31/00*
U.S. Cl. 123—306 8 Claims



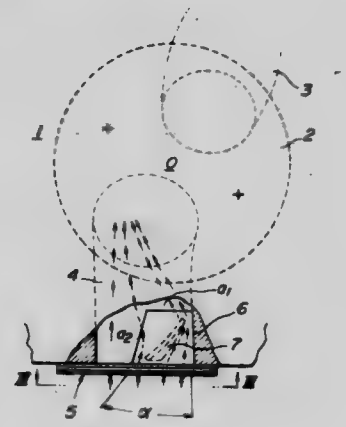
1. Apparatus for imparting a swirl to a flow of intake gas entering a cylinder of an internal combustion engine, the apparatus including an engine having a cylinder block which contains at least one cylinder, a cylinder head fastened to the block and having an intake valve seat for each cylinder, and a swirl-inducing suction passage for each cylinder, each suction passage having an upstream end communicating with a source of intake gas and a downstream end opening into the respective cylinder through the corresponding intake valve seat, wherein the improvement comprises:

throttle valve means mounted in each suction passage close to the intake valve port for opening and shutting the suction passage to regulate the rate of flow of intake gas therethrough, the swirl-inducing suction passage between the throttle valve means and the intake valve being in the form of a helical port and the throttle valve means being a butterfly valve arranged to rotate about an approximately horizontal diametral axis transverse to the intake mixture flow direction in the suction passage, the valve having a downstream-opening portion on the upper side of the suction passage and an upstream-opening portion on the lower side of the suction passage, the apparatus further comprising means for preventing flow past the upstream-opening portion in the general working range from idling through low-speed, low-load operation to concentrate the flow on the upper side of the passageway only through an initial opening range corresponding to engine operating conditions from idling through low speed, light-load, for converging the intake gas to flow eccentrically along said upper side of the passage from the throttle valve means to the intake valve seat to enhance the swirl imparted by the swirl-producing suction passage at low flow volumes, and said suction passage being opened on both sides of said approximately horizontal diametral axis upon further rotation of the throttle valve beyond said initial opening range, to distribute flow through substantially the entire intake port cross section at higher engine speeds and loads.

4,336,777
INTAKE PASSAGE MEANS OF AN INTERNAL COMBUSTION ENGINE

Masanobu Yanagihara, Kawasaki; Yoichiro Kaneuchi, Yokohama, and Shoji Kobayashi, Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 6, 1980, Ser. No. 147,169
Claims priority, application Japan, May 15, 1979, 54-64469[U]
Int. Cl.³ F02B *31/00*
U.S. Cl. 123—306 2 Claims



1. An intake passage means for an internal combustion engine with a cylinder head having an intake port bored therethrough so as to communicate with a combustion chamber, said intake passage means comprising a gasket connected to said cylinder head, an insert integrally formed with said gasket and extending into said intake port on one side thereof, and a guide plate integrally formed with said gasket and supported by said insert and shaped such that said guide plate narrows in a downstream direction inclined towards a circumference of an

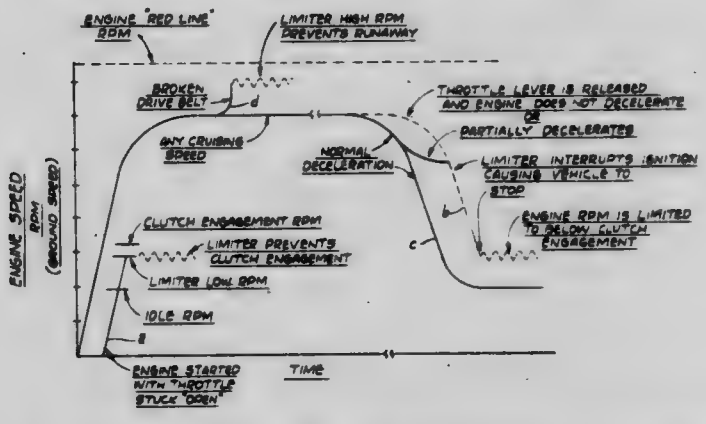
inner periphery of said intake port and extends spirally over about one quarter of the circumference of the inner periphery of said intake port.

4,336,778

SAFETY LIMITER FOR ENGINE SPEED

William A. Howard, Troy Township, Geauga County, Ohio, assignor to Delta Systems, Inc., Streetsboro, Ohio

Filed Feb. 29, 1980, Ser. No. 125,997
Int. Cl.[3] F02P *11/00*; B60K *31/00*; F02D *1/04*
U.S. Cl. 123—334 22 Claims



1. A method of controlling the operating speed of an internal combustion engine having an electrical ignition, an operator-actuated throttle control and means for sensing operator force upon the throttle control, and that drives a load through a centrifugal clutch, comprising the steps of: sensing during engine operation lack of deceleration of the engine speed upon removal of actuating force from the throttle control, and interrupting the ignition in the absence of sensed deceleration upon removal of actuating force from the throttle control until the engine speed is below that necessary to engage the centrifugal clutch.

4,336,779

CARBURATION DEVICES

Pierre Semence, Plaisir, France, assignor to Societe Industrielle de Brevets et d'Etudes S.I.B.E., Neuilly-sur-Seine, France

Filed Mar. 19, 1980, Ser. No. 131,672
Claims priority, application France, Mar. 22, 1979, 79 07309
Int. Cl.[3] F02M *7/00, 23/04*; F02D *5/00, 1/04*
U.S. Cl. 123—339 6 Claims

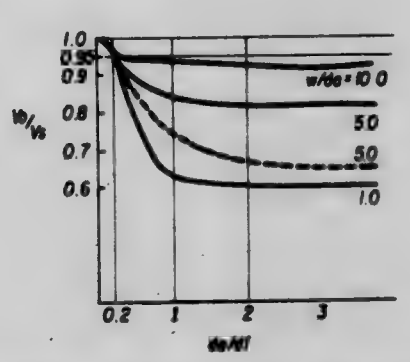
1. A carburetion device for internal combustion engine comprising:
a body formed with an induction passage for delivering an air/fuel mixture to an engine,
operator operable throttle means in said induction passage,
an idling duct connected to receive air from said induction passage and fuel from a float chamber through respective calibrated orifices and opening into said induction passage at a point which is located slightly upstream of the throttle means when the latter is in its minimum opening position,
passageway means connected to receive air and fuel to form a primary air/fuel mixture and to receive dilution air from said induction passage, said passageway means having an outlet opening into said induction passage at a location which is continuously downstream of the throttle to deliver an air/fuel mixture to said induction passage and by passage said throttle means, said passageway means having a common downstream portion supplied by two parallel branches one of which comprises a first channel formed with a calibrated orifice having a fixed flow cross-sectional area and the other of which comprises a second channel controlled by the solenoid valve,
said idling duct additionally having a downstream portion which opens into said passageway means through a calibrated port for delivery of an additional amount of primary air/fuel mixture into said passageway means,
a solenoid valve having two positions and located on said passageway means at a location which is downstream of dilution air delivery into said passageway means and upstream of primary air/fuel mixture delivery into said passageway means,
and a solenoid valve control circuit comprising engine speed sensing means and means for detecting deceleration of the engine, arranged and operating to supply the solenoid valve with energizing pulses having a variable duty cycle to prevent the engine speed from falling substantially below a set idling value and to give the solenoid valve a duty cycle which increases with the speed of the engine during engine deceleration above a preset speed (N_O).

4,336,780

JET CONTROL CARBURETOR

Katsuhiko Sugiyama, Aichi; Katsuyuki Ohsawa, Nagoya; Kenji Fujikake, Nagoya, and Yoshinori Idota, Nagoya, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya, Japan

Filed May 13, 1980, Ser. No. 149,626
Claims priority, application Japan, May 21, 1979, 54-62869; Sep. 10, 1979, 54-115987; Sep. 28, 1979, 54-126122; Oct. 23, 1979, 54-136610; Jan. 31, 1980, 55-10722
Int. Cl.[3] F02M *7/14*
U.S. Cl. 123—438 31 Claims



1. A jet control type carburetor comprising:
an intake pipe having an intake passage formed in an inner wall thereof, said intake passage allowing an intake air to flow therethrough;
a venturi provided in said intake pipe, for increasing flow velocity of said intake air in said intake passage to reduce the pressure thereof;
a fuel nozzle opened into said intake passage and connected to a fuel supply source through a fuel passage for supplying the fuel into said intake passage from said fuel nozzle in order to introduce the mixture of air and fuel into said intake passage;
a throttle valve provided downstream of said venturi, for controlling the flow rate of said mixture of intake air and fuel;
a control air nozzle opened into said intake passage at a point upstream from said throttle valve, said point including the position of said throttle valve, said nozzle being connected to an air supply source through a control air passage for directly jetting the flow of said control air to the fuel

spurted from said fuel nozzle to afford a predetermined velocity component of said control air having a directional sense contrary to that of the spurted fuel, thereby to cause said control air to impinge upon said fuel spurted from said fuel nozzle and to restrain the fuel flow rate from said fuel nozzle, and

a throttle means provided upstream of said control air nozzle in said control air passage, for controlling the flow rate of said control air in accordance with a driving condition of said engine;

said control air nozzle having a predetermined inner diameter (d_a), being provided at a portion spacing apart from said fuel nozzle with a predetermined distance (W), and

a dimensional relationship of the spacing W between said fuel nozzle and said control air nozzle to the inner diameter d_a of said control air nozzle being set as follows:

$$W/d_a \leqq 20,$$

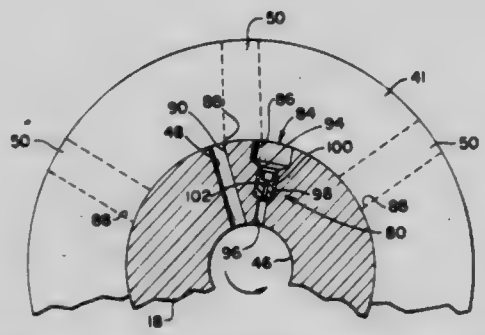
whereby the control air injected from said control air nozzle has enough flow rate and flow velocity to obtain its desired impinging force, penetrates the flow of the intake air and reaches the flow of the fuel spurted from the fuel nozzle, so that the flow rate of the fuel and the air-fuel ratio of the intake mixture are accurately controlled over a wide range of the driving conditions of said engine.

4,336,781

FUEL INJECTION PUMP SNUBBER

Norbert W. Overfield, Bloomfield, Conn., assignor to Stanadyne, Inc., Windsor, Conn.

Filed Apr. 28, 1980, Ser. No. 144,328
Int. Cl.³ F02M *41/12*
U.S. Cl. 123—467 **7 Claims**



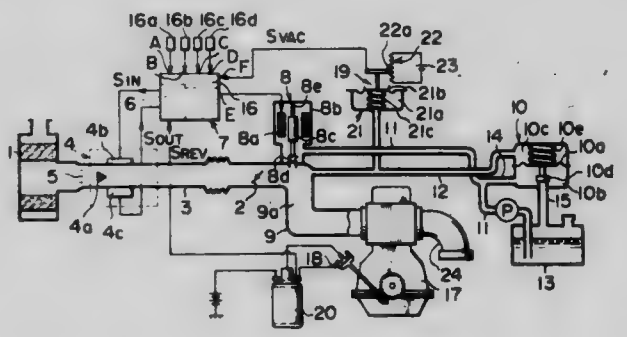
1. In a liquid fuel injection system for a multiple cylinder internal combustion engine having a fuel injection nozzle for each cylinder adapted to be momentarily opened by a pulse of pressurized fuel for injecting a fuel charge into the cylinder, a positive displacement charge pump for periodically developing pulses of pressurized fuel for injection of fuel charges into the engine cylinders in synchronism therewith, a rotary fuel distributor providing a plurality of fuel outlet ports respectively connected to the nozzles, a distributor rotor member rotatable in synchronism with an associated internal combustion engine and having a fuel delivery passageway with a fuel delivery port sequentially registerable with the fuel outlet ports for conducting the fuel pulses from the charge pump to the fuel injection nozzles, a fuel delivery valve in the said fuel delivery passageway intermediate the charge pump and fuel delivery port for maintaining a positive residual fuel pressure at each nozzle after injection of fuel thereby, and fuel snubber means for damping a reverse pressure pulse from each nozzle when the nozzle closes at the completion of fuel injection thereby; the improvement wherein the snubber means comprises a snubber passageway in the rotor connected to the said fuel delivery passageway downstream of the fuel delivery valve and having a snubber port trailing the fuel delivery port for sequential registry with the fuel outlet ports for receiving a reverse pressure pulse from each nozzle after the fuel delivery port has rotated past the respective outlet port and a snubber passageway flow restrictor between the snubber port and said fuel delivery passageway for damping, downstream of the fuel delivery valve, the reverse pressure pulse conducted from each nozzle toward the fuel delivery valve and downstream of the fuel delivery valve and thereby permit the fuel delivery valve to maintain a positive residual fuel pressure at each nozzle after injection of fuel thereby.

4,336,782

FUEL FEED DEVICE FOR ENGINE

Norio Endo, Kameoka, and Tatsuro Nakagami, Kyoto, both of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha and Mitsubishi Denki Kabushiki Kaisha, both of Tokyo, Japan

Filed Apr. 21, 1980, Ser. No. 142,048
Claims priority, application Japan, Apr. 23, 1979, 54/50084
Int. Cl.³ F02M *51/02*
U.S. Cl. 123—494 **7 Claims**



1. A fuel feed device comprising: an air flow rate detecting device to generate an electric signal having a frequency proportional to an air flow rate suctioned through an intake passage, an electromagnetically actuated fuel injection valve which is disposed downstream of said air flow rate detecting device to control the fuel feed rate into said intake passage, a fuel pressure regulator to maintain the pressure difference between a fuel feed pressure to said fuel injection valve and a suction pressure near a fuel outlet of said fuel injection valve constant, first electric control means for controlling opening and closing of said fuel injection valve so that it will synchronize with at least either a frequency of the electric signal generated by said air flow rate detecting device or a divided-down frequency thereof, operating condition detecting means for detecting engine operating conditions, said operating condition detecting means comprising a rotation speed sensor for sensing engine rotation speed and a load sensor for sensing engine load and for generating electrical signals respectively representative of engine rotation speed and load, second electric control means effective to apply the electrical signals generated by said operating condition detecting means to control opening and closing of said fuel injection valve in synchronism with the electrical signals from said operating condition detecting means at a frequency or a divided-down frequency of the operating condition detecting means output signals, said second control means being effective to open and close said fuel injection valve when a low speed high load engine operating condition is detected and said fuel injection valve is controlled to open and close by said first electric control means during other operating conditions.

4,336,783

FUEL VAPORIZER CARBURETOR FOR INTERNAL COMBUSTION ENGINE

Walter M. Henson, 1212 Major Dr., No. 1, North, Beaumont, Tex. 77701

Filed Jun. 19, 1980, Ser. No. 161,219
Int. Cl.³ F02M *31/00;* F22B *37/10*
U.S. Cl. 123—557 **2 Claims**

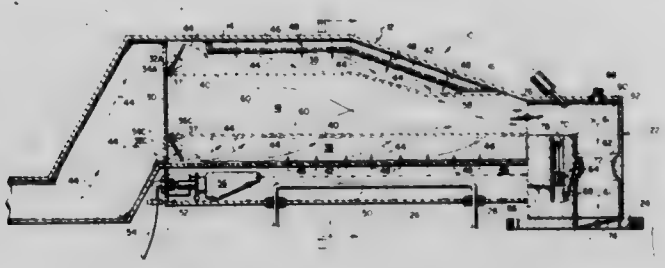
1. A carburetor for supplying a fuel/air mixture to an internal combustion engine of the type having an intake manifold, said carburetor comprising, in combination:

an elongated tubular housing having sidewall portions defin-

ing a float bowl for receiving liquid fuel and an elongated vapor mixing chamber overlying and disposed in fluid communication with the float bowl, said tubular housing have a combustion air inlet port disposed in communication with the vapor mixing chamber at one end, and a fuel/air mixture outlet port disposed in communication with the mixing chamber at the opposite end;

a fluid permeable wick assembly received within said housing and disposed between the float bowl and the mixing chamber;

a heating element received within the housing for transferring heat to fuel in the float bowl;



a closure valve movably disposed in the fuel/air mixture outlet;

an electrical actuator having a movable arm coupled to the closure valve;

a light sensitive transducer disposed in the fuel/air mixture flow path for generating a control signal in response to light emitted by flames propagating from the intake manifold; and,

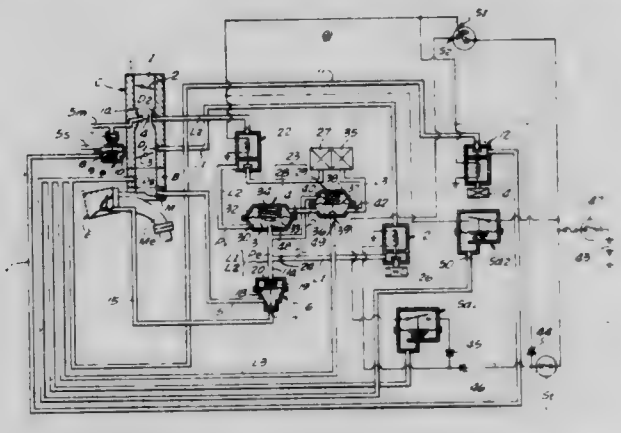
a threshold detector control circuit having an input coupled to the transducer and an output coupled to the actuator for driving the closure valve into sealing engagement with the fuel/air mixture outlet in response to a said control signal.

4,336,784

EXHAUST GAS RECIRCULATION CONTROL SYSTEM FOR ENGINES

Osamu Gotoh, Kurume; Yutaka Otobe, Niiza; Michio Kawamoto, Tokyo, and Akira Fujimura, Niiza, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 6, 1980, Ser. No. 194,146
Claims priority, application Japan, Oct. 9, 1979, 54-130217
Int. Cl.³ F02M *25/06*
U.S. Cl. 123—571 **16 Claims**



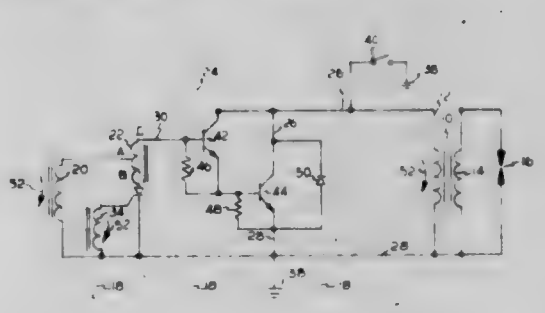
1. An exhaust gas recirculation control system for an engine applied to a vehicle, the engine having an intake passage with an auxiliary fuel supply means, and having a recirculation control valve provided in an exhaust gas recirculation line which extends from an exhaust passage of the engine and leads to the intake passage, the control system comprising, in combination: an expansible chamber provided in said recirculation control valve, a first suction line extending from a first suction port provided in the vicinity of a throttle valve in said intake passage to said expansible chamber, a second suction line extending from a second suction port provided at a venturi in said intake passage, pressure control valve means operatively connected to said suction lines for controlling the intensity of suction pressure from said first suction port, a first control valve means provided in said second suction line, a second control valve means provided for controlling said auxiliary fuel supply means to vary the rate of supply of auxiliary fuel, said first and second control valve means operating cooperatively in response to an operating condition of said engine or vehicle.

4,336,785

MAGNETO IGNITION WITH FIELD-RESPONSIVE BIASING

Richard D. Newberry, Springfield, Mass., assignor to Eltra Corporation, Toledo, Ohio

Filed Apr. 28, 1980, Ser. No. 144,520
Int. Cl.³ F02P *1/00*
U.S. Cl. 123—605 **9 Claims**



1. A magneto ignition system for an internal combustion engine having a rotatable flywheel including a magnet, comprising:

a plurality of first coils having a first common magnetic flux path;

said first coils including an ignition primary coil and an ignition secondary coil;

said ignition secondary coil being magnetically coupled to said ignition primary coil;

a first solid state switch device connected to said ignition primary coil for switching a current therethrough;

said current being induced by a magnetic field of said magnet of said flywheel;

first means responsive to said magnet for driving said first solid state switch device towards a conductive state to allow a flow of current through said ignition primary coil;

second means responsive to said magnet for driving said first solid state switch device towards a nonconductive state for switching said current through said ignition primary coil to cause an ignition impulse in said ignition secondary coil;

third means responsive to a magnetic flux responsive to switching said current through said ignition primary coil in said first common magnetic flux path for driving said first solid state switch device toward said nonconductive state when said first solid state switch device is driven towards said nonconductive state by said second means responsive to said magnet;

said third means including a conductive member adjacent to said first coils;

said conductive member including a conductive path on a printed circuit board adjacent to said first coils;

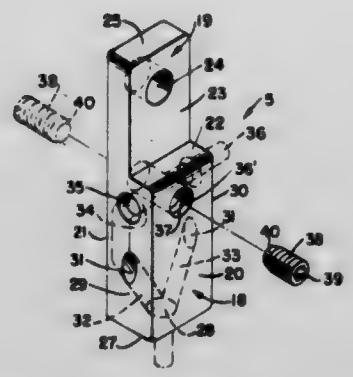
said printed circuit board having a plurality of conductive paths interconnecting said first coils, said first solid state switch device and said first and second means responsive to said magnet.

4,336,786

ATTACHMENT MEMBER FOR SECURING THE ENDS OF CABLES IN A COMPOUND BOW

Walter L. Mannon, and Cary L. Cochran, both of Alum Creek, W. Va., assignors to Victor United, Inc., Chicago, Ill.

Filed Aug. 6, 1980, Ser. No. 175,891
Int. Cl.[3] F41B *5/00*
U.S. Cl. 124—23 R 11 Claims



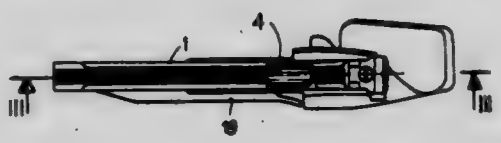
1. A compound archery bow having wheels eccentrically mounted upon pivot pins disposed adjacent the bow limb tips, a cable passing around said wheels and having free ends attached adjacent said wheels, a cable end attachment member mounted upon at least one said pivot pin, said attachment member including, a base section having a cable passageway therethrough for longitudinally adjustably receiving one said cable end therein, said base section including a plurality of walls and said cable passageway and a portion of said cable end extend through two said walls, said base section provided with a cable bore extending through two of said walls and receiving another portion of said cable end following said portion within said passageway, lock means selectively engageable with said cable end within said base section, a pivot section joined to said base section and having means adapted to receive said pivot pin whereby, a circuitous cable end pathway is defined by said attachment member.

4,336,787

PRE-COMPRESSED AIR WEAPON

Giacomo Cagnoni, Via Cassolnuovo 7, Abbiategrasso (Milan), Italy

Filed Jul. 21, 1980, Ser. No. 170,451
Int. Cl.[3] F41B *11/00*
U.S. Cl. 124—69 17 Claims



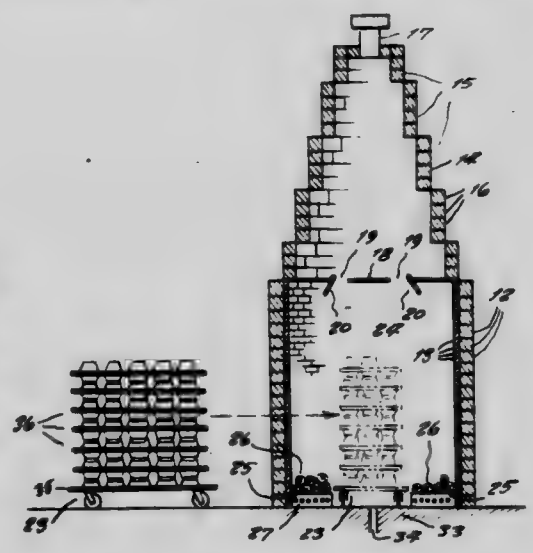
11. A weapon in the form of a compressed air gun with a frame, a barrel mounted therein and movable in the longitudinal direction, the rear extremity of said barrel being closable against a closure shoulder, a piston which is mounted in and displaceable within a cylindrical chamber for the aspiration and compression of the air, and a container with a closing valve, said container communicating with the barrel by means of a channel which is coaxial with respect to the barrel and a control mechanism for controlling the opening and closing of said valve, the longitudinal displacement of the barrel being coupled with that of the piston, a control lever means being provided for the displacement of the piston which control lever means is articulated on a body which comprises said cylindrical chamber and which lever is connected to the piston by means of a movable element, characterized in that on the piston there is provided a portion which protrudes in the generally radial direction and which protrudes toward the barrel through a slit provided in the body united to the cylindrical chamber and which is inserted in an oblong notch provided on the barrel; the surfaces which define said notch forming the engagement means for said radial portion; the length of said notch being less than the length of the run of the piston during the phase of aspiration and/or compression; a slide means being connected to said barrel so as to activate the control mechanism when the barrel is displaced in the axial direction.

4,336,788

HICKORY SMOKE BARBECUE OVEN

Ed Stein, 500 Laketower Dr. - 5 Pl., Lexington, Ky. 40502

Filed Oct. 8, 1980, Ser. No. 195,294
Int. Cl.[3] A47J *37/00*
U.S. Cl. 126—8 1 Claim



1. A hickory smoke barbecue oven, comprising, in combination, an oven component, a chimney thereupon, fixedly connected thereto, said oven component and said chimney being constructed of blocks, an inner liner of fire brick inside said oven member, said chimney being upwardly converged by stepped set backs, a smoke outlet pipe protruding upward from an upper end of said chimney; a steel plate between said oven component and said chimney, a plurality of vents through said plate adjustably closable by flap doors affixed to exterior handles; a doorway on the front side of said oven component, a steel door hinged in said doorway, a log rack along each side of an interior of said oven component, a gas burner under each said rack and gas valves on an exterior of said oven component front wall, a temperature control unit also mounted on said front wall; and a truck movable through said doorway, comprising a dolly and stacked racks thereupon, a concrete floor upon which said oven component is placed, and a drain opening in said floor communicating with said oven component interior; said doorway being at a center of said front wall, so that said truck is between said log racks when moved into said oven component.

4,336,789

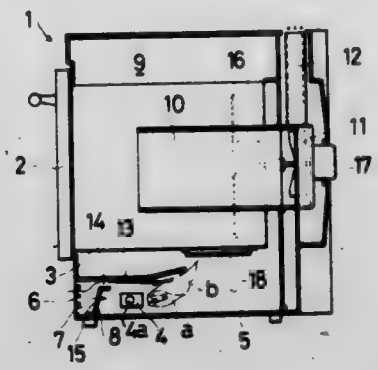
COOKING GAS OVEN

Kazuo Ogawa, Nagoya, Japan, assignor to Rinnai Kabushiki Kaisha, Nagoya, Japan

Filed Oct. 4, 1979, Ser. No. 82,214
Claims priority, application Japan, Oct. 5, 1978, 53/136125
Int. Cl.[3] A21B *1/00*
U.S. Cl. 126—21 A 2 Claims

1. A cooking gas oven comprising: an oven main body; a heating housing having a front opening and closing door; a combustion chamber of forcible exhaust type disposed below said heating housing; said combustion chamber having a burner, and an air intake passage for introducing external air through an air intake opening in an outside surface of said combustion chamber into a position at which said burner is located; the improvement comprising: a regulating plate in said passage reducing the air passageway and flowing air over the burner at an accelerated speed whereby the burner flame re-

mains generally horizontal, away from any direct contact with said oven main body; a partition plate extending over said



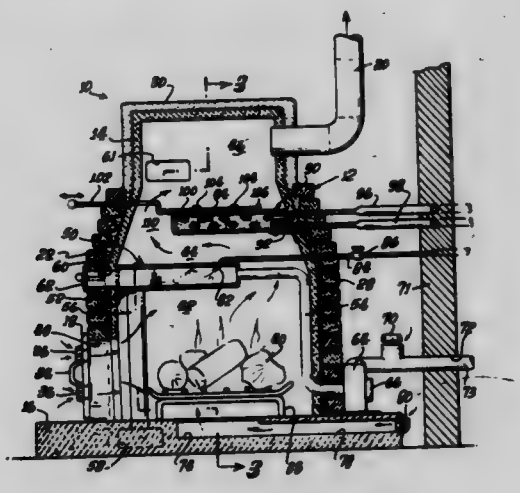
burner, a passage gap being formed between said partition plate and said regulating plate, so that air is introduced through said passage gap.

4,336,790

COMBUSTION APPARATUS AND METHOD OF ASSEMBLY

Gunther M. Bartsch, P.O. Box 1935, Zephyr Cove, Nev. 89448

Filed Jun. 30, 1980, Ser. No. 164,247
Int. Cl.³ F24C *1/00*; F24B *7/00*
U.S. Cl. 126—58 **6 Claims**



1. The method of assembling a combustion apparatus of the type containing a fuel burning chamber, a circulated air chamber with a humidifier incorporated therewith, and a heat sink mechanism for heating adjacent fluid conduit transporting apparatus which includes: (1) placing a fire and heat resistant base means upon a supporting surface; (2) providing a first fire and heat resistant combustion chamber liner means upon said base; (3) placing a first support means upon said combustion chamber liner means; (4) supporting a circulated air chamber means having a humidifier means incorporated therewith onto said first support means; (5) Stacking, in alignment, a second fire and heat resistant chamber liner means atop said first combustion chamber liner means; (6) placing a second support means upon said said second chamber liner means; (7) Supporting a combination heat sink means and adjustable damper means upon said second support means; (8) Installing a fluid transporting conduit means adjacent said heat sink means; and (9) stacking, in alignment, a fire and heat resistant vented closure means atop said second chamber liner means.

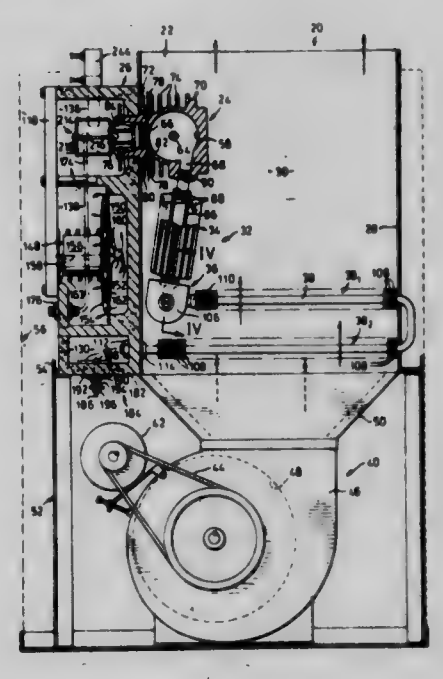
2. A combustion apparatus of the type containing a fuel burning chamber, a circulated air chamber with a humidifier incorporated therewith, and a heat sink mechanism for heating adjacent fluid conduit transporting apparatus which includes: a fire and heat resistant base means; a first fire and heat resistant combustion chamber liner means placed upon said base means; a first support means placed upon said first combustion chamber liner means; a circulated air chamber means having a humidifier means incorporated therewith; a second fire and heat resistant chamber liner means placed atop said first combustion chamber liner means; a second support means placed upon said second chamber liner means; a combination heat sink means and adjustable damper means placed upon said second chamber liner means; a fluid transporting conduit means located adjacent said heat sink means; and a vented fire and heat resistant means stacked in alignment upon said second chamber liner means.

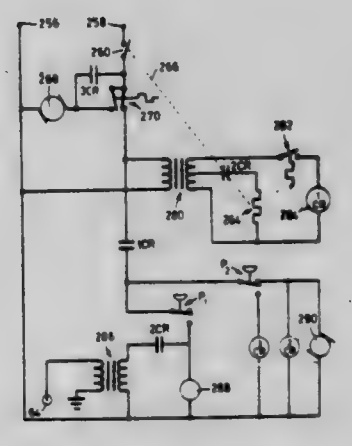
4,336,791

PULSE COMBUSTION APPARATUS

John A. Kitchhen, R.R. #3, Hastings, Ontario, Canada K0L 1Y0

Continuation-in-part of Ser. No. 148,624, May 12, 1980, Pat. No. 4,309,977. This application May 14, 1981, Ser. No. 263,635
Int. Cl.³ F24H *3/02*
U.S. Cl. 126—110 R **8 Claims**





8. In a pulse combustion apparatus including; a combustion chamber having a fuel charge inlet and an exhaust gas outlet; means associated with said combustion chamber inlet for admitting successive fuel charges to chamber, said means including inlet means for combustion air communicating with said combustion chamber inlet and including an air intake, blower means downstream of said intake and operable to deliver combustion air under pressure to said combustion chamber for starting, ignition means coupled to said combustion chamber and operable to initiate combustion in the chamber, gas supply means coupled to said combustion chamber inlet, and valve means adapted to control delivery of air/gas charges to said combustion chamber in accordance with the combustion cycle of the apparatus;

the improvement comprising:

a control system which includes:

starter means operable to activate said blower means when the apparatus is to be started;

first switch means responsive to a first predetermined air velocity in said air intake representing satisfactory operation of said blower means, said first switch means being coupled to and adapted to activate said gas supply means and said ignition means when said first predetermined velocity is achieved;

second switch means responsive to a second predetermined air intake velocity representing establishment of combustion in said combustion chamber and adapted to de-activate said ignition means and blower means while maintaining said gas supply when said second predetermined air intake velocity is achieved; and,

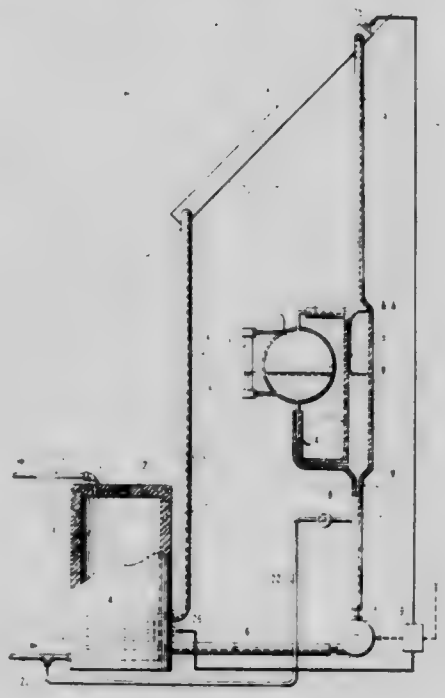
timer means coupled to said starter means, gas supply means and second switch means and adapted to shut off the gas supply means if the second switch means has not been operated after a predetermined time interval from initial operation of said starter means.

4,336,792

SOLAR HEATING FREEZE PROTECTION SYSTEM

Edwin N. Seiler, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 29, 1980, Ser. No. 182,668
Int. Cl.³ F24J 3/02
U.S. Cl. 126—420 **4 Claims**



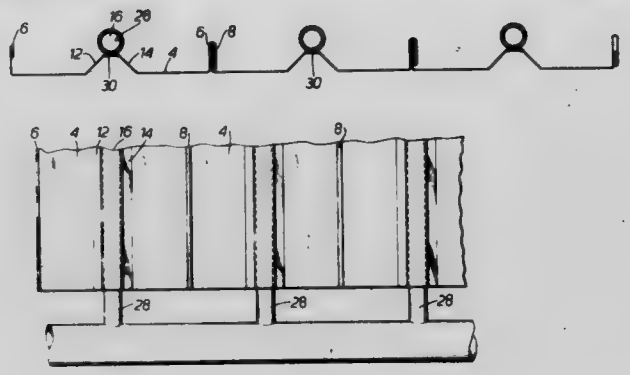
1. A solar energy system for heating water comprising a closed piping system including an elevated solar collector exposed to solar radiation and to freezing temperatures, storage means protected from freezing temperatures, pump means for circulating water in the system, said system containing both air and water and being arranged to permit drain-back of water from the collector and replacement thereof with air when the circulating means is not operating, characterized in that bypass means parallel the storage means, the bypass means enabling flow therethrough of the full volume of water circulated in the system and enabling substantially complete separation of air entrained in the water for accumulation in the storage means, whereby substantially no water flows through the storage means during operation.

4,336,793

STRIP FOR FORMING A SOLAR PANEL

James J. Ahearn, Hampton, and Kenneth C. Culph, Mount Waverley, both of Australia, assignors to Ahearn, Main & Stott Pty. Ltd., North Richmond, Australia

Filed Oct. 16, 1980, Ser. No. 197,435
Claims priority, application Australia, Oct. 23, 1979, PE1035
Int. Cl.³ F24J 3/02
U.S. Cl. 126—450 **9 Claims**



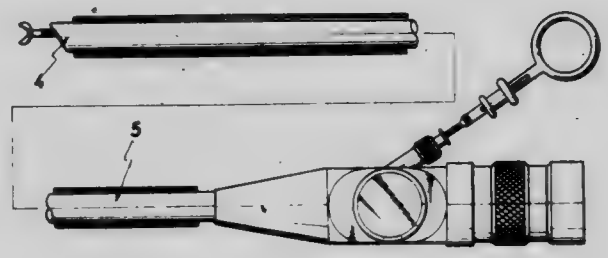
1. A strip for forming a combination solar energy collecting panel and roof surface, said strip being formed from sheet metal and having a flat upper side and a lower side, said upper side being coated with solar energy absorbent material, said strip being formed with first and second flanges extending longitudinally on opposite marginal edges, said first and second flanges being of generally complementary shape so that the first flange can interlock with the second flange of an adjacent strip whereby a plurality of strips can be interlocked together to form said panel and said roof surface, said strip being formed with a longitudinally extending portion intermediate of the first and second flanges, said portion projecting upwardly from the said flat upper side, said portion including an elongate channel which is open to the lower side of the strip, said channel receiving and snugly engaging a conduit for a heat transfer fluid, said channel being shaped so as to engage more than approximately 225° of the circumference of said conduit, the upper extremity of the channel being located above the upper extremities of said first and second flanges, and wherein said longitudinally extending portion includes first and second longitudinally extending faces, said faces being generally perpendicular to one another and being joined together by said elongate channel.

4,336,794

GUIDE TUBE

Toshio Chikama, Tokyo, Japan, assignor to Machida Endoscope Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 968,024, Dec. 11, 1978, abandoned.
This application Oct. 20, 1980, Ser. No. 198,351
Claims priority, application Japan, Feb. 1, 1978, 53-10087[U]
Int. Cl.³ A61B 1/00
U.S. Cl. 128—4 **4 Claims**



1. A hollow elongated guide tube having open ends and a generally circular cross-section for insertion into the body through a body tube or cavity enabling a medical instrument to pass through said open ends to extend into the body, said guide tube comprising:

a porous material having exposed outer and interior surfaces, said interior surface of said porous material forming a substantially fixed circular cross-section, said circular cross-section having a diameter of a size to allow a medical instrument to pass therethrough,

a water-proof coating placed on at least the exposed outer surface to form a water-proof outer surface for said guide tube,

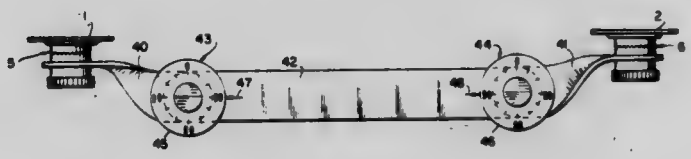
said guide tube being bendable to accommodate its insertion in the body, said porous material being compressible, said guided tube being bent and said porous material compressing at the bend maintaining said circular cross-section of said internal surface of said guide tube.

4,336,795

DEROTATION BRACE

Steven B. Nichols, 739 Wildwood Rd., West Hempstead, N.Y. 11552

Division of Ser. No. 13,470, Feb. 21, 1979, Pat. No. 4,263,901.
This application Apr. 27, 1981, Ser. No. 257,862
Int. Cl.³ A61F *3/00*
U.S. Cl. 128—80 A **7 Claims**



1. An orthopedic appliance comprising:

a pair of connection means for connection to a respective shoe of a patient;

at least three elongated members, each having first and second ends, one of said elongated members comprising a central member and the other two of said elongated members each having ends which are pivotally connected to said central member at the respective opposite ends of said central member, the free ends of each other two elongated members being coupled to a respective connection means;

adjustment means for adjustably connecting said connection means to the respective free ends of said other two elongated members;

said elongated members extending between and spanning the distance between said connecting means to maintain the respective connecting means spaced apart;

said pivotal connections of said elongated members being intermediate said respective connection means;

means at said respective pivotal connections of said elongated members for releasing and locking said respective pivotal connections to permit pivoting of said other two elongated members relative to said central member, independent of the adjustable connection of said connection means to said respective free ends of said other two elongated members, and for locking of said elongated members relative to each other at a desired relative pivotal angular orientation between said elongated members; and

scale means at said respective pivotal connections for indicating the angular orientation of each of said other two elongated members relative to said central member about said pivotal connections.

4,336,796

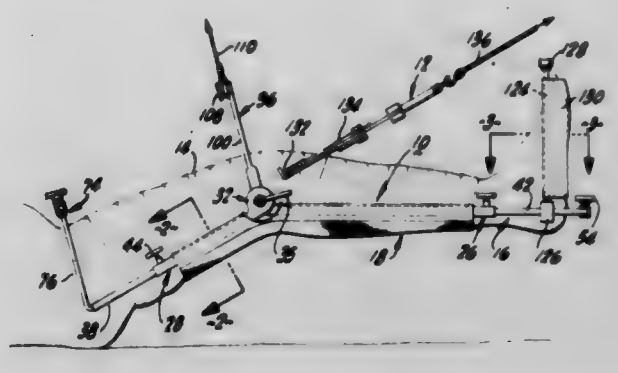
ADJUSTABLE LOWER EXTREMITY SPLINT WITH SINGLE POINT SUSPENSION

E. Trent Andrews, 2 Northgate Dr., San Francisco, Calif. 94127, and Robert Moore, 4010 East Ave., Hayward, Calif. 94542

Filed Aug. 4, 1980, Ser. No. 174,567
Int. Cl.³ A61F *5/04*
U.S. Cl. 128—87 R **9 Claims**

1. A lower extremity splint useable with an overhead suspension structure, said lower extremity splint comprising:

a frame structure having opposed first sides formed of lateral members, opposed second sides formed of cross structures connected to said lateral members, said lateral members each having a substantially centrally located articulation joint with locking means for select articulation and locked angular positioning of said lateral members on an axis common to said articulation joints, and a single support



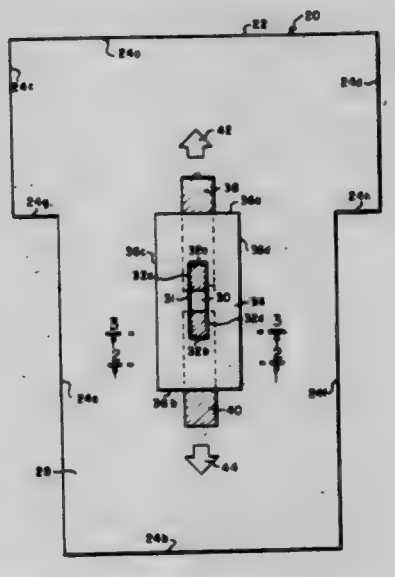
means connected to said frame structure proximate said articulation joints for supporting said frame structure from a single support line connected to the overhead suspension structure; and, sling means connected to said frame structure adapted for supporting a user's lower extremity in said splint.

4,336,797

ADJUSTABLE SURGICAL DRAPE

Vincent Latucca, 245 E. 57 St., New York, N.Y. 10022, and Burton Bronsther, 195 Village Ave., Rockville Center, N.Y. 11570

Filed Aug. 25, 1980, Ser. No. 180,591
Int. Cl.³ A61F *13/00*
U.S. Cl. 128—132 D **12 Claims**



1. A surgical drape comprising:

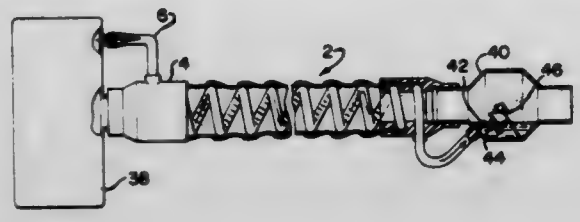
a flexible drapable main sheet having upper and lower surfaces, said main sheet having a fenestration therein; a closure member having upper and lower surfaces disposed in overlapping relation with said main sheet; and means for securing said closure member to said main sheet for sliding movement relative thereto for selectively obstructing any desired portion of said fenestration.

4,336,798

MEDICAL CORRUGATED RESPIRATORY TUBE

Anthony V. Beran, 3802 Teakwood, Santa Ana, Calif. 92704, assignor to Anthony V. Beran, Costa Mesa, Calif.

Filed Oct. 6, 1980, Ser. No. 194,582
Int. Cl.[3] A61M *16/00*
U.S. Cl. 128—200.14 13 Claims



8. A medical ventilator and humidification system comprising:

a ventilator assembly for generating pressurized gas;

a first hollow helical coil conduit having an inlet communicating with a first source of pressurized gas fluid from the ventilator assembly and an outlet, the inner circumference of the helical coil includes a plurality of regularly spaced creases extending substantially parallel to a longitudinal axis of the helix formed by the first helical coil conduit while the outer circumference of the helical coils are substantially smooth;

a pliable covering member of substantially transparent flexible plastic tape interconnecting the helical coils in an overlapping manner to form a larger second conduit having an inlet communicating with a second source of pressurized gas from the ventilator assembly and an outlet for enabling the exit of the gas from the ventilator assembly, the spacing of the coils and resiliency characteristics of the coil conduit defining sufficient parameters to provide a flow path along the second conduit;

a reservoir of fluid having a gas flow path therethrough connected to the outlet of the second conduit;

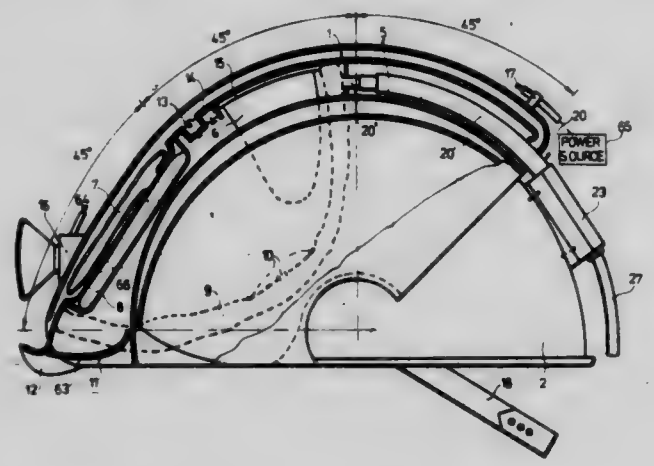
a nozzle member connected to the reservoir and to the outlet of the helical coil conduit and communicating with the flow path of the reservoir to vaporize the fluid therein for introduction into the gas carried by the second conduit.

4,336,799

APPARATUS FOR SUPPLYING OXYGEN TO A USER

Istvan Almasi; Ferenc Kassai, and Attila Erdelyi, all of Budapest, Hungary, assignors to Banyaszati Aknamelyito Vallalat, Budapest, Hungary

Filed Sep. 3, 1980, Ser. No. 183,933
Int. Cl.[3] A62B *18/04*
U.S. Cl. 128—201.24 11 Claims



1. An apparatus for supplying oxygen to a user, said apparatus comprising:

a helmet;

a visor shiftably mounted on said helmet for normally assuming an out-of-use position and for assuming an in-use position over the face of said user upon manipulation thereby;

an oxygen-containing vessel attachable to a belt worn by said user;

conduit means connected at one end to said vessel and at another end to said visor for forming a gas-guiding channel between said vessel and a space formed between the face of said user and said visor upon a shifting thereof into said in-use position;

gas-flow control means on said vessel for enabling communication between said vessel and said conduit means, said gas-flow control means including first means for conveying oxygen-containing gas from said vessel to said enclosed space at a relatively slow rate during a substantially steady-state operation of said apparatus and second means for conveying gas from said vessel to said enclosed space at a relatively high rate during a transient state involving an initial charging of said enclosed space upon a shifting of said visor into said in-use position; and

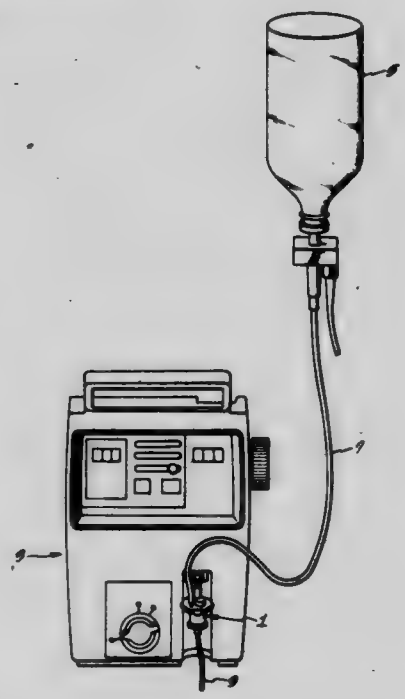
force-transmitting means extending from said visor to said gas-flow control means for actuating same to connect said vessel to said conduit means upon a shifting of said visor into said in-use position.

4,336,800

INTRAVENOUS METERING DEVICE

Giovanni Pastrone, Los Gatos, Calif., assignor to Oximetrix, Inc., Mountain View, Calif.

Filed Aug. 1, 1980, Ser. No. 174,666
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—214 F 9 Claims



1. A device which precisely meters fluids for intravenous delivery from a source of fluid to a patient, said device comprising:

a fluid pumping means for receiving fluid and for metering fluid so received to the patient, said fluid pumping means including a pumping chamber together with means for varying the volume of said pumping chamber;

an inlet means for permitting fluid to enter said fluid pumping means, said inlet means including a pumping chamber inlet in fluid communication with said pumping chamber, said inlet means also including a first valve means positioned within said pumping chamber inlet to control the entry of fluid into said fluid pumping means;

an outlet means for permitting fluid to exit said fluid pumping means, said outlet means including a pumping chamber outlet in fluid communication with said pumping chamber, said outlet means also including a second valve means positioned within said pumping chamber outlet to control the exit of fluid from said fluid pumping means;

a support structure having a device inlet formed therein for connection to the source of fluid; and

gas retention chamber means interposed between said support structure and said inlet means for providing a circuitous fluid path from said device inlet to said pumping chamber inlet such that fluid received by said fluid pumping means is free of gas bubbles, said gas retention chamber means including an upper chamber portion having a shape which enables the formation of a gas-liquid interface therein, said gas retention chamber means also including a lower chamber portion disposed below said pumping chamber inlet for holding liquid free of gas bubbles and a passageway means lower chamber portion disposed below said pumping chamber inlet for holding liquid free of gas bubbles and a passageway means connected between said lower chamber portion and said inlet means for passing liquid free of gas bubbles in an upward direction from said lower chamber portion to said pumping chamber inlet.

4,336,801

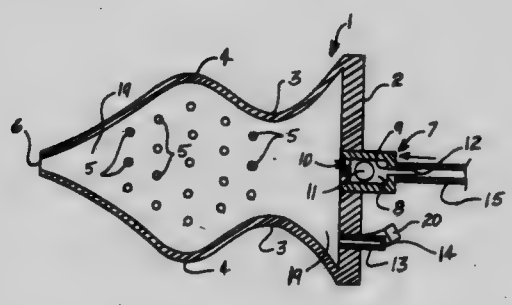
DOUCHE NOZZLE

Samuel W. Sentell, Rte. 7, Box 50; Jean S. Mendenhall, 579 N. Marlbourough Cir., both of Shreveport, La. 71106; Sallie S. Roberts, P.O. Box 80155, Baton Rouge, La. 70808, and C. Sherburne Sentell, Jr., Box 752, Minden, La. 71055

Filed Aug. 4, 1980, Ser. No. 174,833

Int. Cl.³ A61M *3/00*

U.S. Cl. 128—239 9 Claims



1. A douche nozzle for discharging douche solution into the vaginal canal, having a hollow interior and comprising a base having a first surface tapering from the outer periphery of said base toward a central, longitudinal axis through the center of said base to define a narrow, round neck, said neck having a second surface continuous with said first surface and tapering away from said base and said axis to further define a bulbous enlargement spaced from said base and having a plurality of apertures communicating with said hollow interior, and said enlargement further characterized by a third surface continuous with said second surface and tapering toward said axis and away from said base to define a nozzle aperture communicating with said hollow interior, wherein the ratio of the inside diameter of said nozzle aperture to the inside diameter of said enlargement is about 1 to 7.

4,336,802

PARENTERAL SOLUTION CONTAINER FOR ASEPTIC MIXING

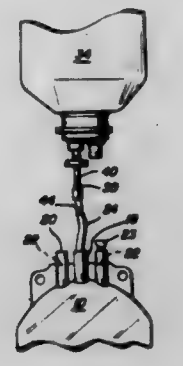
Albert J. Stone, Buffalo Grove, and Michael D. Nissen, Crystal Lake, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jul. 28, 1980, Ser. No. 172,893

Int. Cl.³ A61J *1/00*

U.S. Cl. 128—272 6 Claims

1. A flexible, collapsible container, carrying therewith a volume of solution comprising from 30 to 70 percent of the holding capacity of said collapsible container, said solution being selected from the group consisting of a carbohydrate parenteral solution and an amino acid nutrient parenteral solution, said container defining at least a pair of access ports, one of the ports being sealingly connected to a flexible, crimpable, thermoplastic tubing length of at least 1¼ inches, and a sealed connector member carried on the outer end of said flexible thermoplastic tubing, said sealed connector member defining a sleeve including a sealing diaphragm in the bore thereof, said sleeve constituting an extension of said flexible thermoplastic tubing, and a second container which includes the other type



of said parenteral solutions in a volume approximately corresponding to the remaining empty volume of said first flexible collapsible container; said second container having a piercing spike positioned in said sleeve in sealingly-entered and diaphragm-rupturing relationship therewith, for transfer of the contents between said containers.

4,336,803

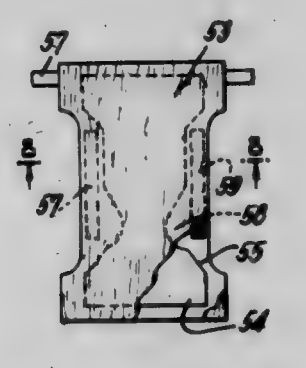
SHAPED ABSORBENT PAD FOR DISPOSABLE DIAPERS

Virginia L. Repke, Oak Forest, Ill., assignor to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Continuation-in-part of Ser. No. 865,464, Dec. 29, 1977, abandoned. This application Dec. 17, 1979, Ser. No. 104,518

Int. Cl.³ A41B *13/02*

U.S. Cl. 128—287 8 Claims



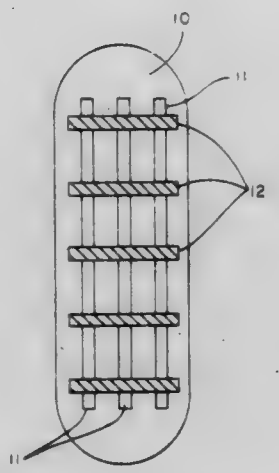
1. A shaped disposable diaper comprising; an impervious backing layer and a pervious facing layer, said layers being coextensive, and an absorbent pad disposed between said layers and spaced inwardly from the end margins and side margins of said facing and backing layers, said facing and backing layers having their greatest width at said end margins and a narrower width between said end margins, said pad having its widest portions adjacent the end margins and being narrower in the center portion of the pad, said pad having an indentation in each longitudinal edge adjacent said side margins, said indentations being disposed symmetrically opposite each other and being positioned approximately one-third the distance from one end of the pad to provide a short area between the one end of the pad and a first portion of the indentation, and a long area between the opposite end of the pad and a second portion of the indentation, the first portion of the indentation having substantially the shape of a minor portion of a circle having an arc from about 90° to about 120°, providing the deepest part of the indentation, a second portion of each indentation being formed by a line of uniformly straight slope from the deepest part of the indentation to the longitudinal side of the pad at an angle from about 30° to about 45° to the sides of the pad, the second portion of each indentation having a substantially triangular shape.

4,336,804

SANITARY NAPKIN WITH GARMENT SUSPENSION ADHESIVE BUT WITHOUT RELEASE PAPER COVERING

Robert J. Roeder, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Mar. 23, 1981, Ser. No. 246,630
Int. Cl.³ A61F *13/16*
U.S. Cl. 128—290 R **5 Claims**



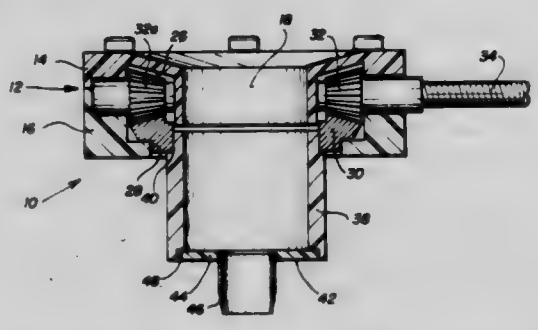
1. A sanitary napkin with a body facing surface and a garment facing surface, comprising in combination an absorbent batt, a fluid impermeable baffle positioned between the batt and the garment of the wearer and adhesive attachment means on the garment facing side said attachment means including a plurality of discrete portions of pressure sensitive adhesive terminating prior to the ends of the garment facing surface said pressure sensitive adhesive being covered in spaced selected areas by a nonpressure sensitive adhesive.

4,336,805

CORNEAL TREPHINE

Heinz Smirmaul, 1207 Spring Lake Dr., Duncanville, Tex. 75137

Continuation of Ser. No. 17,492, Mar. 5, 1979, abandoned. This application Aug. 5, 1980, Ser. No. 175,577
Int. Cl.³ A61B *17/32*
U.S. Cl. 128—310 **1 Claim**



1. A corneal trephine comprising: a ring shaped body having a central opening therethrough of a diameter greater than the diameter of the cornea;

said ring shaped body having a chamber therein;

a ring gear mounted within said chamber of said ring shaped body for rotation about an axis extending through said ring shaped body;

cylindrical adapter means of transparent material and having first and second ends and being aligned with said central opening of said ring shaped body;

said cylindrical adapter means being releasably coupled at said first end to said ring gear for rotation about said axis;

said cylindrical adapter means having an opening therethrough of diameter greater than the diameter of the cornea;

said second end of said cylindrical adapter means including an annular groove;

transparent disk means having a diameter greater than the diameter of the cornea and being releasably received by said annular groove in said second end of said cylindrical adapter means to facilitate removal and disposal of said transparent disk means;

cylindrical cutting blade means for axially cutting the cornea and having a selectable predetermined diameter less than the diameter of said transparent disk means and being mounted concentrically on said transparent disk means;

flexible drive shaft means extending from said ring shaped body and transversely disposed to said axis;

means for connecting said flexible drive shaft means to said ring gear for rotating said cylindrical adapter means and said cylindrical cutting blade means about said axis; and

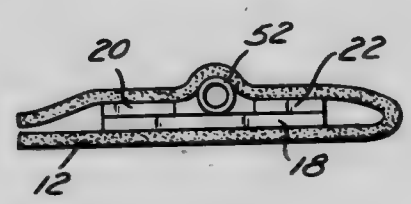
said connecting means including bearing means mounted within said chamber for supporting said ring gear and pinion gear means connected to said flexible drive shaft means and being rotatably mounted within said chamber for meshing with said ring gear.

4,336,806

MEDICAL TUBING HOLDER

John Eldridge, Jr., Balboa Island, Calif., assignor to Instranetics, Inc., Tustin, Calif.

Filed May 7, 1980, Ser. No. 147,632
Int. Cl.³ A61M *25/00*; F16L *3/08*
U.S. Cl. 128—348 **3 Claims**



1. A medical tube holder comprising:

(a) a backing strip having front and back surfaces, said strip having first and second sections adapted to be folded at their junction one on top of the other;

(b) a first magnetic material mounted on the front surface of said first section;

(c) a second magnetic material spaced from said first magnetic material and mounted on the front surface of said second section;

(d) a third magnetic material spaced from said first and second magnetic materials and mounted on the front surface of said second section between said first and second magnetic materials, said first magnetic material having magnetic attraction for said second and third magnetic materials;

said first, second and third magnetic materials being positioned so that said second and third magnetic materials mutually engage said first magnetic material when said strip is folded along said junction, the space between said first and third magnetic materials forming a first preferential tube receiving location, the space between said second and third magnetic materials forming a second preferential tube receiving location, said strip being adapted to secure tubing within said locations between said sections when in their folded position.

4,336,807

WAISTCOAT FOR THERAPEUTIC TREATMENT

Gerrit J. Benckhuijsen, Schaan, Liechtenstein, assignor to Temova Etablissement, Schaan, Liechtenstein

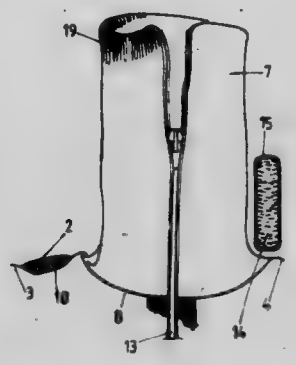
Filed May 20, 1980, Ser. No. 151,617
Claims priority, application Switzerland, May 21, 1979, 4739/79
Int. Cl.³ A61N *00/00*
U.S. Cl. 128—379 **4 Claims**

1. A waistcoat for therapeutic treatment adapted to closely fit the neck, shoulders and at least the upper trunk of a wearer and having front and back parts joined at the shoulder and side

lines of the trunk, an elastic band at the lower edge, sleeves, a separating fastener along the front, and a collar part extending upward from the front and back parts, characterized by:

being made of elastic knitted textile fabric comprising a mixture of long, non-hygroscopic polyvinyl chloride fibres and acrylic fibres spun on a worsted basis and suitable for generating static electricity on frictional movement against the skin of a wearer;

the collar, front and back parts each comprising at least a double layer of the fabric wherein the inner layer fits close to the skin, the layers are movable in sections in relation to



each other, and at least the collar and back parts having a mesh sufficiently large to allow evaporation of skin moisture of a wearer;

the collar part being at least twice as high as and covering the neck of a wearer and designed in such a way as to provide a stiff support for the neck when the top half is folded down onto the lower half while at the same time the inner layer of the textile fabric adheres to the skin of the neck, jaw and occipital region and the folded collar part exerts pressure on the neck region, and a pocket for a neck support is provided between the folded down upper and lower halves.

4,336,808

ULTRASONIC WAVE PROBE

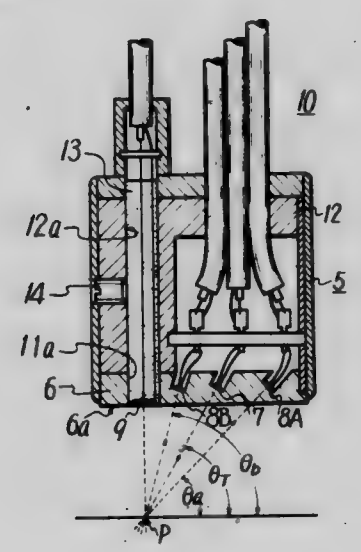
Mitio Ohno, Kawasaki; Yoichi Shimada, Yokohama; Hiroshi Furuhata, Kasukabe; Ryoichi Kanno, Funabashi; Kuniyasu Kodaira, and Hirozi Matumoto, both of Kawasaki, all of Japan, assignors to Shozo Yoshimura and Hayashi Denki Co. Ltd., both of Kawasaki, all of, Japan

Filed Apr. 16, 1980, Ser. No. 140,852

Claims priority, application Japan, Apr. 24, 1979, 54-55342[U]

Int. Cl.³ A61B *10/00*

U.S. Cl. 128—663 **8 Claims**



1. An ultrasonic probe for determining characteristics of blood flow in a body vessel comprising a casing having one wall provided with a substantially planar exterior reference face adapted for contact with the body surface adjacent the vessel to be tested, an ultrasonic wave transmitting and a pair of ultrasonic wave receiving vibrators fixedly mounted in said one wall in linear alignment with said transmitting vibrator interposed between said pair of receiving vibrators, each of said vibrators being arranged at an angle to the plane of said exterior face so that their respective lines of wave action intersect at a point substantially at the center of blood flow in the vessel being tested, said transmitting receiver being set at an angle of about 60°–65° to the said substantially planar exterior reference face, and therefore to the approximate direction of blood flow and the angle between the respective lines of wave action of each of said receiving vibrators and the said substantially planar exterior reference face and therefore to the approximate direction of blood flow being both acute angles and said lines of action being angularly equi-distract from the line of action of said transmitting vibrator.

4,336,809

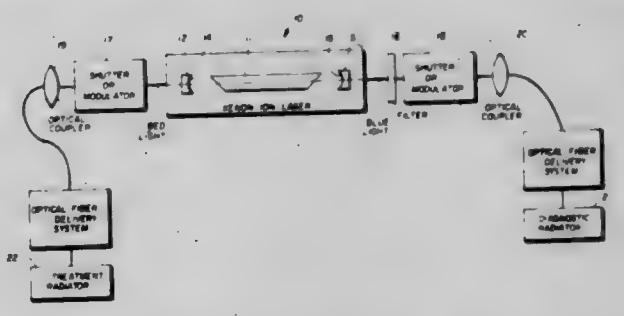
HUMAN AND ANIMAL TISSUE PHOTORADIATION SYSTEM AND METHOD

William G. Clark, Pittsford, N.Y., assignor to Burleigh Instruments, Inc., Fishers, N.Y.

Filed Mar. 17, 1980, Ser. No. 131,022

Int. Cl.³ A61B *6/00*

U.S. Cl. 128—665 **13 Claims**



1. A tissue photoradiation system using a hematoporphyrin or hematoporphyrin derivative dye in tissue to be irradiated, said system comprising:

a. a xenon ion laser arranged for simultaneous lasing to produce deep blue light at wavelengths from about 406 to 427 nanometers and red light at a wavelength of about 627 nanometers;

b. partially transmitting mirrors arranged at opposite ends of a resonator for said laser;

c. one of said mirrors having a coating that substantially reflects said blue light and partially transmits said red light to produce a red light output;

d. the other of said mirrors having a coating that substantially reflects said red light and partially transmits said blue light to produce a blue light output;

e. means for transmitting said blue light output to said tissue to diagnose the condition of said tissue; and

f. means for transmitting said red light output to said tissue for treatment purposes.

4,336,810

METHOD AND APPARATUS FOR ARRHYTHMIA ANALYSIS OF ECG RECORDINGS

Donald L. Anderson, San Juan Capistrano; Isaac R. Cherry, Mission Viejo; John A. Ripley, Newport Beach, and David T. Tanaka, San Juan Capistrano, all of Calif., assignors to Del Mar Avionics, Irvine, Calif,

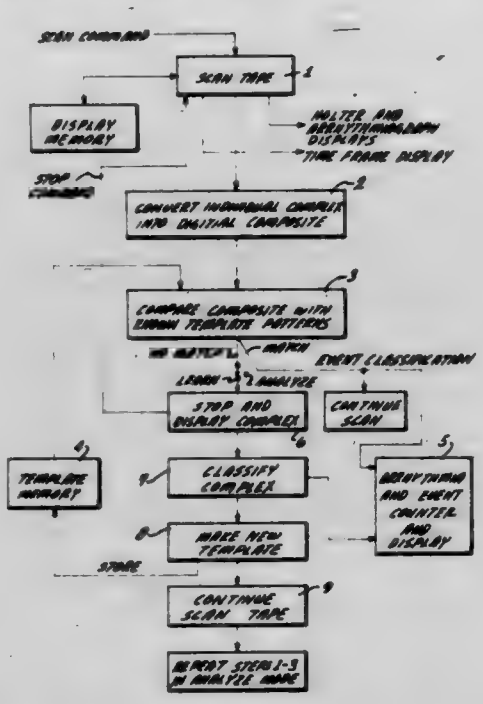
Filed Sep. 30, 1980, Ser. No. 192,192

Int. Cl.³ A61B *5/04*

U.S. Cl. 128—702 **40 Claims**

1. In a method for the analysis of a tape recording of ECG signals for normal and arrhythmic events, the steps of scanning the tape recording at high speed to create an electrical signal comprising a succession of complexes representing successive heart beats, generating composites comprising a plurality of digital words which represent measured parameters character-

izing each complex, comparing each successive composite with a plurality of known templates or conditions based on prior classifications of composites of the same tape recording and outputting an event signal if a match between a composite and a template or a condition is found, counting event signals corresponding to specific normal or arrhythmic events, and continuing to scan the tape until a no-match is found between



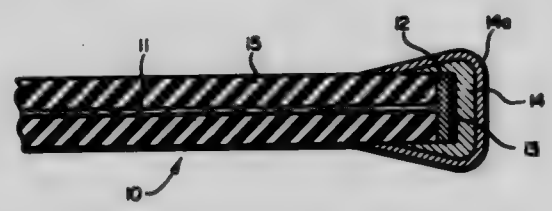
the composite and any template or condition, stopping the scan and presenting a CRT analog display of the complex corresponding to said unmatched composite, classifying the complex, forming and storing an additional template based on the classification, incrementing the count of event signals according to the classification and continuing to scan the tape to completion.

4,336,811

PROSTHESIS ELECTRODE WITH MULTI-LAYER MEMBRANE

Theodore R. Beck, Seattle, and Robert T. Ruggeri, Kirkland, both of Wash., assignors to Electrochemical Technology Corp., Seattle, Wash.

Continuation-in-part of Ser. No. 13,915, Feb. 22, 1979, abandoned. This application Jul. 9, 1980, Ser. No. 167,201
Int. Cl.³ A61N *1/04*
U.S. Cl. 128—784 **18 Claims**



1. A prosthesis electrode for electrically stimulating body tissue, said electrode comprising:

wire means for conducting an electric signal;

a metallic tip at the end of said wire means;

a non-metallic coating on said tip, said non-metallic coating being composed of a compound which can be oxidized and reduced cyclically in response to a biphasic pulse;

ion-conducting membrane means surrounding said tip and overlying said non-metallic coating for preventing the tip and said coating from contacting said body tissue;

said coating being in the form of a layer interposed between said tip and said membrane means;

said membrane means comprising a specific ion-conducting inner membrane layer adjacent said coating and comprising means for inhibiting movement into said body tissue of soluble ions of said coating which may be toxic to the body tissue;

said membrane means also comprising a non-specific ion-conducting outer membrane layer on the side of said inner membrane layer opposite said coating, said outer membrane layer comprising means for preventing changes in salt concentration in the body tissue adjacent said electrode during a biphasic pulse;

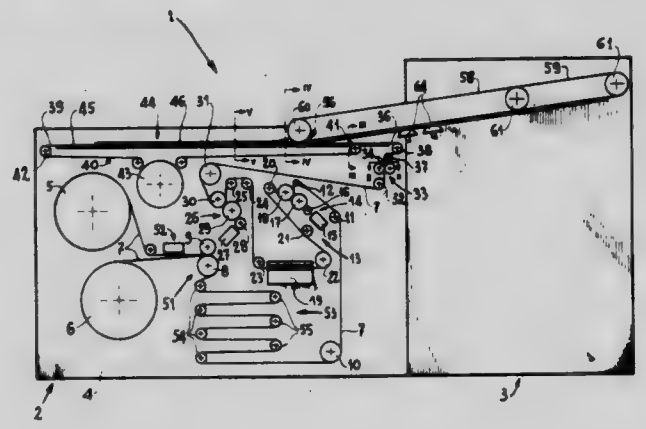
said outer membrane layer being composed of a material which is non-toxic to said body tissue.

4,336,812

MACHINE FOR SIMULTANEOUSLY PRODUCING TWO CONTINUOUS CIGARETTE RODS

Enzo Seragnoli, Bologna, Italy, assignor to G.D. Societa per Azioni, Bologna, Italy

Filed May 12, 1980, Ser. No. 149,000
Claims priority, application Italy, May 22, 1979, 49133 A/79
Int. Cl.³ A24C *5/14, 5/18, 5/39*
U.S. Cl. 131—84 R **7 Claims**



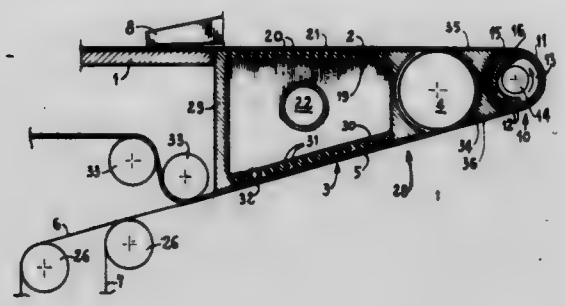
1. A manufacturing machine for simultaneously producing two continuous cigarette rods comprising a paper feed device (2) arranged to feed paper in web form (7) along a first determined path, and a device (3) for forming a substantially uniform layer (57) of shredded tobacco and for feeding said layer along a second determined path, said first and second paths intersecting at a station (56) for loading said layer of tobacco (57) on to said paper in web form (7), characterised in that said paper feed device comprises, in combination, a cutting unit (33) disposed in said first path in order to cut said web (7) along the longitudinal axis thereof into two equal strips (36); printing means (13-26) disposed in said first path upstream of said cutting unit (33) for marking equal graphical signs on said web (7) on each side of said longitudinal axis; feed means (40-9) for feeding said web (7) to said cutting unit (33) by way of said printing means (13-26) and for feeding said strips (36) separately through said loading position (56); and said layer of tobacco comprises two substantially uniform equal fillers (57) of shredded tobacco, said forming and feed device (3) comprising, in combination, an inlet hopper (68) for the shredded tobacco, two suction conveyor belts (58-59), each of which is arranged to support a respective one of said fillers (57) and to feed it on to the relative said strip (36) at said loading station (56), and distributor means (69-79) for withdrawing the shredded tobacco from said hopper (68), dividing it into two equal streams and continuously feeding said two streams each to below the respective said suction conveyor belt (58-59); trimmer means (64) being disposed below each of said suction conveyor belts in order to control the thickness of said fillers.

4,336,813

STRIP GUIDING DEVICE, PARTICULARLY FOR CIGARETTE MAKING MACHINES

Enzo Seragnoli, Bologna, Italy, assignor to G.D. Societa per Azioni, Bologna, Italy

Filed Sep. 25, 1980, Ser. No. 190,797
Claims priority, application Italy, Oct. 8, 1979, 50484 A/79
Int. Cl.[3] A24C *5/04, 5/20, 5/14, 5/31*
U.S. Cl. 131—84 C 5 Claims



1. A strip guiding device, particularly for the automatic forward movement of at least a strip of paper along a substantially U-shaped path comprising a first and a second end branch connected to one another by an intermediate curved section, at least the said second branch, disposed downstream of the said curved section in the direction of advancement, extending, at least partially, along a conveyor device for the forward movement of the said strip, characterized in comprising at least a perforated pulley pivotally mounted about an axis passing through the centre of curvature of the said curved section, at least a chamber having a perforated wall disposed at least along the said second branch in contact with the said conveyor device, and suction means which communicate with the interior of the said pulley and the said chamber; a portion of the periphery of the said perforated pulley defining the said curved section of the path, and the remaining portion of the periphery of the said perforated pulley cooperating in a fluid-tight fashion with a fixed cylindrical surface; and the said conveyor device comprising an air-permeable ring-shaped belt conveyor.

4,336,814

PROCESS FOR EXPANDING TOBACCO

Larry M. Sykes, Ray G. Snow, both of Richmond, Roger Z. de la Burde, Powhatan, and Patrick E. Aument, Richmond, all of Va.; assignors to Philip Morris Incorporated, New York, N.Y.

Continuation of Ser. No. 822,793, Aug. 8, 1977, abandoned. This application Sep. 5, 1979, Ser. No. 72,647
Int. Cl.[3] A24B *3/18*
U.S. Cl. 131—291 3 Claims

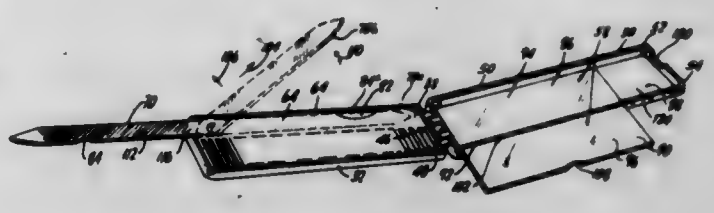
1. In the method of expanding tobacco which comprises the steps of (1) impregnating the tobacco with liquid carbon dioxide under conditions such that substantially all of the liquid carbon dioxide is maintained in liquid form so impregnate the tobacco with the liquid carbon dioxide, (2) subjecting the liquid carbon dioxide-impregnated tobacco to conditions such that the liquid carbon dioxide is converted to solid carbon dioxide and (3) thereafter subjecting the solid carbon dioxide-containing tobacco to conditions whereby the solid carbon dioxide is vaporized to cause expansion of the tobacco, the improvement which comprises: (i) utilizing as the tobacco which is employed in step (1) a tobacco which has an OV content of from about 17 to about 30%, (ii) conducting the impregnation step under pressure in the range of from about 250 psia to about 450 psia, and (iii) conducting the third step in such a manner that the moisture content of the expanded tobacco obtained from the third step is no higher than about 6%.

4,336,815

GROOMING APPARATUS

Abraham Ross, 23 E. 26th St., New York, N.Y. 10010

Filed Oct. 6, 1980, Ser. No. 194,006
Int. Cl.[3] A45D *24/08*
U.S. Cl. 132—143 9 Claims



1. A combined comb and nail treatment device comprising a housing, said housing including a first housing element and a second housing element, said first housing element pivotably secured to said second housing element, said first housing element including a base and side walls and an open mouth portion, said second housing element including a base and side walls and another open mouth portion, said base and said side walls of said first housing element defining a first cavity in said first housing element, said base and said side walls of said second housing element defining a second cavity within said second housing element, a comb, said comb having a spine portion and a plurality of elongated teeth, a first elongated notch dispersed in said spine portion of said comb, a blade-like element, said blade-like element pivotably secured to said spine portion of said comb, said comb removably engaged within said first cavity, means to entirely confine said comb within said first cavity and said second cavity when said open mouth portion of said first housing element is disposed in juxtaposed relationship over said another open mouth portion of said second housing element, means to extend a portion of said blade-like element outwardly from said first notch of said comb, means to secure said portion of said blade-like element against rotation when said portion of said blade-like element is extended outwardly of said first and said second housing element are juxtaposed over one another, wherein said means to secure said portion of said comb against rotation includes a second notch, said second notch being disposed in one of said side walls of the said second housing.

4,336,816

DEVICE FOR CLEANING SMALL OBJECTS, ESPECIALLY DENTURES

Eberhard Horz, Glashutten; Robert Wirsing, Neu Isenburg, and Gunter Hoffmann, Hofheim, all of Fed. Rep. of Germany, assignors to Braun Aktiengesellschaft, Kronberg, Fed. Rep. of Germany

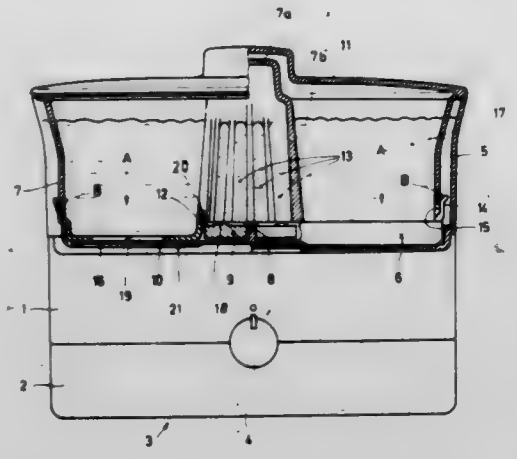
Filed Sep. 25, 1980, Ser. No. 190,783
Claims priority, application Fed. Rep. of Germany, Nov. 10, 1979, 7931846[U]
Int. Cl.[3] B08B *3/06*
U.S. Cl. 134—110 9 Claims

1. A device for cleaning small objects in a tank capable of containing a cleaning fluid and provided with electromagnetic agitation comprising:

a substantially cylindrical removable basket having side walls and a perforated bottom positioned in the tank;

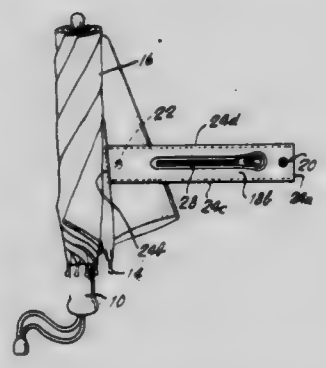
basket insert means having a perforated bottom and being releasably connectable to said basket, said basket insert means including a bearing pin and the electromagnetic agitation for the device is made up of an agitator disc rotatably mounted in the tank and a motor below the tank including a coupling disc of a magnetic material for elec-

tromagnetically engaging said agitator disc, said bearing pin serving as a bearing for said agitator disc; and



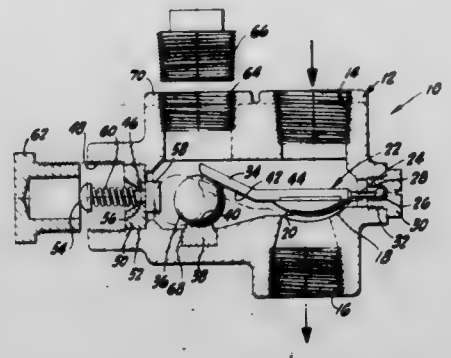
filter screen means mountable between said perforated bottom of said basket and said perforated bottom of said basket insert.

4,336,817
UMBRELLA HAVING A POCKET COMPARTMENT
Rosella Shapiro, 3530 Lakeshore Dr., Chicago, Ill. 60603
Filed Apr. 25, 1980, Ser. No. 143,865
Int. Cl.³ A45B *25/00, 25/12*
U.S. Cl. 135—16 **15 Claims**



1. An umbrella construction having a pocket compartment comprising:
- a shaft;
- a frame secured at one end to the shaft;
- a water-repellent material cover attached to the shaft and the frame;
- a first length of water-repellent material having spaced apart outer ends and longitudinal edges;
- a second length of water-repellent material, having spaced apart outer ends, longitudinal edges and a longitudinally extending slit, said second length of water-repellent material having substantially the same width and length as the first length of material and positioned in overlapping relationship therewith, said lengths of material secured together at substantially their outer ends and longitudinal edges and secured to said material cover; and
- closure means secured to said second length of material and positioned in relationship with said slit, so that said lengths of material and said closure means form a pocket or purse compartment for money and the like within the confines of the lengths of material, said pocket being capable of being selectively opened and closed by the selective opening and closing of said closure means.

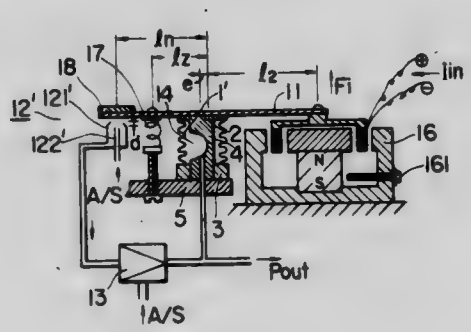
4,336,818
SHOCK ACTIVATED SHUT-OFF VALVE
Hector A. Dauvergne, P.O. Box 884, San Leandro, Calif. 94577
Filed Jan. 2, 1981, Ser. No. 222,037
Int. Cl.³ F16K *17/36*
U.S. Cl. 137—38 **10 Claims**



1. A gas valve for attachment to a gas line having a shut-off activated by a vibration shock comprising:
- a. a valve housing having a gas inlet orifice and a gas outlet-orifice;
- b. a flap gate pivotally mounted within said valve housing over said gas outlet orifice;
- c. a ball pedestal support, mounted within said valve housing adjacent said gas outlet orifice; and
- d. a ball supported on said valve housing:

wherein said flap gate has an extending lever contacting substantially the top of the ball and holding the flap gate away from said gas outlet orifice allowing gas passage through said valve and wherein said housing has internal cavity means for accommodating said ball when displaced from said pedestal support upon external vibration shock to said valve, said lever losing contact with said ball and said flap gate sealing said outlet orifice when said ball is so displaced.

4,336,819
PNEUMATIC CONVERTER
Tadashi Nishihara, Tokyo, Japan, assignor to Yokogawa Electric Works, Ltd., Tokyo, Japan
Filed Dec. 6, 1979, Ser. No. 100,728
Int. Cl.³ G05D *16/00*
U.S. Cl. 137—85 **8 Claims**



1. A pneumatic instrument for use in instrumentation systems for developing an output force or displacement proportional to an input fluid pressure, said instrument comprising:
- a bellows having an end plate movable in response to changes in the bellows internal pressure;
- an output member for said instrument located outside of said bellows and connected to an external portion of said end plate for movement therewith; and
- a coupling plate in said bellows extending between the two ends thereof and serving to couple said end plate directly to the other end of said bellows, said coupling plate being incompressible longitudinally and having at least a portion thereof which is transversely bendable, said coupling plate being offset from the center axis of said bellows to provide

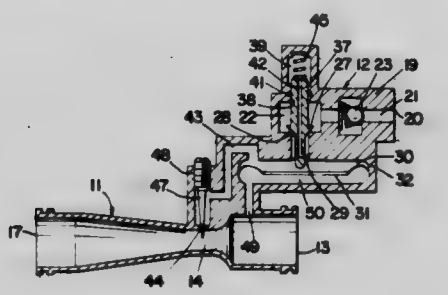
for tilting movement of said end plate, and corresponding movement of said output member, with changes in the bellows pressure.

4,336,820

METERING DEVICE FOR ADDING ONE FLUID TO ANOTHER

Richard G. Jorgensen, Santa Ana, and Gerald G. Steele, Mission Viejo, both of Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Aug. 31, 1978, Ser. No. 938,555
Int. Cl.³ G05D *11/00*
U.S. Cl. 137—100 **15 Claims**



1. A device for mixing two liquids comprising a venturi section and a regulator section; said venturi section having a main passage therethrough for a first liquid, said main passage including an inlet, an outlet and a restricted venturi throat between said inlet and outlet; and said regulator section having an auxiliary passage therethrough for a second liquid, said auxiliary passage including an inlet end and an outlet end that communicates with said main passage through a restricted orifice at said venturi throat, valve means in said auxiliary passage for controlling flow of the second liquid through said auxiliary passage, and a movable wall in said regulator section, said movable wall having opposed areas exposed respectively to the liquid pressure in said main passage between said inlet and venturi throat and to the liquid pressure in said auxiliary passage between said valve means and outlet end and being movable in said regulator section in accordance with the differential in pressures acting upon said opposed areas, and said valve means including means responsive to movement of said movable wall for operating said valve means between open and closed positions, whereby the liquid pressure differential across said restricted orifice may be equated to the liquid pressure differential between said inlet and venturi throat for fixed ratio mixing of the second liquid into the first liquid at said venturi throat.

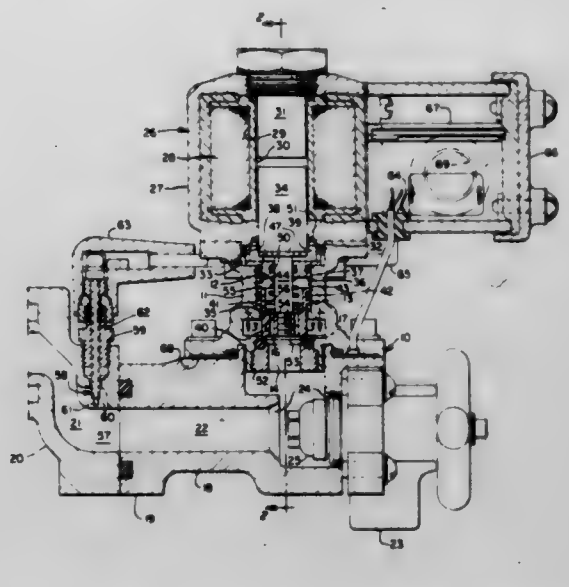
4,336,821

SOLENOID-ACTUATED DRAIN VALVE

Virgil L. Frantz, Salem, and Thomas D. Taylor, Roanoke, both of Va., assignors to Graham-White Sales Corporation, Salem, Va.

Filed Oct. 8, 1980, Ser. No. 194,992
Int. Cl.³ F17T *1/00*
U.S. Cl. 137—187 **10 Claims**

1. A solenoid-actuated drain valve for draining matter accumulated by separation from compressed gas, comprising a valve body having inlet and drain ports connecting respectively to an outlet of a compressed gas reservoir and to atmosphere, valve means in said body for normally closing and alternately opening communication between said inlet and drain ports, solenoid means, said valve means opening and closing in response respectively to energizing and deengerizing of said solenoid means, means for sensing said accumulated matter, and control circuit means for energizing and deenergizing said solenoid means respectively on sensing of accumulated matter by said sensing means and on absence of said sensing, said control circuit means so long as said sensing means senses accumulated matter being adapted to cyclically control energizing and deenergizing of said solenoid means and responsive



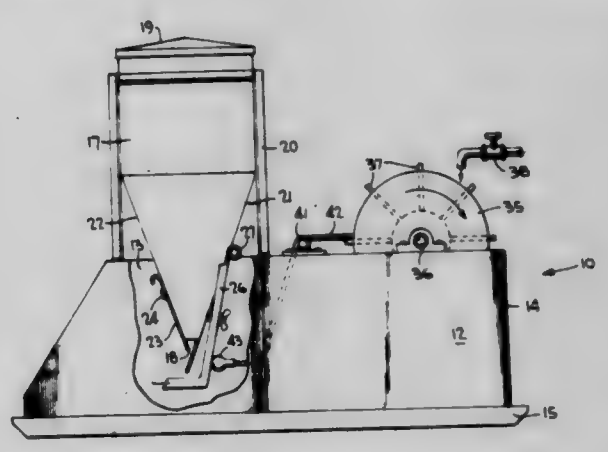
opening and closing of said valve means in cycles of predetermined duration.

4,336,822

WATER LIMER

Jessie W. Carrell, P.O. Box 398, Oakman, Ala. 35579

Filed May 14, 1980, Ser. No. 149,762
Int. Cl.³ B65G *69/06*
U.S. Cl. 137—268 **5 Claims**



1. Apparatus for dispensing powder-like material into a flowing liquid comprising:

a mixing chamber having side walls, upstream and downstream ends, and an open top;

a hopper containing said powder-like material and having a dispensing opening at its bottom, said hopper being supported above said mixing chamber;

rotatable wheel means disposed in the path of said flowing liquid for directing said flowing liquid into said chamber upstream of said hopper, said wheel means having an axis about which it rotates in response to the flowing liquid; and

impact means responsive to rotation of said wheel means for repetitively imparting vibrations to the material in said hopper and dispensing said material into the liquid in said chamber;

wherein said impact means comprises:

a dispensing plate pivotally mounted on said side walls for limited pivotal movement about an axis generally transverse to the liquid flow direction in said chamber, said dispensing plate extending generally along a portion of said hopper; and

further means responsive to rotation of said wheel means for periodically impacting said dispensing plate.

4,336,823

SOLENOID VALVE

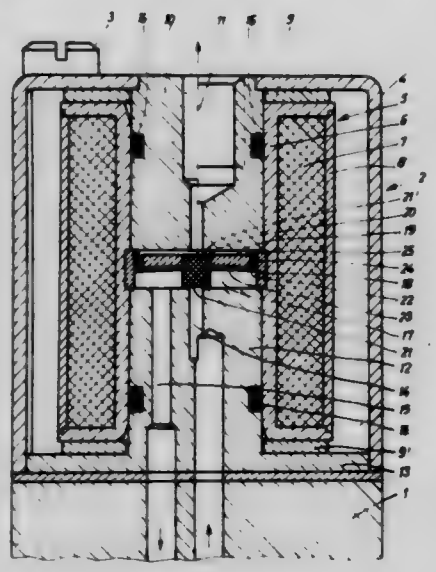
Bruno F. Staiger, Erligheim, and Kurt Stoll, Esslingen, both of Fed. Rep. of Germany, assignors to Festo-Maschinenfabrik Gottlieb Stoll, Esslingen, Fed. Rep. of Germany

Filed Mar. 12, 1980, Ser. No. 129,803

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1979, 2910660; Aug. 18, 1979, 2933545

Int. Cl.[3] F16K *31/06, 11/04*

U.S. Cl. 137—270 18 Claims



1. A solenoid valve for use on a body having an inlet port and an outlet port, comprising:

a pair of magnet cores axially spaced to define a chamber therebetween, one of said magnet cores having a pair of axially extending passageways therethrough each providing fluid communication between a respective one of said inlet and outlet ports and said chamber;

an electrically energizable magnet coil encircling said pair of magnet cores, the magnetic field generated by the energization of said magnet coil passing across said chamber;

valve means mounted in said chamber, said valve means including a magnetic armature reciprocably mounted in said chamber and being movable toward one of said magnet cores in response to an energization of said magnet coil, a sealing member and a return spring, said sealing member being secured for movement with said armature and being movable between first and second positions, said first position being a sealing engagement with the end of one of said passageways entering said chamber, said second position being spaced from said one end, said return spring biassing said sealing member into one of said first and second positions;

spacer means supporting said valve means being removably mounted in said chamber; and

means for providing access to said chamber to facilitate the removal of said spacer means and said valve means supported thereon therefrom so that said spacer means and said valve means can be turned over through 180° and reinserted into said chamber to thereby orient said sealing member at the other of said first and second positions, the magnetic force of said magnetic field sufficiently stronger than the return force of said return spring.

4,336,824

CARTRIDGE VALVE

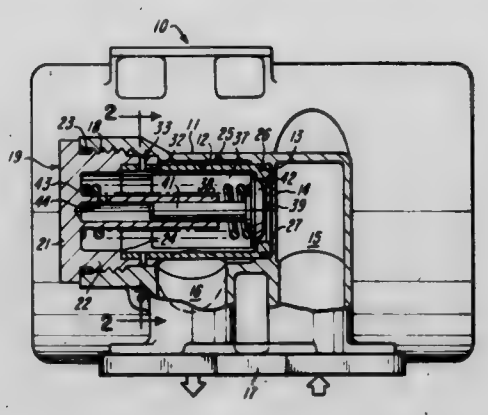
Robert J. Steineman, West Carrollton, Ohio, assignor to United Aircraft Products, Inc., Dayton, Ohio

Filed May 29, 1980, Ser. No. 154,592

Int. Cl.[3] F16K *43/00*

U.S. Cl. 137—315 8 Claims

1. A cartridge valve, including a body providing an axially projecting cylindrical portion, a valve housing mounted to said cylindrical portion as an extension thereof, said valve housing being an element separable from said body and having an outer end providing a radially orienting valve seat, detachable means holding said valve housing and said body in a connected relation, said valve housing having a telescopic fit to said cylindrical portion of said body and said detachable holding means taking the form of a spring clip having bent over ends adapted to enter aligning apertures in telescoping members, a valve



contained within the assembly comprised of said body and said housing and including a head portion reciprocable within said valve housing, and a spring urging said valve toward an engagement of said head portion thereof with said valve seat, said spring being effectively interposed between said body and said housing.

4,336,825

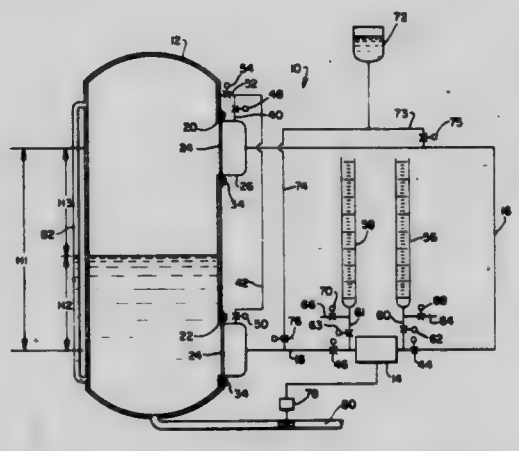
LIQUID LEVEL CONTROL SYSTEM

Russell F. Pion, Warren, R.I., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Filed Jun. 17, 1980, Ser. No. 160,275

Int. Cl.[3] F16J *12/00*

U.S. Cl. 137—403 14 Claims



1. A system for controlling the level of liquid in a container comprising:

first conduit means communicating with an upper portion of said container;

second conduit means communicating with a lower portion of said container;

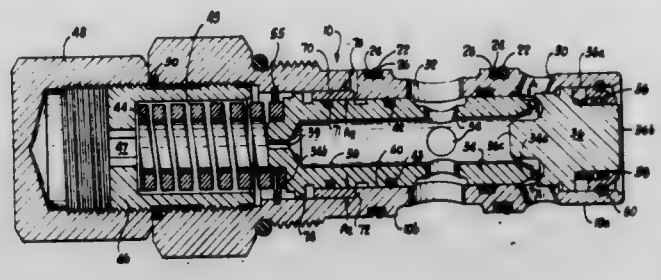
control means connected to said first and second conduit means for responding to differential fluid pressure from said conduit means and adjusting the level of liquid in said container accordingly, said first and second conduit means being connected to means for calibrating the liquid level adjusting means; and

means adjacent to said container and associated with each of said conduit means for transmitting the fluid pressure from said container portions, through said conduit means, to said control means while preventing fluid flow through said conduit means.

4,336,826
CONTROL VALVE

Frederick G. Grawunde, Painesville, Ohio, assignor to Fluid Controls, Inc., Mentor, Ohio

Filed May 2, 1980, Ser. No. 146,106
Int. Cl.³ F16K *31/122, 17/04*
U.S. Cl. 137—540 7 Claims

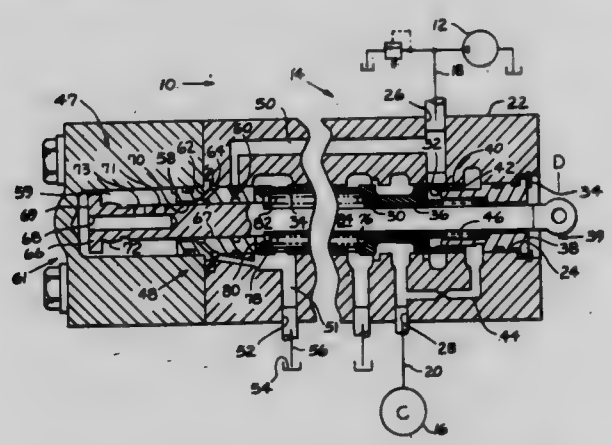


1. A control valve comprising:
(a) a valve body defining a first and a second plurality of circumferentially spaced, radially directed ports, and a stepped internal bore;
(b) an annular, elongated primary piston slidably supported within said stepped bore, said piston including a through bore;
(c) a valve seat engageable with one end of said piston for controlling the fluid communication between the first plurality of ports and the piston bore;
(d) biasing means acting between said valve body and said piston for urging said piston towards its flow interrupting position;
(e) the one end of said piston further defining an effective pressure area such that any fluid pressure present at the first plurality of ports establishes a fluid force on said effective pressure area which urges the primary piston towards its open position; and,
(f) pilot piston means mounted for relative movement with respect to said primary piston, said pilot piston means engageable with said primary piston upon predetermined movement for applying forces to said primary piston urging it towards its open position and said pilot piston means further operative to prevent a disproportionate increase in a relief setting of the control valve in the event a fluid generated back pressure is communicated to the second plurality of ports.

4,336,827
VALVE ACTUATOR WITH HYDRAULIC LATCHING

Kenneth F. Golan, Pekin, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/01399, § 371 Date Oct. 17, 1980, § 102(e) Date Oct. 17, 1980, PCT Pub. No. WO82/01401, PCT Pub. Date Apr. 29, 1982
PCT Filed Oct. 17, 1980, Ser. No. 261,096
Int. Cl.³ F16K *11/07*
U.S. Cl. 137—624.27 6 Claims



1. In a valve (14) having a housing (22), a bore (24) in the housing (22), an inlet and outlet port (26,28) in communication with the bore (24), a spool (30) slideably disposed in said bore (24) and moveable between a first position (D) at which said inlet port (26) is blocked from said outlet port (28) and a second position (E) at which said inlet port (26) is in communication with said outlet port (28), actuation means for controllably moving said spool (30) between said first and second positions (D,E), the improvement comprising:
pressure responsive means including valve means (48) for hydraulically latching said actuation means at said second position (E) in response to said actuation means being moved to said second position (E), said valve means (48) being integral with said actuation means.

4,336,828
FIBRE-REINFORCED METALLIC LUSTER PIGMENTED TUBULAR CASING AND A PROCESS FOR ITS PRODUCTION

Klaus Balser, and Walter Beger, both of Walsrode, Fed. Rep. of Germany, assignors to Wolff Walsrode AG, Leverkusen, Fed. Rep. of Germany

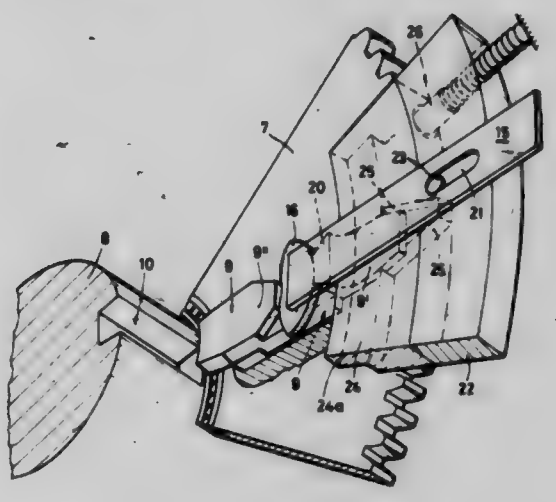
Continuation of Ser. No. 954,442, Oct. 25, 1978, abandoned, which is a division of Ser. No. 720,258, Sep. 3, 1976, abandoned. This application Jul. 9, 1980, Ser. No. 167,056
Int. Cl.³ A22C *13/00*
U.S. Cl. 138—118.1 8 Claims

1. A process for the production of metallic lusterous fiber reinforced tubular casing being able to shrink in dependence on the moisture level of the atmosphere comprising the steps:
(a) mixing and homogenizing pearlescent flake pigment with an alkaline solution of commercial-grade cellulose-xanthogenate;
(b) contacting and impregnating a long-fiber paper reinforced substrate with the homogenized mixture from (a) without previously applying a gel-like sealing coating;
(c) hardening the impregnated mixture in and on said substrate; and optionally
(d) coating the impregnated tubular casing thus obtained with a seamless coating of a vinylidene halide copolymer lacquer on the inside of the tubular casing.

4,336,829
DOBBY MECHANISM

Josef Brock, Viersen, Fed. Rep. of Germany, assignor to Maschinenfabrik Carl Zangs Aktiengesellschaft, Krefeld, Fed. Rep. of Germany

Filed Sep. 21, 1979, Ser. No. 77,887
Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 2841280
Int. Cl.³ D03C *1/12*
U.S. Cl. 139—76 9 Claims



1. A dobby mechanism having a design controlled coupling between a drive shaft and a first gear with the number of teeth

n, which first gear meshes with a second gear with the number of teeth 2n on an axle, on which second gear an eccentric device for the dobby movement is arranged, whereby the drive shaft and the first gear are coupleable with each other by means of a wedge radially movably mounted in a radially extending recess of the first gear, which wedge is controlled through a switching member according to said design, and in the coupled condition engages in said radially extending recess of the first gear and in an axially extending groove of the drive shaft, the improvement wherein

in the uncoupled condition the wedge is completely uncoupled from the drive shaft,

the switching member includes a switching rod, said switching rod being controlled according to the design,

said switching rod further includes a coupling member,

said wedge is formed with a groove in which said coupling member of said switching rod engages in a coupling range,

a ring having a slot and a radially inwardly directed overlapping portion,

said wedge has an outer end, said outer end engages in said slot of said ring in the uncoupled condition of the wedge from the drive shaft, said outer end is constrained by said radially inwardly directed overlapping portion overlapping said wedge adjacent said outer end in the coupled condition and uncoupled condition, respectively, of said wedge.

4,336,830

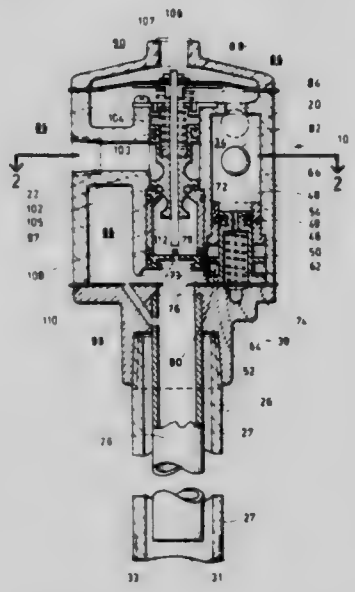
VAPOR RECOVERY JET PUMP

James W. Healy, 54 Plymouth Rd., Wakefield, Mass. 01880

Filed Apr. 28, 1980, Ser. No. 144,249

Int. Cl.³ B65B *3/18, 57/14*

U.S. Cl. 141—59 **8 Claims**



1. For use in a vapor recovery system for a fuel dispensing system wherein fuel is pumped from a reservoir to a dispensing nozzle under pressure for filling a container, vapor from the container is returned to the reservoir through a vapor return line associated with the nozzle, the nozzle having means for shutting off the flow of fuel therethrough responsive to predetermined back pressure in said return line, and wherein the vapor return is actuated by vacuum produced by a liquid jet gas pump powered by jetting a fraction of the output of a fuel pump through a tube wherein it mixes with and entrains the returning vapor and carries it back to the reservoir, the improvement in said liquid jet gas pump enabling it to temporarily store, and then discharge into said reservoir, accumulated liquid carried into the pump with vapor in said return line, which comprises

means providing a surge chamber within said pump through which said vapor is drawn,

liquid collecting means upstream of said surge chamber to collect said liquid carried with said vapor in said return line, and

means for blocking flow through said surge chamber and for building up said back pressure in said return line when the liquid in said collecting means reaches a predetermined level, whereby said means in said nozzle for shutting off the flow of fuel is actuated when said liquid in said collecting means reaches said predetermined level.

4,336,831

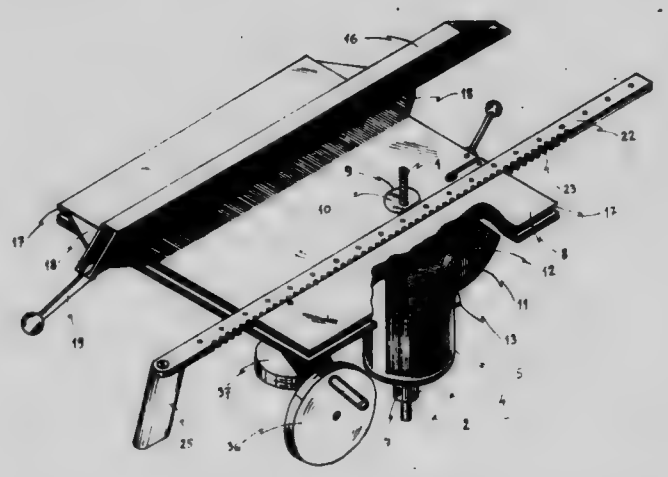
TOOL

Zbigniew Mroczkowski, Tristramweg 17, Berchtesgaden-Stanggass, Fed. Rep. of Germany 8240

Filed Aug. 11, 1980, Ser. No. 176,847

Int. Cl.³ B27C *9/00*

U.S. Cl. 144—2 R **8 Claims**



3. A machine for cutting materials such as wood and plastics, comprising a tool spindle, means for supporting said spindle for rotation, said spindle being adapted to be rotatably driven by a drive motor, a support table firmly connected to the spindle for supporting a workpiece to be cut, said table having a guide groove therein, a guide rail adapted to be positioned in said groove, a supporting plate attached to said rail, said plate having a coarse coating on its top side and having an opening therein that extends parallel to said guide groove, said table having an opening therein on the axis of said spindle, and a tool secured to said spindle and projectable through said opening in said table, said tool having at least one radially extending spiral rib formed on its outer periphery, the outer end of said rib being sharpened on its side which is adjacent to said table and said outer end thus forming a cutting edge, said spiral rib having a pitch within the range of from approximately 5° to approximately 15° relative to the axis of rotation of said spindle and said tool.

4,336,832

NON-SLIP HAMMER

Kosta Poulos, 1265 Newland Dr., Virginia Beach, Va. 23456

Filed Nov. 18, 1980, Ser. No. 208,113

Int. Cl.³ B25C *1/00*

U.S. Cl. 145—29 R **3 Claims**

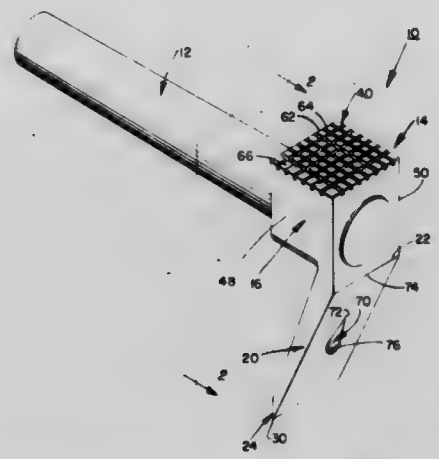
1. A hammer comprising:

a handle having a longitudinal axis;

a heat mounted on said handle;

said head being unitary and integral and including a body section, and a nail puller section, and a bridge section connecting said body and nail puller sections together, said body section including a bottom, a planar top, planar parallel sides and a square impact face having a plurality of orthogonally arranged grooves defined therein to form a waffle-like surface having a multiplicity of raised sections which all have striking surfaces located in a common plane, said nail puller including a planar top, a planar undersurface and a nail pulling hole defined therein, said nail puller planar top being angled with respect to said

body section to define a corner at the junction of said planar tops, said nail puller top being joined to said body planar top at a location so that said body planar top extends over said bridge section, said bridge section including a pair of extensions of said body section which are angled toward each other and a third section connecting said pair of extensions, said third section being oriented to be angled upwardly from said body bottom and outwardly away from the longitudinal axis of said handle so that



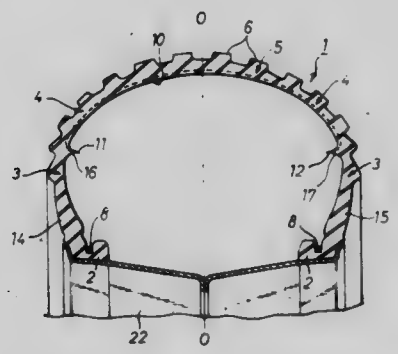
there is an increasing thickness of said bridge section from said body bottom to the intersection between said third section and said nail puller section, a pair of corners being defined at the intersections between said angled extensions and said third section, and a pair of fillets connecting said extensions to said undersurface of said nail puller section, one of said fillets being located at each of said corners, so that said body and nail puller sections are securely connected together.

4,336,833

TUBELESS PNEUMATIC TIRES

Keizi Fuzioka, Kishiwada, and Masami Shinomiya, Izumi-Ohtsu, both of Japan, assignors to The Ohtsu Tire & Rubber Co., Ltd., Osaka, Japan

Filed Oct. 15, 1980, Ser. No. 197,068
Claims priority, application Japan, Oct. 29, 1979, 54-135462
Int. Cl.³ B60C *9/04, 9/20, 13/00*
U.S. Cl. 152—353 G **8 Claims**



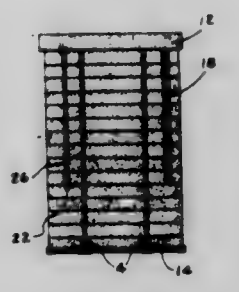
1. A tubeless pneumatic tire having a body made entirely of an elastic material comprising a tread, shoulders, sidewalls, bead portions and boundaries between the shoulders and the sidewalls and comprising cords embedded in the body and having a length not extending from bead portion to bead portion, elastic deformable portions provided between the opposite ends of the cords and the bead portions and made only of said elastic material of the body, and annular projections positioned at the boundaries between the shoulders and the sidewalls of the tire approximately symmetrically with respect to the equatorial line of the tire and each formed on the inner surface of the tire along a circumference centered about the axis of rotation of the tire, the ends of the cords on each side of the tire being curved, further extending toward the interior of the tire and being disposed within the annular projection.

4,336,834

VENETIAN BLIND

Maurice Schaller, Clifton, N.J., assignor to Levolor Lorentzen, Inc., Lyndhurst, N.J.

Continuation of Ser. No. 741,951, Nov. 15, 1976, abandoned.
This application Dec. 22, 1977, Ser. No. 863,313
Int. Cl.³ E06B *9/30*
U.S. Cl. 160—168 A **6 Claims**



1. A Venetian blind comprising an upper supporting housing having means for independently tilting and elevating a plurality of slats having concave and convex surfaces suspended therebeneath on ladders, each ladder being provided with two vertical braided strings, one disposed on the inside and the other on the outside of the slats and string-like cross-rungs connected to the respective strings for supporting the slats, the ladder terminating in a bottom bar; each slat being provided with slots for receiving a lift cord, a light colored surface on one face thereof and a contrasting darker colored surface on the other face thereof; the vertical strings of the ladders on one side of the blind being of a light color substantially blending with the light colored surfaces of the slats and the vertical strings of the ladder on the other side of the blind being of the contrasting darker color to blend with a similar color on the other surfaces of the slats; the cross-rungs connecting the respective strings of each ladder also being of the same contrasting darker color extending from the darker colored string up to from about one/half to three/quarters the length of each cross-rung; and a lift cord of the same darker contrasting color passing through the slots in the slats; whereby when the blind is in the closed and partially closed positions with the darker contrasting colored surfaces on one side of the slats with the lighter colored surfaces on the other side thereof the darker vertical strings of the ladders and the lift cord will be substantially unnoticeable and blend with the darker colored surfaces of the slats and the lighter strings of the ladder will blend with the lighter surfaces of the slats.

4,336,835

PRODUCTION OF WET-STRENGTH PAPER WITH AQUEOUS SOLUTIONS OF CATIONIC THERMOSETTING RESINS

Hisao Takagishi, Kyoto, and Norio Kondo, Minoo, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 78,713, Sep. 25, 1979, Pat. No. 4,287,110.
This application Apr. 14, 1981, Ser. No. 253,919
Int. Cl.³ D21H *3/58*
U.S. Cl. 162—164.3 **16 Claims**

1. A process for producing wet-strength paper, which comprises applying to paper an aqueous solution of a thermosetting resin produced by a process consisting essentially of

(i) heating an aliphatic dicarboxylic acid and a polyalkylenepolyamine to obtain a polyamidopolyamine, the molar ratio of the aliphatic dicarboxylic acid to the polyalkylenepolyamine being 1:1.0 to 1.2, and the heating being continued until the viscosity at 25° C. of a 50% aqueous

solution of the resulting polyamidopolyamine reaches 400 to 1,000 cps.

(ii) reacting the polyamidopolyamine with epichlorohydrin in an aqueous medium, the amount of epichlorohydrin being 1.6 to 1.7 moles per mole of the secondary amino group present in the polyamidopolyamine, the concentration of said reactants in the aqueous medium being 15 to 50% by weight, and the reaction being continued until the viscosity at 25° C. of a 15% aqueous solution of the reaction product reaches 30 to 150 cps.

(iii) controlling the concentration of aqueous reaction product solution to 15 to 30% by weight, and

(iv) adjusting the aqueous solution to pH 3 to 5 at 25° C.

4,336,836

HEAT RECLAIMER

Edward J. Horkey, 11208 S. Tomah St., Phoenix, Ariz. 85044

Filed Jan. 16, 1980, Ser. No. 112,804
Int. Cl.³ F24H *3/00*; F24C *1/00*
U.S. Cl. 165—47 **5 Claims**



1. A heat reclaimer apparatus having an inlet section and an outlet section, comprising in combination:

transfer means having walls for transferring heat from a flow of fluid;

expansion means provided with diverging flow compartments for controlling the expansion of said flow of fluid;

said expansion means including splitter means for forming in conjunction with said transfer means walls said plurality of diverging flow compartments;

said splitter means comprising a plurality of connected plates radially arranged about the inlet axis of said reclaimer; and

said flow compartments each having at least one enclosing surface and a centroidal axis.

4,336,837

ENTIRELY PASSIVE HEAT PIPE APPARATUS CAPABLE OF OPERATING AGAINST GRAVITY

Daniel R. Koenig, Santa Fe, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 11, 1981, Ser. No. 233,365
Int. Cl.³ F28D *15/00*
U.S. Cl. 165—104.22 **13 Claims**

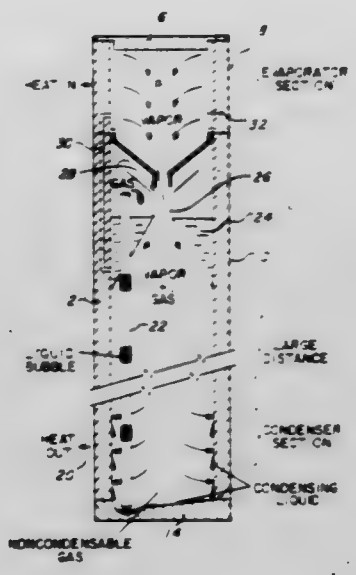
1. A heat pipe apparatus capable of operating against gravity comprising:

a heat pipe envelope comprising evaporator means and condenser means, said evaporator means being disposed gravitationally above said condenser means;

a gas and a working fluid within said heat pipe envelope, said fluid comprising a liquid and its vapor, said fluid comprising its liquid phase while in the condenser means and its vapor phase while in the evaporator means;

venturi means disposed between said evaporator means and said condenser means;

reservoir means disposed in the vicinity of said venturi means for containing said fluid in its liquid phase and said gas;



conduit means providing a path for said liquid and said gas between said condenser means and said reservoir means;

capillary wick means providing a path for liquid within said reservoir means to said evaporator means; and

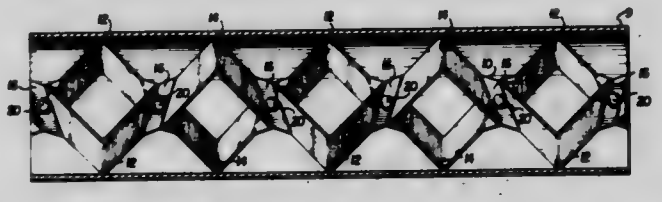
means for introducing gas from said reservoir means into said venturi means.

4,336,838

HEAT EXCHANGE TURBULATOR

Richard J. Ely, 10307 S. Quebec Pl., Tulsa, Okla. 74136

Filed Jun. 19, 1981, Ser. No. 275,399
Int. Cl.³ F28F *1/40*
U.S. Cl. 165—109 T **10 Claims**



1. A turbulator for insertion in a heat exchange tube comprising two formed strips in contact with each other at places in a plane which includes the axis of the turbulator, each strip being formed into a plurality of turbulence nodules, said nodules comprising a first group of nodules extending in a first direction from the axis of the turbulator and a second group of nodules extending in a second direction from the axis of the turbulator, said directions being substantially perpendicular to each other, members of said first group alternating with members of said second group along the length of each strip, said strips being connected to each other at the places of contact between said strips.

4,336,839

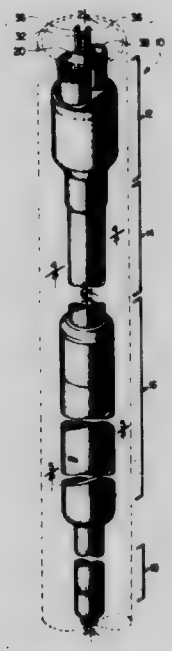
DIRECT FIRING DOWNHOLE STEAM GENERATOR

William R. Wagner, Los Angeles; David E. Wright, Canoga Park, and Robert L. Binsley, Sepulveda, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 3, 1980, Ser. No. 202,990
Int. Cl.³ E21B *36/00*
U.S. Cl. 166—59 **9 Claims**

1. A direct firing downhole steam generator, comprising:

an injector assembly being defined by an inlet zone, an outlet zone and circumferential walls and having:
means for introducing air into said injector assembly;
means for introducing fuel into said injector assembly;
means for mixing said fuel and said air;
means for igniting said fuel air mixture; and
means for introducing water into and through said circumferential
walls of said injector assembly;
a combustion chamber being defined by an inlet zone, an outlet zone and circumferential walls and wherein said inlet zone of said combustion chamber is axially connected to said outlet zone of said injector assembly, and wherein said combustion chamber walls comprise a plurality of longitudinally-oriented water channels and wherein said



water channels are connected to said outlet zone of said injector assembly so as to receive the water from said injector assembly;
a heat exchanger being defined by inlet and outlet zones and inner and outer circumferential walls and wherein said inlet zone of said heat exchanger is axially connected to the outlet zone of said combustion chamber, and wherein the inlet zone of the annulus formed by said heat exchanger inner and outer walls is connected so as to receive the output of said water channels and wherein said heat exchanger further comprises a plurality of one-way valves oriented so as to permit water to be injected from said annulus into the core of said heat exchanger; and
a nozzle disposed so as to receive the output of said heat exchanger and inject high pressure products into a formation.

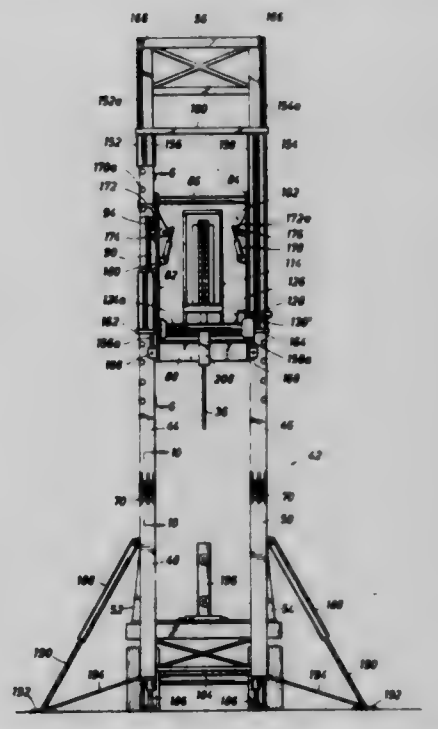
4,336,840

DOUBLE CYLINDER SYSTEM

Thomas F. Bailey, Houston, Tex., assignor to Hughes Tool Company, Houston, Tex.

Division of Ser. No. 913,117, Jun. 6, 1978, Pat. No. 4,249,600.
This application Dec. 8, 1980, Ser. No. 213,871
Int. Cl.³ E21B *15/00, 19/08, 19/22*
U.S. Cl. 166—77 2 Claims

1. A suspension system for use with mast means of the type used for elevating the injector head of a well working coiled tubing apparatus, the mast means having two mast legs, comprising:
(a) first and second piston-and-cylinder assemblies with the respective first and second pistons thereof anchored, by portions of said pistons distal the corresponding piston heads thereof, at a suspension located along said mast means, and with the respective first and second cylinders thereof oriented generally mutually parallel, such that simultaneous, in-phase operation of said first and second assemblies to extend said first and second pistons effects generally simultaneous movement of said first and second cylinders generally away from said suspension location, and such operation to retract said first and second pistons effects generally simultaneous movement of said first and second cylinders generally toward said suspension location;
(b) third and fourth piston-and-cylinder assemblies with the respective third and fourth cylinders thereof oriented generally mutually parallel and generally parallel to said first and second cylinders, said third and fourth pistons of said third and fourth assemblies, respectively, being extendable along mutually parallel lines and in the same sense, but opposite to the sense in which said first and



second pistons are extendable from said first and second cylinders, respectively;
(c) wherein said first and third cylinders are mutually fixed to form a first cylinder pair, said second and fourth cylinders are mutually fixed to form a second cylinder pair, and first and second cylinder pairs are connected together by connection means, and said first and second pairs are moveable together by operation of said first and second assemblies; and
and wherein said first piston is anchored so that said first cylinder pair is moveable generally along one such mast leg, and said second piston is anchored so that said second cylinder pair is moveable generally along the other of said mast legs.

4,336,841

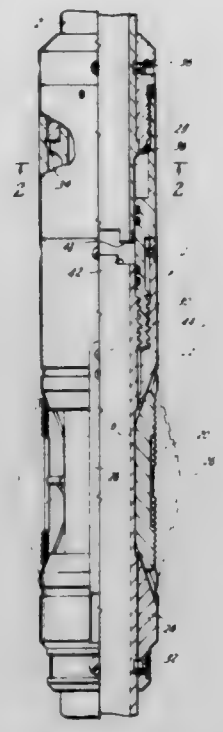
MECHANICAL TUBING ANCHOR

James K. Garner, Jr., Houston, Tex., assignor to Camco, Incorporated, Houston, Tex.

Filed Nov. 17, 1980, Ser. No. 207,161
Int. Cl.³ E21B *33/128, 33/129*
U.S. Cl. 166—216 8 Claims

1. In a tubing anchor for anchoring a well tubing in an outer conduit, and in which the anchor includes slips and first and second slip cones, the improvement comprising,
threaded means connected to at least one of the cones for moving the cones toward and away from each other for setting and releasing the slips,
a mandrel adapted to be connected to the tubing,
first and second clutch means connected to the mandrel, the first clutch means actuated by longitudinal movement of the mandrel in one direction, and the second clutch means actuated by longitudinal movement of the mandrel in a second direction,
said first and second clutch means connected to the threaded

means whereby rotation of the mandrel will set the slips upon engagement of the first clutch means and will release



the slip means upon engagement of the second clutch means upon rotation of the mandrel.

4,336,842

METHOD OF TREATING WELLS USING RESIN-COATED PARTICLES

John W. Graham, Rte. 5, Box 289, Alvin, Tex. 77511; A. Richard Sinclair, 2903 Virginia, Houston, Tex. 77098, and John L. Brandt, 812 Highwoods Trail, Fort Worth, Tex. 76112

Filed Jan. 5, 1981, Ser. No. 222,292

Int. Cl.³ E21B *43/04, 43/267*

U.S. Cl. 166—276 **12 Claims**

1. A method of treating a subterranean formation surrounding a wellbore which comprises:

(a) placing in contact with said formation particles coated with a solid termosetting resin capable of fusing and then curing to an infusible state; and

(b) curing said resin in a solution containing an agent capable of lowering the temperature at which said resin fuses.

4,336,843

EMERGENCY WELL-CONTROL VESSEL

Terry D. Petty, New Orleans, La., assignor to ODECO Engineers, Inc., New Orleans, La.

Filed Oct. 19, 1979, Ser. No. 86,501

Int. Cl.³ A62C *3/00*; E21B *35/00, 43/01*

U.S. Cl. 166—362 **10 Claims**

2. A method for controlling an erupted marine oil well which comprises:

positioning over the erupted well an emergency well-control vessel,

dispelling from the vicinity of the well-control vessel hydrocarbon vapor issuing from the well and collecting above the surface of the water,

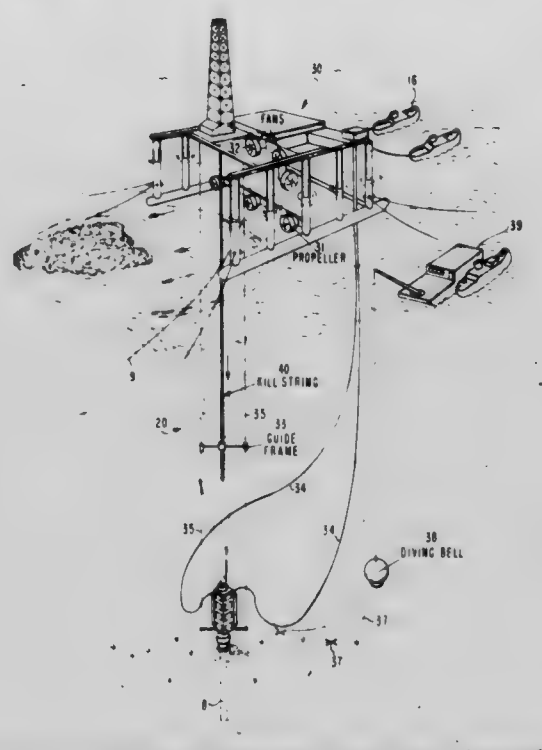
deflecting away from the well-control vessel the plume of hydrocarbon fluids emerging from the well and rising upwardly from the well to the surface of the water,

establishing a guideline connection between the well-control vessel and the wellhead equipment remaining on the sea bed, lowering a kill string from said vessel down said guideline and into the well, and

pumping a well-control fluid down the kill string into the well.

10. An emergency well-control vessel for controlling an erupted marine oil well, comprising:

a floating platform positionable above the erupted well, means for anchoring the platform in position above the erupted well, a sprinkler system mounted below said platform for extinguishing ignited hydrocarbon vapor issuing from the surface of the water below said platform, a fan system mounted below said platform for dispelling hydrocarbon vapor issuing from the water surface and collecting below said platform, a propeller system



mounted on said vessel below the water line for deflecting the plume of hydrocarbon fluids issuing from the well away from the vessel, and means mounted on said platform for lowering a kill string into the erupted well and for pumping a well-control fluid down the kill string into the well.

4,336,844

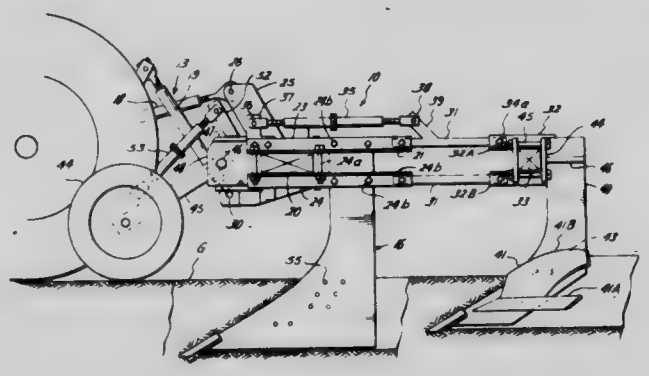
FARM IMPLEMENT

William H. Helbig, and Barry F. Cornell, both of Corpus Christi, Tex., assignors to Lehman-H Feeder & Plow, Inc., Corpus Christi, Tex.

Continuation of Ser. No. 1,435, Jan. 8, 1979, abandoned. This application Sep. 19, 1980, Ser. No. 188,256

Int. Cl.³ A01B *13/08, 13/02*

U.S. Cl. 172—140 **5 Claims**



1. A farm implement, comprising a frame adapted to be moved forwardly over the ground level, including a forward section having means thereon for attachment to a tractor by means of a three point hitch, a rearward section, means mounting the rearward section from the forward frame section for raising and lowering the rearward frame section with respect to the forward section and holding it in said raised or lowered position, subsoil chisels supported in laterally spaced-apart relation on the forward frame section for form longitudinally extending trenches in the ground as the frame moves forwardly thereover, gauge wheel means mounted on the forward frame section for engaging the ground level to determine the

elevation of the subsoil chisels, additional subsoil chisels each supported in laterally spaced relation on the rearward frame section so as to penetrate the soil rearward and laterally intermediate the trenches formed by the subsoil chisels supported on the forward frame section, and a plurality of listers each mounted on one of the additional subsoil chisels.

4,336,845

COMBINATION GARDEN TOOL

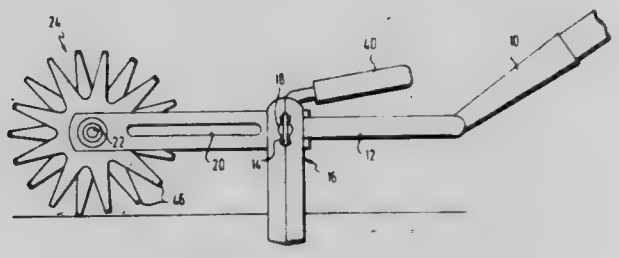
Walter Kolb, Betzdorf, Fed. Rep. of Germany, assignor to Wolf-Geräte GmbH, Fed. Rep. of Germany

Filed May 12, 1980, Ser. No. 148,818

Claims priority, application Fed. Rep. of Germany, May 15, 1979, 7914049[U]

Int. Cl.³ A01B *1/20, 1/22*

U.S. Cl. 172—349 **12 Claims**



1. A combination garden tool, comprising:

a first tool; a handle secured to said first tool;

a second tool; and

coupling means irremovably secured to said second tool for detachably coupling said second tool to said first tool in a manner such that both said tools can be used simultaneously and further such that at least said second tool can be used alone while said tools are secured to each other; said coupling means including a yoke frame having two support arms joined by a connecting piece and having an axle secured to said support arms and disposed between them; said second tool being mounted on said axle; said first tool being disposed between said handle and said coupling means, and said coupling means being disposed between said tools, when said tools are coupled by said coupling means;

said coupling means further comprises a clamping device secured to said connecting piece; a fork frame to which said first tool is secured; said fork frame includes two fork arms for being clamped to said connecting piece by means of said clamping device; respective flat pieces secured to the ends of said fork arms for cooperating with said clamping device to clamp said fork arms to said connecting piece;

said clamping device further comprises a clamping bolt rotatable between a first and a second position, said clamping bolt clamping said flat pieces against said connecting piece when in said first position, and said flat pieces not being clamped to said connecting piece when said clamping bolt is in said second position.

4,336,846

AGRICULTURAL FOLDING TOOL BAR

Charles Boetto, Naperville, Ill., assignor to International Harvester Co., Chicago, Ill.

Filed Mar. 5, 1981, Ser. No. 240,747

Int. Cl.³ A01B *73/00*

U.S. Cl. 172—776 **5 Claims**

1. A folding tool bar adapted to support ground working tools and comprising:

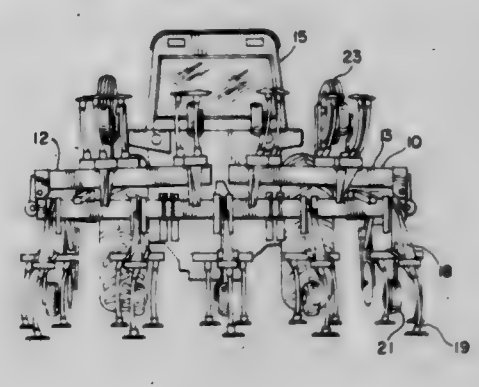
(a) a normally horizontal, hollow central section;

(b) an outer wing section pivotally connected to said central section about an offset axis for movement between a working position in general alignment with said central section and a folded transport position that lies on said central section, said pivotal connection being located above an end of said central section and adjacent thereto and providing a fulcrum for a portion of said movement;

(c) a hydraulic cylinder including a cylinder rod defining a rod end for said cylinder on the distal end thereof mounted in said inner section;

(d) a pair of rollers pivotally mounted to the rod end of said hydraulic cylinder and substantially spanning the interior of said central section; and

(e) a pair of links pivotally connected to said rod end by a shaft slidable in axially elongated slotted openings, said openings providing substantial clearance in said axial direction for said shaft said wing having an ear, said ear being pivotally connected to said links, said links upon cylinder activation, moving said wing upward until said wing passes inwardly over center of said axis and said links move into contact with said fulcrum and pivot thereabout as the wing moves to the transport position, said rollers and said fulcrum reducing wing fall and said links slotted connection relieving roller binding in said central section in the movement between working and transport and vice versa, said wing section being so positioned relative to said central section and said slotted openings being sufficiently small that clearance of said slotted openings is taken up by said hydraulic cylinder, and said wing section is held rigidly against said central section by said hydraulic cylinder, when said hydraulic cylinder is in its retracted condition and said wing section is in said working position.



4,336,847

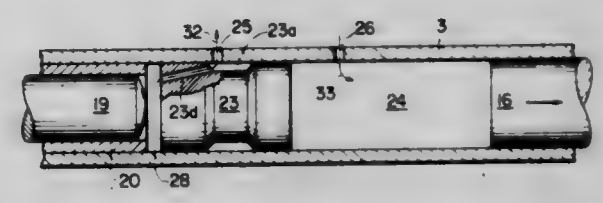
PERCUSSION DRILL

Koshichi Ito, and Yoshihiko Watanabe, both of Katsuta, Japan, assignors to Hitachi Koki Company, Limited, Tokyo, Japan

Filed Jun. 27, 1980, Ser. No. 163,504

Int. Cl.³ B23B *45/04*

U.S. Cl. 173—118 **3 Claims**



1. A percussion drill comprising:

a hollow cylinder having a hole in the side wall thereof;

a piston axially slidably disposed in the rearward end portion of said cylinder;

means for imparting an axially reciprocating movement to said piston;

a shaft axially slidably disposed in the forward end portion of said cylinder and including means for releasably attaching a drill bit to the forward end of the shaft; and

a striker including an air passage leading from the forward end wall thereof to the side wall thereof and axially slidably disposed in the cylinder between said piston and said shaft to define a forward variable volume air chamber with said shaft and a rearward variable volume air cham-

ber with said piston, a forward movement of said piston creating a positive high pressure in said rearward chamber to cause the striker to move forward to a point of impact on the rear end of said shaft and a rearward movement of said piston creating a negative pressure in said rearward chamber to cause the striker to move rearward when said drill bit is imparting mechanical energy to a workpiece;

the hole of said cylinder being located forward with respect to said impact point and communicating with said forward chamber through said air passage of the striker when the forward end of the striker is positioned forward with respect to said hole by the axial extent of said air passage.

4,336,848

TOOL HOLDER FOR IMPACT DEVICE

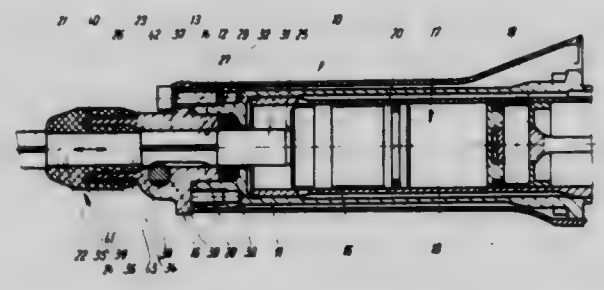
Karl Wanner, Leinfelden, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 13, 1979, Ser. No. 66,006

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1978, 2844110

Int. Cl.³ B23B *5/34*; B25D *17/08, 17/11*

U.S. Cl. 173—139 **30 Claims**



1. A hand-held power tool, particularly a chipping hammer, comprising a tool holder having an axis, and a receiving recess comprising an annular section arranged for non-rotatably and axially movably receiving a shaft of a tool and having an inlet opening, so that a portion of the tool extends outwardly beyond said tool holder in direction toward a workpiece, said tool holder having a front axial end face at one end which is opposite to the shaft receiving end, and a front axial end portion adjacent to said front axial end face; a striking mechanism arranged to transmit impact energy and to impart reciprocating movement to the tool; and an impact damping arrangement arranged for damping of axial impacts of the tool against the power tool, said arrangement including a shaped member which is constituted of a substantially elastic material and firmly and axially immovably held only on the tool without being held on another part of the power tool, so that when the tool moves axially, said shaped member is unimpededly moved axially by and together with the tool, said shaped member having a substantially radial face which abuts against a face of said tool holder in striking and noise-damping manner and radially overlaps said inlet opening of said receiving recess so as to serve simultaneously for protection from dust, said face of said tool holder being located at said tool holder side and facing in said direction toward a workpiece and being accessible for and in direct contact with said radial face of said shaped member at said side, said shaped member having a cylindrical bush which is received in said annular section of said receiving recess and reciprocates together with the tool without being completely axially withdrawn from said annular section and so as to provide axial impact damping between the tool and the tool holder, damping of noise and protection from dust, said shaped member also having an outer sleeve which surrounds said cylindrical bush at a radial distance therefrom and coaxially therewith, said outer sleeve overlapping said front axial end portion of said tool holder in a substantially cup-like manner so as to serve for protection from dust and damping noise.

4,336,849

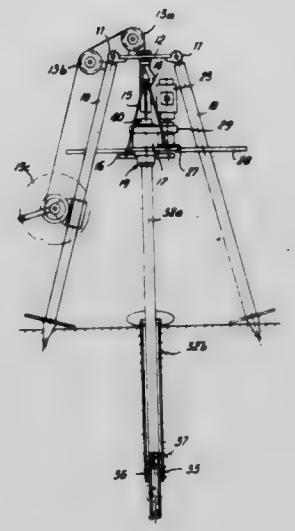
EARTH DRILLING DEVICE FOR EXTRACTING EARTH SAMPLES

Max Hug, Sagenmattstrasse 11, CH-6003 Luzern, Switzerland

Filed Jul. 3, 1980, Ser. No. 165,667

Int. Cl.³ E21B *49/02*

U.S. Cl. 175—246 **6 Claims**



1. An earth drilling device for extracting earth core samples including,

a rotatable drill tube and means for rotating said drill tube;

a drill bit supported by said rotatable drill tube, said drill bit and said drill tube defining an inner shoulder;

a hollow probe movably disposed within said drill tube and adapted to be supported by said inner shoulder;

an exchangeable thin plastic sleeve of uniform thickness disposed within said hollow probe, said sleeve containing a multiplicity of axis parallel pre-folds uniformly distributed along its circumference, and exhibiting a polygonal cross section which conforms to the circular inner circumference of said hollow probe to form a smooth, cylindrical receiving surface for said earth core samples when inserted in said hollow probe; and

means for extracting said hollow probe and associated plastic sleeve containing an earth core sample without removing the drill tube from the earth.

4,336,850

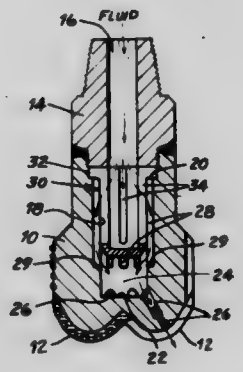
INTERNAL FLUID SCREEN TO PREVENT NOZZLE AND PORT PLUGGING

Coy M. Fielder, Granger, Utah, assignor to Christensen, Inc., Salt Lake City, Utah

Filed Sep. 12, 1980, Ser. No. 186,774

Int. Cl.³ E21B *10/60*

U.S. Cl. 175—393 **7 Claims**



1. A strainer for use with a rotary drill bit for deep holes in shales, sandstone, conglomerate, coal and the like wherein the tool is mounted to be rotatably driven at the downhole end of a drill string through which a fluid is circulated, comprising a body having an outerface, said body having an internal cavity to receive the fluid, said cavity being defined by a side wall,

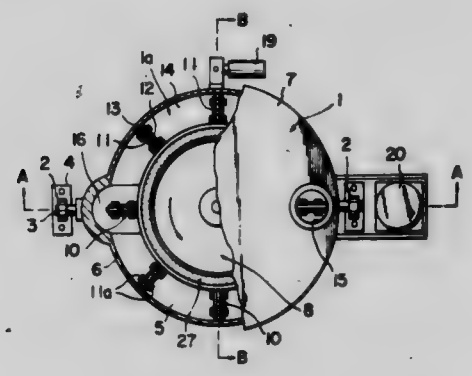
said cavity having an end wall with restricted flow passages leading from said cavity to the outer face of the body through which said fluid flows, said sidewall of said cavity having a plurality of slots formed therin, a screen element in the form of a hollow cage having side and bottom walls shaped to fit within said cavity to be closely fitted to said side wall of the cavity with its bottom wall spaced from said end wall of the cavity, said screen having a plurality of elongated narow passages cooperating with said slots adapted to strain fluid cut through its sidewall, and means to hold said screen in said cavity with its passages aligned with said slots in the side wall of the cavity whereby drilling fluid may flow to said tool to be screened in said tool body through said slots and passages before it passes to said restricted flow passages.

4,336,851

LOOP CONVEYOR TYPE FLOW WEIGHER

Hiroyuki Iwako, Tokyo, Japan, assignor to Funken Co., Ltd., Japan

Filed Aug. 13, 1980, Ser. No. 178,016
Claims priority, application Japan, Aug. 14, 1979, 54/102834
Int. Cl.³ G01G *11/06*
U.S. Cl. 177—16 **5 Claims**



1. A loop conveyor type flow weigher comprising a loop conveyor having:

a circular loop path for carrying powder material,

means for balancing said loop conveyor at two points on the loop diameter, whereby said loop conveyor is pivotable about said loop diameter at said two points, and

a load detector which is disposed orthogonally to said loop diameter and on which the loop conveyor rests,

said loop conveyor having a material receiving port provided at one end of said loop diameter in proximity to one of said two points of said means for balancing, and a material discharge port provided diametrically opposite said material receiving port in proximity to other of said two points of said means for balancing,

driven rotary means for carrying powder material which is fed to said material receiving port and is continuously carried to said material discharge port,

means for counting the number of rotations of said rotary means, and

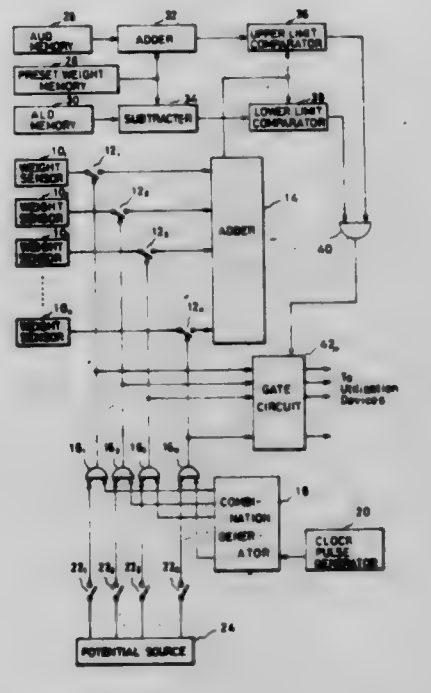
wherein the total weight of said material carried in a semicircle from said material receiving port to said material discharge port along said loop path is calculated by multiplying the weight carried through such semicircle by said rotary means as determined by said load detector, by the total number of revolutions of said rotary means as counted by said counting means.

4,336,852

COMBINATION WEIGHING DEVICE

Takashi Hirano, Kobe, Japan, assignor to Yamato Scale Company, Ltd., Hyogo, Japan

Filed Dec. 12, 1980, Ser. No. 215,819
Claims priority, application Japan, Dec. 24, 1979, 54-168816
Int. Cl.³ G01G *19/04*; B07C *5/16*
U.S. Cl. 177—25 **2 Claims**



1. A combination weighing device comprising a plurality of weighing balances for measuring weights of a plurality of articles each to produce weight signals representative of said weights, an arithmetic unit having a plurality of inputs for summing up said weight signals received therein and comparing the resultant sum with a predetermined range of weight to produce an output when said sum is within said range, a plurality of normally-open switches each having a control terminal and coupled respectively between said weighing balances and said outputs of said arithmetic unit, switch control means having a plurality of outputs coupled respectively to said control terminals of said normally-open switches for providing control signals successively from the outputs selected in accordance with a predetermined set of combinations, and means for supplying the control signals from said switch control means to utilization devices in response to said output of said arithmetic unit, wherein said device further comprises means for inhibiting selectively application of said weight signal from any weighing balance to said arithmetic unit and application of said control signal from the corresponding output of said switch control means to said utilization device, thereby permitting interruption of operation of the corresponding weighing balance without interrupting the device operation.

4,336,853

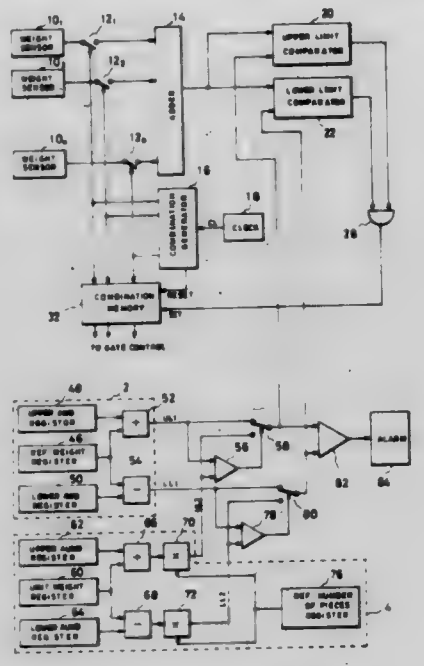
COMBINATION WEIGHING DEVICE

Takashi Hirano, Kobe, Japan, assignor to Yamato Scale Company, Ltd., Hyogo, Japan

Filed Dec. 22, 1980, Ser. No. 218,850
Claims priority, application Japan, Dec. 24, 1979, 54-168818
Int. Cl.³ G01G *19/04*; B07C *5/16*
U.S. Cl. 177—25 **4 Claims**

1. A combination weighing device, comprising a plurality of weighing balances for weighing a plurality of articles each to produce corresponding weight signals, respectively, an adder circuit for summing up incoming signals to produce a sum signal, means for coupling said weight signals to said adder circuit through individual normally-open switches each having a control input, means coupled to said control inputs for closing said switches selectively in accordance with a predetermined set of combinations thereof, first means for providing predetermined first upper and lower limits of an allowable

range of the total weight of articles, means for comparing said sum signal with an incoming allowable range to produce a command signal when the sum falls within said range, and means responsive to said command signal for storing a current combination for utilization, second means for providing predetermined second upper and lower limits of an allowable range of the unit weight of said articles, means for providing a predetermined total number of articles, multiplier means for multiplying said second upper and lower limits by said total number to produce third upper and lower limits, respectively, means for comparing said first and third upper and lower limits with each other and applying the severe ones of said upper and lower limits to said command signal producing and comparing means as the upper and lower limits of said allowable range.



4,336,854

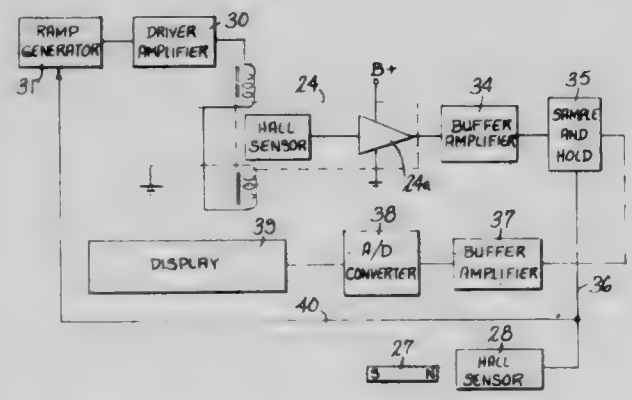
WEIGHING SYSTEM

William F. Jensen, 7 Iroquois Dr., Clinton, Conn. 06413

Continuation-in-part of Ser. No. 54,838, Jul. 5, 1979, abandoned. This application Oct. 29, 1980, Ser. No. 201,712

Int. Cl.[3] **G01G** *7/02*

U.S. Cl. 177—210 R **10 Claims**



1. In a weighing system of the type where an electromagnet is excited to move a load bearing member toward a null position, the improvement comprising: means for exciting the electromagnet at a finitely increasing rate to produce a magnetic field acting to move said load bearing member, means for sensing when said load bearing member moves under the force of the magnetic field, means for measuring the strength of the magnetic field of said electromagnet and generating a signal indicative thereof, means responsive to said sensing means for sampling the generated signal, and means responsive to said sampling means for indicating the weight of a load on said load bearing means.

4,336,855

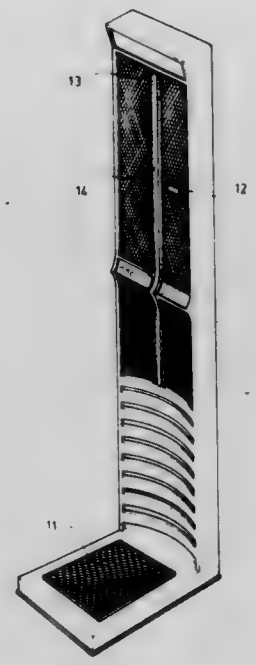
AUTOMATIC DIGIT DISPLAY MACHINE FOR MEASURING HEIGHT AND WEIGHT

Li-Fu Chen, 2nd Fl., No. 2, Alley 5, La. 57, Fu-Ho Rd., Yuan-Ho City, Taiwan

Filed May 28, 1980, Ser. No. 154,038

Int. Cl.[3] **G01G** *23/00*

U.S. Cl. 177—245 **9 Claims**



1. An apparatus for measuring and displaying the height and weight of a human being, comprising:

a platform;

means for measuring the weight of a human being standing on the platform;

a light source for illuminating the head of a human being standing on the platform with a beam of light;

a mirror for receiving light reflected from the head and further reflecting the received light;

a movable sensor system responsive to light reflected from the mirror;

means for (a) moving the sensor system from a first lower position in a generally upward direction and (b) stopping the motion of the sensor system responsive to light reflected thereto from the mirror;

means for determining the position of the stopped sensor system and interpreting this position as a corresponding height of the human being on the platform; and

means for simultaneously displaying the measured weight and height.

4,336,856

TURBO-FLYWHEEL-POWERED VEHICLE

Joseph A. Gamell, Kalamazoo, Mich., assignor to Joseph Gamell Industries, Inc., Kalamazoo, Mich.

Filed Aug. 27, 1979, Ser. No. 69,826

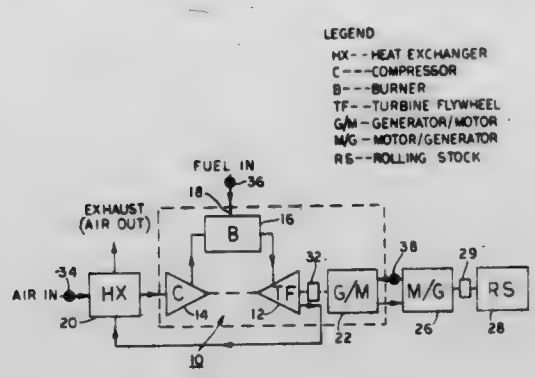
Int. Cl.[3] **B60K** *5/06;* **F02C** *7/10*

U.S. Cl. 180—165 **4 Claims**

3. A turbo-flywheel-powered vehicle comprising:

a drag turbine having an inner rotor which has a mass distribution such that it functions efficienty as a flywheel and an outer stator having a smooth right cylindrical inner surface opposed to a roughened right cylindrical outer surface on said rotor, a plurality of jet orifices in said stator oriented to jet a portion of propellant fluid into the space between the apposed surfaces and another portion onto the roughened surface of said rotor, and venting means adapted to vent spent propellant fluid laterally between said orifices; means for producing hot propellant fluid under pressure comprising an air compressor; and means for translating rotation of said rotor into motion of said

vehicle; said compressor and said turbine being juxtaposed and having a channel therebetween through which spent



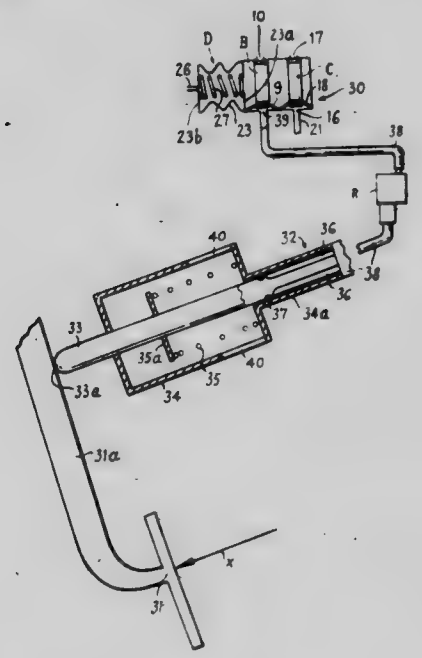
propellant is exhausted, whereby said compressor is in heat exchange with spent propellant.

4,336,857

VEHICLE SPEED-CONTROL SYSTEM AND ACTUATOR DEVICE

Norman Hunt, Leamington Spa, England, assignor to Associated Engineering Limited, Warwickshire, England

Continuation-in-part of Ser. No. 902,592, May 4, 1978, Pat. No. 4,218,997. This application Apr. 2, 1980, Ser. No. 136,596
Claims priority, application United Kingdom, Apr. 7, 1979, 7911813; Oct. 9, 1979, 7935012
Int. Cl.³ B60K *31/00*
U.S. Cl. 180—177 **3 Claims**



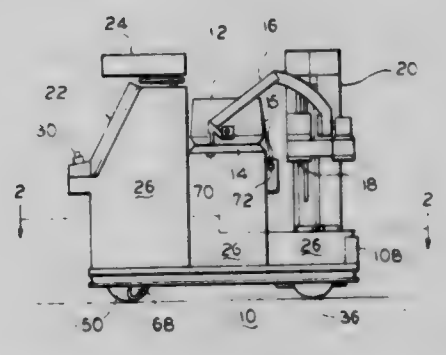
1. A motor vehicle speed-control system for maintaining the vehicle speed substantially constant, comprising an electronic control circuit operable to sense the speed of the vehicle and produce a pulsed output of which the mark-to-space ratio of the pulses varies in dependence upon a comparison between the actual vehicle speed and a selected vehicle speed, an engine speed control adjustable by an actuator device including a chamber having a movable wall connected to said engine speed control, the chamber wall being movable by changing the pressure of the gas in the chamber under control of two electromagnetic valves, the first electromagnetic valve being energized by said electrical pulses to connect the chamber to first and second sources of gas pressure in accordance with the mark-to-space ratio of the pulses, and the second electromagnetic valve being spring biassed so that, when de-energized, its valve moves to a first position in which it opens a connection between the chamber and said first pressure source and, when energized, the valve moves to a second position in which it closes said connection, the actuator device adjusting the engine speed-control to reduce the engine speed as the gas pressure in the chamber approaches said first pressure, characterized by an auxiliary dump valve which is normally closed and is opened by actuation of the vehicle brake pedal or other driver-actuable member to connect said first pressure source to said chamber through a further connection which is closed by said second electromagnetic valve when in its said first position and is opened when said second electromagnetic valve is in its said second position, the gas flow between the chamber and said first pressure source, when both the auxiliary dump valve and said further connection are open, being at a rate sufficient to cause the pressure in the chamber rapidly to approximate to and to be maintained approximately at said first pressure irrespective of the action of said first electromagnetic valve.

4,336,858

BRAKING SYSTEM FOR A MEDICAL DIAGNOSTIC DEVICE

Robert J. Loyzim, Dousman, Wis., assignor to General Electric Company, Milwaukee, Wis.

Filed Nov. 3, 1978, Ser. No. 957,533
Int. Cl.³ B60K *31/00*
U.S. Cl. 180—179 **7 Claims**



1. An automatic electrical brake system for a mobile medical diagnostic device having a self-propelling motor means and a supporting wheel assembly and a hand operable throttle control, said system comprising:

an electromechanical brake operatively associated with the wheel assembly, said brake being engagable proportionally in response to electrical current applied thereto,

means for sensing the velocity of the device and producing a present velocity signal,

means for sensing the position of the throttle control and producing a throttle command signal,

circuitry means for comparing the present velocity signal to the throttle command signal and, when the velocity signal is greater than the throttle command signal, applying current to said brake proportionally to the difference in the signals,

a motor brake operatively associated with the self-propelling motor means, and

circuitry means for comparing the present velocity signal to the throttle command signal and, whenever the velocity signal is a preselected amount greater than the throttle command signal, applying current to said motor brake.

4,336,859

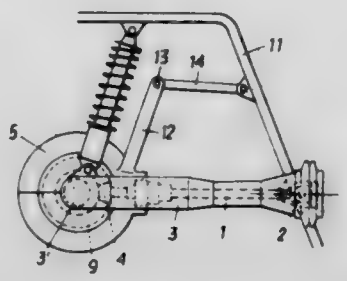
CARDAN DRIVE FOR MOTORCYCLES

Horst Leitner, Dr.-Th.-Körner-Strabe 33, in Bruck a.d. Mur, Steiermark, Austria

Filed Apr. 4, 1980, Ser. No. 137,152
Int. Cl.³ B62M *17/00*
U.S. Cl. 180—226 **8 Claims**

1. In a Cardan drive for a motorcycle rear wheel supported by a swing arm pivoted to a frame and a housing is supported pivotally with respect to the swing arm and is connected via a guide member on the frame by means of a control arm, the latter being rigidly connected to the housing, and within the housing a pinion connected with a Cardan shaft is supported

and a ring gear engaging with the pinion connected with the rear wheel is contained, the improvement wherein



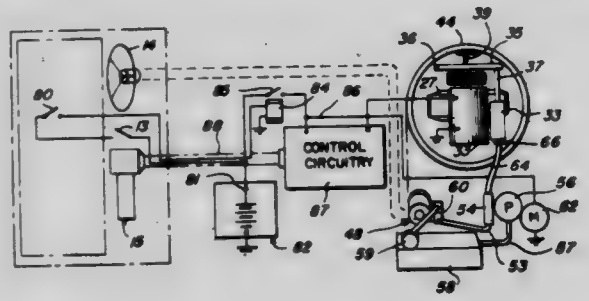
said guide member is pivoted to a point on the frame disposed above the swing arm.

4,336,860

MATERIAL HANDLING VEHICLE HAVING IMPROVED DEADMAN CONTROL

Fred W. Noller, Muscatine, and James C. Kramer, Davenport, both of Iowa, assignors to The Prime-Mover Co., Muscatine, Iowa

Filed Jan. 24, 1980, Ser. No. 115,055
Int. Cl.³ B60K *1/00*
U.S. Cl. 180—273 **10 Claims**



1. In a material handling vehicle including a main frame structure, wheel means supporting said main frame structure, brake means associated with said wheel means, spring means for operating said brake means to an engaged condition, an electrically controlled system on said main frame structure including motive power means for supplying motive power to said wheel means for driving said vehicle, an operator's platform supported on said main frame structure, and a deadman switch on said platform for controlling energization of said electrically controlled system, said deadman switch being operable to an open position with no operator on said operator's platform to prevent energization of said electrically connected system and supply of motive power to said wheel means and being operable to a closed position by an operator on said operator's platform to allow energization of said electrically controlled system and supply of motive power to said wheel means, and brake release means responsive to energization of said electrically controlled system for operating against said spring means to operate said brake means to a released position.

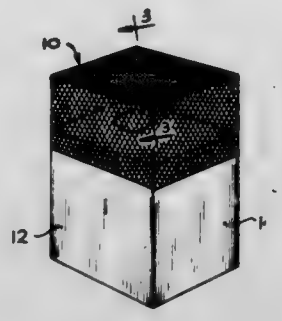
4,336,861

SPEAKER SYSTEM

B. Keith Peter, 1200 Valley Rd., Deerfield, Ill. 60015

Filed Aug. 23, 1972, Ser. No. 283,069
The portion of the term of this patent subsequent to Nov. 29, 1994, has been disclaimed.
Int. Cl.³ H04R *7/00*; H05K *5/00*
U.S. Cl. 181—144 **5 Claims**

1. An omnidirectional loudspeaker system comprising an enclosure having sound impermeable walls defining a path for the transmission of sound, said enclosure having a first wall at one end of the path provided with a first opening therein, said enclosure having a second wall at the other end of the path with a second opening therein, a speaker mounted on the first wall of the enclosure, said speaker having a cone shaped diaphragm acoustically sealed at its periphery about the first opening, said speaker having natural free air resonance produc-



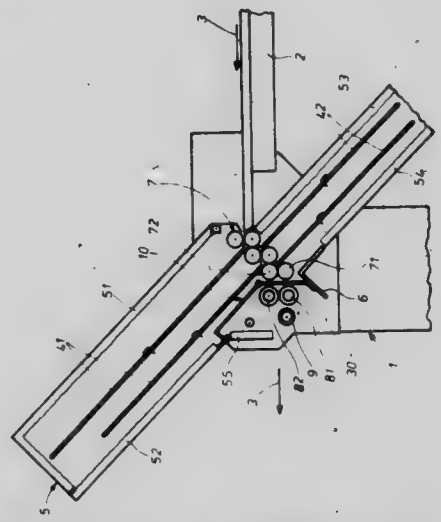
ing sound waves having a wavelength twelve times the length of the path from the first opening to the second opening, and a mass of sound absorbing material disposed within and extending across the path.

4,336,862

DEVICE FOR REDUCING THE EMISSION OF NOISE IN BUCKLE FOLDING MACHINES

Axel Adam, Backnang-Steinbach, and Fritz Heina, Murrhardt, both of Fed. Rep. of Germany, assignors to Maschinenbau Oppenweiler Binder GmbH & Co., Oppenweiler, Fed. Rep. of Germany

Filed Jun. 16, 1981, Ser. No. 274,254
Claims priority, application Fed. Rep. of Germany, Jul. 3, 1980, 3025239
Int. Cl.³ G10K *11/00*; B65H *45/14*
U.S. Cl. 181—200 **3 Claims**



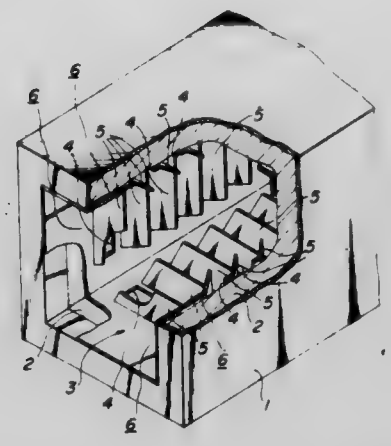
1. A device for reducing the emission of noise in buckle folding units provided with noise control enclosures, comprising a noise control hood essentially completely enclosing the upper and lower folding pockets and the folding rolls, said noise control hood being at least partially slidingly displaceable, tiltable and/or removable and being provided with a slot for the passage of the sheet in the associated hood section, which slot is aligned with the nip of the pair of intake and discharge rolls, respectively, characterized in that the hood section associated with the pair of discharge rolls (71, 72) comprises a cover plate (10) having a vertical first section (12) secured to the hood and a second section (11) held on the first section (12) pivotably between an inclined closed position adjoining to the hood and an opened position above the folding rolls (7), wherein the longitudinal edges, being parallel to the roll axes, of the discharge slot (15) provided in the vertical section (12) are arranged such as to form noise emission sealing sites in cooperation with the peripheral surfaces of the pair of discharge rolls (71, 72).

4,336,863

SILENCER IN GAS FLOW PASSAGE

Seigo Satomi, Nagoya, Japan, assignor to NGK Insulators, Ltd., Nagoya, Japan

Filed Jul. 6, 1981, Ser. No. 280,217
Claims priority, application Japan, Dec. 5, 1980, 55-175358[U]
Int. Cl.³ E04F *17/04*; F01N *1/10*
U.S. Cl. 181—224 5 Claims



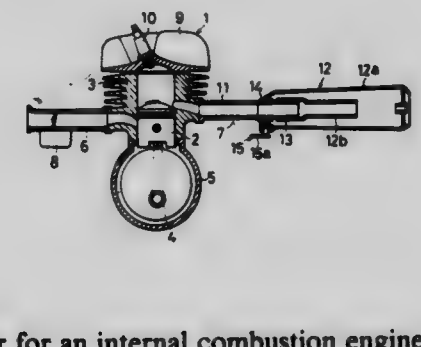
1. A silencer including a sound absorbing material forming walls of gas flow passages in a duct casing, said silencer comprising guard plates for covering surfaces of said sound absorbing material facing said gas flow passages, each said guard plate being formed with a number of sound absorbing apertures and provided at edges of said sound absorbing apertures with oblique plates continuous with said edges and bent inclined to a surface of said guard plate such that gas flow is prevented from directly entering said sound absorbing material through said sound absorbing apertures.

4,336,864

SILENCER FOR AN INTERNAL COMBUSTION ENGINE

Urataro Asaka, Kamifukuoka; Naomoto Uesugi, Tokyo, and Nobuo Anno, Urawa, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 11, 1980, Ser. No. 215,436
Claims priority, application Japan, Dec. 13, 1979, 54-160856; Feb. 14, 1980, 55-16475[U]; Feb. 15, 1980, 55-17154[U]
Int. Cl.³ F01N *7/00, 1/08*
U.S. Cl. 181—241 5 Claims



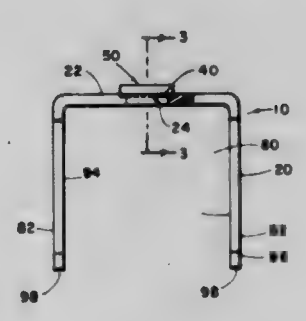
1. A silencer for an internal combustion engine comprising:
a tubular main silencer having inlet means at one of its axial ends for connection to an exhaust pipe of said engine, an outlet at the other axial end thereof for the exhaust of combustion gases from said engine, a progressively increasing diameter from the inlet means end to the outlet end for accommodating and silencing the exhaust of gases from said engine when said engine is operating in a high speed range, and an annular conical seat interiorly defined at the inlet end;
a tubular secondary silencer entirely positioned interiorly within the main silencer and fixedly supported therein, the secondary silencer having an inlet end and, a substantially constant diameter throughout its length for accommodating and silencing the exhaust of gases from said engine in conjunction said main silencer when said engine is operating in a low speed range;
a tubular member slidably supported within a tubular portion of the inlet end of the secondary silencer and axially movable between a first position in which it receives the entire flow of gases from said engine and directs them totally into the secondary silencer and a second position in which said exhaust gases can pass direct by into said main silencer, said tubular element including an annular conical portion at its end adjacent said inlet means of said main silencer which is sealingly received in said conical seat when said tubular member is in said first position; and
means for moving said tubular member between said first and second positions to change the exhaust characteristics of said silencer.

4,336,865

CARTRIDGE CASE LUBRICATOR

Eugene T. Carkoski, 7560 Parker St., Omaha, Nebr. 68114

Filed Nov. 17, 1980, Ser. No. 207,381
Int. Cl.³ F42B *31/00*; F16N *3/00*
U.S. Cl. 184—14 6 Claims



1. A cartridge case lubricator comprising a frame having lowermost portions on a substantially horizontal plane for support by a horizontal surface, an upper frame portion having a hole extending vertically therethrough, a recess means extending partially through said upper frame portion from its upper side, said recess means overlapping said hole, said recess means providing upwardly facing shoulder means on sides of said hole, a support extending across said hole and lapping said shoulder means, said shoulder means being of adequate size and position and said support lapping said shoulder means sufficiently that said support is itself supported by said shoulder means against substantial downward pressure on said support, an oil absorbent means disposed above and supported by said support, said oil absorbent means having an opening extending vertically therethrough, the area of said opening being of much lesser size as seen from the top thereof than the area of said hole as said hole is seen from the bottom of the frame, said support being provided with a passage therethrough disposed in at least partial registry with said opening in said absorbent means, said opening and said passage and said hole all being of large enough size so that at least one size of cartridge from the cartridge size range of 0.17 to 0.45 calibre can be effectively lubricated by passing said cartridge therethrough, said frame having a large open space therein beneath said hole whereby a cartridge case can be passed through said opening and said passage and said hole and grapsed by an operator's hand in said space for removal from said lubricator.

4,336,866

WIRE ROPE LUBRICATOR CLEANER

Kistler J. Blanton, Jr., 628 S. Laurel St., Summerville, S.C. 29483

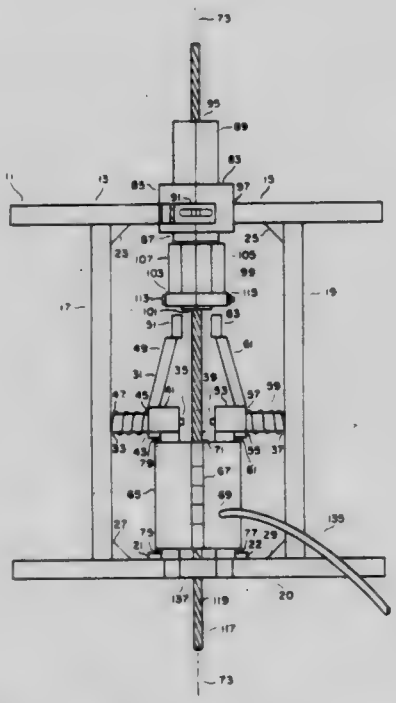
Filed Jan. 24, 1980, Ser. No. 114,783
Int. Cl.³ B05B *1/04*; F16N *7/14, 9/00*
U.S. Cl. 184—15 R 11 Claims

1. A wire rope lubricator comprising in combination:
a rectangular shaped frame having a pair of substantially parallel bracing bars, an upper rack handle assembly at-

tached to said pair of bracing bars at one end thereof, and a lower rack handle assembly attached to said pair of bracing bars at the opposite end thereof;

a lower slide assembly affixed to the pair of parallel bracing bars of said rectangular shaped frame;

lubricating means removably coupled to said rectangular shaped frame between said lower rack handle assembly and said lower slide assembly such that said lubricating means may be removed from said rectangular shaped frame, said lubricating means having an intake port, and an aperture for passing therethrough a wire cable so as to allow a lubricant cleaner to be applied to said wire cable; said wire cable having therein a plurality of spiral strands;



an upper slide assembly mounted around said upper rack handle assembly in slidable engagement therewith, said upper slide assembly having an aperture for passing therethrough said wire cable; and

reconditioning means rotatably supported by said upper slide assembly, said reconditioning means having a plurality of internal spiral grooves, the internal spiral grooves of said reconditioning means fitting the spiral strands of said wire cable so as to allow said wire cable to pass through said reconditioning means, said reconditioning means being adapted for cleaning said wire cable, and for removing the excess lubricant from said wire cable.

4,336,867

DRUM BRAKE HAVING DUO MODE

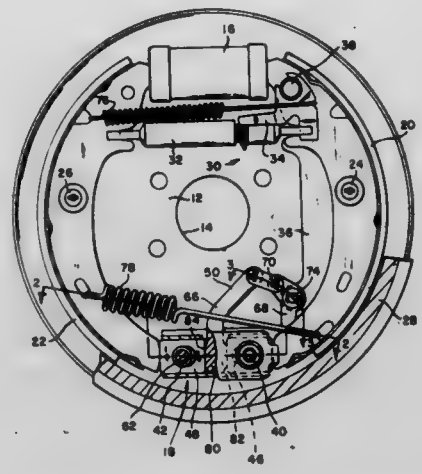
Ji Y. Woo, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 1, 1979, Ser. No. 80,809

Int. Cl.³ F16D *51/20, 51/50*

U.S. Cl. 188—326 **5 Claims**

1. In a drum brake assembly having a hydraulic actuator which cooperates with a pair of brake shoes to radially expand the latter from a rest position to a braking position during a service brake application, a backing plate for carrying the hydraulic actuator and the pair of brake shoes, a parking assembly cooperating with the pair of brake shoes to radially expand the latter from a rest position to a braking position during a parking brake application, said parking assembly including a strut extending between the pair of brake shoes substantially adjacent to said hydraulic actuator and said parking assembly also including an arm pivotal relative to one of the pair of brake shoes and engaged with said strut, and a support assembly engageable with said pair of brake shoes to absorb braking torque developed by said pair of brake shoes, said support assembly including a pair of blocks engageable, respectively, with said pair of brake shoes and also abutting said backing plate to transfer torque thereto during a service brake application, said support assembly further including a lever responsive to actuation of said parking assembly and cooperating with said pair of blocks to further expand the latter when said parking assembly is actuated, said pair of



blocks moving away from the abutment with said backing plate to form a clearance therebetween which permits said pair of blocks and said pair of brake shoes to move slightly with the drum relative to the backing plate when said parking assembly is actuated.

4,336,868

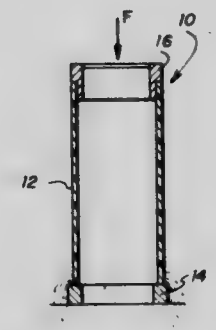
COMPOSITE FIBROUS TUBE ENERGY ABSORBER

Henry E. Wilson; James D. Cronkhite, both of Hurst, and John V. Howard, Arlington, all of Tex., assignors to Textron, Inc., Providence, R.I.

Continuation-in-part of Ser. No. 904,381, May 10, 1978, abandoned. This application Nov. 7, 1979, Ser. No. 91,880

Int. Cl.³ F16F *7/12*

U.S. Cl. 188—376 **53 Claims**



1. Force attenuation apparatus, comprising:

an elongate member of a composite material comprising load-bearing fibers bonded by a resin;

an anvil axially aligned with said member and disposed adjacent one end thereof; and

means for applying force to the end of said elongate member opposite said anvil to progressively disintegrate said member at the face of said anvil.

4,336,869

STEERING CLUTCH AND BRAKE CONTROL FOR TRACK-TYPE VEHICLES

Yoshio Tsutsumi, Hirakata, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Jun. 24, 1980, Ser. No. 162,438

Claims priority, application Japan, Jun. 29, 1979, 54-81440

Int. Cl.³ F16D *67/04*

U.S. Cl. 192—13 R **3 Claims**

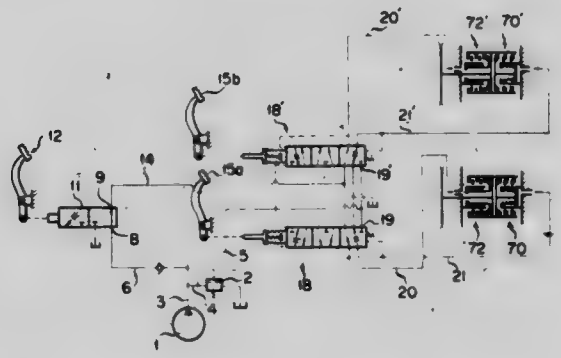
1. A steering clutch and brake control system for a track-type vehicle in which driving force is applied to both sides thereof, comprising in combination:

a source of pressurized fluid;

a pair of clutch means each associated with one side of the vehicle and disengageable to disconnect the driving force applied to that side of the vehicle upon application of fluid pressure thereto;

a pair of brake means each associated with one side of the vehicle and normally disengaged by fluid pressure applied thereto and engageable upon blocking fluid pressure therefrom;

a pair of first valve means each associated with one side of the vehicle and said fluid pressure source and including a reciprocable valve spool positionable in a first position blocking fluid pressure from said clutch means but allowing fluid pressure from said fluid source through said first valve means to said brake means and movable sequentially to second and third positions, said spool in said second



position allowing fluid pressure from said fluid source through said first valve means not only to said brake means but also to said clutch means to disengage said clutch means, said spool in said third position allowing fluid pressure from said fluid source through said first valve means to said clutch means to maintain said clutch means in its disengaged state but blocking fluid pressure from said brake means thereby actuating said brake means; and

second valve means connected with said fluid source and said first valve means, said second valve means having formed therein a neutral communication position and an offset position where fluid in said brake means is drained through said second valve means to a tank thereby engaging said brake means whether said clutch means is engaged or disengaged.

4,336,870

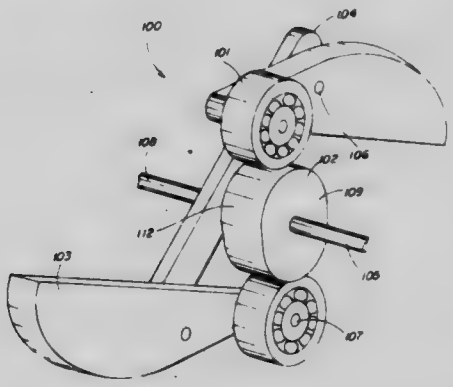
TORQUE EXCHANGE COUPLING

Robert H. Shea, Bergen, N.Y., assignor to Shea Inventive Designs, Rochester, N.Y.

Division of Ser. No. 757,249, Jan. 6, 1977, Pat. No. 4,195,721, which is a continuation-in-part of Ser. No. 652,206, Jan. 26, 1976. This application Nov. 26, 1979, Ser. No. 97,393

Int. Cl.³ F16D *43/18*; F16H *33/02*

U.S. Cl. 192—105 CF **1 Claim**



1. A coupling for transmitting rotational mechanical power comprising:

(a) a cam having an exterior peripheral surface;

(b) a circuitous track situated on said exterior peripheral surface of the cam, the linear course of said track being undulant in relation to its axis of rotation;

(c) a rotatable power input shaft;

(d) a rotor in communication with the power input shaft such that the rotation of the input shaft causes the rotation of said rotor; and,

(e) associated with said rotor, means for conveying rotational mechanical power from the input shaft to the undulant track comprising a variably extendible member being capable of making contact with the undulant track at any point in its linear course as a result of centrifugal force causing the extention of said variably extendible member.

4,336,871

CLUTCH MECHANISM

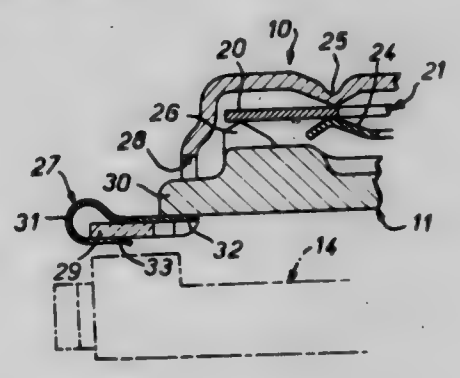
Rene Billet, Lamorlaye, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

Filed Jun. 5, 1979, Ser. No. 45,649

Claims priority, application France, Jun. 9, 1978, 78 17286

Int. Cl.³ F16D *13/71*

U.S. Cl. 192—107 C **9 Claims**



1. A clutch cover assembly comprising a cover having a generally cylindrical skirt and a radially extending peripheral mounting flange with at least one plane area, a pressure plate mounted in said cover for axial displacement of said pressure plate relative to said cover, axially acting resilient means operatively disposed between said cover and said pressure plate and urging said pressure plate away from and out of said cover, and in an inoperative storage state of said clutch cover assembly at least one retaining shim positively defining and axially maintaining the position of said pressure plate within said cover and relative to said cover against the force of said resilient means, a passage through said skirt of said cover in line with said plane area on said flange, said retaining shim being of generally U-shaped hairpin configuration and being radially inwardly inserted through said passage and resiliently clamped in place on opposed sides of said flange, said shim having a leg adjacent to and facing said cover flange, said leg being disposed axially between the face of said pressure plate facing away from said axially acting resilient means and said cover flange.

4,336,872

APPARATUS FOR TRANSFERRING PARTS OR THE LIKE

Teruyoshi Noda; Iwao Ichikawa, and Toshio Takahashi, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 1, 1980, Ser. No. 145,720

Claims priority, application Japan, May 10, 1979, 54-57446

Int. Cl.³ B65G *11/00*

U.S. Cl. 193—2 R **1 Claim**

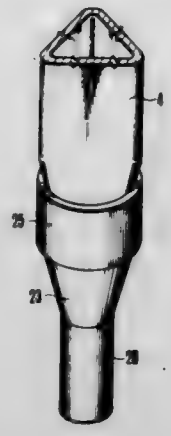
1. An apparatus for transferring cylindrical parts from a first location to a second location, comprising:

a transferring tube of triangular cross-section having first and second ends;

means at said first location for feeding said cylindrical parts into said first end; and

means at said second location for receiving said cylindrical

parts from said second end, including a connecting pipe having a large diameter portion of circular cross-section



receiving said second end of the transferring tube and deforming said second end into a circular cross-section.

4,336,873

APPARATUS FOR TRANSPORTING CIGARETTES FROM A SUPPLY STACK TO A PACKAGING MACHINE

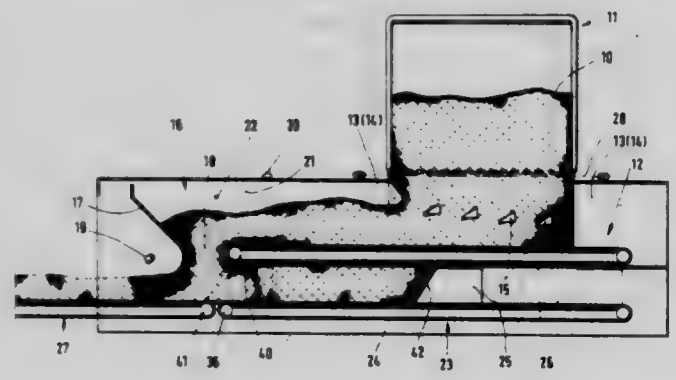
Heinz H. Focke, Verden, Fed. Rep. of Germany, assignor to Focke & Co., Verden, Fed. Rep. of Germany

Filed Jun. 19, 1980, Ser. No. 160,894

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1979, 2929660

Int. Cl.³ B65G *1/00*

U.S. Cl. 198—347 **9 Claims**



9. An apparatus for transporting cigarettes from a supply stack (**11**) to a packing machine, and including an intermediate conveyor (**12**) extending horizontally below the stack, a horizontal transfer conveyor (**27**) for transporting the cigarettes to the packing machine and a buffer storage magazine disposed before the transfer conveyor in the direction of cigarette flow to receive and discharge cigarettes depending on periodic fluctuation in their supply to thus maintain a constant output, characterized by:

(a) the magazine (**23**) comprising a belt (**24**) having an end wall (**25**) mounted on it and being movable back and forth,

(b) the magazine being disposed below the intermediate conveyor in a plane parallel thereto,

(c) the transfer conveyor being disposed in the plane of the magazine belt and comprising a horizontal extension thereof,

(d) edge slots (**37, 38**) formed on opposite sides of the intermediate conveyor, limited by sidewalls (**13, 14**) thereof, and extending in the longitudinal direction of the intermediate conveyor, and

(e) a diverter plate (**39**) mounted below said slots at a descending angle to discharge misaligned cigarettes falling through the slots.

4,336,874

SETTING MACHINE FOR SPACING FORMED ARTICLES

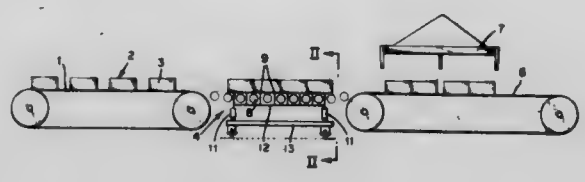
Hermann Kamphues, Ibbenbueren, Fed. Rep. of Germany, assignor to C. Keller GmbH & Co., KG, Maschinenfabrik, Ibbenbüren-Laggenbeck, Fed. Rep. of Germany

Filed May 1, 1980, Ser. No. 145,446

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1979, 2938403

Int. Cl.³ B65G *47/26*

U.S. Cl. 198—458 **13 Claims**



1. An apparatus for setting formed articles comprising means for providing the formed articles;

a series of horizontally spaced rollers for receiving the formed articles from the means for providing the formed articles with the axes of the spaced rollers being substantially normal to the direction of motion of the articles being received;

a carriage movable in a direction substantially parallel to the axis of the spaced rollers;

at least two actuators mounted on the carriage and independently operable;

at least two support strips each extending in a direction substantially parallel to the roller axes and subdivided into sections connected to the actuators said sections being capable of moving up and down independently from each other between the rollers; and means for receiving the formed articles.

4,336,875

APPARATUS FOR THE TRANSFER OF HANKS

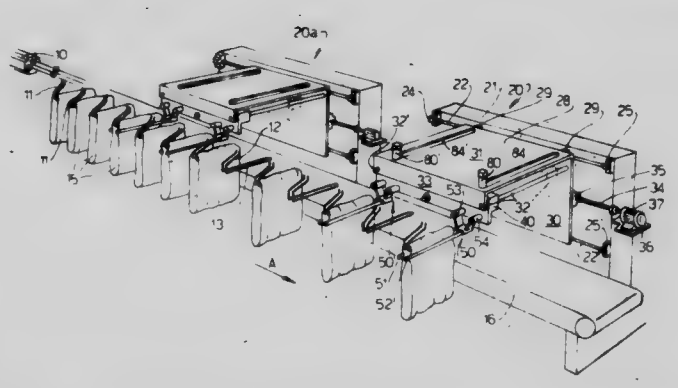
Federico Minnetti, Pieve a Nievole, Italy, assignor to Officine Minnetti di Ornella Reveggi & C. S.A.S., Colonna, Italy

Filed May 28, 1980, Ser. No. 154,030

Claims priority, application Italy, Jun. 1, 1979, 23219 A/79; Jul. 23, 1979, 24561 A/79

Int. Cl.³ B65G *25/04*

U.S. Cl. 198—486 **21 Claims**



20. A device for transferring hanks from hank holding supports moving in a feeding direction, said hank holding supports having a horizontally extending portion supporting the hanks, said device comprising:

a pair of rods movable with respect to each other between a spaced apart position and a gripping position in which the distance between the rods is less than the width of a hank carried by one of said hank holding supports;

means for controlling movement of said rods between said spaced apart position and said gripping position;

head means for supporting said rods and said means for controlling movement of said rods; and

first movement means for moving said head means to and fro in a first direction parallel to an extension of said horizontally extending portion of said hank holding supports so that said rods in said spaced apart position are located on opposite sides of a hank supported on one of said hank holding supports and so that said rods after being moved to said gripping position are moved away from the hank holding support to thereby transfer the hank.

4,336,876

MECHANICAL HANDLING APPARATUS FOR RECLAIMING MATERIAL FROM A STOCKPILE

Eric R. Cox, Twyning, England, assignor to Babcock-Moxey Limited, Gloucester, England

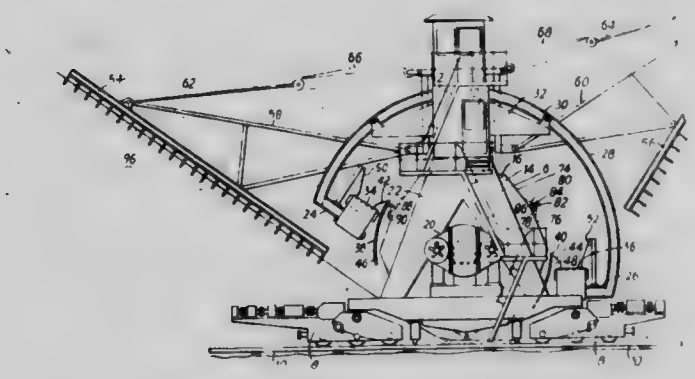
PCT No. PCT/GB79/00127, § 371 Date Apr. 8, 1980, § 102(e) Date Apr. 3, 1980, PCT Pub. No. WO80/00333, PCT Pub. Date Mar. 6, 1980

PCT Filed Jul. 31, 1979, Ser. No. 190,317

Claims priority, application United Kingdom, Aug. 8, 1978, 32608/78

Int. Cl.[3] B65G *57/00*

U.S. Cl. 198—509 6 Claims



1. A mechanical handling apparatus for reclaiming material from a stockpile including a wheeled frame moveable on rails extending to each side of the stockpile; a support structure mounted on said wheeled frame; drive means for traversing the wheeled frame in either direction along the rails; a rotatable cylindrical drum mounted on the support structure and provided with a plurality of blind scoops each open in opposed directions for scooping material from the stockpile; first and second transfer conveyors mounted on the support structure and extending to each external side of the drum in a direction parallel to the axis of rotation thereof, for receiving material discharged from the blind scoops; means for angularly displacing of the first and second conveyors to move the conveyors independently between an operative position and raised position such that when one conveyor is in the operative position to receive material from the blind scoops the other conveyor is in the raised position clear of the stockpile; and means for rotating the durm such that the blind scoops open in one direction serving with clockwise rotation of the drum to scoop material from a first portion of the stockpile to one side of the drum; and upon further clockwise rotation of the drum discharge the material therefrom to the first transfer conveyor at the side of the drum remote from the first portion of the stockpile and blind scoops open in the opposed direction serving with anti-clockwise rotation of the drum to scoop material from a second portion of the stockpile to the side of the drum remote from the second portion and, upon further anti-clockwise rotation of the drum, discharge the material therefrom to the second transfer conveyor.

4,336,877

FOLDABLE UNLOADING MACHINE

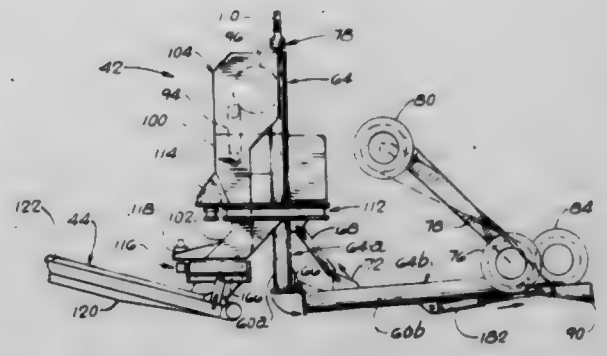
Charles B. Gill, San Mateo, Calif., assignor to Fruehauf Corporation, Detroit, Mich.

Division of Ser. No. 74,719, Sep. 12, 1979, Pat. No. 4,264,003.

This application Feb. 10, 1981, Ser. No. 233,150

Int. Cl.[3] B65G *17/36, 21/10*

U.S. Cl. 198—509 8 Claims



1. An unloading machine for bulk materials, comprising

an endless bucket train having a plurality of longitudinally spaced buckets which are circular in cross section,

said bucket train including a plurality of flexible tension elements extending axially between the successive buckets in the train,

a generally vertical supporting leg including first and second parallel guide tubes for receiving and guiding said bucket train which is movable downwardly within said first guide tube and upwardly within said second guide tube,

a vertically swingable boom having an inner end with a pivotal connection between said inner end and the lower end portion of said leg whereby said boom is swingable vertically about the pivot axis of said pivotal connection,

said boom projecting forwardly from said leg,

first power means for swinging said boom vertically about said pivot axis,

a first conveyor wheel supported in the locality of said pivotal connection for causing said bucket train to travel out of the lower end of said first guide tube and then outwardly along said boom,

a second conveyor wheel rotatably mounted on the outer end portion of said boom for supporting said bucket train and causing said bucket train to be directed downwardly from the outer end portion of said boom,

a third conveyor wheel disposed near the lower end of said second guide tube for directing said bucket train into the lower end of said second guide tube,

said bucket train being suspended in a catenary curve between said second and third conveyor wheels for digging a bulk material and carrying it upwardly in said buckets within said second guide tube,

a fourth conveyor wheel disposed near the upper end portion of said leg for receiving the bucket train from the upper end of said second guide tube and carrying said bucket train downwardly to dump the bulk material from said buckets,

a fifth conveyor wheel for receiving said bucket train from said fourth conveyor wheel and again directing the bucket train upwardly,

and a sixth conveyor wheel for receiving said bucket train from said fifth conveyor wheel and directing said bucket train downwardly into the upper end of said first guide tube,

said leg having upper and lower sections with a hinged joint therebetween to provide for forward and upward folding movement of said lower section about the hinge axis of said hinged joint,

said hinge axis being disposed on the forward side of said leg,

said hinge axis being horizontal and generally parallel with the pivot axis of said boom,

said parallel guide tubes having longitudinal axes in a plane which is parallel with said hinge axis,

each of said guide tubes having upper and lower sections on said upper and lower sections of said leg,

said lower section of said leg being swingable about said hinge axis of said hinged joint between a downwardly extended position in which the lower sections of said tubes are aligned with the upper sections thereof and a forwardly and upwardly folded position in which said lower sections of said tubes are swung forwardly and upwardly into angular positions relative to said upper sections of said tubes,

second power means for swinging said lower section of said leg about said hinge axis between said extended and folded positions,

said second power means being operable to swing said lower section of said leg forwardly and upwardly through approximately 90° to said folded position,

said first power means being operable to swing said boom upwardly toward said lower section of said leg for maximum compactness in said folded position,

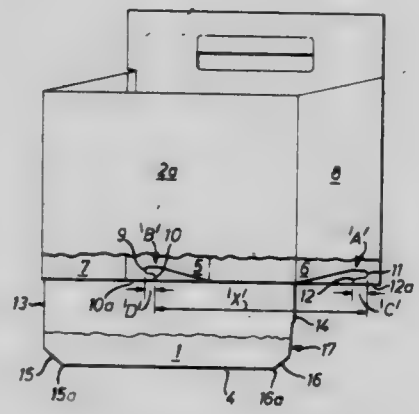
said machine being more compact vertically when the lower section of said leg is in its folded position.

4,336,878

ARTICLE CARRIER HAVING IMPROVED LOCKING MEANS

Prentice J. Wood, Hapeville, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Oct. 3, 1980, Ser. No. 193,783
Int. Cl.³ B65D *5/48, 75/00*
U.S. Cl. 206—173 **5 Claims**



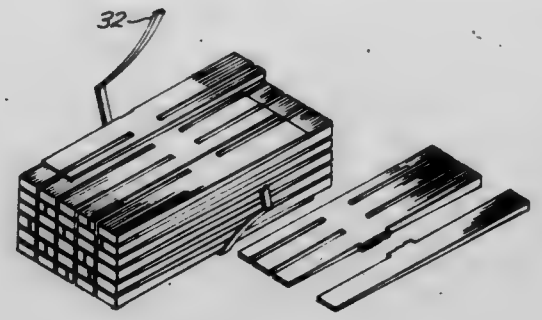
1. A cellular article carrier of the basket-style comprising a bottom panel (1), opposed sidewalls (2, 2*a*) foldably joined to opposite side edges of said bottom panel, end panels (7, 8) foldably joined to the ends of said sidewalls and extending transversely inward therefrom, medial riser panels (5, 6) foldably joined to said end panels respectively, locking means (A, B) formed in said riser panels adjacent the lower ends thereof at each end of the carrier for respectively receiving cooperating locking means (15, 16) provided by the bottom panel so as to hold the carrier in squared, set-up condition, characterized in that the relative dimensions of the locking means are such that when one riser panel locking means (A) is caused fully to engage its cooperating bottom panel locking means (16) during inward displacement of said one riser panel (6), the other riser panel locking means (B) simultaneously is caused to clear its cooperating other bottom panel locking means (15) by an amount necessary to achieve locking cooperation between said other locking means (B, 15) when said inward displacement is ceased.

4,336,879

SHIM BUNDLE

Charles E. Carr, Olympia, Wash., assignor to Carr Cedar Products, Inc., Shelton, Wash.

Division of Ser. No. 953,960, Oct. 23, 1978, Pat. No. 4,223,432.
This application May 9, 1980, Ser. No. 148,550
Int. Cl.³ E04D *1/28*
U.S. Cl. 206—323 **3 Claims**



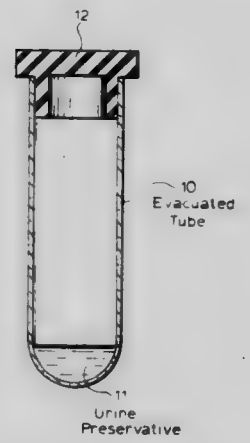
1. A bundle of shims comprising an elongated pack of shim stock pieces stacked in several courses, each of said pieces being tapered lengthwise of said pack, and a band encircling said pack transversely of its length and defining a plane extending generally centrally between the opposite ends of said pack, each end portion of said pack having a plurality of substantially parallel, transversely spaced kerfs through said several courses of said pack and extending lengthwise inward from the end of such end portion toward said band only partway through such end portion, each kerf having an inner end located adjacent to the plane defined by said band, the kerfs in one end portion of said pack being in substantially mutual registration with the kerfs in the other end portion of said pack so that said shim stock pieces of each course of said pack have short joining sections between the inner ends of the oppositely extending kerfs straddled by said band and enabling said pieces, after being removed from said pack, to be manually separated into individual shims by breaking said joining sections.

4,336,880

PRESERVATION OF URINE SPECIMENS

Jack J. Mehl, Landing, N.J., assignor to Becton, Dickinson and Company, Paramus, N.J.

Division of Ser. No. 3,237, Jan. 15, 1979, Pat. No. 4,258,032.
This application Nov. 24, 1980, Ser. No. 209,816
Int. Cl.³ A01N *37/00, 59/14*; B65D *85/00, 81/20*
U.S. Cl. 206—524.4 **6 Claims**



1. A sample device for urine, comprising:

an evacuated sample container for urine and a bacteriostatic liquid preservative for urine in said evacuated sample device, said liquid preservative comprising boric acid, alkali formate and a liquid selected from the group consisting of water and glycerine in amounts effective to provide a liquid preservative for a urine sample, said boric acid and alkali formate being dissolved in the liquid to provide

from 0.9 to 1.2% of boric acid and from 0.5 to 0.6% of alkali formate in a urine sample.

4,336,881

AQUEOUS ACID CONCENTRATE FOR HEMODIALYSIS DIALYSATE

Albert L. Babb, and Belding H. Scribner, both of Seattle, Wash., assignors to Diachem, Inc., Arlington Heights, Ill.

Continuation-in-part of Ser. No. 48,757, Jun. 14, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 132,866

Int. Cl.³ B65D *85/00*

U.S. Cl. 206—525 **8 Claims**

1. A sealed unit dose container containing therein an aqueous acid concentrate composition for compounding a hemodialysis dialysate which composition comprises water, dissolved solid salts and hydrochloric acid in an amount of about 93.9 milliliters/liter to about 127.7 milliliters/liter (expressed as aqueous 11.6 N HCl); the composition containing chloride ion in a concentration of about 3.5 Molar to about 4.7 Molar, sodium ion in a concentration of about 1.9 Molar to about 2.7 Molar, acetate group in a concentration of 0 Molar to about 0.525 Molar, potassium ion in a concentration of 0 Molar to about 0.14 Molar, calcium ion in a concentration of 0 Molar to about 0.125 Molar, magnesium ion in a concentration of 0 Molar to about 0.09 Molar, and dextrose in a concentration of 0 Molar to about 0.4 Molar; said composition having a pH value of about 1 to about 2.5.

4,336,882

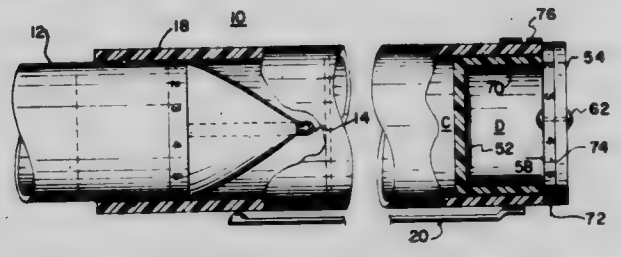
PEN PILL CONTAINER

Sydney M. Sakwa, 83 Ivy Hill Dr., Aberdeen, N.J. 07747

Filed Jan. 8, 1979, Ser. No. 1,666

Int. Cl.³ B65D *83/04, 85/42*

U.S. Cl. 206—537 **2 Claims**



1. A tubular dispenser fitted with a plurality of individual compartments for housing of pills, with

each said compartment formed with an individual opening that is closed by an individual detachable plug unit, with at least

one of said plug units shaped in the form of a hollow enclosed container adaptable for the storage and dispensing of powdered material such as dietetic salt or sweetener powder, with the interior of said hollow container closed by a cover fitted with a plurality of perforations for dispensing of powder, together with means to alternatively align said perforations with the interior of the said container or to alternatively block said perforations from communication with the said container interior.

4,336,883

INSULATED CONTAINER

James E. Krug, Irvine; Roger W. Magenau, Tustin, and Jack P. Hall, Palo Alto, all of Calif., assignors to Divajex, Tustin, Calif.

Filed Jun. 9, 1980, Ser. No. 157,511

Int. Cl.³ A45C *11/20;* **F25D** *3/08;* **B65D** *81/18*

U.S. Cl. 206—545 **10 Claims**

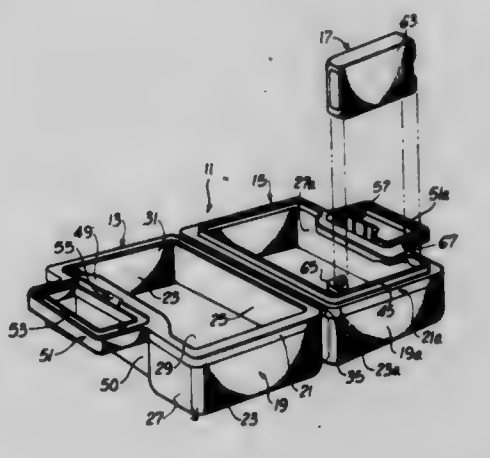
1. A portable insulated container comprising:

first and second container sections;

each of said container sections including a frame section, a housing section of foam plastic and means for mounting the housing section on the frame section of the associated container section;

said frame sections being integrally constructed of self-hinging plastic material, said self-hinging plastic material integrally joining said frame sections of the first and second container sections and defining hinge means for joining said container sections for hinged movement between a closed position in which the first and second container sections define an essentially closed chamber and an open position in which the container sections are separated sufficiently to provide access to said chamber;

latch means for releasably holding the container sections in the closed position;



means on at least one of the container sections for removably mounting a thermal pack;

handle means coupled to at least one of the container sections to facilitate carrying of the insulated container; and

said mounting means of said first container section including at least one recess in the frame section of said first container section with said recess being adjacent and opening toward the housing section of the first container section and an adhesive contacting the housing section of the first container section and at least partially filling the recess in the frame section to adhesively attach the foam plastic of the housing section of the first container section to the self-hinging plastic material of the frame section of the first container section.

4,336,884

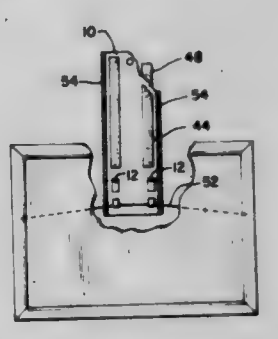
EASY MOUNT PICTURE PACKAGE

LeRoy Hart, 273 Main St., Farmington, Conn. 06032, and Mark L. Hart, 27-I Amato Dr., South Windsor, Conn. 06074

Filed Dec. 14, 1979, Ser. No. 103,864

Int. Cl.³ B65D *69/00, 71/00*

U.S. Cl. 206—575 **13 Claims**



1. A package assembly combining a picture hanger locator and a picture hanger comprising an elongated generally rectangular hanger-locating backing sheet of cardboard-like material having hanger-receiving means adjacent one longitudinal end thereof for receiving and orienting a hanger in longitudinal alignment with the longitudinal dimension of the backing sheet, first elongated adhesive means on the backing sheet having a first exposed adhesive surface for removably securing the front face of the backing sheet to a picture frame, said first

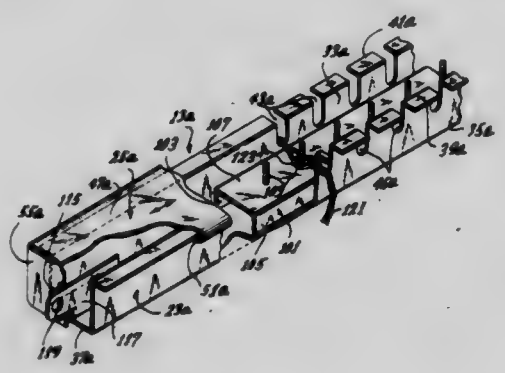
adhesive surface extending from a point adjacent said hanger-receiving means longitudinally along said backing sheet to a point adjacent the end of said sheet opposite said one end, second adhesive means having a second exposed adhesive surface for removably securing said opposite end of the backing sheet to a picture frame support, a picture hanger mounted on said backing sheet by said hanger-receiving means and having a forwardly extending hook portion projecting outwardly from the front face of said sheet, said sheet having a length sufficient to extend well beyond the top edge of a picture attached to said hook when said hanger is mounted on said sheet and a removable protective covering overlying said first and second adhesive surfaces for keeping said surfaces free of contamination prior to use.

4,336,885

SECURITY DISPLAY RACK

Robert E. Thomas, Santa Ana, Calif., assignor to Securax, Inc., Ft. Worth, Tex.

Continuation-in-part of Ser. No. 907,770, May 19, 1978, Pat. No. 4,204,601. This application Nov. 29, 1979, Ser. No. 98,340
The portion of the term of this patent subsequent to May 27, 1997, has been disclaimed.
Int. Cl.³ F05B *73/00*
U.S. Cl. 211—4 **9 Claims**



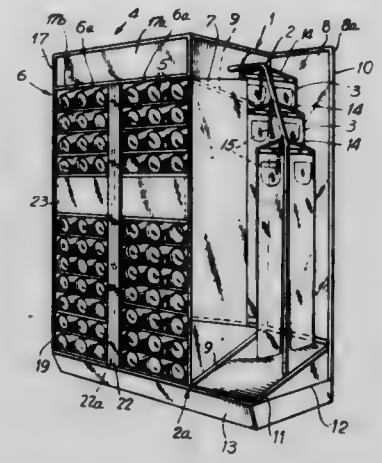
1. A security display rack for articles, said rack comprising:
an elongated outer channel having first and second legs and a web interconnecting said legs, said legs extending from the web and at least said first leg terminating in an elongated outer edge;
at least said first leg having a plurality of notches extending through said first leg and opening at said outer edge of the first leg;
an inner channel having first and second legs and a web interconnecting said legs of said inner channel;
said inner channel being received in said outer channel with said legs of said inner channel extending from the web of the inner channel toward the web of the outer channel;
a plurality of projections carried by the web of the inner channel and extending away from said webs of said channels, each of said projections being adapted to engage one of the articles with such article projecting through at least one of said notches;
an elongated locking member;
means for mounting the elongated locking member on the outer channel for movement between a closed position in which the locking member closes the open ends of the notches sufficiently to impede removal of the articles from the notches and an open position in which the articles can be removed from the notches and the projections;
locking means for locking the locking member in said closed position; and
means coupled to the outer channel for elevating the outer channel above a surface.

4,336,886

DISPLAY AND DISPENSING DEVICES FOR GARMENTS

Moshe Azoulay, 1125 Texas Ave., El Paso, Tex. 79901, and Albert B. Smith, 6001 LaCumbre, El Paso, Tex. 79912

Filed Oct. 4, 1979, Ser. No. 81,934
Int. Cl.³ A47F *7/19*
U.S. Cl. 211—13 **13 Claims**



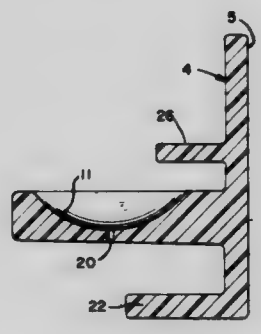
1. A device for display and storage of garments comprising a storage section and a selection section, said storage section including a vertically disposed right-hand frame, a vertically disposed left-hand frame, a crown frame fixedly attached to an upper terminal portion of said vertical left and right-hand frames, said crown frame consisting of a plurality of sections approximately horizontally disposed to said vertical left and right-hand frames, a vertical back frame fixedly attached to said vertical left and right-hand frames, a sheet for said left and right-hand frame, a partial sheet for said back frame and a right most portion of said back frame and a right most portion of said right-hand frame, a floor member defined by the right most portion of said back frame and said right-hand frame, disposed abuttingly to said back and right-hand frame, disposed abuttingly to said back and right-hand frames and forwardly of said back frame; support members for said floor member, a mirror for said back frame sheet, a plurality of storage trays disposed between the terminal portions of said right-hand and left-hand frames adopted to receive a plurality of packages, a bar fixedly attached to a frame above said floor member, a plurality of garments for inspection of same permanently incorporating hangers within each of said garments and an extendable attachment for each of said hangers from said bar to said hanger for removal of same for a predetermined distance.

4,336,887

EYE GLASS, RING AND WATCH HOLDER

Peter F. Dunne, P.O. Box 6201, Hayward, Calif. 94540

Filed Jun. 12, 1980, Ser. No. 158,682
Int. Cl.³ A47F *7/02*
U.S. Cl. 211—13 **3 Claims**



1. A wall mounted eye glass, ring and watch holder comprising:
a. a base;
b. mounting means connected to said base and adapted for attachment to said wall surface;

c. an eye glass holder member adapted for holding eye glasses with ear lugs connected to said base and extending outwardly therefrom, formed with a depression adapted for receiving the nose guards of said glasses and having shoulders spaced on opposite sides of said depression a distance substantially less than the distance between said ear lugs adapted for supporting a portion of the rims of said glasses;

d. said holder member depression having a depth and width sufficient and adapted to retain finger rings; and

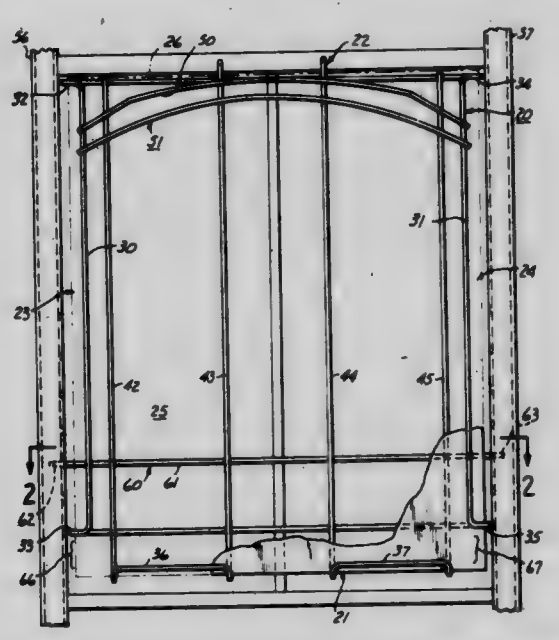
e. a stop member connected to said base above said eye glass holder member and protruding therefrom at approximately the mid-portion of said eye glass holder member a distance from said base substantially less than the distance of the eye glass holder from said base and adapted for receiving said eye glasses between said stop member and said eye glass holder for preventing said eye glasses from tipping and falling out of said holder.

4,336,888

HOLDER FOR STIFFLY FLEXIBLE SHEETS

Robert T. Fuller, 1351 Empire St., Anaheim, Calif. 92804, and Robert J. Sanders, 2200 E. Oskosh Cir., Anaheim, Calif. 92806

Filed Jun. 18, 1979, Ser. No. 49,591
Int. Cl.³ A47F *7/16*
U.S. Cl. 211—45 **14 Claims**



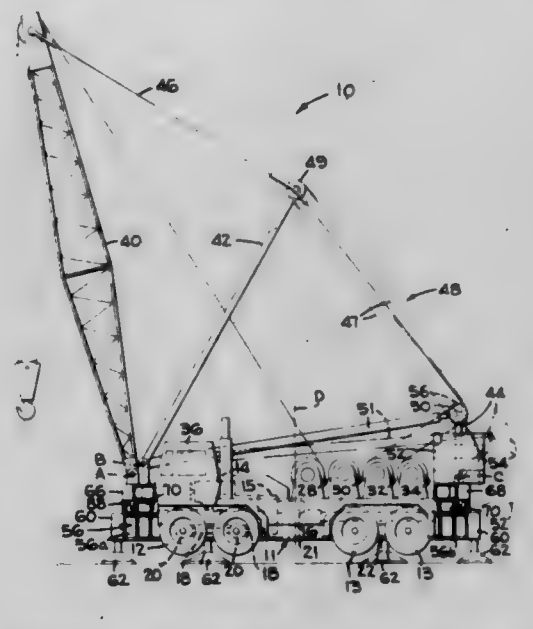
1. A holder for sheets likely to curl at their edges and corners, said holder having a proximal edge, a distal edge, and two side edges joining said proximal and distal edges, an opening being formed within said edges a top rail at each edge to restrain upward movement of the sheet, a bottom restraint and an edge restraint at the proximal edge, bottom support means for the sheet beneath said opening, a deflector extending from one of said two side edges to the other and having a pilot edge which faces concavely toward said proximal edge above and spaced from said bottom restraint, said deflector progressively engaging the distal end of the sheet when it is pushed past it toward said distal edge of said holder, whereby to guide it beneath said top rail at the distal edge, and a gap adjacent to the junction of said proximal edge and each of said side edges to provide the sheet with access to beneath the top rails at each side edge for insertion of said sheet.

4,336,889

RING SUPPORTED TRUCK CRANE AND METHOD OF SETTING UP

Bernard L. McGrew, Cedar Rapids, Iowa, assignor to FMC Corporation, Chicago, Ill.

Filed Oct. 27, 1980, Ser. No. 200,844
Int. Cl.³ B66C *23/78, 23/26*
U.S. Cl. 212—178 **22 Claims**



1. A self-propelled ring supported truck crane comprising a chassis mounted on ground engaging transporting members and supporting a boom for pivotal movement relative to said chassis only about a horizontal axis, means defining a ring having a vertical axis, ground engageable jack means connected to said ring for moving said ring between an inactive position spaced below said chassis and an active position supporting said chassis, rotatable means interposed between said chassis and said ring means for rotatably supporting said chassis on said ring when said jack means elevates said ring sufficiently to lift the chassis and transporting members clear of the ground, and selectively operable drive means interconnecting said chassis with said ring for rotating said chassis about said vertical axis.

19. A method of setting up and operating a self-propelled ring supported truck crane which includes a chassis and wheel assembly with a boom pivoted relative to the chassis only about a horizontal axis; said method comprising the steps of interconnecting several segments of the ring at a working site to define an incomplete ring having an access opening and a vertical axis, driving the chassis through the opening into the ring with one end thereof overlying a portion of the ring, closing the opening by securing at least one ring segment to the incomplete ring with said added segment underlying the other end of said chassis, rotatably supporting said chassis on said ring in response to raising said ring sufficiently to lift the chassis and wheel assembly free of the ground, and drivingly interconnecting said chassis and ring for rotating said chassis and boom in selective directions about said vertical axis.

4,336,890

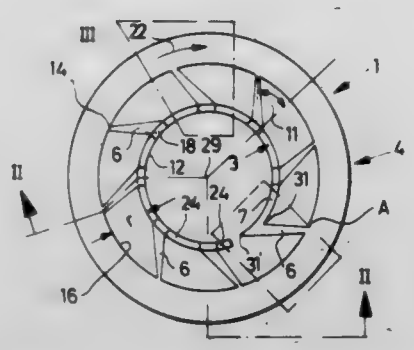
CAP OR CLOSURE FOR TUBES AND BOTTLES

Hans H. Möhlmann, Bremen, Fed. Rep. of Germany, assignor to Shortland Engineering International Anstalt, Schaan, Liechtenstein

Filed Jun. 18, 1980, Ser. No. 160,666
Claims priority, application Fed. Rep. of Germany, Jul. 3, 1979, 2926730
Int. Cl.³ B65D *45/32*
U.S. Cl. 215—272 **25 Claims**

1. A closure for releasably closing articles having a wall forming an outlet opening, comprising a cup-shaped cap adapted to be sealingly connected to the outlet and having an internal diameter that is essentially the same as the external

diameter of the wall of the article to be closed, a substantially tubular closure member positioned around said cap but having



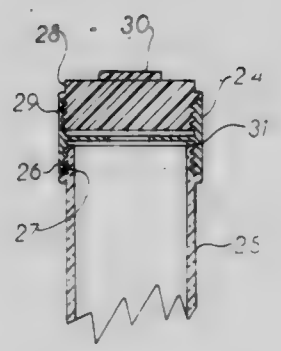
a radial spacing relative to the outside of said cap, and at least one web connecting said cap and said closure member, said web extending at an angle relative to a radial line.

4,336,891

ADAPTER CLOSURE

Jack D. Smith, Billings, Mont., assignor to Smithy, Inc., Billings, Mont.

Filed Jun. 9, 1980, Ser. No. 157,262
Int. Cl.³ B65D *45/30, 45/32, 45/34*
U.S. Cl. 215—276 **5 Claims**



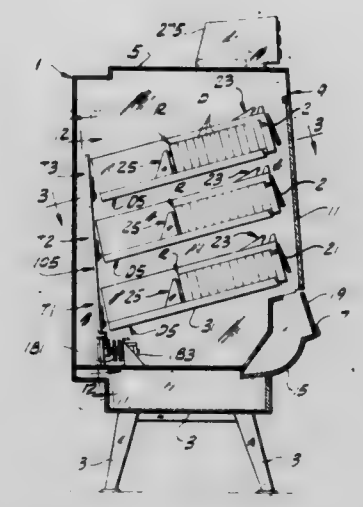
1. An adapter closure for a container including a unitary body portion with a substantially uniform outside diameter, an axial passage extending through said body portion, an inwardly extending shoulder portion disposed along the length of said body portion intermediate the ends thereof, a first internally threaded section extending from one end of said body portion toward and terminating closely adjacent to said shoulder portion, a second internally threaded section extending from the opposite end of said body portion toward and terminating closely adjacent to said shoulder portion, said first and second internally threaded sections being of substantially the same diameter and length, the end of said body portion adjacent said second internally threaded section including an exposed lip surface, a plug member engageable with said second internally threaded section and sealing one end of said body portion, said plug member including an externally threaded section engageable with said second internally threaded section, said plug member also including a cover section, said cover section including a sealing surface engageable with said lip surface of said body portion, said cover section including a peripheral portion having a diameter substantially the same as that of said body portion; whereby said first internally threaded section normally is selectively removable from an externally threaded section of a container while said plug member is engaged with said second internally threaded section and said plug member being removed from said second internally threaded section and said second section threaded onto an externally threaded section of a second container similar to said first container to transfer contents of said first container to said second container.

4,336,892

ARTICLE DISPENSING APPARATUS

Robert N. Cox, Bridgeton, and James E. Rawlings, St. Louis, both of Mo., assignors to UMC Industries, Inc., Stamford, Conn.

Filed May 22, 1980, Ser. No. 150,348
Int. Cl.³ G07F *11/32*
U.S. Cl. 221—125 **24 Claims**



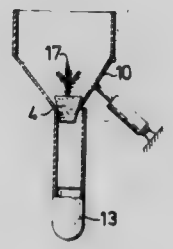
18. Article dispensing apparatus comprising means for bottomwise supporting a row of articles to be dispensed, stop means at one end of said supporting means constituting its forward end engageable by the forward article of the row, said supporting means having an opening at its forward end rearward of the stop means for downward discharge of the forward article, a trap door movable endwise of the supporting means between a forward position closing said discharge opening and a rearward retracted position for downward discharge of the forward article through said opening, means for moving said trap door from its forward to its rearward position for discharge of the forward article, and back to its forward position, pusher means engageable with the rearward article of the row for pushing the row forward, means operable by the trap door for driving the pusher means forward on a forward stroke of the trap door without driving the pusher means rearward on a rearward stroke of the trap door, and means operable by the trap door on its rearward stroke for pushing the forward article down and out through said opening.

4,336,893

DEVICE FOR ORIENTATION AND TRANSPORTATION OF ELONGATED OBJECTS SUCH AS TREE PLANTS

Ingvar Törnström, Viberget 18, 816 00 Ockelbo, Sweden

Filed Apr. 13, 1979, Ser. No. 30,033
Int. Cl.³ B65H *9/06*
U.S. Cl. 221—171 **7 Claims**



1. A device for orientation and transportation of elongated objects having a center of gravity, comprising in combination,
(a) a container having walls spaced apart a distance greater than the width of said object,
(b) a slot at the bottom of said container,
(c) first means forming the bottom of said container disposed between said side walls and said slot and forming said slot,

(d) second means coupled to said first means to widen said slot a predetermined distance until the center of gravity of said object has reached said slot to orient said object in an upright position, and

(e) third means responsive to further widening of said slot to direct said object away from said slot.

4,336,894

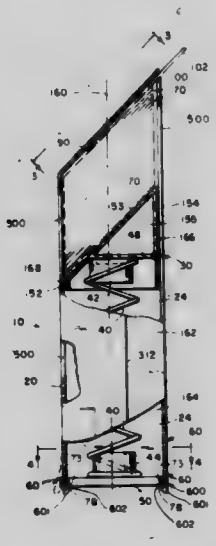
TICKET DISPENSER

LeRoy D. Crye, 13906 Hickory St., Omaha, Nebr. 68144, and Leonard F. Fischman, 5209 Emeline St., Omaha, Nebr. 68157

Filed Jun. 2, 1980, Ser. No. 155,541

Int. Cl.³ B65G *59/08*

U.S. Cl. 221—280 **12 Claims**



1. A ticket dispenser having a hollow body for receiving a stack of tickets in its upper portion, a ticket pushing head in said body, a spring in said body beneath said head and pressing upwardly on said head, said body guiding movement of said head along a vertical axis, said body having upwardly extending side walls one of which is a forward side, an exit slot through the top of said forward side, said body having an upper wall, a ticket manipulation opening through said upper wall large enough to receive an operator's thumb as it presses a ticket toward said exit slot, the inner and outer sides of said upper wall of said body being inclined with respect to said axis sufficiently as to make substantially easier the pushing out of tickets, means retaining the said spring in said body, said spring-retaining means comprising a cap means engaging the lower end of said spring, cap-retaining said cap means from downward movement with respect to said body, said cap-retaining means comprising said end cap means and said body having at least one set of mutually lapping portions, each lapping portion having an interlockable element thereon cooperative with an interlockable element on the other lapping portion and assisting in a locking of said end cap means and body together when said interlockable elements are in normal state positions so as to help to retain end cap from moving away from a center of said body, at least one of said lapping portions being flexible and resilient and movable away from its normal state position so that its interlockable element separates from the other of said interlockable elements whereby they cease to interlock and no longer prevent said cap from being temporarily removed from said body for the filling of said body with tickets.

4,336,895

FINGER ACTUATED PUMP ASSEMBLY

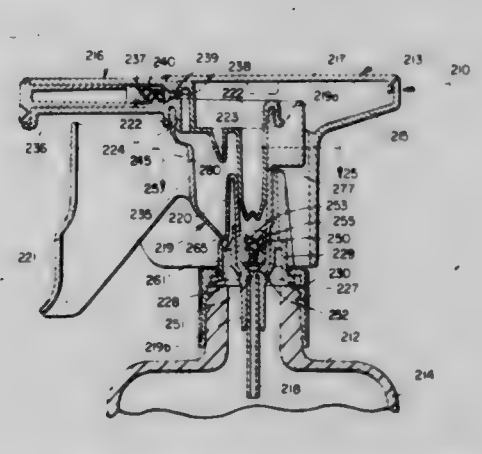
Hans P. Aleff, Old Sneech Pond Rd., Pole 188, R.D. 2, Cumberland, R.I. 02864

Continuation-in-part of Ser. No. 819,880, Jul. 28, 1977, Pat. No. 4,201,317. This application Feb. 25, 1980, Ser. No. 125,083

Int. Cl.³ B67D *5/40*

U.S. Cl. 222—207 **19 Claims**

1. A manually operable pump for dispensing non-compressible liquid product comprising, a body, said body including container sealing means for forming a liquid tight engagement with a product container at one portion thereof and product discharge means including a discharge opening at another portion thereof, a resilient non-ballooning type bellows of relatively rigid construction which is collapsible upon application of pressure thereto, said bellows positioned in said body and forming a chamber for receipt of product from said container and subsequent dispensing thereof outwardly of said body, actuation means connected with said bellows for initially collapsing said bellows to apply a threshold pressure to said liquid, product discharge valve means at one end of said bellows and communicating with said body discharge opening to normally seal such and wherein further collapsing movement of said bellows sequentially builds up an increased pressure so



as to alter the position of said discharge valve means from said normally closed position to an open position and forces product within said chamber outwardly of said discharge opening, and product entry valve means separate from said bellows positioned at the other end of said bellows for directing product into said chamber upon expansion of said bellows wherein said product moves through said chamber from said one end to the said other end upon said further collapsing of said bellows, said actuation means being a finger actuated trigger privotally supported from said body for arcuate movement with respect thereto, said bellows including a forwardly disposed relatively rigid front side wall positioned with respect to said body for arcuate movement about generally the same pivot point as said trigger such that said front wall and said trigger move as a unit, said trigger being integral with said relatively rigid bellows front wall.

4,336,896

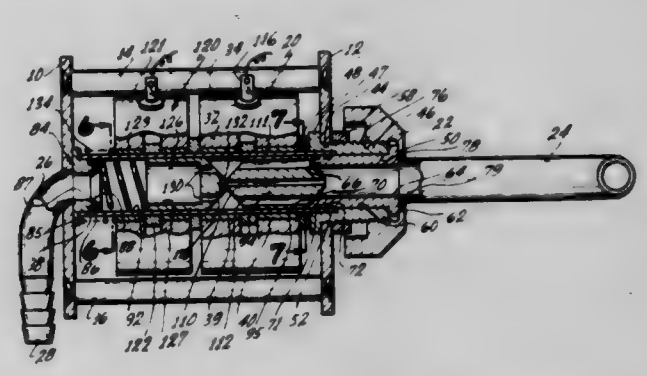
ELECTRICALLY CONTROLLED IN-LINE DISPENSING FAUCET

John A. Lunau, Pfaffenberger Weg. 270 Bruhler Str. 49-51, D-5650 Solingen, Fed. Rep. of Germany

Filed Dec. 31, 1979, Ser. No. 108,372

Int. Cl.³ B67D *3/00*; F16K *31/02*

U.S. Cl. 222—504 **5 Claims**



1. In an electrically operated in-line dispensing faucet, in combination, tubular means having an inlet flow tube and an outlet flow tube, means forming a valve seat in the tubular

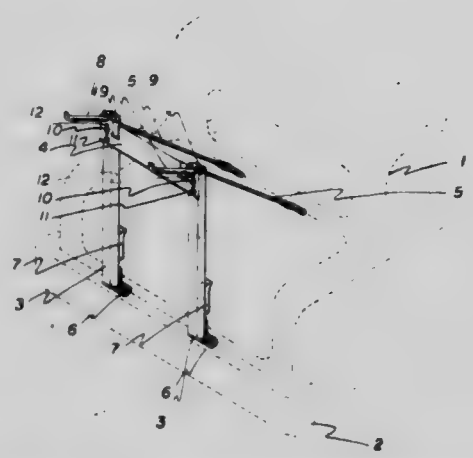
means, valve means in the form of a plunger which is reciprocatable in the tubular means, the said valve means being configurated to seat on the seat and having channel means formed in it for flow of fluid through it and electromagnetic means positioned around the tubular means for producing reciprocating movement of the said plunger means, second plunger means within said tubular means in-line with said first mentioned plunger, second electromagnetic means positioned around said tubular means and a source of pulsating D.C. voltage for said second electromagnetic means, said second electromagnetic means being connected to produce reciprocation of said second plunger means, said first and second plunger means being configurated whereby the second plunger means is operable to intermittently engage the first plunger means and prevent flow of fluid therethrough.

4,336,897

RACK FOR BICYCLES

Arthur J. Luck, 1365 Estrella Dr., Santa Barbara, Calif. 93110

Filed Dec. 3, 1980, Ser. No. 212,738
Int. Cl.[3] B60R *9/06, 9/10*
U.S. Cl. 224—42.03 B 6 Claims



1. A foldable rack mountable on vehicles, comprising:

(a) a spaced pair of generally vertical support members, having their lower ends supported by the upper surface of the bumper or other projecting surface of the vehicle;

(b) means for retaining lower ends of said support members on said upper surface;

(c) a horizontal upper cross member;

(d) means for pivotally interconnecting each end of said cross member with a point near the top end of one of each said support members; so as to allow each support member to rotate about an axis perpendicular to the plane common to said cross member and said support members from a position extended orthogonal to said cross member to a folded position parallel with and in close proximity to said cross member;

(e) a pair of carrying members;

(f) means for pivotally interconnecting one end of each said carrying member to the upper end of said rack adjacent a respective support member, so as to allow each said carrying member to rotate in a plane orthogonal to the plane common to said extended support members and said cross member, from an extended substantially horizontal position at a right angle to said respective support member to a folded position generally parallel with and in close proximity to said respective support member and said cross member;

(g) means for locking said extended support members and said cross member in a substantially rectangular array, and

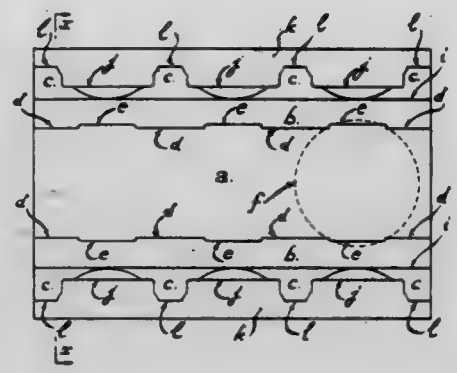
(h) means for supporting said rack in a generally upright position.

4,336,898

CARRIERS FOR CONTAINERS, APPARATUS AND METHOD FOR APPLYING SAME TO CONTAINERS

Michael F. Joyce, 25 Rangewood Ave., Kennet Valley, Reading RG3 3NN, Berkshire, England

Filed Sep. 27, 1978, Ser. No. 946,124
Int. Cl.[3] B65D *61/00*
U.S. Cl. 294—87.28 8 Claims



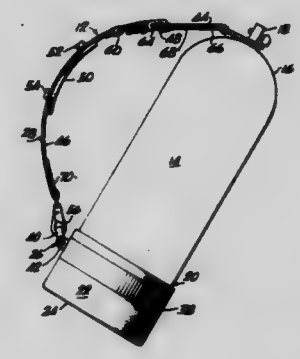
1. A carrier for holding containers having a flanged end piece, the carrier comprising, a top panel able to lie superimposed over part of the ends of the flanges to be held and prevent relative outward displacement of at least one side panel connected to a longitudinal edge of the top panel by a line of hinge, the line of hinge crossing over an outward part of each flange end, the side panel provided with slot cuts each defining an edge of the side panel able to engage the underside of such outward part of the flanges when the side panel is moved angularly toward the containers, the improvement characterised in that the said side panel for engaging the flanges is an intermediate single thickness panel of the carrier where the other longitudinal side panel edge is a lower edge hinged to connecting member ends, an inside panel hinged to the connecting member other ends, the inside panel having outwardly extending edge portions, each connecting member disposed adjacent a respective container body part of the containers when the underside of the top panel and the inside panel are pressed together and overlaying the container flange ends with the edge portions outwardly extending from the inside panel and contained laterally by their engagement with an inwardly facing part of the containers or carrier side panel, thereby retaining the lower edge of the side panel and its slot cuts each engaging the underside of a container flange.

4,336,899

CARRYING SLING

Carroll D. Price, II, 11821 SW. 104 Ct., Miami, Fla. 33176

Filed Nov. 24, 1980, Ser. No. 210,017
Int. Cl.[3] A45F *5/00*
U.S. Cl. 224—202 9 Claims



1. A carrying sling 12 for a generally cylindrically shaped scuba tank 14 of predetermined height having an upper rounded end zone with an axially projecting valve means 18 and a closed lower end 20 of predetermined diameter,

said sling comprising,

an end cup **22**, said end cup having a cylindrical side wall sized to nest about the lower end of the tank and a floor **24** to underlay the tank end,

said end cup including a radially extending portion **26**,

said floor comprised of an openwork having a plurality of radially extending portions and a central zone,

a flexible strap **28** having an upper end **30** and a lower end **32** and of a length greater than the predetermined height of the tank,

means **34** on the lower strap end to connect to the radially extending portion, and

ring means **36** on the upper strap end sized for passage over the projecting valve means, whereby the lower end of the tank is adapted to be received in the end cup and the ring means are adapted to connect about the projecting valve means whereby the strap may be used as a carrying sling for the scuba tank.

4,336,900

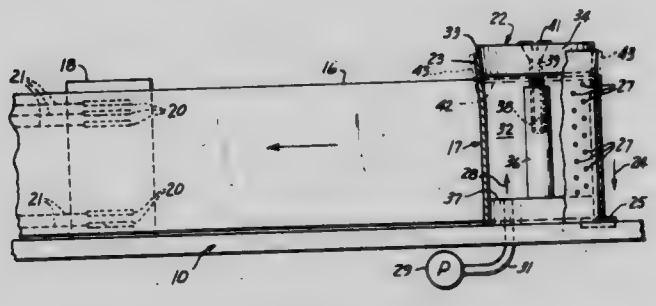
ADJUSTABLE TAPE GUIDING METHOD AND APPARATUS

George E. Pontoni, La Habra, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Jul. 17, 1980, Ser. No. 169,698

Int. Cl.³ B65H *17/32*; G65H *23/32*; G03B *1/50*

U.S. Cl. 226—97 **35 Claims**



19. In apparatus for advancing a tape, the improvement comprising in combination:

a hollow-cylindrical tape guide having a continuously annular edge region having circumferentially an elasticity pursuant to Hooke's law;

a slanted member engaging said hollow-cylindrical tape guide at an edge region;

means for applying said advancing tape to said tape guide; and

means connected to said slanted member for providing said hollow-cylindrical tape guide with a taper at said edge region by forcing said slanted member into said edge region, whereby a circumferential variation of said continuously annular edge region is imposed thereon and a force is imposed on said tape.

4,336,901

INJECTION ASSEMBLY

Benjamin C. Gray, Box 1768, Brooks, Alberta, Canada T0J 0J0

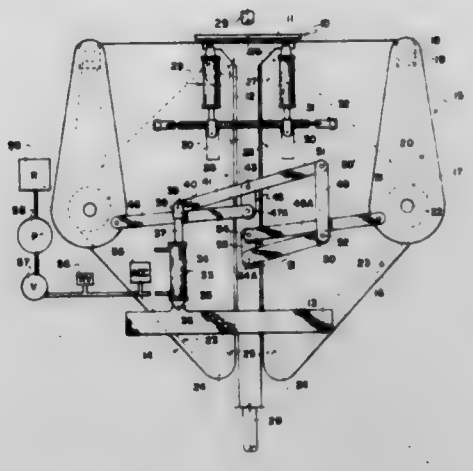
Filed Mar. 24, 1980, Ser. No. 133,022

Claims priority, application Canada, Apr. 10, 1979, 325415

Int. Cl.³ B65H *17/34*

U.S. Cl. 226—173 **13 Claims**

1. A tubing injector for well drilling and the like comprising in combination supporting structure, an opposed pair of injector halves supported in said supporting structure, an endless drive chain assembly for each half including tube gripping runs of said chain assemblies, said runs being situated in substantially spaced apart relationship to one another, said runs of chain assemblies engaging the tubing therebetween, means to drive said chain assemblies, means mounting said injector halves upon said supporting structure for independent floating movement towards and away from one another, and adjustable pressure means in said supporting structure to urge said halves towards one another whereby said runs of chain grip said tubing frictionally.



4,336,902

THERMOSTAT ALTERABLE BY REMOTE CONTROL

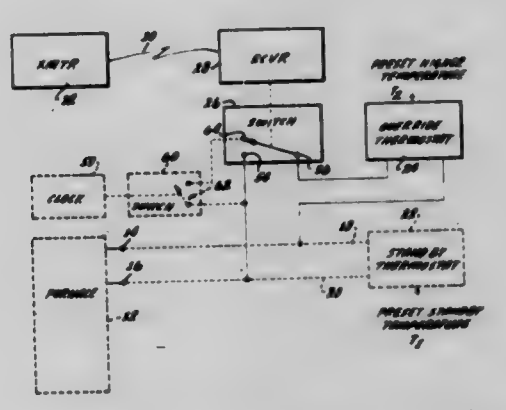
Albert D. Neal, 17272 Blue Fox Cir., Huntington Beach, Calif. 92647

Continuation of Ser. No. 846,517, Oct. 28, 1977, abandoned.

This application Jul. 13, 1981, Ser. No. 282,403

Int. Cl.³ G05D *23/00*

U.S. Cl. 236—46 R **8 Claims**



1. In a clock-programmed temperature control system including a furnace having two electrical terminals and producing heat when a conductive electrical connection is established between the terminals, including a standby thermostat connected between the two terminals of the furnace and establishing an electrical connection between them when said standby thermostate senses the ambient temperature to be less than a preset standby temperature and opening the electrical connection between them when said standby thermostat senses the ambient temperature to be greater than the preset standby temperature, and including a clock-programmed switch connected in series with an override thermostat to form a series combination which series combination is connected across the furnace terminals in parallel with said standby thermostat, said override thermostat being operative only when said clock-programmed switch is closed to establish an electrical connection between the two terminals of the furnace when said override thermostat senses the ambient temperature to be less than a present higher temperature greater than said standby temperature and opening the electrical connection between the two terminals of the furnace when said override thermostat senses the ambient temperature to be greater than the preset higher temperature, an improvement for selectively overriding the clock-programmed temperature control system and transferring control of the furnace to said override thermostat, and later for returning control of the clock-programmed temperature control system, said improvement comprising:

a remotely controlled single pole double throw electrical

switch responsive to applied commands to selectively connect a common terminal to a first and a second terminal, said switch being connected in said series combination between said override thermostat and said clock-programmed switch with said override thermostat connected to said common terminal, said clock-programmed switch connected to said first terminal and said second terminal connected to a different terminal of the furnace than the one to which said override thermostat is connected so as to vest control of the furnace in said clock-programmed temperature control system when said common terminal is connected to said first terminal and to vest control of the furnace in said override thermostat when said common terminal is connected to said second terminal.

4,336,903

CONTROL VALVE

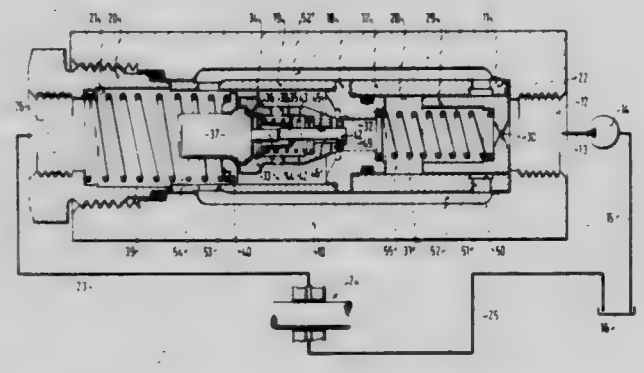
Wilhelm Zirps, Hemmingeb, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 31, 1980, Ser. No. 175,183

Claims priority, application Fed. Rep. of Germany, Aug. 10, 1979, 2932481

Int. Cl.³ G05D *27/00*

U.S. Cl. 236—92 R **9 Claims**



1. A control valve for keeping constant viscosity or temperature of a pressure medium in a hydraulic circuit, comprising a valve housing defining an inlet and an outlet for the pressure medium; a control slider arranged for reciprocating movement in said housing and including means for throttling said medium; a preliminary control valve arranged in said housing downstream of said throttling means in said control slider and including a temperature sensitive control element made of a thermally extendable material which controls said additional throttling means, said preliminary control valve including a poppet and a valve seat, said poppet being controlled through said temperature sensitive control element and being spring biased against said valve seat, said poppet being formed with a blind bore defining a shoulder at its open end and said control element being seated on said shoulder.

4,336,904

DELIVERY STABILIZER FOR VENTILATION SHAFT

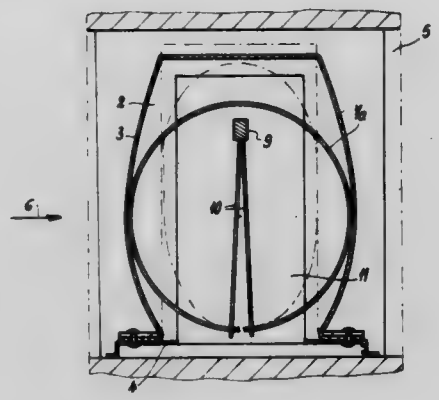
Pierre Jardinier, Gournay sur Marne, and Jack Simonnot, Lesigny, both of France, assignors to Societe d'Etudes et de Recherches de Ventilation et d'Aeraulique S.E.R.V.A., Gournay sur Marne, France

Filed Sep. 29, 1980, Ser. No. 192,028

Claims priority, application France, Oct. 5, 1979, 79 24829

Int. Cl.³ G05D *27/00*

U.S. Cl. 236—92 R **10 Claims**



2. Stabilizer according to claim 1 wherein said spring means comprises heat-sensitive means to compensate for temperature variations by reducing the volume of the chamber when the temperature increases.

4,336,905

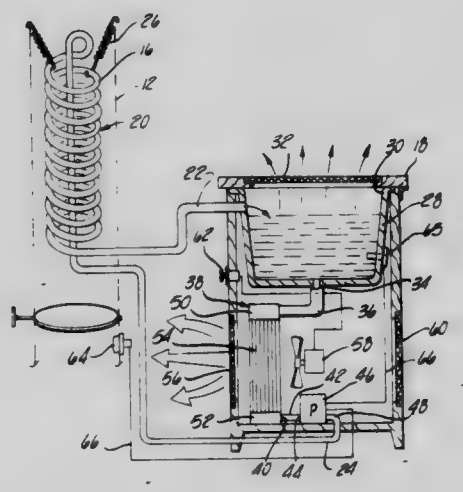
HEAT RECOVERY SYSTEM

James C. Langs, 3585 Dorothy La., Waterford, Mich. 48095

Filed Jul. 17, 1980, Ser. No. 169,788

Int. Cl.³ F24D *3/00*

U.S. Cl. 237—8 R **8 Claims**



1. For use in conjunction with a fireplace means having a flue, a heating system comprising:

a heat collector comprising fluid conduit means having an inlet and an outlet and means for mounting a portion of said fluid conduit means in the flue;

a housing;

a tank having an inlet and an outlet, said tank being positioned in said housing, said conduit outlet being connected to said tank inlet;

heat exchanger means having an inlet and an outlet, said heat exchanger means outlet being connected to said conduit means inlet;

means for fluidly connecting said tank outlet to said heat exchanger means inlet;

means for pumping a fluid through said conduit means;

fan means for moving air through said heat exchanger means and exteriorly of said housing;

said tank having an open top; and

said housing including means for establishing substantially

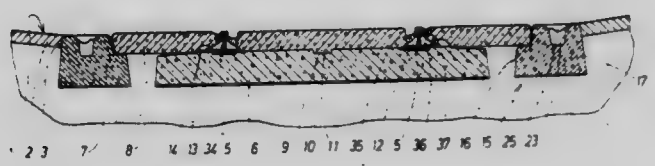
unrestricted fluid communication between the open top of the tank and exteriorly of the housing.

4,336,906

ARRANGEMENT BY CROSSINGS BETWEEN ROADS AND RAILWAYS

Sten Limmergard, Humlaryd, Sweden, assignor to A-Betong AB, Sweden

Filed Dec. 20, 1979, Ser. No. 105,629
Claims priority, application Sweden, Dec. 20, 1978, 7813091
Int. Cl.³ E01B *21/02*
U.S. Cl. 238—8 **5 Claims**



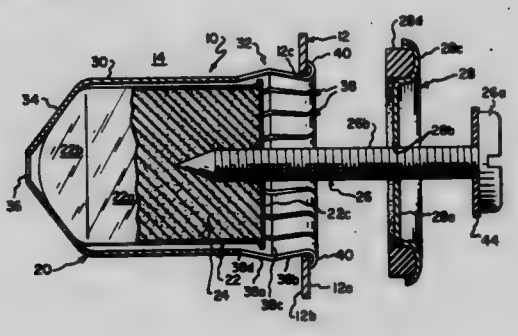
1. Arrangement for crossings between a road and a railway, where the road structure has two edges, between which is positioned at least one railroad track, the arrangement comprising two rails supported by a row of sleepers arranged substantially perpendicular to the rails, said sleepers resting on a foundation, outer slabs deposited in the area between the rails and the respective edges of the road structure, and a center slab, preferably divided up into sections in the longitudinal direction of the track and positioned between the rails forming the railroad track, said slabs having their top surfaces level with the top surfaces of the rails and the top surface of the road structure, and elongated supporting elements extending along said edges of the road structure each comprising in combination a bottom surface resting on the foundation, a first side edge facing the road structure and forming a support for the same, a first upper surface connected to said first side edge, a second upper surface positioned at a distance from the first upper surface, which is substantially level with the first upper surface, a groove between the first and second upper surfaces and extending along the supporting element, said groove being open in the upper surfaces and forming a water outflow, and a second side edge opposite to the first side edge forming a support for the outer edge of the respective outer slab, so that the elongated supporting element forms a support for the road structure, a base surface level with the road and the outer slab, a support for the outer slab and a water outflow for water preferably from the road.

4,336,907

APPARATUS FOR SUPPLYING CORROSION INHIBITING MATERIAL TO INACCESSIBLE METAL SURFACES

Richard D. Cummins, 6092 Emerson Dr., Orchard Park, N.Y. 14127

Filed Dec. 8, 1980, Ser. No. 213,812
Int. Cl.³ A61L *9/04*
U.S. Cl. 239—57 **7 Claims**



1. An apparatus for applying corrosive inhibiting material to inaccessible metal surfaces via an access opening formed in a panel having outer and inner surfaces, said apparatus comprising in combination;

a cup-shaped retainer having a discharge opening and a mounting rim portion, said retainer being inserted inwardly through said access opening to position said discharge opening inwardly beyond said inner surface and said mounting rim portion being fixed to said panel peripherally of said access opening;

a disposable cartridge for containing a charge of corrosive inhibiting material and sized to be removably inserted within said retainer;

a sealing disc sized to engage said outer surface of said panel peripherally of said access opening; and

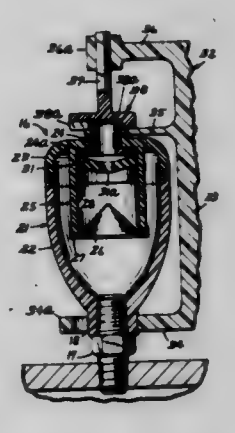
a mounting screw removably threadably received by said retainer for releasably clamping said sealing disc against said outer surface of said panel and for puncturing said cartridge to permit escape of contents therefrom into said retainer and outwardly thereof through said discharge opening.

4,336,908

IRRIGATION SYSTEM AND VOLUME CONTROL VALVE THEREFOR

Merle A. Vikre, 32 Windward Way, New Port Richey, Fla. 33552

Division of Ser. No. 971,038, Dec. 19, 1978, Pat. No. 4,231,523, which is a continuation-in-part of Ser. No. 765,266, Feb. 3, 1977, abandoned. This application Jul. 31, 1980, Ser. No. 174,196
Int. Cl.³ A01G *25/09*; B05B *1/26, 1/30*
U.S. Cl. 239—177 **27 Claims**



1. Apparatus for uniformly irrigating a field, comprising:

(a) longitudinal conduit means having one end pivotally connected to a stationary point in the field and arranged for connection to a source of water under pressure;

(b) means for moving the longitudinal conduit means through the field as a rotating sweep arm relative to the stationary point;

(c) a plurality of spray head devices spaced over the length of the longitudinal conduit means, each in fluid communication with the longitudinal conduit means and constructed to deliver a predetermined volume of water onto an underlying area of the field as the longitudinal conduit means sweeps through the field;

(d) each spray head device having a water distributing capacity which is selected as a function of its radial position on the longitudinal conduit means and the size of its associated underlying area, and comprising

(i) enclosed housing means defining an internal chamber, a fluid inlet adapted for connection to said longitudinal conduit means for receiving water into the chamber, and an outlet constructed and arranged to issue a jet of water therefrom;

(ii) volume control means disposed in the internal chamber for controlling the jet of water so that the volume output from the outlet is substantially constant;

(iii) water deflecting means disposed for impingement by the jet of water and constructed to deflect the water outward into a predetermined flow pattern;

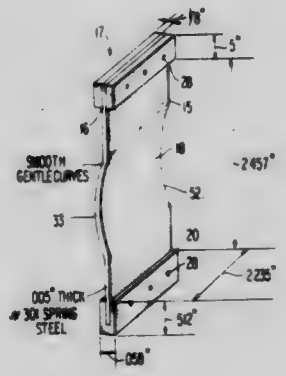
(iv) and frame means associated with the housing means for carrying the water deflecting means in overlying relation to the outlet.

4,336,909

OSCILLATING REED AND METHOD

Ronald D. Stouffer, Silver Spring, Md., assignor to Bowles Fluidics Corporation, Silver Spring, Md.

Filed Feb. 8, 1980, Ser. No. 119,699
Int. Cl.[3] B05C 5/04; B60H 1/14
U.S. Cl. 239—381 6 Claims



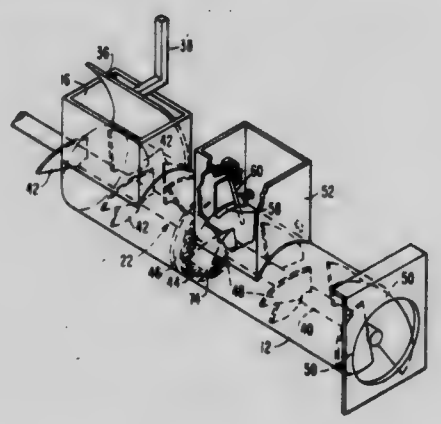
1. In an air flow system having a source of air under pressure flowing through a channel to an outlet element to issure as a sweeping air stream pattern, a resilient vane oscillator element having an upstream end and a downstream end, means securing said downstream end to said outlet element in fixed relation relative to said upstream end so that said upstream end is freely oscillatable, solely by air flow, between a pair of extreme positions, said extreme positions being spaced from the wall surfaces defining said outlet element and said channel, and means for limiting the bending of said resilient vane element to an axis transverse to the direction of air flow; said means for limiting the bending of said resilient vane element being constituted by at least one bend in the body of said resilient vane element.

4,336,910

MILLING APPARATUS

Carl Judson, Jr., Rte. 2, Livermore, Colo. 80536

Filed Sep. 8, 1980, Ser. No. 184,769
Int. Cl.[3] B02C 23/02
U.S. Cl. 241—246 6 Claims



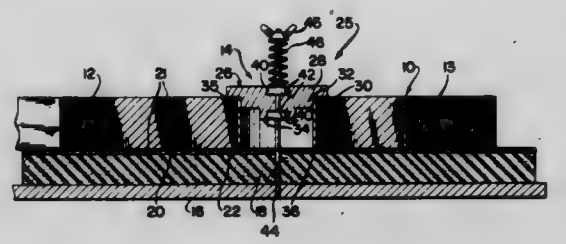
1. Milling apparatus comprising:
an enclosure within which a solidifiable material is received;
mixing means disposed within said enclosure for effecting comminution and blending of said material and ultimate delivery of said material out of said enclosure;
a chamber disposed adjacent to said enclosure;
means for inducing a negative pressure within said chamber;
means defining a port communicating between said chamber and said enclosure;
and means movable within said port, in correlation with operation of said mixing means, for agitating portions of said material tending to lodge within said port.

4,336,911

FRICTIONAL TENSIONING DEVICE

Wayne K. Fairchild, 3620 W. Pendleton Ave., Santa Ana, Calif. 92704

Filed Sep. 22, 1980, Ser. No. 189,153
Int. Cl.[3] B65H 23/06, 59/16
U.S. Cl. 242—75.4 8 Claims



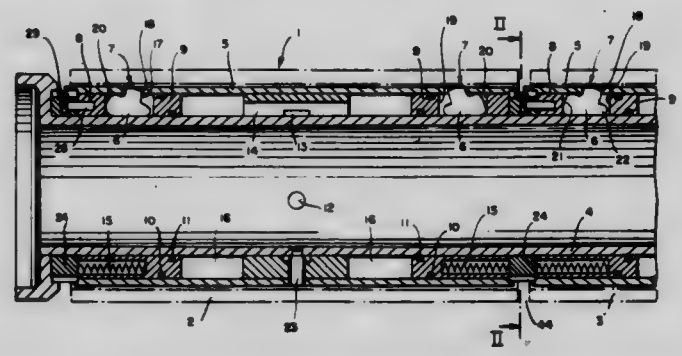
1. A frictional tensioning device in combination with a spool of tape or ribbon, to provide a constant frictional tension on said spool as the diameter thereof is reduced during the dispensing of the tape or ribbon, said device comprising:
a spool of tape having a central core on which said tape is coiled;
a fixed structure for mounting said device and said spool;
a resilient base member secured to said fixed structure;
a low-frictional surface formed on or mounted to the surface of said resilient base member, and arranged to frictionally engage the surface of said spool defined by said coiled tape;
a flexible plate interposed between said spool and said low-frictional surface, whereby said spool and said plate are engaged to rotate together about said low-frictional surface; and
means for biasingly securing said spool to said fixed structure, to engage said low-frictional surface of said flexible plate under a constantly even pressure.

4,336,912

WINDING DEVICE

Manfred Greb, Huckeswagen, Fed. Rep. of Germany, assignor to Barmag Barmer Maschinenfabrik AG, Remscheid, Fed. Rep. of Germany

Filed Apr. 10, 1980, Ser. No. 139,095
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2914923
Int. Cl.[3] B65H 54/54, 65/00, 75/28
U.S. Cl. 242—46.4 20 Claims



1. In a winding device for the loss-free winding of a continuous thread including at least one turnably borne chucking spindle containing circumferentially distributed clamping elements movable radially in cage means for clamping and releasing at least one spool tube carried on an outer mantle shell of said spindle, spacer means for fixing each spool tube position, and thread catching and holding means for catching and securing a thread on the spool tube during thread transfer at the

beginning of the winding on said tube, said thread holding means being releasable for drawing off the wound spool tube, the improvement which comprises:

at least one cage means movable on the chucking spindle to direct said tube clamping elements radially outwardly and inwardly between a clamping position and releasing position, respectively; and

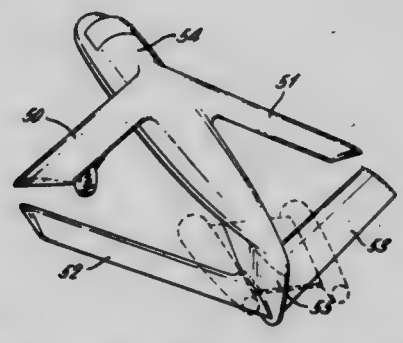
linking means operatively connecting the thread holding means with said cage means to synchronize the securing and releasing movements of the thread holding means with the clamping and releasing movements of said clamping elements for the spool tube.

4,336,913

COMPOUND WING AIRCRAFT

Eric B. Hall, 135, Spring Grove Crescent, Hounslow Middlesex TW3 4DA, England

Filed Oct. 2, 1979, Ser. No. 81,198
Int. Cl.³ B64C *39/08*
U.S. Cl. 244—45 R 2 Claims



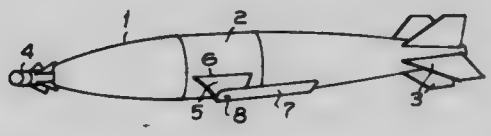
1. A compound wing powered aircraft comprising a fuselage, a downwardly-directed ventral fin in the region of the rear end of the fuselage, a swept-back anhedral foreplane and a forward-swept dihedral aftplane of at least approximately equal area to the foreplane, each of said foreplane and aftplane comprising wings with leading and trailing edges and tips at their outer extremities, the foreplane wings extending from opposite sides of the fuselage, the aftplane wings extending from opposite sides of the ventral fin at a position spaced from the fuselage, the wing tips of the foreplane being above, unconnected with and separated from the wing tips of the aftplane and the wing tips of the aftplane terminating to the rear of the trailing edges of the foreplane wings.

4,336,914

DEPLOYABLE WING MECHANISM

Keith D. Thomson, Hawthorn, Australia, assignor to The Commonwealth of Australia, Canberra, Australia

Filed Dec. 11, 1979, Ser. No. 102,981
Claims priority, application Australia, Dec. 29, 1979, PD 7238
Int. Cl.³ B64C *3/40*
U.S. Cl. 244—46 17 Claims



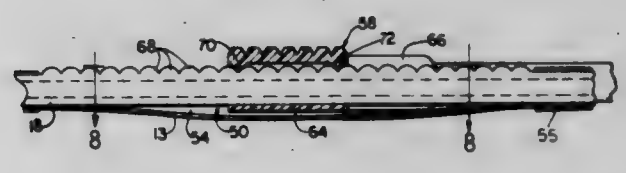
1. A deployable wing assembly for airborne missiles, aircraft or marine devices which comprise a body having wings thereon, each comprising an inner and an outer wing segment connected together to be generally co-extensive when deployed, and arranged to be stowed against the said body, and having first hinge means connecting an inner edge portion of the said inner wing segment to said body along a generally longitudinally disposed axis on the said body, and second hinge means connecting the outer wing segment to an edge portion of the said inner segment remote from the said first hinge means, said second hinge means being disposed generally at right angles to the surface of the said inner and outer wing segments at the said second hinge means, characterized in that the inner segment chord is large enough for the outer hinge to be in such a position as to permit efficient aerodynamic fairing, further characterized in that the said outer wing segment is long relative to the said inner wing segment and projects substantially beyond the inner wing segment whereby the wing segments can be given a large extension with high aspect ratio and good aerodynamic efficiency, further characterized by means to move and hold said inner wing segment angularly about the said first hinge means in relation to the said body, and means to move and hold said outer wing segment angularly about the said second hinge means in relation to the said first wing segment, whereby both wing segments can lie adjacent the said body with the inner or outer part of the wing segment extending beyond the inner wing segment, or can be deployed to selected positions.

4,336,915

CONSTRUCTION FOR WHISTLING AND SPARKLING KEEL KITE

Carl E. Stoecklin, 2996 Wardall Ave., Apt. 10, Cincinnati, Ohio 45211, and John F. Stoecklin, 2717 Erlene Dr., Cincinnati, Ohio 45238

Continuation-in-part of Ser. No. 123,384, Feb. 21, 1980, abandoned. This application Apr. 14, 1980, Ser. No. 139,992
Int. Cl.³ B64C *31/06*
U.S. Cl. 244—153 R 6 Claims



1. A kite which comprises a pair of wing sticks, a body of sheet material secured to said wing sticks, a pair of brackets, means for mounting each bracket on one of the wing sticks for sliding therealong, a cross brace telescopically mounted in and connecting the brackets, the mounting means including first ratchet means on the bracket and second ratchet means on the associated wing stick, interengagement between the first and second ratchet means releasably holding the brackets at selected positions along the wing sticks, keel means mounted on the body between the wing sticks, and means for attaching a kite string to the keel means.

4,336,916

STAND FOR SUPPORTING A HAND-HELD IMPLEMENT

Floyd W. Blanchard, 2231 Earl St., Los Angeles, Calif. 90039

Division of Ser. No. 24,267, Mar. 27, 1979. This application May 4, 1981, Ser. No. 259,989
Int. Cl.³ A47F *7/14*
U.S. Cl. 248—471 4 Claims

1. In combination, a stand and hand-held implement, comprising:

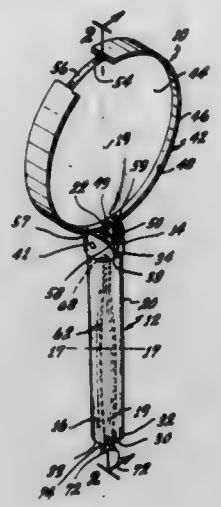
an elongated grip portion sized to fit comfortably in a user's hand, said elongated grip portion including upper and lower ends, major and minor axes and opposite sides diverging a predetermined amount with respect to each other;

an instrument affixed to said upper end of said elongated grip portion;

first and second L-shaped grooves provided on said first and second divergent sides, respectively, of said grip portion, each of said grooves having a long leg extending from said lower end of said grip portion to a point adjacent the upper end thereof and a short leg extending along said lower end of said grip portion normal to said long leg, said

short legs lying in diverging vertical planes defined by said diverging sides;

a pair of support members each having major and minor axes; and



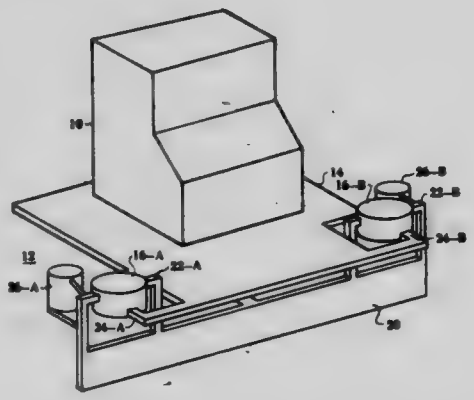
first and second pivot pins swingably connecting one end of each support member to an associated one of said short legs at the intersection with its long leg, whereby each of said support members may be swung from a convergent, nested position in the long leg ot its groove to a divergent position in the short leg of its groove.

4,336,917

SHOCK AND VIBRATION ISOLATION SYSTEM

Edward H. Phillips, Mountain View, Calif., assignor to Optimetrix Corporation, Mountain Viwew, Calif.

Filed Oct. 11, 1979, Ser. No. 83,769
Int. Cl.[3] F16M *13/00*
U.S. Cl. 248—550 **24 Claims**



1. A shock and vibration isolation device comprising:

a frame member;

a first mounting member coupled to the frame member;

a second mounting member coupled to the frame member and pendulously supported by the frame member from the first mounting member, thereby allowing movement of the second mounting member with respect to the first mounting member along first and second axes;

gas actuable displacement means coupled to the frame member and at least one of the first and second mounting members for changing the distance between the first and second mounting members along a third axis;

sensor means coupled to the first and second mounting members for sensing and producing a signal indicative of the relative separation between the first and second mounting members; and

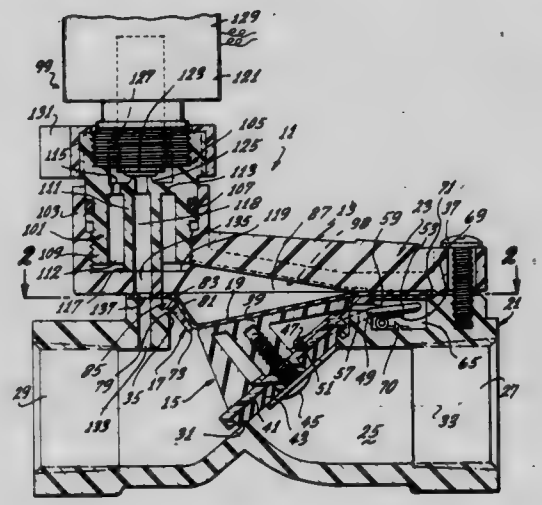
gas supply control means including accumulator means coupled to the gas actuable displacement means and to the sensor means for supplying pressurized gas to the gas actuable displacement means to maintain the relative separation between the first and second mounting members constant and to damp relative motion between the first and second mounting members.

4,336,918

DIAPHRAGM VALVE WITH MULTIPLE PIVOT AXIS VALVE ELEMENT

Richard S. Karbo, Newport Beach, Calif., assignor to Hydro-Rain, Inc., Laguna Niguel, Calif.

Continuation-in-part of Ser. No. 100,935, Dec. 6, 1979, Pat. No. 4,301,992. This application Oct. 27, 1980, Ser. No. 198,122
Int. Cl.[3] F16K *31/12, 25/00*
U.S. Cl. 251—46 **18 Claims**



1. A valve comprising:

a valve housing having a passage extending therethrough, said passage having an inlet and an outlet and a longitudinal axis, said housing having a valve seat in said passage, said valve seat defining a plane which forms an acute angle with said axis, and said valve housing having a cavity communicating with said passage;

a movable diaphragm extending across said cavity to define a control chamber on one side of the diaphragm, the other side of the diaphragm communicating with the passage;

control means for varying the pressure in the control chamber to tend to control the position of the diaphragm, said control means including passage means in said valve housing leading to said control chamber;

a diaphragm support having an opening therein;

means for mounting said diaphragm support so that the diaphragm support can at least partially support the diaphragm on said other side of the diaphragm in a predetermined position of the diaphragm;

a valve element;

means for pivotally mounting the valve element on the valve housing for pivotal movement about a primary pivot axis relative to said diaphragm support between a closed position in which the valve element engages the valve seat to essentially block the flow of fluid through the passage from the inlet to the outlet and an open position in which the valve element is spaced from the valve seat to allow the flow of fluid through the passage from the inlet to the outlet;

means for mounting the valve element for pivotal movement about a secondary pivot axis with movement of the valve element about the secondary pivot axis adjusting the position of the valve element to permit the valve element to more tightly seat against the valve seat; and

said diaphragm acting through said opening in said diaphragm support to urge the valve element toward the closed position when the pressure in the control chamber is sufficient and said valve element being movable to said open position by fluid from the inlet acting on said valve element when the pressure in the control chamber is reduced by said control means.

4,336,919

BALL VALVE

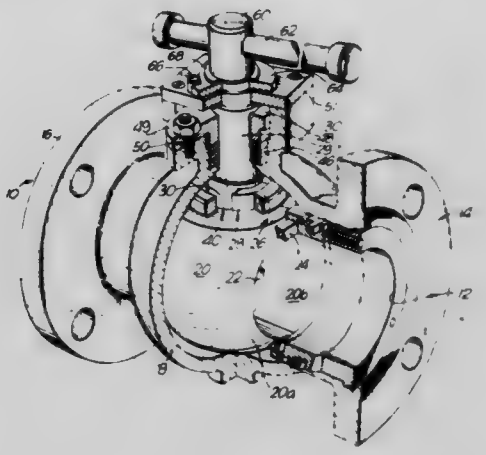
Alan D. Hall, Brighouse, England, assignor to Lake & Elliot Incorporated, Wilmington, Del.

Filed Jan. 10, 1980, Ser. No. 111,162

Claims priority, application United Kingdom, Sep. 26, 1979, 7933390

Int. Cl.³ F16K 5/06

U.S. Cl. 251—214 3 Claims



1. A ball valve comprising a single-piece body having a first axis and a second axis transverse to said first axis, the body having an inlet and an outlet opening aligned along said first axis of said body, a chamber defined within said body intermediate said inlet and outlet openings and communicating therewith, a ball-shaped valve member disposed in said chamber and having a passage extending therethrough, means supporting said valve member for rotation in said chamber, about said second axis of said body, between a position in which said passage extends in alignment with said inlet and outlet openings along said first axis and a position in which said passage extends transversely to said first axis and said valve member cuts off said inlet opening from said outlet opening, the valve further including an operating stem for said valve member, a stem passage being formed through said body along said second axis, means mounting said stem for rotation in said body about said second axis, interengaging coupling means on said stem and said valve member entraining said valve member for rotation with said stem, abutment means on said stem for preventing, by engagement with abutment means on said body, removal of said stem from said body by movement of the stem axially from the body along said second axis, said stem, from said abutment means thereon to the end of the stem outside the body, being of a size to pass along the stem passage past said abutment means on said body, whereby in assembly of the valve said stem can be fitted into said stem passage by passing the stem through one of said openings into said chamber and extending the stem through said stem passage from the interior of said chamber, the valve further including sealing means for sealing said valve stem with respect to the body, said sealing means being disposed on the side of said abutment further from said chamber and being accessible from the exterior of said body whereby, in use, said sealing means can be replaced without disconnecting the valve body from any associated pipe fittings while the stem is prevented from blowing out of the valve body by said abutment means on the stem and body, said body having a bore therein defining part of said stem passage, the ball valve further comprising a bearing element having a bore therethrough aligned with said bore in said body, and means securing said bearing element detachably to said body, and wherein said means mounting said stem for rotation in said body about said second axis includes a first bearing formed by said bore in said body, and a second bearing formed by said bore in said bearing element, and wherein said body has a surface onto which said bore in said body opens and which surface faces towards said valve member, said abutment means on said body being afforded by said surface having a bore therethrough affording a first bearing, said stem having first and second journals respectively received in said first and second bearings respectively, said second bearing being disposed further from said chamber and from said abutment means on said stem than said first bearing, said stem on the side of said first journal remote from said abutment means having a size to pass through said second bearing whereby after detachment of said bearing element from said body the bearing element can be withdrawn from the stem over the end of the latter remote from said chamber and said valve member, said sealing means being disposed between said bearing element and said bearing formed in said body, wherein said bearing element includes a shoulder facing along said second axis towards said chamber, and said stem includes a shoulder facing away from said chamber along said second axis, and the ball valve further comprising thrust bearing means serving to limit movement of said stem along said second axis away from said chamber to a position in which a separation is maintained between said abutment means on the stem and said body, said thrust bearing means including said shoulders, wherein said detachable bearing element comprises a central portion affording said second bearing and respective end portions extending in opposite radial directions away from said central portion, and wherein said body has two pillar members extending on opppsite lateral sides of said stem in substantially the same direction as that in which said stem extends, means mounting a respective said end portion of said bearing element on a respective said pillar, and wherein said sealing means includes a packing chamber surrounding said stem and forming part of said stem passage, packing disposed in said packing chamber, a gland around said stem defining an end of the packing chamber further from said valve member than the other end of the packing chamber, said gland including a central portion having an aperture through which said stem extends, and further including two arms extending in opposite radial directions from said central portion, each said arm extending through a respective one of the two openings defined on either side of the spindle between the two pillars, the valve body and the bearing element, and screw-down means connecting each said arm at its end projecting beyond the pillars and the bearing element, with the valve body, whereby said screw-down means is accessible from the exterior of the valve while said detachable bearing element is still secured to said body, so that the said screw-down means can be operated, without disturbing the detachable bearing element, to draw said gland towards said valve member along said second axis to compress said packing.

4,336,920

VALVE ELEMENT WITH MOLDED RESILIENT TIP AND METHOD OF MAKING SAME

Myles N. Murray, Chagrin Falls, Ohio, assignor to Industrial Electronic Rubber Company, Twinsburg, Ohio

Filed Jul. 2, 1980, Ser. No. 165,299

Int. Cl.³ F16K 51/00; B29D 3/00; B29F 1/00

U.S. Cl. 251—357 9 Claims



1. A method of forming a resilient tip valve element, comprising the steps of:

(a) providing an open mouth mold having therein an annular crimp wall defining the open end of a mold cavity;

(b) providing a valve body having at one end thereof a cylindrical neck having an end face and an outer diameter not greater than the inner diameter of the crimp wall and a small annular crimp bead projecting radially outwardly from the neck at the end face and having an outer diameter greater than that of the crimp wall;

(c) closing the open end of the mold cavity by axially aligning and urging the body into the mold with the crimp bead engaging the crimp wall and crimping the bead thereby to effect a tight annular seal around the neck at the end face thereby to form a closed cavity defined by the cavity wall and end face; and

(d) filling the thusly closed cavity with fluid material and curing same to form the resilient tip.

4,336,921

JACK EXTENSION

Edgar K. Wienhold, 1100 Lamar Dr., Kamloops, B.C., Canada V2C 5C4

Filed Mar. 13, 1981, Ser. No. 243,461
Claims priority, application Canada, Mar. 6, 1981, 372441
Int. Cl.³ B66F *5/00*
U.S. Cl. 254—8 B **1 Claim**



1. A portable lift jack comprising a wheeled trolley jack and a wheeled attachment therefor extending the jacking range thereof said attachment comprising:

(a) an elongate low profile rigid frame having a tunnel extending inwardly from one end thereof in a direction toward the other and open downwardly receiving the jacking end portion of the trolley type service jack when rolled thereinto, downwardly directed upper abutment means on said frame, adjacent the entry to the tunnel, engaging a rigid frame portion of the trolley track and bearing downwardly thereon at a position spaced rearwardly from the forward end of the jack, upwardly directed lower abutment means adjacent the inner end of the tunnel providing a support for the forward end portion of the trolley jack;

(b) a lift platform having an upper load supporting surface disposed in a substantially horizontal plane at a position forwardly beyond the forward end of the trolley jack; and

(c) lever means pivotally attached to the lift platform and rigid frame, in a parallelogram arrangement, mounting the lift platform on the frame for movement relative thereto such that said load supporting surface automatically remains horizontal during raising and lowering of the same, said lever means overlying said tunnel and extending therebeyond with the lift platform located at the outer free end of the lever means, at least one lever of said lever means being engagable with and pivotally movable by the lift part of the trolley jack.

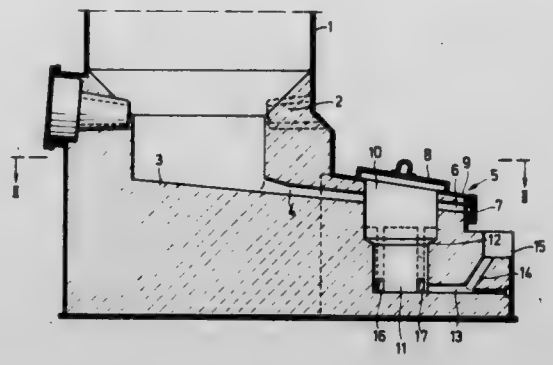
4,336,922

CONTINUOUSLY TAPPED CUPOLA FURNACE

Karl Immekus, Kaarst, Fed. Rep. of Germany, assignor to Gesellschaft für Hüttenwerksanlagen mbH, Duesseldorf, Fed. Rep. of Germany

Filed May 29, 1980, Ser. No. 154,366
Claims priority, application Fed. Rep. of Germany, Jun. 8, 1979, 2923221
Int. Cl.³ C21B *3/04*
U.S. Cl. 266—227 **13 Claims**

1. In a continuously tapped cupola furnace including an inclined furnace bottom, a forehearth located laterally from the inclined furnace bottom, a tapping conduit extending between and communicating said furnace bottom with said forehearth and having an inlet end at the furnace bottom and an outlet end in said forehearth, and siphons for discharging iron and slag from said forehearth, the improvement wherein said



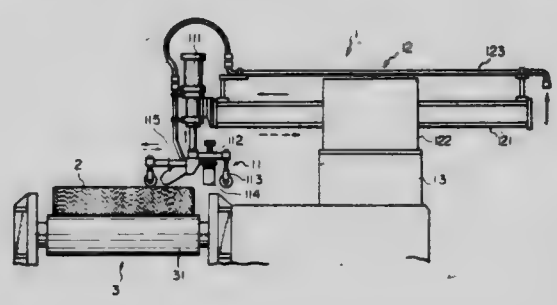
forehearth includes an upper part for holding slag and a lower part for holding iron, said upper part containing the outlet end of said tipping conduit and having a greater horizontal cross-sectional area than said lower part, and said siphons communicating with said lower part.

4,336,923

STEEL SURFACE INSPECTION APPARATUS

Toshio Shiraiwa, Ikoma; Tatsuo Hiroshima, Nishinomiya, and Takahide Sakamoto, Minoo, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

PCT No. PCT/JP79/00134, § 371 Date Apr. 10, 1980, § 102(e) Date Apr. 10, 1980, PCT Pub. No. WO80/02667, PCT Pub. Date Dec. 11, 1980
PCT Filed May 25, 1979, Ser. No. 262,066
Int. Cl.³ B23K *7/08*
U.S. Cl. 266—51 **2 Claims**



1. A steel surface inspection apparatus, comprising:

a detection head including a detector probe and a scarfing torch;

a drive mechanism for moving said detection head for scanning along a predetermined path; and

a control device for controlling operation of said detection head and said drive mechanism, said apparatus being characterized in that said scarfing torch is disposed forwardly of said detector probe with respect to the scanning direction of said detector head, the surface of the path to be scanned by said head is scarfed smooth before flaw detection by said scarfing torch, and after the flaw detection surface defects are scarfed away by said scarfing torch according to the results of the flaw detection.

4,336,924

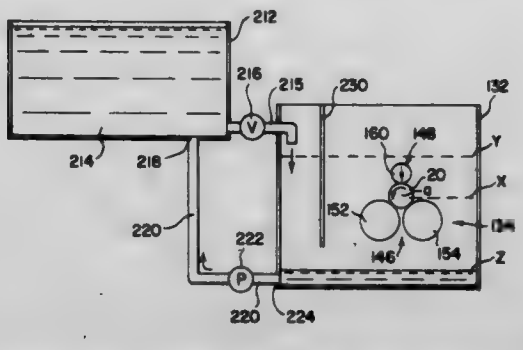
APPARATUS FOR QUENCHING HEATED WORKPIECES

Paul L. Day, Parma, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Jan. 21, 1980, Ser. No. 113,691
Int. Cl.³ C21D *1/64*
U.S. Cl. 266—117 **7 Claims**

1. An apparatus for quenching a heated elongated workpiece

having a central axis and spaced ends comprising a quench tank having liquid containing sides and bottom, means mounting said workpiece to rotate about said axis at a selected position in said quench tank, means for rotating said workpiece about said central axis, means for restraining transverse deflection of said workpiece while said workpiece rotates, an intermittent holding tank, means for filling said quench tank with a quenching liquid from said holding tank to a level above said selected position as said heated, restrained workpiece is rotated, and means for forcing said quenching liquid from said quench tank to said holding tank until said liquid in said quench tank is at a level below said selected position after said workpiece is quenched.



4,336,925

DEVICE FOR FIXING AND SEALING STAVE PLATES FOR A BLAST FURNACE

Pierre H. Rollot; Jean A. Cordier, both of Dunkerque, and Raymond L. Briche, Thionville, all of France, assignors to Technilor, Hagondange and Usinor, Paris, both of, France

Filed Jun. 5, 1980, Ser. No. 156,623
Claims priority, application France, Jun. 6, 1979, 79 15074
Int. Cl.[3] C21B *7/10*
U.S. Cl. 266—193 6 Claims

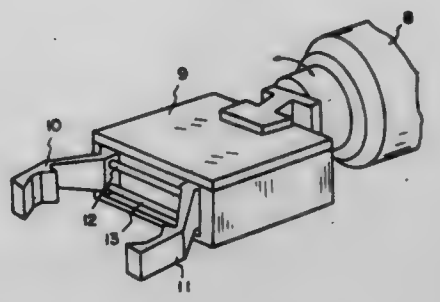
1. In a blast furnace comprising an armour shell, stave plates disposed in superimposed rings adjacent an inner face of the shell, said stave plates each having an inner cooling fluid circulating tube which extends out of upper and lower parts of the stave plate inside respective protecting sleeves, said tubes extending through orifices provided in the shell; the improvement wherein, for the purpose of fixing and sealing the stave plates, in said lower parts of the stave plates, the protecting sleeves are extended through the shell, and a washer is welded to each sleeve in said lower part and to the shell for fixing the sleeve, said washers welded to the sleeves constituting an assembly which both fixes the stave plates and maintains under compression between the stave plates and the inner face of the shell a continuous sealing belt, which belt comprises a juxtaposition of substantially rectangular joint elements, preformed of a silicone elastomer by molding, each of which joint elements comprises in a lower part thereof a heel which is engaged and gripped between the plate on which it is mounted and an upper part of a stave plate located immediately therebelow each of which joint elements substantially fits the shape of said lower part of the corresponding stave plate and defines an aperture for the passage of a corresponding sleeve and, in said upper parts of the stave plates, the sleeves are also extended out of the shell and a cup-shaped ring is welded both to each sleeve in said upper part and to the shell and forms an assembly which constitutes means both for fixing the stave plates to the shell and for maintaining under compression between the stave plates and the inner face of the shell substantially circular flat joint elements each of which joint elements surrounds a corresponding sleeve of said upper part of the stave plates.

4,336,926

WORKPIECE MANIPULATOR

Shigemi Inagaki, and Ryo Nihei, both of Musashino, Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Jun. 25, 1980, Ser. No. 162,879
Claims priority, application Japan, Jun. 30, 1979, 54-082780
Int. Cl.[3] B23Q *3/08*
U.S. Cl. 269—34 5 Claims



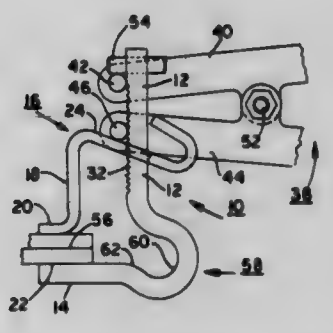
1. A workpiece manipulator, comprising:
first and second fingers;
means mounting said first and second fingers for movement toward and away from each other to respectively grip and release said workpiece;
two spaced-apart, rotatable pulley members;
a belt member stretched between said pulley members in the form of an endless loop having first and second linear segments which lie in parallel;
means for coupling said first finger to the first linear segment of said belt member;
means for coupling said second finger to the second linear segment of said belt member; and
driving member means for rotating said belt member, said driving member means being operatively connected to one of the first and second linear segments, wherein said driving member means comprises
a cylinder having two end walls, said cylinder being connected to one of said first and second linear segments of said belt member,
a piston having two sides disposed within said cylinder,
first and second piston rods each having one end fixedly secured to said piston on either side thereof, the other ends of said first and second piston rods passing hermetically through both end walls of said cylinder and being fixedly secured outside of said cylinder such that said first and second piston rods will not move, and
means for moving said cylinder by introducing a fluid into said cylinder, thereby to move said first and second fingers.

4,336,927

LIGHT-WEIGHT JAM-CLAMP AND COMBINATION

Otis W. Goff, 5221 Woodmont Dr., Kalamazoo, Mich. 49001, and Melvin J. Goff, 2454 52nd, SW., Wyoming, Mich. 49509

Filed May 8, 1980, Ser. No. 148,188
Int. Cl.[3] B25B *5/02*
U.S. Cl. 269—171.5 22 Claims



1. A light-weight jam-clamp combination comprising clamping faces adapted to be held in clamping position by releasably jamming one element of the clamp against another element

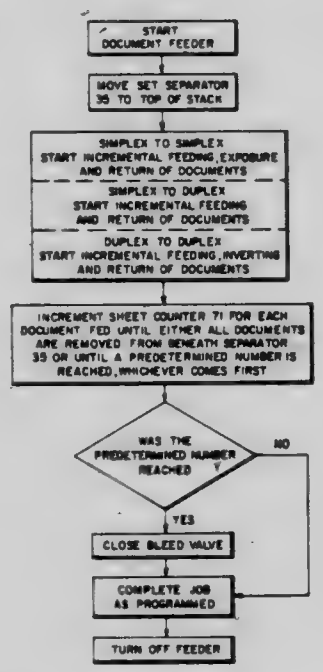
thereof in combination with jamming and releasing means separable from said elements, whereby said clamp is unencumbered by said jamming and releasing means while said clamp is functioning as a clamp, in which said jamming and releasing means comprises an expansion bit pliers means, and in which one of said elements is an upstanding leg and the other is a laterally-extending arm adapted to fit over and jam against said upstanding leg, and in which leg-engaging means is provided on one bit of said expanding bit pliers and arm-engaging means is provided on the other bit thereof, said leg-engaging means being operative, in one position, to engage a portion of said leg above said arm while the arm-engaging means is in engagement with the top side of said laterally-extending arm, whereby expansion of said bit forces said laterally-extending arm downward to set the jam and, in another position, to engage a portion of said upstanding leg below said laterally-extending arm while said arm-engaging means is in engagement with the underside of said laterally-extending arm, whereby expansion of said bit forces said laterally-extending arm upward to release the jam.

4,336,928

METHOD FOR FEEDING DOCUMENTS TO A COPY MACHINE

Richard E. Smith, Webster; Stephen J. Wenthe, Jr., Rochester, and William J. Woznicki, Ontario, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 4, 1980, Ser. No. 174,789
Int. Cl.[3] B65H *3/08, 43/00*
U.S. Cl. 271—3.1 5 Claims



1. A method for controlling the operation of an automatic document handler having air flotation means associated with the document separator-feeder mechanism of the document handler to increase the document latitude of handling ability of the feeder comprising the steps of;

circulating the documents through the document handler,

counting the number of documents fed,

comparing the number of documents counted to a predetermined number, and

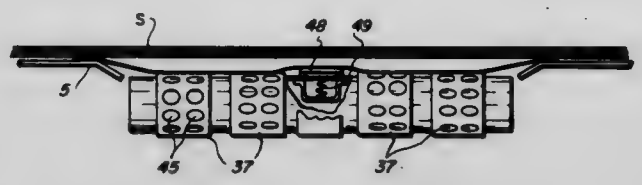
adjusting the quantity of air discharged from said air flotation means so that more air is discharged when said counted number is greater than said predetermined number.

4,336,929

VARIABLE CORRUGATION VACUUM CORRUGATING SHEET FEEDER

Edward W. C. Hanzlik, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 4, 1980, Ser. No. 174,785
Int. Cl.[3] B65H *3/12*
U.S. Cl. 271—20 6 Claims



1. A bottom sheet separator-feeder for separating and forwarding sheets seriatim comprising:

a stack tray adapted for supporting a stack of sheets,

vacuum feed means associated with said tray spaced from the bottom of the sheets stacked therein, said vacuum feed means being adapted to separate the bottommost sheet from the remainder of the sheet stack and acquire the sheet thereon,

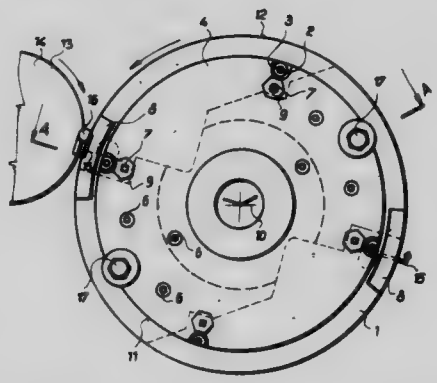
variable corrugating means associated with said vacuum sheet feed means adapted to hold the sheet acquired by the vacuum sheet feed means in a non-planar condition to provide a corrugation in the acquired sheet, said corrugating means including biasing means to bias said corrugating means toward the stack such that light weight sheets acquired by said vacuum feed means have insufficient beam strength to deflect said corrugating means away from the stack, thereby providing maximum corrugation in the sheet while heavy weight sheets, having a higher beam strength, are adapted to force said corrugating means away from the stack, thereby providing less corrugation to the sheet while at the same time allowing the sheet to more closely approach said vacuum feed means for adequate acquisition of the sheet thereon.

4,336,930

SHEET TRANSFER ATTACHMENT

Arnost Cerny, Blansko; Jiri Fiser, Adamov; Jaroslav Jiruse, Blansko, and Vaclav Sedlak, Jedovnice, all of Czechoslovakia, assignors to Adamovske strojirny, narodni podnik, Prague, Czechoslovakia

Filed Oct. 15, 1980, Ser. No. 197,188
Claims priority, application Czechoslovakia, Oct. 15, 1979, 6959-79
Int. Cl.[3] B65H *29/06*
U.S. Cl. 271—277 2 Claims



1. A sheet transfer device for printing machines having sheet turning means comprising a transfer drum having a transfer body, a reset drive gear wheel and paper gripping means and a turning drum having gears and paper gripping means wherein the reset gear wheel comprises a gear wheel adjustably mounted on eccentric pins rotatably mounted in a centering flange having eccentrics for centering the centering flange,

adjustably mounted in the centering flange, which bear against the transfer drum body and means for attaching the reset gear wheel to the transfer drum body.

4,336,931

POOL TOY

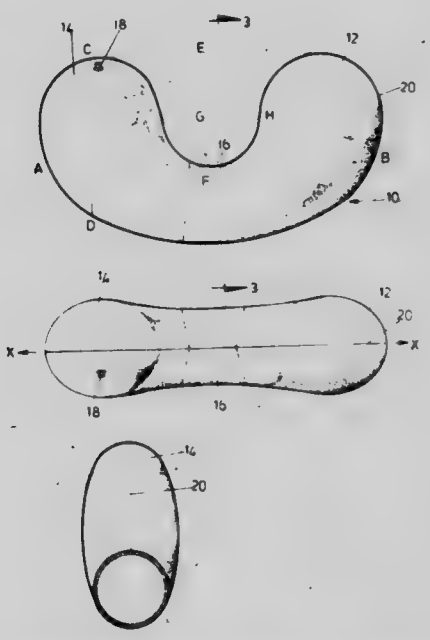
Renier J. van Staden, Johannesburg, South Africa, assignor to Charles Lonstein, Johannesburg, South Africa

Filed Aug. 15, 1979, Ser. No. 66,802

Claims priority, application South Africa, Aug. 16, 1978, 78/4646

Int. Cl.³ A63G *31/00*

U.S. Cl. 272—1 B **9 Claims**



1. A pool toy comprising a buoyant body of a substantially U-shaped outline with a center part and end parts, said center part being narrower than said end parts, the center part defining a seat for a rider and the end parts being bulbous in shape in both side and plan views, said end parts forming buoyant portions on opposite sides of said seat, the end parts being raised and normally divergent and in a self-sustaining condition with respect to the center part, each being of greater volume than the center part of the body, said body having a lower portion convexly curved in more than one direction and said body being symmetrical about its central longitudinal plane and its central transverse plane, whereby said pool toy resists tipping in the backwards, forwards and sideward directions as a result of the end parts resisting submersion.

4,336,932

EDGING FOR THE TRACK INSIDE OF A SPORTS INSTALLATION

Alfred Steiner, Andelfingen, Switzerland, assignor to Steiner Silidur A.G., Andelfingen, Switzerland

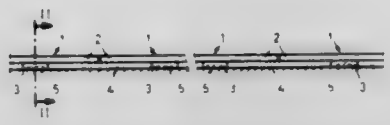
Filed Jan. 19, 1981, Ser. No. 226,673

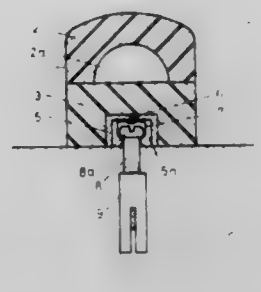
Claims priority, application Fed. Rep. of Germany, Jan. 22, 1980, 8001491[U]

Int. Cl.³ A63K *1/00*

U.S. Cl. 272—4 **3 Claims**

1. Edging for the track inside of a sports installation, which possesses an upper header body (2) composed of a plurality of individual sections (1) abutting at their interfaces, wherein each section at its lower side is connected to at least two spacer pieces (3) which rest on a foundation and are releasably connected thereto, characterized in that the spacer pieces (3) are made of an elastically resilient material, and that at their lower side an elongate carrier rail (5), inverted U-shaped in cross-section and open at its lower side, is inserted in a countersunk manner and is at least laterally enclosed by the material of the spacer pieces (3), and in the hollow space (5*a*) of which an approximately inverted U-shaped spring clip (7) is fastened, the





legs of which resiliently reach under the head (8*a*) of an attachment screw (8) or the like, inserted in a foundation.

4,336,933

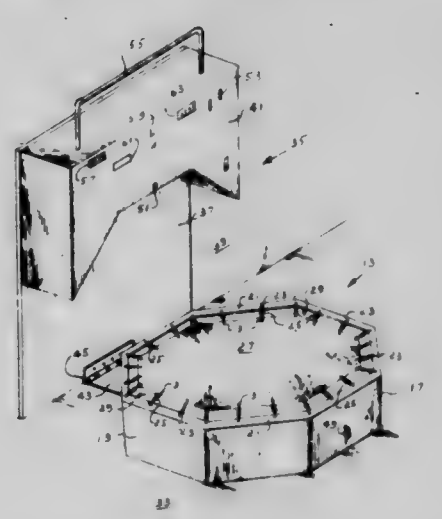
REBOUND EXERCISE DEVICE FOR IN-PLACE JOGGING

Paul Appelbaum, P.O. Box 1477, Denver, Colo. 80150

Filed Mar. 30, 1981, Ser. No. 248,830

Int. Cl.³ A63B *23/04, 5/18*

U.S. Cl. 272—70 **13 Claims**



1. Exercise apparatus for in-place jogging having a wall-mounted storage configuration and an in-use configuration on floor space adjacent the wall, comprising:

(a) a hollow, box-like metallic support frame, having a bottom wall that engages the floor when said apparatus is in its in-use configuration, and having a top wall with a central opening therein;

(b) a mat of flexible sheet material mounted in the central opening of said top wall to the periphery of said mat;

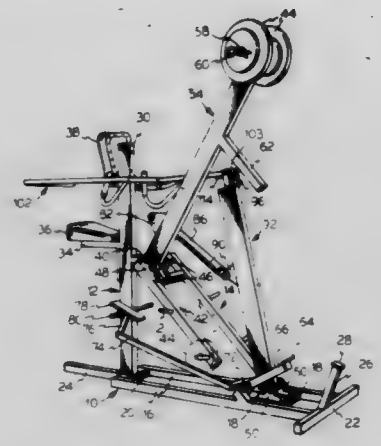
(c) a wall-mounted housing fixedly attached to the wall and having a lower portion which extends to the juncture of floor and wall, said housing being connected to said support frame by a connecting member which has a first end which is hinge-connected, about a horizontally extending axis, to the lower extremity of the lower portion of said housing and a second end which is hinge-connected, about a horizontally extending axis, to a lower portion of said support frame, said housing being adapted to receive and hold said support frame when said frame is rotated through about ninety degrees off the floor and to a storage configuration adjacent the wall.

4,336,934

ROWING EXERCISE MACHINE

Michael W. Hanagan, Santa Cruz, Calif., and Donald I. Schoeck, Wolcott, Conn., assignors to Corbin Gentry, Inc., Somersville, Conn.

Filed Feb. 27, 1981, Ser. No. 238,807
Int. Cl.[3] A63B 69/06, 21/08
U.S. Cl. 272—72 11 Claims



1. A rowing exercise machine comprising in combination:
a frame, including a base portion and an upstanding portion;
subject positioning means to said upstanding portion of said frame;
an upstanding effort arm pivotably attached adjacent its lower end to said base portion of said frame at a location spaced forwardly of said subject positioning means;
a handle member having a forward end portion pivotably attached adjacent the upper end of said effort arm and extending generally rearwardly toward said subject positioning means;
a weight bar pivotably attached adjacent its rearward end to said upstanding portion of said frame at a location spaced above said base portion thereof, extending forwardly beyond said effort arm and having means adjacent its forward end for mounting weights thereon; and
a tie rod pivotably attached adjacent one end to said effort arm at a location between said upper and lower ends thereof, and pivotably attached adjacent its opposite end to said weight bar at a location between said rearward and forward ends thereof, said weight bar being disposed at rest in a generally horizontal attitude, and being elevated toward a generally vertical attitude by the exertion of force rearwardly upon said handle member to pivot said effort arm toward said subject positioning means.

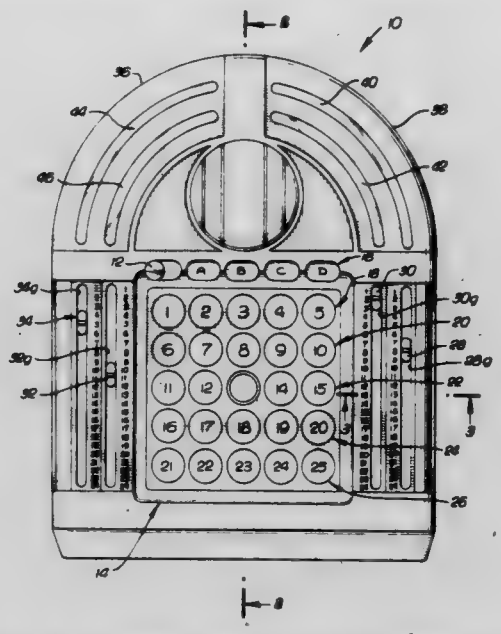
4,336,935

MUSICAL GAME APPARATUS

Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif. 91356

Filed Jan. 2, 1980, Ser. No. 109,091
Int. Cl.[3] A63F 9/00
U.S. Cl. 273—1 E 12 Claims

1. A musical game apparatus comprising:
a. at least eight different tune select designators that may be manually selected by a player;
b. a mode selector for selecting at least a first mode and a second mode;
c. synthesis means for generating musical notes and making them audible to the player;
d. memory means for storing a plurality of pre-programmed sequences of musical notes;
e. control means operable in said first mode for associating at the start of a game particular ones of said stored sequences each with two of said designators and for causing, during each turn of play within a game, said synthesis means to play a first musical note sequence associated with the designator first selected by the player within said turn of play and then determining whether a second designator also selected within said turn of play is also associated with said first sequence, said control means being operable in said second mode for respectively causing at least eight different single musical notes to be played by said synthesis means upon the respective manual selection of eight different turn select designators, thereby permitting all



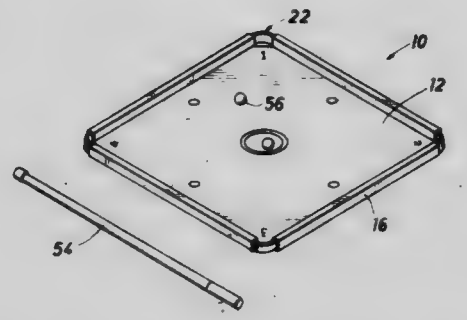
eight notes in a musical octave to be manually selected and played in any order, said control means randomly operating to assign a "wild" status to one or more of said designators at the start of a game and thereafter treating each such "wild" designator as associated with all of said sequences.

4,336,936

PORTABLE GAME SURFACE FOR A POOL-LIKE GAME

Richard L. Young, 10266 Hammerly, Houston, Tex. 77043

Filed Jul. 14, 1980, Ser. No. 168,619
Int. Cl.[3] A63D 13/00, 15/02
U.S. Cl. 273—2 6 Claims



1. Apparatus capable of forming a portable game surface on a flat support surface for a pool-like game in which movable objects are used, comprising:
a sheet of flexible material for forming the game surface;
a plurality of discrete structural elements capable of being connected to flexible material for defining the boundaries of the game surface and forming bumper rails for the movable objects;
first connecting means for connecting said structural elements lengthwise to said flexible material such that said flexible material covers the surface portion of said bumper rails contacted by the movable objects;
second connecting means for rigidly connecting adjacent ends of said structural elements to each other for forming the boundaries of the game surface and maintaining the game surface in playable form;
means forming pockets for the movable objects at locations where said bumper rails are joined;
said structural elements being capable of being manually disconnected from each other and from said sheet of

flexible material so that the game surface can easily be dismantled; and

each bumper rail includes a conduit with a generally rectangular cross-section.

4,336,937

HARDBOARD-BONDED MELAMINE OVERLAID SURFACE FOR BOWLING LANE

Peter B. Kelly, Pasadena, Tex., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 926,604, Jul. 21, 1978, Pat. No. 4,231,573, which is a division of Ser. No. 901,791, May 1, 1978, abandoned, which is a continuation of Ser. No. 506,069, Sep. 16, 1974, abandoned. This application Oct. 2, 1979, Ser. No. 81,216
The portion of the term of this patent subsequent to Nov. 4, 1997, has been disclaimed.
Int. Cl.³ A63D *1/04;* B32B *5/26, 5/30, 21/08*
U.S. Cl. 273—51 2 Claims

1. A bowling lane having a surface characterized by a falling ball impact resistance of at least 60 inches, a coefficient of friction of at least 0.16 and a Taber abrasion resistance of at least about 400 cycles, said bowling lane comprised of a melamine resin impregnated decorative fibrous printed sheet, not more than about 3 phenolic resin impregnated fibrous sheets underlaying said printed sheet, and a cellulosic board of at least 60 pounds density consisting of hardboard bonded to said underlay sheets and said print sheet under heat and pressures from about 1000 psi to about 1500 psi.

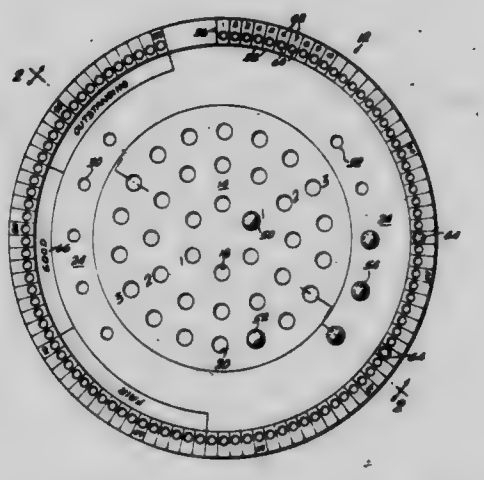
2. A bowling lane as defined in claim 1 further including at least one overlying resin containing protective layer of said decorative fibrous print sheet.

4,336,938

GAME INCLUDING APERTURES SIMULATING PLAYING CARDS SELECTED BY A ROLLED BALL

Paul G. Laroche, Lauderdale By The Sea, Fla., assignor to Glenhope Enterprises, Inc., Fort Lauderdale, Fla.

Continuation of Ser. No. 61,825, Jul. 30, 1979, abandoned, which is a continuation-in-part of Ser. No. 911,430, Jun. 1, 1978, abandoned. This application Apr. 30, 1981, Ser. No. 259,002
Int. Cl.³ A63F *5/02*
U.S. Cl. 273—138 R 5 Claims



1. A game of chance including a smooth spherical ball having a predetermined diameter, said game of chance including:

a gameboard having a generally concavely dish-shaped play surface, and said gameboard play surface being generally circular and symmetrical with respect to a vertical centerline through the play surface,

said play surface having a smooth concave central zone free and clear of upstanding projections, and an outer peripheral zone about the central zone, said central zone being characterized by a first common radius of curvature having a center on the vertical centerline, said peripheral zone having a generally smooth surface defining a circular race path, said race path being free and clear of upstanding projections and said race path being characterized by a second common radius of curvature longer than said first radius of curvature, and said second radius of curvature having a center on the vertical centerline,

the central zone having a plurality of recesses arranged in a plurality of four rings of recesses, (a) an inner ring, (b) an outer ring, (c) a ring between said inner and outer rings and adjacent said inner ring, and (d) a ring between said inner and outer rings and adjacent said outer ring,

said inner ring being composed of six recesses, said outer ring being composed of 20 recesses, and said ring between said inner and outer ring and adjacent said inner ring being composed of 10 recesses, and said ring between said inner and outer ring and adjacent said outer ring being composed of 16 recesses,

each of the recesses having a predetermined common diameter less than the diameter of the ball and adpated to nestingly receive and releasably captivate the ball,

the recesses of each ring being equispaced from one another and said rings being equispaced from one another, and,

the portion of the central zone within the inner ring being an uninterrupted smooth concave surface, whereby when the ball, when rolled over the race path enters the central zone, will travel toward the portion of the central zone within the inner ring under the influence of gravity, to be received either in one of the plurality of recesses through random selection or come to rest in the portion of the central zone bounded by said inner ring,

an outer annular rim about the race path to constrain a ball traveling over the path to eventual movement under the influence of gravity toward the cental zone, and,

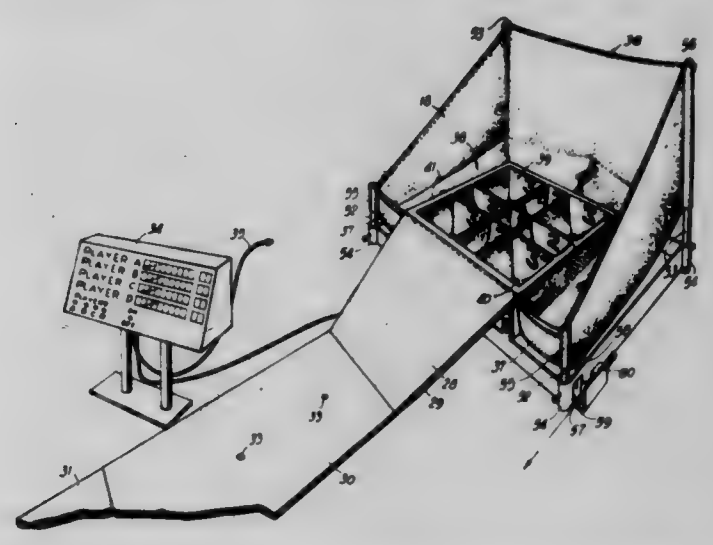
said gameboard having a portion extending away from the play surface and the annular rim and defining a support surface for supporting said gameboard in a substantially horizontal attitude.

4,336,939

GOLF CHIP AND PUTT PRACTICE DEVICE AND GAME

Alfred C. Krumlauf, 1450 North Avenue, NE., Atlanta, Ga. 30307

Filed Dec. 5, 1980, Ser. No. 213,307
Int. Cl.³ A63B *69/36*
U.S. Cl. 273—185 R 10 Claims



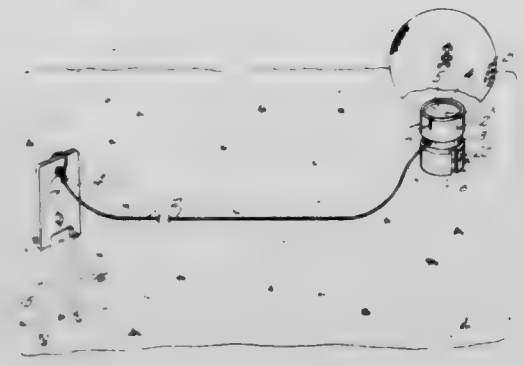
10. A chip and putt golf practice device and game apparatus comprising a pocketed rectangular target with the pockets of the target having open tops disposed in a common horizontal plane, said pockets being disposed orthogonally in rows with the smallest pocket of highest achievement value at the center of the target bounded on opposite sides thereof by larger pockets, said target having still larger pockets at its corners, an underlying support frame supporting the target in a level plane, and a backstop including a lower trough surrounding said target on three sides, said lower trough providing a further scoring area of lesser achievement value.

4,336,940

GOLF TEE HOLDER

Boyd F. Sprague, 16595 SW. Monterey La., Tigard, Oreg. 97223

Filed Jul. 28, 1980, Ser. No. 172,675
Int. Cl.[3] A63B *69/36, 57/00*
U.S. Cl. 273—208 3 Claims



1. A golf tee holder comprising,

a body of a resilient nature having a lengthwise opening therethrough for inserted reception of a golf tee, said body also defining a tether receiving recess about its outer perimetrical wall, a shoulder at the upper end of said body partially overlying said opening to overlie the subjacent head of a tee inserted therein,

a tether attached to said body with anchor means at the remaining end of the tether and,

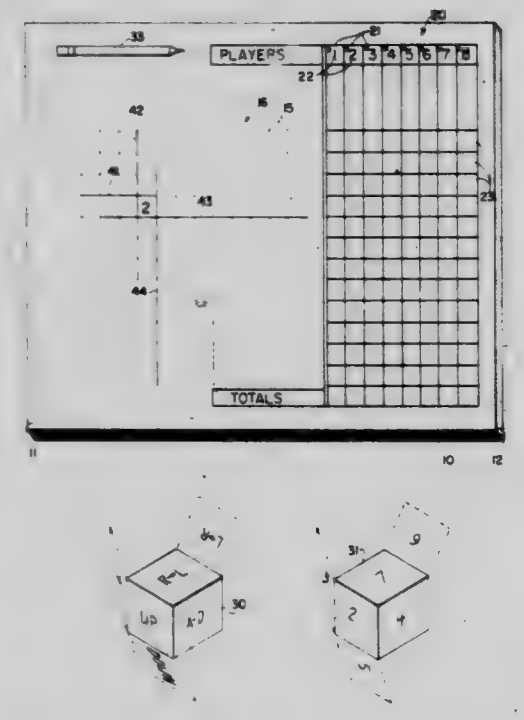
said anchor means being of bifurcated shape, said body perimetrical wall additionally defining lengthwise orientated grooves for stowed reception of the anchor means.

4,336,941

METHOD FOR PLAYING A SQUARE FORMING GAME

Karl A. Haines, 101 Egypt Rd., Warren, Pa. 16365

Filed Feb. 27, 1979, Ser. No. 15,658
Int. Cl.[3] A63F *3/00*
U.S. Cl. 273—240 5 Claims



1. A method of playing a square forming game utilizing a playing surface having a plurality of dots which are arranged in a rectangular array of rows and columns to form a square forming area and which are adapted to be connected together by lines to form a plurality of squares, and employing a pair of six-sided dice, the sides of one die being individually marked with different numerals indicating the overall lengths of the lines to be drawn, respectively, and the sides of the other die being marked with indications of the direction in which connecting lines between the dots may be drawn, the six markings on said other die providing for drawing of such a line in the directions left to right, right to left, up and down, respectively, and in any direction, and in any direction in two or more separate divided lines, respectively, said method comprising:

rolling said pair of dice to determine the number and direction of connecting lines to be made between adjacent dots, connecting adjacent dots by connecting lines in accordance with the uppermost markings of the dice as rolled, said connecting step comprising drawing a line from left to right when the said other die indicates left to right, drawing a line from right to left when said other die indicates right to left, drawing a line up when said other die indicates up, drawing a line down when said other die indicates down, drawing a line in any direction when said other die indicates any direction and drawing at least two lines in any direction when said other die indicates in any direction in two or more separate divided lines, the rolling of the dice and the corresponding connecting of adjacent dots being carried out by the players of the game in turn, said connecting lines being initially started on the periphery of said array, and each successive line drawn in that same direction starting at the end of any non-completed line already drawn in that direction, marking any squares which are completed by connecting lines, between the dots, which define the sides of said squares, with an identification mark identifying the player who completed the square, and

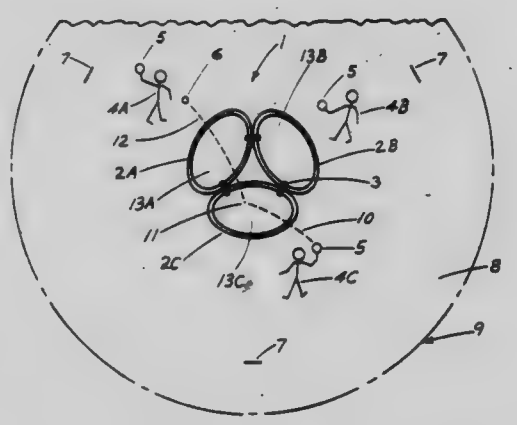
determining, when all dots have been connected to form all squares, the player who has completed the largest number of squares.

4,336,942

3-WAY MINI-TENNIS GAME AND APPARATUS

Norwood R. Warehime, 704 W. 34th St., Baltimore, Md. 21211

Filed Sep. 22, 1980, Ser. No. 189,733
Int. Cl.[3] A63B *71/02*
U.S. Cl. 273—411 12 Claims



1. A 3-way mini-tennis game and apparatus therefor, wherein the apparatus comprises a small, lightweight resilient play ball, at least three striking bats, a playing surface means, said playing surface means including a game area means, and a 3-way ball passage defining means, said 3-way ball passage defining means being disposed in a general upright position on said playing surface means and in center of said game area means, said 3-way ball passage defining means comprises three identical ball passage defining elements, with each of said defining elements abutting the other two said defining elements, said defining elements being held together in a regular tripod type pattern by fastening means at points of abutment of said defining elements, each of said defining elements in said tripod type pattern being in a separate plane, each said separate plane forming an angle not less than 30° nor more than 90° with plane of said playing surface means, each said angle being measured within the said tripod type pattern, each of said defining elements of said 3-way ball passage defining means being in the form of a circuitous, rigid frame with a generally central open area, each said open area being of a sufficient size

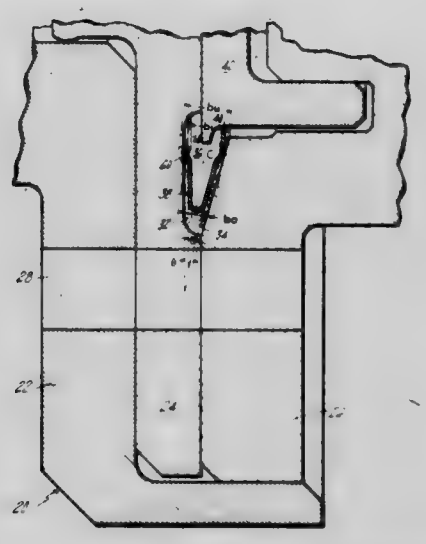
to allow said play ball to readily pass through each said open area of each said frame in game play involving at least three competing players.

4,336,943

WEDGE-SHAPED SEAL FOR FLANGED JOINTS

Gary F. Chaplin, Vernon, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Nov. 14, 1980, Ser. No. 207,498
Int. Cl.³ F16J *15/00, 15/54*
U.S. Cl. 277—26 9 Claims



1. A flanged joint for joining the abutting ends of two cylindrical case structures, wherein the improvement comprises:

a pair of outwardly convergent sidewalls, one on each of said cylindrical case ends forming a circumferentially extending groove between the case structures;

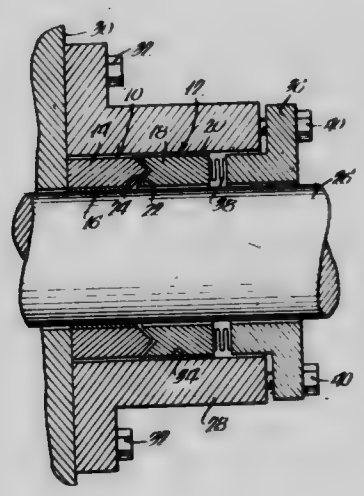
a seal ring having a substantially wedge-shaped cross section disposed within said groove; wherein said seal ring is slidable in the outward direction along the convergent sidewalls of the groove in response to increasing temperature causing a compressive sealing force against the wedge-shaped cross section of the seal ring.

4,336,944

MECHANICAL-DYNAMIC ROTARY SEAL

W. Roscoe Blair, Charleston, S.C., assignor to Raybestos-Manhattan, Inc., Trumbull, Conn.

Filed Aug. 27, 1979, Ser. No. 69,820
Int. Cl.³ F16J *15/34*
U.S. Cl. 277—81 R 3 Claims



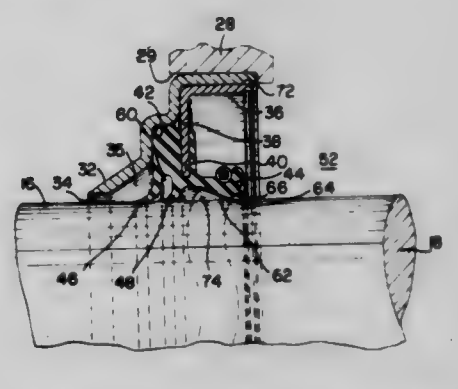
1. In combination, a stuffing box having a passage therethrough, a shaft extending through said stuffing box passage and rotatable therein, and a seal for sealing said shaft in said stuffing box passage, said seal consisting essentially of a pair of annular seal elements positioned coaxially end to end around said shaft and in said stuffing box passage, one of said elements being sealingly mounted about its inner periphery to said shaft and the other of said elements being sealingly mounted about its outer periphery to said stuffing box, adjacent ends of said elements having complementary configured end faces which are moved together into closely mating, sliding and sealed engagement, whereby in use upon relative rotation of said stuffing box and said shaft said one element is stationary relative to said shaft, said other element is stationary relative to said stuffing box, and said end faces are in mating, sealed and sliding engagement and seal said shaft in said stuffing box, and further including adjustable means for urging said end faces together into sliding, sealed and mating engagement with a controllable force to compensate for wear of said end faces and to maintain a secure, leak proof seal therebetween, said adjustable means comprising a gland, means for mounting said gland on said stuffing box about said stuffing box passage for movement toward and away from said stuffing box, said mounting means including external adjustment means operable to move said gland toward or away from said stuffing box, and spring means extending in said stuffing box passage between said gland and the adjacent one of said seal elements for urging said seal element end faces together, whereby operation of said external adjustment means moves said gland toward or away from said stuffing box to increase or decrease the force with which said spring means urges said seal element end faces together.

4,336,945

SINUOUS SEAL WITH AUXILIARY EXCLUDER LIPS

Keith W. Christiansen, Fox River Grove, and Anthony W. Vering, Arlington Heights, both of Ill., assignors to CR Industries, Elgin, Ill.

Filed Mar. 18, 1977, Ser. No. 779,259
Int. Cl.³ F16J *15/32*
U.S. Cl. 277—153 2 Claims



1. A radially inwardly acting seal assembly for creating a fluid seal between first and second, relatively movable elements, at least one of which is arranged for rotation about a given axis, said unit having a mounting portion thereof adapted to be fixedly associated in use with said first element, a unitary elastomeric seal body comprising a dirt exclusion portion and an oil retention portion, said dirt exclusion portion having a plurality of annular excluder lips, said excluder lips, as manufactured, extending radially inwardly and being spaced axially apart from each other, said lips having an inside diameter substantially smaller than that of said second relatively movable element, said excluder lips, in position of use, contacting and lying along said second element, and being flexed thereby so that the inner portions thereof extend radially inwardly as well as axially away from the region to be sealed, said oil retention portion comprising a generally annular, flexible primary hydrodynamic sealing lip portion disposed, in use, in a generally facing relation to said second element and defined at least partially by converging first and second, at least partially axially undulating frustoconical lip surfaces meeting each other along an axially undulating seal band area formed at the convergence of said undulating lip surfaces, said seal band undulating so as to have portions thereof lying on either side of an imaginary plane lying parallel to the plane of said seal

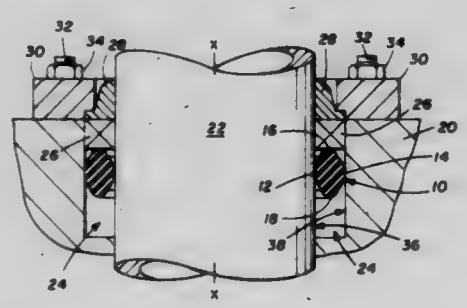
mounting portion and substantially perpendicular to said given axis of said movable member, said first lip surface at least partially facing the surface of said second element lying on the exterior of a region in which a fluid is to be sealed, and said second lip surface at least partially facing the surfaces of said second element lying on the interior of said region in which said fluid is to be sealed, the included angle between said first lip surface and the surface of said second element being less than the included angle between said second lip surface and the surface of said second element, said angles being measured as said seal is in a normally installed position of use over said second member, the seal bands of all of said lips being of substantially constant radius throughout their entire extents, said seal assembly further including as a part of said dirt exclusion portion, a protective flange affixed to said mounting portion, said protective flange extending radially inwardly and being inclined away from said region to be sealed, said protective flange having an annular inner surface closely spaced apart from said second element.

4,336,946

NON-ROTATABLE ELASTOMERIC O-RING SEAL

John H. Wheeler, Dallas, Tex., assignor to The Texacone Company, Dallas, Tex.

Filed Sep. 8, 1980, Ser. No. 185,205
Int. Cl.³ F16J *15/24, 15/32*
U.S. Cl. 277—211 **1 Claim**



1. A sealing system comprising:

a shaft having an axis and having an axially extending exterior cylindrical sealing surface;

a housing surrounding the shaft having an axially extending cylindrical interior sealing surface spaced apart from the exterior surface of the shaft to define an O-ring receiving cavity therebetween;

means having radially extending surfaces for closing the opposite ends of the O-ring receiving cavity so that the O-ring receiving cavity is rectangular in cross section;

said shaft and said housing adapted for relative movement so that an O-ring in the O-ring receiving cavity tends to roll relative to the sealing surfaces;

an O-ring positioned in the rectangular O-ring receiving cavity and comprising a main body portion circular in cross section normally having a first relatively large predetermined radius and including an inner sealing surface engaging the outer sealing surface of the shaft around its entire periphery and an outer sealing surface engaging the inner sealing surface of the housing around its entire periphery;

said O-ring further including opposed projections normally extending axially from the main body portion thereof, said projections being extended between the sealing surface of the main body portion and being semicircular in cross section;

said projections each normally having second predetermined radius substantially smaller than the first predetermined radius;

said opposed projections being integrally formed with the main body portion of the O-ring and extending around the entire circumference thereof; and

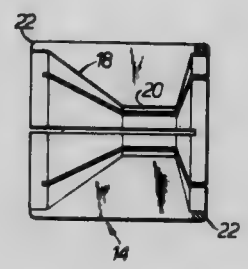
said O-ring comprising the only structure within the rectangular O-ring receiving cavity so that the projections prevent the O-ring from rolling relative to the sealing surfaces of the shaft and the housing.

4,336,947

WORKPIECE FEED DEVICES

Reginald A. Franklin, Witney, England, assignor to Crawford Collets Limited, Witney, England

Filed Dec. 28, 1979, Ser. No. 108,037
Claims priority, application United Kingdom, Jan. 30, 1979, 7903233
Int. Cl.³ B23B *5/22*
U.S. Cl. 279—46 A **6 Claims**



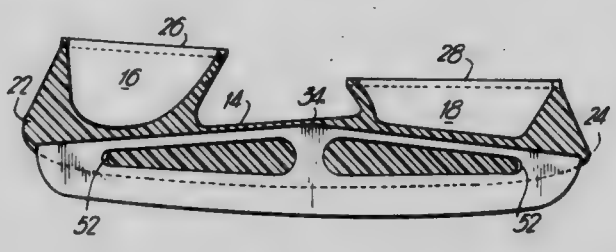
1. A feed finger comprising a gripping sleeve, said sleeve including opposed axial end portions, means defining a thin-walled zone of limited axial extent at each axial end portion of the sleeve, an inwardly-projecting thick-walled zone intermediate said thin-walled zones and defining an internal bore in which the workpiece can be frictionally gripped, and means defining a series of angularly-spaced slots which split the sleeve into segments, each said slot extending axially of the sleeve over substantially the entire length of the sleeve, each slot having an open end opening onto one end of the sleeve and a closed end lying within the thin-walled zone at the other end of the sleeve, alternate slots opening into opposite ends of the sleeve, and means co-operating with the gripping sleeve for applying to each end of the sleeve a radially inwardly-directed compressive force which acts to displace the segments radially inwardly against a resilient bias to define a selected cross-sectional bore size within a predetermined range, each said segment when moving inwardly remaining parallel to itself.

4,336,948

SKATE BLADE

George Couture, 1301, rue De-Laune, Quebec City, Quebec, Canada

Filed Jan. 25, 1980, Ser. No. 115,231
Claims priority, application Canada, Jul. 13, 1979, 331741
Int. Cl.³ A63C *1/32*
U.S. Cl. 280—11.12 **4 Claims**



1. A combined ice skate runner and plastic holder therefor, said holder comprising a heel column and a sole column, each column including a plate on the upper end thereof for connecting the holder to a skate boot, and a bridge member interconnecting said columns; said runner comprising a planar, elongated metal body having a lower portion including a hardened, ice-engaging edge and an upper portion embedded in the plastic holder, said runner having a wide central web intermediate the upper and lower edges and at least one elongated opening on either side of said web; each said opening being completely surrounded by portions of said metal body, said opening taper-

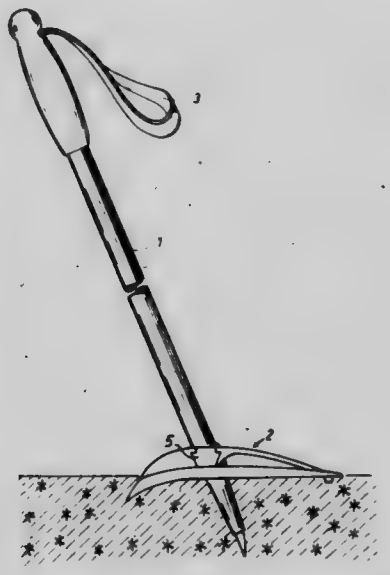
ing downwardly in width from the central web towards the ends of the runner such that, during construction, the material of the plastic holder flows through said openings and shrinks toward the central web of the runner.

4,336,949

BASKET FOR A SKIPOLE

Yrjö Aho, Kuninkaanniemi, 02160 Espoo 16, Finland

Filed Nov. 12, 1976, Ser. No. 741,358
Claims priority, application Finland, Nov. 13, 1975, 753193
Int. Cl.[3] A63C *11/24*
U.S. Cl. 280—824 4 Claims



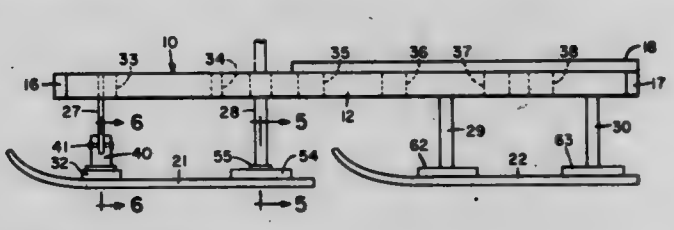
1. A basket for a skipole with hard straps comprising a rigid periphery frame and a sole connecting piece between said skipole and the periphery frame, said sole connecting piece being an axle having an axis perpendicular to said skipole, and being asymmetrically fastened at both of its ends to said frame forwardly of the center of said frame without free play and tautly bridging said frame, said axle being of rubber or soft plastic, and said axle thus acting between the frame and the skipole as an elastic torsion piece whereby said skipole can be rotated back and forth about said axis of said axle without moving said frame.

4,336,950

SLED

John Zepkowski, R.D. 2, Canton, Pa. 17724

Filed Sep. 8, 1980, Ser. No. 184,755
Int. Cl.[3] B62B *13/12*
U.S. Cl. 280—16 5 Claims



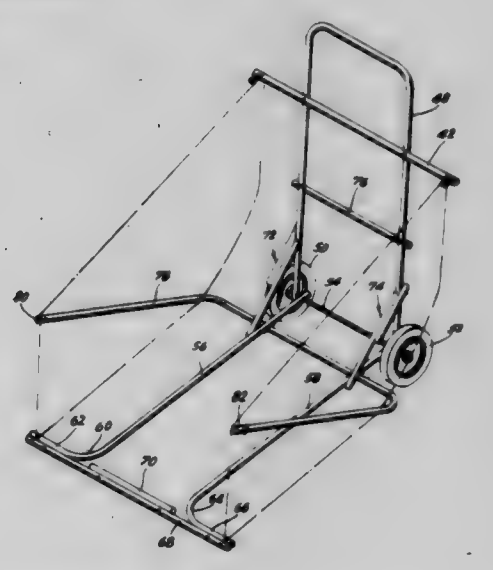
1. A sled comprising
a frame,
means on said frame for supporting at least one rider,
a pair of front skis, one disposed under each side of said frame at the front end thereof,
a front strut, the top portion of which is rigidly affixed to said frame,
means for connecting the bottom portion of said front strut to said ski in such a manner that the front portion thereof is capable of pivoting about the axis of said front strut and is capable of tilting about the longitudinally axis thereof,
a rear strut,
first strut support means mounted on said frame for pivotal rotation about a first axis that is parallel to the longitudinal axis of said sled, said first strut support means supporting said rear strut,
means for connecting the bottom portion of said rear strut to said ski in such a manner that said ski is capable of pivoting about the axis of said rear strut, and
steering means for causing said strut support means to pivot about said first axis whereby the rear portion of said front ski swings to the side and the bottom surface of said ski tilts about its longitudinal axis.

4,336,951

CART

William R. Crothers, 424 W. Springfield Rd., Springfield, Pa. 19064

Division of Ser. No. 939,398, Sep. 5, 1978, Pat. No. 4,222,585.
This application Jun. 2, 1980, Ser. No. 155,393
Int. Cl.[3] B62B *11/00*
U.S. Cl. 280—47.26 1 Claim



1. A cart comprising:
a scoop-shaped body of flexible sheet material, said body having an open front, a bottom wall, a rear wall, and side walls extending upwardly from the bottom wall;
a pair of wheels rotatable on an axle located adjacent the intersection of said rear wall and said bottom wall;
frame means comprising a first substantially rigid frame member connected to said axle and extending substantially from the front edge of said bottom wall to said axle, and a second substantially rigid frame member connected to said axle and extending from said axle at least to the upper edge of said rear wall;
brace means connecting said first and second frame members and adapted to hold said first and second frame members in rigid relationship to each other, said wheels being located behind said body and laterally inwardly with respect to said side walls, and said brace means being located between said flexible sheet material and said wheels, and preventing contact between said material and said wheels.

4,336,952

VEHICLE WITH A BALANCING PLANE

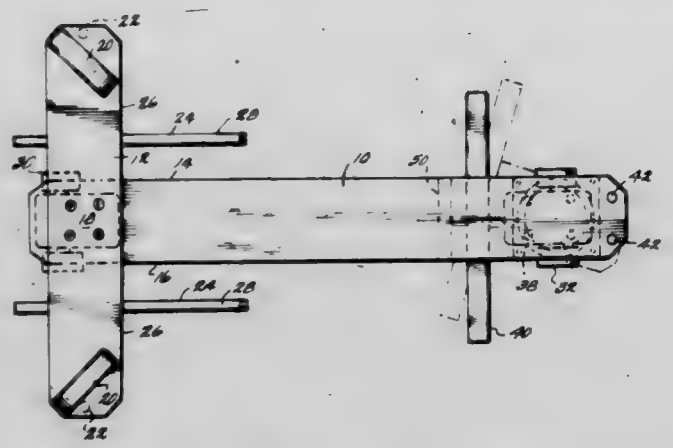
Arnold Rochman, 940 Bender Bldg., 1120 Conn. Ave. NW., Washington, D.C. 20036

Filed Jan. 22, 1980, Ser. No. 114,319
Int. Cl.[3] B62B *11/00*
U.S. Cl. 280—87.01 3 Claims

1. A coaster device comprising:
an elongated planar platform for supporting a rider, said platform having a forward and rearward end, an underside and a longitudinal center line extending along the length of said platform;
wheeled truck means connected to said underside of said platform along said center line for turning to the left and right of said center line in response to the tilting of said

platform respectively to the left and right about said center line;

said wheeled truck means including at least one steerable, rotatable wheel, pivotally mounted to said platform for pivoting about an axis perpendicular to the plane of said platform, and means engagable with said platform, and said truck means, for releasably locking said wheel against pivoting;



means mounted to said platform at said rearward end for tilting said platform to the left and to the right, said tilting means including an elongated balance board having an upper surface and a transverse line extending perpendicularly to said longitudinal center line at one end of said platform; and

a pair of handles fixed to said balance board at opposite sides of said platform for providing leverage when tilting said platform.

4,336,953

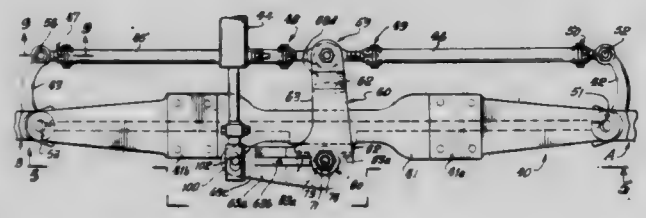
METHOD AND APPARATUS FOR INSTALLING STEERING AXLE PIVOT PINS

Leonard J. Low, P.O. Box 1927, Sparks, Nev. 89431

Continuation-in-part of Ser. No. 938,086, Aug. 30, 1978, Pat. No. 4,220,348. This application Jun. 30, 1980, Ser. No. 164,249

Int. Cl.³ B60D *5/08*

U.S. Cl. 280—95 R **4 Claims**



1. The method of installing a pivot pin and bearing assembly to a steering axle of a lift truck which includes attaching a bearing housing to the steering axle of the lift truck, inserting a bearing into said bearing housing, providing thrust washers at upper and lower ends of said bearing housing, straddling said bearing housing and bearing and thrust washers with upper and lower bifurcations of a steering control arm so that openings in said bifurcations are aligned axially with said bearing, which method includes: (1) providing a longitudinal bore into the said pivot pin axially aligned with the axis of the pivot pin but offset from the axis so as to extend into the said pivot pin at a point between the center of the said pivot pin and an outer surface of said pivot pin; (2) providing threads for a distance on the exterior of each end of said pivot pin; (3) providing a port communicating from the exterior of said pivot pin to the internal bore of said pivot pin in the vicinity of the said bearing; (4) providing cotter pin bores adjacent each of said threaded ends passing diametrically through said pivot pin in such a manner that neither of said cotter pin bores will intersect said longitudinal bore in said pivot pin; (5) securing said pivot pin by threading a castle nut to each end of said pivot pin; and (6) inserting cotter pins through the cotter pin bores in such a manner as to fasten the castle nuts in position.

4,336,954

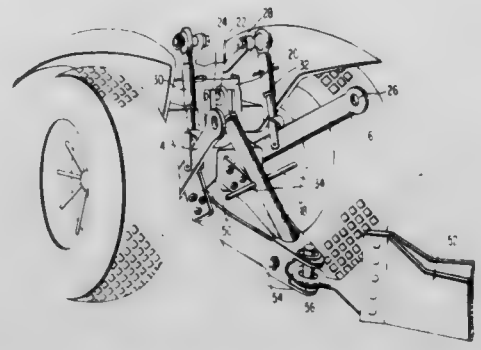
TRACTOR TRAILER HITCH

Victor R. Orvis, 1250 N. Ralston, Anaheim, Calif. 92801

Filed Jan. 21, 1980, Ser. No. 113,460

Int. Cl.³ B60D *1/00*

U.S. Cl. 280—415 R **7 Claims**



7. A trailer hitch for a tractor equipped with a three-point implement hitch for attaching an implement to said tractor which implement hitch attaches to said implement at said three-point hitch which consists of two spaced-apart lift arms and a center support member pivotally attached to said tractor and extending outwardly from said tractor, comprising:

(a) means for rigidly attaching said trailer hitch to said tractor, said trailer hitch extending rearwardly between said lift arms of said three-point hitch,

(b) means for detachably connecting a trailer to the distal end of said trailer hitch, said trailer connecting means of said hitch terminating forwardly of the rear ends of said lift arms,

(c) means for connecting the outwardly extending end of said center support member to the distal end of said trailer hitch to brace said trailer hitch to said tractor for pulling said trailer, and

(d) the distal end of said trailer hitch being sufficiently rearward of said tractor to permit turning of the tractor when said trailer is connected thereto.

4,336,955

SAFETY SKI BINDING

Hans Schmidt, Neu-Germering, Fed. Rep. of Germany, assignor to Hannes Marker, Garmisch-Partenkirchen, Fed. Rep. of Germany

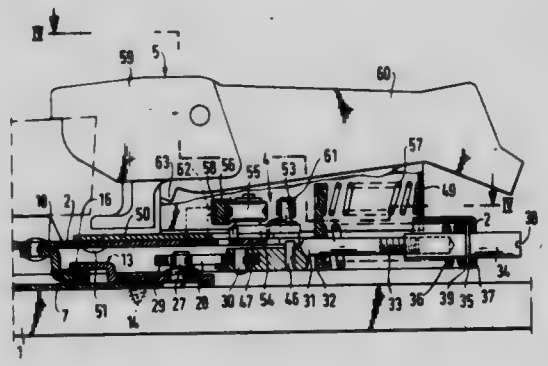
PCT No. PCT/EP79/00008, § 371 Date Oct. 6, 1979, § 102(e) Date Oct. 5, 1979, PCT Pub. No. WO79/00591, PCT Pub. Date Aug. 23, 1979

PCT Filed Feb. 6, 1979, Ser. No. 170,675

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1978, 2804986

Int. Cl.³ A63C *9/08*

U.S. Cl. 280—618 **4 Claims**



1. A safety ski binding comprising a sole plate which is rotatably mounted on the ski surface in the heel region of the ski boot on a pivot extending perpendicular to the ski surface, is secured against lifting off, has a toe holder at its front end

and has at its rear end a spring-loaded automatic heel mechanism for the ski boot that has a sole retainer and a first spring whose force must be overcome to allow upward movement of the sole retainer to release the ski boot on the occurrence of a frontal fall load exceeding the spring resistance of the first spring, characterized in that slideways are secured to the upper surface of the ski, in that the sole plate has slideways extending transverse to the longitudinal direction of the ski in the toe and heel regions of the ski boot that are engageable with the slideways secured to the ski for securing the sole plate against lifting off, and in that the automatic heel mechanism has a separate spring exerting a force opposing release of the ski boot on the occurrence of a rotary fall so that release takes place on the occurrence of an excessive rotary fall only after overcoming the resistance of the separate spring, said automatic heel mechanism further comprising a housing mounted on the sole plate for displacement lengthwise of the ski and carrying said sole retainer, a third spring supported on the sole plate for exerting a force moving the housing in a release direction of the automatic heel mechanism, and lock means for preventing movement of said housing by said third spring, said separate spring exerting a force on said lock means such that said lock means is moved into a position releasing said housing after said sole plate has pivoted a predetermined amount about its pivot.

4,336,956

SAFETY TOE UNIT FOR A SKI BINDING

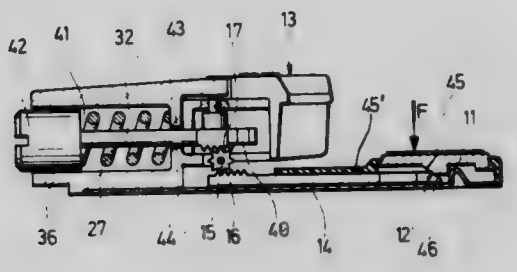
Manfred Richert, Farchant, and Ralf Storandt, Leonberg, both of Fed. Rep. of Germany, assignors to Vereinigte Baubeschlagfabriken Gretsch & Co. GmbH, Leonberg, Fed. Rep. of Germany

Filed Jan. 17, 1980, Ser. No. 112,813

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1979, 2905837

Int. Cl.³ A63C *9/08*

U.S. Cl. 280—625 **29 Claims**



1. A safety toe unit for a ski binding having a safety release mechanism comprising toe clamp means for releasably securing the toe of a ski boot to a ski, spring means having first and second ends and being maintained in biased condition to be operative to bias said toe clamp means into a ski boot securing position and operative, on the occurrence of a predetermined sideways load on said toe clamp means to permit sideways pivoting movement of at least a part of said toe clamp means to a ski boot releasing position, means for transmitting a force from said toe clamp means to said first end during said sideways pivoting movement to produce corresponding movement of said first end and abutment means for reacting said force at said second end of said spring means, a force signalling device adapted to be arranged at a position corresponding to the position adopted in operation by the ball region of the sole of the ski boot, said force signalling device being responsive to pressure exerted from above to generate, via a force transmission device, an auxiliary force active on said first end in the direction of the first said force whereby to reduce the bias of said spring means on said toe clamp means to assist the release thereof, and wherein the mechanical advantage produced by said force signalling device and said transmitting device is such that the magnitude of said auxiliary force is always smaller than the spring bias which determines the release setting of the binding for any load exertable by a skier through the ball region of the ski boot on said force signalling device.

4,336,957

PASSIVE SAFETY BELT SYSTEM FOR MOTOR VEHICLES

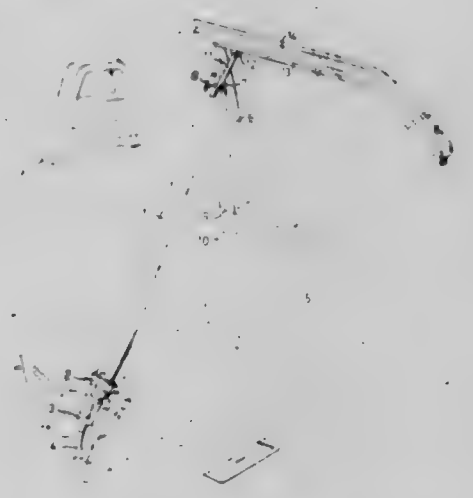
Bengt I. Schultz, Göteborg, and Göran Svensson, Alingsas, both of Sweden, assignors to AB Volvo, Göteborg, Sweden

Filed Oct. 16, 1980, Ser. No. 197,537

Claims priority, application Sweden, Oct. 23, 1979, 7908767

Int. Cl.³ B60R *21/10*

U.S. Cl. 280—803 **4 Claims**



1. Passive safety belt system for motor vehicles, comprising a belt band, which has an active portion extending diagonally across a vehicle seat from a lower point of attachment at or in the vicinity of the floor of the vehicle via a redirecting fitting which is attached to the rear portion of a window frame of a door adjacent said seat, to a reel mechanism arranged in the door, characterized in that the belt band is joined, in the vicinity of the redirecting fitting, to one end of a strap, the other end of which is provided with a cursor, which is displaceable in a track, which extends along the upper portion of the door window frame, such that, when the opening angle of the door increases, the belt band loads, via the strap, the cursor with a forwardly directed force component, which displaces the cursor towards the front end of the track.

4,336,958

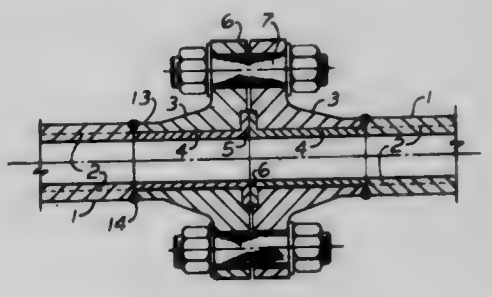
PIPE FLANGE

John Goetzinger, 2956 W. 17th St., Erie, Pa. 16506

Continuation-in-part of Ser. No. 859,297, Dec. 12, 1977, abandoned. This application Aug. 9, 1979, Ser. No. 65,342

Int. Cl.³ F16L *9/14, 23/00*

U.S. Cl. 285—55 **4 Claims**



1. A pipe flange coupling having a carbon steel body and flange, a bore extending through said body and flange, a bolt circle in said flange, a tube of corrosion resistant material telescoped in said bore and united thereto by an annular electron beam weld of fused metal extending axially along and embracing the junction between said tube and said bore throughout the length and circumference of said bore, the

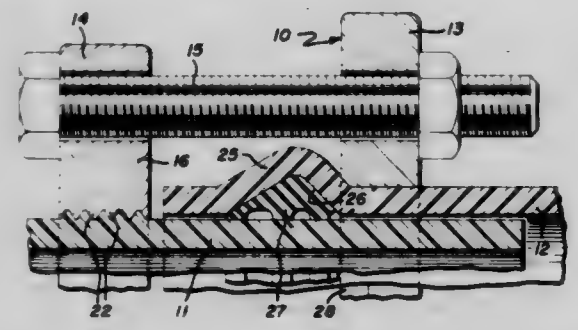
weld being wedge shaped in radial cross section with the greatest radial thickness at one end of the tube, said fused metal consisting of said carbon steel and said corrosion resistant material, and a sealing surface on said flange radially inward of said bolt circle and radially outward of said bore, said sealing surface being provided by a cladding of corrosion resistant material fusion welded to said flange and to fused metal and to said tube.

4,336,959

JOINT RESTRAINER SYSTEM

Charles W. Roche, Northboro, Mass., assignor to Uni-Flange Corporation, Northboro, Mass.

Filed Jun. 19, 1980, Ser. No. 161,038
Int. Cl.³ F16L *17/02*
U.S. Cl. 285—368 4 Claims



1. Joint restrainer for use with the junction formed by the ends of two conduits in which the end of a first of two conduits is telescopingly located within the end of a second of said two conduits, wherein one of the conduits has an annular outwardly-extending corrugation adjacent to, but spaced from, its end, said joint restrainer comprising:

(a) a retainer ring extending around and locked to one of said conduits by pressing against the corrugation,

(b) a clamping ring extending around the other of said conduits adjacent its end, said clamping ring consisting of two semi-circular elements having corresponding end flanges, each element having an inner cylindrical surface provided with serrations,

(c) first bolt means extending through the end flanges of the clamping ring for drawing the two semi-circular elements together and causing said serrations to bite into said other conduit for locking the clamping ring to said other conduit, and

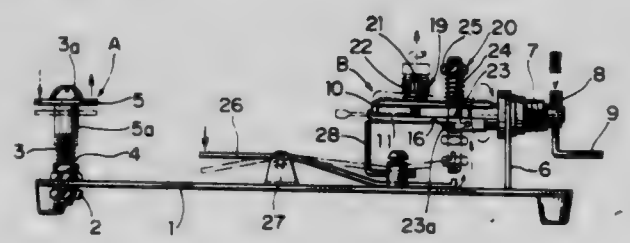
(d) second bolt means extending between the retainer ring and the clamping ring to prevent longitudinal movement of said one conduit away from said other conduit.

4,336,960

SNELL COILING DEVICE

Mikio Seki, No. 683-3, Fussa, Fussa-shi, Tokyo, Japan

Filed May 23, 1980, Ser. No. 152,579
Claims priority, application Japan, Feb. 1, 1980, 55-10298
Int. Cl.³ A01K *91/06*; D04G *5/00*
U.S. Cl. 289—17 7 Claims



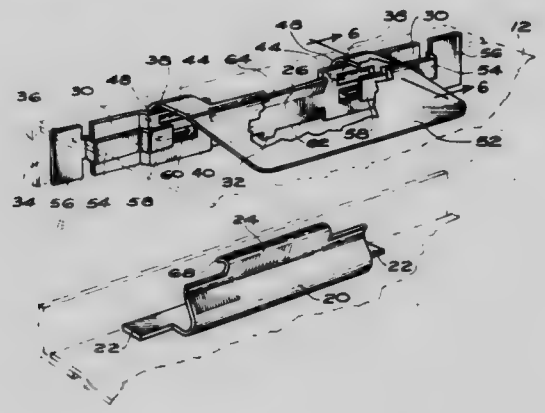
1. A device for securing a snell about a fish hook, comprising a base; snell holding means for holding one end portion of the snell and mounted on one end side of said base; fish hook holding means mounted on another end side of said base and having a lower plate and an upper plate to receive a fish hook therebetween and connecting means for adjustably connecting said lower plate to said upper plate, said fish hook holding means including means for engaging and positioning another end portion of the snell and operative for securing said another end portion, said lower plate being formed with a hole, said fish hook holding means further including a detachable pin which is inserted through said hole and is operative for holding a loop of the snell and for releasing said loop when said pin is removed from said hole; and securing means for securing said another end portion of the snell about the fish hook held between said upper and lower plates.

4,336,961

LATCH FOR A CASSETTE

Clark E. Harris, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 23, 1980, Ser. No. 152,871
Int. Cl.³ E05C *3/30*
U.S. Cl. 292—254 4 Claims



1. A latch for a cassette having a bottom panel, and a cover panel having a depending lip portion, the bottom and cover panels being movable between open and closed positions, comprising:

a catch member mounted on the cassette bottom panel;

a latch plate positioned parallel to and spaced from the lip portion of the cover panel and having a latch portion disposed such that its upper edge surface engages said catch member in the closed position of the cover panel to lock the cover panel in its closed position;

said latch plate further having an opening extending therethrough with the portion of said latch plate between said opening and said upper edge surface defining a hinge bar adjacent said opening; and

a latch operating lever pivotally mounted and solely supported between said hinge bar and said lip portion; said lever having an actuating part and being pivotal about said hinge bar to cause said actuating part to extend through said opening to engage said catch member and disengage it from said latch plate to unlock the cover panel.

4,336,962

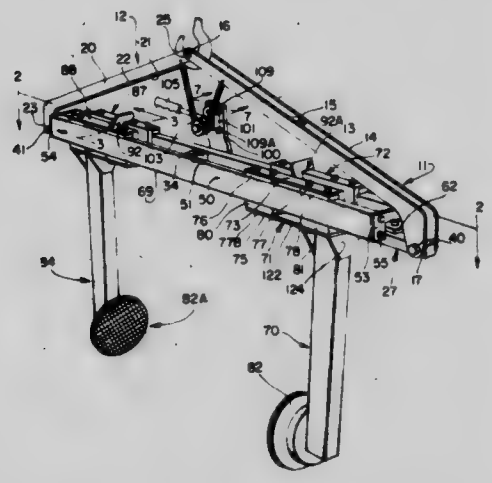
ADJUSTABLE LIFTING TONG

Owen R. Read, R.F.D. #1, Box 110, Chepachet, R.I. 02814

Filed Oct. 24, 1980, Ser. No. 200,531
Int. Cl.³ B66C *1/00*
U.S. Cl. 294—106 4 Claims

1. An adjustable lifting tong comprising a thrust bar consisting of a right side section and a left side section, a bracket, a slide bar fastened to said brace and extending on opposite ends, respectively, into said right side section and left side section to support sliding movement of said right end section and left end section toward and away from each other, a right side link member and a left side link member, a stud, means pivotally connecting said right side link member and said left said link member to said stud, a right side axial, means pivotally connecting said right side section and said right side link member to said right side axel, a second axial means pivotally connecting said left side section and said left side link member to said

second axial, a front horizontal rail, a rear horizontal rail, a right end plate securing said front rail and said rear rail in spaced relation, a left end plate securing said front rail and said rear rail in spaced relation on the end opposite said right end plate, a first bearing means fastened to said right end plate and interposed between said right end plate and said right side section, a second bearing means fastened to said left end plate and interposed between said left end plate and said left side section, means fastening said brace to said front horizontal rail and said rear horizontal rail, said right side section having right side ratchet teeth, said left side section having left side ratchet teeth, a right side gripping leg having a left side right end jaw slidably mounted upon said front horizontal rail, and a right side right end jaw slidably mounted upon said rear horizontal rail, a left side gripping leg having a left side left end jaw slidably mounted upon said front horizontal rail, and a right side left end jaw slidably mounted upon said rear horizontal



rail, a right side pawl pivotally mounted between said left side right end jaw and said right side right end jaw, resilient means resiliently holding said pawl in engagement with said right side ratchet teeth, a left side pawl pivotally mounted between said left side left end jaw and said right side left end jaw, a second resilient means resiliently holding said left side pawl in engagement with said left side pawl, a bracket fastened to said rear horizontal rail, a lever arm pivotally mounted to said bracket, a chain pulley pivotally connected to said lever arm, a handle fastened to said lever arm and a chain fastened on one end to said right side link member and on the other end to said left side link member with the medial arm of said chain engaging said chain pulley, whereby pivotal movement of said handle slidably moves said right hand section and said left hand section towards and away from each other and the, respectively, attached right side gripping leg and left side gripping leg toward and away from each other, simultaneously.

4,336,963

TRUCK BED LINER

Edwin L. Nix, 733 Tahlena Ave., and Bobby E. Davenport, 317 Beckley Dr., both of Madison, Tenn. 37115

Filed Feb. 21, 1979, Ser. No. 13,170

The portion of the term of this patent subsequent to Sep. 5, 1995, has been disclaimed.

Int. Cl.³ B62D *33/02*

U.S. Cl. 296—39 R **5 Claims**

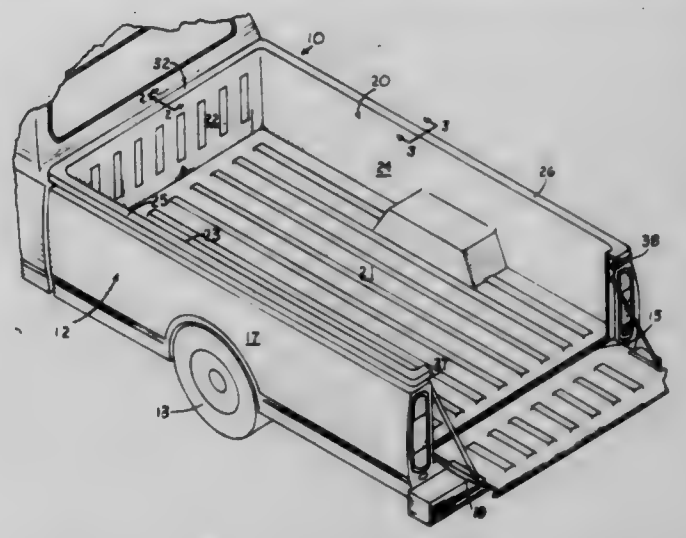
1. A protective liner for a rectangular truck bed having a bottom wall, a front wall, opposed side walls, and an open rear end, closable by a tailgate, each front wall and side wall having an interior surface, an exterior surface and a top ledge projecting outward from each interior surface and terminating in a free rim, comprising:

(a) an integral bottom liner wall, front liner wall and opposed side liner walls of continuous, semi-rigid material adapted to fit within the interior surfaces of the corresponding bottom wall, front wall and opposing side walls of the truck bed, in operative position,

(b) said side liner walls terminating in rear end portions spaced apart to form a rear opening to substantially conform with the open rear end of the truck bed, in operative position,

(c) each of said side liner walls having a top portion, and a hook-shaped flange integrally formed with, and projecting laterally outward from, said top portion,

(d) each of said hook-shaped flanges having a substantially transverse flange portion projecting outward across the



top ledge of the corresponding truck bed side wall, and an outer lip projecting downward from said flange portion outside of and substantially against the free rim of said corresponding truck bed wall, in operative position, and

(e) each of said hook-shaped flanges being substantially semi-rigid for fitting over said corresponding top ledge and free rim, to hold said side liner walls upon their corresponding truck bed side walls without any independent fastener member in operative position.

4,336,964

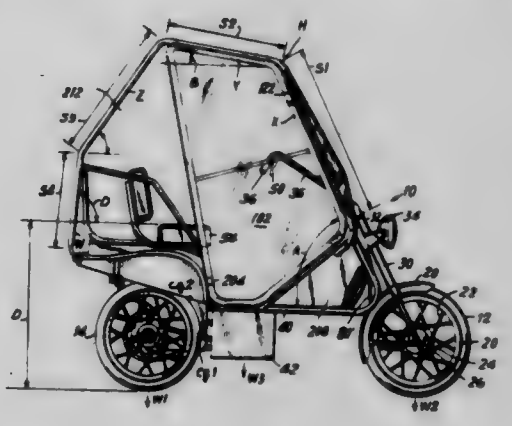
LIGHTWEIGHT CANOPY FOR THREE-WHEELED VEHICLE WITH LOW CENTER OF GRAVITY

Stuart Pivar, New York, N.Y., assignor to American Microcar Incorporated, Farmingdale, N.Y.

Continuation of Ser. No. 111,199, Jan. 11, 1980, which is a continuation-in-part of Ser. No. 963,282, Nov. 24, 1978, Pat. No. 4,237,995. This application Mar. 17, 1980, Ser. No. 131,165

Int. Cl.³ B60J *7/10*; B62J *17/00*

U.S. Cl. 296—78 R **10 Claims**



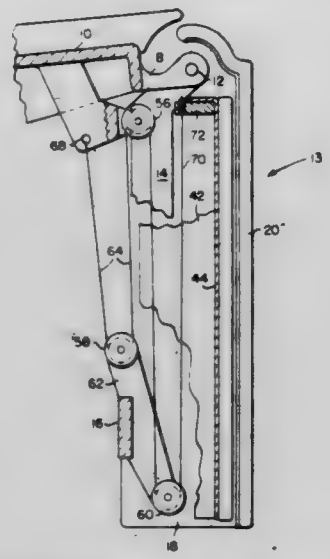
1. A lightweight canopy for the sheltering of passengers in a vehicle, said canopy comprising spaced and parallel tubular frame parts of inverted generally U-shaped configuration, said frame parts including front and rear extremities, a transverse connecting member connecting the rear extremities of said parts, the U-shaped parts including bight portions resiliently deflectable towards each other, and at least one flexible cover portion mounted between said bight portions when the latter are deflected towards each other, and held under tension with the bight portions released and thereby tending to assume normal positions of rest.

4,336,965

EXPANDABLE LEGREST FOR DENTAL CHAIRS

Herbert Lipp, Pfinztal, Fed. Rep. of Germany, assignor to Syntron Corporation, Rochester, N.Y.

Filed May 15, 1980, Ser. No. 150,087
Int. Cl.[3] A61G *15/00*; A47C *7/50*
U.S. Cl. 297—435 4 Claims



1. In a dental chair including a seat frame, a legrest pivotally connected to the forward end of the seat frame, a drive for moving the legrest about the pivot between generally vertical and horizontal limits of travel, an extension telescopically nested within the legrest and a cable and pulley system for moving the extension from its nested position as the legrest moves to its horizontal limit of travel, the improvement comprising:

(a) said pulley and cable system is a double block and tackle including

(i) a first pulley (**56**) journaled to the seat frame beneath and rearward of the pivot connection of the legrest to the seat frame,

(ii) second and third pulleys (**58**, **60**) journaled to the legrest, and

(iii) a cable (**64**) passing over said pulleys, one end of said cable being fixed to the seat frame adjacent said first pulley and the other end of said cable being fixed to the rear of the extension, the path of said cable being such that said first pulley occupies a position in the cable and pulley system which is intermediate said second and third pulleys;

(b) said drive includes a motor (**22**) and a driven member (**28**, **30**), said motor being pivotally connected at one end (**24**) to the seat frame beneath and rearward of the pivot connection of the legrest to the seat frame and said driven member being operatively connected to said motor and the legrest so that said motor and driven member both move between vertical and horizontal limits of travel when said motor is operated to raise and lower the legrest; and

(c) bias means acting between the legrest and extension for urging said extension to its telescopically nested position.

4,336,966

CRATERING IN THE DEEP CRATERING REGION TO FORM AN IN SITU OIL SHALE RETORT

Thomas E. Ricketts, Grand Junction, Colo., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

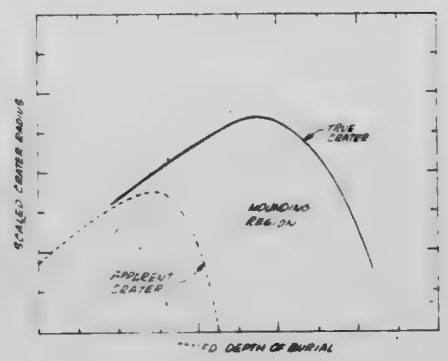
Continuation of Ser. No. 91,346, Nov. 5, 1979, abandoned. This application Oct. 14, 1980, Ser. No. 196,743
Int. Cl.[3] E21B *43/247*, *43/263*; E21C *41/10*
U.S. Cl. 299—2 75 Claims

55. A method for forming an in situ oil shale retort in a subterranean formation containing oil shale, the in situ oil shale retort containing a fragmented permeable mass of formation particles containing oil shale comprising the steps of:

excavating at least one void within the boundaries of the in situ oil shale retort being formed and leaving a zone of unfragmented formation above such a void having a horizontally extending free face over the void;

drilling a plurality of vertical blasting holes in the zone of unfragmented formation;

loading explosive charges in such blasting holes for forming an array of explosive charges having a ratio of spacing



distance to burden distance less than about one and sufficient explosive in each blasting hole to fragment formation substantially to a plane at the ends of such charges remote from the void, and an array scaled depth of burial in the range of from about 6 to 12 mm/cal$^{1/3}$; and

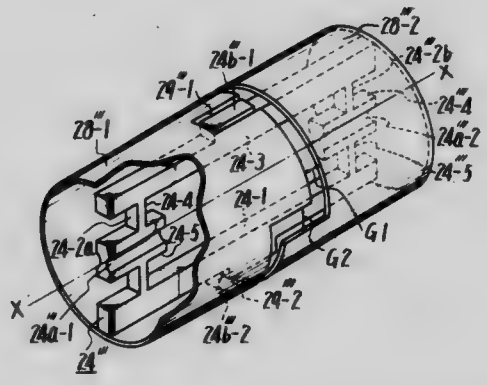
detonating such explosive charges for explosively expanding such zone towards the void for forming a fragmented permeable mass of formation particles in the retort.

4,336,967

BEARING APPARATUS

Takeshi Hojo, and Michio Fukano, both of Kuroiso, Japan, assignors to K.K. Tokyo Keiki, Tokyo, Japan

Filed Jan. 14, 1980, Ser. No. 111,670
Int. Cl.[3] F16C *11/12*
U.S. Cl. 308—2 A 1 Claim



1. A bearing apparatus comprising, a fixed portion, a rotary member, a first cylindrical member which is to be secured to said fixed portion and has a tubular axis coincidence with a rotation axis of said rotary member, a second cylindrical member which is to be secured to said rotary member and has a tubular axis coicidence with the rotation axis of the rotary member, first and second opposed bar members respectively attached to said first and second cylindrical members on the insides thereof and aligned with each other, two flexible members attached to said first and second opposed bar members at opposite ends thereof so as to form a single substantially rectangular frame body, each of said two flexible members having a pair of arms and elongated reduced cross-section portions aligned on the common center axis of said first and second cylindrical members so that flexure can occur on said central axis of said first and second cylindrical members on said common axis, said pair of arms of said first one of said two flexible members extending from the reduced cross-section portion on either side thereof to said first and second opposed bar member, said pair of arms of said second one of said two flexible members extending from the reduced cross-section portion on

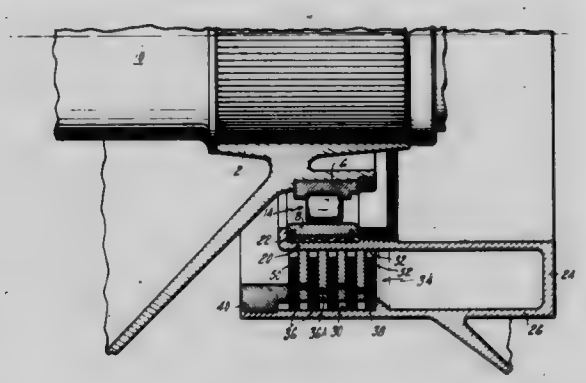
either side thereof to said first and second opposed bar members and said pair of arms of said two flexible members having a greater thickness in a direction lying in a plane lying in a diameter of said first and second cylindrical members than they have in a direction normal to said plane.

4,336,968

VISCOUS/FRICTION DAMPER

David H. Hibner, Colchester, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 11, 1980, Ser. No. 215,300
Int. Cl.³ F16C *27/04*
U.S. Cl. 308—26 **5 Claims**



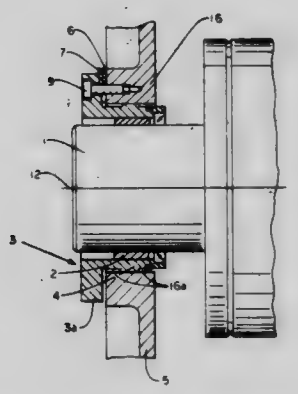
1. For a rotor rotatably supported by a bearing, first damping means having a fluid cavity and fluid therein surrounding said bearing and damping a first magnitude of vibrations, a second damping means having a plurality of axially juxtaposed circular plates surrounding said fluid cavity and being in friction relationship with each other, connection means serially interconnecting said first damping means and said second damping means including resilient means, said resilient means responding solely to a second magnitude of vibrations exceeding the first magnitude of vibrations for displacing alternate friction plates in a direction that is opposite and normal to each other.

4,336,969

JOURNAL BEARING

Peter Kahlert, Radebeul; Norbert Dittmann; Heiner Fink, both of Dresden; Frank Junker, Radebeul; Günter Lehmann, Coswig; Horst Schulz, Dresden; Hans Johne, Radebeul; Arndt Jentzsch, Coswig, and Werner Kühnert, Radebeul, all of German Democratic Rep., assignors to VEB Kombinat Polygraph "Werner Lamberz", Leipzig, Leipzig, German Democratic Rep.

Filed Jun. 2, 1980, Ser. No. 155,482
Claims priority, application German Democratic Rep., May 14, 1979, 212839
Int. Cl.³ F16C *35/02*
U.S. Cl. 308—61 **8 Claims**



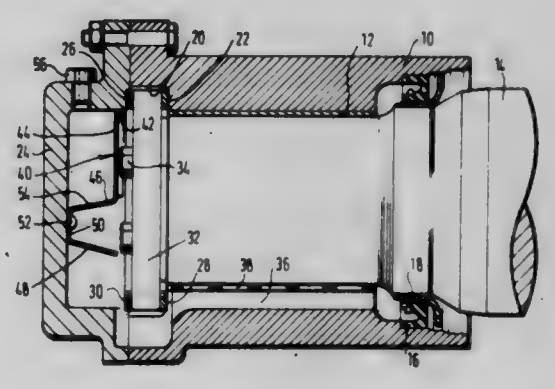
1. A journal bearing of a printing machine for supporting a shaft having a central axis in a bore of a frame, comprising a flanged bearing sleeve having a portion coaxially arranged to the shaft; and adjusting means for moving the flanged bearing sleeve relative to the frame so as to compensate for misalignments of the bore, said bore having a predetermined depth, said flanged bearing sleeve being formed with a projecting centering member integral with said portion of the sleeve and abutting said frame at the inner side thereof, said centering member having a width which is smaller than the predetermined depth of said bore so that two annular clearances are formed which are defined by the frame, the flanged bearing sleeve and the centering member.

4,336,970

BEARINGS

Norman F. Burkinshaw, Greenford, England, assignor to Vandervell Products Limited, Maidenhead, England

Filed Jun. 23, 1980, Ser. No. 161,819
Int. Cl.³ F16C *33/10*; B61F *17/30*
U.S. Cl. 308—79 R **8 Claims**



1. A bearing assembly for an axle comprising a housing having at least one cylindrical bearing liner mounted therein and having a cylindrical bearing surface to receive the axle from one end of the housing, sealing means at said one end of the housing to form a lubricant seal with the axle, oppositely facing annular thrust faces on the housing for engaging oppositely facing annular thrust faces on the axle, the housing including a hollow end cap at said other end providing a lubricant reservoir, a delivery passage extending from the reservoir to a bottom region of the bearing surface of the bearing liner to permit flow of lubricant from the reservoir to the liner, baffle means interposed between the inner surface of the end cap and the adjacent end of the axle including at least one deflector plate extending from the baffle to the interior surface of the end cap to define a space between the remainder of the baffle and the end cap, and breather means in said upper region of the end cap in communication with the atmosphere and with said space.

4,336,971

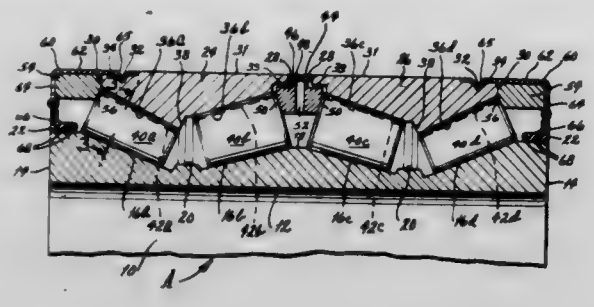
UNITIZED MULTIROW TAPERED ROLLER BEARING

Gerhard Reiter, Massillon, Ohio, assignor to The Timken Company, Canton, Ohio

Continuation of Ser. No. 971,919, Dec. 21, 1978, Pat. No. 4,235,485. This application Jul. 28, 1980, Ser. No. 172,816
The portion of the term of this patent subsequent to Nov. 25, 1997, has been disclaimed.
Int. Cl.³ F16C *33/78*
U.S. Cl. 308—187.2 **7 Claims**

1. A multirow bearing comprising: an inner race having a pair of tapered end raceways and at least one intermediate raceway located between the end raceways, the end raceways having their large ends presented away from each other and away from the intermediate raceway; an outer race having at least one intermediate raceway surrounding the intermediate raceway of the inner race and a pair of end raceways surrounding the end raceways of the inner race so that each raceway on the outer race surrounds and corresponds to a different raceway on the inner race; rollers arranged in rows between corresponding raceways of the inner and outer races, there being a

different row of rollers between each set of corresponding intermediate and end raceways; end rib rings located against the ends of the outer race and projecting inwardly past the large diameter ends of the end raceways such that the large ends of the rollers in the end rows abut against the end rib rings and are prevented from being expelled from the bearing by the



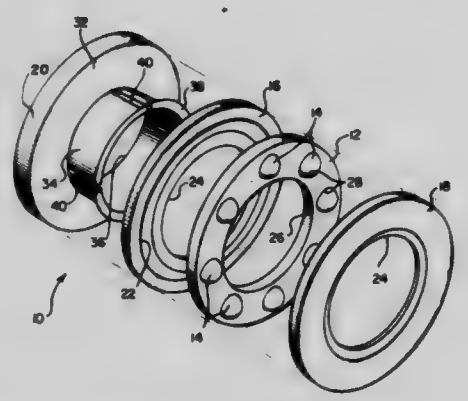
rib rings; seal cases fitted over the end rib rings, the seal cases being configured to capture the rib rings therein such that the rib rings cannot move axially away from the outer race and further being secured to the outer race to unitize the bearing for handling purposes; and sealing means on the seal cases for cooperating with the inner race to form barriers at the ends of the bearing.

4,336,972

UNITIZED BEARING ASSEMBLY

Richard T. Dagiel, Elk Grove Village, Ill., assignor to Aetna Bearing Company, Chicago, Ill.

Filed Mar. 27, 1980, Ser. No. 134,743
Int. Cl.³ F16C *19/00*
U.S. Cl. 308—233 **2 Claims**



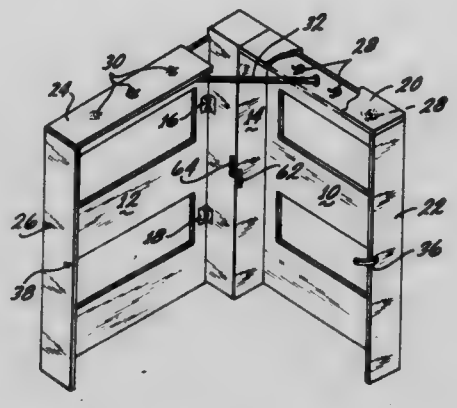
1. A unitized bearing assembly comprising: an annular retainer for arcuately positioning ball bearings in freely rotatable relationship and having a central aperture; a plurality of ball bearings assembled with said retainer; a pair of axially spaced race members, one said race member being disposed on each side of said retainer and engaging said ball bearings in rolling relationship, each said race member defining respective central apertures; and an assembly member including a radially extending, annular shoulder portion confronting one of said races in load-bearing relationship, a central aperture formed in said shoulder portion and defining a circular edge, and a cylindrical sleeve extending axially from said edge to define a shaft-receiving bore, said assembly member being fabricated from a resilient plastic material, and having one or more axially extending slots formed in said sleeve, said slots opening to the end of said sleeve remote from said shoulder portion, said end further including abutment means thereon confronting said shoulder, with said race members and said retainer member being snapped fitted over said sleeve, with said sleeve being received in the central apertures of said retainer and said race members, said sleeve flexing resiliently to permit said snap-fit assembly, with said abutment means engaging the other of said race members, such that said shoulder portion and said abutment means serve to maintain said race members and said retainer member on said sleeve and assembled, yet freely moveable relationship to enhance the friction reducing properties of said bearing.

4,336,973

FOLDING CLOTHES HANGER

Young Bae, 1947 S. Sherbourne Dr., No. 3, Los Angeles, Calif. 90034

Filed Aug. 4, 1980, Ser. No. 175,336
Int. Cl.³ A47B *43/00, 87/00*
U.S. Cl. 312—199 **10 Claims**



1. A folding clothes hanger including
a first wall member having a particular width,
at least one clothes hanger mounted on the first wall member at an upper position along the width,
a second wall member having a particular width,
at least one clothes hanger mounted on the second wall member at an upper position along the width, and
a central post portion for supporting the wall members at physically spaced positions and with both the first and second wall members extending from and attached to the central post portion at angularly spaced positions and with at least one of the first and second wall members pivotably mounted to the central post portion for providing for at least a closed position with the first and second wall members lying substantially parallel to and spaced from each other and an upright open position with the first and second wall members lying at an angular relationship to each other and with the clothes hanger supported in the upright open position by the wall members.

4,336,974

COAXIAL ROTARY JOINT

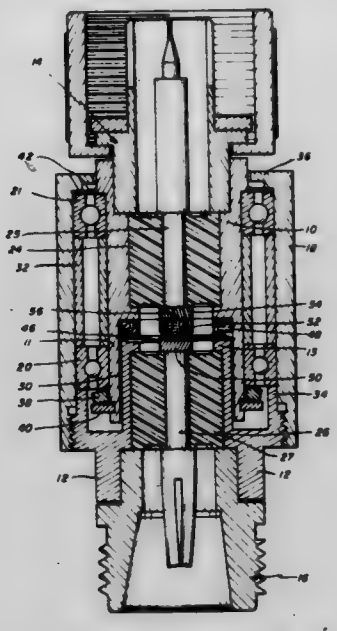
Ronald A. Wilson, Medway, Mass., assignor to Microwave Development Labs. Inc., Needham, Mass.

Continuation-in-part of Ser. No. 959,863, Nov. 13, 1978, abandoned. This application Feb. 13, 1980, Ser. No. 121,269
Int. Cl.³ H01R *5/02*
U.S. Cl. 339—8 R **22 Claims**

1. A rotary coaxial electrical connector associated with inner and outer coaxial conductors and comprising:
means defining a first member having a pair of conductive contacts supported thereby and associated respectively with said inner and outer conductors,
means defining a second member having a pair of conductive means supported thereby and associated respectively with said inner and outer conductors,
means intercoupling the first and second members in axial position but permitting relative rotation therebetween,
and conductive and resilient spring means including inner and outer contact springs positioned respectively intermediate the conductive contacts and conductive means making electrical contact therebetween, each contact spring including a bowed surface member for contacting the associated conductive contact,
said spring means being constructed of a relatively hard, wear resistant conductive metal substrate covered with a

highly electrically conductive, less wear-resistant metal layer,

whereby said spring means has, after a period of wear-in, a segment of the metal layer worn away to provide direct contact at said segment between the metal substrate and the conductive contact, providing, however, about the



segment direct contact between the metal layer and the conductive contact thus providing a low noise contact,

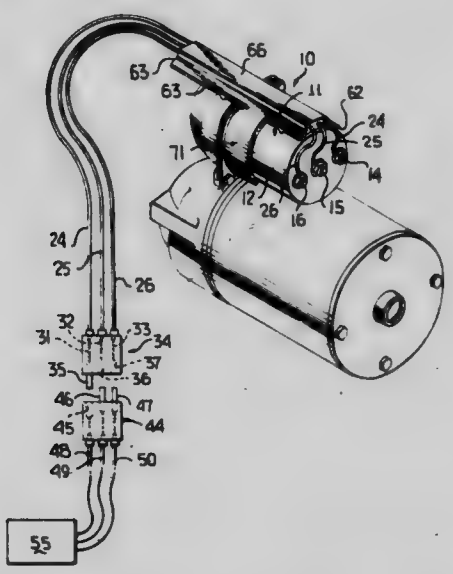
said contact springs both being supported between the conductive contacts and conductive means in a free floating position and secured substantially only by the spring compressing forces imposed via said conductive contacts and conductive means.

4,336,975

AUTOMOTIVE ELECTRICAL HARNESS

Ronald C. Casteel, 2891 Glen Echo Dr., Lizella, Ga. 31052

Filed Mar. 27, 1980, Ser. No. 134,421
Int. Cl.³ H01R *11/32*
U.S. Cl. 339—28 **11 Claims**



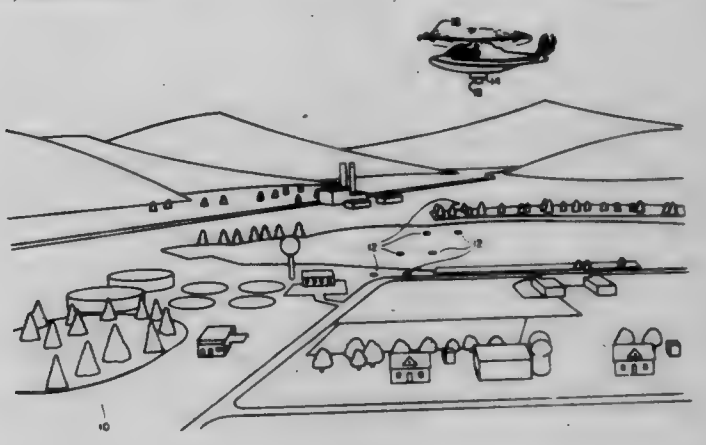
1. The combination of an electric powered automotive engine starter, an automotive engine starter electrical solenoid, an automotive electrical power source and a harness, said harness being carried by said electrical solenoid and including a body, said body including means for securing said harness to said automotive engine starter solenoid, at least one electrical conductor carried by said body and terminating in opposite free end portions, one of said free end portions defining a first electrically conductive terminal, said first electrically conductive terminal being connected to an associated electrical terminal of said automotive engine starter solenoid, another of said free end portions defining a second electrically conductive terminal, said second electrically conductive terminal being of the quick disconnect type, and said first quick disconnect conductive terminal being electrically connected to said automotive electrical power source.

4,336,976

HOLOGRAPHIC STORAGE OF TERRAIN DATA

Alfred H. Rodemann, Maitland, and Denis R. Breglia, Altamonte Springs, both of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 20, 1979, Ser. No. 59,922
Int. Cl.³ G03H *1/26*
U.S. Cl. 350—3.75 **4 Claims**



1. A method for the holographic storage of terrain data for use as a visual data base in a flight simulator utilizing a holographic retrieval system, comprising the steps of:

selecting as a terrain surface an area of real world terrain;

defining a set of points forming a matrix of perspective points, each point being vertically displaced a predetermined distance above said terrain surface and being horizontally displaced a known distance from all other points of said matrix having a like vertical displacement from said terrain surface;

recording on a photographic film a plurality of photographic images, each of which is a recording of said terrain surface made at one point of said matrix;

generating a collimated monochromatic laser light beam;

splitting said collimated monochromatic laser light beam into a reference laser light beam and an object laser light beam;

expanding said reference laser light beam to a predetermined cross-sectional area so that said expanded reference laser light beam may be directed onto a holographic recording material;

filtering said expanded reference laser light beam so as to minimize the coherent noise therein;

expanding said object laser light beam to a predetermined cross-sectional area so that said expanded laser light beam may be directed onto said photographic film and transmitted therethrough;

filtering said expanded object laser light beam so as to minimize the coherent noise therein;

directing said expanded reference laser light beam onto said holographic recording material;

directing said expanded object laser light beam onto said photographic film wherein said expanded object laser light beam is transmitted through said photographic film;

directing said expanded object laser light onto said holographic recording material thereby interfering said expanded reference laser light beam and said expanded object laser light beam for recording on said holographic recording material a hologram based on an interference pattern associated with one of said photographic images;

adjusting with fine tuning the position of said photographic film so as to allow for the recording of each of the photographic images thereon upon said holographic recording material;

varying the location at which said expanded object and reference laser light beams are directed onto said holographic recording material; and

varying the angle of inclination of said holographic recording material such that several holograms may be multiplexed upon each location of said holographic recording material, with each location of said holographic recording material having recorded thereon the holograms of one of the matrix of perspective points of said terrain surface.

4,336,977

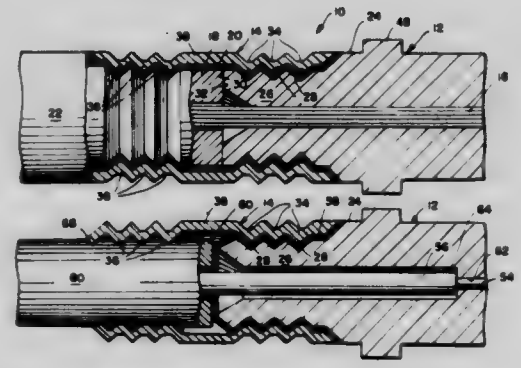
CRIMPED CONNECTOR ASSEMBLY FOR FIBER OPTIC CABLES

Kevin J. Monaghan, Middlebury, and Russell C. Schwickert, Newtown, both of Conn., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Continuation of Ser. No. 939,519, Sep. 5, 1978, abandoned. This application Sep. 24, 1980, Ser. No. 190,279

Int. Cl.³ G02B *5/14*

U.S. Cl. 350—96.20 **29 Claims**



1. A connector assembly for one or more single optical fibers of a fiber optic cable or the like which has a strength member therein, comprising:

a connector body for receiving said one or more single optical fibers of the fiber optic cable, said connector body having a rear end portion over which the strength member of said fiber optic cable is positionable, said rear end portion being provided with one or more annular crimp receiving grooves;

a ferrule member positionable over the grooved rear end portion of said connector body for crimpting said strength member between the ferrule member and the grooved rear end portion of said connector body, said ferrule member having one or more ribs nested in the grooves of said connector body after crimping, and wherein

each of said grooves cooperates with one of said ribs to provide a plurality of crimping diameters therebetween.

4,336,978

METHOD FOR OPTICALLY MAKING A DIFFUSION PLATE

Takashi Suzuki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 20, 1979, Ser. No. 105,884

Claims priority, application Japan, Dec. 26, 1978, 53/164147; Dec. 27, 1978, 53/165863

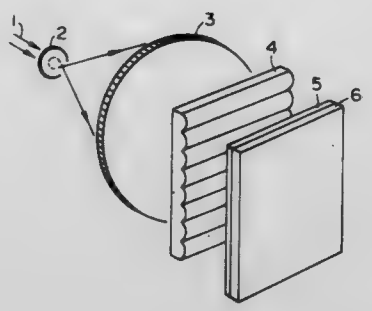
Int. Cl.³ G02B *5/02*

U.S. Cl. 350—167 **6 Claims**

1. A method for optically making a diffusion plate comprising the steps of:

illuminating an object having a regular macrostructure and an irregular microstructure with coherent light;

directing the light coming from said object without imaging said objects, onto a recording material to form a speckle pattern thereon; and



subjecting said recording material to a treatment so as to obtain a diffusion plate.

4,336,979

MOUNTING SYSTEM FOR OPTICAL LENS ASSEMBLY

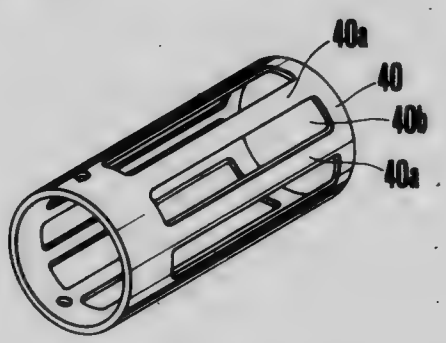
Masahide Hamatani, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 5,465, Jan. 22, 1979, Pat. No. 4,269,479. This application Feb. 18, 1981, Ser. No. 235,703

Claims priority, application Japan, Feb. 2, 1978, 53-11728[U]

Int. Cl.³ G02B *7/04*

U.S. Cl. 350—255 **7 Claims**



1. In a mounting mechanism for an optical system of lenses including inner lens barrel means and outer lens barrel means coupled together for relative movement therebetween in longitudinal directions thereof, the improvement comprising lubricating means interposed between said inner and outer lens barrel means, said lubricating means being arranged between the external surface of said inner lens barrel means and the internal surface of said outer lens barrel means and being affixed relative to one of said lens barrel means to prevent at least axial movement thereof relative to the lens barrel means upon which it is affixed, said lubricating means being constructed in the form of a tubular member inserted between said inner lens barrel means and said outer lens barrel means, said tubular member having slide contact portions adapted to engage in lubricated sliding contact with at least one of said external surface of said inner lens barrel means and said internal surface of said outer lens barrel means, said tubular member including means for effecting compressed engagement of said tubular member between said inner and outer lens barrel means in order to provide a resilient force acting therebetween.

4,336,980

FLUORESCENT LIQUID CRYSTAL DISPLAY DEVICES

Fumiaki Funada, Yamatokoriyama; Masataka Matsuura, Tenri, and Tomio Wada, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 13, 1980, Ser. No. 120,994

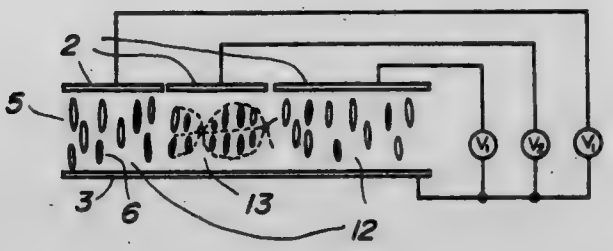
Claims priority, application Japan, Feb. 15, 1979, 54-16842

Int. Cl.³ G02F *1/13*

U.S. Cl. 350—345 **3 Claims**

1. A transformation-type display device comprising liquid crystal mixtures inclusive of a fluorescent material comprising:

a pair of electrodes;
a pair of substrates, each carrying one of said electrodes;
A liquid-crystal mixture containing fluorescent material dissolved or dispersed therein supported by said pair of substrates, said liquid-crystal mixture comprising a cholesteric liquid-crystal material formed in focal-conic textures in a cholesteric mesophase at a display area and in homeotropic orientation in a nematic mesophase at a background area opposed to said display area; and
means for placing said liquid-crystal mixture in such a molecular orientation that, in a selected portion of the pair of electrodes, the fluorescent material generates no fluorescence and, accordingly, no fluorescence penetrates through the liquid-crystal mixture.

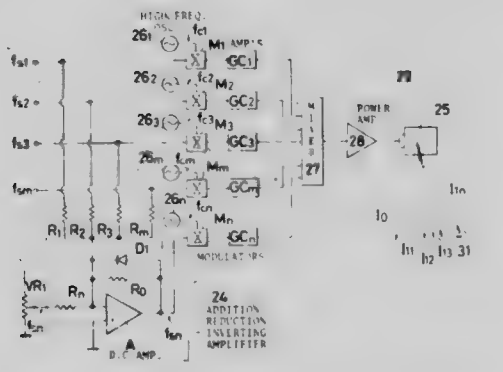


4,336,981

SIMULTANEOUS MULTI-BEAM OPTICAL MODULATION SYSTEM

Masaaki Mori, Kawasaki, Japan, assignor to Ricoh Co., Ltd., Japan

Division of Ser. No. 954,533, Oct. 25, 1978, Pat. No. 4,269,482. This application Jul. 25, 1980, Ser. No. 172,148
Claims priority, application Japan, Oct. 25, 1977, 52-127857
Int. Cl.³ H04B 9/00
U.S. Cl. 350—358 **7 Claims**



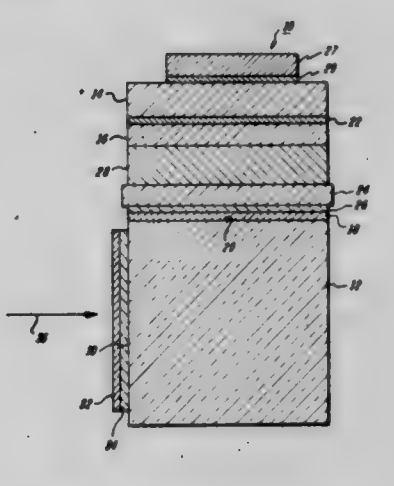
1. In a simultaneous multi-beam optical modulation system having a signal source for producing a plurality of image signals, a plurality of amplitude modulators connected to the signal source each for modulating one of the image signals, a high-frequency carrier oscillator connected to each of the modulators for producing a carrier to modulate each image signal, and an acoustic optical element for deflecting light connected to each of the amplitude modulators for producing a plurality of output light beams each corresponding to one of the image signals, the improvement comprising, addition-reduction inverting means connected to the signal source for receiving each of the image signals, setting voltage means connected to said addition-reduction inverting means for supplying a setting voltage which is of opposite polarity to the image signals, the signal voltage being applied to said addition-reduction inverting means, said setting voltage being provided for setting an overall deflection efficiency of the acoustic optical element, means in said addition-reduction inverting means for adding said setting voltage to the image signals to produce a sum and inverting said sum to produce a dummy signal, an assigned amplitude modulator connected to said addition-reduction inverting means for receiving said dummy signal, a high-frequency carrier connected to said assigned amplitude modulator for modulating said dummy signal and gain control means connected between each of said amplitude modulators and the acoustic optical element for adjustably amplifying each of said modulated image signals to equalize the intensity of the output light beams produced by the acoustic optical element.

4,336,982

MgF_2 COATING FOR PROMOTING ADHERENCE OF THIN FILMS TO SINGLE CRYSTAL MATERIALS

Malcolm B. Rector, Jr., Arcadia, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 4, 1980, Ser. No. 174,972
Int. Cl.³ G02F 1/11
U.S. Cl. 350—358 **6 Claims**



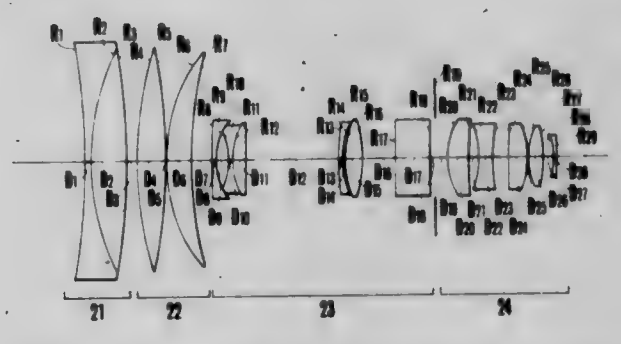
1. An acousto-optic device comprising:
a single crystal material having at least first and second surfaces:
a transducer element;
an adhesion promoting layer of magnesium fluoride overlying said first crystal surface;
a layer of bonding material interposed between said transducer element and said adhesion promoting layer; and
means for electrically driving said transducer element whereby an elastic wave is produced in said crystal material.

4,336,983

PHOTOGRAPHIC OBJECTIVE STABILIZED AGAINST CHANGE OF ANGULAR FIELD DURING FOCUSING

Kazuo Tanaka, Tokyo, and Sadahiko Tsuji, Yokohoma, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 19, 1979, Ser. No. 105,089
Claims priority, application Japan, Nov. 25, 1978, 53-163546; Nov. 20, 1979, 54-150244
Int. Cl.³ G02B 15/18
U.S. Cl. 350—427 **3 Claims**



1. A photographic object having an angular field prevented from varying during focusing, comprising:
a first lens group, counting from the front of the lens, movable for focusing;
a second lens group and a third lens group which are stationary during focusing; and
a diaphragm arranged between said second lens group and

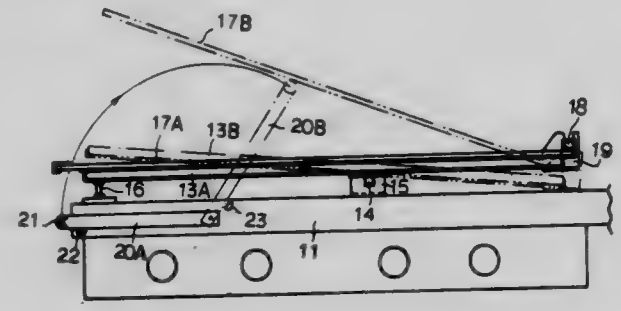
said third lens group, and a back focal point of combined lens system of said second and third lens groups being made coincident with the point of the exit pupil of the entire lens system so that the change of angular field in the object space during focusing is reduced.

4,336,984

APPARATUS FOR HOLDING A COPY IN REPRODUCTION CAMERA

Shozi Komatsubara, and Masanori Katayama, both of Hikone, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan

Filed Apr. 11, 1980, Ser. No. 139,170
Claims priority, application Japan, May 4, 1979, 54-59813[U]
Int. Cl.³ G03B *27/62*
U.S. Cl. 352—75 **5 Claims**



1. An apparatus for positioning a copy in a reproduction camera having an optical axis inclined from the vertical, said copy positioned in a horizontal position for set-up and in an inclined position perpendicular to said optical axis during exposure, comprising:

carrier means mounted for axial movement along said optical axis;

holding means mounted on said carrier means for receiving said copy;

means for pivotally connecting said carrier means to said holding means so that said holding means pivots on said carrier means with respect to said optical axis;

cover means mounted on said holding means for securing said copy flat against said holding means for exposure in a closed position and for permitting removal of said copy from said holding means for set-up in an open position; and

mounting means for pivotally connecting said holding means to said cover means so that the centroid of said cover means, said holding means, and said mounting means is located between said pivotal means and said mounting means when said cover means is in said open position and opposite said mounting means and said pivotal means when said cover is in said closed position.

4,336,985

CAMERA WITH MACRO-PHOTOGRAPHIC SYSTEM

Hiroshi Iwata, Nara; Tetsuo Yamaoka, and Akitoshi Morioka, both of Osaka, all of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

Filed Apr. 1, 1981, Ser. No. 249,884
Claims priority, application Japan, Apr. 10, 1980, 55-47870
Int. Cl.³ G03B *3/00, 15/05*
U.S. Cl. 354—145 **10 Claims**

1. A camera with a macro-photographic system of the type including

a plurality of light apertures formed through a wall of a camera body for admitting the light rays from an object into the camera body,

a macro-photographic lens system optically coupled to a first one of said light apertures,

a standard photographic lens system optically coupled to a second one of said light apertures,

a lens system selection means for selecting either the macro-photographic lens or the normal photographic lens,

a first viewfinder system which is used in the case of macro-photography and which is optically coupled to the macro-photographic lens system and to a first viewing aperture formed through a wall of the camera body,

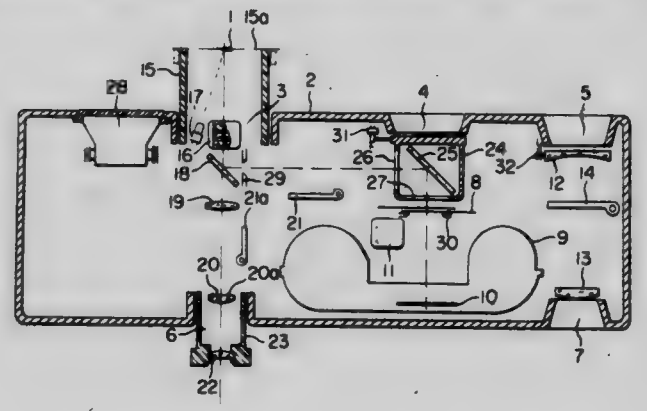
a second viewfinder system which is used in the case of normal photography and which is optically coupled to the normal photographic lens system and to a second viewing aperture formed through the wall of the camera body,

a luminous source disposed within the camera body for illuminating an object, and

an electronic flash disposed in the camera body for lighting an object,

characterized in that

said lens system selection means includes a mirror box (24) with a first light aperture through which pass the light rays emerging from the macro-photographic lens system, a reflecting mirror for totally reflecting the light rays passed through the first aperture of the mirror box and a second light aperture through which pass the light rays reflected by said reflecting mirror; and



said mirror box is selectively movable between a macro-photographic position and a normal photographic position,

said macro-photographic position being such that the mirror box permits the transmission of the light rays passed through said second light aperture of said mirror box to a shutter mechanism, but prevents the light rays passed through said second light aperture of said camera body to said normal photographic lens system, and

said normal photographic position being such that said mirror box prevents the transmission emerging from the macro-photographic lens system to said shutter mechanism, but permits the transmission of the light rays passed through said second light aperture of said camera body to said normal photographic lens system.

4,336,986

CAMERA HAVING AN INDEPENDENTLY FOCUSED RETRACTABLE OBJECTIVE LENS

Claus Prochnow, Brunswick, Fed. Rep. of Germany, assignor to Rollei-Werke Franke & Heidecke GmbH & Co. KG, Brunswick, Fed. Rep. of Germany

Filed Jul. 2, 1980, Ser. No. 164,497
Claims priority, application Fed. Rep. of Germany, Sep. 4, 1979, 2935588
Int. Cl.³ G03B *3/00, 17/04*
U.S. Cl. 354—187 **8 Claims**

1. A camera including a camera housing, an objective lens having an image axis and a shutter release mechanism, said camera further including:

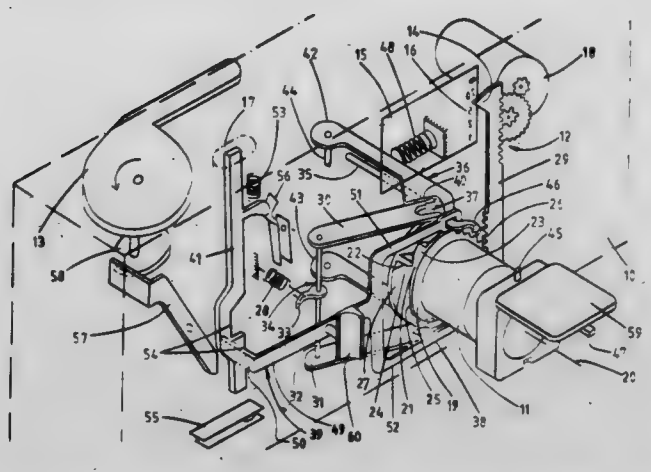
means for setting a focal range of said camera;

means for mounting said objective lens for movement substantially parallel to said image axis, between an extended exposure position and a retracted storage position;

means for variably limiting axial movement of said mounting means in said extended position;

means, responsive to said range setting means, for varying said limiting means; and

means for variably biasing said mounting means towards said extended position, such that said mounting means is less



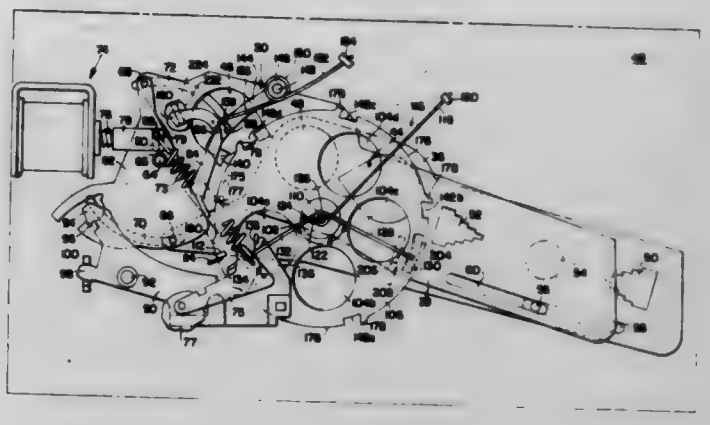
strongly biased toward said extended position during operation of said varying means and more strongly biased toward each extended position during operation of shutter release mechanism.

4,336,988

CAMERA WITH LENS DISC DRIVE SYSTEM

Bruce K. Johnson, Andover, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1981, Ser. No. 222,011
Int. Cl.³ G03B *13/18, 9/08*
U.S. Cl. 354—197 **8 Claims**



1. A camera having means for defining a film plane, said camera comprising:

a plurality of discrete lens elements each having a different focal length;

means for holding said plurality of lens elements in circumferentially spaced apart relation with respect to each other for rotation about a center axis, rotation of said lens holding means from an initial position operating to sequentially move each of said lens elements into position to focus an image onto the camera film plane of a photographic subject located within a different corresponding camera-to-subject distance range;

a blade mechanism;

means for mounting said blade mechanism for displacement between one arrangement in which said blade mechanism blocks transmission of scene light to the film plane and another arrangement in which said blade mechanism unblocks transmission of scene light to the film plane;

actuable drive means for displacing said blade mechanism between its said one and another arrangements to define an exposure interval;

a torsion spring having an acceleration arm configured to be releasably held at cocked energy storing initial position and upon release to move to a terminal position, said acceleration arm operating during such movement from said initial to said terminal position to engage said lens holding means and effect rotation thereof to sequentially move each of said lens elements into focusing position; and

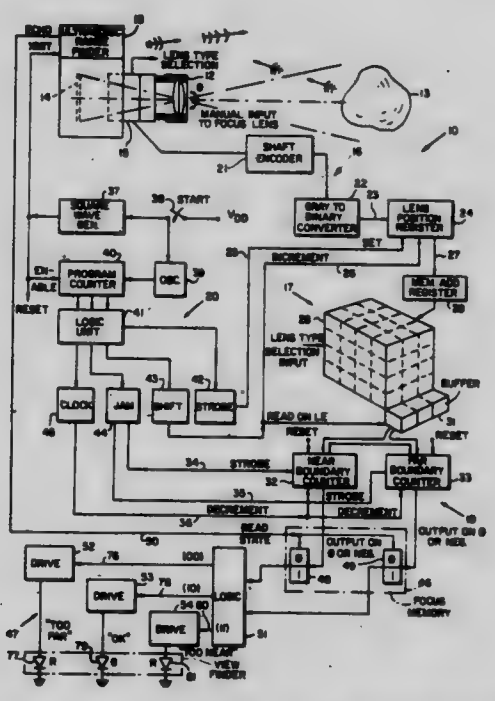
means for releasably latching said blade mechanism in its said scene light blocking arrangement and also for releasably holding said acceleration arm in said cocked initial position, said blade latching and acceleration arm holding means being movable from a blade mechanism latching position to a blade mechanism unlatching position to enable said drive means to displace said blade mechanism between said blocking and said unblocking arrangements, said movement from said latching to said unlatching position simultaneously operating to release said acceleration arm for movement from said initial cocked position to said terminal position to effect rotation of the lens holding means.

4,336,987

CAMERA EMPLOYING ZONE FOCUSING

Edwin K. Shenk, Westford, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 22, 1980, Ser. No. 218,813
Int. Cl.³ G03B *3/10*
U.S. Cl. 354—195. **28 Claims**



1. In photographic apparatus having a movable lens whose position at which a subject is in focus is a function of subject distance, means for sensing the position of the lens, and ranging means for determining the distance of a given subject from the apparatus, the improvement comprising:

means for determining, in accordance with the sensed position of the lens, a focal zone defining a range of distances within which a subject must be located to be properly focused when the lens is in the sensed position; and

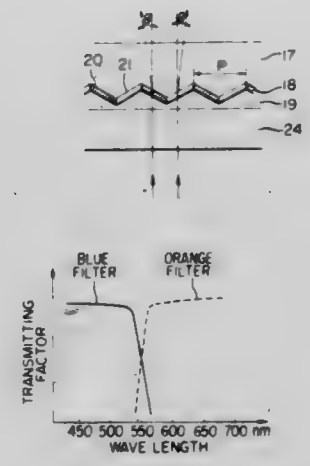
means for comparing the subject distance to said focal zone and for providing an error signal indicative of the relationship between the subject distance and said zone.

4,336,989

FOCUSING SCREEN

Susumu Matsumura, Kawasaki, and Takashi Suzuki, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 24, 1980, Ser. No. 209,491
Claims priority, application Japan, Nov. 29, 1979, 54-154727; Nov. 29, 1979, 54-154728
Int. Cl.³ G03B *13/24*
U.S. Cl. 354—200 8 Claims



1. In a coincidence type range finder system having an objective lens for forming an image in a primary image plane, a focusing screen for indicating the focus condition of the image comprising:

a light diffracting means comprising a plurality of optically asymmetric unit structures periodically arranged substantially in said plane, said light diffracting means diffracting light components of different wavelengths of the incident light beam from said objective lens in different directions,

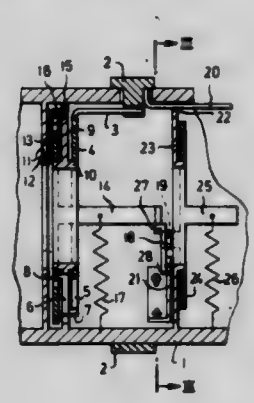
whereby when said objective lens does not form the image on said plane, a plurality of images colored in different colors are viewed in the range finder.

4,336,990

DIAPHRAGM CONTROL SYSTEM

Werner Flöther, Aalen, Fed. Rep. of Germany, assignor to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

Filed Nov. 4, 1980, Ser. No. 203,995
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944888
Int. Cl.³ G03B *9/02, 7/20*
U.S. Cl. 354—272 5 Claims



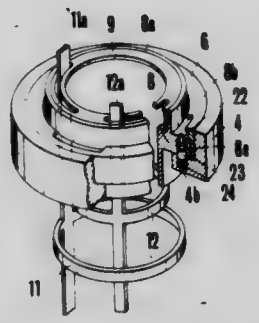
1. A diaphragm control system for a diaphragm forming part of an interchangeable assembly for mounting on a camera of the type having automatic diaphragm aperture setting mechanism, said diaphragm including blades movable to vary the aperture of the diaphragm and a slotted ring member rotatable for moving said blades, said control system comprising a control finger member mounted on said assembly and engaging with the automatic diaphragm aperture setting mechanism of the camera on which the assembly is mounted, said finger member being operatively connected to said ring member, and means for converting a linear movement of one of said members into a non-linear movement of the other of said members.

4,336,991

EXPOSURE MODE CHANGEOVER DEVICE FOR INTERCHANGEABLE LENS MOUNTING

Takashi Isobe, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,419
Claims priority, application Japan, Jan. 19, 1979, 54-5808[U]
Int. Cl.³ G03B *17/14*
U.S. Cl. 354—286 7 Claims



1. An interchangeable lens assembly capable of changing the exposure mode thereof between a first exposure mode and a second exposure mode comprising:

(a) lens barrel means having coupling means for engagement with complementary coupling means of a camera to mount the interchangeable lens assembly on the camera;

(b) adapter means arranged to be rotatable relative to the lens barrel means, the adapter means and the lens barrel means being arranged to maintain a predetermined spatial relationship therebetween when the interchangeable lens assembly is detached from the camera;

(c) operation means for enabling selective changeover between the first exposure mode and the second exposure mode of the lens assembly; and

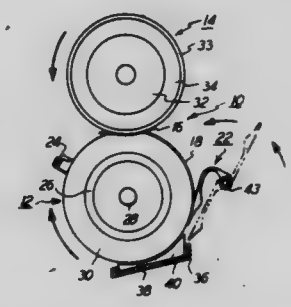
(d) transmitting means, supported by the adapter means, for transmitting the selected exposure mode of the lens assembly to the camera on the basis of the selecting operation of the operation means.

4,336,992

APPARATUS FOR REMOVING COPY SHEETS FROM A ROLL FUSER

Thomas F. Szlucha, Fairport, and Clifford O. Eddy, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 19, 1980, Ser. No. 150,767
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 FU 4 Claims



1. In a roll fuser apparatus comprising a deformable fuser roll and a heat source for elevating the surface temperature thereof, said fuser roll cooperating with a backup roll to form a nip through which copy sheets carrying toner images pass with the images contacting the heated fuser roll, and further comprising apparatus for separating said sheets from said heated fuser roll, the improvement comprising:

at least one flexible stripper member supported in contact with said heated fuser roll;

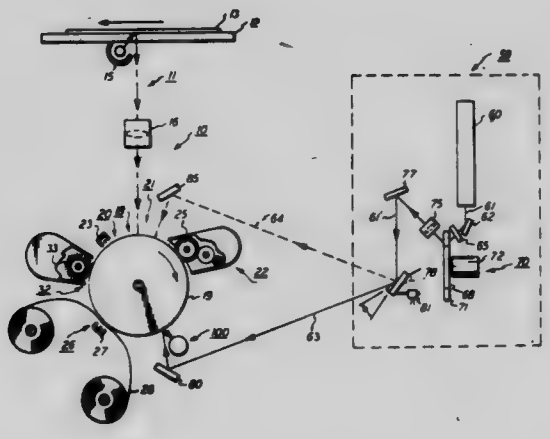
a stationary support shaft supporting said stripper member for 360° of rotation about said shaft and supporting said at least one flexible stripper member radially immovable with respect to said shaft, said at least one flexible stripper member being sufficiently flex ible whereby it can be deflected by said heated fuser roll and rotated thereby through a portion of said 360° and moved ou t of contact with said heated fuser roll, said stripper member being adapted to be manually rotated through the remaining portion of said 360° whereby it again contacts the surface of said heated fuser roll.

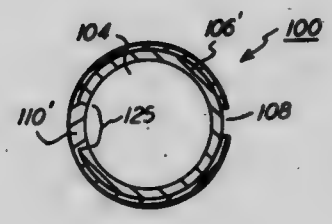
4,336,993

LIGHT COLLECTOR ROD FOR USE IN XEROGRAPHIC SYSTEMS

Martin E. Banton, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 2, 1980, Ser. No. 183,122
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 R 5 Claims





1. A light collector for use with a flying spot scanner adapted to raster scan images developed on the photoconductive surface of a xerographic type copying apparatus, said collector being disposable opposite said photoconductive surface to collect light reflected from said photoconductive surface when scanning images developed on said photoconductive surface, the improvement comprising:

(a) a transparent central core;

(b) a layer of cladding material covering the periphery of said core except for a first slit-like aperture, the axis of said first aperture extending in a direction substantially parallel to the axis of said core;

(c) a layer of light diffusing material covering the outer periphery of the portion of said core exposed at said first aperture and covering the outer periphery of said cladding material except for a second slit-like aperture substantially opposite said first aperture, said second aperture extending in a direction substantially parallel to the axis of said core and permitting light reflected from said photoconductive surface to enter said collector; and

(d) a photosensor at at least one end of said collector, said photosensor being operatively coupled to said collector to enable said photosensor to sense light transmitted axially along said core whereby to provide image signals representative of the image scanned,

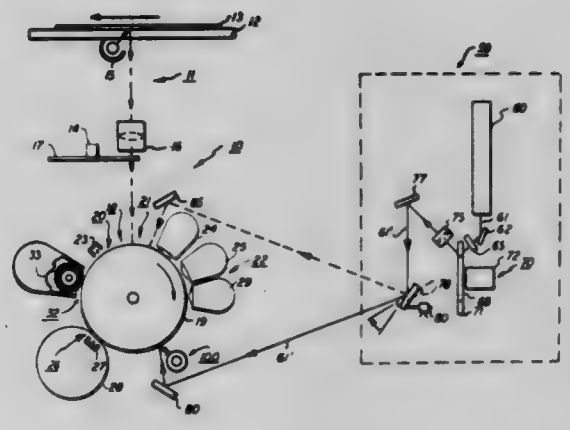
light reflected from said photoconductive surface passing through said second aperture and said cladding material and through said core to strike said light diffusing material at said first aperture, said light diffusing material diffusing said light and reflecting said light back into said core, a portion of the diffused light in said core being reflected by said cladding material axially along said core to said photosensor.

4,336,994

MULTI-MODE COLOR COPIER

Martin E. Banton, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 24, 1980, Ser. No. 210,086
Int. Cl.³ G03G *13/01*
U.S. Cl. 355—4 13 Claims



1. A multi-mode color copier having a photoconductive member defining multiple picture elements for recording electrostatic images, said copier comprising:

(a) multiple filter means for transmitting multiple color separated images from an original to the photoconductive member,

(b) multiple developer means for developing picture elements on said photoconductive member, one of said multiple developers for developing each of said multiple color separated images,

(c) means for sequentially transferring developed color separated images from said photoconductive member to a copy sheet to form a composite color image on said copy sheet,

(d) scanning input means for scanning color developed picture elements comprising said photoconductive member and generating color separated video signals for each of said picture elements, and

(e) scanning output means for creating color separated latent images on said photoconductive member for development by said multiple developer means prior to transfer to copy sheet by said means for transferring or prior to scanning by said scanning input means.

4,336,995

PRECESSION SCANNING SYSTEM FOR COPIER DEVICE

John A. Durbin, Webster, and David K. Shogren, Ontario, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

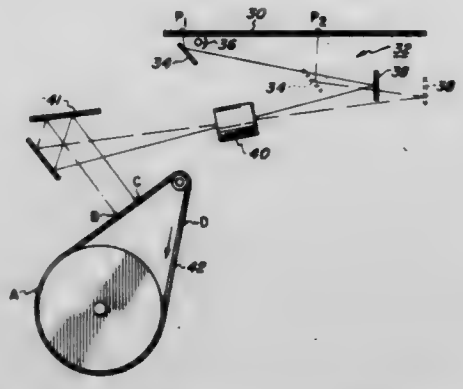
Filed Sep. 24, 1980, Ser. No. 190,160
Int. Cl.³ G03G *15/28*
U.S. Cl. 355—8 8 Claims

1. A scanning system for projecting light images of a stationary object at an object plane along an optical path onto a flat photoreceptor in an image plane including

means for moving said photoreceptor at a first rate of speed V_3,

illumination means adapted to scan said object at a second rate of speed V_1 greater than that of said photoreceptor speed, and

a scanning projection lens positioned along the optical path between said illumination means and said photoreceptor, and moving at a third rate of speed V_2 less than said first and second rates,



whereby said scanned image is projected through said lens and imaged, in precession fashion, onto said photoreceptor in a direction opposite to the direction of travel of said photoreceptor.

4,336,996

VARIABLE-FOCAL-LENGTH OBJECTIVE AND AN OPTICAL SYSTEM EQUIPPED WITH OBJECTIVES OF THIS TYPE FOR THE PRODUCTION OF SPECIAL EFFECTS ON FILM

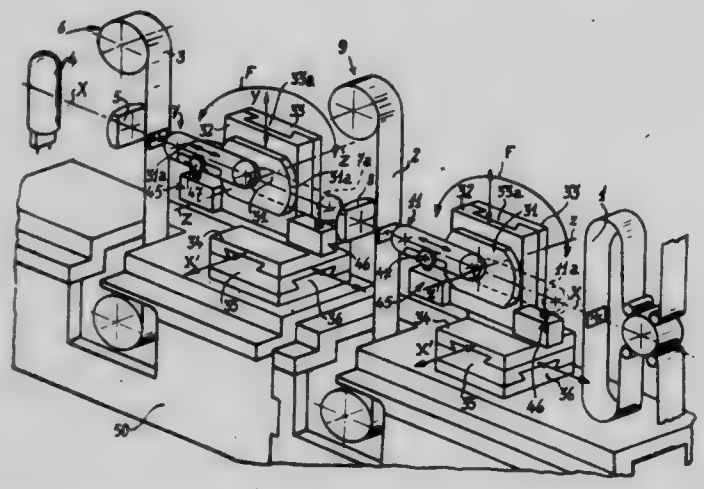
Claude Cattelani, 1, Square de la Mayenne, F-75017 Paris, and Catherine Perichon, 5, Square de la Beauce, F-77100 Meaux/-Beauval, both of France

Filed Jul. 25, 1980, Ser. No. 172,639

Claims priority, application France, Mar. 12, 1980, 80 05519

Int. Cl.³ G03B *27/32, 27/52;* G02B *9/00, 15/18*

U.S. Cl. 355—39 **6 Claims**



2. An optical system for the production of special effects on an unexposed film, constituting an optical printer or caption stand and comprising at least one objective associated with means for projecting at least one exposed film on the unexposed film in order to obtain special effects, wherein at least one of the objectives is constituted by four groups of lenses, viz:

a first convergent group of four lenses,

a second divergent group of four lenses,

a third convergent group of six lenses,

a fourth convergent group of two lenses, the first and third groups being coupled together and movable.

4,336,997

CHANGE OF DISTANCE MEASURING APPARATUS

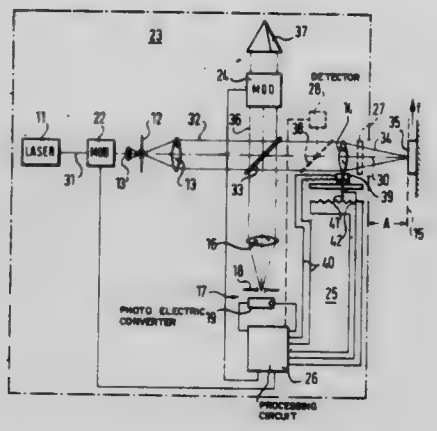
Dieter Röss, Planegg, and Viktor Baumgartner, Taufkirchen, both of Fed. Rep. of Germany, assignors to Erwin Sick GmbH Optik-Electronik, Waldkirch, Fed. Rep. of Germany

Filed Feb. 27, 1980, Ser. No. 125,209

Claims priority, application Fed. Rep. of Germany, Mar. 6, 1979, 2908757

Int. Cl.³ G01C *3/08;* G01B *11/30*

U.S. Cl. 356—4 **14 Claims**



1. Change of distance measuring apparatus for measuring the change of a distance from a datum to a surface, the apparatus comprising a monochromatic laser light source for generating a laser light beam, means limiting the laser light beam emitted from said source to the zero order diffraction beam, beam widening means for spreading the zero order diffraction beam into a parallel beam of light, a front objective positioned to receive said parallel beam of light and to bring the same to a point focus, adjusting means for adjusting the position of said point focus to bring the same into substantial coincidence with said surface without varying the parallelism of said parallel beam of light, means for producing high frequency cyclical variation of the position of said point focus without disturbing the parallelism of said beam of light, beam dividing means located in said parallel beam of light between said beam widening means and said front objective, said beam dividing means being adapted to pass at least a fraction of said parallel beam of light to said objective and to direct light returned through said front objective from said surface to a second objective, means defining a modal aperture stop at the focal plane of said second objective which allows only a zero order diffraction image of the light source to pass, photoelectric converter means positioned to receive light from said zero order diffraction image and an electronic processing circuit for processing signals derived from said photoelectric converter means to produce a control signal for said adjusting means to bring said point focus into substantial coincidence with said surface.

4,336,998

FINGERPRINT TRANSDUCER AND READING APPARATUS

Hartwig Ruell, Mt. Laurel, N.J., assignor to Siemens Corporation, Iselin, N.J.

Filed May 22, 1980, Ser. No. 152,514

Int. Cl.³ G06K *7/10, 9/00*

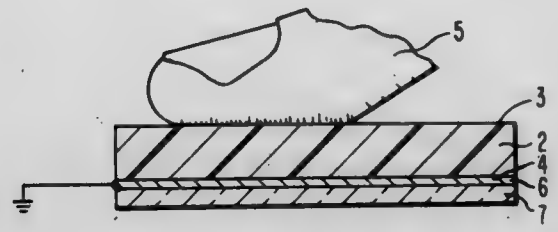
U.S. Cl. 356—71 **14 Claims**

1. In an apparatus for the identification of fingerprints having a fingerprint sensing member with a sensing surface and having means for interrogating with a light beam a fingerprint relief impressed onto the sensing surface, whereby the light beam is modulated in accordance with the structure of the fingerprint, the improvement comprising:

the sensing surface being made of an insulating material having a softening temperature greater than ambient temperature and which will deform when a finger is pressed thereon to form the fingerprint relief;

means for imparting a non-uniform electrostatic charge distri-

bution to the sensing surface in accordance with the fingerprint relief; and



means for heating the sensing surface so that the material softens and produces an enhanced fingerprint relief in response to the electrostatic forces exerted by the electrostatic charge.

4,336,999

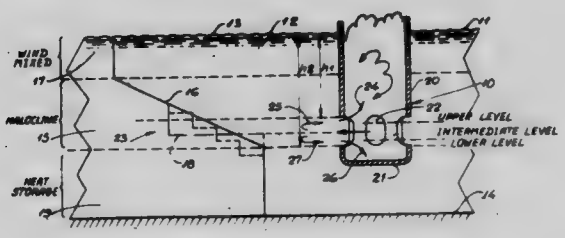
SELECTIVE MIXER FOR SOLAR POND AND METHOD OF USING SAME

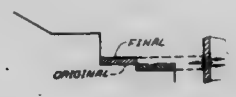
Gad Assaf, Rehovot, Israel, assignor to Solmat Systems, Ltd., Yavne, Israel

Continuation-in-part of Ser. No. 889,987, Mar. 24, 1978, abandoned. This application May 14, 1980, Ser. No. 149,564

Int. Cl.³ B01F *5/12, 13/02*

U.S. Cl. 366—101 **45 Claims**





1. A method for modifying the vertical density profile of a halocline in a solar pond comprising the steps of inserting into the pond a chamber having vertically oriented opening means which defines a preselected layer of the halocline having a density that increases monotonically with depth and which connects the interior of the chamber to the layer, and mixing the water in the chamber to establish a uniform density therein whereby the vertical variation in density across the opening means between the water inside and outside the chamber establishes a pressure differential that varies vertically and which causes water in the layer to flow into and out of the chamber.

4,337,000

TWO-SPINDLE PLANETARY KITCHEN MIXER-KNEADER AND ANTI-CLIMB DOUGH HOOKS THEREFOR

Herbert G. Lehmann, 5 Kent Rd., Easton, Conn. 06612

Filed Jun. 4, 1981, Ser. No. 270,401

Int. Cl.³ B01F *9/22, 7/16*

U.S. Cl. 366—288 **9 Claims**

1. A planetary kitchen mixer-kneader, comprising in combination:

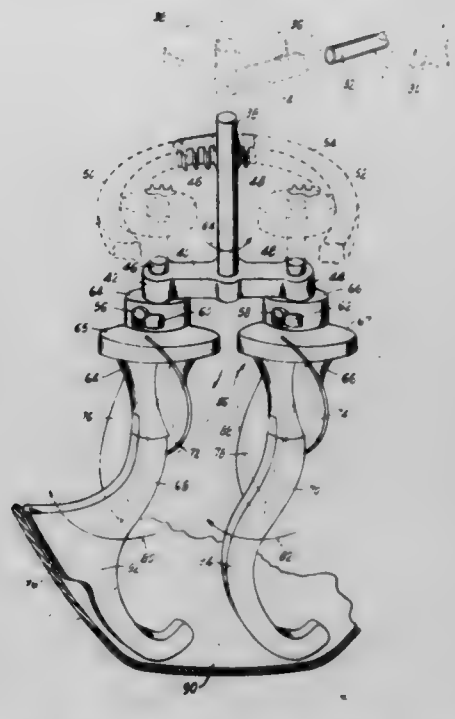
(a) a rotary head mounted for rotation about a vertical axis,

(b) a fixedly mounted gear having teeth, and having the same axis as the vertical axis of the rotary head,

(c) power means including gearing, for rotating said rotary head,

(d) a pair of vertical spindles turnably mounted in the rotary head and having pinions meshing with the teeth of the fixed gear to effect like-direction turning of the spindles as the head is rotatably driven,

(e) a pair of dough hooks respectively carried by said spindles, and



(f) a mixing bowl disposed about said dough hooks, said hooks traversing the inside surface of the bowl in an orbital path as the head turns, and said hooks having laterally-offset portions which are complementary in providing clearance between the hooks during the like-direction turning of the latter.

4,337,001

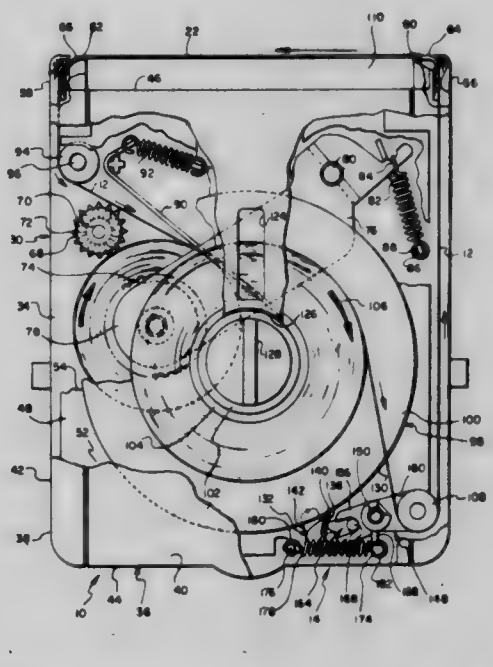
RELEASABLE RIBBON LOCKING DEVICE IN A RIBBON CARTRIDGE

Samuel D. Cappotto, Syracuse, N.Y., assignor to SCM Corporation, New York, N.Y.

Filed Jul. 28, 1980, Ser. No. 172,624

Int. Cl.³ B41J *33/14*

U.S. Cl. 400—208 **4 Claims**



1. A releasable ribbon locking device for use in a ribbon cartridge of the type removably mounted in a printing machine, the printing machine having a cartridge support and an actuable ribbon drive means, the cartridge including a housing, a ribbon, a ribbon supply spool having the ribbon wound thereon, a supply spool support mounted in the housing for rotation in an unwinding direction and having the ribbon supply spool rigidly mounted thereon, a ribbon take-up spool

rotatably mounted in the housing, a ribbon feed mechanism located in the housing and operatively connected to the ribbon drive means when the ribbon cartridge is properly positioned on the cartridge support for printing, the ribbon feed mechanism tensioning the ribbon by winding spent ribbon onto the take-up spool in response to actuation of the ribbon drive means, and ribbon guide means in the housing for controlling movement of the ribbon from the supply spool to the take-up spool, the ribbon guide means including an exit and entrance opening in the housing for extending a portion of the ribbon external to the housing, the releasable ribbon locking device comprising:

(a) a flange on said supply spool support, said flange having a continuous peripheral rim;

(b) a locking member pivotally mounted in said housing, said locking member carrying a brake member movable therewith and positionable in abutting relationship with said rim;

(c) a lock release member pivotally mounted in said housing;

(d) means coupling said lock release member to said locking member, said coupling means comprising:

(1) an arm on said locking member extending towards said lock release member;

(2) a pin supported on said arm;

(3) a first projection on said lock release member extending towards said locking member; and

(4) a slot formed on said first projection closely receiving said pin for concomitant movement;

(e) spring means connected to said lock release member and urging said locking member toward said flange to position said brake member in said abutting relationship thereby preventing the unwinding rotation of the supply spool support; and

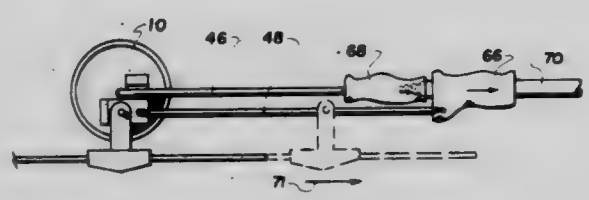
(f) a ribbon tensioning element supported on said lock release member and in engagement with a portion of said ribbon, said ribbon tensioning element operable to move towards said ribbon supply spool in response to take-up tensioning of said ribbon and through said coupling means said lock release member pivotally moves said locking member against the urging of said spring means for removing said brake member from said supply spool support rim.

4,337,002

DRIPLESS CEILING PAINT ROLLER AND PAINT METERING PAN

Martucci Frank C., 360 Tom Hunter Rd., Fort Lee, N.J. 07024

Filed Apr. 16, 1980, Ser. No. 140,758
Int. Cl.³ B44D *3/28*
U.S. Cl. 401—15 **8 Claims**



1. A roller with spray guard comprising:

a roller arm;

a roller rotatably mounted on one end of said arm;

a handle member connected to an opposite end of said arm; and

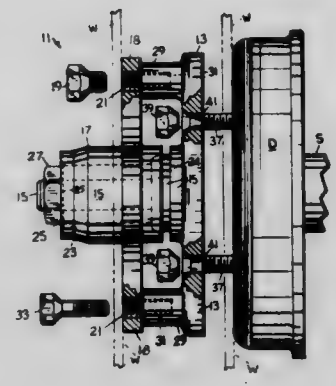
a spray guard consisting essentially of a single planar member pivotally mounted near a bisecting line thereof for free pivotal motion to said arm one end, said guard extending at least the axial length of said roller, said arm having a portion between said roller and said handle member of a length sufficient to permit free pivoting of said guard below said roller whereby said guard pivotally hangs below said roller when in use and extends substantially horizontally when stationary, and so that with motion of said roller from below on a horizontal surface in a painting direction, said guard pivots toward the surface with a trailing edge thereof, said guard mounted closely adjacent said roller.

4,337,003

LOCKABLE OR FREE-WHEELING DEVICE INSERTABLE BETWEEN A DRIVEN VEHICLE-WHEEL AND ITS AXLE CONNECTOR

Barker J. Juhl, 16 Cottage Grove, Springfield, Ill. 62707

Filed Feb. 28, 1980, Ser. No. 125,520
Int. Cl.³ B60B *27/02*
U.S. Cl. 403—1 **6 Claims**



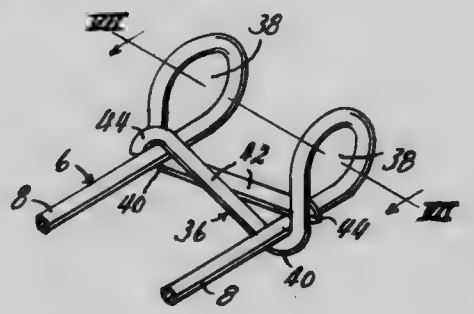
1. A device for co-axial insertion between a vehicle wheel and its conventional wheel-mounting means, comprising: a base plate adapted for quick and easy detachable and vertically disposed and co-extensive connection to said wheel-mounting means, said base plate having spaced apertures to receive therethrough standard wheel-mounting threaded elements for attaching said device to said wheel-mounting means, a shaft rigidly and co-axially fixed to said base plate, a hub member surrounding and rotatable about said shaft, a platelike member fixed to said hub member and being roughly parallel to and co-extensive with said base plate, said plate-like member having spaced blade-like arms to define a plurality of open areas therebetween for facilitating access to said wheel-mounting elements, a plurality of elements for detachably co-acting between the conventional spaced lug apertures in the conventional disk-like central portion of a vehicle wheel for fastening said wheel to said plate-like member co-axially with said shaft.

4,337,004

CONNECTOR TERMINUS FOR WIRE MEMBERS

Donald D. Mundell, and Lloyd E. Tieman, both of Carthage, Mo., assignors to Flex-O-Lators, Inc., Carthage, Mo.

Filed Oct. 17, 1980, Ser. No. 197,932
Int. Cl.³ F16B *1/00*
U.S. Cl. 403—209 **11 Claims**



1. A connector terminus formation for an elongated strap comprising a pair of spaced apart, generally parallel first and second body wires, said formation comprising a loop formed in each wire adjacent but spaced apart from its free end generally in a plane at right angles to a plane defined by said body wires but parallel to the longitudinal extent of said strap, said loops being coaxial on an axis parallel to the plane of the body wires but transverse to the general extent of said strap for receiving

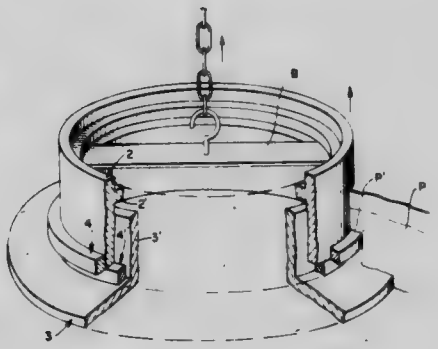
a retainer pin therethrough to complete an actual connection of said strap, the extreme end portion of each body wire being trained about the side of the standing portion of itself distal from the other of said body wires and extending transversely of said strap toward said other body wire to form a lever arm, and restricting means inhibiting movement of the free end of each of said lever arms relative to said other body wire.

4,337,005

STRUCTURES FOR SUPPORTING MANHOLE COVERS, GRATES AND THE LIKE PROVIDED WITH SELF-STORING ADJUSTABLE LEVELING APPARATUS

Francis LeBaron, 255 East St., West Bridgewater, Mass. 02324

Filed Feb. 17, 1981, Ser. No. 235,042
Int. Cl.³ E02D *29/14*
U.S. Cl. 404—26 7 Claims



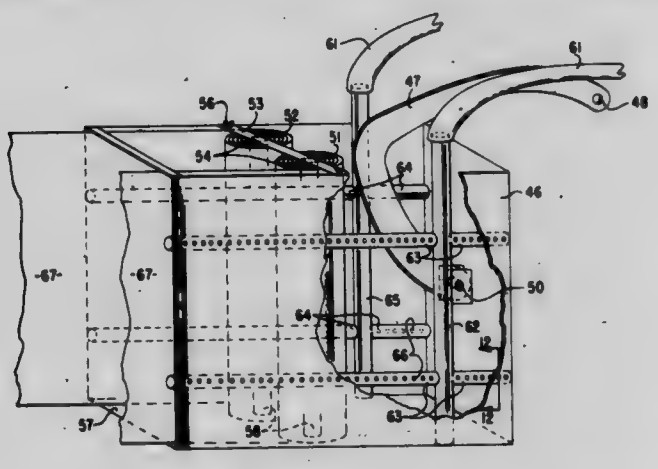
1. Apparatus for providing adjustable leveling of manhole covers, grates and the like within ground and similar structures, having, in combination, a tubular slip ring for supporting a cover, grate and the like near its upper edge, a base ring having a bottom flange mounting a tubular vertical sleeve positioned to receive the slip ring in coaxial telescopic relationship, and resilient spacer ring means fitted under tension coaxially against a wall of the slip ring near its lower edge and adapted, upon lifting of the slip ring along the base ring sleeve, to be forced down and snapped under the said lower end of the slip ring and against the base ring flange, to elevate the level of the slip ring and thus that of the manhole cover, grate and the like.

4,337,006

DEVICE FOR PREPARING AND CLEANING TRENCH FOR AN AQUIFER RECHARGING SYSTEM

Edward H. Lacey, Trent, S. Dak. 57065

Continuation-in-part of Ser. No. 898,392, Apr. 19, 1978, Pat. No. 4,199,272. This application Sep. 12, 1979, Ser. No. 74,872
Int. Cl.³ E02B *11/00*
U.S. Cl. 405—176 20 Claims



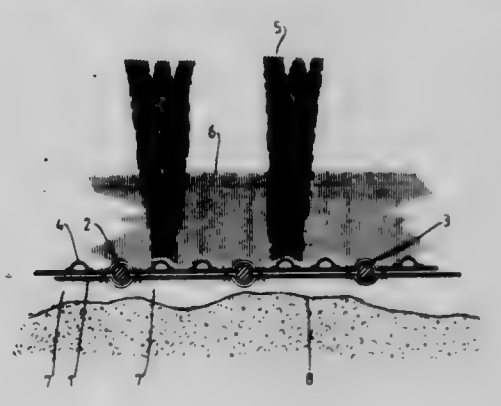
1. Means for lining an aquifer recharging trench with membrane comprising carrying means, container means attached to said carrying means and adapted to extend downward into said trench, support means in said container means adapted to support at least one roll of said membrane on vertical axis, said container having sides and a rear wall means attached together to completely enclose said container from the side walls of said trench, said sides and rear wall means cooperating to form at least one slot through which said membrane can be unrolled from said roll and lie against a wall of said trench.

4,337,007

UNDERWATER EROSION CONTROL STRUCTURE

Robert A. Smith, Knaresborough, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Mar. 25, 1980, Ser. No. 133,853
Claims priority, application United Kingdom, Apr. 24, 1979, 7914155; May 16, 1979, 7916954
Int. Cl.³ E02B *3/04*
U.S. Cl. 405—24 9 Claims



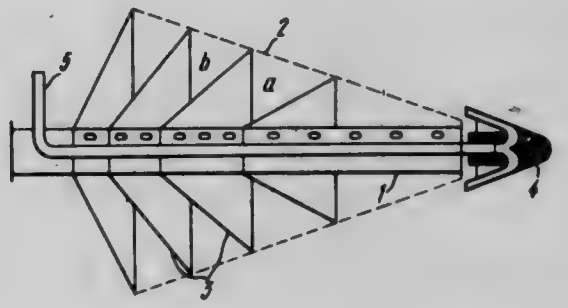
1. An erosion and scour control structure comprising a spaced array of filaments the improvement being that the spaced array consists of an array of longer fronds of filaments with a density less than that of water and an interspersed array of shorter filaments having a density greater than that of water, both arrays being attached to a base for laying on a sea or river bed.

4,337,008

APPARATUS FOR FISH PROTECTION

Valery A. Kulyabko, ulitsa 50 let Oktyabrya, 5, kv. 97, Volzhsky; Vera M. Sinyavskaya, prospekt Lenina, 15, kv. 126, Volgograd; Alexandr A. Sivkov, ulitsa Engelsa, 11, kv. 44, Volzhsky, and Evgeny N. Gavrilov, ulitsa Dzerzhinskogo, 7, kv. 54, Volgograd, all of U.S.S.R.

Filed Sep. 5, 1980, Ser. No. 184,303
Int. Cl.³ E01F *5/00*; E02B *3/00*
U.S. Cl. 405—127 2 Claims



1. An apparatus for protection of fish against entrapment, e.g., in a water intake arrangement, including: a perforated suction pipe; a water-permeable screen mounted on said pipe; partitions located between said pipe and screen, the length of contour of which resting on the screen decreases towards the perforated pipe inlet, the screen surface defined by two adjacent partitions being superior to that of the pipe between the same partitions; said partitions disposed on said pipe in a manner such that the hydraulic resistances therebetween will in-

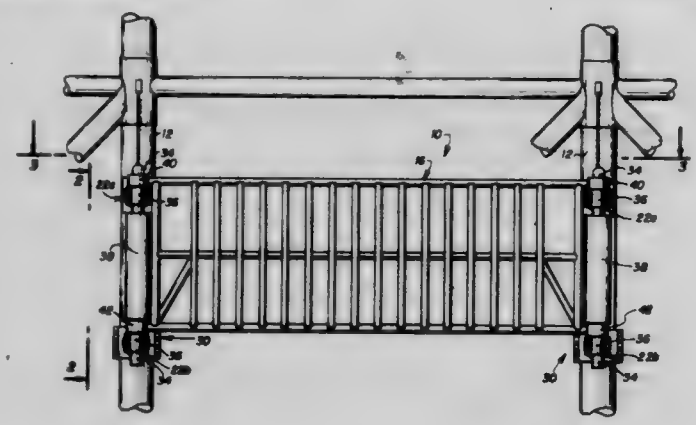
crease in proportion to the distance from the partitions to the perforated pipe inlet.

4,337,009

MARINE LANDING STRUCTURE WITH OMNI DIRECTIONAL ENERGY ABSORBING CHARACTERISTICS

Jay W. Jackson, Corsicana, Tex., assignor to Regal International, Inc., Tex.

Filed Jul. 27, 1979, Ser. No. 61,266
Int. Cl.³ E02B *3/22*
U.S. Cl. 405—212 **10 Claims**



1. An energy absorption system for connection to a marine structure to protect the structure from impact damage from vessels, such as boats, barges and the like, the system comprising:

a rigid landing frame for spanning a landing area, means on said frame for providing a contact surface for receiving impact loads from vessels colliding with said frame;

upper and lower vertically spaced shock cell means having one end coupled to said frame, means on the end opposite said one end for rigidly attaching said shock cell means to said structure; and

means operatively connecting said first end of each of said shock cell means to said landing frame to provide limited relative movement between said first ends of said shock cell means and said landing frame, said means permitting rotation only about an axis which extends vertically when said system is attached to a structure and preventing rotation about a horizontally extending axis whereby relative rotation can occur only about the vertical axis between said landing frame and the first ends of each of said shock cell means.

4,337,010

INFLATABLE GROUT SEAL

Bob L. Sullaway, and Harold O. Treece, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Dec. 13, 1979, Ser. No. 103,142
Int. Cl.³ E02B *17/02*; E02D *5/52*
U.S. Cl. 405—227 **8 Claims**

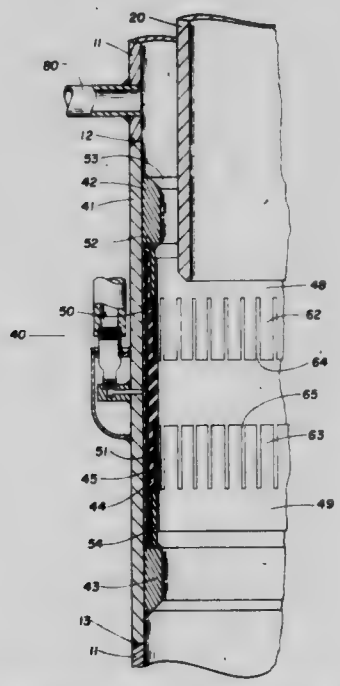
1. An inflatable packer comprising:

annular packer housing means;

first guide ring means secured within said annular packer housing means, said first guide ring means including a first annular portion having one end secured to the interior of said annular packer housing means and a second annular portion secured to the other end of the first annular portion, the second annular portion having an inner diameter larger than the inner diameter of the first annular portion, an outer diameter smaller than the outer diameter of the first annular portion, a substantially uniform cross-sectional thickness, and substantially uniform uninterrupted interior and exterior surfaces thereon;

second guide ring means secured within said annular packer housing means, said second guide ring means including a first annular portion having one end secured to the interior of said annular packer housing means and a second annular portion secured to the other end of the first annular portion, the second annular portion having an inner diameter larger than the inner diameter of the first annular portion, an outer diameter smaller than the outer diameter of the first annular portion, a substantially uniform cross-sectional thickness, and substantially uniform uninterrupted interior and exterior surfaces thereon;

annular inflatable packer member means having a first end portion, intermediate portion, a second end portion and annular reinforcement member means extending substantially throughout said annular inflatable packer member means terminating in the first and second end portions thereof, the first end portion secured from axial movement within said annular packer housing means by being bonded to the uniform uninterrupted exterior surface of



the second annular portion of said first guide ring means while the second end portion of said annular inflatable packer member means is secured from axial movement within said annular packer housing means by being bonded to the uniform uninterrupted exterior surface of the second annular portion of said second guide ring means;

first back-up shoe means adjacent the first end portion of said annular inflatable packer member means extending about the interior thereof, said first back-up shoe means being secured to said first guide ring means; and

second back-up shoe means adjacent the second end portion of said annular inflatable packer member means extending about the interior thereof, said second back-up shoe means being secured to said second guide ring means.

4,337,011

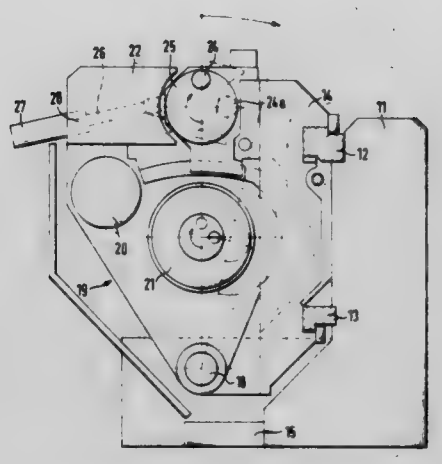
CRANKSHAFT MILLING MACHINE

Karlheinz Schmid, Neckartenzlingen, Fed. Rep. of Germany, assignor to Gebrueder Heller, Maschinenfabrik GmbH, Nuertingen, Fed. Rep. of Germany

Filed Apr. 16, 1980, Ser. No. 140,686
Claims priority, application Fed. Rep. of Germany, Apr. 18, 1979, 2915662
Int. Cl.³ B23C *3/06*
U.S. Cl. 409—199 **10 Claims**

1. A crankshaft milling machine, comprising machine frame means, at least one milling slide unit (14, 19) including slide means (14) and milling head means (19) on said slide means, said milling slide unit being operatively supported in said machine frame means for milling the stroke and bearing journals of a crankshaft, crankshaft support means defining a longitudinal axis and carried by said machine frame means for cooperation with said milling slide unit, feed drive means operatively

connected to said milling slide unit, copying means mounted to be operable in synchronism with the rotation of the crankshaft support means, said copying means being operatively connected to said feed drive means for controlling the latter, guide means (12, 13) held in said frame means, said milling slide unit being movable along said guide means (12, 13) in parallel to said longitudinal axis, said guide means for said milling slide unit defining a plane extending on one side of the crankshaft support means and substantially vertically in parallel to said



longitudinal axis, swivel axis means (18) operatively located in said milling slide unit below said longitudinal axis and in parallel to said longitudinal axis, said milling head means (19) being tiltably connected to said swivel axis means (18), said feed drive means being located on that side of the longitudinal axis facing away from the swivel axis means (18), said feed drive means extending between the milling slide unit and the milling head means and over said longitudinal axis, whereby a closed force flow is achieved and the machine frame is substantially relieved of the milling forces.

4,337,012

ANCHOR BOLT EXPANSION SHELL

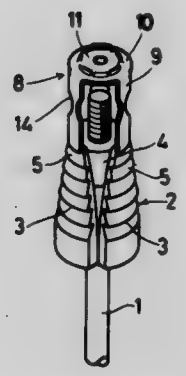
Heinrich Sohnius, 6 Reitz St., Monument, Krugersdorp, Transvaal, South Africa

Filed Apr. 21, 1980, Ser. No. 142,867

Claims priority, application South Africa, Apr. 25, 1979, 79/1984

Int. Cl.³ F16B *13/08*

U.S. Cl. 411—67 **6 Claims**



1. An anchor bolt expansion unit comprising a plurality of separate leaves having arcuate and serrated outer surfaces and substantially flat inner surfaces which taper inwardly in both width and thickness towards ends each secured to a finger of a bail of different material; the bail having a cap member connected about its periphery to the ends of the fingers remote from the leaves, the cap member including a central dimple portion extending axially in a direction toward the leaves and a peripherial line of weakness formed in the cap about the dimple portion and being positioned on a diameter larger than that of a bolt with which the unit is to be used and a conical nut having flat surfaces provided thereon adapted to engage the inner surfaces of the leaves and being threaded on the bolt and wherein the dimple portion is shaped and dimensioned so as to engage one end of the rod solely within the outer periphery of the rod.

4,337,013

PLANT WITH MOBILE PLATFORMS FOR PARKING MOTOR VEHICLES OR THE LIKE

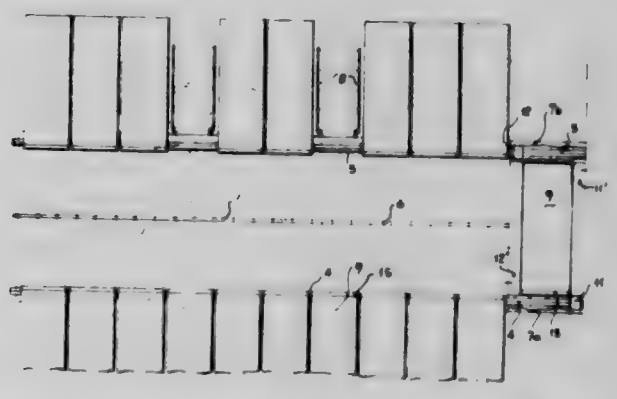
Giovanni Buttironi, Bergamo, Italy, assignor to AU.RO S.r.l, Bergamo, Italy

Filed Jun. 11, 1979, Ser. No. 47,105

Claims priority, application Italy, Jun. 15, 1978, 24599 A/78

Int. Cl.³ E04H *6/06*

U.S. Cl. 414—240 **14 Claims**



1. Plant for storing units, particularly motor vehicles, onto mobile platforms over a storing or parking area having at least one long parking stretch and a parallel service corridor along a side of said parking stretch, comprising:

a service track running along said service corridor,

at least one motored travelling wagon adapted for movement along said service track,

a plurality of storing or parking places in said parking stretch, each place being provided with a stationing track with an axis transverse to the axis of the service track,

a plurality of mobile platforms slidable both on said stationing tracks and on said travelling wagon, each of said platforms having an inverted U-shaped channel section extending in a direction parallel to the axis of the service track, the U-shaped channel sections are all substantially aligned on a common axis when the platforms are arranged on the stationing tracks,

transfer means, associated with said travelling wagon, for transferring said mobile platforms from a respective stationing track onto the travelling wagon, or vice versa from the wagon towards the respective stationing track,

said transfer means comprising at least one carriage movable along the travelling wagon in a direction parallel to said stationing tracks, and

hook means fixed to said carriage for substantially continuously engaging at least one of the inverted U-shaped channel sections during movement of the travelling wagon along the service track, said hook means being adapted to move one platform onto the wagon from the respective stationing track, or vice versa, to push the platform off of the wagon towards the respective stationing track.

4,337,014

METHOD AND APPARATUS FOR ERECTING A PORTABLE SILO AND ELEVATOR

Robert E. Farnham, Naperville, Ill., assignor to Barber-Greene Company, Aurora, Ill.

Filed Nov. 28, 1980, Ser. No. 211,367

Int. Cl.³ E04H *7/00*

U.S. Cl. 414—332 **11 Claims**

1. An improved self-erecting plant including an elongate silo and elevator, each having means for being transported in a generally horizontal position to an erection site and each being

functional in a generally vertical position wherein each consists of a top and bottom portion, the improvement comprising:

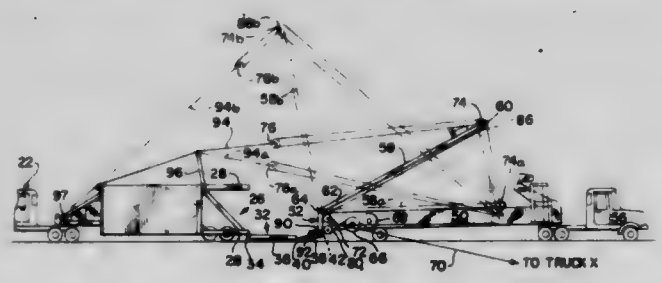
(a) a base hingedly connected to the bottom portion of said silo and the bottom portion of said elevator;

(b) a vertically disposed mast having an upper and a lower end, said lower end being mounted in juxtaposition with said base;

(c) a first block and tackle means, coupled between the top portion of said silo and the upper end of said mast, for pivotally raising said silo about said base from a horizontal to vertical position;

(d) a second block and tackle means, coupled between the top portion of said elevator and the upper end of said mast, for pivotally raising said elevator about said base from a horizontal to a vertical position, the upper end of said mast providing said first and second block and tackle means with an advantageous elevated position from which to apply a lifting force to said horizontally disposed elevator and silo.

10. A method for erecting a self-erecting plant which includes an elongate silo and elevator, each having a means for being transported in a generally horizontal position to an erection site and each consisting of a top and bottom portion, said plant further including a base, a longitudinal mast having an upper end and a lower end hingedly mounted adjacent said base, a first and second block and tackle means each coupled to the upper end of said mast and coupled respectively to the top portion of said silo and the top portion of said elevator, said method comprising the steps of:



(a) aligning said horizontally disposed elevator and silo in opposing bottom-to-bottom relationship,

(b) connecting the bottom portion of said silo and the bottom portion of said elevator to said base for pivotal movement about the latter,

(c) hingedly raising said mast above said base to a substantially vertical position,

(d) applying a lifting force to the top portion of said horizontally disposed silo by said first block and tackle means so as to cause said silo to pivot about said base to assume a vertical position,

(e) applying a lifting force to the top portion of said elevator by said second block and tackle means causing said elevator to pivot about said base to assume a vertical position, thereby erecting said plant.

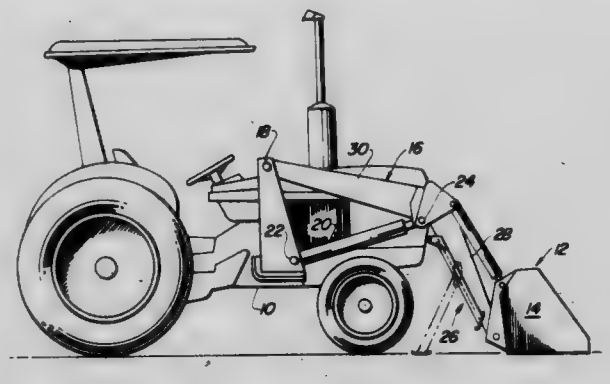
4,337,015

PARKING STAND MEANS FOR TRACTOR-DISMOUNTED IMPLEMENT

Henry Friesen, Niagara Falls, and Clarence R. Trott, Welland, both of Canada, assignors to Deere & Company, Moline, Ill.

Filed Jun. 23, 1980, Ser. No. 161,840
Int. Cl.[3] E02F *3/14*
U.S. Cl. 414—686 4 Claims

1. For a tractor-dismounted implement having a part adapted to rest on the ground and at least one frame element connected to the part and having an uphill portion extending rearwardly away from the part and an elevated portion above the ground: a parking stand for supporting the elevated portion of the part above the ground having elongated uphill slide means carried by the uphill portion of the element adjacent to the elevated portion of the element and having a lower stop portion, a strut-like support having upper and lower ends, a combination guide and pivot member connecting the upper end of the support to the slide means for uphill movement as well as for swinging of the support forwardly toward and adjacent to the uphill portion of the element to occupy a retracted position in which the lower end of the support is clear of the ground and, selectively, for downhill movement in the slide means until said member engages the lower stop portion and becomes pivoted thereat for rearward swinging of the support away from the uphill portion of the element to occupy a parking position in which the lower end of the support engages the ground in rearwardly spaced relationship to the aforesaid part, the improvement comprising an extension rigid



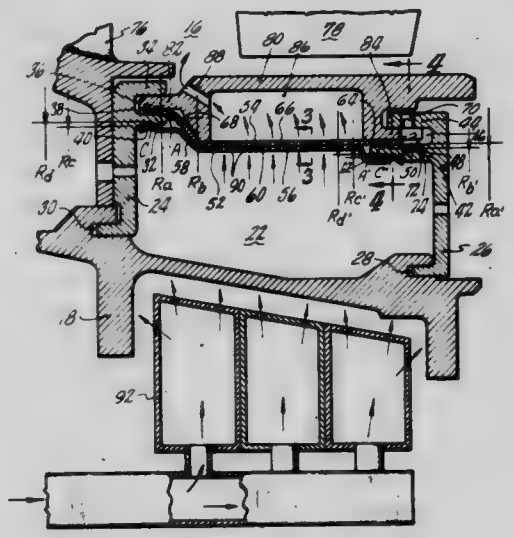
on an upper part of the support and providing an arm extending away from the combination guide and pivot member and arranged to lie closely alongside the uphill portion of the frame element in the parking position of the support, and a lock element engageable between the arm and the uphill portion in said parking position to prevent the support from both swinging and sliding, said lock element being disengageable from the arm and support and engageable the support and the uphill portion in the transport position of the support to retain the support against both sliding and swinging.

4,337,016

DUAL WALL SEAL MEANS

Gary F. Chaplin, Vernon, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 13, 1979, Ser. No. 103,007
Int. Cl.[3] F01D *5/18*
U.S. Cl. 415—116 7 Claims



1. For a gas turbine engine having an annular flowpath for working medium gases extending axially through the engine and an annular flowpath for cooling air spaced radially outwardly of the working medium flowpath, a structure for confining the cooling air to the cooling air flowpath which comprises:

an outer case circumscribing the cooling air flowpath;

a first element extending inwardly from the outer case;

a second element extending inwardly from the outer case and spaced axially from the first element; and,

a means disposed between the cooling air flowpath and the working medium flowpath for preventing the leakage of

cooling air between said first element and said second element, the means including

an inner wall comprised of a plurality of circumferentially adjacent segments which are engaged by the first element and the second element to form a seal at the inner wall,

an outer wall comprised of a plurality of circumferentially adjacent segments which are engaged by the first element and the second element to form a seal at the outer wall;

wherein a portion of the first element extends between the inner wall and the outer wall to engage the inner wall and the outer wall, wherein a portion of the second element extends between the inner wall and the outer wall to engage the inner wall and the outer wall and wherein the engagement of the inner and outer walls by the first and second elements sets the diameter of the seal means in operative response to changes in diameter of the outer case.

4,337,017

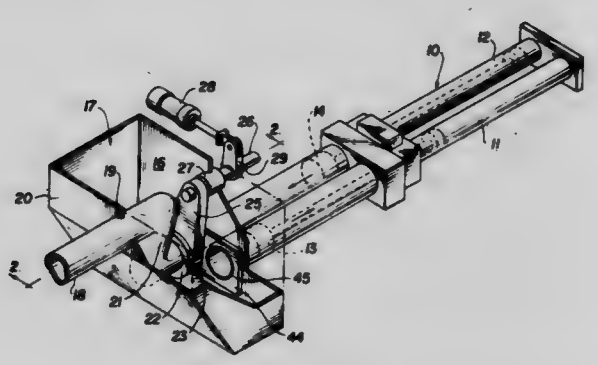
HYDRAULIC SLEEVE VALVE AND SEAL ARRANGEMENT FOR PISTON PUMP

William R. Evenson, 11618 Sagehollow, Houston, Tex. 77089

Continuation-in-part of Ser. No. 79,305, Sep. 26, 1979, abandoned. This application Dec. 4, 1980, Ser. No. 213,022

Int. Cl.[3] F04B *7/00*

U.S. Cl. 417—516 9 Claims



1. In a pumping apparatus for concrete or the like including a hopper, a pair of alternating filling and pumping cylinder units connected in a wall of the hopper, a concrete transmission conduit connected in said hopper and having an elbow portion in the hopper, a crank means coupled with the elbow portion to swing it back and forth between positions of registration with the bores of said piston units, the improvement comprising a housing portion on the crank means having a stepped bore and having a hydraulic fluid port leading into the stepped bore, a stepped floating sleeve element engaged movably within the stepped bore and having an annular radial piston face within the larger portion of the stepped bore and being in communication with said port, a wear ring having interengaged relationship with one end of the floating sleeve element exteriorly of said housing portion, an opposing relatively stationary wear plate means fixed to said hopper and slidably abutting the wear ring and having opening means in registration with the bores of said cylinder units, there being an annular gap between the other end of the floating sleeve element and an end face of said elbow and receiving pressurized concrete which supplements the fluid pressure force of the hydraulic fluid on said piston face urging said floating sleeve element against the wear ring, and ring seals between the stepped surfaces of said floating sleeve element and said stepped bore on opposite sides of said port.

4,337,018

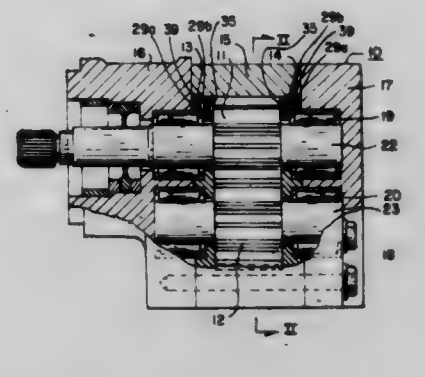
ROTARY IMPELLER PUMP OR MOTOR WITH COUNTERBALANCING CHAMBER IN THRUST PLATE BEARING COUNTERBORE

Carl M. Singer, New Castle, Pa.; Mateiu J. Oana, and John D. Turko, both of Youngstown, Ohio, assignors to Commercial Shearing, Inc., Youngstown, Ohio

Filed Jan. 29, 1980, Ser. No. 116,636

Int. Cl.[3] F03C *2/08;* F04C *2/18, 15/00*

U.S. Cl. 418—132 10 Claims



1. A pressure plate for corresponding ends of a pair of cooperating impellers in a rotary pump or motor comprising a metal body having a first face adapted to abut the impeller ends, a pair of openings to receive impeller shafts and a second face generally parallel to said first face, a plurality of chambers in said first face defined by radial lands on the first face bearing against the impellers to restrict flow across said first face, said lands being of such size as to provide a one tooth seal with the impellers between adjacent chambers of said plurality of chambers, a counterbore in each opening of said pair of openings at said second face, an annular seal in each counterbore intermediate the ends thereof and forming two separate chambers therein when bearing means are assembled in each counterbore and passage means communicating between the periphery of the thrust plate at opposite ends and one of said chambers in each counterbore.

4,337,019

MACHINE FOR MANUFACTURING DISKS ON A ROD

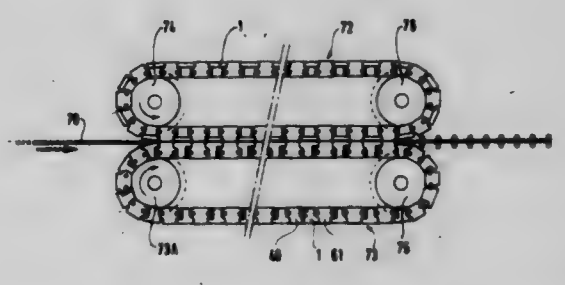
Georges N. Comte, Lyons; Andre Appriou, Taasin la Demi-Lune, and Jean Couturier, Craponne, all of France, assignors to Les Cables de Lyon, Lyons, France

Filed Mar. 13, 1981, Ser. No. 243,667

Claims priority, application France, Mar. 14, 1980, 80 05769

Int. Cl.[3] B29C *6/00*

U.S. Cl. 425—116 5 Claims



1. In a machine for manufacturing disks on a very long rod, said machine including two conveyor-driven chains of moulding units that press against one another and receive said rod therebetween in an area provided within abutting mating moulding units of said two chains with at least one orifice for injecting a mouldable substance into a cavity formed between a pair of mating units, one from each chain, the units then parting to release a disk-shaped part moulded onto said very long rod, the improvement wherein at least one of the chains of moulding units has at least one so-called "hermaphrodite" moulding unit with leading tabs and trailing tabs for fixing to

its adjacent units, the gap between its leading tabs being different from the gap between its trailing tabs, and these two gaps being such that they allow said "hermaphrodite" unit to be inserted between a "female" unit with a wide gap between its tabs and a "male" unit with a narrow gap between its tabs or between two other, like, hermaphrodite units.

4,337,020

METHOD AND APPARATUS FOR MANUFACTURING ARTICLES OF HYDRAULIC SUBSTANCES

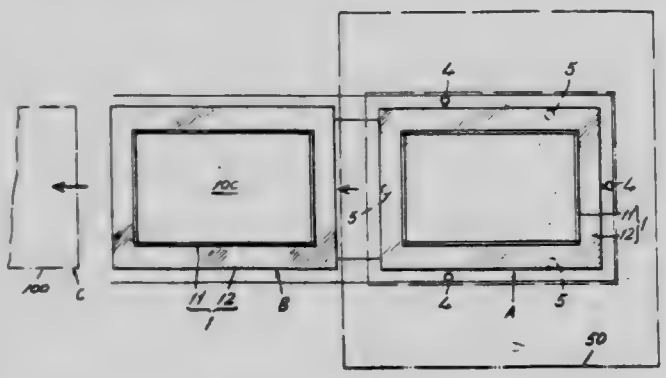
Yasuro Ito, N0. 4-38-16 Numabukuro, Nakano-ku,, Tokyo, Japan; Hidcharu Kaga, Tokyo, Japan; Yasuhiro Yamamoto, Kawasaki, Japan, and Tadayuki Sumita, Tokyo, Japan, assignors to Yasuro Ito and Taisei Corporation, both of Tokyo, Japan

Division of Ser. No. 899,849, Apr. 25, 1978, Pat. No. 4,234,534, which is a continuation of Ser. No. 558,165, Mar. 13, 1975, abandoned. This application Jan. 31, 1980, Ser. No. 117,357

Claims priority, application Japan, Mar. 13, 1974, 49-28025; Feb. 14, 1975, 50-19736[U]; Feb. 14, 1975, 50-19737[U]; Feb. 17, 1975, 50-18709; Feb. 25, 1975, 50-23035

Int. Cl.³ B28B *1/24*

U.S. Cl. 425—129 R **38 Claims**



1. An apparatus for continuously and sequentially manufacturing products of prepacked concrete comprising a plurality of moulds each of which is prepacked with a coarse aggregate vertically stacked with a plurality of hollow beds alternately disposed therebetween, said stack having a feed side and a discharge side, said moulds being releasably interconnected for resisting pressure changes and wherein sealing members are interposed between said beds and the moulds throughout the stack for airtightly closing said moulds, said apparatus further including means for reducing the pressure in said moulds, means for introducing a hydraulic substance into said mould at the feed side of the stack by utilizing a pressure difference between the inside and the outside of the mould, means for introducing a heating medium into said hollow beds surrounding said moulds for gradually, uniformly and indirectly heat curing a concrete mix of the prepacked coarse aggregate and the poured hydraulic substance from the feed side to the discharge side of said stack, means for advancing each mould and adjacent beds by one step at a time through said stack from the feed side to the discharge side thereof, so that each mould occupies the position of the preceding mould as it advances through said stack, the curing of said hydraulic cement taking place at different stages throughout said stack of said moulds, means for removing one mould containing said concrete product which has been sufficiently cured from the discharge side of said stack of said plurality of moulds and means for preparing a fresh mould in which a coarse aggregate is prepacked and bed at the feed side of the stack where said mould is recharged with said hydraulic substance, thus providing an apparatus for continuously manufacturing said concrete products.

4,337,021

APPARATUS FOR MOLDING FIXED-DIMENSIONAL SPHERICAL BODIES FROM A SEMISOLID STICK

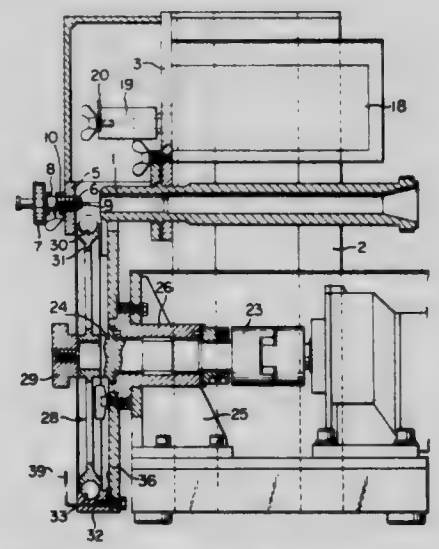
Yasuo Omi, Yamato; Takanori Wada, Machida; Hitoshi Sano, Sayama; Shigekatsu Sato, Hidaka; Kazuo Ido, Hino; Kozo Taneda, Kodaira, and Junichi Naka, Tokyo, all of Japan, assignors to Snow Brand Milk Products Co., Ltd., Sapporo, Japan

Filed Apr. 9, 1980, Ser. No. 138,813

Claims priority, application Japan, Jun. 26, 1979, 54-87305[U]; Jun. 26, 1979, 54-87306[U]

Int. Cl.³ B28B *17/00*

U.S. Cl. 425—142 **6 Claims**



1. An apparatus for molding spherical bodies, comprising:

an extruder having a nozzle for extruding a semisolid stick of extrudable material;

a sensing unit positioned in front of said nozzle for sensing the front end of the semisolid stick extruded from said nozzle and sending a signal when the semisolid stick projects a predetermined distance frontwardly from said nozzle;

a cutter operable in response to the signal for cutting off a piece of predetermined length of the portion of the semisolid stick that projects frontwardly from said nozzle;

a first, rotatable, circular mold having a first, radially outwardly facing, annular groove in its periphery, said first annular groove being partially circular in cross section so that said first annular groove has the shape of the radially inner portion of a torus, said first, rotatable, circular mold being disposed so that the pieces cut off from the semisolid stick are received in said first annular groove and the pieces move with said first annular groove as said first, rotatable, circular mold rotates;

a second, stationary, substantially semi-circular mold located outside of and adjacent to said first, rotatable, circular mold and extending circumferentially thereof and defining therewith a substantially semi-circular shaping zone, said semicircular shaping zone having an inlet at the circumferential end thereof located close to said nozzle and an outlet at the opposite circumferential end thereof, said second, stationary mold having a second, radially inwardly facing, substantially semi-circular groove, said second groove being substantially partially circular in cross section so that said second groove has the shape of the radially outer portion of a substantially semi-circular segment of the torus, said first and second grooves mating in said shaping zone to define an elongated mold cavity having the shape of a substantially semi-circular segment of the torus, the torus having a substantially circular cross section so that the pieces are formed into spherical bodies as they move through said shaping zone as said first, rotatable, circular mold rotates relative to said second, stationary mold;

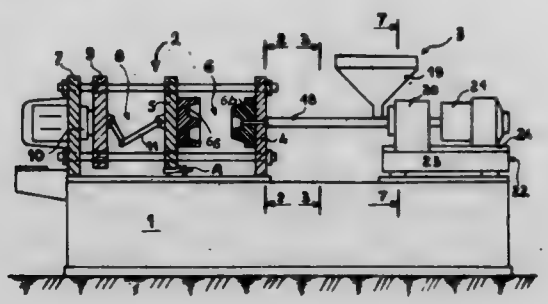
and means for discharging said spherical bodies from the outlet of said shaping zone.

4,337,022

ADAPTABLE INJECTION MOLDING INSTALLATION MOUNTING ARRANGEMENT

Jean Laurent, Oyonnax; Bernard Monnet, Belligmat, and Philippe Pertuis, Oyonnax, all of France, assignors to Pont-a-Mousson S.A., Nancy, France

Filed Oct. 3, 1980, Ser. No. 193,693
Claims priority, application France, Oct. 9, 1979, 79 25524
Int. Cl.[3] B29F *1/00;* B29C *1/16*
U.S. Cl. 425—192 R 9 Claims



1. An injection molding installation for molding articles of plastics, elastomers or like materials, comprising: a single rigid box-like mounting base; a pressure injection apparatus mounted on said base through an interchangeable support rail and means for adjusting the height of said support rail and said pressure injection apparatus relative to said base; a molding press having fixed plates and a moveable plate; first and second adjustable adaptor wedge pairs each having a lower wedge member disposed on said base; first and second mounting members for mounting said moveable plate to said first and second adjustable adaptor wedges, wherein said adaptor wedges are adjustable to adjust the height of said moveable plate relative to said base, upper members of said wedge pairs being wider than the corresponding lower wedge members and being attached by threaded members to said moveable plate, said threaded members being laterally spaced from the lower wedge members, and wherein the heights of both said pressure injection apparatus and said molding press relative to one another can be adjusted to accommodate different sized moveable and fixed plates and hence different types of molding presses.

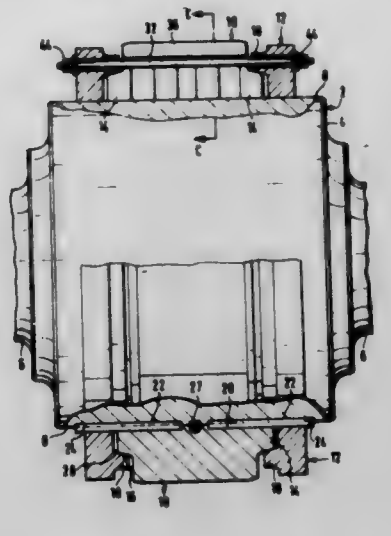
4,337,023

ROLLER PRESS FOR COMPACTING AND BRIQUETTING OF BULK MATERIAL

Heinz Köppern, Hattingen; Hans-Georg Bergendahl, Bochum; Hartmut Rieschel, and Friedhelm Koch, both of Hattingen, all of Fed. Rep. of Germany, assignors to Maschinenfabrik Köppern GmbH & Co. KG, Hattingen, Fed. Rep. of Germany

Filed May 8, 1981, Ser. No. 261,700
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1980, 3017962
Int. Cl.[3] B29C *3/02, 15/00*
U.S. Cl. 425—237 5 Claims

1. A roller press for compacting and briquetting bulk material having rollers, each comprising a core having a cylindrical surface, a plurality of segments resting on the cylindrical surface of the roller core adjacent one another along their longitudinal edges parallel to the axis and which, in each case, are provided at their ends with shoulder faces which extend at an acute angle of less than 45° to the axis of the roller; adjusting springs extending parallel to the axis of the roller by means of which the segments are fixed on the roller core in the circumferential direction; holding elements which overlap said shoulder faces, and clamping bolts for the holding elements which are passed between the longitudinal edges of the segments and which are located in recesses in said longitudinal edges, said holding elements being a pair of continuous clamping rings which are provided with projections having frusto-conical shoulder faces having an arrangement and a circumferential width such that the shoulder faces on the segments are abutted in their central regions by the shoulder faces on the clamping rings, each clamping ring provided at its inner circumference with adjusting spring grooves parallel to the axis of the clamping ring and the adjusting springs for the segments projecting, parallel to the axis of the roller, beyond the end of the segment to such an extent that they engage in the adjusting spring grooves in the clamping ring.

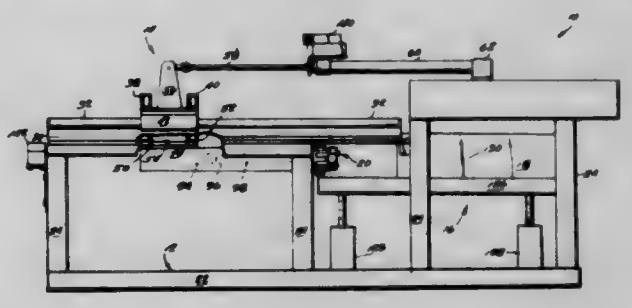


4,337,024

SEAM ROLLER

Edward W. Turner, Deerfield, and Peter J. Blake, Bondsville, both of Mass., assignors to Hardigg Industries, Inc., Deerfield, Mass.

Filed Mar. 20, 1981, Ser. No. 245,978
Int. Cl.[3] B29C *15/00*
U.S. Cl. 425—363 7 Claims



1. Apparatus for relieving tensile stress along welded seams in plastic containers comprised of means for holding the container so that at least one seam therein is at a predetermined position, movable roller means including at least two rollers respectively engaging the inner and outer sides of the seam and for applying rolling pressure thereto, and drive means for moving said at least two rollers along a predetermined portion of the seam and for establishing the rolling pressure.

4,337,025

APPARATUS FOR MOLDING A CONTAINER WITH OFFSET PARTING LINE

Louis T. Pagels, Hanover Park, and Dieter H. Nagel, Des Plaines, both of Ill., assignors to Automatic Liquid Packaging, Inc., Arlington Heights, Ill.

Filed Aug. 25, 1980, Ser. No. 180,961
Int. Cl.[3] B29C *17/07*
U.S. Cl. 425—392 4 Claims

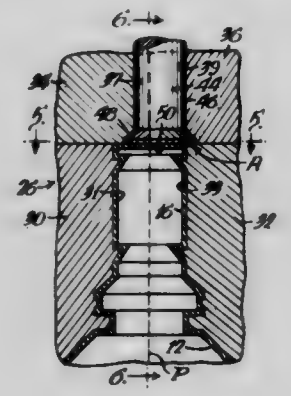
1. A mold assembly for molding a container from an extruded length of thermoplastic tubing and thereafter sealing the molded container, which assembly comprises:

a pair of movable, opposed lower mold sections each having a principal mold face defining a cavity adapted to shape a body portion of the container and a pair of movable opposed upper mold sections each having a principal mold

face and adapted to shape a unitary flat, pierceable closure for the container;

said movable mold sections being positionable between an open mold position and a closed mold position and being adapted to receive between said principal mold faces said extruded length of thermoplastic tubing, and the principal mold faces of the lower mold sections together defining a central parting plane when the lower mold sections are in said closed mold position; and

one of said pair of upper mold sections having a mold insert removably affixed on the principal mold face thereof for



shaping at least a portion of said pierceable closure, said mold insert being a generally cylindrical member having a substantially flat base at one end adapted to shape a major portion of the exterior surface of said pierceable closure, and the other of said pair of upper mold sections having a recess complementary to said mold insert and adapted to mate with said mold insert when the upper mold sections are in said closed mold position;

whereby at least a portion of the resulting parting line on the closure of the molded container is displaced relative to said central parting plane by said removable mold insert.

4,337,026

MOLD-CARRIER ASSEMBLY

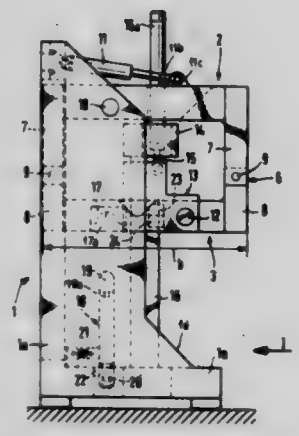
Peter Taubenmann, and Karl-Ludwig Korzeczek, both of Munich, Fed. Rep. of Germany, assignors to Krauss-Maffei Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 1, 1980, Ser. No. 192,824

Claims priority, application Fed. Rep. of Germany, Oct. 3, 1979, 2940114

Int. Cl.³ B29C *3/00*

U.S. Cl. 425—454 10 Claims



1. A mold-handling device for a pair of mold parts defining a molding tool, said device comprising:

a support;

an upper mold-carrying plate adapted to receive one of said parts and pivotally mounted on said support;

a lower mold-carrying plate engageable with said upper mold-carrying plate in a closed position of said plates;

locking means on said plates for directly fixing said plates together in said closed position;

means for raising and lowering said lower mold-carrying plate on said support, said lower mold-carrying plate being pivotally connected to the latter means at a respective pivot axis; and

at least one upwardly extending stop bar on said support engageable with said lower mold-carrying plate upon the lowering of said axis, thereby tilting said lower mold-carrying plate about said axis, said lower mold-carrying plate and said means for raising and lowering being provided with mutually engageable abutments for supporting said lower mold-carrying plate in a horizontal position upon raising of said axis.

4,337,027

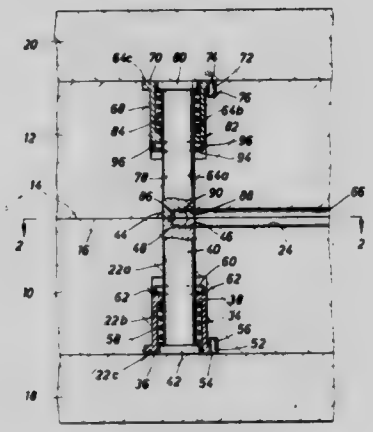
INJECTION MOLD VALVE

Royel F. Montieth, #958 5440 N. Brasewood, Houston, Tex. 77096

Filed Aug. 6, 1980, Ser. No. 175,914

Int. Cl.³ B29F *1/05*

U.S. Cl. 425—562 15 Claims



1. An injection mold apparatus comprising:

a mold body comprising first and second integral body members having respective opposed first and second interface surfaces, said body members being releasably mounted in abutment with each other along said interface surfaces;

said first body member having

a first bore opening through said first interface surface, and

at least two concavities in and opening through said first interface surface generally radiating from said first bore,

and a first valve element mounted in said first bore having an end face generally contiguous said first interface surface and facing in the same direction therewith, said first valve element having first recess means in said end face opening radially of said first valve element, as well as axially through said end face, said first valve element being selectively rotatable between a first position in which said first recess means is aligned with both of said concavities to provide communication therebetween via said first recess means, and a second position in which said first recess means is displaced from alignment with at least one of said concavities to block said one concavity from communication with the other of said said concavities via said first recess means.

4,337,028

CATALYTIC MONOLITH, METHOD OF ITS FORMULATION AND COMBUSTION PROCESS USING THE CATALYTIC MONOLITH

Meredith J. Angwin, Palo Alto, Calif., and William C. Pfefferle, Middletown, N.J., assignors to The United States of America as represented by the United States Environmental Protection Agency, Washington, D.C.

Filed May 27, 1980, Ser. No. 153,057
Int. Cl.[3] B01J *21/04, 23/86, 35/04;* F23D *3/40*
U.S. Cl. 431—7 29 Claims

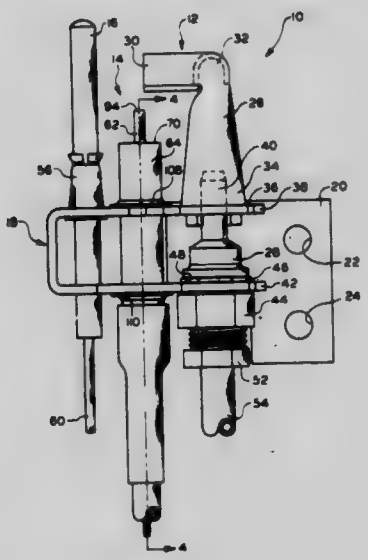
1. A catalytically active structurally sound ceramic in a monolithic form having gas flow passages with heterogeneous combustion surfaces formed of a catalytically active mixed base metal oxide of the perovskite, spinel, corundum or ilmenite crystal structure for the sustained combustion of fuels.

4,337,029

PILOT BURNER ASSEMBLY

Jerry W. McElroy, St. Louis, and Donald C. Urban, Florissant, both of Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Mar. 28, 1980, Ser. No. 135,166
Int. Cl.[3] F23N *5/10;* F23Q *3/00*
U.S. Cl. 431—264 4 Claims



1. In a pilot burner assembly,

U-shaped mounting bracket having an upper leg and a lower leg, each said leg having first, second, and third openings therein;

a pilot burner comprising a guard rigidly attached to said upper leg at said first opening therein, and an orifice screw extending through said first opening in said lower leg of said bracket,

said orifice screw being telescopically received by said guard and removably attached to said lower leg;

a spark electrode assembly including a straight electrode co-axial with an insulating sleeve, wherein a tip of said electrode and a portion of said guard define a spark gap, and wherein said electrode tip extends a distance beyond an edge of said sleeve,

said spark electrode assembly further including an electrically conductive tube telescopically receiving and rigidly connected to a portion of said electrode within said sleeve so as to adjustably establish said distance that said electrode tip extends beyond an edge of said sleeve, and means cooperative with said electrode, tube, and sleeve for rigidly maintaining said distance;

means for adjusting said spark gap comprising means for frictionally attaching said sleeve to said second openings in said upper and lower legs of said bracket; and

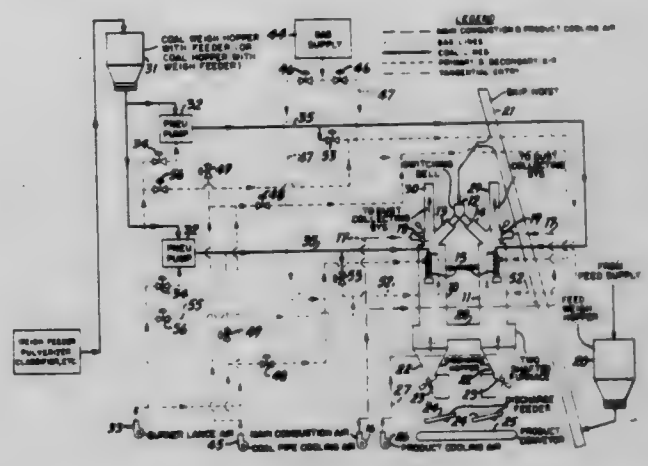
flame responsive means extending through said third openings in said upper and lower legs of said bracket and securely attached to at least one of said third openings and disposed so as to be impinged by a flame from said pilot burner.

4,337,030

SOLID FUEL FIRED KILN

Edward Gootzait, Lewisburg, and Donald L. Fisher, Milton, both of Pa., assignors to Kennedy Van Saun Corporation, Danville, Pa.

Filed Mar. 3, 1980, Ser. No. 126,310
Int. Cl.[3] F27B *15/00*
U.S. Cl. 432—14 10 Claims



1. A fuel burner comprising means defining a pre-combustion chamber having a lower region which is in communication with the combustion chamber of the kiln, an outer conduit communicating at its lower end with the upper region of the pre-combustion chamber and extending upwardly within the kiln, an inner conduit within the outer conduit and having its lower discharge end within the outer conduit and spaced above the upper region of the pre-combustion chamber, pneumatic feed means for supplying a pulverized solid fuel and air mixture to the inlet end of said inner conduit and for discharging the mixture into the pre-combustion chamber, the air in the mixture supporting at least partial combustion of the solid fuel particles within the pre-combustion chamber, means for supplying air to the outer conduit for cooling the conduits and supporting combustion within the pre-combustion chamber, means for supplying an air supply to the combustion chamber of the kiln proper to support combustion outside the pre-combustion chamber, and an apertured depending wall forming part of the pre-combustion chamber for discharging at least part of the stream from the inner conduit through the apertures, thereby forming a lower pressure toroidal zone in the upper region of the pre-combustion chamber around the outer periphery thereof for inducing flow into the pre-combustion chamber.

4,337,031

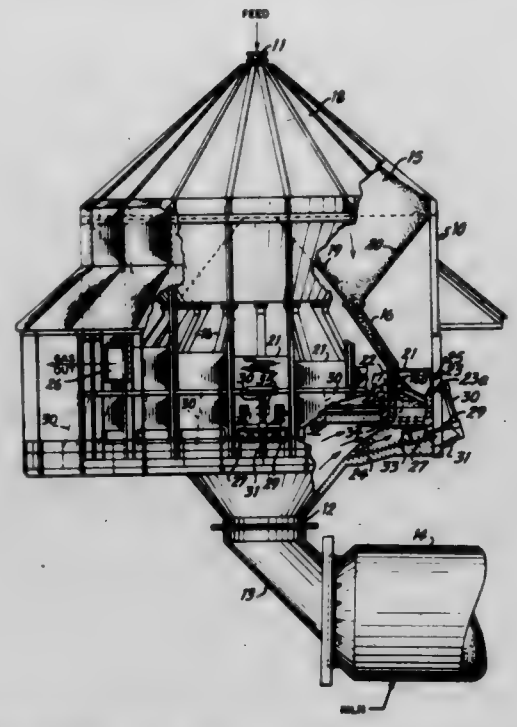
PREHEATING APPARATUS

Kenneth L. Gardner, Riverside; William E. Zimmer, and Samuel A. Miller, both of Danville, all of Pa., assignors to Kennedy Van Saun Corporation, Danville, Pa.

Filed Feb. 2, 1981, Ser. No. 230,730
Int. Cl.[3] F27D *1/08;* F27B *7/02;* F26B *17/12*
U.S. Cl. 432—98 6 Claims

1. A preheating apparatus for particulate material comprising an annular flow passage for the particulate material having a lower discharge, an annular sloped surface forming the lower end of the annular flow passage across which the material moves toward said lower discharge, means for moving the material across the sloped surface toward said discharge, means for introducing hot kiln gases into the lower region of said annular flow passage above the sloped surface for flow in countercurrent heat exchange relationship with the particulate material, a plurality of hot kiln gas ducts extending radially across said annular flow passage and communicating at their inner ends with the hot kiln gases above the material moving across the sloped floor and extending substantially across the annular flow passage above the means for moving the material across the sloped surface and means for discharging the hot kiln gases from the lower regions of the radially extending

ducts substantially throughout the radial lengths thereof to cause the hot kiln gases to flow outwardly around the radially



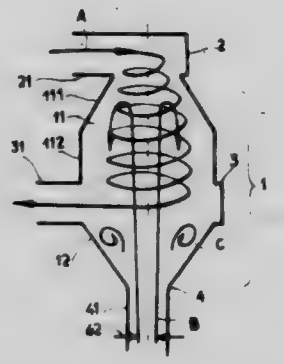
extending ducts and then in countercurrent direction to the particulate material.

4,337,032

DEVICE FOR MIXING GASEOUS FLUIDS BY TURBULENCE

Alain Duplouy, Bievres, and Bernard Le Bras, Montelimar, both of France, assignors to Lafarge Coppee, Paris, France

Filed Jan. 28, 1981, Ser. No. 229,252
Claims priority, application France, Jan. 28, 1980, 80 01794
Int. Cl.³ F27B *7/02, 15/00;* F23C *5/32*
U.S. Cl. 432—106 **16 Claims**



1. A device for mixing by turbulence gaseous fluids and solid particles in suspension, comprising

(a) a mixing chamber (1) bounded laterally by a wall of revolution about a vertical axis and into which emerge two flows of gaseous fluids at least one of which contains said particles in suspension;

(b) a first inlet (2) located at the upper end of said chamber (1) for introducing a first flow (A) forming a vortex in said chamber;

(c) an outlet volute (3) through which said first flow is exhausted;

(d) a second inlet (4) located at the lower end and on the axis of said chamber (1) for introducing a second axial flow (B), the latter forming a jet which is sucked inside said vortex in order to mix there with said first flow, the whole being exhausted through said outlet volute (3);

(e) said outlet volute (3) being located in the central portion of said chamber (1);

(f) said chamber comprising an upper portion (11) for the formation of said vortex and said outlet volute, and a lower portion (12) which widens upwards between said second inlet (4)

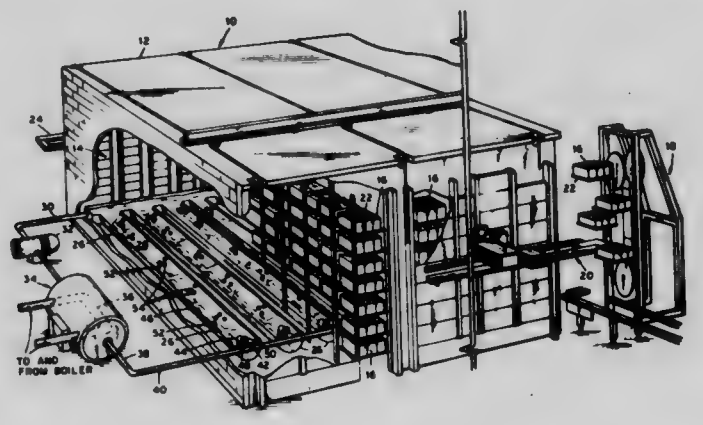
and said outlet volute (3), for the recovery and recycling into said axial flow (b) of solid particles which escape from said vortex.

4,337,033

APPARATUS FOR CURING MASONRY UNITS

Bob R. Drain, 3660 N. 3rd St., Phoenix, Ariz. 85012

Division of Ser. No. 888,630, Mar. 21, 1978, Pat. No. 4,244,904.
This application Jan. 2, 1981, Ser. No. 222,055
Int. Cl.³ F27B *15/00, 5/16*
U.S. Cl. 432—197 **5 Claims**



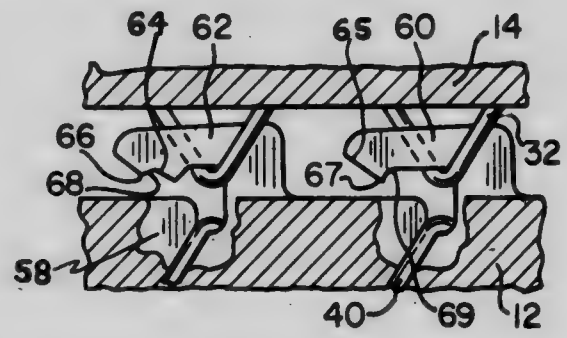
1. In a system for curing masonry units employing heated air including housing means defining a substantially closed chamber, means for introducing uncured masonry units into said chamber and means for removing substantially cured masonry units from said chamber, the improvement comprising means introducing heated water into said chamber, means collecting a portion of said chamber atmosphere and aspirating said collected portion with said water being introduced to said chamber, means within said chamber defining a vessel for a quantity of said heated water, means injecting said air and heated water mixture into said quantity of water in said vessel at spaced apart locations beneath the surface of said quantity of water.

4,337,034

PROTECTIVE REFRACTORY MEMBER LOCKING DEVICE

John W. Morgan, II, Pittsburgh, and Hans E. Leumann, Washington, both of Pa., assignors to Bloom Engineering Company, Inc., Pittsburgh, Pa.

Filed Feb. 2, 1981, Ser. No. 231,228
Int. Cl.³ F27D *3/02*
U.S. Cl. 432—234 **9 Claims**



1. A protective refractory elongated hollow member for protecting pipe and the like in high temperature metallurgical furnaces comprising an arcuately shaped male part and an arcuately shaped female part interconnected at their respective longitudinal edges to form said member, said male part including a clip partially embedded within the part and including at least a first and second spaced apart hook extending outward from the longitudinal edges, said female part having at least one hook receiving member partially embedded within the

part and including loops extending outward from the longitudinal edges for receiving the hooks, at least one of said hooks including locking means for engaging the loop and preventing the disengagement of the parts.

4,337,035

FIRING KILN; WITH EMPHASIS ON ROLLERS FOR A FIRING KILN

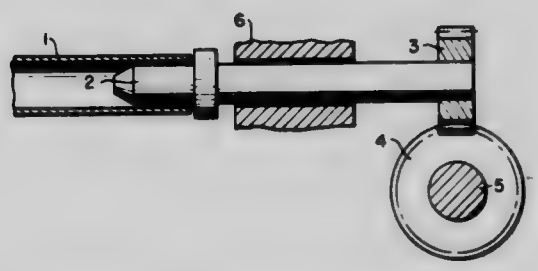
Rolfo Barchi, Castellon, Spain, assignor to Karl August Heimsoth Industrie, Hildesheim, Fed. Rep. of Germany

Filed Nov. 17, 1980, Ser. No. 207,733

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1979, 2947540

Int. Cl.³ F27D *3/00*

U.S. Cl. 432—246 4 Claims



1. In a firing kiln in which ceramic components are fired in a firing zone of the kiln, the improvement comprising the combination of:

(a) a roller conveyor with a large number of fixed but rotating rollers with a small diameter and at short intervals, for moving said ceramic components into the kiln and out of it, and particularly through the firing zone of the kiln;

(b) drive means engaging said rollers for driving each of said rollers; and

(c) wherein each of said rollers is further defined as:

(1) constructed in at least two sections, a middle section and an end section, wherein said middle section is constructed of a ceramic member with a tubular cover made of austenitic steel or the like;

(2) each of said sections is adapted to be connected by plug connections;

(3) each of said end sections has a means for engaging said drive means;

(4) each of said end sections is provided with a cross pin and a ball-and-spring device; and,

(5) each of said middle sections is constructed with longitudinal slots distributed around the circumference to receive said cross pin and with borings distributed around the circumference for reception of the ball.

4,337,036

ORTHOPEDIC PRESSURE APPLIANCE AND METHOD FOR CONTROLLING DEVELOPMENT OF THE MAXILLARY BONE

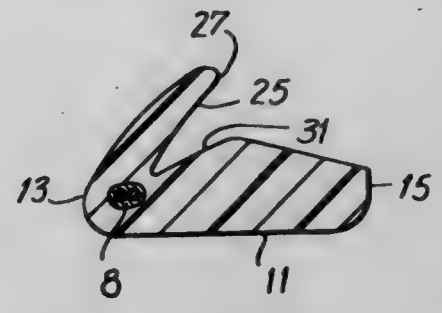
Carl S. Hoffman, 390 Crestwood Dr., Cheshire, Conn. 06410

Continuation of Ser. No. 71,174, Aug. 31, 1979, abandoned. This application Aug. 26, 1980, Ser. No. 181,632

Int. Cl.³ A61C *7/00*

U.S. Cl. 433—5 6 Claims

1. In an orthopedic pressure appliance comprising a body with a form approximating a dental arch with an anterior portion and two symmetric posterior portions extending therefrom and having a lingual surface, a labial-buccal surface, two pharyngeal surfaces bridging the adjacent respective posterior ends of said labial-buccal and lingual surfaces, an upper surface, a lower surface, and a pair of symmetrical wire prongs extending laterally in opposite directions and posteriorly from the labial edge of the anterior portion of said body, the improvement which comprises a first ridge extending upwardly from said upper surface adjacent said labial-buccal surface and defining a first flange surface upwardly posteriorly sloping at the anterior region extending laterally in opposite directions and posteriorly from the labial edge of the anterior portion of said body, the improvement which comprises a first ridge extending upwardly from said upper surface adjacent said labial-buccal surface and defining a first flange surface upwardly posteriorly sloping at the anterior region thereof and having there at an upper edge adapted to engage the gingival third or at least some of the maxillary anterior teeth, a second ridge and a third ridge each extending upwardly from said



upper surface adjacent the respective posterior regions of said lingual surface and defining respective second and third flange surfaces adapted to engage the lingual surfaces of at least some of the maxillary posterior teeth or the lingual mucosa, the anterior region of said upper surface sloping posteriorly upwardly and merging with the respective anterior regions of said second and third ridges whereby the incisal edges of the teeth are precluded from being moved more lingually than the root apices as the first ridge is urged against the gingival third of the maxillary anterior teeth.

4,337,037

FIXED LINGUAL ORTHODONTIC APPLIANCE FOR THE MAXILLARY ARCH

Craven H. Kurz, No. 6 N. Star, Apt. 106, Marina del Rey, Calif. 90291

Continuation-in-part of Ser. No. 120,146, Feb. 11, 1980, abandoned. This application Apr. 23, 1981, Ser. No. 256,961

Int. Cl.³ A61C *3/00*

U.S. Cl. 433—8 7 Claims

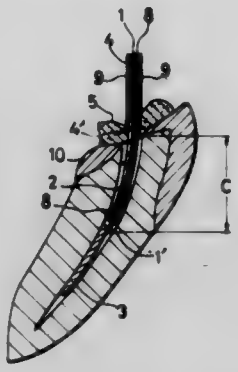


1. A lingual orthodontic appliance for the teeth of the maxillary arch comprising: a bracket shaped to fit between the lingual ridges of a particular tooth of the maxillary arch and shaped to fit the anatomy of the lingual surface of the particular tooth, and to be positioned over the cingulum area, the bracket having a slot extending mesiodistally for receiving an arch wire, and said bracket having an inclined bite plane formed on the lingual surface thereof in position to be engaged by the corresponding tooth of the mandibular arch and having a selected inclination such that as the corresponding tooth bites against the bite plane the resultant force direction is such that the bracket is forced against the lingual surface of the particular tooth by the occlusal force, so as to prevent the bracket from being sheared off the particular tooth by the corresponding mandibular tooth.

4,337,038
ELECTROLYTIC IMPLEMENT AND METHOD FOR REMOVING METAL PIECES LEFT IN ROOT CANALS OF TEETH

Tsuyoshi Saito, and Masaru Ogiwara, both of Tokyo, Japan, assignors to M-S Surgical Mfg. Co., Ltd., Tokyo, Japan

Filed Oct. 21, 1980, Ser. No. 199,368
Claims priority, application Japan, Nov. 19, 1979, 54-148881
Int. Cl.[3] A61C *3/00*
U.S. Cl. 433—32 10 Claims

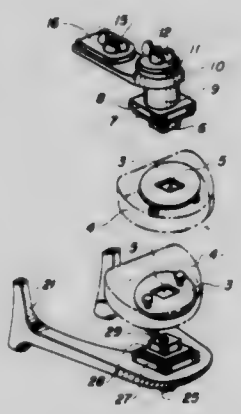


1. An electrolytic implement for removing a metal piece in the root canal of a tooth, comprising a positive electrode formed of a metal needle, said needle, except for a tip portion thereof, coated with an electrically insulating material, said tip portion adapted to come into contact with said metal piece; and a negative electrode formed by a metal tube coated, except for a tip portion thereof, with electrically insulating material; said metal needle fitting within the metal tube and being freely slidable therein.

4,337,039
PLASTERLESS ARTICULATOR

Raymond H. Martin, 88 Brisbon Rd., Somerset, Mass. 02726; Ugo S. Garganese, 1790 Warwick Ave., Warwick, R.I. 02889, and John R. Griffin, 5 Franconia St., Dorchester, Mass. 02122

Filed Sep. 4, 1979, Ser. No. 71,948
Int. Cl.[3] A61C *11/00*
U.S. Cl. 433—60 1 Claim



1. A plasterless dental articulator, model base former, ferromagnetic disc, for mounting and supporting an upper and lower dental models, said articulator comprising:

(A) A lower jaw frame, having a solid base to which a ferromagnetic cap with an encased square metal nut and magnet is attached to hold the lower model securely in place and, an upper jaw assembly consisting of a slide bar support having a horizontal axel with a lateral wheel on one end which attaches to the lower jaw frame to simulate the movement of the jaw; the slide bar support also having a threaded milled hole on either end, the distal hole to receive a vertical bolt and lock nut to establish the vertical opening of the upper and lower jaws; the anterior hole to receive a vertical bolt, a wing nut and a slide bar, said slide bar having an oblong opening inside most of its length which allows the slide bar to be moved fore, aft and laterally, the slide bar also having a cap shaped aperture with an opening on the anterior end through which an assembly of a swivel socket dome and machined domed washer is placed, with the upper portion of the assembly threaded to receive a wing nut to tighten the assembly and the lower portion having a ferromagnetic cap with an encased nut and a magnet to hold the upper model securely in place after which a slide bar and the swivel dome socket are tightened by means of the wing nuts,

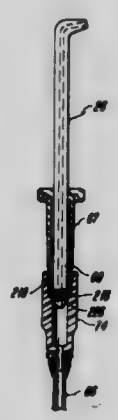
(B) A flexible model base former having a square nipple in the center the same demensions as the nut on the articulator and a wall along its edge the same height as the center nipple,

(C) a ferromagnetic disc with retainers for securing into the base of the model and a square hole in the center, the exact dimensions to fit over the flexible nipple, so that the ferromagnetic disc will be transferred into the base of the model.

4,337,040
ORAL HYGIENE APPLIANCES

Michael A. Cammack; Christopher W. Elkins; Clarence J. Hickman, and Keith M. Mullins, all of Ft. Collins, Colo., assignors to Teledyne Industries, Inc., Ft. Collins, Colo.

Division of Ser. No. 97,039, Nov. 23, 1979. This application Mar. 23, 1981, Ser. No. 246,611
Int. Cl.[3] A61C *17/02*
U.S. Cl. 433—80 1 Claim



1. In a device which includes a supply of liquid and means for delivering such liquid to a point of use, a coupling assembly which comprises:

an elongated coupling element having a cylindrical internal bore formed inwardly from one end of said element, a first portion of said bore having a predetermined diameter and a second more inward portion of said bore having a diameter of less than said predetermined diameter;

a cylindrical retaining sleeve longitudinally fixed within a second portion of said bore but projecting therein only to an extent which defines a lateral recess between the inner end of said sleeve and said first portion of said bore, the inner wall of said sleeve matching the diameter of said second portion and thereby effecting a continuation of said second portion outwardly beyond said recess;

an annular resilient O-ring floatingly seated in said recess and having a thickness less than the length of said recess but greater than the difference between the diameters of said first and second portions;

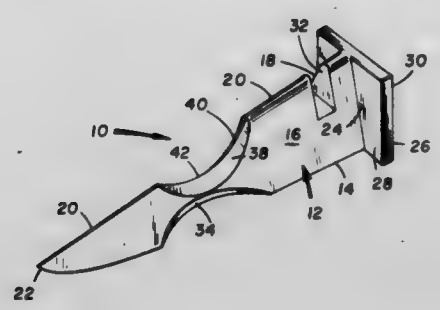
a cylindrical coupling member insertable within said sleeve and said second portion of said bore for accepting flow of said liquid;

and a circumferential groove defined on the exterior of the end portion of said member and engageably seating said O-ring upon insertion of said member within said sleeve.

4,337,041
DENTAL WEDGE

John D. Harsany, 1 Marion Ave., Mansfield, Ohio 44903

Filed Sep. 29, 1980, Ser. No. 191,842
Int. Cl.[3] A61C 7/00
U.S. Cl. 433—149 12 Claims



1. A unitary dental wedge for interproximal insertion in the interdental space between teeth comprising:

an elongated body being substantially triangular in cross section;

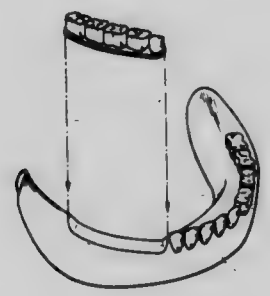
means for positively engaging said teeth thereby locking said body therebetween, said positive engagement and locking means comprising at least one depression disposed in a portion of said elongated body contacting one of said teeth when said body is interproximally disposed, said depression being concavely tapered to conform substantially to and for capturing and selectively retaining therein a part of said contacted portion of said tooth, said contacted portion of said tooth being an interproximal surface thereof, said at least one depression being contoured to substantially conform to said contacted interproximal surface; and

means for simulating the contour of the concave bulbous papillia of the gingiva disposed in the interdental space when said papillia is displaced by interproximal insertion of said dental wedge, said contour simulating means comprising a pair of recesses disposed in said elongated body, said recesses being contoured as said papillia, said elongated body portion including a pair of side portions meeting at a vertex edge and a base portion, one of said recesses being disposed in one of said sidewalls, the other of said recesses being disposed in the other of said sidewalls, said recesses being adjacent, merging together, and undercutting said vertex edge proximate thereto.

4,337,042
DENTAL ARRANGEMENT AND PROCESS FOR MANUFACTURING DENTURES

Frauke H. F. von Nostitz, Allescherstrasse 45, 8000 Munich 71, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,332
Claims priority, application Fed. Rep. of Germany, Oct. 17, 1979, 2942062
Int. Cl.[3] A61C 13/22
U.S. Cl. 433—171 6 Claims

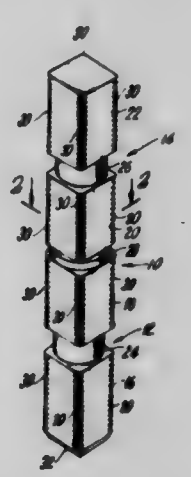


1. Dental arrangement for the manufacture of an artificial partial or total denture comprising at least two artificial teeth connected in natural sequence, characterized in that the artificial teeth are mounted along the roots side on a strip made of a plastic selected from acrylic or methacrylic esters which are flexible or remain soft in such a manner that the relative movement of the teeth with respect to one another horizontally as well as in the vertical direction is possible without disengagement of the teeth from the plastic strip.

4,337,043
DENTAL ANCHOR

Bernard Weissman, New York, N.Y., assignor to IPCO Corporation, White Plains, N.Y.

Filed Oct. 26, 1977, Ser. No. 845,628
Int. Cl.[3] A61C 5/04
U.S. Cl. 433—225 6 Claims



1. A dental anchor for insertion into a channel in a tooth, said dental anchor comprising an elongated body member, said body member having a first section with a substantially square cross-section to provide four longitudinal side surfaces joined by four longitudinal corner portions, each of said corner portions being provided with thread means for self tapping said one section into the channel when said body member is rotated about its longitudinal axis, said longitudinal side surfaces of said first section being spaced from walls of the channel when said first section is being threaded into the channel to reduce self tapping stresses, said body member having a second section along said longitudinal axis, a reduced thickness portion disposed intermediate said first section and second section to permit said second section to be bent relative to said first section after said first section is seated in the channel to provide an anchoring portion for a superstructure, said reduced thickness portion being cylindrical; and

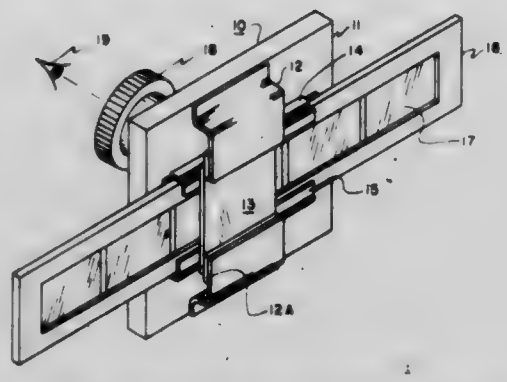
said dental anchor further including a second elongated body member along said longitudinal axis, said second body member having a third section with a substantially square cross-section to provide another four longitudinal side surfaces joined by another four longitudinal corner portions, each of said another corner portions being provided with second thread means for self tapping said third section into a second channel when said second body member is rotated about said longitudinal axis, said another four longitudinal side surfaces of said third section being spaced from walls of the second channel when said third section is being threaded into the second channel to reduce self tapping stresses, and a frangible reduced thickness member connecting said second and third sections of said body members together, said reduced thickness cylindrical portion having a thickness greater than any thickness of said frangible reduced thickness member.

4,337,044

NIGHT VISION TRAINING SIMULATOR

John E. Palmer, Springfield, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 6, 1981, Ser. No. 232,333
Int. Cl.³ G09B 19/00
U.S. Cl. 434—11 10 Claims



1. A training aid to simulate the light images of a plurality of diverse targets created by the light emitting elements in a thermal viewer comprising:

a source of white light;

a record means optically coupled to said source to transform light from said source into a black and white image of said targets closely resembling the same target image produced by said viewer;

an eyepiece means coupled to said record means to focus said image for comfortable viewing; and

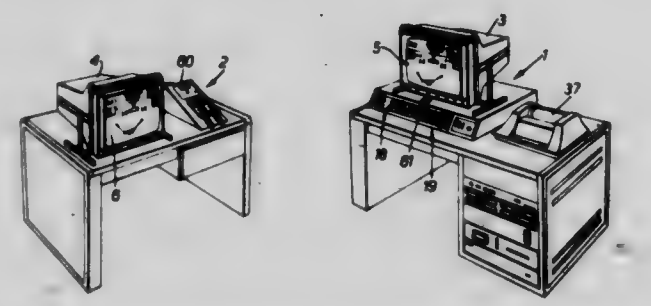
a light filter means mounted between said source and said eyepiece means to pass substantially only those quanta of light having the same frequency and spectral distribution as said light emitting elements.

4,337,045

NAVIGATION TRAINING AIDS

Frank Jones, Finchampstead, and Peter Tomlinson, Burleigh, both of England, assignors to Jones and Healy Marine Limited, Wokingham, England

Filed Aug. 21, 1980, Ser. No. 180,107
Int. Cl.³ G09B 9/06
U.S. Cl. 434—29 12 Claims



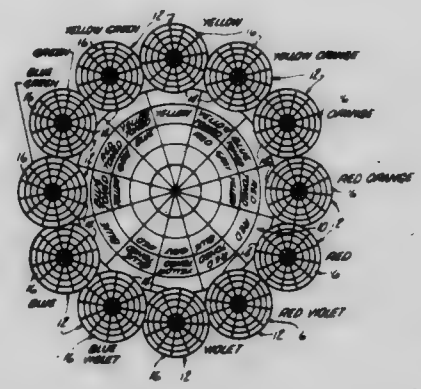
1. A ship navigation and handling training simulator comprising a first console for use by a student trainee and a second console for use by an instructor, at least one of said consoles having a screen to provide a mimic display of the ship and environmental information, two groups of controls for setting-in respectively the environmental and display information applicable to a navigational or handling exercise to be performed and information representing ship/tug control decisions by the student trainee, said second console being associated at least with the said group of controls for setting-in environmental and display information, and computer means programmed to control the display on a time scale in accordance with the information set-in on both said groups of controls and changes thereto during the course of the exercise.

4,337,046

BASIC COLOR MEDIA SET FOR PROVIDING TONALLY MATCHED PALETTES

Martin C. Anderson, 2265 N. Oxford Rd., Oxford, Mich. 48051, and David T. Lonier, 10691 Williams, Taylor, Mich. 48180

Division of Ser. No. 43,279, May 29, 1980, Pat. No. 4,249,318, which is a continuation of Ser. No. 792,149, Apr. 29, 1977, abandoned. This application Nov. 19, 1980, Ser. No. 208,195
Int. Cl.³ B44D 3/00
U.S. Cl. 434—103 12 Claims



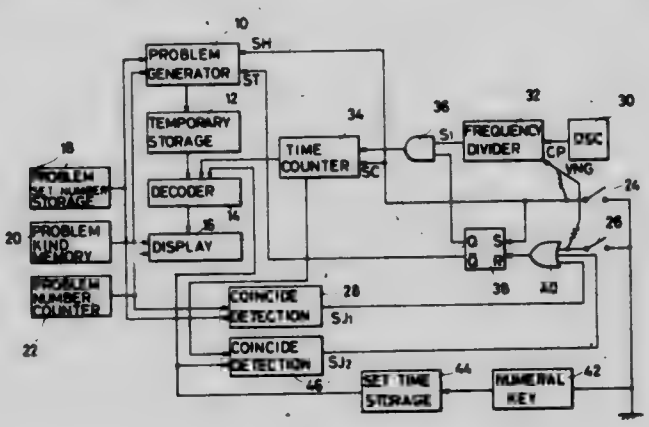
1. A color chart arrangement for use in preparing tonal palettes from a set of basic coloring materials, said color chart comprising a sequenced array of samples of said basic coloring materials, said sequenced array comprising successive groupings of three sample colors, said groupings comprising three respective primary color-related groupings, each grouping being related to a different primary color, each of said groupings comprised of one of said primary colors and the other two primary colors toned towards said one primary color, said color chart further comprising three tertiary primary-toned grays, one of each of said three tertiary grays interposed between successive groupings of said basic coloring material sample regions, said primary tone of said gray tertiary color sample being interposed between successive groupings toned towards the other two primary colors other than the tone of said primary-toned tertiary, whereby successive groupings of three of said sample regions throughout said ordered array of sample regions comprise sample colors of a tonal palette consisting of the corresponding three coloring materials.

4,337,047

TIME COUNTER CONTROLLED ELECTRONIC LEARNING AID

Koiti Hatta, Yamatokoriyama, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 28, 1979, Ser. No. 98,026
Claims priority, application Japan, Nov. 29, 1978, 53/164371[U]; Dec. 21, 1978, 53/183138[U]
Int. Cl.³ G09B 7/00
U.S. Cl. 434—201 11 Claims



1. An electronic learning aid wherein problems are automati-

cally developed and displayed on a display panel, a student introduces his answer after calculation with figures, and the introduced answer is compared with a correct answer stored in the electronic learning aid, said electronic learning aid comprisisng:

time counting means for counting a time period; a start instruction generator for initiating the automatic problem development and the counting operation of said time counting means;

a stop instruction generator for terminating said automatic problem development and said counting operation of said time counting means; and a first display driver for displaying the contents stored in said time counting means on said display panel.

4,337,048

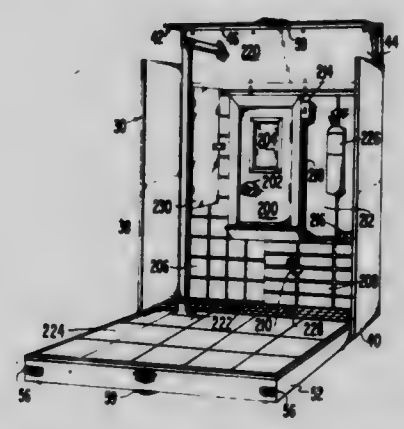
CAREER OCCUPATION BASIC SKILLS TRAINING SYSTEM

James E. Hatch, and Thomas W. Gannaway, both of Rochester, N.Y., assignors to The Singer Company, Stamford, Conn.

Continuation of Ser. No. 27,116, Apr. 4, 1979, abandoned. This application Oct. 14, 1980, Ser. No. 196,996

Int. Cl.³ G09B *19/00*

U.S. Cl. 434—219 **10 Claims**



1. A self-contained training system for providing a realistic simulated work environment and instructing a participant in the use of tools related to a specific occupation and in the performance of basic tasks related to that specific occupation, comprising:

a folding cabinet including at least a rear wall and a base apron member adapted to support and partially enclose a participant when said cabinet is unfolded;

components, materials and tools actually used in performing predetermined basic tasks in the specific occupation;

means for mounting selected ones of the components and materials on the rear wall of said cabinet so as to simulate a work environment for the specific occupation, said simulated work environment being in need of tasks to be performed to change the physical characteristics of the components and materials; and

means for presenting an assigned simulated job task to the participant for performance by the participant utilizing the tools on the components and materials so as to physically manipulate and change the character of the components and materials;

whereby the participant is given an opportunity to acquire actual experience in the specific occupation.

4,337,049

METHOD AND SYSTEM FOR AUTOMATED TRAINING OF MANUAL SKILLS

Edward M. Connelly, 1909 Hull Rd., Vienna, Va. 22180

Filed Jan. 9, 1981, Ser. No. 223,847

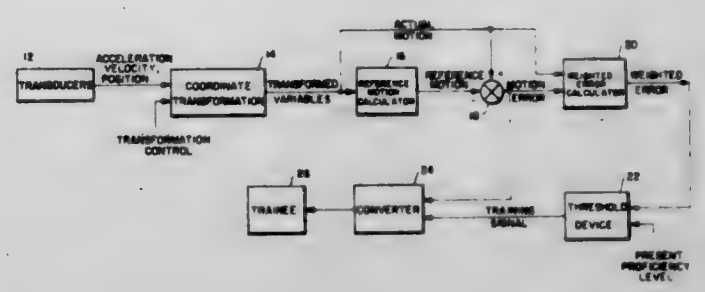
Int. Cl.³ A63B *21/00*

U.S. Cl. 434—247 **15 Claims**

1. A method for automated training of a subject having a given proficiency in manual skills, comprising the steps of:

(a) measuring body motion so as to derive a set of motion variables,

(b) comparing said motion variables to a reference motion to derive a motion error value,



(c) comparing said motion error value to a threshold error value corresponding inversely to said given proficiency level of said subject, and

(d) providing a training signal to said subject whenever said motion error value exceeds said threshold error value.

4,337,050

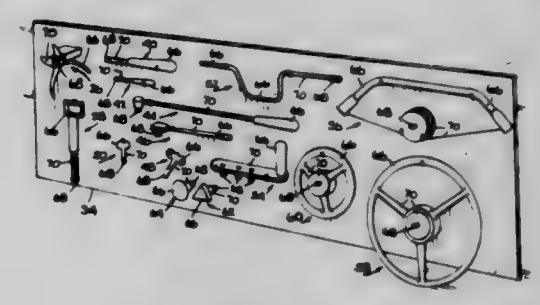
METHOD AND APPARATUS FOR REHABILITATION OF DAMAGED LIMBS

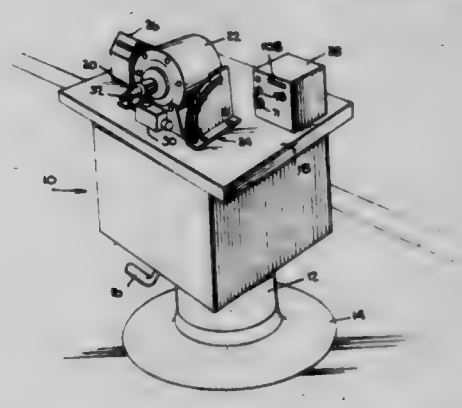
John Engalitcheff, Jr., Gibson Island, Md., assignor to Baltimore Therapeutic Equipment Company, Baltimore, Md.

Filed Dec. 3, 1979, Ser. No. 99,838

Int. Cl.³ A63B *21/24*

U.S. Cl. 434—260 **6 Claims**





1. Apparatus for simulating the operation characteristics of different tools for rehabilitation of damaged limbs to use such tools, said apparatus comprising:

(a) a plurality of accessories of different sizes and configurations, each accessory having at least one handle of the size and shape of the handle of a tool being simulated;

(b) a coupler element;

(c) frame means interconnecting the handle to the coupler element in a manner such that movement of the handle through the path of movement of the tool handle being simulated produces rotation of the coupler element, the frame means for each accessory being different according to the tool being simulated and a coupler element of each accessory being of the same construction;

(d) a brake controlled shaft mounted for rotation about a fixed axis;

(e) a brake arranged to produce a predetermined resistance to rotation of the shaft;

(f) a cooperative accessory coupler on one end of the shaft to receive the coupler elements of the accessories, to support the accessories, and to communicate their movements to

the shaft, the coupler element of each accessory being removably connectable to the accessory coupler such that the accessory is supported by the shaft; and

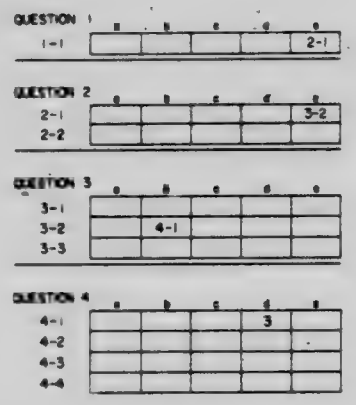
(g) the shaft and brake being mounted on a bracket extending between a pair of side plates, with a pivot shaft extending between the side plate and through the bracket, the side plates having aligned, curved slots therein with their axes of curvature coincident with the pivot shaft, and clamping bolts extending through the bracket and the slots.

4,337,051

SELF-SCORING TEST WITH NON-DISCLOSED KEY

Thomas Donlon, 113 King George Rd., Pennington, N.J. 08534

Filed Oct. 14, 1980, Ser. No. 196,833
Int. Cl.[3] G09B *3/00*
U.S. Cl. 434—328 10 Claims



1. A self-scoring answer sheet for a test for investigating the intellectual capacity of a testee, said test having at least two questions, serially identified; each question having at least one correct answer choice and at least one incorrect answer choice, said answer sheet comprising:

a. Answer elements formed into one answer matrix for each question—said answer matrix having a first number of lines of elements and a second number of columns of elements, said first number being equal to or greater than the serial identifier of the question, said second number being equal to or greater than the number of answer choices provided in the question;

b. An identifier for each matrix corresponding to the serial identification of the question associated therewith;

c. Identifiers for each column of elements corresponding to the identifiers assigned to the answer choices;

d. Identifiers for each line of elements;

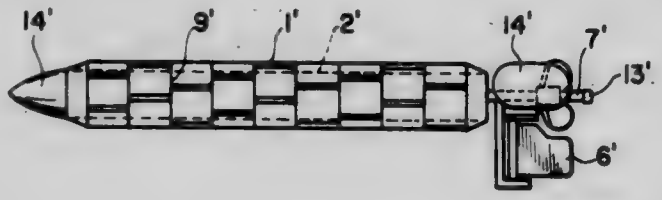
e. Identifiers positioned in each matrix element and hidden by a latent image technology, subject to exposure by said testee.

4,337,052

WAVE ENERGY PROPELLING MARINE SHIP

Seiichi Kitabayashi, No. 919-12, Oaza Koshikiya, Ageo-shi, Saitama, Japan

Filed Oct. 11, 1979, Ser. No. 83,792
Claims priority, application Japan, Jul. 10, 1979, 54-86514
Int. Cl.[3] B63H *19/02*
U.S. Cl. 440—9 1 Claim



1. A wave energy propelled marine ship for disposition on or in the sea and comprising:

a cylindrical ship body having a hollow space therein for transporting fluid material therewithin;

propulsion means for propelling said marine ship;

rudder means for controlling the moving direction of the marine ship;

rotary means around substantially the overall peripheral surface of said ship body and rotatable therewith, said rotary means including a rotary shaft, a rotary hollow sleeve concentrically mounted upon said rotary shaft for rotation therewith in a single rotational direction, a plurality of plates arranged radially from the axis of said shaft to the inside surface of said rotary sleeve to securely form a plurality of water chambers and a plurality of water ports, each of said ports formed in the trailing edge of each water chamber adjacent to the radial plate of each water chamber wherein wave energy is converted into rotary mechanical energy;

transmission means for driving said propulsion means from said rotary means; and,

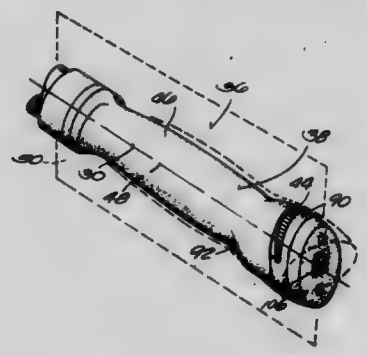
adjusting means for adjusting bouyancy of the whole marine ship so that the rotary means is positioned on the sea surface.

4,337,053

IDLE ADJUSTMENT CONTROL AND SCULPTURED TWIST GRIP THROTTLE CONTROL HANDLE FOR A MARINE PROPULSION DEVICE

Myron T. Stevens, Kenosha, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Sep. 24, 1979, Ser. No. 78,562
Int. Cl.[3] B63H *21/26*
U.S. Cl. 440—87 3 Claims



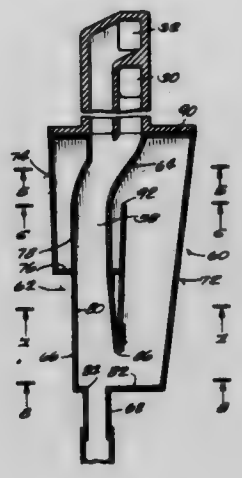
1. A marine propulsion device comprising a marine propulsion unit including an engine having a throttle movable between an idle position for operating said engine at an idle speed, an advanced position for operating said engine at a speed above the idle speed, and an advanced idle position adjacent to said idle position and between said idle position and said advanced position for operating said engine at a speed above the idle speed, said marine propulsion unit further including a rotatably mounted propeller operatively connected with said engine, a steering tiller attached to said marine propulsion unit and having a longitudinal axis, a throttle grip having an outer peripheral gripping surface extending axially of said longitudinal axis, said throttle grip being attached to said steering tiller for rotation relative to said longitudinal axis between a first position and a second position, throttle linkage means operatively connected with said throttle grip and said throttle for moving said throttle between said idle position and said advanced position in response to movement of said throttle grip between said first position and said second position, an idle adjustment knob having an outer peripheral side edge and being carried by said throttle grip for rotation with and relative to said throttle grip with a portion of said outer peripheral side edge extending radially from said longitudinal axis and outwardly beyond said outer peripheral gripping surface, and means operatively connecting said idle adjustment knob with said throttle linkage means for moving said throttle between said idle position and said advanced idle position in response to rotation of said idle adjustment knob relative to said throttle grip.

4,337,054

OUTBOARD MOTOR INCLUDING FOLDED TUNED EXHAUST GAS PASSAGE

Theodore J. Holtermann, Milwaukee, and Otto H. Scharpf, Brookfield, both of Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Mar. 17, 1980, Ser. No. 131,117
Int. Cl.³ B63H 21/26
U.S. Cl. 440—89 18 Claims



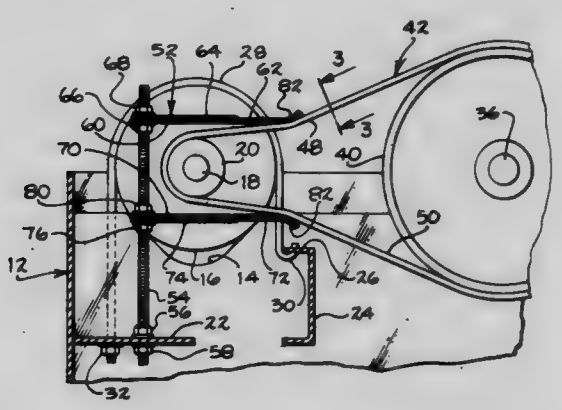
1. An outboard motor comprising a power head including an engine having an exhaust gas port, a drive shaft housing extending downwardly from said power head and including a lower end, a drive shaft driven by said engine, an exhaust gas discharge outlet adjacent said lower end, means defining a continuous folded passage housed in said drive shaft housing and including a first passage portion extending generally parallel to said drive shaft, having an upper end communicating with said exhaust gas port, and having a lower end, a second passage portion extending generally parallel to said drive shaft, communicating with said lower end of said first portion and extending upwardly therefrom, and having an upper end, and a third portion communicating with said upper end of said second portion and extending downwardly therefrom and including a transverse wall closing the end thereof, said folded passage also communicating with said exhaust gas discharge outlet, and a propeller supported for rotation by said lower end of said drive shaft housing and drivingly connected to said drive shaft.

4,337,055

DRIVE BELT TENSIONING APPARATUS

Duncan R. Mackay, Mountain View; Arthur K. Arnold, and Donald C. Holm, both of San Jose, all of Calif., assignors to Autotron Equipment Corporation, Mountain View, Calif.

Filed Mar. 10, 1980, Ser. No. 128,943
Int. Cl.³ F16H 7/12, 7/10
U.S. Cl. 474—111 3 Claims



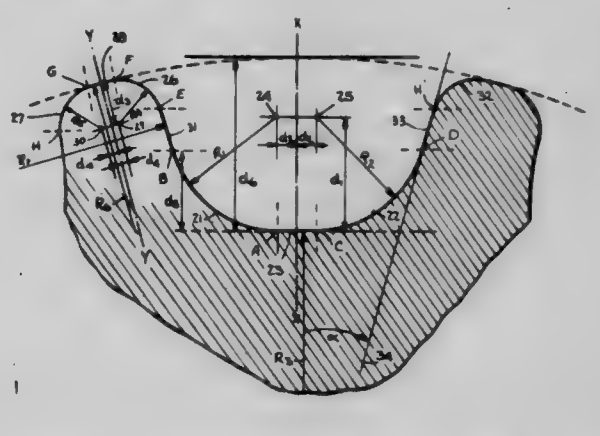
1. Apparatus for tensioning a drive belt that is trained around a driving sheave mounted on a first shaft and a driven sheave mounted on a second shaft supported substantially immovably in parallel spaced apart relation to said first shaft, said belt having a first and second belt run defined between said sheaves and disposed in spaced relation to each other, said apparatus comprising first and second elongate leaf springs each having a first end and a second end remote from said first end, and first and second spring mounting means for mounting said first end of each said spring substantially immovably with respect to said shafts, said first and second mounting means supporting an associated one of said springs to dispose said second end of said springs in rubbing contact with said belt on said first and second runs respectively and at a site intermediate said sheaves, said mounting means spporting said leaf springs to elastically deform an associated one of said springs and to deflect the belt on an associated one of said runs so as to tension the same, one of said sheaves being of a diameter smaller than the other said sheave and including an elongate rod mounted adjacent said smaller sheave, said elongate rod being spaced from said smaller sheave and being oriented substantially perpendicular to an imaginary line extending through said shafts, both said mounting means fixing the first ends of respective said springs at respective sites on said rod that are disposed on opposite sides of said smaller sheave.

4,337,056

MECHANICAL POWER TRANSMISSION SYSTEM

James A. Bruns, Itasca Pengilly, Minn., assignor to Uniroyal, Inc., New York, N.Y.

Continuation of Ser. No. 967,768, Dec. 8, 1978, Pat. No. 4,233,852. This application Nov. 17, 1980, Ser. No. 207,535
Claims priority, application United Kingdom, Dec. 12, 1977, 51992/77
Int. Cl.³ F16G 1/28
U.S. Cl. 474—153 1 Claim



1. A power transmission system comprising at least one pulley with teeth in combination with a flexible belt with teeth, the pulley teeth being a non-conjugate form of the belt teeth, the pulley teeth being separated by pulley cavity portions and the belt teeth being separated by belt cavity portions, each pulley tooth in longitudinal cross-section being symmetrical about a pulley tooth centerline intersecting with a center of said pulley, said pulley tooth including a tip portion and opposite flank portions extending from said tip portion, the tip portion being defined by first and second circular arcs on opposite sides of said pulley tooth centerline, the centers of curvature of said first and second arcs being displaced from each other on a circular arc having a common center with said pulley, a peripheral pulley segment at the outermost portion of said pulley tooth tip joining the first and second arcs, each said pulley cavity being symmetrical about a pulley cavity centerline intersecting with the center of said pulley, said pulley cavity being defined by a third and fourth circular arcs on opposite sides of said pulley cavity centerline extending into the flank portions of consecutive pulley teeth, the centers of curvature of said third and fourth arcs being displaced from each other on a circular arc having a common center with said pulley, a base pulley segment joining the third and fourth circular arcs to define a base portion of said pulley cavity, a first pulley flank segment connecting one of the third and fourth circular arcs and one of the first and second circular arcs, and a second pulley flank segment connecting the other

of the third and fourth circular arcs and the other of the first and second circular arcs, each belt tooth in longitudinal cross-section being symmetrical about a belt tooth centerline, said belt tooth being partially defined by fifth and sixth circular arcs intersecting at said belt tooth centerline and extending into opposite flank portions of said belt tooth, the centers of curvature of said fifth and sixth arcs being displaced from each other and equidistant from a line tangent to consecutive belt tooth cavities, said belt cavity being symmetrical about a belt cavity centerline and being partially defined by the fifth arc of one belt tooth and the sixth arc of a consecutive belt tooth, said belt cavity having a base portion defined by seventh and eighth arcs on opposite sides of said belt cavity centerline, the centers of curvature of said seventh and eighth arcs being displaced from each other and equidistant from said line tangent to consecutive belt tooth cavities, a belt segment at the innermost portion of said belt cavity joining the seventh and eighth arcs, portions of said seventh and eighth arcs extending toward the flank portions of consecutive belt teeth, the distance between the centers of curvature of said seventh and eighth arcs being selected to exceed the distance between the centers of curvature of said first and second arcs such that in no-load condition of the belt and pulley the width of the base portion of said belt cavity exceeds the width of said pulley tooth tip, and the center of curvature locations and the radii of said third, fourth, fifth and sixth circular arcs being selected such that in said no-load condition the height of said belt tooth along said belt tooth centerline measuring from the intersection of said fifth and sixth arcs to the intersection of said belt tooth centerline with the line tangent to consecutive belt tooth cavities exceeds the depth of said pulley cavity along said pulley cavity centerline measuring from the intersection of said base pulley segment with said pulley cavity centerline to the intersection of said pulley cavity centerline with an arc having a common center with said pulley and tangent to consecutive pulley teeth tips.

4,337,057

TRANSMISSION CHAIN

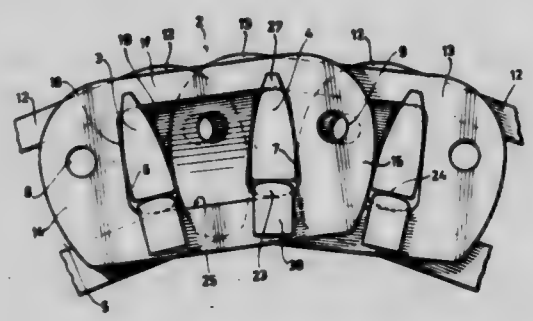
Alexandre Horowitz, and Martinus H. Cuypers, both of Eindhoven, Netherlands, assignors to Varitrac AG, Switzerland

Continuation of Ser. No. 183,568, Sep. 2, 1980, abandoned. This application Oct. 1, 1980, Ser. No. 193,174

Claims priority, application Netherlands, Sep. 6, 1979, 7906681

Int. Cl.³ F16G *15/14, 5/18*

U.S. Cl. 474—242 **24 Claims**



1. A transmission chain, comprising a plurality of links intercoupled by a plurality of hinge pins;

each link being comprised of a plurality of link elements; each link element being generally plate-like and having an opening therethrough, the opening being defined by opposed side walls at the leading and trailing sides of the opening;

each hinge pin having opposite, curved, lateral sides; between the lateral sides thereof, the hinge pin being narrower than the width of a link element opening between the opposed side walls of the opening;

one hinge pin extending through the opening in a first link element, and a first lateral side of the one hinge pin contacting the leading side of the opening in the first link element; a second hinge pin extending through the opening in the first link element, and a first lateral side of the second hinge pin contacting the trailing side of the opening in the first link element;

a second link element being positioned to the side of the first link element and offset in one direction along the length of the chain from the first link element; the one hinge pin extending through the opening in the second link element, and a second lateral side of the one hinge pin contacting the trailing side of the opening in the second link element;

a third link element also being positioned to the other side of the first link element and offset in the other direction along the length of the chain from the first link element; the second hinge pin extending through the opening in the third link element, and a second lateral side of the second hinge pin contacting the leading side of the opening in the third link element.

4,337,058

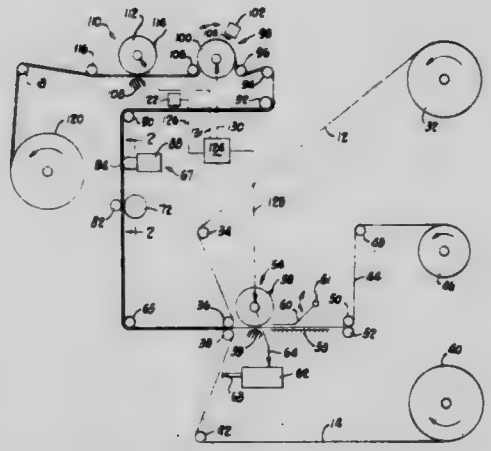
METHOD OF MAKING A CONTAINER STRIP HAVING INSERTS

Bernard Lerner, Peninsula, Ohio, assignor to Automated Packaging Systems, Inc., Twinsburg, Ohio

Continuation of Ser. No. 901,997, May 1, 1979, abandoned. This application May 19, 1980, Ser. No. 151,320

Int. Cl.³ B31B *23/74*

U.S. Cl. 493—11 **5 Claims**



1. A process of making a chain of interconnected bags comprising:

(a) feeding web portions to an inserting station;

(b) feeding inserts sequentially to the insert station;

(c) at the insert station adhering each insert to at least one of the portions after registering each such insert with a cooperating opaque portion on a first of the web portions whereby the inserts are hidden by the opaque portion in a finished chain of bags;

(d) adhering the web portions together to form a tubular structure with the inserts within the structure;

(e) forming a series of longitudinally spaced transversely extending seals to delineate a chain of interconnected containers, each including at least one insert; and

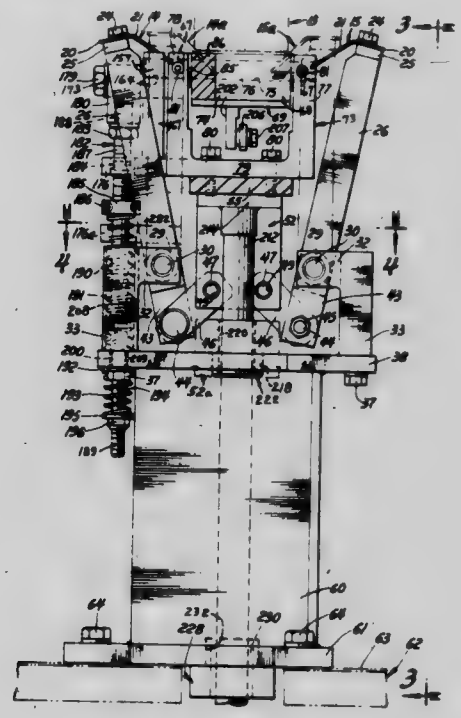
(f) forming a transverse line of weakness in each such container to produce a chain of end-to-end connected bags which are each facilely separable from the remainder of the tubular structure and each of which includes at least one of said inserts.

4,337,059

CARTON BOTTOM TUCKING AND TACKING APPARATUS WITH PIVOTAL TUCKER WINGS FOR PACKAGING MACHINES

Robert J. Allen, 23025 Manning, Farmington, Mich. 48024, and Ivan L. Kauffman, 5145 Elkin Rd., Commerce Township, Oakland County, Mich. 48085

Filed Jun. 25, 1979, Ser. No. 51,785
Int. Cl.[3] B31B 1/28
U.S. Cl. 493—184 5 Claims



1. A carton bottom tucker-tacker assembly for use in a packaging machine for forming, filling and closing the bottom ends of a pair of cartons, and wherein said packaging machine includes at least two carton mandrels for holding a pair of cartons in side-by-side positions for closing the bottom end closure members of the pair of cartons after said bottom ends have been heated, and wherein said bottom end closure members include a pair of hingedly mounted opposed triangular closure members and a pair of opposed tuck-in and tuck-over flaps disposed perpendicular to the triangular closure members, characterized in that the tucker-tacker assembly includes:

(a) a tucker apparatus operatively mounted at a carton bottom forming station in the packaging machine beneath each one of said pair of cartons for simultaneous engagement with the bottom closure triangular members of said pair of cartons retained on the pair of carton mandrels for breaking and partially folding the same toward a closed position;

(b) a tucker jaw swingably mounted at said carton bottom forming station beneath each of said pair of cartons for engaging simultaneously the partially closed bottom closure tuck-in flap members of each of said pair of cartons and moving the tuck-in flap members thereof toward closed positions;

(c) a tacker jaw swingably mounted at said carton bottom forming station beneath each of said pair of cartons for engaging simultaneously the partially closed bottom closure tuck-over flap members of each of said pair of cartons and moving the tuck-over panel members thereof toward closed positions and tacking the closed bottom closure members in place;

(d) power drive means for operating each of the tucker apparatuses, the tucker jaws and the tacker jaws;

(e) each of said tucker apparatuses including a pair of opposed tucker wings, each of said tucker wings including a formed inner end that has converging tapered edges for engagement with a bottom end triangular closure member on one of said pair of cartons for breaking and partially folding the same when the tucker wing is moved from a retracted outward position to an advanced inward position;

(f) a mounting plate supported on the packaging machine;

(g) means for swingably mounting each of said pair of opposed tucker wings of each tucker apparatus for swinging movement between said retracted outward and advanced inward positions;

(h) a movable pivot block member operatively connected to said power drive means;

(i) toggle link means interconnecting said pivot block and tucker wings;

(j) a carrier plate mounted on said pivot block for movement therewith;

(k) means for pivotally mounting said tucker and tacker jaws on said carrier plate; and

(l) a plurality of spring-loaded control rods operatively connected to said tucker and tacker jaws for coaction with the carrier plate when it is moved with said pivot block to swing the tucker and tacker jaws from retracted inoperative positions to inwardly advanced operative positions for folding the tuck-in and tuck-over flaps of the pair of cartons to closed and tacked positions.

4,337,060

METHOD OF BLEACHING TEXTILE MATERIALS

Edward A. Dalmas, Valdese, N.C., assignor to Villar, Inc., Icard, N.C.

Filed Jun. 18, 1981, Ser. No. 275,108
Int. Cl.³ D06L *3/02;* D21C *9/16*
U.S. Cl. 8—111 15 Claims

1. A method of bleaching cellulosic materials comprising:
(a) providing a bleach liquor composed of water, hydrogen peroxide and potassium orthosilicate;
(b) immersing the cellulosic materials in the bleach liquor of step (a);
(c) separating the bleach liquor from the cellulosic materials and drying same.

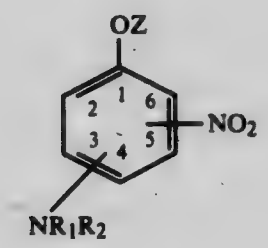
4,337,061

HAIR DYE COMPOSITIONS AND NEW COMPOUNDS USEFUL THEREIN

Andree Bugaut, Boulogne-sur-Seine, and Patrick Andrillon, Aulnay-sous-Bois, both of France, assignors to Societe Anonyme dite: L'OREAL, Paris, France

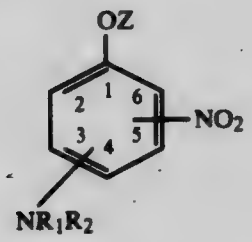
Filed May 3, 1976, Ser. No. 682,798
Claims priority, application France, Apr. 30, 1976, 76 12985
Int. Cl.³ A61K *7/13;* C07C *93/14, 79/46, 103/29*
U.S. Cl. 8—405 44 Claims

1. A dye composition for human hair comprising an aqueous or water-alcohol solution, having a pH between 3 and 11.5, of 0.001 to 5% by weight of at least one compound of the formula



wherein
Z is lower alkyl having 1 to 6 carbon atoms and substituted by a member selected from the group consisting of —OH, $—NH_2$, $—N(R_3)_2$, —COOH, $—CONH_2$ and —RCOOR', wherein R_3 is hydrogen or lower alkyl having 1–6 carbon atoms and R and R' are lower alkyl having 1–6 carbon atoms,
each of R_1 and R_2 is H or lower alkyl having 1 to 6 carbon atoms,
the $—NO_2$ substituent is in the 2, 3, 4, 5 or 6 position on the ring and the $—NR_1R_2$ substituent occupies any remaining position on the ring.

41. A compound of the formula



wherein
Z is lower alkyl having 1–6 carbon atoms and substituted by —OH, $—NH_2$, $—N(R_3)_2$, —COOH, $—CONH_2$ and 13 RCOOR', wherein R_3 is hydrogen or lower alkyl having 1–6 carbon atoms and R and R' are lower alkyl having 1–6 carbon atoms, and
each of R_1 and R_2 is hydrogen or alkyl of 1 to 6 carbon atoms,
the $—NO_2$ substituent is in the 2, 3, 4, 5 or 6 position on the ring and the $—NR_1R_2$ substituent occupies any remaining position on the ring, with the proviso that when Z is said lower alkyl substituted by —OH and is β-hydroxy ethyl and $—NO_2$ is in the 4-position and $—NR_1R_2$ is in the 2-position then either R_1 or R_2 is other than hydrogen.

43. The compound of claim 41 which is (3-nitro-4-amino) phenoxyethanol.

4,337,062

ANTI-MIGRATION AGENT FOR DYEING

Hirosuke Imai; Teruaki Yamanashi, and Hiroyuki Itoh, all of Yokohama, Japan, assignors to Nippon Oil Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 73,328, Sep. 7, 1979, abandoned. This application Nov. 20, 1980, Ser. No. 208,496
Int. Cl.³ D06P *1/52, 1/16, 1/41*
U.S. Cl. 8—557 3 Claims

1. In a process for dyeing employing an anti-migration agent, the improvement which comprises employing as the anti-migration agent a water-soluble, neutral polymer salt of a polymer anion and at least one cation, said polymer anion being an alternate copolymer or a partial esterificate thereof, said copolymer consisting of at least one monomer selected from the group consisting of C_4 to C_7 conjugated diene and isobutylene and at least one member selected from the group consisting of maleic acid, maleic anhydride and derivatives thereof, and having an intrinsic viscosity measured in cyclohexanone at 30° C. of from 0.4 to 5.0 and said cation being selected from the group consisting of Na^+, K^+, Li^+ and ammonium ions represented by the general formula $R_1R_2R_3R_4N^+$ wherein R_1, R_2, R_3 and R_4 are selected from the group consisting of hydrogen, C_1 to C_6 alkyl, cycloalkyl and phenyl.

4,337,063

COMPETITIVE IMMUNOASSAY USING SPECTRAL SENSITIZER LABEL

Yuji Mihara; Nobuhito Masuda, both of Minami-ashigara; Nobuo Hiratsuka; Takushi, both of Miyazako, Tokyo, and Tadashi Ikeda, Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 3, 1980, Ser. No. 126,920
Claims priority, application Japan, Mar. 1, 1979, 54-23964
Int. Cl.³ G01N *33/54, 33/58*
U.S. Cl. 23—230 B 4 Claims

1. A method of performing a competitive immunoassay for a trace component in a sample comprising:
(a) adding a labeled antigen or labeled antibody to said sample in a competitive immunoassay protocol, said label being a spectral sensitizer,
(b) permitting the immune reactions to take place,
(c) separating the free labeled antigen or free labeled antibody from the resulting bound labeled antigen or bound labeled antibody,
(d) contacting either the free labeled immunochemical or the bound labeled immunochemical with silver halide, said immunochemical being either antigen or antibody,
(e) exposing the resultant of step (d) to light having a wavelength which the spectral sensitizer label absorbs,
(f) developing the exposed silver halide, and
(g) measuring the optical density resulting from step (f).

4,337,064

ALBUMIN DETERMINATION METHOD

E. Melvin Gindler, Union City, Calif., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 106,028, Dec. 21, 1979, abandoned, which is a continuation of Ser. No. 895,084, Apr. 10, 1978, abandoned, which is a continuation of Ser. No. 693,866, Jun. 8, 1976, abandoned. This application Sep. 22, 1980, Ser. No. 189,777
Int. Cl.³ G01N *33/48;* C09K *3/00*
U.S. Cl. 23—230 B 9 Claims

1. In a method for the colorimetric or spectrophotometric determination of analyte albumin concentration in a fluid using

an albumin specie specific dye-based color reagent, said method comprising the steps of:

(a) adding said color reagent to said fluid whereby a colored complex is formed with the analyte albumin;

(b) exposing said fluid to a light source; and

(c) measuring the degree of light absorption and determining the concentration of analyte albumin in said fluid by comparison of said measured degree of light absorption with the measured degree of light absorption obtained from at least one similarly treated standard solution containing a known concentration of albumin, the improvement wherein:

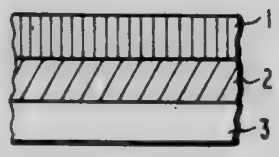
said standard solution comprises an aqueous solution of known concentration of albumin of different specie than the analyte and a water soluble surfactant containing at least one hydrophobic group containing at least about nine contiguous carbon atoms and also containing a hydrophilic group, said surfactant being present in an amount such that said standard solution mimics, with respect to spectrophotometric response, an aqueous solution of the analyte albumin when said standard solution and said analyte solution contain the same concentration of albumin and color reagent and said analyte solution is free of said surfactant in said amount.

4,337,065

METHOD FOR IMMUNOLOGICAL ASSAY USING MULTILAYER ANALYSIS SHEET

Nobuo Hiratsuka, Tokyo; Yuji Mihara, Minami-ashigarashi; Nobuhito Masuda, Minami-ashigarashi, and Takushi Miyazako, Minami-ashigarashi, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 29, 1980, Ser. No. 191,784
Claims priority, application Japan, Sep. 27, 1979, 54-124514
Int. Cl.[3] G01N *33/54, 33/58, 33/52*
U.S. Cl. 23—230 B 9 Claims



1. A method of performing a competitive immunoassay for a trace component in a sample comprising:

(a) adding a labelled antigen or labelled antibody to said sample in a competitive immunoassay protocol, said label being selected from the group consisting of a spectral sensitizer and a fogging agent,

(b) permitting the immune reactions to take place,

(c) contacting the resulting reaction mixture with a multilayer analysis sheet comprising a support having provided thereon, in sequence, (1) a silver halide light sensitive layer and (2) a free labelled immunochemical/bound labelled immunochemical separating layer,

(d) contacting either the free labelled immunochemical or the bound immunochemical which has passed through said separating layer with said silver halide light sensitive layer, said immunochemical being either antigen or antibody,

(e) when said label is said spectral sensitizer, exposing the resultant product of step (d) to light having a wavelength which the spectral sensitizer label absorbs,

(f) developing the multilayer analysis sheet; and

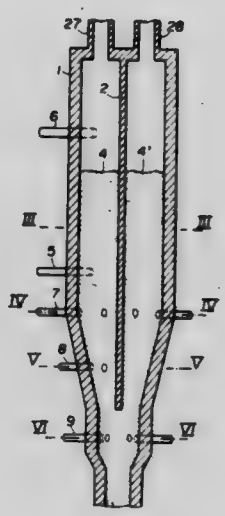
(g) measuring the optical density resulting from step (f).

4,337,066

APPARATUS FOR THERMALLY DECOMPOSING AND GASIFYING COMBUSTIBLE MATERIAL IN A SINGLE FLUIDIZED REACTOR

Daizo Kunii, No. 25-16, Nakamachi 1, Meguro-ku, Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,294
Claims priority, application Japan, Jul. 11, 1979, 54-87584
Int. Cl.[3] C10J *3/56*
U.S. Cl. 48—63 8 Claims



1. An apparatus for thermally decomposing and gasifying combustible material, comprising:

a reactor constructed in the form of a cylindrical hollow tower containing a fluidized bed and having an upper section, a middle section, and a lower section, the lower section including a tapered portion, and the length of the tower being more than three times as long as its inner diameter at its middle section;

a first partition extending substantially in the vertical direction within the tower such that the upper section of the tower is divided into two sections;

a second partition intersecting the first partition in the middle portion of the tower at substantially a right angle thereto, said second partition extending lower than said first partition and into said lower section to a location above the bottom such that the interior of the tower is divided into four space sections at the middle section and into two space sections at the lower section;

a plurality of steam supply connected feed ports formed at both space sections of said lower section for supplying steam thereinto;

a plurality of air or oxygen supply connected feed ports formed at two space sections of said middle section for supplying air or mixture gas of oxygen thereinto; and

a plurality of steam supply connected feed ports formed at the other two space sections of said middle section for supplying steam thereinto.

4,337,067

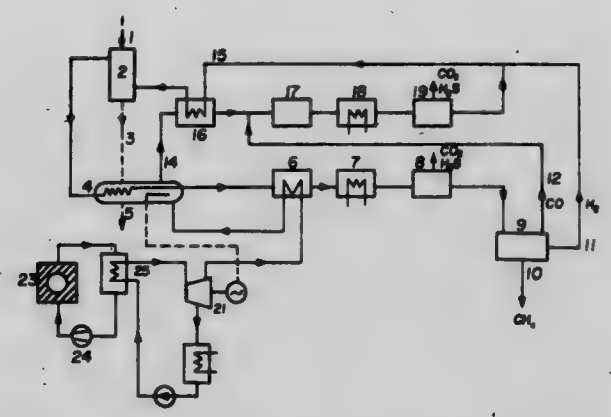
COAL GASIFICATION

Walter Jäger, Engelskirchen, and Herbert von Waclawiczek, Bergisch Gladbach, both of Fed. Rep. of Germany, assignors to GHT Gesellschaft fur Hochtemperaturreaktor-Technik mbH, Bergisch Gladbach, Fed. Rep. of Germany

PCT No. PCT/DE79/00092, § 371 Date Apr. 29, 1980, § 102(e) Date Apr. 29, 1980, PCT Pub. No. WO80/00441, PCT Pub. Date Mar. 20, 1980
PCT Filed Aug. 21, 1979, Ser. No. 195,195
Claims priority, application Fed. Rep. of Germany, Aug. 31, 1978, 2837952
Int. Cl.[3] C10J *3/10, 3/18*
U.S. Cl. 48—202 2 Claims

1. Method for generating methane or synthesis gas from carbon-containing materials utilizing nuclear energy which

comprises subjecting the carbon-containing material to hydrogenation in a hydrogenation-gasifier to convert part of the carbon in the carbon-containing material to gaseous constituents containing methane which are released from the hydrogenation-gasifier, introducing a hydrogen-containing gas into the hydrogenation-gasifier, passing residual unvaporized carbonaceous material from the hydrogenation-gasifier to convert the carbon in the residual carbonaceous material to gases containing synthesis gas which are released from an outlet of the steam gasifier, heating the steam gasifier by heat



exchange with the gaseous constituents released from the hydrogenation-gasifier, electrically heating the steam gasifier at its output stage, heating the hydrogen containing gas entering the hydrogenation-gasifier by heat exchange with the gases containing synthesis gas released from the steam gasifier, generating heat in a nuclear reactor, transferring said heat to a steam generator as a sole coupling between the above gasification operation and the nuclear reactor, and utilizing steam from said steam generator for process steam and for generating electricity for said electrically heating in the above operation for gasifying carbon-containing material.

4,337,068

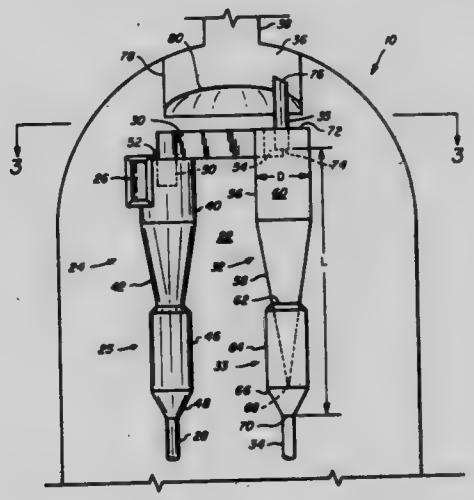
METHODS FOR REMOVING ENTRAINED SOLIDS FROM GASES

John P. MacLean, Stafford; J. Edward Cantwell, Houston; John D. Brown, The Woodlands, and Harold D. Hoy, Bridge City, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 38,755, May 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 865,051, Dec. 27, 1977, abandoned. This application Oct. 20, 1980, Ser. No. 198,416

Int. Cl.³ B01D *45/16*

U.S. Cl. 55—1 **7 Claims**



1. A method for removal of entrained solids from gases in an upright cyclone separator (33, FIG. 2) comprising an upper cylindrical portion having a diameter D, and a lower conical portion, said upper cylindrical portion having an inlet (54) with a cross-sectional area (I), and an outlet (74) with a cross-sectional area (O), a dust bowl (33) connected to said cyclone lower conical portion having a barrel section (64) and a conical section (66) connected thereto at a junction, said cyclone lower conical portion having an apex passing substantially to or below said junction, and a dipleg (34) attached to the conical section of the dust bowl comprising the steps,

(a) injecting the gases with entrained solids in the inlet (54) of the cyclone separator in the range of substantially 52 feet per second to 80 feet per second,

(b) spinning the injected gases with the entrained solids around and down the cyclone separator to a vertical distance (L) comprising the distance between the gas outlet (74) and the inlet (70) of the dipleg, whereby L/D=about 4, and

(c) ejecting the solids-free-gases through the gas outlet (74) in the range of substantially 52 feet per second to 200 feet per second, whereby the range of O/I=0.4/1 to 1/1 for providing a maximum efficiency with minimum erosion of both the cyclone separator internal wall surface and of the separated solids.

4,337,069

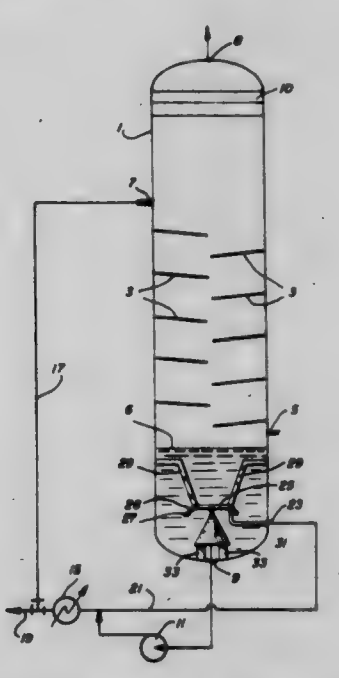
GAS PHASE OLEFIN POLYMERIZATION RECYCLE GAS SCRUBBING TOWER

Paul M. German, Jr., Friendswood; James A. Lamont, Alvin, both of Tex., and John C. Gee, Oswego, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Apr. 25, 1980, Ser. No. 143,535

Int. Cl.³ B01D *53/00, 57/00;* B01F *3/08*

U.S. Cl. 55—229 **3 Claims**

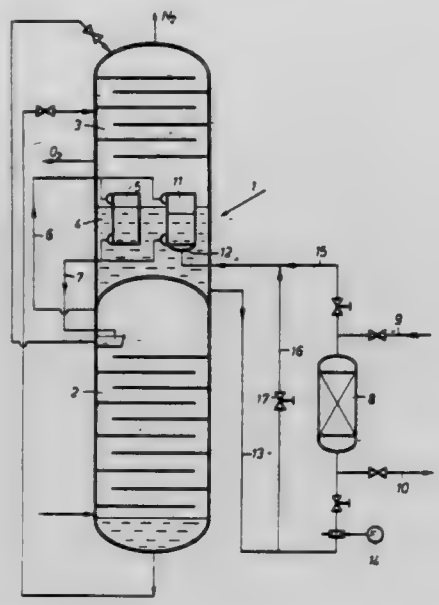


1. In an apparatus in which a liquid phase is withdrawn rapidly through an exit port from a chamber comprising a chamber and an exit port located in the bottom portion of such chamber, the improvement comprising (a) an array of eductors through which liquid is passed and (b) a cone-shaped structure, the base of which is at least as large as the exit port and placed above the exit port such that the distance between the exit port and the base of such structure is about 0.5 to about 1.5 times the diameter of the exit port; wherein the array of eductors is positioned above and in proximity to the cone-shaped structure and below a predetermined height below which liquid normally is present and liquid flow from said eductors is directed downward such that said flow cooperates with said cone-shaped structure to create complete agitation of said liquid around said cone-shaped structure.

4,337,070
CONTINUOUS SYSTEM OF RECTIFICATION

Wilhelm Rohde, Munich, Fed. Rep. of Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed May 30, 1980, Ser. No. 154,676
Claims priority, application Fed. Rep. of Germany, May 30, 1979, 2922028
Int. Cl.³ F25J 3/04
U.S. Cl. 62—18
16 Claims



1. In a process for conducting the fractionation of a gaseous mixture by rectification, wherein liquid in the sump of a rectifying column is heated and thereby partially vaporized, and simultaneously sump liquid is withdrawn from a lower zone of the sump liquid bath and is remixed with the bath above the point of withdrawal, the improvement comprising the steps of:

passing the withdrawn sump liquid through an adsorber for removing impurities therefrom;

separating gas bubbles from the withdrawn sump liquid, said separating of gas bubbles being performed before recycling the liquid into a heat exchanger located in the rectifying column, and in parallel flow to the heat exchanger;

subsequently passing the adsorber purified sump liquid into the lower end of the heat exchanger located in the rectifying column, said heat exchanger having the lower end thereof immersed in the sump liquid and sealed therefrom, and its upper end being in open communication with the gas containing space above the sump liquid; and

partially vaporizing the adsorber purified sump liquid in the heat exchanger and thereby entraining liquid in the heat exchanger with escaping vapor to propel the entrained liquid over the open upper rim of the heat exchanger to be remixed into the sump liquid bath.

4,337,071
AIR PURIFICATION SYSTEM USING CRYOGENIC TECHNIQUES

Lien C. Yang, 2107 Normanton Dr., La Canada, Calif. 91011

Filed Aug. 2, 1979, Ser. No. 63,143
Int. Cl.³ F25J 3/04
U.S. Cl. 62—37
15 Claims

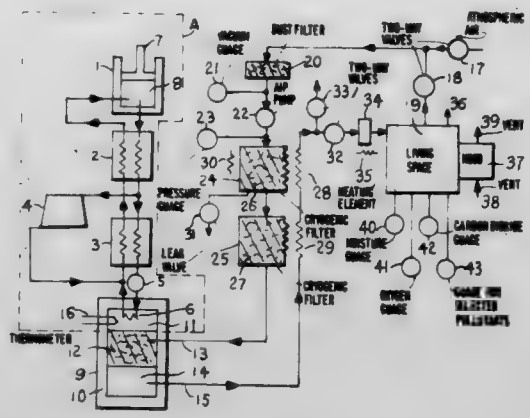
1. Apparatus for on-site purification of air for human respiratory consumption in living enclosures such as automobiles, homes, offices, and the like comprising:

a closed-cycle cryogenic refrigerator communicating with said living enclosure and further having an atmospheric air inlet means communicating with a source of outside air and a purified air outlet means coupled to the living enclosure;

a plurality of air purification chambers interposed between said atmospheric air inlet means, said refrigerator, and said purified air outlet means and being in communication therewith;

air circulation means coupled with said inlet and outlet means to provide circulation of air between said source of atmospheric air and said purified air outlet means; and

a plurality of electrical monitoring instruments and control devices connected with said plurality of said air purifica-

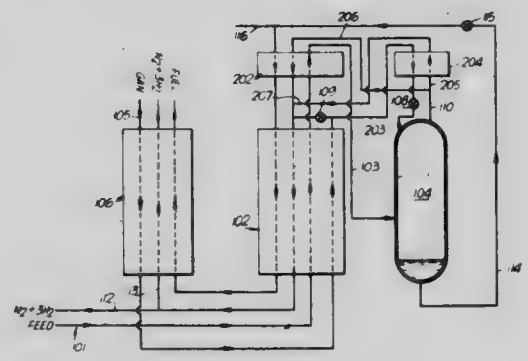


tion chambers for indicating the status of the air therein and for controlling the flow of atmospheric air and purified air into and out of said apparatus and the living enclosure to provide, economically, a comfortable, relatively pollution free atmosphere in the living enclosure.

4,337,072
METHOD AND APPARATUS FOR MANUFACTURING AMMONIA SYNTHESIS GAS FROM A STREAM OF GAS RICH IN HYDROGEN AND A STREAM OF NITROGEN

Brian A. McNeil, Chessington, England, assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Division of Ser. No. 115,302, Jan. 25, 1980, Pat. No. 4,239,647.
This application Jul. 14, 1980, Ser. No. 167,983
Claims priority, application United Kingdom, Mar. 8, 1979, 7908136; Nov. 2, 1979, 7938046
Int. Cl.³ F25J 3/00, 5/00
U.S. Cl. 62—42
8 Claims



1. An apparatus for manufacturing ammonia synthesis gas from a stream rich in hydrogen and a stream of nitrogen, which installation comprises a first heat exchanger designed for cooling said stream of nitrogen and said stream rich in hydrogen to a temperature which, when said nitrogen is at or above its critical pressure, is between 8° C. and 28° C. above the critical temperature of said nitrogen, a second heat exchanger for cooling said stream rich in hydrogen leaving said first heat exchanger; means for introducing said stream rich in hydrogen leaving said second heat exchanger into the lower portion of a nitrogen wash column, a third heat exchanger for cooling a first part of said stream of nitrogen leaving said first heat exchanger to below its critical temperature, means for introducing the stream of nitrogen leaving said third heat exchanger into the top of said nitrogen wash column as reflux, means for dividing the conveyed vapour consisting essentially of hydrogen and nitrogen exiting from the top of said nitrogen wash column into two streams and means for conveying one of said streams through said second heat exchanger in countercurrent flow to said stream rich in hydrogen and means for conveying the other of said streams through said third heat exchanger in

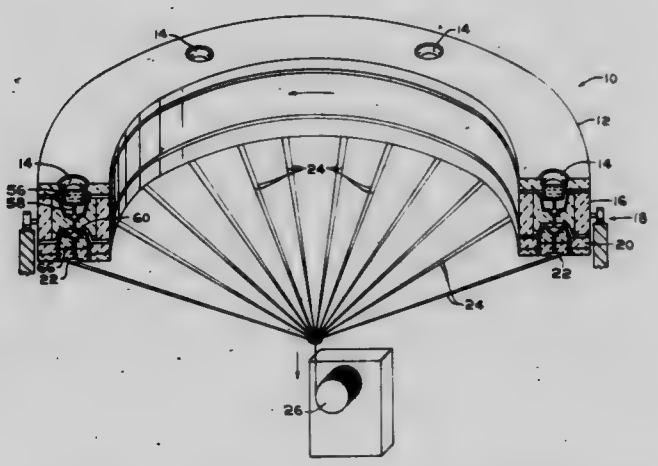
countercurrent flow to said stream of nitrogen, means for combining said two streams consisting essentially of hydrogen and nitrogen leaving said second and third heat exchangers and the balance of said nitrogen leaving said first heat exchanger to form ammonia synthesis gas and means for conveying said ammonia synthesis gas through said first heat exchanger in countercurrent flow to said stream rich in hydrogen and said stream of nitrogen, means for expanding liquid (containing impurities washed out of said stream rich in hydrogen leaving the bottom of said nitrogen wash column and passing the two phase mixture thus formed through said second heat exchanger wherein it vaporises in countercurrent flow to said stream rich in hydrogen, and means for carrying the vapour through said first heat exchanger in countercurrent flow to said stream rich in hydrogen and said stream of nitrogen, the said second heat exchanger being disposed with its cold end uppermost and said third heat exchanger being disposed with its warm end uppermost.

4,337,073

ROTARY FOREHEARTH

Warren W. Drummond, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 30, 1980, Ser. No. 221,486
Int. Cl.³ C03B *37/025*
U.S. Cl. 65—1 **23 Claims**



23. A process of forming glass fiber filaments comprising passing a molten glass stream into a plurality of streams of small cross-sectional area in a rotating channel, feeding small streams of molten glass from said rotating channel to a second channel continuously, feeding molten glass from said second channel to a glass fiber forming bushing continuously while maintaining the temperatures of the channels and glass contained therein constant.

4,337,074

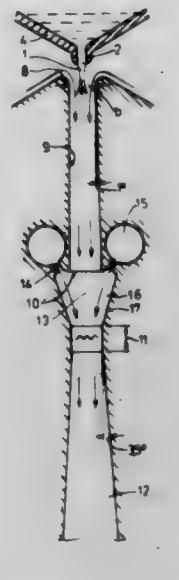
PROCESS FOR PRODUCTION OF MINERAL WOOL FIBERS

Edgar Muschelknautz, Leverkusen, and Norbert Rink, Dormagen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 7, 1981, Ser. No. 251,808
Claims priority, application Fed. Rep. of Germany, Apr. 25, 1980, 3016114
Int. Cl.³ C03B *37/06*
U.S. Cl. 65—5 **6 Claims**

1. In a process for the production of mineral wool fibers according to the jet blast process, comprising issuing at least one melt stream from at least one opening in the base of a melting crucible into a converging-diverging drawing nozzle, flowing a gaseous blasting medium into the nozzle substantially parallel to the melt stream so as to separate the melt stream into fibers, the blasting medium being drawn into the nozzle by suction due to a pressute drop produced between the nozzle inlet and outlet, and passing the fibers and spent blasting gas into a diffuser connected downstream of the nozzle to reduce the gas flow rate, the improvements which comprise effecting

(a) a maximum drop pressure in the inlet of the drawing nozzle;



(b) a minimum drop pressure in the diverging portion of the drawing nozzle over a maximum length without separation (transition) of the laminar boundary layer;

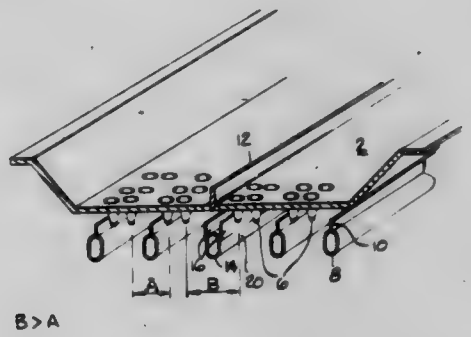
(c) the subsequent pressure conversion initially with a shock at a constant cross-section of the drawing nozzle and subsequently in a subsonic diffuser.

4,337,075

TWIN CENTER COOLING FIN FOR TIP TYPE BUSHING

John R. Mechel, Maumee, and Eric J. Brosch, Grand Rapids, both of Ohio, assignors to Manville Service Corporation, Denver, Colo.

Filed Jun. 18, 1981, Ser. No. 274,945
Int. Cl.³ C03B *37/025*
U.S. Cl. 65—12 **2 Claims**



1. In a bushing for holding molten material from which fibers are formed wherein the bottom of the bushing is formed by an orifice tip plate having a plurality of rows of orifice tips and a plurality of oval shaped cooling tubes supported beneath said bushing and extending parallel to the rows of orifice tips and wherein each cooling tube is provided with a longitudinally extending cooling fin secured to the top thereof, the improvement comprising:

(a) a cooling tube extending along a longitudinal center line of said bushing; and

(b) a plurality of parallel longitudinally extending cooling fins, one of said cooling fins secured to each side of the top of said cooling tube.

4,337,076
RIBBON EDGE DETECTOR AND SYSTEM FOR METERING FLOW OF MOLTEN GLASS

Hugh E. Shaw, Jr., Crystal City, Mo., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 26, 1980, Ser. No. 210,447
Int. Cl.[3] C03B *18/10*
U.S. Cl. 65—29 32 Claims



1. A method of sensing an edge of a substrate supported on a conductive surface, comprising the steps of:

positioning a conductive member in spaced relation to the conductive surface;

electrically connecting the conductive member and conductive surface to a power source to provide a capacitor having a voltage output; and

monitoring the voltage output of the capacitor as the conductive member moves relative to the substrate edge to detect the substrate edge.

9. An apparatus for following the edge of a substrate advancing along a substrate path on a conductive surface, comprising:

a conductive member;

means for moving said member across the conductive surface;

electrical means including a power source connected to said conductive member and the conductive surface to provide a capacitor having a first output voltage when said conductive member is over the conductive surface, second output voltage when said conductive member is over the substrate and a third output voltage when said conductive member is over a portion of the conductive surface and an edge portion of the substrate; and

means responsive to the output voltage of said capacitor and acting on said moving means to move said conductive member relative to the edge of the substrate to follow the edge of the substrate.

29. An apparatus for making a continuous glass ribbon wherein the apparatus is of the type having molten metal batch contained in a forming chamber; a glass supporting member; a tweel; means for moving the tweel toward and away from the glass supporting member to meter a predetermined amount of molten glass onto the molten metal bath; means for controllably cooling the molten glass as it advances downstream on the molten metal bath to provide a glass ribbon of a predetermined thickness and width; and means for removing the glass ribbon from the molten metal bath, comprising:

means for measuring linear displacement, said measuring means including a reciprocating member;

means for mounting said measuring means to structure of the apparatus adjacent a side of the tweel;

means for connecting said reciprocating member of said measuring means directly to the tweel to generate an output signal from said measuring means as a direct function of movement and direction of tweel displacement relative to the glass supporting member; and

means for monitoring the output signal of said measuring means to determine the movement and direction of the tweel displacement relative to the glass supporting member.

4,337,077
AGRICULTURAL INOCULANT COMPOSITION

Joseph P. Rutherford, 3203 Rocks Chrome Hill Rd., Jarrettsville, Md. 21084

Filed Sep. 9, 1980, Ser. No. 185,557
Int. Cl.[3] C05F *11/02, 11/08*
U.S. Cl. 71—9 16 Claims

1. An agricultural inoculant composition including:

(a) a peat humus base mixture consisting essentially of predetermined weight percentages of peat moss, leather meal, granite meal, Calcium Phosphate, tobacco meal, animal manure, kelp, greensand, liquid seaweed, and bacterial inoculant; and,

(b) a liquid seaweed base mixture consisting essentially of liquid seaweed, carbohydrates and polysaccharides, vitamins and liquid alfalfa, said liquid seaweed base mixture being blended with said peat humus base mixture in the approximate amount of 250.0 ml. of said liquid seaweed base mixture to 135.0 grams of said peat humus base mixture.

4,337,078
SUBSTRATE FOR CULTIVATION OF AGRICULTURAL CROPS AND ROOTING OF GREEN CUTTINGS IN GREENHOUSES AND IN OPEN AIR

Georgi S. Petrov, Plovdiv; Ivan A. Petkov, Sofia; Hristo I. Etropolski, Sofia; Dimiter N. Dimitrov, Sofia; Nikolay N. Popov, Sofia, and Atanas I. Uzunov, Sofia, all of Bulgaria, assignors to N P S K "Mineralagro", Sofia, Bulgaria

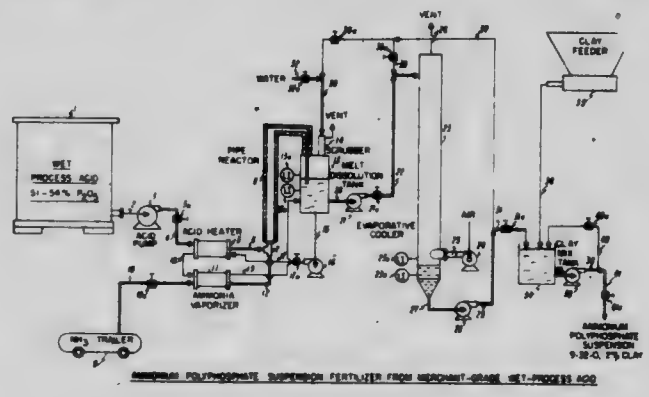
Filed Nov. 17, 1980, Ser. No. 208,491
Int. Cl.[3] C05F *11/04*
U.S. Cl. 71—24 1 Claim

1. A substrate for the cultivation of agricultural crops and the rooting of green cuttings in greenhouses and in the open air, consisting essentially of klinoptylolite natural zeolite dried at 250° to 350° C. and in particle size fractions of 0.8 to 2.0 mm, 2.0 to 5.0 mm and 5.0 to 8.0 mm respectively in proportions from 1:1:0.01 to 2:3:1, enriched with nitrogen and phosphorus in an amount of 0.1 to 0.5% by nitrogenous and phosphorous fertilizers; fractionated raw vermiculite in a particle size of up to 1.0 mm and expanded vermiculite with a particle size of 5.0 to 15.0 mm in a proportion of 1:9 to 2:8; and organic mass peat, the proportion of the zeolite:vermiculite:peat being from 10:0.01:0.01 to 5:2:3.

4,337,079
LOW POLYPHOSPHATE SUSPENSION FERTILIZERS FROM WET-PROCESS ACID

Horace C. Mann, Jr., Killen, and Robert S. Meline, Florence, both of Ala., assignors to Tennessee Valley Authority, Muscle Shoals, Ala.

Continuation-in-part of Ser. No. 194,642, Oct. 6, 1980, now Defensive Publication No. T101,802. This application May 18, 1981, Ser. No. 264,922
Int. Cl.[3] C05B *7/00*
U.S. Cl. 71—34 9 Claims



1. A process for preparing improved ammonium polyphosphate melts eminently suitable for ultimately preparing fertil-

izer base suspensions, which melts are produced from wet-process orthophosphoric acid and ammonia, and which base suspensions have markedly improved low temperature storage characteristics, which process comprises supplying a stream of vaporized ammonia heated to 50° F. to 200° F. to an enlarged diameter pipe reactor; supplying a stream of wet-process orthophosphoric acid heated to 50° F. to 210° F. and containing from about 50 to about 58 percent P_2O_5 to said enlarged pipe reactor; contacting said stream of heated vaporous ammonia with said stream of hot orthophosphoric acid at super atmospheric pressure and at temperatures in the range of about 400° F. to about 550° F. to form a resulting melt of ammonium polyphosphate wherein from about 10 to about 40 percent of the phosphorus values are converted to the nonortho acyclic species; controlling the flow rate of said stream of heated ammonia relative to the flow rate of said stream of heated orthophosphoric acid to maintain a total N:total P_2O_5 weight ratio in the range from about 0.265 to about 0.335 in said melt; controlling the flow rate of said stream of heated orthophosphoric acid introduced into said enlarged pipe reactor to range from about 15 to about 200 pounds of P_2O_5 per hour per square inch of reactor internal cross sectional area; controlling the throughput per unit volume of said stream of heated orthophosphoric acid introduced into said enlarged pipe reactor to range from about 0.2 to about 3 pounds of P_2O_5 per hour per cubic inch of reactor internal volume, and wherein the thermal energy required to heat said ammonia and said orthophosphoric acid is extracted solely and entirely from the heat of ammoniation of said phosphoric acid.

4,337,080

PLANT GROWTH REGULANTS

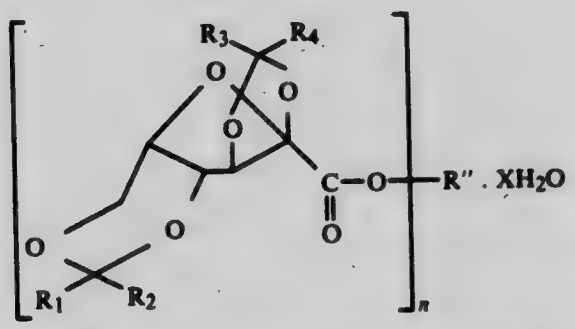
William Szkrybalo, Verona, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 559,209, Mar. 17, 1975, Pat. No. 4,007,206, which is a continuation-in-part of Ser. No. 335,607, Feb. 26, 1973, abandoned, which is a continuation-in-part of Ser. No. 277,538, Aug. 3, 1972, abandoned. This application Oct. 18, 1976, Ser. No. 733,567

Int. Cl.³ A01N *43/14*

U.S. Cl. 71—88 31 Claims

1. A plant growth regulating composition comprising agriculturally acceptable adjuvants and, as the active ingredient, an amount effective in regulating plant growth of a compound of the formula



wherein, when n is 1, R″ is hydrogen, sodium, potassium, ammonium, substituted ammonium, straight or branched chain alkyl of from 1 to 20 carbon atoms, straight or branched chain alkenyl of from 2 to 20 carbon atoms, straight or branched chain alkynyl of from 2 to 20 carbon atoms or halo-lower alkyl and, when n is R″, is calcium or lower alkylene; R_1, R_2, R_3 and R_4 are hydrogen, straight or branched chain alkyl of from 1 to 7 carbon atoms, straight or branched chain alkenyl of from 2 to 7 carbon atoms, straight or branched chain alkynyl of from 2 to 7 carbon atoms, fluoro-lower alkyl, phenyl or phenyl having one or more substituents selected from the group consisting of alkyl, alkenyl, alkynyl, alkoxy and halo-lower alkoxy; n is an integer from 1 to 2 and X is a number from 0 to 1; enantiomers, racemates and salts thereof, and wherein the agriculturally acceptable adjuvants comprise, in percents by weight of the composition, from about 3% to about 10% of a surfactant, from about 1% to about 5% of an anti-caking compound, from about 0.1% to about 1% of an anti-foaming agent and from about 0.4% to about 1.5% of a buffer.

4,337,081

5-AMIDO-3-TRIHALOMETHYL-1,2,4-THIADIAZOLES AND THEIR USE AS HERBICIDES

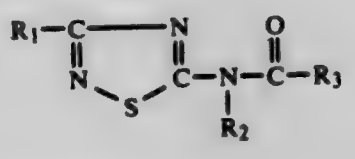
Walter A. Gay, Cheshire, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Jan. 23, 1979, Ser. No. 6,302

Int. Cl.³ A01N *43/82;* C07D *285/08*

U.S. Cl. 71—90 2 Claims

1. A method for controlling undesirable plant growth at a locus to be protected comprising applying to the locus a herbicidally effective amount of a compound of the formula:



wherein R_1 is CCl_3 or CF_3; R_2 is phenyl; and R_3 is a lower alkyl group having 2 to 4 carbon atoms, a phenyl group or CX_3 where X is H, Cl or F.

4,337,082

HERBICIDAL COMPOSITION COMPRISING TRIAZINONE COMPOUND

Shunichi Hashimoto, Sonehigashi; Hiromichi Oshio, Osaka; Masato Mizutani, Kyoto; Yuzuru Sanemitsu, Hyogo; Haruhiko Katoh, Hyogo, and Seizo Sumida, Hyogo, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

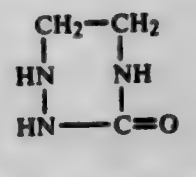
Filed Feb. 10, 1981, Ser. No. 233,178

Claims priority, application Japan, Feb. 13, 1980, 55/17043; Feb. 19, 1980, 55/19914; Feb. 19, 1980, 55/19915

Int. Cl.³ C07D *253/06;* A01N *43/64*

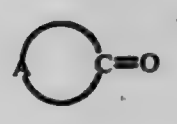
U.S. Cl. 71—93 9 Claims

6. A triazinone compound of the formula:



(Ib)

9. A method for controlling the growth of weeds and/or grasses which comprises applying a herbicidally effective amount of a triazinone compound of the formula:



(I)

wherein A is —NH—N=CHCH₂NH—, —NH—NHCH₂CH₂NH— or —NH—N=CHC(NHOH)=N— to the area where the weeds and/or grasses grow or will grow.

4,337,083

NON-POLLUTING, COOLING METHOD AND HEAT RECUPERATIVE SINTERING METHOD

William T. Sweat, Salt Lake City, Utah, assignor to ASARCO Incorporated, New York, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,880

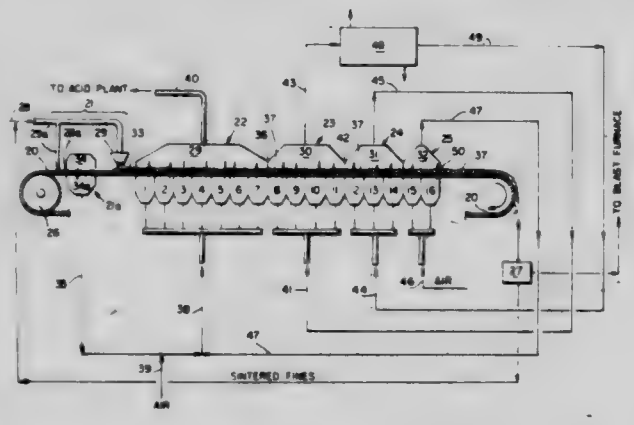
Int. Cl.³ C22B *1/04, 1/20;* C26B *7/00*

U.S. Cl. 75—5 17 Claims

1. A process for cooling a sintered strand including metallic

oxides from a first predetermined temperature to a second predetermined temperature comprising the steps of (a) continuously supplying said strand to a primary cooling zone, (b) blowing a gaseous stream which has a third predetermined temperature less than said first predetermined temperature through said strand in said primary cooling zone, said blowing step heating said gaseous stream to a fourth predetermined temperature, (c) removing said gaseous stream from said primary cooling zone, (d) cooling said removed gaseous stream to a fifth predetermined temperature, said fifth predetermined temperature being less than said third predetermined temperature, (e) continuously supplying said strand to a secondary cooling zone, (f) blowing said cooled gaseous stream through said strand in said secondary cooling zone, (g) removing said gaseous stream from said secondary cooling zone, (h) supplying said removed gaseous stream from said secondary cooling zone to said primary cooling zone and (i) any additional cooling being through the repeating of steps (a) to (i); whereby all the gases are substantially maintained within the cooling zone apparatus.

7. A process for sintering sulfidic ore concentrates comprising sequentially providing a continuous moving strand of said concentrates to an ignition zone, a sintering zone, a primary cooling zone, a secondary cooling zone, and a final cooling zone; igniting said concentrates in said ignition zone; burning the sulfidic content of said concentrates in said sintering zone and cooling said strand in said primary, intermediate and final cooling zones; supplying first, second, third and fourth gas streams to said sintering, primary cooling, secondary cooling



and final cooling zones respectively; removing fifth, sixth, seventh and eighth gas streams from said sintering, primary, secondary and final cooling zones respectively; cooling said sixth gas stream to a temperature less than the temperature of said second gas stream; recirculating said cooled sixth gas stream to said third gas stream, recirculating said seventh gas stream to said second gas stream, and combining said eighth gas stream with said first gas stream.

17. A process for sintering a continuous moving strand of sulfidic ore concentrates comprising the sequential steps of:

(a) igniting said concentrates in an ignition zone;

(b) burning the sulfidic content of said concentrates in a sintering zone including supplying a first gas stream at a first predetermined temperature to said sintering zone;

(c) cooling strand in a primary cooling zone including supplying a second gas stream at a second predetermined temperature and removing said second gas stream from said primary cooling zone at a third predetermined temperature;

(d) further cooling said strand in a secondary cooling zone including supplying a third gas stream at a fourth predetermined temperature and removing said third gas stream from said secondary cooling zone at a fifth predetermined temperature;

(e) cooling said second gas stream after removal from said primary cooling zone from said third predetermined temperature to a temperature less than said second predetermined temperature;

(f) recirculating said second gas stream to said secondary cooling zone; and

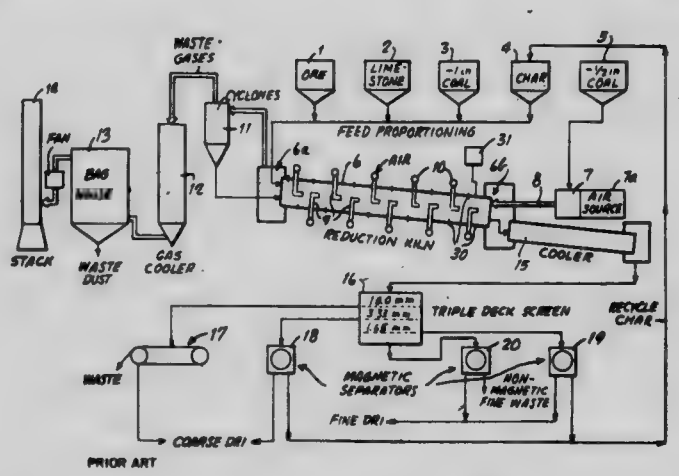
(g) recirculating said third gas stream after removal from said secondary cooling zone to said primary cooling zone.

4,337,084

SYSTEM FOR RECYCLING CHAR IN IRON OXIDE REDUCING KILNS

Vitie P. Keran, and Alan C. Baker, both of Harriman, Tenn., assignors to The Direct Reduction Corporation, New York, N.Y.

Filed Mar. 24, 1980, Ser. No. 132,806
Int. Cl.³ C21B *13/08*
U.S. Cl. 75—36 **11 Claims**



1. In the process for reducing materials containing iron oxides using a solid carbonaceous reducing agent as the source of reductant and fuel in a rotary kiln wherein part of said reducing agent is added from the discharge end and the remainder of said reducing agent is added at the feed end, and wherein the charred reducing agent is removed from the kiln discharge product and recycled, the improvement comprising the steps of:

returning the recycled charred reducing agent to the discharge end of the kiln; and

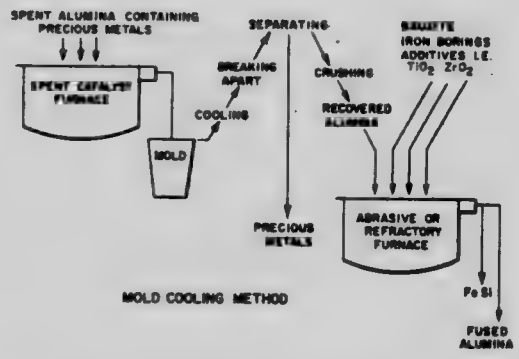
injecting said charred reducing agent into the kiln through the discharge end for deposition on the charge bed.

4,337,085

RECOVERY OF PRECIOUS METALS FROM SPENT ALUMINA-CONTAINING CATALYSTS

Paul Cichy, Buffalo, N.Y., assignor to Kennecott Corporation, Stamford, Conn.

Filed Sep. 30, 1980, Ser. No. 192,285
Int. Cl.³ C22B *11/00*
U.S. Cl. 75—83 R **16 Claims**

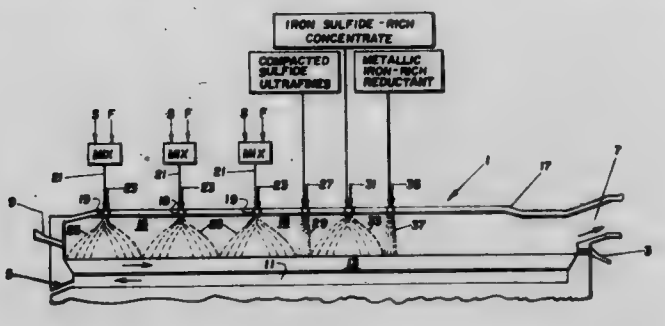


1. A method of recovering precious metal from spent alumina material comprising melting in a furnace spent alumina material containing precious metal, removing molten alumina from the top of the melted material, allowing the lower portion of the melt to cool and recovering concentrated precious metal from the lower cooled portion.

4,337,086
METHOD FOR DECREASING METAL LOSSES IN NONFERROUS SMELTING OPERATIONS

Paul E. Queneau, Cornish, N.H. 03746, and Reinhardt Schuhmann, Jr., 1206 Hayes St., West LaFayette, Ind. 47906

Continuation-in-part of Ser. No. 971,995, Dec. 21, 1978, Pat. No. 4,236,915. This application Oct. 16, 1980, Ser. No. 197,563
Int. Cl.³ C22B *15/00, 23/02*
U.S. Cl. 75—69 27 Claims



1. In a method for producing a metal matte from a nonferrous metal-containing sulfide mineral concentrate, of a particle size of less than about 65 mesh and containing particles of a size less than about 5 microns, in a horizontally disposed furnace wherein a molten charge of metal matte and a slag are present, beneath an enclosed hot atmosphere, and exhaust gases, metal matte and slag are separately discharged therefrom, the improvement where loss of nonferrous metals is averted, comprising:

(a) separating said nonferrous metal-containing sulfide mineral concentrate particles thereof having a size less than about 5 microns from the remainder of said sulfide concentrate;

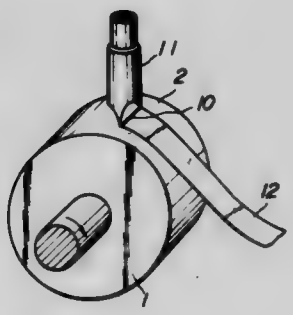
(b) compacting said separated concentrate particles to form compacted concentrate for introduction into said furnace and onto said slag; and

(c) introducing the remainder of said sulfide concentrate, flux and an oxygen-rich gas into an enclosed hot sulfur dioxide-rich atmosphere so as to effect flash oxidation of the sulfide concentrates therein prior to contact of said concentrates with the molten slag, while injecting said compacted concentrate into the horizontal furnace and onto said slag at a location spaced from the slag discharge of the furnace.

4,337,087
MICROCRYSTALLINE THIN STRIP FOR MAGNETIC MATERIAL HAVING HIGH PERMEABILITY, A METHOD OF PRODUCING THE SAME AND ARTICLES MADE FROM THE THIN STRIP

Kiyoyuki Esashi, Higashiosaka, and Hisae Minatono, Minoo, both of Japan, assignors to Sumitomo Special Metals Co. Ltd., Osaka, Japan

PCT No. PCT/JP80/00100, § 371 Date Jan. 16, 1981, § 102(e) Date Jan. 9, 1981, PCT Pub. No. WO80/02620, PCT Pub. Date Nov. 27, 1980
PCT Filed May 10, 1980, Ser. No. 230,953
Claims priority, application Japan, May 16, 1979, 54/60714
Int. Cl.³ C22C *38/06*
U.S. Cl. 75—124 7 Claims



1. A microcrystalline thin strip for magnetic material having high permeability which consists of 7.0–9.6% of Si, 5.5–7.5% of Al, 0.3–3.0% of Mo, 0.3–4.0% of Ni and the remainder being substantially Fe has a tensile strength of more than 35 kg/mm^2 and a bending fracture strain of more than 8×10^{-3}.

4,337,088
NON-MAGNETIC STABILIZER

Edward L. Moses, Jr., 1775 Saint James Pl., Suite 170, Houston, Tex. 77056

Filed May 12, 1980, Ser. No. 149,290
Int. Cl.³ C22C *38/22, 38/24, 38/38, 38/40*
U.S. Cl. 75—128 A 2 Claims

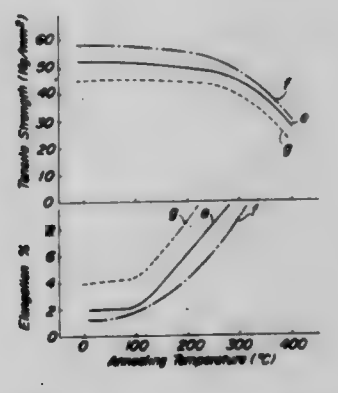
1. A non-magnetic stabilizer for use in rotary rig drilling of boreholes with non-magnetic drill collars and having wear resistant and anti-galling characteristics, which comprises an elongated body having means for contacting the borehole to stabilize the body within the borehole, said body being manufactured of an alloy consisting of by weight:

C	- .3/.06%
Mn	- .4.00/6.00%
P	- .04%
S	- .03%
Si	- 1.00%
Cr	- 20.50/23.50%
Ni	- 11.50/13.50%
Mo	- .50/3.00%
V	- .10/.30%
N	- .20/.40%
Cb	- .10/.30%
Fe	- balance

4,337,089
COPPER-NICKEL-TIN ALLOYS FOR LEAD CONDUCTOR MATERIALS FOR INTEGRATED CIRCUITS AND A METHOD FOR PRODUCING THE SAME

Kishio Arita, Mito; Kiyoshi Murakawa, Tokyo, and Toshio Takahashi, Hachioji, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation; Nippon Bell Parts Co., Ltd., both of Tokyo and Nihon Telecommunication Engineering Corporation, Musashino, all of, Japan

Filed Dec. 29, 1980, Ser. No. 220,352
Claims priority, application Japan, Jul. 25, 1980, 55-101273
Int. Cl.³ C22C *9/02, 9/06*
U.S. Cl. 420—472 2 Claims



1. Copper-nickel-tin alloys for electrical lead conductor materials for integrated circuits containing 0.5–3.0% by weight of Ni, 0.3–0.9% by weight of Sn, 0.01–0.05% by weight of P and 0–0.35% by weight of at least one of Mn and Si and the remainder copper.

2. A method for producing copper-nickel-tin alloys for electrical lead conductor materials for integrated circuits comprising as sequential steps melting a starting material containing 0.5–3.0% by weight of Ni, 0.3–0.9% by weight of Sn, 0.01–0.05% by weight of phosphorus and 0–0.35% by weight

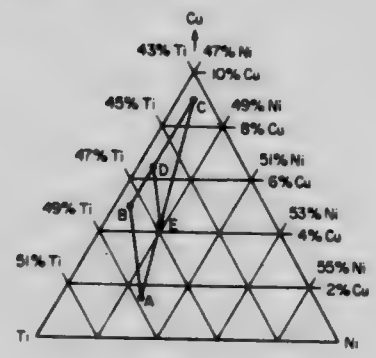
of at least one of Mn and Si and the remainder Cu; casting the molten metal; rolling the casting into a sheet having a thickness corresponding to more than 60% of cold reduction percent of the final necessary gauge; annealing said rolled sheet at a temperature of 300°–395° C. for 1 hour; cold rolling the annealed sheet; and annealing the cold rolled sheet at a temperature of 150°–250° I C. for 1 hour.

4,337,090

HEAT RECOVERABLE NICKEL/TITANIUM ALLOY WITH IMPROVED STABILITY AND MACHINABILITY

John D. Harrison, Palo Alto, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed Sep. 5, 1980, Ser. No. 184,602
Int. Cl.³ C22C *19/03*
U.S. Cl. 148—402 2 Claims



1. A shape memory alloy consisting essentially of nickel, titanium and copper within an area defined on a nickel, titanium, and copper ternary phase diagram by a triangle with its first vertex at 49.7 atomic percent nickel, 48.8 atomic percent titanium, and 1.5 atomic percent copper; its second vertex at 47.5 atomic percent nickel, 47.5 atomic percent titanium, and 5.0 atomic percent copper; and its third vertex at 47.5 atomic percent nickel, 43.5 atomic percent titanium, and 9.0 atomic percent copper, said alloy possessing improved temper stability and machinability and having an A_{50} between −50° C. and −196° C.

4,337,091

ELECTROLESS GOLD PLATING

Mohamed F. El-Shazly, Bloomfield, and Kenneth D. Baker, Bridgewater, both of N.J., assignors to Hooker Chemicals & Plastics Corp., Warren, Mich.

Filed Mar. 23, 1981, Ser. No. 246,472
Int. Cl.³ C23C *3/02*
U.S. Cl. 106—1.23 22 Claims

1. An aqueous electroless gold plating bath comprising a water-soluble, trivalent gold component selected from the group consisting of alkali metal auricyanides, alkali metal aurates and alkali metal aurihydroxides and a reducing agent selected from the group consisting of alkylamino boranes, alkali metal borohydrides and alkali metal cyanoborohydrides, the gold component being present in an amount at least sufficient to deposit gold on the substrate to be plated and the reducing agent being present in an amount at least sufficient to reduce the gold in the bath, which plating bath has a pH within the range of about 10 to 13.

4,337,092

CORROSION-INHIBITING PIGMENT AND PAINT COMPOSITION

Klaus Hestermann, Erftstadt; Alexander Maurer, Hürth-Knapsack; Joachim Kandler, Erftstadt; Gerhard Mietens, Hürth-Knapsack, and Herbert Beumling, Bergisch-Gladbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 3, 1980, Ser. No. 193,550
Claims priority, application Fed. Rep. of Germany, Oct. 8, 1979, 2940695
Int. Cl.³ C09D *5/08*
U.S. Cl. 106—14.05 5 Claims

1. A corrosion-inhibiting active pigment for use in the surface protection of iron and iron alloys consisting essentially of a mixture of calcium hydrogen phosphate dihydrate, magnesium hydrogen phosphate trihydrate and zinc oxide, the mixture containing 2 to 98 weight% of ZnO and 98 to 2 weight% of phosphate components, of which 3 to 97 weight% is $CaHPO_4.2H_2O$ and 97 to 3 weight% is $MgHPO_4.3H_2O$.

4,337,093

WOOD PRESERVING COMPOSITION AND METHOD OF USING SAME

Wolfgang Metzner, Krefeld; Hubert Koddebusch, Moers-Vinn, both of Fed. Rep. of Germany, and Gerswid Poetter, deceased, late of Duesseldorf, Fed. Rep. of Germany (by Ursula Seeholzer, heiress), assignors to Deutsche Solvay Werke GmbH, Solingen, Fed. Rep. of Germany

Filed Jul. 3, 1980, Ser. No. 165,791
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927349
Int. Cl.³ C09D *5/14*
U.S. Cl. 106—18.33 18 Claims

1. A composition for preserving wood and construction materials of wood, said composition comprising:

at least about 65% by weight of a difficultly volatile organic-chemical solvent having a flash point higher than about 30° C.; and

between about 0.35% by weight and about 10% by weight, of a fungicidal agent which is at least partly soluble in said organic-chemical solvent, said fungicidal agent comprising a mixture of N,N-dimethyl-N'-phenyl-N'-(fluoro dichloro methylthio) sulfamide and N,N-dimethyl-N'-(-p-tolyl)-N'-(fluoro dichloro methylthio) sulfamide in the relative proportion, by weight, of between about 25:10 and about 10:30.

4,337,094

ADDITIVE COMPOSITION FOR PORTLAND CEMENT MATERIALS

Valery Tokar, University Heights, Ohio, assignor to The Euclid Chemical Company, Cleveland, Ohio

Filed May 11, 1981, Ser. No. 262,488
Int. Cl.³ C04b *7/06*
U.S. Cl. 106—90 10 Claims

1. An additive composition to decrease the normal setting time and increase the normal compressive strength of a portland cement containing composition such as mortar and concrete, consisting essentially of, an aqueous solution of (i) calcium nitrate present in an amount of at least 30 parts by weight per 100 parts of said solution, and (ii) a polyalkanolamine of a lower alkanol having from 2 to about 5 carbon atoms, said polyalkanolamine being present in an amount in the range from about 0.05 parts to about 5 parts per 100 parts by weight of said solution, said solution being stable in storage in the temperature range from about 32° F. to about 140° F.

4,337,095

PROCESS FOR THE PREPARATION OF SOLUTIONS OF CELLULOSE DERIVATIVES IN ORGANIC SOLVENTS HAVING HIGHER CONCENTRATION AND SOLUTIONS OBTAINED BY SAID PROCESS

Roberto Leoni, Milan; Alberto Baldini, Garlasco; Angelo Calloni, and Gianfranco Angelini, both of Buscate, all of Italy, assignors to SNIA Viscosa S.p.A. - Societa' Nazionale Industria Applicazioni Viscosa, Milan, Italy

Filed May 30, 1980, Ser. No. 155,113

Claims priority, application Italy, Jun. 7, 1979, 23350 A/79

The portion of the term of this patent subsequent to May 19, 1998, has been disclaimed.

Int. Cl.[3] C08B *16/00;* C08L *1/02, 1/08*

U.S. Cl. 106—203 9 Claims

1. A process for the preparation of a solution of a methylol derivative of cellulose in an organic solvent, comprising contacting cellulose having a polymerization degree lower than 300 with paraformaldehyde and with the solvent at a temperature sufficiently high to dissolve the cellulose.

4,337,096

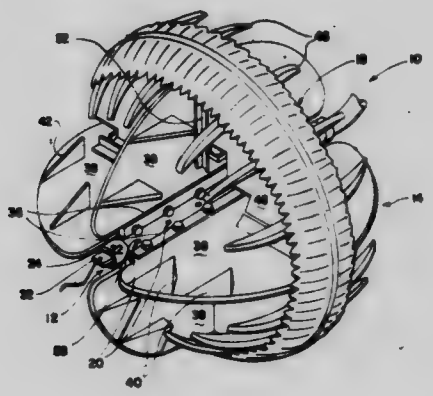
METHOD AND IMPLEMENT FOR CLEANING DRAINS

Jack R. Clifford, Alton, Ill., assignor to Paul L. Pratt, Bethalto and John T. Pierce, Jr., Edwardsville, both of, Ill., part interest to each

Continuation-in-part of Ser. No. 168,727, Jul. 14, 1980, Pat. No. 4,326,893, which is a continuation-in-part of Ser. No. 42,548, May 25, 1979, Pat. No. 4,218,803. This application Nov. 10, 1980, Ser. No. 205,645

Int. Cl.[3] B08B *9/04*

U.S. Cl. 134—8 10 Claims



1. An implement for cleaning drains, said implement comprising a carriage hub for attachment of cutting and plunging means, said cutting means comprising a plurality of blades radially extending from the carriage hub, said plunging means comprising a plurality of elements pivoted between said blades and prevented from folding flat against said blades so that said elements are folded backward at an inclined angle to said blades when the implement is pulled through a drain in a direction parallel to the hub whereby said inclined elements are arranged to torque the implement and which are folded forwardly to form a plate when the implement is pulled in an opposite direction, said implement further including water directing means for spraying water in advance of the cutting means.

9. A method for cleaning tubular drains filled with debris which comprises towing an implement comprising a carriage hub with cutting, plunging and scraping means, said cutting means comprising a plurality of blades radially extending from the carriage hub, said blades being circular segments and mounted on said carriage hub such that said implement is spherical in shape, said plunging means comprising a plurality of elements pivoted between said blades and prevented from folding flat against said blades so that said elements are folded backwardly at an inclined angle to said blades when the implement is pulled forward through a drain in a direction parallel to the axis of the carriage hub whereby said inclined elements torque the implement, said pulling being in a forward direction and for a selected distance, said implement further including water directing means for spraying water in front of the cutting means whereby the waste in the drain is wetted by water from the water directing means, churned loose by the cutting means and passed around the plunging means torquing the implement; said method further including towing the implement in an opposite direction after the preselected distance has been reached, as said implement is towed backwardly, the loosened waste material in the drain exerting pressure on one or more of said pivoted elements comprising the plunging means and inclined at an angle to said blades causing them to reverse the fold into a plate having substantially the same diameter as the drain, whereby the waste churned loose by the cutting means and passed around the plunging means is swept backward by the fully expanded plunging means as the implement is towed backwards.

4,337,097

METHOD FOR MAKING A SELECTIVE ABSORPTION FILM FOR SOLAR ENERGY

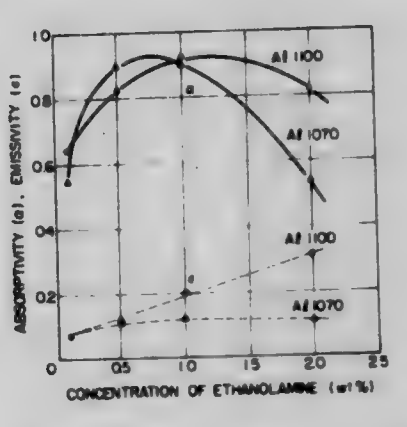
Hiroyuki Tokumasu, Hirakata; Hideo Uchino, Higashi-Osaka, and Shiro Hozumi, Sakai, all of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Dec. 23, 1980, Ser. No. 219,427

Claims priority, application Japan, Dec. 28, 1979, 54-171151; Dec. 28, 1979, 54-171152

Int. Cl.[3] C23F *7/06, 7/14*

U.S. Cl. 148—6.15 R 10 Claims



1. A method for the production of a selective absorption film for solar energy which comprises immersing aluminium or its alloy in water solution which consists essentially of at least two members selected from the group consisting of phosphate ions, fluoride ions and triethanolamine for a sufficient time to form a chemical conversion film on the aluninium or its alloy, wherein said immersion is conducted at a temperature not lower than 80° C. for a time of at least 10 minutes, the concentration of the phosphate ions or the fluoride ions is in the range of 20–300 ppm, and the concentration of triethanolamine is in the range of 0.2–2 wt%.

4,337,098

PROCESS FOR CUTTING OUT A WALL MADE OF METAL OR METAL ALLOY

Jean Chavand, Grenoble; Maurice Dagueuet, Veurey, and Rene Gillet, Grenoble, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jan. 16, 1981, Ser. No. 225,666

Claims priority, application France, Jan. 28, 1980, 80 01771

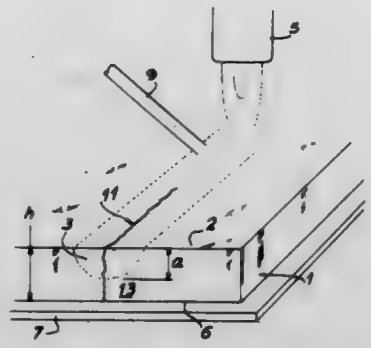
Int. Cl.[3] B23K *7/08*

U.S. Cl. 148—9 R 7 Claims

1. A process for cutting out a wall made of metal or metal alloy by fissuring, comprising the steps of:

heating one face of the wall to melt the metal locally over a depth limited to a fraction of the thickness of the wall,

adding in the molten zone a material having a fissuring power,



moving the heating means along the section to be cut out, whilst continuing to add the metal having a fissuring power in the molten zone.

4,337,099

METHOD AND APPARATUS FOR CONDITIONING OF STEEL SURFACE

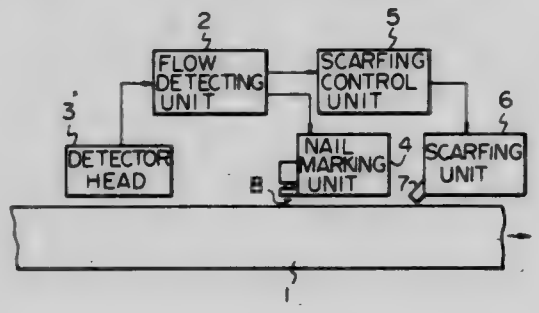
Tatsuo Hiroshima, Nishinomiya, and Takahide Sakamoto, Minoo, both of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

PCT No. PCT/JP79/00157, § 371 Date Apr. 10, 1980, § 102(e) Date Apr. 10, 1980, PCT Pub. No. WO80/02812, PCT Pub. Date Dec. 24, 1980

PCT Filed Jun. 20, 1979, Ser. No. 262,067

Int. Cl.³ B23K *7/08*

U.S. Cl. 148—9.5 **4 Claims**



1. A method for conditioning of surface flaws of steel, comprising the steps of:

detecting a surface flaw in a red-hot steel material;

driving into said flaw steel nails in a number corresponding to the size of said flaw; and

performing scarfing conditioning of said flaw starting from the nails.

4,337,100

MAGNETICALLY ANISOTROPIC ALLOYS FOR MAGNETICALLY ACTUATED DEVICES

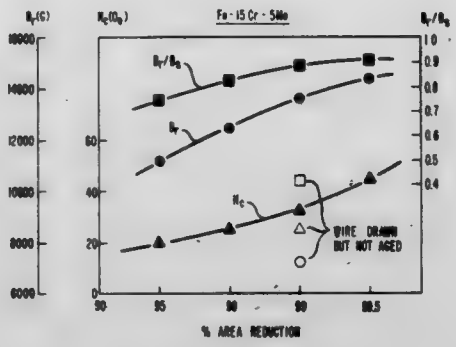
Sungho Jin, Gillette, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 6, 1980, Ser. No. 194,252

Int. Cl.³ C04B *35/00*

U.S. Cl. 148—31.55 **8 Claims**

1. Anisotropic magnetic alloy comprising an amount of at least 99 weight percent Fe, Cr, and Mo, Cr being in the range of 6–26 weight percent of said amount and Mo being in the range of 1–12 weight percent of said amount, said alloy comprising elements Ni, Mn, Si, Al, Cu, V, Ti, Nb, Zr, Ta, Hf, and W in individual amounts of less than 0.2 weight percent of said alloy and less than 0.5 weight percent of said alloy in combination, said alloy comprising elements C, N, S, P, B, H, and O in individual amounts of less than 0.1 weight percent of said alloy and less than 0.5 weight percent of said alloy in combination, said alloy having magnetic squareness ratio greater than or



equal to 0.85, and said alloy having remanence greater than or equal to 12000 gauss.

4,337,101

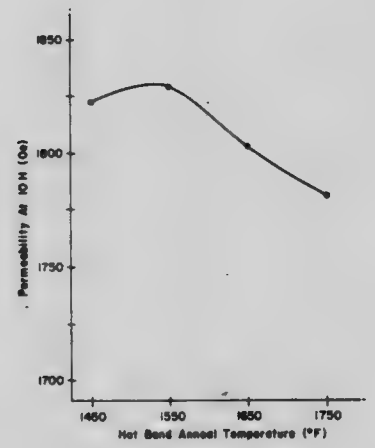
PROCESSING FOR CUBE-ON-EDGE ORIENTED SILICON STEEL

Frank A. Malagari, Jr., Freeport, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Aug. 18, 1980, Ser. No. 179,405

Int. Cl.³ H01F *1/04*

U.S. Cl. 148—111 **5 Claims**



1. In a process for producing boron-inhibited electromagnetic silicon steel having a cube-on-edge orientation and a permeability of at least 1800 (G/O_e) at 10 oersteds, which process comprises the steps of preparing a melt of silicon steel containing from 0.02% to 0.06% carbon, from 0.0006% to 0.008% boron, up to 0.01% nitrogen, no more than 0.008% aluminum and from 2.5% to 4.0% silicon, casting the steel, soaking the steel, hot rolling the steel to hot band thickness, annealing the hot band, cold rolling the annealed steel, decarburizing the cold rolled steel, applying a refractory oxide base coating to the decarburized steel, and final textue annealing the base coated steel, wherein the improvement comprises the steps of annealing the hot band at a thickness of about 0.10 inch in a temperature range of from about 1450° F. to about 1650° F. and then cold rolling the steel to a final thickness of about 0.018 inch in one cold reduction.

4,337,102

HIGH ENERGY SOLID PROPELLANT COMPOSITION

Adolf E. Oberth, Fair Oaks, and Howard A. Price, Folsom, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 4, 1980, Ser. No. 118,008

Int. Cl.³ C06B *45/10*

U.S. Cl. 149—19.3 **6 Claims**

1. In a high energy solid propellant composition consisting essentially of:

a. a solid poly (ethylene oxide) diol, binder;

b. an inorganic oxidizer; and
c. a high energy plasticizer, the improvement wherein a minor amount of a soluble perchlorate salt selected from the group consisting of lithium perchlorate and magnesium perchlorate is present in a dissolved state in said binder as a mechanical behavior improving additive.

4,337,103

COMPOSITE PROPELLANT WITH DIFFERENTIALLY CURED AREA AT INITIAL BURN SURFACE

Donald E. Elrick, Rawlings, and Harry Gilbert, Cumberland, both of Md., assignors to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of Ser. No. 667,623, Sep. 6, 1967, Pat. No. 3,948,698. This application Dec. 4, 1968, Ser. No. 781,282
Int. Cl.[3] C06B *45/10*
U.S. Cl. 149—19.9 5 Claims

1. A process for the manufacture of a cured, rubber base composite rocket propellant having a lower cross-link density at and adjacent at least a portion of its initial burning surface than throughout the remainder of the propellant, which process comprises (a) partially curing in its entirety an uncured composite propellant composition comprising solid oxidizer and a binder system containing a carboxy terminated rubber, hydroxy terminated rubber, mercapto terminated rubber or amine terminated rubber and a curing agent therefor until sufficient cross-linking has occurred to provide a predetermined strain capability at the initial burning surface; (b) applying to at least a portion of said initial burning surface sufficient of a monofunctional interferrent material reactive with said binder system to prevent further curing from occurring at said surface; and (c) then completing the cure of said propellant composition whereby the cross-link density and strength of the remaining curable portion of the propellant has increased.

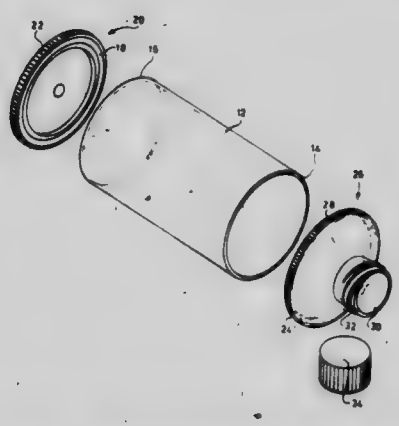
5. The cured rubber base composite rocket propellant produced by the process of claim 1.

4,337,104

METHOD FOR MANUFACTURING A ROLLER BOTTLE

Robert W. Lynn, Oxnard, Calif., assignor to Becton, Dickinson and Company, Paramus, N.J.

Continuation of Ser. No. 123,981, Feb. 25, 1980, abandoned, which is a division of Ser. No. 949,450, Oct. 10, 1978, Pat. No. 4,238,568. This application Feb. 9, 1981, Ser. No. 232,619
Int. Cl.[3] B29C *27/02*
U.S. Cl. 156—69 5 Claims



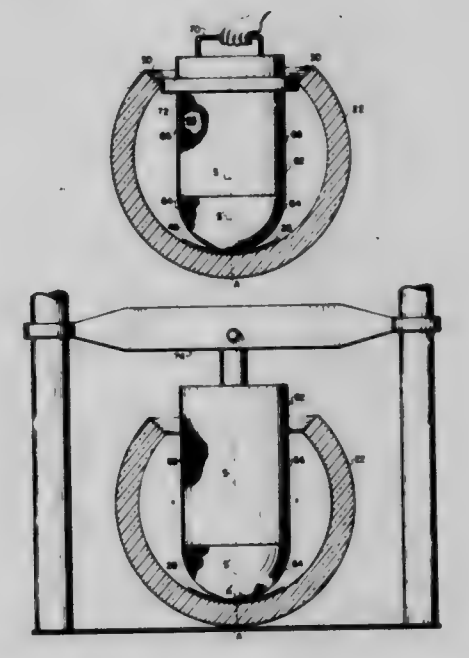
1. A method for manufacturing a roller bottle having a treated interior surface capable of allowing cell adhesion thereto comprising the steps of:
providing a substantially cylindrical center portion having an open first end, an open second end, and interior and exterior surfaces;
tissue culture treating the interior surface of the center portion;
permanently attaching a first end cap having a serrated circumferential surface around its peripheral edge to the first end of the center portion;
permanently attaching a second end cap having a serrated circumferential surface around its peripheral edge to the second end of the center portion, said serrated surfaces protruding from the exterior surface of said center portion, said serrated circumferential surfaces of the end caps having gear-shaped serrations adapted to mesh with similar serrations on end caps of similar roller bottles to thereby facilitate traction when such roller bottles are rotated; and wherein the step of permanently attaching the first and second end caps is performed by one of either ultrasonic welding, gluing or spin welding.

4,337,105

SPHERICAL SEGMENT INNER SURFACE FORCE APPLICATOR FOR LAMINATING NON-PLANAR SURFACES

Jerry D. Stachiw, El Cajon, and Donald L. Endicott, Jr., San Diego, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 4, 1980, Ser. No. 183,913
Int. Cl.[3] B29C *17/06;* B30B *5/02;* B32B *1/00, 1/06, 1/10*
U.S. Cl. 156—87 11 Claims



1. A method for bonding selected compliant material to a portion of the inner surface of a rigid spherical segment, said method comprising the steps of:
spreading a quantity of initially uncured adhesive material over said portion of said inner surface;
placing said compliant material in contact with said adhesive material;
initially positioning an elastomeric spherical segment so that the apex of said segment contacts a point on said compliant material, said elastomeric segment being initially in an undeformed condition, the radius of curvature of said elastomeric segment being less than the radius of curvature of said inner surface of said rigid spherical segment when said elastomeric segment is in an undeformed condition; and
urging said elastomeric segment toward said compliant material so that all points on the external surface of said elastomeric segment which are initially at the same distance from said specified point are brought into contact with said compliant material at the same time.

4. An apparatus for applying force to selected compliant material which is in adjacent relationship with the inner surface of a rigid spherical segment comprising:
an elastomeric means for selectively coupling compressive force to said compliant material, said elastomeric means having an apex and a radius of curvature which is less than the radius of curvature of said inner surface when said elastomeric means is in an undeformed condition and

operative means for initially spacing said elastomeric means from said rigid spherical segment so that said apex is in point contact relationship with said compliant material, and for controllaby urging said elastomeric means toward said compliant material, after said initial spacing, until the curvature of said elastomeric means is conformed to the curvature of said inner surface and said compliant material is selectively compressed between said rigid inner surface and said conformed elastomeric means, said operative means comprises means for manipulating said elastomeric means to initially apply a compressive force to said compliant material at said point of contact between said apex and said compliant material, and to thereafter apply compressive force to each point of said compliant material which lies within a compressive force zone which expands outwardly through said compliant material from said contact point, said compressive force zone reaching a given point of said compliant material before reaching any other point of said compliant material which is at a farther distance from said contact point than said given point, said compliant material includes a layer of selected viscous material selectively spread across said inner surface of said rigid spherical segment, and wherein said operative means comprises:

a shaft means, said elastomeric means being joined to an end of said shaft;

means for initially orienting said shaft means so that said elastomeric means is suspended above said viscous material in said initial spacing relationship, and for releasing said shaft means after said initial orientation; and

particulate weighting material contained within said elastomeric means for responding to gravitational force to initially apply said compressive force to said contact point, and to apply compressive force to each point of said viscous material which lies within said compressive force zone after said shaft has been released.

4,337,106

METHOD OF MAKING AIR CUSHION VEHICLE FLEXIBLE SKIRTS

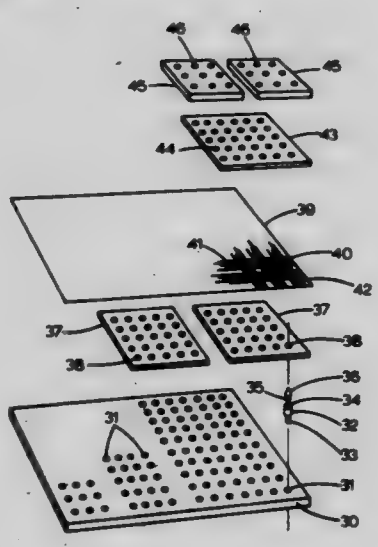
Raymond L. Wheeler, Cowes, England, assignor to British Hovercraft Corporation Ltd., Yeovil, England

Division of Ser. No. 50,609, Jun. 21, 1979, Pat. No. 4,248,320, which is a continuation-in-part of Ser. No. 840,860, Oct. 11, 1977, abandoned. This application Jul. 24, 1980, Ser. No. 171,725

Claims priority, application United Kingdom, Oct. 31, 1976, 42628/76

Int. Cl.³ B32B *31/18, 31/04*

U.S. Cl. 156—228 **3 Claims**



1. A method of manufacturing an apertured flexible sheet component for an air cushion vehicle flexible skirt, comprising locating a first sheet of elastomeric material having a plurality of shaped apertures therein on a face of a flat plate from which projects a plurality of peg members corresponding in shape and position to the apertures in the sheet and so that the peg members extend through said sheet apertures; locating on the sheet of elastomeric material a layer of reinforcing fabric having substantial spacings between groups of warp and weft cords so that said peg members pass through the spacings between the warp and weft cords in said reinforcing fabric; locating on said reinforcing fabric a second sheet of elastomeric material having a plurality of shaped apertures corresponding with those in said first sheet and so that said peg members pass through the apertures in the second sheet; locating an apertured pressure plate over the projecting ends of said peg members; subjecting the resulting assembly to pressure and heat to effect curing of the elastomeric material; and removing the pressure plate and the flat plate with the pegs whereby the removal at the pegs provides apertures of the desired size and shape in the flexible skirt without damaging the warp and weft cords of the reinforcing fabric.

4,337,107

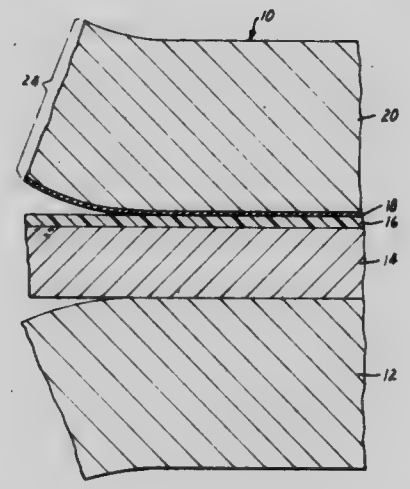
ABRASION-RESISTANT TRANSFER LAMINATING SHEET MATERIAL

Ronald J. Eshleman, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 16, 1980, Ser. No. 160,136

Int. Cl.³ A61F *13/02*; B29B *31/00*; B32B *31/00*; C61F *13/02*

U.S. Cl. 156—249 **14 Claims**

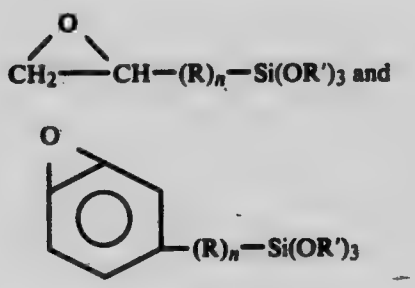


1. A multilayered sheet of material for providing a transferrable abrasion-resistant coating capable of lamination comprising in sequence

a. a strippable carrier substrate;

b. a flexible abrasion-resistant coating on the said carrier substrate wherein said coating is from 1.27 to 25.4 μm thick and comprises a polymer which has at most 30% haze according to ASTM D 968-51 using 1 liter of sand in 10–11 seconds, said polymer having

(1) 25 to 60% by weight units derived from precondensed monomers which are epoxy-terminated silanes of the formulae



wherein R is selected from alkylene of 1 to 10 carbon atoms and —CH_2—O—$(CH_2)_m$, wherein m is 1 to 5, n is 1, and R' is selected from alkyl of 1 to 8 carbon atoms,

(2) 40 to 75% by weight units derived from epoxidized organic compounds other than epoxy silanes, and

(3) from 0.1 to 5% by weight of an antioxidant;

c. a coated pressure-sensitive adhesive layer which is from 0.5 to 13 μm thick; and

d. a strippable release sheet comprised of a liner substrate with a low adhesion backsize;

wherein

the release force between the abrasion-resistant coating, peeled at a 180° angle, and the carrier substrate is <25 g/2.54 cm width, and

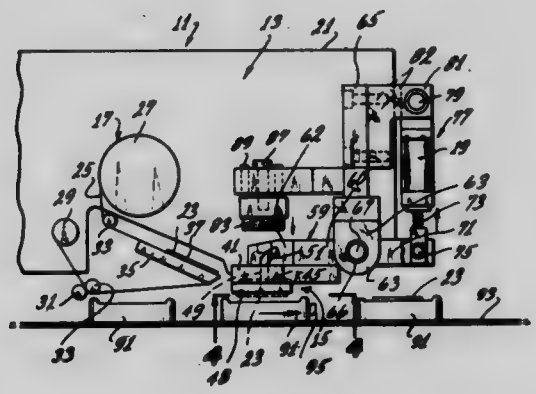
the release force between the release sheet, peeled at a 180° angle, and the pressure-sensitive adhesive coating is <10 g/2.54 cm width.

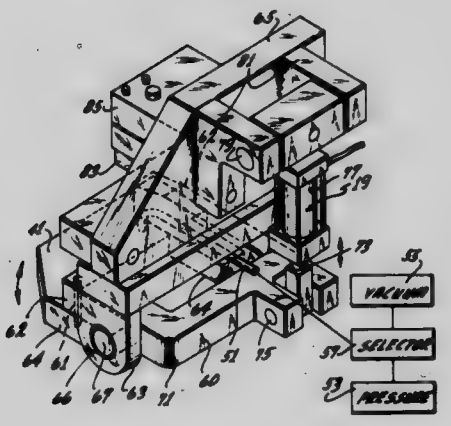
4,337,108

LABEL APPLICATOR WITH OSCILLATING LABEL RECEIVER AND METHOD

Michael Crankshaw, Santa Fe Springs, and Leo Kucheck, Irvine, both of Calif., assignors to Label-Aire Inc., Fullerton, Calif.

Filed Oct. 29, 1980, Ser. No. 199,181
Int. Cl.³ B32B *31/00*; B65H *25/00*; B44C *1/00*; B65H *17/36*; B65C *1/02*
U.S. Cl. 156—285 12 Claims





1. A label applicator comprising:

a supporting structure;

a label receiver;

means for mounting said label receiver on the supporting structure for movement in both directions about a pivot axis between a retracted position and an extended position;

label dispensing means for supplying at least one label to the label receiver when the label receiver is in said retracted position;

said label receiver including means for releasably retaining the label supplied to the label receiver by the label dispensing means;

means for moving said label receiver in both directions about said pivot axis between said retracted position and said extended position; and

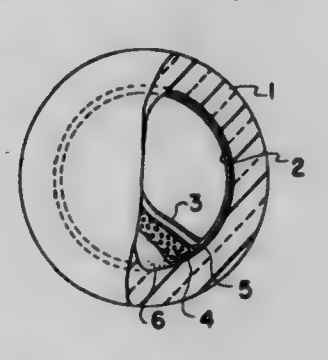
passage means in said label receiver for transmitting a blast of gas to the label on the label receiver at least when the label receiver is in the extended position to transfer the label on the label receiver to an article.

4,337,109

PROCESS OF PREPARING AN ORNAMENT FOR TOMBSTONES OR THE LIKE

Kinjo Narita, No. 292, Ooaza Wattokumachi Hirosaki-shi, Aomori-ken, Japan

Division of Ser. No. 46,506, Jun. 7, 1979, Pat. No. 4,259,381.
This application Oct. 21, 1980, Ser. No. 199,313
Claims priority, application Japan, Jun. 8, 1978, 53-69215
Int. Cl.³ E04H *13/00*
U.S. Cl. 156—293 3 Claims



1. A process of preparing an ornamental element adapted to be fixed to a monument which comprises:

providing a transparent body having a convex lense shape in the front side portion thereof, said body having a recess provided in the back side portion for receiving a desired document, said recess having a margin projecting inwardly such that the diameter of the marginal surface is smaller than the diameter of the inside portion of said recess;

introducing a powder-type desiccant material into said recess so as to cover the document;

applying a water-proof paper over said desiccant; and

introducing a sealer material into the remaining portion of the recess adjacent to said waterproof paper overlying the desiccant for sealing and protecting the document from the environment.

4,337,110

LAMINATES PREPARED FROM SOLUTIONS OF RESINS CONTAINING AMIC ACID GROUPS

Patricia A. Antonopios, and William J. Heilman, both of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Division of Ser. No. 794,902, May 9, 1977, Pat. No. 4,133,792.
This application Apr. 27, 1978, Ser. No. 900,671
Int. Cl.³ C09J *5/02*
U.S. Cl. 156—307.4 2 Claims

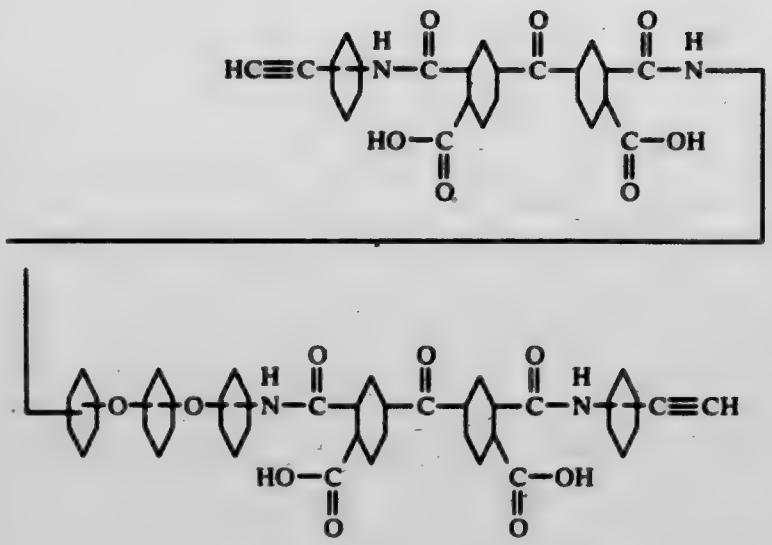
1. A method for preparing a cured resin impregnated glass fabric laminate which consists essentially of:

a. impregnating a glass fabric with a solution of a heat curable resin containing amic acid groups,

b. heating the impregnated glass fabric of step (a) to an elevated temperature to remove the solvent therefrom and to convert the amic acid groups of the resin solids to imide groups, and

c. assembling a plurality of impregnated glass fabrics from step (b) and heating said assembly under pressure to a temperature in the range of about 177°–260° C.,

the resin solution of step (a) consisting essentially of at least 30 weight % of heat curable resin solids dissolved in a solvent selected from the group consisting of N-methyl-2-pyrrolidone, cyclohexanone, diethyl carbonate, and gamma-butyrolactone, said heat curable resin solids consisting predominantly of a chemical compound having the structure:



4,337,111

METHOD OF OBTAINING STRONG AND DURABLE ADHESION TO RUBBER THROUGH CHEMICAL COVALENT BONDS

Karl C. Kauffman, Ridgecrest, and Martin H. Kaufman, China Lake, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 2, 1978, Ser. No. 947,971
Int. Cl.³ C09J *5/02*
U.S. Cl. 156—307.5 **8 Claims**

1. A method for introducing covalent bonds between vulcanized rubber and an adhesive comprising the steps of:

coating a surface of unvulcanized or partially vulcanized rubber with a coating polymer capable of co-vulcanizing with the rubber and having functional groups capable of reacting with said adhesive;

co-vulcanizing the rubber and coating polymer and

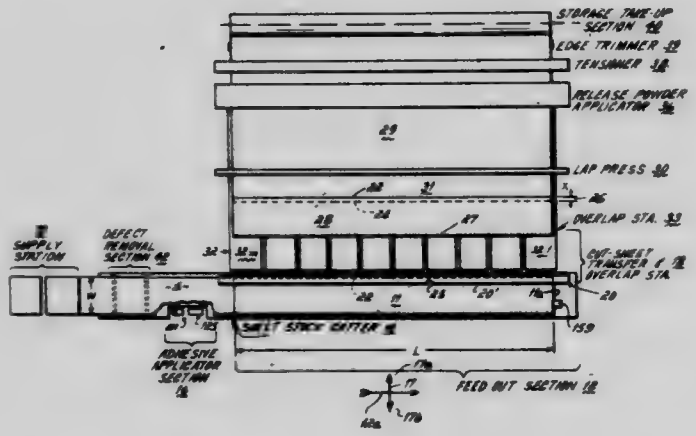
applying said adhesive to the coated surface whereby said adhesive reacts with said functional groups.

4,337,112

APPARATUS FOR MAKING AN INDEFINITE LENGTH COMPOSITE SHEET OF VERY LARGE PREDETERMINED WIDTH FROM INDEFINITE LENGTH SHEET STOCK RELATIVELY SMALL WIDTH

Jack L. Hollis, Mechanicsburg, Pa., assignor to Carlisle Tire & Rubber Co., Carlisle, Pa.

Continuation-in-part of Ser. No. 20,133, Mar. 13, 1979, abandoned. This application Apr. 16, 1980, Ser. No. 140,815
Int. Cl.³ B32B *31/18*
U.S. Cl. 156—351 **39 Claims**



1. Apparatus for manufacturing composite sheet of predetermined width and indefinite length from stock sheet of known width and indefinite length, which includes:

(a) feed-out means to feed out along a first path in a first horizontal direction a predetermined length of said stock sheet from a supply thereof, said first path being in nonoverlapping position to said composite sheet and spaced therefrom in a direction parallel to the length of said composite sheet,

(b) means to cut said stock sheet, while horizontally disposed along said first path in said first direction, to said predetermined length, said predetermined length being a substantial multiple of said known width of said stock and at least equal to said predetermined selective width of said composite sheet,

(c) transfer means to move only said cut length of sheet, subsequent to feed-out thereof by said feed-out means from said fully fed-out position along said first path and prior to cutting a successive predetermined length sheet, a predetermined distance along a second path in a second horizontal direction which is transverse to said first horizontal direction of feeding of said stock sheet, to an overlap station whereat the cut length of sheet overlaps and forms a lap joint with a prior cut length of sheet along an overlap edge zone thereof to form a composite sheet, said predetermined distance at least exceeding said known width of said indefinite length stock sheet, said overlap station being transversely horizontally displaced from said first path a distance equal to said predetermined distance,

(d) composite sheet conveying means to move said composite sheet of overlapped cut sheets in unison, further in said transverse direction along a third path, by an incremental distance equal to about the width of said stock sheet less the width of said overlap zone, to position a lap joint at a pressing station,

(e) means at said pressing station to apply pressure to a lap joint of said composite sheet to provide good adhesion, said pressure-applying means being operative while said feed-out means is operating with respect to a successive cut length of sheet,

(f) means to store the composite sheet material with different portions thereof in contact with each other, and

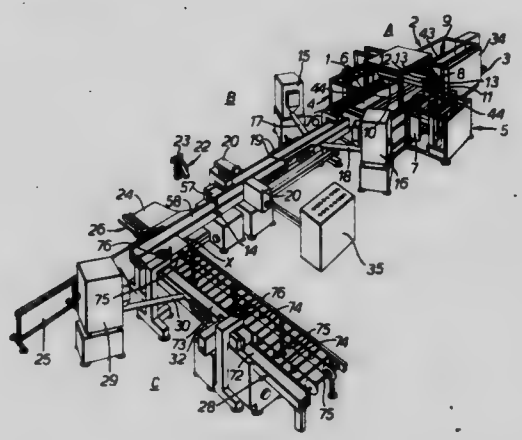
(g) said feed-out means, transfer means, and conveying means being operative along said first, second, and third paths, respectively, and each being distinct and separate relative to the others.

4,337,113

APPARATUS FOR MANUFACTURE OF SLEEVES AND/OR POCKETS FOR SEPARATOR PLATES

Clifford A. Searle, "Kynance", Moffatt Rd., Forest Green, Nailsworth, Gloucestershire, England

Filed Oct. 8, 1980, Ser. No. 195,306
Claims priority, application United Kingdom, Oct. 19, 1979, 7936395
Int. Cl.³ B26D *5/38*; B32B *31/08, 31/12, 31/18, 31/20*
U.S. Cl. 156—353 **10 Claims**



1. Apparatus for use in the manufacture of a separator sleeve or pocket, comprising an assembly table or the like providing a region for the assembly of a separator/plate sandwich, means

for feeding the separator/plate sandwich from the table to a linear conveyor for conveying the sandwich through a sealing region past an array comprising extruder means to extrude a ribbon of plastics material into a side edge gap of the sandwich, and means for cutting off excess extruded material beyond the ends of the separators while travelling along the conveyor.

4,337,114

NODULAR COPPER REMOVAL FROM ALUMINUM FOIL SURFACES

Philip G. Russell; Walter J. Bernard, and Sidney D. Ross, all of Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Oct. 29, 1980, Ser. No. 202,027
Int. Cl.³ B44C *1/22*
U.S. Cl. 156—656 **6 Claims**

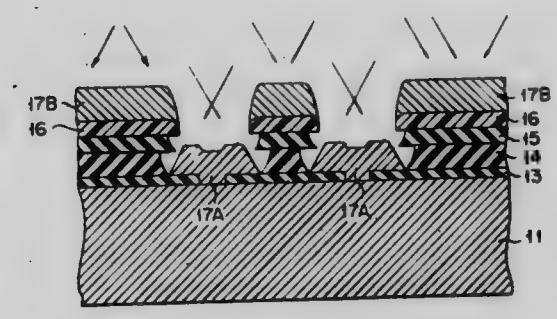
1. A process for removing nodular copper from the surface of etched aluminum foil comprises contacting said foil bearing a thin uniform copper layer and nodular copper with a 0.1 to 2.0 M ammonium persulfate solution to selectively dissolve said nodular copper and leave said uniform layer.

4,337,115

METHOD OF FORMING ELECTRODES ON THE SURFACE OF A SEMICONDUCTOR SUBSTRATE

Masashi Ikeda, and Shintaro Ito, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Japan

Division of Ser. No. 959,219, Nov. 9, 1978, abandoned, which is a continuation-in-part of Ser. No. 802,867, Jun. 2, 1977, abandoned. This application Apr. 4, 1980, Ser. No. 137,813
Claims priority, application Japan, Jun. 2, 1976, 51-63561
Int. Cl.³ H01L *21/306*; C23F *1/02*; B05D *5/12*
U.S. Cl. 156—659.1 **8 Claims**



1. A method of forming an electrode on the surface of a semiconductor substrate which comprises the steps of:

(A) depositing on the surface of a semiconductor substrate an insulation layer provided with at least one opening for contact between the electrode and the semiconductor substrate;

(B) coating a plurality of spacer layers made of insulation material on the surface of the insulation layer inclusive of the contact opening;

(C) selectively depositing a photoresist layer on the uppermost one of said plural spacer layers, said uppermost spacer layer in direct contact with the photoresist layers being designed to be etched at a lower rate than the immediately underlying spacer layer;

(D) using the photoresist layer as a mask to selectively etch the spacer layers until the opening of the insulation layer is exposed;

(E) depositing a metal layer on the surface of the semiconductor substrate through the opening of the insulation layer and on the surface of the photoresist layer; and

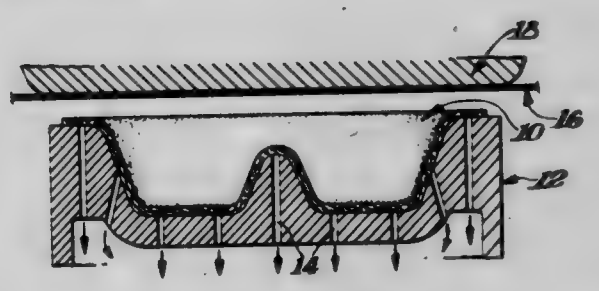
(F) removing the photoresist layer and the portions of the metal layer formed thereon, such that that portion of the metal layer which is deposited on the surface of the semiconductor substrate exposed through the contact opening constitutes the electrode and the spacer layers remaining on the insulation layer form protective layers for the surface of the semiconductor substrate.

4,337,116

CONTOURED MOLDED PULP CONTAINER WITH POLYESTER LINER

Peter D. Foster, Waterville, and Clifford Stowers, Fairfield, both of Me., assignors to Keyes Fibre Company, Waterville, Me.

Continuation of Ser. No. 70,392, Aug. 28, 1979, abandoned. This application Jan. 26, 1981, Ser. No. 228,876
Int. Cl.³ D21J *3/00*
U.S. Cl. 162—158 **17 Claims**



1. A process for directly bonding a substantially impervious polyester liner to a contoured molded pulp base which comprises the steps of (1) pre-heating a pre-formed base which has been obtained by molding fibrous pulp from an aqueous slurry thereof against an open-face suction mold to substantially finished contoured shape which includes horizontal and sloping but no substantially vertical wall portions, (2) pre-heating a film of polyester and (3) then pressing the pre-heated film into contact with at least one contoured portion of at least one surface of the pre-heated base so that the film is stretched into direct contact with the contoured base and becomes directly bonded to the base to form a contiguous and integral liner thereon, the improvement being that the polyester film is (a) substantially amorphous, substantially unoriented polyethylene terephthalate and it (b) is pre-heated to a thermoforming temperature within the range in which it will substantially crystallize in time but then (c) is rapidly pressed into contact with and bonded to the base while it is still substantially amorphous and before enough time has passed in that temperature range to crystallize it to the stage at which it will not directly bond to the base, whereby (d) after the lined product is cooled to room temperature the liner will not shrink-separate away from the contoured base as a result of subsequent exposure to a temperature of about 400° F.

2. A process as in claim 1 wherein the film has a thickness of less than about 2.0 mil, and it is pre-heated to a thermoforming temperature within the range of from about 250° F. to about 400° F. but then is rapidly pressed into contact with and bonded to the base before the film has been at that thermoforming temperature for longer than about 2 seconds.

10. A plastic-lined molded pulp product which is three-dimensionally contoured with horizontal and sloping but no substantially vertical wall portions to permit like products to be nested one within another in a stack of such products, the product comprising a pre-formed base obtained by molding fibrous pulp from an aqueous slurry thereof against an open-face suction mold to substantially finished contoured shape, and a substantially impervious liner directly bonded to at least one contoured portion of at least one surface of the molded pulp base, the liner consisting essentially of polyethylene terephthalate obtained from a substantially amorphous and substantially unoriented film thereof which will not shrink-separate away from the contoured base as a result of exposure to a temperature of about 400° F.

4,337,117
DECAY RESISTANT MATERIAL

Warren J. Bodendorf, Montgomery, and Alphonse R. Presto, Holyoke, both of Mass., assignors to Texon Inc., South Hadley, Mass.

Filed Aug. 13, 1980, Ser. No. 177,779
Int. Cl.[3] D21H *5/22*
U.S. Cl. 162—161 5 Claims

1. A process for manufacturing a wet laid synthetic fibrous sheet material which is resistant to decay by microbial organisms according to a papermaking technique including:

providing a furnish of a fibrous slurry 5 to 12 parts by weight to 100 parts by weight of fiber metal-quinolinolate emulsion, a cationic polymer, and a polymer colloid;

forming said furnish into a web;

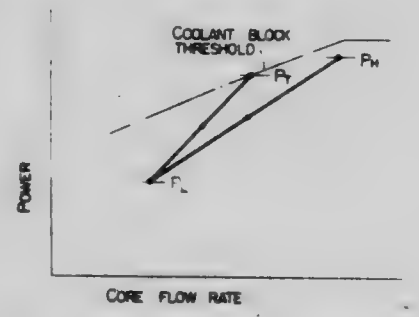
saturating said web with a binder; and

drying said web to form a fibrous sheet with fibers and metal-quinolinolate uniformly distributed throughout said binder, said cationic polymer being provided at a sufficient level to retain greater than 99% of said metal-quinolinolate in said sheet during formation.

4,337,118
NUCLEAR REACTOR POWER MONITORING SYSTEM

Mikio Sakurai, Mito; Yuichiro Yoshimoto, and Hiroshi Kodama, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 12, 1979, Ser. No. 84,437
Claims priority, application Japan, Oct. 16, 1978, 53-126196
Int. Cl.[3] G21C *7/00*
U.S. Cl. 376—210 6 Claims



1. In a nuclear reactor having a core including means for recirculating a coolant through the core to make a core coolant flow, means associated with said recirculating means for controlling the core coolant flow rate, means for detecting the power level of the reactor and producing a signal indicative of the detected power level, and means for detecting the core coolant flow rate and producing a signal indicative of the detected flow rate, the combination of:

(a) means responsive to the signal from said flow rate detecting means for producing a signal indicative of the maximum threshold power level at the detected flow rate, the threshold being previously determined and inputted to said means as a function of the core coolant flow rate;

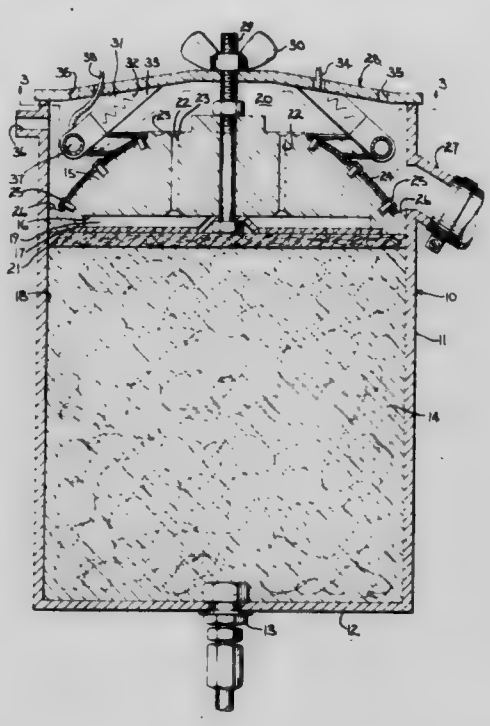
(b) means for receiving and comparing the signals from said power level detecting means and said maximum threshold power level signal producing means; and

(c) means for producing a coolant block signal or coolant run-back signal when the signal from said power level detecting means exceeds the signal from said maximum threshold power level signal producing means, said coolant block signal or run-back signal being received by said flow rate control means whereby said recirculation means is operated to block the change in the core coolant flow rate or run-back the flow rate.

4,337,119
OIL RECLAIMING APPARATUS HAVING ULTRAVIOLET STERILIZER THEREIN

Jerome T. Donahue, 970 S. Waterville Rd., Oconomowoc, Wis. 53066

Filed Apr. 10, 1981, Ser. No. 252,946
Int. Cl.[3] C10G *31/06, 31/09, 32/00*
U.S. Cl. 196—46 2 Claims



1. An apparatus for sterilizing and removing volatile impurities from lubricating oil comprising:

(a) a container;

(b) an evaporation plate positioned within said container, said evaporation plate defining the floor of an evaporation chamber within such container;

(c) a plurality of passages passing through said evaporation plate from the base thereof to the top surface of said plate;

(d) enclosure means for enclosing the top of the container and defining the top of said evaporation chamber;

(e) means for heating the evaporation plate; and

(f) an ultraviolet radiation source positioned above said evaporation plate and below said enclosure means, said ultraviolet radiation source being capable of directing sufficient radiation upon oil passing across the top of the evaporation plate to sterilize said oil;

(g) vent means to permit vaporized materials to escape from said evaporation chamber, and means for conducting the oil from said evaporation chamber.

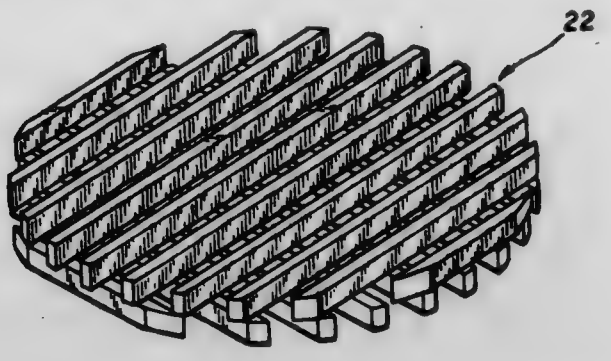
4,337,120
BAFFLE SYSTEM FOR STAGED TURBULENT BED

Byron G. Spars, Mill Valley; Paul W. Tamm, Oakland, and P. Henrik Wallman, Berkeley, all of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Apr. 30, 1980, Ser. No. 145,290
Int. Cl.[3] C10B *1/04*
U.S. Cl. 196—125 5 Claims

1. An improved retorting vessel for pyrolyzing a granular oil shale containing a mixture of fluidizable and non-fluidizable particles, said retort characterized as a vertically elongated vessel designed for the downward passage of the granular oil shale in generally countercurrent flow to a stripping gas passing upward through the retort, said retort further having a plurality of vertical baffles internally-disposed for limiting the gross vertical backmixing of solids and for increasing the residence time of the non-fluidizable particles in the retort, the improvement comprising, said retorting vessel having a diameter of at least one meter and having present in the interior of said retort at least 4 vertically spaced, horizontally disposed,

perforated baffles, each of said baffles having an open area in the range of 30–70% of the baffle cross-sectional area, said



open area being comprised of holes having a maximum dimension in the range of 3.8 to 10 centimeters.

4,337,121

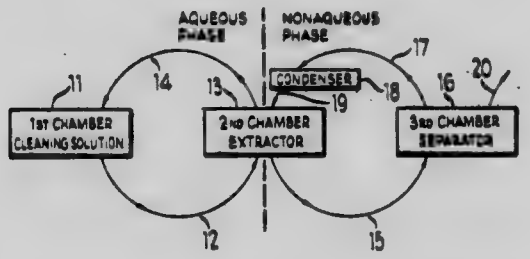
APPARATUS FOR REMOVING ORGANIC COMPONENTS FROM AN AQUEOUS CLEANING SOLUTION

Joseph J. English, Sycamore, Ill., assignor to Earl J. Kintz, Chicago, Ill., a part interest

Division of Ser. No. 687,520, May 18, 1976, Pat. No. 4,162,199. This application May 25, 1978, Ser. No. 909,208

Int. Cl.³ B01D *3/00, 11/04*

U.S. Cl. 202—169 **14 Claims**



1. An apparatus for cleaning organic contaminants from parts with a cleaning solution and removing said organic contaminants from said cleaning solution comprising:

(A) a cleaning solution capable of dissolving said contaminants to thereby become organic components in said solution;

(B) a container for holding said solution;

(C) a solvent substantially immiscible with and of a different specific gravity than said solution, said solvent having greater solubility for said organic components than said cleaning solution;

(D) extracting means, separate from said container, for:

(1) establishing intimate contact between said cleaning solution and said solvent; and

(2) retaining, subsequent to said intimate contact, said solution and said solvent;

(E) first carrying means, in fluid communication with said container and said extracting means, for transporting a portion of said cleaning solution from said container to said extracting means;

(F) second carrying means in fluid communication with said container and said extracting means for transporting said cleaning solution from said extracting means to said container after intimate contact with said solvent;

(G) separating means for substantially removing said organic components from said solvent;

(H) third carrying means, in fluid communication with said extracting means and said separating means for transporting solvent, after contact with said cleaning solution, from said extracting means to said separating means; and

(I) fourth carrying means, in fluid communication with said separating means and said extracting means, for transporting said solvent from said separating means to said extracting means after said organic components have been substantially removed from said solvent.

4,337,122

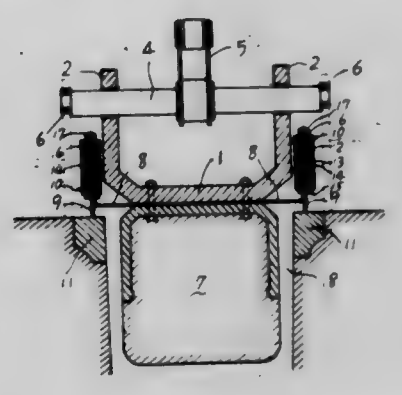
COKE OVEN DOOR

Tetsuo Kurihara, Matsuda, Japan, assignor to Koritsu Machine Industries, Ltd., Tokyo, Japan

Filed Dec. 19, 1980, Ser. No. 218,023

Int. Cl.³ C10B *25/06, 25/12, 25/16*

U.S. Cl. 202—248 **3 Claims**



1. In a coke oven, a combination comprising a door body having side plates; upper and lower supporting holes formed horizontally in said side plates; upper and lower locking bars each extending through one of said holes and having an axis of rotation and two spaced ends; and a pair of rollers mounted on each of said locking bars at the respective ends thereof and turnable about an axis which is eccentric relative to said axis of rotation, said rollers being adapted for engagement with latching hooks projecting from the sealing frame of the door.

4,337,123

PROCESS FOR THE PRODUCTION OF FUEL ALCOHOL, WITHOUT VINASSE

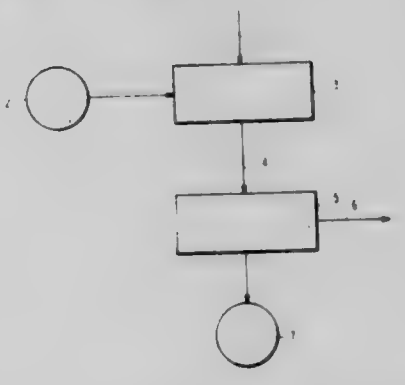
Alvaro De Sa, and Jacob M. Luksenberg, both of Rio de Janeiro, Brazil, assignors to Versa Consultoria Technica LTDA., CGC, Rio de Janeiro, Brazil

Filed Aug. 29, 1980, Ser. No. 182,361

Claims priority, application Brazil, Aug. 31, 1979, 7905624; May 30, 1980, 7905624

Int. Cl.³ B01D *3/14, 21/01*

U.S. Cl. 203—19 **12 Claims**



1. A process for the production of fuel alcohol, without producing vinasse as an undesirable byproduct, from fermented plant mashes comprising after fermentation of said mashes and before distillation the fermented mash is treated by at least two of the operations listed below, which may be applied in the indicated sequence or in different sequences (a to f):

(a) adding chemical nutrient substances and oxygen to the fermented mash in an amount sufficient to cause biological digestion of digestable substances in the fermented mash,

(b) adding a sufficient amount of a flocculating agent to cause flocculation of said fermented mash;

(c) treating with an alkaline material at temperatures from

60° C. to 105° C. in an amount sufficient to cause reaction with soluble compounds not eliminated by steps (a) and (b);

(d) decanting solids in suspension with removal and filtration of the sediment, separating and returning to the flow the liquid part obtained after said filtration;

(e) precipitating substances by addition of alcohol to the liquid, with subsequent separation of salts;

(f) adding an acid to the liquid to precipitate insoluble salts and subsequently neutralizing;

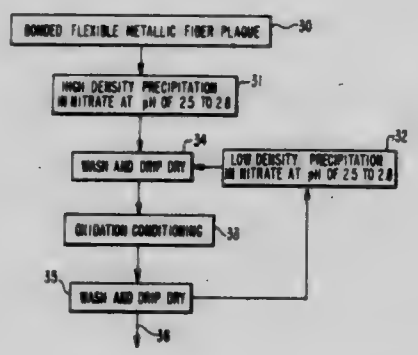
and thereafter distilling to recover alcohol from said liquid.

4,337,124

NON-PULSED ELECTROCHEMICAL IMPREGNATION OF FLEXIBLE METALLIC BATTERY PLAQUES

Nicholas J. Maskalick, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 14, 1981, Ser. No. 292,976
Int. Cl.³ H01M *4/04*; C25D *11/00*
U.S. Cl. 204—2.1 **10 Claims**



1. A method of loading porous, flexible, expansible metallic battery plaques with active material comprising the steps of:

(a) immersing a porous, flexible, expansible metallic plaque and a consumable nickel electrode in an electrolyte solution comprising nickel nitrate having a pH of between 2.0 and 2.8, and then

(b) making the plaque cathodic and the consumable nickel electrode aniodic and supplying sufficient continuous, non-pulsed current to the plaque to provide a current density of between about 20 mA./sq.cm. and 100 mA./sq.cm., to precipitate active material comprising bivalent nickel hydroxide within the plaque pores, and then

(c) electrochemically oxidizing the active material in alkaline hydroxide formation solution, and then

(d) immersing the plaque containing oxidized active material and a consumable nickel electrode in an electrolyte solution comprising nickel nitrate having a pH of between 2.0 and 2.8, and then

(e) making the plaque cathodic and the consumable nickel electrode anodic and supplying sufficient continuous, non-pulsed current to the plaque to provide a current density of between about 2 mA./sq.cm. and 10 mA./sq.cm., to precipitate additional active material comprising bivalent nickel hydroxide within the plaque pores.

4,337,125

ELECTROCHEMICAL SYNTHESIS OF ORGANOPHOSPHORUS COMPOUNDS FROM THE ELEMENT

Mark A. Kuck, Upper Montclair, N.J., and Gary K. Miller, Port Chester, N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Dec. 8, 1980, Ser. No. 213,773
Int. Cl.³ C25B *3/00, 3/12*
U.S. Cl. 204—59 R **13 Claims**

1. A process for the preparation of organophosphorus derivatives of organic hydroxyl or sulfhydryl compounds which includes the step of electrolyzing said organic hydroxyl or sulfhydryl compounds in an electrochemical cell having an anode comprising elemental phosphorus.

4,337,126

ELECTROLYSIS OF CARBONATES TO PRODUCE HYDROXIDES

Thomas J. Gilligan, III, Painesville; Thomas G. Strempel, Euclid; Martin M. Dorio, Mentor, and Andrew D. Babinsky, Chagrin Falls, all of Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Oct. 27, 1980, Ser. No. 201,209
Int. Cl.³ C25B *1/16, 1/02, 1/00*
U.S. Cl. 204—98 **9 Claims**

1. An electrolytic process for recovering alkali metal hydroxide from a solution consisting essentially of the carbonate of said alkali metal, comprising:

(1) an electrolytic cell having a cation permselective membrane which separates the cell into two compartments, namely a cathodic compartment and an anodic compartment;

(2) feeding said solution of carbonates into the anodic compartment, and maintaining an alkali metal hydroxide solution, in the cathodic compartment which is electrolytically conductive under the conditions of the process;

(3) heating the contents of the anodic compartment to a temperature above ambient temperature and maintaining the contents of said anodic compartment at said above ambient temperature throughout the process;

(4) passing an electrical current through the electrolytic cell, whereby alkali metal ion passes through said membrane into the cathodic compartment in which essentially pure hydroxide of said alkali metal is produced while CO_2 is generated from the anolyte.

4,337,127

METHOD FOR MAKING A CATHODE, AND METHOD FOR LOWERING HYDROGEN OVERVOLTAGE IN A CHLOR-ALKALI CELL

Terry M. Copeland, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 128,111, Mar. 7, 1980, Pat. No. 4,298,447.
This application May 26, 1981, Ser. No. 267,081
Int. Cl.³ C25B *1/34, 11/04*
U.S. Cl. 204—98 **28 Claims**

11. A method for lowering the operating voltage of a chloralkali electrolysis cell which comprises an anode, a cathode, an anode compartment, a cathode compartment, and a fluorine-containing cation exchange membrane which separates said compartments, said method comprising adding particles comprising grains of alpha-iron in an amount of about 1 g or more per dm^2 of membrane area to said cathode compartment.

4,337,128

CUPRIC AND FERRIC CHLORIDE LEACH OF METAL SULPHIDE-CONTAINING MATERIAL

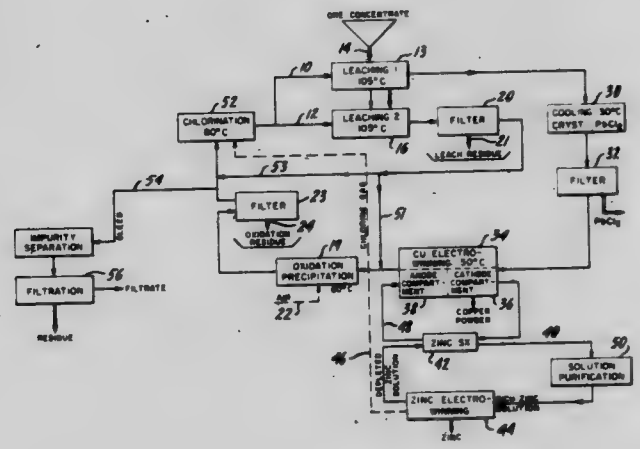
Carl Haakonsen, Kristiansand, and Thomas Thomassen, Brekkestoe, both of Norway, assignors to Elkem a/s; Falconbridge Nikkelverk A/S, both of, Norway; Falconbridge Nickel Mines, Ltd. and The Superior Oil Company, both of, Canada

Filed Apr. 16, 1981, Ser. No. 254,955
Claims priority, application Norway, Oct. 7, 1980, 802986
Int. Cl.³ C25C *1/12, 1/16*; C22B *3/00*
U.S. Cl. 204—107 **14 Claims**

13. A continuous hydrometallurgical process for recovery of metals from metal-sulphide materials containing one or more metal-sulphides of copper, iron, lead and zinc in accordance with the red-ox principle in which the leach liquor is recycled in a closed loop which comprises the steps of:

(a) supplying regenerated leach liquor containing ferric and cupric chlorides simultaneous in a split flow to a primary and a separate secondary red-ox leaching step;

(b) supplying metal-sulphide containing material to said primary leaching step and carrying out said primary leaching in the presence of an excess of metal-sulphide material in relation to said oxidized compounds of ferric and cupric chlorides in said leach liquor to extract a portion of said metals as solubie chlorides from said material;
(c) separating the leach liquor containing said soluble metal chlorides from said material;
(d) conducting said separated material to the secondary leaching step and subjecting the material to secondary leaching in the presence of an excess of said oxidized compounds of ferric and cupric chlorides in relation to the metal-sulphide material;
(e) separating the residue of said material from the leach liquor in said secondary leaching step;
(f) cooling the liquor from said primary leaching step to precipitate and remove lead chloride;
(g) after removing lead chloride, conducting said leach liquor to the cathode compartment of a diaphragm electrolysis cell and removing metallic copper at the cathode;
(h) conducting leach liquor from the cathode compartment of said cell to separate treatment for extraction of zinc chloride;



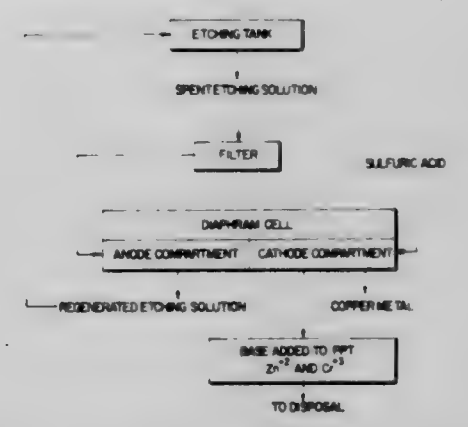
(i) contacting said leach liquor with an organic liquor in said separate treatment to remove zinc chloride and thereafter returning said leach liquor to the anode compartment of said cell for regeneration by chloride ions in the anode compartment of said cell;
(j) contacting the organic liquor with an aqueous medium to strip zinc chloride from said organic liquor;
(k) conducting said aqueous medium with zinc chloride therein to the cathode compartment of a diaphragm electrolysis cell to remove metallic zinc at the cathode and generate chlorine at the anode;
(l) recycling the anolyte from said cell for use as the aqueous medium for stripping zinc chloride from said organic liquor;
(m) conducting the anolyte from the copper extraction cell to further regeneration by oxidation and chlorination to precipitate iron and form fresh leach liquor which is recycled in a closed loop for red-ox leaching of said metal-sulphide material;
(n) combining said leach liquor from said secondary leaching step with the anolyte from the copper extraction cell to subject said secondary leach liquor at least to chlorine regeneration.

4,337,129

REGENERATION OF WASTE METALLURGICAL PROCESS LIQUOR

David M. Soboroff; Jerry D. Troyer, and Andrew A. Cochran, all of Rolla, Mo., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Continuation-in-part of Ser. No. 37,089, May 8, 1979, abandoned. This application Oct. 24, 1980, Ser. No. 200,111
Int. Cl.³ C02F *1/46*
U.S. Cl. 204—151 **7 Claims**



1. A method of regenerating an exhausted aqueous hexavalent chromium solution containing trivalent chromium ions and extraneous metal ions including copper ions, comprising:
providing an electrolytic cell comprising a cathode compartment and at least one anode compartment, said cathode compartment having at least one cathode located therein, and said anode compartment consisting essentially of a removable container formed by a framework having a cation selective membrane secured to at least one side thereof, and said container being located within, but unattached to, the cathode compartment and having at least one anode located therein,
placing said exhausted chromium solution, as anolyte, in the anode compartment of said cell, and placing aqueous sulfuric acid, as catholyte, in the cathode compartment of said cell, and
impressing a direct current across the anode and cathode of said cell of a difference in potential sufficient to promote oxidation of trivalent chromium in the anolyte to hexavalent chromium, while the extraneous metal ions in the anolyte migrate through said membrane into the catholyte where copper ions are plated ón the cathode.

4,337,130

PHOTOCURABLE POLYURETHANE FILM COATINGS

Leo Ahramjian, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 162,915, Jun. 25, 1980, abandoned. This application Mar. 26, 1981, Ser. No. 244,531
Int. Cl.³ C08F *2/50*; C08J *3/28*
U.S. Cl. 204—159.15 **14 Claims**

1. A photocurable polyurethane composition consisting essentially of the following components:
(1) a polyurethane made from
(a) an aliphatic diisocyanate,
(b) a poly(hexamethylene isophthalate)glycol having a number average molecular weight of about 500–1600, and
(c) 1,4-butanediol; with the provisos that the respective mole ratios of components (a), (b), and (c) are 1–2:1:0–1; and the total amount of components (b) and (c) is about equivalent to the amount of component (a);
(2) a photopolymerizable polyfunctional acrylate or methacrylate ester in an amount of about 2–15% based on the weight of component (1);
(3) an amount of a photoinitiator effective to cause compo-

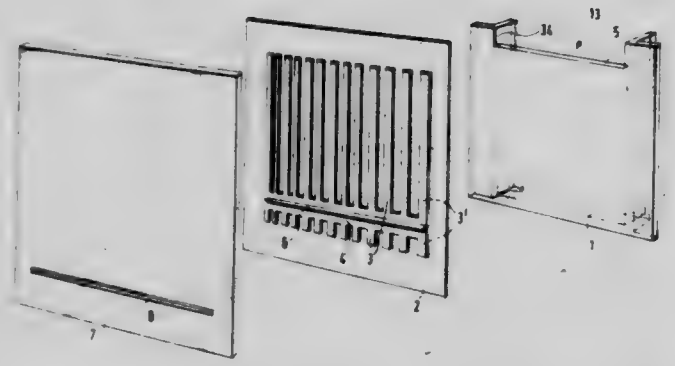
nent (2) to polymerize in the presence of ultraviolet light; and
(4) an antioxidant.

4,337,131

PROCESS FOR ELECTROPHORESIS

Olof Vesterberg, Saltsjö-Duvnäs, Sweden, assignor to C. Desaga GmbH Nachf. Erich Fecht, Heidelberg, Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 94,308
Claims priority, application Sweden, Nov. 13, 1978, 7811720; Fed. Rep. of Germany, Nov. 2, 1979, 2944127
Int. Cl.[3] B01D *57/02*; G01N *21/26*
U.S. Cl. 204—180 G 5 Claims



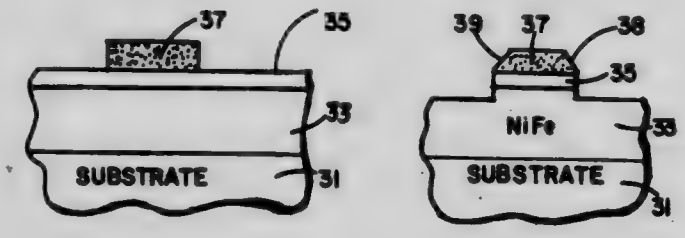
1. In an electrophoretic process for the investigation, analysis, and/or production of chemical substances, in which the substances to be investigated or the starting materials for the substances to be produced are transported in aqueous solution in a gel carrier medium for inhibiting or stabilizing convective transport under the action of an electric field wherein the aqueous solution contains reagents which form precipitates with the substances to be quantitatively determined, and, due to electrophoretic transport in the aqueous phase of the carrier medium, these reagents result in the production of precipitation over a migration distance which is proportional in length to the amount of the substances being determined; and in which process the electrophoretic transport is carried out in a vertical carrier medium which is in the form of a thin layer held between at least two plate-like or film-like elements which are moveable with respect to each other, such that the opposite ends of the carrier medium are in direct contact with buffer solution contained in respective electrode containers associated with each of the ends, and such that after the electrophoretic transport one of the side surfaces of the carrier medium, which medium is in the form of a thin layer, is exposed by the removal of at least one of the plate-like or film-like elements, the improvement wherein the electrophoretic transport is carried out in a carrier medium in the form of a thin layer which is divided into multiple essentially parallel strips.

4,337,132

ION ETCHING PROCESS WITH MINIMIZED REDEPOSITION

Addison B. Jones, Yorba Linda, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 14, 1980, Ser. No. 206,929
Int. Cl.[3] C23C *15/00*; C23F *1/00*
U.S. Cl. 204—192 E 7 Claims



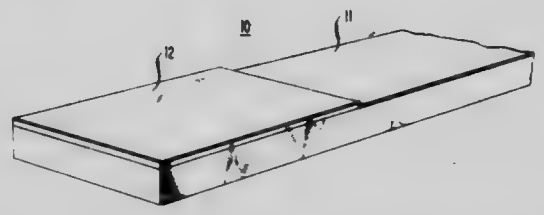
1. The method of minimizing redeposition of underlying thin layer material which is removed by ion impact through a patterned resist mask, comprising the steps of:
(a) determining the etching rates by ion impact of said resist mask and said underlying material in selected atmospheres;
(b) interposing a thin layer of getter mask material between said resist mask and said underlying material, said getter mask material etching very slowly in a said selected atmosphere, relative to said resist mask and said underlying material;
(c) selecting the relative thicknesses and etching rates of said resist mask, said underlying material, and said getter mask material to cause the portions of said getter mask material not protected by said resist mask to be removed by said ion impact shortly prior to faceting of the resist mask to the protected portions of said getter mask material in a selected first atmosphere; and
(d) continuing etching by ion impact in a selected different atmosphere to remove the resist mask and reduce the thickness of the exposed getter mask material, thereby to minimize redepositing.

4,337,133

HARD GOLD SURFACES

Jacques A. Augis, Pickerington, and Christopher C. C. Lo, Whitehall, both of Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 50,342, Jun. 20, 1979, abandoned. This application Dec. 18, 1980, Ser. No. 217,914
Int. Cl.[3] C23C *15/00*
U.S. Cl. 204—192 C 6 Claims



1. A process for fabricating an electrical contact with at least one hard metallic film with Vickers Hardness Numbers greater than 100 on a substrate, said metallic film comprising gold, comprising the step of sputtering a gold alloy composition onto the substrate using a carrier gas characterized in that the gold alloy composition consists essentially of between 0.05 and 5 weight percent noble refractory metal remainder gold, said noble refractory metal consisting essentially of at least one element selected from the group consisting of rhodium and ruthenium and the substrate is maintained at a temperature below 80 degrees C. during the sputtering procedure.

4,337,134

CONTINUOUS TRUCK MOUNTED PRINTED CIRCUIT BOARD PLATING SYSTEM

Richard O. Norman, Oxnard, Calif., assignor to Elfab Corporation, Dallas, Tex.

Filed Feb. 27, 1980, Ser. No. 125,245
Int. Cl.[3] C25D *17/06*, *21/04*, *21/10*
U.S. Cl. 204—198 16 Claims

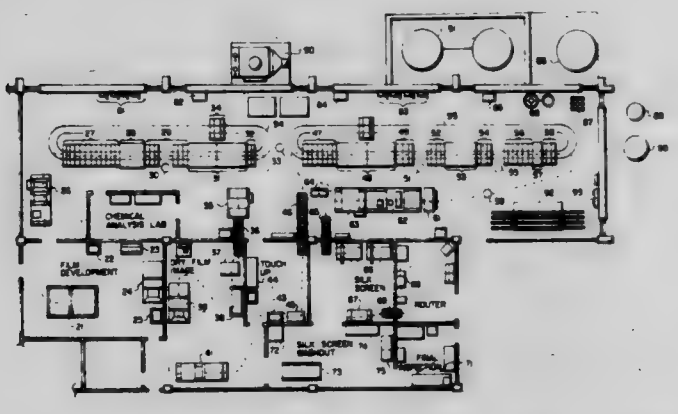
1. A continuous article processing system, comprising:
a series of sequentially arranged article treatment tanks;
a trolley track formed in a loop with a portion of said track overlying said treatment tanks, said track including two rails disposed one from the other in generally parallel spaced alignment;
a plurality of trolley trucks mounted for movement upon said track, each said trucks including means for supporting an article to be processed and energizable vertical drive means for raising and lowering said article into and out of said processing tanks;

energizable horizontal drive means for moving each of said trolley trucks along said track;

a set of control busses, including a power bus, a ground bus and a control bus, extending around the loop between said trolley rails, said power and ground busses being continuous and said control bus being segmented with the interruptions therein located directly above each of said treatment tanks;

means mounted on said trolley trucks for engaging each of said busses;

an automatically resetting timer associated with each of the segments of said control bus;



control means responsive to said timer reaching a preselected value for applying power to said control bus to sequentially energize said vertical drive means and raise said article, to energize said horizontal drive means and energize said horizontal drive means and advance the trolley out of engagement with that segment of control bus and into engagement with the next successive segment, and to energize said vertical drive means and lower said article into the next successive treatment tank under control of the timer associated with the next successive segment of the control bus.

4,337,135

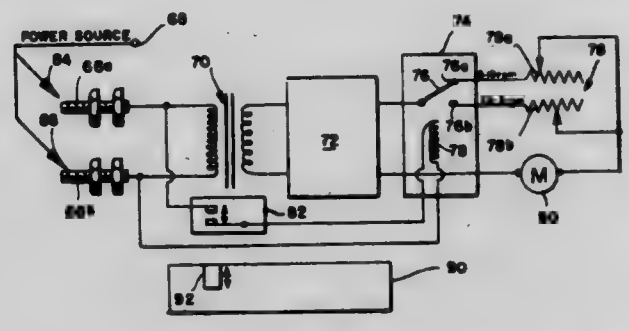
BARREL PLATING APPARATUS

Carrol D. Quinton, Lemont, and Raphael Guio, Chicago, both of Ill., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Division of Ser. No. 949,305, Oct. 6, 1978, Pat. No. 4,257,853. This application Jun. 30, 1980, Ser. No. 164,582

Int. Cl.³ C25D *21/10*

U.S. Cl. 204—213 **15 Claims**



1. In an apparatus for metal plating a work load which is carried generally in a path of travel from a preplating treatment tank or the like, through air into and out of a plating tank, and from said plating tank to a postplating treatment tank or the like;

means for moving said work load along said path of travel; and

means for rotating said work load during at least portions of its movement along said path of travel, including means for rotating said work load at a first rate of rotation while in said plating tank and a varying rate of rotation while in air when the work load is removed from said plating tank.

4,337,136

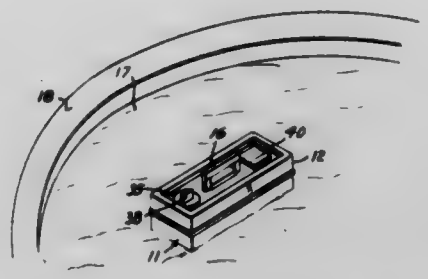
DEVICE FOR PURIFYING WATER

Vincent M. F. Dahlgren, 320 Osborne St., Vista, Calif. 92083

Filed Mar. 2, 1981, Ser. No. 239,700

Int. Cl.³ C25B *11/10*

U.S. Cl. 204—242 **2 Claims**



1. A self-contained purifying device for a body of water comprising:

a container adapted to float on the surface of the water,

a pair of spaced electrodes depending from said container,

each of said electrodes comprising an alloy of silver and copper, and

a direct current electric circuit connected between said electrodes,

said circuit including a current source contained in said container,

said circuit causing an ionizing current to pass between said electrodes whereby to destroy bacteria and algae in the water, and

wherein said alloy comprises about 99½ percent copper and ½ percent silver by weight.

4,337,137

COMPOSITE ION EXCHANGE MEMBRANES

Bobby R. Ezzell, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jun. 11, 1980, Ser. No. 158,423

Int. Cl.³ C25B *9/00, 13/08*

U.S. Cl. 204—252 **24 Claims**

1. In a polymeric composite film of the type having two layers which differ in equivalent weight, each of said layers having a substantially completely fluorinated polymeric backbone with a plurality of pendant groups attached thereto, at least a portion of said pendant groups being a chain of carbon atoms which may be interrupted with one or more oxygen atoms and which terminates with an ion exchange group; wherein the improvement comprises:

the two layers differing in equivalent weight from each other by less than 150 and the carbon chain which connects the ion exchange group to the polymeric backbone having from 1 to 3 carbon atoms.

4,337,138

ELECTROLYSIS ELECTRODE

Glenn E. Stoner, and George L. Cahen, Jr., both of Charlottesville, Va., assignors to Research Corporation, New York, N.Y.

Division of Ser. No. 935,155, Aug. 21, 1978, Pat. No. 4,285,796. This application Mar. 9, 1981, Ser. No. 242,028

Int. Cl.³ C25B *11/02*; C25B *11/04*

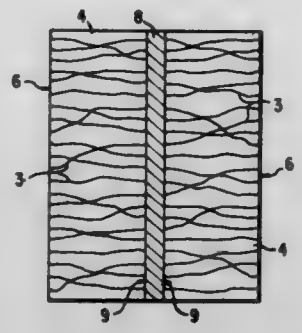
U.S. Cl. 204—290 R **23 Claims**

1. An electrode, which comprises:

an electrically conductive current collector; and

a working surface containing a multiplicity of conductive islands in a non-conducting matrix wherein the majority of said islands are in electrically conductive contact with said current collector wherein the average size of said

conductive islands and the average spacing between said conductive islands are of the same order of magnitude as the diffusion layer of the solution intended to be treated when said electrode is immersed into said solution.

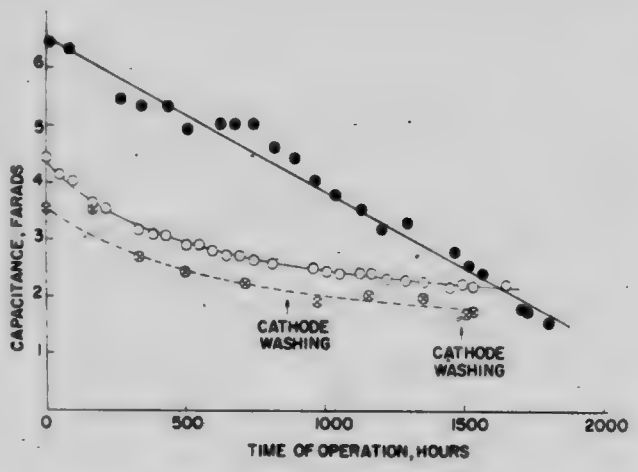


4,337,139

FLUORINATED CARBON ELECTRODE

Lawrence J. Gestaut, Painesville, Ohio, and Frank Solomon, Great Neck, N.Y., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Oct. 31, 1980, Ser. No. 202,581
Int. Cl.³ C25B *11/03, 11/04;* H01M *4/92*
U.S. Cl. 204—292 **6 Claims**



1. Partially fluorinated active carbon particles of the formula CF_x, where x=from 0.1 to about 0.18 having an ash content of less than about 4 weight percent, a B.E.T. surface area of at least 600 m^2/g and containing precious metal catalyst.

4,337,140

STRENGTHENING OF CARBON BLACK-TEFLON-CONTAINING ELECTRODES

Frank Solomon, Great Neck, N.Y., assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed Oct. 31, 1980, Ser. No. 202,876
Int. Cl.³ C25B *11/03, 11/04;* H01M *4/92*
U.S. Cl. 204—292 **5 Claims**

1. An electrode active layer comprising a mixture containing particulate carbon black and fibrillated unsintered polytetrafluoroethylene in chopped admixture with sintered polytetrafluoroethylene fibers.

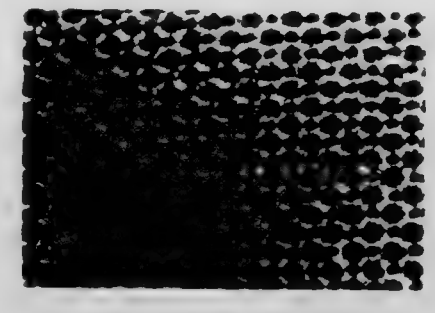
4,337,141

CATION EXCHANGE MEMBRANE

Itaru Watanabe; Isamu Wataya, and Sakae Tsushima, all of Yokohama, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Aug. 5, 1980, Ser. No. 175,375
Claims priority, application Japan, Aug. 10, 1979, 54-101180
Int. Cl.³ B01D *13/02*
U.S. Cl. 204—301 **5 Claims**

1. A reinforced cation exchange membrane comprising a cation exchange membrane formed of a resin material and a sheet of a woven fabric made of folded yarns of glass fiber filaments, said yarns having been subjected to a bulking treatment with air jets.



4,337,142

CONTINUOUS PROCESS FOR CONVERSION OF COAL

Curtis L. Knudson; Warrack G. Willson; Gene G. Baker; Everett A. Sondreal, and Sylvia A. Farnum, all of Grand Forks, N. Dak., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 29, 1980, Ser. No. 154,351
Int. Cl.³ C10G *1/00*
U.S. Cl. 208—8 LE **9 Claims**

1. A continuous process of converting low rank coal to liquid and gaseous products wherein plugging due to carbonate salt formation is reduced, which process comprises reacting crushed low-rank coal containing about 12 to 30% by weight of water dissolved in a solvent at a temperature in the range of about 455° to 500° C., under pressure of a H_2/CO gas mixture in the range of about 2000 to 5000 psi, for a liquid residence time in the range of about 20 to 60 minutes, said solvent comprising a fraction of liquid product characterized as having about 55% by weight of product which distils at less than 250° C. at 1 mm of pressure, about 20% of which is soluble in THF, and about 25% of which is a mixture of carbon polymer and indigenous inorganic matter; said solvent being further characterized as containing at least about 5 weight % of partially hydrogenated aromatics and little or no alkylated aromatics or higher alkanes.

4,337,143

PROCESS FOR OBTAINING PRODUCTS FROM TAR SAND

Francis V. Hanson; Jan D. Miller, and Alex G. Oblad, all of Salt Lake City, Utah, assignors to University of Utah, Salt Lake City, Utah

Filed Jun. 2, 1980, Ser. No. 155,257
Int. Cl.³ C10G *1/02, 1/04*
U.S. Cl. 208—11 R **14 Claims**

1. A process for recovering products from tar sand comprising:

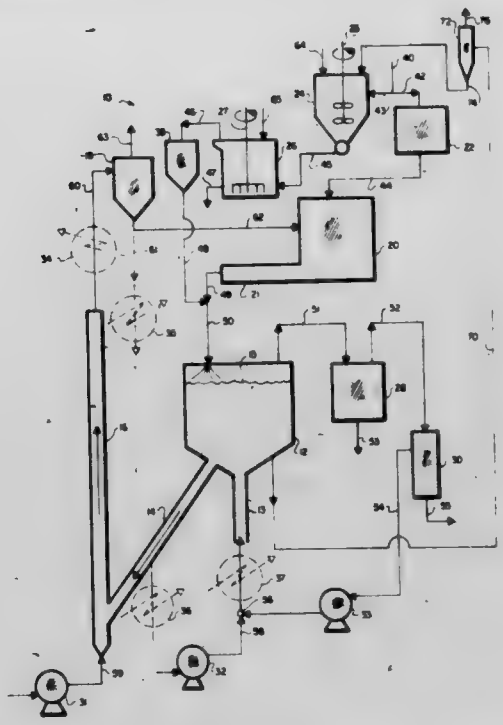
obtaining a tar sand having a negligible amount of connate water;

preparing a tar sand feed from the tar sand, said tar sand feed comprising a bitumen-rich concentrate containing at least about 35% sand by weight;

recovering products from the tar sand feed by passing the tar sand feed into a fluidized bed while heating the tar sand feed in the fluidized bed;

removing a coked sand from the fluidized bed;

producing a hot, burnt sand by burning coke residue on the coked sand; and



providing heat to the tar sand in the fluidized bed by recycling at least a portion of the hot, burnt sand.

4,337,144

ALUMINUM PASSIVATION PROCESS

Jin S. Yoo, Flossmoor, Ill., assignor to Atlantic Richfield Company, Philadelphia, Pa.

Filed May 19, 1980, Ser. No. 150,851

Int. Cl.³ C10G *11/04, 11/18*

U.S. Cl. 208—120 **13 Claims**

1. In a process for converting a hydrocarbon material having at least one metal contaminant selected from the group consisting of nickel, vanadium, iron and copper which comprises contacting the hydrocarbon material in a reaction zone at hydrocarbon conversion conditions with a catalyst containing a catalytically effective amount of at least one zeolite and about 0.75% to about 2% by weight of all of said metal contaminant to form a conversion product and a deactivated catalyst having carbonaceous deposits and containing at least a portion of said metal contaminant, and regenerating at least a portion of said deactivated catalyst to restore at least a portion of its catalytic activity by removing at least a portion of said carbonaceous deposits to form a regenerated catalyst, the improvement which comprises: contacting at least a portion of said regenerated catalyst with a liquid medium containing an effective amount of an aluminum compound for passivating at least a portion of said at least one metal contaminant for a time sufficient to permit at least a portion of aluminum atoms from said aluminum compound to transfer to at least a portion of said regenerated catalyst without removal of said at least one metal contaminant to form a treated catalyst containing aluminum atoms from said aluminum compound, and transferring at least a portion of said treated catalyst to said reaction zone, whereby said treated catalyst has an improved catalytic activity beyond that otherwise achieved by removal of an equivalent amount of metal contaminants, if any, removed by the claimed process.

4,337,145

FLUID CATALYTIC CRACKING PROCESS

Hosheng Tu, Irvine, Calif., assignor to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 195,909, Oct. 10, 1980, Pat. No. 4,305,845. This application May 26, 1981, Ser. No. 267,097

Int. Cl.³ C10G *47/04, 11/05*

U.S. Cl. 208—120 **7 Claims**

1. A fluid catalytic cracking process which comprises contacting a hydrocarbon charge stock at fluid catalytic cracking conditions with a zeolitic catalyst having a water content of less than about 1.5 wt. %, said catalyst having been prepared by contacting a zeolitic catalyst having a water content of greater than about 1.5 wt. % with a water-miscible organic fluid, and thereafter calcining said zeolitic catalyst at a temperature of less than about 1200° F.

4,337,146

HYDROCARBON DEHYDROCYCLIZATION WITH AN ATTENUATED SUPERACTIVE MULTIMETALLIC CATALYTIC COMPOSITE

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 80,639, Oct. 1, 1979, Pat. No. 4,256,608, which is a continuation-in-part of Ser. No. 18,811, Mar. 7, 1979, Pat. No. 4,210,524, which is a continuation-in-part of Ser. No. 833,332, Sep. 14, 1977, Pat. No. 4,165,276. This application Dec. 8, 1980, Ser. No. 214,391

The portion of the term of this patent subsequent to Nov. 10, 1998, has been disclaimed.

Int. Cl.³ C10G *35/06*

U.S. Cl. 208—139 **25 Claims**

1. A method for dehydrocyclizing a dehydrocyclizable hydrocarbon comprising contacting the hydrocarbon at hydrocarbon dehydrocyclization conditions with an acidic catalytic composite comprising a combination of a catalytically effective amount of a pyrolyzed rhenium carbonyl component with a porous carrier material containing catalytically effective amounts of a halogen component, an iron component and a uniform dispersion of a catalytically effective amount of a platinum group component maintained in the elemental metallic state.

4,337,147

CATALYTIC COMPOSITE AND PROCESS FOR USE

Robert R. Frame, Glenview, Ill., assignor to UOP Inc., Des Plaines, Ill.

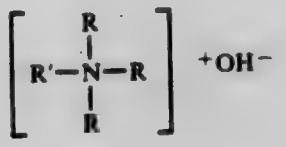
Division of Ser. No. 91,929, Nov. 7, 1979, Pat. No. 4,290,913, which is a continuation-in-part of Ser. No. 927,318, Jul. 24, 1978, Pat. No. 4,206,079, which is a continuation-in-part of Ser. No. 880,723, Feb. 24, 1978, Pat. No. 4,124,493. This application Aug. 26, 1980, Ser. No. 181,339

The portion of the term of this patent subsequent to Apr. 7, 1998, has been disclaimed.

Int. Cl.³ C10G *27/06*

U.S. Cl. 208—206 **13 Claims**

1. A method of treating a mercaptan-containing sour petroleum distillate by contacting said distillate at oxidation conditions with a catalytic composite comprising a metal chelate, an alkali metal hydroxide, and a quaternary ammonium hydroxide disposed on an adsorptive support, the quaternary ammonium hydroxide represented by the structural formula



wherein R is a hydrocarbon radical containing up to about 20 carbon atoms and selected from the group consisting of alkyl, cycloalkyl, aryl, alkaryl and aralkyl and R′ is a substantially straight-chain alkyl radical containing from about 5 to about 20 carbon atoms, said alkali metal hydroxide comprising at least about 10 wt. % of said catalytic composite.

4,337,148

LEAD PRESSURED EXTRACTION OF CARBONACEOUS MATERIAL

James E. Dick, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 20, 1980, Ser. No. 198,517
Int. Cl.³ C10G *1/00*
U.S. Cl. 208—8 LE 5 Claims

1. A process for extracting carbonaceous materials from extractable starting materials containing such carbonaceous material using a solvent under elevated temperature and high pressure conditions in a system including an extraction zone said process comprising

subjecting said starting materials and solvent in contact with each other to the hydrostatic pressure of molten lead in order to establish said high pressure in said extraction zone by said molten lead and

maintaining the lead in said system at a temperature sufficiently above its melting point to prevent solidification of the lead in the system.

4,337,149

PROMOTERS FOR USE IN THE ANIONIC CIRCUIT OF FROTH FLOTATION OF MINERAL ORES

Saul J. Escalera, Dublin, Ohio, assignor to Sherex Chemical Company, Inc., Dublin, Ohio

Filed May 11, 1981, Ser. No. 262,417
Int. Cl.³ B03D *1/02*
U.S. Cl. 209—166 30 Claims

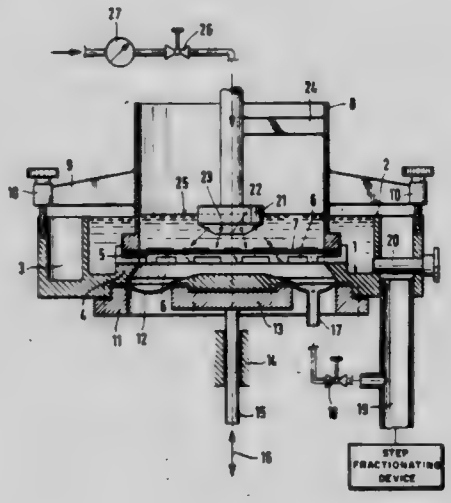
1. In a froth flotation process where preselected solid particles are selectively separated under anionic froth flotation conditions as a froth phase from remaining solid feed particles as an aqueous phase in the presence of an anionic collector, the improvement characterized by the addition of an effective proportion of an amine oxide promoter for improving the selectivity of recovery of said preselected particles.

4,337,150

FIBER FRACTIONATING DEVICE

Anton Breunig, Anhausen, Fed. Rep. of Germany, assignor to Haindl Papier GmbH, Augsburg, Fed. Rep. of Germany

PCT No. PCT/DE79/00004, § 371 Date Sep. 17, 1979, § 102(e) Date Sep. 17, 1979, PCT Pub. No. WO79/00530, PCT Pub. Date Aug. 9, 1979
PCT Filed Jan. 16, 1979, Ser. No. 185,909
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1978, 2802207
Int. Cl.³ D21F *1/00*; B07B *1/00*
U.S. Cl. 209—237 11 Claims



1. In a fiber fractionating device, preferably for the determination of the content of coarse particles, such as chips or the like, in wood fiber materials, said device consisting of

an essentially cylindrical water storage tank (1) open at the top, having an overflow edge (2), and overflow channel (3) surrounding said overflow edge (2) with an outlet (19) surrounding said overflow edge (2) and a closable drain orifice (20) that connects the water storage tank (1) with the overflow channel (3) and the outflow (19), respectively,

an interchangeable fractionating bottom (7), which is designed as a slotted plate, sieve or the like and rests inside the water storage tank (1) on a support (4, 5) above the bottom of the water storage tank (1) that is essentially annular and provided with communicating water passage orifices (6),

a cylindrical fractionating vessel (8) which, by means of detachable fastenings (10) is put sealingly on the edge of the fractionating bottom (7) and is tightened against the annular support (4, 5),

a flexible membrane (12) which is clamped into an opening in the bottom of the water storage tank (1) within the annular support (4, 5) and has a rigid center piece (13) that is provided on its bottom side with a periodically pulsatable lift drive (16), as well as

a controllable water feed (21, 26, 27) having water outlet nozzles (22, 23) within the fractionating vessel (8),

the improvement comprising

the water outlet nozzles (22, 23) are directed essentially from above or slanting from above into the fractionating vessel (8) and that their orifices are arranged on and/or below the level of the overflow edge (2),

the means (9, 10) for the detachable fastening of the fractionating vessel (8) are disposed above the overflow edge (2) on the fractionating vessel (8),

the water storage tank (1) and the fractionating vessel (8)—aside from the annular support (4, 5)—have only smooth walls and are without components, protrusions and edges which would hinder the flow and favor the deposit of fibers, and

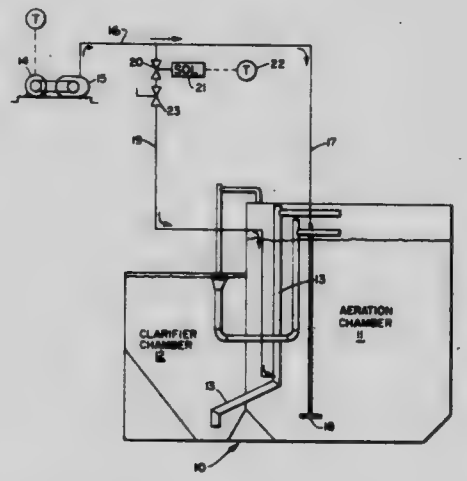
two closable discharge orifices (17, 20) are provided—one of them at the lowest spot of the outer annular space of the water storage tank (1) limited by the annular support (4, 5) and the other one at the lowest spot in the zone of the flexible membrane (12) within the annular support (4, 5).

4,337,151

METHOD AND APPARATUS FOR PULSED TIMED CONTROL FOR SLUDGE RETURN LINE

Gary A. Crosby, New Iberia, La., assignor to Red Fox Industries Inc., New Iberia, La.

Filed Dec. 29, 1980, Ser. No. 220,775
Int. Cl.³ C01C *1/26*
U.S. Cl. 210—139 1 Claim



1. In a sewage treatment apparatus, an aeration chamber, a clarification chamber having a clear water zone, a sludge return line extending from the bottom of said clarification chamber to the top of said aeration chamber, an air service line supplying air from a blower to a lower portion of said sludge return line, apparatus for periodically pulsing air to said sludge

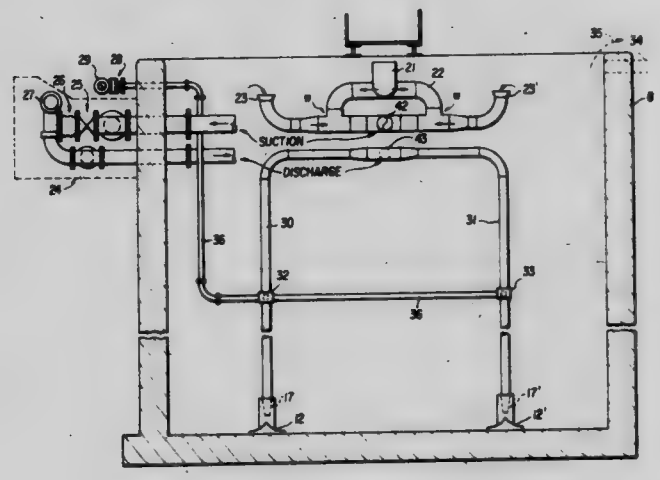
return line comprising a solenoid controlled valve in said air service line to said sludge return line, timing means for periodically pulsing the air to said sludge return line so that eddy currents in the clarification chamber are reduced to retard flow of sludge into the clear water zone of the clarifier, and a metering valve downstream of said solenoid controlled valve to regulate the quantity of air supplied to said sludge return line when said solenoid controlled valve is opened.

4,337,152

AERATION APPARATUS AND METHOD

John F. Lynch, Aston, Pa., assignor to Frebar Holding AG, Zug, Switzerland

Filed Sep. 27, 1978, Ser. No. 946,141
Int. Cl.³ C02F 3/22; B01F 3/04
U.S. Cl. 210—197 **3 Claims**



1. In an apparatus for treating waste water with a gas such as air, oxygen or other oxygen containing gas in an activated sludge aeration process including:

(a) an outer mixing vessel;

(b) outlet means from said outer mixing vessel for continuous withdrawal of mixed gas and waste water which form the contents of said outer mixing vessel;

(c) a pre-mixing draft tube substantially vertically axially aligned within said outer mixing vessel and having an upper end and a lower end;

(d) a nozzle opening at the lower end of said draft tube;

(e) mixing means for mixing the contents of said outer mixing vessel with incoming raw waste water and recycled activated sludge, said mixing means connected to the upper end of said draft tube and supplying the contents, raw waste water and activated sludge to said draft tube;

(f) said mixing means comprising a trough means for receiving the raw waste water and recycled activated sludge and a conduit means connecting said trough means to said draft tube, said conduit means having a funnel opening therein located within the contents of said outer mixing vessel for introducing the contents and the sewage into said draft tube;

(g) air inlet means for introducing the air directly into said draft tube between the upper and lower ends thereof for mixing the air with the sewage and contents flowing through the draft tube; and

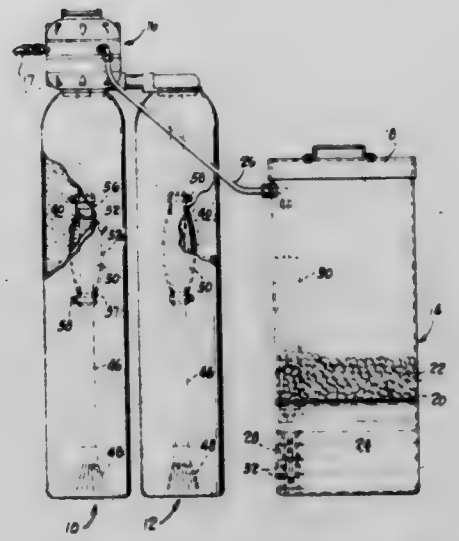
(h) pump means for pumping the mixed contents and liquid through said draft tube; the improvement comprising said conduit means including a loop having a top portion connected to said trough means and a bottom portion within which the funnel opening is located whereby waste water flowing into the trough means initially flows into the loop in opposing directions which eventually converge and the funnel opening is located at the point in the loop where the convergence begins.

4,337,153

WATER SOFTENING APPARATUS

William C. Prior, Newbury, Ohio, assignor to Kinetico, Inc., Newbury, Ohio

Filed Aug. 22, 1980, Ser. No. 180,374
Int. Cl.³ B01J 47/14
U.S. Cl. 210—288 **10 Claims**



1. A water softening apparatus, comprising:

(a) a tank defining a volume containing water softening material;

(b) a fluid conduit extending longitudinally in said tank, defining an inlet at one end for introducing fluid, to be treated, into said tank;

(c) structure defining an outlet spaced from said inlet for discharging fluid from said tank after passing through at least a portion of said water softening material;

(d) an elastomeric member disposed within said tank, defining an expansible chamber having one side of a chamber wall in fluid communication with fluid flowing in said conduit upstream of said inlet and another side of said wall in fluid communication with fluid flowing through said portion of said water softening material;

(e) said chamber expanding in response to the net fluid force exerted on said chamber wall by the fluid flowing in said conduit and the fluid flowing in said portion of said water softening material, said chamber operative during fluid flow to enlarge to maintain compactness of the water softening material.

4,337,154

CROSSLINKED COMPOSITE SEMIPERMEABLE MEMBRANE

Shuzo Fukuchi; Tetsuzo Hayashi, both of Osaka; Hiroya Kobayashi, Minoo, and Ryoichi Oshiumi, Ibaraki, all of Japan, assignors to Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, Japan

Filed Apr. 1, 1980, Ser. No. 136,245
Claims priority, application Japan, Apr. 4, 1979, 54-39881; Apr. 6, 1979, 54-41124; Apr. 10, 1979, 54-42484
Int. Cl.³ B01D 39/16
U.S. Cl. 210—490 **7 Claims**

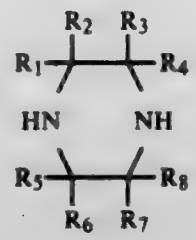
1. A composite semipermeable membrane comprising a porous support and a crosslinked thin film formed on said porous support, said crosslinked thin film being prepared by the process consisting essentially of forming a film consisting essentially of compound (A) and compound (B) on a porous support, contacting said film with a solution of compound (C) and then drying said film to form a crosslinked film,

said compound (A), being at least one compound selected from the group consisting of polyalkylenimines and polyalkylenimine derivatives which have been prepared by the process consisting essentially of reacting part of the amino groups of polyalkylenimines with compounds having functional groups reactive with said amino groups of

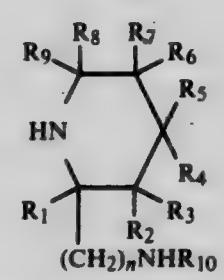
said polyalkylenimines and which have been rendered soluble in water or solvent mixtures comprising mainly water,

said compound (B) being at least one compound selected from the group consisting of:

compound (B_1) of the general formula

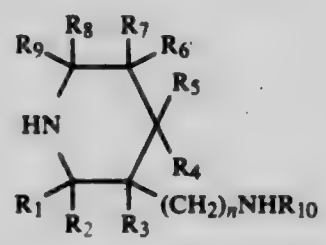


wherein R_1 to R_8 each represent a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, compound (B_2) of the general formula

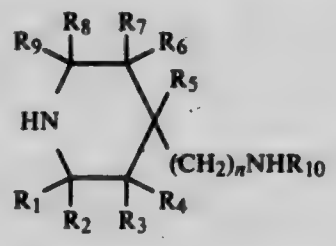


wherein R_1 to R_{10} each represent a hydrogen atom, or an alkyl group having 1 to 4 carbon atoms, and n denotes an integer of 1 to 3,

compound (B_3) of the general formula

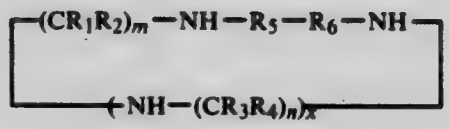


wherein R_1 to R_{10} each represent a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, and n denotes an integer of 1 to 3, compound (B_4) of the general formula



wherein R_1 to R_{10} each represent a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, and n denotes an integer of 1 to 3, and

compound (B_5) (excluding compound (A)) of the general formula



wherein R_1 to R_4 each represent a hydrogen atom or an alkyl group having 1 to 4 carbon atoms; m and n each represent an integer of 2 or 3; x denotes an integer of 1 to 4; R_5 and R_6 each represent an alkylene group having 1 to 4 carbon atoms; and R_5 and R_6 may each represent hydrogen atoms or an alkyl group having 1 to 4 carbon atoms without being bonded to each other, and

said compound (C) being a compound having in one molecule two or more functional groups capable of reacting with amino groups.

4,337,155

CHEMICAL-RESISTANT WHOLLY AROMATIC POLYAMIDE FIBER MATERIAL

Hideharu Sasaki; Yorikazu Tamura, and Keizo Shimada, all of Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

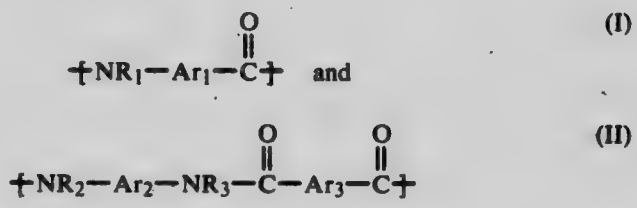
Filed Jan. 14, 1981, Ser. No. 225,036

Claims priority, application Japan, Jan. 22, 1980, 55-5219

Int. Cl.[3] B01D *31/00*; D02G *3/00*

U.S. Cl. 210—500.1 **15 Claims**

1. A chemical-resistant wholly aromatic polyamide fiber material, comprising wholly aromatic polyamide fibers each comprising at least one aromatic polyamide containing repeating units selected from the group consisting of those of the formulae (I) and (II):



(I)

(II)

wherein Ar_1, Ar_2, and Ar_3 respectively present, independently from each other, an unsubstituted or substituted divalent aromatic radical which comprises a single aromatic ring, or two or more aromatic rings that are condensed together, or are linked together, by a single bond, or by a bridging atom or radical, and which is oriented either meta or para, and R_1, R_2 and R_3 each represent independently from each other, a hydrogen atom or an alkyl radical having 1 to 3 carbon atoms, each of which fibers is covered with a coating of a fluorine-containing polymeric resin comprising at least one member selected from the group consisting of tetrafluoroethylene polymers, tetrafluoroethylene-hexafluoropropylene copolymers, tetrafluoroethylene-trifluorochloroethylene copolymers, tetrafluoroethylene-vinylidene fluoride copolymers, tetrafluoroethyleneperfluorovinyl ether copolymers, tetrafluoroethylene-carboxylic acid or sulfonic acid group-containing perfluorovinyl ether copolymers, trifluorochloroethylene polymers, vinyl fluoride polymers, vinylidene fluoride polymers, vinyl fluoride-hexafluoropropylene copolymers, and vinyl chloride-trifluorochloroethylene copolymers, said coating having been derived from an aqueous emulsion of said fluorine-containing polymeric resin.

4,337,156

ADSORPTIVE SEPARATION OF CONTAMINANTS FROM NAPHTHA

Armand J. deRosset, Sarasota, Fla., assignor to UOP Inc., Des Plaines, Ill.

Filed Sep. 23, 1980, Ser. No. 189,873

Int. Cl.[3] B01D *15/08*

U.S. Cl. 210—672 **5 Claims**

1. A process for separating polar organic compounds selected from the group consisting of thiophene, pyridine and phenol from a feed mixture comprising naphtha and said organic compounds which process employs an adsorbent consisting essentially of an X type potassium zeolite containing potassium cations at the cationic sites which exhibits selectivity to selectively adsorb said polar organic compounds while permitting the remaining portion of said naphtha to elute through said adsorbent and which process comprises the steps of:

(a) maintaining net fluid flow through a column of said adsorbent in a single direction, which column contains at least three zones having separate operational functions occuring therein and being serially interconnected with

the terminal zones of said column to provide a continuous connection of said zones;

(b) maintaining an adsorption zone in said column, said zone defined by the adsorbent located between a feed input stream at an upstream boundary of said zone and a naphtha raffinate output stream at a downstream boundary of said zone;

(c) maintaining a purification zone immediately upstream from said adsorption zone, said purification zone defined by the adsorbent located between an extract output stream at an upstream boundary of said purification zone and said feed input stream at a downstream boundary of said purification zone;

(d) maintaining a desorption zone immediately upstream from said purification zone, said desorption zone defined by the adsorbent located between a desorbent input stream at an upstream boundary of said zone and said extract output stream at a downstream boundary of said zone;

(e) passing said feed mixture into said adsorption zone at a temperature of from about 20° C. to about 250° C. and a pressure of from about atmospheric to about 500 psig to effect the selective adsorption of said polar organic compounds to the substantial exclusion of said naphtha by said adsorbent in said adsorption zone and withdrawing a raffinate output stream comprising naphtha from said adsorption zone;

(f) passing a liquid-phase desorbent material consisting essentially of 1-octanol into said desorption zone at a temperature of from about 20° C. to about 250° C. and a pressure of from about atmospheric to about 500 psig to effect the displacement of said polar organic compounds from said adsorbent in said desorption zone;

(g) withdrawing an extract output stream comprising said polar organic compounds from said desorption zone; and

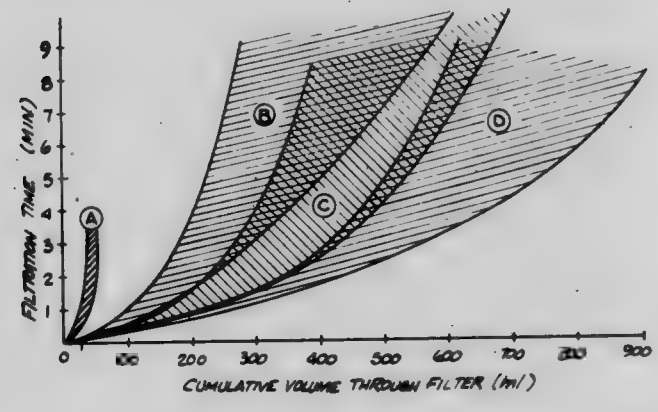
(h) periodically advancing through said column of adsorbent in a downstream direction with respect to fluid flow in said adsorption zone said feed input stream, raffinate output stream, desorbent input stream, and extract output stream to effect the shifting of zones through said adsorbent and the production of said extract output and raffinate output streams.

4,337,157

BIOPOLYMER FILTRATION PROCESS

Timothy G. Bradley, Littleton, Colo., assignor to Manville Service Corporation, Denver, Colo.

Filed Mar. 17, 1978, Ser. No. 887,573
Int. Cl.³ B01D *15/00*
U.S. Cl. 210—691 **3 Claims**



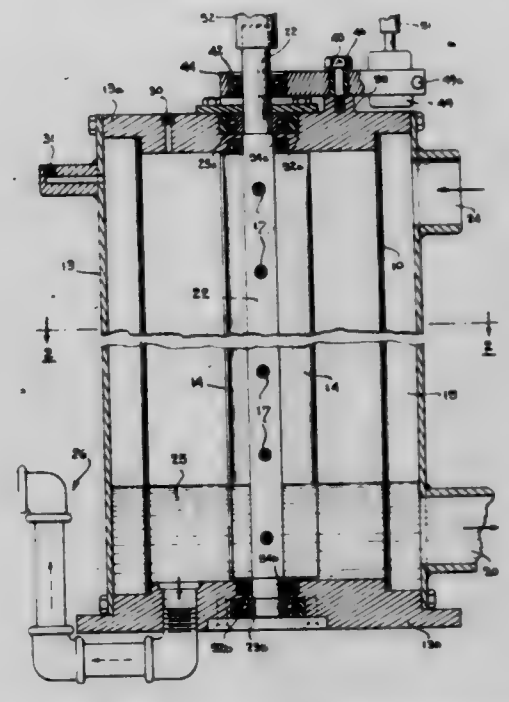
1. A process for the filtration of biopolymers for the removal of unhydrated biopolymer material and bacterial debris which comprises contacting a liquid solution of biopolymers with a solid granular adsorbent material have a pH of 8.5 to 10.0 wherein said solid granular adsorbent material is selected from the group consisting of magnesia and synthetic calcium silicate.

4,337,158

CYCLIC WAVE SYSTEM FOR UNCLOGGING WATER SCREENS

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Mar. 10, 1980, Ser. No. 128,736
Int. Cl.³ B07B *1/54*; B01D *35/20*
U.S. Cl. 210—785 **15 Claims**



14. A method for unclogging a non-rotating filer screen through which liquid is being flowed comprising the steps of

forming a thin layer of liquid on the downstream side of said filter screen,

generating cyclic pressure pulses on the downstream side of the screen in said thin liquid layer by cyclically traversing a portion of a paddle member along the downstream side of the screen in close proximity thereto,

coupling said pressure pulses through said thin liquid layer and said screen in a direction opposite to the liquid flow through the screen, and

generating vibratory energy pulses at a frequency substantially higher than that of the cyclic pressure pulses and superimposing the vibratory energy pulses on said pressure pulses.

4,337,159

SHEAR-STABILIZED EMULSION FLOODING PROCESS

Ronald L. Reed, and Clarence W. Carpenter, Jr., both of Houston, Tex., assignors to Exxon Production Research Company, Houston, Tex.

Filed Jun. 19, 1980, Ser. No. 161,195
Int. Cl.³ E21B *43/22*
U.S. Cl. 252—8.55 D **12 Claims**

1. A process for recovering crude oil from a subterranean reservoir penetrated by an injection well and a production well which comprises injecting into said reservoir through said injection well a translucent emulsion having an external microemulsion phase and an internal brine phase containing a water soluble, polymeric viscosifier, said emulsion tending to be stabilized by any shearing force imposed thereon during flow through said reservoir, said external microemulsion phase comprised of water, oil and a surfactant, and being in chemical equilibrium with said internal brine phase with an interfacial tension therebetween of less than 10^{-3} dynes/cm; driving said emulsion and said crude oil through said reservoir towards said production well; and recovering said crude oil through said production well.

4,337,160

ACID SOLUBLE WEIGHTING AGENT FOR WELL DRILLING, WORKOVER AND COMPLETION FLUIDS

Thomas E. Sample, Jr., Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 543,593, Jan. 23, 1975, abandoned. This application May 23, 1980, Ser. No. 153,105

Int. Cl.³ C09K *7/04, 7/06*

U.S. Cl. 252—8.5 B **3 Claims**

1. A well fluid comprising a liquid hydrocarbon or aqueous medium, and a weighting agent dispersed in the liquid hydrocarbon or aqueous medium consisting essentially of ferrous carbonate.

4,337,161

BORATE-CONTAINING OIL-IN-WATER MICROEMULSION FLUID

Robert A. Stayner, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Mar. 24, 1980, Ser. No. 133,090

Int. Cl.³ C10M *1/06*

U.S. Cl. 252—49.5 **5 Claims**

1. An oil-in-water microemulsion fluid consisting essentially of:

(a) 0.99 to 50 percent by mass of a mineral oil; and

(b) 50 to 99 percent by mass water;

(c) 0.01 to 10 percent by mass of a potassium borate having a boron-to-potassium metal ratio of 2.5 to 4.5.

4,337,162

INTERNAL BOUNDARY LAYER CERAMIC COMPOSITIONS

David A. Payne; Sang M. Park, both of Champaign, Ill., and Otto C. Jahnke, El Cajon, Calif., assignors to University of Illinois Foundation, Urbana, Ill.

Continuation-in-part of Ser. No. 23,708, Mar. 26, 1979, Pat. No. 4,237,084. This application May 20, 1980, Ser. No. 151,680

The portion of the term of this patent subsequent to Dec. 2, 1997, has been disclaimed.

Int. Cl.³ H01B *3/12;* **C04B** *35/46, 35/64*

U.S. Cl. 252—62.3 BT **10 Claims**

1. A semi-conducting composition having a grain size less than 10 microns comprising:

about 55.0–99.98% by weight of a polycrystalline alkaline earth metal titanate;

about 0.01–10% by weight of a hexavalent metal oxide having the formula $(MO_3)(Bi_2O_3)_x$, where M is tungsten or molybdenum and x is 0–7, said oxide being incorporated in said titanate to provide semiconductivity thereto; and

about 0.01–35% by weight of a lead germanate composition having the formula $(PbO)_x(GeO_2)_{y-z}(SiO_2)_z$ where x is 1–6, y is 1–3, and z is 0–0.75y,

said lead germanate composition forming an insulating boundary layer about the grains of said semiconducting titanate.

4,337,163

LIQUID, THICKENED CHLORINE BLEACHING COMPOSITION

Ulrich Schilp, Vlaardingen, Netherlands, assignor to Lever Brothers Company, New York, N.Y.

Filed Nov. 21, 1980, Ser. No. 209,189

Claims priority, application Netherlands, Dec. 5, 1979, 7908798

Int. Cl.³ C11D *7/54, 9/30, 9/44*

U.S. Cl. 252—96 **5 Claims**

1. Liquid, thickened chlorine bleaching composition having a pH of 10–12.5 and a viscosity of about 10 to 150 cS at a temperature of 25° C., comprising an aqueous, hypochlorite-ion yielding solution in an amount such that the composition has an active chlorine content of 1–10% by weight, said composition containing as thickening agent 0.5–5% by weight of a mixture of (1) a hypochlorite-soluble first detergent active compound selected from the group consisting of a tertiary amine oxide having one branched or straight C_{8-18} alkyl chain and two short chain alkyl groups, C_{8-18} alkyl-substituted betaines, quaternary ammonium compounds and mixtures thereof, and (2) a second detergent active compound selected from the group consisting of an alkali metal salt of a fully saturated C_{8-18} fatty acid, an alkali metal acylsarcosinate, an alkali metal alkyltauride, a sugar ester, an alkali metal C_{10-18} alkylether sulphate containing 1–10 moles of ethylene oxide and/or propylene oxide and mixtures thereof, the weight ratio of the hypochlorite-soluble first detergent active compound to the second detergent active compound being from 75:25 to 40:60, the composition further comprising from 50–350 m mol/kg of a buffer salt selected from the group consisting of alkali metal salts of orthophosphoric acids, alkali metal salts of silicic acids, alkali metal salts of carbonic acids and mixtures thereof.

4,337,164

BLEACH COMPOSITION

Anthony H. Clements, Cefn y Bedd, Wales, assignor to Lever Brothers Company, New York, N.Y.

Continuation-in-part of Ser. No. 176,750, Aug. 11, 1980, abandoned. This application Feb. 24, 1981, Ser. No. 237,793

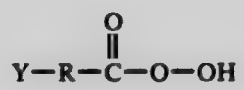
Claims priority, application United Kingdom, Aug. 16, 1979, 7928590

Int. Cl.³ C11D *9/42*

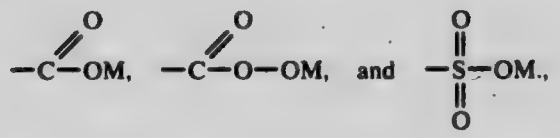
U.S. Cl. 252—96 **6 Claims**

1. A bleach composition consisting essentially of:

(a) 0.1–40 parts by weight of an organic peracid having the general formula:



wherein R is an alkylene group containing from 1–16 carbon atoms or an arylene group containing from 6–8 carbon atoms and Y is selected from the group consisting of hydrogen, halogen, alkyl, aryl,



wherein M is hydrogen or a water soluble salt forming cation; and

(b) 0.1–40 parts by weight of a water-soluble bromide salt which delivers bromide ions in aqueous media; the molar equivalent ratio of said organic peracid and said bromide salt being not more than 5:1, in the substantial absence of aldehydes, ketones and materials which yield aldehydes or ketones in aqueous solution.

4,337,165

AMINE OXIDE-AND ALKALI METAL CHLORIDE-CONTAINING NON-CORROSIVE LIQUID DETERGENT COMPOSITION

Hideo Ando, Tokyo; Akira Hayashi, Sakura; Haruo Ohkouchi, and Kyozo Kitano, both of Chiba, all of Japan, assignors to Lion Corporation, Tokyo, Japan

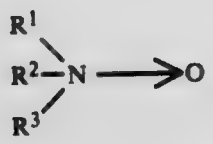
Filed Dec. 15, 1980, Ser. No. 216,290

Claims priority, application Japan, Dec. 18, 1979, 54-164356

Int. Cl.³ C11D *1/83, 7/10*

U.S. Cl. 252—105 **6 Claims**

1. In a non-corrosive liquid detergent composition comprising, based on the total weight of the composition, 5 to 40% by weight of an anionic surface active agent, 1 to 10% by weight of an amine oxide represented by the following general formula:



wherein R^1 stands for a linear or branched alkyl group having 10 to 20 carbon atoms, and R^2 and R^3 each stand for a methyl or ethyl group, and 0.5 to 5% by weight of an alkali metal chloride, the improvement comprising adding 0.04 to 1.5% by weight of at least one inorganic salt selected from the group consisting of sulfites and thiosulfates to the composition, based on the total weight of the composition.

4,337,166

COMPOSITIONS FOR TREATING HAIR AND OTHER FIBROUS MATERIALS

Michael P. L. Hill, St. Lythans, and Petrina F. Fridd, Penarth, both of Wales, assignors to Dow Corning Limited, Barry, Wales

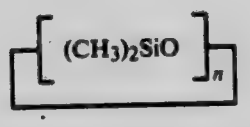
Filed Apr. 17, 1981, Ser. No. 255,188

Claims priority, application United Kingdom, Apr. 19, 1980, 8012933

Int. Cl.³ C11D *17/00*

U.S. Cl. 252—174.15 **6 Claims**

1. A liquid detergent composition consisting essentially of one or more detergent substances and from 0.5 to 20 percent by weight, based on the total weight of the composition, of at least one cyclic siloxane represented by the general formula



in which n has a value of from 3 to 6 inclusive.

4,337,167

CONTAINER FOR RADIOACTIVE NUCLEAR WASTE MATERIALS

John M. Bird, 681 Snyder Hill Rd., Ithaca, N.Y. 14850, and Alfred E. Ringwood, 3 Vancouver St., Red Hill, Canberra, Australian Capitol Territory 2603, Australia

Continuation of Ser. No. 878,113, Feb. 15, 1978, Pat. No. 4,192,765. This application Feb. 5, 1980, Ser. No. 118,818

The portion of the term of this patent subsequent to Mar. 11, 1997, has been disclaimed.

Int. Cl.³ G21F *1/08*

U.S. Cl. 252—633 **18 Claims**

11. A container for radioactive nuclear waste materials which are ultimately to be buried underground, said container being composed of a nickel-iron alloy having the properties of those natural minerals produced under thermodynamically stable conditions within serpentinite-type rocks and possessing a composition in the range exhibited by the mineral awaruite.

4,337,168

ALKOXYSILANE CLUSTER EMULSIONS AND THEIR PREPARATION

Michael Scardera, Hamden, and Alan Norwid, Ansonia, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Sep. 10, 1981, Ser. No. 300,836

Int. Cl.³ B01J *13/00*

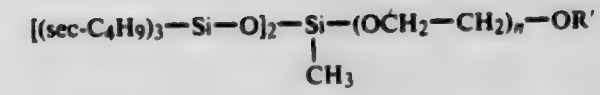
U.S. Cl. 252—312 **10 Claims**

1. A stable emulsion system comprising:

(a) an aqueous phase comprising water;

(b) an organic phase comprising tris(tri-sec-butoxysiloxy)-methylsilane; and

(c) a surfactant having the formula:



wherein n is from about 8 to 16 and R′ is either a methyl or ethyl group.

4,337,169

PROCESS FOR PRODUCING MICROCAPSULES

Tetsuro Shimazaki, Takasago, Japan, assignor to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed May 22, 1980, Ser. No. 152,311

Claims priority, application Japan, May 29, 1979, 54-66502

Int. Cl.³ B01J *13/02*

U.S. Cl. 252—316 **14 Claims**

1. A process for producing microcapsules, which comprises emulsifying in an emulsifier-containing aqueous phase a hydrophobic substance substantially insoluble therein, adding as membrane-forming precursor components, at least one aromatic hydroxy compound, urea and formaldehyde, further adding to the system an amino acid having only one amino group as a discoloration reducing agent, the amino acid being present in an amount effective to reduce the discoloration caused by the aromatic hydroxy compound, and allowing said precursor components to polymerize to form a polymerizate membrane at the interphase between said hydrophobic substance and said aqueous phase.

4,337,170

CATALYTIC STEAM REFORMING OF HYDROCARBONS

Andrija Fuderer, Antwerp, Belgium, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jan. 23, 1980, Ser. No. 114,566

Int. Cl.³ C01B *3/38, 3/48*

U.S. Cl. 252—373 **12 Claims**

1. An improved process for the catalytic stream reforming of fluid hydrocarbons comprising:

(a) catalytically reacting a major portion of a fluid hydrocarbon feed stream with steam in catalyst-containing reformer tubes positioned within a first primary reforming zone maintained at an elevated temperature by radiant heat transfer and/or by contact with combustion gases, the hot reformer tube effluent comprising a first reformed gas mixture which is passed directly to the hot discharge end of the reformer tubes in the second primary reforming zone;

(b) catalytically reacting the remaining portion of said hydrocarbon feed stream with steam at an elevated temperature in a second primary reforming zone having catalyst-containing reformer tubes positioned therein, the hot effluent from said tubes comprising a second reformed gas mixture;

(c) combining the first and second reformed gas mixtures at the hot discharge end of the reformer tubes of said second primary reforming zone, thus forming a hot combined reformer gas stream within said second primary reforming zone at the hot discharge end of the reformer tubes therein;

(d) passing the hot combined reformer gas stream countercurrently on the shell side of said second primary reaction zone, thereby supplying heat to maintain said second primary reforming zone at an elevated temperature; and

(e) withdrawing the thus-partially cooled combined reformer effluent stream, comprising a combination of said first and second reformed gas mixtures, from said second primary reaction zone, whereby the desired overall steam reforming is accomplished at a substantial reduction in hydrocarbon fuel consumption.

4,337,171
ORGANIC BOUND ADSORBENTS

Santi Kulprathipanja, Hoffman Estates, and Armand J. deRosset, Clarendon Hills, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Jun. 18, 1980, Ser. No. 160,521
Int. Cl.³ B01J *20/18, 20/22*
U.S. Cl. 252—430 **17 Claims**

1. An adsorbent comprising a mixture of a Type X or Type Y zeolite, from about 5.0 wt% to about 35.0 wt% of a alkali or alkaline earth exchange resin and from about 20.0 wt% to about 35.0 wt% of a water permeable organic polymer binder, wherein the weight ratio of said Type X or Type Y zeolite to said alkali or alkaline earth exchange resin is from about 1.0 to about 3.0.

2. The adsorbent of claim 1 further characterized in that said water permeable organic polymer comprises a cellulose ester or cellulose nitrate.

6. A method for the manufacture of an adsorbent comprising a Type Y or Type X zeolite, from about 5.0 wt% to about 35.0 wt% of an alkali or alkaline earth exchange resin and from about 20.0 wt% to about 35 wt% of a water permeable organic polymer binder, wherein the weight ratio of said Type X or Type Y zeolite to said alkali or alkaline earth resin is from about 1.0 to about 3.0 which comprises:

(a) mixing together a powder of said Type X or Type Y zeolite, a powder of said alkali or alkaline earth exchange resin, a powder of said water permeable organic polymer binder and a liquid organic solvent to produce a malleable mixture;

(b) forming said malleable mixture into discrete formations;

(c) removing said solvent from said formations to produce hard dry formations; and

(d) breaking said hard dry formations to produce particles of desired size.

4,337,172
ENHANCED IMMOBILIZATION OF A GLUCOSE ISOMERASE

John R. Teague, Darien, and Aronson L. Huebner, Woodbridge, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Jan. 15, 1981, Ser. No. 225,559
Int. Cl.³ B01J *31/06*
U.S. Cl. 252—430 **25 Claims**

1. A method of enhancing the subsequent immobilization of glucose isomerase onto a support matrix comprising impregnating said matrix, prior to contact with said glucose isomerase, with at least 0.1 millimoles divalent magnesium ion per gram of support matrix, and recovering the resulting magnesium impregnated support matrix.

4,337,173
SOLID-SOLUTION TYPE CRYSTALLINE OXIDES AND THEIR PRECURSORS

Masayuki Otake, Yokohama, Japan, assignor to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan

Filed Sep. 22, 1980, Ser. No. 189,346
Int. Cl.³ B01J *27/14*; C01B *15/16*
U.S. Cl. 252—435 **9 Claims**

1. A process for preparing a crystalline oxide comprising:

dissolving a pentavalent vanadium compound, a pentavalent phosphorus compound, a compound of at least one element selected from the group consisting of iron, chromium and aluminum, and hydrazine hydrochloride in water to form a homogeneous aqueous solution containing tetravalent vanadium, pentavalent phosphorus, chloride ion and said one element in relative amounts providing an atomic ratio of 0.8 to 1.25 for phosphorus to the total quantity of vanadium, iron, chromium and aluminum, and an atomic ratio of 0.01 to 0.4 for the total quantity of iron, chromium and aluminum to the total quantity of vanadium, iron, chromium and aluminum, and

concentrating and evaporating the solution to dryness to provide a solid-solution type crystalline oxide precursor of vanadium phosphorus, oxygen and said one element having an X-ray diffraction spectrum (Cu-Kα anticathode) with main peaks at diffraction angles (2θ) of 15.7°, 19.8°, 24.4°, 27.3°, 30.6°, and 40.6°.

4,337,174
METHOD FOR PREPARING A CATALYST AND INTERMEDIATE FORMED THEREBY

Ramon A. Mount, and Harold Raffelson, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 73,480, Sep. 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 698,458, Jun. 21, 1976, abandoned. This application Feb. 2, 1981, Ser. No. 232,441
Int. Cl.³ B01J *27/18*
U.S. Cl. 252—437 **8 Claims**

1. A method of preparing a catalyst which comprises:

(A) bringing together in a reaction zone a phosphorus compound and a vanadium compound in a phosphorus to vanadium atom ratio between about 0.8:1 and about 1.5:1 under acidic solutions in the absence of hydrogen halide to provide at least 50 atom percent tetravalent vanadium and to form a phosphorus-vanadium-oxygen complex;

(B) heating the said complex at a temperature between about 60° C. and about 120° C. for a period of time sufficient to form and precipitate an oxide compound which comprises phosphorus, vanadium and oxygen wherein the phosphorus to vanadium atom ratio is between about 0.8:1 and about 1.5:1 and having major X-ray diffraction peaks of:

d-spacing
6.70
5.68
3.34
3.16
3.09

in a precipitant comprising water;

(C) heating said composition in a liquid comprising water at a temperature between about 130° C. and about 170° C. for a period of 2–6 hours to form a catalyst precursor;

(D) drying the catalyst precursor;

(E) calcining the catalyst precursor at a temperature between about 300° C. and about 600° C.

4,337,175
CATALYST FOR THE PREPARATION OF ETHYLENIMINE

Enrique G. Ramirez, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jul. 14, 1980, Ser. No. 167,881
Int. Cl.³ B01J *23/20*
U.S. Cl. 252—455 R **5 Claims**

1. A dehydration catalyst which consists essentially of an oxide of tantalum or niobium together with an alkaline earth oxide as a promoter on an inert support.

5. The catalyst of claim 1, 2, 3, or 4 wherein the alkaline earth oxide is barium oxide.

4,337,176

PROCESS FOR THE PREPARATION OF CRYSTALLINE SILICATES

Michael A. M. Boersma; Johannes M. Nanne, and Martin F. M. Post, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Dec. 4, 1980, Ser. No. 212,957

Claims priority, application Netherlands, Dec. 13, 1979, 7908984

Int. Cl.³ B01J *21/06, 23/74*

U.S. Cl. 252—459 2 Claims

1. Crystalline iron silicates having the following properties:

(a) thermally stable up to a temperature above 600° C.,

(b) an X-ray powder diffraction pattern showing, inter alia, the reflections given in Table A of the specification,

(c) in the formula that represents the composition of the silicate, expressed in moles of the oxides, and in which, in addition to oxides of hydrogen, alkali metal and silicon iron oxide is present, the SiO_2/Fe_2O_3 molar ratio (m) is more than 10, which process comprises said silicates being prepared according to a process which comprises maintaining at a temperature between about 90° to about 300° C. for a period of 4 hours or more, until the crystalline silicate is formed, an aqueous mixture containing the following compounds:

one or more compounds of an alkali metal (M), one or more amines with the general formula $R_1R_2R_3N$, in which R_1 represents an alkyl group and R_2 and R_3 represent an alkyl group or a hydrogen atom, one or more silicon compounds which yield, after drying at 120° C. and calcining at 500° C., a product with an SiO_2 content higher than 90%w and one or more iron compounds, in which mixture the compounds, with the exception of the amines, are present in the following molar ratios, expressed in moles of the oxides:

M_2O: SiO_2=0.01–0.35,

$R_1R_2R_3N$: SiO_2=0.04–1.0,

SiO_2: Fe_2O_3>10, and

H_2O: SiO_2=5–65,

then separating said crystalline silicate from the mother liquor, and calcining said separated silicate.

4,337,177

CATALYST FOR HYDROGENATION OF UNSATURATED DINITRILES

Charles A. Drake, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 69,200, Aug. 23, 1979, Pat. No. 4,259,262. This application Oct. 15, 1980, Ser. No. 197,382

Int. Cl.³ B01J *21/04, 21/08, 21/12, 23/46*

U.S. Cl. 252—466 PT 7 Claims

1. A catalyst composition consisting essentially of:

a catalyst component selected from the group consisting of elemental ruthenium, ruthenium compounds which are reducible by hydrogen to elemental ruthenium, and mixtures thereof; and

a granular catalyst support, wherein said granular catalyst support has an irregular shape and has a diameter in the range of from about 0.5 inch (1.27 cm) diameter to about 30 mesh.

4,337,178

CATALYST FOR STEAM REFORMING OF HYDROCARBONS

Kenton Atwood, New Albany, Ind., and James H. Wright, Louisville, Ky., assignors to United Catalysts Inc., Louisville, Ky.

Continuation-in-part of Ser. No. 24,005, Mar. 26, 1979, Pat. No. 4,233,187, which is a continuation-in-part of Ser. No. 817,160, Jul. 20, 1977, abandoned, which is a continuation-in-part of Ser. No. 708,941, Jul. 27, 1976, abandoned. This application Oct. 29, 1980, Ser. No. 201,992

The portion of the term of this patent subsequent to Nov. 11, 1997, has been disclaimed.

Int. Cl.³ B01J *21/04, 23/78*

U.S. Cl. 252—466 J 3 Claims

1. A hydrocarbon reforming catalyst comprising a cylindrical refractory support selected from the group consisting of aluminum oxide, magnesium oxide, calcium oxide and metal aluminate spinels, and having two or more gas passages extending axially therethrough from one end to the other and a catalytically active metal comprising nickel or cobalt oxide deposited thereon in a concentration of 6% to 30% by weight expressed as the metal oxide, said catalyst having a Relative Activity Coefficient Factor (ACF ®) and a Relative Pressure Factor (PF ®) in excess of that when compared to a standard ring, said ACF ® being in excess of 1 and the ratio of ACF ® to said PF ® being in excess of 1:1, the Height (H) of said support bearing a relationship to the effective internal diameter of each of said gas passages (ID), the ratio of H:ID being less than 4:1.

4,337,179

POLYAMIDE COMPOSITION

Hirozo Uejo; Hideo Ishida, both of Hirakata, and Masaaki Shinhama, Osaka, all of Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed Jul. 1, 1980, Ser. No. 165,080

Claims priority, application Japan, Jul. 10, 1979, 54-86510; Jul. 10, 1979, 54-86511

Int. Cl.³ H01B *1/06*

U.S. Cl. 252—511 6 Claims

1. An electrically conductive polyamide composition which comprises a polyamide and, incorporated therein, 0.01 to 20% by weight, based on the composition, of imidazole and 5 to 50% by weight, based on the composition, of carbon black.

4,337,180

USE OF CYCLOHEXYL PHENETHYLETHER IN AUGMENTING OR ENHANCING THE AROMA OF PERFUMES AND COLOGNES

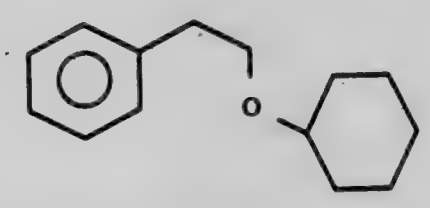
Jacob Kiwala, Brooklyn, N.Y.; Richard J. Tokarzewski, Keyport, N.J.; Frederick L. Schmitt, Holmdel, N.J., and Mark A. Sprecker, Sea Bright, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 192,238, Sep. 30, 1980, Pat. No. 4,306,096. This application May 28, 1981, Ser. No. 267,851

Int. Cl.³ A61K *7/46*; C11B *9/00*

U.S. Cl. 252—522 R 2 Claims

1. The perfume composition comprising an aroma augmenting or enhancing quantity of cyclohexyl phenethylether having the structure:



and intimately admixed therewith at least one adjuvant compatible therewith from an organoleptic standpoint which is selected from the group consisting of alcohols, aldehydes, ketones, nitriles, ethers other than said cyclohexyl phene-

thylether, lactones, natural essential oils, synthetic essential oils and hydrocarbons.

4,337,181

BIODEGRADABLE STARCH-BASED BLOWN FILMS

Felix H. Otey, and Richard P. Westhoff, both of Peoria, Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jan. 17, 1980, Ser. No. 112,980
Int. Cl.[3] C08L *3/02*
U.S. Cl. 523—128 10 Claims

1. In a method of producing a flexible, self-supporting, and biodegradable film wherein a mixture comprising a partially or completely gelatinized starchy material in an amount up to 60% by weight and an ethylene acrylic acid copolymer is converted into a plasticized matrix and then shaped into said film, the improvement comprising the following steps:

a. incorporating into said matrix a neutralizing agent selected from the group of aqueous ammonia and anhydrous ammonia;

b. adjusting the moisture content of said matrix to within the range of about 2–10% based on the weight of the matrix; and

c. extrusion blowing said ammoniated and moisture-adjusted matrix into a film.

4,337,182

POLY (ARYLENE SULFIDE) COMPOSITION SUITABLE FOR USE IN SEMI-CONDUCTOR ENCAPSULATION

Donald G. Needham, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 26, 1981, Ser. No. 247,687
Int. Cl.[3] C08L *91/00*
U.S. Cl. 524—609 15 Claims

1. A method for preparing a composition suitable for molding said method comprising:

(a) melt compounding a masterbatch of glass fiber and poly (arylene sulfide);

(b) reducing said masterbatch to particles;

(c) and blending said masterbatch particles with a sufficient amount of organic silane, additional poly (arylene sulfide) and a component chosen from glass beads and fused silica to provide a composition of about 30 to about 50 weight percent poly (arylene sulfide), about 10 to about 30 weight percent in glass fibers, about 30 to about 60 percent glass beads or fused silica, and about 0.5 to about 3 weight percent organic silane.

4,337,183

POLYURETHANE AND POLYETHYLENE RESIN-CONTAINING PRINTING INK HAVING IMPROVED PHYSICAL AND MECHANICAL PROPERTIES

Edgardo Santiago, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 30, 1981, Ser. No. 248,160
Int. Cl.[3] C08L *91/08*
U.S. Cl. 524—446 11 Claims

1. The method of improving the adhesion and abrasion resistance of print on a substrate which comprises adding to an aqueous printing ink a major amount of an aqueous mixture of polyurethane resin and polyethylene resin having a solids ratio ranging from about 1:9 to 1:1 and applying by a printing technique the resultant ink mixture to a substrate.

4,337,184

URETHANE RHEOLOGY MODIFIERS SUBSTANTIALLY FREE OF TERMINAL HYDROPHOBIC GROUPS AND COMPOSITIONS CONTAINING SAME

Karl F. Schimmel, Verona; Jerome A. Seiner, Pittsburgh; Rostyslaw Dowbenko, and Roger M. Christenson, both of Gibsonia, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 29, 1980, Ser. No. 220,617
The portion of the term of this patent subsequent to Nov. 3, 1998, has been disclaimed.
Int. Cl.[3] C08K *5/29*
U.S. Cl. 524—726 40 Claims

1. A urethane rheology modifier characterized in having a branched structure, substantially no terminal hydrophobic groups and capable of modifying the rheology properties of water-based and organic solvent-based compositions, derived from the reaction of (a) for each 8 moles of a polyalkylene oxide having a molecular weight of from about 2,000 to about 20,000; (b) from about 0.1 mole to about 3 moles of a polyfunctional material, said material having at least 3 active hydrogens capable of reacting with isocyanate or being a polyisocyanate having at least three isocyanate groups; (c) from about 4 moles to about 15 moles of a diisocyanate; (d) less than about 3 moles water; and (e) an amount of additional diisocyanate to compensate for any water which is present and capable of consuming isocyanate functionality.

29. A coating composition consisting essentially of a film forming polymeric resin and about 0.1% to about 10%, based on the film forming polymeric resin solids, of a rheology modifier, said modifier characterized in having a branched structure, substantially no terminal hydrophobic groups and derived from the reaction of (a) for each 8 moles of a polyalkylene oxide having a molecular weight of from about 2,000 to about 20,000, (b) from about 0.1 mole to about 3 moles of a polyfunctional material, said material having at least 3 active hydrogens capable of reacting with isocyanates or being a polyisocyanate having at least 3 isocyanate groups; (c) from about 4 moles to about 15 moles of a diisocyanate; (d) less than about 3 moles water; and (e) an amount of diisocyanate to compensate for any water which is present and capable of consuming isocyanate functionality.

4,337,185

PROCESS FOR MAKING CATIONIC STRUCTURED PARTICLE LATEXES USING REACTIVE POLYMERIC SURFACTANTS

Ritchie A. Wessling, Midland, and Dale M. Pickelman, Sr., Auburn, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jun. 23, 1980, Ser. No. 162,289
Int. Cl.[3] C08L *41/00*
U.S. Cl. 524—458 14 Claims

1. In a process for preparing a latex by free radical catalyzed emulsion polymerization in an aqueous medium in at least one stage, the improvement of introducing a reactive polymeric surfactant in at least one stage of the polymerization process to prepare a structured particle latex; said reactive polymeric surfactant being a substantially linear synthetic water-soluble surfactant whose polymeric backbone is derived from the polymerization of one or more ethylenically unsaturated monomers and which polymeric surfactant has a number average molecular weight of from about 500 to about 40,000 and bears, per gram of such reactive polymeric surfactant, from about 1 to about 4 milliequivalents of pH independent randomly distributed ionic groups and, per polymeric surfactant molecule, and average of at least one water-insensitive reactive fractional group selected from the group consisting of ethylenically unsaturated groups, sulfhydryl groups and epoxy groups; said ethylenically unsaturated monomers being (a) one or more hydrophobic monomers or (b) one or more hydrophobic monomers together with at least one hydrophilic nonionic mono-

mer or ionic monomer or mixtures thereof in such proportions that the amount of the hydrophilic nonionic monomer is less than about 15 percent by weight, based on the weight of the reactive polymeric surfactant; said functional group being either in the polymer backbone or pendant therefrom and providing a crosslinking or grafting site; and said structural particle latex having structured particles consisting of a water-insoluble, non-ionic organic polymer core encapsulated with a layer of a copolymer having pH independent ionic groups chemically bound at or near the outer surface of the structured particle; the amount of said ionic groups being sufficient to provide at least a major portion of the colloidal stability but insufficient to make the polymer water-soluble.

4,337,186

HARDENABLE COMPOSITIONS

Stephen Crisp, Hounslow, and Alan D. Wilson, Liphook, both of England, assignors to National Research Development Corporation, England

PCT No. PCT/GB79/00014, § 371 Date Sep. 17, 1979, § 102(e) Date Aug. 9, 1979, PCT Pub. No. WO79/00521, PCT Pub. Date Aug. 9, 1979

PCT Filed Jan. 17, 1979, Ser. No. 166,980

Claims priority, application United Kingdom, Jan. 17, 1978, 01833/78

Int. Cl.³ C08K *3/22, 3/40, 5/09;* A61K *5/06*

U.S. Cl. 525—362 **27 Claims**

1. A hardenable composition which comprises (i) a poly(carboxylic acid) selected from the group consisting of homopolymers and copolymers of unsaturated aliphatic carboxylic acids or precursor thereof that is converted to said poly(carboxylic acid) on hydrolysis thereof; (ii) a particulate ion-leachable silicate or aluminosilicate glass reactable with (i) in the presence of water to set to a hardened composition; and (iii) an inorganic metal salt which accelerates the setting of the composition selected from the group consisting of a silver (I) salt, a barium salt and a multivalent metal salt, the cation of which has a standard electrode potential E_{ox}^{o} less than 2.6 volts.

4,337,187

ELECTROCOATING COMPOSITION WITH POLYHYDROXYAMINE AND POLYESTERS OR ALKYDS

Isidor Hazan, Clementon, N.J., assignor to E. I. DuPont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 106,257, Dec. 21, 1979, abandoned. This application Dec. 29, 1980, Ser. No. 220,955

Int. Cl.³ C08L *29/00, 39/00*

U.S. Cl. 524—504 **11 Claims**

1. An aqueous cathodic electrodeposition coating composition comprising dispersion of a first polymer, a second polymer, enough of an organic acid to give the composition a pH about in the range of 6 to 7, and optionally a nitrogen resin crosslinker, said coating composition containing, by weight based on the first and second polymers, about 20–70% of a first polymer which is a copolymer comprising a backbone and a graft pendent to the backbone, said backbone containing amine functional groups and hydroxy functional groups, characterized in that said backbone contains at least about 0.13 equivalent of amine groups per 100 grams of first polymer and at least about 0.03 equivalent of hydroxyl groups per 100 grams of first polymer, and containing, by weight, the equivalent of about:

(a) 35–90% amine functional monomers,

(b) 10–60% hydroxy functional monomers,

(c) 0–40% nonfunctional acrylic or methacrylic monomers, and

(d) 0–5% chain-terminating monomers thr total of (a), (b), (c) and (d) being 100% of said backbone,

said graft comprising a monoglycidyl ester of at least one tertiary carboxylic acid containing 9–20 carbon atoms and being grafted to said amine groups in said backbone, said copolymer containing about 1–30% by weight of said graft, and, by weight based on the first and second polymers, about 80–30% of a second polymer which is polyester or alkyd having an acid number of about zero and containing hydroxy functionality or vinyl groups.

4,337,188

POLYOLEFIN COMPOSITION FOR MANUFACTURE OF FILM HAVING CLING PROPERTIES

David C. Climenhage, Kingston, and Walter R. Eadie, North Bay, both of Canada, assignors to Du Pont Canada Inc., Mississauga, Canada

Continuation of Ser. No. 104,117, Dec. 17, 1979, abandoned. This application Oct. 24, 1980, Ser. No. 200,198

Int. Cl.³ C08K *5/49*

U.S. Cl. 524—140 **9 Claims**

1. A polyolefin composition capable of being used for the manufacture of film having cling properties, said composition consisting essentially of

(A) an intimate mixture of about 75–98 weight percent of a first component and about 2–25 weight percent of a second component, wherein the first component is a polyethylene blend comprising from about 10 to about 20 weight percent of at least one homopolymer of ethylene having a density in the range of from about 0.915 to about 0.930 g/cm³ and melt index in the range of from about 0.2 to about 10 with from 80 to about 90 weight percent of at least one copolymer of ethylene and a C_4–C_8 α-olefin having a density in the range of from about 0.915 to about 0.930 g/cm³ and melt index in the range of from 0.2 to about 5.0, and wherein the second component is an elastomer selected from the group consisting of a copolymer of ethylene and propylene having a Mooney viscosity in the range of from about 15 to about 70 and a copolymer comprised of ethylene, propylene and a non-conjugated diene having a Mooney viscosity in the range of from about 15 to about 70, and

(B) at least about 200 parts per million, based on the weight of (A), of an agent selected from the class consisting of

(a) N,N-bis(2 hydroxyethyl) alkylamine, where the alkyl group is a C_{12}–C_{18} alkyl group;

(b) one of

(i) a liquid of waxy solid organic compound selected from the group consisting of N-(3 alkoxy-2 hydroxypropyl) ethanolamine, where the alkyl of the alkoxy group is a C_{10}–C_{18} alkyl group, polyethylene glycol and glycerol oleate;

(ii) mineral oil;

(iii) a liquid polyolefin;

(iv) an organic phosphate ester that is a liquid or waxy solid; and

(c) mixtures of agent (a) with agent (b).

7. The composition of claim 1 in which the agent is an organic phosphate ester that is a liquid or a waxy solid.

4,337,189

POLYMERIZATION PROCESS

Charles Bromley, Bourne End, and Morice W. Thompson, Maidenhead, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Dec. 8, 1980, Ser. No. 214,337

Claims priority, application United Kingdom, Dec. 6, 1979, 7942093

Int. Cl.³ C08K *5/09*

U.S. Cl. 523—332 **9 Claims**

1. A process for the production of a stable dispersion in a non-aqueous liquid medium of microparticles of diameter from 0.01 to 10 microns composed of a crosslinked polymer, the process comprising the steps of (1) polymerising one or more ethylenically unsaturated monomers, including at least one crosslinking monomer, from which the crosslinked polymer is to be derived, in an aqueous medium comprising (a) at least 30% by weight of water and (b) not more than 70% by weight of a second constituent which is miscible with water, the na-

ture and proportion of which are such that the mixture as a whole is capable of dissolving the monomer or monomers being polymerised to the extent of at least 3% by weight but is a non-solvent for the polymer formed, the polymerisation being carried out at a temperature at least 10° higher than the glass transition temperature of the polymer in the presence in the aqueous medium as steric stabiliser of a block or graft copolymer which contains in the molecule (i) a polymeric component which is solvatable by the aqueous medium and which consists of at least one polymer chain derived from a polyethylene glycol of mol. wt. at least 1000, and (ii) another polymeric component which is not solvatable by the aqueous medium, the concentration of free monomer in the polymerisation mixture being maintained throughout this process step at a level such that at no time does the free monomer form a separate phase and the total amount of monomer polymerised being such that the resulting dispersion contains at least 20% by weight of microparticles, and (2) transferring the polymer microparticles from the resulting dispersion into a non-aqueous liquid medium, the said liquid medium being one which is capable of dissolving, to the extent of at least 10% by weight at room temperature, the polyethylene glycol from which the above-mentioned solvatable component of the block or graft copolymer is derived when the said polyethylene glycol is in a non-hydrated state.

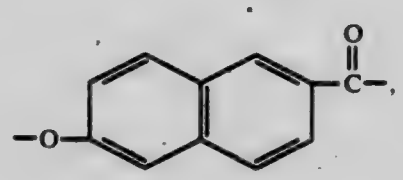
4,337,190

POLYESTER OF 6-HYDROXY-2-NAPHTHOIC ACID AND META-HYDROXY BENZOIC ACID CAPABLE OF READILY UNDERGOING MELT PROCESSING

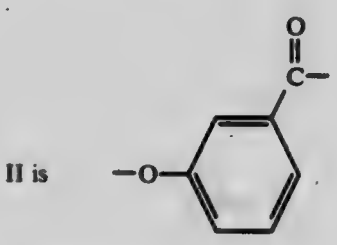
Gordon W. Calundann, N. Plainfield, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Jul. 15, 1980, Ser. No. 169,014
Int. Cl.³ C08K *5/13*; C08G *63/18*
U.S. Cl. 524—599 **35 Claims**

1. A melt processable wholly aromatic polyester capable of forming an optically anisotropic melt phase at a temperature below approximately 400° C. consisting essentially of the recurring moieties I and II which may include substitution of at least some of the hydrogen atoms present upon an aromatic ring wherein:

I is  ,

and

II is 

with said optional substitution if present being selected from the group consisting of an alkyl group of 1 to 4 carbon atoms, an alkoxy group of 1 to 4 carbon atoms, phenyl, halogen, and mixtures of the foregoing, and wherein said polyester comprises approximately 10 to 90 mole percent of moiety I, and approximately 10 to 90 mole percent of moiety II.

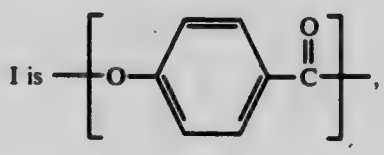
4,337,191

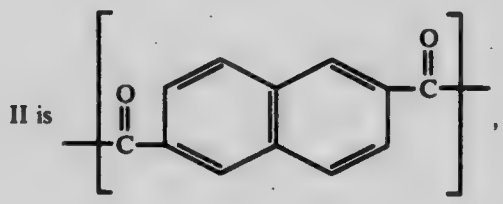
POLYESTER OF PARA-HYDROXY BENZOIC ACID, 2,6-NAPHTHALENE DICARBOXYLIC ACID, TEREPHTHALIC ACID AND METHYLHYDROQUINONE EXHIBITING IMPROVED HYDROLYTIC STABILITY AND WHICH IS CAPABLE OF FORMING AN ANISOTROPIC MELT

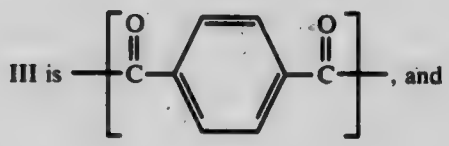
Nicolai A. Favstritsky, Broomall, Pa., assignor to Fiber Industries, Inc., New York, N.Y.

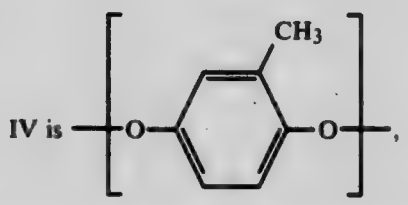
Filed Nov. 5, 1979, Ser. No. 91,003
Int. Cl.³ C08G *63/06*
U.S. Cl. 524—599 **16 Claims**

1. A melt processable polyester capable of forming an anisotropic melt phase at a temperature below 290° C. consisting essentially of the recurring moieties I, II, III, and IV wherein:

I is  ,

II is  ,

III is  , and

IV is  ,

and wherein said polyester comprises approximately 45 to 55 mole percent of moiety I, approximately 15 to 25 mole percent of moiety II, approximately 4 to 10 mole percent of moiety III, and approximately 20 to 30 mole percent of moiety IV.

4,337,192

THERMOPLASTIC MOLDING COMPOSITION HAVING IMPROVED WARP RESISTANCE AND PROCESS FOR PREPARING THE SAME

Richard W. Campbell, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Aug. 15, 1980, Ser. No. 178,521
Int. Cl.³ C08L *67/02*
U.S. Cl. 523—212 **10 Claims**

1. An improved thermoplastic molding composition comprising, in intimate admixture:

(a) a poly(1,4-butylene terephthalate) resin;

(b) a poly(ethylene terephthalate) resin;

(c) an impact modifier of a segmented copolyester-ether; and

(d) a filler material selected from the group consisting of finely divided surface treated clay and amorphous silica.

4,337,193

PREPARATION OF HARDENED TALL OIL PITCH

Jeno G. Szita, Norwalk, Conn., assignor to Arizona Chemical Company, Wayne, N.J.

Filed Apr. 27, 1981, Ser. No. 258,182
Int. Cl.³ C09F *1/00;* C08K *5/00;* C08L *93/00*
U.S. Cl. 260—97.5 5 Claims

1. Modified tall oil pitch compositions comprising tall oil pitch reacted with at least one additive selected from polycarboxylic acids, polyfunctional amines, polyhydroxyl compounds, alkyl, vinyl and acrylic compounds having one or more amino, hydroxyl or carboxylic functional groups; and further reacted with at least one cross-linking compound selected from polyisocyanates, alkylated and non-alkylated melamine formaldehyde resins, alkylated and non-alkylated urea formaldehyde resins and resole type phenol-formaldehyde resins.

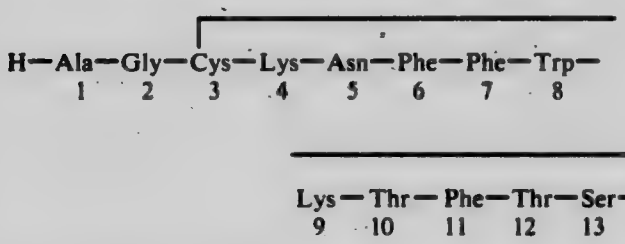
4,337,194

PROCESS FOR THE PREPARATION OF SOMATOSTATIN

Joseph Diaz, Perols, and Remy Guegan, Castelnau le Lez, both of France, assignors to C. M. Industries, Paris, France

Filed Mar. 3, 1980, Ser. No. 126,993
Claims priority, application France, Mar. 23, 1979, 79 07430
Int. Cl.³ C07C *103/52*
U.S. Cl. 260—112.5 S 15 Claims

1. Process for the preparation of somatostatin of formula I:



by progressive elongation of the peptide chain from the cysteine in 14 position, by successively coupling each aminoacid or peptide whose amino and thiol groups are previously protected, the α-amino group being released and activated in the form of ester before the reaction of formation of the following peptide bond, wherein the acid function of the starting cysteine is protected by the phenylazobenzylsulfonylethyloxy (OPse) group which renders all the intermediate peptides insoluble in water and the usual organic solvents with the exception of dimethylformamide (DMF) and dimethylsufoxide (DMSO) and makes it possible to effect all the peptide coupling reactions in solution in the DMF or DMSO, to precipitate the intermediate peptides by addition of a second solvent and to purify these peptides by washing in solid phase with the aid of suitable solvents which dissolve the impurities.

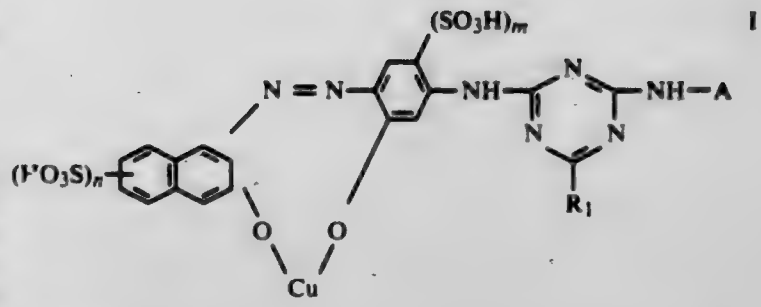
4,337,195

AZO DYESTUFFS

Hans-Joachim Vater, Cologne; Horst Nickel, Leverkusen, and Hermann Henk, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 17, 1979, Ser. No. 86,189
Claims priority, application Fed. Rep. of Germany, Nov. 4, 1978, 2847912
Int. Cl.³ C09B *45/00*
U.S. Cl. 260—146 T 7 Claims

1. Azo dyestuffs of the formula



wherein

A is the radical of a non-copper-containing monoazo or disazo dyestuff of the naphthalene-azo-benzene, naphthalene-azo benzene-azo-benzene, benzene-azo-benzene, benzene-azo-benzene-azo-benzene, benzene-azo-benzene-azo-naphthalene, benzene-azo-naphthalene, benzene-azo-naphthalene-azo-benzene, benzene-azo-naphthalene-azo-naphthalene or naphthalene-azo-naphthalene series,

R^1 is amino, methylamino, dimethylamino, ethylamino, diethylamino, 2-hydroxyethylamino, bix-(2-hydroxyethyl)-amino, alkylamino, dialkylamino, methoxyethylamino, sulphatomethylamino, carboxymethylamino, N-methyl-N-carboxymethylamino, carboxyethylamino, N-methyl-N-sulphatomethylamino, sulphatoethylamino, N-methyl-N-sulphatoethylamino, cyclohexylamino, pyrrolidino, piperidino, 1-methylpiperazino, morpholino, 4-morpholineamino, benzylamino or said phenylamino or naphthylamino being unsubstituted or substituted by hydroxyl, halogen, alkoxy, carboxyl or sulpho, m is 0 or 1 and n is 1 or 2.

4,337,196

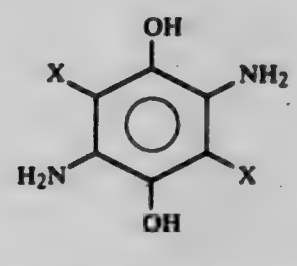
METHOD FOR PRODUCING 3,6-BIS(CARBOETHOXYAMINO)-2,5-DIAZIRIDINYL-1,4-BENZOQUINONE

Stephen J. Backlund, Fair Oaks, and Robert E. Olsen, Placerville, both of Calif., assignors to United States of America, Washington, D.C.

Filed Aug. 29, 1980, Ser. No. 182,632
Int. Cl.³ C07D *403/10, 203/14, 403/08*
U.S. Cl. 260—239 EQ 15 Claims

1. A method of preparing a diaziridinyl diaminobenzoquinone-N,N'-dicarboxylate compound selected from dialkyl, di(arylalkyl), or diphenyl diaminobenzoquinone-N,N'-dicarboxylates, said method comprising:

reacting a diaminohydroquinone of the formula:



wherein X is selected from the group consisting of chlorine, flourine, bromine, iodine or alkoxy groups with a molar excess of a pyrocarbonate di-substituted with alkyl groups, arylalkyl groups, or phenyl groups to produce a dialkyl, a di(arylalkyl), or a diphenyl diaminohydroquinone-N,N'-dicarboxylate;

oxidizing said hydroquinone to the respective benzoquinone;

reacting said benzoquinone with an aziridine having no substitution on the nitrogen and having substituents on the carbons selected from the group consisting of hydrogen and alkyl; and

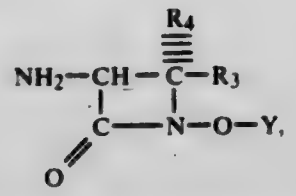
recovering the resultant diazirindinyl diaminobenzoquinone-N,N'-dicarboxylate.

4,337,197
O-SULFATED β-LACTAM HYDROXAMIC ACIDS AND INTERMEDIATES

Eric M. Gordon, Pennington, and Miguel A. Ondetti, Princeton, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Oct. 31, 1980, Ser. No. 202,830
Int. Cl.³ C07D *205/08;* A61K *31/395;* C07D *403/12, 409/12*
U.S. Cl. 260—239 A 1 Claim

1. A β-lactam having the formula



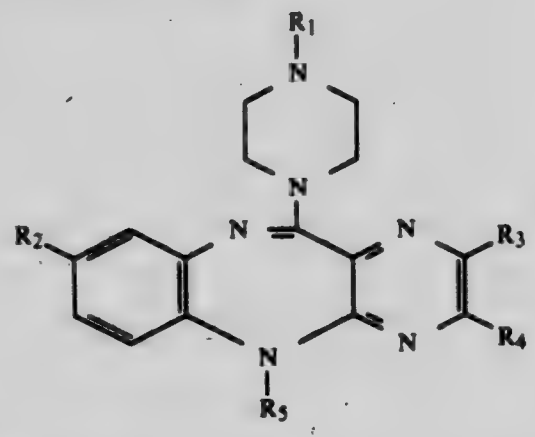
wherein R_3 and R_4 are the same or different and each is hydrogen or alkyl and Y is benzyl or pivaloyl.

4,337,198
PYRAZINOBENZODIAZEPINES

Dieter Sorg, Bern, and Albert Leutwiler, Hinterkappelen, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

Filed Apr. 24, 1980, Ser. No. 143,263
Claims priority, application Switzerland, May 11, 1979, 4418/79
Int. Cl.³ C07D *487/02;* A61K *31/495*
U.S. Cl. 260—243.3 25 Claims

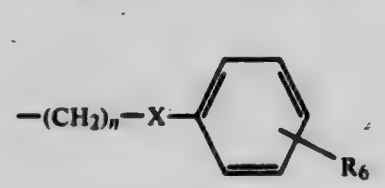
1. A compound of formula I,



I

wherein

R_1 is hydrogen, alkyl of 1 to 4 carbon atoms, hydroxyalkyl with a maximum of 4 carbon atoms, the hydroxy group of which may be acylated by an alkanoyl group of 2 to 18 carbon atoms, alkoxyalkyl with a maximum of 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, cycloalkylalkyl of 4 to 7 carbon atoms, or a group of formula II,



II

wherein

R_6 is hydrogen, halogen, or alkyl or alkoxy of 1 to 4 carbon atoms, and

either

(i) X is $—CH_2—$ and n is 0, 1, 2 or 3 or
(ii) X is —CO— and n is 1, 2 or 3 or
(iii) X is —O— and n is 2 or 3,

R_2 is hydrogen, halogen, trifluoromethyl or alkyl of 1 to 4 carbon atoms,

R_3 is hydrogen, halogen, trifluoromethyl, or alkyl or alkoxy of 1 to 4 carbon atoms,

R_4 is hydrogen, or alkyl or alkoxy of 1 to 4 carbon atoms,

and

R_5 is hydrogen, alkyl of 1 to 4 carbon atoms or alkenyl of 3 or 4 carbon atoms, with the proviso that, when R_2 is hydrogen, R_5 is hydrogen,

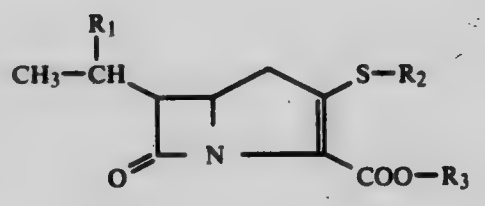
said compound being in free base or in pharmaceutically acceptable acid addition salt form.

4,337,199
ANTIBIOTIC β-LACTAM COMPOUNDS, PRODUCTION THEREOF, AND THEIR USE AS ANTIMICROBIAL AGENT

Takeo Yoshioka, Ayase; Kenichi Yamamoto, Fujisawa; Kaoru Yamada, Chigasaki; Yasuyuki Kato, Kawasaki; Yasutaka Shimauchi, Ninomiya, and Tomoyuki Ishikura, Chigasaki, all of Japan, assignors to Sanraku-Ocean Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 90,071, Oct. 31, 1979, abandoned. This application May 6, 1980, Ser. No. 147,146
Claims priority, application Japan, Nov. 1, 1978, 53-133773; Jul. 27, 1979, 54-94891
Int. Cl.³ C07D *487/04;* A61K *31/40*
U.S. Cl. 260—245.2 T 12 Claims

1. A process for producing a compound of the formula



(I)

wherein

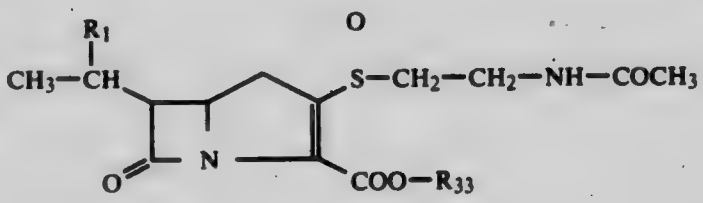
R_1 represents hydrogen, methyl or hydroxyl,

R_2 represents lower alkyl, hydroxy-lower alkyl, lower alkoxy-lower alkyl, lower alkanoyloxy-lower alkyl, cyclohexyl, phenyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-pyrimidinyl, 4-pyrimidinyl, 5-pyrimidinyl, 2-pyrrolyl, 3-pyrrolyl, 2-imidazolyl or 4-imidazolyl, and

R_3 represents hydrogen, lower alkyl or lower alkyl substituted by 1 to 3 phenyl groups which may be substituted by a substituent selected from the group consisting of halogen, lower alkyl, lower alkoxy, lower haloalkyl, nitro and lower alkylsulfonyl,

or its salt,

which comprises reacting a compound of the formula



(II)

wherein

R_1 is as defined above, and

R_{33} represents lower alkyl or lower alkyl substituted by 1 to 3 phenyl groups which may be substituted by a substituent selected from the group consisting of halogen, lower alkyl, lower alkoxy, lower haloalkyl, nitro and lower alkylsulfonyl,

with a thiol compound of the formula

R_2SY

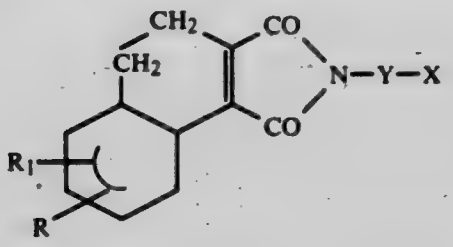
wherein R_2 is as defined above, and Y represents hydrogen or an alkali metal, and, to produce a compound of formula (I) in which R_3 is hydrogen, hydrogenolyzing the resulting product, and if desired, converting the resulting product to its salt.

4,337,200
TRICYCLIC IMIDYL DERIVATIVES

Hans Zweifel, Basel; Walter Schilling, Himmelried; Angelo Storni, Rheinfelden, and Daniel Bellus, Riehen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 9,985, Feb. 6, 1979, Pat. No. 4,242,264. This application Sep. 4, 1980, Ser. No. 183,905
Claims priority, application Switzerland, Feb. 8, 1978, 1400/78
Int. Cl.³ C07D *209/90, 209/94*
U.S. Cl. 548—451 **5 Claims**

1. A compound of formula I



(I)

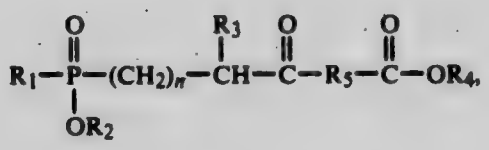
in which R and R_1 independently of one another are hydrogen, halogen, alkyl having 1 to 4 carbon atoms or methoxy, Y is alkylene having 1 to 30 carbon atoms, cycloalkylene having 5 or 6 carbon atoms, methylenebis(cyclohexylene), arylene having 6 to 10 carbon atoms, aralkylene having 7 or 8 carbon atoms or alkylarlylene having 7 or 8 carbon atoms; or said arylene substituted by one alkyl of 1 to 4 carbon atoms, by one alkoxy of 1 to 4 carbon atoms or by one nitro, and X is $—NH_2$ or —NH— alkyl having 1 to 4 carbon atoms.

4,337,201
PHOSPHINYLALKANOYL SUBSTITUTED PROLINES

Edward W. Petrillo, Jr., Pennington, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Dec. 4, 1980, Ser. No. 212,911
Int. Cl.³ A61K *31/40*; C07D *207/12*
U.S. Cl. 548—413 **13 Claims**

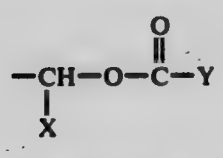
1. A compound having the formula



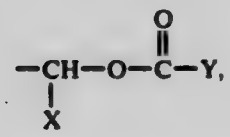
or a salt thereof, wherein

R_1 is alkyl, aryl, arylalkyl, cycloalkyl, or cycloalkylalkyl;

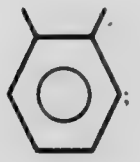
one of R_2 and R_4 is



and the other is hydrogen, alkyl, arylalkyl or

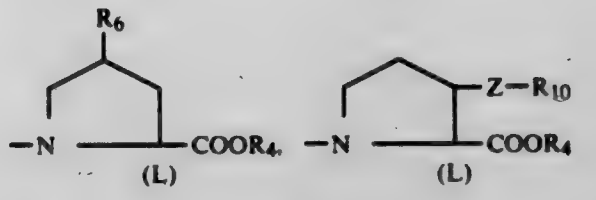


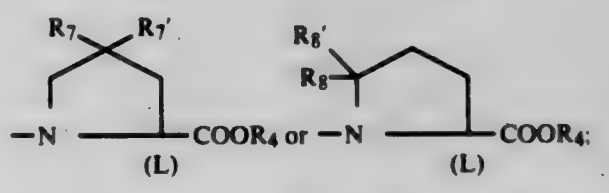
wherein X is hydrogen, alkyl or phenyl and Y is hydrogen, alkyl, phenyl or alkoxy, or together X and Y are $—(CH_2)_2—$, $—(CH_2)_3—$, —CH=CH— or



R_3 is hydrogen or alkyl;

$—R_5—COOR_4$ is





R_6 is hydrogen, hydroxy, alkyl, halogen, azido, amino, cycloalkyl, aryl, arylalkyl, carbamoyloxy, N,N-dialkylcarbamoyloxy, or $—Z—R_9$;

R_7 and R_7' are the same and each is halogen or $—Z—R_{10}$, or R_7 and R_7' together are =O, $—O—(CH_2)_m—O—$ or $—S—(CH_2)_m—S—$;

R_8 is hydrogen and R_8' is phenyl, 2-hydroxyphenyl or 4-hydroxyphenyl or R_8 and R_8' together are =O;

R_9 is alkyl, aryl, arylalkyl, 1- or 2-naphthyl, or biphenyl;

R_{10} is alkyl, aryl or arylalkyl;

Z is oxygen or sulfur;

n is 0 or 1; and

m is 1 or 2;

and wherein the term "aryl" refers to phenyl or phenyl substituted with halogen, alkyl, alkoxy, alkylthio, hydroxy, alkanoyl, nitro, amino, dialkylamino or trifluoromethyl groups; the term "alkyl" refers to groups having 1 to 10 carbon atoms; the term "alkoxy" refers to groups having 1 to 8 carbon atoms; the term "cycloalkyl" refers to groups having 3 to 7 carbon atoms; and the term "alkanoyl" refers to groups having 2 to 9 carbon atoms.

4,337,202
PROCESS OF MAKING L-GULONO GAMMA LACTONE

William M. Hearon, Portland, Oreg., and John F. Witte, Vancouver, Wash., assignors to Boise Cascade Corporation, Boise, Id.

Filed Apr. 16, 1981, Ser. No. 254,925
Int. Cl.³ C07D *307/32*
U.S. Cl. 549—314 **10 Claims**

1. The one-step process of making L-gulono gamma lactone which comprises reacting a uronic acid glycoside of the class consisting of polyglucuronic acid and a lower alkyl glucuronoside having from 1–5 carbon atoms in the alkyl group

with hydrogen in an aqueous medium at a pH below about 4 at a reaction temperature of from about 120° to about 140° C. at a pressure of from about 600 to about 1500 p.s.i. in the presence of a periodic table Group VIII noble metal catalyst comprises at least one member of the group consisting of platinum, palladium, ruthenium, rhodium and osmium

for a time sufficent to hydrolyze the glycoside to the corresponding free aldehyde, and to reduce the resulting free aldehyde to L-gulono gamma lactone.

4,337,203

2,5-INTER-O-PHENYLENE-3,4-DINOR-5,9α-EPOXY PGF_1 AMIDES

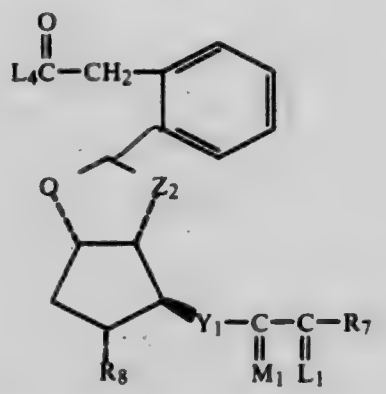
Udo F. Axen, Plainwell, and John C. Sih, Kalamazoo, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 62,443, Jul. 31, 1979, which is a continuation-in-part of Ser. No. 962,845, Nov. 22, 1978, abandoned. This application Jul. 3, 1980, Ser. No. 165,836

Int. Cl.³ C07D *311/00*

U.S. Cl. 549—396 **2 Claims**

1. A prostacyclin analog of formula V



wherein Z_2 is cis—CH=CH— or $—CH_2CH_2$;
wherein R_8 is hydrogen, hydroxy, or hydroxymethyl;
wherein Y_1 is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) $—CH_2CH_2$, or
(4) —C≡C—,
wherein M_1 is α-R_5: β—OH or α—OH:β-R_5, wherein R_5 is hydrogen or alkyl with one to 4 carbon atoms, inclusive,
wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of α-R_3:β-R_4 and α-R_4:β-R_3, wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein R_7 is
(1) $—(CH_2)_m—CH_3$, wherein m is an integer from one to 5, inclusive;
(2) phenoxy;
(3) phenoxy substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(4) phenyl;
(5) phenyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(6) phenylmethyl, phenylethyl, or phenylpropyl; or
(7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different;
wherein L_4 is
(1) amino of the formula $—NR_{21}R_{22}$, wherein R_{21} and R_{22} are
(a) hydrogen;
(b) alkyl of one to 12 carbon atoms, inclusive;
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive;
(d) aralkyl of 7 to 12 carbon atoms, inclusive;
(e) phenyl;
(f) phenyl substituted with one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
(g) carboxyalkyl of 2 to 5 carbon atoms, inclusive;
(h) carbamoylalkyl of 2 to 5 carbon atoms, inclusive;
(i) cyanoalkyl of 2 to 5 carbon atoms, inclusive;
(j) acetylalkyl of 3 to 6 carbon atoms, inclusive;
(k) benzoylalkyl of 7 to 11 carbon atoms, inclusive;
(l) benzoylalkyl substituted by one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, alkoxy of one to 3 carbon atoms, inclusive, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
(m) pyridyl;
(n) pyridyl substituted by one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive;
(o) pyridylalkyl of 6 to 9 carbon atoms, inclusive;
(p) pyridylalkyl substituted by one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy or alkoxy of one to 3 carbon atoms, inclusive;
(q) hydroxyalkyl of one to 4 carbon atoms, inclusive;
(r) dihydroxyalkyl of one to 4 carbon atoms; or
(s) trihydroxyalkyl of one to 4 carbon atoms; with the further proviso that not more than one of R_{21} and R_{22} is other than hydrogen or alkyl;
(2) cycloamino selected from the group consisting of
(a) pyrrolidino,
(b) piperidino,
(c) morpholino,
(d) piperazino,
(e) hexamethyleneimino,
(f) pyrrolino,
(g) 3,4-didehydropiperidinyl, or
(h) pyrrolidino, piperidino, morpholino, piperazino, hexamethyleneimino, pyrrolino, or 3,4-didehydropiperidinyl substituted by one or 2 alkyl of one to 12 carbon atoms, inclusive;
(3) carbonylamino of the formula $—NR_{23}COR_{21}$, wherein R_{23} is hydrogen or alkyl of one to 4 carbon atoms, inclusive, and R_{21} is other than hydrogen, but otherwise as defined above; or
(4) sulfonylamino of the formula $—NR_{23}SO_2R_{21}$, wherein R_{21} and R_{23} are as defined in (3).

4,337,204

PGI_2 LOWER ALKYL ESTERS

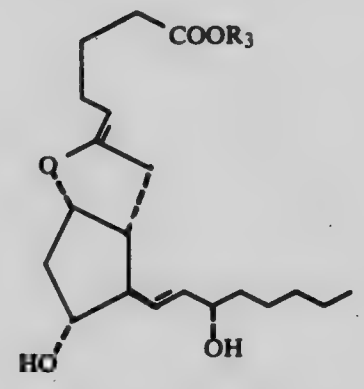
Roy A. Johnson, Kalamazoo; Frank H. Lincoln, Portage, and John E. Pike, Kalamazoo, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation of Ser. No. 819,940, Jul. 28, 1977, which is a continuation-in-part of Ser. No. 725,550, Sep. 22, 1976, abandoned, which is a continuation-in-part of Ser. No. 716,770, Aug. 23, 1976, abandoned. This application Mar. 27, 1981, Ser. No. 248,637

Int. Cl.³ C07D *307/935*

U.S. Cl. 549—465 **3 Claims**

1. A compound of the formula



or a mixture comprising that compound and the enantiomer thereof, wherein R_3 is alkyl of one to 4 carbon atoms, inclusive; including the lower alkanoates thereof.

4,337,205

NITROGEN CONTAINING ALKOXYSILANE AND PROCESS FOR ITS PRODUCTION

Wolfgang Buder, Rodenbach; Siegfried Wolff, Bornheim-Merten, and Peter Kleinschmit, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Aug. 28, 1980, Ser. No. 182,313

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1979, 2935454

Int. Cl.[3] C07C *117/04, 118/04*

U.S. Cl. 260—349 6 Claims

1. A nitrogen containing alkoxysilane of the formula

$$(RO)_{3-n}(CH_3)_nSi(CH_2)_mNHCON_3$$

in which R is an alkyl group having 1 to 3 carbon atoms, n is 0, 1 or 2 and m is 1, 2 or 3.

4,337,206

PROCESS FOR PREPARING HIGH PURITY URSODEOXYCHOLIC ACID

Pietro Gargani, Milan, Italy, assignor to Erregierre S.p.A., Bergamo, Italy

Filed Apr. 29, 1981, Ser. No. 258,730

Claims priority, application Italy, May 14, 1980, 22033 A/80

Int. Cl.[3] C07J *9/00*

U.S. Cl. 260—397.1 4 Claims

1. A process for preparing high purity 3α,7β-dihydroxycholanic acid from 3α,7α-dihydroxy-Δ_{11}-cholenic acid, comprising

(1) oxidizing the 3α,7α-dihydroxy-Δ_{11}-cholenic acid to 3α-hydroxy-7-keto-Δ_{11}-cholenic acid with an alkaline chromate in a buffered acetic acid solution,

(2) selectively reducing the obtained 7-keto compound with metallic sodium or metallic potassium in an inert organic solvent, at the reflux temperature of the reaction mixture, to 3α,7β-dihydroxy-Δ_{11}-cholenic acid,

(3) reacting this product with a silanising agent in an organic solvent at a temperature between 60° and 100° C. to form the corresponding tris-trimethylsilyl derivative,

(4) hydrolyzing the tris-trimethylsilyl derivative in an aqueous acid solution at a temperature of between 50° C. and 100° C. to obtain the free acid, and

(5) hydrogenating the free acid in an alcoholic solution with a supported Pd catalyst at a temperature of between 50° C. and 100° C. and a pressure of 2–5 atm.

4,337,207

BIOLOGICALLY ACTIVE CATECHOLAMINE DERIVATIVES

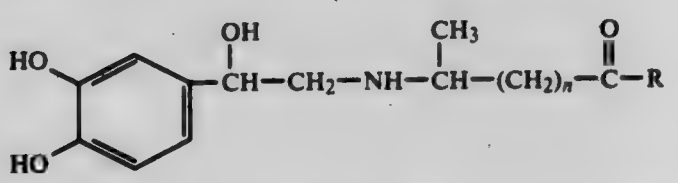
Murray Goodman, La Jolla; Michael S. Verlander, Del Mar; Kenneth A. Jacobson, La Jolla; Kenneth L. Melmon, Woodside, and Neal Castagnoli, San Rafael, all of Calif., assignors to Regents of the University of California, Berkeley, Calif.

Filed Sep. 4, 1980, Ser. No. 184,000

Int. Cl.[3] C07C *103/29*

U.S. Cl. 260—404.5 29 Claims

1. β-adrenergic compounds having the formula:



wherein n=1 to 15, and R is NHR′, where R′ is H or an alkyl, aryl, or alkyl-aryl substituent.

4,337,208

PROCESS FOR THE PRODUCTION OF OIL-SOLUBLE METAL SALTS

Joseph Petronella, Old Bridge Township, Middlesex County, N.J., assignor to Tenneco Chemicals, Inc., Piscataway, N.J.

Filed Feb. 17, 1981, Ser. No. 234,514

Int. Cl.[3] C07F *15/02;* C11C *1/00*

U.S. Cl. 260—414 10 Claims

1. In the process for the production of oil-soluble metal salts wherein a reaction mixture that comprises a polyvalent metal, an organic monocarboxylic acid having 5 to 18 carbon atoms, water, and an inert, water-immiscible organic solvent is heated in the presence of oxygen for a period of time sufficient to form the metal salt of said monocarboxylic acid, the improvement wherein the reaction between the polyvalent metal and the monocarboxylic acid is carried out in the presence of an ammonium salt catalyst selected from the group consisting of ammonium salts of mineral acids, ammonium salts of organic monocarboxylic acids having 1 to 4 carbon atoms, and mixtures thereof.

4,337,209

PROCESS FOR THE MANUFACTURE OF SOAP

John B. Akers, South Wirral; Jane A. Littler, Warrington, and David C. Peters, Heswall, all of England, assignors to Internationale Octrooi Maatschappij "Octropa" B.V., Rotterdam, Netherlands

Continuation-in-part of Ser. No. 119,225, Feb. 7, 1980, Pat. No. 4,259,251. This application Jan. 16, 1981, Ser. No. 225,623

Claims priority, application United Kingdom, Feb. 14, 1979, 0529/79

Int. Cl.[3] C11B *13/00, 1/10*

U.S. Cl. 260—417 8 Claims

1. A process for the preparation of an alkali metal salt of an organic carboxylic acid having from 6 to 24 carbon atoms in the molecule, which process comprises the steps of:

(i) saponifying the corresponding organic carboxylic acid, its ester or mixtures thereof with a concentrated aqueous solution of alkali metal hydroxide in the presence of an inorganic salt of an alkali metal, in a liquid reaction medium comprising acetone;

(ii) separating the organic salts from the reaction medium; and

(iii) removing excess acetone from the organic salt.

4,337,210

PROCESS FOR THE PREPARATION OF COBALT (II) ACETYLACETONATE

Hendrikus J. H. van der Maas, Zuilichem, Netherlands, assignor to Chemische Fabriek Zaltbommel, Zaltbommel, Netherlands

Filed Oct. 16, 1980, Ser. No. 197,717

Claims priority, application Netherlands, Oct. 19, 1979, 7907739

Int. Cl.[3] C07F *15/06*

U.S. Cl. 260—439 R 10 Claims

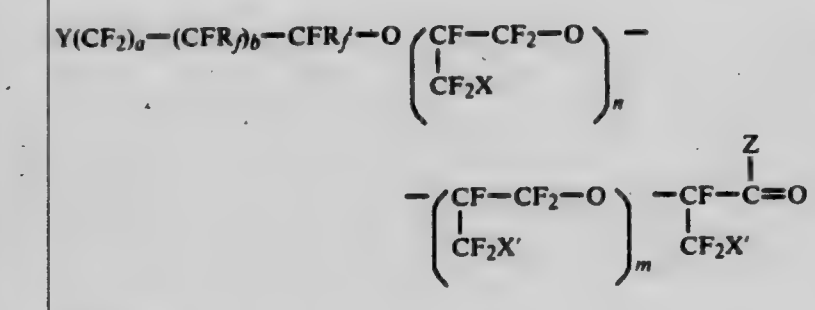
1. In a process for the preparation of cobalt (II) acetylacetonate by contacting a cobalt (II) compound with acetylacetone at an elevated temperature, the improvement wherein the reaction is carried out in an organic solvent which is immiscible with water, and forms with water an azeotropic mixture, in the vicinity of the boiling temperature of said azeotropic mixture.

4,337,211
FLUOROCARBON ETHERS HAVING SUBSTITUTED HALOGEN SITE(S) AND PROCESS TO PREPARE

Bobby R. Ezzell, Lake Jackson; William P. Carl, Angleton, and William A. Mod, Lake Jackson, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

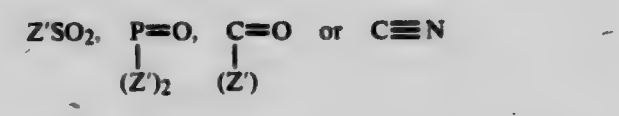
Filed Jun. 11, 1980, Ser. No. 158,428
Int. Cl.[3] C07C *69/67, 143/70*
U.S. Cl. 260—456 F 17 Claims

1. As a composition of matter the compounds represented by the general formula:



where

a=an integer from, and including, 0 to 3;
b=an integer from, and including, 0 to 3;
m=an integer from, and including 0 to 6;
n=an integer from and including 0 to 6;
R_f and R_f' are each independently selected from the group consisting of F, Cl, perfluoroalkyl and fluorochloroalkyl;
X=F, Cl, Br, or mixtures thereof when n>1;
X'=Cl, Br, or mixtures thereof;
Y is selected from the group consisting of



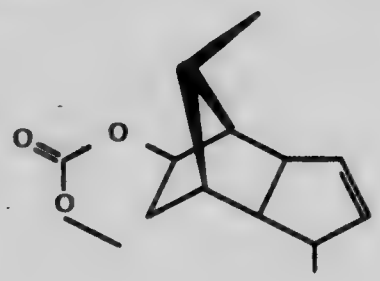
Z' is F, Cl, Br, OH, NRR' or OA
R and R' are independently selected from the group consisting of hydrogen, an alkyl having one or more than one carbon atom and an aryl;
Z=F, Cl, Br, OH, NRR' or OA;
R and R' are independently selected from the group consisting of nydrogen, an alkyl having one or more carbon atom and aryl;
A=alkali metal, quaterary ammonium or R.

4,337,212
SUBSTITUTED TRICYCLODECANE DERIVATIVES, PROCESSES FOR PRODUCING SAME AND ORGANOLEPTIC USES THEREOF

Mark A. Sprecker, Sea Bright, and John B. Hall, Rumson, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 220,628, Dec. 29, 1980, which is a division of Ser. No. 144,898, Apr. 29, 1980, Pat. No. 4,275,251. This application Sep. 25, 1981, Ser. No. 305,470
Int. Cl.[3] C07C *69/96*
U.S. Cl. 260—463 2 Claims

1. The substituted tricyclodecane derivative defined according to the structure:



4,337,213
CONTROLLED CRYSTALLIZATION DIPEROXYACID PROCESS

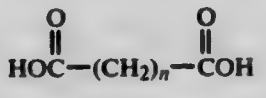
Chester W. Marynowski, Mountain View, and Maria A. Geigel, Menlo Park, both of Calif., assignors to The Clorox Company, Oakland, Calif.

Filed Jan. 19, 1981, Ser. No. 226,241
Int. Cl.[3] C07C *179/15*
U.S. Cl. 260—502 R 19 Claims

1. A method for making a diperoxyacid product comprising the steps of:

providing a liquid and a solid, said liquid and said solid forming a two-phase initial system, said liquid including hydrogen peroxide, sulfuric acid and water, said solid being a diperoxyacid, said solid being in an amount of from about 0.01 wt. % to about 34 wt. % of said two-phase initial system;

feeding a dicarboxylic acid component, a sulfuric acid component, a hydrogen peroxide component, and a water component into said two-phase initial system to form a reaction system, said dicarboxylic acid component being of the formula



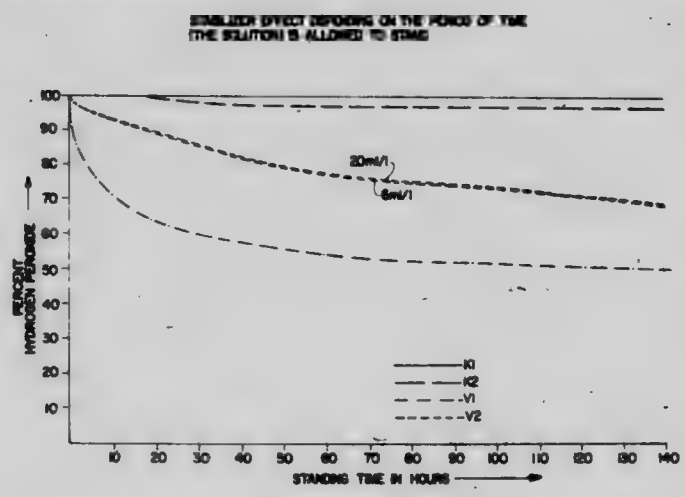
wherein n is about 4 to about 18, said reaction system including a reaction solids phase, said reaction solids phase including said solid of said two-phase initial system and diperoxyacid product;

controlling said components being fed during the feeding step to maintain said reaction solids phase at not greater than about 36 wt. % of said reaction system, the controlling including determining a surface area of said reaction solids phase and maintaining a feed rate of said dicarboxylic acid component at a selected value between about 0.1 and about 100 grams per hour per square meter of said surface area.

4,337,214
N-(HYDROXY METHYL)-1-AMINO ALKANE-1,1-DIPHOSPHONIC ACIDS, PROCESS OF MAKING SAME, AND COMPOSITION FOR AND METHOD OF USING SAME AS STABILIZING AGENTS IN PEROXIDE-CONTAINING BLEACHING BATHS

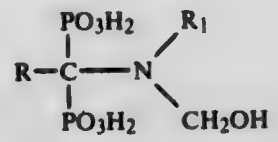
Hans-Adolf Rohlfs, Heidelberg; Alfred Kling, Ladenburg; Guenter Raab, Laudenbach; Michael Vogt, Moerlenbach; Viktor Specht, Dossenheim, and Ulrike Schaetzke, Weinheim-Sulzbach, all of Fed. Rep. of Germany, assignors to Benckiser-Knapsack GmbH, Ladenburg, Fed. Rep. of Germany

Filed Aug. 14, 1980, Ser. No. 177,885
Claims priority, application Fed. Rep. of Germany, Aug. 22, 1979, 2933969
Int. Cl.[3] C07F *9/38*
U.S. Cl. 260—502.5 3 Claims



1. An N-(hydroxy methyl)-1-amino alkane-1,1-diphosphonic

acid or an N,N-Bis-(hydroxy methyl)-1-amino alkane-1,1-diphosphonic acid of the formula



wherein

R indicates methyl, and

R_1 indicates hydrogen or the hydroxy methyl group (—CH_2OH), and the water-soluble salts of said acid.

4,337,215

PROCESS FOR PURIFYING 2-ACRYLAMIDO-2-METHYLPROPANESULFONIC ACID

Shunichi Doi, and Masatake Kamogawa, both of Yokohama, Japan, assignors to Nitto Chemical Industry Co., Ltd. and Mitsubishi Rayon Co., Ltd., both of Tokyo, Japan

Filed Jan. 31, 1979, Ser. No. 8,114

Claims priority, application Japan, Feb. 9, 1978, 53-13897

Int. Cl.³ C07C *143/02*

U.S. Cl. 260—513 N **8 Claims**

1. A process for purifying 2-acrylamido-2-methylpropanesulfonic acid, which comprises dissolving crystals of 2-acrylamido-2-methylpropanesulfonic acid in hydrous acetic acid having a water content of 3 to 80% by weight at 60° to 110° C. and subjecting the resulting solution to recrystallization.

4,337,216

DEVICE IN AN EVAPORATIVE COOLER

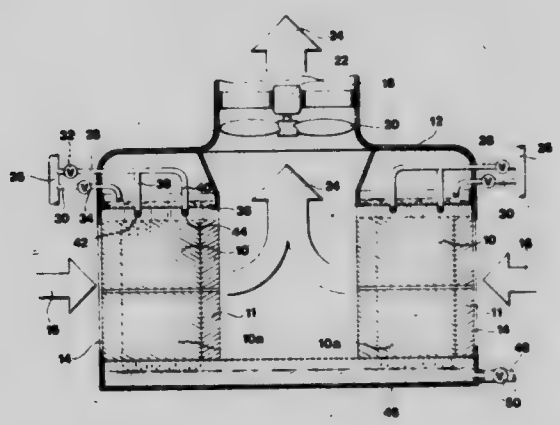
Lars E. R. Korsell, Stockholm, Sweden, assignor to Aktiebolaget Carl Munters, Sollentuna, Sweden

Continuation of Ser. No. 944,248, Sep. 21, 1978, abandoned. This application Jan. 22, 1980, Ser. No. 114,199

Claims priority, application Sweden, Sep. 22, 1977, 7710655

Int. Cl.³ F28C *1/04*

U.S. Cl. 261—112 **2 Claims**



1. A contact body of the multilayer type comprising at least one pair of contact body units, located one on top of another within a casing, said contact body units each comprising a plurality of adjacent layers having upper and lower edges at least one of which abuts an adjacent body above or below it in their longitudinal direction, said layers in said contact body units being alternately bent along said edges, transversely to said longitudinal direction, with adjacent bent edge portions of adjacent layers being interconnected, whereby the layers cooperate to define at least two groups of openings in the contact body which communicate only with corresponding openings in an adjacent contact body above or below it, at least one group of openings having the shape of sockets with one socket being telescopically inserted only into another single corresponding opening in an adjacent contact body.

4,337,217

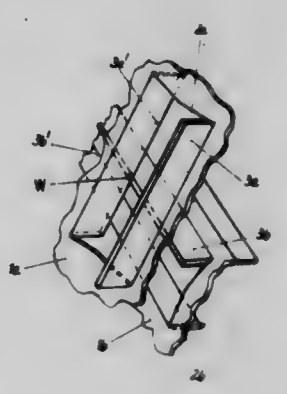
CONTACTING ARRANGEMENT FOR MASS TRANSFER OPERATIONS AND SET OF PLATES FOR USE IN SAID ARRANGEMENT

Roland Braun, Ludwigshafen-Rheingönheim, Fed. Rep. of Germany, assignor to Raschig GmbH, Ludwigshafen am Rhein, Fed. Rep. of Germany

Filed Apr. 22, 1981, Ser. No. 256,652

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—112 **15 Claims**



12. In a contacting arrangement for mass transfer operations comprising at least one set of parallel plates which are equally spaced apart and extend at an angle to the horizontal,

the improvement comprised in that:

each of said plates is formed with a plurality of slots, which are arranged in at least two generally parallel rows, which are transversely spaced in the vertical direction,

each of said slots is defined on each side by a lug which can be bent from said plate, and

the longitudinal directions of the slots of adjacent rows of each plate are inclined from the vertical in mutually opposite senses, corresponding lugs of adjacent plates crossing each other to define nips or mixing and imparting turbulence to fluids flowing between said plates.

4,337,218

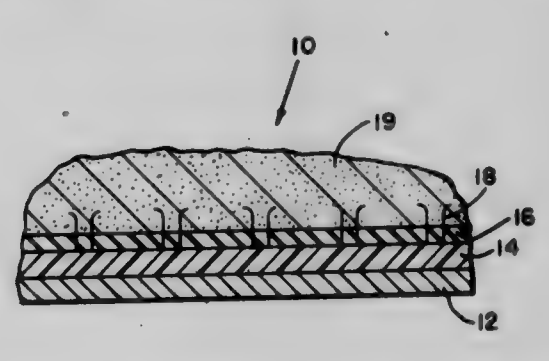
METHOD OF CASE BONDING PROPELLANT

James D. Byrd, Huntsville, Ala., and Lamar Field, Nashville, Tenn., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 15, 1980, Ser. No. 197,035

Int. Cl.³ C06B *21/00, 45/10*

U.S. Cl. 264—3 R **10 Claims**



1. A mechanical method of case bonding a solid propellant to a rocket motor case to achieve an improved propellant bond to case strength, said method comprising:

(i) applying a layer of an uncured liner composition to the internal surface of a rocket motor case;

(ii) embedding a mechanical structural material that is compatible with said liner formulation and the solid propellant composition which is to be cast against said uncured liner composition after said liner composition is cured with a portion of said mechanical structural material protruding above said cured liner composition, said mechanical structural material being in a predetermined form in said uncured liner composition and allowing a portion of said mechanical structural material to protrude above said uncured liner composition;

(iii) curing said liner composition;

(iv) casting a solid propellant composition against the cured liner composition and around said protruding portion of mechanical structural material; and,

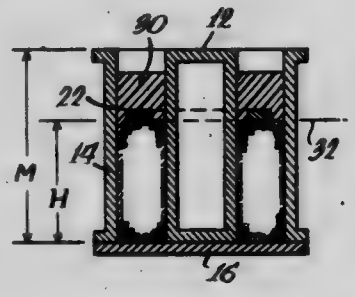
(v) curing said solid propellant composition to yield a solid propellant grain that is characterized by an improved propellant bond to case strength, said propellant bond to case strength being further characterized by said solid propellant grain having the mode of failures due to low shear strength, peeling, and separations which are lessened as compared with a similarly case bonded solid propellant grain which does not employ said mechanical structural material.

4,337,219

METHOD OF ENCAPSULATING ELECTRICAL COILS

Paul P. Falkowski, Clearwater; Erwin Spotz, and Mangesh Rajadhyaksha, both of Largo, all of Fla., assignors to Square D Company, Palatine, Ill.

Filed Dec. 9, 1980, Ser. No. 214,619
Int. Cl.³ B29C 6/02
U.S. Cl. 264—130 **8 Claims**



1. A method of forming a cast resin electrical coil comprising the steps of inserting a wound induction element around an inner mold; positioning an outer mold having a closed bottom around said inner mold for forming a space therebetween; coating a ring with a layer of release material; positioning said ring between said inner and outer molds and spaced from the closed bottom; providing communication between the spaces on opposite sides of said ring, introducing a liquid cast resin material between said molds to fill the space between said bottom and said ring and with excess resin material above said ring; curing said resin material and allowing said excess resin material to flow from above said ring into the space between said ring and said bottom to accommodate for shrinking of said resin during curing; separating said molds from said material; and separating said ring and excess resin material from the case resin electrical coil.

4,337,220

PRODUCTION OF PHOTOSENSITIVE RESIN CYLINDERS

Seiji Arimatsu, Osaka, Japan, assignor to Nippon Paint Co., Ltd., Osaka, Japan

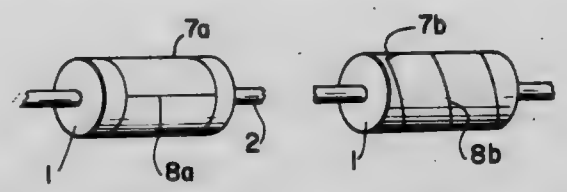
Continuation of Ser. No. 24,040, Mar. 26, 1979, abandoned. This application Nov. 4, 1980, Ser. No. 203,888
Claims priority, application Japan, Mar. 29, 1978, 53-37084
Int. Cl.³ B29C 27/02
U.S. Cl. 264—25 **5 Claims**

1. A process for producing a photosensitive resin cylinder of the type including a cylinder having applied to the surface thereof a smooth and uniform thickness layer of photosensitive resin material, said process comprising:

winding a photosensitive resin sheet having a thickness of from 1 to 4 mm on and around the surface of a cylinder without allowing any material overlapping of or spaces between the side edge portions of the thus wound sheet;

rotating said cylinder with said wound sheet thereon while contacting the surface of said wound sheet with a roll and causing said roll to rotate against said surface, and simultaneously applying heat in a single direction from an external infrared heater to said wound sheet, thereby joining said side edge portions of said wound sheet by melting, the amount of heat thus applied being sufficient to soften said wound sheet without causing said resin material to flow; and

continuing said rotation of said cylinder while cooling said wound sheet, thus forming said wound sheet into a photosensitive resin layer having a uniform thickness of from 1 to 4 mm and a smooth outer surface.

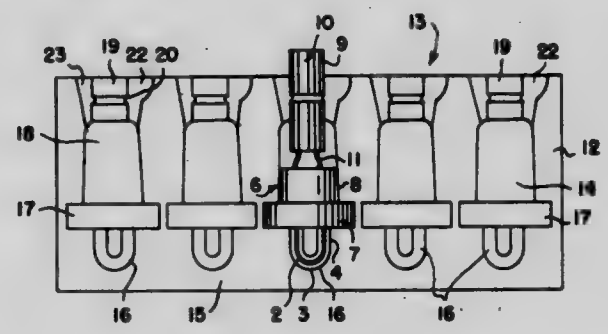


4,337,221

METHOD OF MAKING THERMOCOUPLES AND PRODUCTS THEREOF

Adrian L. Gray, 3 Kruger Dr., Craighall Park, Johannesburg, Transvaal Province, South Africa

Continuation-in-part of Ser. No. 870,663, Jan. 19, 1978, Pat. No. 4,241,003
Filed May 29, 1979, Ser. No. 43,489
The portion of the term of this patent subsequent to Jan. 19, 1995, has been disclaimed.
Int. Cl.³ B29C 6/04, 1/02
U.S. Cl. 264—102 **9 Claims**



2. A method for the production of a thermocouple unit having a bi-metal junction located in a glass u-tube, having a pair of open ends, to project from the front face of a body of a ceramics material, which method comprises,

placing the glass u-tube into a mould for use in manufacturing the thermocouple unit, the mould having at least two co-operable mould members, each having a centrally positioned cavity defined by the walls of the mould, the cavity having a body producing portion and a front face producing portion, and means for positioning with respect to the front face producing portion of the cavity, the glass u-tube, such that both open ends of the glass u-tube are positioned within the body producing portion of the mould, and such that the bend of the u-tube is positioned outside of the body producing portion of the mould at a selected distance,

closing the mould members onto each other,

opening the mould and removing the contents therefrom, after the contents have at least partially cured,

heating the contents to a temperature sufficient to anneal the bi-metal junction,

replacing the contents back into the cavity of the mould,

positioning additional non-ceramic components into the cavity of the mould, and

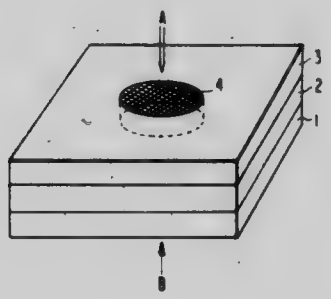
introducing additional ceramics material into the cavity of the mould thereby producing a finished thermocouple unit.

4,337,222

HEMOGLOBIN CONCENTRATION DETERMINING ARTICLE

Masao Kitajima; Fuminori Arai, and Asaji Kondo, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 7, 1981, Ser. No. 223,062
Claims priority, application Japan, Jan. 7, 1980, 55-435
Int. Cl.³ G01N *33/72*
U.S. Cl. 422—56 **11 Claims**



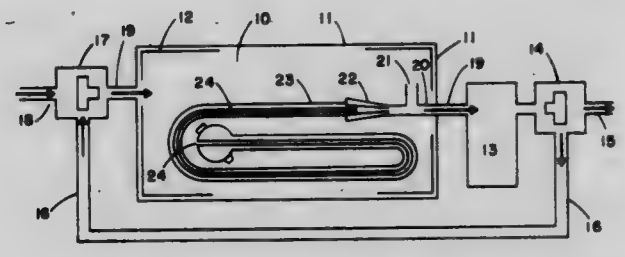
1. A hemoglobin concentration-determining article comprising a water-impermeable support having integrally provided thereon, in sequence, a hydrophilic binder layer and a porous spreading layer which has a hydrophilic surface and in which the surface of the internal voids or the interior is hydrophilic and water-insoluble, said porous spreading layer being constituted so that an aqueous sample applied thereto can be spread and incorporated therein in a substantially definite volume per unit area, wherein the porous spreading layer comprises a non-fibrous porous material having a mean pore diameter of about 2.5 μm to about 500 μm or a fibrous porous material having a yarn number count of from about 40 to about 100.

4,337,223

STERILIZING APPARATUS INCORPORATING RECIRCULATION OF CHAMBER ATMOSPHERE

Saul Kaye, Evanston, Ill., assignor to Ben Venue Laboratories, Inc., Bedford, Ohio

Filed Feb. 13, 1981, Ser. No. 212,972
Int. Cl.³ A61L *2/20*
U.S. Cl. 422—112 **8 Claims**



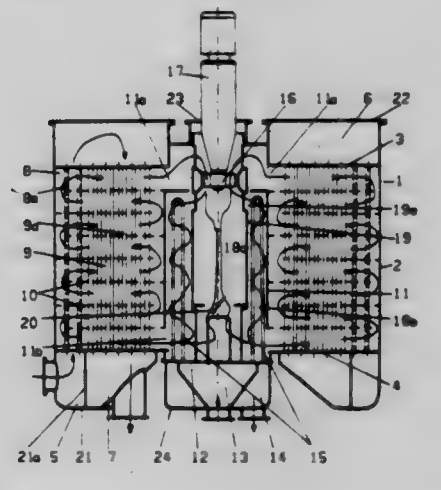
1. In apparatus for sterilization of a medical instrument having passages therein comprising a sterilizing chamber and temperature-control means therefor, the improvement which comprises means for disposing a sterilant gas within said sterilizing chamber, means for circulating said sterilant gas within said sterilizing chamber, means for recirculating said sterilant gas through a medical instrument having passages therein and positioned totally within said sterilizing chamber, means for circulating a desorbing gas through said passages in said medical instrument, and pressure-control means for said sterilizing chamber, wherein said means for recirculating said sterilant gas through said passages in said medical instrument consists of a valve and a recirculating pump.

4,337,224

APPARATUS FOR CONDUCTING THE CATALYTIC OXIDATION OF GASEOUS SULFUR COMPOUNDS TO SULFUR TRIOXIDE

Friedrich Mahler, Cologne, and Adolf Stauffer, Pulheim, both of Fed. Rep. of Germany, assignors to Davy McKee Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 237,211
Claims priority, application Fed. Rep. of Germany, Feb. 23, 1980, 3006900
Int. Cl.³ B01J *8/06*
U.S. Cl. 422—197 **9 Claims**



1. In an apparatus for conducting the catalytic oxidation of gaseous sulfur compounds to sulfur trioxide comprising a reactor housing containing a plurality of tubes arranged between tube plates, said housing having domes at each end for feeding, guiding, and discharging the reaction gas to and from individual tube groups, at least a portion of said tubes containing a catalyst therein, and all of said tubes arranged for being surrounded and contacted by the flow of a liquid heat-transport agent, the improvement comprising:

an outer zone (**8**) having empty tubes (**8*a***) arranged therein between an upper tube plate (**3**) and a lower tube plate (**4**);

an intermediate zone (**9**) adjacently adjoining said outer zone (**8**) toward the interior of the housing, and having catalyst filled tubes (**9*a***) arranged therein;

wall means (**11**) defining an inner chamber (**18*a*, 18*b***) and separating said inner chamber (**18*a*, 18*b***) from said intermediate zone, said wall means (**11**) having upper openings (**11*a***) and lower openings (**11*b***) for allowing passage of the heat transport agent therethrough;

plate means (**10**) common to both the outer zone (**8**) and the intermediate zone (**9**) for guiding the flow of the heat transport agent cross-currently around and in contact with empty tubes (**8*a***) and catalyst-filled tubes (**9*a***); and

axial flow pump means (**16**) arranged in said inner chamber for causing the heat transport-agent to circulate throughout the outer and intermediate zones (**8, 9**) and through the inner chambers (**18*a*, 18*b***).

4,337,225

REGENERATION OF LIQUID MEMBRANE WITHOUT BREAKING EMULSION

Martin B. Dines, Santa Ana, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Jan. 21, 1980, Ser. No. 113,852
Int. Cl.³ C01G *43/00*
U.S. Cl. 423—10 **29 Claims**

28. A process for removing uranium ions from an aqueous solution containing said uranium ions in the +4 valence state which comprises the steps of:

(a) contacting said aqueous solution containing ionic ura-

nium in the +4 valence state with an oil-in-water emulsion, said oil-in-water emulsion having an oil external phase which is permeable to ionic uranium in the +4 valence state and impermeable to ionic uranium ions when in a +6 valence state, said external oil phase surrounding an internal first aqueous phase including a reagent which is capable of reversibly converting ionic uranium from the +4 valence state to a +6 valence state, said reagent selected from the group consisting of Fe^{+3}, I_2 and quinone;

(b) permeating said ionic uranium in the +4 valence state, through said external oil phase, into said internal aqueous phase;

(c) converting said ionic uranium in said internal aqueous phase by means of such reagent into the +6 valence state;

(d) separating said emulsion from said aqueous solution;

(e) converting said ionic uranium from said +6 valence state to said +4 valence state; and

(f) permeating said ionic uranium in said internal aqueous phase, through said external oil phase, into a second aqueous phase.

4,337,226

RECOVERY OF PLATINUM-GROUP METALS FROM ORES

Edward R. Peasley, Orangevale, Calif., and John M. Gomes, Reno, Nev., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Feb. 11, 1981, Ser. No. 233,422
Int. Cl.³ C01G *55/00, 53/10, 3/10, 7/00*
U.S. Cl. 423—22 **2 Claims**

1. A process for recovery of nickel, iron, platinum, palladium, copper and gold values from ore concentrates consisting essentially of

(a) smelting the concentrate with a flux to form a matte and slag;

(b) dry grinding the matte to a particle size suitable for leaching;

(c) leaching, in a first-stage leach, the ground matte with sulfuric acid of a concentration of about 15 to 25 weight percent at a temperature of about 90 to 100° C. and at atmospheric pressure to selectively extract nickel and iron values, and

(d) leaching, in a second-stage leach, the residue from the first-stage leach with a leach solution comprising sulfuric acid of a concentration of about 20 to 30 weight percent and sodium hypochlorite or hydrogen peroxide, at a temperature of about 90° to 100° C. and at atmospheric pressure, to extract platinum, palladium, copper and gold values.

4,337,227

RECOVERY OF CHROMIUM FROM WASTE SOLUTIONS

Hector O. McDonald, and Lawrence C. George, both of Rolla, Mo., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Sep. 10, 1981, Ser. No. 300,834
Int. Cl.³ C01G *37/02*
U.S. Cl. 423—55 **3 Claims**

1. A process for recovery of chromium from waste solutions comprising:

(a) reducing any Cr^{+6} in the solution to Cr^{+3},

(b) adjusting the pH of the solution to about 3 to 4,

(c) treating the solution with sodium benzoate, or a mixture of sodium and ammonium benzoates, to precipitate the chromium as a benzoate complex, and

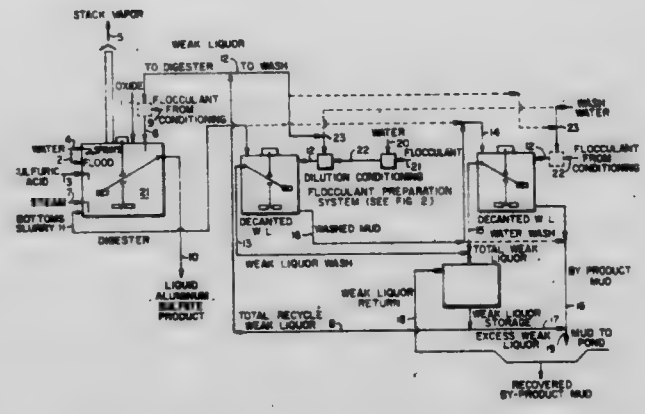
(d) separating the precipitate from the solution.

4,337,228

PROCESS FOR THE PRODUCTION OF SULFATES

Luther W. Garrett, Jr., San Mateo, Calif., assignor to Alumax, Inc., San Mateo, Calif.

Continuation-in-part of Ser. No. 181,098, Aug. 25, 1980, abandoned. This application Jun. 8, 1981, Ser. No. 271,558
Int. Cl.³ C01F *7/74, 7/76*
U.S. Cl. 423—114 **14 Claims**



1. A process for producing sulfates from by-product aluminum oxide wherein said sulfates contain no appreciable heavy metals, their oxides or sulfates selected from the group consisting of Cu, Cr, Mn and Pb comprising:

A. feeding the aluminum oxide by-product and process-weak liquor into a digester vessel to form a slurry;

B. heating the resulting slurry to an initial temperature between approximately 140° F. to 160° F.;

C. gradually adding sulfuric acid and additional oxide as needed into the slurry mixture maintaining:

(1) approximate stoichiometric ratios between the two reactants;

(2) the specific gravity of the slurry to reach an end point of between approximately 1.400 to 1.4700;

(3) the pH of the slurry between approximately 1.3 to 1.9; and

(4) the temperature of the reaction below approximately 220° F.;

D. continuing to allow the oxides and acid to react for between approximately 3 to 5.5 hours at approximately atmospheric pressure; and

E. removing the product.

12. A process for producing the binary salt aluminum ammonium sulfate and liquid aluminum sulfate wherein said binary salt contains no appreciable heavy metals, their oxides or sulfates selected form the group consisting of Cu, Cr, Mn and Pb comprising:

A. feeding the aluminum oxide by-product having a high nitride content and process-weak liquor into a digester vessel to form a slurry;

B. heating the resultant slurry to an initial temperature between approximately 140° F. to 160° F.;

C. gradually adding sulfuric acid and additional oxide as needed into the slurry mixture maintaining:

(1) approximate stoichiometric ratios between the two reactants;

(2) the specific gravity of the slurry to reach an end point between approximately 1.400 to 1.4700;

(3) the pH of the slurry between 1.3 to 1.9; and

(4) the temperature of the reaction below approximately 220° F.;

D. after the reaction has gone substantially to completion, adding flocculant and allowing the mixture to at least partially settle;

E. submerging a device having a cool surface area into the vessel containing the product mixture;

F. crystallizing the binary salt on the cool surface;

G. removing the device having a cool surface and removing, washing and stripping the crystals; and

H. decanting the supernatent liquid aluminum sulfate product liquor.

4,337,229

TREATMENT OF FLUE GASES

Aaron J. Teller, Westboro, Mass., assignor to Teller Environmental Systems, Inc., Worcester, Mass.

Filed Dec. 8, 1980, Ser. No. 214,134
Int. Cl.³ C01B *17/16, 31/20, 17/00;* B01J *8/00*
U.S. Cl. 423—225 12 Claims

1. A process for treating an effluent gas containing entrained particulates, hydrogen sulfide, organic sulfur compounds, and sulfur dioxide, said gas having a temperature above 150° F., which includes:

(a) initiating nucleation of the particulates in a first enclosure by treating the gas to increase its turbulence and to increase its humidity substantially to saturation at a wet bulb temperature above about 150° F. to about 185° F. under substantially adiabatic conditions, the pressure drop of said gas in said first enclosure being less than about 15 inches of water;

(b) passing said saturated gas which is at a temperature between about 150° F. to 212° F. in a substantially horizontal path through a second enclosure containing packing;

(c) passing a scrubbing liquor comprising an aqueous alkaline slurry of activated oxygenated carbon downwardly over said packing under laminar flow conditions;

(d) exhausting said gas from said second enclosure;

(e) collecting a first portion of said liquor after passage through said packing and recirculating said first portion through said packing, said portion containing at least about 15% and less than saturation non-volatile material by weight;

(f) passing a second portion of said liquor as a liquid stream to the first enclosure to recover particulates and a portion of the hydrogen sulfide, organic sulfur compounds and SO_2;

(g) increasing the concentration of solids in the liquid stream of step (f) in said first enclosure to approximately 0.5–5% above saturation concentration of the materials to be recovered;

(h) providing an environment in the first enclosure for agglomeration of the suspended solids to promote rapid separation of the liquid and suspended solids;

(i) recycling in the first enclosure one portion of the bottoms with a solids concentration of from 0.5–5% above saturation concentration; and,

(j) concentrating another portion of the bottoms from the first enclosure to a 40–60% total solids mix.

4,337,230

METHOD OF ABSORBING SULFUR OXIDES FROM FLUE GASES IN SEAWATER

Arne Ellestad, Oslo, and Arvid Tokerud, Lillestrom, both of Norway, assignors to AB Svenska Fläktfabriken, Nacka, Sweden

Filed Feb. 6, 1981, Ser. No. 232,017
Claims priority, application Norway, Feb. 13, 1980, 800385
Int. Cl.³ C01B *17/00*
U.S. Cl. 423—242 9 Claims

1. A method of absorbing sulfur oxides from flue gases by contacting said flue gases with seawater, said method comprising using seawater for said absorption of sulfur oxides in an amount such that subsequent to said absorption the pH of said seawater is from 1.8 to 3.3, treating said seawater after absorbing said sulfur oxides with a calcium based alkali chosen from the group consisting of CaO, $Ca(OH)_2$, and $CaCO_3$, in an amount such that the pH of said sulfur oxide-containing seawater is greater than 5.2, subjecting said seawater to a reactor into which an oxygen-containing gas is fed whereby said sulfur oxides are oxidized and carbon dioxide is stripped from said seawater, and adjusting the pH of said decarbonated and oxidized seawater subsequent to said decarbonation-oxidation reactor to above 5.5 by addition to said seawater of calcium based alkali selected from the group consisting of CaO, $Ca(OH)_2$, and $CaCO_3$.

4,337,231

REMOVAL OF SULFUR DIOXIDE FROM EXHAUST GAS

Kunihide Yaguchi; Masakazu Takaiwa, and Minoru Aoki, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 64,638, Aug. 7, 1979, Pat. No. 4,269,806.
This application Nov. 17, 1980, Ser. No. 207,780
Int. Cl.³ C01B *17/00*
U.S. Cl. 423—243 5 Claims

1. A method of removing sulfur dioxide from an exhaust gas containing the sulfur dioxide by using an aqueous absorbent containing a salt of an organic acid, wherein the exhaust gas is brought into counter-current contact with said absorbent within a scrubber provided with multistaged perforated plates to substantially scrub the sulfur dioxide from the exhaust gas into said absorbent while releasing a vapor of the organic acid from said absorbent, characterized in that the scrubber is provided with wetted walls on the top of the perforated plates and said absorbent adjusted to a pH of 7 to 8 is introduced into the scrubber from the top of the wetted walls to be brought into contact with the vapor of organic acid discharged from the top of the perforated plates within the wetted walls with a result of absorbing the vapor of organic acid into said absorbent and then the resulting absorbent flows down into the perforated plates.

4,337,232

AMMONIA SYNTHESIS PROCESS USING MOLYBDENUM OXYCARBONITRIDE CATALYST

Larry E. McCandlish, Highland Park, and Edwin L. Kugler, Summit, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Mar. 16, 1981, Ser. No. 243,824
Int. Cl.³ C01C *1/04*
U.S. Cl. 423—362 7 Claims

1. A process for synthesizing ammonia comprising contacting a gaseous mixture of hydrogen and nitrogen, in a 1:3 to 10:1 volume ratio, respectively, with a catalyst comprised of molybdenum oxycarbonitride, at a temperature in the range of about 300° to 500° C., a pressure of about 0.1 to 20 MPa, and a space velocity of about 1000 to 60,000 v/v/hr., thereby resulting in product ammonia.

4,337,233

PREPARATION OF STRONTIUM NITRATE FROM CELESTITE AND CALCIUM NITRATE

John S. Chiang, Mercerville, and David Goldstein, East Brunswick, both of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Jun. 12, 1981, Ser. No. 273,282
Int. Cl.³ C01F *11/40*
U.S. Cl. 423—397 16 Claims

1. The process of preparing strontium nitrate from celestite ore which comprises

(a) mixing ground celestite ore with greater than a stoichiometric quantity of calcium nitrate in an aqueous reaction mixture to react strontium sulfate in the celestite with calcium nitrate, the reaction mixture containing insufficient water to solubilize all strontium values in the celestite as strontium nitrate;

(b) contacting the reaction mixture, quickly and with vigorous agitation, with additional water to rapidly dissolve and extract soluble strontium nitrate reaction product, the total quantity of added water and reaction mixture water being from 100 to 140% of the amount required to solubilize essentially all of the strontium nitrate in the reaction mixture;

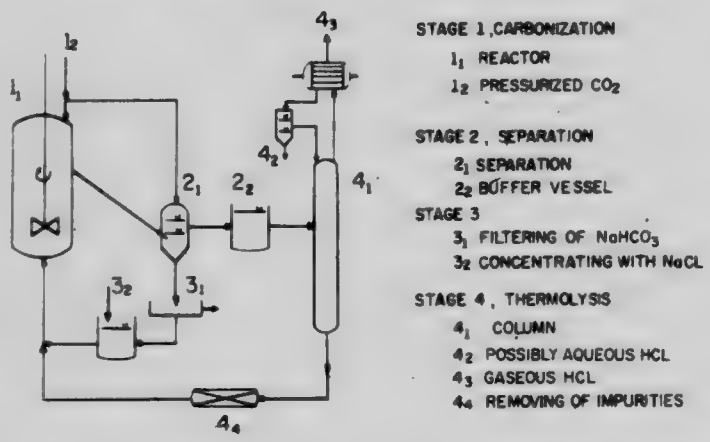
(c) separating the aqueous solution containing solubilized strontium nitrate and unreacted calcium nitrate from the undissolved reaction mixture solids;
(d) evaporating water from the separated aqueous solution to induce crystallization of strontium nitrate; and
(e) recovering the strontium nitrate.

4,337,234

METHOD FOR PREPARING SODIUM BICARBONATE AND HYDROGEN CHLORIDE

Bernhard Hentschel; Jürgen Ziebarth, both of Marl; Alfred Coenen, Maria Laach; Kurt Kosswig, Marl, and Ferdinand von Praun, Haltern, all of Fed. Rep. of Germany, assignors to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Filed Oct. 3, 1980, Ser. No. 193,591
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1979, 2940628; Aug. 19, 1980, 3031213
Int. Cl.³ C01D *7/10*; C01B *7/08*
U.S. Cl. 423—424 **18 Claims**



1. In a method for producing sodium bicarbonate and hydrogen chloride by reacting an aqueous sodium chloride solution with carbon dioxide in the presence of an amine and an organic solvent, the improvement comprising:
(a) introducing said carbon dioxide under pressure into a mixture comprising
(A) said aqueous sodium chloride solution,
(B) said amine comprising a tertiary amine,
(C) said organic solvent comprising at least one polar, organic solvent having a boiling point above 140° C.;
(D) said organic solvent comprising at least one non-polar, organic solvent,
to produce an aqueous phase and at least one organic phase;
(b) separating said aqueous phase and said organic phase under the same pressure as step (a);
(c) separating said sodium bicarbonate from said aqueous phase, reconcentrating said separated aqueous phase with sodium chloride and feeding back said reconcentrated aqueous phase into step (a);
(d) separating said hydrogen chloride from said organic phase containing said non-polar organic solvent and said polar, organic solvent by heating, and said amine; and
(e) recirculating said amine and said polar and non-polar organic solvents to step (a).

4,337,235

PURIFICATION OF THIONYL CHLORIDE

Joseph S. Wisnouskas, and Joseph J. Moritz, both of Grand Island, N.Y., assignors to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Filed Apr. 28, 1981, Ser. No. 258,498
Int. Cl.³ C01B *17/45*
U.S. Cl. 423—468 **5 Claims**

1. A process for the recovery of thionyl chloride from its admixture with impurities including sulfuryl chloride, sulfur monochloride and sulfur dichloride, said process comprising fractionally distilling said mixture in the presence of sulfur so that a mixture of thionyl chloride, sulfuryl chloride, sulfur dichloride and sulfur is distilled, said distillate in a vapor state passing through a bed of sulfur-aluminum chloride particles and reflux vapors containing sulfur-aluminum chloride to convert the sulfuryl chloride to sulfur dioxide, chlorine and sulfur monochloride, and sulfur dichloride to sulfur monochloride, conducting the sulfur monochloride to said mixture being distilled, taking off the purified distilled thionyl chloride, substantially free of sulfuryl chloride, sulfur dichloride and sulfur monochloride.

4,337,236

PROCESS FOR MANUFACTURE OF CALCIUM HYPOCHLORITE

Walter J. Sakowski; John H. Shaffer, and Larry G. Carty, all of Cleveland, Tenn., assignors to Olin Corporation, New Haven, Conn.

Filed Aug. 7, 1980, Ser. No. 176,173
Int. Cl.³ C01B *11/06*
U.S. Cl. 423—474 **9 Claims**

1. A process for the production of granular calcium hypochlorite compositions which comprises:
(a) reacting neutral calcium hypochlorite with an alkaline solution comprised of an alkali metal hypochlorite and an alkali metal hydroxide, the concentration of said alkali metal hypochlorite being from about 20 to about 32 percent by weight and the concentration of said alkali metal hydroxide being from about 2 to about 20 percent by weight, to produce a slurry comprised of neutral calcium hypochlorite and a residual amount of hemibasic calcium hypochlorite, and
(b) recovering a wet cake of said neutral calcium hypochlorite and said residual amount of hemibasic calcium hypochlorite and drying said wet cake to produce granular calcium hypochlorite compositions, comprised of said neutral calcium hypochlorite and from about 10 to about 20 percent by weight of hemibasic calcium hypochlorite.

4. A process for the production of granular calcium hypochlorite compositions which comprises:
(a) reacting a chlorinated lime slurry comprised of calcium hypochlorite and calcium chloride with a slurry of triple salt crystals, and an alkaline solution comprised of an alkali metal hypochlorite and an alkali metal hydroxide to produce a calcium hypochlorite slurry comprised of neutral calcium hypochloride, sodium chloride, and a residual amount of hemibasic calcium hypochlorite, and
(b) recovering a wet cake of said neutral calcium hypochlorite, said sodium chloride, and said residual amount of hemibasic calcium hypochlorite and drying said wet cake to produce granular calcium hypochlorite compositions comprised of said neutral calcium hypochlorite and having from about 10 to about 20 percent by weight of said hemibasic calcium hypochlorite.

8. The process of claims 4 or 6 in which said chlorinated lime slurry has an active residual alkalinity content of less than 0.2 percent by weight.

4,337,237

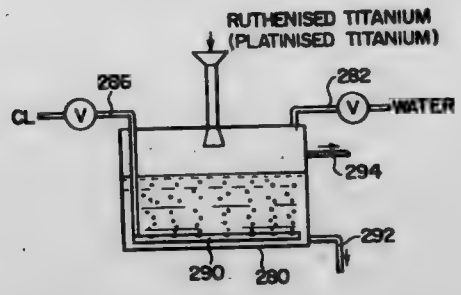
CATALYTICALLY INCREASING THE OBTAINABLE CONCENTRATION OF HALOGEN IN WATER

Thomas G. Hart, Royal Oak, Mich., assignor to Energy Development Associates, Inc., Madison Heights, Mich.

Division of Ser. No. 56,915, Jul. 12, 1979, which is a division of Ser. No. 925,980, Jul. 19, 1978, Pat. No. 4,182,662. This application Sep. 10, 1980, Ser. No. 185,891
Int. Cl.³ C01B *7/01*
U.S. Cl. 423—486 **2 Claims**

1. A chemical catalytic method of concentrating a halogen in a body of water, said method comprising the steps of:

(a) adding to said water body uncharged particles of catalyst selected from the class consisting of graphitized carbon,



ruthenised titanium, platinised titanium and mixtures thereof;

(b) bubbling said halogen through said body of water.

4,337,238

METHOD OF GROWTH OF PRIMARY ANHYDRITE CRYSTALS UNDER MODERATE CONDITIONS

Robert D. F. Cody, Ames, Iowa, and Amy B. Hull, Downers Grove, Ill., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed May 18, 1981, Ser. No. 264,595

Int. Cl.³ C01F *11/46*

U.S. Cl. 423—555 **12 Claims**

1. A method of selectively forming anhydrite crystals to the predominant exclusion of formation of gypsum and bassanite, said method comprising:

obtaining an aqueous solution of a calcium salt;

obtaining an aqueous solution of a sulfate sale;

adding to at least one of said aqueous solutions a small but effective amount of a selective crystallization inhibitor selected from the group of polymaleic acid, polyacrylic acid and organo-phosphate esters, which inhibit the formation of gypsum crystals, but does not interfere with formation of anhydrite; and

slowly mixing said aqueous solutions at a temperature within the range of from about 60° C. to about 80° C. which will prevent the formation of bassanite while maintaining the pH above 3.5 but below 11.5.

4,337,239

PROCESS FOR THE PRODUCTION OF TITANIUM DISULFIDE OF HIGH PURITY AND STOICHIOMETRIC COMPOSITION

Alexander Ruhs, Rheinfelden; Rudolf Schwarz, Alzenau-Wasserlos, and Peter Kleinschmit, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Nov. 10, 1980, Ser. No. 205,505

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945306

Int. Cl.³ C01B *7/01, 17/20;* C01G *23/00*

U.S. Cl. 423—561 R **9 Claims**

1. In a process for the production of titanium disulfide of high purity and stoichiometric composition by reacting preheated gaseous titanium tetrachloride with an excess of preheated gaseous hydrogen sulfide in a heated vertical reactor at a temperature of 400° to 600° C., the improvement comprising introducing the titanium tetrachloride and hydrogen sulfide into the lower third of the reactor, regulating the temperature on the reactor wall and/or the residence time of the gaseous mixture in the reactor to force a nearly complete deposition of the titanium disulfide formed on the inner wall of the reactor, mechanically stripping the deposited titanium disulfide from the reactor inner wall and removing the titanium disulfide from the lower end of the reactor in countercurrent flow to the waste gas stream, said waste gas stream leaving the reactor at the upper end thereof.

4,337,240

DENATURED ALBUMIN COMPLEXES FOR RADIOSCINTIGRAPHIC IMAGING AND EVALUATION OF RETICULOENDOTHELIAL SYSTEMS

Eugene L. Saklad, Sudbury, Mass., assignor to New England Nuclear Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 898,292, Apr. 20, 1978, Pat. No. 4,226,846. This application Mar. 7, 1979, Ser. No. 18,312

The portion of the term of this patent subsequent to Oct. 7, 1997, has been disclaimed.

Int. Cl.³ A61K *49/00, 43/00;* C07G *7/00*

U.S. Cl. 424—1 **60 Claims**

1. A composition for labelling with ^{99m}Tc for radioactive imaging comprising complexes of denatured albumin and a reducing metal, at least a major portion of which having a particle size of less than about 0.2 μm.

4,337,241

EMULSIONS OF THE WATER-IN-OIL OR OIL-IN-WATER TYPE AND COSMETIC PRODUCTS USING THESE EMULSIONS

Jean-Claude Ser, Beynes; Arlette Zabotto, Paris; Christian Zaffran, Elancourt, and Constantin Koulbanis, Paris, all of France, assignors to L'Oreal S.A., Paris, France

Filed Feb. 17, 1978, Ser. No. 878,912

Claims priority, application France, Feb. 23, 1977, 77 05258

Int. Cl.³ A61K *7/42, 7/021, 31/00*

U.S. Cl. 424—59 **21 Claims**

1. A stable emulsion of the "water-in-oil" or "oil-in-water" type comprising an aqueous phase, an oil phase and an emulsifier which is a mixture of lanolin acid and at least one natural basic α-amino-acid.

4,337,242

VACCINE STABILIZER CONTAINING L-GLUTAMIC ACID AND L-ARGININE

Henry Z. Markus, Wyncote, and William J. McAleer, Ambler, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 118,703, Feb. 5, 1980, abandoned, which is a continuation-in-part of Ser. No. 89,068, Oct. 29, 1979, abandoned. This application Mar. 10, 1981, Ser. No. 242,195

Int. Cl.³ A61K *39/12, 39/165, 39/13, 39/245*

U.S. Cl. 424—89 **6 Claims**

1. A liquid vaccine comprising an inactivated or attenuated virus and a stabilizer consisting essentially of on a parts by weight basis from about 1.5 to about 2.1 parts partially hydrolyzed gelatin having a molecular weight of about 3,000, from about 7.0 to about 13.0 parts of a monosaccharide or disaccharide from about 0.4 to about 0.6 parts of an in vitro cell culture medium, from about 0.35 to about 0.7 part L-glutamic acid, from about 0.75 to about 1.3 parts L-arginine, and an amount of a physiologically acceptable acidic buffer effective to maintain the pH to from about 6.0 to about 6.5.

4,337,243

IMMUNOSTIMULANT MEDICAMENT AND PROCESS OF PREPARING SAME

Gerard Ayme, Lyons, France, assignor to Institut Merieux, S.A., Lyons, France

Continuation-in-part of Ser. No. 804,150, Jun. 6, 1977, Pat. No. 4,182,751. This application Aug. 30, 1979, Ser. No. 71,591

Claims priority, application France, Jun. 4, 1976, 76 16937

The portion of the term of this patent subsequent to Jan. 8, 1997, has been disclaimed.

Int. Cl.³ A61K *39/02*

U.S. Cl. 424—92 **21 Claims**

1. A medicament stimulating nonspecific immunity in a subject, obtained by:

(a) extracting an aqueous suspension of a member selected from the group of unicellular whole bacteria, and ground bacteria with a liquid phenol, in the presence of water, at a temperature below 70° C.;

(b) collecting the phenol phase;
(c) eliminating said phenol to leave a substantially phenol-free bacterial extract; and
(d) rendering said extract water-soluble;
wherein said medicament is substantially free of endotoxin and of phenol.

4,337,244

ENZYME DERIVATIVES FOR USE IN THE TREATMENT OF VENOUS THROMBOSIS

Richard A. G. Smith, Dorking, England, assignor to Beecham Group Limited, England

Division of Ser. No. 68,205, Aug. 20, 1979, Pat. No. 4,285,932. This application Dec. 16, 1980, Ser. No. 216,799
Claims priority, application United Kingdom, Sep. 7, 1978, 35960/78
The portion of the term of this patent subsequent to Aug. 25, 1998, has been disclaimed.
Int. Cl.³ A61K *37/48*
U.S. Cl. 424—94 **13 Claims**

1. A prophylactic or therapeutic method for the treatment of venous thrombosis which comprises administering to a human in need thereof a pharmaceutically acceptable carrier together with an in vivo fibrinolytic enzyme in which the catalytic site essential for fibrinolytic activity is blocked by a group removable by hydrolysis at a rate such that the pseudo-first order rate constant for hydrolysis is in the range 10^{-6} sec $^{-1}$ to 10^{-3} sec $^{-1}$ in isotonic aqueous media at pH 7.4 at 37° C.

4,337,245

NUTRIENT COMPOUND

C. Robert Baisden, 3227 Ramsgate Rd., Augusta, Ga. 30909

Continuation-in-part of Ser. No. 170,432, Jul. 21, 1980, abandoned. This application Sep. 14, 1981, Ser. No. 302,313
Int. Cl.³ A61K *33/26, 33/30, 33/32, 33/34*
U.S. Cl. 424—131 **11 Claims**

1. A nutrient compound having a predetermined plurality of elements being combined in an approximate weight percentage ratio each to the total of said elements within the approximate ranges including: (a) 0.032%–0.035% Scandium; (b) 11.090%–12.623% Titanium; (c) 0.247%–0.250% Vanadium; (d) 0.121%–0.141% Chromium; (e) 1.468%–1.689% Manganese; (f) 85.134%–86.455% Iron; (g) 0.030%–0.041% Cobalt; (h) 0.093%–0.106% Nickel; (i) 0.081%–0.085% Copper; and, (j) 0.120%–0.159% Zinc.

4,337,246

SOLID PREPARATION COMPRISING COBAMAMIDE OR MECOBALAMIN

Susumu Iwagiri, Gifu; Teiichi Hattori, Inuyama; Teruyoshi Nasu, Tsushima, and Yasuo Miyake, Inuyama, all of Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

Filed Oct. 24, 1980, Ser. No. 200,122
Claims priority, application Japan, Nov. 22, 1979, 54-150743
Int. Cl.³ A61K *31/00, 47/00*
U.S. Cl. 424—174 **10 Claims**

1. A process for producing a solid, pharmaceutical composition comprising the steps of mixing cobamamide or mecobalamin and a pharmaceutically acceptable solid carrier to form a first mixture and then granulating said first mixture to obtain first granules thereof; separately mixing a red dye selected from the group consisting of Amaranth, Erythrocin, New Coccine, Phloxine, Rose Bengal and Acid Red, and a pharmaceutically acceptable, solid carrier, to form a second mixture and then granulating said second mixture to obtain second granules thereof; and mixing a multiplicity of said first granules with a multiplicity of second granules to form a granular mixture.

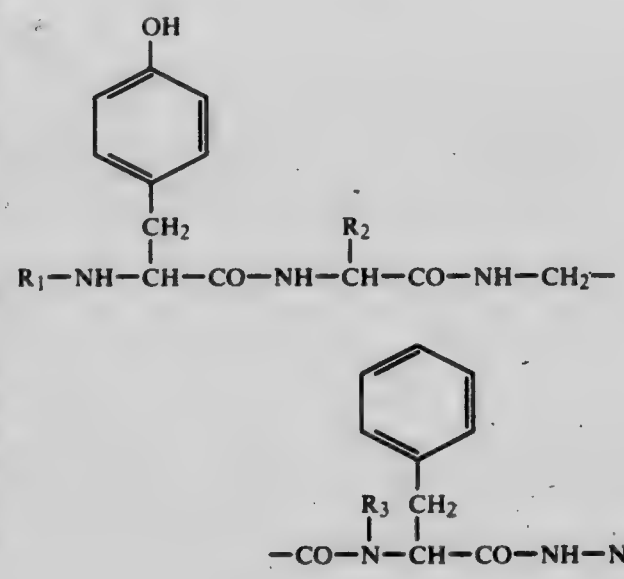
4,337,247

TETRAPEPTIDESEMICARBAZIDE DERIVATIVES AND THEIR PRODUCTION AND USE

Masahiko Fujino, Takarazuka; Mitsuhiro Wakimasu, Suita, and Kiyohisa Kawai, Nagaokakyo, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Dec. 5, 1980, Ser. No. 213,683
Claims priority, application Japan, Dec. 27, 1979, 54-173608
Int. Cl.³ A61K *37/00;* C07C *103/52*
U.S. Cl. 424—177 **25 Claims**

1. A compound of the formula:



wherein R_1 is hydrogen or lower alkyl; R_2 is hydrogen or a side chain of a D-α-amino acid selected from the group consisting of D-leucine, D-alanine, D-methionine, D-methioninesulfoxide, D-methionine sulfone, D-serine, D-threonine, D-phenylalanine, D-α-aminobutyric acid, D-valine, D-norvaline, D-norleucine, D-isoleucine, D-histidine, D-tryptophan, D-tyrosine, D-glutamine, D-asparagine, D-arginine, D-lysine, D-ornithine, D-glutamic acid, D-aspartic acid, D-cysteine, S-methyl-D-cysteine, S-ethyl-D-cysteine, S-methyl-D-cysteine sulfoxide, S-ethyl-D-cysteine sulfoxide, S-methyl-D-methionine, O-t-butyl-D-serine, O-t-butyl-D-threonine, D-aspartic acid-β-methyl ester, and D-glutamic acid-γ-methyl ester; R_3 is hydrogen or lower alkyl; X is oxygen or sulfur, or a pharmacologically acceptable salt thereof.

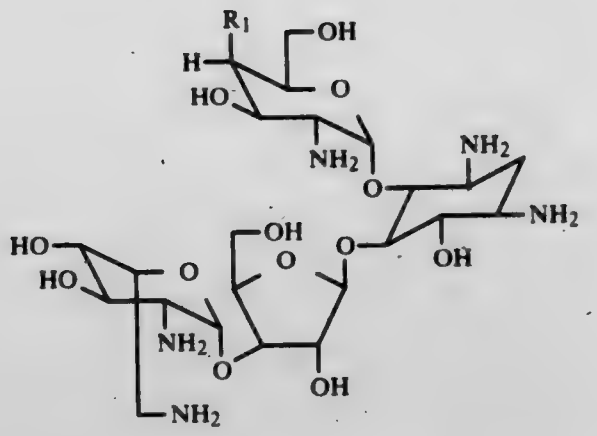
4,337,248

PAROMOMYCIN CONTAINING COMPOUNDS AND METHOD OF USE

Carlo Battistini, Novate Milanese; Giuseppe Cassinelli, Voghera; Giovanni Franceschi; Rosanna Mazzoleni, both of Milan, and Federico Arcamone, Nerviano, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

Filed Jun. 4, 1980, Ser. No. 156,478
Claims priority, application United Kingdom, Jun. 7, 1979, 7919778
Int. Cl.³ A61K *31/71;* C07H *15/22*
U.S. Cl. 424—180 **17 Claims**

1. A compound of the formula:



wherein R_1 represents a hydrogen or chlorine atom and pharmaceutically acceptable acid addition salts of said compound, said acid being selected from the group consisting of citric acid, ascorbic acid, acetic acid, hydrochloric acid, sulfuric acid, maleic acid, nitric acid, phosphoric acid and hydrobromic acid.

15. A method of treating ameobic dysentery in human beings and in animals, which method comprises administering an effective amount of a compound as defined in claim 1 to the human being or animal.

4,337,249

MODULATORS OF THE COMPLEMENT SYSTEM

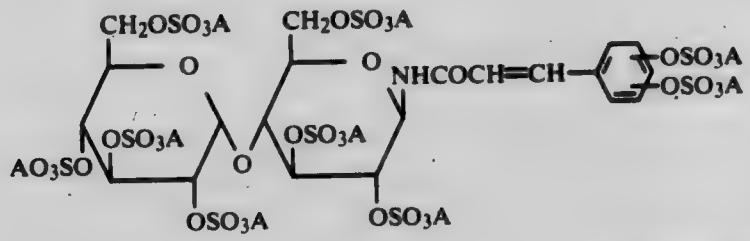
Ransom B. Conrow, Pearl River, and Seymour Bernstein, New City, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Aug. 3, 1981, Ser. No. 289,641

Int. Cl.³ A61K *31/70*; C07H *13/12*

U.S. Cl. 424—180 **15 Claims**

6. A method of modulating the complement system in a body fluid which comprises subjecting said body fluid to the action of an effective complement modulating amount of a pharmaceutically acceptable compound selected from those of the formula:



wherein A is selected from the group consisting of alkali metal cations and alkaline earth metal cations.

4,337,250

HEXAHYDRO-TRANS- AND TETRAHYDROPYRIDOINDOLE NEUROLEPTIC AGENTS

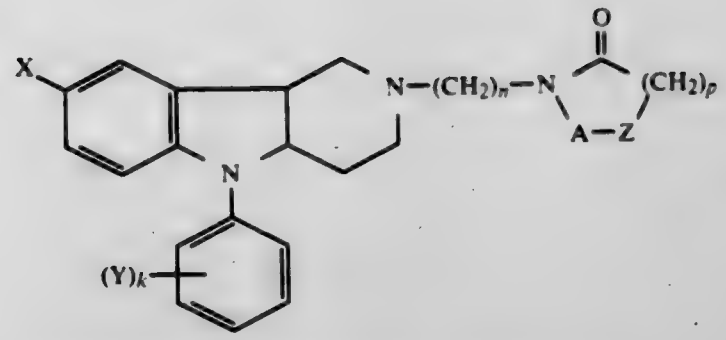
Willard M. Welch, Mystic, and Charles A. Harbert, Waterford, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 182,177, Aug. 28, 1980, abandoned, which is a division of Ser. No. 61,573, Jul. 30, 1979, Pat. No. 4,252,811. This application Jan. 16, 1981, Ser. No. 225,569

Int. Cl.³ C07D *471/14, 413/06*; A61K *31/44, 31/535*

U.S. Cl. 424—248.57 **12 Claims**

1. A (+) enantiomeric, a mixture of (+) and (−) enantiomeric or (±) racemic 4a,9b-trans-hexahydro-1H-pyridoindole derivative of the formula



or a pharmaceutically acceptable salt thereof, wherein

k is 1 or 2;

n is 2 to 9;

p is 0 or 1;

X and Y are each independently H, F, Cl, Br, OCH_3, CH_3 or CH_2CH_3;

A is methano, ethano, propano, etheno, o-benzeno, or a mono or disubstituted form of o-benzeno, the monosubstituent and each of the disubstituents being independently F, Cl, Br, OCH_3, CH_3 or CH_2CH_3 with the proviso that when A is methano, p is 1;

Z is methano, oxygen, sulfur or NR^2; and

R^2 is H, $(C_1$-$C_5)$alkyl, phenyl, benzyl or a ring mono or disubstituted form of phenyl or benzyl, the monosubstituent and each of the disubstituents being independently F, Cl, Br, OCH_3, CH_3 or CH_2CH_3.

12. A method of treating psychoses and neuroses in a patient requiring major tranquilization which comprises administering to the patient by oral, intravenous, intramuscular or subcutaneous route an effective amount of a compound of claim 1.

4,337,251

METHOD OF AVOIDING AND REMOVING ADHESIONS

Rolf W. Pfirrmann, Lucerne, Switzerland, assignor to Ed. Geistlich Sohne AG fur Chemische Industrie, Lucerne, Switzerland

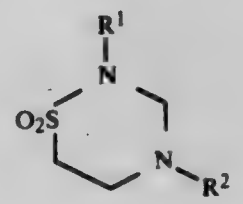
Filed May 6, 1980, Ser. No. 147,231

Claims priority, application United Kingdom, May 9, 1979, 7916017

Int. Cl.³ A61K *31/54*

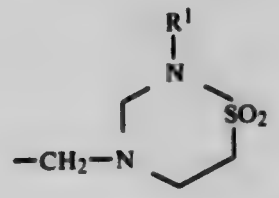
U.S. Cl. 424—246 **19 Claims**

1. A method of treatment of a human or animal in need of said treatment comprising the application of an aqueous solution containing a compound of formula I



(I)

wherein R^1 represents a hydrogen atom and R^2 represents a hydrogen atom or a group of formula II



(II)

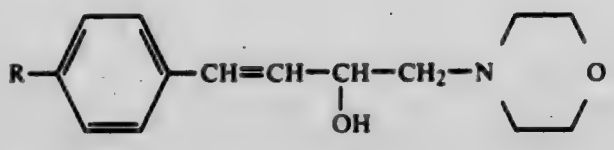
in which R^1 is as defined above to human or animal tissue subjected to surgical treatment where no bacterial infection is present whereby the incidence of adhesion formation is eliminated or substantially reduced or whereby existing adhesions are at least substantially detached or unblocked.

4,337,252
1-PHENYL-4-MORPHOLINO-1-BUTEN-3-01 DERIVATIVES, COMPOSITIONS AND USE

Jacques N. Astoin, Paris, France, assignor to Univablot, Paris, France

Filed Jan. 13, 1981, Ser. No. 224,739
Claims priority, application France, Jan. 16, 1980, 80 00890
Int. Cl.[3] A61K *31/535;* C07D *295/08*
U.S. Cl. 424—248.57 5 Claims

1. A compound having the general formula I:



(I)

in which R is OH, OCH_3, $OCH_2CH{=}CH_2$ or $OCH_2{-}C{\equiv}CH$ or a halogen atom, and the pharmaceutically-acceptable addition salts thereof.

4. A pharmaceutical composition comprising, as a pharmaceutically-active ingredient, an antidepressant effective amount of a compound as claimed in any one of claims 1 to 3 together with a pharmaceutically-acceptable carrier or diluent.

4,337,253
4,5-DIHYDRO-2-METHYL-6-(4-PYRIDINYL)-3(2H)-PYRIDAZINONE AND ITS USE AS A CARDIOTONIC

George Y. Lesher, Schodack, and William B. Dickinson, Albany, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Continuation-in-part of Ser. No. 1 44,564, Apr. 28, 1980, abandoned. This application Mar. 13, 1981, Ser. No. 243,472
Int. Cl.[3] C07D *401/04, 401/06;* A61K *31/50;* C07D *215/50*
U.S. Cl. 424—250 3 Claims

1. 4,5-Dihydro-2-methyl-6-(4-pyridinyl)-3(2H)-pyridazinone or pharmaceutically-acceptable acid-addition salt there.

2. A cardiotonic composition for increasing cardiac contractility, said composition comprising a pharmaceutically-acceptable inert carrier and, as the active component thereof, a cardiotonically-effective amount of 4,5-dihydro-2-methyl-6-(4-pyridinyl)-3(2H)-pyridazinone or pharmaceutically-acceptable acid-addition salt thereof.

4,337,254
PHARMACEUTICAL COMPOSITIONS

Salvador E. Moncada, West Wickham, England, assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.

Filed May 18, 1978, Ser. No. 907,355
Claims priority, application United Kingdom, Aug. 23, 1977, 35261/77
Int. Cl.[3] A61K *31/505, 31/52, 31/44, 31/34*
U.S. Cl. 424—251 4 Claims

1. A method for preventing the lowering of blood pressure in mammals while at the same time inhibiting the aggregation of blood platelets in said mammals, said method comprising internally administrating to said mammal, simultaneously or sequentially, 1 part by weight of:

(a) prostacyclin, a pharmaceutically acceptable salt of prostacyclin; dihydroprostacyclin, or a pharmaceutically acceptable salt of dihydroprostacyclin; and 1 to 200 parts by weight of

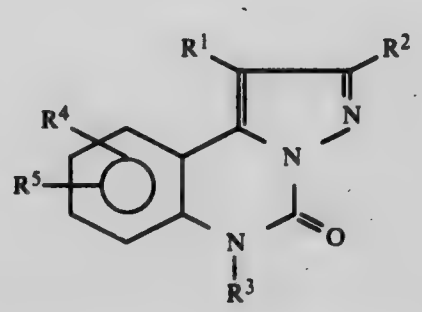
(b) theophylline, 3 isobutyl-1-methyl xanthine, dipyridamole, a pharmaceutically acceptable salt of theophylline, a pharmaceutically acceptable salt of dipyridamole, or a pharmaceutically acceptable salt of 3 isobutyl-1-methyl xanthine; to prevent lowering of blood pressure while at the same time inhibiting aggregation of blood platelets.

4,337,255
PYRAZOLO[1,5-C]QUINAZOLINE DERIVATIVES AND RELATED COMPOUNDS

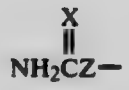
B. Richard Vogt, Yardley, Pa., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 820,289, Jul. 29, 1977, Pat. No. 4,128,644. This application Jul. 19, 1978, Ser. No. 925,740
Int. Cl.[3] A61K *31/505;* C07D *487/04*
U.S. Cl. 424—251 11 Claims

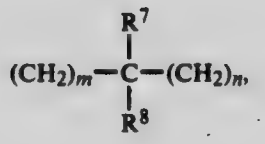
1. A compound of the structure



wherein R^1 represents hydrogen, lower alkyl, phenyl optionally substituted with R^4, R^2 is cyano; or



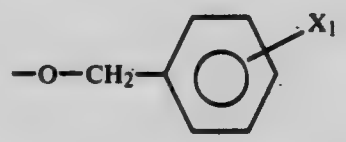
wherein Z is a single bond or



X is O or S);

R^3 is hydrogen, lower alkyl, benzyl or phenyl optionally substituted by an R^4 radical as defined below;

R^4 and R^5 may be the same or different and are hydrogen, lower alkyl, lower alkoxy, hydroxy, lower alkanoyloxy,



(X_1 is hydrogen, lower alkoxy, or NO_2);

R^7 and R^8 may be the same or different and represent hydrogen, lower alkyl, phenyl optionally substituted with X_1 or benzyl optionally substituted with X_1,

$(CH_2)_m$ and $(CH_2)_n$ represent a single bond or straight or branched chain alkylene radicals; and

m and n represent the number of carbons in the longest normal chain and may be the same or different and are 0 to 10, but m plus n is 10 or less,

and physiologically acceptable salts thereof.

11. A method for treating allergic conditions in mammals, which comprises administering to the mammalian host a therapeutic amount of a compound as defined in claim 1.

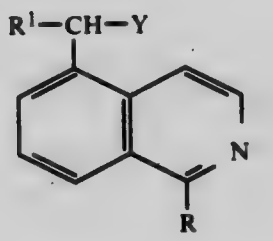
4,337,256

1-PHENYL ISOQUINOLINE-5-ACETIC ACID COMPOUNDS AND ANALGESIC COMPOSITIONS THEREOF

Yasushi Suzuki, Yokohama; Kunio Tsukamoto, Tokyo; Nobuyoshi Minami, Yokohama; Yukio Hasegawa, Yamato; Michitaka Satoh; Norio Yamamoto, both of Kawasaki; Katsuhiko Miyasaka, Atsugi; Takashi Mikami, Tokyo, and Satoshi Funakoshi, Kawasaki, all of Japan, assignors to Teikoku Hormone Manufacturing Co., Ltd., Tokyo, Japan

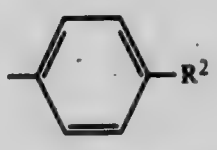
Filed Dec. 27, 1979, Ser. No. 107,613
Claims priority, application Japan, Dec. 27, 1978, 53/160026
Int. Cl.[3] C07D *217/16;* A61K *31/47*
U.S. Cl. 424—258 10 Claims

1. A compound of the formula



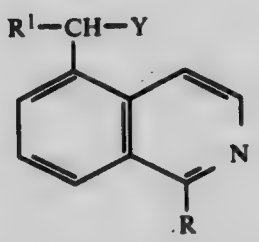
(I)

wherein R represents isopropyl, cyclopentyl, cyclohexyl, or a group of the formula



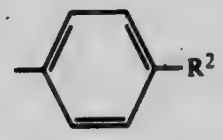
in which R^2 represents hydrogen, halogen, methyl, trifluoromethyl, methoxy, methylamino or dimethylamino; R^1 represents hydrogen or alkyl of up to 6 carbon atoms; and Y represents carboxyl and alkoxycarbonyl of up to 6 carbon atoms in the alkoxy group; or a salt thereof.

8. A pharmaceutical composition having anti-inflammatory or analgesic activity which comprises (1) an effective amount of compound of the formula



(I)

wherein R represents isopropyl, cyclopentyl, cyclohexyl, or a group of the formula



in which R^2 represents hydrogen, halogen, methyl, trifluoromethyl, methoxy, methylamino or dimethylamino; R^1 represents hydrogen or alkyl of up to 6 carbon atoms; and Y represents carboxyl and alkoxycarbonyl of up to 6 carbon atoms in the alkoxy group;
or its pharmaceutically acceptable salt, and (2) a pharmaceutically acceptable diluent or carrier.

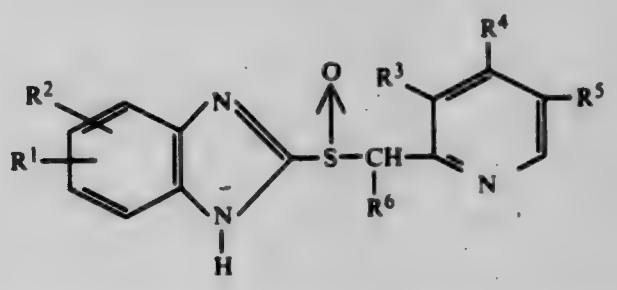
4,337,257

GASTRIC ACID SECRETION INHIBITING SUBSTITUTED 2-(2-BENZIMIDAZOLYL)-PYRIDINES, THEIR PREPARATION, PHARMACEUTICAL PREPARATIONS CONTAINING SAME, AND METHOD FOR INHIBITING GASTRIC ACID SECRETION

Ulf K. Junggren, Mölnlycke, and Sven E. Sjöstrand, Kungsbacka, both of Sweden, assignors to Aktiebolaget Hässle, Mölndal, Sweden

Division of Ser. No. 27,277, Apr. 5, 1979, Pat. No. 4,255,431.
This application May 19, 1980, Ser. No. 150,965
Claims priority, application Sweden, Apr. 14, 1978, 7804231
Int. Cl.[3] A61K *31/44;* C07D *401/12*
U.S. Cl. 424—263 23 Claims

21. A method of inhibiting gastric acid secretion by administering to mammals, including man, suffering from gastric acid secretion disturbances a compound of the formula III



or a pharmaceutically acceptable salt thereof in a therapeutically effective amount in which R^1 and R^2 are the same or different and are selected from the group consisting of hydrogen, alkyl having from 1-7 carbon atoms, halogen, carbomethoxy, carboethoxy, alkoxy having up to 5 carbon atoms, and alkanoyl having up to 4 carbon atoms in any position, R^6 is selected from the group consisting of hydrogen, methyl and ethyl, R^3 and R^5 are the same or different and are each selected from the group consisting of hydrogen, methyl, methoxy, ethoxy, methoxyethoxy and ethoxyethoxy, and R^4 is hydrogen or methyl whereby R^3, R^4 and R^5 are not all hydrogen, and whereby when two of R^3, R^4 and R^5 are hydrogen, the third of R^3, R^4 and R^5 is not methyl.

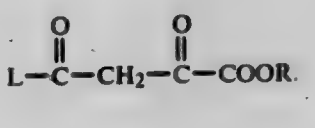
4,337,258

2,4-DIOXO-4-SUBSTITUTED-1-BUTANOIC ACID DERIVATIVES USEFUL IN TREATING URINARY TRACT CALCIUM OXALATE LITHIASIS

Clarence S. Rooney, Worcester, Pa.; Haydn W. R. Williams, Dollard des Ormeaux, Canada; Edward J. Cragoe, Jr., Lansdale, Pa., and Arthur A. Patchett, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

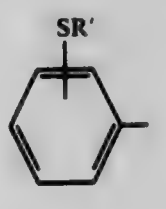
Filed Dec. 29, 1980, Ser. No. 220,648
Int. Cl.[3] C07D *213/55;* A61K *31/44*
U.S. Cl. 424—263 4 Claims

1. A compound of the formula:

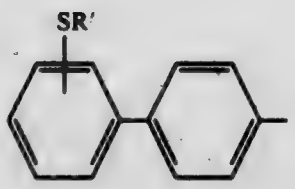


(I)

where
R is hydrogen or C_{1-4} alkyl; and
L is a lipophilic group having the structure:
(1)

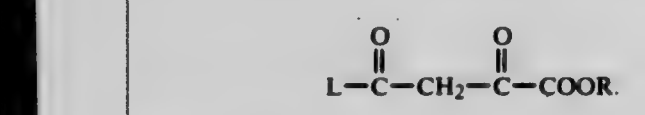


where R′ is pyridyl C_{1-3} alkyl; or
(2)



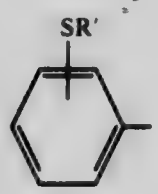
where R′ has the same meaning as above;
or a pharmaceutically acceptable salt thereof.

3. A method of treating or preventing the formation of calcium oxalate urinary tract lithiasis, especially kidney or bladder stones, which comprises administering to a patient with, or prone to, such disease a therapeutically effective amount of a compound of the formula:

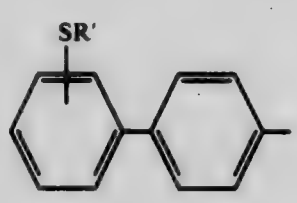


(I)

where
R is hydrogen or C_{1-4} alkyl; and
L is a lipophilic group having the structure:
(1)



where R′ is pyridyl C_{1-3} alkyl; or
(2)



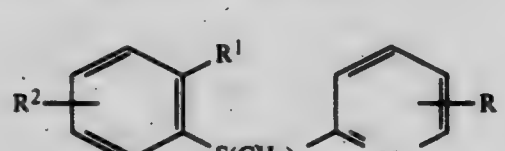
where R′ has the same meaning as above;
or a pharmaceutically acceptable salt thereof.

4,337,259
PYRIDINE DERIVATIVES

Roger Crossley, Reading, England, assignor to John Wyeth & Brother Limited, Maidenhead, England

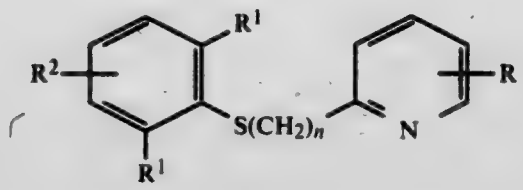
Filed Feb. 9, 1981, Ser. No. 232,451
Claims priority, application United Kingdom, Feb. 20, 1980, 8005668; Feb. 20, 1980, 8005669
Int. Cl.³ C07D *213/32;* A61K *31/44*
U.S. Cl. 424—263 **9 Claims**

1. An anti-ulcer composition comprising an anti-ulcer effective amount of a compound of formula I



wherein R represents hydrogen or lower alkyl, R^1 represents hydrogen or lower alkoxy, R^2 represents hydrogen, chlorine or trifluoromethyl and n is 1, or a pharmaceutically acceptable acid addition salt thereof, with the proviso that when R^2 is hydrogen or chlorine then at least one of R^1 is lower alkoxy, and a pharmaceutically acceptable carrier.

4. A method of treating ulcers or hypersecretion in a mammal, which method comprises orally administering to said mammal in need of such treatment an effective amount of a compound of formula I



wherein R represents hydrogen or lower alkyl, R^1 represents hydrogen or lower alkoxy, R^2 represents hydrogen, chlorine or trifluoromethyl and n is 1, or a pharmaceutically acceptable acid addition salt thereof.

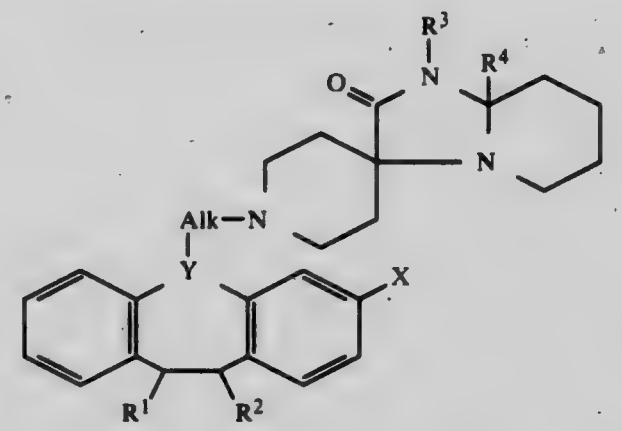
9. 2-(((2-Methoxyphenyl)thio)methyl)pyridine or a pharmaceutically acceptable acid addition salt thereof.

4,337,260
IMIDAZOPYRIDINE-SPIRO-PIPERIDINE COMPOUNDS

Chiaki Tashiro, and Ichiro Horii, both of Yoshitomi, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

Filed Sep. 10, 1981, Ser. No. 300,824
Int. Cl.³ A61K *31/445;* C07D *471/20*
U.S. Cl. 424—267 **10 Claims**

1. An imidazopyridine-spiro-piperidine compound of the formula:



or a pharmaceutically acceptable acid addition salt thereof, wherein X represents hydrogen, halogen or lower alkoxy, Y represents >N— or >C=CH—, R^1 and R^2 both represent hydrogen or combinedly form a single bond, Alk represents lower alkylene, and R^3 and R^4 both represent hydrogen or combinedly form a single bond.

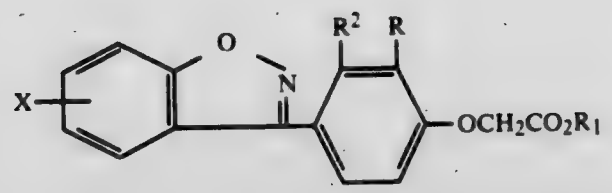
10. A psychotropic composition comprising the compound of claim 1 in combination with a pharmaceutically acceptable inert carrier, said compound being present in a therapeutically effective amount.

4,337,261
(1,2-BENZISOXAZOL)PHENOXYACETIC ACIDS AS DIURETICS

Gregory M. Shutske, Somerset; Linda L. Setescak, Somerville, and Richard C. Allen, Flemington, all of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

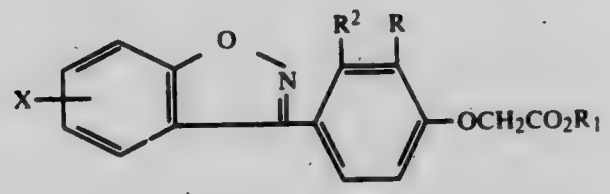
Filed Jul. 28, 1980, Ser. No. 173,203
Int. Cl.³ A61K *31/42;* C07D *261/20*
U.S. Cl. 424—272 **24 Claims**

1. A compound depicted by the formula



in which R is Cl, CH_3 or Br; R^2 is Cl, Br or CH_3; R_1 is hydrogen or lower-alkyl; and X is hydrogen, halogen, loweralkyl, amino, acylamino or nitro; and a physiologically acceptable salt thereof.

9. A method of producing diuresis which comprises administering to a patient in need of diuresis a diuretically effective amount of a compound depicted by the formula



in which R is Cl, CH_3 or Br; R^2 is Cl, CH_3 or Br; R_1 is hydrogen or lower-alkyl; and X is hydrogen, halogen, loweralkyl. amino, acylamino or nitro; and a physiologically acceptable salt thereof.

4,337,262

HYDANTOIN DERIVATIVES, PHARMACEUTICAL COMPOUNDS AND METHODS OF USE

Norman Whittaker, Beckenham, and Albert G. Caldwell, West Wickham, both of England, assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

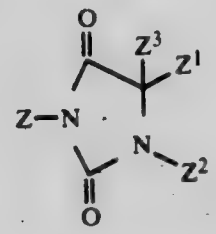
Filed Nov. 30, 1978, Ser. No. 964,928

Claims priority, application United Kingdom, Dec. 1, 1977, 50090/77

Int. Cl.³ C07D *233/78;* A61K *31/415*

U.S. Cl. 424—273 R **31 Claims**

1. A compound of formula (I):



(I)

wherein Z is selected from hydrogen and alkyl of from 1 to 6 carbon atoms;

one of Z^1 and Z^2 is a group $—CH_2—X—X^1—X^2$ wherein

X is selected from phenylene, —C≡C—, cis and trans —CH=CH— and $—CH_2—CQ_2$, in which each Q is independently selected from hydrogen and alkyl or the two Q's together form an alkylene radical of four, five or six carbon atoms;

X^1 is selected from a covalent bond and a straight or branched alkylene chain having from 1 to 6 carbon atoms, optionally having one of any methylene groups replaced by oxa (—O—) or thia (—S—) provided that at least one carbon atom separates such an oxa or thia from a —C≡C—, —CH=CH— or any —CO— group included in the definition of X^2; and

X^2 is selected from carboxyl, carboxamide, hydroxymethylene and alkoxycarbonyl;

and the other of Z^1 and Z^2 is a group $—Y—Y^1—Y^2—Y^3$ wherein

Y is $—CR_2—CH_2—$ in which each R is independently selected from hydrogen and methyl;

Y^1 is carbonyl, methylene, methylene substituted by hydroxyl or methylene substituted by hydroxyl and alkyl;

Y^2 is selected from a covalent bond and straight or branched alkylene having from 1 to 7 carbon atoms, optionally substituted in the carbon adjacent Y^1 by one or two groups each of which may be alkyl or a cyclic radical;

Y^3 is selected from hydrogen, hydroxy, alkoxy of from 1 to 7 carbon atoms, a cyclic radical, phenyl, benzyl, phenoxy and benzyloxy, wherein each of phenyl, benzyl, phenoxy and benzyloxy may be substituted in benzene ring by one or more groups selected from hydroxy, halogeno, nitro, amino alkylcarbonyl amino, alkenyl, alkoxy, phenyl and alkyl which may itself be substituted by one or more halogeno groups; or Y^2 and Y^3 together form an alkyl group of from 1 to 7 carbon atoms having at least one hydrogen replaced by fluoro;

or Y is selected from a bond, $—CH_2—$ and $—CH_2.CH_2—$ and Y^1, Y^2 and Y^3 taken together form a cycloalkyl having from 3 to 10 carbon, or bicycloalkyl having from 4 to 10 carbon atoms substituted by a hydroxyl group;

and Z^3 is selected from $—CH_2—X—X^1—X^2$ as defined above and alkyl of from 1 to 8 carbon atoms; and pharmaceutically acceptable salts thereof:

the term cyclic radical meaning a monovalent nonheterocyclic radical derived by removal of a ring hydrogen atom from a monocyclic or polycyclic compound (other than benzene) having from 3 to 12 ring carbon atoms, which compound may be saturated or unsaturated and may be further substituted by one or more alkyl groups, and optionally one or more hydrogen atoms of such radicals being replaced by fluoro;

wherein, unless otherwise stated, alkyl moieties are selected from those having from 1 to 6 carbon atoms and alkylene moieties are selected from those having from 2 to 4 carbon atoms.

4,337,263

1-ARYL-4-γ-ARYLSULPHONYL-3-AMINOPROPOXY-1H-PYRAZOLES AND THEIR USE AS HYPOLIPEMIANT AND HYPOCHOLESTEROLEMIANT AGENTS

Henri Techer, Avon; Gilles Monnier, Creteil, and Marcel Pesson, Paris, all of France, assignors to Laboratoire Roger Bellon, Neuilly sur Seine, France

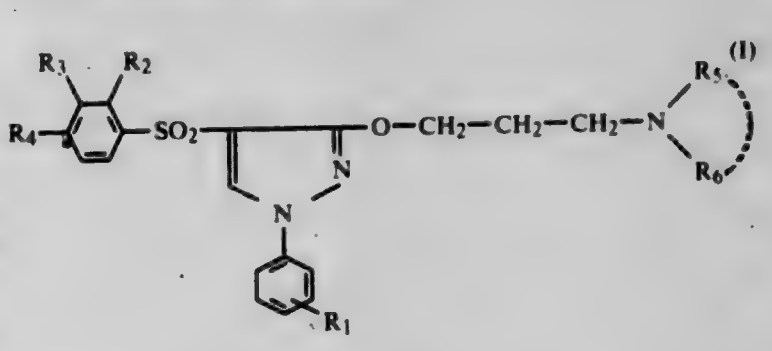
Filed Jun. 30, 1980, Ser. No. 164,566

Claims priority, application France, Jul. 5, 1979, 79 17507

Int. Cl.³ A61K *31/415, 31/505, 31/535;* C07D *231/28*

U.S. Cl. 424—273 P **9 Claims**

1. A compound of the formula:



(I)

wherein:

R_1 represents a hydrogen or halogen atom or a C_{1-3} alkyl, C_{1-3} alkoxy or trifluoromethyl radical in the meta or para position on the phenyl group,

R_2, R_3 and R_4 are the same or different and each represents a hydrogen or halogen atom or a C_{1-3} alkyl, C_{1-3} alkoxy or trifluoromethyl group, and

R_5 and R_6 are the same or different and each represents a hydrogen atom or a C_{1-3} alkyl radical or R_5 and R_6 together represent, with the nitrogen atom to which they are attached, a morpholino, piperidino or pyrrolidino group, and the non-toxic pharmaceutically-acceptable acid addition salts thereof.

4,337,264

TERTIARY AMINOACIDS IN THE TREATMENT OF PAIN

Richard W. J. Carney, New Providence, and George De Stevens, Summit, all of N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 307,293, Nov. 16, 1972, which is a continuation-in-part of Ser. No. 181,564, Sep. 17, 1971, Pat. No. 3,767,805, which is a continuation-in-part of Ser. No. 40,436, May 25, 1970, abandoned, which is a continuation-in-part of Ser. No. 8,406, Feb. 3, 1970, abandoned, which is a continuation-in-part of Ser. No. 856,154, Sep. 8, 1969, abandoned, which is a continuation-in-part of Ser. No. 843,244, Jul. 18, 1969, Pat. No. 3,641,040, which is a continuation-in-part of Ser. No. 808,343, Mar. 18, 1969, abandoned, which is a continuation-in-part of Ser. No. 790,863, Jan. 13, 1969, abandoned, which is a continuation-in-part of Ser. No. 757,136, Sep. 3, 1968, Pat. No. 3,657,230, which is a continuation-in-part of Ser. No. 716,347, Mar. 27, 1968, abandoned. This application Sep. 27, 1979, Ser. No. 79,780

Int. Cl.[3] A61K *31/40*

U.S. Cl. 424—274 4 Claims

1. The treatment of pains, said treatment comprising administering to a patient in need of such treatment a therapeutically effective amount of α-[4-(1-oxoisoindolino)phenyl]-propionic acid.

4,337,265

CYCLOHEPTA[B]PYRROLE DERIVATIVES

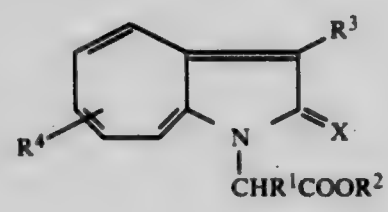
Adi Treasurywala, Pointe Claire; Bozidar Palameta, Dollard des Ormeaux; Tibor Bogri, St. Laurent, and Jehan Bagli, Kirkland, all of Canada, assignors to Ayerst, McKenna & Harrison Inc., Montreal, Canada

Filed Aug. 21, 1981, Ser. No. 295,178

Int. Cl.[3] C07D *209/52;* A61K *31/40, 31/55*

U.S. Cl. 424—274 22 Claims

1. A compound of formula I



(I)

in which R^1 is hydrogen, carboxymethyl or lower alkoxycarbonylmethyl; R^2 is hydrogen, lower alkyl or (2,2-dimethyl-1-oxopropoxy)methyl; R^3 is hydrogen, lower alkyl, 1-oxo(lower-)alkyl, carboxy, lower alkoxycarbonyl, (2,2-dimethyl-1-oxopropoxy)methoxycarbonyl, cyano, aminocarbonyl or $CON(R^5)CH_2COOR^6$ wherein R^5 is lower alkyl and R^6 is hydrogen or lower alkyl; R^4 is hydrogen, lower alkyl, lower alkoxy or halo; and X is oxo or thioxo; with the provisos that when R^1 is carboxymethyl then R^2 is hydrogen, that when R^1 is lower alkoxycarbonylmethyl then R^2 is lower alkyl, that when R^2 is (2,2-dimethyl-1-oxopropoxy)methyl then R^1 is hydrogen and R^3 is (2,2-dimethyl-1-oxopropoxy)methoxycarbonyl, that when R^6 is hydrogen then R^1 is hydrogen or carboxymethyl and R^2 is hydrogen, that when R^6 is lower alkyl then R^1 is hydrogen or lower alkoxycarbonylmethyl and R^2 is lower alkyl, that when R^3 is hydrogen then R^1 is hydrogen or carboxymethyl and R^2 is hydrogen, and that when X is thio then R^1 is hydrogen, R^2 is hydrogen, lower alkyl or (2,2-dimethyl-1-oxopropoxy)methyl, and R^3 is carboxy, lower alkoxycarbonyl or (2,2-dimethyl-1-oxopropoxy)methoxycarbonyl; or a therapeutically acceptable salt, with an organic or inorganic base, of the compounds of formula I having one or more carboxyls.

20. A pharmaceutical composition for preventing or relieving diabetic complications in a diabetic mammal, which comprises a compound of claim 1, or a therapeutically acceptable salt thereof with an organic or inorganic base, and a pharmaceutically acceptable carrier.

4,337,266

CYTOSTATIC TERMINALLY BIFUNCTIONAL SUGAR ALCOHOLS PROCESS FOR PREPARING THEM AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Ildiko Vidra, nee Sándor, 5/c., Budai L.u., 1024 Budapest, and Laszlo Institoris, 32., Eötvös u., 1067 Budapest, both of Hungary

Filed Aug. 14, 1980, Ser. No. 177,948

Claims priority, application Hungary, Aug. 17, 1979, VT 1266

Int. Cl.[3] A61K *31/335;* C07D *303/22*

U.S. Cl. 424—278 2 Claims

1. 1,2-4,5-dianhydro-3-methyl-xylitol.

4,337,267

PHENALKOXYALKYL- AND PHENOXYALKYL-SUBSTITUTED OXIRANECARBOXYLIC ACIDS, THEIR USE AND MEDICAMENTS CONTAINING THEM

Klaus Eistetter, Constance, and Erich Rapp, Radolfzell, both of Fed. Rep. of Germany, assignors to Byk Gulden Lomberg Chemische Fabrik GmbH, Constance, Fed. Rep. of Germany

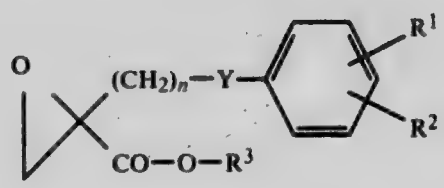
Continuation-in-part of Ser. No. 182,935, Sep. 2, 1980, abandoned. This application Apr. 3, 1981, Ser. No. 250,627

Claims priority, application Switzerland, Aug. 25, 1980, 6397/80; Mar. 6, 1981, 1526/81

Int. Cl.[3] A61K *31/335;* C07D *303/48*

U.S. Cl. 424—278 13 Claims

1. A substituted oxiranecarboxylic acid of the formula



(I)

wherein

R^1 is —H, halo, lower alkyl, lower alkoxy, nitro or trifluoromethyl,

R^2 has one of the meanings of R^1,

R^3 is —H or lower alkyl,

Y is $—O—(CH_2)_m—$,

m is O or an integer from 1 to 4, inclusive, and

n is an integer from 2 to 8, inclusive, with the proviso that m+n is an integer from 2 to 8, inclusive,

or a salt of each carboxylic acid.

4,337,268

COMBATING FUNGI WITH N-OXIMINOALKYL-ANILIDES

Jörg Stetter, Wuppertal, and Wilhelm Brandes, Leichlingen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

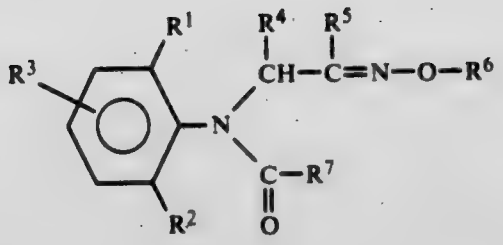
Filed May 15, 1980, Ser. No. 150,261

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1979, 2922759

Int. Cl.[3] A01N *37/22;* C07C *307/68;* C07D *103/175*

U.S. Cl. 424—285 10 Claims

1. An N-oximinoalkyl-anilide of the formula



in which

R^1 represents hydrogen, alkyl of up to 4 carbon atoms or halogen,

R^2 represents alkyl of up to 4 carbon atoms,

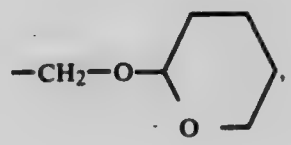
R^3 represents hydrogen or alkyl of up to 4 carbon atoms,

R^4 represents hydrogen or alkyl of up to 4 carbon atoms,

R^5 represents hydrogen or alkyl of up to 4 carbon atoms,

R^6 represents hydrogen; alkyl, alkenyl or alkynyl of up to 4 carbon atoms; alkoxyalkyl or alkylthioalkyl of up to 4 carbon atoms in each alkyl moiety; or optionally substituted aralkyl with 6 to 10 carbon atoms in the aryl part and 1 to 2 carbon atoms in the alkyl part wherein the substituents are selected from the group consisting of halogen, straight-chain or branched alkyl of 1 to 4 carbon atoms, halogenoalkyl of 1 to 2 carbon atoms and 1 to 5 halogen atoms, alkoxy of 1 to 2 carbon atoms, alkylthio of 1 to 2 carbon atoms, cyano and nitro, and

R^7 represents furyl, tetrahydrofuryl, thiophenyl, or tetrahydrothiophenyl; isoxazolyl which is optionally substituted by alkyl, alkyl, alkenyl, or alkynyl of up to 4 carbon atoms, in each case optionally substituted by cyano or thiocyano; cycloalkyl of 3 to 7 carbon atoms; or the grouping $-CH_2Az$, $-CH_2-OR^8$, $-CH_2-SR^8$, $-OR^8$, $-SR^8$, $-CH_2-OSO_2R^8$, $-COOR^8$ or



wherein

R^8 represents an alkyl, alkenyl or alkynyl radical of up to 4 carbon atoms optionally substituted by halogen, cyano or thiocyano, or an alkoxyalkyl radical of up to 4 carbon atoms in each alkyl moiety; and

Az represents pyrazol-1-yl, 1,2,4-triazol-1-yl or imidazol-1-yl.

9. A method of combating fungi which comprises applying to the fungi, or to a habitat thereof, a fungicidally effective amount of a compound according to claim **1**.

4,337,269

PRESERVATIVE COMPOSITIONS

Philip A. Berke, Madison, and William E. Rosen, Summit, both of N.J., assignors to Sutton Laboratories, Inc., Chatham, N.J.

Filed Jul. 23, 1979, Ser. No. 59,969

Int. Cl.[3] **A01N** *37/02, 37/12, 55/02*

U.S. Cl. 424—289 **3 Claims**

1. A method for inhibiting microbial growth in a substance requiring microbial inhibition comprising incorporating into the substance in vitro an effective microbial growth inhibiting amount of a condensation reaction product produced by the reaction of glycine, lower alkyl substituted glycinate or salts thereof with formaldehyde in aqueous medium in a molar ratio of about 1:1.

4,337,270

NOVEL ANTHRANILIC ACID DERIVATIVES

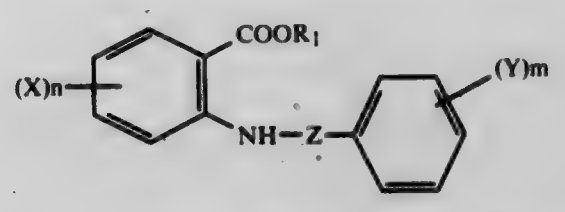
Kanji Noda, Chikushino; Akira Nakagawa, Tosu; Toshiharu Motomura, Tosu; Masayoshi Tsuji, Tosu; Hidetoshi Amano, Tosu, and Hiroyuki Ide, Fukuoka, all of Japan, assignors to Hisamitsu Pharmaceutical Co., Inc., Tosu, Japan

Filed May 21, 1980, Ser. No. 152,217

Int. Cl.[3] **A61K** *31/245;* **C07C** *101/72*

U.S. Cl. 424—310 **25 Claims**

1. A compound of the general formula (I):



(I)

wherein X is a halogen atom, an alkoxyl group having 1–3 carbon atoms, an alkyl group having 1–3 carbon atoms or a nitro group, n is an integer of 1–2, Y is an alkoxyl group having 1–3 carbon atoms, m is an integer of 2–3, Z is —COCH=CH—, R_1 is a hydrogen atom or an alkyl group having 1–4 carbon atoms, and pharmaceutically acceptable salts thereof.

24. An antiallergic composition comprising a therapeutically effective amount of at least one compound of the general formula (I) according to claim **1** and one or more pharmaceutically acceptable carriers or diluents.

25. A method of alleviating diseases caused by allergies, such as asthma, hay fever, urticaria and atopic dermatitis, comprising administering a therapeutically effective amount of at least one compound of the general formula (I), according to claim **1** to a subject afflicted with said diseases.

4,337,271

ERYTHRO-9,10-DIHYDROXYOCTADECAN-1-OL ACETATE A BOLL WEEVIL ANTI-FEEDANT

Martin Jacobson, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jan. 28, 1981, Ser. No. 229,215

Int. Cl.[3] **A01N** *37/02*

U.S. Cl. 424—311 **3 Claims**

1. A method of deterring boll weevils from feeding in growing cotton plants comprising applying to said plants an effective boll weevil deterrent amount of erythro-9,10-dihydroxyoctadecan-1-ol acetate.

4,337,272

AMINO-ETHANOL DERIVATIVES

Virgilio Bernareggi, Cologno Monzese; Giuseppe Crespi, Arese, and Giuseppe Bugada, Bergamo, all of Italy, assignors to Valeas S. R. L. Industria Chimica E Farmaceutica, Milan, Italy

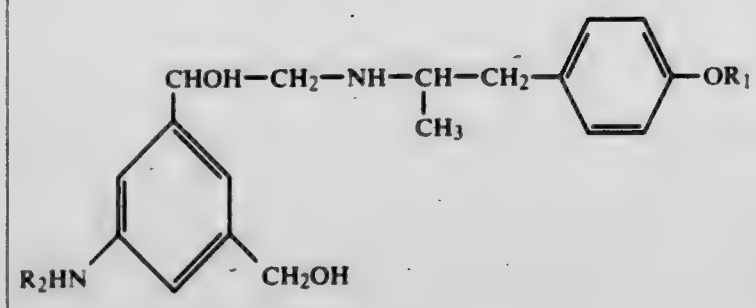
Division of Ser. No. 740,658, Nov. 10, 1976, Pat. No. 4,252,824. This application Oct. 2, 1980, Ser. No. 193,136

Claims priority, application United Kingdom, Nov. 12, 1975, 46677/75

Int. Cl.[3] **C07C** *95/08, 97/10;* **A61K** *31/135, 31/205*

U.S. Cl. 424—316 **9 Claims**

1. A compound of the formula



wherein

R_1 is H or CH_3 and

R_2 is selected from the group consisting of H, C_1-C_4 alkyl, carbo C_1-C_3 alkyl, and a carboamido group simple or mono- or di-substituted on the nitrogen atom with C_1-C_3 alkyl, and with the proviso that said compound is not 1-(5-amino-3-hydroxymethyl) phenyl-2-(1-p. methoxy phenyl-2-propylamino)ethanol, and a pharmaceutically acceptable acid addition salt thereof.

9. A therapeutic composition useful as a bronchodilator comprising a bronchodilator effective amount of the compound of claim 1 and a pharmaceutically acceptable carrier.

4,337,273

METHODS OF INCREASING CORONARY BLOOD FLOW THROUGH VASODILATION BY FLURBIPROFEN

Allan M. Lefer, Montgomery, Pa., assignor to Thomas Jefferson University, Philadelphia, Pa.

Division of Ser. No. 150,048, May 15, 1980, Pat. No. 4,282,252. This application Feb. 17, 1981, Ser. No. 234,681

Int. Cl.³ A61K *31/19*

U.S. Cl. 424—317 **5 Claims**

1. A method of treating a patient suffering from angina, coronary heart disease, or coronary vasospasm, and who exhibits periodic symptoms of reduced coronary blood flow, which comprises administering to said patient an amount of flurbiprofen effective to cause dilation of the coronary arteries of said patient, whereby coronary blood flow is substantially increased.

4,337,274

FLUKICIDAL COMPOUNDS

John H. Gorvin, London, England, assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.

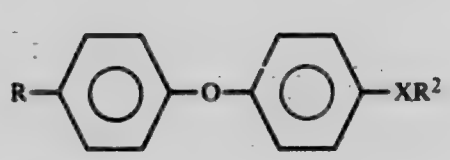
Filed May 29, 1979, Ser. No. 43,492

Claims priority, application United Kingdom, May 30, 1978, 24035/78

Int. Cl.³ A61K *31/18*

U.S. Cl. 424—321 **17 Claims**

1. A method for the treatment of a liver fluke infection in a mammal comprising the administration to said mammal of an anti-liver-fluke infection effective amount of a diphenylether of the formula



or an acid addition salt thereof wherein R is selected from amino, monoalkanoylamino and dialkanoylamino, both of one to four carbon atoms;

R^2 is NR^8R^9 wherein R^8 is selected from alkyl of one to four carbon atoms, hydroxyalkyl of one to four carbon atoms, aryl of six to ten carbon atoms and cycloalkyl of three to eight carbon atoms, and R^9 is selected from R^8 as defined and hydrogen; and X is S, SO or SO_2.

2. The method of claim 1 in which the diphenylether is 4-(4-Acetamidophenoxy)-N,N-dimethylbenzenesulphonamide or an acid addition salt thereof.

4. The method of claim 1 in which the diphenylether is 4-(4-Aminophenoxy)-N,N-dimethylbenzenesulphonamide or an acid addition salt thereof.

17. The method of claim 1 in which the compound or salt is administered in association with a veterinarily acceptable carrier therefor.

4,337,275

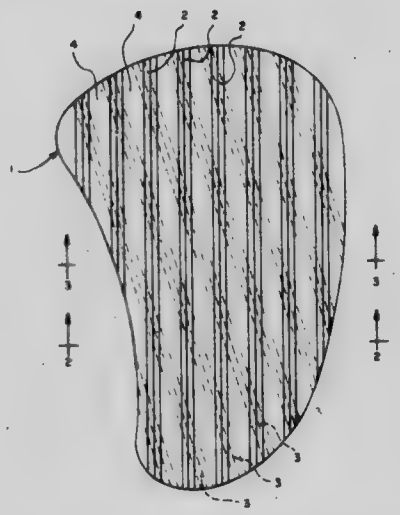
MEAT PRODUCT AND PROCESS OF PREPARATION

Edward G. Adams, Paoli, Pa., assignor to Keystone Foods Corporation, Folcroft, Pa.

Filed Sep. 3, 1980, Ser. No. 183,853

Int. Cl.³ A23L *1/31*; A23P *1/00*

U.S. Cl. 426—104 **16 Claims**



1. A slab of frozen, compacted, meat particles having a first plurality of substantially parallel grooves on one side of the slab, and having a second plurality of substantially parallel grooves on the opposite side of the slab, the second plurality of grooves being oriented in a direction different from that of the first plurality of grooves.

4,337,276

METHOD FOR STORING PRODUCE AND CONTAINER AND FRESHNESS KEEPING AGENT THEREFORE

Hachiro Nakamura, Ichikawa, and Norio Nakazawa, Kawaguchi, both of Japan, assignors to Toppan Printing Company, Limited, Japan

Continuation of Ser. No. 946,409, Sep. 27, 1978, abandoned. This application Feb. 19, 1980, Ser. No. 122,693

Claims priority, application Japan, Nov. 21, 1977, 52-139636; Dec. 26, 1977, 52-157015; Jan. 19, 1978, 53-4733

Int. Cl.³ B65D *81/24, 85/50*

U.S. Cl. 426—124 **11 Claims**

1. A closed storage container containing vegetables and fruits tending to be discolored by water evaporation and further containing a permeable bag containing a freshness keeping agent composition for vegetables and fruits which agent consists essentially of (i) from 30 to 100% of a mixture of adsorbents consisting essentially of from about 50 to 100% by weight of a mixture of main adsorbents selected from the group consisting of a bentonite-activated carbon mixture and a bentonite-zeolite mixture, each of the main adsorbents being present in an amount within the range of between 20 and 80% by weight of the total amount of said main adsorbents and from 0 to 50% by weight of at least one auxiliary adsorbent selected from the group of activated alumina and activated clay, (ii) from 0 to about 50% be weight of at least one oxygen-removing compound selected from the group consisting of sulfates and chlorides of manganese (II), iron (II), cobalt (II) and nickel (II), (iii) 0 to about 30% by weight of ascorbic acid or salts thereof, and (iv) 0 to about 30% by weight of at least one alkaline compound selected from the group consisting of hy-

droxides, carbonates and bicarbonates; said freshness keeping agent composition being present in an amount relative to the amount of vegetables and fruits sufficient to adsorb ethylene and the other gases generated by the vegetables and fruits during storage.

4,337,277

FLAVORING WITH 7-METHYL-OCT-3-EN-2-ONE

Wilhelm Pickenhagen, Chavannes-des-Bois, Switzerland, assignor to Firmenich SA, Geneva, Switzerland

PCT No. PCT/CH80/00097, § 371 Date May 18, 1981, § 102(e) Date Apr. 22, 1981, PCT Pub. No. WO81/00802, PCT Pub. Date Apr. 2, 1981

PCT Filed Aug. 8, 1980, Ser. No. 253,844

Claims priority, application Switzerland, Sep. 18, 1979, 8409/79

Int. Cl.³ A23L *1/226*

U.S. Cl. 426—534 4 Claims

1. A process for reinforcing, improving or modifying the organoleptic properties of foodstuffs or beverages comprising adding thereto from about 0.1 to 10 ppm based on the weight of said foodstuff or beverage of substantially pure 7-methyl-oct-3-en-2-one.

4,337,278

IMITATION MILK

Roy A. Brog, 1600 N. Main, Logan, Utah 84321

Filed Sep. 9, 1980, Ser. No. 185,534

Int. Cl.³ A23C *11/00*

U.S. Cl. 426—583 13 Claims

1. An imitation milk composition having a solids content consisting essentially of 40 to 60% by weight of sweet whey solids, 4 to 10% by weight of a soluble casein salt, 10 to 40% by weight sugar and 5 to 35% by weight of an edible vegetable oil wherein the weight ratio of soluble casein salt to the protein in the whey may vary from about 0.8:1 to 1.2:1 and wherein the weight ratio of sugar to lactose contained in the whey may vary from about 0.4:1 to 1:1.

4,337,279

METHOD FOR INCREASING THE PEEL STRENGTH OF METAL-CLAD POLYMERS

Anthony J. Polak, Wauconda, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 23, 1981, Ser. No. 228,019

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—40 10 Claims

1. A process for increasing the peel strength of a metal-clad polysulfone polymer which comprises subjecting said polysulfone polymer to a gas plasma comprising the presence of a treatment gas and an electrical field generated from an electrical power of from about 50 to about 15000 watts, at a temperature of from about ambient to about the glass transition temperature of said polysulfone polymer and a pressure in the range of from about 5 atmospheres to about 10^{-6} torr for a period of time ranging from about 5 minutes to about 4 hours and thereafter depositing a metal on the resultant treated polysulfone polymer and thereafter recovering the metal-clad polysulfone polymer possessing increased peel strength.

4,337,280

DESENSITIZER COMPOSITION

Akio Miyamoto; Teruo Kobayashi, and Hiroharu Matsukawa, all of Fujinomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

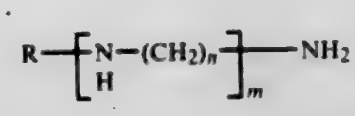
Filed Nov. 5, 1980, Ser. No. 204,668

Claims priority, application Japan, Nov. 6, 1979, 54/144157

Int. Cl.³ B41M *5/00*

U.S. Cl. 427—150 6 Claims

1. A desensitizer composition for color developing agents which color upon reaction with colorless compounds comprising an adduct of an amine represented by the following general formula (I) with one or more alkylene oxides, said one or more alkylene oxides comprising at least 40 mole % butylene oxide, general formula (I) being



(I)

wherein R represents a hydrogen atom or an alkyl group, m represents zero or an integer from 1 to 8, and n represents an integer from 1 to 12.

2. A desensitizing method in which the desensitizer composition of claim 1 is printed on a color developer sheet using by offset printing.

4,337,281

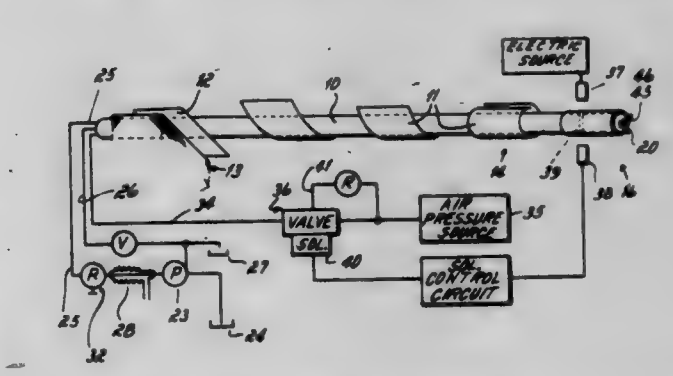
METHOD FOR STRIPING INSIDE SEAMS OF CANS

Jacob J. Boone, Vermilion, Ohio, assignor to Nordson Corporation, Amherst, Ohio

Filed Feb. 25, 1981, Ser. No. 237,891

Int. Cl.³ B05D *7/28, 7/14*

U.S. Cl. 427—236 11 Claims



1. A method of applying a continuous impervious protective coating in the form of a stripe over the longitudinal welded seam area of can bodies, which method comprises the steps of:

moving a series of can bodies having longitudinally welded seams along a can forming line past the nozzle orifice of an airless spray applicator,

locating said airless spray applicator interiorly of said can bodies with said nozzle orifice located in close proximity to said can seam,

supplying a liquid coating material from a source of said coating material to said airless spray applicator at a pressure sufficient to atomize said liquid material when ejected from said airless spray nozzle, and

ejecting said liquid coating material as an airless spray fan of coating material from said nozzle orifice onto the welded seam areas of said can bodies, said seam areas of said can bodies being located sufficiently close to said nozzle orifice that said liquid material is applied to said seam areas as an unatomized solid curtain of liquid coating material.

4,337,282

COLOR CHANGE SYSTEM FOR SPRAY COATING APPARATUS

Carl M. Springer, Park Ridge, Ill., assignor to Binks Manufacturing Co., Franklin Park, Ill.

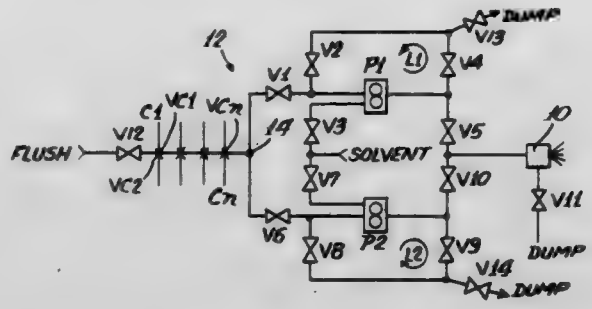
Filed Aug. 12, 1980, Ser. No. 177,399

Int. Cl.³ B05B *7/00*

U.S. Cl. 427—421 13 Claims

1. A method of supplying selected colors of coating materials to coating apparatus with a pair of pumps, comprising the steps of alternately connecting individual ones of the pump inlets with selected ones of the supplies of coating material and the pump outlets with the coating apparatus, such that only one pump at a time provides coating material to the apparatus; and while one of the pumps is providing coating material,

connecting the inlet to the other pump with a supply of solvent for the coating material to continuously clean the pump of



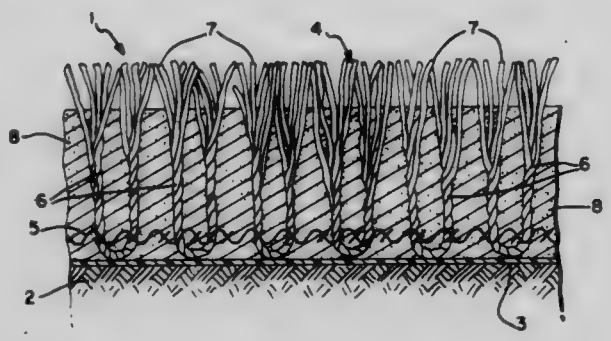
previously provided coating material for as long as the one pump is providing coating material.

4,337,283

SYNTHETIC TURF PLAYING SURFACE WITH RESILIENT TOP-DRESSING

Frederick T. Haas, Jr., 147 E. Oakridge Pk., Metairie, La. 70005

Filed Sep. 11, 1980, Ser. No. 186,344
Int. Cl.³ A01N *3/00*
U.S. Cl. 428—17 **29 Claims**



1. A playing surface for athletic games comprising:
(a) a firm, stable subsurface;
(b) a pile fabric having a flexible backing and normally upstanding pile elements resembling grass; the length of said pile elements being substantially uniform and lying in the range from ½ to 2 inches; and
(c) a compacted top-dressing layer comprising a mixture of from 25 to 95 volume percent resilient particles and from 5 to 75 volume percent fine sand interspersed among the pile elements and on the backing to a substantially uniform depth at least ½ the length of the pile elements.

4,337,284

FILM TEAR-TAPE AND PACKAGING FILM HAVING TEAR-TAPE ADHERENT THERETO

Gordon Cooper, Hatfield, and Patrick S. Bryant, Welwyn Garden City, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 33,716, Jun. 20, 1979, abandoned. This application Jan. 28, 1980, Ser. No. 115,777
Claims priority, application United Kingdom, Feb. 14, 1979, 7905240
Int. Cl.³ B65D *1/00*; A61F *13/02*; B32B *27/00*
U.S. Cl. 428—35 **8 Claims**

6. A tearable packaging film comprising a polymeric packaging film and a thermoplastic polymeric tear-tape bonded thereto by a thermally curved layer of a sealing resin comprising a blend of an ethylene-vinyl acetate copolymer and a plasticizer therefor, the plasticizer comprising from 2 to 30 percent by weight of the sealing resin and the tape having a width of from 0.5 to 10 millimeters and a thickness of from 5 to 250 microns.

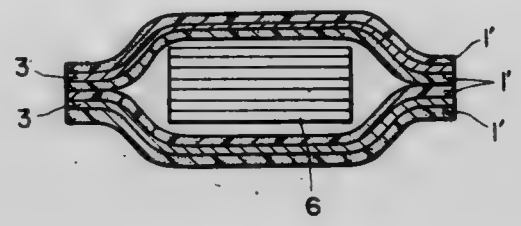
8. A tearable package comprising an article wrapped in a tearable packaging film as defined in claim 6.

4,337,285

WRAPPING MATERIAL FOR LIGHT-SENSITIVE MATERIALS

Mutsuo Akao, and Kenzo Kashiwagi, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Aug. 25, 1980, Ser. No. 180,726
Claims priority, application Japan, Aug. 23, 1979, 54-107371
Int. Cl.³ B65D *85/00*; B32B *5/16, 27/06, 27/16*
U.S. Cl. 428—35 **17 Claims**



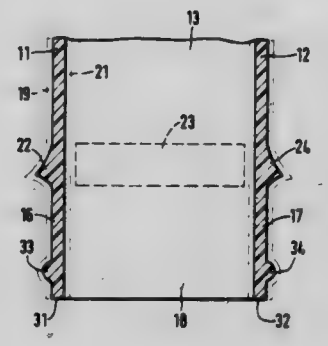
1. A wrapping material for light-sensitive materials comprising at least two monoaxially drawn films composed of high density polyethylene having a density of at least 0.94 g/cm³, which are bonded with an adhesive layer containing an aluminum paste or an aluminum powder wherein aluminum is present in an amount of from 0.3 to 12 wt% based on the total weight of the adhesive layer so that drawing axes of the films cross each other at an angle of from 45° to 90°.

4,337,286

PLASTIC CONTAINERS, PARTICULARLY CANISTERS

Wolfram Schiemann, Hohenzollern Platz, 7140 Ludwigsburg, Fed. Rep. of Germany

Filed Jan. 16, 1981, Ser. No. 225,612
Int. Cl.³ B32B *9/04*; F16L *9/12*
U.S. Cl. 428—36 **6 Claims**

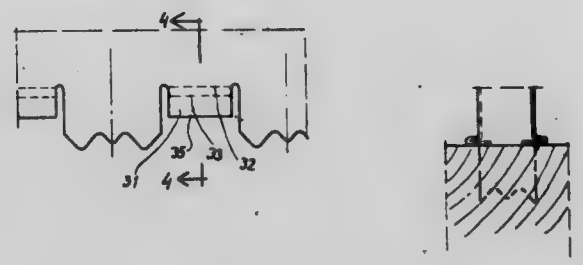


1. Container blank composed of plastic material comprising:
four injection molded side walls having external surfaces,
bottom wall sections extending from said side walls,
said bottom wall sections being arranged and adapted to be bent approximately at right angles to said walls at a predetermined transition region to form the bottom of the container,
a plastic ledge, having an approximately triangular cross section, projecting from said external surface of said side walls in said predetermined transition region,
said ledge having a first side of said triangular cross section which forms a continuation of said external surface of said side wall after said bottom wall section is bent and a second side of said triangular cross section which forms a part of the bottom of the container after said bottom wall section is bent, and a point of said triangular cross section at which said sides coverage forming an outside edge at the bottom of the container.

4,337,287
CORRUGATED TOOTHED WEB STRIP WITH PENETRATION STOPPERS FOR CONSTRUCTION ELEMENTS

Johan C. Falkenberg, Ed. Mercurio, H2, Cerrado de Calderon, Malaga, Spain

Filed Jul. 3, 1980, Ser. No. 165,657
Claims priority, application Norway, Nov. 2, 1979, 793542
Int. Cl.³ B32B *3/28, 7/08;* E04B *2/32;* E04C *2/32*
U.S. Cl. 428—133 6 Claims

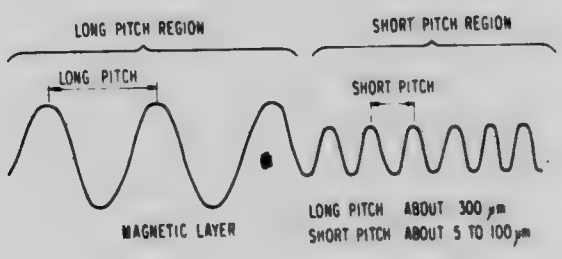


1. A corrugated sheet metal web strip for use in forming a construction element comprising a pair of flanges of nailable material joined together in spaced relationship by a said web strip that extends edgewise therebetween, said strip being provided with a series of flange embedding teeth spaced longitudinally apart along each of the longitudinally extending edges of the strip, said strip being provided with a plurality of penetration stoppers disposed respectively between the teeth on at least one longitudinally extending edge of the strip, said stoppers each comprising an element disposed to extend transversely of the strip edge for abutting the respective flange when the adjacent teeth have become embedded to the intended depth in the flange to thereby inhibit further penetration by the web strip into the flange.

4,337,288
MAGNETIC RECORDING MEDIUM

Haruo Takenaka; Eiichi Tadokoro, and Masaaki Fujiyama, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 17, 1980, Ser. No. 207,546
Claims priority, application Japan, Nov. 28, 1979, 54-154784
Int. Cl.³ G11B *5/70*
U.S. Cl. 428—172 5 Claims



1. A magnetic recording medium comprising a non-magnetic support on which a magnetic layer is formed by: coating on said support an emulsion of magnetic material in a binder, wherein said magnetic material is comprised of large filler having a grain size ranging from about 2 μm to about 30 μm and a small filler having a grain size ranging from about 0.01 μm to about 5 μm; and drying, and subjecting the resulting magnetic recording medium to a calendering process utilizing calender rolls under conditions that the pressure between any two rolls ranges from 100 Kg/cm to 400 Kg/cm at a temperature ranging from 20° C. to 150° C., said resulting magnetic layer having a surface roughness controlled such that the maximum value of the arithmetical average roughness is at least about 80 A in the surface roughness pitch region greater than about 300 μm and the maximum value of the arithmetical average roughness is about 40 A to 5 A in the surface roughness pitch region greater than about 5 μm and smaller than about 100 μm.

4,337,289
WATER RELEASE TRANSFER

Kenneth J. Reed, 33 Carlysle Square, London, S.W.3, England, and Alan L. Lythgoe, 25 Sene Park, Hythe, Kent, England

Continuation of Ser. No. 956,725, Nov. 1, 1978, abandoned. This application Jun. 6, 1980, Ser. No. 157,083
Claims priority, application United Kingdom, Nov. 2, 1977, 45588/77
Int. Cl.³ B32B *3/18;* B44C *1/16*
U.S. Cl. 428—195 15 Claims

1. A water-release transfer which comprises a transferable design formed in a photopolymerized ink supported on a flexible water-permeable carrier substrate and having an intervening water-soluble release layer, which provides a surface capable of being wetted by said ink while in its unpolymerized state, between the substrate and the design, said design comprising a solid film of flexible and stretch-resisting, cross-linked polymer produced by photopolymerization of a liquid ink printed on the substrate and consisting essentially of a blend of rapidly photopolymerized, ethylenically unsaturated monomer and prepolymer containing pendant or terminal acryloyl or methacryloyl groups wherein the prepolymer has about 2 to 6 acryloyl or methacryloyl groups per molecule whereby on photopolymerization a cross-linked and flexible film is produced.

4,337,290
HIGH IMPACT RESISTANT LAMINATE SURFACE FOR A BOWLING LANE

Peter B. Kelly, and Edward R. Heagle, both of Coshocton, Ohio, assignors to General Electric Company, Coshocton, N.Y.

Filed Nov. 16, 1979, Ser. No. 95,120
Int. Cl.³ B32B *3/00;* A63D *1/04;* B32B *17/08, 23/06*
U.S. Cl. 428—201 12 Claims

1. In a decorative plastic laminate sheet of a length and width for securing to a substrate selected from the group consisting of natural wood, consolidated wood fibers, plywood, flakeboard, chipboard, and hardboard to form therewith all or part of a bowling lane having a surface characterized by a falling ball impact resistance of at least 60 inches, a coefficient of fraction of about 0.16 and a Taber abrasion resistance of at least 500 cycles, said plastic laminate sheet comprising a plurality of thermosetting resin impregnated fibrous core sheets, a melamine resin impregnated decorative fibrous print sheet overlying one of said fibrous core sheets in a contiguous manner, and a melamine resin containing protective layer overlying said decorative fibrous print sheet in a contiguous manner, the improvement which comprises:

said fibrous core sheets being comprised of individual, adjacent, contiguous and alternating glass fiber fabric sheets and crepe paper sheets, said glass being selected from the group consisting of woven glass cloth, glass net and glass scrim, the interlaminer bond strength between said glass and crepe paper sheets being substantially equal to the interlaminer bond strength between resin impregnated paper core sheets.

4,337,291

DECORATIVE LAMINATE SURFACE FOR BOWLING LANE SURFACE HAVING REDUCED GLOSS

Peter B. Kelly, Bloomfield Hills, Mich., assignor to General Electric Company, Coshocton, N.Y.

Continuation-in-part of Ser. No. 926,604, Jul. 21, 1978, Pat. No. 4,231,573, which is a division of Ser. No. 901,791, May 1, 1978, abandoned, which is a continuation of Ser. No. 506,069, Sep. 16, 1974, abandoned. This application Mar. 6, 1980, Ser. No. 127,567

The portion of the term of this patent subsequent to Nov. 4, 1997, has been disclaimed.

Int. Cl.[3] **A63D** *1/04*; **B32B** *5/26, 5/30, 31/20*

U.S. Cl. 428—204 **15 Claims**

1. In a bowling lane having a surface characterized by a falling ball impact resistance of at least 60 inches, a coefficient of friction of at least 0.18 and a Taber abrasion resistance of at least about 500 cycles, said bowling lane comprised of a substrate selected from the group consisting of natural wood, consolidated wood fibers, plywood, flakeboard, chipboard and hardboard, and at least one decorative plastic laminate secured to the surface of said substrate, said plastic laminate sheet comprised of a plurality of thermosetting resin impregnated fibrous core sheets, a melamine resin impregnated decorative fibrous print sheets, and an overlying melamine resin containing protective layer, the improvement which comprises:

said surface further characterized by a 60 degree gloss below about 30 in the machine direction as measured according to NEMA Standard 8-19-1964.

10. A method of producing a bowling lane having a surface characterized by a falling ball impact resistance of at least 60 inches, a coefficient of friction of about 0.18 and a Taber abrasion resistance of at least about 500 cycles comprising:

superimposing a plurality of thermosetting resin impregnated fibrous core sheets on one another so that said ccore sheets are in registration;

superimposing a resin impregnated decorative fibrous print sheet over said thermosetting resin impregnated core sheets in parallel registration therewith;

superimposing an overlying resin containing protective layer over said resin impregnated decorative fibrous print sheet in registration therewith;

consolidating said thermosetting resin impregnated core sheets, said resin impregnated decorative fibrous print sheet and said overlying resin containing protective layer under heat and pressure, in a press pan or plate having a surface which is at least partially matte finished, to produce a unitary decorative plastic laminate sheet, said matte finish being scratch-free and capable of producing a surface on said laminate sheet having a 60 degree gloss below about 30 in the machine direction as measured according to NEMA Standard 8-19-1964; and

bonding the laminate sheet to a substrate selected from the group consisting of natural wood, consolidated wood fibers, plywood, flakeboard, chipboard and hardboard.

4,337,292

SHEET MATERIAL FOR USE AS PLAYING SURFACES AND METHOD FOR THE MANUFACTURE THEREOF

Gerard Biotteau, Saint-Pierre-Montlimart, France, assignor to Societe a Responsabilite Limitee Eram Industrie, Challones sur Loire, France

Filed Oct. 18, 1979, Ser. No. 86,045

Claims priority, application France, Oct. 18, 1978, 78 29641

Int. Cl.[3] **B32B** *5/16, 5/30*

U.S. Cl. 428—141 **4 Claims**

1. Sheet material for playing surfaces, comprising a layer of a non-woven fabric of polyester fibers calendered to a thickness of about 0.2 mm, a layer of polymerizable resin selected from the group consisting of polyurethane and polychloroprene binder compatible with the polyester fibers and disposed on the calendered layer of polyester fibers, and a layer of a finely divided elastomeric powder on the layer of polymerizable resin and at least partially embedded in the layer of polymerized resin.



4,337,293

SYSTEM OF MAKING CUSTOM TRANSFERS

Michael R. Viola, 3501 N. Natchez Ave., Chicago, Ill. 60634

Division of Ser. No. 175,317, Aug. 4, 1980, Pat. No. 4,304,837. This application May 22, 1981, Ser. No. 266,581

Int. Cl.[3] **B32B** *9/04*

U.S. Cl. 428—337 **3 Claims**

1. A substrate for making custom transfers, said substrate comprising:

polyvinyl chloride sheeting of film dimension thickness having one side of same bearing a dry composited coating comprising a uniform base coating of a uniform mixture consisting of approximately twenty parts isopropyl alcohol, one part wax and one part talcum powder that is overlaid with a uniform coating of polyvinyl alcohol.

4,337,294

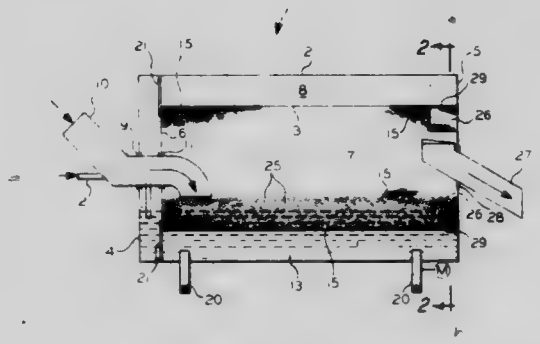
RUBBER COVERED CARBON BLACK PELLETS

Thomas J. Gunnell, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 2, 1980, Ser. No. 145,908

Int. Cl.[3] **B32B** *5/16, 9/00*

U.S. Cl. 428—407 **6 Claims**



1. Dust free carbon black pellet consisting essentially of

(a) a carbon black pellet core, which is substantially free of rubber

(b) a layer of rubber surrounding said carbon black pellet core.

4,337,295

BOROSILICATE, OPAL GLASS ARTICLE

Hermann L. Rittler, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

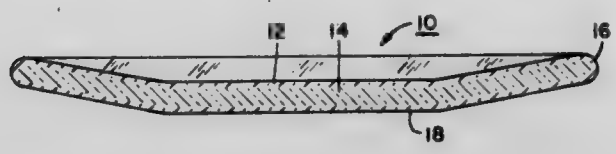
Filed Dec. 13, 1979, Ser. No. 103,413

Int. Cl.[3] **B32B** *17/06*

U.S. Cl. 428—410 **3 Claims**

1. An integral, colored spontaneous opal glass article composed of an internal, opaque portion encased within a continuous, unbroken surface layer of transparent glass, the vitreous article having a uniform elemental composition throughout its mass, consisting essentially, expressed in weight percent on the oxide basis as calculated from the batch, of 55–80% SiO_2, 5–18% TiO_2, 4–15% B_2O_3, 3–20% of at least one mono- or

divalent metal oxide selected from the group of Na_2O, K_2O, BaO, CaO, MgO, and SrO, the total monovalent metal oxide content not exceeding 6%, and a TiO_2 coupler selected from the group in the indicated propotions of 0.1-5% of an oxide capable of coupling with TiO_2 selected from the group of As_2O_5, CdO, CeO_2, CoO, Cr_2O_3, CuO, Fe_2O_3, MnO, MoO_3, NiO, Nb_2O_5, Nd_2O_3, P_2O_5, Sb_2O_3, SeO_2, SnO_2, SO_2, TeO_2,



and V_2O_5, and 0.001-1% of a noble metal capable of coupling with TiO_2 selected from the group of Ag, Au, Pt, Rh, and Ru, the internal portion being composed of a borate-rich phase separated from and dispersed throughout a silicate-rich phase, the two glass phases being of such different refractive index as to render said internal portion opaque, and the surface layer being a transparent, single-phase borosilicate glass.

4,337,296

METHODS FOR BONDING DISSIMILAR SYNTHETIC POLYMERIC MATERIALS AND THE PRODUCTS INVOLVED IN AND RESULTING FROM SUCH METHODS

Seevaram N. Varadhachary, Newtown, Pa., assignor to Congoleum Corporation, Kearny, N.J.

Filed Aug. 25, 1980, Ser. No. 180,800
Int. Cl.³ B32B *27/40, 27/30*
U.S. Cl. 428—420 **26 Claims**

1. A multi-layered construction of two dissimilar synthetic polymeric materials comprising a first layer of a vinyl resin and at least one plasticizer for said vinyl resin and from about 10 percent by weight to about 30 percent by weight of a member of the group consisting of acrylates or acrylated polyurethanes, and a second layer covering said first layer of a synthetic polymeric material containing a member of the group consisting of polyurethanes and acrylated polyurethanes, and from about 0.5 percent by weight to about 20 percent by weight of a free radical polymerization initiator capable of initiating a polymerization reaction between said acrylates or acrylated polyurethanes in said first layer and said polyurethanes or acrylated polyurethanes in said second layer, both of said layers having one surface in contact with one surface of the other layer throughout substantially their entire one surface areas and being bonded throughout substantially all of said surface areas in a strong and permanent primary chemical bond therebetween by a reaction product of a polymerization involving said polyurethanes or acrylated polyurethanes in said first layer and a synthetic polymeric material containing a member of the group consisting of polyurethanes or acrylated polyurethanes containing from about 0.5 percent by weight to about 20 percent by weight of free available isocyanate in said second layer.

19. A method of improving the bond between a vinyl resin material and a member of the group consisting of polyurethane and acrylated polyurethane resin materials which comprises: including from about 10 percent by weight to about 30 percent by weight of a member of the group consisting of acrylates and acrylated polyurethanes in said vinyl resin material: providing from about 0.5 percent by weight to about 20 percent by weight of a free radical polymerization initiator in said polyurethane or acrylated polyurethane resin material, said polyurethane or acrylated polyurethane resin material containing from about 0.5 percent by weight to about 20 percent by weight of free available isocyanate; bringing said vinyl resin material and said polyurethane or acrylated polyurethane resin material into contact; and exposing said vinyl resin material and said polyurethane or acrylated polyurethane resin material to curing conditions, whereby there is sufficient chemical inter-reaction between said resin materials as to create a strong and permanent chemical bond therebetween in addition to any hydrogen bonds of van der Waals forces.

4,337,297

COEXTRUDABLE THERMOPLASTIC COMPOSITIONS AND BONDS AND LAMINATES THEREFROM

Khalid A. Karim, and James H. Rea, both of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Jul. 16, 1981, Ser. No. 284,149
Int. Cl.³ C08F *18/10;* **C09J** *5/06;* **B29D** *9/00;* **B32B** *27/30*
U.S. Cl. 428—461 **18 Claims**

1. A blend of thermoplastic polymers consisting essentially of:

(a) An ethylene copolymer,

(b) A chlorinated polyethylene resin, and

(c) Optionally a tackifying resin;

said ethylene copolymer having polymerized therein about 70 to 90 weight % of ethylene and the balance an alkyl ester of acrylic or methacrylic acid or vinyl acetate; said chlorinated polyethylene resin having an average chlorine content of 20 to 50 weight percent; said tackifying resin being selected from the group consisting of:

(a) Terpene resins having a Ring and Ball softening point of about 10°-150° C.,

(b) Aliphatic hydrocarbon resins having a Ring and Ball softening point of about 10°-135° C.,

(c) Rosin esters having a Ring and Ball softening point of about 65°-140° C.,

(d) Alpha-methylstyrene/vinyl toluene copolymers having a Ring and Ball softening point of about 75°-120° C.,

(e) Polystyrene resins having a Ring and Ball softening point of about 25°-100° C.,

(f) Terpene-phenolic resins having a Ring and Ball softening point of about 80°-135° C.,

(g) Rosin,

(h) Aromatic hydrocarbon resins having a Ring and Ball softening point of about 40°-160° C., and

(j) Terpene-urethane resins having a Ring and Ball softening point of about 80°-135° C.;

said composition containing about 10-90 weight % of the ethylene copolymer, about 10-50 weight % of the chlorinated polyethylene, and about 0-40 weight % of the tackifying resin.

16. A laminated sheet construction containing first and third laminae intimately fusion-bonded to a second lamina; each of said first and third laminae sheets being independently fabricated from paper, aluminum, copper, an ethylene polymer, or a polyethylene terephthalate polyester; and said second lamina being fabricated from a polymer composition of claim 1.

4,337,298

POLYMER COMPOSITIONS AND LAMINATES PRODUCED BY BONDING OR COEXTRUSION

Khalid A. Karim; Pallavoor R. Lakshmanan, and James H. Rea, all of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 208,207, Nov. 19, 1980, abandoned. This application Aug. 5, 1981, Ser. No. 291,642
Int. Cl.³ C08F *18/10;* **C09J** *5/06;* **B32B** *27/30;* **B29D** *9/00*
U.S. Cl. 428—461 **17 Claims**

1. A compatible blend of polymers consisting essentially of:

(a) A low density ethylene polymer,

(b) An ethylene copolymer,

(c) An ionomer resin, and

(d) Optionally a tackifying resin;

said low density ethylene polymer having a density of less than about 0.945 and a normal load melt index of about 0.5-20; said ethylene copolymer having polymerized therein about 70 to 90 weight % of ethylene and the balance an alkyl ester of acrylic or methacrylic acid or vinyl acetate; said two ethylene polymers being present in proportions such that the alkyl ester or vinyl acetate moiety of the ethylene copolymer constitutes about 4-12 weight % of the total weight of the two ethylene

polymers; said ionomer resin being a metal salt of an ethylene-acid copolymer which is a copolymer of ethylene and acrylic or methacrylic acid having an acid content of about 1-10 mol % and having a high load melt index of at least about 1.0 and a normal load melt index of up to about 50; said tackifying resin being selected from the group consisting of:

(i) Rosin,

(ii) Terpene resins having a Ring and Ball softening point of about 10°-150° C.,

(iii) Aliphatic hydrocarbon resins having a Ring and Ball softening point of about 10°-135° C.,

(iv) Esters formed between a rosin acid and a di-, tri-, or tetrahydroxy aliphatic alcohol, and

(v) Polyamide resins having a molecular weight of about 2,000 to 12,000, having a Ring and Ball softening point of about 85°-200° C., and having been prepared from an aliphatic diamine and a dibasic acid containing about 36 carbon atoms and prepared by dimerizing an unsaturated aliphatic monobasic acid;

said composition containing 100 parts by weight of the two ethylene polymers, about 2-100 parts by weight of the ionomer resin, and from zero to about 150 parts by weight of the tackifying resin.

15. A laminated sheet construction containing first and third laminae intimately fusion-bonded to a second lamina; each of said first and third laminae sheets being independently fabricated from paper, aluminum, copper, an ethylene homopolymer, an ethylene-vinyl alcohol copolymer, an isotactic propylene polymer or a polyethylene terephthalate polyester; and said second lamina being fabricated from a polymer composition of claim 1.

4,337,299

PROCESS FOR APPLYING A CORROSION RESISTANT TWO-COAT SYSTEM TO STRUCTURAL STEEL AND COATED STEEL THUS OBTAINED

Boudewijn van den Bergh, Heerde, Netherlands, assignor to Akzo NV, Arnhem, Netherlands

Filed Dec. 8, 1980, Ser. No. 214,248

Claims priority, application Netherlands, Dec. 14, 1979, 7909016

Int. Cl.³ B22F *7/04*

U.S. Cl. 428—562 **12 Claims**

1. A process for applying a corrosion resistant system to structural steel, characterized in that to the steel there is successively applied a coat consisting of a zinc dust paint based on a binder and a pigment, the weight ratio of binder to pigment being in the range of 5:95 to 15:85 and the pigment consisting essentially of 55 to 100 percent by weight of metallic zinc and a coat to a composition based on a binder in the form of an aromatic/aliphatic polyhydroxyether and/or a saturated aromatic polyester resin having a number average molecular weight of at least 4000, and a pigment having a Mohs hardness of at least 2, and the volume ratio of the binder to the pigment is in the range of 50:50 to 95:5, the thickness of the first coat being about 15 to 150 μm and that of the second coat about 15 to about 150 μm.

4,337,300

SURFACE-COATED BLADE MEMBER FOR CUTTING TOOLS AND PROCESS FOR PRODUCING SAME

Takeshi Itaba, and Shotaro Matsumoto, both of Tokyo, Japan, assignors to Mitsubishi Kinzoku Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 8, 1980, Ser. No. 176,272

Claims priority, application Japan, Aug. 9, 1979, 54-101540

Int. Cl.³ B32B *15/18*; C23C *11/02, 11/08*

U.S. Cl. 428—627 **8 Claims**

1. A process for producing a surface-coated blade member for cutting tools, which comprises the steps of:

(a) placing a metal substrate in a vacuum chamber;

(b) vapor depositing no larger than 0.9 μm thick layer of titanium on at least one surface of said substrate; and subsequently

(c) vapor depositing at least one layer of titanium compound on said layer of titanium to form a coating on said substrate while maintaining the substrate at a temperature between about 300° C. to about 600° C. during the vapor deposition, said layer of titanium compound being 0.5 to 10 μm thick to thereby impact maximum wear resistance to said coating, and said titanium compound being selected from the group consisting of titanium carbide, titanium nitride, titanium carbo-nitride, titanium oxy-carbide and titanium oxy-carbo-nitride.

4,337,301

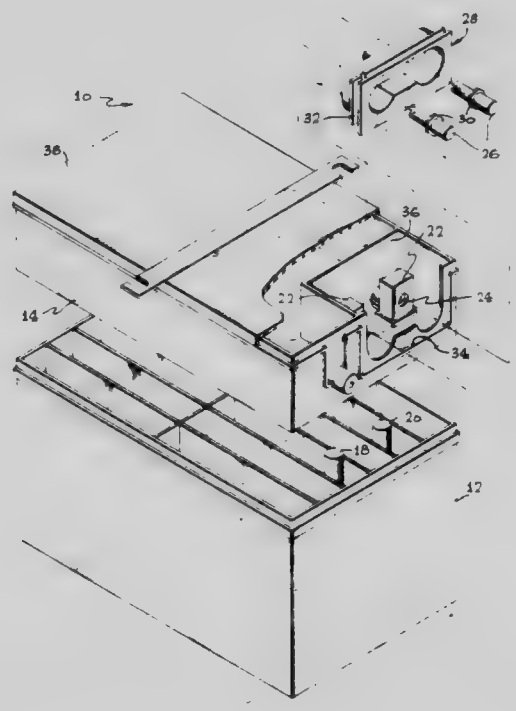
AIRCRAFT BATTERY

David L. Rorer, and Jasper E. Hardin, both of Redlands, Calif., assignors to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Feb. 23, 1980, Ser. No. 236,670

Int. Cl.³ H01M *2/02*

U.S. Cl. 429—179 **3 Claims**



1. An aircraft battery comprising a casing having a pair of electrical conductors leading therefrom, a cover for the casing through which the pair of conductors protrude and having an aperture in a wall thereof, a pair of lugs each connected to one of the conductors and having an aperture therein aligned with the aperture in the wall of the cover, a receptacle positioned within the aperture in the wall of the cover having apertures therethrough aligned with the aperture in the pair of lugs, a pair of pins each threaded at one end and having a surface thereon adapted to receive a wrench for rotating it about its axis, each pin being positioned with its threaded end passing through the apertures in the receptacle and the lug and its other end extending beyond the cover, and means for securing the threaded ends of the pins to the lugs, the improvement comprising:

the aperture in the wall of the cover shaped in the form of a slot having three sides and an opening at the top edge of the cover;

the receptacle having a groove along the outer edge of the receptacle and designed to slidably engage the sides of the aperture in the wall of the cover;

the pair of lugs molded into the cover and positioned to mate with the pair of conductors when the cover is installed on the casing, each lug further including a threaded nut cast within the lug and aligned with one of the apertures in the receptacle; and

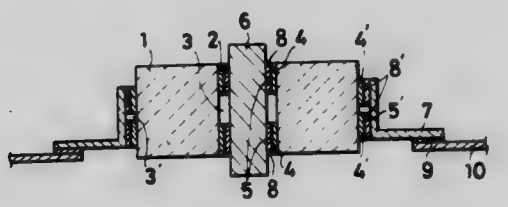
the means for securing the threaded ends of the pins to the lugs includes threading the threaded ends of the pins into the nuts.

4,337,302

SEALING MEANS FOR TERMINAL SECTION OF SEALED TYPE STORAGE BATTERY

Yoshihiro Takizawa, Tokyo, Japan, assignor to Furukawa Denchi Kabushiki Kaisha, Yokohama, Japan

Filed Apr. 7, 1981, Ser. No. 251,752
Claims priority, application Japan, Apr. 12, 1980, 55-47484
Int. Cl.³ H01M 2/30
U.S. Cl. 429—181 2 Claims



1. A sealing means for sealing a metallic terminal to a metallic cover of a sealed-type storage battery, said means comprising an electrically insulating annular member surrounding said terminal, a first bonding member hermetically sealing said terminal to the inner surface of said annular member, a second bonding member hermetically sealing said cover to the outer surface of said annular member, wherein each of said first and second bonding member consists of two sections spaced from each other by at least one annular space formed in the middle of the height of said annular member.

4,337,303

TRANSFER, ENCAPSULATING, AND FIXING OF TONER IMAGES

Melville R. V. Sahyun, St. Paul; Tsung-I Chen, Woodbury; Timothy W. King, Shoreview; Valdis Mikelsons, Mendota Heights, and Smarajit Mitra, Woodbury, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 11, 1980, Ser. No. 177,259
Int. Cl.³ G03G 13/16
U.S. Cl. 430—11 25 Claims

1. A method of electrography comprising the steps of:

(a) providing a substrate carrying a liquid toner image on at least one surface thereof,

(b) removing up to 100% of the liquid dispersant from said liquid toner image so that the toner material is converted to a dried toner image composition of submicron size particles comprising at least 50% by weight solids,

(c) bringing said dried toner image into contact with a soft or softenable receptor coating in the range of 3 to 100 microns thick on a substrate, applying pressure so that said dried toner image undergoes linear transfer and becomes encapsulated as a homogeneous continuum of particles within the soft or resulting softened receptor coating with at least 75% of the transferred particles not protruding from the surface, the material comprising said soft or softened receptor coating having a Newtonian complex dynamic melt viscosity of less than about $1.7 \pm 0.2 \times 10^3$ poise and a loss tangent greater than 10 at the temperature of transfer, and

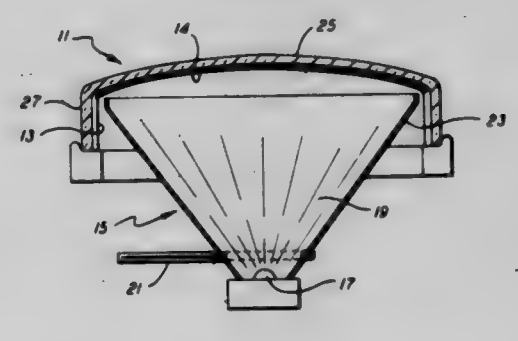
(d) hardening the receptor coating.

4,337,304

PROCESS FOR DISPOSING AN OPAQUE CONDUCTIVE BAND ON THE SIDEWALL OF A CRT PANEL

Kurt H. Brenner, Jr.; Arthur C. LaTulip, both of Seneca Falls, N.Y., and James E. Oetken, Winchester, Ky., assignors to North American Philips Consumer Electronics Corp., New York, N.Y.

Filed Feb. 17, 1981, Ser. No. 234,983
Int. Cl.³ G03C 5/00
U.S. Cl. 430—24 4 Claims



1. In a glass face panel for a non-matrix CRT having a viewing area peripherally defined by an integral skirt-like sidewall portion terminated by a continuous sealing edge therearound, a process for providing a completely clear viewing area while effecting a defined perimetrical band of black opaque conductive material on said sidewall bordering said viewing area and extending toward the region of said terminal edge and making electrical contact with the mask supporting studs embedded in said sidewall, said process comprising the steps of:

cleaning the interior of a CRT face panel;

completely coating the interior surface thereof with a thick layer of a photosensitive material;

making a first defined exposure of only the viewing area of said panel with an unobstructed flood of radiant energy while shielding said sidewall portion therefrom, said first exposure providing continuous light-polymerization of the photosensitive coating disposed on said viewing area;

effecting a second defined exposure of only the peripheral terminal region of said sidewall portion while peripherally shielding the major portion of said sidewall therefrom, said second exposure being effected by a flood of substantially laterally directed radiant energy to provide continuous polymerization of the photosensitive coating on the terminal peripherally-related region of said side-wall portion;

making a first rinsing of the interior of said panel with a solvent to remove the band of unpolymerized photosensitive material existent on said sidewall portion intermediate the two exposed and polymerized regions;

coating at least the interior sidewall portion of said panel

with a uniform layer of an opaque electrically conductive material;

treating the interior of said panel with a degrading agent to effect degradation of the light-polymerized material on the viewing area and on the terminal region of said sidewall portion;

and effecting a second rinsing of the interior of said panel with a solvent to remove said degraded polymerized material thereby providing a panel having a clean perimetrical terminal region and a clear viewing area while evidencing a defined intermediate perimetrical band of opaque conductive material on the sidewall peripherally framing the viewing area and extending toward said terminal region.

4,337,305

SENSITIZED ORGANIC ELECTRON DONOR COMPOUNDS

Paolo Beretta, Ferrania/Savona, Italy; Louis M. Leichter, Woodbury, and John J. Stofko, Jr., St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 23, 1981, Ser. No. 236,654

Int. Cl.³ G03G *5/04, 5/09*

U.S. Cl. 430—82 **8 Claims**

1. A photosensitive material comprising an organic electronically active donor compound sensitized with a sensitizing amount of an indolenine cyanine dye bearing a phenylsulfonyl or benzoyl substituent on the 5-position thereof.

2. A layer of the photosensitive material of claim 1 wherein said donor compound is a polyvinyl carbazole.

4,337,306

DEVELOPING METHOD IN WHICH A BIAS IS ADJUSTABLE IN ACCORDANCE WITH A LATENT IMAGE AND AN APPARATUS THEREFOR

Junichiro Kanbe, Tokyo; Kozo Arao, Yokohama, and Nagao Hosono, Chofu all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 26, 1980, Ser. No. 124,912

Claims priority, application Japan, Mar. 5, 1979, 54-25321

Int. Cl.³ G03G *15/09*

U.S. Cl. 430—122 **20 Claims**

1. A developing method for developing a latent image bearing member into a visible image with a one-component developer carried by a developer carrier, comprising the steps of:

disposing the developer carrier with a space gap with respect to said latent image bearing member in a developing zone;

alternately moving the developer in opposite directions by applying to the developing zone an alternating voltage having a phase for effecting a forward transition of the one-component developer from the developer carrier into contact with the image bearing member, and a phase for effecting reverse transition of the one-component developer from the image bearing member into contact with the developer carrier; and

controlling, in accordance with the potential of the latent image carried by the latent image bearing member, the voltage of at least one of the phases of the alternating phases, for maintaining the said forward and reverse transitions of developer with shifts in latent image potentials.

4,337,307

LIGHT-SENSITIVE DIAZO COMPOSITION AND MATERIAL WITH BRANCHED POLYURETHANE RESIN

Rudolf Neubauer, Erbach, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 28, 1980, Ser. No. 211,399

Claims priority, application Fed. Rep. of Germany, Dec. 3, 1979, 2948554

Int. Cl.³ G03C *1/60;* G03F *7/08*

U.S. Cl. 430—157 **9 Claims**

1. A light-sensitive composition which comprises, as the light-sensitive compound, a diazonium salt polycondensation product and, as the binding agent, a branched polyurethane resin, which is a polyaddition product of a compound having at least two isocyanate groups and a compound having at least two active hydrogen atoms capable of reacting with isocyanate groups and which contains no terminal isocyanate groups, wherein all of the terminal groups of said polyaddition product contain active hydrogen atoms and at least part of the terminal units are derived from dihydroxy compounds.

4,337,308

PROCESS FOR MAKING RELIEF-TYPE RECORDINGS

Werner Franke, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 863,421, Dec. 22, 1977, abandoned. This application Sep. 7, 1979, Ser. No. 73,473

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1976, 2658422

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—306 **5 Claims**

1. In a process for making relief-type recordings, in which a layer transfer material consisting substantially of a solid photopolymerizable layer deposited on a flexible temporary layer support and having a peelable cover film on the side away from the temporary layer support, is applied to a permanent layer support in such a manner that the photopolymerizable layer, after removing the peelable cover film, is firmly bonded thereto, the photopolymerizable layer adhering to the permanent layer support is then imagewise exposed, with the temporary layer support being removed from the photopolymerizable layer before or after exposure, the unexposed layer areas are washed away from the permanent support with a developer, and the surface areas of the permanent support bared by washing are modified by etching or depositing a metal, if required,

the improvement wherein the photopolymerizable layer comprises at least two photopolymerizable layers formed by continuously depositing at least two photopolymerizable partial layers of different compositions on the flexible temporary layer support by:

(a) applying a first coating solution of a photopolymerizable composition to said flexible temporary layer support,

(b) drying said first coating solution to obtain a dry photopolymerizable partial layer on said flexible temporary layer support,

(c) thereafter applying a second coating solution of a different photopolymerizable composition to the surface of said dry photopolymerizable partial layer, and

(d) drying said second coating solution to obtain another dry photopolymerizable partial layer on said flexible temporary layer support,

and, if desired, repeating steps (c) and (d) at least once.

4,337,309

METHOD OF DETERINING THE CONCENTRATION OF PANCREATIC AND SALIVARY α-AMYLASE IN BODY FLUIDS

Kevin F. McGeeney, Dublin, Ireland, assignor to Pharmacia Diagnostics AB, Sweden

Continuation of Ser. No. 882,228, Feb. 28, 1978, abandoned. This application May 28, 1980, Ser. No. 154,041

Int. Cl.[3] C12Q *1/40;* C12N *9/99*

U.S. Cl. 435—22 6 Claims

1. A method of determining the levels of pancreatic α-amylase and salivary α-amylase in a body fluid containing a mixture of said α-amylases, comprising the following steps:

(a) determining the total α-amylase level ($A_{tot.}$) of a first sample of said body fluid by measuring the total α-amylase activity thereof;

(b) adding to a second sample of said body fluid an inhibitor capable of selectively inhibiting the activity of said α-amylases which inhibitor is obtained by the extraction of cereal grains, in an amount which is effective in inhibiting the activity of a fraction of said α-amylases, said effective amount of said inhibitor being chosen such that it causes a constant degree of inhibition for both pancreatic and salivary α-amylase at total enzyme concentrations ranging from about 50 to about 600 μ/liter; said inhibitor having a discrimination factor, expressed as the ratio between the quantity of inhibitor necessary for reducing the activity of one of said two α-amylases by 50% and the quantity of inhibitor necessary for reducing the same activity of the other of said α-amylases by 50%, of at least 20:1,

(c) determining the level of total α-amylase uninhibited ($A_{res.}$) in said second sample by measuring the total α-amylase activity thereof, the total enzyme concentration of said first and said second body fluid samples being adjusted, where necessary so as to be within the range from about 50 to about 600 μ/liter;

(d) establishing the fraction of total α-amylase uninhibited ($A_{res.}/A_{tot.}$), said fraction being proportional to the ratio (P/S) of the pancreatic α-amylase level (P) to the salivary α-amylase level (S) over a broad range of expected P/S ratios; and

(e) determining the pancreatic α-amylase level (P) and the salivary α-amylase level (S) by comparing said fraction ($A_{res.}/A_{tot.}$) with a standard obtained by performing steps (a), (b), (c), and (d) using a plurality of standard samples each having a different known P/S ratio.

4,337,310

METHOD FOR THE DETERMINATION OF α-AMYLASE

Hans-Georg Batz, Tutzing; Elli Rauscher, Munich; Gunter Weimann, Tutzing; August W. Wahlefeld, Weilheim, and Wolfgang Gruber, Tutzing-Unterzeismering, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Continuation of Ser. No. 29,814, Apr. 13, 1979, abandoned. This application Sep. 8, 1980, Ser. No. 184,675

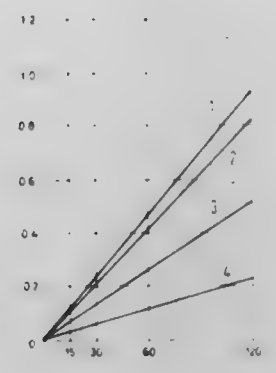
Claims priority, application Fed. Rep. of Germany, May 2, 1978, 2819298

Int. Cl.[3] C12Q *1/40*

U.S. Cl. 435—22 3 Claims

1. Method for the determination of alpha-amylase in serum comprising

incubating for a precise period of time of about 15 minutes and at a temperature of about 30° C., the serum suspected of containing alpha-amylase, with a substrate based upon particulate starch derivatized with determinable groups comprising a reactive dyestuff for the determination of alpha-amylase which does not contain a diazo color system, the substrate being a member selected from the group consisting of superficially cross-linked starch grains which are cross-linked with 0.009 to 0.0027 mole of a difunctional cross-linking agent per 100 g non-swollen starch grains and amylose grains which are cross-linked with 0.02 to 0.07 mole of a difunctional cross-linking agent per 100 g of non-swollen amylose grains, said substrate having a regulated, reduced swellability, said starch and amylose grains having a diameter of from 0.01 to 0.20 mm and



measuring said determinable groups as a measure of the initial alpha amylase content.

4,337,311

15 HYDROXYLATION OF 1α,2α-METHYLENE STEROIDS

Karl Petzoldt; Hermann Steinbeck, and Walter Elger, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

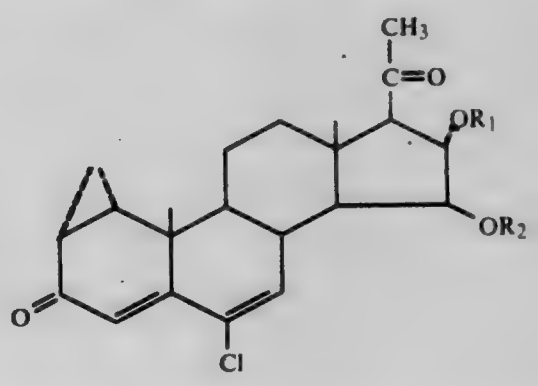
Division of Ser. No. 886,014, Mar. 13, 1978, Pat. No. 4,196,204. This application Nov. 21, 1979, Ser. No. 96,349

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1977, 2712861

Int. Cl.[3] C12P *33/12*

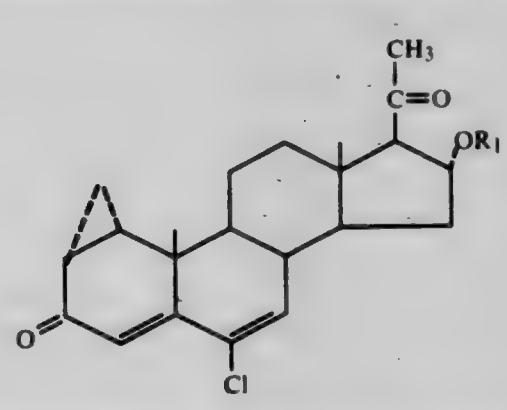
U.S. Cl. 435—54 5 Claims

1. A process for the preparation of hydroxylated 1α,2α-methylene steroids of the formula



wherein R_1 and R_2 are identical or different and each is hydrogen or the residue of an organic or inorganic acid,

and for the esters capable of salt formation, the salts thereof, which comprises fermenting a compound of the formula



with a bacterial culture of the genus Bacillus and esterifying free hydroxy groups in the 17- or 15-positions when required to produce the desired R_1 and R_2 moieties.

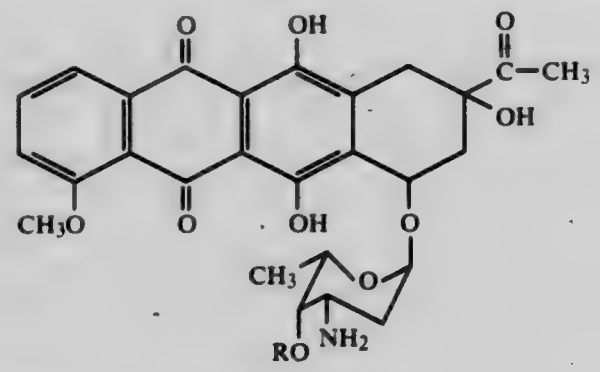
4,337,312

PROCESS FOR PRODUCING ANTHRACYCLINE GLYCOSIDES

Toshikazu Oki, Yokohama; Akihiro Yoshimoto, Fujisawa; Kageaki Kouno, Tokyo; Taiji Inui, Chigasaki; Tomio Takeuchi, and Hamao Umezawa, both of Tokyo, all of Japan, assignors to Sanraku-Ocean Co., Ltd., Tokyo, Japan

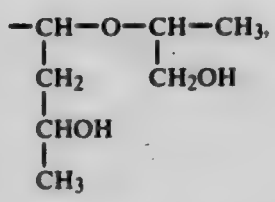
Filed Aug. 26, 1980, Ser. No. 181,545
Claims priority, application Japan, Sep. 7, 1979, 54-115521
Int. Cl.³ C12P *19/56*
U.S. Cl. 435—78 7 Claims

1. A process for producing anthracycline antibiotics having the general formula I:

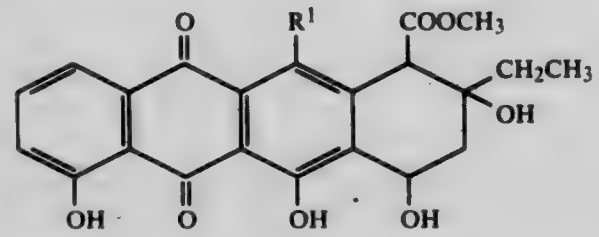


(I)

wherein
R represents a hydrogen atom or the acetal:



which comprises the microbial conversion by cultivating a microorganism of streptomyces, capable of converting an anthracyclinone selected from the group consisting of aklavinone and ϵ-rhodomycinone having the general formula II:



(II)

wherein
R^1 represents a hydrogen atom or a hydroxyl group, to the antibiotics daunomycin, baumycin A1 and baumycin A2, in an aqueous nutrient medium consisting of conventional carbon, nitrogen sources, inorganic salts and trace elements, and adding at least one of the said anthracyclinones into the cultured medium of said microorganism at the beginning stage of cultivation or during cultivation, and continuing the aerobic cultivation at 20° to 40° C. to complete the microbial conversion, and recovering said antibiotics from the cultured medium.

4,337,313

IMMOBILIZATION OF BIOCATALYSTS

Donald F. Hershberger, Garfield, Ind., and Moshe M. Sternberg, Oakland, Calif., assignors to Miles Laboratories, Inc., Elkart, Ind.

Filed Dec. 8, 1980, Ser. No. 214,218
Int. Cl.³ C12N *11/02, 11/04*
U.S. Cl. 435—177 15 Claims

1. A method for the immobilization of an enzyme producing microorganism or the enzyme produced thereby which comprises forming a reaction product by the steps of:

(a) contacting an aqueous medium containing the enzyme or a mass of bacterial cells having biocatalytic activity with tannin; a long chain, polyamine, cationic flocculating agent selected from the group consisting of poly(acrylamide), poly(ethyleneimine), poly(2-hydroxypropyl-1-N-methylammonium chloride), poly(2-hydroxypropyl-1,1-N-dimethylammonium chloride), poly[N-(dimethylaminomethyl)-acrylamide], poly(diallyldimethylammonium chloride), poly(N,N-dimethylaminoethyl methacrylate), poly[N-dimethylaminopropyl]-methacrylamide and a water soluble epihalohydrin/polyamine copolymer and a crosslinking agent selected from the group consisting of a multifunctional aldehyde, a multifunctional organic halide, a multifunctional anhydride, a multifunctional azo compound, a multifunctional isocyanate and a multifunctional isothiocyanate, and

(b) separating the reaction product from the aqueous medium.

4,337,314

GENETICALLY ATTENUATED BACTERIAL VACCINES WITH MULTIPLE MUTATIONS OF THE SAME PHENOTYPE

Max P. Oeschger, Silver Spring, Md.; Anne M. Hooke, Annandale, Va., and Joseph A. Bellanti, Bethesda, Md., assignors to Research Corporation, New York, N.Y.

Filed May 23, 1979, Ser. No. 41,896
Int. Cl.³ C12N *1/20*
U.S. Cl. 435—253 7 Claims

1. A biologically pure culture of an avirulent bacterial strain useful as a vaccine, wherein said avirulent strain is derived from a virulent bacterial strain by introducing into said virulent strain at least two mutations of the same phenotype which render said virulent strain avirulent, while permitting said avirulent strain to retain immunogenicity;

wherein said phenotype is a temperature-sensitive phenotype which suppresses growth at the normal body temperature of a host for said virulent strain.

4,337,315

CONTINUOUS FERMENTOR AND REACTOR

Susumu Fukushima, Toyonaka; Hideaki Munenobu, Ibaragi, and Kazuhiro Yamade, Wakayama, all of Japan, assignors to Tokyo Kikakikai Co., Ltd., Tokyo; Kansai Chemical Engineering Co., Ltd., Hyogo and Takara Shuzo Co., Ltd., Kyoto, all of, Japan

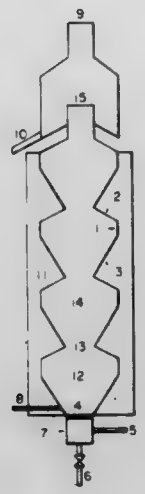
Filed Oct. 17, 1980, Ser. No. 198,090
Claims priority, application Japan, Mar. 4, 1980, 55-27724; Jul. 8, 1980, 55-93502
Int. Cl.³ C12M *1/04*
U.S. Cl. 435—313 8 Claims

1. A continuous reactor comprising at least two unit reactors each comprising an open top cone-shaped member;

an inverted open bottom cone-shaped member;

a cylinder, said top and bottom members being connected to said cylinder at opposite ends thereof;

a gas supply member and a liquid introducing pipe connected to a lowest unit reactor; and



a gas separator and a liquid product or slurry product discharge pipe connected to a highest unit reactor.

4,337,316

SANITARY WARE AND PROCESS OF PRODUCTION

Werner F. Votava, Broadview Heights, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

Filed Sep. 19, 1980, Ser. No. 188,919

Int. Cl.³ C03C *5/00, 3/04, 3/22;* C04B *33/00*

U.S. Cl. 501—21 **4 Claims**

1. A substantially completely vitreous, smelted, clear glass frit containing:

(a) leachable amounts of deflocculent oxides and flocculent alkaline earths and adapted to serve as a ceramic body flux in a ceramic slip without thickening the slip to an unworkable viscosity,

(b) said frit being completely liquid at a smelting temperature of about 2600° F. to about 2750° F. and containing in solution the diopside precursors CaO, MgO, and SiO_2, said frit consisting essentially of the following:

CaO	15 to 25
MgO	10 to 20
SiO_2	35 to 50
Additive	5 to 20

said additive being selected from one or more of the following in approximately the percent indicated based on the total weight of the glass:

K_2O	0 to 5
Na_2O	0 to 10
Li_2O	0 to 5
Al_2O_3	0 to 12,

(c) said frit being adapted upon heating to crystallize from solution at least a fluxing amount of said precursors in the form of fine diopside crystals having an average particle size less than one micron and being substantially free of unreacted alkaline earths, and

(d) said deflocculent oxides and flocculent alkaline earths being leachable from said frit in sufficient relative amounts to counterbalance each other and prevent said thickening of the slip to an unworkable viscosity.

4. The glass frit of claim 1 containing 0 to 3.6% P_2O_5.

4,337,317

COMPOSITIONS AND METHODS FOR PRODUCING CLAYWARE

Ian A. Beard, Surbiton, England, assignor to United States Borax & Chemical Corp., Los Angeles, Calif.

Filed Apr. 27, 1981, Ser. No. 257,835

Claims priority, application United Kingdom, Jan. 24, 1980, 8002361; European Pat Off., Jan. 23, 1981, 81300325.8

Int. Cl.³ C04B *33/13, 33/24*

U.S. Cl. 501—142 **11 Claims**

1. A method of producing clayware by firing a composition containing clay and a boron-containing flux, characterised in that the flux is a synthetic alkali metal and/or alkaline earth metal aluminosilicate having the crystal structure of a zeolite and containing boron entrapped within that structure.

4,337,318

PROCESS FOR THE TOTAL PRE-EXPANSION OF POLYURETHANE FOAM

Earl N. Doyle, 6333 Dixie Dr., Houston, Tex. 77807

Filed Sep. 30, 1980, Ser. No. 192,613

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—80 **11 Claims**

1. A process for the production of low density polyurethane foam in the absence of post-expansion, said process comprising the steps of:

(a) mixing together in a mixing zone at ambient temperature (i) a first component comprising polymeric diisocyanate having a functionallty within the range of approximately 2.2 to 2.9, (ii) a second component comprising a blend of polyol, surfactant, and catalyst, and (iii) a blowing agent comprising a gas having a boiling point below approximately −100° F. at atmospheric pressure, the mixture being subjected in said mixing zone to a pressure sufficient to maintain said blowing agent in the liquid state at ambient temperature, said mixture being substantially free of water;

(b) ejecting said mixture from said mixing zone to atmospheric pressure, thereby completely and instantaneously vaporizing said blowing agent and providing total expansion of said mixture, and

(c) curing the resulting foam.

4,337,319

SELF-EXTINGUISHING, FINE PARTICULATE EXPANDABLE STYRENE POLYMERS

Josef K. Rigler, Recklinghausen; Hans-Josef Ratajczak, Marl; Horst Leithäuser, Marl, and Karl Trukenbrod, Marl, all of Fed. Rep. of Germany, assignors to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Division of Ser. No. 116,842, Jan. 30, 1980, Pat. No. 4,286,071. This application Nov. 12, 1980, Ser. No. 206,282

Claims priority, application Fed. Rep. of Germany, Feb. 19, 1979, 2906336

Int. Cl.³ C08J *9/14*

U.S. Cl. 521—96 **4 Claims**

1. In the method for producing particulate molding compositions for the production of foamed articles which consists essentially of polymerizing styrene monomers or styrene monomers in admixture with comonomers in aqueous suspension under intensive mechanical stirring in the presence of an expanding agent, an organic bromine compound and a synergist, the improvement comprising said synergist comprising a hydrocarbon soluble in monomeric styrene and forming stable radicals at temperatures above 300° C. in a concentration of about 0.1 to 3% by weight based on said polymerized styrene, said hydrocarbon selected from the group consisting of dibenzyltoluol, 1-phenyl-1,3,3-trimethylindane and benzyltoluol.

4,337,320
EXPANDABLE VINYL CHLORIDE RESIN COMPOSITION

Misao Morinaga, Buzen, Japan, assignor to Otsuka Chemical Co., Ltd., Osaka, Japan

Filed Mar. 25, 1981, Ser. No. 247,397
Int. Cl.[3] C08G *18/14, 18/62, 18/58*
U.S. Cl. 521—137 5 Claims

1. An expandable vinyl chloride resin composition for foaming under atmospheric pressure which comprises a resin ingredient comprising (A) a vinyl chloride homopolymer or copolymer having substantially no active hydrogens, (B) a vinyl chloride copolymer having active hydrogens and (C) a thermoplastic polyurethane resin, and a crosslinking agent, a foaming agent, a thermal stabilizer and a plasticizer, the ratio of the components (A), (B) and (C) being 30 to 90:5 to 40:5 to 40 by weight.

4,337,321
MULTI-STAGED FOAMING OF THERMOPLASTIC RESIN

Sambasiva R. Allada, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 2, 1980, Ser. No. 212,168
Int. Cl.[3] B29D *27/00*
U.S. Cl. 521—143 7 Claims

1. In a method of preparing a thermoplastic foam article wherein a heat foamable thermoplastic preform is heated to a temperature at or above the decomposition temperature of a blowing agent compounded in the preform and foamed, the improvement wherein the foamable preform is heated and foamed in a series of foaming stages, said series comprising at least one stress-relieving foaming stage in which the preform is partially foamed at a temperature equal to or above the decomposition temperature of the blowing agent (T_d) but below the temperature at which distortion and tearing occurs, and at least one additional foaming stage which is conducted subsequent to said stress-relieving foaming stage and at a temperature higher than that of said stress-relieving foaming stage, and in which foaming is substantially completed at a foaming rate faster than the rate of foaming during said prior stress-relieving foaming stage.

7. A thermoplastic foam article prepared by the foaming method of claim 1.

4,337,322
TIRE FILLING COMPOSITION

Lawrence E. Jaspon, 15 Lovers La., Southboro, Mass. 01772

Filed Sep. 8, 1981, Ser. No. 300,210
Int. Cl.[3] C08L *9/10*
U.S. Cl. 523—166 11 Claims

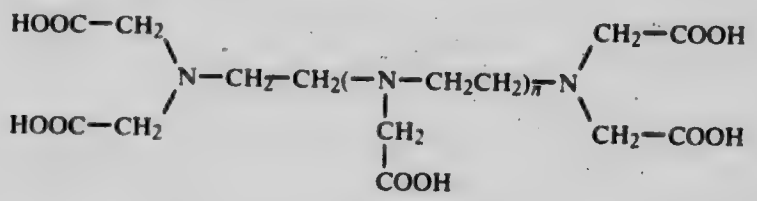
1. A composition for injection into inflatable tires, the composition comprising:
(a) asbestos fiber,
(b) ethylene glycol monomer,
(c) polyethylene glycol,
(d) polyisoprene,
(e) process oil,
(f) detergent,
(g) sodium bicarbonate, and
(h) water

4,337,323
STABILIZED AQUEOUS DISPERSIONS OF VINYL CHLORIDE POLYMERS

Klaus Adler; Klaus Häfener, and Herbert Eck, all of Burghausen, Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 15,564, Feb. 26, 1979, abandoned. This application Nov. 6, 1980, Ser. No. 204,428
Claims priority, application Fed. Rep. of Germany, Mar. 3, 1978, 2809260
Int. Cl.[3] C08K *5/16*
U.S. Cl. 524—239 3 Claims

1. An aqueous dispersion comprised of a stabilized vinyl chloride homopolymer or copolymer having at least 25% by weight of vinyl chloride units in the polymer and having K values of between 20 and 80 characterized by the presence in said polymer of from 0.3 to 6% by weight of the polymer of one or more of the compounds having the general formula



wherein n has the meaning from 0 to 2, or the water-soluble salts thereof, wherein the the polymer has a particle size range of between 0.001 and 15 μm, in the presence of the customary quantities of protective colloid or emulsifiers, and having solids contents of between 10 and 60% by weight, calculated on the total dispersion.

4,337,324
VINYL CHLORIDE RESIN COMPOSITION

Haruhiko Yusa; Yo Iizuka, and Humio Akutsu, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 19, 1981, Ser. No. 226,471
Claims priority, application Japan, Jan. 25, 1980, 55-7629
Int. Cl.[3] C08L *51/00*
U.S. Cl. 525—72 7 Claims

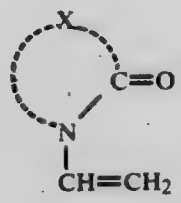
1. A vinyl chloride resin composition with improved thermal deformation resistance, impact strength, and processability which comprises:
(A) a vinyl chloride resin;
(B) an impact strength modifier resin; and
(C) a copolymer,
and in which the vinyl chloride resin (A) constitutes 20 to 80% of the composition, the total of the impact strength modifier resin (B) and the copolymer (C) constitutes 80 to 20% of the composition, and the copolymer (C) constitutes 90 to 20% of the total of the impact strength modifier resin (B) and the copolymer (C), said copolymer (C) having been obtained by polymerizing 90 to 30 parts of a monomer mixture comprising 20 to 80% of a monomer selected from the group consisting of α-methylstyrene and 2-isopropenylnaphthalene, 1 to 70% of methyl methacrylate, 5 to 30% of acrylonitrile, and 0 to 30% of a monomer copolymerizable with the preceding monomers in the presence of a crosslinked polymer obtained by copolymerizing 10 to 70 parts of a monofunctional monomer selected from the group consisting of methyl methacrylate, acrylonitrile, methacrylonitrile, styrene, α-methylstyrene, 2-isopropenylnaphthalene, and mixtures thereof with 0.01 to 7 parts of a polyfunctional monomer having a plurality of non-conjugated ethylenic unsaturations, the sum of the quantities of said monofunctional monomer and said monomer mixture being 100 parts, all quantities expressed in percent and parts being by weight.

4,337,325
PRESSURE-SENSITIVE ADHESIVE

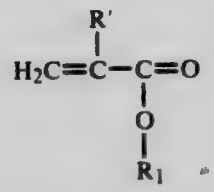
Kishore R. Shah, Chelmsford, Mass., assignor to The Kendall Company, Boston, Mass.

Continuation-in-part of Ser. No. 956,061, Oct. 30, 1978, abandoned. This application Apr. 4, 1980, Ser. No. 137,297
Int. Cl.³ C08L *35/00, 39/06*
U.S. Cl. 525—205 8 Claims

1. A composition consisting essentially of an optically clear blend of (1) a water-soluble polymer of a vinyl lactam having the structure



in which X represents an alkylene bridge having three to five carbon atoms, or a copolymer thereof with 1 to 80 mole percent of copolymerizable monomer containing a polymerizable ethylenic unsaturation, and (2) a tacky water-insoluble copolymer comprising (A) an ester or a mixture of esters having the structure



in which R′ represents hydrogen or methyl and R_1 represents alkyl having from 1 to 14 carbon atoms and (B) from 1 to 12% by weight, based on the tacky copolymer of an ethylenic monomer containing an acid group, said vinyl lactam polymer or copolymer being present in an amount from 1 to 30% by weight of the blend and having a glass transition temperature from 20° to 150° C., and the tacky copolymer having a glass transition temperature below 0° C. and being present in an amount from 70 to 99% by weight of the blend and being substantially free from cross-linking and having a viscosity less than 50,000 cps at 350° F. so that it possesses by itself insufficient cohesive strength to be useful as a pressure-sensitive adhesive, said blend having a viscosity less than 100,000 cps at 350° F.

4,337,326
PROCESS FOR PRODUCING PROPYLENE-ETHYLENE BLOCK COPOLYMERS

Akinobu Shiga; Masahiro Kakugo; Hajime Sadatoshi; Kazuki Wakamatsu, and Hiroshi Yoshioka, all of Niihama, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Oct. 8, 1980, Ser. No. 194,954
Claims priority, application Japan, Oct. 13, 1979, 54-132004
Int. Cl.³ C08F *297/08*
U.S. Cl. 525—244 3 Claims

1. A process for producing a propylene-ethylene block copolymer by subjecting propylene and ethylene to three-step polymerization using a stereoregular polymerization catalyst, which comprises in the first step polymerizing propylene alone or a propylene/ethylene mixture in the presence of hydrogen so that the average ethylene/propylene reaction ratio is 6/94 or less, thereby polymerizing 60 to 95% by weight of the total polymerization amount, in the second step polymerizing a propylene/ethylene mixture so that the average ethylene/propylene reaction ratio is 25/75 to 67/33, thereby polymerizing 1 to 20% by weight of the total polymerization amount, and in the third-step adding ethylene in such manner that the molar ratio of ethylene to propylene present in the system is in the range of from 25/75 to 60/40, polymerizing a propylene/ethylene mixture in the presence of hydrogen so that the average ethylene/propylene reaction ratio is 76/24 to 89/11, thereby polymerizing 4 to 25% by weight of the total polymerization amount, wherein, in the second and third steps, ethylene alone is supplied thereby gradually decreasing the amount of propylene in the polymerization system from the first step to the succeeding steps.

4,337,327
NOVEL BLOCK COPOLYMERS INCLUDING ACRYLONITRILE SEQUENCES AND SEQUENCES INCLUDING UNITS DERIVED FROM GLUTARIMIDE UNITS AND PROCESSES FOR PREPARING SAME

Vladimir A. Stoy, Princeton, N.J., assignor to S.K.Y. Polymers, Inc., N.J.

Continuation-in-part of Ser. No. 166,032, Jul. 7, 1980. This application Sep. 17, 1980, Ser. No. 188,060
Int. Cl.³ C08F *220/48, 293/00*
U.S. Cl. 525—280 15 Claims

1. A novel block copolymer of a molecular weight of from 10,000 to 2,000,000 comprised of acrylonitrile sequences and sequences comprised of at least about 50 mole percent acrylamide units and functional units derived from glutarimide units and selected from the group consisting of carboxyl ester, hydrazide and hydroxylamide units, said acrylomile sequences having a molecular weight of at least 400, said sequence of said acrylamide and said functional units having a molecular weight of at least 400.

4,337,328
ACRYLIC POLYMERS HAVING A HIGH SWELLABILITY IN WATER

Arno Holst, Wiesbaden; Eberhard Perplies, Walluf, and Gerhard Buchberger, Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 115,495, Jan. 25, 1980, abandoned. This application Mar. 4, 1981, Ser. No. 240,440
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1979, 2903267
Int. Cl.³ C08F *8/12*
U.S. Cl. 525—336 6 Claims

1. Acrylic polymers which are (a) more than 50 percent by weight insoluble in water, (b) have a high swellability in water, and (c) have degrees of substitution (DS) of DS_{amide} from 0.05 to 0.20 and $DS_{carboxylate}$ from 0.002 to 0.15, said acrylic polymers being produced by reacting polyacrylonitrile or copolymers based on acrylonitrile with an aqueous-alkaline solution at a temperature exceeding 100° C.

4,337,329
PROCESS FOR HYDROGENATION OF CONJUGATED DIENE POLYMERS

Yoichiro Kubo, and Kiyomori Ohura, both of Yokohama, Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Nov. 26, 1980, Ser. No. 210,688
Claims priority, application Japan, Dec. 6, 1979, 54-158575; Dec. 6, 1979, 54-158576
Int. Cl.³ C08F *8/04*
U.S. Cl. 525—339 5 Claims

1. In a process which comprises catalytically hydrogenating the carbon-carbon double bonds of an unsaturated polymer prepared from 10 to 100% by weight of a conjugated diene monomer unit and 90 to 0% by weight of an ethylenically unsaturated monomer unit, the improvement which comprises using a catalyst composed of a porous powdery or granular carrier having supported thereon both Pd and at least one metal selected from the group consisting of the metals of Groups Ia, IIa, IVa, and VA of the periodic table, Ge Sb, Sc, B, Al, Ga, W and Mo.

4,337,330
BLENDS OF WATER SOLUBLE POLYETHERS AND POLY(HYDROXYETHERS)S

Lloyd M. Robeson, Whitehouse Station, N.J., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Sep. 2, 1980, Ser. No. 183,068
Int. Cl.[3] C08L *63/02, 71/02*
U.S. Cl. 525—407 8 Claims

1. A composition comprising a blend of:
(i) a water soluble poly(ethylene oxide), and
(ii) a thermoplastic poly(hydroxyether) having the general formula:

$$[A—O—D—O]_n$$

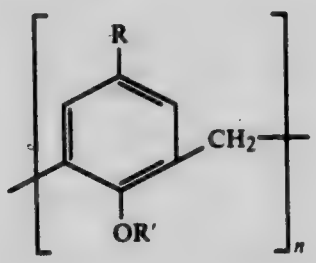
wherein A is a radical residuum of a dihydric phenol, D is a radical residuum of an epoxide selected from mono- and diepoxides and which contain from 1 to 2 hydroxyl groups, and n is an integer which is at least about 20.

4,337,331
CONDUCTIVE POLYMERS, FIBERS MADE THEREFROM AND PROCESS FOR MANUFACTURE

Roger I. Hancock, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jan. 21, 1981, Ser. No. 226,773
Claims priority, application United Kingdom, Jan. 31, 1980, 8003231
Int. Cl.[3] C08L *77/06, 61/14*
U.S. Cl. 525—429 9 Claims

1. A conductive polymer comprising a fibre-forming synthetic polymer selected from the group consisting of polyester and polyamide having dispersed therein as a separate phase between 1% and 20% by weight inclusive based on the polymer of a polyalkoxylated phenol-formaldehyde condensate having the general formula



in which n is an integer between 2 and 19 inclusive, R is hydrogen or an alkyl group containing 1 to 20 carbon atoms and R' is $-(CH_2CH_2O)_mH$ in which m is an integer such that the polyalkoxylated phenol-formaldehyde condensate contains between 60% and 95% by weight inclusive of alkylene oxide units based on the weight of the polyalkoxylated phenol-formaldehyde condensate.

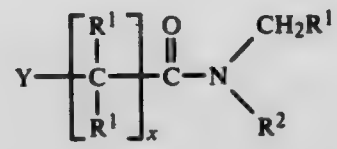
4,337,332
LATENTLY CURABLE ORGANOSILICONE COMPOSITIONS

Kurt C. Melancon, and Frederick J. Palensky, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

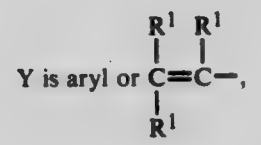
Filed Apr. 9, 1981, Ser. No. 252,294
Int. Cl.[3] C08G *77/06*
U.S. Cl. 528—15 23 Claims

1. A latently curable organosilicone composition, comprising the following components:
(a) an ethylenically unsaturated polysiloxane,
(b) a polyhydrosiloxane,
(c) an amount of a metal-containing catalyst sufficient to facilitate the reaction of components (a) and (b), and
(d) an amount of an unsaturated amide compound sufficient to inhibit premature gelation of the mixture of components (a), (b), and (c) at low, ambient or room temperature but insufficient in amount to prevent hydrosilation of the mixture at an elevated temperature, said unsaturated amide having the structural formula

III



wherein:
R^1 is independently selected from $—CH=CH_2$, phenyl, —H, an alkyl group having 1 to 4 carbon atoms, or naphthyl;
R^2 is CH_2R^1, or allyl;



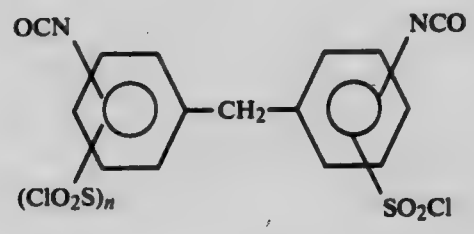
and
x is 0 or 1;
with the proviso that at least one of R^1 and R^2 is ethylenically or aromatically unsaturated.

4,337,333
SUBSTITUTED POLYISOCYANATE OR POLYISOCYANATE MIXTURES OF THE DIPHENYL METHANE SERIES CONTAINING CHLOROSULFONYL GROUPS

Helmut Reiff, and Dieter Dieterich, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 27, 1980, Ser. No. 200,638
Claims priority, application Fed. Rep. of Germany, Nov. 14, 1979, 2945867
Int. Cl.[3] C08G *18/76;* C07C *119/048*
U.S. Cl. 528—67 13 Claims

13. A process for the preparation of polyisocyanate polyaddition compounds, comprising reacting
(A) a diisocyanate, or diisocyanate mixtures, of the formula:



wherein n is 0 or 1; and
(B) an isocyanate-reactive compound.

4,337,334
PROCESS FOR PRODUCTION OF PHENOLIC RESIN FROM BISPHENOL-A BY-PRODUCTS

Yoshiro Shimizu, Nagoya; Toshio Itakura, Okazaki; Mitsuhiro Iwasa, Hino, and Kunio Hanauye, Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals Inc., Tokyo, Japan

Filed Feb. 10, 1981, Ser. No. 233,225
Int. Cl.[3] C08G *8/20, 8/24*
U.S. Cl. 528—137 7 Claims

1. In a process for producing a phenolic resin which comprises condensing a phenol component and an aldehyde component; the improvement wherein the phenol component comprises high-molecular-weight phenolic compounds which are left after bisphenol A-containing by-products formed in the production of bisphenol A by condensing acetone and phenol in the presence of an acid catalyst are treated at a temperature

of at least 150° C. in the presence of an alkaline catalyst to remove low-boiling components therefrom.

4,337,335

TRANSITION METAL SALT COMPLEXES OF POLYAMINO ORGANIC COMPOUNDS

Tattanahalli L. Nagabhushan, Parsippany; William N. Turner, Bloomfield, and Alan Cooper, West Caldwell, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Division of Ser. No. 906,895, May 18, 1978, Pat. No. 4,230,847, which is a continuation-in-part of Ser. No. 697,297, Jun. 17, 1976, Pat. No. 4,136,254. This application Dec. 26, 1979, Ser. No. 106,987

Int. Cl.³ C07F *1/08*; C07H *15/22, 11/00, 23/00*

U.S. Cl. 536—13.6 **12 Claims**

1. A polyamino-organic compound-transition metal salt complex of a polyamino-organic compound devoid of substituents, other than amino or hydroxyl, readily reactable with transition metal salts or acylating agents, wherein at least one of said amino groups has an available neighboring hydroxyl group, and at least one other of said amino groups is devoid of an available neighboring hydroxyl group, or is less reactive to a neighboring hydroxyl group because of steric hindrance, said salt being a salt of a divalent transition metal cation selected from the group consisting of copper (II), nickel (II), cobalt (II), and cadmium (II), or a mixture of said salts, wherein said divalent transition metal salt is combined with said polyamino-organic compound as a complex between said divalent transition metal salt and said available neighboring amino and hydroxyl pairs, the number of complex sites being no greater than the number of said available neighboring amino and hydroxyl group pairs.

2. A complex of claim 1 which is an aminocyclitolamino-glycoside-transition metal salt complex wherein at least one of said amino groups has an available neighboring hydroxyl group and said salt is a salt of a divalent transition metal cation selected from the group consisting of copper (II), nickel (II), cobalt (II) and cadmium (II), or is a mixture of said salts, said aminocyclitol-aminoglycoside-transition metal salt complex having complex sites between said divalent transition metal salt and said available neighboring amino and hydroxyl group pairs, the relative molar quantity of said transition metal salt per mole of said aminocyclitol-aminoglycoside being no greater than the number of said available neighboring amino and hydroxyl group pairs.

4,337,336

DERIVATIVE OF KANAMYCIN A AND A PROCESS FOR THE PREPARATION THEREOF

Hamao Umezawa; Sumio Umezawa; Shunzo Fukatsu, all of Tokyo; Toshio Yoneta, and Tadashi Wakazawa, both of Yokohama, all of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

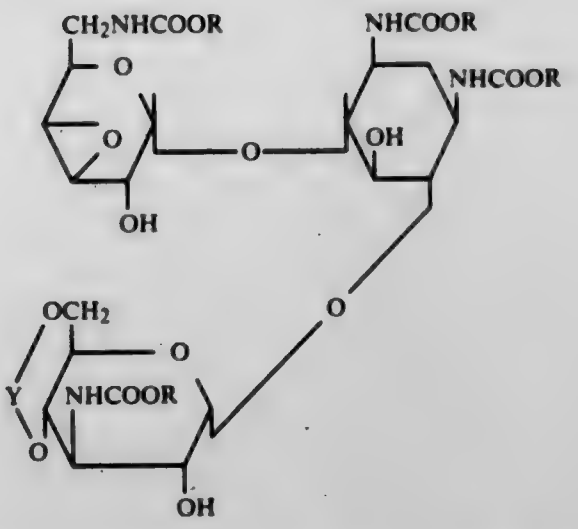
Filed Feb. 18, 1981, Ser. No. 235,576

Claims priority, application Japan, Feb. 25, 1980, 55/21666

Int. Cl.³ A61K *31/71*; C07H *15/22*

U.S. Cl. 536—13.8 **6 Claims**

1. 3′,4′-Anhydro-4′-epi derivatives of kanamycin A of the formula:



(I)

wherein R represents an alkyl of 1–4 carbon atoms, benzyl, phenyl or nitrophenyl, and Y represents an formylidene, ethylidene, isopropylidene, benzylidene, cyclopentylidene cyclohexylidene or tetrahydropyranylidene.

4,337,337

2,5-INTER-O-PHENYLENE-3,4-DINOR-5,9α-EPOXY-6-IODO-PGF$_1$ COMPOUNDS

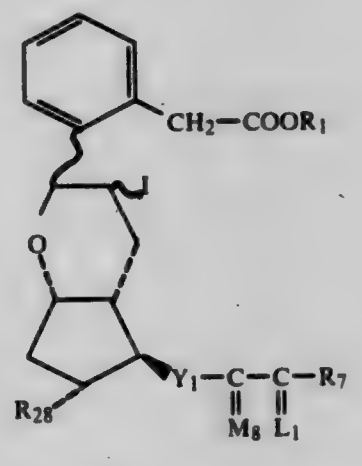
Udo F. Axen, Plainwell, and John C. Sih, Kalamazoo, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 62,443, Jul. 31, 1979, Pat. No. 4,312,810, which is a continuation-in-part of Ser. No. 962,845, Nov. 22, 1978, abandoned. This application Jul. 3, 1980, Ser. No. 165,834

Int. Cl.³ C07D *311/00*

U.S. Cl. 542—426 **1 Claim**

1. A prostacyclin intermediate of formula IX



wherein R_{28} is $-OR_{10}$, $-CH_2OR_{10}$, hydroxy, hydroxymethyl, or hydrogen, wherein R_{10} is a blocking group removable by mild acidic hydrolysis;

wherein Y_1 is

(1) trans—CH=CH—,

(2) cis—CH=CH—,

(3) $-CH_2CH_2-$, or

(4) —C≡C—,

wherein M_8 is α-R_5:β-OR_{10} or α-OR_{10}:β-R_5, wherein R_5 is hydrogen or methyl and R_{10} is as defined above, or α-R_5:β-OH or α-OH:β-R_5, wherein R_5 is as defined above;

wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of α-R_3:β-R_4 and α-R_4:β-R_3, wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein R_7 is

(1) $-(CH_2)_m-CH_3$, wherein m is an integer from one to 5, inclusive;

(2) phenoxy;

(3) phenoxy substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or

alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(4) phenyl;
(5) phenyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(6) phenylmethyl, phenylethyl, or phenylpropyl; or
(7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different;
wherein R_1 is
(1) hydrogen;
(2) alkyl of one to 12 carbon atoms, inclusive;
(3) cycloalkyl of 3 to 10 carbon atoms, inclusive;
(4) aralkyl of 7 to 12 carbon atoms, inclusive;
(5) phenyl;
(6) phenyl substituted with one, 2 or 3 chloro or alkyl of one to 3 carbon atoms; or
(7) phenyl substituted in the para position by
(a) $-NH-CO-R_{25}$
(b) $-CO-R_{26}$
(c) $-O-CO-R_{27}$
(d) $-CH=N-NH-CO-NH_2$
wherein R_{25} is methyl, phenyl, acetamidophenyl, benzamidophenyl, or $-NH_2$; R_{26} is hydroxy, methyl, phenyl, $-NH_2$, or methoxy; and R_{27} is phenyl or acetamidophenyl, inclusive, or a pharmacologically acceptable salt thereof when R_1 is hydrogen.

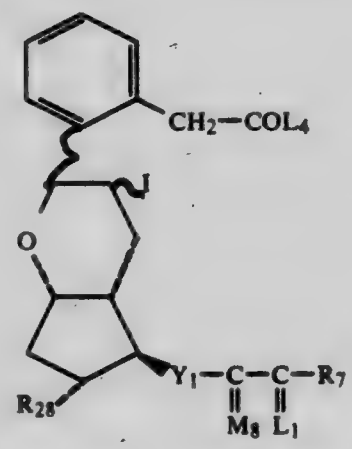
4,337,338

2,5-INTER-O-PHENYLENE-3,4-DINOR-5,9α-EPOXY-6-IODO-PGF$_1$ AMIDES

Udo F. Axen, Plainwell, and John C. Sih, Kalamazoo, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 62,443, Jul. 31, 1979, Pat. No. 4,312,810, which is a continuation-in-part of Ser. No. 962,845, Nov. 22, 1978, abandoned. This application Jul. 3, 1980, Ser. No. 165,835
Int. Cl.³ C07D *311/00*
U.S. Cl. 542—426 **1 Claim**

1. A prostacyclin intermediate of formula IX



wherein R_{28} is $-OR_{10}$, $-CH_2OR_{10}$, hydroxy, hydroxymethyl, or hydrogen, wherein R_{10} is a blocking group removable by mild acidic hydrolysis;
wherein Y_1 is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) $-CH_2CH_2-$, or
(4) $-C\equiv C-$,
wherein M_8 is α-Rhd 5:β-OR_{10} or α-OR_{10}:β-R_5, wherein R_5 is hydrogen on methyl and R_{10} is as defined above, or α-R_5:β-OH or α-OH:β-R_5, wherein R_5 is as defined above;
wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of α-R_3:β-R_4 and α-R_4:β-R_3, wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein R_7 is
(1) $-(CH_2)_m-CH_3$, wherein m is an integer from one to 5, inclusive;
(2) phenoxy;
(3) phenoxy substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(4) phenyl;
(5) phenyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(6) phenylmethyl, phenylethyl, or phenylpropyl; or
(7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, 2 to 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different;
wherein L_4 is
(1) amino of the formula $-NR_{21}R_{22}$, wherein R_{21} and R_{22} are
(a) hydrogen;
(b) alkyl of one to 12 carbon atoms, inclusive;
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive;
(d) aralkyl of 7 to 12 carbon atoms, inclusive;
(e) phenyl;
(f) phenyl substituted with one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
(g) carboxyalkyl of 2 to 5 carbon atoms, inclusive;
(h) carbamoylalkyl of 2 to 5 carbon atoms, inclusive;
(i) cyanoalkyl of 2 to 5 carbon atoms, inclusive;
(j) acetylalkyl of 3 to 6 carbon atoms, inclusive;
(k) benzoylalkyl of 7 to 11 carbon atoms, inclusive;
(l) benzoylalkyl substituted by one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, alkoxy of one to 3 carbon atoms, inclusive, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
(m) pyridyl;
(n) pyridyl substituted by one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive;
(o) pyridylalkyl of 6 to 9 carbon atoms, inclusive;
(p) pyridylalkyl substituted by one, 2 or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy or alkoxy of one to 3 carbon atoms, inclusive;
(q) hydroxyalkyl of one to 4 carbon atoms, inclusive;
(r) dihydroxyalkyl of one to 4 carbon atoms, inclusive, or
(s) trihydroxyalkyl of one to 4 carbon atoms, inclusive; with the further proviso that not more than one of R_{21} and R_{22} is other than hydrogen or alkyl;
(2) cycloamino selected from the group consisting of
(a) pyrrolidino,
(b) piperidino,
(c) morpholino,
(d) piperazino,
(e) hexamethyleneimino,
(f) pyrrolino,
(g) 3,4-didehydropiperidinyl, or
(h) pyrrolidino, piperidino, morpholino, piperazino, hexamethyleneimino, pyrrolino or 3,4-didehydropiperidinyl substituted by one or two alkyl of one to 12 carbon atoms, inclusive;
(3) carbonylamino of the formula $-NR_{23}COR_{21}$, wherein

R_{23} is hydrogen or alkyl of one to 4 carbon atoms and R_{21} is other than hydrogen, but otherwise as defined above; or (4) sulfonylamino of the formula $—NR_{23}SO_2R_{21}$, wherein R_{21} and R_{23} are as defined in (3).

4,337,339

PROCESS FOR PREPARATION OF FOLIC ACID DERIVATIVES

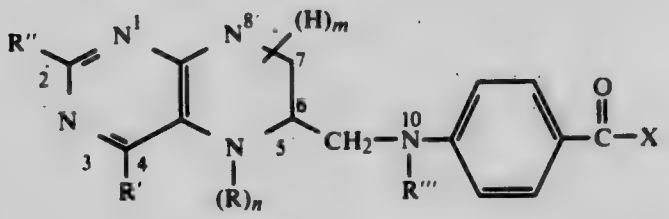
Peter R. Farina, North Salem, and James A. Grattan, Croton-on-Hudson, both of N.Y., assignors to Baker Instruments Corp., Wilton, Conn.

Division of Ser. No. 34,760, Apr. 30, 1979. This application Oct. 31, 1979, Ser. No. 90,059

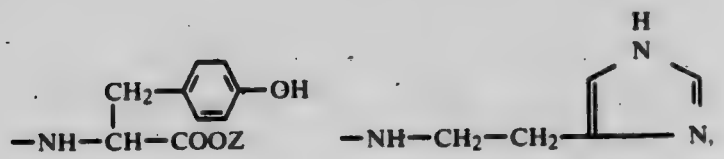
Int. Cl.³ C07D *475/04*

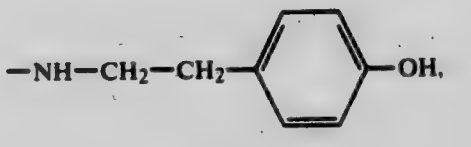
U.S. Cl. 544—257 **11 Claims**

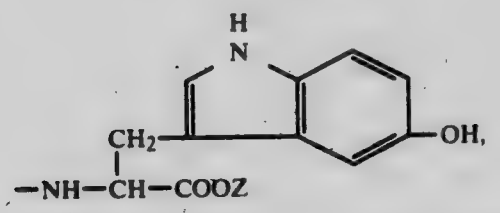
1. A process for the preparation of a composition having the formula:

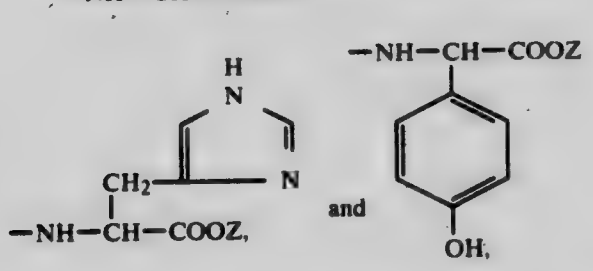


wherein R represents hydrogen, lower alkyl, formyl or iminomethyl; R′ and R″ individually represent lower alkyl, hydroxyl, halo, amino or acetamido; R‴ represents H or lower alkyl; m has a value of 1, 3 or 4; n has a value of zero or 1; and X is an amino acid or des-carboxy amino acid moiety; selected from the group consisting of:









wherein Z is hydrogen or lower alkyl, said process comprising the steps of:

(a) contacting a pteroic acid of the above formula wherein X is —OH, with a blocking agent to protect the nitrogen at the 10 position when R‴ is H.

(b) contacting the pteroic acid of step (a) with an acyl halide under basic conditions to form a mixed anhydride,

(c) condensing said mixed anhydride with HX wherein X is an amino acid moiety or a des-carboxy amino acid moiety as defined above, and

(d) hydrolyzing the product of condensation of step (c) under basic conditions, to provide said composition.

4,337,340

PROCESSES FOR PREPARING SUBSTITUTED FUROPYRIDINONES AND FUROPYRAZINONES

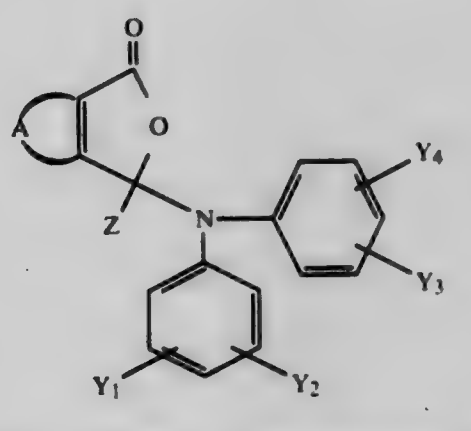
Paul J. Schmidt, Sharonville, and William M. Hung, Cincinnati, both of Ohio, assignors to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 48,534, Jun. 14, 1979, Pat. No. 4,243,250, which is a continuation-in-part of Ser. No. 968,082, Dec. 11, 1978, Pat. No. 4,211,872. This application Aug. 21, 1980, Ser. No. 180,098

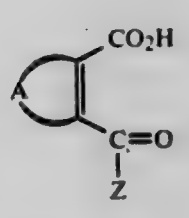
Int. Cl.³ C07D *491/04*

U.S. Cl. 544—350 **4 Claims**

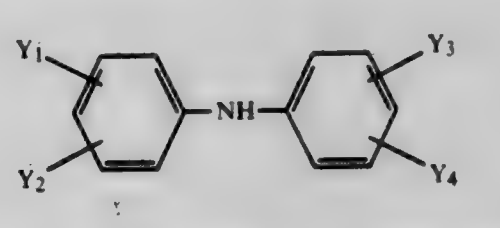
1. A process for producing a compound having the formula



which comprises reacting a pyridinecarboxylic acid or pyrazinecarboxylic acid having the formula

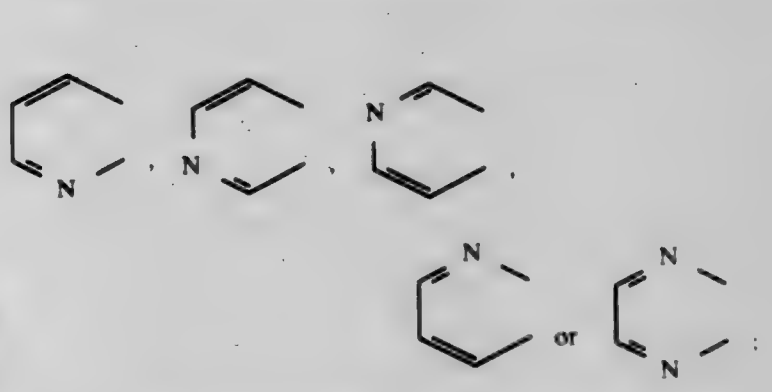


with a diarylamine having the formula



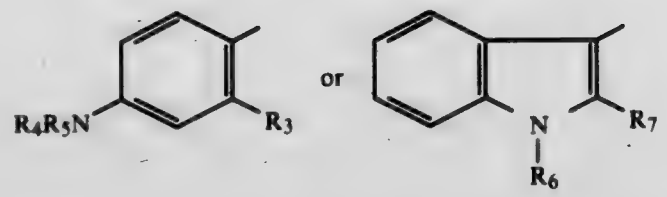
in the presence of the anhydride of an alkanoic acid having from 2 to 5 carbon atoms where in the above formulas:

A is



Y_1, Y_2, Y_3 and Y_4 are the same or different and are selected from the group consisting of hydrogen, halo, lower-alkoxy, alkyl having from 1 to 9 carbon atoms, phenyl-lower-alkyl and NR_1R_2 where R_1 is hydrogen or lower alkyl and R_2 is lower alkanoyl, phenylsulfonyl or lower-alkyl-substituted phenylsulfonyl; or NR, R_2 is di-lower-alkylamine;

Z is



in which:
R_3 is hydrogen, lower alkyl, lower alkoxy, halo or di-lower-alkylamino;
R_4 is lower alkyl;
R_5 is lower alkyl or benzyl;
R_6 is hydrogen or non-tertiary alkyl having from 1 to 18 carbon atoms; and
R_7 is hydrogen, phenyl or non-tertiary lower alkyl.

4,337,341

4A-ARYL-OCTAHYDRO-1H-2-PYRINDINES

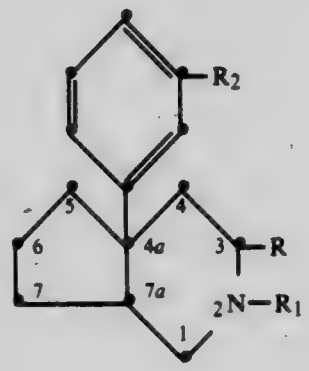
Dennis M. Zimmerman, Mooresville, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation of Ser. No. 164,994, Jul. 1, 1980, abandoned, which is a continuation of Ser. No. 13,996, Feb. 22, 1979, abandoned, which is a continuation of Ser. No. 864,899, Dec. 27, 1977, abandoned, which is a continuation-in-part of Ser. No. 737,958, Nov. 2, 1976, abandoned. This application Feb. 2, 1981, Ser. No. 230,556

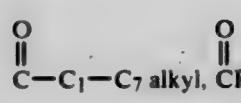
Int. Cl.³ C07D *221/04, 405/06*

U.S. Cl. 546—112 **5 Claims**

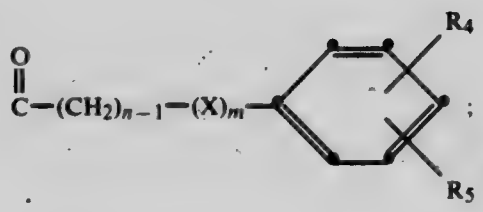
1. A compound having the formula



wherein:
R is hydrogen or C_1-C_5 alkyl;
R_1 is



in which
R_3 is C_2-C_7 alkenyl, C_3-C_6 cycloalkyl, furyl, or tetrahydrofuryl;
R_4 and R_5 independently are hydrogen, C_1-C_3 alkyl, or halogen;
n is 1, 2, or 3;
m is 0 or 1, except that when m is 0, n is other than 0;
X is CO, CHOH, CH=CH, S, or O, except that when n is 0, X is other than S or O;
R_2 is hydrogen, hydroxy, C_1-C_3 alkoxy, or C_1-C_3 alkanoyloxy; or



a non-toxic pharmaceutically acceptable acid addition salt thereof.

4,337,342

PROCESS FOR THE PREPARATION OF 3-PICOLINE

Rolf Dinkel, Visp, Switzerland, assignor to Lonza Ltd., Gampel/Valais, Switzerland

Filed May 12, 1981, Ser. No. 263,042

Claims priority, application Switzerland, May 23, 1980, 4052/80

Int. Cl.³ C07D *213/09, 213/10, 213/12*

U.S. Cl. 546—251 **24 Claims**

1. A process for the preparation of 3-picoline which comprises reacting a liquid-phase mixture of acetaldehyde and/or crotonaldehyde with formaldehyde, in the presence of an ammonium salt, at a temperature of 180° to 280° C. in a closed vessel.

4,337,343

4,5 OR 6-ALKYLAMINOALKYL-2-ALKYL-4,5,6,7-TETRAHYDRO BENZO[D]THIAZOLES

Jacques G. Maillard, Versailles; Pierre P. A. Delaunay, Herblay, and Jacky M. G. Legeai, Palaiseau, all of France, assignors to Laboratoires Jacques Logeais, Issy-Les-Moulineaux, France

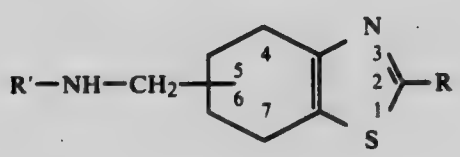
Filed Jun. 18, 1980, Ser. No. 160,458

Claims priority, application France, Jun. 20, 1979, 79 15774

Int. Cl.³ C07D *277/60;* A61K *31/425*

U.S. Cl. 548—152 **3 Claims**

1. A compound selected from the compounds of the general formula (I):



(I)

in which:
the group R′—NH—CH_2— is in the 4, 5 or 6 position,
R is selected from hydrogen and C_{1-6} alkyl,
R′ is selected from hydrogen and C_{1-6} alkyl;
and a pharmaceutically acceptable acid addition salt thereof.

4,337,344

PROCESS FOR THE PREPARATION OF DIBENZOTHIAZYL DISULFIDE

Michel J. C. Alicot, Lannemezan, and Adrien P. N. Tignol, Montrejeau, both of France, assignors to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Jul. 31, 1979, Ser. No. 62,398

Claims priority, application France, Aug. 18, 1978, 78 24093

Int. Cl.³ C07D *417/12*

U.S. Cl. 548—158 **7 Claims**

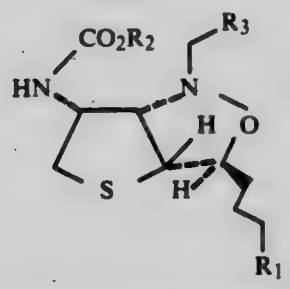
1. A process for the preparation of dibenzothiazyl disulfide by oxidation of an aqueous suspension of mercaptobenzothiazole by means of hydrogen peroxide, which consists in effecting the oxidation in the presence of ethylenediaminetetraacetic acid or an alkali metal salt thereof used at the rate of 0.025 to 1% by weight with respect to the hydrogen peroxide and at a temperature between 10° and 100° C.

4,337,345
PREPARATION OF BIOTIN VIA THIENO [3,2c] ISOXAZOLES

Enrico G. Baggiolini, Nutley; Hsi L. Lee, West Paterson, and Milan R. Uskokovic, Upper Montclair, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 75,360, Sep. 13, 1979, abandoned, which is a division of Ser. No. 946,675, Sep. 28, 1978, Pat. No. 4,189,586, which is a division of Ser. No. 822,119, Aug. 5, 1977, Pat. No. 4,130,713. This application Jun. 25, 1981, Ser. No. 277,568
Int. Cl.³ C07D *515/04*
U.S. Cl. 548—242 4 Claims

1. A compound of the formula:



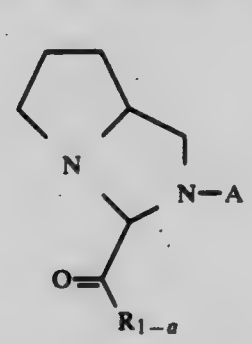
the enantiomers and racemates thereof, wherein R_1 is methyl or $—CH_2OR_4$, where R_4 is lower alkyl or benzyl; R_2 is lower alkyl and R_3 is phenyl, naphthyl, benzyl; said phenyl or naphthyl each are unsubstituted or substituted with a halogen, lower alkylenedioxy having 2 to 5 carbon atoms, lower alkyl or lower alkoxy, with the lower alkyl and lower alkoxy moieties each having 1 to 7 carbon atoms.

4,337,346
α-HYDROXYALDEHYDE AND A PROCESS FOR PREPARING THE SAME

Teruaki Mukaiyama, Tokyo; Yoji Sakito, Musashino, and Masatoshi Asami, Yokohama, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

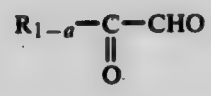
Filed Oct. 30, 1979, Ser. No. 89,356
Claims priority, application Japan, Nov. 2, 1978, 53-135511; Nov. 6, 1978, 53-137147; Jun. 4, 1979, 54-70365; Jun. 4, 1979, 54-70366; Jun. 4, 1979, 54-70367
Int. Cl.³ C07C *45/56*; C07D *487/04*
U.S. Cl. 548—324 7 Claims

1. A process for preparing an optically active or racemic aminal represented by the formula (I),

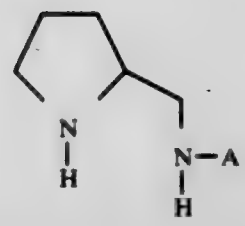


(1)

wherein A represents a C_6-C_{14} aryl group which may be substituted with a C_1–C_4 alkyl, C_1–C_4 alkoxy or a halogen atom and R_{1-a} represents a C_6–C_{14} aryl group, which comprises reacting a arylglyoxal represented by the formula,



wherein R_{1-a} is as defined above, with an optically active or racemic 2-(N-substituted aminomethyl)pyrrolidine represented by the formula,



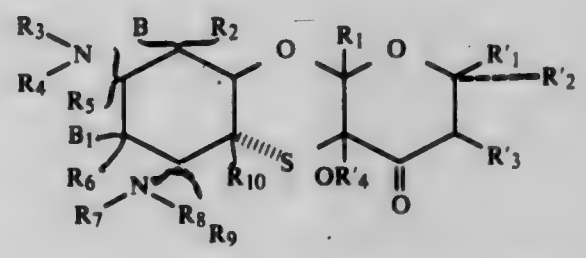
wherein A is as defined above.

4,337,347
PROCESS FOR PREPARING ANALOGS OF SPECTINOMYCIN

David R. White, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 68,926, Aug. 23, 1979, Pat. No. 4,282,152. This application Dec. 4, 1980, Ser. No. 212,952
Int. Cl.³ C07D *327/08*
U.S. Cl. 549—16 3 Claims

1. Anomers and asteric mixtures of a compound having the formula:



wherein R'_1 through R'_3 may be the same or different and are selected from the group consisting of hydrogen, lower alkyl, lower haloalkyl, acyloxy alkyl, lower aminoalkyl, lower alkenyl, lower alkynyl, -OX and -(CHn2)n-OX and isomers thereof with the proviso that R_1, R_2 and R_3 are not hydroxy,

X is selected from the group consisting of hydrogen, lower alkyl, lower alkenyl, and lower alkynyl;

n is an integer of from one to four;

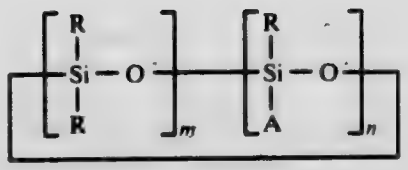
R_2, R_5, R_6, R_9 and R_{10} are selected from the group consisting of hydrogen, lower alkyl, lower alkenyl and lower alkynyl; R_3, R_4, R_7 and R_8 are selected from the group consisting of hydrogen, alkyl, lower alkenyl, lower alkynyl, and a blocking group selected from the group consisting of aralkoxycarbonyl, halogenated alkoxycarbonyl and alkoxycarbonyl; with the proviso that one of R_3 and R_4 is always a blocking group and one of R_7 and R_8 is always a blocking group; R'_4 is aroyl, lower alkyl or acyl; and B and B_1 are the same or different and are selected from the group consisting of hydrogen, hydroxy, alkoxy, o-lower alkenyl, thio, thio-lower alkyl and thio-lower alkenyl.

4,337,348
BENZOIN GROUP-CONTAINING CYCLIC ORGANOPOLYSILOXANES AND A METHOD FOR THE PREPARATION THEREOF

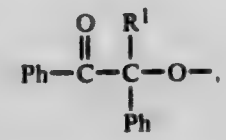
Minoru Takamizawa, Annaka; Fumio Okada, Takasaki, and Hisashi Aoki, Annaka, all of Japan, assignors to Shin-Etsu Chemical Company Limited, Tokyo, Japan

Filed Jun. 17, 1981, Ser. No. 274,631
Claims priority, application Japan, Jun. 20, 1980, 55-83520
Int. Cl.³ C07F *7/18*
U.S. Cl. 556—436 8 Claims

1. A benzoin group-containing cyclic organopolysiloxane represented by the general structural formula



in which R is a substituted or unsubstituted monovalent hydrocarbon group, A is a benzoin group expressed by the formula



Ph being a phenyl group and R^1 being a hydrogen atom or an alkyl group having from 1 to 4 carbon atoms, m is zero or a positive integer and n is a positive integer with the proviso that m+n is 3, 4, 5 or 6.

4,337,349

DIMETHACRYLATE ADDUCTS OF GLYCIDYL METHACRYLATE WITH DIESTERS OF BIS (HYDROXYMETHYL) TRICYCLO[5.2.1.0 2,6]DECANE AND DICARBOXYLIC ACIDS

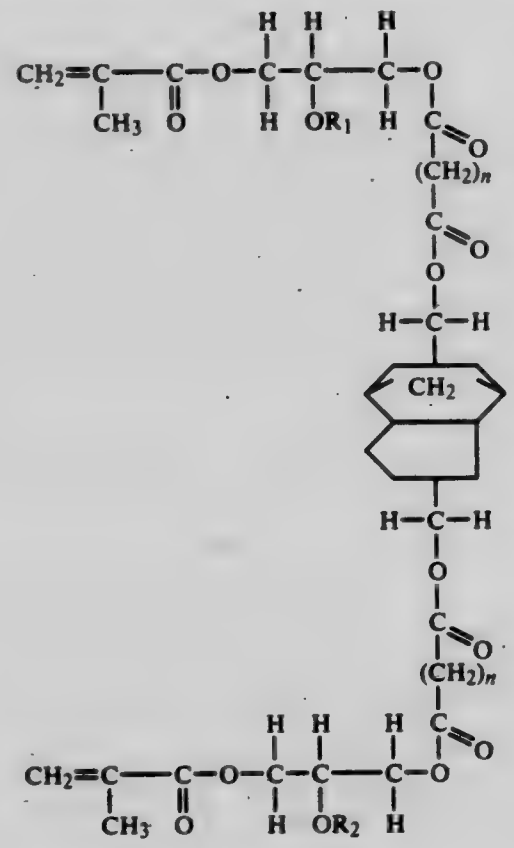
Jan A. Orlowski, Altadena; David V. Butler, West Covina, and Patrick D. Kidd, Sierre Madre, all of Calif., assignors to Scientific Pharmaceuticals, Inc., Duarte, Calif.

Filed Jun. 2, 1980, Ser. No. 155,160

Int. Cl.³ C07C *125/065*

U.S. Cl. 560—30 **7 Claims**

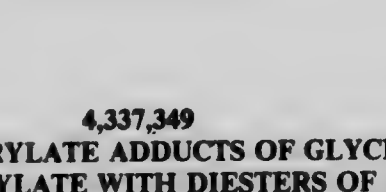
1. A dimethacrylate of the following chemical structure:



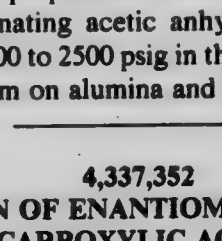
where

n represents a number of 2 to 8;

R_1 and R_2 are the same or different and are hydrogen or one or more groups of the formula:



where R_3 is an aliphatic group of 1–14 carbon atoms, aromatic group of 6–14 carbon atoms or cycloaliphatic having 3 to 14 carbon atoms, and at least one of R_1 and R_2 is



4,337,350

REDUCTION OF 2,5-DIKETOGLUCONIC ACID

Glenn C. Andrews, Waterford, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 12,683, Feb. 16, 1979, Pat. No. 4,230,880, which is a division of Ser. No. 843,946, Oct. 20, 1977, Pat. No. 4,159,990, which is a continuation-in-part of Ser. No. 749,509, Dec. 10, 1976, abandoned. This application Apr. 25, 1980, Ser. No. 143,585

Int. Cl.³ C07C *69/716*

U.S. Cl. 560—174 **2 Claims**

1. An alkyl-2,5-diketogluconate-5,5-dialkyl acetal wherein each alkyl group is normal alkyl of 1 to 4 carbon atoms.

4,337,351

PREPARATION OF ETHYLIDENE DIACETATE

Thomas H. Larkins, Jr., Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 30, 1981, Ser. No. 229,816

Int. Cl.³ C07C *67/00, 69/16*

U.S. Cl. 560—263 **3 Claims**

1. Process for the preparation of ethylidene diacetate which comprises hydrogenating acetic anhydride at about 140° to 225° C. and about 300 to 2500 psig in the presence of a catalytic amount of ruthenium on alumina and methyl iodide.

4,337,352

SEPARATION OF ENANTIOMERS OF CHIRAL CARBOXYLIC ACIDS

Klaus Naumann, Cologne, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

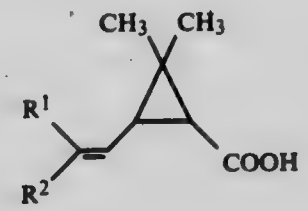
Continuation of Ser. No. 43,981, May 31, 1979, abandoned. This application May 15, 1981, Ser. No. 263,812

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1978, 2826952

Int. Cl.³ C07B *19/00, 21/00*

U.S. Cl. 562—401 **10 Claims**

1. A process for the separation of enantiomers of a chiral carboxylic acid of the formula



wherein

R^1 and R^2 each independently is hydrogen, alkyl with 1–4 C atoms, halogen, optionally substituted phenyl or optionally substituted phenylmercapto,

comprising reacting an alkali metal salt of the acid with an amount of an optically active phenylglycine ethyl ester salt

which is equivalent to only one enantiomer, in an aqueous weakly alkaline buffered solution as the reaction medium, the reaction medium having a pH value at which the entire acid is present in the ionized form but at which no amine salt is yet deprotonated, whereby the ammonium salt of the one enantiomer precipitates while the alkali metal salt of the other enantiomer remains in solution, and separating the precipitate from the solution.

4,337,353

NOVEL CARBOXYLIC ACIDS, BENZOYL PHENYL ALKANOIC ACIDS AND USE THEREOF

André Allais, Gagny; Francois Clemence, Paris; Jean Meier, La Varenne Saint-Hilaire, and Roger Deraedt, Les Pavillons-sous-Bois, all of France, assignors to Roussel UCLAF, Paris, France

Continuation-in-part of Ser. No. 540,382, Jan. 13, 1975, abandoned. This application Feb. 6, 1978, Ser. No. 875,323
Claims priority, application France, Jan. 24, 1974, 74 02386
Int. Cl.³ C07C *59/84*
U.S. Cl. 562—460 **3 Claims**

1. A compound selected from the group consisting of 6-[3'-(4-chlorobenzoyl)-2'-methyl-phenyl]-hexanoic acid and its non-toxic, pharmaceutically acceptable salts and esters.

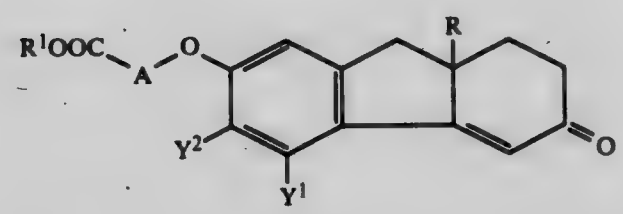
4,337,354

[(5,6,9A-SUBSTITUTED-3-OXO-1,2,9,9A-TETRAHYDRO-3H-FLUOREN-7-YL)OXY]ALKANOIC AND CYCLOALKANOIC ACIDS, THEIR ANALOGS, ESTERS, SALTS, AND DERIVATIVES

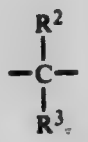
Edward J. Cragoe, Jr., Lansdale; Gerald E. Stokker, Gwynedd Valley, and Norman P. Gould, Lansdale, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 86,605, Oct. 19, 1979, abandoned, and a continuation-in-part of Ser. No. 164,708, Jun. 30, 1980, abandoned. This application Feb. 19, 1981, Ser. No. 236,079
Int. Cl.³ C07C *69/94*
U.S. Cl. 562—461 **12 Claims**

1. A compound of the formula:



wherein R is C_2 to C_4 alkynyl, branched or unbranched; R^1 is H, lower alkyl; lower alkenyl; lower alkynyl; lower cycloalkyl; substituted lower alkyl, where the substituent is carboxy, lower alkoxycarbonyl, oxo, hydroxy, lower alkoxy, halo, lower acyloxy, lower dialkylamino, sulfamoyl, pyridyl, furyl, tetrahydrofuryl, aryl, 1-methylpiperidyl, morpholinyl, pyrrolidinyl, 1-methyl-piperazinyl, and thienyl; substituted cycloalkyl heterocyclic; aryl; Y^1 and Y^2 are independently Cl and CH_3; A is $(CH_2)_2$ or



where R^2 is H, methyl or ethyl, R^3 is H, F or methyl and R^2 and R^3, may be joined together to form the ring $>C(CH_2)_n$ where n is the integer 2, 3 or 4; and pharmaceutically acceptable salts thereof.

4,337,355

PROCESS FOR PREPARING 4-HYDROXYPHENYLACETIC ACID

Kazuhisa Nakajima, Mino; Kazuaki Gohgi, Nishinomiya, and Toshio Yamamoto, Suita, all of Japan, assignors to Nippon Gohsei Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jun. 20, 1980, Ser. No. 161,592
Int. Cl.³ C07C *65/01*
U.S. Cl. 562—478 **9 Claims**

1. A process for preparing 4-hydroxyphenylacetic acid which comprises reducing, in the presence of a catalyst, 4-hydroxymandelic acid in a reaction medium consisting essentially of a water-containing lower aliphatic carboxylic acid containing 5 to 50% by weight of water, and recovering the resulting 4-hydroxyphenylacetic acid.

4,337,356

CATALYTIC LIQUID-PHASE OXIDATION OF BUTANE

John E. Logsdon, and Ben W. Kiff, So. Charleston, both of W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 20, 1980, Ser. No. 132,298
Int. Cl.³ C07C *51/215, 53/08, 55/10*
U.S. Cl. 562—549 **5 Claims**

1. In a continuous process for the cobalt catalyzed liquid-phase oxidation of butane to acetic acid with oxygen at a pressure of about 200–1000 psig in acetic acid solvent at a temperature of about 80°–150° C. in the presence of an oxidation promoter wherein the cobalt catalyst stream is recycled, the improvement which comprises:

(1) keeping the iron concentration below about 1000 parts per million in the catalyst recycle stream;

(2) limiting the water concentration to a maximum of about 3% based on the weight of the catalyst recycle stream;

(3) maintaining a cobalt acetate concentration of at least about 0.1% but no more than 3% based on the weight of the reaction mixture; and

(4) continuously removing succinic acid by-product whereby a level below the saturation point of succinic acid is maintained in the reaction media.

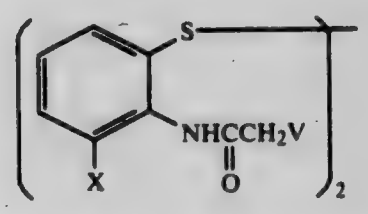
4,337,357

HERBICIDAL DITHIO-BIS(HALOACETANILIDES)

Tamon Uematsu, Toyonaka; Shunichi Hashimoto, Takarazuka, and Hiromichi Oshio, Minoo, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 28,801, Apr. 10, 1979, Pat. No. 4,268,301. This application Oct. 24, 1980, Ser. No. 200,339
Claims priority, application Japan, Apr. 17, 1978, 53-45766; Oct. 13, 1978, 53-126378
Int. Cl.³ A01N *9/12*; C07C *103/38*
U.S. Cl. 564—154 **4 Claims**

1. A compound of the formula (VIII):



wherein each of X and V is a halogen atom.

4,337,358

PROCESS FOR OXIDIZING PRIMARY AMINES TO OXIMES BY ELEMENTAL OXYGEN

John N. Armor, Morris Plains, N.J., assignor to Allied Corporation, Morristown, N.J.

Continuation-in-part of Ser. No. 164,463, Jun. 30, 1980, abandoned. This application Apr. 13, 1981, Ser. No. 254,000

Int. Cl.³ C07C *131/04, 131/00*

U.S. Cl. 564—267 5 Claims

1. Process for conversion of primary saturated aliphatic and alicyclic amines having between 2 and 12 carbon atoms in the molecule to oximes, comprising contacting said amine in vapor phase with elemental oxygen and with essentially only unreactive diluent vapors or gases at amine concentration and oxygen concentration outside the explosive limits; and with a silica gel catalyst having surface area of between about 50 and about 1000 m^2/g; at absolute pressure between about 10 and 1,000 kPa; and at temperature between about 120° C. and about 250° C.; and at contact time of the heated gaseous reactants with the catalyst between about 0.1 and 10 seconds.

4,337,359

PREPARATION OF DIMETHYL POLYSULPHIDES

Hermann Arold, Wuppertal; Siegbert Humburger, Leverkusen; Hans-Joachim Diehr, Wuppertal, and Helmut Porkert, Baytown, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 30, 1981, Ser. No. 249,241

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1980, 3013396

Int. Cl.³ C07C *148/00*

U.S. Cl. 568—21 10 Claims

1. A process for the preparation of a dimethyl polysulphide of the formula

$$CH_3—S_x—CH_3$$

in which x is from 1 to 5, comprising reacting a polysulphide of the formula

$$M_yS_x$$

in which

M represents an alkali metal atom or alkaline earth metal atom, and

y is 1 or 2,

with O,O,O-trimethyl thiophosphate of the formula

$$(CH_3O)_3P{=}S.$$

4,337,360

PROCESS FOR PREPARING METHYLVANILLYL KETONE FROM ISOEUGENOL

Meyer Sletzinger, North Plainfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Sep. 28, 1979, Ser. No. 79,748

Int. Cl.³ C07C *45/42*

U.S. Cl. 568—322 4 Claims

1. A through process for preparing methylvanillyl ketone which comprises:

(1) oxidation of a protected isoeugenol in a dilute, inert solvent to obtain a reaction mixture containing protected isoeugenol epoxide as an intermediate therein;

(2) treating said reaction mixture with a strong acid in an inert solvent; and

(3) recovering methylvanillyl ketone directly from said acid-treated reaction mixture without isolating said protected isoeugenol epoxide intermediate.

4,337,361

LIQUID PHASE SYNTHESIS OF HEXAFLUOROACETONE

Louis G. Anello, Hamburg; Michael Van Der Puy, Cheektowaga; Martin A. Robinson, East Amherst, and Richard E. Eibeck, Orchard Park, all of N.Y., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Feb. 27, 1981, Ser. No. 238,920

Int. Cl.³ C07C *45/56*

U.S. Cl. 568—386 10 Claims

1. A process for the preparation of hexafluoroacetone which comprises contacting, in the liquid phase, hexafluorothioacetone dimer in the presence of an aprotic solvent containing a catalytic amount of an alkali metal fluoride with a gaseous oxidant selected from the group consisting of air, O_2, O_3, NO_2 and NO.

4,337,362

CONVERSION OF HEXAFLUOROTHIOACETONE DIMER INTO HEXAFLUOROACETONE

Louis G. Anello, Hamburg, N.Y., assignor to Allied Corporation, Morris Township, Morris County, N.J.

Filed Jun. 8, 1981, Ser. No. 271,456

Int. Cl.³ C07C *45/56*

U.S. Cl. 568—386 14 Claims

1. A method of preparing hexafluoroacetone which consists essentially of:

(a) reacting, in the liquid phase, hexafluorothioacetone dimer with at least about a stoichiometric amount of an aprotic solvent selected from the group consisting of dimethylacetamide, dimethylformamide, dimethyl sulfoxide and N-methyl pyrrolidone and at least a catalytic amount of a member selected from the group consisting of LiF, NaF, KF, CsF and RSO_3H wherein R is an organic radical selected from the group consisting of straight and branched chain alkyl having from one to six carbon atoms, aryl having from six to ten carbon atoms, monoalkylaryl wherein aryl contains six to ten carbon atoms and alkyl contains one to fourteen carbon atoms and dialkylaryl wherein each alkyl group contains one to six carbon atoms;

(b) maintaining the reacting temperature above about 90° C.; and

(c) recovering hexafluoroacetone.

4,337,363

PROCESS FOR THE PREPARATION OF 3-(4-METHYL-3-CYCLOHEXEN-1-YL) BUTYRALDEHYDE

Helmut Bahrmann, Hünxe; Boy Cornils, Dinslaken; Carl D. Frohning, and Jürgen Weber, both of Oberhausen, all of Fed. Rep. of Germany, assignors to Ruhrchemie Aktiengesellschaft, Oberhausen, Fed. Rep. of Germany

Filed Aug. 24, 1979, Ser. No. 69,659

Claims priority, application Fed. Rep. of Germany, Aug. 28, 1978, 2837480

Int. Cl.³ C07C *45/50*

U.S. Cl. 568—444 9 Claims

1. In a process for the preparation of 3-(4-methyl-3-cyclohexen-1-yl)butyraldehyde by hydroformylation of limonene in the presence of a catalyst containing a metal of Group VIII of the Periodic Table, the improvement wherein a rhodium carbonyl complex containing additionally a triphenyl and/or trialkyl phosphine as ligands is used as catalyst and the reaction is conducted at a pressure of 100 to 350 bars and at a temperature of 110° to 160° C., the triphenyl or trialkyl phosphines or mixtures thereof being present in an amount of 10 to 50 moles per gram atom of rhodium in the reaction mixture.

4,337,364

OLEFIN OXIDATION WITH SUPPORTED CUO CATALYST

Paul W. Solomon, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 23, 1981, Ser. No. 228,037
Int. Cl.[3] C07C *45/35, 47/20*
U.S. Cl. 568—475 4 Claims

1. A method for preparing aldehyde from olefin comprising contacting said olefin with an oxygen containing gas at a temperature in the range of about 350° C. to about 500° C. in the presence of a catalyst produced by the method comprising (1) impregnating a support with an aqueous solution of cupric oxide, (2) subjecting the impregnated support to a temperature in the range of about 90° C. to about 150° C. for a time sufficient to produce a dry powder thereby providing a catalyst consisting essentially of a support impregnated with about 0.1 to about 5 weight percent cupric oxide.

4,337,365

PROCESS FOR THE SELECTIVE HYDROFORMYLATION OF METHANOL TO ACETALDEHYDE

Wellington E. Walker, deceased, late of Sissonville, W. Va. by Maxine M. Walker, administratrix, assignor to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 138,678, Apr. 9, 1980, abandoned. This application Feb. 17, 1981, Ser. No. 233,971
Int. Cl.[3] C07C *45/49, 47/06*
U.S. Cl. 568—487 13 Claims

1. In a process for selectively producing acetaldehyde from the reaction of methanol, hydrogen and carbon monoxide at a pressure of from 1,000 psig to 10,000 psig and a H_2:CO mole ratio of from 1:10 to 10:1 and wherein the reaction is catalyzed by a catalyst system consisting essentially of cobalt and iodide, the improvement consisting of carrying out the reaction at a temperature of from 100° C. to 180° C. in the presence of a substantially inert solvent from the group of dioxane, tetrahydrofuran, the dimethyl ether of tetraethylene glycol and 1,2-dimethoxybenzene at an iodide to cobalt mole ratio of from 2:1 to 100:1 and wherein the volume ratio concentration of said inert solvent to methanol is from 0.5:1 to 100:1.

4,337,366

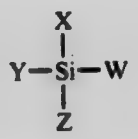
METHOD FOR THE PREPARATION OF ETHERS

Vittorio Fattore; Giovanni Manara, and Bruno Notari, all of San Donato Milanese, Italy, assignors to Snamprogetti S.p.A., Milan, Italy

Continuation of Ser. No. 879,769, Feb. 21, 1978, abandoned, which is a continuation of Ser. No. 633,859, Nov. 20, 1975, abandoned. This application Mar. 10, 1980, Ser. No. 129,163
Claims priority, application Italy, Nov. 21, 1974, 29683 A/74
Int. Cl.[3] C07C *41/09*
U.S. Cl. 568—698 16 Claims

1. A method for the preparation of aliphatic ethers comprising dehydrating an aliphatic alcohol at a temperature between 200° and 400° C. in the presence of a catalyst produced by the steps of:

(a) reacting active alumina with a silicon compound of general formula



wherein X, Y, Z, and W are each selected from the group consisting of —R, —OR, —Cl, —Br, —SiH_3, —COOR and —SiH_nCl_m, R is a hydrogen atom of an alkyl, cycloalkyl, aryl, alkyl-aromatic or alkyl-cycloalkyl radical having from 1 to 30 carbon atoms and m and n are integers of from 1 to 3;

(b) drying the product of step (a); and

(c) calcining in air the dried product of step (b) thereby depositing on said alumina from 0.5% to 20% by weight, calculated on the final overall weight of said catalyst, of silica formed by the above reaction.

4,337,367

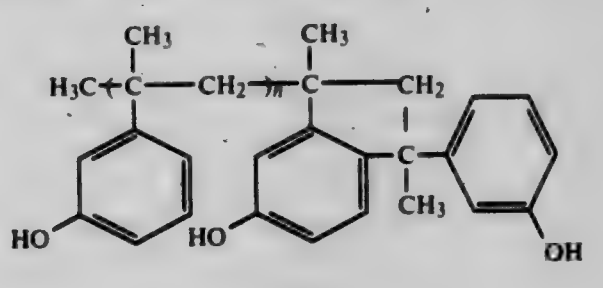
OLIGOMER OF M-ISOPROPENYLPHENOL

Shuichi Kanagawa, Osaka; Shinji Nakao, Sakai; Kiyoshi Nakai; Kunimasa Kamio, both of Toyonaka; Shunsuke Matsushima, Otsu; Kazuhiko Hata, Niihama, and Kentaro Mashita, Ibaraki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

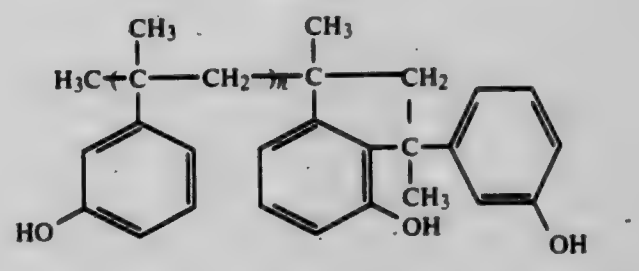
Division of Ser. No. 909,785, May 26, 1978, Pat. No. 4,221,715. This application Dec. 26, 1979, Ser. No. 106,845
Claims priority, application Japan, May 27, 1977, 52-62407
Int. Cl.[3] C07C *39/12, 39/06*
U.S. Cl. 568—720 8 Claims

1. A process for producing an oligomer of m-isopropenylphenol which comprises subjecting m-isopropenylphenol to thermal polymerization in the absence of a catalyst.

6. A process for producing an oligomer of m-isopropenylphenol having a number average molecular weight of about 270 to about 540, and having the formulae



and/or



wherein n is a mean value satisfying the equation $o<n\leqq 2$ comprising subjecting m-isopropenylphenol to thermal polymerization in the absence of a catalyst.

4,337,368

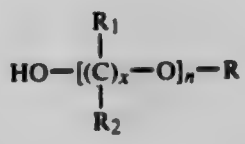
REAGENT AND METHOD FOR DECOMPOSING HALOGENATED ORGANIC COMPOUNDS

Louis L. Pytlewski; Kenneth Krevitz, both of Philadelphia, Pa., and Arthur B. Smith, Littleton, Colo., assignors to The Franklin Institute, Philadelphia, Pa.

Continuation-in-part of Ser. No. 142,865, Apr. 21, 1980. This application Jun. 11, 1980, Ser. No. 158,359
Int. Cl.[3] C07C *39/12*
U.S. Cl. 568—730 23 Claims

1. A method for the decomposition of a halogenated organic compound, comprising the steps of:

(a) providing a reaction mixture comprising the halogenated compound, a reactant having the general formula



wherein R is hydrogen or lower alkyl, R_1 and R_2 are the same or different and are selected from the group consisting of hydrogen, unsubstituted or substituted lower alkyl, unsubstituted or substituted cycloalkyl having from 5 to 8 carbon

atoms, and unsubstituted or substituted aryl, n has a value of from 2 to about 400, and x has a value of at least 2, and an alkali metal; and

(b) reacting said reactant with said alkali metal and oxygen to form a decomposition reagent, which effects substantially complete removal of halogen from said halogenated compound and forms an oxygenated derivative of said compound.

4,337,369

METHOD OF DECOLORIZING MIXTURES OF T-BUTYL ALKYLPHENOLS

Steven H. Vanderpool, Austin, and Ernest L. Yeakey, Houston, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jan. 30, 1981, Ser. No. 229,822

Int. Cl.³ C07C *37/68, 39/04*

U.S. Cl. 568—756 **11 Claims**

1. A method for decolorizing a mixture of t-butyl alkylphenols derived by reacting a mono alkylphenol with isobutylene where the mono alkylphenol is made over an anionic ion-exchange resin catalyst comprising reacting the mixture with a portion of trioxane in a homogeneous liquid phase reaction.

4,337,370

PROCESS FOR THE PREPARATION OF RESORCINOL DERIVATIVES

Yukihisa Takisawa, Ibaraki, and Shinichi Hasegawa, Otsu, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

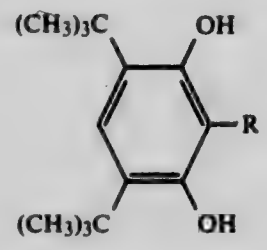
Filed Oct. 29, 1980, Ser. No. 201,746

Claims priority, application Japan, Nov. 8, 1979, 54-145060; Dec. 10, 1979, 54-160180

Int. Cl.³ C07C *37/11, 39/08*

U.S. Cl. 568—766 **6 Claims**

1. A process for preparing 2-substituted-4,6-di-t-butylresorcinol represented by the general formula:



wherein R represents a straight or branched alkyl group having 1 to 20 carbon atoms, a straight or branched alkenyl group having 2 to 20 carbon atoms and at least one double bond, or an aralkyl group, but the tertiary carbon of R is free from direct bonding to the nucleus which comprises allowing 4,6-di-t-butylresorcinol to react with a halogen compound represented by the general formula:

RX

wherein R has the same meaning as defined above and X represents a halogen atom, excluding the X bonded to the tertiary carbon of R, in an aqueous alkali solution.

4,337,371

PRODUCTION OF ETHYLENE GLYCOL BY REACTION OF METHANOL, AN ORGANIC PEROXIDE AND FORMALDEHYDE

John Kollar, Wyckoff, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Sep. 2, 1980, Ser. No. 183,537

Int. Cl.³ C07C *31/20*

U.S. Cl. 568—852 **8 Claims**

1. In a process for producing ethylene glycol by reacting methanol, an organic peroxide, and formaldehyde in the presence of water, said organic peroxide having the formula R-O-O-R¹ wherein R and R¹ each is an alkyl or aralkyl group containing 3 to 12 carbon atoms, the improvement comprising utilizing no more than about 6 weight percent of organic peroxide and an amount of water ranging from about 0.5 to about 35 weight percent, based on the total weight of methanol, organic peroxide, formaldehyde and water present, in the initial reaction mixture.

4,337,372

METHOD FOR THE CIS TO TRANS ISOMERIZATION OF AN ALKENOL

Toshinobu Ishihara; Akira Yamamoto, and Kenichi Taguchi, all of Joetsu, Japan, assignors to Shin-Etsu Chemical Company Limited, Tokyo, Japan

Filed May 22, 1981, Ser. No. 266,615

Claims priority, application Japan, May 26, 1980, 55-69723

Int. Cl.³ C07C *29/56*

U.S. Cl. 568—906 **4 Claims**

1. A method for the isomerization of a cis-isomer of an ethylenically unsaturated aliphatic alcohol represented by the general formula

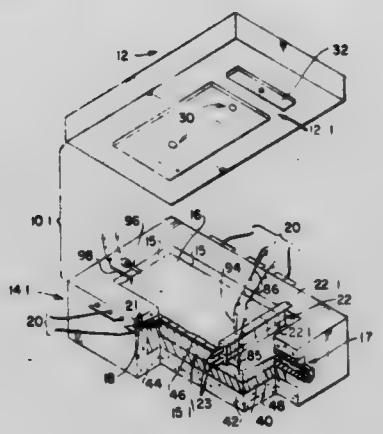
$$CH_3(CH_2)_mCH{=}CH(CH_2)_nOH$$

in which m and n are each an integer from 1 to 10 inclusive, into the trans-isomer which comprises heating the cis-isomer in the presence of selenium metal.

4,337,373
FURNACE FOR FUSING VANADIUM PENTOXIDE POWDER

Michael B. Fletcher, Pretoria, South Africa, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jan. 17, 1980, Ser. No. 113,098
Claims priority, application South Africa, Jan. 22, 1979, 79/0247
Int. Cl.³ H05B *3/60*
U.S. Cl. 373–120 15 Claims



1. A furnace comprising a body defined by walls extending upwardly from a bottom and adapted to contain an electrically conductive melt and having electrode ports extending downwardly at a slope through its walls, and having an overflow weir leading out of the body; a removable cover adapted to seat on the body and having a feed opening through which a particulate material may be fed into the body when the furnace is in operation; electrode rods extending downwardly through the electrode ports into the melt to a level below the level of the weir but clear of the bottom of the body; a power supply and means for electrically connecting said electrode rods to said power supply, the power supply being adapted to supply a substantially constant power to the electrode rods; feed means operatively mounted in relation to the feed opening in the cover, the feed means being adapted in operation to feed particulate material into the body; melt temperature sensing means adapted to sense the temperature of the melt and to provide a signal in response to variations of the melt temperature beyond a predetermined maximum or minimum value; and feed control means responsive to the signal from the melt temperature sensing means to automatically adjust the melt temperature within predetermined limits by controlling the rate of feed of particulate material onto the surface of the melt.

4,337,374
SERVICE WIRE SPLICE ENCLOSURE

Donald J. Smith, Woodland Hills, Calif., assignor to Communications Technology Corporation, Los Angeles, Calif.

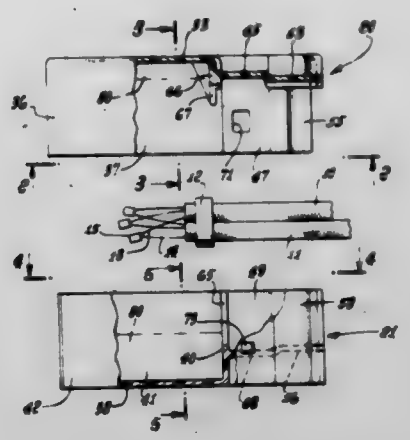
Filed Jan. 26, 1981, Ser. No. 228,242
Int. Cl.³ H02G *15/00*
U.S. Cl. 174—138 F 14 Claims

1. An enclosure for an electric cable splice, comprising:

a first generally rectangular shell having a main section, an intermediate section and an entrance section; and

a second generally rectangular shell having a main section, an intermediate section and an entrance section;

with one of said shells sliding over the other of said shells bringing said main sections together to form a main compartment, said intermediate sections together to form an

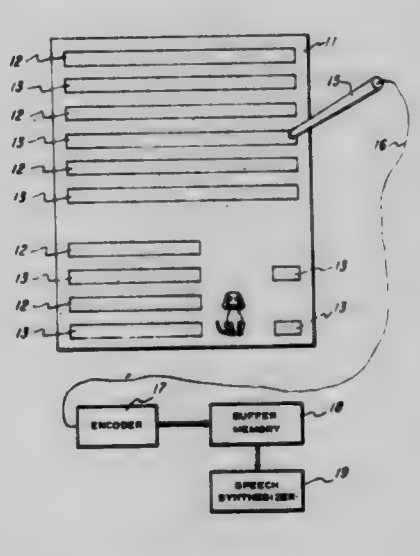


intermediate compartment, and said entrance sections together to form an entrance passage.

4,337,375
MANUALLY CONTROLLABLE DATA READING APPARATUS FOR SPEECH SYNTHESIZERS

Alfred B. Freeman, Emporia, Kans., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 12, 1980, Ser. No. 158,801
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1 SA 36 Claims



1. A speaking apparatus adapted to cooperate with a display material said display material having affixed thereto visual data and associated digitally coded speech data, said apparatus comprising;

pickup means for sensing said digitally coded speech data, and for producing digital output signals identifying speech sounds;

a speech synthesizer including means for storing sets of compressed data, each such set corresponding to one of said speech sounds, and electronic circuit means responsive to any of said sets of compressed data to audibly produce the corresponding speech sound; and

means responsive to said digital output signals to select sets of compressed data for controlling the operation of said electronic circuit means, the selected sets of compressed data corresponding to the speech sounds identified by said digital output signals.

4,337,376

COMMUNICATIONS SYSTEM AND NETWORK

Elliot L. Gruenberg, West New York, N.J., assignor to Broadcom, Incorporated, West New York, N.J.

Filed Dec. 31, 1979, Ser. No. 108,552
Int. Cl.³ H04M *11/00*; H04B *7/14, 7/20, 17/00*
U.S. Cl. 179—2 EB **16 Claims**



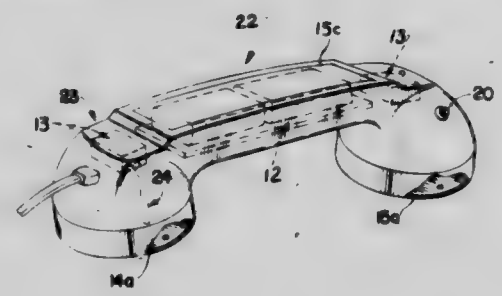
1. A communications system having at least one retrodirective node station and at least a pair of subscriber stations for establishing a communications link between said subscriber stations to permit said subscriber stations to interchange information comprising means for establishing first and second interdependent retrodirective oscillating loops between respectively one of said subscriber stations and said retrodirective node and said other subscriber station and said retrodirective node by controlling the energy characteristics of the link between the first subscriber station and the retrodirective node for combination with the energy characteristic of the link between the second subscriber station and the retrodirective node to bring about the substantially simultaneous establishment of said first and second retrodirective oscillating loops, and means in said retrodirective node for receiving information directed to said subscriber stations whereby said subscriber stations can interchange information.

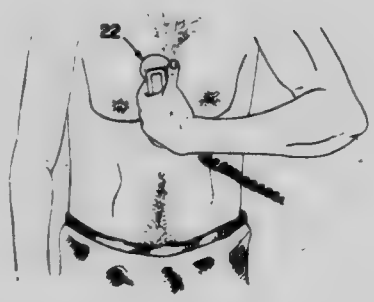
4,337,377

BIOLOGIC APPARATUS

Wilbur E. Van Riper, 2902 Fernwood Dr., Santa Ana, Calif. 92706, and Virgil R. Laul, 709 S. Parton St., Santa Ana, Calif. 92701

Filed Jan. 10, 1980, Ser. No. 110,981
Int. Cl.³ H04M *11/06*
U.S. Cl. 179—2 R **12 Claims**





1. A self-contained biologic unit having a physical configuration that is substantially similar to the physical configuration of a telephone handset;

said composite biologic unit including converting means, comprising a sound transducer, for converting biologic signals to corresponding sound signals adapted to be transmitted over a telephone system; and

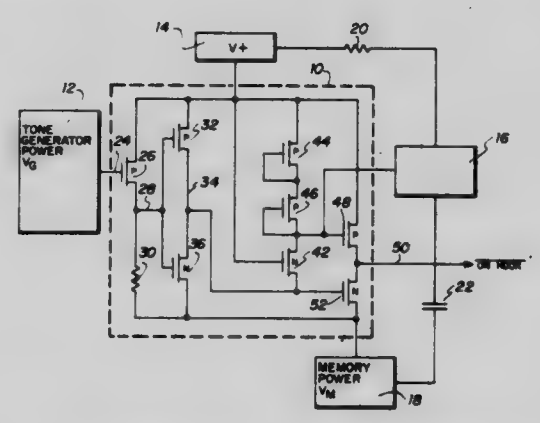
sound-tube means for conducting sounds from said sound producer to the mouthpiece of said telephone handset.

4,337,378

ON-HOOK/OFF-HOOK DETECTOR CIRCUIT

Harold L. Davis, The Colony, Tex., assignor to Mostek Corporation, Carrollton, Tex.

PCT No. PCT/US80/01699, § 371 Date Dec. 22, 1980, § 102(e) Date Dec. 22, 1980
PCT Filed Dec. 22, 1980, Ser. No. 273,842
Int. Cl.³ H04M *3/22*
U.S. Cl. 179—18 FA **10 Claims**



1. An on-hook/off-hook detector circuit comprising:

a series combination of a resistor and a capacitor connected together at a junction node, the combination connected between first and second power terminals, and serving as a time delay;

means for providing a current path from said junction node to said second power terminal when a status signal is at a first state and for opening said current path when said status signal is at a second state wherein the voltage at said junction node approaches the voltage of said first power terminal as said capacitor is charged when said current path is open;

means for clamping said junction node at a first preset voltage when said current path is provided between said junction node and said second power terminal; and

means for driving an output terminal from a first state to a second state when the voltage at said junction node reaches a second preset voltage.

4,337,379

PLANAR ELECTRODYNAMIC ELECTROACOUSTIC TRANSDUCER

Takao Nakaya, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Jan. 2, 1980, Ser. No. 109,111
Claims priority, application Japan, Jan. 16, 1979, 54-3639; Jan. 18, 1979, 54-4286[U]
Int. Cl.³ H04R *9/00*
U.S. Cl. 179—115.5 PV **11 Claims**

1. A planar type electroacoustic transducer comprising:

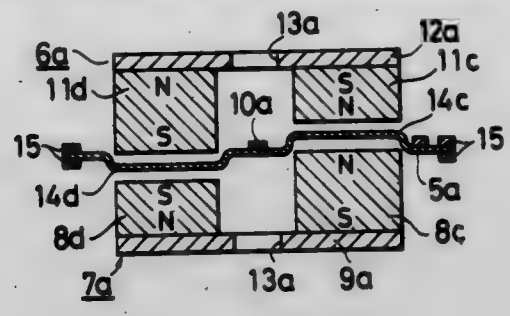
a diaphragm having two surfaces;

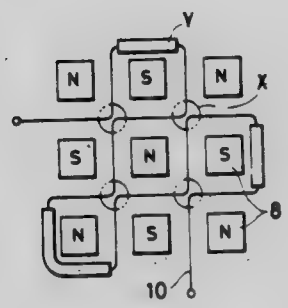
at least one set of magnet means facing one of the surfaces of said diaphragm at a distance sufficient to render this surface to lie within magnetic fields generated by said magnet means,

said magnet means having, at its surface facing the diaphragm, a plurality of spaced magnetic poles arranged in a matrix shape of columns and rows so that the respective adjacent poles are mutually different; and

an electric conductor provided on the diaphragm so as to form a current path continuously extending in alternate directions of a column and a row at sites corresponding to the spaces defined between respective ones of said magnetic poles

without continuously passing by any two magnetic poles of a same column or row, while causing magnetic flux generated between adjacent ones of the respective magnetic poles to traverse respective portions of the current path at right angle and in substantially a same direction with respect to a direction of a current flow in the current path,





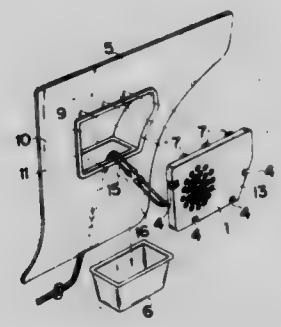
said electric conductor having enlarged portions at such sites of the current path as correspond to outer marginal regions of outermostly located ones of the magnetic poles in the matrix form to provide a small impedance at the portions.

4,337,380

STRUCTURE FOR MOUNTING SPEAKER

Hisao Tezuka, and Hiroshi Furui, both of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed Jul. 16, 1980, Ser. No. 169,239
Claims priority, application Japan, Jul. 18, 1979, 54/97946[U]
Int. Cl.³ H04R *1/02*
U.S. Cl. 179—146 E **2 Claims**



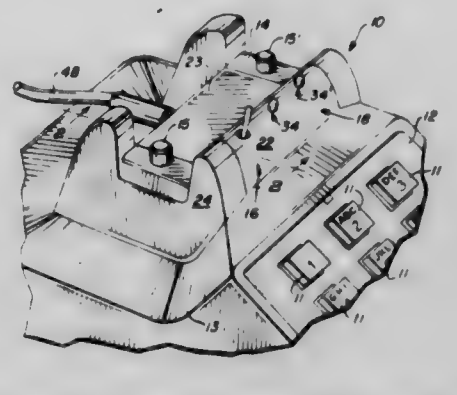
1. A structure for mounting a speaker which comprises:
a speaker;
a base member with said speaker fixed thereto;
a plurality of engaging portions formed on said base member;
a pocket portion formed on a vertical wall and having a flange portion;
U-shaped spring members;
each of said U-shaped spring members being adapted to engage at one end thereof with said flange portion and at another end thereof with the corresponding engaging portion.

4,337,381

CLIP-ON ELECTRIC LOCK AND SWITCHING DEVICE FOR TELEPHONE

Jeffrey D. Stein, 3528 Merrimac Ave., San Diego, Calif. 92117

Filed Mar. 11, 1980, Ser. No. 129,387
Int. Cl.³ H04M *1/21*
U.S. Cl. 179—178 **10 Claims**



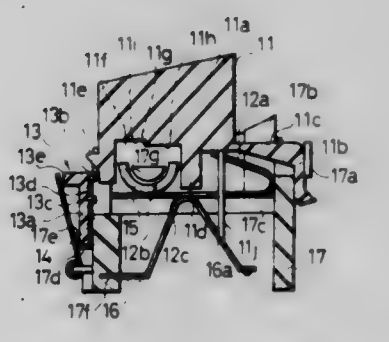
1. For a telephone having a cradle, said cradle including a ledge above which a handset is to be placed, a device to be interconnected at said cradle to permit control of the operation of the telephone, said control device comprising:
a housing for receiving the telephone handset thereupon, said housing having a top and a bottom,
the bottom of said housing being positionable adjacent said cradle ledge and the top of said housing having an arcuate ridge extending completely across a first end thereof to form a substantially uniform extension and completion of the outline of a corresponding first end of said cradle,
circuit means being located within said housing and electrically connected to the circuits of said telephone to permit selective control of the operation thereof,
switch means extending through said acruate ridge and electrically interconnected with said circuit means, said switch means being selectively operable to activate said circuit means and thereby control the operation of said telephone circuits, and
indicating means extending through said arcuate ridge and electrically interconnected with said circuit means in order to provide a visual indication when said switch means is operated and said circuit means is activated.

4,337,382

MECHANISM FOR PREVENTING THE SIMULTANEOUS LOCKING OF PUSH BUTTONS IN A PUSH-BUTTON SWITCH DEVICE

Akihiko Inoue, and Shigekata Sugiura, both of Soma, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sep. 5, 1980, Ser. No. 184,292
Claims priority, application Japan, Sep. 8, 1979, 54-124339[U]
Int. Cl.³ H01H *9/20*
U.S. Cl. 200—5 E **1 Claim**



1. In a push button switch including a plurality of push buttons, a mechanism for preventing adjacent push buttons from being activated simultaneously, the improvement comprising;

spring means engaging said push buttons for urging them in a direction opposite to the depressing direction;

locking means for locking any one of said push buttons in the depressed state; and

means including a cam for preventing simultaneous locking of two adjacent push buttons, said cam having nearly a semicircular shape in cross section and notches at positions corresponding to the positions of said push buttons, said notches having a width greater than the width of said push buttons, and being alternately arrayed on opposite sides of said cam;

wherein said cam is disposed beneath said push buttons and is adapted to be turned when it is depressed by any one of said push buttons and cannot be turned when it is simultaneously depressed by two neighboring push buttons thereby to restrict the quantity of depression by the push buttons.

4,337,383

EARPHONE JACK FOR TAPE RECORDERS

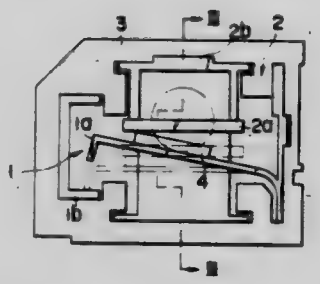
Masaaki Daigaku, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 30, 1980, Ser. No. 145,247

Claims priority, application Japan, May 25, 1979, 54/70356[U]

Int. Cl.³ H01H *1/28*

U.S. Cl. 200—51.09 **5 Claims**



1. An earphone jack for tape recorders, into which an earphone plug is insertable, comprising:

a housing having an earphone plug insertion hole and a pair of recesses, one recess being at one side of the housing and the other recess being at the other side of the housing;

an earphone/speaker changeover switch disposed in said housing and having a movable contact which is moved responsive to inserting the earphone plug into said insertion hole of said housing;

a muting switch disposed in said housing and having a fixed contact and a movable contact which are mounted in respective recesses of said housing so that they are fixedly mounted relative to said housing, said movable contact of said muting switch being operatively coupled to said movable contact of said earphone/speaker changeover switch so as to be movable by the movement of said movable contact of said earphone/speaker changeover switch to a position where it is electrically contacted with said fixed contact of said muting switch to cause said muting switch to be turned ON; and

an insulating member disposed in said housing and being operatively coupled between said movable contact of said muting switch and said movable contact of said earphone/speaker changeover switch, said movable contact of said earphone/speaker changeover switch moving said movable contact of said muting switch through said insulating member.

2. An earphone jack for tape recorders, into which an earphone plug is insertable, comprising:

a housing having an earphone plug insertion hole and a pair of recesses, one recess being at one side of the housing and the other recess being at the other side of the housing;

an earphone/speaker changeover switch disposed in said housing and having a movable contact which is moved responsive to inserting of the earphone plug into said insertion hole of said housing;

a muting switch disposed in said housing and having a fixed contact and a movable contact which are mounted in respective recesses of said housing so that they are fixedly mounted relative to said housing, said movable contact of said muting switch being operatively coupled to said movable contact of said earphone/speaker changeover switch so as to be movable by the movement of said movable contact of said earphone/speaker changeover switch to a position where it is electrically separated from said fixed contact of said muting switch to cause said muting switch to be turned OFF; and

an insulating member disposed in said housing and being operatively coupled between said movable contact of said muting switch and said movable contact of said earphone/speaker changeover switch, said movable contact of said earphone/speaker changeover switch moving said movable contact of said muting switch through said insulating member.

4,337,384

COOKING APPLIANCE OF THE HOT AIR CIRCULATING TYPE

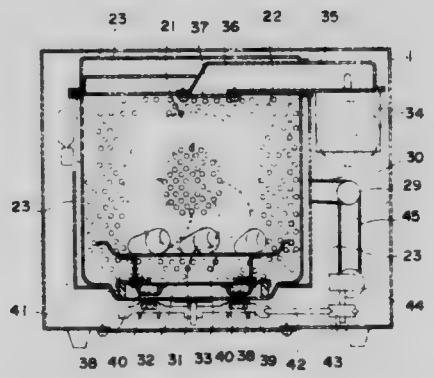
Junzo Tanaka, Fujiidera, and Toshio Kai, Nara, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jul. 30, 1980, Ser. No. 173,905

Claims priority, application Japan, Aug. 1, 1979, 54-98937; Aug. 2, 1979, 54-99045; Aug. 2, 1979, 54-99046; Sep. 12, 1979, 54-116981

Int. Cl.³ H05B *6/68*

U.S. Cl. 219—10.55 B **10 Claims**



1. A cooking appliance employing hot air circulation comprising:

an oven body having an oven chamber therein and having a door for opening and closing a passage through a wall of said oven body and which communicates with said chamber;

a tray removably mounted on a bottom wall of said chamber for holding food to be heated thereon;

said oven body having a compartment positioned adjacent to said chamber;

a partitioning wall positioned between said chamber and said compartment and separating said chamber from said compartment;

a heater means positioned within said compartment for providing heat energy to said chamber;

a fan means positioned within said compartment and operatively associated with said heater means for circulating air heated by said heater means through said chamber;

said partitioning wall having at least one inlet perforation through a central area thereof for circulating air from said chamber to said fan means and having at least one outlet perforation through a peripheral area thereof for circulating air from said fan means to said chamber;

a first control means for controlling the rotational speed of said fan;

a second control means for controlling the amount of heating provided by said heater means; and

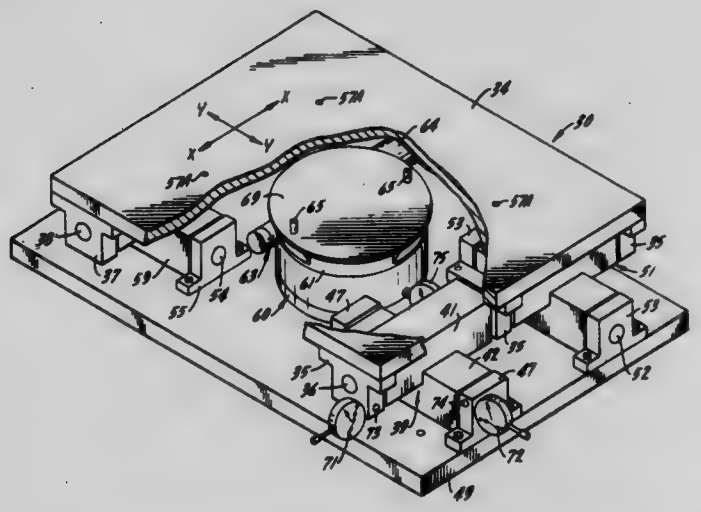
a third control means operatively associated with said first and second control means for controlling said second control means in response to the rotational speed of said fan.

4,337,385

ORBITAL TOOL SUPPORT SYSTEM FOR EDM MACHINES AND OTHER MACHINE TOOLS

Nicholas Maropis, Phoenixville, Pa., and Matt Kubistant, Brookfield, Ill., assignors to UTI Corporation, Collegeville, Pa.

Filed May 11, 1977, Ser. No. 795,726
Int. Cl.[3] B23P *1/12*
U.S. Cl. 219—69 V 6 Claims



1. An orbital tool support system for a machine tool, such as an EDM machine, of the kind comprising a base, a tool head mounted for vertical movement relative to a workpiece positioned on the base, and a tool head drive, the tool support system comprising:

an orbiting head including an upper head element, a lower head element, and orbital drive means, interconnecting the two head elements, for driving the two head elements horizontally in orbital motion relative to each other;

a machine mounting plate;

first mounting means for affixing the machine mounting plate in centered relation upon the tool head of the machine;

a tool mounting plate;

tool mounting means for rigidly mounting one or more tool elements in fixed position on the tool mounting plate;

a plurality of bearing assemblies, interconnecting the two mounting plates at spaced peripheral locations, the bearing assemblies conjointly maintaining the two mounting plates parallel to each other and in fixed relative vertical positions but permitting limited horizontal movement therebetween;

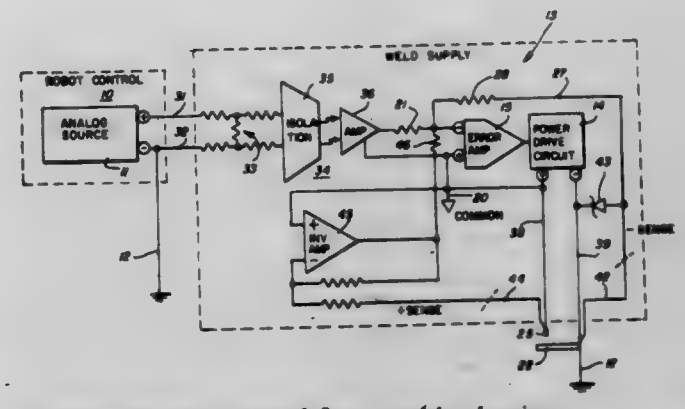
and the orbiting head being mounted centrally between the two mounting plates with the upper head element affixed to the machine mounting plate to preclude horizontal movement relative thereto and the lower head element affixed to the top of the tool mounting plate, so that eccentric vertical forces to which the tool elements are subjected during operation of the machine tool are transmitted directly from the tool mounting plate to the machine mounting plate, through the bearing assemblies, bypassing the orbiting head.

4,337,386

WELDER CONTROL

Alan L. Kilty, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Jan. 21, 1980, Ser. No. 113,989
Int. Cl.[3] B23K *9/10*
U.S. Cl. 219—130.21 5 Claims



1. In an automatic control for a welder having

a controlled power drive circuit **14** with positive and negative outputs,

a source of analog control signal **11** referred to ground **12**,

an error amplifier **15** isolated from ground having signal inputs connected with said analog control signal source **11** and an output connected with said power drive circuit **14**,

a common signal connection **20,26** between the positive output of the power drive circuit and one of the inputs of said error amplifier, said common signal connection being isolated from the control signal ground reference **12**,

said welder control having a first operating mode in which the positive power drive output is connected with a grounded workpiece **22** and the negative power drive output is connected with a welding gun **25** and a second operating mode in which the positive power drive output is connected with the welding gun **25** and the negative power drive output is connected with the grounded workpiece **22**, the improvement comprising:

an analog signal isolator **34** connected between said analog signal source **11** and the input of said error amplifier **15**, said isolator coupling the analog control signal from said source to said error amplifier and blocking a circulating current from said power drive circuit through the common signal connection **20,26** and ground **12** in said second operating mode;

a signal feedback circuit with sensing circuits **42,44** connected from said workpiece **22** and said welding gun **25** to said error amplifier **15**; and

a Zener diode **43** connected between the negative output of said power drive circuit and the sensing circuit connected therewith for providing a feedback signal in the event the sensing circuit connection is interrupted.

4,337,387

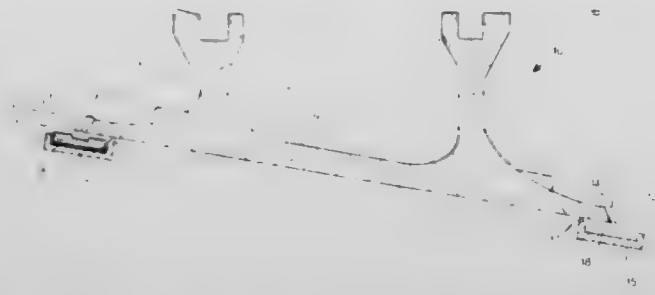
BACKING SUPPORT STRIP FOR WELDING

Philip K. Hockney, Smithfield, Australia, assignor to Hockney Engineering Pty. Ltd., New South Wales, Australia

Filed Jul. 17, 1980, Ser. No. 169,585
Int. Cl.[3] B23K *9/02, 5/22*
U.S. Cl. 219—160 4 Claims

1. An extruded metal strip having longitudinal sides adapted to be welded to an adjacent strip of metal abutting one of said sides, said strip having a main body portion with said one side, a backing support portion formed integral with the body portion so as to be joined thereto by a longitudinal rupturable web, said web having a variable thickness so as to have a longitudinally extending groove along which the web ruptures, said support portion having a longitudinal recess to receive a backing strip for the weld to be formed on said one side, said recess being substantially co-extensive with said one side and extend-

ing laterally on both sides thereof so that a backing strip located therein will prevent said support portion being welded to



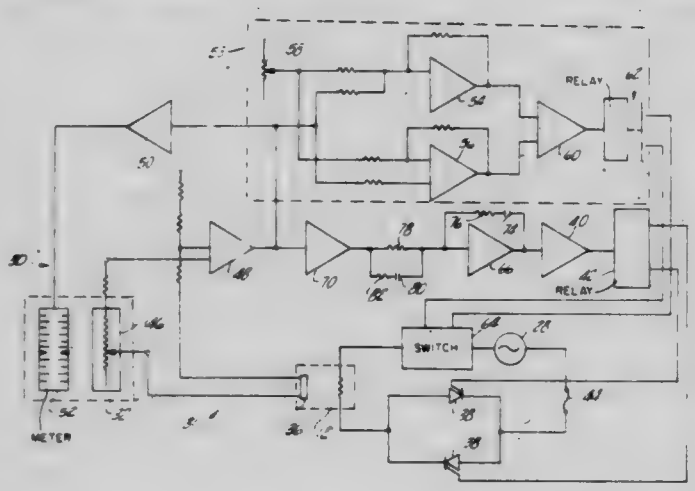
said main body portion thus enabling removal of the support portion and backing strip upon completion of the weld by the rupture of said web along said groove.

4,337,388

RAPID-RESPONSE WATER HEATING AND DELIVERY SYSTEM

Mark E. July, 2118 Carol, Ann Arbor, Mich. 48103

Filed May 29, 1980, Ser. No. 154,508
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—309 **4 Claims**



1. A rapid-response water heating and delivery system for quickly heating water to a selected set point temperature within a predetermined temperature range and for providing a perceivable measure of the temperature of the water issuing therefrom, said delivery system comprising a water vessel having a water inlet and a water outlet positioned such that incoming water flows through said vessel from said inlet to said outlet and means for dispensing water from said outlet onto a person using the system, electrical heating means connected to a source of electrical energy and located in said vessel in a position for heating the water as it flows through said vessel, control means for controlling electrical energy supplied to said electrical heating means such that said water being discharged from said vessel has a temperature value essentially equal to said selected set point temperature, said control means including regulating means comprising a temperature setting device actuatable over a range of temperature to establish said selected set point temperature, said regulating means including temperature indicating means positioned with respect to said water outlet so as to provide the user of said system a perceivable measure of the temperature of the water being discharged from said outlet, a single temperature sensor disposed at the water outlet of the vessel for sensing the temperature of the water being discharged from said vessel, and demand-responsive means operatively associated with said temperature sensor and said regulating means and automatically operable to control said electrical heating means taking into account said selected set point temperature of the temperature setting device in said regulating means, the actual temperature of the water being discharged from said vessel, and the rate at whichd the temperature of the water being discharged from said vessel changes with respect to said set point temperature so that the temperature of the water flowing through said vessel quickly approaches said selected set point temperature, said demand responsive means comprising a proportional integral and derivative controller which automatically cycles said electrical heating means on and off when the temperature of the water being discharged from said vessel is within said predetermined range to offset the heat losses from said vessel including the heat losses resulting from the discharge of heated water, said proportional, integral and derivative controller comprising means connecting said temperature setting device and said temperature sensor in an input circuit of an amplifier stage, means connecting the output of the amplifier stage with both said temperature indicating means and a further portion of said proportional, integral and derivative controller such that the output signal of said amplifier stage controls both the temperature indicating means and said further portion of the proportional, integral and derivative controller, said further portion of the proportional, integral and derivative controller comprising an RC derivative circuit connecting the output of the amplifier stage with the input of a further amplifier stage, said further amplifier stage including a further RC circuit connected between the output and the input of such further amplifier stage for accomplishing the integration function, and means operatively coupling the output of said further amplifier stage with said heating means whereby the heating means is controlled by the proportional, integral and derivative output signal issuing from the output of said further amplifier stage.

4,337,389

GLOW PLUG CONTROL DEVICE FOR DIESEL ENGINES

Lon E. Bell, Altadena, Calif., assignor to Technar, Inc., Arcadia, Calif.

Continuation of Ser. No. 887,035, Mar. 16, 1978, abandoned.
This application May 27, 1980, Ser. No. 153,723
Int. Cl.³ H05B *1/02*; F02N *17/00*
U.S. Cl. 219—511 **7 Claims**

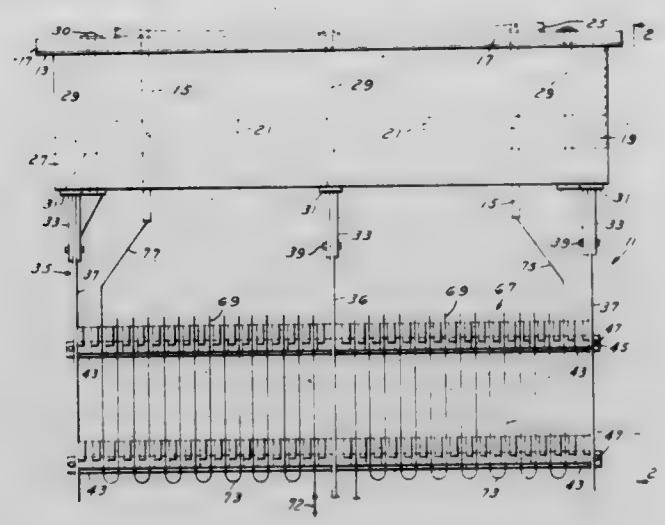


1. A thermal control device for controlling the heating of diesel engine glow plugs or the like, comprising: a base, a first bimetal element supported at one end on the base, first electrical heater means adjacent the surface of the first bimetal element for heating the bimetal element, a second bimetal element supported at one end on the base, second electrical heater means adjacent the surface of the second bimetal element, switch means operated by each of the bimetal elements, the switch means having normally closed contacts connected in series, and means responsive to a current through the series connected normally closed contacts for turning on the glow plugs, whereby either bimetal element when heated interrupts current to the glow plugs, the thermal responsive time of the first bimetal element, first heater means, and switch means being substantially faster than the response time of the second bimetal element, second heater means, and switch means.

4,337,390
ELECTRIC HEATING ELEMENT

Lorne A. Best, West Bloomfield, Mich., assignor to National Element, Inc., Troy, Mich.

Filed Jan. 22, 1981, Ser. No. 227,434
Int. Cl.³ H05B *3/06*
U.S. Cl. 219—532 **12 Claims**



1. An improved electrical heating element provided for an increased amount of electrical heating wire per unit space for plug-type convection heaters comprising;

an elongated generally rectangular-shaped metal frame structure open at its ends, having a longitudinal axis and having a pair of laterally spaced-apart support elements defining the longer sides of the rectangle, each support element extending parallel to said axis;

a plurality of spaced removable cross bars made from metal extending through said support elements from one side of the frame structure to the other side thereof in a direction generally perpendicular to said axis;

fastening means carried by said cross bars for removably connecting said cross bars to said support elements;

a plurality of ceramic support blocks, each of T-shape in plan, having spaced end faces and arranged end to end, mounted on and along the length of each cross bar and snugly interposed between said support elements;

a continuous electrical resistance heating wire having a series of parallel spaced inverted U-shaped sections;

each section having a pair of straight wire strands in a first plane;

each block having an undercut central groove extending between said end faces and snugly receiving said cross bars respectively, each support block having a support boss of reduced width adjacent one end face, extending between the strands of each section of the heating wire;

the engaging faces between adjacent blocks defining a clearance recess receiving the pairs of strands of each section of the heating wire;

each section of the heating wire being nested within a pair of said clearance recesses between blocks respectively and supportably mounted upon the respective support boss of each block upon one cross bar;

the one strands between adjacent sections being transversely interconnected below the row of support blocks mounted upon another cross bar.

4,337,391
MEASURING DEVICE

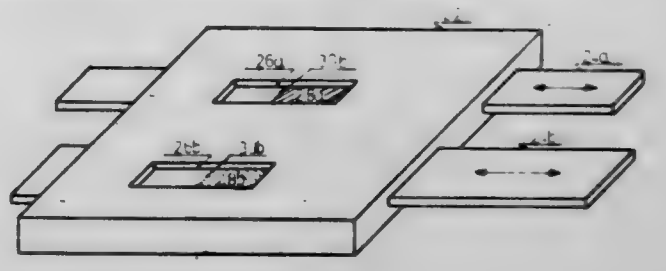
Shlomo I. Lampert, 10 Yemin Avot Str., Jerusalem, Israel

Continuation of Ser. No. 589,403, Jun. 23, 1975, abandoned.
This application Dec. 18, 1979, Ser. No. 104,769
Claims priority, application Israel, Jul. 26, 1974, 45350
Int. Cl.³ G06C *27/00*; G06G *1/02*
U.S. Cl. 235—70 A **23 Claims**

1. A device for measuring a subject's indication of attitude, opinion, judgment, preference, evaluation, feeling or intention when presented with a question or problem the subjective response to which is sought to be measured, the device comprising:

(a) first means having a defined viewing area;

(b) colored means having at least one colored area, the extent of said colored area viewable in relation to said viewing area being variable in relation to said viewing area to visually express the subjective response of the subject by selecting the extent of said colored area in said viewing area; and

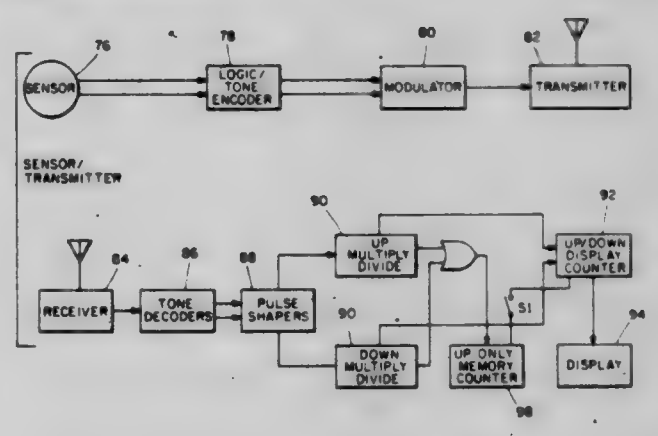


(c) means for translating the extent of said colored area viewed in said viewing area into a scaled value which corresponds to said extent of colored area, said scaled value being operatively arranged so as not to be visible to the subject when viewing said viewing area.

4,337,392
POSITION DETECTOR FOR A POWER RODDING APPARATUS

Steven W. Baker, Cedar Lake, Ind., assignor to Champion Corporation, Hammond, Ind.

Filed Oct. 15, 1979, Ser. No. 85,226
Int. Cl.³ G06M *3/14*
U.S. Cl. 235—92 DN **15 Claims**



1. A circuit for detecting the amount of rod which has been extended into a conduit from a storage reel of a rodding device comprising:

(a) means for detecting the amount and direction of movement of said rod and producing pulse signals representative of said movement,

(b) means for encoding said pulse signals and transmitting them via radio frequency transmission to a remote location,

(c) means for receiving said radio frequency transmission and decoding it to recover said pulse signal information at said remote location,

(d) pulse counting means,

(e) display means for displaying the contents of said pulse counting means,

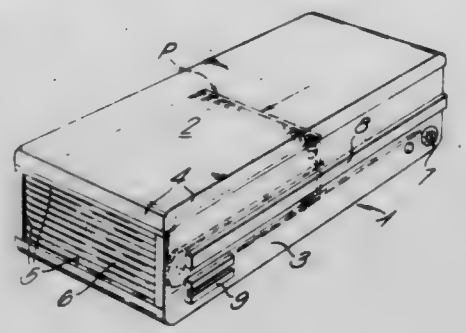
(f) scaling means receiving the decoded pulse signals and producing said scaled pulse signals to said pulse counting means which correspond to lineal measurement units whereby the displayed contents of said pulse counting means is a direct and instantaneous measure of the length of said rod extended from said reel.

4,337,393

CASSETTE FOR BANKNOTES

Graham H. Hilton, Lovedean, England, assignor to De La Rue Systems Limited, London, England

Filed Dec. 5, 1979, Ser. No. 100,635
Claims priority, application United Kingdom, Dec. 8, 1978, 47670/78
Int. Cl.³ G05B *1/00*; G06K *5/00*; G06G *7/04*
U.S. Cl. 235—487 **4 Claims**



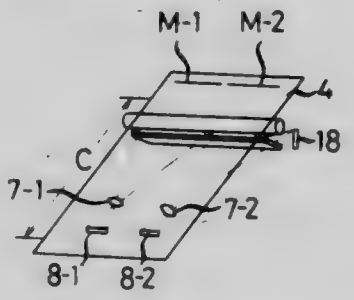
1. A cassette, for use with banknote handling apparatus, comprising:
(a) a casing adapted to house a stack of banknotes;
(b) an aperture in said casing to permit transmission of banknotes into and out of the casing; and
(c) machine-readable identification means capable of being pre-programmed to indicate the denomination of the banknotes contained in the cassette, said means comprising a predetermined array of magnets which are adapted to influence at least one magnetic switch associated with said apparatus when said cassette is operatively associated therewith.

4,337,394

MARK MEANS FOR ADJUSTING THE POSITION OF SOLID-STATE LINE IMAGE SENSOR

Yoshio Fukushima, Machida, Japan, assignor to Ricoh Co., Ltd., Japan

Filed Jul. 8, 1980, Ser. No. 166,960
Claims priority, application Japan, Jul. 11, 1979, 54-86837
Int. Cl.³ H01J *3/14*
U.S. Cl. 250—237 G **8 Claims**



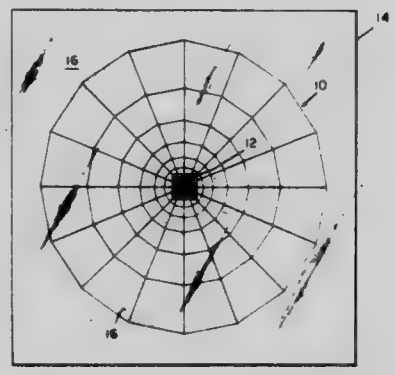
1. In a line-by-line image dissection system comprising a solid-state line image sensor having an array of light receiving elements, an original support plate on which an original is placed, irradiating means for irradiating the original on said original support plate, an optical system including a lens for forming on the surface of said solid-state line image sensor through said lens a fragmentary picture image of a reduced scale of said original corresponding to one line of said original, and auxiliary scanning means for moving said fragmentary picture image of said original in a direction perpendicular to the lengthwise direction of said fragmentary picture image relative to the surface of said solid-state line image sensor, mark means located on said original support plate in a position outside an original support zone in a manner to extend in a direction perpendicular to the auxiliary scanning direction to obtain parallelism of said solid-state line image sensor; such mark means comprising:
a first mark consisting of a solid straight line or a broken straight line including a plurality of sign elements and a plurality of blank elements alternatively arranged with one another, said first mark extending in a main scanning direction perpendicular to the auxiliary scanning direction; and
a second mark consisting of a broken straight line extending parallel to said first mark, said broken straight line including a plurality of sign elements and a plurality of blank elements alternatively arranged with each other, at least one of the sign elements and the blank elements of said broken line of said second mark differing from the corresponding elements of said first mark in length;
wherein the width of said first mark and said second mark and the spacing interval between said first mark and said second mark are substantially equal to the width of the array of light receiving elements of said solid-state line image sensor when said first mark and said second mark are projected on the surface of said solid-state line image sensor to form mark images of reduced scale.

4,337,395

MONOLITHIC IMAGER

David H. Alexander, Santa Monica; George H. Hershman; Michael D. Jack, both of Carlsbad; N. John Koda, Vista, and Randahl B. Lloyd, San Marcos, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 951,221, Oct. 13, 1978, Pat. No. 4,198,646.
This application Nov. 28, 1979, Ser. No. 98,262
Int. Cl.³ H01J *31/50*; G01J *1/00*
U.S. Cl. 250—332 **2 Claims**



1. A two dimensional imager for detecting the presence of radiation and producing a mapping thereof comprising:
(a) a plurality of detectors;
(b) said plurality of detectors being engaged to image output means; and
(c) said plurality of detectors being arranged into a matrix having a square center surrounded by a number of polygonal rings so that a relatively high resolution mapping of detected radiation is achieved at the center of said imager.

4,337,396

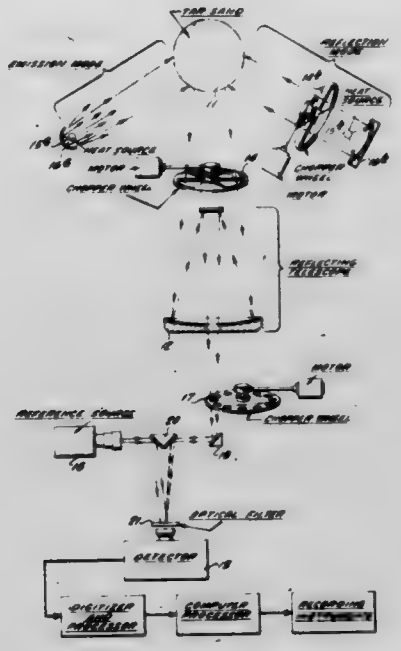
METHOD FOR BITUMEN ANALYSIS AND APPARATUS THEREFOR

James L. Lauer, Ballston Lake; Vincent W. King, and Keyser K. Lau, both of Troy, all of N.Y., assignors to Suncor Inc., Toronto, Canada

Filed Jun. 6, 1980, Ser. No. 156,908
Int. Cl.³ G01J *1/00*; G01V *5/00*
U.S. Cl. 250—340 **17 Claims**

1. A method for the quantitative analysis of hydrocarbons in tar sands, coal, shale or similar materials wherein said material is heated and the thermal radiation from said material is passed through at least two synchronous radiation choppers and through a band pass optical filter characteristic of the spectral radiance of the hydrocarbon in the target material to radiation detector means, a first chopper being close to said material being analyzed and the radiation passing through said first

chopper being focused to pass through a second chopper rotating in phase and at the same angular speed as said first chopper, and radiation from a reference source which is a material essentially the same as the target material or a tunable laser



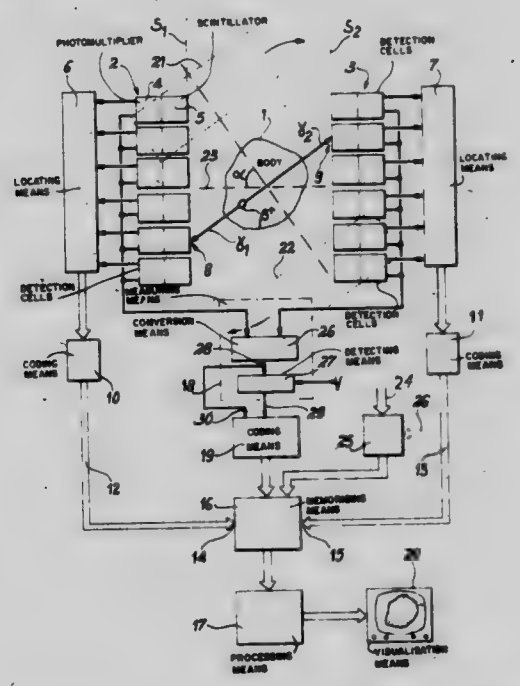
being directed alternately with the radiation from said material to said detector, the concentration of hydrocarbon in said material being determined by comparison with calibration curves of the detected radiation and percent concentrations.

4,337,397

APPARATUS FOR VISUALIZING A BODY BY DETECTING THE RADIATION OF A TRACER CONTAINED IN THIS BODY AND CONSISTING OF POSITRON EMITTERS

Jacques Vacher, Seyssinet, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Jan. 17, 1980, Ser. No. 112,812
Claims priority, application France, Jan. 26, 1979, 79 02053
Int. Cl.[3] G01T *1/20*
U.S. Cl. 250—363 S **14 Claims**



1. An apparatus for visualising a body by detecting the radiation of a tracer contained in this body and consisting of positron emitters, comprising:

detection cells situated on each side of the body and permitting detection of the γ particles released by each positron emitter in two opposite directions;

means for locating cells arranged in pairs opposite one another, on each side of the body, each pair of opposing cells being located on a straight line passing through a positron emitter;

means for coding the location of said pairs of opposing cells;

means for memorising these coded location signals;

means for processing these coded and memorised signals;

visualisation means, controlled by the processing means, for visualising the image of the body from the different signals coded and memorised; this apparatus further comprising:

means connected to the detection cells for measuring the differences in travel time of the γ particles emitted by each emitter, towards corresponding pairs of opposing cells;

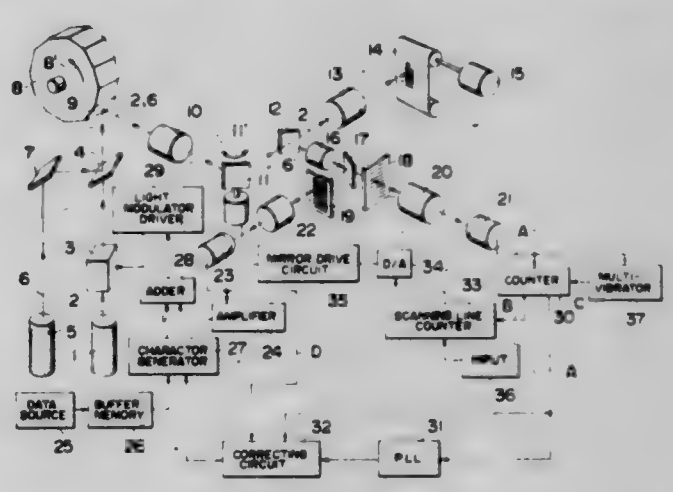
means for coding the values of these differences in travel times, these coding means being connected to the memorising means for also memorising coded signals representing the values of the differences in travel times, and so that the processing means receive the additional coded and memorised values representing the differences in travel times, for visualising the image of the body.

4,337,398

DEVICE FOR CORRECTING DISPLACEMENT OF FORM SLIDE IN A LIGHT BEAM SCANNING TYPE RECORDING SYSTEM

Masahiro Ohnishi, and Tsutomu Kimura, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Aug. 15, 1980, Ser. No. 178,585
Claims priority, application Japan, Aug. 16, 1979, 54-104421
Int. Cl.[3] G01N *21/86*
U.S. Cl. 250—548 **2 Claims**



1. In a light beam scanning type recording system in which a read-out light beam and a recording light beam are deflected by means of a two-dimensionally light deflecting means, a part of the read-out light beam performs raster scanning of a form slide to generate a form signal, another part of the read-out light beam performs raster scanning of a linear encoder to generate a photoelectric pulse signal, a data signal is read out by use of a video clock signal obtained by multiplying said photoelectric pulse signal by n-times, and a recording light beam is modulated by a video signal obtained by combining said data signal with said form signal to record the combination of the form and the data on a recording material,

a device for correcting displacement of the form slide from a predetermined position with respect to the data information recorded on the recording material comprising an optical mark provided on said form slide, means for generating a mark signal when said read-out light beam passes through said optical mark, means for counting clock pulses from a pulse generator until when a predetermined photoelectric signal is outputed since said mark signal is generated, means for detecting the amount of displacement of said form slide in the direction of scanning based on the counted number of the clock pulses, and means for delaying the video clock signal or the form signal according to the detected amount of displacement.

4,337,399

REFRIGERATOR

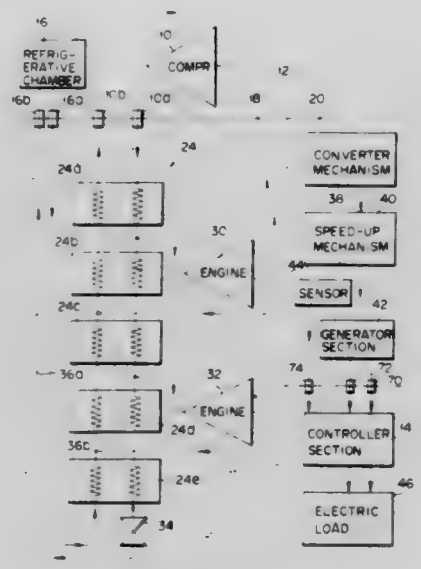
Hiroyuki Nakamura, Yokohama, and Shuniti Nakaya, Kawasaki, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 18, 1979, Ser. No. 104,802

Claims priority, application Japan, Dec. 22, 1979, 54/174889[U]

Int. Cl.³ B60H *3/04*; H02P *9/04*

U.S. Cl. 290—1 R **8 Claims**



1. A refrigerator comprising:

a refrigerating means including a plurality of reciprocating motion type expansion engines with reciprocating pistons extending substantially parallel and in the same direction with one another from their corresponding cylinders;

a converter mechanism having a first output shaft parallel to the extending direction of the pistons or main direction and driven by said pistons, whereby reciprocating motion of said pistons is converted into rotation of said first output shaft;

a speed-up mechanism having a second output shaft parallel to said main direction and driven by said first output shaft, whereby said second output shaft is rotated faster than said first output shaft;

an energy consuming mechanism composed of an energy converting mechanism having a rotating part mounted on said secónd output shaft and converting mechanical energy supplied from said second output shaft into electrical energy and a load means to consume the electrical energy obtained by way of said energy converting mechanism; and

a control means for automatically adjusting said load means so that the operating speed of said expansion engines may be maintained substantially at a fixed value.

4,337,400

AUTOMATIC HEADLIGHT CONTROL SYSTEM

Thomas J. Hahn, 17 Spruce Rd., North Caldwell, N.J. 07006

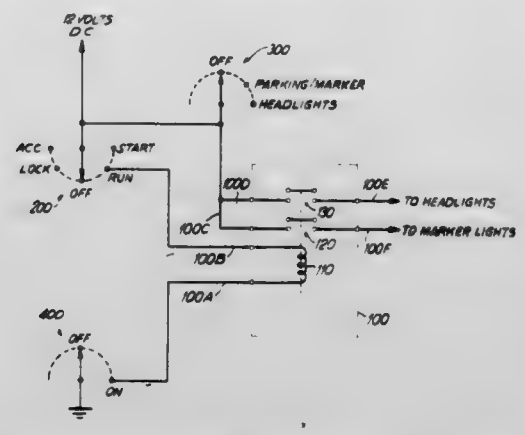
Filed Jul. 16, 1980, Ser. No. 169,397

Int. Cl.³ H02G *3/00*

U.S. Cl. 307—10 LS **3 Claims**

1. In combination with an automobile electrical system including a source of voltage, an ignition switch, a windshield wiper switch, a pair of headlights, and a set of marker lights, an automatic headlight control system wherein the improvement comprises:

switching means including energization means and first and second closure means responsive to said energization means for connecting said source of voltage to said headlights and said marker lights when said energization means is energized and for disconnecting said source of voltage from said headlights and said marker lights when said energization means is de-energized, wherein said energization means is connected between said ignition switch and said windshield wiper switch and is energized by the concurrent activation of said ignition switch and said



windshield wiper switch, said first closure means is connected between said source of voltage and said marker lights and said second closure means is connected between said source of voltage and said headlights.

4,337,401

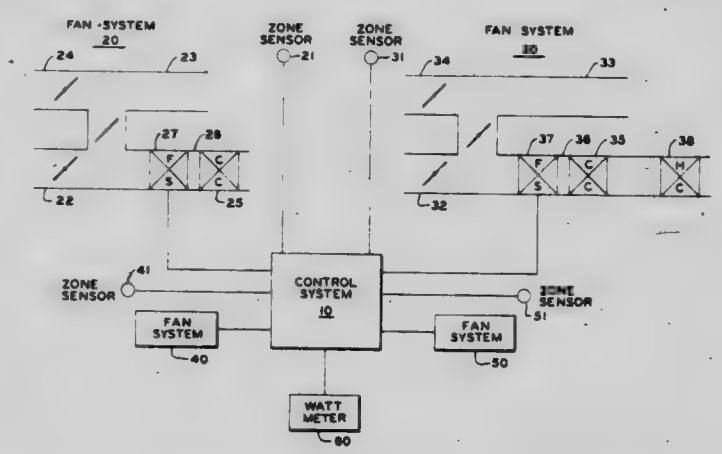
ADAPTIVE LOAD SHEDDING

Harold J. Olson, Hawthorn Woods, Ill., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 23, 1981, Ser. No. 228,020

Int. Cl.³ H02J *3/00*

U.S. Cl. 307—39 **6 Claims**



1. A load shedding system for shedding loads within a building to maintain power demand below a predetermined limit, said loads affecting actual conditions in associated zones within said building with respect to desired conditions, said system comprising:

condition sensing means for sensing said actual conditions in said zones of said building;

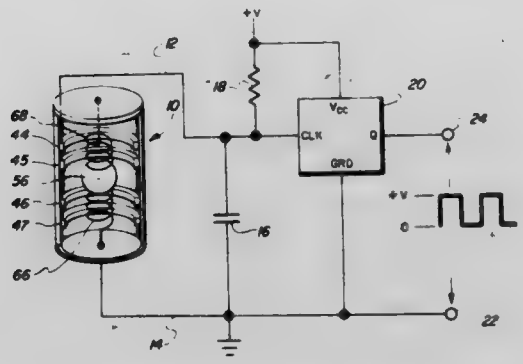
connecting means adapted to be connected to said loads within said building; and,

control means connected to said condition sensing means and to said connecting means for shedding said loads in order of those loads affecting those zones having the least deviation between said actual conditions and said desired conditions being shed first and those loads having the most deviation being shed last to maintain said demand below said predetermined limit.

4,337,402
MOTION SENSOR SWITCH AND CIRCUIT FOR USE THEREWITH

Victor A. Nowakowski, Des Plaines, Ill., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Apr. 9, 1981, Ser. No. 254,021
Int. Cl.³ H01H 35/14
U.S. Cl. 307—121 16 Claims



1. In a switch device for sensing motion, the combination comprising:

a generally non-conductive sleeve housing member having a plurality of circumferentially extending, spaced, generally parallel contact means on the interior thereof, said contact means being positioned generally intermediate the ends of said housing member;

a switch member configured for being loosely received within said housing member;

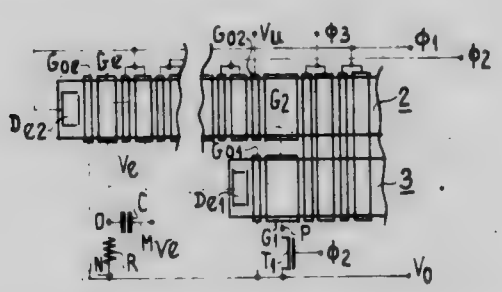
means for resiliently suspending said switch member within said housing member in spaced proximate relation to said contact means and longitudinally intermediate the first and last of said contact means, one of said switch member and said suspending means having a peripheral portion configured for engaging said contact means during movement of said switch device and being conductive at least in the area of such engagement; and

means coupled to said contact means and to one of said switch member and said suspending means for providing first and second electrical output leads for said switch device for connection to other electrical circuitry.

4,337,403
CHARGE-TRANSFER PHASE-INVERTER DEVICE AND DIFFERENTIAL AMPLIFIER COMPRISING SAID DEVICE

Jean L. Berger, and Jean L. Coutures, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Jun. 12, 1980, Ser. No. 158,863
Claims priority, application France, Jun. 12, 1979, 79 14998
Int. Cl.³ G11C 19/28; H01L 29/78
U.S. Cl. 307—221 D 8 Claims



1. A charge-transfer phase-inverter device which receives an input voltage (V_e) constituted by the superposition of a direct voltage (V_O) and a time-varying sampled voltage (v_e), wherein said device comprises means for performing the subtraction between the quantity of charges which is double the quantity corresponding to the direct voltage ($2Q_{moy}$) and the quantity of charges corresponding to each sample of the variable voltage superposed on the direct voltage ($Q_{moy} \pm q_e$).

4,337,404
APPARATUS FOR FIRING SERIES-CONNECTED THYRISTORS

Bo Kindell, Västerås, Sweden, assignor to ASEA Aktiebolag, Västerås, Sweden

Filed Dec. 20, 1979, Ser. No. 105,479
Claims priority, application Sweden, Dec. 22, 1978, 78132362
Int. Cl.³ H03K 17/72
U.S. Cl. 307—252 L 9 Claims



1. In an apparatus for simultaneously firing a plurality of series-connected thyristors, wherein a plurality of control pulse transformers are provided having series-connected primary windings which are connected to a voltage source and having secondary windings which are connected to the control electrodes of the thyristors, the apparatus being arranged to provide a steep control current pulse having a short duration and a high amplitude to the thyristors as well as a continuous control current with a lower amplitude, the improvement wherein each control pulse transformer has first and second primary windings, with the first primary windings of the transformers being connected in series with each other and the series combination being connected across a first voltage source through a first switching means and the second primary windings also being connected in series with each other and the series combination being connected across a second voltage source through a second switching means and further including means for activating said first switching means for providing said steep control current pulse through said first primary windings and means for activating said second switching means for providing said continuous control current with lower amplitude through said second primary windings.

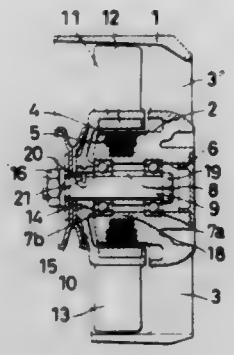
4,337,405
ELECTRIC GENERATOR

Tadashi Hishida, 2-3, 2,-cho, Kitashimizu-cho, Sakai-shi, Osaka-fu, Japan

Filed Feb. 18, 1981, Ser. No. 235,738
Claims priority, application Japan, Mar. 19, 1980, 55-35986
Int. Cl.³ H02K 5/16
U.S. Cl. 310—43 1 Claim

1. An electric generator comprising: a stator molded of plastic and provided with an axial center hole; a laminated core embedded in said stator coaxially therewith and having a plurality of pole shoes radially formed on an outer surface thereof; a plurality of coils formed on said pole shoes; two ball bearings disposed in said center hole of said stator, one of said

two ball bearings having an outer ring by which an annular groove is formed in the cylindrical surface of said center hole of said stator coaxially therewith at the time when said stator is molded of plastic such that said outer ring remains in said annular groove after the molding of said stator, the other of said two ball bearings being fitted into one end portion of said



center hole of said stator coaxially therewith; a tubular spacer for holding said two ball bearings at a given distance from each other; a rotary shaft fitting within said spacer and said two ball bearings; a rotor fitting over said stator; a plurality of permanent magnets embedded within the internal surface of said rotor; and a means for securing said rotor to said shaft.

4,337,406

BEARING-LESS REMOTELY JOURNALLED DYNAMO ELECTRIC MACHINE, PARTICULARLY ALTERNATOR FOR COMBINATION WITH A GAS TURBINE

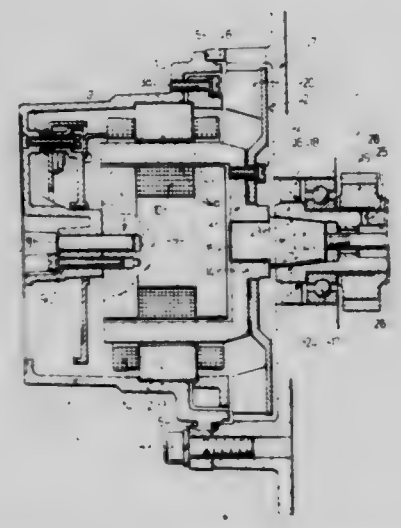
Georg Binder, Bechhofen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 10, 1979, Ser. No. 37,504

Claims priority, application Fed. Rep. of Germany, May 27, 1978, 2823256

Int. Cl.³ H02K *5/00*

U.S. Cl. 310—91 **8 Claims**



1. Bearingless, remotely journalled dynamo electric machine for combination with and assembly to a remote rotating apparatus having

a housing (**7**) and an operating shaft (**16**) journalled therein and passing through the housing, said machine having a shell (**1**), cooperating locating means (**5**, **6**) formed on the shell and on the apparatus housing, respectively, to position the shell with respect to the housing and hence the shaft,

the dynamo electric machine further having

a stator structure including an armature (**3**, **4**) mounted in the shell and a fixed field structure, said structures being positioned concentrically with respect to the shaft,

and a rotor (**12**) within the shell including a rotating pole structure (**13**)

and wherein the rotor (**12**) comprises

a single hub portion (**14**) secured to and supporting the rotor pole structure (**13**) and forming the sole support for said pole structure, said single hub portion being located at the side of the machine adjacent the rotating apparatus and including a conical projection (**24**) extending from the hub portion towards the shaft (**16**) of the apparatus;

a matching conical recess (**23**) formed in the shaft of the apparatus and receiving said conical projection to rotatably support the rotor by cantilever attachment, to form a driving connection between the shaft (**16**) of the remote apparatus and the rotor (**12**) and to centrically position said rotor with respect to the center of rotation of the shaft;

and means (**26**, **26'**) for securing said projection (**24**) and said shaft (**16**) together.

4,337,407

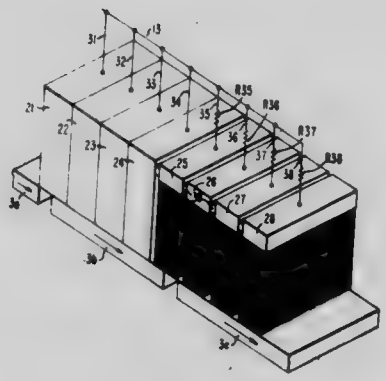
INSULATED STRAND BRUSHES

George T. Hummert, Oakmont, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 29, 1980, Ser. No. 144,815

Int. Cl.³ H01R *39/36*

U.S. Cl. 310—249 **4 Claims**



1. An electrical conductive brush for a dynamoelectric machine, said brush having a plurality of segments including leading and trailing segments, said trailing segments being insulated from each other and said trailing segments comprising a plurality of individually insulated strands of highly conductive material physically and electrically connected together at one end, said segments each being electrically connected to a lead having resistance disposed therein, said resistance in the lead connected to the leading segment being substantially less than the resistance in the lead connected to the trailing segment, thereby suppressing the energy in an arc formed as the trailing segment breaks contact and preventing melting of the conductive strands.

4,337,408

PLASMA JET IGNITION PLUG

Masazumi Sone, and Yukitsugu Hirota, both of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Tokyo, Japan

Filed Apr. 18, 1980, Ser. No. 141,695

Claims priority, application Japan, Apr. 23, 1979, 54-55010[U]

Int. Cl.³ H01T *13/54*

U.S. Cl. 313—130 **5 Claims**

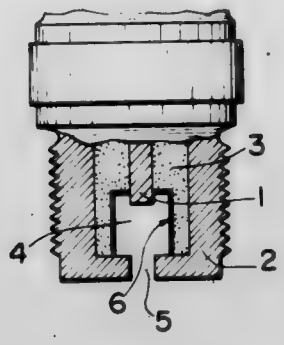
1. A plasma jet ignition plug comprising:

a first electrode;

an insulating body surrounding and supporting said first electrode and forming a plasma cavity surrounding one end of said first electrode;

a second electrode positioned in engagement with a portion of said insulating body and having a portion closing said

plasma cavity, said portion having an orifice therethrough and opening into said plasma cavity; and



a film on said insulating body defining said plasma cavity, said film being made of a semiconductor including a silicon compound.

4,337,409

COLOR DISPLAY TUBE WITH CONTROL GRID POSITIONING FEATURE

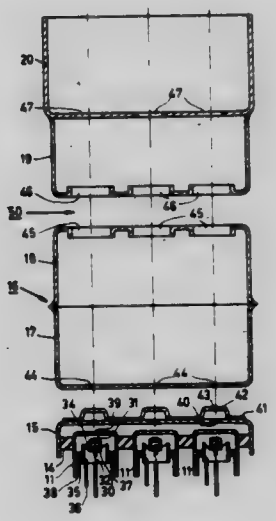
Antonius W. F. van der Heijden; Jörg Brambring, and Johannes M. J. Spruyt, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 28, 1980, Ser. No. 144,793

Claims priority, application Netherlands, May 25, 1979, 7904114

Int. Cl.³ H01J *29/02*

U.S. Cl. 313—409 **4 Claims**



1. An electron gun system for a color display tube of the type in which a plurality of electron beams are directed onto a display window of the tube, said electron gun system comprising:

(a) a plurality of electron-beam-producing cathodes, each secured in a control grid having an aperture for passing the respective beam;

(b) an anode, spaced from the control grids and having a plurality of apertures for passing the respective electron beams; and

(c) means for focusing the electron beams onto the display window;

characterized in that the anode is cup-shaped and that a plate of insulating material, having a plurality of respective apertures into which the control grids are inserted, is fixed to the control grids and the anode, thereby securely positioning the control grids relative to each other and to the apertures in the anode.

4,337,410

CATHODE-RAY TUBE FACE-PLATE

Josephus J. Van der Geer; Willem Van Pelt; Marinus Ploeger; Wilhelmus J. Spoor, and Gerardus H. A. M. Van der Steen, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 2, 1980, Ser. No. 183,480

Claims priority, application Netherlands, Sep. 3, 1979, 7906579

Int. Cl.³ C03C *3/10*; H01J *31/00*

U.S. Cl. 313—480 **6 Claims**

1. A fluorine-free glass consisting essentially of the following constituents in the following quantities (expressed in percent by weight):

SiO_2	59–62	ZrO_2	1.5–2.5
Al_2O_3	0.2–2.0	SrO	9–12
Na_2O	5.5–8.0	PbO	0
K_2O	7.5–10.0	Sb_2O_3	0–1.0 As_2O_3 O
MgO	0–2.0	TiO_2	0.1–1.0
CaO	0–2.0	CeO_2	0.05–0.5
BaO	8–10.0		

wherein wt.% Na_2O/(wt.% Na_2O + wt.% K_2O) = 0.42–0.45.

4,337,411

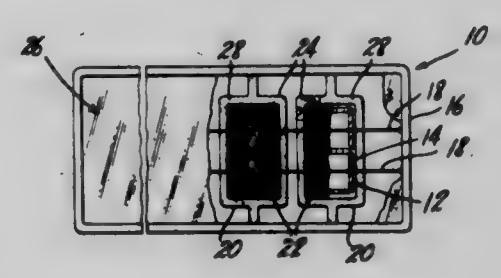
APPLICATION OF INSULATION TO RIDE FRAME OF VACUUM FLUORESCENT DISPLAY

Robert A. Drummond, Hazleton, Pa., assignor to McGraw-Edison Company, Rolling Meadows, Ill.

Filed Apr. 10, 1980, Ser. No. 138,899

Int. Cl.³ H01J *1/62, 63/04*

U.S. Cl. 313—497 **15 Claims**



1. A vacuum fluorescent device comprising:

(a) a substrate;

(b) at least one fluorescent anode carried by said substrate;

(c) a filament in spaced relationship to said anode for supplying electrons to said fluorescent anode;

(d) a grid element disposed between said filament and said fluorescent anode, for control of fluorescence of said anode, said grid element including a control portion and a grid frame, said grid frame supporting said control portion;

(e) a cover sealed to said substrate, enclosing said fluorescent anode, said grid element and said filament;

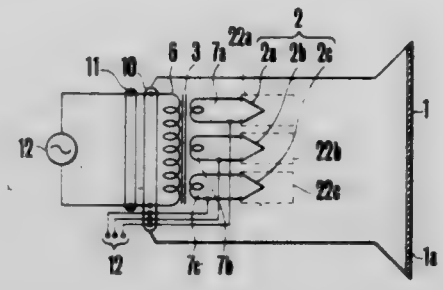
(f) the enclosure formed by said cover and said substrate being evacuated; and

(g) grid control material applied to at least a portion of one of said control portion and grid frame on the side of said grid element nearest said filament, said grid control material being at least partially electrically insulating such that flow of electrons through the grid element increases the brightness of fluorescent light.

4,337,412
CATHODE DEVICE FOR CATHODE-RAY TUBE

Takao Kawamura, Chiba, and Kuniharu Osakabe, Mobara, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 26, 1980, Ser. No. 210,672
Claims priority, application Japan, Nov. 30, 1979, 54-154409
Int. Cl.³ H01J *29/96*
U.S. Cl. 315—3 5 Claims

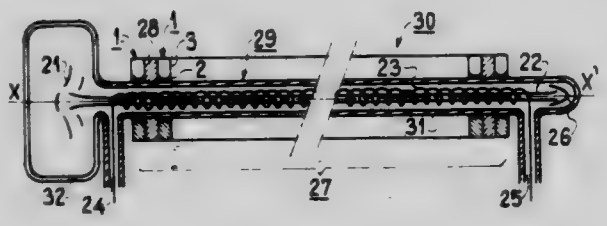


1. In a cathode device for a cathode-ray tube comprising a direct-heating type cathode disposed inside a bulb of the cathode-ray tube and adapted to emit electron beams for causing a fluorescent screen of the cathode-ray tube to luminesce and a transformer provided with a low-voltage secondary coil connected to the direct-heating type cathode and a high-voltage primary coil connected to an external power source whereby the direct-heating type cathode is heated by the external power source through the transformer to generate the electron beam emission, the improvement wherein said transformer is disposed inside said bulb.

4,337,413
FOCUSING DEVICE WITH PERMANENT MAGNETS FOR ELECTRON TUBE AND ELECTRON TUBE EQUIPPED WITH SUCH A DEVICE

Jean Pontvianne, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Mar. 27, 1980, Ser. No. 134,567
Claims priority, application France, Apr. 3, 1979, 79 08371
Int. Cl.³ H01J *25/34*
U.S. Cl. 315—3,5 3 Claims

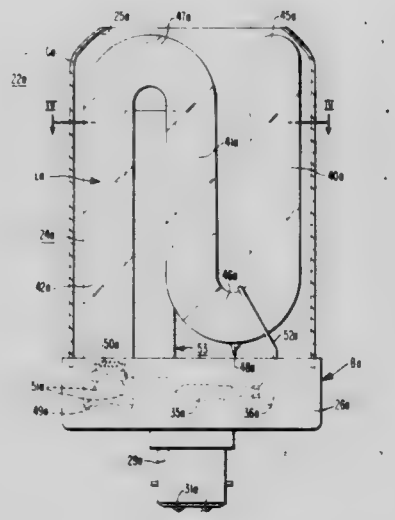


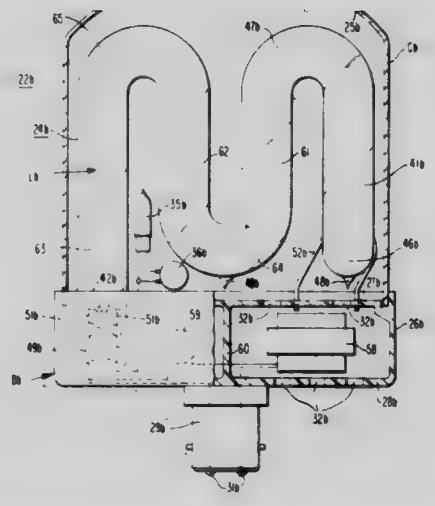
1. A focusing device for an electron tube comprising alternating permanent magnets and pole pieces in the form of flat washers having a central hole and fixed against one another around the envelope of the tube in the electron beam propagation direction, wherein the permanent magnetic washers are open over part of their circumference, the spacing between the edges of the opening being sufficient to permit the passage of the envelope.

4,337,414
COMPACT FLUORESCENT LAMP HAVING CONVOLUTED TUBULAR ENVELOPE OF TRIDIMENSIONAL CONFIGURATION, METHOD OF MAKING SUCH ENVELOPE, AND LIGHTING UNIT INCORPORATING SUCH LAMP

Robert G. Young, Nutley, N.J., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 26, 1979, Ser. No. 97,279
Int. Cl.³ H01J *7/44, 17/34, 19/78, 1/62*
U.S. Cl. 315—56 21 Claims





1. In an electric discharge lamp that contains a pair of spaced electrodes and an ionizable medium which sustains an arc discharge between the electrodes when the lamp is energized, the improvement comprising;

a sealed tubular envelope of light-transmitting material having six substantially straight segments that are joined by five curved segments and together therewith form five generally U-shaped sections that merge with one another and define a single discharge channel of convoluted configuration,

four of the conjoined generally U-shaped sections of said envelope being arranged in paired relationship and constituting two generally S-shaped sections that are disposed in different planes and are connected by the fifth generally U-shaped section,

each of the generally U-shaped sections being so oriented that (a) the discharge channel is terminated by two of the substantially straight segments and (b) all of the substantially straight segments extend in the same general direction in columnar array and thus provide a light source that is tridimensional and of compact size.

16. In the manufacture of an electric lamp, the method of forming vitreous tubing that is initially substantially straight into a lamp envelope of convoluted configuration that has five

conjoined U-bent segments, which method comprises the steps of;

heating a predetermined length of such substantially straight vitreous tubing in a manner such that the end portions thereof are rigid and the portions thereof which are to be reshaped are uniformly softened sufficiently to be bent without fracturing or collapsing,

placing a first arcuate mold means against a heat-softened central portion of the tubing,

gripping the rigid end portions of said tubing and swinging them toward one another along a common plane until the heat-softened central portion of the tubing is bent around said first mold means through an arc such that the tubing is U-shaped and the first U-bent segment is formed,

placing a second mold means of arcuate configuration against heat-softened medial parts of each of the leg portions of the U-shaped tubing and, while maintaining the gripped end portions of the tubing stationary, swinging the said first-formed U-bent segment and the first mold means through an arc of approximately 180° along a path which is substantially normal to the plane of the first bending operation and thereby simultaneously bending both of the heat-softened medial parts of said leg portions around the second mold means and forming an additional pair of U-bent segments which are aligned with one another and position the neck of the first-formed U-bent segment proximate the gripped end portions of the tubing,

placing a third arcuate mold means against heat-softened parts of both legs of the tubing at a predetermined location near the gripped end portions of the tubing and, while maintaining the three previously-formed U-bent segments and associated mold means stationary, swinging each of the gripped end portions through an arc of approximately 180° in a direction which is opposite to that in which the second bending operation was performed and along paths which are also substantially normal to the plane of the first bending operation and thereby simultaneously bending the heat-softened parts of said legs around the third mold means and forming two additional U-bent segments in the tubing which are aligned with one another and position the gripped end portions of the tubing adjacent the second-formed pair of U-bent segments, and then

cooling the resulting multi-U-bent tubular envelope to rigidify and set the vitreous tubing in its convoluted configuration and removing said first, second and third mold means.

4,337,415

HIGH FREQUENCY INDUCTIVE GENERATOR FOR THE INDUCTIVE COIL OF A PLASMA GENERATOR

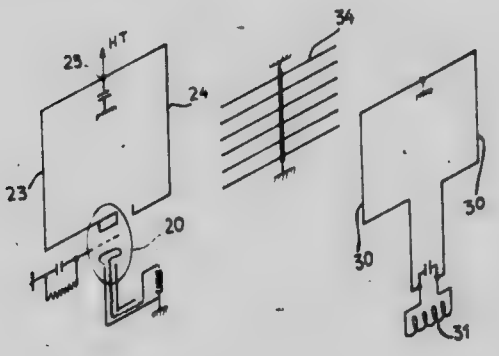
Rene Dürr, Albertville, France, assignor to Instruments S.A., Paris, France

Filed Jun. 30, 1980, Ser. No. 164,024

Claims priority, application France, Jul. 4, 1979, 79 17359

Int. Cl.³ H05H *1/46*

U.S. Cl. 315—111.51 **3 Claims**



1. High frequency inductive generator for the inductive coil of a plasma generator constituted by a head for inflow of gas to be ionized in an inductive coil, said high frequency inductive generator having an oscillator tube circuit of the quarter wave anode resonant line type and a coupling circuit connected to said inductor coil, wherein said quarter wave anode circuit is controlled from a single oscillator tube, one of the extremities of the circuit from the zero point of the high frequency being connected to the anode of this tube, the other being coupled exteriorly to said anode by capacitive coupling.

4,337,416

ELECTRIC FLASH APPARATUS

Yoshiyuki Takematsu, Tokyo, Japan, assignor to Fuji Koeki Corporation, Tokyo, Japan, a part interest

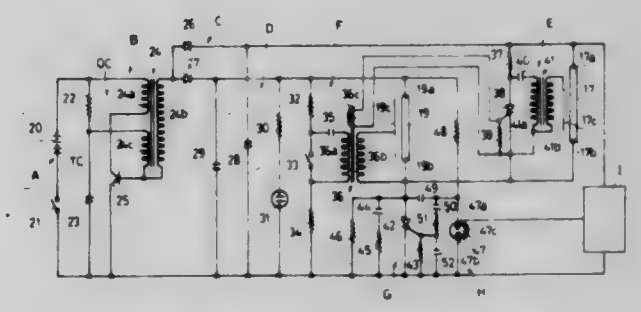
Filed Apr. 16, 1980, Ser. No. 140,880

Claims priority, application Japan, Apr. 17, 1979, 54-046964; Apr. 17, 1979, 54-046965

The portion of the term of this patent subsequent to Dec. 30, 1997, has been disclaimed.

Int. Cl.³ H05B *41/32*

U.S. Cl. 315—241 P **25 Claims**



1. An electric flash apparatus comprising a first flashing member including at least one first flash tube, a second flashing member including at least one second flash tube, and a flash control arrangement having means for stopping a flash light when a resultant flash light quantity attains a predetermined value, said flash control arrangement includes an electric charge storing circuit for supplying an electrical energy to said first flash tube and said second flash tube, triggering means for triggering said first flash tube and said second flash tube, a flash tube circuit member including the first and the second flash tubes and a switching circuit for actuating said flash tube circuit member, said electric charge storing circuit comprising a first main storage capacitor for supplying an electrical energy to said first flash tube and a second main storage capacitor for supplying an electrical energy to said second flash tube, and said flash tube circuit member comprising a flash timing control means for controlling flash timing such that flash light duration of said first flash tube becomes same or approximately same with flash light duration of said second flash tube.

4,337,417

STARTING AND OPERATING APPARATUS FOR HIGH-PRESSURE SODIUM LAMPS

James C. Johnson, Vicksburg, Miss., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 14, 1980, Ser. No. 178,046

Int. Cl.³ H05B *37/00*

U.S. Cl. 315—290 **1 Claim**

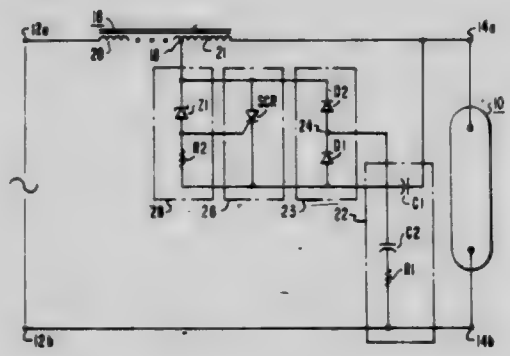
1. A starting and operating apparatus for connection across an AC source for starting and then operating a high-pressure sodium discharge lamp. said apparatus comprising:

(a) input terminals operable to be connected across said AC source, output terminals operable to have said discharge lamp connected thereacross, a ballast inductor having a tap intermediate the ends thereof to define first and second winding portions, said first winding portion having a greater length than said second winding portion and having a transformation ratio therebetween substantially greater than unity, said ballast inductor connected at its ends in series between one of said input terminals and one of said output terminals with said second winding portion connected to said one output terminal, and the other of

said input terminals electrically connected to the other of said output terminals;

(b) capacitive energy storage means and blocking diode means therefor connected in circuit between said output terminals and in circuit with said tap, said capacitive energy storage means comprising two individual capacitors, and said blocking diode means comprising two blocking diodes, one of said capacitors connected in circuit between said one output terminal and the anode of one of said blocking diodes, the cathode of said one diode connected in circuit to a common electrical point, the other of said capacitors connected in circuit between said common electrical point and said other output terminal, a charging resistor connected in series circuit with said other capacitor between said common electrical point and said other output terminal, the other of said blocking diodes having its anode connected in circuit with said common electrical point and its cathode connected in circuit with said tap;

(c) gate-controlled solid-state switching means comprising an SCR having its anode connected in circuit with said tap and its cathode connected in circuit with the anode of said one blocking diode;



(d) Zener diode means comprising a Zener diode having its cathode connected in circuit with said tap and its anode connected in circuit with the gate of said SCR, said Zener diode having a predetermined Zener voltage which is less than twice the peak voltage of said source, said Zener diode means further comprising a bleeder resistor connected in circuit between the gate and the cathode of said SCR, whereby when said apparatus is initially energized, said other capacitor charges toward the peak voltage of said AC source during the negative half cycle and when the voltage of said source goes positive, the voltage on said other capacitor is added to the voltage of said source to charge said one capacitor toward twice the peak of said source, upon the voltage of said one capacitor exceeding said predetermined Zener voltage of said Zener diode, said SCR is gated thereby causing said one capacitor to discharge through said second winding portion to cause the autotransformer action thereof to apply a voltage pulse of sufficient magnitude across said output terminals to start said lamp connected thereacross, and after said lamp is started, the Zener voltage of said Zener diode is not exceeded, thereby rendering the lamp starting portion of said apparatus inoperative.

4,337,418

STARTER UNIT FOR GAS DISCHARGE LAMPS POWERED BY ALTERNATING-CURRENT MAINS

Alfred Walz, Am Kurzarm 7, 7830 Emmendingen, Fed. Rep. of Germany

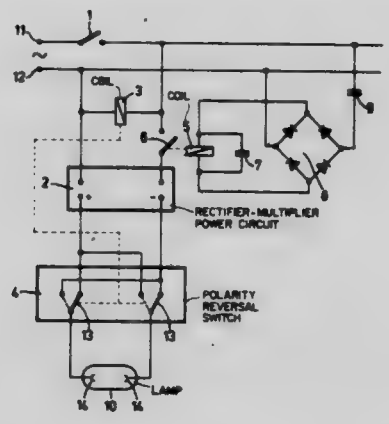
Filed Mar. 25, 1980, Ser. No. 133,939

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1979, 2913525

Int. Cl.³ H05B *37/02, 39/06, 41/04, 41/18*

U.S. Cl. 315—362 **8 Claims**

1. A circuit for starting and powering a gas discharge lamp, such as a fluorescent lamp, from alternating current mains using direct current power to the lamp, the combination of rectifying means, a normally open relay contact in said circuit between said rectifier means and said alternating current mains, said normally open relay contact controlling the power input to said lamp means, a polarity-reversing switch means in said circuit connected in parallel between the output of said alternating current mains and said lamp, means responsive to energization of the alternating current mains for effecting reversal of said polarity-reversing switch means upon energization of said mains, time delay relay means controlling said normally open relay contact and responsive to each energization of the mains for closing said relay contact subsequent to



each operation of said polarity-reversing switching means, and said time delay relay means including a coil and a capacitor in parallel circuit to each other, said time delay relay means being wired in said circuit in a branch separate from said polarity-reversing means; whereby each reversal of said polarity-reversing switch takes place under a no-load condition immediately upon energization of said circuit, and whereby said polarity-reversing switch means is connected to said alternating current mains only after both said polarity-reversing action has taken place and after said time delay of said time delay relay means has timed out.

4,337,419

ANALOG GEOMETRY CORRECTOR FOR TELEVISION CAMERA IMAGE TUBES

James R. Holzgrafe, Sunnyvale, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Apr. 1, 1980, Ser. No. 136,230

Int. Cl.³ H01J *29/70*

U.S. Cl. 315—371 **10 Claims**

1. A corrector circuit for generating selected correction waveforms for addition to the basic scan deflection waveforms of a television camera tube to correct given geometric scan errors in given portions of the picture raster, comprising the combination of;

means for amplitude modulating a train of horizontal-rate pulses with a vertical-rate sawtooth waveform to provide a vertical sawtooth-modulated horizontal pulse train;

clipper means for selectively clipping the vertical sawtooth-modulated horizontal pulse train to define one output thereof which is zero for the first half of the television field, and another output thereof which is zero for the second half of the field;

integrator means coupled to the clipper means to generate a horizontal-rate sawtooth waveform commensurate with the respective incoming clipped pulse train;

second clipper means coupled to the integrator means for clipping and dividing the respective incoming horizontal-rate sawtooth waveform into half-sawtooth output waveforms; and

means coupled to the second clipper means for selecting proportions of the half-sawtooth output waveforms commensurate with the geometric scan errors and the corresponding required to provide selected error correction waveforms in the given portions of the picture scan raster.

4,337,420

DUAL MODE COLOR SWITCH FOR BEAM PENETRATION CRT

Michael H. Kalmanash, Fairfield, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed May 1, 1981, Ser. No. 259,343
Int. Cl.³ H01J *29/80*
U.S. Cl. 315—375 7 Claims

1. A high voltage color switch for a beam penetration cathode-ray tube having a first mode in which color write periods of different colors are formed in a sequential manner, and a second mode in which a baseline color is normally displayed but color write periods in random colors can be formed, comprising:

high voltage power supply means having a reference input and a high voltage output level selected to provide a predetermined baseline color when presented to said cathode-ray tube;

Transformer means connected between the output of said high voltage power supply means and said beam penetration cathode-ray tube;

driver means for receiving an input waveform at an input and amplifying the same presentation to said transformer for providing the needed swing to generate a particular color in a color write period;

First switch means having an open position and a closed position, and connected between the output of said driver means and said transformer means;

integration means connected between said input of said driver means and the reference terminal of said high voltage power supply;

second switch means connected to said integration means for disabling it in the second mode; and

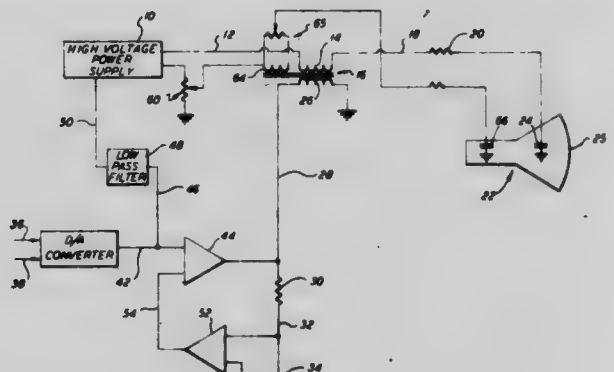
whereby in said first mode for displaying color write periods of different colors in a sequential manner said second switch means is open so that the DC level associated with the input waveform is presented to said reference input of said high voltage power supply to correspondingly adjust its high voltage output level at the same time said first switch means is closed so that said input voltage waveform is presented to said driver means, but in said second mode said second switch is closed, disabling said integration means so that a color write period in a random color can be generated.

4,337,421

SEQUENTIAL COLOR SWITCH FOR BEAM PENETRATION CRT

Michael H. Kalmanash, Fairfield, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed May 1, 1981, Ser. No. 259,344
Int. Cl.³ H01J *29/80*
U.S. Cl. 315—375 9 Claims



1. A high voltage color switch for a beam penetration cathode-ray tube in which a preselected voltage level is related to a particular color to be displayed on said cathode-ray tube, comprising:

high voltage power supply means connectable to said cathode-ray tube and having an output voltage level selected to provide a first predetermined color on said cathode-ray tube;

a transformer means connectable between the output of said high voltage power supply means and said beam penetration cathode-ray tube;

driver means connected to said transformer for amplifying an input waveform received at an input terminal;

feedback means coupled to said driver means to sense the DC level in said input waveform and to feed said DC level back to said input terminal of said driver means; and

integration means connected to a reference terminal of said high voltage power supply to integrate said input waveform into a DC level and to provide a signal proportional thereto to said high voltage power supply for changing its output by an amount proportional to the DC level of said input waveform.

4,337,422

FIELD EMISSION GUN WITH NOISE COMPENSATION

Lee H. Veneklasen, Castro Valley, Calif., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Mar. 17, 1980, Ser. No. 131,205
Int. Cl.³ H01J *29/52*
U.S. Cl. 315—383 7 Claims

1. In a field emission gun system, beam regulating means for measuring beam current and for regulating beam current emerging from an emission tip at a local ground reference potential by controlling the control voltage on an adjacent control electrode, said field emission gun system having a sample electrode at earth ground potential and an accelerating potential power source having a first terminal coupled to said sample electrode at earth ground potential and a second terminal coupled to said local ground reference potential, said beam regulating means comprising;

current measuring circuitry coupled to said power source and to said emission tip for measuring current through said power source substantially at said local ground reference potential of said emission tip, said current measuring circuitry providing an output voltage proportional to said measured current;

a central electrode adjacent said emission tip, and

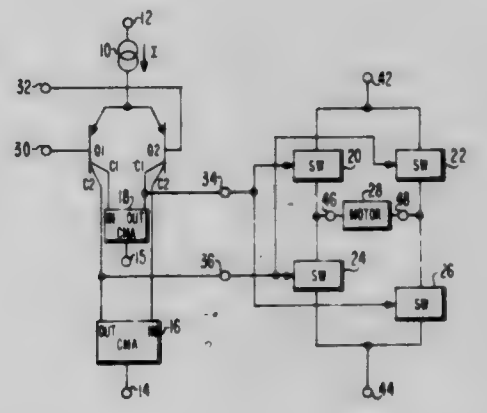
comparison circuitry responsive to said measuring circuitry output voltage and to a predetermined beam current reference voltage for generating an error output voltage signal to said adjacent control electrode.

4,337,423

DUAL OUTPUT SWITCHING CIRCUIT

Raymond L. Giordano, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 24, 1980, Ser. No. 171,833
Int. Cl.³ H02P *1/22*
U.S. Cl. 318—280 10 Claims



5. A motor direction control circuit comprising:

first and second current conduction means each for selectively conducting respective first and second currents;

control means for selectively enabling one of said first and second current conduction means to conduct its respective first and second currents in response to an input signal;

first current transfer means having input and output terminals one of which is connected for receiving said first current of said first current conduction means and the other of which is connected for receiving the first current of said second current conduction means;

second current transfer means having input and output terminals, one of which is connected for receiving the second of said second current conduction means and the other of which is connected for receiving the second current of said first current conduction means;

first, second, third and fourth switches each having first and second electrodes, and a control electrode for selectively controlling the conductivity between its first and second electrodes, the control electrodes of said first and third switches being connected to said output terminal of said first current transfer means, the control electrodes of said second and fourth switches being connected to said output terminal of said second current transfer means, said first switch being connected to selectively conduct current between a first circuit node and a first power supply terminal, said second switch being connected to selectively conduct current between said first circuit node and a second power supply terminal, said third switch being connected to selectively conduct current between a second circuit node and said second power supply terminal, said fourth switch being connected to selectively conduct current between said second circuit node and said first power supply terminal; and

a motor having first and second terminals connected to said first and second circuit nodes respectively, said motor providing mechanical motion in one direction in response to current flow from said first terminal to said second terminal and providing mechanical motion in another direction in response to current flow from said second terminal to said first terminal;

wherein said first and second current transfer means provide respective first and second current transfer ratios between their respective input and output terminals and said first and second current transfer ratios are selected to define the order in which said first and third switches, and said second and fourth switches, selectively conduct current between their respective first and second terminals.

4,337,424

SPEED CONTROL FOR A ROTARY MACHINE

Heinrich Cap, St. Georgen; Johann von der Heide, Monchweiler, and Rolf Müller, St. Georgen, all of Fed. Rep. of Germany, assignors to Papst-Motoren KG, St. Georgen, Fed. Rep. of Germany

Filed Oct. 10, 1980, Ser. No. 195,862

Claims priority, application Switzerland, Apr. 16, 1980, 2931/80

Int. Cl.³ H02P *5/16*

U.S. Cl. 318—328 **10 Claims**

1. Speed control apparatus for a rotary machine comprising signal generating means for producing a signal of a frequency proportional to rotary speed and having also torque varying means for adjusting the rotary speed of the machine:

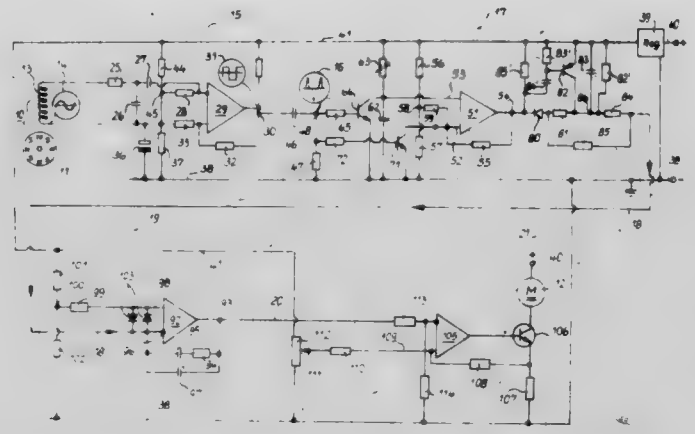
(a) a first capacitor (**62**), a charging circuit (**63**) and a discharging circuit (**64**) therefor, said discharging circuit being constituted so as to discharge said first capacitor in a short period of time periodically in response to signals (**16**) derived from the signal (**14**) produced by said signal generating means;

(b) a threshold circuit (**51**) to which said first capacitor is connected for providing an output signal when the voltage across said first capacitor exceeds a predetermined value;

(c) a second capacitor (**83**,**123**) connected so that its charge condition is controlled by said output signal of said threshold circuit;

(d) means (**19**,**20**) responsive to the voltage across said second capacitor for actuating said torque varying means of said rotary machine;

(e) active normalizing circuit means (**82**;**127**) connected to said second capacitor; and



(f) means (**71**; **120**; **153–155**) for activating said active normalizing circuit means before each new changes of the charge condition of said second capacitor produced by said threshold circuit output signal and thereby bringing the charge condition of said second capacitor substantially to a predetermined charge value before the beginning of each new charging of said second capacitor by said threshold circuit output signal.

4,337,425

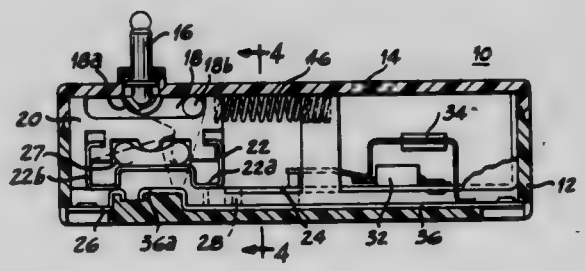
SPEED CONTROL TRIGGER SWITCH

Jackson H. Smith, Union Grove, Ala., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jun. 2, 1980, Ser. No. 155,692

Int. Cl.³ H02P *7/24*; H01H *1/22*

U.S. Cl. 318—345 G **5 Claims**



1. A trigger switch for controlling the speed of a motor, comprising in combination:

a rectangular insulative housing having a trigger protruding from one side in a direction approximately perpendicular to the longest axis of said housing;

contact carrier means linearly movable within said housing by said trigger in a direction perpendicular to the direction of movement of said trigger, and spring-biased against the pressure exerted on said trigger by the user;

a plurality of contact means mounted on said movable carrier means;

a set of stationary contacts mounted in said housing for each of said contact means mounted on said carrier means, such that said contact means slides across said stationary contacts, closing a circuit as said carrier means moves due to pressure on said trigger by the user;

terminal means for connecting said sets of stationary contacts to a source of electric power and to the motor; and

a speed control circuit in connection with one of said sets of stationary contacts to provide a trigger speed control

circuit capable of variable motor speed control by trigger depression;

said set of stationary contacts which is in connection with said speed control circuit comprising three contacts linearly spaced in the direction of movement of said contact carrier means, said speed control circuit being in connection with the outside two of said three contacts, said outside two contacts being bridged by a respective one of said contact means upon initial movement of said contact carrier means in response to trigger depression, the third contact of said three contacts being located between said outside two contacts and being in direct connection with the motor, said third contact and one of said outside two contacts being bridged by said respective one of said contact means when said contact carrier means is at the limit of movement in response to trigger depression to connect the motor directly to said source of electric power in shunt of said speed control circuit to apply full power directly to the motor being controlled, resulting in maximum speed of the motor.

4,337,426

STABILIZED SERVO MOTOR POSITIONING APPARATUS

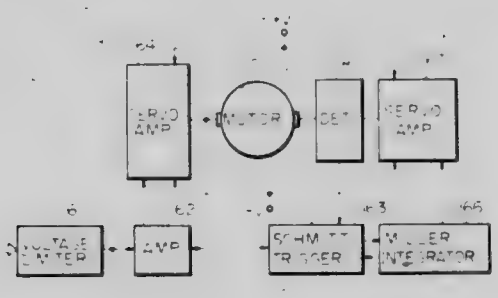
Tomoatsu Imamura, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Aug. 28, 1980, Ser. No. 182,174

Claims priority, application Japan, Aug. 31, 1979, 54/111280; Oct. 13, 1979, 54/132183; Oct. 13, 1979, 54/132184

Int. Cl.³ G05B *11/28*

U.S. Cl. 318—599 **6 Claims**



1. A servo positioning apparatus including a servo motor having a rotary shaft, transducer means for producing periodic signals in response to rotation of the shaft and computing means responsive to the periodic signals for computing a difference between a command motor shaft speed and an actual motor shaft speed and generating an error signal corresponding thereto, characterized by comprising:

drive means connected between the computing means and the motor for driving the motor in accordance with the error signal, the drive means comprising a first servo amplifier, a second servo amplifier, the motor being connected between outputs of the first and second servo amplifiers, an operational amplifier having a non-inverting input connected to the computing means for receiving the error signal, an inverting input connected to the output of the first servo amplifier and an output connected to an input of the first servo amplifier, current sensor means connected between the motor and the second servo amplifier for sensing motor current, Schmitt trigger means having a non-inverting input connected to an output of the current sensor and Miller integrator means having an input connected to an output of the Schmitt trigger means and an output connected to an inverting input of the Schmitt trigger means and to an input of the second servo amplifier, the Miller integrator means generating a sawtooth signal.

4,337,427

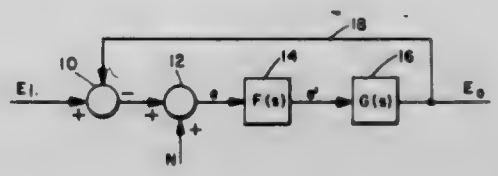
SELECTIVE FILTER FOR CLOSED LOOP SERVO SYSTEM

Inge Maudal, Claremont, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

Continuation-in-part of Ser. No. 140,037, Apr. 14, 1980, abandoned. This application Dec. 22, 1980, Ser. No. 218,877

Int. Cl.³ G05B *5/01*

U.S. Cl. 318—615 **7 Claims**



1. In a closed loop servo system having an inaccessible input signal E_i, an accessible output signal E_o, an accessible error signal e, control apparatus having an input and an output, the input of said control apparatus being coupled to said error signal e and the output of said control apparatus being said output signal E_o, and a first filter having the characteristics g(s) coupled in series with the input to said control apparatus, the improvement comprising:

a second filter having the characteristics h(s) which satisfied the equation: $g(s)+h(s)=1$, the input of said second filter being coupled to a chosen component of said error signal e; and

means for summing the output of said second filter to the output of said first filter.

4,337,428

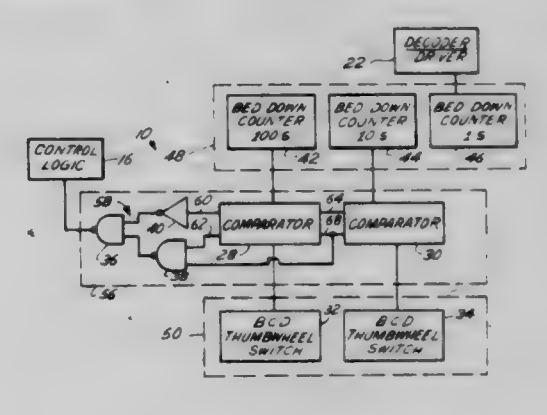
DECELERATION INITIATION CIRCUIT FOR A STEPPER MOTOR

Norman E. Oltendorf, Algonquin, Ill., assignor to Bodine Electric Company, Chicago, Ill.

Filed Sep. 8, 1980, Ser. No. 185,021

Int. Cl.³ G05B *19/40*

U.S. Cl. 318—696 **10 Claims**



1. In a stepper motor of the type including a stator and having associated therewith drive means for providing a variably timed series of drive pulses to said stator, said stepper motor being operable at a low speed and an accelerated speed in response to said variably timed series of drive pulses, an improved circuit for selectably initiating deceleration of said stepper motor after operation thereof at said accelerated speed, comprising, in combination:

monitor means, coupled to said drive means, for monitoring said drive pulses during operation of said stepper motor and providing a monitor signal representing each of said drive pulses, respectively;

input means for providing a selectable deceleration signal representing a predetermined drive pulse within said variably timed series, said predetermined drive pulse corresponding to a predetermined time during operation of said stepper motor when deceleration thereof is to be initiated; and

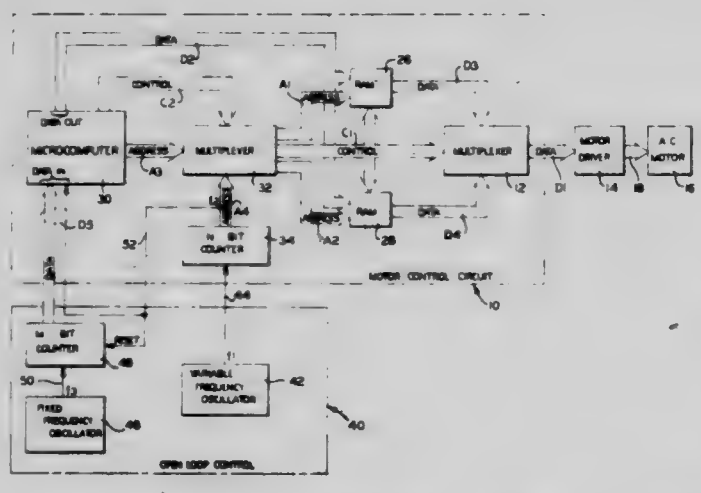
comparator means, coupled to said monitor means and said input means, for receiving and comparing said monitor signal and said selectable deceleration signal and for responsively providing a deceleration initiating signal to said drive means whenever a predetermined relationship exists between said monitor signal and said selectable deceleration signal, said drive means initiating deceleration of said stepper motor in response to said deceleration initiating signal.

4,337,429

A.C. MOTOR CONTROL CIRCUIT

Thomas A. Stuart, Maumee, Ohio, assignor to The University of Toledo, Toledo, Ohio

Filed Sep. 4, 1980, Ser. No. 184,107
Int. Cl.³ H02P *5/34*
U.S. Cl. 318—811 **20 Claims**



1. A control circuit for generating a plurality of driving signals to an electric motor driver to control the application of electric power to an A.C. electric motor, comprising:

means for generating successive groups of the driving signals:

a first storage means for said groups of the driving signals;

a second storage means for said groups of the driving signals; and

a control means for alternately connecting one of said first and second storage means to said means for generating the driving signals to load one of said groups of the driving signals into storage and connecting the other one of said first and second storage means to the motor driver to generate another one of said groups of the driving signals to the motor driver, whereby said one of said first and second storage means is connected to generate a group of the driving signals to the motor driver while said other one of said first and second storage means is being loaded with a subsequent group of the driving signals.

4,337,430

INDUCTIVE-LOAD POWER CONTROL CIRCUIT

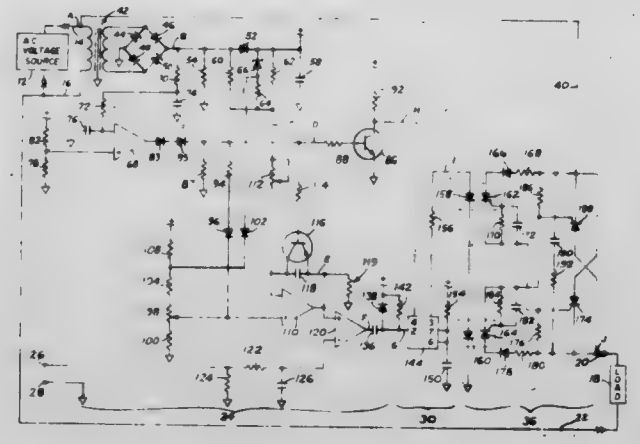
Steven E. Flego, Portland, Oreg., assignor to Electronics Diversified, Inc., Portland, Oreg.

Filed Jan. 26, 1981, Ser. No. 228,324
Int. Cl.³ G05F *5/00*
U.S. Cl. 323—323 **3 Claims**

1. In a circuit employing conduction-angle control for delivering variable power to different AC inductive loads, which loads create different respective lag angles between applied voltage and delivered current up to a known maximum lag angle

switching means connectible to such a load including a switching device which is trigger-pulse-switched into conduction, and thereafter maintained in conduction so long as current through the device exceeds a certain minimum value, and

trigger-pulse generating means operatively connected to said device for switching the same, said generating means having one mode of operation at conduction angles less than a predetermined maximum width which is no less than said maximum lag angle wherein it generates infinitely width-variable triggering pulses up to said maximum width, and another mode of operation at conduction angles greater than said maximum width wherein it generates substantially fixed-width triggering pulses each having a width substantially equaling said maximum width.

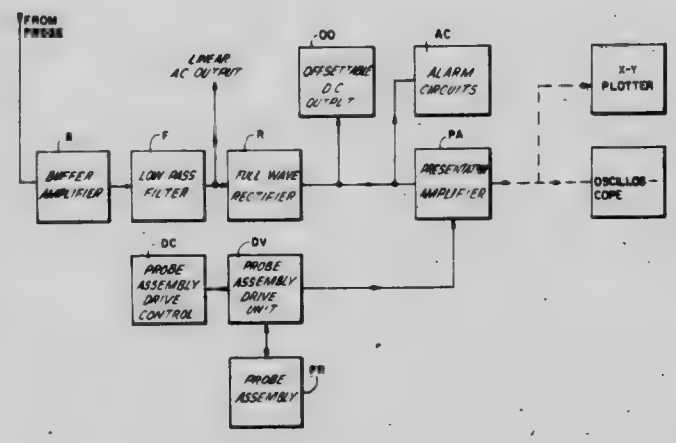


4,337,431

EDDY CURRENT TEST APPARATUS FOR ANNULAR WELDS

John C. Hale, Thurso, Scotland, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Mar. 12, 1979, Ser. No. 19,595
Claims priority, application United Kingdom, Mar. 13, 1978, 9849/78
Int. Cl.³ G01N *27/72, 27/82*
U.S. Cl. 324—220 **3 Claims**



1. Eddy current test apparatus for inspecting annular welds, said test apparatus comprising:

a rotatable eddy current probe assembly comprising a pair of diametrically opposed sensors for interrogating the weld and for producing signals in accordance therewith,

a motor for driving said probe assembly,

means, including a bridge circuit, for comparing the signals produced by said sensors and for providing an out-of-balance signal based on a comparison of said signals,

a sine/cosine potentiometer, driven by said motor so that said potentiometer moves in phase with the probe assembly, for producing electrical output signals in accordance with the position of said probe assembly, said output signals comprising a sine signal and a cosine signal,

a display means, including an x-input and a y-input, for producing a positional indication of the angular location of the potentiometer and thus of said probe assembly responsive to said electrical output signals from said sine/-cosine potentiometer,

first amplifier to which said sine signal is fed and including an output connected to the x-output or y-output of said display means,

a second amplifier to which said cosine signal is fed and including an output connected to the y-input or x-input of said display means,

electronic circuit means for combining directly and in real time the out-of-balance signal with the sine signal by feeding the out-of-balance signal to an input of said first amplifier and for combining directly and in real time the out-of-balance signal with the cosine signal by feeding the out-of-balance signal to an input of said second amplifier, the magnitude of the outputs of the first and second amplifiers being controlled by the combination of signals fed thereto,

and means for correcting any differences in the gain characteristics of said first and second amplifiers,

said display means including means for combining the input signals at said x-input and said y-input to produce a combined display signal in real time in which the angular position of the display is determined solely by the signals from the sine/cosine potentiometer and in which the radial amplitude of the display signal is determined solely by said out-of-balance signal.

4,337,432

TESTING DEVICE FOR STRUCTURAL PARTS AND FUNCTIONS OF MOTOR VEHICLES

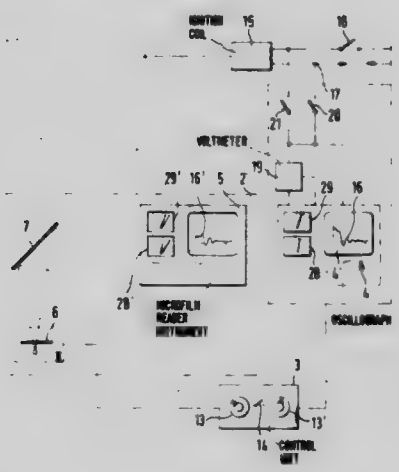
Peter Flohr, and Franz Gumpinger, both of Munich, Fed. Rep. of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 6, 1978, Ser. No. 939,959

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1977, 2741035

Int. Cl.[3] **F02P** *17/00;* **G01R** *13/42*

U.S. Cl. 324—379 **8 Claims**



1. In a testing device for testing structural parts and functions of motor vehicles according to a test program having successive program stages, said testing device comprising a manually operable program switch means for establishing circuit connections associated with the stages of the test program and for controlling a first indicator means for reproduction of the corresponding measurements, the improvement comprising said manually operable program switch means further controlling a second indicator means for reproduction of stored, rated measurements associated with the respective, successive program stages, said second indicator means reproducing the rated measurements in spaced relation, as opposed to superimposed relation, to the reproduction of the actual measurements by the first indicator means whereby said actual and rated measurements can be readily compared, and wherein means are provided for manually adjusting said second indicator means independently of the test program so that when a defect appears stored characteristic data for the defect may be reproduced on the second indicator means whereby the defect can be verified immediately.

4,337,433

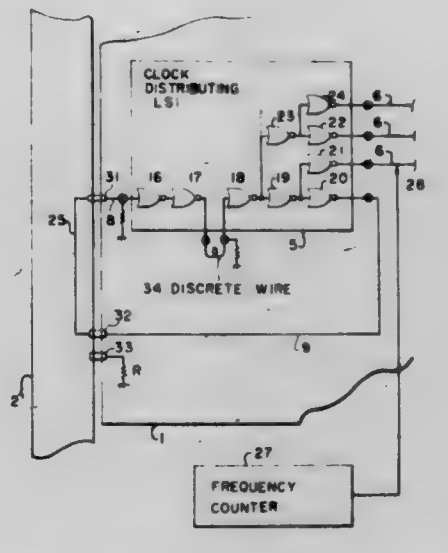
CLOCK SIGNAL DISTRIBUTING CIRCUIT ADJUSTING DEVICE AND METHOD

Tatsuro Yoshimura, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 17, 1979, Ser. No. 103,928

Int. Cl.[3] **H03K** *5/159, 17/00*

U.S. Cl. 328—55 **18 Claims**



1. A method for adjusting to a desired value the delay time for transmitting a pulse from an input terminal of a clock signal distributing circuit to at least a selected one of plural output terminals thereof the relative difference, between the respective delay times corresponding to each said output terminal being preknown, for distributing with known distribution times a clock signal from a clock signal source that is applied to said input terminal to a plurality of load circuits from respective ones of said output terminals, said selected output terminal having an output corresponding to said pulse that is opposite in phase from the pulse as applied to said input terminal, said clock signal distributing circuit having a rise time that is known in relation to the fall time for transmission of the respective rising and falling edges of each said clock signal being transmitted from said input terminal to said selected output terminal thereof, said method comprising

providing the clock signal distributing circuit with delay adjustment means for varying said delay time between said input terminal and each said output terminal,

short circuiting said input terminal and said selected output terminal of the distributing circuit by a line having a predetermined delay time to cause oscillation of said distributing circuit, and

adjusting said delay adjustment means so that the frequency of said oscillation becomes a predetermined value corresponding to the desired delay time for said distributing circuit to transmit said pulse from said input terminal to said selected output terminal.

4,337,434

COMPENSATOR FOR SLOWLY RESPONDING SENSORS

John D. Fogel, Schwenksville, and Will McAdam, Worcester, both of Pa., assignors to Leeds & Northrup Company, North Wales, Pa.

Filed May 2, 1980, Ser. No. 146,941

Int. Cl.[3] **H03K** *17/74, 5/22*

U.S. Cl. 328—114 **5 Claims**

1. A signal compensating circuit to provide a compensated output signal having a rapid response from an input signal from a sensing element with a slowly responding output, said sensing element having different response times for changes of the sensed quantity in opposite directions comprising:

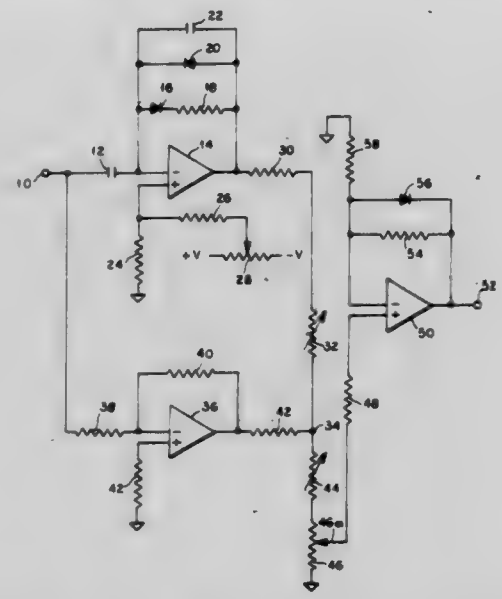
input means for connection to said sensing element,

first signal channel means having an input connected to said input means and an output for producing an output signal

at its output varying in magnitude proportionally in accordance with the magnitude of the rate of change of the signal applied to its input;

second signal channel means having an input connected to said input means and an output for producing an output signal at its output which varies in magnitude proportionally in accordance with the magnitude of the signal applied to its input,

combining means connected to said outputs of said first and second signal channel means for combining said output



signals from said signal channel means to produce said compensated output signal, and

direction sensitive means in said first signal channel means for providing a first proportion between the magnitude of its output signal and the magnitude of the rate of change of said signal applied to said input of said first signal channel means when said signal is changing in one direction and to provide a second proportion between the magnitude of its output signal and the magnitude of the rate of change of said signal applied to said input of said first signal channel means when said signal is changing in the other direction.

4,337,435

DIGITAL PHASE SEQUENCE DETECTOR

Joseph P. Munoz, Miami, Fla., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 10, 1980, Ser. No. 158,105
Int. Cl.³ H03K 5/26
U.S. Cl. 328—133 **4 Claims**

1. A digital phase sequence detector, constructed of standard logic gates devoid of memory elements, which detects phase sequence between first and second phasors, providing a change in its output as the first and second phasors exchange lead and lag positions, which change persists as long as the new relationship persists, comprising:

means providing a first phasor,

means squaring the waveform of aid first phasor to provide a signal V_P, and its complement $\overline{V}_P$.

means providing a second phasor,

means squaring the waveform of said second phasor to provide a signal V_O, and its complement $\overline{V}_O$,

first logic means providing a first feedback signal Y_1, and its complement $\overline{Y}_1$,

second logic means providing a second feedback Y_2, and its complement $\overline{Y}_2$,

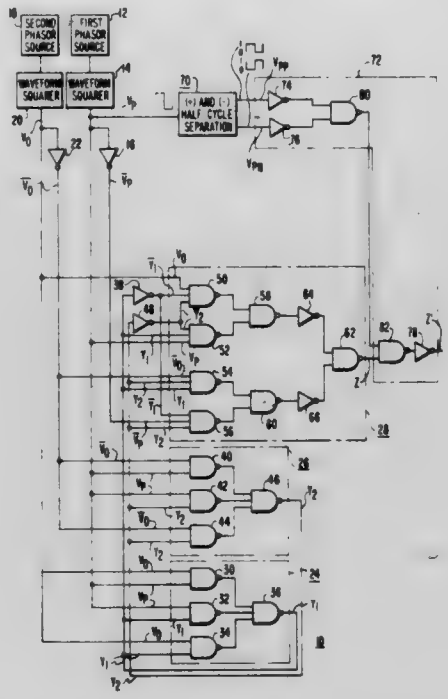
said first logic means being responsive to signals V_O, V_P and Y_1 such that the first feedback signal Y_1 is equal to

$$\overline{(\overline{V}_O V_P)(\overline{V_P Y_1})(\overline{V_O Y_1})},$$

said second logic means being responsive to signals $\overline{V}_O$, V_P and Y_2 such that the second feedback signal Y_2 is equal to

$$\overline{(\overline{V}_O V_P)(V_P Y_2)(\overline{V}_O Y_2)},$$

and third logic means providing an output signal having a first logic level when signal V_O leads signal V_P and a second logic level when signal V_O lags signal V_P.



said third logic means being responsive to signals V_O, $\overline{V}_O$, V_P, $\overline{V}_P$, Y_1, $\overline{Y}_1$, Y_2 and $\overline{Y}_2$, such that its output signal is equal to

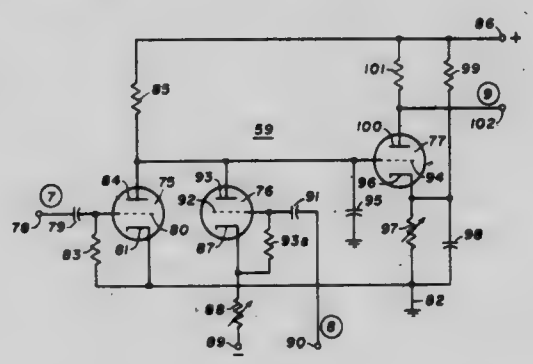
$$\overline{(V_O\overline{Y}_1\overline{Y}_2)(V_P\overline{Y}_2Y_1)(\overline{V}_OY_1Y_2)(\overline{V}_P\overline{Y}_1Y_2)}.$$

4,337,436

BLANKING WAVE GENERATOR FOR BINARY CODE SYNCHRONIZING SYSTEM

Beryl L. McArdle, and Pierre J. Tapernoux, both of Rochester, N.Y., assignors to General Dynamics Corporation, Electronics Division, San Diego, Calif.

Division of Ser. No. 177,528, Aug. 3, 1950, abandoned. This application Nov. 15, 1951, Ser. No. 256,444
Int. Cl.³ H03B 9/13
U.S. Cl. 328—157 **3 Claims**



1. A blanking wave generator comprising the combination of first and second sources of pulses operating in synchronism, said second pulse source having a lower pulse repetition frequency than said first pulse source, a first electron discharge device having a control electrode connected to said first pulse source, a second electron discharge device having a control electrode connected to said second pulse source, means for rendering said first discharge device conductive only upon receipt of a pulse from said first source of pulses, means for rendering said second discharge device conductive only upon receipt of a pulse from said second pulse source, a capacitor operatively connected to said first and second discharge de-

vices, means including a source of potential and resistive means serially connected across said capacitor for charging said capacitor, said capacitor and resistive means having a time constant greater than zero but less than the repetition period of pulses from said first pulse source; means including said first discharge device for discharging said capacitor to a first voltage upon receipt of a pulse from said first pulse source, means including said second discharge device for discharging said capacitor to a second voltage when pulses are simultaneously received from both said pulse sources, a third electron discharge device having an anode, a cathode, and a control electrode connected to said capacitor; an anode-cathode circuit for said third electron discharge device; means for maintaining said third discharge device conductive when said capacitor is charged and non-conductive when said capacitor is discharged; said last named means including fixed bias on said cathode; and means responsive to interruption of current flow in said anode-cathode circuit of said third electron discharge device to develop an output pulse.

4,337,437

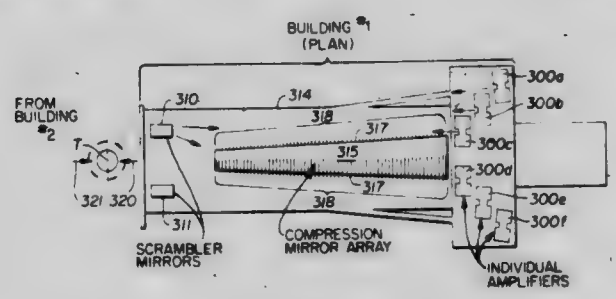
HIGH ENERGY LASER

Robert O. Hunter, 1811 Verano Pl., Irvine, Calif. 92664, and David L. Fried, 5362 S. Ohio St., Yorba Linda, Calif. 92686

Filed Mar. 26, 1979, Ser. No. 23,987

Int. Cl.³ H01S *3/101, 3/23*

U.S. Cl. 330—4.3 **12 Claims**



8. A laser for producing simultaneous compressed optical pulses from a series of sequential pulse of selected temporal spacing comprising in combination:

a plurality of stripper mirrors disposed along the top of said light path having half the spatial separation of said selected temporal spacing;

means for generating an optical pulse for a pulse length at least as long as said compressed optical pulse;

a light compressing path including a plurality of mirrors corresponding in number to said stripper mirrors, each mirror having one half the spatial separation of the selected temporal spatial separation;

a light amplifying path between said stripper mirror and said optical compression network, said light amplifying path including:

a telescope having a primary optic and a secondary optic;

a laser amplifier juxtaposed to said telescope primary optic having an aperture for amplification to permit light of varying angularities to pass through said telescope for amplification;

means for producing a pulse of light having a temporal length at least equal to the duration of the desired compressed optical pulses;

means for directing said light to said stripper mirrors to generate from said stripper mirrors said series of sequential pulses of selected temporal spacing;

at least a first scrambler mirror array having discrete mirrors, each said mirror for directing one of said pulses to the secondary of said telescope at a selected angularity for passage through said telescope;

at least a second scrambler mirror array of discrete mirrors, each mirror for receiving amplified light pulses from said telescope and laser amplifier and directing said light pulse to said light compression path;

and, focusing optics for directing compressed light from said optical compression path and directing light to a target incidence of a compressed optical pulse.

4,337,438

PULSE-WIDTH MODULATOR CIRCUIT

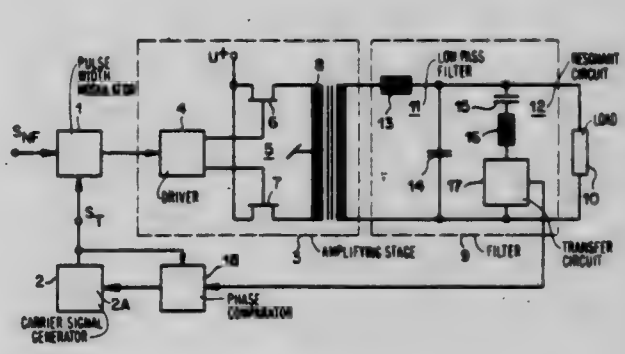
Walter Guggenbühl, Stäfa, and Mathis Halder, Baar, both of Switzerland, assignors to LGZ Landis & Gyr Zug AG, Zug, Switzerland

Filed Feb. 13, 1980, Ser. No. 121,268

Claims priority, application Switzerland, Mar. 1, 1979, 2028/79

Int. Cl.³ H03F *3/38*

U.S. Cl. 330—10 **7 Claims**



1. A pulse width, modulated signal amplifier comprising in combination:

a pulse-width modulator, having an input for receiving a low frequency modulation signal, an input for receiving a carrier frequency signal, said modulator generating pulses at said carrier frequency, each pulse having a width modulated by said low frequency modulation signal,

a carrier frequency signal generator having a control input for said carrier frequency and an output connected to the carrier frequency signal input of said pulse-width modulator,

a buffer stage postcoupled to said pulse-width modulator,

an output filter postcoupled to said buffer stage, including relatively narrow-band resonant circuit means having a resonance frequency, for damping and at least partly supressing the carrier frequency, and

regulator means forming a feedback path between said resonant circuit means, and said control input of said carrier frequency signal generator for maintaining the carrier frequency tuned substantially to the resonance frequency of said resonant circuit means.

4,337,439

WIDE BAND AMPLIFIERS

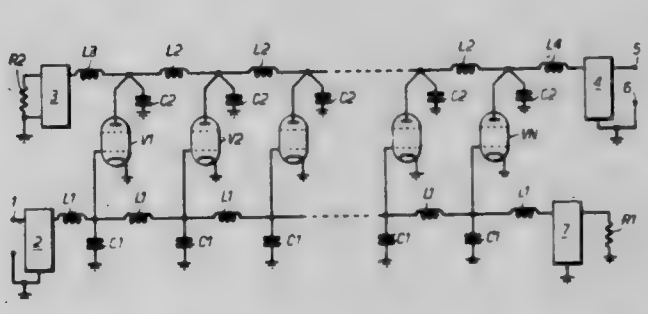
Boleslaw M. Sosin, Chelmsford, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Oct. 24, 1979, Ser. No. 88,063

Claims priority, application United Kingdom, Nov. 14, 1978, 44336/78

Int. Cl.³ H03F *3/60, 3/28*

U.S. Cl. 330—54 **7 Claims**



1. A distributed amplifier including a plurality of amplifying devices having their individual control terminals connected to different points along an input filter line which has a predetermined passband, and the output terminals of the amplifying

devices being connected to different points along on an output filter line which has an output load at one end and has a predetermined passband which includes a band of frequencies which is alos included in the passband of the input filter line, said points along the output filter line being so chosen that delays between said output terminals are substantially the same as the delays between the corresponding control terminals, and shunt arms in said filter lines being constituted at least in part by internal capacitances of the amplifying device; said amplifier further comprising a termination impedance connected to the other end of said output filter line, and said output filter line being substantially wholly reactive and being provided with a portion over which its impedance is tapered so as to constitute a wide band multiple quarter wave impedance transformer providing an impedance match between said output load at one end of said output filter line and said termination impedance at said other end of said output filter line.

4,337,440

ELECTRONIC CASCADE CIRCUIT COMPRISING A CIRCUIT HAVING CONTROLLABLE TRANSFER CHARACTERISTICS AND A TWO-PORT

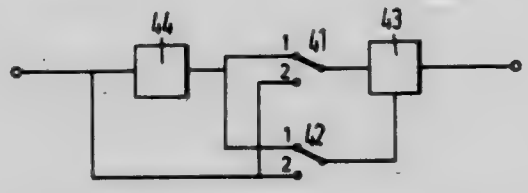
Jacob de Korte, Breukelen, Netherlands, assignor to Nederlandse Omroep Stichting, Hilversum, Netherlands

Filed Mar. 5, 1980, Ser. No. 127,362

Claims priority, application Netherlands, Mar. 7, 1979, 7901843

Int. Cl.³ H03G 3/20

U.S. Cl. 330—129 **4 Claims**



1. An electronic circuit arrangement comprising, in cascade connection:

(a) a first two-port circuit having a first input terminal and a first output terminal;

(b) a second circuit having a second input terminal, an external control terminal and a second output terminal, said second circuit responsive to a control signal applied to its control terminal for controllably varying its transfer characteristics;

(c) said first input terminal comprising an input terminal of said electronic circuit arrangement, and said second output terminal comprising an output terminal of said electronic circuit arrangement;

(d) switching means having a parent contact and first and second switching contacts, said parent contact being connected to said control terminal, said second switching contact being connected to said first input terminal; and

(e) means for providing a connection between said first output terminal and said second input terminal, and said first switching contact.

4,337,441

SUPPLY-VOLTAGE DRIVER FOR A DIFFERENTIAL AMPLIFIER

James R. Kellogg, Hillsboro, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Feb. 11, 1980, Ser. No. 120,587

Int. Cl.³ H03F 3/45

U.S. Cl. 330—261 **10 Claims**

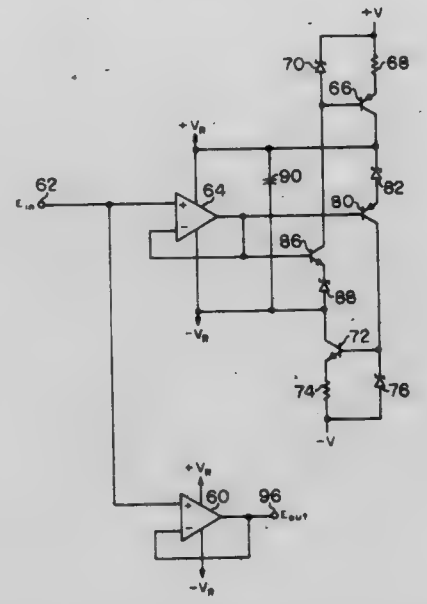
6. A supply-voltage driver for a first differential amplifier having positive and negative supply voltage terminals, comprising:

a second differential amplifier having positive and negative supply voltage terminals connected respectively to the positive and negative supply voltage terminals of said first differential amplifier, said second differential amplifier also having a first input, a second input, and an output, the output being coupled to said second input;

a current source coupled to said positive supply voltage terminals;

a current sink coupled to said negative supply voltage terminals;

first reference voltage means coupled from said output to said positive supply voltage terminals;



second reference voltage means coupled from said output to said negative supply voltage terminals;

means for applying an input signal to said first differential amplifier and at least a portion of said input signal to said second differential amplifier; and

current-control means coupled between the output of said second differential amplifier and said first and second reference voltage means to provide additional current during signal transitions to provide fast slewing of said reference voltage means to track said input signal.

4,337,442

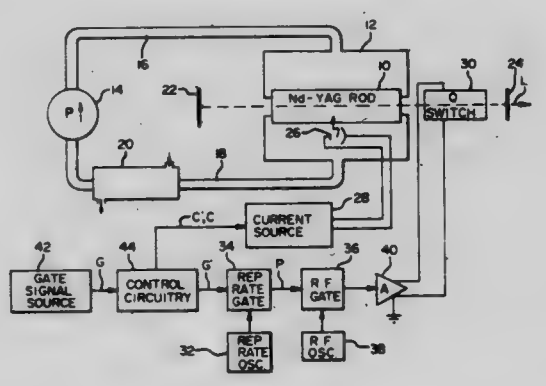
FIRST LASER PULSE AMPLITUDE MODULATION

Michael S. Mauck, Portland, Oreg., assignor to Electro Scientific Industries, Inc., Portland, Oreg.

Filed Mar. 28, 1980, Ser. No. 134,980

Int. Cl.³ H01S 3/13

U.S. Cl. 372—13 **7 Claims**



1. In a Q-switched laser having a lasing medium, a continuously pumping source, a Q-switch and a source of electric gating signal for said Q-switch, the combination therewith of electrical control circuit means connected to the pumping source for reducing the pumping level for a time and by an amount sufficient to reduce the energy stored in the lasing medium to a level no greater than the level it normally would recover to during the time between laser pulses at the operating repetition rate and pumping source level, the control circuit means being also connected to the gating signal source for

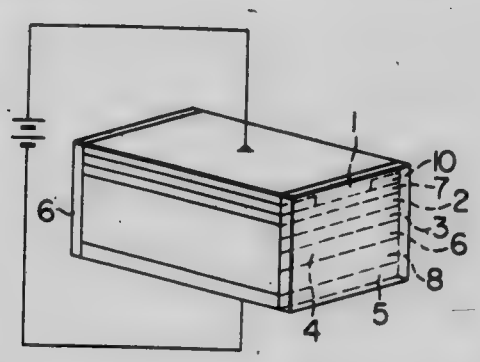
delaying the gating signal for a time substantially equal to the time during which the pumping level is reduced.

4,337,443

SEMICONDUCTOR LASER DEVICE WITH FACET PASSIVATION FILM

Jun-ichi Umeda, Hachioji; Toshikazu Shimada; Michiharu Nakamura, both of Hinodemachi; Yoshifumi Katayama, Tokorozawa; Takashi Kajimura, and Shigeo Yamashita, both of Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 25, 1980, Ser. No. 124,266
Claims priority, application Japan, Feb. 26, 1979, 54-20802
Int. Cl.³ H01S *3/19*
U.S. Cl. 372—49 **9 Claims**



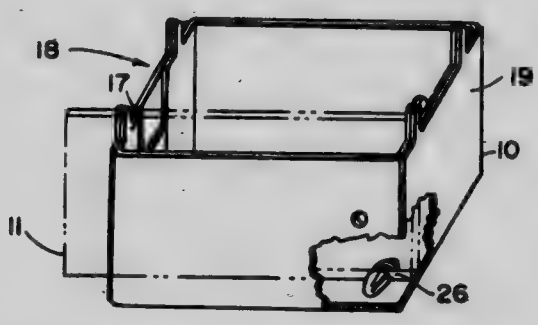
1. In a semiconductor laser element, the improvement comprising a film of an amorphous material deposited on at least an optical output facet of said laser element, said amorphous material containing silicon and hydrogen as indispensable components.

4,337,444

RADIO FREQUENCY OSCILLATOR-MODULATOR CIRCUIT

Wade B. Tuma, Campbell, and Niles E. Strohl, Sunnyvale, both of Calif., assignors to Atari, Inc., Sunnyvale, Calif.

Division of Ser. No. 949,848, Oct. 10, 1978, Pat. No. 4,214,360, which is a division of Ser. No. 818,838, Jul. 25, 1977, Pat. No. 4,152,671. This application Jan. 24, 1980, Ser. No. 114,816
Int. Cl.³ H03B *5/12*; H03C *1/44*
U.S. Cl. 332—31 T **16 Claims**



1. An oscillator circuit comprising:
a first transistor having a base, an emitter and a collector;
a second transistor having a base dc coupled to the base of the first transistor and directly coupled to the collector of the first transistor, a collector directly coupled to the base of the first transistor and an emitter coupled to the emitter of the first transistor;
a resonant circuit having first and second terminals for providing a relatively high impedance between the terminals at one frequency, the first terminal coupled to the collector of the first transistor and the second terminal coupled to the collector of the second transistor;
current regulating means comprising a first resistor having a first terminal coupled to the emitters of the first and second transistors and having a second terminal; and a diode-coupled transistor coupled in series with a forward biased diode, the series coupled diode-coupled transistor and forward biased diode being connected between the base of the first transistor and the second terminal of the first resistor; and
circuit means for connecting a DC voltage between the base of the first transistor and the second terminal of the first resistor.

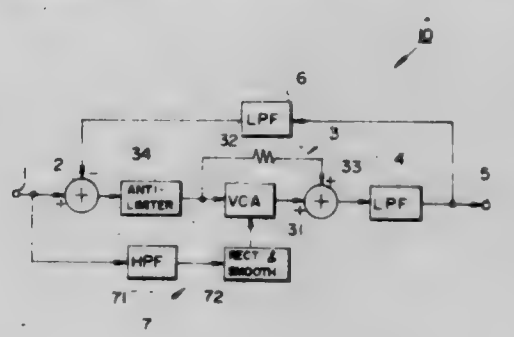
11. A radio frequency oscillator-modulator, comprising:
a modulator including a first differentially connected, emitter-coupled transistor pair, the emitters of the first transistor pair being coupled to a modulator input terminal for receiving a modulating signal;
an oscillator for generating a radio frequency signal including a second pair of differentially connected, emitter-coupled transistors having base leads coupled to one another by a resonant circuit, the base lead of each transistor of the second pair being connected to the collector of the other transistor of the second pair;
coupling means for communicating the radio frequency signal to the modulator;
bias means for establishing a predetermined potential including first and second terminals, a fifth transistor connected as a diode, and a first diode, the fifth transistor and first diode being connected in series between the first and second terminals, the bases of the first and second pairs of transistors being dc coupled to the first terminal of the biasing means, the emitters of the second pair of transistors being connected through a load-resistor to the second terminal;
circuit means coupled to the first and second terminals of the bias means for providing a DC voltage thereto; and
output means coupled to the collector of at least one of the modulator transistors for providing a modulated oscillator output signal.

4,337,445

COMPANDER CIRCUIT WHICH PRODUCES VARIABLE PRE-EMPHASIS AND DE-EMPHASIS

Kenzo Akagiri, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 21, 1981, Ser. No. 226,822
Int. Cl.³ H04B *1/64*
U.S. Cl. 333—14 **22 Claims**



1. A circuit for noise reduction comprising:
a first signal path including variable gain amplifier means supplied with a subtraction signal for amplifying the subtraction signal with controllable gain, and means for providing substantial de-emphasis of the high frequency components of the amplified subtraction signal from said variable gain amplifier means relative to the low frequency components thereof to produce an output signal;
a second signal path for providing, at most, relatively minor de-emphasis of the high frequency components of the output signal relative to the low frequency components thereof;
subtracting means for subtracting the output of said second signal path from an input information signal and for producing said subtraction signal in response thereto; and
means for controlling the gain of said variable gain amplifier means to exhibit higher gain when the signal level of the

input information signal is relatively high and to exhibit lower gain when said signal level is relatively low.

4,337,446

APPARATUS FOR PROCESSING MICROWAVE ELECTRICAL ENERGY

Henry M. O'Bryan, Jr., Plainfield, and John Thomson, Jr., Wall Township, Monmouth County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 16, 1980, Ser. No. 160,108

Int. Cl.³ H01P *3/08*; C01G *23/00*

U.S. Cl. 333—238 **8 Claims**



1. An apparatus for processing microwave electrical energy with frequency between 0.5 and 6.0 GHz comprising a dielectric material for interaction with the microwave electrical energy, means for introducing microwave electrical energy into the dielectric material, conducting member to contain the microwave electrical energy in the apparatus in which the dielectrical material comprises at least 80 weight percent ceramic with composition corresponding to nominal formula of $Ba_2Ti_9O_{20}$ characterized in that after sintering into a solid ceramic body the dielectric material is exposed to a heat treatment comprising the steps of

(a) contacting the dielectric material to an oxygen enriched atmosphere consisting of at least 50 volume percent oxygen for at least 6 hours at a temperature between 1100 and 1300 degrees C.; and

(b) cooling the dielectric material in the oxygen enriched atmosphere at a rate less than 200 degrees per hour down to 600 degrees C.

4,337,447

SWITCH

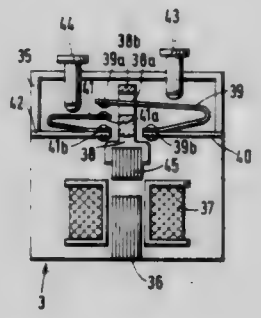
Helmut Lemmer, Marienheide, Fed. Rep. of Germany, assignor to Starkstrom Gummersbach GmbH, Marienheide, Fed. Rep. of Germany

Filed Mar. 12, 1981, Ser. No. 242,853

Claims priority, application European Pat. Off., Mar. 13, 1980, 80 101 314.5

Int. Cl.³ H01H *9/20*

U.S. Cl. 335—167 **11 Claims**



1. In a switch used as a power, control or starter switch of the type including a housing, a contact system mounting in the housing and a magnetic system mounting in the housing for actuating the contact system, wherein the contact system is provided with contact bars having stationary contact pieces as well as bridges having movable contact pieces which act as opening or closing contacts and which are actuated by a common bridge support, with each bridge with its associated contact bar being mounted in a switch chamber and wherein a switch-on contact is provided with a self-locking type contact, the improvement comprising:

a contact yoke for said switch-on contact which is structurally integrated with the switch; and

an externally-operated actuating element for actuating said contact yoke which cooperates with said common bridge support.

4,337,448

ELECTROMAGNETIC DEVICE FOR FOCUSING AND DEFLECTING ELECTRON BEAMS

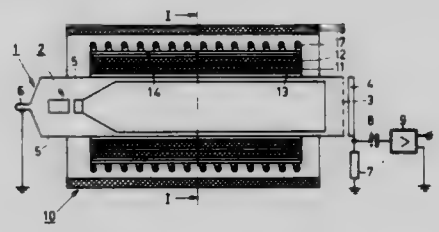
Henricus J. Van Rooy, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

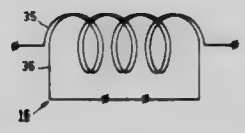
Filed Apr. 21, 1980, Ser. No. 142,320

Claims priority, application Netherlands, May 14, 1979, 7903757

Int. Cl.³ H01F *7/00*

U.S. Cl. 335—210 **4 Claims**





1. An electromagnetic device for magnetically focusing and deflecting an electron beam in a television camera tube, said device comprising first and second deflection coils for producing magnetic fields for deflecting the electron beam in respective first and second orthogonal directions, as well as a helically wound focusing coil for focusing the electron beam, characterized in that the focusing coil comprises multifilar windings each winding being wound from an insulated conductor in the same winding sense and direction, the windings being located in substantially contiguous relationship throughout their length, each of the windings having a connection at each of its ends, the windings being connected in series in such manner that when energized each winding produces a magnetic field which fields have the same polarity.

4,337,449

MAGNETIC TRANSDUCER WITH A MOVABLE MAGNET

Claude Oudet, Besancon, France, assignor to Portescap, La Chaux-de-Fonds, Switzerland

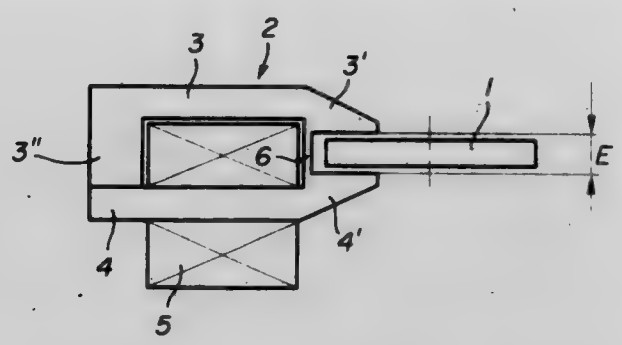
Filed Jun. 24, 1980, Ser. No. 162,484

Int. Cl.³ H01F *7/08*

U.S. Cl. 335—225 **1 Claim**

1. A magnetic transducer with a movable magnet, compris-

ing at least one electric coil and a one piece stationary magnetic circuit having a high magnetic permeability and formed of two branches, at least one of which serves as the core of the said coil, the two branches at one end comprising pole pieces defining an air-gap, the movable magnet being disposed so that its magnetic potential is arranged in series with that produced by the stationary magnetic circuit, wherein the said two branches are connected together in the vicinity of the pole pieces by a deformable saturable connecting portion of which the cross-section is substantially smaller than the cross-section



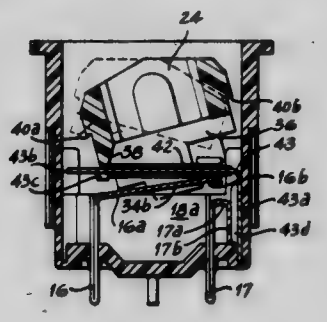
of the said branches so as to be saturated by the magnetic flux in the circuit during use, at least one of the two branches comprising, at its end remote from the pole pieces, a main connecting portion designed to form a junction of a low magnetic resistance with the other branch, the arrangement of the stationary magnetic circuit being such that it may adopt a first configuration in which the coil may be positioned on the branch serving as the core and that it may subsequently be deformed to close the said junction so as to obtain the operational configuration of the magnetic circuit.

4,337,450

REMOTE CONTROL ELECTRO-THERMAL ACTUATOR SWITCH

Alan A. Matthies, Milwaukee, Wis., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jun. 9, 1980, Ser. No. 157,698
Int. Cl.³ H01H *71/16*
U.S. Cl. 337—66 **4 Claims**



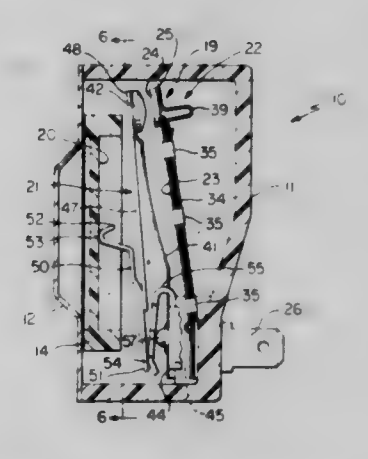
1. A remote control electro-thermal actuator switch comprising:
an insulating housing;
switch contacts mounted in said housing;
an actuator mounted in said housing and manually operable to actuate said contacts to a first position energizing a load device and a second position deenergizing said load device;
and electro-thermal means mounted in said housing and controllable from a remote point for moving said manual actuator from said first position to said second position;
said electro-thermal means comprising a bimetal device mounted in said housing and in engagement with said manual actuator when the latter is in said first position;
and a pair of terminals extending from said housing for connecting said bimetal device to a control means at a remote point;
said bimetal device comprising:
an elongated bimetal element mounted in said housing;
a heater coil in heat conduction relation to said bimetal element;
means connecting one end of said heater coil to one end portion of said bimetal element;
a pair of terminals adapted to be connected to a remote control current source;
means connecting one of said terminals to the other end of said heater coil;
and means connecting said other terminal to the other end portion of said bimetal element so that current coming to said terminals flows through both said heater coil and said bimetal element.

4,337,451

ELECTRICAL SWITCH CONSTRUCTION, SWITCH BLADE SUBASSEMBLY AND METHODS OF MAKING THE SAME

Raymond J. Fox, Grove City, Ohio, assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 26, 1980, Ser. No. 210,522
Int. Cl.³ H01H *61/08*
U.S. Cl. 337—93 **40 Claims**



1. In an electrical switch construction having a housing means carrying a thermally cyclable switch blade means and an adjustable set lever switch blade means cooperable with said cyclable switch blade means when said set lever switch blade means is moved relative to said housing means to an operating position thereof by an actuator means that is carried by said housing means, said housing means carrying calibrating means for calibrating said set lever switch blade means, said set lever switch blade means comprising a resilient switch blade having opposed ends and an ambient bimetal lever means having opposed ends, one of said opposed ends of said switch blade and said ambient bimetal lever means being secured together and being the part of said set lever switch blade means that cooperates with said thermally cyclable switch blade means, the improvement wherein said calibration means is operatively associated with the other opposed end of said ambient bimetal lever means to adjust that other opposed end relative to the other opposed end of said switch blade and thereby calibrate said set point switch blade means, said other opposed end of said switch blade being secured to said construction.

4,337,452

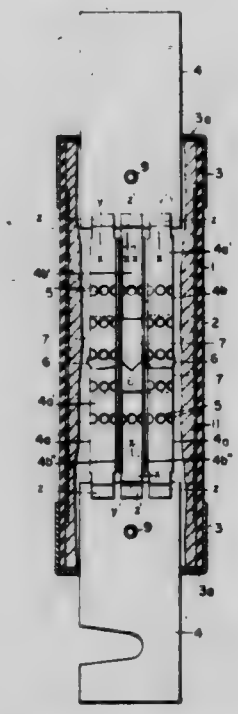
ELECTRIC FUSE HAVING TERMINAL CAPS AND BLADES PROJECTING THROUGH SAID CAPS

Frederick J. Kozacka, S. Hampton, and Richard A. Belcher, Hampton Falls, both of N.H., assignors to Gould Inc., Rolling Meadows, Ill.

Filed Mar. 11, 1981, Ser. No. 242,813
Int. Cl.³ H01H *85/16*
U.S. Cl. 337—231 **11 Claims**

1. An electric fuse comprising in combination
(a) a tubular casing of electric insulating material;
(b) a pulverulent arc-quenching filler inside said casing;

(c) a pair of terminal caps closing said casing at the ends thereof;
(d) a pair of blade contacts projecting from the outside of said casing through the end surfaces of said pair of terminal caps into the inside of said casing;
(e) a plurality of fusible elements having substantially the same resistance;
(f) some of said plurality of fusible elements having a relatively narrow spacing from the plane defined by said pair of blade contacts, and others of said plurality of fusible



elements having a relatively wide spacing from the plane defined by said pair of blade contacts; and
(g) a plurality of pairs of connectors for connecting the ends of each of said plurality of fusible elements to said pair of blade contacts, the resistance of each of said plurality of pairs of connectors being such that the resistance of the current path through each of said plurality of fusible elements is virtually equal, irrespective of the spacing of each of said plurality of fusible elements from the plane defined by said pair of blade contacts.

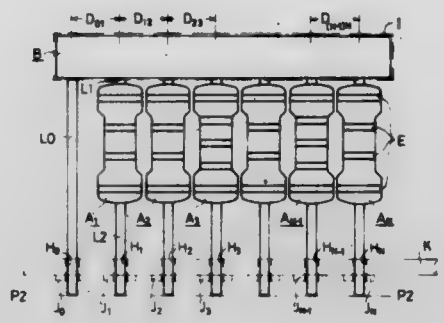
4,337,453

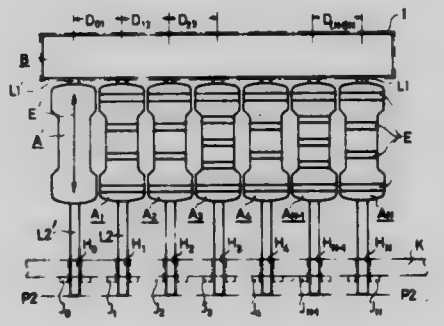
FUNDAMENTAL ELECTRICAL ELEMENT ARRAY

Kazuyoshi Nagashima, Nirasaki, and Nobuyuki Furuya, Kohfu, both of Japan, assignors to Fuji Sangyo Kabushiki Kaisha, Yamanashi, Japan

Filed Mar. 5, 1980, Ser. No. 127,503
Claims priority, application Japan, Mar. 8, 1979, 54-27016; Mar. 8, 1979, 54-27017; Mar. 8, 1979, 54-27018; Mar. 8, 1979, 54-27019; Aug. 31, 1979, 54-111333; Aug. 31, 1979, 54-111334
Int. Cl.³ H01C *1/01*
U.S. Cl. 338—320 **9 Claims**

1. A fundamental electrical element array comprising:
a plurality of columnar, fundamental electrical elements, each provided with wire leads extending from its both ends concentrically therewith;
at least one lead wire; and
a conductive bar common to the plurality of fundamental electrical elements and the lead wire;
wherein the plurality of fundamental electrical elements and the leads wire are electrically and mechanically connected at one wire end to said conductive bar at predetermined





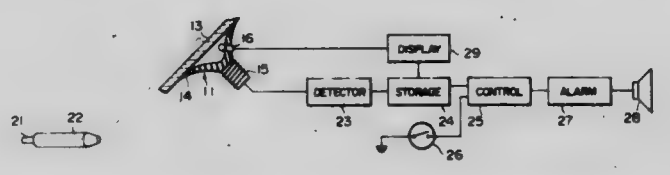
intervals in the lengthwise direction of the conductive bar so that they lie side by side in a common plane.

4,337,454

ALARM UNIT FOR PREVENTING THEFT OF VEHICLES

Keisuke Iwata, Tokyo, Japan, assignor to Iwata Electric Co., Ltd., Tokyo, Japan

Filed Apr. 6, 1981, Ser. No. 251,210
Int. Cl.³ B60R *25/10*
U.S. Cl. 340—63 **5 Claims**



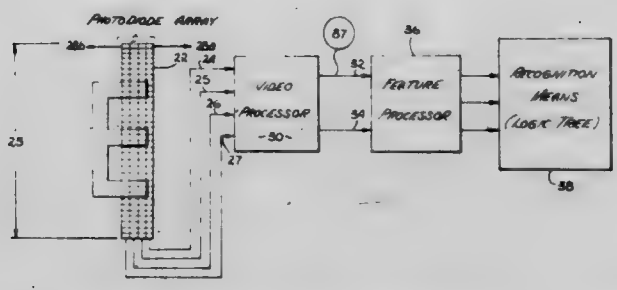
1. An alarm unit for preventing a theft of a vehicle, comprising
a portable signal emitter for producing a magnetic signal of a predetermined frequency,
a receiver mounted within the vehicle on a glass pane thereof for receiving the magnetic signal from the emitter through the glass pane,
a signal detector connected to the receiver for determining whether the magnetic signal has the predetermined frequency and for producing a control signal when the signal has the predetermined frequency,
a circuit connected to the signal detector for storing the control signal therefrom,
a control circuit connected to the storing circuit and a door switch which is responsive to the opening or closing of a door of the vehicle, the control circuit producing an output signal in response to an operation of the door switch after the storing circuit has stored the incoming control signal,
and an alarm circuit connected to the control circuit and responsive to the output signal.

4,337,455

APPARATUS FOR PROCESSING VIDEO SIGNALS RECEIVED FROM AN OPTICAL SCANNER

William R. Smith, Mountain View, Calif., assignor to Caere Corporation, Los Gatos, Calif.

Continuation of Ser. No. 45,103, Jun. 4, 1979, abandoned, which is a division of Ser. No. 898,822, Apr. 21, 1978, Pat. No. 4,180,799. This application Jan. 2, 1981, Ser. No. 222,268
Int. Cl.³ G06K *9/38*
U.S. Cl. 340—146.3 AG 1 Claim



1. In an apparatus for recognizing characters, such as alphanumeric characters, an improved video processor for processing video signals corresponding to slices of said characters received from an optical scanner having a plurality of parallel linear arrays comprising:

comparator means for comparing said video signals with a dynamic threshold voltage, said comparator means coupled to receive said video signals;

threshold generation means coupled to said comparator means for generating said dynamic threshold voltage for said comparator means, said threshold generation means coupled to receive said video signals and including circuit means responsive to the peaks of said video signals so as to set said threshold voltage in response to said peaks, said peaks corresponding to portions of said characters within said vertical slices, said circuit means causing said threshold voltage to decay at a predetermined rate after each of said peaks such that said dynamic threshold voltage is a function of the magnitudes of said peak;

clamping means coupled to said comparator means for providing a lower limit for said threshold voltage, said clamping means coupled to and controlled by a first peak follower circuit which follows said peaks of said video signals, whereby an output signal from said processor is prevented when video signals received from said scanner are below a predetermined level; and

a weighting network which weights signals from said arrays in a predetermined manner to provide smoothing and averaging of the signals received from the plurality of linear arrays;

whereby compensation for dynamic range variations of said video signals is provided at the output of said comparator means since said signals are compared with said dynamic threshold voltage.

4,337,456

ANALOG TO DIGITAL CONVERTER WITH OFFSET ERROR CORRECTION

George W. Deffendall, Reading, and James J. Hitt, Willow Grove, both of Pa., assignors to Leeds & Northrup Company, North Wales, Pa.

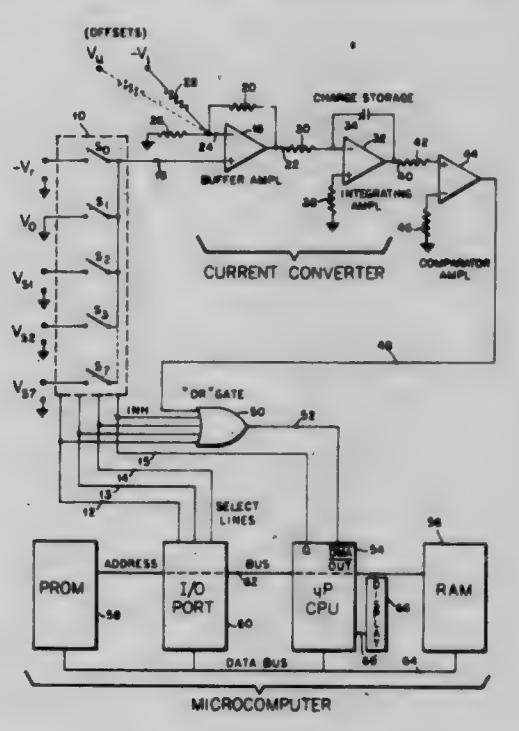
Filed Apr. 16, 1979, Ser. No. 30,197
Int. Cl.³ H03K *13/20*
U.S. Cl. 340—347 NT 3 Claims

1. A method for producing a digital signal of value indicative of the value of an unknown analog voltage which employs a charge storage device coupled to the output of a current converter of the type which produces offsetting currents in said device comprising the steps of:

applying a datum level voltage V_O to the input of said current converter for a predetermined time period t_2 which is equal to a constant k times a predetermined time period t_1 whereby during said period the charging current in said device due to said voltage and the offsetting current produce a voltage across said storage device which changes from a first voltage level to a second voltage level;

discharging said device at a known rate by the application of a reference voltage V_r to the input of said converter for the time t_0 required to change the voltage across said storage device from said second back to said first level;

applying said unknown analog voltage V_S to the input of said current converter for said predetermined time period t_1 measured from the time the voltage across said device is at said first level, whereby during said period the charging current in said device due to said unknown analog voltage



and the offsetting currents produces a change in the voltage across said device to a third level;

discharging said device at said known rate by the application of the reference potential V_r to the input of said converter for the time t_3 required to change the voltage across said storage device from said third level back to said first level; and

producing said digital signal to have a value proportional to the reference voltage times the ratio of the period t_3 to the period t_1 as corrected for the value of said offsetting currents by the reduction of the value of t_3 by an amount t_0/k and the increase of the value t_1 by an amount t_0/k where k equals t_2/t_1.

4,337,457

METHOD FOR THE SERIAL TRANSMISSION OF BINARY DATA AND DEVICES FOR ITS IMPLEMENTATION

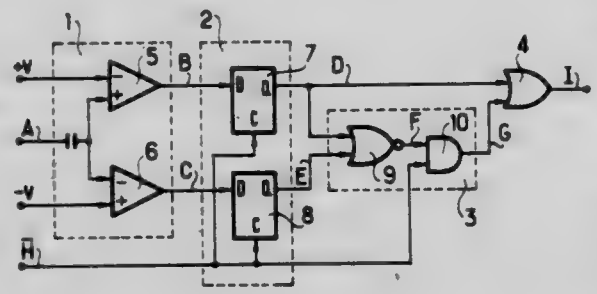
Jean-Paul Tache, Lieu dit Moncey Saint-Laurent d'Agny, France, assignor to Compagnie Lyonnaise de Transmissions Optiques, Clichy, France

Filed Jan. 21, 1980, Ser. No. 114,013
Claims priority, application France, Jan. 30, 1979, 79 02262
Int. Cl.³ H03K *13/24*
U.S. Cl. 340—347 DD 10 Claims

1. An encoder for receiving data input signal pulses representing a series of binary data digits having first and second values, said series including at least first and second sequences of (n+1) successive binary digits of said second value, said first sequence preceding said second sequence and each of said sequences having first and last digits, m digits of said first value occurring in said series between said first and second sequences, where m is a non-negative integer, said encoder providing an encoder output signal representing said data input signal and comprising a series of first and second elementary signals each having at least one of first and second levels and occupying a

time interval known as the binary interval, said first elementary signals having only one of said first and second levels for the duration of said binary interval and said second elementary signals having said first level during the first half of said binary interval and said second level during the second half of said binary interval, said encoder output signal comprising a first elementary signal representing each binary data digit of said first value, the level of said first elementary signal representing a digit of said first value being different from the level of the most recent preceding first elementary signal in said encoder output, a second elementary signal representing each binary data digit of said second value, except said first and last digits, a first elementary signal representing said first digit in said second sequence when m is an even number, the level of said first elementary signal representing said first digit in said second sequence being different from the level of the most recent first elementary signal in said encoder output, a second elementary signal representing said first digit in said second sequence when m is an odd number, and a first elementary signal representing said last digit, the level of said first elementary signal representing said last digit being the same as the level of the most recent first elementary signal in said encoder output, said data input signal pulses comprising a three-level high-density bipolar (HDBn) code having positive and negative polarities, said encoder comprising:

discriminator means (1), having an input (A) receiving said data signal input, for separating said data input signal pulses in accordance with their polarity, said discriminator having a first output (B) for providing a train of pulses



having one polarity and corresponding to said data input signal pulses having positive polarity, and a second output (C) for providing a train of pulses of said one polarity and corresponding to data input signal pulses having a negative polarity;

a clock signal generator for generating an encoder clock input;

a double shaping circuit (2), connected to said first and second outputs of said discriminator and to said encoder clock input (H), said double shaping circuit under the action of said clock input expanding the pulse trains appearing at the first and second outputs of said discriminator and providing said pulses with a duty factor of 1/1, said double shaping circuit having a first output (D) for providing a first train of expanded pulses representing pulses of said data input signal of positive polarity and a second output (E) for providing a second train of expanded pulses corresponding to pulses in said data input signal having negative polarity;

a gating circuit (3), receiving said first and second expanded pulse trains and said encoder clock input, said gating circuit having an output (G) and providing under the action of said clock signal a train of pulses having a duty factor of ½ during the absence of pulses in said first and second expanded pulse trains; and

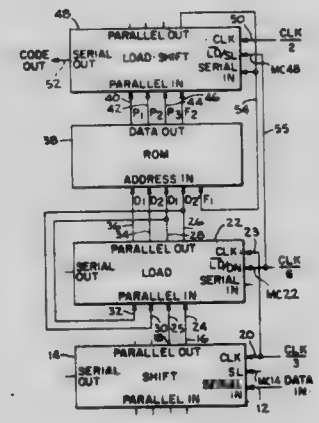
an adder (4) receiving the output (G) of said gating circuit and also receiving said first expanded pulse train, the output of said adder comprising said encoder output signal.

4,337,458

DATA ENCODING METHOD AND SYSTEM EMPLOYING TWO-THIRDS CODE RATE WITH FULL WORD LOOK-AHEAD

Martin Cohn, Arlington, Mass.; George V. Jacoby, Los Altos, and Charles A. Bates, III, San Jose, both of Calif., assignors to Sperry Corporation, New York, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,632
Int. Cl.[3] H03K *13/24*
U.S. Cl. 340—347 DD 7 Claims



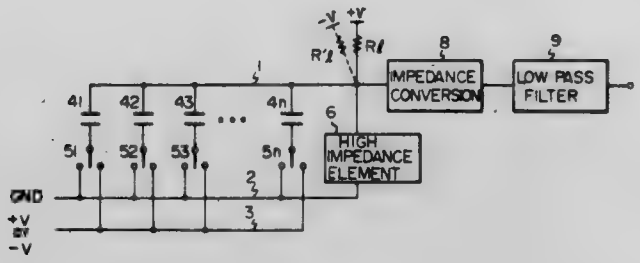
1. Apparatus for encoding binary data in the form of serially occurring binary data bits to a series of signal transitions in order to effect high density transmission of data to a limited bandwidth system comprising: means for forming the binary data bits into data words composed of 2 bits, storage means having an input coupled to said data word forming means for sequentially receiving and storing data words from said data word forming means, said storage means having a present data word output and a succeeding data word output and being adapted to shift a data word stored therein to said present data word output in response to input from said data word forming means of a succeeding data word so that a present data word and a succeeding data word are simultaneously accessible at said present data word and succeeding data word outputs respectively, conversion means having inputs coupled to said storage means present data word and succeeding data word outputs for converting said present data word output into a present code word having 3 bits in 3 positions, said conversion means being constructed and arranged in accordance with an encoding scheme to form the present code word to have at least one binary ONE and to lack successive binary ONEs, said conversion means including means for producing a flag signal in response to occurrence of binary ONEs in both the third position of said present code word and the first position of a tentative code word representative in accordance with the encoding scheme of the succeeding data word, means for applying the flag signal to said conversion means during the time when a succeeding data word is applied to said conversion means, means for transmitting said present code word from said conversion means in serial form and for coupling said flag signal to said conversion means simultaneous with introduction of a new data word to said storage means and shifting of the succeeding word to said present data word output, said conversion means being constructed and arranged to form a succeeding code word representative of the succeeding data word at said present data word output so that the succeeding code word is composed of 3 binary ZEROs in response to presence of said flag signal and of 3 code bits according to the encoding scheme in absence of the flag signal, and means for serializing the code words into a series of code bits for transmission to the system.

4,337,459

DIGITAL-TO-ANALOG CONVERTER

Masauki Takahasi, Utsunomiya; Hisami Tanaka, Yokohama; Masao Yamasawa, Sagamihara, and Michinobu Ohhata, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 16, 1980, Ser. No. 150,679
Claims priority, application Japan, May 18, 1979, 54-61336
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 DA 5 Claims



1. A digital-to-analog converter comprising an output conductor, a ground conductor, a power source conductor, a plurality of series connections of capacitors and switches connected between said output conductor and either of said ground conductor and said power source conductor, and an impedance conversion circuit connected directly to said output conductor, said output conductor producing the converted analog signals in accordance with the switching of said switches by digital input signals, characterized in that:

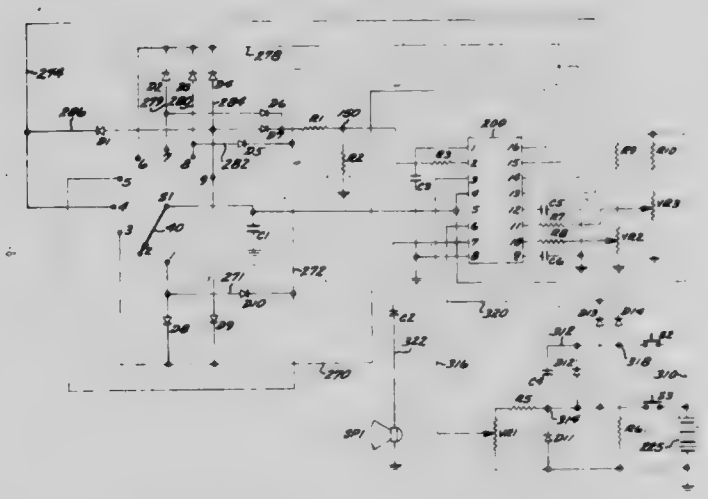
a high impedance element is connected between said output conductor and said ground conductor, said high impedance element being maintained in the conductive state throughout the operation and the nonoperation periods after the digital-to-analog converting operation of said digital-to-analog converter, the value of said high impedance being smaller than the leakage resistance of said output conductor and being large enough to make the fluctuation of the potential of the output conductor due to said high impedance negligible during the digital-to-analog converting operation of said digital-to-analog converter.

4,337,460

HAND-HELD SOUND EFFECTS DEVICE

Jay Smith, III, Pacific Palisades, and Jeffrey M. Moskin, Los Angeles, both of Calif., assignors to Smith Engineering, Santa Monica, Calif.

Filed Jan. 25, 1980, Ser. No. 115,356
Int. Cl.³ G08B *3/10*
U.S. Cl. 340—384 E 1 Claim



1. A circuit for generating a plurality of sounds in dependance on operator control, powered by an electrical power source and comprising:

audio signal generator means including noise generator, low frequency audio oscillator, voltage controlled oscillator and mixing means for mixing the outputs of the noise generator, low frequency oscillator and voltage controlled oscillator;

amplifier means for amplifying the output of said audio signal generator;

sound selector means coupled to said mixing means, said selector means adapted for operator selection of the respective ones of said noise generator and said oscillators to be mixed;

pitch control means coupled to said voltage controlled oscillator, adapted for operator control of the pitch of said voltage controlled oscillator;

oscillation rate control means coupled to said low frequency oscillator, adapted for operator control of the oscillation rate of said low frequency oscillator; and

audio transducer means coupled to the audio output of said audio amplifier means; all of said above means adapted for inclusion in a housing to be hand-held by operator,

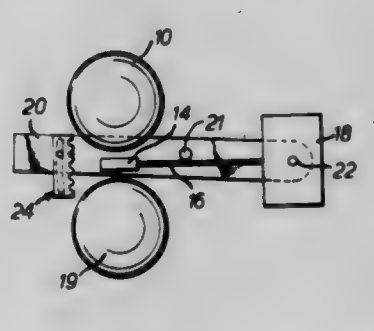
the sound generating circuit further comprising switch means for coupling such electrical power source to the circuit, said switch adapted to provide power to the circuit only when held in a closed position by the operator.

4,337,461

VOLUME CONTROL MECHANISM FOR A BELL ASSEMBLY

John A. Carrier, Chilwell, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland

Filed Jul. 7, 1980, Ser. No. 166,327
Claims priority, application United Kingdom, Jul. 10, 1979, 7924064
Int. Cl.³ G10K *1/063*
U.S. Cl. 340—402 3 Claims

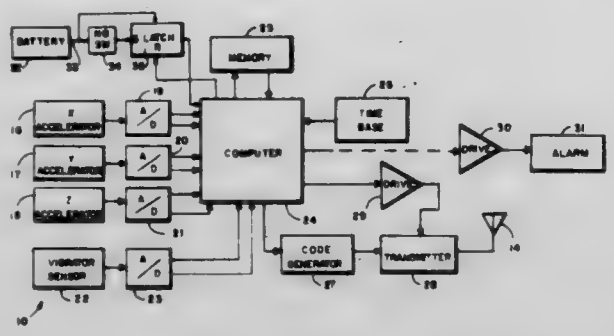


1. A volume control mechanism for a bell assembly having at least one bell dome and a bell ringer hammer supported on the end of a pivoted stem, comprising a resilient member, said resilient member being movable into contact with said stem to apply different predetermined forces to said stem so as to vary the amplitude of movement of said stem and said ringer hammer when in operation, a lever, said lever being pivoted adjacent to said stem pivot in the same plane as said stem and supporting said resilient member, a resilient rod and a rigid rod, said resilient rod and said rigid rod being secured to said lever with their axes perpendicular to the plane of movement of said lever, a block, said block being fixed relative to the at least one bell dome and having guide means for guiding said rigid rod and a plurality of grooves formed thereon, the axes of said grooves being perpendicular to the plane of movement of said lever, said resilient rod engaging said grooves being perpendicular to the plane of movement of said lever, said resilient rod engaging said grooves formed in said block and said rigid rod engaging said guide means formed in said block, whereby said rigid rod in said guide means maintains said resilient rod in contact with said grooves at all times.

4,337,462
THEFT DETECTION SYSTEM AND METHOD

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of Ser. No. 858,669, Dec. 27, 1977. This application Nov. 3, 1980, Ser. No. 202,885
Int. Cl.[3] G08B *13/14*
U.S. Cl. 340—572 13 Claims



1. A theft detection system comprising in combination with a movable object to be protected against theft, said system including;

first means for detecting the motion of said object when said object is moved away from an at-rest location,

said first means including means for generating analog electrical signals which are indicative of the motion of said objects from and beyond said at-rest location,

second means for receiving said analog signals and digitizing same to generate digital signals representative of said analog signals,

third means including electronic computing means for receiving the digital signals generated by said second means and generating control signals,

fourth means for receiving said control signals and operative to generate code signals,

fifth means for short wave transmitting said code signals,

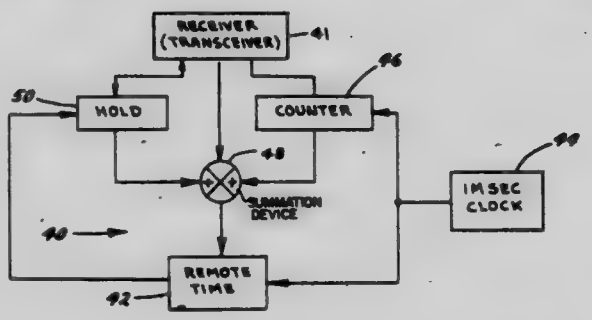
sixth means including short wave receiving means for receiving said short wave transmitted code signals, and

seventh means including an alarm means connected to said short wave receiving means for receiving and using the code signals received thereby and generating an indication of an attempt to move said object from said at-rest location.

4,337,463
TIME SYNCHRONIZATION MASTER STATION AND REMOTE STATION SYSTEM

Robert F. Vangen, Plymouth, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed Aug. 22, 1980, Ser. No. 180,243
Int. Cl.[3] H04Q *9/00*
U.S. Cl. 340—825.3 2 Claims



1. A time synchronization system comprising a master station and a remote station so that the actual time of day information in a remote station clock can be adjusted to be the same as the master station time clock comprising:

a master station transmitter means for generating a master station time message,

a master station time clock having actual time of day information,

a holding register connected with said transmitter means and connected with the master station time clock for holding the actual time of day information indicated by said clock at the time a predetermined portion of the time message is sent and in which the contents of said holding register are sent as the time portion of the time message at a time subsequent to the predetermined portion of the time message,

a remote station receiver means for receiving a time message,

a remote station time clock to be adjusted to be the same time as the master station time clock having actual time of day information,

a remote station base rate clock,

a counter connected to said base rate clock and adapted to receive a control signal from said receiver means,

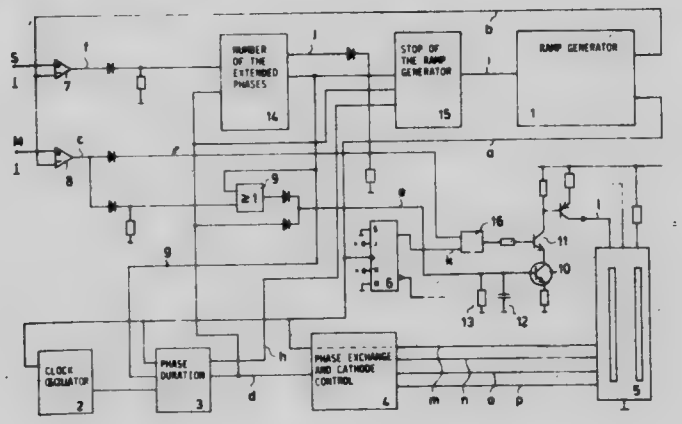
a time information holding register adapted to receive a time message from said receiver means, and

a summation device connected to said receiver means and connected to have an output to said remote time clock and having inputs connected to said holding register and said counter so that the time portion of said time message is entered into said holding register by said remote station receiver and so that said counter is actuated to count at the rate of the remote station base rate clock commencing at the predetermined portion of the time message received; wherein, at the conclusion of said time message the summation device adds the contents of said holding register and said counter and enters them into the remote station time clock as the current updated actual time of day.

4,337,464
METHOD AND CIRCUIT FOR CONTROLLING A BAND DISPLAY OF A PLURALITY OF ANALOG SIGNALS USING A SINGLE ANODE TYPE BAR GRAPH DEVICE

Ilkka Karaila, Pirkkala, and Antero Hälikkä, Tampere, both of Finland, assignors to Valmet Oy, Finland

Filed Dec. 26, 1979, Ser. No. 107,389
Claims priority, application Finland, Dec. 29, 1978, 784059
Int. Cl.[3] G09G *3/00*
U.S. Cl. 340—753 11 Claims



1. A method for a single anode bar graph band display of at least two analog signals in one scale of a display having a display scale with a plurality of successive display elements of which a part defined by an analog signal in each scanning cycle is made luminous by a specified scanning frequency to produce an analog display, said method comprising

changing the current supply to the display elements; and

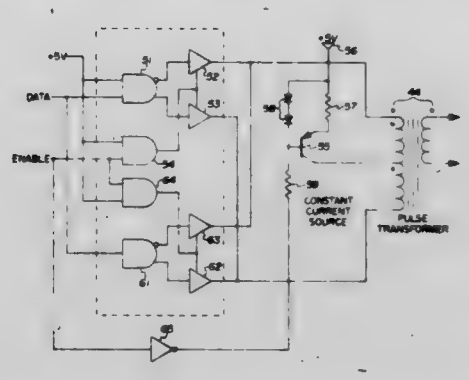
changing the scanning speed of said display elements,

whereby a three level variation of light intensity is obtained on the same display scale.

4,337,465
LINE DRIVER CIRCUIT FOR A LOCAL AREA CONTENTION NETWORK

John E. Spracklen, San Diego, Calif., and Mark L. C. Gerhold, Paoli, Pa., assignors to Burroughs Corporation, Detroit, Mich.

Filed Sep. 25, 1980, Ser. No. 190,568
Int. Cl.[3] H04Q *9/00;* H04L *5/14;* H03K *17/56*
U.S. Cl. 340—825.03 7 Claims



1. A station in a local area data communication network coupled to a local area communication channel, said station comprising:

sensing means to detect when said channel is inactive;

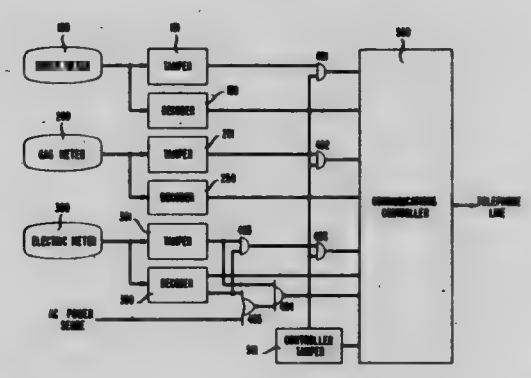
clock means to determine a random period of time after said sensing means detects no activity on said channel; and

transmitting means to transmit an information packet on said channel after said random period of time and when there is no activity on said channel, said transmitting means including line driver means comprising: a pulse transformer having a primary winding with a center tap and a secondary winding, said secondary winding being coupled to said communication channel; a constant current source coupled to said center tap of said primary winding; and circuit means coupled to the respective ends of said primary winding to receive current from one end thereof or the other end thereof in accordance with a data signal to be transmitted on said channel so as to cancel out signals being transmitted by other stations contending for access to said channel.

4,337,466
TAMPER PROTECTION FOR AN AUTOMATIC REMOTE METER READING UNIT

Gary L. Spahn, Fortville, Ind., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 2, 1980, Ser. No. 183,363
Int. Cl.[3] G08B *21/00*
U.S. Cl. 340—870.09 9 Claims



1. A tamper protection arrangement for a remote meter reading unit, the arrangement comprising:

an encoder (302) at a remote location for receiving an output signal of an associated meter (300), the output signal of the meter reflecting the usage of a specific unit quantity and the encoder changing the output signal of the meter into a form suitable for sending over a transmission line (370);

a decoder (350) connected to the transmission line for receiving the output signal from the encoder section CHARACTERIZED IN THAT

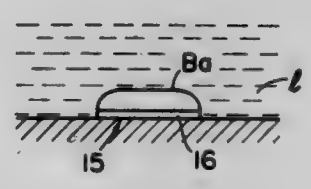
the encoder includes clocking means (300, 330, 340) for providing a control signal consisting of clock pulses of a first time period, a second time period, or a third time period over the transmission line; and

the decoder includes a first detector (389–394) responsive to clock pulses of the second time period, and a second detector (380–385) responsive to pulses of the third time period, pulses with the second time period being reflective of the usage of a specific unit quantity measured by the meter, and pulses with the third time period being reflective of a tamper to the meter reading unit.

4,337,467
LIQUID JET RECORDING PROCESS

Yasuhiro Yano, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 24, 1980, Ser. No. 133,142
Claims priority, application Japan, Aug. 10, 1979, 54-102487
Int. Cl.[3] G01D *15/18*
U.S. Cl. 346—1.1 1 Claim



1. A liquid jet recording process utilizing a recording head comprising a liquid ejecting portion including an orifice for ejecting a liquid droplet at the end, a heat actuating portion forming a part of the liquid path and communicating with the orifice, a heating surface constituting at least one portion of the inner wall of the heat actuating portion, and an electrothermal transducer comprising a resistive heater and electrodes applying an electric signal to the resistive heater layer to generate heat at said layer and the generated heat being transferred to the heating surface, which comprises:

filling the liquid path of the liquid ejecting portion with the liquid, raising the temperature of the heating surface to a temperature higher than the temperature range at which a spherical bubble is formed by applying to the electrothermal transducer an electric signal of a level capable of making the temperature-rise per unit time of the temperature of the heating surface rapid at a region where the temperature rise curve crosses the temperature region at which a spherical bubble is formed so as to substantially suppress the formation and growing of the spherical bubble, thereby forming a semi-pillow type bubble extending over substantially the entire area of the heating surface, ejecting the liquid from the orifice by the force generated due to the formation of the bubble to propel a liquid droplet toward a recording member, and supplying make-up liquid to the heat actuating portion after the ejection of the liquid droplet.

4,337,468
METHOD AND DEVICE FOR CONTROLLING CONCENTRATION OF INK FOR INK-JET PRINTER

Akinori Mizuno, Yokohama, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

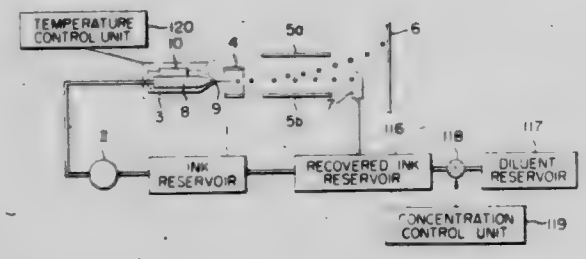
Filed Nov. 7, 1980, Ser. No. 204,741
Claims priority, application Japan, Nov. 16, 1979, 54/147709
Int. Cl.[3] G01D *15/18*
U.S. Cl. 346—1.1 3 Claims

1. A method for controlling the concentration of ink in an ink-jet printer of the type in which the ink is supplied from an

ink reservoir to an ink drop generator which in turn emits a continuous jet of ink which in turn breaks up into a stream of ink drops by the synchronizing signal applied by a piezoelectric crystal to the ink drop generator and the ink drops are selectively charged by a charge electrode so that the charged or uncharged ink drops are placed on a recording sheet and the uncharged or charged ink drops are collected and recovered into said ink reservoir,

characterized by

measuring the quantity of ink emitted from the ink drop generator based on the number of vibrations per unit time interval of said piezoelectric crystal,



measuring the quantity of ink used in printing based on the number of times per said unit time interval the charge electrode has or has not charged the ink drops, measuring the quantity of ink actually recovered in a recovered ink reservoir, and

supplementing a diluent into said recovered ink reservoir equal in quantity to the difference obtained by subtracting from the difference between the quantity of emitted ink and the quantity of used ink the quantity of actually recovered ink.

4,337,469

INK LIQUID SUPPLY SYSTEM FOR INK JET SYSTEM PRINTER

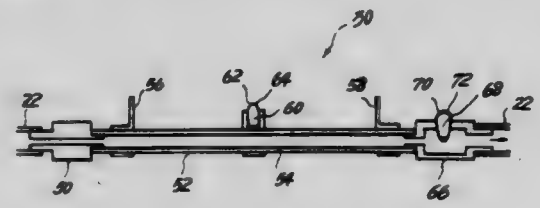
Rikuo Takano, Musashino, and Yuji Sumitomo, Nara, both of Japan, assignors to Nippon Telegraph and Telephone Public Corp. and Sharp Kabushiki Kaisha, both of Osaka, Japan

Continuation of Ser. No. 610,779, Sep. 5, 1975, abandoned. This application Dec. 27, 1977, Ser. No. 864,438

Claims priority, application Japan, Sep. 6, 1974, 49-103311

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—75 **10 Claims**



1. In an ink liquid supply system for an ink jet system printer which emits ink droplets from a nozzle toward a recording paper, selectively deflects said ink droplets by a deflection means, and prints desired symbols on said recording paper with said deflected ink droplets, the improvements comprising:

a. an ink liquid reservoir for containing the ink liquid therein;

b. means including a heat generating pipe for supplying ink to said nozzle;

c. a first conduit means for connecting said ink liquid reservoir with said heat generating pipe;

d. a second conduit means for connecting said heat generating pipe with said nozzle; and

e. a control circuit means for controlling the power supply to said heat generating pipe including a protect temperature sensing means operatively connected to said heat generating pipe for preventing accidental temperature fluctuations of said heat generating pipe and an ink liquid temperature sensing means for regulating the temperature of the said heat generating pipe in order to warm the ink liquid to a predetermined temperature and stabilize the viscosity and surface tension of said ink liquid supplied to said nozzle.

4,337,470

INK JET PRINTING APPARATUS WITH VARIABLE CHARACTER SIZE

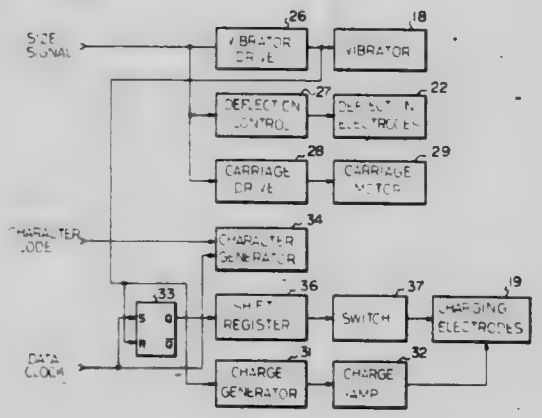
Tatsuya Furukawa, c/o Ricoh Company, Ltd., 3-6, 1-chome Nakamagome, Ota-ku, Tokyo, Japan

Filed Oct. 6, 1980, Ser. No. 194,099

Claims priority, application Japan, Oct. 13, 1979, 54-132186

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—75 **4 Claims**



1. An ink jet printing apparatus including an ink jet head, vibrator means for applying pressure oscillation to ink in the ink jet head thereby causing the ink to be ejected from the ink jet head and separated into droplets, charging means for charging the ink droplets, deflection means for deflecting the charged ink droplets and carriage means for producing relative movement between the ink jet head and a sheet against which the ink is ejected for printing, characterized by comprising:

control means for controlling a size of images printed by the printing apparatus, the control means varying a frequency of pressure oscillation of the vibrator means and thereby a printed dot size in accordance with a desired image size and controlling an amount of deflection of the ink droplets and a speed of movement of the carriage means in accordance with the desired image size.

4,337,471

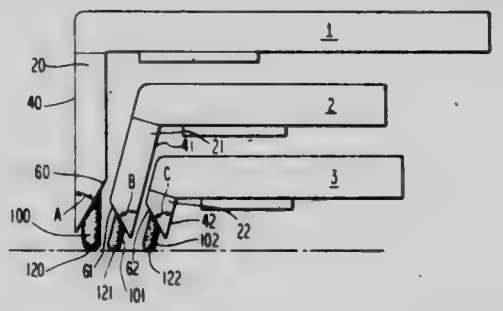
DISPOSABLE MARKERS ADAPTED FOR CONSTANT WIDTH AND CLOSE PROXIMITY TRACING

James R. Hubbard, Moorestown; George M. Sarkisian, Willingboro, both of N.J., and John J. Scanlon, Philadelphia, Pa., assignors to Graphic Controls Corporation, Cherry Hill, N.J.

Filed Sep. 29, 1980, Ser. No. 191,720

Int. Cl.³ G01D *15/16*

U.S. Cl. 346—140 R **8 Claims**



1. A disposable marker consisting of a nib shank surrounding and supporting a nib having a writing tip, and adjacent thereto along a common side therewith, a second disposable marker tip consisting of a nib shank surrounding and supporting a nib having a writing tip wherein said first and second marker tips are adapted to write on a common writing surface and to pass

one another in close proximity at their adjacent common side, and are angularly disposed with respect to one another, wherein both said first and second nib shanks terminate to form nib shank bottom surfaces and wherein at least one of said nib shanks terminates on said adjacent side thereof further from said writing surface than on the side thereof opposite said adjacent side to minimize interference therewith upon close proximity passage, wherein at last one of said nibs includes a spherical tip adapted to lay down a constant width trace independent of its angular disposition, one of said nibs having a smaller cross section than the other of said nibs.

4,337,472

RECORDING HEAD FOR USE IN ELECTROSTATIC RECORDERS

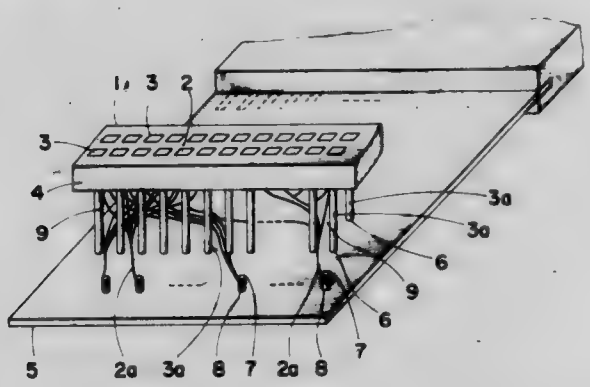
Youiti Shimizu, Nara; Takeo Tsumura, Moriguchi; Tadashi Matsumoto, Matsubara, and Syunzi Nakai, Kashiwaa, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 6, 1980, Ser. No. 118,869

Claims priority, application Japan, Feb. 6, 1979, 54-14818[U]

Int. Cl.³ G10D *15/06*

U.S. Cl. 346—155 **3 Claims**



1. A recording head assembly for an electrostatic recorder comprising:

a plurality of pin electrodes arranged substantially colinearly and spaced apart from each other;

a plurality of auxiliary electrodes arranged on either side of said colinearly arranged pin electrodes;

a circuit board;

lead frame means for electrically interconnecting said auxiliary electrodes to said circuit board and for physically spacing said pin electrodes and auxiliary electrodes from said circuit board;

connection stud means disposed on said circuit board for receiving signals from said pin electrodes; and

a plurality of conductive wires, each connected at a first end to one of said pin electrodes and connected at a second end opposite the first end to said connection stud means;

said lead frame means constraining said conductive wires to guide each of said wires to said connection stud means via a relatively direct path for connection thereto.

4,337,473

JUNCTION FIELD EFFECT TRANSISTOR HAVING UNSATURATED DRAIN CURRENT CHARACTERISTIC WITH LIGHTLY DOPED DRAIN REGION

Jun-ichi Nishizawa, Sendai, Japan, assignor to Handotai Kenkyu Shinkokai, Sendai, Japan

Continuation of Ser. No. 569,741, Apr. 21, 1975, abandoned, which is a continuation-in-part of Ser. No. 413,266, Nov. 6, 1973, abandoned, which is a continuation-in-part of Ser. No. 248,022, Apr. 27, 1972, abandoned. This application Jul. 19, 1977, Ser. No. 817,052

Claims priority, application Japan, Apr. 28, 1971, 46-28405

Int. Cl.³ H01L *29/80*

U.S. Cl. 357—22 **6 Claims**

1. In a field effect transistor of the type including:

a semiconductor region of first conductivity type,

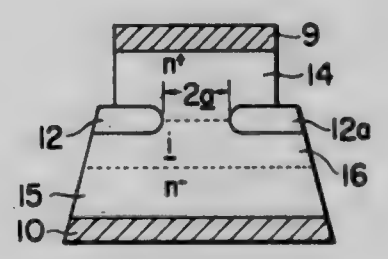
said semiconductor region having opposite longitudinal ends and opposite transverse sides,

respective source and drain semiconductor regions provided at said opposite longitudinal ends of said semiconductor region, respectively,

gate means, including respective gate semiconductor regions of a second conductivity type, disposed at said opposite transverse sides of said semiconductor region, for forming a channel in said semiconductor region between said gate semiconductor regions,

said drain and said gate means being adapted to be applied with a drain voltage and a gate voltage from external voltage sources, respectively, said channel having a width defined by the distance between said gates, the improvement wherein:

said semiconductor region is formed of a semiconductor material having a low impurity concentration and includes an intrinsic semiconductor region having first and second opposing surfaces and an impurity concentration of about



10^{12} atoms/cm^3, a highly doped layer of said first conductivity type having an impurity concentration of approximately 10^{19} atoms per cm^3 and provided on said first surface of said intrinsic semiconductor region, and a lightly doped layer of said first conductivity type having a maximum impurity concentration throughout of approximately 10^{15} atoms per cm^3, and provided on the second surface of said intrinsic semiconductor region, said gates being positioned along a boundary region between said highly doped layer of said first conductivity type and said intrinsic semiconductor region,

the product of the series resistance and the true transconductance of said field effect transistor being maintained less than one in the operative state of said transistor in which state a drain current is flowing to provide an unsaturated drain current versus drain voltage characteristic for any operative value of gate voltage; and

said series resistance being the sum of the resistance of the source region, the resistance from the source region to the channel, and the resistance of the channel.

4,337,474

SEMICONDUCTOR DEVICE

Yoshinori Yukimoto, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 28, 1979, Ser. No. 71,031

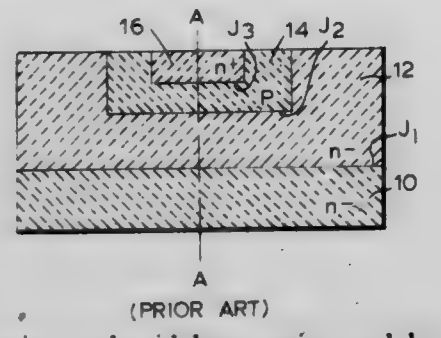
Claims priority, application Japan, Aug. 31, 1978, 53/107114; Sep. 14, 1978, 53/112937

Int. Cl.³ H01L *29/80*

U.S. Cl. 357—22 **1 Claim**

1. A semiconductor device comprising, in combination, a first collector region of a first type conductivity, a second collector region having the first type conductivity and disposed on said first collector region and forming a first junction therebetween, said second collector region having an impurity concentration less than the impurity concentration of said first collector region, a base region of a second type conductivity disposed adjacent to said second collector region and forming a second junction therebetween, an emitter region of the first type conductivity disposed adjacent to said base region and forming a third junction therebetween and positioned for forming a current path along which a current flows between said emitter region and said first and second collector regions and

also forming fourth junctions between said emitter region and said second collector region, and an annular gate region of the second type conductivity around said current path and extending from said base region into said second collector region, said gate region being connected to said base region for being at the same potential as said base region, and a third collector region of the first type conductivity disposed between said second



(PRIOR ART)

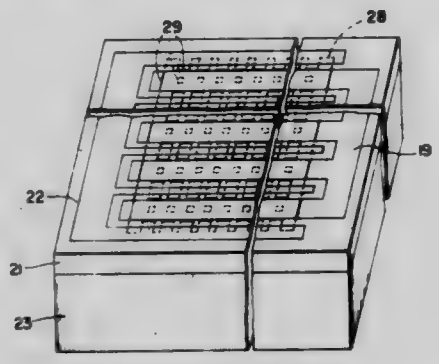
collector region and said base region and having a higher impurity concentration than that of said second collector region and forming junctions with each of said second collector region and said base region and said annular gate region projecting through said third collector region into said second collector region and being surrounded by said third collector region.

4,337,475

HIGH POWER TRANSISTOR WITH HIGHLY DOPED BURIED BASE LAYER

Choong-Ki Kim; Tae-Kyun Kwak, and Seong-Hyeon Choe, all of Seoul, Rep. of Korea, assignors to Gold Star Semiconductor, Ltd., Seoul, Rep. of Korea

Filed Jun. 15, 1979, Ser. No. 49,053
Int. Cl.³ H01L *29/72, 29/06*
U.S. Cl. 357—36 **1 Claim**



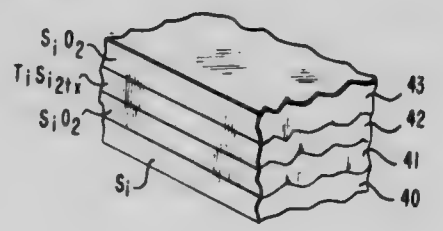
1. A semiconductor device comprising:
a collector substrate having a first type conductivity;
a base having a second type conductivity including a low resistivity first base zone adjacent to and partially buried within said collector substrate, a high resistivity second base zone adjacent to said collector substrate and adjacent to and covering said first base zone except for at least one first opening therein and at least one second opening therein, and a low resistivity third base zone adjacent to said second base zone and adjacent to said first base zone through said at least one first opening in said second base zone; and
an emitter having a first type conductivity adjacent to said second base zone and adjacent to said first base zone through said at least one second opening in said second base zone;
wherein:
said first base zone has a mesh shape including a plurality of first parallel strips and a plurality of second parallel strips perpendicular to said first parallel strips;
said third base zone has a comb shape, the teeth of said comb shape being disposed perpendicular to said first parallel strips of said first base zone;
said emitter has a comb shape, the teeth of said comb shape being disposed parallel to and aligned with said second parallel strips of said first base zone and interleaved with but not adjoining said teeth of said third base zone; and
said second base zone has a plurality of first openings disposed at the crossings of said first parallel strips of said first base zone and said teeth of said third base zone and has a plurality of second openings disposed between said second parallel strips of said first base zone and said teeth of said emitter.

4,337,476

SILICON RICH REFRACTORY SILICIDES AS GATE METAL

David B. Fraser, Berkeley Heights, and Shyam P. Murarka, New Providenc, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 18, 1980, Ser. No. 178,989
Int. Cl.³ H01L *23/48*
U.S. Cl. 357—67 **7 Claims**



1. An arrangement including a semiconductor chip comprising a single crystal semiconductor layer, a first electrically-insulating SiO_2 layer overlying said semiconductor layer, a first layer of electrically-conducting material overlying said SiO_2 layer, said electrically-conducting material comprising a silicon-rich silicide taken from a group of metals comprising titanium and tantalium and having an atomic ratio of the silicon to metal in the as-deposited film equal to or greater than 2 and less than or equal to 3, and a second layer of SiO_2 overlying said first layer.

4,337,477

COLOR DEMODULATING APPARATUS

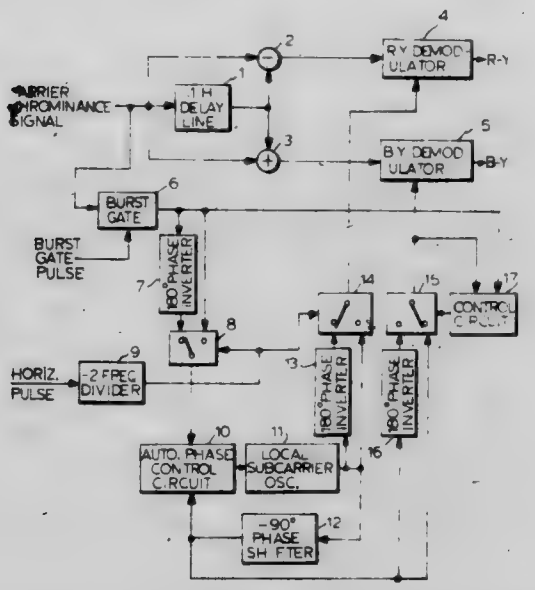
Takayuki Sagishima, Suita, and Teruo Kitani, Takatsuki, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 11, 1980, Ser. No. 139,222
Claims priority, application Japan, Apr. 19, 1979, 54-48794; Aug. 10, 1979, 54-102422; Nov. 21, 1979, 54-151226
Int. Cl.³ H04N *9/50*
U.S. Cl. 358—18 **3 Claims**

1. A color demodulating apparatus for alternatively switching between a burst signal and a signal with its phase inverted from said burst signal out of PAL type color television signals at each horizontal scanning period and for driving a local subcarrier oscillator using those alternatively switched signals; said apparatus comprising:
a first switching means and a first phase inverter operatively connected to an output of said local subcarrier oscillator, said first switching means connected to one input of one of a pair of color signal demodulators used to demodulate one of the color signals extracted from said television signals, wherein said first switching means alternatively feeds said output of said local subcarrier oscillator and a phase inverted version thereof from said first phase inverter to said one input of said one of said pair of color signal demodulators;
a 90° phase shifter operatively connected to said output of

said local subcarrier oscillator to produce a 90° phase shifted local subcarrier oscillator output signal;

a second switching means and a second phase inverter operatively connected to said 90° phase shifter and to one input of the other of said pair of color signal demodulators, said switching means alternatively feeding an output of said second phase inverter and said 90° phase shifted local subcarrier oscillator output to said one input of said other of said pair of color signal demodulators; and



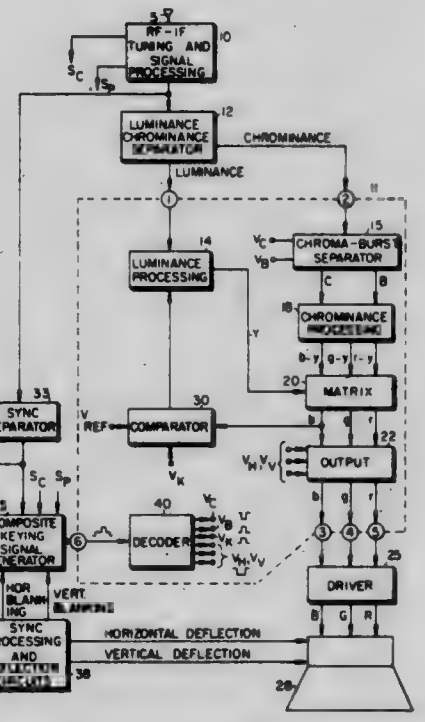
a control circuit operatively connected to said second switching means to control said second switching means such that the polarity of the signal applied to said one input of the other demodulator by said second switching means matches the polarity of the other color signal extracted from the television signals applied to the other input of said other demodulator.

4,337,478

COMPOSITE TIMING SIGNAL GENERATOR WITH PREDICTABLE OUTPUT LEVEL

Wayne E. Harlan, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 26, 1980, Ser. No. 210,840
Int. Cl.³ H04N 9/46
U.S. Cl. 358—20 **9 Claims**



1. In a television receiver for processing a composite television signal including image and blanking intervals, said receiver including means for providing a plurality of image blanking signals each with a blanking pulse component occurring during image blanking intervals, said plurality of blanking signals including horizontal and vertical blanking signals; and keyed signal processing circuits; apparatus for generating a timing signal during said blanking intervals, said apparatus comprising:

resistive impedance voltage divider means coupled across a source of D.C. potential during said television signal image and blanking intervals and including an output terminal coupled to said keyed signal processing circuits, said voltage divider means being arranged with respect to said D.C. potential for producing a voltage divided version of said D.C. potential corresponding to a desired blanking voltage level;

controlled switching means coupled to said voltage divider means and operable between first and second conductive states; and

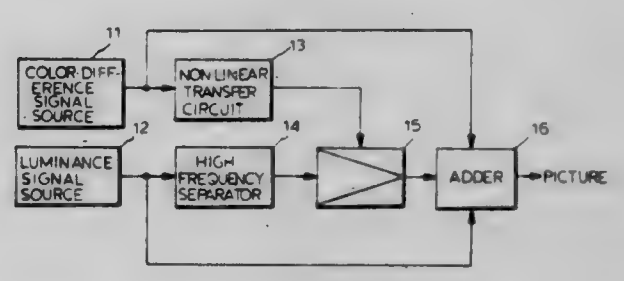
means for coupling said plurality of blanking signals to said switching means for (a) causing said switching means to exhibit said first conductive state for decoupling said coupling means from said voltage divider means in response to said blanking pulse components, so that said voltage divider means is then permitted to produce said desired blanking voltage level at said output terminal, and (b) causing said switching means to exhibit said second conductive state in the absence of said pulse components, so that a voltage level different than said desired blanking level is produced at said output terminal.

4,337,479

COLOR RESOLUTION COMPENSATOR

Tetsuo Tomimoto, Osaka; Yoshio Yasumoto, Higashiosaka, and Eiichi Taira, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 5, 1980, Ser. No. 184,329
Claims priority, application Japan, Sep. 13, 1979, 54-118522; Sep. 14, 1979, 54-118476; Dec. 6, 1979, 54-158546
Int. Cl.³ H04N 9/535
U.S. Cl. 358—37 **12 Claims**



1. A color resolution compensator for a color television receiver having a color difference signal source and a luminance signal source, said compensator comprising:

a non-linear transfer means, connected to said color difference source, for generating a gain control signal, said gain control signal bearing a monotonic non-linear relationship to a color difference signal generated by said color difference source;

a high frequency separator means, connected to said luminance signal source, for generating an output corresponding to a high frequency component of a luminance signal generated by said luminance signal source;

a controlled variable gain amplifier means, connected to said non-linear transfer means and said high frequency separator means, for generating a compensating signal, said gain control signal controlling the gain of said amplifier means and said output of said separator means being input to said amplifier means whereby said compensating signal corresponds to said separator means output amplitude modulated by said gain control signal;

and an adder means, connected to said amplifier means, color difference signal source and luminance signal source, for substantially adding the outputs thereof to generate an out-

put signal for use by said color television receiver for picture reproductions.

4,337,480

DYNAMIC AUDIO-VIDEO INTERCONNECTION SYSTEM

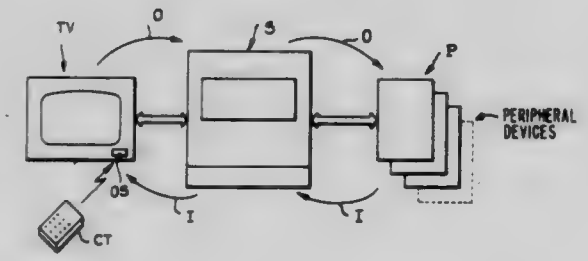
Lucien Bourassin, Saint-Cloud; Bernard Condat, Le Lion d'Anger; Jacques Fortin, Savigny-sur-Orge; Alain Leger, Juigne sur Loire; Joseph Soto, Montrouge, and Jean-Claude Solvinto, Nanterre, all of France, assignors to Syndicat des Constructeurs d'Appareils Radio Recepteurs et Televiseurs (SCART), Paris, France

Filed Feb. 8, 1980, Ser. No. 119,994

Claims priority, application France, Feb. 15, 1979, 79 03862

Int. Cl.³ H04N *5/22*

U.S. Cl. 358—93 **20 Claims**



1. A dynamic audio-video interconnection system comprising:

a television receiver;

a peripheral-television multipin connector coupled to said television receiver;

a plurality of peripheral units for receiving or transmitting video/audio signals;

a plurality of control stages, each of said control stages being associated with a different one of said peripheral units for coupling said associated peripheral unit to said peripheral-television multipin connector;

a plurality of electronic switches, each of said electronic switches being associated with a different one of said control stages and being controlled by said associated control stage to make interconnections among said peripheral units and between said peripheral units and said television receiver;

a remote system control means for generating and transmitting commands requesting said electronic switches to make selected interconnections among said peripheral units and between said television receiver and selected peripheral units;

means in said television receiver for receiving said transmitted commands and for transmitting said received commands to said control stages; and

a microprocessor coupled to said receiving and transmitting means and each of said control stages for receiving said commands from said receiving and transmitting means and for controlling said electronic switches to make said requested interconnections.

4,337,481

MOTION AND INTRUSION DETECTING SYSTEM

Peter Mick, and Donald Beck, both of 18 Wood Glen Way, R.D. 1, Boonton, N.J. 07005

Filed Jun. 10, 1980, Ser. No. 158,215

Int. Cl.³ H04N *7/18*

U.S. Cl. 358—105 **55 Claims**

1. A motion detection system comprising:

means for scanning a given field of view and for generating scan signals corresponding to the content of said field of view;

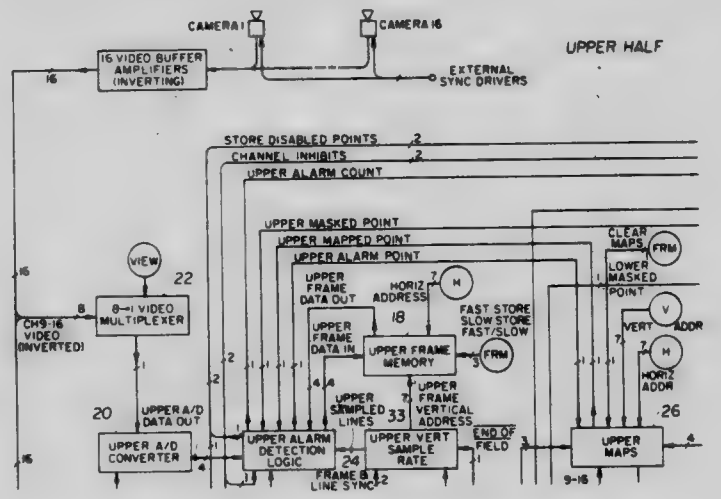
said scanning means including means for scanning said given field at a first predetermined scanning rate and for subsequently scanning said field at a second predetermined scanning rate which is different from said first scanning rate, at least one of each of said first and second predetermined scanning rate scans comprising a scanning cycle;

means responsive to said scan signals at each scanning rate for converting said scan signals into a plurality of coded digital signals which correspond to a predetermined characteristic of said field content at a plurality of points in said field;

first storage means for selectively storing said coded information signals corresponding to said scanning at said first scanning rate;

second storage means for selectively storing said coded information signals corresponding to said scanning at second scanning rate;

means for comparing predetermined coded information corresponding to said plurality of points from a given scan of said field at said first scanning rate with coded information corresponding to said plurality of points generated



during a subsequent scan of said field at said first scanning rate on a point-by-point basis, said subsequent scan at said first scanning rate being in the same scanning cycle as said given scan at said first scanning rate or in a subsequent scanning cycle;

means for comparing predetermined coded information corresponding to said plurality of points from a given scan of said field at said second scanning rate with coded information corresponding to said plurality of points generated during a subsequent scan of said field at said second scanning rate on a point-by-point basis, said subsequent scan at said second scanning rate being in the same scanning cycle as said given scan at said second scanning rate or in a subsequent scanning cycle;

means for generating an alarm signal when a given difference is detected between said compared signals for said corresponding points at either of said scanning rates; and

means responsive to a given number of said alarm signals for generating an alarm indication.

4,337,482

SURVEILLANCE SYSTEM

John M. Coutta, 450 Superior Ave., Decatur, Ga. 30030

Division of Ser. No. 85,496, Oct. 17, 1979, abandoned. This application May 7, 1981, Ser. No. 261,609

Int. Cl.³ H04N *7/18*

U.S. Cl. 358—108 **7 Claims**

1. A surveillance system comprising:

an elongated track positioned below a ceiling along a path under the ceiling, and including a carriage adapted to be supported by and be movably operated along said track;

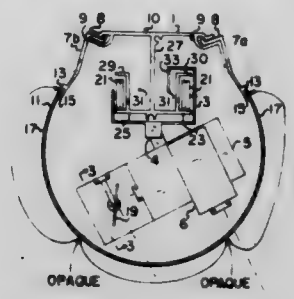
electrically energized drive means for positioning said carriage along said track;

a television camera supported by said carriage below the ceiling;

a mirror supported by said carriage and positioned in front of said camera and electrically responsive mirror adjust-

ment means for adjusting said mirror about two perpendicular axes, each being perpendicular to the axis of view of said camera, whereby the effective view seen by the camera may be varied horizontally and tilted;

a cover extending from end to end of said track and downward from, on both sides of, and under said track, and said cover being generally opaque along one side and being approximately 25% to 60% light transmissive over a



portion of the balance of the cover through which camera viewing through said mirror is effected;

display means for displaying the output of said camera; and

operating means comprising:

carriage control means for electrically and selectively operating said drive means for electrically positioning said camera along said track, and

mirror control means for providing electrical signals to and selectively operating said mirror adjustment means.

4,337,483

TEXT VIDEO-TRANSMISSION SYSTEM PROVIDED WITH MEANS FOR CONTROLLING ACCESS TO THE INFORMATION

Louis C. Guillou, Bourgbarre-Saint Erblon, France, assignor to Etablissement Public de Diffusion dit "Telediffusion de France", Montrouge and L'Etat Francais, represente par le Secretaire d'Etat aux Poste et Telecommunications (Centre National d'Etudes des Telecommunications), Issy les Moulineaux, both of, France

Filed Jan. 31, 1980, Ser. No. 117,234

Claims priority, application France, Feb. 6, 1979, 79 02994

Int. Cl.³ H04N *7/16;* H04K *1/00*

U.S. Cl. 358—114 **11 Claims**



1. A text video-transmission system comprising an information emitting center and receiving stations, the emitting center comprising:

means for composing a magazine consisting of pages organized into lines of characters, if such means are not already contained in the information source,

a circuit for memorizing the magazine in the form of numerical signals grouped in octets (8 binary elements), these octets comprising control octets and data octets, the control octets indicating in particular the beginnings and ends of pages and the beginnings and ends of lines, the data octets corresponding to characters contained in each line, all these control and data octets comprising a binary element of high weight which is an odd-numbered element, the octets wherein the 6th and 7th binary elements are zero being the control octets,

a junction connected to the circuit, and

a distribution multiplexer serving to insert the information in the lines of a television signal, this emitting center further comprising encryption means for encoding the information using an operating key, each receiving station comprising:

a circuit for receiving and demodulating said television signal,

a line for processing the video picture signals,

a line for processing the numerical signals, containing in particular a numerical signal decoder, and

display means,

each receiving station further comprising decryption means for decoding the encrypted information and using said operating key, wherein, in this system:

(A) the encryption means of the emitting center comprise:

(a) a generator **22** delivering a numerical signal representing an operating key K, this key changing randomly at predetermined intervals,

(b) automatic encryption means **24** comprising:

(i) a discriminator with an input connected to the magazine memorizing circuit from which it receives clear octets, this discriminator being capable of distinguishing, among these clear octets, those wherein the 7th and 6th binary elements are zero, this discriminator having two outputs, the first carrying these octets wherein the 7th and 6th binary elements are zero and connected to the distribution multiplexer via the junction, and the second carrying the clear octets d_j wherein the 7th and/or 6th binary elements are not zero,

(ii) an OR-exclusive logic circuit with two inputs, one of which is connected to the second output of the discriminator from which it receives the clear octets d_j wherein the 6th and/or 7th binary elements are not zero, this logic circuit having an output which carries odd-numbered encrypted octets D_j, the encrypted octets then being directed toward the distribution multiplexer via the junction;

(c) a generator of encoding octets controlled by the automatic encryption means from which it receives octets indicating the page and line numbers of the data to be transmitted and the signal corresponding to the operating key, this octet generator delivering, for each data octet d_j of a displayable line, an encoding octet C_j, this octet having an even-numbered 8th binary element and having 7th and 6th binary elements of zero, this octet being applied to the other input of the logic circuit,

(B) the decryption means of each receiving station comprise:

(d) a generator of a numerical signal representing the operating key K in use in the emitting center,

(e) an automatic decryption means comprising:

(i) a discriminator with an input connected to the numerical signal decoder of the receiving station from which it receives the coded octets, this discriminator being adapted to distinguish, among these coded octets, those wherein the 7th and 6th binary elements are zero, this discriminator having two outputs, the first carrying these octets wherein the 7th and 6th binary elements are zero, this first output being directly connected to the display means, the second carrying the coded octets D_j wherein the 7th and/or 6th binary elements are not zero,

(ii) an OR-exclusive logic circuit with two inputs, one connected to the second output of the discriminator from which it receives the encrypted octets D_j, this logic circuit having an output which carries decrypted octets d_j which are then directed towards the display means;

(f) a generator of decoding octets controlled by the automatic decryption means which transmits to it the octets indicating the page and line numbers of the data transmitted and the signal corresponding to the operating key K in use, this generator of decoding octets having an output which delivers, for each coded octet received, a decoding octet C_j having a heavy weight binary element which is forced to zero and 7th and 6th binary elements of zero.

4,337,484

APPARATUS FOR THE TRANSCRIPTION OF A VIDEO DISK ONTO A CENEFILM

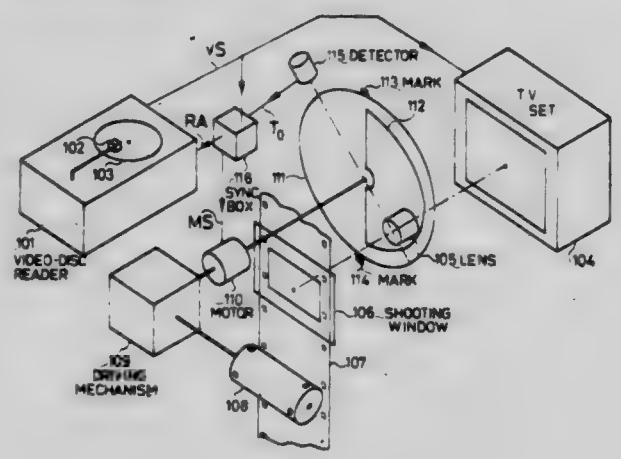
Georges Broussaud, and Claude Tinet, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Oct. 5, 1979, Ser. No. 82,321

Claims priority, application France, Oct. 11, 1978, 78 28984

Int. Cl.³ H04N 5/76, 5/88

U.S. Cl. 358—128.6 **5 Claims**



1. An apparatus for the transcription of frames divided into fields from a video disk onto a cinefilm, said apparatus comprising a videodisk reader for reading successive fields on said disk, a television set and a camera, wherein the camera has a shutter and a lens, means responsive to control signals for driving said shutter to mask and unmask the lens for durations equal to at least that of the reading of one field, each masking being followed by an unmasking thereof for a period equal to that of the reading of one frame and circuit means connected to said reader for producing control signals to cause advance of the film when the lens is masked, and to cause periodic rereading of at least two fields by the reader to correlate the television and cinematic standards of frames per second.

4,337,485

BROADCAST TELETEXT SYSTEM

John P. Chambers, Copthorne, England, assignor to British Broadcasting Corporation, London, England

Filed Sep. 24, 1980, Ser. No. 190,470

Claims priority, application United Kingdom, Oct. 31, 1979, 7937687

Int. Cl.³ H04N 7/00

U.S. Cl. 358—147 **3 Claims**



1. In a method of broadcast teletext transmission wherein information is transmitted as pages, comprising the steps of

transmitting, for each page, a plurality of rows of information forming a set of rows intended for display, at least one of said rows containing a digitally coded page address; and

further transmitting, for at least some pages, an additional row of information outside said set of rows and not intended for display, said additional row containing one or more codes pointing to another page address.

4,337,486

SYNCHRONIZING SIGNAL DISCRIMINATOR FOR USE IN CHANNEL SELECTION APPARATUS OF TELEVISION RECEIVER

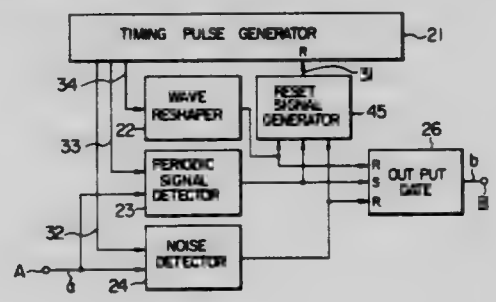
Eisaku Akutsu, and Shigeo Matsuura, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 2, 1980, Ser. No. 212,256

Claims priority, application Japan, Dec. 3, 1979, 54-155625

Int. Cl.³ H04N 5/08

U.S. Cl. 358—155 **8 Claims**



1. A synchronizing signal discrimination circuit for use in a channel selection apparatus having a preset function of a television receiver, comprising;

(a) a timing pulse generation circuit for generating a first time interval signal having a first predetermined pulse width after a reset signal has been applied thereto and a second time interval signal having a second predetermined pulse width after the expiration of said first time interval signal,

(b) an input terminal for receiving an input signal,

(c) a noise detection circuit connected to said timing pulse generation circuit and said input terminal for receiving said first time interval signal from said timing pulse generation circuit and said input signal from said input terminal, said noise detection circuit being operable to produce a noise detection signal only when said first time interval signal and said input signal are simultaneously applied thereto,

(d) a periodic signal detection circuit connected to said timing pulse generation circuit and said input terminal for receiving said second time interval signal from said timing pulse generation circuit and said input signal from said input terminal, said periodic signal detection circuit being operable to produce a periodic signal detection signal only when said second time interval signal and said input signal are simultaneously applied thereto,

(e) a reset signal generation circuit connected to said noise detection circuit and said periodic signal detection circuit for producing a reset signal when either said noise detection signal or said periodic signal detection signal is applied thereto, said reset signal being supplied to said timing pulse generation circuit, and

(f) a first output gate circuit connected to said noise detection circuit and said periodic signal detection circuit, said first output gate circuit being reset when said noise detection signal from said noise detection circuit is applied thereto and set when said periodic signal detection signal from said periodic signal detection circuit is applied thereto to produce a first output signal.

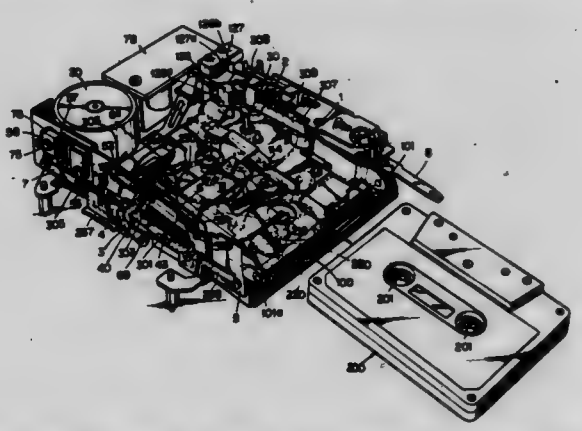
4,337,487

MAGNETIC RECORDING/REPRODUCING APPARATUS

Kazuki Takai, Toda, Japan, assignor to Clarion Co., Ltd., Japan

Filed Mar. 21, 1980, Ser. No. 132,658
Claims priority, application Japan, Mar. 23, 1979, 54-036892[U]; Mar. 27, 1979, 54-038830[U]
Int. Cl.[3] G11B *15/18, 17/00*
U.S. Cl. 360—71 6 Claims

1. An auto-eject mechanism for a magnetic recording/reproducing apparatus which comprises; a tape pack receiving frame; a support structure for said frame which structure supports said frame for movement between a tape pack receiving or ejecting position to a recording/reproducing position within said apparatus, said support structure including rack carrying means interlocked with said frame and movable therewith as said frame is moved from said tape pack receiving position to said recording/reproducing position, first rack means on said rack carrying means, and support means having gear means mounted thereon normally out of engagement with



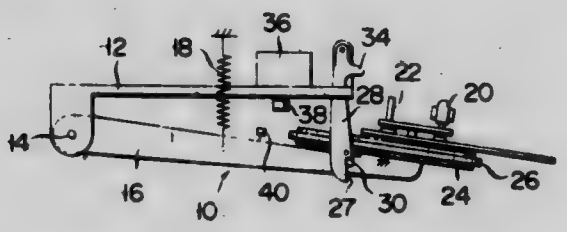
said rack means; motor means for driving said gear means; means for generating a signal at the end of a tape in said tape pack; and electromagnetic means operated by said signal to move said support means to bring said gear means in meshing engagement with said rack means, said gear means being driven by said motor means to drive said rack carrying means in a direction which moves said frame and tape pack carried thereby into said tape pack ejecting position.

4,337,488

MOTOR CONTROL DEVICE FOR A TAPE RECORDER

Akira Osanai, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 95,076
Claims priority, application Japan, Nov. 16, 1978, 53/141617
Int. Cl.[3] G11B *15/26*
U.S. Cl. 360—90 2 Claims



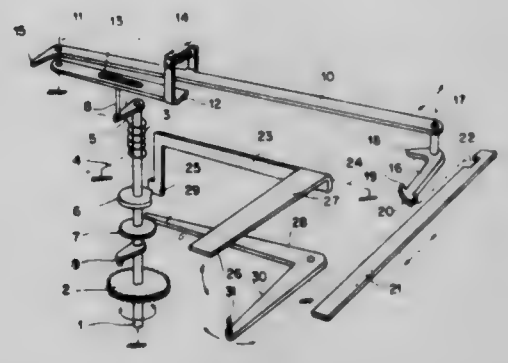
1. In combination of a tape recorder;
a drive motor having an output shaft;
a driven member including a capstan shaft having a flywheel thereon;
a motor pulley mounted on said output shaft and adapted to abut on said flywheel for transmitting driving force thereto;
a magnetically sensitive element arranged adjacent to said motor pulley, said motor pulley being a magnet having S and N poles alternatively arranged thereon; and
said pulley and magnetically sensitive element being operatively connected to said motor and forming a control pulse generator for said motor.

4,337,489

DEVICE FOR THE PROGRAMMED CONTROL OF OPERATIVE SEQUENCES, IN PARTICULAR FOR CASSETTE-TYPE TAPE RECORDERS

Rodolfo Cicatelli, Gandria, Switzerland, assignor to Autovox S.p.A., Rome, Italy

Filed Apr. 30, 1979, Ser. No. 34,213
Claims priority, application Italy, May 5, 1978, 49214 A/78
Int. Cl.[3] G11B *15/26, 23/04*
U.S. Cl. 360—96.5 13 Claims



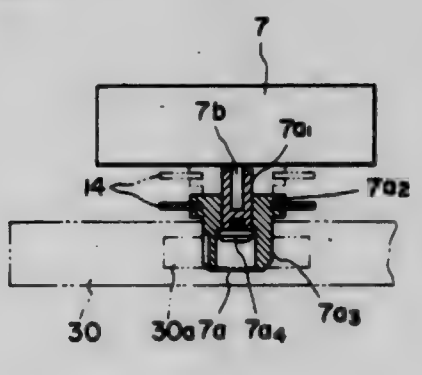
1. Device for the programmed control of the operative sequences for a cassette-type tape recorder having a tape transport mechanism moved by a motor and a support for the magnetic heads and for the pressure roller, which device comprises: a shaft which can be rotatably moved in a predetermined direction by a wheelwork connected to said motor; a spring which tends to cause the rotation of said shaft in the opposite direction; first, second, third and fourth control means disposed on and rotatable with said shaft; means of introduction and ejection of the cassette into and out of said tape recorder sensible to said first control means; means for lowering and for raising the cassette in said tape player sensible to said second control means; approach and removal means to and from the cassette of the support for the magnetic heads and the pressure roller, sensible to said third control means; engagement and disengagement means for the wheelwork, sensible to said fourth control means, and means for selectively rotating said shaft in said predetermined direction by said motor causing a predetermined sequence of operations controlled by said first, second, third, and fourth control means, and for selectively rotating said shaft in the opposite direction by said spring to cause the opposite sequence of operations.

4,337,490

CASSETTE TAPE PLAYER

Teturo Kamimura; Masahiro Komatsubara; Shizuo Ando, and Takugi Inanaga, all of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed May 15, 1980, Ser. No. 149,944
Claims priority, application Japan, May 22, 1979, 54-62908; May 22, 1979, 54-62909
Int. Cl.[3] G11B *15/60*
U.S. Cl. 360—96.6 8 Claims



1. A cassette tape player comprising
a chassis having a main surface,

reel drive means mounted on said chassis,

a receptacle for receiving a cassette therein, movably mounted on the chassis at an oblique position with respect to the chassis main surface,

guide means for first translating the receptacle in the oblique position, and then turning the receptacle about its trailing edge to place the receptacle in a position parallel to the main surface, and

movable reel shaft means connected to said reel drive means, said reel shaft means having an engaging position for engaging the reels of a cassette inserted in said tape player and a retracted position; and

control means connected to said movable reel shaft means for moving said reel shaft means from said retracted position to said engaging position, said control means includes detecting means for detecting the turning movement of the cassette receptacle into the horizontal position and transmitting said movement to said reel shaft means to move said reel shaft means from said retracted position into reel hubs of a cassette inserted into said tape player.

4,337,491

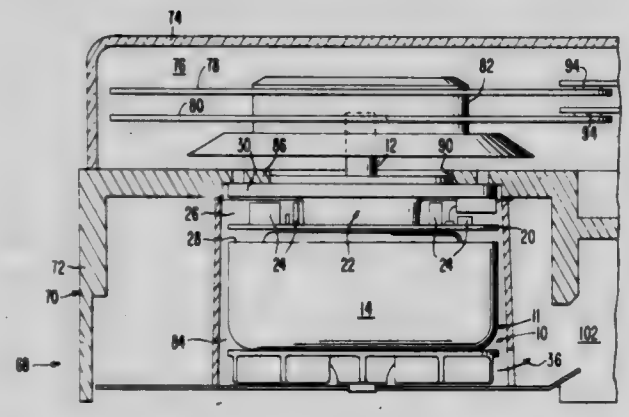
BRUSHLESS D.C. MOTOR ASSEMBLY

Alfred Hasler, Mountain View, Calif., and Bernhard Schuh, Simsbury, Conn., assignors to International Memories, Inc., Cupertino, Calif. and Papst-Motoren KG, Schwarzwald, Fed. Rep. of Germany

Continuation of Ser. No. 957,769, Nov. 3, 1978, abandoned. This application May 29, 1980, Ser. No. 154,542

Int. Cl.³ G11B *25/04*

U.S. Cl. 360—97 **8 Claims**



1. In a magnetic disk recording assembly of the type having a casing provided with a pair of adjacent air flow chambers separated by a wall with one of the chambers having a magnetic disk for rotation relative to a magnetic read-write head and the other chamber being isolated from the first chamber and containing first circuitry means for the head, the improvement comprising a brushless D.C. motor having an external housing; means coupled with the motor for mounting it on the casing externally of said one chamber, said motor having a fixed part and a shaft rotatable relative to the fixed part, the shaft adapted to extend through said wall of the casing and to be coupled at one end thereof to the magnetic disk for rotating the magnetic disk about its central axis, the motor having second circuitry means for controlling the excitation of the motor, and an annular support member carried by the fixed part in surrounding relationship to the shaft of the motor, said second circuitry means being mounted on the support member.

4,337,492

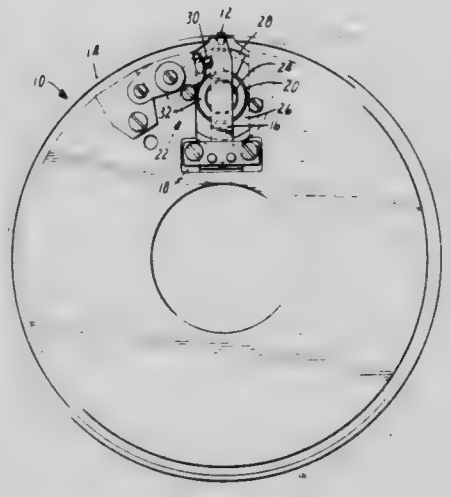
HEAD POSITIONING TRANSDUCER FOR HELICAL SCAN VIDEO REPRODUCER

Marshall R. Brookhart, Thousand Oaks; Fredrick J. Hodge, and Thomas J. Worden, both of Camarillo, all of Calif., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 8, 1980, Ser. No. 138,361

Int. Cl.³ G11B *5/52, 21/10*

U.S. Cl. 360—109 **9 Claims**



1. A head positioning assembly for enabling movement of a record/playback head within a helical scanning drum transverse to diagonal tracks on a magnetic record tape helically wound about at least a portion of the drum to enable automatic track following, said assembly comprising:

(a) a cantilevered deflectable non-ferromagnetic beam member supported at one end within said drum and extending radially outward toward the periphery of said drum and having said head secured to the radially extended extremity thereof,

(b) a drive coil secured to said beam at a position between said radial extremity and the cantilevered support thereof, said coil being of homogeneous construction without internal supports and of low mass to enable said coil to withstand appreciable forces transverse to the axis thereof, and

(c) a permanent magnet field providing assembly mounted on the drum and including a gap across which a magnetic field extends, positioned relative to the drive coil such that at a center nominal position of said beam the coil is centered within the gap, whereby current applied to said coil creates an electromagnetic field which interacts with the field of the magnet assembly to provide a force along the axis of the coil which causes the beam to deflect, thereby providing said transverse head positioning.

4,337,493

MAGNETIC RECORDING TAPE CARTRIDGE

Shinichi Kagano, Kyoto, Japan, assignor to Hitachi Maxell, Ltd., Osaka, Japan

Continuation of Ser. No. 50,210, Jun. 20, 1979, abandoned. This application Jun. 15, 1981, Ser. No. 273,412

Claims priority, application Japan, Jun. 20, 1978, 53/85995[U]

Int. Cl.³ G11B *23/04*

U.S. Cl. 360—130.33 **3 Claims**

1. A magnetic recording tape cartridge comprising in combination:

(a) a bottom section and a top section assembled together by a fastening means so as to provide a cartridge case having a front wall and a tape chamber with a plurality of openings formed in said front wall, one opening of which accommodates a magnetic recording tape head of a tape player,

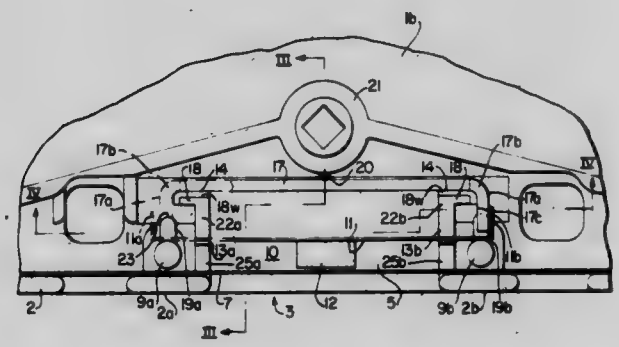
(b) a pair of reels accommodated in said tape chamber, rotatably mounted relative to respective drive shaft insertion holes defined in said cartridge case,

(c) a magnetic recording tape wound around said pair of reels, the intermediate portion of said recording tape being stretched between said reels running along a predetermined path defined by said plurality of openings formed in said front wall,

(d) a pair of tape guide pins protruding from the bottom section of said cartridge case positioned adjacent to both sides of said recording tape head opening, each guide pin having a base piece projecting backward from said respective guide pin,

(e) a magnetic shielding plate disposed in the inner part of the said tape chamber having a generally elongated portion with both ends thereof bent perpendicular to said elongated portion, said elongated portion extending parallel with said tape path so as to face said recording tape head opening, both ends of said magnetic shielding plate being mounted on said respective base pieces,

(f) a pad device composed of a resilient plate with both ends thereof bent perpendicular to the intermediate portion of said plate and a cushioning block fixed to the center portion of the resilient plate, said pad device being disposed parallel to said magnetic shielding plate so that said cushioning block is opposed to the magnetic recording tape head, with the recording tape sandwiched therebetween,



upon the insertion of said recording head through the recording tape head opening, said pad device being mounted at the ends thereof on the respective corresponding base pieces,

(g) a pair of stepped ribs provided at least on the bottom section of said cartridge case at both sides of the recording tape head opening, juxtapositioned between said guide pins with said base piece projections and said opening, each of said ribs having a front half portion which steps up to a rear half portion, the height of the rear half portions of said ribs being equal to or slightly lower than the height of said base pieces, and the height of the front half portions of said ribs being lower than the upper surface of said rear half portions such that the upper surface of said front half portions contact the lower edge of said magnetic recording tape, the upper surface of said rear half portions acting to support the resilient plate of said pad device when the pad device is displaced downwardly from a normal position,

(h) a pair of lateral protrusions provided on the bottom section of said cartridge case, being disposed at the rear of the stepped ribs for engaging the bent ends of said magnetic shielding plate and the front face of the lower portion of said magnetic shielding plate closely contacting the vertical rear end surface of said ribs so as to correctly and securely position said magnetic shielding plate, whereby the ribs thus insure positive seating of the resilient plate and preclude inadvertent misplacement thereof.

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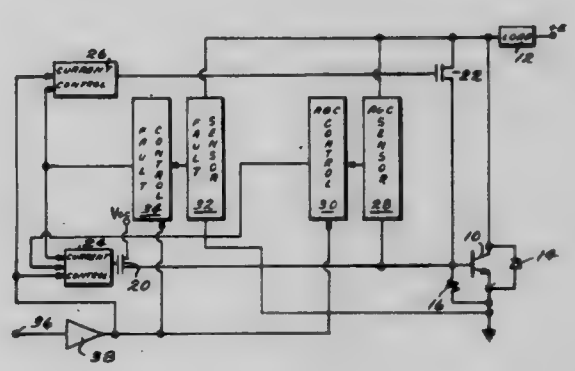
AUTOMATIC BIAS-CONTROLLED VMOS/BIPOLAR DUAL-TRIGGERED SWITCH

Richard B. Huykman, Lincoln Park, N.J., assignor to Reliance Electric Company, Cleveland, Ohio

Filed Apr. 7, 1980, Ser. No. 137,564

Int. Cl.³ H02H 3/08

U.S. Cl. 361—86 **26 Claims**



1. An automatic bias-controlled switch comprising:

bipolar power switching transistor means having a collector electrode connected to a high-power operating voltage source, an emitter electrode connected to a source of reference potential, and a base electrode for receiving a base control current;

an input terminal for receiving a switch control signal;

a programmable base current supply connected between said input terminal and said base electrode of said bipolar power transistor means, said base current supply comprising primary base current control means responsive to said switch control signal for supplying primary current of sufficient magnitude to said base electrode for turning on said transistor means at least into an unsaturated conduction state when said switch control signal is at a first level, and secondary base current control means responsive to said switch control signal for supplying a secondary current to said base electrode of said transistor means a predetermined time after said primary current is supplied thereto to further drive said transistor means toward saturation and for minimizing power dissipation of transistor means, one of said primary and secondary current control means being responsive to a second level of said switch control signal for initially reducing the magnitude of current supplied to said base electrode a sufficient amount to insure said transistor means being placed in an unsaturated conduction state, and a predetermined time thereafter the other of said primary and secondary base current control means reducing the magnitude of current being supplied to said base electrode to substantially zero for turning off said transistor means;

a sensing means connected to said transistor means for generating a signal proportional to the base-collector voltage thereof; and

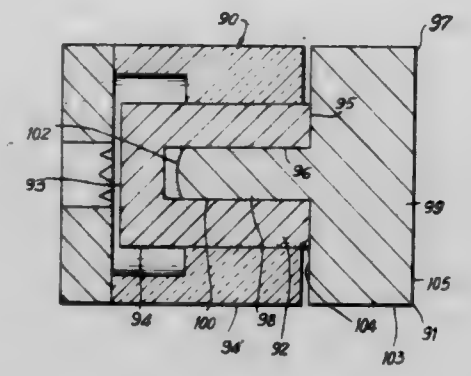
feedback means connected between said sensing means and said programmable base current supply for controlling the base current to said transistor means, said base current being in proportion to said generated base-collector voltage proportional signal wherein said feedback means increases the base current when said base-collector voltage increases and decreases said base current when said base-collector voltage decreases.

4,337,495

CARBON ELECTRODE HAVING METALLIC HEAT SINK

William V. Carney, Oyster Bay, and Loren A. Singer, Jr., Mamaroneck, both of N.Y., assignors to Porta Systems Corp., Syosset, N.Y.

Filed Jun. 13, 1980, Ser. No. 177,812
Int. Cl.[3] H02H *3/22*
U.S. Cl. 361—119 1 Claim



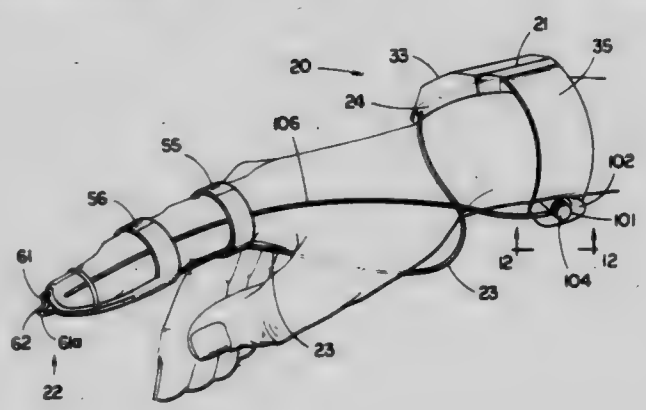
1. In a telephone protector module, of a type incorporating at least one pair of electrodes defining an air gap over which excess current surges are shorted to a source of ground potential, at least one of said electrodes being of a composite construction including a first portion of particulate carbon defining an operative surface facing a corresponding surface on the other of said electrodes, and a second portion bonded thereto of a conductive material having a specific heat substantially greater than that of said first portion, said second portion serving as a heat sink during the transmission of sustained excess current surges, the improvement comprising: said first portion being in the form of a hollow elongated cylinder having a blind bore extending from one end thereof, said bore including a cylindrical surface and an end surface; said second portion having a base of diameter greater than that of said first portion, and having a centrally disposed axially extending shank of diameter corresponding to that of said bore; said shank being disposed within said bore and bonded thereto substantially the entire length of said shank; whereby a substantial area of mutual contact is obtained to facilitate the transfer of heat from said first portion to said second portion during arcing.

4,337,496

SELF-DEFENSE APPARATUS

Gerald Laird, Indianapolis, Ind., assignor to Ultradyne, Inc., Norristown, Pa.

Continuation-in-part of Ser. No. 932,539, Aug. 10, 1978, Pat. No. 4,242,715. This application Apr. 10, 1980, Ser. No. 139,128
The portion of the term of this patent subsequent to Dec. 30, 1997, has been disclaimed.
Int. Cl.[3] F41B *15/04*
U.S. Cl. 361—232 9 Claims



1. A self-defense apparatus to be worn by the user which comprises:

a glove member including a wrist strap for securement about the wrist of the user and a pouch;

a source of high voltage housed in a portable module and suitably adapted to be retained in said pouch; and

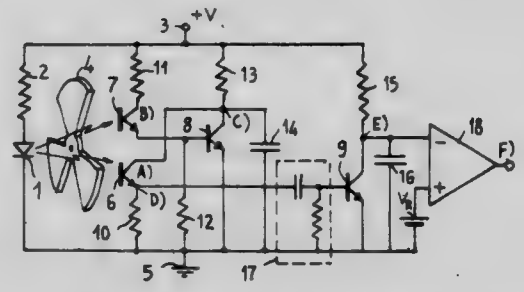
a finger probe sleeve comprising a portion of said glove member and being electrically coupled to said source of high voltage and suitably arranged to slide over and be worn on a finger of the hand wearing said glove member, said finger probe sleeve including two electrically conductive, outwardly protruding, pointed prongs and a layer of electrical insulating material disposed between said finger and said two prongs.

4,337,497

DEVICE FOR DETECTING THE DIRECTION AND CHANGE OF ROTATIONAL SPEED OF A ROTATING ELEMENT

Gianbattista Dalle Carbonare, Pavia, Italy, assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed Oct. 23, 1980, Ser. No. 199,883
Int. Cl.[3] G01P *3/36*
U.S. Cl. 361—239 3 Claims



1. A device for detecting the direction and speed of rotation of a rotating element including:

first circuit means for generating a first pulsed signal having a frequency related to the rotation speed of said element;

second circuit means receiving in input said first pulsed signal for producing a second sawtooth pulsed signal with frequency equal to the one of said first signal;

third circuit means responsive to said second signal and to the rotation of said element for generating a third pulsed signal having frequency equal to the one of said first signal, said third pulsed signal having a phase angle relative to said first signal dependent on the direction of the rotation movement of said element, said third pulsed signal having a variable pulse width dependent both on the frequency and the phase angle;

fourth circuit means responsive to said third pulsed signal to produce a fourth electrical signal, the fourth electrical signal having the form of sawtoothed pulses with its frequency equal to the frequency of said first signal, when the pulse width of said third signal is longer than a predetermined value, in form of a voltage rising ramp, for a width of said third signal lower than a predetermined value; and

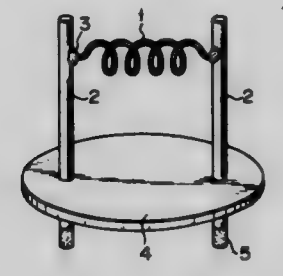
fifth circuit means responsive to said fourth signal to supply an informatin signal when the pulse width of said fourth signal exceeds a predetermined threshold value.

4,337,498

SMALL IGNITION DEVICE COMPRISING STRING-LIKE SILICON CARBIDE HEATING ELEMENT AFFIXED TO TERMINAL SUPPORTS

Masayosi Takahasi, Kasugai; Sadatosi Nakazono, Nagoya, and Yoshio Nakamura, Sagamihara, all of Japan, assignors to Tokai Konetsu Kogyo Co., Ltd., Tokyo, Japan

Division of Ser. No. 5,030, Jan. 22, 1979, abandoned. This application Sep. 5, 1980, Ser. No. 184,421
Claims priority, application Japan, Jan. 27, 1978, 53/8105
Int. Cl.[3] F23Q *7/00*
U.S. Cl. 361—266 6 Claims



1. A small ignition device, comprising

a pair of electrically conductive silicon carbide rod-like terminals, and

a string-like silicon carbide heating element extending between and having respective ends joined and electrically connected by fused electrically conductive silicon to a respective rod-like terminal for supporting said string-like element, and

support means supporting said rod-like terminals spaced apart from each other, and electrically insulated from each other, said rod-like terminals extending from said support means to support said string-like silicon carbide heating element spaced from said support means,

said string-like element having all cross-sectional dimensions between 0.5 mm and 2.0 mm and having a resistivity of between 0.01Ω·cm and 10Ω·cm whereby said heating element is heated to between about 1000° C. and 1300° C. in about 1 to 4 seconds after an electric current is connected thereto.

4,337,499

ELECTRONIC ENCLOSURE AND ARTICULATED BACK PANEL FOR USE THEREIN

Michael J. Cronin, Sherman Oaks, and David K. Elliot, Burbank, both of Calif., assignors to Lockheed Corporation, Burbank, Calif.

Filed Nov. 3, 1980, Ser. No. 203,254
Int. Cl.[3] H05K *7/20*
U.S. Cl. 361—386 15 Claims

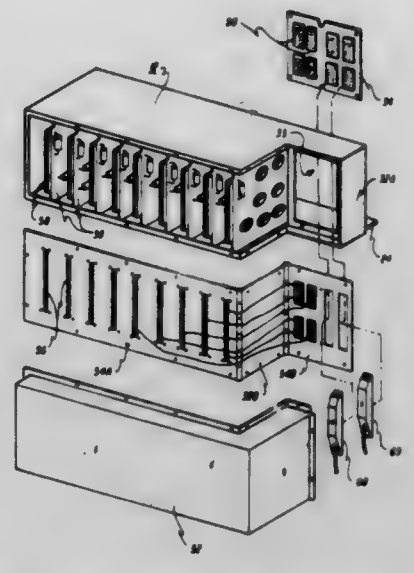
1. Programmable electronic enclosure comprising:

a three dimensional enclosure having a front panel and a removable back panel disposed in at least two planes generally parallel to each other and to the front panel;

a first portion of said back panel in a first one of said at least two planes including a plurality of terminals each adapted on the front side thereof for electrical connection to circuit boards inserted into the enclosure through the front panel, each of the plurality of terminals being adapted to be wired on the back side thereof by automatic wiring means;

a second portion of said back panel in a second one of said at least two planes including a connector adapted to be wired on the back side thereof by automatic wiring means;

said two portions of said back panel being pivotably connected to opposite ends of a side panel of the enclosure whereby both of the portions of said back panel and the pivotably connected side panel may be disposed in a single plane when removed from the enclosure to facilitate wiring of said plurality of terminals to said connector by



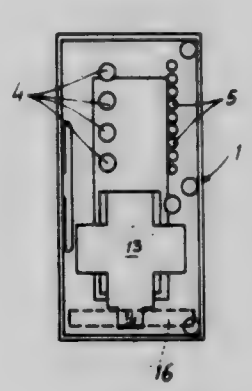
automatic wiring means and thereafter articulated for attachment to said enclosure.

4,337,500

PHYSICAL-VARIABLE MEASURING, ADJUSTING AND DISPLAYING INSTRUMENT

Pietro Zanazzo, Via Crespi, 55, 28100-Novara; Giuliano Mainardi, Corso Alpi, 14, Bellusco - Milano, and Rodolfo Giorgetti, Via Milite Ignoto, 20, Seveso - Milano, all of Italy

Filed Jul. 21, 1980, Ser. No. 170,531
Claims priority, application Italy, Mar. 14, 1980, 20676 A/80
Int. Cl.[3] H05K *1/14*
U.S. Cl. 361—395 3 Claims

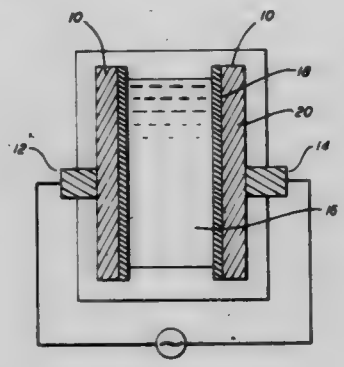


1. A measuring, adjusting and displaying device, comprising a front panel and a parallel spaced printed circuit board pair, effective to be inserted into a box, characterized in that said frontal panel comprises supporting and guiding means supporting and guiding said printed circuit boards, and, through openings in said front panel effective to receive controlling and displaying circuits, said two printed circuit boards being perpendicular to said front panel and being provided with controlling and displaying elements fixed to said boards on the front end portions thereof, said elements extending parallel to said boards and fixed to said boards by leads having a 90° bend therein, said controlling and displaying elements extending into said through openings, the elements thereby being visible and accessible by an operator from the front of the device, said printed circuit board supporting and guiding means consisting of slots formed on two pairs of arms rigid with said front panel and projecting substantially perpendicularly therefrom at the rear portion thereof, a pair of arms being located at the top and a pair at the bottom, said slots receiving therebetween the upper and lower edges of said boards.

4,337,501
ELECTROCHEMICAL CAPACITOR

Konrad Mund; Gerhard Richter, both of Erlangen, and Erhard Weidlich, Spardorf, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 21, 1979, Ser. No. 77,623
Claims priority, application Fed. Rep. of Germany, Sep. 28, 1978, 2842352
Int. Cl.[3] H01G 9/00; B01J 17/00
U.S. Cl. 361—433 1 Claim

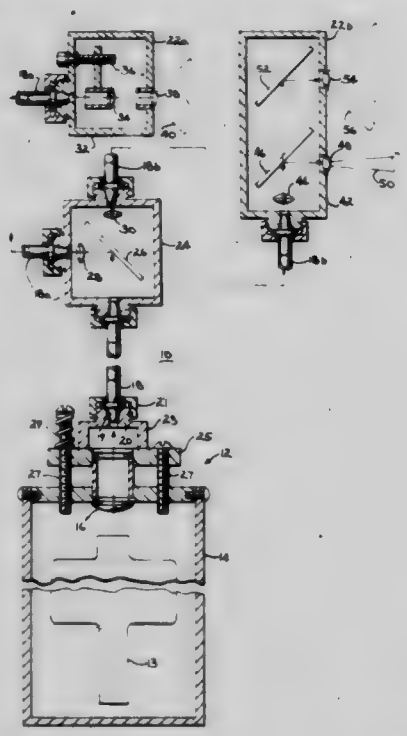


1. An electrochemical capacitor comprised of at least one pair of electrodes, said electrodes consisting of glass carbon which has been activated by contact with concentrated sulfuric acid at a temperature of up to about 330° C.

4,337,502
LIGHT BEAM PRODUCING DEVICE

Charles Lescrenier, 660 Crescent Ct., Wauwatosa, Wis. 53213

Filed Jun. 2, 1980, Ser. No. 155,052
Int. Cl.[3] F21V 7/04
U.S. Cl. 362—32 18 Claims



1. An object orienting device for producing at least one beam of light having a desired configuration and forming a reference datum for the object at an orientation location, said device comprising:

a source of light positioned at one location;

means for concentrating the light from said source;

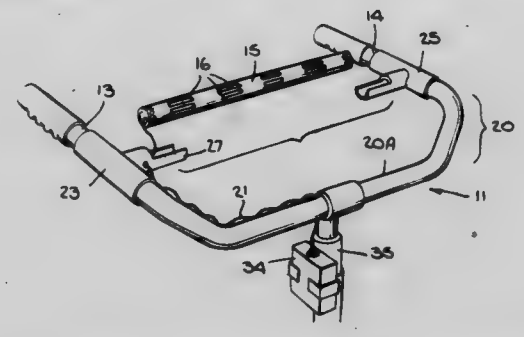
elongated, solid light transmitting means for receiving and transmitting the concentrated light to the orientation location that is remote from said first location; and

lens means positioned at the orientation location for receiving the light from said transmitting means, said lens means forming the light into a beam of the desired configuration and projecting same as a reference datum at the orientation location.

4,337,503
HANDLEBAR MOUNTED DETACHABLE BICYCLE LIGHT FIXTURE

Samuel Turner, 525 Atlanta Ave., Massapequa, N.Y. 11758

Continuation-in-part of Ser. No. 108,420, Dec. 31, 1979. This application Dec. 15, 1980, Ser. No. 216,670
Int. Cl.[3] F21V 33/00
U.S. Cl. 362—72 12 Claims



1. A bicycle illumination device adapted for use on a bicycle handlebar comprising:

(a) illumination means, said means positioned between the side portions of a handlebar;

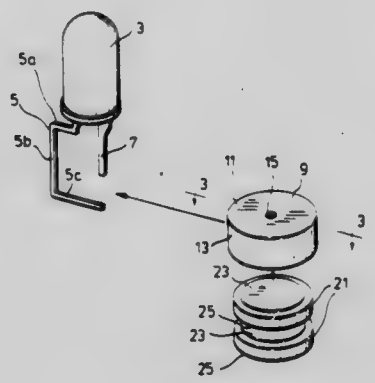
(b) a pair of resilient handlebar mounts engaging the handlebar, each mount having a support surface extending from the mount and being in alignment with one another for placement of the illumination means perpendicular to the forward movement of the bicycle, said illumination means being attached to the support surface, and

(c) means for energizing the illumination means.

4,337,504
ELECTRONIC EARRING

Colin V. M. Simpson, 175 Trudelle St., Unit 8, Scarborough, Ontario, Canada M1J 3K5

Filed Aug. 25, 1980, Ser. No. 180,958
Int. Cl.[3] F21L 15/18
U.S. Cl. 362—104 12 Claims



1. An electronic earring for use on a pierced earlobe, said earring forming an electrical circuit comprising a portable electrical power supply at one side of the circuit, load means at another side of the circuit away from said power supply and first and second electrical leads between and spacing said load means and power supply, said load means, said power supply and said electrical leads cooperating with one another to provide an ear clip arrangement with said power supply forming a first clip portion for clipping immediately behind the earlobe, said load means forming a second clip portion for clipping forwardly of the earlobe, said first lead forming a first connector between said clip portions for projecting through the pierced earlobe and said second lead forming a second connection between said clip portions for wrapping around the earlobe, said power supply and said load means being movable to

and from a securing position relative to one another to allow opening and closing of said clip arrangement on the earlobe.

4,337,505

HOLDER FOR LIGHT-TRANSMISSIVE PICTURES

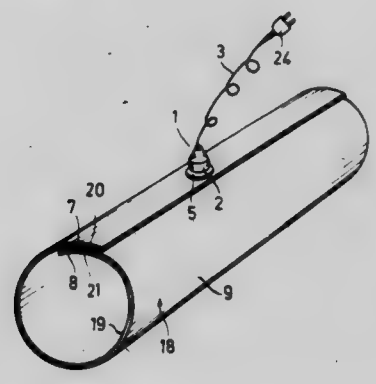
Ernest Heimo, Chemin de beau Rivage 10, 1000 Lausanne, Switzerland

Filed Jan. 29, 1980, Ser. No. 116,643

Claims priority, application Fed. Rep. of Germany, Feb. 2, 1979, 7902832[U]; Sep. 15, 1979, 7926218[U]; Oct. 30, 1979, 7930651[U]

Int. Cl.³ A47F *11/10*

U.S. Cl. 362—125 **17 Claims**



1. Holder for light-transmissive pictures, comprising: a first curved foil of elastic light-transmissive material; a second foil of elastic optical material sprung into the curvature of said first foil and abutting said first foil, the light-transmissive pictures being arranged between the first foil and the second foil; said first foil having bent-together ends; said second foil having bent-together ends overlapping the bent-together ends of said first foil; the bent-together ends of said first foil and of said second foil having overlying cutouts through which means for connecting said two ends are insertable.

4,337,506

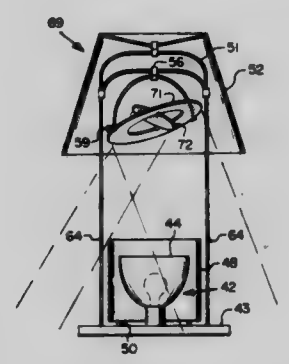
ADJUSTABLE LAMP

James I. Terada, 262 Vernon St., Apt. 306, Oakland, Calif. 94610

Continuation-in-part of Ser. No. 971,486, Dec. 20, 1978, abandoned. This application Feb. 1, 1980, Ser. No. 117,646

Int. Cl.³ F21V *33/00*

U.S. Cl. 362—142 **11 Claims**



1. A split-beam lighting apparatus for concentrating light from a single source in a plurality of localized areas, comprising:

a frame;

a single light source capable of providing a substantially unidirectional beam of light, supported on the frame,

a plurality of reflecting mirrors positioned in the path of said unidirectional beam of light, with means supporting the mirrors on the frame;

means associated with the mirrors for dividing the light among the mirrors; and

means associated with each of the mirrors for enabling adjustment of the angular orientations of the mirrors to reflect light in a separately selectable direction, to selected localized areas.

4,337,507

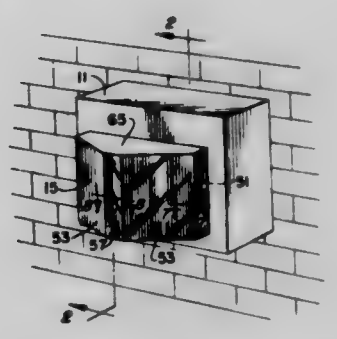
LIGHTING FIXTURE WITH DIRECTIONAL DISTRIBUTION

Martin L. Lasker, Edison, N.J., assignor to The Marley-Wylain Company, Mission, Kans.

Filed Jun. 12, 1979, Ser. No. 47,799

Int. Cl.³ F21V *7/00*

U.S. Cl. 362—282 **11 Claims**



1. A lighting fixture comprising a housing having an aperture defined in one side thereof, a light source mounted in said aperture, a reflector system partially surrounding said light source and positioned and shaped to project light through said aperture with a main beam of highest intensity projection at a selected angle from downward vertical and with a selected angle of vertical cut-off, the angular position of said reflector system being relative to said housing adjustable about a horizontal axis to adjust the selected angle from downward vertical of said main beam and the selected angle of vertical cut-off, and a lens positioned in said aperture fixed relative to said housing and having a portion thereof shaped to distribute the light rays passing through said aperture horizontally without changing the vertical distribution of light passing through said aperture.

4,337,508

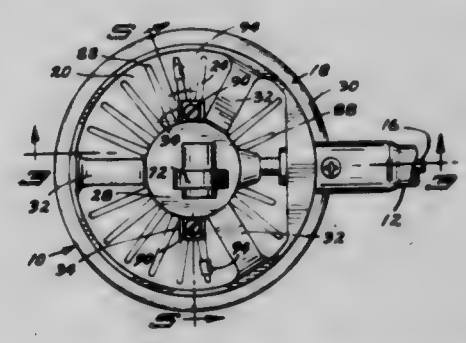
HIGH WATTAGE LAMP FIXTURE

David A. Moffatt, Lutsen, Minn., assignor to Moffatt Products, Inc., Lutsen, Minn.

Filed Jul. 31, 1980, Ser. No. 173,976

Int. Cl.³ F21V *29/00*

U.S. Cl. 362—294 **5 Claims**



1. For use with a source of electrical energy and an incandescent lamp having a metallic base, a translucent bulb and a metallic center terminal, an incandescent lamp fixture including:

A. a lamp socket of non-electrically conductive material of configuration to receive and retain a metallic lamp base;

B. a first electrical contact in said socket in position to contact said lamp base;

C. a second electrical contact in said socket in position to contact a center terminal of said lamp;

D. electrical circuit means to transmit energy to said first and second electrical contacts;

E. a heat dissipater of material highly conductive to heat in intimate surrounding continuous contact with an outer

surface of said socket over an area at least equivalent and opposite an inner surface facing and contacting said lamp base, said heat dissipater having heat dissipating fins extending radially outwardly from the lamp socket;

F. an open-ended lamp shade fixedly mounted with respect to said dissipater in concentric spaced relation with respect to said socket, said shade encompassing said electrical circuit means, said socket and said heat dissipater and extending past said socket sufficiently to encompass an incandescent lamp when mounted in said socket; and

G. a reflector of material highly conductive to heat and mounted in surrounding relation to said socket in intimate heat conductive relation to said dissipater and in concentric but spaced relation from and inside of said lamp shade.

4,337,509

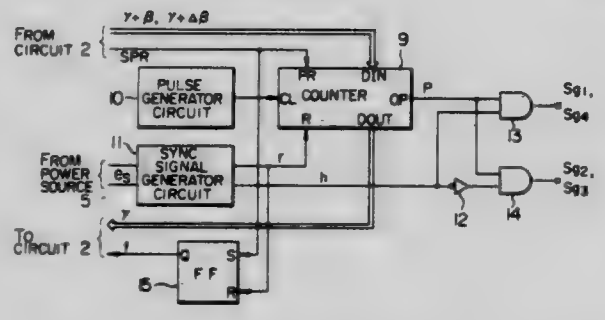
METHOD AND APPARATUS FOR CONTROLLING FIRING PHASES OF THYRISTORS

Tsutomu Omae, and Toshihiko Matsuda, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 22, 1980, Ser. No. 171,266

Int. Cl.³ H02P *5/16*

U.S. Cl. 363—128 **15 Claims**



1. A method of controlling the firing phases of thyristors, comprising

counting clock pulses having a predetermined period, by means of a counter

resetting said counter each time the voltage of an ac power source crosses zero;

reading out the count value of said counter at any desired moment after said resetting step and setting in said counter data obtained by correcting said count value by the use of a value corresponding to the firing phase;

reading out the count value of said counter at any desired moment after said data setting step and setting in said counter data obtained by correcting said count value by the use of a value corresponding to the variation of the firing phase; and

delivering an output pulse from said counter when said counter overflows, said output pulse causing firing pulses for said thyristors to be produced.

4,337,510

READ CONTROL SYSTEM FOR A CONTROL STORAGE DEVICE

Juichi Maezumi, Ome, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Feb. 12, 1980, Ser. No. 120,887

Claims priority, application Japan, Feb. 16, 1979, 54/16016

Int. Cl.³ G06F *9/22*

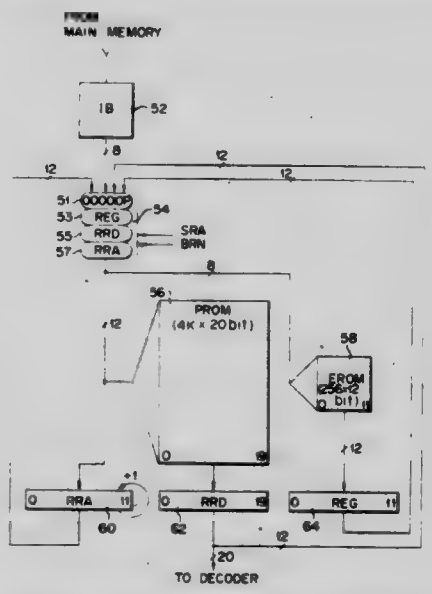
U.S. Cl. 364—200 **15 Claims**

1. A read control system for a control storage device, including an instruction buffer for supplying user instructions including operation codes, the system comprising:

a first read only memory for storing at selectively addressable memory locations thereof, a plurality of microinstructions of microprograms corresponding to said user instructions;

a second read only memory for storing a plurality of addresses for specifying memory locations in the first read only memory, said specified memory locations containing only second microinstructions of the microprograms corresponding to the user instructions;

a first register for holding a microinstruction read out from the first read only memory, said microinstruction selectively corresponding to either (1) a start microinstruction read out from said first read only memory from a memory location specified by address data comprising an operation code of a user instruction supplied by the instruction buffer, said user instruction being selectively supplied to said first read only memory concurrently with an outputting from the first register of a last microinstruction of a microprogram corresponding to a preceding user instruction, or (2) a second microinstruction read out from a



memory location specified by an address derived from the second read only memory, said latter address specified by the address data comprising the operation code of the user instruction, said user instruction being selectively supplied to said second read only memory; and

a second register for holding an address read out from the second read only memory, said last address being read out from said second read only memory in parallel with the reading out of the start microinstruction from the first read only memory into the first register, and for supplying said address to the first read only memory in parallel with the outputting of said start microinstruction from said first register.

4,337,511

DIGITAL CONTROL APPARATUS FOR THE RUNNING SPEED OF A MOTOR VEHICLE

Erich Schneider, Kirchheim; Helmut Fleischer, Schwieberdingen; Wolfgang Nonnenmann, Pforzheim, and Benno Gerum, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/EP79/00048, § 371 Date Mar. 15, 1980, § 102(e) Date Mar. 10, 1980, PCT Pub. No. WO80/00277, PCT Pub. Date Feb. 21, 1980

PCT Filed Jun. 21, 1979, Ser. No. 190,318

Claims priority, application Fed. Rep. of Germany, Jul. 15, 1978, 2831238; Sep. 27, 1978, 2842023

Int. Cl.³ G05D *13/58*; B60K *31/00*

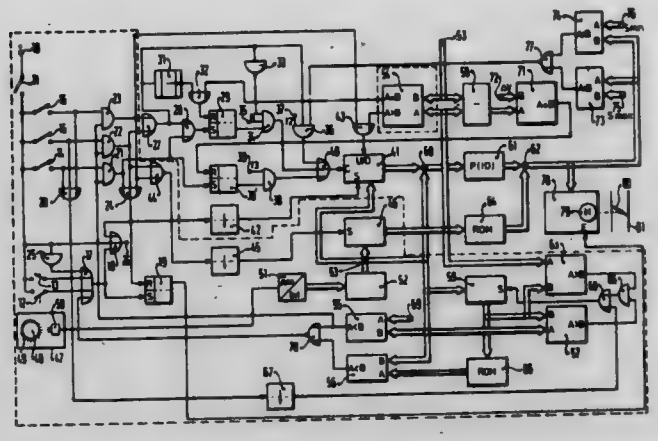
U.S. Cl. 364—426 **30 Claims**

1. In a digital control apparatus for controlling the running speed of a motor vehicle comprising an actual-value sending unit for sending a signal corresponding to the actual value of the vehicle running speed; a demand-value memory means (46) for storing a demand-value that is a function of the desired running speed of the vehicle; at least one switching means (14); means for transferring said actual value into said demand-value memory apparatus upon the actuation of said at least one switching means (14); comparing means (54) for comparing said actual-value with said stored demand-value; and control means responsive to said comparing means for controlling an

element of the motor vehicle influencing the speed of the motor vehicle;

the improvement comprising:

an auxiliary demand-value memory apparatus (41) for generating a ramp function signal by means of a digital counting process, said auxiliary demand-value memory apparatus being coupled to said control means for supplying said ramp function signal as a supplementary demand-value during a running speed alteration to be effected by the control apparatus.



4,337,512

APPARATUS AND METHOD FOR CONTROLLING INTERNAL COMBUSTION ENGINE

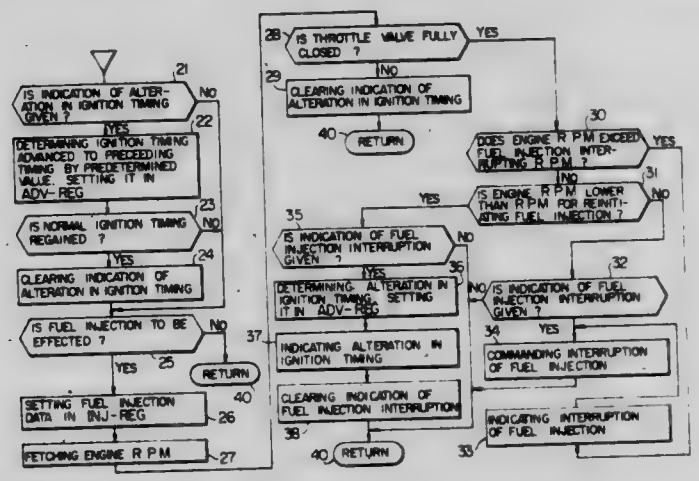
Toshio Furuhashi, Ibaraki, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 1, 1979, Ser. No. 80,203

Claims priority, application Japan, Sep. 29, 1978, 53-119349

Int. Cl.[3] F02P 5/06; F02M 3/04

U.S. Cl. 364—431.09 7 Claims



1. A method of operating a processor-controlled internal combustion engine, wherein control signals for controlling the supply of fuel and ignition timing for the engine are generated in response to data produced in accordance with signals indicative of operating conditions of the engine, comprising the steps of:

(a) in response to the throttle valve of the engine being in the fully closed position and in response to the engine crankshaft speed exceeding a preselected speed generating a first control signal in response to which the supply of fuel to the engine is interrupted;

(b) in response to the occurrence of a prescribed condition of engine operation for which the supply of fuel to the engine is to be resumed, generating a second control signal in response to which the ignition timing is modified by a prescribed amount and setting a flag representative of said modification of the ignition timing; and

(c) in response to said flag representative of said modification of the ignition timing being set, causing the amount by which said ignition timing has been modified by said second control signal to be sequentially adjusted until the ignition timing corresponds to the ignition timing in accordance with which said engine is normally operated and thereupon resetting said flag and resuming normal ignition.

4,337,513

ELECTRONIC TYPE ENGINE CONTROL METHOD AND APPARATUS

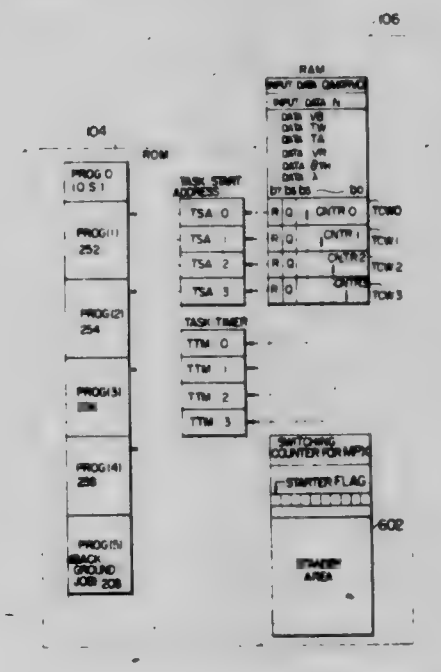
Toshio Furuhashi, Mito, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 4, 1980, Ser. No. 137,519

Claims priority, application Japan, Apr. 6, 1979, 54-40901; Jun. 6, 1979, 54-70067

Int. Cl.[3] G06F 9/46; G05B 15/02

U.S. Cl. 364—431.11 46 Claims



1. A method of operating a processor-controlled system, in which output signals are produced as a result of the processor carrying out a plurality of tasks the functions of which affect the operation of said system, and wherein there are provided a plurality of task programs through the execution of which said tasks are performed, each task program having a prescribed level of priority assigned thereto in accordance with its functional effect on the operation of said system, comprising the steps of:

(a) generating successive interrupt signals to which said processor responds in executing said task programs;

(b) in response to a respective one of said interrupt signals, issuing execution request signals for task programs currently requiring service;

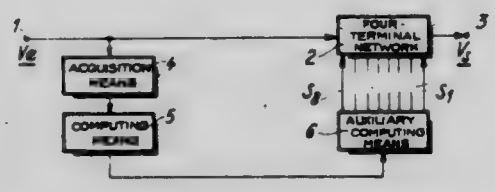
(c) upon completion of step (b), initiating the execution of the task program or programs, the task program level of which is highest among those programs for which execution request signals have been generated in step (b); and

(d) upon completion of the execution of a task program or programs in step (c), determining which task program or programs is to be next executed and thereupon proceeding with its execution.

4,337,514
DEVICE FOR AUTOMATICALLY CONTROLLING THE TRANSFER FUNCTION OF A VIDEO SYSTEM FOR IMPROVING IMAGE PERCEPTION

Michel Favreau; Jean Bajon; Michel Cattoën; Serge Soca; Maurice Longuet, and Christian Delattre, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed May 12, 1980, Ser. No. 148,676
Claims priority, application France, May 11, 1979, 79 11991
Int. Cl.[3] H04N *3/00;* G06F *15/36*
U.S. Cl. 364—515 5 Claims



1. A device for automatically controlling the transfer function of a video system for improving image perception, comprising:

means for acquisition of the luminance distribution function of an image by statistical analysis of the values of samples of a video signal, sampled at a frequency greater then ten percent of the maximal frequency of the video signal, said means having one input for receiving the video signal and an output;

means for computing the luminance cumulative distribution function of the image, having one input coupled to the output of the means for acquisition of the luminance distribution function, and an output;

an analog non-linear four-terminal network having an input for receiving the video signal, an output for delivering a corrected video signal, and n control inputs for controlling the values of n parameters defining the transfer function of the four terminal network, n being a positive whole number;

means for computing the values of the parameters as a function of the luminance cumulative distribution function so as to ensure that the corrected video signal extends over the entire scale of luminances in a predetermined distribution that enhances image details, having an input coupled to the output of said means for computing the cumulative distribution function, and n outputs coupled to the n control inputs of the four-terminal network for supplying the values of the n parameters, said values being constants for one image field, at least.

4,337,515
AUTOMOTIVE ENGINE ANALYZER FOR INDICATING A NO-CONNECTION CONDITION OF ENGINE TEST LEADS

Keith A. Kreft, Mt. Prospect, Ill., assignor to Sun Electric Corporation, Crystal Lake, Ill.

Filed Apr. 15, 1980, Ser. No. 140,585
Int. Cl.[3] G06F *11/00*
U.S. Cl. 364—551 10 Claims

1. An engine analyzing device for analyzing the operational characteristics of an internal combustion engine, comprising:

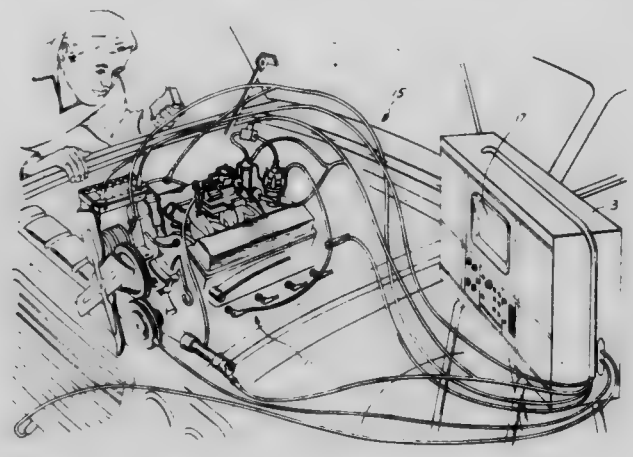
a test lead electrically connectable to an internal combustion engine for receiving an engine test signal, said test lead developing a disconnect voltage level when said test lead is disconnected from the engine;

a ground lead electrically connectable to the internal combustion engine for providing a ground reference;

signal referencing means interconnected between said test lead and said ground lead for representing said test signal as a voltage signal having a voltage magnitude lying within a predetermined range, said referencing means including:

(i) an output conductor for transmitting said voltage signal as an output voltage signal; and

(ii) impedance source means connected to said test lead and establishing a non-zero reference signal as an output voltage signal on said output conductor when said test lead is disconnected from the internal combustion engine, said output voltage signal on said output conductor remaining



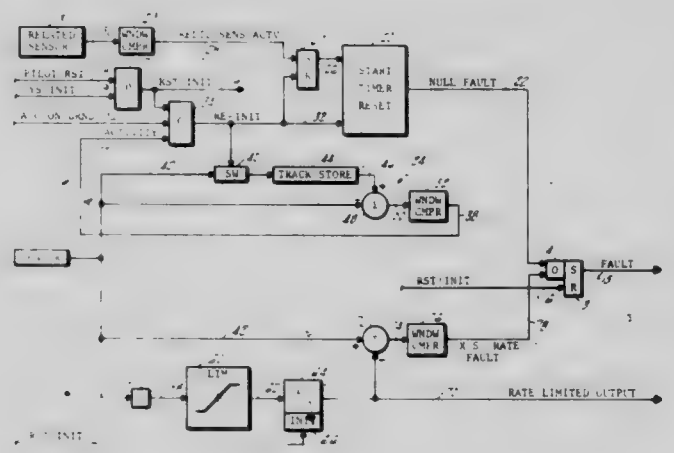
relatively unaffected by said impedance source means when said test lead is connected to said engine despite the presence of a test signal on said test lead of a voltage level substantially equal to said disconnect voltage level; and

signal processing means for receiving said output voltage signal and being responsive to said non-zero reference signal for generating an error indication to the operator.

4,337,516
SENSOR FAULT DETECTION BY ACTIVITY MONITORING

Richard D. Murphy, and Douglas H. Clelford, both of Trumbull, Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jun. 26, 1980, Ser. No. 163,445
Int. Cl.[3] G06G *7/78;* G06F *15/20*
U.S. Cl. 364—551 2 Claims



1. An activity-monitored sensor system comprising:

a first sensor providing a first output signal indicative of a given physical parameter; and

a second sensor providing a second output signal indicative of a second parameter related to said given physical parameter so that said second output signal is also indicative of whether said first output signal should or should not be changing as a function of time;

characterized by:

signal processing means connected for response to the output signals of said first and second sensors, for providing signals indicative of first, second and third predetermined threshold signal magnitudes, responsive to said second output signal for providing a first excess signal indicative of said second parameter being in excess of a first one of said predetermined threshold signal magnitudes for providing a second excess signal indicative of a change in the

magnitude of said first output signal in excess of a second one of said predetermined threshold signal magnitudes, for providing a signal indicative of null fault in response to presence of said first excess signal concurrently with absence of said second excess signal for a predetermined interval of time, for providing in response to said first output signal a rate limited signal indicative of said given physical parameter limited as to the rate of change thereof with respect to time, for comparing said rate limited signal with said first output signal, and for providing a signal indicative of excess rate fault in the event that said rate limited signal differs from said first output signal by more than a third one of said predetermined threshold signal magnitudes.

4,337,517

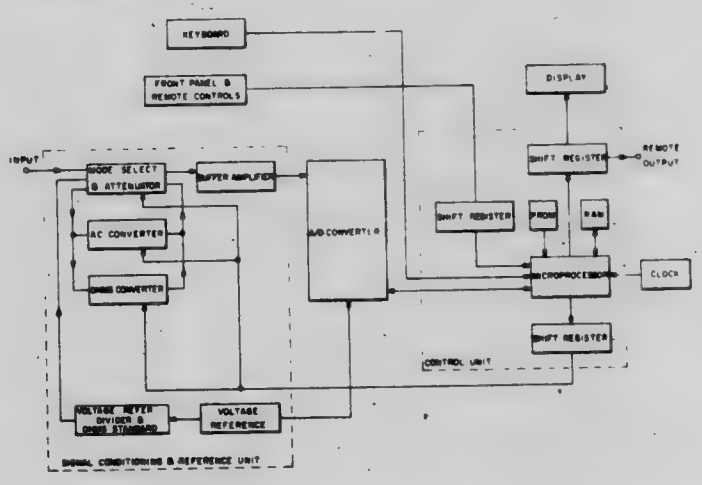
METHOD OF AUTOMATICALLY CALIBRATING A MICROPROCESSOR CONTROLLED DIGITAL MULTIMETER

Walter Nickel, Walnut Creek, and Zoltan Tarczy-Hornoch, Berkeley, both of Calif., assignors to Systron Donner Corporation, Concord, Calif.

Continuation-in-part of Ser. No. 724,005, Sep. 16, 1976, Pat. No. 4,200,933, which is a continuation-in-part of Ser. No. 710,218, Jul. 30, 1976, abandoned. This application Oct. 22, 1979, Ser. No. 86,722

Int. Cl.³ G01R *35/00*; G06F *15/20*

U.S. Cl. 364—571 **1 Claim**



1. A method for rapid calibration of a microprocessor controlled digital multimeter having a set of analog components which can produce measurement errors and a subset of said components which are substantially more precise and removable comprising the following steps:

removing said subset of components;

replacing said subset with a previously calibrated equivalent subset; and

using said microprocessor and said equivalent subset to arithmetically remove the measurement errors caused by said set of analog components, wherein said arithmetical removal step is based on the precision of said previously calibrated equivalent subset.

4,337,518

RECURSIVE-TYPE DIGITAL FILTER WITH REDUCED ROUND-OFF NOISE

Makoto Ohnishi, Tokyo; Hiroshi Kuwahara, and Narimichi Maeda, both of Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

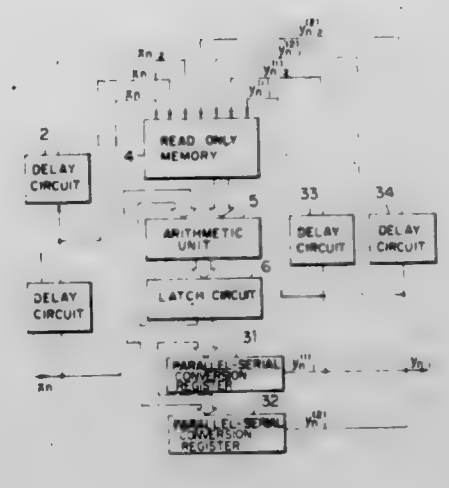
Continuation of Ser. No. 937,978, Aug. 30, 1978, abandoned. This application Jul. 28, 1980, Ser. No. 172,947

Claims priority, application Japan, Feb. 15, 1978, 53-15397

Int. Cl.³ G06F *7/38*

U.S. Cl. 364—724 **9 Claims**

1. In a recursive-type digital filter having a calculating means for calculating an output signal y_n, and a first means for supplying said calculating means with at least an m-bit input signal x_n of



$$\sum_{k=0}^{M} x_{n-k}$$

one bit by one bit; and second means including a data conversion means which cooperates with said calculating means to delay by one sample period said output signal y_n, and a feedback means for feeding back one bit by one bit to said calculating means at least an m-bit output signal y_{n-1} of

$$\sum_{k=1}^{N} y_{n-k}$$

wherein M and N are positive integers which represent a delay of the signal transmission and wherein the respective signals received by said calculating means from said first and said feedback means are multiplied by corresponding weighting coefficients a_k and b_k in order to produce at every sampling period a (m+l)-bit data y_n satisfying,

$$y_n = \sum_{k=0}^{M} a_k x_{n-k} + \sum_{k=1}^{N} b_k \cdot y_{n-k}$$

and a_k and b_k represent coefficients with a_M, $b_N \neq 0$ with the upper m-bits of said data y_n being serially outputted as an output signal corresponding to said input signal x_n from said filter, wherein the improvements comprises:

third means including a second data conversion means which cooperates with said calculating means to delay by one sampling period at least one of the lower l bits of said data y_n and outputting a y'_{n-1} signal, and

fourth means receiving said y'_{n-1} signal and outputting one bit by one bit to said calculating means a y'_{n-k} signal so that said calculating means supplements said y_n data by adding the product of said b_k coefficient and the signal received from said fourth means, whereby said y'_{n-k} signal, which is delayed by k sampling periods from said input signal x_n, reduces round off errors.

4,337,519

MULTIPLE/DIVIDE UNIT

Tetsunori Nishimoto, 395-26, Shimosakunobe, Takatsu-ku, Kawasaki-shi, Kanagawa 213, Japan

Filed Jan. 28, 1980, Ser. No. 115,619

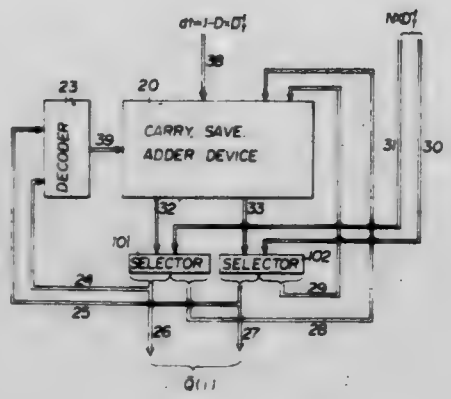
Claims priority, application Japan, Feb. 1, 1979, 54-009709

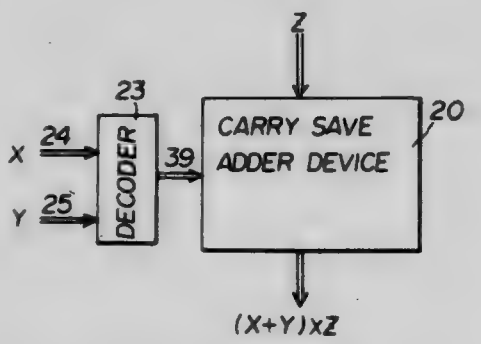
Int. Cl.³ G06F *7/48, 7/52*

U.S. Cl. 364—736 **7 Claims**

1. A multiply/divide unit for a high-performance digital computer for processing data X, Y and Z which comprises a decoder for receiving respective corresponding bits of the data X,Y and for outputting selecting signals for given multiples of

the data Z without adding X and Y; and means for obtaining values corresponding to products of the data Z and said given multiples selected by said selecting signals and adding said values, wherein said decoder includes a plurality of logical means provided for each group of the $2j-1^{th}$ bit and the $2j^{th}$ bit of the data X and Y in which $j=1,2,3,4,\ldots$; the jth one of said logical means including an adder for adding the corresponding





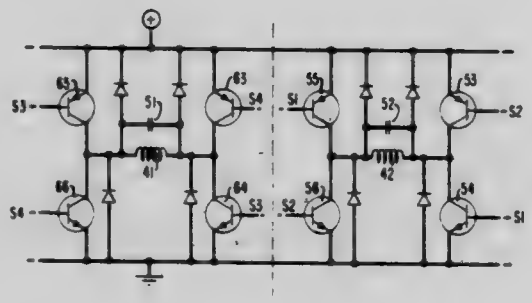
$2j-1^{th}$ bit and $2j^{th}$ bit groups of the data X and Y to output an uppermost bit a_{2j}, an intermediate bit b_{2j} and a lowermost bit d_{2j} and a decoding means for carrying out an operation of $[(d_{2j-2} \oplus a_{2j}) \times 2 + b_{2j} + (d_{2j} \vee a_{2j+2})]$ based on the outputs of said adder and outputs a_{2j+2} and d_{2j-2} from adders of the $j+1^{th}$ logical means and $j-1^{th}$ logical means to thereby generate the selecting signals for the given multiples relative to data Z.

4,337,520

BUBBLE MEMORY DRIVER

Frank F. Judd, Madison, and George R. Westerman, Denville, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 11, 1980, Ser. No. 177,119
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—6 **3 Claims**



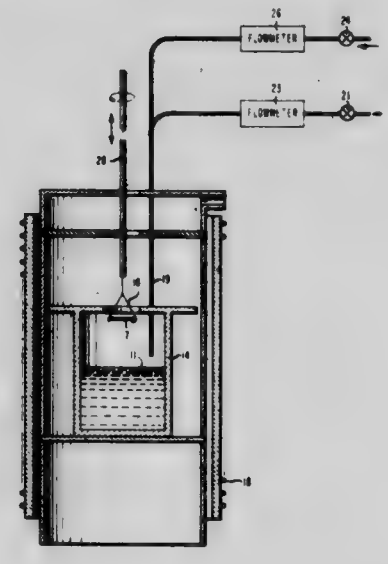
1. A magnetic bubble memory driver for moving magnetic bubbles in a layer of magnetic material in which said bubbles can be moved, said driver comprising first and second coils arranged transverse to one another and adapted for producing a reorienting magnetic field in the plane of said layer, said driver also comprising first and second switched coil drive circuit means including first and second switching transistors for applying square wave voltages to said first and second coils respectively at a base drive frequency and first and second capacitors connected with said coils in such a manner as to delay the rise of voltage across said switching transistors respectively with respect to the decay of current in said transistors at turn-off, said first and second capacitors having first and second values smaller than that at which the associated one of said coils would resonate at said base drive frequency chosen for minimizing semiconductor conduction and switching losses in said drive circuit means.

4,337,521

ADVANTAGEOUS GARNET BASED DEVICES

Stuart L. Blank; Ernst M. Gyorgy, both of Madison; Roy C. LeCraw, Westfield, and Lars C. Luther, Basking Ridge, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 26, 1979, Ser. No. 106,399
Int. Cl.³ H01F *1/37*
U.S. Cl. 365—33 **12 Claims**



1. A device comprising (1) an epitaxial layer of garnet material having a uniaxial magnetic anisotropy greater than 7000 ergs/cm³ which due to a growth induced component is capable of supporting a single wall magnetic domain (2) means for producing and means for maintaining in said garnet said single wall magnetic domain (3) means for propagating said single wall magnetic domain in said garnet and (4) means for detecting the presence of said single wall magnetic domain, such that said garnet material comprises a composition nominally represented by the formula $\{A\}_3[B]_2(C)_3O_{12}$, wherein said composition includes sufficient iron ions to produce a magnetic moment in said garnet characterized in that B also includes a member of the group consisting of Co^{2+} and an ion having **5*d*** or **4*d*** electrons wherein the number of said electrons is 1, 2, 4 or 5, and A is substantially devoid of a typical combination capable of producing a magnetic anisotropy, said typical combination represented by A being $X_{3-y}Z_y$ where X is the magnetic rare earth ion of highest mole fraction in A, Z is the remaining composition of A, and $0.1<y<2.9$.

4,337,522

MEMORY CIRCUIT WITH MEANS FOR COMPENSATING FOR INVERSION OF STORED DATA

Roger G. Stewart, Neshanic Station, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 29, 1980, Ser. No. 145,324
Int. Cl.³ G11C *7/00*
U.S. Cl. 365—190 **10 Claims**

1. The combination comprising:

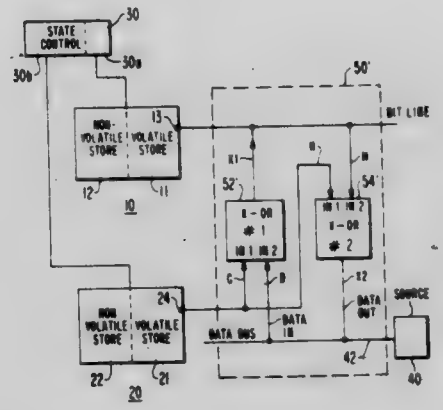
a memory cell having an input-output terminal and having a volatile section and a non-volatile section including means for transferring information between the volatile and non-volatile section and wherein the contents of said memory cell undergo an inversion when information

transferred from said volatile section to said non-volatile section is recalled from said non-volatile section into said volatile section;

a reference cell having an output point, said reference cell being keyed to said memory cell whereby the contents of said reference cell undergo an inversion whenever the contents of said memory cell undergo an inversion;

a data bus adapted to receive an input data signal;

first, and second gate means, each gate means having two inputs and an output and each being responsive to the signals at its two inputs for producing a signal of first



binary significance when its two inputs are of like binary value and for producing a signal of second binary significance when its two inputs are of different binary value;

means coupling the inputs of said first gate means to the output of said reference cell and to said data bus and its output to the input-output point of said memory cell; and

means coupling the inputs of said second gating means to the output of said reference cell and to the input-output terminal of said memory cell for producing at the output of said second gating means a signal having the same binary significance as said input data signal.

4,337,523

BIPOLAR MEMORY CIRCUIT

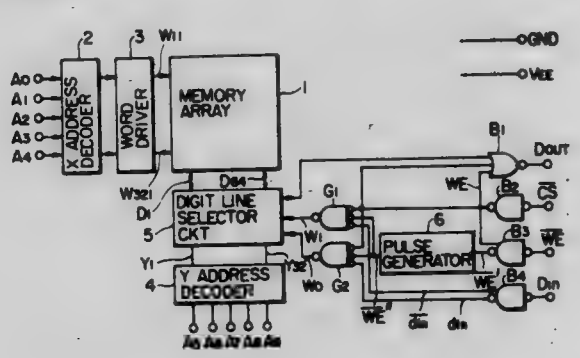
Atsuo Hotta, Higashiyamato; Yukio Kato, Kodaira, and Teruo Isobe, Hinode, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 9, 1980, Ser. No. 157,953

Claims priority, application Japan, Aug. 29, 1979, 54-109151

Int. Cl.³ G11C *7/00*

U.S. Cl. 365—194 **8 Claims**



1. A bipolar memory circuit comprising:

a plurality of memory cells,

an address decoder which receives an address signal and which provides a signal for selecting one of the plurality of memory cells corresponding to the address signal,

a pulse generator which is started by a write enabling signal and which provides a pulse signal having a fixed pulse duration, and

a gate circuit which receives an input data signal and the pulse signal and which provides a write pulse signal corresponding to the input data signal to be written into the selected memory cell, for a period determined by said pulse signal.

4,337,524

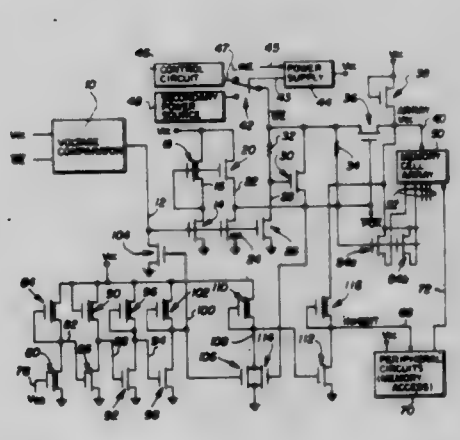
BACKUP POWER CIRCUIT FOR BIASING BIT LINES OF A STATIC SEMICONDUCTOR MEMORY

Ward D. Parkinson, Boise, Id., assignor to Mostek Corporation, Carrollton, Tex.

Filed Feb. 7, 1980, Ser. No. 119,538

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—229 **3 Claims**



1. A circuit for utilizing a backup power source to prevent loss of the bit pattern stored in the memory cells of a static semiconductor memory upon failure of the primary power supplied thereto, the memory circuit having a plurality of control terminals for receiving control signals and the memory cells having bit lines for transferring information as voltage states to and from the memory cells, comprising:

means for detecting a failure of the primary power for the memory circuit,

means for connecting the backup power source to the memory cells through a selected one of the control terminals upon detection of the failure of the primary power, and

means for applying a predetermined voltage to each of the bit lines upon detection of the failure of the primary power, said predetermined voltage derived from the backup power source through said selected control terminal.

4,337,525

ASYNCHRONOUS CIRCUIT RESPONSIVE TO CHANGES IN LOGIC LEVEL

Yasuo Akatsuka, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Apr. 11, 1980, Ser. No. 139,595

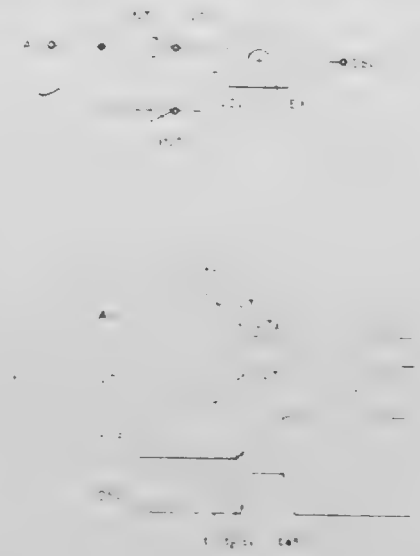
Claims priority, application Japan, Apr. 17, 1979, 54-46848; Nov. 7, 1979, 54-144178; Nov. 8, 1979, 54-144693; Nov. 8, 1979, 54-144694

Int. Cl.³ G11C *8/00*

U.S. Cl. 365—233 **10 Claims**

10. A memory integrated circuit comprising input means for receiving a plurality of input address signals, a plurality of memory cell means, access means for selectively accessing said memory cell means, means for receiving a write command signal, means for receiving a write data signal which is not classified into binary logic levels, detection means for detecting non-logic level in said input address signals, said non-logic levels being non-classifiable into said binary logic levels, signal means responsive to an output of said detection means for producing a control signal, means for substantially synchronizing said write command signal with said control signal to

produce an inner command signal, means for resetting said access means substantially in response to said control signal,



and means responsive to said inner command signal for writing said write data signal into one of said memory cells.

4,337,526

MONOLITHICALLY INTEGRABLE SEMICONDUCTOR MEMORY

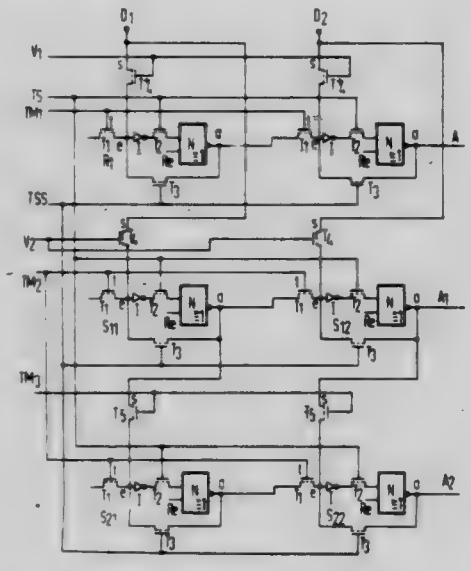
Helmut Rösler, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jun. 9, 1980, Ser. No. 157,946

Claims priority, application Fed. Rep. of Germany, Jun. 18, 1979, 2924526

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—238 **4 Claims**



1. Monolithically integrated MOS semiconductor circuit, comprising a memory matrix having identical memory cells in the form of individual adjacent clock-controlled shift register cells disposed in rows and columns including a first row and column, each of said memory cells having an information input terminal and an information output terminal, at least one of said terminals of each given memory cell being connected to another memory cell disposed in one of the same column and the same row as said given memory cell in accordance with a given sequence of said memory cells in respective rows and columns, said input terminals of said memory cells in at least one of said first row and column each forming an information input of said memory matrix in which said output terminal of said individual memory cells is in the form of a NOR gate having first and second inputs and an output, said first input of said NOR gate being a resetting input, each given memory cell having a first transfer transistor controlled by a first pulse sequence, a second transfer transistor controlled by a second pulse sequence, and at least one clock-controlled transfer transistor each having source-drain paths, and an inverter having an input and an output, said second input of said NOR gate being connected through the source-drain path of said first transfer transistor to the output of said inverter, said output of said NOR gate being fed back through said source-drain path of said second transfer transistor to the input of said inverter, the input of said inverter also forming the signal input terminal of said given memory cell, said signal input terminal of said given memory cell being connected through the source-drain path of said at least one clock-controlled transfer transistor to one of, the output terminal of the adjacent memory cell in the same row as said given memory cell, the output terminal of the adjacent memory cell in the same column as said given memory cell, and an information input of said memory matrix, the corresponding transfer transistor of each memory cell being jointly clock-controlled by the same clock signal preventing said transfer transistors connected to the information input terminals and said transfer transistors connected to said NOR gates from simultaneously opening.

4,337,527

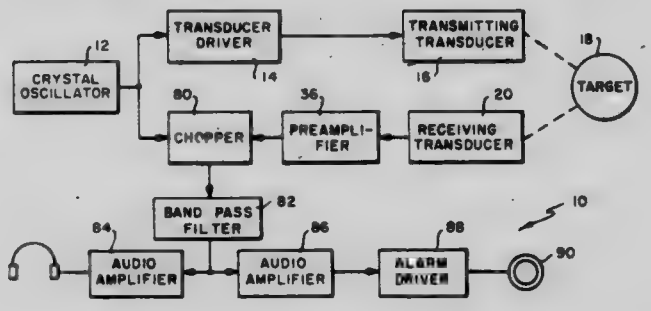
ACOUSTIC DOPPLER DETECTOR

Arthur D. Delagrange, Sykesville; Cabell N. Pryor, Jr., and Wayne D. Wilson, both of Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 29, 1971, Ser. No. 184,903

Int. Cl.³ G01S *15/50*

U.S. Cl. 367—98 **8 Claims**



1. An acoustic doppler detection system for detecting underwater targets comprising:

transmitting means coupled to a source of ultrasonic electrical energy for converting said ultrasonic energy into acoustic energy and for transmitting said acoustic energy;

receiving means for receiving reflections of said acoustic energy and for converting said reflections into received electrical signals;

preamplifying means for amplifying portions of said received electrical signals to a predetermined level to produce an automatic gain controlled output signal;

multiplying means for electrically multiplying said ultrasonic electrical energy by said automatic gain controlled output signal;

filtering means for band pass filtering the output of said multiplying means to produce a difference signal; and

output means coupled to said band pass filtering means for generating a plurality of output signals in response to acoustic reflections from said underwater targets.

4,337,528

MOVING VEHICLE SEISMIC TARGET DETECTOR

Glenn G. Clinard; Gail R. Mulhollam, both of Upland, Calif., and Frank J. Volk, Hickory Hills, Ill., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Dec. 13, 1972, Ser. No. 314,646

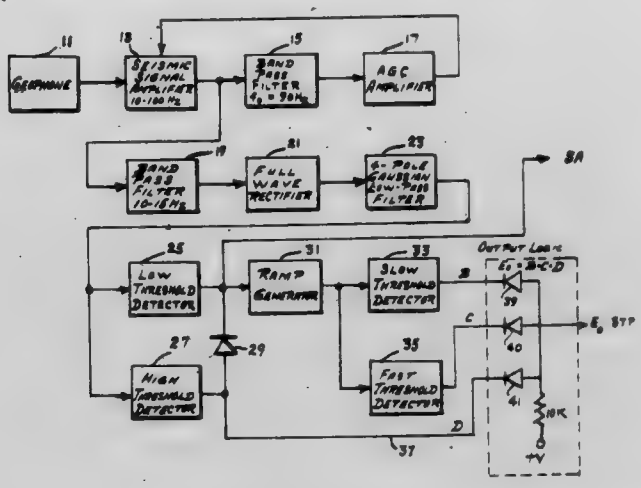
Int. Cl.³ G08B *13/00*

U.S. Cl. 367—136 **4 Claims**

1. A seismic target detector comprising:

a. a geophone;

b. a band pass amplifier fed by the geophone;
c. a first bandpass filter fed by the bandpass amplifier;
d. a full wave rectifier fed by the first bandpass filter;
e. a Gaussian low pass filter fed by the full wave rectifier;
f. a low threshold detector fed by the Gaussian filter;
g. a high threshold detector fed by the Gaussian filter;



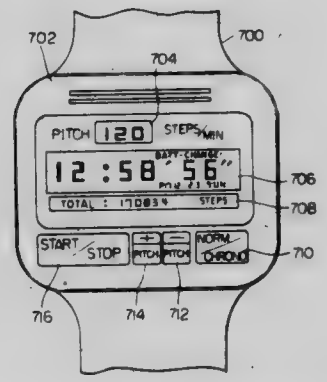
h. a ramp generator fed by the low threshold detector and the high threshold detector; and
i. logic means by the ramp generator and the high threshold detector producing an output upon the presence of the target.

4,337,529

PACE TIMING DEVICE

Shigeru Morokawa, Tokorozawa, Japan, assignor to Citizen Watch Company Limited, Tokyo, Japan

Filed May 23, 1979, Ser. No. 41,564
Claims priority, application Japan, May 27, 1978, 53-063705
Int. Cl.³ G04B *47/00*; G04F *8/00*; G04C *2/16*; G08B *3/10*
U.S. Cl. 368—10 **25 Claims**



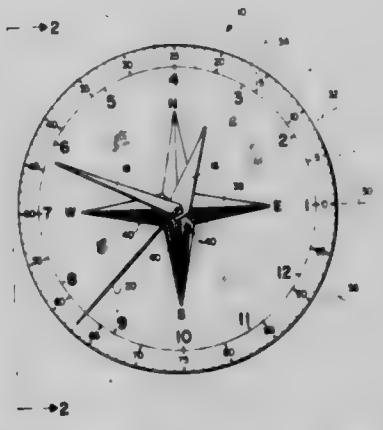
1. A combination of an electronic timepiece and pace timing device, comprising:
a source of a first frequency signal;
pace signal generation circuit means responsive to said first frequency signal for providing a pace signal;
an acoustic device responsive to said pace signal for providing an audible pace timing signal;
said first frequency signal source including a source of a timebase signal, externally operated frequency setting means, and synthesizer circuit means responsive to operation of said frequency setting means and to said timebase signal for producing a first frequency signal;
said pace signal generation circuit means including a frequency divider coupled to receive said timebase signal for thereby producing a carrier signal and time unit signal, and a modulator circuit for modulating said carrier signal by said first frequency signal to thereby produce a pace signal; and
a timekeeping counter circuit coupled to receive said time unit signal produced by said frequency divider circuit for thereby producing a time marker signal when a predetermined count of said time unit signal is attained, said time marker signal being applied to said modulator circuit to modulate said carrier signal for thereby producing a modulated time marker signal, said acoustic device being responsive to said modulated time marker signal for producing an audible time marker signal;
externally actuated switch means for selecting a timekeeping mode of operation and a pace timing mode of operation;
externally actuated switch means for selectively increasing and decreasing a pace timing signal frequency when said pace timing mode of operation is entered;
externally actuated switch means for initiating halting production of an audible pace timing signal when said pace timing mode of operation is entered;
display means for displaying current time and date when said timekeeping mode of operation is entered and for displaying an elapsed time when said pace timing mode of operation has been entered;
display means for indicating a pace timing signal frequency when said pace timing mode of operation is entered; and
display means for indicating a cumulative total of steps executed.

4,337,530

UNIVERSAL TIME-KEEPING SYSTEM AND APPARATUS

Leonard L. Toft, Jr., 599 Darwin, Apt. No. 3, Salt Lake City, Utah 84103

Filed May 27, 1980, Ser. No. 153,433
Int. Cl.³ G04B *47/06, 19/26*; G04C *17/00*
U.S. Cl. 368—62 **13 Claims**

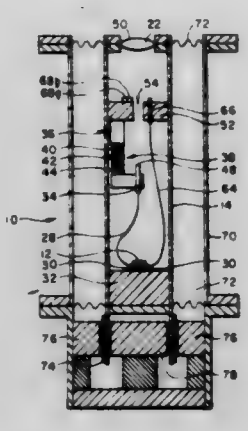


1. A time-keeping method comprising the steps of:
(a) dividing a day into twelve equal periods of time, each period of time being designated with successively increasing numbers starting with one and increasing to twelve;
(b) dividing each of said twelve equal periods of time into one-hundred equal sub-periods of time;
(c) dividing each of said sub-periods of time into one-hundred equal increments of time;
(d) using said increments of time as the basic time interval around which a timing device is designed, said timing device being adapted to display the passage of time as a counter-clockwise motion around a face of said timing device, said counter-clockwise motion depicting one counterclockwise revolution around said face once each day, said face being adapted to indicate the passage of time in units comprised of said periods of time, sub-periods of time, and increments of time; and
(e) synchronizing said timing device so that said counter-clockwise motion begins from a beginning reference point on said face that corresponds to the three o'clock position of a conventional clock face at a time that is coincident with the mean time of the rising of the sun.

4,337,531
SCANNING HEAD FOR AN OPTICAL DISC SYSTEM

Herman W. Willemsen, Nepean, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed May 14, 1980, Ser. No. 149,765
Int. Cl.[3] G11B 7/12
U.S. Cl. 369—45 11 Claims



1. An optical scanning device for scanning an optical record at a reflecting surface of an optical storage disc, the optical scanning device comprising:

a support frame;

an optical source fixedly mounted relative to the frame;

a single length of optical fiber having one end disposed to receive light from the source, such light being emitted from the other end of the optical fiber;

an objective lens for focussing the emitted light at a focus position on the surface of the optical disc;

monitoring means for monitoring light reflected from the surface of the optical disc;

guide means responsive to an output from said monitor means to alter the position of the other end of the fiber relative to said objective lens whereby to alter the focus position within the plane of the surface of the disc.

4,337,532
SYSTEM FOR CONTROLLING THE CHANGE OF READ SIDE FOR AN OPTICAL READER FOR AN INFORMATION CARRIER

Pierre Oprandi, and Rene Romeas, both of Paris, France, assignors to Thomson-Brandt, Paris, France

Filed May 29, 1980, Ser. No. 154,435
Claims priority, application France, May 31, 1979, 79 13981
Int. Cl.[3] G11B 7/00
U.S. Cl. 369—45 7 Claims

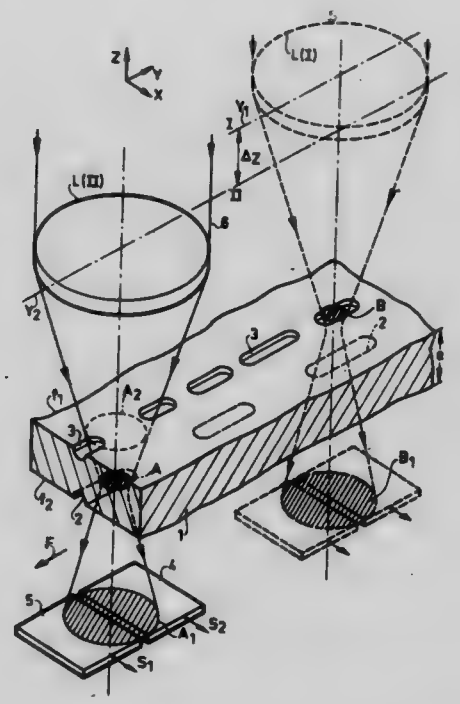
1. In an optical reader system for changing the read side of a carrier of information recorded on both sides, said reader system having an optical focusing device for focusing a light beam onto a designated one of said both sides and focusing control circuit with a feedback loop in order to maintain a constant distance between said optical device and the surface of said carrier by servoaction on an electrical signal, the improvement comprising:

detection means for receiving a high frequency modulated electrical output signal read off said carrier by said optical reader and supplying a detected signal in the form of a first binary signal of a first logic level when the amplitude of said high frequency modulated electric signal exceeds a predetermined threshold and a second logic level when the amplitude of said high frequency modulated electrical signals is below said threshold;

first control means for generating a second binary signal for controlling the change of read side having two logic levels representing the two sides to be read;

second control means combining said first binary signal and second binary signal for controlling the change of read side for creating a feedback loop opening/closing binary signal which can assume a first logic level controlling the opening of the feedback loop after receiving a transition of said second binary signal controlling the change of reading sides and a second logic level controlling the closing of said feedback loop after receiving a transition of the first binary signal from the second to the first logic level; and

a side jump control pulse generator connected to the outputs of said first and second control means for supplying said focusing control circuit with a side jump control pulse in synchronism with the transitions of said feedback loop

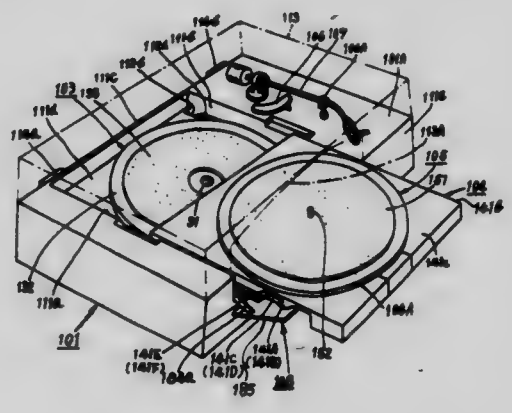


opening/closing binary signal with the polarity of said jump control pulse being selected so that it alternately imparts to said optical focusing device an acceleration movement towards the preselected side during the transition from said first to said second logic level of said feedback loop opening/closing binary signal and a decelerated movement during the return to said first logic level thereby permitting focusing onto the selected side of said recorded information carrier.

4,337,533
FRONT LOADING TYPE RECORD PLAYER

Ryuta Ando, and Kazumi Kinugawa, both of Tokyo, Japan, assignors to Kabushiki Kaisha Aiwa, Tokyo, Japan

Filed Aug. 28, 1980, Ser. No. 182,178
Claims priority, application Japan, Sep. 7, 1979, 54-114936; Sep. 13, 1979, 54-117639
Int. Cl.[3] G11B 17/04, 23/02
U.S. Cl. 369—77 17 Claims



1. A front loading type record player comprising a frame, a first turntable rotatably disposed on said frame, a support means slidably mounted on said frame, said support means being slidable between a playing position located in the frame and a loading position extending outwardly of the frame, and a

second turntable carried on said support means, said second turntable receiving a record when said support means is in said loading position, said second turntable being transferred to and supported by said first turntable when said support means is in said playing position, whereby the first and second turntables rotate as a unit during playing of the record.

4,337,534

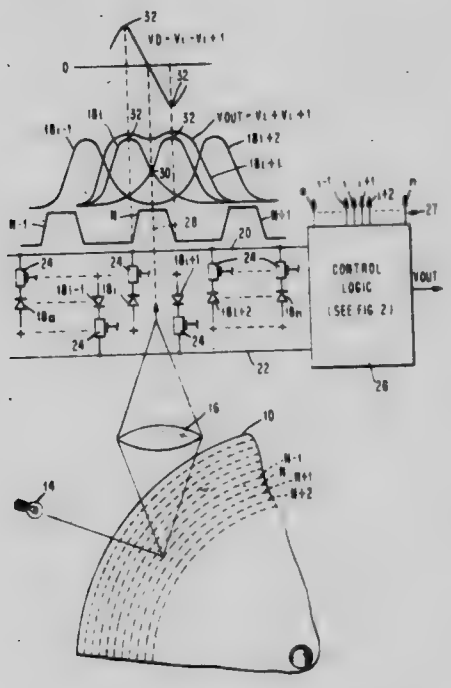
SOLID STATE ELECTRO-OPTICAL TRACK FOLLOWER ARRAY

Albert R. Basilico, Hyde Park, and Raymond J. Wilfinger, LaGrangeville, both of N.Y., assignors to Discovision Associates, Costa Mesa, Calif.

Continuation of Ser. No. 31,252, Apr. 18, 1979, abandoned. This application Mar. 3, 1981, Ser. No. 239,953

Int. Cl.³ G11B *7/00, 7/12*

U.S. Cl. 369—111 **5 Claims**



1. A tracking circuit for use in a playback system for an optical information storage device which optically reads information from a spiral shaped track carried by a rotating data disc, comprising:

a multiplicity of adjacently positioned photo-optic sensors, and each of said sensors having an output terminal;

means for illuminating said spiral shaped track;

means for imaging light reflected from the spiral shaped track upon at least two of said light sensitive devices;

each of said multiplicity of photo-optic sensors being employed for generating an output voltage representative of the intensity of the light impinging upon said sensor at its respective output terminal;

a lower signal line;

an upper signal line;

a plurality of photo-optic sensor switching means, and each of said photo-optic sensor switching means having at least first, second and third terminals;

alternate ones of said sensors being selectively connected to said lower signal line by respective photo-optic sensor switching means;

remaining ones of said sensors being selectively connected to said upper signal line by respective photo-optic sensor switching means;

said first terminal of each of said photo-optic sensor switching means being connected to one of said lower signal line and said upper signal line;

said second terminal of each of said photo-optic sensor switching means being connected to said output terminal of respective ones of said photo-optic sensors;

a decode circuit means for generating first level and second level control signals for application to said third terminal of each of said photo-optic sensor switching means;

each of said photo-optic sensor switching means operating to connect said voltage generated by its respective photo-optic sensor to its respective upper and lower signal line when said control signal of said first level is present at said third terminal and operating to disconnect said voltage generated by its respective photo-optic sensor from its respective upper and lower signal line when said control signal of said second level is present at said third terminal;

said decode circuit means generating at least one first level control signal for application to one of said photo-optic switching means connecting said sensors to said lower signal line and at least one additional first level control signal for application to an adjacent one of said photo-optic switching means connecting said sensors to said upper signal line;

differential signal combining means responsive to said output voltage signal on said lower signal line and said output voltage signal on said upper signal line as gated by said first level control signals from said decode circuit means for generating at least a first difference output signal and a second difference output signal, said first difference output signal being the difference between a first voltage signal on said upper signal line and a second voltage signal on said lower signal line, and said second difference output signal being the difference between said second voltage signal and said first voltage signal;

said differential signal combining means includes a first differential amplifier for generating said first difference output signal and a second differential amplifier for generating said second difference output signal and each of said first and said second differential amplifiers having a positive input terminal and a negative input terminal;

said differential signal combining means further including a first input amplifier and a second input amplifier;

said first input amplifier being connected to said positive input terminal of said first differential amplifier and to said negative terminal of said second differential amplifier;

said second input amplifier being connected to said positive input terminal of said second differential amplifier and to said negative terminal of said first differential amplifier;

input switching means positioned intermediate said upper and lower signal lines and said first and second input amplifier for selectively connecting said upper signal line with one of said first and second amplifiers and for selectively connecting said lower signal line with the other one of said first and second amplifiers;

said input switching means including at least first and second direct switching means and further including at least first and second cross switching means, and each of said direct and cross switching means having at least first, second and third terminals;

said first terminal of said first direct switching means and said first terminal of said first cross switching means being responsive to said signal on said upper signal line, said first terminal of said second direct switching means and said first terminal of said second cross switching means being responsive to said signal on said lower signal line;

said second terminal of said first direct switching means and said second terminal of said second cross switching means being employed for selectively furnishing an input to said first input amplifier, said second terminal of said second direct switching means and said second terminal of said first cross switching means being employed for selectively furnishing an input to said second input amplifier;

signal generating means responsive to said output signals from said differential signal combining means for providing at least both a first signal indicating said first difference output signal exceeds a first preselected value and second signal indicating said second difference output signal exceeds a second preselected value;

a bistable device of the type having two stable states and at least an input terminal and first and second output terminals;

said bistable device changing between its two stable states

upon each application of an input signal to said input terminal and generating an output signal at each of said first and second output terminals, and each of said output signals at said first and second output terminals being at one of a first signal level and a second signal level, and said output signal at said first output terminal being at said first level when said bistable device in its first stable state and said output signal at said first output terminal being at said second level when said bistable device is in its second stable state, and said output signal level at said second output terminal of said bistable device being at the other level from the level of said output signal at said first output terminal;

said bistable device being responsive to said first signal and said second signal generated by said signal generating means for changing stable states upon the application of said last mentioned signals to said input terminal of said bistable device and for generating said first output signal and said second output signal from said first output terminal and second output terminal respectively;

said first output signal from said bistable device is applied as an input signal to said decode circuit means and as a control signal to said third terminal of said first and second cross switching means;

said second output signal from said bistable device is applied as a second input signal to said decode circuit means and as a control signal to said third terminal of said first and second direct switching means;

said output signals from said bistable device and said output signals from said signal generating means being applied to said decode means for generating said first level signals and said second level signals for application to said photo-optic switching means for changing the combination of adjacent photo-optic sensors used to generate said first difference signal and said second difference signal; and

said output signals from said bistable device applied to said control terminals of said direct and cross input switching means being employed for changing the photo-optic sensor connections over said upper and lower signal lines to said first and second amplifiers as said decode means switches the connections of said photo-optic sensors to said upper and lower signal lines during tracking.

4,337,535

DEVICE FOR PREVENTING UNWANTED REFLECTIONS FROM AN OPTICAL SYSTEM TO A LASER IN AN APPARATUS FOR OPTICALLY READING A RECORD CARRIER

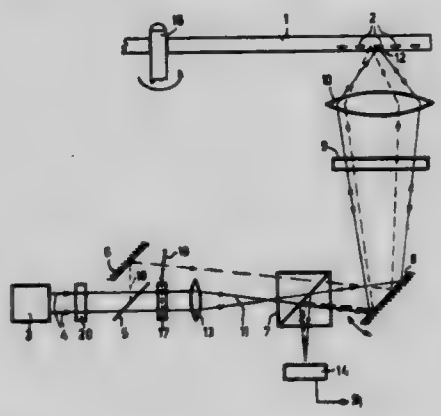
Everardus A. Van Megen; Carel A. Simons, and Eduard W. Moen, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 804,887, Jun. 9, 1977, abandoned, which is a continuation of Ser. No. 625,182, Oct. 23, 1975, abandoned. This application Feb. 14, 1979, Ser. No. 12,099

Claims priority, application Netherlands, Jun. 2, 1975, 7506495

Int. Cl.³ G11B *7/00, 7/12*

U.S. Cl. 369—121 **4 Claims**



1. An apparatus for reading information stored on a record carrier in an optically readable information structure, said apparatus comprising means for producing a coherent beam of radiation having an intensity sufficient to read the information stored in the information structure without causing physical changes in said information structure, means for directing said beam toward said record carrier along a first path, means for focussing said beam to a spot on said information structure to thereby modulate at least a portion of said beam in accordance with the information stored in said information structure, said modulated portion of said beam passing from said record carrier along a second path at least a portion of which is separate and distinct from said first path, a radiation sensitive detector arranged along said separate portion of said second path to intercept said modulated portion of said beam and means for attenuating the intensity of said beam, said attenuating means being positioned along a portion of said first path, which is separate and distinct from said portion of said second path, so as to intercept substantially the entire cross-sectional area of of said beam passing from said beam producing means toward said record carrier and radiation reflected back toward said beam producing means and attenuate the intensity of both the beam passing from said beam producing means toward said carrier and said reflected radiation to thereby reduce optical noise caused by said reflected radiation.

4,337,536

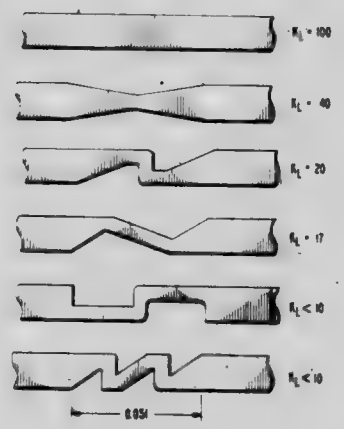
FLYLEAD FOR A VIDEO DISC STYLUS CARTRIDGE

Byron K. Taylor, Carmel, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,240

Int. Cl.³ G11B *9/06*

U.S. Cl. 369—126 **5 Claims**



1. A video disc stylus assembly of the type including a signal pickup stylus secured to a first end of a stylus arm, the second end thereof being compliantly mounted to a carriage assembly for translating the pickup stylus radially across a disc record, electrical connection to said pickup stylus being effectuated by a conductive leaf spring secured to the carriage assembly and elastically deformed in an arc to provide a prescribed compressive force between the pickup stylus and the disc record, said leaf spring improved to exhibit reduced resistance to movement in a direction radially across the disc record, which improved leaf spring comprises;

a flat, longitudinal electrically conductive resilient element, having substantially uniform width over its length and having first and second regions of narrow width proximate first and second ends of the element, the width of said narrow regions designed to permit a center section located between said narrow regions to twist a limited amount relatively freely with respect to the ends of said element when said element is elastically deformed in said arc between the carriage assembly and the pickup stylus; and

wherein the compressive force between the pickup stylus and the disc record is not substantially affected by said narrowed regions.

4,337,537

TONEARM POSITION SETTING DEVICE

Yoshihisa Hirota, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Apr. 7, 1980, Ser. No. 137,696
Claims priority, application Japan, Apr. 6, 1979, 54-45404[U]
Int. Cl.³ G11B 17/06
U.S. Cl. 369—216 3 Claims

1. A tonearm lowering position setting device for a record turntable comprising:

a moving means carrying a tonearm for horizontal movement;

engaging means for engaging said moving means at a desired lowering position of said tonearm to thereby stop the horizontal movement of said tonearm;

driving means for driving said engaging means so as to be in an engaging condition with said moving means in response to a predetermined signal;

detecting means for detecting when said tonearm is positioned in the vicinity of the desired lowering position; and

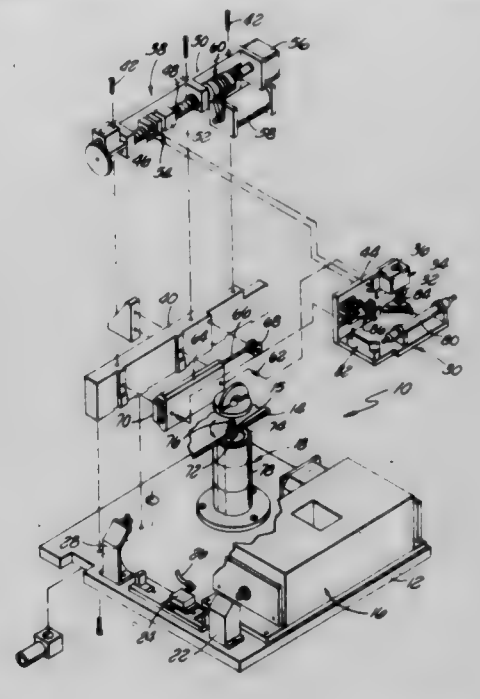
a control means for supplying said predetermined signal to said driving means in response to the output of said detecting means.

4,337,538

DRIVE ASSEMBLY FOR A VIDEO RECORDER-PLAYBACK MACHINE

Richard L. Wilkinson, Torrance, and John S. Winslow, Alta Dena, both of Calif., assignors to Discovision Associates, Costa Mesa, Calif.

Filed Oct. 20, 1980, Ser. No. 198,696
Int. Cl.³ G11B 3/10
U.S. Cl. 369—223 35 Claims



1. A drive assembly for linearly translating a record-playback head in a record-playback machine, comprising:

a slide member mounted on the machine for linear translation with respect thereto, said head being mounted for linear movement with said slide member;

a lead screw mounted on the machine for rotation about its own axis and extending in a direction generally parallel with the direction of translation of said slide member;

a lead screw nut threadably received about said lead screw for axial translation in response to lead screw rotation;

a push block mounted for linear movement with the head and disposed about said lead screw for axial translation with the head generally along said lead screw and out of physical contact with said lead screw;

means for coupling said lead screw nut and said push block against rotation with respect to each other and for accommodating axial misalignment between each other; and

means for rotatably driving said lead screw.

DESIGN PATENTS

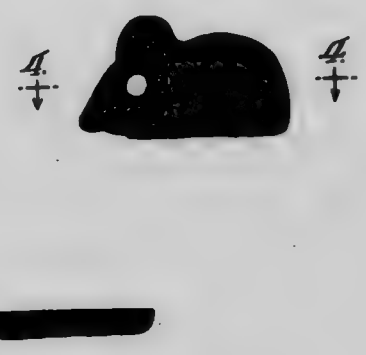
GRANTED JUN. 29, 1982

ERRATA

For CLASS	See PATENT NO.
D32-002	265,201

265,140
CAT BISCUIT
Jeffrey B. Gorman, 65 W. Burton Pl., Chicago, Ill. 60601
Filed Jan. 21, 1980, Ser. No. 113,570
Term of patent 14 years
Int. Cl. D01—*99*

U.S. Cl. D1—27



265,141
BRASSIERE
Harold Stern, Wyckoff, N.J., and William White, New York, N.Y., assignors to International Playtex, Inc., Stamford, Conn.
Filed Jul. 14, 1980, Ser. No. 167,861
Term of patent 14 years
Int. Cl. D2—*01*

U.S. Cl. D2—24



265,142
BRASSIERE
Harold Stern, Wyckoff, N.J., and William White, New York, N.Y., assignors to International Playtex, Inc., Stamford, Conn.
Filed Jul. 14, 1980, Ser. No. 168,982
Term of patent 14 years
Int. Cl. D2—*01*

U.S. Cl. D2—24



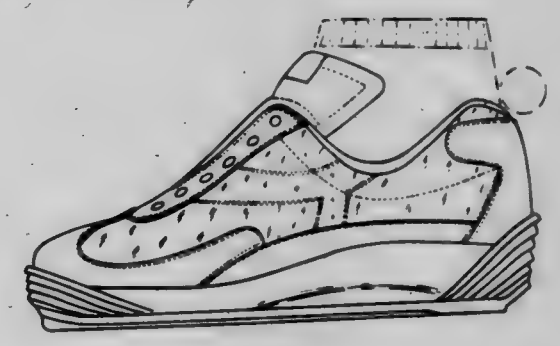
265,143
BRASSIERE
Toshiko Taniyama, White Plains, N.Y., assignor to International Playtex, Inc., Stamford, Conn.
Filed Jul. 18, 1980, Ser. No. 170,325
Term of patent 14 years
Int. Cl. D2—*01*

U.S. Cl. D2—24

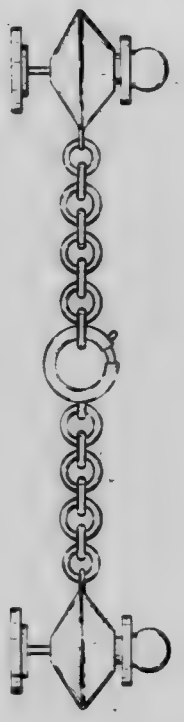


265,144
SHOE
Christian Vermonet, Cholet, France, assignor to Societe Technisynthese (S.A.R.L.), Saint Pierre Montlimart, France
Filed May 6, 1980, Ser. No. 147,324
Term of patent 3½ years
Int. Cl. D2—*04*

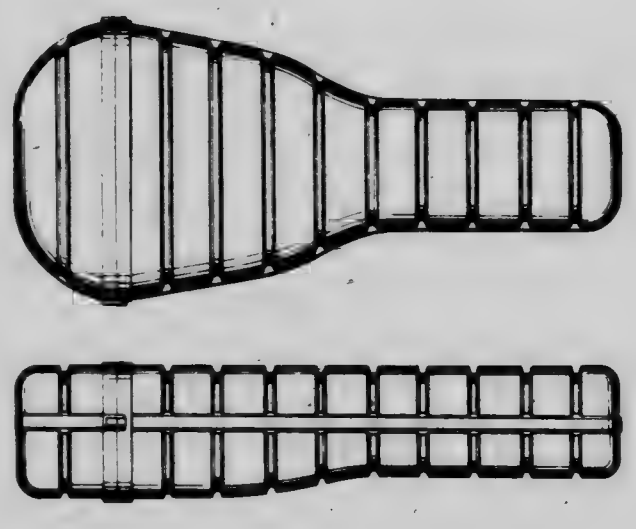
U.S. Cl. D2—309



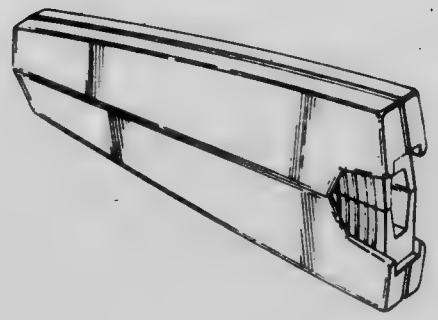
265,145
COLLAR CLIP OR THE LIKE
George E. Piorek, 1263 Thomas Ave., St. Paul, Minn. 55104
Filed Dec. 5, 1979, Ser. No. 100,450
Term of patent 14 years
Int. Cl. D2—*99*
U.S. Cl. D2—442



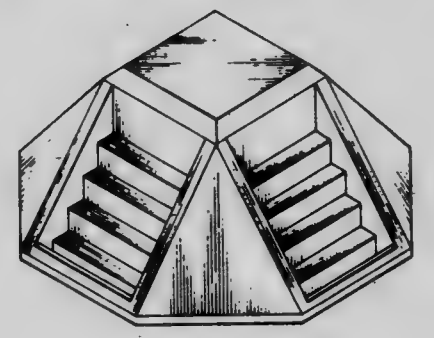
265,146
COVER FOR A MUSICAL INSTRUMENT CASE
Lance G. Rake, 358 S. Gay, Auburn, Ala. 36830, and Charles K. Collins, 11804 W. North Ave., Wauwatosa, Wis. 53226
Filed Mar. 20, 1980, Ser. No. 132,273
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—30.1



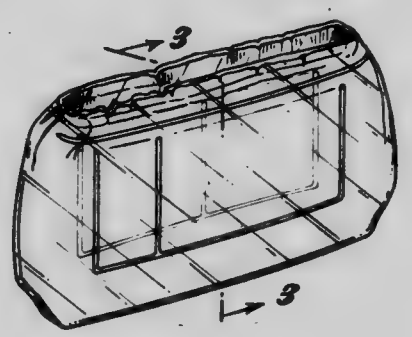
265,147
SCISSOR SCABBARD
Dennis B. Jackson, Nunawading, Australia, assignor to Wiltshire Consolidated Limited, South Melbourne, Australia
Filed May 8, 1980, Ser. No. 147,798
Claims priority, application Australia, Nov. 13, 1979, 79556
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—30.1



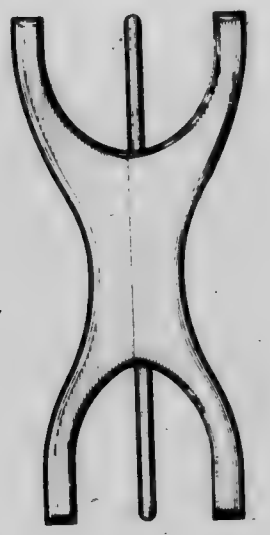
265,148
ROTATABLE CASSETTE TAPE STORAGE UNIT
Ronald W. Dwyhalo, 16736 Lahey St., Granada Hills, Calif. 91344
Continuation-in-part of Ser. No. 916,339, Jul. 10, 1978, abandoned. This application Jun. 26, 1980, Ser. No. 163,333
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—35



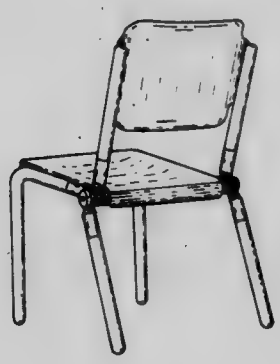
265,149
HAND BAG INSERT
Mary A. Romano, 13955 Coteau, Apt. 10, Whittier, Calif. 90604
Filed Nov. 6, 1979, Ser. No. 92,423
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—54



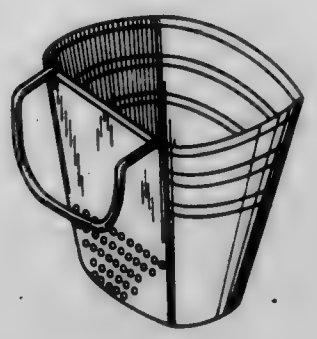
265,150
PLANT POT STAND
Maxwell E. Benedict, 6125 Shenandoah Dr., Sacramento, Calif. 95816
Filed May 15, 1980, Ser. No. 149,977
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—28



265,151
CHAIR OR SIMILAR ARTICLE
Ludwig Roner, Baden, Switzerland, assignor to Giroflex-Entwicklungs AG, Koblenz, Switzerland
Filed Oct. 15, 1979, Ser. No. 84,678
Claims priority, application Switzerland, Apr. 26, 1979, 68,710
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—78



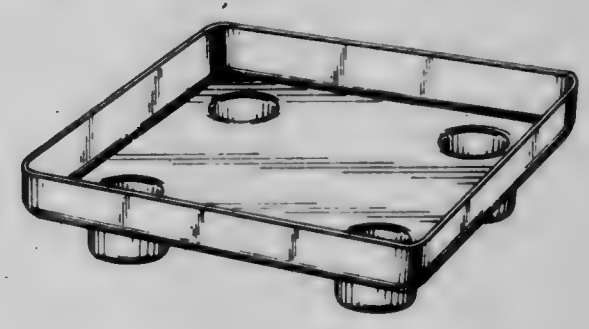
265,152
TOY HOLDER FOR USE IN BATHTUBS, SHOWERS OR THE LIKE
Jenna Bruno, and Georgia Vance, both of 229 SE. 1st St., Moore, Okla. 73160
Filed Jun. 27, 1980, Ser. No. 163,871
Term of patent 14 years
Int. Cl. D2—*02*; D6—*04*
U.S. Cl. D6—86



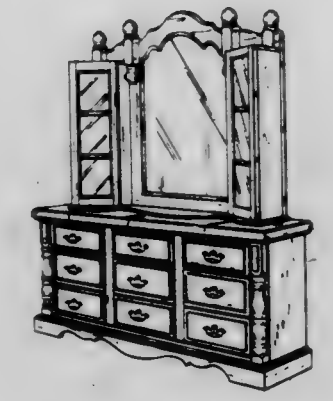
265,153
DESIGN FOR A HANGING SHELF
Richard F. Laurenzi, 278 Sterling Pl., Brooklyn, N.Y. 11238
Filed Jan. 28, 1980, Ser. No. 116,281
The portion of the term of this patent subsequent to Jun. 10, 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—113



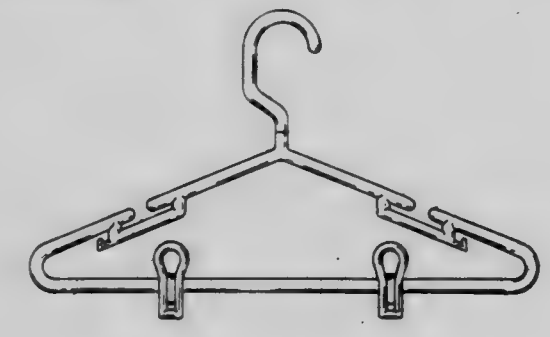
265,154
PORTABLE TRAY TABLE FOR USE PRIMARILY ON A BOAT
Richard D. Cox, Oakland County, Mich., assignor to Nautical Engineering Division of R & D Enterprises, Northville, Mich.
Filed Sep. 20, 1979, Ser. No. 77,085
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—138



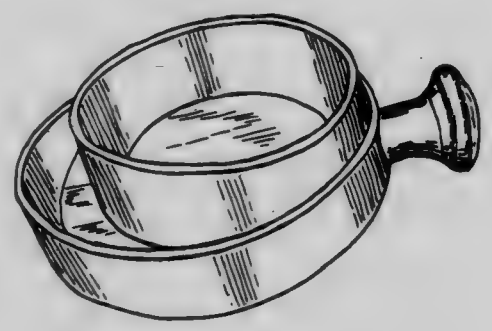
265,155
COMBINED DRESSER AND MIRROR UNIT
Anthony L. Bravo, Brea, Calif., assignor to Zeno Table Co., Inc., Santa Ana, Calif.
Filed Jul. 15, 1980, Ser. No. 169,222
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—154



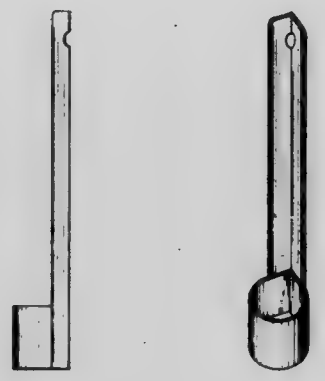
265,156
HANGER
Leonard Bisk, Elkins Park, and Gunther Rogahn, Lansdale, both of Pa., assignors to Independent Products Company, Inc., Lansdale, Pa.
Filed May 12, 1980, Ser. No. 148,896
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—253



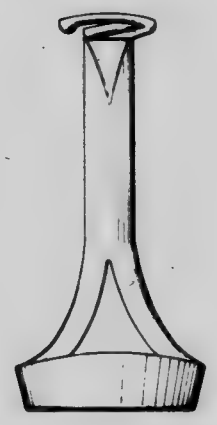
265,157
SOUP BOWL
Sharon K. A. McKeegan, 2016 Clinton, Alameda, Calif. 94501
Filed Sep. 29, 1977, Ser. No. 838,125
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—20

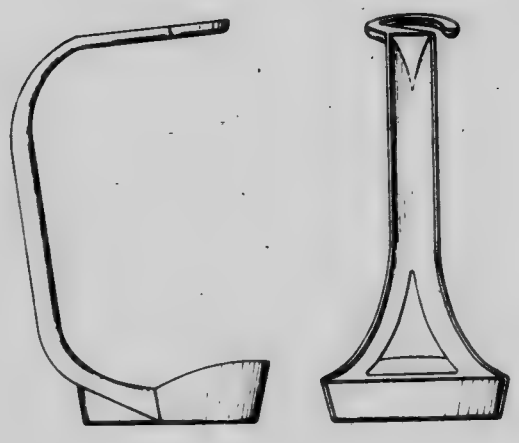


265,158
SPAGHETTI PORTION MEASURER
Allen H. Green, II, 1211 Prince Edward St., Fredericksburg, Va. 22401
Filed Mar. 24, 1980, Ser. No. 133,583
Term of patent 14 years
Int. Cl. D10—*04*; D07—*04*
U.S. Cl. D7—50



265,159
COMBINED BOTTLE HANDLE AND HOLDER
Mannie La Barbera, Chappaqua, N.Y., assignor to Coca-Cola Company, Atlanta, Ga.
Filed Jun. 6, 1980, Ser. No. 157,161
Term of patent 14 years
Int. Cl. D07—*99, 01*
U.S. Cl. D7—70

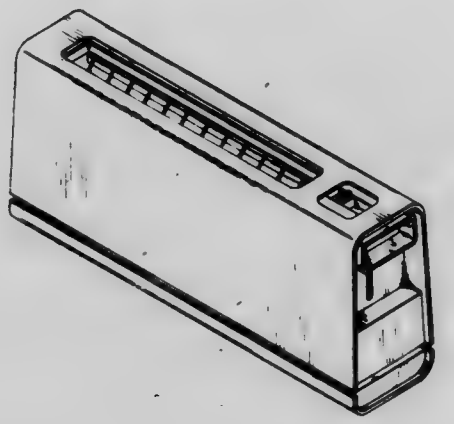


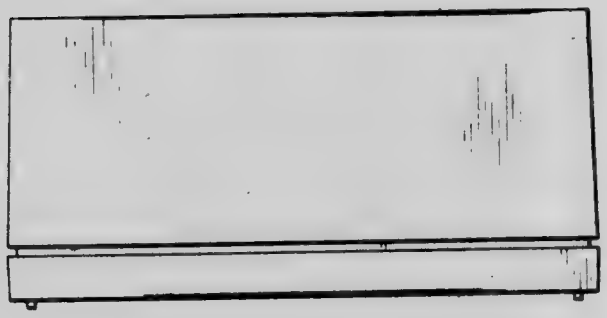


265,160
TOASTER

Craig B. Kelley, Wayne, Pa., assignor to SCM Corporation, New York, N.Y.

Filed Jul. 8, 1980, Ser. No. 167,085
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—93

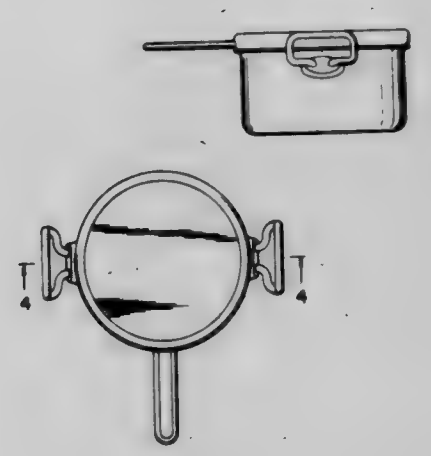


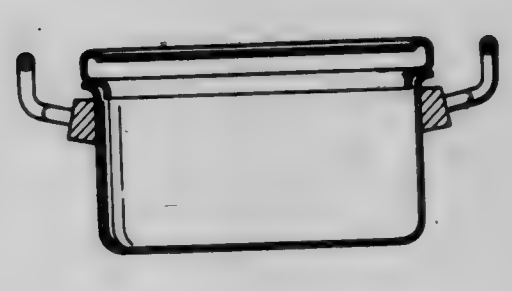


265,161
COVERED COOKING POT OR SIMILAR ARTICLE

Toshio Otake, Yoshida, Japan, assignor to Yoshikawa Metal Ware Kabushiki Kaisha, Japan

Filed Dec. 13, 1979, Ser. No. 103,296
Claims priority, application Japan, Jul. 10, 1979, 54-029009
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—97

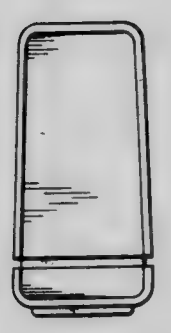


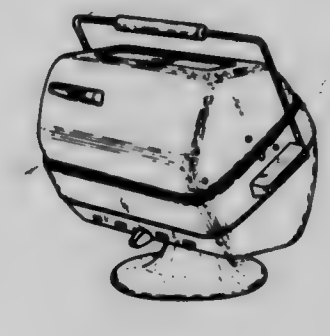


265,162
BARBEQUE GRILL

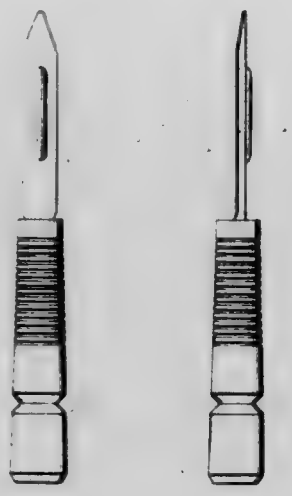
Emmett R. Bales, Morristown, Tenn., assignor to Metals Engineering Corporation, Greeneville, Tenn.

Filed Jul. 14, 1980, Ser. No. 168,586
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—110

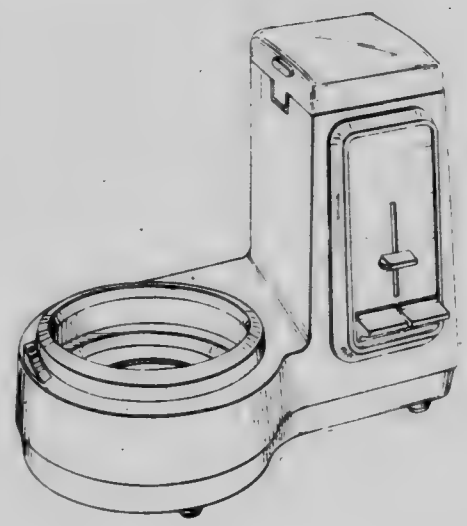


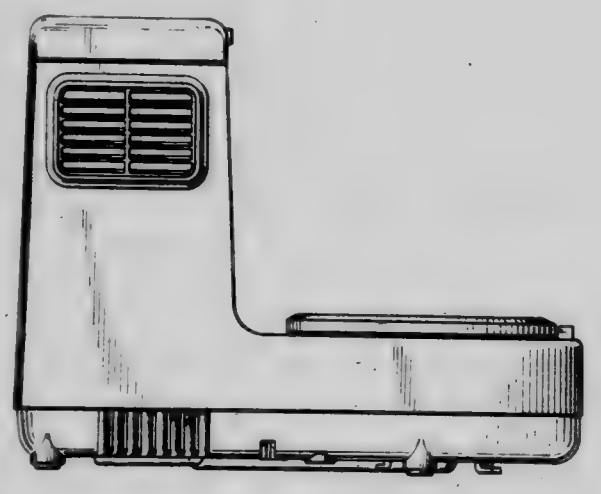


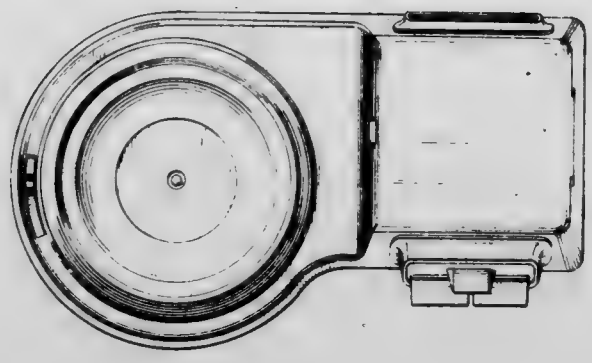
265,163
PEELER
Fred S. Steiner, 154 Combs Ave., Woodmere, N.Y. 11598
Filed Jul. 10, 1980, Ser. No. 168,434
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—147



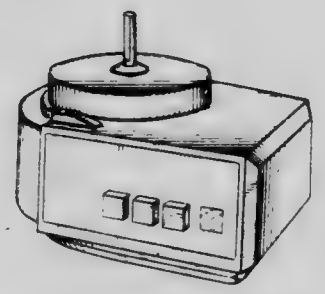
265,164
APPLIANCE-DRIVING UNIT FOR A FOOD-PROCESSING APPLIANCE
Robert O. Ernest, Oak Park, and Bernard B. Bluestein, Des Plaines, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed Jul. 11, 1980, Ser. No. 167,497
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—153

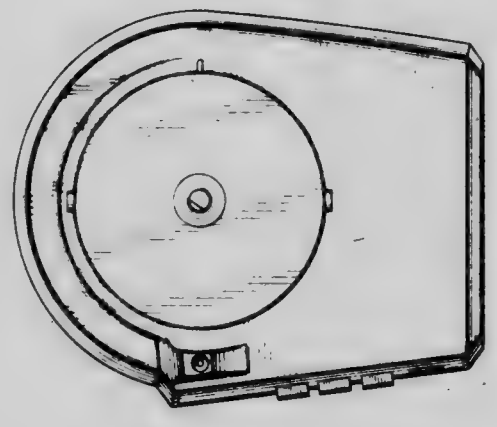




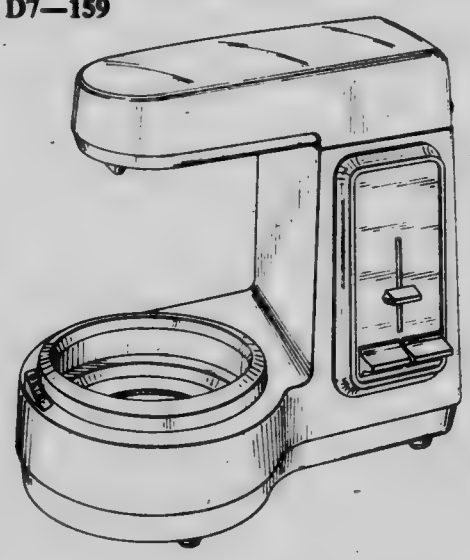


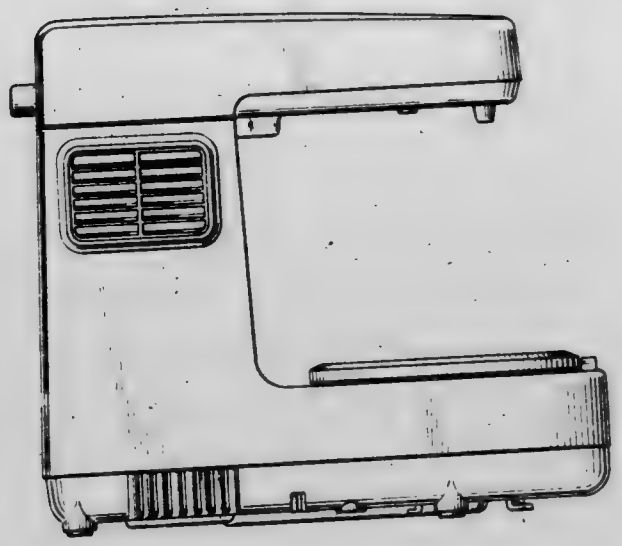
265,165
FOOD PROCESSOR BASE
Robert O. Ernest, Oak Park, and Richard K. Thomas, Elk Grove Village, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed Jun. 27, 1980, Ser. No. 163,833
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—153



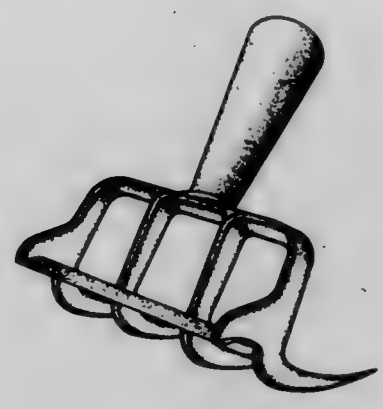


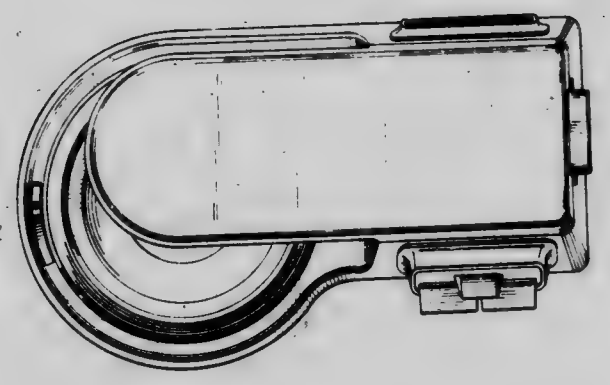
265,166
FOOD-MIXING APPARATUS
Robert O. Ernest, Oak Park, and Bernard B. Bluestein, Des Plaines, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed Jul. 11, 1980, Ser. No. 167,626
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—159



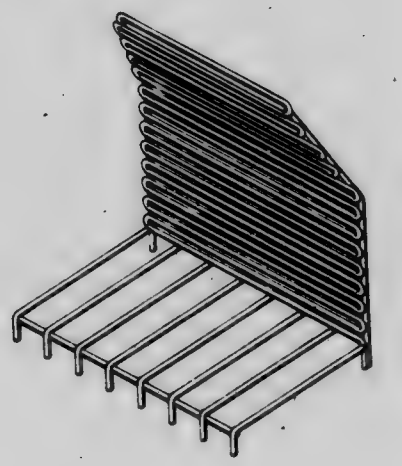


265,168
COMBINATION CUTTER AND CULTIVATOR TOOL HEAD
Ron Zabarte, 1757 Tice Valley Blvd., Walnut Creek, Calif. 94595
Filed Apr. 7, 1980, Ser. No. 138,506
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—06

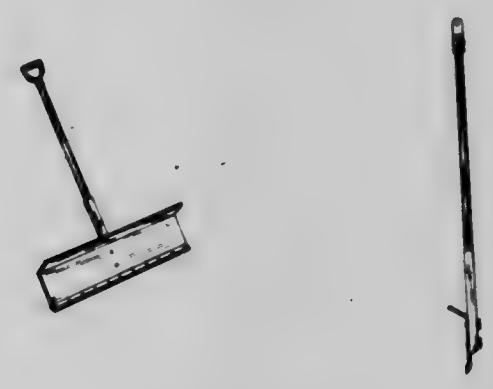




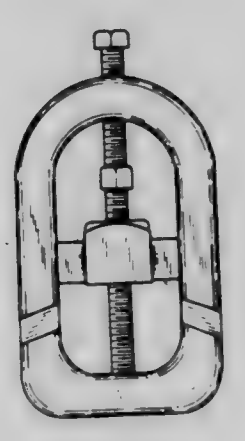
265,167
COMBINED GRATE AND WATER HEATER INSERT FOR WOOD BURNING FIREPLACE
Adolph Cordova, 1249 43rd Ave., Sacramento, Calif. 95822
Filed Jul. 31, 1980, Ser. No. 173,986
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D7—207



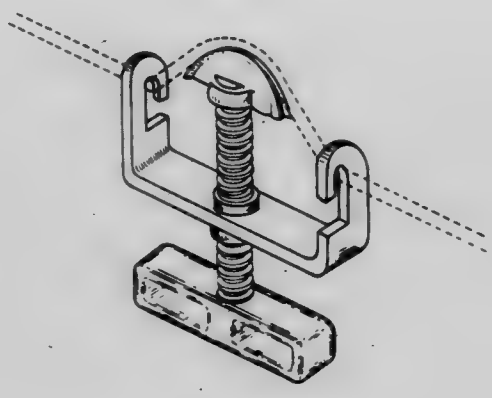
265,169
SNOW REMOVAL TOOL
Donald E. Bunnell, 1103-3rd St. NE., and Eldor A. Kintzi, 813-1st St. SE., both of Belmond, Iowa 50421
Filed Apr. 11, 1980, Ser. No. 139,466
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—10



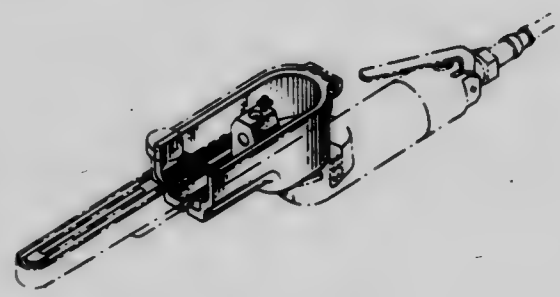
265,170
HEAVY DUTY LINE TIGHTENER
Robert C. Zukaitis, 7192 Mohawk Trail, Yucca Valley, Calif. 92284
Filed Jul. 21, 1980, Ser. No. 172,223
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—44



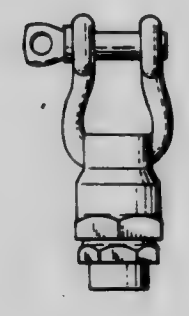
265,171
LINE TIGHTENER
Robert C. Zukaitis, 7192 Mohawk Trail, Yucca Valley, Calif. 92284
Filed Jul. 21, 1980, Ser. No. 172,461
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—44



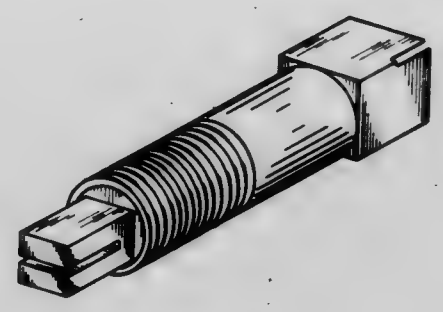
265,172
CASING FOR A PORTABLE BELT GRINDER
Elwin H. Fleckenstein, Alden, and Walter N. Welsch, Tonawanda, both of N.Y., assignors to Dynabrade, Inc., Tonawanda, N.Y.
Filed Apr. 16, 1980, Ser. No. 140,845
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—62



265,173
ROPE SHACKLE
Kenneth Brooks, 469 S. Delaware Ave., Lindenhurst, N.Y. 11757
Filed May 16, 1980, Ser. No. 150,314
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—356



265,174
EYEGLASS TEMPLE SCREW OR THE LIKE
Raymond J. Boyle, 244 Chemung St., Corning, N.Y. 14830
Filed May 27, 1980, Ser. No. 153,151
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—387



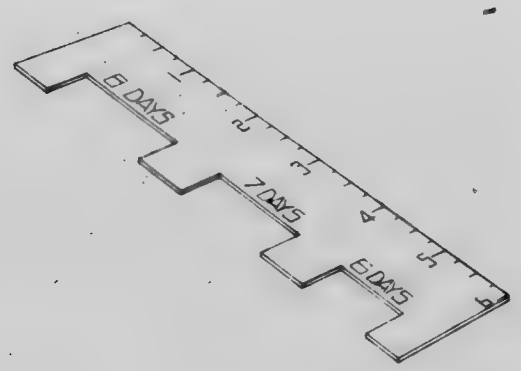
265,175
STRAP FASTENER FOR SKI EQUIPMENT OR SIMILAR ARTICLE
Edward A. Lloyd, Box 158, Scotia, N.Y. 12302
Filed Jun. 23, 1980, Ser. No. 162,249
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—394



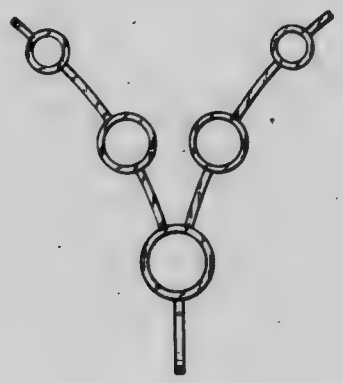
265,176
PACKING DRUM
Erik Bock, Kirke Hyllinge, Denmark, assignor to Superfos Emballage A/S, Vipperod, Denmark
Filed Dec. 22, 1978, Ser. No. 972,418
Claims priority, application Denmark, Jun. 23, 1978, 495
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—352



265,177
AID FOR THE ADDITION OF COLUMNAR ARRANGED DRIVING HOURS
Harold E. Skinner, 2744 Kismet Way, Eugene, Oreg. 97405
Filed Jul. 11, 1980, Ser. No. 167,664
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—64



265,178
PENDANT SETTING FOR GEMS
Robert G. Musillo, 5481 Wolf Dr., Pittsburgh, Pa. 15236
Filed Jun. 9, 1980, Ser. No. 157,316
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—91



265,179
PENDANT SETTING FOR GEMS
Robert G. Musillo, 5481 Wolf Dr., Pittsburgh, Pa. 15236
Filed Jun. 9, 1980, Ser. No. 157,317
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—91



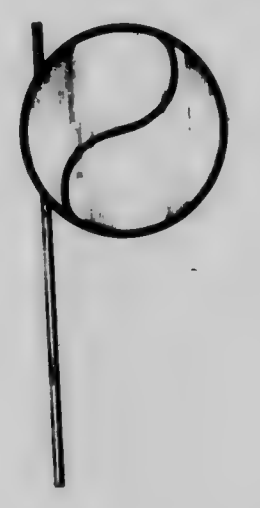
265,180
FIGURINE OF A GERMAN SHEPHERD PUP
Jesus A. Carvajales Santa-Eulalia, and Javier B. Carvajales Santa-Eulalia, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed Mar. 31, 1980, Ser. No. 135,454
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158



265,181
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Jan. 28, 1980, Ser. No. 116,108
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



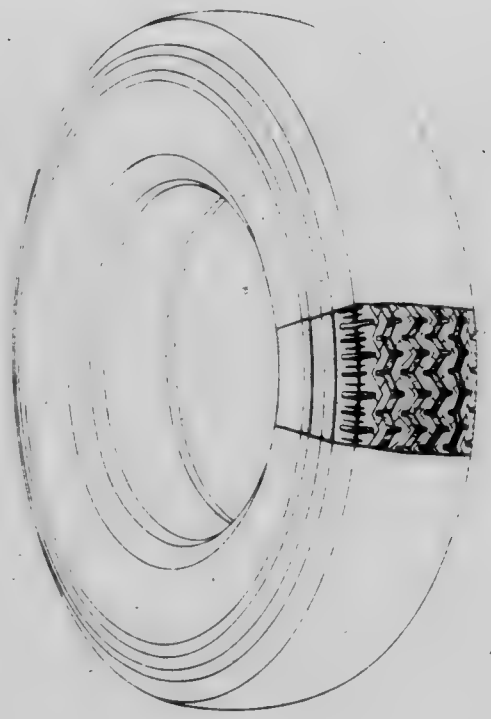
265,182
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,265
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166



265,183
TIRE

Guy Amarger, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

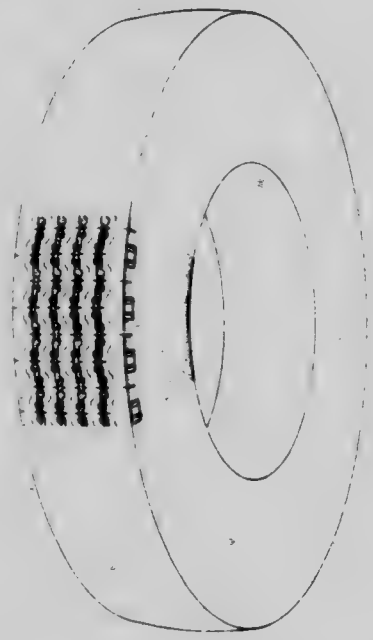
Filed Jul. 25, 1980, Ser. No. 172,189
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—143



265,184
TIRE

Philip S. Hammond, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

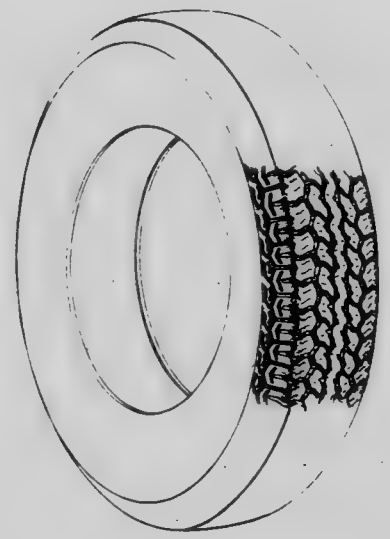
Filed Oct. 14, 1980, Ser. No. 195,956
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—143



265,185
VEHICLE TIRE

Hubert Grohmann, Gislaved; Kent-Ove Holmen, Smalandsstenar, and Halvard Nilsson, Gislaved, all of Sweden, assignors to Gislaved Aktiebolag, Gislaved, Sweden

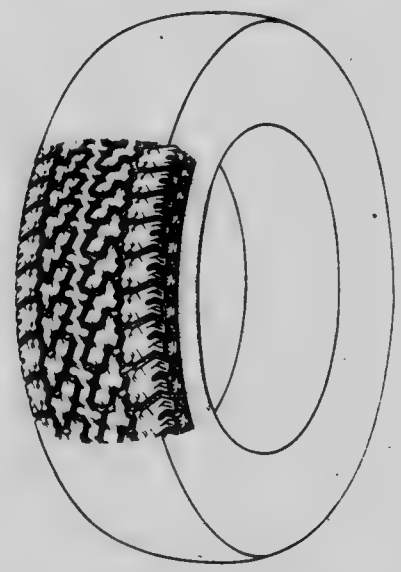
Filed Sep. 9, 1980, Ser. No. 185,614
Claims priority, application Sweden, Mar. 10, 1980, 80486
Term of patent 7 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



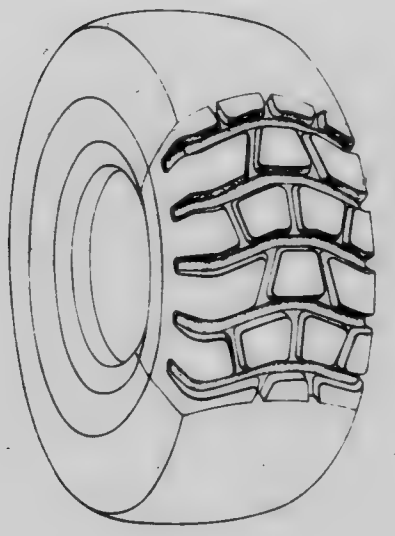
265,186
TIRE

Warren T. Karlyn, Cuyahoga Falls, and Daniel J. Lindner, Canal Fulton, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

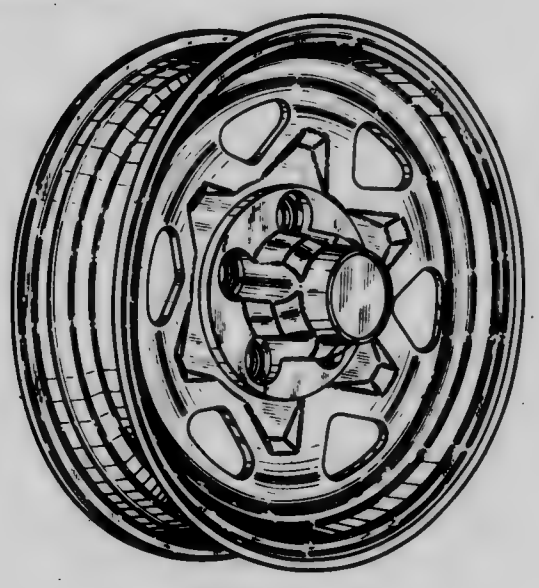
Filed Jul. 21, 1980, Ser. No. 170,417
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—147



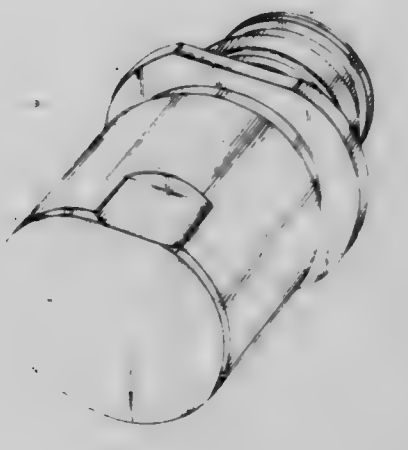
265,187
TIRE
Antoine Raluy, Bouzel, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France
Filed Jun. 12, 1980, Ser. No. 158,723
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—149

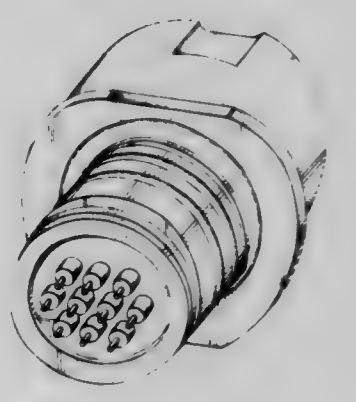


265,188
VEHICLE WHEEL
Donald J. Reid, Pleasant Ridge, Mich., assignor to Kelsey-Hayes Co., Romulus, Mich.
Filed Jan. 25, 1980, Ser. No. 115,320
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—211

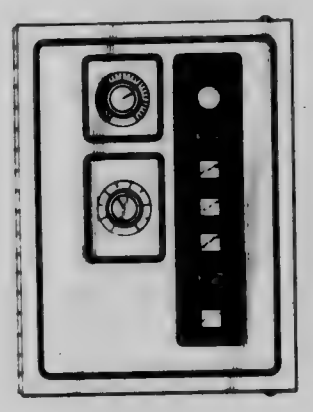


265,189
CODE PLUG FOR A RAILWAY SIGNAL BEACON
Sven G. Eriksson, Grabo, and Bo A. Morwing, Lindome, both of Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden
Filed Jun. 5, 1979, Ser. No. 45,760
Claims priority, application Sweden, Dec. 11, 1978, 78002904
Term of patent 14 years
Int. Cl.[3] D13—*03*
U.S. Cl. D13—12

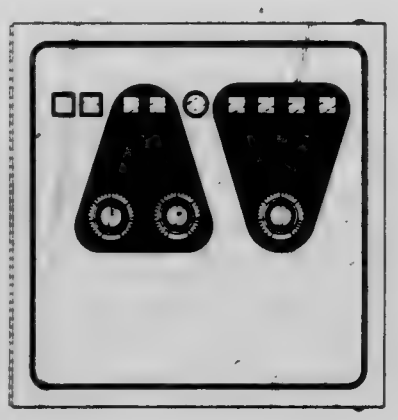




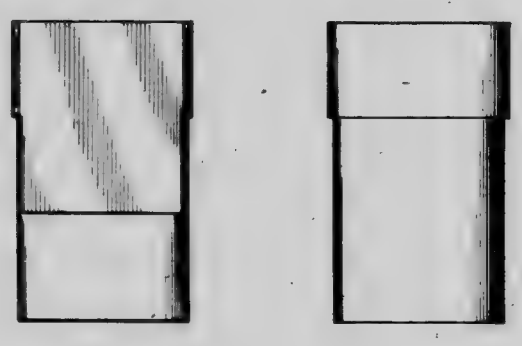
265,190
CONTROL UNIT
Hoy R. Bohanon, Sr., Muskogee, Okla., assignor to Acme Engineering & Manufacturing Corporation, Muskogee, Okla.
Filed Jun. 25, 1980, Ser. No. 162,924
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—12



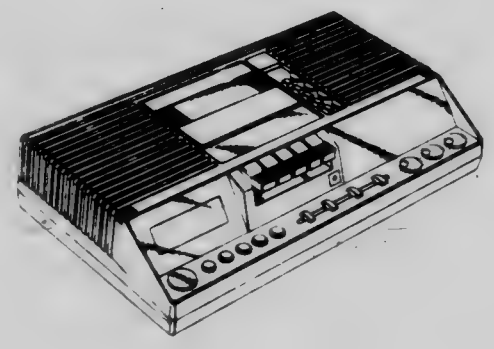
265,191
CONTROL UNIT
Hoy R. Bohanon, Sr., Muskogee, Okla., assignor to Acme Engineering & Manufacturing Corporation, Muskogee, Okla.
Filed Jul. 7, 1980, Ser. No. 166,369
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—12



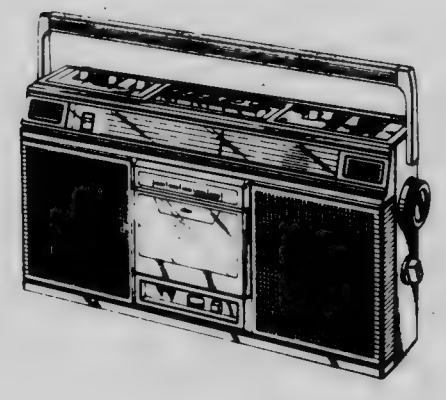
265,192
RESET BUTTON EXTENDER FOR COMPUTERS OR THE LIKE
Peter E. Noeth, Jr., 1405 Phelps #2, San Jose, Calif. 95117
Filed May 9, 1980, Ser. No. 149,238
Term of patent 14 years
Int. Cl. D13—*03;* D14—*02*
U.S. Cl. D13—38



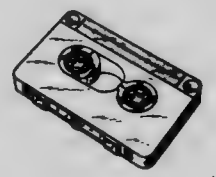
265,193
COMBINED CLOCK RADIO AND CASSETTE PLAYER
Pak T. Fung, Hong Kong, Hong Kong, assignor to Baro Far East Limited, Hong Kong, Hong Kong
Filed Jan. 22, 1980, Ser. No. 114,314
Claims priority, application United Kingdom, Jul. 23, 1979, 990847
Term of patent 14 years
Int. Cl. D14—*01, 03;* D10—*01*
U.S. Cl. D14—5



265,194
COMBINED RADIO RECEIVER AND TAPE RECORDER
Katsutoshi Kido, Kyoto, and Satoru Usami, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Sep. 30, 1980, Ser. No. 192,403
Claims priority, application Japan, Apr. 2, 1980, 55-13165
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D14—5



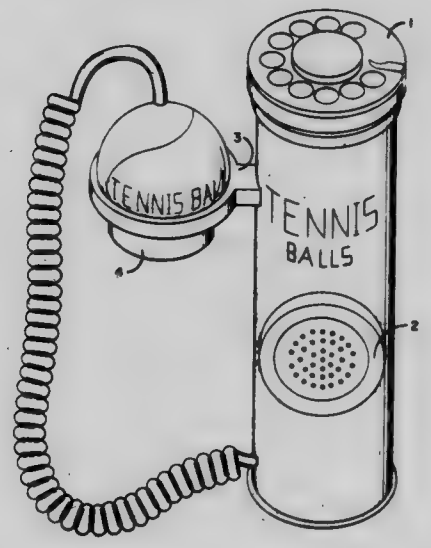
265,195
MAGNETIC TAPE CASSETTE
Willem A. Slingerland, Vught, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 828,178, Aug. 26, 1977, abandoned, and a continuation of Ser. No. 828,179, Aug. 26, 1977, abandoned.
This application Jun. 4, 1979, Ser. No. 45,574
Claims priority, application Benelux, Mar. 2, 1977, 51705-02
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—11



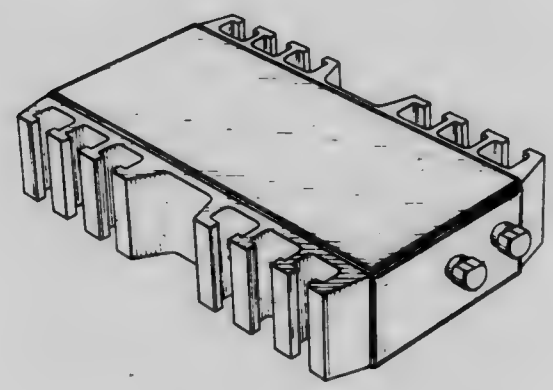
265,196
RECORD PLAYER
Katsuya Matsumura, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan
Filed Aug. 16, 1979, Ser. No. 62,250
Claims priority, application Japan, Jan. 29, 1979, 54/3288
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—14



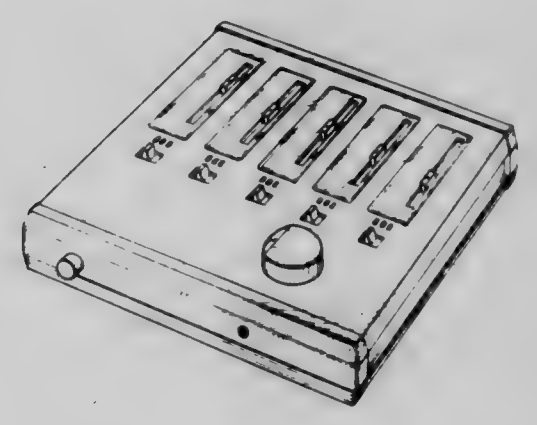
265,197
TELEPHONE
Clifford R. Jones, 307 Buckeye Trail, Austin, Tex. 78746
Filed Jun. 9, 1980, Ser. No. 157,964
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



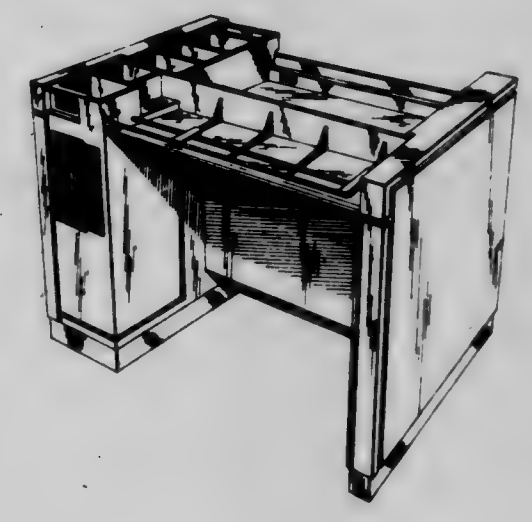
265,198
ELECTRONIC POWER AMPLIFIER
Hari Matsuda, Skokie, Ill., assignor to International Jensen Incorporated, Schiller Park, Ill.
Filed May 13, 1980, Ser. No. 149,454
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—96



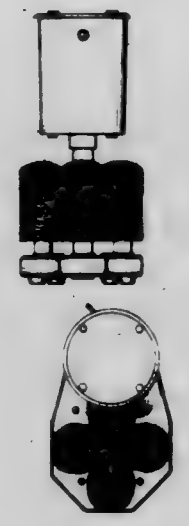
265,199
ELECTRONIC GRAPHIC EQUALIZER OR THE LIKE
Keith F. Urban, Elk Grove Village, and Hari Matsuda, Skokie, both of Ill., assignors to International Jensen Incorporated, Schiller Park, Ill.
Filed May 13, 1980, Ser. No. 149,455
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—96



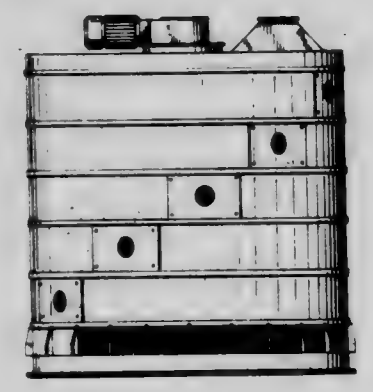
265,200
COMPUTER CONSOLE
John H. Pedersen, Birmingham; John Stencel, Jr., Bloomfield Hills; Richard W. Reaume, Farmington Hills; Robert T. Rourke, Troy; Michael N. Tranquilla, Livonia, and Michael A. Saunders, Farmington, all of Mich., assignors to Burroughs Corporation, Detroit, Mich.
Filed Apr. 2, 1980, Ser. No. 136,743
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—103

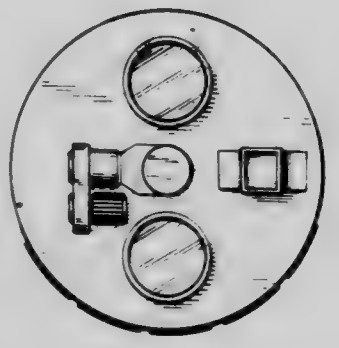


265,201
GLASSWASHER
Henry A. Salem, Lynnfield, Mass., assignor to Brite Way Corporation, Woburn, Mass.
Filed Nov. 30, 1979, Ser. No. 98,950
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D32—2

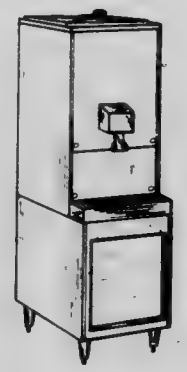


265,202
ROTARY REFRIGERATOR FOR THE COOLING OF FODDER PILLS MADE BY A PILL PRESS
Flemming J. Thomsen, Odense, Denmark, assignor to Nordivan Engineering Aps, Denmark
Filed Feb. 25, 1980, Ser. No. 124,073
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D15—79

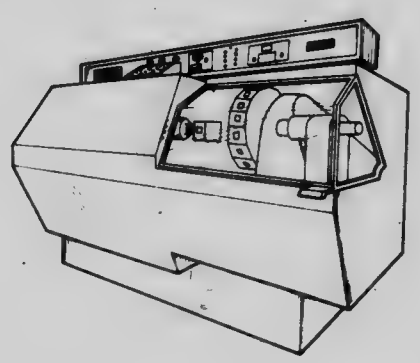




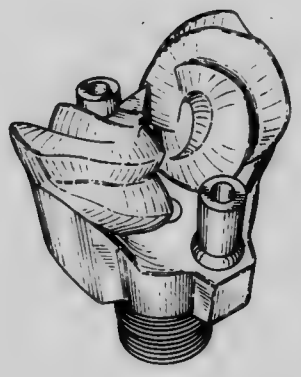
265,203
SANITARY MACHINE FOR STORING AND DISPENSING PARTICULATE ICE
Charles M. Lents, Leon Valley, Tex., assignor to Stainless Ice-Tainer Company, San Antonio, Tex.
Filed Jun. 2, 1980, Ser. No. 155,326
Term of patent 14 years
Int. Cl. D15—*07*
U.S. Cl. D15—80



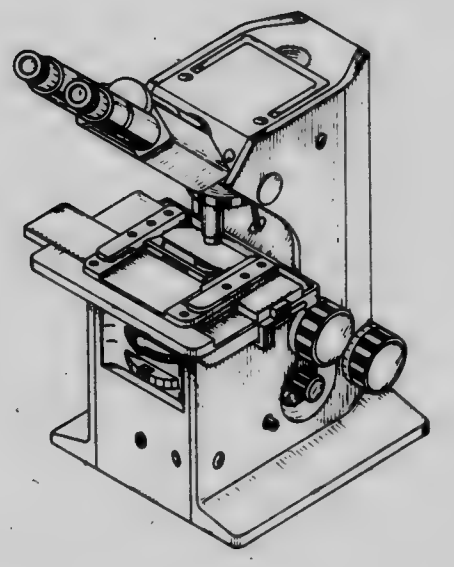
265,204
NUMERICALLY CONTROLLED LATHE
Manuel C. Turchan, Dearborn, Mich., and Harry D. Mackie, Palatine, Ill., assignors to Turchan, Inc., Dearborn, Mich.
Filed Jun. 30, 1980, Ser. No. 164,401
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—130



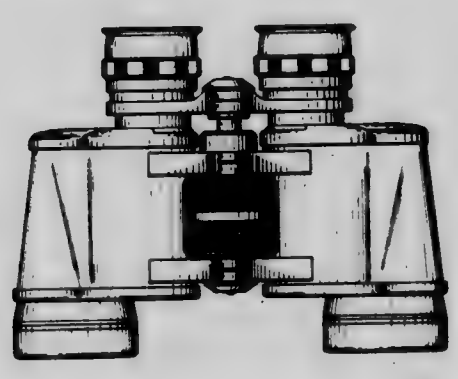
265,205
DRILL BIT
Beauford E. Munson, 1002 Yale, Butte, Mont. 59701
Filed Apr. 24, 1980, Ser. No. 143,502
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—139



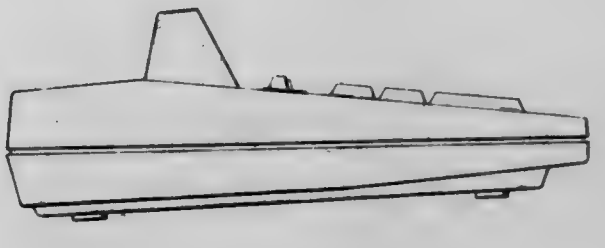
265,206
COMPACT MICROSCOPE
Klaus Weber, Köngisbronn, and Erich Stütz, Aalen, both of Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany
Filed Apr. 2, 1980, Ser. No. 136,549
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1979, GR I 2467/79
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—131



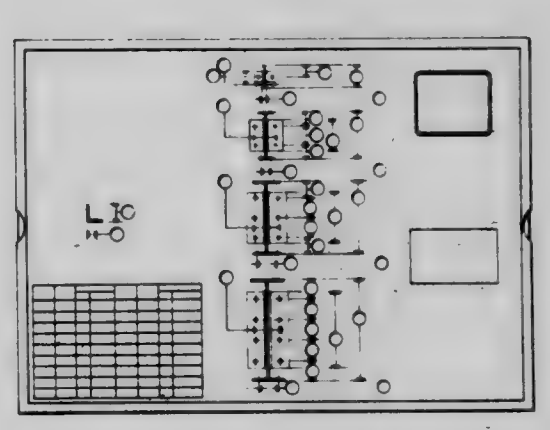
265,207
PAIR OF BINOCULARS OR SIMILAR ARTICLE
George Rosenfield, Coral Gables, and Richard L. Korte, Miami, both of Fla., assignors to Tasco Sales, Inc., Miami, Fla.
Filed Aug. 1, 1978, Ser. No. 930,109
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—133



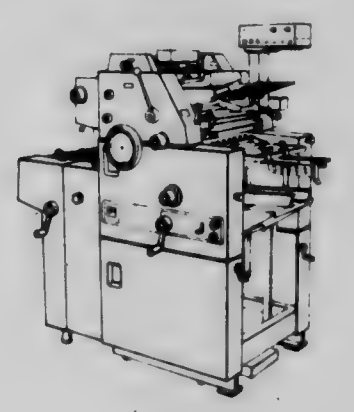
265,208
CALCULATOR
Robert T. Faranda, Boonton, and Stuart D. Leer, Budd Lake, both of N.J., assignors to Litton Business Systems, Inc., Morris Plains, N.J.
Filed Oct. 29, 1979, Ser. No. 89,598
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—7



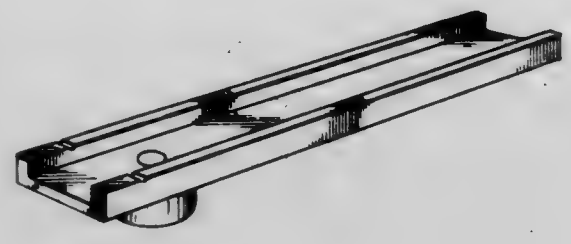
265,209
SLIDE CALCULATOR FOR METAL BEAM DIMENSIONS
Francois Aiello, 32, Le Panorama, Martigues, France
Filed Aug. 8, 1979, Ser. No. 37,910
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D18—9



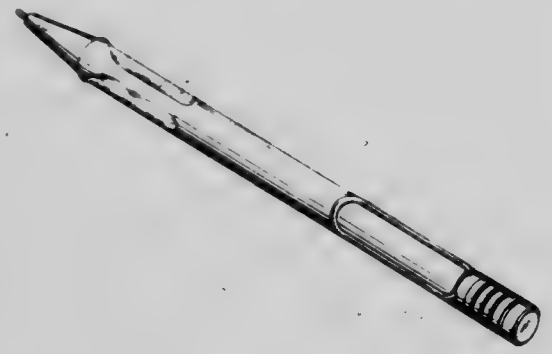
265,210
PRINTING MACHINE
Etsuo Hitaishi, Hiroshima, and Takeshi Shohoji, Fukuyama, both of Japan, assignors to Ryobi, Ltd., Hiroshima, Japan
Filed Jul. 16, 1980, Ser. No. 169,244
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D18—13



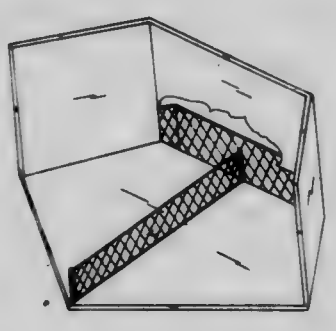
265,211
SCRIBING RULE GUIDE OR SIMILAR ARTICLE
Joseph L. Knight, P.O. Box 150, Knox, Pa. 16232
Filed Jun. 21, 1979, Ser. No. 50,815
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D19—35



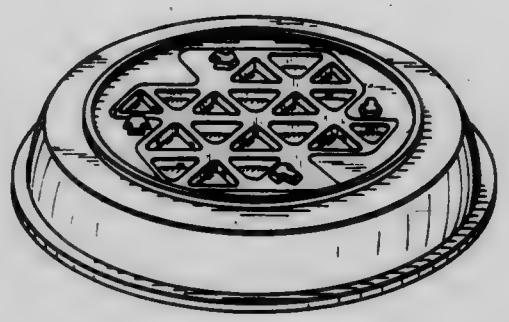
265,212
BALLPOINT PEN
Bernt Spiegel, Edingen, Fed. Rep. of Germany, assignor to C. Josef Lamy GmbH, Fed. Rep. of Germany
Filed Aug. 25, 1980, Ser. No. 181,204
Claims priority, application Fed. Rep. of Germany, Feb. 29, 1980, G 30
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—47



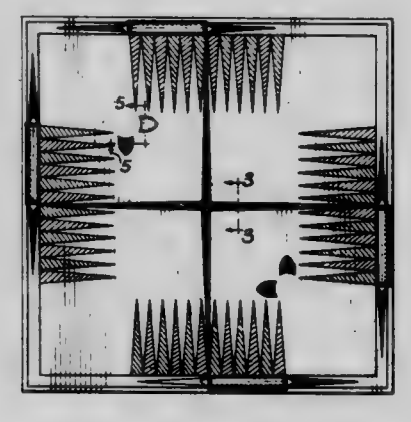
265,213
TABLE BAT AND BALL GAME DEVICE
Michael A. Spalding, 1540 McKinley Ave., Huntsville, Ala. 35801
Filed Feb. 11, 1980, Ser. No. 120,280
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—14



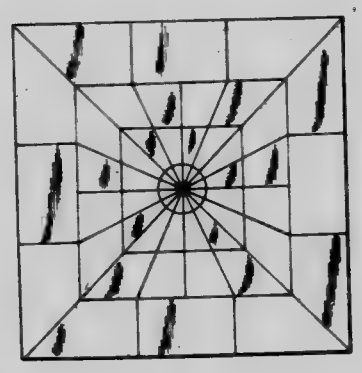
265,214
GAME BOARD
Leonard H. Israel, 817 20th St., Apt. 103-S, Santa Monica, Calif. 90403, and Perry J. Grant, 727 Ocampo Dr., Pacific Palisades, Calif. 90272
Filed Feb. 19, 1980, Ser. No. 122,268
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—17



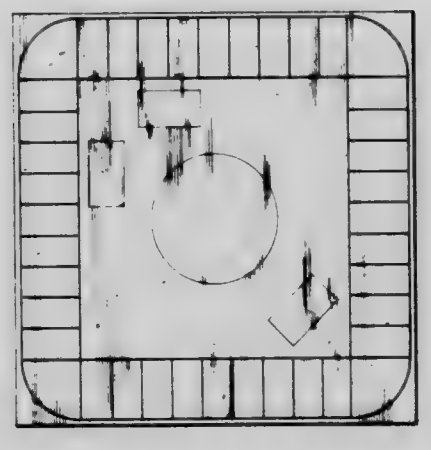
265,215
GAMEBOARD
Jacob Rosen, 8171 Vincetta Dr., La Mesa, Calif. 92041
Filed May 24, 1979, Ser. No. 42,207
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—34



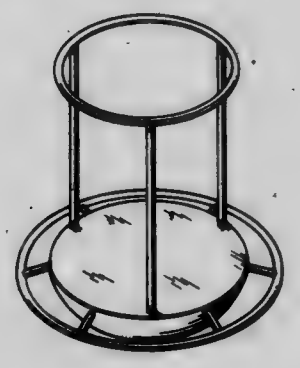
265,216
GAME BOARD
Bobby J. Tammen, Rte. 2 - Box 233, Colorado City, Tex. 79512
Filed Jul. 28, 1980, Ser. No. 173,089
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—34



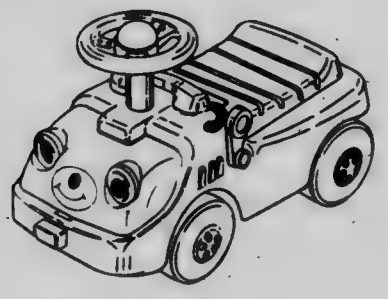
265,217
GAME BOARD
Ronald Craig, and Susan Craig, both of South Indian Lake, Canada, assignors to Boodjie Enterprises Ltd., Winnipeg, Canada
Filed Jan. 9, 1980, Ser. No. 110,799
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—35



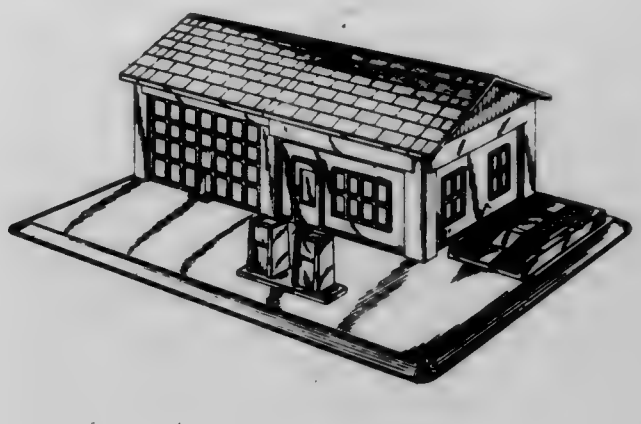
265,218
ROCKING TOY
Donald C. Robinett, 19427 Leal Cir., Cerritos, Calif. 90701
Filed Aug. 4, 1980, Ser. No. 175,304
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—66



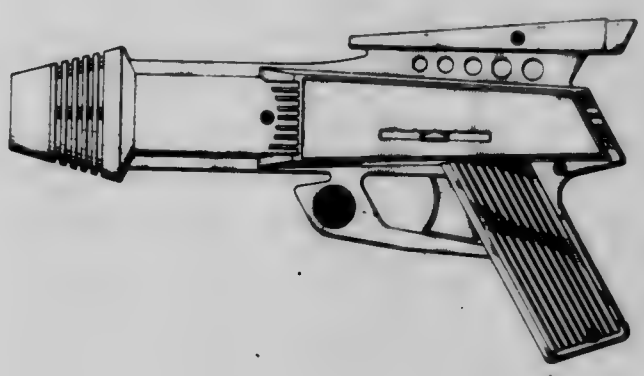
265,219
TOY VEHICLE
Kenzou Kassai, Osaka, Japan, assignor to Kassai Kabushikikaisha, Osaka, Japan
Filed Apr. 11, 1979, Ser. No. 29,071
Claims priority, application Japan, Oct. 11, 1978, 53-43286
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—78



265,220
TOY GARAGE
Henry Orenstein, 136 Lakeside Ave., Verona, N.J. 07044
Filed Jul. 7, 1980, Ser. No. 165,860
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—118



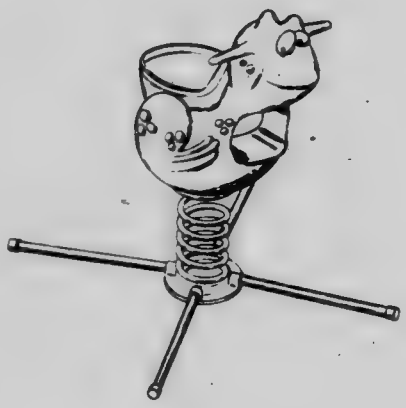
265,221
TOY GUN
Charles H. Hardin, Nashville, Tenn., assignor to Kusan, Inc., Nashville, Tenn.
Filed Sep. 7, 1979, Ser. No. 73,442
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—147



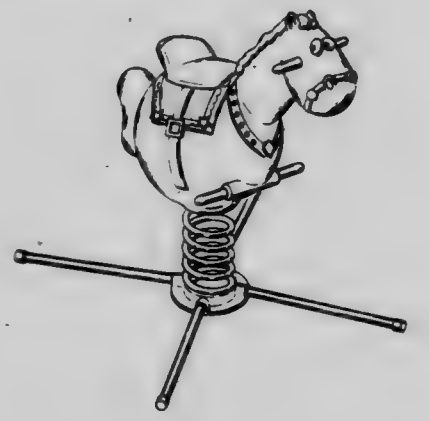
265,222
NOISE MAKER ATTACHMENT FOR ROLLER SKATES
Ronald D. Kay, Fort Worth, Tex., assignor to John H. Sparks Property Services, Inc., Fort Worth, Tex.
Filed Jan. 4, 1980, Ser. No. 109,475
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—226



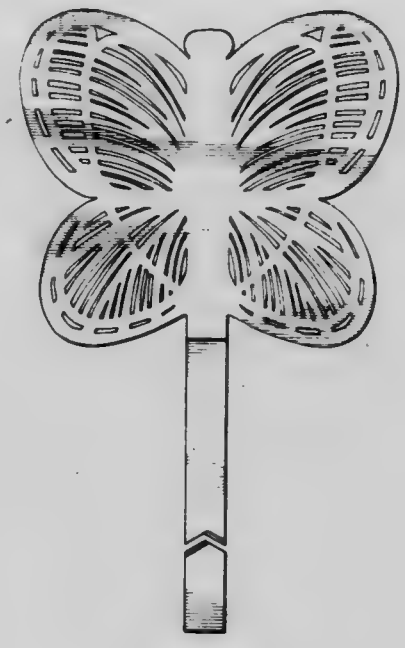
265,223
SPRING MOUNTED RIDING TOY
Roger J. Bollen, Willoughby Hills; William A. Erdos, Peninsula, and Roger H. Ramsey, Akron, all of Ohio, assignors to Eagle Rubber Co., Inc., Ashland, Ohio
Filed Jun. 30, 1980, Ser. No. 164,896
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—247



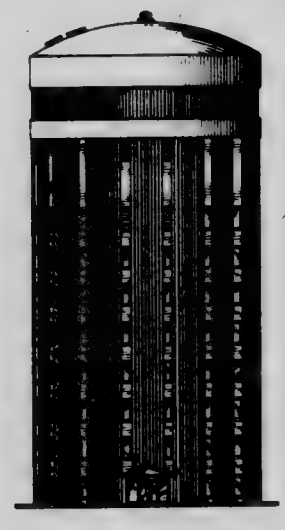
265,224
SPRING MOUNTED RIDING TOY
Roger J. Bollen, Willoughby Hills; William A. Erdos, Peninsula, and Roger H. Ramsey, Akron, all of Ohio, assignors to Eagle Rubber Co., Inc., Ashland, Ohio
Filed Jun. 30, 1980, Ser. No. 164,897
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—247



265,225
FLY SWATTER
Harry S. Oakes, 573 Smithbridge Rd., Glen Mills, Pa. 19342
Filed Nov. 2, 1979, Ser. No. 90,651
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—20



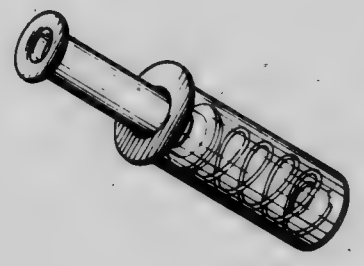
265,226
COMBINED WATER STORAGE TANK AND BUILDING
J. Keith Carlat, and John O. Cliff, both of Franklin, Tenn., assignors to Pittsburgh-Des Moines Corporation, Pittsburgh, Pa.
Filed Jun. 3, 1980, Ser. No. 156,251
Term of patent 14 years
Int. Cl. D23—*01;* D25—*03*
U.S. Cl. D23—2



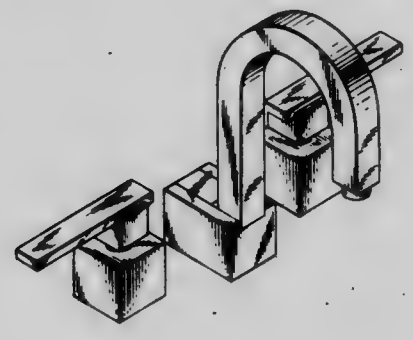
265,227
WATER PURIFICATION UNIT
F. Carlton Jolley, 68C Federal Rd., Englishtown, N.J. 07726
Filed Mar. 17, 1980, Ser. No. 131,244
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—3



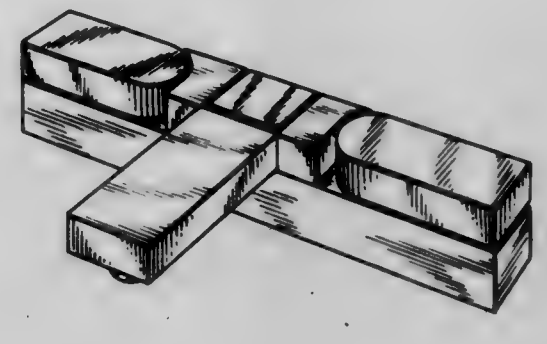
265,228
FLUSH VALVE CLOSER
James H. Jenkins, 6010 N. 26th St., Arlington, Va. 22207
Filed Apr. 10, 1980, Ser. No. 138,890
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19



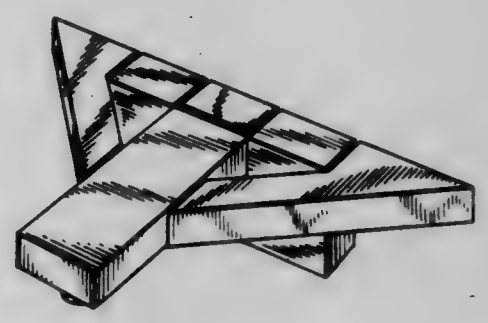
265,229
FAUCET SET
Stanley M. Paul, Rye, N.Y., assignor to Paul Associates, Inc., New York, N.Y.
Filed Jun. 17, 1980, Ser. No. 160,352
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—25



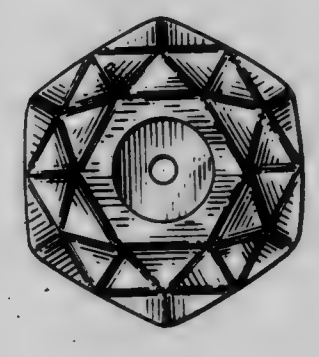
265,230
FAUCET SET
Stanley M. Paul, Rye, N.Y., assignor to Paul Associates, Inc., New York, N.Y.
Filed Jun. 17, 1980, Ser. No. 160,353
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—25



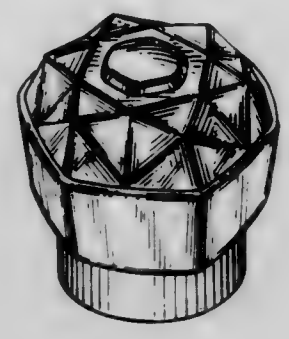
265,231
FAUCET SET
Stanley M. Paul, Rye, N.Y., assignor to Paul Associates, Inc., New York, N.Y.
Filed Jun. 17, 1980, Ser. No. 160,398
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—25



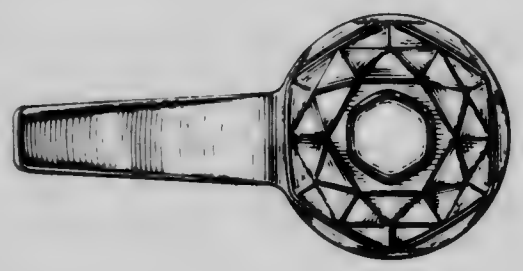
265,232
LENS FOR FAUCET HANDLE AND THE LIKE
John P. Ronvik, Palos Heights, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed Jun. 6, 1980, Ser. No. 157,121
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—28



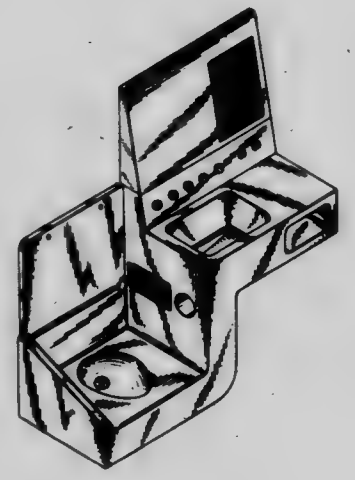
265,233
FAUCET HANDLE AND THE LIKE
John P. Ronvik, Palos Heights, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed Jun. 6, 1980, Ser. No. 157,122
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—28



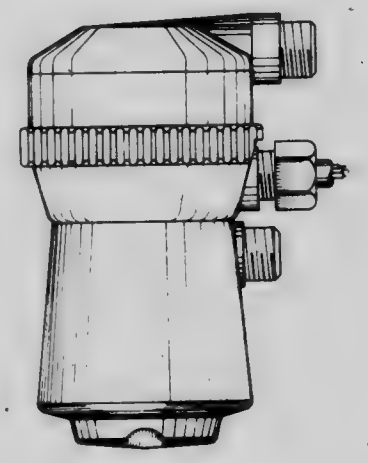
265,234
FAUCET HANDLE AND THE LIKE
John P. Ronvik, Palos Heights, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed Jun. 6, 1980, Ser. No. 157,123
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—29



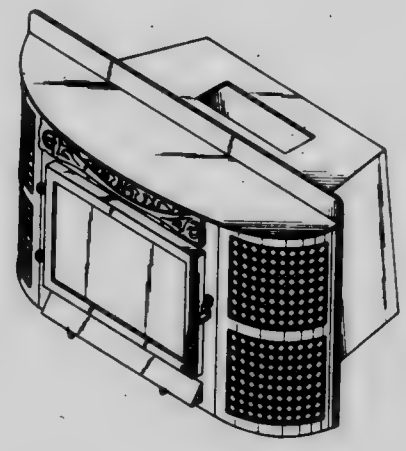
265,235
COMBINED WATER CLOSET AND LAVATORY
Ernest Keller, 605 Water St., New York, N.Y. 10002
Filed Mar. 14, 1980, Ser. No. 130,549
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—49



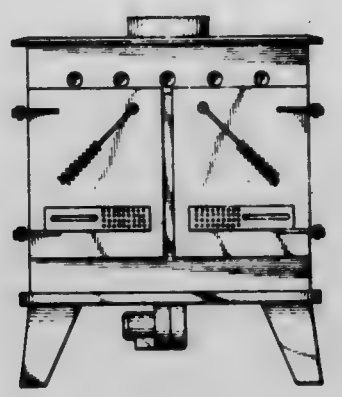
265,236
ELECTRIC WATER HEATER
Amilcar F. Yamin, Sao Paulo, Brazil, assignor to Produtos Eletricos Corona Ltda., Guarulhos, Brazil
Filed Apr. 23, 1979, Ser. No. 32,216
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—88



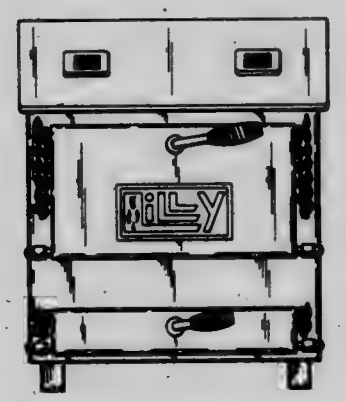
265,237
FIREPLACE INSERT
Donald Beck; Hugh N. Johnson, both of North Vancouver, and Haydn Jones, Burnaby, all of Canada, assignors to M.G.F. Distributors Ltd., North Vancouver, Canada
Filed Jun. 30, 1980, Ser. No. 164,201
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—94



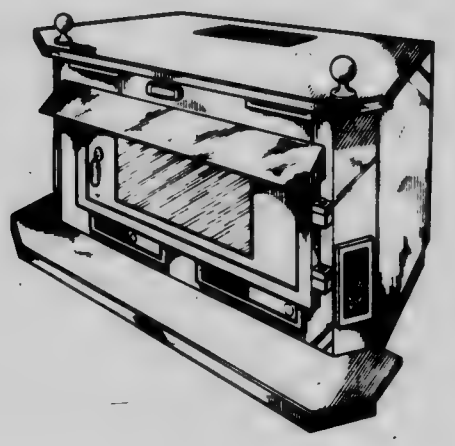
265,238
STOVE
Jesse C. Anderson, Box 76, Salina, Utah 84654
Filed Jul. 25, 1980, Ser. No. 172,410
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



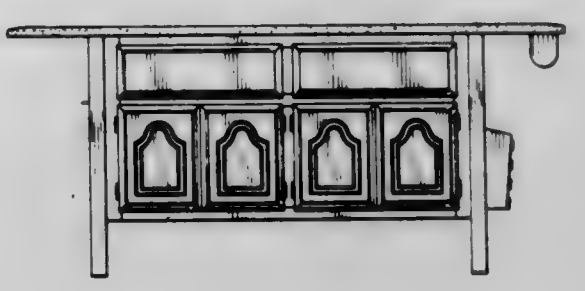
265,239
STOVE
Wilbur E. Lilly, Rte. 2, Mt. Gilead, Ohio 43338
Filed Sep. 8, 1980, Ser. No. 184,937
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



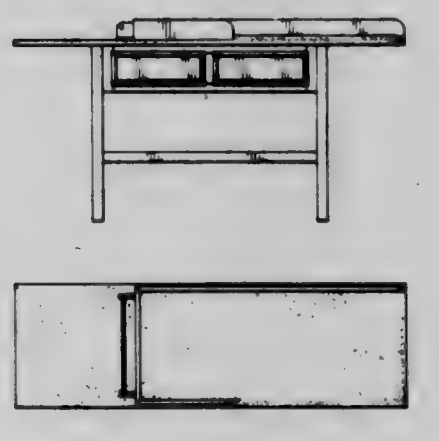
265,240
STOVE
Charles W. Kooles, Enka, N.C., assignor to Energetics Mfg. Co., Arden, N.C.
Filed Sep. 15, 1980, Ser. No. 187,211
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



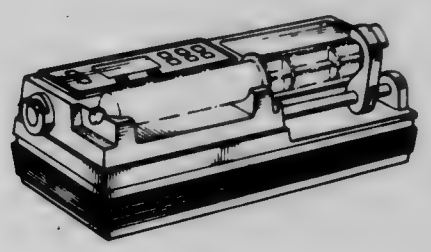
265,241
EXAMINING TABLE
Donald R. Patterson, 2509 Jackson, Joplin, Mo. 64801
Filed Apr. 4, 1980, Ser. No. 137,119
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—03



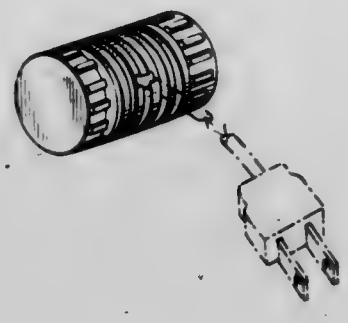
265,242
EXAMINING TABLE
Donald R. Patterson, 2509 Jackson, Joplin, Mo. 64801
Filed Apr. 4, 1980, Ser. No. 137,120
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—03



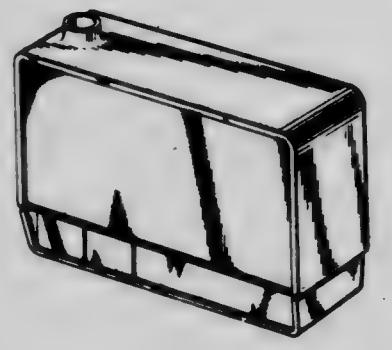
265,243
FLUID DELIVERY APPARATUS
Joseph J. Manno; William W. Busche, both of San Diego; Richard M. Bucchianeri, Escondido, and Stephen J. Kreinick, San Diego, all of Calif., assignors to IVAC Corporation, San Diego, Calif.
Filed Dec. 15, 1980, Ser. No. 216,634
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—8



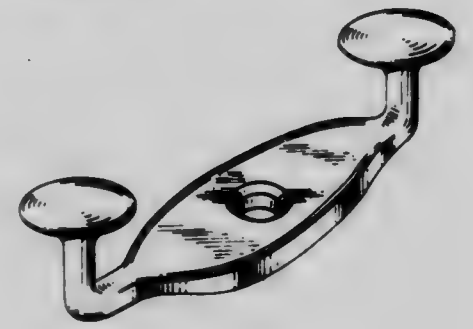
265,244
CONTACT LENS STERILIZER UNIT CASING
Francis E. Ryder, Arab, Ala., assignor to Ryder International Corporation, Arab, Ala.
Filed Mar. 13, 1980, Ser. No. 130,207
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—9



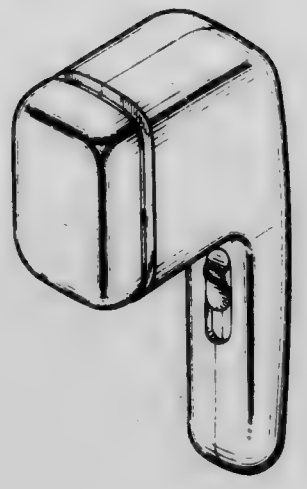
265,245
MOTOR HOUSING FOR AN ORAL HYGIENE APPLIANCE
Ted G. Crawford, Longmont, Colo.; Allan B. Johnson, Tarzana, and Spencer L. Mackay, Canoga Park, both of Calif., assignors to Teledyne Industries, Inc., Ft. Collins, Colo.
Filed May 27, 1980, Ser. No. 153,193
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—15



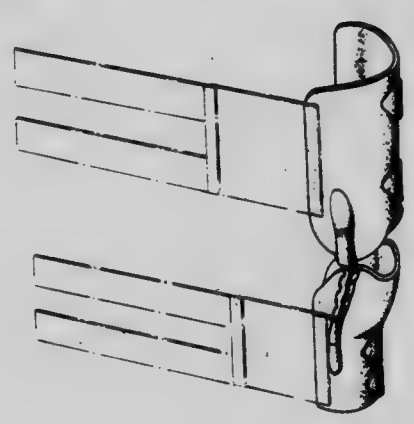
265,246
DENTURE RETAINER IMPLANT
Arthur C. Jermyn, Poway, Calif., assignor to Young Dental Mfg. Co., Inc., Maryland Heights, Mo.
Filed Apr. 10, 1980, Ser. No. 139,150
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—33



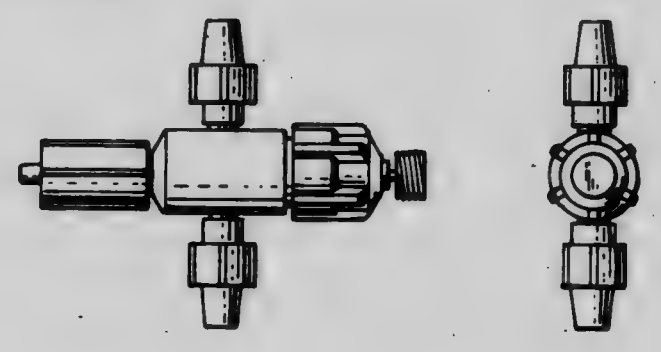
265,247
MASSAGER
Francis W. MacGregor, New Britain, Conn., assignor to Clairol Incorporated, New York, N.Y.
Filed Sep. 26, 1979, Ser. No. 79,149
Term of patent 14 years
Int. Cl. D28—*03*; D24—*99*
U.S. Cl. D24—41



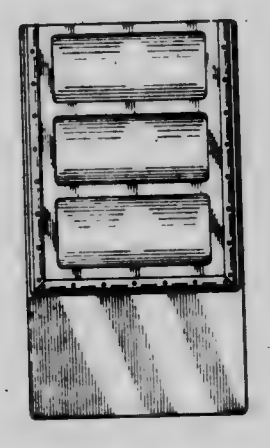
265,248
POST OPERATIVE KNEE ORTHOSIS
Paul P. Grigorieff, 233 Calle de la Selva, Novato, Calif. 94947
Filed Dec. 17, 1979, Ser. No. 104,141
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—49



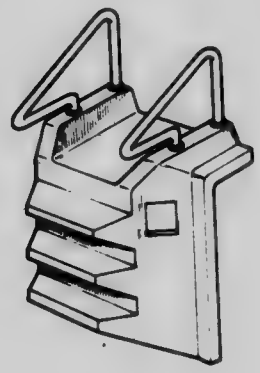
265,249
FITTING ASSEMBLY FOR GUIDING AND RESTRAINING A PROBE IN A CATHETER
Kenneth Halvorsen, Huntington Beach, Calif., assignor to Medical Testing Systems, Inc., Fountain Valley, Calif.
Filed Apr. 7, 1980, Ser. No. 137,726
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. 24—54



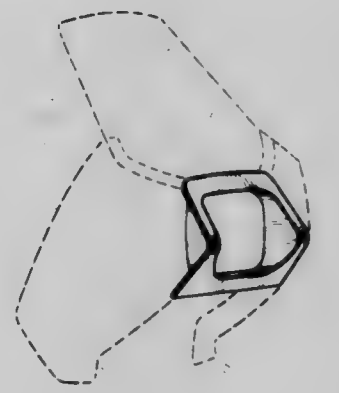
265,250
STAIR FOR A SWIMMING POOL
Ronald C. Wallin, and Wesley A. Wallin, both of 132 Federal Rd., Danbury, Conn. 06810
Filed May 19, 1980, Ser. No. 151,526
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—63



265,251
SWIMMING POOL LADDER
James W. Darby, 2117 Smith, and David L. Darby, 501 Brickyard Rd., both of Danville, Ill. 61832
Filed Jul. 24, 1980, Ser. No. 171,749
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—64



265,252
HEADLIGHT BEZEL FOR MOTORCYCLE FAIRING
David S. McNaughton, Morro Bay; Stephen C. Bern; Kenneth W. Cummings, both of San Luis Obispo, and Charles M. Perethian, Arroyo Grande, all of Calif., assignors to First Champaign Corporation, Rantoul, Ill.
Filed May 12, 1980, Ser. No. 149,298
Term of patent 14 years
Int. Cl. D26—*06*; D12—*11*
U.S. Cl. D26—139



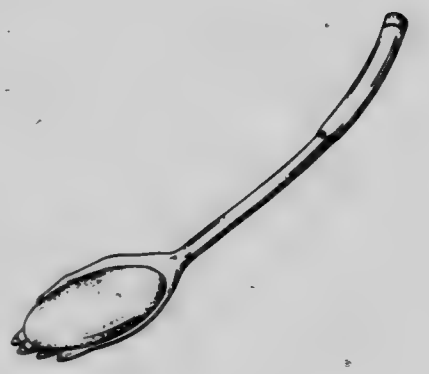
265,253
PIPE STAND
Theodore O. Barberry, Jr., and Susan J. Barberry, both of 4900 Wetheredsville Rd., Baltimore, Md. 21207
Filed Mar. 3, 1980, Ser. No. 127,258
Term of patent 7 years
Int. Cl. D27—*99*
U.S. Cl. D27—06



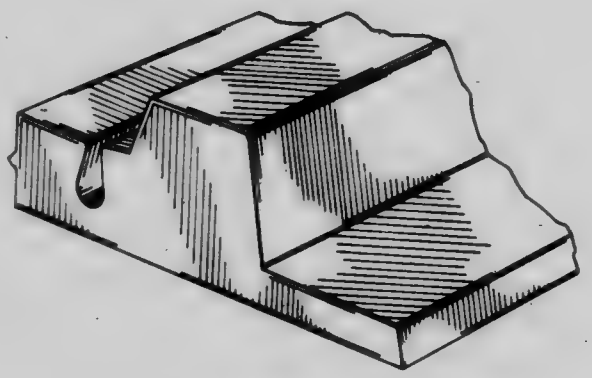
265,254
CIGARETTE LIGHTER
Dieter Rams, Kronberg, Fed. Rep. of Germany, assignor to The Gillette Company, Boston, Mass.
Filed Jun. 9, 1980, Ser. No. 157,710
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D27—42



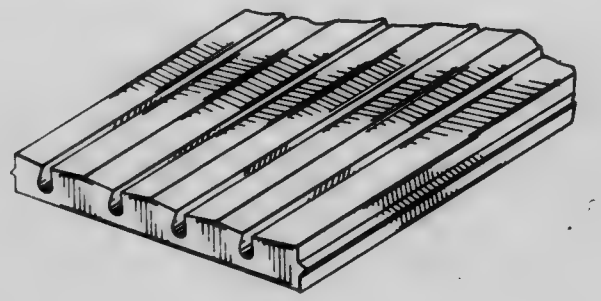
265,255
LOTION APPLICATOR
LaVerta M. O'Neil, 2944 E. Fairmont, Apartment No. 238-F, Phoenix, Ariz. 85016
Filed May 19, 1980, Ser. No. 151,313
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—7



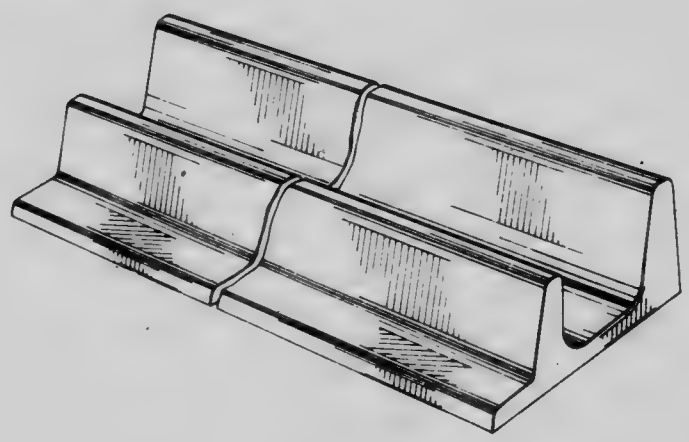
265,256
CURB FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, and Roy J. Hancock, both of Phoenix, Ariz., assignors to Corral Industries, Inc., Phoenix, Ariz.
Filed Jul. 14, 1980, Ser. No. 168,116
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



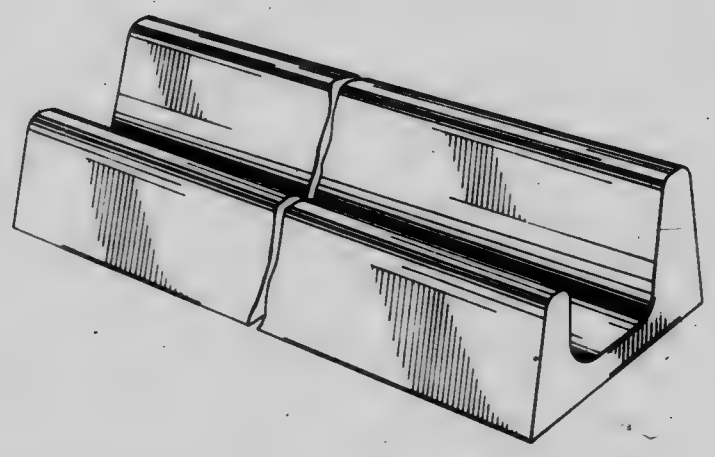
265,257
INTERLOCKING FLUME PLATFORM PANEL FOR ANIMAL CONFINEMENT PENS
Richard E. Bunger, and Roy J. Hancock, both of Phoenix, Ariz., assignors to Corral Industries, Inc., Phoenix, Ariz.
Filed Jul. 14, 1980, Ser. No. 168,119
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—2



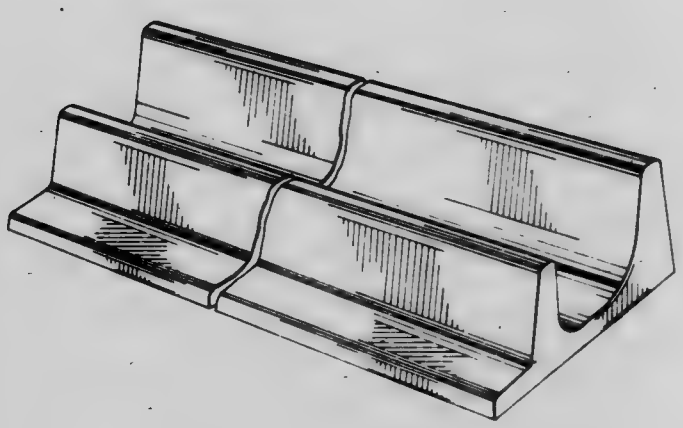
265,258
CATTLE FEED BUNKER
Richard E. Bunger, and Roy J. Hancock, both of Phoenix, Ariz., assignors to Corral Industries, Inc., Phoenix, Ariz.
Filed Jul. 14, 1980, Ser. No. 168,120
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13



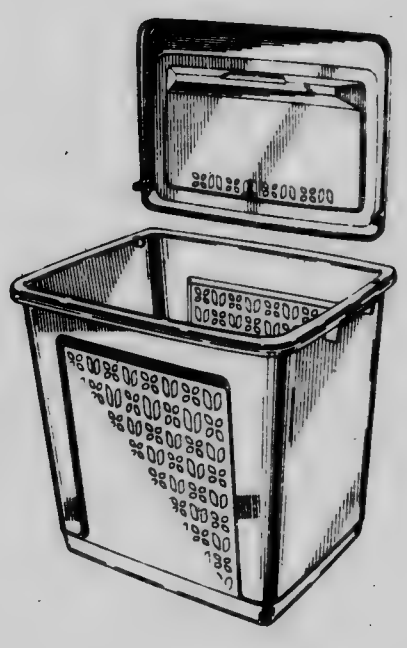
265,259
CATTLE FEED BUNKER
Richard E. Bunger, and Roy J. Hancock, both of Phoenix, Ariz., assignors to Corral Industries, Inc., Phoenix, Ariz.
Filed Jul. 14, 1980, Ser. No. 168,557
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13



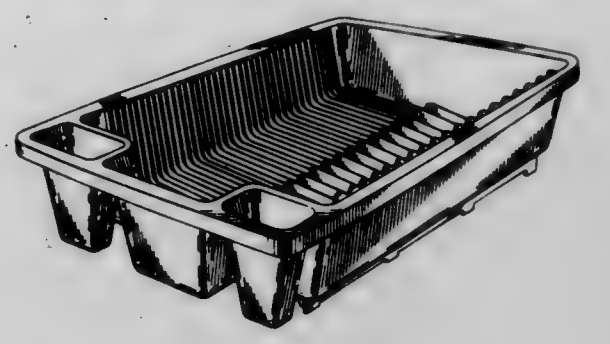
265,260
CATTLE FEED BUNKER
Richard E. Bunger, and Roy J. Hancock, both of Phoenix, Ariz., assignors to Corral Industries, Inc., Phoenix, Ariz.
Filed Jul. 14, 1980, Ser. No. 168,558
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13



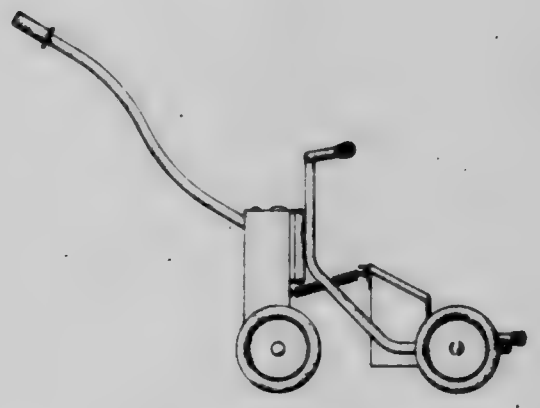
265,261
CLOTHES HAMPER
William C. Gerber, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jul. 11, 1980, Ser. No. 167,683
Term of patent 14 years
Int. Cl. D7—*07*
U.S. Cl. D32—37



265,262
MOLDED PLASTIC DISH DRAINER
William D. Taylor, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jun. 19, 1980, Ser. No. 160,922
Term of patent 14 years
Int. Cl. D7—*05*
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265,263
ELECTRICAL GOLF BAG CARRIER
Joseph H. Fox, 8 Clarendon Rd., Birmingham, Ala. 35213
Filed Jun. 16, 1980, Ser. No. 159,771
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—15



265,264
MAILBOX
Chan-Jong Yeh, 3358 Tryna Dr., Mountain View, Calif. 94040
Filed May 19, 1980, Ser. No. 151,746
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D99—33



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Kozacka, Frederick J.; and Belcher, Richard A., 4,337,452, Cl. 337-231.000.
Bell & Howell Company: *See—*
Pontoni, George E., 4,336,900, Cl. 226-97.000.
Bell, Lon E., to Technar, Inc. Glow plug control device for diesel engines. 4,337,389, Cl. 219-511.000.
Bell Telephone Laboratories, Incorporated: *See—*
Augis, Jacques A.; and Lo, Christopher C. C., 4,337,133, Cl. 204-192.00C.
Blank, Stuart L.; Gyorgy, Ernst M.; LeCraw, Roy C.; and Luther, Lars C., 4,337,521, Cl. 365-33.000.
Fraser, David B.; and Murarka, Shyam P., 4,337,476, Cl. 357-67.000.
Jin, Sungho, 4,337,100, Cl. 148-31.550.
Judd, Frank F.; and Westerman, George R., 4,337,520, Cl. 365-6.000.
O'Bryan, Henry M., Jr.; and Thomson, John, Jr., 4,337,446, Cl. 333-238.000.
Seiler, Edwin N., 4,336,792, Cl. 126-420.000.
Spahn, Gary L., 4,337,466, Cl. 340-870.090.
Bellanti, Joseph A.: *See—*
Oeschger, Max P.; Hooke, Anne M.; and Bellanti, Joseph A., 4,337,314, Cl. 435-253.000.
Bellus, Daniel: *See—*
Zweifel, Hans; Schilling, Walter; Storni, Angelo; and Bellus, Daniel, 4,337,200, Cl. 548-451.000.
Ben Venue Laboratories, Inc.: *See—*
Kaye, Saul, 4,337,223, Cl. 422-112.000.
Benckhuijsen, Gerrit J., to Temova Etablissement. Waistcoat for therapeutic treatment. 4,336,807, Cl. 128-379.000.
Benckiser-Knapsack GmbH: *See—*
Rohlfs, Hans-Adolf; Kling, Alfred; Raab, Guenter; Vogt, Michael; Specht, Viktor; and Schaetzke, Ulrike, 4,337,214, Cl. 260-502.500.
Bendix Corporation, The: *See—*
Woo, Ji Y., 4,336,867, Cl. 188-326.000.
Beran, Anthony V., to Beran, Anthony V. Medical corrugated respiratory tube. 4,336,798, Cl. 128-200.140.
Beretta, Paolo; Leichter, Louis M.; and Stofko, John J., Jr., to Minnesota Mining and Manufacturing Company. Sensitized organic electron donor compounds. 4,337,305, Cl. 430-82.000.
Bergendahl, Hans-Georg: *See—*
Koppern, Heinz; Bergendahl, Hans-Georg; Rieschel, Hartmut; and Koch, Friedhelm, 4,337,023, Cl. 425-237.000.
Berger, Jean L.; and Coutures, Jean L., to Thomson-CSF. Charge-transfer phase-inverter device and differential amplifier comprising said device. 4,337,403, Cl. 307-221.00D.
Bergkvist, Lars A. Angle indicator for indicating two mutually perpendicular directions. 4,336,659, Cl. 33-395.000.
Berglund, Carl O., to Teledyne Exploration Company. Method of making a seismic apparatus. 4,336,639, Cl. 29-25.350.
Berke, Philip A.; and Rosen, William E., to Sutton Laboratories, Inc. Preservative compositions. 4,337,269, Cl. 424-289.000.
Bernard, Walter J.: *See—*
Russell, Philip G.; Bernard, Walter J.; and Ross, Sidney D., 4,337,114, Cl. 156-656.000.
Bernareggi, Virgilio; Crespi, Giuseppe; and Bugada, Giuseppe, to Valeas S. R. L. Industria Chimica E Farmaceutica. Amino-ethanol derivatives. 4,337,272, Cl. 424-316.000.
Bernstein, Seymour: *See—*
Conrow, Ransom B.; and Bernstein, Seymour, 4,337,249, Cl. 424-180.000.
Best, Lorne A., to National Element, Inc. Electric heating element. 4,337,390, Cl. 219-532.000.
Beumling, Herbert: *See—*
Hestermann, Klaus; Maurer, Alexander; Kandler, Joachim; Mietens, Gerhard; and Beumling, Herbert, 4,337,092, Cl. 106-14.050.
Bhatia, Ravi R., to Timken Company, The. Bearing setting process. 4,336,641, Cl. 29-148.40A.
Billet, Rene, to Societe Anonyme Francaise du Ferodo. Clutch mechanism. 4,336,871, Cl. 192-107.00C.
Binder, Georg, to Robert Bosch GmbH. Bearing-less remotely journalled dynamo electric machine, particularly alternator for combination with a gas turbine. 4,337,406, Cl. 310-91.000.
Binks Manufacturing Co.: *See—*
Springer, Carl M., 4,337,282, Cl. 427-421.000.
Binsley, Robert L.: *See—*
Wagner, William R.; Wright, David E.; and Binsley, Robert L., 4,336,839, Cl. 166-59.000.
Biotteau, Gerard, to Societe a Responsabilite Limitee Eram Industrie. Sheet material for use as playing surfaces and method for the manufacture thereof. 4,337,292, Cl. 428-141.000.
Bird, John M.; and Ringwood, Alfred E. Container for radioactive nuclear waste materials. 4,337,167, Cl. 252-633.000.
Blair, W. Roscoe, to Raybestos-Manhattan, Inc. Mechanical-dynamic rotary seal. 4,336,944, Cl. 277-81.00R.
Blake, Peter J.: *See—*
Turner, Edward W.; and Blake, Peter J., 4,337,024, Cl. 425-363.000.
Blanchard, Floyd W. Stand for supporting a hand-held implement. 4,336,916, Cl. 248-471.000.
Blank, Stuart L.; Gyorgy, Ernst M.; LeCraw, Roy C.; and Luther, Lars C., to Bell Telephone Laboratories, Incorporated. Advantageous garnet based devices. 4,337,521, Cl. 365-33.000.
Blanton, Kistler J., Jr. Wire rope lubricator cleaner. 4,336,866, Cl. 184-15.00R.
Bloom Engineering Company, Inc.: *See—*
Morgan, John W., II; and Leumann, Hans E., 4,337,034, Cl. 432-234.000.
Bock, Erich; Wulfhorst, Burkhard; Hini, Eugen; and Grupp, Bernhard, to Schubert & Salzer. Mechanism for the production of a wrapped yarn. 4,336,683, Cl. 57-18.000.
Bodendorf, Warren J.; and Presto, Alphonse R., to Texon Inc. Decay resistant material. 4,337,117, Cl. 162-161.000.
Bodine, Albert G. Cyclic wave system for unclogging water screens. 4,337,158, Cl. 210-785.000.
Bodine Electric Company: *See—*
Oltendorf, Norman E., 4,337,428, Cl. 318-696.000.
Boehringer Mannheim GmbH: *See—*
Batz, Hans-Georg; Rauscher, Elli; Weimann, Gunter; Wahlefeld, August W.; and Gruber, Wolfgang, 4,337,310, Cl. 435-22.000.
Boersma, Michael A. M.; Nanne, Johannes M.; and Post, Martin F. M., to Shell Oil Company. Process for the preparation of crystalline silicates. 4,337,176, Cl. 252-459.000.
Boetto, Charles, to International Harvester Co. Agricultural folding tool bar. 4,336,846, Cl. 172-776.000.
Bogri, Tibor: *See—*
Treasurywala, Adi; Palameta, Bozidar; Bogri, Tibor; and Bagli, Jehan, 4,337,265, Cl. 424-274.000.
Boise Cascade Corporation: *See—*
Hearon, William M.; and Witte, John F., 4,337,202, Cl. 549-314.000.
Boisvert, Donald R.: *See—*
Duff, James A.; and Boisvert, Donald R., 4,336,631, Cl. 16-126.000.
Boone, Jacob J., to Nordson Corporation. Method for striping inside seams of cans. 4,337,281, Cl. 427-236.000.
Bourassin, Lucien; Condat, Bernard; Fortin, Jacques; Leger, Alain; Soto, Joseph; and Solvinto, Jean-Claude, to Syndicat des Constructeurs d'Appareils Radio Recepteurs et Televiseurs (SCART). Dynamic audio-video interconnection system. 4,337,480, Cl. 358-93.000.
Bourlet, Maurice V., to Fabrique Nationale Herstal. Loader for machine-pistol and similar. 4,336,742, Cl. 89-34.000.
Bowles Fluidics Corporation: *See—*
Stouffer, Ronald D., 4,336,909, Cl. 239-381.000.
Bradley, Timothy G., to Manville Service Corporation. Biopolymer filtration process. 4,337,157, Cl. 210-691.000.
Bradshaw, David A.; and Oles, Joseph F., to Hoover Company, The. Nozzle with pivoted wand. 4,336,628, Cl. 15-415.00R.

Braeger, Horst, to Nordischer Maschinenbau Rud. GmbH Co. KG. Apparatus for the severing of the fillets from the skeleton of fish. 4,336,634, Cl. 17-57.000.

Brambring, Jorg: *See*—
van der Heijden, Antonius W. F.; Brambring, Jorg; and Spruyt, Johannes M. J., 4,337,409, Cl. 313-409.000.

Brandes, Wilhelm: *See*—
Stetter, Jorg; and Brandes, Wilhelm, 4,337,268, Cl. 424-285.000.

Brandt, John L.: *See*—
Graham, John W.; Sinclair, A. Richard; and Brandt, John L., 4,336,842, Cl. 166-276.000.

Braun Aktiengesellschaft: *See*—
Horz, Eberhard; Wirsing, Robert; and Hoffmann, Gunter, 4,336,816, Cl. 134-110.000.

Braun, Roland, to Raschig GmbH. Contacting arrangement for mass transfer operations and set of plates for use in said arrangement. 4,337,217, Cl. 261-112.000.

Breglia, Denis R.: *See*—
Rodemann, Alfred H.; and Breglia, Denis R., 4,336,976, Cl. 350-3.750.

Brenner, Kurt H., Jr.; LaTulip, Arthur C.; and Oetken, James E., to North American Philips Consumer Electronics Corp. Process for disposing an opaque conductive band on the sidewall of a CRT panel. 4,337,304, Cl. 430-24.000.

Breunig, Anton, to Haindl Papier GmbH. Fiber fractionating device. 4,337,150, Cl. 209-237.000.

Briche, Raymond L.: *See*—
Rollot, Pierre H.; Cordier, Jean A.; and Briche, Raymond L., 4,336,925, Cl. 266-193.000.

British Broadcasting Corporation: *See*—
Chambers, John P., 4,337,485, Cl. 358-147.000.

British Hovercraft Corporation Ltd.: *See*—
Wheeler, Raymond L., 4,337,106, Cl. 156-228.000.

Broadcom, Incorporated: *See*—
Gruenberg, Elliot L., 4,337,376, Cl. 179-2.0EB.

Brock, Josef, to Maschinenfabrik Carl Zangs Aktiengesellschaft. Dobby mechanism. 4,336,829, Cl. 139-76.000.

Brog, Roy A. Imitation milk. 4,337,278, Cl. 426-583.000.

Bromley, Charles; and Thompson, Morice W., to Imperial Chemical Industries Limited. Polymerization process. 4,337,189, Cl. 523-332.000.

Bronsther, Burton: *See*—
Latucca, Vincent; and Bronsther, Burton, 4,336,797, Cl. 128-132.00D.

Brookhart, Marshall R.; Hodge, Fredrick J.; and Worden, Thomas J., to Minnesota Mining and Manufacturing Company. Head positioning transducer for helical scan video reproducer. 4,337,492, Cl. 360-109.000.

Brosch, Eric J.: *See*—
Mechel, John R.; and Brosch, Eric J., 4,337,075, Cl. 65-12.000.

Broussaud, Georges; and Tinet, Claude, to Thomson-CSF. Apparatus for the transcription of a video disk onto a cenefilm. 4,337,484, Cl. 358-128.600.

Brown, John D.: *See*—
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,337,068, Cl. 55-1.000.

Bruns, James A., to Uniroyal, Inc. Mechanical power transmission system. 4,337,056, Cl. 474-153.000.

Brutosky, Andrew J. Gate Assembly. 4,336,670, Cl. 49-409.000.

Bryant, Patrick S.: *See*—
Cooper, Gordon; and Bryant, Patrick S., 4,337,284, Cl. 428-35.000.

Bucci, Carlo G., to Repla Limited. Frame corner structure. 4,336,645, Cl. 29-510.000.

Buchberger, Gerhard: *See*—
Holst, Arno; Perplies, Eberhard; and Buchberger, Gerhard, 4,337,328, Cl. 525-336.000.

Buder, Wolfgang; Wolff, Siegfried; and Kleinschmit, Peter, to Degussa Aktiengesellschaft. Nitrogen containing alkoxysilane and process for its production. 4,337,205, Cl. 260-349.000.

Bugada, Giuseppe: *See*—
Bernareggi, Virgilio; Crespi, Giuseppe; and Bugada, Giuseppe, 4,337,272, Cl. 424-316.000.

Bugaut, Andree; and Andrillon, Patrick, to Societe Anonyme dite: L'OREAL. Hair dye compositions and new compounds useful therein. 4,337,061, Cl. 8-405.000.

Bunker Ramo Corporation: *See*—
Monaghan, Kevin J.; and Schwickert, Russell C., 4,336,977, Cl. 350-96.200.
Quinton, Carrol D.; and Guio, Raphael, 4,337,135, Cl. 204-213.000.

Burkinshaw, Norman F., to Vandervell Products Limited. Bearings. 4,336,970, Cl. 308-79.00R.

Burleigh Instruments, Inc.: *See*—
Clark, William G., 4,336,809, Cl. 128-665.000.

Burroughs Corporation: *See*—
Spracklen, John E.; and Gerhold, Mark L. C., 4,337,465, Cl. 340-825.030.

Burroughs Wellcome Co.: *See*—
Gorvin, John H., 4,337,274, Cl. 424-321.000.
Moncada, Salvador E., 4,337,254, Cl. 424-251.000.
Whittaker, Norman; and Caldwell, Albert G., 4,337,262, Cl. 424-273.00R.

Burstein, Neal L.; and Maurice, David M., to Leland Stanford Junior University, The Board of Trustees of the. Cryojet rapid freezing apparatus. 4,336,691, Cl. 62-64.000.

Butler, David V.: *See*—
Orlowski, Jan A.; Butler, David V.; and Kidd, Patrick D., 4,337,349, Cl. 560-30.000.

Buttironi, Giovanni, to AU.RO S.r.l. Plant with mobile platforms for parking motor vehicles or the like. 4,337,013, Cl. 414-240.000.

B.V. Machinefabriek Breda v/h Backer & Rueb: *See*—
Engelberts, Gerhardus A., 4,336,642, Cl. 29-157.30A.

Byk Gulden Lomberg Chemische Fabrik GmbH: *See*—
Eistetter, Klaus; and Rapp, Erich, 4,337,267, Cl. 424-278.000.

Byrd, James D.; and Field, Lamar, to United States of America, Army. Method of case bonding propellant. 4,337,218, Cl. 264-3.00R.

C. Desaga GmbH Nachf. Erich Fecht: *See*—
Vesterberg, Olof, 4,337,131, Cl. 204-180.00G.

C. Keller GmbH & Co., KG, Maschinenfabrik: *See*—
Kamphues, Hermann, 4,336,874, Cl. 198-458.000.

C. M. Industries: *See*—
Diaz, Joseph; and Guegan, Remy, 4,337,194, Cl. 260-112.50S.

Caere Corporation: *See*—
Smith, William R., 4,337,455, Cl. 340-146.3AG.

Cagnoni, Giacomo. Pre-compressed air weapon. 4,336,787, Cl. 124-69.000.

Cahen, George L., Jr.: *See*—
Stoner, Glenn E.; and Cahen, George L., Jr., 4,337,138, Cl. 204-290.00R.

Caldwell, Albert G.: *See*—
Whittaker, Norman; and Caldwell, Albert G., 4,337,262, Cl. 424-273.00R.

Calloni, Angelo: *See*—
Leoni, Roberto; Baldini, Alberto; Calloni, Angelo; and Angelini, Gianfranco, 4,337,095, Cl. 106-203.000.

Calundann, Gordon W., to Celanese Corporation. Polyester of 6-hydroxy-2-naphthoic acid and meta-hydroxy benzoic acid capable of readily undergoing melt processing. 4,337,190, Cl. 524-599.000.

Camco, Incorporated: *See*—
Garner, James K., Jr., 4,336,841, Cl. 166-216.000.

Cammack, Michael A.; Elkins, Christopher W.; Hickman, Clarence J.; and Mullins, Keith M., to Teledyne Industries, Inc. Oral hygiene appliances. 4,337,040, Cl. 433-80.000.

Campbell, Richard W., to General Electric Company. Thermoplastic molding composition having improved warp resistance and process for preparing the same. 4,337,192, Cl. 523-212.000.

Candel Industries, Limited: *See*—
Schweitzer, Ernest D., 4,336,722, Cl. 73-863.120.

Canon Kabushiki Kaisha: *See*—
Asakura, Osamu; and Nozaki, Mineo, 4,336,752, Cl. 101-99.000.
Hamatani, Masahide, 4,336,979, Cl. 350-255.000.
Isobe, Takashi, 4,336,991, Cl. 354-286.000.
Kanbe, Junichiro; Arao, Kozo; and Hosono, Nagao, 4,337,306, Cl. 430-122.000.
Matsumura, Susumu; and Suzuki, Takashi, 4,336,989, Cl. 354-200.000.
Suzuki, Takashi, 4,336,978, Cl. 350-167.000.
Tanaka, Kazuo; and Tsuji, Sadahiko, 4,336,983, Cl. 350-427.000.
Yano, Yasuhiro, 4,337,467, Cl. 346-1.100.

Cantwell, J. Edward: *See*—
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,337,068, Cl. 55-1.000.

Cap, Heinrich; von der Heide, Johann; and Muller, Rolf, to Papst-Motoren KG. Speed control for a rotary machine. 4,337,424, Cl. 318-328.000.

Cappotto, Samuel D., to SCM Corporation. Releasable ribbon locking device in a ribbon cartridge. 4,337,001, Cl. 400-208.000.

Carkoski, Eugene T. Cartridge case lubricator. 4,336,865, Cl. 184-14.000.

Carl, William P.: *See*—
Ezzell, Bobby R.; Carl, William P.; and Mod, William A., 4,337,211, Cl. 260-456.00F.

Carl Zeiss-Stiftung: *See*—
Flother, Werner, 4,336,990, Cl. 354-272.000.

Carlisle Tire & Rubber Co.: *See*—
Hollis, Jack L., 4,337,112, Cl. 156-351.000.

Carlotta, Michael: *See*—
Maher, James C.; and Carlotta, Michael, 4,336,766, Cl. 118-60.000.

Carney, Richard W. J.; and De Stevens, George, to Ciba-Geigy Corporation. Tertiary aminoacids in the treatment of pain. 4,337,264, Cl. 424-274.000.

Carney, William V.; and Singer, Loren A., Jr., to Porta Systems Corp. Carbon electrode having metallic heat sink. 4,337,495, Cl. 361-119.000.

Caro, Israel. Circular safety razor. 4,336,651, Cl. 30-49.000.

Carouthers, Middleton M.; and Klamm, Robert L., to Carouthers, Middleton M. Energy conservation apparatus for internal combustion engines. 4,336,773, Cl. 123-25.00B.

Carpenter, Clarence W., Jr.: *See*—
Reed, Ronald L.; and Carpenter, Clarence W., Jr., 4,337,159, Cl. 252-8.55D.

Carr Cedar Products, Inc.: *See*—
Carr, Charles E., 4,336,879, Cl. 206-323.000.

Carr, Charles E., to Carr Cedar Products, Inc. Shim bundle. 4,336,879, Cl. 206-323.000.

Carrell, Jessie W. Water limer. 4,336,822, Cl. 137-268.000.

Carrier, John A., to Plessey Handel und Investments A.G. Volume control mechanism for a bell assembly. 4,337,461, Cl. 340-402.000.

Carty, Larry G.: *See*—
Sakowski, Walter J.; Shaffer, John H.; and Carty, Larry G., 4,337,236, Cl. 423-474.000.

Caso, Adolph. Plant waterers. 4,336,666, Cl. 47-48.500.
Cassinelli, Giuseppe: *See—*
Battistini, Carlo; Cassinelli, Giuseppe; Franceschi, Giovanni; Mazzoleni, Rosanna; and Arcamone, Federico, 4,337,248, Cl. 424-180.000.
Castagnoli, Neal: *See—*
Goodman, Murray; Verlander, Michael S.; Jacobson, Kenneth A.; Melmon, Kenneth L.; and Castagnoli, Neal, 4,337,207, Cl. 260-404.500.
Casteel, Ronald C. Automotive electrical harness. 4,336,975, Cl. 339-28.000.
Caterpillar Tractor Co.: *See—*
Golan, Kenneth F., 4,336,827, Cl. 137-624.270.
Kilty, Alan L., 4,337,386, Cl. 219-130.210.
Cattelani, Claude; and Perichon, Catherine. Variable-focal-length objective and an optical system equipped with objectives of this type for the production of special effects on film. 4,336,996, Cl. 355-39.000.
Cattoen, Michel: *See—*
Favreau, Michel; Bajon, Jean; Cattoen, Michel; Soca, Serge; Longuet, Maurice; and Delattre, Christian, 4,337,514, Cl. 364-515.000.
Celanese Corporation: *See—*
Calundann, Gordon W., 4,337,190, Cl. 524-599.000.
Kollar, John, 4,337,371, Cl. 568-852.000.
Celotex Corporation, The: *See—*
Barnhart, David A.; Kroger, John E.; and Walters, David A., 4,336,749, Cl. 98-43.00R.
Ceolotto, Egidio, to Monseol Limited. Compression refrigeration unit adjustable in accordance with the liquid flowing out from the evaporator. 4,336,695, Cl. 62-504.000.
Cerny, Arnost; Fiser, Jiri; Jirusе, Jaroslav; and Sedlak, Vaclav, to Adamovske strojirny, narodni podnik. Sheet transfer attachment. 4,336,930, Cl. 271-277.000.
Chambers, John P., to British Broadcasting Corporation. Broadcast teletext system. 4,337,485, Cl. 358-147.000.
Champion Corporation: *See—*
Baker, Steven W., 4,337,392, Cl. 235-92.0DN.
Chandler, Robert M.: *See—*
Hinkel, Lester H.; and Chandler, Robert M., 4,336,619, Cl. 4-619.000.
Chaplin, Gary F., to United Technologies Corporation. Wedge-shaped seal for flanged joints. 4,336,943, Cl. 277-26.000.
Chaplin, Gary F., to United Technologies Corporation. Dual wall seal means. 4,337,016, Cl. 415-116.000.
Chavand, Jean; Daguenet, Maurice; and Gillet, Rene, to Commissariat a l'Energie Atomique. Process for cutting out a wall made of metal or metal alloy. 4,337,098, Cl. 148-9.00R.
Chemische Fabriek Zaltbommel: *See—*
van der Maas, Hendrikus J. H., 4,337,210, Cl. 260-439.00R.
Chemische Werke Huls AG: *See—*
Hentschel, Bernhard; Ziebarth, Jurgen; Coenen, Alfred; Kosswig, Kurt; and von Praun, Ferdinand, 4,337,234, Cl. 423-424.000.
Rigler, Josef K.; Ratajczak, Hans-Josef; Leithauser, Horst; and Trukenbrod, Karl, 4,337,319, Cl. 521-96.000.
Chen, Li-Fu. Automatic digit display machine for measuring height and weight. 4,336,855, Cl. 177-245.000.
Chen, Tsung-I: *See—*
Sahyun, Melville R. V.; Chen, Tsung-I; King, Timothy W.; Mikelsons, Valdis; and Mitra, Smarajit, 4,337,303, Cl. 430-11.000.
Cherry, Isaac R.: *See—*
Anderson, Donald L.; Cherry, Isaac R.; Ripley, John A.; and Tanaka, David T., 4,336,810, Cl. 128-702.000.
Chevron Research Company: *See—*
Spars, Byron G.; Tamm, Paul W.; and Wallman, P. Henrik, 4,337,120, Cl. 196-125.000.
Stayner, Robert A., 4,337,161, Cl. 252-49.500.
Chiang, John S.; and Goldstein, David, to FMC Corporation. Preparation of strontium nitrate from celestite and calcium nitrate. 4,337,233, Cl. 423-397.000.
Chikama, Toshio, to Machida Endoscope Co., Ltd. Guide tube. 4,336,794, Cl. 128-4.000.
Choe, Seong-Hyeon: *See—*
Kim, Choong-Ki; Kwak, Tae-Kyun; and Choe, Seong-Hyeon, 4,337,475, Cl. 357-36.000.
Christensen, Inc.: *See—*
Fielder, Coy M., 4,336,850, Cl. 175-393.000.
Christenson, Roger M.: *See—*
Schimmel, Karl F.; Seiner, Jerome A.; Dowbenko, Rostyslaw; and Christenson, Roger M., 4,337,184, Cl. 524-726.000.
Christiansen, Keith W.; and Vering, Anthony W., to CR Industries. Sinuous seal with auxiliary excluder lips. 4,336,945, Cl. 277-153.000.
Ciba-Geigy Corporation: *See—*
Carney, Richard W. J.; and De Stevens, George, 4,337,264, Cl. 424-274.000.
Zweifel, Hans; Schilling, Walter; Storni, Angelo; and Bellus, Daniel, 4,337,200, Cl. 548-451.000.
Cicatelli, Rodolfo, to Autovox S.p.A. Device for the programmed control of operative sequences, in particular for cassette-type tape recorders. 4,337,489, Cl. 360-96.500.
Cichy, Paul, to Kennecott Corporation. Recovery of precious metals from spent alumina-containing catalysts. 4,337,085, Cl. 75-83.00R.
Citizen Watch Company Limited: *See—*
Morokawa, Shigeru, 4,337,529, Cl. 368-10.000.
Clarion Co., Ltd.: *See—*
Takai, Kazuki, 4,337,487, Cl. 360-71.000.
Tezuka, Hisao; and Furui, Hiroshi, 4,337,380, Cl. 179-146.00E.
Clark, William G., to Burleigh Instruments, Inc. Human and animal tissue photoradiation system and method. 4,336,809, Cl. 128-665.000.
Clelford, Douglas H.: *See—*
Murphy, Richard D.; and Clelford, Douglas H., 4,337,516, Cl. 364-551.000.
Clemence, Francois: *See—*
Allais, Andre; Clemence, Francois; Meier, Jean; and Deraedt, Roger, 4,337,353, Cl. 562-460.000.
Clements, Anthony H., to Lever Brothers Company. Bleach composition. 4,337,164, Cl. 252-96.000.
Clifford, Jack R., to Pratt, Paul L.; and Pierce, John T., Jr., part interest to each. Method and implement for cleaning drains. 4,337,096, Cl. 134-8.000.
Climenhage, David C.; and Eadie, Walter R., to Du Pont Canada Inc. Polyolefin composition for manufacture of film having cling properties. 4,337,188, Cl. 524-140.000.
Clinard, Glenn G.; Mulhollam, Gail R.; and Volk, Frank J., to United States of America, Air Force. Moving vehicle seismic target detector. 4,337,528, Cl. 367-136.000.
Clorox Company, The: *See—*
Marynowski, Chester W.; and Geigel, Maria A., 4,337,213, Cl. 260-502.00R.
Cochran, Andrew A.: *See—*
Soboroff, David M.; Troyer, Jerry D.; and Cochran, Andrew A., 4,337,129, Cl. 204-151.000.
Cochran, Cary L.: *See—*
Mannon, Walter L.; and Cochran, Cary L., 4,336,786, Cl. 124-23.00R.
Cody, Robert D. F.; and Hull, Amy B., to Iowa State University Research Foundation, Inc. Method of growth of primary anhydrite crystals under moderate conditions. 4,337,238, Cl. 423-555.000.
Coenen, Alfred: *See—*
Hentschel, Bernhard; Ziebarth, Jurgen; Coenen, Alfred; Kosswig, Kurt; and von Praun, Ferdinand, 4,337,234, Cl. 423-424.000.
Cohen, Sidney; and Schlemmer, Robert, to Improved Lawn Equipment Corporation. Earth working apparatus including aerators and material dispensers. 4,336,760, Cl. 111-11.000.
Cohn, Martin; Jacoby, George V.; and Bates, Charles A., III, to Sperry Corporation. Data encoding method and system employing two-thirds code rate with full word look-ahead. 4,337,458, Cl. 340-347.0DD.
Combustion Research & Technology, Inc.: *See—*
Porter, Kenneth W., 4,336,686, Cl. 60-39.630.
Commercial Shearing, Inc.: *See—*
Singer, Carl M.; Oana, Mateiu J.; and Turko, John D., 4,337,018, Cl. 418-132.000.
Commissariat a l'Energie Atomique: *See—*
Chavand, Jean; Daguenet, Maurice; and Gillet, Rene, 4,337,098, Cl. 148-9.00R.
Vacher, Jacques, 4,337,397, Cl. 250-363.00S.
Commonwealth of Australia, The: *See—*
Thomson, Keith D., 4,336,914, Cl. 244-46.000.
Communications Technology Corporation: *See—*
Smith, Donald J., 4,337,374, Cl. 174-138.00F.
Compagnie Lyonnaise de Transmissions Optiques: *See—*
Tache, Jean-Paul, 4,337,457, Cl. 340-347.0DD.
Compak System, Inc.: *See—*
Penick, Ib; and Volkert, John K., 4,336,664, Cl. 40-594.000.
Comte, Georges N.; Appriou, Andre; and Couturier, Jean, to Les Cables de Lyon. Machine for manufacturing disks on a rod. 4,337,019, Cl. 425-116.000.
Condat, Bernard: *See—*
Bourassin, Lucien; Condat, Bernard; Fortin, Jacques; Leger, Alain; Soto, Joseph; and Solvinto, Jean-Claude, 4,337,480, Cl. 358-93.000.
Congoleum Corporation: *See—*
Varadhachary, Seevaram N., 4,337,296, Cl. 428-420.000.
Connelly, Edward M. Method and system for automated training of manual skills. 4,337,049, Cl. 434-247.000.
Conrow, Ransom B.; and Bernstein, Seymour, to American Cyanamid Company. Modulators of the complement system. 4,337,249, Cl. 424-180.000.
Control Data Corporation: *See—*
Vangen, Robert F., 4,337,463, Cl. 340-825.300.
Cooper, Alan: *See—*
Nagabhushan, Tattanahalli L.; Turner, William N.; and Cooper, Alan, 4,337,335, Cl. 536-13.600.
Cooper, Gordon; and Bryant, Patrick S., to Imperial Chemical Industries Limited. Film tear-tape and packaging film having tear-tape adherent thereto. 4,337,284, Cl. 428-35.000.
Copeland, Terry M., to Du Pont de Nemours, E. I., and Company. Method for making a cathode, and method for lowering hydrogen overvoltage in a chlor-alkali cell. 4,337,127, Cl. 204-98.000.
Corbin Gentry, Inc.: *See—*
Hanagan, Michael W.; and Schoeck, Donald L., 4,336,934, Cl. 272-72.000.
Cordier, Jean A.: *See—*
Rollot, Pierre H.; Cordier, Jean A.; and Briche, Raymond L., 4,336,925, Cl. 266-193.000.
Cornell, Barry F.: *See—*
Helbig, William H.; and Cornell, Barry F., 4,336,844, Cl. 172-140.000.
Cornils, Boy: *See—*
Bahrmann, Helmut; Cornils, Boy; Frohning, Carl D.; and Weber, Jurgen, 4,337,363, Cl. 568-444.000.

Corning Glass Works: *See—*
Rittler, Hermann L., 4,337,295, Cl. 428-410.000.
Coughlin, Vincent D. Vacuum work piece holder. 4,336,765, Cl. 118-50.000.
Coutta, John M. Surveillance system. 4,337,482, Cl. 358-108.000.
Couture, George. Skate blade. 4,336,948, Cl. 280-11.120.
Coutures, Jean L.: *See—*
Berger, Jean L.; and Coutures, Jean L., 4,337,403, Cl. 307-221.00D.
Couturier, Jean: *See—*
Comte, Georges N.; Appriou, Andre; and Couturier, Jean, 4,337,019, Cl. 425-116.000.
Covington Brothers, Inc.: *See—*
Artzer, Richard F., 4,336,676, Cl. 52-309.700.
Cox, Eric R., to Babcock-Moxey Limited. Mechanical handling apparatus for reclaiming material from a stockpile. 4,336,876, Cl. 198-509.000.
Cox, Robert N.; and Rawlings, James E., to UMC Industries, Inc. Article dispensing apparatus. 4,336,892, Cl. 221-125.000.
CR Industries: *See—*
Christiansen, Keith W.; and Vering, Anthony W., 4,336,945, Cl. 277-153.000.
Cragoe, Edward J., Jr.; Stokker, Gerald E.; and Gould, Norman P., to Merck & Co., Inc. [(5,6,9a-Substituted-3-oxo-1,2,9,9a-tetrahydro-3H-fluoren-7-yl)oxy]alkanoic and cycloalkanoic acids, their analogs, esters, salts, and derivatives. 4,337,354, Cl. 562-461.000.
Cragoe, Edward J., Jr.: *See—*
Rooney, Clarence S.; Williams, Haydn W. R.; Cragoe, Edward J., Jr.; and Patchett, Arthur A., 4,337,258, Cl. 424-263.000.
Crankshaw, Michael; and Kucheck, Leo, to Label-Aire Inc. Label applicator with oscillating label receiver and method. 4,337,108, Cl. 156-285.000.
Crawford Collets Limited: *See—*
Franklin, Reginald A., 4,336,947, Cl. 279-46.00A.
Crespi, Giuseppe: *See—*
Bernareggi, Virgilio; Crespi, Giuseppe; and Bugada, Giuseppe, 4,337,272, Cl. 424-316.000.
Crisp, Stephen; and Wilson, Alan D., to National Research Development Corporation. Hardenable compositions. 4,337,186, Cl. 525-362.000.
Cronin, Michael J.; and Elliot, David K., to Lockheed Corporation. Electronic enclosure and articulated back panel for use therein. 4,337,499, Cl. 361-386.000.
Cronkhite, James D.: *See—*
Wilson, Henry E.; Cronkhite, James D.; and Howard, John V., 4,336,868, Cl. 188-376.000.
Crosby, Gary A., to Red Fox Industries Inc. Method and apparatus for pulsed timed control for sludge return line. 4,337,151, Cl. 210-139.000.
Crossley, Roger, to John Wyeth & Brother Limited. Pyridine derivatives. 4,337,259, Cl. 424-263.000.
Crothers, William R. Cart. 4,336,951, Cl. 280-47.260.
Crye, LeRoy D.; and Fischman, Leonard F. Ticket dispenser. 4,336,894, Cl. 221-280.000.
Culph, Kenneth C.: *See—*
Ahearn, James J.; and Culph, Kenneth C., 4,336,793, Cl. 126-450.000.
Cummins, Richard D. Apparatus for supplying corrosion inhibiting material to inaccessible metal surfaces. 4,336,907, Cl. 239-57.000.
Curtis, Richard H., to Hague International. Gas analyzer. 4,336,721, Cl. 73-863.110.
Cuypers, Martinus H.: *See—*
Horowitz, Alexandre; and Cuypers, Martinus H., 4,337,057, Cl. 474-242.000.
Dagiel, Richard T., to Aetna Bearing Company. Unitized bearing assembly. 4,336,972, Cl. 308-233.000.
Daguenet, Maurice: *See—*
Chavand, Jean; Daguenet, Maurice; and Gillet, Rene, 4,337,098, Cl. 148-9.00R.
Dahlgren, Vincent M. F. Device for purifying water. 4,337,136, Cl. 204-242.000.
Daigaku, Masaaki, to Olympus Optical Co., Ltd. Earphone jack for tape recorders. 4,337,383, Cl. 200-51.090.
Dainippon Screen Mfg. Co., Ltd.: *See—*
Komatsubara, Shozi; and Katayama, Masanori, 4,336,984, Cl. 352-75.000.
Dalle Carbonare, Gianbattista, to Honeywell Information Systems Inc. Device for detecting the direction and change of rotational speed of a rotating element. 4,337,497, Cl. 361-239.000.
Dalmas, Edward A., to Villar, Inc. Method of bleaching textile materials. 4,337,060, Cl. 8-111.000.
Daman, Ernest L., to Foster Wheeler Energy Corporation. Integral vapor generator/gasifier system. 4,336,769, Cl. 122-4.00D.
Dauvergne, Hector A. Shock activated shut-off valve. 4,336,818, Cl. 137-38.000.
Davenport, Bobby E.: *See—*
Nix, Edwin L.; and Davenport, Bobby E., 4,336,963, Cl. 296-39.00R.
Davis, Harold L., to Mostek Corporation. On-hook/off-hook detector circuit. 4,337,378, Cl. 179-18.0FA.
Davis, Robert B., to Union Carbide Corporation. Process for delivering liquid cryogen. 4,336,689, Cl. 62-55.000.
Davy McKee Aktiengesellschaft: *See—*
Mahler, Friedrich; and Stauffer, Adolf, 4,337,224, Cl. 422-197.000.
Day, Paul L., to Park-Ohio Industries, Inc. Apparatus for quenching heated workpieces. 4,336,924, Cl. 266-117.000.
De La Rue Systems Limited: *See—*
Hilton, Graham H., 4,337,393, Cl. 235-487.000.
Decker, Henry F. Method for producing ground cover sods. 4,336,668, Cl. 47-58.000.
Deere & Company: *See—*
Friesen, Henry; and Trott, Clarence R., 4,337,015, Cl. 414-686.000.
Deffendall, George W.; and Hitt, James J., to Leeds & Northrup Company. Analog to digital converter with offset error correction. 4,337,456, Cl. 340-347.0NT.
Degussa Aktiengesellschaft: *See—*
Buder, Wolfgang; Wolff, Siegfried; and Kleinschmit, Peter, 4,337,205, Cl. 260-349.000.
Ruhs, Alexander; Schwarz, Rudolf; and Kleinschmit, Peter, 4,337,239, Cl. 423-561.00R.
Deibert, Raymond L. Push-button reversible ratchet and pawl socket wrench handle. 4,336,728, Cl. 81-62.000.
de Korte, Jacob, to Nederlandse Omroep Stichting. Electronic cascade circuit comprising a circuit having controllable transfer characteristics and a two-port. 4,337,440, Cl. 330-129.000.
Del Mar Avionics: *See—*
Anderson, Donald L.; Cherry, Isaac R.; Ripley, John A.; and Tanaka, David T., 4,336,810, Cl. 128-702.000.
Delagrange, Arthur D.; Pryor, Cabell N., Jr.; and Wilson, Wayne D., to United States of America, Navy. Acoustic Doppler detector. 4,337,527, Cl. 367-98.000.
Delattre, Christian: *See—*
Favreau, Michel; Bajon, Jean; Cattoen, Michel; Soca, Serge; Longuet, Maurice; and Delattre, Christian, 4,337,514, Cl. 364-515.000.
Delaunay, Pierre P. A.: *See—*
Maillard, Jacques G.; Delaunay, Pierre P. A.; and Legeai, Jacky M. G., 4,337,343, Cl. 548-152.000.
Dellis, Fred J., to Windblown Systems, Inc. Turbocharger control system. 4,336,688, Cl. 60-602.000.
De Long, Horace J. Poultry processing method and apparatus. 4,336,633, Cl. 17-51.000.
Delta Systems, Inc.: *See—*
Howard, William A., 4,336,778, Cl. 123-334.000.
Deraedt, Roger: *See—*
Allais; Andre; Clemence, Francois; Meier, Jean; and Deraedt, Roger, 4,337,353, Cl. 562-460.000.
deRosset, Armand J., to UOP Inc. Adsorptive separation of contaminants from naphtha. 4,337,156, Cl. 210-672.000.
deRosset, Armand J.: *See—*
Kulprathipanja, Santi; and deRosset, Armand J., 4,337,171, Cl. 252-430.000.
De Sa, Alvaro; and Luksenberg, Jacob M., to Versa Consultoria Technica LTDA., CGC. Process for the production of fuel alcohol, without vinasse. 4,337,123, Cl. 203-19.000.
De Stevens, George: *See—*
Carney, Richard W. J.; and De Stevens, George, 4,337,264, Cl. 424-274.000.
Deutsche Solvay Werke GmbH: *See—*
Metzner, Wolfgang; Koddebusch, Hubert; and Poetter, Gerswid, deceased, 4,337,093, Cl. 106-18.330.
Diachem, Inc.: *See—*
Babb, Albert L.; and Scribner, Belding H., 4,336,881, Cl. 206-525.000.
Diamond Shamrock Corporation: *See—*
Gestaut, Lawrence J.; and Solomon, Frank, 4,337,139, Cl. 204-292.000.
Gilligan, Thomas J., III; Strempel, Thomas G.; Dorio, Martin M.; and Babinsky, Andrew D., 4,337,126, Cl. 204-98.000.
Solomon, Frank, 4,337,140, Cl. 204-292.000.
Diaz, Joseph; and Guegan, Remy, to C. M. Industries. Process for the preparation of somatostatin. 4,337,194, Cl. 260-112.50S.
Dick, James E., to Phillips Petroleum Company. Lead pressured extraction of carbonaceous material. 4,337,148, Cl. 208-8.0LE.
Dickinson, William B.: *See—*
Lesher, George Y.; and Dickinson, William B., 4,337,253, Cl. 424-250.000.
Diehr, Hans-Joachim: *See—*
Arold, Hermann; Humburger, Siegbert; Diehr, Hans-Joachim; and Porkert, Helmut, 4,337,359, Cl. 568-21.000.
Dieterich, Dieter: *See—*
Reiff, Helmut; and Dieterich, Dieter, 4,337,333, Cl. 528-67.000.
Dimitrov, Dimiter N.: *See—*
Petrov, Georgi S.; Petkov, Ivan A.; Etropolski, Hristo I.; Dimitrov, Dimiter N.; Popov, Nikolay N.; and Uzunov, Atanas I., 4,337,078, Cl. 71-24.000.
Dines, Martin B., to Occidental Research Corporation. Regeneration of liquid membrane without breaking emulsion. 4,337,225, Cl. 423-10.000.
Dinkel, Rolf, to Lonza Ltd. Process for the preparation of 3-picoline. 4,337,342, Cl. 546-251.000.
Direct Reduction Corporation, The: *See—*
Keran, Vitie P.; and Baker, Alan C., 4,337,084, Cl. 75-36.000.
Discovision Associates: *See—*
Basilico, Albert R.; and Wilfinger, Raymond J., 4,337,534, Cl. 369-111.000.
Wilkinson, Richard L.; and Winslow, John S., 4,337,538, Cl. 369-223.000.
Dittmann, Norbert: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.

Divajex: *See—*
Krug, James E.; Magenau, Roger W.; and Hall, Jack P., 4,336,883, Cl. 206-545.000.

Doi, Shunichi; and Kamogawa, Masatake, to Nitto Chemical Industry Co., Ltd.; and Mitsubishi Rayon Co., Ltd. Process for purifying 2-acrylamido-2-methylpropanesulfonic acid. 4,337,215, Cl. 260-513.00N.

Donahue, Jerome T. Oil reclaiming apparatus having ultraviolet sterilizer therein. 4,337,119, Cl. 196-46.000.

Donlon, Thomas. Self-scoring test with non-disclosed key. 4,337,051, Cl. 434-328.000.

Dorio, Martin M.: *See—*
Gilligan, Thomas J., III; Strempel, Thomas G.; Dorio, Martin M.; and Babinsky, Andrew D., 4,337,126, Cl. 204-98.000.

Dow Chemical Company, The: *See—*
Allada, Sambasiva R., 4,337,321, Cl. 521-143.000.
Ezzell, Bobby R., 4,337,137, Cl. 204-252.000.
Ezzell, Bobby R.; Carl, William P.; and Mod, William A., 4,337,211, Cl. 260-456.00F.
Ramirez, Enrique G., 4,337,175, Cl. 252-455.00R.
Wessling, Ritchie A.; and Pickelman, Dale M., Sr., 4,337,185, Cl. 524-458.000.

Dow Corning Limited: *See—*
Hill, Michael P. L.; and Fridd, Petrina F., 4,337,166, Cl. 252-174.150.

Dowbenko, Rostyslaw: *See—*
Schimmel, Karl F.; Seiner, Jerome A.; Dowbenko, Rostyslaw; and Christenson, Roger M., 4,337,184, Cl. 524-726.000.

Doyle, Earl N. Process for the total pre-expansion of polyurethane foam. 4,337,318, Cl. 521-80.000.

Drain, Bob R. Apparatus for curing masonry units. 4,337,033, Cl. 432-197.000.

Drake, Charles A., to Phillips Petroleum Company. Catalyst for hydrogenation of unsaturated dinitriles. 4,337,177, Cl. 252-466.0PT.

Dresser Industries, Inc.: *See—*
Sample, Thomas E., Jr., 4,337,160, Cl. 252-8.50B.

Drummond, Robert A., to McGraw-Edison Company. Application of insulation to ride frame of vacuum fluorescent display. 4,337,411, Cl. 313-497.000.

Drummond, Warren W., to PPG Industries, Inc. Rotary forehearth. 4,337,073, Cl. 65-1.000.

Du Pont Canada Inc.: *See—*
Climenhage, David C.; and Eadie, Walter R., 4,337,188, Cl. 524-140.000.

Duchac, Joseph O.: *See—*
Kopecko, William L.; Fuller, Robert L.; and Duchac, Joseph O., 4,336,730, Cl. 82-4.00A.

Duchesne, Gaston; Laflamme, Marc; and Matte, Denis, to Monitronik Ltee. Mosaic display panel. 4,336,673, Cl. 52-27.000.

Duff, James A.; and Boisvert, Donald R., to Magnetic Peripherals, Inc. Handle assembly, top-load cartridge. 4,336,631, Cl. 16-126.000.

Dunne, Peter F. Eye glass, ring and watch holder. 4,336,887, Cl. 211-13.000.

Duplouy, Alain; and Le Bras, Bernard, to Lafarge Coppee. Device for mixing gaseous fluids by turbulence. 4,337,032, Cl. 432-106.000.

Du Pont de Nemours, E. I., and Company: *See—*
Ahramjian, Leo, 4,337,130, Cl. 204-159.150.
Copeland, Terry M., 4,337,127, Cl. 204-98.000.
Hazan, Isidor, 4,337,187, Cl. 524-504.000.

Durbin, John A.; and Shogren, David K., to Xerox Corporation. Precession scanning system for copier device. 4,336,995, Cl. 355-8.000.

Durr, Rene, to Instruments S.A. High frequency inductive generator for the inductive coil of a plasma generator. 4,337,415, Cl. 315-111.510.

E. R. Squibb & Sons, Inc.: *See—*
Gordon, Eric M.; and Ondetti, Miguel A., 4,337,197, Cl. 260-239.00A.
Petrillo, Edward W., Jr., 4,337,201, Cl. 548-413.000.
Vogt, B. Richard, 4,337,255, Cl. 424-251.000.

Eadie, Walter R.: *See—*
Climenhage, David C.; and Eadie, Walter R., 4,337,188, Cl. 524-140.000.

Eastman Kodak Company: *See—*
Harris, Clark E., 4,336,961, Cl. 292-254.000.
Larkins, Thomas H., Jr., 4,337,351, Cl. 560-263.000.

Eaton Corporation: *See—*
Matthies, Alan A., 4,337,450, Cl. 337-66.000.
Meyer, Lawrence L., 4,336,775, Cl. 123-198.00F.
Morgan, David F., 4,336,687, Cl. 60-384.000.
Smith, Jackson H., 4,337,425, Cl. 318-345.00G.

Eck, Herbert: *See—*
Adler, Klaus; Hafener, Klaus; and Eck, Herbert, 4,337,323, Cl. 524-239.000.

Ecker, Amir L.; and Pietsch, Joseph A., to Atlantic Richfield Company. Dual source heat pump. 4,336,692, Cl. 62-82.000.

Ecomar, Inc.: *See—*
Meek, Robert P., 4,336,709, Cl. 73-61.200.

Ed. Geistlich Sohne AG fur Chemische Industrie: *See—*
Pfirrmann, Rolf W., 4,337,251, Cl. 424-246.000.

Eddy, Clifford O.: *See—*
Szlucha, Thomas F.; and Eddy, Clifford O., 4,336,992, Cl. 355-3.0FU.

Edwards, James D.: *See—*
Hone, Ronald D.; Harris, William; and Edwards, James D., 4,336,626, Cl. 15-319.000.

Eibeck, Richard E.: *See—*
Anello, Louis G.; Van Der Puy, Michael; Robinson, Martin A.; and Eibeck, Richard E., 4,337,361, Cl. 568-386.000.

Eisai Co., Ltd.: *See—*
Iwagiri, Susumu; Hattori, Teiichi; Nasu, Teruyoshi; and Miyake, Yasuo, 4,337,246, Cl. 424-174.000.

Eisenstein, Stephen E., to BASF Wyandotte Corporation. Synthetic polymer films and fibers rendered permanently anti-static. 4,336,685, Cl. 57-238.000.

Eistetter, Klaus; and Rapp, Erich, to Byk Gulden Lomberg Chemische Fabrik GmbH. Phenalkoxyalkyl- and phenoxyalkyl-substituted oxiranecarboxylic acids, their use and medicaments containing them. 4,337,267, Cl. 424-278.000.

Eklund, Urban, to Kockums Industri AB. Band sawing machine having means to apply corrective twist to the blade. 4,336,731, Cl. 83-74.000.

Eldridge, John, Jr., to Instranetics, Inc. Medical tubing holder. 4,336,806, Cl. 128-348.000.

Electro Scientific Industries, Inc.: *See—*
Mauck, Michael S., 4,337,442, Cl. 372-13.000.

Electrochemical Technology Corp.: *See—*
Beck, Theodore R.; and Ruggeri, Robert T., 4,336,811, Cl. 128-784.000.

Electronics Diversified, Inc.: *See—*
Flego, Steven E., 4,337,430, Cl. 323-323.000.

Elfab Corporation: *See—*
Norman, Richard O., 4,337,134, Cl. 204-198.000.

Elger, Walter: *See—*
Petzoldt, Karl; Steinbeck , Hermann; and Elger, Walter, 4,337,311, Cl. 435-54.000.

Eli Lilly and Company: *See—*
Zimmerman, Dennis M., 4,337,341, Cl. 546-112.000.

Elkem a/s: *See—*
Haakonsen, Carl; and Thomassen, Thomas, 4,337,128, Cl. 204-107.000.

Elkins, Christopher W.: *See—*
Cammack, Michael A.; Elkins, Christopher W.; Hickman, Clarence J.; and Mullins, Keith M., 4,337,040, Cl. 433-80.000.

Ellestad, Arne; and Tokerud, Arvid, to AB Svenska Flaktfabriken. Method of absorbing sulfur oxides from flue gases in seawater. 4,337,230, Cl. 423-242.000.

Elliot, David K.: *See—*
Cronin, Michael J.; and Elliot, David K., 4,337,499, Cl. 361-386.000.

Elrick, Donald E.; and Gilbert, Harry, to Hercules Incorporated. Composite propellant with differentially cured area at initial burn surface. 4,337,103, Cl. 149-19.900.

El-Shazly, Mohamed F.; and Baker, Kenneth D., to Hooker Chemicals & Plastics Corp. Electroless gold plating. 4,337,091, Cl. 106-1.230.

Eltra Corporation: *See—*
Newberry, Richard D., 4,336,785, Cl. 123-605.000.

Ely, Richard J. Heat exchange turbulator. 4,336,838, Cl. 165-109.00T.

Emerson Electric Co.: *See—*
McElroy, Jerry W.; and Urban, Donald C., 4,337,029, Cl. 431-264.000.

Endicott, Donald L., Jr.: *See—*
Stachiw, Jerry D.; and Endicott, Donald L., Jr., 4,337,105, Cl. 156-87.000.

Endo, Norio; and Nakagami, Tatsuro, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha; and Mitsubishi Denki Kabushiki Kaisha. Fuel feed device for engine. 4,336,782, Cl. 123-494.000.

Energy Development Associates, Inc.: *See—*
Hart, Thomas G., 4,337,237, Cl. 423-486.000.

Engalitcheff, John, Jr., to Baltimore Therapeutic Equipment Company. Method and apparatus for rehabilitation of damaged limbs. 4,337,050, Cl. 434-260.000.

Engelberts, Gerhardus A., to B.V. Machinefabriek Breda v/h Backer & Rueb. Method of enlarging the heat exchange surface of a tubular element. 4,336,642, Cl. 29-157.30A.

English, Joseph J., to Kintz, Earl J., a part interest. Apparatus for removing organic components from an aqueous cleaning solution. 4,337,121, Cl. 202-169.000.

Eppenbach, Lawrence C. Composite tool. 4,336,729, Cl. 81-439.000.

Erdelyi, Attila: *See—*
Almasi, Istvan; Kassai, Ferenc; and Erdelyi, Attila, 4,336,799, Cl. 128-201.240.

Erregierre S.p.A.: *See—*
Gargani, Pietro, 4,337,206, Cl. 260-397.100.

Ervin Industries, Inc.: *See—*
Kwolek, William S., 4,336,672, Cl. 51-432.000.

Erwin Sick GmbH Optik-Electronik: *See—*
Ross, Dieter; and Baumgartner, Viktor, 4,336,997, Cl. 356-4.000.

Esashi, Kiyoyuki; and Minatono, Hisae, to Sumitomo Special Metals Co. Ltd. Microcrystalline thin strip for magnetic material having high permeability, a method of producing the same and articles made from the thin strip. 4,337,087, Cl. 75-124.000.

Escalera, Saul J., to Sherex Chemical Company, Inc. Promoters for use in the anionic circuit of froth flotation of mineral ores. 4,337,149, Cl. 209-166.000.

Eshleman, Ronald J., to Minnesota Mining and Manufacturing Company. Abrasion-resistant transfer laminating sheet material. 4,337,107, Cl. 156-249.000.

Etablissement Public de Diffusion dit "Telediffusion de France": *See—*
Guillou, Louis C., 4,337,483, Cl. 358-114.000.

Etropolski, Hristo I.: *See—*
Petrov, Georgi S.; Petkov, Ivan A.; Etropolski, Hristo I.; Dimitrov, Dimiter N.; Popov, Nikolay N.; and Uzunov, Atanas I., 4,337,078, Cl. 71-24.000.

Euclid Chemical Company, The: *See—*
Tokar, Valery, 4,337,094, Cl. 106-90.000.

Evans, Eric R. Fruit cultivation. 4,336,667, Cl. 47-58.000.

Evenson, William R. Hydraulic sleeve valve and seal arrangement for piston pump. 4,337,017, Cl. 417-516.000.

Exxon Production Research Company: *See—*
Reed, Ronald L.; and Carpenter, Clarence W., Jr., 4,337,159, Cl. 252-8.55D.

Exxon Research & Engineering Co.: *See—*
McCandlish, Larry E.; and Kugler, Edwin L., 4,337,232, Cl. 423-362.000.

Ezzell, Bobby R., to Dow Chemical Company, The. Composite ion exchange membranes. 4,337,137, Cl. 204-252.000.

Ezzell, Bobby R.; Carl, William P.; and Mod, William A., to Dow Chemical Company, The. Fluorocarbon ethers having substituted halogen site(s) and process to prepare. 4,337,211, Cl. 260-456.00F.

Fa. Gebr. Alexander Rheinische Musikinstrumentenfabrik GmbH: *See—*
Alexander, Anton, 4,336,738, Cl. 84-390.000.

Fabrique Nationale Herstal: *See—*
Bourlet, Maurice V., 4,336,742, Cl. 89-34.000.

Factory Mutual Research Corporation: *See—*
Pion, Russell F., 4,336,825, Cl. 137-403.000.

Fairchild, Wayne K. Frictional tensioning device. 4,336,911, Cl. 242-75.400.

Falconbridge Nickel Mines, Ltd.: *See—*
Haakonsen, Carl; and Thomassen, Thomas, 4,337,128, Cl. 204-107.000.

Falconbridge Nikkelverk A/S: *See—*
Haakonsen, Carl; and Thomassen, Thomas, 4,337,128, Cl. 204-107.000.

Falkenberg, Johan C. Corrugated toothed web strip with penetration stoppers for construction elements. 4,337,287, Cl. 428-133.000.

Falkowski, Paul P.; Spotz, Erwin; and Rajadhyaksha, Mangesh, to Square D Company. Method of encapsulating electrical coils. 4,337,219, Cl. 264-130.000.

Farina, Peter R.; and Grattan, James A., to Baker Instruments Corp. Process for preparation of folic acid derivatives. 4,337,339, Cl. 544-257.000.

Farmitalia Carlo Erba S.p.A.: *See—*
Battistini, Carlo; Cassinelli, Giuseppe; Franceschi, Giovanni; Mazzoleni, Rosanna; and Arcamone, Federico, 4,337,248, Cl. 424-180.000.

Farnham, Robert E., to Barber-Greene Company. Method and apparatus for erecting a portable silo and elevator. 4,337,014, Cl. 414-332.000.

Farnum, Sylvia A.: *See—*
Knudson, Curtis L.; Willson, Warrack G.; Baker, Gene G.; Sondreal, Everett A.; and Farnum, Sylvia A., 4,337,142, Cl. 208-8.0LE.

Fattore, Vittorio; Manara, Giovanni; and Notari, Bruno, to Snamprogetti S.p.A. Method for the preparation of ethers. 4,337,366, Cl. 568-698.000.

Favreau, Michel; Bajon, Jean; Cattoen, Michel; Soca, Serge; Longuet, Maurice; and Delattre, Christian, to Thomson-CSF. Device for automatically controlling the transfer function of a video system for improving image perception. 4,337,514, Cl. 364-515.000.

Favstritsky, Nicolai A., to Fiber Industries, Inc. Polyester of parahydroxy benzoic acid, 2,6-naphthalene dicarboxylic acid, terephthalic acid and methylhydroquinone exhibiting improved hydrolytic stability and which is capable of forming an anisotropic melt. 4,337,191, Cl. 524-599.000.

Feldman, Steven, to AMP Incorporated. Apparatus for shearing and crimping. 4,336,646, Cl. 29-564.200.

Ferro Corporation: *See—*
Votava, Werner F., 4,337,316, Cl. 501-21.000.

Festo-Maschinenfabrik Gottlieb Stoll: *See—*
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Fiber Industries, Inc.: *See—*
Favstritsky, Nicolai A., 4,337,191, Cl. 524-599.000.

Field, Lamar: *See—*
Byrd, James D.; and Field, Lamar, 4,337,218, Cl. 264-3.00R.

Fielder, Coy M., to Christensen, Inc. Internal fluid screen to prevent nozzle and port plugging. 4,336,850, Cl. 175-393.000.

Fink, Heiner: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.

Firmenich SA: *See—*
Pickenhagen, Wilhelm, 4,337,277, Cl. 426-534.000.

Fischer, Joseph J.: *See—*
Melissa, Raymond F.; Grummett, Lorne H.; and Fischer, Joseph J., 4,336,751, Cl. 101-93.040.

Fischman, Leonard F.: *See—*
Crye, LeRoy D.; and Fischman, Leonard F., 4,336,894, Cl. 221-280.000.

Fiser, Jiri: *See—*
Cerny, Arnost; Fiser, Jiri; Jiruse, Jaroslav; and Sedlak, Vaclav, 4,336,930, Cl. 271-277.000.

Fisher, Donald L.: *See—*
Gootzait, Edward; and Fisher, Donald L., 4,337,030, Cl. 432-14.000.

Flego, Steven E., to Electronics Diversified, Inc. Inductive-load power control circuit. 4,337,430, Cl. 323-323.000.

Fleischer, Helmut: *See—*
Schneider, Erich; Fleischer, Helmut; Nonnenmann, Wolfgang; and Gerum, Benno, 4,337,511, Cl. 364-426.000.

Fletcher, Michael B., to Union Carbide Corporation. Furnace for fusing vanadium pentoxide powder. 4,337,373, Cl. 13-23.000.

Flex-O-Lators, Inc.: *See—*
Mundell, Donald D.; and Tieman, Lloyd E., 4,337,004, Cl. 403-209.000.

Flo-Pac Corporation: *See—*
Pichelman, Franklin D.; and Mehl, Donald N., 4,336,624, Cl. 15-245.000.

Flohr, Peter; and Gumpinger, Franz, to Bayerische Motoren Werke Aktiengesellschaft. Testing device for structural parts and functions of motor vehicles. 4,337,432, Cl. 324-379.000.

Flother, Werner, to Carl Zeiss-Stiftung. Diaphragm control system. 4,336,990, Cl. 354-272.000.

Fluid Controls, Inc.: *See—*
Grawunde, Frederick G., 4,336,826, Cl. 137-540.000.

FMC Corporation: *See—*
Chiang, John S.; and Goldstein, David, 4,337,233, Cl. 423-397.000.
McGrew, Bernard L., 4,336,889, Cl. 212-178.000.
Orlando, Franklin P., 4,336,682, Cl. 56-330.000.

Focke & Co.: *See—*
Focke, Heinz H., 4,336,873, Cl. 198-347.000.

Focke, Heinz H., to Focke & Co. Apparatus for transporting cigarettes from a supply stack to a packaging machine. 4,336,873, Cl. 198-347.000.

Fogel, John D.; and McAdam, Will, to Leeds & Northrup Company. Compensator for slowly responding sensors. 4,337,434, Cl. 328-114.000.

Ford Motor Company: *See—*
Baines, William R., 4,336,741, Cl. 89-7.000.

Forde, Alfredo: *See—*
Forde, Louis; Forde, L. Gregory; Forde, Alonzo; Forde, Alfredo; and Forde, Raymond, 4,336,774, Cl. 123-143.00B.

Forde, Alonzo: *See—*
Forde, Louis; Forde, L. Gregory; Forde, Alonzo; Forde, Alfredo; and Forde, Raymond, 4,336,774, Cl. 123-143.00B.

Forde, L. Gregory: *See—*
Forde, Louis; Forde, L. Gregory; Forde, Alonzo; Forde, Alfredo; and Forde, Raymond, 4,336,774, Cl. 123-143.00B.

Forde, Louis; Forde, L. Gregory; Forde, Alonzo; Forde, Alfredo; and Forde, Raymond. Rotating igniter for engines. 4,336,774, Cl. 123-143.00B.

Forde, Raymond: *See—*
Forde, Louis; Forde, L. Gregory; Forde, Alonzo; Forde, Alfredo; and Forde, Raymond, 4,336,774, Cl. 123-143.00B.

Fortin, Jacques: *See—*
Bourassin, Lucien; Condat, Bernard; Fortin, Jacques; Leger, Alain; Soto, Joseph; and Solvinto, Jean-Claude, 4,337,480, Cl. 358-93.000.

Foster, Peter D.; and Stowers, Clifford, to Keyes Fibre Company. Contoured molded pulp container with polyester liner. 4,337,116, Cl. 162-158.000.

Foster Wheeler Energy Corporation: *See—*
Daman, Ernest L., 4,336,769, Cl. 122-4.00D.

Fox, Raymond J., to Robertshaw Controls Company. Electrical switch construction, switch blade subassembly and methods of making the same. 4,337,451, Cl. 337-93.000.

Frame, Robert R., to UOP Inc. Catalytic composite and process for use. 4,337,147, Cl. 208-206.000.

Franceschi, Giovanni: *See—*
Battistini, Carlo; Cassinelli, Giuseppe; Franceschi, Giovanni; Mazzoleni, Rosanna; and Arcamone, Federico, 4,337,248, Cl. 424-180.000.

Franke, Werner, to Hoechst Aktiengesellschaft. Process for making relief-type recordings. 4,337,308, Cl. 430-306.000.

Franklin Institute, The: *See—*
Pytlewski, Louis L.; Krevitz, Kenneth; and Smith, Arthur B., 4,337,368, Cl. 568-730.000.

Franklin, Reginald A., to Crawford Collets Limited. Workpiece feed devices. 4,336,947, Cl. 279-46.00A.

Frantz, Virgil L.; and Taylor, Thomas D., to Graham-White Sales Corporation. Solenoid-actuated drain valve. 4,336,821, Cl. 137-187.000.

Fraser, David B.; and Murarka, Shyam P., to Bell Telephone Laboratories, Incorporated. Silicon rich refractory silicides as gate metal. 4,337,476, Cl. 357-67.000.

Frebar Holding AG: *See—*
Lynch, John F., 4,337,152, Cl. 210-197.000.

Freeman, Alfred B., to Texas Instruments Incorporated. Manually controllable data reading apparatus for speech synthesizers. 4,337,375, Cl. 179-1.0SA.

Fridd, Petrina F.: *See—*
Hill, Michael P. L.; and Fridd, Petrina F., 4,337,166, Cl. 252-174.150.

Fried, David L.: *See—*
Hunter, Robert O.; and Fried, David L., 4,337,437, Cl. 330-4.300.

Friesen, Henry; and Trott, Clarence R., to Deere & Company. Parking stand means for tractor-dismounted implement. 4,337,015, Cl. 414-686.000.

Frohning, Carl D.: *See—*
Bahrmann, Helmut; Cornils, Boy; Frohning, Carl D.; and Weber, Jurgen, 4,337,363, Cl. 568-444.000.

Fruehauf Corporation: *See—*
Gill, Charles B., 4,336,877, Cl. 198-509.000.
Fuderer, Andrija, to Union Carbide Corporation. Catalytic steam reforming of hydrocarbons. 4,337,170, Cl. 252-373.000.
Fuji Koeki Corporation: *See—*
Takematsu, Yoshiyuki, 4,337,416, Cl. 315-241.00P.
Fuji Photo Film Co., Ltd.: *See—*
Akao, Mutsuo; and Kashiwagi, Kenzo, 4,337,285, Cl. 428-35.000.
Hiratsuka, Nobuo; Mihara, Yuji; Masuda, Nobuhito; and Miyazako, Takushi, 4,337,065, Cl. 23-230.00B.
Kitajima, Masao; Arai, Fuminori; and Kondo, Asaji, 4,337,222, Cl. 422-56.000.
Mihara, Yuji; Masuda, Nobuhito; Hiratsuka, Nobuo; Miyazako, Takushi, both of; and Ikeda, Tadashi, 4,337,063, Cl. 23-230.00B.
Miyamoto, Akio; Kobayashi, Teruo; and Matsukawa, Hiroharu, 4,337,280, Cl. 427-150.000.
Ohnishi, Masahiro; and Kimura, Tsutomu, 4,337,398, Cl. 250-548.000.
Takenaka, Haruo; Tadokoro, Eiichi; and Fujiyama, Masaaki, 4,337,288, Cl. 428-172.000.
Fuji Sangyo Kabushiki Kaisha: *See—*
Nagashima, Kazuyoshi; and Furuya, Nobuyuki, 4,337,453, Cl. 338-320.000.
Fujikake, Kenji: *See—*
Sugiyama, Katsuhiko; Ohsawa, Katsuyuki; Fujikake, Kenji; and Idota, Yoshinori, 4,336,780, Cl. 123-438.000.
Fujimura, Akira: *See—*
Gotoh, Osamu; Otobe, Yutaka; Kawamoto, Michio; and Fujimura, Akira, 4,336,784, Cl. 123-571.000.
Fujino, Masahiko; Wakimasu, Mitsuhiro; and Kawai, Kiyohisa, to Takeda Chemical Industries, Ltd. Tetrapeptidesemicarbazide derivatives and their production and use. 4,337,247, Cl. 424-177.000.
Fujitsu Fanuc Limited: *See—*
Inagaki, Shigemi; and Nihei, Ryo, 4,336,926, Cl. 269-34.000.
Fujitsu Limited: *See—*
Takahasi, Masauki; Tanaka, Hisami; Yamasawa, Masao; and Ohhata, Michinobu, 4,337,459, Cl. 340-347.0DA.
Yoshimura, Tatsuro, 4,337,433, Cl. 328-55.000.
Fujiyama, Masaaki: *See—*
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Fukatsu, Shunzo: *See—*
Umezawa, Hamao; Umezawa, Sumio; Fukatsu, Shunzo; Yoneta, Toshio; and Wakazawa, Tadashi, 4,337,336, Cl. 536-13.800.
Fukuchi, Shuzo; Hayashi, Tetsuzo; Kobayashi, Hiroya; and Oshiumi, Ryoichi, to Nippon Shokubai Kagaku Kogyo Co., Ltd. Crosslinked composite semipermeable membrane. 4,337,154, Cl. 210-490.000.
Fukushima, Susumu; Munenobu, Hideaki; and Yamade, Kazuhiro, to Tokyo Kikakikai Co., Ltd.; Kansai Chemical Engineering Co., Ltd.; and Takara Shuzo Co., Ltd. Continuous fermentor and reactor. 4,337,315, Cl. 435-313.000.
Fukushima, Yoshio, to Ricoh Co., Ltd. Mark means for adjusting the position of solid-state line image sensor. 4,337,394, Cl. 250-237.00G.
Fuller, Robert L.: *See—*
Kopecko, William L.; Fuller, Robert L.; and Duchac, Joseph O., 4,336,730, Cl. 82-4.00A.
Fuller, Robert T.; and Sanders, Robert J. Holder for stiffly flexible sheets. 4,336,888, Cl. 211-45.000.
Funada, Fumiaki; Matsuura, Masataka; and Wada, Tomio, to Sharp Kabushiki Kaisha. Fluorescent liquid crystal display devices. 4,336,980, Cl. 350-345.000.
Funakoshi, Satoshi: *See—*
Suzuki, Yasushi; Tsukamoto, Kunio; Minami, Nobuyoshi; Hasegawa, Yukio; Satoh, Michitaka; Yamamoto, Norio; Miyasaka, Katsuhiko; Mikami, Takashi; and Funakoshi, Satoshi, 4,337,256, Cl. 424-258.000.
Funken Co., Ltd.: *See—*
Iwako, Hiroyuki, 4,336,851, Cl. 177-16.000.
Furuhashi, Toshio, to Hitachi, Ltd. Apparatus and method for controlling internal combustion engine. 4,337,512, Cl. 364-431.090.
Furuhashi, Toshio, to Hitachi, Ltd. Electronic type engine control method and apparatus. 4,337,513, Cl. 364-431.110.
Furuhata, Hiroshi: *See—*
Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, 4,336,808, Cl. 128-663.000.
Furui, Hiroshi: *See—*
Tezuka, Hisao; and Furui, Hiroshi, 4,337,380, Cl. 179-146.00E.
Furukawa Denchi Kabushiki Kaisha: *See—*
Takizawa, Yoshihiro, 4,337,302, Cl. 429-181.000.
Furukawa, Tatsuya. Ink jet printing apparatus with variable character size. 4,337,470, Cl. 346-75.000.
Furuya, Nobuyuki: *See—*
Nagashima, Kazuyoshi; and Furuya, Nobuyuki, 4,337,453, Cl. 338-320.000.
Fuzioka, Keizi; and Shinomiya, Masami, to Ohtsu Tire & Rubber Co., Ltd., The. Tubeless pneumatic tires. 4,336,833, Cl. 152-353.00G.
G.D. Societa per Azioni: *See—*
Seragnoli, Enzo, 4,336,812, Cl. 131-84.00R.
Seragnoli, Enzo, 4,336,813, Cl. 131-84.00C.
Gamell, Joseph A., to Joseph Gamell Industries, Inc. Turbo-flywheel-powered vehicle. 4,336,856, Cl. 180-165.000.
Gannaway, Thomas W.: *See—*
Hatch, James E.; and Gannaway, Thomas W., 4,337,048, Cl. 434-219.000.
Garcia, Alberto A. Lathekin. 4,336,706, Cl. 72-479.000.
Gardner, Kenneth L.; Zimmer, William E.; and Miller, Samuel A., to Kennedy Van Saun Corporation. Preheating apparatus. 4,337,031, Cl. 432-98.000.
Garganese, Ugo S.: *See—*
Martin, Raymond H.; Garganese, Ugo S.; and Griffin, John R., 4,337,039, Cl. 433-60.000.
Gargani, Pietro, to Erregierre S.p.A. Process for preparing high purity ursodeoxycholic acid. 4,337,206, Cl. 260-397.100.
Garner, James K., Jr., to Camco, Incorporated. Mechanical tubing anchor. 4,336,841, Cl. 166-216.000.
Garrett Corporation, The: *See—*
Glaser, Jerry, 4,336,649, Cl. 29-598.000.
Garrett, Luther W., Jr., to Alumax, Inc. Process for the production of sulfates. 4,337,228, Cl. 423-114.000.
Gavrilov, Evgeny N.: *See—*
Kulyabko, Valery A.; Sinyavskaya, Vera M.; Sivkov, Alexandr A.; and Gavrilov, Evgeny N., 4,337,008, Cl. 405-127.000.
Gay, Walter A., to Olin Corporation. 5-Amido-3-trihalomethyl-1,2,4-thiadiazoles and their use as herbicides. 4,337,081, Cl. 71-90.000.
Gebr. Hofmann GmbH & Co. KG, Maschinenfabrik: *See—*
Goebel, Eickhart, 4,336,717, Cl. 73-487.000.
Gebrueder Heller, Maschinenfabrik GmbH: *See—*
Schmid, Karlheinz, 4,337,011, Cl. 409-199.000.
Gee, John C.: *See—*
German, Paul M., Jr.; Lamont, James A.; and Gee, John C., 4,337,069, Cl. 55-229.000.
Geigel, Maria A.: *See—*
Marynowski, Chester W.; and Geigel, Maria A., 4,337,213, Cl. 260-502.00R.
General Dynamics Corporation, Electronics Division: *See—*
McArdle, Beryl L.; and Tapernoux, Pierre J., 4,337,436, Cl. 328-157.000.
General Dynamics, Pomona Division: *See—*
Maudal, Inge, 4,337,427, Cl. 318-615.000.
General Electric Company: *See—*
Campbell, Richard W., 4,337,192, Cl. 523-212.000.
Kelly, Peter B., 4,336,937, Cl. 273-51.000.
Kelly, Peter B.; and Heagle, Edward R., 4,337,290, Cl. 428-201.000.
Kelly, Peter B., 4,337,291, Cl. 428-204.000.
Loyzim, Robert J., 4,336,858, Cl. 180-179.000.
George, Lawrence C.: *See—*
McDonald, Hector O.; and George, Lawrence C., 4,337,227, Cl. 423-55.000.
Gerhold, Mark L. C.: *See—*
Spracklen, John E.; and Gerhold, Mark L. C., 4,337,465, Cl. 340-825.030.
German, Paul M., Jr.; Lamont, James A.; and Gee, John C., to Standard Oil Company (Indiana). Gas phase olefin polymerization recycle gas scrubbing tower. 4,337,069, Cl. 55-229.000.
Gerum, Benno: *See—*
Schneider, Erich; Fleischer, Helmut; Nonnenmann, Wolfgang; and Gerum, Benno, 4,337,511, Cl. 364-426.000.
Gesellschaft fur Huttenwerksanlagen mbH: *See—*
Immekus, Karl, 4,336,922, Cl. 266-227.000.
Gestaut, Lawrence J.; and Solomon, Frank, to Diamond Shamrock Corporation. Fluorinated carbon electrode. 4,337,139, Cl. 204-292.000.
GHT Gesellschaft fur Hochtemperaturreaktor-Technik mbH: *See—*
Jager, Walter; and von Waclawiczek, Herbert, 4,337,067, Cl. 48-202.000.
Gilbert, Harry: *See—*
Elrick, Donald E.; and Gilbert, Harry, 4,337,103, Cl. 149-19.900.
Gill, Charles B., to Fruehauf Corporation. Foldable unloading machine. 4,336,877, Cl. 198-509.000.
Gillet, Rene: *See—*
Chavand, Jean; Daguenet, Maurice; and Gillet, Rene, 4,337,098, Cl. 148-9.00R.
Gilligan, Thomas J., III; Strempel, Thomas G.; Dorio, Martin M.; and Babinsky, Andrew D., to Diamond Shamrock Corporation. Electrolysis of carbonates to produce hydroxides. 4,337,126, Cl. 204-98.000.
Gindler, E. Melvin, to Sherwood Medical Industries Inc. Albumin determination method. 4,337,064, Cl. 23-230.00B.
Giolitti, Nicolo', to Arnaldo Vigorelli S.p.A. Electromechanical actuator device for a sewing machine. 4,336,762, Cl. 112-158.00E.
Giordano, Raymond L., to RCA Corporation. Dual output switching circuit. 4,337,423, Cl. 318-280.000.
Giorgetti, Rodolfo: *See—*
Zanazzo, Pietro; Mainardi, Giuliano; and Giorgetti, Rodolfo, 4,337,500, Cl. 361-395.000.
Giovanni, Pastrone, to Oximetrix, Inc. Intravenous metering device. 4,336,800, Cl. 128-214.00F.
Glaser, Jerry, to Garrett Corporation, The. Method of making rotor assembly having anchor with undulating sides. 4,336,649, Cl. 29-598.000.
Glenhope Enterprises, Inc.: *See—*
Laroche, Paul G., 4,336,938, Cl. 273-138.00R.
Goebel, Eickhart, to Gebr. Hofmann GmbH & Co. KG, Maschinenfabrik. Device to clamp a wheel on the shaft of a balancing machine. 4,336,717, Cl. 73-487.000.
Goetzinger, John. Pipe flange. 4,336,958, Cl. 285-55.000.
Goff, Melvin J.: *See—*
Goff, Otis W.; and Goff, Melvin J., 4,336,927, Cl. 269-171.500.

Goff, Otis W.; and Goff, Melvin J. Light-weight jam-clamp and combination. 4,336,927, Cl. 269-171.500.
Gohgi, Kazuaki: *See*—
Nakajima, Kazuhisa; Gohgi, Kazuaki; and Yamamoto, Toshio, 4,337,355, Cl. 562-478.000.
Golan, Kenneth F., to Caterpillar Tractor Co. Valve actuator with hydraulic latching. 4,336,827, Cl. 137-624.270.
Gold Star Semiconductor, Ltd.: *See*—
Kim, Choong-Ki; Kwak, Tae-Kyun; and Choe, Seong-Hyeon, 4,337,475, Cl. 357-36.000.
Goldfarb, Adolph E. Musical game apparatus. 4,336,935, Cl. 273-1.00E.
Goldstein, David: *See*—
Chiang, John S.; and Goldstein, David, 4,337,233, Cl. 423-397.000.
Gomes, John M.: *See*—
Peasley, Edward R.; and Gomes, John M., 4,337,226, Cl. 423-22.000.
Goodman, Murray; Verlander, Michael S.; Jacobson, Kenneth A.; Melmon, Kenneth L.; and Castagnoli, Neal, to University of California, Regents of the. Biologically active catecholamine derivatives. 4,337,207, Cl. 260-404.500.
Gootzait, Edward; and Fisher, Donald L., to Kennedy Van Saun Corporation. Solid fuel fired kiln. 4,337,030, Cl. 432-14.000.
Gordon, Eric M.; and Ondetti, Miguel A., to E. R. Squibb & Sons, Inc. O-sulfated β-lactam hydroxamic acids and intermediates. 4,337,197, Cl. 260-239.00A.
Gordon, George N. Planting container. 4,336,669, Cl. 47-74.000.
Gorter, Willem K., to U.S. Philips Corporation. Cutting unit for a shaving apparatus. 4,336,650, Cl. 30-34.200.
Gorvin, John H., to Burroughs Wellcome Co. Flukicidal compounds. 4,337,274, Cl. 424-321.000.
Gostl, Georg: *See*—
Schmitt, Georg; and Gostl, Georg, 4,336,694, Cl. 62-374.000.
Gotoh, Osamu; Otobe, Yutaka; Kawamoto, Michio; and Fujimura, Akira, to Honda Giken Kogyo Kabushiki Kaisha. Exhaust gas recirculation control system for engines. 4,336,784, Cl. 123-571.000.
Gould Inc.: *See*—
Kozacka, Frederick J.; and Belcher, Richard A., 4,337,452, Cl. 337-231.000.
Gould, Norman P.: *See*—
Cragoe, Edward J., Jr.; Stokker, Gerald E.; and Gould, Norman P., 4,337,354, Cl. 562-461.000.
Graham, John W.; Sinclair, A. Richard; and Brandt, John L. Method of treating wells using resin-coated particles. 4,336,842, Cl. 166-276.000.
Graham-White Sales Corporation: *See*—
Frantz, Virgil L.; and Taylor, Thomas D., 4,336,821, Cl. 137-187.000.
Graphic Controls Corporation: *See*—
Hubbard, James R.; Sarkisian, George M.; and Scanlon, John J., 4,337,471, Cl. 346-140.00R.
Grattan, James A.: *See*—
Farina, Peter R.; and Grattan, James A., 4,337,339, Cl. 544-257.000.
Grawunde, Frederick G., to Fluid Controls, Inc. Control valve. 4,336,826, Cl. 137-540.000.
Gray, Adrian L. Method of making thermocouples and products thereof. 4,337,221, Cl. 264-102.000.
Gray, Benjamin C. Injection assembly. 4,336,901, Cl. 226-173.000.
Greb, Manfred, to Barmag Barmer Maschinenfabrik AG. Winding device. 4,336,912, Cl. 242-46.400.
Green, Robert D. System for interlocking objects. 4,336,699, Cl. 70-290.000.
Gresh, Peter P. Self-skimming dish rinser. 4,336,620, Cl. 4-639.000.
Grevich, John J., to Nordson Corporation. Stainless steel transport band. 4,336,680, Cl. 53-389.000.
Griffin, John R.: *See*—
Martin, Raymond H.; Garganese, Ugo S.; and Griffin, John R., 4,337,039, Cl. 433-60.000.
Grossman, James M.: *See*—
January, Daniel B.; Grubbs, Dean O.; and Grossman, James M., 4,336,658, Cl. 33-288.000.
Grubbs, Dean O.: *See*—
January, Daniel B.; Grubbs, Dean O.; and Grossman, James M., 4,336,658, Cl. 33-288.000.
Gruber, Wolfgang: *See*—
Batz, Hans-Georg; Rauscher, Elli; Weimann, Gunter; Wahlefeld, August W.; and Gruber, Wolfgang, 4,337,310, Cl. 435-22.000.
Gruenberg, Elliot L., to Broadcom, Incorporated. Communications system and network. 4,337,376, Cl. 179-2.0EB.
Grummett, Lorne H.: *See*—
Melissa, Raymond F.; Grummett, Lorne H.; and Fischer, Joseph J., 4,336,751, Cl. 101-93.040.
Grupp, Bernhard: *See*—
Bock, Erich; Wulfhorst, Burkhard; Hini, Eugen; and Grupp, Bernhard, 4,336,683, Cl. 57-18.000.
Guegan, Remy: *See*—
Diaz, Joseph; and Guegan, Remy, 4,337,194, Cl. 260-112.50S.
Guggenbuhl, Walter; and Halder, Mathis, to LGZ Landis & Gyr Zug AG. Pulse-width modulator circuit. 4,337,438, Cl. 330-10.000.
Guillou, Louis C., to Etablissement Public de Diffusion dit "Telediffusion de France"; and L'Etat Francais, represente par le Secretaire d'Etat aux Poste et Telecommunications (Centre National d'Etudes des Telecommunications). Text video-transmission system provided with means for controlling access to the information. 4,337,483, Cl. 358-114.000.
Guio, Raphael: *See*—
Quinton, Carrol D.; and Guio, Raphael, 4,337,135, Cl. 204-213.000.
Gulf Oil Corporation: *See*—
Antonoplos, Patricia A.; and Heilman, William J., 4,337,110, Cl. 156-307.400.
Karim, Khalid A.; and Rea, James H., 4,337,297, Cl. 428-461.000.
Karim, Khalid A.; Lakshmanan, Pallavoor R.; and Rea, James H., 4,337,298, Cl. 428-461.000.
Gumpinger, Franz: *See*—
Flohr, Peter; and Gumpinger, Franz, 4,337,432, Cl. 324-379.000.
Gunnell, Thomas J., to Phillips Petroleum Company. Rubber covered carbon black pellets. 4,337,294, Cl. 428-407.000.
Gyorgy, Ernst M.: *See*—
Blank, Stuart L.; Gyorgy, Ernst M.; LeCraw, Roy C.; and Luther, Lars C., 4,337,521, Cl. 365-33.000.
Haakonsen, Carl; and Thomassen, Thomas, to Elkem a/s; Falconbridge Nikkelverk A/S; Falconbridge Nickel Mines, Ltd.; and Superior Oil Company, The. Cupric and ferric chloride leach of metal sulphide-containing material. 4,337,128, Cl. 204-107.000.
Haas, Frederick T., Jr. Synthetic turf playing surface with resilient top-dressing. 4,337,283, Cl. 428-17.000.
Hafener, Klaus: *See*—
Adler, Klaus; Hafener, Klaus; and Eck, Herbert, 4,337,323, Cl. 524-239.000.
Hague International: *See*—
Curtis, Richard H., 4,336,721, Cl. 73-863.110.
Hahn, Thomas J. Automatic headlight control system. 4,337,400, Cl. 307-10.0LS.
Haindl Papier GmbH: *See*—
Breunig, Anton, 4,337,150, Cl. 209-237.000.
Haines, Karl A. Method for playing a square forming game. 4,336,941, Cl. 273-240.000.
Halder, Mathis: *See*—
Guggenbuhl, Walter; and Halder, Mathis, 4,337,438, Cl. 330-10.000.
Hale, John C., to United Kingdom Atomic Energy Authority. Eddy current test apparatus for annular welds. 4,337,431, Cl. 324-220.000.
Halikka, Antero: *See*—
Karaila, Ilkka; and Halikka, Antero, 4,337,464, Cl. 340-753.000.
Hall, Alan D., to Lake & Elliot Incorporated. Ball valve. 4,336,919, Cl. 251-214.000.
Hall, Eric B. Compound wing aircraft. 4,336,913, Cl. 244-45.00R.
Hall, Jack P.: *See*—
Krug, James E.; Magenau, Roger W.; and Hall, Jack P., 4,336,883, Cl. 206-545.000.
Hall, John B.: *See*—
Sprecker, Mark A.; and Hall, John B., 4,337,212, Cl. 260-463.000.
Halliburton Company: *See*—
Sullaway, Bob L.; and Treece, Harold O., 4,337,010, Cl. 405-227.000.
Hamada, Seiya: *See*—
Amano, Takehisa; Hamada, Seiya; Isii, Sigeki; and Takeda, Toshio, 4,336,735, Cl. 84-1.170.
Hamatani, Masahide, to Canon Kabushiki Kaisha. Mounting system for optical lens assembly. 4,336,979, Cl. 350-255.000.
Hanagan, Michael W.; and Schoeck, Donald I., to Corbin Gentry, Inc. Rowing exercise machine. 4,336,934, Cl. 272-72.000.
Hanauye, Kunio: *See*—
Shimizu, Yoshiro; Itakura, Toshio; Iwasa, Mitsuhiro; and Hanauye, Kunio, 4,337,334, Cl. 528-137.000.
Hancock, Roger I., to Imperial Chemical Industries Limited. Conductive polymers, fibers made therefrom and process for manufacture. 4,337,331, Cl. 525-429.000.
Handotai Kenkyu Shinkokai: *See*—
Nishizawa, Jun-ichi, 4,337,473, Cl. 357-22.000.
Hannecke, Wolf-Dietrich. Article display stand. 4,336,759, Cl. 108-144.000.
Hanson, Francis V.; Miller, Jan D.; and Oblad, Alex G., to University of Utah. Process for obtaining products from tar sand. 4,337,143, Cl. 208-11.00R.
Hanzlik, Edward W. C., to Xerox Corporation. Variable corrugation vacuum corrugating sheet feeder. 4,336,929, Cl. 271-20.000.
Harada, Tsutomu: *See*—
Maehara, Osamu; and Harada, Tsutomu, 4,336,711, Cl. 73-162.000.
Harbert, Charles A.: *See*—
Welch, Willard M.; and Harbert, Charles A., 4,337,250, Cl. 424-248.570.
Hardigg Industries, Inc.: *See*—
Turner, Edward W.; and Blake, Peter J., 4,337,024, Cl. 425-363.000.
Hardin, Jasper E.: *See*—
Rorer, David L.; and Hardin, Jasper E., 4,337,301, Cl. 429-179.000.
Harlan, Wayne E., to RCA Corporation. Composite timing signal generator with predictable output level. 4,337,478, Cl. 358-20.000.
Harris, Clark E., to Eastman Kodak Company. Latch for a cassette. 4,336,961, Cl. 292-254.000.
Harris, William: *See*—
Hone, Ronald D.; Harris, William; and Edwards, James D., 4,336,626, Cl. 15-319.000.
Harrison, John D., to Raychem Corporation. Heat recoverable nickel/-titanium alloy with improved stability and machinability. 4,337,090, Cl. 148-402.000.
Harsany, John D. Dental wedge. 4,337,041, Cl. 433-149.000.
Hart, LeRoy; and Hart, Mark L. Easy mount picture package. 4,336,884, Cl. 206-575.000.
Hart, Mark L.: *See*—
Hart, LeRoy; and Hart, Mark L., 4,336,884, Cl. 206-575.000.
Hart, Thomas G., to Energy Development Associates, Inc. Catalytically increasing the obtainable concentration of halogen in water. 4,337,237, Cl. 423-486.000.

Hartmannsgruber, Max; and Wolf, Horst, to Zinser Textilmaschinen GmbH. Driving assembly for ring spinning or twisting machine. 4,336,684, Cl. 57-93.000.

Hasegawa, Shinichi: *See—*
Takisawa, Yukihisa; and Hasegawa, Shinichi, 4,337,370, Cl. 568-766.000.

Hasegawa, Yukio: *See—*
Suzuki, Yasushi; Tsukamoto, Kunio; Minami, Nobuyoshi; Hasegawa, Yukio; Satoh, Michitaka; Yamamoto, Norio; Miyasaka, Katsuhiko; Mikami, Takashi; and Funakoshi, Satoshi, 4,337,256, Cl. 424-258.000.

Hashimoto, Shunichi; Oshio, Hiromichi; Mizutani, Masato; Sanemitsu, Yuzuru; Katoh, Haruhiko; and Sumida, Seizo, to Sumitomo Chemical Company, Limited. Herbicidal composition comprising triazinone compound. 4,337,082, Cl. 71-93.000.

Hashimoto, Shunichi: *See—*
Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, 4,337,357, Cl. 564-154.000.

Hasler, Alfred; and Schuh, Bernhard, to International Memories, Inc.; and Papst-Motoren KG. Brushless D.C. motor assembly. 4,337,491, Cl. 360-97.000.

Hata, Kazuhiko: *See—*
Kanagawa, Shuichi; Nakao, Shinji; Nakai, Kiyoshi; Kamio, Kunimasa; Matsushima, Shunsuke; Hata, Kazuhiko; and Mashita, Kentaro, 4,337,367, Cl. 568-720.000.

Hatanaka, Yasunori: *See—*
Tsukiyama, Yoshifumi; Hatanaka, Yasunori; Ogawa, Akiyoshi; and Mizutani, Hitoshi, 4,336,696, Cl. 464-111.000.

Hatch, James E.; and Gannaway, Thomas W., to Singer Company, The. Career occupation basic skills training system. 4,337,048, Cl. 434-219.000.

Hatta, Koiti, to Sharp Kabushiki Kaisha. Time counter controlled electronic learning aid. 4,337,047, Cl. 434-201.000.

Hattori, Tadashi: *See—*
Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, 4,336,707, Cl. 73-35.000.

Hattori, Teiichi: *See—*
Iwagiri, Susumu; Hattori, Teiichi; Nasu, Teruyoshi; and Miyake, Yasuo, 4,337,246, Cl. 424-174.000.

Hawkins, Robert S. Vehicular temperature gauge. 4,336,712, Cl. 374-138.000.

Hayashi, Akira: *See—*
Ando, Hideo; Hayashi, Akira; Ohkouchi, Haruo; and Kitano, Kyozo, 4,337,165, Cl. 252-105.000.

Hayashi Denki Co. Ltd.: *See—*
Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, 4,336,808, Cl. 128-663.000.

Hayashi, Tetsuzo: *See—*
Fukuchi, Shuzo; Hayashi, Tetsuzo; Kobayashi, Hiroya; and Oshiumi, Ryoichi, 4,337,154, Cl. 210-490.000.

Hays, Lance G.; Studhalter, Walter R.; and Ritzi, Emil W., to Research-Cottrell Technologies Inc. Refrigeration process using two-phase turbine. 4,336,693, Cl. 62-116.000.

Hazan, Isidor, to Du Pont de Nemours, E. I., and Company. Electrocoating composition with polyhydroxyamine and polyesters or alkyds. 4,337,187, Cl. 524-504.000.

Heagle, Edward R.: *See—*
Kelly, Peter B.; and Heagle, Edward R., 4,337,290, Cl. 428-201.000.

Healy, James W. Vapor recovery jet pump. 4,336,830, Cl. 141-59.000.

Hearon, William M.; and Witte, John F., to Boise Cascade Corporation. Process of making L-gulono gamma lactone. 4,337,202, Cl. 549-314.000.

Heckler & Koch GmbH: *See—*
Horn, Kurt; Muller, Walter; and Schneider, Adolf, 4,336,743, Cl. 89-37.00B.

Heilman, William J.: *See—*
Antonoplos, Patricia A.; and Heilman, William J., 4,337,110, Cl. 156-307.400.

Heimo, Ernest. Holder for light-transmissive pictures. 4,337,505, Cl. 362-125.000.

Heina, Fritz: *See—*
Adam, Axel; and Heina, Fritz, 4,336,862, Cl. 181-200.000.

Helbig, William H.; and Cornell, Barry F., to Lehman-H Feeder & Plow, Inc. Farm implement. 4,336,844, Cl. 172-140.000.

Henk, Hermann: *See—*
Vater, Hans-Joachim; Nickel, Horst; and Henk, Hermann, 4,337,195, Cl. 260-146.00T.

Henson, Walter M. Fuel vaporizer carburetor for internal combustion engine. 4,336,783, Cl. 123-557.000.

Hentschel, Bernhard; Ziebarth, Jurgen; Coenen, Alfred; Kosswig, Kurt; and von Praun, Ferdinand, to Chemische Werke Huls AG. Method for preparing sodium bicarbonate and hydrogen chloride. 4,337,234, Cl. 423-424.000.

Hercules Incorporated: *See—*
Elrick, Donald E.; and Gilbert, Harry, 4,337,103, Cl. 149-19.900.

Hershberger, Donald F.; and Sternberg, Moshe M., to Miles Laboratories, Inc. Immobilization of biocatalysts. 4,337,313, Cl. 435-177.000.

Hershman, George H.: *See—*
Alexander, David H.; Hershman, George H.; Jack, Michael D.; Koda, N. John; and Lloyd, Randahl B., 4,337,395, Cl. 250-332.000.

Hession Corporation: *See—*
White, Bruce L.; and McWhirt, Bobby D., 4,336,750, Cl. 100-88.000.

Hestermann, Klaus; Maurer, Alexander; Kandler, Joachim; Mietens, Gerhard; and Beumling, Herbert, to Hoechst Aktiengesellschaft. Corrosion-inhibiting pigment and paint composition. 4,337,092, Cl. 106-14.050.

Hibner, David H., to United Technologies Corporation. Viscous/friction damper. 4,336,968, Cl. 308-26.000.

Hickman, Clarence J.: *See—*
Cammack, Michael A.; Elkins, Christopher W.; Hickman, Clarence J.; and Mullins, Keith M., 4,337,040, Cl. 433-80.000.

Hill, Michael P. L.; and Fridd, Petrina F., to Dow Corning Limited. Compositions for treating hair and other fibrous materials. 4,337,166, Cl. 252-174.150.

Hilton, Graham H., to De La Rue Systems Limited. Cassette for banknotes. 4,337,393, Cl. 235-487.000.

Hini, Eugen: *See—*
Bock, Erich; Wulfhorst, Burkhard; Hini, Eugen; and Grupp, Bernhard, 4,336,683, Cl. 57-18.000.

Hinkel, Lester H.; and Chandler, Robert M., to Whirlpool Corporation. Hand washer and drier mounting structure. 4,336,619, Cl. 4-619.000.

Hirano, Takashi, to Yamato Scale Company, Ltd. Combination weighing device. 4,336,852, Cl. 177-25.000.

Hirano, Takashi, to Yamato Scale Company, Ltd. Combination weighing device. 4,336,853, Cl. 177-25.000.

Hiratsuka, Nobuo; Mihara, Yuji; Masuda, Nobuhito; and Miyazako, Takushi, to Fuji Photo Film Co., Ltd. Method for immunological assay using multilayer analysis sheet. 4,337,065, Cl. 23-230.00B.

Hiratsuka, Nobuo: *See—*
Mihara, Yuji; Masuda, Nobuhito; Hiratsuka, Nobuo; Miyazako, Takushi, both of; and Ikeda, Tadashi, 4,337,063, Cl. 23-230.00B.

Hiroshima, Tatsuo; and Sakamoto, Takahide, to Sumitomo Metal Industries, Ltd. Method and apparatus for conditioning of steel surface. 4,337,099, Cl. 148-9.500.

Hiroshima, Tatsuo: *See—*
Shiraiwa, Toshio; Hiroshima, Tatsuo; and Sakamoto, Takahide, 4,336,923, Cl. 266-51.000.

Hirota, Yoshihisa, to Pioneer Electronic Corporation. Tonearm position setting device. 4,337,537, Cl. 369-216.000.

Hirota, Yukitsugu: *See—*
Sone, Masazumi; and Hirota, Yukitsugu, 4,337,408, Cl. 313-130.000.

Hisamitsu Pharmaceutical Co., Inc.: *See—*
Noda, Kanji; Nakagawa, Akira; Motomura, Toshiharu; Tsuji, Masayoshi; Amano, Hidetoshi; and Ide, Hiroyuki, 4,337,270, Cl 424-310.000.

Hishida, Tadashi. Electric generator. 4,337,405, Cl. 310-43.000.

Hitachi Koki Company, Limited: *See—*
Ito, Koshichi; and Watanabe, Yoshihiko, 4,336,847, Cl. 173-118.000.

Hitachi, Ltd.: *See—*
Akutsu, Eisaku; and Matsuura, Shigeo, 4,337,486, Cl. 358-155.000.
Furuhashi, Toshio, 4,337,512, Cl. 364-431.090.
Furuhashi, Toshio, 4,337,513, Cl. 364-431.110.
Hotta, Atsuo; Kato, Yukio; and Isobe, Teruo, 4,337,523, Cl. 365-194.000.
Kawamura, Takao; and Osakabe, Kuniharu, 4,337,412, Cl. 315-3.000.
Omae, Tsutomu; and Matsuda, Toshihiko, 4,337,509, Cl. 363-128.000.
Sakurai, Mikio; Yoshimoto, Yuichiro; and Kodama, Hiroshi, 4,337,118, Cl. 376-210.000.
Umeda, Jun-ichi; Shimada, Toshikazu; Nakamura, Michiharu; Katayama, Yoshifumi; Kajimura, Takashi; and Yamashita, Shigeo, 4,337,443, Cl. 372-49.000.

Hitachi Maxell, Ltd.: *See—*
Kagano, Shinichi, 4,337,493, Cl. 360-130.330.

Hitt, James J.: *See—*
Deffendall, George W.; and Hitt, James J., 4,337,456, Cl. 340-347.0NT.

Hobgood, Terry W.; and Knox, James C., Jr. Pipeline leak locator. 4,336,708, Cl. 73-40.50R.

Hockney Engineering Pty. Ltd.: *See—*
Hockney, Philip K., 4,337,387, Cl. 219-160.000.

Hockney, Philip K., to Hockney Engineering Pty. Ltd. Backing support strip for welding. 4,337,387, Cl. 219-160.000.

Hodge, Fredrick J.: *See—*
Brookhart, Marshall R.; Hodge, Fredrick J.; and Worden, Thomas J., 4,337,492, Cl. 360-109.000.

Hoechst Aktiengesellschaft: *See—*
Franke, Werner, 4,337,308, Cl. 430-306.000.
Hestermann, Klaus; Maurer, Alexander; Kandler, Joachim; Mietens, Gerhard; and Beumling, Herbert, 4,337,092, Cl. 106-14.050.
Holst, Arno; Perplies, Eberhard; and Buchberger, Gerhard, 4,337,328, Cl. 525-336.000.
Neubauer, Rudolf, 4,337,307, Cl. 430-157.000.

Hoechst-Roussel Pharmaceuticals Inc.: *See—*
Shutske, Gregory M.; Setescak, Linda L.; and Allen, Richard C., 4,337,261, Cl. 424-272.000.

Hofbauer, Rupert: *See—*
Svoboda, Josef; and Hofbauer, Rupert, 4,336,654, Cl. 33-3.00A.

Hoffman, Carl S. Orthopedic pressure appliance and method for controlling development of the maxillary bone. 4,337,036, Cl. 433-5.000.

Hoffmann, Gunter: *See—*
Horz, Eberhard; Wirsing, Robert; and Hoffmann, Gunter, 4,336,816, Cl. 134-110.000.

Hoffmann-La Roche Inc.: *See—*
Baggiolini, Enrico G.; Lee, Hsi L.; and Uskokovic, Milan R., 4,337,345, Cl. 548-242.000.
Szkrybalo, William, 4,337,080, Cl. 71-88.000.

Hojo, Takeshi; and Fukano, Michio, to K.K. Tokyo Keiki. Bearing apparatus. 4,336,967, Cl. 308-2.00A.

Hollis, Jack L., to Carlisle Tire & Rubber Co. Apparatus for making an indefinite length composite sheet of very large predetermined width from indefinite length sheet stock relatively small width. 4,337,112, Cl. 156-351.000.

Holm, Donald C.: *See—*
Mackay, Duncan R.; Arnold, Arthur K.; and Holm, Donald C., 4,337,055, Cl. 474-111.000.

Holst, Arno; Perplies, Eberhard; and Buchberger, Gerhard, to Hoechst Aktiengesellschaft. Acrylic polymers having a high swellability in water. 4,337,328, Cl. 525-336.000.

Holtermann, Theodore J.; and Scharpf, Otto H., to Outboard Marine Corporation. Outboard motor including folded tuned exhaust gas passage. 4,337,054, Cl. 440-89.000.

Holzgrafe, James R., to Ampex Corporation. Analog geometry corrector for television camera image tubes. 4,337,419, Cl. 315-371.000.

Honda Giken Kogyo Kabushiki Kaisha: *See—*
Asaka, Urataro; Uesugi, Naomoto; and Anno, Nobuo, 4,336,864, Cl. 181-241.000.
Gotoh, Osamu; Otobe, Yutaka; Kawamoto, Michio; and Fujimura, Akira, 4,336,784, Cl. 123-571.000.

Hone, Ronald D.; Harris, William; and Edwards, James D., to Scott & Fetzer Company, The. Controlled force safety switch mechanism. 4,336,626, Cl. 15-319.000.

Honeywell Inc.: *See—*
Olson, Harold J., 4,337,401, Cl. 307-39.000.

Honeywell Information Systems Inc.: *See—*
Dalle Carbonare, Gianbattista, 4,337,497, Cl. 361-239.000.

Hooke, Anne M.: *See—*
Oeschger, Max P.; Hooke, Anne M.; and Bellanti, Joseph A., 4,337,314, Cl. 435-253.000.

Hooker Chemicals & Plastics Corp.: *See—*
El-Shazly, Mohamed F.; and Baker, Kenneth D., 4,337,091, Cl. 106-1.230.
Wisnouskas, Joseph S.; and Moritz, Joseph J., 4,337,235, Cl. 423-468.000.

Hoover Company, The: *See—*
Bradshaw, David A.; and Oles, Joseph F., 4,336,628, Cl. 15-415.00R.

Horii, Ichiro: *See—*
Tashiro, Chiaki; and Horii, Ichiro, 4,337,260, Cl. 424-267.000.

Horkey, Edward J. Heat reclaimer. 4,336,836, Cl. 165-47.000.

Horn, Kurt; Muller, Walter; and Schneider, Adolf, to Heckler & Koch GmbH. Gun mount for light automatic weapons. 4,336,743, Cl. 89-37.00B.

Hornady Manufacturing Company: *See—*
Schreiber, Charles J., 4,336,756, Cl. 102-516.000.

Horowitz, Alexandre; and Cuypers, Martinus H., to Varitrac AG. Transmission chain. 4,337,057, Cl. 474-242.000.

Horz, Eberhard; Wirsing, Robert; and Hoffmann, Gunter, to Braun Aktiengesellschaft. Device for cleaning small objects, especially dentures. 4,336,816, Cl. 134-110.000.

Hosono, Nagao: *See—*
Kanbe, Junichiro; Arao, Kozo; and Hosono, Nagao, 4,337,306, Cl. 430-122.000

Hotta, Atsuo; Kato, Yukio; and Isobe, Teruo, to Hitachi, Ltd. Bipolar memory circuit. 4,337,523, Cl. 365-194.000.

Howard, John V.: *See—*
Wilson, Henry E.; Cronkhite, James D.; and Howard, John V., 4,336,868, Cl. 188-376.000.

Howard, William A., to Delta Systems, Inc. Safety limiter for engine speed. 4,336,778, Cl. 123-334.000.

Hoy, Harold D.: *See—*
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,337,068, Cl. 55-1.000.

Hozumi, Shiro: *See—*
Tokumasu, Hiroyuki; Uchino, Hideo; and Hozumi, Shiro, 4,337,097, Cl. 148-6.15R.

Hubbard, James R.; Sarkisian, George M.; and Scanlon, John J., to Graphic Controls Corporation. Disposable markers adapted for constant width and close proximity tracing. 4,337,471, Cl. 346-140.00R.

Huebner, Aronson L.: *See—*
Teague, John R.; and Huebner, Aronson L., 4,337,172, Cl. 252-430.000.

Hug, Max. Earth drilling device for extracting earth samples. 4,336,849, Cl. 175-246.000.

Hughes Aircraft Company: *See—*
Alexander, David H.; Hershman, George H.; Jack, Michael D.; Koda, N. John; and Lloyd, Randahl B., 4,337,395, Cl. 250-332.000.
Leigh, Michael L.; and Stubbs, Richard D., 4,336,740, Cl. 89-1.806.

Hughes Tool Company: *See—*
Bailey, Thomas F., 4,336,840, Cl. 166-77.000.

Hull, Amy B.: *See—*
Cody, Robert D. F.; and Hull, Amy B., 4,337,238, Cl. 423-555.000.

Humburger, Siegbert: *See—*
Arold, Hermann; Humburger, Siegbert; Diehr, Hans-Joachim; and Porkert, Helmut, 4,337,359, Cl. 568-21.000.

Hummert, George T., to Westinghouse Electric Corp. Insulated strand brushes. 4,337,407, Cl. 310-249.000.

Hung, William M.: *See—*
Schmidt, Paul J.; and Hung, William M., 4,337,340, Cl. 544-350.000.

Hunt, Norman, to Associated Engineering Limited. Vehicle speed-control system and actuator device. 4,336,857, Cl. 180-177.000.

Hunter Engineering Company: *See—*
January, Daniel B.; Grubbs, Dean O.; and Grossman, James M., 4,336,658, Cl. 33-288.000.

Hunter, Robert O.; and Fried, David L. High energy laser. 4,337,437, Cl. 330-4.300.

Hurd, Gary L. Lug nut lock. 4,336,698, Cl. 70-231.000.

Huykman, Richard B., to Reliance Electric Company. Automatic bias-controlled VMOS/bipolar dual-triggered switch. 4,337,494, Cl. 361-86.000.

Hydro-Rain, Inc.: *See—*
Karbo, Richard S., 4,336,918, Cl. 251-46.000.

Ichikawa, Iwao: *See—*
Noda, Teruyoshi; Ichikawa, Iwao; and Takahashi, Toshio, 4,336,872, Cl. 193-2.00R.

Ide, Hiroyuki: *See—*
Noda, Kanji; Nakagawa, Akira; Motomura, Toshiharu; Tsuji, Masayoshi; Amano, Hidetoshi; and Ide, Hiroyuki, 4,337,270, Cl. 424-310.000.

Identifax Nationwide Registry: *See—*
Loeb, Warner, 4,336,754, Cl. 101-127.000.

Ido, Kazuo: *See—*
Omi, Yasuo; Wada, Takanori; Sano, Hitoshi; Sato, Shigekatsu; Ido, Kazuo; Taneda, Kozo; and Naka, Junichi, 4,337,021, Cl. 425-142.000.

Idota, Yoshinori: *See—*
Sugiyama, Katsuhiko; Ohsawa, Katsuyuki; Fujikake, Kenji; and Idota, Yoshinori, 4,336,780, Cl. 123-438.000.

Iizuka, Yo: *See—*
Yusa, Haruhiko; Iizuka, Yo; and Akutsu, Humio, 4,337,324, Cl. 525-72.000.

Ikeda, Masashi; and Ito, Shintaro, to Tokyo Shibaura Electric Co., Ltd. Method of forming electrodes on the surface of a semiconductor substrate. 4,337,115, Cl. 156-659.100.

Ikeda, Tadashi: *See—*
Mihara, Yuji; Masuda, Nobuhito; Hiratsuka, Nobuo; Miyazako, Takushi, both of; and Ikeda, Tadashi, 4,337,063, Cl. 23-230.00B.

Imai, Hirosuke; Yamanashi, Teruaki; and Itoh, Hiroyuki, to Nippon Oil Company, Ltd. Anti-migration agent for dyeing. 4,337,062, Cl. 8-557.000.

Imamura, Tomoatsu, to Ricoh Co., Ltd. Stabilized servo motor positioning apparatus. 4,337,426, Cl. 318-599.000.

Immekus, Karl, to Gesellschaft fur Huttenwerksanlagen mbH. Continuously tapped cupola furnace. 4,336,922, Cl. 266-227.000.

Imperial Chemical Industries Limited: *See—*
Bromley, Charles; and Thompson, Morice W., 4,337,189, Cl. 523-332.000.
Cooper, Gordon; and Bryant, Patrick S., 4,337,284, Cl. 428-35.000.
Hancock, Roger I., 4,337,331, Cl. 525-429.000.
Smith, Robert A., 4,337,007, Cl. 405-24.000.

Improved Lawn Equipment Corporation: *See—*
Cohen, Sidney; and Schlemmer, Robert, 4,336,760, Cl. 111-11.000.

Inagaki, Shigemi; and Nihei, Ryo, to Fujitsu Fanuc Limited. Workpiece manipulator. 4,336,926, Cl. 269-34.000.

Inanaga, Takugi: *See—*
Kamimura, Teturo; Komatsubara, Masahiro; Ando, Shizuo; and Inanaga, Takugi, 4,337,490, Cl. 360-96.600.

Industrial Electronic Rubber Company: *See—*
Murray, Myles N., 4,336,920, Cl. 251-357.000.

Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft: *See—*
Kaustrater, Gert, 4,336,744, Cl. 89-40.00K.

Inoue, Akihiko; and Sugiura, Shigekata, to Alps Electric Co., Ltd. Mechanism for preventing the simultaneous locking of push buttons in a push-button switch device. 4,337,382, Cl. 200-5.00E.

Institoris, Laszlo: *See—*
Vidra nee Ildiko, Sandor; and Institoris, Laszlo, 4,337,266, Cl. 424-278.000.

Institut Merieux, S.A.: *See—*
Ayme, Gerard, 4,337,243, Cl. 424-92.000.

Instranetics, Inc.: *See—*
Eldridge, John, Jr., 4,336,806, Cl. 128-348.000.

Instruments S.A.: *See—*
Durr, Rene, 4,337,415, Cl. 315-111.510.

International Flavors & Fragrances Inc.: *See—*
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,337,180, Cl. 252-522.00R.
Sprecker, Mark A.; and Hall, John B., 4,337,212, Cl. 260-463.000.

International Harvester Co.: *See—*
Boetto, Charles, 4,336,846, Cl. 172-776.000.

International Memories, Inc.: *See—*
Hasler, Alfred; and Schuh, Bernhard, 4,337,491, Cl. 360-97.000.

Internationale Octrooi Maatschappij "Octropa" B.V.: *See—*
Akers, John B.; Littler, Jane A.; and Peters, David C., 4,337,209, Cl. 260-417.000.

Inui, Taiji: *See—*
Oki, Toshikazu; Yoshimoto, Akihiro; Kouno, Kageaki; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,337,312, Cl. 435-78.000.

Iowa State University Research Foundation, Inc.: *See—*
Cody, Robert D. F.; and Hull, Amy B., 4,337,238, Cl. 423-555.000.

IPCO Corporation: *See—*
Weissman, Bernard, 4,337,043, Cl. 433-225.000.

Ishida, Hideo: *See—*
Uejo, Hirozo; Ishida, Hideo; and Shinhama, Masaaki, 4,337,179, Cl. 252-511.000.

Ishiguro, Keiko: *See—*
Ishiguro, Yoshihiko; Ishiguro, Keiko; and Shiotani, Hiromi, 4,336,636, Cl. 24-115.00M.

Ishiguro, Yoshihiko; Ishiguro, Keiko; and Shiotani, Hiromi. Fastening device. 4,336,636, Cl. 24-115.00M.

Ishihara, Toshinobu; Yamamoto, Akira; and Taguchi, Kenichi, to Shin-Etsu Chemical Company Limited. Method for the cis to trans isomerization of an alkenol. 4,337,372, Cl. 568-906.000.

Ishikura, Tomoyuki: *See—*
Yoshioka, Takeo; Yamamoto, Kenichi; Yamada, Kaoru; Kato, Yasuyuki; Shimauchi, Yasutaka; and Ishikura, Tomoyuki, 4,337,199, Cl. 260-245.20T.

Isii, Sigeki: *See—*
Amano, Takehisa; Hamada, Seiya; Isii, Sigeki; and Takeda, Toshio, 4,336,735, Cl. 84-1.170.

Isobe, Takashi, to Canon Kabushiki Kaisha. Exposure mode changeover device for interchangeable lens mounting. 4,336,991, Cl. 354-286.000.

Isobe, Teruo: *See—*
Hotta, Atsuo; Kato, Yukio; and Isobe, Teruo, 4,337,523, Cl. 365-194.000.

Itaba, Takeshi; and Matsumoto, Shotaro, to Mitsubishi Kinzoku Kabushiki Kaisha. Surface-coated blade member for cutting tools and process for producing same. 4,337,300, Cl. 428-627.000.

Itakura, Toshio: *See—*
Shimizu, Yoshiro; Itakura, Toshio; Iwasa, Mitsuhiro; and Hanauye, Kunio, 4,337,334, Cl. 528-137.000.

Ito, Koshichi; and Watanabe, Yoshihiko, to Hitachi Koki Company, Limited. Percussion drill. 4,336,847, Cl. 173-118.000.

Ito, Shintaro: *See—*
Ikeda, Masashi; and Ito, Shintaro, 4,337,115, Cl. 156-659.100.

Ito, Yasuro; Kaga, Hideharu; Yamamoto, Yasuhiro; and Sumita, Tadayuki, to Ito, Yasuro; and Taisei Corporation. Method and apparatus for manufacturing articles of hydraulic substances. 4,337,020, Cl. 425-129.00R.

Itoh, Hiroyuki: *See—*
Imai, Hirosuke; Yamanashi, Teruaki; and Itoh, Hiroyuki, 4,337,062, Cl. 8-557.000.

Iwagiri, Susumu; Hattori, Teiichi; Nasu, Teruyoshi; and Miyake, Yasuo, to Eisai Co., Ltd. Solid preparation comprising cobamamide or mecobalamin. 4,337,246, Cl. 424-174.000.

Iwako, Hiroyuki, to Funken Co., Ltd. Loop conveyor type flow weigher. 4,336,851, Cl. 177-16.000.

Iwasa, Mitsuhiro: *See—*
Shimizu, Yoshiro; Itakura, Toshio; Iwasa, Mitsuhiro; and Hanauye, Kunio, 4,337,334, Cl. 528-137.000.

Iwasaki, Shinichiro, to Aisin Seiki Company, Limited. Position sensor. 4,336,657, Cl. 33-174.00L.

Iwata Electric Co., Ltd.: *See—*
Iwata, Keisuke, 4,337,454, Cl. 340-63.000.

Iwata, Hiroshi; Yamaoka, Tetsuo; and Morioka, Akitoshi, to West Electric Co., Ltd. Camera with macro-photographic system. 4,336,985, Cl. 354-145.000.

Iwata, Keisuke, to Iwata Electric Co., Ltd. Alarm unit for preventing theft of vehicles. 4,337,454, Cl. 340-63.000.

Jack, Michael D.: *See—*
Alexander, David H.; Hershman, George H.; Jack, Michael D.; Koda, N. John; and Lloyd, Randahl B., 4,337,395, Cl. 250-332.000.

Jackson, Jay W., to Regal International, Inc. Marine landing structure with omni directional energy absorbing characteristics. 4,337,009, Cl. 405-212.000.

Jacobson, Kenneth A.: *See—*
Goodman, Murray; Verlander, Michael S.; Jacobson, Kenneth A.; Melmon, Kenneth L.; and Castagnoli, Neal, 4,337,207, Cl. 260-404.500.

Jacobson, Martin, to United States of America, Agriculture. Erythro-9,10-Dihydroxyoctadecan-1-ol acetate a boll weevil anti-feedant. 4,337,271, Cl. 424-311.000.

Jacoby, George V.: *See—*
Cohn, Martin; Jacoby, George V.; and Bates, Charles A., III, 4,337,458, Cl. 340-347.0DD.

Jager, Walter; and von Waclawiczek, Herbert, to GHT Gesellschaft fur Hochtemperaturreaktor-Technik mbH. Coal gasification. 4,337,067, Cl. 48-202.000.

Jahnke, Otto C.: *See—*
Payne, David A.; Park, Sang M.; and Jahnke, Otto C., 4,337,162, Cl. 252-62.3BT.

January, Daniel B.; Grubbs, Dean O.; and Grossman, James M., to Hunter Engineering Company. Method of effecting compensation of cooperatively coupled vehicle wheel aligner instruments. 4,336,658, Cl. 33-288.000.

Jardinier, Pierre; and Simonnot, Jack, to Societe d'Etudes et de Recherches de Ventilation et d'Aeraulique S.E.R.V.A. Delivery stabilizer for ventilation shaft. 4,336,904, Cl. 236-92.00R.

Jarvis, Grover F., Jr.; and Arold, George E., to Rose Truck and Caster Company. Caster swivel lock. 4,336,629, Cl. 16-35.00R.

Jaspon, Lawrence E. Tire filling composition. 4,337,322, Cl. 523-166.000.

Jensen, William F. Weighing system. 4,336,854, Cl. 177-210.00R.

Jentzsch, Arndt: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.

Jin, Sungho, to Bell Telephone Laboratories, Incorporated. Magnetically anisotropic alloys for magnetically actuated devices. 4,337,100, Cl. 148-31.550.

Jiruse, Jaroslav: *See—*
Cerny, Arnost; Fiser, Jiri; Jiruse, Jaroslav; and Sedlak, Vaclav, 4,336,930, Cl. 271-277.000.

John Wyeth & Brother Limited: *See—*
Crossley, Roger, 4,337,259, Cl. 424-263.000.

Johne, Hans: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.

Johnson, Bruce K., to Polaroid Corporation. Camera with lens disc drive system. 4,336,988, Cl. 354-197.000.

Johnson, James C., to Westinghouse Electric Corp. Starting and operating apparatus for high-pressure sodium lamps. 4,337,417, Cl. 315-290.000.

Johnson & Johnson Baby Products Company: *See—*
Repke, Virginia L., 4,336,803, Cl. 128-287.000.

Johnson, Roy A.; Lincoln, Frank H.; and Pike, John E., to Upjohn Company, The. PGI_2 Lower alkyl esters. 4,337,204, Cl. 549-465.000.

Jones, Addison B., to Rockwell International Corporation. Ion etching process with minimized redeposition. 4,337,132, Cl. 204-192.00E.

Jones, Frank; and Tomlinson, Peter, to Jones and Healy Marine Limited. Navigation training aids. 4,337,045, Cl. 434-29.000.

Jones and Healy Marine Limited: *See—*
Jones, Frank; and Tomlinson, Peter, 4,337,045, Cl. 434-29.000.

Jorgensen, Richard G.; and Steele, Gerald G., to Parker-Hannifin Corporation. Metering device for adding one fluid to another. 4,336,820, Cl. 137-100.000.

Joseph Gamell Industries, Inc.: *See—*
Gamell, Joseph A., 4,336,856, Cl. 180-165.000.

Joyce, Michael F. Carriers for containers, apparatus and method for applying same to containers. 4,336,898, Cl. 294-87.280.

Judd, Frank F.; and Westerman, George R., to Bell Telephone Laboratories, Incorporated. Bubble memory driver. 4,337,520, Cl. 365-6.000.

Judson, Carl, Jr. Milling apparatus. 4,336,910, Cl. 241-246.000.

Juhl, Barker J. Lockable or free-wheeling device insertable between a driven vehicle-wheel and its axle connector. 4,337,003, Cl. 403-1.000.

July, Mark E. Rapid-response water heating and delivery system. 4,337,388, Cl. 219-309.000.

Junggren, Ulf K.; and Sjostrand, Sven E., to Aktiebolaget Hassle. Gastric acid secretion inhibiting substituted 2-(2-benzimidazolyl)-pyridines, their preparation, pharmaceutical preparations containing same, and method for inhibiting gastric acid secretion. 4,337,257, Cl. 424-263.000.

Junker, Frank: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.

Junkers, John K. Hydraulic wrench for limited space application. 4,336,727, Cl. 81-57.390.

Kabushiki Kaisha Aiwa: *See—*
Ando, Ryuta; and Kinugawa, Kazumi, 4,337,533, Cl. 369-77.000.

Kabushiki Kaisha Kawai Gakki Seisakusho: *See—*
Mishima, Toshio, 4,336,736, Cl. 84-1.260.

Kabushiki Kaisha Komatsu Seisakusho: *See—*
Tsutsumi, Yoshio, 4,336,869, Cl. 192-13.00R.

Kabushiki Kasiha Toyota Chuo Kenkyusho: *See—*
Sugiyama, Katsuhiko; Ohsawa, Katsuyuki; Fujikake, Kenji; and Idota, Yoshinori, 4,336,780, Cl. 123-438.000.

K.K. Tokyo Keiki: *See—*
Hojo, Takeshi; and Fukano, Michio, 4,336,967, Cl. 308-2.00A.

Kaga, Hideharu: *See—*
Ito, Yasuro; Kaga, Hideharu; Yamamoto, Yasuhiro; and Sumita, Tadayuki, 4,337,020, Cl. 425-129.00R.

Kagano, Shinichi, to Hitachi Maxell, Ltd. Magnetic recording tape cartridge. 4,337,493, Cl. 360-130.330.

Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, to VEB Kombinat Polygraph "Werner Lamberz", Leipzig. Journal bearing. 4,336,969, Cl. 308-61.000.

Kai, Toshio: *See—*
Tanaka, Junzo; and Kai, Toshio, 4,337,384, Cl. 219-10.55B.

Kajimura, Takashi: *See—*
Umeda, Jun-ichi; Shimada, Toshikazu; Nakamura, Michiharu; Katayama, Yoshifumi; Kajimura, Takashi; and Yamashita, Shigeo, 4,337,443, Cl. 372-49.000.

Kakugo, Masahiro: *See—*
Shiga, Akinobu; Kakugo, Masahiro; Sadatoshi, Hajime; Wakamatsu, Kazuki; and Yoshioka, Hiroshi, 4,337,326, Cl. 525-244.000.

Kalmanash, Michael H., to United Technologies Corporation. Dual mode color switch for beam penetration CRT. 4,337,420, Cl. 315-375.000.

Kalmanash, Michael H., to United Technologies Corporation. Sequential color switch for beam penetration CRT. 4,337,421, Cl. 315-375.000.

Kamimura, Teturo; Komatsubara, Masahiro; Ando, Shizuo; and Inanaga, Takugi, to Pioneer Electronic Corporation. Cassette tape player. 4,337,490, Cl. 360-96.600.

Kamio, Kunimasa: *See—*
Kanagawa, Shuichi; Nakao, Shinji; Nakai, Kiyoshi; Kamio, Kunimasa; Matsushima, Shunsuke; Hata, Kazuhiko; and Mashita, Kentaro, 4,337,367, Cl. 568-720.000.

Kamogawa, Masatake: *See—*
Doi, Shunichi; and Kamogawa, Masatake, 4,337,215, Cl. 260-513.00N.
Kamphues, Hermann, to C. Keller, GmbH & Co., KG, Maschinenfabrik. Setting machine for spacing formed articles. 4,336,874, Cl. 198-458.000.
Kanagawa, Shuichi; Nakao, Shinji; Nakai, Kiyoshi; Kamio, Kunimasa; Matsushima, Shunsuke; Hata, Kazuhiko; and Mashita, Kentaro, to Sumitomo Chemical Company, Limited. Oligomer of m-isopropenylphenol. 4,337,367, Cl. 568-720.000.
Kanbe, Junichiro; Arao, Kozo; and Hosono, Nagao, to Canon Kabushiki Kaisha. Developing method in which a bias is adjustable in accordance with a latent image and an apparatus therefor. 4,337,306, Cl. 430-122.000.
Kandler, Joachim: *See—*
Hestermann, Klaus; Maurer, Alexander; Kandler, Joachim; Mietens, Gerhard; and Beumling, Herbert, 4,337,092, Cl. 106-14.050.
Kaneko, Takayuki; and Ninagawa, Sadami, to Toyo Engineering Corporation. Waste heat boiler. 4,336,770, Cl. 122-266.000.
Kaneuchi, Yoichiro: *See—*
Yanagihara, Masanobu; Kaneuchi, Yoichiro; and Kobayashi, Shoji, 4,336,777, Cl. 123-306.000.
Kanno, Ryoichi: *See—*
Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, 4,336,808, Cl. 128-663.000.
Kansai Chemical Engineering Co., Ltd.: *See—*
Fukushima, Susumu; Munenobu, Hideaki; and Yamade, Kazuhiro, 4,337,315, Cl. 435-313.000.
Karaila, Ilkka; and Halikka, Antero, to Valmet Oy. Method and circuit for controlling a band display of a plurality of analog signals using a single anode type bar graph device. 4,337,464, Cl. 340-753.000.
Karbo, Richard S., to Hydro-Rain, Inc. Diaphragm valve with multiple pivot axis valve element. 4,336,918, Cl. 251-46.000.
Karim, Khalid A.; and Rea, James H., to Gulf Oil Corporation. Coextrudable thermoplastic compositions and bonds and laminates therefrom. 4,337,297, Cl. 428-461.000.
Karim, Khalid A.; Lakshmanan, Pallavoor R.; and Rea, James H., to Gulf Oil Corporation. Polymer compositions and laminates produced by bonding or coextrusion. 4,337,298, Cl. 428-461.000.
Karkkainen, Alpo: *See—*
Baltscheffsky, Arne; and Karkkainen, Alpo, 4,336,700, Cl. 70-366.000.
Karl August Heimsoth Industrie: *See—*
Barchi, Rolfo, 4,337,035, Cl. 432-246.000.
Kashiwagi, Kenzo: *See—*
Akao, Mutsuo; and Kashiwagi, Kenzo, 4,337,285, Cl. 428-35.000.
Kassai, Ferenc: *See—*
Almasi, Istvan; Kassai, Ferenc; and Erdelyi, Attila, 4,336,799, Cl. 128-201.240.
Katayama, Masanori: *See—*
Komatsubara, Shozi; and Katayama, Masanori, 4,336,984, Cl. 352-75.000.
Katayama, Yoshifumi: *See—*
Umeda, Jun-ichi; Shimada, Toshikazu; Nakamura, Michiharu; Katayama, Yoshifumi; Kajimura, Takashi; and Yamashita, Shigeo, 4,337,443, Cl. 372-49.000.
Kato, Yasuyuki: *See—*
Yoshioka, Takeo; Yamamoto, Kenichi; Yamada, Kaoru; Kato, Yasuyuki; Shimauchi, Yasutaka; and Ishikura, Tomoyuki, 4,337,199, Cl. 260-245.20T.
Kato, Yukio: *See—*
Hotta, Atsuo; Kato, Yukio; and Isobe, Teruo, 4,337,523, Cl. 365-194.000.
Katoh, Haruhiko: *See—*
Hashimoto, Shunichi; Oshio, Hiromichi; Mizutani, Masato; Sanemitsu, Yuzuru; Katoh, Haruhiko; and Sumida, Seizo, 4,337,082, Cl. 71-93.000.
Kauffman, Ivan L.: *See—*
Allen, Robert J.; and Kauffman, Ivan L., 4,337,059, Cl. 493-184.000.
Kauffman, Karl C.; and Kaufman, Martin H., to United States of America, Navy. Method of obtaining strong and durable adhesion to rubber through chemical covalent bonds. 4,337,111, Cl. 156-307.500.
Kaufman, Martin H.: *See—*
Kauffman, Karl C.; and Kaufman, Martin H., 4,337,111, Cl. 156-307.500.
Kaustrater, Gert, to Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft. Armored vehicle. 4,336,744, Cl. 89-40.00K.
Kawai, Kiyohisa: *See—*
Fujino, Masahiko; Wakimasu, Mitsuhiro; and Kawai, Kiyohisa, 4,337,247, Cl. 424-177.000.
Kawamoto, Michio: *See—*
Gotoh, Osamu; Otobe, Yutaka: Kawamoto, Michio; and Fujimura, Akira, 4,336,784, Cl. 123-571.000.
Kawamura, Takao; and Osakabe, Kuniharu, to Hitachi, Ltd. Cathode device for cathode-ray tube. 4,337,412, Cl. 315-3.000.
Kaye, Saul, to Ben Venue Laboratories, Inc. Sterilizing apparatus incorporating recirculation of chamber atmosphere. 4,337,223, Cl. 422-112.000.
Kellogg, James R., to Tektronix, Inc. Supply-voltage driver for a differential amplifier. 4,337,441, Cl. 330-261.000.
Kelly, Peter B., to General Electric Company. Hardboard-bonded melamine overlaid surface for bowling lane. 4,336,937, Cl. 273-51.000.
Kelly, Peter B.; and Heagle, Edward R., to General Electric Company. High impact resistant laminate surface for a bowling lane. 4,337,290, Cl. 428-201.000.
Kelly, Peter B., to General Electric Company. Decorative laminate surface for bowling lane surface having reduced gloss. 4,337,291, Cl. 428-204.000.
Kendall Company, The: *See—*
Shah, Kishore R., 4,337,325, Cl. 525-205.000.
Kennecott Corporation: *See—*
Cichy, Paul, 4,337,085, Cl. 75-83.00R.
Kennedy Van Saun Corporation: *See—*
Gardner, Kenneth L.; Zimmer, William E.; and Miller, Samuel A., 4,337,031, Cl. 432-98.000.
Gootzait, Edward; and Fisher, Donald L., 4,337,030, Cl. 432-14.000.
Keran, Vitie P.; and Baker, Alan C., to Direct Reduction Corporation, The. System for recycling char in iron oxide reducing kilns. 4,337,084, Cl. 75-36.000.
Keyes Fibre Company: *See—*
Foster, Peter D.; and Stowers, Clifford, 4,337,116, Cl. 162-158.000.
Keystone Foods Corporation: *See—*
Adams, Edward G., 4,337,275, Cl. 426-104.000.
Kidd, Patrick D.: *See—*
Orlowski, Jan A.; Butler, David V.; and Kidd, Patrick D., 4,337,349, Cl. 560-30.000.
Kiff, Ben W.: *See—*
Logsdon, John E.; and Kiff, Ben W., 4,337,356, Cl. 562-549.000.
Kilty, Alan L., to Caterpillar Tractor Co. Welder control. 4,337,386, Cl. 219-130.210.
Kim, Choong-Ki; Kwak, Tae-Kyun; and Choe, Seong-Hyeon, to Gold Star Semiconductor, Ltd. High power transistor with highly doped buried base layer. 4,337,475, Cl. 357-36.000.
Kimberly-Clark Corporation: *See—*
Roeder, Robert J., 4,336,804, Cl. 128-290.00R.
Kimura, Tsutomu: *See—*
Ohnishi, Masahiro; and Kimura, Tsutomu, 4,337,398, Cl. 250-548.000.
Kindell, Bo, to ASEA Aktiebolag. Apparatus for firing series-connected thyristors. 4,337,404, Cl. 307-252.00L.
Kinetico, Inc.: *See—*
Prior, William C., 4,337,153, Cl. 210-288.000.
King, Timothy W.: *See—*
Sahyun, Melville R. V.; Chen, Tsung-I; King, Timothy W.; Mikelsons, Valdis; and Mitra, Smarajit, 4,337,303, Cl. 430-11.000.
King, Vincent W.: *See—*
Lauer, James L.; King, Vincent W.; and Lau, Keyser K., 4,337,396, Cl. 250-340.000.
Kintz, Earl J.: *See—*
English, Joseph J., 4,337,121, Cl. 202-169.000.
Kinugawa, Kazumi: *See—*
Ando, Ryuta; and Kinugawa, Kazumi, 4,337,533, Cl. 369-77.000.
Kitabayashi, Seiichi. Wave energy propelling marine ship. 4,337,052, Cl. 440-9.000.
Kitajima, Masao; Arai, Fuminori; and Kondo, Asaji, to Fuji Photo Film Co., Ltd. Hemoglobin concentration determining article. 4,337,222, Cl. 422-56.000.
Kitani, Teruo: *See—*
Sagishima, Takayuki; and Kitani, Teruo, 4,337,477, Cl. 358-18.000.
Kitano, Kyozo: *See—*
Ando, Hideo; Hayashi, Akira; Ohkouchi, Haruo; and Kitano, Kyozo, 4,337,165, Cl. 252-105.000.
Kitchhen, John A. Pulse combustion apparatus. 4,336,791, Cl. 126-110.00R.
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., to International Flavors & Fragrances Inc. Use of cyclohexyl phenethylether in augmenting or enhancing the aroma of perfumes and colognes. 4,337,180, Cl. 252-522.00R.
Klamm, Robert L.: *See—*
Carouthers, Middleton M.; and Klamm, Robert L., 4,336,773, Cl. 123-25.00B.
Kleinschmit, Peter: *See—*
Buder, Wolfgang; Wolff, Siegfried; and Kleinschmit, Peter, 4,337,205, Cl. 260-349.000.
Ruhs, Alexander; Schwarz, Rudolf; and Kleinschmit, Peter, 4,337,239, Cl. 423-561.00R.
Kling, Alfred: *See—*
Rohlfs, Hans-Adolf; Kling, Alfred; Raab, Guenter; Vogt, Michael; Specht, Viktor; and Schaetzke, Ulrike, 4,337,214, Cl. 260-502.500.
Knox, James C., Jr.: *See—*
Hobgood, Terry W.; and Knox, James C., Jr., 4,336,708, Cl. 73-40.50R.
Knudson, Curtis L.; Willson, Warrack G.; Baker, Gene G.; Sondreal, Everett A.; and Farnum, Sylvia A., to United States of America, Energy. Continuous process for conversion of coal. 4,337,142, Cl. 208-8.0LE.
Kobayashi, Hiroya: *See—*
Fukuchi, Shuzo; Hayashi, Tetsuzo; Kobayashi, Hiroya; and Oshiumi, Ryoichi, 4,337,154, Cl. 210-490.000.
Kobayashi, Shoji: *See—*
Yanagihara, Masanobu; Kaneuchi, Yoichiro; and Kobayashi, Shoji, 4,336,777, Cl. 123-306.000.
Kobayashi, Teruo: *See—*
Miyamoto, Akio; Kobayashi, Teruo; and Matsukawa, Hiroharu, 4,337,280, Cl. 427-150.000.
Koch, Friedhelm: *See—*
Koppern, Heinz; Bergendahl, Hans-Georg; Rieschel, Hartmut; and Koch, Friedhelm, 4,337,023, Cl. 425-237.000.

Kockums Industri AB: *See—*
Eklund, Urban, 4,336,731, Cl. 83-74.000.

Koda, N. John: *See—*
Alexander, David H.; Hershman, George H.; Jack, Michael D.; Koda, N. John; and Lloyd, Randahl B., 4,337,395, Cl. 250-332.000.

Kodaira, Kuniyasu: *See—*
Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, 4,336,808, Cl. 128-663.000.

Kodama, Hiroshi: *See—*
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Koddebusch, Hubert: *See—*
Metzner, Wolfgang; Koddebusch, Hubert; and Poetter, Gerswid, deceased, 4,337,093, Cl. 106-18.330.

Koenig, Daniel R., to United States of America, Energy. Entirely passive heat pipe apparatus capable of operating against gravity. 4,336,837, Cl. 165-104.220.

Kolb, Walter, to Wolf-Gerate GmbH. Combination garden tool. 4,336,845, Cl. 172-349.000.

Kollar, John, to Celanese Corporation. Production of ethylene glycol by reaction of methanol, an organic peroxide and formaldehyde. 4,337,371, Cl. 568-852.000.

Komatsubara, Masahiro: *See—*
Kamimura, Teturo; Komatsubara, Masahiro; Ando, Shizuo; and Inanaga, Takugi, 4,337,490, Cl. 360-96.600.

Komatsubara, Shozi; and Katayama, Masanori, to Dainippon Screen Mfg. Co., Ltd. Apparatus for holding a copy in reproduction camera. 4,336,984, Cl. 352-75.000.

Kondo, Asaji: *See—*
Kitajima, Masao; Arai, Fuminori; and Kondo, Asaji, 4,337,222, Cl. 422-56.000.

Kondo, Norio: *See—*
Takagishi, Hisao; and Kondo, Norio, 4,336,835, Cl. 162-164.300.

Kopecko, William L.; Fuller, Robert L.; and Duchac, Joseph O. Fixture for resurfacing vehicle brake discs. 4,336,730, Cl. 82-4.00A.

Koppern, Heinz; Bergendahl, Hans-Georg; Rieschel, Hartmut; and Koch, Friedhelm, to Maschinenfabrik Koppern GmbH & Co. KG. Roller press for compacting and briquetting of bulk material. 4,337,023, Cl. 425-237.000.

Koritsu Machine Industries, Ltd.: *See—*
Kurihara, Tetsuo, 4,337,122, Cl. 202-248.000.

Korsell, Lars E. R., to Aktiebolaget Carl Munters. Device in an evaporative cooler. 4,337,216, Cl. 261-112.000.

Korzeczek, Karl-Ludwig: *See—*
Taubenmann, Peter; and Korzeczek, Karl-Ludwig, 4,337,026, Cl. 425-454.000.

Kosswig, Kurt: *See—*
Hentschel, Bernhard; Ziebarth, Jurgen; Coenen, Alfred; Kosswig, Kurt; and von Praun, Ferdinand, 4,337,234, Cl. 423-424.000.

Koulbanis, Constantin: *See—*
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Kouno, Kageaki: *See—*
Oki, Toshikazu; Yoshimoto, Akihiro; Kouno, Kageaki; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,337,312, Cl. 435-78.000.

Kozacka, Frederick J.; and Belcher, Richard A., to Gould Inc. Electric fuse having terminal caps and blades projecting through said caps. 4,337,452, Cl. 337-231.000.

Kramer, James C.: *See—*
Noller, Fred W.; and Kramer, James C., 4,336,860, Cl. 180-273.000.

Krauss-Maffei Aktiengesellschaft: *See—*
Taubenmann, Peter; and Korzeczek, Karl-Ludwig, 4,337,026, Cl. 425-454.000.

Kreft, Keith A., to Sun Electric Corporation. Automotive engine analyzer for indicating a no-connection condition of engine test leads. 4,337,515, Cl. 364-551.000.

Krevitz, Kenneth: *See—*
Pytlewski, Louis L.; Krevitz, Kenneth; and Smith, Arthur B., 4,337,368, Cl. 568-730.000.

Kroger, John E.: *See—*
Barnhart, David A.; Kroger, John E.; and Walters, David A., 4,336,749, Cl. 98-43.00R.

Krug, James E.; Magenau, Roger W.; and Hall, Jack P., to Divajex. Insulated container. 4,336,883, Cl. 206-545.000.

Krumlauf, Alfred C. Golf chip and putt practice device and game. 4,336,939, Cl. 273-185.00R.

Kubistant, Matt: *See—*
Maropis, Nicholas; and Kubistant, Matt, 4,337,385, Cl. 219-69.00V.

Kubo, Yoichiro; and Ohura, Kiyomori, to Nippon Zeon Co., Ltd. Process for hydrogenation of conjugated diene polymers. 4,337,329, Cl. 525-339.000.

Kucheck, Leo: *See—*
Crankshaw, Michael; and Kucheck, Leo, 4,337,108, Cl. 156-285.000.

Kuck, Mark A.; and Miller, Gary K., to Stauffer Chemical Company. Electrochemical synthesis of organophosphorus compounds from the element. 4,337,125, Cl. 204-59.00R.

Kugler, Edwin L.: *See—*
McCandlish, Larry E.; and Kugler, Edwin L., 4,337,232, Cl. 423-362.000.

Kuhnert, Werner: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.

Kulprathipanja, Santi; and deRosset, Armand J., to UOP Inc. Organic bound adsorbents. 4,337,171, Cl. 252-430.000.

Kulyabko, Valery A.; Sinyavskaya, Vera M.; Sivkov, Alexandr A.; and Gavrilov, Evgeny N. Apparatus for fish protection. 4,337,008, Cl. 405-127.000.

Kunii, Daizo. Apparatus for thermally decomposing and gasifying combustible material in a single fluidized reactor. 4,337,066, Cl. 48-63.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Yaguchi, Kunihide; Takaiwa, Masakazu; and Aoki, Minoru, 4,337,231, Cl. 423-243.000.
Yusa, Haruhiko; Iizuka, Yo; and Akutsu, Humio, 4,337,324, Cl. 525-72.000.

Kurihara, Tetsuo, to Koritsu Machine Industries, Ltd. Coke oven door. 4,337,122, Cl. 202-248.000.

Kurz, Craven H. Fixed lingual orthodontic appliance for the maxillary arch. 4,337,037, Cl. 433-8.000.

Kuwahara, Hiroshi: *See—*
Ohnishi, Makoto; Kuwahara, Hiroshi; and Maeda, Narimichi, 4,337,518, Cl. 364-724.000.

Kwak, Tae-Kyun: *See—*
Kim, Choong-Ki; Kwak, Tae-Kyun; and Choe, Seong-Hyeon, 4,337,475, Cl. 357-36.000.

Kwolek, William S., to Ervin Industries, Inc. Centrifugal blasting apparatus. 4,336,672, Cl. 51-432.000.

Label-Aire Inc.: *See—*
Crankshaw, Michael; and Kucheck, Leo, 4,337,108, Cl. 156-285.000.

Laboratoire Roger Bellon: *See—*
Techer, Henri; Monnier, Gilles; and Pesson, Marcel, 4,337,263, Cl. 424-273.00P.

Laboratoires Jacques Logeais: *See—*
Maillard, Jacques G.; Delaunay, Pierre P. A.; and Legeai, Jacky M. G., 4,337,343, Cl. 548-152.000.

Lacey, Edward H. Device for preparing and cleaning trench for an aquifer recharging system. 4,337,006, Cl. 405-176.000.

Lafarge Coppee: *See—*
Duplouy, Alain; and Le Bras, Bernard, 4,337,032, Cl. 432-106.000.

Laflamme, Marc: *See—*
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Laird, Gerald, to Ultradyne, Inc. Self-defense apparatus. 4,337,496, Cl. 361-232.000.

Lake & Elliot Incorporated: *See—*
Hall, Alan D., 4,336,919, Cl. 251-214.000.

Lakshmanan, Pallavoor R.: *See—*
Karim, Khalid A.; Lakshmanan, Pallavoor R.; and Rea, James H., 4,337,298, Cl. 428-461.000.

Lamont, James A.: *See—*
German, Paul M., Jr.; Lamont, James A.; and Gee, John C., 4,337,069, Cl. 55-229.000.

Lampert, Shlomo I. Measuring device. 4,337,391, Cl. 235-70.00A.

Lancaster, Patrick R.; and Lancaster, William G., to Lantech Inc. Film web drive stretch wrapping apparatus and process. 4,336,679, Cl. 53-399.000.

Lancaster, William G.: *See—*
Lancaster, Patrick R.; and Lancaster, William G., 4,336,679, Cl. 53-399.000.

Langs, James C. Heat recovery system. 4,336,905, Cl. 237-8.00R.

Lantech Inc.: *See—*
Lancaster, Patrick R.; and Lancaster, William G., 4,336,679, Cl. 53-399.000.

Lantz, Rose M. Bed sheet or the like securing means. 4,336,635, Cl. 24-72.500.

Larkins, Thomas H., Jr., to Eastman Kodak Company. Preparation of ethylidene diacetate. 4,337,351, Cl. 560-263.000.

Laroche, Paul G., to Glenhope Enterprises, Inc. Game including apertures simulating playing cards selected by a rolled ball. 4,336,938, Cl. 273-138.00R.

Lasker, Martin L., to Marley-Wylain Company, The. Lighting fixture with directional distribution. 4,337,507, Cl. 362-282.000.

Latucca, Vincent; and Bronsther, Burton. Adjustable surgical drape. 4,336,797, Cl. 128-132.00D.

LaTulip, Arthur C.: *See—*
Brenner, Kurt H., Jr.; LaTulip, Arthur C.; and Oetken, James E., 4,337,304, Cl. 430-24.000.

Lau, Keyser K.: *See—*
Lauer, James L.; King, Vincent W.; and Lau, Keyser K., 4,337,396, Cl. 250-340.000.

Lauer, James L.; King, Vincent W.; and Lau, Keyser K., to Suncor Inc. Method for bitumen analysis and apparatus therefor. 4,337,396, Cl. 250-340.000.

Laul, Virgil R.: *See—*
Van Riper, Wilbur E.; and Laul, Virgil R., 4,337,377, Cl. 179-2.00R.

Laurent, Jean; Monnet, Bernard; and Pertuis, Philippe, to Pont-a-Mousson S.A. Adaptable injection molding installation mounting arrangement. 4,337,022, Cl. 425-192.00R.

Lear Siegler, Inc.: *See—*
Washburn, John R., 4,336,718, Cl. 73-517.00B.

LeBaron, Francis. Structures for supporting manhole covers, grates and the like provided with self-storing adjustable leveling apparatus. 4,337,005, Cl. 404-26.000.

Le Bras, Bernard: *See—*
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LeCraw, Roy C.: *See—*
Blank, Stuart L.; Gyorgy, Ernst M.; LeCraw, Roy C.; and Luther, Lars C., 4,337,521, Cl. 365-33.000.
Lee, Hsi L.: *See—*
Baggiolini, Enrico G.; Lee, Hsi L.; and Uskokovic, Milan R., 4,337,345, Cl. 548-242.000.
Leeds & Northrup Company: *See—*
Deffendall, George W.; and Hitt, James J., 4,337,456, Cl. 340-347.0NT.
Fogel, John D.; and McAdam, Will, 4,337,434, Cl. 328-114.000.
Lefer, Allan M., to Thomas Jefferson University. Methods of increasing coronary blood flow through vasodilation by flurbiprofen. 4,337,273, Cl. 424-317.000.
Legeai, Jacky M. G.: *See—*
Maillard, Jacques G.; Delaunay, Pierre P. A.; and Legeai, Jacky M. G., 4,337,343, Cl. 548-152.000.
Leger, Alain: *See—*
Bourassin, Lucien; Condat, Bernard; Fortin, Jacques; Leger, Alain; Soto, Joseph; and Solvinto, Jean-Claude, 4,337,480, Cl. 358-93.000.
Lehman-H Feeder & Plow, Inc.: *See—*
Helbig, William H.; and Cornell, Barry F., 4,336,844, Cl. 172-140.000.
Lehmann, Gunter: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.
Lehmann, Herbert G. Two-spindle planetary kitchen mixer-kneader and anti-climb dough hooks therefor. 4,337,000, Cl. 366-288.000.
Leichter, Louis M.: *See—*
Beretta, Paolo; Leichter, Louis M.; and Stofko, John J., Jr., 4,337,305, Cl. 430-82.000.
Leigh, Michael L.; and Stubbs, Richard D., to Hughes Aircraft Company. Automatic blast actuated positive release missile detent. 4,336,740, Cl. 89-1.806.
Leithauser, Horst: *See—*
Rigler, Josef K.; Ratajczak, Hans-Josef; Leithauser, Horst; and Trukenbrod, Karl, 4,337,319, Cl. 521-96.000.
Leitner, Horst. Cardan drive for motorcycles. 4,336,859, Cl. 180-226.000.
Leland Stanford Junior University, The Board of Trustees of the: *See—*
Burstein, Neal L.; and Maurice, David M., 4,336,691, Cl. 62-64.000.
Lemelson, Jerome H. Theft detection system and method. 4,337,462, Cl. 340-572.000.
Lemmer, Helmut, to Starkstrom Gummersbach GmbH. Switch. 4,337,447, Cl. 335-167.000.
Leoni, Roberto; Baldini, Alberto; Calloni, Angelo; and Angelini, Gianfranco, to SNIA Viscosa S.p.A. - Societa' Nazionale Industria Applicazioni Viscosa. Process for the preparation of solutions of cellulose derivatives in organic solvents having higher concentration and solutions obtained by said process. 4,337,095, Cl. 106-203.000.
Lerner, Bernard, to Automated Packaging Systems, Inc. Method of making a container strip having inserts. 4,337,058, Cl. 493-11.000.
Les Cables de Lyon: *See—*
Comte, Georges N.; Appriou, Andre; and Couturier, Jean, 4,337,019, Cl. 425-116.000.
Lescrenier, Charles. Light beam producing device. 4,337,502, Cl. 362-32.000.
Lesher, George Y.; and Dickinson, William B., to Sterling Drug Inc. 4,5-Dihydro-2-methyl-6-(4-pyridinyl)-3(2H)-pyridazinone and its use as a cardiotonic. 4,337,253, Cl. 424-250.000.
L'Etat Francais, represente par le Secretaire d'Etat aux Poste et Telecommunications (Centre National d'Etudes des Telecommunications): *See—*
Guillou, Louis C., 4,337,483, Cl. 358-114.000.
Leumann, Hans E.: *See—*
Morgan, John W., II; and Leumann, Hans E., 4,337,034, Cl. 432-234.000.
Leutwiler, Albert: *See—*
Sorg, Dieter; and Leutwiler, Albert, 4,337,198, Cl. 260-243.300.
Lever Brothers Company: *See—*
Clements, Anthony H., 4,337,164, Cl. 252-96.000.
Schilp, Ulrich, 4,337,163, Cl. 252-96.000.
Levolor Lorentzen, Inc.: *See—*
Schaller, Maurice, 4,336,834, Cl. 160-168.00A.
Lewis, H. Glenn, to Sandvik AB. Method and apparatus for positioning a tapered member to verify the accuracy of the taper. 4,336,656, Cl. 33-174.00E.
LGZ Landis & Gyr Zug AG: *See—*
Guggenbuhl, Walter; and Halder, Mathis, 4,337,438, Cl. 330-10.000.
Licentia Patent-Verwaltungs-G.m.b.H.: *See—*
Pschunder, Willi; and Steinmetz, Gerhard, 4,336,648, Cl. 29-572.000.
Liet, Cornelis H.: *See—*
Liet, Fredericus; and Liet, Cornelis H., 4,336,732, Cl. 83-109.000.
Liet, Fredericus; and Liet, Cornelis H., to Trioliet Silo Europe B.V. Device for cutting out and transporting a silage block. 4,336,732, Cl. 83-109.000.
Limmergard, Sten, to A-Betong AB. Arrangement by crossings between roads and railways. 4,336,906, Cl. 238-8.000.
Lin, Yih-Chou. Bathing brush. 4,336,623, Cl. 15-222.000.
Lincoln, Frank H.: *See—*
Johnson, Roy A.; Lincoln, Frank H.; and Pike, John E., 4,337,204, Cl. 549-465.000.
Linde Aktiengesellschaft: *See—*
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Schmitt, Georg; and Gostl, Georg, 4,336,694, Cl. 62-374.000.
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Ando, Hideo; Hayashi, Akira; Ohkouchi, Haruo; and Kitano, Kyozo, 4,337,165, Cl. 252-105.000.
Lipp, Herbert, to Sybron Corporation. Expandable legrest for dental chairs. 4,336,965, Cl. 297-435.000.
Liska, Zbynek, to Adamovske strojirny, narodni podnik. Device for the axial and the radial setting of the form cylinder for register printing. 4,336,755, Cl. 101-248.000.
Littler, Jane A.: *See—*
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Lloyd, Randahl B.: *See—*
Alexander, David H.; Hershman, George H.; Jack, Michael D.; Koda, N. John; and Lloyd, Randahl B., 4,337,395, Cl. 250-332.000.
Lo, Christopher C. C.: *See—*
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Lockheed Corporation: *See—*
Cronin, Michael J.; and Elliot, David K., 4,337,499, Cl. 361-386.000.
Loeb, Warner, to Identifax Nationwide Registry. Property identification system. 4,336,754, Cl. 101-127.000.
Logsdon, John E.; and Kiff, Ben W., to Union Carbide Corporation. Catalytic liquid-phase oxidation of butane. 4,337,356, Cl. 562-549.000.
Longuet, Maurice: *See—*
Favreau, Michel; Bajon, Jean; Cattoen, Michel; Soca, Serge; Longuet, Maurice; and Delattre, Christian, 4,337,514, Cl. 364-515.000.
Lonier, David T.: *See—*
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Lonstein, Charles: *See—*
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Lonza Ltd.: *See—*
Dinkel, Rolf, 4,337,342, Cl. 546-251.000.
L'Oreal S.A.: *See—*
Ser, Jean-Claude; Zabotto, Arlette; Zaffran, Christian; and Koulbanis, Constantin, 4,337,241, Cl. 424-59.000.
Love, Gary N.: *See—*
Totty, Ray S.; Love, Gary N.; and Zolot, Jeffrey L., 4,336,747, Cl. 92-43.000.
Low, Leonard J. Method and apparatus for installing steering axle pivot pins. 4,336,953, Cl. 280-95.00R.
Loyzim, Robert J., to General Electric Company. Braking system for a medical diagnostic device. 4,336,858, Cl. 180-179.000.
Luck, Arthur J. Rack for bicycles. 4,336,897, Cl. 224-42.03B.
Luksenberg, Jacob M.: *See—*
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Lull Engineering Company, Inc.: *See—*
Prokop, James A., 4,336,720, Cl. 73-862.530.
Lunau, John A. Electrically controlled in-line dispensing faucet. 4,336,896, Cl. 222-504.000.
Lund, Richard A., to MTS Systems Corporation. Servovalve flow linearization circuit. 4,336,745, Cl. 91-35.000.
Luther, Lars C.: *See—*
Blank, Stuart L.; Gyorgy, Ernst M.; LeCraw, Roy C.; and Luther, Lars C., 4,337,521, Cl. 365-33.000.
Lynch, John F., to Frebar Holding AG. Aeration apparatus and method. 4,337,152, Cl. 210-197.000.
Lynn, Robert W., to Becton, Dickinson and Company. Method for manufacturing a roller bottle. 4,337,104, Cl. 156-69.000.
Lynnworth, Lawrence C., to Panametrics, Inc. Ultrasonic flowmeters using waveguide antennas. 4,336,719, Cl. 73-861.270.
Lythgoe, Alan L.: *See—*
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M-S Surgical Mfg. Co., Ltd.: *See—*
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Machida Endoscope Co., Ltd.: *See—*
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Mackay, Duncan R.; Arnold, Arthur K.; and Holm, Donald C., to Autotron Equipment Corporation. Drive belt tensioning apparatus. 4,337,055, Cl. 474-111.000.
Macksoud, Albert A. Rocking arm saw. 4,336,733, Cl. 83-477.200.
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., to Texaco Inc. Methods for removing entrained solids from gases. 4,337,068, Cl. 55-1.000.
Maeda, Narimichi: *See—*
Ohnishi, Makoto; Kuwahara, Hiroshi; and Maeda, Narimichi, 4,337,518, Cl. 364-724.000.
Maehara, Osamu; and Harada, Tsutomu, to Ono Sokki Co., Ltd. Gear mesh testing instruments. 4,336,711, Cl. 73-162.000.
Maezumi, Juichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Read control system for a control storage device. 4,337,510, Cl. 364-200.000.
Magenau, Roger W.: *See—*
Krug, James E.; Magenau, Roger W.; and Hall, Jack P., 4,336,883, Cl. 206-545.000.
Magnan, Alfredo J., to Suave Shoe Corporation. Automatic sewing apparatus. 4,336,761, Cl. 112-121.120.

Magnetic Peripherals, Inc.: *See—*
Duff, James A.; and Boisvert, Donald R., 4,336,631, Cl. 16-126.000.
Maher, James C.; and Carlotta, Michael, to Xerox Corporation. Roll fusing apparatus for electrophotography and release agent management system therefor. 4,336,766, Cl. 118-60.000.
Mahler, Friedrich; and Stauffer, Adolf, to Davy McKee Aktiengesellschaft. Apparatus for conducting the catalytic oxidation of gaseous sulfur compounds to sulfur trioxide. 4,337,224, Cl. 422-197.000.
Maillard, Jacques G.; Delaunay, Pierre P. A.; and Legeai, Jacky M. G., to Laboratoires Jacques Logeais. 4,5 or 6-Alkylaminoalkyl-2-alkyl-4,5,6,7-tetrahydro benzo[d]thiazoles. 4,337,343, Cl. 548-152.000.
Mainardi, Giuliano: *See—*
Zanazzo, Pietro; Mainardi, Giuliano; and Giorgetti, Rodolfo, 4,337,500, Cl. 361-395.000.
Maiocco, Guiseppe, to ARMAN S.p.A. Wiper blade. 4,336,625, Cl. 15-250.420.
Malagari, Frank A., Jr., to Allegheny Ludlum Steel Corporation. Processing for cube-on-edge oriented silicon steel. 4,337,101, Cl. 148-111.000.
Manara, Giovanni: *See—*
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Mann, Horace C., Jr.; and Meline, Robert S., to Tennessee Valley Authority. Low polyphosphate suspension fertilizers from wet-process acid. 4,337,079, Cl. 71-34.000.
Mannon, Walter L.; and Cochran, Cary L., to Victor United, Inc. Attachment member for securing the ends of cables in a compound bow. 4,336,786, Cl. 124-23.00R.
Manville Service Corporation: *See—*
Bradley, Timothy G., 4,337,157, Cl. 210-691.000.
Mechel, John R.; and Brosch, Eric J., 4,337,075, Cl. 65-12.000.
Marconi Company Limited, The: *See—*
Sosin, Boleslaw M., 4,337,439, Cl. 330-54.000.
Marker, Hannes: *See—*
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Markus, Henry Z.; and McAleer, William J., to Merck & Co., Inc. Vaccine stabilizer containing L-glutamic acid and L-arginine. 4,337,242, Cl. 424-89.000.
Marley-Wylain Company, The: *See—*
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Maropis, Nicholas; and Kubistant, Matt, to UTI Corporation. Orbital tool support system for EDM machines and other machine tools. 4,337,385, Cl. 219-69.00V.
Martin, Edward J.: *See—*
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Martin, Raymond H.; Garganese, Ugo S.; and Griffin, John R. Plasterless articulator. 4,337,039, Cl. 433-60.000.
Martin, Stanley I.; and Martin, Edward J., to Axis Products Limited. Fluid exchanger. 4,336,748, Cl. 98-33.00A.
Martinek, Harold H.: *See—*
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Martinek, Thomas W.: *See—*
Wilson, Willard T.; Martinek, Harold H.; Martinek, Thomas W.; and Story, Alfred D., 4,336,632, Cl. 17-1.00R.
Martucci Frank C. Dripless ceiling paint roller and paint metering pan. 4,337,002, Cl. 401-15.000.
Marynowski, Chester W.; and Geigel, Maria A., to Clorox Company, The. Controlled crystallization diperoxyacid process. 4,337,213, Cl. 260-502.00R.
Maschinenbau Oppenweiler Binder GmbH & Co.: *See—*
Adam, Axel; and Heina, Fritz, 4,336,862, Cl. 181-200.000.
Maschinenfabrik Carl Zangs Aktiengesellschaft: *See—*
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Maschinenfabrik Koppern GmbH & Co. KG: *See—*
Koppern, Heinz; Bergendahl, Hans-Georg; Rieschel, Hartmut; and Koch, Friedhelm, 4,337,023, Cl. 425-237.000.
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Maskalick, Nicholas J., to Westinghouse Electric Corp. Non-pulsed electrochemical impregnation of flexible metallic battery plaques. 4,337,124, Cl. 204-2.100.
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Shimizu, Youiti; Tsumura, Takeo; Matsumoto, Tadashi; and Nakai, Syunzi, 4,337,472, Cl. 346-155.000.
Matsumura, Susumu; and Suzuki, Takashi, to Canon Kabushiki Kaisha. Focusing screen. 4,336,989, Cl. 354-200.000.
Matsushima, Shunsuke: *See—*
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Matsushita Electric Industrial Co., Ltd.: *See—*
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Tokumasu, Hiroyuki; Uchino, Hideo; and Hozumi, Shiro, 4,337,097, Cl. 148-6.15R.
Tomimoto, Tetsuo; Yasumoto, Yoshio; and Taira, Eiichi, 4,337,479, Cl. 358-37.000.
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Matthies, Alan A., to Eaton Corporation. Remote control electro-thermal actuator switch. 4,337,450, Cl. 337-66.000.
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Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, 4,336,808, Cl. 128-663.000.
Mauck, Michael S., to Electro Scientific Industries, Inc. First laser pulse amplitude modulation. 4,337,442, Cl. 372-13.000.
Maudal, Inge, to General Dynamics, Pomona Division. Selective filter for closed loop servo system. 4,337,427, Cl. 318-615.000.
Maurer, Alexander: *See—*
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McArdle, Beryl L.; and Tapernoux, Pierre J., to General Dynamics Corporation, Electronics Division. Blanking wave generator for binary code synchronizing system. 4,337,436, Cl. 328-157.000.
McCandlish, Larry E.; and Kugler, Edwin L., to Exxon Research & Engineering Co. Ammonia synthesis process using molybdenum oxycarbonitride catalyst. 4,337,232, Cl. 423-362.000.
McDonald, Hector O.; and George, Lawrence C., to United States of America, Interior. Recovery of chromium from waste solutions. 4,337,227, Cl. 423-55.000.
McDowell, Jerry T., to Ball Corporation. Apparatus for orienting and sizing battery grids. 4,336,704, Cl. 72-324.000.
McElroy, David J., to Texas Instruments Incorporated. Method of making implant programmable N-channel read only memory. 4,336,647, Cl. 29-571.000.
McElroy, Jerry W.; and Urban, Donald C., to Emerson Electric Co. Pilot burner assembly. 4,337,029, Cl. 431-264.000.
McGeeney, Kevin F., to Pharmacia Diagnostics AB. Method of deterining the concentration of pancreatic and salivary α-amylase in body fluids. 4,337,309, Cl. 435-22.000.
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McGrew, Bernard L., to FMC Corporation. Ring supported truck crane and method of setting up. 4,336,889, Cl. 212-178.000.
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Wood, Prentice J., 4,336,878, Cl. 206-173.000.
Mechel, John R.; and Brosch, Eric J., to Manville Service Corporation. Twin center cooling fin for tip type bushing. 4,337,075, Cl. 65-12.000.
Medlin, Richard C. Method of installing bulletproof windows in an armored automobile. 4,336,644, Cl. 29-401.100.
Medrano, Walter A. Shoe insert. 4,336,661, Cl. 36-44.000.
Meek, Robert P., to Ecomar, Inc. Retrieval of articles from beneath the surface of a body of water. 4,336,709, Cl. 73-61.200.
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Pichelman, Franklin D.; and Mehl, Donald N., 4,336,624, Cl. 15-245.000.
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Meline, Robert S.: *See—*
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Melissa, Raymond F.; Grummett, Lorne H.; and Fischer, Joseph J., to Trilog, Inc. Apparatus for producing a multiple color hard copy image. 4,336,751, Cl. 101-93.040.

Melmon, Kenneth L.: *See—*
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Mendenhall, Jean S.: *See—*
Sentell, Samuel W.; Mendenhall, Jean S.; Roberts, Sallie S.; and Sentell, C. Sherburne, Jr., 4,336,801, Cl. 128-239.000.

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Rooney, Clarence S.; Williams, Haydn W. R.; Cragoe, Edward J., Jr.; and Patchett, Arthur A., 4,337,258, Cl. 424-263.000.
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Metzner, Wolfgang; Koddebusch, Hubert; and Poetter, Gerswid, deceased (by Seeholzer, Ursula, heiress), to Deutsche Solvay Werke GmbH. Wood preserving composition and method of using same. 4,337,093, Cl. 106-18.330.

Meyer, Arthur S., to United States of America, Air Force. Compensated temperature sensing device. 4,336,713, Cl. 374-197.000.

Meyer, Lawrence L., to Eaton Corporation. Valve selector. 4,336,775, Cl. 123-198.00F.

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Mick, Peter; and Beck, Donald. Motion and intrusion detecting system. 4,337,481, Cl. 358-105.000.

Microwave Development Labs. Inc.: *See—*
Wilson, Ronald A., 4,336,974, Cl. 339-8.00R.

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Mihara, Yuji; Masuda, Nobuhito; Hiratsuka, Nobuo; Miyazako, Takushi, both of; and Ikeda, Tadashi, to Fuji Photo Film Co., Ltd. Competitive immunoassay using spectral sensitizer label. 4,337,063, Cl. 23-230.00B.

Mihara, Yuji: *See—*
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Mikami, Takashi: *See—*
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Mikelsons, Valdis: *See—*
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Miles Laboratories, Inc.: *See—*
Hershberger, Donald F.; and Sternberg, Moshe M., 4,337,313, Cl. 435-177.000.

Miller, Arthur. Hardness tester. 4,336,710, Cl. 73-79.000.

Miller, Gary K.: *See—*
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Minnetti, Federico, to Officine Minnetti di Ornella Reveggi & C. S.A.S. Apparatus for the transfer of hanks. 4,336,875, Cl. 198-486.000.

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Mitra, Smarajit: *See—*
Sahyun, Melville R. V.; Chen, Tsung-I; King, Timothy W.; Mikelsons, Valdis; and Mitra, Smarajit, 4,337,303, Cl. 430-11.000.

Mitsubishi Chemical Industries, Ltd.: *See—*
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Mitsubishi Denki Kabushiki Kaisha: *See—*
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Mitsubishi Jidosha Kogyo Kabushiki Kaisha: *See—*
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Mitsubishi Kinzoku Kabushiki Kaisha: *See—*
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Mitsubishi Rayon Co., Ltd.: *See—*
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Mitsui Toatsu Chemicals Inc.: *See—*
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Miyake, Yasuo: *See—*
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Miyamoto, Akio; Kobayashi, Teruo; and Matsukawa, Hiroharu, to Fuji Photo Film Co., Ltd. Desensitizer composition. 4,337,280, Cl. 427-150.000.

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Mize, Pete. Variable speed transmission. 4,336,724, Cl. 74-750.00R.

Mizuno, Akinori, to Ricoh Co., Ltd. Method and device for controlling concentration of ink for ink-jet printer. 4,337,468, Cl. 346-1.100.

Mizutani, Hitoshi: *See—*
Tsukiyama, Yoshifumi; Hatanaka, Yasunori; Ogawa, Akiyoshi; and Mizutani, Hitoshi, 4,336,696, Cl. 464-111.000.

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Moberly, Frank. Earth scraper assembly. 4,336,663, Cl. 37-129.000.

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Moffatt, David A., to Moffatt Products, Inc. High wattage lamp fixture. 4,337,508, Cl. 362-294.000.

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Mohlmann, Hans H., to Shortland Engineering International Anstalt. Cap or closure for tubes and bottles. 4,336,890, Cl. 215-272.000.

Monaghan, Kevin J.; and Schwickert, Russell C., to Bunker Ramo Corporation. Crimped connector assembly for fiber optic cables. 4,336,977, Cl. 350-96.200.

Moncada, Salvador E., to Burroughs Wellcome Co. Pharmaceutical compositions. 4,337,254, Cl. 424-251.000.

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Monseol Limited: *See—*
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Montieth, Royel F. Injection mold valve. 4,337,027, Cl. 425-562.000.

Moore, Robert: *See—*
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Moreau, Claude R. M., to AMTOY, Inc. Convertible stuffed toy. 4,336,665, Cl. 46-153.000.

Morgan, David F., to Eaton Corporation. Load sensing controller. 4,336,687, Cl. 60-384.000.

Morgan, John W., II; and Leumann, Hans E., to Bloom Engineering Company, Inc. Protective refractory member locking device. 4,337,034, Cl. 432-234.000.

Mori, Masaaki, to Ricoh Co., Ltd. Simultaneous multi-beam optical modulation system. 4,336,981, Cl. 350-358.000.

Morinaga, Misao, to Otsuka Chemical Co., Ltd. Expandable vinyl chloride resin composition. 4,337,320, Cl. 521-137.000.

Morioka, Akitoshi: *See—*
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Morith, Franklin J. Self retracting piston applicable for disk brake assemblies. 4,336,746, Cl. 92-130.00B.

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Morokawa, Shigeru, to Citizen Watch Company Limited. Pace timing device. 4,337,529, Cl. 368-10.000.

Moses, Edward L., Jr. Non-magnetic stabilizer. 4,337,088, Cl. 75-128.00A.
Moskin, Jeffrey M.: *See—*
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Mount, Ramon A.; and Raffelson, Harold, to Monsanto Company. Method for preparing a catalyst and intermediate formed thereby. 4,337,174, Cl. 252-437.000.
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Lund, Richard A., 4,336,745, Cl. 91-35.000.
Mukaiyama, Teruaki; Sakito, Yoji; and Asami. Masatoshi, to Sumitomo Chemical Company, Limited. α-Hydroxyaldehyde and a process for preparing the same. 4,337,346, Cl. 548-324.000.
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Mund, Konrad; Richter, Gerhard; and Weidlich, Erhard, to Siemens Aktiengesellschaft. Electrochemical capacitor. 4,337,501, Cl. 361-433.000.
Mundell, Donald D.; and Tieman, Lloyd E., to Flex-O-Lators, Inc. Connector terminus for wire members. 4,337,004, Cl. 403-209.000.
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Murray, Myles N., to Industrial Electronic Rubber Company. Valve element with molded resilient tip and method of making same. 4,336,920, Cl. 251-357.000.
Muschelknautz, Edgar; and Rink, Norbert, to Bayer Aktiengesellschaft. Process for production of mineral wool fibers. 4,337,074, Cl. 65-5.000.
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Petrov, Georgi S.; Petkov, Ivan A.; Etropolski, Hristo I.; Dimitrov, Dimiter N.; Popov, Nikolay N.; and Uzunov, Atanas I., 4,337,078, Cl. 71-24.000.
Nagabhushan, Tattanahalli L.; Turner, William N.; and Cooper, Alan, to Schering Corporation. Transition metal salt complexes of polyamino organic compounds. 4,337,335, Cl. 536-13.600.
Nagashima, Kazuyoshi; and Furuya, Nobuyuki, to Fuji Sangyo Kabushiki Kaisha. Fundamental electrical element array. 4,337,453, Cl. 338-320.000.
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Nakajima, Kazuhisa; Gohgi, Kazuaki; and Yamamoto, Toshio, to Nippon Gohsei Kagaku Kogyo Kabushiki Kaisha. Process for preparing 4-hydroxyphenylacetic acid. 4,337,355, Cl. 562-478.000.
Nakamura, Hachiro; and Nakazawa, Norio, to Toppan Printing Company, Limited. Method for storing produce and container and freshness keeping agent therefore. 4,337,276, Cl. 426-124.000.
Nakamura, Hiroyuki; and Nakaya, Shuniti, to Tokyo Shibaura Denki Kabushiki Kaisha. Refrigerator. 4,337,399, Cl. 290-1.00R.
Nakamura, Michiharu: *See—*
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Nakaya, Shuniti: *See—*
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Nakaya, Takao, to Nippon Gakki Seizo Kabushiki Kaisha. Planar electrodynamic electroacoustic transducer. 4,337,379, Cl. 179-115.5PV.
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Nanne, Johannes M.: *See—*
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Narita, Kinjo. Process of preparing an ornament for tombstones or the like. 4,337,109, Cl. 156-293.000.
Nasu, Teruyoshi: *See—*
Iwagiri, Susumu; Hattori, Teiichi; Nasu, Teruyoshi; and Miyake, Yasuo, 4,337,246, Cl. 424-174.000.
National Element, Inc.: *See—*
Best, Lorne A., 4,337,390, Cl. 219-532.000.
National Research Development Corporation: *See—*
Crisp, Stephen; and Wilson, Alan D., 4,337,186, Cl. 525-362.000.
Naumann, Klaus, to Bayer Aktiengesellschaft. Separation of enantiomers of chiral carboxylic acids. 4,337,352, Cl. 562-401.000.
Neal, Albert D. Thermostat alterable by remote control. 4,336,902, Cl. 236-46.00R.
Nederlandse Omroep Stichting: *See—*
de Korte, Jacob, 4,337,440, Cl. 330-129.000.
Needham, Donald G., to Phillips Petroleum Company, Poly (arylene sulfide) composition suitable for use in semi-conductor encapsulation. 4,337,182, Cl. 524-609.000.
Nelson, Robert T. Surface cleaning apparatus. 4,336,671, Cl. 51-424.000.
Netlon Limited: *See—*
Mercer, Frank B., 4,336,638, Cl. 26-99.000.
Neubauer, Rudolf, to Hoechst Aktiengesellschaft. Light-sensitive diazo composition and material with branched polyurethane resin. 4,337,307, Cl. 430-157.000.
New England Nuclear Corporation: *See—*
Saklad, Eugene L., 4,337,240, Cl. 424-1.000.
Newberry, Richard D., to Eltra Corporation. Magneto ignition with field-responsive biasing. 4,336,785, Cl. 123-605.000.
NGK Insulators, Ltd.: *See—*
Satomi, Seigo, 4,336,863, Cl. 181-224.000.
Nichols, Steven B. Derotation brace. 4,336,795, Cl. 128-80.00A.
Nickel, Horst: *See—*
Vater, Hans-Joachim; Nickel, Horst; and Henk, Hermann, 4,337,195, Cl. 260-146.00T.
Nickel, Walter; and Tarczy-Hornoch, Zoltan, to Systron Donner Corporation. Method of automatically calibrating a microprocessor controlled digital multimeter. 4,337,517, Cl. 364-571.000.
Nihei, Ryo: *See—*
Inagaki, Shigemi; and Nihei, Ryo, 4,336,926, Cl. 269-34.000.
Nihon Telecommunication Engineering Corporation: *See—*
Arita, Kishio; Murakawa, Kiyoshi; and Takahashi, Toshio, 4,337,089, Cl. 420-472.000.
Ninagawa, Sadami: *See—*
Kaneko, Takayuki; and Ninagawa, Sadami, 4,336,770, Cl. 122-266.000.
Nippon Bell Parts Co., Ltd.: *See—*
Arita, Kishio; Murakawa, Kiyoshi; and Takahashi, Toshio, 4,337,089, Cl. 420-472.000.
Nippon Electric Co., Ltd.: *See—*
Akatsuka, Yasuo, 4,337,525, Cl. 365-233.000.
Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Amano, Takehisa; Hamada, Seiya; Isii, Sigeki; and Takeda, Toshio, 4,336,735, Cl. 84-1.170.
Nakaya, Takao, 4,337,379, Cl. 179-115.5PV.
Nippon Gohsei Kagaku Kogyo Kabushiki Kaisha: *See—*
Nakajima, Kazuhisa; Gohgi, Kazuaki; and Yamamoto, Toshio, 4,337,355, Cl. 562-478.000.
Nippon Oil Company, Ltd.: *See—*
Imai, Hirosuke; Yamanashi, Teruaki; and Itoh, Hiroyuki, 4,337,062, Cl. 8-557.000.
Nippon Paint Co., Ltd.: *See—*
Arimatsu, Seiji, 4,337,220, Cl. 264-25.000.
Nippon Shokubai Kagaku Kogyo Co., Ltd.: *See—*
Fukuchi, Shuzo; Hayashi, Tetsuzo; Kobayashi, Hiroya; and Oshiumi, Ryoichi, 4,337,154, Cl. 210-490.000.

Nippon Soken, Inc.: *See—*
Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, 4,336,707, Cl. 73-35.000.
Nippon Telegraph and Telephone Public Corporation: *See—*
Arita, Kishio; Murakawa, Kiyoshi; and Takahashi, Toshio, 4,337,089, Cl. 420-472.000.
Takano, Rikuo; and Sumitomo, Yuji, 4,337,469, Cl. 346-75.000.
Nippon Zeon Co., Ltd.: *See—*
Kubo, Yoichiro; and Ohura, Kiyomori, 4,337,329, Cl. 525-339.000.
Nishihara, Tadashi, to Yokogawa Electric Works, Ltd. Pneumatic converter. 4,336,819, Cl. 137-85.000.
Nishimoto, Tetsunori. Multiple/divide unit. 4,337,519, Cl. 364-736.000.
Nishizawa, Jun-ichi, to Handotai Kenkyu Shinkokai. Junction field effect transistor having unsaturated drain current characteristic with lightly doped drain region. 4,337,473, Cl. 357-22.000.
Nissan Motor Co., Ltd.: *See—*
Sone, Masazumi; and Hirota, Yukitsugu, 4,337,408, Cl. 313-130.000.
Yanagihara, Masanobu; Kaneuchi, Yoichiro; and Kobayashi, Shoji, 4,336,777, Cl. 123-306.000.
Nissen, Michael D.: *See—*
Stone, Albert J.; and Nissen, Michael D., 4,336,802, Cl. 128-272.000.
Nitachi, Ltd.: *See—*
Ohnishi, Makoto; Kuwahara, Hiroshi; and Maeda, Narimichi, 4,337,518, Cl. 364-724.000.
Nitto Chemical Industry Co., Ltd.: *See—*
Doi, Shunichi; and Kamogawa, Masatake, 4,337,215, Cl. 260-513.00N.
Nix, Edwin L.; and Davenport, Bobby E. Truck bed liner. 4,336,963, Cl. 296-39.00R.
Noda, Kanji; Nakagawa, Akira; Motomura, Toshiharu; Tsuji, Masayoshi; Amano, Hidetoshi; and Ide, Hiroyuki, to Hisamitsu Pharmaceutical Co., Inc. Novel anthranilic acid derivatives. 4,337,270, Cl. 424-310.000.
Noda, Teruyoshi; Ichikawa, Iwao; and Takahashi, Toshio, to Sony Corporation. Apparatus for transferring parts or the like. 4,336,872, Cl. 193-2.00R.
Noller, Fred W.; and Kramer, James C., to Prime-Mover Co., The. Material handling vehicle having improved deadman control. 4,336,860, Cl. 180-273.000.
Nonnenmann, Wolfgang: *See—*
Schneider, Erich; Fleischer, Helmut; Nonnenmann, Wolfgang; and Gerum, Benno, 4,337,511, Cl. 364-426.000.
Nordischer Maschinenbau Rud. GmbH Co. KG: *See—*
Braeger, Horst, 4,336,634, Cl. 17-57.000.
Nordson Corporation: *See—*
Boone, Jacob J., 4,337,281, Cl. 427-236.000.
Grevich, John J., 4,336,680, Cl. 53-389.000.
Norman, Richard O., to Elfab Corporation. Continuous truck mounted printed circuit board plating system. 4,337,134, Cl. 204-198.000.
North American Philips Consumer Electronics Corp.: *See—*
Brenner, Kurt H., Jr.; LaTulip, Arthur C.; and Oetken, James E., 4,337,304, Cl. 430-24.000.
Northern Telecom Limited: *See—*
Willemsen, Herman W., 4,337,531, Cl. 369-45.000.
Norwid, Alan: *See—*
Scardera, Michael; and Norwid, Alan, 4,337,168, Cl. 252-312.000.
Notari, Bruno: *See—*
Fattore, Vittorio; Manara, Giovanni; and Notari, Bruno, 4,337,366, Cl. 568-698.000.
Nowakowski, Victor A., to Mattel, Inc. Motion sensor switch and circuit for use therewith. 4,337,402, Cl. 307-121.000.
Nozaki, Mineo: *See—*
Asakura, Osamu; and Nozaki, Mineo, 4,336,752, Cl. 101-99.000.
Oana, Mateiu J.: *See—*
Singer, Carl M.; Oana, Mateiu J.; and Turko, John D., 4,337,018, Cl. 418-132.000.
Oberth, Adolf E.; and Price, Howard A., to United States of America, Air Force. High energy solid propellant composition. 4,337,102, Cl. 149-19.300.
Oblad, Alex G.: *See—*
Hanson, Francis V.; Miller, Jan D.; and Oblad, Alex G., 4,337,143, Cl. 208-11.00R.
O'Bryan, Henry M., Jr.; and Thomson, John, Jr., to Bell Telephone Laboratories, Incorporated. Apparatus for processing microwave electrical energy. 4,337,446, Cl. 333-238.000.
Occidental Oil Shale, Inc.: *See—*
Ricketts, Thomas E., 4,336,966, Cl. 299-2.000.
Occidental Research Corporation: *See—*
Dines, Martin B., 4,337,225, Cl. 423-10.000.
ODECO Engineers, Inc.: *See—*
Petty, Terry D., 4,336,843, Cl. 166-362.000.
Oeschger, Max P.; Hooke, Anne M.; and Bellanti, Joseph A., to Research Corporation. Genetically attenuated bacterial vaccines with multiple mutations of the same phenotype. 4,337,314, Cl. 435-253.000.
Oetken, James E.: *See—*
Brenner, Kurt H., Jr.; LaTulip, Arthur C.; and Oetken, James E., 4,337,304, Cl. 430-24.000.
Officine Minnetti di Ornella Reveggi & C. S.A.S.: *See—*
Minnetti, Federico, 4,336,875, Cl. 198-486.000.
Ogawa, Akiyoshi: *See—*
Tsukiyama, Yoshifumi; Hatanaka, Yasunori; Ogawa, Akiyoshi; and Mizutani, Hitoshi, 4,336,696, Cl. 464-111.000.
Ogawa, Kazuo, to Rinnai Kabushiki Kaisha. Cooking gas oven. 4,336,789, Cl. 126-21.00A.
Ogiwara, Masaru: *See—*
Saito, Tsuyoshi; and Ogiwara, Masaru, 4,337,038, Cl. 433-32.000.
Ohhata, Michinobu: *See—*
Takahasi, Masauki; Tanaka, Hisami; Yamasawa, Masao; and Ohhata, Michinobu, 4,337,459, Cl. 340-347.0DA.
Ohkouchi, Haruo: *See—*
Ando, Hideo; Hayashi, Akira; Ohkouchi, Haruo; and Kitano, Kyozo, 4,337,165, Cl. 252-105.000.
Ohnishi, Makoto; Kuwahara, Hiroshi; and Maeda, Narimichi, to Nitachi, Ltd. Recursive-type digital filter with reduced round-off noise. 4,337,518, Cl. 364-724.000.
Ohnishi, Masahiro; and Kimura, Tsutomu, to Fuji Photo Film Co., Ltd. Device for correcting displacement of form slide in a light beam scanning type recording system. 4,337,398, Cl. 250-548.000.
Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, to Yoshimura, Shozo; and Hayashi Denki Co. Ltd. Ultrasonic wave probe. 4,336,808, Cl. 128-663.000.
Ohsawa, Katsuyuki: *See—*
Sugiyama, Katsuhiko; Ohsawa, Katsuyuki; Fujikake, Kenji; and Idota, Yoshinori, 4,336,780, Cl. 123-438.000.
Ohtsu Tire & Rubber Co., Ltd., The: *See—*
Fuzioka, Keizi; and Shinomiya, Masami, 4,336,833, Cl. 152-353.00G.
Ohura, Kiyomori: *See—*
Kubo, Yoichiro; and Ohura, Kiyomori, 4,337,329, Cl. 525-339.000.
Okada, Fumio: *See—*
Takamizawa, Minoru; Okada, Fumio; and Aoki, Hisashi, 4,337,348, Cl. 556-436.000.
Oki, Toshikazu; Yoshimoto, Akihiro; Kouno, Kageaki; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, to Sanraku-Ocean Co., Ltd. Process for producing anthracycline glycosides. 4,337,312, Cl. 435-78.000.
Oles, Joseph F.: *See—*
Bradshaw, David A.; and Oles, Joseph F., 4,336,628, Cl. 15-415.00R.
Olin Corporation: *See—*
Gay, Walter A., 4,337,081, Cl. 71-90.000.
Sakowski, Walter J.; Shaffer, John H.; and Carty, Larry G., 4,337,236, Cl. 423-474.000.
Scardera, Michael; and Norwid, Alan, 4,337,168, Cl. 252-312.000.
Olsen, Robert E.: *See—*
Backlund, Stephen J.; and Olsen, Robert E., 4,337,196, Cl. 260-239.0EQ.
Olson, Harold J., to Honeywell Inc. Adaptive load shedding. 4,337,401, Cl. 307-39.000.
Oltendorf, Norman E., to Bodine Electric Company. Deceleration initiation circuit for a stepper motor. 4,337,428, Cl. 318-696.000.
Olympus Optical Co., Ltd.: *See—*
Daigaku, Masaaki, 4,337,383, Cl. 200-51.090.
Osanai, Akira, 4,337,488, Cl. 360-90.000.
Omae, Tsutomu; and Matsuda, Toshihiko, to Hitachi, Ltd. Method and apparatus for controlling firing phases of thyristors. 4,337,509, Cl. 363-128.000.
Omark Industries, Inc.: *See—*
Alexander, Kenneth L., 4,336,739, Cl. 86-43.000.
Omi, Yasuo; Wada, Takanori; Sano, Hitoshi; Sato, Shigekatsu; Ido, Kazuo; Taneda, Kozo; and Naka, Junichi, to Snow Brand Milk Products Co., Ltd. Apparatus for molding fixed-dimensional spherical bodies from a semisolid stick. 4,337,021, Cl. 425-142.000.
Ondetti, Miguel A.: *See—*
Gordon, Eric M.; and Ondetti, Miguel A., 4,337,197, Cl. 260-239.00A.
Onishi, Masami, to Taiyo Shokai Co., Ltd. Method of transferring strip-like plastics bag material in packing machine. 4,336,681, Cl. 53-459.000.
Ono Sokki Co., Ltd.: *See—*
Maehara, Osamu; and Harada, Tsutomu, 4,336,711, Cl. 73-162.000.
Ootsuka, Yoshinori: *See—*
Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, 4,336,707, Cl. 73-35.000.
Oprandi, Pierre; and Romeas, Rene, to Thomson-Brandt. System for controlling the change of read side for an optical reader for an information carrier. 4,337,532, Cl. 369-45.000.
Optimetrix Corporation: *See—*
Phillips, Edward H., 4,336,917, Cl. 248-550.000.
Orlando, Franklin P., to FMC Corporation. Continuous harvester for plants grown in rows. 4,336,682, Cl. 56-330.000.
Orlowski, Jan A.; Butler, David V.; and Kidd, Patrick D., to Scientific Pharmaceuticals, Inc. Dimethacrylate adducts of glycidyl methacrylate with diesters of bis (hydroxymethyl) tricyclo[5.2.1.$0^{2,6}$]decane and dicarboxylic acids. 4,337,349, Cl. 560-30.000.
Orvis, Victor R. Tractor trailer hitch. 4,336,954, Cl. 280-415.00R.
Osakabe, Kuniharu: *See—*
Kawamura, Takao; and Osakabe, Kuniharu, 4,337,412, Cl. 315-3.000.
Osanai, Akira, to Olympus Optical Co., Ltd. Motor control device for a tape recorder. 4,337,488, Cl. 360-90.000.
Oshio, Hiromichi: *See—*
Hashimoto, Shunichi; Oshio, Hiromichi; Mizutani, Masato; Sanemitsu, Yuzuru; Katoh, Haruhiko; and Sumida, Seizo, 4,337,082, Cl. 71-93.000.
Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, 4,337,357, Cl. 564-154.000.

Oshiumi, Ryoichi: *See—*
Fukuchi, Shuzo; Hayashi, Tetsuzo; Kobayashi, Hiroya; and Oshiumi, Ryoichi, 4,337,154, Cl. 210-490.000.

Ossbahr, C. Gilbert R. Arrangement for prestressed assembly of machine and base-modules. 4,336,677, Cl. 52-584.000.

Otake, Masayuki, to Mitsubishi Chemical Industries, Ltd. Solid-solution type crystalline oxides and their precursors. 4,337,173, Cl. 252-435.000.

Otey, Felix H.; and Westhoff, Richard P., to United States of America, Agriculture. Biodegradable starch-based blown films. 4,337,181, Cl. 523-128.000.

Otobe, Yutaka: *See—*
Gotoh, Osamu; Otobe, Yutaka; Kawamoto, Michio; and Fujimura, Akira, 4,336,784, Cl. 123-571.000.

Otsuka Chemical Co., Ltd.: *See—*
Morinaga, Misao, 4,337,320, Cl. 521-137.000.

Oudet, Claude, to Portescap. Magnetic transducer with a movable magnet. 4,337,449, Cl. 335-225.000.

Outboard Marine Corporation: *See—*
Holtermann, Theodore J.; and Scharpf, Otto H., 4,337,054, Cl. 440-89.000.
Stevens, Myron T., 4,337,053, Cl. 440-87.000.

Overfield, Norbert W., to Stanadyne, Inc. Fuel injection pump snubber. 4,336,781, Cl. 123-467.000.

Owens-Illinois, Inc.: *See—*
Santiago, Edgardo, 4,337,183, Cl. 524-446.000.

Oximetrix, Inc.: *See—*
Giovanni, Pastrone, 4,336,800, Cl. 128-214.00F.

Oy Wartsila Ab: *See—*
Baltscheffsky, Arne; and Karkkainen, Alpo, 4,336,700, Cl. 70-366.000.

Packaging Associates, Inc.: *See—*
Totty, Ray S.; Love, Gary N.; and Zolot, Jeffrey L., 4,336,747, Cl. 92-43.000.

Page, Lucille A., to Rose Truck and Caster Company. Caster brake. 4,336,630, Cl. 16-35.00R.

Pagels, Louis T.; and Nagel, Dieter H., to Automatic Liquid Packaging, Inc. Apparatus for molding a container with offset parting line. 4,337,025, Cl. 425-392.000.

Palameta, Bozidar: *See—*
Treasurywala, Adi; Palameta, Bozidar; Bogri, Tibor; and Bagli, Jehan, 4,337,265, Cl. 424-274.000.

Palensky, Frederick J.: *See—*
Melancon, Kurt C.; and Palensky, Frederick J., 4,337,332, Cl. 528-15.000.

Palmer, John E., to United States of America, Army. Night vision training simulator. 4,337,044, Cl. 434-11.000.

Panametrics, Inc.: *See—*
Lynnworth, Lawrence C., 4,336,719, Cl. 73-861.270.

Papst-Motoren KG: *See—*
Cap, Heinrich; von der Heide, Johann; and Muller, Rolf, 4,337,424, Cl. 318-328.000.
Hasler, Alfred; and Schuh, Bernhard, 4,337,491, Cl. 360-97.000.

Park-Ohio Industries, Inc.: *See—*
Day, Paul L., 4,336,924, Cl. 266-117.000.

Park, Sang M.: *See—*
Payne, David A.; Park, Sang M.; and Jahnke, Otto C., 4,337,162, Cl. 252-62.3BT.

Parker-Hannifin Corporation: *See—*
Jorgensen, Richard G.; and Steele, Gerald G., 4,336,820, Cl. 137-100.000.

Parkinson, Ward D., to Mostek Corporation. Backup power circuit for biasing bit lines of a static semiconductor memory. 4,337,524, Cl. 365-229.000.

Patchett, Arthur A.: *See—*
Rooney, Clarence S.; Williams, Haydn W. R.; Cragoe, Edward J., Jr.; and Patchett, Arthur A., 4,337,258, Cl. 424-263.000.

Patterson, Dennis O. Apparatus for reproducing coded contour shapes in saw blades. 4,336,725, Cl. 76-25.00R.

Patterson, Robert E. Safety clamp. 4,336,637, Cl. 24-249.0DP.

Payne, David A.; Park, Sang M.; and Jahnke, Otto C., to University of Illinois Foundation. Internal boundary layer ceramic compositions. 4,337,162, Cl. 252-62.3BT.

PCUK Produits Chimiques Ugine Kuhlmann: *See—*
Alicot, Michel J. C.; and Tignol, Adrien P. N., 4,337,344, Cl. 548-158.000.

Peasley, Edward R.; and Gomes, John M., to United States of America, Interior. Recovery of platinum-group metals from ores. 4,337,226, Cl. 423-22.000.

Penick, Ib; and Volkert, John K., to Compak System, Inc. Promotional puzzle. 4,336,664, Cl. 40-594.000.

Pereira, Marcel. Construction system. 4,336,675, Cl. 52-267.000.

Perichon, Catherine: *See—*
Cattelani, Claude; and Perichon, Catherine, 4,336,996, Cl. 355-39.000.

Perkin-Elmer Corporation, The: *See—*
Veneklasen, Lee H., 4,337,422, Cl. 315-383.000.

Perkins, Charles M. Solid fuel burning internal combustion engine. 4,336,771, Cl. 123-23.000.

Perplies, Eberhard: *See—*
Holst, Arno; Perplies, Eberhard; and Buchberger, Gerhard, 4,337,328, Cl. 525-336.000.

Pertuis, Philippe: *See—*
Laurent, Jean; Monnet, Bernard; and Pertuis, Philippe, 4,337,022, Cl. 425-192.00R.

Pesson, Marcel: *See—*
Techer, Henri; Monnier, Gilles; and Pesson, Marcel, 4,337,263, Cl. 424-273.00P.

Peter, B. Keith. Speaker system. 4,336,861, Cl. 181-144.000.

Peters, David C.: *See—*
Akers, John B.; Littler, Jane A.; and Peters, David C., 4,337,209, Cl. 260-417.000.

Peters, Dierk D. I-Beam truss structure. 4,336,678, Cl. 52-729.000.

Petkov, Ivan A.: *See—*
Petrov, Georgi S.; Petkov, Ivan A.; Etropolski, Hristo I.; Dimitrov, Dimiter N.; Popov, Nikolay N.; and Uzunov, Atanas I., 4,337,078, Cl. 71-24.000.

Petrillo, Edward W., Jr., to E. R. Squibb & Sons, Inc. Phosphinylalkanoyl substituted prolines. 4,337,201, Cl. 548-413.000.

Petronella, Joseph, to Tenneco Chemicals, Inc. Process for the production of oil-soluble metal salts. 4,337,208, Cl. 260-414.000.

Petrov, Georgi S.; Petkov, Ivan A.; Etropolski, Hristo I.; Dimitrov, Dimiter N.; Popov, Nikolay N.; and Uzunov, Atanas I., to N P S K "Mineralagro". Substrate for cultivation of agricultural crops and rooting of green cuttings in green houses and in open air. 4,337,078, Cl. 71-24.000.

Petty, Terry D., to ODECO Engineers, Inc. Emergency well-control vessel. 4,336,843, Cl. 166-362.000.

Petzoldt, Karl; Steinbeck , Hermann; and Elger, Walter, to Schering Aktiengesellschaft. 15 Hydroxylation of 1α,2α-methylene steroids. 4,337,311, Cl. 435-54.000.

Pfefferle, William C.: *See—*
Angwin, Meredith J.; and Pfefferle, William C., 4,337,028, Cl. 431-7.000.

Pfirrmann, Rolf W., to Ed. Geistlich Sohne AG fur Chemische Industrie. Method of avoiding and removing adhesions. 4,337,251, Cl. 424-246.000.

Pfizer Inc.: *See—*
Andrews, Glenn C., 4,337,350, Cl. 560-174.000.
Welch, Willard M.; and Harbert, Charles A., 4,337,250, Cl. 424-248.570.

Pharmacia Diagnostics AB: *See—*
McGeeney, Kevin F., 4,337,309, Cl. 435-22.000.

Philip Morris Incorporated: *See—*
Sykes, Larry M.; and Snow, Ray G., 4,336,814, Cl. 131-291.000.

Phillips, Edward H., to Optimetrix Corporation. Shock and vibration isolation system. 4,336,917, Cl. 248-550.000.

Phillips Petroleum Company: *See—*
Dick, James E., 4,337,148, Cl. 208-8.0LE.
Drake, Charles A., 4,337,177, Cl. 252-466.0PT.
Gunnell, Thomas J., 4,337,294, Cl. 428-407.000.
Needham, Donald G., 4,337,182, Cl. 524-609.000.
Solomon, Paul W., 4,337,364, Cl. 568-475.000.

Pichelman, Franklin D.; and Mehl, Donald N., to Flo-Pac Corporation. Squeegee assembly. 4,336,624, Cl. 15-245.000.

Pickelman, Dale M., Sr.: *See—*
Wessling, Ritchie A.; and Pickelman, Dale M., Sr., 4,337,185, Cl. 524-458.000.

Pickenhagen, Wilhelm, to Firmenich SA. Flavoring with 7-methyl-oct-3-en-2-one. 4,337,277. Cl. 426-534.000.

Pierce, John T., Jr.: *See—*
Clifford, Jack R., 4,337,096, Cl. 134-8.000.

Pietsch, Joseph A.: *See—*
Ecker, Amir L.; and Pietsch, Joseph A., 4,336,692, Cl. 62-82.000.

Pike, John E.: *See—*
Johnson, Roy A.; Lincoln, Frank H.; and Pike, John E., 4,337,204, Cl. 549-465.000.

Pion, Russell F., to Factory Mutual Research Corporation. Liquid level control system. 4,336,825, Cl. 137-403.000.

Pioneer Electronic Corporation: *See—*
Hirota, Yoshihisa, 4,337,537, Cl. 369-216.000.
Kamimura, Teturo; Komatsubara, Masahiro; Ando, Shizuo; and Inanaga, Takugi, 4,337,490, Cl. 360-96.600.

Pivar, Stuart, to American Microcar Incorporated. Lightweight canopy for three-wheeled vehicle with low center of gravity. 4,336,964, Cl. 296-78.00R.

Plessey Handel und Investments A.G.: *See—*
Carrier, John A., 4,337,461, Cl. 340-402.000.

Ploeger, Marinus: *See—*
Van der Geer, Josephus J.; Van Pelt, Willem; Ploeger, Marinus; Spoor, Wilhelmus J.; and Van der Steen, Gerardus H. A. M., 4,337,410, Cl. 313-480.000.

Poetter, Gerswid, deceased: *See—*
Metzner, Wolfgang; Koddebusch, Hubert; and Poetter, Gerswid, deceased, 4,337,093, Cl. 106-18.330.

Polak, Anthony J., to UOP Inc. Method for increasing the peel strength of metal-clad polymers. 4,337,279, Cl. 427-40.000.

Polaroid Corporation: *See—*
Johnson, Bruce K., 4,336,988, Cl. 354-197.000.
Shenk, Edwin K., 4,336,987, Cl. 354-195.000.

Polson, Robert D. Digital high speed guitar synthesizer. 4,336,734, Cl. 84-1.010.

Pomber, Harry A., to Sounds Alive Systems, Inc. Relay valve assembly for player pianos. 4,336,737, Cl. 84-151.000.

Pont-a-Mousson S.A.: *See—*
Laurent, Jean; Monnet, Bernard; and Pertuis, Philippe, 4,337,022, Cl. 425-192.00R.

Pontoni, George E., to Bell & Howell Company. Adjustable tape guiding method and apparatus. 4,336,900, Cl. 226-97.000.

Pontvianne, Jean, to Thomson-CSF. Focusing device with permanent magnets for electron tube and electron tube equipped with such a device. 4,337,413, Cl. 315-3.500.

Popov, Nikolay N.: *See—*
Petrov, Georgi S.; Petkov, Ivan A.; Etropolski, Hristo I.; Dimitrov, Dimiter N.; Popov, Nikolay N.; and Uzunov, Atanas I., 4,337,078, Cl. 71-24.000.

Poppell, Jerry P. Wheel balancing device and method. 4,336,716, Cl. 73-480.000.

Porkert, Helmut: *See—*
Arold, Hermann; Humburger, Siegbert; Diehr, Hans-Joachim; and Porkert, Helmut, 4,337,359, Cl. 568-21.000.

Porta Systems Corp.: *See—*
Carney, William V.; and Singer, Loren A., Jr., 4,337,495, Cl. 361-119.000.

Porter, Kenneth W., to Combustion Research & Technology, Inc. Constant volume, continuous external combustion rotary engine with piston compressor and expander. 4,336,686, Cl. 60-39.630.

Portescap: *See—*
Oudet, Claude, 4,337,449, Cl. 335-225.000.

Post, Martin F. M.: *See—*
Boersma, Michael A. M.; Nanne, Johannes M.; and Post, Martin F. M., 4,337,176, Cl. 252-459.000.

Poulos, Kosta. Non-slip hammer. 4,336,832, Cl. 145-29.00R.

PPG Industries, Inc.: *See—*
Drummond, Warren W., 4,337,073, Cl. 65-1.000.
Schimmel, Karl F.; Seiner, Jerome A.; Dowbenko, Rostyslaw; and Christenson, Roger M., 4,337,184, Cl. 524-726.000.
Shaw, Hugh E., Jr., 4,337,076, Cl. 65-29.000.

Pratt, Paul L.: *See—*
Clifford, Jack R., 4,337,096, Cl. 134-8.000.

Presto, Alphonse R.: *See—*
Bodendorf, Warren J.; and Presto, Alphonse R., 4,337,117, Cl. 162-161.000.

Price, Carroll D., II. Carrying sling. 4,336,899, Cl. 224-202.000.

Price, Howard A.: *See—*
Oberth, Adolf E.; and Price, Howard A., 4,337,102, Cl. 149-19.300.

Prime-Mover Co., The: *See—*
Noller, Fred W.; and Kramer, James C., 4,336,860, Cl. 180-273.000.

Prior, William C., to Kinetico, Inc. Water softening apparatus. 4,337,153, Cl. 210-288.000.

Prochnow, Claus, to Rollei-Werke Franke & Heidecke GmbH & Co. KG. Camera having an independently focused retractable objective lens. 4,336,986, Cl. 354-187.000.

Prokop, James A., to Lull Engineering Company, Inc. Load sensing system. 4,336,720, Cl. 73-862.530.

Pryor, Cabell N., Jr.: *See—*
Delagrange, Arthur D.; Pryor, Cabell N., Jr.; and Wilson, Wayne D., 4,337,527, Cl. 367-98.000.

Pschunder, Willi; and Steinmetz, Gerhard, to Licentia Patent-Verwaltungs-G.m.b.H. Method of contacting a solar cell. 4,336,648, Cl. 29-572.000.

Pytlewski, Louis L.; Krevitz, Kenneth; and Smith, Arthur B., to Franklin Institute, The. Reagent and method for decomposing halogenated organic compounds. 4,337,368, Cl. 568-730.000.

Queneau, Paul E.; and Schuhmann, Reinhardt, Jr. Method for decreasing metal losses in nonferrous smelting operations. 4,337,086, Cl. 75-69.000.

Quinton, Carrol D.; and Guio, Raphael, to Bunker Ramo Corporation. Barrel plating apparatus. 4,337,135, Cl. 204-213.000.

Raab, Guenter: *See—*
Rohlfs, Hans-Adolf; Kling, Alfred; Raab, Guenter; Vogt, Michael; Specht, Viktor; and Schaetzke, Ulrike, 4,337,214, Cl. 260-502.500.

Raab, Simon. Bone connective prostheses adapted to maximize strength and durability of prostheses-bone cement interface; and methods of forming same. 4,336,618, Cl. 3-1.913.

Radwill, Robert P., to AMSTED Industries Incorporated. Railroad car sill-articulating device member connection. 4,336,758, Cl. 105-4.00R.

Raffelson, Harold: *See—*
Mount, Ramon A.; and Raffelson, Harold, 4,337,174, Cl. 252-437.000.

Rajadhyaksha, Mangesh: *See—*
Falkowski, Paul P.; Spotz, Erwin; and Rajadhyaksha, Mangesh, 4,337,219, Cl. 264-130.000.

Ram Handler, Ltd.: *See—*
Wagner, Robert L., 4,336,768, Cl. 119-155.000.

Ramirez, Enrique G., to Dow Chemical Company, The. Catalyst for the preparation of ethylenimine. 4,337,175, Cl. 252-455.00R.

Rapp, Erich: *See—*
Eistetter, Klaus; and Rapp, Erich, 4,337,267, Cl. 424-278.000.

Raschig GmbH: *See—*
Braun, Roland, 4,337,217, Cl. 261-112.000.

Ratajczak, Hans-Josef: *See—*
Rigler, Josef K.; Ratajczak, Hans-Josef; Leithauser, Horst; and Trukenbrod, Karl, 4,337,319, Cl. 521-96.000.

Rauscher, Elli: *See—*
Batz, Hans-Georg; Rauscher, Elli; Weimann, Gunter; Wahlefeld, August W.; and Gruber, Wolfgang, 4,337,310, Cl. 435-22.000.

Rawlings, James E.: *See—*
Cox, Robert N.; and Rawlings, James E., 4,336,892, Cl. 221-125.000.

Raybestos-Manhattan, Inc.: *See—*
Blair, W. Roscoe, 4,336,944, Cl. 277-81.00R.

Raychem Corporation: *See—*
Harrison, John D., 4,337,090, Cl. 148-402.000.

Raymond, James W. Keying process for resettable lock. 4,336,701, Cl. 70-395.000.

RCA Corporation: *See—*
Giordano, Raymond L., 4,337,423, Cl. 318-280.000.
Harlan, Wayne E., 4,337,478, Cl. 358-20.000.
Stewart, Roger G., 4,337,522, Cl. 365-190.000.
Taylor, Byron K., 4,337,536, Cl. 369-126.000.

Rea, James H.: *See—*
Karim, Khalid A.; and Rea, James H., 4,337,297, Cl. 428-461.000.
Karim, Khalid A.; Lakshmanan, Pallavoor R.; and Rea, James H., 4,337,298, Cl. 428-461.000.

Read, Owen R. Adjustable lifting tong. 4,336,962, Cl. 294-106.000.

Rector, Malcolm B., Jr., to Xerox Corporation. MgF_2 Coating for promoting adherence of thin films to single crystal materials. 4,336,982, Cl. 350-358.000.

Red Fox Industries Inc.: *See—*
Crosby, Gary A., 4,337,151, Cl. 210-139.000.

Reed, Kenneth J.; and Lythgoe, Alan L. Water release transfer. 4,337,289, Cl. 428-195.000.

Reed, Ronald L.; and Carpenter, Clarence W., Jr., to Exxon Production Research Company. Shear-stabilized emulsion flooding process. 4,337,159, Cl. 252-8.55D.

Regal International, Inc.: *See—*
Jackson, Jay W., 4,337,009, Cl. 405-212.000.

Reiff, Helmut; and Dieterich, Dieter, to Bayer Aktiengesellschaft. Substituted polyisocyanate or polyisocyanate mixtures of the diphenyl methane series containing chlorosulfonyl groups. 4,337,333, Cl. 528-67.000.

Reiter, Gerhard, to Timken Company, The. Unitized multirow tapered roller bearing. 4,336,971, Cl. 308-187.200.

Reliance Electric Company: *See—*
Huykman, Richard B., 4,337,494, Cl. 361-86.000.

Repke, Virginia L., to Johnson & Johnson Baby Products Company. Shaped absorbent pad for disposable diapers. 4,336,803, Cl. 128-287.000.

Repla Limited: *See—*
Bucci, Carlo G., 4,336,645, Cl. 29-510.000.

Research Corporation: *See—*
Oeschger, Max P.; Hooke, Anne M.; and Bellanti, Joseph A., 4,337,314, Cl. 435-253.000.
Stoner, Glenn E.; and Cahen, George L., Jr., 4,337,138, Cl. 204-290.00R.

Research-Cottrell Technologies Inc.: *See—*
Hays, Lance G.; Studhalter, Walter R.; and Ritzi, Emil W., 4,336,693, Cl. 62-116.000.

Richert, Manfred; and Storandt, Ralf, to Vereinigte Baubeschlagfabriken Gretsch & Co. GmbH. Safety toe unit for a ski binding. 4,336,956, Cl. 280-625.000.

Richter, Gerhard: *See—*
Mund, Konrad; Richter, Gerhard; and Weidlich, Erhard, 4,337,501, Cl. 361-433.000.

Ricketts, Thomas E., to Occidental Oil Shale, Inc. Cratering in the deep cratering region to form an in situ oil shale retort. 4,336,966, Cl. 299-2.000.

Ricoh Co., Ltd.: *See—*
Fukushima, Yoshio, 4,337,394, Cl. 250-237.00G.
Imamura, Tomoatsu, 4,337,426, Cl. 318-599.000.
Mizuno, Akinori, 4,337,468, Cl. 346-1.100.
Mori, Masaaki, 4,336,981, Cl. 350-358.000.

Rieschel, Hartmut: *See—*
Koppern, Heinz; Bergendahl, Hans-Georg; Rieschel, Hartmut; and Koch, Friedhelm, 4,337,023, Cl. 425-237.000.

Rigler, Josef K.; Ratajczak, Hans-Josef; Leithauser, Horst; and Trukenbrod, Karl, to Chemische Werke Huls AG. Self-extinguishing, fine particulate expandable styrene polymers. 4,337,319, Cl. 521-96.000.

Ringwood, Alfred E.: *See—*
Bird, John M.; and Ringwood, Alfred E., 4,337,167, Cl. 252-633.000.

Rink, Norbert: *See—*
Muschelknautz, Edgar; and Rink, Norbert, 4,337,074, Cl. 65-5.000.

Rinnai Kabushiki Kaisha: *See—*
Ogawa, Kazuo, 4,336,789, Cl. 126-21.00A.

Ripley, John A.: *See—*
Anderson, Donald L.; Cherry, Isaac R.; Ripley, John A.; and Tanaka, David T., 4,336,810, Cl. 128-702.000.

Rittler, Hermann L., to Corning Glass Works. Borosilicate, opal glass article. 4,337,295, Cl. 428-410.000.

Ritzi, Emil W.: *See—*
Hays, Lance G.; Studhalter, Walter R.; and Ritzi, Emil W., 4,336,693, Cl. 62-116.000.

Robert Bosch GmbH: *See—*
Binder, Georg, 4,337,406, Cl. 310-91.000.
Schneider, Erich; Fleischer, Helmut; Nonnenmann, Wolfgang; and Gerum, Benno, 4,337,511, Cl. 364-426.000.
Wanner, Karl, 4,336,848, Cl. 173-139.000.
Zirps, Wilhelm, 4,336,903, Cl. 236-92.00R.

Roberts, Sallie S.: *See—*
Sentell, Samuel W.; Mendenhall, Jean S.; Roberts, Sallie S.; and Sentell, C. Sherburne, Jr., 4,336,801, Cl. 128-239.000.

Roberts, Sidney, to Thermatool Corp. Method for the processing of heat exchanger, tube-strip elements. 4,336,643, Cl. 29-157.30C.

Robertshaw Controls Company: *See—*
Fox, Raymond J., 4,337,451, Cl. 337-93.000.

Robertson, Duane D. Cutting tool for flexible plastic conduit. 4,336,652, Cl. 30-258.000.

Robeson, Lloyd M., to Union Carbide Corporation. Blends of water soluble polyethers and poly(hydroxyethers)s. 4,337,330, Cl. 525-407.000.

Robinson, Martin A.: *See*—
Anello, Louis G.; Van Der Puy, Michael; Robinson, Martin A.; and Eibeck, Richard E., 4,337,361, Cl. 568-386.000.

Roche, Charles W., to Uni-Flange Corporation. Joint restrainer system. 4,336,959, Cl. 285-368.000.

Rochman, Arnold. Vehicle with a balancing plane. 4,336,952, Cl. 280-87.010.

Rockwell International Corporation: *See*—
Jones, Addison B., 4,337,132, Cl. 204-192.00E.
Wagner, William R.; Wright, David E.; and Binsley, Robert L., 4,336,839, Cl. 166-59.000.

Rodemann, Alfred H.; and Breglia, Denis R., to United States of America, Navy. Holographic storage of terrain data. 4,336,976, Cl. 350-3.750.

Roeder, Robert J., to Kimberly-Clark Corporation. Sanitary napkin with garment suspension adhesive but without release paper covering. 4,336,804, Cl. 128-290.00R.

Rohde, Wilhelm, to Linde Aktiengesellschaft. Continuous system of rectification. 4,337,070, Cl. 62-18.000.

Rohlfs, Hans-Adolf; Kling, Alfred; Raab, Guenter; Vogt, Michael; Specht, Viktor; and Schaetzke, Ulrike, to Benckiser-Knapsack GmbH. N-(Hydroxy methyl)-1-amino alkane-1,1-diphosphonic acids, process of making same, and composition for and method of using same as stabilizing agents in peroxide-containing bleaching baths. 4,337,214, Cl. 260-502.500.

Rollei-Werke Franke & Heidecke GmbH & Co. KG: *See*—
Prochnow, Claus, 4,336,986, Cl. 354-187.000.

Rollot, Pierre H.; Cordier, Jean A.; and Briche, Raymond L., to Technilor; and Usinor. Device for fixing and sealing stave plates for a blast furnace. 4,336,925, Cl. 266-193.000.

Romeas, Rene: *See*—
Oprandi, Pierre; and Romeas, Rene, 4,337,532, Cl. 369-45.000.

Rooney, Clarence S.; Williams, Haydn W. R.; Cragoe, Edward J., Jr.; and Patchett, Arthur A., to Merck & Co., Inc. 2,4-Dioxo-4-substituted-1-butanoic acid derivatives useful in treating urinary tract calcium oxalate lithiasis. 4,337,258, Cl. 424-263.000.

Rorer, David L.; and Hardin, Jasper E., to Teledyne Industries, Inc. Aircraft battery. 4,337,301, Cl. 429-179.000.

Rose Truck and Caster Company: *See*—
Jarvis, Grover F., Jr.; and Arold, George E., 4,336,629, Cl. 16-35.00R.
Page, Lucille A., 4,336,630, Cl. 16-35.00R.

Rosen, William E.: *See*—
Berke, Philip A.; and Rosen, William E., 4,337,269, Cl. 424-289.000.

Rosler, Helmut, to Siemens Aktiengesellschaft. Monolithically integrable semiconductor memory. 4,337,526, Cl. 365-238.000.

Ross, Abraham. Grooming apparatus. 4,336,815, Cl. 132-143.000.

Ross, Dieter; and Baumgartner, Viktor, to Erwin Sick GmbH Optik-Electronik. Change of distance measuring apparatus. 4,336,997, Cl. 356-4.000.

Ross, Sidney D.: *See*—
Russell, Philip G.; Bernard, Walter J.; and Ross, Sidney D., 4,337,114, Cl. 156-656.000.

Roussel UCLAF: *See*—
Allais, Andre; Clemence, Francois; Meier, Jean; and Deraedt, Roger, 4,337,353, Cl. 562-460.000.

Ruell, Hartwig, to Siemens Corporation. Fingerprint transducer and reading apparatus. 4,336,998, Cl. 356-71.000.

Ruggeri, Robert T.: *See*—
Beck, Theodore R.; and Ruggeri, Robert T., 4,336,811, Cl. 128-784.000.

Ruhrchemie Aktiengesellschaft: *See*—
Bahrmann, Helmut; Cornils, Boy; Frohning, Carl D.; and Weber, Jurgen, 4,337,363, Cl. 568-444.000.

Ruhs, Alexander; Schwarz, Rudolf; and Kleinschmit, Peter, to Degussa Aktiengesellschaft. Process for the production of titanium disulfide of high purity and stoichiometric composition. 4,337,239, Cl. 423-561.00R.

Russell, Philip G.; Bernard, Walter J.; and Ross, Sidney D., to Sprague Electric Company. Nodular copper removal from aluminum foil surfaces. 4,337,114, Cl. 156-656.000.

Rutherford, Joseph P. Agricultural inoculant composition. 4,337,077, Cl. 71-9.000.

S.K.Y. Polymers, Inc.: *See*—
Stoy, Vladimir A., 4,337,327, Cl. 525-280.000.

Sadatoshi, Hajime: *See*—
Shiga, Akinobu; Kakugo, Masahiro; Sadatoshi, Hajime; Wakamatsu, Kazuki; and Yoshioka, Hiroshi, 4,337,326, Cl. 525-244.000.

Sagishima, Takayuki; and Kitani, Teruo, to Matsushita Electric Industrial Co., Ltd. Color demodulating apparatus. 4,337,477, Cl. 358-18.000.

Sahyun, Melville R. V.; Chen, Tsung-I; King, Timothy W.; Mikelsons, Valdis; and Mitra, Smarajit, to Minnesota Mining and Manufacturing Company. Transfer, encapsulating, and fixing of toner images. 4,337,303, Cl. 430-11.000.

Saito, Tsuyoshi; and Ogiwara, Masaru, to M-S Surgical Mfg. Co., Ltd. Electrolytic implement and method for removing metal pieces left in root canals of teeth. 4,337,038, Cl. 433-32.000.

Sakaguchi, Susumu: *See*—
Shikita, Takuji; and Sakaguchi, Susumu, 4,336,617, Cl. 3-1.900.

Sakamoto, Takahide: *See*—
Hiroshima, Tatsuo; and Sakamoto, Takahide, 4,337,099, Cl. 148-9.500.
Shiraiwa, Toshio; Hiroshima, Tatsuo; and Sakamoto, Takahide, 4,336,923, Cl. 266-51.000.

Sakito, Yoji: *See*—
Mukaiyama, Teruaki; Sakito, Yoji; and Asami, Masatoshi, 4,337,346, Cl. 548-324.000.

Saklad, Eugene L., to New England Nuclear Corporation. Denatured albumin complexes for radioscintigraphic imaging and evaluation of reticuloendothelial systems. 4,337,240, Cl. 424-1.000.

Sakowski, Walter J.; Shaffer, John H.; and Carty, Larry G., to Olin Corporation. Process for manufacture of calcium hypochlorite. 4,337,236, Cl. 423-474.000.

Sakurai, Mikio; Yoshimoto, Yuichiro; and Kodama, Hiroshi, to Hitachi, Ltd. Nuclear reactor power monitoring system. 4,337,118, Cl. 376-210.000.

Sakwa, Sydney M. Pen pill container. 4,336,882, Cl. 206-537.000.

Sample, Thomas E., Jr., to Dresser Industries, Inc. Acid soluble weighting agent for well drilling, workover and completion fluids. 4,337,160, Cl. 252-8.50B.

Sanders, Robert J.: *See*—
Fuller, Robert T.; and Sanders, Robert J., 4,336,888, Cl. 211-45.000.

Sandoz Ltd.: *See*—
Sorg, Dieter; and Leutwiler, Albert, 4,337,198, Cl. 260-243.300.

Sandvik AB: *See*—
Lewis, H. Glenn, 4,336,656, Cl. 33-174.00E.

Sanemitsu, Yuzuru: *See*—
Hashimoto, Shunichi; Oshio, Hiromichi; Mizutani, Masato; Sanemitsu, Yuzuru; Katoh, Haruhiko; and Sumida, Seizo, 4,337,082, Cl. 71-93.000.

Sano, Hitoshi: *See*—
Omi, Yasuo; Wada, Takanori; Sano, Hitoshi; Sato, Shigekatsu; Ido, Kazuo; Taneda, Kozo; and Naka, Junichi, 4,337,021, Cl. 425-142.000.

Sanraku-Ocean Co., Ltd.: *See*—
Oki, Toshikazu; Yoshimoto, Akihiro; Kouno, Kageaki; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,337,312, Cl. 435-78.000.
Yoshioka, Takeo; Yamamoto, Kenichi; Yamada, Kaoru; Kato, Yasuyuki; Shimauchi, Yasutaka; and Ishikura, Tomoyuki, 4,337,199, Cl. 260-245.20T.

Santiago, Edgardo, to Owens-Illinois, Inc. Polyurethane and polyethylene resin-containing printing ink having improved physical and mechanical properties. 4,337,183, Cl. 524-446.000.

Sarkisian, George M.: *See*—
Hubbard, James R.; Sarkisian, George M.; and Scanlon, John J., 4,337,471, Cl. 346-140.00R.

Sasaki, Hideharu; Tamura, Yorikazu; and Shimada, Keizo, to Teijin Limited. Chemical-resistant wholly aromatic polyamide fiber material. 4,337,155, Cl. 210-500.100.

Sato, Shigekatsu: *See*—
Omi, Yasuo; Wada, Takanori; Sano, Hitoshi; Sato, Shigekatsu; Ido, Kazuo; Taneda, Kozo; and Naka, Junichi, 4,337,021, Cl. 425-142.000.

Satoh, Michitaka: *See*—
Suzuki, Yasushi; Tsukamoto, Kunio; Minami, Nobuyoshi; Hasegawa, Yukio; Satoh, Michitaka; Yamamoto, Norio; Miyasaka, Katsuhiko; Mikami, Takashi; and Funakoshi, Satoshi, 4,337,256, Cl. 424-258.000.

Satomi, Seigo, to NGK Insulators, Ltd. Silencer in gas flow passage. 4,336,863, Cl. 181-224.000.

Scanlon, John J.: *See*—
Hubbard, James R.; Sarkisian, George M.; and Scanlon, John J., 4,337,471, Cl. 346-140.00R.

Scardera, Michael; and Norwid, Alan, to Olin Corporation. Alkoxysilane cluster emulsions and their preparation. 4,337,168, Cl. 252-312.000.

Schaetzke, Ulrike: *See*—
Rohlfs, Hans-Adolf; Kling, Alfred; Raab, Guenter; Vogt, Michael; Specht, Viktor; and Schaetzke, Ulrike, 4,337,214, Cl. 260-502.500.

Schaller, Maurice, to Levolor Lorentzen, Inc. Venetian blind. 4,336,834, Cl. 160-168.00A.

Scharpf, Otto H.: *See*—
Holtermann, Theodore J.; and Scharpf, Otto H., 4,337,054, Cl. 440-89.000.

Schering Aktiengesellschaft: *See*—
Petzoldt, Karl; Steinbeck, Hermann; and Elger, Walter, 4,337,311, Cl. 435-54.000.

Schering Corporation: *See*—
Nagabhushan, Tattanahalli L.; Turner, William N.; and Cooper, Alan, 4,337,335, Cl. 536-13.600.

Schiemann, Wolfram. Plastic containers, particularly canisters. 4,337,286, Cl. 428-36.000.

Schilling, Walter: *See*—
Zweifel, Hans; Schilling, Walter; Storni, Angelo; and Bellus, Daniel, 4,337,200, Cl. 548-451.000.

Schilp, Ulrich, to Lever Brothers Company. Liquid, thickened chlorine bleaching composition. 4,337,163, Cl. 252-96.000.

Schimmel, Karl F.; Seiner, Jerome A.; Dowbenko, Rostyslaw; and Christenson, Roger M., to PPG Industries, Inc. Urethane rheology modifiers substantially free of terminal hydrophobic groups and compositions containing same. 4,337,184, Cl. 524-726.000.

Schlemmer, Robert: *See*—
Cohen, Sidney; and Schlemmer, Robert, 4,336,760, Cl. 111-11.000.

Schmid, Karlheinz, to Gebrueder Heller, Maschinenfabrik GmbH. Crankshaft milling machine. 4,337,011, Cl. 409-199.000.
Schmidt, Hans, to Marker, Hannes. Safety ski binding. 4,336,955, Cl. 280-618.000.
Schmidt, Paul J.; and Hung, William M., to Sterling Drug Inc. Processes for preparing substituted furopyridinones and furopyrazinones. 4,337,340, Cl. 544-350.000.
Schmitt, Frederick L.: *See—*
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,337,180, Cl. 252-522.00R.
Schmitt, Georg; and Gostl, Georg, to Linde Aktiengesellschaft. Spraying system for cryogenic coolants, 4,336,694, Cl. 62-374.000.
Schneider, Adolf: *See—*
Horn, Kurt; Muller, Walter; and Schneider, Adolf, 4,336,743, Cl. 89-37.00B.
Schneider, Erich; Fleischer, Helmut; Nonnenmann, Wolfgang; and Gerum, Benno, to Robert Bosch GmbH. Digital control apparatus for the running speed of a motor vehicle. 4,337,511, Cl. 364-426.000.
Schoeck, Donald I.: *See—*
Hanagan, Michael W.; and Schoeck, Donald I., 4,336,934, Cl. 272-72.000.
Schreiber, Charles J., to Hornady Manufacturing Company. Jacketed bullet and method of manufacture. 4,336,756, Cl. 102-516.000.
Schubert & Salzer: *See—*
Bock, Erich; Wulfhorst, Burkhard; Hini, Eugen; and Grupp, Bernhard, 4,336,683, Cl. 57-18.000.
Schuh, Bernhard: *See—*
Hasler, Alfred; and Schuh, Bernhard, 4,337,491, Cl. 360-97.000.
Schuhmann, Reinhardt, Jr.: *See—*
Queneau, Paul E.; and Schuhmann, Reinhardt, Jr., 4,337,086, Cl. 75-69.000.
Schultz, Bengt I.; and Svensson, Goran, to AB Volvo. Passive safety belt system for motor vehicles. 4,336,957, Cl. 280-803.000.
Schulz, Horst: *See—*
Kahlert, Peter; Dittmann, Norbert; Fink, Heiner; Junker, Frank; Lehmann, Gunter; Schulz, Horst; Johne, Hans; Jentzsch, Arndt; and Kuhnert, Werner, 4,336,969, Cl. 308-61.000.
Schwartz, Donald R.; and Baumgard, Stuart H. Disposable orthopedic overmattress for articulated beds. 4,336,621, Cl. 5-446.000.
Schwarz, Rudolf: *See—*
Ruhs, Alexander; Schwarz, Rudolf; and Kleinschmit, Peter, 4,337,239, Cl. 423-561.00R.
Schweitzer, Ernest D., to Candel Industries, Limited. Method and apparatus for sampling waste gases. 4,336,722, Cl. 73-863.120.
Schwickert, Russell C.: *See—*
Monaghan, Kevin J.; and Schwickert, Russell C., 4,336,977, Cl. 350-96.200.
Scientific Pharmaceuticals, Inc.: *See—*
Orlowski, Jan A.; Butler, David V.; and Kidd, Patrick D., 4,337,349, Cl. 560-30.000.
SCM Corporation: *See—*
Cappotto, Samuel D., 4,337,001, Cl. 400-208.000.
Scott & Fetzer Company, The: *See—*
Hone, Ronald D.; Harris, William; and Edwards, James D., 4,336,626, Cl. 15-319.000.
Scribner, Belding H.: *See—*
Babb, Albert L.; and Scribner, Belding H., 4,336,881, Cl. 206-525.000.
Searle, Clifford A. Apparatus for manufacture of sleeves and/or pockets for separator plates. 4,337,113, Cl. 156-353.000.
Securax, Inc.: *See—*
Thomas, Robert E., 4,336,885, Cl. 211-4.000.
Sedlak, Vaclav: *See—*
Cerny, Arnost; Fiser, Jiri; Jiruse, Jaroslav; and Sedlak, Vaclav, 4,336,930, Cl. 271-277.000.
Seeholzer, Ursula, heiress: *See—*
Metzner, Wolfgang; Koddebusch, Hubert; and Poetter, Gerswid, deceased, 4,337,093, Cl. 106-18.330.
Seiler, Edwin N., to Bell Telephone Laboratories, Incorporated. Solar heating freeze protection system. 4,336,792, Cl. 126-420.000.
Seiner, Jerome A.: *See—*
Schimmel, Karl F.; Seiner, Jerome A.; Dowbenko, Rostyslaw; and Christenson, Roger M., 4,337,184, Cl. 524-726.000.
Seki, Mikio. Snell coiling device. 4,336,960, Cl. 289-17.000.
Sekiya, Setsuro: *See—*
Sumiyoshi, Masaharu; Sekiya, Setsuro; Motosugi, Katsuhiko; Takahashi, Hiroshi; and Toyoda, Shuhei, 4,336,776, Cl. 123-306.000.
Semence, Pierre, to Societe Industrielle de Brevets et d'Etudes S.I.B.E. Carburation devices. 4,336,779, Cl. 123-339.000.
Sempliner, Arthur T.: *See—*
Teague, Walter D., Jr.; and Sempliner, Arthur T., 4,336,622, Cl. 15-22.00R.
Sentell, C. Sherburne, Jr.: *See—*
Sentell, Samuel W.; Mendenhall, Jean S.; Roberts, Sallie S.; and Sentell, C. Sherburne, Jr., 4,336,801, Cl. 128-239.000.
Sentell, Samuel W.; Mendenhall, Jean S.; Roberts, Sallie S.; and Sentell, C. Sherburne, Jr. Douche nozzle. 4,336,801, Cl. 128-239.000.
Ser, Jean-Claude; Zabotto, Arlette; Zaffran, Christian; and Koulbanis, Constantin, to L'Oreal S.A. Emulsions of the water-in-oil or oil-in-water type and cosmetic products using these emulsions. 4,337,241, Cl. 424-59.000.
Seragnoli, Enzo, to G.D. Societa per Azioni. Machine for simultaneously producing two continuous cigarette rods. 4,336,812, Cl. 131-84.00R.
Seragnoli, Enzo, to G.D. Societa per Azioni. Strip guiding device, particularly for cigarette making machines. 4,336,813, Cl. 131-84.00C.
Setescak, Linda L.: *See—*
Shutske, Gregory M.; Setescak, Linda L.; and Allen, Richard C., 4,337,261, Cl. 424-272.000.
Shaffer, John H.: *See—*
Sakowski, Walter J.; Shaffer, John H.; and Carty, Larry G., 4,337,236, Cl. 423-474.000.
Shah, Kishore R., to Kendall Company, The. Pressure-sensitive adhesive. 4,337,325, Cl. 525-205.000.
Shapiro, Rosella. Umbrella having a pocket compartment. 4,336,817, Cl. 135-16.000.
Sharp Kabushiki Kaisha: *See—*
Funada, Fumiaki; Matsuura, Masataka; and Wada, Tomio, 4,336,980, Cl. 350-345.000.
Hatta, Koiti, 4,337,047, Cl. 434-201.000.
Shimizu, Youiti; Tsumura, Takeo; Matsumoto, Tadashi; and Nakai, Syunzi, 4,337,472, Cl. 346-155.000.
Takano, Rikuo; and Sumitomo, Yuji, 4,337,469, Cl. 346-75.000.
Shaw, Hugh E., Jr., to PPG Industries, Inc. Ribbon edge detector and system for metering flow of molten glass. 4,337,076, Cl. 65-29.000.
Shea Inventive Designs: *See—*
Shea, Robert H., 4,336,870, Cl. 192-105.0CF.
Shea, Robert H., to Shea Inventive Designs. Torque exchange coupling. 4,336,870, Cl. 192-105.0CF.
Shell Oil Company: *See—*
Boersma, Michael A. M.; Nanne, Johannes M.; and Post, Martin F. M., 4,337,176, Cl. 252-459.000.
Shenk, Edwin K., to Polaroid Corporation. Camera employing zone focusing. 4,336,987, Cl. 354-195.000.
Sherex Chemical Company, Inc.: *See—*
Escalera, Saul J., 4,337,149, Cl. 209-166.000.
Sherman, Donald R.: *See—*
Arnold, Arthur K.; and Sherman, Donald R., 4,336,715, Cl. 73-462.000.
Sherwood Medical Industries Inc.: *See—*
Gindler, E. Melvin, 4,337,064, Cl. 23-230.00B.
Shiga, Akinobu; Kakugo, Masahiro; Sadatoshi, Hajime; Wakamatsu, Kazuki; and Yoshioka, Hiroshi, to Sumitomo Chemical Company, Limited. Process for producing propylene-ethylene block copolymers. 4,337,326, Cl. 525-244.000.
Shikita, Takuji; and Sakaguchi, Susumu, to Shin-Etsu Chemical Company Limited; and Siemens Aktiengesellschaft. Prosthetic substituted member for living body and a method for the surgical treatment by use thereof. 4,336,617, Cl. 3-1.900.
Shimada, Keizo: *See—*
Sasaki, Hideharu; Tamura, Yorikazu; and Shimada, Keizo, 4,337,155, Cl. 210-500.100.
Shimada, Toshikazu: *See—*
Umeda, Jun-ichi; Shimada, Toshikazu; Nakamura, Michiharu; Katayama, Yoshifumi; Kajimura, Takashi; and Yamashita, Shigeo, 4,337,443, Cl. 372-49.000.
Shimada, Yoichi: *See—*
Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, 4,336,808, Cl. 128-663.000.
Shimauchi, Yasutaka: *See—*
Yoshioka, Takeo; Yamamoto, Kenichi; Yamada, Kaoru; Kato, Yasuyuki; Shimauchi, Yasutaka; and Ishikura, Tomoyuki, 4,337,199, Cl. 260-245.20T.
Shimazaki, Tetsuro, to Mitsubishi Paper Mills, Ltd. Process for producing microcapsules. 4,337,169, Cl. 252-316.000.
Shimizu, Yoshiro; Itakura, Toshio; Iwasa, Mitsuhiro; and Hanauye, Kunio, to Mitsui Toatsu Chemicals Inc. Process for production of phenolic resin from bisphenol-A by-products. 4,337,334, Cl. 528-137.000.
Shimizu, Youiti; Tsumura, Takeo; Matsumoto, Tadashi; and Nakai, Syunzi, to Sharp Kabushiki Kaisha. Recording head for use in electrostatic recorders. 4,337,472, Cl. 346-155.000.
Shin-Etsu Chemical Company Limited: *See—*
Ishihara, Toshinobu; Yamamoto, Akira; and Taguchi, Kenichi, 4,337,372, Cl. 568-906.000.
Shikita, Takuji; and Sakaguchi, Susumu, 4,336,617, Cl. 3-1.900.
Takamizawa, Minoru; Okada, Fumio; and Aoki, Hisashi, 4,337,348, Cl. 556-436.000.
Shinhama, Masaaki: *See—*
Uejo, Hirozo; Ishida, Hideo; and Shinhama, Masaaki, 4,337,179, Cl. 252-511.000.
Shinomiya, Masami: *See—*
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Shiotani, Hiromi: *See—*
Ishiguro, Yoshihiko; Ishiguro, Keiko; and Shiotani, Hiromi, 4,336,636, Cl. 24-115.00M.
Shiraiwa, Toshio; Hiroshima, Tatsuo; and Sakamoto, Takahide, to Sumitomo Metal Industries, Ltd. Steel surface inspection apparatus. 4,336,923, Cl. 266-51.000.
Shogren, David K.: *See—*
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Shortland Engineering International Anstalt: *See—*
Mohlmann, Hans H., 4,336,890, Cl. 215-272.000.
Shutske, Gregory M.; Setescak, Linda L.; and Allen, Richard C., to Hoechst-Roussel Pharmaceuticals Inc. (1,2-Benzisoxazol)phenoxyacetic acids as diuretics. 4,337,261, Cl. 424-272.000.

Siemens Aktiengesellschaft: *See—*
Mund, Konrad; Richter, Gerhard; and Weidlich, Erhard, 4,337,501, Cl. 361-433.000.
Rosler, Helmut, 4,337,526, Cl. 365-238.000.
Shikita, Takuji; and Sakaguchi, Susumu, 4,336,617, Cl. 3-1.900.
Siemens Corporation: *See—*
Ruell, Hartwig, 4,336,998, Cl. 356-71.000.
Sih, John C.: *See—*
Axen, Udo F.; and Sih, John C., 4,337,203, Cl. 549-396.000.
Axen, Udo F.; and Sih, John C., 4,337,337, Cl. 542-426.000.
Axen, Udo F.; and Sih, John C., 4,337,338, Cl. 542-426.000.
Silvey, Elmer R. Chain stop for saw chain grinder. 4,336,726, Cl. 76-25.00A.
Simonnot, Jack: *See—*
Jardinier, Pierre; and Simonnot, Jack, 4,336,904, Cl. 236-92.00R.
Simons, Carel A.: *See—*
Van Megen, Everardus A.; Simons, Carel A.; and Moen, Eduard W., 4,337,535, Cl. 369-121.000.
Simpson, Colin V. M. Electronic earring. 4,337,504, Cl. 362-104.000.
Sinclair, A. Richard: *See—*
Graham, John W.; Sinclair, A. Richard; and Brandt, John L., 4,336,842, Cl. 166-276.000.
Singer, Carl M.; Oana, Mateiu J.; and Turko, John D., to Commercial Shearing, Inc. Rotary impeller pump or motor with counterbalancing chamber in thrust plate bearing counterbore. 4,337,018, Cl. 418-132.000.
Singer Company, The: *See—*
Hatch, James E.; and Gannaway, Thomas W., 4,337,048, Cl. 434-219.000.
Singer, Loren A., Jr.: *See—*
Carney, William V.; and Singer, Loren A., Jr., 4,337,495, Cl. 361-119.000.
Sinyavskaya, Vera M.: *See—*
Kulyabko, Valery A.; Sinyavskaya, Vera M.; Sivkov, Alexandr A.; and Gavrilov, Evgeny N., 4,337,008, Cl. 405-127.000.
Sivkov, Alexandr A.: *See—*
Kulyabko, Valery A.; Sinyavskaya, Vera M.; Sivkov, Alexandr A.; and Gavrilov, Evgeny N., 4,337,008, Cl. 405-127.000.
Sjostrand, Sven E.: *See—*
Junggren, Ulf K.; and Sjostrand, Sven E., 4,337,257, Cl. 424-263.000.
Sletzinger, Meyer, to Merck & Co., Inc. Process for preparing methylvanillyl ketone from isoeugenol. 4,337,360, Cl. 568-322.000.
Smirmaul, Heinz. Corneal trephine. 4,336,805, Cl. 128-310.000.
Smith, Albert B.: *See—*
Azoulay, Moshe; and Smith, Albert B., 4,336,886, Cl. 211-13.000.
Smith, Arthur B.: *See—*
Pytlewski, Louis L.; Krevitz, Kenneth; and Smith, Arthur B., 4,337,368, Cl. 568-730.000.
Smith, Donald J., to Communications Technology Corporation. Service wire splice enclosure. 4,337,374, Cl. 174-138.00F.
Smith Engineering: *See—*
Smith, Jay, III; and Moskin, Jeffrey M., 4,337,460, Cl. 340-384.00E.
Smith, Jack D., to Smithy, Inc. Adapter closure. 4,336,891, Cl. 215-276.000.
Smith, Jackson H., to Eaton Corporation. Speed control trigger switch. 4,337,425, Cl. 318-345.00G.
Smith, Jay, III; and Moskin, Jeffrey M., to Smith Engineering. Hand-held sound effects device. 4,337,460, Cl. 340-384.00E.
Smith, Richard A. G., to Beecham Group Limited. Enzyme derivatives for use in the treatment of venous thrombosis. 4,337,244, Cl. 424-94.000.
Smith, Richard E.; Wenthe, Stephen J., Jr.; and Woznicki, William J., to Xerox Corporation. Method for feeding documents to a copy machine. 4,336,928, Cl. 271-3.100.
Smith, Robert A., to Imperial Chemical Industries Limited. Underwater erosion control structure. 4,337,007, Cl. 405-24.000.
Smith, William R., to Caere Corporation. Apparatus for processing video signals received from an optical scanner. 4,337,455, Cl. 340-146.3AG.
Smithy, Inc.: *See—*
Smith, Jack D., 4,336,891, Cl. 215-276.000.
Snamprogetti S.p.A.: *See—*
Fattore, Vittorio; Manara, Giovanni; and Notari, Bruno, 4,337,366, Cl. 568-698.000.
SNIA Viscosa S.p.A. - Societa' Nazionale Industria Applicazioni Viscosa: *See—*
Leoni, Roberto; Baldini, Alberto; Calloni, Angelo; and Angelini, Gianfranco, 4,337,095, Cl. 106-203.000.
Snow Brand Milk Products Co., Ltd.: *See—*
Omi, Yasuo; Wada, Takanori; Sano, Hitoshi; Sato, Shigekatsu; Ido, Kazuo; Taneda, Kozo; and Naka, Junichi, 4,337,021, Cl. 425-142.000.
Snow, Ray G.: *See—*
Sykes, Larry M.; and Snow, Ray G., 4,336,814, Cl. 131-291.000.
Soboroff, David M.; Troyer, Jerry D.; and Cochran, Andrew A., to United States of America, Interior. Regeneration of waste metallurgical process liquor. 4,337,129, Cl. 204-151.000.
Soca, Serge: *See—*
Favreau, Michel; Bajon, Jean; Cattoen, Michel; Soca, Serge; Longuet, Maurice; and Delattre, Christian, 4,337,514, Cl. 364-515.000.
Societe a Responsabilite Limitee Eram Industrie: *See—*
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Societe Anonyme dite: L'OREAL: *See—*
Bugaut, Andree; and Andrillon, Patrick, 4,337,061, Cl. 8-405.000.
Societe Anonyme Francaise du Ferodo: *See—*
Billet, Rene, 4,336,871, Cl. 192-107.00C.
Societe d'Etudes et de Recherches de Ventilation et d'Aeraulique S.E.R.V.A.: *See—*
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Societe Industrielle de Brevets et d'Etudes S.I.B.E.: *See—*
Semence, Pierre, 4,336,779, Cl. 123-339.000.
Sohnius, Heinrich. Anchor bolt expansion shell. 4,337,012, Cl. 411-67.000.
Solmat Systems, Ltd.: *See—*
Assaf, Gad, 4,336,999, Cl. 366-101.000.
Solomon, Frank, to Diamond Shamrock Corporation. Strengthening of carbon black-teflon-containing electrodes. 4,337,140, Cl. 204-292.000.
Solomon, Frank: *See—*
Gestaut, Lawrence J.; and Solomon, Frank, 4,337,139, Cl. 204-292.000.
Solomon, Paul W., to Phillips Petroleum Company. Olefin oxidation with supported CuO catalyst. 4,337,364, Cl. 568-475.000.
Solvinto, Jean-Claude: *See—*
Bourassin, Lucien; Condat, Bernard; Fortin, Jacques; Leger, Alain; Soto, Joseph; and Solvinto, Jean-Claude, 4,337,480, Cl. 358-93.000.
Sondreal, Everett A.: *See—*
Knudson, Curtis L.; Willson, Warrack G.; Baker, Gene G.; Sondreal, Everett A.; and Farnum, Sylvia A., 4,337,142, Cl. 208-8.0LE.
Sone, Masazumi; and Hirota, Yukitsugu, to Nissan Motor Co., Ltd. Plasma jet ignition plug. 4,337,408, Cl. 313-130.000.
Sony Corporation: *See—*
Akagiri, Kenzo, 4,337,445, Cl. 333-14.000.
Noda, Teruyoshi; Ichikawa, Iwao; and Takahashi, Toshio, 4,336,872, Cl. 193-2.00R.
Sorg, Dieter; and Leutwiler, Albert, to Sandoz Ltd. Pyrazinobenzodiazepines. 4,337,198, Cl. 260-243.300.
Sosin, Boleslaw M., to Marconi Company Limited, The. Wide band amplifiers. 4,337,439, Cl. 330-54.000.
Soto, Joseph: *See—*
Bourassin, Lucien; Condat, Bernard; Fortin, Jacques; Leger, Alain; Soto, Joseph; and Solvinto, Jean-Claude, 4,337,480, Cl. 358-93.000.
Sounds Alive Systems, Inc.: *See—*
Pomber, Harry A., 4,336,737, Cl. 84-151.000.
Spahn, Gary L., to Bell Telephone Laboratories, Incorporated. Tamper protection for an automatic remote meter reading unit. 4,337,466, Cl. 340-870.090.
Spars, Byron G.; Tamm, Paul W.; and Wallman, P. Henrik, to Chevron Research Company. Baffle system for staged turbulent bed. 4,337,120, Cl. 196-125.000.
Specht, Viktor: *See—*
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Specktor, Gerald A. Apparatus for repairing and straightening. 4,336,705, Cl. 72-457.000.
Sperry Corporation: *See—*
Cohn, Martin; Jacoby, George V.; and Bates, Charles A., III, 4,337,458, Cl. 340-347.0DD.
Spoor, Wilhelmus J.: *See—*
Van der Geer, Josephus J.; Van Pelt, Willem; Ploeger, Marinus; Spoor, Wilhelmus J.; and Van der Steen, Gerardus H. A. M., 4,337,410, Cl. 313-480.000.
Spotz, Erwin: *See—*
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Spracklen, John E.; and Gerhold, Mark L. C., to Burroughs Corporation. Line driver circuit for a local area contention network. 4,337,465, Cl. 340-825.030.
Sprague, Boyd F. Golf tee holder. 4,336,940, Cl. 273-208.000.
Sprague Electric Company: *See—*
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Sprecker, Mark A.; and Hall, John B., to International Flavors & Fragrances Inc. Substituted tricyclodecane derivatives, processes for producing same and organoleptic uses thereof. 4,337,212, Cl. 260-463.000.
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Springer, Carl M., to Binks Manufacturing Co. Color change system for spray coating apparatus. 4,337,282, Cl. 427-421.000.
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Square D Company: *See—*
Falkowski, Paul P.; Spotz, Erwin; and Rajadhyaksha, Mangesh, 4,337,219, Cl. 264-130.000.
Stachiw, Jerry D.; and Endicott, Donald L., Jr., to United States of America, Navy. Spherical segment inner surface force applicator for laminating non-planar surfaces. 4,337,105, Cl. 156-87.000.
Staiger, Bruno F.; and Stoll, Kurt, to Festo-Maschinenfabrik Gottlieb Stoll. Solenoid valve. 4,336,823, Cl. 137-270.000.
Stanadyne, Inc.: *See—*
Overfield, Norbert W., 4,336,781, Cl. 123-467.000.
Standard Oil Company (Indiana): *See—*
German, Paul M., Jr.; Lamont, James A.; and Gee, John C., 4,337,069, Cl. 55-229.000.

Stanton, Robert P. English unit to metric unit conversion device. 4,336,653, Cl. 33-1.00B.
Starkstrom Gummersbach GmbH: *See—*
Lemmer, Helmut, 4,337,447, Cl. 335-167.000.
Stauffer, Adolf: *See—*
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Stauffer Chemical Company: *See—*
Kuck, Mark A.; and Miller, Gary K., 4,337,125, Cl. 204-59.00R.
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Stein, Ed. Hickory smoke barbecue oven. 4,336,788, Cl. 126-8.000.
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Steineman, Robert J., to United Aircraft Products, Inc. Cartridge valve. 4,336,824, Cl. 137-315.000.
Steiner, Alfred, to Steiner Silidur A.G. Edging for the track inside of a sports installation. 4,336,932, Cl. 272-4.000.
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Sterling Drug Inc.: *See—*
Lesher, George Y.; and Dickinson, William B., 4,337,253, Cl. 424-250.000.
Schmidt, Paul J.; and Hung, William M., 4,337,340, Cl. 544-350.000.
Sternberg, Moshe M.: *See—*
Hershberger, Donald F.; and Sternberg, Moshe M., 4,337,313, Cl. 435-177.000.
Stetter, Jorg; and Brandes, Wilhelm, to Bayer Aktiengesellschaft. Combating fungi with N-oximinoalkyl-anilides. 4,337,268, Cl. 424-285.000.
Stevens, Myron T., to Outboard Marine Corporation. Idle adjustment control and sculptured twist grip throttle control handle for a marine propulsion device. 4,337,053, Cl. 440-87.000.
Stewart, Roger G., to RCA Corporation. Memory circuit with means for compensating for inversion of stored data. 4,337,522, Cl. 365-190.000.
Stoecklin, Carl E.; and Stoecklin, John F. Construction for whistling and sparkling keel kite. 4,336,915, Cl. 244-153.00R.
Stoecklin, John F.: *See—*
Stoecklin, Carl E.; and Stoecklin, John F., 4,336,915, Cl. 244-153.00R.
Stofko, John J., Jr.: *See—*
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Stokker, Gerald E.: *See—*
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Stone, Albert J.; and Nissen, Michael D., to Baxter Travenol Laboratories, Inc. Parenteral solution container for aseptic mixing. 4,336,802, Cl. 128-272.000.
Stoner, Glenn E.; and Cahen, George L., Jr., to Research Corporation. Electrolysis electrode. 4,337,138, Cl. 204-290.00R.
Storandt, Ralf: *See—*
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Storni, Angelo: *See—*
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Story, Alfred D.: *See—*
Wilson, Willard T.; Martinek, Harold H.; Martinek, Thomas W.; and Story, Alfred D., 4,336,632, Cl. 17-1.00R.
Stouffer, Ronald D., to Bowles Fluidics Corporation. Oscillating reed and method. 4,336,909, Cl. 239-381.000.
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Stoy, Vladimir A., to S.K.Y. Polymers, Inc. Novel block copolymers including acrylonitrile sequences and sequences including units derived from glutarimide units and processes for preparing same. 4,337,327, Cl. 525-280.000.
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Strohl, Niles E.: *See—*
Tuma, Wade B.; and Strohl, Niles E., 4,337,444, Cl. 332-31.00T.
Strydom, Mauritz L., to Tobacco Research and Development Institute Ltd. Drying of tobacco products. 4,336,660, Cl. 34-28.000.
Stuart, Thomas A., to University of Toledo, The. A.C. Motor control circuit. 4,337,429, Cl. 318-811.000.
Stubbs, Richard D.: *See—*
Leigh, Michael L.; and Stubbs, Richard D., 4,336,740, Cl. 89-1.806.
Studhalter, Walter R.: *See—*
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Sugiyama, Katsuhiko; Ohsawa, Katsuyuki; Fujikake, Kenji; and Idota, Yoshinori, to Kabushiki Kasiha Toyota Chuo Kenkyusho. Jet control carburetor. 4,336,780, Cl. 123-438.000.
Sullaway, Bob L.; and Treece, Harold O., to Halliburton Company. Inflatable grout seal. 4,337,010, Cl. 405-227.000.
Sumida, Seizo: *See—*
Hashimoto, Shunichi; Oshio, Hiromichi; Mizutani, Masato; Sanemitsu, Yuzuru; Katoh, Haruhiko; and Sumida, Seizo, 4,337,082, Cl. 71-93.000.
Sumita, Tadayuki: *See—*
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Sumitomo Chemical Company, Limited: *See—*
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Mukaiyama, Teruaki; Sakito, Yoji; and Asami, Masatoshi, 4,337,346, Cl. 548-324.000.
Shiga, Akinobu; Kakugo, Masahiro; Sadatoshi, Hajime; Wakamatsu, Kazuki; and Yoshioka, Hiroshi, 4,337,326, Cl. 525-244.000.
Takagishi, Hisao; and Kondo, Norio, 4,336,835, Cl. 162-164.300.
Takisawa, Yukihisa; and Hasegawa, Shinichi, 4,337,370, Cl. 568-766.000.
Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, 4,337,357, Cl. 564-154.000.
Sumitomo Metal Industries, Ltd.: *See—*
Hiroshima, Tatsuo; and Sakamoto, Takahide, 4,337,099, Cl. 148-9.500.
Shiraiwa, Toshio; Hiroshima, Tatsuo; and Sakamoto, Takahide, 4,336,923, Cl. 266-51.000.
Sumitomo Special Metals Co. Ltd.: *See—*
Esashi, Kiyoyuki; and Minatono, Hisae, 4,337,087, Cl. 75-124.000.
Sumitomo, Yuji: *See—*
Takano, Rikuo; and Sumitomo, Yuji, 4,337,469, Cl. 346-75.000.
Sumiyoshi, Masaharu; Sekiya, Setsuro; Motosugi, Katsuhiko; Takahashi, Hiroshi; and Toyoda, Shuhei, to Toyota Jidosha Kogyo Kabushiki Kaisha. Swirl-inducing apparatus for internal combustion engines. 4,336,776, Cl. 123-306.000.
Sun Electric Corporation: *See—*
Kreft, Keith A., 4,337,515, Cl. 364-551.000.
Suncor Inc.: *See—*
Lauer, James L.; King, Vincent W.; and Lau, Keyser K., 4,337,396, Cl. 250-340.000.
Superior Oil Company, The: *See—*
Haakonsen, Carl; and Thomassen, Thomas, 4,337,128, Cl. 204-107.000.
Sutton Laboratories, Inc.: *See—*
Berke, Philip A.; and Rosen, William E., 4,337,269, Cl. 424-289.000.
Suzuki, Takashi, to Canon Kabushiki Kaisha. Method for optically making a diffusion plate. 4,336,978, Cl. 350-167.000.
Suzuki, Takashi: *See—*
Matsumura, Susumu; and Suzuki, Takashi, 4,336,989, Cl. 354-200.000.
Suzuki, Yasushi; Tsukamoto, Kunio; Minami, Nobuyoshi; Hasegawa, Yukio; Satoh, Michitaka; Yamamoto, Norio; Miyasaka, Katsuhiko; Mikami, Takashi; and Funakoshi, Satoshi, to Teikoku Hormone Manufacturing Co., Ltd. 1-Phenyl isoquinoline-5-acetic acid compounds and analgesic compositions thereof. 4,337,256, Cl. 424-258.000.
Svensson, Goran: *See—*
Schultz, Bengt I.; and Svensson, Goran, 4,336,957, Cl. 280-803.000.
Svoboda, Josef; and Hofbauer, Rupert, to TMC Corporation. Adjusting device for ski bindings. 4,336,654, Cl. 33-3.00A.
Sweat, William T., to ASARCO Incorporated. Non-polluting, cooling method and heat recuperative sintering method. 4,337,083, Cl. 75-5.000.
Sybron Corporation: *See—*
Lipp, Herbert, 4,336,965, Cl. 297-435.000.
Sykes, Larry M.; and Snow, Ray G., to Philip Morris Incorporated. Process for expanding tobacco. 4,336,814, Cl. 131-291.000.
Syndicat des Constructeurs d'Appareils Radio Recepteurs et Televiseurs (SCART): *See—*
Bourassin, Lucien; Condat, Bernard; Fortin, Jacques; Leger, Alain; Soto, Joseph; and Solvinto, Jean-Claude, 4,337,480, Cl. 358-93.000.
Systron Donner Corporation: *See—*
Nickel, Walter; and Tarczy-Hornoch, Zoltan, 4,337,517, Cl. 364-571.000.
Szita, Jeno G., to Arizona Chemical Company. Preparation of hardened tall oil pitch. 4,337,193, Cl. 260-97.500.
Szkrybalo, William, to Hoffmann-La Roche Inc. Plant growth regulants. 4,337,080, Cl. 71-88.000.
Szlucha, Thomas F.; and Eddy, Clifford O., to Xerox Corporation. Apparatus for removing copy sheets from a roll fuser. 4,336,992, Cl. 355-3.0FU.
Tache, Jean-Paul, to Compagnie Lyonnaise de Transmissions Optiques. Method for the serial transmission of binary data and devices for its implementation. 4,337,457, Cl. 340-347.0DD.
Tadokoro, Eiichi: *See—*
Takenaka, Haruo; Tadokoro, Eiichi; and Fujiyama, Masaaki, 4,337,288, Cl. 428-172.000.

Taguchi, Kenichi: *See—*
Ishihara, Toshinobu; Yamamoto, Akira; and Taguchi, Kenichi, 4,337,372, Cl. 568-906.000.
Taira, Eiichi: *See—*
Tomimoto, Tetsuo; Yasumoto, Yoshio; and Taira, Eiichi, 4,337,479, Cl. 358-37.000.
Taisei Corporation: *See—*
Ito, Yasuro; Kaga, Hideharu; Yamamoto, Yasuhiro; and Sumita, Tadayuki, 4,337,020, Cl. 425-129.00R.
Taiyo Shokai Co., Ltd.: *See—*
Onishi, Masami, 4,336,681, Cl. 53-459.000.
Takagishi, Hisao; and Kondo, Norio, to Sumitomo Chemical Company, Limited. Production of wet-strength paper with aqueous solutions of cationic thermosetting resins. 4,336,835, Cl. 162-164.300.
Takahashi, Hiroshi: *See—*
Sumiyoshi, Masaharu; Sekiya, Setsuro; Motosugi, Katsuhiko; Takahashi, Hiroshi; and Toyoda, Shuhei, 4,336,776, Cl. 123-306.000.
Takahashi, Toshio: *See—*
Arita, Kishio; Murakawa, Kiyoshi; and Takahashi, Toshio, 4,337,089, Cl. 420-472.000.
Noda, Teruyoshi; Ichikawa, Iwao; and Takahashi, Toshio, 4,336,872, Cl. 193-2.00R.
Takahasi, Masauki; Tanaka, Hisami; Yamasawa, Masao; and Ohhata, Michinobu, to Fujitsu Limited. Digital-to-analog converter. 4,337,459, Cl. 340-347.0DA.
Takahasi, Masayosi; Nakazono, Sadatosi; and Nakamura, Yoshio, to Tokai Konetsu Kogyo Co., Ltd. Small ignition device comprising string-like silicon carbide heating element affixed to terminal supports. 4,337,498, Cl. 361-266.000.
Takai, Kazuki, to Clarion Co., Ltd. Magnetic recording/reproducing apparatus. 4,337,487, Cl. 360-71.000.
Takaiwa, Masakazu: *See—*
Yaguchi, Kunihide; Takaiwa, Masakazu; and Aoki, Minoru, 4,337,231, Cl. 423-243.000.
Takamizawa, Minoru; Okada, Fumio; and Aoki, Hisashi, to Shin-Etsu Chemical Company Limited. Benzoin group-containing cyclic organopolysiloxanes and a method for the preparation thereof. 4,337,348, Cl. 556-436.000.
Takano, Rikuo; and Sumitomo, Yuji, to Nippon Telegraph and Telephone Public Corp.; and Sharp Kabushiki Kaisha. Ink liquid supply system for ink jet system printer. 4,337,469, Cl. 346-75.000.
Takara Shuzo Co., Ltd.: *See—*
Fukushima, Susumu; Munenobu, Hideaki; and Yamade, Kazuhiro, 4,337,315, Cl. 435-313.000.
Takeda Chemical Industries, Ltd.: *See—*
Fujino, Masahiko; Wakimasu, Mitsuhiro; and Kawai, Kiyohisa, 4,337,247, Cl. 424-177.000.
Takeda, Toshio: *See—*
Amano, Takehisa; Hamada, Seiya; Isii, Sigeki; and Takeda, Toshio, 4,336,735, Cl. 84-1.170.
Takematsu, Yoshiyuki, to Fuji Koeki Corporation, a part interest. Electric flash apparatus. 4,337,416, Cl. 315-241.00P.
Takenaka, Haruo; Tadokoro, Eiichi; and Fujiyama, Masaaki, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 4,337,288, Cl. 428-172.000.
Takeuchi, Tomio: *See—*
Oki, Toshikazu; Yoshimoto, Akihiro; Kouno, Kageaki; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,337,312, Cl. 435-78.000.
Takisawa, Yukihisa; and Hasegawa, Shinichi, to Sumitomo Chemical Company, Limited. Process for the preparation of resorcinol derivatives. 4,337,370, Cl. 568-766.000.
Takizawa, Yoshihiro, to Furukawa Denchi Kabushiki Kaisha. Sealing means for terminal section of sealed type storage battery. 4,337,302, Cl. 429-181.000.
Tamm, Paul W.: *See—*
Spars, Byron G.; Tamm, Paul W.; and Wallman, P. Henrik, 4,337,120, Cl. 196-125.000.
Tamura, Yorikazu: *See—*
Sasaki, Hideharu; Tamura, Yorikazu; and Shimada, Keizo, 4,337,155, Cl. 210-500.100.
Tanaka, David T.: *See—*
Anderson, Donald L.; Cherry, Isaac R.; Ripley, John A.; and Tanaka, David T., 4,336,810, Cl. 128-702.000.
Tanaka, Hisami: *See—*
Takahasi, Masauki; Tanaka, Hisami; Yamasawa, Masao; and Ohhata, Michinobu, 4,337,459, Cl. 340-347.0DA.
Tanaka, Junzo; and Kai, Toshio, to Matsushita Electric Industrial Co., Ltd. Cooking appliance of the hot air circulating type. 4,337,384, Cl. 219-10.55B.
Tanaka, Kazuo; and Tsuji, Sadahiko, to Canon Kabushiki Kaisha. Photographic objective stabilized against change of angular field during focusing. 4,336,983, Cl. 350-427.000.
Taneda, Kozo: *See—*
Omi, Yasuo; Wada, Takanori; Sano, Hitoshi; Sato, Shigekatsu; Ido, Kazuo; Taneda, Kozo; and Naka, Junichi, 4,337,021, Cl. 425-142.000.
Tapernoux, Pierre J.: *See—*
McArdle, Beryl L.; and Tapernoux, Pierre J., 4,337,436, Cl. 328-157.000.
Tarczy-Hornoch, Zoltan: *See—*
Nickel, Walter; and Tarczy-Hornoch, Zoltan, 4,337,517, Cl. 364-571.000.
Tashiro, Chiaki; and Horii, Ichiro, to Yoshitomi Pharmaceutical Industries, Ltd. Imidazopyridine-spiro-piperidine compounds. 4,337,260, Cl. 424-267.000.
Taubenmann, Peter; and Korzeczek, Karl-Ludwig, to Krauss-Maffei Aktiengesellschaft. Mold-carrier assembly. 4,337,026, Cl. 425-454.000.
Taylor, Byron K., to RCA Corporation. Flylead for a video disc stylus cartridge. 4,337,536, Cl. 369-126.000.
Taylor, Thomas D.: *See—*
Frantz, Virgil L.; and Taylor, Thomas D., 4,336,821, Cl. 137-187.000.
Teague, John R.; and Huebner, Aronson L., to UOP Inc. Enhanced immobilization of a glucose isomerase. 4,337,172, Cl. 252-430.000.
Teague, Walter D., Jr.; and Sempliner, Arthur T. Power toothbrush or the like with orbital brush action. 4,336,622, Cl. 15-22.00R.
Techer, Henri; Monnier, Gilles; and Pesson, Marcel, to Laboratoire Roger Bellon. 1-Aryl-4-γ-arylsulphonyl-3-aminopropoxy-1H-pyrazoles and their use as hypolipemiant and hypocholesterolemiant agents. 4,337,263, Cl. 424-273.00P.
Technar, Inc.: *See—*
Bell, Lon E., 4,337,389, Cl. 219-511.000.
Technilor: *See—*
Rollot, Pierre H.; Cordier, Jean A.; and Briche, Raymond L., 4,336,925, Cl. 266-193.000.
Teepak, Inc.: *See—*
Wilson, Willard T.; Martinek, Harold H.; Martinek, Thomas W.; and Story, Alfred D., 4,336,632, Cl. 17-1.00R.
Teijin Limited: *See—*
Sasaki, Hideharu; Tamura, Yorikazu; and Shimada, Keizo, 4,337,155, Cl. 210-500.100.
Teikoku Hormone Manufacturing Co., Ltd.: *See—*
Suzuki, Yasushi; Tsukamoto, Kunio; Minami, Nobuyoshi; Hasegawa, Yukio; Satoh, Michitaka; Yamamoto, Norio; Miyasaka, Katsuhiko; Mikami, Takashi; and Funakoshi, Satoshi, 4,337,256, Cl. 424-258.000.
Tektronix, Inc.: *See—*
Kellogg, James R., 4,337,441, Cl. 330-261.000.
Teledyne Exploration Company: *See—*
Berglund, Carl O., 4,336,639, Cl. 29-25.350.
Teledyne Industries, Inc.: *See—*
Cammack, Michael A.; Elkins, Christopher W.; Hickman, Clarence J.; and Mullins, Keith M., 4,337,040, Cl. 433-80.000.
Rorer, David L.; and Hardin, Jasper E., 4,337,301, Cl. 429-179.000.
Teller, Aaron J., to Teller Environmental Systems, Inc. Treatment of flue gases. 4,337,229, Cl. 423-225.000.
Teller Environmental Systems, Inc.: *See—*
Teller, Aaron J., 4,337,229, Cl. 423-225.000.
Temova Etablissement: *See—*
Benckhuijsen, Gerrit J., 4,336,807, Cl. 128-379.000.
Tenneco Chemicals, Inc.: *See—*
Petronella, Joseph, 4,337,208, Cl. 260-414.000.
Tennessee Valley Authority: *See—*
Mann, Horace C., Jr.; and Meline, Robert S., 4,337,079, Cl. 71-34.000.
Terada, James I. Adjustable lamp. 4,337,506, Cl. 362-142.000.
Texaco Inc.: *See—*
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,337,068, Cl. 55-1.000.
Vanderpool, Steven H.; and Yeakey, Ernest L., 4,337,369, Cl. 568-756.000.
Texacone Company, The: *See—*
Wheeler, John H., 4,336,946, Cl. 277-211.000.
Texas Instruments Incorporated: *See—*
Freeman, Alfred B., 4,337,375, Cl. 179-1.0SA.
McElroy, David J., 4,336,647, Cl. 29-571.000.
Texon Inc.: *See—*
Bodendorf, Warren J.; and Presto, Alphonse R., 4,337,117, Cl. 162-161.000.
Textron, Inc.: *See—*
Wilson, Henry E.; Cronkhite, James D.; and Howard, John V., 4,336,868, Cl. 188-376.000.
Tezuka, Hisao; and Furui, Hiroshi, to Clarion Co., Ltd. Structure for mounting speaker. 4,337,380, Cl. 179-146.00E.
Thermatool Corp.: *See—*
Roberts, Sidney, 4,336,643, Cl. 29-157.30C.
Thingstad, Hans K. Rule or measuring rod. 4,336,655, Cl. 33-161.000.
Thomas, Diethard, to Wilhelm Fette GmbH. Tangential rolling head. 4,336,703, Cl. 72-104.000.
Thomas Jefferson University: *See—*
Lefer, Allan M., 4,337,273, Cl. 424-317.000.
Thomas, Robert E., to Securax, Inc. Security display rack. 4,336,885, Cl. 211-4.000.
Thomassen, Thomas: *See—*
Haakonsen, Carl; and Thomassen, Thomas, 4,337,128, Cl. 204-107.000.
Thompson, Morice W.: *See—*
Bromley, Charles; and Thompson, Morice W., 4,337,189, Cl. 523-332.000.
Thomson-Brandt: *See—*
Oprandi, Pierre; and Romeas, Rene, 4,337,532, Cl. 369-45.000.
Thomson-CSF: *See—*
Berger, Jean L.; and Coutures, Jean L., 4,337,403, Cl. 307-221.00D.
Broussaud, Georges; and Tinet, Claude, 4,337,484, Cl. 358-128.600.
Favreau, Michel; Bajon, Jean; Cattoen, Michel; Soca, Serge; Longuet, Maurice; and Delattre, Christian, 4,337,514, Cl. 364-515.000.

Pontvianne, Jean, 4,337,413, Cl. 315-3.500.

Thomson, John, Jr.: *See*—
O'Bryan, Henry M., Jr.; and Thomson, John, Jr., 4,337,446, Cl. 333-238.000.

Thomson, Keith D., to Commonwealth of Australia, The. Deployable wing mechanism. 4,336,914, Cl. 244-46.000.

Tieman, Lloyd E.: *See*—
Mundell, Donald D.; and Tieman, Lloyd E., 4,337,004, Cl. 403-209.000.

Tignol, Adrien P. N.: *See*—
Alicot, Michel J. C.; and Tignol, Adrien P. N., 4,337,344, Cl. 548-158.000.

Timken Company, The: *See*—
Bhatia, Ravi R., 4,336,641, Cl. 29-148.40A.
Reiter, Gerhard, 4,336,971, Cl. 308-187.200.

Tinet, Claude: *See*—
Broussaud, Georges; and Tinet, Claude, 4,337,484, Cl. 358-128.600.

TMC Corporation: *See*—
Svoboda, Josef; and Hofbauer, Rupert, 4,336,654, Cl. 33-3.00A.

Tobacco Research and Development Institute Ltd.: *See*—
Strydom, Mauritz L., 4,336,660, Cl. 34-28.000.

Toder, Ellis I. Track switch. 4,336,757, Cl. 104-102.000.

Toft, Leonard L., Jr. Universal time-keeping system and apparatus. 4,337,530, Cl. 368-62.000.

Tokai Konetsu Kogyo Co., Ltd.: *See*—
Takahasi, Masayosi; Nakazono, Sadatosi; and Nakamura, Yoshio, 4,337,498, Cl. 361-266.000.

Tokar, Valery, to Euclid Chemical Company, The. Additive composition for Portland cement materials. 4,337,094, Cl. 106-90.000.

Tokarzewski, Richard J.: *See*—
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,337,180, Cl. 252-522.00R.

Tokerud, Arvid: *See*—
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Tokumasu, Hiroyuki; Uchino, Hideo; and Hozumi, Shiro, to Matsushita Electric Industrial Company, Limited. Method for making a selective absorption film for solar energy. 4,337,097, Cl. 148-6.15R.

Tokyo Kikakikai Co., Ltd.: *See*—
Fukushima, Susumu; Munenobu, Hideaki; and Yamade, Kazuhiro, 4,337,315, Cl. 435-313.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Maezumi, Juichi, 4,337,510, Cl. 364-200.000.
Nakamura, Hiroyuki; and Nakaya, Shuniti, 4,337,399, Cl. 290-1.00R.

Tokyo Shibaura Electric Co., Ltd.: *See*—
Ikeda, Masashi; and Ito, Shintaro, 4,337,115, Cl. 156-659.100.

Tomimoto, Tetsuo; Yasumoto, Yoshio; and Taira, Eiichi, to Matsushita Electric Industrial Co., Ltd. Color resolution compensator. 4,337,479, Cl. 358-37.000.

Tomlinson, Peter: *See*—
Jones, Frank; and Tomlinson, Peter, 4,337,045, Cl. 434-29.000.

Tonnessen, Arne, to Moss Rosenberg Verft A/S. Modification of the tower construction in a spherical tank. 4,336,764, Cl. 114-74.00A.

Toppan Printing Company, Limited: *See*—
Nakamura, Hachiro; and Nakazawa, Norio, 4,337,276, Cl. 426-124.000.

Tornstrom, Ingvar. Device for orientation and transportation of elongated objects such as tree plants. 4,336,893, Cl. 221-171.000.

Totty, Ray S.; Love, Gary N.; and Zolot, Jeffrey L., to Packaging Associates, Inc. Product and method of making bellows. 4,336,747, Cl. 92-43.000.

Toyo Engineering Corporation: *See*—
Kaneko, Takayuki; and Ninagawa, Sadami, 4,336,770, Cl. 122-266.000.

Toyoda, Shuhei: *See*—
Sumiyoshi, Masaharu; Sekiya, Setsuro; Motosugi, Katsuhiko; Takahashi, Hiroshi; and Toyoda, Shuhei, 4,336,776, Cl. 123-306.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Sumiyoshi, Masaharu; Sekiya, Setsuro; Motosugi, Katsuhiko; Takahashi, Hiroshi; and Toyoda, Shuhei, 4,336,776, Cl. 123-306.000.
Tsukiyama, Yoshifumi; Hatanaka, Yasunori; Ogawa, Akiyoshi; and Mizutani, Hitoshi, 4,336,696, Cl. 464-111.000.

Treasurywala, Adi; Palameta, Bozidar; Bogri, Tibor; and Bagli, Jehan, to Ayerst, McKenna & Harrison Inc. Cyclohepta[b]pyrrole derivatives. 4,337,265, Cl. 424-274.000.

Treece, Harold O.: *See*—
Sullaway, Bob L.; and Treece, Harold O., 4,337,010, Cl. 405-227.000.

Trilog, Inc.: *See*—
Melissa, Raymond F.; Grummett, Lorne H.; and Fischer, Joseph J., 4,336,751, Cl. 101-93.040.

Trioliet Silo Europe B.V.: *See*—
Liet, Fredericus; and Liet, Cornelis H., 4,336,732, Cl. 83-109.000.

Trott, Clarence R.: *See*—
Friesen, Henry; and Trott, Clarence R., 4,337,015, Cl. 414-686.000.

Troyer, Jerry D.: *See*—
Soboroff, David M.; Troyer, Jerry D.; and Cochran, Andrew A., 4,337,129, Cl. 204-151.000.

Trukenbrod, Karl: *See*—
Rigler, Josef K.; Ratajczak, Hans-Josef; Leithauser, Horst; and Trukenbrod, Karl, 4,337,319, Cl. 521-96.000.

Tsuji, Masayoshi: *See*—
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Tsuji, Sadahiko: *See*—
Tanaka, Kazuo; and Tsuji, Sadahiko, 4,336,983, Cl. 350-427.000.

Tsukamoto, Kunio: *See*—
Suzuki, Yasushi; Tsukamoto, Kunio; Minami, Nobuyoshi; Hasegawa, Yukio; Satoh, Michitaka; Yamamoto, Norio; Miyasaka, Katsuhiko; Mikami, Takashi; and Funakoshi, Satoshi, 4,337,256, Cl. 424-258.000.

Tsukiyama, Yoshifumi; Hatanaka, Yasunori; Ogawa, Akiyoshi; and Mizutani, Hitoshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Tripod type constant velocity universal joint. 4,336,696, Cl. 464-111.000.

Tsumura, Takeo: *See*—
Shimizu, Youiti; Tsumura, Takeo; Matsumoto, Tadashi; and Nakai, Syunzi, 4,337,472, Cl. 346-155.000.

Tsushima, Sakae: *See*—
Watanabe, Itaru; Wataya, Isamu; and Tsushima, Sakae, 4,337,141, Cl. 204-301.000.

Tsutsumi, Yoshio, to Kabushiki Kaisha Komatsu Seisakusho. Steering clutch and brake control for track-type vehicles. 4,336,869, Cl. 192-13.00R.

Tu, Hosheng, to UOP Inc. Fluid catalytic cracking process. 4,337,145, Cl. 208-120.000.

Tuma, Wade B.; and Strohl, Niles E., to Atari, Inc. Radio frequency oscillator-modulator circuit. 4,337,444, Cl. 332-31.00T.

Turko, John D.: *See*—
Singer, Carl M.; Oana, Mateiu J.; and Turko, John D., 4,337,018, Cl. 418-132.000.

Turner, Edward W.; and Blake, Peter J., to Hardigg Industries, Inc. Seam roller. 4,337,024, Cl. 425-363.000.

Turner, Samuel. Handlebar mounted detachable bicycle light fixture. 4,337,503, Cl. 362-72.000.

Turner, William N.: *See*—
Nagabhushan, Tattanahalli L.; Turner, William N.; and Cooper, Alan, 4,337,335, Cl. 536-13.600.

Ube Industries, Ltd.: *See*—
Uejo, Hirozo; Ishida, Hideo; and Shinhama, Masaaki, 4,337,179, Cl. 252-511.000.

Uchino, Hideo: *See*—
Tokumasu, Hiroyuki; Uchino, Hideo; and Hozumi, Shiro, 4,337,097, Cl. 148-6.15R.

Uejo, Hirozo; Ishida, Hideo; and Shinhama, Masaaki, to Ube Industries, Ltd. Polyamide composition. 4,337,179, Cl. 252-511.000.

Uematsu, Tamon; Hashimoto, Shunichi; and Oshio, Hiromichi, to Sumitomo Chemical Company, Limited. Herbicidal dithio-bis(-haloacetanilides). 4,337,357, Cl. 564-154.000.

Uesugi, Naomoto: *See*—
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Ultradyne, Inc.: *See*—
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UMC Industries, Inc.: *See*—
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Umeda, Jun-ichi; Shimada, Toshikazu; Nakamura, Michiharu; Katayama, Yoshifumi; Kajimura, Takashi; and Yamashita, Shigeo, to Hitachi, Ltd. Semiconductor laser device with facet passivation film. 4,337,443, Cl. 372-49.000.

Umezawa, Hamao; Umezawa, Sumio; Fukatsu, Shunzo; Yoneta, Toshio; and Wakazawa, Tadashi, to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai. Derivative of kanamycin A and a process for the preparation thereof. 4,337,336, Cl. 536-13.800.

Umezawa, Hamao: *See*—
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Umezawa, Hamao; Umezawa, Sumio; Fukatsu, Shunzo; Yoneta, Toshio; and Wakazawa, Tadashi, 4,337,336, Cl. 536-13.800.

Uni-Flange Corporation: *See*—
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Union Carbide Corporation: *See*—
Davis, Robert B., 4,336,689, Cl. 62-55.000.
Fletcher, Michael B., 4,337,373, Cl. 13-23.000.
Fuderer, Andrija, 4,337,170, Cl. 252-373.000.
Logsdon, John E.; and Kiff, Ben W., 4,337,356, Cl. 562-549.000.
Robeson, Lloyd M., 4,337,330, Cl. 525-407.000.
Walker, Wellington E., deceased, 4,337,365, Cl. 568-487.000.

Uniroyal, Inc.: *See*—
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United Aircraft Products, Inc.: *See*—
Steineman, Robert J., 4,336,824, Cl. 137-315.000.

United Catalysts Inc.: *See*—
Atwood, Kenton; and Wright, James H., 4,337,178, Cl. 252-466.00J.

United Kingdom Atomic Energy Authority: *See*—
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Gorter, Willem K., 4,336,650, Cl. 30-34.200.
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Chaplin, Gary F., 4,336,943, Cl. 277-26.000.
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Horowitz, Alexandre; and Cuypers, Martinus H., 4,337,057, Cl. 474-242.000.

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Viola, Michael R. System of making custom transfers. 4,337,293, Cl. 428-337.000.
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Washburn, John R., to Lear Siegler, Inc. Control circuit for accelerometer. 4,336,718, Cl. 73-517.00B.
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Welch, Kimo M., to Varian Associates, Inc. Cryogenic pump with radiation shield. 4,336,690, Cl. 62-55.500.
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Munoz, Joseph P., 4,337,435, Cl. 328-133.000.
Young, Robert G., 4,337,414, Cl. 315-56.000.
Wheeler, John H., to Texacone Company, The. Non-rotatable elastomeric O-ring seal. 4,336,946, Cl. 277-211.000.
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White, Bruce L.; and McWhirt, Bobby D., to Hesston Corporation. Stray crop buildup expeller for rotary balers. 4,336,750, Cl. 100-88.000.
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Yoshioka, Takeo; Yamamoto, Kenichi; Yamada, Kaoru; Kato, Yasuyuki; Shimauchi, Yasutaka; and Ishikura, Tomoyuki, 4,337,199, Cl. 260-245.20T.
Yamamoto, Norio: *See—*
Suzuki, Yasushi; Tsukamoto, Kunio; Minami, Nobuyoshi; Hasegawa, Yukio; Satoh, Michitaka; Yamamoto, Norio; Miyasaka, Katsuhiko; Mikami, Takashi; and Funakoshi, Satoshi, 4,337,256, Cl. 424-258.000.
Yamamoto, Toshio: *See—*
Nakajima, Kazuhisa; Gohgi, Kazuaki; and Yamamoto, Toshio, 4,337,355, Cl. 562-478.000.
Yamamoto, Yasuhiro: *See—*
Ito, Yasuro; Kaga, Hideharu; Yamamoto, Yasuhiro; and Sumita, Tadayuki, 4,337,020, Cl. 425-129.00R.
Yamanashi, Teruaki: *See—*
Imai, Hirosuke; Yamanashi, Teruaki; and Itoh, Hiroyuki, 4,337,062, Cl. 8-557.000.
Yamaoka, Tetsuo: *See—*
Iwata, Hiroshi; Yamaoka, Tetsuo; and Morioka, Akitoshi, 4,336,985, Cl. 354-145.000.
Yamasawa, Masao: *See—*
Takahasi, Masauki; Tanaka, Hisami; Yamasawa, Masao; and Ohhata, Michinobu, 4,337,459, Cl. 340-347.0DA.
Yamashita, Shigeo: *See—*
Umeda, Jun-ichi; Shimada, Toshikazu; Nakamura, Michiharu; Katayama, Yoshifumi; Kajimura, Takashi; and Yamashita, Shigeo, 4,337,443, Cl. 372-49.000.
Yamato Scale Company, Ltd.: *See—*
Hirano, Takashi, 4,336,852, Cl. 177-25.000.
Hirano, Takashi, 4,336,853, Cl. 177-25.000.
Yanagihara, Masanobu; Kaneuchi, Yoichiro; and Kobayashi, Shoji, to Nissan Motor Co., Ltd. Intake passage means of an internal combustion engine. 4,336,777, Cl. 123-306.000.
Yang, Lien C. Air purification system using cryogenic techniques. 4,337,071, Cl. 62-37.000.
Yano, Yasuhiro, to Canon Kabushiki Kaisha. Liquid jet recording process. 4,337,467, Cl. 346-1.100.
Yasumoto, Yoshio: *See—*
Tomimoto, Tetsuo; Yasumoto, Yoshio; and Taira, Eiichi, 4,337,479, Cl. 358-37.000.
Yeakey, Ernest L.: *See—*
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Yokogawa Electric Works, Ltd.: *See—*
Nishihara, Tadashi, 4,336,819, Cl. 137-85.000.
Yoneta, Toshio: *See—*
Umezawa, Hamao; Umezawa, Sumio; Fukatsu, Shunzo; Yoneta, Toshio; and Wakazawa, Tadashi, 4,337,336, Cl. 536-13.800.
Yoo, Jin S., to Atlantic Richfield Company. Aluminum passivation process. 4,337,144, Cl. 208-120.000.
Yoshimoto, Akihiro: *See—*
Oki, Toshikazu; Yoshimoto, Akihiro; Kouno, Kageaki; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, 4,337,312, Cl. 435-78.000.
Yoshimoto, Yuichiro: *See—*
Sakurai, Mikio; Yoshimoto, Yuichiro; and Kodama, Hiroshi, 4,337,118, Cl. 376-210.000.
Yoshimura, Shozo: *See—*
Ohno, Mitio; Shimada, Yoichi; Furuhata, Hiroshi; Kanno, Ryoichi; Kodaira, Kuniyasu; and Matumoto, Hirozi, 4,336,808, Cl. 128-663.000.
Yoshimura, Tatsuro, to Fujitsu Limited. Clock signal distributing circuit adjusting device and method. 4,337,433, Cl. 328-55.000.
Yoshioka, Hiroshi: *See—*
Shiga, Akinobu; Kakugo, Masahiro; Sadatoshi, Hajime; Wakamatsu, Kazuki; and Yoshioka, Hiroshi, 4,337,326, Cl. 525-244.000.
Yoshioka, Takeo; Yamamoto, Kenichi; Yamada, Kaoru; Kato, Yasuyuki; Shimauchi, Yasutaka; and Ishikura, Tomoyuki, to Sanraku-Ocean Co., Ltd. Antibiotic β-lactam compounds, production thereof, and their use as antimicrobial agent. 4,337,199, Cl. 260-245.20T.
Yoshitomi Pharmaceutical Industries, Ltd.: *See—*
Tashiro, Chiaki; and Horii, Ichiro, 4,337,260, Cl. 424-267.000.
Young, Don H.; and Wellman, Russell W. Water vapor injection system. 4,336,772, Cl. 123-25.00L.
Young, Richard L. Portable game surface for a pool-like game. 4,336,936, Cl. 273-2.000.
Young, Robert G., to Westinghouse Electric Corp. Compact fluorescent lamp having convoluted tubular envelope of tridimensional configuration, method of making such envelope, and lighting unit incorporating such lamp. 4,337,414, Cl. 315-56.000.
Yukimoto, Yoshinori, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor device. 4,337,474, Cl. 357-22.000.
Yusa, Haruhiko; Iizuka, Yo; and Akutsu, Humio, to Kureha Kagaku Kogyo Kabushiki Kaisha. Vinyl chloride resin composition. 4,337,324, Cl. 525-72.000.
Zabotto, Arlette: *See—*
Ser, Jean-Claude; Zabotto, Arlette; Zaffran, Christian; and Koulbanis, Constantin, 4,337,241, Cl. 424-59.000.
Zaffran, Christian: *See—*
Ser, Jean-Claude; Zabotto, Arlette; Zaffran, Christian; and Koulbanis, Constantin, 4,337,241, Cl. 424-59.000.
Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai: *See—*
Umezawa, Hamao; Umezawa, Sumio; Fukatsu, Shunzo; Yoneta, Toshio; and Wakazawa, Tadashi, 4,337,336, Cl. 536-13.800.
Zanazzo, Pietro; Mainardi, Giuliano; and Giorgetti, Rodolfo. Physical-variable measuring, adjusting and displaying instrument. 4,337,500, Cl. 361-395.000.
Zepkowski, John. Sled. 4,336,950, Cl. 280-16.000.
Ziebarth, Jurgen: *See—*
Hentschel, Bernhard; Ziebarth, Jurgen; Coenen, Alfred; Kosswig, Kurt; and von Praun, Ferdinand, 4,337,234, Cl. 423-424.000.
Zimmer, William E.: *See—*
Gardner, Kenneth L.; Zimmer, William E.; and Miller, Samuel A., 4,337,031, Cl. 432-98.000.
Zimmerman, Dennis M., to Eli Lilly and Company. 4a-Aryl-octahydro-1H-2-pyrindines. 4,337,341, Cl. 546-112.000.
Zinser Textilmaschinen GmbH: *See—*
Hartmannsgruber, Max; and Wolf, Horst, 4,336,684, Cl. 57-93.000.
Zirps, Wilhelm, to Robert Bosch GmbH. Control valve. 4,336,903, Cl. 236-92.00R.
Zolot, Jeffrey L.: *See—*
Totty, Ray S.; Love, Gary N.; and Zolot, Jeffrey L., 4,336,747, Cl. 92-43.000.
Zweifel, Hans; Schilling, Walter; Storni, Angelo; and Bellus, Daniel, to Ciba-Geigy Corporation. Tricyclic imidyl derivatives. 4,337,200, Cl. 548-451.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 29TH DAY OF JUNE, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Aoki, Eiichiro, to Nippon Gakki Seizo Kabushiki Kaisha. Time shared tone keying system in electronic musical instrument. Re. 30,982, Cl. 84-1.190.

Cartaya, Oscar A. Serum-free cell culture media. Re. 30,985, Cl. 435-240.000.

Celotex Corporation, The: *See*—
Hipchen, Donald E.; Skowronski, Michael; and Hagan, Joseph R., Re. 30,984, Cl. 428-297.000.

General Signal Corporation: *See*—
Sibley, Henry C., Re. 30,986, Cl. 235-92.00T.

Gotaverken Aluminum AB: *See*—
Potter, Timothy K.; and Lopez Gomez, Raimundo, Re. 30,980, Cl. 52-479.000.

Hach Chemical Company: *See*—
Stookey, Lawrence L., Re. 30,983, Cl. 23-230.00R.

Hagan, Joseph R.: *See*—
Hipchen, Donald E.; Skowronski, Michael; and Hagan, Joseph R., Re. 30,984, Cl. 428-297.000.

Hipchen, Donald E.; Skowronski, Michael; and Hagan, Joseph R., to Celotex Corporation, The. Structural laminate and method for making same. Re. 30,984, Cl. 428-297.000.

Jones, David G. Omnidirectional clock. Re. 30,987, Cl. 368-76.000.

Kemper, Yves, to Vadetec Corporation. Transmission devices. Re. 30,981, Cl. 74-193.000.

Lopez Gomez, Raimundo: *See*—
Potter, Timothy K.; and Lopez Gomez, Raimundo, Re. 30,980, Cl. 52-479.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Aoki, Eiichiro, Re. 30,982, Cl. 84-1.190.

Potter, Timothy K.; and Lopez Gomez, Raimundo, to Gotaverken Aluminum AB. Wall system. Re. 30,980, Cl. 52-479.000.

Sibley, Henry C., to General Signal Corporation. Vital relay driver having controlled response time. Re. 30,986, Cl. 235-92.00T.

Skowronski, Michael: *See*—
Hipchen, Donald E.; Skowronski, Michael; and Hagan, Joseph R., Re. 30,984, Cl. 428-297.000.

Stookey, Lawrence L., to Hach Chemical Company. Colorimetric determination of iron. Re. 30,983, Cl. 23-230.00R.

Vadetec Corporation: *See*—
Kemper, Yves, Re. 30,981, Cl. 74-193.000.

LIST OF DESIGN PATENTEES

Acme Engineering & Manufacturing Corporation: *See*—
Bohanon, Hoy R., Sr., 265,190, Cl. D13-12.000.
Bohanon, Hoy R., Sr., 265,191, Cl. D13-12.000.

Aiello, Francois. Slide calculator for metal beam dimensions. 265,209, 6-29-82, Cl. D18-9.000.

Amarger, Guy, to Compagnie Generale des Etablissements Michelin. Tire. 265,183, 6-29-82, Cl. D12-143.000.

Anderson, Jesse C. Stove. 265,238, 6-29-82, Cl. D23-97.000.

Bales, Emmett R., to Metals Engineering Corporation. Barbeque grill. 265,162, 6-29-82, Cl. D7-110.000.

Barberry, Susan J.: *See*—
Barberry, Theodore O., Jr.; and Barberry, Susan J., 265,253, Cl. D27-06.000.

Barberry, Theodore O., Jr.; and Barberry, Susan J. Pipe stand. 265,253, 6-29-82, Cl. D27-06.000.

Baro Far East Limited: *See*—
Fung, Pak T., 265,193, Cl. D14-5.000.

Beck, Donald; Johnson, Hugh N.; and Jones, Haydn, to M.G.F. Distributors Ltd. Fireplace insert. 265,237, 6-29-82, Cl. D23-94.000.

Benedict, Maxwell E. Plant pot stand. 265,150, 6-29-82, Cl. D6-28.000.

Bern, Stephen C.: *See*—
McNaughton, David S.; Bern, Stephen C.; Cummings, Kenneth W.; and Perethian, Charles M., 265,252, Cl. D26-139.000.

Bisk, Leonard; and Rogahn, Gunther, to Independent Products Company, Inc. Hanger. 265,156, 6-29-82, Cl. D6-253.000.

Bluestein, Bernard B.: *See*—
Ernest, Robert O.; and Bluestein, Bernard B., 265,164, Cl. D7-153.000.
Ernest, Robert O.; and Bluestein, Bernard B., 265,166, Cl. D7-159.000.

Bock, Erik, to Superfos Emballage A/S. Packing drum. 265,176, 6-29-82, Cl. D9-352.000.

Bohanon, Hoy R., Sr., to Acme Engineering & Manufacturing Corporation. Control unit. 265,190, 6-29-82, Cl. D13-12.000.

Bohanon, Hoy R., Sr., to Acme Engineering & Manufacturing Corporation. Control unit. 265,191, 6-29-82, Cl. D13-12.000.

Bollen, Roger J.; Erdos, William A.; and Ramsey, Roger H., to Eagle Rubber Co., Inc. Spring mounted riding toy. 265,223, 6-29-82, Cl. D21-247.000.

Bollen, Roger J.; Erdos, William A.; and Ramsey, Roger H., to Eagle Rubber Co., Inc. Spring mounted riding toy. 265,224, 6-29-82, Cl. D21-247.000.

Boodjie Enterprises Ltd.: *See*—
Craig, Ronald; and Craig, Susan, 265,217, Cl. D21-35.000.

Boyle, Raymond J. Eyeglass temple screw or the like. 265,174, 6-29-82, Cl. D8-387.000.

Bravo, Anthony L., to Zeno Table Co., Inc. Combined dresser and mirror unit. 265,155, 6-29-82, Cl. D6-154.000.

Brite Way Corporation: *See*—
Salem, Henry A., 265,201, Cl. D32-2.000.

Brooks, Kenneth. Rope shackle. 265,173, 6-29-82, Cl. D8-356.000.

Bruno, Jenna; and Vance, Georgia. Toy holder for use in bathtubs, showers or the like. 265,152, 6-29-82, Cl. D6-86.000.

Bucchianeri, Richard M.: *See*—
Manno, Joseph J.; Busche, William W.; Bucchianeri, Richard M.; and Kreinick, Stephen J., 265,243, Cl. D24-8.000.

Bunger, Richard E.; and Hancock, Roy J., to Corral Industries, Inc. Curb for animal confinement pens. 265,256, 6-29-82, Cl. D30-2.000.

Bunger, Richard E.; and Hancock, Roy J., to Corral Industries, Inc. Interlocking flume platform panel for animal confinement pens. 265,257, 6-29-82, Cl. D30-2.000.

Bunger, Richard E.; and Hancock, Roy J., to Corral Industries, Inc. Cattle feed bunker. 265,258, 6-29-82, Cl. D30-13.000.

Bunger, Richard E.; and Hancock, Roy J., to Corral Industries, Inc. Cattle feed bunker. 265,259, 6-29-82, Cl. D30-13.000.

Bunger, Richard E.; and Hancock, Roy J., to Corral Industries, Inc. Cattle feed bunker. 265,260, 6-29-82, Cl. D30-13.000.

Bunnell, Donald E.; and Kintzi, Eldor A. Snow removal tool. 265,169, 6-29-82, Cl. D8-10.000.

Burroughs Corporation: *See*—
Pedersen, John H.; Stencel, John, Jr.; Reaume, Richard W.; Rourke, Robert T.; Tranquilla, Michael N.; and Saunders, Michael A., 265,200, Cl. D14-103.000.

Busche, William W.: *See*—
Manno, Joseph J.; Busche, William W.; Bucchianeri, Richard M.; and Kreinick, Stephen J., 265,243, Cl. D24-8.000.

C. Josef Lamy GmbH: *See*—
Spiegel, Bernt, 265,212, Cl. D19-47.000.

Carl Zeiss-Stiftung: *See*—
Weber, Klaus; and Stutz, Erich, 265,206, Cl. D16-131.000.

Carlat, J. Keith; and Cliff, John O., to Pittsburgh-Des Moines Corporation. Combined water storage tank and building. 265,226, 6-29-82, Cl. D23-2.000.

Clairol Incorporated: *See*—
MacGregor, Francis W., 265,247, Cl. D24-41.000.

Cliff, John O.: *See*—
Carlat, J. Keith; and Cliff, John O., 265,226, Cl. D23-2.000.

Coca-Cola Company: *See*—
La Barbera, Mannie, 265,159, Cl. D7-70.000.

Collins, Charles K.: *See*—
Rake, Lance G.; and Collins, Charles K., 265,146, Cl. D3-30.100.

Compagnie Generale des Etablissements Michelin: *See—*
Amarger, Guy, 265,183, Cl. D12-143.000.
Raluy, Antoine, 265,187, Cl. D12-149.000.
Cordova, Adolph. Combined grate and water heater insert for wood burning fireplace. 265,167, 6-29-82, Cl. D7-207.000.
Corral Industries, Inc.: *See—*
Bunger, Richard E.; and Hancock, Roy J., 265,256, Cl. D30-2.000.
Bunger, Richard E.; and Hancock, Roy J., 265,257, Cl. D30-2.000.
Bunger, Richard E.; and Hancock, Roy J., 265,258, Cl. D30-13.000.
Bunger, Richard E.; and Hancock, Roy J., 265,259, Cl. D30-13.000.
Bunger, Richard E.; and Hancock, Roy J., 265,260, Cl. D30-13.000.
Cox, Richard D., to Nautical Engineering Division of R & D Enterprises. Portable tray table for use primarily on a boat. 265,154, 6-29-82, Cl. D6-138.000.
Craig, Ronald; and Craig, Susan, to Boodjie Enterprises Ltd. Game board. 265,217, 6-29-82, Cl. D21-35.000.
Craig, Susan: *See—*
Craig, Ronald; and Craig, Susan, 265,217, Cl. D21-35.000.
Crawford, Ted G.; Johnson, Allan B.; and Mackay, Spencer L., to Teledyne Industries, Inc. Motor housing for an oral hygiene appliance. 265,245, 6-29-82, Cl. D24-15.000.
Cummings, Kenneth W.: *See—*
McNaughton, David S.; Bern, Stephen C.; Cummings, Kenneth W.; and Perethian, Charles M., 265,252, Cl. D26-139.000.
Darby, David L.: *See—*
Darby, James W.; and Darby, David L., 265,251, Cl. D25-64.000.
Darby, James W.; and Darby, David L. Swimming pool ladder. 265,251, 6-29-82, Cl. D25-64.000.
Dwyhalo, Ronald W. Rotatable cassette tape storage unit. 265,148, 6-29-82, Cl. D3-35.000.
Dynabrade, Inc.: *See—*
Fleckenstein, Elwin H.; and Welsch, Walter N., 265,172, Cl. D8-62.000.
Eagle Rubber Co., Inc.: *See—*
Bollen, Roger J.; Erdos, William A.; and Ramsey, Roger H., 265,223, Cl. D21-247.000.
Bollen, Roger J.; Erdos, William A.; and Ramsey, Roger H., 265,224, Cl. D21-247.000.
Energetics Mfg. Co.: *See—*
Kooles, Charles W., 265,240, Cl. D23-97.000.
Erdos, William A.: *See—*
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Bollen, Roger J.; Erdos, William A.; and Ramsey, Roger H., 265,224, Cl. D21-247.000.
Eriksson, Sven G.; and Morwing, Bo A., to Telefonaktiebolaget L M Ericsson. Code plug for a railway signal beacon. 265,189, 6-29-82, Cl. D13-12.000.
Ernest, Robert O.; and Bluestein, Bernard B., to Sunbeam Corporation. Appliance-driving unit for a food-processing appliance. 265,164, 6-29-82, Cl. D7-153.000.
Ernest, Robert O.; and Thomas, Richard K., to Sunbeam Corporation. Food processor base. 265,165, 6-29-82, Cl. D7-153.000.
Ernest, Robert O.; and Bluestein, Bernard B., to Sunbeam Corporation. Food-mixing apparatus. 265,166, 6-29-82, Cl. D7-159.000.
Faranda, Robert T.; and Leer, Stuart D., to Litton Business Systems, Inc. Calculator. 265,208, 6-29-82, Cl. D18-7.000.
First Champaign Corporation: *See—*
McNaughton, David S.; Bern, Stephen C.; Cummings, Kenneth W.; and Perethian, Charles M., 265,252, Cl. D26-139.000.
Fleckenstein, Elwin H.; and Welsch, Walter N., to Dynabrade, Inc. Casing for a portable belt grinder. 265,172, 6-29-82, Cl. D8-62.000.
Fox, Joseph H. Electrical golf bag carrier. 265,263, 6-29-82, Cl. D34-15.000.
Fung, Pak T., to Baro Far East Limited. Combined clock radio and cassette player. 265,193, 6-29-82, Cl. D14-5.000.
Gerber, William C., to Rubbermaid Incorporated. Clothes hamper. 265,261, 6-29-82, Cl. D32-37.000.
Gillette Company, The: *See—*
Rams, Dieter, 265,254, Cl. D27-42.000.
Giroflex-Entwicklungs AG: *See—*
Roner, Ludwig, 265,151, Cl. D6-78.000.
Gislaved Aktiebolag: *See—*
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Goodyear Tire & Rubber Company, The: *See—*
Hammond, Philip S., 265,184, Cl. D12-143.000.
Karlyn, Warren T.; and Lindner, Daniel J., 265,186, Cl. D12-147.000.
Gorman, Jeffrey B. Cat biscuit. 265,140, 6-29-82, Cl. D1-27.000.
Grant, Perry J.: *See—*
Israel, Leonard H.; and Grant, Perry J., 265,214, Cl. D21-17.000.
Green, Allen H., II. Spaghetti portion measurer. 265,158, 6-29-82, Cl. D7-50.000.
Grigorieff, Paul P. Post operative knee orthosis. 265,248, 6-29-82, Cl. D24-49.000.
Grohmann, Hubert; Holmen, Kent-Ove; and Nilsson, Halvard, to Gislaved Aktiebolag. Vehicle tire. 265,185, 6-29-82, Cl. D12-146.000.
Halvorsen, Kenneth, to Medical Testing Systems, Inc. Fitting assembly for guiding and restraining a probe in a catheter. 265,249, 6-29-82, Cl. 24-54.000.
Hammond, Philip S., to Goodyear Tire & Rubber Company, The. Tire. 265,184, 6-29-82, Cl. D12-143.000.
Hancock, Roy J.: *See—*
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Bunger, Richard E.; and Hancock, Roy J., 265,257, Cl. D30-2.000.
Bunger, Richard E.; and Hancock, Roy J., 265,258, Cl. D30-13.000.
Bunger, Richard E.; and Hancock, Roy J., 265,259, Cl. D30-13.000.
Bunger, Richard E.; and Hancock, Roy J., 265,260, Cl. D30-13.000.
Hardin, Charles H., to Kusan, Inc. Toy gun. 265,221, 6-29-82, Cl. D21-147.000.
Hitaishi, Etsuo; and Shohoji, Takeshi, to Ryobi, Ltd. Printing machine. 265,210, 6-29-82, Cl. D18-13.000.
Holmen, Kent-Ove: *See—*
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International Jensen Incorporated: *See—*
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Urban, Keith F.; and Matsuda, Hari, 265,199, Cl. D14-96.000.
International Playtex, Inc.: *See—*
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Stern, Harold; and White, William, 265,142, Cl. D2-24.000.
Taniyama, Toshiko, 265,143, Cl. D2-24.000.
Israel, Leonard H.; and Grant, Perry J. Game board. 265,214, 6-29-82, Cl. D21-17.000.
IVAC Corporation: *See—*
Manno, Joseph J.; Busche, William W.; Bucchianeri, Richard M.; and Kreinick, Stephen J., 265,243, Cl. D24-8.000.
Jackson, Dennis B., to Wiltshire Consolidated Limited. Scissor scabbard. 265,147, 6-29-82, Cl. D3-30.100.
Jenkins, James H. Flush valve closer. 265,228, 6-29-82, Cl. D23-19.000.
Jermyn, Arthur C., to Young Dental Mfg. Co., Inc. Denture retainer implant. 265,246, 6-29-82, Cl. D24-33.000.
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John J. Madison Company, Inc.: *See—*
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Johnson, Allan B.: *See—*
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Beck, Donald; Johnson, Hugh N.; and Jones, Haydn, 265,237, Cl. D23-94.000.
Jolley, F. Carlton. Water purification unit. 265,227, 6-29-82, Cl. D23-3.000.
Jones, Clifford R. Telephone. 265,197, 6-29-82, Cl. D14-53.000.
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Karlyn, Warren T.; and Lindner, Daniel J., to Goodyear Tire & Rubber Company, The. Tire. 265,186, 6-29-82, Cl. D12-147.000.
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Kassai, Kenzou, to Kassai Kabushikikaisha. Toy vehicle. 265,219, 6-29-82, Cl. D21-78.000.
Kay, Ronald D., to John H. Sparks Property Services, Inc. Noise maker attachment for roller skates. 265,222, 6-29-82, Cl. D21-226.000.
Keller, Ernest. Combined water closet and lavatory. 265,235, 6-29-82, Cl. D23-49.000.
Kelley, Craig B., to SCM Corporation. Toaster. 265,160, 6-29-82, Cl. D7-93.000.
Kelsey-Hayes Co.: *See—*
Reid, Donald J., 265,188, Cl. D12-211.000.
Kido, Katsutoshi; and Usami, Satoru, to Matsushita Electric Industrial Co., Ltd. Combined radio receiver and tape recorder. 265,194, 6-29-82, Cl. D14-5.000.
Kintzi, Eldor A.: *See—*
Bunnell, Donald E.; and Kintzi, Eldor A., 265,169, Cl. D8-10.000.
Knight, Joseph L. Scribing rule guide or similar article. 265,211, 6-29-82, Cl. D19-35.000.
Kooles, Charles W., to Energetics Mfg. Co. Stove. 265,240, 6-29-82, Cl. D23-97.000.
Korte, Richard L.: *See—*
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CLASSIFICATION OF PATENTS

ISSUED JUNE 29, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

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CLASS 156

69	4,337,104
87	4,337,105
228	4,337,106
249	4,337,107
285	4,337,108
293	4,337,109
307.4	4,337,110
307.5	4,337,111
351	4,337,112
353	4,337,113
656	4,337,114
659.1	4,337,115

CLASS 160

168 A	4,336,834

CLASS 162

158	4,337,116
161	4,337,117
164.3	4,336,835

CLASS 165

47	4,336,836
104.22	4,336,837
109 T	4,336,838

CLASS 166

59	4,336,839
77	4,336,840
216	4,336,841
276	4,336,842
362	4,336,843

CLASS 172

140	4,336,844
349	4,336,845
776	4,336,846

CLASS 173

118	4,336,847
139	4,336,848

CLASS 174

138 F	4,337,374

CLASS 175

246	4,336,849
393	4,336,850

CLASS 177

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25	4,336,852
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210 R	4,336,854
245	4,336,855

CLASS 179

1 SA	4,337,375
2 EB	4,337,376
2 R	4,337,377
18 FA	4,337,378
115.5 PV	4,337,379
146 E	4,337,380
178	4,337,381

CLASS 180

165	4,336,856
177	4,336,857
179	4,336,858
226	4,336,859
273	4,336,860

CLASS 181

144	4,336,861
200	4,336,862
224	4,336,863
241	4,336,864

CLASS 184

14	4,336,865
15 R	4,336,866

CLASS 188

326	4,336,867
376	4,336,868

CLASS 192

13 R	4,336,869
105 CF	4,336,870
107 C	4,336,871

CLASS 193

2 R	4,336,872

CLASS 196

46	4,337,119
125	4,337,120

CLASS 198

347	4,336,873
458	4,336,874
486	4,336,875
509	4,336,876
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CLASS 200

5 E	4,337,382
51.09	4,337,383

CLASS 202

169	4,337,121
248	4,337,122

CLASS 203

19	4,337,123

CLASS 204

2.1	4,337,124
39 K	4,337,125
98	4,337,126
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107	4,337,128
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192 E	4,337,132
198	4,337,134
213	4,337,135
242	4,337,136
252	4,337,137
290 R	4,337,138
292	4,337,139
	4,337,140
301	4,337,141

CLASS 206

173	4,336,878
323	4,336,879
524.4	4,336,880
525	4,336,881
537	4,336,882
545	4,336,883
575	4,336,884

CLASS 208

8 LE	4,337,142
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785 4,337,158

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45 4,336,888

CLASS 212

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CLASS 215

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CLASS 219

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532 4,337,390

CLASS 221

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171 4,336,893
280 4,336,894

CLASS 222

207 4,336,895
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CLASS 224

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CLASS 226

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CLASS 235

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CLASS 239

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CLASS 328

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426 4,337,511
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136 4,337,528

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CLASS 417

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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

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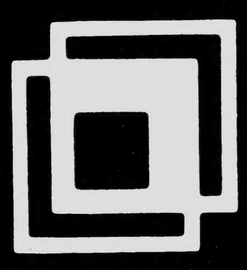
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